

Budget PCs Mesh Matrix 2200+ RD Pro and PC World Advent 3813 BTO

Those that rate decent graphics as a must, but don't have an inexhaustible supply of cash will be pleased to read that both of these budget systems from Mesh and PC World feature ATI's brand-new Radeon 9000 Pro graphics card, a modestly-priced variation on the established Radeon 8500. It shares a lot of the 8500's specifications,



but its limited memory and 64MB of DDR (double data rate) RAM is disappointing for those looking for high performance.

In our Quake III tests, the Radeon 9000 matched the 8500 and GeForce4 Ti 4200 at a resolution of 1,024x768, but dropped to almost half the frame rate at higher resolutions. However, video encoding reveals a different story, with the 9000 shaving a few seconds off the times set by the other cards. If you have a choice we'd still recommend the Radeon 8500 and GeForce4 Ti 4200/4400 cards as the best all-rounders, although for specific video functions the 9000 Pro is worth it.

Mesh Matrix 2200+ RD Pro

Notching up a healthy WorldBench 4 score of 123, the Mesh Matrix shows a clean pair of heels to the rest of the Budget PC competition. This is partly due to the Athlon XP 2200+ processor, although the 512MB of fast PC2100 DDR RAM helps as well. There's no shortage of storage space, and the Maxtor hard drive offers a plentiful 80GB. The 19in Mitsubishi Diamond Plus 92 is an excellent monitor that has stood the test of time. Its 0.25mm dot pitch, vivid colour scheme and sharp picture allows it to make full use of the Mesh's video card.

Unsurprisingly, the ATI Radeon 9000 Pro gets a better airing on the Matrix and its video tests are impressive, making this one of the best Budget PCs for video encoding. Games performance is disappointing, though, with higher resolutions proving too much for the card.

The sound system is more impressive, with Creative's popular Audigy card lent resonance by Videologic's ZXR 500 speaker system. CD drives tend to be much of a muchness these days, but the Teac CD-RW has fared well in our CD drive chart (see page 134), and its 40-/12-speed CD-R/RW facilities result in a smooth and speedy performance.

The Mesh's software bundle, which comprises Windows XP Home and Lotus SmartSuite, isn't the most expansive, but the solid internal arrangement and adequate three-year collect-and-return warranty are pleasing.

Mesh, the ATI Radeon 9000 Pro is better at encoding video than games and, overall, you sacrifice that extra bit of video speed. We can't fault the sound system, though, and just like the Mesh the Advent gets great voice from the Creative Audigy/Videologic ZXR 500 partnership.

The Liteon 32-/12-speed CD-R/RW and 16-speed DVD drive are solid rather than stunning, although internally the Advent is well arranged and offers easy access to its slots and connectors. The instruction manual is also informative, and the onsite warranty is welcome.

Verdict

The Mesh is certainly the most impressive of the two PCs – the Advent is more expensive while offering much less overall. With both systems, however, there's a question mark over the graphics card. While they are arguably the best Budget PCs for video encoding, for games and 3D performance alone it would be a safer bet to stick with nVidia's GeForce4 or ATI's Radeon 8500 graphics card. ■

Robin Morris



PC World Advent 3813 BTO

PC World treads much of the same ground as the Mesh, only with less flair. The Advent's WorldBench 4 score of 119 is disappointing for a PC with an essentially strong base system. It uses the same Athlon 2200+ chip, 80GB hard drive and 512MB of DDR RAM as the Mesh, so why it's slower remains a mystery, although this has been a common trait among previous Advent PCs.

The 19in Samsung display is an extremely competent monitor. As with the

Personal digital assistant Sony Clie PEG-NR70V

It's proving hard to keep track of Sony's expanding list of PDA (personal digital assistant) offerings. The latest in this impressive line-up is the all-singing, all-dancing Clie PEG-NR70V. The overall style and functionality of the NR70V are not dissimilar from its little brother, the T625C, which was released a few months ago. It's a Palm OS-based handheld with an excellent, high-resolution colour display and stylish brushed metal exterior.

Flipping great

The most obvious difference with the NR70V from other Sony devices as well as from most other Palm-based handhelds, is its flip-up screen. When closed, this usefully keeps the screen protected. Open it up notebook-style to reveal two further distinctive features: the built-in hardware



Sony Clie PEG-NR70V

Specifications: DragonBall Super VZ 66MHz processor; Palm OS 4.1; 16MB RAM; 8MB Flash memory; infrared/IrDA port; Memory Stick slot; TFT colour display with backlight; 320x480 pixels; 65,536 colours; built-in lithium-ion battery; built-in MP3/Atrac3 audio player with stereo minijack; 100,000 pixel Cmos image sensor.

Sony: 08705 111 999
Website: www.sony.co.uk
Price: £382

PC World Advent 3813 BTO

Specifications: AMD Athlon 2200+; 512MB DDR RAM; 80GB hard drive; 19in monitor; ATI Radeon 9000 Pro; 40-/32-/12-speed CD-RW; 16-speed DVD-ROM; 1-year onsite warranty.

PC World: 01442 355 802
Website: www.pcworld.co.uk
Price: £999

Mesh Matrix 2200+ RD Pro

TOP 10

Specifications: AMD Athlon 2200+; 512MB DDR RAM; 80GB hard drive; 19in monitor; ATI Radeon 9000 Pro; 48-/40-/12-speed CD-RW; 16-speed DVD-ROM; 3-year collect-and-return warranty.

Mesh: 020 8208 4702
Website: www.meshcomputers.com
Price: £899

Build quality	8
Features	8
Value for money	9

Build quality	9
Features	8
Value for money	8

Build quality	9
Features	8
Value for money	7

keyboard, which forms part of the lower section of the device, and the elongated screen.

The keyboard is a handy way of inputting text into the device if you're having trouble using the Palm OS standard Graffiti handwriting recognition technology, but it can't even compare to a full-sized keyboard. The keys are tiny – a bit of a problem if you have big fingers – and you can only use one hand at a time.

We found it easier to input text using the onscreen keyboard – the NR70V has a special Sony version designed to take advantage of the high-resolution screen. The screen can be flipped through 180 degrees (the image on the screen is flipped accordingly) hiding the hardware keyboard and enabling you to use the device as if it was a standard PDA.

Whereas on normal Palm devices, Graffiti input is via an overprinted area at the bottom of the screen, the NR70V draws this area in software. This means it can be hidden and the full 480-pixel length of the screen used to display applications. Unfortunately software has to be specially written to take advantage of this and, at the moment, few apps can.

Photos viewed in PictureGear Pocket, for example, look great when displayed in their full 6x4 glory rather than having to be cropped into a square, but other than this the full-length screen seems a little wasted.

