

Power notebooks

# Apple PowerBook G4 17in & PowerBook G4 12in



Apple's CEO Steve Jobs declared that "2003 will be the year of the notebook" during January's Macworld Expo in San Francisco. To back up his claim, he unveiled the first major revamp to Apple's portable line-up in nearly two years with the introduction of two of the most desirable notebooks we've seen in some time.

### Slim but powerful

At the top of the range is the first ever notebook to feature a 17in screen, the imaginatively titled PowerBook G4 17in.



This builds on the successful design of the existing 15in PowerBook. It's amazingly thin and beautifully stylish, but whereas the innards of the old PowerBook were looking a little tired the new model certainly doesn't scrimp on features.

It has a 1GHz G4 processor (roughly equivalent in performance terms to a 2GHz P4) and

a redesigned internal architecture with a faster motherboard and 333MHz of DDR (double data rate) RAM. It also features nVidia's top-of-the-range mobile graphics chipset, the GeForce4 440 Go, with 64MB of dedicated video memory. The PowerBook runs Mac OS X and, while our performance tests won't work on this machine, we can assure you that it's no slouch.

The 17in PowerBook is clearly designed with Apple's core market of graphics, audio and video professionals in mind. They will benefit from the vast amounts of screen space: the wide-aspect screen's resolution is 1,440x900 pixels and there's a DVI port for connecting an external

monitor which can run at up to 2,048x1,536. Those in the video and film industries will appreciate the built-in SuperDrive, Apple's name for the combined DVD-R/CD-RW drive, which works with the bundled iDVD software to create professional-looking video DVDs.

The PowerBook is built with mobility in mind. It tips the scales at 3.1kg, which may sound heavy but is surprisingly light for a machine of this size. The weight is kept down by the use of aircraft-grade anodised aluminium for the case, which is light yet more durable than the older 15in model's titanium case.

It has AirPort Extreme wireless networking built in (see the boxout opposite) as well as Bluetooth support. There's also a modem, PC Card slot and gigabit ethernet. This is the first notebook to use the new FireWire 800 port – the next-generation technology for connecting peripherals such as hard drives and video cameras. FireWire 800 runs at a blistering 800Mbps (megabits per second), making it almost twice as fast as USB 2.0. However there are few, if any, FireWire 800 peripherals available as yet and you'll need the provided adapter to connect to a standard FireWire product.

Another nice feature of the 17in PowerBook is the backlit keyboard. Ambient light sensors detect when the portable is being used in a dark environment and light up the characters on the keys accordingly. The sensors also automatically dim the screen to prevent glare and save battery life.

### The cheaper option

You may have guessed that such an advanced and full-featured notebook doesn't come cheap. At over £2,200, the PowerBook G4 17in is strictly for the professional. But if you're still tempted then Apple has the answer in the form of its new, cheaper, 12in PowerBook.

The device retains the essence of the PowerBook range, such as the stylish metallic design and G4 processor, but combines it with the portability of Apple's consumer notebook, the iBook. This is an important step for Apple,



"The best nForce2™ board in the World"



01274 471268

# AirPort Extreme

**A**pple spearheaded the wireless networking revolution when it launched its first Wi-Fi-compatible (also known as 802.11b) notebook back in 1999. Every Mac since has had either a slot for one of Apple's wireless cards, which go by the name of AirPort, or AirPort technology built in.



However, Wi-Fi technology is limited to a relatively slow 11Mbps (megabits per second) and two competing standards have emerged as its higher-speed successor. One, being championed by companies such as Intel, is called 802.11a. The other, preferred by Apple, is 802.11g. Both can transmit data at up to 54Mbps, but 802.11g's advantage is that it is fully backwards-compatible with 802.11b networks, whereas products using 802.11a can only communicate with other 802.11a products.

The two new PowerBooks are among the first on the market to support the new standard, which Apple has dubbed AirPort Extreme. The 17in has the technology built in while the 12in model has a slot for one of Apple's new, faster wireless cards. They can communicate with existing Wi-Fi base stations or with Apple's 802.11g-compatible AirPort Extreme base station.

AirPort and its Extreme variant are fully compatible with Windows-based systems and networks. Like Windows XP (although without the problem of drivers) the AirPort software is built in to Mac OS X, which makes setting up and maintaining a wireless network very easy.

which has seen many of its potential MacBook customers opt for the lower cost iBook thanks to its size and weight. In fact, the 12in MacBook G4 is slightly smaller and lighter than the iBook, weighing in at 2.1kg. It uses the same XGA (1,024x768) resolution screen but, like the 17in MacBook, is constructed of anodised aluminium.

The G4 processor in this case only runs at 867MHz and there's no level 3 cache to boost performance (the 17in model has 1MB of it). It also lacks some of its big brother's more advanced features such as the backlit keyboard, FireWire 800 port, PC Card slot, built-in wireless networking and SuperDrive. The latter is available as a £90 optional replacement for the standard combo DVD-ROM/CD-RW drive and there is a slot for an AirPort Extreme wireless card which costs £67. As with the 17in model, Bluetooth support is built in.

The screen is mounted on the same contour-balanced hinge as on the 17in MacBook, which makes tilting it backwards and forwards effortless. As with the iBook, when the screen is open it sits slightly behind the lower portion of the computer. On the 12in MacBook this is of

particular interest because the stereo speakers are mounted at the back of the case and their sound bounces off the screen surround back towards the user. This enhances and broadens the range of the relatively small speakers, and sound is further amplified by a third speaker, mounted below the keyboard, which boosts mid-range frequencies.

## Verdict

With its two new notebooks, Apple has once again reminded us why it remains at the forefront of computer design. The 17in MacBook pushes the boundaries of mobile technology, with the largest ever notebook screen, built-in 802.11g wireless and a slot-loading DVD recorder – all in a 2.6cm thick case.

