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in the Ian Brown Band, on the creation of

tracks from the gold selling album

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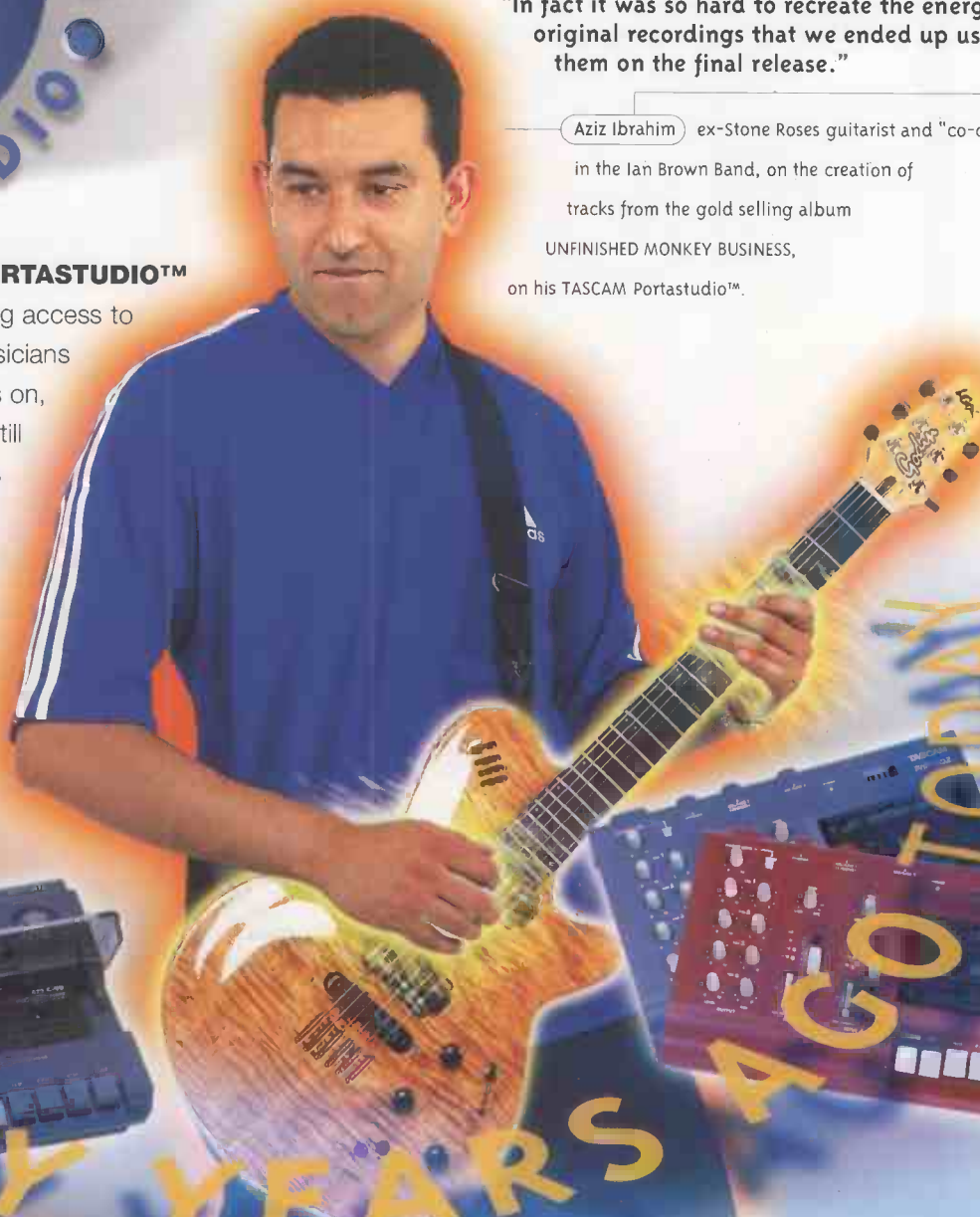
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# studio wars

The MIX ISSUE 61 – May 1999

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Stu Lambert is a partner in Zip Dog Records, a London-based dub label

Cheaper technology, especially digital audio, has allowed more and more people to record a releaseable tune at home. Affordable CD writers and webspace give access to potential world-wide record sales without even leaving your bedroom! This is largely good news. Many of us have been frustrated by running out of time in commercial studios and we now have

ever more powerful means of realising our musical vision, however long it takes.

But for every silver lining there is always a cloud, and I would argue that over-dependence on home studios can damage your musical health. Reading Nick Serre's *Inside A&R* article, (p. 74), I reflected that this is especially true for new acts.

When you visit a commercial studio, you can get much more for your money than a room full of gear and a bod who knows how it all works. The engineer is likely to have worked with many more artists in many more styles than you have and will have picked up – we hope – general wisdom, solutions to common problems and an eclectic repertoire of recording techniques. Many engineers know how to work with vocalists and improve that most important part of a song. They provide an impartial, relatively expert opinion on sounds, arrangements and other things that you may be 'too close to'. They will have worked with signed artists on album projects, so can bring big-

budget techniques to your cut-rate, dead time session. It is in their interests to help bring the finished mixes to the attention of the industry, so studios can be a valuable source of opportunities denied to introverted home recordists.

At home, you can waste hours struggling with gear or software instead of capturing your inspiration. You can get too involved with the music and lose any sense of perspective. It even happens to major acts with too much studio time.

Perhaps worst of all from an A&R angle, you can make music without testing the market by sending out demos or doing gigs. My most depressing A&R problem is not crap demos, but well-recorded material that has no fanbase and won't sell.

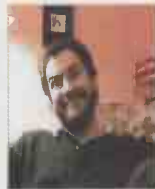
The home studio is great for working up ideas and optimising your studio time by meticulous preparation. But if you depend on it too much without the bracing atmosphere of collaboration and competition on which this industry thrives, you may stagnate.

Stu Lambert

## contributors to this issue



**Jon Musgrave** got into the music biz just three years ago, but has already shot to success as in-house engineer at Roundhouse Studios in London.



**Gordon Reid** When he's not collecting synths, Gordon is MD of world-renowned noise reduction specialists Cedar Audio. Kinda ironic, innit?



**Jonathan Miller** (no relation to the famed man of letters) is our resident specialist in the ancient art of the high-tech sound recording interview. Yowsah!



## 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 Studio Series CD helps you produce better music, by providing a varied monthly selection of collectable studio-quality samples and MIDI files, demos of the latest software and hardware, and audio tutorials demonstrating contemporary recording techniques.

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An all-in-one hard disk recorder and mixer, stripped of the luxuries for a suitably naked price. *Paul Mac* investigates



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Thinking of buying Cubase? Wait until you read *Ian Waugh's* verdict on Steinberg's latest software bundle

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Tascam DA-45HR 56

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### 62 Spirit 328 cover

User report: a year after its launch, Spirit's 328 digital mixer gets a re-visit from beta-tester *Alan Branch*

### 68 SEK'D Prodif Gold

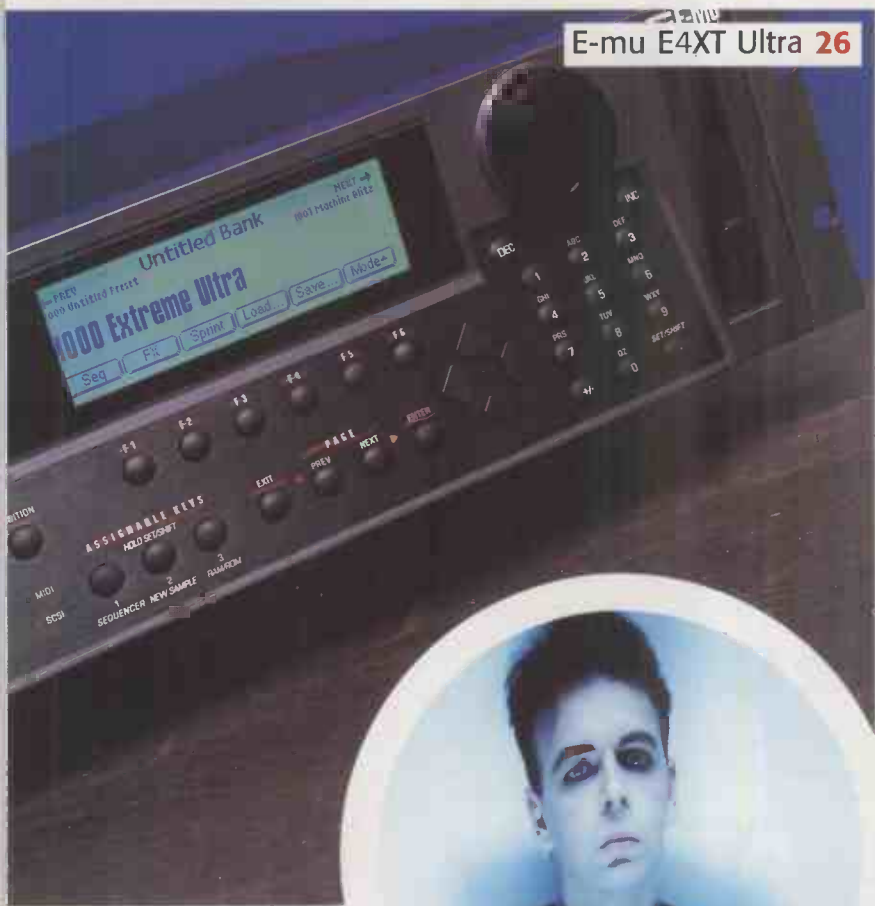
*Danny McAleer* checks out this digital I/O PCI card for PC and Mac, and finds a digital interface that's adaptable enough to grow with your requirements



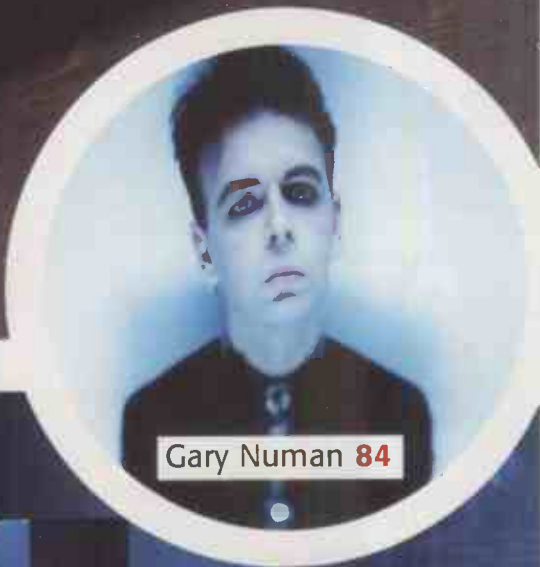
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Competition 90



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**features**

**74 Inside A&R: Part I** cover

*Nick Serre* unravels the mysteries behind those shady blokes with the cheque books, and finds out how to get heard by 'em

**80 Studio File**

Sheffield's Steelworks is a conveyor belt of top pop. *Nick Serre* pays a visit

**84 Gary Numan** cover

*Jonathan Miller* catches up with the ultimate '80s superstar in his new studio

**90 Competition** cover

Alchemea is a serious recording school, and we've got some serious prizes from them. Start drooling now...

**130 Q&A**

This month, it's Creatures' drummer and tech head Budgie in the spotlight. *Nick Serre* talks production

**sound advice**

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Problems in the studio? Our team of experts turn audio agony aunts to solve your technical torments

**104 Petsounds – Peter Gabriel**

We examine the production techniques behind Peter Gabriel's third album, 20 years on

**110 Praise the Loud!**

What makes a record more noticeable? Loudness. Here's how to pump up the volume

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# cd contents

## software



### track 1

#### MAC KoanPro (p. 94)

A demo of this premier algorithmic composition program, now available for the PowerMac. It composes music in a vast range of styles from rave to jazz to ambient, following parameters set by the user



#### PC SSPro (p. 97)

Space Station Pro: a demo of this feature-packed alternative sampler for PC users

#### DSP Factory (p. 97)

New drivers and readme files for Yamaha's DSP Factory card

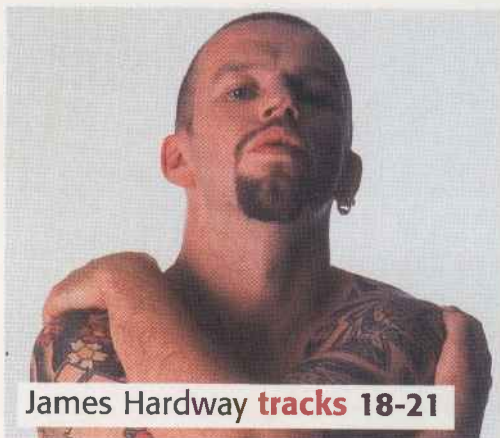
## samples

### tracks 7 - 11

#### Andy Whitmore

Producer of Eternal, Peter André and MN8, Andy shows off some of his favourite analogue synths:

<b>7</b> Oberheim OB8	<b>9</b> Roland Juno 106	<b>11</b> ARP Odyssey
<b>8</b> Prophet 5	<b>10</b> Minimoog	



James Hardway tracks 18-21

### tracks 12 - 13

#### K-klass

House pioneers K-klass take us on a journey through some of their best-loved timbres:

#### 12 Notes:

- (i) String (ii) Brassy (iii) Fat bass (iv) Deep bass (v) Squelch bass (vi) Analogue bass (vii) Sub bass (viii) Fatter bass (ix) Squelchier bass (x) Filter bass (xi) Woody bass (xii) Organ bass (xiii) Rezo bass (xiv) String bass (xv) Warp bass (xvi) Flabby bass (xvii) Pierce bass

#### 13 Effects:

- (i) Manic synth (ii) Ricochet (iii) Loop (iv) Thunder (v) Scream (vi) Rimshot (vii) Motor (viii) Clang (ix) Zap (x) Scratch (xi) Kick (xii) Smashscratch (xiii) Deep kick (xiv) Revving (xv) Reverse Cymbal (xvi) Clanger (xvii) Swirly (xviii) Erupt (xix) Airy storm (xx) Synth crescendo

### tracks 14 - 17

#### Gary Numan

Pop legend and synth guru Gary offers up some sounds from his *Exile - Extended* album:

#### 14

- (i) Aquatica (ii) Dark Face (iii) Trance (iv) Heaven Gate

#### 15

- (i) Tronic (ii) Chug (iii) Camera (iv) Hworr

#### 16

- (i) Tin Town Guitar (ii) Man (iii) Eddie (iv) Moon Door

#### 17

- (i) HoHo Ring (ii) White Train (iii) Digit Size (iv) Welcome

### tracks 18 - 21

#### James Hardway

Drum 'n' bass wizard James Hardway showcases some of his favourite hardcore sounds. All taken from the Magnetic CD *A La Magnetica*:

#### 18

- (i) Filter chord (ii) Backwards string (iii) Thirds, from 'Takeshi Beats' (iv) Hard gate (v) Soft pad

#### 19

- (i) Whistle synth, from 'Hostile' (ii) Dark Pad (iii) Bright chords (iv) Mid chords

## about The Mix 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 our colour coding system 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...



## also available from us



Future Music, Guitarist, Total Guitar, Rhythm, Bassist, Guitar Techniques, Hip Hop Connection, and Classic CD

20

(i) Synth FX I (ii) Synth FX II (iii) Synth FX III

21

(i) Bass synth Arp, from 'Harsh Life' (ii) Arp synth  
(iii) Breath pad, from 'Throwing 6's On All 4's'

## commercial track

## track 2

## Gary Numan: 'Absolution' (p. 84)

'80s synth sensation Gary Numan shows off his latest material, taken from his *Exile - Extended* album. The updated '90s Numan sound is generated from his brand-new Alien Studio, based in the grounds of his Essex home. Numan's trademark ambient vocals collide with eerie synth textures to create a sonic landscape of mysticism

## demo of the month

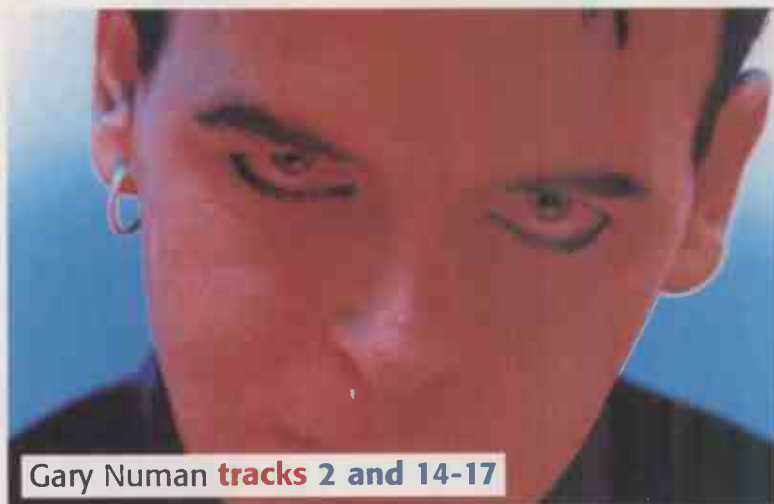
## track 3

## The 4/4 Project: 'Liberated' (p. 114)

Raucous electronica combined with didgeridoos(!) and sultry vocals from Somerset's finest



K-class tracks 12-13



Gary Numan tracks 2 and 14-17



MindPrint En-Voice track 5

## gear demos

## track 4

## Analogue Systems RS8000 (p. 52)

(i) 'Here Comes The Doctor' – comb filter  
(ii) 'Comb Sequence' – 8-note sequence through comb filter (iii) 'Here Comes The '70s' – 8-note sequence modified by programmable scale generator in major arpeggio mode

## track 5

## MindPrint En-Voice (p. 46)

(i) Clean electric guitar through the instrument input  
(ii) As above, fed back through the unit via digital input and tweaked with mid-range frequency control for wah effect  
(iii) Bass through instrument input  
(iv) 12-string acoustic guitar recorded flat with an AKG C1000s through mic input  
(v) 12-string fed back through unit and radically EQ'd

## track 6

## Petsounds: Peter Gabriel (p. 104)

(i) Female vocal: dry, then with Archer mild distortion, then even more distortion (ii) Live drums (room mic): dry, then with Archer distortion (iii) Electric Piano: dry, then with Archer distortion (iv) Drum 'n' bass loop: dry, then with Archer distortion (v) Oberheim synth chords: dry, then with Archer distortion



# news

If it's new and it's music production, it's here. This month we've got the pick of the new gear from NAMM 1999, and more...

## Roland explosion

Digital mixers, processors, reverbs, synths and more...  
Roland made a big splash in LA at the NAMM 1999 show

This year's NAMM show saw a host of new launches, with many of them coming from the Roland camp. Heading up their recording entourage were the new entries to the V-series range, most notably the V-Mixing products, which put Roland straight into the digital mixing fray.

The V-Mixing system comprises separate processing and console units. The VM-7200 (£3,199) and VM-7100 (£1,599) mixing processors contain all of the I/O (24-bit) and two multi-effects processors, while the VM-C7200 (25-fader) (£2,499) and VM-C7100 (13-fader) (£1,999) are all-digital consoles, complete with mix automation (motorised faders), scene memories, 4-band parametric EQ, surround sound mixing, and spectrum analyser.

The V-Mixing system can be expanded up to 94 channels of mixing power, and there are several hardware I/O options to suit any studio.

Also on the Roland stand were the more affordable VM-3100 (£699) and VM-3100Pro (£899) mixing stations, with mixing and effects in 12-channel and 20-channel, 8-bus configurations. And the



The affordable VM-3100 mixing station



Mixing power: the VM-C7200 digital console

new VS-840EX (£999) has been added to the VS digital studio workstation range. It's an expanded VS-840, with more effects, a simpler user interface, enhanced SCSI capability and a ZIP 250 removable drive.

And there's more. Roland's new SRV-series 24-bit digital reverbs made a big hit. The SRV-3030 (£499) and 3030D (£699) use dynamic separation algorithms, so different dynamics, frequency bands and note densities can be treated separately.

Other Roland launches at NAMM included the DS-90 24-bit digital powered monitors (£849/pair), the JV-1010 64-voice synth module (£449), two new wave expansion boards (£255) for XP and JV instruments (Special FX Collection, and Orchestral II), the SRA-200E power amplifier (£449) and quite a bit more besides...

Prices: see text

More from: Roland UK

Tel: 01792 515020

Web: [www.roland.co.uk](http://www.roland.co.uk)



# Peavey mix it up with Cakewalk

Hardware controller provides a physical interface and audio mixer for the popular software package

Peavey's latest foray into the world of mixing takes the shape of the new StudioMix, providing a physical interface for Cakewalk on PC. A hardware control surface, the StudioMix features nine motorised faders, which update automatically to software parameters, 14 momentary buttons, and 18 encoders, which are completely assignable, allowing for customisation of the StudioMix. The unit also comes with an audio mixer section for connection to and from the PC's soundcard, and features analogue level controls for patching in guitars and microphones. In the words of Hartley Peavey, founder and CEO of Peavey Electronics: "This is a serious recording tool for both home and pro studios. It's a one-stop solution."

**Price: expected to be around £870**

**More from: Peavey Electronics**

**Tel: 01536 461234**



# Bitten by Akai

Hard-disk recording enthusiasts should take a look at Akai's new DR16Plus. It's the enhanced version of the DR16 (you'd never have guessed, would you?) and boasts 24-bit recording and 96kHz sampling frequency. The 'Plus' part of the moniker refers to the fact that it features 24-bit data format, without data compression, in addition to the 20-bit packed mode. Both qualities ease the pressure off your hard disk, but there's also a 16-bit mode as well as various sampling rates (from 33 to 96kHz), so the machine is flexible according to your means.

The DR16Plus also features two-channel digital I/O which enable you to record over five tracks and play back over eight. It's compatible with Akai-format samples, and also supports Mac and ProTools MS-DOS and WAV files. You can also daisy-chain it with other machines in your set-up, with no detriment to your sampling accuracy. There are plenty of expansion options, including provision of 16-channel EQ and MIDI and SMPTE compatibility.

Akai have also been working on

updating another digital recorder: the recently-released DPS12 digital portastudio, now with Version 2 software. Thanks to the upgrade, the DPS12 can be used with MMC-compatible CD-R and CD-RW drives which you connect through the SCSI port, and you can also back up multiple projects on a single disk. There's also new time-stretch, stretch insert, and reverb functions. Download the upgrade for free from the Akai website ([www.akai.com/akaipro](http://www.akai.com/akaipro)).

**Price: TBA**

**More from: Akai**

**Tel: 0181 897 6388**



## in brief



You're about to see some big changes taking place at *The Mix* website. In fact,

we're about to completely re-launch the site from the ground up, and our on-line bods are on the case right now to make sure it's bigger and better than ever before. We'll bring you full details when we're fully up and running, but in the meantime, point your browser at our new URL and join our mailing list. It's at:

[www.themix.net](http://www.themix.net)

Plug-ins, plug-ins and more plug-ins! That's what you get free with the April issue of our sister magazine *Future Music*, 'cos they've got over 100 fully working VST and DirectX plug-ins for PC and Mac on their cover CD. Inside the mag, you'll find a test of Yamaha's new CS2x synth, 63 sequencing tips, tests of Ensoniq's Fizmo synth and E-mu's Proteus 2000 rack synth, and tips on setting up a budget studio. It's onsale now!



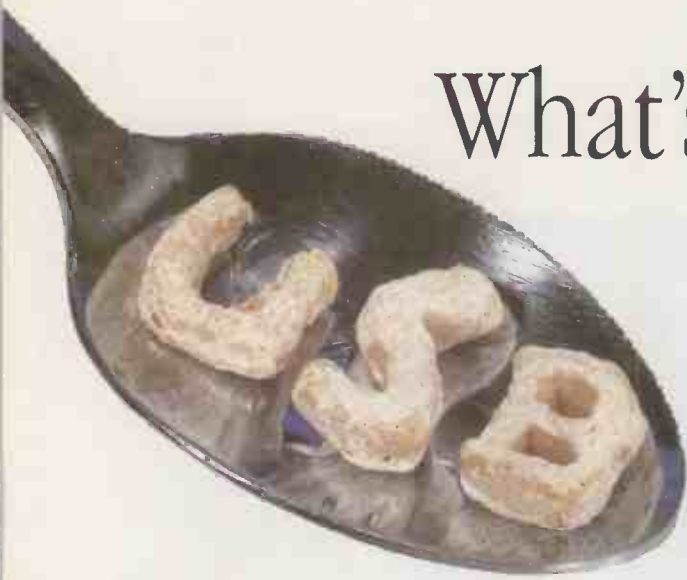
Pro audio specialists Raper & Wayman have launched a new reference publication: *Pro Audio Buyer*. The 48-page magazine is an illustrated product guide to the company's range of over 2,500 products, with detailed information and applications.

**More from Raper & Wayman: 0181 800 8288**

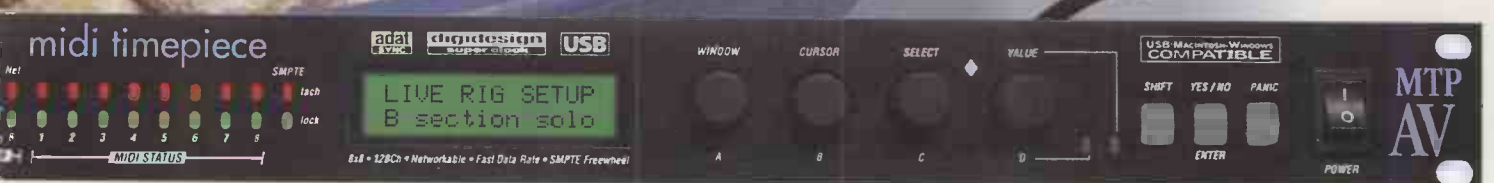
Stirling Audio have set up a new company, Pure Distribution, which will distribute a wide range of audio products to dealers, including Lexicon, Aphex Systems, Panasonic Ramsa and SPL.

**More from Pure Distribution: 0181 328 0660**

# What's Universal Cereal? And why's it on a bus?



Actually...that's Universal Serial Bus, and it's the new standard for moving MIDI in and out of your computer. Most new computers already have it, including Apple's iMac, the latest G3 Power Macs and the Windows PC you may already own. And as the leading developer of MIDI interfaces, we're introducing a whole new line of USB-compatible interfaces with one that's just right for you. Look for them soon at your authorized MOTU dealer or check our web site ([www.motu.com](http://www.motu.com)) for the latest details.



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## in brief



If you're looking for new or used pro audio gear, contact London-based company

Crystal Pro Audio. Set up by Pete Brozman (formerly of Britannia Row) the new company deals with studio and a wide range of other installations, and is also developing a range of audio test equipment.

**More from Crystal Pro:**  
0181 778 3555

Still haven't insured your gear? Take a look at the new interactive website from specialist musical instrument insurers Pavillion Musicguard. With secure site transactions and detailed insuring information, you can get instant quotes and cover over the Net.

[www.musicguard.co.uk](http://www.musicguard.co.uk)

Users of Sonic Foundry's Sound Forge 4.0 digital audio editor can upgrade to version 4.5 for £69. The new version ships with Sonic Foundry's Batch Converter and Spectrum Analysis plug-ins, worth £159 and £119 respectively. Version 4.5 also supports Sonic Foundry's loop-based music creation tool ACID. If you're not already a Sound Forge user, the whole package costs £349.

**More from SCV London:**  
0171 923 1892

Event Electronics have released version 5.5 of their DSP-FX Virtual Pack. It includes operational enhancements and 11 effects including the new StudioVerb plug-in. Event say that the new StudioVerb produces "the very dense, warm reverberation sound previously only available in high-end studio systems." Get a demo from the web: [www.event1.com](http://www.event1.com)

**More from Key Audio:**  
01245 344001



# Alesis hit the woof

Digital stalwarts Alesis showed off a total of 11 new products at January's NAMM show in LA "Musical invention should never be hampered by technology," commented the company's executive vice-president Allen Wald. Amen, brother. So let's take a look at the new products of interest to the record producer...

The S1 Active Subwoofer (£449) is a reference source for monitoring the low frequency channel in multichannel surround monitoring. Use it in conjunction with the M1 Active (check out last month's news) and you've got a standardised playback source for stereo or 5.1 surround sound monitoring.

The ADAT Studio Pack (£1,999) is a complete digital recording and mixing system in a reduced price package. It comprises the ADAT-LX20 20-bit recorder, Studio 24 recording console, NanoVerb digital effects processor, NanoCompressor stereo compressor/limiter, a full set of connecting cables, and an instructional video.

The DM Pro (£799) is an expandable 20-bit MIDI drum module. With a total of 1,664 sounds, 64-voice polyphony and the ability to import new

sounds through ROM expansion cards, it's Alesis' ultimate drum and percussion device.

For analogue-to-optical bi-directional conversion, check out the 8-channel AI-3 (£399) interface. This 1U rack module offers eight balanced 1/4" TRS inputs and outputs and 20-bit A/D and D/A converters.

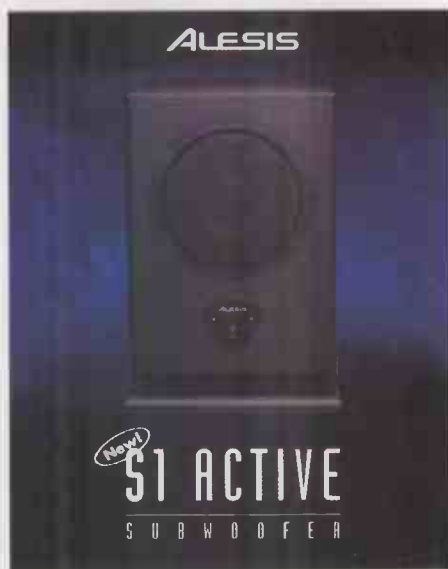
ADAT users looking for affordable nonlinear audio editing should look out for ADAT/EDIT (£349). Consisting of an interface card, audio editing and audio transfer software and full cabling, it allows the addition of hard disk editing and signal processing capabilities to ADAT systems.

And finally, Alesis' new analogue division GE Electronics are shipping their first products: four large-diaphragm studio condenser mics. The AM51 (£449) and AM52 (£549) are

class-A FET mics, with cardioid and selectable polar patterns respectively. The AM61 (£749) and 62 (£999) utilise an all-tube preamplification signal path, again with cardioid and selectable polar patterns.

**More from: Sound Technology**

**Tel: 01462 480000**



# dbx's Quantum leap

The purveyors of quality signal processors, dbx, have some new armoury up their sleeve in the form of the Quantum Digital Mastering Processor. Packing "virtually every necessary mastering resource" (they say) into a 1U unit, the Quantum offers a digital multi-band compressor, limiter, expander, gate, parametric EQ, de-esser, normaliser and dbx's renowned Type IV conversion system. As well as compatibility with 48 and 96kHz rates, and boasts a 48-bit internal signal path. 50 factory presets are supplied, as well as 50

custom preset locations, which can hold information on sample rate performance, MIDI setup and SysEx functions. Add to that the comprehensive display, using a hybrid of graphics and characters and icons (it can even provide a composite 'output versus input' plot of the audio signal), and its flexibility in terms of connectors, and it looks like a definite winner.

**Price: £1,499**

**More from: Arbiter**

**Tel: 0181 202 1199**



## in brief



When the long-awaited Novation Supernova synth arrived last year it made a crater of

an impression. In fact, it was voted Best Synth Of 1998 by readers of our sister mag, *Future Music*. Now there's a follow-up in the shape of the Nova (£849), Supernova's desktop sibling. You lose a handful of voices of polyphony, and you get a desktop module rather than a rack unit, but it looks just as good, and its 12-voice polyphony and six-part multitimbrality should keep everyone happy.

**More from: Novation:**  
01628 828888

Waves have launched a couple of new software bundles for Mac and Windows 95/98/NT users. Native Power Pack II (£399) is a comprehensive collection of plug-ins and utilities, including the MaxxBass, DeEsser, Renaissance EQ and Renaissance Compressor plug-ins. The TDM Bundle II (£799), a 'must-have' for TDM users, comprises all of the above plus the PS22 StereoMaker.

**More from SCV London:**  
0171 923 1892

Nagra-Kudelski have announced the launch of two new high-performance power amplifiers aimed at the audiophile and pro user, and utilising both vacuum tube and solid-state design. The Nagra MPA is a 250-watt/channel stereo amplifier which can be fitted with an RCMI option to transform it into a fully remote-controlled integrated amplifier. The VPA, meanwhile, is a 50W per channel mono amp with an output switchable from 30Hz to 40kHz. The careful design means that distortion and feedback are minimised, and you can also add your own specifications, so it comes built-to-order.

**More from RT Services:**  
01235 810455

Nagra: classy amplification



# Fostex announce new CD-R

The latest hard disk recorder from Fostex was launched at NAMM. The D-108 follows in the footsteps of the D-90 with eight tracks of recording and playback, plus another 16 virtual tracks for more editing flexibility. Major new graphical features have been implemented for fine editing and preview functions, including a level envelope display at edit points. The D-108 supports Wave files and data transfer to and from DOS-formatted media, and there's a built in SCSI-2 interface for fast backup. The D-108 comes with optical digital audio I/O for S/PDIF and ADAT interfacing. Hardware options include the 8354 timecode/sync card, and the 5040 balanced I/O option.

Also new from Fostex is the VM04 digital mixing console. This small wonder has four input channels (two line, two mic), digital and analogue stereo master outputs plus 20 DSP effects. The 24-bit internal data processing runs the effects and the console has a 2-band EQ, as well as all the usual mixing functions. Automation takes the form of a 20 'mix scene' memory. Fostex are aiming this unit at

keyboard submix, live, and digital effects send applications.

Lastly, Fostex have announced the CR300 CD-recorder, compatible with both CD-R and CD-RW media. It features four CD-RW erase modes, balanced XLR analogue I/O, AES, S/PDIF, and optical digital I/O, selectable fade in/out, built-in sample rate conversion, support for FDMS data and selectable copy status.

**Prices:**  
D-108 £1,099  
VM04 £249  
CR300 ETBA

**More from: SVC London**

**Tel: 0171 923 1892**

D-108: Eight tracks of digital recording/playback



# Could it be Emagic?

The NAMM show saw a golden wondrous release for software and hardware manufacturers Emagic, who have upgraded their Logic Audio Platinum and Gold for the Mac to version 3.7. It's got extended support for Yamaha's DSP Factory, support for Bitheadz DS-1 software sampler, increased audio streaming performance, more accurate meter readings and numerous other enhancements.

Users of 3.5 and 3.6 can download the upgrades free of charge from the Emagic website ([www.emagic.de](http://www.emagic.de)). There are currently no plans for a version 3.7 for Windows, but Emagic say Windows users can look forward to some exciting news emanating from the Frankfurt Musicmesse in March.

On the soundcard front, Emagic also launched a new version of their Audiowerk card, unimaginatively titled Audiowerk2. The card includes various bundled software plus analogue and digital outputs, and is due for release later in March.

And that's not all. The bounty of releases from Emagic also encompasses a version 2.0.6. of their SoundDiver cross-platform editor librarian. SoundDiver now supports 390 different devices, with even more upgrades expected later in '99. Registered users of 2.0x can again download the free upgrade from the

Emagic website.

There are also two new products: the AMT8 active MIDI interface for Mac and PC, which can be used on its own or as an add-on to the Unitor8 interface; and WaveBurner CD mastering software for Mac, for mastering Red Book-compatible audio CDs with CDTEXT support. It'll all be released some time in March.

**Prices: Audiowerk 2 £199; AMT8 £349; WaveBurner £149**

**More from: Sound Technology**

**Tel: 01462 480000**





## battle of the bands

Don't forget to send in your entries in for the Holsten Pils – Yates's Undiscovered Originals of 1999 competition. It's your chance to beat unsigned bands and artists from all over the country for the coveted title, *plus* win prizes worth thousands of pounds, including:

- £5,000 worth of new band gear
- a day's pro studio time to record the winning track
- 200 CDs of the winning track will be distributed to top record companies with the endorsement of *The Mix*
- the winning track will be featured on the cover CDs of *The Mix*, *Future Music*, *Guitarist*, *Total Guitar* and *Guitar Techniques*, reaching over 150,000 musicians and industry pros.

Simply fill in the entry form in last month's issue of *The Mix* and send it, with your demo, to the address stated. Hurry, the closing date for entries is April 2 1999. Lost your entry form? Call Paul Goodwin on 01442 870161 and he'll sort you out.



## next month in THE MIX

### CD-R frenzy

We've got *another* CD-R for you to feast your eyes on. This time a real visual spectacle in HHB's trademark purple livery: the CDR-850.

### More purple power

If you're into classic processing, the new Purple Audio box is sure to tickle your fancy. It's a new compressor/limiter with a distinctly retro pedigree.

### Pass the mic

For those in search of a microphone, we've got a new large-diaphragm condenser from top Ozzie manufacturers Rode.

### You want plug-ins?

We've got 'em. The TC Works Native bundle will be making an appearance next month, complete with the sort of high-quality reverb you'd expect from the TC camp.

### Inside A&R: Part II

Find out *exactly* how today's top acts got signed in the finale of our special A&R feature. Plus, we ask record label A&R heads who they've signed, why they signed 'em and what they're looking for next.

### Terminal studios

One of the most respected rehearsal studios in London is celebrating 20 years in the biz. We get the inside story from the London-based facility that has been host to the most famous bands in history.

### Ian Dury

The original Blockhead takes us on a trip through his latest, self-produced album.

### Aspen Pittman

The Groove Tubes maestro talks valves and mics.



HHB CDR-850



Rode's new condenser mic



A&R: The Inside Story – Part II

## Don't miss the June issue of *The Mix* – onsale 20 April



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Compact Disc Recorder

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**DAWSONS**  
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**EDDIE MOORS MUSIC**  
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**THE GUITAR & AMP CENTRE**  
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**KGM / SOUND CONTROL**  
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# Competition!

## Win a FwS FREQue

DACS and *The Mix* bring you the chance to own this creative processor, worth £599

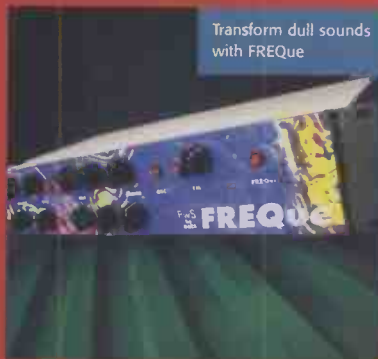
Last month our reviewer Seb Pecchia tested the DACS FwS FREQue ring modulator. It's a colourful companion to any effects rack and could give you the creative spark that your tracks need.

Ring modulators basically output the sum and difference of two input signals, so 100Hz and 200Hz inputs would give you a output that consists of 300Hz (sum) and 100Hz (difference). You can imagine that with normal input signals, the result can be pretty mad. Hence the FwS; no guesses what that stands for!

In fact, the FREQue has two internal oscillators that provide modulation signals, and they can even modulate each other, though you can also use an external one. In the review, Seb said, "Fans of techno and dance music will find this thing great, simply trigger the sound from a keyboard and twiddle, by physically switching and tuning up and down, all manner of strangeness happens... Just plug the unit in, and FREQue out, baby!" For more information, check out *The Mix* issue 60, p. 61.

To win a DACS FREQue, just answer the following question:  
An input of 200Hz and 400Hz to the DACS FREQue will give you what output?

Send your answer on a postcard to: *Freak Out compo, The Mix, 30 Monmouth St, Bath, BA1 2BW. Entries must be received by 20th June 1999. Employees of Future Publishing and their relatives cannot enter.*



# HHB go forth

The LA NAMM show was awash with HHB's distinctive purple colour scheme. The CDR850 (£899) is a new, affordable, pro CD-R machine compatible with both pro CD-R and CD-RW media. It's a 2U box with full control over copy prohibit status, fade in/out times, auto track increment levels, and auto stop delay, plus sample rate convertor on/off, and a margin level indicator. There are four recording modes with both index and track numbering.

On the speaker front, HHB have launched the active (£699/pair) and passive (£349/pair) versions of the Circle 3 desktop monitors, and the Circle 1 powered subwoofer (£969), designed to be used in a surround sound system with their Circle 5 speakers.

More from: **HHB Communications**

Tel: 0181 962 5000

Web: <http://hbb.co.uk>



# CD-R

## WE JUST CHANGED THE RULES



Thought you couldn't afford a fully loaded, professional CD recorder? Well HHB just changed the rules. The stunning new HHB CDR850 combines cool looks, a great sound and a budget-friendly price with all the features you need for serious studio use, easily accessible from the front panel via a straightforward menu system.

The most comprehensively equipped CD-R in its class, the CDR850 uses both write-once CD-R discs and CD-RW rewritables, and makes recording a one touch operation, thanks to four easy record modes,

auto copying of CD, DAT, MD, DCC and DVD track starts, and a built in sample rate converter.

Things are equally impressive round the back, where you'll find XLR balanced and RCA phono analogue inputs and outputs, coaxial and optical digital I/Os, plus an additional AES/EBU digital input. And peace of mind comes as standard with a full

12 month parts and labour warranty, and the build quality you'd expect from a world leader in CD-R.

So if you thought you couldn't afford a fully loaded professional CD recorder, get down to your HHB dealer today and check out the new CDR850.



Developed specifically for professional audio use, HHB CD-R media sets the standards for performance, compatibility and archival security. Pictured left to right: HHB CDR74 Silver, HHB CDR74 Gold and HHB CDR74 Gold P (printable) discs. Also available: HHB CDR Bulk (not pictured).

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D I S T R I B U T I O N

in brief



M is for MIDIMan, but it's also for M Audio, MIDIMan's new digital audio

division, which caters for the new products they're introducing for the computer-based digital recording market. These include the USB MIDISport 2x2, a MIDI interface with two ins and two outs that'll slot into the USB ports on your PC or Mac. That should keep iMac users happy, anyway. There's also the BiPort 2x4s, another cross-platform device, this time a MIDI interface for Mac and PC with SMPTE control and a built-in SMPTE timecode reader and writer.

**More from MIDIMan UK:**  
01205 290680

Want to buy music from the net, but wary about how to do it safely? European company MODE have developed a new system with a perfectly secure infrastructure which also enables one-to-one selling. MODE will receive tracks directly from record companies and then deliver these straight to the buyers, streaming in CD quality in real time if necessary. The system allows you to make payments directly to the copyright owners, and also guards against unauthorised copying, so it's a case of no pirates allowed.

**More from MODE:**  
01349 868304

Otari have introduced the DP-10 series of CD-to-cassette copiers, allowing 8x and 16x copying without the need for hard-disk. The DP-10 is compatible with the current range of Otari in-cassette copiers, including the DP-8 and DP-4050 series.

**More from Stirling Audio:**  
0171 624 6000

Summit Audio have officially introduced the new MPE-200 mic pre-amp and 4-band EQ. It's the first of the new Element 78 product line, with more to come soon. The MPE-200 has 25 memory settings and can copy settings via MIDI.

**More from HHB:**  
0181 962 5000

# Three times a Lexicon

The Lexicon studio system received a boost at NAMM with the launch of the LDI-10T, and shared the limelight with the new MPX G2 processor and Signature 284 tube recording amplifier.

The LDI-10T is a high quality I/O for the Lexicon Studio System, an I/O, DSP, signal routing, and synchronisation hardware solution for PC and Mac-based audio systems. It includes 10 simultaneous audio channels (eight analogue, two digital) with switchable input gain, 24-bit conversion, and timecode input. Up to three LDI-10T's can be linked together with the LX3 multi-interface adapter to give 24 channels of 24-bit analogue conversion, and six channels of S/PDIF I/O.

The MPX G2 processor is built with guitarists in mind. It's designed to work with any amp, adding effects without altering the tone of your beloved combo or stack. There's two separate signal paths, so you can put effects both in front of the amp, and in its effects loop, or you can use it as a standalone pre-amp with effects.

Also from the Lexicon 'Custom Shop' product line,

the Signature 284 amplifier is an all-tube, class A stereo amp and direct source intended for use in recording guitars. The pre-amp uses three 12AX7 tubes and the power amp section uses two EL84 tubes. There's also a tube driven stereo effects loop for added effects.

**More from: Pure Distribution**

**Tel: 0171 624 6000**



# Yamaha farm grows

Yamaha's DSP Factory range of PCI cards is growing again. The latest addition is the AX16-AT, which allows transfer of up to 16 tracks of digital audio to and from the DS2416 audio card. It also allows the DSP Factory computer-based digital audio production system to be interfaced with an array of audio devices including digital multitracks and digital consoles.

Two pairs of ADAT-format optical connectors are provided, for transfer to the DS2416 card at resolutions up to 24-bit. Simultaneously, Yamaha have released Mac drivers for the DS2416 PCI card. Control interface software will be available from Cakewalk, Emagic, Steinberg and Sonic Foundry, among others.

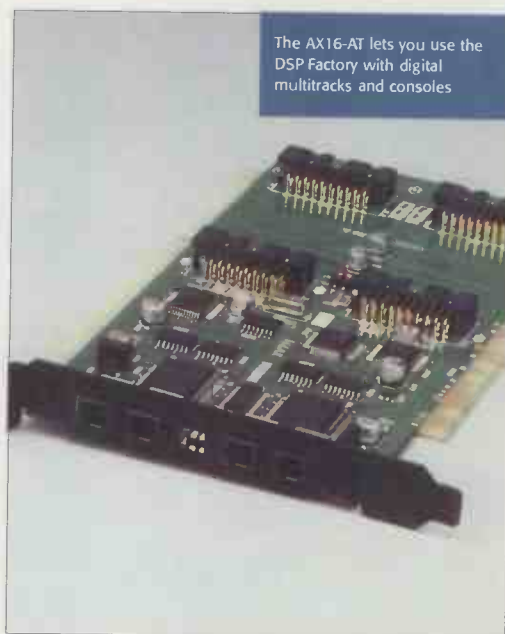
Richard Hodgson, Yamaha Pro Music Division's marketing director comments: "At last the very large numbers of Macintosh owners who have expressed a desire to buy DSP Factory can be catered for. The demand for DSPF since the PC version was launched in August has been sensational, and the support from the software companies has been invaluable."

**Price: £199**

**More from: Yamaha-Kemble**

**Tel: 01908 369269**

The AX16-AT lets you use the DSP Factory with digital multitracks and consoles





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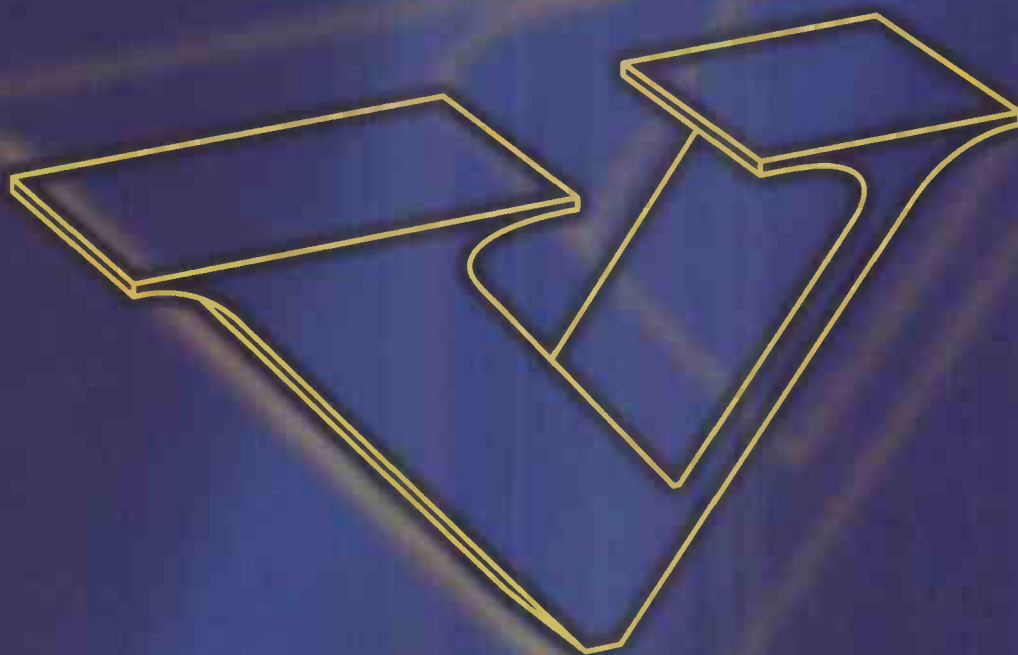
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# Brand new line-up from Tascam



DA-40 DAT machine: even better than the new DA-30?

Tascam's industry-standard DAT recorder, the DA-30 MKII has some new competition from Tascam themselves in the shape of the new DA-40. Features include trim controls for the analogue XLR outputs, two memory locate points, variable auto ID time setting from one-half to three seconds, auto END ID recording, and variable Record Mute times from two to seven seconds. The DA-40 also features a shuffle/data dial, SCMS-free recording, D-Sub 15-pin parallel interface, independent left and right channel analogue level controls and a CAL/UNCAL level switch for the analogue inputs. It's a 3U rackmount machine, and has an optional wired remote control. With a signal-to-noise ratio of better than 92dB, a dynamic range better than 93dB, and a competitive price point, it is promised to wow.

