Power PCs

Hi-Grade Ultis PV4 2.8 PV10 and Mesh Elite XP 2.8GHz

Intel recently upped the stakes in its ongoing battle with AMD for the domination of the processor market by releasing a new Pentium 4 running at 2.8GHz. Of course, clock speed is not the defining issue when it comes to the performance of a PC – AMD has consistently produced processors that are capable of matching and beating the Pentium 4.

So we were interested to see how the latest P4-equipped system would compare to a PC using AMD's Athlon XP 2200+ processor. To do this, we put two new P4 machines – one from Mesh, one from Hi-Grade – to the test to see what Intel's 2.8GHz's offering has up its sleeve.

Hi-Grade Ultis PV4 2.8 PV10

Running the new P4 with 512MB of PC2100 DDR (double data rate) RAM, Hi-Grade's Ultis scored a mighty 131 in our WorldBench 4 test, shattering our existing record.

In terms of graphics and video encoding tests – an area where Intel-powered systems have traditionally been strong – the Hi-Grade is again impressive. Running the Quake III Annihilator demo at a resolution of 1,024x768, the Hi-Grade managed frame rates of 88.3fps (frames per second). It was only fractionally slower at a resolution of 1,600x1,200, achieving 84fps.

Of course, this isn't just a test of the processor but also of the graphics card – the MSI GeForce4 Ti 4600 card that inhabits this system also helps the Hi-Grade to impressive scores in the video encoding tests. Crunching down two-and-a-half-minutes of DV (digital video) footage into Mpeg-2 format took an impressive seven minutes three seconds.

The Hi-Grade also comes with 80GB of storage space, an LG Flatron 915FT+ monitor that contributes an extra four USB ports to the six already on the tower as well as excellent image quality, and a good warranty – one-year onsite, followed by two-year return-to-base cover. With a TV tuner card and webcam thrown in, it's also good value for money.

Mesh Elite XP 2.8GHz

The Mesh Elite XP 2.8GHz didn't quite manage the WorldBench 4 score of the Hi-Grade, but the 126 it did achieve is hardly inconsiderable – it's the second highest score in the Power PCs chart this month.

Where the Mesh did beat the Hi-Grade hands down was in the graphics and video encoding tests. While the frame rates we saw from the Hi-Grade were impressive, in comparison the performance of the Mesh was absolutely astounding.

Using a GeForce4 Ti 4600 graphic card similar to that used by the Hi-Grade, the Elite managed to knock out an amazing 104.9fps on the Quake III Annihilator demo at 1,024x768. Rubbing our eyes in disbelief we increased the resolution to 1,600x1,200 and still got a score of 94.6fps. In the video encoding test, the

Mesh converted the same two-and-a-half minutes of DV footage into Mpeg-2 format in six minutes 28 seconds – some 35 seconds faster than the Hi-Grade.

The 120GB of hard drive space should be difficult to fill but if you're keen on video-editing then it's a bonus to have a spacious hard drive, and this is definitely a system to consider if you fancy yourself as the next Steven Spielberg. The warranty, however, is only three-year return-to-base cover.

Verdict

The Mesh is £100 more expensive than the Hi-Grade, despite not having such a good warranty or the added extras. However, it's an ideal choice if you're interested in gaming, video editing or if you use graphics-intensive applications. But if you're looking for a good all-round performer at a reasonable price, then look no further than the Hi-Grade system. ■

Ben Camm-Jones

Hi-Grade Ultis PV4 2.8 PV10 — 2 TOP 10

Specifications: 2.8GHz Pentium 4; 512MB DDR RAM; 80GB hard drive; 40x32x10x CD-RW; 16x DVD-ROM; 19in monitor; Windows XP Home.

Hi-Grade: 020 8532 6100
Website: www.hi-grade.com
Price: £1,200 ex VAT

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

Mesh Elite XP 2.8GHz — 3 TOP 10

Specifications: 2.8GHz Pentium 4; 512MB DDR RAM; 120GB hard drive; 48x40x12x CD-RW; 16x DVD-ROM; 19in monitor; Windows XP Home.

Mesh: 020 8208 4702
Website: www.meshcomputers.com
Price: £1,299 ex VAT

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

Wireless projector
Sharp PG-M25X

The Sharp PG-M25X offers so many cutting-edge features it's hard to know where to start. Arguably, the wireless networking facilities are its most radical touch. In a busy meeting with more than one person presenting, the need to have the projector physically attached to your PC makes for a chaotic changeover. For a more seamless transition, set up a wireless network. Any PCs equipped with a suitable wireless network card (two are provided, although one is required for the projector) can log on and take control of the projector. In fact, thanks to the long-range abilities of the Wi-Fi standard, a presenter can be in a different room to the projector.

Conveniently, the PC Card slot doubles up as a memory card slot, so if you're taking the projector on the road you can copy your presentation to a storage card and leave the notebook in the office. There are projectors that improve on the Sharp's 2.6kg weight but, thanks to the PC Card slot, this is one of the more portable models on the market. With an operating noise of 37dB the Sharp isn't particularly quiet, but in an office environment this is unlikely to prove obtrusive.

Equipped with an onscreen pointing device and a range of drawing tools and indicators, the programmable Gyro remote control is yet another inclusion designed to appeal to the presentation specialist.

The Sharp's brightness rating of 1,900 Ansi lumens ensures that images can be seen in virtually all light conditions. The projector works beautifully at its native resolution of 1,024x768 (XGA), stretches happily to 1,280x 1,024. The DLP technology boasts the most up-to-date refinements and the 1,000:1 contrast ratio promises fantastic depth of colour. All this culminates in a sharp and focused image with a glorious colour palette.

Verdict
The great image quality, the convenience of wireless network and PC Card facilities, and the slew of special touches and finishes makes this the perfect projector. The only drawback is the price tag: at £3,675, you'll need a budget that matches your ambitions. ∎

Robin Morris

Sharp PG-M25X

Specifications: brightness 1,900 Ansi lumens; 210W lamp (2,000 hours); replacement bulb £275; 2.6kg; maximum native resolution 1,024x768; 223x318x83mm; DVI connector.
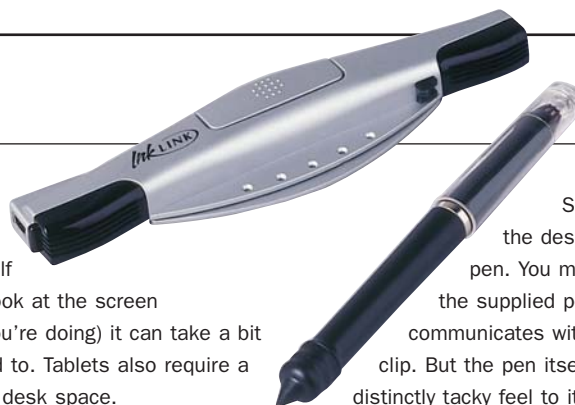
Sharp: 0800 262 958
Website: www.sharp.co.uk
Price: £3,675

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

Handwriting digitiser
Seiko Instruments Ink Link

The PC may have the writing market well covered – it certainly produces more readable output than many people's handwriting – but it's severely lacking when it comes to drawing.