The 12in model may not be technologically groundbreaking, but it packs plenty of features into a compact and desirable computer. These products won't just see existing Mac users clamouring to upgrade – they'll be an important step in helping Apple on its quest to win over Windows converts. ■

Alex Katz

### PowerBook G4 17in

- Apple: 0800 039 1010
- www.apple.com/uk
- £2,212 ex VAT

### Specifications

1GHz PowerPC G4; 512MB DDR SDRAM; 60GB hard drive; 17in TFT LCD; slot-loading SuperDrive (DVD-R/CD-RW); GeForce4 440 Go with 64MB DDR SDRAM; 2 x USB 1.1; 1 x FireWire; 1 x FireWire 800; PC Card/Cardbus slot; 10/100Base-T ethernet; 56K modem; built-in Bluetooth; built-in 802.11g wireless networking.

### Good points

Stunning screen; built-in wireless networking and Bluetooth; backlit keyboard.

### Bad points

Too big for most rucksacks; expensive.

### Build quality



### Features



### Value for money



### PowerBook G4 12in

- Apple: 0800 039 1010
- www.apple.com/uk
- £1,191 ex VAT

### Specifications

867MHz PowerPC G4; 256MB DDR SDRAM; 40GB hard drive; 12.1in TFT LCD; slot-loading combo DVD-ROM/CD-RW; GeForce4 420 Go with 32MB DDR SDRAM; 2 x USB 1.1; 1 x FireWire; 10/100Base-T ethernet; 56K modem; built-in Bluetooth; wireless card slot.

### Good points

Stylish design; very small, light and portable; good value for money.

### Bad points

No PC Card slot; wireless networking is optional extra.

### Build quality



### Features



### Value for money





...enough said!

Epox 8 RDA+  
as reviewed on [www.anandtech.com](http://www.anandtech.com)  
winner of the Anandtech gold award

www.cclcomputers.co.uk/epox



Budget notebook

# Hi-Grade Notino W6700-2000

We rather wonder what Steve Jobs is going to say when he sees the latest notebook out of the Hi-Grade stable, as it bears more than a passing resemblance to Apple's PowerBook (see page 46).

The Notino W6700-2000 might not be quite as sleek or as slim, but at almost £1,000 less we are prepared to overlook these slight quibbles. It's the first notebook that allows Windows users to benefit from a slimline design and a widescreen 15.2in display, capable of a maximum resolution of 1,280x854.

Hi-Grade has even stolen the concept of a slot-loading combo DVD/CD-RW drive from Apple, as well as an opaque white plastic keyboard and the omission of a floppy drive. The Notino's silver magnesium chassis resembles the new PowerBooks although, at 2.7kg and 30mm thick, the W6700 is slightly larger and heavier than the 15in PowerBook.

As with all things in the world of Mac versus PC, though, the Notino offers far more bang for your buck. The 2GHz Mobile Pentium 4 processor, 256MB of DDR RAM, 64MB nVidia GeForce 440 Go graphics card and

30GB hard drive combined to achieve an impressive WorldBench 4 score of 109.

Connectivity options are more limited than on the PowerBook – you only get USB 2.0 (there's no FireWire), although the built-in antenna makes the Notino wireless-ready.

The warranty is Hi-Grade's standard international two-year collect-and-return support with accidental cover damage. Software is relatively generous, too – as well as Windows XP Home you get Works 7.0, McAfee AntiVirus, Nero Burning ROM and PowerDVD.

## Verdict

PC manufacturers are finally waking up to the fact that users don't only want powerful computers – they want good-looking devices too. The Notino gives Apple a run for its money in the design stakes. In fact, the only thing that sets the W6700-2000 apart from its stylish Apple counterparts is the fact that it can't run the Mac OS. Shame. ■

*Ursula Seymour*



### Hi-Grade Notino W6700-2000

- Hi-Grade: 020 8532 6100
- www.higrade.com
- £1,099 ex VAT

### Specifications

2GHz Mobile Pentium 4; 256MB DDR RAM; 30GB hard drive; 32x/16x/8x/8x CD-RW/DVD-ROM drive; 15.2in 1,280x854 TFT; 64MB GeForce 440 Go; 352x260x30mm; 2.7kg; 2-year warranty.

### Build quality



### Features

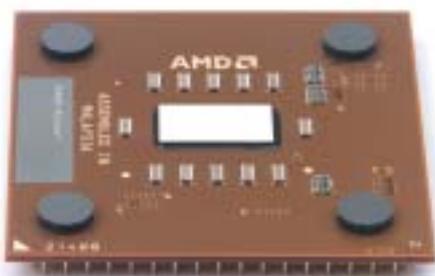


### Value for money



## Processor

# AMD Athlon XP 3000+



### AMD Athlon XP 3000+

- AMD: 01276 803 100
- www.amd.co.uk
- Price: TBA

### Specifications

2.17GHz; 333MHz FSB; 512KB L2 cache; 128KB L1 cache; 0.13 microns copper process technology; socket A.

### Build quality



### Features



Intel may be cranking up the Pentium 4, but AMD's not far behind with its new Athlon XP 3000+. AMD's bizarre naming scheme is all about performance, so although the 3000+ runs at 2.17GHz – exactly the same clock speed as its 2700+ sibling – it's got a trick or two up its sleeve.

This enhanced processor based on AMD's new Barton

core certainly proved in our tests that it's optimised for speedy results.

The 0.13 micron-based 3000+ uses socket A motherboards and supports a 333MHz FSB (front side bus). This means information can be passed more quickly between the processor and the memory so bottlenecks are avoided. The 3000+ also houses a larger 512KB level 2 cache, compared to 256KB on previous Athlon XPs. This improves performance mainly in sound, video and photo-editing applications where large files need to be manipulated quickly.

The processor was supplied in a demo PC with 512MB of DDR (double data rate) RAM, an 80GB Maxtor hard drive, ATI's flagship 128MB Radeon 9700 Pro graphics card and an Asus A7N8X deluxe motherboard. The Barton technology is so new it will take a while for component manufacturers to provide support for it.

Our test results were undoubtedly impressive. The demo unit returned 138 points in WorldBench 4 – the highest score we've seen from any processor. We tested an Athlon XP 2700+ in the same PC and it was six points slower. Intel's closest offering, a 3.06GHz Pentium 4 PC with similar specifications, only managed to score 127.