Tascam are also releasing the 424 MKIII Portastudio, with an expanded 8-channel mixer section, the CD-D4000 CD duplicator, and CD-RW5000 CD Recorder imminently. They're busy chaps, ya know...

**Price: DA-40 £TBA CD-D4000 £899 CD-RW5000 £899**

**More from: Teac UK**

**Tel: 01923 819630**

## in brief



Soundscape have announced details of new EDL software for interfacing

between video editing systems and soundtrack editing using Soundscape SSHDR1-Plus digital audio workstations. The V2.0 EDL Processor can identify from an EDL or Audio Project file which sections of audio from the source material are required to match the edited video.

**More from Soundscape: 01222 450120**

Following on from our review of the Yamaha SW1000XG in issue 58, there is some even more up-to-date information on DSP Factory supporting software at the following websites: Steinberg Cubase VST/24 V3.6 - ([www.steinberg.net/products/dspfactory/index.html](http://www.steinberg.net/products/dspfactory/index.html)) Emagic Logic Audio Gold or Platinum V3.6 - ([www.emagic.de/english/product/s/index.html](http://www.emagic.de/english/product/s/index.html))

**More from Yamaha: 01908 366700**

FastTrak Software Publishing are following up their Dance eJay PC software with Dance eJay 2 in May. Newly implemented is a 16-track stereo recording studio and a 'Groove Generator' for creating drum samples, and it comes complete with three brand new samplekits.

**More from FastTrak: 01923 495496**

The UK Office has been appointed sole UK distributor for the Millenia Media range of products. These include the NESEQ-2 2-channel, 4-band parametric EQ, and the TCL-2 2-channel opto compressor/limiter.

**More from The UK Office: 01442 870103**



# TerraTec on the world

TerraTec's acclaimed range of EWS PCI cards has just been augmented by several new additions to the range. The flagship EWS64XXL includes the AudioSystem EWS64L sampling and hard disk recording card, together with a new Digital Xtension microWAVE PC, developed by TerraTec and Waldorf.

The card boasts an analogue stereo input and four channel outputs with 18-bit conversion, along with a 64-note polyphonic sampling synthesizer, as well as multimedia compatibility including SoundBlaster Pro and Microsoft Sound System. The Digital Xtension microWave PC module fits in a 5 1/4" drive space, and provides a host of interconnections including S/PDIF and MIDI. And, most importantly, it contains all the DSP processing power of the Waldorf microWAVE XT synth. Bundled with the EWS64XXL comes Steinberg Cubasis AV-XL and a host of other software making it easy to get up and running.

**Price: £749**

**More from: TerraTec**

**Tel: 01600 772111**



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# Extreme speakers

The design team at loudspeaker manufacturers Jamo were given a brief to celebrate the company's 30th anniversary last year: to create a speaker that would look at home in an art gallery, have woofers that would kick like a mule, be detailed enough to capture delicate violins, vocals, and keyboards, and do it all for less than £750 a pair. The result is the new X3M series – here's a look at the spec:

**X3M: brief spec**

- 3-way bass-reflex floor-standing monitors
- 1" dome tweeter
- two mid-range drivers
- front-firing bass port
- 8" (X3M8) or 10" (X3M10) bass driver
- frequency response 32Hz-20kHz
- brightness controls

Jamo's Danish factory/HQ churns out a million plus speakers annually.

**Prices: X3M10 £750; X3M8: £599**

**More from: Jamo UK**

**Tel: 01327 301300**



# Digital 8•bus extras

Fresh from a lawsuit settlement in the US with distributors Sam Ash Music, and now with a new distribution centre in the UK, Mackie Designs have announced more fixtures and fittings for their flagship Digital 8•Bus console.

The new software, Real Time OS Version 2.0, adds many new features at no extra cost to the user. There's a new Graphic Automation Editor, four user selectable EQs, solo latching, solo isolate, surround sound bus solo isolate, record safe, the ability to link multiple consoles and more. The EQs include two 'British' types (two shelves, and two mid parametrics) and two 4-band parametric EQs.

Mackie have also announced four new hardware options for the Digital 8•Bus. First is the Apogee Low Jitter Clock I/O, with BNC word clock I/O to ensure no-compromise convertor and digital audio performance.

The PDI•8 provides eight channels of AES/EBU format I/O. Each stereo input includes real time sample rate conversion (if needed) and Apogee's UV22 Super CD Encoding process is available on the outputs for recording to 16-bit media.

The upgraded 24-bit DIO•8 interfaces with ADAT and Tascam digital standards and allows for a 24-bit

stream. The good news is that existing users can have their original cards upgraded at no extra charge.

Finally, the UFX (Universal Effects) card is a hardware processing engine that allows third-party software plug-ins on to the Digital 8•Bus. Each card can run a maximum of four effects simultaneously, and you can fit up to four cards into one console.

**Price: £8,995**

**More from: Mackie UK**

**Tel: 01268 571212**



## in brief



Square Circle Software's WaveSurgeon is now available for Yamaha's EX

range of synthesisers (EX5, EX7 and EX5R). WaveSurgeon is specifically designed to automate the process of editing drum loops (or any other loops, for that matter), as well as offering the possibility of transposing loops without altering the tempo and changing the speed without affecting the pitch.

**More from Square Circle: [www.squarecircle.force9.co.uk](http://www.squarecircle.force9.co.uk)**

Marantz Professional have announced their new CDR640 mastering CD-R/RW machine. It's aimed at the high-end professional mastering market. Marantz say that it has, "every possible feature and operational capability required for its intended high performance applications." They have also announced the new PMD650 portable MiniDisc recorder.

**More from: Marantz Professional 01753 686080**

3dB have officially launched the first four items in their DELTA range of audio products. The DELTA420 is a 4-input, 20-output distribution amplifier with switching matrix; the DELTA44 and DELTA4 are dual and single stereo balanced to unbalanced converters; and DELTA45 is a bi-directional stereo balancing unit.

**More from: 3dB 01797 225400**

CopyTrax Technologies are launching a new high-capacity CD-R printer. The Art Master Auto can print up to 50 CD-Rs in one session.

**More from Specialist Media Technology: 01604 743120**



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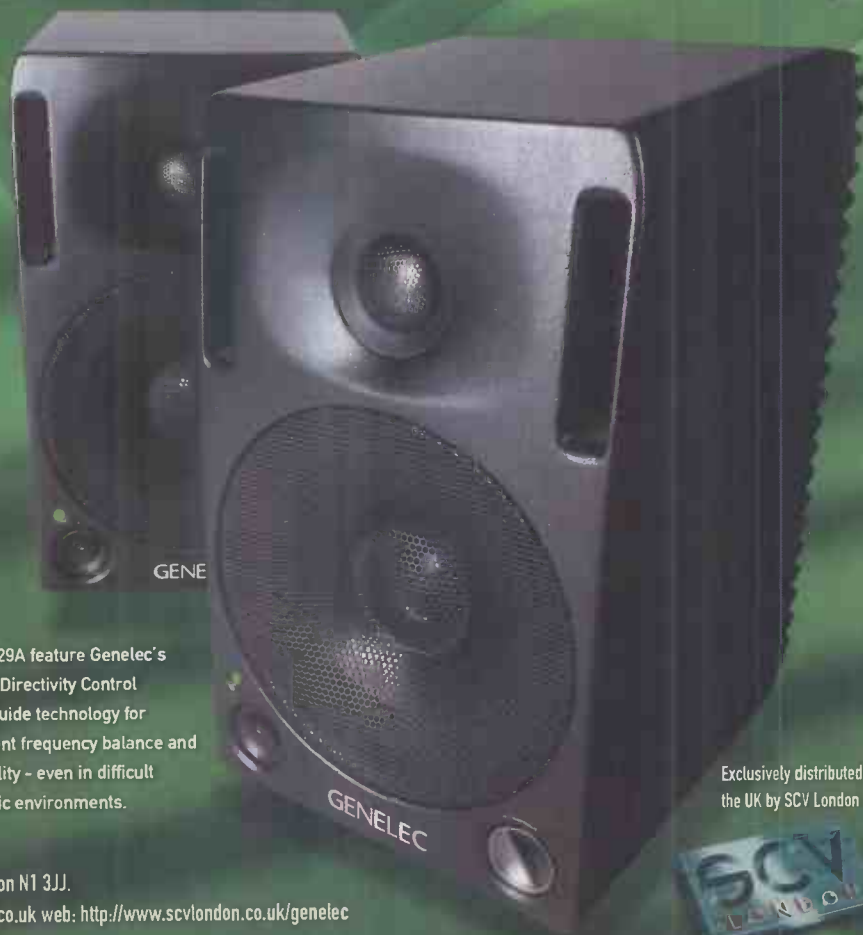
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ACTIVE MONITORING

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# open mic



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Got something on your mind? Here's your chance to have your say. *Open Mic* is an interface between you, other readers, the audio industry, the record industry and us. So let's be 'avin your letters!

## We do!

*Our Letter of the Month in issue 59 posed the question of why some universities don't accept A-Level Music Technology. Here's a response...*

I have seen the letter from Martin Hughes about the Music Technology A-level. We are in the second year of a BSc (Hons.) in Music Technology and at present have about 100 students. It is going to be our most popular course this year!

We accept both A-level Music and A-level Music Technology as A-levels for the course, and our normal offer is 12 points at A-level for entry.

I agree that there are not many books of a suitable level for HE. At present our lecturers are busy producing their own courses based on their experience. However, in a few years' time there will probably be an influx of information.

**Angela Dean, Admissions Tutor, Staffordshire University**

*Anybody out there looking at higher education opportunities in Music Technology should take note of this one.*

*Nice place, Staffordshire.*

*It would be nice to hear from more universities and schools, teachers, lecturers, administrators, and students on the subject of Music Technology in education. That includes everything from the kit you use as part of music lessons to your thoughts on the A-level syllabus and what universities should be teaching.*

## Making tracks

I wonder if you would be interested in hearing about my music project? I have been a bed-bound paraplegic for 14 years and have been involved with a music project for the last year which is supported by Yamaha-Kemble, Roland UK, and Pioneer,

just to mention a few of those involved. I hope I will be able to personally fund a medical trip to the USA through my music.

After having a number of my demo tracks played by BBC Radio Derby, and receiving support and encouragement from Jyoti Mishra of White Town (who recorded the No.1 hit 'Your Woman' in his bedroom), I have finally received a five-year publishing and recording offer from R.T.T. Music in Norway, which I am considering. You might agree that this is quite an achievement for someone in my situation. I do need help though, as I need to know what I should expect from the contract, and also if anyone knows anything of the label making the offer – Musical Arts. Please visit my Music Project

<http://www.innotts.co.uk/~rur/music.html>.

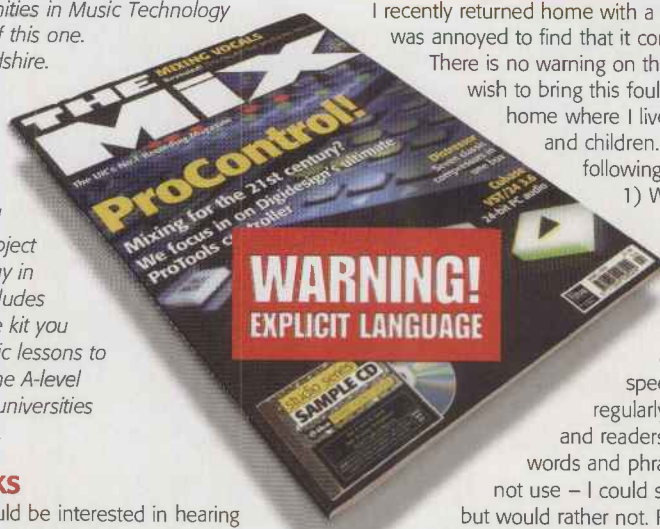
**Paul Simpson, email supplied**

## Bleeping The Mix

I recently returned home with a copy of *The Mix* and I was annoyed to find that it contained foul language.

There is no warning on the cover and I do not wish to bring this foul language into my home where I live with my wife and children. May I ask the following questions?

- 1) Why do you find the need to include foul language in your otherwise brilliant magazine? Please do not use the argument of free speech, because you regularly edit your own work and readers' letters. There are also words and phrases that you would not use – I could supply you with them, but would rather not. Foul language is used in everyday speech amongst friends and workmates, but not in unknown company. After all, we have a 9:00 p.m. watershed on TV and warning labels on CDs.



2) Do you get some sort of adolescent thrill out of printing foul language?

3) Do you feel that printing foul language increases your 'street cred'? Nothing would be lost if you refrained from printing foul language, and you would keep this reader.

**Alan Mallett, email supplied**

*Technical editor Paul Mac replies:*

*We're glad you think the mag is brilliant (start with the up-beat). Sometimes we do include 'swear words' though nowhere near as gratuitously as your letter*

*might suggest. Normally, it is part of a non-editorial, first person contribution (an interviewee's words, a reader's letter, and so on) where the character and integrity of the contribution would be lost if we started chopping it up. We always have, and will continue to be, cautious with gratuitous language, though we can't guarantee a swear-free mag. We suggest that anybody who takes exception to the language should only read The Mix after 9:00 p.m. And note that we resisted the obvious two word reply to your letter – that's willpower, that is.*

**Paul Mac**



An idealistic teacher busy moulding the future generation of sound pro's

## sound bites



**Don't just sit there reading and fuming.** Write to *Open Mic* and join in our furious debates on the hottest topics...

### 303 obituary

Can we now lay the analogue synth to rest? Can new technology completely replace the old and do away with outrageous second-hand prices for 'classic' hardware?

### Consumer press

Where do you buy your music gear? A retailer? Mail-order? Second-hand? Why? Do you go for after-sales service and reputation, or is it down to the lowest price?

**Write to us: Open Mic, The Mix, Future Publishing, 30 Monmouth St, Bath BA1 2BW**

**Or email us: themix@futurenet.co.uk**

## Win this ace baseball jacket

The author of the best letter we receive each month wins this fabulous Shure baseball jacket. So get thinking and writing – it could be you!



## letter of the month



### Shout about the bits

Yo! Chris Burmajster wrote saying he's got two Pioneer 96K DATs and can barely hear the difference between 44.1K and said sample rate. Well, he won't on those machines. He will, however, on a 24-bit machine whacking in the samples like an F15 on drugs.

There is a difference – it's more analogue-sounding, and in theory that is where we are going, I guess. There's thick and there's thin sound. In another letter, you mention the Orban Optimod; that will make even my thin piddly mixes sound good on air because it adds equalised compression, space and harmonics.

I have been digital since early 1989, with two Yamaha DMP7s, which I still have working. Now, the D-As on those 16-bit beasts (with the faders full up) were shit. The sound was clean though, underneath the digital hiss. You can't polish a turd after all.

Around the same time, I bought a digital editor from Micro Technology Unlimited of North Carolina, USA, simply because they were the only ones to reply to my enquiry. The entire system cost me near \$30,000, (now less than five grand). The soundcard is a Rev J and it's 18-bit dithered. The sound on that is exceptionally good, but clean. The system is tremendous, reliable and exceedingly clever, but that is by the by.

Their latest card, the Krystal, uses 24-bit Motorola thingies, still 44.1 or 48K or whatever sample rate you choose. Plug that in and man – if you don't hear the difference, you've either got someone's legs around your ears when you should be working, or you ain't got ears. We have two systems running on crappy PCs, so it's the cards and the converters, nothing else.

Now, all this 18 and 24-bit stuff is still dithered to 16 bits, but the power of the sound is getting better all the time. Never mind the 96kHz sample rate, Nyquist himself would tell you that that was not necessary, if he wasn't in a lot more than 24 bits himself now.

Oh, we too have a website. It's at [www.rollyourrown.net](http://www.rollyourrown.net), but like everything else in this business, we put it up about a year ago meaning to finish it, but never got round to it. We will sometime. There's still a lot of stuff on there if you are interested in what we did with a simple Pro1 and an Akai DR8.

By the way, to get into FutureNet is harder than getting a word out of Monica Lewinsky. I keep forgetting my password and navigating it is like trying to find your way round Venice blindfolded in a Gondola with a hole in it.

**Geg Hopkins, email supplied**

*It's about time we did some definitive testing, isn't it? Anybody else want to add to this discussion? You don't need a password to browse FutureNet. If you haven't tried it, get on over to [www.futurenet.com](http://www.futurenet.com) for loads of stuff on Future Publishing's mags. On the music side, give SampleNet a try: ([www.futurenet.com/samplenet/](http://www.futurenet.com/samplenet/)), and don't forget our own brand-new site: ([www.themix.net](http://www.themix.net)).*

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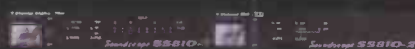
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### Who tests the gear

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 our 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!

### Impartiality

Reviews in **THE MiX** are in no way biased towards certain manufacturers. We will deliver an impartial verdict on a product whether or not a manufacturer advertises in this magazine. Our first duty is to you, the reader, and our goal is to give you the best possible advice on buying equipment. We will not hesitate in exposing sub-standard equipment.

# reviews

On test this month: E-mu's fast and slick E4XT Ultra sampler, serious budget multitracking with the Fostex FD-8 digital 8-track, compact analogue mixing from SoundTech, and more



**THE MiX**  
EDITOR'S CHOICE

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, while the 'Best Value' award will go to the product that offers the best price/performance ratio.

# E-mu E4XT Ultra

## Sampler

**Price** £2,799

**For** Fast processing Ⓢ Brilliant 'Beat Munging' feature makes loop manipulation easy Ⓢ Filtering and modulation take the trophy out, as well

**Against** Doesn't make coffee

**Verdict** A new sampler with a proven interface and plenty of power under the hood

It looks like we're in for another sampler war. We've just seen the launch of the new Akai samplers, with their posh new front panels and WAV compatibility, and now E-mu have struck back with the Ultra advantage – major hardware and EOS upgrades for samplers to drool over. It's possible that we'll see a few more samplers throwing down the gauntlet before the year is out, as well.

At least the sampler isn't dead. The new surge of computer-based soft-synths has completely failed to replace the rack-mounted powerstations of this age, though they do serve a noble convenience and cost-conscious need. The only ones to infiltrate the professional market have been Digidesign with their Mac OS based SampleCell II, and that's because it's actually a piece of sampling hardware with a software interface.

It's all about time. We've had a couple of years' drought where progress in the sampler market is concerned, because manufacturers have been concentrating on computers, active monitors, and digital desks. Now, hot on the heels of E-mu's own APS computer-based system, comes the Ultra series, most notably, the E4XT Ultra.

### Overview

Those of you who know the original E4XT will recognise the front panel. Not a lot has changed in that respect, which is good news for old hands in the E-mu game, because they'll have no trouble at all negotiating the new features.

Newcomers should be comforted by the fact that the E-mu samplers have one of the easiest interfaces around. The large LCD display gives you options along the bottom simply selected with a push of the

corresponding function key, and on-screen parameters accessed by the cursor. And once you've got the hang of E-mu speak and the way an E-mu sampler deals with samples, voices, presets, and multitimbral set-ups, it's a breeze.

Although the front panel looks strikingly similar to the original E4XT, what lies behind it is quite a bit different. E-mu have gone for a new 32-bit RISC processing core, with speedy DSP and hard disk access to match. They claim that this speeds everything up, from the MIDI response time to the hardcore file processing speed that is the mainstay of sample editing. That much is obvious from just loading up a preset, or performing some of the many processor-intensive file procedures. We had the opportunity to compare the E4XT Ultra with one of its predecessors. Everything was quicker, and not just by a hair either. Loading processes

that take a few seconds on the E-Synth were almost instant on the Ultra; file-based processing, like time-stretching, takes a bit longer, but the Ultra was finished and sitting around having a cup of tea and a fag before the E-Synth had shown much progress at all. All very impressive stuff.

Before we get onto the nitty gritty, we have to mention Beat Munging. If you haven't heard of it, you haven't been listening. It's one of those features that you realise samplers just have to have... once you've experienced it. Briefly, the E4XT Ultra can take a percussive loop, decide where the beats are, what the beats are, and how best to mess around with it, then give you the tools to do it. If there really was such a thing as artificial intelligence, the Beat Munger would be a professor.

There's quite a few more features to tell you about, but first, you need to know what makes an E-mu



### specifications

<b>Voice polyphony</b>	128
<b>MIDI channels</b>	32
<b>Presets</b>	1,000 RAM 1,000 internal/flash
<b>Layers</b>	32
<b>Zones</b>	255
<b>Crossfade/switch zones</b>	128
<b>Sound memory max</b>	128Mb (RAM, flash, or ROM)
<b>Filters</b>	6th order, 21 types
<b>Data encoding</b>	20-bit
<b>Effects engine</b>	24-bit internal processing
<b>Analogue outputs</b>	8 balanced jacks (upgradeable to 16)
<b>Analogue inputs</b>	Stereo balanced jack
<b>Digital I/O</b>	AES/EBU, optional 16 out/8 in ADAT card, Word clock

words **Paul Mac** images **Gavin Roberts**



Better, stronger, faster...  
the all-new E-mu E4XT

sampler tick. The answer is EOS, or E-mu Operating System. It's behind everything you do on an E-mu sampler – just as the Apple Mac OS stays familiar while all around the hardware is building up and speeding up. The manual for the E-mu isn't really an E4XT manual, it's an EOS manual. Improvements in hardware make improvements in EOS possible. The version of EOS that ships with Ultra units is V4.0.

At the basic level, EOS deals with samples. These are the raw material, the sound files that feed the rest of the machine. Once you've got a sample on a keyboard (which is automatic), with filtering and envelopes, and cords modulation settings, you've got a voice, which can be made up of a number of sample zones. Voices contain the filter settings, envelopes, modulation settings, and so on. Once voices (one or more) are assigned to a complete keyboard with performance parameters, like effects, set, they make up a preset.

### Sample stuff

Sampling on the E-mu is pretty much standard fare. Once you've set up your I/O and method, thresholds, and so on, just get on with it. Remember that there's always the option of resampling the output of the E-mu, so if you can 'perform' a new sample, with its modulations and effects and so on, you can resample it. This is especially good if you don't want to use a

effects processor on a single voice or sample.

Once the sample is inside (usually assigned to a voice) you've got many options – most of them under the tools menus. There were three tools menus in the E4, now there are four. The first covers all of the basic sample manipulation, like looping and fades, and so on. You'll find this section particularly easy to work with as it's simply a waveform display with movable start and end points and various tools along the top, like zoom in and out, fades, and auto finds. That last one saves a lot of time messing about with sample accurate loop point moving. The E-mu will find suitable loop points in the vicinity of your start and end points, and will try again whenever you ask.

Another highlight of the Tools 1 menu is the Beat Calculator. Ever been stuck trying to add samples to time, or convert BPM to samples, and so on? The Beat Calculator can do it without the string of arithmetic written along your console's scribble strip.

The Tools 2 menu covers the core sample processes: DC filter, left/right swap, stereo/mono conversion, reverse, and integrity. The DC filter is for imported samples that suffer from a DC offset, and the integrity feature examines a sample for



**Ins and outs**  
E4XT Ultra comes complete with AES EBU digital I/O and word clock



The eight standard analogue outputs are upgradeable to 16

### price guide

There's actually three different units in the E-mu Ultra range, all rackmounts. The E-6400 Ultra is at the basic end, with the E-Synth Ultra next, and then the E4XT Ultra. Both the E-6400 and the E-Synth can be upgraded all the way to E4XT standard. You can even go further than that with an extra eight analogue outputs, the ADAT option, and more RAM (up to 128Mb). Of course, there's always the ROM cards, and flash ROM cards for fast access to your favourite sounds. Here's the prices:

- E4XT Ultra**  
64Mb RAM, 3.2Gb hard drive, Digital FX, 128 voices, 32 MIDI channels: £2,799
- E-Synth Ultra**  
16Mb ROM samples, 16Mb RAM, Digital FX, 64 voices: £2,269
- E-6400 Ultra**  
18Mb, 64 voices: £1,799
- Polyphony**  
128 voice £469
- ADAT digital I/O**  
16 output/8 input £429
- Upgrade**  
D-WAM, wordclock, ASCII, MIDI £299
- R-Chip**  
32 channel studio effects processor ETBA
- E-Synth ROM**  
£229
- Orbit/Phatt ROM**  
£229
- Flash ROM**  
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£659

⌘ glitches or dodgy data, and fixes them. Tools 3 has the more advanced stuff: gain change (including normalise), compression, parametric EQ, aural exciter, and phase linear filter. The aural exciter is a licensed Aphex process (the famous one), and the phase linear filter includes all the usual filter varieties, but they operate without playing havoc with the phase, which is a process normally reserved for high-end processors.

Tools 4 has all the really cool stuff. Existing E-mu users will recognise the transform/multiply function. This is another unique feature that E-mu have become well known for. It takes two samples and merges one with the other in a morphing, modulated, vocoded kind of way. Sorry, that's about as specific as it gets. You end up with a completely new sample with traces of the old ones – good for finding inspiration and wasting a Sunday afternoon. Old hands will be pleased to know that the speed of this function has been improved by several magnitudes.

Time-shift and pitch-shift are both in Tools 4, with improved algorithms and speed. New bits consist of bit conversion (downgrading samples for that grungy thang), stereo Doppler shifting (neeeeowm goes the car), and the much-publicised Beat Munging.

### Munge away

We mentioned the Beat Munger earlier, and hopefully whetted your appetite a little. In a massive piece of understatement, it really is quite clever. It's like this: you get your sample, and give it to the Beat Munger. As soon as you've done that, it thinks for a moment or two and tells you how many beats it thinks it has, what the time signature is, and what the tempo is. Incredibly,

it tends to get it right as well. After that, you can adjust all manner of things to get the perfect loop, and then export it as a new sample.

The Beat Munger's analysis procedure works best on smaller samples, and it's obviously intended for percussive content rather than anything ambient, though if you do throw something unusual at it, you're guaranteed an interesting result. There's several stages

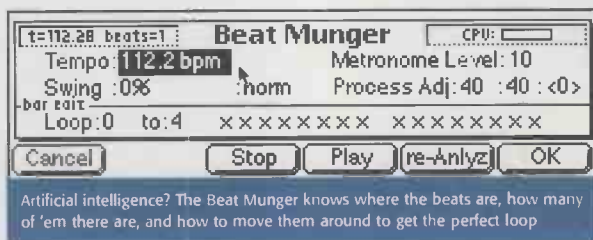
of analysis, but overall it's a kind of spectral and energy analysis, together with a look at the overall length and the positioning of what it recognises as the beats.

Once that's in the bag, you can get on with some real-time Beat Munging. In the top left of the Munger display is the BPM count. You can change this up or down in tenths of a BPM, which should be accurate enough for anyone. You can also use this to give the Munger a helping hand. We tried a vocal sample, and small adjustments of the BPM got everything ship-shape.

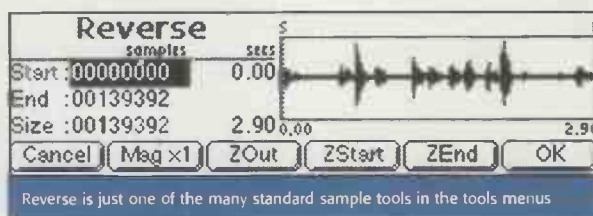
Next is quantising. Yes, the Munger will quantise the individual beats for

you, calculated in percentages. Once you go over 75% you start introducing swing quantising (rather like groove quantising in Cubase). In addition, there's a swing factor parameter – either slow, normal, or fast, which roughly correlates to the swing style (laid back R&B compared to speed jazz – kind of).

To aid the whole process, there's two tuning parameters. One is the amount of information that stays in the sample, and the other adjusts the crossfade times when the Munger does its chopping. Small changes in these parameters smooth out the end result, but big ones have quite unique characteristics, a kind of grungy harmonic thing. Something to try.



Artificial intelligence? The Beat Munger knows where the beats are, how many of 'em there are, and how to move them around to get the perfect loop



Reverse is just one of the many standard sample tools in the tools menus

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### bundle magic

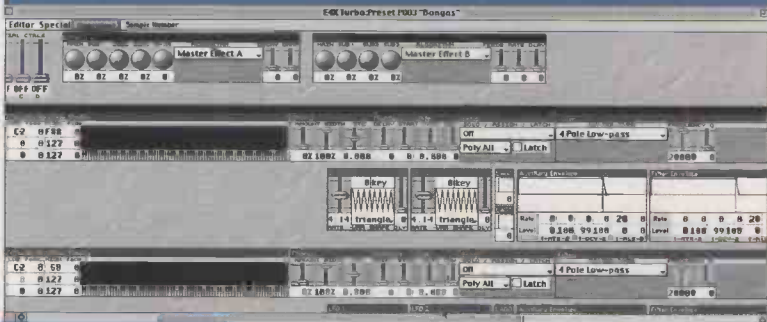
The E-mu Ultra series comes complete with a bunch of software to give us all a much easier life. It's a sensible selection, with a bit more than just an OEM version of Logic.

First, you get a copy of Gallery Software's EOS link, a very cool little program that gives you the E4XT Ultra front panel and EOS screen on your computer. Edit your synth in the same way as you would normally, but from the comfort of your computer chair.

Also, you get the Emagic Sound Diver for your E-mu. This is fairly sophisticated librarian and management software that's become a standard in the bundled software world. Again, it's useful if you prefer to stick to your computer screen.

Mac users can opt for Bias Peak waveform editing software, which for some, cuts down the hassle of sample editing on an LCD screen. This also offers a bit more variety in effects and manipulation, as if there wasn't enough already!

It's rumoured that the PC option will be Steinberg's Wavelab software, which really needs no introduction. However, don't quote us on that. It's best to check with E-mu when you're ready to buy.



SoundDiver librarian/management software is one of the programs bundled with the E4XT

⊞ For actual beat manipulation, you get the choice of start and end beats, so you can shift emphasis and timing on a whole-loop scale. There's also a line of 16 'X's on-screen that represent the beats in your sample. By selecting these you can chop them out and so adjust the time signature of your loop, as well as kill the snares. Beat Munger does a butt edit using the cross-fade parameter and you end up with a (hopefully) seamless new loop.

We've taken a lot of space to explain the Beat Munger, but with good reason. This is a truly new feature, not just an expansion of old ones. It hands faster and more intuitive loop creation and editing to the user, which can only be good. So, a sampler can compete in a computer's world.

### Voice box

Every voice in the E-mu has three envelopes, a choice of filters, and a set of cords (we'll come to those in a moment). The envelopes are amplitude, filter, and general. Although all can be used as modulation

sources (even destinations), the amplitude and filter envelopes have obvious primary functions. The third is there purely as a modulation source for that voice.

The choice of filters in E-mu products has always been a big selling point, even more so now that filters and movement in those filters is considered one of the staple effects in dance music. The E4XT Ultra has 12 filter types, which is quite a lot, really. The filters range from the mundane band pass and pass that brigade, through more adventurous types, like sweeping filters, and onto the E-mu speciality of morphing filters (remember the Morpheus?). These clever little buggers actually interpolate and morph between filter settings and give the kind of animated tonality that today's hit-meisters just cannot seem to do without.

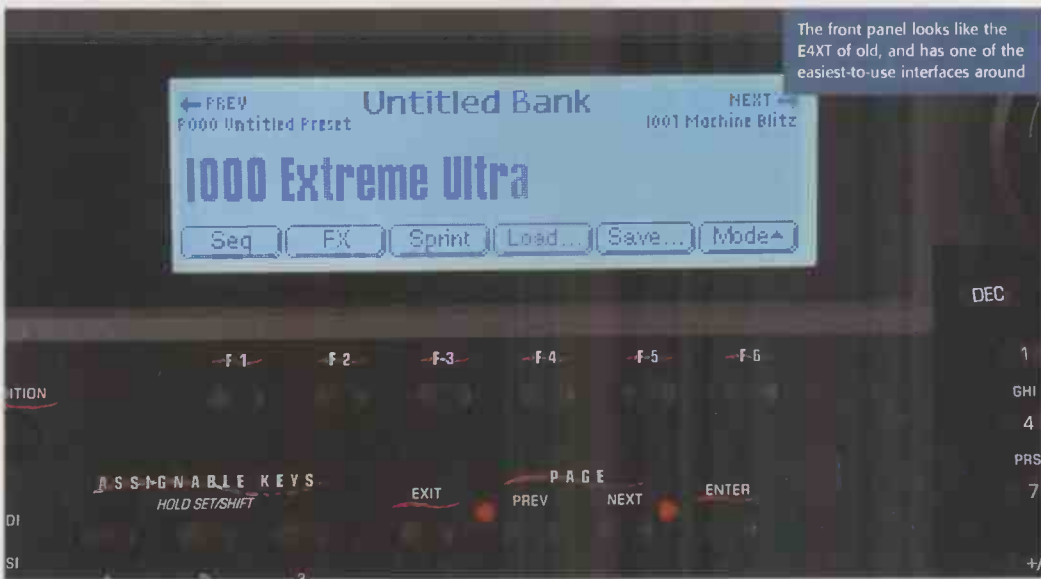
If you're unfamiliar with the concept of parameter modulation, then you should have paid more attention in analogue school. The old patchable synths worked by using varying signals to change how a stage worked – like throwing an LFO signal at an amplifier and getting a tremolo effect on the signal. The digital age has brought even more adventurous patching opportunities, where most things can modulate most other things, like a slowly rising pitch wheel controller moving the centre frequency of a filter.

Now, modulation is confusing at the best of times. You set up one or two sources and one or two destinations, and suddenly you're desperately seeking the ones you've set up already because something isn't quite right. You lose track of your patches, and then you don't speak to your sampler for a few days. Well, the E4XT Ultra allows up to 25 different modulation connections, and even those connections can modulate each other. Just about every parameter is a potential modulation destination, and the sources are too numerous to mention, from the usual auxiliary envelope to three LFOs, MIDI clock, and controllers.

Okay, to make sure that modulation is a feature you don't ignore for another day, EOS gives you the whole lot on a plate in the form of cords. Dial up the cords display on the E-mu, and you can see them all – well, one page at a time of course, but they get quite a few on a page. It's as easy as moving the cursor around and selecting your sources and destinations with the rotary encoder. On the Akai, for example, each page (filter, envelope, and so on) has its own modulation parameters. On the E-mu, you get to see everything at the same time. It makes you want to be creative!

All E-mu's Ultra range, including the E-Synth Ultra, can be upgraded to E4XT standard (see box, p. 28)





The front panel looks like the E4XT of old, and has one of the easiest-to-use interfaces around

The sources and destinations are on the same list, and there's a massive selection to choose from. In fact, it is more like using an analogue synth than ordinary modulation patches, because in addition to the usual stuff you get all sorts of modifiers, like summing amps, DC switches (half wave rectification), lag (delay on a timecode source) and diode (full range swing), to name but a few. From this you'll guess that you can use destinations as sources, and in that way build up a string of modulation connections, which gets pretty mad. Also, you can set cords (and other stuff like filters and amplitude envelope) across groups of voices, which adds yet another dimension.

### In use

There have been moans about almost all operating systems ever invented. Akais weren't the easiest things to get around, until the new S5000 and S6000 samplers came along. Now they're much better. The thing is though, that EOS, according to most E-mu users, has always been easy to use. So easy, in fact, that they haven't needed to change the fundamentals – they've just added new features.

It's a big manual, but you could probably get round 80% of the E4XT without more than a few glances at it. The extra 20% ain't so difficult either.

And then of course there's the speed, one of the main complaints about previous incarnations of EOS. Well, there's no more worries on that score. Yes, some things take longer than others, but that's the laws of physics, not shoddy software.

Need more confidence? Well, the software in the review model was beta software, still being tested by the UK branch of E-mu. To its credit, it only crashed once during some random button pushing, which spells good news for users of the shipping version of the software.

And we haven't even touched on the sequencer and arpeggiator, maybe because so many people prefer to stick to the computer versions. Even so, for those people who prefer to work through ideas without a mouse at hand, it's quite a bonus, and has had quite a few improvements since the last (slightly scratch-pad) affair.

### Verdict

A modern sampler is an emotive piece of audio equipment. You play around, exploring all the possibilities, and then you just can't stop thinking of ideas even after you've walked away from it.

And so it is with the E-mu E4XT Ultra. The prime example is the Beat Mungler, which hands you new loops on a plate, encouraging you to fiddle and faff until that magic moment comes along. It adds a major creative and time-saving aspect to the sampler.

For many people, a sampler is the big investment, the centre of their set-up, and they need to know they're getting good value. The whole Ultra series is good value, both in pure money terms, and with regard to future expansion and growth. You can add ROM cards, flash ROM, memory, outputs, inputs – all manner of cool stuff

at a fraction of the initial investment (the literature even mentions a 32-channel effects processor, which sounds promising).

The E-mu E4XT Ultra sampler isn't just a bigger and faster version of what's gone before, it's a new machine. A new machine you should definitely have in your studio. ☺



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When you buy an E4XT Ultra, you don't just get a sampler. You also get eight sample CDs, plus a demo. The latter is designed to show you just what is possible with the Ultra, with bits n' pieces cooked up by the E-mu team, while the sample CDs are all from E-mu's extensive sound library, and cost anything from £75 individually. The eight bundled CDs are:

#### Emulator standards

A selection of the sounds that made this pioneer in the sampling world famous. All those gruff meaty samples that you wish the digital age hadn't done away with. Includes strings, brass, percussion, oohs and ahhs, guitars, synths, and organs

#### More Emulator standards

More samples from the grandad of popular samplers.

#### Orchestral

E-mu are well known for quality orchestral samples and these are no exception. Includes just about every standard instrument in the orchestra, including section samples

#### Sound FX

Bit of a BBC job this. Outdoor ambience, thunderstorms, vacuum cleaner, drill, and many more.

#### World instruments

A good selection of the more unusual instruments around, but doesn't have anything particularly strange. Mainly European and ethnic standards

#### World percussion/ensembles

Again, a good range of the standard world samples, this time all percussion. Includes Latin, African, Tibetan, and Indian hits

#### E-mu classics

Synth classics, starting with E-mu (Morpheus, Proteus), and on to Roland, Wurflizer, Rhodes, Yamaha, Vox, and Mellotron

#### Vintage

A nice range of the obvious and not so obvious: tone wheel organs, pianos, Prophet, ARP, Jupiter and Juno series, guitars, and electro percussion



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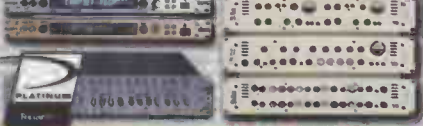
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# FOSTEX FD-8

## Digital 8-track

**Price** £699 (£799 with IDE drive)

**For** Easy to use Ⓞ 16-track mixdown Ⓞ Great price Ⓞ 8-channel ADAT interfacing

**Against** No 'insert' edits Ⓞ Optical digital only Ⓞ Needs more locate memories

**Verdict** An all-in-one hard disk recorder and mixer, stripped of the luxuries for a suitably naked price

Do you ever feel like you've paid for features you're never going to use? Do you want the option to expand your recording set-up as you see fit? The Fostex FD-8 is a hard disk recorder, editor, and mixer, with everything you need and no more. This could be the best option for serious multi-tracking on a budget. As long as it passes the test...

### Overview

The Fostex FD-8 is actually two units packaged in one box: an analogue mixer, and a digital hard disk recorder and editor. There is no automation control of the mixer, and there are no built-in effects. What it does have is comprehensive MIDI synchronisation facilities and the ability to mix up to eight external sources with the eight recorded tracks, so it would seem to be a good choice as a partner to your MIDI set-up. Vocals, harmonies, and guitar, for instance, could occupy the FD-8 alongside your MIDI sequencer, and then you could have both come together through the FD-8's mixer.

The FD-8's 'multitracker' title takes on several different meanings, depending on what your input of choice is. There are only two on-board analogue-to-digital converters, which translates to a maximum of two different simultaneous analogue sources. In addition, there's a dual-purpose optical digital input, which takes either an 8-channel ADAT source, or a 2-channel S/PDIF source. If you go in with an ADAT connection, you can record on all eight channels simultaneously. If you go in with an S/PDIF connection, you can team up with the two analogue sources and record up to four different sources.

The recorder section uses the choice of an internal

IDE drive and two external SCSI drives, which can be fixed or removable (though simultaneous track record is limited with Magneto-optical drives). While there are eight recordable tracks, it's also got another 16 additional tracks. These are not quite virtual tracks, as you can only play back from the real tracks, but they do serve as a kind of pasteboard within the project as you can move audio freely between real and additional tracks.

The editing facilities comprise move-paste, copy-paste, and track copy functions, plus delete. This opens up into a fairly flexible system when you start messing with the time base as you get tempo maps, quantised edits, and a metronome, as well as other bits and pieces.

The best way to explore the FD-8 is to look at a simple recording and editing job, starting from the mixer. Aside from the main choices we've already covered, you can get analogue signals into the mixer either through unbalanced jacks or the two balanced XLR sockets (channels 7 and 8), which have high, medium, and low input level selections so you can customise the input amp for microphone, guitar, and line level-type inputs. There's no phantom power, though.

### Straight up

The other alternative is the Recorder In stereo input. With this you can get a stereo signal straight to the recorder, bypassing the mixer. It's also connected to the L/R monitor out bus for use in 16-channel

### 16-channel mixdown

Because of the clever monitor routing, you can mix 16 channels of audio to a digital stereo master recorder, like a DAT or CD-R machine, using just the FD-8. Imagine you've recorded on all eight recorder tracks, and want to combine these with eight external inputs (from, say, a synchronised MIDI set-up). All you do is connect up your external sources, say, eight outputs from a sampler, select Track (hard disk recorder output) as the input source for all channels, and select L/R + Mon as the monitor source.

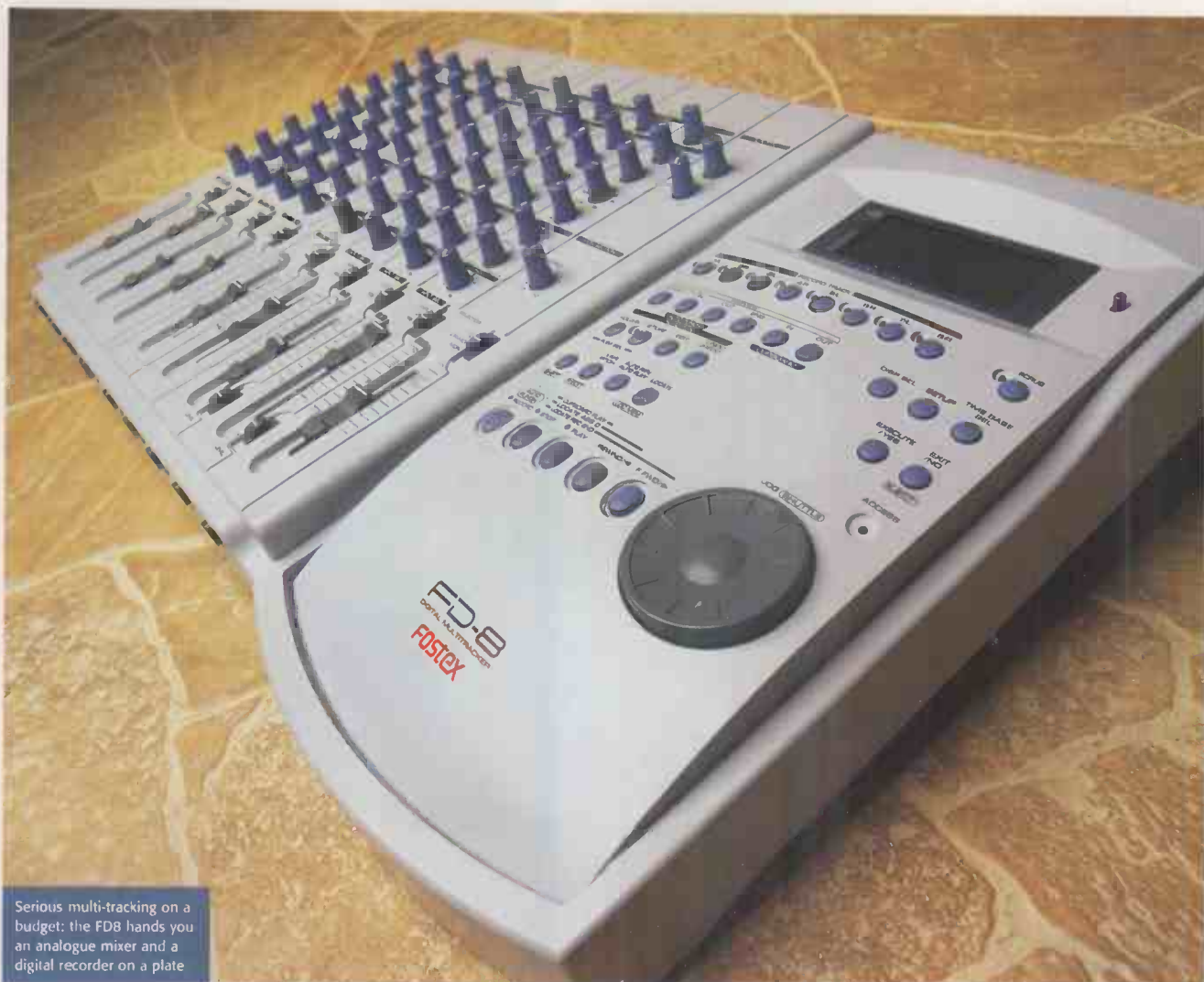
Now you use the channel faders to adjust recorder track levels, and the monitor mix controls to adjust the external input levels. Everything comes out of the stereo monitor outputs. Just connect those to the Recorder In sockets, and everything gets pumped onto the main stereo bus. You can then assign that stereo bus to the digital outputs and send it off to your mastering machine. Nooo problem! Just the job when you're messing with microphones and MIDI.



### Fade away...

The FD8's faders form part of the analogue mixer section

words **Paul Mac** images **Gavin Roberts**



Serious multi-tracking on a budget: the FD8 hands you an analogue mixer and a digital recorder on a plate

mixdown (see box). Channels 7 and 8 also have insert points for in-line processing, such as a compressor on vocals.

Every channel has access to auxiliary sends 1 and 2, and there are two stereo auxiliary returns, but you can't route these returns into the recorder – for that you'd need to return them to an input channel. Channel EQ is 3-band, with a swept mid.

The channel/recorder routing is not too difficult, but the manual doesn't exactly hand it to beginners on a plate. On each channel you select an input source, either an external analogue input, or from the corresponding recorder channel (for bouncing and mixing). That signal then goes onto the main L/R bus via the EQ and a pan control. As well as supplying the main L/R output, the stereo L/R bus feeds the FD-8's two analogue-to-digital converters. The 'left' converter feeds the odd-numbered recorder tracks, and the 'right' converter feeds the even-numbered tracks. The track arm buttons determine which tracks will actually record something.

So you can record to all eight recorder channels if you like, but channels 1, 3, 5, and 7 (left pan) will record the same thing, and so will channels 2, 4, 6,

and 8 (right pan). This changes when you introduce digital inputs, which connect directly to your choice of recorder tracks. An 8-channel ADAT input records to all tracks, and a 2-channel S/PDIF input records to whatever two channels you choose.

### Downtown buss

The other major stereo buss in the FD-8 mixer is the monitor bus. Every channel has a monitor level control with two feeds, one from the external input to the channel, and one from that channel's corresponding recorder track. Turn the level pot all the way to the right, and you send only the recorder output to the monitor bus; turn the monitor level all the way to the left, and only the channel input goes to the monitor bus. Anything in between is a mix of the two. The Monitor Pan control determines the stereo positioning of the monitor feed.

You then get a choice of three sources to emerge from the monitor outputs of the FD-8: Mon (monitor buss only), Mon+L/R (monitor bus plus stereo bus), or L/R (stereo bus only) – all very clever indeed. This way, all your recording and monitoring tasks, including overdubbing (where you want to hear a

### Extra, extra!

The most basic FD-8 is too basic. You can't do much with no recording media! If you buy the FD-8 with an internal 2.1Gb IDE hard drive, then add £100 to the basic price (£799), which is a pretty good deal by anybody's standards. Of course, if you've got a decent SCSI drive sitting around at the studio, you can use that, but make sure that it's on Fostex's 'qualified' list. Even removable media like a SyQuest *exflyer*, or an Iomega Zip drive will do the job, and you get the advantage of archiving these disks. Using one as a back-up drive is a very good idea. Any way you look at it, the FD-8 is an economic way to build your studio.

specifications

Analogue I/O

- ① 8 unbalanced channel inputs
- ② 2 balanced channel inputs
- ③ 2-channel direct record in
- ④ 2 stereo aux returns
- ⑤ 2 insert points
- ⑥ 2 aux sends
- ⑦ Stereo monitor out
- ⑧ Stereo L/R out

Digital I/O

44.1kHz 16-bit linear, S/PDIF or ADAT

Recording medium

External SCSI device, Internal IDE hard disk

Recording format

Fostex Disk Management System 3

Tracks

8 real tracks  
16 additional tracks

Simultaneous recording

8 tracks (optical ADAT)  
2-4 tracks (2 analogue, 2 S/PDIF)

Simultaneous playback

8 tracks

Recording modes

44.1kHz ADAC (normal), 44.1kHz 16-bit linear (mastering)

Vari-pitch

±6%

Crossfade

10mS

Frequency response

20Hz-20kHz typical

Dynamic range

90dB typical

Ⓜ mix of the recorded material, plus any new inputs you're recording) are reduced to a couple of knobs and source selections.

