

NEW PRODUCTS >> reviews

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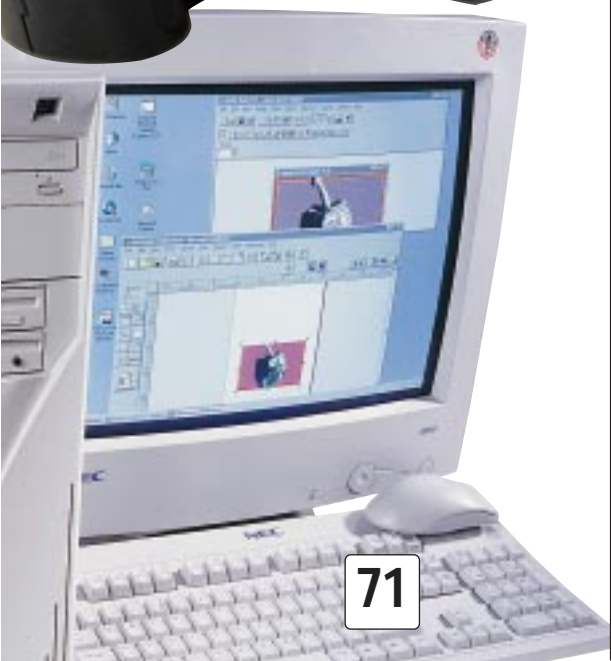
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Nik Rawlinson
DEPUTY EDITOR

No longer a flight of fancy

I remember it once being said that a PC could only be considered 'IBM compatible' if it was able to run Microsoft Flight Simulator. Whether that is true or not I can't say, but it is an interesting place to start thinking about the way that the market has turned almost full circle in the past five to 10 years.

When I was growing up, I had several computers, starting with an Amstrad CPC464 (I was a late developer) with integrated tape drive, and moving on to a PCW, Amstrad's green-screened word-processing computer with 3in disks, still popular with many writers today I'm told. I eventually graduated to a 286. As soon as I got it home and fired up DOS 4.01 on the 12in mono screen, I realised that what I had was approaching the height of technology. But there was a dent in my new happiness – it was the thought of having to discard my precious software collection because it would not run on this new format. At least when I got as far as the 286 I could console myself with the thought that the next time I upgraded I would be able to take my software with me.

Today, users are less likely to buy a new machine than to upgrade a single component – a new motherboard, faster processor or extra memory, safe in the knowledge that it will make existing software faster, not obsolete. A good thing? Yes, but whereas you once threw out your software to upgrade your machine, you now often throw out your machine, or parts of it, to upgrade your software. The launch of Windows 95 did more than any other software release to boost the sales of hard drives and memory as users frantically upgraded their hardware to cope with this new resource-hungry operating system.

Now with the release of Windows 2000 nothing has changed. Not only might you have to upgrade your hard

drive to accommodate the 2GB of elbow room the OS might demand, but there is a chance that your existing graphics cards and so on might no longer work.

Worse still, the release of updated drivers could be delayed still further as Microsoft insists that they are shipped to its test bed for certification before being stamped with a Windows 2000-approved signature. Of course, you can still install non-approved drivers, but it's your problem if anything goes wrong. In itself, this is a 'Good Thing'. We can finally be sure that drivers will always be compatible with the OS, but at the same time, Microsoft has built a software application that will dictate the hills and valleys of the future hardware landscape.

Microsoft could use this as the ideal opportunity to give away at least the 'Professional' edition of

You now throw out your machine, or part of it, to upgrade your software

Windows 2000, intended as the next step for users of NT4 Workstation, and make its money solely from charging peripheral manufacturers a fee for driver validation. The peripheral vendors would probably pass this ratification cost on to the end users – a form of direct taxation, if you like – but we would all benefit from a free operating system.

Microsoft would be a winner, too, extending its market share even further and in turn encouraging users to adopt other Microsoft products. It is a model that could work. I asked Corel's Kylee McKay why her company was spending money developing a first-class Linux distribution that it would then give away for free.

Her answer was simple: you want to drive on the motorway for free but you are more than happy to pay for a car. In other words, give users the means to run your programs for free and they will be more likely to buy them.

I emailed my idea to billg@microsoft.com – I'll let you know if I get a reply.

NIK_RAWLINSON@VNU.CO.UK



**VNU
European
Labs**

VNU Labs tests all kinds of hardware and software, from PCs and modems to databases. All our tests simulate real-world use and for the most part are based on industry-standard applications such as Word, Excel, PageMaker and Paradox. Our current PC tests for both Windows 98 and NT are the SYSmark tests from BAPCo. In all our performance graphs, larger bars mean better scores.

Ratings

★★★★★ EXCELLENT
★★★★☆ VERY GOOD
★★★☆☆ AVERAGE
★★★☆☆ BELOW AVERAGE
★☆☆☆☆ POOR

Sony Vaio C1XN

Small but perfectly formed, this laptop contains everything a truly mobile user could ever need.

The introduction of the Vaio C1 last year heralded a huge step forward in both design and functionality. Amid a never-ending stream of Windows CE machines, Sony produced a near pocket-sized model that ran full Windows 98 and had one unique feature, but more about that later.

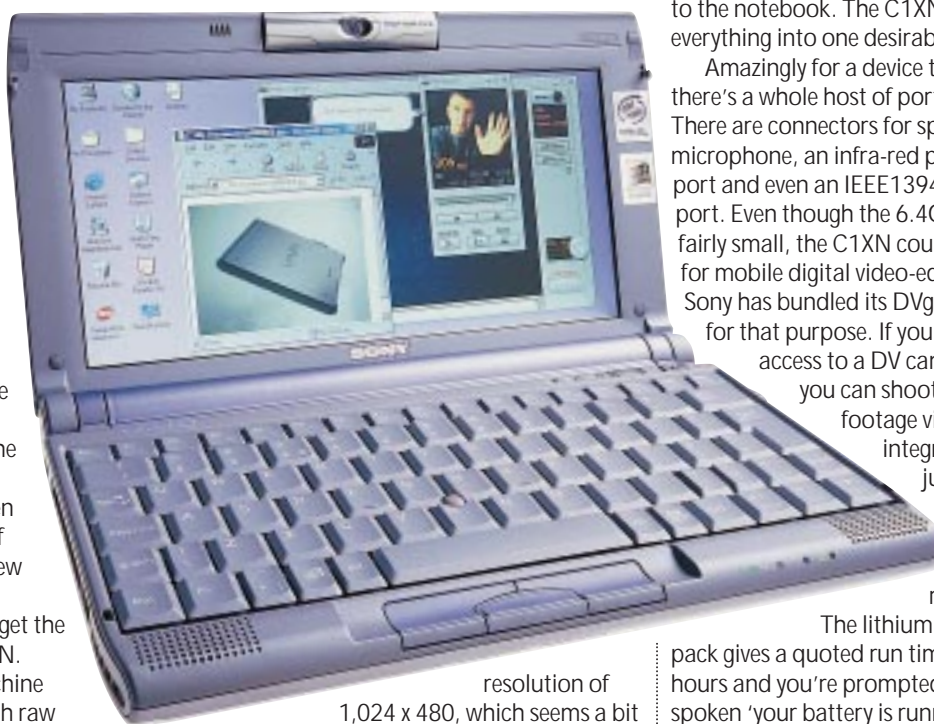
The C1XN represents the second-generation C1 product and sports some specification enhancements over its predecessor. The most obvious change is a switch to a Celeron CPU from the previous Pentium MMX processor. Even with a clock speed of only 266MHz, the new chip is more than powerful enough to get the most out of the C1XN.

Users of this machine aren't concerned with raw power, it is the portability and feature set of the machines that are paramount. Complementing the CPU is 64MB of memory and a 6.4GB hard disk. Again these are not cutting edge as far as notebook technology goes, but well up to the kind of task for which a machine of this type will be used.

The major concern with a device of this size is the ergonomics. Thankfully Sony has come up trumps with the C1 range and despite its diminutive dimensions, the keyboard is excellent. It does take a bit of getting used to, but once you're accustomed to the reduced key sizes a fast rate of typing can be achieved easily. The nib is also very responsive, making pointer manipulation simple and accurate. An added input feature is the jog dial on the right-hand side of the unit. This allows you to scroll through

options and select by pressing the dial inwards.

Due to the overall shape of the machine, the screen adopts a ratio not too dissimilar to that of a widescreen TV. The 8.9in TFT display supports a



resolution of 1,024 x 480, which seems a bit odd at first, but you soon get used to it. The important thing is that you can easily display the entire width of documents, but you obviously don't get as much vertical space as a standard ratio screen. The quality of the display is superb with the lighting dispersed evenly across the surface and crystal-clear focus.

Even though the C1XN makes a great pocket notebook computer, one of its

major selling points has nothing to do with PC technology. Integrated into the lid of the

unit is a rotating digital camera. It doesn't offer the best-quality results available with a maximum resolution of 640 x 480, but it takes the functionality of the C1XN into a new dimension. A unit like this would be a godsend to people like estate agents, insurance assessors or even surveyors. Anyone who

has to write reports when away from the office and needs photographic reference will love one of these beauties. Even using a traditional digital camera for such jobs results in carrying two units and then having to transfer the pictures to the notebook. The C1XN bundles everything into one desirable package.

Amazingly for a device this small, there's a whole host of ports available. There are connectors for speakers and a microphone, an infra-red port, a USB port and even an IEEE1394 (FireWire) port. Even though the 6.4GB hard disk is fairly small, the C1XN could still be used for mobile digital video-editing and Sony has bundled its DVgate software for that purpose. If you don't have access to a DV camcorder, then

you can shoot digital footage via the integrated camera, just don't expect Oscar-winning results.

The lithium ion battery pack gives a quoted run time of two hours and you're prompted with a spoken 'your battery is running low' message as it nears rundown.

Weighing in at only 1kg, the C1XN is a highly desirable portable PC with some excellent features. If you need a pocket-sized Windows 98 computer, the C1XN could be just what you're looking for.

RIYAD EMERAN

A unit like this would be a godsend to people like insurance assessors

PCW DETAILS



★★★★★

Price £1,702.57
(£1,449 ex VAT)

Contact Sony 0990 424 424

www.sony.co.uk

Good points Small and perfectly formed, digital camera

Bad points May be too small for some

Conclusion A fantastic machine for the true mobile user

PERFORMANCE RESULTS



HP OmniBook 900

An excellent choice if you need a huge amount of power.

The OmniBook range has been around for ages now, and has grown into several product families. The 900 series takes up the mantle in the ultra-portable stakes, with the range split into three specifications. The unit we had on review is the most feature-packed version.

Although the original OmniBook range included some exceedingly tiny models, the 900 teeters on the edge of qualification for the sub-notebook title. At 305mm wide by 237mm deep, and just 34mm high with the lid closed, it's very small but slightly bulkier than the majority of ultra-portable contenders such as the Sharp PC-A280 (see *PCW* December 1999, p81) or Sony's magnificent Vaio 505X (see *PCW* January 2000, p75). Weighing in at a shade under 2Kg, it's also slightly heavier, but not by much.

With its diminutive form, the 900 has no integrated drives: both CD-ROM (oddly not included as standard) and floppy drive slot into an external drive housing. This connects to and is powered by a single, fairly inflexible cable that attaches to the side of the main unit. It's hot-pluggable, but swapping the floppy for the CD-ROM drive or vice versa in one session confused the unit and caused it to lock up.

It may not be the smallest ultra-portable around at the moment, but the OmniBook can legitimately lay claim to being the most powerful. At the heart of the system lies a mobile Pentium III processor purring along at 500MHz. This is actually more powerful than most desktop 500MHz units, since the mobile variant's 256KB of full-speed on-die Level 2 cache is only available on the desktop with newer Coppermine CPUs.

Backing up the PIII is 64MB of RAM, expandable to 192MB, and a large 12GB IBM Travelstar hard disk. Graphics are handled by ATI's new Mobility AGP 2x chipset, with 4MB of RAM and proper OpenGL support. The graphics chipset drives a 13.3in TFT screen, with a native resolution of 1,024 x 768. As is usual these days, the screen is bright and pin-sharp, with a good viewing angle.

One area that often distinguishes a decent notebook from cheaper impostors is the keyboard, and HP has

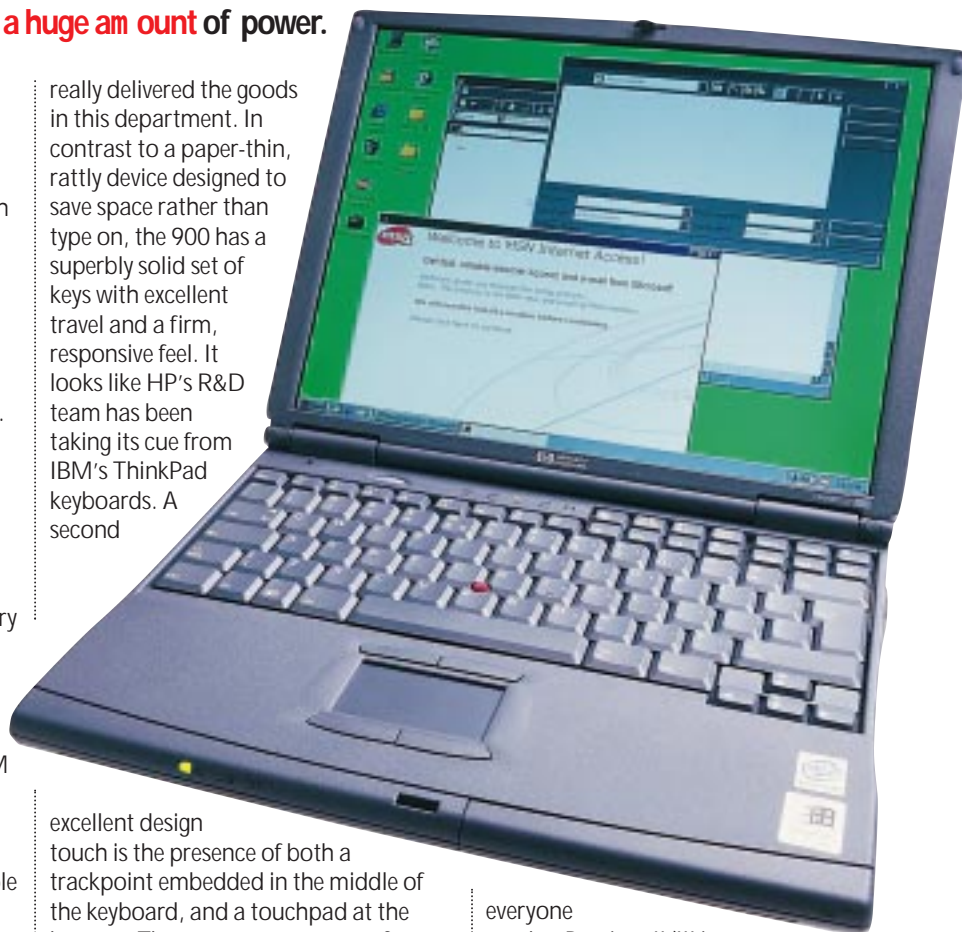
really delivered the goods in this department. In contrast to a paper-thin, rattly device designed to save space rather than type on, the 900 has a superbly solid set of keys with excellent travel and a firm, responsive feel. It looks like HP's R&D team has been taking its cue from IBM's ThinkPad keyboards. A second

excellent design touch is the presence of both a trackpoint embedded in the middle of the keyboard, and a touchpad at the bottom. There are even two sets of buttons to complement them.

The rest of the unit's specifications are fairly standard, with one parallel, one serial and one USB port, plus VGA out and a docking connector at the back. On the right-hand edge there are two PC Card slots, and the left-hand side accommodates the audio connectors and a PS/2 port.

Considering the processor speed, the OmniBook does quite well in the battery life stakes, with the lithium ion power pack providing an hour and 25 minutes with all power management disabled. You can expect roughly twice that figure in normal use.

HP's designers have obviously done their homework, and the culmination is a notebook that successfully treads the line between portability and having a case big enough to accommodate a decent keyboard and screen. The only problem with the machine is its specifications: Sony's Vaio 505X provides all the power and panache most ultra-portable users will need, at a far lower price than the OmniBook. In falling for Intel's line that



everyone needs a Pentium II/III in their machines, HP has risked pricing itself out of the market.

If you really need a 500MHz PIII and 12GB of storage when you're on the road, then the OmniBook gets a big thumbs-up. If you just need an email, spreadsheet and word-processing machine, get yourself a Sony instead.

