NEW PRODUCTS ››

reviews

The most interesting new technology we've seen this month is Sony's **NEW F500 MONITOR**, the first totally flat-screen CRT. Watch out for more of these next month. If you've got a small amount of desk space but a large purchasing budget, the **MULTIQ FPC** could be what you're after. Those with more desk space than money should check out the **ELONEX** budget mini-tower system (p80). The small and sexy notebook market is getting popular, and **GATEWAY** is entering the fray with its magnesium-clad product. At the budget end of the scale, Umax has clambered onto the notebook wagon with the **ACTIONBOOK 330T**. Amateur photographers and computer artists should take a look at Nikon's **NEW COOLSCAN** film scanners. And, not forgetting the techies amongst you: this month we have one of the **FIRST EIDE RAID** controllers to come onto the market. On the software front, we've a couple of updates of old favourites in the shape of **TRUESPACE 4, FILEMAKER PRO 4.1** and **CLEANSWEEP DELUXE 4**. Plus, there's a newcomer in the form of the **AMAZING GIGA SAMPLER**, to turn your PC into a concert grand.

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Contents

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 Windows 95/98 and NT are the Sysmark tests from BAPCo. In all our performance graphs, larger bars mean better scores.

Ratings

★★★★★ **Buy while stocks last**
★★★★ **Great buy**
★★★ **Good buy**
★★ **Shop around**
★ **Not recommended**

MultiQ FPC 1650 Executive
Flat panel computer

Swedish super-waif model seeks spatially-challenged execs with expensive tastes.

The LCD market is one of the fastest-growing areas of the PC world. There are strong rumours afoot concerning the short-term health of the industry, with problems caused by increased demand and the downturn in the Asian economy leading to predicted production shortages next year. All this industry doom and gloom makes the timing of MultiQ's launch particularly intriguing. FPC stands for Flat Panel Computer, and MultiQ is a successful Swedish flatpanel company that has sold LCDs since 1988. Although it has an impressive share of the market in Scandinavia, the company is relatively unknown here.

MultiQ is keen to stress the innovation in its product, claiming that its FPC is an LCD screen with a PC built in. Previous attempts have approached the concept the other way around. It backs up its claim to originality with the prize the FPC won for the most innovative product at the CeBIT trade fair in March 1998.

Aimed at those who need good performance when space is at a premium, the FPC is not particularly wallet-friendly, but then, as everyone knows, minimalist Swedish design doesn't come particularly cheap. Having turned to R&D partner Inside Technology, which specialises in producing single-board computers, MultiQ's product contains the PC on the back of the LCD screen, yet is still no thicker than two inches at its widest point.
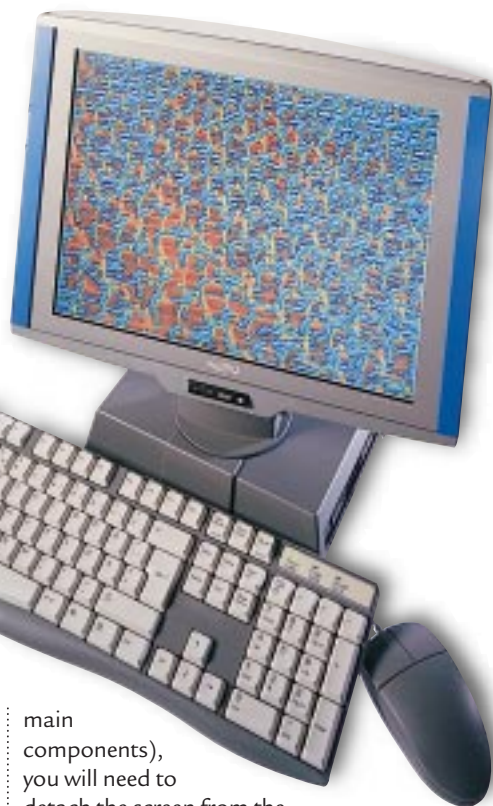
The screen itself is connected to a base containing the floppy drive and CD-ROM: the casing is entirely metal, giving the unit confidence-inspiring solidity. With the mouse and slim keyboard connected to the base, and the screen

Minimalist Swedish design doesn't come particularly cheap

and PC as one unit, the 10Kg FPC bears a slight resemblance to the iMac in its minimalist design. The only spanner in the works, which affects the FPC's asceticism, is the whacking great power unit sitting next to the system, connected by an ugly, thick, black power cable; you'll probably want to hide it. Comparable to a 17in CRT monitor in viewable area, the 15.1 in TFT (Thin Film Transistor) screen was impressive in tests, showing the Windows 98 icons off in all their pixellated glory on its 1,024 x 768 resolution. The viewing angle was not too impressive but this is less of an issue with a PC that will not be used for PowerPoint presentations. But it is the ideal solution for, say, a spatially-challenged trading floor or newsroom.

So what hardware do you get for your hard-earned cash? The slim 3.2Gb Toshiba hard drive is packed with the motherboard behind the screen. The board contains 64Mb of SDRAM, alongside the 512K of L2 cache, as well as the 4Mb Chips & Technology onboard graphics chipset. MultiQ claims that its FPC's form factor has been designed for modularity: the basic configuration can be upgraded before being built and the basic components easily upgraded once purchased. The FPC can be fitted with up to 256Mb of RAM, and MultiQ uses processors from both Intel and AMD, offering up to an AMD K6-2 processor running at 333MHz, which should be ample for nearly all office packages.

The system we tested was fitted with an Intel 233MMX processor. There are eight screws in all which have to be taken out to gain total access to the back of the screen and, if you want to take off the central back plate (pretty essential if you want to upgrade, as it covers most of the main components), you will need to detach the screen from the base. All in all, this is a task best left to a specialist. MultiQ has contracted the warranty and technical support to a third-party British company, so you won't have to ring Stockholm if anything goes wrong. Similarly, British orders for the FPC are through MultiQ's UK partner, distributor Imago Micro.

PAUL TRUEMAN

PCW DETAILS

★★★★

Price *£3,643 (£3,100 ex VAT)*
Contact *Imago Micro 01635 294300*
www.multiq.com
Good Points *Looks great. Takes up little space. Modularity for potential upgrades.*
Bad Points *At this price, such designs won't be affordable to everyone.*
Conclusion *Well worth consideration if space is at a premium and you want to make everyone else jealous.*

PERFORMANCE RESULTS

	0	50	100	150	200	
MultiQ FPC						71
Gateway G6 350						141
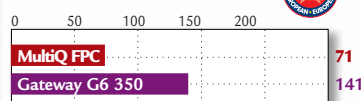
BAPCo Sysmark Windows 98 test scores

Elonex MCX-6350/I
Compact mini tower

Goodbye Intel... hello Via Apollo Pro. The alternative chipset in a good value PC.

Elonex's latest system is an interesting showcase for the first available alternative Slot 1 chipset which comes in the shape of the Via Apollo Pro. Until now, Intel has had the monopoly on Slot 1 chipset production, meaning that not only was it making pots of cash selling PIIs and Celerons, it was making even more producing the chipsets to run them. This competition should benefit consumers.

The Apollo Pro claims some key improvements over the highest-specification Intel equivalent, the 440BX, including support for up to 1Gb of PC100 SDRAM with the option to mix and match with 66MHz SDRAMs, and support for the emerging ATA-66 disk (aka the ULTRA DMA 66) drive interface standard. ATA-66 effectively doubles the maximum data transfer rates of the current generation of EIDE drives. Unfortunately, the FIC KA-6130 motherboard supplied with this system puts some constraints onto these leading-edge features. One obvious limitation is that there are only two DIMM sockets so with the maximum 256Mb modules currently available the maximum the chipset can handle is cut

in half. When you take into account that FIC is targetting this motherboard as an affordable Slot 1 Micro ATX, then something had to give in favour of the cost savings afforded by the alternative core logic.

Housing the motherboard in an uninspiring Micro ATX case gives you a compact mini-tower system. This has its drawbacks though. For instance, both the CPU and memory DIMM needed to be removed to enable the hard drive to be fully accessible. Generally, it's all a bit tight in there, but what you get is impressive for the price.

The system is powered by a 350MHz Pentium II. The generous 128Mb of RAM is supplied on one DIMM, so there's still room for memory expansion. But with 128Mb you are not going to need to upgrade for quite some time. Fujitsu provides generous storage with a 6.4Gb EIDE hard disk with an Ensoniq sound system squeezed onto the motherboard. CD-ROM capabilities are provided by Creative Labs' Dxr2 DVD-ROM drive but there is no accompanying hardware DVD Video decoder to go with it. Consequently, movie playback has to be carried out in software, and even a 350MHz processor has trouble with this.

The graphics card is a new Leadtek model, and is equipped with nVidia's Riva TNT chipset, which is the best around at the moment. It is fitted with 16Mb SDRAM. Buying a mini-tower system will always constrain your upgrade options, as evidenced by the two spare PCI slots. Spare drive bays are also reduced to one 3.5in and one 5.25in. Elonex supplied its own branded monitor, capable of reasonable refresh

rates at high resolution (85Hz at 1,024 x 768) but the overall image lacked sharpness. This was more acceptable at 800 x 600, which is unfortunate for a 17in display. All the necessary screen control functions are available through a basic OSD that's easy enough to use.

An excellent user manual guides you through any problematic areas of setup, and there's a diagnostics section for troubleshooting.

In our benchmark tests, the system returned a slightly disappointing result. This may well be have been because of the early revision of both the motherboard chipset and the Leadtek video drivers. Hopefully, though, future systems will definitely demonstrate that Intel has some competition on its hands in the Slot 1 chipset arena.