Learning the recorder

The recorder section, you'll be glad to know, is much simpler. The track arm buttons decide what tracks record, and the transport controls do the usual play, rewind, fast forward, and record stuff. Everything else, from punch-in recording to track editing, is based around a cueing and locate system that takes maybe ten minutes to fathom completely.

Basically, there's six main memory locations, plus a generic locate space. All of them hold a time position that the FD-8 uses for various functions. There's Punch In and Punch Out memories for jumping in and out of record, together with Auto-start and Auto-end memories. These last two give the auto play and auto repeat functions (looping and return to point) their coordinates. So you can run through a Punch record or a rehearsal section over and over again. There's also a footswitch socket for manual Punch In and Out recording.

The other two main memories are the clipboard in and out positions. Setting these gives you a region selection for track edits such as copy and paste. The extra locate memory is useful for all sorts, including as a scratch board when you're cueing memory locations.

Getting to these locate points is simple enough as well. You can approximate the position on the fly with the Hold button, then do the fine tuning with the scrub wheel or by editing the numbers. In scrub mode, the meters show an approximation of level over time, so you can use both your ears and your eyes to hit the perfect spot.

One particularly good cueing tool is the Preview function. You can get the FD-8 to repeat the time round each memory location and then nudge it forwards or backwards with the scrub wheel. For

example, if you choose to preview the Clipboard In memory, then you'd hear a couple of seconds of silence (muted) until that 'in' point, then the audio comes back when it hits the memory location. This makes it particularly easy to define loops and those critical regions.

In use

It doesn't take long to become familiar with the FD-8, as long as you've got a bit of background on how recording set-ups in general work. We didn't try it, but suspect that a novice would spend a bit more time in the manual, which tends to avoid the 'big picture'.

Once that learning curve is out of the way though, production on the FD-8 is child's play. You have to know the limits, and keep a close eye on your locator memories, but other than that, you can worry more about your music than then the equipment.

There were a few absences that would have made life easier – namely phantom power, and the ability to name things, like tracks. More general locate points would come in handy, especially with names; and there's no insert edit functions either.

Whatever you paste goes in without regard for whatever is already there.

For the price, you can understand the lack of an effects processor (add the price of an external one and you still win), but simple file-based processes wouldn't have gone amiss, like reverse and normalise, for example.

And the optical digital audio connector might be a cause for concern to some, as there's no coaxial (phono) alternative. While it doesn't excuse not having one as standard, Fostex do make a little converter called the COP-1, which retails at £49.

On the upside, easy synchronisation, a bars/beats time base, 16-track mixdown, 'additional' tracks, and graphic as well as audio scrubbing all score highly in the FD-8. And as long as you're in mastering mode, the sound quality is excellent.

Verdict

The Fostex FD-8 stands apart from the mega-function all-in-one boxes like the Roland VS series, in both price and features. Call it £799 with the internal IDE and you've got serious value. Add a SCSI back-up device and maybe a multi-effects processor, and it starts getting very good indeed. Some might prefer a stand-alone recorder and a mixer of their choice, which is an understandable, and probably more flexible route, but the point is that the FD-8 hands you the basic mixer and recorder on a plate; then you can grow your recording set-up as and when you see fit.



Use the scrub wheel and Preview function for easy definition of loops and critical regions



The FD8's channel EQ is 3-band, with a swept mid

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BE INSPIRED

# SoundTech Quantum Mix ST2442

16:4:2 compact analogue mixer

**Price** £799

**For** Easy to use ☺ Clean accurate sound ☺ Loads of channels in little space

**Against** No separate mic and line inputs ☹ Some labelling is hard to read

**Verdict** A lot of bits in a small bod, with a clean sound – just the job if you're on a budget

A couple of years ago it seemed as though a new compact mixer was being released every ten minutes. Manufacturers were cramming more and more channels and features into smaller and smaller boxes, constantly trying to out-do each other on quality, whilst continuing to out-little each other. Thankfully things have slowed down a bit, and sometimes whole hours will pass without a single one of these compact consoles raising its cute little head. New to this highly-competitive market is the SoundTech Quantum Mix ST2442 Production Mixer. But does size really matter?

## Overview

In fact, for a compact mixer, the ST2442 doesn't look so small, until you consider what has been wedged under its bonnet: 16 mono and 4 stereo inputs, giving a total of 24 (the stereo ones are counted as two mono channels). The mono channels each sport a gain pot, a 75Hz low-cut filter, a 3-band sweepable EQ, four aux sends, pan, PFL or AFL soloing, a 60mm fader, and the obligatory mute and routing buttons. As you would expect, the stereo channels have slightly less in the way of features, with the gain pot being replaced by a +4dBm/-10dBv switch, and the sweepable mid replaced by a far humbler fixed-frequency mid control.

On to the sub group and master section. A pair of buttons above each of the four groups' 60mm faders allows you to send the group signal to the left, right, or both busses. Above this we find the auxiliary send master controls and solo buttons, monitoring level controls, and the 'tape to main' switch and level pot. Bringing up the rear are the control room source buttons, 12-segment level LEDs, and master fader.

Most of the desk's connectors are located on the top

surface. Mic and line signals feed the mono channels through a composite XLR/jack socket. The insert point below this uses a standard 3-pole jack. Each stereo channel and stereo return has a pair of balanced/unbalanced jack sockets, where the left channel input shares its signal with the right channel when nothing is connected to the right input. Next to that lot are the auxiliary and group output jacks, four phono sockets for 2-track send and return, headphone output, and a BNC-type connector to plug a light into – something you often don't see even on bigger desks.

Moving round the back, we find more connectors. Both the main outputs and the mono sum output offer a choice between unbalanced jack and balanced XLR connectors, whilst the control room output is balanced/unbalanced jack only. Mains is supplied via a standard IEC socket, next to which sits the on/off switch and the global +48V phantom power switch.

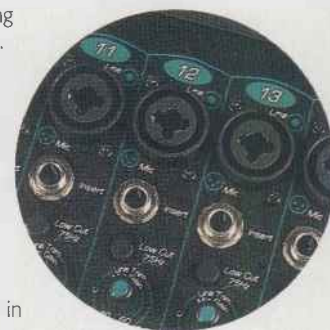
## In use

The first thing that strikes you when looking over the ST2442 is how well laid-out it is. On the whole, the controls and connectors are well labelled, although some of the dark green ones, are very hard to read against a black background. Another immediately apparent shortcoming of the ST2442 is the small size of its pots. This sort of problem is inherent in compact mixers, but most manufacturers seem to devise ways around the problem, by placing pots in a zig-zag pattern, for instance. SoundTech's approach seems to have been just to shrink everything

## Isoknob Protection System

Although it sounds like some sort of new pastime, SoundTech's Isoknob system is, in fact, a system designed to increase the reliability and all-round road-worthiness of many of SoundTech's products. As you know, mixing desks are crammed full of controls for doing one thing or another. However, in most instances, these controls are mounted directly on the device's circuit board; every knock or bump to a control is passed directly to the circuit board underneath. This can be alleviated by also bolting the pot in question to the desk's front panel, but this can easily result in the controls simply snapping off, as the rigid mounting doesn't allow for any movement whatsoever.

That's where Isoknob comes to the rescue. Rather than attaching the pot itself to the panel, it is the knob which fits onto the pot which is mounted. This means that any damage to any control doesn't damage the pot itself or, more importantly, the fragile circuit board beneath. In fact, to prove their point, SoundTech perform a special demonstration. An Isoknob-equipped desk is dropped, face down, from height onto a hard floor. Once it is confirmed that at least a few pots have broken off, the desk is plugged in and shown to work perfectly.



## Get connected

Most of the desk's connectors are located on the top surface, so there's no need for fiddling 'round the back

words **Adam Crute** images **Gavin Roberts**



The versatile Quantum Mix will take care of just about any application you care to throw at it

down a bit. This makes the pots somewhat fiddly to use, but there's plenty of space between each channel's controls so access isn't too badly impaired.

The use of combined jack and XLR connectors, although novel, does limit the flexibility of the desk, as you have to re-patch for different tasks. However, the sockets are solid and wouldn't suffer too badly from this sort of treatment. Instead of physically switching between line and mic inputs, the connectors sense whether there is a jack or an XLR connected, and thus whether there is a line or mic level signal present.

In operation the EQ delivers a well-balanced performance, giving an adequate amount of control over your signal. The cut/boost controls are centre-detented, which is fortunate as there is no EQ in/out switch. Oddly, the auxiliary sends also have centre detentes, the advantage of which is not immediately obvious. Auxiliary 1 is pre fade, Auxiliary 4 is post fade, and Auxiliaries 2 and 3 can be switched between pre and post fade as a pair.


The stereo inputs only lose a couple of these controls. The fixed frequency mid is useful, but not particularly flexible. The omission of any gain control is a bit of a letdown too. However, as a saving grace, the stereo channels will operate as extra mono channels if you only plug into the left inputs.

The master section is as well laid-out as the rest of the desk. The master auxiliary sends have the same centre detente as the channel auxiliary controls, and

each aux buss can be soloed. The solo bus is globally switched between AFL and PFL operation by another of those hard-to-read buttons. The four stereo returns can be routed to the subgroups, main L+R buss or, in the case of stereo aux return 4, to aux send 1. These returns can also be collectively soloed.

The real test of any sound equipment is its sound, and this is one place where SoundTech have made no compromises. The signal path is clean and free from any adverse colouration, whilst the overall sound of the desk is one of clarity and accuracy.

### Verdict

The ST2442 is well suited to many different applications, but its clean sound quality and effective EQ make it ideal for a small home or project studio, and its simplicity of operation makes it perfect for inexperienced users. However, the lack of separate mic and line inputs or true tape returns, whilst keeping the price down, do mean that a fair amount of patching and re-patching would be required. But if these sorts of inconveniences don't bother you, the ST2442 is definitely worth a gander. You could buy a lot less mixer for a lot more money. 

**More from: Smart Sound Direct, Unit 5&6,  
38/40 Town End, Caterham on the Hill, Surrey,  
CR3 5UG Tel: 0990 134464 / 01883 346647  
Fax: 01883 340073**

### specifications

**Channel inputs**  
16 mic/line (mono)  
4 stereo line

**Channel EQ**  
Low shelf  
(80Hz  $\pm 15$ dB)  
Swept mid  
(100Hz-8kHz,  $\pm 12$ dB)  
High shelf  
(12kHz  $\pm 15$ dB)

**Groups**  
4

**Auxiliaries**  
4

**Phantom power**  
+48V (global)

**Frequency response**  
20Hz-60kHz ( $\pm 1$ dB)

**Noise**  
-84.5dBu (20Hz-20kHz,  
gain & faders at unity)

**Dimensions**  
9.8cm x 6.92cm x  
39.7cm

# AKG C 414 B-ULS

Large-diaphragm condenser microphone

Modern Classic

**For** Clean, detailed sound ⓧ Solid construction ⓧ Flexible configuration

**Against** Can be a little bright for some applications

**Verdict** A proven mic suited to just about any application. Fantastic value for money

If, for some bizarre reason, well-known microphones were a category in *Family Fortunes*, you'd wager that three in particular would be at the top of the list: Shure's SM58, Neumann's U87, and AKG's C 414. Most live singers are usually seen holding an SM58, and whenever someone is filmed singing in a studio it is invariably either into a U87 or a C 414. Even so, to suggest that these particular mics are recognisable purely through media coverage would be misguided. They are recognisable because they have stood the test of time, even if over time their physical appearance and specifications have changed.

The C 414 is a perfect example of this. Although its physical shape hasn't changed much, the C 414 is essentially the result of many decades of mic development. In fact, it can be traced right back to the first large-diaphragm condenser mic, the renowned and much-revered C 12. But don't be fooled into believing that these two mics sound the same! Many changes happened along the way, the most significant of which resulted in the release in 1986 of the C 414 B-ULS. This is the mic most people think of when you say C 414 – it has the distinctive C 414 shape and colour. Although this particular incarnation has been around for some 13 years now, its introduction marked a move by AKG towards mics designed with digital recording in mind.

## Overview

To some extent, it's true that just about any correctly positioned mic will do a reasonable job, but one thing you will notice with the C 414 is that it has a clean, transparent sound, four polar patterns, bass roll-off, and signal attenuation. It is this flexibility that has made it a classic in studios all over the world.

The AKG C 414 B-ULS is a 1" twin diaphragm

condenser mic. It is housed in a black all-metal casing, with a twin grille protecting the capsule, the on-axis side being silver. The electronics are based on AKG's ultra linear system (ULS), and are designed to provide a wide dynamic range (at least 126dB) with very low noise and distortion. The output stage will drive long cable runs with no noticeable signal degradation.

The diaphragms are gold-coated plastic foil, and are configured for four polar patterns: cardioid, hyper-cardioid, omni-directional and figure-of-eight. The polar pattern selector is found on the front of the mic above the embossed AKG logo. On the back are two further selectors: one gives you a choice of bass roll-off: zero, or 12dB per octave starting at 75Hz or 150Hz. The other gives you pre-attenuation of zero, -10dB and -20dB. The mic is phantom-powered from any source between 9 and 52 volts, and connection is therefore via a standard XLR.

## In use

The first thing you will notice with the C 414 is that it feels solid, and although any rugged handling of a condenser mic should be avoided, the C 414 feels like it would survive. The mic comes with its own special clip and wind shield, and will soon come packaged with a suspension cradle. Although it may seem petty, anyone who has miked a drum kit (or any other awkward instrument) knows how useful a good mic clip is. The last thing you need, having spent some time setting up a mic, is to watch it slowly reposition itself towards the musician's feet! The C 414 clip has to be the easiest to use, and short of taking a right hook from the drummer, is unlikely to move.

Use a pair of C 414s as overheads on a drum kit, set to cardioid with -10dB attenuation, and you will get good results. Alternatively, set one to hyper-cardioid

## A potted history of the C 414

AKG's history in mic development stems way back to the 1940s, when they designed the first tube condenser, the C 1.

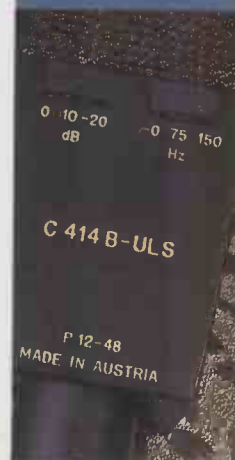
However, it was with the C 12 large-diaphragm tube condenser in 1953 that the link to the C 414 started.

The capsule used was called the CK 12, and proved very successful in subsequent versions of the mic (C 12 A, C 12 B, and C 24, a stereo version).

However, in 1970 AKG decided to produce a version based on solid-state electronics. Initially called the C 412, further development resulted in the release of the first C 414 in 1971. Known as the C 414 comb, it was grey, but with the same distinctive shape as the mic we now know. Six years later it was re-launched with a nickel-plated finish, and the XLR plug mounted in the body (the C 414 EB).

1986 saw the release of the current C 414 B-ULS, with new electronics and capsule. However, in recent years, AKG have produced two mics (the C 12 VR and C 414 B TL-II) with capsules closely re-built to the old CK 12 spec.

Although very similar to the C 414 B-ULS, the C 414 B-TL II is essentially a purist's version, with a transformerless output stage, and is best suited to vocal and speech recording. Recently, to mark their 50th anniversary, AKG produced 100 gold C 414 B-ULS mics. Look for them in collectors' cabinets.



words **Jon Musgrave** images **Gavin Roberts**





The AKG C 414 is holding its own, even in a world that's in love with valves

and sit it at foot height outside a kick drum, or over a pair of hi-hats, and you benefit from the tighter polar pattern. However, if this mic was your only top quality condenser, you might want to save it for something less raucous than the drums, and you would be right.

With it positioned 12-18" from an acoustic guitar you get great results, with a clean, detailed sound. Try it on the omni setting for a more live feel. Alternatively, try a spaced pair on a grand piano. The results might not match those of the most expensive small-capsule condensers, but they are pretty good.

You'll get good results using the C 414 on trumpet (with the -20 dB pad switched in), though really, it is great on all ensemble instruments. Most recording engineers have favoured mics for each application, but you are unlikely to find one who hasn't been impressed by the C 414.

For some applications, the C 414 can sound a little too clinical, and you may find that on violin it is a little too bright. But, that is very much a matter of personal taste, and it also depends on what the recording area sounds like at different volumes. On vocals it can sound a little bright and sibilant, but vocals are the most critical area for microphone matching. In some cases the C 414 is just the thing, especially if the

singer's voice lacks top end. And the results may end up being more consistent than with a far more expensive (but badly-maintained) vintage valve mic.

### Verdict

In a world where the fashion is for valve mics, the C 414 B-ULS still holds its own. Ultimately, it does so because it is above all, a flexible mic which you can put in front of any sound source, loud or quiet, and get fantastic results with. Its construction is rugged, its reliability proven, and these days it is surprisingly low-cost. If you are still after that valve sound, maybe the best bet is to invest in a valve pre-amp or compressor.

Of course, given the choice, most people would have a large selection of mics that suited each application, but few have that luxury. So instead of going for an unproven imitation of a classic mic, buy the proven classic itself.

**More from: Arbiter Pro Audio, Unit 2, Borehamwood Industrial Park, Rowley Lane, Borehamwood, Hertfordshire, WD6 5PZ  
Tel: 0181 2075050 Fax: 0181 2074572**

**Thanks to Norbert Sobol and Christina Burkhardt at AKG acoustics GmbH for their help in researching this article**

### specifications

**Frequency response**  
20Hz to 20kHz

**Sensitivity @ 1kHz**  
12.5mV/Pa

**Impedance**  
180Ω

**Recommended load impedance**  
>600Ω

**Signal-to-noise ratio (A-weighted)**  
80dB

**Maximum SPL for 0.5% THD**  
140dB @ 1kHz

**Dynamic Range**  
126dB minimum

**Dimensions**  
141 x 45 x 35mm

**Weight**  
310g

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# Steinberg Producer Pac

Cubase VST/24 bundles for Mac and PC

**Price** £699

**For** Excellent VFM Ⓢ 24-bit/96kHz support Ⓢ High-quality bundled plug-ins

**Against** PC extras better than Mac extras Ⓢ Too many on-line manuals

**Verdict** If you're thinking of buying Cubase VST/24 – don't!

A Producer Pac gives you lots more for your money

Bundles - don't you just love 'em! It's like getting something for nothing. In the case of Steinberg's Producer Pac, a little more money gets you a lot more software, and that's almost the same thing.

Part of the problem with working with digital audio is that there's always more you want to do – add an effect here, edit out a glitch there, normalise a region, process a file... Buying a sequencer does not mean you've reached the end of your shopping list.

## Overview

The Producer Pac, one for PC and one for Mac, come with Cubase VST/24 MIDI sequencing and audio recording/editing software, plus a selection of other packages to enhance your virtual studio – plug-ins and editing software, with actual ingredients depending on which platform you use. We'll start with a look at the core program and its family.

If you're looking for an integrated MIDI and digital audio sequencer you may be considering Cubase VST. There are now three versions of the program, which we'll quickly run through here. The basic program is Cubase VST, which integrates MIDI and digital audio on one page; a task it performs exceedingly well. It supports 64 audio channels with four EQ and four insert effects per channel. It has eight auxiliary sends and eight global effects. It offers full mixer automation and includes a wide range of editors, including a notation editor.

To this, Cubase VST Score adds professional notation editing, layout and printing. The notation editor in the standard version of VST is fine for editing MIDI data using the dots and it even prints okay, but for control over lyrics, spacing, music symbols and all that sort of stuff, it's Score you need.

And then there's Cubase VST/24. This has all the features of Score, but it can handle up to 96 audio channels and supports 24-bit/96kHz digital audio –

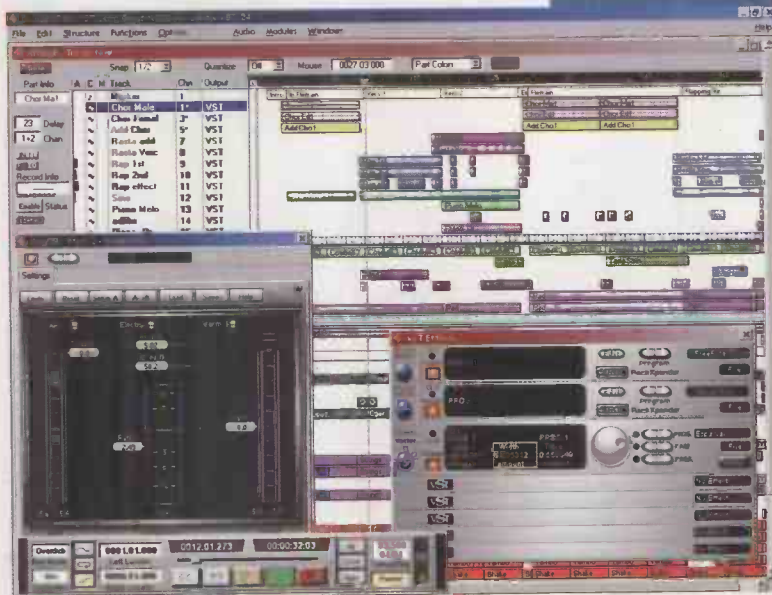
providing, of course, you have a suitable digital audio card. The PC version of VST/24, for example, has built-in support for Yamaha's DSP Factory card and offers another menu containing Factory-specific options. Yamaha have announced Mac drivers for the DSP Factory, so no doubt VST/24 Mac users will soon be able to enjoy the same features.

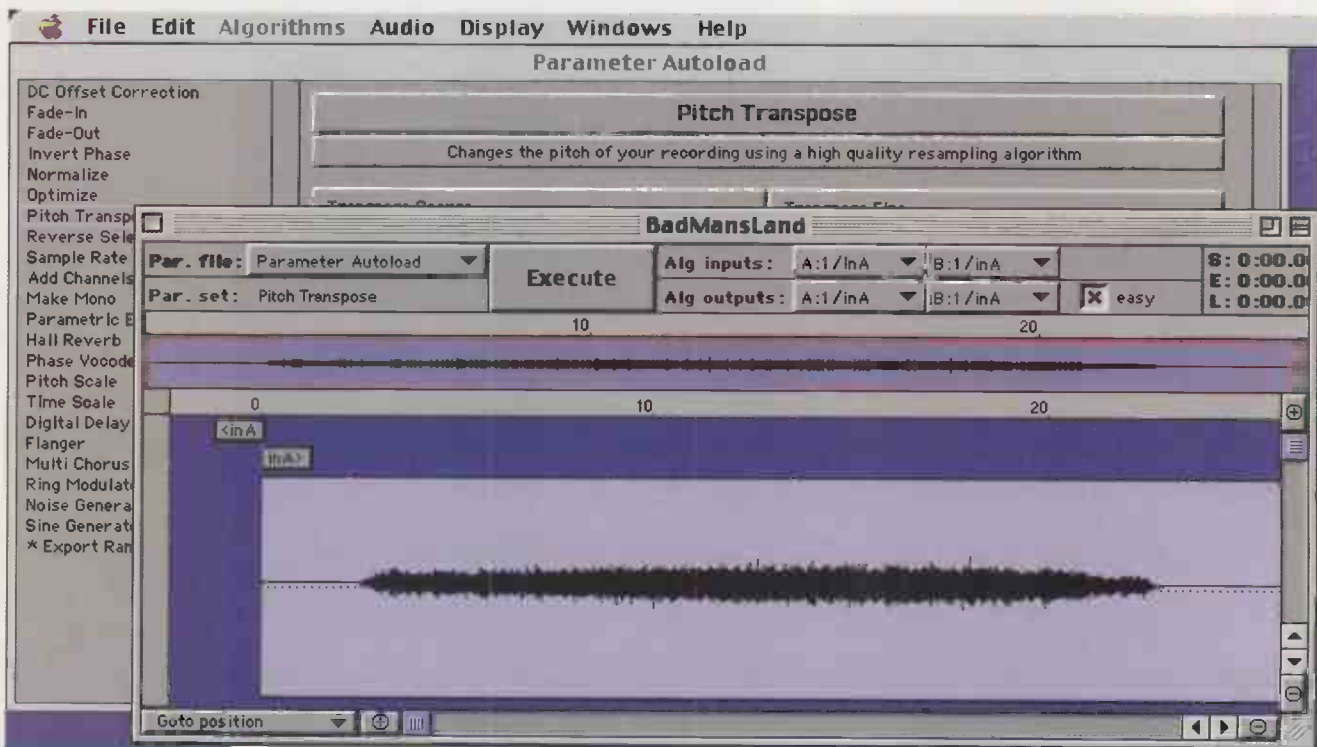
## Free stuff

As we're looking at the Pac here, we won't go into any more details about VST because it has been thoroughly reviewed in these pages. For the PC version, check out issue 60, and the Mac version was covered in issue 53. Let's see what else is in the box. Ⓢ

words  
Ian Waugh

VST/24 with the effects rack and the Renaissance Compressor playing away on the PC





sonicWORX Essential can apply a range of processing functions to audio files

## specifications

**Mac Producer Pac**  
Cubase VST/24 V4  
Free Filter  
Waves Renaissance Compressor  
Adaptec Jam V2.1  
sonicWORX Essential

**Minimum system**  
120MHz PowerMac  
256k 2nd level cache  
System 7.6.1  
32Mb RAM

## specifications

**PC Producer Pac**  
Cubase VST/24 v3.6  
Free Filter  
Waves Renaissance Compressor  
WaveLab 2

**Minimum system**  
Pentium 166Mhz  
32Mb RAM  
Windows 95/98  
Windows-compatible soundcard  
256 colour  
800 x 600 display

⊞ Both Mac and PC versions include Steinberg's Free Filter and Waves' Renaissance Compressor plug-ins. Individually, these are expensive plug-ins and their quality shows.

EQ seems to be a perennial favourite and if anyone ever took seriously the advice, "don't try to fix it in the mix," this seems to be well and truly out the window now. There are probably more EQ and filter plug-ins than any other type. To call Free Filter a 'filter', however, is a bit of an insult. It's a heckuva filter and it performs a rather interesting frequency analysis function, too.

The central frequency monitor display shows the frequency spectra of the input and output signals in real-time, along with the filter curve. Below this is a set of 30 faders that control the filter curve. They can be used in two modes. In logarithmic mode they each control one third of an octave. In linear filtering, each one controls 1/30th of the filter range.

You can adjust the filter curve by dragging the faders, and there are drawing tools to help create different types of curve. Oddly, there's no free-hand mode so you can't actually draw a curve directly onto the display, but you can get pretty close by moving the mouse slowly over the faders and clicking as you go.

Not many filters give you as much control over so many different frequency bands, but the most interesting part of Free Filter is its analysis function. Select an input source and Free Filter will analyse it and create a corresponding frequency curve. You can then apply this to another recording.

This means that you can capture the frequency spectra of one recording, obviously a one that you like, and apply it to another recording – one that needs a tweak here and there. Now, this isn't necessarily going to turn a bad recording into a good one, or a dull

recording into an exciting one, but if you have a recording that you aim to 'fix in the mix', the process could save a lot of twiddling with the EQ controls.

## Compression

In their chosen list of Top10 effects, many people would put compression above EQ. This is particularly true with digital audio, where you can't overdrive a recording and where compression can make a bigger sound, even out variations in level, and add more punch to a recording.

Given the above, it's strange that VST does not have a built-in compressor. So you need one, yes you do, and here's Waves' Renaissance Compressor in the Pac. It recreates the warm sound of classic analogue compressors, and what's more, it's easy to use.

It comes with lots of presets (though you can create and save your own) suitable for a range of material from vocals, to drums and guitar. It has the usual threshold, ratio, attack, release, and gain controls, plus some other interesting settings, too.

You can switch between Opto and Electro mode. Opto provides fast release times when the gain reduction is above 3dB, and slow release times when the gain reduction falls below 3dB. Electro mode works the other way, by providing fast release times when gain reduction is less than 3dB and slow behaviour when it rises.

ARC (Auto Release Control) further modifies the sound by dynamically choosing the optimum release value for a wide range of inputs. It claims to react like the human ear and produce increased RMS levels and audio clarity.

You can play with all of these settings in real-time. The Renaissance Compressor produces a range of effects suitable for virtually all types of music. You can

drive it hard without distortion (although you can produce distortion if you wish) and it's not difficult to get a nice, big, warm sound out of it.

## On the PC...

So, on to the differences between the two Pacs. The PC version includes Wavelab 2, Steinberg's premier wave editor and processor. One of its neat features is the non-modal dialogues, which means that while processing functions and windows are open you can still access the menus on the screen behind them, control playback and change parameters. You need to use it to appreciate it. Brilliant!

It can also write direct to CD-Rs to create audio CDs. It supports transfers between samplers, with direct support for many popular instruments, and it supports VST, DirectX, and its own plug-ins. Designed as a stereo wave editor, it has a host of functions, not least of which is greater control over audio files than you can get with Cubase. The Producer Pac box includes a full printed Wavelab 2 manual, too. Well done! Wavelab 2 was reviewed in detail in issue 53 last September.

## ...and in the Mac corner

The Mac version includes Adaptec's Jam v2.1 and sonicWORX Essential. Jam creates audio CDs. It has a very easy-to-use front-end and a lot of features. You create the CD contents by adding audio files to the central display area. You can rearrange them by dragging, play them, and apply non-destructive crossfades. You can make changes to the length of a track and adjust its volume without changing the original file on disk. Before burning a disc you can add mastering info such as the date, title, artist and copyright information.

The TAE (Toast Audio Extractor) lets you lift tracks from an audio CD and save them as Mac sound files in a variety of formats. You need a CD drive that supports audio extraction. Most Mac SCSI drives do, but beware of IDE drives which may have been fitted to recent low-end machines, which may not.

The manual, which is, alas, in Acrobat format on disk, is excellent and will teach you all you need to know about audio CDs, Red Book recording, and PQ Subcodes. Particularly useful is the ability to set the pause time between tracks so two tracks can run into each other but still have separate IDs.

sonicWORX Essential is a special (that is, cut-down) version of sonicWORX produced for the VST bundle. It's essentially a standalone effects processor with a very interesting selection of effects. However, the most interesting ones are not available in the Essential version, only in its big brother.

What's left may seem like a pretty average bunch of

processes, but while they may lack the excitement of square root distortion, moving contour EQ, the sonic crowder, cellular morph, and atmosphere designer (sorry, just whetting your appetite for the biggy) they do include core processes that you are likely to use much more frequently.

The program has two main windows. One shows the wave to be processed and the other lists the processes you can use. You add processes to the list from the

Algorithms menu and you can save the selection, making it easy to create custom effects sets for different projects. The parameters are shown by horizontal bars that you adjust by dragging, and there is a numeric readout below each bar.

The processing, however, is not in real-time and takes place off-line. Once you have grown used to VST's real-time processing, it seems a little quaint.

## Verdict

The main decision you have to make is whether or not you want to use cards such as Yamaha's DSP Factory, or other hardware that can handle 24-bit recording. For high quality recording, most musicians now seem to be moving up to 24 bits – ah, and to think that

16-bit recording was once the standard to aspire to. The recent crop of 24-bit cards is reasonably-priced and growing in number. It won't be long before it's the project studio standard as well as pro standard –

although by then the pros may well have moved onto 32-bit recording.

But don't forget that 24-bit recording requires more processing power and more disk space on which to store the data. Don't even consider it unless you have a high-end computer.

If you're happy with 16 bits then Cubase VST will do the job just fine. However, you might also like to ask yourself if you're likely to want one or two extra programs in the near future. If so, you're a prime candidate for a Pac.

PC users do get the better deal – Wavelab 2 for them, Jam and sonicWORX Essential for Mac users – but then PC users only have VST 3.6, and not all the goodies in version 4 – at

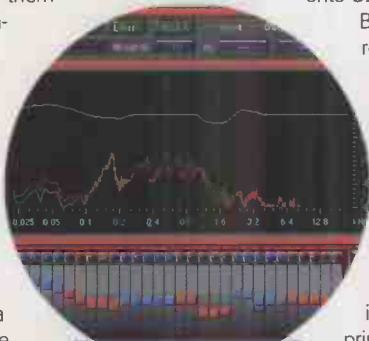
least, not yet.

The Producer Pac are excellent value for money, and soothe the purchase of VST/24, which is almost twice as much as the basic VST program. For £50 extra you get goodies that individually would cost more than the Pac themselves. Now if that isn't like getting something for nothing, what is?

**More from: Arbiter Pro Audio, Unit 2, Borehamwood Industrial Park, Rowley Lane, Borehamwood, Hertfordshire, WD6 5PZ  
Tel: 0181 2075050 Fax: 0181 2074572**



The Renaissance Compressor is a powerful effect, but remains very easy to use



The Free Filter can filter, but it can also apply one file's EQ characteristics onto another file

## Dithering a bit?

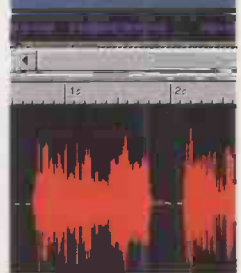
One of the advantages of VST/24 is that it supports 24-bit digital audio. But just how good or essential is this, especially when you consider that CDs are still recorded at 16-bit, and 24-bit audio has to be converted to 16-bit before you can write it to a CD?

With a 16-bit recording system you can capture sounds with a 96dB dynamic range (the rule of thumb is to multiply the number of bits by six, so  $16 \times 6 = 96$ ). To achieve a dynamic range of 140dB (the dynamic range of human hearing) we would, therefore, need to use 24 bits ( $24 \times 6 = 144$ dB). This, theoretically enables us to capture the full range of human hearing.

However, you never achieve a recording that uses the full number of bits. In practice, you find that because you need a leave a little headroom, you're a few bits short of a full house. But even if you lose a few bits off a 24-bit recording, you'll be a lot closer to 'true hearing' than you will with 16 bits. That's why some professionals insist on 32-bit recording for a massive 192dB range. Lose a few bits from that and not even Bugs Bunny could tell.

Ah, but what happens when we downsample to 16 bits? Well, this is the clever part, because most downsampling systems use a process called dithering that manipulates the data in order to retain the maximum amount of dynamic range.

The end result – yes, we're getting there – is that a 24-bit recording downsampled to 16 bits will be of higher quality than a recording made using 16 bits all the way through its production. 24-bit rules OK.





# Mindprint En-voice

## Rack-mount valve recording channel

**Price** £399 (DI-MOD digital interface £100)

**For** Digital Interface a very useful addition  Versatile EQ section

 Two simultaneous analogue outputs

**Against** 'Interesting' looks  DI-MOD does not come as standard

 No heat escape vents for valve

**Verdict** A complete signal path in one box, with EQ, compression, and valve saturation from instrument/microphone to the digital domain

Not *another* recording channel, you may be thinking. There seems to be an awful lot of them about these days. And opening up the box to find the beast within caused a bit of a stir as well – this thing is not going to win the Kylie Minogue 'small but perfectly formed' aesthetic object of the year award. For a start, it's got a maroon front panel, all the LEDs are mounted on a silver mirrored background, and the end caps on the knobs sport the sort of silver plastic found on Woolworths' toy fire engines. This is the Joan-Collins-in-a-bad-1970's-disco-movie of the audio world, perhaps meant to be ironically kitsch.

Anyway, enough... You don't look at the mantelpiece when you're stoking the fire, so to speak, so we can overlook the aesthetics as long as the unit sounds good and does its job. In fact, the job the En-voice is designed to do is slightly different from all the other channel strip devices *The Mix* has so far looked at. This little box has on-board A/D conversion, so provides a complete path from instrument/microphone through EQ, compression, and a built-in valve, directly into the digital domain – going that extra step further than its nearest competitors.

### Overview

You get analogue signals into the En-Voice through one of four sockets (for digital signals, see the box on p. 48). On the front panel, for easy access, is the 1/4" jack instrument input, with its input impedance of 470k $\Omega$ , tuned specifically to take guitar and bass signals directly. Round the back panel is the XLR mic

input, coupled to a switch to turn on the 48V phantom power for condenser mics. Line input is catered for by both an XLR socket and a 1/4" jack socket. Both are balanced, but will work fine with unbalanced signals (pins 1 and 3 have to be bridged in the case of XLR plugs).

Two switches make the input selection. The first switches between digital or analogue signals, while the second selects either mic or line. For instrument signals, plugging a jack into the instrument input deactivates all the other inputs.

The gain knob is calibrated from 0 to 8, which acts on all inputs, and the signal strength is indicated by a 12-segment LED ladder, which is switchable to show either input or output. The only other control in this preamp section is a bass cut switch to attenuate the very low end. The cut-off frequency is switchable between 50Hz and 100Hz – the manual points out that while the 100Hz setting is most useful for female vocals, it may cut too much from a male vocal, which is why the 50Hz setting is there.

### EQ

The next third or so of the control panel is taken up by the EQ controls and is divided into three switchable sections for the three frequency bands: Bass, Mid, and High. The switch for each band has an adjacent red LED, which lights when that particular band is active.

The Bass EQ has two knobs: the first sets the centre frequency of the bass band (20Hz to 300Hz) while the second adds up to 15 dB cut or boost. Circuitry here is



### CD info

#### track 05

A variety of guitars and basses are given the En-voice treatment

### specifications

#### Channels 1

**Processes**  
4-band EQ  
Tube saturation  
Compression

#### Inputs

Balanced line (XLR/Jack)  
Balanced Mic (XLR)  
Unbalanced instrument (Jack)

#### Output

Balanced line (XLR/Jack)

#### EQ

Bass cut  
Swept bass  
Parametric mid  
Swept high

#### Compressor

1:1 to 1:infinity,  
slow/fast envelope

#### Sidechain filter

300Hz high-pass,  
6dB/octave

#### Distortion

0.04%

#### Frequency response

10Hz to 22kHz ( $\pm 1$ dB)

words **Trevor Curwen** images **Gavin Roberts**



En-voice goes the extra step to provide a complete path from instrument/mic into the digital domain

interesting in that the bandwidth is preset to be wider when boosting frequencies and narrower when cutting, as illustrated by the graphic etched on the front panel. This translates as a boost slope of 6dB per octave and a cut slope of 12dB per octave.

The En-Voice sports a fully parametric mid EQ, with adjustment of 15dB again available in either direction with the centre frequency being adjustable over a very wide range – from 100Hz up to 11kHz. The Q control sets the bandwidth of the bell curve, adjustable from 0.15 up to 3. The value of 3 represents a narrow band of about 1/3 octave, while 0.15 is equivalent to a very broad range of 6 octaves.

For the high EQ the Mindprint designers have chosen a bell filter rather than the more common shelving filters found on other units, claiming it will produce a more musical result. 15dB of cut or boost is again available, and the centre frequency range runs from 1.6kHz right up to 22kHz.

### Compression

The compressor in the En-Voice is a VCA-based soft-knee design, but is not individually switchable into the circuit like the EQs, except by the master effect switch

in the next section. The compressor is actually off when two of its three control knobs (compression and threshold) are turned fully to the left. Turning the knobs clockwise adds compression to the signal. The threshold knob sets the cut-off value above which compression will occur, and is graduated from +2dB to -28dB. The compression knob starts at a position of 1:1, representing no compression, and goes up to a setting of infinity, which represents brick wall limiting where no further increase in output level is possible. The amount of gain reduction is indicated by another 12-segment LED ladder, graduated from -1dB to -22dB.

There are no separate attack and release controls, but to a degree these are program-dependent. There is a switch to select a slower response, which will let transients through before the compressor kicks in. Figures quoted in the manual are Attack at 15ms with release at 60ms in the fast mode, and attack at 150ms with release at 600ms in the slow mode.

Another switch activates a sidechain filter, which



### Round the back...

You'll find the XLR mic input, as well as a selection of balanced line inputs

## Make the Digital Connection

One of the main reasons that standalone recording channels were developed was because it was felt they would provide a higher quality signal path than the average budget mixing desk's pre-amp and channel strip could provide. In a logical extension of this way of thinking, Mindprint seem to be taking the premise one step further in aiming to include a higher quality A/D converter than the average computer-based recording card can provide.

The 24-bit digital interface fitted on the back panel of the En-Voice does not actually come as standard, but as an optional extra that adds £100 to the basic cost of the unit. The interface, known as the DI-MOD, features S/PDIF in and S/PDIF out with a recessed switch to change the sampling frequency from 48kHz to 44.1kHz and a red LED to indicate digital sync at the input.

Also present are two 1/4" jack sockets. These are there because the S/PDIF interface supports two channels, whereas the En-Voice is a single channel unit. So the analogue input and output of the S/PDIF's second channel is accessible via these jacks, with the possible application of adding a second En-Voice that has no digital interface fitted.

The DI-MOD is 24-bit, but is also compatible with 16, 18, and 20-bit devices, and when synchronised via the input will work with every frequency between 32 and 48kHz.

As well as being used to record directly to digital, the En-Voice can be used to process previously recorded digital audio in much the same way that it would be used in analogue mode – strapped across the insert points of a desk channel. Digital audio can be ported into the unit via the digital in and processed using the EQ, compressor, and valve saturation before being sent out via the digital output after being tweaked, warmed-up and fattened.

works with a 6dB/octave slope below 300Hz to minimise low frequency compressor triggering and give a more natural top end response.

A valve is integral to the compressor's circuitry, and this is driven by a separate knob affecting the amount of saturation and allowing harmonic overtones to be added to the signal. Tube saturation is indicated by a large tri-colour LED, which lights up green under normal operation, but will turn through yellow to red with greater degrees of saturation. The aforementioned valve, an ECC83 (12AX7) is clearly visible through the transparent window etched with the En-Voice logo in the next section of the front panel. This, of course, allows you to see the glow of the tube, but a more sensible option might have been a grille to let the valves' heat escape, as none is provided anywhere else, even on the top panel, which can get quite hot directly above the valve. Is this a case of pose value winning out over practicality?

The remainder of the end section of the front panel contains the output level knob, with outputs provided on both balanced XLR and balanced jack, which can be used simultaneously. This is a practical provision for splitting the signal for monitoring purposes, bearing in mind the inherent latency in some of the computer-based recording systems around.

The previously-mentioned master effects switch is located here also, with its associated red LED. This switch needs to be engaged to bring all the EQ sections and the compressor into the circuitry, and as such can be used to check the effects of EQ and compression against the unaffected signal.

Finally, the main on/off switch, in addition to switching the AC power supply on and off, activates a hard-wired bypass of the En-Voice by connecting the line in and line out circuits, allowing the signal to bypass the device completely.

### In use

The En-voice was given a thorough testing in all of its modes. Recording was carried out through both mic and instrument inputs via the analogue outputs, both to analogue tape and to a Digital Audio Workstation (Mac running Logic Audio). Material was also recorded to the DAW and straight to DAT through the En-Voice's S/PDIF digital output. In addition, previously recorded signals (both analogue and digital) were processed by the unit to take advantage of its EQ and compression.

The pre-amp section seems clean and transparent with no apparent vices, and handles all sources equally well. Vocals, acoustic guitar and percussion were recorded through the mic input, while clean electric guitar and bass were put through the instrument input, and good results were obtained via both the digital and analogue outputs.

The EQ section is versatile and capable with the frequency ranges and Q values seemingly well-chosen. There are annoying clicks when sections are switched in, but to be fair to the manufacturers, this was

mentioned in the manual and these are not switches that are likely to be turned on and off during actual recording. The amount of cut and boost available, particularly in the parametric mid section, means that it is possible to get a little too extreme with the EQ if you're not careful. One useful side effect, however, is that some interesting wah and filter effects are available by tweaking the mid frequency control at full boost; perhaps not strictly what the unit was designed for, but a useful bonus in creating new sounds to sample. Generally, the EQ gives plenty of scope for tailoring the sound to requirement.

Compression-wise the En-Voice works fine, with a full range of compression available at both response settings. Valve sound and valve 'warmth' is something that equipment manufacturers are promoting as a desirable thing in this digital age, so more and more units are coming out with hybrid circuitry featuring a valve somewhere in the signal path.

In this instance, the valve is an integral part of the compressor circuitry, so it must be exerting an influence on the sound in some way.

However, the tube saturation control proved something of a disappointment. Turning up the saturation control to drive the valve harder resulted in the LED changing colour, but the difference in sound was marginal.

One problem with some computer-based hard disk recording systems is the monitoring delay between the source signal and the recorded signal coming back from the computer, due to system latency. To play in time, it is the source signal that must be monitored

and the En-Voice makes this very easy with its one digital and two analogue outputs. The source signal can be monitored via one of the analogue outputs when recording to a digital medium through the other analogue out, or if you are recording directly out of the S/PDIF output, you have a choice of two analogue outputs to monitor from.

Finally, in the role of tweaking pre-recorded digital sound, the En-Voice proves very useful, and several tracks were pulled out of Logic Audio, tweaked, and recorded directly back onto the computer with no problems at all.

### Verdict

The En-Voice is a competent performer in its totally analogue form, both for recording direct and processing tracks in the mix. But whether its particular feature set will appeal when compared with some of the other all-singing-all-dancing products on the market remains to be seen. The DI-MOD interface if added, however, does set this machine apart, giving more possible options to the digital recordist who may feel that the just-shy-of-£500 retail price is justified. ☺

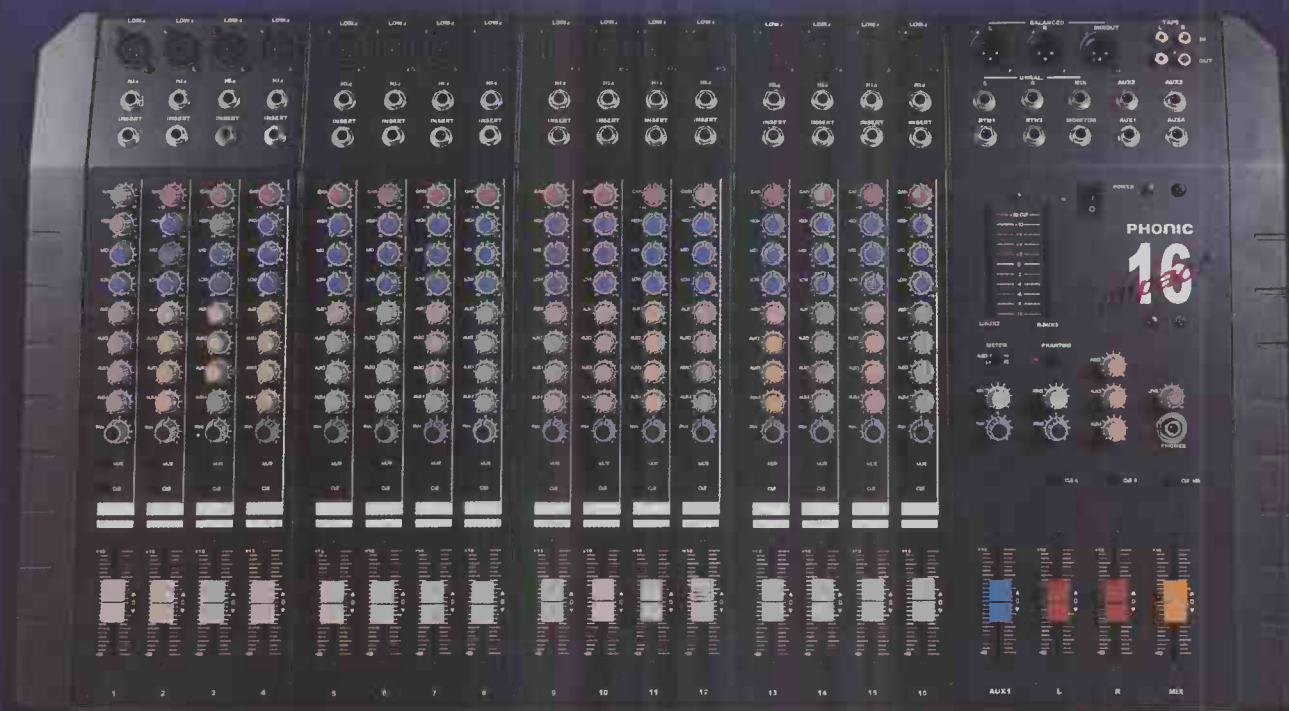
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The high EQ's bell filter is believed to produce a more musical result than more common shelving filters do



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# TRAXDATA TRAXAUDIO 900

CD/CDRW recorder

Price £499

**For** Simple operation Ⓢ Automatic sample rate conversion Ⓢ Clear display

**Against** Consumer audio discs only Ⓢ No SCMS defeat

Ⓢ More expensive than the Philips equivalent

**Verdict** A direct competitor for the Philips CDR880, and slightly more expensive.

Solid and simple to operate

After witnessing the plethora of CD recording machines making their debut last year, we warned you that there were quite a few still waiting on the sidelines. Well, here's another one – not from a famous manufacturer in the music field, but from one who is well known for CD technology elsewhere. In fact, the only other TraxData product that we've reviewed was the company's TraxCopier bulk CD copier back in issue 51. They also do SCSI CD-R mechanisms, including bundles for music lovers that include the SCSI interface and the copying software. Now we have the TraxAudio 900 CD recorder.