## Verdict

Forget the megahertz war between Intel and AMD – when it comes to the best performance AMD wins hands down. The 3000+ may have a slower clock speed but it outperforms Intel's flagship P4 processor by a wide margin. ■

*Spencer Dalziel*

## Tablet PC NEC Versa T400

NEC is the latest convert to the tablet PC cause with its Versa T400. We saw a preproduction model of NEC's take on Microsoft's new platform.

Tablet PCs largely fall into two categories – convertibles and slates. Convertibles combine notebook and tablet into one package, with a turn-and-twist screen for when you want to use it in tablet mode. Slates dispense with the keyboard entirely, leaving the pen for all input.

Choosing the slate format for the Versa T400 has allowed NEC to create a superslim and light model. Measuring just 222x294x15mm, this is one of the smallest devices of its kind we've seen so far.

The screen stretches to 10.4in, providing plenty of space to pen your meeting notes and diagrams. There's built-in Wi-Fi, or 802.11b, networking in addition to 10/100 ethernet so hooking it up to the company's LAN (local area network) shouldn't pose a problem.

NEC has opted for a 933MHz Mobile Pentium III chip coupled with 256MB of RAM. Owing to the fact that it's a preproduction model we weren't able to run the Versa through our tests, but it seemed speedy enough in use.

There are plenty of shortcut keys situated around the edge of the machine to make life easier (particularly handy since there's no keyboard), including up, down and enter for quick navigation and selection without the pen.

The hard drive runs to 20GB, which is small but should still suffice, and there's built-in audio. It also comes bundled with a stand – useful when you're deskbound – and a USB CD drive.

### Verdict

NEC's first stab at a tablet PC is a commendable effort. The Versa T400's small, light form factor makes it good for use on the move. The lack of keyboard will inevitably slow you down, making it more of an addition to your current PC than a total replacement. At a predicted £1,399, however, it's quite an expensive accessory. ■

Will Head



#### NEC Versa T400

- NEC: 0870 010 6322
- www.nec-online.co.uk
- Price: TBA

#### Specifications

933MHz Intel Mobile Pentium III; 256MB RAM; 20GB hard drive; 10.4in TFT; USB CD drive; Windows XP Tablet PC; 802.11b wireless; 10/100 ethernet; 222x294x15mm.

#### Build quality



#### Features



## Mobile phone Siemens S55



#### Siemens S55

- Siemens: 08705 334 411
- www.my-siemens.com
- £127 ex VAT with contract

#### Specifications

Bluetooth; infrared; triband (900/1,800/1,900MHz); GPRS class 10; detachable camera with flash; 256-colour screen; serial cable; voice recorder; polyphonic ringtones; Java gaming support; 101x42x18mm; 85g.

#### Build quality



#### Features



#### Value for money



are just too expensive. Enter Siemens with its new S55. The spec list has every mobile buzzword you could wish for but it's being sold at a fraction of the price of its rivals.

The S55's detachable camera is the first to include a flash, although it's a bit of a gimmick – the interface is fiddly to use and you're bound to forget to pack the camera attachment when you leave the house in the morning. Captured images are awful viewed on the S55's screen as it can only display 256 colours, but they look acceptable once transferred to a PC.

In terms of PC owners, the S55's best features are the address book, calendar, tasks and email that can be synchronised with Outlook.

Camera phones are the latest must-have fad, but the trouble with most of them is that they

The syncing software isn't the easiest to use but it's worth the effort – once synchronised the S55 becomes a competent, albeit basic, palmtop. The phone connects to a PC or notebook via Bluetooth, infrared, or through the provided serial cable.

Using Siemens' Data Suite software you can change the way the S55 looks and sounds with just a few mouse clicks – handy if you're averse to ploughing through mobile menus. You can also compose, send and read text and multimedia messages via your PC's keyboard.

### Verdict

Siemens has created a lightweight, nifty mobile that's packed with handy features, including the must-have camera attachment. Travellers will appreciate the Bluetooth and triband support and everyone with a PC will appreciate the ability to synchronise with Outlook. The S55 isn't the easiest handset to use but, given the price, we feel that's a sacrifice well worth making. ■

Stan Everett



## Digital car radio Blaupunkt Woodstock DAB 52

With everything slowly turning digital and the proposed closedown of analogue transmissions, you'll soon have to take a leap in the 21st century whether you like it or not. Digital TV has gained a lot of publicity – not all of it positive – but radio has been pumping out a digital alternative for some time now in the form of DAB (digital audio broadcasting).

The advantage of digital, in theory, is that you can transmit more programmes at a higher quality as it's compressed. The quality depends on how compressed the data is but on the whole it's generally as good as, if not better than, FM. DAB is a great application for the car since the more choice you have when driving the better.

Previously if you wanted a DAB radio in your car you had to buy an external box and hook it up to a compatible headset. Integrated units are now coming on to the market and Blaupunkt's Woodstock DAB 52 is one such model. A single head unit makes for an easier installation, but you will require a separate aerial (around £50) to receive DAB transmissions.

In addition to playing standard CDs, the Woodstock also plays MP3 CDs. If you have a load of MP3 tracks and a CD writer at your disposal then you can bung them on a standard CD-R which holds around 12 hours of music.

The tricks don't stop there – the integrated MMC (multimedia card) reader means you can store MP3s on these tiny postage stamp-sized cards and play them back in your car. To top it all off, the DAB 52 also features an RDS (radio



data service) FM tuner for times when you're out of DAB reception. This has all the standards you'd expect such as station names and automatic traffic announcements.

Despite the plethora of buttons, the Woodstock is easy to use once you get used to it. The MP3 playback is simple too – each directory on the CD is treated as a separate album, so you can play all the tracks from one album before it skips on to the next. One slight annoyance is that the random play feature only plays tracks from one album at a time rather than the whole CD.

### Verdict

Digital radio is coming, whether you like it or not. The Woodstock is perfectly positioned for this transition phase and the added ability to play MP3 (in addition to normal) CDs is a great bonus. The Woodstock's killer feature, however, is its price. At £340, it's no more expensive than a high-end CD FM tuner but with far more functionality. ■

#### Blaupunkt Woodstock DAB 52

- Blaupunkt: 01895 838 880
- www.blaupunkt.com
- £340 ex VAT

#### Specifications

DAB integrated car radio; MP3 CD playback; MMC slot; RDS-EON FM tuner; 20 presets; 4 x 25W RMS power output; clock.

