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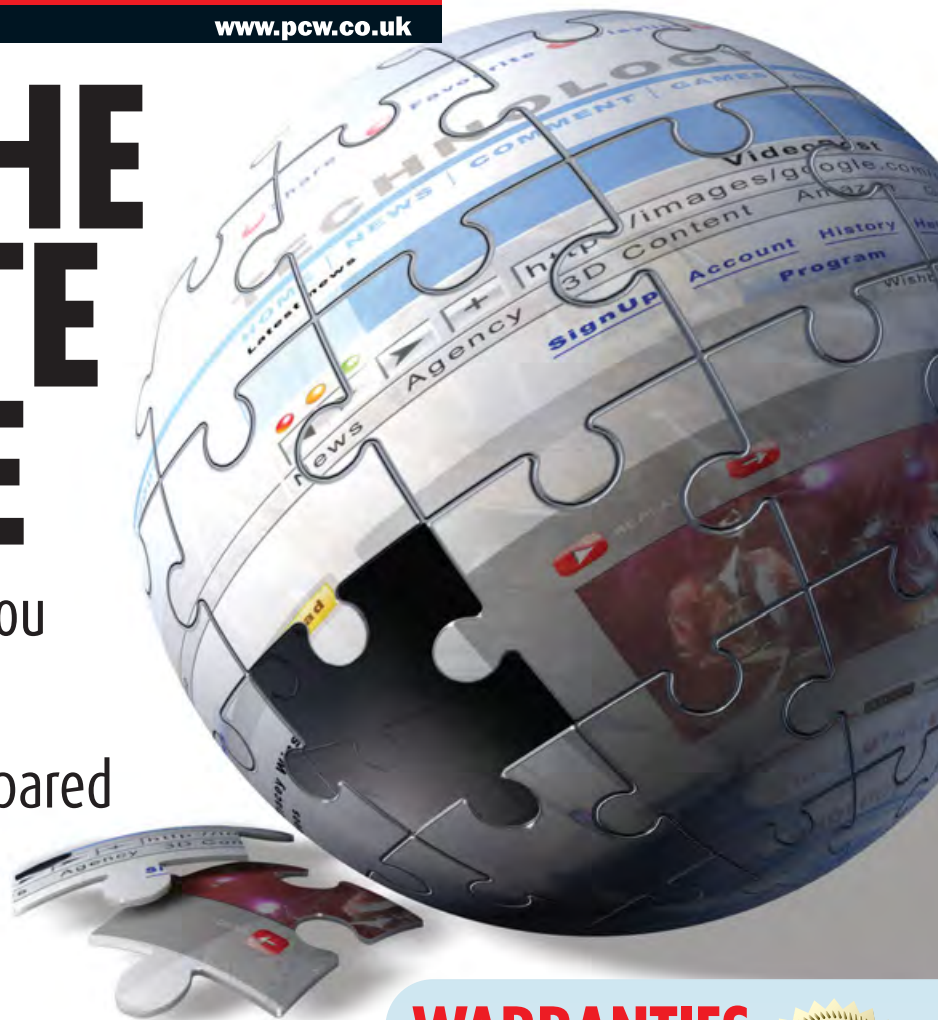
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# Contents

45

FIND YOUR FILES  
Advanced PC and web search tips

93

£699 LAPTOPS

Top brands at a stunning price



34

THE ULTIMATE WEBSITE  
Professional tips to help you plan your site

## REGULARS

- 7 Editorial
- 175 Competition
- 176 Contact us & PCW on the web
- 177 In the next issue
- 178 Flashback

## INTERACTIVE

- 20 Letters
- 29 Gordon Laing – Inside information
- 31 Barry Fox – Straight talking
- 32 Guy Kewney – Kewney @ large

## NEWS

- 10 Gates quits as mobiles evolve
- 11 11n rivals line up for HD
- 12 Microprojectors for mobiles
- 13 Blu-ray leads in format war
- 14 20-hour battery life on cards
- 16 Mother of all browsers dies
- 18 Packing in the changes
- 19 Electronics give birth to the computer

## COVER DISC

### 9 & 169 5 full programs

O&O Disc Image 2 SE, Magix Music Maker 14 Silver, PC Tools File Recover 6.2, PC Tune-up 1.0, PC Booster 4.0, IMSI Floorplan 3D v9, Crazytalk Messenger 4.6 SE

## REVIEWS

### 53 Contents

#### Hardware

- 54 HP Mediasmart Server EX470
- 55 Evesham Cosmos Pro
- 56 Shuttle XPC GS31G2
- 61 MSI PR600
- 62 OQO Model E2 HSDPA
- 63 Asus Eee PC 4G 701

#### Peripherals

- 64 Garmin Nuvi 710
- 65 Pinnacle Showcenter 250HD
- 66 Thecus N299
- 69 Viewsonic VX2240w
- 70 Solwise NET-PL-200AV Push 02 XDA Stellar
- 70 Brother HL-2170W
- 71 Blaupunkt Travepilot Lucca 5.3
- 71 Ricoh GR Digital II
- 74 Irispen Express 6
- Mcubed HFX Micro M1

#### Accessories

- 77 Sony SRS-T10PC
- In Win Allure

- 77 Sitecom Network Giga Switch
- Shure SE110 Earphones

#### Components

- 78 Akasa Powermax 1000
- Gigabyte GA-73PVM-S2H
- Asus Blitz Extreme
- Sapphire HD3850 Ultimate
- 79 Kingston USB2 Media Reader
- Crucial Ballistix PC3-12800 2GB Kit
- Hypertech 1GB Datasafe Rugged
- Coolermaster RC690

#### Software

- 82 Eset Smart Security
- 83 Magix Audio Cleaning Labs 12 XXL
- 84 Ableton Live 7

#### Games

- 85 Crysis
- 86 Need for Speed: Prostreet
- Simcity Societies

#### 90 How we test

## GROUP TESTS

### 93 £699 laptops

For less than £700 you can pick up a notebook that really packs a punch. We put the contenders through their paces

### 105 Home projectors

Watching a movie on a projector can give you that big-screen feeling – and they are more affordable than ever. We grab our popcorn and check some out





# 41 WARRANTIES DEMYSTIFIED

How to cut through the red tape and protect your rights

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# 105 HOME PROJECTORS

Add a new dimension to your movies

# COMPETITION

**WIN**

**175** Win an Alienware PC and Age of Empires III

## FEATURES

- 34 Build a better website**  
Everything you need to know about building a website, but were afraid to ask
- 41 PC warranties**  
For those of you who have ever thought about getting insurance to cover your PC or peripherals, here's some help in going back to basics and

all you need to know about protecting your valuable purchases

- 45 Advanced searching**  
It's not difficult to find the information you want on the web and on your PC. Find out how to narrow down your internet searches

## HANDS ON – Practical how-to advice

- 125 Contents**
- 126 Question time**  
Our experts solve your problems
- 130 Hardware**  
Asus' new mini laptop has caught people's imagination
- 132 Performance**  
Find out if size matters when it comes to the performance of tiny laptops
- 134 Windows**  
Useful tweaks for Vista and XP users
- 136 Linux/Unix**  
Additional programs for Ubuntu Linux
- 138 Digital imaging & video**  
Beyond Windows' screensavers

- 140 Word processing**  
Find out how you can tame one of Word's most useful tools
- 142 Spreadsheets**  
How you can make sure spreadsheets are compatible with earlier versions of Excel
- 144 Web development**  
Some basic Java tips
- 146 Networks**  
How to solve Windows' offline quirks
- 148 Databases**  
A tour of SQL querying
- 150 Visual programming**  
What 2008 holds for Visual Basic fans

## BUSINESS

- 115 Contents**
- 116 What's on your desk?**  
Putting a PC on every desk isn't the only solution to a company's IT needs
- Reviews**
- 118** HP Compaq dc7800 Ultra-slim
- 119** McAfee Safeboot for USB
- 120** 1E Nightwatchman
- 121** Digital Persona Pro 4.2
- 122** Buffalo DD-WRT GUI writer

## BUYER'S GUIDES

A listing of the best products PCW has tested, helping you to make the right decision when planning a purchase

- 153** PCs
- 154** Graphics cards  
Notebooks
- 155** Motherboards  
Digital music players
- 156** Hard drives  
DVD drives
- 157** Printers & TV tuners
- 158** Monitors  
Digital cameras  
Routers
- 159** Product index

# It's a blackout!

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Editorial

# Save time and energy looking for a needle in a haystack

*Searching a hard disk or the internet can be extremely frustrating, says Kelvyn Taylor, but we have the answer*

**E**ven taking into account the fact that it's part of my job, a disproportionate amount of my computer time seems to be spent simply looking for information. Whether it's on the web or on my hard drive, I spend what seems like an eternity typing phrases into search boxes and wading through the results.

Luckily I learned to search in the bad old days of early search engines like Alta Vista and so had the basics of Boolean searching hammered into me. But despite the fact that search engines have become much smarter over the years, the amount of information available has also grown massively and still it's as difficult as ever to home in on the data you really want.

Similarly with our PCs – the ridiculous number of files we now store on our hard disks makes it nigh impossible for all but the most organised users to find anything at all. I used to meticulously organise my directory structures and regularly weed out and archive stuff, but these days I simply don't have the time or the inclination. The resultant free-for-all in my Documents folder means ages spent browsing through files named New Document (XXX).doc or cryptically labelled spreadsheets, such as Test\_new\_edited\_v2.xls.

Luckily, desktop search technology has also improved in leaps and bounds. Windows XP's built-in search function was worse than useless, but free

programs such as Windows Desktop Search (which is at the core of Vista's Search) and Google Desktop Search can make life much easier if you know how to use them effectively. And because they use the same underlying technology and syntax as their respective web engines, you can improve your web search accuracy at the same time. That's the premise behind our feature starting on page 45 – I hope the tips in there help save you as much time as they did for me. Typing 'ext:xls before:2001' into a search box and immediately finding all my old forgotten spreadsheets certainly beats the old way hands down.

If you've bagged a bargain in the January sales, but it's just gone up in smoke, our look at the perennial bugbear of product warranties on page 41 is just for you. If you're unsure of what the small print in the guarantee means (if anything), or who's responsible for fixing your faulty product, all will be revealed, with not a word of legalese in sight.

Shortly before writing this column, Bill Gates delivered his final CES keynote speech, became a Youtube hero with the obligatory spoof video and started the last leg of his long goodbye. But when he finally steps down from his post as chairman at Microsoft in July this year, he'll still have plenty to keep him occupied, as he plans to devote his time to his philanthropic work.

His memory (or his scriptwriter) does seem to be playing tricks on him, though, as he reckoned he's had a full-time job at Microsoft since he was 17, but according to his biography he was born in 1955 (a very good year, I might add) and didn't start the company until 1975. But perhaps it's churlish to nitpick, so on behalf of PCW I'd just like to say 'So long, Bill, and thanks for all the service packs!'

Next month we'll be celebrating our 30th anniversary with a very special birthday issue. We're very excited about it, but don't want to spoil the surprise too much, so I'll just say keep an eye out for the new-look PCW, available on the newsstands from 21 February. **PCW**

**'On behalf of PCW I'd like to say, so long, Bill, and thanks for all the service packs'**

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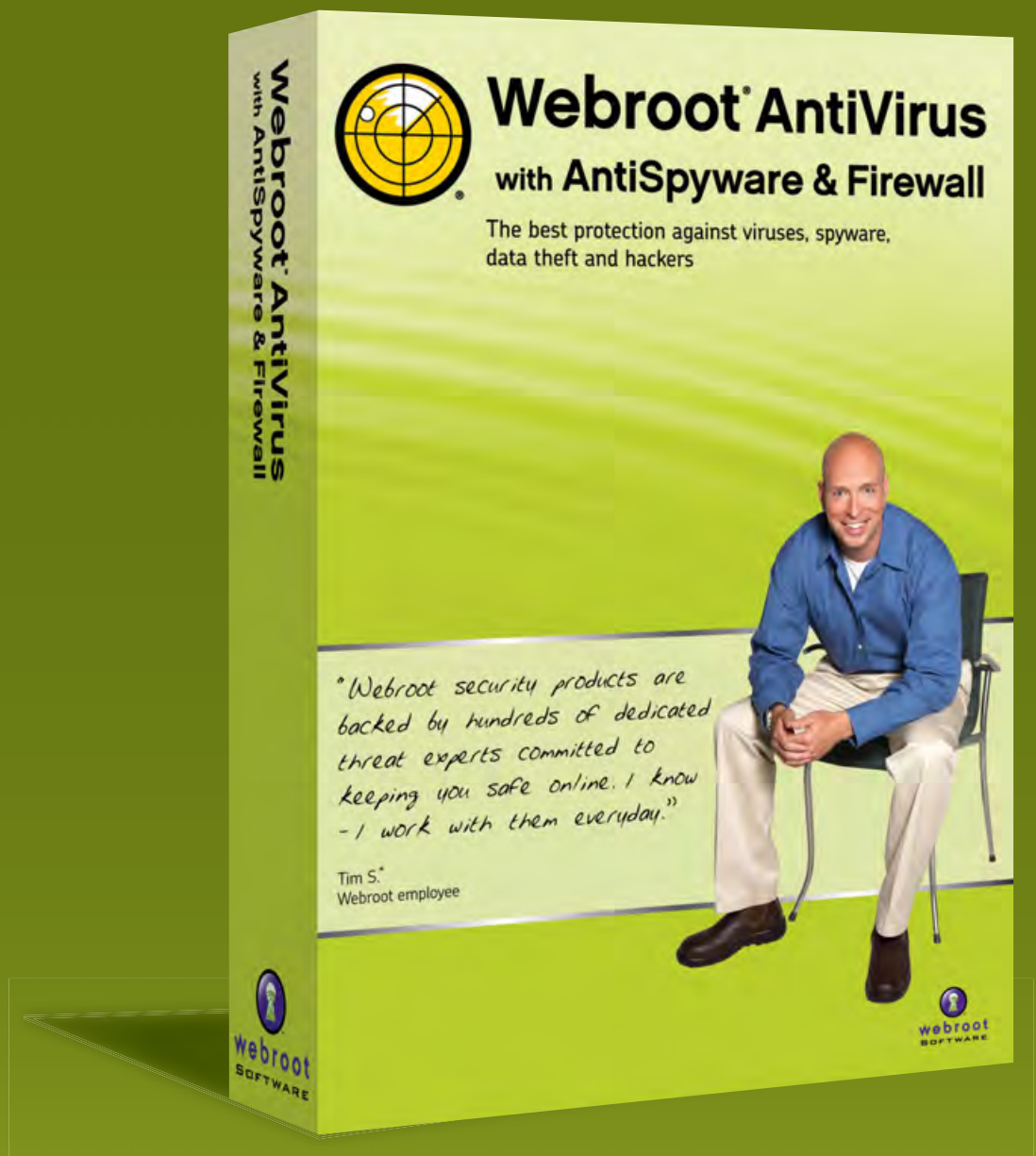
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see page 172

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see page 174

see page 170

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### Magix Music Maker 14 Silver

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For workshop see page 171

### PC Tools File Recover 6.2

Recover lost files in a flash with this essential tool  
For workshop see page 172

### PC Tune-up 1.0

Clean up your Registry and Defrag your PC  
See page 173

### PC Booster 4.0

Improve the performance of your PC  
See page 173



## EXCLUSIVE TO THE 8GB DVD

### IMSI Floorplan 3D v9

Create or redesign your own home with 3D visualisations  
See page 174

### Crazytalk Messenger 4.6 SE

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See page 174

### McAfee Internet Security 2008

Protect your system with this security suite (90-day licence)



FOR A LISTING OF SOFTWARE TURN TO PAGE 169

# NEWS

## IN THIS SECTION

### NEWS

- 12 Microprojectors on show  
Screens go organic
- 13 Blu-ray streaks ahead  
SSDs reach 128GB
- 14 20-hour battery life  
Dell hits the shops
- 16 Navigator browser dies

### ANALYSIS

- 18 Packing in the changes  
What you get with the  
service pack updates for  
Microsoft's three flagship  
products.

### RETRO

- 19 Colossus revealed  
The second of three  
articles on early UK  
computing, by Clive Akass

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## Gates quits as mobiles evolve

The Consumer Electronics Show (CES), which has become the major US computing showcase, should have had the feel of the end of an era, with Bill Gates giving his last keynote as head of Microsoft before he retires to spend more time with his charity work.

But beyond a few gee-whizz asides on the possibilities of mobile platforms, he said little that was new or exciting. Perhaps this was because the most interesting trend, the evolution of true portables with the processing power of desktops, is poised for the release later this year of Intel's new power-efficient Menlow platform.

The most important move on that front was arguably the fact that at least two education suppliers, Research Machines and Go Education, attended the Bett IT For Teachers show in London, offering versions of the Asus Eee PC ultra-mobile for use in schools. With prices starting at less than £200, this could signal the start of a new drift from paper to screen.

Apple was rumoured to be preparing to launch an ultra-mobile (see opposite), but it is unlikely to come within a mile of that price.

The US company Everex announced at CES a \$399 (£202) model called the Cloudbook and running a 1.2GHz Via C7-M low-drain chip.

Screens are getting a lot thinner



Concept mobiles from (clockwise from top left) Aigo, Clarion, Lenovo & Toshiba

and more efficient, and mobiles are sprouting projectors for a larger view (see page 12), and solid-state storage is becoming cheaper, sleeker and more capacious (see page 13). There is also movement on the battery front, though not in the short term (see page 14).

Even Intel was only able to come up with concept designs (see pictures) to show what these developments may mean: ultra-mobiles as thin as a biscuit, and powerful Mobile Internet Devices (Mids) you can put in your pocket.

The company launched 16 new processors to coincide with the show, all lead-free. They included three 45nm-scale quad-core and four dual-core desktop processors,

four Xeon server processors, and five frugal mobile processors.

Intel chief executive Paul Otellini said four obstacles had to be overcome for mobile devices to reach their potential over the next three to five years. Wireless broadband needs to be more widely available, processors must become both more powerful and less power hungry, the web has to get smarter, and a more natural human interface has to evolve with the use of voice and gestures.

Intel is putting its Wimax wide-area wireless links into its Menlow platform, and has invested in Wimax infrastructure in Britain.

Clive Akass

More CES news – pages 11, 12, 13  
Gates picture – page 18

## BT installs 100Mbits/sec fibre to homes in Kent

BT is to install its first fibre-to-the-home (FTTH) links at a huge estate being built at Ebbsfleet Valley in Kent, promising speeds of up to 100Mbits/sec.

Almost all residential links in Britain terminate in copper cable – even those from cable companies founded to exploit fibre. These run copper co-ax from street boxes to homes, which was adequate for when

they simply delivered TV, but now causes a bottleneck.

Ironically, cities in developing countries are getting faster links because their infrastructure is being built from scratch.

Fibre will give the 10,000 new homes at Ebbsfleet Valley the fastest links in Britain. It was unclear as we went to press how the data will be distributed around the homes. PCW

lambasted BT and Intel for telling builders at an Ideal Home exhibition a couple of years back to forget cabling up new premises because Wifi would provide all the future-proofing needed.

Emerging wireless technologies are designed to operate across rooms linked by cable, easing health fears by reducing power and virtually eliminating contention (see opposite page).



# 11n rivals line up for high-def

Several technologies lined up at the 2008 Consumer Electronics Show to challenge the view that Wifi 11n will be the preferred way to pump high-definition video wirelessly round the digital home.

The 11n standard, which should be finalised this year, can deliver HD in laboratory conditions but it has yet to show that it can do so with neighbours competing for airspace.

Health fears have put a question mark over Wifi and increased interest in lower power, short-range links. Content providers also prefer these because they reduce the scope for neighbours to share viewing.

Wifi is far from out of the picture. But one alternative was demonstrated by Westinghouse Digital Electronics, which showed an



HD LCD TV with a wireless HDMI port, replacing the standard wired interface with a short-range 890Mbps/sec ultrawideband (UWB) radio link from Pulse-Link.

Wiquet Communications showed two other types of

Large as life... Panasonic AVC networks chief Toshihiro Sakamoto with a 150in HD plasma screen - see page 12

UWB links: Certified Wireless USB and its own proprietary Wireless Digital video, both HD capable.

A relative newcomer, Wireless HD stems from a consortium backed by giants such as Sony, Toshiba and Intel. This claims speeds of up to 4Gbits/sec using the 60GHz band. It does not use UWB but it is designed to operate only across a room. Panasonic showed Wireless HD in action using chips from the US firm Si-Beam.

## Apple ends iTunes mark-up and stokes expectations

Apple marketers played a curious game at the Consumer Electronics Show, making a string of announcements a week ahead of the company's annual Mac World.

They unveiled a new 1U rackserver, the Xserve, with two 3GHz quad-core Xeon processors and a "fastest yet" Mac Pro using two 3.23GHz quad-core Xeons. They then announced that iTunes pricing will be standardised across Europe within

six months, ending the much-resented mark-up for the UK.

Apple blamed the mark-up on record labels. It said in a statement: "Apple will reconsider its continuing relationship in the UK with any record label that does not lower its wholesale prices in the UK to the pan-European level."

The turnaround will of course have nothing to do with placating Europe, which is less

tolerant of Apple product lock-ins than the US.

The announcements may have been timed to keep Apple in the news during CES. They also raised speculation about what was left for Apple chief Steve Jobs to announce at Mac World 2008. Perhaps the much-rumoured Mac ultra-portable?

Mac World happened after PCW went to press but check out [www.pcw.co.uk](http://www.pcw.co.uk) for an update.

## BBC Micro designer gets CBE

Professor Steven Furber, who designed the hardware for the fondly remembered BBC Micro, was awarded a CBE in the New Year Honours. He also helped develop the original ARM processor, descendants of which now run more devices than Intel's x86 chips.

Furber spent 10 years in the R&D department at Acorn, which made the BBC Micro for use by viewers of a BBC TV teach-in on computing that was linked to

schools. Some 1.5 million were sold and many stalwarts of UK computing today cut their IT teeth on one.

The ARM chip came to be used in Acorn's follow-up, the groundbreaking Archimedes, which was swamped by the PC tide.

Furber is now a professor of computer engineering at the University of Manchester, where he heads the Spinnaker project to model the human brain using a million ARM processors.



Professor Steven Furber designed the hardware for the BBC Micro

## CES briefs

### Driverless vehicles

Driverless cars will be a reality in a decade, allowing travellers to read email, eat breakfast, put on make-up or watch a video while commuting.

So said General Motors chief executive Rick Wagoner in his CES keynote speech. Some of us already enjoy all these activities, of course... on the train.

→ [www.pcw.co.uk/2206795](http://www.pcw.co.uk/2206795)

### USB auto-backup

Sandisk unveiled a USB Flash drive that automatically backs up every file copied to the drive to an online server.

The service for users of the \$60 (£31) is free for six months, after which you pay six \$30 (£16) payments each year.

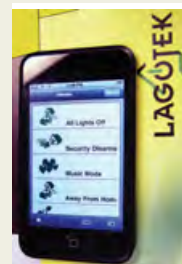
→ [www.pcw.co.uk/2206422](http://www.pcw.co.uk/2206422)



### Home iControl

Lagotek showed a new module, adapted from a Windows Sideshow gadget, which allows an iPhone or iPod Touch to be used as a control centre for an automated digital home.

→ [www.lagotek.com](http://www.lagotek.com)



### Lenovo idea

Lenovo, the Chinese giant that bought IBM's PC and notebook business, showed a new range of portables called Ideapads, which are targeted at the consumer market.

→ [www.lenovo.com](http://www.lenovo.com)





## Nokia outruns the iPhone

Apple's iPhone has not been long enough on the market for it to spawn the plethora of me-too products inspired by the iPod. But Nokia launched its 8GB N95 GPS-enabled handset in the US with High Speed Download Packet Access 3G capability, giving it at least 10 times the speed of the iPhone's humble 2G links.

Sony Ericsson launched the W350, a revamp of its Walkman music phone with fingertip control and Bluetooth stereo streaming; it also launched a compatible cordless headset, the HBH-DS205.

Samsung showed its SGH-i450 music phone, and Motorola had the Rokr E8. Motorola has also been getting into the mobile TV market with the paperback-sized DH01, which streams live TV via the DVB-H standard. The device has a 4.3in screen and a claimed battery life of four hours.

Samsung is reported to be planning to launch a range of low-cost phones to erode market leader Nokia's global share, which rose three per cent to 39 per cent in the autumn quarter of 2007.

## BlackBerry TV

Sling Media launched its Slingplayer Mobile software running on a BlackBerry Pearl phone, enabling it to stream programmes from your TV via a Slingbox using either a cellular link or Wifi.

Slingplayer Mobile software is also available for phones using Windows

Mobile, PalmOS and Symbian software. It costs \$30 (£16).

→ [www.slingmedia.com](http://www.slingmedia.com)

# Microprojectors for mobiles

Projectors small enough to be incorporated into handsets could be available soon at prices cheap enough for the high street, judging from exhibits at CES.

Microvision showed a PDA-sized product called Show-you, said to be the world's smallest projector, that can project DVD quality images up to 2.5m and has a claimed battery life of nearly three hours, despite using three lasers. The first mobile devices to use the technology will launch late this year for around £150.

3M announced an LED projection engine the size of a wireless earpiece designed for integration into personal electronic devices, and able to project a VGA image 40in across.

Both products were said to have the potential to give PDAs and phones displays as big or bigger than those of notebooks by projecting the image onto the nearest blank surface.

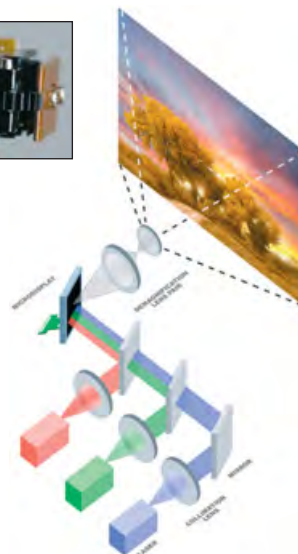
But the most intriguing projectors on show came from a UK firm, Cambridge-based Light

Top left is a picture of the 3M mobile projector. The diagram on the right



shows LBO's laser projector.

A diffraction pattern of the desired 2D image, calculated using patented holographic algorithms, is displayed on the surface of a Liquid Crystal on Silicon (LCOS) microdisplay. The image is extracted by illuminating the display with coherent laser light and is then passed through two lenses which can spread it out at an angle greater than 100°, creating large pictures at a very short range.



Blue Optics (LBO). The holographic projector (see diagram above) is said to retain focus at any distance and LBO claims its size, robustness and cost make it suitable for small and large devices. LBO has received \$26m in funding.

Projectors in handhelds are not new. At least two companies have

offered virtual keyboards consisting of an image of a real one projected on to a surface, with an infra-red sensor monitoring which keys are pressed (see review at <http://tinyurl.com/23p9ws>) → [www.lightblueoptics.com](http://www.lightblueoptics.com) → [www.microvision.com](http://www.microvision.com) → [www.3m.com](http://www.3m.com)

## Displays grow big, thin and organic

The Panasonic half-ton, £50,000, 150in plasma screen, pictured on page 11, got a lot of attention at CES, but more important was the emergence of large, organic light-emitting diode (OLED) screens.

These use polymer semiconductors instead of the usual silicon and are inherently brighter and more efficient, but have previously been available only in small sizes for camera and phone displays.

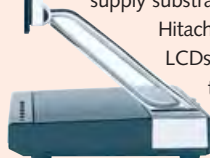
Samsung revealed a 31in OLED screen that is said to be ready to hit the market.

Sony showed a 27in prototype, but announced that its XEL-1 11in OLED TV, which is just 3mm thick in places, will go on sale in the US. Thin

Thin is in... the screen on Sony's XEL-1 OLED TV is only 3mm thick in places

screens were thick on the ground with JVC claiming to offer the world's slimmest LCD TVs. The 42in LT-42SL89 and 46in LT-46SL89 models are 4cm thick. "The slim design was made possible through a JVC-developed slim panel backlight unit and power supply substrate, or chassis," said the company.

Hitachi unveiled a range of ultra-thin LCDs under the slogan '1.5 is coming' – the figure referring to thickness in inches. This would make them 1.9mm thinner than the JVC.



## Wise Audio says software prevents iPod deafness

There's good news for those who fear the iPod generation is set for early deafness, if you believe a CES exhibitor called Wise Audio, which claims to protect your ears and improve the sound you are

hearing by performing the kind of audiometry used by doctors.

It can be used in music players of all kinds. You can download a Wise Audio tester and player free from [www.wiseaudio.com](http://www.wiseaudio.com).

Sennheiser unveiled wireless stereo earphones called the MX W1 which it claims are the first to deliver true CD-quality sound with the aid of noise filtering technology from Klear.

# Blu-ray leads in format war

**B**lu-ray technology has emerged as the front-runner in the high-definition format war after a major studio withdrew backing for rival HD DVD as the massive Consumer Electronics Show (CES) was about to open.

The decision by Warner Brothers, which had supported both formats, means that its movies will not be distributed in HD DVD format from May. Only Universal and Paramount now support HD DVD – the latter reportedly after receiving a heavy subsidy from manufacturers.

Warner's defection shocked the HD DVD camp at CES. The HD DVD Promotion Group cancelled a planned press conference and, in a release sent

out beforehand, it claimed that one million HD DVD players had been sold in the US alone.

Akio Ozaka, US head of Toshiba consumer products in the US, told a press conference that the company still believed the technology was best for users.

Bill Gates pointedly made no mention of HD DVD in his CES keynote speech, though Microsoft has long favoured the technology over Blu-ray, which is not fully supported in XP or Vista. There had been rumours that he would announce a revamped HD DVD drive for the Xbox 360 games console.

Some drive manufacturers have been backing both camps. LG offers a dual drive and Samsung

showed one, the BD-UP5000, at CES that it plans to release later this year. Similar multi-drives settled the old DVD format war, but dual HD models cost substantially more than standard ones, and it is unclear whether this price differential can be reduced significantly.

One advantage claimed for HD DVD is that it is inherently cheaper because it extends existing DVD technology and requires no major investment in new plant. But Blu-ray prices are falling: Sony launched a SATA-interfaced read-only PC drive, the BDU-X10S, that will sell in the US for less than \$200 (£102).

As we went to press, Paramount was rumoured to be about to defect to Blu-ray.

## In brief



### Pocket video

Pinnacle has launched a pocket device that takes the analogue output of a TV, videocam or video player, formats it as MPEG-4 and stores it on any suitable USB device without needing a PC.

The Pinnacle Video Transfer will take input from an S-video, composite video or stereo analogue port and can output to USB drives or media players such as iPods. It will be available in February for £100.

→ [www.pcw.co.uk/2206600](http://www.pcw.co.uk/2206600)

### Dell Crystal

Dell describes this \$1,199 (£610) 22in LCD display, called the Crystal, as a fusion of art and technology. It has four speakers and a maximum resolution of 1,680x1,050. Details are at [www.dell.com/crystal](http://www.dell.com/crystal).



### USB vault

Data can be as vulnerable as physical property to fire or flood, points out Sentriesafe, which has a range of small waterproof and fire-resistant vaults for holding papers and other valuables, as well as external USB drives. Prices start at \$170 (£87).

→ [www.sentriesafe.com](http://www.sentriesafe.com)

### Powerline USB

Icron demonstrated the use of mains wiring to extend a USB connection using Panasonic's proprietary HD-Powerline Communication (HD-PLC) technology. Products are expected to be available early this year.

→ [www.icron.com](http://www.icron.com)

## Surface transforms table into display

It's not the first time a table top has been turned into a display, but this product, called Surface, is backed by Microsoft. Bill Gates showed it off during his CES keynote speech and he promised that it would soon be available in restaurants, hotels, games parlours, shops and offices. "We won't just have a computer on the desk. We'll have one in the desk," said Gates.

The software behind the 30in screen can interpret touch and gestures, and can even recognise objects. One suggested use is for sharing photographs – see picture.

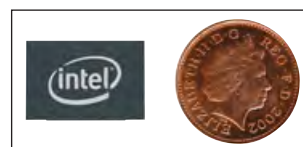


## Solid-state drives hit 128GB – and get even thinner

Samsung unveiled a 128GB solid-state drive (SSD) that will ship later this year in 2.5in and 3.5in versions for notebooks and desktop PCs.

The new drive exploits multi-level cell technology, which uses different voltages to store several bits per cell. Samsung claims a write speed of 70Mbytes/sec – the fastest yet for storage of this type. The claimed read speed is 100Mbytes/sec.

Samsung pioneered the use of SSDs when it used a 32GB one in a version of its Q1 ultra-mobile. It demonstrated the 128GB model in a notebook at the Consumer Electronics Show in Las Vegas.



**Slim SSDs from Samsung and Intel allow mobiles to be thinner**

One 1.8in version of SSD will be just 5mm thick, and is designed for emerging portable formats such as Origami ultra-portables and the even smaller

Mobile Internet Devices (Mids).

Intel has announced an even thinner SSD targeted at the same market.

The Z-P140 PATA SSD is the size of a postage stamp and just 1.8mm thick, but has a maximum capacity of 16GB.

Sandisk also showed a 12GB microSDHC card, that increases by 50 per cent the capacity of this format which is used in many mobile phones.



## In brief

**IR speakers**

The industry seems to be doing its best to write off infra-red links, but manufacturer Edifier is bucking the trend with the speakers pictured above using the technology for their audio feed. They won an innovations prize at CES and will launch in the US next month.

→ [www.edifier.ca](http://www.edifier.ca)

**Web 2.0 'decline'**

This year will see a watershed for ecommerce, with high-street sales declining under its impact, according to UK web testing firm Scivism. Chief executive Deri Jones also predicted a decline in Web 2.0 services as advertisers balk at allowing their brand to appear with unsuitable user-generated content.

→ [www.pcw.co.uk/2206255](http://www.pcw.co.uk/2206255)

**Intel dropout**

Intel has dropped out of the One Laptop Per Child (OLPC) project which aims to create a system costing less than £50 for the developing world. The decision follows months of wrangling, with project leader Nicholas Negroponte having asked Intel to stop supporting other low-cost hardware projects such as its Classmate PC.

→ [www.pcw.co.uk/2206488](http://www.pcw.co.uk/2206488)

**500GB notebook**

Hitachi Global Storage Technologies claims its new £200 500GB Travelstar 5K500 is the highest capacity 2.5in notebook drive available.

→ [www.pcw.co.uk/2206423](http://www.pcw.co.uk/2206423)

**£630,000 wasted**

Staff who left their PCs on over Christmas cost UK businesses an estimated £630,000.

→ [www.pcw.co.uk/2206294](http://www.pcw.co.uk/2206294)

# 20-hour battery life on cards

**N**ew rules governing the use of Lithium-ion (Li-Ion) batteries on US planes have been introduced following a spate of fire scares. But researchers have claimed to have made a breakthrough that will make the technology both safer and more capacious.

Li-Ion batteries can explode under pressure or heat, and are particularly vulnerable if they contain defects. Now the US Department of Transportation (DoT) has ruled that passengers can carry only two spares that must

be stored in plastic bags or their original packaging to prevent accidental short-circuiting.

Krista Edwards, deputy safety administrator, US DoT, said fire control systems in aircraft would not be able to cope if non-rechargeable Li-Ion batteries caught fire.

Meanwhile, a research team at Stanford University said that using silicon nanowires instead of graphite electrodes can extend the life by a factor of 10. This means a notebook could run for 20 hours between charges.

"It is a revolutionary development," said project leader Yi Cui, assistant professor of materials science and engineering. He claimed the new electrodes also reduce the fire risk.

The huge breakthrough was published online at Nature Nanotechnology, and could lead to batteries that store energy generated from rooftop solar panels, or run vehicles for hundreds of miles. However, problems of mass manufacture have still to be resolved.

## High-definition displays set to wow the public

Fuzzy advertising and public information displays will become a thing of the past if Sony has its way. It has just released a 52in LCD display, the GXD-L52H1, with a native 1,920x1,080 resolution. It comes with a protective toughened glass screen that can be easily replaced if damaged and means the screen can safely be placed at eye level.

A heatsink is used for cooling, allowing the display to be sealed in a casing without ventilation holes, making it dust-proof and therefore enabling outdoor use.

Sony has also released Ziris 4, software, which can be used to create display content and monitor and schedule it across a number of screens. All Sony public information displays contain a slot for fitting a compliant control module.

Pictured is one of 459 high-definition displays installed at Arsenal's new Emirates stadium.

→ [www.sonybiz.net](http://www.sonybiz.net)



## Dell starts to sell through Tesco stores

There were mixed messages over Christmas about the health of online versus high-street IT business.

Dell announced that it is to start selling machines through Tesco stores following a slowdown in online sales. The company's build-to-order business model has been hit by the fact that PCs have become a commodity that can be sold off the shelf like TVs.

It has announced a number of similar deals with large chains in other countries.

The Dixons group, which owns Currys and PC World, reported a drop in store sales of one per cent, some of which was due to a drift to online spending. Takings were £50m less than predicted,

No UK figures for online sales were available, but those for the US were 19 per cent up on last year, according to analysts Comstore.

PC World now offers a hybrid system allowing customers to order online and collect at their nearest store, notionally providing the best of both worlds.

But Tesco could prove as tough a competitor as the cut-price retailers. It has bought the tech-support group PC Guys, and plans to build a home IT support service around it in competition with PC World's The Tech Guys, and similar services from Carphone Warehouse and Comet.

There was good news for the music industry, with legal downloads more than double those of last year; but this only partly compensates for a drop in sales of more profitable CDs.

### 3.5G High-Speed Data

DrayTek now provides optional support for GPRS and HSDPA cellular connections, now available from most UK cellular operators at up to 1.8Mb/s. This means that you can get broadband speeds without needing a fixed line, ideal for mobile working, temporary locations or backup to your main broadband feed.



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- QoS for high VoIP quality
- Up to 32 VPN tunnels
- ISDN backup & connectivity

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## In brief

## DIY mapping

Sat nav makers will have to rely increasingly on information from users to keep maps up to date, say analysts ABI Research.

The company predicts that a growth in pedestrian navigation and location-based services will create a demand for more detailed and timely information, which could come most easily from user-generated content. Tomtom has started the ball rolling with its Mapshare system, says principal analyst Dominique Bonte.

→ [www.pcw.co.uk/2205889](http://www.pcw.co.uk/2205889)

## Multimap sold

Microsoft has bought UK mapping service Multimap in a bid to strengthen its hand against competition from Google, which now offers street-level mapping of many countries. The terms of the deal have yet to be disclosed. Microsoft said Multimap will complement its existing services, such as Virtual Earth, Live Search, Windows Live services and MSN.

## Free tools

Free tools on a revamped site run by Uniblue include Process Scanner, which draws up a detailed list of programs running on the PC with an indication of the level of associated risk.

→ [www.pcw.co.uk/2205702](http://www.pcw.co.uk/2205702)

## Google Wiki

Search giant Google is to rival Wikipedia with the launch of Knol, an online learning tool with information provided and edited by users. They will have access to 'easy editing tools' with Google ensuring content is ranked appropriately in search results. The tool is under wraps for initial testing by invited users.

→ [www.pcw.co.uk/2205837](http://www.pcw.co.uk/2205837)

## Opera kit

Opera Software has launched a new version of its development kit for device makers who want to make use of its browser. The Version 9.5 release includes a new visual effects layer.

→ [www.opera.com](http://www.opera.com)

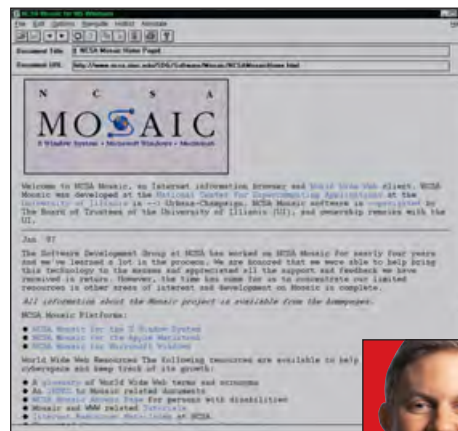
## Mother of all browsers dies

**N**etscape Navigator, mother of graphical browsers, is going quietly to its grave.

Owner AOL has announced that security patches and support for the current version, Netscape 9, will end on 1 February. It recommends users to adopt Firefox, developed by its not-for-profit offshoot, the Mozilla Foundation.

Netscape had its roots in a college project, led by Mark Andreessen, to build a graphical interface for the World Wide Web. The browser was downloaded by millions when it was posted as freeware and transformed the web from an engineer's tool to a medium that could be used by anyone.

Andreessen was hired by Silicon Graphics founder Jim Clark to start a company called Netscape Communications to develop an improved version. When the company was floated in 1995, Andreessen made £38.5m overnight as shares rose from £17 to £37.



The Mosaic browser, developed at the National Centre of Supercomputing Applications, Illinois University, launched the web age while still in beta. Project leader Mark Andreessen (inset) went on to launch

Netscape Navigator, the first commercial browser

He was just 24, and when PCW talked to him a few weeks later he looked as if he had just walked off the college football field.

But that was the high point for Netscape. Bill Gates suddenly saw what was happening with the web and virtually bet his company on the new medium.

By giving away Internet Explorer, he forced Netscape to

make its browser free. Microsoft added features at a rate that Netscape could not match. The battle, and Microsoft's policy of bundling Explorer with Windows, became central to the long-running DOJ anti-trust against the company.

Netscape's market share was down to 0.6 per cent in December.

## Norway backs Open Document Format

Norway has thrown its weight behind the Open Document Format (ODF) by insisting that all files on official websites use it.

The mandate from Norway's Ministry of Government Administration and Reform will come into effect in 2009. "The government has ruled that all information on governmental websites should be available in the

HTML, PDF or ODF formats," an official statement said.

"This decision means that the time when public documents were only available in Microsoft Word is coming to an end."

Heidi Grande Røys, Norway's IT minister, claimed the decision would improve competition. "Everybody should have equal access to public information. From 2009 citizens will

be able to choose which software to use to access public information."

The EU has said documents exchanged between nations in the union should use open, standard formats. ODF is already a global ISO standard. Microsoft's efforts to get a similar standing for Open XML, used in its latest Office 2007 applications suite, have faltered but could still succeed.

## Free version of office suite will retain full feature set

Sun Microsystems has vowed to make the free and paid-for versions of its office suite every bit as good as each other. Both use the ODF formats (see above).

Staroffice will have the same feature set as the free open-source Openoffice.org suite. But Staroffice



will get support and an indemnity against lawsuits involving the software.

Mark Herring, senior director of Sun's Network.com project, said enterprises and

distributors prefer products to be backed by a "commercial

entity". He added: "With end users, it's crazy for us to compete. Openoffice is free."

Sun also hopes to make money from a \$10,000 tool called Staroffice server, which will convert all enterprise documents to the new file formats. Eventually the tool will be available as a web-based service.

Shaun Nichols





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# Packing in the changes

Microsoft has released major service pack updates for XP, Vista and Office 2007 simultaneously. Tim Nott explains how to get hold of them and exactly what they give you

**Y**ou can wait ages for a Microsoft service pack, and then three come along all at once: the first service pack for Office 2007 and 'release candidates' of Vista SP1 and XP SP3.

Release candidates stand on the evolutionary ladder between beta software and 'released to manufacturing (RTM)' and they are intended, to quote Microsoft, 'for individuals, organisations, and technical enthusiasts who are comfortable evaluating pre-release software'.

Final release versions are expected to launch shortly, perhaps before you read this, so check [www.pcw.co.uk](http://www.pcw.co.uk) or Microsoft for announcements.

Vista SP1 RC1 can be installed via Windows Update, but there are a few caveats. First, you may need to install up to three preliminary updates. Second, RC1 is time-limited to 30 June 2008 and you will need to uninstall it before installing the final version, which should become available before the end of March 2008. Third, the standalone RC1 download is 450-550MB, though this is expected to drop down to 65MB with the release version.

So what's included? As with all Microsoft service packs there's an aggregation of all previously released updates and hotfixes, so that fresh Vista installations can be brought up to date in one hit.

Microsoft has also incorporated a number of improvements to device driver support, power consumption, application compatibility and emerging technologies such as the Bios, and Extensible Firmware Interface (EFI), which is designed to supersede the Extended File Allocation Table (exFAT) for Flash drives.

The big issue reported by Vista users in the past year has been performance. In particular, many complaints have been made about Vista's miserably slow file copying. Although we have yet to test this, Microsoft claims that SP1 increases



100 million copies of Vista have been sold since the new OS was launched last year, Microsoft founder Bill Gates said at CES (see pages 10 to 13)

copying performance by up to 25 per cent on the same machine and up to 50 per cent between two Vista SP1 PCs.

Users and OEMs will now find it easier to make third-party desktop search engines the default, in much the same way as they currently have a choice of default web browsers or media players.

There are also some small, but welcome, changes to User Account Control. Creating or renaming a folder in a protected location will now require just one confirmation, instead of running the gauntlet of four, and a new Security Policy allows applications to prompt for elevation without using the secure desktop. This is designed to facilitate the entry of administrative credentials during Remote Assistance sessions.

Another welcome change – particularly for the absent-minded – is that users are now required to enter a password hint during the initial setup of Vista SP1.

Windows XP, which launched in 2001 and was last updated in 2004, will see the last planned service pack – SP3 – in the first half of this year. Meanwhile, a release candidate of SP3 is available for XP Home, Pro, Tablet and Media

Center editions. It will install on XP SP1 or SP2, but not the original XP, which is no longer supported. It includes all previously released updates since SP1 and a few new features, though these are not as noteworthy as SP2.

In its own words: 'Microsoft is not adding significant functionality from newer versions of Windows, such as Windows Vista, to Windows XP through XP SP3.' To many users and administrators this may be a relief, rather than a disappointment. Similarly, Internet Explorer 7 is not included, though updates to both IE7 and IE6 are.

The most significant new feature is the Network Access Protection (NAP) client, which brings to XP systems compatibility with new features in Windows Server 2008. NAP is a platform designed to protect network assets by enforcing 'health compliance' on PCs. Health, in this context could mean having all the current updates installed, or the latest anti-virus signature files. There's better detection of 'black hole' routers – those that are silently dropping packets – and better explanation of various security settings.

Other components of SP3 are not new, but may not have come

down the Windows Update chute automatically. These include version 3.0 of the Microsoft Management Console – the admin tool that hosts Computer Management and Security Policies – enhanced XML support, and a minor update to the Windows installer.

A product key is no longer needed to install SP3, but it will still require activation (with a product key) via Windows Genuine Advantage, to be performed within 30 days of its installation.

Finally, this pack is only designed for 32-bit (x86) versions of XP. The 64-bit versions are already catered for with Windows Server 2003 SP2.

So although there's not a great deal to get excited about, this is going to be welcomed by both IT professionals and end users. Not only does it save the tedium of performing numerous post-SP2 updates on a fresh XP installation, but it reassures us that Microsoft is treating its XP user base with respect.

Office 2007 SP1 is available as a standalone download. This is basically a roll-up of previously released updates and hotfixes, including one for the notorious Excel calculation bug.

## Download sites

There are two ways of getting Vista SP1 release candidate 1. Go to <http://tinyurl.com/3yk2h2> to receive it through the automatic update system. For standalone code, go to <http://technet.microsoft.com/en-us/windowsvista/bb969139.aspx>. XP SP3 can be downloaded here: <http://tinyurl.com/34y5q6> (336MB). Office 2007 SP1 can be downloaded here: <http://go.microsoft.com/?linkid=8027055> (218MB).

# Electronics give birth to the computer

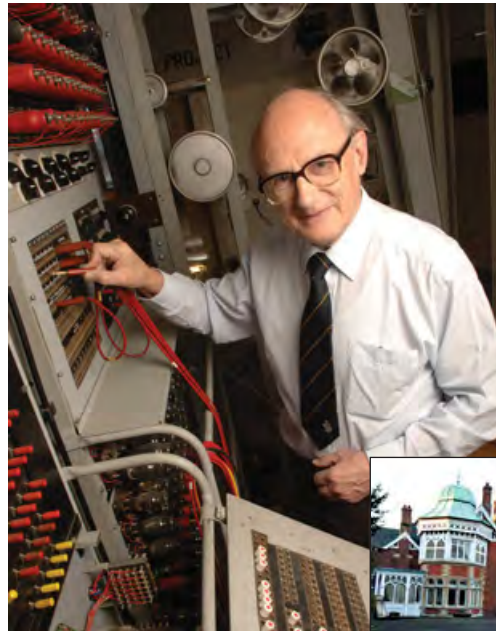
Bletchley Park's Colossus codebreaker had the elements of a general-purpose computer and valves gave it the necessary speed, writes Clive Akass in the second of three articles on early UK computing

**P**rogrammable computers had been at least a century in the making before they finally became a reality in the 1940s. The 19th-century engineer Charles Babbage grasped the concept, but lacked the technology to do it justice. His contemporary, Lincolnshire-born George Boole, developed the Boolean algebra that underlies computer logic.

Alan Turing invented the modern computer in abstract in a famous paper in 1936, by which time technology was just about up to the task. Many elements of the computer were already used in advanced telephone exchanges, where electro-mechanical switches implemented Boolean logic and functions such as counting.

By the end of the 1930s, it was realised these switches could be replaced by much faster electronic **valves**. One of the few experts in this field was doing work for Bletchley Park. Tom Flowers, head of switching research at the Post Office Lab in London's Dollis Hill, believed a valve-based machine should be used to crack the Nazi high command's Lorenz cipher. But Bletchley had doubts because valves had a tendency to blow.

Flowers persevered because he knew they had a much lower failure rate when the heater power



Tony Sale, leader of the team that has rebuilt Colossus, at the master control panel. The tape wheels can be seen behind him

was turned down and they were never switched off. For a full explanation of how codebreaking worked, see references in the box below right.

The initial task of Colossus involved performing **XOR** operations on the data stream of an encrypted message and a loop of the masking data generated by the 12 cogwheels of the Nazi's Lorenz enciphering machine. This masking stream, which was changed relatively infrequently, had been obtained by other methods, but later versions of Colossus could deduce this. Colossus was built to establish the cogwheel start positions, usually changed with each message.

Photoelectric sensors read the encrypted message from a looped paper tape at 5,000 five-bit characters per second. The tape also carried a continuous row of holes that provided a clocking pulse for the entire machine.

In Colossus' largely mechanical predecessor, the masking characters were also fed from a second paper tape. Flowers' first great innovation was to generate them electronically using chains of special valves called Thyatron tubes that switched on and off in sequence, avoiding the considerable problem of keeping two long paper tapes in sync.

There was a separate path for each of the five bits of the standard Baudot teleprinter code used to define characters. These bit streams were dealt with separately, because each was affected by a different set of Lorenz wheels. First the Bit 1 stream was XOR-ed with itself, shifted by one character, to produce what was called the delta because it tracked changes. This stream was then XOR-ed with the masking Bit 1 stream and the number of ones or noughts counted and printed out.

The process could be repeated for all possible starting points in the masking sequence, though this was not usually necessary. The distribution of noughts and ones in these streams was more or less random for all positions except the one used for the actual message. The same procedure could be applied to the other bit streams.

Considerable flexibility was built into Colossus. Data streams could be routed through different logical operations; and parameters, such as the changeable patterns of noughts and ones used by the Lorenz wheels, could be altered using wired links.

The first model, Colossus 1, was a proof of concept, though it went straight into operation. Colossus 2,

which was built just in time for the 1944 D-Day landings, made the first known use of shift registers. Five of them read five successive characters from the message tape, allowing five different start positions to be tried at the same time by five processing units – parallel processing that pushed the throughput up to 25,000 characters a second.

It also pushed the valve count up from 1,500 to 2,400. But Colossus was smaller than you might think from its name, amounting to two ranks of electronics about the size of a couple of large bookshelves.

By hook or by crook, Colossus could perform all the Boolean operations required of a modern computer. Harry Fensome, who helped build Colossus, writes in Jack Copeland's book, *Colossus: The Secret of Bletchley Park's Codebreaking Computers*: "In Colossus we had all the elements to make a general-purpose device."

Colossus probably shortened the war. The big question was whether a bankrupt and bewildered Britain could capitalise on it when the war was over.

● Next month: The sad aftermath – and Colossus reborn.

For last month's article go to [www.pcw.co.uk/2206429](http://www.pcw.co.uk/2206429).

## Glossary

A **valve** is functionally similar to a transistor. A grid between the heated cathode and anode grid controls electron flow across the device, just as a transistor's base controls flow between the emitter and collector. Valves perform well, but are fragile and power hungry. They also use higher voltages: Colossus logic levels were plus and minus 80 volts.

**XOR**. Addition using the rules  $1+1=0$ ;  $0+0=0$ ;  $1+0=1$ ;  $0+1=1$ .

## Find out more

Much of the writing about Colossus and its work is obscure, mixing old and new jargon. Jack Copeland's book *Colossus: The Secret of Bletchley Park's Codebreaking Computers* (ISBN 0-19-284055-X OUP £18.99) is invaluable, containing papers from many of those involved. Tony Sale of the National Computing Museum has posted a simulation at [www.codesandciphers.org.uk](http://www.codesandciphers.org.uk).

There's more at the museum's site, [www.tnmoc.co.uk](http://www.tnmoc.co.uk).



IN THIS SECTION

20 LETTERS

OPINION

29 Gordon Laing

31 Barry Fox

32 Guy Kewney

LETTERS

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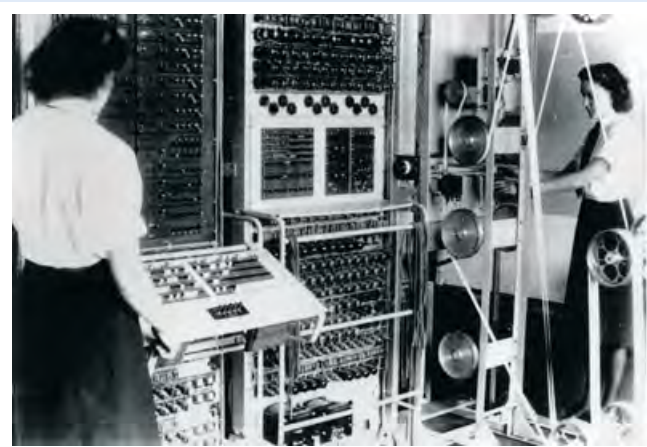
★ LETTER OF THE MONTH

Technology isn't just for the young

It's not long after you retire before you see condescending attitudes toward the elderly. "Look at that old man, he's learning to use a computer. Isn't he clever?" This is a refrain that is all too common nowadays and one that is encouraged by a government that assumes all older people need to attend, or be dragged along to, basic computer classes.

But millions of Britons from an earlier generation worked for many years with advanced high-tech systems. Men of my age (70) and even older worked in space sciences, atomic power stations, advanced transportation systems and, yes, computer systems. Don't forget the first programmable computer was built at Bletchley Park in the 1940s.

I worked in the aircraft and other high-tech industries from the 1960s onward, and can include in my portfolio Concorde and guided missile systems, computer-controlled power generation and so on. Of course, manual workers and women of this past age may have had no opportunity, or even desire, to enter the world of



The Colossus machines, housed at Bletchley Park, were the world's first programmable computers

electronics. But quite a lot of us oldies are, surprisingly to youngsters, techno-freaks. I have built my own new (updated) PCs three times and am now online using Wifi; the only reason I'm not using all the latest gadgets is a lack of finance. So, all you young-uns, stop being so damned condescending to wrinklies: you never know, you could even learn a few things from us.

Mind you, a virus called the Victor Meldrew Syndrome seems to be attacking my old operating system and causing me to grumble, as you have probably noticed. A stable and secure operating system from Microsoft? I don't believe it.

Brian Slack

SECURITY ISSUES

In spite of the recent furore about data protection (or actually non-protection), I am still staggered by the number of individuals and companies who make no attempt to encrypt vital data on their computers. Have none of these people ever considered the possibility that their computer might be stolen or need to be repaired?

This was forcefully demonstrated both to a friend of

mine who repairs home computers and his client, a home-working solicitor. Having decided that the best solution would be to back up the data, reformat the hard drive and reload the software, it was only when my friend suggested that he should take it back to his workshop that the solicitor realised the full implications of data protection. In the end my friend had to spend the whole day at the office, mainly sitting reading his

newspaper while waiting for Windows and the other software to load and update, being watched all the time by the solicitor in order to ensure that he didn't read or copy any of the confidential files. Not a cheap exercise, particularly if one cost is the solicitor's wasted time.

Surely the encryption of vital confidential data is just as important as regular backups, and I am surprised at how little reference is made to the subject in

Unless otherwise stated, letters sent to the Editor, PCW team or contributors will be considered for publication. Letters may be edited for clarity or length.

computer magazines. Could it be, as has been suggested elsewhere, that the Government tacitly discourages encryption by individuals as this could hamper criminal investigations?

Personally I use Truecrypt, which claims to be acceptable to the United States Department of Defense for documents up to secret level. Once an encrypted folder has been set up, any file saved to that folder is automatically encrypted and decrypted 'on the fly' and it is virtually transparent to the user.

I'm sure there are other, equally good, or possibly better programs available – perhaps it is time for *PCW* to have a look at the subject and encourage their readers to be more security conscious.

**Brian J Edwards**

## PHOTO GPS

Geotagging photos (*PCW* November 2007, Hands On) is very useful, particularly for anyone travelling. It also makes life easier for anyone who uses photos to record the condition of equipment during surveys or who collects photographic evidence as part of their work.

However, one concern is the use of a separate GPS unit that would need to be checked regularly during photo shoots to ensure it is functioning correctly (GPS is locked on, batteries OK, memory not full and so on).

Anyone on an extended field trip may find it limiting to download both the photos and GPS track information regularly, then run a separate program to merge the position data into the photo information file.

In my search for a reliable and easy-to-use geotagging system I came across the Geopic II from



Customidea ([www.customidea.com](http://www.customidea.com)), at the recent Nikon Show. It's easy to use, overcomes the above limitations and fits on the camera hot shoe, connecting directly to the camera via the 10-pin accessory socket. The principal advantage of this unit is its ease of use since it records the position data directly in the photo information file at the instant the photo is taken.

**Peter Bryon**

## NAS RESTORATION

On the subject of the failed Nas (network attached storage) enclosure (*PCW* January 2007, Letters), I am a Linux user and my system allows me to look into the guts of small Nas drives.

In general terms they have two partitions, a small 100MB or so primary ext2 partition, which contains the embedded Linux OS and a major storage partition. Normally the larger partition is able to be formatted to ext2 or ext3, ReiserFS, Fat32 or even NTFS – Fat32, while not as good as NTFS, is transparent to most other operating systems.

I would suggest to the owner of the failed drives that rather

than going to the trouble of installing a Linux distro, he should use a Linux Live CD – the prime choices being Knoppix (the KDE desktop looks pretty much like Windows) or Puppy (the file manager looks a bit odd but is understandable). Either will allow copying to a USB key and Knoppix also offers CD writing with a pretty simple interface.

QT Parted (partition manager on Knoppix) will tell you what format has been used on the drive and, if you use it via the command line in Konsole by typing 'sudo qtpted', will allow formatting of the partitions – be careful.

**James Baldwin**

## MISSING ISSUE?

Have I missed an issue? *PCW* December 2007 informs me there will be an article on wireless print servers next month. But the Letters page in the January 2008 issue then refers to the Editor's Choice (the D-Link DP-310) in the previous issue. As January follows December, did you sneak an issue in that I missed?

**Ann Edwards**

**Knoppix lets you access failed Nas drives without installing a whole Linux distribution**

*Will Stapley replies: PCW is actually published 13 times a year, which means our Christmas issue falls between the December and January issues.*

## VISTA'S PERFORMANCE

It's not surprising Vista take-up has been poor (*PCW* February 2008, Editorial) – its cost-performance benefit is awful. I was interested in Vista and built a PC for its evaluation knowing it would be hungry – Core 2 Duo 2.4GHz CPU, 1GB (later 2GB) 1,333GHz front-side bus (FSB) memory and an Asus P5N32-SLI SE Deluxe motherboard. The performance is comparatively poor with Vista Business Edition, even after tweaking.

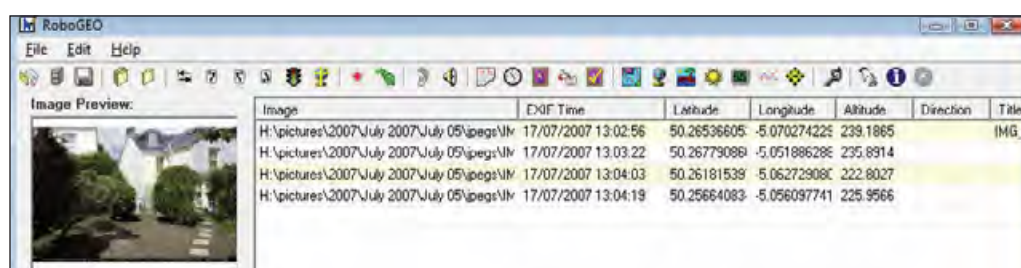
It takes around one and a half minutes to start, even with Superfetch turned off. I seem to spend a lot of time downloading so-called important updates (at least 4GB so far). How can a product be so buggy and avoid the interest of Trading Standards?

Comparison of performance between identical applications on an AMD 3000+ with 512MB memory shows little or no improvement, especially on processor-intensive applications such as AGI Satellite Toolkit (STK), or Mathcad with fairly complex recursive algorithms for evaluation. It may be great for games – I would not know or care.

I recently bought a laptop for a relative (2GHz dual-core CPU, 1GB memory, Vista Home Premium) and this takes around a minute to start (again with Superfetch turned off), but this is before a significant number of applications have been installed. It runs the flashy Aero interface adequately, but for what?

I also have a Sony T2XP laptop, 1.2GHz processor, 1GB of memory, running XP SP2. This

**Geotagging lets you record exactly where each photo was taken**





takes around 25 seconds to start from hibernation (90 seconds from cold), does all I want in word processing, Mathcad and STK, and goes to sleep quickly without spending minutes updating its dodgy operating system; ideal for working 'on the road'. The configuration (in terms of installed applications) is almost identical to the Vista evaluation machine.

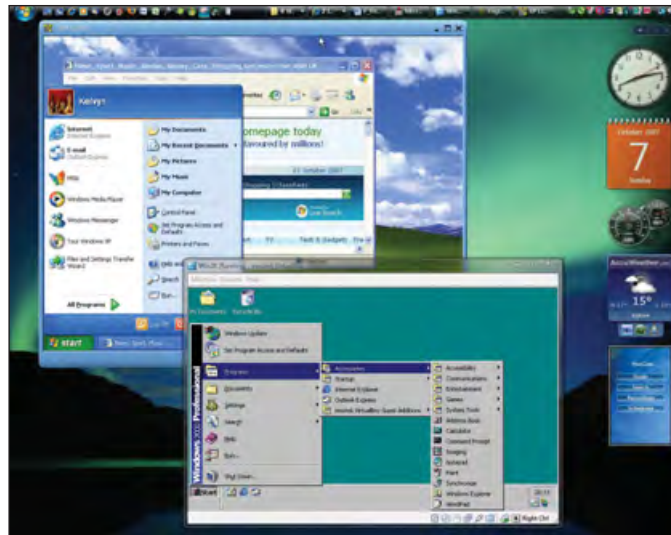
People (and companies) are right to be cautious about paying out good money for 'more is actually less' in terms of performance where simple functionality is concerned.

Vista may be more secure, and fine if permanently powered up to allow it to update in the silent hours, but aren't we supposed to be saving the planet by switching off our computers when not in use? Vista seems to have been devised for a different era, for a leisured society with time to waste (or possibly to wait), and with deep pockets to buy what is apparently unnecessary hardware.