## Overview

This is a little bit of a bundle all by itself. Not only do you get the recorder and the remote, but you also get some RCA cables and eight free CD-Rs as well. Now that's not to be sneezed at, especially when you consider that the TraxAudio 900 uses digital audio CD-Rs (consumer), which are generally more expensive than pro CD-Rs.

On to the machine itself. Seasoned CD-R watchers will recognise the slightly sparse front panel and fully-featured remote as a common denominator among less expensive units, but they may not immediately spot the transport controls. That's because there's no pretty icons adorning the buttons, just some labels above each one; and you may get a bit distracted by the red labels on the Record, Finalise, Erase, and CD Sync buttons, which look a little bit too 'Playstation'.

The display is nice and bright though, with a good viewing angle, even though the top gets slightly obscured at extreme angles as it's set a little way in from the front panel.

## In use

When you've got your CD-R or CDRW at the ready, and you have either an analogue or a copyright-free digital source ready to record onto it, there are several options open to you. First, there are three recording modes: analogue; digital, or digital with 'CD Sync'. Then there are two track writing options: manual or automatic. Just pick a recording mode and a track writing mode, and you're off.

So, for an analogue source where you can't guarantee a gap of at least three seconds between tracks, you'll be needing the analogue/manual combination. Treat the machine like an ordinary tape machine with record and play buttons. If you want to insert track numbers during a continuous recording, just press the Record button, or Track Inc on the remote. Alternatively, press stop or pause and the next recording you make will start at the next track number. Pressing Pause before you start a recording will insert a three-second gap.

With automatic recording in analogue mode, the TraxAudio 900 writes a new track number every time there's a gap of three seconds of silence, and stops recording when there's silence for over 20 seconds. It's a shame these times aren't adjustable (where have you heard that before?).

It's the same story with ordinary digital recording. Just plug your source in the back and away you go. However, to make things easier still, you can select CD Sync mode. This is now a common facility, but it's worth recapping. Basically, the CD-R uses the subcode data (track start, track stop, and so on) to make the recording of a digital source that includes those subcodes (DAT, CD, DCC, and so on). You can ask the

## SCSI or standalone

What with all the standalone CD-R machines we've featured over the last few months, you'd be forgiven for thinking that we'd been neglecting the SCSI CD-R side of things. We'll put that straight now.

Most people end up choosing between a standalone unit (which acts a little like a DAT machine), or a computer-based one (which acts a little like an extra disk drive). Yes, if you own a computer already, then a SCSI box will probably be less expensive, have no SCMS restrictions, and will also archive bulk data for you. On the downside, a SCSI CD-R requires your audio tracks to be files on your hard disk, so you can't record a mix without first storing it as an audio file.

Many computers now come with a CD-R mechanism as standard, and even if yours doesn't, £200 will get you a reasonable model. For *The Mix's* cover CD master we use a SCSI CD-R for two reasons. First, all of our final stereo work is done on a Mac, and second, we have to burn a mixed-mode CD (one with audio and ROM partitions), which a stand-alone CD-R machine cannot do.

With a standalone model however, you don't have to work with just audio files, any audio source will do; and a digital out from your soundcard will be just as good when you are working with a computer. Also, it's a CD player, not a computer, so you get no crashes or compatibility problems, and you can stick it under your arm if you want to travel with it.



words **Paul Mac** images **Gavin Roberts**



Salt of the earth: a competent, simple-to-operate CD-recorder

machine to record just a single track, starting when it receives a track start ID and stopping at the next one; or you can ask it to record a whole bunch of songs, using every track start as a track increment.


When you're done recording, you've got to finalise your disc so you can play your new CD in any player. The process is completely automatic – all you have to do is press the finalise button and wait. No problem. Before finalising, if you're using CDRW discs, then you can either erase the last track, or the whole CD. After finalising, you can only erase the entire CDRW, and if you're using normal CD-Rs, you cannot record any more tracks on that disc. Again, all of this is standard fare on CD-R machines.

The TraxAudio 900 was reliable and solid all through testing, and the audible results were very good. Digital recording is excellent, and although you can't expect high-end conversion for this price tag, the analogue quality is up with the rest of the similarly-priced machines on the market.

Putting the bargraph metering at the bottom of the display is a nice touch, as you can still see it when you stand up and look down at the unit. It would still be nice to see some good peak hold, high-resolution metering on CD-Rs, not to mention that headroom display. This is, after all, a great mastering medium.

Some of the button labels took a bit of reading, but everything on the front panel is repeated on the remote, with additions, so you will probably want to stick with that instead.

### Verdict

The TraxData TraxAudio 900 is a competent, basic CD-R/RW recorder with a simple display and simple operating procedure. Yes, there's the usual (and cost increasing) wish-list of adjustable thresholds and times for track incrementing, record stop, and so on, but that's best left to a forum of CD-R manufacturers, as we made clear in the review of the Tascam CD-RW5000 last month. It's obvious that many may choose to go with the Philips CDR880, purely because it costs less and does pretty much the same stuff, especially if you're going to spend another £100 or so on an SCMS stripper to remove the copy status bit from the digital stream. Look out for high street dealer offers on this one. 

**More from: TraxData, IDC House, The Vale, Chalfont St Peter, Buckinghamshire SL9 9RZ**  
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**Email: [uksales@traxdata.com](mailto:uksales@traxdata.com)**  
**Web: [www.traxdata.com](http://www.traxdata.com)**

### specifications

**Analogue I/O**  
RCA (phono)

**Digital I/O**  
S/PDIF (RCA), optical

**Recordable media**  
Digital audio CD-R or CDRW

**Sample rate conversion**  
44.1kHz  $\pm$ 100ppm no conversion (direct), otherwise auto conversion

**Recording modes**  
Analogue manual, analogue auto, digital manual, digital auto, digital CD Sync

# Analogue Systems RS Integrator

New modules for the Integrator analogue synth

**Price** £2,200

**For** Powerful new facilities for an already excellent synthesizer

⊕ The Comb Filter adds a unique extra palette of sounds ⊕ Reasonable prices

**Against** An 8-step sequencer may prove limiting in some situations ⊕ The waiting list!

**Verdict** In 1998 we described the Integrator as "A step beyond the norm". In 1999 it's even better, and more modules are promised later in the year

A lot has changed at Analogue Systems. The range has expanded in two directions. The first is cosmetic, with the stylish RS8000 (see box) bringing polished wood back to the British synthesizer industry. The other is functional, as the company brings out more and more esoteric modules. Two of these are simple devices designed to make life easier: the RS270 Adaptor that converts between 1/4", 3.5mm and phono connectors, and the RS250 Trunk Line that allows you to patch the synth from its rear panel. As for the other six, they're a bit more exciting...

## Comb filter

Comb filters? Although they are common in analogue effects units (phasers, flangers and chorus units are based upon them), this could be the first synth one. The RS120 comb filter makes it possible to coax unique sounds from the Integrator. Indeed, it's difficult to imagine how you could imitate its sound using a conventional synth. Perhaps the only one that could come close is the Kawai K5000, which has a very similar set of filters implemented digitally.

When you've had the chance to play with an RS120, you'll be hooked. For example, the filter is fully resonant, and will self-oscillate at high settings. When it does so, the filter responds to audio signals in a very non-linear (i.e. unpredictable) fashion, and even changing the incoming waveform can result in greatly varying responses. Then you can use the CV input to modulate the filter for yet more off-the-wall sounds. If you've got an Integrator, or if you're willing to perform the necessary mods to fit one of these to a Doepfer, buy an RS120. You won't be disappointed.

## Sequencer stuff

The remaining five modules are controllers or voltage processors of one sort or another, and at the heart of these lies the RS200 sequencer. If not quite as

powerful as the company's TH48 (which is now discontinued and acquiring 'classic' status) the RS200 is still a powerful unit. Each row has eight steps and ten CV ranges, row 3 offers 'slew', and there are also a powerful range of clocking and triggering options. You can select whether the sequence is clocked internally or externally, you can determine how long the sequence is, and whether any steps are skipped. You can ask the RS200 to generate triggers as well as accept them, and there's even a 'skip' input that can be used to make the sequence pause or miss beats in all manner of unpredictable ways. You can even make the unit send a pulse each time the sequence is complete.

But it's when you combine the RS200 with the RS150 Sequential Switch and RS280 Clock Divider that things get really interesting. The Switch takes any four inputs and offers a variety of ways of stepping between them. If the three rows in the Sequencer are all set up as note CVs, you can use the switch to choose between them, thus creating sequences of 24 notes or even longer. So, instead of patching the sequencer so that (for example) Row A controls VCO pitch, Row B controls a filter, and Row C controls a VCA, you could make A, B, and C complementary patterns and then create songs by chaining them creatively. It's an often-repeated rumour (and probably wrong) but how do you think the Genesis track 'Abacab' got its name?

The Clock Divider takes any period signal and generates four additional signals with periods of 1/2, 1/4, 1/8 and 1/16 the original. If you use the Sequential Switch to select between these, you can create powerful rhythmic patterns that are far more interesting than the relentless stepping of other manufacturers' sequencers.

Of course, there's nothing to say that you must use the modules like this. For example, you can use the Clock Divider to generate four squarewave sub-oscillators for any audio signal you present to

## The RS8000

The idea behind any modular synth is its ability to mix and match any combination of modules you desire. But nowhere does it say that you have to screw these into utilitarian cases. So Analogue Systems now offers the RS8000, a selection of modules occupying the equivalent of 12U of space, but housed in a polished walnut case, rather than the standard brushed aluminium chassis. The result is both powerful and beautiful.

It's powerful because the standard complement of 29 modules includes three VCOs, two VC-LFOs, three EGs, three VCAs, three mixers, a low-pass filter, a comb filter, a multi-mode filter, a fixed filter bank, a ring modulator, and a combined noise/S&H/clock module. And then there are the esoteric modules – a pulse shaper/trigger/DC shifter, a frequency-to-voltage converter and envelope follower, a pre-amp/voltage inverter/slew generator, a CV buffer, a clock divider, an extra multiple, a programmable scale generator, a set of a trunk lines that run from the front of the cabinet to ten 1/4" sockets on the back of the cabinet, and a passive module that converts between 1/4", phono, and 3.5mm mini-jack connections. Whew!

It's beautiful because the cabinet reeks of quality. This becomes no surprise when you discover that it's assembled by the same cabinet maker that built EMS synthesizers – quality stuff if ever there was any. There's no veneered MDF here – this is real, solid wood furniture. Think of it as a young antique; an investment.

But if this still isn't enough, a visit to the Museum of Synthesizer Technology should satisfy your craving. This is where you'll find the Phoenix... more than 200 RS Integrator modules in a massive, curved cabinet that stands as impressive as any vintage Moog or Polyfusion.

It's a '60s synth updated for the millennium.

words **Gordon Reid** images **Analogue Systems**



Join the synthesist elite with RS8000: a selection of Integrator modules housed in a walnut case





CD info

track 04

Hear a bunch of sounds generated by the RS8000's programmable scale generator and comb filter

prices

- RS120**  
Comb Filter £65
- RS130**  
Programmable Scale Generator £325
- RS150**  
Sequential Switch Mixer £55
- RS200**  
3 x 8 Step Analogue Sequencer £325
- RS250**  
Trunk Lines £17
- RS260**  
Voltage Quantiser £95
- RS270**  
Adapter £32
- RS280**  
Clock Divider £60
- RS8000**  
Case alone £700
- RS8000**  
Complete system £2,200

A sequencer, and more: the RS200 Sequencer with RS280 Clock Divider and RS150 Sequential Switch, all housed in an RS10 rack



⊗ it, and you can use the Switch as a way to create complex modulation effects that would be impossible to obtain otherwise. As always with modular systems, creativity is the key.

**Voltage quantiser**

So far, so good... but sometimes it would be nice to spend more time playing your sequences than adjusting every knob minutely to keep them in tune. The answer to this is a voltage quantiser – a device that makes sure that every voltage passing through it is rounded up or down to a semitone.

The RS260 is a particularly neat example of the beast, and using it is really simple. There are two CV inputs that are summed by an internal mixer, and the result is then shifted to the nearest semitone.

There are two operational modes: Free Run shifts the CV every time it changes enough to move from one semitone to another, whereas Gate requires a pulse to tell the device when to determine the next note. Gate is particularly useful, because it means that you can clock the output for advanced rhythmic and poly-rhythmic effects. Furthermore, the RS260 generates its own trigger pulse every time the CV is shifted, so you can use it as a clock source too! Finally, a Transpose input allows you to shift the output up and down within a five octave range.

But what if even this isn't enough? Analogue sequencers (for all their immediacy) can be more difficult to programme than MIDI sequencers, as you rarely know exactly what you're playing. You can hear the note, and you can use the Quantiser to make sure that it's in tune, but what note is it? How can you be sure the notes are always harmonically related to the other stuff in your track? Ahh... you need a Programmable Scale Generator.

A PSG takes the CVs that you give it, but instead of shifting them to the nearest semitone, it shifts them to the nearest note in a scale that you've chosen. There are four pre-programmed modes: C major, C minor scale, C major arpeggio, and C minor arpeggio. If you want to play music in any of the other scales, just program your own scale and store it in the PSG's memory. The LCD displays the note nearest to the CV at the input, so if the note is one of the ones that you want, save it. Once you've finished defining the scale,

everything you put through the PSG will be quantised to the notes you've requested.

There are loads of other facilities, most of which parallel those of the Quantiser, but it's the applications of the PSG that excite. Imagine that you create a sequence and send it to the CV1 input, at the same time sending a slow, random sample&hold to CV2. The result is a quasi-random sequence that still contains elements of the original, but transposed by the S&H, yet always in the key in which you started.

**In use**

Clearly, the Sequencer, Sequential Switch, Clock Divider, and Quantiser belong together as a set that, but for a few extra sequence steps, would be at the very top of the analogue heap. If you have a TH48 (with its potential for 48-step sequences) and replace the RS200 with this, there's probably not an analogue sequencer on the market that can match the Integrator. But you don't have to own a Sequencer to make use of the other modules and, in particular, the quantisers are powerful signal processors in their own right. And then there's the Comb Filter... Adding an RS120 simply adds to the range of innovative sounds you can produce. Perhaps the best thing about boxes such as the Quantiser and the PSG is that they simplify music making.

Without them, you might spend hours getting everything just so, but with them this can be reduced to minutes. So you probably shouldn't consider buying the RS200 Sequencer without either an RS260 Quantiser or RS130 Programmable Scale Generator.

Finally, don't forget that any of these modules can be popped into a self-contained RS10 or RS15 rack for use with other synthesizers. In fact, Analogue Systems supplies the Sequencer, Quantiser, and Sequential Switch as a self-contained 3U package for just £649, which is £100 cheaper than the TH48 it supersedes.

**Verdict**

The Integrator has come a long way in just a few months, and Analogue Systems' sequencer package offers an excellent range of facilities at a competitive price. On the other hand, you may want to join the synthesist elite, and a system such as the RS8000 (see box) offers more power than most people will fully investigate in a lifetime. Sure, there are little extras that one could want – a dedicated MIDI-to-CV converter being one – but these do not detract from the desirability of the package as a whole.

As for the RS8000's walnut case... well, it's certainly not cheap, costing about £300 more than a pair of RS15 cases with no increase in functionality. And the only gripe with any of the Integrator cases are their sizes: like Oliver Twist, you'll want more.



The trunk line inputs on the back of the RS8000 (see box) offer ten 1/4" sockets

**More from: Analogue Systems, 17 Cannis Road, St. Austell, Cornwall, PL25 4EB  
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# Tascam DA-45HR

## 24-bit DAT machine

**Price** £1,299

**For** Both 16-bit and 24-bit modes ⓧ Familiar front panel

ⓧ Price comparable with existing DAT machines

**Against** Shortens recording time on tapes

**Verdict** The first DAT machine to take the inevitable step into the 24-bit arena. There may be more coming, but Tascam have set a tough target

The digital world has moved so fast in recent years that CD technology might soon be as retro as vinyl. Make way for DVD, digital TV, digital jukeboxes, and the net, not to mention 24-bit multitracks and any other digital devices that come to mind. The point is that there is a need for 24-bit mastering machines, and it is becoming more essential by the day. Tascam have decided to put their marker firmly down with the DA-45HR 24-bit DAT machine, and regardless of your digital capability, this machine looks set to be a real asset for the future.

### Overview

As with the rest of the Tascam range of DAT machines this has the familiar 3U case, with a little extra height given from four rubber feet on the undercarriage. These are easy to remove before rack-mounting. There are a few differences in the front panel that are immediately apparent. It's busier than previous models, but then you'd expect that, given the new capabilities of this machine, and some of the controls have moved to different areas of the fascia. Nevertheless, Tascam have still left some familiarity to the layout: transport, cassette loading bay, I/O selection, and visual graphics display window are all still there, as are the jog shuttle/data wheel and headphone socket, all of which look very neat indeed.

Around the back there are again the familiar ports that you might expect to find, plus a couple of surprises: AES/EBU ins and outs and S/PDIF I/O for the digital connections, balanced ins and outs on XLR, and unbalanced on phono, into the all-important A/D conversion. There's a very useful level control on the balanced output stage, so that the user can easily align the machine to an existing set-up. These controls are

pre-set to maximum output when the machine leaves the factory.

Then there are ports for the optional D45 remote unit and the 15-pin port for any universal controller that may be compatible with the transport controls on a Tascam DAT. On this note, it would be interesting to find out if anybody ever buys a remote unit for a Tascam DAT. TEAC say that these are available at an extra cost of £45, so why don't they just supply the machine with one, and make buyers' lives easier?

Not so familiar to some will be the word clock in and thru ports, which are on a BNC connector and allow accurate digital audio synchronisation between wordclock-equipped devices.

### In use

The review unit powered up with a slightly noisy fan, positioned at the front right side of the unit, but this settled down after a bit, and was not too noticeable in the rack, so there's no real cause for concern there. The next thing of note was the very nice greeting that is given to the user from the display window – nice touch, Tascam.

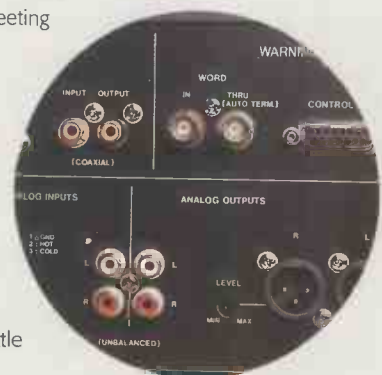
All the transport controls worked very smoothly, and more importantly, they were very quiet, which indicates the high level of the machine's component parts. The shuttle wheel is very smooth in operation and is sensitive to speed control, allowing very precise locating on tape. In standard modes you can shuttle back and forth from normal tape speed to 12x normal speed in 24-bit mode. The shuttle wheel also acts as the cursor control when

### What the future holds?

The capability of recording at 24-bit resolution is becoming more common, with most hard disk recorders now up to speed. So it's no surprise to see a 24-bit DAT machine.

But actually, the process of getting 24-bit resolution onto a standard tape is very clever. In this case it is achieved by increasing the transport speed of the tape drive. The Rotary head system is still in use, as it is with standard DAT machines, and the loss of tape length is something the tape manufacturers are bound to crack in time. The high-speed process that is used then allows for a higher number of data regions to be written on the tape surface than was previously possible, this would indicate that maybe even higher resolutions are possible...

32-bit? Well it is certainly possible, but it won't happen for some time, and besides, there aren't any converters capable of 32-bit technology. The extra bits are probably better spent in user functions, such as timecode, which this machine doesn't have yet, but there's bound to be a 24-bit timecode DAT machine around the corner.



**Surprise, surprise**  
There's AES/EBU, S/PDIF, XLR and phono connections

words **Seb Pecchia** images **Gavin Roberts**





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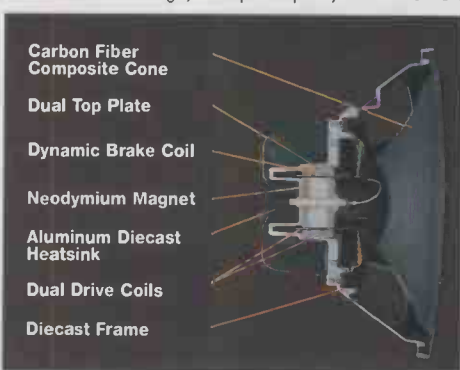
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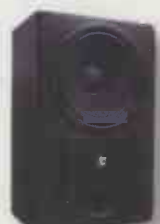
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# Minnetonka Audio MxTrax

PC-based digital recording studio for  
Yamaha's DSP Factory

**Price** £329

**For** Cool interface ⊕ Mix your own mixers! ⊕ Easy to use  
**Against** Ideally needs a high-resolution display ⊕ Limited audio editing  
⊕ Numeric FX editing ⊕ Dongelised

**Verdict** Smart digital multi-tracking software for the DSP Factory card. Superb for mixing audio and getting the most of the Factory's effects, but lacking a few functions

words  
**Ian Waugh**

Yamaha's DSP Factory is a digital mixer on a PCI card. It plugs into a PC and offers eight stereo output channels and four stereo ins. But more than that, it includes lots of on-board effects such as EQ, dynamics processing, delay, and so on.

You can access the card's ins and outs from most digital audio software, which gives you very high quality audio. But the effects can only really be accessed through low-level programming, and they do not automatically appear in a plug-ins menu or in an effects rack. Some of the latest audio software updates, however, do give you good access to the effects through the software's interface.

## Overview

But here is MxTrax, a multi-track recorder designed entirely around the DSP Factory. Installation is easy, direct from CD, and it uses a dongle that plugs into the

printer port for copy protection.

MxTrax supports up to 16 tracks, one for each Factory channel, and incorporates a 24-channel mixer. Audio recordings appear as patterns on the tracks. You can cut, copy, paste and move them, as you can in virtually every other digital audio program. You can create crossfades, there are change gain and normalise functions, and you can drop in markers and name them to mark specific points in a piece.

To some, the program may appear to be a little short on features. We're so used to seeing software with a host of edit functions, sample rate conversion, the ability to export in a range of formats, additional virtual tracks, wave editing, and so on, that MxTrax can seem a little basic.

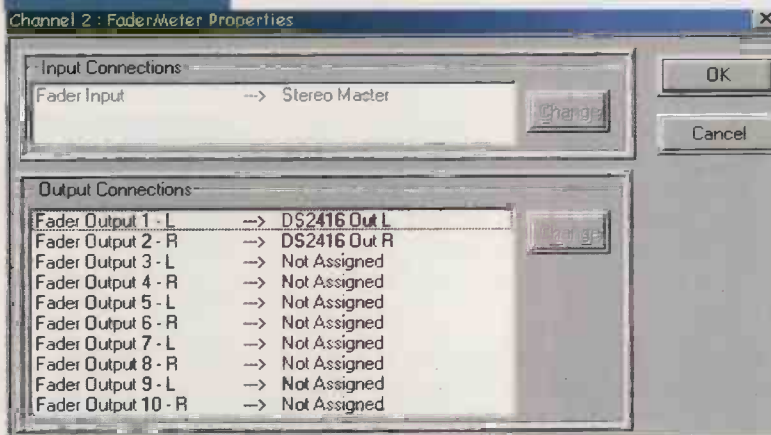
## Mega mixer

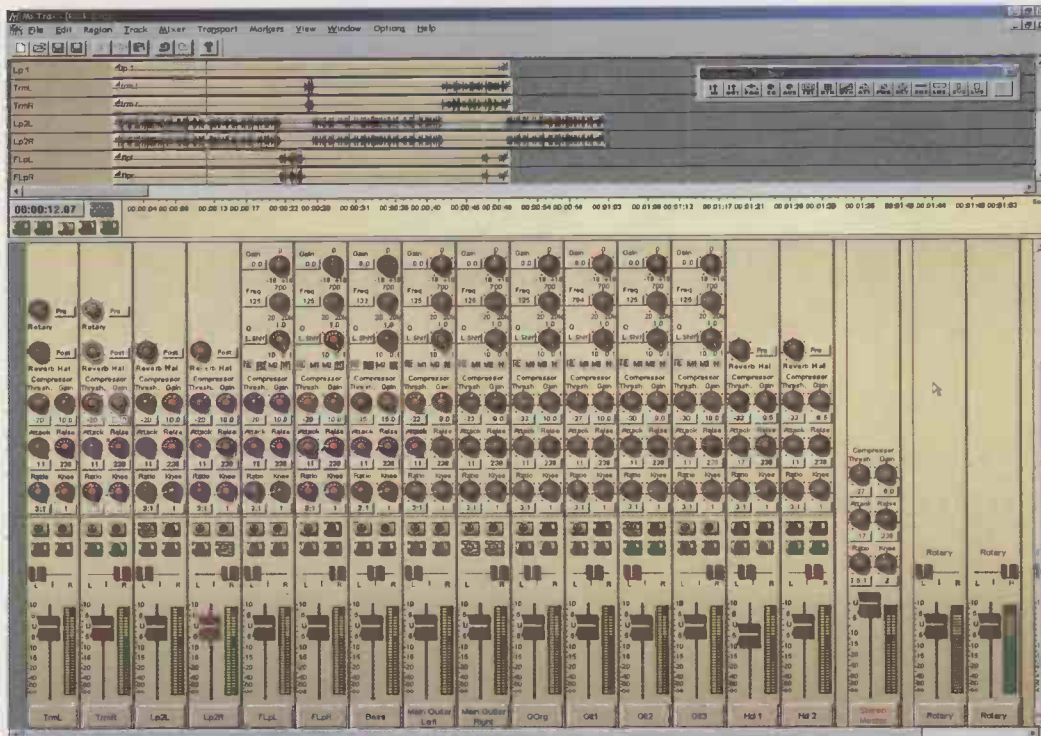
The mixer is the most interesting bit, because you can design your own. It's all done by clicking and dragging items from the Components Toolbox. There are three main channel types: Input, Output (which can be stereo or mono), and Effects.

Input channels usually take their input from the tracks, and you make the connection by dragging a virtual patch cord from the track to the channel. Each channel has a fader, and above this you can drag a pan control, EQ, dynamics, delay, aux send, and various other controls. The Master Output can have pan controls, EQ, dynamics, attenuator, and solo and mute buttons. There are also vertical and horizontal spacers so you can spread the controls out a bit to produce a professional-looking job.

The Effects channels are used to control the Factory's 40 on-board DSP effects. Only two of them can be active at once – that's the way the Factory works – so you can only create two Effects channels.

A Properties box shows the channel's connections, and you can also re-assign outputs here





With a high-resolution monitor, you can see MxTrax in all its multi-channel glory

However, you can change the type of effect they control at any time. The effects can be edited, but this is a purely numeric business, clicking on parameters and scrolling through them with the mouse.

Routing is very flexible. The Input channels usually take their input from a track as described above but they can also take it from one of the card's inputs. The output of an Input channel (got that?) defaults to being connected to the Master Output, but it can be routed to physical outputs, or disk tracks.

Having designed a mixer for a project, you can save it to use at a later date. The program includes several examples, from 8.2 to 16.2 mixers of different complexities.

The mixers also support automation, and this includes the effects controls. There are two modes for recording automation: Write and Update. Write creates a new automation, and Update applies any changes you make to the existing automation. You can also specifically select channels for automation or leave them out of the process.

The automation can be reset for the entire mixer, or for selected channels, which gives you the opportunity to start that difficult mix or control adjustment from scratch. However, you cannot edit automation data directly, as some MIDI sequencers allow you to do.

It's worth noting that if you have two DSP Factory cards in your PC, then MxTrax doubles its facilities. You get 32 tracks, up to 16 analogue Ins and Outs, and 48 mixer channels! At this point it's also worth noting that ideally, you need a high resolution monitor. The program uses a split display showing the tracks at the top and the mixer below, although you can use the entire screen to view one or the other. We ran at 1024

x 768 on a 21" monitor and we wouldn't like to run it at a lower resolution. At a higher resolution, even on a PC running at 450MHz and with a 16Mb ACP Riva TNT graphics card, the screen update was slow and patchy.

### Verdict

There were a couple of crashes, though this might have been due to the latest DSP Factory drivers, which were technically a beta version. In order to use 32-bit recording you need at least version 1.003 of the drivers. Otherwise, the program performed admirably. The manual is generally helpful and includes a couple of simple tutorials, although it lacks an index. Is it terribly difficult to produce an index in these days of auto index functions? On the positive side, the program is pretty easy to use, so you probably wouldn't need to refer to it much after the usual familiarisation period.

That apart, MxTrax is great fun to use, coupling the feel of working with a 'real' mixer with the ability to design your own. For a program dedicated to the Factory it's a shame that effects editing is so numeric, and it probably goes beyond the program's ethic to include third-party plug-in effects.

The main question is, who's going to use it? Well, there's no MIDI support at all, so if you dabble with bits and bytes it's not for you. But if you're primarily an audio person attracted to the DSP Factory for its high-quality audio, expandability (via the AX44 and AX16-AT) and excellent built-in effects for not a lot of lolly, then combining it with MxTrax could give you the virtual studio you're looking for.

**More from: Et Cetera, Valley House, 2 Bradwood Court, St. Crispin Way, Haslingden, Lancashire, BB4 4PW  
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## 16 of one and 32 of the other

Never mind 24-bit soundcards, the DSP Factory supports 32-bit recording. And so does MxTrax, where the choice is set in the Device Options window. You can also select a sample rate of 44.1kHz or 48kHz. The system does not support multiple sample rates in the same project, although you can mix 16 and 32-bit files, but they are converted temporarily during playback to whatever is selected in the project.



Yamaha DSP factory

## specifications

- Tracks** 16
- Channels** 24
- Mixer automation** Write, Update
- Real-time effects** 4-band EQ dynamics delay DSP FX

## system requirements

- ⊗ Pentium PC, 200MHz or faster
- ⊗ Windows 95/98
- ⊗ 64Mb RAM
- ⊗ DSP Factory card
- ⊗ Fast hard disk
- ⊗ Video card with 16bit+ colour

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# Spirit 328

A year after its debut at the 1998 NAMM show, THE MiX takes another look at the digital mixer that's shaping up to be one of the market leaders

Back in issue 47 of *The Mix*, we covered digital mixers past, present, and future, from Yamaha's innovative DMP7 to the latest launch from Spirit – the 328. While Paul Mac covered the new features of the 328 and gave it a definite thumbs up, it is now a year since it was announced at the 1998 NAMM show. After six months on the market, the 328 is shaping up as one of the market leaders.

The 328 came to the public as a bit of a surprise. Spirit kept quite tight-lipped during the design and R&D process, and were only forced to announce its arrival by the NAMM show, where it certainly made a few heads turn. It was then that I jumped at the chance of being involved in the final production beta test of the console. With a recap of the features, I shall try to explain how the 328 performs in the studio.

## Overview

The desk has 42 inputs made up from 16 mic/line channels, 16 digital inputs and 10 stereo effect returns/inputs, not including the two built-in Lexicon Reflex units, which have their own dedicated sends and returns. With additional inputs for two 2-track returns, you soon start to see this little desk as a compact large console.

Techy features include 24-bit, 128x oversampling A-D/D-A converters, internal processing of 24-bit and 56-bit, and sample rates switchable to either 44.1kHz or 48kHz, giving a dynamic range of 100dB. The digital I/O offers two 8-track ADAT and TDIF connectors as well as an additional auxiliary ADAT output. There is the choice of both AES/EUB and XLR, and S/PDIF on phono in and out, with the facility to run in sync from either SMPTE or MTC.

Spirit have put together a well-designed mixing surface. A year ago, the first thing that Spirit's Andy Farmer said to me about the 328 was that Spirit had really wanted to produce a revolutionary digital desk that was well-designed and affordable, and that worked from the word 'go'. This is a pretty difficult thing to do with any digital product, as can be seen from the plethora of computer audio cards and other digital mixers, that are forever waiting for new drivers and

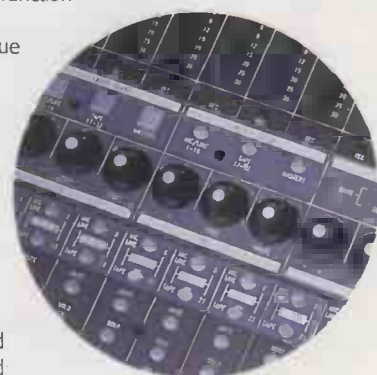
updates. From its initial launch date, there was over a year-long wait for the eventual production of the Mackie D8b (digital 8-buss) desk! From the announcement of the 328, Farmer wanted it to be readily available and useable. This has proved difficult for Spirit to achieve, however, achieve it they have.

Since the launch, the Spirit team have remained determined to provide a 'workhorse' of a desk. Unlike some other desks, there is no big LED screen, partly due to design, partly due to cost. One of the main reasons for the final design of the desk however, was due to Spirit's unhappiness at the layout of other desks, which they felt were not at all user-friendly. With Spirit's clever E-strip design on the 328, this digital desk has the feel of an analogue. Also, Spirit have tried to include every single interface and compatibility that may be needed now and in the future, providing as much value for money as possible. With the ability to link two desks together, a mammoth set up can be achieved, and all at around £3,500 per desk.

## E-Strip

The E-strip, one of the main features of the desk, is what Spirit call the 'virtual control surface'. This is a row of rotary encoders and switches which run horizontally across the centre of the mixer – a very clever design, and perhaps the route other manufacturers will follow. Costs can be kept down with digital desks because controllers are not wired in for every single function on every single channel. This way, a normal horizontal channel, as found on any analogue board, is achievable using the E-strip, which obviously eliminates the need for mass wiring. By depressing any of the mic line or tape returns, 1-16 or 17-32, the E-strip instantly becomes a horizontal channel strip for the selected channel. Interestingly, once familiar with the horizontal channel strip, this becomes a lot easier to use than a normal vertical desk because everything is all at one level.

The encoders have a ring of LEDs around the knobs, showing the exact frequency and



**E's are good**  
The brilliant E-strip emulates an analogue horizontal channel

words **Alan Branch** images **Gavin Roberts**

The 328: a desk to appeal to the analogue turncoats and the digital diehards



degree of shape on the LCD screen as you adjust it. In comparison, Yamaha provide a large screen on which you can follow the EQ curve, but in reality engineers and producers don't work this way. When I'm EQing something, I need to listen to it rather than look at it (admittedly, the visual method does appeal to the anorak inside each and every one of us!) One of the main concerns using a desk with a small LCD screen is trying to use the minimum button pushes possible. A point the beta team raised was the need to cut down scrolling through menus or buttons – an idea I can certainly second.

The switches on the E-strip include level, auxiliaries – including two internal effects – pans, meter selection, fader selection, and switches for fader banks 1-16, 17-32, and masters. The master bank shows the level for group outputs, auxiliaries, and solo trim. There are also switches for the main meter bridge, for manual selection of the display.

These switches turn the E-strip into whatever corresponding button is depressed. For example, pressing Level turns the E-strip into the fader level of the opposite bank selected, thus having 1-16 selected

as the main fader bank; pressing level shows 17-32 on the E-strip. What a brilliant idea! Cramping 32 channels into 16 faders usually means all channels can't be accessed at the same time. Using the Level selection with the 328 this becomes possible.

### Software update

Software updates are available free from the Spirit website. The website itself looks very good, and is full of interesting information about the current state of the 328 and future features. Updating the system software is fairly easy. Using the RS422 port, systems software is sent and installed via HyperTerminal for a PC, also available for the Mac.

One of the additions to the latest software is something called MIDI controllers. As well as the desk having MIDI control for its own faders, on depressing any fader bank selection switch twice, you get a fourth bank of faders. This bank holds 32 MIDI controllers, faders and rotary encoders combined. I mapped them to the audio levels page within Logic Audio for the control of the returns on my Audiowerk8 card. This worked a treat, providing real-time control,

### Snapshots

You can store 100 settings snapshots in the Spirit 328, each one containing every parameter setting, including EQ, pan, fader positions, and auxiliary levels. Selecting store or recall makes this function simple to use. Snapshots can also be recalled with MIDI, which is a useful function when using MIDI automation. Assigning a snapshot at the start of the song means the correct levels are always available. Snapshots can be backed up via MIDI also. It's perfect for automation of a live gig with song levels being recalled via MIDI or by the live engineer.

### Central section

The central control of the desk is by an LCD menu display, which gives access to settings of all the digital parameters inside the console, including dynamics, effects, snapshots, connection settings and selection of EQ. You can adjust any parameter from this main section.

Included in the options are different tape/port selections for T/DIF and ADAT. The MIDI machine control is the standard MIDI connection, with the Sony 9-pin type, RS422 serial connection also provided. From here the timecode source can be configured (LTC or MIDI), including the frame rate. A good way to work is with the transport control. Stop and start (and so on) of machines can be controlled from the desk, if using an ADAT or Tascam, or by using MIDI machine control to a computer. This way you can mix at the desk without having to go the other side of the room to start your sequencer.

Another form of snapshots, called user set-ups, can be installed like a default record or mix set-up for different users or mobile use.

perfect for balancing tracks internally. Moving on to the mapping of the 303 synth filters in Rebirth, this proved to be great fun to use.

I took the 328 controller maps down to the National Music Show in November. There were people there who loved live mixing Rebirth, spinning in delays and sweeping the filters live with the desk. Queues of MIDI folk were turning up to buy dedicated controllers. Here you've got a desk that not only controls the whole mix but, at a flick of a switch, has 32 MIDI controllers for controlling synth parts, filter sweeps, panning, volumes, and so on.

### Stereo inputs

Faders can now be controlled as stereo pairs. Pressing and holding any of the channel selection buttons and another channel button copies parameters from one channel to another. The selection of parameters copied can be set in the menu, and the default is to copy every parameter bar the pan. By holding down the group link button and pressing any of the two adjacent odd/even channels that have been copied, they become linked as stereo pairs. Any adjustment of rotary encoders or level changes to either fader means the matching fader adjusts also, providing proper stereo channels. The dedicated stereo inputs are also there, and if you have just a mono device, the mono source can be plugged into the left jack and will be automatically fed to both sides of the channel. They also have all the sound facilities of any other channel, giving it auxiliaries, EQ automation, and so on.

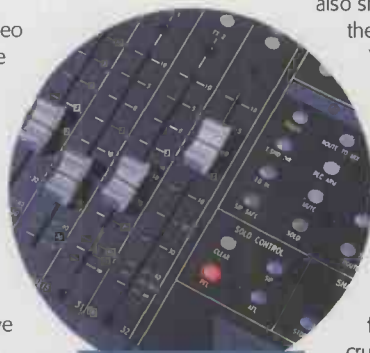
The inclusion of S/PDIF I/O and AES/EBU gives various options. For instance, you can assign DAT

machines to any 2-track return or stereo input. The output can be sourced from the mix, effects sends, or aux sends.

The 328 incorporates Spirit's EQ. Graham Blythe, the designer, has had loads of experience in the field but found the 328 quite a challenge. Digital EQs are known to be, at times, relatively un-musical. Using the EQ with the 328, the sound is always nice, however much it's pushed or prodded. The sweep in the gain has been very well put together with plenty of power in the 3-band parametric EQ. Whilst some people may say, "My desk has 4-band EQ," remember that the high and low EQ can not only be parametric, but also shelves when turned fully around, therefore the shelving is built-in. The

Yamaha O2R's EQ however, like many digital EQs, can sweep across the whole frequency range with a high amount of gain. The design of the 328 specifically resembles analogue EQ, and therefore mid-range is for mid-range and high is for high.

Compared to the Spirit, the Yamaha series has a not-so-user-friendly EQ. This may sound a bit cruel, but digital EQs have never really sounded right. Perhaps a digital compromise? The O2R design is somewhat older, and although Yamaha have always been pioneers in digital desks, I wouldn't be surprised if their next offering is something more like the 328. The sound from the Spirit is much more like a high-quality analogue mixer, which has got to better for the user as it's what most of us are used to. At the end of the day, EQ is still one of those personal preference things. Basically, the 328 has a well-designed and good-sounding EQ that will be easy to get results with.



Lexicon have provided a helping hand in the FX dept

### Revisions

While I've been beta testing, revisions have been made to the EQ to ensure the shape and degree of gain is fine and powerful enough, and that the effects of dithering and noise shaping make the EQ sound as sweet and as smooth as possible. This careful design and approach is what makes the digital EQ work so well. The reason engineers and studios spend thousands of pounds on certain analogue EQs is because their sound is so sweet and so pure that the sound can be sculptured without adding loads of harshness or losing quality.

Another good design feature is the query mode. At any time, by pressing the EQ in on the main section of the desk, it can be seen which channels have EQ switched in and which don't. This is the same for most other functions, like phase, tape direct send, route to mix, and the eight groups. While pressing these and holding them in, the active buttons for each channel are shown.

The 16 100mm motorised faders have a great feel and smooth operation, not like the mini faders used quite often for mixers. Playing back any automation from MIDI moves nice and smoothly – well it does now! The first beta software use of MIDI automation



Beta-tester Alan Branch (R) and Spirit 328 in the studio with Little Axe guitarist/producer Skip McDonald



was a bit hit and miss with some faders moving so fast I thought they would break! At least it proved how strong they were.

If, like me, you currently have no T/DIF or ADAT optical connection from your tape machine/computer, then you can use one of Spirit's three new interfaces. These convert from T/DIF to various types of I/O.

I am currently using the Analogue interface. This turns the T/DIF into analogue phono sockets, giving group outputs, or direct tape sends 1 to 16 and tape returns. This results in a 42 analogue-input desk. Spirit's latest optional interfaces are a mic/line box, which offers balanced connections, mic inputs, inserts, direct outs, high-pass filters, a neat little LED meter, and selective 48V phantom power. And an AES/EBU box, which gives conversion, funnily enough, to four pairs of AES/EBU, so anybody looking for an alternative digital connection, like ProTools users, is covered. It does support 16, 20, and 24-bit resolution, and can send wordclock.

An interesting point is that all the above interface boxes come with a separate power supply and can be used independently from the 328. So if you need to convert T/DIF, these boxes have it all.

## Dynamic Control

You have to enter one of the two Dynamics sections before you can assign them, that way the desk knows which one to use. By holding down the dynamics button and selecting a channel or two, the compression, or whatever is chosen, is then applied. Note: currently there is a section that includes a

sidechain input; you will have to set this to the channel you have selected, unless of course you want to use the sidechain. There is no way of turning this off at the moment, and much to the annoyance of Spirit's programming department, I've been moaning on to get them to improve all of the dynamics section. Hopefully they are bashing away at that code now!

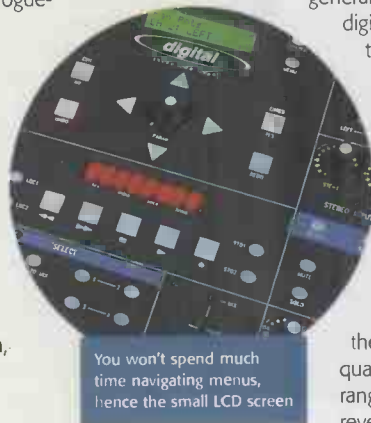
The dynamics section is the main area where Spirit has had some stick. Whilst most analogue consoles don't normally include a dynamics section,

generally they are included on individual digital mixer channels. This is one thing that should have been considered when they chose their DSP. Another infamous omission is a talkback mic. I don't really know the story behind this, but it does seem somewhat bizarre not to have one. You can get round it, but have to use up one of the 42 inputs as a talkback mic input.

The effects have been given a helping hand from Lexicon (one of the leading manufacturers of fine-quality reverb units). These give a wide range of adjustable parameters for reverbs and delays, and include some really interesting factory presets. Lexicon are. The reverbs included with the 328 are fantastic and produce superb results. Lexicon has not cheapened any of their technology. It is icing on the cake that Spirit has built-in Lexicon processors.

## In use

Recording and mixing completely on this desk have produced some brilliant-sounding results. The MIDI automation is probably the hardest function to get to grips with, bar the dynamics. You have to



You won't spend much time navigating menus, hence the small LCD screen

## Channel overview

Starting at the top of the desk, the mic inputs all use the ultra-mic+ Spirit design, with up to 66dB of gain on balanced or unbalanced inputs. The sound from one of these inputs, using a professional condenser mic is amazing. On a previous review, using the new AudioTechnica AT4060 valve mic, loads of vocals were recorded over two weeks and everybody remarked on the superb quality. (Lee Bedlam, the singer in question, is one of the best I have worked with, though!)

Line input accepts TRS jacks, all unbalanced. This is the pre-EQ insert point, which allows an external compressor or limiter type of signal processor into the signal path. Below this is the gain control, one of the few knobs that is not automated on the desk. The 100Hz high pass filter, gives 18dB per octave.

Underneath this is an LED bargraph, a 10-segment, tri-colour, peak reading bargraph meter. This can be globally switched by the E-strip, or set to auto follow fader mode, configured via the menu options. If the auto mode is switched to off, the bar graphs will select whatever you want them to show, via the meter bank buttons included on the E-strip. Every channel is able to track, arm, and record remotely from the desk directly to a tape machine. A neat little record indicator on the desk flashes when recording.

This basically wraps up the whole channel and fader interface, and the way they work together as laid out on the desk.



Alan's personal set-up in the live room at Rak studios





If you haven't got a T/DIF or ADAT connection from your tape machine or computer, you'll need one of Spirit's new interfaces

» record desk moves onto a MIDI track in the sequencer and then play them back, setting the automation via the menu to read/write or update as required. Winding back on the sequencer and pressing play does mean that the fader may not be in the correct position if no previous position was written. (For the position to constantly be fed from the desk to the computer would result in a huge amount of MIDI data being sent out.)

This isn't too much of a problem, because with any MIDI automation, only one or two channels need to be recorded at a time, with additional fader movements gradually being built up. If you record a MIDI recall of a snapshot of the balance at the start of your song, it will reset your levels every time you play back; and the snapshot can just be updated if the levels are adjusted.

### No compromise

Having read this, you may think it's a bit of a compromise, but in practice it's very easy to use, as you are dealing with all your MIDI and audio on the same screen. Therefore, it soon becomes just another part of the song. It also makes rearranging the song a lot easier because the 328 levels move with their respective audio parts. MIDI automation is always a bit cumbersome compared to a built-in system, but even these often leave a lot to be desired.

Linking two consoles is easy, with a specially-made cable and the link port. One desk acts as a master, but a lot of the features work from either desk. You get four Lexicon FX, but they are independent to each desk. 84 inputs? 32 digital, 32 analogue, and 20 for effects and so on! I love it. It's not an SSL, and it has its faults, but for the money it offers a hell of a lot.

I'm currently using it as part of a portable digital workstation in a kind of dual studio set-up. When I need to comp vocal takes or work on some beats I can go into the live room (where I have my own set-up) to work while someone else can work in the main studio. I have tie lines joining the two rooms for a talkback set-up and line feeds so we can hear each other and send audio either way. This includes a SMPTE feed, so we can lock up to multitrack, and work at the same time.

### Verdict

In case you haven't gathered, I like this desk! There's nothing better out there right now than the 328. Don't be fooled by nice, flashy LED screens – they can be a store of never-ending menus and software switches instead of dedicated hardware ones. For great sound and a workhorse of a desk, or a comprehensive digital mixer that can be used purely as an analogue or digital board, Spirit have produced the goods.

If you're used to jumping from EQing on one channel to another, any digital desk will have the restriction of only accessing one set of EQ at a time. On the 328, channel switching is simple, especially with the very clever E-strip.

The way the dynamics are assigned to channels still needs some work, and then there is MIDI automation, and the missing talkback mic. Apart from this, compared to the RAMSA DA7, the Mackie dBb or Yamaha's range of O-series, the 328 is still, for me, the pick of the bunch for features and quality per pounds. I haven't considered looks and designer appeal, as more and more gear now looks like a prop from *Star Trek*. That I shall leave to you... But before you buy, consider what bit of kit will do the job you need it for!

The 328 should appeal to engineers and musicians who are used to analogue mixers but are thinking of changing to digital. Those already in digital land should also embrace it, as the ease of function of the E-strip and the fader bank switching is superb. This friendly interface leaves others standing. ☺

**Price: £3,524 More from: Spirit by Soundcraft, Cranbourne House, Cranbourne Industrial Estate, Cranbourne Road, Potters Bar, Herts EN6 3JN Tel: 01707 665000 Fax: 01707 665461 Web: www.spirit-by-soundcraft.co.uk**

Another interface – this one turns TDIF's into mic channels



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# SEK'D Prodif Gold

Digital I/O PCI card for PC and Mac

**Price** £499

**For** Internal digital input  Always sends output to both digital outs  
 Support for 8-channel ADAT and multiple cards

**Against** Some parts of the manual lack detail  No dedicated software application for hardware control

**Verdict** A digital interface that's adaptable enough to grow with your requirements

Excitement and digital interfaces are two terms that are not likely to be used in the same sentence, but as with most computer hardware, it's what it can do that's important, as opposed to what it is. The SEK'D Prodif Gold digital interface, with a features list as long an advertisement break on satellite television, promises much. Does that include excitement? Well, perhaps...

## Overview

To install Prodif Gold you need a free PCI slot, and either Windows 95/98/NT or MacOS. Actually getting the card up and running on the PC is as easy. This is just as well, as the trouble-shooting guide in the manual, like a few other sections, is a tad too brief.