Drawing is just about possible with a mouse, but it was never designed with that use in mind and so results are invariably unimpressive. Tablets are the preferred device of professionals, but with no visual feedback from the device itself (you have to look at the screen to see what you're doing) it can take a bit of getting used to. Tablets also require a fair amount of desk space.

With the Ink Link, however, Seiko may have brought the usability of paper to PCs. Attach the data clip to your pad of paper and simply write with the supplied pen. All the strokes you make are automatically transferred via USB to the PC. There's even a supplied infrared clip so you can use it with Palm or Pocket PC PDAs (personal digital assistants). It works well enough and does what it says, but there are a couple of niggles.

Firstly, the device only works when attached to your PC or PDA. There's no internal memory so you can't dispense with PDA or notebook and simply take the Ink Link and your pad to meetings.

Secondly is the design of the pen. You must use the supplied pen, as it communicates with the data clip. But the pen itself has a distinctly tacky feel to it and the clear lid looks like it wouldn't stand up to much abuse.

Finally, if you're using it just with your PC there's no handwriting recognition, which seems to miss one major opportunity. There is a workaround for Pocket PC users (involving cutting and pasting) but it's far from integrated.

Verdict
The Ink Link does what it promises very well and the support for PC, Palm and Pocket PC in one box is good. However, the execution leaves a little to be desired. It's not bad – but it could be much better. ∎

Will Head

Seiko Instruments Ink Link

Specifications: Ink Link electronic ballpoint; data clip; infrared adapter for Palm/Pocket PC; PC, Palm and Pocket PC support; Ink Note manager software.

Nikon: 01276 505 776
Website: www.seikosmart.com
Price: £84

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

Processor
AMD Athlon XP 2600+

Here at *PC Advisor* it's more usual that we review entire PCs rather than just a processor, but for a change we decided that we'd get hold of one of AMD's latest chips and build a system around it ourselves. We have already seen four systems based on the newest 2.8GHz Pentium 4 CPU, so here's how AMD's latest offering compares.

The Athlon XP 2600+ processor runs at 2.13GHz; we teamed it up with an Epox EP-8K3A motherboard using the Via KT333 chipset, 512MB of DDR (double data rate) RAM and a GeForce4 Ti 4600 graphics card.

The result of the WorldBench 4 tests – 131 – matched the new record score set by the 2.8GHz Pentium 4-powered Hi-Grade Ultis PV4 2.8 PV10 (see page 58). However, our system easily beat this month's three other Power PC chart entrants equipped by the same Intel chip (see page 100).

In graphics tests, the system managed an impressive 83.3fps (frames per second) in the Quake III Annihilator demo at a resolution of 1,600x1,200. One of the 2.8GHz P4 machines bettered this – the Mesh Elite XP managed a stupefying 94.6fps.
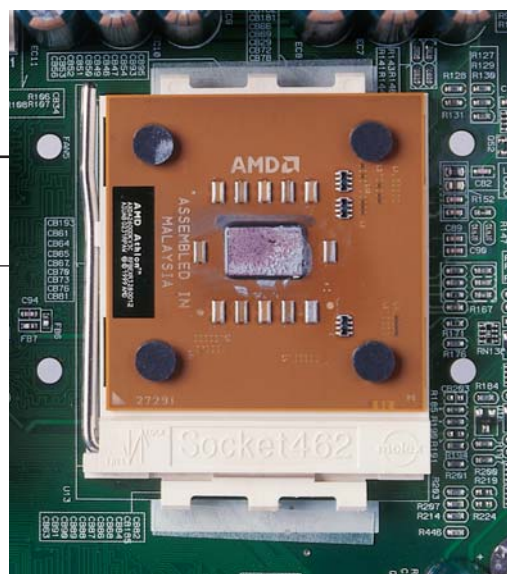
Video encoding results were also fast – the 2600+ took six minutes 32 seconds to convert two-and-a-half minutes of DV (digital video) footage into Mpeg-2 format. Only the Mesh system (see page 58) beat this – it was a mere four seconds quicker – and given that Intel chips have always had the edge over AMD processors in this area, this is a very respectable result.

Verdict
The new AMD chip has what it takes to be more than a match for the 2.8GHz P4. A strong performer in all of our tests, the 2600+ should be an excellent processor around which to build a high-end PC. Keep an eye on future issues of *PC Advisor* when we will be testing systems powered by the 2600+. ∎

Ben Camm-Jones

AMD Athlon XP 2600+
AMD: 0127 6803 100
Website: www.amd.com
Price: TBA

Personal digital assistant/mobile phone
HP Jornada 928 WDA

HP's latest (and sadly last) Jornada, the 928 WDA, is its first venture into the world of convergent mobile technologies. This otherwise standard Pocket PC has a fold-down aerial, making it a GSM/GPRS (general packet radio service) phone as well. The design of the WDA closely resembles that of the 560 series – indeed it features much of the same hardware – 32MB of Flash ROM, 64MB of RAM, 16bit 3.5in TFT (thin film transistor) display and CompactFlash Type I slot.

The Jornada has two of everything, so the phone and PDA (personal digital assistant) can work independently – for example, it has a second screen for the phone so you don't have to boot the PDA to make or take calls.

The 928 uses a StrongARM processor, but there's also a 120MHz Omap710 ARM9-based CPU to power its wireless features. This chip comes with built-in support for Mpeg-4, MP3, Jpeg and speech technology. It also has two batteries: one built in and a removable lithium-polymer cell which HP claims gives up to three hours of call time, 120 hours on standby or 12 hours' use in PDA mode.

The 928 features wireless dual-band GSM, so it can only be used in Europe and Asia. The GPRS module offers data transfer speeds of up to 171.2Kbps (kilobits per second) in theory – more like a quarter of this in practice.

The Jornada 928 will be available on its own or bundled with a small CompactFlash-interfaced digital camera. This gives users access to MMS (multimedia messaging) thanks to built-in client software.

Verdict
HP has done a top job integrating the phone and PDA functions, while allowing them to be used independently. The Jornada 928 easily outclasses the recent Xda from O2 and so, for now, represents the best PDA phone on the market. ∎

Roger Gann

HP Jornada 928 WDA
Specifications: StrongARM SA-1110 & Omap710 processors; 64MB RAM; 32MB ROM; 3.5in backlit 16bit colour display; Type I CompactFlash slot.
HP: 0870 241 3625
Website: www.hp.co.uk
Price: £331.91 (with Vodafone airtime contract)

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

Barebones system
Shuttle SS51G XPC

The race to produce ever-faster PCs is thriving, as our reviews of the latest chips from Intel and AMD on page 58 show, but a market for small, quiet machines is also emerging.