**Peter Swallow**

**FUTURE-PROOF ARCHIVING**

I thought your article on archiving (PCW January 2008) was very interesting. It gave a lot of useful information about how to get content into digital form and organise it as well as some information on physical storage mediums. However, there are some really important points which weren't touched on at all.



Choose the file formats you use carefully. When you or your children want to view the content years from now, will the software and the machine to run it on be available? My own advice would be to choose file types that are simple and non-proprietary, such as BMP for images, WAV for sound and TXT for text. So that it's likely there will always be a reader available, if you don't do this you will have to keep an eye on what's going on in the IT world and reformat the data every so often, not a trivial act when we are likely to be talking about multiple gigabytes or even terabytes of data.

The same thing should be considered when choosing which piece of software to use to organise the data. If you have to migrate your data, the task is made much easier if the database within the product is capable of being exported in a simple form – CSV being the most commonly accepted format.

Database corruption or loss is a real possibility over retention times the length of a person's life or beyond. Images and other items should be capable of being

**Not all of Vista's new features have been well received**



**A DVD backup might not be as safe as you think**

stored externally to the software so that the database contains only links, not embedded files. If you choose to use a physical medium for your backups, such as DVD, beware the same obsolescence problems. One manufacturer of 'archive grade' DVDs that I checked did not quote any figures for lifetime of media that I could find, even for this flagship product.

My own advice would be to use online services and let the data migration be their problem, not yours. As always use two services, not based in the same town as each other or as you.

**Roland Bavington**

**DUAL BOOTING**

Six months ago I took the plunge and bought a 2.4 quad-core high-spec PC to run Vista.

Six months later and I am rarely using this new PC as I find it clunky and unfriendly, and few of my favourite programs work properly. The PC is really slow running Vista and it has lots of fans to keep it cool, making it really noisy. The final annoyance is it asking if I want to put it to sleep when I switch off. I'd love to – permanently.

The reason for my letter? Dual booting. Please could you do a feature in your magazine

**Virtualisation lets you run multiple operating systems simultaneously**

on how to install XP onto a Vista PC, enabling me to have the option to dual boot?

I'm sure a high-spec PC designed to run Vista would really fly if it were running XP.

**Robert Grounds**

*Kelvyn Taylor replies: Installing XP to multi-boot on Vista is a bit of a fiddle, but it can be done. For a quicker and easier fix I'd suggest installing XP on a virtual machine, using Virtualbox, Moka5 or Microsoft Virtual PC as discussed in our virtualisation feature (PCW January 2008, [www.pcw.co.uk/2206142](http://www.pcw.co.uk/2206142)). On a decent quad-core machine with plenty of Ram it should run pretty well.*

*If Vista's running slow, it sounds as though it might benefit from a clean install.*

**WIN** Next month's prize for the letter of the month is a Shuttle SN68PTG6



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# Gordon Laing



gordonl@pcw.co.uk

## I'll have an Eee please, Bob

*The ultraportable Asus Eee PC has proved an unexpected hit, but how does it handle an operating system such as XP?*

**S**ometimes something comes along that's so good you have to write about it for two months in a row. So my apologies to anyone who's not into great-value ultraportable laptops, but I'm going to be talking about the Asus Eee PC again.

In the weeks since last month's column I've grown even fonder of this mini laptop, and it would seem I'm not alone. The Eee sold out at Christmas to become the unexpected 'Buzz Lightyear' purchase of 2007, with desperate buyers searching everywhere for an unsold unit.

In case you've missed out, the Eee PC 4G measures 225x164x35mm, weighs 0.92kg, runs a custom version of Linux from a 4GB solid-state drive, and costs a mere £219.

So why bring it up again? Because as promised last month I've been tweaking the Eee and, along

after fixing the virtual memory swap file to 256MB as recommended.

Windows felt pretty responsive on the Eee, although I should admit my test unit came with the 512MB of Ram upgraded to 1GB. It took about twice as long to start up as the default Linux installation, but less than a minute from cold to connecting to a wireless network isn't bad.

Of course, unless you're happy with the supplied Windows accessories alone, you'll need to install some applications, and while Open Office would seem like a more sensible choice of suite, I tried out Office Ultimate 2007 just to see how the Eee coped. I went for a stripped-down installation of just Word, Excel and Outlook, which consumed almost 1GB, but again it ran surprisingly quickly.

The truly devoted can also claw back precious storage space by removing unwanted Windows components or even creating a custom package of their own using tools like XPLite from [www.litepc.com](http://www.litepc.com) or Nlite from [www.nliteos.com](http://www.nliteos.com).

But even though XP can run surprisingly well on the Eee, why would you bother? Of course for an enthusiast the answer is simply 'because it's there', but does Windows really give you any advantages over the default OS?

It does if you absolutely need a certain driver, utility or file compatibility which isn't supported under Linux. It certainly gives you greater flexibility. But after playing with Windows for a while, I used the supplied recovery disc to reinstall the custom Linux OS. The default user interface may be a little childish, but it handles quickly and behind those chunky icons lie familiar and powerful applications.

Ultimately the default Eee package does what I personally want from a laptop, and does so quicker than XP. Indeed I fear my new premium ultraportable Vista laptop may not be getting as much use as I intended. I'd certainly be interested to hear how many Eee owners are going for XP or sticking with Linux. If you like the sound of XP on the Eee, see next month's Hands On Hardware column, while anyone staying put should check out this month's edition for ways to get more out of the default OS. You can also read PCW's official opinion of the Eee on page 63. **PCW**

## 'The Eee sold out at Christmas to become the Buzz Lightyear purchase of 2007'

with devoting this month's Hands On Hardware and Performance columns to getting the most out of its default Linux installation, I've done the dirty and also tried it out with Windows XP.

Now one of the reasons the Eee works so well and is affordably priced is because its custom version of Linux avoids both the licensing costs of Windows and its heftier hardware requirements. Its 900MHz Celeron and 4GB solid-state drive may work just fine for Linux, but ring alarm bells for typical Windows installations.

Yet Asus makes it very easy for you to wipe clean its default OS and install XP on it instead. It supplies the Eee with a driver disc and even includes detailed instructions complete with optimisation tips. It's a red rag to this bull, so I connected a USB optical drive and fired up XP's setup process. Just one note – you will need an XP disc which already includes Service Pack 2.

The installation went smoothly and once the Asus drivers were in place, I had a fully functional Windows laptop which could squeeze into a large coat pocket. The default installation consumed roughly one-third of the total capacity, leaving about 2.5GB to play with. This was also

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# Barry Fox



barryf@pcw.co.uk

## It does what it says on the tin – or does it?

*When a product makes a claim, you expect it to live up to those claims. Those that don't usually die an unceremonious death*

It's easy to see why Google, Skype, the iPod and iTunes are inheriting the Earth. They all do 'what it says on the tin'. The horrid SonicStage/Connect/MagicGate software crippled all Sony's Digital Walkmans. Sony Ericsson rejected it for music phones and at last it has been ditched for the Walkman. But it's too late for Sony to claw back the market share lost to Apple.

Sony's Video Walkman is still crippled by equally user-hostile video conversion software, which has been designed not to convert DVDs to MPEG-4, even if they are unprotected off-air TV recordings made with Sony's own DVD recorders.

Elby's Clone CD was the best CD copying software ever. It did just what it promised; copied music or data CDs, with the minimum of fuss and maximum success rate. Luckily, I bought a copy just before the music industry got it killed.

## 'Is there something in the German psyche that wants every product to be a challenge?'

I use Skype with a cordless Dect phone from Philips that makes and takes calls either by VoIP or landline. It works like a dream. But recently I had to try two rivals to Skype – Sipgate and Voiptalk – because I was testing the Fritz Box DSL VoIP router, which is not Skype-certified.

The Fritz hardware came with startup vouchers for Sipgate which, like the Fritz router, hails from Germany. Is there something in the German psyche that wants every product to be a challenge? That's what bankrupted Grundig.

Sipgate's voucher was rejected until Sipgate admitted and corrected a technical problem. The online configuration instructions were half in German and did not tally with the configuration screen. Registration for Internet Telephony failed. I sent Sipgate support a detailed fault analysis and got back a note telling me to look at the same online instructions that had caused the problem.

Fritz seems now to have changed partners to Voiptalk. The trial vouchers sent to me failed because Voiptalk had failed to activate them. During setup the Voiptalk screen asked for my email address and password. I guessed correctly that this wasn't my email password; it's a new

password the user has to create. I also worked out, again with no setup help, that for User Name I should enter my allocated internet phone number. Registration still failed on password request. A Voiptalk spokesman then told me that the extra password is not the user's created password. It's a completely different password that the Voiptalk setup process should generate and display, but didn't. Now that I've wasted hours and told Voiptalk what's broken with their system, maybe they'll fix it. I don't much care because from now on I am sticking with Skype.

Windows Restore is a great example of software that does not do what it says on the tin. Just when you need it most, System Restore reboots and announces 'your PC has not been restored'. Norton Goback was a far better bet for restoring a PC's previous state. Now, for who knows what reason, Symantec has discontinued Goback.

Likewise, Norton Ghost was once a reliable way to clone and restore a complete hard drive. The new Ghost 12 seems to be based on completely different code that is easier to use but far less reliable. Ghost 12 successfully cloned my hard drive, but the clone would not boot. I replaced Ghost 12 with an old copy of Ghost 2003, which made a perfect bootable clone. That's progress? If you must buy Ghost 12, buy a boxed copy that comes with a bootable Recovery CD. If you buy by download you won't get a physical disc and no clear instructions on how to make one. Previous version Recovery discs won't work with the new version and when disaster strikes you will be stuffed.

Roxio's new Back on Track may prove to be a one-stop bomb-proof replacement for both Ghost and Goback. I have now tried it on three PCs. On two it saved and restored the hard disk smoothly; on the third it consistently failed to save and locked up the PC. Worse, Instant Restore (equivalent to Goback and Windows Restore) is blocking the use of chkdsk to clean a hard disk that has got 'dirty' after a crash.

Roxio is on the case and I live in hope. But as far as I am concerned Back on Track is still a work in progress and does not yet reliably do what the tin promises. Watch this space. **PCW**

# Guy Kewney



guykewney@gmail.com

## Follow the new year DSGI diet

*The company that owns PC World is apparently refusing to repair Vista machines that come back with a different OS*

**L**et's all make a resolution for change in 2008: We aren't going to put up with DSGI, the owners of the PC World brand, any longer.

Late in 2007, puzzled by all the ultra-cheap machines being offered by PC World in the UK, I asked a corporate PC buyer whether he was considering buying a batch. My logic was simple: these machines were all specified for Vista with a gigabyte of Ram, which really is not enough. My corporate friends all use XP and intend to carry on using it, and a £300 laptop with a gig and a 60GB hard disk is a nice platform for XP.

My friend said: "No, because Dixons Group [now DSGI] won't honour the warranty if you change the operating system from Vista."

Now, Microsoft has made it very clear to me (in answer to a specific query) that any machine

**'It leaves one feeling that DSGI is counting on the fact that we will not challenge it...'**

that is sold with Vista bundled would be entitled to get XP as an alternative "for the foreseeable future". XP continues to be a supported OS. Why does DSGI think it invalidates the warranty? Surely, this must be some junior sales assistant, not official company policy?

My friend said: "All I can tell you is that we considered the idea, and I approached senior sources inside Dixons, and they specifically denied responsibility for warranty if we made any change to the configuration as supplied."

In practice, he's right and I have several stories already from people complaining. One had a particularly amazing tale to tell.

His story involved a computer with a faulty case. He took it back to PC World when a bit of the plastic moulding fell off, and said: "This is still under warranty." The manager of the store said: "But you've taken Vista off. That means you've invalidated the warranty." As you'd expect, when this case was referred to Trading Standards arbitration, the store had to back down.

In theory, I suppose, you could make a case for saying that switching operating systems might affect some aspects of a notebook computer.

Starting from 'vaguely plausible' objections, I can quite see why tech support at the retailer might refuse to offer Linux help and advice to someone who'd put Ubuntu on the machine, on the grounds that it hadn't been tested in that configuration. But what if the display had 60 dead pixels or the battery lasted 10 minutes? How could that be caused by Ubuntu?

I could just about accept that a dead hard disk after six months might be caused by a rogue OS, which had caused excessive thrashing of the head; but can you imagine such a case standing up in court with expert witnesses testifying that XP and Vista showed no such significant differences? Of course not, and that leaves one with the feeling that DSGI is counting on the fact that most of us will not challenge it.

What makes this behaviour even less acceptable is that it's not something the company warn you about. On the PC World website you won't find any statement about the supposed risks of not running Vista, nor any warning about invalidating your warranty if you change it.

Frankly, I'm not sure I'd accept that the extra-cheap notebooks PC World is offering actually qualify as warrantable for Vista. I've had my two cents worth on Vista and of the many gripes I've expressed, the fact that it really needs 2GB of memory is a minor one, because the memory isn't that costly. But to supply a machine with only 1GB, or even less, is to provide a machine which, in my considered view, isn't fit for purpose for Vista.

The bottom line is where it all adds up. If you buy a cheap machine which saves you £50 over what a local computer retailer or recommended internet seller charges, that money will be lost the first time you have to start crossing swords with the supplier. If you have to invoke Trading Standards, you're going to spend a day of your valuable time. Buying that cheap PC is a gamble that it will not be a dud; if it is, it will cost you far more than you could save.

And if you felt you had to gamble? Well, I don't see that you should pay the price of a DSGI warranty, even so. Let me know what happened, and we'll see if we can't get the company to acknowledge its error. **PCW**



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# Make your website work

*Nigel Whitfield explains everything you need to know about building a website, but were afraid to ask*

One thing often said about the internet is that it's quite egalitarian, in that anyone can set up a site, or start an online store, and compete with everyone else. Of course, in real life, things are a little more complex than that. While you might have been able to set up a site back in the mid-1990s and take on established brand names – in the way, for example, that Amazon appeared and became one of the most common ways of buying books and CDs – it's really not so simple now. Of course, there will still be the occasional success story but, while it may be true that anyone can create a website and get it online, it takes a lot more than that to make it successful, well known, and able to cope with all the visitors it might get. Over the next few pages, we'll explain what you need to know about setting up (or revamping) a website, and look at some of the tools and technologies that will help you, whether it's for a business, a community, or even just to show off your new-found skills.

## Website woes

So, you want a better website? Chances are, if you're on the internet, you have some web space – it often comes free with an ISP's package, and there are plenty of other ways to get a space of your own, such as the free hosting services offered by Yahoo Geocities, Google's Blogger, or even as basic as creating landing pages (profiles) for yourself on Myspace or Facebook.

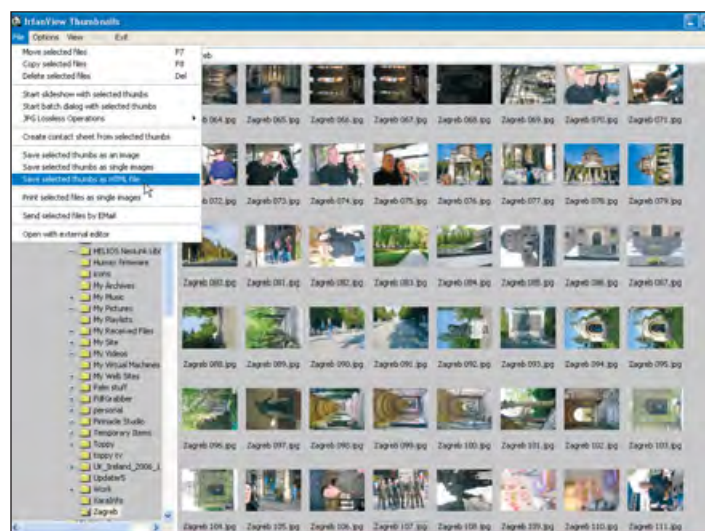
But these basic options have drawbacks – set yourself up on Facebook and other people can only find out about you if they sign up too. Similarly, some features on Myspace can only be used by members and, regardless of your views, many people may simply think "I'm not going to sign up just to look at Fred's info".

Free web hosting services, while providing a page that anyone can look at without

signing up to something, have their drawbacks too. Those can include pop-ups, over which you may have no control, a less than distinctive URL, and restrictive traffic limits and/or content controls. These mean any site that becomes too popular may end up greeting users not with your finely crafted home page, but with a message that access has been suspended for a time because the site became too busy, perhaps because Digg or Slashdot users found it interesting.

Sometimes all it can take is word-of-mouth for that to happen, and suddenly your hilarious animation, or song sample gets so many hits that the site goes offline. There may be other restrictions too; for instance, free space may be limited by size, so there isn't enough space to store all your music clips or videos. You can pop them on other download sites, but then visitors find the experience confusing.

Or you may fall foul of some small print in your contract, stopping you from using free web space for business, or for the small political party you're planning to launch.



When it comes down to it, while it has probably never been easier to get a basic web page of some description online, even if it's just a basic personal profile, whether you're using a social networking site like Facebook, or free space with your internet access, once you want to do anything more than the basics, it's time to seriously consider your options.

In fact, even if you're starting out, if you have an idea for a website and you think it might grow, it's best to plan for the future. You might not think you need a domain name for

your site, for instance, but if it takes off, it'll be a lot simpler for users if the name or web address doesn't change after a few months. Similarly, it's worth researching other

**If your site is based around images, check your photo editor – many, like Irfanview, provide tools to make HTML pages from photos**





things too, to see how they'll cope with growth – pick a simple-to-configure forum, and you may get up and running quickly now, but face a major headache if you have to migrate hundreds or thousands of users to different forum software when the site is busier.

### What's in a website?

So what do you want your website to do, and what do you need to make it do that? First things first, you need hosting – a web server that will store your pages, and make them available to the rest of the internet. For all but the most trivial of sites, you really need a suitable domain name of your own, too, so that people can find the site easily.

You need the site itself – and that could be anything from a collection of basic HTML pages to a more sophisticated database-driven site, packed with interactivity, or a multimedia extravaganza, with video clips, audio and the latest 'Web 2.0' features. To put all that together, you'll need the appropriate tools to create and manage all the web content – unless you go down the route of paying someone else to create the site for you (see the box on page 37 for some of the questions you need to ask if you do make that choice).

If you're making the leap from a simple site hosted on your ISP's free web space, or on a free service, it might be tempting to sign up for a cheap hosting deal, or grab a domain right away and then buy some web design software. But don't do that just yet. All the decisions you need to make are interlinked and will impact on each other. It's far better to plan and decide how you want to build your site, than to just grab what looks like a good deal, only to discover further down the road that it's not suitable for what you want, leading to more expense and hassle. At the most basic level – and this is something we'll come back to later – the choice between Linux and Windows operating systems for a hosting server can



Left: For many sites, packages like the free personal edition of Movable Type may be all you need to free yourself from the hassles of regular page uploads

have a massive impact on how easy it will be to use particular technologies for a website.

All these questions have answers, though they might be different for each site. Ultimately, they come back to the first thing you need to ask yourself about your website – 'what's it for?' Do you want to share information with people and tell them about yourself or your products? Or do you want to use a site to run a business, allowing people to request information or buy things online? Are you hoping to build a community where people can share information or experiences with each other?

From these basic questions flow others. How often will information need to be updated? Will you need to keep track of different users? Will the site need to accept online transactions? Who's going to design it? Or keep it up to date? How often will it change? How will people find your site? What would make the site a success – lots of visitors, or a few visitors who return regularly, or new contacts for work?

## 'Plan your website, don't just grab what looks like a good deal'

At its simplest, if your aim is a site that's largely informational and won't be changing, then your choice is easy – you can use just about any hosting service, and just about any web design tool – even, if you're strapped for cash, knocking up the pages in Microsoft Word or Open Office – to create a set of static pages that you can upload from your PC to the website, refreshing the site each time you make a change – pretty much the same as doing a simple home page in your ISP's space, but with proper third-party hosting.

But if you're reading this article, the chances are you want something more sophisticated than that.

### Picture this

Before we look at some of the more complicated options, there's another type of



Above: CM Simple offers all the benefits of a Content Management System without needing a powerful database server

site that doesn't necessarily need lots of hard work to set up – a photo site. Whether you want to show off your amateur photography, catalogue the restoration of a classic car, or allow grandparents around the world to keep up with your family, an online gallery is a very popular type of site.

Thankfully it's also one of the easiest to make, with plenty of tools available to take the hard work out of tasks like generating preview pictures or building index pages. We looked at how to make galleries in some detail in the August 2007 issue's Digital Imaging column (available online at [www.pcw.co.uk/2192710](http://www.pcw.co.uk/2192710)) but, in summary, many photo-editing programs, including Photoshop, ACDSee and Irfanview, all have tools built in that allow you to create a web album with just a few clicks. There are also standalone tools like Jalbum, and the PHP-based Gallery. So if your website is primarily intended to showcase pictures, it's worth looking at tools like these.

### The database is king

Of course, the majority of websites rely on words, not just pictures, and it's fair to say that for all but a few informational sites, if you don't keep updating, people won't keep coming back. As a site grows, so the task of maintaining internal links and keeping everything organised becomes trickier, especially if you decide one day that you want to give the whole site a new look.

One way of managing that is to use templates and Cascading Style Sheets (CSS); change a template in Dreamweaver, for example, and every page that uses it will be updated to the new layout. Similarly, change the colour or type styles in your CSS, and every page that references that stylesheet will

## Forums, wikis and the law

User interaction is one way to keep a site fresh and ensure that visitors keep on coming back to it. Two popular tools are discussion forums, and wikis; they both allow visitors to share their knowledge and expertise. But they can also present a site owner with problems.

Allowing other people to add content to your site can potentially leave it open to spam, links to malicious sites, or legal problems such as libel and defamation. While technical means can fight spam, legal issues need a more hands-on approach.

For example, in 2007, parenting website Mumsnet found itself in receipt of a writ after heated forum discussions regarding the author of a book about babies; the case was

eventually settled out of court, with the website paying damages. Although no individual members of the forums were prosecuted, the site itself was the target of the legal action.

The case highlights the importance of site admins keeping an eye on material added by visitors and, if necessary, removing posts that could cause legal problems. If you think your site is one that may stray into such territory, it's also worth raising the issue with a hosting provider, to ensure that if they receive any legal communication, they let you know. You may be prepared to take a stand about material on your website, but if your hosting company pulls the plug as soon as a lawyer calls them, it means little.

change automatically. They're both quick ways to update things, and found in most web design tools; you can also use standalone CSS editing tools to help manage your site.

And if you have things like a menu navigation bar, that can be put on every page using standard Server Side Includes (SSI), where the server reads a file based on commands in the HTML. So, for example, you could have a set of news links that appear on most pages held in a single file; update that file with your web editor and the new set of links will appear throughout the site.

But once you get beyond a certain level of complexity, there's little doubt that basing your website around a database makes a lot of sense. Adding new information means updating the database, with no web design skills needed. Links can be generated on the fly, automatically ensuring, for example, that the five most recent news items appear on the front page, or that a 'what's new' page shows changes in the past 30 days. Often referred to as a Content Management System (CMS), once the templates are created and the database set up, anyone can update your website, just by filling in a form in a web browser. More sophisticated systems can give different permissions to different users, so there's no danger of a club's social secretary accidentally changing something else when they're only supposed to be adding diary events, for instance. There are plenty of open-source CMS packages, including Mambo ([www.mamboserver.com](http://www.mamboserver.com)). Blogging software such as Movable Type ([www.movabletype.com](http://www.movabletype.com)) is effectively a CMS but without some of the fancier options that you'll find in a full-blown system for standard websites.

In fact, strictly speaking, some CMS systems, such as CM Simple ([www.cmsimple.dk](http://www.cmsimple.dk)), just rely on clever scripts and a load of text files – so too, incidentally, do some photo

gallery systems, and blogging software. But if you expect your site to become busy, or want multiple people to update it, a database is a must.

## Sticking to the script

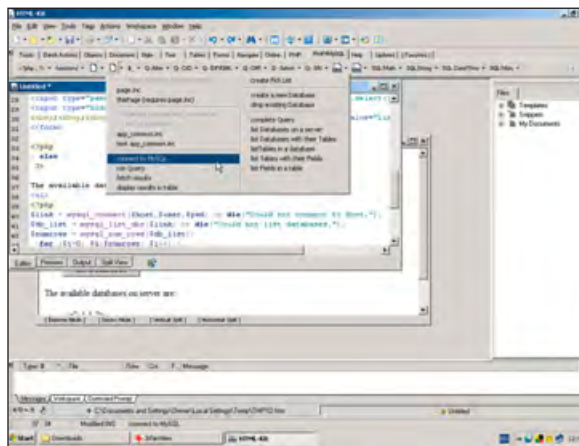
This is where you have to start making tricky choices. While a database sits behind your website providing the content, the pages themselves – whether they're part of a CMS, or hand-crafted by yourself – will need to be written in a scripting language. This typically looks at what the user's request is via what link they've clicked, or a parameter in the URL, and then retrieves the appropriate content from the database, fitting it into the page so that what appears on screen is the list of forthcoming events, or product information for your Super Widget 3.5.

There are more scripting languages out there than you can shake a stick at, with a

wide range of technologies, though the choice comes down to your philosophy and what you're familiar with. For example, the open-source languages PHP, Perl and Python are very popular, with PHP especially good for creating websites that query databases. They tend to be used with Linux-based web servers.

Microsoft's Active Server Pages (ASP) and .Net technologies will be more familiar to people used to programming for Windows, and tend to be used with Microsoft's

IIS (Internet Information Server) web server. That's not to say you can't run PHP on



HTML Kit is a powerful editor for the more hands-on web designer

## Renewing your domain name

As we've mentioned, your domain name is one of the most important aspects of your site, and it pays to protect it. With many registrars you can do that easily, choosing options to 'lock' the domain, which usually ensures no changes can be made.

Make sure you treat with caution emails that claim to be about your domain, especially if they're from a company that you've not heard of before. You should always be able to log in to your account at the domain registrar rather than having to click on a link in an email.

Always keep a note about domain renewals, and make sure you renew in time – don't just rely on your registrar to do it for you; credit cards details held by the registrar can expire, for instance, and though buying a multi-year option can help, read the small print. For example, UK domains can only be

bought for two years at a time. Even if you pay a domain registrar for longer, it doesn't mean you've bought the domain for longer. If the registrar goes out of business, you could still lose your domain after two years.



Many registrars, including Godaddy, allow you to 'lock' your domain, helping protect against unauthorised changes



## Questions to ask a web designer

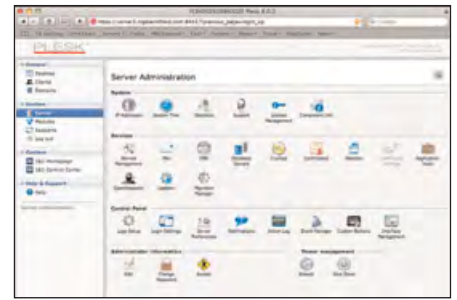
If you want an all-bells-and-whistles site, you may decide to employ someone to do it for you. But how do you find the right person?

In the 1990s, it seemed as if everyone who had a PC and a copy of Hot Metal Pro called themselves a web designer. And in those days, with largely static sites, they could just about get away with it.

Now, though, it's very unlikely you'll find all the skills you need in one person.

A good site will need eye-catching graphics, well-written text, robust scripting, a properly thought-out database and thorough testing.

Graphic design, programming and copywriting are all different skills, and if you're employing someone to do your website, you need to be sure they have those areas covered. It's also important to establish, before any work is done, who will own the copyright for material created for your site – that includes graphics, text and any custom code – and the matter of exclusivity. If you've paid someone to create neat scripts for your business, you might be happy for them to showcase your site when they tout for more work, but not so pleased if a competitor ends up with the same tools on their site.



**Most hosting packages allow you to do server admin via a simple web interface – but sometimes you'll still need the command line**

you'll need to consider – there are plenty of other questions too, like whether you have exclusive access to the server (dedicated hosting), or shared hosting, where other people may have sites on the same system. This latter option is cheaper – but if a runaway script on someone else's website eats up all the system resources, yours might go down as well. It's also worth asking what sort of control options you'll have – for instance, many web servers offer a remote administration interface that allows you to set up the server through your web browser; it makes even configuring a Linux server very simple. But will you be able to access the Linux command line too, if you find it easier to do things that way?

You need to be clear about other things too – if there's a particular application, whether a database or CMS or a piece of blogging software, that you want on your server, does it come pre-installed? If not, can you add extra software? Who's responsible for applying security updates to the server? Even if you can add extra software, what about more memory? What happens if your forum gets so busy that performance suffers, for example? It might be possible to ease things by putting more memory in the web server, but not all hosting companies will oblige – you may have to upgrade to a different package instead, which could mean a tedious transferring of all your data from one server to another (see the box 'A stress-free way to move sites' on page 38).

Even if you think these issues are too exotic for you at the moment, there are simpler ones to consider when you choose a host, like how much data you can transfer per month. Some firms offer unlimited data, while others will restrict you, or charge you based on how much is downloaded from your site. In that situation, the joy of hearing your site name-checked on a TV or radio programme can quickly turn to horror when you realise that you're going to pick up a huge bill for the excess data traffic, or even see your site suspended for excessive use.

### On the side

Data traffic limits can be a particular problem if you have high-quality images, or want to have video on your site. Bandwidth can easily

**A forum can be a great way to bring people back to a site, and much software, like PHPBB, is free**

Windows, or ASP on Linux – you can, in both cases. But the heritage of each language and assumptions made in some of the scripts available on the web mean that, on the whole, if you're using a Microsoft programming technology, it'll be best to have a Microsoft server.

There are other technologies that are more agnostic, of course. Ajax (Asynchronous Javascript and XML) refers to scripting that runs in the web browser, manipulating data sent from the server as XML, and it can produce some great website effects, regardless of whether your server is Linux or Windows.

To an extent, your choice may be dictated by the web design software you use too – go down the route of using Microsoft's Expression Web ([www.microsoft.com/expression](http://www.microsoft.com/expression)) and it'll be pretty hard to code rapidly unless you want to use .Net. But choose Adobe's Dreamweaver ([www.adobe.com/dreamweaver](http://www.adobe.com/dreamweaver)) and for many tasks you can put together a database-driven site that uses PHP and MySQL simply by running wizards or dragging and dropping, once you've entered the details of the



database. For a more hands-on approach to coding, tools such as HTML Kit ([www.htmlkit.com](http://www.htmlkit.com)) can help you with a wider range of languages, including ASP, PHP, and many others.

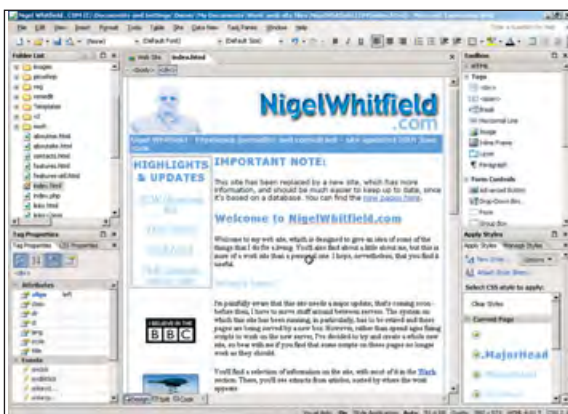
### Which platform and host?

Sometimes, the decision about which platform to use might be taken for you; if you decide that you like the features of a particular web forum, or you're familiar with it from another site, and want to use it on your own site, then that may dictate what sort of hosting you choose. For example, the popular open-source PHPBB forum ([www.phpbb.com](http://www.phpbb.com)) or the OS Commerce shopping package ([www.oscommerce.com](http://www.oscommerce.com)) will probably both work best on a Linux server; they use the PHP

scripting language, so you could run them on Windows, but when it comes to finding support and assistance, you'll have an easier time of things if you go to Linux. Similarly, you may have an application that relies on Windows services.

The actual operating system of the web server isn't the only thing

**If you want to develop sites for Microsoft web servers, Expression Web may be the best choice of editing tool**

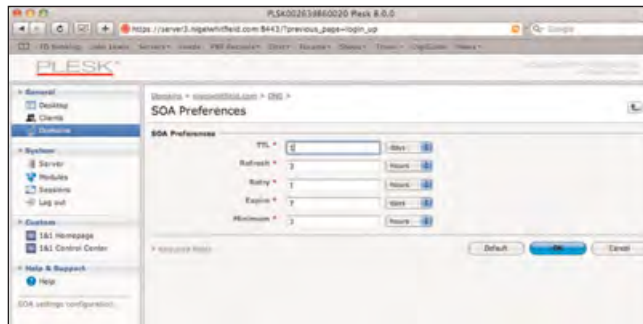


## A stress-free way to move sites

As your website grows, you may need to move to a different hosting company. You can ease the pain by planning in advance. If your site has different areas, such as a forum, you could give each of those their own sub-domain; so the main site is [www.yoursite.wherever](http://www.yoursite.wherever) with forums at <http://forum.yoursite.wherever> – they can all be on the same server, if your hosting package allows sub-domains, but it'll be easier to move some sections to their own servers.

When it's time to move, you should decrease the TTL (Time To Live) on your domain's DNS entries to an hour, or less. That ensures other nameservers will refresh their information often. So, a day or more after altering the TTL, you can change the IP address for [www.yoursite.wherever](http://www.yoursite.wherever) to point to your new server, and visitors will pick it up swiftly, rather than seeing your old server, or an error message, until their own nameserver throws away the out-of-date address.

The first step in a successful site move is ensuring your DNS information expires



be eaten up by just a few visitors, so it's worth bearing in mind that even some fairly professional sites don't host all their content themselves. You can, for instance, use Youtube to host your videos, or rely on Ebay to provide the infrastructure that backs an online store – it doesn't have to be auction-based either. Photos can be shared with Flickr, and mapping information courtesy of Google Maps. With a little work, many of these elements can be seamlessly integrated into your site, rather than sticking out like a sore thumb. By pulling together these various elements with some clever scripting, it can be much easier than in the past to come up with some genuinely useful sites that would simply have been beyond the means of many – for example, POI Editor ([www.poieditor.com](http://www.poieditor.com)) allows you to create your own database of useful locations for sat-nav systems, thanks to Google's mapping API (application programming interface). You can even use Amazon's vast S3 storage (see *PCW*, September 2007, online at [www.pcw.co.uk/2194163](http://www.pcw.co.uk/2194163)) to provide extra space at a very reasonable cost, if your chosen hosting package can't hold all the information you want it to.

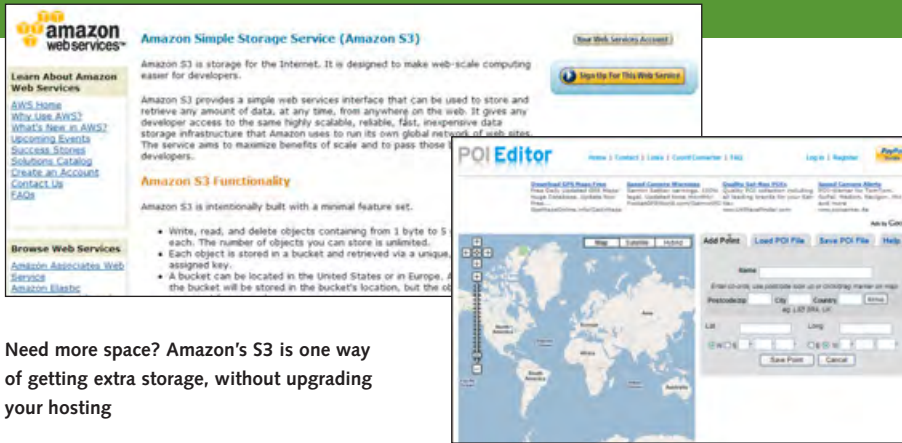
## Entry-level hosting solutions

This table is intended to give a sample of what's available from a selection of hosting companies, based on their entry-level products as of mid-December 2007. It's not meant to be a comprehensive listing.

NAME	URL	PACKAGE NAME	DISK SPACE	TRAFFIC LIMIT	LINUX/WINDOWS SERVERS
<b>SHARED SERVERS</b>					
1 and 1	<a href="http://www.1and1.co.uk">www.1and1.co.uk</a>	1&1 Home	1.5GB	20GB	Both
123-Reg	<a href="http://www.123-reg.co.uk">www.123-reg.co.uk</a>	Starter	100MB	1.5GB	Linux
Clara.net	<a href="http://www.uk.clara.net">www.uk.clara.net</a>	Clarahost Starter	50MB	2GB	Linux
Dataflame	<a href="http://www.dataflame.co.uk">www.dataflame.co.uk</a>	NL125	1GB	10GB	Linux
Demon	<a href="http://www.demon.net">www.demon.net</a>	Web Hosting Standard	100MB	5GB	Linux
Easily	<a href="http://www.easily.co.uk">www.easily.co.uk</a>	Linux Standard	100MB	5GB	Linux
Easyspace	<a href="http://www.easyspace.com">www.easyspace.com</a>	Starter Web Hosting	500MB	10GB	Linux
eUKHost	<a href="http://www.eukhost.com">www.eukhost.com</a>	Copper	200MB	2GB	Linux
Fast Hosts	<a href="http://www.fasthosts.co.uk">www.fasthosts.co.uk</a>	Linux Home	1.5GB	None	Linux
Freezone	<a href="http://www.freezone.co.uk">www.freezone.co.uk</a>	Freezone Starter	50MB	1GB	Linux
Gradwell	<a href="http://www.gradwell.com/webhosting">www.gradwell.com/webhosting</a>	Shared Web Standard	5GB	5GB	Linux
Namesco	<a href="http://www.names.co.uk">www.names.co.uk</a>	Starter Hosting	250MB	2GB	Linux
Net Pivotal	<a href="http://www.netpivotal.co.uk">www.netpivotal.co.uk</a>	Linux Home Plan	2GB	80GB	Linux
Streamline.net	<a href="http://www.streamline.net">www.streamline.net</a>	Home	250MB	None	Both
UK2	<a href="http://www.uk2.net">www.uk2.net</a>	Webhosting Complete	3GB	100GB	Linux
UKHost4U	<a href="http://www.ukhost4u.com">www.ukhost4u.com</a>	Basic Hosting	2GB	100GB	Linux
Webcolos	<a href="http://www.webcolos.co.uk">www.webcolos.co.uk</a>	Allround	300MB	10GB	Linux
Web Fusion	<a href="http://www.webfusion.co.uk">www.webfusion.co.uk</a>	Fusion Starter	1GB	15GB	Both
<b>DEDICATED SERVERS</b>					
1 and 1	<a href="http://www.1and1.co.uk">www.1and1.co.uk</a>	Root Server	160GB	None	Linux
123-Reg	<a href="http://www.123-reg.co.uk">www.123-reg.co.uk</a>	123Serv Ubuntu	80GB	None	Linux
Dataflame	<a href="http://www.dataflame.co.uk">www.dataflame.co.uk</a>	Unmanaged Package 1	80GB	250GB	Linux
Easyspace	<a href="http://www.easyspace.com">www.easyspace.com</a>	EasyDServer Starter	80GB	None	Linux
Streamline.net	<a href="http://www.streamline.net">www.streamline.net</a>	Freedom 1	80GB	None	Linux
UK2	<a href="http://www.uk2.net">www.uk2.net</a>	Bronze	80GB	10TB	Linux
Web Fusion	<a href="http://www.webfusion.co.uk">www.webfusion.co.uk</a>	Saver Server 1	40GB	None	Linux

Notes: Many firms have cheaper options or lower setup fees for paying annually and many have both platforms available. Scripting refers to the ability to add your own scripts; some standard ones (such as counter and form mail) may be provided.





## Need more space? Amazon's S3 is one way of getting extra storage, without upgrading your hosting

It's also worth remembering that, just as you can use services like Amazon S3 or Youtube in addition to your site, you can take a mix-and-match approach to hosting as a whole. You don't need to buy hosting from the same company that sold you a domain name, for instance – and very often you might find the hosting that comes free with a domain name is very limited. Pay particular attention to very cheap deals, which may simply redirect web browsers from your domain name to an existing web space. For the greatest flexibility, you should look for a domain registrar that allows you to control every aspect of your DNS (Domain Name Service), even pointing web and email traffic at different servers, for

## POI Editor is a good example of a way you can use free services online to do things that would have been impossible a few years ago

example. It may not be necessary to start with, but it can be essential as a site grows.

You'll also need to make sure your site appears in search engines. Again, some hosting companies will help, and there are even companies that will submit your site to lots of search engines for a fee. Our advice? Don't bother. With a few simple extra tags, and filling in a handful of web forms, you can ensure your site is indexed by the search engines that matter, such as Google and MSN. For more on

search tags and Google's webmaster tools, take a look at the Hands On Web Development features from the October and December 2007 issues (see [www.pcw.co.uk/2196747](http://www.pcw.co.uk/2196747) and [www.pcw.co.uk/2201404](http://www.pcw.co.uk/2201404)).

## Next steps

When it comes down to it, there's one clear message – if you want to make the best website you can, don't rush. Work out what it's for. Work out the best way to present the information and keep it up-to-date. Then choose the tools to create it, and find hosting that will let you do everything you want to, now, and as your site grows.

If nothing else, we hope this feature has given you some inspiration to start thinking a little more in depth about your online needs. Now you can develop your own plan of action, and only then can you start the hard work of actually setting up domain names, servers, software and building your site. If you need help with this aspect, keep in touch with our regular Hands On section of the magazine, which covers the nitty-gritty details based on the real problems you send us. **PCW**

	SCRIPTING	DATABASE	£/MONTH INC VAT	SETUP £ INC VAT	NOTES
	✓	✗	£5.86	£0	
	✓	✗	£2.17	£11.74	
	✗	✗	£8.21	£0	
	✓	✗	£4.99	£0	
	✓	✓	£11.75	£0	
	✓	✗	£2.92	£0	£35 per year. Additional data capacity must be bought in Prepaid blocks
	✓	✗	£2.93	£0	
	✓	✓	£2.25	£0	£22.99 plus Vat per annum
	✓	✗	£4.69	£0	
	✓	✗	£1.75	£0	
	✓	✓	£11.75	£0	
	✓	✗	£5.86	£0	
	✓	✓	£4.69	£0	£17.62 setup with quarterly billing option
	✓	✗	£1.86	£0	£18.99 plus Vat per annum
	✓	✓	£4.69	£0	
	✓	✓	£4.69	£0	
	✓	✓	£0.83	£0	£9.99 per year. Domain not included in price
	✓	✗	£6.99	£0	
	✓	✓	£58.74	£57.58	
	✓	✓	£46.99	£58.74	
	✓	✓	£92.83	£57.58	
	✓	✓	£82.24	£0	
	✓	✓	£46.99	£0	Server limited to 256Kbit virtual connection
	✓	✓	£57.58	£116.33	
	✓	✓	£43.46	£58.74	

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# Protection squad

*If you've ever thought about getting insurance to cover your PC or peripherals, Andrea-Marie Vassou and Paul Allen go back to basics and explain all you need to know about protecting your valuable purchases*

**N**owadays people will insure just about anything, from their house and car to weddings, or even parts of their body. But despite their relatively high value not many people – even those of us who should know better – consider getting their computer (and its contents) insured.

If your PC is damaged or stolen then, if you haven't followed the golden rule of 'back up everything and back it up often', you could be left with a big, empty, expensive hole where your data and downloaded applications used to be. In this feature we'll give you some useful tips on how to ensure a PC and its contents are covered, breaking down the legal jargon so you don't have to spend money unnecessarily.

To begin, we need to explain what a warranty is. Many people believe that goods come with a one-year warranty as standard; this is a complete and utter myth. One-year warranties, also referred to as manufacturer's warranties or guarantees, are a sales gimmick. They offer buyers an easy way to deal with products that develop faults. The cost of that service is included in the price.

The Tech Guys website offers expert help for PC projects

Manufacturers have a good idea how much warranty repairs from all customers cost each year on average, and this sum is added into its pricing structure. Warranties on expensive goods, such as televisions, can be as long as five years. Some retailers offer 'no-quibble' refunds on damaged goods. Again, these are a means of filling the consumer with confidence. The only valid legal aspect of a warranty is that once it is offered, it must be honoured.

Then there is the extended warranty, which is generally another name for 'insurance policy'. Extended warranties, especially in the case of PCs, can cover any combination of returns, repairs, spare parts and servicing in exchange for a one-off fee or an annual or monthly subscription.

Paid-for warranties, like manufacturers' warranties, have nothing to do with your

statutory rights – that means the protection afforded by legislation such as the Sale of Goods Act and Distance Selling regulations. We'll discuss consumer rights legislation in more detail shortly.

## Extended, not extorted

The problem for buyers of technology goods is whether an extended warranty represents good value. On the whole, we think not and

**'Many people believe goods come with a one-year warranty; this is a complete myth'**

we're in good company. As far back as 2002 the Office of Fair Trading released a report on extended warranties in which it warned consumers of their pitfalls. These included potentially unfair terms and conditions in the small print, lack of clear information at the point of sale and excessive profits made by extended warranty schemes.

The report led to an investigation by the Competition Commission, which made a series of recommendations to Parliament that resulted in new legislation: the Supply of Extended Warranties on Domestic Electrical Goods Order of 2005.

The order requires retailers to display the price of the extended warranty alongside the electrical goods in the store and in press

The screenshot shows the TechGuys website interface. At the top, there's a navigation bar with links for HOME, SERVICES, SUPPORT, CAREERS, WHO ARE WE?, STORE LOCATOR, CONTACT US, and SUBSCRIBE. Below this, there's a section titled 'Our services' with a list of services including 'Browse all services', 'Most popular services', 'Computer services', 'Home entertainment', and 'Business services'. There's also a 'OUR PRODUCTS' section with a table listing various products and their prices. The table has columns for 'Product Name', 'Price', and 'Status'. The products listed include 'TECH-ZINE technology updates', 'Fully installed Netgear wireless', 'Summer 2008 Backup', 'Data Backup', 'Data Restore', and 'Data recovery'. Each product has a brief description and a price. For example, 'TECH-ZINE technology updates' is priced at £99.99. The website also features a search bar and a 'Customer Support' button.

advert. A standard leaflet must also be given to customers setting out their statutory rights and making clear the availability of extended warranties from other sources, such as the manufacturer or specialist PC insurance companies. All this information must be presented in plain English so as not to cause confusion with 'legalese', the unfathomable language so often found in the small print.

The new legislation also provides a number of means to deal with pressure-selling techniques. Retailers that found they were making more profit out of extended warranties than selling goods inevitably trained store and call centre staff to push this form of insurance to all their customers.

Now retailers have to give customers 30 days to consider the warranty. The price and terms must remain the same as initially offered in-store, on a website or on the phone for 30 days after the electrical item has been purchased – including any discount

## 'Retailers that found they were making more profit out of extended warranties trained call centre staff to push this form of insurance to all their customers'

offered at the point of sale meant to tempt the consumer into buying the insurance. Customers also have a right to cancel and obtain a full refund within 45 days of purchase. In addition, a customer can cancel an extended warranty at any time and obtain a pro-rata refund.

So consumer protection has been beefed up, but what about that value question? The truth is that some types of extended warranty can be useful for certain people. But with the price of PCs falling, this expensive insurance is beginning to look out of date. Indeed, retailers are turning to new ways of presenting such insurance. The term extended warranty is tainted by the abuse it was previously submitted to. DSGI, the company behind PC World, now has its Tech Guys



Check out your rights at Consumer Direct

### Home deals

Talking of home insurance, if you're planning to buy a new PC, television, hifi or any other form of expensive electronic kit, it's worth contacting your current home contents insurer to

see if the new addition can be included.

The British Insurance Brokers Association (Biba, [www.biba.org.uk](http://www.biba.org.uk)) and big insurers including Direct Line, Churchill and Stirling, told us they cover a home computer if it is stolen or destroyed in an insurance peril such as fire or flood. Please remember that the guides we've given here are general points and that you should consult your own policy documents or insurance company for details relevant to you.

The Association of British Insurers (ABI) advises people that although most standard household policies will insure a PC and make sure that it is covered on a new-for-old basis, a user will get the equivalent for their PC and not a new top-of-the-range one. Insurers say that because PC technology advances so quickly, the price paid (and therefore the amount covered) for a computer bought more than a year or so ago will not be enough to cover a top-spec one today.

According to the ABI there is no need to inform your insurer if you buy a PC after you have taken out home insurance so long as the price of the PC does not push the estimated value of the household's contents over the maximum cover limit or any individual item limits.

Users should note, though, that a home PC used for work purposes will not be covered under the home insurance as it is seen as a

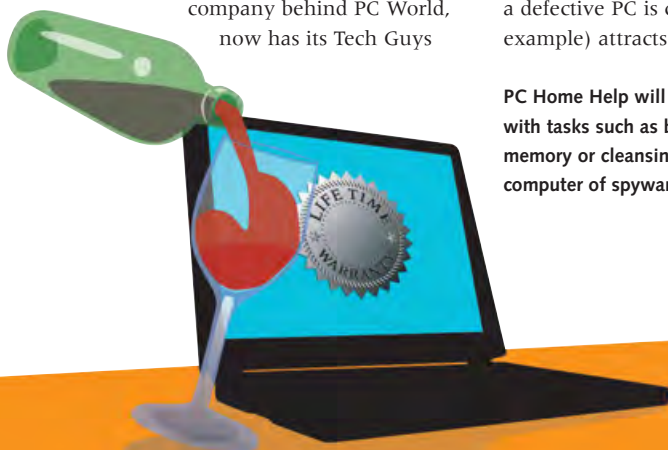
service ([www.thetechguys.com](http://www.thetechguys.com)), which offers expert help for specific PC projects, such as boosting memory or cleansing a computer of spyware or viruses, in store or at home. Some services are charged individually, others attract a yearly subscription. The Geek

Squad ([www.geeksquad.com](http://www.geeksquad.com)) provides a comparable service, as does BT's Home IT Support and emerging companies such as PC Home Help ([www.pchomehelp.org](http://www.pchomehelp.org)).

Our view is that these services offer better value than the old extended warranties because with most of them you can pick and choose what needs fixing. That said, many of the services on offer are things that the average home PC user can easily deal with.

Annual subscription options could cost you as much or even more than the total cost of the goods in the first place. Ultimately, you need to decide how much your peace of mind is worth. As most of us will have realised from quotes for car or home insurance, ultimate peace of mind (in which a defective PC is completely replaced, for example) attracts a higher premium.

PC Home Help will assist with tasks such as boosting memory or cleansing a computer of spyware





## The true cost of losing content

Despite there being protection in place to cover a PC, lost content can be costly and time-consuming to replace. It's impossible to predict when a PC will fail, so it's important to consistently back up data.

Shadow Copy, which comes free with some versions of Vista for example, automatically backs up any documents but if a PC is stolen this is no good. Backing up data and copying files onto discs, external hard disks or to online storage options is a

chore that's worth the effort. Services such as [www.humyo.com](http://www.humyo.com) work much like a storage warehouse, enabling you to back up and store music, videos, photos, documents and more in a secure environment.

Humyo offers up to 30GB of free storage, with charges for more if you need it. Alternatively, if your storage needs are smaller, you could use Gspace ([www.getgspace.com](http://www.getgspace.com)) to transform the Google Mail service into free storage space.

### Biba offers advice on insurance claims

liability. Therefore, the ABI advises that home workers inform their insurer if this is the case and pay a small premium for it to be covered. Likewise, if a notebook PC is taken out of the house extra cover is required.

It is also worth looking at what these policies offer. For example Sterling's Executive Home policy ([www.sterlinginsurancegroup.com](http://www.sterlinginsurancegroup.com)) will cover the reinstatement of data or records, whereas others solely provide cover for taking the notebook out of the house. Don't jump straight in here though. When it comes to this cover there are some companies that have been specifically set up just for notebook insurance that can be better value. For example, JS Insurance ([www.jsinsurance.co.uk](http://www.jsinsurance.co.uk)) will insure a notebook worth £2,500 with its software for around £300.

Legal music downloads are also usually insured up to around £1,000. Users must be able to prove the amount of downloads and data costs. The ABI therefore advises people to keep printouts, bank statements and confirmation emails of songs and any software purchased.

### Consumer rights

Insurance is there to protect us from accidents and unforeseen circumstances such as floods and crime. Dealing with faulty goods is a different matter entirely and one where some companies are less than up front about their responsibilities.

One of the main causes of confusion for consumers is that companies tend to go into a kind of legal denial whenever customers complain. Consumers are told to contact the manufacturer, to pay for the carriage of goods that have broken, to pay a 'restocking fee' to return items that are broken; this, customers are told, is 'company policy'.

As far as we are aware, no UK company has yet been granted the power



to pick and choose which laws it wishes to obey. The only reason that companies steer complainants away from the rightful legal remedies is because it saves time and money; theirs, usually.

Explaining the full array of consumer protection law on offer is a big job and one that we can't do full justice to here. We'll cover the basics now but once you're done here, if you wish you can visit [www.pcw.co.uk/2014044](http://www.pcw.co.uk/2014044) and read a full guide to your rights.

Armed with knowledge and the Sale of Goods Act 2002 (SGA), you can get the treatment you deserve when sold a damaged or defective PC. There are some common misconceptions about the SGA; these include the notion that goods have to last six years. In fact, the legislation provides a period of six years in which a legal claim may be made about an item. An important new principle was added to the SGA in 2002, which said that any faults found in the first six months from purchase would be presumed to have existed at the time of manufacture, unless the seller could prove otherwise.

This is where things get tricky. Retailers often try to dodge the bullet at this stage,

insisting it is 'company policy' that you need to contact the manufacturer for a repair. In fact, the SGA says your contract of sale is with the entity that takes money from you: the retailer. You can insist that the retailer handles the complaint with the manufacturer.

The retailer can ask you to return the goods at your cost, although only if this is clearly stated in the company's terms and conditions of business. If the goods are found to be faulty, you can claim back the cost of posting the goods back. In practical terms, it's often easier to deal directly with the manufacturer; however, the manufacturer will rarely pay for carriage and it's certainly not obliged to.

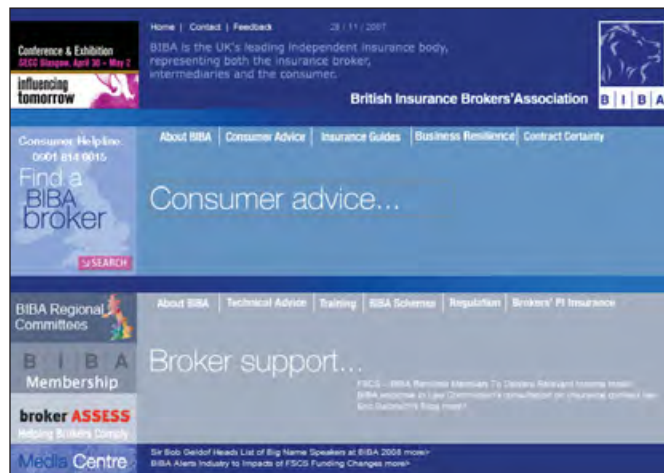
If the item can be repaired, the retailer or manufacturer is entitled to use equivalent parts, not necessarily new ones, and you can't ask for, say, a larger hard disk or a new DVD writer if it's your CD writer that breaks. If the item cannot be repaired, the retailer can offer an equivalent model; so you could be given a refurbished model of the same age. And if

you get a replacement, you can't necessarily assume that the manufacturer's guarantee starts again from scratch. There is no case law in this area, but if a replacement breaks, you could argue that the manufacturer had not honoured its own guarantee. If the item's guarantee has expired, you could press the retailer using the SGA, but think carefully about this. The law says that goods and some components will wear away with use and the expected life of a product depends on what it is. The online feature we referred to earlier has more detail on this matter.

### Don't confuse cost and value

Ultimately buying an extended warranty is the consumer's choice but we advise you to carefully consider the cost over the expected life of the product. PCs last about five years on average (mostly because they are superseded by better technologies) so a warranty that costs £15 per month could end up costing £900 over its expected life.

If it never breaks, that's money down the drain, except for the peace of mind it bought. Goods that have an inherent manufacturing or design fault usually break in the first six months (hence the amendment to the SGA) and rarely later than a year, so before you pay up to insure a PC with a warranty, consider its real value to you. **PCW**



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# Seek and you will find

*It's not difficult to find the information you want on the web and on your PC. Tim Nott explains how to narrow down your searches*

**T**ry this. Pluck a reasonably uncommon word out of the air. Go to Google or Microsoft Live Search and type it in. See how many results you get. We tried with 'albatross', guessing that the number of hits would be in the thousands. Our guess was way out – Google found nearly half a million pages and Live Search over three million. Impressive, yes, but hardly useful. How on earth do you narrow that enormous pile of results into something more manageable that contains just the information you need?

In this feature we'll look at ways to sharpen up your searching on the web by using advanced search techniques and other tricks. We'll also show you how to pick horses for courses, and keep a stable of

search engines ready for instant action. As well as web searching, we will be taking a look at finding information on your own computer – text that's hidden away inside documents, spreadsheets, emails and the metadata of image and sound files.

Note that throughout this article, when we enclose a search string in single quotes it's just to distinguish it from the surrounding text – you don't type the quotes. Double quotes, on the other hand, have a specific search function, as we shall see shortly.

## Better searching

The first way you can improve your searches is by being as specific as possible and using several search words. The second is by using operators. Search engines are fairly smart when you type in a phrase – the top results

will contain the whole phrase, with lower results containing all the words entered, but separated. You can eliminate the latter completely by enclosing the phrase in double quotes. To pluck a phrase out of the blue, a search for 'big red elephant' (remember what we said about single quotes) returned 409,000 hits. Enclosing the phrase in double-quotes narrowed this down to a more manageable 1,390. In addition, all search engines will ignore common words such as 'and', 'the' or 'to', for obvious reasons, but will respect them as part of a quoted string, such as "Attila the Hun".

Although we've just stated that 'and' is ignored, that's not always true; when it's in upper-case it has a specific function. A search for 'red AND elephant' will only return results that have both terms in the page. This

isn't terribly exciting, as all search engines do this implicitly. What's more useful is the NOT operator. Let's say you want to search for places named 'Paris' that are not in France. 'Paris NOT France' is a good start, but you can eliminate further irrelevancies. You can also save yourself a little typing by using a minus sign instead of NOT. So, 'Paris -France -mythology -Hilton' will refine the search. You'll still get loads of unwanted results, so, let's hone the search further with the OR operator. Remember we're looking for places, so try 'town OR city Paris -France'. When we tried, this knocked the results down from over 100 million to 18 million,



## Monkeying around in Clusty gives you clusters of results

and excluding 'Hilton' halved that number. It's still a huge number of hits, but what counts is that the first page yields highly relevant results (see the screen below left). Note that although we've used capitals for proper names for the sake of clarity, this isn't necessary – searches are generally case insensitive.

The AND, OR and NOT operators require a space after them, while the plus or minus signs don't.

Another very useful strategy for improving the quality of results is to restrict the domains searched. For example, say you want to give your loved one – or yourself – a treat and are looking to buy 'CK One' perfume online. This is a unisex fragrance, so no accusations of gender bias, please. A search for 'CK One' will produce loads of results, but given the inevitabilities of the market most of these will be in the US. So, why not restrict your search to .co.uk domains? You can do this easily enough through Google or Live Search advanced

Left: Despite returning nine million results, the first page yields quality



search, where there's a suitable option. Power users can do this more quickly by leaving a space after the search string and appending 'site:co.uk'. This also works on individual sites, and you may find you get better results using Google or Live Search to look for something on a specific site than you would using that site's built-in search feature.

Two other useful restrictions are to search just in the URL or page title. To do the first, prefix the search term with 'inurl:' with no space after. 'inurl:pcw' will, naturally, return this magazine's site as the first hit, closely followed by Professional Championship Wrestling. You can mix this with page content – eg 'inurl:amazon arctic monkeys' will find all Amazon pages pertaining to the band. If you want to search within page titles, then 'intitle:' does the trick.

With some exceptions, these operators aren't particular to any search engine – they should work universally, and we've tried them with Google, Live Search, Yahoo, Ask and Copernic. This doesn't mean that all search engines return the same results – we found wide differences in both the total number of results and the composition of the first 10. Particularly noticeable was the variation in the proportion of news to shopping sites – even disregarding 'sponsored' results. So, it pays to shop around and try several engines. One way to do this is by searching several sites at once. Dogpile.com will search Yahoo, Google, Live Search and Ask and return the results in a single list, but this machine-gun approach doesn't do a lot for the quality of results. Clusty.com is far more useful – as well as combining results from multiple search engines, it sorts the results into 'clusters'. A set of tabs to the left of the results lets you sort the latter by topic, source or sites, so it's much easier to home in on what you want to do. Search for a band name, for example, and you'll get clusters for photos, lyrics, downloads, concert tickets and so on (see screen above).

## The future

Searching is rapidly becoming not just a service but a platform. We saw elsewhere how engines such as Clusty second-guess why you might be searching for the name of a band. Microsoft Live Search is also starting to take this approach in the most popular search areas such as entertainment, shopping and health.

Search for 'Spice Girls' and top of the list you'll see a row of album thumbnails. This, according to Microsoft, is what most searchers will be after, but there are also headings for videos, images and more – with a list to the right offering related searches for t-shirts and tours.

Search for an individual celebrity such as Victoria Beckham (forgive us, but it's an example that works well) and you'll see her 'Celebrity xRank' at the top of the page – click on that, and you'll get a list of celebrity



Victoria's search popularity and related celebs

rankings by frequency of searches and thumbnails of related celebrities, such as husband David or Gerry Halliwell.

The next big thing may be searching in video. Imagine you're watching a Spice Girls video on your PC and you like the shoes that Victoria is wearing. Click on the shoes – and find out where she bought them. Whether you find this smart or scary, it brings a whole new level to product placement.

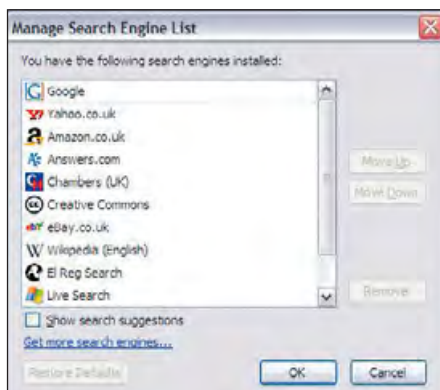


## One-stop searching

Despite the cleverness of Clusty, you can't make do with one search engine. If you want to buy a book from an online shop or look something up in Wikipedia it makes little sense to go through an intermediary. Many search sites offer browser toolbar add-ins, so you don't have to bookmark or type in the search site, but there's a better way of accessing different search engines quickly without sacrificing screen space.

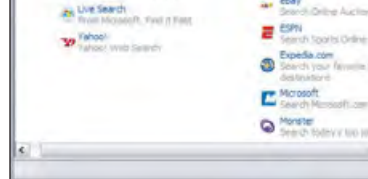
Back in 2004, the Opera browser introduced the idea of typing a search string into a toolbar box, then choosing from a dropdown list of search engines or searchable sites. This was such a good idea that it has since been taken up by Microsoft Internet Explorer 7, Mozilla Firefox and the Apple Safari-for-Windows beta. The obvious requirement here is that the list be customisable. Safari doesn't do too well here, offering just Google and Yahoo without any apparent way of adding more. Firefox comes pre-populated with essentials such as Google, Yahoo and Amazon.com, but it's possible to add more by clicking on the 'Manage Search Engines...' entry at the bottom of the list, then going to the 'Get more search engines...' link. If the 20-odd providers that appear on the first page don't contain what you want, then click on the link to <http://mycroft.mozdev.org> at the bottom of the page. This will take you to a plug-in search. If you go to the advanced search, you can specify a country – we found over 400 UK-specific plug-ins ranging from Amazon.co.uk to the Victoria and Albert museum. If you still can't find what you want then you can write your own plug-in using XML. Although this is beyond the scope of this feature, there's a link on the 'Get more search engines' page to instructions for making your own. Some pages – such as the mycroft page itself – append an option in the search list to add themselves to the list.

