



Smartphone Orange SPV

When Microsoft announced it was going to write an operating system for mobile phones many experts predicted it would muck it up, just as it did when it conceived its first generation of software for PDAs (personal digital assistants). They were wrong.

Orange's SPV is the first and, since Sendo canned its Microsoft phone, the only handset that runs Windows Powered Smartphone. Microsoft has taken the best bits of its Pocket PC operating system and adapted it. The upshot is that the SPV is an email client, address book, calendar, internet browser, audio and video player, dictaphone, instant messenger and games machine in one.

It's much more useful than most Pocket PC-based devices, though, as it can access the web at GPRS (general packet radio service) speeds, obviating the need for a PC altogether. Emails can be sent and received on the move, calendars can be synchronised and contacts exchanged via infrared. If that doesn't appeal, you can synchronise data with your PC via a provided USB docking cradle. What's more, Outlook 2000 is thrown in for free.

Thumbs up

Someone at Microsoft has clearly done their homework as the SPV's impressive interface proves. It can be operated using one hand with everything presented as a text-based list. Press the corresponding number on the keypad to select or use the jogdial mounted on the side. Finding contacts is a matter of spelling out a name text message-style, which is complicated. We would prefer to simply hit the first letter of a name and scroll through the resulting list.

Browsing websites on the move may sound like fun, but in practice it proved more trouble than it's worth. The screen is too small to see

anything clearly so you end up forever scrolling left and right. WAP sites look fantastic, however, and are cheap to browse as there are no data-hungry pictures to download. Anyone with a POP3 email account will also be able to check for messages. Our only major gripes with the software are that it can't support Bluetooth, MMS picture messaging or Java. All of these can be added with third-party applications, however.

We're happy with the software, but what about the hardware? The SPV feels well-

built and is small enough to avoid the 'brick syndrome' that affected previous smartphones.

The colour screen is excellent for a mobile and the inclusion of an SD (Secure Digital) slot is a stroke of genius.

There's 8MB of memory available, which could fill up quickly if you install lots of applications. In this case, the SD slot will come in very handy. Another plus point: should the batteries discharge your data is safe as, unlike Pocket PCs, everything is stored in flash memory.

The Orange SPV sometimes suffers from sluggish

performance and, if you're a text addict, the buttons will feel cramped. However, given the inclusion of a hands-free stereo and camera attachment, plus the astonishingly low £145 price tag, such complaints seem churlish.

Verdict

Microsoft has struck oil: its smartphone software is both rich in features and easy to use. The Orange phone can be a little unresponsive, but it's the right size and weight and the colour screen is great. A viable replacement for separate mobile phones and PDAs. ■

Stan Everett



Orange SPV

- ☐ Orange: 0500 802 080
- ☐ Website: www.orange.co.uk
- ☐ Price: £145 ex VAT

Specifications

120MHz TI Omap ARM processor; 2.2in TFT; Secure Digital slot; infrared; 32MB flash ROM; 16MB RAM (8MB storage available to user); GPRS/triband phone; 3-hour talktime 100-hour standby; hands-free stereo; camera attachment.

Good points

8MB memory; SD slot adds extra memory capacity; colour screen; hands-free stereo; camera attachment; low price.

Bad points

Small buttons; web browsing fiddly.

Build quality



Features



Value for money



The colour screen is excellent for a mobile and the inclusion of an SD (Secure Digital) slot is a stroke of genius



...enough said!



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Personal digital assistant

Palm Tungsten T

Palm has kept a low profile in the last few months while competitors such as Sony have continued to beat it at its own game, with PDAs (personal digital assistants) featuring high-quality, high-resolution screens, attractive designs and tons of add-ons. But Palm is fighting back with the Tungsten T.

The device is the first on the market to feature Palm OS 5.0, which has advanced multimedia and communications features. The built-in applications feel extremely snappy and responsive thanks to the 144MHz chip, although third-party software still has to be rewritten to take full advantage of the new processor/operating system combination.

The Tungsten T is Palm's first ever PDA (personal digital assistant) to use a high-resolution 320x320 pixel colour screen. Combined with the imaging refinements in Palm OS 5.0, the display looks absolutely stunning – it even puts Sony's Clie range to shame. The other major change in the Tungsten is its design. The four application buttons along the bottom of the



device, along with a new five-way navigation button, conceal the Graffiti writing area – you must slide it out of the way when you want to input text. This keeps the device compact if you're just browsing information on screen, but it

does add an extra frustrating step to accessing items such as the Home and Find buttons.

Palm has taken a leaf out of other PDA manufacturers' books by bundling value-added features such as integrated Bluetooth support and a built-in voice recorder. There's also a headphone jack, although strangely no MP3 playback software is provided.

Verdict

As a next-generation Palm, the Tungsten T is a good, but not great, attempt. It adds some excellent features but we're not sure about the design. The combination of Palm OS 5.0 and ARM processors will surely have more to offer in future models. ■

Alex Katz



Palm Tungsten T

- Palm: 01189 278 700
- Website: www.palm.com/uk
- Price: £340 ex VAT

Specifications

144MHz Omap 1510 ARM processor; Palm OS 5.0; 16MB RAM; 8MB flash memory; colour TFT with backlight; integrated Bluetooth; infrared/IrDA port; SD/MMC slot; built-in voice recorder; lithium-ion battery; 102x75x15mm, 157g.