In an effort to distinguish itself from the myriad other motherboard manufacturers, Taiwanese vendor Shuttle has turned its hand to innovative design. Its XPC range offers the power of a desktop PC, but at less than half the size, measuring just 200x280x181mm (width x depth x height). Packing the latest processors into such a small space can cause problems with heat distribution, but Shuttle has a cunning trick up its sleeve.

Keep your cool
PCs usually require at least three fans – one each for the case, power supply and processor. Shuttle has dispensed with the processor fan and put in heat pipes to increase the efficiency of the cooling. Less fans whirring also reduces noise.

The heat pipes – highly efficient conductors that consist of a vacuum tube partially filled with liquid – move the heat from the processor to a heat sink by the case fan. The system works well, so opting for a small case no longer means sacrificing processing power.

With a small case, expansion is obviously limited. You would usually be limited to a couple of PCI slots, but Shuttle has upped the ante by including one AGP slot in addition to one PCI slot.

Testing times
Trialling the machine with a 2.4GHz Pentium 4 processor, 256MB of DDR (double data rate) RAM and a GeForce4 Ti 4600 graphics card resulted in a WorldBench 4 score of 113 – more than respectable. In terms of 3D performance, it managed 72.1fps (frames per second) running the Quake III Annihilator demo at 1,024x768, dropping to just 70.9fps at 1,600x1,200. Video encoding was also good, taking eight minutes 51 seconds to crunch down two-and-a-half minutes of DV (digital video) footage into Mpeg-2 format.

The machine comes as a barebones system, which means you'll need to put it together yourself, adding your own processor, memory, hard drive, floppy and CD/DVD drive. In the box you will find all the necessary cables and an in-depth instruction manual; we advise you read it before attempting assembly.

As space is quite tight, it's important that the necessary cables are installed in the correct order and routed through the right places to ensure nothing gets snagged or affects airflow. Providing you follow the instructions, though, it's easy to do and can be put together in about 30 minutes.

There's a wealth of ports and connectors: around the back you'll find keyboard, mouse, VGA, two serial ports, two FireWire, one SPDIF-in (Sony Philips digital interface), two USB 2.0 ports, one 10/100 ethernet and six speaker connections for 5.1 surround sound. On the front there are two more USB 2.0 ports, one FireWire, SPDIF-out, microphone-in and headphone-out. Other than the SPDIF-out port gracing the front, rather than the back, the layout is sensible.

Looks-wise the case is undoubtedly sleek – and certainly beats the standard beige box. The front is finished in blue transparent plastic with the main body metallic silver, so it should sit happily in the living room as well as the office.

Verdict
The combination of power, small size and low volume mean the SS51G is the perfect candidate for lounge living. Not only can you pack in a powerful processor but the AGP slot means you're no longer limited to PCI graphics. The innovative cooling system keeps the noise down and at £224 it offers great value for money. ∎

Will Head

↙ Shuttle's innovative heat pipe solution ensures efficient cooling while cutting down the number of fans necessary keeping the noise low

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Shuttle SS51G XPC

Specifications: supports Pentium 4; 2 x DDR memory slots; 1 x AGP; 1 x PCI; 4 x USB 2.0; 3 x FireWire; 1 x 5.25in bay; 2 x 3.5in bays; integrated graphics; integrated 5.1 audio; SPDIF-in/-out; 10/100 ethernet; 200x280x181mm.

Micro Direct: 0870 444 4456
Website: www.shuttle.com
Price: £224

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

Power notebook
AJP 8880

Every so often, the term desktop replacement can be used in its full sense when describing a notebook. This is true of AJP's 8880. Making use of Taiwanese-based Clevo's chassis, the 8880 is as fully featured as you can get. Not only does it sport a 2.5GHz Intel Pentium 4 desktop processor and 512MB of DDR (double data rate) memory, it also comes complete with built-in floppy, CD-RW and DVD-ROM drives. When using the latter two you can conveniently copy information from one CD to another without first having to save it to the 60GB hard drive.

Large as life
With all these drives present at once, it comes as no surprise that the 8880 is a little on the large size. In fact it's huge, measuring approximately 36x30x5.5cm (width x depth x height), but you do get a full-size keyboard. It also tips the scales at a shoulder-straining 5.5Kg. Having said that, the 8880 isn't meant to be carted around very often and as a PC substitute its ideal home is on a desk where space is at a premium.

A contributing factor to the AJP's proportions is the impressive 15.7in TFT (thin film transistor) screen that is truly a pleasure to use. With a native resolution hitting 1,280x1,024, it's equivalent to working on a 19in CRT (cathode ray tube) display without leaving text looking overcrowded and cramped. The screen, however, did seem a little dark even at its brightest setting and the vertical viewing angle was very narrow.

ATI's 64MB Mobility Radeon 7500 graphics controller drives the display so you can expect smooth DVD playback and the power to comfortably run 3D games. If you're not satisfied with just watching DVD movies, then how about TV? Protruding around the back is the coaxial cable/aerial input for the TV tuner.

Using the supplied software, you can watch TV in full-screen mode, capture still images or full-motion video and read Teletext pages. It even comes with a remote control.

On and on…
The feature list doesn't stop there. AJP has thrown in a USB MP3 player, too, which neatly slides into its purpose-built slot on the right side of the notebook. The MP3 player takes Secure Digital/Multimedia Flash memory cards, thus allowing you to play and store MP3 music files. And because the player is recognised as a removable disk it can be used to store other data file types. Disappointingly, no headphones or USB cable are provided.

Ports are in abundance, however. At the rear is a PS/2 and parallel port, a single serial port and a D-Sub video. Joining these are four USB ports, 56K modem and 10/100 ethernet jacks, plus S-Video-in and TV-out ports and a full-size FireWire socket for video-editing buffs.

In addition, the left side carries two Type II (or one Type III) PC Card slots, a Sony Memory Stick slot and an infrared port. Line-in and microphone jacks, together with an SPDIF-out for connection to a Dolby AC-3 receiver for 5.1 surround sound, are also housed on this side. On the subject of audio, you'll find a set of CD player controls on the front of the notebook that can operate the DVD-ROM drive while the 8880 is switched off. However, don't expect too much as the sound from the internal stereo speakers is rather tinny.

Pointer control is provided by a responsive touchpad coupled with selector buttons and a scrolling rocker switch, and three silver hotkeys situated above the keyboard make accessing your default browser, email and a user-defined application easy.

The 8880's build quality is not the highest we've seen because of its overall plastic feel and finish, while the whirring from the two base-mounted cooling fans can become irritating. Nevertheless, the 8880 put in a reasonable performance, turning in a WorldBench 4 score of 112 in our tests.