The system's major selling point is its price. Despite the fact that the performance of the MCX-6350/I is slightly slow for the specification, in absolute terms it is still a powerful PC for remarkably little cash.

IAN ROBSON

Improvements over the highest-specification Intel equivalent
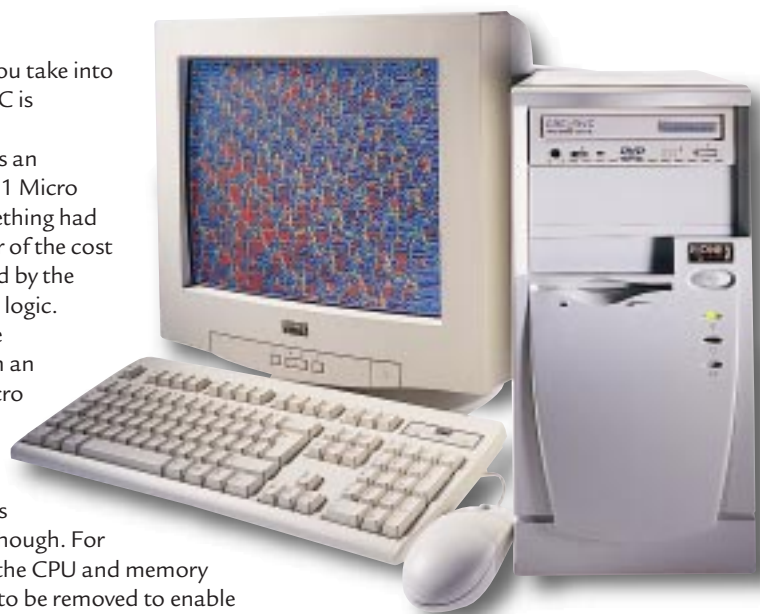
PCW DETAILS

★★★

Price *£998.75 (£850 ex VAT)*
Contact *Elonex 0181 452 4444*
www.elonex.co.uk
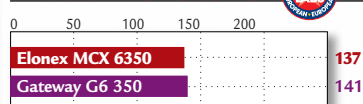**Good Points** *Compact. Well specified.*
Bad Points *No MPEG hardware decoder. Restriction on upgrade options.*
Conclusion *A lot for the money, but other 350MHz systems are faster.*

PERFORMANCE RESULTS

	0	50	100	150	200	
Elonex MCX 6350						137
Gateway G6 350						141

BAPCo Sysmark Windows 98 test scores

Gateway Solo 3100 FireAnt
Stylish boy toy

A petite notebook fashion accessory for the busy young executive-around-town.

Gateway has established a reputation as a major player in the notebook market with an extensive range to suit most users' needs. The Solo 3100, codenamed FireAnt, fits snugly into a niche best described as the executive's stylish toys market. Gateway would probably phrase it slightly differently, but there's no doubt that the target audience for this one is the executive on the move.

The FireAnt comes in a two-tone casing with its 12.1in TFT screen housed in magnesium alloy. The rest is in black plastic. With its petite dimensions (285 x 215 x 31mm) and favourable weight (2.27Kg with battery) it is designed to be a piece of techno-jewellery that fashion-conscious executives will want to own. The screen's native resolution of 800 x 600 is fine for most tasks and delivers a bright, even, display. The screen housing, however, is thin enough to twist when repositioning, causing distortions of the image. This is nothing major but we'd have thought that the metal top would stop this. It also seems a shame not to have taken advantage of the natural heat dissipation qualities of the magnesium in the rest of the casing.

Keyboard feel is very light indeed, although it does feel a little flimsy. Some may prefer their keys to have a more positive touch. The mouse pointing device is the mini-joystick type beloved by IBM. It nestles in the middle of the keyboard and a little pressure from your fingertip sends the pointer in the appropriate direction. There is no port replicator supplied as standard, but it is available as an option. Added replicator features include S-Video out and stereo speaker inputs. It can be permanently plugged into a power supply to recharge the Lithium Ion battery pack.

The FireAnt's looks are adequately complemented by its 266MHz mobile PII with 32Mb supplied system memory. Storage is covered fairly with IBM's 4.2Gb hard disk drive, and removable storage with an external floppy disk drive. The integral CD-ROM drive can optionally be replaced with a DVD-ROM unit. There's one slot for PC Cards, meaning you can only fit Type I/II cards, rather than full-height Type IIIs. An LT WinModem was supplied in the review machine but Gateway could not confirm whether this would follow through to full production.

Gateway claims that the FireAnt is ACPI compliant. ACPI (Advanced Configuration & Power Interface) is an open industry standard, jointly developed by Intel, Microsoft, and Toshiba. The key element of this standard is to put the operating system in control of power management. However, it will be a while before full software support is available to take advantage of it.
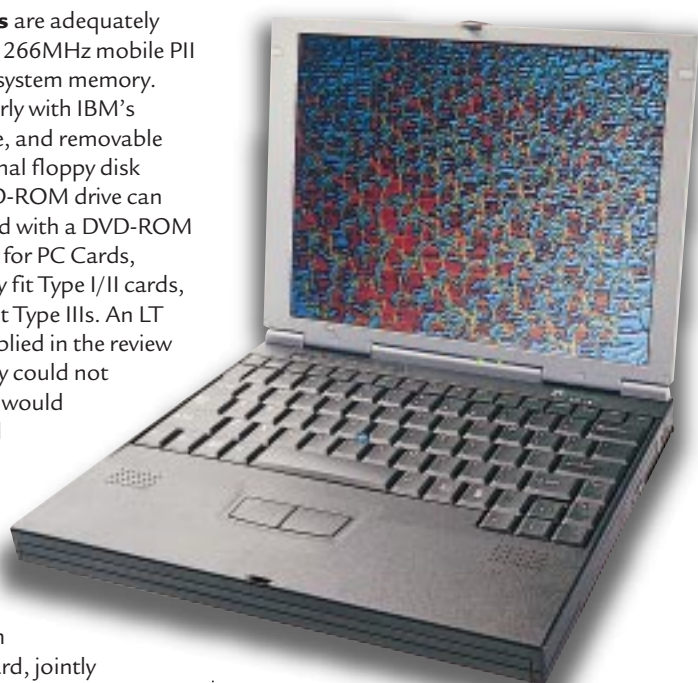
Designed to be a piece of techno-jewellery

Graphics are provided by the ubiquitous NeoMagic chipset. This does not provide any of the whizzy 3D features of some newer chipsets but does the job perfectly well for standard applications.

Options to upgrade are limited to storage and memory; both easily achieved with the loosening of a couple of screws. There is also easy access to the more private parts, although these are not generally regarded as user-serviceable areas. Battery life, as is usual with Gateway notebooks, is impressive with the unit managing three hours on a full charge with all power management turned off.

Is it better than the Sony PCG-505G (*reviewed in* PCW, *Dec '98*) which is almost identical in price? Well, it's slightly better specified, with a mobile PII rather than the 505's 233MMX, it has good battery life and comes bundled with Microsoft Office 97 Small Business Edition as well as Money and Encarta 97. It does not have a port replicator as standard, however. But there cannot be many who would look at both, side by side, and choose the Gateway. Sony's product is just too gorgeous. And there's more competition on the way. Sharp has a unit with a similar design.

Overall, the FireAnt displays the usual qualities of Gateway notebooks: competent and well-specified but lacking in that touch of flair, despite the shiny top.

IAN ROBSON

Umax ActionBook 330T
Budget notebook

Umax's first notebook at entry-level is well down in the bargain basement.

The ActionBook is Umax's first dip of a toe into the notebook market. Umax is best known for its scanners for graphics professionals and for home users, but it was also the first company to sell Mac clones. However, even before Apple's decision to keep the Mac OS to itself, Umax had started to make NT workstations, arguing that even traditional Mac users were making the move to PCs simply because they were cheaper, more powerful and more stable.

Umax first announced its intention to produce notebooks well over a year ago. Its approach is to come in at the low end, appealing mainly to those who want a second machine but do not want to pay a fortune for it. Higher-end notebooks, with faster processors and larger screens, are already on sale in America and will be coming here soon. Also in the US, Umax is selling low-end PCs based around the AMD K6-2, although in the UK it is unlikely to go down this path in the near future.

An AMD processor has found its way into the ActionBook 330T. The unit sports the K6/300 mobile, a relatively new processor which generates less heat and consumes less power than the desktop version. In practice though, the

ActionBook seems to run extremely hot; a problem that is apparent almost as soon as you start using it. Within about ten minutes of switching it on, the fan kicks in. This in itself would not be a problem if it were quieter, but it sounds a little like one of those creaky old desk fans, complete with an annoying background whine. And, once the fan has come on, it does not switch off again.

The Action Book is fitted with an NiMH (Nickel Metal Hydride) battery — an older technology than Lithium-Ion. NiMH is heavy but the real problem is what's known as the "memory effect". NiMH batteries should be fully discharged before they are recharged. If you fail to do this, they will subsequently tend to refuse to take a full charge, meaning reduced life on-the-road. Even with the new battery, we found that it ran down astonishingly quickly on relatively light activity, lasting only around an hour in normal use.

Unfortunately, the approach of low budget rather than high quality also runs to the screen. This was a 12.1in TFT display, which runs at a resolution of 800 x 600. Although small compared to the 14.4in screens in some of the current wave of notebooks, it is still large enough to work on. However, our greatest gripe about the screen is its quality. Some light bleeds around the edge of the screen, particularly at the top and to the right, yet the screen itself is neither as bright nor as clear as it should have been. Windows icons were badly defined and the contrast was terrible. Let's hope Umax improves this on its later models.

