

# reviews

This seems like a month of follow-ups! After the success of the iMac, now available in a fruity five-pack, Apple has released a similarly **STYLISH G3**. HP, too, is after a second helping of a market in which it has had recent success by debuting the second member of its **NEW JORNADA RANGE** and PCW gets a sneak preview of this, the **WORLD'S FIRST** colour palm-sized PC. Adobe has been busy releasing version 4 of both **ACROBAT**, the document publisher, and **AFTER EFFECTS**, its 3D animation tool. Lexmark's new **JETPRINTER 5770** is aimed squarely at the digital photo professional, with dedicated slots for CompactFlash and SmartMedia cards. Users of Adobe PhotoShop will be keen to get their hands on the latest version of the package's premier plug-in, **KAI'S POWER TOOLS 5**. Corel is hoping to gain further ground in the business market with its forthcoming release of **WORDPERFECT OFFICE 2000**. We lift the lid on a beta version of



this powerful new suite, but open this month's *Reviews* with an early look at a **NEW BREED** of computer. The Silicon Graphics 320 not only redefines graphical computing, but it looks great, too.

NIK RAWLINSON  
REVIEWS EDITOR

NIK\_RAWLINSON@VNU.CO.UK

## Contents

### NEW PRODUCTS

- 75** Silicon Graphics 320
- 78** Apple Power Macintosh G3/350
- 81** Macromedia Director 7 Shockwave Internet Studio
- 82** Hewlett-Packard Jornada 420
- 82** Epson GT-9600
- 84** Adobe Acrobat 4
- 86** HP DeskJet 695C
- 86** Lexmark Photo 5770
- 88** After Effects 4
- 90** WordPerfect Office 2000
- 94** KPT 5.0
- 96** Mesh Elite PII UB

- 100** Phenom Express
- 102** Dell Inspiron 7000
- 102** Norton 2000
- 103** Dreamweaver 2
- 103** Epson Stylus Photo 750
- 104** Catalog 3
- 106** Sony CRX-100E
- 106** Margi DVD-to-Go card
- 107** Dual Mirage 2000

### HEAD TO HEAD REVIEW

- 108** Roland XP-60 Music Workstation vs Terratec microWAVE PC Sound System

## VNU European Labs



VNU Labs tests all kinds of hardware and software, from PCs to modems to databases. All our tests simulate real-world use and for the most part are based around industry-standard applications such as Word, Excel, PageMaker and Paradox. Our current PC tests for both Windows 95 and NT are the SYSmark tests from BAPCo. In all our performance graphs, larger bars mean better scores.

## Ratings

- ★★★★★ Highly recommended
- ★★★★ Great buy
- ★★★ Good buy
- ★★ Shop around
- ★ Not recommended

# Silicon Graphics 320

## Visual workstation

New architecture, graphics power **beyond your wildest dreams** and with the looks to match.

**T**here are quite a few people in this world who have recently been forced to eat their hats, since SGI has done what many of them had previously considered unthinkable: it has produced an Intel-based NT box. It's really not that surprising, all things considered. Intel's vast design and manufacturing resources means that the company is now producing processors which can compete at the high end of the market, yet cost ridiculously little.

The initial product line consists of the 320 and 540 machines. We looked at the former, which came with 256Mb RAM and a single 450MHz Pentium II. It was a Beta preview version of the system so we weren't able to benchtest it. We did give it a thorough inspection, though.

Although SGI has sensibly taken advantage of the high price/performance ratio of current Intel processors, it has fortunately ignored standard PC architecture and chipsets, designing its own from the ground up. The new architecture is called IVC (Integrated Visual Computing) and takes advantage of the fact that a system like this can disregard the need to conform to legacy standards.

**The new architecture's primary advantage** is extremely high bandwidth interconnection. This enables the use of system memory for standard program execution as well as graphics. In a way, this is a return to computing's old days but with the advantage of a memory bus able to shift data at 3.2Gb/sec — around six times the speed of a standard AGP 2X bus. Powering up the 320 for the first time reveals a pretty startup screen, closely followed by the familiar blue NT4 OS loader, but this showed that of the 256Mb of RAM in the system, 140Mb was reserved for the use of the SGI Cobalt Graphics chipset.

Our 320 was supplied with SGI's rather fabulous 1600SW flatpanel



display, which uses an OpenLDI digital link to avoid redundant analogue-to-digital conversion and has an adjustable white point and colour calibration sensor. It runs at a native resolution of 1600 x 1024 in a wide aspect ratio format and, after using it for a while, it starts to seem a lot more natural than the usual 4:3 ratio of standard displays.

The box itself is an imposing-looking beast and opinions about its aesthetics

were mixed. The lighter blue side panel overlaps the front of the case by

about an inch. This is great for gaining access to the machine since it gives you a hand-hold to pull it forward and away, but it makes the whole thing look odd.

Once inside, any thoughts of the 320 being a standard Wintel clone are quickly dispelled. If you're the sort of person who gets excited by motherboards, the 320 will have you frothing at the mouth. It's a glorious-looking thing and exudes so much custom-designed chic, you'll

probably want to leave the side off permanently. And, there's a second Slot 1 for dual processing, if you so desire.

**You're spoilt for choice** when it comes to connectivity, although there is a small spanner in the works. The unit has two USB as well as two 1394 (FireWire) ports. Even though the keyboard and mouse connect to one of the USB ports (the mouse plugging into the keyboard) you can use neither the USB nor the 1394 for anything else until the release of Windows 2000, because Windows NT4 just doesn't support them.

There are Composite and S-Video inputs and outputs, RJ45 10/100BaseT networking and parallel and serial connections, all integrated into the motherboard. Internal expansion consists of one 32-bit and two 64-bit PCI slots.

The 320 is a fabulous machine with an inherent limitation: the custom design is well ahead of the standard Wintel pack, but apart from the RAM, it's not easily upgraded. For the foreseeable future though, the 320 will knock the spots off any other Pentium II system for any kind of graphics-based application.

DAVID FEARON

*If you're excited by motherboards, the 320 will have you frothing at the mouth*

### PCW DETAILS

★★★★★

**Price** System box £3,818.75 (£3,250 ex VAT); flatpanel £2,021 (£1,720 ex VAT)

**Contact** Silicon Graphics 07000 320540

[www.sgi.co.uk/visual](http://www.sgi.co.uk/visual)

**Good Points** A system architecture with no bottlenecks. Massive graphics performance.

**Bad Points** Integrated design means you can't just pull out and swap components, but this isn't an issue for now.

**Conclusion** A high-end workstation that any professional can afford.

# Apple Power Macintosh G3/350



**Fast-and-furious Mac** at a reasonable price. And it's better-looking than a PC, too.

**F**ollowing the success of the consumer-orientated iMac, Apple has let the plastic fetishists in its industrial design team loose on its professional-level G3 range. The result is not quite as stylish as the iMac, but then, there's only so much you can do with a rectangular tower design.

The translucent matt finish of the side panels is quite attractive but the shiny blue front panel looks tacky. The curved handles on the front and back edges are a nice touch, and very practical.

But it's what's inside these machines that is interesting. In fact, simply delving inside is enjoyable, as the motherboard is situated on a panel that opens up out of the side of the unit. Just press the little switch at the top of the panel and the entire motherboard is laid out in front of you. Situated on the motherboard is a copper-based PowerPC 750 processor (also known as G3). We tested the mid-range 350MHz version but there are versions which run at 300MHz and 400MHz, too.

**The standard configuration** for the 350MHz model is 64Mb RAM, 6Gb hard disk, and DVD-ROM drive. However, there are numerous other options available if you order through Apple's online store, including items such as internal modems, Zip drives and SCSI adapters. There's room inside for two additional hard drives and

you can upgrade the RAM to 1Gb, which will please professional designers and video editors who have to work with huge video and graphics files.

**The performance of the G3** processor is pretty impressive, too. Apple's benchmarks claim that the G3 processor is twice as fast as a Pentium II running at a comparable speed. Those benchmarks are for processor performance only, though, and are not a true indication of the real-world performance of the entire system. Even so, our tests prove that the 350MHz model is a match for a 450MHz Pentium II when running various Photoshop filters. Applying a Gaussian blur to a 20Mb file took eight seconds on the Mac compared to 11.5 seconds on the PC. Applying a series of filters indicated an average performance lead of 15-20 percent for the Mac.

Those performance levels do not only come from the G3 processor. Apple is the first company to use ATI's new Rage 128 graphics accelerator in its systems, and this provides excellent performance for 2D and 3D graphics applications.

Apple scores another first with the inclusion of two FireWire ports which provide data transfer rates of

400Mbit/sec. Digital video is an obvious application for FireWire but you will soon be able to buy portable hard disks that take their power directly from the FireWire port, and Apple hopes to kick-start the development of FireWire peripherals just as it did when it adopted USB for the iMac. The G3 PowerMacs also include two USB ports, but there's no SCSI port so users of existing SCSI peripherals will need an adapter if they want to continue using them. Some may also want to buy a new mouse or keyboard from a third-party, because the G3 systems are supplied with the same awful keyboard

and mouse as the iMac. The price of the system doesn't include a monitor so

you'll need to take that into account, too. Even so, these machines are competitively priced and no doubt there will be some good bundled packages available from Mac mail order companies.

Apple's pricing is surprisingly aggressive. The entry-level 300MHz model is faster than the previous top-of-the-range Power Mac but pricing starts at only £1,069 (ex VAT). The 400MHz top-of-the-range model starts at £1,699. The lack of SCSI and the toy-like mouse and keyboard will annoy some users, but these are minor irritations in relation to performance and innovative features like FireWire. Apple may win over a few PC converts who are bored with beige clone PC designs.

CLIFF JOSEPH

*The performance of the G3 processor is pretty impressive*



## PCW DETAILS

★★★★★

**Price** £1,585.08 (£1,349 ex VAT) for 350MHz model.

**Contact** Apple UK 0800 127753  
[www.apple.com](http://www.apple.com)

**Good Points** Speed. Built-in FireWire.

**Bad Points** Horrible keyboard and mouse. No SCSI.

**Conclusion** Not as cute as the iMac, but much faster and very good value for money.





# Macromedia Director 7 Shockwave Internet Studio

No shock to us that this latest release makes Director **better and easier to use than ever.**

**D**irector uses a film metaphor with a stage, cast, script, score, projector and so on. The stage is the area that the end-user will see. The cast consists of elements comprising imported video files, animations, sounds and pictures from 40 different file formats. The score shows the movie being worked on and determines the length of the animation and at what points the cast members are visible. The script contains Lingo (Director's programming language), and Xtras which are programs written in C to extend the functionality of Director to provide specialist features. The drag-and-drop environment, when used in conjunction with the score, enables newcomers to build complex movies.

To reduce the need to learn Lingo, Macromedia has extended the built-in behaviour library. Behaviours can be dropped onto cast members, giving them complex functionality without the need for coding.