IE7 has a more sparsely populated list, but there's a similar 'Find more providers...' link on the menu. There are far fewer engines available, but Microsoft provides a simple way of creating your own. You need to open a new



Add new providers to IE's search list...

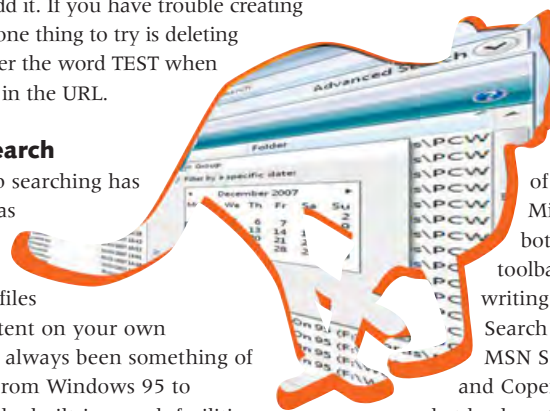
...for instant action



tab then go to the site you want to add and type TEST (all upper case) in the search box. Then copy the URL of the results page into the box on the 'Add search providers' page and give it a name. Some sites recognise TEST as a dummy search, but others take it literally – PCW returned over 10,000 tests, but the method still worked – we managed to add PCW article and download searches to the menu in this way (see screens above). Similarly, Amazon.co.uk offered us everything from driving to pregnancy tests, as well as the band, Crash Test Dummies, but we still managed to add it. If you have trouble creating the link then one thing to try is deleting everything after the word TEST when you've pasted in the URL.

## Desktop search

Although web searching has been around as long as the web itself, searching for files and their content on your own computer has always been something of a challenge. From Windows 95 to Millennium, the built-in search facilities were pretty dire, despite the introduction of an animated 'Search Companion'. The poor performance was because Windows would burrow through every file in the target locations looking for the search string. Windows 2000 and XP brought the Indexing Service. This worked in a way analogous to web search engines – it built up an index of keywords and the files they were located in. Hence, conducting a



'Get more search engines...' from over 400 UK-related sites

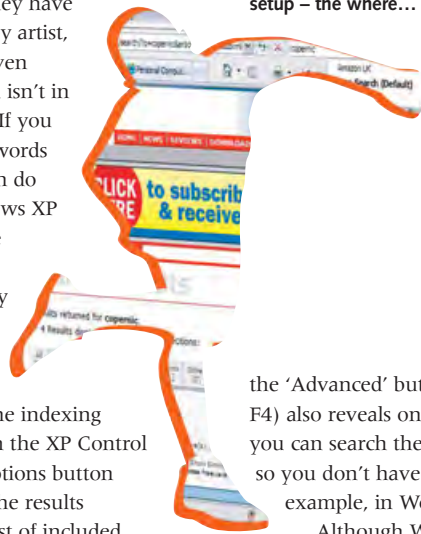
search was rather like looking up the index of a book, rather than poring through every page. Unfortunately, the XP indexing service itself was difficult to set up, and the search interface was a

paradigm of user-unfriendliness. Although there had been third-party search tools before, 2004 saw the launch of rival products from Microsoft and Google, both taking the form of toolbars. At the time of writing Windows Desktop Search (WDS, the successor to MSN Search), Google Desktop and Copernic Desktop are the market leaders. Others include Yahoo and Exalead One:Desktop. All are free, or have free versions.

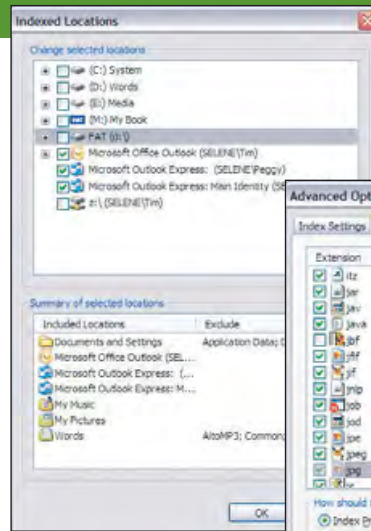
Looking at Windows Desktop Search in detail, it can index the contents of emails, documents, spreadsheets, presentations and practically any files that contain text. With music and image files it takes a different approach. The technology to recognise your dog in a JPG or a tune that goes dum-di-dum-dah in an MP3 is not yet with us, but WDS does index file properties, including metadata. So you can search for images taken with a particular camera or at a particular exposure

– all of which should be in the metadata. Similarly, you can search for music files (assuming they have been tagged correctly) by artist, album and track title, even though this information isn't in the file or folder name. If you add custom tags or keywords to a file – which you can do for image files in Windows XP – then these will also be returned by a search.

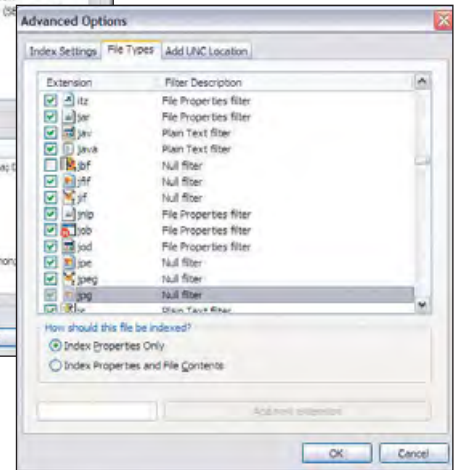
Setting it up correctly is essential, especially if you don't keep your data in the standard locations. If you go to the indexing options – either through the XP Control Panel, or clicking the options button (second from right) in the results window – you'll see a list of included locations to index. You can modify this list, adding or removing folders and subfolders from the 'Modify' button. You can also modify file type behaviour or relocate the index via



Right: Windows Desktop search setup – the where...



...and the what (below)



the 'Advanced' button. The options button (or F4) also reveals one of the better features – you can search the preview pane for any text, so you don't have to open a .doc file, for example, in Word.

Although WDS can be delivered to your desktop effortlessly by Windows Update, it's still worth taking a look at the rivals. This is not a comparative review, but we have to say that we found Copernic

more flexible than WDS, with a faster and more comprehensive preview feature and the facility to search non-Microsoft mail folders. Setting up the options is also much more user-friendly than in WDS. Results are grouped by folder or type. The search terms are highlighted in the document preview window, and you can search for other terms (Control & F) without having to open the file (see screen below).

Google does it all in your browser, and is much more difficult to set up efficiently, as by default it appears to index everything on your PC and networked folders. This is reflected in the index size – we found it to be around four times that of WDS and Copernic. You change your preferences in the browser, but it's rather inflexible as you can only add and remove one item at a time. The trick seems to be to first exclude the Desktop – which should also

exclude everything else – then add individual folders back, one at a time. Results also appear in your browser, and although there's no preview pane, there is a preview button below each result. **PCW**

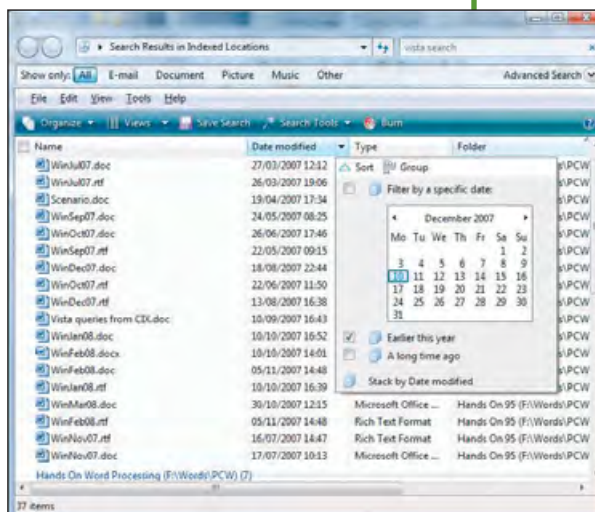
## Searching in Vista

Vista brings vast improvements in searching your computer. The Search box on the Start menu works as you type, and finds programs before data files. Pressing Enter will open the top item on the list, so this doubles as a 'Run' box – typing 'cal' then Enter is a quick way to run the Windows Calculator.

For more serious searching, click on 'Show all results...' or use the Search box in Explorer – the latter will default to searching the current folder and subfolders. You can even search in Control Panel, using synonyms – 'sound', 'volume' or even 'noise' will all return the Sounds item.

The biggest improvement is in how results are displayed and how they can be refined. In details view, you can sort and filter results. Hover over a heading and an arrow appears – you can sort or group by date, folder and other relevant criteria. You can filter results this way by ticking checkboxes, so you only, for example, see the results in selected folders. You can also filter by a date range – there's a little pop-up calendar to help with this.

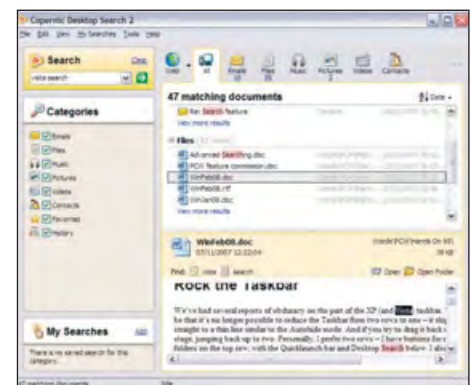
Saving searches isn't exactly new, but Vista streamlines this with 'Search folders'. When you save a search it is stored in a special folder in your profile – you'll find some ready-made if you go through Start, username, Searches.



Above: Sorting and filtering search results has become easier with Windows Vista

However, apart from the improved ease of use, Vista's *piece de resistance* is the incredibly powerful Advanced Query Syntax (AQS) that's shared with Windows Desktop Search. This lets you add keywords and parameters to your search. For example, to find all emails sent to your mum with attachments during last week, you can type 'kind:email to:Mum has:attachment date:lastweek' into the search box. Once you've created this query you can save it as a saved search.

For a full listing of the commands available, with examples, go to [www.microsoft.com/windows/desktopsearch/addressources/advanced.msp](http://www.microsoft.com/windows/desktopsearch/addressources/advanced.msp).



Deluxe desktop searching by Copernic



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Web engineers do  
with too much time  
on their hands?**

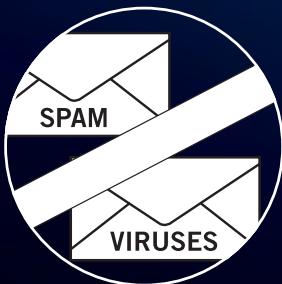
on their hands?  
with too much time  
Web engineers do  
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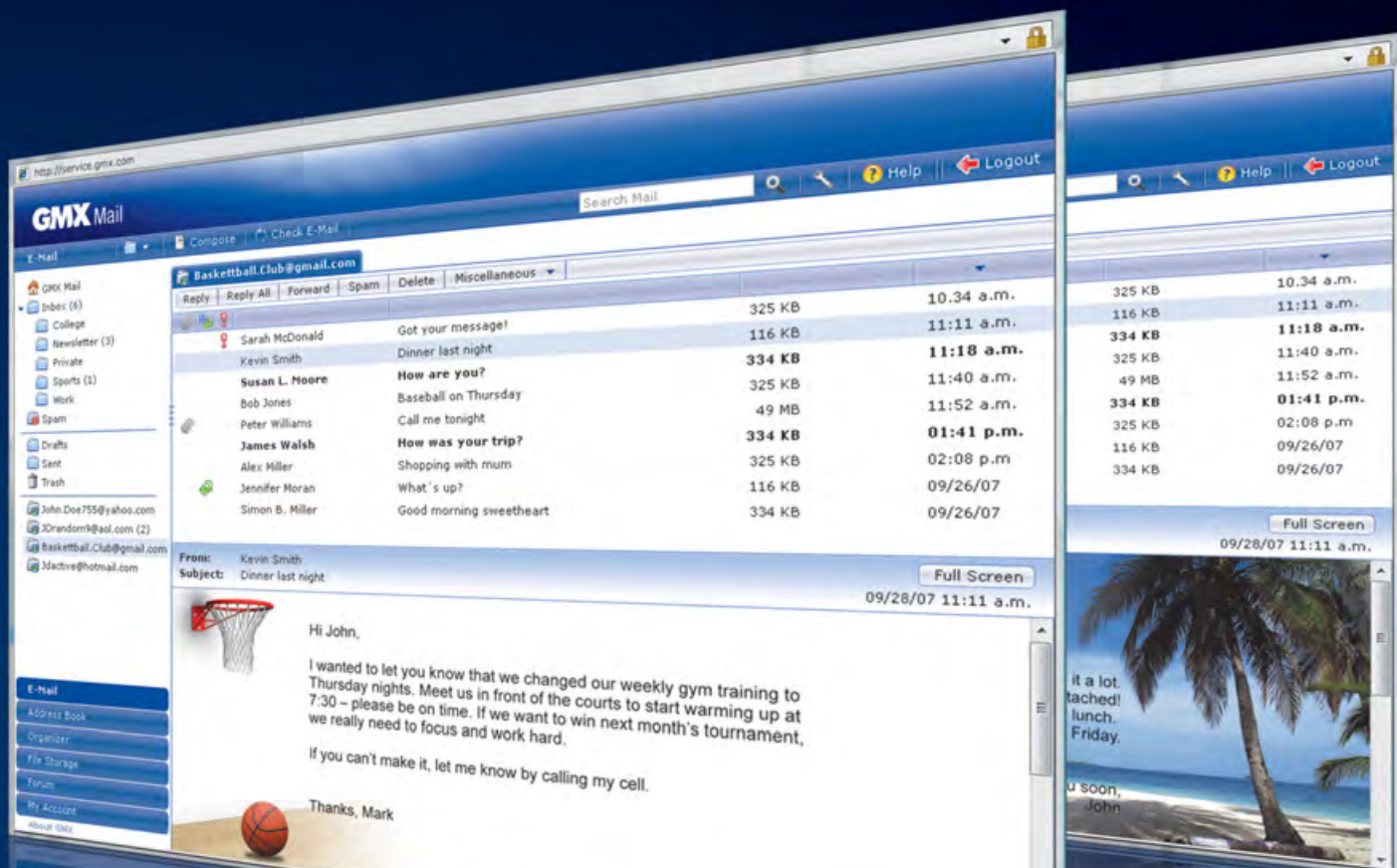
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## MAKE A NOTE OF IT

This month we've taken a look at a group of notebooks that offer decent performance without breaking the bank. We asked the major manufacturers to submit their best models that cost less than £700, which gets you some of the latest technology, such as fast Core 2 Duo processors, dedicated graphics and large displays. Head to page 93 to find out which model clinched the top spot. You can also find out how to prolong your notebook's battery life and what's on the horizon for notebook technology.

We've also rounded up a group of the latest projectors this month. Whether you're planning to watch the latest blockbusters from the comfort of your lounge, immerse yourself in a game, or conduct presentations, a big-screen projector is the way to go. Starting at just £699 there are some absolute bargains, and you'll even find a couple of HD-ready models. Read our findings on page 105.

## CONTENTS

### HARDWARE

- 54 HP Mediasmart Server EX470
- 55 Evesham Cosmos Pro
- 56 Shuttle XPC GS31G2
- 61 MSI PR600
- 62 OQO Model E2 HSDPA
- 63 Asus Eee PC 4G 701

### PERIPHERALS

- 64 Garmin Nuvi 710
- 65 Pinnacle Showcenter 250HD
- 66 Thecus N299
- 69 Viewsonic VX2240w
- 70 O2 XDA Stellar
- Brother HL-2170W
- 71 Blaupunkt Travelpilot Lucca 5.3
- Ricoh GR Digital II

- 74 Irispen Express 6
- Mcubed HFX Micro M1

### ACCESSORIES

- 77 Sony SRS-T10PC
- In Win Allure
- Sitecom Network Giga Switch
- Shure SE110 Earphones

### COMPONENTS

- 78 Kingston USB2 Media Reader
- Crucial Ballistix PC3-12800 2GB Kit
- Hypertec 1GB
- Datasafe Rugged
- Coolermaster RC690

- 79 Akasa Powermax 1000
- Gigabyte GA-73PVM-S2H
- Asus Blitz Extreme
- Sapphire HD3850 Ultimate

### SOFTWARE

- 82 Eset Smart Security
- 83 Magix Audio Cleaning Labs 12 XXL
- 84 Ableton Live 7

### GAMES

- 85 Crysis
- 86 Need for Speed: Prostreet
- Simcity Societies

- 90 How we test

### GROUP TEST

- 93 £699 laptops
- 105 Home projectors

Prices include Vat unless otherwise stated

# REVIEWS

## OUR SCORING

Excellent ★★★★★ Very good ★★★★☆ Good ★★★☆☆ Below average ★★☆☆☆ Poor ★☆☆☆☆

## OUR AWARDS

**Editor's Choice:** The best product in a comparative group test. Anything that wins this award is of better quality than its competitors.

**Recommended:** A product that combines great features, usability and value for money.

**Great Value:** Not the best in class, but a product that has superior features and performance for the price.



Editor's Choice



Recommended



Great Value



'The Eee PC is minuscule, weighing just 927g, but inside you'll find everything you'd expect from a larger notebook'

Read the review on page 63

HOME SERVER

# HP Mediasmart Server EX470

Slow off the starting blocks, but HP's Windows Home Server interface is polished



The EX470's front panel opens up to reveal a rack of hot-swappable drive bays. The blue lights indicate that a drive is installed

**T**ranquil PC was quick off the mark to sell a Windows Home Server (WHS) in October 2007 (read our review at [www.pcw.co.uk/2201518](http://www.pcw.co.uk/2201518)), with heavyweight HP holding back its punches until now. The Mediasmart Server EX470 is its entry-level model, costing £399 and coming with a single 500GB hard disk, while the EX475 adds a second 500GB disk for a £100 premium.

It's deceptively small and reasonably quiet too. The front and rear panels are made of metal grilles, allowing a constant torrent of air to cool the system. Both models contain four 3.5in bays, four USB ports and an eSata port for storage, which HP says can handle up to nine terabytes (TB). Having two hard disks in a WHS is a good idea too, since Microsoft's Drive Extender redundancy features mean if one disk fails, your shared folders can still be recovered.

The drive bays are hot-swappable caddies that require a firm tug to remove. Each bay has a light, which goes blue when a drive is present, or purple if it's empty; these lights can be dimmed from within the WHS console.

Like all WHS devices, this HP model offers shared folders, UPnP streaming for videos and music, scheduled backup of 10 computers and remote access.

HP goes further by adding Photo Webshare, which allows users to host photos via the built-in web server, and an iTunes server. Having a centralised collection of your music is neat, but HP's implementation isn't great, since it can take a while for it to automatically consolidate your music and there's no manual option to kickstart this process. It also won't deal with any tracks you've bought from the iTunes store.

The delay to the Mediasmart's debut has given HP some time to polish the interface. This includes placing its extras on the front page of the WHS console and including some interesting diagnostic feedback, including system and CPU temperature (a cool 27°C and 25°C respectively in our Labs). HP also provides more dynamic DNS options than a standard WHS installation along with an HP web-server template.

If you're not interested in the WHS add-ins on offer, the Mediasmart excels as simple, if expensive, network storage. With a Gigabit switch we measured consistent write speeds of 40.2Mbytes/sec and average read speeds of 20.6Mbytes/sec – faster than any other network-attached storage (Nas) device we've tested.

Its AMD Sempron 3400+ CPU and 512MB Ram tick the minimum requirements Microsoft specifies. Only 480MB of the Ram is visible to the operating system though and we suspect the remaining memory is appropriated by integrated graphics. There is also no video output, which is a shame, as being able to connect a monitor to reinstall the operating system or diagnose problems would have been useful.

The EX470 drew 3W when turned off, rising to 46W when turned on (idling). This is disappointing for a device that will probably be turned on every hour of the year (annual running costs in the UK sit at around £38), especially considering the Tranquil PC version only needs 30W and some notebooks in this month's group test (see page 93) draw just 18W.

Parts of WHS is difficult to get to grips with and its documentation still has holes in it. The fact that the WHS console doesn't yet work with 64-bit operating systems, combined with its high energy consumption, means we can't fully recommend it just yet.

*Emil Larsen*

## Details

**Price** £399  
**Best price** [www.pcw.co.uk/bestprices](http://www.pcw.co.uk/bestprices)  
**Contact** HP 0845 270 4142  
[www.hp.com/uk](http://www.hp.com/uk)  
**Specifications** AMD Sempron 3400+ • 512MB Ram (480MB available) • 500GB SATA 7,200rpm hard disk • Four USB2 ports • One eSata port • Gigabit Ethernet • 140x230x250mm (wxdxh) • One-year warranty

## Verdict

**Pros** Easy-to-use interface; very fast transfer speeds with Gigabit Lan; iTunes server and decent photo web hosting

**Cons** No support for 64-bit Windows; similar Nas drives are half the price; relatively high power draw

**Features** ★★★★★

**Performance** ★★★★★

**Value for money** ★★★★★

**Overall** A versatile and attractive design that can accommodate a staggering amount of storage

★★★★★



## DESKTOP PC

## Evesham Cosmos Pro

A high-performance gaming PC with quality components



**E**vesham is certainly making a strong statement of intent with its Cosmos Pro, an expensive computer that promises fast performance.

Housed in one of CoolerMaster's massive Cosmos 1000 full tower cases, it's no shrinking violet; you might find it difficult to hide this one away, but then again if you're willing to shell out £3,000 why should you want to hide it?

Opening the case reveals a well-built system with all the power and data cables neatly clipped out of the way or hidden, a task that is aided by the huge space and internal design of the Cosmos case.

Evesham has used some top-notch components for the Cosmos Pro. Powering the system is one of Intel's fastest current CPUs, the Core 2 Extreme QX6850. The QX6850 is a quad-core processor running at 3GHz with a 1,333MHz front-side bus (FSB) and 8MB of L2 cache shared between the cores. Backing up the CPU is 4GB of fast Corsair Twin2X2048-6400C4 DDR2 memory clocked at 800MHz.

So with this much grunt you should expect the Cosmos Pro to fly, and it certainly didn't disappoint in our tests. Its overall scores in PCmark05 of 10,091 and 5,043 in the latest PCmark Vantage test makes it one of the fastest systems we have tested to date.

The CPU and memory are fitted into a good choice of motherboard, namely EVGA's Nforce 680i SLI. This offers plenty of performance as standard, but if you're happy to void your warranty it also has a bewildering number of overclocking options in the Bios. Unlike many others, this Bios is also extremely easy to use.

As you would expect of a system aimed at gamers, the graphics performance of the Cosmos Pro is first rate. Powered by two Leadtek PX8800U-TDH768

Ultras configured to run in SLI mode, it produced a 3Dmark05 score of 17,740 and 15,442 in 3Dmark06. It also scored well in our real-world tests, with an average of 154fps (frames per second) in Fear.

The included monitor and speakers add to the gaming experience offered by the Cosmos Pro. The monitor of choice is a Samsung Syncmaster SM245B; a 24in widescreen TFT with a native resolution of 1,920x1,200 and 5ms response time. The audio is delivered by a Creative Soundblaster X-Fi Xtreme gamer card, which is a good match for the Creative Inspire T7900, a 7.1 surround-sound speaker system.

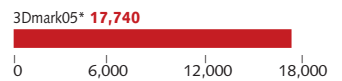
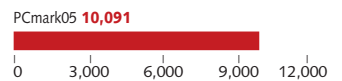
It shows just how far we have come with storage capacities these days that the supplied single 500GB hard drive seems somehow to be a bit mean. Even so, the 7,200rpm Western Digital hard drive with 16MB of cache offers fast transfer rates for even the biggest files. This drive must feel a bit lonely in this case, as the Cosmos offers room for another five 3.5in drives. You also get three spare 5.25in drive bays; the other two are filled with two Samsung Serial ATA DVD writers.

Thanks to another CoolerMaster product, the RS-A00-EMEA, the components have a 1,000W power supply to draw on, which gives you a degree of future proofing should you want to add or upgrade some of the Cosmos Pro's components at a later date. The hardware package is rounded out by a Microsoft Wireless Laser Desktop 6000 keyboard and mouse.

The preinstalled OS is Windows Vista Ultimate, while the software is a relatively light affair with just Microsoft Works 8.5, Bullguard Security Suite and Roxio Media Suite 9XE. Evesham supplies a one-year Silver warranty with the Cosmos Pro, which provides on-site parts and labour cover.

Simon Crisp

## Performance



\*Tested at 1,024 x 768 in 32bit colour

## Details

**Price** £2,999

**Best price** [www.pcw.co.uk/bestprices](http://www.pcw.co.uk/bestprices)

**Contact** Evesham 0870 160 9500  
[www.evesham.com](http://www.evesham.com)

**Specifications** Core 2 Extreme QX6850 3GHz • 4GB Ram • 500GB 7,200rpm hard disk • Two Nvidia Geforce 8800 Ultras (768MB each) • Gigabit Lan • Creative • Windows Vista Ultimate • One-year warranty

## Verdict

**Pros** Performance; build quality; decent monitor

**Cons** 500GB hard drive; small selection of software included

**Features** ★★★★★

**Performance** ★★★★★

**Value for money** ★★★★★

**Overall** Expensive, but a high-quality gaming system with decent performance

★★★★★

DESKTOP PC

# Shuttle XPC GS31G2

It's small and attractive, but doesn't have a huge amount of power



Shuttle specialises in small PCs, but even so, the GS31G2 is one of its smaller designs, standing just 18.5cm tall and 20cm wide.

It achieves these dimensions by only having space for one DVD writer, rather than two, and by having space for a single-width graphics card, ruling out high-powered double-width cards.

Ambros Direct, the Shuttle reseller that sells this system, includes a silver plastic DVD writer as the optical drive. It's the only thing that stands out from an otherwise attractive, all-aluminium case. The front has a striking selection of buttons plus two easy-to-access USB2 ports and a four-pin Firewire connection. On the rear side of the rectangular cube there's a six-pin Firewire and a further four USB2 ports.

Stereo and surround-sound audio connectivity is provided front and back respectively, while DVI and VGA outputs mean it can be fitted to either a digital or analogue monitor, or both at the same time for a bigger desktop space.

A Pentium Dual Core E2140 processor provides the brains of the PC. It's Intel's slowest desktop dual-core processor, with just 1MB of L2 cache and a clock speed of 1.6GHz. It is based on Intel's Core micro-architecture though, making it an awful lot cooler and a whisper faster than Pentium Ds of yesteryear. But if you're thinking of upgrading from a Pentium Extreme Edition system, it's worth remembering that these old chips score higher in PCmark05's CPU test than the E2140.

The system scored 4,220 overall in PCmark05, with 4,699 in the CPU section, which makes it slower than quite a few notebooks in this month's group test on page 93, and at this price it's almost worth considering a notebook as an alternative.

Ambros includes 1GB of memory, which is less than impressive, since Vista really needs more when multitasking, and the 160GB hard disk is rather stingy compared to most other desktop systems.

Vista Business comes installed, which is a better choice than Vista Basic because it includes the fancy 3D Aero interface and fax and scan software, but it's less desirable than Vista Home Premium since it lacks Media Center software for easily browsing your photos, video and music.

Graphics are provided by Intel's lowly GMA 3100 integrated chip. It averaged 17fps (frames per second) in Fear and a paltry 348 in 3Dmark06, which reflects that although the system is capable of running older games, newer games won't run at anything other than the lowest quality settings, if at all.

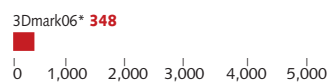
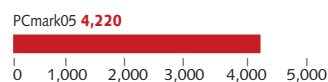
The GMA 3100 isn't capable at all of playing back high-definition content from HD DVDs or Blu-ray discs, so you'll need to upgrade the graphics card.

Upgrading the processor or graphics card could be difficult since the power supply is rated at 250W. We successfully dropped a Radeon HD 3850 into it without a hitch, but 250W won't be enough for faster components. Other than that, the power supply is fit for purpose, always remaining quiet and cool and, combined with the SG31G2's diminutive size, makes it ideal to go into a living room or bedroom.

While some Shuttle PCs come with a remote control the SG31G2 doesn't include one, relying instead on a cheap mouse and keyboard – both of which are wired. You'll have to add your own monitor, which will push up the price if you don't already have one, but otherwise this is an average-priced system.

Emil Larsen

## Performance



\*Tested at 1,024 x 768 in 32bit colour

## Details

**Price** £516  
**Best price** [www.pcw.co.uk/bestprices](http://www.pcw.co.uk/bestprices)  
**Contact** [www.ambros.co.uk](http://www.ambros.co.uk)  
 020 8861 2223 Ambros Direct  
**Specifications** Intel Pentium Dual Core E2140 1.6GHz • Intel GMA 3100 • 1GB DDR2 667MHz • 160GB hard disk • DVD writer • Vista Business • One-year RTB warranty • 200x300x185mm (wxdxh)

## Verdict

**Pros** Quiet; small and light; easy access to ports and components  
**Cons** Small amount of Ram and hard disk capacity; slow processor  
**Features** ★★★★★  
**Performance** ★★★★★  
**Value for money** ★★★★★  
**Overall** An easily serviceable business PC with good upgrade potential, but it's not that quick for the money  
 ★★★★★



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PCW - February 2008 - MESH G92 Pulse Pro



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Computer Active - December 2007 - MESH G92 Pulse Pro



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- 500GB SATA2 hard drive with 16MB buffer
- 256MB NVIDIA GeForce 8400GS Graphics
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- 512MB NVIDIA GeForce 8800GT Graphics (DX10)
- 24" Widescreen TFT LCD Display (MM, Digital, 6ms)
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- 512MB DDR3 NVIDIA GeForce 8600M GT VRAM (supports DX10)
- Pin-hole Camera 1.3M pixel

- Built-in 4-in-1 Card Reader ■ Super-Format Dual Layer DVD Writer
- Intel faster Wireless LAN4965ABGN ■ New Intel Robson Technology
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## NOTEBOOK PC

## MSI PR600

This mid-range notebook offers decent battery life and portability



Despite its large screen, the PR600 weighs just 2.5kg

**M**SI's PR600 notebook is based around a 15.4in widescreen and Intel's Core 2 Duo T7250 processor, which is clocked at 2GHz. The latter might not be the fastest model on the block, but it's certainly not a bad inclusion at this price.

There's 2GB of memory, but the notebook doesn't include a dedicated graphics card, relying instead on an Intel 965 chipset for its video performance.

A score of 4,092 in PCmark05 is reasonable, but by no means spectacular, while the 3Dmark05 and 3Dmark06 scores of 878 and 598 respectively again bear out the paucity of the onboard graphics, which will be unable to deal with new games in anything but the very lowest resolution and detail settings.

The screen has a resolution of 1,280x800 pixels, which is a little low for our liking on a screen of this size, but it's still perfectly sharp and clear. Brightness levels are also good. It's not an anti-glare screen, which helps increase the contrast, but this does mean that in environments with lots of bright light sources it's susceptible to reflections.

The chassis is quite boxy and not particularly inspiring, but on the plus side it's reasonably portable. There's enough room on the right of the main keyboard for a numeric keypad, and the keys are reasonably pleasant to type on. There's also a special function key for switching off the trackpad, which will come in handy if you find that it interferes with your typing.

The 160GB hard disk is complemented by the multifunction DVD writer and it includes an eSata port, which can be used for attaching extra storage. Also present are four USB2 ports and a single mini-Firewire socket.

Network and modem connections sit on one side of the chassis, while on the other you'll find the VGA socket for monitor connections and an S-video output.

There's no TV tuner included to take advantage of Vista Home Premium's Media Center application, so if you want to watch and record live TV you'll need to purchase a tuner separately. A small 1.3-megapixel webcam is mounted into the top of the screen's bezel, and a pair of tiny, and indeed tinny, speakers sits just above the keyboard. While these speakers are perfectly adequate for the likes of Youtube videos, they don't sound great during gaming or movies. As you might expect, though, it comes with a headphone output as well as a microphone socket and a digital audio output in the form of optical S/PDIF.

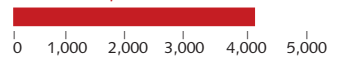
With a weight of only 2.5kg it's fairly portable for a notebook with a relatively large screen, and its decent battery life of four hours and 44 minutes in our Mobilemark Reader test shows it will happily stray from the mains for extended periods, making it ideal for those who need to work while out and about (or for watching DVDs while travelling). Of course, like all modern notebooks it comes with Wifi (802.11a, b, and g) and Bluetooth.

The PR600 includes a carry case, two-year warranty that covers parts and labour around the world (if you're on the UK mainland, it also offers a collect and return service). At £699, it's a fairly reasonable deal – you do get a powerful workhorse computer and the battery life is good. But you're not really getting anything spectacular for the money, and if you are partial to playing the occasional game you should look for a laptop with a dedicated graphics card.

Anthony Dhanendran

## Performance

PCmark 2005 **4,092**



Mobilemark **4:44 (hours:mins)**



## Details

**Price** £699

**Best price** [www.pcw.co.uk/bestprices](http://www.pcw.co.uk/bestprices)

**Contact** MSI [www.msicomputer.com](http://www.msicomputer.com)

**Specifications** Intel Core 2 Duo T7250 processor (2GHz) • 2GB Ram • 15.4in widescreen (1,280x800) • 802.11abg Wifi • Bluetooth • Four USB2 ports • Firewire • eSata • DVD multi-writer • 160GB hard disk • 1.3-megapixel webcam • Windows Vista Home Premium • 358x259x33mm (wxdxh) • 2.5£kg

## Verdict

**Pros** Superb battery life; decent processor and memory performance  
**Cons** Very poor graphics; uninspiring chassis

**Features** ★★★★★

**Performance** ★★★★★

**Value for money** ★★★★★

**Overall** It's extremely portable despite its size, but the PR600 isn't up to much otherwise

★★★★★

ULTRA-MOBILE PC

# OQO Model E2 HSDPA

High-speed broadband in a well-built diminutive device



The new Model E2 comes with a high-speed broadband module

OQO launched its ultra-mobile PC (UMPC) in September 2007 and has now released an upgrade complete with a built-in HSDPA module for high-speed mobile broadband.

Housed in an extremely small chassis, the Model E2 weighs just 500g and is sturdily built. The screen shifts up to reveal a Qwerty keyboard and numeric keypad along with a small and rather fiddly mouse control. There's a good amount of spacing between each key, although you won't be able to use all 10 fingers – most people are likely to use just their thumbs. Additional keys are limited to left and right mouse buttons and zoom control. Controls for volume, brightness and a Vista Start button are noticeable by their absence.

The bottom of the chassis is home to a USB2 port, docking connector, audio jack and built-in microphone. There's also an HDMI port, but this should be seen as a smaller alternative to a VGA or DVI output and not a way of watching high-definition movies on an HDTV since it's not HDCP compatible. Regardless of HDCP support, HD video is well beyond the graphics capabilities of the Model E2.

OQO has gone for a 1.6GHz Via processor, namely the C7-M ultra-low voltage chip, and supplied it with 1GB of Ram. Via's VX700 chip handles the graphics and since it has no dedicated Ram it ends up stealing what it needs from the main system memory. OQO has also stuck with a standard 1.8in 80GB model spinning at 4,200rpm rather than a solid-state drive.

On our test system, Vista Ultimate took a total of one minute, 45 seconds to boot. Once up and running, it was perfectly capable of browsing the internet, dealing with Word documents and the like, but loading individual programs was frustratingly slow. Even simple

tasks such as opening the Control Panel or a browser window took a good few seconds.

The new HSDPA module lets you browse the internet at high speed whenever an HSDPA signal is present. Should you drop out of an HSDPA area, it will continue at slower GPRS speeds. In our tests, using T-Mobile's network, we couldn't get above 400Kbits/sec – well short of the 3.6Mbits/sec synchronisation speed. HSDPA speeds are limited by various factors including contention, which in central London can slow things to a crawl, but we were hoping for faster. Don't forget you'll need to provide your own Sim card to use this service, preferably with an unlimited data tariff.

The 5in screen has a native resolution of 800x480, which doesn't leave much room for the Vista desktop. The Model E2 can work at 1,000x600 or 1,200x720, but the quality drops as it shifts from its native resolution. The touchscreen requires an OQO Digital Pen (£20), so finger navigation is out, but vertical and horizontal scrolling can be performed by hand using the two strips at the bottom right of the screen.

Battery life was disappointing, with the standard 4,500mAh battery providing just two hours' usage. A 9,000mAh battery is available for £120. The Model E2 also runs hot, with audible fans attempting to cool things down. It's not going to burn you, but it will become uncomfortable over extended periods of time.

This new HSDPA Model E2 is compact, well built, features a usable keyboard, and beats Medion's Rim1000 ([www.pcw.co.uk/2191874](http://www.pcw.co.uk/2191874)) and Sony's UX1 ([www.pcw.co.uk/2174237](http://www.pcw.co.uk/2174237)). But we still prefer Samsung's Q1 Ultra ([www.pcw.co.uk/2193548](http://www.pcw.co.uk/2193548)) with its faster Intel processor, larger screen and better battery life. It's also much cheaper at less than £1,000.

Will Stapley

## Details

**Price** £1,369.11

**Best price** [www.pcw.co.uk/bestprices](http://www.pcw.co.uk/bestprices)

**Contact** OQO [www.oqo.com](http://www.oqo.com)

**Specifications** Via C7-M processor (1.6GHz) • 1GB Ram • 5in screen (800x480 native resolution) • 80GB hard drive (4,200rpm) • HSDPA • 802.11a/b/g • Bluetooth • Windows Vista Ultimate • 142x25x84mm (wxdxh) • 500g

## Verdict

**Pros** Built-in HSDPA; usable keyboard; well built

**Cons** Poor battery life; low-resolution screen

**Features** ★★★★★

**Performance** ★★★★★

**Value for money** ★★★★★

**Overall** Built-in high-speed broadband, but there are cheaper and better alternatives

★★★★★



NOTEBOOK PC

# Asus Eee PC 4G 701

A cheap alternative to an ultra-mobile PC



There's usually an easy way to estimate the price of a notebook computer. Very small or very large notebooks tend to be expensive, with cheaper models occupying the middle ground. The Asus Eee PC, then, is something of an anomaly: a truly tiny computer, with a tiny £220 price tag to match.

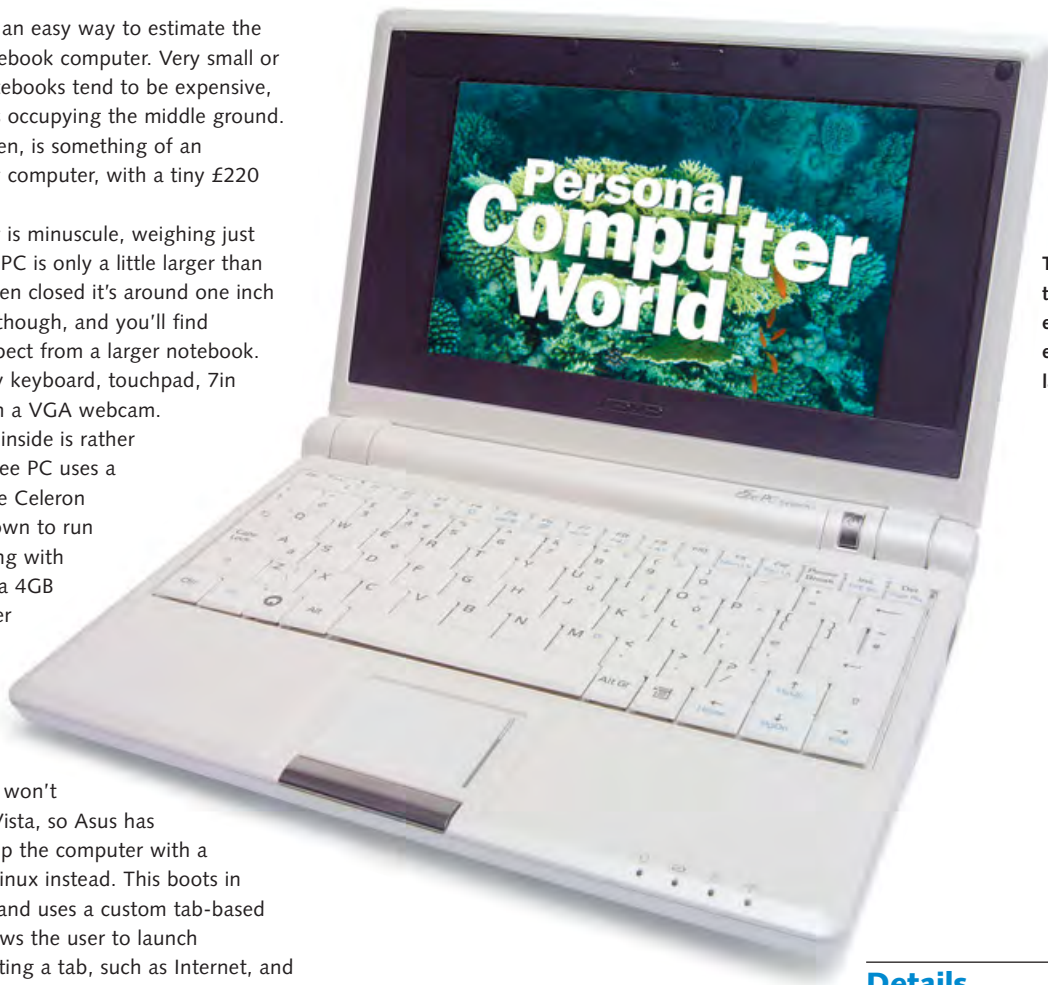
The Eee PC really is minuscule, weighing just 927g. The lid of the PC is only a little larger than a DVD case, and when closed it's around one inch thick. Open the lid, though, and you'll find everything you'd expect from a larger notebook. There's a full Qwerty keyboard, touchpad, 7in colour LCD and even a VGA webcam.

The specification inside is rather more unusual. The Eee PC uses a 900MHz Intel Mobile Celeron processor clocked down to run at just 630MHz, along with 512MB of Ram and a 4GB flash hard drive. Over 2GB of this is used up as standard, but it's easy to add more space with an SD card.

This specification won't get the best out of Vista, so Asus has wisely decided to ship the computer with a version of Xandros Linux instead. This boots in around 15 seconds, and uses a custom tab-based user interface. It allows the user to launch applications by selecting a tab, such as Internet, and then a task. Applications are given friendly names – Web rather than Firefox, for example – so the whole system is very easy to use. Other useful applications installed as standard include Open Office 2, Thunderbird and a media player. More technically minded users will like the ease with which a full KDE desktop can be uncovered. Asus knows Linux is one step too far for many users, so it has included Windows XP drivers. Armed with a USB CD-Rom drive and a copy of XP, it took us around two hours to load XP.

With Windows XP installed, PCmark05 wouldn't produce a full result but the hard drive section's score of 1,907 is on a par with slower 2.5in mechanical hard disks. It's powerful enough to play DivX movies smoothly and the stereo speakers deliver the punch of bigger notebooks.

Using Linux as standard, though, the Eee PC works well as an internet device. Its built-in Ethernet and 802.11b/g Wifi makes it easy to connect to a network, although we found ourselves wishing for a Bluetooth adapter so we could connect to a mobile phone too. The 800x480 pixel screen is good enough



The Eee PC is tiny but it has everything you'd expect from a larger notebook

to view most websites without excessive scrolling, especially if you hit F11 for the full-screen mode. Firefox makes short work of most sites, including media-heavy ones such as Youtube, and we found that having a few tabs open didn't tax the Eee PC's memory or processor too much.

As a tool for office work, though, the Eee is less convincing. Open Office works well but the keyboard will be a sticking point for many. It's necessarily small, but even once you've mastered the two-finger typing technique that's necessary to type quickly – it took us a day or two – the keys are fragile-feeling and wobbly. It is fine for an email, but we wouldn't want to type more than 1,000 words in one go.

More annoyingly, the battery lasted between two and three hours in our tests. With such a small screen and slow processor, we'd hoped for a longer lifespan when away from the mains.

Despite these niggles, it's hard not to fall for the Eee PC's diminutive charms. It isn't a suitable replacement for a proper notebook when working, but as a second device to surf the web, or as the ultimate geek-toy for Linux fans, it's ideal. *Tom Royal*

## Details

**Price** £220  
**Best price** [www.pcw.co.uk/bestprices](http://www.pcw.co.uk/bestprices)  
**Contact** Asus [www.asus.com](http://www.asus.com)  
**Specifications** Intel Mobile Celeron 630MHz • 7in 800x480 display • Intel 910GML Express chipset • 512MB 667MHz DDR2 • Intel GMA-900 integrated graphics • 4GB SSD • Three USB2 ports • 1.1kg including power adapter • (wxdxh) 225x164x35mm • 802.11b/g Wifi

## Verdict

**Pros** Tiny; very cheap; easy to upgrade components  
**Cons** Gets hot; only average battery life; needs more storage  
**Features** ★★★★★  
**Performance** ★★★★★  
**Value for money** ★★★★★  
**Overall** A fantastic toy for the technically minded, but of limited use for work  
 ★★★★★

## SATELLITE NAVIGATION

## Garmin Nuvi 710

Can the new Nuvi range raise the bar for in-car sat nav?



We've been impressed by past offerings from Garmin's Nuvi range of sat navs, which has recently been refreshed with the new 700 series. The Nuvi 710 is effectively the entry-level model, but retailing at a little under £300 it's not exactly shaped to compete with capable budget solutions from its rivals.

However, it's feature packed and has a 4.3in widescreen display with a silver-grey design and slimline build. A power switch is the only physical button, but there's an SD/MMC slot to upgrade the built-in UK and Ireland mapping. Garmin has also ditched the flip-up antenna from its 600 series in favour of an internal design.

On startup you're presented with a simple menu display that allows you to plan a route, view the map, adjust volume or access the various tools and settings. Getting started on a journey is therefore very simple, with typical postcode and address navigation to accompany Points of Interest (PoI), favourites and city selection if you just need pointing in the right direction.

On entering our first test route we were a little disappointed by a time to first fix of just under five minutes from a cold start, although things improved once under way and warm-start fix times were typically less than a minute. Garmin claims to have enhanced the user interface, but we couldn't see much difference in the mapping software, which has always been pretty clear and straightforward to follow. You're shown just about the right amount of detail, with clear road colourings for the current route and arrows giving you a good degree of notice before the next turn-off. Routing and re-routing calculations were fast and audible directions clear, although we were a little

disappointed not to see text-to-speech capabilities here for verbal confirmation of road names and locations. Advanced waypoint warnings to clear up tricky interchanges are also absent.

You're provided with a safety camera database with verbal and visual warnings en route and TMC traffic alerts. A nice touch is that the TMC antenna is cleverly built into the in-car charger, which helps reduce the mess of wires polluting the dashboard of your car.

As is typical of past models in the Nuvi range, we found the 710 very easy to use on the move, thanks to an effective menu structure and one-click access to a trip computer and current route itinerary from the main map. Volume control is a couple of clicks away, but it's close enough to make quick adjustments quite easy.

When you burrow into the tools menu you'll find out exactly how much is on offer, and there's an impressive degree of control here for adjusting the map display and behaviour of the device on the move. You'll also find a few interesting tools such as a 'Where am I' function, which reports your current location along with the nearest address and nearest junction. You can also perform instant PoI searches for nearby hospitals, police stations and fuel.

Garmin includes comprehensive guides to help you learn about some of the features of the device. In addition to general control there's a media player for MP3 files, a picture viewer for JPEG photos and travel assistance in the form of a world clock, calculator and both a currency and unit converter.

Bluetooth for phone pairing and an FM transmitter to send either voice directions or audio from the built-in player to your car stereo complete an impressive package.

Paul Lester

## Details

**Price** £279

**Best price** [www.pcw.co.uk/bestprices](http://www.pcw.co.uk/bestprices)

**Contact** Garmin [www.garmin.com](http://www.garmin.com)

**Specifications** 4.3in widescreen display • 480x272 resolution • UK and Ireland maps • Bluetooth • TMC traffic alerts • Speed camera alerts • Li-Ion battery • Five-hour battery life (maximum) • 122x20x76mm (wxdxh) • 176g

## Verdict

**Pros** Impressive range of features; very easy to use; good performance on the road

**Cons** Expensive considering the lack of European maps; lacks some advanced features

**Features** ★★★★★

**Performance** ★★★★★

**Value for money** ★★★★★

**Overall** A solid navigator with some well-integrated features, but it lacks European maps and should therefore be cheaper

★★★★★



## MEDIA STREAMER

# Pinnacle Showcenter 250HD

This version brings HD video streaming, but no HDMI



Pinnacle's Showcenter will stream HD material

**P**innacle's Showcenter media streamer has been around since 2004 and the product name of this latest version may cause some confusion – we initially thought the 250HD indicated it had a 250GB hard drive, but it doesn't. What it actually means is the device will stream HD material. And, with sales of HD televisions going through the roof, it's a sensible addition.

What's not so sensible is that the Showcenter 250HD doesn't include an HDMI output, so the glory that is audio and HD video in a single, thin cable isn't something you'll experience with this media streamer. If you want to output HD video you'll need to use the component video sockets and pipe the audio out separately – potentially via five cables. Which leads us to another gripe: not content with omitting HDMI, Pinnacle has also opted to frustrate purchasers further by not including component video cables – unlike with Scart cables, few people have a selection of spare component video cables stashed in a cupboard, so you'll need to buy these separately. Furthermore, component video can't handle 1080p HD video, only 720p and 1080i.

If you're not fussed about HD video, the Showcenter 250HD has a number of other video and audio outputs, including Scart, composite and S-video, along with digital (optical and coaxial) and analogue audio.

Unlike with previous versions, you won't find any streaming software included. Pinnacle, like many other manufacturers, instead leaves the process of getting content from your PC to the Showcenter up to DLNA-compatible media players, such as Windows Media Player 11.

The Showcenter 250HD can also receive content from any UPnP-compatible network-attached storage (Nas) drives you may have, as well as via the USB port.

As with most media streamers, you can hook it up to your network via a wired or wireless connection. It only comes with 802.11g wireless and not the faster Draft-N version. So if you want to make use of its HD streaming capabilities you'll need to opt for the wired route, and we'd recommend using some form of powerline networking, such as Solwise's NET-PL-200AV-Push, which we reviewed on page 69.

If there's one aspect of media streamers that we regularly complain about it's the poor interfaces. And despite the numerous hardware updates, Pinnacle's interface hasn't changed much. This new version features the same amateurish setup pages, although the browsing of your media has been improved. But there's no album art to spice things up and long track names are cut short.

There are no navigation buttons on the device itself either, leaving you to rely on the extra-large remote. This is as ugly as ever and it's not clear which button does what. With a menu system slow to respond, it's easy to confuse the Showcenter with lots of buttons presses.

Video codec support is good, including the popular DivX and Xvid varieties, although we still managed to find the occasional file that required conversion first, and outputting HD video over component looks just as good as over HDMI on other devices.

It's been a while since we've seen a Showcenter from Pinnacle and, although it certainly has its strengths, we were hoping for more of an overhaul with this new version. The lack of an HDMI port is shocking and the interface is still nowhere near as slick or intuitive as we'd like. And with rival products offering web access, we were surprised to see Pinnacle pass it by yet again.

In short, the Showcenter 250HD works well, but we expected more.

*Will Stapley*

## Details

**Price** £129

**Best price** [www.pcw.co.uk/bestprices](http://www.pcw.co.uk/bestprices)

**Contact** Pinnacle 01753 655 999  
[www.pinnaclesys.com](http://www.pinnaclesys.com)

**Specifications** 802.11g wireless • 10/100Mbps/sec Ethernet • USB2 port • Scart, composite, Component, S-video • Analogue and digital audio • MPEG1/2/4, WMV, DivX, Xvid video support • MP3, WMA, WAV audio support • JPEG, PNG image support

## Verdict

**Pros** HD support; good range of supported formats

**Cons** No HDMI; no web access; not much of an improvement on previous versions

**Features** ★★★★★

**Performance** ★★★★★

**Value for money** ★★★★★

**Overall** It works well, but we expected to see HDMI, more features and a revamped interface

★★★★★

NETWORK-ATTACHED STORAGE

# Thecus N299

A feature-rich Nas device with plenty of storage



The N299 has a good range of features, but its speed is disappointing

If HP's Mediasmart Windows Home Server (WHS) (see page 54) is too expensive for your liking, you might want to consider a network-attached storage (Nas) drive. A Nas can't match the functionality of WHS, but is much cheaper and will satisfy most home users' storage and sharing needs.

The latest Nas to enter the PCW Labs is the Thecus N299. It houses two 500GB hard drives (other sizes are available) along with a fan to keep them cool. It's similar in noise levels to Acer's Easystore (read a review at [www.pcw.co.uk/2206105](http://www.pcw.co.uk/2206105)) and, unless there is very little background noise, you won't hear it whirring away. Two USB ports sit at the rear, along with a further port at the front, and a small button lets you transfer data from a USB key to the Nas device quickly. A power button is also located at the front and a series of LEDs let you know what the N299 is up to.

As with most Nas drives, all settings are configured using a web-based interface. It's relatively simple to navigate around, but those with little or no networking knowledge will no doubt find some of the options confusing. There's also no printed manual, so you're left to search through the PDF version for help.

However, things didn't get off to a good start when the N299 demanded we update the firmware before allowing us to alter the settings. Sure enough, there was some new firmware available on the Thecus site, but after some rummaging around we also found the firmware file sitting on the software CD.

We've occasionally come across products that require the latest firmware to be downloaded, but if Thecus had time to put it on a disc, why on earth didn't it flash the new firmware itself? Instead, it's left up to the customer and, with firmware updates always

a slightly risky process, this stance could leave Thecus with more than a few support calls.

Once updated with the new firmware we started creating shared folders and scheduling Bit Torrent downloads, which all worked well. Individual and group user accounts can also be set up, with different levels of access rights.

The N299 is advertised as having Gigabit Lan and, sure enough, when we hooked it up to our Gigabit switch it registered at 1,000Mbits/sec. However, it was a different story under testing. We tried reading and writing a number of files and the N299 could only muster around 6.25Mbytes/sec – well short of Gigabit Lan speeds. Considering the huge amount of storage space available on the N299, it's quite likely anyone who buys it will be transferring equally huge files; at the speeds we were achieving, 10GB of data would take just short of half an hour. This may not bother you, but the fact is there are faster devices out there – the Qnap TS-109 Pro in our Nas group test (PCW September, 2007) achieved 147.2Mbits/sec.

As expected, the N299 will supply photos, music and video stored on it to any UPnP media streamers you might have on your network (Pinnacle's Showcenter included – see page 65).

The Thecus N299 certainly isn't without its charms and, at just under £300, it's reasonably priced. However, it has its drawbacks, not least the transfer speeds; when a product is advertised as having Gigabit Lan you expect it to at least perform faster than a standard 100Mbits/sec device. But if you're not going to be regularly transferring large files it's a tempting alternative to WHS.

Will Stapley

## Details

**Price** £292.58

**Best price** [www.pcw.co.uk/bestprices](http://www.pcw.co.uk/bestprices)

**Contact** Origin Storage

08701 68 88 89

[www.originstorage.com](http://www.originstorage.com)

**Specifications** 1GB storage (two 500GB drives) • Dual Gigabit Lan • Raid 0/1 and JBOD support • Three USB2 ports • Ethernet cable included • Windows, Mac and Linux support • 160x200x85mm (wxdxh)

## Verdict

**Pros** Bit Torrent support; good price; quick USB transfer

**Cons** Slow transfer speeds; comes with out-of-date firmware

**Features** ★★★★★

**Performance** ★★★☆☆

**Value for money** ★★★★★

**Overall** A good set of features, but disappointing network performance

★★★★★



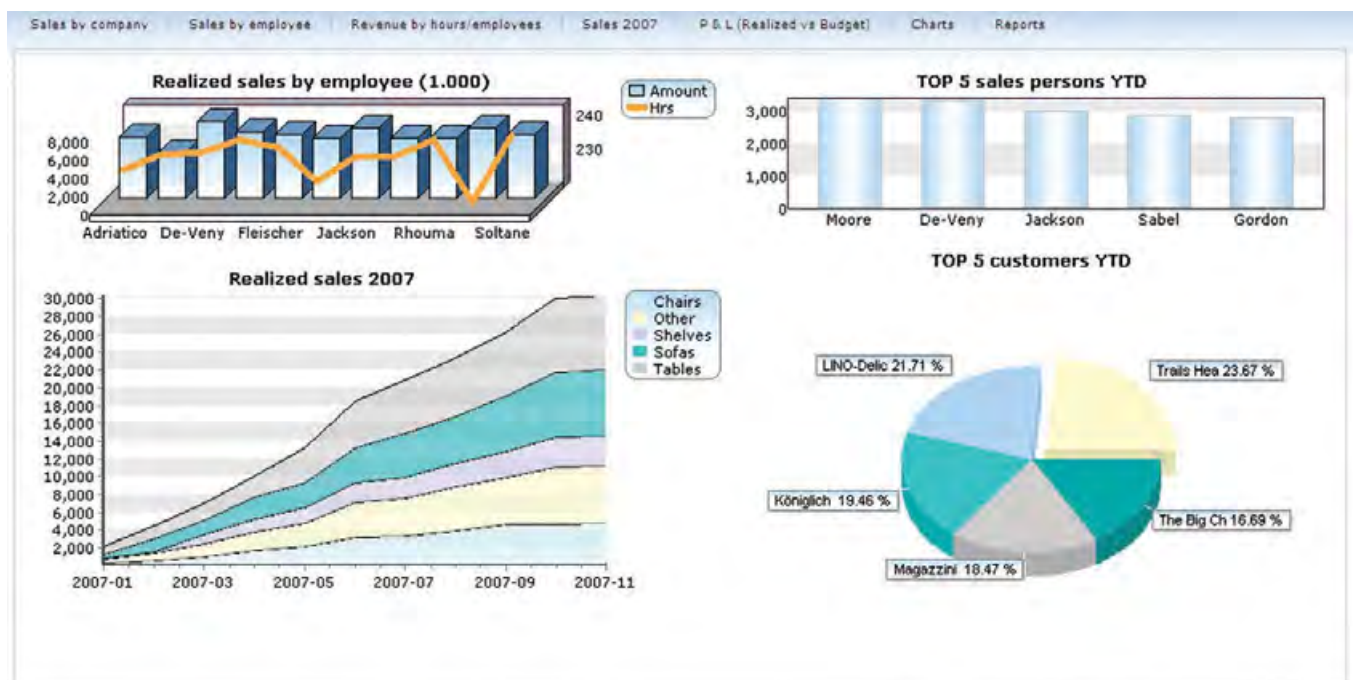
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22IN TFT

# Viewsonic VX2240w

A budget yet stylish display with HDCP support



Stylistically, like most of Viewsonic's range, the VX2240w looks better than many monitors in this price range. Its thin black bezel and gently curving rear end are complemented by a silver brushed-metal control panel, fitted with small but responsive buttons.

Although it's a relatively basic, low-cost product, it comes with a fast 2ms response time and a dynamic contrast ratio of up to 4,000:1, which boosts clarity when watching video or during high-speed gaming. It's

also fitted with both a VGA and a DVI-I port – the latter is HDCP-enabled to allow high-definition playback.

In terms of general operation, those familiar with Viewsonic monitors will find nothing remarkable. Two buttons labelled simply '1' and '2' control access to the on-screen menus – navigated by up and down switches.

The VX2240w does, however, bring one new feature to the menu: you are now able to adjust the response time of the panel in exactly the same way you might tweak the brightness or the contrast. This allows you to control the trade-off between fast, sharp on-screen motion and the subtle visual artefacts that may be introduced by the circuits that provide it.

Although it delivers a crisp and punchy image, our tests revealed the colour reproduction to be a little inaccurate, even after our attempts at calibration, and therefore not the best choice for photographic work.

The budget VX2240w has just a basic stand, with only a tilt adjustment available and the circular design of the base causes it to protrude quite far forward, making it difficult to tuck a keyboard under the display.

If you want to spend a little less, but like the 1,680x1,050 resolution of the VX2240w, then consider its baby brother, the VX1940w, which offers the same specification in a 19in package. *Paul Monckton*

## Details

**Price** £220

**Best price** [www.pcw.co.uk/bestprices](http://www.pcw.co.uk/bestprices)

**Contact** Viewsonic 020 7921 2200  
[www.viewsoniceurope.com](http://www.viewsoniceurope.com)

**Specifications** 22in widescreen TN panel • 1,680x1,050 resolution • Contrast ratio: 1,000:1 static, 4,000:1 dynamic • Viewing angles: 160°/170° (vertical/horizontal) • Response time: 2ms grey-to-grey, 5ms black-white-black • 300 cd/m<sup>2</sup> brightness • VGA, DVI-D (with HDCP support) • 509x225x431mm (wxdxh) • 5kg

## Verdict

**Pros** Build quality; styling; HDCP support; adjustable response time  
**Cons** Tilt-only stand; viewing angles; colour accuracy

**Features** ★★★★★

**Performance** ★★★★★

**Value for money** ★★★★★

**Overall** A basic but stylish monitor with dual inputs and a good specification for gaming

★★★★★

## POWERLINE NETWORKING

# Solwise NET-PL-200AV-Push

High-speed mains networking with hassle-free security



If your wireless network is a little too flaky and you don't fancy trailing Ethernet cables around your house, powerline networking is a good alternative. Using your existing mains wiring it provides fast, hassle-free networking.

In order to network a device using powerline you'll need two powerline adapters (these plug directly into a three-pin plug). One hooks up to the device to be networked, with the other connecting to your router.

Solwise has a range of powerline kit and its NET-PL-200AV-Push aims to make securing your powerline network both quick and easy. Security isn't usually a problem with powerline networking since most houses have mains rings that are separate to

neighbouring properties. However, if you live in a flat or share a house with other people, it's worth encrypting data between powerline devices.

Almost all powerline devices come with encryption options, but you'll usually have to set this up using some rather counter-intuitive software; this can also be a problem if you're using a Mac or Linux PC for which there is no software. To encrypt data on Solwise's new kit you simply push the button on one and, within two minutes, push the button on the second device. The devices will then share a randomly generated 128-bit AES key.

Based on the Homeplug AV specification, it provides up to 200Mbps/sec, though in reality you'll be lucky to get more than 30Mbps/sec. Panasonic's BL-PA100KT uses a similar push-button encryption method, but it won't communicate with other Homeplug kit since it uses proprietary technology (read a review at [www.pcw.co.uk/2172371](http://www.pcw.co.uk/2172371)).

Back in our powerline group test (PCW, October 2007), Solwise picked up the Editor's Choice with the NET-PL-200AV due to its price and performance. This new version performs just as well and, with extra features, a more attractive design and lower price, it comes highly recommended. *Will Stapley*



## Details

**Price** £50

**Best price** [www.pcw.co.uk/bestprices](http://www.pcw.co.uk/bestprices)

**Contact** Solwise 0845 458 4558  
[www.solwise.co.uk](http://www.solwise.co.uk)

**Specifications** Homeplug AV 1.0 specification • 200Mbps/sec maximum theoretical speed • 128-bit AES encryption • LED indicators • 10/100Mbps/sec Ethernet (cable included) • 48x75x86mm (wxdxh)

## Verdict

**Pros** Fast; simple to secure; good value

**Cons** No discount for buying two

**Features** ★★★★★

**Performance** ★★★★★

**Value for money** ★★★★★

**Overall** You'll need at least two, for which there's no discount, but it's still great value

★★★★★

SMARTPHONE

# 02 XDA Stellar

Built-in GPS, slide-out Qwerty keyboard and Copilot Live 7



**B**ased on the Tytn II handset from HTC, O2's XDA line-up includes some pretty impressive models, and the XDA Stellar is the first to include both built-in GPS and a Qwerty keyboard.