The ActionBook 330T has all the ports you might expect, including a USB

port, although the modem plug has been blocked off. The keyboard is pleasant enough to use and the trackpad is reasonably responsive. There is a distinct lack of any of the bundled utilities you would normally find on a notebook. It does not even have a power management utility, so you have to use the Windows Power utility instead. The only bundled software you get is Windows 98.

The RAM and hard disk are adequate, with 32Mb of system RAM, 2Mb for the graphics chipset and a 4Gb hard disk. The CD-ROM and floppy disk are both integrated into the case so you don't have to pull one out before you can use the other, but this is about the limit of the notebook's good points. Overall, the ActionBook 330T feels like a notebook which is a couple of years old and has merely had a few newish components added.

ADELE DYER

An AMD processor has found its way into the ActionBook

PCW DETAILS

★★★

Price £1,174 (£999 ex VAT)
Contact Umax 01344 871344
www.umax.co.uk
Good Points Budget price.
Bad Points Feels cheap.
Conclusion You get what you pay for.

PERFORMANCE RESULTS

VNU LABS

	0	50	100	150	200	
Umax Actionbook						77
Rock Agenda 960						110
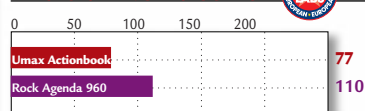
BAPCo Sysmark Windows 98 test scores

Sony Multiscan GDM-F500
First flat screen CRT

Just eyeball this will you? It's totally flat, it's Trinitron, and it uses a cathode ray tube...

With the F500, Sony has achieved something that a couple of years ago most people would have said was a practical impossibility. The F500 is the first flat screen Trinitron as well as the first flat screen CRT (cathode ray tube) monitor to be released. Screens based on Sony's Trinitron technology and its derivatives (collectively known as aperture grille displays) have always been flat in the vertical direction, but curved width-wise. Monitors based on shadow mask technology are curved in both directions, although as the technology has matured over the years, they have been getting flatter.

The F500 is a heavy beast at 34Kg but that's par for the course in a 21in display — the flat screen tube does not significantly add to the weight. It has to be said, however, that the penalty you'll pay for flat-screen heaven is the aesthetics of the thing. In contrast to most Sony products, which are as elegant as you could want, the F500 is dowdy-looking in the extreme.

The on-screen menu system is identical to that used in Sony's other high-end 19 and 21in Trinitrons. But that's no bad thing as it's one of the most intuitive menu systems around. Where it does depart from other models is in its physical controls. Other models have four buttons arranged in a cluster, whereas the F500 has a small joystick which performs the same function: moving it up, down, and from side to side moves through and alters the various parameters. Pushing it, selects the highlighted menu entry. Aside from the normal size, positioning and geometry adjustments, the F500 has controls to adjust vertical convergence separately for the top and bottom of the

The flat screen tube does not significantly add to the weight

screen. It is lacking geometric linearity controls, however, but linearity is so good you shouldn't need to adjust it. The remaining front panel controls are an ASC (auto sizing and centering) button; an input selector to switch between the D-SUB and BNC connectors; and a recessed reset button for clearing the preset memories. Sony has responded to the rise of USB by installing one upstream and four downstream ports in the base of the unit, with the downstream ports placed two on each side.

If you're expecting the image on a flat screen CRT to look just like that of an LCD flat panel, you'll be disappointed: a CRT can never match an LCD for sharpness. The F500 is still very much a Trinitron, with all the advantages and disadvantages that go with it. Colours are superbly vivid and rich, and of course there's no commercially available flat panel that will achieve resolutions of 1,600 x 1,200, let alone the maximum 1,800 x 1,440 that the F500 supports.

To do the F500 justice, we tested it using a Matrox Millenium G200 graphics card which ranks as one of the top performers for 2D quality, as well as being one of the few to support really high resolutions. In practice, the flat screen does not appear to have introduced any image quality compromises, quite the reverse: the F500 gives a superbly crisp image at 1,600 x 1,200, with virtually no geometric compensation required and amazingly little distortion in the corners. At 1,800 x 1,440 things are still almost flawless, but text begins to get too small to be practical.

Does a totally flat screen really make the display "better" or easier to use? Well, in practice there's certainly something very pleasant about sitting in front of the F500. We're all naturally used to flat working surfaces, notably paper documents, so you'll feel completely at home with the unit. There's also the argument that a flat screen reduces reflections which can interfere with the image on which you're trying to concentrate, which contributes to fatigue and eyestrain. But this is a monitor for those who really care about their displays and, if you fall into that category, the premium price of the F500 is one worth paying.

DAVID FEARON

PCW DETAILS

★★★★
Price *£1,526 (£1,299 ex VAT)*
Contact *Sony 0990 424424*
www.sony.com
Good Points *Totally flat screen. Gorgeous colour rendition and crisp text. Runs at up to 1,800 x 1,440 at 80Hz.*
Bad Points *The case design looks ungainly. It's awfully expensive.*
Conclusion *If you can afford one, buy one.*

Nikon LS-30 and LS-2000
35mm and APS film scanners

Dedicated desktop film scanners — here are two models from which to choose.

With reputable manufacturers producing perfectly good flatbed scanners at under £100, why on earth would you consider spending £619 or £1,399 for Nikon's LS-30 or LS-2000 dedicated film scanners? The reason is that scanning film is considerably different from capturing your holiday prints or business documents. First it's transparent, and second it's usually very small. Transparency can be solved by shining a light through the image, and most flatbeds can be fitted with optional illuminated lids to do just that. But size is a trickier one to solve.

A flatbed scanner has plenty of dots to play with for your 7 x 5in print, but 35mm film measures only an inch tall. A 600 dpi flatbed would then give you, well, only 600 dots. Considering that most colour inkjets like at least 150 dots per printed inch, then you're only looking at a maximum enlargement of four times — that's only four inches tall, and hardly worth the effort.

Nikon's LS-30 and LS-2000 film scanners (aka the CoolScan III and Super CoolScan 2000) both boast a hefty 2700 dpi optical resolution, good enough to enlarge a 35mm frame to A3 on an average colour inkjet. Both models measure 85.5 x 142 x 275mm and are SCSI-II devices. Nikon supplies an Adaptec 2902 SCSI card with the LS-30 but expects you to have your own for the LS-2000. We tested both scanners on a P200 with 128Mb RAM and a fast Adaptec 2940 PCI SCSI card.

The front panel of each unit slides down to reveal a large slot into which a variety of film adaptors can be hot-plugged. Nikon supplies two with each scanner: one sucks in raw, uncut lengths of film from two to six frames, and another swallows mounted slides whole, or a strip film adaptor for those pesky loose frames. An optional APS film adaptor is available for £159, and one to automatically sort through and scan up to 50 mounted slides (on the LS-2000 model only) costs £499.

Both units boast a hefty 2,700dpi optical resolution

The highly capable TWAIN driver, tested at v2.1, operates both models and boasts just about every adjustment you could think of for the expert, or auto settings for those who want an easy life. In fact, Nikon can make things even easier by automatically getting rid of any scratches, dirt and fingerprints by making an extra pass with its Digital ICE technology. This works really rather well and, despite lengthening scanning time, is much quicker and less frustrating than doing it by hand. Nikon also supplies Photoshop 4 LE with both models, which no doubt will come in handy.

The big difference in price between the two scanners is essentially down to their colour depth: the LS-30 captures 30 bits at input, and outputs 24, while the LS-2000 boasts 36 bits at input and output. In real terms, this means the LS-2000 can see a wider range of colours and, in particular, capture subtle detail in dark shadows and bright highlights. When you consider that every adjustment to colour, brightness and contrast effectively loses bits, then starting with 36 will ensure you still have a decent 24 left even after significantly playing around. A multiple sampling mode, which is only available on the LS-2000, can cancel digital noise on the CCD and increase dynamic range yet further; the LS-2000 is also supplied with SilverFast software for precise colour adjustment. At 2,700 dpi you're looking at just under a minute for 36-bit (57Mb) scans from the LS-2000 or 30 seconds for 24-bit (28.5Mb) scans from the LS-30. Activating Digital ICE increases these times to four and three minutes, respectively. Reducing the resolution (or dropping the LS-2000 to 24-bit) significantly speeds up the process.

The scans from both models are excellent but feeding the LS-2000 a demanding image, employing Digital ICE and multiple sampling, impresses even further. Sure, you can't do anything other than scan 35mm or APS film with these units, but they both do it well enough to more than justify their prices to professional users and serious enthusiasts alike.

GORDON LAING

PCW DETAILS

★★★★

Price *LS-30: £619 (£527 ex VAT), LS-2000: £1,399 (£1,191 ex VAT)*
Contact *Nikon 0800 230220*
www.nikon.co.uk
Good Points *Best film scans outside the pro-bureau.*
Bad Points *Pricier and less flexible than most flatbeds available.*
Conclusion *35mm and APS film fans, look no further.*

Hewlett-Packard LaserJet 1100A

A compact dual function device for the home and office.

The 1100A isn't a totally new product from HP. It is, however, an interesting variation on the standard 1100 printer: it has a scanner attachment, turning the unit into two-thirds of a multifunction device (the missing element being an integrated fax). It also means, of course, that you'll find yourself with more free desk space as you avoid cluttering up your work area with cables and individual peripherals. The scanner unit attaches very easily via one of those ingenious lever arrangements that printer manufacturers are so good at doing.