**Many of the new features** of Director Studio provide us with an awesome arsenal for internet development. If you've looked at interactive multimedia presentations on the web, the chances are that you were using Shockwave. Movies made in Director can either be saved as executable files or made into Shockwave movies. Shockwave, now updated to version 7, works in conjunction with your web browser. To reduce the amount of bandwidth used, only the information needed to play the movie is sent, so if you never click to see an AVI you won't have to wait for ages for it to download.

Shockwave ships with Windows 95 and 98 as well as being on the Netscape and Internet Explorer CDs. It has also been downloaded over 30 million times, making Director a worthwhile internet development tool. If you wish to avoid Shockwave you can always save in Java format, which will create a Java applet for use on the web, although not all of



Director's functionality is supported.

However, if you're planning to push your movies to the limits, you're going to have to learn Lingo, but if you have any programming experience it's easy to pick up. It has matured into an excellent language with impressive functionality. Now incorporating dot notation, it should pose no problems for programmers

of C++, Java, Visual Basic and the like. Director appropriately colours the script to enable you to find things like keywords. But if you already work

in a colour-coded script environment, you can change them to match your standards. Although the Director 7 application is where all the authoring is performed, it also has built-in picture editing and vector design tools. The previous studio release had xRes (graphics) and Extreme 3D (raytracer). These have both been dropped in favour of Fireworks.

For creating web and screen graphics, Fireworks puts in one place all the tools at your disposal. You can create great effects on text and graphics, the objects are fully editable and the effect will update itself accordingly. Sound Forge

XP from Sonic Foundry is still included and the latest version (4.0d) is better than ever.

Director 7 Studio is an excellent multimedia production tool and nothing comes close to it in terms of power and ease of use. If you are serious about developing for the web, this is a 'must have'. Even if you already have Director, notwithstanding all the new features, just being able to use 1,000 channels — rather than the 120 in D6 — and animating at up to 999fps should be enough to warrant upgrading.

GORDON THORN

▲ **DIRECTOR'S**  
EXTENSIVE  
INTERFACE MAKES  
WORKING QUICK  
AND EASY

*...an excellent  
multimedia  
production tool*

## PCW DETAILS

★★★★★

**Price** £938.83 (£799 ex VAT)

**Contact** Macromedia 01344 458600

[www.macromedia.com](http://www.macromedia.com)

**System Specification** Pentium 100MHz, Windows 95/98/NT4.0, 32Mb RAM, 65Mb disk space, SVGA 256-colour display.

**Good Points** Easy to use. Very powerful.

**Bad Points** None.

**Conclusion** If you're serious about multimedia, buy it.

# HP Jornada 420

It's a first! Here's **colour in the palm of your hand**, batteries included.

The world's first colour palm-held PC follows in the footsteps of its big brother, the 820e (PCW, February '99). The 240 x 320 pixel

CSTN screen displays 256 colours and the unit itself is driven by a 100MHz 32-bit processor. Under the hood you'll find 16Mb of memory as

standard (8Mb ROM and 8Mb RAM) which can

be doubled at a later date. A Compact Flash slot in the top takes care of this, and also allows users to add a modem. External connectivity is either via the docking station which links it to a PC, or through the IrDA 2.1 port on the top which can be used to talk to GSM mobiles for managing phonebooks and downloading SMS messages.

Instead of hardware application buttons on the front (as on many vertical PDAs) there are four user-configurable 'hard icons', drawings on the bottom of the screen. Users of other handhelds such as the Cassiopeia E-11 should have no problems with the buttons along the left-hand edge, for attribute selection and one-touch audio recording. The built-in mic is extremely sensitive, the internal speaker is great — much louder than that found on many other PDAs.

Built-in software includes the usual CE applications as well as Omnisolve, a

financial problem solver. An application called bTask, which sits in your system tray, allows you to manage your active applications and saves the tedium of shutting each one down individually via the Settings panel. Hewlett-Packard claims a battery life of six hours, although it's not swappable with standard batteries, and has been thoughtful enough to bundle a rechargeable battery.

NIK RAWLINSON

## PCW DETAILS

★★★★★

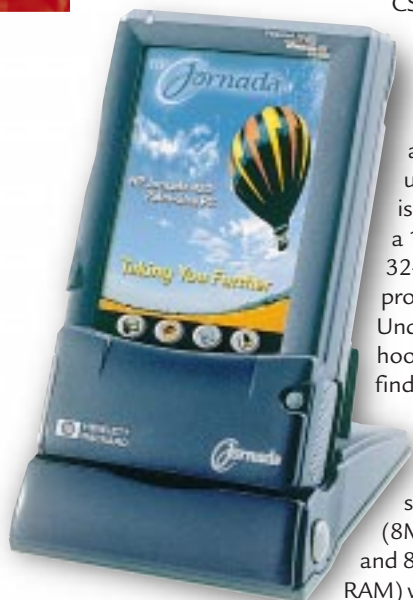
**Price** £399 (£339.57 ex VAT)

**Contact** Hewlett-Packard 0990 474747  
[www.hp.com/jornada](http://www.hp.com/jornada)

**Good Points** Speaker and mic. Software extras. Rechargeable battery.

**Bad Points** Short battery life. Rechargeable battery cannot be swapped for normal batteries when it runs dry.

**Conclusion** Colour is nice, but in a Palm PC, is it really necessary?



# Epson GT-9600

A scanner for the pros. **Colour is what it's all about** — and in exceptionally high quality, too.

While most manufacturers are concentrating on the sub-£300 price point, Epson's latest scanner is targeted at the high end of the market, offering up to 3200dpi optical resolution with 36-bit colour output. The unit is substantial and considerably larger than the average desktop scanner at the consumer end of the scale. Its interface is SCSI, but

includes an Adaptec SCSI-2

card and cable if you don't already have one. The supplied TWAIN Pro driver comes with its own separate manual and has a comprehensive feature set including the ability to manually adjust the scanner's focus. The unit also has a feature called Auto Area Segmentation which, when scanning in 1-bit monochrome, attempts to recognise photos and text, and adjust dithering modes to suit. In practice this worked tolerably well but dithered areas tended to overlap into the text. For OCR there's a text enhancement mode which thickens line width, making for slightly easier recognition.

**If you're only going to do OCR** and mono scanning, there's no point in spending £500 or more on a scanner. Colour scanning is what the 9600 is all about and here its definition and colour accuracy is most impressive. Intensity scales were spot on: black at zero percent

and white at 100 percent intensity, with a very linear response in between. Scans showed almost no sign of 'noise', giving an immediately smoother colour quality compared to cheaper units. Detail reproduction was also excellent in the higher-resolution modes.

The Epson GT-9600 should be on your shortlist if you're after a high-end scanner.

DAVID FEARON

## PCW DETAILS

★★★★★

**Price** £606.30 (£516 ex VAT)

**Contact** Epson 0800 220546  
[www.epson.co.uk](http://www.epson.co.uk)

**Good Points** Top-end quality. SCSI card included.

**Bad Points** Not exactly cheap.

**Conclusion** An excellent scanner for the professional, but the average user doesn't need this level of performance.



# Adobe Acrobat 4

## Electronic publishing



**The latest version makes it even easier to publish information on the web.**

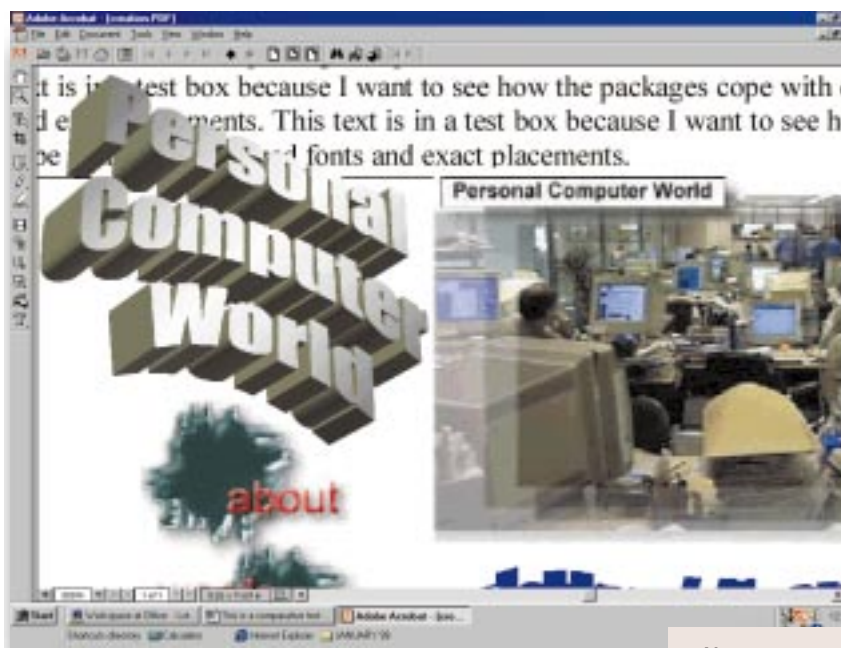
Anyone who has used the internet will have come across a PDF (Portable Document Format) file. Traditionally generated using Adobe's Acrobat, it allows the distribution of documents, compressed but resembling their original format, without expecting the recipient to own the originating software. All that is needed is the Acrobat reader.

PDF files are perhaps most popular on account of their platform neutrality and the fact that nearly everyone seems to have a 'reader'. Whereas Acrobat 3 was PostScript Level 2 compliant, this new release instead uses PostScript Level 3 to generate PDF 1.3, an even more compact file.

A number of new annotation tools are incorporated in version 4. These allow you to make more extensive notes and attach them to a document. A new 'stamp' tool lets users stamp a variety of slogans onto the PDF pages. Unfortunately, these stamp on top of the text rather than laying underneath and leaving the text legible. Annotations are indexed in the left-hand margin. The formerly flat menu has been replaced by a series of tabbed pages for thumbnails, bookmarks (internal hyperlinks), annotations and signatures.

**Signatures is a new security feature** which ensures no unauthorised changes are made to a document. It can also be used to prove that a particular person has read and approved a certain file. The digital signatures can be represented by anything from a logo to a scan of an actual signature. Users can view any and all changes that have

been made since a document was signed. It is no longer necessary to print to PDF from an application or generate it from a PostScript file printed to disk. The Acrobat creator can instead open a wide variety of file types directly and translate



them to PDF on-the-fly. Compatible file types include WordPerfect, Excel, PowerPoint and Frame Maker, but RTF files have been overlooked.

Entire web sites can be encoded when opened in the Acrobat writer which can then be set to download just the selected page, a number of set levels, all pages under that level on the same server, or an entire site. Excessively wide contents can be automatically scaled to fit within the selected paper size and, if scaling falls below a certain level, it can be set to intelligently switch from portrait to landscape mode. Form elements will be translated into Acrobat-compatible forms, and all hyperlinks will be enabled.

Using the freely downloadable 'reader', copying text is now much simpler, as is scrolling through a document. The now familiar dragging hand icon can incorporate a downward arrow to indicate that simply clicking the page will advance it one full screen at a time.

Other new features include support for QuickTime 3.0 in linked video clips, improved late-stage editing proofing tools, smoother shading, easier text and

table extraction from finished documents, and an improved user interface.