Verdict
When you consider that the AJP 8880 costs £1,675 and then you take into account who it's aimed at, while tallying up all its features and reflecting on its good performance, you soon realise that little has been compromised.

There are a few niggles, such as the slightly dark display and the so-so build quality but as far as defining what a true desktop replacement is, this notebook certainly comes very close. ∎

Jalal Werfalli

AJP 8880

Specifications: 2.5GHz Pentium 4; Windows XP; 512MB DDR RAM; 60GB hard drive; 15.7in TFT; 64MB ATI Mobility Radeon 7500; 24x/14x/8x CD-RW; 8x DVD-ROM; integrated 56K modem and LAN; infrared; 4 x USB; FireWire; SPDIF; 2 x PC Card; MP3 player with SD/MMC slot.

AJP: 020 8208 9710
Website: www.ajp.co.uk
Price: £1,675

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

Power notebook
AJP 5600P

While Intel has been busy promoting the merits of its Mobile Pentium processors, AJP has once again gone for a desktop Pentium 4 processor to power its £1,725 5600P notebook. Its advantage is speed as the P4's Mobile counterpart is currently behind in the gigahertz race.
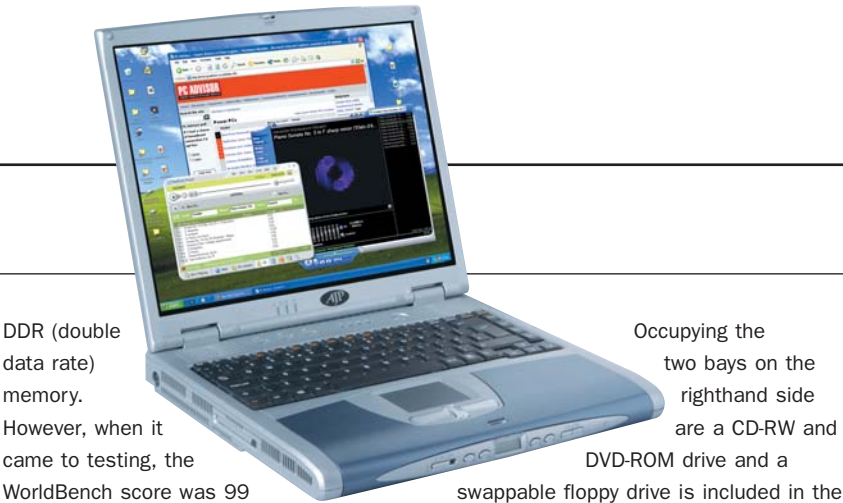
AJP's CPU is running at a beefy 2.6GHz and is supported by a whopping 1GB of DDR (double data rate) memory. However, when it came to testing, the WorldBench score was 99 – slower than the 5600P's lower specced sibling, the 8880 (see page 69).

Performance aside, the 15.1in TFT (thin film transistor) is sharp and exhibits bright and even illumination. It supports a native resolution of 1,400x1,050 and the 64MB ATI Mobility Radeon 7500 graphics chipset will allow 1,600x1,200, albeit in a virtual desktop environment. The hard drive is a capacious 60GB offering plenty of storage.

The keyboard is translucent and the keys have just enough spring-back to make typing easy. The touchpad is positioned slightly left of centre. This gives you more room to rest your right hand when typing, but only if that suits your typing style.

Occupying the two bays on the righthand side are a CD-RW and DVD-ROM drive and a swappable floppy drive is included in the price. The 5600P has all the usual ports, including a mini FireWire port, SPDIF-out, four USB ports, a single Type II PC Card slot and an infrared port – the latter being ideal for mobile devices.

Verdict
By foregoing the floppy drive as an integral feature, AJP has managed to restrict the weight and size of its system so that it appeals to those who want a realistically portable desktop replacement notebook. It's more expensive than the AJP 8880, but power users fed up with their beige boxes should be drawn to the high-end processor/memory combo. ■

Jalal Werfalli

AJP 5600P

Specifications: 2.6GHz Pentium 4; Windows XP; 1GB DDR RAM; 60GB hard drive; 15.1in TFT; 64MB ATI Mobility Radeon 7500; swappable floppy drive; 24x/8x/8x CD-RW; 8x DVD-ROM; integrated 56K modem and LAN; infrared; 4 x USB; mini FireWire; PC Card; P/S2 port.

AJP: 020 8208 9710
Website: www.ajp.co.uk
Price: £1,725

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

Budget notebook
Multivision Visage

As desktop PC sales remain flat, notebooks are flying off the shelves. So it comes as no surprise to see desktop specialists moving into the portable space, as this is where the money is.

But desktop stalwart Multivision has bucked the trend to some extent. Rather than turning to Taiwan to buy up its portables, it has looked closer to home and is rebadging Italian Olidata notebooks.

This looks set to be a wise choice as the Visage, with its 1.8GHz Mobile Pentium 4 processor – the fastest we have seen in the Budget price range – 256MB of DDR (double data rate) RAM and 32MB of DDR GeForce4 MX 420 Go graphics card has roundly beaten the competition. Its WorldBench 4 score of 108 speeds past last month's winner, ACI's Impression – indeed, it even beats three of our Power notebooks.

You might think that with all this power under the hood the Visage would cost a bomb, but you'd be wrong. Perhaps with the help of its Italian suppliers, Multivision has managed to match its winning performance with a seductively low price of less than £1,000.

The rest of the spec isn't quite as impressive because the 30GB hard drive, 14.1in TFT (thin film transistor) and combo DVD/CD-RW drive are all becoming standard in the Budget market. The warranty is equally ordinary at one-year collect-and-return, parts-and-labour.

Verdict
Well done Multivision – for a first effort this knocked our socks off. The build quality isn't the best we've seen and it's short on extras, but for sheer performance at an extremely affordable price the Visage can't be beaten. ■

Ursula Seymour

Multivision Visage

Specifications: 1.8GHz Mobile Pentium 4; Windows XP; 256MB DDR RAM; 30GB hard drive; GeForce4 MX 420 Go; 14.1in TFT, max res 1,024x768; 8x/8x/8x/24x Combo DVD/CD-RW; FireWire port; smartmedia slot; 2.7kg; 312x266x33mm.