Looks good, sounds good

What really sets the NR70V apart is Sony's positioning of it as a 'convergence device'. To this end, it's the first Palm-based PDA with a built-in digital camera, though it won't have Canon and Olympus running scared. It uses a 100,000-pixel Cmos sensor, so the pictures it takes are fine on the Clie's screen but don't look so great when transferred to the desktop. The lens is mounted on a swivelling mechanism in the screen's hinge, so it can be turned to face you or hidden away when not in use.



Like last year's N770, the NR70V also includes a built-in audio player. Download tracks from your PC in either MP3 or Atrac3 format on to the optional Memory Stick – there is a clunky and unintuitive desktop audio manager package, SonicStage LE, included.

Through the supplied earphones – complete with remote control – you can listen to music at a quality you'd expect from Sony. But Memory Sticks are expensive and have a maximum capacity of 128MB, enough for about 25 songs, so it would be hard to recommend them over the myriad hard-drive and CD-based music players on the market at the moment. The NR70V also includes all the T625C's value-added features, such as picture- and movie-viewing software, polyphonic alarm clock, software enabling you to use it as a TV/video remote control – the list goes on.

Verdict

If you want the latest and greatest in handheld technology then it would be hard to beat the PEG-NR70V. But then if you're the kind of gadget freak this product would appeal to, you've probably got at least as good a PDA and a better MP3 player and digital camera already. ■

Alex Katz

Personal digital assistant

Toshiba e740 Pocket PC

From a standing start, and in a little over a year, Toshiba has made a substantial impact on the Pocket PC market. Its e570 was the first device to have dual storage slots, while the e310 was the slimmest of the colour Pocket PCs. This trend for breaking new ground continues with the release of the e740 Pocket PC, which features integrated wireless support, CompactFlash and Secure Digital slots, a slim form factor and an Intel XScale 400MHz processor. It runs Microsoft's Pocket PC 2002 mobile operating system, which includes applications for terminal services, MSN instant messaging and secure communications via VPN (virtual private network).

Hand signals

The e740 comes in three flavours: 802.11b WiFi, Bluetooth or without wireless – we tested the Bluetooth version. A small switch located at the bottom enables wireless support which can then be activated and deactivated with a click on the toolbar – very effortless and painless. Luckily for the battery, the unit will automatically disable if it hasn't been used in a certain amount of time.

Integrated wireless

The benefits of wireless communication in a portable device are clear – no messy wires and no need to be tethered to a fixed point. It's possible to add an adapter card to most devices, but the real benefit comes when it's integrated. Rather than have to buy a Bluetooth card for your notebook and PDA (personal digital assistant) plus an adapter for your mobile phone, if it's integrated into all three then they can all talk straight out the box – that means no add-ons to carry around or install. As the price of adding wireless falls, we should see more devices that come with it as standard and Toshiba's e740 is a step in the right direction.

Toshiba also offers an ingenious hardware add-on that provides VGA and USB ports – the former for presenting device content on an external display, the latter for hooking up a keyboard. The e740 comes with a power adapter: you can either plug it directly into the unit or into the back of the cradle, allowing for the power to pass through while syncing.

Like most Pocket PC 2002's, the e740 has a 3.5in 16-bit TFT (thin film transistor) colour display, capable of reproducing bold colours without much banding. Contrast, on the other hand, isn't so hot and the e740 lacks a much-needed contrast control. The e740 comes with the standard complement of 64MB of RAM plus 32MB of Flash ROM. Despite the fact that it's a fairly common feature on other Pocket PC 2002 devices, there is no user-flashable chunk of ROM (6MB or 8MB) on the e740.

Something special?

Bluetooth is fully integrated in the e740, which opens up the possibility of wireless connectivity in the office or within a public-access 'hot-spot'. You could also opt to use a Bluetooth-enabled mobile phone for wide-area connectivity, in place of an add-on module.

The e740 runs on Intel's latest incarnation of the StrongARM processor, XScale. However, despite running at almost twice the clock speed of many of its rivals at 400MHz, the e740 doesn't feel appreciably nippier. It does well in benchmarking tests but its real world performance is merely par for the course.

The operating system has not been optimised for the chip (as it has for the StrongARM processor), so there are few opportunities for it to demonstrate its extra clout. Hopefully, once software is compiled to take advantage of the 'micro-nap' and power-saving features that are in the XScale we may see an improvement.

Slim pickings

Toshiba isn't renowned for its generosity in the bonus software department and, true to form, the e740 comes with a bare bones



software suite. The standard battery is replaceable and there is an optional high-capacity battery which fits on the back. Battery life is adequate – between five and six hours of reasonable use – but this takes a hit when Bluetooth is running.

Verdict

The e740 deserves high marks – its added features of wireless support (Bluetooth or WiFi) user-replaceable battery, jog-dial, two storage card slots plus the XScale processor make this the best Toshiba PDA yet. It has all the features we've come to expect from a Pocket PC 2002 device, along with a few unique ones. Highly desirable. ■

Roger Gann

Toshiba e740 Pocket PC

Specifications: 400MHz XScale processor; 64MB RAM/32MB ROM; 3.5in 16-bit TFT front-lit display; CompactFlash II and Secure Digital slots; integrated Bluetooth.

Toshiba: 01932 828 828

Website: www.toshiba.co.uk

Price: £467, WiFi version £493

	0	1	2	3	4	5	6	7	8	9	10
Build quality											9
Features											8
Value for money											7

Fanless desktop PC

Signum Data Future Client

There's little doubt that today's PCs are noisier than those of a few years ago. Most of this is due to the fact that faster components generate more heat and so need more cooling to stop the whole thing going up in a cloud of smoke. The cooling in most computers is taken care of by fans and adding fans, unsurprisingly, adds noise.

Cool running

The Future Client is an anomaly in this noisy world: it doesn't have any fans at all. Instead Signum Data uses liquid cooling and large heatsinks to stop the central processor and components from boiling over.

For such a radical machine it's quite surprising that the designers have still managed to make it look stylish. The alloy casing looks classy and there are some nice touches, such as the way the floppy drive is inset into the case and both the front reset and power buttons light up around the circumference. The sides of the case are also unusual in that they're adorned with jagged blue fins rather than having the standard smooth finish.

Inner beauty

As you would expect, the innards of the machine look very different to your average PC (see below). For a start there's a large metal block covering the 2GHz Pentium 4 processor. This runs all the way to the edge of the case and contains the liquid coolant. In fact, when the machine is open you can see that the

jagged blue fins of the case's edge are actually large heatsinks used to dissipate the heat from the coolant. There's also a fanless power supply, which is located towards the front of the unit rather than the back.

Because the case is a low-profile model the Matrox Millennium 450 DualHead graphics card is mounted on a riser card and sits parallel to the motherboard. This riser card also has a free PCI slot so there's still some potential for expansion, despite the strange geography.