#### Build quality



#### Features



#### Value for money



Will Head

## PC speakers

### Creative I-Trigue 2.1 3300

#### Creative I-Trigue 2.1 3300

- www.europe.creative.com
- £77 ex VAT

#### Specifications

25W subwoofer; 2 x 9W satellite speakers; 30Hz-20kHz frequency response; wired remote control; headphone jack.

#### Build quality



#### Features



#### Value for money



Creative is a big brand when it comes to PC sound and it has a range of speakers to choose from, whether you are a true audiophile or just want something that looks and sounds better than what you have now.

The company's I-Trigue speakers are aimed at the latter group. With just 2.1 sound they don't offer the true surround sound experience, but the two column-style satellite speakers will look classy on your desk.

The system is child's play to set up – plug all the connectors into the right holes according to the supplied diagram and you're away. There is a black cube 25W subwoofer, two 9W silver-and-black satellite speakers and



a silver remote control. The only clunky part of the setup is the massive power brick, but you can hide that under a desk. The I-Trigue speakers work with PCs, Macs, CD, digital audio and mini disc players.

### Verdict

Creative's I-Trigue speakers are stylish, offer good quality 2.1 surround sound and are under £100 – not a bad deal. ■

Ursula Seymour



## Personal digital assistant Dell Axim X5

**P**DAs are great mobile must-haves but the high price can be off-putting to those wanting to join the mobile revolution. Dell is a newcomer to the market, but it's clearly thought out its strategy – combining power and expandability at around half the price of the competition. We looked at the high-performance Dell Axim X5 which boasts a 400MHz Intel XScale processor, 64MB of RAM, 48MB of flash ROM and a 3.5in 320x240 display. A lower-specified model is available for around £70 less.

The Axim isn't likely to win a beauty contest. It's chunky compared to the likes of HP's iPaq and Sony's Clie series, although rubberised sidegrips mean it won't slip from your fingers. The X5 houses both CF (CompactFlash) Type II and SD (secure digital) slots plus down the side you'll find rubber-clad record and reset buttons. The basic jogdial features a one-handed scroll and select operation, although we found this temperamental in use.

On the Axim's front you'll find a five-way controller with four quick-access buttons for the likes of the calendar and notes. A built-in speaker system won't impress audiophiles,

but its stylish metallic casing means you won't have to hide it away.

Where the Axim shines is in battery life – Dell claims a whopping maximum of 10 hours. Optimistic, maybe, but we did get seven hours continuous use, beating most other Pocket PC-based handhelds handsomely. A USB cradle ships with the X5 – it's an attractive addition and means there's a slot for charging a second battery.

### Verdict

The Dell Axim X5 offers all the features of high-end handhelds, including an XScale processor and Pocket PC 2002 as standard. But its astounding battery life, fully specced features such as integrated SD and CF slots and bargain-basement price make this one of the best PDA debuts ever. ■

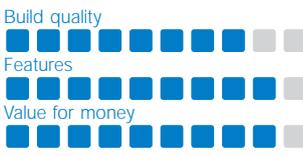
*Matthew Bath*

### Dell Axim X5

- Dell: 0870 152 4699
- www.dell.co.uk
- £229 ex VAT (standard version)  
£169 ex VAT

### Specifications

400MHz Intel XScale processor; 64MB RAM; 48MB flash ROM; 3.5in QVGA LCD; SD and CF slots; audio in/out; Pocket PC 2002.



## Personal digital assistant NEC MobilePro 200E

**P**ocket PC-based handhelds are becoming ever more affordable and now you can pick up a sleek, powerful PDA for around £250. The MobilePro 200E is NEC's offering in this ever-more competitive segment of the market.

While there is nothing wrong with the MobilePro, equally there is nothing outstanding. Its 200MHz XScale processor looks underpowered against its rivals. The Dell Axim X5 (reviewed above), which costs around £100 less than the MobilePro, uses a 300MHz XScale chip as does Toshiba's e330 that matches NEC's price tag.

With 64MB of RAM built in, the MobilePro matches the Toshiba in terms of memory and beats the standard Axim which has just 32MB. Screen sizes and resolution at 3.5in and 240x320 respectively are identical for all three rivals.

The NEC can beat off the competition in one area – size. It is both slimmer, at 11mm thick, and lighter, at 130g, than both Toshiba's and Dell's offerings.

For the most portable Pocket PC-based device, then, the MobilePro 200E is well worth a look.

NEC has bundled an SD (secure digital) slot for expansion but, unlike its competitors, there is no accompanying CF (CompactFlash) option. It offers audio support so you can use the handheld to play MP3 files, but you will need to purchase extra storage to make this a viable option.

With its matt silver finish, the MobilePro is an attractive device and as intuitive to use as you would expect. There's a four-way navigation button, programmable launchkeys and a jogdial plus a retractable stylus to help input and manage data.

### Verdict

The MobilePro may have portability in its favour, but there isn't much else to recommend it above its rivals. If you look you can find both cheaper or better-specified alternatives. ■

*Ursula Seymour*



### NEC MobilePro 200E

- NEC: 0870 010 6322
- www.nec-online.co.uk
- £254 ex VAT

### Specifications

200MHz XScale processor; 64MB RAM; 32MB ROM; 3.5in LCD max res of 240x320; audio support; SD slot; USB synchronisation; infrared; lithium-ion battery.



Satellite modem

# Inmarsat Regional BGAN

No matter where you are in Europe, North Africa or even India, if you've got an Inmarsat satellite IP modem then you've got an internet connection. Part of Inmarsat's BGAN (broadband global area network), this portable device gives you a two-way web connection of up to 144Kbps (kilobits per second), which will eventually rise to 432Kbps.

Resembling an old-style notebook, the lightweight satellite modem links to your PC or portable via its ethernet port, USB port or wireless Bluetooth technology. It has a rechargeable battery and, as it is based on GPRS technology, takes a standard mobile SIM card.