Build quality



Features



Value for money



MP3 player

Creative Nomad Jukebox Zen

The Jukebox Zen may lack some features that grace Creative's more expensive digital audio players but it more than makes up for this with its combination of value for money and superior sound quality.

The Zen can hold 20GB of WMA, WAV or MP3 files and offers audiophile quality with an impressive 96dB signal-to-noise ratio. Storage capacity translates to about 8,000 WMA songs. In contrast, the £270 Sony Music Clip (reviewed September 01) has 64MB of memory – enough for around 14 tracks.

The Nomad comes with a USB 1.1 or FireWire connection so anyone with an Audigy sound card can take advantage of the FireWire port for fast data transfer. It doesn't have any inputs so you can't record from a live feed and you'll also need to invest in some decent headphones.

This is the first time we've seen Creative opt for an aluminium rectangular shape rather than the rounded 'portable CD' design but the Zen



benefits from being smaller and easier to carry. At 268g with the rechargeable lithium-ion battery it will never match the true portability of lightweight flash storage players but it does come with a sturdy case that can hook on to your belt.

Hardware controls are few and all menu options on the blue LCD can be navigated with a click-down jogdial. You can browse by different options such as track genre, artist and there are several other nifty features thanks to Creative's EAX technology.

Verdict

If you want to record directly on to a digital audio player the you'll have to fork out for a more expensive model but the Zen does just about everything else. Great value for money, quick to transfer tunes using FireWire and brilliant sound quality. ■

Spencer Dalziel

Creative Nomad Jukebox Zen

- Creative: 0800 376 954
- Website: www.creative.com
- Price: £272 ex VAT

Specifications

20GB storage; lithium rechargeable battery; Windows 98/2000/Me/XP; MP3/WAV/WMA files; 76x113x25mm; 268g; 2-year return-to-base warranty.

Build quality



Features



Value for money



Graphics tablet

Wacom Volito

Pen-shaped input devices are big news at the moment having been thrust into the limelight courtesy of Microsoft's latest big idea, the tablet PC. But infrared pens on pressure-sensitive notepads aren't new. Wacom has been producing them for the computer graphics market for aeons – you didn't think the incredible detail found in today's PC games and other computer-generated images were created using a mouse, did you?

This is a USB device so you just need to plug it in and run the installation CD-ROM to install the driver. Once set up, the Volito acts as a PDA-style input device and navigation aid.

As a freehand drawing tool, a digital pen is just like using any other sort of pen or pencil, except you're not drawing directly on the page so it's easy to inadvertently scrawl outside the tablet area.

After a bit of practise, this becomes less of a problem as you adjust to the mode of



working and the casual doodler will soon find a whole heap of new tricks, from personalising stationery with the PenFlow digital signature software to annotating Word and Excel documents using the bundled JustWrite Office add-in application.

Pen stroke weight and colour can be adjusted at any point and a customisable button midway down the pen's length provides drag-and-drop selection options. Wacom has also provided a wireless mouse for times when you prefer working this way.

But the main appeal of the Volito is as a drawing tool. Tracing an Andy Warhol line-drawn gorilla print, which we slid under the Volito's flip-up transparency sheet, produced reasonable results. The pen provided precision at source, which meant we had no need to tidy up our hand-copied gorilla using image-editing features. Given our limited artistic skills that's pretty good going.

Verdict

The Volito is a little smaller than your average mouse mat and its operational area is a bit limited. Other offerings on the market are A4 or larger but, of course, this means their price tags are more sizable too. The Volito costs just £34 which, considering it comes with a software bundle that includes both Arcsoft PhotolImpression and Corel Painter, makes it excellent value. ■

Rosemary Haworth



Wacom Volito

- PC World: 0845 601 4901
- Website: www.wacom-europe.com
- Price: £34 ex VAT

Specifications

USB graphics tablet; digital pen; wireless mouse; Corel Painter, Arcsoft PhotolImpression and FunHouse, JustWrite Office, Penflow, Whiplash software; works with Windows 98/Me/2000/XP.

Build quality



Features



Value for money



Portable hard drive

Maxtor Personal Storage 5000XT

Maxtor Personal Storage 5000XT

- Maxtor: 01923 712 448
- Website: www.maxtoronetouch.com
- Price: £254 ex VAT

Specifications

250GB capacity; external; USB 1.1, USB 2.0, FireWire interfaces; cache buffer 2MB; 152x291x41mm; 1.22kg; 5400rpm; Dantz Retrospect Express.

Build quality



Features



Value for money



Backing up PCs has always been an intricate job and, although Maxtor's external hard drive takes some of the mystery out of the process, it's not a case of plug in and go. You're going to need some PC knowhow and at one spare hour in which to set it up.

Compatible with USB 2.0 and FireWire, the 5000XT can be plugged into a PC and, with one press of the button, the backup software (Dantz Retrospect Express) can be loaded. The system will be backed up within minutes in theory, but in practice it's a lengthy affair. However, once you've installed the drive backing up is a pain-free process. The Maxtor is good value for money, too, offering 250GB of storage space.