So what do you get for your money? Well, this monochrome laser has 2Mb RAM as standard, which it uses to print pages at a maximum resolution of 600dpi. It meets Energy Star guidelines and the memory can be upgraded to 18Mb using EDO DIMMs at a later date. The standard connection is to the parallel port and it chats to the PC using HP's own PCL5e control language. Network compatibility is available to those hooking it up to one of HP's optional JetDirect external print servers. Drivers are included for every version of Windows from 3.1 to 98, but while NT4 is also catered for, there is nothing for users of NT version 3.51.

The 1100A incorporates Hewlett-Packard's own REt (Resolution Enhancement technology) to improve the quality of its output, and this undoubtedly helped it to achieve an impressive score of 84.25 percent in our printer tests. Toner was well fused to the paper and demonstrated only minor cracking when our pages were folded, although on a page of almost complete coverage there was slight variation in the level of toner density. Some problems with banding were also evident, but if the unit is mainly used for text output, as are most mono lasers, this will not be too much of a drawback. It's with areas of solid graphics that banding tends to make its presence felt the most.

The 1100A is claimed to have an 8ppm print engine. In our text output tests it produced the first sheet in a run of 10.5 complete pages 19 seconds after the data light first illuminated, and the final page dropped into the output tray a minute and a half later. This equates to just under six pages per minute in the real world.

We were underwhelmed by the performance of the printer in our positional test, in which a crosshair pattern is overprinted on itself, requiring the page to be passed through the unit twice. Whilst a printer scoring ten would have printed the images so perfectly on top of each other that only a single crosshair would be discernable, our test results could only let us award the 1100A a score of three. An important point if you want to do any manual duplex printing.

The 1100A prints pages at a maximum resolution of 600dpi

Once attached, the scanner facilitates one-touch copying with an optical resolution of 300dpi, without even being connected to the PC. The scanner is the document feeder type rather than a flatbed so performance isn't brilliant, scoring just 70 percent in our scanner tests. It is, however, versatile enough to cope with anything between 2 x 3.5in and a maximum of 8.5 x 30in in size. For the business user wanting to use it primarily for document storage, OCR or copying, though, it should prove to be more than adequate. Connecting it to the PC allows you to interpolate the optical scanning resolution to achieve 600dpi. A 20-page input hopper allows copying to take place unattended, although without a front panel it is not possible to make multiple copies without the use of the PC.

Our only real disappointment with the 1100A was that there was no front-mounted output tray to catch either our originals as they passed out of the scanner or any prints exiting the "straight" paper path. That said, the unit does have a 125-sheet feeder for both paper input and output should you choose to use the curved path.

NIK RAWLINSON

PCW DETAILS

★★★★

Price £446.50 (£380 ex VAT) or £364.25 (£310 ex VAT) for printer alone.
Contact Hewlett-Packard 0990 474747
www.hp.com
Good Points Modular design. Ease of use. Good value for money.
Bad Points Lack of front-mounted paper output tray.
Conclusion A good choice for those who need a compact mono text printing and document processing solution.

DupliDisk IDE RAID Controller

For improved performance or increased security, DupliDisk does the job.

The DupliDisk is an IDE RAID controller — yes, IDE. Traditionally, RAID controllers have only been available for SCSI hard disks. RAID — Redundant Array of Inexpensive (or Independent) Disks — allows multiple drives to be linked together to provide performance enhancements or various levels of protection against failure. The most basic level is RAID 0 where data is written in stripes across two or more drives. It provides no protection in the event of failure, but can considerably increase sustained throughput. RAID 1 requires two drives and uses one to perfectly mirror the other. Should either of the mirrored pair fail, the controller moves all operations to the remaining drive and the system continues as if nothing had happened. RAID levels 0 and 1 can be combined to provide improved performance and redundancy.

The DupliDisk provides RAID 1 mirroring only and can support up to four IDE hard disks; two primary drives and two mirrors. The drives do not need to be identical, but the capacity of each mirrored pair will be determined by the smaller drive. The DupliDisk is an intermediate adaptor that sits between the motherboard IDE controller and the

drives. Four varieties are available for ISA or PCI slots: a slotless version and one for mounting in a 3.5in drive bay. The only demands the DupliDisk makes on the host system are for power and setup access. It needs neither an IRQ nor I/O address and there is no interaction with either the BIOS or operating system, making it truly universal. It will work happily with DOS, all versions of Windows, Linux, Unix, OS/2 or Novell NetWare and supports ATA, IDE, E-IDE and UDMA hard disks.

I tested the PCI version and installed it in a desktop system running Windows 98. Physical installation can be tricky due to the large number of ribbon cables required. The card has three IDE sockets with the lower one connected to the motherboard IDE channel using the supplied cable. The other two sockets are for the primary drives and mirrored drives. The rest of the testing hardware came courtesy of Western Digital with a quartet of 2.1Gb Caviar hard disks.

Once everything is in place, the RAID array is initialised using the supplied ACP DOS utility. All attached drives are displayed and ACP provides a comprehensive list of options for configuring the arrays. After the mirrors are initialised, data is copied across from the primaries. This took precisely 13 minutes to complete for each pair. After that it's business as usual. The test system started up normally, loaded Windows 98 and operated perfectly and I could detect no performance degradation whatsoever.

To simulate a complete drive failure I removed power from the primary drives before starting the system. The

The DupliDisk allows multiple drives to be linked together
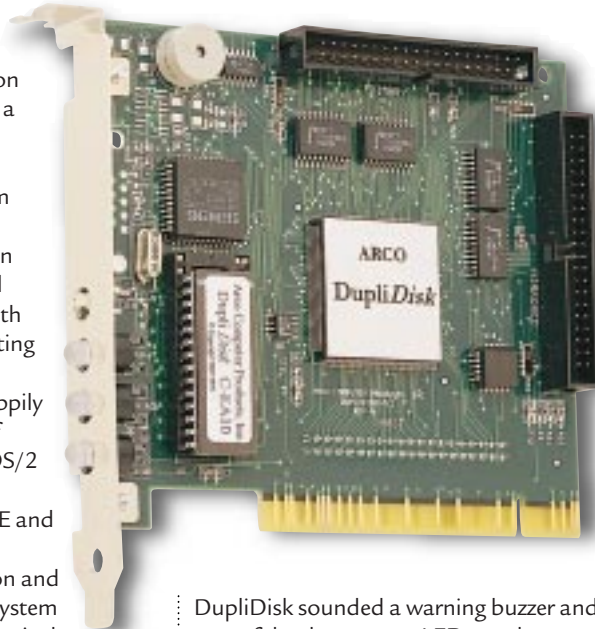
DupliDisk sounded a warning buzzer and two of the three status LEDs on the mounting plate turned red to indicate a drive failure had been detected. A small reset button alongside can be used to silence the buzzer. The DupliDisk provided perfect RAID 1 fault tolerance as the test system started from the mirrored drives and loaded Windows 98 as if nothing had happened. At this stage you can either continue working or take the safer option and initiate a shutdown to replace the failed units. With the failed drives replaced, the ACP utility needs to be run again to initialise them and create mirror copies of the good drives.

Clearly, the DupliDisk provides perfect RAID 1 redundancy, but it should not be seen as a replacement for normal backup as the PC or server itself still represents a single point of failure. If that dies, gets stolen or damaged then the DupliDisk won't be of any use in recovery operations. However, if you are running various mission-critical applications and need full fault tolerance for your IDE hard disks then the DupliDisk is an elegant solution.

DAVE MITCHELL

PCW DETAILS

★★★★

Price *ISA £194 (£165 ex VAT); PCI £229 (£195 ex VAT); Slotless £229 (£195 ex VAT); Bay mount £253 (£215 ex VAT).*
Contact *Octree Computers 01462 481007*
www.octree.co.uk
Good Points *Offers full RAID 1 fault tolerance to any IDE hard disk-based system.*
Bad Points *Should not be used to replace conventional data backup.*
Conclusion *Ideal as a first line of defence against hard disk failure.*

Wacom Intuos

Wacom delivers in spades with its new graphics tablets. Perfect for the digital artist.

Let's face it: for drawing or handwriting, mice suck. The only solution is a graphics tablet, and market leader Wacom has revamped its analogue ArtPad II and UltraPad ranges with its new digital Intuos system, consisting of five new tablets and six input devices. Each Intuos pen has a unique ID which is recognised as it approaches the tablet's surface. You can set various preferences for each pen, such as the brush style and colour, and have them automatically recalled when used. The standard pen now boasts twice the pressure sensitivity than before, plus the ability to recognise tilt. Most exciting of all is a new airbrush pen (£74.95), complete with a programmable finger wheel which can be set to adjust ink flow. The intriguingly-named 4D Mouse includes the usual two

rodent dimensions, along with side wheels and the ability to recognise rotation. The mouse has no ball either, or a cord or even a battery for that matter. Like the pens, it employs a resonant coil which the tablet can use for positional and control information.

All configurations are bundled with a modified version of Painter and a set of Photoshop compatible plug-ins. Prices start at £129 for the A6 with the standard pen, to the A3 with pen and mouse for £579. Our A4 regular cost £349 with pen and 4D Mouse and was great fun to use — I even found myself humming the theme to Tony Hart's Gallery.

GORDON LAING

PCW DETAILS

★★★★
Price *£152 to £680 (£129 to £579 ex VAT)*
Contact *Computers Unlimited 0181 358 5857*
www.wacom.de
Good Points *Most flexible tablets yet.*
Bad Points *No USB version so far.*
Conclusion *Essential for graphics users.*

Videologic DVD Player

One of the latest generation of hardware DVD Video decoder cards.