Satellite navigation is taken care of by Copilot Live 7 software, included in the package, while Windows Mobile 6 drives the phone.

Measuring 20mm thick and weighing 190g, the XDA Stellar will be too bulky for many, but if you want a Qwerty keyboard you're going to have to make some sacrifices. Slide the screen to the left, and

the keyboard is revealed. With such little space between keys, typing is awkward at first and most definitely a two-fingered operation only. The tilting screen makes it perfect for sitting on a table to watch video.

Windows Mobile 6 can't match the iPhone's interface for ease of use, but it beats it hands-down in terms of features. Mobile versions of Word, Excel and Powerpoint are included, along with Outlook, Messenger and Windows Media Player. It can be slow to respond at times, though.

Battery life isn't great and under pretty strenuous conditions it lasts just over a day. Used sparingly, you should get a couple of days out of it.

Copilot Live 7 works well, but it's slower than a dedicated sat nav, especially when browsing the map while zoomed out. It houses most of the features you'd expect to see (including traffic updates), but although the walking mode will ignore one-way streets, it isn't intelligent enough to direct you through parks.

If you can cope with its size, the XDA Stellar offers plenty, but don't expect to type lengthy documents. It is also available through Orange, T-Mobile (as the MDA Vario III), with the cost depending on contract, and Sim-free for around £450. *Will Stapley*

## Details

**Price** From free (depending on contract)

**Best price** [www.pcw.co.uk/bestprices](http://www.pcw.co.uk/bestprices)

**Contact** O2 08705 678 678 [www.02.co.uk](http://www.02.co.uk)

**Specifications** 2.8in screen • 3-megapixel camera • GPRS • 3G/HSDPA (where available) • Wifi • Bluetooth • GPS receiver • Qwerty keyboard • Windows Mobile 6 • Copilot Live 7 • 112x19x59mm (wxdxh) • 190g

## Verdict

**Pros** Built-in GPS; Copilot included; Qwerty keyboard; slide/tilt screen  
**Cons** Tricky typing long documents; Windows Mobile can be slow

**Features** ★★★★★  
**Performance** ★★★★★  
**Value for money** ★★★★★

**Overall** Bulky, but loaded with features and comes with Copilot Live 7

★★★★★

LASER PRINTER

# Brother HL-2170W

Laser and wireless technologies combine in this £150 printer



**T**he HL-2170W is a squat mono laser printer and one of the cheapest we've seen with built-in Wifi. As well as 802.11b/g wireless, you get Ethernet and USB ports.

The physical setup of the printer couldn't be easier – slot in the combined toner and drum unit and you're done. Getting hooked up to a network is simple too, as long as you don't change your mind about wired or wireless half-way through; the Ethernet port and Wifi can't be active at the same time.

The HL-2170W had no problem achieving its advertised 22ppm (pages per minute) in our tests, and

the time to print the first page was equally impressive at just 11.5 seconds.

It's not as quiet as the HP Laserjet p2015 ([www.pcw.co.uk/2169488](http://www.pcw.co.uk/2169488)) when idling, due to a fan on its left side making a dim whir, but the noise isn't over the top.

In our tests, text quality was very detailed and legible down to our hardest two-point test, but we did notice that the text was a little grey compared to the jet black produced by other lasers.

Pages work out at 2.11p per A4 side if you buy regular-sized toners (£35.24), falling to 1.81p per page if you buy the high capacity (£46.99) version. Bearing in mind that the drum must be replaced every 12,000 pages, this adds 0.51p per page. The standard toner costs are low, but the high-capacity toner and drum (£61.10) costs are expensive compared to the slightly dearer Dell 1720dn ([www.pcw.co.uk/2191500](http://www.pcw.co.uk/2191500)). All prices are including Vat.

The 250-page paper tray is generous, but costs have been cut by Brother providing just four LEDs, instead of an LCD, to diagnose problems. Otherwise this is a good value printer if you intend to print thousands of pages, but perhaps not tens of thousands, per year. *Emil Larsen*

## Details

**Price** £149.87

**Best price** [www.pcw.co.uk/bestprices](http://www.pcw.co.uk/bestprices)

**Contact** Brother 0845 606 0626 [www.brother.co.uk](http://www.brother.co.uk)

**Specifications** 2,400x600dpi • 181MHz processor • 32MB Ram • 10/100Mbps/sec Ethernet • 802.11b/g Wifi • USB2 • 250-sheet paper tray • One-year on-site warranty • 68x361x170mm (wxdxh)

## Verdict

**Pros** Excellent connectivity; compact; good speeds

**Cons** No LCD; greyer text and marginally noisier than other lasers

**Features** ★★★★★  
**Performance** ★★★★★  
**Value for money** ★★★★★

**Overall** An affordable Wifi mono laser with decent speed and good text quality

★★★★★



## SAT NAV

# Blaupunkt Travelpilot Lucca 5.3

A high-end sat-nav device complete with voice control



**B**etter known for its car stereo and speaker systems, Blaupunkt also has a range of sat-nav devices. The Travelpilot Lucca 5.3 is its high-end model with maps covering western Europe.

Despite the '5.3' in the product name, the stylish-looking device has a 4.3in widescreen display. There are just three physical buttons, with everything else controlled by finger on the touchscreen. The screen isn't as responsive as others we've seen and entering addresses and postcodes was tricky with the relatively small buttons. There are also separate keyboards for letters and numbers, so you have to switch between the

two, which is time consuming. We also had trouble getting the device to recognise a couple of postcodes; when entering the PCW office postcode of W1A 2HG it refused to let us go any further than 'W1', leaving us to enter the road name instead.

The Travelpilot will also accept voice commands when specifying addresses. We were sceptical at first, but it actually worked extremely well. It's a bit fiddly, since you have to go through the menus and find the voice button, but it managed to recognise most road names we gave it. A physical button linking directly to the voice input would be ideal.

The mapping doesn't feature enhancements, such as 3D landmarks, but its simplicity aids navigation. Meanwhile, the audio commands during navigation have a very disjointed feel and aren't as smooth as some competitors. The Travelpilot will also attempt to read out road names; it's obviously not perfect, and the text-to-speech conversion results in an almost underwater-style voice, but it's a useful feature.

Other features include Bluetooth for hands-free calls, TMC traffic updates and speed camera warnings.

The Travelpilot has some interesting features, but it needs to have £50 knocked off the price to make it a real contender. *Will Stapley*

## Details

**Price** £349.99

**Best price** [www.pcw.co.uk/bestprices](http://www.pcw.co.uk/bestprices)

**Contact** Blaupunkt  
[www.blaupunkt.com/uk](http://www.blaupunkt.com/uk)

**Specifications** 4.3in widescreen display (480x272) • 400MHz Arm9 processor • Maps of western Europe • Bluetooth • TMC (aerial included) • In-car charger • Mains adapter • WMV, WMA, MP3 and JPEG support • 129x22x95mm (wxdxh) • 256g

## Verdict

**Pros** Clear maps; voice control; 4.3in widescreen display

**Cons** Expensive; touch-screen is awkward to use

**Features** ★★★★★

**Performance** ★★★★★

**Value for money** ★★★★★

**Overall** Some interesting features, but it's too expensive

★★★★★

## DIGITAL CAMERA

# Ricoh GR Digital II

Not your usual run-of-the-mill compact



**T**he GR Digital II has a rugged, professional feel. Its matt black magnesium alloy body is superbly crafted and fitted with a useful rubberised grip, and all control buttons are well placed. Like the rest of the camera, the buttons feel as if they could stand up to some rough treatment.

What sets the GR Digital II apart is the lens. Ricoh has made no compromises in delivering the very best possible quality from the camera – and in this case that means using a prime 28mm equivalent lens with no optical zoom. We found that it does indeed produce very sharp images and, importantly, they retain detail and brightness right into the corners of

the picture. Bare winter branches against a clear sky showed no signs of chromatic aberration or distortion.

Glance at the brochure of just about any modern digital compact and you'll see boasts about massive zooms, high ISO settings, anti-shake systems and a plethora of automatic scene modes. The GR Digital II, however, is backed by literature filled with MTF charts, lens composition details and shutter diagrams. If none of these makes sense to you, then it's quite possible that the camera won't either.

If you're used to consumer-grade compacts, you may find the feature set a little sparse. There are no auto scene modes, nor is there face detection or image stabilisation. However, RAW mode, Adobe RGB, manual exposure and focus, a flash hot shoe and highly programmable controls are all here. It's the mind of a digital SLR in a compact body.

A unique feature is its built-in electronic spirit level, which helps ensure that your photos are perfectly horizontal by means of an on-screen indicator or audible signal.

You can also choose from a selection of accessories, including wide and telephoto lens converters and optical viewfinders. Unfortunately, it also carries an SLR-level price tag. *Paul Monckton*

## Details

**Price** £399.99

**Best price** [www.pcw.co.uk/bestprices](http://www.pcw.co.uk/bestprices)

**Contact** Ricoh 020 8261 4000  
[www.ricoh.co.uk](http://www.ricoh.co.uk)

**Specifications** 10-megapixel 1/1.75in CCD • Prime lens • 28mm • F2.4 -11 • 2.7in LCD • 1.5cm macro • ISO 80-1600 • Shutter speeds: 180–1/2000 sec • SD/SDHC memory card slot • 54MB built-in memory • VGA movie mode (30fps) • 107x25x58mm (wxdxh) • 168g

## Verdict

**Pros** Build quality; image quality; manual and auto controls; wide-angle lens; RAW mode

**Cons** No zoom; price; lack of consumer-friendly features

**Features** ★★★★★

**Performance** ★★★★★

**Value for money** ★★★★★

**Overall** A wealth of professional features and superb image quality

★★★★★



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- 4 USB Ports
- Onboard 2.1 High Definition Audio
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- Integrated 56K Modem
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- 20x Dual Layer DVD RW + Lightscribe
- 256MB Geforce 8600GT Graphics
- Digital TV Card (Dual Tuner)
- Onboard 7.1 C-Media Superior Quality Audio
- Onboard Gigabit 10/100/1000 LAN port
- Internal 52 in 1 Card Reader
- Stylish Silver / Black Sigma Case
- Six USB Ports (2 Front / 4 Rear) / 1 x Firewire
- 500w (Peak) Super Quiet Dual Rail PSU
- 19" Widescreen TFT (1440 x 900)
- Logitech® Cordless Keyboard & Mouse
- Logitech® S220 2.1 Speaker System
- 1 yr RTB Warranty incl Free Collect & Return



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SCANNER

# Irispen Express 6

Accurate scanner for those fiddly jobs when you just need to scan excerpts



The Irispen is one of those gadgets that will have absolutely no appeal for most people, but could prove to be a real time saver for those who need to scan certain kinds of document. It's a small handheld scanning device shaped like a fat pen.

Unlike a conventional scanner – which scans entire pages all at once – the Irispen allows the user to scan individual lines of text or numbers. It can then insert the scanned text straight into any program. This makes it useful for people who need to take notes

quickly from a book or grab information from business cards.

Installation was straightforward, a simple matter of running the software from the supplied Iris CD and then plugging the Irispen into a spare USB port on the PC.

When the Iris software is run it allows the user to specify whether they are scanning text, numbers or barcode data. It's also possible to specify that the text be formatted as part of a table or in narrow columns.

Our tests showed that the Irispen was very accurate when scanning printed text and barcodes. It can also scan handwritten text, though the accuracy here obviously depends on the quality of the handwriting.

Our main concern was that the slanted nib of the Irispen wouldn't be suitable for left-handed people. However, the Iris software has an option for left-handed scanning that worked very well, and even allowed more comfortable scanning of text from right to left across the page.

There are other pens in the Irispen range, including the Executive, at £138, which comes with slightly more esoteric features such as barcode recognition and the ability to listen to the scanned text.

It's a specialist device, but if you need to scan small chunks of text the Irispen will be a time saver. *Cliff Joseph*

## Details

**Price** £90

**Best price** [www.pcw.co.uk/bestprices](http://www.pcw.co.uk/bestprices)

**Contact** Iris [www.irislink.com](http://www.irislink.com)

**Specifications** Greyscale pen scanner • Text, number and image scanning supported • USB powered • Maximum 8cm per second scanning rate • Left- and right-handed operation • Windows 98/ME/2000/XP and Mac OS 10.x

## Verdict

**Pros** Accurate scanning; plenty of options; good software

**Cons** Expensive

**Features** ★★★★★

**Performance** ★★★★★

**Value for money** ★★★★★

**Overall** The price is on the high side, but it works well and comes with decent software

★★★★★

## BAREBONES PC

# Mcubed HFX Micro M1

A small and attractive case, but is the huge price tag justified?



If you are looking for a small, stylish barebones case and have a friendly bank manager, then take a look at Mcubed's HFX Micro M1. At £500 – without any memory, a CPU, hard drive or TV card – it's eye-wateringly expensive.

Winner of Intel's PC Design People's Choice award, the Micro M1 has a passing resemblance to an upmarket hi-fi amp, with both sides of the chassis finned to aid the cooling properties of the case. With an oddly attractive colour scheme the Micro M1 measures just 240x86x230mm (wxhxd), but weighs a hefty 3.5kg.

The Micro M1 comes in kit form with motherboard, heatpipe cooler, slim DVD writer

(Plextor PX-608AI) and a Vista remote, which also has an SD reader built in.

The motherboard that's supplied with the Micro M1, Aopen's I945GMt-FSA mini-ITX board, uses a previous generation mobile chipset, namely Intel's i945GM. This has Intel's GMA950 core which, in turn, limits the Micro M1's potential. While it supports high-definition video, it doesn't provide any HDMI support.

The motherboard accepts Core 2 Duo mobile CPUs and provides two notebook-style Sodimm slots, which support up to 4GB of DDR667/533 or 400MHz DDR2 modules. The board provides a x1 PCI Express slot, just right for a TV card, although to fit one in you'll probably need a riser card. This isn't bundled with the case, which is surprising considering that it costs just £11.99.

On the plus side, it runs silently thanks to the heatpipe technology used to cool the processor in conjunction with the case being part of the cooling mechanism. And the fact that the motherboard is powered by a notebook-style external power supply means there's no noisy power supply unit. The only noise you'll hear is from the 2.5in hard drive you chose to install. *Simon Crisp*

## Details

**Price** £499

**Best price** [www.pcw.co.uk/bestprices](http://www.pcw.co.uk/bestprices)

**Contact** Quiet PC 0870 321 4620 [www.quietpc.com](http://www.quietpc.com)

**Specifications** Intel i945GM chipset • Aopen I945GMt-FSA motherboard • Two Sodimm memory slots • Plextor DVD writer • Two SATA ports • External PSU • 240x86x230mm (wxhxd) • 3.5kg

## Verdict

**Pros** Silent; stylish; well built

**Cons** Lack of HDMI; expensive

**Features** ★★★★★

**Performance** ★★★★★

**Value for money** ★★★★★

**Overall** A very small, stylish and well-built case, but that doesn't overcome the whopping price tag and the lack of HDMI support

★★★★★



Version 7.0

# Identity Theft: Don't Become A Victim



## Identity Theft: Don't Become A Victim

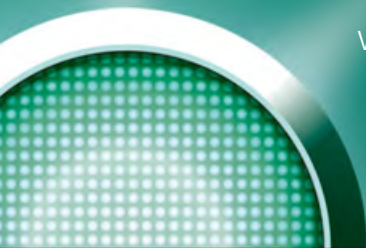
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## Sony SRS-T10PC

**Price** £35 **Contact** [www.sony.co.uk](http://www.sony.co.uk) **Overall** ★★★★★

Small speaker sets almost always suffer from poor-quality sound because the speaker cones are simply not big or deep enough to move the large amount of air required for deep, loud bass sounds. However, sound quality was better than we had expected from these speakers, which measure only 15cm wide. Bass response is fair and, although you won't be able to get any parties started, it beats the internal speakers of almost any notebook PC.

All in all, they're great if you want to listen to a bit of music or watch videos while on the move. *Anthony Dhanendran*

**Overall** Surprisingly good sound from a small and cheap pair of speakers

## In Win Allure

**Price** £50 **Contact** [www.in-win.com](http://www.in-win.com) **Overall** ★★★★★

With computers finding their way into every nook and cranny of our lives, looks are important. The Allure's Swarovski crystals – scattered on two faces of this case – were a hit in the office, but the black plastic roof disappointed.

You can fit two hard drives internally into a cage that swings out. There's no motherboard tray (Micro-ATX motherboard required), but the swing-out cage and screwless design make it a joy to fit components. Externally, the two optical drive bays have an unconventional cover that swings open vertically, and while we were initially impressed by this novel door, it is flimsy. *Emil Larsen*

**Overall** An interesting appearance and an excellent interior



## Sitecom Network Giga Switch

**Price** £34.99 **Contact** [www.sitecom.com](http://www.sitecom.com) **Overall** ★★★★★

We're starting to see Gigabit Lan (1,000Mbps/sec) appearing in more and more devices these days, but unless you've got a Gigabit router or switch you won't be able to make use of their high-speed capabilities. Sitecom's Network Giga Switch lets you hook up to five devices, with LEDs on the front indicating activity. If you have more than five Gigabit Lan devices, an eight-port version is available for £49.99. As expected, the switch requires its own power supply, but you'll also need to purchase an adapter since the one included is of the European two-pin plug variety. It's relatively cheap, but a neater solution would be to buy a router with built-in Gigabit Lan. *Will Stapley*

**Overall** Useful if you have lots of Gigabit Lan kit

## Shure SE110 Earphones

**Price** £69.99 **Contact** [www.shure.co.uk](http://www.shure.co.uk) **Overall** ★★★★★

Every time we've reviewed an Apple iPod we've had issues with the uncomfortable and poor-sounding headphones supplied. One replacement option might be the SE110 – the cheapest set Shure sells. The detail in the midrange and high end is excellent for the price, but the bass isn't quite as convincing as you get with some other headphones, noticeably some of Sony's in-ear buds.

The SE110 comes with a hard case and five different types of bud included, most of which we found uncomfortable during testing since we really had to ram the headphones in to get a fuller bass and the full insulating effect. *Emil Larsen*

**Overall** Crisp sound, but bass isn't as punchy as we had hoped





## Akasa Powermax 1000

**Price** £135.11 **Contact** [www.akasa.co.uk](http://www.akasa.co.uk) **Overall** ★★★★★

Not so long ago 1,000W power supply units (PSUs) were for serious high-end systems only. Now they are commonplace and Akasa is the latest company to join the gang with the Powermax 1000 which, unlike some of the large output PSUs, is a little larger than a typical ATX supply.

Thanks to the single 135mm dual-ball bearing fan it's also quiet and has two +12V rails. If you have a large tower case, you'll be impressed by the extra-long (75cm) cables, all of which are fully sleeved. As you might expect from a high-end supply, a variety of power connectors are included. At this price, it also represents good value for money.

*Simon Crisp*

**Overall** Plenty of power at a good price

## Gigabyte GA-73PVM-S2H

**Price** £51.69 **Contact** [www.gigabyte.com](http://www.gigabyte.com) **Overall** ★★★★★

Supporting Intel processors with 1,333/MHz, 1,066MHz or 800MHz front-side bus speeds, Gigabyte's GA-73PVM-S2H is a compact and well-featured motherboard built on a Micro ATX format printed circuit board. Nvidia's Geforce 7100 and Nforce 630i combination is also present, along with a pair of DDR2 memory slots supporting up to 4GB of 800/667/533MHz memory.

The only other slots provided are two PCI slots and a single x1 PCI Express slot, but considering what's integrated into the board that should be enough. Considering its size, all the components are well laid out and you also get DVI, VGA and HDMI ports.

*Simon Crisp*

**Overall** A well-designed board that's good value for the money



## Asus Blitz Extreme

**Price** £155.64 **Contact** [www.asus.com](http://www.asus.com) **Overall** ★★★★★

Based around Intel's P35/ICH9 chipset combination, the Blitz Extreme motherboard supports Intel's latest 1,333MHz processors and DDR3 memory (up to 8GB). Unlike some of the huge passive cooling solutions seen on a few motherboards lately, the Blitz Extreme gets by with minimal amounts of copper, which makes fitting a third-party cooler much easier than on some of its competitors.

The Blitz Extreme also features Asus' Crosslink technology, which allows it to bypass the southbridge. This enables both x16 PCI Express slots to run as x8 lanes simultaneously, unlike the standard Asus P35, which would only allow the second slot to run at 4x.

*Simon Crisp*

**Overall** It's expensive, but will appeal to power users

## Sapphire HD3850 Ultimate

**Price** £159.99 **Contact** [www.sapphiretech.com](http://www.sapphiretech.com) **Overall** ★★★★★

Sapphire's Ultimate range of passively cooled graphics cards provides decent performance with no noise. This latest card is the fastest passively cooled card we have tested to date.

Under the heatpipe cooler everything is the same as the standard actively cooled HD3850 with 320 stream processors, a core clock of 668MHz and 512MB of GDDR3 memory running at 828MHz. The only real downside is that the heatsink and cooler turn the card into a two-slot design. It will make a decent fist of most of today's games, with the exception of Crysis (see page 85), but the HD3850 Ultimate is not alone on that one.

*Simon Crisp*

**Overall** A powerful graphics card without the noise





## Kingston USB2 Media Reader

**Price** £11.48 **Contact** [www.kingston.com](http://www.kingston.com) **Overall** ★★★★★

If you've ever damaged your memory card accidentally when it has been positioned so that it sticks out of your card reader, Kingston's USB2 Media Reader aims to help you out with its innovative sliding chassis.

Pushing forward on the thumb guide at the top of the chassis brings the reader ports to the front of the device, allowing you to insert your various memory cards. Then you simply push back on the guide, which pulls the reader units and any inserted cards back inside the outer case for protection.

The reader supports all the major card formats, with the exception of XD Picture Card. *Simon Crisp*

**Overall** A cheap reader that aims to protect your cards



## Crucial Ballistix PC3-12800 2GB kit

**Price** £296.09 **Contact** [www.crucial.com/uk](http://www.crucial.com/uk) **Overall** ★★★★★

Crucial has been quite late to market with its DDR3 memory modules, which is perhaps understandable as the demand for DDR3 is still in its early days and the price is still pretty restrictive. There are two speeds: PC3-8500 (1,066MHz) in the standard range, and PC3-12800 (1,600MHz) in the performance Ballistix product line.

At present the PC3-8500 is available from single 512MB modules up to 4GB kits, while the faster PC3-12800 is available only as 1GB modules or 2GB kits. The memory runs with a latency of 8-8-8-24 at 1.8V as standard. If you must have DDR3 memory this 2GB kit performs well, but is also expensive. *Simon Crisp*

**Overall** A decent 2GB upgrade kit if you don't mind spending a lot



## Hypertec 1GB Datasafe Rugged

**Price** £12.10 **Contact** [www.microwarehouse.co.uk](http://www.microwarehouse.co.uk) **Overall** ★★★★★

The Datasafe range of USB2 flash drives from Hypertec offers 256bit AES hardware encryption and have both private and public data sections, the size of which can be user-defined. The encrypted data section uses a failsafe password for extra protection, so even if the drive were tampered with and the flash chips removed, the data will still be inaccessible without the password. For even greater protection this Rugged version of the Datasafe comes in a rubberised, shock-proof and water-resistant outer casing. Capacities for the Datasafe rugged run from 512MB up to 4GB, but if it's encryption you're after, Truecrypt ([www.truecrypt.org](http://www.truecrypt.org)) is a free app that can be loaded onto any USB key. *Simon Crisp*

**Overall** Robust portable storage with password protection

## Coolermaster RC690

**Price** £47.29 **Contact** [www.coolermaster.com](http://www.coolermaster.com) **Overall** ★★★★★

The black RC690 PC case is built from steel with some design features normally found on more expensive cases.

As is the fashion these days, the power supply bay is built into the bottom of the case, above which are two rubber holes for water cooling located on the rear panel. Above this sits one of the three 120mm cooling fans; the other two are in the side panel and hidden behind the drive bays. If you need more cooling there is a 120mm cooling mount built into the floor of the case, while two further mounts in the top of the case can take fans from 80mm up to 140mm. Priced under £50, this is a sturdy and well featured case. *Simon Crisp*

**Overall** A well-built case, with plenty of features



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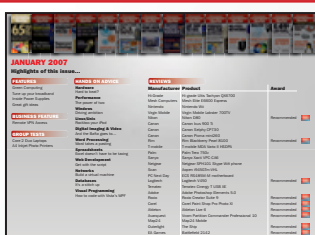
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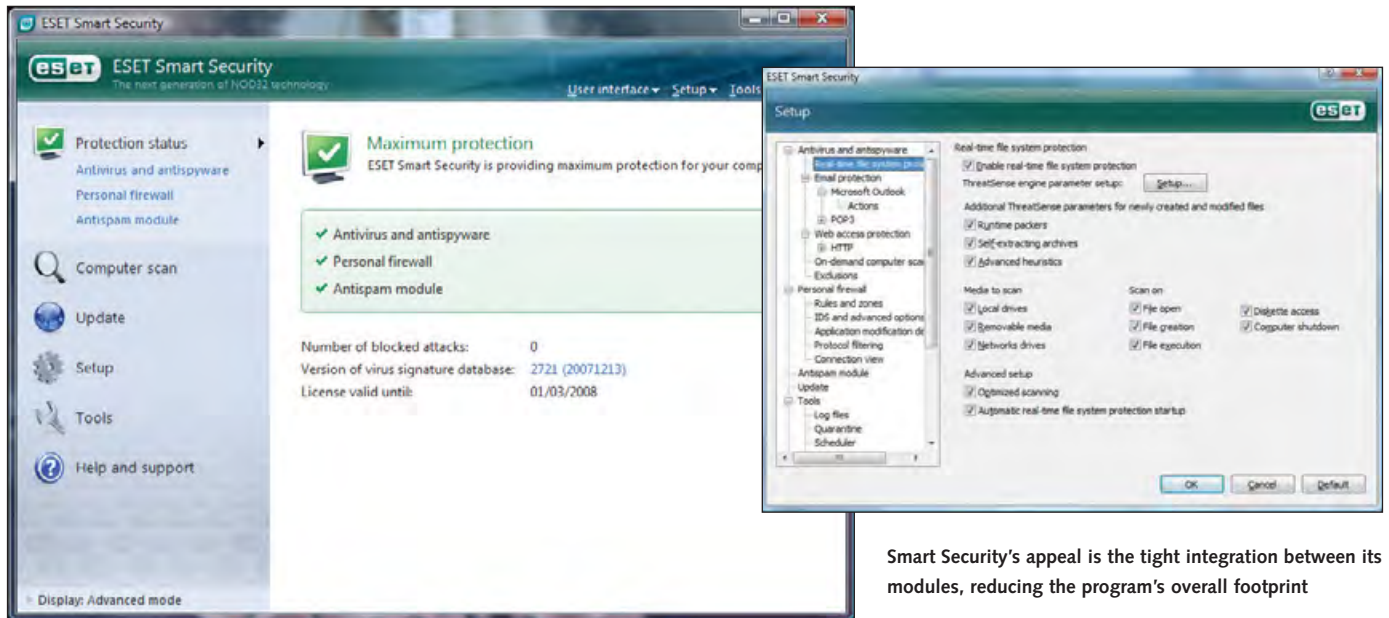
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INTERNET SECURITY

# Eset Smart Security

A no-nonsense security suite with a small footprint



Smart Security's appeal is the tight integration between its modules, reducing the program's overall footprint

Pitching itself directly against McAfee, Norton and Trend, Eset's Smart Security claims to offer faster and better protection from viruses, spyware and online threats. The package comprises the NOD32 anti-virus engine, a personal firewall and anti-spam facilities.

Part of Smart Security's appeal is the tight integration between its modules, reducing the program's overall footprint, system overhead and minimum requirements. With Window XP, for example, it can live happily with a 400MHz processor, 128MB of Ram and a spare 80MB of hard disk space. In contrast, Norton Internet Security 2008 demands a minimum of 256MB of memory and 350MB of storage. Symantec's package offers more features, but if you're looking for the leanest code to run on older machines, this could be a make or break issue.

Installation went smoothly under Vista on our Core 2 Duo notebook and during the process you're offered the chance to participate in Threatsense.Net early warning system; agreeing to this allows suspicious files to be sent anonymously to Eset for analysis. It's a great idea and files can be submitted at any time.

Despite being a Home Edition product, the suite has a professional, almost business-like feel – there's a splash of colour here and there, but the overall look is clean. We're all for neat and tidy interfaces, but some of the caption text is alarmingly small, especially on a high-resolution display and even when the window is fully expanded. This applies doubly to the tiny menus at the top of the screen and we suspect most users are likely to find McAfee or Trend's approach far more inviting.

Basic options for on-demand scanning and updating are present and correct, while a more advanced view lets you schedule scans, examine files in quarantine and check the status of individual modules. Digging even

deeper reveals a well-structured tree of options for more detailed configuration. We particularly liked the option to send messages to Eset directly from the program, and local-rate telephone support.

Smart Security scanned our 40GB of test data for viruses and spyware in just over 40 minutes, putting performance neck and neck with Agnitum Outpost Pro Suite ([www.pcw.co.uk/2204511](http://www.pcw.co.uk/2204511)). That said, while its firewall managed to stealth all ports in our tests and shrug off our attempts to shut it down (we did manage to kill the program's GUI using Task Manager), those looking for more detail in this area will prefer Agnitum's offering.

Setting up rules and trusted zones is relatively straightforward and protection can be quickly switched between strict and sharing modes to cater for different situations, such as moving from a home to a strange Wifi network. Most users will like the firewall's automatic filtering, but an interactive mode gives greater control. The business version of the package offers a policy-based filter and remote administration options.

Eset's Anti-spam system is limited to Outlook, Outlook Express and Windows Mail, but can monitor Pop3 and Imap accounts. Setting up and maintaining white and blacklists is easy, and approved senders and recipients can be automatically added to the former.

While Eset is aiming Smart Security at the big suites, a quick comparison of features shows it lacks some of the fancier facilities such as parental controls, backup tools, identity protection and a multi-user licence as standard. Eset also needs to look closer at usability when it comes to the main interface. However, it does address the core areas of virus, spyware and spam protection, its firewall is effective and its footprint is small. For many, that's the holy trinity.

Chris Cain

## Details

**Price** £44.99 (two-user licence)  
**Best price** [www.pcw.co.uk/bestprices](http://www.pcw.co.uk/bestprices)  
**Contact** Eset 0845 838 0832  
[www.eset.com](http://www.eset.com)

**System requirements** 1GHz processor • 512MB Ram • 80MB hard disk space • Windows XP/Vista

## Verdict

**Pros** Tight integration; fast virus scanning; support options; 12-month subscription includes new versions  
**Cons** Single user; interface more business than home oriented

**Features** ★★★★★  
**Ease of use** ★★★★★  
**Value for money** ★★★★★

**Overall** Lacks the extras found in some rivals, but offers effective protection without high system overheads

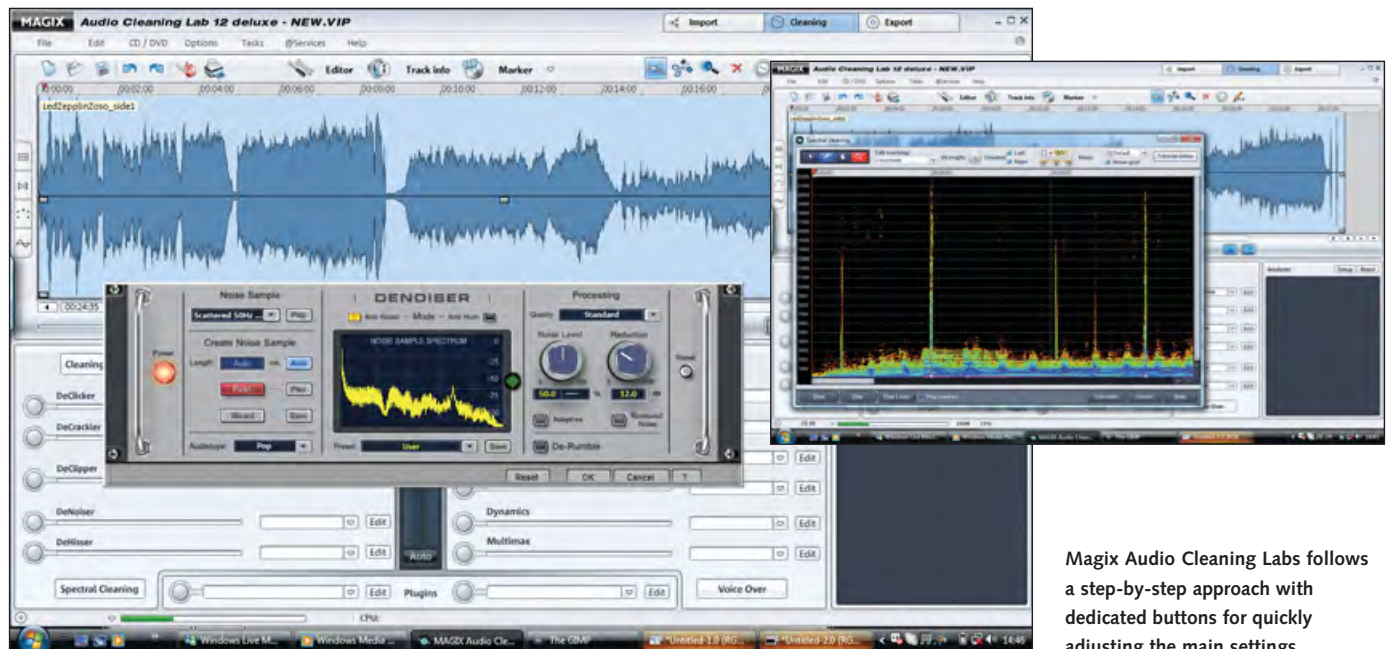
★★★★★



## AUDIO EDITING

# Magix Audio Cleaning Labs 12 XXL

Breathe new life into your old recordings



Magix Audio Cleaning Labs follows a step-by-step approach with dedicated buttons for quickly adjusting the main settings

We all have recordings that are less than pristine but still worth hanging on to, be it a show from the radio, an old vinyl LP or a recording of a concert. Magix Audio Cleaning Labs 12 XXL is a software studio for restoring audio recordings and is bundled with a preamp for recording directly from sources such as vinyl turntables and cassette players.

The software follows the standard Magix format of a step-by-step approach with dedicated buttons for quickly adjusting the main settings.

There are several videos included within the Tasks menu that explain some of the more complicated filters such as the spectral cleaning. This is nothing to do with ghosts, but rather an effective way of removing noise from a recording without deleting the audio behind it.

Adding audio to a project can be as simple as loading an audio file or ripping a CD. The options for recording are very flexible with presets for vinyl, tape and internet. Recording can also be set for a certain time and duration.

A USB-powered preamp is also supplied. This is particularly useful because it is much easier to bring just a turntable to a computer rather than a whole stereo system; the preamp is needed because the output from turntables is too low to work with an ordinary soundcard. The preamp has RCA sockets for turntables and a 3.5mm jack socket for attaching other audio sources, such as a cassette player. Even though these devices can be plugged directly into soundcards, the USB socket is less likely to require scabbling around the back.

During testing, we found the Audio ID identification tool didn't work with a variety of tracks from big names such as Led Zeppelin, Gene and KT Tunstall. There is, however, a useful link to the [Freedb.org](http://www.freedb.org) website for searching for albums by title or artist. Once the album

has been found the specific link can be entered into Audio Cleanup Lab for it to apply the information to the different tracks.

The cleaning section is where the software shines against alternatives such as the open-source Audacity ([www.pcw.co.uk/2128750](http://www.pcw.co.uk/2128750)). There are plenty of presets for different recordings, such as those made from cassette tape or LP, as well as several automatic modes. They may not be perfect, but make a very useful starting point.

The effects are all visible and split into two sections: cleaning and mastering. Each section has a one-click option for adjusting the settings automatically. Volume is set in the middle and there is a button to bypass all the effects. This is useful for making sure that nothing significant is lost from the recording; it can be easy to get carried away and take too much away. Some of the more detailed effect settings windows will also play what is being removed.

Restoring audio files is not just about taking away, there are also several ways of actively improving the tracks by widening the stereo separation and boosting the higher frequencies that are often the victims of the cleaning process. Audio export options are unlikely to disappoint either, not least because Magix is entirely neutral when it comes to file formats. WMA and AAC are both on offer, as well as OGG for those with compatible players.

The Export section also deals with creating CD labels and inlays, a feature that's sometimes forgotten but needed by those wanting to keep their music collection looking good.

At £50, Audio Cleaning Lab 12 XXL is quite expensive, but the editing tools are powerful and work well without being overcomplicated. *Tim Smith*

## Details

**Price** £50

**Best price** [www.pcw.co.uk/bestprices](http://www.pcw.co.uk/bestprices)

**Contact** Magix [www.magix.com/uk](http://www.magix.com/uk)

**System requirements** 500MHz processor • 128MB Ram • 100MB hard disk space • 16-bit full duplex soundcard • CD-Rom drive • Windows XP/Vista

## Verdict

**Pros** Versatile preamp; powerful restoration effects; supports all major music formats

**Cons** Expensive; track recognition not very effective

**Features** ★★★★★

**Ease of use** ★★★★★

**Value for money** ★★★★★

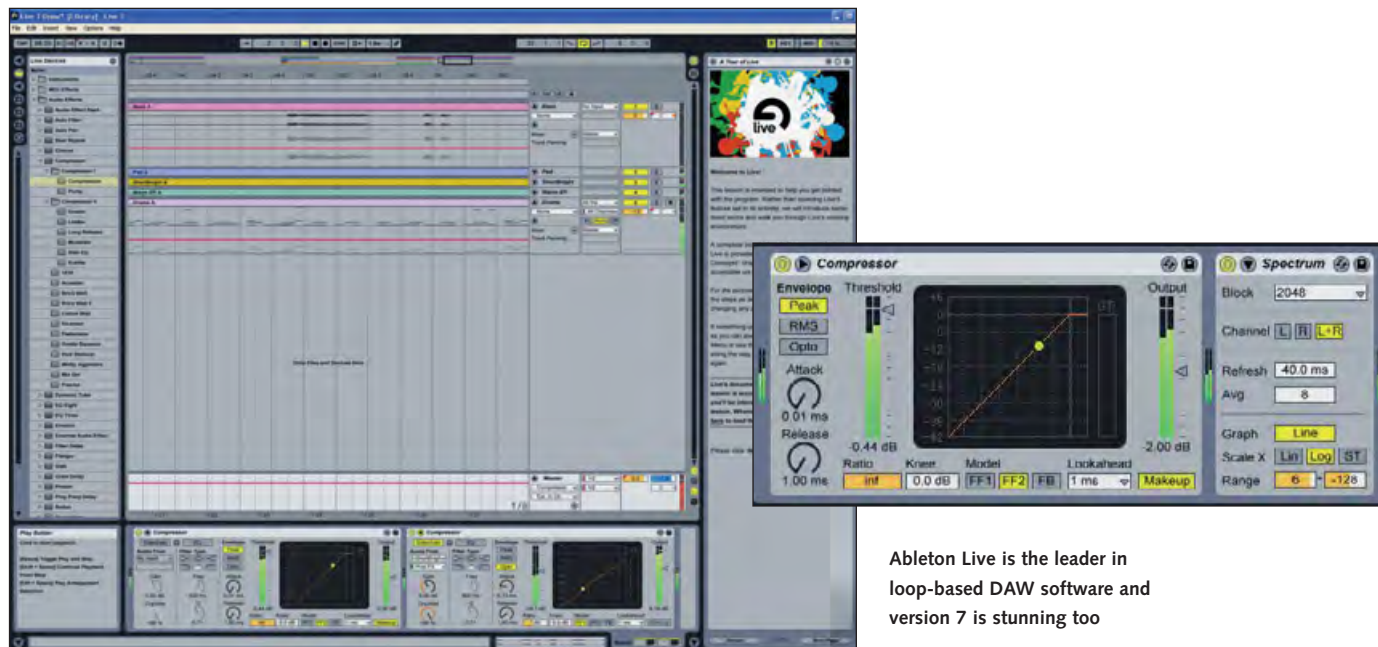
**Overall** A little expensive, but great for restoring old recordings whatever the source

★★★★★

DIGITAL AUDIO WORKSTATION

# Ableton Live 7

An extremely powerful suite for recording, composing and performing



Ableton Live is the leader in loop-based DAW software and version 7 is stunning too

**A**bleton Live has won many awards and is the field leader in loop-based DAW (digital audio workstation) software. Version 7 audio output is stunning – fidelity has been improved by redesigning the audio engine for 64-bit mix summing, POW-R (psychoacoustically optimised word length reduction) dithering and optimised sample-rate conversion.

Over time Ableton Live has expanded from the core product into a suite, which now includes three instrument collections, namely Tension (physical modelling string synthesiser), Electric (classic electric piano sounds) and Analogue (vintage analogue synthesisers), two drum collections, session drums and drum machines, a software synthesiser, operator and a software sampler. Purchasing options allow users a choice of modules. There are quite a number of user requested new features in version 7, including time signature changes within an arrangement, export to file of warped and unwarped video, display and simultaneous edit of multiple automation lanes per track, simpler synchronisation to live musicians or DJs using a new nudge function. REX files can now also be dragged, dropped and played just like WAV or AIFF files.

A new compressor device has been added which features side-chaining capability and allows a choice of three compression models, one of which is based on the feedback design found in classic studio compressors.

Possibly because of its use of minimalist graphics, Ableton Live has always been quite lean and mean and the download of version 7 is still only 78.2MB, expanding to around 120MB on installation.

Installation requires the entry of a serial number followed by an unlocking process – completed online, via email or telephone challenge and response system.

Following installation Ableton displays a Lessons view in a vertical panel. The Lessons panel in Version 6 carries lots of information in small text. In version 7 this has been simplified and split into five bold categories – A Tour of Live, Recording Audio, Creating Beats, Playing Software Instruments and DJ-ing with Live.

There are also two large setup categories that explain how to set the various Audio I/O and Midi options accessed via the Preferences menu. Exploration of supplementary lessons is provided by the use of hypertext links within the main lessons.

Users of previous versions will feel right at home because there is little obvious change in the superbly designed user interface. It consists of a display window split into five panes. A left-hand vertical pane allows browsing for files or devices and below this is a small Information pane. A horizontal pane along the bottom displays selected device interfaces, waveforms or Midi note charts and a vertical panel on the right contains the lessons and tuition material.

The largest pane in the centre flips between two views: the Arrangement view, which resembles the ticker-tape multi-track view common to most DAW software, and the Session view, which looks a little like the side-by-side channels of a hardware mixer. The Tab key is used to toggle back and forth between these two.

Since its introduction in October 2001, Ableton Live has gone from strength to strength. Version 7 offers musicians a very powerful recording, composing and performing tool. Compared to other DAWs that are dedicated to recording and mixing, its mixing capabilities are still limited to only two sends and returns, and there's also no provision for surround sound so it's stereo only.

*Terry Relph-Knight*

## Details

**Price** £358.13 (£300 download)  
**Best price** [www.pcw.co.uk/bestprices](http://www.pcw.co.uk/bestprices)  
**Contact** Ableton [www.ableton.com](http://www.ableton.com)  
**System requirements** 1.5GHz processor, Apple G4 or faster • 512MB Ram • DVD-Rom • Windows XP/Vista • Mac OSX 10.3.9

## Verdict

**Pros** Excellent interface; resource efficient; ease of use; powerful  
**Cons** Limited mixer bussing; no surround-sound support

**Features** ★★★★★  
**Ease of use** ★★★★★  
**Value for money** ★★★★★

**Overall** The ease of creating, manipulating and playing loops in Ableton makes it a real time saver and a great creative tool  
 ★★★★★



## FIRST-PERSON SHOOTER

## Crysis

A little overhyped, but some excellent spells of gaming nonetheless



Believe (some of) the hype: Crysis' gameplay is groundbreaking and the visuals will have jaws dropping the world over

**F**ar Cry appeared out of the blue in 2004 and quickly became an international PC favourite.

The same developer, Crytek, has created plenty of hype about its latest outing, though, since it features an interesting game engine, dubbed Cryengine2, along with updated graphics that Microsoft has been touting as proof of DirectX 10's brilliance.

Crysis' gameplay centres on a high-tech 'nano suit' that you and your comrades don to out-maneuvre enemies. The suit has four main functions: invisibility, strength, speed or armour. Armour is the default setting and lets you take a lot more bullets without dying and enables your suit to recover the energy needed to perform the other functions. Invisibility will appeal to stealth-minded gamers, but it drains the suit's energy and wears out within a few seconds, which is a real disappointment. Strength is the most innovative suit setting, allowing you to jump several feet in the air onto buildings, over walls and even over enemy jeeps. Strength also means you can grab a bad guy by the neck and do away with him in one go.

It takes a lot of practice to get used to changing suit types (you use the middle mouse button) but once mastered, different suit types can be called upon at speed, allowing you to use the skills you prefer.

The plot is top-drawer stuff with decent voice acting throughout. You start off investigating a disturbance on a North Korean-controlled tropical island, the atmosphere of which feels a lot like Far Cry. After a few hours of dealing with the Koreans on foot, you get to a tank level which is unnecessarily difficult. We had to admit defeat and turn the settings down to 'easy' to get through, but even then we died a number of times. Get past that point, though, and aliens come

out of the woodwork in some truly epic settings, the most impressive being a zero-gravity alien spaceship.

The tank, jeep, flying and zero-gravity levels make the suit abilities less relevant, which is a shame because you'll only just have mastered them. Another major flaw is that the game ends halfway through the story. Aliens remain on the planet and other loose ends regarding the nano suit technology are left dangling. A sequel is undoubtedly around the corner and the boring online mode (which lacks any kind of team deathmatch) makes it very unsatisfying in the light of Half Life 2's The Orange Box, which provides several more hours of gameplay.

Crysis has sincere graphical importance though, since Microsoft packed its Vista coverage with screenshots from the game to prove DirectX 10's value. In fact, several small configuration file changes have been uncovered that enable you to play Crysis with the DirectX 10 special effects on a DirectX 9 system.

Despite this, the extraordinary character detail and gigantic visuals are undeniably jaw-dropping. One level has an entire mountain falling apart, while another has an alien sphere engulf that same mountain. It is cinematic gaming in every sense, although the visuals are dumbed down on all systems not containing a Geforce 8800 or ATI Radeon 2900 or 3800 series card.

The gameplay in Crysis is superb – probably the best we've experience this year so far. The Orange Box and Call of Duty 4 last longer and are more complete than Crysis, and the fact that we award Crysis four stars rather than five is simply an indication of the golden era of gaming on the PC that we currently live in.

*Emil Larsen*

## Details

**Price** £34

**Best price** [www.pcw.co.uk/bestprices](http://www.pcw.co.uk/bestprices)

**Contact** EA [www.ea.com/crysis](http://www.ea.com/crysis)

**System requirements** Pentium 4 2.8GHz (3.2GHz for Vista) • 1GB Ram (1.5GB for Vista) • 256MB graphics memory • Nvidia Geforce 6800 GT or ATI Radeon 9800 Pro (Radeon X800 Pro for Vista) • 12GB hard disk space • DVD drive • Windows XP/Vista

## Verdict

**Overall** Some superb ideas and top-draw graphics, but a few flaws and a short single-player mode hold it back



RACING SIMULATOR

# Need for Speed: Prostreet

Compete against those bad guys in a boy-racer guise



The Need for Speed (NFS) games have been getting more tech-heavy with every release. What started with driving fast but reasonable cars has grown into Prostreet, which is clearly aimed at bling-heavy kids who dream of owning a Japanese racer festooned with techno-trickery. There's also a heavy slant on customising the car.

Catering to modern tastes doesn't make this a bad racing game. What does make it a bad game is the graphics, gameplay and controls.

You play as Ryan Cooper, a boy racer making a name for himself in the world of street racing. A story element brings in bad guys against whom to compete, and progress continues in a linear fashion.

However, confusing menu controls and level selection make a real hash of this progression. Menus quickly become spider diagrams and you must complete a selection of events in each level before new areas open up, so you can't skip the less fun time trials and drag races.

The races themselves are acceptable, with realistic handling and challenging computer opponents. The cars can be damaged as you race, with the damage carried through between races. The game also gains points for being compatible with all manner of joypads and steering wheels. We used a Thrustmaster wheel with force feedback and it worked superbly.

Graphics are fine but not at all spectacular, and the levels and maps can be quite dull. Sega Rally 3, for instance, looks much better and previous NFS games had more detailed tracks. The whole screen also rattles with acceleration, to simulate speed, which is annoying and can't be switched off, while the multiplayer mode is poorly put together. Ultimately we'd rather be playing Sega Rally.

*Emil Larsen*

## Details

**Price** £30

**Best price** [www.pcw.co.uk/bestprices](http://www.pcw.co.uk/bestprices)

**Contact** EA [www.ea.com](http://www.ea.com)

**System requirements** 2.8GHz processor (Vista: 3GHz) • 512MB Ram (Vista: 1GB) • 8.1GB • DVD-Rom • 128MB video card with Pixel Shader 2.0 • Geforce FX5950 or Radeon 9500 or greater • Geforce MX series not supported • Windows XP/Vista

## Verdict

**Overall** Poor gameplay, graphics and controls make this one to avoid



SIMULATOR

# Simcity Societies

Create and build your own city in this easy-to-play game



Previous Simcity games have concentrated on the mayoral aspect of city building – the idea being that the player would put together a city from scratch, including roads, buildings, power generation and other objects. Once the city was built, though, keeping it going involved delving into taxation, city budgets and similar, largely fiscal, aspects.

The new edition, Simcity Societies, takes things in a different direction. Essentially, it's the game's answer to virtual worlds such as Second Life. The city-building is

still here, but there's not much talk of taxation or money-making. Although you still need an income to make the city work, it's more about balancing the citizens' happiness and productivity than about balancing the books. In the Second Life vein, the buildings are all customisable, so players can have control over how the city looks.

It's true that, played this way, the game loses much of its interest for older players, and much of its difficulty; in fact, it can be quite easy to build a huge city. But what makes it a dead loss for adults can make this game interesting for older children.

The game's developers have gone out of their way to make it child-friendly. You can pick from several kinds of city at the outset, one of which is a Fun one, ideal for teaching kids about how modern towns and cities work. There's a definite environmentalist slant, with benefits available for building wind farms rather than coal power plants, but then that's been there since the first Simcity game back in 1989.

The ease of play will make Simcity Societies quite dull for a lot of adult players, particularly experienced gamers, but those who haven't played this kind of game before might find that it's an excellent introduction to God games.

*Anthony Dhanendran*

## Details

**Price** £35

**Best price** [www.pcw.co.uk/bestprices](http://www.pcw.co.uk/bestprices)

**Contact** EA [www.ea.com](http://www.ea.com)

**System requirements** 1.7GHz processor (Vista: 2.4GHz) • 512MB Ram (Vista: 1GB) • 2.1GB hard disk space • DVD-Rom • XP: Geforce FX5900 (Vista: Geforce 6800), Radeon 9600 (Vista: Radeon X600) or greater • Onboard and laptop chipsets may work but are not supported • Windows XP/Vista

## Verdict

**Overall** Perhaps too simple for adults, but great fun and educational for kids





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# How we test

Performance testing is an important part of *PCW's* reviewing process, and to obtain our authoritative results we use the UK's best PC testing resource. Here we explain why you can trust our results and give you a tour of our most frequently used benchmark programs

At the core of our PC performance tests are industry-standard benchmarks from Bapco and Futuremark. Sysmark 2007 Preview is the latest Vista-compatible version in a long line of Bapco benchmarks and it allows us, for the first time, to compare the application performance of Windows XP and Windows Vista-based systems with the same benchmark. It tests real-world application performance by running a series of scripts to mimic authentic user tasks. It loads and runs full versions of 14 market-leading applications, which are:

- Adobe After Effects 7
- Adobe Photoshop CS2
- Macromedia Flash 8
- Microsoft Outlook 2003
- Microsoft Word 2003
- Microsoft Windows Media Encoder 9 series
- Adobe Illustrator CS2
- Autodesk 3ds Max 8
- Microsoft Excel 2003
- Microsoft Powerpoint 2003
- Microsoft Project 2003
- Sketchup 5
- Sony Vegas 7
- Winzip 10

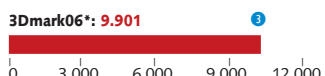
Note that scores from Sysmark 2007 Preview are not comparable to scores from previous versions of Sysmark. All scores are relative to the Sysmark reference machine, which scores 100 (see below for details).

In *PCW's* labs, our staff have over 20 years of combined testing experience. We know all the perils and pitfalls of practical benchmarking, and we contribute to the development of industry-standard benchmarks through our full membership of Bapco ([www.bapco.com](http://www.bapco.com)), the non-profit benchmark consortium. Listed below are the main benchmarks we use for testing PC systems and components.

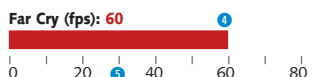
- Bapco Sysmark 2007 Preview – an application-based benchmark that tests real-world system performance.
- Futuremark 3Dmark06 – the latest version of 3Dmark that tests DirectX 3D graphics performance.
- Games – we use built-in benchmarks in Far Cry and Fear to see how graphics cards perform in a real-world games.
- Futuremark PCmark05 – a synthetic benchmark used to test the performance of a PC's major subsystems.
- Test beds – we use standardised AMD and Intel-based test rigs to test components and peripherals.

There's more information about our testing procedures and benchmarks on our Labs site at [www.reportlabs.com/testbed/bguides/benchmarks.php](http://www.reportlabs.com/testbed/bguides/benchmarks.php).

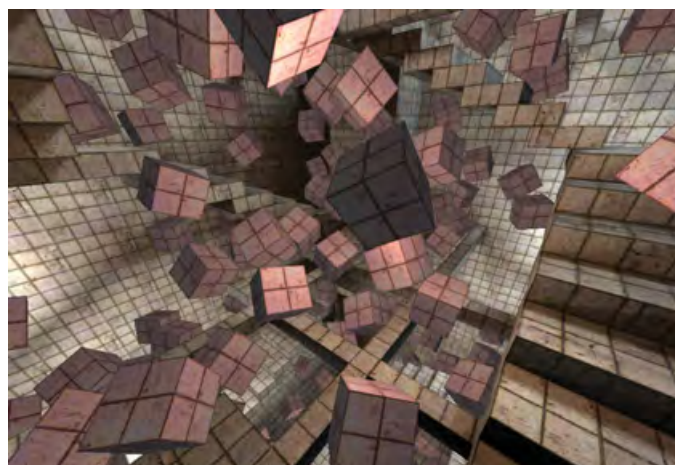
## Performance



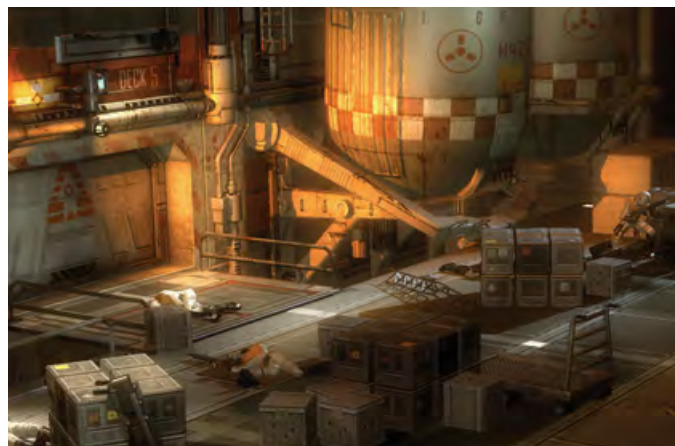
\* tested at 1,024x768 in 32-bit colour



- 1 A score of 200 indicates that the system is twice as fast as the reference PC.
- 2 The reference PC (Intel Core 2 Duo E6300 1.8GHz, 1GB Ram) scores 100.
- 3 An Nvidia Geforce 8600GT would score in the region of 9,900.
- 4 Fear: A score of 60fps (frames per second) or higher is most desirable.
- 5 A result of 30fps or above means the machine can produce playable frame rates at the tested resolution.



PCmark05 measures memory, processor, graphics and hard drive performance



3Dmark06 is used to test 3D graphics performance

Results Browser - BAPCO SYSmark 2007 Preview 1.01

Viewing Test Results  
Select a test from the list to see its results

Results\_2007-06-12 02:50 - OfficialRun\_3.xml

**Test Summary**

Project Name: 2007-06-12 02:50 - OfficialRun\_3  
No. of iterations: 3

**Scores**

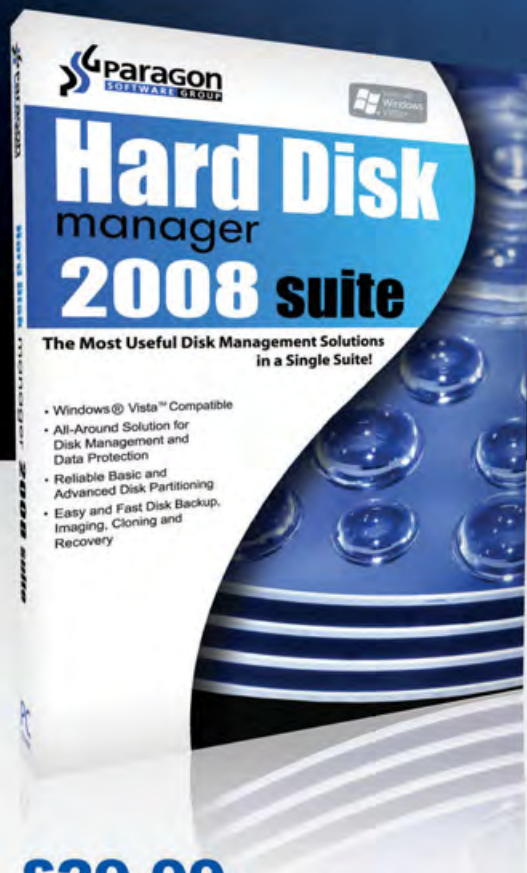
	Official Rating	Iteration 1	Iteration 2	Iteration 3
E-Learning	65	65	64	65
VideoCreation	58	61	58	57
Productivity	71	71	72	72
3D	75	75	75	75
<b>SYSmark® 2007 Preview Rating</b>	<b>67</b>			

In order to publish test results, you must submit a Full Disclosure report (FDR) to BAPCO (report@bapco.com).

Sysmark 2007 Preview tests real-world performance using common apps



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Imaging and Partitioning	Advanced tools let you control your hard drive, the number of partitions and the type of backups you may need.
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**ON TEST**

- 94** Acer Aspire 7720G  
HP Compaq 6715b
- 95** Mesh GX610  
Packard Bell Easynote  
MB88-P-003
- 96** PC Nextday Zoostorm 4-4744  
Sony Vaio VGN-NR11Z
- 97** Toshiba Satellite U300-134
- 97** How to prolong the life of  
your battery
- 98** Performance graphs  
The next round of processors
- 100** Table of features
- 102** Editor's Choice

**'£700 gets you some of the latest technology, including Santa Rosa chipsets, speedy Core 2 Duo processors and fast hard disks'**

# Lightweight heavyweights

**For less than £700 you can pick up a notebook that really packs a punch. Emil Larsen puts the contenders through their paces**

**A**fter looking at some pretty expensive ultraportables recently, we decided to lower the budget for this group test.

We asked notebook manufacturers to submit a machine for under £700 including Vat, which is what we believe to be the lowest amount that will get you some of the latest mobile technology, including Santa Rosa chipsets, speedy Core 2 Duo processors, DirectX 10 graphics and fast hard disks.

The big problem is getting all these features in one package however. Go much lower than £700 and you're likely to end up with some outdated technology. Indeed, HP did go lower with its notebook submission this month and managed to undercut our price limit by over £100, but with some surprising results.

There's little common ground between these laptops, too; you'll find 13in, 15.4in

and 17in screen sizes with a range of resolutions. One thing that did remain the same across the range, however, was that every notebook came with 2GB of Ram, rated at 667MHz – a reminder that 800MHz Sodimm modules are still in short supply. It's an indication that, finally, notebook manufacturers have woken up to the fact that anything less than 2GB of Ram simply isn't enough to run Windows Vista and a few programs on top smoothly.

Each was tested on its own merits and we put all models through our vigorous performance, battery life and energy consumption tests. We also barraged the systems with our subjective tests, typing out paragraphs of text on each keyboard and listening to a music track with well-defined treble and punchy bass.

# Acer Aspire 7720G

Price £679.99 Contact Play.com 0845 800 1020 www.play.com



**A**cer's Aspire 7720G is one of two laptops here to feature a 17in screen. Its size will appease movie buffs by producing vibrant colours, although image quality is tarnished by greyish blacks.

Those into their music will appreciate the Dolby Digital Live branded speakers that come with a small subwoofer and produce great bass and treble.

The chassis, an Acer Gemstone design, is thicker, wider and heavier than any other on test – nowhere

more so than the huge bezel, which measures 3cm at its thickest point where the webcam sits.

Looks are only skin deep though, since inside there's the second fastest processor on test – at least theoretically. We were expecting the 7720G's Core 2 Duo T7300 to outclass the T7250 present in the Sony and Toshiba submissions because it has twice the L2 cache – 4MB instead of 2MB – but it was a tad slower. It's a mysterious result and one we don't think is reflective of real-life applications.

There's 2GB of DDR2 667MHz Ram and storage is handled aptly by the 250GB hard disk. There's even space for one more 2.5in drive if you dare open it up.

The high-quality components pushed it to second place in PCmark05, while it took pole position in the hard drive section where the 7720G's high-density Western Digital Scorpio whizzed past the rest.

The big chassis makes space for a large keyboard with a separate numeric keypad, but we've previously found flaws with the keyboard on a separate Acer Aspire 7720G. This sample had similar problems, whereby a flurry of keystrokes often ends up in one not registering, which can be infuriating when working.

It's difficult to live with a design that looks like a 10-year-old Compaq laptop. What's more, PC Nextday's Zoostorm 4-474 outclasses it in most areas.

## Verdict

**Pros** Great speakers; fast processor; 17in screen

**Cons** Chunky; ugly; heavy; poor keyboard response; short battery life

**Features** ★★★★★

**Performance** ★★★★★

**Value for money** ★★★★★

**Overall** Big, ugly but with a set of components that will appeal to some – especially the spare hard disk bay

★★★★★

# HP Compaq 6715b

Price £586.33 Contact HP 0845 270 4222 www.hp.co.uk



**H**P's business brand, Compaq, usually focuses on high-quality chassis so it's no surprise to see the 6715b, which costs £586, retain that focus and rely on a slow set of components inside.

The Turion TL-60 went some way to explaining the slowest PCmark05 score here. It may be slightly faster than Mesh's TL-56, but it's still slower than all the Core 2 Duos on test. And at least Mesh includes some impressive graphics, whereas the 6715b is left with

cheap integrated graphics with only a basic analogue video output for external displays.

The 160GB hard disk, 2GB of DDR2 667MHz Ram and 802.11g Wifi are also nothing special, although it's easy to be won over by the Gigabit Ethernet port and fingerprint reader.