With the software installed, your initial task is to find the satellite. Simply lift the lid to about 20 degrees and (in the UK) point it south-west, guided by the built-in compass. Using the signal strength tool, slowly adjust the tilt and direction until the maximum signal is maintained. You can then browse and use email as though you had a permanent internet connection. There's no need to log on as this is handled just like a GPRS mobile phone.

As with all wireless network connections, the actual bandwidth is always lower than the maximum figure quoted. The bandwidth we observed fluctuated between highs of 80Kbps down to 35Kbps. If you were using it in town then you may not be too impressed; if you were out in the wilds, devoid of any sort of telecom links, you'd think it was miraculous.

As you might expect, this remarkable flexibility comes at a price. The Regional BGAN service is sold through VARs (value-added resellers). Expect to pay over £1,000 for the hardware and £10-£15 per megabyte of data sent or received.

### Verdict

Inmarsat's Regional BGAN clearly isn't for everyone but a portable satellite internet connection is a unique proposition that a narrow band of well-heeled corporate users will jump at. ■

Roger Gann



#### Inmarsat Regional BGAN

- Inmarsat: 020 7728 1777
- www.inmarsat.com
- approx £1,000 ex VAT

#### Specifications

Satellite modem; 144Kbps max connection; USB, ethernet and Bluetooth connection; lithium-ion battery (24 hours standby/1 hour continuous transmission); 300x240x40mm; 1.8kg.

#### Build quality



#### Features



#### Value for money



Digital terrestrial internet box

# Pokey Technology DTI 1000

Digital television got off to a shaky start in the UK, with the subsequent collapse of ITV Digital. However, the Freeview alternative (which requires no subscription) is gaining ground. Not all the channel space has been allocated yet, but Pokey Technology think it has come up with a cunning use for it: DTI (digital terrestrial internet).

DTI works by using the unallocated space to transmit data rather than TV, providing a cheap, fast internet connection to areas covered by DTT (digital terrestrial television). DTI has sufficient downstream bandwidth to provide a 256Kbps (kilobytes per second) connection. This may be slower than ADSL or cable but it's over four times faster than a standard dialup connection. The main hurdle, however, is upstream – without it the system won't know which pages you've requested.

DTT has no dedicated upstream, but Pokey has found a way around this. Telephone is an option, but if you're constantly connected to the phoneline then it's going to cost money. Instead, the DTI 1000 connects back to the server via CB

Radio. CB Radio is free to use if you have a licence (it costs £15 per year). Through a clever system of channel hopping, data-to-speech-to-data encoding (to comply with the CB licence) and patent pending compression, Pokey has managed to obtain a 5Kbps upload rate. It's low, but it's enough for surfing the web and email.

The only problem is the limited range. At the moment the system is being trialled in North East London, but this should expand once the results are in. Pokey is aiming for 60 percent coverage, with an early April launch date.

### Verdict

Pokey has cunningly tied together both old and new technologies to produce a great alternative to broadband for simple internet use. It's only currently at the trial stage, but if the 60 percent coverage is achieved then it should be good. ■

Ira Follop



#### Pokey Technology DTI 1000

- www.pokeytechnology.co.uk
- Price: £200 ex VAT

#### Specifications

Digital terrestrial internet box; 256Kbps/5Kbps upload/download; DTT coverage and CB licence required; 220x156x46mm.

#### Build quality



#### Features



#### Value for money



## USB flash memory backup device MyBackupBuddy



**H**ands up all those who haven't backed up their PC in the last month. Just as we suspected – more than half of you. We all know we should back up, especially home PCs and notebooks that rarely get the chance of an automated network backup. But backing up is a chore unless it's fully automated and runs in the background.

Even then there's the effort of setting it up in the first place.

Enter MyBackupBuddy, which has to be one of the easiest to use computer devices – let alone backup products – ever. MyBackupBuddy comprises a 128MB flash memory pod, USB cable and embedded software from a company called TakeWare.

Plug MyBackupBuddy into a USB port, it sets itself up on XP and asks to be registered online, which provides you with an access code to protect and restore your data. And that's it. Next time you plug Buddy in, it copies and compresses all your Microsoft Office files.

You can configure the software if you want, but otherwise it just goes about its business without any interaction.

On subsequent backups it only copies those files changed since the last one.

The down side is that the standard Buddy just copies MS Office files and works only with Windows XP, Me and 2000 (which will recognise it without the need for a driver).

A 128MB flash card costs about £95, so Buddy's £150 price makes it expensive for what it can do. You can download software from the website for earlier Windows incarnations and a version that makes Buddy look for other file extensions such as Outlook PST archive format.

However, at this price, we'd like to see it handle Outlook, Access, Adobe, Lotus and Corel file extensions in its basic form with more exotic extensions downloadable.

### Verdict

Top marks for simplicity. Could backup be any more straightforward? However, £150 is a lot to back up MS Office files only. You're paying for an easy life. ■

*Andrew Charlesworth*

#### MyBackupBuddy

- www.backupbuddy.co.uk
- £150 ex VAT

#### Specifications

128MB memory key; automatically recognised under Windows Me/2000/XP; backs up MS Office files by default.

#### Build quality



#### Features



#### Value for money



### Budget PC

## Mesh Matrix XP 2700 Multidrive



**M**esh may have updated its cases, but the Matrix XP 2700 Multidrive is built on much more than looks alone. Not only is this PC a speed king but it also contains some great features and the three-year onsite warranty makes it a rightful winner of our Gold award.

At its heart is AMD's Athlon XP 2700+ processor, running at 2.17GHz, and an nForce2-based motherboard. Twinned with 512MB of DDR RAM and a generous 120GB hard drive spinning at 7,200rpm (rotations per minute), it's little wonder the Matrix XP got a WorldBench 4 score of 132. If the 120GB hard drive isn't enough storage then the Matrix comes with the best DVD writer on the market. Sony's DRU-500A is an all-format (DVD-R/+R/-RW/+RW) drive so you won't be left with an obsolete drive. With 4.7GB on each disc, there's ample room to back up important work.

Mesh always supplies a tidy, well presented PC with ample documentation – and this system is no exception. We were also impressed with the internal layout of the XP 2700. The cabling

is of the highest quality and the hard drive sits sideways so it doesn't block access to other components.