Multivision: 0870 220 2822
Website: www.multivision.co.uk
Price: £979

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

Mobile phone and camera accessory
Virgin T68i and Communicam

A picture is worth a thousand words, or so the mobile phone operators hope. We're about to be bombarded with a whole new range of phones and services that will allow us to send picture messages in much the same way as we send text messages today. The combination of the Ericsson's T68i phone and Communicam accessory is a glimpse of what's to come.
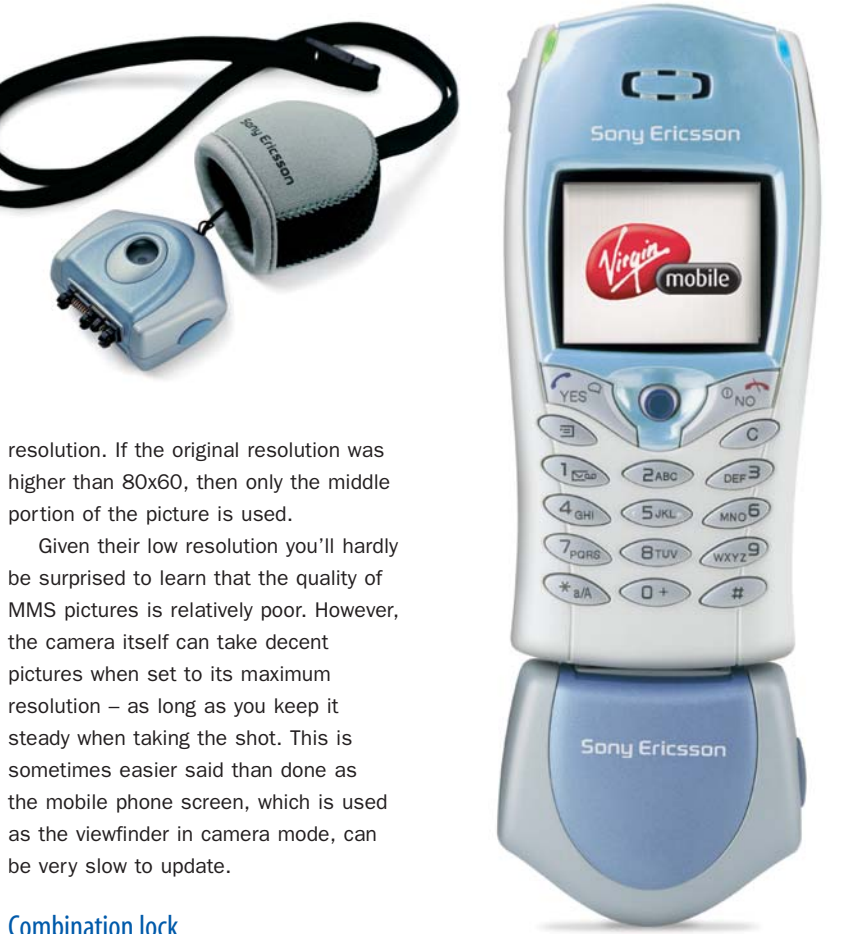
There's no doubting that the T68i is a stunning phone. It has GPRS (general packet radio service), Bluetooth, infrared, POP3 email and tri-band support to impress your techie mates, and a crisp colour screen that will impress just about everyone else. But what does the Communicam bring to the party?

Better with pictures
The camera looks much like a miniature webcam. It plugs into the bottom of the T68i and when connected it brings up the Communicam menu. From here you can take pictures, view shots you have taken and select one of four resolution settings. The lowest resolution is 80x60 for picture messages and the largest is 640x480, which is probably best used for pictures you want to send via email.

The phone can store up to 200 pictures depending on the resolution. Once an image is copied from the camera to the T68i's memory you can attach it to a name in your phonebook – so when that person calls the picture will appear on the screen. Alternatively, you can set an image to be used as the phone's screensaver, greeting message or background screen.

You can also send a picture as an attachment to an email message or use the MMS (multimedia messaging service) when it becomes available.

MMS is a new standard for mobile messaging that allows you to send text, sounds and pictures via SMS (short message service). When using MMS on the T68i, the size of the picture is limited to 80x60 regardless of its original resolution. If the original resolution was higher than 80x60, then only the middle portion of the picture is used.

Given their low resolution you'll hardly be surprised to learn that the quality of MMS pictures is relatively poor. However, the camera itself can take decent pictures when set to its maximum resolution – as long as you keep it steady when taking the shot. This is sometimes easier said than done as the mobile phone screen, which is used as the viewfinder in camera mode, can be very slow to update.

Combination lock
Unfortunately, the combination of the camera and phone can, at times, seem flakey. Sometimes the camera just can't seem to establish a connection with the phone while at others it simply locks up the phone for no reason. Twice we were reduced to taking the battery off the back of the phone to get it to start again after severe lockups.

Virgin is really a virtual mobile operator as it doesn't have its own network but instead leases space on T-Mobile's. We tried T-Mobile's MMS service to get a comparison with Virgin's offering.

The picture messaging service worked reasonably well but quite often messages would refuse to send because of network errors and we also found that messages could be slow to turn up at the other end. Still it's early days and when it does work it's fun to use, but is unlikely to become as essential as text messaging.

Verdict
The Communicam is really quite fiddly to use and attaching pictures to emails and MMS messages would try the patience of a saint. However, we did like the feature which allowed us to attach pictures to the names in the phone book to identify incoming callers. ■

Niall Magennis

Virgin T68i and Communicam

Specifications: tri-band; GPRS; HSCSD; WAP; Bluetooth; POP3 email; vibrate alert; 256-colour display; lithium-polymer battery; camera max resolution 640x480.

Virgin: 0845 600 0070
Website: www.virginmobile.com
Price: phone £298, Communicam £111

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

Digital voice recorder
Olympus DS-330

With the DS-330, Olympus has successfully taken the dictaphone and turned it into a computer peripheral, neatly integrating a handy, portable recording device with the desktop PC.

This small, light device has 16MB of built-in storage. That may not sound like much but Olympus' advanced DSP (digital signal processor) technology allows very

high compression rates, so the DS-330 can store up to two-and-a-half hours of recordings or double that in long-play mode.

As well as basic record and playback functions, the long list of advanced features includes a variable control voice actuator, which sets the device to automatically record when the ambient sound reaches a specified level. If your recording was made in a noisy environment, you can play it back using the noise cancellation function.

The only real problem with the DS-330 is its interface, which is badly designed. Finding out which button does what and how to access specific functions requires a lot more than just common sense. We recommend you read the manual carefully.

Recordings can either be played back through the built-in speaker or through its

headphone jack. But the DS-330 really comes into its own when you hook it up to your PC with the supplied USB cable. The connection can be made via the port on the bottom of the device or via the supplied dock.

The software can be used to control the playback of recordings on the device, making it easier to scan recordings. Its main function is to let you download recordings to your hard disk, enabling you to organise and archive all your footage.

Verdict
If you're used to cassettes for voice recordings, just one go with the DS-330 will have you wondering how you ever managed without it. If only Olympus could make its products as easy to use as they are useful, the DS-330 would be perfect. ∎

Alex Katz

Olympus DS-330

Specifications: 16MB Flash ROM; 12KHz sampling frequency; 155mins continuous recording; built-in 28mm dynamic speaker, microphone and earphone jacks, 2 x AAA batteries, 108x41.5x21mm; USB port.