This is a major and welcome upgrade to what was an already impressive product. Those who use earlier versions of Acrobat will be pleased with the new features, while for those who were undecided upon its implementation, this latest version should be the only justification needed.

NIK RAWLINSON

**▲ NEW FEATURES**  
ENSURE  
SMOOTHER TEXT  
CURVES AND  
MAKE VERSION 4  
EASIER TO USE

**...a major upgrade of an already successful product**

### PCW DETAILS



**Price** Full version £186.83 (£159 ex VAT); upgrade £57.58 (£49 ex VAT).

**Contact** Adobe 0131 458 6842  
[www.adobe.com](http://www.adobe.com)

**System Specification** 486 or Pentium processor, Windows 95/98/NT4, 8Mb RAM for Reader under Windows 95/98 (16Mb under Windows NT), 8-16Mb RAM for Exchange, 16-24Mb RAM for Capture plug-in and Distiller.

**Good Points** Small output files. Easier than ever to use.

**Bad Points** No RTF text import.

**Conclusion** The essential addition to any publishing/web authoring toolbox.



# HP DeskJet 695C

HP gets curvy on us with a makeover of **an old favourite**.

**A**s part of Hewlett-Packard's range revamp, the world's best-selling printer, the 690C, has been replaced by the 695C. Before anyone gets too enthusiastic, the 695C is essentially the 690C with a redesigned shell. It seems that the HP design team wanted a more modern and curvy look, but inadvertently made it look worse than the original. We thought it looked a bit ugly from all angles, compared with the old model.

**The brilliant setup guide** makes the procedure extremely simple. We appreciated finding the usual mechanism that slides the cartridge holders into view as soon as the top cover is opened. After installing the mono and colour cartridges, the 695C spends a couple of minutes cleaning the heads. The process of installing the drivers (supplied on CD and floppy diskettes) is also very easy, with just a few clicks and a reboot.

The performance score of 74 percent is unusually low because the 695C is let down by its disappointing colour output. It was very grainy and displayed horizontal banding. There is always the option of using the photo cartridge with glossy paper, which should improve the results.

On the other hand, mono text and graphics are excellent. Small fonts are printed with good clarity, and mono images had particularly good contrast. The 695C, along with several other HP printers, fared less well in the thin-white-line-through-solid-black-box test, only managing the thickest white line out of four. Speed tests revealed 1.88 ppm in normal mode for 10 pages of text. HP claims 3ppm for this mode, so this is a little disappointing. In the positional test, we were impressed that the headline cross-pattern was overprinted with no noticeable error.

JAMES MARTIN



## PCW DETAILS



**Price** £151.58 (£129 ex VAT)

**Contact** Hewlett-Packard 0990 474747  
[www.hp.com](http://www.hp.com)

**Good Points** Uses HP's REt and ColourSmart. Low price.

**Bad Points** Uninspiring colour output.

**Conclusion** At £150, this printer could be ideal for first/second-time, cost-conscious buyers who want a reliable printer that has the ability to print in colour.

# Lexmark Photo 5770

A printer designed specifically for **digital photography**.

**A**s far as features are concerned, the 5770 is packed to the gills. Lexmark claims that it is the world's first printer designed specifically to meet the demands of digital camera photography. Slots for CompactFlash



and SmartMedia cards allow direct printing without the need to first download pictures to your PC. Picture sizes range from thumbnails to full A4 sheets for maximum versatility, and it even allows users to transfer images from memory cards directly onto a Zip drive attached to the parallel port.

**Lexmark enforces** the printer's built-for-photographers image by including a photo cartridge but no black cartridge. This could mean ink wastage if you print a lot of text and exhaust the black ink before the cyan and magenta. Even so, the quality of black text on photocopy paper is excellent, although it did take its time to appear. At the lowest resolution of 600dpi, our five-page business letter arrived in 3min 54sec. Upping the resolution to the 1200x1200 dpi maximum increased this to 14min 20sec.

On Lexmark photographic paper, our photo showed evidence of very fine, slight banding. Skin tones were a little orange, but solid colours were handled well. We were pleased that unbroken black did not bleed into the lighter colours it bordered, but were worried that several hours later our paper was still a little tacky. Users can choose from a range of six paper types in 19 sizes, supplemented by a custom option.

NIK RAWLINSON

## PCW DETAILS



**Price** £349 (£297.02 ex VAT)

**Contact** Lexmark 01628 481500  
[www.lexmark.co.uk](http://www.lexmark.co.uk)

**Good Points** Photo reproduction. Direct CompactFlash/SmartMedia access.

**Bad Points** Price. No black cartridge as standard.

**Conclusion** If you print a lot of photos, it's worth considering.

# Adobe After Effects 4

## Very special effects

**A**imed in part at motion picture houses, video production companies and 3D animators, After Effects is nonetheless not a digital video editing package. It is, rather, a package that will bring 2D flat images to life with zooms, filters and the sort of flying layers seen on TV news.

It's hard to know where to start describing the myriad new features in Adobe After Effects 4.0. It's been a long wait for this upgrade but the After Effects team have more than made up for it, packing their product with enough new features to keep even the most discerning user happy.

**The first thing you'll notice** is the new interface, sporting tabbed palettes which allow you to view all open compositions through a single window. As you click the tab, in the Time Layout window or the Composition window, all other windows are updated automatically. All windows and items have context-sensitive menus to save on trips to the main menus; managing projects has never been easier.

It's always been a great advantage to import Photoshop files as compositions, layers intact. This feature has now been extended to include all of Photoshop's Transfer modes, Adjustment layers, Type layers and Effects layers. These can now be imported and animated over time in After Effects — it's like Photoshop on wheels! The same goes for Illustrator compositions: they too can be imported with layers intact, allowing you to achieve the highest quality when scaling your footage.

My favourite new feature is Adjustment layers, which you may be familiar with from Photoshop. Apply multiple effects to an Adjustment layer and they will affect every layer beneath it. This means I can apply effects globally and really save on render times. It also allows me to apply effects to Illustrator files without losing the ability to continuously rasterise them. By applying masks to Adjustment layers I can select areas for the effects to be applied to.

Up to 128 masks can be added to any



layer, and can then be stroked and/or filled. The interpolation for mask animation has been much improved since version 3.1: you can even add new points during the animation, and After Effects will correctly calculate the number of points needed to make the change. The Free-Transform tool with which you may be familiar in Photoshop or Illustrator is now available for you to use in After Effects, allowing users to quickly adjust points on a mask.

There is a host of new filters in After Effects 4.0, including the Reshape filter, used when morphing footage from one shape to another. Paths from either Photoshop or Illustrator can be used as your shapes, or you can create your own within After Effects. You can also distort pixels using the Mesh warp filter, which places a customisable mesh over your image, allowing you to drag the 'bezier-style' points and handles to achieve precise distortions.

Audio capabilities have been improved beyond recognition, audio scrubbing is now extremely accurate, and a whole host of new audio filters have been provided for your delectation.

You can even use your Premiere Audio filters in After Effects 4.0.

The new RAM preview is a vast, time-saving feature in After Effects 4.0. By pressing the RAM preview button, you can load frames into RAM and they will be played back in real time, within After Effects. No longer will your hard drive be cluttered up and fragmented by having to create test-renders of your movies — you can now do it all within After Effects.

There are, however, a couple of disappointments in this upgrade. There are no new painting tools, which is astonishing, coming from the company that owns Photoshop. Neither is there RLA file support or eagerly awaited Z-depth, although the API has been extended, implying that developers of plug-ins may now be able to fill this gap.

Despite the absence of these features, After Effects 4.0 remains a massive time- and money-saving upgrade, with plenty of new features. Buy it today!

ANGELA TAYLOR

### PCW DETAILS



**Price** TBC, but around £500 ex VAT (standard), £1,000 ex VAT (production).

**Contact** Adobe 0131 458 6842  
[www.adobe.com](http://www.adobe.com)

**System Specification** Pentium processor, Windows 98/NT, 32Mb RAM (64Mb for Windows NT), QuickTime 3.0 or later, CD-ROM drive, 80Mb free hard-disk space, 16-bit video card.

**Good Points** Real-time RAM preview and frame caching. Improved user interface with tabbed palettes. Adjustment layers.

**Bad Points** No Photoshop-style paint tools. No RLA support or Z-depth.

**Conclusion** Opens more creative avenues.



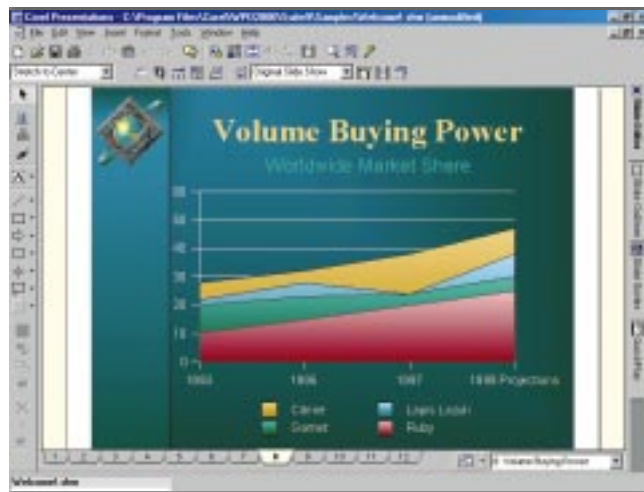
# WordPerfect Office 2000 Suite thing

**Corel provides a good value alternative to Microsoft.**

**W**ordPerfect Office 2000 has a great new feature called Install-as-you-go. Instead of having to choose all the features you think you might need on first installation, Install-as-you-go shows a complete user interface, but not all features are actually installed. Choose one of these missing features, and the installer pops up automatically to load it from the CD.

The very same feature is in Microsoft Office 2000, suggesting that office-suite vendors spend much of their time eyeballing the competition. Currently Microsoft has most of this market, particularly in the corporate world, but Lotus and Corel are challenging that dominance with new suites that provide similar features at a substantially lower price. Prices for the new WordPerfect suite are not yet announced, but if the old version 8 is any guide, expect it to be around half of what Microsoft will want for Office 2000.