The Matrix offers a graphical treat. Mitsubishi's Diamond Plus 93SB is a high-quality 19in monitor and it complements ATI's Radeon 9700 graphics card. In our demanding Quake III test the PC achieved a blistering 91.1fps (frames per second) at 1,600x1,200 and it chewed through video encoding in no time at all. The onboard audio solution offers 5.1 channel support but it's not on a par with the rest of the system.

### Verdict

Mesh has maxed-out the specifications and features to bring you one of the best Budget PCs currently available. ■

*Spencer Dalziel*

#### Mesh Matrix XP 2700 Multidrive

- Mesh: 020 8208 4702
- www.meshcomputers.com
- £999 ex VAT

#### Specifications

AMD Athlon 2700+; 512MB DDR RAM; 120GB hard drive; 19in monitor; 1600x1200@75Hz; 0.25mm dot pitch; 128MB ATI Radeon 9700; 2.4x/2x/2.4x/4x DVD+RW/-RW/+R/-R; 32x/24x/10x CD-RW read/write/rewrite speed; 3-year onsite warranty.

#### Build quality



#### Features



#### Value for money



## Sound card Terratec Aureon 7.1 Space

Terratec has recently announced a new range of consumer sound cards and the Aureon 7.1 Space is the flagship model. As well as adding high-quality audio entertainment for PCs, the Aureon 7.1 supports impressive eight-channel sound.

With this card hooked up inside your PC you can set up one centre satellite, two fronts, two sides, two rears and a subwoofer for serious audio pleasure. The problem is – as far as we know – no one has come up with a 7.1 speaker setup for PCs. This card will offer great sound but you'll have to wait until 7.1 speakers are available on the market.

The Aureon 7.1 Space supports what Terratec calls 4G technology. To anyone else this is known as 24bit/96KHz DACs (digital-to-analogue converters) with 24bit/192KHz for resolution recording. To put that in perspective, an audio CD plays at 16bit/44KHz so you can imagine the improved quality output with the higher specifications.

We should point out that you'll need Windows XP for eight-channel support and Windows XP with Service Pack 1 for 192KHz playback. It's also worth noting that although the DVD-Audio format is supported it doesn't come bundled with a DVD-Audio player. Naturally, all the standard sound formats are supported so the Aureon will work well in any sound environment.

The signal-to-noise ratio is more than 100dB (decibels) and the card has gold connectors for the best signal connection. The specification list

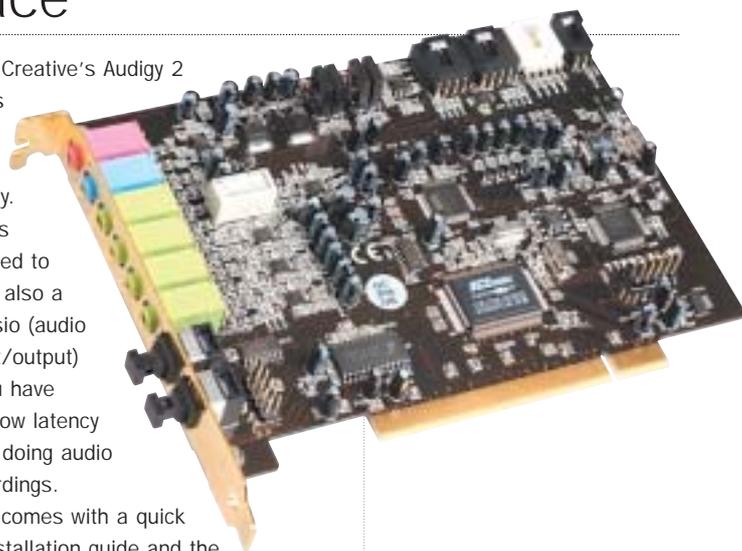
is similar to Creative's Audigy 2 sound card's as is the impressive output quality. PC musicians will be pleased to hear there's also a dedicated Asio (audio stream input/output) driver so you have support for low latency when you're doing audio or Midi recordings.

The card comes with a quick reference installation guide and the software bundle has enough applications for you to start manipulating sound files with Wavelab Lite and recording using Emagic Logic Fun. Once plugged into a PCI slot you'll see connections for all the speakers, the optical ports so you can record digitally, and a microphone input.

### Verdict

Obviously we couldn't test the full 7.1 channels but the audio quality is undeniably brilliant and can't be faulted. The Aureon would benefit from coming with a breakout box for a wider array of inputs/outputs but we'd recommend it to anyone looking for one of the best sound cards on the market. ■

Spencer Dalziel



#### Terratec Aureon 7.1 Space

- Terratec: 020 7923 1892
- www.terratec.net
- £107 ex VAT

#### Specifications

24bit analogue-to-digital conversion; sampling rates up to 192KHz; Dolby Digital 7.1 channel support; DVD-Audio compatible; SNR 100dB; Asio support; EAX2.0, A3D 1.0, I3DI2, Direct Sound 3D and Sensaura 3D.

#### Build quality



#### Features



#### Value for money



## Sound card Terratec Aureon 5.1 Fun

#### Terratec Aureon 5.1 Fun

- Terratec: 020 7923 1892
- www.terratec.net
- £25 ex VAT

#### Specifications

16bit analogue-to-digital conversion; sampling rates up to 48KHz; Dolby Digital 5.1 channel support; EAX2.0, A3D 1.0, I3DI2, Direct Sound 3D and Sensaura 3D.

#### Build quality



#### Features



#### Value for money



Terratec didn't want to leave the lucrative low-end sound card market out of the equation so the 5.1 Fun fits the bill. This entry-level card may lack the high-end specifications of the flagship Aureon but it's superb value for money and will suit anyone working on a budget.

The 5.1 Fun card offers 16bit/48KHz playback and recording so it can't compete with the quality of its bigger brother. That said, audio quality is impressive enough and you can pick up budget 5.1 speakers for about £50. Overall, then, you can get an excellent 5.1 audio solution for under £100.

As with the high-end Aureon, this version supports all the sound standards on PCs for

good DVD playback and gaming environments.