Interestingly Signum Data has made use of some laptop components in the design. The combo CD-RW and DVD is really a laptop drive as is the 30GB IBM Deskstar hard disk.

Keep the price quiet

In use, the Future Client is almost completely silent – if you listen very closely you'll still be able to hear the hard drive whirring, but it's certainly not going to annoy you. One thing that is noticeable, however, is that the Client's case gets very hot, especially at the sides. In fact they get so hot you could warm your hands on them – something that will come in useful on those cold winter mornings.

We didn't really expect this machine to be a stunning performer but, while it didn't exactly surprise us, it did turn



in a relatively decent score in our tests. The WorldBench result of 100, though not as fast as other PCs we've seen, is about right for a 2GHz Pentium 4.

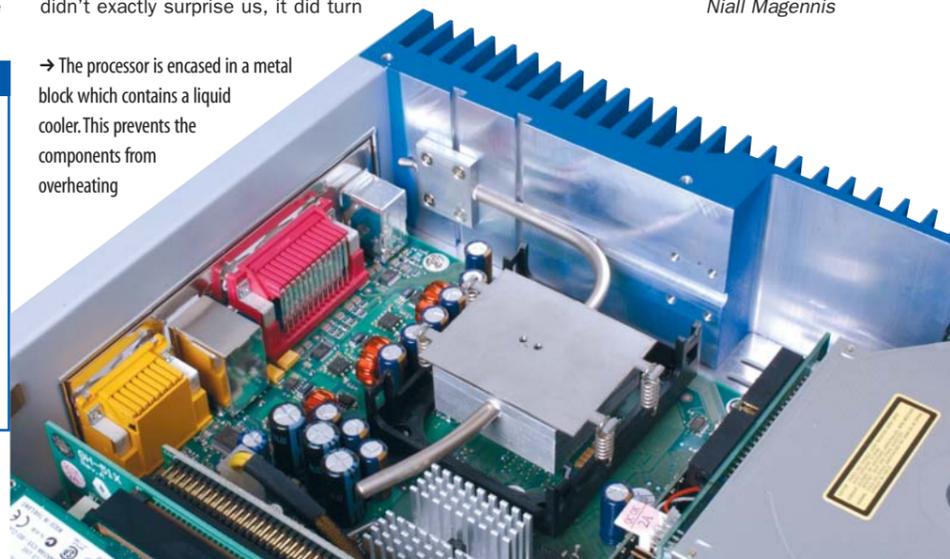
The only thing more shocking than the lack of noise is the actual cost of the Future Client. The £1,188 asking price is for the base unit only – monitor, mouse, keyboard and operating system are not included – making this system look awfully expensive compared to its louder competition.

Verdict

Signum Data's Future Client looks good, turns in a reasonable performance and is one of the quietest machines we've ever heard, but unfortunately this all comes with a hefty price tag attached. We know liquid cooling is much more expensive than using traditional fans, but the premium in this case seems excessive. Nevertheless if you want a stylish PC that's as quiet as a mouse then it's worth a look. ■

Niall Magennis

→ The processor is encased in a metal block which contains a liquid cooler. This prevents the components from overheating



Signum Data Future Client

Specifications: 2GHz Intel Pentium 4; 512MB RAM; 30GB hard disk; 8x/8x/24x CD-RW and 8x DVD ROM drive; Matrox Millennium G450 DualHead graphics card; 10/100 ethernet.

Signum: 01757 282 3315
Website: www.signum-data.de
Price: £1,188

0	1	2	3	4	5	6	7	8	9	10
Build quality										8
Features										7
Value for money										4

ADSL modem/routers

SMC ADSL Barricade and Netgear DG814

If you're signing up for self-install ADSL (asymmetric digital subscriber line), you'll need to buy your own ADSL modem. While the vast majority of ISPs recommend the ubiquitous Alcatel SpeedTouch USB, there's nothing stopping you from trying something a little more sophisticated.

Netgear's DG814 and SMC's ADSL Barricade are combined ADSL modems and routers, which can share your web connection between multiple PCs. Windows' own ICS (Internet Connection Sharing) software already offers sharing, but a router is considerably superior. They work with most operating systems and devices, don't require a PC to be left switched on, and feature better security.

SMC ADSL Barricade

SMC's Barricade is a basic-looking router with single USB and ethernet ports. You can connect the unit to your PC using either of these ports or you can use both simultaneously to run two PCs; cables are supplied. If you want to connect more devices, you'll need to buy a network hub and connect it to the ethernet port.

After hooking up the Barricade to your PC (the USB port requires a driver), you can launch the configuration using a web page interface on your browser. This interface is clear and provides options including filtering and NAT (network address translation). The bare minimum is to go to the WAN (wide area network) page and enter your username and password given by your ISP, along with zero and 38 for the VPI and VCI settings respectively. One reboot of the device later (during which you hear a few clicks), and you're ready to use the web.



Netgear DG814

Netgear's DG814 is a stylish unit that, more importantly, sports four 10/100 switched ethernet ports. These allow you to share your ADSL between four devices, which then become part of a local network running up to 100Mbps (megabits per second). Again, if you need more devices, you'll have to connect an additional hub. There's no USB, so you'll need ethernet ports on all your devices, but 10/100 cards can be bought for less than £10.

Setting up the Netgear with its supplied ethernet cable is essentially the same as the Barricade, although the web-based interface is more attractive and includes help in a righthand pane for virtually every setting and option. Advanced features include NAT, blocking of domains or specific keywords and easy port-forwarding for video-conferencing and online gaming.

Summing up

Both devices work perfectly as ADSL modems and routers, and were up and running in minutes. The USB port on the SMC offered extra flexibility, but the Netgear lets you connect twice as many devices as standard. To be fair, you could add an eight-port hub to the SMC for the same total price of the Netgear, but the latter's design, user interface and advanced options were superior, and therefore it's the preferred device. If you only need to connect two PCs for now, though, the Barricade is a cheaper option. Indeed, it's only slightly more expensive than the bog-standard Alcatel USB modem.

Remember, self-install ADSL customers must fit a microfilter on to every phone socket which has a conventional

telephony device attached, be it a fax machine, burglar alarm, set-top box or normal voice telephone.

Netgear supplies one with its router, but SMC doesn't.

Either way, you'll probably need to buy more, and these are available for £10 each from BTopenworld (www.btopenworld.dslshop.co.uk).



If you've had an engineer installation, you don't need microfilters and can simply connect your ADSL cable directly into either router's RJ-11 port.