DVD Video needs a lot of processing power to decode if done in software. The alternative method is to design dedicated hardware to do the donkey work. This gives higher quality and more consistent results, and

opens up the field to users of lower-end machines: Videologic gives a minimum processor spec of a Pentium 133, meaning that DVD will finally be within the budget of many PC users.

Remember that DVD Video will only look its best on a television: a monitor is actually "too good", meaning that any pixellation is very obvious, whereas the extremely bright, slightly fuzzy image of a telly tends to smooth out these kind of problems. Consequently the DVD Player sports a composite video output for hooking up to a TV. The first-generation PC-based DVD decoders were disappointing, giving slightly inconsistent frame rates and less than ideal image quality but the DVD Player far exceeds any VHS video you'll have seen.

To watch films on your PC monitor, you need to route the output of your graphics card into the socket on the back of the card. You then connect the monitor itself to the DVD Player. When you're playing a DVD movie, the card

then overlays the movie picture onto the signal from your monitor. A little thought reveals that a consequence of this is the fact that you can't do standard screen grabs using Paint Shop Pro or whatever. The DVD Player software, however, has a screen grab function, but some DVD titles don't allow this.

DAVID FEARON

PCW DETAILS

★★★★
Price *£119 (£101 ex VAT)*
Contact *Videologic 01923 260511*
www.videologic.com
Good Points *Quality on a par with a dedicated consumer player. Works with low-end Pentiums.*
**Bad Points** *Who wants a PC whirring away in their living room?*
Conclusion *If PC-based DVD-Video is what you want, Videologic's solution is as good as any.*

STB Velocity 4400

An excellent graphics card that can push any fast-moving PC game to the limits.

STB has been producing PC graphics cards for quite some time now, although it's fair to say that in recent times it hasn't been as prominent as the ATIs and Matroxes of this world, relying as it does on third-party chipsets rather than designing and manufacturing its own. The Velocity 4400 continues this trend, being fitted with the Riva TNT chipset, manufactured by nVidia. Fortunately for STB, however, the TNT is an absolutely storming performer.
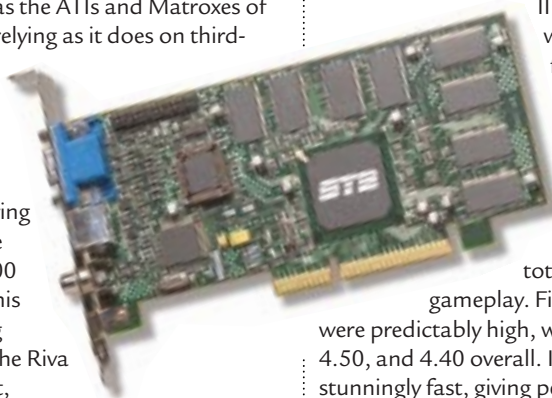
The Velocity 4400 is fitted with 16Mb of VRAM, enough to run a 3D desktop application such as trueSpace at 24-bit, 1,280 x 1,024 resolution with 24-bit Z-buffering.

For the less technical user, all that memory means super-high resolutions in 3D games. But of course, running Quake II at 1,024 x 768 wouldn't be much fun if the frame rate were poor. We tried doing just that and achieved a rate of 30fps on a PII 266, giving totally smooth gameplay. Final Reality scores were predictably high, with a 3D score of 4.50, and 4.40 overall. It really is stunningly fast, giving performance roughly equal to a dedicated Voodoo 2 add-on card. But remember, the Velocity 4400 is a combined 2D/3D card, meaning there's no messing about with video pass-through and no extra PCI slot is required.

The card features a TV-out socket for gameplay via a television. There are drivers for Direct3D and OpenGL applications, and the Windows 95/98 properties panel lets you adjust a comprehensive set of options for both APIs individually. There's no doubt that the Riva TNT is currently the best 2D/3D chipset out there, and the Velocity 4400 uses it to supreme effect.

DAVID FEARON

PCW DETAILS

RECOMMENDED
PERSONAL COMPUTER WORLD

★★★★★

Price *£129 (£109 ex VAT)*
Contact *STB 01753 212600*
www.stb.com
Good Points *Superb performance. Comprehensive driver options. TV output.*
Bad Points *A little pricey.*
Conclusion *A good implementation of an excellent chipset.*

Hercules Terminator Beast

**If you're after a graphics card but you're on a budget, this could be one to consider.**

The Virge chipset from S3 was one of the earliest graphics card chipsets to sport hardware 3D acceleration. However, it was heavily criticised by gamers for its poor performance. The Savage 3D chipset in the Terminator Beast graphics card is S3's gallant attempt to remove the stigma of the Virge, and to this aim it does well. The Beast has 8Mb of non-expandable SDRAM running at 100MHz. The chipset supports video memory running at up to 125MHz, so the Beast isn't extracting the absolute best from the hardware.

These days, all graphics cards have excellent 2D graphics performance: it is the 3D capabilities and speed that differentiate the best from the rest. On the features front, an interesting aspect of the Savage chipset is support for the S3TC texture compression format which is part of Microsoft's DirectX 6. Games using this texture format can allegedly achieve up to four times better performance on the Hercules card, but none have so far appeared.

The Terminator Beast we tested was sent with the reference drivers from S3: Hercules appeared to have made no major effort to create its own drivers. Even so, it returned a respectable 3D score of 4.25 in our Final Reality benchmark test. For the game Incoming, a non-stop 3D action shooter, the card achieved a frame count of 83fps. Although faster than older cards like the ATI Rage Pro, the Terminator Beast trails behind its contemporaries sporting the likes of nVidia's Riva TNT and 3Dfx's Banshee chipsets. But the Beast is certainly no slouch, and TNT cards in particular are considerably more expensive. The card's 2D and 3D image quality is excellent, and it has motion compensation for DVD playback.

AJITH RAM
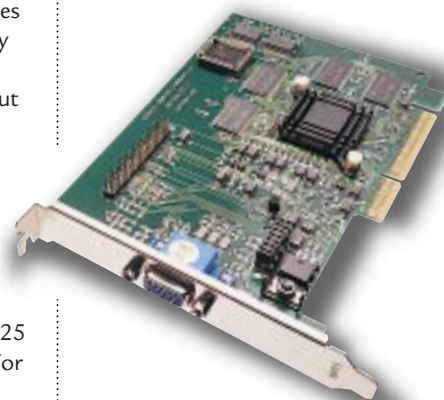
PCW DETAILS

★★★

Price *£72 (£59 ex VAT)*
Contact *Acal Electronics 01344 723322*
www.hercules.com
Good Points *Good 2D performance. Nice image quality. Low price.*
Bad Points *3D performance not fantastic by current standards. RAM not upgradeable.*
Conclusion *A good graphics card for those on a budget.*

Caligari trueSpace 4
True to life

This class-leading modelling program has been enhanced for even better preformance.

Caligari's flagship product has always been at the top end of affordable 3D design and rendering packages. It's accessible to the serious enthusiast but with enough features for the professional to take an interest. Now at version 4, the package displays some impressive enhancements over version 3. Since version 3, however, serious competition has appeared in the form of NewTek's Inspire 3D, the "lite" version of LightWave.

The package now bears the slogan "born to accelerate"; in other words, there is support for OpenGL and Direct3D acceleration, allowing you to work in solid mode in real-time. There are several different modes, including the ability to display solid models as semi-transparent with the wireframe superimposed, a good compromise that really helps prevent disorientation when modelling. Obviously, to take advantage of these features you'll need a 3D graphics card with decent OpenGL support. If you're not blessed with such a device, there's the option of using Intel's 3DR emulation, but this was painfully slow and tended not to update correctly when moving objects around.

There are a significant number of new tools. A fantastically useful feature over version 3, but which was included in the
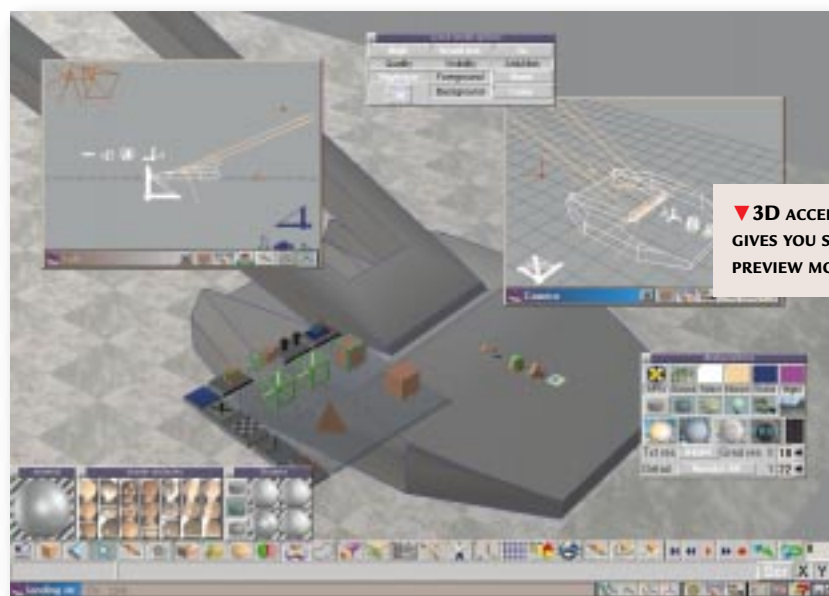

▼ **3D** ACCELERATION GIVES YOU SOLID PREVIEW MODES

point releases, is area rendering, allowing you to rubber-band a small rectangle of the screen rather than having to calculate the entire scene. This is excellent for tweaking lighting effects that only show up in a final, high-quality render.