DAVID FEARON

PCW DETAILS



Price £2,979 (£2,535 ex VAT)

Contact Hewlett-Packard 0990 474 747
www.hp.com/uk

Good points Loads of power stuffed into a very small case, great keyboard, has both trackpoint and touchpad

Bad points Sony is miles ahead in terms of executive chic, few people need this much power in a sub-notebook, CD-ROM drive an optional extra

Conclusion A well-designed product that comes with a cautious recommendation, but all that power commands a considerable premium

Lexon 702 Ultra

Packs a powerful punch and has plenty of space for expansion.

Buying direct from the manufacturer usually ensures that you get cutting-edge technology inside your PC and the 702 Ultra from Lexon does nothing to dispel this belief. This is one of the first PCs we've seen that uses Intel's new Flip Chip Pentium III processor, based on the 0.18micron manufacturing process, codenamed Coppermine.

The Ultra uses a 600MHz version of the Flip Chip. This looks a lot like Intel's budget Celeron processors, forsaking the Slot 1 design usually associated with the PIII. The benefits of this new type of chip are four-fold: they require less power to make them run; they run cooler than older processors; they can be pushed up to even faster speeds and, because of the way they are made, they are physically smaller. If you take a close look at the name of the processor inside the Ultra you will see that it is a 600MHz E PIII – the 'E' refers to the 0.18micron manufacturing process. One point to note is that while the Flip Chip may look just like a Celeron processor, because of the way the pins on the chip have been arranged, you won't be able to swap one for the other.

If you look inside this PC you will note that the motherboard is fitted with two processor connectors – the Celeron-style socket is filled by the Flip Chip, but there is also a Slot 1 free for you to add a regular slot-based PIII. The reason for this is that Intel is continuing to manufacture Slot 1 PIIIs at ever faster speeds, so Lexon is leaving your options open should you want to upgrade back to this type of chip at any time.

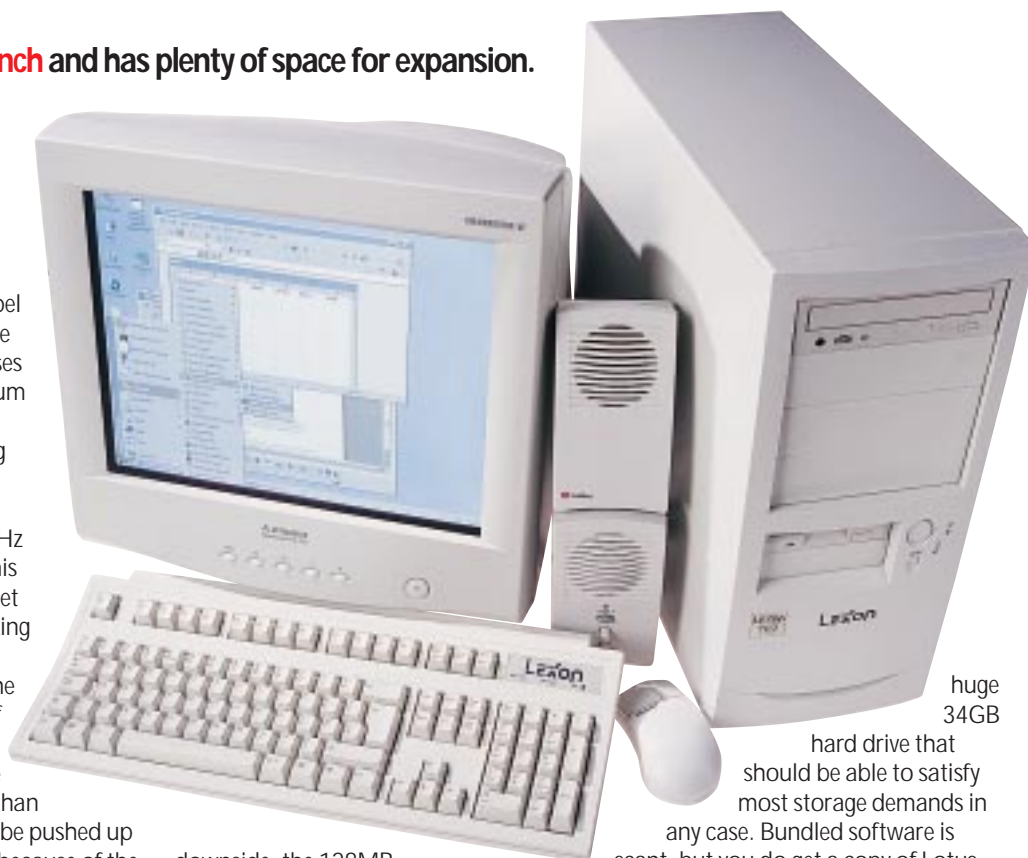
It is obvious that Lexon is looking to the future as the RAM installed can support the EB-suffixed chips, which can handle front-side bus speeds of up to 133MHz. Performance was as expected from a PC fitted with one of the fastest chips around – it managed a SYSmark score of 245 – slower than the 733MHz NEC but still a good performer. On the

downside, the 128MB of RAM has been provided on two separate 64MB DIMMs, filling two of the three slots. As this computer is quite obviously aimed at those users for whom future-proofing is paramount, it would have made more sense to fit all the RAM onto a single 128MB DIMM, leaving two slots free to upgrade.

The motherboard itself uses a pre-release version of the VIA 694 chipset. It is quite a small form factor board, but this is not reflected in the size of the case, as you still have to make do with a big beige box. However, with five free PCI slots, plus three 5.25in and one 3.5in bays available, you might be grateful for the extra internal space when it comes to adding new devices.

The AGP slot is filled by a 32MB Diamond V770 Ultra card that pulled in a 3DMark score of 5,483. This impressive graphics performance is complemented by a top-quality 17in Mitsubishi Diamondtron monitor that produces crystal-clear, pin-sharp images.

The Ultra comes with a six-speed DVD-ROM drive, but the only external storage is provided by a floppy drive. A CD-RW or Zip drive would have been a welcome extra, but at this price perhaps that would be greedy. There is also a



huge 34GB hard drive that should be able to satisfy most storage demands in any case. Bundled software is scant, but you do get a copy of Lotus SmartSuite Millennium alongside the Windows 98 SE operating system.

If you are looking for a computer with plenty of potential, the 702 Ultra could be the right choice for you. While it comes ready filled with the latest technology, there is plenty of scope for upgrades to keep up with future advances.

URSULA TOLAINI

PCW DETAILS

★★★★★

Price £1,174 (£999 ex VAT)

Contact Lexon 01442 241 700

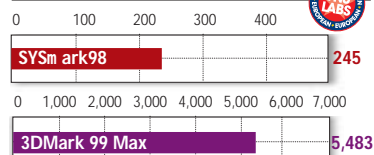
www.lexonpc.com

Good points Innovative technology, lots of scope to upgrade

Bad points No backup storage device, large case despite small motherboard

Conclusion A powerful machine with room to expand

PERFORMANCE RESULTS



NEC Direction SM-733P

This machine contains **all the latest technology** at a price that could be just right for you.

Built around an 820 chipset, this speedy SM-733P machine from NEC Direct features what is currently Intel's flagship processor – the 0.18micron 733MHz Pentium III. The chipset supports a 133MHz front side bus and AGP 4X, of which NEC makes good use through the inclusion of the Guillemot 3D Prophet with 32MB on-board (see review, p80). Unfortunately it does not support PC133 RAM or RDRAM, so you'll have to upgrade the motherboard if you want to switch to this higher-speed memory in the future.

Apart from the rather ugly iMac-esque button, the most obvious feature on the face of this machine is the USB port, which is very welcome. It means you won't have to go scrambling around the back of your machine every time you want to plug in your digital camera. For more permanent installations, such as a USB mouse or a scanner, there is a second port to the rear of the machine.

Other front-facing features are a Pioneer DVD-ROM, floppy and Zip 250 drives, with a Zip 250 disk bundled to get you going. The 27GB Maxtor UDMA66 hard drive can be supplemented by further storage devices using the two free internal 3.5in bays.

Memory comes in the form of a single 256MB DIMM, leaving a second memory slot free for future use. This is not RDRAM, which is probably just as well because at current prices that might have made this machine unaffordable to many users.

Build quality is generally good, although the internal cables were a little untidy. Upgrades will be easy as the PCI cards are held in by a quick-release plastic plate. Unclip this from the system case and the cards can be lifted straight

out of the motherboard, saving you the effort of unscrewing each one.

Adhering to PC99 standards, the Intel CC820 motherboard has no ISA slots, sticking solely with PCI, of which three remain free, although one could be

grey characters, there was slight blooming. Geometric and corner linearity was spot on, with all parallel lines running straight. Focus, too, could not be faulted, even at the traditionally difficult edges of the screen.

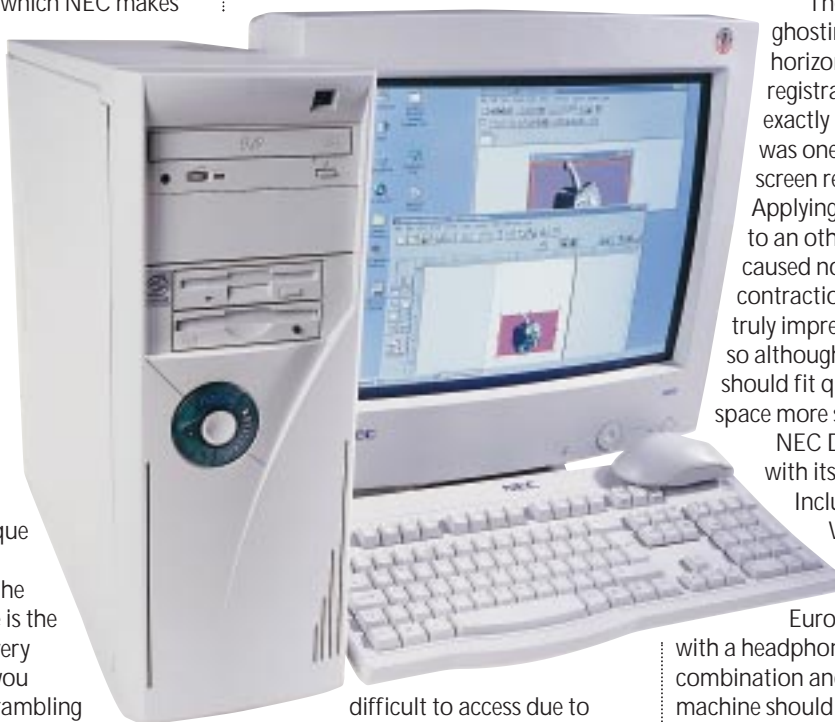
There was no streaking, ghosting or moiré, perfect horizontal and vertical colour registration with all guns firing exactly as they should, and this was one of the best examples of screen regulation we have seen. Applying a flashing white block to an otherwise black screen caused no expansion or contraction of the image, which is truly impressive. The tube is short, so although this is a 19in model it should fit quite comfortably into a space more suited to a 17in monitor.

NEC Direct has been generous with its software bundle, too.

Included are Microsoft Word 2000, Works, Money 99, Encarta 99. And Route 99

Europe and VIA Voice, along with a headphone/ microphone combination and Corel Draw 7, so this machine should have something to appeal to everyone.

NIK RAWLINSON



difficult to access due to the boxing on the modem in the slot above. You're unlikely to miss having ISA access any more unless you are heavily into home networking – an area that still boasts a healthy assortment of ISA peripherals.

NEC Direct has decided not to make use of the motherboard's modem riser capabilities, which is probably a good move, given the performance hit this will have on the processor and the relatively small number of AMR-compliant modems that are currently available.

The keyboard is not particularly responsive and we found the mouse less comfortable than Microsoft's wheel mouse, but a plus point was the chassis, which was designed for use as either a horizontal or a tower case.

The monitor was hard to fault. The OSD was well structured and easy to follow, and presented a wide range of tweaking options. The entire image had a uniform brightness, although when white characters were applied to a black background and compared to darker

PCW DETAILS



★★★★★

Price £1,937.58
(£1,649 ex VAT)

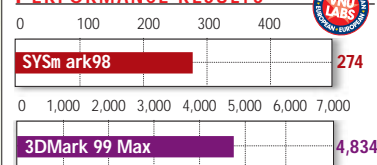
Contact NEC Direct 0870 010 6324
www.necdirect-europe.com

Good points Latest processor, chipset and graphics solution, good monitor, USB on front of case

Bad points Disappointing keyboard and mouse, poor choice of motherboard

Conclusion This is an impressive machine, making good use of new technology, presented at an affordable price

PERFORMANCE RESULTS



Nokia 7110e

The first WAP-enabled mobile may look green, but it's surprisingly mature.

Version 1.1 of the Wireless Application Protocol (WAP) promises to breathe new life into the world wide web, by bringing Internet content to cellular phones. Orange is the first of the mobile carriers to jump on the bandwagon, and through the Nokia 7110e handset it has brought an extremely attractive product to market.

The major problem with bringing the Internet to our pockets is how to present it in a readable format, while not sacrificing portability. And while the 7110e is slightly larger than the phones to which we have become accustomed, it is not uncomfortably so.

It features an over-sized screen that can hold up to five lines of text, and the content is navigated through a roller ball – the navi-roller. Other than this it is a standard phone, except for the spring-loaded keypad cover that brings images from the film *The Matrix* to mind.

But what about the Internet content itself? After selecting 'Services' from the standard menu, followed by 'Homepage' the phone dials the Orange WAP-optimised website, and logs on. It then presents you with a menu of online services. These include news supplied by ITN; sporting news supplied by the Press Association; entertainment listings; travel information and business directories. Selecting the news we were then taken to another page displaying a number of headlines, followed by a couple of lines of introduction on each of the stories.

Any one of these could then be selected to take you to a full, in-depth news article. All of the sections follow

this simple format, and while you won't find any fancy flash graphics the content is certainly functional.

From picking up the phone to actually reading one of the stories takes no more than a couple of minutes, but that could bloat your phone bill if you use the service a lot.

We were a bit frustrated by the number of times we experienced a 'connection failed' message. On a couple of occasions the phone refused point blank to access any of the services, even though we were in an area of full service. This could be because the main server had gone down, but whatever the reason it's not something the paying public should have to put up with.

The business directories section could prove to be of most use, as it provides huge amounts of information on businesses from all over the country. For example, we found the names, addresses and telephone numbers of five seafood restaurants in central London.

Accessing the directories takes a little more time, because as well as navigating through the pages we had to select

restaurant types and narrow down the geographical area. This is all fairly intuitive, but it can get annoying the more often you do it. One can't help thinking the service would be improved if location-based services were also part of WAP 1.1. On top of being a communications device and an Internet console, location-based services would turn your phone into a GPS handset as well. The phone would automatically know where you are so a search on bars, or hotels would provide a list of any within a minute's walk.

The information presently available is limited. Selecting 'trains' in the travel information section, for example, provided us with limited information on only four train operators.

This is only the first step along the road towards new mobile services. Third-generation (3G) mobile phones are still four or five years away – in the meantime Orange has provided a useful and attractive service. And for the first product to market, the Nokia 7110e seems mature and well developed.

DAVID RAE



WAP 1.1

The Wireless Application Protocol is an Internet programming model optimised for handheld devices. It is based on the existing HTML model with a few succinct differences. It is designed to run within the constraints that handheld devices pose –

this includes the lack of a keyboard or mouse and a small viewing screen. The protocol used is known as the Wireless Markup Language (WML), which also adheres to all XML standards. This allows WML content to be accessed via standard

HTTP 1.1 requests from the WAP gateway.

A number of networking companies have already jumped on the bandwagon and are providing WAP-enabled servers. This includes industry giants such as Lucent Technologies and Hewlett-Packard.

PCW DETAILS

★★★★

Price Phone £129.99 (£110.63 ex VAT), calls 5p a minute, WAP services free until 31 January 2000

Contact Orange services on Nokia 7110e handset 0800 80 10 80
www.orange.co.uk www.nokia.com

Good points Very useful, portable, fast

Bad points Some services still limited; the larger size might put people off; connection failed message a little too frequent

Conclusion While not yet fully mature the service is useful and attractive – and it makes a good party piece

Nikon CoolPIX 800

A fuller-featured brother to an **award-winning sibling** joins a formidable family.

Just two months after the CoolPIX 700 won our digital cameras group test, Nikon is back with its brand new CoolPIX 800, that looks virtually identical apart from the welcome inclusion of a 2x zoom. Fortunately, there's more to the 800 than meets the eye, and it sits between the 700 and 950 in Nikon's CoolPIX range.