Verdict

If you ever intend to share your ADSL between multiple PCs, then a router will provide the ultimate flexibility and convenience. If you're happy connecting two PCs today then SMC's Barricade is one of the cheapest solutions. Boasting four ports, more advanced options and an incredibly helpful setup, though, Netgear's DG814 justifies its higher price. ■

Gordon Laing

SMC ADSL Barricade

Specifications: maximum download and upload speeds: 8Mbps and 1Mbps; RJ-11, USB and ethernet ports; USB port requires Windows 98 upwards; ethernet port supports any device or OS which can request a dynamic IP address; AC adapter supplied; 220x132x30mm; 550g.

SMC: 0118 974 8700
Website: www.smc-europe.com
Price: £90

0	1	2	3	4	5	6	7	8	9	10
Build quality										7
Features										7
Value for money										8

Netgear DG814

Specifications: maximum download and upload speeds: 8Mbps and 1Mbps; two RJ-11 and four 10/100 ethernet ports; any device or OS which can request a dynamic IP address supported; AC adapter supplied; 255x169x34mm; 600g.

Netgear: 01344 397 021
Website: www.netgear.co.uk
Price: £159

0	1	2	3	4	5	6	7	8	9	10
Build quality										9
Features										9
Value for money										7

Ultratable notebooks

Dell Latitude X200 and IBM ThinkPad X24

Notebooks come in all shapes, sizes and specs – but no matter how clever the design there’s always a trade off between size and functionality. You can’t have a large screen, plenty of internal drives and lots of expansion options in a device the size and weight of a paperback book. This month we’ve taken a look at two ultraportable machines from Dell and IBM. If you’re willing to sacrifice features for portability then one could be the notebook for you.

Dell Latitude X200

Dell has come up with one of the smallest and lightest notebooks we’ve ever seen. Weighing just 1.27kg, the metallic grey Latitude X200 is highly portable. However, when it comes to build quality the IBM ThinkPad X24 overshadows it – even though the X200’s lid is made of a magnesium alloy, only lightly pressing it inwards causes distortion on the TFT (thin film transistor) screen. Having said that, the X200 is £300 cheaper than the ThinkPad, and it comes with a 24-speed FireWire CD drive as standard, together with a splendid three-year onsite, next-business-day warranty (one-year for the battery).

The main way Dell has kept the X200’s price down is by choosing an economical processor. This is a battery-saving, ultra-low-voltage Mobile Pentium III running at 800MHz, which has been combined here with 256MB of memory on an Intel Mobile 830MG chipset. The processor uses Intel’s SpeedStep technology, which drops the clock speed down to 400MHz when the notebook is running on battery power.

Unsurprisingly, overall performance was lower than that of the more powerful IBM, with the X200 achieving a WorldBench 4 rating of 84. The 830MG chipset also processes the X200’s graphics, using up to 48MB of main memory to feed the crystal-clear 12.1in TFT display. This has a maximum native resolution of 1,024x768 and a viewing angle that’s a touch wider than that observed with the ThinkPad X24.

The slightly bouncy keyboard is reasonably user-friendly, although the

small function keys take some getting used to. Pointer manipulation is taken care of by a responsive and customisable touchpad with the left- and right-click buttons situated beneath it. Just below these is a pair of speakers that don’t do any justice to the integrated sound chip – it’s much better to plug in a set of headphones.

As far as connectivity goes, the X200 differs from the IBM in that it lacks an infrared port and CompactFlash slot. In its favour, though, it does boast a powered six-pin FireWire port – ideal if you own a digital video camera.

There’s a D-Sub connector positioned strategically to the right of the unit for a second display, leaving the rear of the notebook completely free of ports. A pair of USB ports, integrated 56K modem and LAN (local area network), plus two audio ports and a Type II PC Card slot complete the set.

Well, not quite. Dell has partially catered for wireless 802.11b communication by incorporating an appropriate antenna. However, to use this you’ll need to purchase a factory-installed Mini-PCI card which costs £79. Unfortunately this was not present in our review model so we weren’t able to test it.



Dell Latitude X200	
Specifications: 800MHz Mobile Pentium III; 256MB RAM; 30GB hard drive; 12.1in TFT; 24x FireWire CD-ROM; Intel 830MG graphics chipset; 6-pin powered FireWire port; integrated 56K modem and LAN; two USB and one PC Card slot; 273x226x20mm; 1.27kg.	
Dell: 0870 907 5668	
Website: www.dell.co.uk/latitude	
Price: £1,349, plus £49 for delivery	
Build quality	7
Features	7
Value for money	7

Moving on to storage, Dell has supplied a 30GB hard drive with the Latitude X200. However, our review machine was purely the base model – if you require a floppy drive Dell will only offer one in conjunction with its optional media base. Prices start at £176.

As it stands, you get a choice of three operating systems: Windows XP Pro, XP Home or 2000 Pro. The model we tested came with XP Pro, but be aware that each alternative can vary in price. At the time of writing, XP Home was £10 cheaper, while 2000 Pro was an additional £20. Although a leather case and battery were bundled with the X200 these aren’t free – they cost £45 and £65 respectively.

IBM ThinkPad X24	
Specifications: 1.13GHz Mobile Pentium III; 256MB RAM; 30GB hard drive; 12.1in TFT; 8MB ATI Mobility Radeon; integrated 56K modem and LAN; CompactFlash slot; infrared; two USB and one PC Card slot; 279x227x30mm; 1.6kg.	
IBM: 0800 169 1458	
Website: www.pc.ibm.com/uk/thinkpad	
Price: £1,710	
Build quality	10
Features	7
Value for money	7

IBM ThinkPad X24

At just over £1,700 IBM’s ThinkPad X24 is not the cheapest ultraportable device on the market, but it’s undeniably one of the best built – an important attribute for a life on the move. While some may find the design a little dated, it has a solid body and the matt-black titanium composite lid feels smooth.

A good test of rigidity is to press the back of the display and to look for any resulting wavy patterns in the TFT screen. Impressively, the X24 was very resilient, requiring a relatively firm press before any distortion was noticeable. The X24 is a compact unit too, tipping the scales at 1.6Kg. Although not as light and as thin as the Dell Latitude X200, it’s still very portable, and the good build quality easily makes up for those extra few grams.

Inside the X24 is a 1.13GHz Mobile Pentium III processor that utilises Intel’s SpeedStep technology. This means the speed of the processor drops to 733MHz when you unplug it from the mains, prolonging battery life while out and about. The CPU is backed up by 256MB of RAM, allowing the X24 to achieve a WorldBench 4 rating of 107.

The 12.1in TFT display is a pleasure to use at its maximum native resolution of 1,024x768, while the ATI Mobility Radeon graphics controller sports an extra D-Sub

port for an extended display. The screen is vibrant and, although the viewing angle is not as wide as the Dell Latitude’s, it’s still acceptable. The only gripe with the display’s performance is the level to which IBM steps down the screen’s brightness when on battery power. This may be a thoughtful power-saving feature, but it does leave you with a dull display.