On the back panel are two sets of digital ins and outs, configured as coaxial and optical connectors, and an error LED. There are also two internal connectors (one input, one output), which can be used to sync with other Prodif cards. With a suitable adaptor the coaxial input and output can be coerced into conforming to the AES/EBU standard. The optical input can also be used to connect ADATs, thus allowing simultaneous transfer of eight tracks. Additionally, the driver allows you to separate the eight channel stream into either four stereo, or eight mono tracks, where supported by the recording software. Since this feature is enabled automatically by the card, two channel SPDIF-compatible output is not possible when more than two channels are receiving.

## Fiddly bits

Various parameters pertaining to the operation of Prodif Gold are set in Windows' device manager, for which the software driver installs a desktop shortcut. This

removes the hassle of ploughing through a mound of menus just to get to the card's preferences window, and is a simple, but very nice touch. All of the parameters set in the device manager are effective the moment that they are set, although it can be necessary to stop and restart playback or recording for some sound applications to take any notice of what you're doing.

In the driver software it is possible to choose the input source from the list of three available:

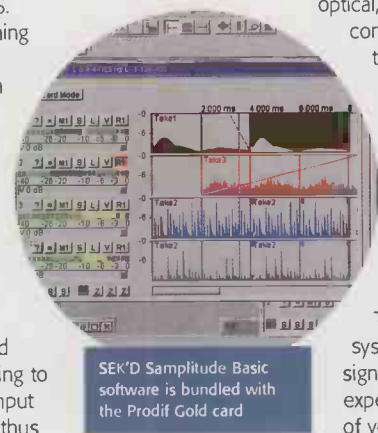
optical, co-axial, or internal. The latter connection is one of those two-pin things and, with a suitable cable, can be used to connect a CD-ROM drive (or perhaps a soundcard) directly to the Prodif Gold card, making copying audio tracks from CDs a far easier activity. This input also doubles-up as a sync in for slaving multiple cards (although it's also possible to use one of the external outputs too).

The Output options provide a flexible system of routing the incoming digital signal, and not, as you might initially expect, to route the signal to the output of your choice. Routing the output is completely unnecessary with the Prodif

Gold, since both the optical and co-axial outputs are always active (giving the card an extra use as a signal splitter). When the Output is set to Automatic (the default mode), the input signal is fed straight through to the outputs during recording; Play Only does the opposite, disabling the output during recording. Finally, Input mode acts as a monitor, through-putting the incoming signal to the outputs and de-activating it upon playback.

With Auto-sync enabled, the Prodif Gold will sit waiting anxiously for an input clock, synchronising

words  
**Danny  
 McAleer**  
 images  
**Gavin  
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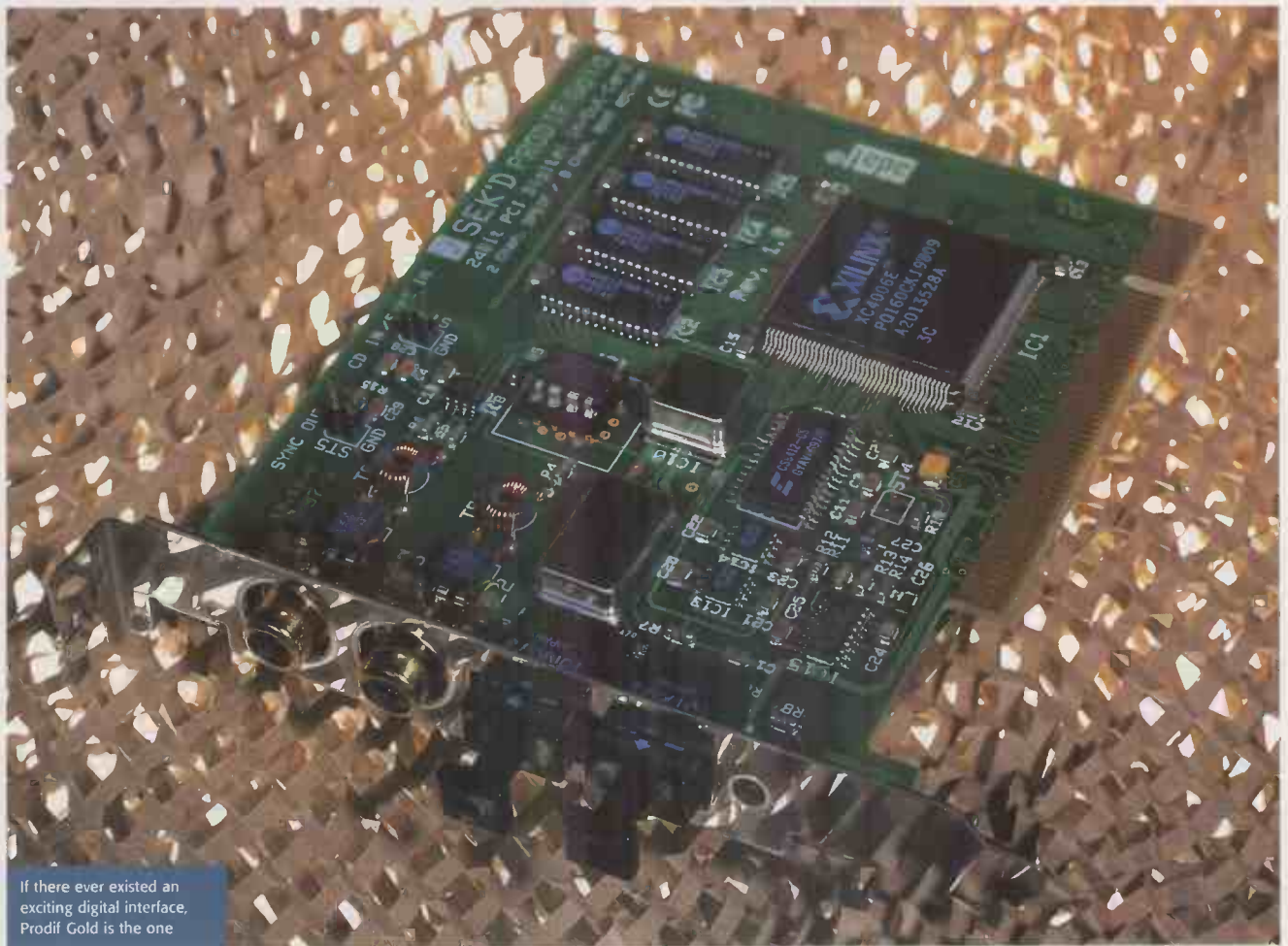


SEK'D Samplitude Basic software is bundled with the Prodif Gold card

## Samplitude included...

How much use you actually get out of the Prodif Gold card is entirely dependent on what software you use, and the bundled software, Samplitude Basic, is an excellent place to start.

Like its more fully-featured counterpart, Samplitude Studio (reviewed in last month's issue), it sports hundreds of 'virtual' tracks with up to eight of them playing at once, has a wealth of non-destructive and off-line editing tools for audio segments, a built-in audio mixer with EQ, effects, and support for Direct-X plug-ins, and can even manage simultaneous record and playback. As long as the input and playback frequencies are set identically, the Prodif Gold card has no qualms with this.



If there ever existed an exciting digital interface, Prodif Gold is the one

immediately with any valid signal it receives from the selected input, guaranteeing never to waver. The sampling frequency status box is updated once every half-second, displaying the currently selected rate, or moaning that your input is way off, and that you really do need to improve your aim.

**In use**


Both consumer and professional digital formats are supported for output. This bit flag, along with the copy protection flag, is ignored on the input, making the Prodif Gold an ideal companion to one of the stand-alone domestic CD recorders (or for embarking on sundry nefarious audio-hijacking deeds).

The standard array of sampling formats (32, 44.1, and 48kHz) are all accommodated, too, although during the review the Prodif Gold card was a little disgruntled with a 32kHz clock it was sent. In all fairness, it was more likely to have been the fault of a rather dubious digital clock source than the fault of the card, but it did seem less tolerant of this than it did with other frequencies.

Since the Prodif Gold card is installed under Windows as an MME device, most audio software, from simple 2-track playback-only programs (such as ReBirth), to direct-to-disk recorders capable of supporting multi-track recording, will recognise it.

Up to 24-bit sampling resolution on the input and output is possible with the Prodif Gold card, although whether this extra headroom actually gets utilised depends wholly upon the source material and the recording software. If neither of them support 20 or 24-bit, then you're going to have to suffer with the crystal clear 16-bit mode. Shame.

**Verdict**

Perhaps the best compliment that a digital interface could be paid is that it doesn't interfere with your computer's day-to-day musical activities. In this respect, the Prodif Gold can expect to have compliments galore. Its driver software, which is as simple as it is effective, is regularly updated with revisions and fixes freely available from the SEK'D website. Separate drivers exist for Windows 95/98, NT, and Power PCs, with the latest Windows driver offering, amongst other things, better support for multiple card set-ups. Its operation is as transparent as a politician's promises, and the quality and sheer breadth of its features make the Prodif Gold card a superb choice for digital recording on your PC, particularly for ADAT users. 

**More from: SCV London, 6-24 Southgate Road, London, N1 3JJ Tel: 0171 923 1892 Fax: 0171 241 3644 Web: www.sekd.com**

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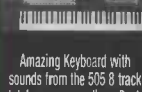

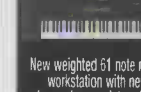
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# new releases

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*...



**KULA SHAKER**  
PEASANTS, PIGS AND  
ASTRONAUTS  
(COLUMBIA)

Following on from their debut album, *K, Peasants, Pigs And Astronauts* sees Kula Shaker on a

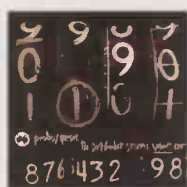
calmer (or Karma) tip. First single 'Mystical Machine Gun' is similar to many of the better sparks on *K*, but with a more intelligible ethos at work. Ethnic instrumentation is out in force, but there's more sincerity this time round. Crispian's lyrics and delivery are as Lennon-esque as always on these psychedelically turbulent recordings. But there's more here, too. A new-found Doors influence permeates tracks like '108 Battles', while 'S.O.S.' is just too Spinal Tap to be taken anywhere near seriously. 'Radhe Radhe' carries on George Harrison's Indian love affair, but adds horns. Inventive, and fun in places, but ultimately derivative. • *Nick Serre*

**Producer:** Bob Ezrin/Crispian Mills/various

**Engineer:** Fulton Dingley

**Studio:** Various

**Verdict:** Not as eclectic as the title.....6/10



**PRODIGY PRESENT**  
THE DIRTCHAMBERS  
SESSIONS VOLUME 1  
(XL RECORDINGS)

Knowing that Liam Howlett was a DJ long before the days of the Prodigy, his DJing prowess on this offering

comes as no surprise. As well as showcasing the influences behind Prodigy's sound and attitude, *Dirtchamber* also demonstrates Liam's taste and mixing skills. Who else could segue 'Give The Drummer Some' by Ultramagnetic MCs into Time Zone's 'Wildstyle'? Classic cuts range from Grandmaster Flash And The Furious Five's 'Pump Me Up', to the Sex Pistols' 'New York'. Nods to contemporaries like Chemical Brothers and Propellerheads are included, making this a potted history of cool music. • *Nick Serre*

**Producer:** Liam Howlett

**Engineer:** Liam Howlett

**Studio:** Various

**Verdict:** Howlett in the house, large.....8/10



**BLONDIE**  
NO EXIT  
(BEYOND/ RCA)

Nostalgia time? Maybe not. There are nods here to Blondie's classic cuts: 'Screaming Skin' is a throwback to the band's disco/reggae

flirtations, while 'Maria' is a great feelgood track, which proves that the magic that has been dormant for some 16 years can only have been fermenting in the collective Blondie mind. (Not sure about those bell sounds in the chorus, but we'll let that pass for the moment.) Bach's *Tocatta And Fugue* (strangely) kicks off the title track, and just when you're thinking 'how naff?', the track proper looms out like a true late '90s anthem. Even the rapping (with a guest appearance from Coolio) surpasses many of the so-called specialists in that overcrowded arena. Superb. Buy it soon, 'cos then you'll get the limited-edition CD with some great live tracks to boot. • *Nick Serre*

**Producer:** Craig Leon

**Engineer:** Various

**Studio:** Various

**Verdict:** Resurrected delightfully.....7/10



**COLDCUT**  
LET US REPLAY  
(NINJA TUNE)

They were at the cutting edge of the mid-'80s acid house scene, and Coldcut's hangover is omnipresent on this offering. But who cares?

Quality hangovers are not always easy to come by. Production and remixing are second nature to Jonathan More and Matt Black (Remember 'The Only Way Is Up', by Yazz, or Lisa Stansfield's 'People Hold On'? Or, for that matter, Eric B And Rakim's 'Paid In Full?'). *Let Us Replay* is a journey into favourites and new territories, and Coldcut switch with ease from old skool hip hop to well-executed jazz nuances. The real glory is the collaborative production efforts with the likes of Grandmaster Flash and Carl Craig. • *Nick Serre*

**Producer:** Coldcut

**Engineer:** Various

**Studio:** Various

**Verdict:** Replay endlessly.....8/10

## recording in progress

Robbie Williams is currently at Battery studios recording and mixing new tracks with producer Steve Power

Cuba are at September Sound working on self-produced album mixes

Whitfield Street studios is home to Another Level, who are mixing tracks with production team The Grand Jury

The Cure are at St Catherine's with producer Paul Corkett recording a new album

Adrenalin Junkies are putting the finishing touches to their debut album *Electro Tribe*, produced by Miss-Chief at the Junkie's own Playroom studios

Air studios is host to Jeff Beck, who is remixing tracks with Howie B

Mark Freegard is producing a single for Ash at Orinoco

Scott 4 are self-producing tracks at Battery studios





**NORTHERN EXPOSURE  
SASHA /JOHN DIGWEED  
EXPEDITIONS  
(INCREDIBLE)**

Sasha and Digweed are a duo who effectively redressed the boundaries of live DJing. No longer was it a prerequisite to use extensive

breakdowns when these guys hit the decks. Beatmatching tracks and spinning in with incredible accuracy has become a trademark. And *Expeditions* takes it all to yet another height. Ultimately club-oriented, without being overtly 'clever', the set here proves why they are so popular on the circuit. The way Movement Perpetual's 'Sexual Movement' segues into 'Seaside Atmosphere' by Stef, Pako & Frederick is awe-inspiring to say the least, as is the transition from Stage One's 'Stage Manouvers' to Union Jack's 'Moming Glory'. This is an eclectic and exotic mix that shows why Sasha and Digweed are, as ever, at the cutting edge. • Nick Serre

**Producer:** Sasha/John Digweed

**Engineer:** Sasha/John Digweed

**Studio:** Berwick Street

**Verdict:** More exposure, please.....7/10



**JOJI HIROTA AND  
PETE LOCKETT  
TAIKO TO TABLA  
(ZOKA)**

Just taking onboard these guys' credits is difficult enough. Indian percussion specialist Peter Lockett has graced recordings by Björk, Kula

Shaker and Bill Bruford, while Japanese drumming guru Joji Hirota has worked with the likes of Jah Wobble and Bill Evans. But there's no jazz or pop here. *Taiko To Tabla* is a live workout of inspired multicultural pieces penned by the two maestros, and executed beyond the realms of belief, live, with no overdubs. Given that, it's a glorious insight into the disciplines of combining an all-encompassing range of percussion instruments in a streamlined way. Both sonically and in terms of musicianship, it is difficult to cite individuals who are this able. Put these two together, and there simply is nothing to touch them. • Nick Serre

**Producer:** Walter De Niel

**Engineer:** Walter De Niel

**Studio:** Live at the Bruge Festival

**Verdict:** Top percussion duo.....9/10



**BLACK STAR LINER  
BENGALI BANTAM YOUTH  
EXPERIENCE!  
(WEA)**

On the Asian-fuelled tip, few come close to Black Star Liner's historic yet contemporary style (save perhaps for Asian Dub Foundation). But it's

an utterly different tip to ADF, or, for that matter, Cornershop; fusing Hindi vocals, tablas and sitars with urban beats into perfect slices of what all the alleged crossover styles of recent years have been aiming for. 'Low BMW' hints at dub/ska influences while maintaining a sampling sensibility that fits perfectly. 'Gurdeep's Yellow Funk', on the other hand, with vocoded vocals and hell-for-leather guitars, hints at Kraftwerk and hip hop influences, all comfortably encased in Indian Raga scales. Sounds like nothing you've ever heard before? You better believe it. And that holds true for the whole of the album. • Nick Serre

**Producer:** Choque

**Engineer:** Choque/Tom Salmon

**Studio:** Big Feet Bunker, Leeds

**Verdict:** Finally, a luxury cruise.....8/10



**MODEL 500  
MIND AND BODY  
(R&S)**

We all know that Juan Atkins was one of the first arbiters of Detroit techno, along with Derrick May and Kevin Saunderson. But while the others are amicably continuing the

tradition, it's Atkins who still seems to be pushing the boundaries. His second Model 500 foray sees his techno grounding still permeating proceedings, but he's become a bit of an anarchist (think Funkadelic and George Clinton's more madcap moments). Juan's DJing prowess, mixing skills and canny knack for production are rife here. Witness the laid-back bliss of 'Everyday' or the urban hip-hop funk of 'Incredible' and you'll see why it's an understatement to label Atkins a maverick. From vocal-led techno to fucked-up hip-hop... He was a spearhead of techno, and now he is *the* spearhead of perhaps a new genre. • Nick Serre

**Producer:** Juan Atkins

**Engineer:** Various

**Studio:** Various

**Verdict:** Looking forward to the next 10.....9/10

recording in  
progress

Suede are at Master Rock recording and mixing their new album with Steve Osborne working as producer

Battery studios is host to Fifth Amendment, who are mixing their new album with producer Bryon New

John Digweed is working on a mix album at Berwick Street with producer Paul Harris

Kula Shaker are mixing live shows at Whitfield Street with producer Fulton Dingley

Lauryn Hill is at Whitfield Street studios mixing live shows with producer Gordon Williams

Irish singer-songwriter Sinead O'Connor is at present recording and mixing album with producers Adrian Sherwood and Skip McDonald at RAK

Julian Lennon is currently working on a new album at Air. Bob Rowes is producing

MILESTONES



**STEELY DAN  
CAN'T BUY A THRILL  
(MCA)**

*Can't Buy A Thrill* has to be one of the most assured debuts ever, appearing ready-formed and damn-near perfect. The musicians were a bunch of Californian 20-somethings led by co-composers Walter Becker, bassist, and keyboard-vocalist Donald Fagen.

There were plenty of such groups in LA in 1972, but what made Steely Dan so different was the sheer

effortless artistry of their sound: blue-eyed, laid-back proto-funk fusion, washed through with Jim Hodder's neo-Latin percussion and spiked-up by the lyrical guitars of Jeff 'Skunk' Baxter and Denny Dias, while the suave voices of Fagen and David Palmer declaimed the former's ironic verses over the top of it all.

Steely's publicist described 'Do It Again' as a slice of "urban sturm und drang". In truth, the phrase wasn't far off the mark for a magnificently moody piece of music. It

took three years to chart in Britain – as did the *...Thrill* LP itself – but soon became a late-night radio classic (which just happened to bear an uncanny resemblance to Michael Jackson's 'Billie Jean' hit of 1983), as did the uptempo 'Reelin' In The Years', one of the Steelies' few nods at straight-ahead LA rock. 'Brooklyn' meanwhile, epitomises wistful, while 'Dirty Work' is an intelligent look at adultery. The strident, piano of 'Fire In the Hole' is unique and 'Turn That Heartbeat...' seems to alternately question and support the idea of faith, yet, with its building verses and singalong chorus, it remains a melodic classic of a type only Fagen and Becker could have written.

By the mid-'70s every other bar in London and LA seemed to have a Steely-type combo playing the white man's blues – but few ever composed tracks of the quality of *Can't Buy A Thrill*, the slow-burning million seller that launched Donald Fagen, Walter Becker and Steely Dan, the musicians' musicians. • Phil Strongman

**Producer:** Gary Katz

**Engineer:** Roger Nichols/Tim Weston

**Studio:** The Village Recorder, LA, California

Destinatário / Destinatário  
Nome/Nom: A&R DEPT



# Inside A&R

words **Nick Serre** images **Gavin Roberts**

A record company A&R department can bridge the gap between your demo and that elusive recording contract. But what does this semi-mythical and much-misunderstood beast actually do? *The Mix* delves into the heart of the matters that matter for you, the artist...



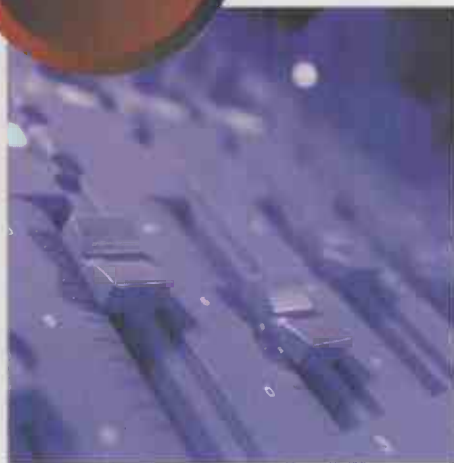
**M**ention the term 'A&R' in circles of musicians, and you're likely to encounter a barrage of stories about the evils of the profession. Truth is, though, if you're an unsigned artist, these are exactly the chaps and chapesses who may hold your destiny in their hands. A scary thought? Of course. But ignore the reputation for a moment, and we'll investigate exactly what these apparently shady characters can do for your career.

What does any musician want as a result of their hard-sweated labours? International recognition? Fame? Fortune? Probably all of the above. It's a sad case, then, that even if you get to the stage of recording a demo, it's unlikely to be heard by anyone save for some close personal friends and, erm... that's probably it. The next stage in getting your latest opus listened to by anybody with any clout is to get it sent out to record companies and their associated contacts. You know, those conglomerate bureaucrats with the cheque books. Traditionally, the first port of call is usually the A&R department of the record company. But, as we'll find out, there are many stages involved.

First up, of course, you need to have a recording to send out. While it's easy to fall into the trap of wanting to produce the finished article, bear in mind that it is the job of the A&R department to search out new, raw talent before putting an act with the right producer, in the right studio, with the right material. And that's just the start. There is little room to be precious at this early stage. Generally, A&R types are more interested in material that can be nurtured. So don't go overboard on the production. Great songwriting talent can shine through on a 4-track demo, so resist the temptation to be unnecessarily lured into believing that a 24-track professional recording is the key.

Of paramount importance is the arrangement of your tracks. The unspoken truth that A&R guys listen to between 20 and 30 seconds of a track needs to be borne in mind. So, even if your 16-minute dance opus has the most glorious two-minute intro, attention spans simply won't last. As with the music industry in general, the key is to get to the point. And be ruthless. It's difficult to be heartless with your own compositions, and perhaps even more difficult for your mates, but it's essential.

Compare the strength of your own material to that of your own favourite acts. Get the hook in as soon as possible, and if isn't instantly attention-grabbing, do it again. And never, ever, apologise for the absence of a decent singer or the shoddy middle eight – sort it out! »





» Assuming you've now got three kicking tracks recorded (three is the number that A&R managers generally like to see, and maybe even hear), the temptation is to bung it on a tape and stick it in the post to every major record company. Hang on a minute. Can you be arsed to listen to tapes anymore? Nor can most people. CD-Rs are now a very affordable way of presenting your material, and this format gives you the opportunity to come up with some funky artwork, too.

Of course, none of this is of any use when your intended victim detests the music. (But at least they have more opportunity to skip tracks). But showing that you are taking what you are doing seriously can open doors. Take a lot of time over your bio and photo, too. Witty biographies can work, and it is essential to create an impression, and perhaps an image, as succinctly as possible. One side of A4 is plenty, along with a decent-quality black and white or colour print of the guilty party.

So, now we've got this together, who are we going to approach? It is notoriously difficult to get a guarantee that your offering will be heard by an A&R man if it is sent unsolicited. So let's think about who they deal with. Lawyers, producers, journalists, managers, and even accountants and marketing types are often in contact with the A&R departments at record companies, and there's a definite element of 'who-you-know' at work. Think about who you might know who might know someone else. If that fails, which is likely, you need to consider cold-sending, and perhaps looking for a manager, as the next logical step.

It's fair to assume that your chances of getting signed by sending a demo in cold to an A&R manager are pretty much non-existent, but there are some guidelines which will increase your chances. There's little point in sending a package off to all the major labels; it is likely to get lost in the quagmire of demos that land on their desk every day. Pinpoint six companies or so, who have a track record for releasing the sort of material you are producing; be it indie labels, majors, or their various

offshoots. Find out the name of the A&R director at the company, and address the send-out to them. This may seem either obvious or misguided, depending on your standpoint, but if an A&R director passes a demo onto one of their scouts, it's more likely to be given some listening time.

The other option is to find a manager who is involved with acts of a similar genre. Let's not kid ourselves, people go for what they know, and that includes recording industry personnel. You can obtain details of managers from the International Managers' Forum, and again, it will involve sending in an unsolicited demo to them. But, given the lesser volume of demos they receive, you're gonna have a better chance of being heard.

A professional manager and an enthusiastic mate acting as your manager are a world apart, so think carefully and seriously about this area. Managers are renowned for having a passion for the artists they represent (anyone remember Brian Epstein?), and are usually in a good position to realise and promote market trends. Add to that the fact that managers hold a lot of clout with A&R, and a credible manager can feasibly get many A&R people to a gig on the basis of his/her own track record.

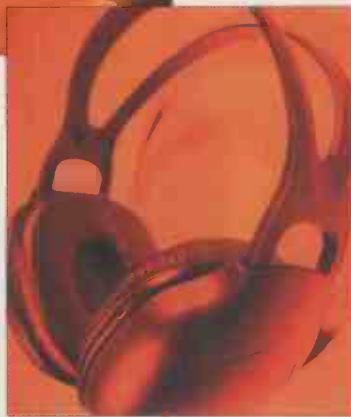
Which leads us on nicely to the arena of gigging. Despite the proliferation of bedroom studio releases, longevity in the music market is often still equated with an act's ability to cut it live,

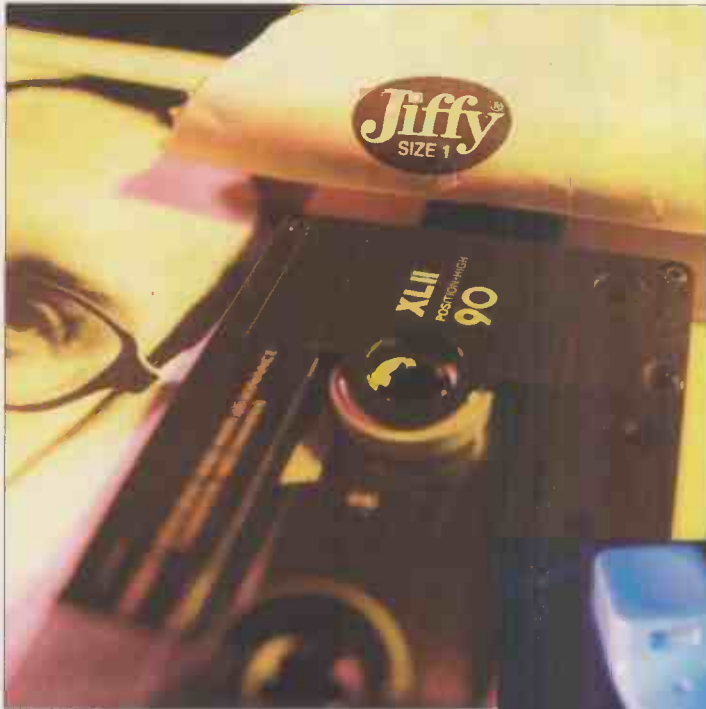
regardless of the genre. One of the main meeting points for A&R is at gigs. Scouts and A&R managers alike will put in appearance at anything up to five gigs a night, to compare notes, keep in touch with the currently hot underground acts, and, if they're lucky, find a gem among them. Getting the relevant gigs, and showcasing yourself well, can be vital in getting the word out to those who matter. Creating a buzz is perhaps easier on the regional circuit, but can be a nightmare in London. But even if A&R don't make it to your gigs, playing live can be an invaluable learning experience, both in terms of defining your image, and honing your material. There are few people who are as resilient as live audiences. And they'll certainly let you know if you're crap.

OK, so the scenario is going well; the A&R bod of your choice has the demo, and darned if he hasn't turned up to see a gig too. So what's our next step? You can't assume that they are interested, you need to find out. But constant phone calls will piss people off, and you'll end up feeling pissed off too. The best approach is to contact them with some news. Upcoming gigs, new material, whatever. Subtle hints may work, and hopefully they will get in touch with you. The A&R community is

shrinking, and most of the scouts and managers know each other, so even if one has decided that it's not for them, there's always a chance it will be passed on to someone else. Try to glean who it might have been passed to if you do manage to get hold of them. Patience is a virtue here, so don't get frustrated. Keep at it, and make sure your act's name is landing on their desk with enough frequency to act as a reminder, but not enough to enrage them (a difficult balance, admittedly).

If all is going well, you may be invited in for a meeting. Don't be blasé about this. You're likely to come under some fire, so a bit of humble pie





What you really need from the recording contract is the facility to make your records properly, with sensible budgets. And you need to be able to live at the same time." And he highlights another potential pitfall. "Freedom of producer choice is also important. Some record companies work on a synergy attitude, so if they own a studio, they may want you to use that studio, along with the in-house production teams."

As well as a recording contract, you'll also need to sign a contract for your publishing rights. Again, your lawyer will be able to advise you – this part needs careful consideration, as it may be the most lucrative part of your deal. "It's worth trying not to do a recording and publishing deal with the same company," maintains Andy. "Publishing is essentially money for old rope. Once the record company start pressing records for you, then a percentage will go to your publishing company, so you will be paid anyway. So it can be a great source of revenue. You need to make sure that the publisher is good in the areas of exploitation. Some publishers are good at letting the money roll in, and others will actively promote the repertoire for use in film soundtracks, TV commercials, and so on.

The best way to gauge that is to ask them how they exploit their repertoire in secondary usage."

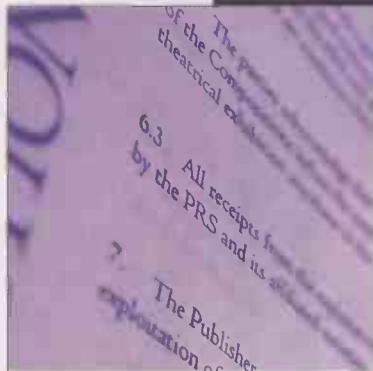
So, are you confused yet? And we've only just glanced the tip of the A&R iceberg here. The workings of A&R departments can seem a tad bureaucratic, but perhaps this is a necessary evil of large conglomerate companies. Legal and technical are a part of every artist's life, and if you can take that on board at an early stage, you'll be in a stronger position than most 'struggling artistes'. Then again, you could always become an A&R manager yourself. On second thoughts...

**Next month: Today's top acts tell us exactly how they got signed. Plus, record label A&R heads tell us who they've signed, why, and what they're looking for next.** »»

is probably on the menu. Bear in mind that if a record company decides to sign you, they are looking at major expenditure, so play the game. In the words of Recognition's (independent A&R) Andy Richmond: "In a meeting it is important to have an agenda before you get in there so that you can control the meeting to an extent. You need to be very receptive and able to answer questions in the best way you can, even if it's criticisms of the music. You need to be slightly humble, and respect what they do, because at the end of the day, if they want to sign your act, and are going to shell out a quarter to half a million pounds, that needs to be treated with respect."

The dream comes true, and you are offered a recording contract. In terms of the record company, this is square one. Recording, marketing, touring and merchandising all need to be set in motion. The priority here is to seek independent legal advice. Employing a lawyer can be expensive, but in the long run you'll be glad you did. Recording contracts can be convoluted, immensely varied, and very long, so it's important that you understand every aspect of them. We're not suggesting that record companies are going to try to rip you off – in fact, they will probably be the first to advise you to consult a lawyer.

The advance, or the lump sum of money given to you by the record company, is to live on while you record your album. Until it starts selling, that's your only income, so don't be frivolous. As Andy Richmond advises: "It's important not to be greedy as far as an advance is concerned, because no-one will make you rich overnight. Bear in mind, too, that any advance you do get will be recoupable by the record company, so it's essentially your own money you are spending.



## A&R CD COMPETITION



A&R CD was formed in late 1997 by Andy Richmond and Sue Hanson. Andy was general manager at Zomba Records and ran their Jive and Silvertone imprints, working with R Kelly, Backstreet Boys and Stone Roses. Sue was previously at EMI and Parlophone and worked with acts like Blur, Supergrass and Radiohead.

A&R CD features no more than 12 tracks and is a dream for the A&R executive. The booklet enclosed with the CD contains 100 words of information of the artist's choice, with background and contact numbers. If accepted, your track will feature on a CD compilation that will go straight to the heads of A&R at record companies and publishing companies (both major and independent), management companies, and agents, as well as taste-picking journalists and media pluggers.

In September 1998, A&R CD was part-sponsored by Music Choice Europe. Music Choice's multi-channel offering is now available on a national basis in the UK through Sky Digital. UK consumers can now access up to 44 digital quality audio music channels via satellite. *Act Nouveau* and *Fifteen Minutes Of Fame* broadcast newly signed/unsigned bands to over 12 million homes throughout Europe.

The cost for inclusion on A&R CD is £125. If accepted, your track will be included on the next volume of the CD, which is sent out to more than 600 industry contacts. And you'll receive a box of CDs to impress your family and friends. Demos should be sent to A&R CD Ltd, PO Box 2217, Wiltshire, BA15 1YN.

But, before you bombard them with your wares, *The Mix* has secured two tracks on the next edition of A&R CD for free! The best demos received at *The Mix* office (mark "A&R CD Compo") will be judged by top A&R types who will choose the two winners. Send them in before Monday 5th July to be in with a chance.

# A day in the life of an A&R man...

This gentleman is Sam Winwood. Sam works in A&R at Sony S2, which makes him precisely the person you want to hear your demo. *The Mix* decided to find out just how he does his thang

## 10am

"I usually turn up at about this time. It's good to have flexible hours because the night before may have been a bit intense. I haven't overslept today, but if I do, I can always blame it on a meeting or something!

First thing to do is get a large cup of tea, and then I'll boot up the computer and see what emails I've got. There are quite a few today from bands chasing up what I thought of their demos. I'll get back to them, but some of the packages haven't even arrived yet!

## 11am

Now I've got to make a list of things to do. I'm not a great organiser, so I have to make lists in case I forget anything. The phone is ringing constantly, so I don't usually answer it. I get so many calls, that if answered them all I wouldn't be able to do what I'm meant to be doing. The voice mail is always on, and I will get back to people when there's time.

## 12pm

It's difficult to have much of a structure to the day, so I have to go with the flow. A hell of a lot of time is spent making phone calls to promoters, managers, and the like. There are a lot of meetings at set times.

At some point I'll listen to some of the demos that have been sent in. On average, I'll listen to about 30 seconds of the track. That might sound harsh but look at it this way: if anyone goes into a record shop and listens to a CD they'll know whether they like it or not within that time. That said, I will listen to at least *some* of every track, and if it grabs my attention, then I'll obviously give it more time.

## 1pm

It's time for a couple of pints of Stella down the local watering hole...

## 2pm

Me and Lincoln [Elias, fellow A&R man], are going to have a half hour or so to chill out for a bit and listen to some good music. If you listen to too many demos and most of them are not great, you lose the focal point of what it's all



about. I've had people ask me if I do actually like music, and they are quite serious. A lot of them think that we are 40-year-old lawyers who sit around in big offices and have legal degrees. That is very far from the truth; most A&R people are crap when it comes to business. Being in A&R is the nearest thing to playing in a band that you could be – that's what attracts people to it. To nurture a band from being nothing to playing at Wembley Stadium is the biggest buzz.



## 4pm

Time for the label meeting. We have one each week – they are essential to go through all the acts on our roster, and make sure we all know what they're up to that week, and how things are progressing.

Today, we've got representatives from acts in, as well as everyone from the label, so we can all keep abreast of what's happening. S2 is a relatively small company, so it's important for everyone to know what's happening at any point in time.



## 8pm


On to some gigs to see if there is anything exciting happening. Tonight we'll check out a couple of bands in London, mainly Camden, but we do go further afield when we think there's a buzz about a new act.

You do often see A&R people in groups. There's no conspiracy behind that, it's just that we know each other, and become mates. In any circle you are more likely to talk to those people you know. That's only natural.



## 12am

The bands we saw tonight weren't all that exciting, but I'll be keeping my eyes on one of them. Now I'm off home to bed, before going through it all again, in some way, tomorrow.

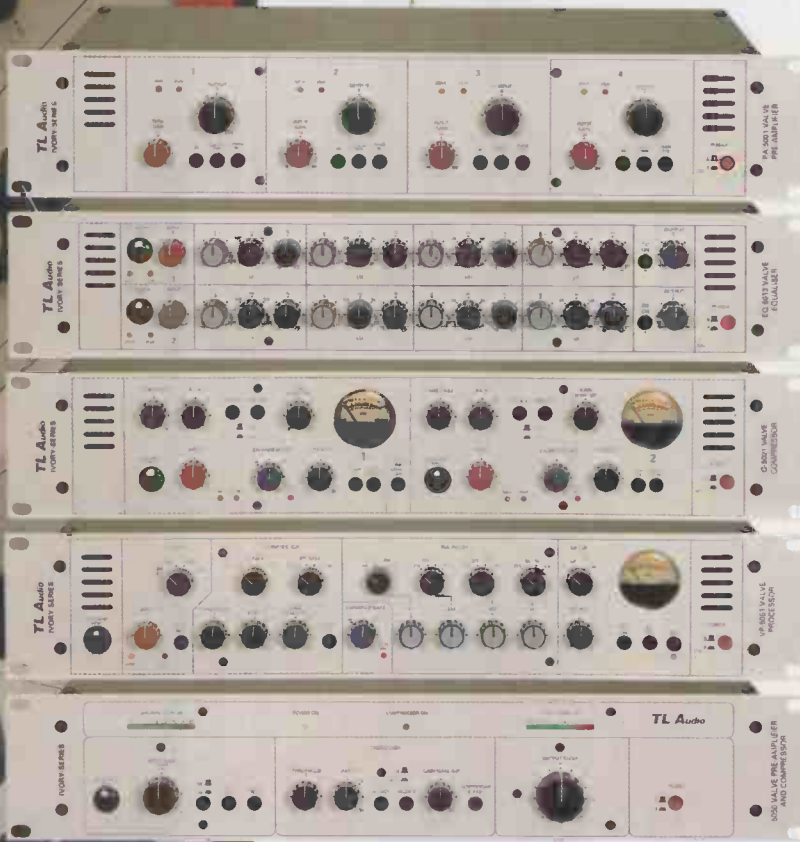
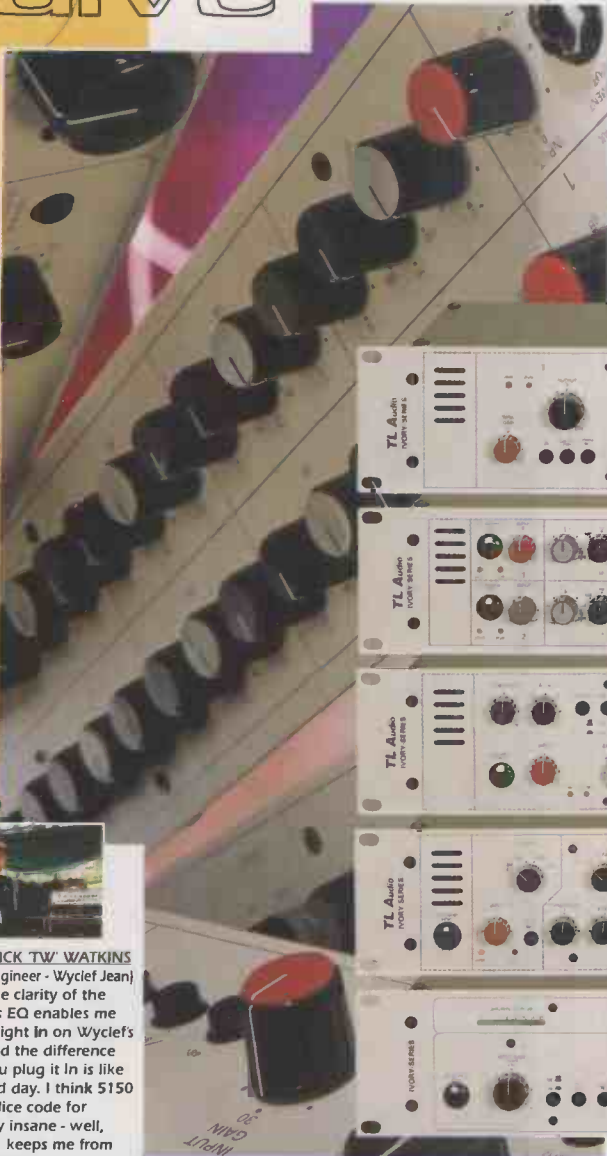
The point is, I love music and if I hear a good band then I want them to do well, even if I don't think it's going to be with us. There's no great conspiracy – I want to help them out and improve the market." 

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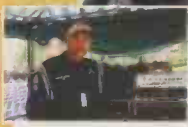
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# steelworks

With a studio and production credit list that takes in some of the most gigantic names in the current pop scene, Steelworks is a hive of activity. The Spice Girls have been there. So have Boyzone. Now it's time for *The Mix* to have a workout in Sheffield...

words  
**Nick Serre**

images  
**Gavin Roberts**

**E**liot Kennedy, Tim Lever, and Mike Percy may not be names that spring as readily to mind as Mel C, Bryan Adams, or Ronan from Boyzone, but they (and a host of other chart-busting luminaries) all grace a metallic-looking building in Sheffield on a regular basis. Why? To experience the talents of one of the most successful studio-owning/production teams around, that's why. With joint production histories spanning 15-odd years, Eliot, Tim, and Mike have worked with the highest profile acts around. And now they have their own streamlined production studio that promises to send them soaring to even greater heights.

A typical album by an out-and-out pop act may feature five or more producers or production teams, and more often than not, one of them will be Steelworks. The three-strong crew have an enviable credit list, and a fascinating way of combining their hectic production schedule in their top-flight studio. Eliot Kennedy is the main songwriter, Tim Lever the sound designer and musician, and Mike Percy the mixologist. Although their current location has only been their home for three years, many an act has been touched by their production skills, and the logistics of the studio complex make Steelworks a streamlined production venue.

Tim recalls the early days: "Well, basically, Steelworks came together about three years ago; before that Mike and I were at a production team called One World Productions. Basically we started producing stuff together, working on the same projects, and it worked really well.

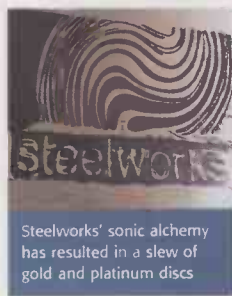
"We started off with 911. We picked them up really early in Sheffield, we shared the same management and they asked us if we fancied having a go with this

band. We ended up making the first album without them having a deal. We just thought there was something there; it was a big gamble but it really paid off." With Eliot Kennedy now on board, each individual's personal studio space was honed to their specific requirements, as well as being mutually compatible for completing full productions within the complex.

"When we initially made the decision to set Steelworks up, we decided that all the gear had to be completely compatible, or all our roles would be blurred," Tim elaborates. "Eliot does all the vocals in his room, I do pretty much most of the music, and Mike does the mixing. When we were working in one studio we had a lot of dead time." Mike explains the logistics behind the set-up. "It just fell into place really naturally. We did not decide to work that way, we just eased into it." But there is still room for the collaborative elements of the team. "What we try to do is make a conscious effort to get together at lunchtime, or if you're bored doing your bit for 10 minutes then you'll just go and see how the mix studio is doing" Tim offers.

So what exactly do the studios need to maintain this alternative sort of working practice? "Basically we have got three rooms, with a core of gear that works in every room" explains Tim. "That is, G3s, ProTools and Logic Audio in every room. It makes it really easy to just move stuff back and forth. We've got samplers, the basic synths – the JVs, the Trinitys – in every room. We all have our own stuff."

In terms of sound and recording gear, compatibility is paramount. But, as you would expect, each member of the team has his personal faves when it comes to monitoring, consoles, and more esoteric pieces of equipment. The ethos is firmly digital at Steelworks,



Steelworks' sonic alchemy has resulted in a slew of gold and platinum discs



Gerroff: Mike Percy and Tim Lever (R) cling to their AMS Neve Capricorn console



Tim loves his two Spirit 328 mixers: "They're great; they just sound fantastic"

selected kit list

Studio 1

CONSOLE

AMS Neve Capricorn

MONITORING

Genelec 1031A

Genelec 1039A

RECORDING

Power Mac G3 running Logic Audio Platinum and ProTools 24

OUTBOARD

Focusrite Red 3 dual compressor/limiter

UREI compressors

System 9098 dual compressor/limiter

SSL Logic FX G384 stereo compressor

TL Audio dual valve pre-amp and compressor

Drawmer 1960 vacuum tube compressor

DBX 160A compressor/limiter

Focusrite Focus EQ

TL Audio EQ1 valve EQ

TL Audio EQ2 parametric EQ

TC Electronic Fireworx

TC Electronic Finaliser plus

Lexicon 224x reverb with LARC

SOUND MODULES

Korg Trinity

Akai S5000 sampler

Waldorf Pulse Plus

Novation Super BassStation

Studio 2

CONSOLE

Soundcraft Ghost

MONITORING

Genelec 1031A monitors

RECORDING

Power Mac G3 running Logic Audio Platinum and ProTools 24

SOUND MODULES

E-mu Ultra Proteus

E-muMorpheus

E-mu Vintage Keys

E-mu Planet Phatt

Korg Trinity Pro X

OUTBOARD

Lexicon Alex multi-FX

Drawmer M500 dynamics processor

Avalon vacuum tube pre-amp/EQ

Studio 3

CONSOLE

Spirit 328

MONITORING

Dynaudio 15A

RECORDING

Power Mac G3 running Logic Audio Platinum and ProTools 24

ADAT bridge

OUTBOARD

Yamaha REV500 reverb

Marshall valve MIDI pre-amp

Roland VG8 MIDI guitar system

SOUND MODULES

Korg Trinity Plus

Korg TR rack

however, and Tim's latest acquisition is a duo of Spirit 328 digital desks, of which he enthuses, "The desks are great, they just sound fantastic. I like having them totally controlled by ProTools, it makes life incredibly easy, and the Spirits are so quick to work with."

ProTools is high on the agenda for all three, and they are especially enamoured with the available plug-ins. "My favourite plug-ins are the Focusrites" Tim proffers. "The EQ and the compressors are stunning. I personally believe that they are better than the boxes; they don't sound exactly the same but they are so much more flexible in terms of sound."

And the digital equation is as prevalent in the main mixing studio, manifested in the form of a brand new AMS Neve Capricorn console, which was an instant love affair for Mike, by all accounts. "Mark from Neve kept on at us to try it so we went on up to Abbey Road and that was it! The only way we could tell the difference between it and some other digital desks we had auditioned was to take the same multi-track tape to SSL, Sony and then to Neve – there was no contest. We literally bought it on sound quality; the EQ and compression was brilliant and then all the other features came with it. Since the, the biggest thing about buying this desk is that it's been tried and tested. There still seem to be gremlins

on some desks that are always promised to be fixed in the next upgrade. Not so with this."

Digital mixing is still relatively new, and we wondered how much of a learning curve it was for Mike. "It took me a while to get into working with this desk, because basically you have got a limitless amount of inputs" he freely admits.

"But, what's brilliant about it is that there is so much scope to it but basically you can set up your base configuration exactly how you want it to be." In fact, so pleased is he with the processing power of the desk that the trusty Steelworks' Finaliser has been all but ditched. "On the old Amek Mozart we banged every single record through a Finaliser and an SSL compressor, but we've been finding with this desk that it's not needed as much – the desk sounds so good in itself." It is patently clear that the

Steelworks crew have carved a distinct niche for themselves in pop production, but, ever ambitious, they see more opportunities. As Tim sums up, "We don't see Steelworks as just us three, we want

it to be a Motown-type thing. We can find good people to come in here and make records, so Mike can finish work at 7pm and someone else is on there. We'd love this place to be open all day every day, and it looks like we are getting there with the amount of people coming through the doors."



Ghosts in the machine: Eliot's Soundcraft console

recent clients

- Spice Girls
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Dark Star: after 17 years it's once again all right to like Gary Numan...