Where HP has lavished money is on the 15.4in screen. Its 1,680x1,050 resolution looks great and is the only resolution here where two documents can realistically sit side by side. It's the only monitor not to have any kind of glossy finish to it, so blacks are darker than any other but perceived contrast is lower. The display was evenly lit too.

Other fundamentals of the 6715b are sound; the keyboard has firm keys and the trackpad is articulate, with the gentle rubber mouse clicks a joy to use.

The speakers were loud in our tests and produced a high-quality sound and they combine with a touch-sensitive volume slider – a rare luxury.

HP installs Vista Business, which brings Windows Fax and Scan software and backup tools to the fore, but you lose Vista Premium's Media Center application as a result.

The chassis is robust, the keyboard is excellent and the price is right, making the Compaq 6715b a great choice for those who don't need speedy performance.



## Verdict

**Pros** Excellent, high-resolution screen; solid chassis; good speakers

**Cons** Relatively slow processor and graphics card

**Features** ★★★★★

**Performance** ★★★★★

**Value for money** ★★★★★

**Overall** If top performance isn't necessary, then its robust chassis and superb screen make the 6715b an excellent choice

★★★★★



# Mesh GX610

**Price** £699 **Contact** Mesh 0844 736 0440 [www.meshcomputers.com](http://www.meshcomputers.com)



**M**esh's GX610 is an MSI design through and through – from the packaging to the lavish MSI-branded rucksack that's included.

The notebook itself looks great in glossy black finish and is one of two tested to use an AMD Turion chip – a TL-56 running at 1.8GHz.

AMD states it has a 31W thermal design point, which describes how much heat it should dissipate and, on paper, that's on a par with Intel's Core 2 Duo

chips. But either the processor, the GX610's cooling or the graphics card made the right side of the keyboard uncomfortably hot to touch after a short time; an effect accompanied by a relatively high power draw. There was also a constant whoosh from the fans, although not as bad as Packard Bell's notebook.

A hot and wheezing laptop can result in poor battery life, but the GX610's huge 7,200mAh battery pushed it to a whopping four hours, 14 minutes in the Mobilemark Reader test. The battery sticks out by 19mm, which adds bulk, but it's a worthwhile sacrifice.

While the processor was the slowest on test, money has been spent on the graphics card, an ATI Radeon HD 2600. It was formidable in 3Dmark05 but didn't do so well in Fear, an Nvidia-optimised title.

Its gaming credentials are highlighted on the keyboard where some of the keys have aggressive red lettering on them. The keyboard includes a large discrete numeric pad, but keys on the main section are very cramped on the right-hand side, in particular the barely usable right Shift key. And since the keyboard gets so hot when running games you'll probably need to plug in an external keyboard to avoid frustration.

Getting the keyboard design wrong is a basic error, but other than this there are bags of ports, features and a decent two-year warranty.

## Verdict

**Pros** Good graphics performance; outstanding battery life; lots of ports  
**Cons** Very hot to touch in places; cramped keyboard; low-end CPU and small hard disk

**Features** ★★★★★  
**Performance** ★★★★★  
**Value for money** ★★★★★

**Overall** If using for any length of time, we'd recommend an external keyboard, but it's a great design otherwise

★★★★★

# Packard Bell Easynote MB88-P-003

**Price** £699.99 **Contact** PC World 0870 2420 444 [www.pcworld.co.uk](http://www.pcworld.co.uk)



**T**he Easynote MB88-P-003's off-white chassis is joined by two bars of light either side of the trackpad. Its oddities don't end there – it also features a circular touchpad with no scroll function.

Orange strips down the side of the chassis and aluminium trimmings around the trackpad and power button make it the most eye-catching design here.

Inside, a decent Nvidia graphics card is joined by a Core 2 Duo T5450 processor. It's a 1.67GHz Socket P

chip – for Santa Rosa motherboards – but with a 667MHz front-side bus (FSB), so it can't get the most out of the 800MHz Santa Rosa chipset. It was slow, but it still outpaced AMD's Turion processors.

The fan cooling its components whirred away rather noisily above the rest. By contrast, the sound from the speakers was somewhat muted because they are angled downwards.

The inefficient cooling could be the explanation behind the battery not even lasting two hours in our least strenuous battery test, where PDF reading is simulated. Our only other complaint was that the single plastic bar serving as both mouse buttons took a while to adjust to.

Otherwise we had no qualms about the comfortable keyboard and Packard Bell is the only manufacturer to fit Draft-N Wifi, which increases the speed and range of a wireless connection.

There are lots of other extras too, such as a webcam and a multitude of ports including Firewire, a card reader and HDMI and DVI ports for external TVs and monitors. There's even an eSata port on the left edge of the chassis for high-speed external hard drives.

The MB88-P-003 edges on portability (3.15kg isn't much for a 15.4in notebook) and if you can tolerate the noise, it's good value.

## Verdict

**Pros** Solid PCmark05 performance; eSata; top wireless connectivity  
**Cons** Noisy; poor battery life

**Features** ★★★★★  
**Performance** ★★★★★  
**Value for money** ★★★★★

**Overall** Feature rich and good value for money but battery life is poor and it's noisy

★★★★★

# PC Nextday Zoostorm 4-4744

Price £699 Contact PC Nextday 0870 609 0125 www.pcnextday.co.uk



**T**he Zoostorm 4-4744 has the fastest processor on test, a Core 2 Duo T7500, as well as 2GB of Ram, a decent 160GB hard disk and an Nvidia Geforce 8600M GS graphics card.

It all looks good on paper, and in our benchmarks it climbed to the top in PCmark05 and made its way well up the 3D benchmark ladders too. The graphics card has 256MB less Ram than the card in the Packard Bell, but more Ram usually only improves performance

at higher resolutions, and since the Zoostorm's 17in screen can only handle 1,440x900 natively, it's unlikely to be much of an issue.

The screen's image quality isn't quite as clear or bright as Acer's 17in LCD. Otherwise its bezel and chassis is slimmer and lighter than the Acer Travelmate 7720G's. The speakers aren't as loud as the 7720G's either, although the subwoofer does help produce a good audio experience when playing games or watching movies.

While money's obviously been spent on solid components inside, the chassis has been left out to dry. Its bland grey and black design is not going to impress anyone. It is rigid though and contains a well laid out keyboard with soft keys that depress deeply. There's also a separate numeric pad and a large trackpad.

The red glow of the optical digital audio output is the only feature that disrupts the chassis' business-like nature. It sits on the front edge, right next to the headphone, microphone and memory card ports.

The other edges contain four USB ports in two stacks of two, so thicker USB peripherals are likely to block one port off.

The chassis is dull, and the left side gets warm to touch, but the 4-4744 is a high-power machine. And with Windows Vista Ultimate it's a steal at £700.

## Verdict

**Pros** Fast processor; great graphics card; 17in screen; Vista Ultimate

**Cons** Mottled screen; dull chassis; stacked USB ports; long battery life

**Features** ★★★★★

**Performance** ★★★★★

**Value for money** ★★★★★

**Overall** An excellent desktop replacement that breezes through games and office work

★★★★★

# Sony Vaio VGN-NR11Z

Price £649 Contact Sony 0870 5111 999 www.sony-style.co.uk



**C**heap Sony Vaios are thin on the ground but the VGN-NR11Z comes in £50 under budget while retaining attractive looks. Its slim metal chassis looks classy alongside the other notebooks.

Inside there's a Core 2 Duo T7250 with 2MB of L2 cache shared between the two cores, sewn together with a Santa Rosa chipset using an 800MHz FSB. The score of 5,143 in the PCmark05 CPU section should be enough for demanding users, but if you

deal with large files the 4,200rpm hard disk could be a bottleneck.

Graphics come courtesy of Intel's integrated GMA X3100 chip. It's neither fast nor much good at decoding high-definition content compared to the Nvidia and ATI competition.

Sony does offer a gloriously large trackpad with big mouse clicks, but the keyboard has a lot of wobble to it, with each key swaying under pressure.

To save space, Sony provides a smaller 34mm Express Card expansion slot. Elsewhere we found the NR11Z lacking. For starters there's no webcam and Sony has stuck with two card readers in the NR11Z – one for its proprietary Memory Stick, the other for SD cards, neglecting the XD format altogether.

The VGN-NR11Z only comes with VGA output, whereas most other manufacturers include a digital alternative.

Sony's trademark lavish reflective coating makes the evenly lit 15.4in screen look even more striking. On the flip side, this also makes it look like a mirror in some conditions. The screen is accompanied by punchy speakers behind an elegant grille.

All in all there's nothing wrong with the VGN-NR11Z, however other models offer more ports and functionality.

## Verdict

**Pros** Attractive chassis; good processor performance

**Cons** Poor graphics; slow hard disk; dearth of ports

**Features** ★★★★★

**Performance** ★★★★★

**Value for money** ★★★★★

**Overall** Attractive and solidly built, but other manufacturers add more to their designs

★★★★★



# Toshiba Satellite U300-134

**Price** £699 **Contact** Toshiba 0870 444 8944 <http://uk.computers.toshiba-europe.com>



**T**he Toshiba Satellite U300-134's 13.3in screen and chassis may be smaller than all others here but its keyboard doesn't lose much on some of the bigger notebooks. In fact, it's very well laid out and, at 27.6cm wide, it's even 7mm wider than the Mesh GX610's keyboard.

There's an awful lot of flex to the keys, but we didn't have any complaints about the trackpad. It's responsive and keeps your finger in position since it's

sunk into the chassis. You get a strip of media keys below the screen, which means even a child could operate media playback.

Like the MSI GX610, Toshiba uses a thinner reflective coating than others on the display, making it easier to view in bright conditions. The downside with this display is that you can see the mesh of pixels, which can be distracting if you have a keen eye.

It's the lightest, weighing 2.1kg excluding and 2.6kg including the power adapter, and its compact design might attract those wanting to lob it in a bag every day. The curved, dark blue lid is extremely rigid and closes tightly (albeit without a catch) so you'll feel comfortable carrying it about.

To keep weight down the battery is rated at a paltry 4,000mAh. It lasted three hours, 10 minutes in our Mobilemark reader test, which is disappointing for a portable notebook, but it kept going for long enough to play out a film in the DVD test.

Both Sony and Toshiba have plumped for Core 2 Duo T7250 processors, a Santa Rosa chipset and Intel integrated graphics. And by including a webcam, a multiformat card reader and Bluetooth, the Satellite U300 offers a bit more than the Sony VGN-NR11Z. But this isn't enough for it to compete with our winners.

## Verdict

**Pros** Lightweight; compact; attractive and sturdy screen backing

**Cons** Poor graphics; keyboard flex

**Features** ★★★★★

**Performance** ★★★★★

**Value for money** ★★★★★

**Overall** A great lightweight notebook with a stylish design

★★★★★

## How to prolong the life of your battery

Every notebook here contains a lithium-ion battery because, pound for pound, they provide the most power in a compact package.

In our labs we have to account for some pretty bizarre behaviour from lithium-ion batteries. The first problem we have is that, out of the box, batteries don't always produce repeatable results. After one full discharge, battery life can go down, or it can go up. Lithium-ion batteries aren't affected by the memory effect that nickel-cadmium batteries are (whereby batteries lose their maximum capacity if they aren't fully discharged), but a poor-quality lithium-ion battery can produce a bizarre selection of battery results.

To get repeatable results, we recharge and discharge the battery at least once before taking two more readings – the end result is the average of these last two.

The biggest effect on battery life we see is temperature. Our labs are air conditioned and all notebooks are tested at the same time to ensure a fair test. But some notebooks, most notably the Mesh GX610 this month, are severely affected if they start to heat up.

During its first official Mobilemark Reader test, the GX610 lasted an astonishing five hours, 45 minutes. In its second, that plummeted to three hours, one minute. Most laptops' battery lives only vary by a few minutes, but the GX610 got so hot after a day's usage (we leave notebooks on for several days to ensure stability) that we believe heat was affecting its battery life. Indeed, after leaving it to cool down, the battery life began to climb again.

To keep your battery healthy, it is important to treat batteries with respect, since they don't last forever. It may sound obvious, but dropping a battery pack can damage the casing or internals, or in severe cases cause it to catch fire. A battery that has suffered a hard fall shouldn't be trusted, but replaced. Also, don't let a battery become too hot and it's important to keep all the vent holes clear to prevent build-up of internal heat.

One myth about preserving lithium-ion batteries is that it's best to fully discharge a battery every time you use it. It is a hangover from the nickel-based battery years and this misconception goes hand in hand with the one that says constantly topping up the battery can damage it. This isn't true and the reason, according to Motorola, is that the relationship between depth of discharge and number of charging cycles is logarithmic, not linear. In simple terms this means that a battery rated for 300 full discharge cycles will actually be able to last several thousand shallow discharge cycles: if this wasn't the case, simply plugging in your laptop 300 times would be enough to ruin your battery.

According to battery specialists Cadex Electronics, lithium-ion batteries should ideally be stored just above freezing (put in a fridge in a plastic bag to protect against condensation) and at about 40 per cent charge level. But under no circumstances should batteries be frozen, as batteries may not charge properly and may be damaged if the temperature drops to -40°C.

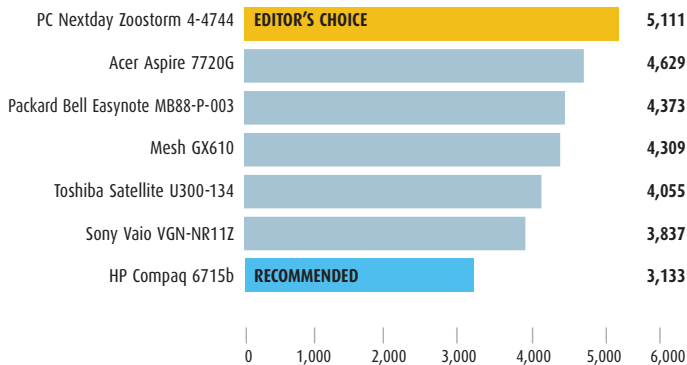


# Lab results

We ran all the notebooks through our usual benchmarks, with PC Nextday's Zoostorm 4-4744 putting in a particularly strong performance throughout

## PCmark05 (overall)

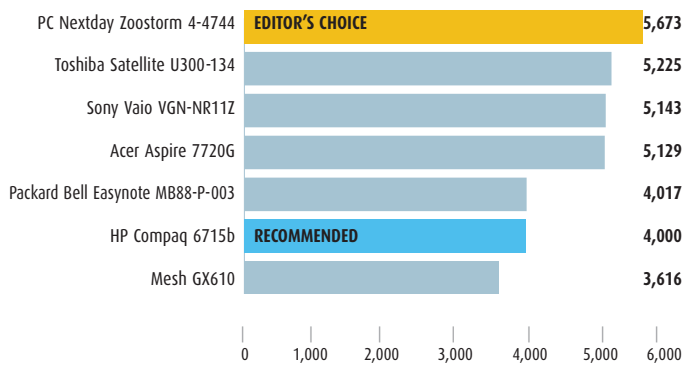
Bigger is better



When every system component is taken into account, the PC Nextday Zoostorm 4-4744 is fastest. Mesh's fourth place is only achieved by an excellent result in the 3D section of PCmark05.

## PCmark05 (CPU)

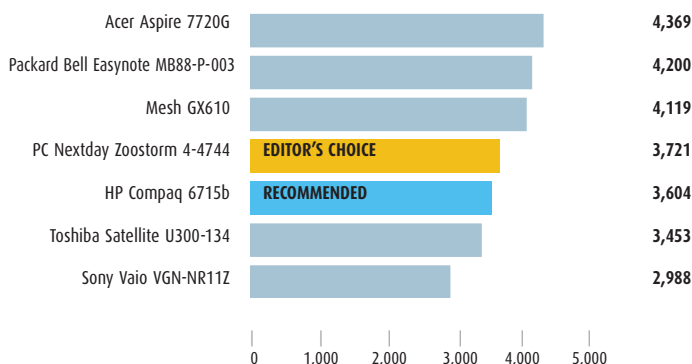
Bigger is better



One of AMD's best mobile processors, the Turion TL-60 in the HP Compaq 6715b, can't even keep up with one of Intel's slowest processors, the T5450 in the Packard Bell.

## PCmark05 (hard drive)

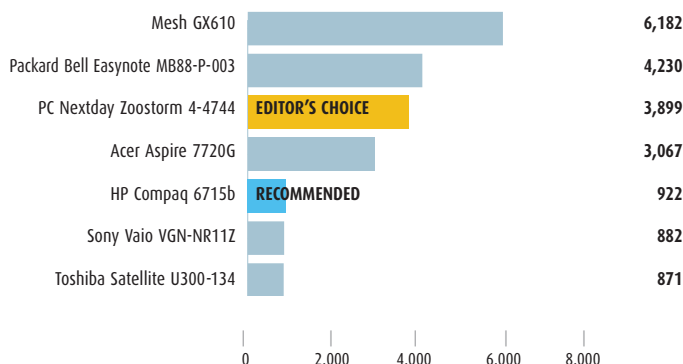
Bigger is better



This benchmark is derived partly from Windows boot times. The Sony Vaio, with its slow 4,200rpm hard disk, will take longer to boot into Windows than the rest.

## 3Dmark05 (1,024x768 in 32-bit colour)

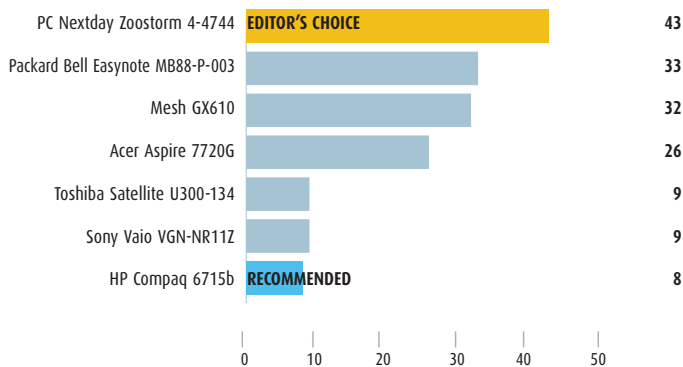
Bigger is better



ATI graphics usually score highly in 3Dmark05 and 3Dmark06 compared with their Nvidia counterparts. Mesh's top spot reflects how mathematically formidable the Radeon HD 2600 is.

## Fear (1,024x768, frames per second)

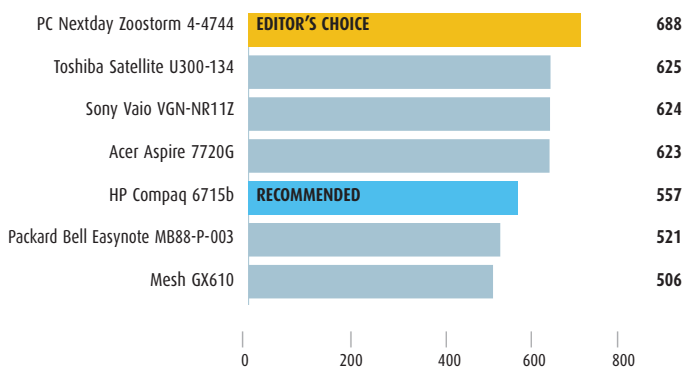
Bigger is better



The Zoostorm consistently scored higher than the Packard Bell despite having the same graphics. Fear isn't CPU-bound and we suspect an older Bios in the Packard Bell's graphics card may be the culprit.

## Cinebench 9.5 (multiple CPUs)

Bigger is better

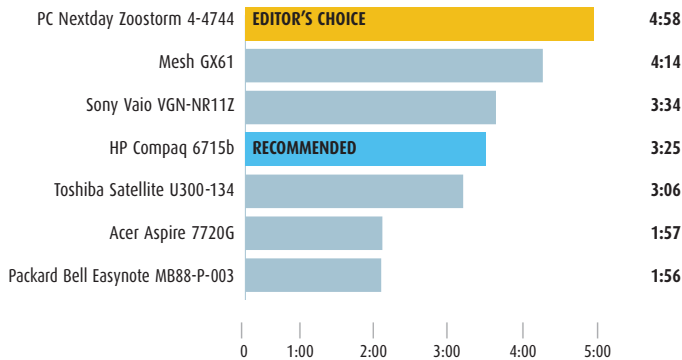


Although AMD's Turion processors trailed in the PCmark05 side of things, the gap is narrowed in Cinebench 9.5, where a 3D scene is rendered across multiple processors.



**Mobilemark 2007 Reader (hours:minutes)**

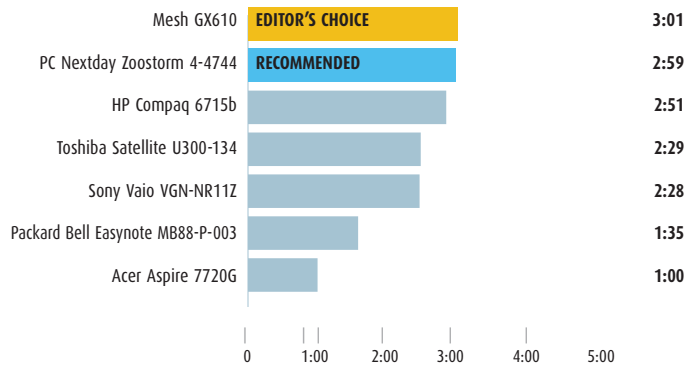
Bigger is better



The Zoostorm's high-quality battery and great Intel power savings mean it lasted longer than the Mesh, even though the Mesh has a higher-capacity battery onboard.

**Mobilemark 2007 DVD (hours:minutes)**

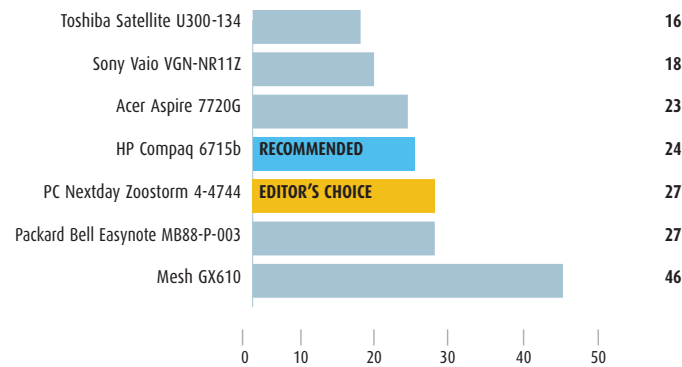
Bigger is better



The Acer and Packard Bell can barely be considered portable on this result – how many movies last an hour or an hour and a half? The rest will be good for a proper film.

**Powerdraw (Watts – idling in Windows Vista)**

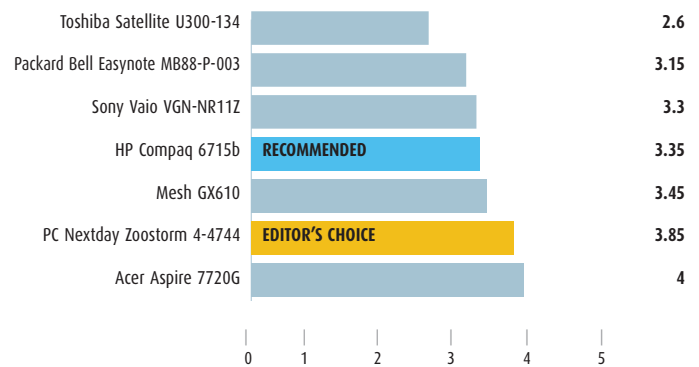
Smaller is better



With batteries fully charged and notebooks plugged in, the Mesh GX610 drew the most power, and was the hottest too. Intel's integrated graphics give the Sony and Toshiba laptops best efficiency.

**Weight inc power adapter (kg to the nearest 50g)**

Smaller is better



The Toshiba is respectably light for a 13.3in laptop. The Acer is heavy even for a 17in laptop, although it does have a spare bay for a 2.5in hard drive.

Please see page 90 for an explanation of how we tested the PCs

## The next round of processors

The processors we've seen here should continue to be popular throughout 2008, despite the launch of Intel's Penryn processors and AMD's Puma platform. Intel's Penryns have Socket P dimensions so will drop straight into Santa Rosa chipsets from the start and, in a nutshell, have similar frequencies but a larger cache than existing Core 2 Duos.

Five new Intel CPUs have been released, starting with the Core 2 Duo T8100, running at 2.1GHz with 3MB of L2 cache. The T9500 sits atop the Core 2 Duo ladder, by running at 2.6GHz with 6MB of L2 cache. Like the Core 2 Duo T7xxx series before them, their thermal design points (TDP) remain at 35W.

There are no obvious power savings from those figures, but the real headline feature is Intel's new 45nm technology, which it claims is one of the biggest advancements in transistor design in 40 years.

The materials have changed, with Hafnium being the new dielectric of choice in each transistor. Intel says electrical leakage is reduced while maintaining a decent level of performance, which should let frequencies go higher than ever.

Intel has also bolted around 50 new instructions, called SSE4, onto Penryn. With appropriate recompiling the instructions speed up Raid




and data fetch from peripherals, as well as image processing, high-definition video and audio encoding and gaming.

The final boost to Penryn CPUs is the introduction of a new sleep state, which Intel calls Deep Power Down technology. Upon entering the new sleep state, the processor flushes caches, saves the processor's state and cache and shuts off power. The chipset can continue to negotiate memory traffic for peripherals and the hard disk, but the processor doesn't get bothered by this.

AMD has a long way to go to catch up with Intel performance and energy efficiency and its next step is a new platform codenamed Puma. It comes part and parcel with Griffin, a 65nm mobile CPU with some features reminiscent of AMD's Phenom desktop quad-core chip. This includes Hyper Transport 3.0 and separate power planes for the cores, so each can be operated at a different voltage and frequency.

Puma's chipset, the RS780, bundles the PCI Express 2 standard, which doubles the bandwidth available to discrete graphics cards, and offers basic DirectX 10 support through new integrated graphics and high-definition decoding capabilities plucked from discrete graphics cards.

## £699 notebooks

		 <b>Personal Computer World RECOMMENDED</b>	
MANUFACTURER	ACER	HP	MESH
Model	Aspire 7720G	Compaq 6715b	GX610
Price	£679.99	£586.33	£699
Delivery charge (UK mainland)	Free	£11.73	£22.33
Sales telephone	0845 800 1020	0845 270 4222	0844 736 0440
URL	www.play.com	www.hp.co.uk	www.meshcomputers.com
HARDWARE			
Processor	Intel Core 2 Duo T7300	AMD Turion 64 X2 TL-60	AMD Turion 64 X2 TL-56
Speed	2GHz	2GHz	1.8GHz
Chipset	GM965/ICH8-ME	RS690/SB600	RS690/SB600
Ram	2GB DDR2 667MHz	2GB DDR2 667MHz	2GB DDR2 667MHz
Occupied/spare memory slots	2/0	2/0	2/0
Max memory supported	4GB	4GB	4GB
Hard disk manufacturer and model	WDC WD2500BEVS-22UST0	Toshiba MK1637GSX	WDC WD1200BEVS-22UST0
Hard disk size and speed	250GB 5,400rpm	160GB 5,400rpm	120GB, 5,400rpm
Number of Express Card slots	54mm	0	54mm
Number of PC Card slots	0	1	0
Number of USB ports	4	4	4
Number of Firewire ports	1	1	1
MULTIMEDIA			
Graphics processor – manufacturer and model	Nvidia Geforce 8400M GS	ATI Radeon Xpress 1270	ATI Radeon HD 2600
Graphics processor memory	256MB DDR2	128MB shared	256MB DDR3
Screen size and native resolution	17in 1,440x900	15.4in 1,680x1,050	15.4in 1,280x800
Video outputs	VGA, DVI, S-video	VGA, S-video	VGA, S-video, HDMI
Optical drive manufacturer and model	Matshita DVD-Ram UJ-850S	TSScorp TS-L632D	Optiarc DVD RW AD-7530B
Optical formats supported	DVD+-RW DL, DVD-Ram	DVD+-RW DL, DVD-Ram	DVD+-RW DL, DVD-Ram
Soundchip manufacturer and model	Realtek HD	Soundmax HD	Realtek HD
Soundchip output (from 3.5mm or S/PDIF jacks)	5.1	2	5.1
Speaker setup	2.1	Stereo	Stereo
OTHER INFORMATION			
Additional hardware	VGA webcam, microphone, 4-in-1 memory card reader, Gigabit Ethernet, 56K modem	Gigabit Ethernet, 56K modem, fingerprint reader	Gigabit Ethernet, 56K modem, 1.3-megapixel webcam, microphone, 4-in-1 memory card reader, mouse, rucksack
Wireless networking	802.11a/b/g Wifi	802.11a/b/g Wifi, Bluetooth	802.11b/g Wifi, Bluetooth
Battery capacity (milliamp hours)	4,000	55Wh*	7,200
Dimensions in mm (wxdxh)	402x302x50	356x265x43	358x277x38
Weight including battery (kg)	3.45	2.85	2.80
Weight including battery and power adapter (kg)	4.00	3.35	3.45
Operating system	Vista Home Premium	Vista Business	Vista Home Premium
Vista experience index (out of 5.9)	3.4	3.0	4.7
Bundled software	NTI DVD Maker 7, Cyberlink Power Producer, Microsoft Works 8.5, Cyberlink Arcade Deluxe	Roxio Easy Creator 9	Microsoft Works 8.5, Cyberlink PowerDVD, Power2Go, Power Producer
Standard warranty (RTB = return to base, C&R = collect and return)	1yr RTB	1yr RTB	2yrs RTB (1st yr C&R)
SCORES			
Features	★★★★☆	★★★★★	★★★★☆
Performance	★★★★☆	★★★★☆	★★★★☆
Value for money	★★★★☆	★★★★☆	★★★★☆
OVERALL	★★★★☆	★★★★☆	★★★★☆

\* HP only supplies data in Watt hours (Wh) for its batteries



			
PACKARD BELL	PC NEXTDAY ZOOSTORM	SONY	TOSHIBA
Easynote MB88-P-003	4-4744	Vaio VGN-NR11Z	Satellite U300-134
£699.99	£699	£649	£699
Free	£19	Free	Dependent on reseller
0870 2420 444	0870 609 0125	0870 5111 999	0870 444 8944
www.pcworld.co.uk	www.pcnextday.co.uk	www.sony-style.co.uk	http://uk.computers.toshiba-europe.com
Intel Core 2 Duo T5450	Intel Core 2 Duo T7500	Intel Core 2 Duo T7250	Intel Core 2 Duo T7250
1.66GHz	2.2GHz	2GHz	2GHz
GM965/ICH8-ME	GM965/ICH8-ME	GM965/ICH8-ME	GM965/ICH8-ME
2GB DDR2 667MHz	2GB DDR2 667MHz	2GB DDR2 667MHz	2GB DDR2 667MHz
2/0	2/0	2/0	2/0
4GB	4GB	4GB	4GB
Seagate ST9160821AS	WDC WD1600BEVS-22RST0	Toshiba MK2035GSS	Toshiba MK1637GSX
160GB 5,400rpm	160GB 5,400rpm	200GB, 4,200rpm	160GB 5,400rpm
54mm	54mm	34mm	54mm
0	0	0	0
4	4	4	3
1	0	1	1
Nvidia Geforce 8600M GS	Nvidia Geforce 8600M GS	Intel GMA X3100	Intel GMA X3100
512MB DDR2	256MB DDR2	Up to 384MB shared	up to 384MB shared
15.4in 1,280x800	17in 1,440x900	15.4in 1,280x800	13.3in 1,280x800
DVI, HDMI	DVI, HDMI	VGA	VGA
Optiarc DVD RW AD-7560A	TSScorp CDDVDW SN-S082H	Matshita DVD-Ram UJ870QJ	HL-DT-ST DVD-Ram GSA-U10N
DVD+-RW DL	DVD+-RW DL, DVD-Ram	DVD+-RW DL, DVD-Ram	DVD+-RW DL, DVD-Ram
Conexant HD	Realtek HD	Realtek HD	Realtek HD
2	2.1	2	2
2.1	5.1	Stereo	Stereo
E-Sata, 100Mbit Ethernet, webcam, microphone, 4-in-1 memory card reader	Webcam, microphone, 100Mbit Ethernet, 4-in-1 memory card reader, 54K modem	Memory Stick reader, SD reader, 100Mbit Ethernet, 54K modem	100Mbit Ethernet, 4-in-1 memory card reader, 1.3-megapixel webcam, microphone, 54K modem
802.11a/b/g/Draft-N Wifi	802.11b/g Wifi	802.11a/b/g Wifi	802.11a/b/g Wifi, Bluetooth
4,800	6,750	4,800	4,000
360x264x41	392x278.5x41.5	358x268x41	300x233x37.5
2.70	3.25	2.85	2.10
3.15	3.85	3.30	2.60
Vista Home Premium	Vista Ultimate	Vista Home Premium	Vista Home Premium
4.5	4.7	3.4	3.4
Microsoft Works 9 SE, Roxio Easy Creator 9, Dark Messiah of Might and Magic game	None	Intervideo WinDVD 8.0, Roxio Easy Media Creator 9, Click to DVD 2.6, Microsoft Works 8.5	Ulead DVD Movie Writer, Microsoft Works 8.5, Toshiba DVD Player
1yr RTB	1yr RTB	1yr C&R	1yr C&R
★★★★★	★★★★★	★★★★★	★★★★★
★★★★★	★★★★★	★★★★★	★★★★★
★★★★★	★★★★★	★★★★★	★★★★★
★★★★★	★★★★★	★★★★★	★★★★★

Vendors of group test products are only obliged to sell them at the prices quoted here (which include delivery and credit card surcharges) for the life of this PCW issue. They may also change components under certain circumstances.

# Editor's Choice

Editor's Choice PC Nextday Zoostorm 4-4744  
Recommended HP Compaq 6715b



PC Nextday Zoostorm 4-4744



HP Compaq 6715b

Each notebook tested here has its own merits, and none can be described as poor considering the £699 price limit. The Toshiba Satellite U300, for example, is fit for purpose as a small notebook, especially when you take into account that such notebooks usually carry a price premium.

However, if you want a portable notebook we recommend you take a look at our recent

more detail than the 17in screens on the Acer Aspire 7720G and PC Nextday Zoostorm 4-4744 laptops. This does mean the pixels are smaller, but Vista's accessibility settings let you increase font sizes and the operating system's features if you find yourself squinting. It's also the cheapest notebook we've seen with such a high resolution and perfect for sitting two Word documents side by side, or viewing an expansive spreadsheet.

level keys. What's more, the trackpad and rubber clicks have an accuracy that is often missing from the cheaper chassis types that find their way onto notebooks at this price.

If you want a laptop that has just about everything, then the PC Nextday Zoostorm 4-4744 ticks more boxes than the rest. Much of the £699 budget is taken up by the Core 2 Duo T7500 (the fastest processor here) and the Nvidia Geforce 8600M GS graphics.

But it's not just spending money on hardware that we award points for, and we were impressed to see the Zoostorm's graphics card has been set up perfectly to outperform an almost identical graphics card in the Packard Bell Easynote laptop. With the same drivers, and driver settings, the Zoostorm 4-4744 stayed ahead of the Packard Bell in all our Fear tests. After a lot of head scratching and retesting, we think it's most likely down to the Bios on the graphics card. On the other hand, the Packard Bell just edged out the Zoostorm in 3Dmark05.

What really set the Zoostorm 4-4744 apart though was the high-capacity battery. You don't expect 17in laptops to last five hours in a battery rundown test, but with a 6,750mAh battery it outlasted the Mesh GX610's higher capacity battery in our reader test thanks to lower power consumption from the Nvidia graphics card and Intel processor and chipset.

The 17in screen isn't the clearest we've seen, but most users won't be able to spot any problems with the large display. Watching films on it is a pleasure and the stereo speakers with subwoofer are another boon.

It's not perfect – we don't like the chassis much and it's a bit heavy – but if this laptop is going to spend most of its time in one place, occasionally making the odd small trip, then it is robust enough to justify its £699 price tag. **PCW**

## 'If you want a laptop that has just about everything, then the PC Nextday Zoostorm 4-4744 ticks more boxes than the rest'

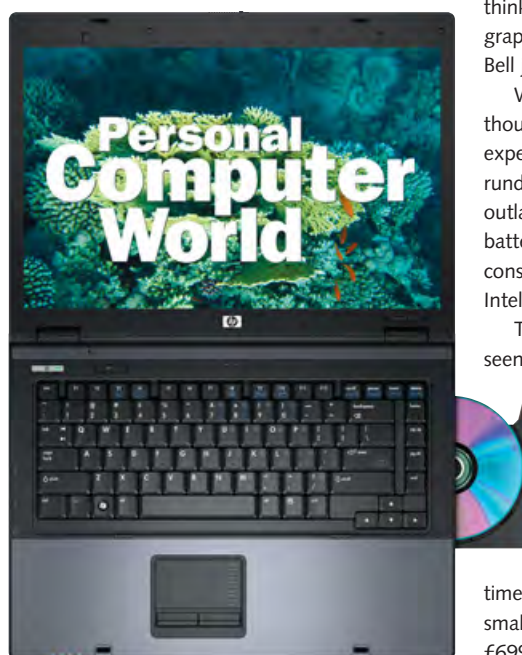
ultraportable group test ([www.pcw.co.uk/2205088](http://www.pcw.co.uk/2205088)), which has some lighter designs. The Acer Travelmate 6292 is one such model in that test which included Draft-N Wifi and a bigger capacity battery.

Sony's VGN-NR11Z will attract the fashion-conscious and will also breeze through basic home computing tasks. Gamers might be tempted by the Packard Bell with its powerful graphics. Similarly, with an external keyboard the Mesh GX610's Radeon HD 2600 graphics perform well in a wide range of games and it is good at decoding high-definition content.

When we first laid eyes on the HP Compaq 6715b's specifications, we didn't think it stood a chance of winning us over. AMD's Turion processors simply aren't as fast or energy efficient as the Intel competition. Its number-crunching performance is below par, but when we sat down with all the laptops it became obvious that the 6715b is a serious contender.

The 15.4in screen isn't the biggest, but the resolution – 1,680x1,050 – offers 36 per cent

The keyboard is top notch and, by sidestepping fancy discrete numeric pads, there's plenty of space for a wide keyboard with firm,



A high-res screen and excellent keyboard make the HP Compaq 6715b a deceptively good notebook



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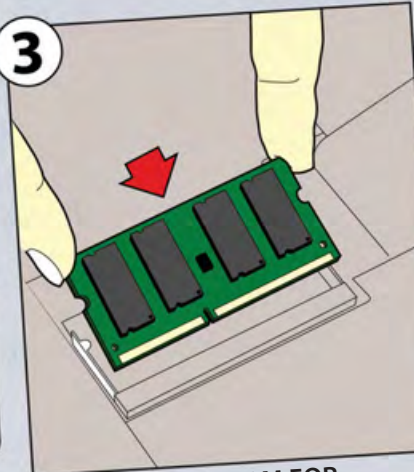
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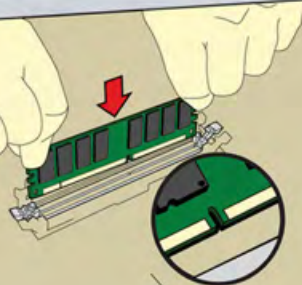
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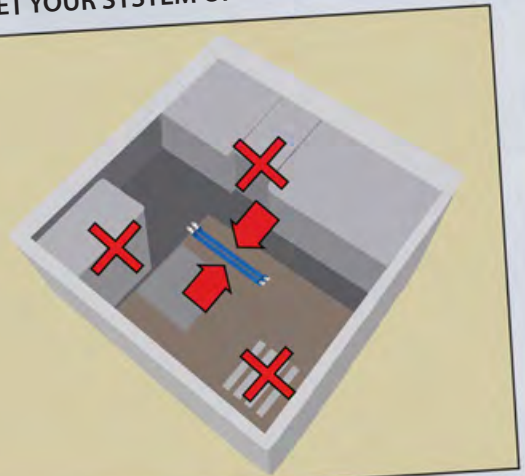
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B



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**ON TEST**

- 106** Acer PH730  
Benq W500
- 107** Epson EMP-TW700  
Infocus IN76
- 108** Optoma EP1691  
Panasonic PT-AX200E
- 109** Sony VPL-AW15  
Toshiba TDP-ET20
- 110** Table of features
- 112** Hidden costs  
Editor's Choice

**'Watching your favourite movies, the footie or Fiona Bruce at 200in takes some beating'**

# The bigger the better

**Watching a movie on a projector can give you that big-screen feeling – and they are now more affordable than ever.**

**Chris Cain grabs his popcorn and checks out the latest models**

**M**ost of us love the idea of a large plasma or LCD TV at home, but even the best can't match a projector for that real big-screen experience.

Watching your favourite movies, the footie or Fiona Bruce at 200in takes some beating, and hooking up a projector to a PC or console can bring a whole new level to gaming. Naturally, projectors are also perfect for presentations in offices, pubs and clubs, and even if left in place they won't dominate the room.

The good news is that fierce competition and new technologies mean you can now buy a

great home projector for around £1,000, some for as little as £699. Many are HD-ready and will bring out the very best of high-definition material, while others include a built-in DVD player and surround sound – all you need is a suitable screen or a blank wall. You can also find advanced picture processing, the option to move the lens for better positioning and professional colour management to get images looking just right.

This month we've rounded up eight models from the big names to put you in the picture and see just what you can get for your money.



# Acer PH730

Price £699 Contact Acer 0870 853 1005 www.acer.co.uk



**W**ith its grey colouring and boxy appearance, you would be forgiven for thinking Acer's PH730 was aimed more at the corporate world than those wanting a projector for their living room. With a 1,280x768 HD-ready resolution, 2,500:1 contrast ratio and sub-£700 price tag, however, this ageing DLP model makes a tempting choice for home entertainment.

Adjustable feet and numerous positioning options (front, rear and ceiling) make for an easy setup, though

we would have liked to see a lens-shift option as well as the standard focus/zoom wheel. That said, you do get a set of built-in 3W speakers and connections include HDMI, DVI and VGA sockets, plus the more traditional Component, S-video and composite options.

There's also a VGA output for looping through a monitor and a sliding cover at the front to keep dust out of the lens – shutting this while the unit is on sends it into standby.

Dual-function controls on top offer vertical and horizontal digital keystone correction, menu control and source switching, and there's access to other features via Acer's Empowering key. On-screen menus are clear but can be tricky to navigate. Meanwhile, Acer's colour management offers a good deal of flexibility with seven gamma options and three colour temperatures, RGB adjustment, tint, saturation and white segment controls.

In tests the Acer delivered sharp, detailed images with both PC and HD movie material. Its 1,200 lumens output is bright enough for office use but we were plagued by colour flashing when watching high-contrast scenes on DVD, such as the opening to *Revenge of the Sith*.

Overall, performance is great for the price, though, and those who aren't sensitive to DLP's rainbow effect, sometimes noticeable when flicking your eyes across the display, could find a bargain here.

## Verdict

**Pros** Great price; HDMI, DVI and VGA inputs; built-in speakers

**Cons** No audio via HDMI; black levels; DLP rainbows

**Features** ★★★★★

**Performance** ★★★★★

**Value for money** ★★★★★

**Overall** The Acer offers HD projection at a great price but isn't for those sensitive to DLP rainbows

★★★★★

# Benq W500

Price £704 Contact Benq 020 7216 0039 www.benq.co.uk



**B**enq's entry in our test is the LCD-based W500 – an imposing white and silver beast that's unlikely to win any beauty competitions. At just over £700, however, it's one of the cheapest models here and still manages to include HD-ready status and HQV (Hollywood Quality Video) picture processing. What's more, some dealers are bundling it with a free Xbox 360 Arcade system, providing outstanding value for money.

Quick access controls on top and large, clear on-screen menus make setting up straightforward.

Benq provides built-in test patterns to help adjust geometry and colour balance. The system includes vertical and horizontal lens shift, while a long throw lens offers images up to 300in at 1,280x720 resolution.

Connections include HDMI and VGA, two Component inputs, composite, S-video and a 12v trigger for use with motorised screens.

Rated at 1,100 lumens, the W500 technically isn't as bright as some, yet we managed to use it with our test PC just fine in an office meeting room using the standard and photo mode presets. TV or movie watching requires a darker environment, and the Benq remote sensibly lights up for this. Meanwhile, a dynamic iris function helps produce the best images by analysing the incoming signal and delivering up to a quoted 5,000:1 contrast ratio.

Thanks to support for 1080p at 24 frames per second (1080p/24), performance with standard and HD DVDs was good, producing noticeably high levels of detail and rich colours. Skin tones were realistic and blacks certainly benefit from the dynamic iris, though finer detail was crushed in some scenes. The unit didn't get too hot in use but is a little louder than we'd like – once you're into the action, it's not too much of an issue.

All in all we enjoyed our viewing with the Benq and, at this price, it's incredibly tempting.



## Verdict

**Pros** Great value; detailed pictures; 1080p/24 support

**Cons** Can be noisy; limited zoom

**Features** ★★★★★

**Performance** ★★★★★

**Value for money** ★★★★★

**Overall** At £700 the Benq is something of a bargain, especially if you can get a free Xbox 360 with it, and is an ideal entry-level home projector

★★★★★



# Epson EMP-TW700

**Price** £999 **Contact** Epson 08702 416 900 [www.epson.co.uk](http://www.epson.co.uk)



**S**urprisingly light for its size, and with styling to fit both boardrooms and living rooms, Epson's TW700 is ready to make the most of high-definition material. This 16:9 model isn't full HD (you'll need Epson's TW1000 for that), but it will accept video signals at 720p and 1080i, and SXGA from computers.

As with most Epson products, setup is simple and getting images straight is made especially easy by a large lens shift lever at the front, along with manual zoom and focus wheels. The projector doesn't need

be in the dead centre of the screen, allowing much greater flexibility in terms of positioning. Connections include HDMI, VGA, D-Scart (with supplied Scart adapter), Component, composite and S-video, making the TW700 easy to hook up to your kit.

On-screen menus are well laid out and there's a great deal of flexibility when it comes to more advanced settings – we especially like the colour and gamma management, and there's a separate control for adjusting skin tones.

Big buttons on the backlit remote mean you're not squinting in the dark. Auto-syncing with our PC was a little off but quickly corrected.

Epson uses its own 3LCD technology, something that will appeal to those affected by DLP rainbows. A quoted 10,000:1 contrast ratio and 1,600 lumens brightness combined with the 1,280x720 resolution to deliver some of the most impressive pictures we've seen from a home projector, in a variety of lighting conditions. PC games looked great and movies truly cinematic – detail simply poured out of the city scenes in *King Kong* on HD DVD. Black levels still suffer a little in total darkness but only serious home cinema fans will worry.

Quiet running, some good presets, up to 300in displays and the complete absence of DLP-style rainbows pretty much seal the deal.

# Infocus IN76

**Price** £999 **Contact** Infocus 01423 359 054 (CES Solutions) [www.infocus.com](http://www.infocus.com)



It may be getting on a bit now but the Infocus IN76 still looks decidedly modern. Its shiny black and silver curves are much more attractive than the usual hard angles, while the blue glow and simple styling of the remote add a touch of class. It may seem superficial but if you're going to stick something in your living room, you want it to look good. That said, it could be a little smaller.

Even better news is the IN76 doesn't just look the part and its widescreen 16:9 1,280x720 Darkchip 2 system produced arguably the most cinematic pictures

in our movie tests, especially with HD material – we really felt as if we were standing right there next to *King Kong*.

Black levels are great and only a small amount of tweaking was needed to get colour saturation, skin tones, gamma and detail looking just right. Even the presets are well done. But rated at 1,000 lumens, this projector isn't great for use in anything brighter than dim lighting and we would have liked a lens shift option.

The menu system on the IN76 is relatively simple but still manages to provide both basic options and enough tweaks to keep videophiles happy. Concentric zoom and focus rings on top allow crisp images at up to 180in.

The IN76 will hook up to a PC, but you'll need adapters (around £35) to convert its proprietary M1 connector to DVI or VGA. However, it does support HDMI, composite, Component and S-video connections, plus triggering for motorised screens.

While the lack of a VGA adapter in the box counts against it for PC use, the IN76 delivers some of the smoothest, noise-free images we've seen from a projector in this class. If you're not sensitive to the rainbow effect of DLP, the pictures from this one take some beating.



## Verdict

**Pros** Great pictures; easy to set up; good colour management

**Cons** Black levels not the best

**Features** ★★★★★

**Performance** ★★★★★

**Value for money** ★★★★★

**Overall** Flexible and easy to use, the TW700 offers detailed images that will breathe new life into your gaming and movie collection

★★★★★

## Verdict

**Pros** Great black levels; excellent out-of-the-box presets; 1080p/24 support

**Cons** VGA/DVI for PC requires adapter; no lens shift; occasional DLP rainbows

**Features** ★★★★★

**Performance** ★★★★★

**Value for money** ★★★★★

**Overall** Smooth images, great blacks and plenty of tweakable options make the IN76 a fantastic choice for movies and HD gaming on a grand scale

★★★★★

# Optoma EP1691

Price £939 Contact Optoma 01923 691800 www.optoma.co.uk



Optoma's EP1691 has been designed with a variety of uses in mind, rather than out-and-out movie performance. Weighing just 1.4kg it's easy to move around the house or an office, and is perhaps best suited for use with a notebook.

Despite its diminutive size this HD-ready DLP model has a solid feel, impressive 16:10 1,280x768 resolution and a good range of connections. HDMI, VGA, S-video, and composite video inputs are all available, along with a 3.5mm audio socket for use with the inbuilt speakers.

The HDMI socket is labelled 'Digital Video' and won't accept sound input. There's also a USB port for firmware upgrades and mouse control from a PC.

Setting up is straightforward with zoom, focus and keystone controls sensibly placed, and the menus are easy to follow. Annoyingly, the remote doesn't light up for use in darkness and we regularly found ourselves squinting. Startup is quick and six presets include modes for movies and presentations, while advanced RGB colour management lets those with a critical eye tweak until things are just right. In fact, colour saturation is impressive and Optoma guarantees quality for 10 years.

Although the EP1691 gets quite hot, running noise is low and the 2,500:1 contrast ratio and 2,500 lumens combined to give an especially bright and clear image in our PC tests, even in well-lit meeting rooms. Should your wall be big enough, the projection size can exceed 370in.

Both SD and HD movies looked good, though there was noticeable picture noise over motion in some parts and film images lack that oomph in comparison to home cinema-oriented rivals. The speakers also do no justice to soundtracks and are really only suited to presentations.

While the EP1691 isn't recommended for home cinema enthusiasts, its sheer portability makes it a versatile grab-and-go you can use just about anywhere.

## Verdict

**Pros** Portability; vivid colour; bright images; inbuilt speakers

**Cons** No sound via HDMI; no light on remote; not best for movies; DLP rainbows

**Features** ★★★★★  
**Performance** ★★★★★  
**Value for money** ★★★★★

**Overall** While it's not ideal for home cinema enthusiasts, the EP1691 is a genuine go anywhere all-rounder that delivers big images from a small package

★★★★★

# Panasonic PT-AX200E

Price £1,099 Contact Panasonic 0844 844 3852 www.panasonic.co.uk



Panasonic's PT-AX200E is the most expensive projector here, officially coming in at £1,099.

Shopping around or a quick Google search will bring that down to a much more friendly £800-£900, and it's definitely worth the effort – an hour or so into using it, we knew we had a contender on our hands.

For starters, the Panasonic offers a degree of future proofing with two HDMI 1.3 connectors as well as VGA, Component, composite and S-video sockets. Zoom and

focus wheels combine with adjustable legs, and vertical and horizontal lens shift to allow for easy placement, while tidy controls on top give quick access to menus and inputs. The backlit remote has sensible shortcuts for viewing modes, picture adjustments and favourite settings, but it's not good at handling quick key presses.

Seven presets are included to get you going and the Cinema 1 mode really does offer a cinematic look straight out of the box. We were bowled over by the colourful and detailed pictures using HD material at 1080p, and the PT-AX200E will accept video at 24fps for the smoothest film images. Black levels were also better than we expected from an LCD projector at this price, especially with the unit's light sensor and dynamic iris engaged. Those who want to get in there and tweak are also given advanced colour management tools.

As well as making the most of movies, a vivid Game setting is optimised for consoles while a 2,000 lumens output means the AX200E is bright enough to use a PC in a well-lit office meeting. You can hear the dynamic iris shift occasionally if watching without sound, but otherwise operation is extremely quiet.

While it's never going to win an award for its physical appearance, the AX200E is capable of stunning cinematic images that are a joy to behold. In short, it's a real winner.



## Verdict

**Pros** Great images; dual HDMI, excellent Cinema and Game presets  
**Cons** Menus sometimes awkward; remote can be unresponsive; black not as good as some

**Features** ★★★★★  
**Performance** ★★★★★  
**Value for money** ★★★★★

**Overall** Bright enough for general PC use and amazing with movies and games, Panasonic's PT-AX200E is a top choice

★★★★★



# Sony VPL-AW15

**Price** £890 **Contact** Sony 01932 816 000 www.sony.co.uk



**F**lying the Bravia flag, Sony is clearly hoping the VPL-AW15 will prove as popular as its award-winning range of LCD TVs. These are known for their exceptional colour reproduction and, sure enough, this is definitely one of the AW15's strong points.

Other features on this 16:9 3LCD model include horizontal and vertical lens shift dials – a little awkward to use – Real Colour Processing, which gives finer control over individual shades, and 24fps True Cinema support for HD material on Blu-ray and HD DVD.

There's also the usual manual zoom and focus rings, plus adjustable feet and keystone correction. Brightness is rated at the 1,300 lumens and Sony claims a contrast ratio of 12,000:1. Connections include HDMI, VGA, Component, composite and S-video.

In keeping with the Bravia theme, on-screen menus mirror those found on the company's TVs. Dynamic, Cinema and Standard picture modes are supplemented by three User settings, and it's easy to navigate around.

In darkness the Sony delivered a bold, sharp and detailed picture with rich colour saturation and natural skin tones using the Cinema preset, though some may prefer Standard as it seems to have a cooler image with more blue. Either way, everything can be adjusted and the Advanced Iris certainly helps with black levels. However, we found it didn't fare as well in brighter environments. Quiet running means there's no concern with noise but the unit can certainly kick out heat.

Another weakness is it's easy to make out the pixel structure of the LCD panels, even sitting 2m away from the screen. This doesn't happen with DLP projectors and can be distracting, although we'd take it over rainbow colour flashing any day.

Overall, the Sony produces detailed pictures and great colour.

## Verdict

**Pros** Detailed pictures and great colour; 1080p/24 cinema support; quiet

**Cons** Noticeable pixel structure; not the brightest on test

**Features** ★★★★★

**Performance** ★★★★★

**Value for money** ★★★★★

**Overall** Sony's VPL-AW15 quietly delivers great images up to 200in, but is let down slightly by the noticeable pixel structure effect of LCD projection

★★★★★

# Toshiba TDP-ET20

**Price** £700 **Contact** Toshiba 0870 544 0021 www.toshiba.co.uk



**A**ny device that starts up with a picture of an armchair and a cup of tea is off to a good start in our books. When it's as stylish as Toshiba's TDP-ET20, it's even better. This all-in-one DLP home projector has a futuristic design and comes with an inbuilt slot-loading DVD player.

As with Optoma's excellent Movietime DV11, all you need to get going is a screen or a blank white wall and the movie of your choice – the ET20 even has Dolby Digital decoding and integrated 5.1 speakers. While

they're never going to match a fully fledged sound system these are fine for casual movie viewing or gaming, although soft dialogue suffers from fan noise.

The ET20 isn't HD-ready but scales down high-definition signals (and, technically, Pal DVDs) to match its 854x480 resolution. The results are surprisingly good thanks to its HQV Teranex image processing. An extremely short throw distance also means this unit can be used just 0.5 meters in front of or behind the screen, and can deliver a picture up to a maximum 134in. However, all this integration means a lack of lens shift and manual zoom wheel.

Located at the front, connections for external kit include HDMI (with audio), VGA, Component, composite (with Scart adapter) and S-video, plus a PC audio input and an RS232 port. On-screen menus are easy to use and key buttons on the remote are duplicated on the rear, though these have a very plastic and almost toy-like feel. We also struggled a bit with the keystone controls to get a perfectly straight picture.

While it can't hope to match the images from some of the more expensive products here, the ET20 is still a neat all-round home projector for those who want a portable, no-fuss, big-screen experience for the living room or bedroom.

## Verdict

**Pros** All-in-one solution; DivX compatible; includes Scart adapter

**Cons** Not HD-ready; noisy; noticeable scan lines on image; DLP rainbows

**Features** ★★★★★




**Performance** ★★★★★

**Value for money** ★★★★★

**Overall** While it can't match the image performance others here, the ET20 is a neat all-in-one solution that's a great introduction to home projecting

★★★★★

## Big-screen projectors

			
MANUFACTURER	ACER	BENQ	EPSON
Model	PH730	W500	EMP-TW700
Price inc Vat	£699	£704	£999
Sales	0870 853 1005	020 7216 0039	08702 416 900
URL	www.acer.co.uk	www.benq.co.uk	www.epson.co.uk
SPECIFICATIONS			
Projection technology	DLP	LCD	LCD
Keystone correction	✓	✓	✓
Lens shift	✗	✓	✓
Optical zoom	1.2x	1.2x	2.1x
Maximum projection size (diagonal)	300in	300in	300in
Resolution	1,280x768	1,280x720	1,280x720
Audio	✓	✗	✗
1080p support	✗	✓	✗
1080p/24 support	✗	✓	✗
Contrast ratio (quoted)	2,500:1	5,000:1	10,000:1
Brightness (Ansi lumens)	1,200	1,100	1,600
Weight	3.5kg	4kg	5.4kg
Dimensions in mm (wxdxh)	350x282x119	349x296x127	406x310x124
Lamp life in hours (eco/standard)	2,000/4,000	2,000/3,000	1,700/3,000
Replacement lamp (approx street price)	£300	£190	£250
Warranty	2yrs RTB	3yrs (1yr C&R, 2yrs RTB)	3yrs on site
VIDEO INPUTS			
HDMI	✓	✓	✓
DVI	✓	✗	✗
VGA	✓	✓	✓
Scart	✗	✓	✓ (via supplied adapter)
Component	✓	✓	✓
S-video	✓	✓	✓
Composite	✓	✓	✓
SCORES			
Features	★★★★☆	★★★★☆	★★★★★
Performance	★★★★☆	★★★★☆	★★★★★
Value for money	★★★★★	★★★★★	★★★★☆
<b>OVERALL</b>	★★★★☆	★★★★☆	★★★★★





INFOCUS	OPTOMA	PANASONIC	SONY	TOSHIBA
IN76	EP1691	PT-AX200E	VPL-AW15	TDP-ET20
£999	£939	£1,099	£890	£700
01423 359 054 (CES Solutions)	01923 691 800	0844 844 3852	01932 816 000	0870 544 0021
www.infocus.com	www.optoma.co.uk	www.panasonic.co.uk	www.sony.co.uk	www.toshiba.co.uk
DLP	DLP	LCD	LCD	DLP
✓	✓	✓	✓	✓
✗	✗	✓	✓	✗
1.3x	1.15x	2x	1.6x	✗
180in	371in	200in	200in	120in
1,280x720	1,280x768	1,280x720	1,280x720	854x480
✗	✓	✗	✗	✓
✓	✗	✓	✓	✗
✓	✗	✓	✓	✗
3,000:1	2,500:1	6,000:1	12,000:1	2,500:1
1,000	2,500	2,000	1,300	1,200
4.22kg	1.4kg	4.9kg	6kg	4.8kg
360x360x120	220x71x178	395x300x112	370x320x119	321x344x154
2,000/3,000	2,000/3,000	2,000/3,000	Not specified	2,000/3,000
£200	£210	£280	£300	£240
2yrs RTB	3yrs on site	1yr RTB	1yr RTB	3yrs on site
✓	✓	✓ (x2)	✓	✓
✓ (via optional adapter)	✗	✗	✗	✗
✓ (via optional adapter)	✓	✓	✓	✓
✗	✗	✗	✗	✓ (via supplied adapter)
✓	✗	✓	✓	✓
✓	✓	✓	✓	✓
✓	✓	✓	✓	✓
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## Hidden costs of home projectors

Projectors really can bring that cinema experience into your home, but there are a couple of extra costs you'll need to factor into the equation before buying.

While all the models here will give a great picture on a blank white wall, to get the best pictures you'll need to invest in a dedicated projection screen. Costs vary depending on the type, size and material used – you can get a 100in freestanding 16:9 model for less than £100, but spending more will get better results. Ceiling or wall-mounted ones will add that professional touch, but you can also get portable and table-top screens that simply pop up.

If you really want to use a wall, you can paint it with a highly reflective coating called Screen Goo – a kit with base and top coats plus rollers and trays will set you back just over £150. Find out more at [www.goosystems.co.uk](http://www.goosystems.co.uk).

Another issue is that you'll eventually need to replace the lamp inside to keep watching. Unlike the latest plasma and LCD TVs that are now rated with a lifespan of approximately 60,000 hours, working out to eight hours' viewing a day for some 20 years, lamps in projectors can last for as little as 2,000 hours if used at full brightness – that averages out roughly five or six hours of viewing a day for a year. In addition, these lamps aren't cheap and can range from £150



**Replacement lamp costs should be taken into consideration**

up to £300 each. We've listed average street prices for each projector in the features table, but these are only a guide and we'd recommend shopping around as there are plenty of deals around.

Many models now offer low power or 'eco' modes to improve lamp lifespan to around 4,000 hours. Of course, this is at the expense of brightness, but we'd recommend using it whenever possible. And unless it becomes a direct replacement for your main TV, which is unlikely, most people won't use a projector for anything like five hours a day.

## Editor's Choice

**Editor's Choice** Panasonic PT-AX200E  
**Recommended** Epson TW700 • Benq W500



Panasonic PT-AX200E

Putting these projectors through their paces shows just how much prices have come down. The performance and specifications we'd expect from a £3,000+ system just a few years ago can now be yours for less than £1,000.

It's not just the picture quality that needs consideration when deciding which model to go for. Ease of setup, connections and flexibility, noise level, placement options and portability must all be taken into account, along with the big one: value for money. Even then, narrowing down the field is extremely difficult – all the models in this group test will give you a big-screen experience that won't disappoint.

In terms of value for money, the Acer PH730, Benq W500 and Toshiba E20 projectors all stand



Epson TW700

out. Of the three, it's the Benq that takes our first Recommend award for its high contrast, great pictures, ease of setup, good connections and 1080p support.

The portability of Optoma's EP1619, along with its bright output, make it versatile and suited to both work and play. It is part of Optoma's business range, and is therefore suited to use with PCs, but as we discovered during testing it's also highly capable as a home cinema projector. Although it just misses out on an award, it's still definitely one worth taking a close look at.

If movies are your thing, it's pretty hard to beat the stylish Infocus IN76. This projector delivered some of the most film-like images we've seen.



Benq W500

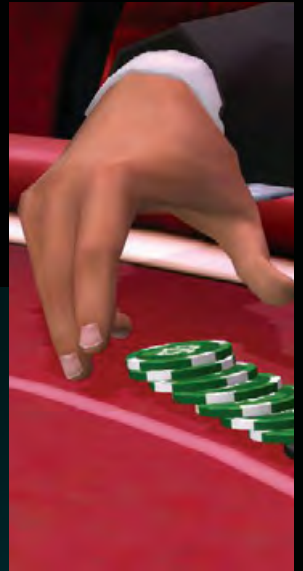
Even the remote manages to be stylish and the projector will take 1080p/24 signals over Component. For our money, though, Epson's TW700 gets our second Recommended award. This LCD model offers bigger, brighter pictures free from DLP rainbows, comes with PC connection as standard, a Scart adapter and excellent colour management.