Audio quality from the onboard sound chip and single base-mounted speaker is weak and tinny. The keyboard, by contrast, is well laid out and the keys feel responsive. We also like the small light located just above the display that can illuminate the keyboard for twilight typing.

Naturally, being an IBM, the X24 comes with a TrackPoint in the centre of the keyboard. Whether you prefer this to a touchpad is a matter of taste. Beneath this is a cluster of selector buttons with left- and right-click buttons and a button that, when held down, allows you to scroll through pages with the TrackPoint. Storage is catered for by a 30GB hard drive and,



if you have the dosh, you could buy an IBM MicroDrive and plug it into the Type II CompactFlash slot.

Although IBM offers an optional docking base, the remaining ports are unremarkable, consisting of two USB ports, headphone, line-in and microphone jacks, 56K modem, LAN (local area network) and an infrared port. Our review model also came with an external USB floppy drive and a 10-speed USB CD-ROM, but these aren’t included in the released package and will set you back a further £46 and £178 respectively.

Verdict

The Dell Latitude X200 is a truly ultraportable notebook that’s lightweight, slimline and comes with a decent set of ports and connectors. Build quality and performance are not up to the IBM’s standards, but if you’re on a tight budget it should certainly appeal. The warranty is also hard to beat.

On the other hand, the ThinkPad X24 is a robust and solid machine that carries the kudos of the IBM brand well. Build-quality and performance is outstanding for something so small. However, there’s a price to pay – over £2,000 including VAT, to be precise, making the X24 just too pricey. But combined with its roadworthiness it is still likely to be a hit with the travelling corporate user. ■

Jalal Werfalli

External drives

Opting for a small chassis usually means foregoing an internal optical drive. For everyday use this is fine – the current size of hard drives allows you to install everything on it. The main options for external drive interfaces are USB, FireWire, PC Card and custom connection – all of which have advantages and disadvantages.

- **USB** Universal serial bus is well supported, and there are plenty of drives available so you can choose the one most suitable for your requirements and budget. The main disadvantage with a USB drive is it usually requires an external power supply.
- **FireWire** The speed difference between FireWire and USB 2.0 is negligible, but FireWire allows devices to be host powered. This means you don’t need to carry around a separate power supply.
- **PC Card** Using a special interface to attach the drive to the notebook, PC Card drives have the speed advantage. However, with fast interfaces like FireWire and USB 2.0 this isn’t such a great plus anymore.
- **Custom** Custom interfaces have the advantage that the PC sees the drive as it would an internal device – you can boot from it and don’t have to worry about installing drivers. A custom drive will also draw its power from the notebook. The main disadvantage is that you’ll have less choice as each manufacturer will have a different interface.

Intermediate digital camera

Nikon Coolpix 4500



The Coolpix 4500 shares the split chassis of the 995 (reviewed December 01), but adds a host of design, feature and specification improvements that will please advanced and novice users alike. This 4Mp (megapixel) digital camera has a maximum resolution of 2,272x1,704 and a 4x optical zoom. Manufacturers rarely bundle enough memory so we weren't

surprised to see the meagre 16MB CompactFlash card. It's fine for low-resolution shots but it only provides storage for eight high-resolution Jpegs or one TIF shot. On the plus side Nikon now supports the use of IBM's Microdrive so you can pack in up to 1GB of storage.

The split swivel chassis makes it easy to take shots from difficult angles and it's tougher and more compact than its predecessor. The flash has moved further from the lens, where it used to produce too much red-eye.

Despite a wide range of manual configurations the 4500 is easy to use thanks to a well-considered button layout and fully automated operation. Advanced users can tweak away with shutter, aperture and exposure control or choose from 16 different scene modes. The 32MB memory buffer makes it speedy to use and if that weren't enough the 4500 also offers macro with auto focus down to



three-quarters of an inch, making it one of the best intermediate digital cameras for macro photography. On the down side this Coolpix no longer has the quick-view LCD data panel – you have to access the menu for information on images taken.

Verdict

The 4500 offers you easy photography from the start and the longer you have it the more chance you'll get to appreciate how much functionality it contains. A worthy winner of this month's Best Buy award. ■

Spencer Dalziel

Nikon Coolpix 4500

TOP 10

Specifications: 4Mp; max res 2,272x1,704; 16MB CompactFlash Type II slot; lithium battery and recharger; 1.5in LCD; 4x optical zoom; sound and audio capture; 130x50x73mm; 360g; 1-year warranty.

Nikon: 0800 230 220
Website: www.nikon.co.uk
Price: £495

	0	1	2	3	4	5	6	7	8	9	10
Build quality										9	
Features										9	
Value for money										8	

Professional digital camera

Nikon Coolpix 5700



Nikon's new Coolpix 5700 has much in common with the earlier Coolpix 5000. Both share the same 5Mp (megapixel) CCD (charge coupled device), with sufficient detail to make great-looking 13x10in colour inkjet prints. Each has a flip-out and twist LCD (liquid crystal display) screen, although the 5700's is a smaller version.

Both support the IBM Microdrive and come with a 32MB card which can store up to 20 best quality Jpegs. The big difference between the cameras is the lens. Where the 5000 sported a 3x optical zoom, the 5700's is a giant 8x which is equivalent in coverage to 35-280mm on a 35mm camera.

A large lens doesn't make for an unwieldy camera, though – the 5700 is a compact 108x76x102mm and weighs just 512g including battery. As with other long zoomers, the optical viewfinder has been replaced by a camcorder-style, electronic viewfinder.

Other additions to the Coolpix 5700 include support for uncompressed RAW files and the latest EXIF Print standard. Image quality is undeniably superb, although we'd have preferred the best-quality Jpeg mode to employ slightly less compression.



Verdict

Nikon has essentially improved its already superb 5Mp Coolpix 5000 model by swapping the 3x lens for an 8x optical zoom. The result is the 5700, which is quite possibly the best professional digital camera we've tested. With several electronic enhancements, the new Coolpix comfortably overtakes its immediate competition to become today's best professional digital camera under £1,000. ■

Gordon Laing

Nikon Coolpix 5700

TOP 10

Specifications: 5Mp; max res 2,560x1,920; 8x optical zoom; 32MB CompactFlash; 1.5in tilt-and-swivel electronic viewfinder; rechargeable lithium-ion battery and recharger; 108x76x102mm; 512g.