# Back In Black

It's been a rollercoaster ride from rags to riches and back again for Gary Numan, and now the synth pop pioneer has realised a long-standing dream with his new digital studio

## alien studio equipment

### INSTRUMENTS:

Akai S1000 sampler

Akai S5000 sampler

Alesis Quadrasyth

GEM S2 Turbo workstation

Korg M1REX workstation module

Korg Wavestation SR synth module

Oberheim OBXa synthesizer

Roland D550 synth module

Roland JP8000 synthesizer

### COMPUTER

#### HARDWARE

Apple Macintosh G3 (running Logic and ProTools)

### RECORDING/ MASTERING:

Otari RADAR hard-disk multitrack

Soundtracs Quartz 32 desk

Tannoy Little Gold speakers

### OUTBOARD:

AMS AMX-1580S digital delay

AMS RMX 16 digital reverb

Digitech Valve FX guitar processor

Drawmer DL201 dual compressor/limiter

Lexicon PCM 70 digital reverb

**B**ack in 1979 Gary Numan was on top of the world. By chalking up two No.1 albums (*Replicas* and *The Pleasure Principle*) and two No.1 singles ('Are Friends' Electric?' and 'Cars') in a three month period, he became the UK's fastest-rising star since The Beatles, opening the floodgates for the early '80s wave of synthesizer-based acts to follow. Numan was almost alone in seeing the need for a synthesizer 'star', a smart move, as evidenced by the string of hits to follow, with over 35 chart singles and more than 20 chart albums to date. Managed by his father to this day, Numan has sold more than 15 million records, whilst 1979's *The Touring Principle* – filmed during his first sell-out UK tour – was the first commercially available full length music video, pipping Blondie to the post by a matter of weeks. Clearly, the boy made good.

Numan invested wisely. In 1980 he took the then-unusual step of buying a professional recording studio, Rock City, situated in the famous Shepperton film studio complex. His reasoning was not solely artistic, however. "It was my dad's idea," recalls Numan. "He sensibly thought that if your money primarily comes from one source, it puts you in a very precarious position. So as the money was coming in we invested in different businesses. Rock City was already a successful commercial studio when we took it over. Sting used to go there, Cliff Richard, Thin Lizzy. I once caught [Sham 69's] Jimmy Pursey walking along the mixing desk!"

words

**Jonathan Miller**

images

**Joseph Cultice and Gemma Webb**



*Exile* (1997) contained some of Gary's best work since his '79-'82 heyday.

Disrespectful punks aside, Numan confirms that Rock City was well-stocked from the outset. "It had a 3M multitrack when I first went there, but by the time I bought into it they'd already gone for a Studer, an 820, I think. It had 1/4", 1/2" and 2" tape machines down one wall, a big Trident desk, a piano room with a gorgeous Bösendorfer grand, and a live room. There were huge JBL monitors which I later kept and used for rehearsals – in here, funnily enough, before we turned this into a studio. Sadly, I had to burn them a couple of weeks ago. Rats got to them in another storage shed! The AMS reverb and delay units in here also date back to Rock City days."

But the age-old adage, 'what goes up must come down' soon rang ominously true for Gary. His rapid decline from millionaire superstar status began when he opted to retire from the rigmarole of touring in 1981 with a series of visually spectacular, yet financially crippling sell-out shows at London's Wembley Arena, utilising the largest moving structure ever to grace a British stage at the time. "It cost £250,000 to stage the three nights," Numan reveals. "The whole construction filled five 40 feet trucks, and it took a team of about 30 men five days just to build it. The set consisted of five different levels, was 116 feet wide and most of the various elements were motorised so they moved about."

On a musical note, in keeping with this grandiose scale, the Wembley shows featured some 22 analogue synthesizers, mainly of the Poly and Minimoog variety

that assisted Numan's meteoric rise to fame. Beneath the Arena the stage crew loaded bass cabinets into a cavernous area that had formerly been a swimming pool: "When we hit the low notes during the show, the floor actually shook. It was awesome, the whole building shook, and you could feel the music as much as hear it!"

The knock-on effect of this retirement extravaganza was the alienation of Numan's substantial overseas following. As the worldly Numan of today recalls, with a hint of sadness, "I was having a bad time with the press and tended to blame all of my problems on touring, because that, it seemed, made me the focal point of the public eye. So I wanted to get out of it and make the songwriting side more like a hobby again, rather than the big business it had become overnight. I'm sure I did alienate an awful lot of people, but it gave me that breathing space needed to get used to it."

"Unfortunately, by the time I'd taken those few breaths, I'd already fucked my career up. My big mistake was saying I was going to retire. I should have just stopped for a while and come back when I was ready. Maybe if I'd done that, things would have gone a bit differently — all around the world. But if I hadn't got out, it would have fucked up anyway, it wouldn't have been recoverable, because I would have probably messed my head up with it."

Matters worsened when BBC Radio One subsequently refused to playlist Numan's music after 1983. This corresponded with his departure from Beggars Banquet to set up his own independent label, Numa Records, a move which spawned a series of ultimately futile releases. "The record company thing didn't work out," Numan concurs. "And that had been one of the things encouraging us to keep Rock City going. That studio cost me a lot of money at the end of the day. It stopped being successful when the Solid State Logic desks and a whole load of other technology came along. We just couldn't afford to keep up with that. The studio industry seems to be a very different animal now to what it was ten years ago, and we were one of the earlier victims of that."

And music technology almost spelled Numan's premature downfall. For several years he worked closely with Mike Smith and Ian Herren (a.k.a. The Wave Team) and their colossal PPG Wave — Germany's all-singing, all-dancing, overdraft-inducing übersynth, of which Numan laments, "The PPG had become the main studio tool, sound-wise. I woke up one morning and it dawned on me that if Ian and Mike weren't there I couldn't make another record. I didn't know how sequencing worked!"

If Numan was to survive, clearly something had to give. "Realising I wouldn't be able to do another album without Mike and Ian freaked me out, so I went out and bought a simple little Roland S10 sampler, and a Yamaha CX5M Music Computer — a piece of shite, but, nonetheless, for the few months I had it, before I moved over to Atari, it was enough to start making me think in terms of sequencing. I also bought a little

4-track Portastudio. That sounds silly, having had a big studio of my own, but, again, I'd started relying on engineers.

"Having got Mickey Mouse versions of all the gear and spending a few months getting to grips with it, I then went out and bought an Akai S900 sampler, two bigger, 12-track Akais, which you could link together — MG1214s, I think they were called — and an Atari running Steinberg Pro24. I wrote *Metal Rhythm* on that in 1988."

This makeshift 24-track system saw Numan over the tricky interim period following Rock City's demise. One B-side was recorded at home on this set-up with Shakatak's Bill Sharpe (with whom Numan had a couple of collaborative hit singles) before synchronisation problems sent him running for the comparative safety of outside pro studio Black Barn. "I was able to go and record with a much better understanding of what I was doing," he says, "not relying on anybody. Since then I've been pretty much self-contained."

Numan's road to recovery was destined to be of the long and winding variety, however. By 1988 the precarious financial scenario his father had previously envisaged was now frighteningly real — to the tune of a hefty negative six-figure sum. Facing adversity head on, Numan went out on a limb, re-equipping his home studio to a level more befitting a professional recording artist, albeit one whose purse strings were severely tightened.

"I went out and had a really mad day," he remembers, "buying a decent desk — a Soundtracs CM4400 — and an Otari MX80 2". I blew about 30 grand in the end, but had to rummage around and borrow it from a variety of sources to get it all together!" Yet there was a method in his madness. "We looked at what it had cost to go to Black Barn and thought, 'If we buy all this gear, within a couple of albums it'll pay for itself! I planned to do most of the recording at home, then maybe spend a few days in a proper studio with people who could fix any mistakes I'd made and do the final mix. In fact, I didn't go to another studio after that. It worked so well that I did the whole of the *Outland* album at home — recording, mixing, everything. Slowly, by picking people's brains and studying, I managed to fill in all the gaps that had become part of my understanding of recording."

Having straddled one career hurdle, Numan learned the hard way that complete recording independence is not always advantageous. "Numa had some licensing deals, but the truth was that I never did get myself back on my feet. Instead of sorting myself out and becoming an international act again, I became progressively smaller. Countries around

the world just fell off one by one until all I had was England.

"Until the late '80s I wasn't even releasing records outside of Britain," he says, referring to a brief and unsatisfactory flirtation with Miles Copeland's IRS label, a stint that yielded the *New Anger* album in the States, his first foreign release in several years. "On the one hand, it seemed as if I'd been given a lifeline" he muses. "On the other, all those typical record company problems that everybody moans



Gary hovers above his Soundtracs desk and assortment of outboard...

"I've had millions, lost everything, and am now clawing my way back up again"

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⊕ about came flooding back – people wanting to mess with your tracks.”

This came to a head over the continuously crossfaded, segued *Outland* album in 1990. Numan shudders at its memory. “Linking one song to a title of another is something I’ve always done. I think it’s fun and the fans enjoy spotting them, but Miles Copeland was totally oblivious to this. He said, ‘You can’t have the word ‘infected’ on that song because there’s another song on the album called ‘Infected’, so I want you to change it to ‘affected’! It’s that kind of interference that I find very demoralising. It cost a huge amount of money, because I had to get the backing vocalist in again, redo my vocal, remix the track, and hire SoundTools software to recompile the entire album. It took a week to change one word. At the end of the day, who cares?”

Numa Records was re-activated in time for 1992’s *Machine & Soul*, the year Numan bottomed out. “I released the worst album I’d ever made, and got myself into money problems,” he confesses. “I was panicking in slow motion. Then everything started to come right again.”

Indeed it did, beginning with *Sacrifice*, a case of going back to basics and doing it all himself, as on *Replicas*, where he played everything bar uncle Jess Lidyard’s drums and bass. Not only is Numan credited with all writing, performance and production duties on *Sacrifice*, he also formed the NuFederation artwork company to create his own record sleeves on an Apple Macintosh computer, without the need for outside graphic artists. A true one-man-band effort, “*Sacrifice* was the best album I’d done for a long time. To write something like that after so many disappointments and setbacks was a great relief to me.”

Fast forward to 1997. Numan’s fortunes were about to undergo an unforeseen role reversal as music industry insiders finally sat up and took note. In August Numan signed to Eagle Records, a newly formed, London-based independent, who subsequently worked hard at securing lucrative world-wide licensing deals, making that year’s *Exile* album – abetted by the multi-layered sampled percussion loops that have become Numan’s latter day trademark – his first truly international release since leaving IRS in 1991.

Moreover, according to NuWORLD, the Official Gary Numan Internet Connection ([www.numan.co.uk](http://www.numan.co.uk)), which was nominated for a “YELL! For the UK Best!” award, he’s been signed by The Agency, one of the biggest touring agencies in the world. They plan to send him all over the world for the next two years, more or less non-stop. This has already begun. Last year Numan completed his first US tour in 16 years, a respectable 24-date, coast-to-coast affair with Marilyn Manson joining Numan on stage for the sold-out LA Hollywood Palace show.

Numan once sang, “Isn’t it strange how times change?” With hindsight, those words seem ironically prophetic. Hailed internationally as one of techno’s godfathers, he



Gary has regained the form which made him the first synthesizer superstar...

“There’s something mentally stimulating about going out to work – even if it’s just down your garden path...”

currently enjoys a hitherto unknown degree of acclaim from a variety of chart acts, many of whom have covered his songs on record or stage (including Beck, Hole, Pulp, and The Foo Fighters).

Triumph over his fiscal demons have finally freed Numan to realise a long-held dream – the completion of *Alien*, his new private recording studio within a stone’s throw of its former incarnation within his Essex countryside home. “There’s something psychologically stimulating about going out to work – even if it’s just down your garden path,” he smiles. “When my career started picking up and the money luckily started coming in again, there wasn’t any time spare to take the studio apart, move it somewhere else and start again. Then, when I was touring America last year, it suddenly occurred to me that we could convert this shed. Perhaps it wouldn’t be quite as nice as one of those really expensive, big Scandinavian chalet-lodge-type things we looked at, but nonetheless it would be perfectly usable – if the building could be converted. So

we got a builder in to inspect it and make sure it could, and that’s what we’ve done.”

Indeed, Numan and his father undertook much of the daunting task of studio conversion work themselves. “I’m well chuffed,” he enthuses. “It’s the perfect little room to do all the stuff I have to do.”

And lest we forget, Numan’s self-imposed workload is far from light. “As well as the studio gear, I’ve also moved my artwork computer stuff in here as well. The other end of the room is where I now do my internet stuff, all my album covers, books, tour programmes, T-shirts – anything to do with design. It’s very much made for one – everything’s within arm’s reach. It’s the set-up I’ve wanted my whole life. Every aspect of what I do, not just the music, has been significantly improved. And it’s so cosy, when I close the curtains at night-time I don’t want to leave!”

Studio construction complete, Numan set about acquiring some well-earned new kit, including an Otari RADAR hard-disk recorder and dual screen, and a Jaz and Zip drive-endowed 266MHz PowerMac G3, running Logic Audio and ProTools. Casting an eager eye around his digital domain, computers evidently play a major role in the current Numan modus operandi, yet in the capricious world of pop, even the best gear cannot disguise a bad song. With 20 years of professional recording to his name, Numan knows the score. “The new set-up will definitely speed things up, but I’d be lying if I said I thought it would make me write better songs. *Exile* unexpectedly succeeded in firing up a lot of interest, so the weight of that now rests on the next album.”

As Numan concludes in *Praying To The Aliens*, his 1997 autobiography, “I’ve had millions, lost everything, and am now clawing my way back up again. I’ve been one of the biggest stars in the world and then all but forgotten. Now it seems I am rediscovered. Creatively, I lost my way for a while, but then found it again, clearer than ever.”



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"Alchemea is constantly expanding its facilities. It is vital to have both state-of-the-art equipment, as would be found in top recording studios, and to have the students familiar with equipment and techniques that will give them the skills to use the next generation of equipment.

"For example, when the college started up in 1992 it was felt imperative to have an SSL console. So we bought a brand new G series. This very powerful and expensive mixer was at that time the high-end console used in most top recording studios, but no educational facilities had one. It still is massively important to know how to use this console, but there are a number of mixers that are even more powerful than this one and that require skills that go beyond those which are required to operate the present generation of desks.

"It was obvious that an assignable digital mixer with extensive automation facilities, such as the Yamaha O2R, was going to be of great importance. Also, familiarisation with the requirement of matrixed and discrete surround mixing was essential. Alchemea has built a new, digital, fourth studio with surround sound capability to meet this challenge. It also features the Fairlight MFX3+ digital audio workstation. More recently the main studio has been extensively updated, and a Euphonix CS3000 digitally-controlled Analogue console has been installed. It is obvious that all the next generation of serious consoles (the ones Alchemea

students will be using in the years to come) will make extensive use of digital control, either of a digital signal path or, as in the Euphonix, analogue electronics. Knowledge and experience using this desk will place an Alchemea student in an excellent position to be one of the next generation of audio engineers."



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The training, which is included in the Alchemea Diploma Course, is now available to people who have a good understanding of pro recording techniques but wish to upgrade their skills. The short course comprises six tutorials of approximately three hours' duration and 12 hours worth of individual practical time. During these practical sessions help is available from one of Alchemea's supervisors. This short course is the most cost-effective way of gaining Euphonix training and accreditation, and costs only £450.

The accreditation is by way of a practical test, and is available on its own at £100 for those who are already familiar with the CS3000. The accreditation costs are included in the price of the training course.

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  - b) In a digital tape machine
  - c) In a mixing console
  
- 2) What is a condenser microphone?
  - a) A microphone that uses a moving coil of wire in a magnetic field
  - b) A microphone where a rigid back plate and diaphragm make the two plates of a capacitor
  - c) A microphone where a metal 'container' is connected by taut hemp twine to another such 'container'
  
- 3) What's special about the new Tascam DAT machine reviewed in this issue?
  - a) It's manufactured at Abbey Road Studios
  - b) It can record 24-bit digital audio
  - c) The headphone socket doubles as a balanced XLR/optical AES wordclock

Send your answers, your address and a contact phone number, along with no more than 100 words on why you should be given a free place on the Alchemea sound recording course to:

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Employees of Future Publishing Ltd and Alchemea, and their relatives, are not eligible to enter. You must be available to attend either the full time or part time Alchemea Diploma courses (as detailed above) in order to enter. No correspondence will be entered into, except as detailed above. The closing date for entries is Friday 30th April 1999, and winners will be contacted after the closing date. A full list of winners will appear in issue 64 of *The Mix*.



**SHE HAS TWO THINGS LEFT  
TO CLING TO. ONE IS HER**



When the picture was taken, this Honduran girl had just survived the largest natural disaster to hit Central America this century. A mudslide wiped out her home in the Tegucigalpa hills. In a state of shock, she clings to her pet dog - she also clings to the hope that someone, somewhere will help.

**The hurricane is over, the relief effort is just beginning.**

The disaster may have happened in November, but the need for outside aid is more pressing as time goes by. The hurricane caused immense short-term damage, but the long-term effects could be catastrophic.

The fields are decimated and left infertile. Bridges and roads have been swept aside and access to some regions is extremely difficult. Ironically, though much of the country has been flooded, there is little uncontaminated

water to drink. The risk of cholera and typhus is always there, and could reach epidemic proportions.

The people of Central America are resilient and resourceful, but they do need our help to put the basic infrastructure in place so that they can start to re-build their lives.

**Don't let her down - please give what you can.**

11,000 people are feared dead, many more are missing and millions are homeless. This advertising space itself has been donated by the magazine, so please donate what you can. There are so many people in Central America clinging to the hope that you will.

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# mac toolbox

Industry news, tips, advice, and software for Mac users, compiled by *Ian Waugh*



## NEWS

### Apple up again

Apple have posted a net profit of \$152 million for the quarter ending December 1998. This compares to a profit of \$47 million for the same quarter a year ago, and revenues were 8% higher than the previous year. International sales accounted for 47% of income. The results, however, do include a \$29 million gain after selling share in ARM Holdings, although that still leaves an impressive \$127 million profit.

They claim to have sold 519,000 iMacs in the quarter, which helped increase overall unit growth to 49% over the previous year. There must be a lot of happy Apple chappies in the big chairs at the moment.

Apple have also announced that over 1,300 software products have been released for the Mac since the launch of the iMac a year ago on 6th May 1998. These aren't specific iMac products, but the fast-selling iMac must have been an incentive for developers.

### Dealer unrest

Their increased profits have not encouraged Apple to look after their dealers in the UK. They have scrapped the authorised dealer price list (the price which dealers pay to Apple's two distributors, Ingram Micro and C2000), who are now free to set their own prices. This has allowed larger retailers to negotiate discounts of up to 8% while smaller dealers are paying more than they were under the original agreement. Naturally, a lot of dealers are very unhappy about this.

Apple's history with distributors and retailers has been somewhat chequered. The original Apple Centres sold Macs at high prices and the cartel enabled the prices to stay high. Apple's complacency and lack of competition have been mooted as major reasons why the Mac failed to make a dent in the computer market, effectively allowing PCs to take over. With the new crop of Macs (see next story), although prices seem to be falling, Apple seem to be giving buyers less and less for their money.

The removal of a dealer price list looks as if it's

aimed at squeezing out the smaller dealers, leaving only the bigger ones. Maybe they could turn into Apple Centres again.

### Beware the new G3

Last month, we briefly reported the launch of Apple's new G3s, and cool translucent blue machines they are, too. However, you had to read between the lines to discover a few glaring omissions, so we thought we'd point them out to you.

Firstly, they are USB machines and lack a printer or modem port. This is a bit of a nightmare for musos as

it forces them to buy a USB MIDI interface – and a USB-compatible printer and modem (when they become available). If you already have a Mac and are thinking of upgrading to a G3 you may have to ditch some of your existing gear, although you could always consider a USB/serial port converter.

Secondly, there is no floppy drive – shades of the iMac! At last, this may force software developers to abandon the arcane hard disk install copy protection system. But until they do, you won't be able to use such programs. And how do you transfer MIDI files between machines, pass data to a friend or make simple

backups? And how can you access the commercial MIDI files which are sold on floppies?

Thirdly, they have no built-in digital audio facilities. Many users have relied on the Mac's built-in digital audio system for music, and although controversy rages over how high the quality of the output is, it has been a godsend for beginners and musos on a budget. Now G3 buyers will also have to budget for a soundcard (see Yamaha item in the next section).

Eagle-eyed readers may also have noticed that you're up to the £2,384 G3 before you get a SCSI interface, although do remember that Apple run a build-to-order scheme so you can add SCSI to any machine and, of course, you could buy and plug in a SCSI interface yourself – the procedure ain't too difficult, and it will certainly be cheaper.



The new cool blue G3s have no serial ports or floppy drive

It's a shame to see SCSI actively being removed because Macs made their reputation on being easy to use, and having built-in SCSI made it a simple matter to add other hard drives, a scanner, a CD-ROM drive and what-have-you. The latest ATA hard drives are pretty nippy, though, and ought to handle digital audio recording okay, although maybe not quite as well as fast SCSI, and it's not so easy to add additional drives.

The new Macs, however, do include a Firewire interface, even the cheap ones. Firewire looks set to take over from SCSI – eventually – and is already built into some domestic consumer items such as camcorders and digital cameras. It enables high-speed data transfer with peripherals including hard disks which is of prime interest to musicians. Current data transfers are running about 40-50Mb/sec, although the potential is higher.

So before rushing out to buy one of these G3s, don't forget to budget for the bits it doesn't have, and for any new gear you may need to hook up to it. Even normal users may find they run into unexpected peripheral upgrade costs.

## Koan arranger

It's more years than we care to remember since we first looked at Koan in *The Mix*.

We did, however, look at a few offshoots of the program in *Toolbox* back in issues 35, 41, 47 and 48 (that's for all you history buffs out there). Thing is, all this was PC stuff. But now, Koan is available for the Mac.

So what is it? Koan Pro, now up to version 2.1, is a music creation/generation program. When the Atari ST was the music computer to be seen with, composition programs abounded. Now they're rather thin on the ground, so Koan Pro is something of a rarity. What's more, it's a commercial success.

It can do much more than simply churn out endless repetitions of random notes, and if you surf the web

you may have already discovered Koan music because many sites play Koan compositions in the background when you access them. Koan Pro is used to create these files.

The program can produce music in a range of styles from rave to jazz, but it excels at ambient. It composes music through the use of rules which include Scale, Harmony, Next Note and Rhythm. Essentially, they determine the probability of an event occurring.

To give an example, you can define a scale containing any notes you wish and assign a probability to each note that will determine its chance of occurring. The Harmony rules determine the chance of playing a note so-many semitones away from the current note. The two rules are combined to produce the note which actually plays.

The Rhythm rules are used to create the rhythm of

the notes. There are also six Voicetypes which have different attributes. The Follows voice follows another, making it easy to create counterpoint lines. The RepeatBar voice repeats material from earlier bars, and the Ambient voice uses durations in milliseconds or fractions of a beat.

You can use the

rules to restrict notes to certain scales and specify certain types of rhythm, so you can

constrict the output to a certain music style. What's more, as there is a degree of randomness involved, the music will have a certain character, but will play slightly differently every time. The degree of randomness you allow the program is up to you.

Virtually every aspect of Koan is programmable, and there are over 200 parameters to fiddle with. As well as allowing the program a degree of freedom, you can enter preset pitch and rhythm patterns. Envelope tools are used to vary settings throughout the piece. You can import MIDI files and export Koan pieces as MIDI Files.

The native Koan music file format is very small. It contains the parameters Koan uses to generate the music, and these files can be used by Koan Players which are freely available on the web. These files are quickly downloaded and can provide music which lasts for hours, without repeating.

You can use Koan at a low level of interaction, but to really get to grips with all its functions and possibilities requires a little more time and dedication. But if you're into composition programs, you'll like it. It can produce some very interesting music, and there's nothing else quite like it on PC or Mac.

Koan Pro costs £140.94 and comes with a 290-page manual. If you don't want the box and don't mind on-disk documentation in Adobe Acrobat format (yeugh!), you can download it for £70.49 from the Sseyo website: <http://www.sseyo.com>. There's a demo there, too, and you will also find a demo on this month's cover CD.

More from Sseyo: 01628 629828

Rhythm Rule	Value									
1 albutdotted	1	1/2	1/2	1/4	1/4	1/8	1/8	Tr	1/16	
2 slow	1	1/2	1/2	1/4	1/4	1/8	1/8	Tr	1/16	
3 fastsyncopated	1	1/2	1/2	1/4	1/4	1/8	1/8	Tr	1/16	
4 fastplain	1	1/2	1/2	1/4	1/4	1/8	1/8	Tr	1/16	
5 veryslow	1	1/2	1/2	1/4	1/4	1/8	1/8	Tr	1/16	
6 semiquaversonly	1	1/2	1/2	1/4	1/4	1/8	1/8	Tr	1/16	
7 middle	1	1/2	1/2	1/4	1/4	1/8	1/8	Tr	1/16	
8 everything	1	1/2	1/2	1/4	1/4	1/8	1/8	Tr	1/16	
9 Default Rhythm Rule	1	1/2	1/2	1/4	1/4	1/8	1/8	Tr	1/16	
10										
11										

The Rhythm Rules window determines the duration of the notes Koan plays

Koan's main screen shows which voices are playing, along with their parameters

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# pc toolbox

News from the industry, advice, tips and software for PC users, compiled by *Ian Waugh*

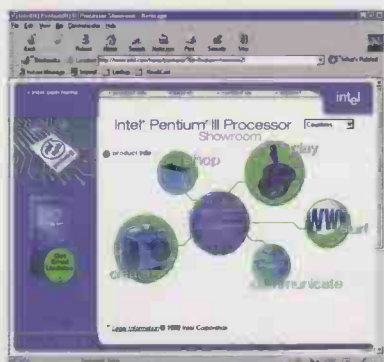


## NEWS

### Intel are watching

Here's another thing to be aware of when buying a new PC. Most PC watchers will be aware that Intel's Pentium III is due out any day now – actually, it should be out by the time you read this. What you may not have heard about is the tracking code which is embedded in each chip. This essentially identifies the chip and can be used to track on-line transactions. Needless to say, this did not go down very well with members of privacy groups.

Originally the chip was going to be shipped with the code on, but after meetings with privacy groups, Intel are going to ship the chip with the code off and include a piece of software which will allow users to turn it on. This is so that non-technical users don't have to worry about how to switch the code off. Intel claim users may want to activate the code in case of computer theft or for e-commerce. The privacy groups are not impressed, and have threatened a boycott of the chip. There are also worries that hackers could activate the code by remote.



Intel's new Pentium III helps you work, rest and play – and keeps track of you into the bargain

### Tesco shopped

Industry analysts have warned supermarkets that sub-£1,000 laptops will not sell in stores. They claim that laptop buyers are experienced buyers who know what they want and where to get the best price. But the advice flies in the face of the results of the experiment by Tesco, who claim it has been a great success.

Tesco were originally going to do a deal with Fujitsu (as reported in *Toolbox*, issue 55) but the deal was scrapped when Fujitsu were unable to supply the quantity of machines Tesco required. The new deal is with German company Medio.

### Tandy

Has anyone bought a computer from Tandy, other than a TRS-80? (If you have to ask, you're too young!) You may be aware that Carphone Warehouse bought the

company, and although Tandy will continue to trade as an independent organisation and continue to sell PCs (who to, though, we wonder?), a company spokesperson confirmed that they would be looking closely at Tandy's product range.

Tandy have had little luck with PCs, a fact which most pundits attribute to poor marketing and the inability to benefit from the TRS-80 boom in the '80s. They didn't have much luck with IBM's Aptiva, either. It's probably not a good idea to rush into Tandy to buy a PC now, but keep an eye on the window. If Carphone Warehouse do pull the plug on PCs, there may be some end-of-range bargains on offer.

### Action stations

Space Station is a software sampler. The program requires a SoundBlaster 16 soundcard (which includes the AWE series) because it writes directly to the card's DSP. So-called compatible cards are unlikely to work.

In case you're wondering about the name, it reflects the layout and organisation of the pages, which are divided into space station zones. The Navigator screen, for example, shows five zones, each with a varying number of levels. Each zone performs a specific function, and the levels are simply sub-pages. It's



Quickly access any part of the Space Station from the Navigator screen

organised like this because the program is written not for Windows, but for DOS,

although it runs quite happily under Windows too.

The Desktop zone, for example, monitors MIDI data, status and memory messages. The Edit zone has five levels for assigning instruments to MIDI channels, setting audio quality, polyphony and preferences. Other zones include Edit Bank, Edit Wave, a Mixer and a Sequencer (which has not yet been implemented). It's a little contrived, but you soon get the hang of it.

The program uses standard Wave files which can be edited, assigned to MIDI notes and layered. Up to 256 Waves form a Bank and 16 Banks form a Group. The CD contains over 1,000 instruments constructed from over 4,600 Wave files and arranged into Banks and



## CD info

### track 01

Try out the demo version of Space Station Pro – the feature-packed alternative sampler. And for users of Yamaha's DSP Factory, there's new drivers and ReadMe files.

Groups, making it very easy to plug in and go. Because the program accesses the Sound Blaster directly, the latency is extremely low, and you can play it in real-time from an attached MIDI keyboard.

But it's Space Station's edit features which really impress. You can import, record and edit Waves. Functions include cut, copy, paste, mix, fade and amplify, and you can insert silence and assign section of the Wave to MIDI notes.

There are two loop modes. One uses traditional start and end loop points and has an autoloop feature to help find glitch-free loops, which you can use during playback. The looped section can be played forward or forward/backward. The second loop mode is for samples with a known tempo, designed to be retriggered by MIDI notes in order to maintain the tempo.

You can create envelopes and apply them to amplitude, balance and pitch. You can use traditional ADSR envelopes, but you can also design multi-note envelopes enabling you to duplicate any envelope shape you can think of – and even those you can't! This is one of the program's most powerful features.

Another is the LFO. These can be applied to amplitude, pan position and pitch. There are six LFO shapes per Banks, assignable to any Wave. There is also an LFO designer where you can draw your own oscillator shapes using up to 100 nodes. You can also do this during playback so you can hear changes you make in real-time. MIDI controllers can be assigned to LFO depth and time for hands-on effects. You can even map LFOs together for cross-modulation effects.

A Mixer lets you balance the 16 MIDI channels with level, pan and mute controls plus controls for adjusting

the volume of the attack and release phases of the envelopes on each channel. There's also a User Mixer where you define the MIDI data the controls output.

Several bits of the Space Station are still under construction. These include the Sequencer and an Effects Rack which will add digital effects such as reverb, flanging and so on to the output. Since most digital audio software now includes an effects section, this will be an excellent addition.

Unlike most software synths and samplers, Space Station can't directly be sync'd to a sequencer running on the same PC. However, if you have a second MIDI interface, you can physically route the sequencer's output to Space Station and control it that way. However, as the program effectively runs under DOS, it would also be feasible to buy a low-end Pentium just to run it.

Space Station has a potential polyphony of 128 notes, although this varies according to the speed of your PC and a few other factors. It's impossible to

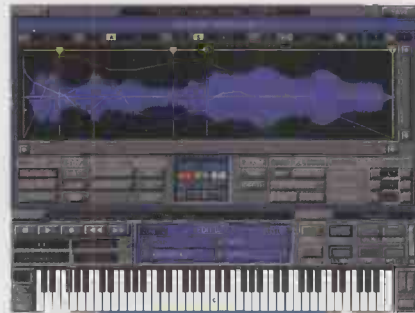
give a precise figure, but the program can test your system and report the optimum polyphony.

In spite of its somewhat individual user interface, Space Station Pro is a deceptively powerful and impressive program. If you're interested in sampling it's something you really ought to look at. And you can do just that because there's a demo version on the cover CD. There's more on the website:

<http://www.digitalaudioinnovation.com>

Space Station Pro costs £117.50, although as of writing the company was running a limited special offer at £85, so get in there quick! There is also a Lite version at £58.75.

**More from Digital Audio Innovations: 01344 423305**



Define your own envelopes and apply them to pitch, amplitude, and balance

## Factory updates

If you have one of Yamaha's rather scrumptious DSP Factory cards – the DS2416 as it is technically known – you ought to keep up with the latest drivers. The v1.1 update, for example, improves audio and MIDI synchronisation by reducing the CPU load of the audio drivers, improves metering stability, increases the buffer to 2K, and supports the AX16-AT, as well as fixing a few bugs.

The AX16-AT? It's a new PCI card which allows transfer of up to 16 tracks for digital audio to and from the Factory. It provides two pairs of ADAT optical connectors allowing easy interfacing with various devices such as digital multitrackers, external audio converters and digital consoles such as Yamaha's O1V.

There's a copy of the v1.1 driver on our cover CD, and you can download the latest version from (it's worth bookmarking):

<http://www.yamaha.co.jp/product/proaudio/homeenglish/technical/download.htm>

## Taking the first step into SCSI



If you've been thinking of adding a CD-R to your PC for backup, data storage and writing audio CDs, you may have come to the conclusion that SCSI is the only way to go. It isn't, but it's the preferred way and certainly the most popular. There are more SCSI CD-Rs than EIDE drives, it's easier to connect SCSI devices, you can connect more of them, and SCSI doesn't put such a load on the CPU.

But first you need a SCSI card, and these tend to be expensive. Enter Adaptec and the SCSI Card 2904CD Kit. It includes an AVA-2904CD card, of course, which supports transfer rates up to 10Mb/sec. You also get an internal SCSI cable and a copy of Easy CD Creator,

although this is the Standard, not the Deluxe edition. The Standard edition includes CD Spin Doctor, which removes clicks and scratches from audio, Picture Creator, Video Creator, CD Copier Deluxe, Sound Editor and Session Editor. We looked at the latest Deluxe version in this column in issue 58. There is an upgrade path to Deluxe 3.5 from the Standard version.

You won't find a SCSI card much cheaper than this, and if you're on a budget, it could be just what you need to help you take that SCSI step. The kit has a suggested retail price of just £39.

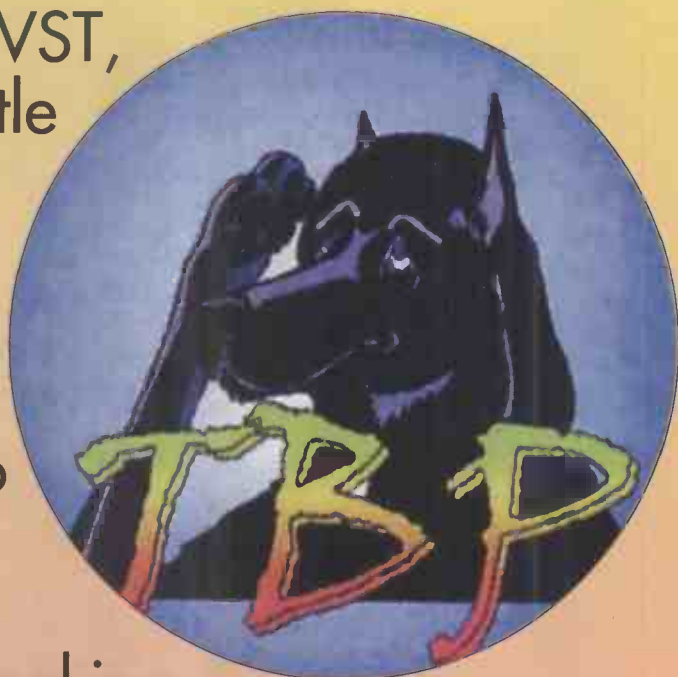
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# help file



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the masterminds  
this month's *Help File* team

	<p>NAME: Ian Waugh OCCUPATION: computer journo CHOSEN SUBJECTS: music software and hardware, pigeon and ferret racing</p>		<p>NAME: Paul Mac OCCUPATION: technical editor, <i>The Mix</i> CHOSEN SUBJECTS: Apple Macs, digital audio, apple strudel</p>		<p>NAME: Trevor Cunwen OCCUPATION: recording producer CHOSEN SUBJECTS: studio processors, retro sounds, Elvis impersonations</p>
--	---	--	--	---	--



## Fiddle de CD

There have been various references in your magazine recently about CD writing solutions, and in particular, many people asking questions about the cheap stand-alone Philips CDR870. As you know, the main two limitations of this machine are:

1. You have to use expensive consumer discs
2. It uses SCMS, which means that you cannot copy second-generation recordings digitally.

As an owner of said machine, I have found ways to get around both of these limitations. As far as the problem of the consumer CDs goes, here is the solution. Put a consumer-type CDR into the machine (about £3). The CD is validated, and the recorder accepts the disc and is ready to record. You can then gently pull the disc-tray out of the machine with your fingers, without using the eject button. I didn't like the sound of this when someone told me about it, but it slides out quite easily and the tray mechanism is not damaged in any way. You then put an ordinary computer CDR in (about 85p), and push the tray back in. The recorder does not know that you have changed the disc, and so does not validate the new disc. Then proceed as normal. The disc can be written to and finalised in the same way as the consumer disc.

The second problem is the SCMS limitation. If you search on the internet for SCMS, you can find

circuit diagrams of a fairly simple circuit that will strip the copyright bit from a digital signal. By placing this device in between the source and the recorder, the copy protection can be overcome. I am having one of these built for me, which I haven't had the chance to try out yet. You can also buy commercial devices for handling and converting digital signals, some of which will also strip the copy bit. I believe FriendChip make one. But they are not cheap and would add a considerable amount to the cost to the Philips.

The SCMS limitation is particularly annoying and in my view, unjust, because if you want to digitally compile an album of your own material on to DAT from tracks scattered over many other DATs and then burn CDs from it, this is already a second generation copy, and the Philips won't let you do it. So the musician using the machine legitimately for his own music is penalised.

Note: The above has only been tried on the Philips CDR870. I can't guarantee that it also works on the newer models. If you print this, please omit my name!

**Billy-no-name, email supplied**



## glossary



**AES/EBU**  
Professional stereo digital audio

interconnection standard created by the Audio Engineering Society and the European Broadcast Union. Supports 24-bit digital audio, and does not include copyright restrictions.

### Amplitude

The depth of a vibration or wave. In audio waves, it translates as loudness.

### AV

Audio Visual. Equipment labelled AV has improved functionality, making it suitable for audio visual work.

### Balanced

An output is split into two signals, identical except for a 180° phase relationship. On input, the 'cold' (out of phase) signal is inverted and re-combined with the 'hot' (in phase) signal. Noise from the cable run is eliminated.

### CD-R

Recordable CD. Comes in two varieties: CD-R, or CDR-DA. The latter is a consumer format where royalties on copied materials are built into the cost of the media. Recordable CD cannot be erased.



**A** We tried out the consumer/pro CDR trick, and it did work on our machine. However, pulling a tray out against the wishes of the mechanism might be asking for trouble, and the Philips CDRs may have been through various revisions, so what worked on our machine won't necessarily work on someone else's. Of course, Philips would advise that you don't even try this – if you do it, you invalidate your warranty.

As far as SCMS stripping goes, there are plenty of ways to do this, and there are some commercially available boxes that will do the job. Many of these cost more than the extra you'd pay for a pro CD-R machine, as that function is normally only a by-product of format conversion or analogue conversion.

FriendChip do two devices – the ProCon, and the CopyCon. ProCon (£129) does S/PDIF to AES conversion as well as copy-bit stripping, and the CopyCon (£119) does digital I/O switching and copy-bit stripping. FriendChip products are distributed in the UK by Tumkey (0171 379 5148). Alternatively, there's the Behringer (<http://www.behringer.de/eng>) UltraMatch, which costs a little more but does all sorts of digital manipulation, including jitter reduction, patching, and format conversion.

Paul Mac

### Laptop port pickle

**Q** I have recently bought some equipment with a view to setting up a home-based studio. Being a guitar player, I am not very MIDI enlightened. I bought a Fostex DMT-8, an E-MU ESI 4000, and a KORG 01R/W to go with my DELL Latitude CPI laptop computer. I bought a Portman pc/p MIDI Interface to go with the laptop, on which I was planning to run Cubase. However, having installed the Portman, I was not getting any MIDI signals.

I got on to Portman and they said I had to change the port settings from ECP to EPP. I went into the printer settings to alter same and couldn't do it under that, so I got on to DELL technical support who informed me that I could not change the port setting from ECP to EPP. (They said they were getting a lot of calls from people having this problem with scanners).

I got on to the guy in the shop where I bought the Portman, and he said he couldn't trace an ECP-compatible interface. This has left me snookered. Is there anything that The Mix can suggest? I need to either locate an ECP-compatible interface, or get around the Portman problem.

Gavin Glass, email supplied

**A** The problem is that not many people use laptops to do their music, and those that do normally get a soundcard with a game port (including MIDI) onboard.

Has anyone else been searching for the same thing? We did a fairly extensive ring-round to our multitude of contacts and no one had any ideas, so over to anybody who cares to write in (to the usual address) with the answer...

Paul Mac

**Q** **Absorption man!** I am wanting to improve the acoustics of a room, which is about 15' square, to give me a truer sound for my small studio set-up. As I understand it, I can control the high frequency reflections with drapes, carpet, and other soft surfaces attached to the walls, but how can I reduce low frequency resonance in a cheapish DIY sort of way?

I have some spare rolls of rockwool, is this of any use for this purpose? Finally, can a room used for mixing purposes be too dead?

Jake Farr, email supplied

**A** There's not much you can do for bass frequencies with a few rolls of rockwool. The problem is that affecting bass frequencies requires a mass that has dimensions comparable to the bass wavelength (very long). Some people have had results with a DIY bass trap, which is a mass in the centre of the room where the energy in the simple bass modes is at a low. This normally takes the shape of an inverted, flat-topped pyramid, hanging from the ceiling and filled with absorbent material. Other people claim to have success with large absorbent cells behind the speakers or in the corners of the room. These might work for you, but it's a lot of bother to find out. In the end, bass acoustics are normally taken care of structurally, or in the architecture of the room.

Are you sure there's a problem? There's no point in blindly throwing absorbent materials about if the room sounds fine. A lot can be achieved with nearfield monitoring and some cunningly placed acoustic tiles. Bass problems normally amount to resonant modes or frequencies that are amplified because of the relationship between the room dimensions and the frequency's wavelength.

Don't ignore the common sense stuff: don't put the listening position in the middle of the room; use free-standing, heavy-duty speaker stands and make sure that the speakers are placed well away from the wall (at least a metre or so); and make sure the speakers are at ear height and directed towards the listening position. Lastly, don't deaden the room at high frequencies too much, as this will always make the monitoring appear bass heavy – you're after a balance. I think that answers your last question.

Paul Mac



### glossary



**CDRW**  
Rewritable CD. Comes in two varieties: CDRW or CDRW-DA. The latter is a consumer format where royalties on copied materials are built into the cost of the media. Rewritable CD can be erased and re-written

#### DSP

Digital Signal Processor. An integrated circuit (chip) used to rapidly process data streams according to an algorithm.

#### ECP

Extended Capabilities Port. A parallel, bi-directional port for PCs (replacing the old Centronics port).

#### EPP

Enhanced Parallel Port (see ECP).

#### Frequency Response

How a piece of equipment affects the frequency spectrum of an audio signal. It is often expressed as a bandwidth and the amount of amplitude variation within that bandwidth.

#### Jitter

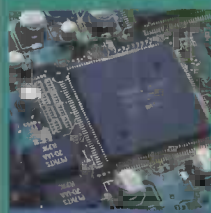
Unacceptable movement in the timing of a digital audio stream, caused by multiple factors.

#### Listening Position

The sweet spot in a studio. Where to put your head to get the optimum stereo field and frequency response from a pair of speakers in a room.

#### PCI

The standard cross-platform computer hardware interface for card slots. Replaces Nubus in the Macintosh, and ISA in the PC.



The heart of a PCI card

**Q**

**Whaz dat den?**

Geoff Waterston's DIY Wah project in your 50th issue has a parts list on page 112 of the magazine. Under 'Resistors' it lists "1 x 500Ω trimmer". What is this? I looked at the picture next to the parts list but could not identify it – all I can see is the pot. There also seems to be five fixed resistors in the picture where the parts list only has four. Can you please check this for me.

**Aaron Sammy, email supplied**



A preset pot, or trim pot - depends on who you speak to

**A**

A trimmer is a type of variable resistor normally used for making calibration adjustments in electronic gear – in the Maplin catalogue they call them 'presets'.

They sit on the circuit board and you normally need a 'pot twiddler' tool or a very small screwdriver to make adjustments. Some come in multi-turn versions so that adjustment resolution is much better. You'll need to choose the type to suit your board layout, but as an example, Maplin do an 18-turn, 500Ω preset (order number WR46A), and that costs a colossal 79p!

The diagram has only four fixed resistors, the other two are the normal pot and the trimmer.

**Paul Mac**

**Q**

**Decisions, decisions**

I have a Fostex DMT-8VL multitracker and would like to master to CD via the digital output and then make digital copies from a master. I was thinking of purchasing one of the Philips CD-R machines, but it seems that the SCMS protection system only allows for analogue copying. Realising this, I am looking at a computer-based solution, and was thinking of buying the TraxData CDRW4260 and the Turtle Beach Fiji soundcard (with digital in). With this combination, is there any SCMS protection implemented?

While I realise that if the copy bit is off then the CD can be copied digitally, does that mean that your music is copyright-free (in the sense that anyone is at liberty to rip your music off)?

**Andrew English, email supplied**

**A**

The Philips CDR should be able to burn a disc from the digital audio of the Fostex DMT-8VL, but you won't be able to digitally clone that CD. Of course, this might be a problem in your case, but there are products which strip the SCMS bit from a digital signal (check out 'Fiddle de CD' on p.100).

There won't be any problems making CDs with the computer-based solution, and if everything complies to the norm, then your CDs will be good for one digital clone and no more. To confirm this you'll need to check with the manufacturer of whatever CD writing software you use. In some cases you'll be able to specify the copy-bit status.

**Paul Mac**

It's probably easier to use a standalone CDR with one of these – and it saves you buying a computer



**Q**

**FAQ: How much RAM is enough?**

I'm investing in a computer audio system (based around Cubase VST) and am coming close to my budget limit. Is it worth going overboard on RAM or am I better going for a bigger hard drive?

**Blaine, email supplied**

**A**

If you're planning to run plenty of effects, and maybe other programs (such as software synths, editors, and so on) then you can never have too much RAM. Every real-time process or extra program uses up RAM, so the more the better. There is a ceiling though, a point where you've got excess RAM, so up to 128Mb would be a reasonable target. Check your software for minimum and recommended system configurations. With hard drives, you should consider the amount of audio time you get per gigabyte and work out your needs from that. Most people judge it on just under a minute of stereo 44.1kHz 16-bit audio per 9Mb. All you do then is multiply up for more tracks, wider bit depth and so on. For example, a 3Gb drive (3072Mb) would do about 340 minutes stereo and around 40 minutes of 8-track recording. Remember that it is always best to use a separate, dedicated hard drive for audio, rather than the one you run your system and software from.

**Paul Mac**

**glossary**



**SCMS**  
Serial Copy Management System. A

data flag included in a digital audio bitstream, originally developed for copyright protection when DAT was intended for the consumer market.

**SCSI**

Small Computer System Interface. Parallel data interface used to connect storage devices to a computer (hard drives, CD-ROMs, and so on). Standard on Macintosh computers; PCs need a SCSI card.

**Soundcard**

Describes any computer card (PCI, ISO, NuBus, and the like) that acts as an audio interface, such as the Creative Labs SoundBlaster series, the Digidesign Audio Media III, Korg 1212/0, and so on.

**S/PDIF**

Sony/Philips Digital Interface. Digital audio connection, usually on a phono (RCA) connector.

**Wavelength**

The length of a full wave cycle (peak to peak or trough to trough). The longer the wavelength, the lower the frequency (pitch).

**WAV**

RIFF WAVE file: a digital audio sound file standard, used mainly on the PC platform.

**XG**

Yamaha's standard MIDI layout. A MIDI file that complies to the XG standard will play back as originally intended on any XG-compatible sound source.