All three members of the CoolPIX range are fitted with 2.11 megapixel 1/2in CCDs, operating at a maximum resolution of 1,600 x 1,200 pixels, which is sufficient to make an A4 inkjet print. Nikon supplies each with an 8MB CompactFlash card capable of storing eight, 16 or 32 high-resolution images at three levels of JPEG compression; an uncompressed mode produces 6MB TIFFs. There is also a 640 x 480 pixel mode available.

Lens-wise, there are clear differences between the three CoolPIX cameras; focal lengths are quoted in equivalent coverage to 35mm cameras. The 700 suffered from a fixed lens of 35mm (actually 6.5mm, f2.6), the 800 now boasts a 2x zoom of 38-76mm (actually 7-14mm, f3.5/4.8), while the 950 still wins with its 3x zoom of 38-115mm (actually 7-21mm, f2.4/4). Three optional lens attachments widen or shorten coverage. The minimum focusing distances of the 700, 800 and 950 are 9cm, 7cm and 2cm respectively. The 800 refines its autofocus with 480 steps compared to 127 on the 700,

although the 950 boasts a 'stepless' 4,746.

When manually

focusing, the 800 has 45 steps compared to the 700's 10 steps.

Like Kodak, Nikon employs four AA batteries that are typically bigger, heavier, and shorter lasting than competitors' lithium ions, but they're readily available and much cheaper. Nikon throws in a set of alkalines to get you started while the supplied NiMHs (nickel metal hydrides) charge up. The 800, remarkably, squeezes more life out of its batteries than the 700, itself longer-lasting than the 950. You'll get around an hour and a half of general use, which isn't at all bad.

Anyone owning a Nikon 35mm SLR will recognise the CoolPIX's choice of three TTL metering

modes: spot, centre-weighted and matrix. The latter, with 256 segments, is nigh-on impossible to fool and will convert any die-hard manual operator to the joys of auto-exposure. For that extra bit of input, however, you can compensate the exposure to plus or minus 2EV in 1/3 stop intervals. The 800 is also a tad more sensitive than the 700 and 950, rated at 100ASA compared to 80ASA.

Nikon fits its CoolPIX models with an innovative Best Shot Selector, BSS mode. This keeps taking photos while you hold the shutter (up to 10), analyses them and only saves the one with the most detail – great for tricky handheld shots. New to the 800 is a high-speed continuous shooting mode, which fires

off up to 40 320 x 240 pixel images at 30fps –

handy for those somersaulting whales. A continuous 1.5fps mode is also available, along with five flash options, five white balance settings, and even digital brightness and contrast

adjustments. You can frame your shot with an optical viewfinder or the LCD screen – 1.8in on the 700 and 800, compared to the 950's 2in display – which actually looks much bigger in use. The 800's display indicates the shutter speed and aperture, but these are not manually adjustable.

Sadly, Nikon has not yet adopted USB and rubs salt in the wound by suggesting you buy a card reader for around £50. Kodak's USB connections go about 10 times faster than its serial ones, which is no consolation as you wait just over a minute for the 800 to download a typical JPEG. On the plus side, the software is simple to use, mounting the camera in My

Computer, allowing you to preview and drag image files onto your hard disk.

Whatever else you say about Nikon, it certainly knows how to take pictures. Images from the 800 (and previous CoolPIX models) simply cannot be faulted and are among the best of any digital camera we've tested. Slightly better in fact than the 2.3 megapixel chip on Fuji's MX-2900, although costing the same with a 3x zoom and 2in screen, this is the camera with which many will compare it. Kodak's DC280 with USB and a whopping 20MB memory card is also a contender. Like film cameras, the choice often boils down to personal preference and which suits the way you work. So saying, both were beaten by the CoolPIX 700 in our group test, and the fact that the 800 further improves on it is recommendation enough.

GORDON LAING



Images from the 800 are among the best of any digital camera

PCW DETAILS

★★★★★

Price £599 (£509.78 ex VAT)

Contact Nikon 0800 230 220

www.nikon.co.uk

Good points Great quality, features and handling

Bad points No standard USB connection

Conclusion One of the best cameras for the considerable £599 premium



Olympus Camedia C-2500L

A sturdy, solid digital SLR that **sports high quality and style**, but with a price tag to go with it.

This is one of the very few digital SLR cameras on the market. The two primary advantages of this are immediately obvious. First, it lets you see exactly what the camera sees, so you'll end up with the pictures you wanted, and second, because there's no need to use the LCD panel, you'll save juice on the batteries. From an aesthetic point of view, there's something inherently more satisfying about looking through the lens rather than at the display, and this is enhanced by the Camedia's shutter sound, giving the impression of it being a solid, reliable camera. Another innovation is offering the choice of either CompactFlash or SmartMedia storage in the same unit, and you can even use both at the same time for unbeatable capacity.

A small button to one side of the lens pops up an internal flash, while a hot shoe on the top will accept an independent flash unit, making this a versatile choice for the more professional user. Digital professionals should also be impressed by the output. We tested it under a number of lighting conditions, both indoor and outdoor, and the results were among the best we have seen, with vibrant colours – even under fluorescent light or dull exterior lighting – and realistic skin tones.

The C-2500L is a 2.5 megapixel camera with a 3x optical zoom and a 2/3in progressive CCD. Its macro mode allows you to take images from as close as 2cm and its versatile settings allow for five image qualities from a single, non-compressed 1,712 x 1,368 image filling the supplied 8MB SmartMedia card down to around 50 VGA-sized pictures. The uncompressed super high-quality image is stored in TIFF format, while those of lower quality are compressed JPEG format.

White balance setting can be left in the hands of the camera or adjusted

manually through six colour temperatures, while the Olympus lens is equivalent to a 36-110mm lens in a conventional film camera. To achieve specific focal lengths, the aperture can be set manually and it can mimic conventional film settings with equivalents for 100, 200 and 400 ISO.



own images – it has a 12-second delay and even a remote control, eliminating the need to click and run and allowing you to adjust the zoom. The camera's software suite is simple to use, allowing you to drag images off the camera and drop them straight into directories on

the PC or network, but with only a serial connection it was painfully slow to get our larger images out. This serial cable is supplemented by a converter for use with a Mac, although we would have liked to have seen USB as it would not only have been faster, but also enjoy cross-platform connectivity with just one lead.

The C-2500L has a 1.8in TFT for displaying your images, and once you have activated the shutter the image you have taken is displayed for a few seconds while it is written to media. It is also used for deleting images on-the-fly and

adjusting the camera's settings. The camera runs on four AA batteries. Rechargeable batteries and a charger are included as part of the package.

Overall, we were impressed by the C-2500L and the inclusion of slots for both CompactFlash and

SmartMedia memory is a move we would welcome in more

cameras.

The benefits of SLR in a digital camera were also evident when we examined our photos, which were not only sharp and vibrant but also centred on exactly what we hoped the camera would see. It is difficult to choose between this and the Sony 505 reviewed in the December 1999 issue, for while the Sony had an excellent lens array and produced images every bit as good as the Olympus, its Memory Stick format is not yet as widely used as the SmartMedia and CompactFlash options seen here. At the end of the day, though, at over £300 cheaper, the Sony just pips it to the post, but Olympus still earns itself five stars.

NIK RAWLINSON

The C-2500L's macro mode allows you to take images from as close as 2cm

PCW DETAILS

★★★★★

Price £1,199.99 (£1,021.27 ex VAT)

Contact Olympus 0800 072 0070

www.olympus.co.uk

Good points Dual memory format option, excellent images, many professional features

Bad points Only a serial connection for download, a little pricey

Conclusion A good choice for the serious digital photographer



Creative WebCam Go

Is it a webcam? Is it a digital cam era? No, it's the Webcam Go, the motion-sensitive supercam.

Webcams are so passé. There is nothing about them to get you excited any more, so we were pleased to see Creative add a new twist. This is not only a regular webcam capable of 30fps at 352 x 288 or 15fps at 640 x 480, but when you disconnect the USB cable it becomes a standalone digital camera capable of storing 200 320 x 240 resolution JPEG images or 90 at 640 x 480 on its



non-upgradable 4MB memory. The LCD is a basic display showing just the capture mode and the number of images remaining, so you need to use the optical viewfinder to line up.

The lens has three settings for 10ft to infinity, three to five feet and six to eight inches while the four recording modes allow for single, multi-exposure, time-delayed single and time-delayed multiple exposure. Downloading images taken using the multi-exposure setting generates a small AVI file, allowing you to specify the delay between frame changes.

It runs on two supplied AAA batteries when not connected to the bundled USB cable and includes MediaRing Talk 99, WebCam Go Control for controlling the camera and organising your images, and WebCam Monitor – a movement-sensing application that will upload an image to a specified website whenever it detects

motion. A microphone is bundled for video-conferencing, and a copy of Polaroid PhotoMAX software for touching up photos and adding effects.

The WebCam Go is fairly unattractive as a standalone digital camera, and the quality of its images does nothing to rival that of dedicated cameras, but its ease of use, rich features and no-nonsense modus operandi make it a winning product.

NIK RAWLINSON

PCW DETAILS



★★★★★

Price £119 (£101.28 ex VAT)

Contact Creative 01189 344 744

www.europe.creative.com

Good points Easy to use, innovative idea, great price

Bad points Not the best image quality

Conclusion If you want a webcam and a cheap and cheerful digital camera the WebCam Go could be all you need

Kodak DVC325

Kodak's problematic webcam is as useful as a conference where you can't hear anyone speaking.

When it comes to photography there are few names as easily recognisable as Kodak. This latest USB camera from the company attempts to improve on its previous offering, the DVC323, by doubling the size of the video image available for capture to a respectable 640 x 480.

The unit comes with a TWAIN driver for importing images directly into editing packages such as Paint Shop Pro. This driver can be used in conjunction with the snapshot button on the top of the camera. Click the button once and the camera's software will pop up to allow you to select which image-editing software you want to use. Select this and then click the button again and the image will be imported.

The camera looks



attractive, having a slim-line design, unlike most other bulbous webcams available. The base is detachable and allows the camera to be tilted through 75 degrees. Laptop users will be pleased to find an additional thumbnail-sized base bundled with the unit for docking the camera on top of their LCD screens.

Presto! VideoWorks and Presto! Mr Photo software are bundled for video and stills editing respectively. However,

Kodak is aiming this camera at those interested in Internet video-conferencing, which is a tad strange given the fact that the device doesn't have a built-in microphone. It does work with the bundled Netmeeting software from Microsoft, but its performance could hardly be described as flawless.

This was mainly due to the unit's poor drivers. It took us ages to get them working properly and when they did get going it was hard to convince them to capture smooth video sequences. Added to this, both PCs used to test the camera experienced a severe slow-down when the camera was plugged in. This stopped as soon as the device was unplugged.

At present the DVC325 is a respectable USB camera ruined by a lack of usable drivers. One to avoid.

NIAL MAGENNIS

PCW DETAILS



Contact Kodak 0870 243 0270

www.kodak.com

Price £99 (£84.25 ex VAT)

Good points Snapshot button, 3m lead

Bad points Awful drivers make this camera largely unusable

Conclusion We cannot recommend the DVC325 with its current drivers

Graphics card shoot-out

This 3D environment ain't big enough for the four of them – only the fastest drawer can win.

In the past few months nVidia's latest graphics chipset has received a great deal of coverage. Much of the interest has been due to its implementation of hardware transform and lighting (T&L) engines that represent a huge step forward in mainstream 3D acceleration. However, most of the coverage has been purely speculative as there wasn't a benchmark available that used these new features. This situation has now changed with the release of 3DMark 2000, which includes tests for T&L and hardware-environment bump mapping. The latter has been supported by Matrox's G400 chipset for some time. Now that a relevant testing suite is available we

decided to do a comprehensive round-up of the latest crop of graphics cards.

Lined up at the starting blocks are the Creative Annihilator and Guillemot 3D Prophet, which both use nVidia's standard GeForce 256 chipset. Also from Creative is the Annihilator Pro, sporting the GeForce 256 DDR chipset incorporating a wider memory bus.

the texture engines on the graphics card.

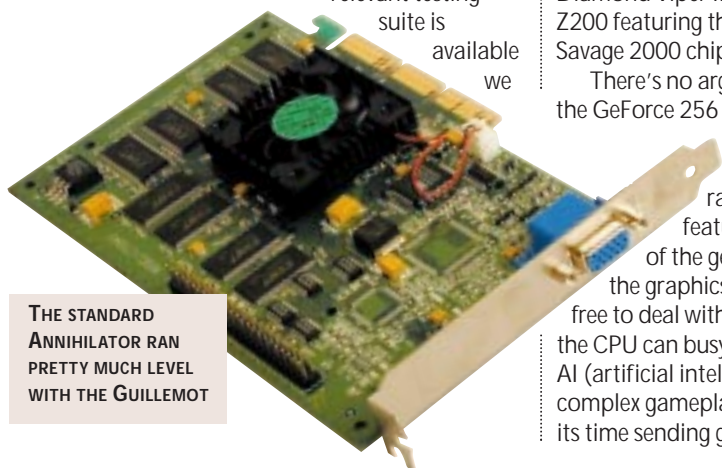
THE DIAMOND VIPER II Z200 SHONE ONLY IN THE ARENA

Finally, we've got the Diamond Viper II Z200 featuring the S3 Savage 2000 chipset.

There's no argument that the GeForce 256 is a gamers' chipset aimed at offering the best frame rates and the fullest feature set. By putting most of the geometry calculation on the graphics chip the main CPU is free to deal with other tasks. This means the CPU can busy itself processing better AI (artificial intelligence) or just far more complex gameplay, rather than wasting its time sending geometry calculations to

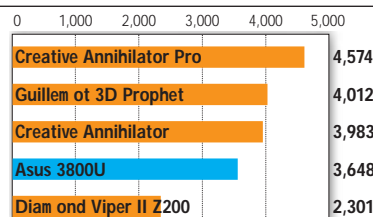
The games have to be specifically coded to make use of T&L features, but most 3D game developers should be working on this already. id Software already supports T&L with Quake III Arena.

There's very little between the Creative Annihilator and the Guillemot 3D Prophet. They're both based on the same chipset and sport 32MB of memory. The 3D Prophet does have the added feature of a TV-Out port although the usefulness of this is limited. The whole

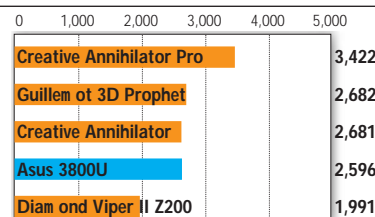


THE STANDARD ANNIHILATOR RAN PRETTY MUCH LEVEL WITH THE GUILLEMOT

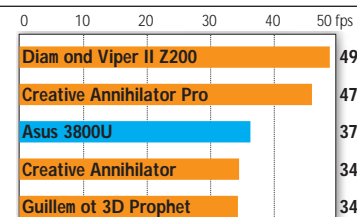
3DMark 1,024 x 768 16bit



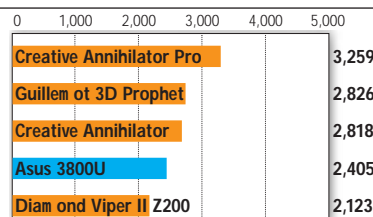
3DMark 1,280 x 1,024 16bit



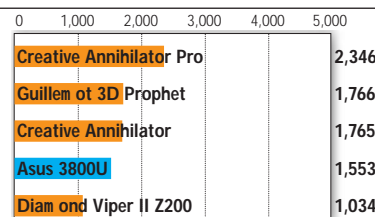
Quake III 1,024 x 768 32bit



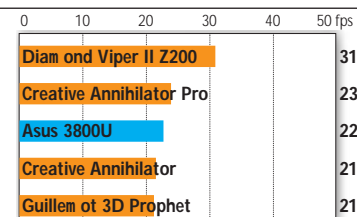
3DMark 1,024 x 768 32bit



3DMark 1,280 x 1,024 32bit



Quake III 1,280 x 1,024 32bit



idea of cards such as these is that you can run games in very high resolutions that a TV would never be able to cope with. However, since both cards also ship with software DVD players, the TV-Out could be useful for pumping movies out to a large-screen TV. That said the Creative cards ship with a copy of Evolve Scout, although the target market for these cards is bound to have a large collection of games already. Both cards have a heatsink and fan combination to keep the processor cool and ensure system stability, while the 350MHz RAMDAC will put most desktop resolutions within your reach.

The Creative Annihilator Pro looks identical to the standard Annihilator and in essence they are the same card. The only difference between the two is the inclusion of double data rate (DDR) memory as opposed to the single data rate (SDR) memory used by the other GeForce cards. This extra

**CREATIVE'S
ANNIHILATOR PRO
IS THE ULTIMATE
3D CARD**

bandwidth ensures there's no bottleneck and increases the overall performance of the card.