Nikon: 0800 230 220
Website: www.nikon.co.uk
Price: £850

	0	1	2	3	4	5	6	7	8	9	10
Build quality										9	
Features										9	
Value for money										8	

CD-RW drives

Plextor PlexWriter 40/12/40U and Plextor PlexCombo 20/10/40-12A

There's not much excitement surrounding CD-RW drives now that DVD recorders have arrived, but developments in CD-RW technology are continuing apace. Writing speeds are still increasing and manufacturers keep adding new features to try to differentiate their products in a crowded market.

Plextor is one of those companies offering new features to attract potential buyers and both the drives reviewed here support the company's recently introduced VariRec technology that tries to produce better-sounding copies of audio CDs.

Plextor PlexWriter 40/12/40U

First up is the PlexWriter 40/12/40U, an external USB 2.0 drive decked out in an attractive black-and-silver colour scheme. The front of the unit is pretty much as you'd expect with the usual volume control and headphone socket, but there's only a single LED to show drive activity. Around the back you'll find the power switch and the USB 2.0 port plus a pair of phono plugs for stereo audio output.

Unfortunately, the PlexWriter 40/12/40U failed to impress in our speed tests although, having said that, its performance could hardly be described as slow. The drive managed to transfer 336MB of mixed files to a CD-R in two minutes 56 seconds and to copy the same files to a CD-RW in five minutes 16 seconds.

As well as the already mentioned VariRec technology, the PlexWriter also supports BurnProof to protect against buffer underruns ruining your CDs and PowerRec II which tries to match the burning speed to the quality of the media being used in order to produce more reliable copies.

The retail bundle is reasonably well specified with five blank CD-R discs and a blank CD-RW disc thrown in to get you started, plus Ahead's Nero 5.5 and InCD burning software. Disappointingly the drive doesn't yet support the new MR (Mount Rainer) standard that improves interoperability for packet writing software but Plextor says the drive is MR-ready so there should be an update in the future to support the up-and-coming standard.



Plextor PlexCombo 20/10/40-12A

The PlexCombo, as sleuths may have guessed from its name, is a combined CD writer and DVD-ROM drive. As such, the raw performance of the drive suffers slightly but this is made up for by the convenience of the dual functionality.

Like all internal optical drives there's nothing really to get excited about on the front panel apart from the fact that it has a headphone jack, volume control and separate LEDs to show whether it's reading or writing. The software bundled is good, including PowerDVD 4.0 XP for movie playback as well as Nero 5.5 and InCD for burning CDs. However, in terms of the retail pack, we thought the allocation of one CD-R disc and one CD-RW disc was miserly.



Plextor has blessed the drive with both Burn Proof and PowerRec II and there's also the VariRec function for producing better quality audio CDs. For its speed rating the drive performed reasonably well but, given its 20-speed maximum write rating, this was never going to be exceptional. However it is fast for a combo drive and managed to write 336MB of mixed files to a CD-R in three minutes and 16 seconds. It copied the same files to a CD-RW disc in five minutes and 20 seconds. Again, the drive doesn't support MR, but this time it's not even MR-ready so there won't be any update to enable this in the future.

Verdict

These two drives are aimed at very different markets, one being a combo drive and the other an external model. However, they both have one thing in common – they're rather expensive compared to a simple internal CD-RW drive. Both are solid drives with reasonable performance but, unless you need an external or combo unit, they're outclassed by cheaper competition.

Niall Magennis

Plextor PlexWriter 40/12/40U

Specifications: 40x/40x/12x; 4MB buffer; 120ms average access time; 169x58x248mm; 2-year warranty.

Plextor: 01932 828 828
Website: www.plextor.be
Price: £149

0	1	2	3	4	5	6	7	8	9	10
Build quality										8
Features										7
Value for money										6

Plextor PlexCombo 20/10/40-12A

Specifications: 40x/20x/10x; 12x DVD; 2MB buffer; 100ms (CD) 150ms (DVD) average access time; 146x41x192 mm; 2-year warranty.

Plextor: 01932 828 828
Website: www.plextor.be
Price: £139

0	1	2	3	4	5	6	7	8	9	10
Build quality										9
Features										6
Value for money										7

TV and FM radio card

WinFast TV2000XP

There has been renewed interest in TV cards now that PCs are fast enough to act as digital video recorders. In fact, most cards now come with software that can pause live TV and record shows in Mpeg format so they can be burned on to CD for playback in DVD players compatible with the VideoCD standard. The TV2000XP is no different in this respect, but it does have a couple of other tricks up its sleeve.

The card doesn't just allow you to watch TV on your PC, it also has a built-in FM tuner so you can listen to and record radio shows. It has to be said that both TV and radio tuner applications supplied with the card are excellent. Both applications allow you to preschedule recordings and you can set the compression formats for both video and audio so you can match the size of the recordings to your available hard disk space. We also liked the card's chunky remote control, which isn't going to get lost down the side of your desk.

The reception of both TV and radio stations was excellent, with the card especially good at holding on to a Nicam

stereo stream even when the incoming signal for a TV channel was poor. Picture quality was also extremely good and the software allows you to force the signal to 4:3 or 16:9 ratios depending on your preference. The card also has an S-Video port so you can capture footage from an analogue video camera.

Verdict

The WinFast TV2000XP really does offer plenty for the price. While it's not as good at capturing video as an AGP card, such as ATI's All in Wonder series, due to the limitations of the PCI bus, it's still an impressive performer. If you're looking for a top-class TV and FM tuner card at a bargain price then this is it.

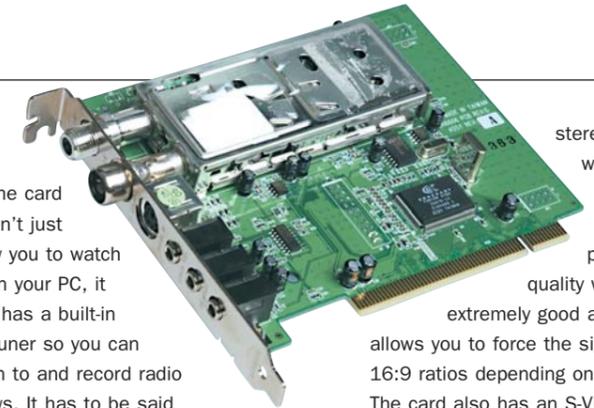
Niall Magennis

WinFast TV2000XP

Specifications: PCI TV Card; FM tuner; 181 channels maximum; Mpeg-1/-2 video codec; video and still image capture; Teletext; remote control.

Leadtek: 0121 745 8960
Website: www.leadtek.co.uk
Price: £34

0	1	2	3	4	5	6	7	8	9	10
Build quality										9
Features										8
Value for money										9



Graphics card

Gainward GeForce4 Pro/650 Golden Sample

On the face of it, the top-flight nVidia GeForce4 Ti cards are bad news for anyone who doesn't have a couple of hundred pounds spare, as their peerless frame rates and consistent performance across the range of resolutions make other cards look inadequate. But as the bargain basement price of the Gainward Pro/650 reveals, today's groundbreaking GeForce technology is tomorrow's sub-£100 gaming paradise.