Verdict

The backup process is too long-winded to make this an effective alternative to general storage devices like Iomega's HDD range. But as an affordable and powerful solution for backing up your PC, this is a good option. ■

Robin Morris

Budget notebook

Multivision Visage LT

Having stormed the Budget notebook chart back in December 02 with its impressive Visage model, Multivision is squeezing profit margins further still with the £799 Visage LT. In comparison with its predecessor, the Visage LT is a sluggish performer. Its WorldBench score of 96 leaves it trailing by some 12 points, despite the presence of a 1.8GHz Mobile Pentium 4 chip and 256MB of memory. The graphics engine is perhaps a crucial factor in the low speed and the powerful nVidia GeForce4 Go technology used in the Visage has been replaced by the now-ageing GeForce2 Go 200 chipset.

The 14in TFT screen's washed-out colour palette will be noticeable when high-definition graphics are on the menu. Despite this, the level of detail on the Visage LT is fairly good.

Sound facilities are a success, with the speaker system proving a good match for the onboard audio controller. The drive facilities could be improved, however: the 30GB hard disk may offer a relatively high amount of storage, but the absence of CD-RW is limiting. There's no floppy drive with the notebook,

either, although the eight-speed

DVD playback provides some consolation.

Build quality and construction is an issue with the Multivision, and the spongy keyboard needs improvement. We were pleased to note the inclusion of FireWire, although the two USB ports and single PC Card slot seem miserly.

Verdict

The calibre of the notebook market is now such that many models are good enough to be used as a direct replacement for a desktop PC. The Visage, however, shouldn't be viewed in this light – performance isn't the best, the screen struggles to display a full-bodied colour palette and the stripped-down drive options impede functionality. Nevertheless, there's nothing here that won't make it a perfectly adequate vehicle for applications and office suites. And as a portable extension to your desktop PC the Visage LT is cheap enough to fill the void. ■

Robin Morris



Multivision Visage LT

- Multivision: 0870 066 0882
- Website: www.multivision.co.uk
- Price: £799 ex VAT

Specifications

1.8GHz Mobile Intel Pentium 4;
256MB RAM; 30GB hard drive;
14.1in TFT; FireWire port; 8x DVD
drive; no CD-RW or floppy drive;
lithium-ion; 328x275x37mm; 2.64kg;
1-year warranty.

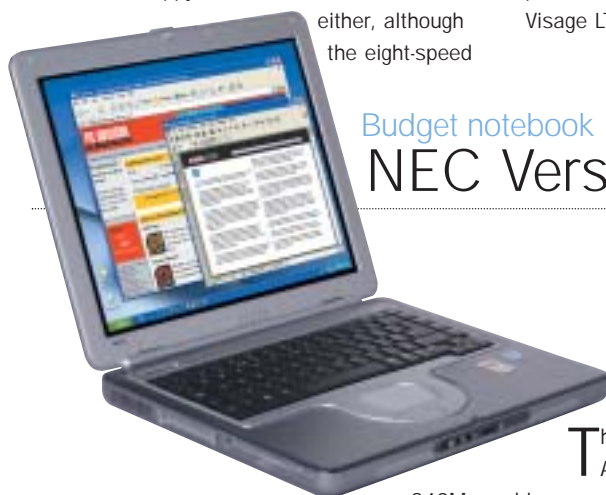
Build quality



Features



Value for money



Budget notebook

NEC Versa M300

NEC Versa M300

- NEC: 0870 010 6322
- Website: www.nec-online.co.uk
- Price: £1,069 ex VAT

Specifications

1.8GHz Mobile Intel Pentium 4;
256MB RAM; 40GB hard drive;
14.1in TFT; FireWire port; 8x DVD
drive; 24x/16x/10x CD-RW; internal
floppy drive; lithium-ion; 329x
265x37mm; 2.77kg; 1-year warranty.

Build quality



Features



Value for money



The Versa M300 uses ATI's brand-new IGP 340M graphics processor. In testing, though, we found its performance unimpressive with even Multivision's older GeForce2 Go chip outperforming it. This is bad news for the NEC; despite its 1.8GHz Mobile Intel P4 chip and 256MB of memory, the WorldBench score of 94 is low. But in most other respects the NEC Versa is a polished and well-specified notebook.

The flexible brightness control, sharp image and vibrant colours help generate an eye-catching picture. It's not short on character definition either and, whether your needs are games, graphics or office applications, the M300's TFT screen measures up. The NEC also contains a full complement of drives. Joining the 40GB hard

drive is an excellent CD-RW unit that offers 16-/10-speed CD-R/RW facilities. A floppy drive and eight-speed DVD are thrown in for good measure, while the audio is of a reasonably high standard.

The Versa's keyboard is extremely accurate and soft to the touch. The curved notebook feels substantial and the extensive array of connectors (including FireWire, two PC Card slots and three USB ports) covers most possibilities. Another useful inclusion is a 32MB USB storage device. Acting as a miniature hard drive, this allows files to be moved quickly and easily from one notebook (or PC) to another.