Although most game players will be happy with the standard GeForce 256, the hardcore gamers will want to squeeze that last drop of performance out of their system and will find the DDR version an attractive prospect. The difference is significant, with a quoted memory bandwidth of 4.8GB/sec compared to 2.6GB/sec with the standard chipset.

The Diamond Viper II Z200 is the only card not to use an nVidia chipset, instead sporting a processor from S3, Diamond's parent company. It's been a while since we've seen a great graphics chipset from S3 so we were looking forward to the first Savage 2000 board. Like the Guillemot card the Viper also sports a TV-Out feature in both composite and S-Video flavours. On paper it looked like a great graphics

solution with hardware T&L and environment bump mapping included in the silicon.

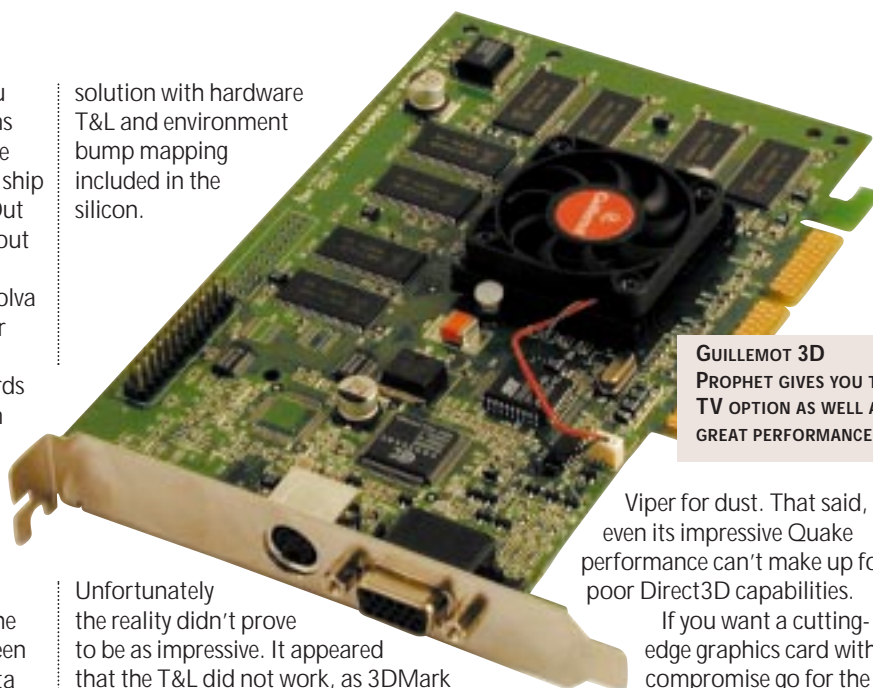
Unfortunately the reality didn't prove to be as impressive. It appeared that the T&L did not work, as 3DMark 2000 reported it was not supported by the card. A similarly disappointing message appeared while trying to run the hardware environment bump mapping test. With the best features of the card absent, the Viper II Z200 produced poor 3DMark scores.

To test the cards we ran 3DMark 2000 at various resolutions and colour depths. We also ran a frame rate test on Quake III Arena. The test

machine was made up of a 733MHz Pentium III in an 820 chipset motherboard with 128MB of RAMBUS memory.

As for performance, the Creative Annihilator and Guillemot Prophet produced almost identical scores in 3DMark 2000, while the DDR-equipped Creative Annihilator Pro produced significantly superior scores in all tests. The Diamond Viper II Z200 proved to be very disappointing, producing the lowest scores in all the 3DMark tests. It was even slower than the Asus TNT2 Ultra card we used as a reference board.

The Quake III frame rate test proved surprising, with the Diamond card outperforming all the GeForce-enabled boards. It's not unusual for a graphics card to excel at OpenGL, the VideoLogic Neon 250 (reviewed December 1999) exhibited similar behaviour. However, considering Quake III supports T&L, we expected the GeForce cards to leave the



**GUILLEMOT 3D
PROPHET GIVES YOU THE
TV OPTION AS WELL AS
GREAT PERFORMANCE**

Viper for dust. That said, even its impressive Quake performance can't make up for its poor Direct3D capabilities.

If you want a cutting-edge graphics card without compromise go for the Creative Annihilator Pro. Its full GeForce feature set coupled with its extended memory bandwidth makes it the ultimate card for hardcore PC gamers, but it's not cheap with a street price of £169 ex VAT. Still, it's only £10 dearer than the Guillemot 3D Prophet which doesn't have DDR. If you are on a budget, the standard Creative Annihilator offers good value with a street price of £139 ex VAT and performance every bit as good as the Guillemot card.

As for the Diamond Viper II Z200, we can only hope the problem with the T&L was just an issue with this early board and will be rectified for the retail product.

RIYAD EMERAN

PCW DETAILS

★★★★★

Creative Annihilator
Street price £163.32
(£139 ex VAT)



★★★★★

Creative Annihilator Pro
Street price £198.57
(£169 ex VAT)



Contact Creative Labs 01189 344 744
www.europe.creative.com

★★★★★

Guillemot 3D Prophet
Street price £185.65 (£159 ex VAT)
Contact Guillemot 0208 686 5600
www.guillemot.com

★★★★

Diamond Viper II Z200
Street price £159 (£135 ex VAT)
Contact Diamond 01189 444477
www.diamondmm.co.uk

Pinnacle Studio DV

A serious DV-editing package that provides a **fast, versatile and powerful studio** environment.

Since modern DV camcorders store their video digitally, you can actually squirt the pictures directly into the PC, edit them, then pop them back to tape again with no loss of quality. That's the promise of Pinnacle's Studio DV, so long as your camcorder or video source is fitted with a DV port. To slightly confuse matters, Sony calls this port i-Link, and the standards folk at IEEE call it 1394, but we'll refer to it as FireWire as it was christened by Apple, its inventor.

FireWire is a bi-directional interface, which means just the one connector is used for information coming in and going out. However, UK Customs says anything with video-recording capabilities suffers a higher tax rate, so many British DV camcorders have their DV port disabled for digital input – you'll see it labelled as DV out only. We've heard of some third parties that can modify it, but if you're in the market for a new DV camcorder and intend to digitally edit on your PC, then look for a model with DV in and out.

Pinnacle's Studio DV package consists of editing software, a FireWire cable and a rather fetching red PCI card fitted with one internal and two external FireWire ports. You'll need to be running Windows 98 Second Edition, which supplies the required Texas Instruments 1394 drivers.

Of course you could simply buy an Adaptec 1394 card and now be at the same point, but for around only £20 more, Pinnacle throws in a really neat piece of digital video-editing software. Consisting of three sections, capture, edit and make movie, the clear interface guides you through the process. The capture section tests your hardware's capabilities and allows you to remotely control your camcorder's transport through the FireWire interface.

The DV standard employed by consumer camcorders employs a compression ratio of 5:1, which results in a data transfer rate of 3.6Mbits/sec. Your

hard disk will have to sustain at least 4MB/sec and you're looking at about 13GB of space for an hour of video. Pinnacle's package lets you capture full-quality clips straight away, or low-quality preview files. The latter allows you to quickly handle a large amount of video at the editing stage (an hour in 150MB), and leaves the package to cunningly go back and capture only the bits it needs in full quality for the final render.

Captured video clips are arranged in albums showing thumbnails of how each scene begins. Albums are also supplied with loads of transition effects like fades and wipes, along with sound effects and graphics for titling. To assemble your movie, you simply drag these items one at a time onto the movie window, which can be set to display an official-looking timeline or a simple storyboard-style interface. It's dead easy to just rearrange the clips and fades or swap them for others. Best of all is a preview window that immediately lets you watch your

movie complete with effects, without any tedious rendering.

The final section, making movies, allows you to output your masterpiece back onto tape, as an AVI or MPEG1 file, or even as streaming RealVideo for use online. The first option simply renders the movie at full quality, ready to squirt back into your DV camcorder – so long as it's got a DV input. For analog tape, Pinnacle suggests you employ the camcorder's own composite/S-Video and audio outputs to connect it to a VHS.

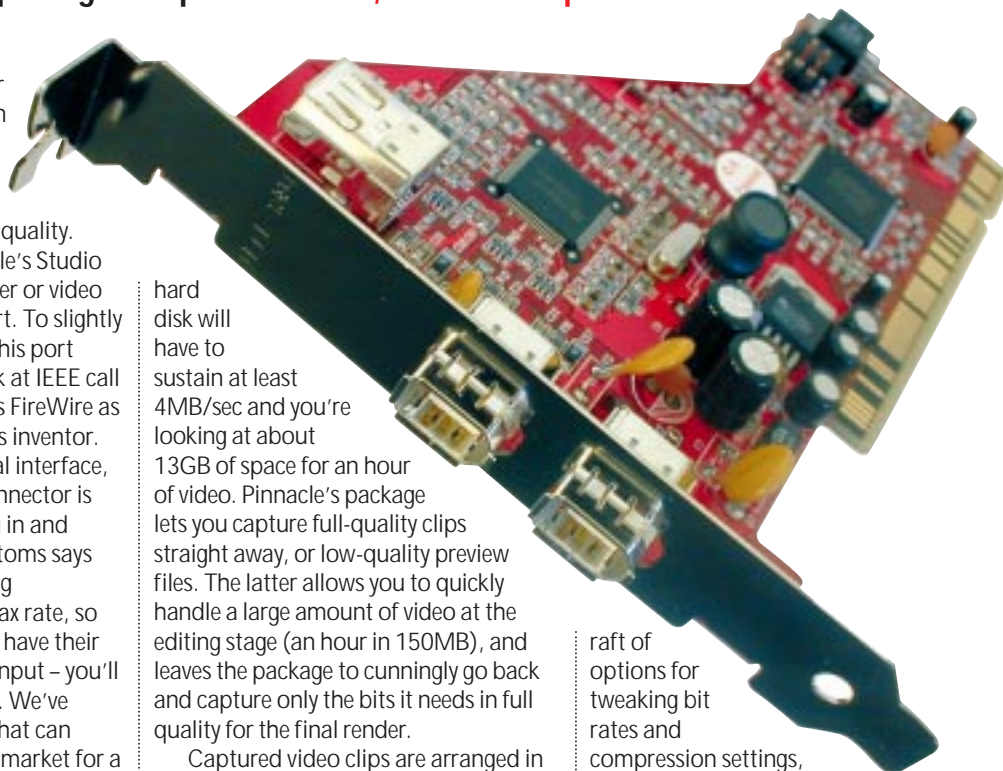
The AVI and MPEG1 sections boast a

raft of options for tweaking bit rates and compression settings, but we were particularly impressed by the RealVideo facility that lets you select your target audience from 28K modem to corporate LAN. The streaming option allows you to choose any number of these and lets the G2 RealPlayer request the one that's most suitable. You will, however, need an ISP that supports RealServer.

All in all, Studio DV is a wonderful package for anyone with a DV camcorder fitted with an in/out port. It's an absolute doddle to use and the RealVideo facility is a very welcome extra, especially when you consider the software's only costing you about £20 on top of the FireWire card.

GORDON LAING

It's dead easy to rearrange the clips and fades or swap them for others



PCW DETAILS

★★★★★

Price £199 (£169.36 ex VAT)

Contact Pinnacle Systems
01895 442003

www.pinnaclesys.com

Good points Very simple to use, and great RealVideo facility

Bad points You'll need DV in/out on your camcorder to go back to digital tape

Conclusion Who needs analog capture? DV camcorder owners look no further



CD-RW Blaster CD Studio

Fiddle while your **CD-RW burns**, it really is that easy.

Creative seems to be coming up with one great product after another at the moment. Hot on the heels of the fabulously specified SoundBlaster Live! Platinum comes the CD-RW Blaster CD Studio. CD-RW drives have become very popular of late due to the drop in price of the technology, but Creative has put together a package that should be flying off the shelves. Inside the full retail packaging you'll find a 4 x 4 x 24 EIDE CD-RW drive. You'll also find an EIDE cable, a power splitter and screws to mount the drive in your PC. But Creative hasn't stopped there, you also get 10 blank CD-R discs and one CD-RW disc, giving you enough media to get the most out of the package straight away.

There are also two manuals included, covering how to install the drive and explaining how to use the software.

Unlike most CD-RW manufacturers Creative hasn't gone down the Adaptec

route for the bundled software. Instead you get Nero Burning ROM, which may not be as well known as Adaptec's Easy CD Creator, but it works well enough. Using a simple drag and drop method you just grab the files that you want to write to the CD and place them in the corresponding window.

It took about 16 minutes to burn 580MB onto a blank CD-R at four-speed. Of course, if you want to run an integrity simulation before actually writing the data you can more or less double this time.

You also get software from Prassi that allows you to use a CD-RW disc just like a hard disk, in the same manner as Adaptec DirectCD.

All in all the CD-RW Blaster is a stunning package with everything you need to get you on the road to CD



mastering. Add to this the amazing street price of only £149 ex VAT, and you really have something special.

RIYAD EMERAN

PCW DETAILS

★★★★★

Price £175 (£149 ex VAT)

Contact Creative Labs 01189 344 744

www.europe.creative.com

Good points Great package, great price

Bad points None

Conclusion The best CD-RW bundle you can buy



Com paq MP1600

This stylish, dim inutive projector will **illuminate any presentation**, whatever the conditions.

If you are a frequent traveller and use a projector to aid presentations, you'll know how important it is that your projector is not the heaviest object on earth. This latest model from Compaq is remarkably small and weighs only 1.9kg. There's also enough style in its design to impress, and it offers great performance at the same time.

Its native resolution of 1,024 x 768 is more than enough for the vast majority of presentations. Adjustments to the display can be made via easy-to-use controls that guide you through a comprehensive menu. You can change all the usual settings here, including the key

parallelogram setting that allows you to maintain straight edges in all circumstances. You can even zoom in on your image, up to a maximum of 32x.

A standby button helps preserve the life of the unit. One minor niggle we had, however, was that this was located

immediately next to the navigation controls. If you accidentally hit it, as we did a few times, the projector can't be turned back on for 45 seconds, which could prove embarrassing in the middle of a presentation.

A sprung foot combined with a well-placed adjustment button let you vary the height of the unit, while a slider on the top of the unit lets you focus the lens quickly and easily.



Unfortunately this model comes with only D-SUB and Digital connectors as standard, but a video adaptor to give you more ports is available. The display is extremely bright at 600 lumens, and its output can be viewed easily in a well-lit room when correctly adjusted. Overall this is an impressive projector – if you can afford it, it will serve you well.

JASON JENKINS

PCW DETAILS

★★★★★

Price £3,869.28 (£3,293 ex VAT)

Contact Compaq Recommended Resellers 0845 270 4000

www.compaq.co.uk

Good points Small, easy to use, excellent performance

Bad points Control layout could be slightly better

Conclusion An excellent, highly portable projector that adds a touch of class to any presentation

Ericsson Chatboard

A keyboard for your phone that **takes the fingerwork out** of SMS text messaging.

Typing SMS text messages on a mobile phone is a skill that takes both time and patience to acquire – so much so that most people don't bother. The word 'hello' takes 13 keystrokes, the only vowel that takes one keypress is 'A', and 'S', the second most used letter in the English language, takes four presses. What's needed is a quick way to type messages on a phone.

This is so obvious it's surprising that no-one has produced a device like the Ericsson Chatboard before: a small 10 x 5cm keyboard that plugs onto the bottom of most



Ericsson phones. It maps onto the phone's keyboard matrix so when you press the Z key it flashes a W, X and Y onto the screen before the Z appears. This makes numbers – that come after letters – very slow and you either turn the keyboard beeps off or annoy everyone around you.

But where the Chatboard really scores is in the services Ericsson has provided, built around the www.chatb.com website. When you get a Chatboard and register at the site you are given a personal area. This works with an SMS-to-email gateway so that you can send emails by typing SMS text messages.

You can even add attachments to the emails by uploading them to your area on the website and then pressing the attachment button while typing an SMS. You give a reference for the file on the site and the person who receives the email gets the attachment. Replies to the email are read from the site.

It's something that makes a mobile phone a more powerful tool, but what is really impressive is the price. At £20 it's an amazing bargain.