Olympus: 0800 072 0070
Website: www.olympus.co.uk
Price: £145

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

Flat-panel display
LG Flatron L1810B

In an industry rife with cheap imitations, it's LG that combines value for money with high performance graphics. The L1810B is no exception – an attractive 18.1in flat-panel display at a price that beats many 17in models.

Inevitably there are sacrifices, although for the most part they are fairly minor. You get USB support (albeit two downstream

ports rather than the usual four), and a digital DVI (digital visual interface) connection is included alongside RGB. The control panel is far from comprehensive, but at least this makes for a fairly uncluttered interface.

LG has also economised on specifications. The 0.28mm pixel pitch, for example, is higher than we would like, while the 350:1 contrast ratio doesn't compete with the Sony and Samsung 17in models. Like many flat-panels, the L1810B prefers higher resolutions so, although the image will be clean at 1,024x768 and the maximum mode of 1,280x1,024 (with a refresh rate of 75Hz), results are fuzzy at 800x600.
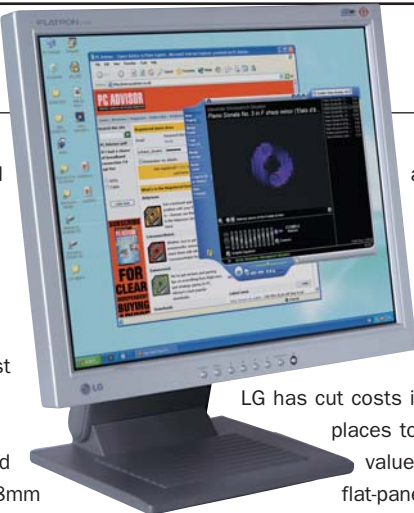
For the price, the LG's picture is surprisingly good. Graphics are clean with vivid colour; text too is acceptable,

although not quite as finely focused as text on the Sony SDM-S71, for instance.

Verdict
LG has cut costs in all the right places to produce a value-for-money 18.1in flat-panel. But while the L1810B leads the way in the 18in market, some extremely good 17in models can be snapped up for two-thirds of the LG's asking price. The CTX PV700 and NEC 1700V, for instance, offer great results for £150-£190 less. In practice, the extra inch of workspace is unlikely to make a radical difference to your productivity, and unless you genuinely need the maximum viewing area this is a good, rather than a fantastic, buy. ∎

Robin Morris

LG Flatron L1810B

Specifications: 18.1in screen; 1,280x1,024 resolution at 75Hz; pixel pitch 0.2805mm; dimensions 406x431x223mm; weight 7.8kg; DVI digital connector; USB (2 downstream, 1 upstream); three-year warranty

LG: 0870 607 5544
Website: www.lge.co.uk
Price: £599

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

Video-editing bundle
Matrox RTX10

Last year, when we looked at Matrox's RT2500 video-editing hardware package, we were extremely impressed by the professional quality real-time features that it offered for less than £1,000. It's now joined by two further products from the Matrox stable, both of which offer even more whizzy effects and features.

The RTX10 isn't the direct descendent of the RT2500 – that accolade probably goes to the rather more expensive RTX100 (£739). Instead, the RTX10 is an attempt to bridge the gap between high-end products and home users, coming in at a distinctly affordable £399. Open the box and you will find a PCI board, a breakout cable and some software.

The cable features S-Video and composite A/V sockets for those using analogue equipment. It also acts as a video throughput, allowing you to view your work as you edit on a TV set or second monitor. On the card you'll find the requisite FireWire port for connecting a DV (digital video) camcorder.

Read the small print
As with previous Matrox real-time products, the RTX10's installation procedure is reasonably tricky. Along with the system requirements, there are details of approved systems, graphics cards, motherboards and video cameras posted on the Matrox website. We heartily

recommend that prospective buyers check these before committing to a purchase. Indeed, where possible, we'd advise you to purchase a system that has been specifically preconfigured and built around an RTX10 board. According to Matrox, both Evesham.com (www.evesham.com) and Planet PC (www.planetdv.net) should soon be offering integrated RTX10 systems.

Capture the moment
Once up and running, DV users will find Matrox MediaTools extremely handy for capturing from tape. Plug your digital camcorder into the FireWire port and you'll get full remote control of its functions. Single-pass scan and capture means that you can log your tapes and grab clips from them at the same time, thus minimising wear on both the tape and your equipment.

The main bulk of your editing will take place in Adobe Premiere. Surprisingly, the RTX10 comes with the full version of Premiere 6.5, which alone would usually set you back about £540. Quite how Matrox has swung this is beyond us. Still, it's best not to complain when you are getting a good deal.

Of course, Premiere isn't the easiest of editing applications but it's still one of the best. The timeline-based system is pretty logical and the Matrox real-time effects and transitions work just like standard plug-ins. Drag and drop a swirl or a fade on to a clip on the timeline and a window will pop up allowing you to tweak the effect to your satisfaction or choose from a number of presets.

Pretty much every function in the edit suite can be performed in real-time over two layers of video and two layers of graphics. This means that titles as well as sophisticated 3D wipes and effects can be added, all without waiting ages for your changes to render.

Additionally, in a marked improvement over the RT2500, slow motion and colour correction can also now be implemented in real-time. So, even if you forgot to set the white balance on your camcorder while you were filming you can still rescue your footage without rendering – and all at the click of a button.

And, once you have finished your masterpiece, the RTX10 has everything you'll need to output your work to a wide range of different media. You can export your final movie to tape or create compressed, web-friendly versions for Windows Media Player, RealPlayer or QuickTime. You can even create Mpeg-2 files and use them with the bundled Sonic Solutions DVDit LE program to author your own DVDs and VideoCDs.

Verdict
With Pinnacle and Matrox seemingly in a race to see who can bring down the cost of real-time video editing the fastest, now is a great time for enthusiasts to buy. We definitely wouldn't recommend the RTX10 to those new to desktop editing but for anyone with a serious interest in digital filmmaking, this could well be the package you've been waiting for. ∎

James Bennett

Matrox RTX10

Specifications: Windows XP;2000; 1GHz Pentium III, 1.8GHz Pentium 4 or AMD Athlon XP 1500+; 256MB RAM; 500MB hard disk space; free PCI slot; separate hard drive for A/V content; 16bit sound card; CD-ROM drive, video camera or VCR.