Our Editor's Choice goes to Panasonic's PT-AX200E. Providing great pictures in different lighting conditions, twin HDMI 1.3 connections, VGA and excellent movie and game presets, it's an excellent all-rounder. The support for 1080p/24 along with its clear menus and convenient features, such as lens shift and a 2x zoom, are icing on the cake. **PCW**





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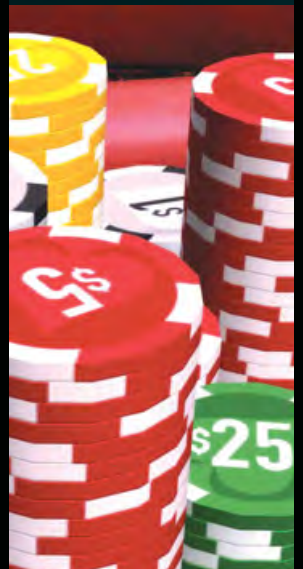


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## WINDOWS WEARY

We have a sharper focus to the business section this month, starting with a short briefing paper on alternatives to the ubiquitous Windows PC. Every small company has them, but most find them difficult and expensive to manage, so we look at how you might address those issues, outlining key thin-client and virtualisation technologies and their pros and cons for the small-business buyer.

While on the subject of desktops, we review a new ultra-slim PC from HP, which can be made to almost disappear. We also take a look at some software called Nightwatchman, designed to help businesses manage energy consumption simply by turning PCs off when not required.

Security naturally raises its head with reviews of a fingerprint authentication solution and a family of secure USB storage devices. Plus, we investigate a router designed to let you implement your own Wifi hotspot.

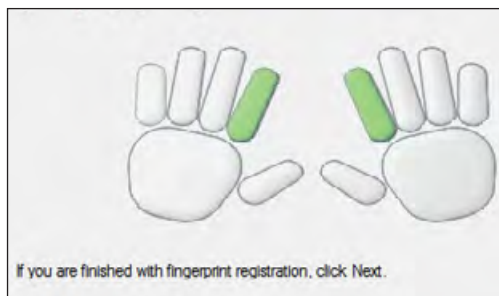
## CONTENTS

### FEATURE

116 What's on your desk? The pros and cons of alternatives to PCs

### REVIEWS

- 118 HP Compaq dc7800 Ultra-slim
- 119 McAfee Safeboot for USB
- 120 1E Nightwatchman
- 121 Digital Persona Pro 4.2
- 122 Buffalo DD-WRT GUI Router



## OUR SCORING

Excellent ★★★★★ Very good ★★★★☆ Good ★★★☆☆ Below average ★★☆☆☆ Poor ★☆☆☆☆

## OUR AWARDS

**Editor's Choice:** The best product in a comparative group test. Anything that wins this award is of better quality than its competitors.

**Recommended:** A product that combines great features, usability and value for money.

**Great Value:** Not the best in class, but a product that has superior features and performance for the price.



Editor's Choice  
Business



Recommended  
Business



Great Value  
Business

The business awards are used for products that are more suited to home offices or small businesses.



'The HP Compaq dc7800 is not as slim as a notebook, but it's pretty small - and can be made to almost disappear'

Read the review on page 118

# What's on your desk?

*Putting a PC on every desk isn't the only solution to a company's IT needs*

One PC per person is the approach most companies take when equipping staff with the IT tools they need. However, there are alternatives that can save not just money, but the time and effort required to manage all those individual desktop PCs. Here we'll outline some of the most popular approaches, highlighting the benefits and drawbacks for small businesses. We'll start with thin clients, also referred to as server-based or multi-user computing.

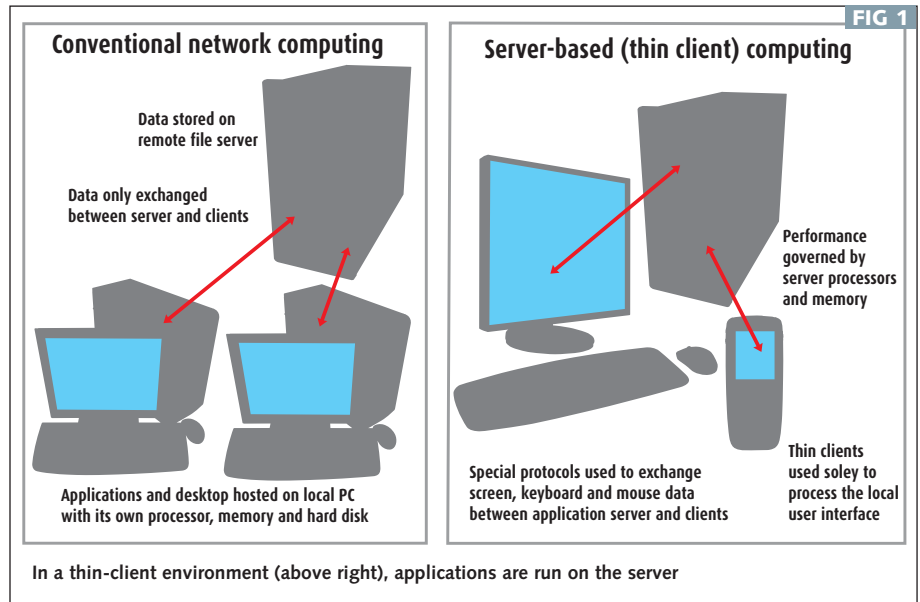
## Thin clients

The term 'thin client' comes from the ability to replace conventional desktop PCs with much simpler, often cheaper, devices. These are typically a lot smaller, with relatively low-spec processors, little memory and, in most cases, no local storage. To the user they look and perform just like a desktop PC and can be used to run the same applications. However, instead of the processing being done locally, it's done remotely on a shared, multi-user application server. All the thin client does is process the local graphical user interface (GUI), putting pictures on the screen and relaying the keyboard and mouse actions back to the server, as in the right-hand diagram in figure 1.

As well as applications, it's possible to host the whole user environment this way including, for Windows, the desktop and its shortcuts, icons, user settings and so on. Thin clients can, therefore, be made inherently more secure than a conventional PC with, for example, no local data or program storage and no local user settings to corrupt. Management is also simplified, with applications installed and managed centrally, and user desktops similarly managed and maintained at the server end.

There's nothing particularly new about this approach – mainframe and mini computers have always worked this way. However, Windows was originally developed as a single-user operating system and extra development was required to enable it to cope with multiple thin clients. It took another company, Citrix Systems ([www.citrix.com](http://www.citrix.com)), to take the first step by porting its OS/2 thin-client technology to Windows back in 1995.

Microsoft has since licensed back the Citrix technology, first for a separate Terminal Server version of Windows NT, before bundling the technology into later Windows



Market leader Wyse sells a range of devices based on its own software, as well as Linux and Windows

Server products. It has also developed its own Remote Desktop Protocol (RDP) to connect thin clients and terminal servers together, support for which is included in all versions of Windows, along with the Remote Desktop Client, which can access a terminal server from a standard PC.

Although the software to support thin clients is now included in all implementations of Windows Server, additional licensing is needed to use it for anything other than remote server administration.

## Hardware requirements

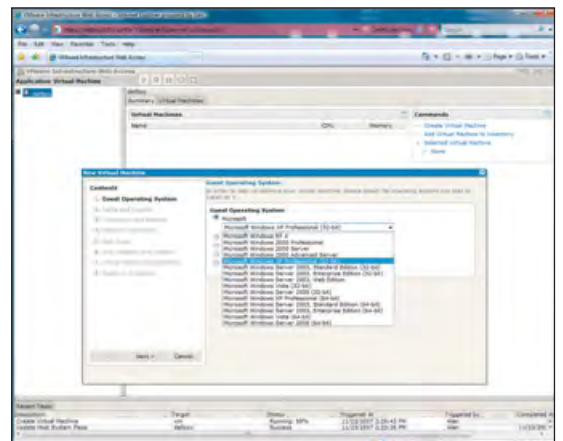
As well as software, hardware is required – to take full advantage of

Virtualisation technology can be used to connect thin clients to remotely hosted virtual PCs rather than to shared terminal servers

the thin-client approach you need two things: the thin clients themselves and one or more servers with enough processing power, memory and disk space to handle them.

In terms of thin-client devices, the market leader is Wyse Technology ([www.wyse.com](http://www.wyse.com)). The company offers a wide range of products, including thin notebooks with Wifi support. These are mostly solid-state (no disks or cooling fans) and run either custom software or embedded versions of either Linux or Windows (Windows CE/XP can be employed).

HP also addresses this market with its own range of Linux- and Windows-based products, as do a number of smaller specialist companies, such as Netvoyager ([www.netvoyager.co.uk](http://www.netvoyager.co.uk)).





On the server side there are no special requirements; any industry-standard hardware capable of running Windows Server can be used. Sizing, however, can be a real issue and small-business buyers are best advised to seek the help of a specialist reseller to come up with a suitable specification and number of servers to suit their requirements.

### Virtual desktops

In another, more recent development, virtualisation technology has increasingly been added to thin clients to provide a more modern twist. Here the same thin-client hardware is employed, connected to one or more servers over the network. However, instead of shared application servers, each user is connected to their own dedicated virtual machine.

This combination lacks many of the management advantages of the server-based model. Virtual desktops can be managed centrally and new users brought online very quickly, but applications need to be deployed, updated and managed in much the same way as on standalone desktop PCs.

On the positive side, virtual desktops more closely mimic the standard one PC per user model, with far fewer compatibility issues compared with multi-user computing. It can also be more cost-effective, especially given that a lot of the supporting virtualisation products are available free.

Almost any virtualisation host can be used, including the popular VMWare products and those from Microsoft and XenSource (recently acquired by Citrix). VMWare, in particular, promotes this use of its virtualisation technology under the so-called Virtual Desktop Infrastructure (VDI) initiative, which is gaining a lot of industry support.

Wyse, for example, has introduced VDI versions of some of its thin-client hardware specifically to act as a front end to virtual desktops hosted by VMWare servers.

Another twist is the use of real PC blades rather than virtual desktops, such as those from Clearcube ([www.clearcube.com](http://www.clearcube.com)), and the mixing together of the two back-end technologies. Further, with additional brokering and management software, both real and virtual desktop resources can be allocated 'on demand' to suit the number and type of user connecting to them. A number of products are available to do just this, including the Hosted Desktop Connection Broker from Leostream ([www.leostream.com](http://www.leostream.com)) and Clearcube's Sentra. VMWare will also have a similar tool, following its recent acquisition of Propero.

A number of companies offer software to virtualise applications, overcoming many of the deployment, update and management issues associated with standalone apps. Developers include Altiris, now a part of

## Thin clients

### Pros

- Thin client hardware is cheaper than a conventional PC and, because performance is down to the host server, needs to be replaced less often.
- Solid-state thin clients go wrong less often and can be fixed quickly if they do.
- User desktops and applications can all be managed centrally, reducing the helpdesk and support burden.
- New applications and updates are deployed easily and quickly.
- Remote access and hot-desking is easier, with users able to log in remotely using a variety of devices, including wireless notebooks and PDAs.

### Cons

- A large up-front investment in hardware and software.
- If the server hangs or crashes no work can be done by desktop users unless they can access alternative facilities.
- Some applications, such as Cad/Cam and other graphics-intensive programs, don't work as well on thin clients.
- Network bandwidth between thin client and host server can have a major impact on performance.

### Verdict

Most of the benefits of thin clients are only realised with increasing scale, so it's more of a large enterprise than a small-business technology. It's best used to support task-oriented workers, rather than general-purpose computing.

## Virtual desktops

### Pros

- Each user gets a virtual PC or PC blade, running on a secure remote server.
- It offers all the advantages of cheap thin-client desktop hardware, which can be used to connect to the virtual machines and PC blades.
- Virtual machines run standard desktop software with few of the compatibility and performance issues associated with server-based computing.
- Host virtualisation software is free.
- New virtual machines can be provisioned in minutes.
- There is support for on-demand allocation and load-balancing of desktop resources.

### Cons

- Like traditional thin-client solutions, if the host server crashes all the attached users are affected.
- Virtual desktops and apps are almost as difficult to manage as 'real' PCs.
- Desktop OS licences are still required.

### Verdict

Supporting virtualisation technology is still in its infancy and the cost benefits are hard to quantify. Again, this option is likely to appeal mainly to large enterprises.

Small businesses thinking of going down this route would do well to seek specialist help.



Thin clients can be connected to physical PC blades housed in secure computer room racks

Symantec ([www.symantec.com](http://www.symantec.com)), Citrix ([www.citrix.com](http://www.citrix.com)) and SWsoft, which changed its name to Parallels ([www.parallels.com](http://www.parallels.com)) following its acquisition of Softgrid. Microsoft has a foot in this camp, but sees application virtualisation as more of an enterprise technology.

### Other alternatives

It's important to mention some of the other alternatives to the ubiquitous Windows desktop PC. Apple Macs, for example, are

widely used by publishing, music and graphics professionals, but are also suitable as a general-purpose, small-business tool. Applications aren't as readily available but compared with the Windows PC, the Mac is less of a target for viruses and other attacks.

Linux and open-source applications are, similarly, less vulnerable in terms of security and can often be deployed on cheaper desktop hardware than Windows equivalents. Applications are readily available and you will also save money in terms of licensing. Choosing a suitable Linux distro can be difficult and business users should stick with one of the big-name implementations from either Red Hat or Novell. Unlike some distros, these aren't available free, but you do get commercial support and access to updates as part of the licence fees charged – and they still cost less than Windows. You can find out more about Linux for the small business in the Christmas 2007 issue of *PCW* or online at [www.pcw.co.uk/2203933](http://www.pcw.co.uk/2203933) **PCW**

BUSINESS DESKTOP

# HP Compaq dc7800 Ultra-slim

A space-saving design with a reasonable specification

Having been disappointed by so-called 'ultra-slim' desktops from HP in the past, we were a bit sceptical about what the new HP Compaq dc7800 might have to offer. However, this latest attempt really is starting to live up to the name. OK, it's not as slim as a notebook – or as most thin clients for that matter – and the brick-like AC adapter is a bit of a disappointment, but it's pretty small, nonetheless. More than that, it can be made to almost disappear – simply by ordering the custom monitor-come-stand designed to go with it.

Of course, you don't have to go for an HP display; any monitor can be used if you want. However, buy the 19in HP L1906i flat panel we tested (£149 ex Vat) and the processing unit can be screwed into place at the back (complete with its AC brick) so that the whole thing takes up no more room than the monitor alone.

And it's a pretty nice monitor too. Clear and bright with a maximum resolution of 1,280x1,024, and there's a counterbalanced mechanism to slide the screen up and down or tilt it back for comfortable viewing, making for a very usable as well as a stylish solution.

A single screw secures the lid of the small processing unit, which removes completely providing easy access for maintenance. Several configurations are available to suit different applications and budgets. Ours was fairly high end, shipping with a 2.66GHz Intel Core 2 Duo 6750 processor, accompanied by 1GB of DDR-2 memory. This we found more than adequate for running Microsoft Office and most other business applications (a 60-day Office evaluation is included), although more Ram would be a good idea, given the Windows Vista operating system that comes with this model. Up to 4GB of memory can be accommodated in total, using notebook-style Sodimm modules, with a similar notebook-style 2.5in 160GB hard disk and DVD/CD writer also supplied on this model.

On the downside, the Intel integrated video controller is nothing to get excited about, so this isn't a suitable system if you want to do 3D modelling, photo editing or run any other graphics-intensive applications. The lack of any expansion slots could be an issue too, although you do get a Gigabit Ethernet interface and a whopping eight USB2 connectors as standard.

Another plus point is the lack of noise. We found the dc7800 Ultra-slim to be a lot quieter than most other desktops, thanks mainly to the external power supply and the use of low-energy components. These require less cooling as well as far less electricity than most other desktop PCs – the dc7800



Attached to the optional matching HP monitor, the HP Compaq dc7800 Ultra-slim effectively disappears from the desktop

consumes around 80 watts when in use and 10 in hibernation mode.

Things we didn't like about the dc800 were the barely audible speaker built into the casing and the rather flimsy mouse delivered with the product. The keyboard was solid enough, but the use of cabled peripherals didn't square with the stylish space-saving design. A wireless keyboard and mouse as standard would be a neat finishing touch.

Finally, like other members of the HP Compaq dc7800 family, the Ultra-slim supports Intel's VPro technology, enabling it to be managed remotely whether initially powered up or not. The necessary software agents come preconfigured, but additional management software will be required to take full advantage of this option.

Alan Stevens

## Details

**Price** £598 (£509 ex Vat) ex monitor  
**Best price** [www.pcv.co.uk/bestprices](http://www.pcv.co.uk/bestprices)  
**Contact** HP 0870 241 3625  
[www.hp.com](http://www.hp.com)  
**Specifications** 2.66GHz Intel Core 2 Duo E6750 dual-core processor • 1GB DDR2-667 memory • Integrated Intel Graphics Media Accelerator 3100; single 2.5in 160GB SATA hard disk • Lightscribe CD/DVD writer • Integrated Gigabit Ethernet; 8 USB2 ports • Windows Vista Business

## Verdict

**Pros** Zero footprint when combined with HP monitor; low noise; low energy requirements; dual-core processor  
**Cons** Lack of expansion; only 1GB of memory as standard; inaudible speaker; flimsy mouse

**Features** ★★★★★  
**Performance** ★★★★★  
**Value for money** ★★★★★

**Overall** The space-saving design of this affordable business desktop is very compelling, but make sure you get the specification you need

★★★★★



## DATA SECURITY

# McAfee Safeboot for USB

Keep your data safe with these secure USB devices



As well as AES encryption, data stored on the Safeboot for USB Standard storage device is protected by password authentication



A built-in fingerprint scanner adds two-factor authentication on the Safeboot for USB Phantom storage device

The recent loss of 25 million child benefit records by Her Majesty's Revenue & Customs highlights the need to be extremely cautious when transporting data.

Safeboot, now a part of McAfee, has a way of tackling the problem, with a family of secure USB storage devices that feature strong data encryption and integrated access controls to protect the data they contain.

We tested three, starting with the Safeboot for USB Standard, which employs simple passwords to manage access. Multiple users can be defined, each with their own AES-encrypted partition, accessible only when the correct password is supplied.

The range also includes the Safeboot for USB Phantom (from £100 ex Vat for a 1GB device), which features a built-in fingerprint scanner, providing two-factor authentication. And lastly there's the Safeboot for USB Midentity (from £141 ex Vat for 1GB), which is slightly different in that it uses a smartcard and Pin number to store encrypted user credentials and can also be used for remote VPN authentication.

All three look much like ordinary USB flash memory sticks and can, indeed, be plugged into any PC with a USB 1.1/2 interface to provide up to 4GB of removable storage. Do that, however, and you'll be able to see very little.

A public and/or read-only partition may be available, depending on how they've been configured, but that's all. Any other, protected data is hidden and only accessible once the necessary credentials have been verified, which is done by the device itself.

Some software is also required. There's a management utility to configure user accounts and

their associated storage partitions, and a client application to make the data accessible once the appropriate credentials have been authenticated. The same software is used by both the Standard and Phantom models, though we we found it a little on the simplistic side. However, it worked well enough and, apart from a few teething problems (caused by a general lack of documentation), we encountered no real problems.

Separate tools are required to manage and use the Midentity devices. These were clearly from a different developer, had a completely different interface and were much harder to get to grips with.

Of the three, the Safeboot for USB Standard proved the quickest to configure and was the easiest to use, requiring no more than a password to open up each protected storage area. To configure the Phantom, users needed to register their fingerprints and we found the built-in scanner awkward to use.

To set up the Midentity device, we first had to fit the smartcard (the same size as a mobile Sim card) inside. That done we then had to install the software and set up our Pin code and digital certificate.

Once the devices had been configured they could all be used just like an ordinary flash memory stick, at the same time offering high levels of security and encryption that would be difficult to crack should they get lost or stolen. You'd also need to know that they contained secure data in the first place, and there are few clues on the outside and nothing to see if you put them in a PC without the associated client installed.

In the end, whether you think these devices are worth the cost and effort involved will depend on how highly you value your data.

Alan Stevens

## Details

**Price** From £21.15 (£18 ex Vat) for a 128MB Safeboot for USB Standard  
**Best price** [www.pcw.co.uk/bestprices](http://www.pcw.co.uk/bestprices)  
**Contact** Safeboot (McAfee)  
 01923 859 119, [www.safeboot.com](http://www.safeboot.com)  
**Specifications** PC with a USB 1.1/2 interface • Windows 2000 (SP4) or later

## Verdict

**Pros** AES encryption; authentication controls; integrated fingerprint scanner on the Safeboot for USB Phantom; smartcard and Pin code on the Safeboot for USB Midentity  
**Cons** Lack of documentation; more advanced devices harder to configure; a lot more expensive than standard USB memory sticks

**Features** ★★★★★  
**Ease of use** ★★★★★  
**Value for money** ★★★★★

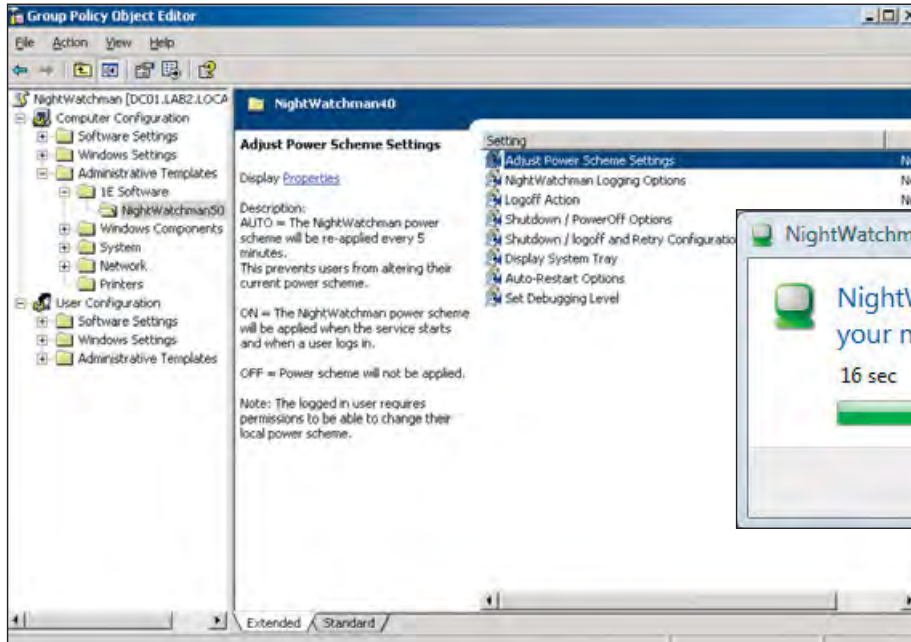
**Overall** A good way to protect mobile data, with a choice of authentication technologies to suit a variety of applications

★★★★★

POWER MANAGEMENT

# 1E Nightwatchman

Help save the planet – and your cash – with this great shutdown tool



Left: A group policy template enables Nightwatchman policies to be set via Active Directory

Above: Active users are advised of the impending shutdown by Nightwatchman before being logged off

Whether you're concerned about your carbon footprint or looking to save money by reducing your energy consumption, Nightwatchman, from UK developer 1E, will be of interest. That's because it allows you to shut down desktop PCs remotely with a centrally managed schedule, saving data from open applications in the process.

Now in its fifth generation, Nightwatchman needs to be installed onto every PC desktop on your network to be effective. It can be used with Windows 2000, XP and both 32-bit and 64-bit implementations of Windows Vista, the only other prerequisite being support for APM/ACPI power management.

Installation takes just a few seconds – either interactively or automated – using a variety of tools such as Windows group policy or Microsoft System Center Configuration Server (previously SMS).

Once installed, the software itself is something of an anti-climax with no fancy graphical interface or central management console. Instead, there's a very lightweight client designed to respond to commands which can be either issued directly (locally on the PC or remotely) or scripted. Scripts can be distributed and applied using almost any third-party network management tool, added to which you're supplied with a group policy template to enable many of the basic Nightwatchman settings to be configured centrally via Active Directory.

The lack of a fancy management interface isn't that much of a loss as, in reality, it wouldn't add much in the way of value to this tool, which is solely about automating PC shutdowns. Anyway, the command line interface is quick and easy to master, with lots of helpful

documentation provided as standard. It also fits in well no matter what management tools you have to hand.

We tested it by issuing commands locally and over the network to shut down a number of network PCs. We also experimented with scripting and found it very easy to power down, reboot and put PCs into a suspend or hibernation state when we wanted. Active users can be logged off with a warning to tell them of the impending shutdown, with a countdown timer another option, plus the ability to defer the operation if you want. Similarly, a shutdown can be deferred if applications fail to close properly or are forced to continue regardless.

A number of scripts are provided to close common applications gracefully before a shutdown occurs with any open documents backed up along the way. A local system tray applet can also be enabled to allow users to view the list of files backed up during the last log-off process which will be a help if problems with document versions arise.

Basic logging is also built into the Nightwatchman software, but for more detailed reporting you need the 1E Agility Framework, a separate tool designed to provide a complete picture of energy consumption levels on the Lan. Plus there's another companion product available – SMS Wakeup – designed to work with System Center Configuration Manager and SMS, which enables network managers to turn PCs on remotely to, for example, more effectively implement patching and other software update strategies.

Although Nightwatchman doesn't really do very much, it works well and what it does do is extremely valuable with huge savings to be achieved in terms of energy consumption and associated costs when employed on any small-business Lan. *Alan Stevens*

## Details

**Price** From £14.10 (£12 ex Vat) per user  
**Best price** [www.pcw.co.uk/bestprices](http://www.pcw.co.uk/bestprices)  
**Contact** 1E 020 8326 3880  
[www.1e.com](http://www.1e.com)  
**Specifications** PC running Windows 2000, Windows XP SP2 and above or Windows Vista (Business, Enterprise, Enterprise x64 and Ultimate) • Servers not supported • Client PCs need to be APM/ACPI compliant

## Verdict

**Pros** Focused solely on automating PC shutdowns; simple command-line controls; scripting; graceful shutdown of applications and open files

**Cons** Only Windows desktops supported; no server support

**Features** ★★★★★

**Ease of use** ★★★★★

**Value for money** ★★★★★

**Overall** If you want to save energy and money this will be an invaluable tool

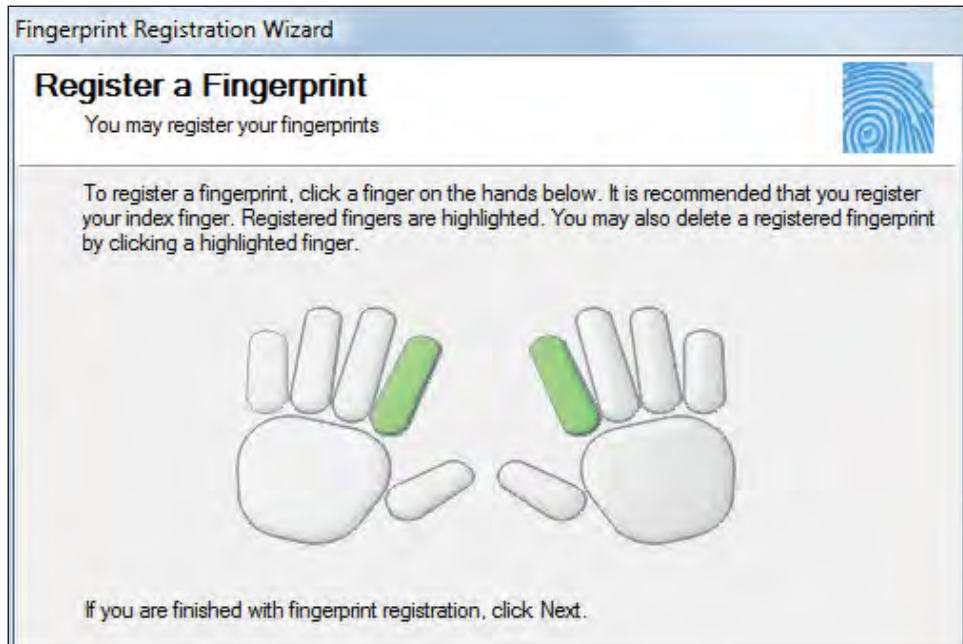
★★★★★



## NETWORK SECURITY

# Digital Persona Pro 4.2

Get rid of passwords with this simple fingerprint recognition solution



Before you can log on using the Digital Persona scanner you have to register one or more fingerprints

The Digital Persona Pro workstation package is available with a static fingerprint scanner to plug into a USB port



We all dislike passwords. Network managers hate them because they're easy to crack; users because they're hard to remember, and support staff because they have to spend so much time resetting them. Digital Persona Pro lets small businesses do away with passwords and use fingerprint recognition instead.

We tested the Digital Persona Pro Workstation package, which can be bought complete with a U.are.U 4000B fingerprint reader ready to plug into the USB port of the host PC. A software-only implementation is also available for use with other devices, including notebooks with integrated readers. However, we found the static U.are.U reader particularly easy to use and very reliable, especially compared with alternatives where you have to swipe your finger across the reader. With the U.are.U, you simply press on the glass until you hear a beep.

Whatever the reader, installation is quick and easy. The software can be installed on Windows XP, most versions of Vista (including 64-bit versions) and Windows servers. Simply run the setup program, plug in the hardware and you're ready to start. Once installed standard Windows passwords can still be used, but in addition you'll be able to log on just by putting your finger onto the reader.

Before that can happen, however, you have to go through a wizard-driven registration process to enable your fingerprints to be recognised. You can register as many of your fingers as you want (you're advised to do at least two) simply by placing them on the reader when instructed. Four scans are required to register each finger, the software storing unique identification points rather than the fingerprint image itself, so if it were to get lost or stolen, the data will be of very little value.

As well as Windows, the Digital Persona software can be used to log on to websites and other applications with no changes needed to the applications themselves or scripting. However, the procedures involved aren't quite as automatic as with other products we've used. A wizard has to be used to teach the software how to log on to each application or website individually, after which your fingerprint has to be verified every time you want to log on.

Still it all works well enough and we soon got used to logging on this way, finding it extremely convenient. You can also set up shortcuts to, for example, lock and unlock the PC using fingerprint scans – useful where PCs are left unattended.

We had very few problems either configuring or using the product, and were impressed with the speed and accuracy of the results. Indeed, it was rare for fingerprints not be recognised first time and at no time could we log on using fingers that hadn't been registered.

With the workstation product fingerprint information is stored on the local hard disk. Add Digital Persona Pro Server (from £1,100 ex Vat), however, and the data is integrated into Active Directory. This integration adds much more seamless, network-wide, single sign-on capabilities and the ability to create sign-on templates for distribution to users via group policy. Centralised management and reporting are, similarly, available via the Digital Persona Pro server.

Support for Windows Terminal Services and Citrix is another useful feature, while for users of Microsoft Small Business Server 2003 R2 a bundled solution is available to help reduce costs. Starting at £1,213 ex Vat for 10 users, this includes both the server and workstation software plus fingerprint scanners.

Alan Stevens

## Details

**Price** From £84.60 (£72 ex Vat) for the Pro Workstation and reader package

**Best price** [www.pcw.co.uk/bestprices](http://www.pcw.co.uk/bestprices)

**Contact** Digital Persona  
001 650 474 4000

[www.digitalpersona.com](http://www.digitalpersona.com)

**Specifications** Workstation software requires 233MHz processor or greater • 128MB Ram • 52MB free disk space • Windows XP Professional, Vista (Business, Enterprise or Ultimate editions) • Server 2000/2003: Server requires Windows Server 2000 or 2003

## Verdict

**Pros** Quick and accurate; available with or without scanner; Active Directory integration

**Cons** Some manual setup required when used standalone; limited reporting

**Features** ★★★★★

**Ease of use** ★★★★★

**Value for money** ★★★★★

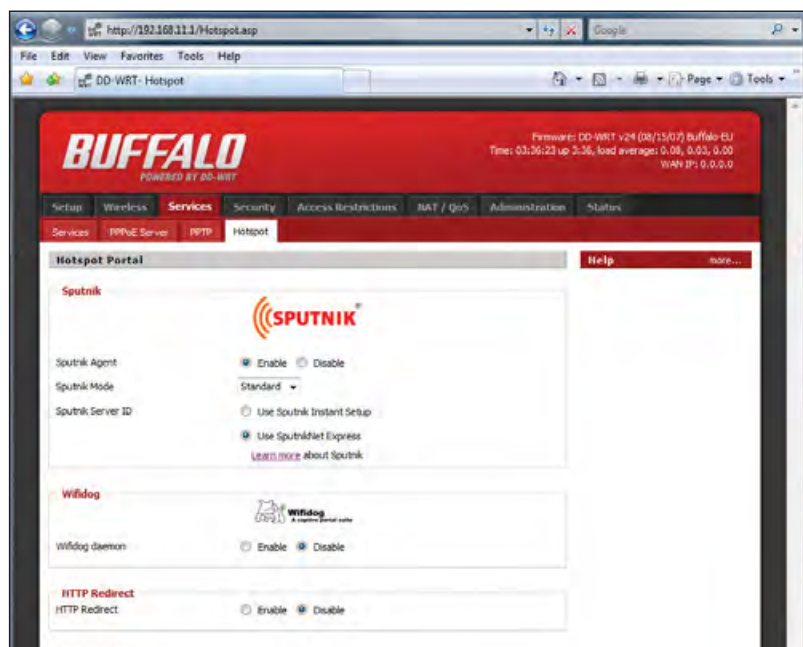
**Overall** A robust and reliable alternative to passwords

★★★★★

## WIRELESS NETWORKING

# Buffalo DD-WRT GUI Router

Build your own hotspots with this affordable Wifi router



Agents are available for a number of Wifi hotspot systems, but you'll need more than these to set up a hotspot of your own



It looks like a standard Buffalo Wifi router, but it's powered by DD-WRT software and offers extra functionality

The latest wireless router from Buffalo Technology differs from its predecessors in that, instead of custom Buffalo firmware, its firmware is Linux-based open-source code, known as DD-WRT. As a result, it offers additional functionality over and above standard Wifi networking to, for example, enable small businesses to implement their own wireless hotspots, at a very affordable price. However, a lot of technical expertise is required and it's definitely not for the novice.

In essence, the Buffalo router is much like others in the range. It's a tiny device with a four-port integrated Ethernet switch for wired network integration, together with a separate Ethernet port for connection to the internet. The wireless interface is Broadcom powered, supporting 802.11b/g Wifi, with a single antenna that screws onto the unit. There's support too for Buffalo's AOSS (Airstation One-Touch Secure System), which makes for a much simpler client setup, although only when used with compatible Buffalo adapters.

A stand is included for desktop use, and there's also a special cradle to allow the whole thing to be wall or ceiling mounted. Unfortunately, there's no support for Power over Ethernet, so you need to connect the small AC adapter supplied.

The DD-WRT software is configured and managed via a browser interface, with an optional secure shell command line, if required. All the expected Wifi options can be set here, including an extensive list of security options from Wep encryption to WPA2 security, with support for both Personal and Enterprise implementations. User authentication against a separate Radius server is another option, and there's a stateful inspection firewall built in, alongside support for Nat (Network Address Translation) and so on.

These and other basic Wifi, networking and security options are fairly easy to configure. We also found it easy to set up multiple virtual Wifi interfaces, each with its own SSID, and to enable the built-in wireless hotspot services. However, there's a lot more to creating and running your own hotspot than enabling an agent and, in this respect, you're pretty much on your own with hardly any mention of the additional DD-WRT services in the accompanying documentation or on the Buffalo website. Instead you have to spend time researching the help files, the DD-WRT site ([www.dd-wrt.com](http://www.dd-wrt.com)) and those of the supported services, to work out what's required.

A number of built-in hotspot agents can be activated, including one for use with the commercial Sputnik ([www.sputnik.com](http://www.sputnik.com)) service, which lets you manage access to hotspots over the web, optionally charging users for access. Another is Wifidog (<http://dev.wifidog.org>), an open-source project involving the use of captive portal software that you need to install and run on a Linux server.

HTTP and SMTP redirection agents are also available, along with another for use with Nocat. All these and other advanced options, however, require a working knowledge of the technology involved and, in the case of Sputnik, you have to sign up to a commercial service. As such it's not something we would expect the average network manager to be able to tackle.

That makes Buffalo's DD-WRT router much more of a specialist product than the marketing would have you believe, and it's most likely to appeal to small service providers and system integrators. Alternatively, you could just look at it as a very well-specified, yet low-priced small-business Wifi router and ignore the DD-WRT extras altogether.

Alan Stevens

## Details

**Price** £49 (£41.70 ex Vat)

**Best price** [www.pcw.co.uk/bestprices](http://www.pcw.co.uk/bestprices)

**Contact** Buffalo Technology  
01753 555 000

[www.buffalo-technology.com](http://www.buffalo-technology.com)

**Specifications** Broadcom 802.11b/g Wifi chipset • 4-port wired Ethernet switch • Ethernet Wan port • Wall/ceiling mount • External AC adapter • DD-WRT firmware • Wep, WPA, WPA2 (Personal and Enterprise) security • SPI & Nat firewalls • Multiple virtual Wifi networks • Sputnik and Wifidog hotspot agents

## Verdict

**Pros** Low price; wall/ceiling mount; good choice of Wifi security options; AOSS support

**Cons** No Power over Ethernet; poorly documented; advanced features require expert knowledge to configure

**Features** ★★★★★  
**Performance** ★★★★★  
**Value for money** ★★★★★

**Overall** Offers a lot more than your average Wifi router but you really need to know what you're doing to take advantage of the extra features

★★★★★





X-W22

**NOT ALL  
WIDESCREENS ARE  
CREATED EQUAL**



Sure, widescreens have been available for a while. But to date, no widescreen has been able to deliver the durability and protection of an AG Neovo hard glass display.

AG Neovo's new X- and E-Series widescreen displays, featuring NeoV™ Optical Glass technology, are the wisest way to protect your widescreen investment.



E-W22

USB 2.0 | Interface

DIGITAL VIDEO CONVERTER

PX-AV200U

Video

CONVERT X™

## Convert Videotape to DVD instantly

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1/2/4

Plug  
&  
Play

Software  
included



Supports iPod® and PlayStation®

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## ASK THE A-TEAM

As usual, we kick off this month's Hands On section with four pages of Question Time, where our experts solve your problems. If you have a problem and no-one else can help, you'll find the addresses for our Hands On A-Team on page 129.

This month's columns cover a wide range of topics; if you were lucky enough to find an Asus Eee PC in your Christmas stocking, check out Hardware and Performance, where we've plenty of information about this diminutive portable. There are gadgets in Digital Imaging too, where we look at a new camera with built-in GPS, as well as how to make your own screensavers. Databases and Web Development have more information for newcomers to SQL and Javascript respectively, while Office users can find out how to make a table of contents in Spreadsheets and how to make Autotext do what you want in Word Processing.

Windows users will find a round-up of some tricks and tweaks for both XP and Vista this month, and for open-source aficionados, we take a look at some additional software for Ubuntu in Hands On Linux. There's also a look at Homeplug in Networks, and in Visual Programming we forecast what 2008 holds for developers.

## CONTENTS

### 126 QUESTION TIME

Our experts are on hand to answer your questions

### 130 HARDWARE

Find out more about Asus' new mini laptop

### 132 PERFORMANCE

Does size affect the performance of tiny laptops?

### 134 WINDOWS

Useful tweaks for Vista and XP users

### 136 LINUX/UNIX

Find additional programs to install on Ubuntu Linux

### 138 DIGITAL IMAGING & VIDEO

The world of screensavers

### 140 WORD PROCESSING

Get to grips with Autotext

### 142 SPREADSHEETS

Make files compatible with earlier versions

### 144 WEB DEVELOPMENT

Basic Javascript and some Office tips

### 146 NETWORKS

Windows' quirky way of dealing with offline files

### 148 DATABASES

A focus on SQL querying

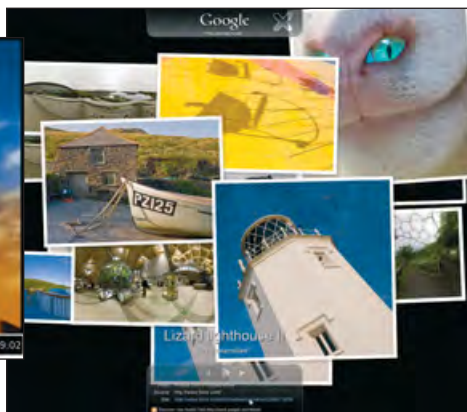
### 150 VISUAL PROGRAMMING

The future of Visual Basic

Below: Play with Picasa (see page 138)



Above: The Eee PC's media player works with lots of formats including DivX (see page 132)



# HANDS ON

## 26 PAGES OF...

- ADVICE
- TOP TIPS
- TECHNIQUES
- WORKSHOPS
- HARDWARE SOLUTIONS
- SOFTWARE SOLUTIONS
- Q&A

# Advice from our experts

Your computing problems solved by our experts

## DATABASES

### Decoding Access

**Q** I'm learning to write code for my Access database and I sometimes need to use a dot between words and at other times I need an exclamation mark. I tend to use them at random until something works. Is there a simple rule here that I am missing?

Paul Weston

**A** Yes there is; but first, some trivia. What we in the UK call an exclamation mark, some Americans would call 'bang' and others 'shriek'. To answer your question, there is a simple rule. You use a bang before a word that you have defined and a dot before a word that Access has defined. Thus:

**Me!combo112.AfterUpdate**

I named the combo box as combo112 (or, more accurately, I accepted the default name that Access offered me so it is now my responsibility), whereas AfterUpdate is a word that Access uses (see screen 1).

While it is true that this rule is an oversimplification – and it can be broken – as a get-you-started, first approximation, it is great and applies most of the time.

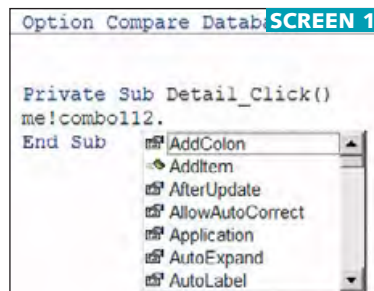
## HARDWARE

### Canon and Codec

**Q** My MVIX 760HD unit reports "unable to play back Codec not supported" when I try to play AVI files created by my Canon Ixus-40 digital camera; I have updated the firmware to 1.1.15.

My Canon Ixus-40 is set to 30 frames per second (fps) and 640x480 resolution and the files generally play fine on my XP and Vista laptops. Could you please suggest a way of solving this problem as I thought that the AVI file type was a standard and should work on all systems that were listed as being able to play it.

Mark Hemsworth



As soon as you type a dot, Access offers you a list of appropriate words

**A** AVI is actually what's known as a 'wrapper' for different types of video. Think of it as a carrier bag which could contain almost anything. So you could have video encoded using DivX, Quicktime or DV to name but three, all stored in files with the AVI extension.

So it sounds as if your MVIX 760HD is currently incompatible with the video format used by your Ixus. Hopefully, there'll be a firmware update in future that supports your camera's video format, but don't count on it. Sadly, incompatibilities such as these are common in the world of digital media and consumer playback devices.



Digital cameras may save movie clips as AVI files, but that can cover a wide range of formats

### Same difference?

**Q** Would you please explain to me the difference between Macs and PCs? Is it just the OS? Surely motherboards, processors and all the other hardware are made by the same companies, such as Intel and ATI.

Bob

**A** There was a time when such a question would have resulted in a detailed report of the technical, not to mention philosophical, differences. In terms of the former, Macs certainly used to use different motherboards and processors to PCs and even featured some

different ports, slots and sockets. Then there was of course the different operating system.

These days though, as you've noticed, the Mac hardware is very similar to PCs. The motherboards still tend to be proprietary, but generally feature the same slots and sockets as found in typical PCs and, as for processors, the entire Macintosh line is now driven by Intel CPUs. Indeed the current Mac hardware is so similar to PCs that you can install Windows on a Mac if you like. Sadly, this isn't easily possible the other way round.

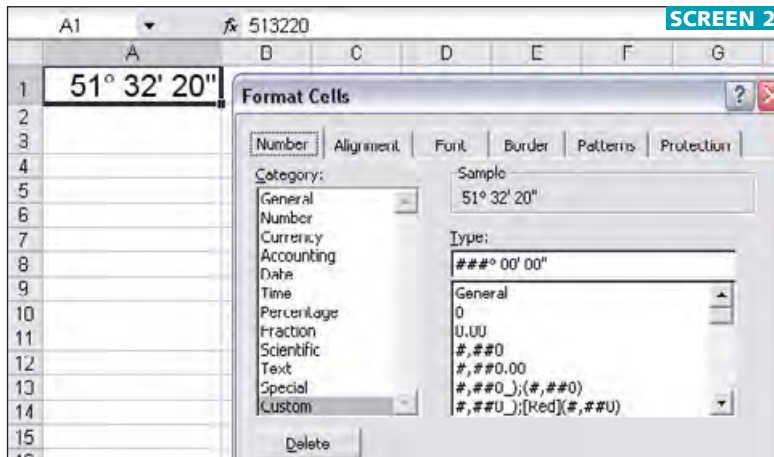
In terms of internal hardware, Macs are essentially the same as PCs. The big differences between them are the OS and the fact that it knows what hardware it will be running on, and of course the external design of the systems and peripherals. As for the philosophical differences, that's an argument for another day.

### Memory game

**Q** I have read your articles on 64-bit systems and hope you may be able to help me. I follow financial futures markets with 2GB machines running Windows 2000 and XP Pro. I plan to replace them at the end of next year with Intel Nehalem processors and Raid 0 Flash hard drives. I need low latency with a quiet environment.

I am happy with XP and my applications are written for it and likely to stay that way for some time. On the memory side the trading applications alone have not asked for more than 1GB of memory so far, but as I want to use more windows and studies, this demand is growing. I think it likely that I will hit the buffers on what is addressable with 32-bit within the life of the intended





The easy way to format for longitude and latitude

Under the Number tab choose Custom. In the Type: box enter `###° 00' 00"` (see screen 2). To produce the degree sign, hold down Alt and press 0176 on the numeric keypad. For the double quote you should use two apostrophes.

## Year on year

**Q** My friend has Excel 2007 and I use Excel 2002. Is it possible for me to open a file received from him?

*Popy Leigh*

**A** You can read Excel 2007 files with Excel 2000, 2002 or 2003 if you download the free add-in that Microsoft provides. See the pros and cons of this add-in in the Knowledgebase article at

<http://support.microsoft.com/kb/924074>.

Obviously, you would need Excel 2007 to make changes or additions to the file. A better solution would be to ask your friend to save the files he shares with you in the traditional .xls format. Then you can make changes if you wish and send the files back.

## Part and parcel

**Q** I have a worksheet with over 3,000 rows and several columns of data about parts.

In column A is the part number of each item. In adjacent columns is the data about that item. I would like, on another worksheet in the same workbook, to be able to type in just the part number in column A and

new purchase. I think there would be an advantage in making as much memory available to the applications as possible, hence my interest in 64-bit.

Do you know whether 64-bit XP Pro behaves in the same way as 64-bit Vista in regard to demands for page file use? I do not want to replace a tried and trusted OS (whether 32-bit or 64-bit) with one that may well be slower and demands more resources to provide functions I do not need.

*Ronald Scott*

**A** If your applications are designed for XP and you're happy with the XP environment, then it would make sense to stick with it. Vista certainly brings its own overheads and the startups can be slow. As to how well your applications would work under 64-bit XP running on a system equipped with lots of Ram, we can't say – that's a question for the software developer, or one you'll need to try out yourself.

Certainly, if they're 32-bit applications then they'll be able to address only a limited amount of physical Ram, whether they're running under a 32-bit or a 64-bit operating system. As you know from our previous articles though, there could still be some benefit, as the 64-bit OS could cache the swap-file into spare Ram, and thereby deliver quicker access when the application thinks it's actually requesting disk-based virtual memory.

Windows XP Professional x64 Edition can do this, but again as to how well it would work with your particular applications, we can't say. Since yours is a critical, financial-based application, we'd again advise

contacting the software developer and, better still, building a test system to measure the performance for yourself.

## SPREADSHEETS

### Simple signing

**Q** I'm studying geography and for my reports I frequently have to enter longitude and latitude figures into a spreadsheet. I'm using Excel 2003. Is it possible to have Excel automatically produce the degree, minute and seconds signs? I would like to enter, say, 513220 and have Excel display 51° 32' 20".

*Syeda Dhillon*

**A** You can do that. It's just a matter of setting up a Custom format. Highlight the range of applicable cells. Press Ctrl & 1 to display the Format dialog box or choose Cells on the Format menu.

## Why won't my AVI files play?

### DIGITAL IMAGING

**Q** I have many Hi8 analogue video tapes that I have been converting to AVI files using the DC10 PCI capture board that came with Pinnacle Studio 8 on my old XP machine. I now have a shiny new high-power Vista laptop and, after your recent review of the latest Studio 11, I was thinking of upgrading. The problem is that Vista does not play the AVI files I've captured, it just plays sound but no picture. This appears to be a well-known problem with Vista, according to the internet. There are many codecs out there, which some people appear to have had some success with, while have others not. My question is whether the AVI files created by Studio 8 would be able to be read by Studio 11. There doesn't appear to

be any relevant info on the Pinnacle website.

*Nick Thatcher*

**A** The reason you can't play back the AVI files on your new Vista laptop is that you don't have the correct codec installed. You need to take a look at the codec you used to capture the original material using the DC10 and Studio 8. Providing you have the codec, there's no reason you shouldn't be able to watch the clips in Windows Media Player and use them to create new projects in Pinnacle Studio 11. If you're not sure of the codec used to encode the captured analogue video, there's a handy video utility called Gspot [www.headbands.com/gspot](http://www.headbands.com/gspot) that you can use to identify this and other information about your video clips.

have the data filled into the other required columns automatically. Up to now, I have used Find then Copy, switched to the other worksheet, and used Paste for each item. These worksheets are then saved and distributed as required.

Les Sambrook

**A** Let's say that the column headings on your parts list are Part No, Colour, Size, and Condition. Give the data under each heading an equivalent Name. In other words, B2:B3000 is Named Colour, C2:C3000 is Named Size, and so on. To make a Name, highlight the relevant range and press Ctrl & F3. That opens the Define Name dialogue box. On the worksheet to be distributed enter

**INDEX(Colour, MATCH(\$A2, Part, 0))** in cell B2 and drag down the column as far as needed. In C2 enter **=INDEX(Size, MATCH(\$A2, Part, 0))** In D2 enter **=INDEX(Condition, MATCH(\$A2, Part, 0))**

(Key: ⌘ code string continues)

When you enter any part number from the full parts list into a cell in column A of this worksheet Excel will

Part No	Colour	Size	Condition
A1234	Black	Large	New
A1235	Brown	Small	Used
A1236	Grey	Medium	Used
A1237	Maize	Large	New
A1238	Yellow	Small	New
A1239	Blue	Medium	Used
A1240	Green	Large	New
A1241	Red	Small	Used
A1242	Orange	Medium	New
A1243	Lime	Large	Used
A1244	Tan	Small	New
A1245	White	Medium	Used
A1246	Black	Large	New
A1247	Brown	Small	Used
A1248	Grey	Medium	New
A1249	Maize	Large	Used
A1250	Yellow	Small	New
A1251	Blue	Medium	Used

fill in the remaining data (see screen 3). Make as many copies of this worksheet as you need.

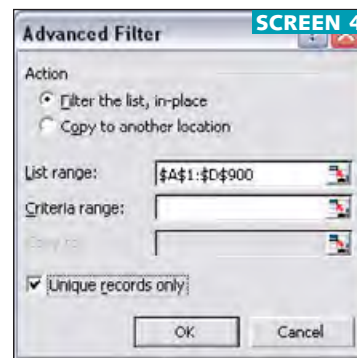
**Above: You can enter a part number and Excel will fill in the rest**

## Row away

**Q** I have to import data into an Excel 2002 worksheet to create monthly reports.

This approximates to 900 rows, of which some of the rows have a part number which is duplicated, up to four or five times. I've added a column with the formula

**Using Advanced Filter to eliminate duplications**



**=IF(B3=B2, "Delete", "OK")** and copied it down that column. This marks the duplicated rows with the word Delete. How can I now delete each row with the word Delete in the new column without doing it row by row manually?

Paul Lydon

**A** Click within your table. On the Data menu choose, Filter, AutoFilter. Click the displayed arrow at the head of the new column and choose Delete. This reduces your worksheet to just the rows containing the word Delete.

Highlight the row numbers for these redundant rows. Right-click and choose Delete Row. Back on the Data menu choose Filter, Show All. The remaining rows are now displayed. Then choose Filter, AutoFilter to remove the heading down arrows. It's possible that you could eliminate the step of inserting the word

Delete in a new column by using Advanced Filter on the Data menu. Just choose 'Filter the list in place' and check 'Unique Records Only' (see screen 4).

## Go reconfigure

### LINUX

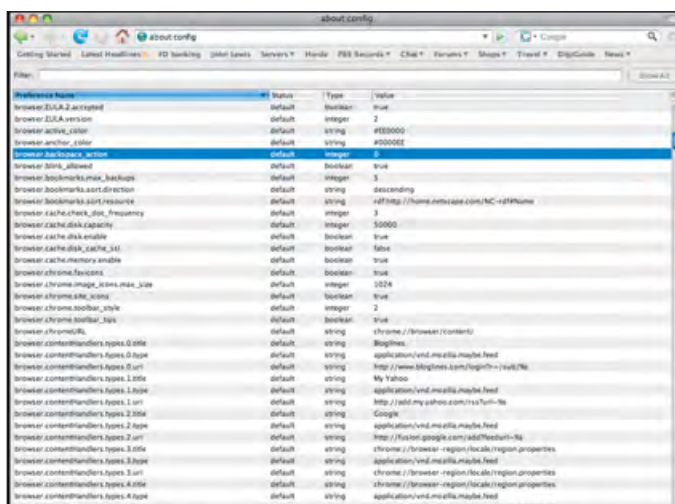
**Q** I mostly use Windows XP but have lately been dipping my toe into the Linux world. One thing that bothers me about Firefox in Linux is that backspace doesn't go back a page as it does in Windows. Is it possible to reconfigure it?

Matthew Shepherd

**A** It certainly is. Many things in Firefox can be configured through extensions or by using the built-in interface to the configuration. Enter 'about:config' in the URL bar (without the quotes) and look for 'browser.backspace\_action' in the list. The default in Linux is 1, which scrolls up a page, while in Windows it is 0, which goes back a page in the session history. Just change the

entry from 1 to 0 and the change will take effect immediately. Newer versions in Linux may have the value 2 instead; this prevents backspace from having any effect – again, just change as appropriate.

**In Firefox, you can change the action of the backspace key by typing about:config**



### WINDOWS

## Privacy settings

**Q** I am trying to set up an Outlook Express mailing list for 60 householders in my area in connection with a petition to the County Council. But I am worried that everyone will be able to see all the other email addresses in the header and that someone might misuse that information. How can I fix it so that each recipient can only see their own address in each email sent out from the list?

Mike Goodwin

**A** If you create a new message, then from the View menu in the New Message window select 'View All Headers'. You'll see the BCC field appear above the subject field. Any recipients added to this field (Blind Carbon Copy) won't be able to see the names of any other recipients.



## Title talk

**Q** In my Windows XP folder I found column after column of files titled, say, \$NtinstallKB873339\$ and similar. Can I delete them to help improve my computer's performance?

Charlotte Cubitt

**A** These are the 'undo' folders for Windows updates and hotfixes. You can delete them if you're sure you won't want to undo an update. It's generally advisable to keep recent ones, for a month or two, just in case. Usually they are compressed (shown in blue) so they take up less disk space (see screen 5).

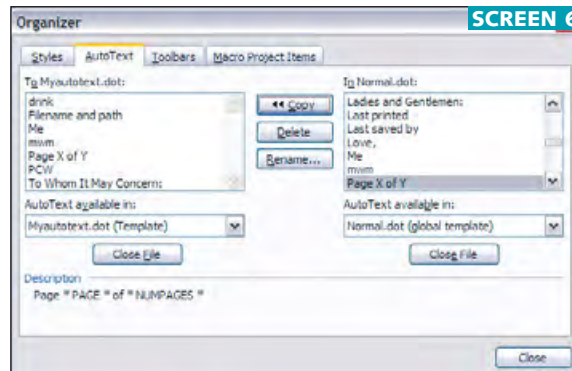
## WORD PROCESSING

### Back-up buddy

**Q** Occasionally, if there is some problem or other, Word loses all of my Autotext entries. Can I find them stored anywhere or, better still, can I store them somewhere to save re-entering? I know they are stored in the Normal.dot template but however hard I try, I have failed to master that one. I always end up with a fresh Normal.dot with no Autotext or keyboard macros.

Clive Pygott

**A** One quick way is to back up Normal.dot to another name, but if you want to be more selective, why not back them up to another template? Create a new blank document and save it as Myautotext.dot. Then go to Tools, Templates and Add-ins and click the



Organizer button. Turn to the Autotext tab. You should have a pane for Normal.dot with all your existing autotext entries and a pane for Myautotext.dot with no entries (see screen 6). Highlight each entry you want to back up in Normal, then hit the copy button. Save Myautotext.dot for the inevitable rainy day when Normal.dot goes belly up. This will work with macros, styles and toolbars as well. If you're an Autotext fan, check this month's Hands On Word Processing.

**Back up your Autotexts**

## Outer space

**Q** Can you help settle an argument? I have defined my normal 'Body Text' style (Word 2003) to have a 12-point space after, in order to visually separate paragraphs. My business partner says that the space should be before, otherwise you can never finish a paragraph on the last line of a page. Who is right?

Trevor Barber

**A** Word is smart enough to realise that paragraph spacing of body text should be suppressed at the

top and bottom of a page – a bit of simple experimenting with a dummy document will confirm this, so you are both right in your own way. However, what is more important is consistency – if you have some styles with space after and some with space before then you will get more spacing or no spacing when they follow each other. Microsoft tends to use spacing after in the standard body styles, so we would recommend sticking with that. This only applies to body text – headers, pull quotes and other text styles can have spacing before, after or both as the user demands.

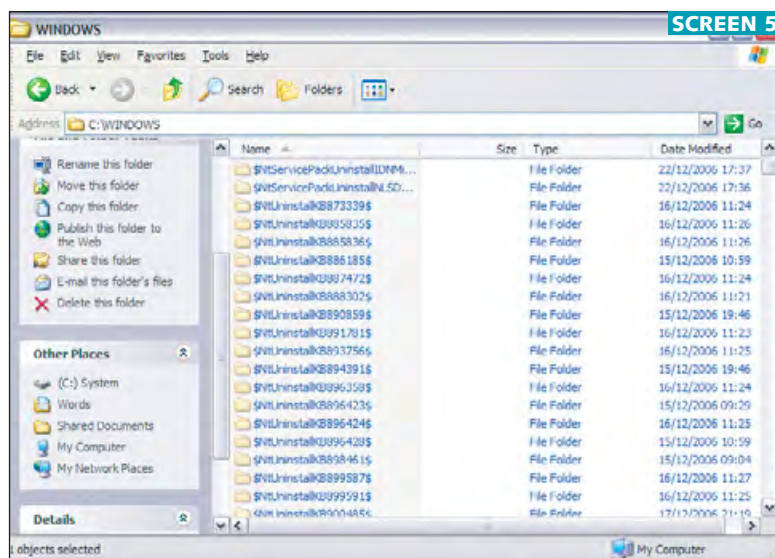
## Format focus

**Q** I have been asked to email some Word documents as attachments in RTF file format. What is the difference between this and the normal DOC format?

A Perrin

**A** Unlike the DOC format, the RTF format only uses plain text for both content and formatting – rather like HTML. If you open an RTF file in notepad you will see the text surrounded by control codes that start with a backslash. Historically (RTF was developed in the 1980s), this meant that RTF files could be sent over seven-bit channels – ie as plain text.

It's still very popular for two reasons. First, practically every word processor and DTP application can handle it. Second, unlike the DOC format, it can't contain macros, so can't be used to transmit macro viruses. **PCW**



You can delete the uninstall folders for Windows updates if you're sure you won't need them

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**Gordon Laing** has been a hardware enthusiast since his first Sinclair ZX80 and as a former editor of PCW and contributor for over 10 years, what he doesn't know about technology isn't worth knowing.

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# Inside the Eee

Asus' new mini laptop has caught people's imagination, so what's the fuss about?

Every so often a new product comes along that fires up almost everyone who sees it. Such products quickly gain a cult following among early adopters who try out an array of modifications, comparing notes and results on internet forums. Then as the product becomes mainstream, the less gung-ho among us can pick and choose from the various tweaks, which by then are well known and documented.

The latest product to earn this kind of cult status is the Asus Eee PC 4G, a mini laptop that stole the show at Computex 2007 and has since set numerous forums ablaze with countless tips, tricks and tweaks – and it's not hard to see why. The Eee PC 4G is small, light, affordable and runs a custom version of Linux that supports a wide range of applications and external devices.

At £219, it's not only the cheapest ultraportable laptop around, but also a dream gadget for enthusiasts. As such we've devoted this month's Hardware and Performance columns to getting beyond the basics of the Eee PC 4G, especially for those new to Linux.

## The Eee PC OS

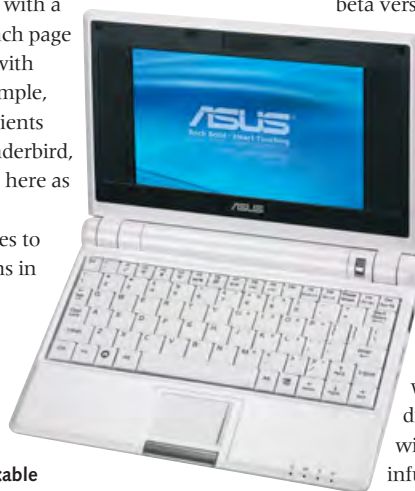
The Eee PC runs a custom version of Linux, based on Xandros. Having a relatively standard OS behind the scenes is what gives the Eee PC its flexibility, as there's a wealth of software that should run on it without too many issues.

First things first, though: Asus has created a custom front end to operate the Eee PC, called the Easy Mode. This separates the various pre-installed applications and utilities under six tabbed menus – Internet, Work, Learn, Play, Settings and Favourites, with a Help option at the end. On each page you'll find big friendly icons with generic descriptions – for example, the web browser and email clients are actually Firefox and Thunderbird, but they're simply referred to here as 'Internet' and 'Mail'.

Asus offers certified updates to these pre-installed applications in its 'Add/Remove Software'

**The Asus Eee PC 4G is a mini laptop that runs a custom version of Linux from a 4GB solid-state drive. It's small, light, affordable and very tweakable**

The Eee PC has a custom desktop with large chunky icons and generic names. Clicking the Web icon launches a full version of Firefox



control panel under the Settings tab, so if you're looking for a new version, this is the place to start. If there's no update shown, but you know there's, say, a beta version you'd like to try, then you can download it manually or use Linux-specific tools to install it, of which more later. You can also, of course, use both techniques to install other programs too, but sadly they won't appear in the Easy Mode menus. Luckily there's a way around this, which we'll describe in a moment.

Asus has been careful to pre-install applications that work well on the 800x400 pixel display, but you will come across windows from time to time that infuriatingly extend below the height of the screen, thereby hiding crucial confirmation options; specifically, this happens when installing new applications.