Verdict

Filled to the rafters with features, beautifully presented and with a reasonable price tag, the M300 should have been a winner. But the below-par performance is a grave disappointment in light of the powerful technology. Where speed isn't the number one priority, though, you'll find plenty to relish on the M300. ■

Robin Morris

Compact PC

IBM NetVista S42

With its jet-black casing and compact styling, the NetVista is more attractive than the average PC. But this is no excuse for its total lack of cutting-edge components. Powered by a 2GHz Intel Pentium 4 chip and 256MB of DDR (double data rate) RAM, the WorldBench score of 106 is disappointing.

The NetVista employs Intel's onboard Extreme Graphics solution, a move that serves to cripple frame rates. In Quake III testing, the IBM notched up a pathetic 27fps (frames per second) at a resolution of 1,024x768.

Crank up the detail levels and the IBM almost grinds to a halt, managing just over 10fps at 1,600x1,200. It doesn't help that the graphics controller has to do without its own memory store – to get it up to its full 64MB means depriving the PC's main memory of this amount.

No monitor is included in the price tag, although IBM's stylish range of CRT (cathode ray tube) monitors and flat-panels are optional extras. The SoundMAX Cadenza may not be the best audio controller, but with the help of a good set of speakers (again, no speakers are

included as standard), the results should be adequate. This is more than can be said for the dire drive options – a floppy drive and 48-speed CD-ROM are the only bundled facilities.

Lifting off the lid is like stepping back in time. The design of the PC makes it difficult to get to any of the drives and the spare memory slot is partially obscured. Just two PCI ports are built in and the space in which to fit cards into these slots is, again, extremely limited. The six USB 2.0 ports are perhaps the one shining point in an otherwise fairly dismal features list.

Verdict

It's hard to justify spending this amount of money on such a poorly configured PC. If it's lack of bulk you want, you're better off with a slimline notebook. Visually the S42 may pack a punch, but spend your money on this PC and you'll be the one taking the hits. ■

Robin Morris



IBM NetVista S42

- IBM: 0800 169 1458
- Website: www.ibm.co.uk
- Price: £776 ex VAT

Specifications

2GHz Intel Pentium 4; Windows 2000 Professional; 256MB DDR RAM; 40GB hard drive; 48x CD; no monitor; 3-year onsite warranty.

Build quality



Features



Value for money



Superbudget PC

Systemax Inspire 7377

Equipped with an AMD Athlon XP 2200+ chip and 256MB of PC2700 DDR (double data rate) RAM, the Inspire isn't short on basic acceleration and its WorldBench score of 117 is a creditable achievement.

Graphics performance is average, though the Radeon 9500's frame rates are competitive and the Systemax came close to busting the 70fps (frames per second) mark in our Quake III tests at a resolution of 1,024x768. Even at 1,600x1,200 the loss of speed was minor. Games addicts should be wary, though: with just 64MB of memory, this card can't reach the Radeon 9700's performance levels.

The 17in CTX EX700F may not offer the most balanced colour palette or sharpest definition, but it generates an adequate picture and its competent dot pitch and resolution support shouldn't be taken for granted in the Superbudget PC category. The Videologic ZXR-500 speakers are good, but the onboard facilities aren't the best match. For the average user, though, audio is adequate.

Drive facilities are much better: the 60GB IBM drive offers plenty of storage space, and the CD-RW drive is a superior 48-/16-speed model. The Inspire's cramped internals will make it difficult to install extra PCI cards, though most new hardware will be able to make use of one of the six USB 2.0 ports.

Verdict

When there's so little money to go round in the Superbudget PC category, making your system stand out from the crowd isn't the easiest task. The Inspire 7377 offers no cheap solutions or innovative tricks, but its solid performance and pleasing features set makes it a dependable choice. ■

Robin Morris



Systemax Inspire 7377

- Systemax: 0870 729 7364
- Website: www.systemaxpc.co.uk
- Price: £699 ex VAT

Specifications

2200+ AMD Athlon XP; 256MB DDR RAM; 60GB hard drive; 48x48x16x CD-RW; 16x DVD-ROM; 17in monitor; onboard sound; Windows XP Home; 3-year warranty.

Build quality



Features



Value for money



DVD writer

Toshiba SD-R5002

DVD writers are attracting greater public interest due to their huge storage capabilities – at 4.7GB, a DVD can hold seven times the data of a CD-RW. However, the fight over industry standards continues to drag on. The slew of DVD+R/+RW drives would appear to make a clear case for this being the superior standard. But Toshiba, in its first foray into the DVD writers market, appears to be backing the cheaper but slower DVD-R/-RW standard.

Like its similarly specified rival, the Pioneer DVR-A04, the SD-R5002 betrays the lack of brute force of the DVD+R/+RW format. Whereas our Best Buy Ricoh MP125A-DP manages to produce write (DVD+R) and rewrite (DVD+RW) rates of 2.4-speed, the Toshiba stumbles to just dual and single speeds respectively.

In our real-world tests the Toshiba limped to a sluggish 19 minutes four seconds in DVD-RW mode. This might give it a 33 second headstart over the Pioneer, but it's still over a minute slower than the best DVD+RW drives.