Not dissimilar to our previous chart-topper, the Chaintech A-G441, the Pro/650 improves on its rival by including the fastest graphics chip in the value GeForce4 MX

family, the MX 460. Partnered by 64MB of DDR (double data rate) RAM and AGP 4x, this card also benefits from Gainward's Golden Sample status, so it's been specially selected to run at the highest 600MHz clock speed.

Clearly this card isn't about the extras, and you're not going to get a digital connector or advanced TV facilities as standard. You do get TV-out, though, while Gainward's famed tweaking application lets you experiment to find the best settings.

Even at this price point it's all about frame rates, and the 460 achieves a high score despite its limited firepower. As with all the nVidia cards, OpenGL performance is excellent and the 460 remains above 50fps (frames per second) under the most demanding conditions. Elsewhere it offers potential, almost matching the Radeon 8500 in several of the tests.

Verdict

If you can afford one of the GeForce4 Ti 4400 or 4600 cards, then they will keep your computer running longer and harder in the coming months. If, however, £100 is your limit, Gainward's GeForce4 Pro/650 Golden Sample is a strong contender that punches well above its modest weight.

Robin Morris



Gainward GeForce4 Pro/650 Golden sample **TOP 10**

Specifications: nVidia GeForce4 MX 460 processor; 64MB DDR RAM; 350MHz Ramdac; AGP 4x; maximum resolution at refresh rate = 2,048x1,536@75Hz; 16.7m colours; TV-out; 3-year warranty.

Gainward: 0870 220 0700
Website: www.gainward.de
Price: £85

0	1	2	3	4	5	6	7	8	9	10
Build quality										8
Features										7
Value for money										9

Digital TV boxes Pace DTVA and Grundig GDT 1500

TV Digital may have been switched off, leaving plenty of viewers desperate to see that final episode of *Friends* or *ER*, but free DTT (digital terrestrial television) transmissions are still out there – all you need to receive them is a digital TV box.

The BBC has been awarded the licence to run DTT, and by autumn there should be 24 channels available on the platform. And the best part? They're all free, of course. One of the teething problems with DTT was that the signal wasn't very good – mainly to avoid it interfering with the analogue signal. With the BBC's system, the total number of channels will be reduced but it will provide a stronger signal for each one so coverage and reception will be better.

So if you fancy taking the leap into digital TV, but don't want to pay a monthly fee, then all you need is a digital receiver like the Pace DTVA or Grundig GDT 1500.

Both TV boxes provide the same functionality, but their approaches couldn't be more different.

Pace DTVA

If you've seen the size of the old ITV Digital boxes, then you'll be surprised how small the Pace is. Measuring just 185x100x45mm and shaped like a semi-circle it should sit happily on top of even the smallest TV.

There's only one cable on the box – the power and aerial are both attached to a modified Scart socket, which plugs into your TV. While this has some disadvantages (chief among them being that you can't receive analogue broadcasts as well as digital), it's a very neat solution if you simply want to convert your TV entirely to digital.

There are no buttons at all on the box, as everything is done via the remote control. This means that if you ever lose the remote control, you won't even be able to change channel.

A recent software upgrade has added interactive text, so you can view news from BBCi, Teletext and Channel 4. It's also extremely quick compared to older DTT boxes. Finally, there's a card reader tucked away at the bottom of the unit, so if pay TV is reintroduced then it should be upgradable.

Grundig GDT 1500

The Grundig is considerably larger than the Pace, although it's still smaller than a traditional set-top box. In terms of appearance, its bread bin look is perhaps a little less appealing than the Pace's stylish curves.

When it comes to connectivity, however, the Grundig has much more to offer. Round the back you'll find two Scart sockets, so you can connect it up to your TV and video at the same time. There's an aerial pass-through, so you hook the aerial up to the box and then to the TV. This is useful if you want to watch analogue broadcasts as well. Finally there's a connector for the optional infrared



extender. This allows you to hide the box away (and given its looks, you may well want to) and just have the small infrared receiver on show so you can still change channels.

Although you'll need the remote control to access most of the functionality, there are channel up and down buttons on the box – handy if you can't find the remote.

The box supports interactive and digital text so you can make the most of the new features available to DTT. There is no card reader inside so it won't be possible to upgrade to pay-TV at a later date, although at the moment that is unlikely to happen.

Verdict

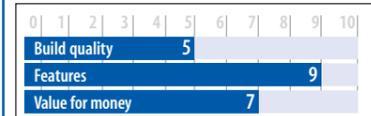
Of the two, the Pace is undeniably the better looking – and in the lounge or bedroom looks certainly count. The Grundig offers more connectivity, but is let down by its styling. If you simply want to convert your existing TV to digital then the Pace is the clear winner. If you want more flexible connectivity then the Grundig might be worth investigating. ■

Will Head

Grundig GDT 1500

Specifications: DTT receiver; remote control; two scart sockets; optional infrared extender; interactive digital text; card slot; subtitles.

Grundig: 01788 570088
Website: www.grundig.co.uk
Price: £102



Budget notebook ACI Impression

ACI makes an impression this month with its notebook of the same name, swooping in to steal the Best Buy from our long-standing chart-topper, the Mesh Pegasus 14.1 Pro.

Its outstanding performance is due in part to an unbeatable WorldBench score of 102, by far the highest we have seen in

the Budget notebook category. It can be attributed to the winning combination of a 1.6GHz Mobile Pentium 4

processor, 256MB of RAM and an nVidia GeForce4 420 Go graphics card with 32MB of DDR (double data rate) RAM.

The only other notebook we've seen that comes close to this spec is the Fujitsu Amilo M-7800, which only managed a WorldBench score of 75, perhaps because of its S3 Pro Savage graphics card with just 8MB of DDR RAM.

But it's not just speed that you get from the Impression – it offers some handy extras including a hotswappable floppy disk which you can use in place of the eight-speed DVD-ROM drive. There's

also a built-in SmartMedia slot, so if you use devices that support this media you can easily transfer files on to the Impression. There's a FireWire port and three USB ports, so adding external devices is no problem. The screen and sound are adequate, while storage facilities are equally ordinary.

The warranty offers one-year collect-and-return cover but you do get Windows XP Home and Lotus SmartSuite Millennium.