SIMON ROCKMAN

PCW DETAILS

★★★★★

Price £20 (£17.02 ex VAT)

Contact Ericsson 0990 238238
www.chatb.com

System requirements Any Ericsson phones newer than the 768, including the 768e, SH888, S868, A1018, T10 and T18, but not the T28

Good points Turns a mobile phone into a great way to send emails. Well thought out integration with the website makes it amazingly useful

Bad points No underscore, messages are limited to 160 characters, the mobile networks charge too much for SMS

Conclusion If you have an Ericsson phone then the Chatboard is a must-have



Eicon DIVA USB

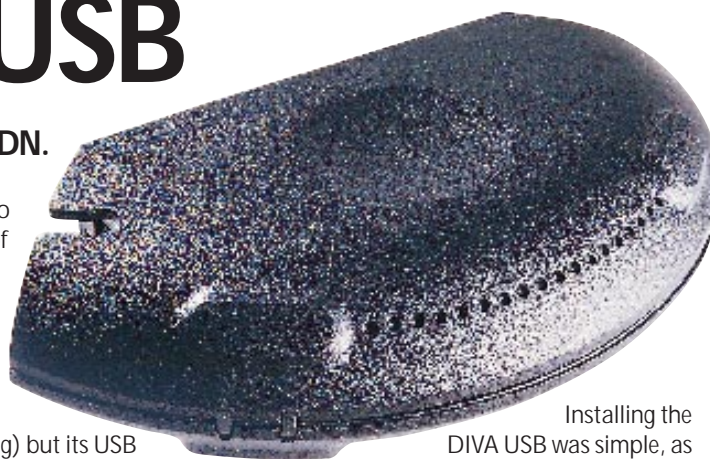
A USB device to **put you on the highway** to ISDN.

Eicon's DIVA USB has to be one of the oddest-looking pieces of hardware we've come across. About the same size and shape as a mouse (but available in a cornucopia of colours) it represents ISDN specialist Eicon Technology's first venture into the realm of USB.

The DIVA USB is an ISDN adaptor. It is designed to attach to an ISDN 2e or Home/BusinessHighway connection,

and offers up to 128Kbits/sec of bandwidth to the Internet or remote office user. The device is not only small and light (about 70g) but its USB port makes it very flexible in that it can be quickly and easily swapped between desktop and notebook PCs, making it a good choice for the mobile user. Sadly, there's no Mac support at present.

The DIVA USB sports a 32bit WDM CAPI 2.0 driver, with an NDIS WAN mini-port interface. It also supports G3 faxing (and G4 aka 'ISDN faxing') and a good smattering of voicemail and file transfer facilities, courtesy of the bundled German-sourced RVS-COM Lite software. So, armed with a DIVA USB and RVS-COM, a branch office could make do with just an ISDN 2e line.



Installing the DIVA USB was simple, as expected, although the install wizard does need some techie ISDN info from you. The manual covers just the installation and troubleshooting, with the rest of the information located on the CD-ROM. As soon as you insert the USB plug, the software installation commences, and although this is simple enough it could be made simpler still.

Complete installation of the RVS-COM Lite comms suite requires further intervention. Once installed you can insert and remove the DIVA USB on-the-fly – a trio of status LEDs on the device indicate all is well.

ROGER GANN

PCW DETAILS

★★★★★

Price £99 (£84.25 ex VAT)

Contact Eicon Technology
020 8967 8000
www.eicon.com

Good points Cheap, versatile, well designed, good software bundle

Bad points USB cable could be longer
Conclusion An early bath is in prospect for PC Card ISDN adaptors, the quirky DIVA USB is not only cheaper, but more versatile and easier to use



HP Jornada 430se

A PDA **hobbled by its OS** for those with a very limited MP3 collection.

Palm's Revo and the latest batch of Palm organisers from 3Com have set the standard as far as handheld screens go, and the colour competition just can't quite live up to these monochrome wonders. Unfortunately that's true of this Jornada and it suffers from a certain amount of 'shimmer'. It's a shame, too, that Windows CE is such a demanding OS. The 430se has a 133MHz processor but CE slows this to a crawl.

HP is aiming this product at the mobile professional in need of a business and entertainment tool, and with this in mind it has integrated Utopiasoft Hum MP3 player and a headphone jack. To put this to good use, though, you'll have to invest in a CompactFlash card to increase the memory: the Jornada has 16MB of RAM, that has to be shared with your data. Even if you could devote it entirely to MP3s and no data you would be able to store no more

than four or five average length tracks.

On a more positive note, Hewlett-Packard's usual excellent screen adjustment settings have been integrated, giving immediate access to presets for indoor and outside use, and EzExplorer lets you navigate the internal memory in the same way that you would explore your PC's hard drive. If you really can't get on with handwriting recognition, you also have the option of upgrading to HP's external keyboard.

Hard icons on the front give quick access to contacts, calendar, tasks and calculator, and can be reconfigured to suit your specific needs. Further buttons along the left edge control the way applications work, but are only labelled on the Jornada's fold-back front cover, so when it's flipped back in use they are unlabelled.

Ultimately, the Jornada 430se is the logical progression of an evolving product line, but it suffers from a rather



chunky operating system and a disappointing display.
NIK RAWLINSON

PCW DETAILS



Price £389.99 (£339.57 ex VAT)

Contact Hewlett-Packard 0990 47 47 47
www.hp.com/uk/

Good points Memory navigation and screen setting utilities

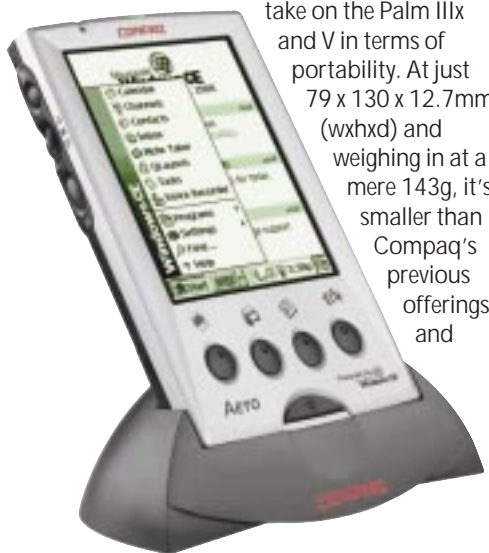
Bad points Disappointing screen, small initial memory allocation considering the inclusion of an MP3 player

Conclusion It's a nice idea, but the technology is not quite ready to pull it off

Compaq Aero 1520

A WinCE device small and light enough to **pose a serious threat** to its palm-sized rivals.

Compaq's latest palm-size PC is a definite break from the norm, at least when it comes to Windows CE devices – it's small. In terms of size and weight, it's about the first WinCE device that can honestly take on the Palm IIIx and V in terms of portability. At just 79 x 130 x 12.7mm (wxhxd) and weighing in at a mere 143g, it's smaller than Compaq's previous offerings, and



weighs only 30g more than the Palm V.

The diminished stature has a lot to do with the 16-greyscale STN LCD display, which is a bit lifeless, but perfectly adequate for a handheld PC. For those darker moments, as you might expect, there is an easily accessible backlight. Such a display needs a protective cover of sorts, and it's good to see that, rather than plump for the ungainly plastic covers of the HP Jornada 430se and Palm IIIx, the Aero 1520 comes supplied with a leatherette case.

The 16MB of RAM is par for the course, but this can be increased through the addition of Flash memory – in this case, there is a CompactFlash slot. The design itself is functional, with four customisable shortcut buttons, the backlight button beneath the display, and three side-panel buttons, one for voice recording, one used as an 'Exit' button and the other a mini-rocker button for scrolling and selecting.

The rechargeable lithium ion battery

has an estimated life of eight hours and, with the power supply connecting to the docking cradle, recharging is a simple matter of attaching the 1520 to the cradle. The 1520 also synchronises with your PC seamlessly. This is largely due to the fact that almost all PCs run Windows, but Microsoft's latest sync software, ActiveSync 3.0, also seems to have made the process easier.

JIM HARYOTT

PCW DETAILS



Price £279.65 (£238 ex VAT)

Contact Compaq 0845 270 4848
www.compaq.co.uk

Good points Size and weight, synchronisation with Windows-based PCs

Bad points Screen, WinCE still slow

Conclusion Compaq has learnt that many people's priorities lie in size and portability, rather than excessive functionality. The Aero 1520 is one of the best value and most usable WinCE-based handhelds yet

Windows 2000

It's been a long time coming, but it's **worth the wait**, as Windows 2000 adds a lot of functionality.

Microsoft has been working on Windows 2000 for years. With millions of lines of code, and four different versions, Windows 2000 is one of the biggest engineering projects ever. As we get closer to its release, the moment of truth is nearly upon us. Will Windows 2000 be as successful as Microsoft expects?

The four versions of Windows 2000 are Professional, roughly equivalent to NT4 Workstation; Server, roughly equivalent to NT4 Server; Advanced Server, roughly equivalent to NT4 Server Enterprise; and a completely new version, Datacenter. Professional is a desktop operating system that is also suitable for use on laptops, while Server is intended to provide file, print and Internet services to SMEs. The Advanced Server is for enterprise applications, while Datacenter is intended for very large applications that need immense processing power and large data stores.

You're most likely to come across the Professional and Server versions, as these are direct replacements for the most commonly used versions of Windows NT4. Windows 2000 Professional is the replacement for the perennial Windows NT Workstation. With a similar user interface to Windows 98, Professional actually conceals a complete 32bit operating system, with no trace of DOS.

Windows

2000 is designed to upgrade existing Microsoft desktop operating systems, and can be used to upgrade Windows 95 and 98, and Windows NT Workstation. Our test machine was a PIII 500, and we installed it as a dual-boot operating system. There were no problems in detecting the video and sound cards installed in our test machine, apart from an MPEG2 decoder card, which has yet to have Windows 2000 drivers developed. If you're worried about the hardware you've installed in your PC, Microsoft has a list of tested compatible hardware on its website. You'll also find lists of drivers under development on the Internet at sites like www.betanews.com.

Windows 2000 depends on the browser being an integral part of the OS



We were able to install a wide range of software on our test system, and while very few packages have been certified for use on Windows 2000 at this point, most 32bit software will run on Windows 2000 Professional without problems. As Windows 2000 protects and rebuilds core DLLs and other system components, you should be safe from packages overwriting the operating system and causing problems.

YOU'LL FIND THE
WINDOWS 2000
PROFESSIONAL DESKTOP
FAMILIAR - AND THERE'S
EVEN THE OLD STAND-BY
SOLITAIRE TO KEEP
YOU COMPANY

having to launch an image-editing program.

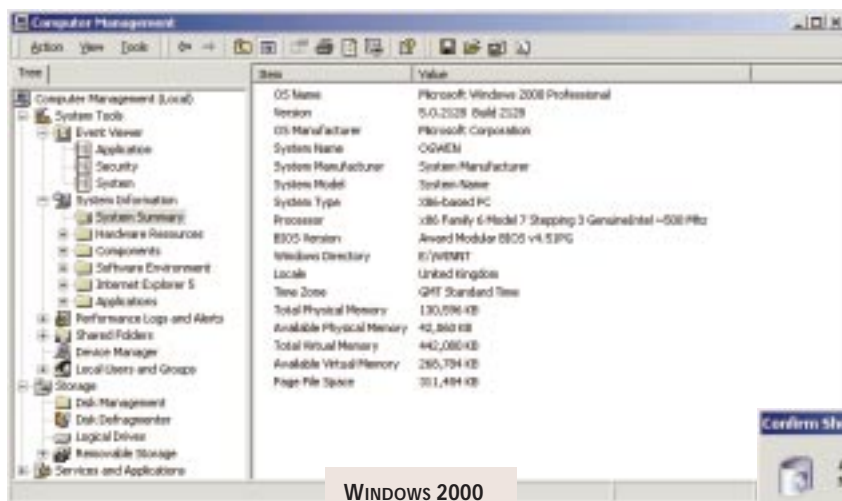
By default Windows 2000 Professional doesn't install every available component. If you want to use it as a web server, you'll need to install the web server using the 'Add/Remove Components' control panel. The Professional version of Internet Information Server isn't intended to be used as an Internet-facing web server, more as a development tool or workgroup intranet server. If you want full-scale Internet services you'll need to use Windows 2000 Server or better.

Microsoft is trying to make Windows 2000 Professional a document-centric operating system. Where NT4 and Windows 98 have the 'My Computer' icon at the top of the screen, in Windows 2000 this takes you straight to the default document store. This needn't even be on your PC - it's quite easy for server administrators to set up your documents folder on a central server, which makes backups easier, and allows you to move from PC to PC.

The same is true of the Windows Explorer, which has been demoted to the 'Accessories' menu. When opened, this launches straight into My Documents, hopefully keeping users away from the system and application directories. Windows 2000 will also hide key system and application files from display in

Windows 2000 Professional

Windows 2000 Professional comes with the basic applications to get you started, including a version of Microsoft's Internet Explorer browser. Like Windows 98, Windows 2000 depends on the browser being an integral part of the operating system, as it is used to handle the system's administration tools as well as web browsing. Windows Explorer uses a web view of the file system, and will display thumbnail views of files as well as directory listings. If you're going through a directory of images, you'll find a small image viewer embedded in Explorer that allows you to zoom into images without



WINDOWS 2000 PROFESSIONAL'S COMPUTER MANAGEMENT TOOL IS AN MMC CONTAINER, FULL OF SYSTEM MANAGEMENT TOOLS AS WELL AS DIAGNOSTICS

Explorer. While power users will probably want to display them, the average user won't even know they're present. This means that users won't accidentally delete core DLLs.

Support personnel who are familiar with users trying to delete an application by dragging its desktop icon to the trash can, will be relieved that this action now produces a dialog box that takes them straight to the 'Add/Remove Programs' control panel.

Other improvements include using the same technology as the Office 2000 smart menus in the Windows Start menu. Applications that aren't regularly used are hidden, and are only redisplayed by a user action. Microsoft has also put a drop shadow behind the mouse pointer, which is pointless and uses valuable processing power. You can turn it off in the Mouse control panel.

Microsoft has updated the user interfaces of most system components, taking its cue from the world wide web. The first fruits of this appeared in Office 2000, but Windows 2000 Professional takes it several steps further. The familiar tabbed dialog boxes remain for most of the simpler tools, but more complex control panels have new-look dialog boxes, while others have become MMC (Microsoft Management Console) snap-ins.

The Microsoft Management Console handles all the administration tasks you might find on a workstation. These include local users and groups, as well as a disk defragmenter based on the popular DiskKeeper software. You can also use a disk clean-up utility that will

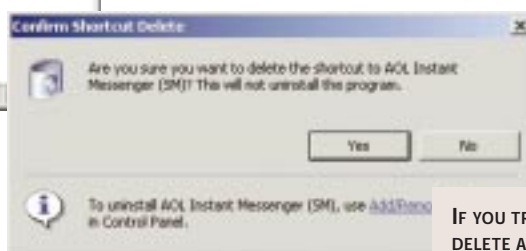
remove unused components and applications from your drives.

One of the more interesting features of Windows 2000 is its ability to use an extended file system.

You can create logical file systems that run on both local and remote machines and can be audited and given more complex security policies than a standard drive. You will need to use Windows 2000 native NTFS5 file system in order to use these. NTFS drives can also be encrypted, so that only approved users can access the information on them. If you're using Windows 2000 Professional on a laptop, this is very useful as confidential documents can be kept secure if the machine is lost or stolen.