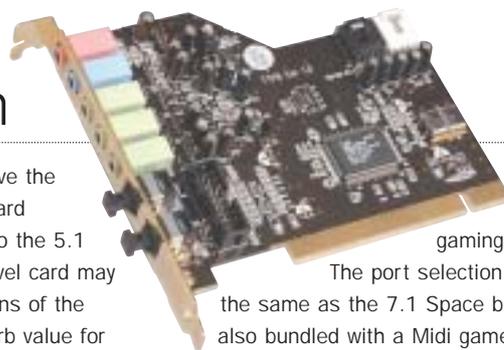
The port selection on the card is the same as the 7.1 Space but this card is also bundled with a Midi gameport.

We were impressed Terratec left in most of the software bundle. Not only do you get the versatile Musicmatch, you also get Emagic's Logic Fun so you can use your PC as a recording studio.

### Verdict

If you feel like upgrading your audio on a budget then the Aureon 5.1 is worth a look. ■

Spencer Dalziel





## Internal CD-RW drive LG GCE-8520B



This month sees LG ramping up CD-RW speeds on its newly released internal drive. The GCE-8520B combines some of the highest speeds on the market with great value for money and a two-year warranty. LG has also incorporated the best in CD-RW burning technology so you get top results from your hardware. Our test results proved it didn't quite live up to its specifications list and it's not as fast as Asus' CRW-5224A (reviewed February 03) but it's definitely a worthy buy.

With blistering 52-/52-/24-speed (read/write/rewrite) rates, the 8520B is currently one of the fastest drives money can buy. LG includes a 2MB buffer, fast 100ms access time and Superlink technology to prevent data underruns – we didn't have any problems in our tests on CD-R or RW discs. There's also the latest Mount Rainer support that's designed to enable error-free use of CD-RW media.

The 8520B doesn't come with any CD media and there are no mountings for installing the drive, although everything else you need is included. An EIDE cable is provided (Asus failed to do this), as well as the audio cable. There's also two quick-start guides for the software and hardware. While Nero Express might not have the full versatility of Nero 5.5 it's very intuitive and will satisfy the needs of most users.

The 8520B's performance was good but not outstanding. Burning 350MB of data on to a CD-R disc used to take about half an hour but today's drives have got that time down to about five minutes. With write verification and simulation run turned off, LG's drive burned in about three-and-a-half minutes.

Not bad but certainly not on a par with Asus' drive which broke the two-minute barrier.

### LG GCE-8520B

- LG: 0870 607 5544
- www.lge.co.uk
- £50 ex VAT

### Specifications

EIDE internal drive; maximum storage 700; 2MB data buffer; 52x/52x/24x CD-RW read/write/rewrite; Nero Express; 0.9kg; 2-year return-to-base warranty.

### Build quality



### Features



### Value for money



### Verdict

The 8520B might not have the extreme speed we expected but it's a sturdy drive embedded with good technology. At £50 it's cheaper to buy than most in its range so it's ideal if you're working on a tighter budget. ■

Spencer Dalziel

# Where your imagination becomes reality...



## GeForce FX™ 5800 Ultra

With the GeForce FX powering your graphics experiences, you can run applications and games at higher resolutions and at speeds never before possible. Everything a die-hard gamer desires is packed inside this powerhouse of a processor, including the latest high-speed DDRII memory, an expansive AGP8X pipeline and unparalleled Intellisample technology.

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Brings stunning cinematic-quality imagery to real-time applications through a new level of shading techniques
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Makes all of your favourite games run even faster
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Fast memory delivers fluid frame rates for superior game play and the most advanced applications
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- Microsoft® DirectX 9.0 Optimisations and Support**  
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For a complete list of PNY resellers visit [www.pny-europe.com](http://www.pny-europe.com)

## Sound card M-Audio Revolution 7.1

### M-Audio Revolution 7.1

- www.maudio.co.uk
- £75 ex VAT

### Specifications

Internal PCI sound card; 24bit/96KHz recording; 24bit/192KHz playback; 107dB signal-to-noise ratio; 4 x surround outputs; mic input; digital output; line input.

#### Build quality



#### Features



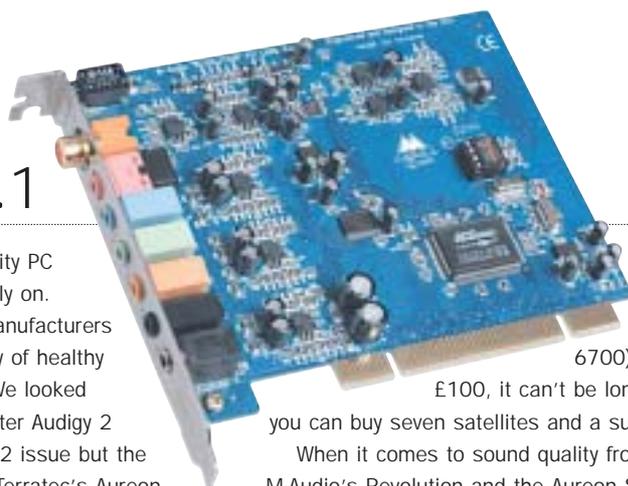
#### Value for money



The fight for high-quality PC audio is well and truly on. With three respected manufacturers in the fray there's plenty of healthy competition out there. We looked at Creative's SoundBlaster Audigy 2 back in the December 02 issue but the current contenders are Terratec's Aureon 7.1 Space (see page 60) and M-Audio's Revolution 7.1. The Audigy 2 doesn't have 7.1-channel speaker support so it's out of the equation for this comparison.

At the heart of both cards is Via's sound chip and it's this component that's responsible for the high-end specifications and breathtaking PC audio. The Via Envy 24HT Audio Controller provides 24bit/96KHz DACs (digital-to-analogue converters) with 24bit/192KHz resolution for recording. That equals serious PC sound quality – much more impressive than anything offered by mid-range consumer stereo systems.

To truly appreciate the quality of the Revolution you need a decent set of PC speakers, although at the time of writing there aren't any 7.1 channel speakers on the market. However, with Creative already



selling 6.1 speakers (Inspire 6700) for about

£100, it can't be long before you can buy seven satellites and a subwoofer.