The trick is to hold the Alt key while you drag the pointer. Doing so in effect treats the entire window as a title bar, allowing you to grab and drag it from any area.

## Networking

The Eee PC is equipped with both wired 10/100 Ethernet and wireless b and g connectivity, but it's not obvious at first how to connect and remember a set of preferences. Under the Internet tab you'll find icons labelled 'Network' and 'Wireless Networks', and it's the former you should use when setting up a brand

## The Eee PC range in detail

The Asus Eee PC 4G is the first of several models, whose major differences are their amount of storage, Ram and whether or not they feature a built-in webcam. The number in the name refers to the size of the built-in solid-state drive, so the standard 4G model is equipped with 4GB of storage, of which roughly two-thirds is used by the operating system and pre-installed applications.

The 8G, 4G Surf and 2G Surf models feature 8, 4 and 2GB drives respectively. In terms of Ram, the 4G and 4G Surf models come with 512MB installed using a single DDR Dimm located behind a panel on the underside of the machine. The 8G

and 2G Surf models are equipped with 1GB and 256MB respectively.

The 8G and 4G models come with webcams and 5,200mAh batteries good for three and a half hours of use, while the 4G Surf and 2G Surf versions have lower-powered 4,400mAh batteries, good for 2.8 hours, but no webcams.

All four models have the same 900MHz Intel Mobile processor and 7in 800x480 pixel screen. At the time of writing only the 4G was available, but all are expected by the time you read this. Rumours of a future model with a bigger 10in screen were recently denied, but it would certainly be a popular option.



new connection, whether wired or wireless. The latter icon is instead just used to browse available wireless networks and choose which you'd like to connect to. It is possible to configure the unit to attempt always to connect to the same one when it boots.

In terms of security, at the time of writing the Eee PC supported hidden SSIDs and both Wep and WPA, although not WPA2. The Wireless Networks utility can also indicate the signal strength.

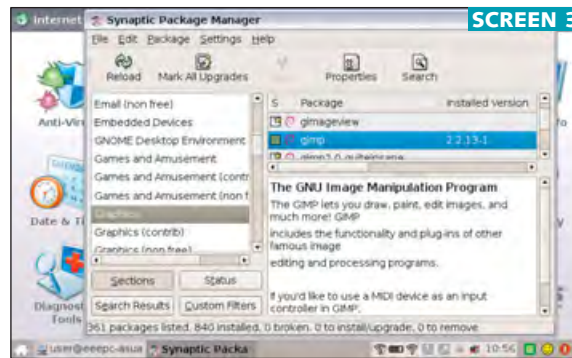
The File Manager icon under the Work tab allows you to browse networks including standard Windows workgroups. We successfully accessed files on a Windows workgroup with shared folders under both XP and Vista without a hitch, and it's also possible to connect to printers.

### Storage

The Eee PC uses a solid-state drive rather than a spinning hard disk and the 4G version has a 4GB capacity – see the box on opposite page for details on the other versions. Our 4G model, upgraded to 1GB of Ram, booted-up in 27 seconds with wireless enabled and shut down in 1.5 seconds. The Open Office Writer application and Firefox browser took 11.8 and 4.5 seconds respectively to launch.

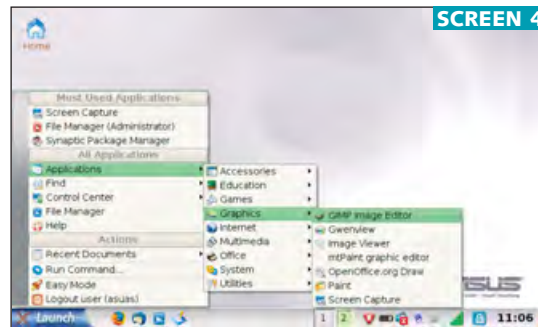
The default installation of OS and applications consumes about two-thirds of the available storage, leaving you with about 1.2GB of formatted space to play with. That's fine for accommodating a few more applications and a number of documents and emails, but if you're after a portable media collection or a backup for your photos, you'll need alternative storage.

Luckily the Eee PC is fitted with an SD memory card slot and three USB2 ports that seem happy to work with a variety of peripherals. We successfully connected a bus-powered Seagate 160GB Freeagent Go hard disk while on battery power, along with a



**Above: It's possible to install many other applications using Synaptic and Xandros repositories**

**Right: Following a small tweak you can unlock a full Linux desktop on the Eee PC**



mains-powered DVD drive and a number of USB memory keys. See this month's Performance column for further details.

### Video playback

The Eee PC can be used as a portable video player with varying degrees of success. We found it could open and play compressed WMV and even DV-encoded AVI files from an external hard disk, albeit with unwatchable video lag.

The supplied media player could also play DVDs either directly from a drive, or from a folder (naughty!). We tried an external AC-powered DVD drive but could only play non-commercial movies, perhaps due to either copy protection or regional coding. Non-commercial or home-made DVDs generally worked fine, but again there could be stuttering on the playback.

The best video experience came from DivX-encoded files stored on SD memory cards or the internal drive. These tended to play back fine on the Eee PC, and with wireless networking switched off, a fully charged battery was good for just under three hours of viewing. The 800x480 pixel wide aspect display also accommodates 16:9 material quite nicely.

### Installing other applications

As mentioned earlier, Asus presents the pre-installed applications and utilities with a friendly front end and a separate program for installing certified updates. Underneath the hood, however, is a version of Linux based on Xandros,

which opens up the possibility of installing a wider range of programs.

For those with little Linux experience, one of the easiest ways to install programs is through a list of 'repositories', and to see what's available, simply press Ctrl & Alt & T to open a command prompt before typing 'sudo synaptic'. Synaptic is a graphical front end for browsing repositories. Once you find a program you want, mark it for installation and the program

will download required files.

Asus offers a repository of certified programs, but for a wider selection you'll need to add more repositories to Synaptic, and the safest bets for compatibility are those for Xandros – a web search will reveal

a number of addresses you can enter, although bear in mind there's no guarantee that any programs you install will work on the Eee PC's customised Linux. See this month's Performance column for details on installing the Gimp image editor onto the Eee PC.

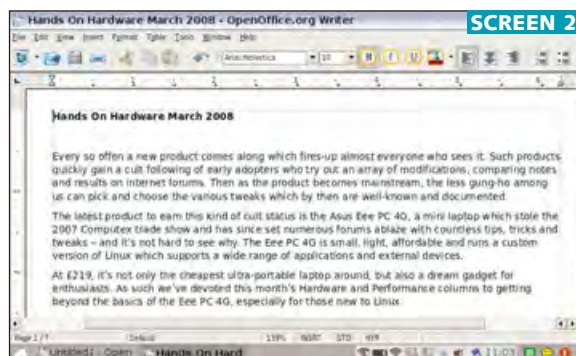
Annoyingly, you won't find an icon for anything you install on the Eee PC from its Easy Mode, although right-clicking files in the File Manager allows you to choose which program they'll open with.

A more flexible approach for anyone who intends to install other programs involves enabling the Eee PC's 'Full Desktop' mode. To do this, press Ctrl & Alt & T and type 'sudo apt-get update', followed by 'sudo apt-get install kicker', then agree to the installation. Next type 'sudo apt-get install ksmserver' and again agree.

Finally, type exit to close the window and click the Power button as if you were going to shut down. You'll now see a new option for Full Desktop, which boots into a more familiar Linux desktop complete with a nested Launch menu containing all your applications.

### Just the start

We've only just scraped the surface of the Eee PC here and will cover it in more detail in future columns, including how to install Windows XP. In the meantime, check out this month's Performance column for some speed tests, and visit the excellent community for this little laptop at <http://forum.eeeuser.com>. PCW



**Asus has pre-installed a number of useful applications including Open Office**



**Gordon Laing** has been a hardware enthusiast since his first Sinclair ZX80 and as a former editor of PCW and contributor for over 10 years, what he doesn't know about technology isn't worth knowing

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# The speed of the wee Eee

Find out if size really does matter when it comes to the performance of tiny laptops

In this month's Hardware column you'll find a number of tweaks for the Asus Eee PC 4G mini laptop. This device runs a custom version of Linux from a 4GB solid-state drive, offering a multitude of options for tweaking and installing new programs.

That said, the stock Eee PC is also capable of a great deal in its default configuration. It may only have 4GB of internal storage (two-thirds used by the OS and default applications), but three USB2 ports and support for external storage devices gives you plenty of opportunity to use it in the field as a media player or backup device for digital images. The big question, though, is how well does this work in practice, and is it any substitute for a proper laptop?

## External drives

Our test Eee PC seemed happy to connect to a number of external storage devices from USB keys to hard disks and optical drives. It was also happy to power an external Seagate Freeagent Go 160GB drive using the cable (supplied with the drive) that connects to a pair of USB ports. With this connected, the Eee PC had access to as much storage as the biggest laptops (at the time of writing) – a combination that is both compact and affordable.

As discussed in the Hardware column, we successfully played a variety of media files from the external drive, along with the internal storage or an SD memory card. Some played more smoothly than others and of the video files we tried, the most reliable was the DivX format. Material converted from a 16:9 original source also fitted the Eee PC's 800x480 pixel screen with only very thin bars at the top and bottom.

In terms of backing up digital images, we took a folder of 168 JPEG and RAW images measuring 924MB and copied it onto a Sandisk Ultra II SD memory card. Copying this back onto a desktop PC



The bundled media player works with many formats including DivX, as seen here

using a USB2 card reader took one minute and 33 seconds. To copy it direct onto the Seagate drive via the desktop PC took one minute and 49 seconds.

We then inserted the card into the Eee PC and used its File Manager program to copy the contents onto the internal solid-state drive – this took one minute and 57 seconds. Next we connected the Seagate 160GB drive and copied the contents of the memory card directly, bypassing the internal storage, in two minutes and 40 seconds.

Out of curiosity, we then connected the same USB card reader (as used on the desktop) to the Eee PC, then timed the file transfer direct from the card to the Seagate drive. This took two minutes and 43 seconds. Finally, since the Sandisk Ultra II card isn't the fastest we had to hand, we inserted a top-of-the-range Lexar professional 300x Compact Flash

The popular Gimp photo-editing program downloaded and installed via Synaptic



card into the card reader and timed the transfer to the Seagate drive: this time one minute and 55 seconds.

So, in terms of copying the contents of a 1GB SD card direct to the Seagate drive, you're looking at 109 seconds using a desktop PC and 160 or 163 seconds using the Eee PC, depending on whether the card was inserted directly or accessed via a card reader. While the Eee PC was clearly slower in this regard, most people would find waiting an extra minute for a 1GB backup acceptable.

## Photo editing on the Eee PC

Why stop there though, when you could also use the Eee PC to edit your photos too? The Eee PC comes with basic photo management software as standard, but it's possible to install other Linux applications with a fair degree of success. Since the Eee PC OS is based on Xandros, it's safest to download Xandros versions – there's no guarantee they'll work, but it can be worth a shot.

Following the guide in this month's Hardware column, we added several common Xandros repositories to Synaptic and used it to download and install a copy of the popular Gimp photo editing program. The installation itself required a few Alt-dragging of windows to access various confirmation buttons, but it ended up working fine on the Eee, albeit with little room for the various palettes (see screen 2).

While the Eee PC has a small screen, a relatively tiny drive and a custom operating system, it's still possible to use it like a bigger laptop. By connecting an external portable hard disk you can have gigabytes of backup and, with a careful choice of repositories, you could be enjoying the benefit of full Linux applications. See this month's Hardware column or the excellent forums at <http://forum.eeeuser.com> for more details on the Eee PC. PCW



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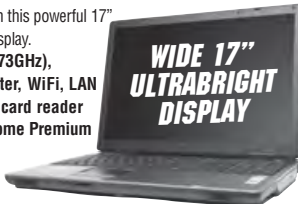
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**Tim Nott** is a full-time freelance journalist. When he's not writing about Windows and word processing, he tackles many other diverse subjects. He currently lives in France with his wife and family.

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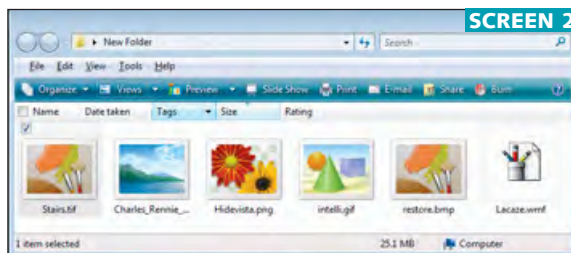
# Restoration comedy

Discover some useful tweaks for Vista and XP users

**M**any readers must be dual-booting Vista and XP. I certainly am, in order to deal with both operating systems for this column. It's not hard to set up – we dealt with this in the August 2007 column – but as reader Gordon Edwards found out, there's a catch. In the simplest situation, let's say you have XP installed on drive C:, and you installed Vista on a separate NTFS partition, D:. When you boot to Vista these drive letters are reversed – Vista sees itself as C:, and the XP partition will be seen as D:. Other partitions may also be re-lettered if Vista bumps them down the pecking order.

This isn't really a problem, though you may find that resources that are shared between the two operating systems – for example MS Office macros – might grind to a halt if they encounter a path reference using a remapped driver letter.

What is a problem is that when you boot into XP, all your Vista restore points are deleted. In addition, all previous versions of files are deleted, as are all but the latest Complete PC backup. So why does it happen? The official explanation is that when XP boots it automounts and examines each partition. If it comes across something it doesn't recognise, it deletes it in order to maintain the partition's integrity, without so much as a 'Please wait while



**You can replace Vista's default image icons**

Windows destroys your restore points' message. You might think that if you set XP to ignore the Vista drive when creating its own restore points it would leave things alone. But that doesn't work. Nor does hiding the drive in TweakUI. What does work is shutting down Vista then physically disconnecting the drive before booting to XP, but this is impossible if the partitions are on the same physical disk, and highly impractical with separate internal disks. Another method is to use a third-party bootloader that will hide the Vista partition from XP, but this is not a trivial matter.

Though Microsoft hasn't released a hotfix for the problem, it does acknowledge its existence, and offers two solutions. The first involves a Registry edit. In XP, make a system restore point (note that the problem is not reciprocal, and XP restore points survive a Vista boot) and then run Regedit. Go to HKEY\_LOCAL\_MACHINE \SYSTEM \MountedDevices. If there is an 'Offline' subkey, then open it. If not create it. Then, in the Offline key, create a new DWORD value with the name \DosDevices\D: including the backslashes and, if necessary, substituting the drive letter of the Vista partition (as XP sees it) for D. Having named the value, double-click on it and set its value to 1. This will hide the drive contents from XP – you'll still see the drive letter in Explorer, but it will show no contents or label – and the restore points on the Vista partition will be

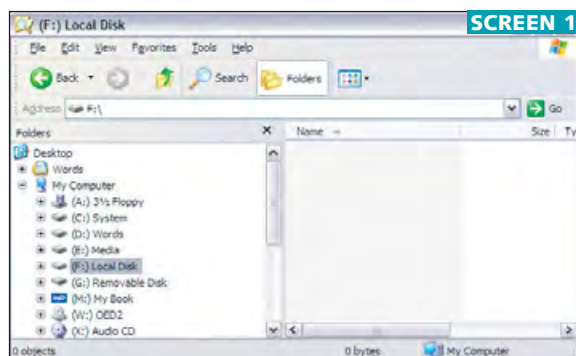
untouched (see screen 1). One point to note is that if you have partitions other than the XP and Vista system volumes on which you keep data accessible to both operating systems, you should not include these in system restore on either version of Windows.

The other method is for Ultimate and Enterprise users only. If you turn on the Vista Bitlocker feature, then this will also hide and protect the volume from XP's meddling, without having to take any action in XP. See the box opposite for a potted description of Bitlocker.

## Another one bites the dust

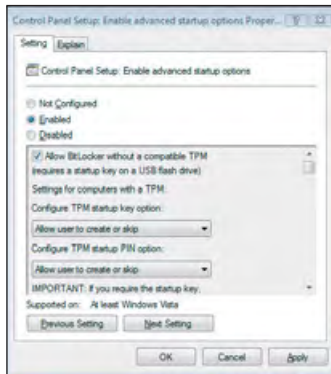
One of the better new features that came with Windows Millennium (yes, there were some) was the facility to create Zips within Explorer by selecting a bunch of files and sending them to a 'compressed folder'. Previously, you'd have had to use a third-party utility such as Winzip or PKZip to do this. The icing on the cake was that you could encrypt the zipfile with a password – anybody could still see the file names inside the zipfile, but they couldn't open those files without the password. And if you wanted to stop people seeing the file names, then you reiterated the process by creating an outer, password-protected zipfile. The same facility is available in Windows XP, though the password protection takes a bit of finding. The trick is to select the compressed folder in the left-hand pane of Explorer, and you'll find that 'Add a password...' appears on the File menu. If you're using Vista, then don't bother looking for the password feature – it has been removed. Vista will still open existing password-protected Zips, however.

If you'd like the encryption back then try JZip. This lets you encrypt-as-you-zip as well as encrypting existing zipfiles. It also supports other archiving formats such as TAR and RAR. It's free,





## BitLocker Drive Encryption



### Enabling BitLocker without a TPM

and the user has to supply a password. BitLocker requires two partitions – a 1.5GB one for itself and a larger one for Vista – and so is best set up before installing Vista, but it is possible to protect an existing installation by downloading the BitLocker and EFS enhancements tool from Ultimate Extras.

Even if you don't have a TPM chip it is still possible to protect the drive with BitLocker by using a USB key. You first need to enable this from the Group Policy Editor. Having restarted the PC, or forced a policy update with the command `gpupdate.exe /force`, you will then find that you can turn on BitLocker from Control Panel, BitLocker Drive Encryption. Unfortunately we don't have room for a complete blow-by-blow account, but we strongly recommend you read the Microsoft Technet article at <http://tinyurl.com/y2m9ld>.

Only Vista Ultimate and Enterprise come with BitLocker, and it's a new security feature that protects the system volume – the partition on which Vista is installed – from attack. Even if the computer is booted from a different operating system, or the hard disk is removed and installed in another computer, the contents remain encrypted.

It's primarily designed for use in computers that have a Trusted Platform Module (TPM) chip on the motherboard – normally start-up is transparent to the user, but if the TPM is missing or changed then BitLocker goes into recovery mode

### Turning on BitLocker



and you'll find it in the downloads section of [www.pcw.co.uk](http://www.pcw.co.uk).

### All thumbs

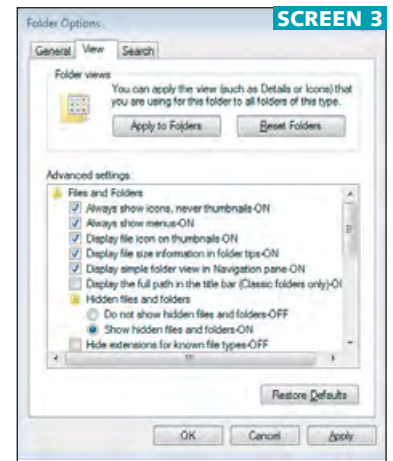
Reader Peter Inglis had Vista running for just three weeks when all his thumbnails of JPG image files were replaced by generic pictures of a little landscape of sea, mountains and sky. In fact, the little landscape is one of several possibilities for different file types. TIFFs and BMPs display as a picture of artist's brushes, a palette and some blobs of paint on a canvas, GIFs display as a still-life of a cone, sphere and cube, PNGs as two flowers and Windows Metafiles as a little pot of pencils (see screen 2). XP does a similar thing, though its Explorer doesn't have the huge icon option so they are less noticeable. If you look closely you should be able to make out a mountain landscape (TIFF) and a sailing boat in a

sunset (JPG). Your icon experience in both systems may vary depending on the image-editing software you have installed. Oh – and I nearly forgot – the cure for this reversion in Vista is to go to Folder Options and turn off 'Always show icons, never thumbnails' (see screen 3). XP doesn't have this global option, so this should not be a problem.

### Favourite places in XP

We've mentioned the Favourite Links feature of Vista – custom shortcuts to folders that you can place in the left-hand pane of Explorer – and several readers enquired if there was any way of doing something similar in XP. There isn't, but we did mention last October that the Vista favourites also appear in the standard Save and Open dialogues. And this you can replicate in XP – up to a point. The standard entries in the Open/Save places bar include Desktop,

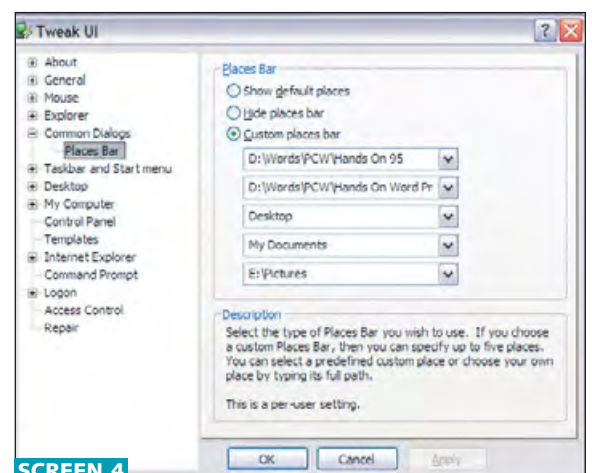
Turning Vista thumbnails on or off is simple



Documents, Recent Documents, Network and Computer (with a few 'My's thrown in), but these can be changed. In Tweak UI, under Common Dialogues, Places Bar, if you check the 'Custom' button in the right-hand pane you'll find you can type in up to five custom locations. If, like me, you're too lazy to do that, then browse to the desired destinations in Explorer, then copy the path from the Address toolbar (see screen 4).

If you don't have Tweak UI, then in XP Pro you can also configure this (with administrator status) from the Group Policy Editor. Burrow down through User Configuration, Administrative Templates, Windows Components, Windows Explorer, Common Open File Dialogue. Double-click on 'Items displayed in Places Bar' in the right-hand pane and you'll be able to specify the five locations as in Tweak UI. XP Home users and real toughies can also do this in the Registry. Go to `HKCU \Software \Microsoft \Windows \CurrentVersion \Policies \comdlg32 \PlacesBar`. You can have up to five string values, named Place0 to Place4, whose values are the path to the chosen folder. **PCW**

### Customise the Open/Save places bar



SCREEN 4



**Barry Shilliday** has worked with computers for almost two decades. By day, he is a Linux and Unix consultant, but in his free time he prefers to travel the world – and snap it with his camera

→ Comments welcome on the Linux/Unix column.

Email [linux@pcw.co.uk](mailto:linux@pcw.co.uk)

Please do not send unsolicited file attachments.

# Get with the program

Discover where you can find additional programs to install on Ubuntu Linux

Last month we looked at installing Ubuntu 7.10, the latest release of the popular Linux distribution. We also focused on some of the additional steps that I recommended performing after installation to get the desktop working better. These additional packages are from official Ubuntu apt repositories; some readers will know that Ubuntu, based on the Debian distribution, uses several software repositories that hold all the software you can install using the Add/Remove application, the Update Manager, and Synaptic.

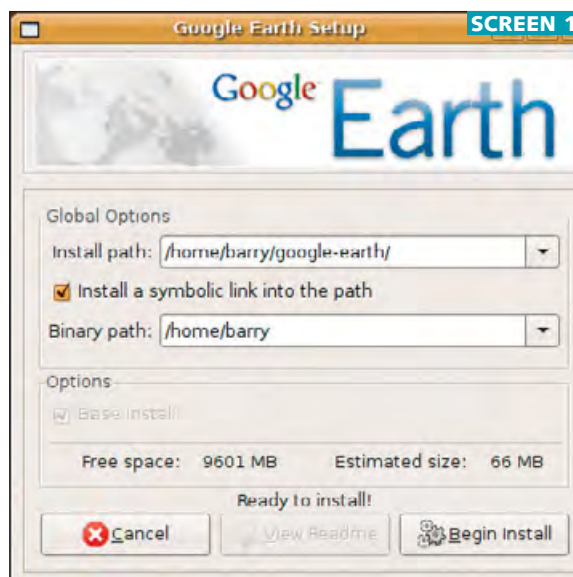
If you want to stick with software from these repositories, and there are literally thousands of packages available, then that's absolutely fine. One advantage of doing so is that distribution upgrades are almost certain to run without problems, and there will be no issues with conflicting packages when installing other software. However, there are lots of applications available for Ubuntu (as well as other distributions) that

**'Many people are unaware that Google has ported Google Earth to Linux, as it's not included in distributions'**

are not available from the repositories or, in some cases, are more up to date than those supplied.

## Google Earth

One such example is Google Earth. Many people are unaware that Google has ported this application to Linux, as it's not included in distributions; having to download software from websites



and install it is something of a routine in the Windows world, but is uncommon with Linux. Installing Google Earth could be simplified, as Google hasn't provided it in the Debian package format (.deb), which Ubuntu uses. A manual installation is necessary, though the procedure itself is very easy, helped along by a graphical interface.

Head over to <http://earth.google.com> and click to download the application. As long as you're browsing from a Linux platform, you will automatically receive the right file: it is called GoogleEarthLinux.bin. Next you need to make this file executable. Regular readers will probably fire up a terminal and run 'chmod a+x' on the file; this will work, but it's just as easy to use the desktop. Right-click on the file and select its properties. Next select the Permissions tab, and tick the 'Allow executing file as program' option. This step is for security – the Gnome desktop will not allow you to execute arbitrary binary files that are not marked as executable, and downloaded files are never marked as such. Now double-

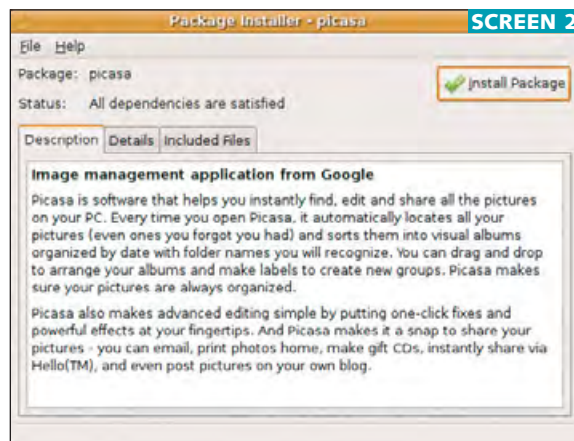
click on the file, and Gnome will inform you it is an executable text file. Select 'Run in Terminal'. After a couple of seconds a window, as shown in screen 1, will appear. The default installation path should be fine: it will create a directory called google-earth in your home directory. The setup program will install the various Mime types and menu files for everything to work with the desktop. Just head to Applications, Internet and you should be able to run Google Earth immediately. If you want to install Google Earth for all users, execute the downloaded file in a terminal with the sudo command. It will install the application to /opt/google-earth instead, and add the menu entry globally.

## Debian packages

As mentioned, Ubuntu uses '.deb' packages to manage its software. When you use a front end, such as Add/Remove applications, or the apt-get command-line program, much of this is hidden from you. The front end locates and downloads the necessary .deb package file, together with any others that depend on it. These are then installed from the standard location on the file system, /var/cache/apt/archives. If you look in

**Google Earth is installed manually, but provides its own setup program**

**Install Debian packages, such as Google Picasa, in one click**





here you will find the system updates you have downloaded, as well as any packages you have installed through the other package manager front ends.

Since the front ends ultimately work on Debian packages, it is of course possible to install those packages directly. The end result is the same; the package will be registered on the system just as it would be otherwise, and will be marked as upgradeable if a newer version appears in the repositories. Ubuntu provides a useful tool for handling Debian packages called gdebi – thankfully, it’s referred to by the desktop with the simpler name ‘Package Installer’. As with the other tools, if you install a Debian package using this utility, it will search for and install dependencies, making this an ideal way to install packages provided directly rather than through a repository. Just double-click on a Debian package icon and click the ‘Install’ button (see screen 2).

### Getdeb

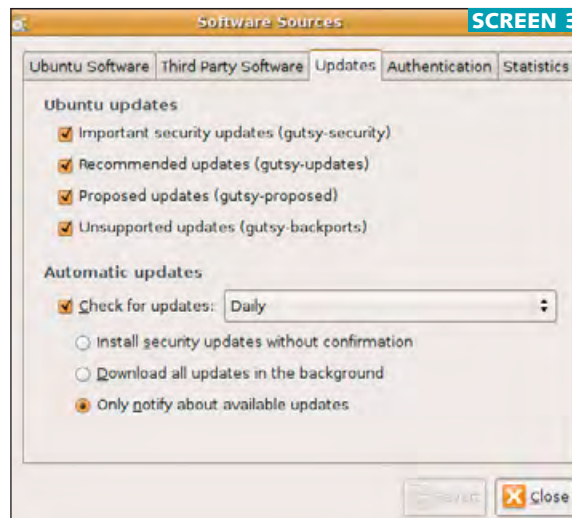
A website has been set up to provide packages in the .deb format, tailored for each Ubuntu release. You can find these at [www.getdeb.net](http://www.getdeb.net). The packages include those that are not contained in Ubuntu’s official repositories, but nonetheless may be quite popular. This is especially true for games. However, it mostly caters for software that has more recent versions available than in the repositories. For example, Freeciv (a free Civilization clone), was at the latest 2.1 version at the time of writing, while in the Ubuntu repositories it was the older 2.0 series. Popular downloads include Avidemux (for editing AVI files), Azureus (a Bit Torrent client) and the OSX dock clone, Avant Window Navigator. The packages are designed to be as compatible as possible with the official repositories, which means they should not interfere with other applications. If you want to view any packages installed from this site at a later date, it is easy to do so – all the packages include ‘getdeb’ in the name, so a quick command in the shell will do the trick:

```
$ dpkg -l | grep getdeb
```

The dpkg command handles Debian packages. The -l option lists all packages installed on the system, and the grep command filters just those packages containing the word ‘getdeb’.

### Ubuntu backports

In a similar vein, the official ‘backports’ repository contains more recent



Enable or disable standard repositories from the Software Sources tool

versions of some packages that are not present in the standard repositories. In this instance, a package in the development release of Ubuntu is backported to the current stable release; for example, a new release of an application integrated into 8.04, which usually has significant enhancements and bug fixes, is compiled and integrated to work with 7.10. There are not many packages available in

select the Updates tab, and enable ‘Unsupported updates (gutsy-backports)’. The package list will be updated. The backported packages will appear in the Update Manager.

### Medibuntu

There are a number of applications and libraries that are not distributed by Ubuntu for legal reasons, such as US software patents, the US Digital Millennium Copyright Act (DMCA), and copyright. Most of the legal restrictions do not apply to all countries, however. An unofficial repository is available that provides some software affected by these restrictions. Medibuntu ([www.medibuntu.org](http://www.medibuntu.org)) is the host of the repository. It contains mostly open-source software, including mplayer and libdvdcss, but also some non-free software restricted by copyright (but free of cost), such as the aforementioned Google Earth, Adobe Acrobat Reader and Skype. If you want to install these applications from a repository (and thus available to the front ends), refer to the ‘how to’ document at <https://help.ubuntu.com/community/Medibuntu>.

## ‘Some people have said that “Gutsy Gibbon” is inappropriate for a mainstream release, and that it is unprofessional for businesses’

backports and, while the repository is hosted by Ubuntu, it is not officially supported. However, if you use an application regularly that has a backported new version available, you may want to install the newer version this way. To enable the backports repository load up the Software Sources preferences tool,

[ubuntu.com/community/Medibuntu](http://ubuntu.com/community/Medibuntu). The non-free releases can all be installed manually by downloading packages from the appropriate websites; Google provides Picasa, Google Desktop and Google Earth; Adobe provides Acrobat Reader as a Debian package, as do Skype and Opera for their products. **PCW**

### Names and numbers

There has been discussion on various forums and blogs about the names chosen for the Ubuntu releases.

Some people have said that ‘Gutsy Gibbon’ is inappropriate for a mainstream release, and that it is unacceptably unprofessional for businesses. One blogger even suggested (somewhat unfathomably) that such an unsuitable name would actually make the system less stable.

For those who are concerned, there is no need to be. The current release is called, simply, 7.10. The

codename, and that is all it is, is Gutsy Gibbon, but this does not appear in official branding or marketing.

The trend has always been for Ubuntu releases to be ‘positive adjective + animal’, and this continues with Ubuntu 8.04, codenamed Hardy Heron. Regular users and fans of the distribution will undoubtedly continue to use the informal codename, while businesses and those who prefer something more formal, can stick with the official release code.



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# Screen entertainment

There's a worldwide web of exciting possibilities beyond Windows' screensavers

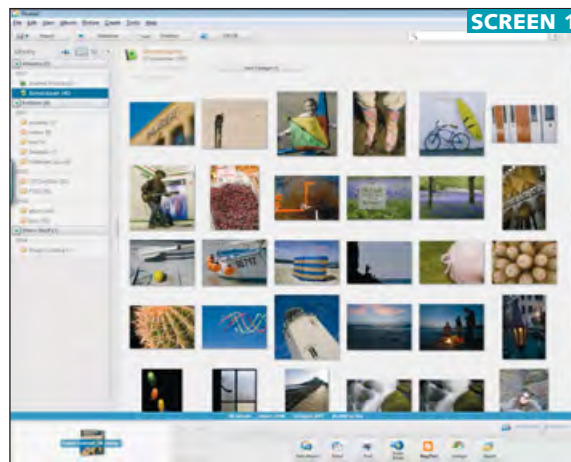
I've never been a massive fan of the Windows screensaver. The ones provided by Microsoft are only marginally more interesting than a blank screen and commercial ones can be fun, but if I wanted to watch tropical fish I'd buy an aquarium.

Screensavers were originally devised to prevent phosphor burnout on CRT monitors, something I've only ever witnessed on old ATM displays. With LCD panels there's no real need for a screensaver, but we're past the point where such things had a proper function and now they serve mainly to entertain.

From an energy-saving standpoint, screensavers are not a good thing. It's far better to use Windows Power Management to put your PC on standby, or switch it off altogether, rather than contribute to climate change for the sake of a flying logo. Or if you must leave your PC on all the time, you could put your processor cycles to good use searching for extraterrestrials (<http://setiathome.berkeley.edu>) or a cure for Aids (<http://fightaidsathome.scripps.edu>).

Alternatively, you could use the Windows screensaver to run a slideshow of your favourite photos. Most people are aware that you can configure the screensaver to sequentially display a folder of photos. To do this in Vista, open the Screen Saver Control Panel by right-clicking the desktop and select Personalize, then Screen Saver, and choose Photos from the Screen Saver pulldown menu. Click the Settings button to select a folder of photos and select one of the three speed options.

Both the XP and Vista Photo screensavers provide few customisation options other than the ability to shuffle the display order, though if you have a good-quality graphics card, you



**Picasa provides Windows users with additional screensaver effects**

can use Vista themes and transitions. You'll need a sub-score of 3 for the Graphics category in the Windows Experience index. To find out if your hardware is up to the task, open the Performance Information and Tools Control panel – basically, if your hardware doesn't cut it, the options won't appear.

## Picasa slideshows

If you're not running Vista on a graphically capable machine, then Download Google Picasa 2, and the Google Photos screensaver, which is free, easy to use and provides a

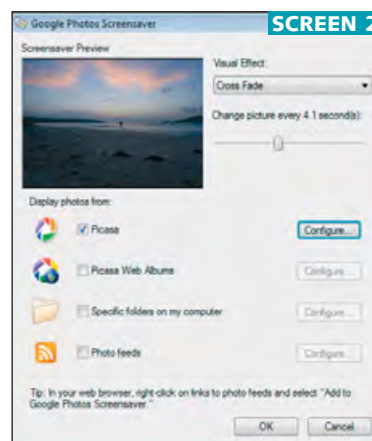
slideshow screensaver that goes beyond what Windows has to offer. Picasa includes a default album called screensaver; you just drag and drop photos to include them (see screen 1). Once that's done, open the screensaver Control Panel, choose Google Photos Screensaver from the menu and click the Settings button to open the Google Photos Screen Saver panel (see screen 2).

There are four visual effects to choose from – a simple cross-fade, wipe, pan and zoom, and collage. The latter displays photos with a crisp white border, slightly rotated and overlaid on one another to give the effect that they've been scattered on the desktop (see screen 3). A slider controls the slideshow speed between 0.1 and 9.6 seconds and you can configure the screensaver to display only photos in the Picasa Screensaver album, or all starred photos.

As well as the Picasa application, the Google screensaver can display photos from any folder on your hard drive, from Picasa web albums, or – and here's where it gets really exciting – from an RSS feed. In other words, you, and anyone else, can display your photos from Flickr, or any photo-sharing site that provides RSS feeds, on their screensaver.

Unlike a conventional screensaver, the Google photos screensaver doesn't automatically quit when you move the mouse (though it does if you press any key). Mouse movement activates a slide-in panel with pause/play and next/previous controls. Title and caption information is displayed for each image as well as a link to the website for RSS feeds.

When you get sick of looking at your own photos you can subscribe to other people's feeds. If you want fresh content for your screensaver there's a Google Group for photo feeds at



**Google's screensaver appears in the Control Panel like any other**



<http://tinyurl.com/2hykmm>, or you could try the Creative Commons photo pool on Flickr [www.flickr.com/groups/creativecommons/pool](http://www.flickr.com/groups/creativecommons/pool). Or, you're welcome to subscribe to my Flickr photostream at [www.flickr.com/photos/kenmcmahon](http://www.flickr.com/photos/kenmcmahon).

### Windows Photo Gallery

In the May 2007 issue I took a short tour of the photo features in the then newly released Windows Vista, including the Windows Photo Gallery application. Microsoft has since added Windows Live Photo Gallery to its suite of online web applications, which includes Windows Live Messenger, Windows Live Writer and Windows Live Calendar.

Windows Live Photo Gallery is an upgraded version of the application introduced in Vista. You can download it from <http://get.live.com/photogallery/overview> or as part of the entire Windows Live suite available from <http://get.live.com/wl/all>.

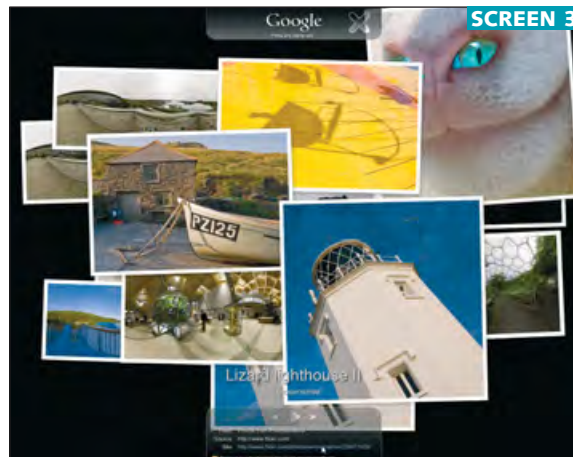
You don't need Vista to use Windows Live Photo Gallery; it also supports Windows XP. It will support video and any other format for which the relevant Windows Imaging Component codecs are installed.

Essentially, Windows Live Photo Gallery provides everything that Windows Photo Gallery does, including viewing, organising, tagging and basic editing features, plus sharing photos by uploading them to Windows Live Spaces and Flickr. Other features include sharpening, auto-tagging, a colour histogram and panoramic stitching.

### Camera Raw update

I've covered various aspects of Camera Raw file formats over the past few years, starting with an overview of Raw formats in December 2004, up to how to shoot and convert camera Raw images in August 2006. For most professional and serious amateur photographers shooting Raw has now become the norm and tools for processing and converting Raw images have grown in number and sophistication.

I'm still using Adobe Camera Raw to process my Raw photos, after converting them to DNG format with Adobe DNG converter. The most recent 4.3 update works with Photoshop CS3 and adds support for a number of new cameras, including the Canon Eos 1Ds Mark III, the Nikon D3 and the Olympus E-3 and SP-560 UZ. You can get the 4.3 update and earlier



versions compatible with Photoshop CS2 from [www.adobe.com/support/downloads/detail.jsp?ftpID=3826](http://www.adobe.com/support/downloads/detail.jsp?ftpID=3826).

Adobe Camera Raw isn't the only Raw converter around, though. DxO Labs has just announced version 5 of its well-respected Optics Pro Raw conversion and image-enhancement utility ([www.dxo.com/intl/photo](http://www.dxo.com/intl/photo)).

It features a new Raw conversion engine with what's referred to as a 'breakthrough demosaicing algorithm, which produces images with much more detail and fewer artifacts'.

The program is well known for its noise reduction filters and in the new version these are applied prior to demosaicing, with claimed improvements in results. According to Luc Marin, sales and marketing VP at DxO: "The results are really remarkable and particularly on images shot at high ISOs in low light conditions." Other new features and improvements include a 'click-once-clean-many' dust and blemish removal tool and support for new cameras including the Canon Eos 40D.

DxO Optics Pro 5 is available in standard and elite versions costing \$169 (£85) and \$299 (£150) respectively.

### Firmware update

In the September 2007 issue I talked about camera firmware updates and how they can add new features and fix old problems in your camera's operating system. If you own an Olympus E-system DSLR you'll almost certainly want to visit the Olympus website to check for recent firmware updates. The 1.5 firmware update for the E1, E-300, E-330, E410, E500 and E-510 improves focusing accuracy when using the EC-20 teleconverter.

**Picasa makes your photos look as if they've been scattered over the desktop**



**Ricoh's new Caplio 500SE has a built-in GPS receiver**

The E510 update also adds improved image stabilisation when shooting at slow shutter speeds ([www.olympus.co.jp/en/support/imsj/digicamera/download/software/firm/e1](http://www.olympus.co.jp/en/support/imsj/digicamera/download/software/firm/e1)).

### GPS update

In the November 2007 issue I looked at geotagging photos using data from the track log of a handheld GPS receiver. There are now numerous low-cost GPS devices designed specifically for photographers, but all require that you download and sync the GPS data with your photos.

Sitkow Yeung emailed to tell me about the Caplio 500SE – a 'GPS-ready' camera manufactured by Ricoh (pictured below). Yeung is finance director of Sarantel, the company that makes the GPS antenna for the camera, in Northants.

The Caplio 500SE is an eight-megapixel model with a 3x zoom lens and 2.5in LCD panel. It has 28MB of built-in memory and takes SD and MMC cards. As well as an integrated detachable GPS module the camera is capable of receiving NMEA data streams from an external GPS device via its onboard Bluetooth radio. Images can be wirelessly transmitted using either Bluetooth or the camera's 802.11G wireless capability.

It has a built-in flash and 10mm macro mode, and is probably aimed at scientific and engineering applications rather than photographers. Aside from its GPS capability, the camera's other main feature is its ruggedness – it's waterproof and shock-resistant. One other interesting feature is the GPS lock, which allows you to lock the position and move so that you can take a photo of an object (eg a building) with the object's (rather than the camera's) precise location. See [www.ricoh.com/r\\_dc/caplio/500se](http://www.ricoh.com/r_dc/caplio/500se) for more info.

And PCW reader David Le Hunte emailed to mention the Jobo photoGPS, a hot-shoe-mounted GPS device. Like other external GPS receivers, the Jobo unit requires that you download the track log data and synchronise it with your photos. But, according to Jobo, the hot-shoe connection provides it with longer than usual battery life – the unit powers down when the camera isn't in use. Go to ([www.jobo.com/jobodigital/photogs/gb](http://www.jobo.com/jobodigital/photogs/gb)) for more information. PCW



**Tim Nott** is a full-time freelance journalist. When he's not writing about Windows and word processing, he tackles many other diverse subjects. He currently lives in France with his wife and family.

→ Comments welcome on the Word processing column.

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Please do not send unsolicited file attachments.

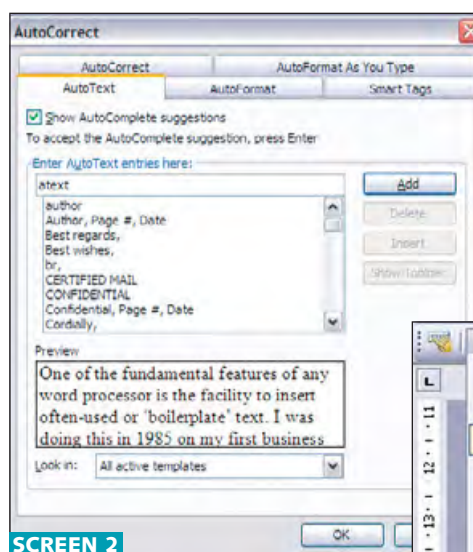
# Autotext unmasked

Find out how you can tame one of Word's most useful tools

One of the fundamental features of any word processor is the facility to insert often used or 'boilerplate' text. I could do this in 1985 on my first business computer – an Amstrad PCW (no relation). Word calls this feature Autotext and, although it's a very handy feature, its implementation and obfuscated interface leaves a lot to be desired.

If you go to Insert, Autotext, Autotext... in any version of Word from 97 to 2003, you'll see a list of predefined words and phrases you can drop into your document by double-clicking on them (see screen 1). Most of these make you wonder why you bothered. Is it really slower for even the least gifted typist to type 'Subject:' than it is to go to Insert, Autotext, Autotext... and scroll down the list?

In fact, it's a little cleverer than that if you have the 'Show AutoComplete suggestions' box ticked. If you type the first few letters of a word or phrase that is an Autotext entry, you should get a screen tip pop-up with the whole word or phrase – pressing Enter will complete it. This doesn't always seem to happen, but usually you can achieve the same end without the screen tip by typing the first few letters followed by F3.



You may still want to prune the entries, however, unless you spend so much time writing to 'Dear Sir or Madam' that pressing F3 after the first two words is going to save you a heap of effort. You can get rid of any entries by selecting them and pressing the Delete button. Don't be too ruthless just yet as there are one or two valuable nuggets among all the 'Dear Sir' and 'Cordially' dross.

Where it all gets much more interesting is in creating your own Autotext entries. Select a block of text, then go to Insert, Autotext, Autotext... and you'll see the selected text in the Preview pane and the first few words in the 'Enter Autotext entries here' box. Overtyping the latter with a mnemonic shortcut – for instance 'me' for your name and address – then click the Add button (see screen 2). This will add the entry to the Normal.dot template, or you can specify a different template from the 'Look in:' box. So, whenever you are creating a document using that template, typing

The standard Autotext entries

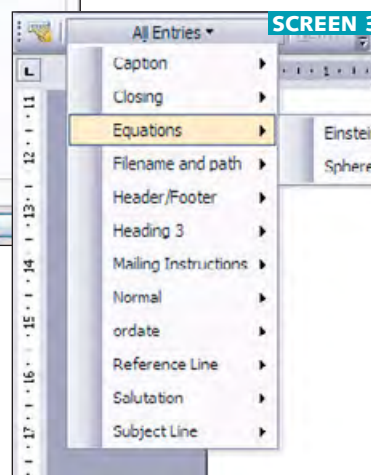
Defining your own entries

'me' followed by F3 will produce your name and address.

Once you've got the hang of this you'll probably find it more convenient to use the Autotext Toolbar. You can create entries by selecting text and hitting the New button – you'll be prompted for a name for the new entry. This is the same as the 'Enter Autotext entries

here' box – the name you choose, followed by F3 will insert the entry, so keep it short and memorable.

Unlike the dialogue box, the toolbar groups Autotext entries, as does the rest of the Autotext sub-menu. All the 'Dear Sir' stuff is under Salutations, the 'Respectfully yours' under



A little cunning creates new sub-menus

Closings, and so on.

Entries you've created yourself will be listed – for reasons I can't quite fathom – under the style in which they were created. However, you can manipulate this feature to create your own toolbar sub-menu. First, create a new style with the name you want for the sub-menu. Using this style, create the individual Autotext entries you want listed under it. There's a little problem here as once you are 'in' that style, you'll only see the style's Autotext entries in the toolbar. You've also got a style that you don't really need. So delete the style and make sure you save the template changes when you close Word. Restart Word and you'll find that even though the style is gone, its menu entry in the Autotext toolbar survives (see screen 3).

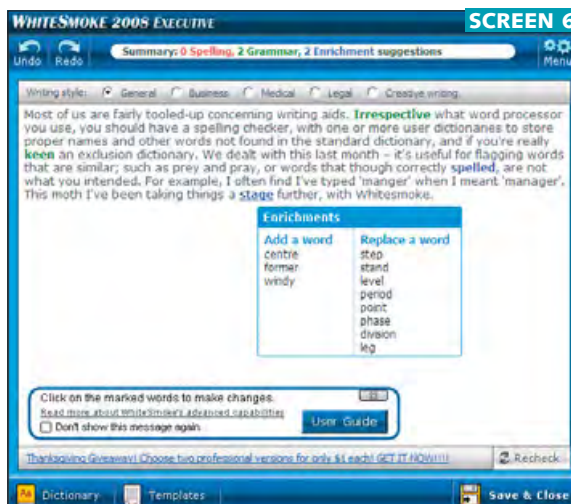
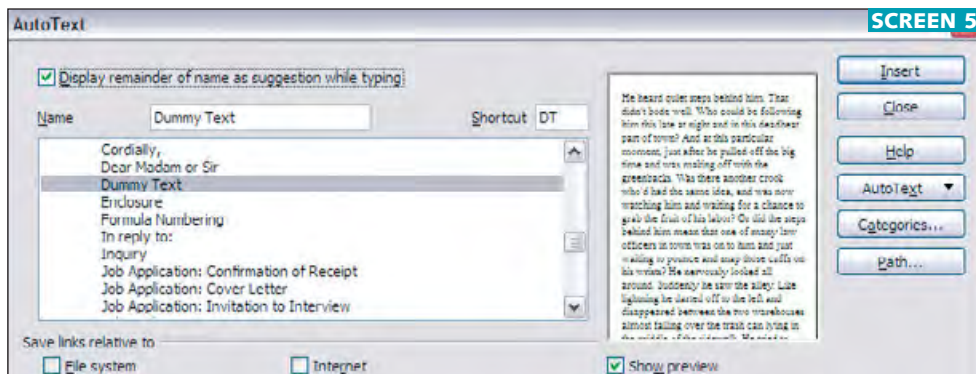


Despite the name, Autotext isn't limited to text. You can include graphics, text boxes, fields, equations and more. Inserting fields as Autotext can save a lot of time – some, such as page numbers and the filename of the current document are already set up. You can, of course, add your own from all the Word fields available, which saves a lot of digging through dialogues if you use certain fields frequently.

As well as putting fields into Autotext, you can do the reverse. For example, you can use Autotext to insert as yet unknown text. Imagine you are writing press releases for a company launching a new soft drink. The only problem is the marketing department is split on the name and slogan. Should it be 'Tasteetang! The fizz that's full of feelgood factor' or 'Limelight! The soft drink for sophisticates'? Whichever wins, you are going to be using it a lot, so you want to spare yourself the pain of having to type it by storing it as an Autotext entry.

So here's what you do. Define the Autotext entry as anything you like – say 'The drink that can't make up its mind', and give it an Autotext name of 'drink'. Now instead of entering the Autotext entry in the normal way, go to Insert, Field, and select Autotext in the left pane, and the 'drink' entry in the right (see screen 4). You'll see the text appear, but it's a field, not normal text. So when marketing finally makes up its mind, you can delete the 'drink' Autotext entry and recreate it with the new text, but the old name. Bingo – all the fields will update to the new slogan.

Things are much the same – if a little better presented – in Open Office (see screen 5). Note that here the feature is under the Edit, not the Insert menu. One big advantage over Word is that you can edit Autotext entries – and their shortcuts – from the dialogue box. Finally, in Word 2007, Autotext



Autotexting in Open Office

## Quick tips

Here's a tip from our regular correspondent Jean Elliott. As you probably know, Control & Spacebar removes all direct character formatting from the selection, reverting to the style of the containing paragraph. What I didn't know is that Control & Q removes all direct paragraph formatting from the current or selected paragraph(s). As Jean points out, this can be handy if you have a paragraph that's indented and you want the next one to revert to style.

One good point of the Word XP and 2003 Styles Task Pane is that you can select a style and highlight all instances of the style in the document: it's useful for checking formatting consistency when similar styles are used.

If you've ever looked up from the keyboard and found that you've been typing with the CAPS LOCK KEY on then you can undo the damage by selecting the text and pressing Shift & F3 repeatedly – the text will cycle between all capitals, all lower-case and initial capitals.

### Smarten your sentences with Whitesmoke

has been subsumed under the new 'Building Blocks' feature, and we'll be taking a look at that next month.

### Polish your prose

Most of us are fairly tooled-up concerning writing aids. Irrespective of which word processor you use, you should have a spelling checker, with one or more user dictionaries to store proper names and other words not found in the standard dictionary and, if you're really keen, an exclusion dictionary. We dealt with this last month – it's useful for flagging words that are similar, such as prey and pray, or words that though correctly spelled, are not what you intended. For example, I often find I've typed 'manager' when I meant 'manager'. This month I've been taking things a stage further, with Whitesmoke.

### Autotext in a field

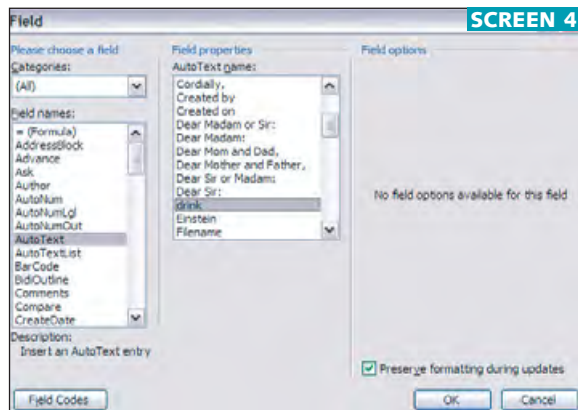
Whitesmoke Text Enrichment is a piece of software that, in the words of its publishers, 'amends grammar, spelling and punctuation, and enriches the user's text by suggesting alternative and/or additional wording'. It does this in any text-editing situation if you press F2, and it has some special interaction with Word.

Whitesmoke can be a bit of a battle, doing strange things such as changing the style of a checked paragraph to the style of the following paragraph.

It is also extremely imaginative. Who would have thought that the text

in screen 6 could have been enhanced by adding 'windy' before 'stage'?

It's also constantly phoning home and offering me special deals in adverts in the Whitesmoke window and I get a steady stream of spam from the company. It insists on loading Startup, even though my trial has now expired and I've ticked the box not to load. It certainly takes the award for blatant oversell, but I'm going to miss its loopy suggestions. **PCW**





**Stephen Wells** is a freelance journalist and a regular contributor to computer magazines. He's been writing PCW's Spreadsheets column for over 10 years.

→ Comments welcome on the Spreadsheets column.

Email [spreadsheets@pcw.co.uk](mailto:spreadsheets@pcw.co.uk)

Please do not send unsolicited file attachments.

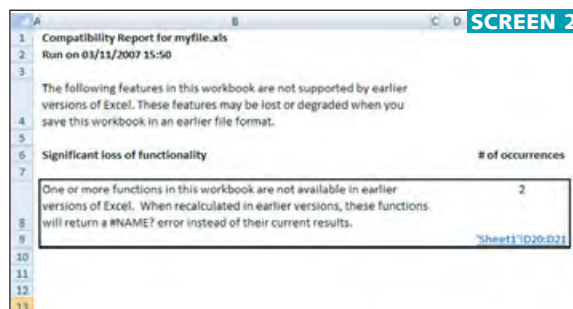
# Checking for compatibility

How you can make sure spreadsheets are compatible with earlier versions of Excel

The differences between Excel 2007 and previous versions of the spreadsheet are so extensive that Microsoft has included several features to bridge the gap. Not only does Excel 2007 look different, but the specifications have been greatly improved, the functions and features expanded and, most significantly, the basic file format has been changed and several other formats are now available.

The people with the advantage here are those who have always navigated with keyboard shortcuts, which remain the same, and those who are using Excel for the first time and so have nothing to unlearn.

But what of all those users who like Excel the way it has always been? Fortunately, all their existing workbook files will be recognised by Excel 2007 and displayed as intended. The latest version carries forward the features and functions of earlier versions and has just added to them. The main Excel file expanded from



9MB to 17.5MB. Some harshly call this Microsoft bloat, but today's PCs with faster processors and more memory can take advantage of the extra features now available.

Among the various ways in which an Excel 2007 file can be saved is the familiar .xls format. However, if that file includes features that were introduced with the latest version then Excel will switch into Compatibility Mode. It will advise you of this in the Title Bar. A file you have saved as myfile.xls, or described as an Excel 97-2003 Workbook, will be shown as

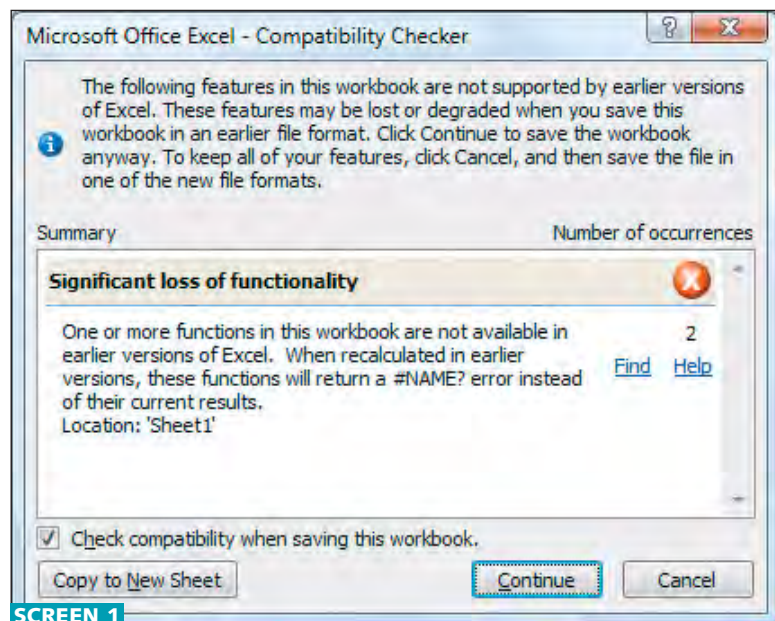
**Automatically add a report of incompatibilities to a separate worksheet**

'myfile.xls [Compatibility Mode]'. More than that, the Compatibility Checker will start and warn you of the problem (see screen 1).

You may have used a newly introduced function, such as COUNTIFS, or gone beyond the limit of rows or columns of earlier versions, or used a deeply nested formula that is allowed in Excel 2007 but not in earlier versions. The worksheet size has expanded from 65,536 rows x 256 columns to 1,048,576 rows x 16,384 columns. Previously you were limited to seven nested levels of functions. That has been increased to 64. There were 16 Undo levels, and in Excel 2007 there are 100.

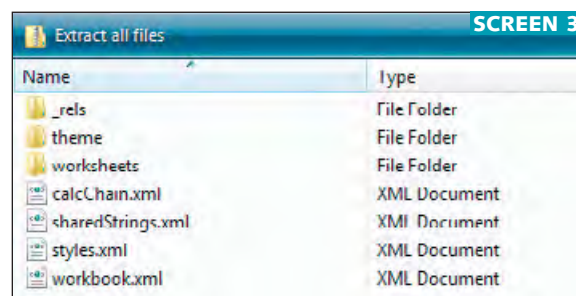
Suppose you want to run the Compatibility Checker without saving a file. No problem. Click the Office button and choose Prepare. At the end of the 'Prepare the document for distribution' list you'll find an option, Run Compatibility Checker. Even better, there's a button at the bottom of the Compatibility Checker message box named 'Copy to New Sheet'. Click this and an extra worksheet is added to the workbook with Compatibility Report on the tab. This lists the number of occurrences of each type of incompatibility (see screen 2).

The Compatibility Checker message box also has an option should you want the Checker to run every time you re-save as an .xls file, not just the first time.



**Left: The Compatibility Checker warns if Excel 2007 features can't be saved**

**Below: Looking inside the new Excel 2007 default file format**





### Other formats

Beyond an .xls file, Excel 2007 lets you save a workbook in two dozen other formats. If you download add-ins there are even more. But the main Excel 2007 format is .xlsx and there are two variations, .xlsm and .xlsb. Under Save As options these are Excel Workbook, Excel Macro-Enabled Workbook, and Excel Binary Workbook.

The default Excel 2007 .xlsx format is a zip file. In fact, if you change the name of a file called myfile.xlsx to myfile.zip you can right-click on it, choose Open and see the folders, and files within the folders, that are saved (see screen 3). Unlike an .xls file, an .xlsx file saves each worksheet as a separate file, and there other files to store printer settings, styles, and related information. Close the zip file, rename it to myfile.xlsx, and you can open it again in Excel with no harm done.

Incidentally, if you are using Excel 2000, 2002 or 2003 and a friend sends you an Excel 2007 .xlsx file there is an add-in to help translate – see this month's Question Time for more details.

### Creating a Contents sheet

If you right-click on the directional arrows to the left of the tabs in an Excel workbook you'll see a menu of all the worksheets in the file. But it just shows the names on the tabs, and there is no room for descriptions of the content.

This led reader Peter Bigsby to write a macro that creates a contents page for a workbook with links to every worksheet. It offers plenty of room for descriptions and doesn't require the tabs to be showing.

In the example shown here the workbook holds annual financial statements for a company, with each worksheet holding a year's figures. So the worksheets are named 1997, 1998, and so on to 2008, with one sheet named 'Contents' (see screen 4).

The macro is a little too long to include here but you can copy and paste it from the PCW website at [www.pcw.co.uk/sheets](http://www.pcw.co.uk/sheets) or find it on our cover DVD. To try it out open a new

	A	B	C	D	E
1		CONTENTS			
2	1997	... Our launch year			
3	1998	... We introduce a new premium line			
4	1999	... Stores now in 6 cities nationwide			
5	2000	... Average annual sales growth is now 10%			
6	2001	... The first export orders are received			
7	2002	... Shares are issued to every employee			
8	2003	... A new headquarters is commissioned			
9	2004	... Production is moved to the Far East			
10	2005	... The most profitable year ever			
11	2006	... Now we're in the USA			
12	2007	... Our 10th Anniversary			
13	2008	... The company is floated			

## A function to help you function

I have a small glass of wine with my dinner for digestive purposes. Fortunately for the vintners, many people drink a lot more. But a recent survey suggested that most people don't know what a unit of alcohol is, how many units it's safe to drink a day, and how many units are in a bottle or glass. Thank goodness we have spreadsheets to help us with one of the answers.

Official guidelines say that men should only drink three to four units a day and women two to three units, depending on their size. A unit of alcohol in Britain is eight grams. It varies by country. In France a unit is 12 grams. To be precise this colourless, volatile, inflammable liquid (C<sub>2</sub>H<sub>5</sub>OH) is called ethyl alcohol and is also used as a solvent and a fuel. But look to other sources such as [www.drinkaware.co.uk](http://www.drinkaware.co.uk) for information about safe drinking. The objective here is to provide a home-brewed Excel function to perform the calculation.

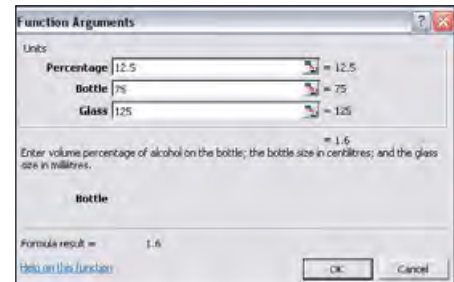
Every bottle of wine should have a label that tells the size of the bottle, and the volume of alcohol in the bottle. Using a measuring jug it's easy to find the size of your favourite glass. So off we go.

Press Alt & F11 to open the VBA for Excel editor. On the Insert menu choose, Module. In the Code window that opens type, Function Units(). The following appears, Function Units(), a line space and then, End Function.