**The core applications** here are WordPerfect 9 itself, the Quattro Pro spreadsheet and the Corel Presentations graphics package. Paradox 9 is the database manager, and it's only available in the Enterprise version of the suite. CorelCentral 9, present in all versions, is a personal information manager that includes a simple cardfile database. Other supporting applications, not necessarily in all editions of the suite, are the Trellix 2 hypertext authoring tool, NetDocs for publishing documents to the web, Corel Versions for version control of WordPerfect documents, and several tools aimed at system administrators. Dragon Naturally Speaking 3, not available for testing in this Beta, is a bundled voice recognition system with a claimed potential for dictation into WordPerfect of 160 words per minute. We'll be both surprised and



**◀COREL PRESENTATIONS IS AN ADEQUATE PRESENTATION GRAPHICS PACKAGE, BUT LITTLE IS NEW IN THIS VERSION**

embedded into WordPerfect Office 2000. The VBA environment is essentially the same in both Microsoft Office and

WordPerfect Office, and it makes both suites powerful tools for developing custom solutions. There are two disappointments, though. First, VBA has not made it into Paradox, where advanced users still have to learn ObjectPal. Second, the object model exposed by WordPerfect is all but non-existent. Instead of a properly structured set of objects, there is just one PerfectScript object with hundreds of methods. This is a symptom of the transition from one macro language to another. Corel is moving in the right direction, but for now Microsoft Office remains the best for developers.

impressed if the final version delivers half that rate with usable results. Online help is in the old Windows help format, as Corel has chosen not to use Microsoft's new compiled HTML help. Although the new format has some advantages, the old style has better performance and users will be happy with Corel's decision. The most distinctive new feature in WordPerfect Office 2000 is Trellix, a little-known third party application that most people will use as a web authoring tool, although it also has its own document format. The Trellix editor shows three main elements. The Map shows the whole document in thumbnail form, with one-click access to any page. The Outline shows the structure of the document in a tree-view outline format. The Page Editor is for managing the content, including text, images and

hyperlinks. Trellix fits with the web model, where the user

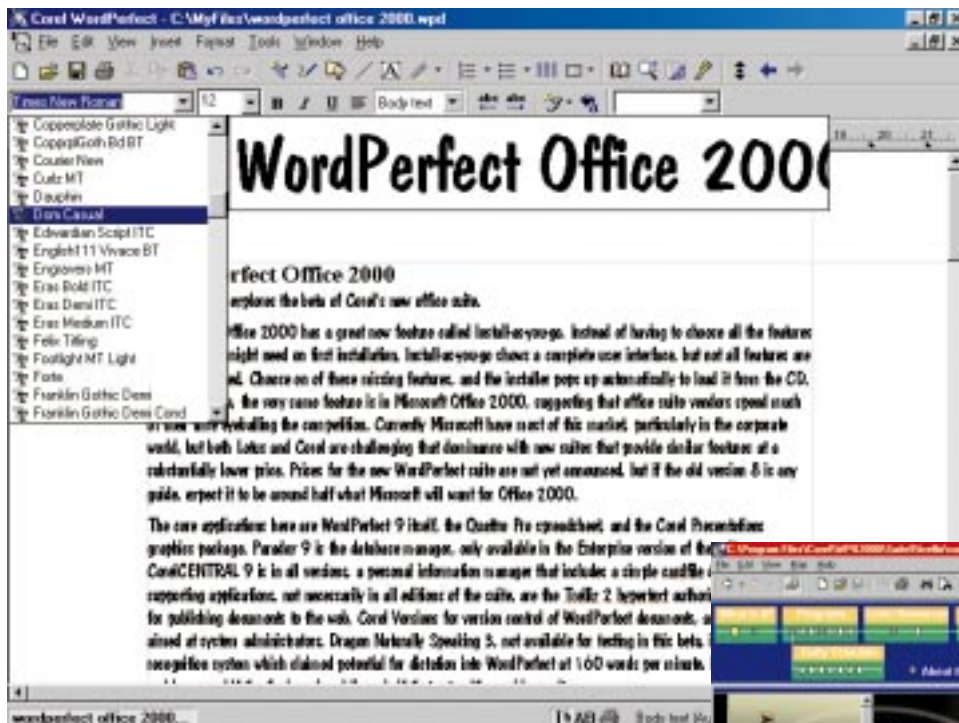
***The most distinctive new feature in WordPerfect Office 2000 is Trellix***

determines the viewing order, as opposed to word processors that create traditional sequential documents. The snag is that while Trellix manages hyperlinks well, there are better web authoring tools around. It will struggle to find a niche, although exposure through inclusion in this suite gives it a better chance.

Developers will be pleased to find Microsoft Visual Basic for Applications

**WordPerfect is the jewel in the crown**, and stands up well against the competition. Users will not find much new in this release, which fits with Corel's announced intention to concentrate on stability and performance rather than new features. The file format is unchanged, and in fact has remained the same since version 6.1, a real advantage for users exchanging documents. Font enthusiasts can choose from over 1,000 fonts on the installation CD, a typically generous Corel bundle.

RealTime preview is a feature that lets you see changes before they are applied. If you pass through Greek and Hebrew fonts while looking for Times New Roman, for example, this can have strange and distracting results. The feature can be disabled.



◀ **REALTIME PREVIEW** IS A NEW FEATURE THAT DOES STRANGE THINGS TO YOUR DOCUMENT WHILE YOU HUNT THROUGH THE FONT MENU

▼ **TRELLEX** IS FOR AUTHORIZING HYPERTEXT DOCUMENTS. MOST WILL USE IT FOR WEB AUTHORIZING

**More helpful** are some handy new navigation options, and more interesting are the enhanced XML (Extensible Markup Language) and SGML (Standard Generalised Markup Language) capabilities. XML is a simplified version of SGML and is intended to become the eventual successor to HTML on the web. Used properly, these standards improve on standard word processor documents because they enforce meaningful structure. You can see an example of this in HTML, where the <EM> tag means not bold, but emphasis, the idea being that emphasis can be implemented in different ways by different browsers or browser settings. WordPerfect 2000 supports XML documents, although the features did not work in our Windows 98 Beta installation.

Quattro Pro 9 remains an excellent spreadsheet, although again, new features are not prominent. If you yearn for larger spreadsheets, Quattro Pro meets your need by allowing for around one million rows, 18,000 columns and 18,000 sheets, although you would not get far if you tried to fill such a sheet with data. This is many times larger than the previous version's maximum. There is also a new Dynamic Cross Tab Report, which the reviewer's guide observes is like an Excel Pivot Table, a popular Excel

feature that is welcome in Quattro Pro. Paradox 9 has a range of new usability features, but the real interest is not really a feature of Paradox at all. This is the Web Form Designer, a separate Java application that allows you to construct database forms as Java applets. There is also a JDBC (Java Database Connectivity) driver for the BDE, the Paradox database engine, so using this technology you can host live database forms in web pages, although we could not make a successful connection using the beta. The form designer is impressive, with a rich set of widgets available, using Java's new Swing user interface components. This suggests Corel's investment in creating a Java office suite is not completely lost, though whether this is the ideal way to present

data on the web or an intranet, is doubtful.

**Is this the best** office suite? If

choosing a new suite in isolation, it is an excellent choice, and although Microsoft Office arguably has the edge in usability, it isn't worth twice the price. Changing from one office suite to another is not easy though, and unless you need a particular feature such as SGML editing, there is little reason to



switch. It will also be important to assess the reliability of the final code, as the beta proved far from stable, particularly in the newest features. Finally, Corel's commitment to supporting multiple platforms, including Mac, Unix and Linux, is significant in environments where Windows is not the only system in use.

**TIM ANDERSON**

***The form designer is impressive, with a rich set of widgets***

## PCW DETAILS

★★★★★

**Price** TBA

**Contact** Corel 0800 973189

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

**Good Points** Unchanged WordPerfect file format. Innovative Java and XML support. Value for money likely to be excellent.

**Bad Points** Typical users will find few compelling new features. Microsoft Office has the edge in usability and polish. Poor initial implementation of Visual Basic for Applications.

**Conclusion** Great value for new users, assuming the final version proves to be robust.

# Kai's Power Tools 5.0

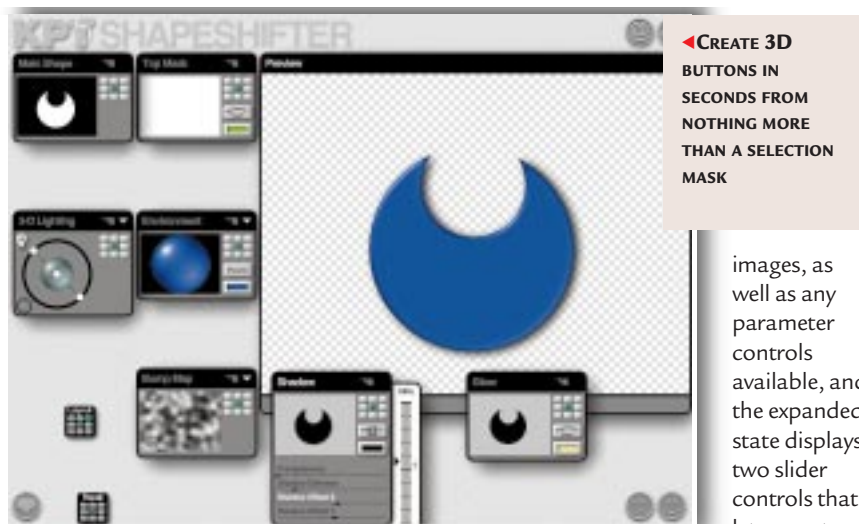
## Plug-in weirdness

**Essential and eccentric,**  
the new Power Tools will  
enhance your creativity.

**D**on't worry, you haven't missed out on a major version release of Kai's Power Tools (KPT). MetaCreations has simply jumped from version 3 to 5 to keep in line with the current versions of Photoshop and Painter.

Version 5 makes a clean break with the past both in terms of content and presentation. None of KPT 3's filters appear in 5, unless you count the entire KPT 3 suite which is included free of charge on the CD. Also gone, for the most part, is the wacky interface with its genetic mutations. In its place is a cleaner, more easily understandable layout of panel-based controls and preview windows. You can re-arrange the panels in the work area, and the size of the preview panel is adjustable to take account of your monitor size and the speed of your system.

**KPT is essentially** a suite of ten image editing plug-ins — ShapeShifter, RadWarp, FraxPlorer, FraxFlame, Frax4D, Orb-It, FiberOptix, Blur, Noize and Smoothie. The first of these is the most useful and the one that web designers in particular are going to find indispensable. ShapeShifter is, among other things, the consummate web



◀ **CREATE 3D**  
**BUTTONS IN**  
**SECONDS FROM**  
**NOTHING MORE**  
**THAN A SELECTION**  
**MASK**

images, as well as any parameter controls available, and the expanded state displays two slider controls that let you set precise

button designer. It allows you to create 3D objects with bevelled edges from nothing more than a selection mask.

ShapeShifter creates bevelled objects from an active selection or imported mask. So, for example, using a text selection results in the bevel style being applied to each letter. There are two preset bevel profiles: arc, which provides a smooth-edged bevel; and diagonal, which provides smooth, angled plateaux along the edge of each shape.

Of course there isn't an image editor around that can't produce bevelled buttons. The KPT difference lies in the ease with which you can create extraordinary-looking graphics and the degree of control you have in the process. Just drawing a circle with the ellipse selection tool and hitting the ShapeShifter button produces a Smartie shape that looks good enough to eat. Seven panels give you ample opportunity to go much further.

The main shape panel is where you adjust the bevel profile, using either of the two presets already mentioned or creating your own. Here you can also adjust the height and scale of the bevelled edge. Each panel has four states: collapsed, preview-only, standard and expanded. In preview-only state, the panel displays a preview thumbnail of any imported images, masks or presets you're currently using. The standard state displays a preview of any imported

values for each control in the panel.