When it comes to sound quality from M-Audio's Revolution and the Aureon Space there's nothing to separate the two cards. Both offer amazing sound for music, gaming and DVD playback.

This version of the Revolution was harder to install but that was because we had to download the newest drivers from the M-Audio website. It also lacks a digital input and gold contacts on the back of the card, but it's much better value for money than the Aureon and its control panel is more comprehensive.

### Verdict

M-Audio has released an impressive high-quality sound solution at an excellent price. We should point out, though, that there's no reason to buy this sound card if you don't have quality speakers to match. ■

Spencer Dalziel



## External sound card M-Audio Sonica Theater



No sooner has M-Audio impressed us with the release of its first consumer-based external sound card (reviewed January 03)

than it trumps its own product. The Sonica Theater combines the mobility of the original Sonica with the rich feature set of Creative's first external sound card, the Extigy. It comes with better audio fidelity, 7.1 channel support and a host of connections round the back. A must for notebook and even desktop users who want to enhance their audio experience.

The Sonica Theater is slightly larger than its predecessor and comes in the same stylish finish. You connect to a PC or notebook via USB and it doesn't require a power supply because it sucks the juice from its hardware host. This version has four connections for an incredible 7.1 channel surround sound, a digital-out for the clearest audio signal and a line-in.

It provides 24bit/96KHz audio for recording and playback so audio quality is on a par with good internal sound cards. Compared to the



tinny onboard audio normally associated with notebooks,

it's revolutionary. Okay, adding seven satellite speakers and a subwoofer to a notebook means it isn't exactly portable but the number of laptop users who only use their hardware at home is rapidly growing.

The bundled Win DVD 4.0 software features Dolby Digital EX decoding so you don't need an external decoder. If you're without the benefit of 7.1 channel speakers the Theater also has a built-in utility called TruSurround for a simulated surround sound experience.

### Verdict

The Sonica Theater doesn't just offer mobile technology that competes with desktop solutions – it surpasses most. Add good software support with value for money and you have an innovative product that deserves our Gold award. ■

Spencer Dalziel

### M-Audio Sonica Theater

- www.maudio.co.uk
- £75 ex VAT

### Specifications

External USB sound card; 24bit/96KHz analogue-to-digital converter; 101dB signal-to-noise ratio; optical output; line input; USB cable supplied; 115x76x262mm; 18g.

#### Build quality



#### Features



#### Value for money





## Inkjet printer Canon Bubble Jet i850



We couldn't match the quoted print speeds from Canon – we pushed out 9ppm (pages per minute) for mono and 7ppm for colour. Draft printing for coloured text and graphics had some banding and the colour scheme was dull, but notching it up one quality setting sorted this. However, the i850 really impresses on speeds for high-resolution photo printing. We printed a full-colour photo on the highest resolution in three minutes. Vivacious natural colours and great detail, this is the i850's forte. Not only was it extremely fast but the i850 is virtually noiseless across all print jobs.

### Verdict

If you want a cheap inkjet for text and graphics printing with low running costs then the i850 isn't for you. If, however, you want a fast, reliable printer with excellent photo printing capabilities we highly recommend this great new printer from Canon. ■

*Spencer Dalziel*

Canon is recommending its Bubble Jet i850 printer based on its speed, quality and ink nozzle technology. For the reviews team at *PC Advisor* the proof is in the pudding and we're pleased to report that the i850 delivers on all fronts. It might be expensive but with the i850 you pay for quality.

Canon's printers have never looked as good as its scanners but we think someone in the printer division has borrowed the design template to come up with the i850. While it's still boxy, the navy blue and brushed aluminium look gives it a sharp finish. The Bubble Jet's loaded with a generous software bundle and supports USB as well as parallel, so anyone with an older PC is catered for.

The Bubble Jet i850 not only looks good however – it takes advantage of Canon's MicroFine Droplet technology and is capable of delivering two picolitre-sized ink droplets accurately to create a maximum print resolution of 4,800x1,200dpi (dots per inch).

The ink is contained in four cartridges which is much more economical than having to replace tricolour cartridges when only one colour has run out.

### Canon Bubble Jet i850

- Canon: 0870 514 3723
- www.canon.co.uk
- £140 ex VAT

### Specifications

Optical res 4,800x1,200dpi; USB or parallel connection; 22/14ppm mono/colour; £10/£8 black/colour cartridge; 330/460 black/colour pages coverage; 3p per mono page; 5.3p per colour page; 150-page input tray; 418x274x159mm; 4.8kg.

#### Build quality



#### Features



#### Value for money



## Flatbed scanner

# Canon 8000F

Though the price of the 8000F is out of reach for most consumers it's perfect for photographers looking to digitally archive their work at the best possible quality with minimal fuss.

The 8000F has a maximum optical resolution of 2,400x4,800dpi (dots per inch) and employs a HyperCCD sensor to give increased scanning accuracy. It has a 48bit internal and external colour depth and comes with an integrated FAU (film adapter unit). These high-quality settings demand plenty of processing power and a fast connection so Canon has incorporated the speedier USB 2.0 standard.

We were particularly impressed with two features. First, the infrared light source for the Fare (film automatic retouching and enhancement) function which detects and removes dirt

and scratches from photos, and second, the one-pass MultiPhoto function. This allows the 8000F to scan a whole page of pictures in a single pass and then separate the images. If you're scanning photo after photo this speeds up the process.

The 8000F isn't for those with limited desktop space but it's attractively styled. With seven applications and Photoshop Elements – the best lite photo-manipulation package on the market – setting up takes a while. However, it's an easy process and XP recognises the scanner automatically. While our scanning results weren't that brightly coloured, their detail was flawless.

### Verdict

The 8000F comes with a superb software bundle, it's fast and scanning quality is great. A good piece of hardware to accompany any photographer's lab. ■

*Spencer Dalziel*



### Canon 8000F

- Canon: 08705 143 723
- www.canon.co.uk
- £164 ex VAT

### Specifications

Optical resolution 2,400x4,800dpi; 9600dpi enhanced resolution; USB 2.0; scanning area 216x297mm (A4); 48bit true colour depth; 284x495x104mm; 4.6kg.

#### Build quality



#### Features



#### Value for money