This brings us neatly to the most important aspect of any 3D rendering package, the renderer itself. TrueSpace now uses the Lightworks Pro engine from Lightworks Design, which adds a number of features, primarily radiosity rendering. This can significantly increase the realism of a scene, particularly enclosed spaces such as rooms, by modelling the diffuse light reflections from all surfaces, not just direct reflections from light sources.

Unsurprisingly, it's very computationally expensive, although a radiosity solution only needs to be calculated once for a given scene if the geometry doesn't change. This solution is then combined with whatever rendering scheme you have selected. Another major augmentation is volumetric rendering, so spotlights in a scene can have a visible foggy beam, great for creating atmospheric effects. Again, however, using volumetric lights greatly increases rendering times. To assist in speeding things up, trueSpace 4 has support for SMP (symmetric multi-processing) under NT. There's no support for network rendering as yet, but then, the target market for this package isn't likely to have a render farm.

The Lightworks Pro engine brings with it more sophisticated materials and texturing facilities. There are now more parameters (called shaders) available for basic material attributes: colour, reflectance, transparency and displacement. The displacement shader goes further than basic bump mapping, allowing you to apply procedural-type displacement effects as well as maps. Anistropic reflectance shaders simulate materials such as brushed metal where the apparent colour depends on the viewing angle. To further increase the
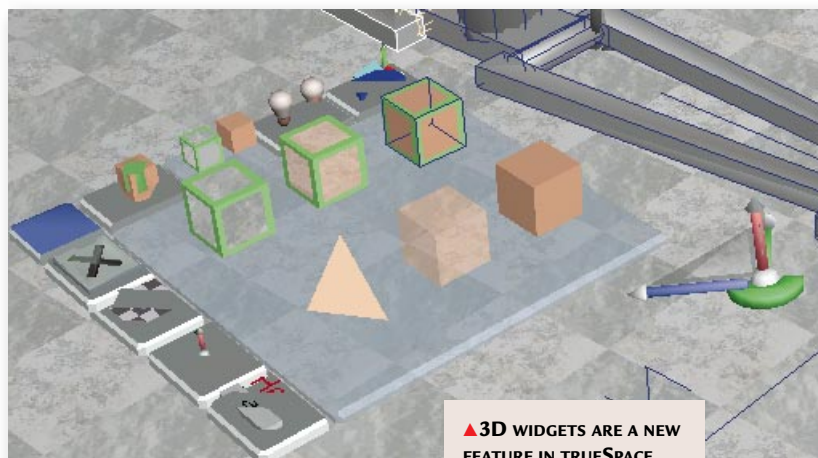
▲**3D** WIDGETS ARE A NEW FEATURE IN TRUE**S**PACE

▼ NURBS
OBJECTS LET YOU
CREATE COMPLEX
MODELS WITH A
SIMPLE FRAME
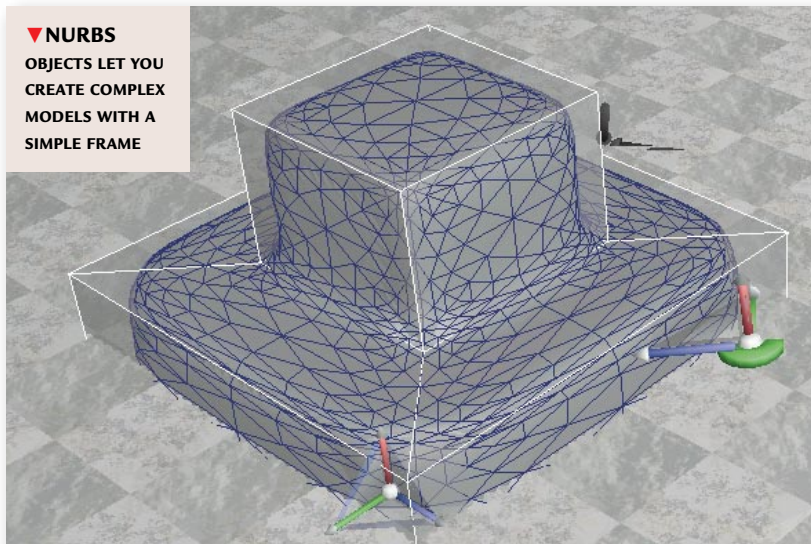
quality of your finished renders, you can now have multiple layered textures with adjustable transparency. This is an important factor for increased realism and helps reduce that perfect, "plastic" feel: adding layers of grime is one of the best ways to make objects look more convincing, and gives them a sense of scale.

The area in which trueSpace has always excelled is the ease and intuitiveness of its modelling interface. If you can visualise a 3D object in your head, it's incredibly easy to build that object with the minimum of fuss — it beats the likes of Infini-D, Inspire and even 3D Studio Max in this respect. There are a couple of new point editing tools that make the process even easier: you can now select points and faces by dragging a bounding box rather than selecting individually. For even greater control, you can draw a selection lasso around the particular points or faces you want to select, or use the freehand selection tool to keep the mouse button held down and "paint" your selection over an object. As well as

these new tools, the basic face, edge and vertex selection algorithms have been tweaked, making them more accurate and reliable and largely avoiding that frustrating syndrome whereby trueSpace refuses to select an edge even though the mouse pointer is directly over it.

To attempt to improve the user interface still further, trueSpace4 features 3D widgets. These take the form of a global properties panel, similar to a standard toolbar but rendered in 3D which sits flat in the workspace, and also

Adding layers of grime is one of the best ways to make objects look more convincing

context-sensitive tools that will float next to the currently selected object. The idea behind all this is that presenting tools within the 3D workspace makes modelling feel more natural and immersive. I have to say that it didn't work for me; the floating widgets always seemed to be in front of something I wanted to see, and I quickly went back to the standard 2D icons.

NURBS objects are now also fully supported, letting you create complex, smooth-surfaced models given a simple frame object. NURBS objects can be edited interactively, letting you tweak the frame and update the underlying NURBS mesh in real-time. You can then convert the object to a standard polygon mesh, discarding the frame, allowing for normal point editing and manipulation.

If modelling is the area where trueSpace excels, animation is its weakest point. Up until version 3 you needed the

patience of a saint to get any kind of results. With the 3.1 release, the key frame editor was overhauled, actually making it usable. With version 4 we finally have spline-based movement and rotation editing, allowing you to fine-tune the velocity and acceleration of animated objects to get movement appropriate to the type of object you're animating.

A related tool is the preview animation option, which runs an animation in the current window in either wireframe or D3D mode, capturing the results to an AVI. This lets you preview the motion as it will appear in the final render. The process of animation is, of course, still a long and frustrating one, and getting the hang of the key-frame system takes an awful lot of practise; in particular, you have to remember that the type of key-frame set depends on the currently selected tool.

The object hierarchy tool is still supplied as a plug-in: it works perfectly well, but integration into the full package would seem a natural step. The particle plug-in supplied with version 3 has gone, to be replaced by a very useful zoom tool, letting you select a scene area to zoom in on with a rubber-banded rectangle. A final gripe is the undo tool, which still seems completely random in what it will and won't undo, and you can never predict how many steps it will let you go back. Frequent incremental saving is the order of the day.

At this price point trueSpace is still the top package around. Although the quality of Inspire's rendering engine is a big factor in its favour, it suffers from the 640x480 animation size limitation. TrueSpace isn't perfect, but all things taken into account, it is extremely powerful and great fun to use.

DAVID FEARON

▲ A NEW PLUG-IN PROVIDES A MUCH-NEEDED RUBBER-BAND ZOOM FACILITY

PCW DETAILS

★★★★
Price £464 (£395 ex VAT)
Contact Caligari 0118 982 9826
www.caligari.co.uk
System Requirements Windows 95, 98 or Windows NT 4.0, Pentium 120 (Pentium II recommended), 32Mb RAM (64Mb recommended), 20Mb free hard-disk space, VGA Graphics (3D video card recommended)
Good Points A wealth of 3D tools, plus comprehensive rendering options.
Bad Points Animation is very tricky. The undo tool still seems erratic.
Conclusion The best of the mid-range 3D packages is now definitely better.

FileMaker Pro 4.1
Expert manager

Web-compatible software that's able to keeps tabs on all your data.

FileMaker is the ideal database manager if you are looking for ease of use rather than a vast array of features. That does not mean FileMaker lacks power. It can manage huge amounts of data, works well on a network with up to 25 simultaneous users (a server version can extend this to 100 users), and comes with an integrated, easy-to-use web server for instant web deployment. Check the box for Web Companion, tick the fields and features you want to publish, and point your browser at the web address. Unlike solutions based on HTML export, this is real dynamic access to data, with the ability to modify and delete data. Java-enabled browsers are required.

The main problem with the original implementation of the web deployment feature was the difficulty in modifying or extending the default web forms. The problem has now been largely overcome by Claris HomePage 3.0, a web page designer that includes the FileMaker Connection Assistant. This then creates pages with dynamic links to a FileMaker database, which you can modify and supplement using either HomePage or a HTML editor. All that remains is to copy the site to FileMaker's web folder. HomePage 3.0 comes bundled with FileMaker Developer Edition.

FileMaker does a great job of shielding the user from unnecessary complexity. A good example is that whereas most database managers require you to specify the maximum width of a field and whether you want it indexed, FileMaker does both automatically. Forms, reports and merge letters use essentially the same layout designer. Learn one, and you can use them all. There isn't much in the way of wizards, but you can get a quick start with database design by using one of around 100 templates.