You can set lighting next using the 3D lighting panel. Here you can add, remove and position light sources, change their colour and brightness and play with sliders controlling highlight sheen and spread.

**The Environment panel** lets you load images that are used as environment reflection maps, producing metallic or plastic-like surfaces, and you can import bump maps to add texture to surfaces. One very useful feature is the ability to add a second 'top mask' shape that can be used to add text to a button or to build a more complex shape. Final touches can be added using the drop shadow or glow panels.

**ShapeShifter is only a tenth** of what KPT has to offer. Three of the filters are based on the fractal patterns that can be produced from formulae devised by mathematicians Benoit Mandelbrot and Gaston Julia. Fraxplorer allows you to zoom into the image as it's being created, a sort of fractal fly-through, and you can generate shapes, thorns, ribbons and bubbles, on top of the fractal, all in real time.

Even if you never make productive use of any of the remaining goodies, you'll have a lot of fun with them. And the other stuff is worth the price on its own.

**KEN MCMAHON**

### PCW DETAILS

★★★★★

**Price** £151.58 (£129 ex VAT); upgrade from version 3, £69

**Contact** Computers Unlimited  
0181 358 5857 [www.metacreations.com](http://www.metacreations.com)

**System Specification** Pentium 166MHz (or compatible) or faster, Windows 95/98/NT4, Photoshop 3/4/5 or 100% compatible host, 32Mb RAM, 50Mb free hard-disk space, 24-bit colour video, colour monitor, CD-ROM drive.

**Good Points** The superb ShapeShifter and wild, wonderful fractal fun.

**Bad Points** It looks good, but is it any use?

**Conclusion** Buy it for the ShapeShifter, have fun with the rest.



# Mesh Elite PII UB High-scoring PC

Mesh takes advantage of USB to provide **quality and value.**

**U**SB is fantastic, there is no doubt about it. It removes much of the hassle associated with adding new peripherals by simply allowing people to plug them in. You don't even need to worry which port you plug a peripheral into — USB simply doesn't care. Even better is the fact that devices plugged in after the computer has been turned on are instantly recognised. With support for up to 127 devices simultaneously, ranging from keyboards and mice all the way up to CD-ROM drives, and the fact that you no longer need to worry about IRQs or memory addresses, USB is the most flexible way of adding extra functionality to your PC.

**Now that USB devices** are more commonplace, Mesh has provided us with its first USB machine, containing as many USB peripherals as could be squeezed in. Gone are the standard mouse and keyboard, replaced instead with their USB equivalents. The Logitech USB mouse in particular is great, especially for games players, as it offers a more fluid movement than the old standard.

Also included in the bundle are USB speakers, which mean that you don't need a sound card in order to get sound. In this setup the sound is sent digitally to the speakers, which themselves contain the digital audio converter. As a result, the sound is clearer, with less equipment inside the PC to interfere with it.

The only problem here is that you can't record, so Mesh has facilitated this through the inclusion of a Sound-Blaster Audio PCI. It's a shame this limitation of USB in general has yet to be overcome.

One problem with USB is that you can easily run out of ports, as most products don't contain a throughput. Mesh got around this by supplying a hub as part of the 17in Taxan monitor.



This gives you an extra four ports for any additional peripherals you might want, and as an added bonus it doesn't take up any extra desk space.

**The heart of the machine** is a Pentium II 450 providing enough raw power to watch films on the bundled DVD-ROM drive. Graphics are also well specced with a 16Mb Hercules TNT AGP card, which is currently just about the fastest graphics card you can own.

With the internet being as popular as it is, the machine comes with a Diamond Supra 56K internal modem, allowing you to get connected from day one. Storage space is going to be no problem. In addition to the huge 13Gb ATA-66 hard drive, you also have a 2Gb Jaz drive. There's a SCSI card, too, for the Jaz, which allows end-users to add further SCSI devices at a later date without this potential extra cost. It's a shame Mesh didn't include a SCSI hard drive, too, but then, that would have increased the cost.

Mesh has done its usual job of providing a PC with superb quality of build. The cables are neatly tied out of the way, allowing easy access to the processor and DIMM slots, should the 128Mb of RAM provided on just one DIMM, leaving two slots free, prove insufficient. Expansion-wise you have two

ISA slots and the shared slot free, leaving you room to play with.

For the price you pay, you get a good deal. All of the components included are of a very high standard, and this shows through in the performance scores. If you want a head start on the latest technology, you could do a lot worse than buy this Mesh.

DAVID LUDLOW

## PCW DETAILS



**Price** £1,878.83 (£1,599 ex VAT)

**Contact** Mesh 0181 208 4706

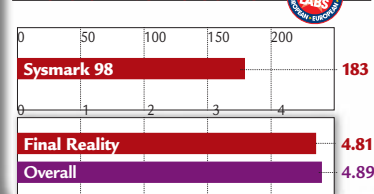
[www.meshplc.co.uk](http://www.meshplc.co.uk)

**Good Points** Superb components. Three-year warranty.

**Bad Points** None to speak of.

**Conclusion** A top-notch system with superb components.

### PERFORMANCE RESULTS



# Phenom Express

## Next-generation computer

**Is it a PDA, is it a laptop? Whatever it is, it's an exciting development.**

**T**he Phenom Express is one of the new generation of computers. At 23.5x15x2.8cm it is too big to be a traditional PDA and too small to be a laptop. The burning question is whether it succeeds as a useful computer, or ends up falling inelegantly between two stools.

First, the spec. The basic machine is supplied with 16Mb of RAM, an Hitachi SH3 processor running at 100MHz, and Windows CE 2.0. By the time you read this it should be shipping with Windows CE 2.1 and a 32Mb version may be available at extra cost. The screen is half VGA and at 19.5x7cm is huge for a PDA. It is well back-lit and remains readable under all reasonable conditions.

The Phenom Express is styled in an idiosyncratic way; we happen to really like it, but not everyone to whom we showed the machine agreed. Less contentious is the fact that the design is fiendishly clever. For example, the odd, silver tube affair at the back of the machine is the detachable battery pack. Mounting it here, behind the screen, helps to ensure that the machine doesn't tip over when the touch-screen is used. In addition, the battery can be hinged down to provide a stand, ensuring that the keyboard is tipped to a comfortable angle. Hinging the battery pack down also reveals the 25-pin, D-type serial port and the VGA output for driving a conventional monitor.

The VGA output seems almost too good to be true and... it is. There is a VGA port, and it will drive a monitor (also including, presumably, the usual range of

projection equipment). However, this port will, bizarrely, only work when you're using Microsoft Pocket PowerPoint. No, we don't

understand this restriction, and LG was unable to explain it. Still, the built-in screen really is so good that we didn't feel the need to use a conventional monitor, and the port does mean that you can use the Phenom to give presentations, so this feature is a bonus rather than a serious restriction.

Something that is too good and is also true is that the Phenom has a 56K fax modem built-in — oh, and an infra-red port. This machine just bristles with highly usable extras fitted as standard and even the standard-standards are good. The size of the machine allows an 80 percent-sized keyboard, which is a delight. We have always liked the Psion 5 keyboard, but this one is noticeably larger and quite definitely better.

Battery life is claimed at between five and ten hours. Hmmm. We got five hours of continuous use; fewer when the machine was used less frenetically,

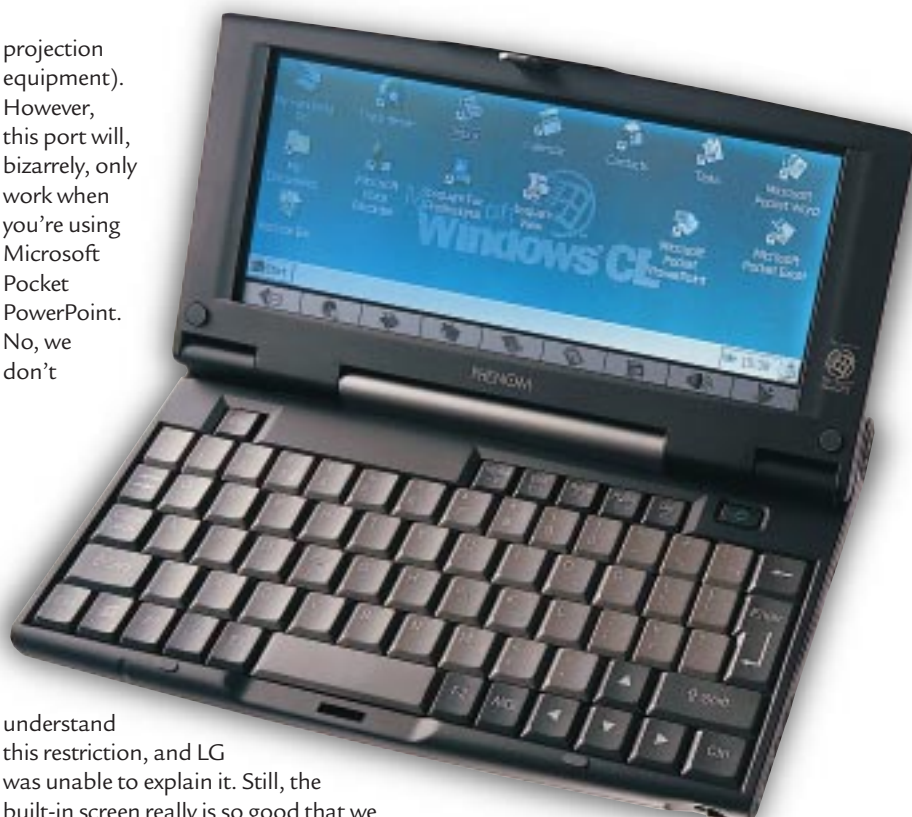
presumably because the battery power was used to keep the memory alive in the interim. The good news is that the rechargeable battery pack, being Li-Ion, doesn't suffer from memory effects

and so can be recharged at any time. In practice, given normal use and recharged every night,

the battery life is fine. Long journeys would benefit from a spare battery. On the test machine, the fax modem gave warnings about low power even with fully recharged batteries, so you will need to carry the power supply for faxing.

The final analysis is that the Phenom is indeed neither PDA nor laptop. The great news is that it is something else again, and that 'something' combines many of the best features from both of its progenitors.

MARK WHITEHORN



***This machine just bristles with highly usable extras fitted as standard***

### PCW DETAILS

★★★★★

**Price** £599.00 (£509.79 ex VAT)

**Contact** LG; 01753 500400

[www.lgphenom.com/express](http://www.lgphenom.com/express)

**Good Points** Great keyboard and screen. Fiendishly clever design.

**Bad Points** Won't fit in your pocket. Poor battery life compared with other PDAs.

**Conclusion** One of a new generation of machines, and at this price it is unbeatable.



# Dell Inspiron 7000

An excellent notebook that benefits greatly from a **mobile Pentium II 366MHz** chip.