SCSI interface (right)

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Pro-2000 Optional extras: 1U rackmount kit, Polyphonic DCB port, KADI Wasp port



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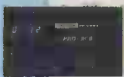
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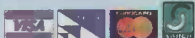
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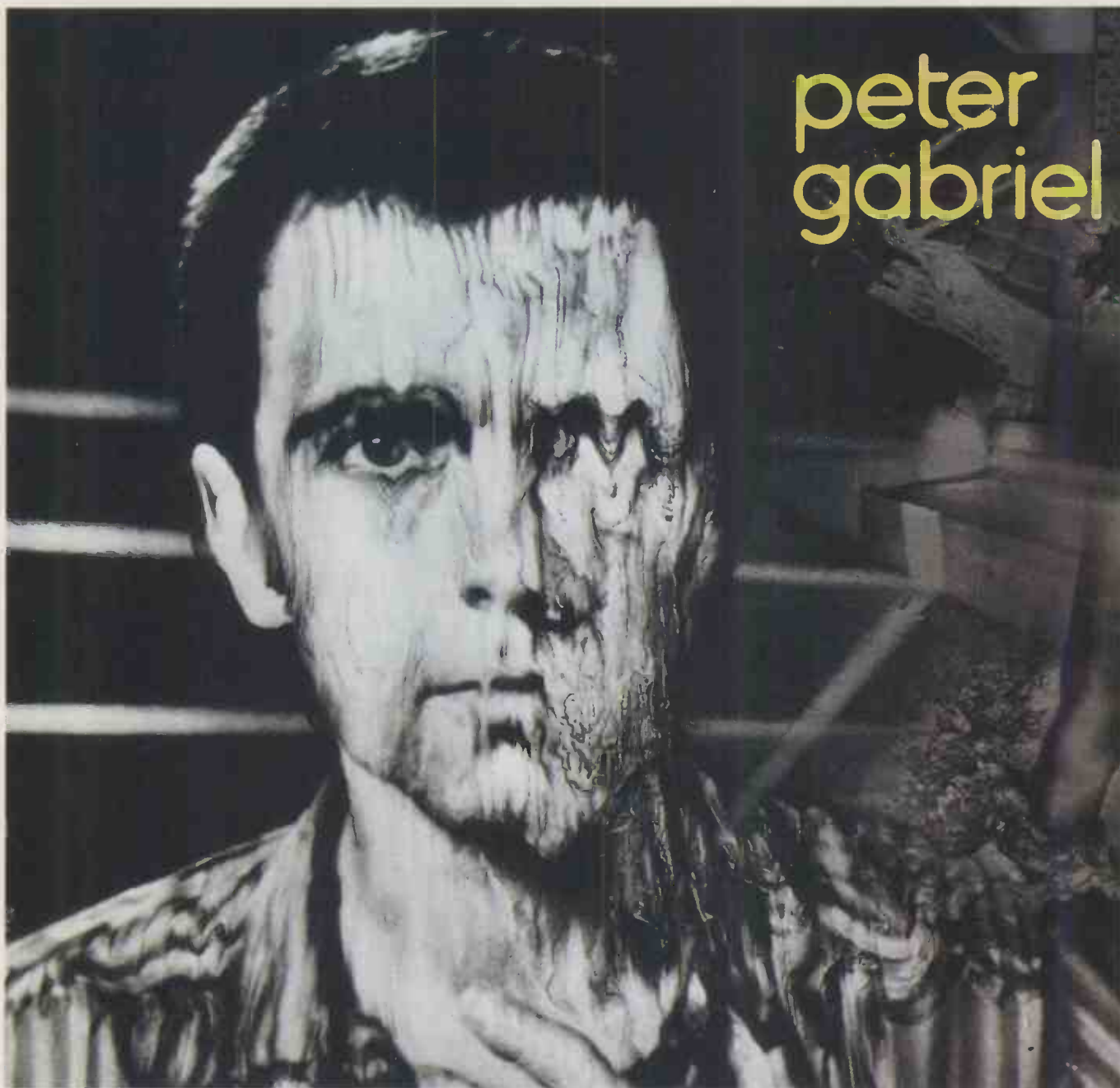
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Glenn A. Baker REDFERNIS

# Petsounds

## No 6: Peter Gabriel, *Untitled*

Trevor Curwen gets to grips with some of the unique sounds from that 'difficult' third album...



### CD info

**track 06**

Using the Archer mini-amp, we attempt to recreate some typically Gabriel-esque sounds. Who needs Real World, eh?



**U**nwanted distortion in a recording is not usually a desirable thing. Engineers take great care setting the gain structure and adjusting limiters to make sure distortion does not creep in where it's not needed.

Intended distortion as a creative effect is another thing altogether, and many recordings have benefited from the mild overloading, inappropriate use or even outright abuse of expensive and cheap equipment alike.

What we are talking about here is no modern lo-fi phenomenon, however – this month's *Petsounds* subject dates back 20 years to the recording of Peter Gabriel's third album. Released in May 1980, the production team, consisting of producer Steve Lillywhite and engineer Hugh Padgham, worked with Gabriel to sculpt a unique soundscape. In fact, the strange nature of the album proved too much for the A&R man (a Foreigner fan) at Atlantic Records, Gabriel's then American label, who considered releasing it to be commercial hari-kari, which subsequently caused Gabriel to leave the label.

However, fears of uncommerciality proved ill-founded as the album reached No.1 in the UK. When finally released in the USA on Mercury Records, it sold well enough to reach No.22 in the US album charts.

Though the album was littered with expensive synth sounds, one piece of equipment utilised was notable for being cheap and common. This was a small amplifier and speaker combination known as the Realistic Microsonic speaker amplifier in its earlier version, and later more commonly known as the Archer mini amplifier-speaker. In the best studio tradition, the Archer soon became known to the Gabriel crew by its model number – 995 – a name reflecting its US retail price of \$9.95.


Keyboard player Larry Fast discovered the mini amp and found it useful for monitoring his synths, but the unit was soon put to other uses on the album sessions when it was discovered that a distorted tone could be obtained from it. It was then employed to treat various elements in the songs including synths, backing vocals and guitars. Usually, particular tracks would be fed into the mini amplifier from tape, and the sound captured by a microphone in front of the speaker would be

Guitarist David Rhodes:  
"The Archer belonged to  
Larry Fast, then we all went  
out and bought them..."



recorded back to tape or mixed in live with the rest of the tracks during mixdown.

Equipped with a 3.5mm mini jack and a volume control, which also switches the unit on, the mini amp has a small speaker about 2" in diameter. The back of the unit snaps off to reveal the circuitry and the bay for a PP3 battery. This tiny amplifier has been produced in various colours and shapes over the years – the current model is cream with rounded edges. *The Mix* managed to get hold of two of the originals. The Realistic Microsonic was made in Japan and features a slope at the top of its cabinet. The larger Archer mini-amplifier was made in Taiwan, with a rectangular casing and an extra mini-jack for an extension speaker.

David Rhodes, longtime guitarist with Peter Gabriel, was a new recruit at the time of the third 

## Peter Gabriel

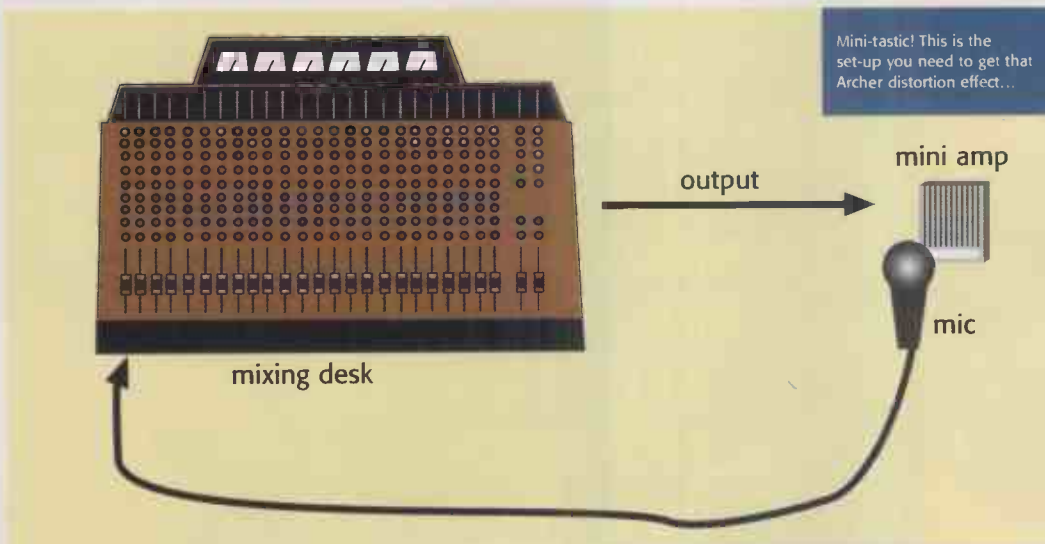
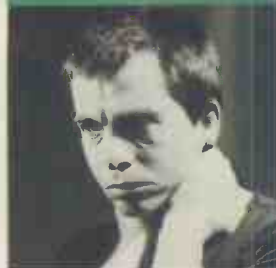
Peter Gabriel – solo recording artist, Amnesty International supporter, benefactor of world music, and state-of-the-art studio owner – was the lead singer of prog rock monsters Genesis until his departure in 1975, after the *Lamb Lies Down On Broadway* album. To quit such a well-established band was perceived by some as folly, but the move paid off for both Gabriel, with his successful solo career, and for Genesis, who went on to even greater success than before, with drummer Phil Collins taking over as frontman.

Gabriel's first album, produced by Bob Ezrin, was released in 1977 and was an immediate success with its 'Solsbury Hill' hit single. A second album, produced by King Crimson's Robert Fripp, followed in 1978. In 1980 the third album, produced by Steve Lillywhite and yielding the hit single 'Games without Frontiers' and the anti-racist anthem 'Biko' gave Gabriel his first No.1.

The first four albums were simply titled *Peter Gabriel*. In the US the fourth release, in 1982, was titled *Security*. The next year it was followed by *Peter Gabriel Plays Live* and a soundtrack album to Alan Parker's film *Birdy*.

In 1986, the 'Sledgehammer' single, with its award-winning animated video, hit No.1 in the US singles chart. Its associated album *So* became a phenomenal success. Gabriel was soon to embark on the massive project of building his Real World studio complex in the village of Box, Wiltshire – a world-class commercial facility that has been home to many successful album projects. The Real World site also houses the headquarters of WOMAD (World Of Music And Dance), founded in the early '80s by Gabriel, inspired by his passion for World Music.

Gabriel's last album of the '80s was another soundtrack, this time for Martin Scorsese's *Last Temptation Of Christ*, and was entitled *Passion*. Another studio album *US* was released in October 1992, providing yet another success on both sides of the Atlantic. Since then there has been another live album *Secret World – Live* while work on the next studio album is ongoing.



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album and contributed much of the guitar. He said "The Archer originally belonged to Larry Fast – he used to test his keyboards through this thing which he got at Radio Shack. I've got a couple of them 'cos we all went out and bought them. The model that Larry used had a slightly angled front, and that was the one that sounded really sweet. The funny thing is, I was just using one on a session the other day and we opened them up to have a look, and they have got quite different bits in them".

Memories as to exactly what was put through the Archer mini-amp are a little blurred 20 years on. David remembers playing mainly his Fender Jazzmaster guitar through a Roland JC120 Jazz chorus amp and a Eurotec black box fuzz pedal, but doesn't specifically recall any guitars being put through the mini-amp. Anyway, the Archer is definitely used on other parts, and as such made a large contribution to the sound of the album.

## Hugh Padgham

Hugh Padgham is one of the UK's most successful producers and engineers, with a long list of credits including Phil Collins, Sting, Genesis, The Police, David Bowie and Paul McCartney. Awarded the Producer of the Year Grammy in 1985, he started his audio career straight out of school in the '70s via the teaboy/tape-op route. Hugh worked at Advision, Lansdowne studios, and the Manor before ending up at Virgin's then-new Townhouse studio, where he was actively involved in the construction. Linking up with producer Steve Lillywhite, the pair made a couple of XTC albums before getting involved with the third Gabriel album. Hugh remembers using the Archer mini-amp on the recording of the album:

"We used to call it the 995. I think Larry Fast, the keyboard player had one. He used it really as a circuit-tester just to see if there was a signal present, because he used to make home-made synthesizers, drum machines and things. Basically, that's where this little tiny amp came from – anything you put through it

distorted like mad because it was so tiny, and the speaker was about 1/2" in diameter. You can get quite good fuzzboxes that do a similar sort of thing, but sometimes they're nothing like real speaker overload.

"Anything that sounds distorted on the album was probably going through that, but it was always mega-distortion. It would go from no distortion to full distortion by moving the volume the tiniest amount, by say from 1 to 1 1/4.

"We used to use a Shure SM57 and put it right on top of the speaker out in the studio. We did quite a lot of it when we were mixing, so we were feeding stuff out straight off the tape or off an echo send from the board or something. You just put something through it, turn it up, and that's that.

By all accounts, the recording of the album allowed for plenty of sound experimentation, with everyone keen to come up with something new with the limited (by today's standards) equipment at their disposal.

"The whole thing was just sort of trying to be as experimental as possible, really. I hadn't worked with anyone so 'out there' in that respect, so to be sitting with Steve Lillywhite, who was my mate who I had done various albums with before that, it was like 'the world's your oyster'. And rather than mic anything up in an ordinary way, there would be some attempt to do something weird and wonderful with it.

"One example would be Kate Bush's backwards vocals that sound the right way 'round. We recorded her singing, and then turned the tape upside down. She then tried to learn to sing it backwards, then we'd record that and turn the tape the right way round again. So, it was the right way round, but backwards.

"Another thing was on the end of 'Games Without Frontiers'. Everything but the vocals goes into double time – that was a major feat then, as well. Some of the things we were doing could be done in a couple of minutes these days with a sampler, but there was so little equipment then compared with now, not forgetting that polyphonic synthesizers had only just come out, and the Prophet 5 was just amazing to us

## Getting *that* drum sound

Recorded partly with the Manor Mobile truck parked outside Gabriel's house near Bath, and at the Townhouse in London with its newly installed SSL desk, Gabriel's third album features the first instance of Hugh Padgham's famous 'Phil Collins' drum sound using gated room mics. Drum duties were undertaken by Collins and Jerry Marotta. Hugh recalls:

"All the basic tracks of the songs that Phil Collins played on we did at the Townhouse. The 'In The Air Tonight' [from Collins' 1981 album *Face Value*] drum sound came from the track that became 'The Intruder'.

"We were using an old ribbon mic made by STC, that I think was developed during the second World War. We used to call it a 'ball and biscuit' mic because of the way it looked. It was hanging in the studio as a talkback mic.

We heard the sound when I pushed the reverse talkback, which opened the 'ball and biscuit' mic via a compressor in the SSL board that was purely on the talkback system – a much heavier compressor than even turning the standard board ones up full. [The SSL desk had compression and gating built into every channel, with a separate heavy-duty compressor on the talkback system]. We then got the maintenance engineer to fish around inside the desk to take an output and put it down a spare line to come up on the jackfield. We used it on some of the other mics, along with the standard desk compression. It was a novelty to have a compressor built in and a noise gate built into every channel. It was too easy to punch the button. Always before that it was 'Do I need a compressor? You'd ask the assistant to plug one up, and he would probably only have half a dozen or something. So to have one on every channel..."

Hugh's drum miking technique involved using close mics to pinpoint the bass and snare drums, but it was the gating of the reverse talkback mic and the room mics (probably using a pair of Neumann U87s about 15' from the drumkit, that created that unique sound.

"On 'Intruder', there were gates on the room mics as well as the ball and biscuit. We linked them all together so they closed at the same time. There were no cymbals used on the album. That was Peter's idea and that made the whole drum sound thing so much easier. When you've got cymbals splashing around it really messes up the big drum sound, and it would have prevented the noise gates from shutting."

## Real World

Peter Gabriel's Real World Studio complex is located on the edge of the village of Box, near Bath. The main building, a 200 year-old former water mill, houses three control rooms and numerous live recording spaces. An additional writing room set in trees near the millpond is completely self-contained, with recording mixing and living environments in a glass and wood structure.

With the philosophy that the studio is a place for performance rather than a mere technical facility, the aim was to produce an environment conducive to performance and creativity in contrast with the traditional English country house residential studio and the closed-in city centre studios. Unusual and innovative features were incorporated into the design.

Much use is made of large airy spaces, natural materials, and natural light and water. In fact, a man-made mill pond surrounds the front end of the largest control room and a stream flows below glass floor panels in the stone recording area. Gabriel, disliking the dry air of most studio air conditioning systems, wanted the inside atmosphere to feel like someone had left a distant door open so a unique fresh air system was devised for the building whereby the air runs through only natural timber and large ceramic pipes. The natural materials supposedly create invigorating and refreshing negative ions, rather than positive ions which are believed to induce fatigue.

The largest of the control rooms is the Big Room, a massive space with a floor area of around 2,500 square feet and a ceiling height of about 30 feet. Eliminating the traditional separation between studio and live room, the room is large enough for many musicians to set up and play, and there are raised platforms (rather like a stage) around the walls.

all. We were still fiddling around on that album with big old Series 3 Moogs with patchchords, and the Roland modular systems."

## Getting the sound

In common with the rest of our *Petsounds* efforts, *The Mix* attempted to use the Archer mini-amp in the same way that it was used on the Gabriel album. In this instance it was more a case of merely demonstrating the unit's capabilities, rather than attempting to create any specific sounds – we didn't have Kate Bush to do our backing vocals, for a start.

A variety of samples from previous cover CDs were fed directly into the Archer, which was close-miked (from about 1") with a Shure SM57 feed through a JoeMeek VCI pre-amp. The resulting sound was recorded direct onto DAT without any compression, EQ or effects.

As the Archer can be used as a small practice amp/line tester for instruments, it was also used with an Oberheim analogue synth and a Gibson Les Paul plugged directly in. The recorded results are on *The Mix* cover CD, and (with the exception of the guitar) the original sound is included for comparison purposes.

Best results were obtained with the Archer set at lower volumes. High volume settings tended to over-distort, with a resultant lack of clarity in the sound. This might be just what is needed in some situations, but as we were using vintage units which didn't belong to us, we weren't about to risk blowing the speakers.

Feeding sounds – usually via an aux send or a group output – into an amplifier and speaker and then putting them back into the mix is a very useful technique, both for changing the sound via amplifier/speaker distortion, and for adding some room sound with a mic positioned in the same room as the speaker. Whether it be feeding a drum kit through a whole PA to give it some extra thump, or putting a too-clean guitar part through an overdriven guitar amp to dirty it up some, the technique can be used to totally replace the original sound, or just to add extra flavour.

You can use any amp and speaker combination if you want to try this technique, but small guitar practice amps like the Pignose or those cute miniature Marshall

stacks found in music shops could yield interesting results. Guitar fuzzboxes are the obvious choice for getting a similar effect without using an amp and speaker, but it's also worth noting that some multi-FX units have distortion and speaker simulation programs. The Lexicon MPX1, for example, has simulations of a broken speaker and a cheap radio.

## Budget kit ideas

Useful as a source of components for building and repairing equipment, as well as stocking numerous plugs and connectors, Tandy have had several products on their shelves, useful to musicians and recordists, which are relatively inexpensive but do a similar job to branded products costing a lot more.

Probably the best known of these is the Realistic PZM microphone costing, at various times, somewhere between the £30-£40 mark and powered by batteries, although easily converted to 48V phantom-powered operation by a simple modification. These pressure zone (or boundary) microphones are an excellent bargain, with a performance that belies their modest price.

Some other Tandy mics are also worth a look, like the Highball, a practical handheld vocal mic for those on a budget. It's always worthwhile to

check mixes out to see how they will sound on low-cost budget systems and Tandy can supply a range of inexpensive speakers to do just that.

The latest news is that Tandy has been taken over by Carphone Warehouse and certain items that are not wanted in the stores any more have been discontinued. Unfortunately, the Archer mini-amp, which currently resides on the electronic projects page (p.406) of their current catalogue and retails for the princely sum of £3.95, is one of the items to get the chop. However, there are probably a few left lurking on shop shelves as clearance items, so anyone wanting one will have to be quick...

Got a Petsound you'd like more information on? Get in touch, and we'll get on the case.

**Special thanks to David Rhodes for the loan of his Archer mini-amps.**



Hugh Padgham: the man Phil Collins credits with creating that ubiquitous drum sound...



Try some of these to get Gabriel's sound – from L-R: Marshall's mini-stack – try it as an Archer substitute; Fender Jazzmaster, as played by David Rhodes; the Lexicon MPX1 will simulate a broken speaker

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# Praise the LOUD!

If you want your record to be heard above the crowd, then it's got to be loud! But just getting more level onto your master isn't the whole story. *Tim Oliver* explodes the myths of loudness...



Bauhaus singer Pete Murphy 'breaks the sound barrier' for Maxell's '80s advertising campaign

**M**ention the term 'loudness' and most people immediately think of that nasty button on their hi-fi. Rest assured that's not what we're on about here. Strictly speaking, loudness is our subjective perception of the intensity of a sound, so it's an airy-fairy subject that's unquantifiable and relative.

The physical equivalent is level or volume measured in decibels, which, although also relative to a set reference level, is quantifiable.

Really, when making records it's loudness that's more desirable than level: the louder your record is, the more it grabs the listener. We're not going to be dealing with how to maximise the level to your finished record here, or how to use a compressor for that end. This is about the way we sense loudness and how you can use that to maximum effect in your recordings.

The human ear is by no means linear when it comes to interpreting volume; many factors influence our sense of loudness – all of which can be used to advantage during a record's production stages.

### Tailor-made

To get a good understanding, it helps to know how the ear and brain work. The ear and the brain tailor the way we hear sound in many ways. The range of actual sound pressure levels, from quietest to loudest, that we have to accommodate is so vast that we've evolved a built-in compressor to protect the ear. Roughly speaking, if you double the power, you increase perceived loudness by the same amount. So going from a 30 to a 60 watt amp would give the same step in apparent loudness as going from a 60 to a 120 watt amp.

This suggests you are more sensitive to loudness variation or dynamics at low volumes than at high volumes, which has implications throughout the recording process – as you balance up a mix, the relative loudness of instruments is going to change as you turn the monitor volume up and down. Theoretically then, you should be able to do the best job of balancing at a low volume, although you can argue that the average listening level is best for truest dynamics. What is clear is that loud volumes are not good for creating an accurate balance because everything seems in closer relationship.

Another effect of the ear's built-in compression is what happens when sounds are miniaturised through speakers. You've probably had this experience when listening back to a live recording: the gig itself sounded energetic, well-balanced and powerful, but the recording sounds rotten at normal listening levels. You'll experience this same phenomenon in the studio with drum kits. Stand in the studio while a drummer's clattering away and it sounds amazing (but sometimes it's so loud that your ears go beyond their built-in compression and start clamping). Back in the control room, the kit sounds nothing like it does in real life. You try ambient mics in different positions, and change mics on the kit, but all to no avail – it still sounds limp, thin and clicky. The main problem is down to hearing the drums through the monitors at a reasonable level. If you could simply go into the studio and turn the drummer down (oh, if only...) it would probably sound the same.

One answer is to grab a compressor and try to recreate, at low volume, the dynamics of the kit and all the reflections you experience when it's played live. The compressor scores on several fronts: firstly, it can even the balance between the separate drums, which is more in keeping with the way we hear it when it's played loud.

Secondly, you can adjust the dynamic envelope of each drum. Listening tests have shown that we hear short transient sounds quieter than longer sounds of the same physical level. In other words, play a tone as a blip and then as a sustained note, the latter seems a lot louder even though they're both the same level. So making a transient sound as long as possible will affect how loud it seems. Being heavy transients, the hit of a drum sound is much louder than the after ring. At low volumes this is more apparent (hence the 'clickiness'), but when you're listening in the studio your ears are compressing the envelope to give a sound that's dominated more by the resonance of the drum than the skin hit. Using a compressor, you can mimic this by bringing up the level of the tail with a fairly quick release setting.

Thirdly, a compressor can adjust the balance between the direct sound from the kit and its reflections from the walls by making the reflections louder. Listening live in the studio, the difference between the volume of the drums and their reflections seems less than it does when listening quietly in the control room. Early reflections increase one's sense of loudness: you only have to walk into a subway to hear the effect on the loudness of your footsteps. A drum kit outside or in a dead room sounds a lot quieter than one in a live room, but more on that in a minute.

### Pump it up

All these changes in dynamic perception can be imitated by clever use of a compressor, and go some way toward tricking the brain into giving the listener a loud experience at low volume. This applies not just to drum kits, but to everything, including the whole stereo mix. Get the mix to pump and you can give it energy and make it feel louder than it is. One of the loudest-sounding records of the last decade must be Nirvana's 1991 classic *Nevermind*. Amongst other things, that's down to some serious compression on the overall mix. Prodigy records are another case in point – they're loud.

It's also believed that beyond certain volumes, the ear starts to produce additional harmonics, in which case the perceived timbre of the sound will change. If that's true, and we associate these harmonics with high volumes, it could explain why some compressors (especially valve compressors) are better than others in our quest for loudness – it's due to the harmonic distortion they introduce.

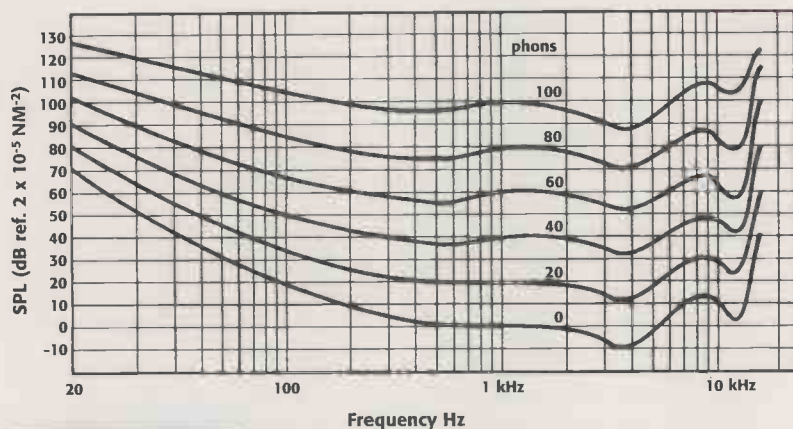
There are other strange goings-on inside our heads. The way we interpret reflections is a little more complicated than the drum kit example above suggests. Any reflections within 40-50ms of the direct signal are reduced in level by about 10dB in the brain. Again, this is an evolutionary device that helped us decipher speech in echoey caves back in the old days.

Reflections after 50ms and before the later diffuse reverb increase the impression of loudness. The thicker and denser these reflections are, the louder the sound will appear to be. Adding them either artificially or naturally, when recording or re-mixing through an amplifier, can help the loudness con. It goes without saying that there's a limit to the amount of reflections you can add before the direct sound is swamped.

And there's more. You've probably heard of the Fletcher-Munson equal loudness contours? These explain the subjective phenomenon that makes the tonal balance of your record change as you turn the volume up and down. Turn it up and the bass and treble appear to increase in level relative to the mids. At low levels it's



"If only we could turn the drummer down," say West Country disco superstars Funkaholic



Fletcher-Munson equal loudness contours: great fun at parties...



The bestselling Prodigy album *The Fat Of The Land* – nothing if not loud!



Producer Butch Vig made Nirvana's *Nevermind* seem deceptively loud...

⊞ the mids, but in particular, the presence, that appears to predominate. Yep, more evolutionary development here too: presence is where the definition lies, so a presence boost at low levels helps you to hear human speech against background noise.

There are a couple of factors to take into account in the studio. The obvious one is that if you mix at low levels and get a heavy bottom end going, you'll get a shock when you turn it up (as will your woofers). The less obvious one is that when your record is louder than everyone else's, which of course is the main aim, it will also appear to have more bottom and top end. So all round *mucho impressivo*. Conversely, if your record is quieter than the others, it's also going to appear lightweight and duller.

The final human oddity concerning loudness is the way we hear volumes of sounds with differing frequency bandwidths. The ear and brain separate sounds into roughly third octave bands. The more of these bands covered, the louder the sound appears. To take an extreme example, if you were to hear a sine wave (one band) at the same physical level as a jet engine (definitely full band) the jet engine will seem much louder.

This is used to great effect as a dynamic device whilst maintaining an almost constant physical level: we're talking about the old empty verse/full chorus trick. Nirvana springs to mind again with 'Smells Like Teen Spirit'. That chorus comes in like a tank, but in actual fact there isn't that much change in level. Blur's

another one with 'Song 2' – it's down to very clever arrangement and mixing ensuring that when the chorus hits, it really does become a full-frequency response recording.

What also helps to create the sense of impact is brief silences beforehand. Going from silence to very loud is a more impressive dynamic than going from quite loud to very loud. It goes to reinforce the belief that what you leave out of a mix is as important as what's there: the contrast of space and fullness helps the sense of loudness. Gates can help the impact by ensuring absolute silence in the brief stops.

### Play it again

But for all this, you can't escape the fact that a lot of it is down to performance. If something is hit or played hard, that energy is captured on tape and will always sound like someone is playing loud. With a weak drummer, you'll find it hard to get a good sound however much brain trickery you apply. Some people attribute this to edge harmonics, which are those over the seventh harmonic. They seem to be a key loudness indicator to the ear and generally the harder an instrument is played, the more edge harmonics are produced. You can, of course, use EQ to enhance that harmonic area, but you know what happens when you try to overdo it – we've all been there.

It's compressors that are the main weapon in the loudness armoury. The use of compressors in modern music has changed dramatically over the last few years. With the increased dynamic range of recording media, the need for dynamic control is not a prime concern. The compressor is becoming much more of an active effect, rather than a passive level guardian. No longer should they be seen and not heard – a measure of a good compressor now is the viciousness and sense of energy and loudness that it can give. Smooth compressors still have their place at times (for the task of keeping a vocal on top of a mix, for example), but in general it's the pump factor that gives the buzz. They make things seem louder, with the emphasis on *seem*. And that, of course, is what we all want to hear. ⊞

**Thanks to Maxell for permission to use the image of Pete Murphy, and to Steve Webbon of Beggars Banquet for supplying the photo**



Compressors are the main weapons in the producer's loudness armoury





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# a&r dept

Welcome to the hallowed depths of the *A&R Dept*, where *Nick Serre* and his record industry pals scrutinise your demos for signs of talent



## MANDRAGORA POLLEN

Mandragora are evidently committed to a style that is impossible to categorise – ragga, techno, dub and world music meld gloriously on *Pollen*. While this may confuse

record company bigwigs, at last year's Glastonbury festival the band were praised by no less a luminary than John Peel. There's a definite live vibe across this album. 'Dub Jig' combines sub-sonic bass and ragga raps with Irish fiddle and reggae-esque timbale fills. The title track fuses dance elements with psychedelic textures and a mesmerising overdriven guitar. The main culprit is singer/songwriter Simon Williams, aided and abetted by a string of instrumentalists, singers and all-round mavericks. Mandragora have been going for quite some time, and their eclecticism has obviously flourished over the years. OK, so it's not mainstream, and that's what Mandragora are evidently avoiding. But there *is* a genuine niche for this sort of material in today's market, so let's hope that the powers that be recognise this soon.

**Verdict: In full bloom.....8/10**

**More from: Delirium Records Tel: 01753 890635**



## MARK TAYLOR BLOOD RED SKIES

By day, Mr Taylor is a secondary school music teacher, by night he composes for a variety of stage and screen activities. This is his dance alter-ego, and while it's cleverly

arranged and played, it's difficult to see who it's aimed at. The three tracks are disparate, to say the least, and Mark hasn't done himself a great favour in admitting that the selection was chosen at random. A key element, especially in dance-oriented material, is consistency. Flitting from drum'n'bass-inspired takes to camp disco within minutes is not the best start. The bulk of Mark's sequencing is carried out on a Roland MC-50, which he favours over the computer-based sequencers he uses by day. His kit is a bit limited, which may explain some of the dubious sounds, but the ideas are there. It's early days for Mark, but if he wants his new breed of compositions to be taken seriously, he needs to find a style, and not try to cover too many bases.

**Verdict: Keep on learnin'.....6/10**

**More from: Mark Taylor Tel: 0121 443 3564**



## TREM-O-LEKTRA FILE NOT FOUND

An Austrian four-piece, Trem-O-Lektra fall somewhere between Portishead and Radiohead. Image can be all, and if the, ahem, less-than-flattering snapshots of the band

included here are anything to go by, they need a change of one. But what of the sounds? Well, there's a very British influence at work, with cited influences from Tricky to The Verve to The Cure. And they do a pretty good job of assimilating these styles, too. Underplayed guitars and witty vocals underpin the bulk of the material, allied with grooving drums and bass, and a ferocious intensity. The only potential problem is that assimilating is one thing, while having a dose of pure originality is quite another. There are some interesting and very well-executed ideas going on, but it all befits a covers band. They are on the right track, though, and with even more attention to detail, they may well be capable of coming up with a genuine original spark. Until then, brace yourselves for disappointment. Oh, and change the name.

**Verdict: Back it up next time.....6/10**

**More from: Trem-O-Lektra Tel: +0043 (0) 664 461 2482**



## SUPERNATURAL DEMO

This kicks off pleasantly enough – in a kind of '80s house style: subby synth bass and offbeat hi-hats abound. The composer is 18-year-old Rodney Wilson, who is currently

studying for a BTEC Music Technology qualification in London. But, while such courses can give you a pedigree when it comes to recording, they are not designed to give you musical originality. Rodney has absorbed a plethora of dance influences, and he does a passable job of imitating a Kiss FM playlist. That said, the styles he has absorbed are at least consistent and well-executed. What Rodney needs is some sort of collaborative muse. Perhaps getting together with a singer, or trying to produce other people's tracks would be one way to expand his horizons. He's got the production ability, a firm grasp on cool sounds, and some original arrangement techniques to boot, so why not push it to the next level?

**Verdict: Could be naturally super.....7/10**

**More from: Rodney Wilson Tel: 01582 659745**



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**THE OUTER LIMITS  
PLANET STRIFE!**

This guy may be taking the piss, but he does it very well. 'Budlegacy' combines demonic vocals with a whistling accompaniment that is so amazingly naff it's brilliant. But wait – there's a complete turnaround in

the form of 'Highway', a pulsatingly mellow trancey track. Dean professes an interest in writing jingles for TV, and given his obvious talent for writing in differing styles, this could well be a viable option for him. A point worth mentioning frequently is that collaboration can be paramount, but Dean is (nearly) one step ahead of some of his contemporaries in noting that he has musicians waiting on the sidelines for live demonstrations of these tracks if required. What are you waiting for? Get tapes out to venues and get some gigs. As well as helping to see what audience reaction you get, seedy dark pubs are notoriously popular with shady A&R types, and if they've got their cheque book with them, it could be The Outer Limits' lucky night. It deserves to be.

**Verdict: Cohesively coherent.....7/10**

**More from: Dean Dealtry Tel: 01262 606624**

**TSYT  
DEMO**

He's a bit of a maverick, this TSYT geezer. Mark Wheawill is his name and, at the tender age of 22, he's already had quite a musical history. From guitar-based grunge to

hardcore dance, he's done the lot, a fact which shows in this deftly-constructed demo. Of the four tracks supplied, 'Dreamland' is the strongest, fusing ambient pads with Prodigy-esque electronica. It must be said, Mark's arrangement skills are first-rate, and he makes inventive use of his Korg Trinity and Prophecy keyboards. My only minor criticism here is of the drum sound. Standard house patterns just don't fit great with Mark's style. He cites influences from Photek to Propellerheads, so maybe he should have a closer listen to how they build their drum parts. But that's a quibble, really, because the material here is of a very high standard, and with a bit of tweaking, could be exceptional.

**Verdict: Tasty breakbeat .....8/10**

**More from: Mark Wheawill Tel: 0161 747 6468**

**MINDS EYE  
DEMO**

Minds Eye came to our attention last year in the guise of Freakshow (surely the most over-subscribed name among British bands of the unsigned variety), and suitably impressed us with their dark drum'n'

bass. Now, Scott Walker (no, not the legendary '60s crooner) is back with another six tracks in a similar vein. In the elapsed time, he has become something of a PC convert, and has been "busy as always creating new ambiances for my drum'n'bass creations". Interesting (if ungrammatical), and he's also had some minor success with production companies. And all this effort shines through on this latest demo. It's still dark, moody drum'n'bass, but his awareness of space and sounds just keeps getting better. Still using his trusty S2000 and a couple of synths, Scott manages to create dreamy soundscapes with apparent ease. Dedication has given Scott a highly personalised sound, and now he really does deserve for it all to be heard by the masses.

**Verdict: Inspired drum 'n' bass .....8/10**

**More from: Scott Walker Tel: 01474 353190**

**UNYN  
DEMO**

Eclecticism is the name of the game for Unyn (pronounced onion – "don't ask where we got that name, it's a long story!"). Nic De Souza and Graham Jones are both classically

trained, but, with the help of some talented cohorts, they churn out a strange blend of rock laced with ambient dance. A peculiar combination? You bet, but it's done with such humorous prowess that it works a treat. 'I Wanna Pizza' is a dance workout based around a telephone argument with an Indian takeaway who don't serve pizza. Novel doesn't even start to cover it. Aside from the humour, the duo show off their production skills perfectly. Guitars and vocals are superbly recorded, while the MIDI generated material is suitably minimal when required, or hectic when it fits. 'Orchestral Overture' is brilliantly original in a quirky sort of way, and that, it would seem, is the ethos of Unyn.

**Verdict: Strange fruit.....7/10**

**More from: Unyn Tel: 01202 521754**

**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) we need you to provide the following:

- Ⓞ Decent quality cassettes, preferably chrome (type II), CD or DAT.
- Ⓞ 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 maybe a groovy graphic.
- Ⓞ Lastly, and most important of all, send us extremely cool music that genuinely deserves to be going places. Not too much to ask, is it?...

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**demo of the month****THE 4/4 PROJECT  
METEORITE**

Everyone is leaping on the drum'n'bass bandwagon three years too late. Where's the originality that made the genre so groundbreaking in the first place? Well, some of it is right here. The 4/4 Project has a vision for the future of d'n'b. There's a dubby sensibility at work that is close to the Roni Size camp, coupled with some rule-breaking Squarepusher-type nuances. Rich says little when it comes to his kit, but it's clear

that samplers are at the heart of his set-up. 'At' includes a wicked Eric B & Rakim sample. 'Liberated' (hear it on the CD) kicks off with an ominous didgeridoo, and also features a funky breakbeat, along with aggressive synths and quirky vocal samples. 4/4 Project are undoubtedly at the cutting edge. Will the industry take the bait?

**More from: Rich Mallett Tel: 01373 465316**

**INDUSTRY VERDICTS**

Crikey, drum 'n' bass I can actually tolerate! Aggressive, hectic, varied... Some of the 'look how clever I am' programming sounds like two years ago, though. The risk with writing music clearly fixed in a genre is that, by the time you've got to a release and got people paying attention, the sound is dated. My favourite is the category-hopping 'Mind Rock' (which isn't on the CD). *Meteorite* is definitely diverse enough to escape with three months' community service.

• **Stu Lambert, Partner, Zip Dog Records**

I do not really know what to say about this CD, other than that if mad breakbeat techno/d'n'b is your thing, then maybe you should check out this project. If, however, your musical preferences lie elsewhere, then you would do well to stay clear of this CD; *Meteorite* is certainly not a crossover record.

• **Sam Winwood, A&R, Sony S2**

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### KEYBOARDS

**Casio CZ1000** synth, easily edited, great for analogue retro sounds £120 ono. Tel Steve on 01273 813 845

**Clavia Nord Lead Classic**, mint, with flightcase, will swap for Jupiter 8, MIDI, JV-2080, JP-8080 or similar. Tel Keith on 0131 317 7242 (Edinburgh)

**Ensoniq VFX SDII** multitimbral workstation synth, drums, 24-track sequencer, transwaves, big sounds, disk drive and disks, master keyboard functions £450 or offers. Tel Matt on 01474 335982 (London/Kent area)

**Ensoniq VFX synthesizer**, 32-voice polyphonic, multitimbral, powerful computer-based machine, plus extra sound cartridge £375. Tel Brian Miller on 0181 368 7071

**Jen SX1000** synthesiser, wooden case, perfect working order, collectors item, offers. Tel Leeds 0113 237 1956

**Kawai K4** synth with voice card, good condition, a digital/analogue hybrid with wicked dance sounds £325 ono. Tel Steve on 01273 813845

**Kawai SX240** rare eight-voice analogue polyphonic synth, unison split and layer modes, programmable with sequencer and MIDI, soft Kawai keyboard case. Tel 01535 645233 or e-mail: [p.a.mahoney@bradford.ac.uk](mailto:p.a.mahoney@bradford.ac.uk)

**Korg M1** excellent condition, includes original manual, four additional PCM program slot cards, ideally would like to swap for a Roland JP-8000/8080 or sell for £550.

Tel 0468 338001 (Reading, Berks area) or email: [scott\\_dobson@dataconn.co.uk](mailto:scott_dobson@dataconn.co.uk)

**Korg Poly 61M** cult classic, digitally controlled analogue synth, DCOs, VCF, VCA, 64 memories, MIDI, arpeggiator, joystick, SSM chips, ex ELO, excellent condition £180 ono. Tel Simon on 07970 823990 (Worcestershire)

**Korg Trinity Plus** with sample playback upgrade and Prophecy board, extra sound disks and hard carry case included £1,400 or reasonable offer. Tel Pete on 07970 441386

**Korg Z1** mint, boxed, home use only £1,049 or swap for Yamaha EX5. Tel 07957 266744 or e-mail: [batrise@cf.ac.uk](mailto:batrise@cf.ac.uk)

**Moog MultiMoog** classic analogue synth with velocity sensitivity and ribbon controller, two VCOs, fat Moog filter, great sound, owner's and service manuals. Tel 01535 645233 or e-mail: [p.a.mahoney@bradford.ac.uk](mailto:p.a.mahoney@bradford.ac.uk)

**Moog Source** very good condition, home use only, fat bass sounds £450. Tel Dan on 0181 691 2901

**Nord Lead** classic keyboard, flightcase, will swap for Jupiter 8, JV-2080, JP-8080 or £800. Tel Keith on 0131 317 7242 (Edinburgh)

**Novation BassStation** keyboard, offers. Tel Mike on 0411 529171

**OSCar M2** latest version, MIDI, full implementation, pristine condition £750. Tel Dan on 0181 691 2901

**Prophet 600** analogue synth, like a Pro-One, but polyphonic, with MIDI and patch memories, includes manual, original patches,

latest MIDI upgrade, fat sounds, etc £400. Tel 0181 998 1435 or e-mail: [gear@control-zone.com](mailto:gear@control-zone.com)

**Roland D-10** eight-part multitimbral box, manual, extra sounds, sound card, excellent condition, home use only £220. Tel Steve on 01449 736205 (Suffolk)

**Roland D-50** very good condition, manuals, flightcase, 256 additional sounds £299 ono. Tel Dave on 01977 511331 (W Yorks) evenings

**Roland JD-800** multitimbral digital/analogue polysynth, two sound cards, flightcase, manuals £760 or swap for Oberheim OBXa, JP-8000 or MiniMoog. Tel Tim on 01952 461241 or 0802 389601

**Roland JP-8000** as new, boxed, manuals, Emagic Notator SL for Atari ST, boxed with manuals, all for £800. Tel 01782 312270 (Stoke)

**Roland JP-8000** as new, manuals £750. Tel 0181 983 3456

**Roland JP-8000** synthesizer £600. Tel 07930 522439

**Roland Juno 60** £270 or swap for Quasimidi Technox, SY77 or D-50

Roland Juno 60 original manual and data tape, very good condition, warm sound, etc £270, no offers, or would swap for D-50, JX-10 plus cash, TG77 or Technox module. Tel 0468 511859 (Sussex)

**Roland JV-1000** keyboard workstation with built-in 16-track sequencer, two buttons need attention, two years old, excellent condition, manuals, stand, cost £1,800, offers around £400. Tel 01670 544958 after 6pm

Roland PC-200 MkII mother keyboard £100. Tel 01295 272098

**Roland SH-101** synth, good condition £200. Tel Chris on 07899 678526 (Hull)

**Roland W-30 sampler**, keyboard and sequencer in one, eight outputs, boxed, manual, large sample library £525 ono. Tel Alex on 01283 546326

**Roland W-30 workstation**, excellent condition, quality sequencer, 100-disk library, includes S-50/S-550 Roland library and manuals £500. Tel 0181 298 0519

**Roland XP-10** 16-part multitimbral keyboard, arpeggiator, drums, 303, SH-101 sounds onboard, excellent condition, one year old £225 ono. Tel 01706 818520

**Roland XP-50** one year old, excellent condition, experience sound card, boxed, manual, six floppies £600. Tel 0116 257970 [that number may be wrong, write in again with the right one please]

**Roland XP-60 workstation**, hip hop expansion board, perfect condition, box, manual, genuine reason for sale, occasional home use, seven months old £1,000. Tel Chris on 01434 604248 (Newcastle)

**Roland XP-80 workstation**, 64-voice polyphony, sequencer, effects, arpeggiator, drums, versatile fantastic sounds, one year old, manual, floppies, mint condition £800. Tel Laurent on 0171 561 9553 or 0958 754061

**Sequential Circuits Pro 1** analogue monosynth, good condition, manual, also Kenton Pro 2 MIDI-to-CV converter, excellent condition £400 ono for both. Tel Peter on 0181 399 9217

**Sequential Circuits Pro 5** classic analogue polyphonic synth, REV 3.2, beautiful condition, full Buffalo flightcase, never gigged, owner's and service manuals, factory preset tape, fully calibrated. Tel 01535 645233 or e-mail: [p.a.mahoney@bradford.ac.uk](mailto:p.a.mahoney@bradford.ac.uk)

**Technics WSA1** acoustic modelling keyboard, 61 keys, 64-voice polyphony, 32-channel onboard sequencer with graphical interface, excellent condition, manuals, boxed, stand £650 ono. Tel Tom on 01334 425788 (Manchester/Edinburgh) evenings

**Yamaha CS1x** immaculate, as new, boxed, manuals, seven months old £380 ono. Tel Gary on 0411 355178 or Paul on 01904 340672 (York)

**Yamaha DJX** dance keyboard, still boxed, guaranteed, hardly used, with adaptor £225 ono. Tel Leeds 0113 237 1956

**Yamaha DX7** classic synth, ideal for breakbeat, speed garage, two cartridges, good condition £300 ono. Tel Charlie on 0181 691 6060

**Yamaha P300** stage piano, controller keyboard, 88 fully weighted keys, great sounds, built-in monitor speakers, good condition, boxed, manual £1,200. Tel Ed on 0161 928 0533 (Manchester)

**Yamaha PSR2700** 128 voices, 100 styles, eight kits, sequencer, sampler, disk drive, MIDI, DSP, AWM, touch sensitive, multi effects, accompaniment plus stacks more features, manual lost hence £400. Tel 01228 520327 (Cumbria)

**Yamaha SY22** keyboard, 16-track synth, home use only, manuals, disks, very sought after £625. Tel Gary on 0181 421 4888 (North London/Herts) days

Yamaha SY77 workstation, perfect condition, manuals, stand £375. Tel Ben on 01279 503630 (Herts)

**Yamaha SY85** 16-part multitimbral, built-in sequencer, FX, disk drive, sound disks, ethnic expansion card set, manuals, great for dance music £450. Tel Jason on 01206 545714 (Colchester)

**Yamaha SY85** synth workstation, 16-part multitimbral, effects, extra sound disks, ethnic card set, amazing sounds and pads, includes manual and stand £450. Tel Jason on 01206 545714

**Yamaha SY85** workstation synth for sale, excellent condition with loads of extra sounds and sample disks, including luxury hard case £500 ono. Tel 01789 773247

**Yamaha YS200** FM synth, classic sounds, touch-sensitive keyboard, FX, MIDI, eight-track sequencer on board, extra voices, editing software £215. Tel 01702 557770

## SAMPLERS

**Akai S01** boxed, standard entry-level sampler, boxed, manual £250 ono. Tel Lee on 01992 300196 or 04325 202619

**Akai S20** sampler, 17Mb, box, manuals, disks, hardly used £340. Tel Mike on 01384 296318 (Dudley)

**Akai S20** sampler, full 16Mb upgrade, hardly used, boxed with disks and manuals £300. Tel Les on 0958 534134 (South London)

**Akai S20** sampler, very good condition, six months old, very good for beginners, all original packaging £300. Tel Ben on 01273 385954 (Brighton) evenings

**Akai S900** ten outputs, easy and quick to use, variable sampling frequencies, mint £200 ono. Tel 01706 818520

**Akai S1000** sampler, 10Mb, SCSI, new screen, mint condition £550 ono. Tel 0151 228 2766

**Akai S1100** sampler, 10Mb, new disk drive, boxed, as new, free Roland JX-3P classic analogue MIDI synth £850 ono. Tel Chinnon 01582 482619 (Luton)

**Akai S3000** sampler, 10Mb RAM plus custom-built John Henries flightcase £800 ono. Tel Barrie on 0181 906 9938

**Akai S3000XL** 22Mb, SCSI, 10 outs, manual, perfect condition plus box of 100 sample disks (need converting from older Akai format) £800. Tel 0181 998 1435 or e-mail: gear@controlzone.com

**Akai S3000XL** 32Mb memory upgrade £650. Tel Phil on 01925 574359 or 01925 630048 (Cheshire) or e-mail: ultrafex@yahoo.com

**Akai S5000** latest pro sampler, one month old, boxed with all documents £1,450 ono. Tel Rick on 0171 231 4586

**Boss SP-202** Dr Sample, superb budget sampler with sample CD and power supply, unused since purchased, still under guarantee, still in original packaging, quick sale wanted, a bargain at £250. Tel Ryan on 01256 352002 evenings or 07775 678333

**Boss SP-202** Dr Sample, very good condition, lots of effects, two filters, timestretch, delay, modulation, top tempo, ideal for live use and DJs, handy in the studio, free sample CD £190. Tel Tom on 01705 750592

**Boss SP-202** portable DJ, studio sampler, assignable pads, effects section, real-time control, bpm counter, internal memory and external back-up discs, connect straight to your mixer or standalone with built-in microphone/line input, unused, boxed-as-new condition £200 ono. Tel Darren on 0115 845 1629 (Nottingham)

or e-mail: darrenoldie@hotmail.com

**Boss SP-202** sampler, mint, boxed, manual, power supply £190. Tel Sam on 01298 71964

**Casio FZ-1** 2Mb, flightcase, loads of disks, swap for CS1x, MC-303 or anything interesting. Tel Jon on 01642 288385 (North East)

**E-mu e64** sampler, upgraded to 40Mb, internal 250Mb and external 1Gb Jaz SCSI drives, sample library £1,150. Tel 01903 871511 evenings

**E-mu ES132** memory module, 32Mb memory upgrade, will post, new £60 or part exchange on Roland JV expansion boards. Tel Alan on 01942 749868, 6-8pm

**E-mu ES132** sampler, 32Mb Turbo upgrade, Calamari board, ten outputs, tons of filters, timestretch, etc, boxed with manuals £650. Tel Matt on 0850 255671 (Guildford)

**Ensoniq EPS16+** sampler, fully upgraded, effects, 16-track sequencer, synthesis and sampling, includes 250+ disks, analogue examples, pads, effects, loops, synths, basses, drums, etc, not to be missed, offers around £550. Tel 07977 706487 (Leeds)

**Roland MKS-100** digital sampler with some disks £125 ono. If no sale, has anyone got a manual, desperate? Also Roland RD-200 digital piano £300 ono. Tel Guy on 0121 686 6991

**Roland MS-1** digital sampler, CD-quality sampling with video instruction manual £150. Tel 01273 596289 (Brighton) or 0956 413622

**Roland S-330** sampler, includes monitor, cables and over 140 disks, good condition, 19-inch rack, home use only £210. Tel Martin on 0114 275 6665 (Sheffield) or e-mail: miwork@hotmail.com

**Roland SP-808** GrooveSampler, six-month guarantee, use twice, mint. Tel Martin on 0181 504 9125

**Yamaha SU10** sampling unit, boxed, two free Time+Space CDs, very good condition £150 or swap for Keyfax Phat.Boy controller. Tel Sam on 01525 717360

## SEQUENCERS

**Yamaha QY70** sequencer, 519 XG voices, 20 drumkits, three effect groups, 16 tracks, a portable studio the size of a video cassette, brand new, unwanted Xmas present, boxed, manuals, computer interface £300 ono. Tel Gary on 01932 874883

**Yamaha QY70** sequencer module, XG sounds, loads of arrangements, unwanted Xmas present £275 ono. Tel Steve on 01753 884473

## DRUM MACHINES

**Alesis SR16** drum machine, a real gem, classic drum sounds, boxed, good as new £150 ono. Tel Dan on 0181 904 3741 or 0961 307677

**Alesis SR16** drum machine, boxed, instructions, PSU £120 ono. Tel Derek on 01302 363296 (Doncaster) or e-mail: jdb@nire.demon.co.uk

**Boss DR-5** drum machine, MIDI-compatible with power supply, excellent condition, still boxed with manual £125. Tel Pete on 0161 202 4141 or 0378 912629

**Boss DR-550** drum machine, has TR-808 and 909 kits, excellent condition, still boxed with manual £100. Tel Pete on 0161 202 4141 or 0378 912629

**Boss DR-660** drum machine, 808, 909 drum samples, boxed, manuals £120 ono. Tel 0151 228 2766

**Cheetah MD16R** rackmount drum module, boxed £95. Tel Simon on 01923 448294 (Watford area). Buyer collects

**Roland R-8** drum machine, Roland's 'class-act' with 'human feel', mint condition, power supply, manual and ROM cards. Tel 01535 645233 or e-mail: p.a.mahoney@bradford.ac.uk

**Roland TR-330** analogue drum machine, analogue preset Old Timer with original footswitch. Tel 01535 645233 or e-mail: p.a.mahoney@bradford.ac.uk

**Roland TR-707** drum machine, not working, boxed £140. Tel Simon on 01923 448294 (Watford area). Buyer collects

**Roland TR-808** in mint condition £500. Tel Fiona on 0181 548 8443

**Roland TR-808** original and perfect condition with Groove Electronics MIDI interface and manuals £650. Tel 01323 833619 or e-mail: mdm@ndirect.co.uk

**Roland TR-909** excellent condition plus manual, first offer of £750 secures. Tel 0131 553 1617

**SP1200** drum machine, mint condition, equipped with US power converter, this is the classic machine used by all the top US garage producers, purchased in the States £1,000. Tel 0966 242766

**Yamaha RY20** virtually unused, boxed, manual £150. Tel Mick on 01203 306130 after 6pm

**Yamaha RY30** rhythm programmer, real-time parameters wheel for filter, pitch, balance, decay and pan, complete with manual, not boxed, good condition £150 ono. Tel Chris on 01325 312932 (Durham) after 6pm

## COMPUTERS

**Amiga A1200** accelerated, 50MHz, 340Mb hard drive, 18Mb RAM, sampling cartridge, *Octamed* sound studio, MIDI interface, portable colour TV as monitor £250. Tel 07801 610454 (Manchester)

**Amiga A1200** plus Philips monitor, all leads, also MIDI interface, one in, one thru, two outs, ideal beginner's package £150 ono. All in good working order. Tel Gary on 0411 355178 (York)

**Atari 520 ST** 2Mb, brand new, 14" hi-res monitor, plus *Cubase* £200 ono. Tel Simon on 0378 508664

**Atari 520 STE** 4Mb, hi-res monitor, 80Mb hard drive, *Cubase*, plus spare 520 STE and extras £200 or swap for QY20/300 or MC-303. Tel Pierre on 0116 282 4798

**Atari 1040 ST** hi-res monitor, mouse, *Cubase V3*, and tutorial, good condition

and good working order £160. Tel 0181 656 0291

**Atari 1040 STFM** with SM124 hi-res monitor, mouse, manual, MIDI leads, software £100. Tel Andy on 01473 272936 after 6pm

**Atari Mega 4 C-Lab Notator**, manuals, dongle, *Unitor 3*, MIDI outs-and-ins, SMPTE £220. Tel 0956 479571

**Atari ST 1Mb**, with hi-res, 14-inch, black-and-white monitor and *Cubase* software, music sequencing outfit, good condition £160. Also spare hi-res monitor £75. Tel Richard on 01689 825174 or e-mail: nor999@aol.com

**Atari STE 1Mb** RAM with various sequencing software, mouse, joystick, manual, excellent condition £100 ono. Tel Steve on 01449 736205 (Suffolk)

**Atari STE 4Mb, Cubase V3** £60. STFM spares available. Tel Gary on 01293 534415 evenings

**Atari STFM 1Mb**, with colour and hi-res mono monitors and software £140. Tel Simon on 01923 448294 (Watford area). Buyer collects.