Where the Toshiba does take the lead is on standard CD writing. The SD-R5002 16-/10-speed CD-R/RW facilities make it the fastest drive in the chart – it took just four

minutes 41 seconds, for example, to generate a 350MB CD-RW. DVD playback is also better, offering 12-speed as standard.

In most respects the specifications are fine. The 2MB buffer helps reliability and installation is fairly routine, while VOB's Instant CD/DVD seems a favourite among DVD-R/-RW manufacturers.

Verdict

When it comes to a straight fight between the Pioneer DVR-A04 and the Toshiba SD-R5002 there's no comparison. The Toshiba is not only faster, but it's considerably cheaper. There's no question, though, that the zippy DVD+R/+RW drives offer superior performance.

What's more, our chart-topping Ricoh manages to do so for just £5 more. The DVD playback and CD writing may be strong in terms of DVD burners, but even these speeds are left in the dust by most standalone CD-RW and DVD drives. ■

Robin Morris



Toshiba SD-R5002

- Toshiba: 0800 169 4527
- Website: www.toshiba.co.uk
- Price: £165 ex VAT

Specifications

internal; DVD-RW/CD-RW; EIDE; maximum storage 4.7GB; data buffer size 2MB; 40x/16x/10x CD-RW; 12x/2x/1x DVD; DVD average access time 130ms; VOB Instant CD/DVD; 1-year warranty.

Build quality



Features



Value for money



Notebook backup

CMS ABSPlus

With the multitude of portable hard drives and storage devices on the market CMS has tried to differentiate itself from the competition by combining hardware and software to create a personal backup system.

The hardware comprises a portable 20GB hard drive, encased in a silver plastic case, that connects using USB 2.0. The drive gets its power from the keyboard port via a special cable – a neat idea, but not so great if you've got a subnotebook without a PS/2 port.

The hardware side of things is very capable, but it's unfortunately let down by the software. The installation provides very little feedback about what's actually happening. At one point after it instructed us to attach the drive it sat there for 20 minutes, seemingly doing nothing with no prompt to tell you what was happening or how long it would take.

It then tried to start the initial backup but failed, requiring a reboot. The next attempt completed successfully. One neat feature of the system is it can directly mirror the drive in your

notebook. If the main drive fails, you can simply swap the drives and get working again.

The first backup took 16 minutes to copy 4.5GB of data. When it comes to subsequent backups, however, the entire drive was copied each time. Add one more file and it'll take 16 minutes again. Delete a file and the backup will take the same 16 minutes. If the files have already been copied once it seems inefficient to copy them again, rather than just copy those that have changed.

Files deleted from the main drive were also not removed from the backup. This could lead to the ABSPlus drive filling up unnecessarily.

Verdict

It's a nice idea, but the software needs work. CMS is apparently releasing a new version soon, so hopefully it will improve. In its current form, though, it's hard to recommend. ■

Will Head



CMS ABSPlus

- CMS: 01276 450 302
- Website: www.cmsproducts.com
- Price: £199 ex VAT

Specifications

20GB portable hard drive; USB 2.0; external power; supplied PS/2 power adapter; 85x115x21mm; backup software.

Build quality



Features



Value for money



Graphics card

Abit Siluro GF4 Ti 4200 8X Otes

Each graphics card comes with a set of hardware specifications recommended (and tested) by the manufacturer. But in most cases it's possible to push the cards beyond these settings and run them at overclocked speeds.

The unfortunate side effect is that the higher the speed the more likely the card is to overheat. One solution is the Abit Siluro with its Otes (outside thermal exhaust system) which combines heat-pipe technology with a 7,000rpm (rotations per minute) fan.

In fact, modern graphics cards tend to run at high temperatures under normal conditions, so Otes should increase reliability even if you have no desire to attempt to overclock your graphics card. The only problem is that the Otes is quite noisy, which could prove distracting. You'll also lose a PCI slot as it takes up the space of two cards.

The Abit features a revised version of the Ti 4200 chip and aims to address one of the major criticisms of the current GeForce4 range – lack of 8X AGP support. Your PC's motherboard will need to have an 8X AGP port in order to take advantage of the extra speed, though. At lower resolutions – for example,

1,024x768 – the difference is almost minimal, amounting to between 0.5 and 1.5fps (frames per second).

Once you pile on the pressure, however, the gap increases. At 1,600x1,200, for instance, an 8X version of the Ti 4200 will give you an extra 3fps to 6fps over the 4X version. These are hardly dramatic increases, but it's worth noting that the Ti 4200 8X is slightly faster than ATI's new Radeon 9500.

Verdict

The Ti 4200 8X is an improvement, but it doesn't tackle a number of other deficiencies of the ageing technology. Graphics quality is inferior to that of the Radeon 9500 and the lack of DirectX 9.0 support means that the Ti 4200 8X will still make a poor job of playing the latest games. The Radeon 9500 is the better choice for a fulfilling future. ■

Robin Morris



Abit Siluro GF4 Ti 4200 8X Otes

- Abit: 01438 226 333
- Website: www.abit.com.tw
- Price: £120 ex VAT

Specifications

nVidia GeForce4 Ti 4200; 128MB DDR RAM; 350MHz Ramdac; 8X AGP; max 2,048x1,536@75Hz; 16.7 million colours; DVI; TV-out; 1-year warranty.