Does a great job of shielding the user from unnecessary complexity
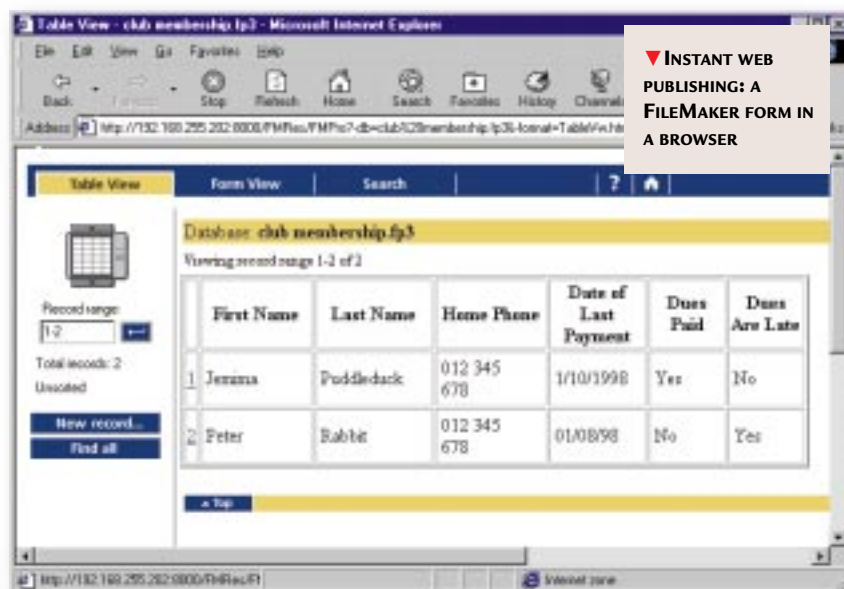
The major new feature in version 4.1 is ODBC import: you can import from an ODBC data source, using a series of dialogues to build a query, and map the fields to a FileMaker database. This is handy, but frankly it is not what FileMaker most needs. It has never been all that difficult to get data from an ODBC source into FileMaker, by first exporting it in a compatible format such as dBase.

The challenge is the other way, reading FileMaker data from another application such as Access or Word. Sadly this is still not possible, nor is it possible to link dynamically to an ODBC source, although you can simulate this with scripts that automate the import.

Ambitious users will want FileMaker 4.0 Developer Edition. This includes a facility to create runtime applications that can be freely distributed. There is also a bundle of goodies, including Java classes for talking to the FileMaker web server, and a large range of extra tools and widgets to enhance layouts.

Should you use FileMaker Pro? Well, if your needs lie within its considerable range of capabilities, then it merits serious consideration. Be cautious, though, if you need rich integration with Windows. FileMaker data cannot be read by other applications, and there is no support for OLE automation or ActiveX controls. But the fact remains that you can have a web solution running in an afternoon that would take days using other solutions.

TIM ANDERSON

▼ INSTANT WEB PUBLISHING: A FILEMAKER FORM IN A BROWSER

PCW DETAILS

★★★★

Price *£198.58 (£169.00 ex VAT)*
Developer Edition £458.25 (£390 ex VAT)
Contact *FileMaker 0845 603 9100*
www.filemaker.com
System Specification *PC: Windows 3.1 or higher, CD-ROM, 486/33 with 16Mb RAM. Mac: CD-ROM, System 7.1 or higher with 16Mb RAM.*
Good Points *Easy to use. Highly capable. Instant web publishing. Integration with Claris HomePage possible.*
Bad Points *Cannot read FileMaker data from other applications. No support for ActiveX. ScriptMaker less powerful than languages like Visual.*
Conclusion *The best end-user database manager available.*

NemeSys GigaSampler
Lifelike sounds

The last word in sampling programs — this one sounds almost like the real thing.

Audio programs like Cubase VST have proved that it's possible to run a virtual studio inside your PC. But there seems to be no stopping the technology there. You can now deck out your studio with software-based effects and equip your PC with dozens of virtual synthesisers — and all achievable without dedicated DSP hardware. So what's coming next? The virtual sampler, of course.

GigaSampler is said to be the world's largest sampler. That's not to say you'll need a warehouse to store it in; it's the biggest because it can handle up to 4Gb of instrument samples in a single session. Until now, professional hardware samplers have been limited to 128Mb of RAM. Although this is more than adequate for most users, it takes something on a much larger scale to accurately reproduce, say, a piano or an acoustic guitar. GigaSampler works by streaming samples off disk in real-time. Using a sophisticated cacheing system, it can deliver up to 64 voices of polyphony with no noticeable audio delays. It also provides 16 MIDI channels for multi-timbral use, supports DirectSound-compatible sound cards, and has more features to offer than the best professional hardware samplers.

The package comes on three CDs and requires 2Gb of hard disk for a full install. This includes around 40 sets of instruments, the best of which is a massive 1Gb Yamaha concert grand piano; most PC sound cards squeeze over 200 instrument samples into just 2Mb of ROM. So what does a 1Gb piano sound like? Let's just say that if you were to listen to a piece of music that was recorded with the real thing, and compared it to GigaSampler, you'd be hard pushed to tell the two apart.

The piano comprises 704 sampled notes, each recorded with full natural

▲**GigaSampler can turn your PC into the ultimate sampling workstation**

decay. This breaks down to eight velocity-triggered samples per key: four with the sustain pedal applied, and four without. The meticulous detail doesn't end there, though. A second set of samples are triggered when you play in a staccato style. This enables each note to "ring"

The range of parameters on offer outstrips what's available on any hardware sampler

with resonance after a key has been released — just like a real concert grand.

The piano is just one example of what can be achieved. In addition to the sampler interface panel, the package includes an audio editor, an instrument editor and a utility for converting Akai CD-ROMs into its native format. There are currently over 300 Akai discs available, containing banks of sounds as diverse as the human voice through to sampled drum loops and orchestral instruments. Additionally, EastWest Sounds one of the major sampling CD producers, is developing optimised sound sets for the GigaSampler.

The interface panel looks and feels like a real rack-mounted sampler and provides access to the more commonly used features. To load an instrument, you simply have to drag a file from the instrument loader onto one of the 16 channels. The 1Gb piano takes just 30

seconds to fire up, much faster than traditional samplers. Playable instruments are created with the instrument editor. Many time-consuming tasks, like assigning samples to key regions, can be automated in seconds using the Wizard tool. The Wizard recognises the pitch of each sample and, depending on the parameters you set, can configure velocity splits, cross-fades and other complex settings. The range of parameters on offer far outstrips what's available on any hardware sampler, and provides some new and very powerful techniques for accurately emulating acoustic instruments.

In use, GigaSampler performed better than I ever expected. The note-on response is very tight and the range of real-time controllers provides unparalleled scope for musical expression. At £425 it may not be cheap, and you will need a fast PC to run it. But if you're looking for the ultimate sampling workstation, nothing comes close to this.

STEVEN HELSTRIP

PCW DETAILS

★★★★

Price £499 (£425 ex VAT)
Contact Turnkey 0171 379 5148
www.nemesysmusic.com
System Specification *Windows 95/98, Pentium II 233MHz, 128Mb RAM, 6Gb disk with 10ms access time, DirectSound compatible sound card.*
Good Points *Tight note-on response. Breathtaking piano. Reads Akai CD-ROMs.*
Bad Points *Requires a meaty system to deliver its full potential.*
Conclusion *This is the cheapest way to get your hands on a concert grand.*

Quarterdeck CleanSweep
Deluxe Version 4

An updated version of the professional hard-disk cleaner.

Thanks to an overwhelming disregard by most applications for the value of hard-disk space, there are plenty of uninstaller and clean-up utilities on the market, although none have yet managed to topple Quarterdeck's CleanSweep from the top of the pile. The introduction of CleanSweep Deluxe at the beginning of this year brought with it a host of useful tools to reclaim storage space and the latest version adds a few more to your arsenal, plus support for Windows 98.

Unfortunately, existing users will be disappointed with CleanSweep Deluxe 4 as the new features consist of nothing more than a triplet of utilities that are not integrated with CleanSweep. Fast and Safe Cleanup aims to reduce the time spent on hard-disk housekeeping by looking in five of the most likely locations for accumulated rubbish and automatically deleting it. Internet browser caches get targetted as they can have an unhealthy appetite for disk space. In fact, Netscape Navigator defaults to storing 7.5Mb of web pages before it starts deleting the oldest ones. Browsers keep a record of the links to web pages that have been viewed, so the history records will be removed as well. Cleanup also looks in the Windows Recycle Bin and the Windows/Temp directory, and will search for any lost cluster files. For the last two areas, Cleanup will only delete files that haven't been changed or viewed for the past seven days. You can run Fast and Safe Cleanup at any time or automate the process using a built-in scheduler. This can be set to run Cleanup every time Windows starts up or at set times every few days.

The second utility, Quarterdeck Safe, will protect files that are accidentally deleted and placed in the Recycle Bin. You may, for example, want to make sure that no Word documents or Excel spreadsheets are ever deleted from your system. Select the .DOC and .XLS file extensions from the comprehensive list provided by Safe and it will ensure that those file types are always removed from the Recycle Bin and placed under its protection. You can view the contents of the Safe at any time and restore files back to their original locations. The Safe works hand-in-hand with Fast and Safe Cleanup, so the latter will pass any protected file types over to the Safe instead of deleting them from the Recycle Bin. The Safe also prevents selected files from being removed if the Recycle Bin is emptied, but it won't stop you manually deleting them.

Quarterdeck completes the package with its Zip-It utility for creating or extracting archives. This provides pretty much the same tools as the ever-popular WinZip. The main interface looks more basic, but you can select groups of files to be compressed into an archive, use password protection and also create self-extracting executables for distribution. Zip-It replaces the TuneUp AV anti-virus utility that came with the previous version of CleanSweep, and not a moment too soon, as it was too rudimentary to be of any serious use in protecting your data.