Matrox: 01753 665 577
Website: www.matrox.com
Price: £399

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

Personal digital assistant
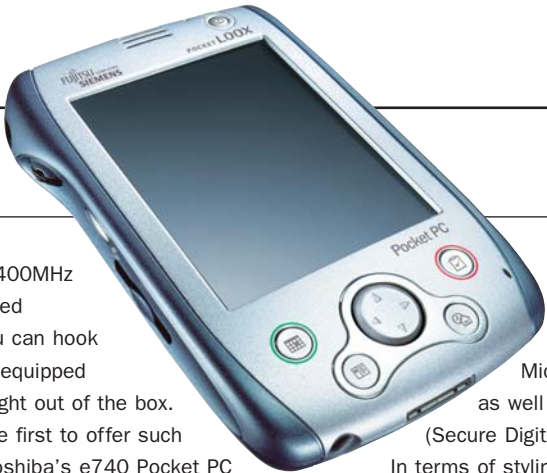
Fujitsu Siemens Pocket Loox 600

You'll be hard-pushed to find a PDA (personal digital assistant) with a keyboard, but if you're looking for a touch-screen model companies are falling over one another to sell one to you. The latest entrant to the market, Fujitsu Siemens, is hoping to catch your eye with the Pocket Loox 600.

As a first effort the Pocket Loox isn't bad. It uses Intel's latest XScale

chip running at 400MHz and has integrated Bluetooth so you can hook it up to suitably equipped peripherals straight out of the box. It may not be the first to offer such functionality – Toshiba's e740 Pocket PC (reviewed October 02) offers both, plus the option of 802.11b wireless networking – but it's still good to see.

Access to the Bluetooth hardware is provided by the Plugfree software. Setup is a little clunky, but once you've got your phone and Pocket Loox paired (so they trust one another), connection is but a click away. There's also a hardware Bluetooth on/off switch – useful for environments where wireless transmissions are forbidden, such as onboard aeroplanes.

There's plenty of expansion available and it's good to see that Fujitsu Siemens has included a Type II CompactFlash slot

(so you can slip in IBM's capacious Microdrive) as well as an SD (Secure Digital) card slot.

In terms of styling, it's okay – although its large curves make it look a little chunky. There's a jogdial to aid navigation, so you don't have to resort to the stylus, plus the usual complement of shortcut buttons are available.

Verdict

The Pocket Loox isn't a bad first effort and it's aggressively priced at £399, considering what's included. It's good to see Bluetooth integrated – although first time setup of devices could be improved a little. It may look a little on the chunky side, but if you can get over that it's worth investigating. ∎

Will Head

Fujitsu Siemens Pocket Loox 600

Specifications: 400MHz Intel XScale processor; 64MB RAM/32MB ROM; CompactFlash II and Secure Digital slots; integrated Bluetooth; lithium-polymer battery; 132x82x17mm; 175g.

Fujitsu Siemens: 01344 475 555
Website: www.fujitsu-siemens.com
Price: £399

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

Beginner digital camera

Nikon Coolpix 2000

The Coolpix 2000 is Nikon's first foray into low-end point-and-shoot models for novice users and offers an excellent combination of value for money, features and ease of use.

With its plain looks the 2000 is unexciting at first glance but the compact case contains specifications to shout about. It's a 2Mp (megapixel) camera with a maximum resolution of 1,632x1,224 and a 3x optical zoom that can be extended to 7.5x with the 2.5x digital zoom. While shot quality wasn't quite as sharp as the Olympus Camedia C-220's, our images contained excellent colour reproduction and more than enough detail to satisfy novice photographers.

The 8MB CompactFlash card holds eight high-resolution Jpeg shots or 121 images when you lower the resolution to 640x480. There's no optical viewfinder so shots are composed using the stunningly clear LCD (liquid crystal display).

Fortunately, the Nikon can cope with the extra battery drain this causes because it uses four AA batteries rather than two. We would still recommend getting some rechargeable nickel batteries to replace the alkaline ones, however.

At this price you would expect only the basics of digital photography, but Nikon has added a generous number of configuration options so users can tweak to suit a range of conditions. The jogdial can be set to automatic or you can choose from five scene presets that optimise the camera for the best setup. Enter the menu display with the four-way navipad and you'll find exposure, white balance and metering controls – including the

impressive matrix metering, which offers the best evaluation for exposure settings.

Verdict

This remarkably good entry-level digital camera offers point-and-shoot simplicity, yet contains enough settings for a more curious user who is after increased photographic control. And all at an unbeatable price. ∎

Spencer Dalziel

Nikon Coolpix 2000

Specifications: 2Mp; maximum resolution 1,632x1,224; 8MB CompactFlash card; 4 x AA alkaline batteries; 108x38x69mm; 190g; max 121 photos on 8MB, min 8 on 8MB.

Nikon: 0800 230 220
Website: www.nikon.co.uk
Price: £165

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

Digital projectors
Toshiba TDP-P5 and Dell 3100MP

The term 'portable' is perhaps something of a misnomer in the hefty world of the projector, but if you genuinely want a model that's easy to carry without breaking a sweat, you could consider one of these machines from Toshiba and Dell. With neither model weighing more than 1.6kg, they are light enough to be carried across town without leaving you too drained to make your sales pitch when you get there. But while you'll be able to walk the walk with these two, can they talk the talk?

Toshiba TDP-P5

The Toshiba's biggest selling point is its size. It's incontestably the tiniest projector we've ever seen, weighs a negligible 1.1kg and is guaranteed to consume next to no space in your bag. The 32dB operating noise makes it incredibly discreet and, whether tucked away in the corner of a sitting room or hidden at the back of a boardroom, this is one projector that's neither seen nor heard.

Ports and connectors are kept to a minimum, although the all-important DVI (digital visual interface) connector is present. But whereas the case design is clean and sleek, the rather unresponsive projector keys make navigating the onboard menu something of a chore.

DLP projectors are famed for their strong colour range and handling of darker shades. Technically, the TDP-P5 more than lives up to these exacting standards, and its 800:1 contrast ratio promises exceptional colour, while the brightness rating of 1,100 Ansi lumens is good. In operation, though, the Toshiba fails to live up to its specifications.

While you certainly won't reject the TDP-P5 for its poor image, even with much tweaking of the controls the faintly underwhelming colour scheme doesn't compare with the cream of the projectors. The same goes for the image focus; the slightly blurred text isn't up to Toshiba's usual standard either. The projector claims to have a native resolution of 1,024x768 (XGA), but the results weren't really palatable above 800x600 (SVGA).

Dell 3100MP

With its firm grasp on the desktop PC and notebook markets, it was only a matter of time before Dell broadened its horizons. The 3100MP is the first in a line of Dell-branded projectors, but shows that the company already has its finger on the pulse. Its styling is a lesson in chic sophistication and, although its 1.6kg framework isn't quite as nimble as the Toshiba's, carrying this projector around is never a chore. The onboard menu system, although slightly complicated to use, covers all the essentials, and the array of ports and connectors includes DVI and remote mouse facilities.

Technically, the Dell falls behind the Toshiba P5 and, surprisingly for a DLP model, the 3100MP's contrast ratio is a meagre 280:1 (offering far less range than the 800:1 ratio of the Toshiba). The brightness rating is a notch down as well, although 1,000 Ansi lumens is adequate for all but broad daylight. Specifications only show one side of the story, though, and in operation the Dell is comfortably superior to the Toshiba.