Build quality



Features



Value for money



Graphics card

Sapphire Atlantis 9500

The Radeon 9500 graphics chip is ATI's latest release and fits neatly into the 'performance at a modest price' category currently filled by the nVidia GeForce4 Ti 4200. To bring it in at this price changes have been made to cut back on speed so expect less in the way of brute force and graphics rendering facilities. But most of the important features are still present. There's built-in support for DirectX 9.0, for instance – something current nVidia GeForce4 cards don't have.

The Radeon 9700 scored a decisive victory over the GeForce4 Ti 4600 cards in our tests, but the fight for the middle ground is much closer. In fact, even now it's hard to see whether the Radeon 9500 is faster than the Ti 4200. As a rule of thumb, you can expect both chips to offer around 50fps (frames per second) at a low resolution like 1,024x768, dropping to about 30fps at a resolution of 1,600x1,200.

Of course, the actual figures will vary from game to game. To be honest, the Ti 4200 is probably the better card overall at higher

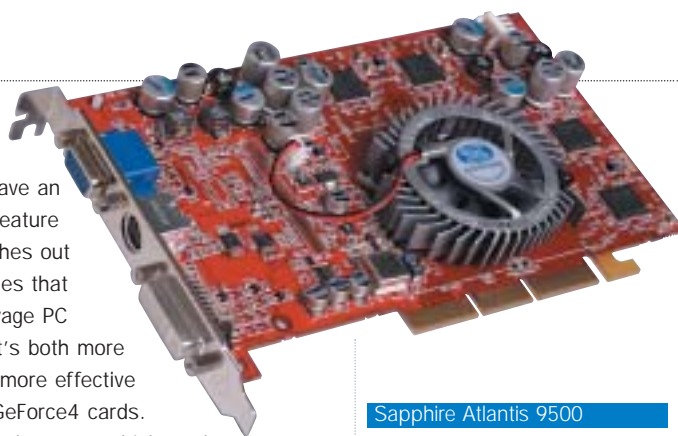
resolutions, although the 9500 does have an anti-aliasing feature (which smooths out the jagged lines that frequently ravage PC graphics) that's both more efficient and more effective than on the GeForce4 cards.

The 9500 also scores high marks for overall image quality, and for users who value image quality above game speed the 9500 will prove the better choice.

Verdict

A 9500-powered card like Sapphire Technology's Atlantis 9500 is probably a better overall bet than the pricier Ti 4200 boards. The 4200 may have a slight performance advantage, but the 9500's superb graphics quality and DirectX 9.0 support just tips the scales in its favour. ■

Robin Morris



Sapphire Atlantis 9500

- Sapphire: 0870 467 0753
- Website: www.sapphiretech.com
- Price: £126 ex VAT

Specifications

ATI Radeon 9500 graphics processor; 128MB DDR RAM; 400MHz Ramdac; 8X AGP; max res 1,920x1,440@75Hz; 16.7 million colours; DVI; TV-out; 1-year warranty.

Build quality



Features



Value for money



Laser printer

Canon Laser Shot LBP-1120

Their comparatively high speeds and crisp text output makes laser printers ideal for the home or small office, and although colour models are still an expensive luxury, a product like the LBP-1120 is cheap enough to be bought in addition to a high-calibre colour inkjet.

What the Canon won't give you is the latest and greatest laser specifications, and the paper handling is particularly limited. Only 125 sheets of paper can be loaded into the printer at one time, while the output tray struggles with less than half this amount.

In general, though, the LBP-1120 tries to overcome its low-key specifications through a range of software tweaks and enhancements. AIR (automatic image refinement) allows the printer to emulate resolutions up to 2,400x600dpi, and Scoa (smart compression architecture) compresses data in the PC first so that less printer memory is needed.

The printer is also fairly easy to use. Its all-in-one cartridge technology (combining toner

and drum) makes it easy to replace supplies.

Canon claims the Laser Shot has a print speed of 10ppm (pages per minute) which is not that fast for a laser unit. In real-world testing it managed an even less impressive rate – 8.7ppm at 300dpi, dropping to 8.3ppm at 600dpi; graphics are closer to 3ppm. Text quality, even at 600dpi, wasn't as well defined as we would have liked either.

Verdict

As befits a £152 laser printer, the LBP-1120 has extremely modest ambitions which, by and large, it manages to satisfy. Its lack of speed and limited paper handling will, however, lessen its appeal to demanding users. While the Minolta-QMS PagePro 1200W offers superior quality for only slightly more money, as a second choice the LBP-1120 is a solid buy. ■

Robin Morris



Canon Laser Shot LBP-1120

- Canon: 08705 143 723
- Website: www.canon.co.uk
- Price: £152 ex VAT

Specifications

Installed/max memory 512KB/512KB
hardware res 600dpi; software enhanced res 2,400x600dpi; quoted print speed 10ppm; actual print speed 9.2ppm; dimensions (wxdxh) 362x307x372mm; weight 6kg; interface USB; toner/drum cartridge £40 for 2,500 pages; 1-year warranty.