This internally enhanced version of Dell's Inspiron 7000 knocks the wind out of its predecessor by incorporating the latest mobile Pentium II chip from Intel clocking in at 366MHz. As an added bonus this faster CPU also has an enhanced Level 2 cache. Instead of 512Kb running at half the CPU clock speed, the 366MHz version incorporates 256Kb of Level 2 cache on its core which subsequently runs at the full clock frequency. The video sub-system sports a full 8Mb of memory running on an AGP2X bus. The full 3D support is impressive when viewed on the 15in TFT



and the increased memory means great graphics handling. Storage has been increased to 8.1Gb with upgrades planned up to 14Gb.

With all these enhancements, it was quite a surprise to see that the system memory had been halved to 64Mb. The superb performance results could have been even more so otherwise.

A power mode indicator would be helpful too. A pin-sized LED flashing every two seconds on the front is just not enough evidence that the system is on.

IAN ROBSON

## PCW DETAILS



★★★★★

**Price** £2,737.75 (£2,330 ex VAT)

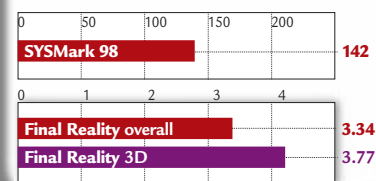
**Contact** Dell Computer Corporation  
0870 152 4850 [www.dell.com](http://www.dell.com)

**Good Points** Powerful processor. Powerful video sub-system.

**Bad Points** Stunted system memory. Unsuitable power-saving state indicator.

**Conclusion** The most powerful notebook currently available could shine just that little bit more with a fuller memory quota.

### PERFORMANCE RESULTS



# Norton 2000

Don't know if you're **ready for the millennium?** This package can put your mind at rest.



With the year 2000 looming large, time is running out to find out if your PC can handle the date change from 99 to 00 and, if not, to find a fix that makes sure it can by New Year's Eve.

Norton 2000 is rather disturbingly referred to as Version 1 and we wonder how many more we can expect before the Millennium is upon us. But it does come with a version of LiveUpdate which promises to keep the software abreast of current compliance issues via the web. It is the only Y2K software

we've seen that comes on a CD-ROM. It also uses a standard Windows interface, which is easy to use and makes a refreshing change from the usual DOS-based programs. It carries out three tests. The first checks your hardware to see if your

BIOS, RTC (real time clock) and system clock are all compliant. Our PC passed the test, but there is a BIOS fix included if you aren't so lucky.

**Unlike many solutions**, it doesn't stop there. Norton 2000 also scans both your applications and data for potential problems, such as two-digit date calculations that use 99 as opposed to 1999, which could cause problems when the date switches from 99 to 00. It gives advice on how to solve any compliance issues, highlights your

Excel spreadsheets to indicate and explain date problems, and links up to manufacturers' web sites so you can access their advice too.

URSULA TOLAINI

## PCW DETAILS

★★★★★

**Price** £57.58 (£49 ex VAT)

**Contact** Symantec 0171 616 5600  
[www.symantec.com](http://www.symantec.com)

**System Specification** 80486 processor; Windows 95/98/NT 3.51; 16Mb RAM; 10Mb free hard-disk space.

**Good Points** Scans software and data as well as hardware. Simple, intuitive interface. Comprehensive advice on problems, plus advice about solutions.

**Bad Points** Have to buy all-in-one test and fix even if your PC doesn't need a hardware fix.

**Conclusion** By far the best Year 2000 software we've seen, it's easy to use and checks both your hardware and software for compliance issues, giving useful advice on solutions where necessary.



# Dreamweaver 2

**Web authoring software** that gives Adobe a run for its money.



The user is first struck by the attractive interface of Macromedia's Dreamweaver 2. The stylish navigation 'launcher' that initiates the various palettes and inspectors is duplicated on the status bar at the bottom of the display, helping to reduce screen clutter.

Palettes are tabbed and dockable, like Adobe's award-winning interface. The

'property' inspector is context sensitive and is where most element alterations take place, as it tailors itself to contain attributes relevant to whichever part of the page make-up has been selected. Selecting files as links is as easy as dragging an elasticated icon next to the relevant attribute field (e.g. background image field) from the property inspector to the relevant field in the site window. Pages can be

constructed in either table or layer format, while the user may switch seamlessly between the two.

As layers are compatible only with browsers of version 4 and above, the site can then be transformed to tables to become version 3 compliant. A 'tracing image' can also be loaded onto the page as a layout guide so that the constituent parts can be laid out on top.

Generating tables is a breeze — entire columns can be cut and pasted from one part to another, a very useful and easy to use feature.

Those who like to keep a track of what is happening behind the scenes will welcome the inclusion of Allaire Homesite 4 for HTML code editing.

## PCW DETAILS

★★★★★

**Price** £299 (£194.89 ex VAT), upgrade for £99 inc VAT

**Contact** Computers Unlimited  
0181 358 5857 [www.macromedia.com](http://www.macromedia.com)

**System Specification** 90 MHz processor, Windows 95/98/NT4, 32Mb RAM, 20Mb hard-disk space, 800x600 256 colour display, CD-ROM drive.

**Good Points** Very easy to use, powerful, attractive.

**Bad Points** Expensive.

**Conclusion** Watch out Adobe — this is good!

# Epson Stylus Photo 750

**Another quality Epson printer** that scores on output and its software bundle.



This latest in Epson's Stylus Photo series is a colour inkjet that's well worth a look. It uses an improved version of Epson's well known MicroPiezo technology called Advanced MicroPiezo. This is a combination of two elements — Epson Ultra MicroDot and Variable-Sized Droplet Technology, the aim of which is to produce the optimum combination of speed and print duality.

Six-colour printing is achieved by

using two cartridges. The mono cartridge is accompanied by another incorporating the standard cyan, magenta and yellow, and also light versions of cyan and magenta. The maximum resolution for both mono and colour is a phenomenal 1440x720 dpi, and the printer will accept media up to Letter size. Cartridge installation is simplicity itself, and the pre-release drivers

worked without problem.

We were impressed with the overall quality of the 750's efforts. It scored almost 97 out of a possible 108 marks in our standard tests, although speed was disappointing. We clocked it at a poor 1.4ppm of text at the fastest Normal (i.e. not Economy) setting. But most impressive was the positional test, where the 750 scored top marks.

A good software bundle includes

Adobe PhotoDeluxe, PictureWorks Spin Panorama and a few other useful resources. The 750 provides three methods of connection as standard. A parallel interface is present, as is USB (supported by Windows 98 and the Apple iMac). Unusually there is also a high-speed serial RS-423 socket for the connection of a Mac.

JAMES MARTIN

## PCW DETAILS

★★★★★

**Price** £272.60 (£232 ex VAT)

**Contact** Epson 0800 220546  
[www.epson.com](http://www.epson.com)

**Good Points** Generally good quality output, even on plain paper. Wide choice of connectivity. Nice software bundle.

**Bad Points** Mono and halftone images are too blue.

**Conclusion** A good printer that won't disappoint in terms of quality, but probably will in terms of speed.

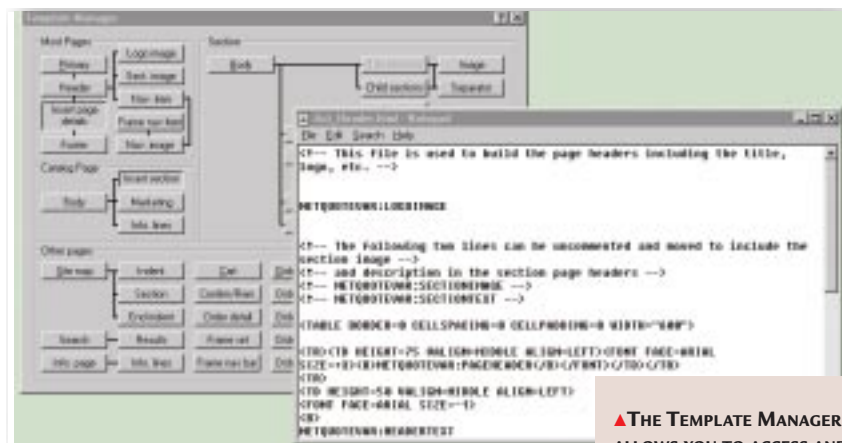
# Catalog 3 eCommerce tool

**To take advantage of the growing internet trade you'll need something like this.**

**A**ctinic Catalog 3, a UK-produced electronic commerce package, aims to be inexpensive and easy to use but flexible enough to manage thousands of items.

Actinic Catalog 3 is a web store creator that runs on Windows 95, Windows 98 and Windows NT. It generates online stores by asking you to fill in the blanks before going on to create a series of HTML pages that constitute the store. Filling the store with your products is a case of entering them into the Catalog database. You can enter them one by one or create a database or Excel spreadsheet to be imported. Images have to be uploaded individually and their names entered into the product templates. When it's ready to go live you only have to hit the Update button to initiate the file transfer process. This sends the store up to the web server hosting it without involving you in any of the details of the FTP process.

**Catalog 3 is a major upgrade** with new shipping fee calculations and online payment processing options. Design templates for starter stores and more reporting options have also been added. Catalog 3 also brings up new 'sections' into which products can be grouped. In the previous version you had to hand-edit the HTML of the templates to create hierarchies. Now sections can be nested to create navigable hierarchies for



▲ **THE TEMPLATE MANAGER** ALLOWS YOU TO ACCESS AND EDIT ALL OF THE HTML TEMPLATES IN YOUR STORE

product types. To bring it into line with standards Actinic has added SSL support for the payment process, but Actinic's own encryption layer has been retained and enhanced, now using a 256-bit key.

Actinic stores must be hosted on servers that allow users to run Perl 5 CGI scripts. On average a catalogue occupies between 2Mb and 5Mb of web space depending mainly upon the number and size of graphics. The web site must have CGI processing capabilities. Currently this is Perl v5.003 or later.

**Customers need to use** a Microsoft Internet Explorer or Netscape Navigator browser because Actinic Catalog 3 makes use of cookies and Java. Cookies keep track of the order process and a Java shopping basket encrypts the payment information end to end. For Actinic 3 the Java applet has been reduced to about 50Kb in size by only encrypting the sensitive credit card data, and this has speeded up the ordering process.

Actinic now supports online ordering by cheque, cash, and credit card. If you have a merchant agreement to take credit card payments which allows you to operate on the internet, you can collect card details via SSL or Actinic encryption and process the payments through your system.

Alternatively you can purchase an optional online payment processing service

from an internet payment processing service. The payment is authorised and transferred electronically and you don't need to collect any credit card details. It costs a bit more, though. Setting up the payment option you have chosen is a matter of clicking some buttons again, but as with every aspect of Catalog 3 you can drill down into the dialogue boxes and fine tune the settings.

Generally, Actinic Catalog 3 makes creating a basic web store very easy and it has very good security for taking payment details online. The look and feel of the store and the reporting options could be more refined, but for now you can do that by editing the HTML templates.