One area where Windows 2000 Professional is a distinct improvement

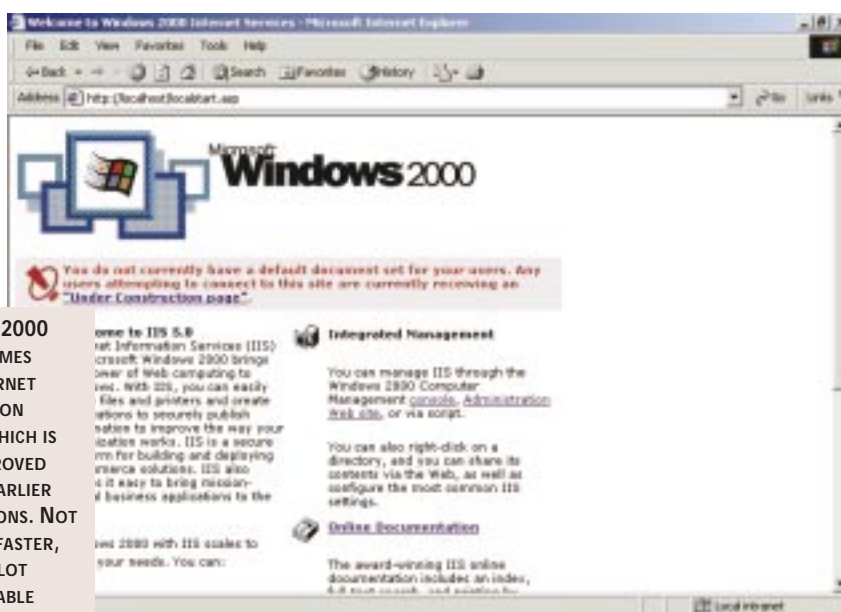
over Windows NT4 Workstation is its support for mobile users – it'll run on anything from a tiny Toshiba Libretto to a high-end PII Compaq or HP laptop. It supports PC Cards, though these may be affected by the power management functions. Microsoft has decided not to provide full Plug and Play support for 16bit PC Cards, opting instead for the newer Card Bus 32bit devices. You'll also be able to use Windows 2000's ACPI support to handle power management, with the OS handling both suspend and



IF YOU TRY TO DELETE A SHORTCUT FROM THE DESKTOP YOU'LL BE REMINDED THAT IT WON'T DELETE THE APPLICATION, AND GIVEN A LINK TO THE WINDOWS 'ADD/REMOVE PROGRAMS' CONTROL PANEL

hibernate functions. If a laptop is hibernated, Windows 2000 will save the state as a file, and shut down the PC completely, recovering when it is restarted. We also tested Server on a laptop, and found that these functions were supported as well, so you can use a laptop as a demonstration server with no problems – as long as it has enough memory.

If you're a mobile user you'll definitely want to upgrade to Windows 2000 Professional. It's far more stable than Windows 98, and it gives you access to a wide range of power and configuration management tools. There's also plenty of



WINDOWS 2000 SERVER COMES WITH INTERNET INFORMATION SERVER, WHICH IS MUCH IMPROVED OVER ITS EARLIER INCARNATIONS. NOT ONLY IS IT FASTER, BUT IT'S A LOT MORE RELIABLE

support for removable PC Cards, and for advanced power management features.

There's not much to worry desktop users either. Most of the applications you regularly use should run under Windows 2000, and the upgrade process is generally smooth. There are some issues over hardware support, as some manufacturers are taking the release as an opportunity to make some older hardware obsolete.

Windows 2000 Server

Windows 2000 Server is the mid-range member of the family, designed to handle the most common tasks given to NT4. Microsoft describes it as a tool for small to medium enterprise deployments.

We installed Windows 2000 Server on a dual-processor Pentium II system, and found that it performed extremely well. Installation was quick and easy, and led straight into the 'Configure Your Server' display panel. This web-based panel is where you begin to set up the key functions of your system. You're first asked if you're setting up a sole server, or part of a network. Choosing a single server setup takes you straight into the most complex part of any Windows 2000 installation – setting up the Active Directory.

You'll need to have a good idea of what you plan for your network before you start. While a registered Internet domain is a good idea, you can create domains that fit into your own naming structure – so you can happily have an active directory for 'smith' or '.office' rather than 'smith.com' or 'office.co.uk'. Setting up a Windows 2000 Server as an Active Directory server is easy enough –

setting up a single server from the 'Configure Your Server' panel handles the initial configuration of your system's directory. You can then use the Active Directory users and the computer's MMC snap-in to set up your users and the computers in your network.

Setting up a new user is deceptively easy. However you'll find many new tabs – including tools for setting up Terminal Services session settings. If you're going to use Windows 2000 and Terminal Services to manage users and their applications, you can define remote user profiles and home directories for your remote users. This will allow you to control users in a large site a lot more

effectively. As this is a directory service as well as an access control

system, you can also set up contact information for your users – and this will also be used by Exchange 2000.

The Active Directory will also manage the machines in your network, allowing you to record details of who manages them, and where they are. It will interrogate them and display details of their OS levels, so you can deal with upgrades and have your finger on essential support information if you need it. Active Directory will require an NTFS5 system in order to operate. It is possible to convert a FAT or FAT32 file system to NTFS5 using a command-line tool, though this can take some time – especially if you've got a large full disk! We'd recommend making the move to NTFS5 very early in your migration to Windows 2000.

Microsoft refers to the

family of technologies headed by Active Directory as IntelliMirror, and these allow you to manage systems and users more effectively. One function of IntelliMirror software is its ability to give your users roaming profiles, so that they can move from one machine to another, and find that not only their files, but also their applications follow them. By using the new Microsoft installer introduced with Office 2000, a user's profile will also contain information about applications and directories they use. You can force a user's home directory – and their 'My Documents' folder to be held on a central server – so they can access it from anywhere on the network.

System administrators will find that Windows 2000 is easier to maintain than NT4. Not only does it use the MMC technology introduced in the NT4 Option Pack for all its administration tools, but most of the tools can also be accessed from the Control Panel's Administrative Tools section. We also found the Computer Management MMC snap-in a one-stop shop for all the tools and features you need to control your server. As it's an MMC component you can add any new snap-ins as they're installed on your machine.

Where Windows 2000 Server has an advantage over its predecessors is in its ability to allow the delegation of responsibilities. An NT4 server really requires a single administrator – but that administrator shouldn't be the master of

all trades. If you're running a web server you'll want the web master to be able to handle some, if not all, administration tasks.

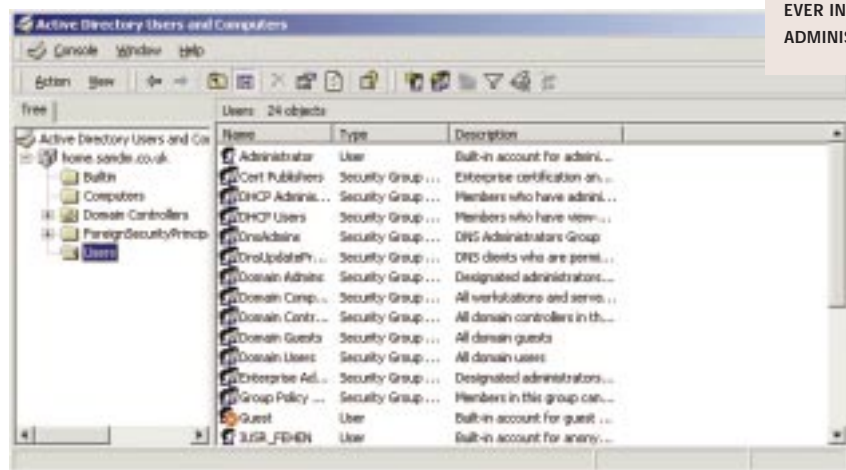
Delegating responsibility may be risky, but by limiting the functions that are available to your assistants, you'll be able to control what they do.

One of the core components of Windows 2000 Server is the latest version of Internet

Information Server. IIS 5.0 is a great improvement over previous releases, and includes features that make it much more suitable for public-facing Internet services. Probably the most important of these is its ability to auto-restart – so you won't need to go round and restart your NT server every time IIS crashes. We also found that it was much faster than IIS 4.0, especially when serving pages created using Microsoft's dynamic ASP technologies.

Windows 2000 Server also makes the

THE ACTIVE DIRECTORY MAY SEEM TO BE JUST ANOTHER WAY OF CONTROLLING YOUR SYSTEM'S USERS AND GROUPS, BUT IT'S PROBABLY THE MOST COMPLEX APPLICATION YOU'LL EVER INSTALL OR ADMINISTER



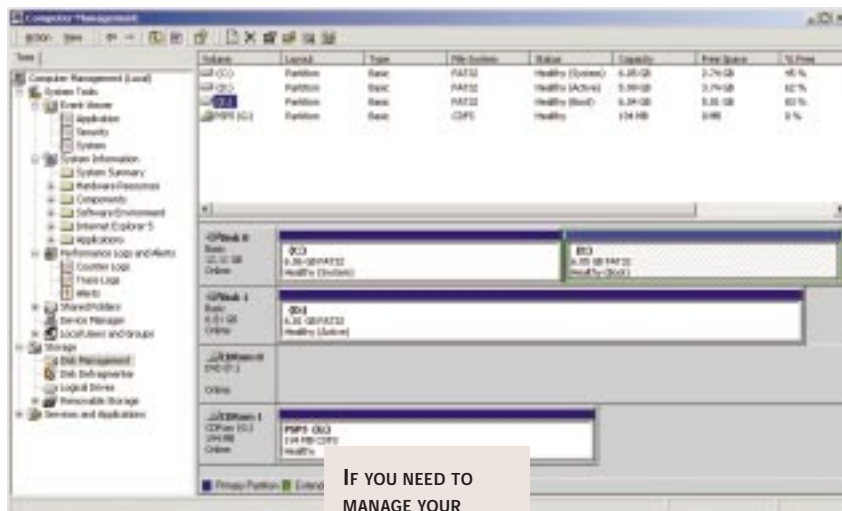
Windows NT4 Terminal Server part of the core Windows services. Terminal Services can be used to display your server's desktop on a remote PC, whether it's Windows 2000 Professional, 98, 95, 3.11, or even CE. Client software is included for all these platforms, and it's also ready for use with third-party network computers and terminals.

The Windows 2000 Server family will also include the, as yet unreleased, Datacenter version which is intended for massive multi-processor installations. With Datacenter you'll be able to work with large arrays of disks and huge amounts of memory. These 32-processor systems with 64GB of RAM are extremely expensive, and the applications for them

out into the enterprise. The adoption of the SOAP XML-RPC model in Visual Studio 7.0 looks likely to accelerate this, by making Windows 2000 applications able to work with Unix and Java applications without the overheads of complex bridges and interfaces.

It is important to remember that implementing a Windows 2000 system isn't a matter of taking the CD out of the box and clicking 'Install'. With features like IntelliMirror and the Active Directory you'll need to familiarise yourself with the new concepts and technologies. We'd recommend spending some time with Microsoft's training materials and planning information before attempting to set up an Active Directory machine. Planning information is available on Microsoft's website, or in the Windows 2000 Evaluation and Deployment Kit CD-ROMs.

SIMON BISSON



Terminal Services needn't be used to export the entire desktop, though this is a useful administrative function, as you can use it to deliver applications. By exporting an application user interface you don't need to worry about maintaining it on every PC, so you only need to update once. This is ideal if you're rolling out software with a fast replacement cycle.

Advanced Server and Datacenter

All the features of Windows 2000 Server are present in Advanced Server. However, Advanced Server adds support for four-way processors, as well as tools for clustering servers. Two clustering methods are available, either using Windows load balancing to control access to Internet-facing web servers, or a tool for creating clusters that will ensure applications are always available.

Windows load balancing allows you to create farms of web servers with access controlled by how busy each server is. Windows load balancing monitors the performance of the servers, and connects users to the least loaded server – so websites respond quickly and reliably. You can then use COM+ and the server clustering tools to create more reliable application servers, either for web transactions or internal business systems.

are limited to extensive data processing or scientific simulations. Datacenter will also support large numbers of users, so could form the basis of Terminal Services-based Application Service Providers capable of servicing tens of thousands of simultaneous users.

The server is definitely designed to make an administrator's life easier. The MMC may take a little time to learn, but it soon becomes invaluable. However, the most significant features are the Active Directory, and the inclusion of Terminal Services as a default. Instead of being a file, print and web services tool, your Windows 2000 Server becomes a crucial part of your business processes. You may not like being forced into this by Active Directory, but you'll need it to get the most out of Windows 2000 – and especially the IntelliMirror systems management tools.

We were also pleased to see a significant improvement in the performance and reliability of the Internet Information Server web server. Advanced Server adds features to allow you to handle more processors, and to cluster your servers together. With a set of Advanced Servers, and applications written to take advantage of the COM+ application server, Windows applications look likely to start to move

PCW DETAILS



Prices Windows 2000 Professional £260, Win2000 Professional Upgrade from Win95 or Win98 £170, Win2000 Professional Upgrade from WinNT Workstation £100, Win2000 Server with 10 Client Access Licences £950, Win2000 Server with 10 Client Access Licences Upgrade from WinNT Server £450, Win2000 Advanced Server with 25 Client Access Licences £3,185, Win2000 Advanced Server with 25 Client Access Licences Upgrade from WinNT Server Enterprise Edition £1,560. Price for Datacenter to be set at a later date. All prices are estimated retail, excluding VAT, for single-copy purchases.

Contact Microsoft 0345 002 000
www.microsoft.com

System requirements Not finalised by Microsoft at the time of going to print

Good points Stable and able to work with most existing applications. Professional is good for mobile users, and Server for most server operations – with a dramatically improved web server

Bad points Untried and untested, with some hardware not yet supported by drivers. Setting up an Active Directory can be a complex operation

Conclusion Windows 2000 looks as though it will live up to the hype. The extended development cycle has meant that it's relatively bug-free, and can be rolled out fairly soon after release. The really important changes are under the surface, with an integral application server in COM+ and the advanced Active Directory. As a result we'd recommend spending some time learning about the new features before starting an implementation, especially if you're going to use the Active Directory

Corel Linux

An improvement on the original, with a **user-friendly** graphical installation wizard.

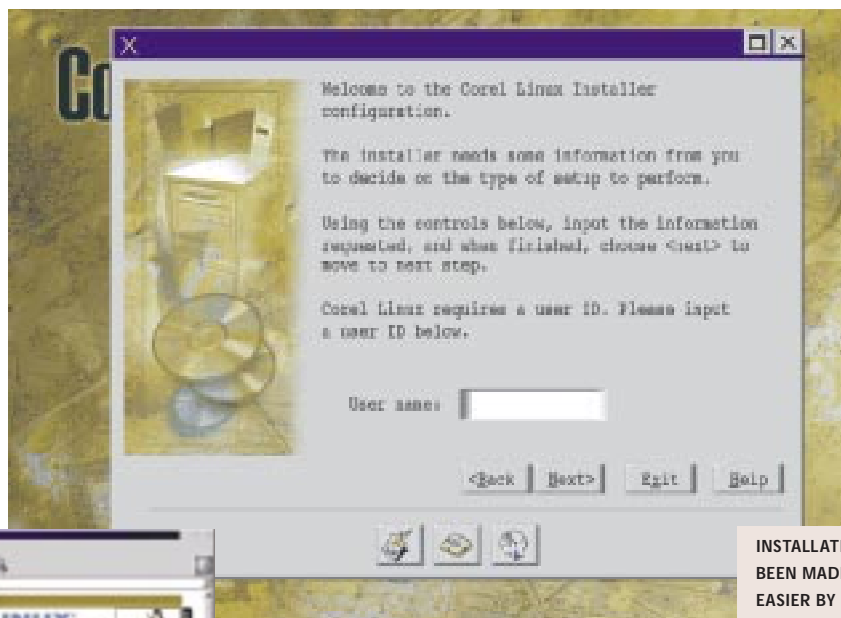
Corel Linux was one of the most anticipated Linux distributions last year, and racked up an impressive 47,227 downloads during its first week of release on CNET's download.com. Corel Linux is currently only available as an ISO CD image, so to make use of the 320MB download you spent three days dragging down from the net, you'll need a CD writer. If you haven't got one or don't feel like lining telephone companies' pockets you can order a CD direct from Corel for \$4.95 plus shipping. The company will convert this to your local currency when it accepts your order.

While Linux is a stable, advanced operating system it is not for the uninitiated. It won't always work first time, can require a bit of tweaking and generally should be left to those who enjoy activities like this.

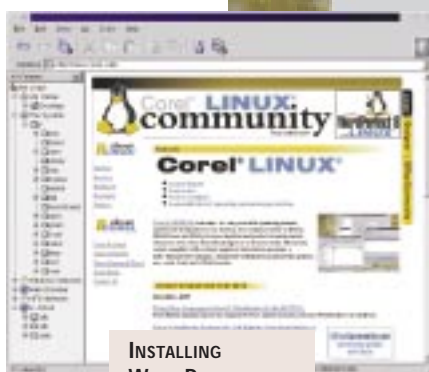
Corel is hoping to change all this. Gone are the text-based install screens written in badly translated geek; with Corel Linux you're treated to a fully graphical installation wizard written in sensible English. However, if Xwindows won't run on your particular hardware setup you won't even get as far as the welcome screen, the machine will just spit out the CD and quietly reboot.

For the time being, this is a reasonable compromise since the current market for Corel Linux is likely to be people who want to run it as a desktop OS and therefore want a GUI. If you just want a console-based server then a text-based install won't phase you. In terms of hardware compatibility, Corel Linux is no better or worse than other distributions – some pieces of kit might make it wince, but this is all well documented on Corel's website.

After plugging through the setup screens we were ready for the final reboot. Everything seemed to have been painless – if anything, we've experienced



INSTALLATION HAS BEEN MADE MUCH EASIER BY USING A GRAPHICAL INTERFACE



INSTALLING WORDPERFECT ON COREL LINUX PRODUCED THE FIRST PROBLEM

more taxing Windows installs.