Verdict

The Impression offers an attractive package, but what really sets it apart from the crowd is its immense speed and top-notch graphics capabilities. Take these away and the price would seem high, but as it stands ACI has won a deserved award. ■

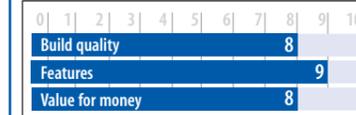
Ursula Seymour



ACI Impression **TOP 10**

Specifications: 1.6GHz Mobile Pentium 4 processor; 256MB RAM; 20GB hard disk; 32MB DDR RAM; nVidia GeForce4 420 Go graphics card; 14.1in TFT screen; floppy drive; 8x DVD-ROM; Windows XP Home; Lotus SmartSuite Millennium edition; 2.8kg; 312x266x33mm; 1-year warranty.

ACI: 020 8830 1958
Website: www.aciplc.com
Price: £1,249



Personal digital assistant

NEC MobilePro 300E Pocket PC

The success of the iPaq has made the PDA (personal digital assistant) market even tougher. Its spec sheet was adopted by Microsoft as the common baseline for all Pocket PC machines and has become the minimum standard for new models. This is why the latest Pocket PC from NEC, the MobilePro 300E, has a good, but very common spec: a 206MHz StrongARM processor, 64MB RAM, 32MB Flash ROM and a 3.5-in TFT (thin-film transistor) backlit 16bit 320x240 colour screen

(which isn't bad, but isn't as bright as that of the Toshiba e740).

There are few surprises on the software front either – you get AIM (AOL Instant Messenger), MGI's PhotoSuite for Pocket PC, a golf game and the excellent Acrobat Reader, on top of the standard Pocket PC 2002 application suite, of course.

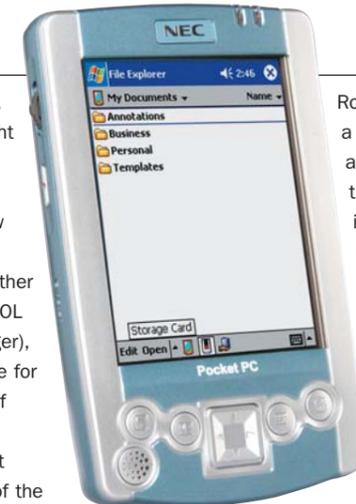
The 300E's most obvious differences are its size and weight: 125x77x15mm and a touch under 150g. Although not as small as the Toshiba e310 it's hardly bulky. It has a single Secure Digital slot at the top; if you want to plug in CompactFlash or PC Cards you'll need to buy a Rocketeer module that clips on the back. The

Rocketeer module usefully includes a second battery and there's also a cool-looking sync cradle that's illuminated in blue when it's powered up. The 300E slots into the front of the cradle, and there is room behind to dock the machine without having to remove the Rocketeer module. The cradle also includes a slot for recharging a second battery.

Verdict

NEC's MobilePro 300E is a good second effort at a PDA. It's not dear, is well-specified, functions ably and has plenty of expansion options, although many of them will come at a price. It handles multimedia well and stands up against the iPaq, Jornada and Toshiba machines in overall performance, even if at times it's hard to distinguish between them. ■

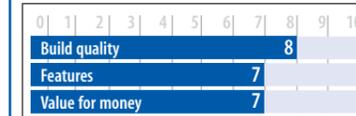
Roger Gann



NEC MobilePro 300E Pocket PC

Specifications: 206MHz StrongARM processor; 64MB RAM; 32MB ROM; 3.5in backlit 16bit colour display; Secure Digital slot.

NEC: 0870 010 6328
Website: www.nec-online.co.uk
Price: £340



Pace DTVA

Specifications: DTT receiver; remote control; scart socket; electronic program guide; interactive digital text; card slot; subtitles.

Pace: 01274 532 000
Website: www.pacefreetoview.co.uk
Price: £85

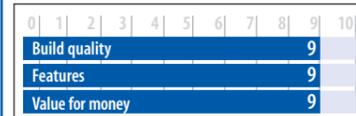


Photo printer

HP PhotoSmart 7350



The PhotoSmart 7350 is designed for printing photos, and can even work without a PC. It is a well built model with great specifications, including two USB ports one for connecting to a PC and another for attaching HP cameras. Setup is an automatic process with onscreen prompts so it's simple to manage. There are several card slots compatible with nearly

all storage media, including Sony's Memory Stick, and it sports some nice onboard functions via a control panel and LCD (liquid crystal display). Using PhotoRet IV technology means the maximum 1,200x1,200dpi (dots per inch) optical resolution can be bumped up to an optimised resolution of 4,800dpi though you're only offered this option if you're using photo paper.



composite black built up from the other colours. As a result it's slower to print and doesn't

look as sharp as text printed from the optional extra true-black cartridge.

When it comes to the job of outputting high resolution digital images the 7350 is excellent. Printing on A4 using an optimised resolution of 4,800dpi with PhotoRet IV takes about 15 minutes, but it's worth the wait – colours are lush and details are sharp.

Verdict

Don't buy this printer if you want a cheap inkjet for text and graphics printing with low running costs – the 7350 is optimised for use as a photo printer and won't serve you well for everyday printing. But as a photo printer it's brilliant. ■

Spencer Dalziel

HP PhotoSmart 7350

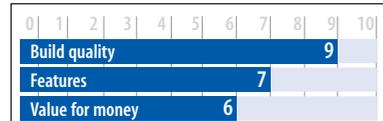
TOP 10

Specifications: optical resolution 1,200x1,200dpi; USB connection; slots for storage media; 11ppm monochrome; 10ppm colour; 475x390x160mm; 8.17Kg.

HP: 0870 547 4747

Website: www.hp.com

Price: £164



Portable speakers

Creative TravelSound



When you're on the move with your notebook, travelling for business or pleasure, one thing that really limits its capabilities is the sound quality. While manufacturers are fast adding top-speed processors and high-performance graphics, audio remains as tinny and uninspiring as ever. Creative hopes to change this with its neat TravelSound speakers.

These are a highly portable set of speakers that would add little to your load while you are on the road at just 285g (320g with batteries). They fold away into the provided carrycase and are smaller and lighter than a hardback book, measuring just 155x50x64mm. When you want to use them they unfold on to a stand, so you can set them up anywhere you choose.



While these small speakers cannot be expected to offer the same rich audio quality as more powerful setups, they provide plenty of oomph for mobile users and make giving a presentation or watching a movie a genuine multimedia experience. There is even a wide effect feature that offers an approximation of surround sound.

Verdict

If you are after good-quality audio while on the move, then the TravelSound set is a good bet. There are better-quality speakers around, but none offers such a compelling combination of portability and power. At £55 they are good value too. ■

Alex Katz

Creative TravelSound

Specifications: 2W RMS per channel satellite power; 150Hz to 20kHz frequency response; 75dB signal to noise ratio; 155x50x64mm; 320g with batteries; 2-year warranty.

Creative: www.uk.europe.creative.com

Price: £55