**Atari STFM** Protar, Progate II, 40Mb hard drive, Philips CM8833 monitor, Star LC10 colour printer, mouse, original software plus manuals, includes doubling software for hard drive £200. Tel Nigel on 0116 238 2681 days

## HARDWARE/SOFTWARE

**Atari colour** monitor, hi-res emulator £40 ono. Tel 01722 744196 (Salisbury)

**Audiwerk 8** PCI card, eight outs plus S/PDIF, as new, boxed £200. Tel 0181 365 3318

**Cakewalk Professional V7** for PC, intermediate level, powerful MIDI and digital audio software, boxed and unregistered £100 ono. Tel 01388 602831 or e-mail: chris@almostabstract.demon.co.uk

**Creative Labs AWE64** Gold soundcard with CD-ROM mic, S/PDIF out £50 ono. Tel Dave on 01772 717610 (Preston)

**Creative Labs AWE64 Value** with additional 4Mb of RAM, ideal starter kit complete with all drivers, CD-ROM of sound-fonts, etc. Tel 0468 338001 (Reading, Berks area) or email: scott\_dobson@dataconn.co.uk

**Cubase VST V3.15** for PC, swap *Unitor* for ST, *Notator* or Korg X5 or *Logic*. Tel 01757 291468 (Yorks)

**Digidesign SampleCell II** for PC, full 16-bit sampler, eight outputs, 32Mb RAM, fully expanded, velocity scaling of samples, Windows WAV file compatible, Digidesign software, manual, program and library CD-ROMS. Tel 01535 645233 or e-mail: p.a.mahoney@bradford.ac.uk

**Motu 7S** automated mixer, eight stereo channels, two effects send/return, two-band EQ and gate on every channel, automation and recall of all parameters via computer, PC, Mac, Atari software £400. Tel 01535 645233 evenings

**Pro Tools 3** PCI core system for Mac, 16 tracks of pro audio on desktop Mac, one disk I/O, one DSP farm card, V9.1.1 software, boxed, manuals £2,200 ono. Tel 00 386 62 212 631 (Slovenia) or e-mail: simon.simat@slon.net

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READERS' ADS

THE MIX



**Replay 16** sample cartridge and editor for Atari, many features including MIDI and effects, excellent condition, boxed, as new £50. Tel 01697 320743

**Roland RGB** 14-inch colour monitor with special cable, suitable for samplers S750, 760, 770, 550 and 330, excellent condition £75. Tel Richard on 01689 825174 or e-mail: nor999@aol.com

**Sonic Foundry ACID** + 11 sample CDs, boxed £195 ono. *Rave eJay* with all three sample CDs £35. *Dance eJay* £15. Tel 01254 725241

**Turtle Beach Pinnacle** 16Mb sample RAM, Windows software £270 ono. Tel Jon on 0117 985 2918

**Turtle Beach Tahiti** soundcard, full duplex, also Yamaha DB50XG daughterboard synth, complete with *XGEdit*, superb set-up £100. Tel Jim on 01483 570714 (Guildford)

**Yamaha DB50XG** daughterboard £50. Tel Jon on 0117 985 2918

**Yamaha SW60-XG** soundcard, includes manual, drivers, box, etc, upgraded to SW1000XG (no room in PC!) £60. Tel 0468 338001 (Reading, Berks area) or e-mail: scott\_dobson@dataconn.co.uk

## RECORDING

**Alesis 1622** mixer, boxed £200. Tel Simon on 01923 448294 (Watford area). Buyer collects.

**Allen & Heath Series BB** Sycon desk 32:24:8 channel, in line, complete with patchbay looms, power supply, analogue perfection, fully operational, cost £20,000+, yours for £2,800 ono. Tel Keith on 0181 883 3258

**Chiltern CM2** broadcast mixer, 12 modular channels, switched faders, confidence monitor, all ins and outs on balanced XLRs, PPM meters, talkback mic, the business. Tel 01535 645233 or e-mail: p.a.mahoney@bradford.ac.uk

**DA20** DAT machine, perfect condition with remote and manual £300 ono. Tel 07971 472365

**Fostex 380S** four-track, 12 inputs, Dolby-S, boxed, excellent condition with SmartSync MIDI sync unit £200 or swap for Alesis DM5 or DM4. Tel Steve on 0191 477 0912

**Fostex 812** mixing desk, excellent condition with looms and manual £500. Tel Cris on 0181 444 4179

**Fostex D80** 1.3Gb, eight-track hard-disk recorder, mint, includes loom £700 or swap for MiniDisc multitracker, E-mu sampler, filter bank or anything interesting. Tel Gawain on 07775 908400 (London)

**Fostex D80** eight-track digital recorder, 18-min and 40-min driver and Fostex X COP1 optical to digital converter, perfect condition £800 ono. Tel Ddick on 01782 213226 or e-mail: dick@p\_email.freemove.co.uk

**Fostex D80** eight-track hard-disk recorder with extra 30-minute hard drive and caddy plus extension cable, only £599 ono. Tel 01722 744196 (Salisbury)

**Fostex D80** hard-disk eight-track machine, rackmount, in absolute mint condition, eight ins, eight outs, with digital in, out, comes with manual and original hard drive

£650 no offers. Tel 0161 721 4516 (Manchester) or 0973 236997

**Fostex D90** digital multitrack recorder, eight tracks, records 30 minutes of CD-quality audio, plus editing facilities, dual frequency, removable hard drive, immaculate condition, boxed £875 ono. Tel 01962 773100

**Fostex DMT8** eight-track hard-disk recorder, mixer, 2.1Gb quantum drive, sweep EQ, latest software £450 or swap for 16-track mixer. Tel Richard on 01271 814490

**Fostex R8** recently serviced, excellent condition, with manual £550. Tel Cris on 0181 444 4179

**Mackie SR 32:4** mixer, 32 inputs, four-buss, six aux sends, four aux returns, three-band EQ, sweepable mids, great desk, ideal for all music, good condition £1,000. Tel Charlie on 0181 691 6060

**Revox A77** quarter-inch analogue recorder, tape speeds of 7.5ips and 15ips, usual Revox facilities. Tel 01535 645233 or e-mail: p.a.mahoney@bradford.ac.uk

**Roland VS-840** digital track recorder, three weeks old, boxed, manuals, Zip disks, hardly used, low funds force sale £800, open to offers. Tel 01246 411805 or 0411 528526

**Roland VS-880** digital studio, 850Mb, internal drive, VS8F-1 stereo multi-effects, original demo song loaded as new, manuals, boxes, etc, perfect condition £850. Tel 0850 386093 days or 01564 778009 evenings

**Roland VS-880** eight-track digital hard-disk recorder, V-expanded with effects board and 2Gb disk £850. Tel John on 01635 874586

**Roland VS-880** V-Expanded, with 1.4Gb internal hard drive and VS8F-1 effects board, good condition, home use only, with manuals £900. Tel Steven on 01702 344731 (Essex) or e-mail: steven@magnolia.demon.co.uk

**Samson MPL1640** 16-channel mixer, three aux sends and returns, EQ, immaculate £290 ono. Tel 01438 221076 (Herts) 6-8pm

**Samson MPL2242** mixer, 10 mono, six stereo channels, four-band EQ< six sends, four stereo returns, 60mm faders, 10U rack, as new, boxed, manual £450 ono. Tel 0171 402 2101

**Sansui** six-track multitracker, hardly used, still boxed £300. Tel Pete on 0161 202 4141 or 0378 912629

**Seck 12:8:2** mixer, power supply and some leads, home use only £190. Tel Martin on 0114 275 6665 (Sheffield) or e-mail: mlwork@hotmail.com

**Shure Beta 87** radio mic with multi-channel UC Diversity receiver, new price £1,300, unused £500. Tel Tudor on 0181 567 7978

**Spirit By Soundcraft** 16:8:2, excellent condition, used in home studio £750. Tel 0141 423 2299 (Glasgow)

**Spirit By Soundcraft Folio F1** 14:2 mixer, home use only, boxed, manual £175. Tel Justin on 01622 813236 (Kent) or 0958 953246

**Spirit by Soundcraft Folio Noteпад**, eight inputs, EQ, phantom power, FX, aux, mix and monitor outputs, perfect condition, includes manual and box £100. Tel 0118 947 9666 (Reading/Berks area) after 7pm

**Spirit By Soundcraft Studio** 16:8:16, auto mixer, VCA fader automation by Atari

computer included, 32 channels on mix-down, six FX sends, great sound. Tel 01535 645233 or e-mail: p.a.mahoney@bradford.ac.uk

**Studiomaster Diamond Club** 16:2 mixing desk £200. Tel Graham on 0116 257 0041 (Leicester)

**Studiomaster Series 5** mixing desk, 16:8:2, three aux, flightcase included, ideal studio, live use, bargain at £300. Tel 01543 577508 (Cannock, Staffs), buyer collects

**Tascam 238S** eight-track cassette-based recorder with Dolby S, mint condition, hardly used, boxed with manual, cheap medium, superb recording quality and no backing up required £400 ono. Tel Phil on 01273 707104

**Tascam 414** portastudio, four-track recording, two-band EQ £190 ono. Tel 0161 654 6941 (Manchester) after 6pm or 07979 413572

**Tascam 488 MkII** mint condition, boxed, manuals, hardly ever used, will deliver free anywhere in the UK, only £250. Tel 0411 303296 or e-mail: mag43@dial.pipex.com

**Tascam MS16** 16-track one-inch reel-to-reel tape machine with DOLBY A noise reduction, big machine £2,000 ono. Tel Nigel on 0121 682 2354 (Birmingham)

**Tascam TSR8** remote control, one tape £700 ono. Tel Yan on 01279 412475 (Harlow)

**TEAC Tascam Series 32-2B** two-track, 15IPS, tape machine £100. Tel 01403 700439

**XR300 MTC** the standard for semi-pro syncing of MIDI/MTC/SMPTE to tape, home use only with manual £100 ono. Tel Phil on 01273 707104

**Yamaha MT3X** four-track cassette recorder and 20 new tapes, boxed £195. Tel Simon on 01923 448294 (Watford area). Buyer collects.

**Yamaha RM800** 16:8:2 mixing desk, three-band EQ, mid sweep, four sends £550 ono. Tel Nick on 0956 133109 (London area)

## AMPS/PA

**Kustom** bass amp, 20W, ideal for beginners £55. Tel 01608 737311 after 6pm

**Studiomaster Powerhouse** Vision 16, boxed, used approx 90 hours, 18 months old £850. Tel Richard on 01736 757439

**Tannoy Ardens** collectable monitor loudspeakers, dual concentric 15-inch drivers in massive Tannoy cabinets, fully serviced and in great condition £650. Tel 01535 645233 evenings

**Two 2x12** cabs with covers, Peavey 100W amp, McGregor 200W amp, all immaculate, home use only £280, will split. Tel John on 01482 587432 (Hull)

## EFFECTS

**Alesis MicroEnhancer** and MicroLimiter, both with stereo ins and outs, power supplies, mint condition. Tel 01535 645233 or e-mail: p.a.mahoney@bradford.ac.uk

**Calrec RQD6400** twin stereo compressor, limiter, two independent stereo channels, broadcast quality, very good condition, price when new £1,800. Yours for £1,000. Tel

0181 211 8822

**Korg Pandora PX1** multi effects unit, 60 effect variations, 20 user programs, metronome, tuner, boxed, complete with instructions and PSU, easily adjustable effect settings, Korg quality £60 ono. Tel 01785 823204 (Stafford)

**Lexicon LXP1** reverb, half rack, digital reverb with delay, chorus and flange, full MIDI control, stereo ins and outs, fully programmable, fantastic sounds. Tel 01535 645233 or e-mail: p.a.mahoney@bradford.ac.uk

**Lexicon LXP5** dynamic multi-effects processor, full MIDI control, stereo ins and outs, five effects simultaneously, delay pitchshift, chorus, flange, etc, fully programmable. Tel 01535 645233 or e-mail: p.a.mahoney@bradford.ac.uk

**Lexicon LXP5** half rack, programmable MIDI multi effects processor, five effects at once, including classic Lexicon reverb, programmable from front panel or computer, full dynamic MIDI, rack. Tel 01535 645233 evenings

**Lexicon MPX100** multi-effects with MIDI, new, £175. Tel 0181 998 1435 or e-mail: gear@controlzone.com

**Lexicon Reflex** effects, with MIDI £99. Tel 0181 998 1435 or e-mail: gear@controlzone.com

## SOUND MODULES

**Casio VZ-8M** digital module, 1U rack, phase distortion synth, two ROM cards, manuals, mint condition £150. Tel 0171 402 2101

**Drawmer DS301** dual/stereo programmable MIDI noisegate, Rolls Royce version of industry standard, DS201 gate, faster envelopes, dynamic punch, full MIDI spec, great for replacing live, tape drums, great condition. Tel 01535 645233 evenings

**E-mu Orbit** Dance Planet sound module, loads of features, filters, beats mode £390. Tel Chris on 0117 965 5673

**Kawai K5000** Rack, V3.0, Macro control box and sound expansion disk £700 (shipping included). E-mail: d.wasser@fh-aargau.ch

**Korg 01R/W** sound module, excellent condition, four assignable outputs, twin effects stages, huge sounds, large display, fully editable, includes 16-track sequencer, with manual £350 no offers. Tel Steven on 01702 344731 (Essex) or e-mail: steven@magnolia.demon.co.uk

**Korg 05R/W** module, 32-voice polyphony, great sounds, only £200. Tel Vasilis on 0115 848 1036 or e-mail: vthrepsiadis@yahoo.com

**Korg 05 R/W** sound module, excellent condition £180 ono. Tel Rob on 01483 420479 (Surrey) or 07979 506599

**Korg TR-Rack** four months old, £649. Tel 07957 266744 or e-mail: batrise@cf.ac.uk

**Nord Lead II** rack, unused gift £900. Maybe part exchange for E-mu Vintage Keys and Roland Juno 106. Tel George on 01603 870611 or 07775 652375

**Novation BassStation** Rack, boxed, manual, PSU, excellent condition, home studio use only £220, will post. Tel Steve on 01449 736205 (Suffolk)





**Novation Supernova** rack synth, 16-voice, eight-part, eight effects, loads of MIDI controls, great analogue sounds £950 ex-carriage. Tel Dave on 0117 909 3081 (Bristol)

**Quasimidi Rave-O-Lution 309** drum, audio & synth expansions, brand new, boxed, massive analogue sounds, will arrange delivery, offers around £500. Tel Steve on 01726 69698 (Cornwall)

**Roland JV-880** sound module, 28-voice polyphony, eight-part multitimbral, resonant filters, four outs, expandable via JV-series cards, editing software, mint £320 ono. Tel 0171 402 2101

**Roland JV-1080** sound module, with experience expansion board, excellent condition, home use only, with manuals, etc, £500, Tel Tom on 01334 425788 (Manchester/Edinburgh) evenings

**Roland MC-303** Groovebox, hardly used, mint condition, manual and also instruction video, bargain at £350. Tel Cris on 0181 444 4179

**Roland MC-303** Groovebox, new Jan 99, five weeks old with manuals and warranty, registration cards, excellent bargain, offers around £300 or will part exchange with amp or *ReCycle*. Tel 01702 394318

**Roland MC-303** Groovebox, video, manuals, six months old £300. Tel Ed on 01395 267807

**Roland MC-505** as new, boxed, manuals £790 or swap for MPC2000 with 32Mb and individual outputs. Tel Mark on 01908 612715 or e-mail: mark@rdaniel.powernet.co.uk

**Roland MC-505** Groovebox, boxed, manuals, as new condition, 4Mb memory card £600 ono. Tel Mark on 0115 847 9598 (Notts)

**Roland MD-DC1** 'dance' sound module, includes 808 and 909 drum sounds, stereo outs, editable, with manual, excellent condition. Tel 0141 639 2215 (Glasgow)

**Roland M-GS64** sound module, 32-part multitimbral, 64-voice polyphony, one month old, Atari, 4Mb STE, monitor *Cubase V3.1*, 1,200+ rock and pop MIDI files, all immaculate, exchange, plus £100 for nice JV-1080. Tel 01639 768103

**Voce DM164** organ rack module with MIDI, drawbar unit, fully editable Hammond sounds, very good condition, manual £350. Tel 01428 661575

**Yamaha MU5** Walkstation style sound module, excellent condition, boxed, manual, power adaptor £100. Tel Tim on 01277 225414 (Brentwood) evenings & weekends

**Yamaha MU10** sound module, controller keyboard and Mac MIDI interface with Thru port or suitable keyboard with sound built in. Tel David on 01729 830547 (NW Yorks)

**Yamaha MU90** over 700 sounds, over 20 drumkits, great performance mode, excellent for dance music, still boxed with manuals £300 ono. Tel Jason on 01206 545714 (Colchester)

**Yamaha QY700** sound module, 48-track sequencer, boxed, never gigged £600. Tel Richard on 01736 757439

**Yamaha TG300** sound module, 16 part multitimbral, three internal FX channels, £200 ono, excellent condition, boxed with all manuals. Tel 01203 395680 (Midlands) or email: darren@millington58.freeserve.co.uk

**Yamaha TG300** tone generator, with 456 high-quality AWM2 voices, nine drumkits and effects, excellent condition, boxed with manuals and Atari editing software £280 ono. Tel Paul on 01226 780405 (Barnsley)

**Yamaha TX802** flagship of DX7 range, eight-part multitimbral, ten outputs, 16 voices, stackable sounds £350. Tel 01225 761422

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**BSS DPR502** Rolls Royce stereo MIDI gate, will generate MIDI envelope from incoming audio for drum replacement, fully featured, ADE adds punch to leading edge transient, superb metering. Tel 01535 645233 or e-mail: p.a.mahoney@bradford.ac.uk

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**Complete studio:** Atari SEQ, Mackie, Alesis, Samson, CS1x, Akai S2000, Novation, JV-1080, Philips CD recorder, Behringer, compressors, effects, MIDI V8 Thru, looms, leads, plugs, *Ultraflex II*, Monitor Ones, Zimmer. For price list tel Malcolm on 01206 540245

**Drawmer DS301** advanced MIDI gate, improved MIDI version of the ubiquitous DS201, can generate MIDI trigger from audio signal, drum replacement, transient enhancement functions. Tel 01535 645233 or e-mail: p.a.mahoney@bradford.ac.uk

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**Musicman Stingray** bass guitar, cherry, pristine condition, six months old, three-channel EQ £750. Tel Richard on 01323 488700 or 07771 628473

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**Roland JV expansion** board, techno, 256 great sounds, basses, beats, stabs, pads £150. Tel Chris on 0117 965 5673

**Sample CDs:** *Planet Breaks*, *Chemical Beats*, *Skinned*, *Flashback 2*, *Trance Fusion* £25-30. Tel Mac on 0171 511 1986 or 0956 535386

**Studio rack** 27 units high, 21 inches deep, easily takes something as deep as a Korg D1R/W sound module, rear and side access, very sturdy unit £120. Tel 0141 423 2299 (Glasgow)

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**Various:** Akai S1000 sampler, operating system 4.4, very good condition £500. Fostex DMT8 eight-track digital recorder, immaculate condition £650. XR300 sync box, pristine condition £150. Atari 2.5Mb with monitor and *Cubase V3* £200. Tel 0181 696 9915 (South London)

**Various:** Akai S3000 sampler, 18Mb, SCSI,

ten outputs, FX £650. Lexicon Alex reverb £100. Tel 0171 370 2492

**Various:** Akai S3000XL sampler, 32Mb, includes loom £820. Roland JV-2080 £795. JV-1080 £550. PC200 MkII keyboard £90. Spirit By Soundcraft Folio SX mixing desk £285. Atari 520 ST, 2Mb, SM124 monitor £140. Alesis 3630 dual compressor £120. Perfect condition, boxed with manuals, all one year old except Atari and JV-1080. Tel 01865 714989 (Oxford) any time

**Various:** Akai S3200, 24Mb, Zip drive, excellent condition £950. Novation Super Bass Station, very mint £500. Studio Quad V2 £200. Behringer Composer Pro £125. BBE 362 £100. Tel 01536 410690

**Various:** Alesis MMT8 sequencer, black version (MkII), mint, boxed, manual £100. Roland MC-303, mint, boxed, manuals £250. 360 Systems MIDI bass module, mint, boxed, manual, collectable £50. Music magazines (including *FM* and *The Mix*), call for details. Analogue synths owner's manuals, mostly original, some copies, call for list. Tel Dave on 01274 620004

**Various:** Alesis SR16, boxed, mint £130. Korg KMS30 boxed £80. Roland MC-202, boxed, mint £300. Akai MPC60 V2.3, swap for E-mu SP1200 with library, Roland SPV-355, rare, offers. Tel 01604 843536

**Various:** Alesis QSR £400. BassStation rack £250. Nord Lead rack, expanded £750. Zoom 1204 £80. Alesis Wedge £100. Studiomaster Mixdown Classic 32:8:2 £1,000. Soundcraft Folio SX £300. ES14000 Turbo Zip £1,000. Tel 0114 132 1771

**Various:** ARP2600, MIDI £1,900. Lexicon 300 £2,250. DDA CS3 £1,450. Roland R-8 MkII £250. Oberheim DMX £100. Ensoniq Mirage £200. Neve 9098 £600. Cranesong STC8 £1,150. Valley Gatem £200. Dynamite £200. Tel Charlie on 01984 634920

**Various:** Atari 1040 STE, 4Mb, TOS2.04. Atari 520 ST, mouse, hi-res monitor, MIDI software £150. JV-1080 Sounds keyboard. Roland XP-50 £675. Two SoundBlaster MIDI interface leads £10 each. Tel Sean on 01254 602126

**Various:** Atari Mega 4 £150. Studiomaster Diamond 16:2 £200. Technics SV360 DAAT £400. Yamaha SY77 synth 3700. Korg M1 synth £550. Lafleur tenor sax £600. Loving home use only. Tel Mark on 01895 832671

**Various:** Behringer MX2642A, 100W amp, Absolute 2s, ART FX, Alesis compressor, Philips CDR880, six CDs. Akai CD3000f, 8Mb, MC-303, BassStation, DR-660 drums, PC Pentium 200, *Cubasis*, AWE64, Zip and cartridges, cables, loads of CDs, samples £3,000 no split. Tel Dean on 01375 858098 (Essex)

**Various:** Boss DR-202 drum machine £200. Yamaha AN1x synth £400. Waldorf Pulse £200. All excellent condition. Tel Barry on 0181 591 4995 (Essex) evenings

**Various:** Casio FZ-10M, 2Mb RAM, huge disk library £350. Akai S20, 17Mb RAM £325. Roland JX-3P £200. Ensoniq ESQ1 £200. Kawai Q80, 32-track sequencer £150, all include manuals. Tel Bjørn on 01225 875804

**Various:** *Cubase VST* for Windows, plug-ins, manuals, dangle £200. Novation DrumStation, boxed, manuals £350. Both seven months old, accept £500 for both. Tel Darren on 01268 559231

**Various:** DA20 DAT machine, still boxed

with manuals, as new £395. Spirit By Soundcraft Folio FX8 mixing desk, boxed, manuals, as new £375. Tel 01827 289263 days, 01827 289274 evenings

**Various:** Electro Harmonix Soul Preacher £60. Clap Track £80. Phase Liner £30. Maestro Mini Phase £60. Tel 0121 420 3295

**Various:** Ensoniq ASR10 keyboard, sequencer, eight outputs, Waveboy resonant filters, vocoder, 50 disks, boxed £1,150. R-8 MkII, two cards, boxed £350. BassStation rack, boxed £110. All for £1,600 including Behringer Composer. Tel Chris on 01785 255288

**Various:** Ensoniq ESQ1 expanded, two sound cartridges, manual, very good condition £350. Ensoniq sampled piano module, mint £60 ono. Yamaha DX100, mint £100 ono. Chase Bit1, needs repair, manual, offers. Fostex 250 four-track, high-speed, Dolby C. Revos A77 MkI, high-speed, two-track, including tapes, great for Beatles tape echo, very little wear on both machines, very good condition, offers. Tel 0141 638 9590

**Various:** Eventide H300DSE £1,350. SPL Vitalizer Stereo Jack £225. Kawai K5000S £675. Behringer Ultraflex £100. Ensoniq MR rack and dance board £575. Behringer MX2804 mixer £200. Racks, cables, etc. Tel Eddie on 0181 810 5300 or 07957 275654

**Various:** Fostex 812 12:8:2 mixing desk £400. Ensoniq ESQ1 analogue/digital hybrid synth with built-in sequencer £250. Tascam 238 rack eight-track cassette recorder with DBX noise reduction £300. Fostex DCM100 8:2 stereo MIDI controlled mixer, plus Mixtab controller £200. Tel Mike on 0115 978 1132 (Nottingham)

**Various:** Fostex DMT8 boxed, manual £550 ono. Sony DTCB portable DAT £365 ono. Yamaha RM800 recording mixer, 16:8:2 £500. Terratec EWS64 PC soundcard, latest software £250 ono. Tel Dan or Finn on 0161 718 7144 or 07970 493360

**Various:** Fostex M80. Seck 18:8:2. Quad 306 amp. JBL Control 1 monitors. Alesis MidiVerb II. Korg DRV1000 and SDD2000 £1,100. Roland MKS-70 £400. BIT 01 £150. Tel Andy on 0181 883 4871

**Various:** Fostex R8 £450. Seck 12:8:2 mixing desk £150. Roland W-30 workstation £450 or £800 the lot. Tel Brian on 01522 512936 (Lincoln)

**Various:** Kawai K4 £250. Peavey Bravo, all-valve, 25W combo £125. Apple Performa 475, 36Mb, LCII, StyleWriter II, 14-inch monitor £250. Tel Adam on 01924 499625

**Various:** Kawai K4 analogue sounds £300. Proteus FX £280. Roland S-330 sampler, monitor, library £250. Behringer Ultraflex V2 £100. Roland DEP-3 £75. Zimmer rack £50. 19-inch shelf £15. Tel Neale on 0171 281 6014

**Various:** Kawai K4R with 2,000 sounds £250. Alesis QuadraVerb Plus £180. SPL stereo Vitalizer Jack £110. All boxed with manuals. Tel Darryl on 01932 340473 (Surrey)

**Various:** Korg 700S £290. Rogue £290. SH-101 £265. TR-707 £155. TR-606 £155. Boss Super Chorus rack £79. Kenton Pro-Kadi, new £99. MIDI-to-sync 24 box £69. Tel Tom on 01384 353694

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**Variou:** Korg Prophecy, mint £450. E-mu ES132 with SCSI £500. Roland TR-606 £100. Alesis SR16 £100. All immaculate. Tel Willis on 0171 485 0762

**Variou:** LA Audio 4x4 compressor, limiter, gate, boxed, manuals £250. Yamaha DX100 portable MIDI synth, manual £125. Philips DCC170 portable, power unit, manual, five 90 tapes £130. EVS1 with Atari editor £50. Tel Paul on 0181 516 9018

**Variou:** Mackie Microseries 1202 mixer, boxed, manual £225 ono. *Cubase* handbook £20 ono. Tel 0181 446 7812 (N London) after 6pm

**Variou:** Moog Prodigy analogue mono-synth, very good condition, fully working, original manual, Kenton Pro-Solo MID-to-CV converter £400. Kawai K4 £220. Cheetah SX16 £150. Evolution EVS1 £70. Tel Simon on 01582 419338 (Luton)

**Variou:** Nord Lead Classic, 12-voice expansion £595. PC/MIA card available, plus Library for Roland Juno MKS-50 £239. JV-880 £295. TR-727 £99. Yamaha RY30 £195. Tel 01708 250846

**Variou:** Novation Super Bass Station £320. Novation BassStation rack £190. Roland R-70 £240. Kawai K4R £250. QuadraVerb Plus £180. Kawai K1 £100. Spirit Folio Notepad £100. Vitalizer Stereo Jack £110. Tel Darryl on 01932 340473 (Surrey)

**Variou:** Roland DJ-70, 5Mb, new software £450. Yamaha RY30 drum machine £170. Boss DR-550 MKII £80. All with manuals. Tel Steve on 0181 529 1856

**Variou:** Roland DS £220. Akai S01 £300. Spirit Folio F1 14:2 £250. In good working order. Tel James on 01494 713073 or 01494 713074

**Variou:** Roland JP-8000, boxed, new £675. Roland TR-808 £400. Roland TR-707 £100. Tel 07957 337746

**Variou:** Roland JP-8000, mint condition £650. Yamaha VL1, physical modelling, breath control, excellent condition £1,300. Tel Pascal on 01483 233419 or e-mail: li81pa@surrey.ac.uk

**Variou:** Roland Juno 106 analogue synth, boxed, mint £400. Spirit By Soundcraft Folio 12:2 mixer, boxed, mint £125 or both £500. Tel Keith on 01256 478684

**Variou:** Roland Jupiter 6 £650. Roland TR-808, includes SBX10 sync box, both boxed with manuals £575. SH-101, blue £250. Moog Prodigy with V/Gate sockets £250. Korg MonoPoly £350. Tel 0114 269 3335 (Sheffield)

**Variou:** Roland Jupiter 6, studio use only, manual £800. Roland Juno 2 £375. E-mu Morpheus, home use only £450. E-mu Carnaval £450. Tel Xasqui on 00 34 93 727 1649 (Spain) or fax 00 34 93 725 1257

**Variou:** Roland JV-2080, PC-200 keyboard, Atari 1040STE, hi-res monitor, ART FXR effects unit, SKB flightcase, all immaculate, boxed, manuals £900, no offers, buyer collects. Tel Derek on 0131 665 3125 or 0131 536 7133

**Variou:** Roland MC-303 Groovebox £250 ono. Gemini PS676 Pro mixer £110 ono. Voyager 1 Beat Xtractor £170 ono. All excellent condition, boxed. Tel Lee on 01932 342927. Try haggling

**Variou:** Roland MC-303 Groovebox, good condition, manual £350 or swap for Quasimidi Rave-O-Lution. Also MK149 MIDI keyboard with cable £70. Tel 01793 642112 or 01793 534197 (Swindon)

**Variou:** Roland MC-303, manual £300 ono. Alesis HR16 drum machine £80. Zoom 9000 guitar effects processor, foot controller, manual, boxed £70. Novation BassStation keyboard, manual, sticky octave button hence only £160. Tel Nikky on 01273 206331

**Variou:** Roland P-10 multitimbral synth, excellent condition £250 ono. Akai S900 sampler, ten outputs, excellent condition £250 ono. Tel 01706 818520

**Variou:** Roland R-5 drum machine, multi out, full MIDI £120. Phonic MRT60 mixer £60. Tel Lee on 01708 853958 after 7pm

**Variou:** Roland R-8 MkII £450. Yamaha TG55, mint £250. Boss DR-660 £200. Atari 1040 STE, monitor, *Pro 24* £180. All boxed, manuals, no offers. Tel James on 0151 652 6555 evenings

**Variou:** Roland R-70 £240. Super Bass Station £320. BassStation rack £190. Kawai K4R £250. Kawai K1 £100. QuadraVerb Plus £180. Spirit Folio Notepad £100. Vitalizer Stereo Jack £110. Tel Darryl on 01932 340473 (Surrey)

**Variou:** Roland TB-303 £750. MC-202 £280. SH-2 £450. 606 + KADI £250. Proll + KADI £250. Multicom £190. ART FX £90. MTP11 £350. QuadraVerb Plus £250. Spirit Studio £900. *FM* mags + CDs £1, leads £1, mic £30, sample CDs £20. Tel Matt on 0171 385 9573

**Variou:** Roland TB-303 with MIDI-to-sync converter £400. Roland TR-707 drums £70. Yamaha RM50 rhythm sound module, boxed, manual £170. Tel Arran on 0181 969 9490 after 7pm

**Variou:** Roland TR-909, manuals, mint £850. Roland TB-303, Kenton five-socket retrofit, manuals £550. Roland S-760 sampler, 19Mb, manuals, mint £750. Tel Col on 01926 407045 after 6.30pm

**Variou:** Roland XP-50 £650. Roland SH-101 £200. BassStation rack £200. Boss SP-202 £200. Spirit Zero monitor £100. Alesis 3630 compressor £100. Digitech TSR12 FX £150. Zoom 1201 FX £75. All in mint condition. Tel Lance on 01376 761230 after 5pm

**Variou:** Spirit By Soundcraft 32:8:2 desk, 30m, 10-pair, multicore stage box, patchbays, looms, all £950. Akai S1000 sampler, 6Mb upgrade £675. Neumann U87 industry standard microphone £900 [*That's all very well... but where's your phone number? Write or call in and we'll run your ad again.*]

**Variou:** Spirit By Soundcraft Auto 16:8:16, 32 inputs. Chiltern CM2 12-channel mixer £1,500. Lexicon LXP1 effects £250. 3G Activator dual-channel enhancer £150. Boss DR-55 Dr Rhythm analogue drum machine £95. Kawai SX240 eight-voice analogue polyphonic synth. Roland TR-330 analogue drum machine £60. Roland R-8 £300. Tel 01535 645233 evenings

**Variou:** Studiomaster Gold 12:2, four aux, parametric EQ £250. Didgeridoo £70. AWE 64 Gold soundcard £95. Simmons brain, SDS1000 £50. E-mu ES132, 16Mb SIMMs £60. Rackmount multi-FX, analogue chorus, flanger, delay, expander £60. Apple Mac SCSI £5. Tel 01273 731068

**Variou:** Tascam 488 eight-track. Apple Powerbook 520. Korg 05 R/W MIDI voice-box. SMPTE sync box. MIDI interface. Very good condition £750 ono. Tel Andrew on 01934 863442

**Variou:** Tascam 564 MiniDisc four-track, disc £450. Roland CM-64 64-voice polyphonic sound module with CA-30 arranger £100. Yamaha FB01 £70. Tascam MTS30 MIDI-to-tape synchroniser £50. Atari STFM 2.5Mb £60. Atari 520 STFM £25. Marshall 100W eight-channel mixer/amp and speakers £300. Tel Robin on 01305 785675

**Variou:** Technics WSA1R mint, four outs, three FX, disk drive, modelling, 32 MIDI channels, 654-voice polyphony £499. Casio VZ-1 synth, 61 keys, three wheels, eight sound cards £149. Roland SC-33 £199. All

boxed. Tel Michael on 01296 391525 or e-mail: michael.hunt7@virgin.net

**Variou:** Terratec EWS64XL £250. Turtle Beach Pinnacle £150. Yamaha SW60XG £45. Yamaha DB50XG £40. Tel Dom on 07788 963479 (Sheffield)

**Variou:** Turtle Beach Montego £50. Yamaha DB50 XG daughterboard £45. SoundBlaster AWE53 Gold with 8Mb RAM £50. Tel 01844 344347

**Variou:** Yamaha A3000 32Mb with Zip drive £750. E-mu Orbit £375. Yamaha TG33 £130. Yamaha TG55 £140. JVC ghetto blaster with D/O/REM £125. Quasimidi Quasar techno board £400. Tel David on 01274 827830

**Variou:** Yamaha CS1x workstation £400. Roland MC-303 Groovebox £400. Novation BassStation £150. All with manuals and leads, all in good condition. Tel Phil on 01634 389823 (Kent)

**Variou:** Yamaha DJX, as new, stand £195. Zoom Sampletrack ST224, new, memory card, flightcase, two sample CDs £200. Tel 01254 725241

**Variou:** Yamaha RY20 £30. Korg KPR77 £20. Tel 0764 262913

**Variou:** Yamaha SY85 synth disks and data cards. Yamaha RY10 rhythm programmer. Atari 1040, two disk drives, hi-res monitor, *Cubase V3.0*, boxed, manuals, dongle, compress. Studiomaster mixer. Session mix 8:2. Bass guitar and amp, hi-fi, all leads £1,500. Tel 01786 270960

**Variou:** Yamaha TG500, mint, extra sound card, user card, sample memory £350. Yamaha DX27 £175. Tel Nick on 01273 684069 (Brighton) or 0956 222133

**Variou:** Yamaha TG500, two SY85s in a 1U rack, Peavey QFX 4x4 effects unit with four stereo ins and outs £300 and £100 ono. Tel 0141 562 6802 or e-mail: emccay@net.nl.com

**Variou:** Yamaha TQ5 sund module, built-in effects £150. Casio CZ-1000 £50. QuadraVerb multi effects £150. Analogue reverb £80 Tel Toby on 0171 729 4183

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**Betamax stereo VCR**, Sony PCM601 or 701 or better, NTSC Super Beta, Sony Walkman WMD6C recorder, Roland CMU-810, Sony EVS 8mm system, parts for TB-303, faulty beta considered. Tel 01604 843536

**Casio VL-Tone** and anything to do with it wanted, gimme some 'da-da-da', Casio junkies please write to Jonni, F5, 328 Gillott Road, Edgbaston, Birmingham, West Midlands, B18 0RS

**Cubase** for Mac wanted, not VST or Audio, for early slow Mac, used just for MIDI sequencing, can swap for various Mac goodies. Tel Daniel on 01403 701096

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**Korg Z1** must be mint with box and manuals, cash waiting. Tel Robert on 01274 (Bradford)

**Manual for Korg DDD5** digital drum machine, also cards. Write to DJ RK, Tilstock House, Tilstock, Whitchurch, Salop, SY13 3NR

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**MPC3000**, TC Fireworx, Alesis DM5, EMS vocoder and filterbank, Korg Z1, ATC1, E-mu Carnival. Tel 0181 248 3391

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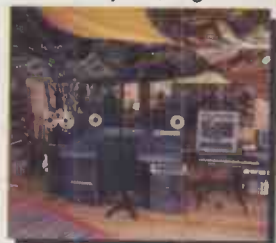
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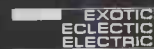
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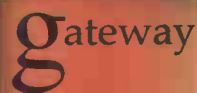
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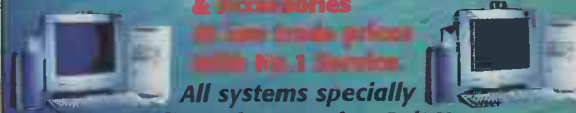
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# Budgie

Siouxsie And The Banshees' drummer gets comfy in the production chair with cherished spin-off project The Creatures...

As a sub-band of original punk outfit Siouxsie And The Banshees, The Creatures, a.k.a. Siouxsie Sioux and Budgie, have been releasing albums for a staggering 18 years. Maintaining their dark, poppy edge, their latest release *Anima Animus* sees them taking on new influences such as Tricky, and getting increasingly immersed in studio technology. The album was recorded in France, where they now reside, and proves that they are once again ahead of the pack when it comes to writing and production. *The Mix* caught up with Budgie on a fleeting visit to London.

## What have been the main changes during your musical lifespan?

The intrusion, or the brilliance, of the computer technology now in the studio. It's been there in a small way for a long while, but it has completely set its own strength in the last few years. Now I think there is a good medium where people are interested in the whole spectrum of ways of getting material recorded, be it to tape, or disk or whatever. Certainly at the moment it is the most exciting time it's been in the long time we've been involved in production. There's a certain irreverence to do with getting ideas down. As long as that's done, it doesn't matter how you do it. That's the way we did it when we started, because we really didn't know what we were doing.

## How does this affect The Creatures?

Siouxsie still uses a dictaphone for jotting ideas down, and I'm just starting to use a MiniDisc for ideas. Really you just need to capture that idea before you forget it. That's the initial stage before developing the ideas further. On *Anima Animus* there is stuff we've kept from our 4-track demos, because there was no way we could attempt to recreate that moment. Then there was the writing process where we put an idea straight to cassette and then put it straight through to ProTools or Logic Audio. That's the discipline of working with a limited palette. The discipline of wanting to keep this thing quick – from the start to getting the idea to a point – rather than labouring over it for months.

## Why did you go for Logic Audio?

We were working with Warne Livesey, and also with Steve Levine, and it was a system they were familiar with. It was a really seamless



Budgie always tried to look his best when the vicar came to tea...

process. In the past we were worried we were being left out of that creative side of technology. But, now it's a case of putting our ideas down; doing several passes of the drum track, the vocal track or whatever and then quickly editing things together.

## You recorded at home in France...

It sounds like a grand enterprise, but we moved there because we wanted the space. It didn't really work out for the Banshees, but it's ideally suited for us; it puts us on a steady ground. And the drum sound was great, so we didn't think we should bother looking to capture it again somewhere else, when it was right here. We wheeled in a Mackie desk and a bunch of valve compressors and Neumann mics and did it all at that location.

## Was it a conscious idea to use different producers?

We got Steve Lyon to do the bulk of the recording because of his experience with situation recording with mobile equipment. We

thought we had a finished album at that point, it was only when we had some new ideas that we came over to London and then contacted Steve Levine. I saw an interview with him in *The Mix*, and, among other things, I liked what he said about the Yamaha desk, the O2R. He was somebody I'd wanted to work with for a long time, so that was a great opportunity.

## Have you been influenced by any new music this time round?

We were really taken with Tricky's work. More recently, influences have come via the guys at Hydrogen Dukebox [London-based dance label]. We've never honed in and said 'That's the sound we want.' It's always a bit of that, a bit of this. I always go for the obscure section in every record store, the ones they try and reduce because no-one wants to buy...

## How do you plan and execute your live performances?

The last time The Creatures went out we sequenced the whole show. The sequencers were driven by my kick drum. I was using a trigger which allowed me to move the sequences to the tempo I was playing at. When it worked it was bliss, and when it didn't, it was a nightmare. I asked people for advice, and everyone was using Hi-8 tapes and just doing live mixes, but you're still restricted to what you put down in the studio that way.

We didn't really want to bring a guitarist out because it dominates the sound so much. So we hit on just using two bass players and the drums, and using guitar phrases from the album which Siouxsie triggers from a keyboard. All the samples are two-bar breaks at set tempos, so the rest of the time, when they are not audible, we're not limited to that tempo. The idea being that you are not set to a preset sequence length. Nobody seems to be doing that, but it seems to me that it's so possible.

## So... what future developments are you planning for The Creatures?

I had an idea that dawned on me when I was watching Beck live. There was this guy called DJ Swamp on stage with him. To have someone in as a percussion player/DJ would be good. It's not right for what we're doing at the moment, but I think it's the combination I'd like to hear. • Nick Serre

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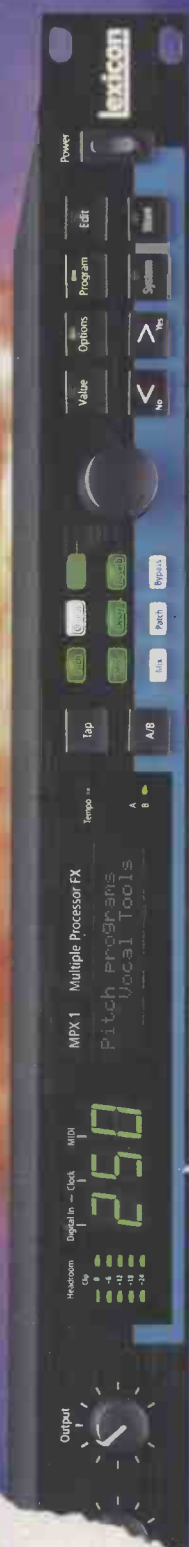


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