Build quality



Features



Value for money



*£28 a month standard. Free connection offer ends 31/03/03. Standard price £60. Standard equipment costs £80. Subject to availability & survey. BT line required. Minimum 12 month term from connection. Other conditions apply.

19in monitor

Iiyama Vision Master Pro 454

Proving that manufacturers can always find new ways of confusing the public, Iiyama has decided to launch a new version of its popular Vision Master Pro 454. It looks exactly the same externally, but the model code has changed from HM903DT to HM903DTA to reflect its improved specifications.

The main difference is that the aperture grille CRT tube is now a Diamondtron U2, giving the Iiyama an excellent dot pitch of 0.24mm. Smaller dot pitches theoretically generate more detailed and precise pictures, however there are so many stunning 0.25mm CRT monitors on the market that dot pitch isn't as important as it used to be.

Resolution support was a notable feature of the original Pro 454, and now a fantastic 2,048x1,536 can be obtained with a refresh rate of 80Hz – though you'll probably want a bigger monitor if you regularly use this detail level.

The Iiyama gives you a wealth of facilities and features: the four-port USB hub is extremely useful; the onboard speakers (complete with

headphone jack) could be essential if space is tight; and the OPQ mode allows you to boost the levels of brightness for video applications.

In fact the only slightly disappointing aspect of the Iiyama is, rather crucially, its image quality. You can coax it to display either vibrant and colourful graphics or clear and well-defined text – it just won't make a first-class job of both simultaneously.

Verdict

Very good results are possible with the Iiyama, but it isn't instantly suited to a multitude of tasks. If you need to switch between, say, graphics and word processing, the Mitsubishi and CTX monitors at the top of our chart on page 253 will meet your needs more effectively – and, in the case of the Mitsubishi, at a vastly reduced price. ■

Robin Morris



Iiyama Vision Master Pro 454

- Iiyama: 01438 745 482
- Website: www.iiyama.co.uk
- Price: £259 ex VAT

Specifications

19in Diamondtron U2 aperture grille tube; viewable area 18in; 0.24mm dot pitch; max res 2,048x1,536@75Hz; dimensions (wxdxh) 450x447x450mm; weight 23.5kg; 4-port USB hub; built-in speakers; 3-year onsite warranty.

Build quality



Features



Value for money



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DVD/Divx player

Kiss DP-450

The take-up of DVD has been phenomenal, with its rate of adoption said to outclass those of VHS and CD when they were first introduced. But as the market gets more saturated it's harder for manufactures to differentiate their products except by price.

Kiss Technology's DP-450, however, has a neat trick up its sleeve. As well as the standard DVD functions, it can play Divx movies.

Divx, dubbed the MP3 of movies, is a controversial format which, like MP3, allows you to store files in a tenth of the space usually required. DVDs use compressed Mpeg-2 and, depending on the encoding rate, a two-hour movie will occupy between 4GB and 7GB of data. In contrast, an hour of DV (digital video) camcorder footage gobbles up 13GB.

With Divx you can squish a two-hour movie down to 700MB – small enough to fit on a CD. You do, of course, loose quality, but even at this highly compressed setting the results are still watchable. Divx uses Mpeg-4 encoding, specifically designed for internet streaming. The original version was of dubious legality, but from version 4 onwards it's been legit.

We tested the DP-450 with a number of different formats to see how it handled them. Divx 3.11 was a no go – but then it claims to only play version 4 and above. Divx 4 and 5 worked fine, and even Xvid (a variation

of Divx)

worked okay.

However, our tests

weren't without

niggles. Firstly

low-resolution files didn't automatically fill the screen, leaving big black borders all the way around. You could zoom manually, although only by 200, 300 or 400 percent.

High resolution files (720x576) played jerkily, with long gaps at the beginning. You also can't use the fast forward and rewind buttons while playing Divx – although you can skip to specific times by entering the number manually.

VCD (Video CD) and SVCD (Super VCD) played without problem, with the added bonus that if you set the output to PAL (the European TV standard) but put in an NTSC (the American TV standard) disc it will play back in PAL. Useful for people without NTSC-compatible TVs.

Verdict

The Divx features are a nice addition to a standard DVD player, but in practice the results aren't always going to be that watchable. Couple that with the fact that there are few places to obtain legitimate Divx content at the moment and you have a device that is a little bit too far ahead of its time. ■

Will Head



Kiss DP-450

□ Kiss: 0870 755 4747

□ Website: www.kissdvd.com

□ Price: £229 ex VAT

Specifications

DVD/Divx/Mpeg-4/VCD/SVCD/MP3 playback; progressive scan; remote control; PAL and NTSC; S-Video out; Composite out; Component-via-Scart out; RGB-via-Scart out; Optical/Coax S/PDIF output.

Build quality



Features



Value for money



Ergonomic mouse

3M Renaissance Ergonomic Mouse

3M Renaissance Mouse

□ Office Markets: 01344 858 381

□ Website: www.3m.com/uk

□ Price: £59 ex VAT

Specifications

Ergonomic optical mouse; comes in small and large sizes; scroll, left- and right-click buttons; works with PS/2 and USB connections; supports Macs and PCs.