TERENCE GREEN

## PCW DETAILS



**Price** £410.08 (£349 ex VAT)

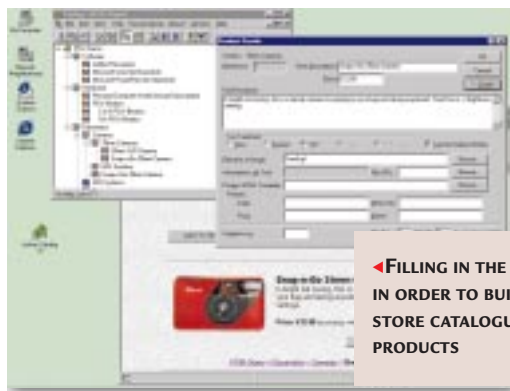
**Contact** Actinec Software 01932 860524  
[www.actinec.co.uk](http://www.actinec.co.uk)

**System Specification** Windows 95 or Windows NT, at least 16Mb of memory, a modem connection to the internet, 2Mb - 5Mb web space with CGI processing and Perl 5.

**Good Points** Easy to use. Inexpensive. Full control of store. Good order processing system.

**Bad Points** HTML knowledge required to customise the store look beyond the basic selection of templates. Manual reporting system based on file export/import.

**Conclusion** An inexpensive but full-featured introduction to online sales with good support for tax, shipping, and online payment calculation.



◀ **FILLING IN THE BLANKS** IN ORDER TO BUILD UP THE STORE CATALOGUE OF PRODUCTS

# Sony CRX-100E

**Quad-speed CDR recording** is just one of the highlights of Sony's first CD-RW.

This is Sony's first foray into the CD-RW drive arena. It will write to CDRs at quad-speed (around 600Kb/sec) and to CD-RWs at dual-speed (300Kb/sec). Read speed for CD-ROMs is a healthy 24-speed maximum. It comes complete with a CDR and CD-RW disk, plus a labelling pen. The CRX-100E has a couple of features to distinguish it from the crowd. It has a large 1Mb data buffer to smooth out writing glitches, and the ability to record audio CDs with CD Text. This allows standalone CD players that support it — notably Sony players — to display album and track names.



Most importantly, the drive supports packet writing. This allows a CD-RW to appear just like a local hard-disk drive to the system, albeit a very slow one. The disadvantage is that formatting a CD-RW to the packet writing format wastes a lot of space, reducing capacity from 650Mb to 530Mb. You also need special drivers to be able to view the disks on a different system. The PacketCD software neatly solves this problem by incorporating a standard session on each disk containing a small reader program.

**Apart from PacketCD**, the drive comes with WinOnCD v3.5 as well as VOB Instant Audio specifically for

playing and recording audio CDs. WinOnCD is harder to use than Adaptec's rival Easy CD Creator, with too many technical questions and dialogue boxes being thrown up while trying to compile disks.

It's hard for manufacturers to really differentiate products like this, but the Sony drive is a comprehensive package that performs well.

DAVID FEARON

## PCW DETAILS



**Price** £269 (£229 ex VAT)

**Contact** Sony 01932 816660

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

**Good Points** Quad-speed CDR recording, packet writing and CD Text facilities.

**Bad Points** Packet writing reduces CD-RW capacity. WinOnCD software is too complex.

**Conclusion** A good bundle at a reasonable price.

# Margi DVD-to-Go card



A PC Card that gives **broadcast-quality video** to the DVD user on the move.



Anyone who has struggled with a software-based MPEG decoder on their DVD-equipped notebook will be familiar with the resulting jerky video, rosey sound, and far too few CPU cycles left over to do anything else while you're watching *Godzilla* in the background. The solution is the DVD-to-Go card from Margi Systems (distributed by ProMedia in the UK), a Type II Zoomed Video PC Card that is designed to deliver broadcast-quality video with Dolby Digital sound for the mobile user.

The beauty of having a hardware-based solution like this is the ability to multi-task, allowing normal applications to run alongside your DVD movie if required.

**Plug and play installation** and an easy-to-use on-screen DVD control panel soon sees you watching high-quality video in full-colour at full screen and with full motion (30 frames per second). Dolby Digital (AC-3) Surround Sound with 5.1 channels is fully synchronised with the video for seamless viewing. Most of the usual DVD controls are there, including sharp slow motion and freeze frame video, multiple camera angles, up to eight language tracks and 32 subtitle languages.

You can watch video and listen to (stereo) sound using just your laptop screen and speakers (for movies on the move), or connect it to an external TV and/or amplifier for quality that rivals dedicated DVD players. A dongle is included that provides connectors for

stereo sound, composite video and S-VHS video. An optional connector is available that provides all that, plus an optical output for connection to a Dolby Digital amp.

BOB WALDER

## PCW DETAILS



**Price** £269.08 (£229 ex VAT); *Luxury Dongle (with optical output)* £55 ex VAT

**Contact** ProMedia Europe 01923 266400 [www.margi.com](http://www.margi.com)

**Good Points** Watch DVD movies at full speed while running other tasks on your PC. Dolby Digital 5.1 (AC-3) output.

**Bad Points** No means to select screen aspect ratio — annoying when using PC screen. Would be nice to see optical output included on standard dongle.

**Conclusion** If you have a DVD drive on your laptop, you simply HAVE to get yourself one of these — you'll never need to bother with hotel movies when travelling again. No DVD is complete without it!



# Dual Mirage 2000

## Ground-breaking notebook

It's neither small nor light, but **if it's quality you're after**, you've come to the right page.

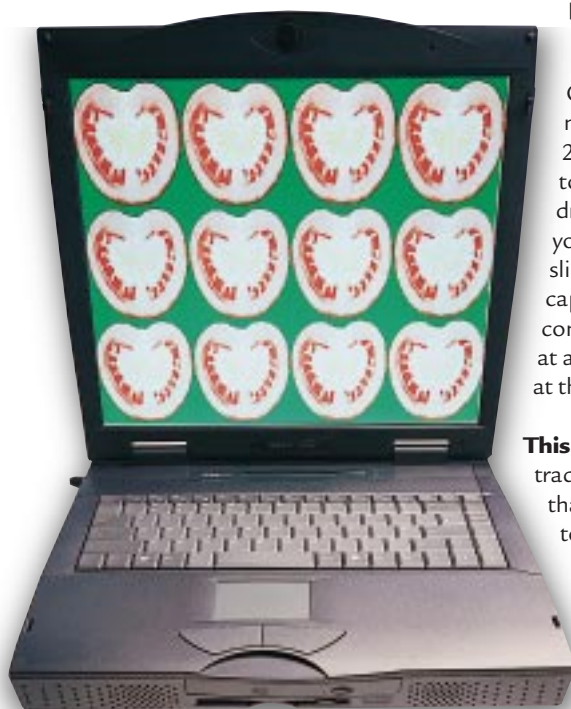
As the notebook market becomes accessible to manufacturers of every size, new breeds inevitably sprout wings and rise above the competition, often raising the stakes as they go. The latest contender, a ground-breaking notebook from Dual Technology, is the Mirage 2000. At first sight the 2000's vast case might make one think Dual had economised and avoided the compact form factor of many of its contemporaries. Closer inspection, however, reveals that the beast within just couldn't be constrained to a smaller chassis.

Built around a mobile Pentium II clocking in at a stonking 300MHz and boasting a grand 128Mb of system memory, no compromises have been allowed. Other notebooks may have started down this high-end path but few have followed through with similarly powerful supporting components. Indeed, as the specifications are reviewed, it becomes evident that from inception to completion the designers had a clear idea of what a desktop replacement was all about. One example is the cooling system. This includes a micro-fan sucking air from the innards, which more than caters for extended use. In almost six hours of testing, the temperature barely rose.

**As a desktop replacement**, this may be your sole workstation, and so the supplied 2.5in, 4.3Gb EIDE hard drive looks a little stingy. With careful design it might have been possible to squeeze in one of the larger 3.5in EIDE drives instead, taking advantage of the huge capacities currently available, although heat dissipation could prove difficult.

The display is a feast for the eyes: a full 15.1in of LCD with a native 1024x768 resolution affording a crisp and bright image right into the corners. Driven by NeoMagic's 4Mb video sub-system, you won't be seeing the most powerful graphics currently demanded by the very best games, but most requirements will be well catered for.

Dual has opted to include a DVD-



ROM drive in this model, which, in other notebooks, has been something of a wasted medium. Supported by Mediomatics' DVD software player you have a quality portable movie theatre. In our tests it dropped no frames. Ensoniq's sound system pumps through two remarkably full-sounding internal Rare Earth speakers and there's the option to add a low-resonance super-subwoofer or even wire this unit into a hi-fi. The audio accelerator also offers Dolby AC-3 digital decoding and, with the optional subwoofer, triangulated 'theatre style' surround-sound. In fact, with the Mirage 2000's TV-out interface there's really no need to fork out more dosh on a dedicated DVD player.

**Thinking of everything**, the next trump in Dual's pack is a built-in image-sensing camera and microphone. All necessary ports for printing, scanning and more are on-board and backed up by an infra-red port for high-speed data transfers. Two PC Card slots enable the use of all manner of removable

peripherals, including GSM-ready modem cards for mobile internet connectivity. Options to upgrade include memory support of up to 256Mb, an optional LS-120 to replace the internal floppy drive, and, once unlocked, your mobile hard disk can be slipped out in favour of a larger-capacity model. With its sturdy construction you'll be looking at a long-life machine, which, at these prices, is very reassuring.

**This review was written** in the traditional laptop manner — that is, on a train — and it has to be said that you may need shins of steel to support the Mirage's far from modest 3.5kg weight. This, though, is a small price to pay for the functionality of this extremely powerful system.

Forget the public's outraged stares as you transform your cosy British Rail alcove into a mobile office with the potential to videoconference with your colleagues in similar predicaments worldwide. Relish, instead, the wondrous technology at your fingertips.

IAN ROBSON

### PCW DETAILS



**Price** £2,541.53 (£2,163 ex VAT)

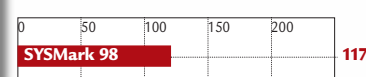
**Contact** Dual Technology 01223 576622  
[www.dual.com.tw](http://www.dual.com.tw)

**Good Points** LCD size equivalent to a 17in CRT, but without the radiation.

**Bad Points** Concern over storage space.

**Conclusion** Dual has pulled out all the stops.

### PERFORMANCE RESULTS



# Roland XP-60 Music Workstation vs Terratec microWAVE PC Sound System

**T**wenty years ago, computers and synthesisers had so little in common that few could have predicted how closely integrated they have become in recent times. Today, you would be hard pushed to find a PC that doesn't come equipped with a powerful sound card and a range of audio and sequencing applications. By the same token, you would have a job on your hands to find a modern synthesiser that runs without sophisticated, custom software.

Although many attempts were made in the early eighties to connect computers up to the emerging range of MIDI-capable keyboards, it wasn't until the Atari ST came along in '85 that computers were first taken seriously for making music. But while the ST gathered pace, some of the biggest names in music technology, like Korg, Roland and Yamaha, were trying different ways to integrate computer-based recording on-board their synthesisers. This led to the development of the all-inclusive music workstation. But which system has the most to offer, and just as importantly, which is best for making music?