Reset the machine and the first thing you'll notice is the graphical shell that sits over

LILO (the Linux LOader), the only minor gripe being that it sets the default boot option to Linux without asking if you

would rather have Windows. After a couple of minutes the system powers up the XServer and you are presented with a graphical login. By default the KDE window manager is set up for you and greets you once you step through the door. One major addition on the K menu (equivalent to the Windows Start menu) is Corel File Manager, which provides a very 'My Computer' view of things from your home directory to other machines on the network. While this isn't Linux for idiots it is a step in the right direction.

We encountered the first hiccup when we installed WordPerfect for Linux. The default Corel Linux installation does not include all the libraries required by WordPerfect and therefore it fails to run. A check on Corel's website confirmed the missing library complete with instructions on how to add it. Using the Corel Update utility it was just a matter of selecting the

required package and clicking update. As well as performing updates from CD the utility can also connect to ftp sites, allowing Corel to post simple upgrades in the future.

Having been through a number of Linux distributions over the years, Corel's offering puts the others to shame. Installing an operating system from scratch is never going to be easy, but that doesn't mean that it shouldn't be made as straightforward as possible. If we're not careful Corel could push Linux out of the domain of the hackers and the techies and land it right on the normal user's desktop.

WILL HEAD

PCW DETAILS

★★★★★

Price Free to download.
\$4.95 for CD direct from Corel
Contact Corel 0800 581 028
<http://linux.corel.com>

System requirements Available from Corel's website

Good points Fully graphical, straightforward install. Simple-to-use file manager. Effective update facility

Bad points Minor hardware compatibility issues

Conclusion Corel has taken the stability and flexibility of Linux and added ease of use and good styling



Sun StarOffice 5.1

A great performer which, once usability problems have been sorted out, will challenge Microsoft.

StarOffice is famous for two things, first that it is free and second that it is cross-platform, running on Solaris, Linux, Windows and OS/2. Now owned by Sun, StarOffice seems to be an attempt to undermine Microsoft Office, and also as preparation for a new era in Office productivity when you might run applications and open documents from a central location accessed over the web. Sun would benefit from this 'StarPortal' concept by selling servers and services. In the meantime, StarOffice is a free alternative to commercial Office suites on Windows, and as a solution for users of Linux or other supported systems.

the main menu and toolbars, in a style that is similar to Windows MDI (Multiple Document Interface).

StarOffice's main document types are Word Processor, Spreadsheet, Presentation, Drawing, Database and HTML document. Other editors include Chart, Image, and Formula. The feature list is huge. For example, the word processor has paragraph styles, tables, fields, auto complete and auto spell-check, thesaurus, the ability to insert charts, OLE objects and Java applets, Index and Table of Contents support, headers, footers and footnotes, versioning, integrated drawing tools,

better. For example, StarSchedule is a server-based calendar that can be shared over a network using HTTP, a trick that is beyond Microsoft Outlook unless you install Exchange. Note that you need the CD version to get the scheduler.

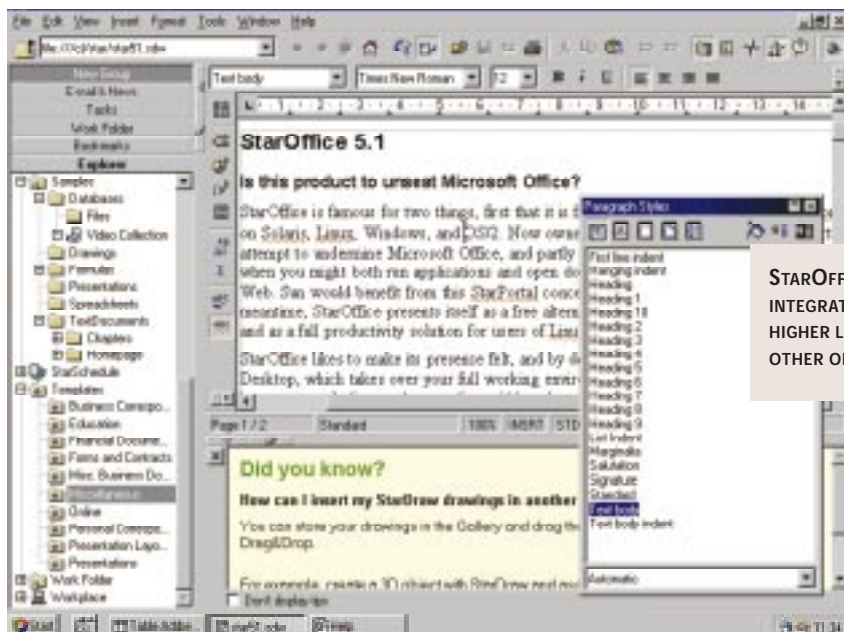
Two big problems with StarOffice are usability and documentation. If you look at the evolution of the major Office suites, you can see that for several years the focus has been more on usability than features. While StarOffice is up to the mark on features, it is well behind on usability. The user interface is too busy, with toolbars and help windows on all four sides of the working area, along with floating, docked and pop-out tools.

There is no shortage of wizards, templates and online tips, but the overall effect is cluttered rather than helpful. In such a feature-laden package, the quality of documentation is critical, and currently it is not at all easy to find your way around. You also have to learn

StarOffice jargon like 'Beamer', which is a window for displaying the contents of a StarOffice element library. Stability is not what it should be, so save your work often.

This is a fantastic package for an unbeatable price, but it does need to mature a little before the typical office user will really want to use it. With a little more development, it has the potential to take on all comers.

TIM ANDERSON



STAROFFICE TAKES INTEGRATION TO A HIGHER LEVEL THAN OTHER OFFICE SUITES

StarOffice likes to make its presence felt, and by default installs with a feature called Integrated Desktop, which takes over your whole working environment. It also offers to become the default browser, email client and news client, which makes sense if you want to move seamlessly between Windows and Linux, for example.

Whether or not you choose the Integrated Desktop, StarOffice takes integration further than other office suites. Instead of offering a suite of applications, it feels like a single application with different document types. If you are working in a text document, and then start a new spreadsheet, you end up with two floating document windows that share

multiple columns, database integration and more. The advanced features are not only present, but implemented thoroughly. Look into paragraph styles, for instance, and you find a dialog with 12 tabs, including control over hyphenation, widows and orphans, drop capitals, and so on. Macro enthusiasts can open the StarOffice programming environment, which uses StarBasic, a language similar to Visual Basic.

This richness of features makes StarOffice ideal for Linux users who want to say 'Anything you can do I can do better'. It also means that in theory organisations could move from, say, Microsoft Office to StarOffice without losing features. Some things are actually

PCW DETAILS

★★★★★

Price Free download, or CD available, currently also free to UK and Ireland residents. Go to www.sun.co.uk/staroffice

Contact Sun Microsystems
01276 451 440 www.sun.co.uk

System requirements Windows 95 or higher, Linux 2.0.x or higher, OS/2 Warp 3 or higher, Solaris 2.5.1 or higher. 64MB RAM and 100MB disk space

Good points Value, number and depth of features, team scheduler, runs cross-platform

Bad points Quirky, cluttered interface, poor documentation and erratic online help, some bugs

Conclusion Still an adventurous choice but nearly very good indeed

Lotus Organizer 6.0

Lighter to carry and **easier to update** than a paper-based alternative, this is fine for personal use.

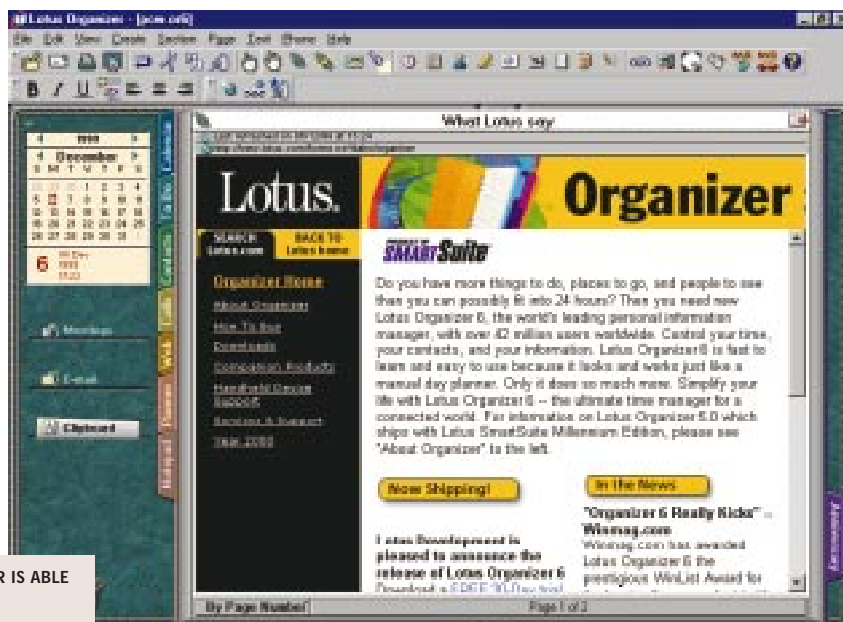
Organizer is the PIM (Personal Information Manager) that looks like a real organiser, complete with tabs and ring-binder. The advantage is instant familiarity, together with great printing options if you want to stick pages into a paper-based version. On the other hand, it is no longer true that typical PIM users also have paper organisers. The binder look is less compelling than it was, but Organizer remains the easiest PIM to learn.

Its main features are a personal calendar and contact manager, and extras include a to-do list, telephone call manager, notepad, and a new web links organiser. Users on a network can share Organizer sections, with simple password control over permissions. It is also possible to synchronise with a PDA, with support for Palm devices included and other options available.

At version 6.0 you would imagine that Organizer should be pretty good at its core functions, and it is. You can double-click a day in the calendar to create an appointment, and have comprehensive options for reminders, repeating appointments, and setting up meetings with automatic invitations and checking of free/busy time status. The contact manager has plenty of fields available and is easily customised. For example, Organizer has a Zip code field, but using the Custom labels button it is easy to change this to postcode. The History view shows contacts one at a time, alongside an Activities page listing appointments, calls or other notes associated with that contact. These are hyperlinked to their source. Organizer has the essentials for contact management including features like the ability to schedule a future phone call with an automatic reminder.

Existing users will not find dramatic changes in version 6.0. The most obvious new feature is the Web section, where you can store web links including login details for password-protected sites. When the link is clicked, the login details

ORGANIZER IS ABLE TO STORE DOWNLOADED WEB PAGES IN ITS NOTEPAD SECTION



are entered automatically. You can also download web pages and store them in the Notepad section. Organizer displays them in its own browser, which seems to use the Internet Explorer control to render content. There is also support for relevant Internet standards, including vCard, vCalendar, iCalendar and LDAP directory lookup. A simple but powerful feature will publish contact or calendar information as web pages, and will re-publish them daily or at other intervals.

Organizer's EasyClip is a great time-saver. It provides a range of right-click options such as Create Appointment and Create Contact. Typically, you would use this while working in another application, in

which case EasyClip looks at the currently selected text and converts it intelligently. For instance, if you are in a word processor and select the text: 'Buy PCW, 1 March 2000', then EasyClip's Create Task automatically sets this up as a task due on that day.

Organizer comes with SmartCentre, which is a toolbar with links to web-based information along with Organizer's calendar, contacts and reminders.

The problem with a PIM is that it tends either to be in constant use, or not at all. Organizer has a few weak points. Unlike Microsoft's Outlook, it is not an email client, so if you want to flip back and forth between your inbox and your calendar, you need to have two separate applications open. Most of the web features are similar to what is already available in Netscape Navigator or Internet Explorer. Organizer is mainly for personal use, and the network features are weak. Lotus should have followed Microsoft's example and integrated the best features of Organizer into the Notes client.

TIM ANDERSON

A simple but powerful feature will publish contact information as web pages

PCW DETAILS

★★★★

Price £70 (£59.57 ex VAT)

Contact Lotus Development Corporation
0870 600 6123
www.lotus.co.uk

System requirements 486 with
Windows 95, 98 or NT, 16MB RAM,
17MB hard disk space

Good points Easy to learn and use, fun
web links, and comprehensive PIM
features

Bad points No integrated email client,
poor network capability, too much US
content

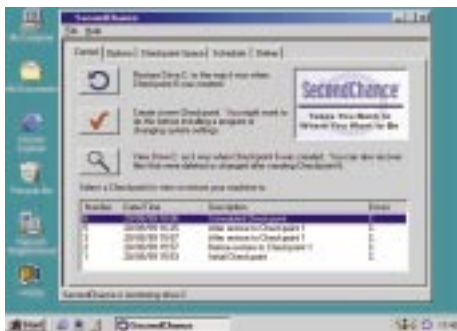
Conclusion Fine for personal use, but
limited if you want to share information

SecondChance 2.0

A utility that can get you **out of trouble**, and take your system back to where you want it to be.

From Powerquest, the company responsible for one of the best utilities ever, Drive Image Pro, comes a product that aims to restore your system to a working state with just a few easy clicks. It is aimed at IS professionals to assist users to restore their own systems, or OEMs to help them with technical support calls, and home users who want to restore their hard drive after installing a new program or changing an important system setting.

It is file, rather than sector-based and relies on a series of checkpoints. A checkpoint is a snapshot of the FAT that is automatically created when you install the program and at various points during the week as defined by you. The program then installs a small VXD in your system tray that monitors any changes you make to your drives. If you delete a file, a backup is placed in the SecondChance directory, which is protected to make it harder to



delete accidentally. If you want to restore your drives, it starts up a 16bit program in DOS. Further checkpoints are created before and after the restore, so you can re-trace your steps if something goes wrong.

The best thing about the package is that it creates copies of any files that are erased during the restoration process. When you re-boot into Windows, you can view these and copy them to their original, or another, location. If you can't boot into Windows, you can use an

emergency boot disk that the program creates to load a 16bit version of SecondChance and restore your drives from there. It is not entirely foolproof: if you totally delete a drive it can't help you, but it is still a very useful utility that would suit any of its intended markets well.

JASON JENKINS

PCW DETAILS



Price £58.69 (£49.95 ex VAT)

Contact Powerquest 01189 755 955

www.powerquest.com

System requirements 486 or higher processor, 20MB hard disk space, 16MB RAM, Windows 9x, CD-ROM drive, 256-colour VGA display

Good points Easy to use, doesn't adversely affect system performance

Bad points Fairly expensive

Conclusion An excellent utility that could be of use to professionals and home users alike, but it comes at a price

PartitionMagic 5.0

If you want to be able to **re-size your disk partitions** without deleting them, this is the one for you.

When the first version of this powerful utility hit the shelves it was revolutionary – before PartitionMagic there was simply no way to re-size disk partitions without deleting them altogether using FDISK. Now on its fifth incarnation, Partition-

Magic is as useful as it always was, but if you're a proud owner of version 4, you'll need a specific reason to upgrade.

The most important new feature is the NTFS to FAT converter which does something that Microsoft claims can't be done – getting Windows 95/98 to read your NTFS data. It is also possible to merge adjacent partitions, whereby one of the drives becomes a sub-folder on the enlarged, merged drive. Improved wizards help you through the process of changing your hard disk, and then boots into DOS to make the changes.

Bootmagic enables you to install more than one operating system and choose which to boot into from a menu at start-up. There's also new support for Linux partitions. Magicmove makes a welcome return in this version and lets you move whole applications between partitions to help free up more space on the original drive.

The interface is easy to use – you can pick applications to move straight off your start menu or browse to find them. The program then scans your hard drive and registry and makes appropriate adjustments.

PartitionMagic is still very impressive. If you don't own a recent copy you should buy one now, but if you do you'll need a desperate yearning for an NTFS to FAT converter before it's worth the price.

JASON JENKINS

PCW DETAILS



Price £59 (£50.21 ex VAT)

Manufacturer Powerquest

01189 755 955

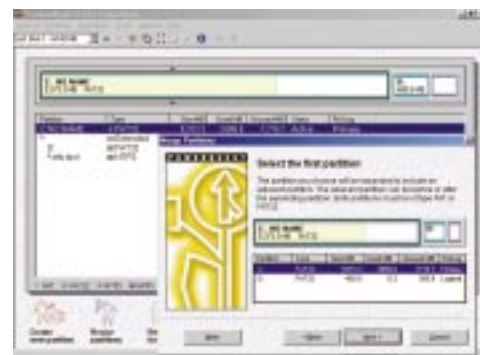
www.powerquest.com

System requirements Windows 3.x/95/98/NT or DOS 5.0, 486 Processor, 16MB RAM

Good points New NTFS to FAT converter, Linux support and the ability to merge partitions

Bad points None to speak of

Conclusion This remains one of the best utilities ever written and it is something you should not be without



McAfee Utilities 2000

A useful suite of utilities with a good interface, but not as reliable as it could be diagnostically.