Build quality



Features



Value for money



Repetitive strain injury is a modern affliction of the computer age, and anyone who uses a PC for several hours a day will probably benefit from using ergonomic products such as the Renaissance Mouse. This pointing device looks more like a joystick than a mouse but its design keeps your hand and arm in a more natural 'handshake' position, thus reducing the risk of muscle strain.

The device comes in two sizes – small and large – so you can choose the model that best fits your palm. The Renaissance Mouse will work with both USB and PS/2 connections, and comes with an adapter.



If you are used to a standard mouse you will find it strange at first. The buttons have been shifted around so that the left- and right-click buttons are on the top of the handle. This means you using your thumb, a stronger digit than a finger, to control them. It's a little tricky to master but perseverance pays off.

Scrolling is handled by a button on the side, which activates scroll lock when clicked. We did miss the scrollwheel, which gives you better manual control, but this isn't a major criticism.

Verdict

While the Renaissance takes some getting used to, we did find it more comfortable to use than a standard mouse. ■

Ursula Seymour

Flatbed scanner

Canon CanoScan 5000F

While most PC peripherals and components get cheaper over time, scanner prices have fluctuated hugely over the years with the average price of new models veering from as little as £50 up to £200 or more. After a period of calm and low-priced models, the new breed of USB 2.0 scanner is pushing the asking price back towards the £200 mark.

The benefits of the enhanced interface are clear – the 12Mbps (megabits per second) speed of USB 1.1 is easily eclipsed by the 480Mbps pace of USB 2.0. And the brute force is much needed, since the Canon's beefy specifications leave most scanners in the shade. The optical resolution – the best measure of a scanner's ability to reproduce detail levels – is an extremely healthy 2,400x4,800dpi (dots per inch), while software enhancement allows for a mighty 9,600dpi.

The fact that 48bit colour is now fairly commonplace is no reason to be unimpressed by the Canon's glossy output, and the strong reproduction offered across the range of resolutions can't fail to please. Times are good, too, at 22 seconds for an A4 colour scan; only the HP Scanjet 5500c (below) outstrips it.

At higher resolutions, however, the 5000F overtakes its rival, scanning A4 and colour photos at two minutes one second and 43 seconds respectively. But the HP's higher resolution support allows it to produce superior quality scans.

The Canon is easy to install, and the four buttons on the front of the scanner allow you to access scanning and copying features at the flick of a switch. The weighty software bundle (including ArcSoft PhotoStudio and OmniPage Pro) offers plenty for the beginner to experiment with, but is unlikely to bowl over professionals.

Verdict

Neither cheap enough to compete with the sub-£100 models, nor quite strong enough to better the HP, the CanoScan will give you years of very effective service but doesn't stake a firm claim in any camp. ■

Robin Morris



Canon CanoScan 5000F

- Canon: 08705 143 723
- Website: www.canon.co.uk
- Price: £152 ex VAT

Specifications

max scanning area A4; USB 1.1/2.0 interface; works with Windows 98/Me/2000/XP; 48bit true colour; dimensions (wxdxh) 278x508x107mm; weight 3.4kg; graphics/OCR software ArcSoft PhotoStudio/ScanSoft OmniPage SE; 1-year warranty.

Build quality



Features



Value for money



Scanner

HP Scanjet 5500c

The Scanjet 5500c must surely rank as the Rolls-Royce of flatbed scanners. It's so chock-full of features, we were almost expecting to find a hidden coffee maker function.

Multiple photos can be fed into the scanner courtesy of the automatic photo feeder, while the transparent materials adapter is perfect for 35mm slides – the latter is connected externally, so HP has been able to amend the design to ensure that it's as effective as possible.

The Scanjet's hardware specifications include a USB 2.0 interface and a first-class 2,400x2,400dpi (dots per inch) optical resolution. The 48bit colour is rich and extremely accurate, producing sizzling quality across the range of resolutions.

Without a shadow of a doubt, the HP is the fastest low-resolution scanner we've seen, taking a mere five and seven seconds respectively to scan a photo and A4 page at 300dpi. But it's also blistering at 600dpi, producing an A4 scan in 41 seconds. At 1,200dpi and beyond, though, the CanoScan (reviewed above) is the speedier

model but the HP retains the edge when it comes to scan quality.

Different functions can be assigned to up to five control panel buttons, and you can adjust settings such as the number of copies and toggle between mono and colour without needing to glance at a computer screen.

As with most scanners a selection of low-end software is supplied, but for professional use you'll want to upgrade to high-end packages.

Verdict

The HP is undoubtedly a heavyweight scanner which generates superior quality scans and is fast enough to ensure its place in the scanners hall of fame. It's extremely expensive, though; the Best Buy CanoScan D1250U2 (see our Top 10 chart on page 254) delivers perfectly serviceable results for £153 less. ■

Robin Morris



HP Scanjet 5500c

- HP: 0870 5474747
- Website: www.hp.com/uk
- Price: £212 ex VAT

Specifications

Max scanning area A4; interface connection USB 1.1/2.0; max optical resolution 2400x2400dpi; works with Windows 98/Me/2000/XP; 48bit true colour; dimensions (wxdxh) 545x317x167mm; weight 7.2kg; graphics/OCR software HP Suite/Iris OCR; 1-year warranty.

Build quality



Features



Value for money