To find out, we got our hands on

▼ **WHERE AUDIO IS MIXED AND ROUTED ON-BOARD THE EWS**

Roland's XP-60 Music Workstation and compared it to



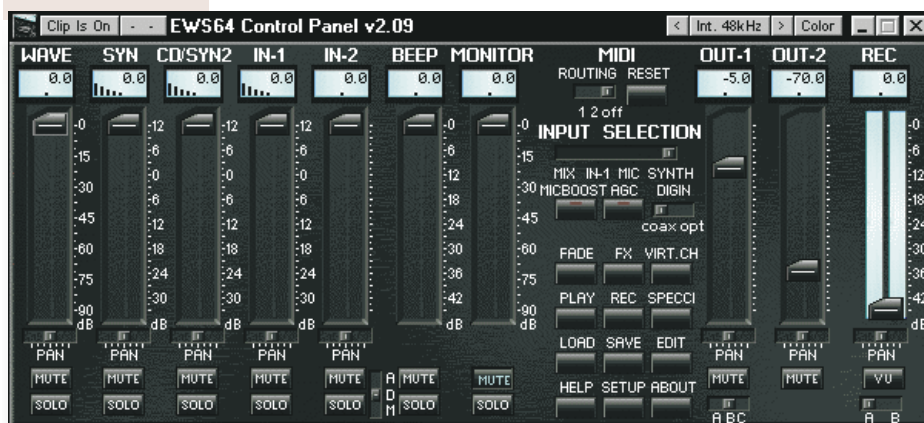
◀ **THE MIGHTY ROLAND XP-60. DON'T YOU JUST WANT TO TOUCH IT?**

Terratec's EWS64 XL sound card and the new microWAVE PC synth module. To complete the computer-based set-up, Terratec also supplied us with a MIDI Master Pro controller keyboard.

**The Roland XP-60** is a full-size, five-octave synthesiser that combines 64 voices of polyphony with three studio-quality effects and comprehensive, 16-track MIDI sequencing. Straight out of the box it comes with 8Mb of high-quality WaveTable samples, although this is expandable to 40Mb using up to four SR-JV80 plug-in cards. At present there are 14 cards in the series encompassing just about every type of sound going, from vintage synths and pianos through to orchestral and ethnic instruments. This approach isn't as flexible as sampling-in your own sounds, as you can with the Terratec system, but the flip-side is that you have a plethora of instruments that can be used instantly each time you power-up the keyboard.

**The Terratec system** comes with two synths, although the most interesting is undoubtedly the excellent microWAVE PC module. Based on Waldorf's microWAVE XT, a professional rack-mounted synth priced at £1,099, it provides 10 polyphonic voices across eight multi-timbral parts. Up to four effects can be used simultaneously in performance (or multi-timbral) mode and it features extensive MIDI implementation to enable real-time control of every synth parameter.

The second synth, which doubles up as a sampler, can be found on the main sound card. This provides 64 voices of polyphony and comes equipped with 6Mb of RAM expandable to 64Mb with standard 72-pin SIMMs. General MIDI sound banks are included on the accompanying CD in various sizes up to 4Mb, and the card's effects are available for all audio sources. These include the usual complement of reverb and chorus settings, although they're not a patch on what the XP-60 has to offer.



## Setting up

The Roland XP-60 is a true plug-and-play device: excluding plugging in the power cable and a couple of audio leads, it doesn't require any setting up. If you have a sustain pedal, this can be connected round the back, but we'll take a more detailed look at this in a moment. The Terratec bundle, on the other hand, isn't quite so straightforward.

## USER INTERFACE

**B**oth systems have their pros and cons when it comes to usability. The PC-based setup provides a graphical, on-screen environment for MIDI sequencing. What can beat that? However, when it comes to selecting and editing instruments, the same graphical environment can only be used to replicate the many buttons, sliders and dials that you find on the Roland XP-60. Although virtual consoles do provide a way in to the world of sound editing (*see screenshot, right*) they're a poor substitute for the real thing.

In contrast, the XP-60's range of controls and its 320x80 dot LCD display are no match for a monitor and mouse-driven sequencer. For example, to delete a single note from a track you must first call up the relevant screen and scroll through a list of events until you find exactly what you're looking for. With a PC-based sequencer, you have a far more meaningful and



visual overview of a track's contents that enables notes to be deleted just by clicking on them. It's not that you can't get the job done with a workstation, it just takes longer.

▲ **THE MICROWAVE VIRTUAL CONSOLE. ALL THE IMPORTANT SYNTH PARAMETERS HAVE DEDICATED DIALS FOR REAL-TIME EDITING**

The microWAVE needs to be installed in your PC and hooked up to the EWS sound card with two ribbon cables; one is for audio, the other carries data. And then there's the worry of conflicting IRQs and I/O ranges. Despite being one of the older ISA-type cards, the EWS64 was successfully detected and installed as a plug-and-play device.

Once the hardware is configured, the setup program continues to install the card's applications and utilities. The Control Panel (*see screenshot, left*) is the hub of the EWS software bundle. From here you can launch the main programs and configure how audio is routed from the card's various inputs with numerous switches. This isn't quite so straightforward as it could be, though, and takes a while to master.

### ➡ **Ins and outs**

The XP-60 is equipped with two stereo outputs: one for the main mix, and a second, direct-out that bypasses the internal effects. When working in performance mode, this enables selected instruments to be treated with external processors. Additionally, there's a dedicated output from the sequencer's click track, or metronome. This is handy if you need to play along with other musicians in certain live and recording situations.

We've mentioned the connector for the sustain pedal, and next to this are four more sockets for extra control pedals. These can be configured for pretty much anything you please, such as volume and expression, or even as start/stop switches for the sequencer. The remaining connectors are for

headphones, and MIDI in, out and thru.

Terratec's system offers a range of ins and outs to suit most audio and MIDI applications. The front-panel module has two sets of MIDI ins and outs, coaxial and optical digital inputs, two S/PDIF outs and a headphone connector. Round the back of the sound card itself are two stereo outputs, two line inputs, a mic input and the obligatory joystick/MIDI adapter.

### ➡ **Keyboards**

The MIDI Master Pro covers a four-octave range and provides pitch bend, modulation and data entry controls. Its green backlit display enables you to configure the data slider to send any CC (continuous controller); handy preset buttons are provided for volume, pan, reverb and chorus.

The keys are velocity sensitive and should be adequate for most users who will probably just want to bash a few chords into their PC. When compared to Roland's five-octave, semi-weighted keyboard, though, it doesn't have quite the same luxurious touch or action. When it comes to quality, the XP-60 wins hands down.

### ➡ **Sounds**

When choosing a synthesiser, it would be fair to say that the sounds are the most important thing you look (and listen) out for. As with any synth, the XP-60

## FEATURES AT A GLANCE

	<b>Roland XP-60</b>	<b>Terratec Native Synth</b>	<b>microWAVE Synth</b>
Polyphony	64 voices	64 voices	10 voices
Simultaneous parts	16	16	8
Number of instruments	512, 8 drum kits	128, 1 drum kit	256
WaveTable memory	8Mb ROM	6Mb RAM	<1Mb
Max. WaveTable memory	40Mb ROM	32Mb RAM	N/A
Number of effects	42	2	10
Max. simultaneous effects	3	2	1

*This table compares the main features of each synthesiser*





▲ THE TERRATEC MICROWAVE PC SOUND SYSTEM: ALL YOU COULD EVER WANT TO MAKE MUSIC WITH

lives by its sounds and there's a great selection to choose from. In addition to the essential meat-and-two-veg General MIDI patches, it's equipped with plenty of dance and contemporary instruments. With a comprehensive range of editing parameters and access to new sounds on the internet, not to mention all those expansion cards, you'll be spoilt for choice. The pianos are expressive, the strings are warm-sounding, and the basses have plenty of depth and punch.

With names like Imperial Code, Blade Runner and, would you believe, HP LaserJet, the microWAVE clearly doesn't try to emulate real-life instruments. And as such, it doesn't need dozens of megabytes of wave ROM. Instead, the source samples tend to be short, pure, synthesised tones that take on a whole new twist once they have been treated with a raft of sound-shaping gadgets. These include banks of filters, envelopes, arpeggiators and effects. All of these can be controlled in real-time using the microEdit software (see box, p109).

The sounds, which range from squelchy analogue basses through to lush stereo pads, have a raw, grungy quality to them, which won't be everyone's cup of tea. But if you're looking for something a bit different from the norm, you'll fall in love with this box. I did. The General MIDI banks for the EWS card don't come close to the XP-60's rich, warm-sounding presets, but you do have the option to create your own sounds using the supplied Ed!Son software which turns the EWS into a full-featured sampler.

#### Sequencer

At the heart of any MIDI setup is the sequencer. Roland's 16-track recorder is surprisingly easy to learn and we had a song up and running within about half an hour. Editing and arranging proves to be a tad trickier than it does with Cubasis AV, which comes with the Terratec bundle, but there's not much you can't do.

The internal memory is good for 60,000 notes, and songs can be saved to disc with all performance settings tagged on. Cubasis offers unlimited tracks for MIDI and two for audio. Its graphical interface is much easier to grasp and quicker to work with, but then, you're unlikely to risk taking your PC out on the road. Each setup has its pros and cons.

#### Conclusion

Although both systems can record, edit and play back music, each will appeal to very different users. There are many joys to owning a music workstation, but not having to sit through operating-system start-up screens has to be near the top of the list. Neither do you have to download firmware, upload sounds or worry about general protection faults and compatibility with games. On the other hand, workstations are not as flexible as the PC-based equivalent.

The Terratec bundle has everything you need to create music with MIDI and audio. And while the keyboard may not be as luxurious, the sounds that come from the speakers are more than a match for the XP-60.

STEVEN HELSTRIP

## PCW DETAILS

★★★★★

### Roland XP-60 Workstation

**Price** £1,299 (£1,105 ex VAT)\*

**Contact** Roland UK 01792 515020

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

**Good Points** Works each time you turn it on. Excellent range of high-quality instruments. Expandable. Lovely keyboard. Single-button access to all the main features.

**Bad Points** Can store only one song in memory. No sampling capabilities.

**Conclusion** If you like the idea of a music workstation, the XP-60 won't disappoint provided you only need to work with MIDI. The instruments are suited to a wide range of musical styles and those expansion cards will see you right for a good few years to come.

★★★★★

### Terratec microWAVE PC

**Price** microWAVE module and EWS64 L, £749 (£637 ex VAT); TMP1 MIDI keyboard, £129 (£110 ex VAT)

**Contact** Terratec 01600 772111

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

**Good Points** Extremely versatile setup. Superb range of preset sounds. Sampling and hard-disk recording. Comprehensive set of ins and outs. Great software bundle.

**Bad Points** The microWAVE only works with the EWS64 L. Cannot use S/PDIF input and microWAVE simultaneously. Poor set of effects. All those features can be tricky to master.

**Conclusion** This setup has more features than we've had pub lunches, and that's saying something. If you're happy to work with virtual panels (which seems to be the way things are going), there's everything here you could ever want to make music. Well, until the next best thing comes along, anyway.