The colour scheme might not be as rich as those of, for example, the NEC and Eizo models, but there's more than enough subtlety for most applications and DVD movies. Character definition, too, is extremely sharp, and the projector works well in both 800x600 and the native XGA 1,024x768 resolution.

Verdict

The Toshiba will undoubtedly sell well due to its incredibly small size and weight. And for anyone who needs to carry a projector long distances, the TDP-P5 will go down extremely well. However, we weren't as impressed with its performance and, although it will make an adequate job of displaying PowerPoint slides and pictures, there are other projectors with superior display capabilities.

The Dell 3100MP is one such projector, and although it isn't quite in the class of the NEC and Eizo models in our chart on page 142, it does offer an all-round performance at an enticing price. This first of Dell's projector range will serve as an excellent introduction to projectors in general. ■

Robin Morris

Toshiba TDP-P5

Specifications: 1,100 Ansi lumens; 132W lamp (2000 hours); replacement bulb £270; 1.1kg; maximum resolution 1,024x768; 211x154x64mm; DVI connector.

Toshiba: 01932 828 828
Website: www.toshiba.co.uk
Price: £2,700

	0	1	2	3	4	5	6	7	8	9	10
Ease of use								7			
Features									8		
Value for money								7			

Dell 3100MP

Specifications: 1,000 Ansi lumens; 130W lamp (1000 hours); replacement bulb £289; 1.6kg; maximum resolution 1,024x768; 176x225x56mm; DVI connector

Dell: 0870 907 3304
Website: www.dell.co.uk
Price: £1,999

	0	1	2	3	4	5	6	7	8	9	10
Ease of use								7			
Features								7			
Value for money									8		

PC Card GPRS modem
Sierra Wireless AirCard 750

GPRS (general packet radio service) is perfect for anyone using the internet on the move: it keeps you permanently connected but only charges for data used, not time online. Unfortunately, it has not always been easy to get GPRS phones and notebooks working together. However, the new Sierra Wireless AirCard 750 makes tricky GPRS configurations a thing of the past.

The AirCard is a Type II PC Card which provides a GPRS connection to any notebook running Windows 95 or later, or Pocket PC PDA (personal digital assistant). This tri-band device supports GSM/GPRS networks across the world and its 75mm antenna can be twisted or removed for transportation. A standard Sim card is inserted in the side, and voice callers can connect an optional hands-free kit.

During a simple installation the GPRS communications are configured as a standard network adapter, which means Windows thinks it's simply connecting through a LAN (local area network). The supplied Watcher utility indicates network coverage, handles text messages and manages the phonebook.

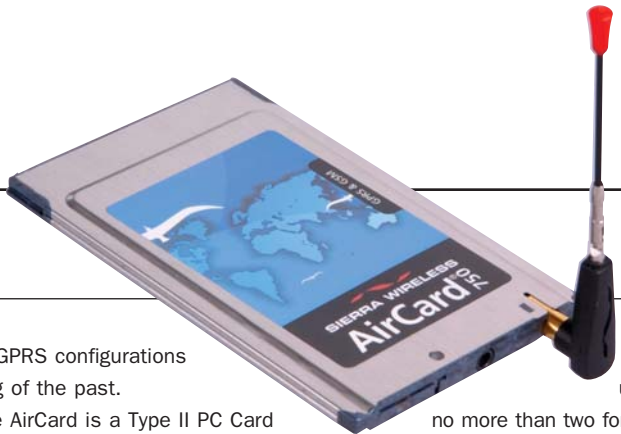Impressively, the AirCard 750 is the fastest GPRS device we've seen. Rated as Class-12, it supports four slots for downloads or uploads. Sadly, no more than two for uploading are currently supported in the UK, but the Sierra protects you for future developments.

We measured download speeds of around 30Kbps (kilobits per second) using Vodafone's GPRS service, which feels only slightly slower than a 56K landline modem.

Verdict

GPRS is great for mobile internet connections but has traditionally been hard to set up. The AirCard 750 makes it extremely simple and is the fastest GPRS device on the market. It may be more expensive than buying a GPRS phone, but comes highly recommended for delivering the most hassle-free mobile connectivity on Windows notebooks or Pocket PC PDAs. ■

Gordon Laing

Sierra Wireless AirCard 750

Specifications: Windows 95/98/2000/NT 4/Me/XP; Type-II PC Card; GPRS Class 12; supports up to four slots for transmission and four slots for receiving; tri-band GSM support at 900, 1,800 and 1,900MHz; Pocket PC, Pocket PC 2002, HandheldPC 2000.

ACI: 020 8622 3015
Website: www.sierrawireless.com
Price: £169 with Vodafone subscription, £254 Sim-free

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

Four-colour network laser printer
HP Color LaserJet 4600hdn

The 4600 series is HP's first 'single-pass' laser printer range. Single-pass means all the colours are laid down on the paper with one pass of the page through the printer – rather than circulating it many times for each colour – thus creating faster output speeds.

Topping this range is the 600dpi (dots per inch) 4600hdn with a 400MHz processor, 160MB of RAM, a network card, 10GB hard drive and a 500-sheet feeder tray. It also comes with an embedded server and duplexing capability. There's an intuitive LCD control panel, another 500-sheet feeder tray, a 100-page multipurpose tray and a 250-page output tray too.

After hoisting the main section on to the base unit that houses the extra 500-page tray, all that remained was to slide in the four toner cartridges. These are placed in a vertical formation that aids access and also saves space. In fact, the 4600hdn's footprint is approximately 48cm wide by 55cm deep – a plus for small offices. Furthermore, HP has positioned all the ports (network, parallel, power socket, fast infrared, but no USB) on the right side within easy reach.

With a claimed A4 speed of up to 16ppm (pages per minute), our tests returned rates of around 12ppm, including the first-page-out time of 17.5 seconds. These rates remained constant even when printing documents with mixed text and simple graphics. Text quality is pin-sharp and, for a colour laser printer, photo printing revealed accurate flesh tones with high detail and smooth blending.

Verdict

At £3,291, the 4600hdn is not the cheapest single-pass network laser printer, nor will the pricey consumables help running costs. However, if print quality, performance and functionality are your main criteria, you can't go far wrong. ■

Jalal Werfalli

HP Color LaserJet 4600hdn

Specifications: 600x600dpi; 16ppm; 10/100 BaseTX ethernet; 100-sheet tray; 2 x 500-sheet feeders; parallel port; 9,000-page black cartridge £131; 8,000-page colour cartridges £177 each; 400MHz processor; 160MB RAM; 10GB hard disk; Windows 95/98/Me/NT4/2000/XP compatible.

HP: 08705 474 747
Website: www.hp.com
Price: £3,291

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