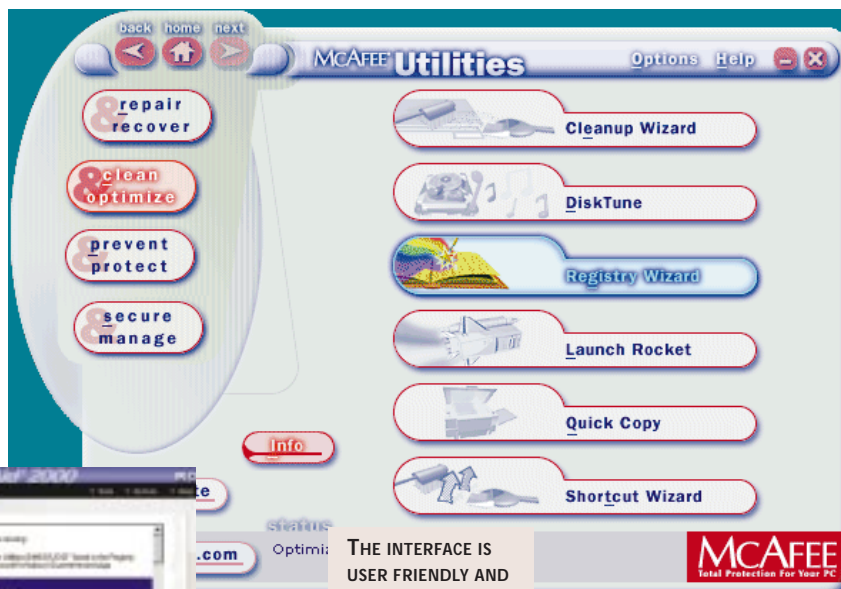
McAfee Utilities is an integrated collection of some 21 tools designed to play nursemaid to your PC and make maintenance a breeze.

The user interface is very clean and logical. Four areas – Repair & Recover, Clean & Optimise, Prevent & Protect and Secure & Manage – are accessed from a central control panel, with each section in turn home to a handful of utilities. While there is some substantial overlap between their capabilities, each operates as a standalone feature, and this makes targeted troubleshooting easier.

Several of the utilities are really just tweaked or supercharged versions of components found in Windows 95/98. Disk Minder, DiskTune and WinGauge, for example, offer much the same service as Scan Disk, Disk Defragmenter and System Monitor respectively. However, McAfee's point-and-click approach is more likely to engender a healthy habit of system maintenance than anything in Windows. This suite helps you back up your data, recover from faults, rescue lost or deleted files, speed up your programs, clean up your hard disk, and revert back to safe system settings when things go wrong.

However, matters get a little sticky when you attempt serious diagnostics. Discover Pro, for instance, displays detailed information about your system and runs benchmark tests but misreported our test system's Athlon 600MHz processor as a K6 266MHz. Not a serious problem, perhaps, but enough to cause alarm in the unwary. (Network Associates assures us that a patch to address this issue will be included with future updates.)

Next, we ran a test on our machine's hard disk and were surprised to see it fail. Disk Minder scanned the disk for errors, found no faults and fixed nothing – yet it passed second time around. Puzzling. The system's RAM also 'failed' but this time there was no indication about what this meant or, more importantly, what could be done. We rebooted and ran the



test again, but this time

the entire system froze midway through – at which point, none the wiser, we moved on.

First Aid 2000 – a heavy-duty diagnostic program with built-in repair tools and a pedigree in the field – was rather more impressive. It correctly identified that a scanner and a USB printer were both attached to the machine without any driver software in place, and went on to list a host of 'potential' problems where registry entries and shortcuts appeared to be awry (and this on a machine that had been reformatted – ie wiped clean – not 12 hours before). The AutoFix option rather gratifyingly sorted out the minor problems without any further intervention. On the downside, First Aid went on to suggest that the modem was set to use a port to which it was not attached – a diagnosis that was neither helpful nor, in fact, true.

We did get some good results from Crash Protector – which gives you a chance to save your work on the point of an application crash. Other reasonably useful features include a file shredder for doing away with sensitive data, a registry editor that tweaks your system settings for maximum performance, and several 'How Do I?' videos. McAfee even throws

THE INTERFACE IS USER FRIENDLY AND SHOULD MAKE RUNNING REGULAR HEALTH CHECKS EASIER

in a Zip utility and a Y2K hardware checker (perhaps a little late in the day?) for good measure.

All in all, a mixed bag. As a rule, utilities come under the category of occasionally useful rather than essential. Until software develops real intelligence – and, in particular, the ability to think laterally – technical support teams have little to fear. That said, there's plenty here to help you get to know your PC a little better, and a regular maintenance programme never hurt.

KYLE MACRAE

PCW DETAILS

★★★★

Price £24.95 (£21.23 ex VAT)

Contact Network Associates
01753 827 500

www.mcafee.com

System requirements 486 processor (Pentium recommended), Windows 95 or 98, 16MB RAM (32MB recommended) Min 32MB hard disk space (max 100MB for full installation)

Good points Logical approach to utility organisation and a pleasantly intuitive interface

Bad points Not as reliable in diagnostic mode as it would have you believe

Conclusion Not quite up there in the must-have stakes but nevertheless a well-appointed suite of handy utilities – and decidedly good value for money



Online vs offline email

Weighing up the practicalities of **cost versus convenience** unearths some surprising facts.

Mention killer applications for the Internet and most people will say the world wide web. But let's not forget that this worldwide network of computers allows us to transport messages – or just a discrete bit of gossip to the person at the desk opposite – from one side of the planet to the other in a blink of an eye.

We're talking, of course, about email, the ubiquitous messaging service that the world and its dog has adopted. Many people now prefer to avoid being disturbed by phone calls and make their communications via email instead, and as far as faxes are concerned – well, they're so Eighties daaahhling!

Since it goes without saying that you use email, why is it the subject of a *Head to Head*? The question we're asking is whether should you send and receive messages in a batch and browse them

offline without incurring connection charges, or should you dump hefty offline clients in favour of lean, portable online web-based services? In Microsoft terms, it's Outlook vs Hotmail, but many others are joining the battle for your messaging services.

Speed

As any Internet user knows, the speed at which any operation occurs is determined by several variables, and the fastest local plumbing in the world can be blocked by a busy server elsewhere.

Such unknown conditions plague email of all flavours, but perceptions of speed vary considerably between offline and online email services. An offline client may seem to take an age to send and receive messages, but once the process is completed, they're all there for you to browse through at your leisure.

You may often find yourself flicking between messages to cross-reference information, and since the messages reside on your local disk, this operation is almost instantaneous.

Online services, however, present you with your inbox of subject headings and await further instructions. Clicking on a message results in a pause while your command crosses the Internet, accesses the server and returns with the desired information. It's usually only a matter of two or three seconds, but if you're used to reading offline, even this short pause can be infuriating.

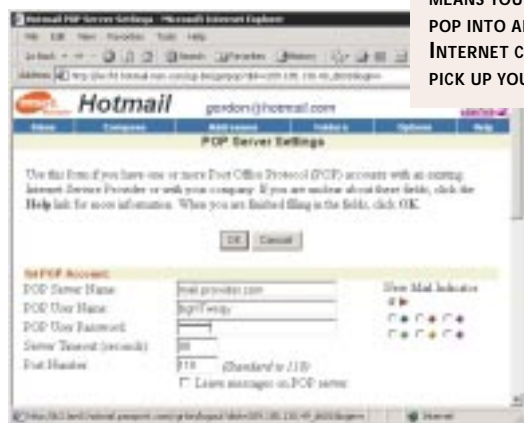
Interestingly, this situation doesn't seem to perceptibly improve when accessing current online services through a high-bandwidth leased line instead of a paltry 56K modem. So, in this first round of speed perceptions, the score is one-nil to offline.

Capacity

The actual text in email messages may only be as small as a few hundred bytes, but watch out for all those pesky attachments. Even a well-trimmed inbox could measure 50MB, and over 100MB is not uncommon.

If you download your messages onto your own PC, you decide how much capacity is on offer; in theory it could be the size of your entire disk. However, anyone who uses online email services, or stores their messages on their firm's server will be told by the MIS department as soon as they've reached their limit. In Excite's case, the limit per user is 3MB.

To be fair, capacity is very much down to how you use your services, as online messages can be copied onto



Outlook will find the all-encompassing PST file in Windows/Local settings/Application Data/Microsoft/Outlook. Back this up too!

Features

You'd think an offline client would crush an online service in terms of features, but things are pretty even. You can attach an automatic signature to messages on both systems. You needn't worry about attachments either, as both online and offline services handle them with ease. You can also set up filters to block unwanted email from individuals or entire companies – but remember that in the case of offline readers these

POP3 ON HOTMAIL MEANS YOU CAN POP INTO AN INTERNET CAFE AND PICK UP YOUR EMAIL

unwanted messages are normally deleted only after you've spent money downloading them.

Email is, of course, no good

without a set of addresses, and contacts are managed very effectively by an offline client. However, online services such as Excite and Kerbang also offer contact storage and management. Both online and offline users can also keep messages from regular contacts in their inbox, and use replies to these as a

lazy way of maintaining an address book.

Excite takes the Application Service Provider (ASP) model even further by offering importing of contacts and online management of schedules – it'll



EXCITE PLANNER ALLOWS YOU TO KEEP ALL YOUR CONTACT DETAILS SYNCHRONISED

even synchronise with your handheld PDA. You may be able to customise the appearance of an offline client better, but in this round of features, it's a draw.

Cost

So how much does it all cost? In terms of software, very little. Web browsers are all that's needed to access the interface of an online service, and both Internet Explorer and Netscape Navigator also come with competent offline POP3 email clients – all at no cost.

In terms of the actual service, most online email is free – simply go to Hotmail, Excite, Yahoo or any other supporting website, and sign up for nothing. You'll need an ISP to get on the web in the first place, and most of these offer a POP3 service as part of the package – and the package these days is often free. However, users of online email tend to spend longer connected to the Internet, and if you pay for this

your local disk, and offline clients can be instructed to leave messages on your ISP's or company's server. In general, however, offline clients are normally setup to move messages from the server to your local drive, and online services usually hold them remotely. In this set up, offline wins a capacity point.

However it's worth mentioning backup. Online messages are stored on a machine that could serve hundreds of thousands of accounts – so it's almost certainly backed up regularly, and your messages are safe whatever happens to your local machine. Downloading messages onto your local drive means that you're responsible for them. That means a draw in this round.

To find your messages locally, this is where you'll need to look. Outlook Express users will find the all-important MBX and IDX files in Windows/Application Data/Microsoft/Outlook Express. The Microsoft folder also contains your address book, labelled WAB. Netscape mail users will find their messages in Program Files/Netscape/Users/yourname/mail – don't forget to back up this entire folder. Users of full

Blurring the distinctions

Just when you think you've got offline and online email services separated, something comes along to confuse the issue. A quick browse around the online web HTTP email services such as Hotmail and Excite will reveal POP3 account options. Enter your three basic POP3 account details (incoming mail server, account name and account password), and you'll be able to access your POP3 messages and attachments.

This is a boon for anyone who relies on their POP3 account for messaging, but has no offline client to hand. Simply find a device with a web browser and you're sorted, whether it's in an Internet café or someone else's office. Most web email services offer additional options to leave your messages on the POP3 server, so you can download them onto your offline client inbox later. You may also want to change the 'reply-to' option to your

POP3 address, so any messages you respond to with a web service will eventually get back to your main account.

If you use web-based email regularly, it can be a pain to check your messages separately to those sent to your offline client. Outlook Express 5 lets you retrieve HTTP messages in the same way as with POP3 accounts; it'll even set up a Hotmail account for you. Sadly, full Outlook does not currently support this.

connection, then it'll work out more expensive.

On the hardware side it's a different story. An offline client such as Outlook Express usually runs on a proper PC, whereas an online service needs only a web browser. This could run on a fully-fledged PC, or on a much less expensive information appliance such as a games console or set-top box. Another draw.

Portability

The fact that an online service keeps your messages on a remote server means that you can access your inbox from anywhere in the world – and with an interface that looks familiar regardless of what device is used. You choose an email address and carry it around with you, safe in the knowledge that you can retrieve messages from anywhere, without the need to lug around or own your own computer. This is a simple, but crucial, empowering win for online services.

Perception of quality

Any service that's free to the user must make its money elsewhere, and that's normally by advertising. Since all the popular online email services are free, you'll have to put up with some advertising above your inbox, and often an additional signature pasted below every one of your sent messages saying how 'you can get a free account too'.

Call us Internet snobs, but there is a

When in roam

Everyone loves to get a postcard, but they do take a long time to arrive. However, by using email you'll be able to tell friends back home in a matter of seconds that the weather's lovely and you're having a great time. But who wants to take a computer with them and worry about foreign ISPs and call charges?

The answer is free

web-based HTTP mail services such as Hotmail and Excite. Because your account details and messages are held on a central web server, you can access them from any web browser, whether it's in a cyber café on the Khao San Road, or on a colleague's PC in another office. Simply borrow someone else's PC, or rent one for half an hour in a cyber

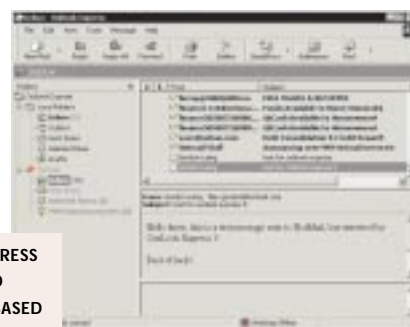
café and you're back in touch.

It's remarkable to see how cyber cafés have taken off, even in underdeveloped areas – wherever there's a traveller, you'll find a web browser nearby. See our box on blurring distinctions on the previous page to find out how to retrieve your POP3 messages on web services too.

certain cheapness to all of this, and while it's perfectly acceptable if you're travelling or on a strict budget, free online accounts just don't give the right impression in business. This also applies to offline accounts that are given away with free ISPs.

If you want to avoid adverts, or register your own domain name, or use one from an ISP that gives a better impression, then you're going to have to pay for a POP3 service at the moment. To eliminate any advertising signatures, you'll also need to manage your email from an offline client.

**OUTLOOK EXPRESS
LETS YOU READ
YOUR HTTP-BASED
MAIL IN MUCH THE
SAME WAY AS POP3**



Conclusion

Anyone who's been keeping count will have noticed that offline has fractionally beaten online by a single point. It should really be a draw, as any regular user of email will find justifiable reasons for using both types of services.

It is interesting that they're currently complementary, particularly when you consider how differences are becoming blurred – see box on previous page. We would urge everyone to set up a free online account simply so that they are able to email from anywhere there's a browser; the ability to access POP3 services online too is liberating for anyone used to carrying a notebook around just to keep in touch.

While most people feel happier today with offline clients, the long-term trend is heading towards online ASPs. By hosting your email remotely, you let someone else worry about storage, backup and administration. If your PC dies, you lose your notebook, or you're outside your home or office, you can still access your full account wherever there's a web browser. Busy free online accounts may have given us the wrong impression of the quality that an ASP can supply, but believe us, they are the way of the future.

GORDON LAING

SMS the email alternative

With a permanent connection to the Internet, you can enjoy regularly polling for messages and seeing them pop up the instant they've arrived. But is this possible in a mobile environment?

The Short Message Service, SMS, offers an almost instant text-messaging solution to GSM mobile phones. The messages may only be a maximum of 160 characters each, but that's plenty to set a time and place for meeting.

The beauty of SMS is that messages generally

take less than five seconds to get from one mobile to another – anywhere in the world where there's service. You don't need to dial up to see if any are waiting, as they immediately appear on your screen and all at no charge to the recipient.

When you're abroad, avoid expensive phone charges by sending text messages instead. On a recent trip to the US, I was charged almost £1 per minute for voice calls, but still only 6p for every text message.

There are already gateways that convert

emails to SMS for phone delivery and vice versa. Several websites offer text messaging services to mobiles – check out www.orange.co.uk for sending messages from any web browser to an Orange phone.

WAP-compliant mobiles will soon feature POP3 clients to directly access your proper email. At first this will still need a dial-up operation, but within a year packet services for mobile phones will allow them to be permanently connected to the net, with all its instant messaging benefits.