The main CleanSweep program sees no changes at all. It runs on Windows 95/98 and Windows NT 4 and provides an array of wizards for safely removing unwanted applications, cleaning up hard disks and modifying the registry. The internet utilities are particularly useful as CleanSweep keeps an eye on browser caches — which, incidentally, is a function duplicated by the new Cleanup tool. It also monitors downloads, removes

...contains a host of useful tools to reclaim vital storage space
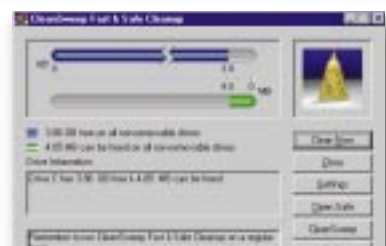
ActiveX controls and keeps track of cookies — those little data files that web sites place on your hard disk to record your visit.

Overall, we can't see much to tempt existing users of the previous version to upgrade, but those yet to invest in an uninstaller and clean-up utility should put CleanSweep Deluxe 4 at the top of their shopping list.

DAVE MITCHELL

PCW DETAILS

★★★

Price £46.95 (£39.95 ex VAT); upgrade £23.50 (£19.99 ex VAT)
Contact Quarterdeck 0645 123521
www.quarterdeck.co.uk
Good Points Easy to use with a superb range of tools to keep hard disks free of unwanted data.
Bad Points Not enough new features to justify the upgrade price.
Conclusion Still the best uninstaller and clean-up utility on the market.

MapInfo Professional 5.0
Lost and found

If you're trying to find a comprehensive mapping solution, look no further.

If you use Excel, you'll be familiar with MapInfo as it provides the root software for the mapping facility. It's easy to use but limited in scope. MapInfo Professional 5.0 is a top-of-the-line multi-featured package with a claimed 300,000 users worldwide. The guiding principle is that much data has a geographic content which is best digested when displayed on a map. One of MapInfo's subsidiaries, The Data Consultancy, offers datasets on everything from the postcode boundaries of Switzerland to all the parishes of Britain. If you like, you can buy instantly mappable lists of 13,000 UK estate agents and the 10,000 UK pubs for them to go to.

The majority of MapInfo users create their own data. The police, for instance, can map accident spots and health authorities can illustrate geographic concentrations of diseases. The latest version of MapInfo helps this in a number of ways. MapInfo's "continuous thematic shading" means that the display of data is not limited to boundaries such as counties, postcodes or voting districts. Instantly updateable weather maps, for instance, can show sweeps of rain or pockets of sunshine, across the country. New, too, is live access to remote databases. A linked table can be downloaded from a relational database management system like Oracle, Sybase or Access. Users can use these linked tables to rerun queries on a regular basis. After editing in MapInfo, the data in a linked table is saved to the relational database management system in a manner that resolves any multi–editing conflicts. Using MapInfo's spatial indexing you can retrieve points in any database, and Oracle SDO's spatial index is supported,

too. Theoretically, this means that as soon as a utility company digs a hole in the road, you could show its location on a street map. This latest version incorporates Seagate's widely used Crystal Reports to simplify the creation of output which goes the other way, converting data shown on the map into well-designed tables. There are also far more cartographic legends indicating buildings, railway tracks, rivers and census tracks. The file translators have been updated, too, so AutoCAD and MSLinks attributes can be imported and exported.

A typical map is built up in layers. There might be a raster image layer (digitised pictures) and an automatically co-ordinated vector map of the same location. Details can be imported from a table or drawn on the map. MapInfo sells countless street maps and you can edit them, perhaps to create a fictional location as an illustration. The stacked layers are transparent. One layer may show streets, another towns, another might display shopping centres, and yet another might carry your own legends — but you view them all together. You can also quickly re-plan maps to change sales territories, voter districts and so on. There is even a MapInfo programming language, MapBasic, so you can write your own mapping applications. It's easy to perform geographic analyses such as bar charts of the mileage between towns. The 600-page User Guide is top drawer: bang up to date with the latest version, comprehensively illustrated and well-indexed. In addition, the CD-ROM includes an excellent tutorial which first

◄ THE PACKAGE INCLUDES MAPS FOR THE LONDON AREA IN ITS TUTORIAL

details how to perform many operations, then offers to run a macro which demonstrates some of them. Despite this help, remember that MapInfo Pro is a complex package and takes some considerable time to master.

MapInfo also works with Blue Marble Graphics' Geographic Tracker. Ambulances and delivery vans with geographic positioning system (GPS) transmitters can be tracked in real time. GPS Tracking shows a live representation of a vehicle, projected directly on top of a map, while GPS Geocoding will collect field data in real time and log positioning co-ordinates in a variety of file formats, so you can automatically update geographic positions within a spreadsheet or database application.

STEPHEN WELLS

It's easy to perform geographic analyses such as bar charts

PCW DETAILS

★★★★

Price £1,287 (£1,095 ex VAT). Upgrade from all previous versions £412 (£351 ex VAT)
Contact MapInfo 0175 384 8200
www.mapinfo.com
System Specification Windows 95, 98 and NT 4.0, 486 PC with 8Mb RAM, 58.5Mb hard-disk space, plus 31Mb allowance for data.
**Good Points** All you need to make maps. Terrific manual and tutorial.
Bad Points Expect to spend a lot of time learning how to use it.
Conclusion What an organisation needs to put itself on the map.

Globalink
Power Translator Pro

A few new features for this established mechanical translation package.

We last reviewed Power Translator Pro in our November '96 issue. It's now at version 6.4 but the core remains the same. The translation engine is based around Globalink's Barcelona translation engine, so its translation abilities remain much as they were before: adequate, but not astounding. No machine translation system can equal that of a human translator, which is to make the translated passage read as if it were originally written in the target language. But Translator Pro does not pretend to be able to do this. Its aim is to produce a rough translation from which you can get the gist of the translated passage or have a better translation made by a
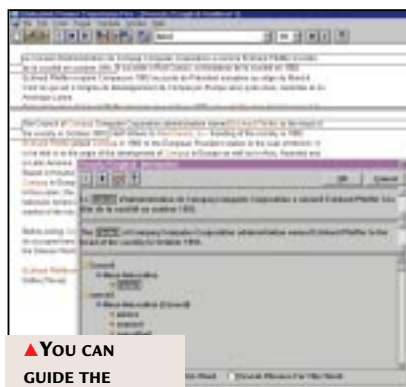
▲**You can guide the machine translation to make the right choices**

professional: starting from a rough machine translation saves the translator time. You can improve the software's performance by translating interactively, guiding the machine to make the right decisions.

This latest version contains a few extra features. With the addition of Portuguese it can now translate five languages, and there is now more support for web translation. Translator Pro can translate web sites on and offline, and has a chat translation facility. To supplement the main dictionary, there are over 30 specialist versions bundled.

ADELE DYER

PCW DETAILS

★★★

Price £199.99 (£170 ex VAT)
Contact Globalink www.globalink.com
Good Points Good for basic translations.
Bad Points Translation is not polished.
**Conclusion** With online translation now available, this is a bit of a niche-market product.

Leisure Pack for Psion
Mobile fun

Have fun on the move. Here's a compelling compendium of on-screen games for the Psion.

There are always moments when nothing hits the spot like a brief burst of Solitaire or Patience… anything except working for a living. To guard against games starvation, consider Widget Software's Leisure Pack for the Psion Series 5, 3a, 3c and Siena, available on disc or flash card. There are seven games in four categories, so there's something to suit every mood. There are two card games, Poker and Solo; two Strategy games, Tetrion and Reversi (aka Othello); an adventure called Castle; and two pub games, Bandit and Chomper. The last doesn't run on the Siena, but the others will. The poker game is straightforward, and Solo is a familiar version of Patience, including a cheat option if all else fails.

Tetrion involves blocks descending from the heavens that must be slotted into a solid wall when landing — yes, the name reminded us of something, too. Reversi is the old Windows favourite: a draughts-like game, with four skill levels. Bandit is a fruit machine with grapes, cherries, bells, and so on, while Chomper is an arcade game in the PacMan tradition, with the added attraction that eating a magic star makes you temporarily invincible — ah, if only…

Castle was our favourite. It's a good old-fashioned text-based adventure game in which you run, walk, jump, climb, examine, unlock, push and drop your way to escaping from the castle. It's like the good-old days of Colossal Cave
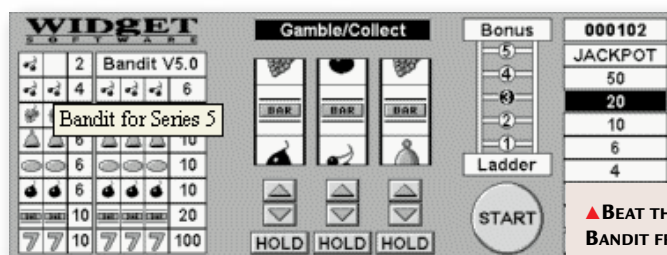
▲**Beat the Bandit fruit machine — it's all 'armless fun**

and it exercises your imagination. You probably didn't buy your Psion to play games on, but at the end of the day, this is £30 well spent.

MARK WHITEHORN

PCW DETAILS

★★★

Widget Leisure Pack
Price Disc £29.95 (£25.49 ex VAT)
Contact 01438 815444
www.widget.co.uk
Good Points Fun, fun, fun!
Bad Points It's not quite Quake II.
Conclusion A great time-waster.