Between the parentheses type:

**Percentage As Double,   
 Bottle As Double, Glass As Double**  
(Key: ⌘ code string continues)

Between the two lines of code you need only add one line so the completed function will read:



Calculating alcohol units per glass

**Function Units(Percentage   
 As Double, Bottle As   
 Double, Glass As Double)   
 Units = Round((Bottle /   
 100 \* Percentage) / (Bottle /   
 Percentage), 1)   
 End Function**

To help the user understand what to enter you can offer help. Press Alt & F11 to return to the worksheet and press Alt & F8. In the displayed Macro dialogue box under Macro Name: enter, Units and click the Options button. In the Description: box type, "Enter volume percentage of alcohol on the bottle; the bottle size in centilitres; and the glass size in millilitres."

On the worksheet click the Insert function button fx, choose User Defined and then, Units. Fill in the box for a 125ml glass from a 75cl bottle with an alcohol volume of 12.5% and you should have an answer of 1.6 units of alcohol per glass.

For that strength and glass size, a man should restrict himself to two glasses a day and a woman one – unless they want to pickle their liver.

### The VBA code for the Contents macro

Create a Contents page for your workbook

```
Private Sub Worksheet_Activate()
Dim wSheet As Worksheet
Dim Link As Long
Link = 1
With Me
.Columns(1).ClearContents
.Cells(1, 1) = "CONTENTS"
.Cells(1, 1).Name = "Contents"
End With
For Each wSheet In Worksheets
If wSheet.Name <> Me.Name Then
Link = Link + 1
With wSheet
.Range("A1").Name = "Title" & wSheet.Index
.Hyperlinks.Add Anchor:=.Range("A1"), Address="", SubAddress:=wSheet.Name, TextToDisplay:=wSheet.Name
End With
Me.Hyperlinks.Add Anchor:=Me.Cells(Link, 1), Address="", SubAddress:=wSheet.Name & wSheet.Index, TextToDisplay:=wSheet.Name
End If
Next wSheet
End Sub
```

workbook. Add sheets until there are 13. Rename the tabs 1997 through 2008 and Contents. Right-click on the Contents tab, choose View Code and paste the macro listing there (see screen 5), then save the file.

The macro is run initially by clicking on the Contents tab. This creates a list of the worksheets down column A of the Contents worksheet. In column B, adjacent to those worksheet names in

this example, the company's leading achievement of the year has been added. At this point the tabs can be hidden if you like, by choosing Options on the Tools menu and removing the check against 'Sheet tabs'.

From then on, a year can be selected from the Contents page. Cell A1 of the chosen worksheet will say, Contents. You can return to the Contents sheet by clicking that cell. **PCW**



**Nigel Whitfield** edited computer magazines before going freelance in 1995. A specialist in internet and consumer issues, he has a degree in Computing Science from Imperial College.

→ Comments welcome on the Web development column. It returns in the May issue. Email [webdev@pcw.co.uk](mailto:webdev@pcw.co.uk) Please do not send unsolicited file attachments.

# Office on the web

More basic Javascript, plus some Office tips for web developers and designers

Last time round I looked at some of the most basic Javascript that you can use to add a few interactive elements to your site, showing how scripts can be embedded in your web pages and how you can pop up an alert box.

This month, I'll expand on that a little more with some slightly more useful examples.

But first, one of our correspondents, Paul Cooper, asked about the pros and cons of writing websites using Microsoft Office tools, such as Word and Excel, after a friend of his said that Office introduces lots of unnecessary elements into your code.

## Office bloat

To an extent, that's true. In screen 1 you can see a web page based on the first few paragraphs of this column, created simply by saving the file as a web page from Word's file menu. I'm using Word on the Mac, but you'll have more or less identical results on a PC too. The file opens and displays in the browser – in this case Safari – and yes, it looks pretty much identical to the Word document.

So far, so good. But count the characters in those opening paragraphs and there's a fairly miserly 443 of them. Check the properties of the HTML file (see screen 2) and, as you can see, the size of the file is 4,502 bytes – so the actual text makes up less than 10 per cent. Of course,

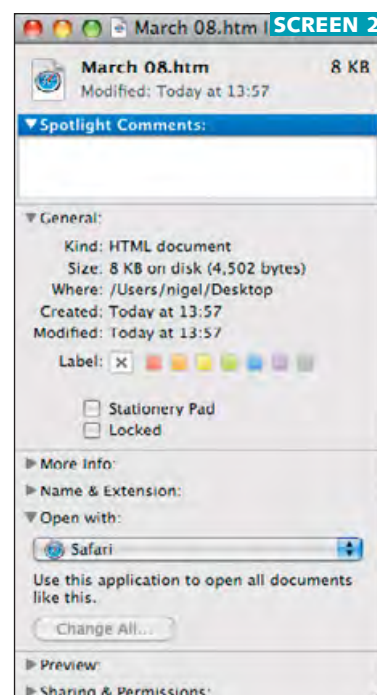
there's always some bloat with HTML, since the tags themselves can be verbose, and it's perhaps not entirely fair when we're using such a simple example, where you could dispense with style sheets completely, and just use a couple of heading styles, and a paragraph. Even so, it's clear that what Word has produced is not the most compact way of doing things.

To find out why, it's worth taking a look at the source of the web page that Word produces. First, you'll see references to the Microsoft Office XML schema, followed by tags telling you which version of Word was used. Then there's a chunk of XML which contains the document properties, as set via Word's File menu; it's worth noting that the title set here is used as the HTML page title. Additionally, the author, as set up in your Word installation, will be added – so if you're writing a critical web page that you intend to post anonymously, don't use Word, without checking the code later to make sure your identity isn't revealed to all and sundry.

Following the description of the document, there are details about the template used to create it, and then a CSS style sheet that includes all the font and style definitions used in the document before, finally, the actual text of the web page.

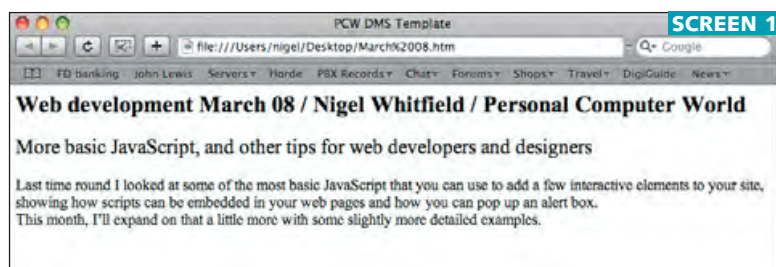
As I've mentioned before, there are very sound reasons for using CSS in your web pages – it makes them very easy to manage. But they can

Our short piece of text has grown ten-fold by being saved as HTML in Microsoft Word



also be verbose, and the inclusion of all the styles, even though only three were actually in use, makes the Word-created web page much longer than it needed to be.

For a simple site, you probably don't need to worry too much about this, but if you start adding multiple pages, you'll end up with a lot of information duplicated, because Word keeps the style information embedded; with other web-editing tools, such as Dreamweaver, you can easily link to an external style sheet, where all the information is in a separate file. That has two advantages; first, it's only loaded once by the browser, and all the individual pages can be smaller, so your site has to send less data. And second, if you want to give your site a makeover – new corporate colours, perhaps, or a seasonal theme – you just need to change the single style



Save as a web page in Word, and you'll get a pretty good representation of your document



sheet file, and all the pages that refer to it will update.

### Other Office HTML quirks

Compactness isn't the only reason to use tools other than Microsoft Office for more complex websites. If you turn pages that have pictures in them into web documents, Word will deal with all the pictures for you, creating a folder for each page containing the images. You can upload them all easily enough, but it might not be the way you want to organise your website.

For instance, when I'm doing a site, I tend to group all the images – say product images – into one folder. Then, if I had a set of new pictures, perhaps for Christmas, with products covered in snow, I could just upload them all into the same folder. If Word has created a folder of images for each individual product, it's potentially going to be a lot fiddlier to sort out, instead of just one big batch upload.

Word is not the only part of Office that can save as HTML, of course. Excel can do it too, and you'll often come across tables on the web that have been created by choosing the 'Save as a web page option'. And sometimes they can be utterly confusing; not only is there the same privacy issue as with Word, and the extra information, but one site I regularly look at used to show up another Office flaw very well – an Excel spreadsheet listing features of competing products is saved as a web page, and ticks or crosses appear in columns to indicate whether a particular product has a feature.

It all looks great in Excel, and great if you're a PC user with Internet Explorer; but look at it from a Mac, or some other browsers, and instead of easy-to-understand symbols, you end up with characters of the alphabet that shed absolutely no light on what the table was supposed to tell people in the first place. So, especially if you're using any odd symbols, it's always worth checking out what an Office-generated web page will look like on a Mac as well as a PC – and if it's something you can't change easily, like a complicated spreadsheet, then you might want to consider turning it into a PDF that can be downloaded rather than a standalone web page.

None of this, of course, suggests you shouldn't ever use Office to make web pages. But it's certainly better suited to quick, simple tasks, rather than larger, more complicated sites. **PCW**

## How to create your own Javascript pop-ups

A lot of people find pop-ups annoying, and their indiscriminate use is certainly irritating, but they can also have their place – highlighting new features on a site perhaps, or important news. On one of my sites, I used a pop-up to promote a new site-wide search feature, with an image that, when clicked, opened the search page in a new window and closed the pop-up at the same time.

The actual pop-up box itself is just a simple HTML file, with the image centred and a link to the target page, with an extra bit of Javascript to close the pop-up too – 'self.close' does pretty much what you'd expect the command to do:

```
<a href="http://mysite.
somewhere.else/
search.php" target="_blank"
onClick="self.close()">

</a>
```

(Key: ↵ code string continues)

So, how about making the message pop up in the first place? We need two things – a Javascript function that will open a new window, and a call to it. And, since we want the pop-up to appear when the body of our web page loads, we specify it in the BODY tag, like this:

```
<body onLoad="noticeWindow()">
where noticeWindow is the name we'll give to the function we write to pop up the window. That can either be in the main web file, as inline Javascript, or if you want to refer to it from other pages, you might include it, for example via PHP like this:
<?php include
('sitefunctions.js'); ?>
The actual Javascript looks like this:
<script language="JavaScript" type="
"text/javascript">
```

```
function noticeWindow() {
```



```
noticeWindow = window.open('http://
mysite.somewhere.else/
reminder.html', 'reminder
Window', 'toolbar=no,location=no,
directories=no,status=no,
menubar=no,scrollbars=no,
resizable=no,copyhistory=no,
width=250,height=200');
}
```

```
</script>
```

Not all the options to the window.open command are necessary – we've chosen to cut down on clutter such as scroll bars, and specified a size that fits well with the image we're using. The second parameter, 'reminderWindow' is the name that can be used as an HTML target, for example in links, to open a new document in this pop-up, while the variable 'noticeWindow' is the reference that Javascript can use if, for example, it wants to close the window, or add information.

Although we've listed a lot of parameters, they're more for information so you can see what's possible – by default, a new window will have all the same settings you'd get if you chose 'New window' from the browser's menus, but if you set any option, such as size, then all the others are automatically turned off, unless you choose to turn them on.

Finally, if you have a pop-up with a lot of information in it, the user might have had to scroll, so how about adding a link at the bottom to close the window, so they don't have to move the mouse back up to the top? That's pretty straightforward too. You can use a bit of code like this – the duplication ensures it should work in all browsers, since not all understand the 'javascript:' way of invoking a function:

```
<a href="javascript:self.close()"
onClick="javascript:self.close()">
Click here to close window
</a>
```

If you wanted to be a little more clever, you could call a different function instead, perhaps setting a cookie, with link text along the lines of 'Don't display for 7 days' and then in your original page, check the cookie to decide whether or not to display the pop-up. We'll look at that next time.

Pop-ups can have their place; for example, reminding users of a new feature on your site



**Alan Stevens** has implemented and supported networks for over 25 years, working for IT vendors, system integrators and customers. He now mostly researches and writes about networking matters

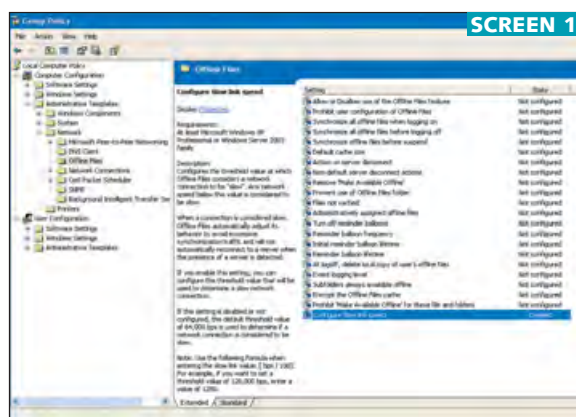
→ Comments welcome on the **Networks** column.

Email [networks@pcw.co.uk](mailto:networks@pcw.co.uk)

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# Problems with offline files

How to solve some of the quirks in Windows' handling of offline files



Using the Group Policy snap-in, you need to enable the **Configure Slow Link Speed setting in Windows XP to set the offline files threshold**

available. It's also a good idea to apply any post-SP2 updates. Next, open up the Group Policy editor, by typing gpedit.msc from a command window or via the Start menu's Run command.

This will load up the Microsoft Management Console (MMC) with the Group Policy snap-in loaded, from where you can edit what's called the Local Group Policy Object which, in turn, controls the way Windows behaves. Note, however, that if you log on to an Active Directory domain, the Group Policy settings configured by the network administrator will take preference over your local settings and you may have to get this option configured for you.

Assuming that isn't the case, the setting you want to change will be defined in the local administrative templates. It's called **Configure Slow Link Speed** and sets the threshold below which Windows will consider a connection to be 'slow' and connect to cached offline files rather than the associated network share.

**Use the Registry editor to add a new GoOfflineOnSlowLink value**

Following my recent article on offline files (Hands On, PCW Christmas 2007), I've had a number of emails from readers who have encountered problems when using this Windows networking option over slow-speed virtual private network (VPN) and wireless links. More specifically, readers have reported problems when using XP where the speed of the connection is just sufficient for Windows to try to open the remote server version of a file rather than the locally cached (offline files) copy. In such circumstances it would be more sensible to carry on working offline, but the Windows software insists on connecting to the remote share regardless.

The good news is that there are a couple of ways around this issue, one of which is to upgrade to Windows Vista, about which more later. For those sticking with XP, however, you'll need to get your hands dirty with Registry and group policy settings and, even then, may not get the desired results.

## Slow links and XP

Here's what you need to do if you're running Windows XP.

First, make sure you're using the latest service pack (SP2), otherwise the options I'm about to mention won't be

This entry can be found in the Computer Configuration folder, under Administrative Templates/Network/Offline files (see screen 1).

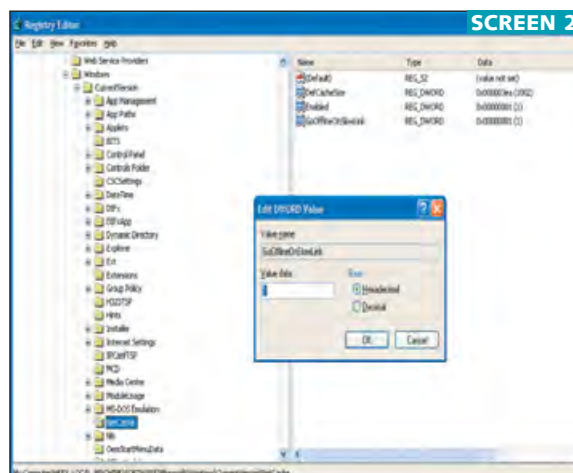
If the **Configure Slow Link Speed** setting isn't enabled, a default threshold of 64,000bits/sec is assumed. The number here is typed as bits/sec divided by 100, so for 32Kbits/sec you should type 320. You'll also have to reboot to activate the group policy setting, or type the command gpupdate in a command window to activate it.

However, by itself the Group Policy change will have no effect. You also have to edit the Registry and add a new key to tell Windows what you want it to do. The usual warnings about editing the Registry apply (take a backup if you're worried) but, assuming you're happy to proceed, start the Registry editor (regedit) and add a new REG\_DWORD entry to tell Windows to go offline when a link below the speed threshold is detected.

To do this browse to `HKEY_LOCAL_MACHINE\Software\Microsoft\Windows\CurrentVersion\NetCache` from the Edit menu, select New and click DWORD Value. Type `GoOfflineOnSlowLink` to name the entry, then press Enter. Finally, double-click the value you've just created and set it to 1 – either hexadecimal or decimal, it doesn't matter (see screen 2).

Once you've enabled this option (and rebooted) Offline Files should recognise any network connection speed slower than the value specified by the **Configure Slow Link Speed** group policy setting as slow enough to go offline. It should then use the locally cached files rather than those on the remote server.

At least that's the theory. In practice it's difficult to test fully, although I did manage to force Windows to go offline on a 100Mbit/sec Lan connection using this technique. However, I've also seen





## Another plug for Powerline networks

So much then for offline files. Another request I've had recently is for more information about Powerline or Homeplug networking products, with a lot of confusion as to what they can be used for and whether or not it's a secure alternative to wireless.

I have to admit that I was initially sceptical about these products, which are designed to use the AC mains wiring in a building for networking, saving the need to install a separate UTP Lan or employ wireless access points, bridges and routers. Having used them in anger, however, I've become a convert and, like all converts, something of an evangelist for the technology involved.

The biggest advantage, as far as I'm concerned, is the speed and ease with which these products allow a network to be created. About the size of a large three-pin plug, all you have to do is plug one into a mains socket in one part of a building and a second into another somewhere else and you've got an instant network. No setup is needed, the two devices will just find each other and communicate using frequencies not required for the transmission of power, to create an Ethernet bridge.

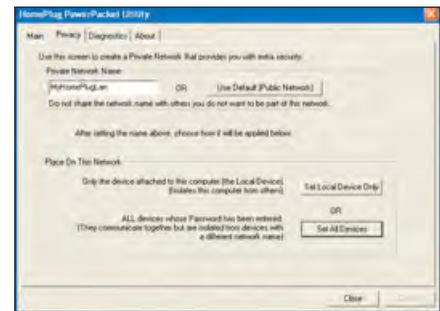
Anything connected to one Homeplug adapter will be networked to those attached to the other, with a choice of either single-port adapters or those with built-in Ethernet switches, typically allowing four or more devices to be connected. Plug in

additional adapters and the network simply grows in size – it really is that simple.

That said, Homeplug networking does have its limitations, most of which are to do with the fact that it's not a wireless technology. So, for example, if you want to use Homeplug to connect a notebook PC to a broadband router, you'll need two adapters. The router is connected to one, while the notebook will need to be equipped with a wired Ethernet interface to enable it to be connected to the other. Even then you could always plug a wireless access point into the Homeplug network and connect the notebook via Wifi. You can also buy Wifi extenders that have a wireless access point built into a Homeplug adapter.

But then there's the little matter of security. We all know how easy it is to piggyback onto an unsecured Wifi network, and the worry is that your neighbours could similarly connect to your Homeplug network, simply by plugging an adapter into one of their sockets. After all, both houses are, at some point, connected to the same AC supply. The reality is that this is unlikely to be the case, primarily because of the distances involved. I've tried it for myself, plugging an adapter into one house and another next door, and it didn't work.

If you are worried, and judging by my inbox a lot of people are, then all Homeplug devices can also be configured to encrypt the



Homeplug adapters come with a utility to create private encrypted networks for extra security

data they're transmitting. Disabled to begin with, a simple Windows utility is provided to turn encryption on to create a secure private Lan, with the option of activating this on all the devices on the network at one go. I've done this on a number of different products and, interestingly, it has been the same software every time, albeit branded with a different vendor logo. As a result, I've never had any compatibility issues, at least not with the security option.

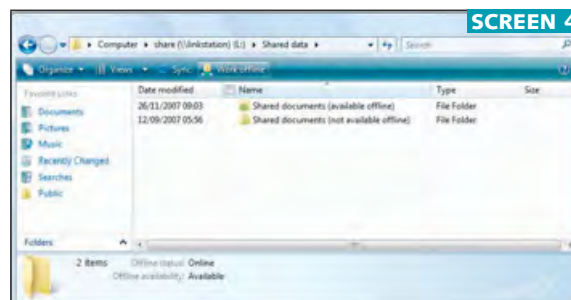
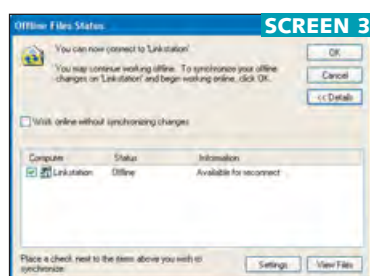
I have had problems mixing the latest Homeplug AV (200Mbps/sec) adapters with earlier, 85Mbps/sec implementations. However, that aside, Homeplug works well, is inherently more secure than wireless and can solve a lot of network cabling problems very quickly and easily indeed.

lots of posts on support forums indicating that it doesn't always give the desired results. In particular, the transition from offline to online status is far from seamless (see screen 3).

It's also an all-or-nothing setting applied to all links and all users of the PC. Plus, if you configure offline files to synchronise the local cache whenever you log on or off, the software will still attempt to do this no matter what the Configure Slow Link Speed setting.

### Offline with Vista

Life gets a whole lot easier if you're a Windows Vista user. Indeed, you don't really have to do much at all to address



On a Vista PC you can force Windows to use cached offline files by clicking the 'Work offline' button

On an XP PC the transition from offline to online status requires user intervention

the problems with slow links with the latest OS. That's because the caching engine has been totally rewritten for Vista, providing more control over the way the software works.

The biggest change is the addition of an Explorer button marked 'Work offline' which forces Windows to use the cached versions of offline files regardless of the connection speed (see screen 4). Click this and you in effect disconnect yourself from the network so that all you can see and access will be files that you've made available offline. The button then changes to 'Work online' enabling you to

reconnect to your remote network shares when a fast link becomes available. You can still synchronise when working offline and access the network to send/receive email.

Other changes in Vista include the way the local cached copy is synchronised with the online copy. To this end Vista keeps track of the blocks that are modified while offline and only transfers changed blocks back to the network share. This makes synchronisation from the client to the server much faster, although it only applies when transferring changes from client to server – not in the other direction. And since some applications (such as Microsoft Word, for example) create a new temporary file when you modify an existing document, you won't always see the benefit.

The synchronisation process has also been modified to only synchronise the shares for the user who is logged on. This addresses a problem whereby you could get an 'access denied' error for folders belonging to someone else. **PCW**



**Mark Whitehorn** is one of those lost souls who actually likes databases. He splits his time between consultancy, writing, working for two universities and tinkering with old cars.

→ Comments welcome on the Databases column.

Email [database@pcw.co.uk](mailto:database@pcw.co.uk)

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# Conditions, operators and fools

We continue a tour of SQL querying and look at a solution to the HMRC's woes

As I said in the Christmas issue's column, knowing some SQL gives a great boost to your querying skills, and so the theme continues this month.

We've already met the WHERE clause, as in:

```
SELECT LastName, FirstName
FROM People
WHERE FirstName="Bill";
```

which returns anyone in the People table with the first name of Bill. The WHERE clause is called a 'condition': it defines the conditions under which we want rows returned. The equals sign that follows WHERE is an 'operator' and is one of many that can be used.

A condition is evaluated and the rows for which it evaluates as true are included in the answer table. Apart from using the = operator, I slipped one other into the Christmas column:

```
SELECT FirstName, LastName
FROM People
WHERE (3<4);
```

In this query the condition is 'where three is less than four' and will always evaluate to true and therefore return all rows. The complete list of operators that can be used with WHERE is shown in table 1.

Technically speaking, the first six are 'comparison' operators and the last four are 'predicates'. Given the table shown in screen 1, we can find all people with more than three children:

```
SELECT FirstName, ChildNo
FROM People
WHERE ChildNo >3;
```

(Q01 – see below for an explanation of the numbers in brackets.)

This returns four rows. (The file DBCMAR08.MDB on the cover disc contains all the queries here, each has a number (ie (Q01) shown after the query). To exclude people with six or more children, you'd alter the condition to:

```
WHERE ChildNo>3 AND ChildNo<6;
```

PersonID	FirstName	LastName	HomeTown	ChildNo	DateJoined
1	Alison	Grundy	Wigan	3	01/04/1996
2	Bill	Holden	London	3	03/05/1997
3	Lucy	Pauling		0	07/07/1997
4	David	Carter	London	4	08/08/1998
5	Michael	Greenow	Dundee	1	09/05/1999
6	Sarah	Smith	Hereford	6	02/01/2000
7	Ted	Jones		1	04/03/2001
8	Joseph	Hancock	Bedford	3	07/05/2002
9	Keith	Jones	Bedford	4	03/05/2002
10	Simon	Gordon	Fishguard	7	05/06/2003
11	Barry	Smith	Edinburgh	3	07/07/2003
12	Helen	Jones	Leeds	3	09/08/2004
13	John	Alias		1	05/08/2005
14	Dorothy	Doherty	Manchester	2	06/08/2007
(AutoNumber)				0	

(Q02) and two rows are returned. Alternatively you could use IN to identify the acceptable values, which returns the same two rows:

```
WHERE ChildNo IN (4,5);
```

(Q03)

IN also works with text:

```
WHERE HomeTown IN
('London', 'Wigan', 'Bedford');
```

(Key: ↵ code string continues)

(Q04) finds people from these towns. For numbers of children of between two and four, it'll be no surprise that you'd use the BETWEEN... AND operator:

```
WHERE ChildNo BETWEEN 2 AND 4;
```

(Q05)

Numbers of two, three and four are returned. This operator can also be used with text strings, for instance:

```
WHERE HomeTown BETWEEN
'Edinburgh' AND 'London';
```

(Q06)

returns all home towns that are alphabetically between, and including, Edinburgh and London. The six comparison operators work with numbers, text and dates, so to find all home towns after (alphabetically speaking) but not including Hereford you can use:

```
WHERE HomeTown>'Hereford';
```

(Q07)

and this:

```
WHERE HomeTown>='Hereford';
```

(Q08)

The People table is used to demonstrate querying with conditions and operators

includes Hereford, while this:

```
WHERE People.DateJoined>=
=#1/3/2004#;
```

(Q09)

will return all rows with join dates on or later than 1 March 2004. Answer tables for the last four queries are shown in screen 2.

To identify people for whom we don't know certain information, IS NULL works with numeric or text values, like this:

```
WHERE ChildNo IS NULL;
```

(Q10)

```
WHERE HomeTown IS NULL;
```

(Q11)

## Further operators

There are also three logical operators that are processed after any of the operators in the list above (though it is possible to alter the order in which they're performed by the use of brackets). They're shown in table 2. We could write:

```
WHERE ChildNo=2 OR ChildNo=4;
```

(Q12)

to find people with two or four children. We get an answer if either one of these conditions is met, as you can see in:

```
WHERE ChildNo=2 Or ChildNo=8;
```

(Q13)

## SQL operators

TABLE 1

SYMBOL	MEANING
=	equal to
>	greater than
<	less than
<>	not equal to
>=	greater than or equal to
<=	less than or equal to
IN	equal to a value within a collection of values
LIKE	similar to
BETWEEN... AND	within a range of values including the two values which define the limits
IS NULL	column does not contain a value



## SQL logical operators

TABLE 2

SYMBOL	MEANING
OR	if either or both expressions are true, the entire expression is deemed to be true
AND	both expressions must be true in order for the entire expression to be deemed true
NOT	inverts truth

There are no people with eight children but the query still returns the rows for those with two. Hopefully you should be able to work out what these next two queries do by now. Try to guess the output before running them:

**WHERE ChildNo=3 AND** ↵

**HomeTown='London';**

(Q14)

**WHERE ChildNo=3 AND NOT** ↵

**HomeTown='Leeds';**

(Q15)

As you can see, SQL operators and predicates can add immense flexibility to your queries.

### Head for the hills...

O'Reilly's *Head First* series aims to make the learning process engaging and entertaining – a truly laudable goal. But applying a formula – graphics, diagrams, annotations, crosswords, quizzes, questions and exhortations to 'be the table' – doesn't guarantee to do the trick when it isn't allied to accuracy. This is apparent in *Head First SQL* by Lynn Beighley (O'Reilly, 0-596-52684-9) where in the introduction we read: "but we assume that if you're holding this book, you really want to learn about project management". Err, no; that would be SQL, actually. And it gets worse. On page 164 we find the gem: "SQL is known as a Relational Database Management System or RDBMS. Don't bother memorising it. We only care about the word RELATIONAL". The second sentence is entirely accurate but its juxtaposition with the first one is fabulously ironic. Please don't memorise the information because it is completely wrong. SQL certainly is not an RDBMS – SQL is a language and an RDBMS is an application. It's rather like confusing petrol with an internal combustion engine: they work together but are two fundamentally different things. A lack of understanding at this basic level destroys any confidence in the author's authority. Teaming the author with a good technical proofreader could have made all the difference.

And then there's the style. *Head First SQL* has, for my tastes, been a little too enthusiastic in its embrace of the

"gosh, this stuff is so difficult to learn we're going to show you a picture of a man looking perplexed" school of book writing. Books with character certainly help the learning process. I have several favourites on my shelves, which have silly illustrations and captions (I thought I'd mention this in case I sound too stuffy...) This one won't be joining them because it doesn't feel idiosyncratic, it feels like formulaic funkiness.

### That database scandal...

As I write this, the furore surrounding the HMRC's loss of 25 million people's records is still in the news. This isn't a political column but I thought it worth looking at the situation from a database point of view. The National Audit Office (NAO – the body to which the lost data was en route) asked for records with bank and other details removed. Given the information presently to hand, we know that complete records were sent out on disc because it was deemed too expensive to subset the data.

Let's assume that the data is held in a modern relational database engine. Saying that it is too expensive (presumably in time and effort) to subset it is nonsense. One major reason for holding data in databases is to enable us to request subsets of data as and when we want them. Almost every query run against a database subsets the data in some way. In SQL we'd write, not:

**SELECT \***  
**FROM AllData**  
but

**SELECT City, PostCode,** ↵  
**ClaimAmount, Whatever**  
**FROM AllData**

How tricky is that? This is exactly to kind of operation we covered in the Christmas column. And 25 million rows isn't a terrifyingly vast table these days – the operation could be performed on a laptop.

Alternatively, imagine the data is held, not in a relational engine, but in something like, say, IMS (IBM's Information Management System, a transaction and hierarchical DBMS). Presumably HMRC would have staff capable of writing a query to subset data or, at the very least, to output the entire table into a simpler format such as CSV (comma separated values) which could then be imported into any one of a large number of tools for subsetting.

In addition, the NAO requested a random selection of 100 records without sensitive details. Selecting 100 records is a trivial matter, but ensuring that they're a random sample is rather more difficult. (It's a subject I've addressed in earlier columns, but if you'd be interested to read more, drop me a line and I'll revisit the subject).

Nevertheless, selecting an effectively random sample is possible. If the HMRC couldn't do it, it could have (rather pathetically) supplied the data subsetted by column (the easy bit) as requested, and left the selection of the sample to the NAO. It didn't. It took the lazy and incredibly foolish action of sending the whole lot. **PCW**

Answer tables  
for queries 6, 7,  
8 and 9

The screenshot shows four separate windows, each displaying the results of a SQL query. The windows are titled 'Q06 : Select Query', 'Q08 : Select Query', 'Q07 : Select Query', and 'Q09 : Select Query'. Each window contains a table with three columns: 'FirstName', 'ChildNo', and 'HomeTown'. The data in each window is as follows:

- Q06:** Barry (3, Edinburgh), Simon (7, Fishguard), Sarah (6, Hereford), Helen (3, Leeds), Bill (3, London), David (4, London), \* (0).
- Q08:** Sarah (6, Hereford), Helen (3, Leeds), Bill (3, London), David (4, London), Dorothy (2, Manchester), Alison (3, Wigan), \* (0).
- Q07:** Helen (3, Leeds), Bill (3, London), David (4, London), Dorothy (2, Manchester), Alison (3, Wigan), \* (0).
- Q09:** Helen (3, Leeds), John ( ), Dorothy (2, Manchester), \* (0).



**Tim Anderson** is an IT journalist and software developer, and began writing for PCW in 1993. Since his first Commodore Pet, he has acquired expertise in Rad programming, Windows and the Internet.

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# What's new, what's coming

Find out what the new year holds for Visual Basic programmers

**M**icrosoft's Visual Basic 2008, also known as VB 9, is the third version to be based on the .Net Framework. An added bonus is that the Express variant is free, unrestricted, and co-exists with earlier versions (see screen 1). With .Net established, Microsoft is evolving the language with important changes.

Perhaps the first thing to get your head round is type inference. The idea is that typing: `Dim i As Integer = 3` is a waste of space. The compiler can see that 3 is an Integer, so it can infer the type. In VB 2008, if you type: `Dim i = 3` then the variable will be assigned the Integer type. This is at compile-time, not at runtime, so it is the same as strong typing.

Type inference only applies to local variables, and only when declared and assigned in the same statement. It could break existing code, if you were relying on VB to declare untyped variables as objects, but such errors are easy to fix.

Another space saver is called relaxed event handlers. In VB 2005, every event handler has arguments for sender and EventArgs, like this:

```
Private Sub Button1_Click(
    ByVal sender As System.
    Object, ByVal e As
    System.EventArgs) Handles
    Button1.Click
```

(Key: ↵ code string continues)

In VB 2008, you can have this instead:

```
Private Sub Button1_Click()
    Handles Button1.Click
```

It is another step towards uncluttered code, which is a good thing.

Other new language features include Object Initializers – which means you can create an object and set its properties in the same statement – as well as Anonymous types, Lambda expressions, and Extension methods. Although interesting, they are also part

of the plumbing behind the headline feature, Linq (Language Integrated Query). Linq brings database queries into the language, so there's no need to assemble SQL strings.

## Use XML literals

New in VB 2008 is native XML. This looks strange, as it breaks assumptions about how code is separated from data. This is now valid VB 9 code:

```
Dim theItems = _
    <posts>
    <myitem title="First item"
    desc="Some text"
    link="http://someurl"/>
    </posts>
```

The above code uses type inference to create a variable of type XDocument. It is interesting, but not yet useful. The value becomes apparent when you combine it with another feature called embedded expressions. Here's how you can use this to transform the XML snippet above to a valid RSS feed.

First, start a new project in the free Visual Web Developer Express. Add a new page called blogfeed.aspx. We will be generating the content in code, so delete everything in blogfeed.aspx except the statement declaring the Page.

Now open the code-behind file and write a GenerateFeed function,

Grab the free Visual Studio 2008 Express editions to explore the latest Visual Basic

returning a string. The first part of the function is the snippet of code above, creating the myXml variable, to which I added a couple of additional myitem elements. Next, declare a second XDocument variable, pasting the XML from an existing RSS feed. I used one from a WordPress blog. I did not paste the entire feed, but stripped it down so that it only includes one item element. I also removed some non-essential elements for the sake of brevity. This is now a template for the new feed, as shown in figure 1.

Lurking in the middle of this block of XML is some code. The first expression comes in the pubDate element:

```
<%= Now.ToString("r") %>
```

Using the same notation as in old-style ASP, this evaluates a VB function and inserts the result into the pubDate element.

The next block is more interesting. It uses a Linq to XML query to retrieve all the myitem elements in the first XDocument variable, called theItems. There is a useful operator called a descendant axis property, represented by three dots (...). This returns all the elements of the given name wherever they are in the XML tree, starting from the specified element. Further expressions retrieve the attribute values of each myitem, using the @ attribute operator, and insert them into the XML.

There are a couple of further steps before the code will run. VB will not compile the code if the namespaces are unrecognised. Fix this by adding imports statements for the namespaces, at the top of the code-behind file:

```
Imports <xmlns:content=
    "http://purl.org/rss/1.0/
    modules/content/">
Imports <xmlns:dc="http://
    purl.org/dc/elements/1.1/">
```

Finally, add code for the Page Load event:

```
Response.Write(GenerateFeed)
```



SCREEN 1





SCREEN 2

Viewing the RSS output in Internet Explorer

Run the code. All being well, `blogfeed.aspx` now contains a feed that Internet Explorer or RSS reader recognises (see screen 2).

This simple example demonstrates how to manipulate XML in Visual Basic 2008 and how to transform one type of XML into another, but you could also source the RSS content from a database or elsewhere. You can also get intellisense for specific XML content, by importing or generating a schema.

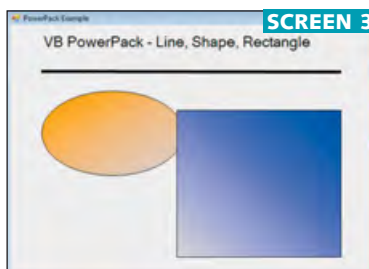
### What's in Visual Basic 10

Amanda Silver, lead program manager for Visual Basic, told PCW about some of the plans for VB beyond the just-released 2008 version. Some of these are likely to come in a service pack, or in an add-in called a Powerpack, while others are more speculative.

The first thing Silver mentioned is a `DataRepeater` control. "The next episode in the PowerPack controls is a data repeater control. Remember this from VB 6 (see screen 3)? The repeater control is a natural fit with `Linq`, because you end up with a collection, and you can use what comes back from the collection and bind to it directly." Next, she mentions how Intellisense for XML will be improved, probably in a service pack, removing the need to create inferred schemas.

Silver also told us about `VBX`, and how it relates to Microsoft's Dynamic Language Runtime (DLR). "The DLR is about bringing dynamic languages to the .Net platform. Bringing Ruby and Python to .Net. VB is already a dynamic language, but there are a couple of services that are coming via the DLR that we will be able to take advantage of. The way that VB is a dynamic language today is that we can bind at runtime to objects, even when at compile time the type is not known. In the past we have had our own late binder, which is a runtime component that actually does this binding against the metadata that it inspects via reflection. With the DLR what's coming is a set of services that will make that

The Powerpack series restores familiar VB6 controls to VB.NET



SCREEN 3

much easier. We expect our performance for late binding to improve dramatically, which will take away some of the stigma from late binding that exists today.

"The other thing is that we'll be able to interoperate between Ruby and Python and Visual Basic. Visual Basic could interoperate with, let's say, a script that's executed in Python from Ruby.

"We're also investigating how we can take the inspiration from Iron Python and Ruby and the interactive console experiences that they offer, and bring some of that back into Visual Basic, possibly even to break out of Visual Studio and have a command-line interface for the VB language, which then makes it interesting for scripting."

We asked Silver whether anything will be done about the annoying line continuation character in VB. She sucked her breath: "People are just used to the fact that you have to put line

## New feed template

FIG 1

```
Dim feed = _
<?xml version="1.0" encoding="UTF-8"?>
<rss version="2.0"
  xmlns:content="http://purl.org/rss/1.0/modules/content/"
  xmlns:dc="http://purl.org/dc/elements/1.1/"
  >
  <channel>
  <title>PCW Blog example</title>
  <link>http://someurl</link>
  <description>Example blog feed</description>
  <pubDate><%= Now.ToString("r") %></pubDate>
  <language>en</language>

  <%= From myitem In theItems...<myitem> _
  Select <item>
  <title><%= myitem.@title %></title>
  <link><%= myitem.@link %></link>
  <pubDate><%= Now.ToString("r") %></pubDate>
  <dc:creator>Your name</dc:creator>
  <description><%= myitem.@desc %></description>
  </item> %>

  </channel>
</rss>

Return feed.ToString()
```

continuation characters after a parameter or an argument. But with 2008 it has become more annoying again, because we have query expressions that tend to span multiple physical lines but still are part of the same logical line. We intend to do something about it for the future. We're trying to figure out how we can have the line continuation character be implicit and inferred based on the expression that you wrote."

What about game development with XNA, currently restricted to C# developers? "Unfortunately, there's nothing I can say on that matter now. I wish I could. XNA is a great product."

I asked Silver how popular VB was in comparison to the other Express downloads. "Visual Basic is the number one Express download," she said. "The second place is neck and neck between Web and C+++. Then there's a significant drop-off to the other Express series."

VB may be losing out to C# in the professional job market, but it shows no sign of losing favour with the generalist programmer. **PCW**

### Resources

Visual Studio Express Downloads  
[www.microsoft.com/express](http://www.microsoft.com/express)  
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# How to buy the best products tested by our Labs

This Buyer's Guide is a comprehensive listing of the best products PCW has tested across a range of areas, helping you to make the best decision when you're planning a purchase. Over the following pages you'll find products, their verdicts and ratings, plus information on where you can read the full review.

## CONTENTS

153 PCs	157 Printers
154 Graphics cards	TV tuners
Notebooks	158 Monitors
155 Motherboards	Digital cameras
Digital music players	Routers
156 Hard drives	159 Product index
DVD drives	

Prices are for guide purposes only and may be subject to change



## HOW TO BUY: PCs




Many of the choices you are faced with when buying a PC are covered in the following pages. You need to think about the graphics card, memory, sound requirements, size and type of hard disk, CD or DVD burner and so on.

Once your budget is set, the starting point is the CPU (central processing unit), because it is the brains of your PC.

Intel and AMD offer a bewildering number of processors. The differences between the CPUs are in technical details that don't necessarily mean much to users. Pricing is also competitive; AMD PCs are generally cheaper than comparable Intel models.

You can still buy budget PCs with older Intel Celeron or AMD Sempron CPUs. These are aimed at undemanding users. If your needs are for word-processing tasks, surfing the web and some low-end gaming or a PC running, either of these processors will suffice. You won't need a huge hard disk - 80GB will be plenty - coupled with 512MB of Ram and a low-end graphics card. You'll be fine with onboard sound, and can expect to pay up to about £400, depending on the monitor. Be wary of running Windows Vista on a low-end budget PC though.

In the mainstream desktop market, it's Intel Core 2 Duo versus AMD's Athlon 64. Both are 64-bit CPUs, but to take full

1		<b>Mesh G92 Pulse Pro</b> £799 ★★★★★ Reviewed February 08 www.meshcomputers.com	Not particularly pretty, but fast and represents great value for money.
2		<b>PC Specialist Fusion 6400GTS</b> £999 ★★★★★ Reviewed January 08 www.pcspecialist.co.uk	A mid-range gaming system that takes advantage of Nvidia's 8800GTS.
3		<b>Tranquil PC Harmony Home Server T7-HAS</b> £397.15 ★★★★★ Reviewed Christmas 07 www.tranquilpc.co.uk	Great hardware and design, but Windows Home Server needs tweaks.

advantage of this you need a 64-bit operating system and applications - Windows Vista is available in both 32-bit and 64-bit editions.

More memory can be supported by 64-bit systems - 32-bit Windows or Linux systems are limited to 4GB of Ram, whereas a 64-bit Windows or Linux system can support 128GB. Data is also moved in larger chunks, allowing a theoretical speed advantage.

AMD and Intel offer high-end processors with the Athlon 64 FX and Core 2 Extreme ranges aimed at the hardcore gaming market. Both are dual-core CPUs (the Core 2 Extreme QX models are quad-core). Dual-core processors, in effect, act as two CPUs in one and offer superior performance.

If you're choosing a PC running the above CPUs, other considerations come down to your needs. If you store lots of

music, video or photos, go for a big hard disk - 200GB or above. Memory will help speed up applications, so aim for 1GB or above and don't drop below 512MB. The latest games demand the latest graphics cards, but for most people, cards that were new six to 12 months ago will be powerful enough.

Most new PCs now come with Windows Vista Home Premium. The Home Basic edition offers improved file handling, but you'll miss out on many of the new features. If it's for a small business, or you need features such as remote access, buy the Business edition of Vista. Few PCs are sold running Linux, and we recommend only the technically confident buy such a system. Linux can always be installed later. Finally, don't overlook the monitor, especially if you're using the PC for gaming or imaging. Buy the best you can afford.

# BUYER'S GUIDE

78 PRODUCTS  
REVIEWED TO MAKE  
YOUR BUYING  
DECISION EASIER

## GRAPHICS CARDS

SUB £200		<b>MSI NX8800GT</b> £176 ★★★★★ Reviewed February 08 www.msicomputer.co.uk	A sensible choice for anyone interested in high resolution gaming without an audible racket.
		<b>Sapphire Radeon HD 2600 XT</b> £159 ★★★★★ Reviewed February 08 www.sapphiretech.com	A terrific DirectX10.1 card with plenty of overclocking potential, but it has a bulky design.
		<b>Sapphire Radeon HD 2400XT Silent</b> £49.34 ★★★★★ Reviewed Christmas 07 www.sapphiretech.com	A great-value card with passive cooling.
		<b>Asus EN8600GT Silent/HTDP/256M</b> £96.51 ★★★★★ Reviewed October 07 www.pcsuppliesuk.net	A silent graphics card, but it won't fit in a small case.
£200-£349		<b>Foxconn FV-N885MCD2-ONOC</b> £195 ★★★★★ Reviewed Christmas 07 www.foxconn.com	Excellent performance for the money.
		<b>Sapphire HD 2900XT</b> £260 ★★★★★ Reviewed August 07 www.sapphiretech.com	Great value-for-money card sporting an HDMI port, along with ATI's latest GPU.
		<b>Asus EN8800GTS</b> £270 ★★★★★ Reviewed www.pcw.co.uk/2172183 www.asus.co.uk	A fast graphics card for gamers and Vista users.
£350+		<b>ECS N8800GTX-768MX</b> £411 ★★★★★ Reviewed April 07 www.ecs.com	The fastest graphics card we've tested, but you'll need a similarly fast CPU.
		<b>EVGA 8800 Ultra Superclocked</b> £487 ★★★★★ Reviewed Christmas 07 www.evga.com	Big and expensive, but incredibly fast.
		<b>Foxconn FV-N88XMAD2-OD</b> £397 ★★★★★ Reviewed www.pcw.co.uk/2184289 www.foxconn.com	High-end graphics card, though slightly faster 8800GTX models are available.

### HOW TO BUY

Most graphics cards are based on either the Nvidia Geforce or ATI Radeon family of chips. Each has its strengths and both offer state-of-the-art image acceleration and comparable features.

Performance improves as you move up a range. Top chips offer more features and draw more pixels or textures in a single pass than cut-down, lower-cost options. All current graphics processors are fine for office work, but hardcore gamers favour Nvidia's Geforce 7800 or new 8800 series and ATI's latest HD 2900XT card.

There are usually three clock speeds quoted (in megahertz). Core clock is the internal speed of the graphics processor. Memory speed (or memory clock) is the speed of data transfer between the graphics card's onboard memory and the graphics processor. Ramdac speed is the capability of the digital-to-analogue converter that provides the graphics output from the card.

Graphics cards use their own dedicated video memory to store data, images and textures. The more you have, the better the performance. A card with 64MB is fine for office tasks, but we recommend at least 256MB for the latest games and video applications.

About £40 will buy you a Geforce FX 5700 or Radeon 9550 card with 256MB of Ram, which is good for 2D action/strategy games, image editing and less demanding 3D games.

To play 3D action games smoothly, you'll need to spend around £150 on a graphics card. Serious gamers should consider the Geforce 7800GTX or Radeon X1900 XT at around £300. If you want top performance, opt for a Geforce 8800GTX, but expect to pay more than £400.

Depending on the motherboard, you'll need an AGP or PCI Express graphics card. PCI Express is the newest interface standard, offering up to double the bandwidth of an AGP eight-speed slot for even faster and more complex graphics. Both ATI and Nvidia offer PCI Express versions of most of their cards. Nvidia also has SLI (Scalable Link Interface) technology, which lets you use two PCI Express graphics cards in SLI-enabled motherboards for ultimate performance. ATI's rival technology, Crossfire, is an alternative.

Look for support for both analogue (VGA) and digital (DVI) displays, and S-video and composite video outputs for use with TVs. Some 'all-in-one' cards have a built-in TV tuner and video-capture options, so you can save money, rather than buying separate cards.

## NOTEBOOKS

1		<b>PC Nextday Zoostrom 4-4744</b> £699 ★★★★★ Reviewed March 08 www.pcnextday.co.uk	An excellent desktop replacement that breezes through games and office work.
2		<b>HP Compaq 6715b</b> £586.33 ★★★★★ Reviewed March 08 www.hp.co.uk	If top performance isn't crucial, a robust chassis and superb screen make this an excellent choice.
3		<b>Asus Eee PC 4G 701</b> £220 ★★★★★ Reviewed March 08 www.asus.com	One of the cheapest notebooks you'll find, but it's limited in its uses.
4		<b>Rock Pegasus 710-T7700</b> £1,199 ★★★★★ Reviewed February 08 www.rockdirect.com	It's not the cheapest notebook, but that's largely explained by its solid HD capabilities.
5		<b>Panasonic Toughbook CF-W7</b> £1,550 ★★★★★ Reviewed January 08 www.toughbook.eu	An ultraportable notebook that's incredibly robust.

### HOW TO BUY

Notebooks have caught on like wildfire with consumers, thanks to plummeting prices and massive marketing campaigns. However, there are so many options that it's easy to get confused.

Decide why you want a notebook. Is it for occasional use, running some office applications and accessing the internet and email? If so, then almost any low-cost notebook will do the job. If it's for playing games or running video-editing software, look for a notebook with a large 15in/17in screen - possibly widescreen - a high-end Nvidia or ATI graphics chip, 1GB of memory and an 80GB (or bigger) hard disk. In the low-cost arena, Intel

has its Mobile Celeron chip and AMD has Sempron. In the mid-range/high-end space, there are Intel's Core Duo models, while AMD offers Mobile sempron alternatives.

For the best in performance with power-saving technology, go for Intel's Core 2 Duo or AMD's Turion 64 processors. Intel currently leads the way with its Core 2 Duo models and, if you're looking for top performance, you should opt for one of these.

Any notebook you get should have in-built Bluetooth and Wifi connectivity, an 80GB hard disk drive, 512MB of Ram, 14-15in screen, USB2 or Firewire ports, DVD/CD-RW combo drive and three to four hours' battery life.



## MOTHERBOARDS

SUB-£100		<b>Gigabyte GA-73PVM-S2H</b> £51.69 ★★★★★ Reviewed March 08 www.giga-byte.com	A well-designed Intel motherboard that's great value for money.
		<b>Gigabyte GA-P31 DS3L</b> £49.34 ★★★★★ Reviewed December 07 www.giga-byte.com	A good-quality motherboard that would suit overclockers.
		<b>ECS RS485M-M</b> £43.06 ★★★★★ Reviewed January 07 www.ecs.com.tw	Good budget motherboard for PC builders with home theatre in mind.
		<b>MSI K9N SLI Diamond</b> £99 ★★★★★ Reviewed www.pcw.co.uk/2157641 www.msicomputer.com	A passively cooled AM2 motherboard for quiet gaming machines.
		<b>Abit Fatal1ty F-190HD</b> £68.83 ★★★★★ Reviewed February 08 www.abit.com.tw	A good, stable board that's passively cooled and has a decent feature set.
		<b>Abit AN52</b> £41.45 ★★★★★ Reviewed January 08 www.abit.com.tw	A basic, no-frills AMD-based motherboard.
		<b>MSI K9AGM2-FIH</b> £45.64 ★★★★★ Reviewed February 08 www.msicomputer.com	Yet another decent HTPC motherboard but it has limited upgrade opportunities.
£100+		<b>Asus M2N32 WS Professional</b> £183 ★★★★★ Reviewed June 07 www.asus.co.uk	Another top-notch, albeit expensive, Asus motherboard.
		<b>Asus M2N32-SLI Deluxe Wireless Edition</b> £136.59 ★★★★★ Reviewed www.pcw.co.uk/2156925 www.asus.com.tw	This is one of the new motherboards to support the AMD AM2 socket.
		<b>Asus Blitz Extreme</b> £155.64 ★★★★★ Reviewed March 08 www.asus.com	It's an expensive Intel motherboard, but one that will appeal to power users.

## HOW TO BUY

The motherboard dictates the type of processor you can use, how well the other components communicate, the features on offer and upgrade potential. Cheap boards limit processor support, graphics and expansion options. Around £70 to £100 gets you the latest technologies.

Most desktop and tower cases use a standard ATX-size motherboard but, if you're building a small system, look at compact MiniATX or MicroATX designs. If using an existing case, make sure you buy the right form factor.

Your choice is also dictated by the processor. The latest AMD processors require an AM2 motherboard, while Intel's new processors will need a Socket 775 model.

If you're using an older CPU, check the socket type and you should find a suitable model available online.

We would recommend an Intel Core Duo/Core 2 Duo or Athlon 64/FX for a good all-round system. Intel sells quad-core processors, such as the QX6700 and QX6800, but until software applications start making use of all four cores you're best off saving your money and leaving these alone for now.

Today's leading chipset manufacturers include Via, Silicon Integrated Systems (Sis), ATI (now part of AMD), Nvidia and Intel.

Many chipsets include integrated graphics. If you're not fussed about gaming or other graphic intensive applications, this can save you a lot of money.

Also consider the number of slots available. If you're looking to install two graphics cards in Nvidia's SLI or ATI's Crossfire mode, you'll need two PCI-Express slots, preferably both x16. Fit dual in-line memory modules (Dimms) in pairs if the chipset supports dual-channel operation.

The latest boards support both older IDE and new, faster serial ATA (Sata) hard disks. Check the number of connectors available for both. Some chipsets provide Raid support, so data can be spread across two drives for extra performance or backups. SCSI controllers can be found on more expensive boards, or can be added with expansion cards.

Also important is the number of USB2 and Firewire sockets for external add-ons. You may need serial, parallel and PS/2 interfaces if using older legacy peripherals. New motherboards should come with onboard Ethernet networking, a built-in 56k modem (useful when your broadband goes down) and onboard sound. Unless you're an audio buff or avid gamer, there's no need to splash out on a dedicated sound card.

## DIGITAL MUSIC PLAYERS

1		<b>Archos 605 Wifi</b> £135 ★★★★★ Reviewed December 07 www.archos.com	A portable media player that's bursting with features.
2		<b>Creative Zen Store</b> £27.99 ★★★★★ Reviewed September 07 http://europe.creative.com	A micro-sized player to rival the popular iPod Shuffle.
3		<b>Sony NWZ-A815</b> £89 ★★★★★ Reviewed January 08 www.sony.co.uk	Excellent audio control from this stylish player.
4		<b>Iriver B20</b> £149 ★★★★★ Reviewed Christmas 07 www.advancedmp3players.co.uk	Good array of features, including DAB radio.
5		<b>Sony Video Walkman NW-A805</b> £120 ★★★★★ Reviewed July 07 www.sony.co.uk	Flash-based video and music player with a widescreen display.

## HOW TO BUY

There are two main categories of mp3 player: Flash memory-based players, which go up to 8GB; and mini hard-drive based models, up to 80GB. Prices for a 256MB player start from as low as £20, rising to about £250 for an 80GB player. In terms of songs, the difference is the ability to hold around 80 tracks on 256MB player and 20,000 on an 80GB model.

If you want a high-capacity player, you'll probably end up buying a hard disk-based model. Flash-based players have a low capacity, but they're far more resilient since there are no moving parts to damage.

Ensure whatever you buy supports playback in different

formats, especially those with digital rights management (DRM) and variable bit rates (VBR). Many models include an FM tuner and voice recorder, while others serve as a basic PDA with address book, calendar and alarm functions.

In terms of software, most will hook up with Windows Media Player. Apple's range of iPods use iTunes to transfer music.

If you want to playback video as well as audio, pay close attention to the screen size, the resolution and aspect ratio.

Don't forget to check battery life and whether it's possible to replace the battery yourself. Some players don't have removable batteries, which will cause problems should it die.

## HARD DRIVES

INTERNAL		<b>Samsung Spinpoint T166 HD501LJ</b> £95 ★★★★★ Reviewed June 07 www.samsung.co.uk	A 500GB, 7,200rpm Sata drive that's both cheap and fast.
		<b>Western Digital Caviar SE16 WD7500AAKS</b> £145.41 ★★★★★ Reviewed October 07 www.yoyotech.co.uk	Huge-capacity drive with some advanced features.
		<b>Toshiba MK2035GSS</b> £79.54 ★★★★★ Reviewed January 08 www.toshiba.co.uk	A small, light and affordable 2.5in drive.
		<b>Seagate Momentus 5400.3 ST9160821AS</b> £98 ★★★★★ Reviewed June 07 www.seagate.com	A relatively cheap 2.5in Sata drive with a 160GB capacity and 5,400rpm spin speed.
		<b>Western Digital Scorpio WD2500BEVS</b> £57.58 ★★★★★ Reviewed November 07 www.ecs.com.tw	A good 2.5in 250GB hard drive for notebooks.
EXTERNAL		<b>Lacie Ethernet Disk Mini 500GB Nas</b> £259 ★★★★★ Reviewed www.pcw.co.uk/2172135 www.lacie.com/uk	A decent network storage drive with 500GB of disk space.
		<b>Western Digital My Book Essential Edition</b> £149 ★★★★★ Reviewed June 06 www.wdc.com	A stylish external hard drive, but it lacks a network option.
		<b>Buffalo Drivestation Duo</b> £159 ★★★★★ Reviewed www.pcw.co.uk/2171578 www.buffalo-technology.com	Safeguard your data with this portable hard drive.
		<b>ATMT Ultra-portable HD160</b> £240 ★★★★★ Reviewed www.pcw.co.uk/2164467 www.atmt.co.uk	If portability is important to you, and you're not after a lot of storage, this drive will appeal.
		<b>Buffalo Ministation HD-PHS40U2/UC</b> £70 ★★★★★ Reviewed April 06 www.buffalo-technology.com	This 40GB portable hard drive includes shock protection to minimise the risk of data loss.

### HOW TO BUY

If you're building a high-performance system, buy the fastest drive you can afford; if you just want lots of capacity, then slower drives offer better value.

OEM or 'brown box' drives are cheaper - this is the bare drive without the extras, such as cables, included in retail boxed versions. The transfer rates in today's Ultra ATA drives are 100Mbytes/sec (133Mbytes/sec for Maxtor drives), while serial ATA (Sata) drives are rated at 150Mbytes/sec. Check the seek times, spindle speed, buffer size and the areal density of the platters (disks).

Usually in milliseconds, seek time is how long a drive's heads take to find data on the disk. The speed at which the spindle holding the disks spins ranges from 4,200rpm for a notebook drive to 15,000rpm for some SCSI (small computer system interface) drives. Generally, faster speeds give better performance.

The larger the buffer (cache), the more recently written or stored data is held in the drive's memory, resulting in less time finding the data on the disk.

Areal density is the amount of data stored on a given area of a drive's platter. The more data per square centimetre (gigabytes per platter), the less

disk movement is required to bring it under the heads.

Originally Integrated Drive Electronics (IDE), then Enhanced IDE (E-IDE), this common parallel interface is usually written as ATA (AT attachment), modified with speed improvements in recent years to Ultra ATA/xxx, where xxx is the peak bandwidth in Mbytes/sec. To differentiate Ultra ATA from Sata, the term parallel ATA is used. Faster Sata drives are more expensive than parallel ATA. Sata uses two pairs of high-frequency cables, working at low voltage.

SCSI drives are technically no different to ATA drives, but support up to 16 devices on a single channel, and you can have multiple channels in a PC. The disadvantage, though, is the price. Most motherboards support Raid (redundant array of independent disks), which connects multiple drives to improve performance or provide fault tolerance.

You may be unable to access the new drive's full capacity. Some older Bioses only support drives up to 137GB. This may be solved by updating the PC's Bios. Retail boxed disks often come with software to fool the Bios into recognising the disk, or you can buy a separate disk controller card, which fits into a PCI slot.

## DVD DRIVES

		<b>NEC AD-7173A</b> £25 ★★★★★ Reviewed www.pcw.co.uk/2170011 www.nec.co.uk	A cheap DVD writer complete with Labelflash.
		<b>HP Dvd940i</b> £30 ★★★★★ Reviewed www.pcw.co.uk/2172512 www.hp.co.uk	Dual-layer DVD writing with Lightscribe.
		<b>Pioneer BDR-202</b> £274 ★★★★★ Reviewed December 07 www.pioneer.co.uk	A decent Blu-ray writer at a relatively low price.
		<b>Microsoft Xbox 360 HD DVD player</b> £130 ★★★★★ Reviewed www.pcw.co.uk/2169633 www.microsoft.com	A great way for Xbox 360 owners to sample high-definition movies.
		<b>Pioneer DVR-111</b> £30 ★★★★★ Reviewed www.pcw.co.uk/2153705 www.pioneer.co.uk	A cheap and versatile optical drive.

### HOW TO BUY

Many systems still offer DVD-Rom drives as secondary drives - used for playback of discs only - while a growing number have a DVD writer or rewriter for burning DVDs as the main system drive.

DVD burners can be divided into internal and external drives. Internal drives are cheaper than their external counterparts, but are no good if you want to use them with a laptop. You can opt for one of the external offerings, which can be hooked up simply via USB2 or Firewire.

Most drives are multi-format, meaning they can write to all key media types, so make sure your drive supports DVD+R, DVD+RW, DVD-R and DVD-RW discs. Newer

double and dual-layer drives can write to new discs, which can store 8.5GB versus the 4.7GB capacity of existing discs. This is useful for backing up your DVD movie collection or chunks of your hard drive on a single disc.

The dual-layer drives cost a little bit more than single-layer drives, so are a good investment. The same cannot be said for the cost of dual-layer discs. A branded, dual-layer 8.5GB disc costs around £2.

If money is no object, you could opt for a Blu-ray writer. Although able to write 25GB to a single disc, these drives are expensive at £400. Prices will fall, so we'd recommend holding off for now.



## PRINTERS

PHOTO PRINTERS		<b>HP Photosmart Pro B9180</b> £499 ★★★★★ Reviewed March 07 www.hp.co.uk	A range of powerful features makes this printer a force to be reckoned with.
		<b>Canon Pixma IP6700D</b> £149 ★★★★★ Reviewed January 07 www.canon.co.uk	A very competent printer, with the added bonus of an auto-duplex feature.
		<b>Canon Selphy CP730</b> £170 ★★★★★ Reviewed January 07 www.canon.co.uk	A simple-to-use dye-sublimation printer that produces good photos.
		<b>Samsung SCX-4500</b> £199 ★★★★★ Reviewed February 08 www.samsung.com/uk	A product to buy for looks rather than performance or economy, but it's simple to use and works well.
MULTIFUNCTION DEVICES		<b>Kodak Easyshare 5500</b> £199 ★★★★★ Reviewed Christmas 07 www.kodak.co.uk	Excellent value for money, both in terms of purchase price and running costs.
		<b>Canon Pixma MP970</b> £249 ★★★★★ Reviewed January 08 www.canon.co.uk	Fast, high-quality printouts for business and digital photography users.
LASER PRINTERS		<b>Oki B2500 MFP</b> £149 ★★★★★ Reviewed March 07 www.oki.co.uk	Expensive toner, but a low RRP and great print quality.
		<b>HP Color Laserjet 2605dn</b> £299 ★★★★★ Reviewed September 06 www.hp.com/uk	An affordable colour laser that would benefit any small business.
		<b>Samsung CLP-300</b> £179.99 ★★★★★ Reviewed February 07 www.samsung.co.uk	Samsung combines inkjet-like convenience with laser-quality documents.
		<b>Brother MFC-8860DN</b> £527.58 ★★★★★ Reviewed November 06 www.brother.co.uk	Fax, copy, print and colour scanning combined in a laser multifunction device.

### HOW TO BUY

If you don't need colour, consider a monochrome laser or LED printer. The latter tend to be cheaper and may last longer than a laser, but LED printers have a fixed resolution and can't take advantage of software-based resolution enhancements.

If you print hundreds of pages a week, a laser is the best option as they're cheaper and more reliable for high-volume printing. If you print a few pages a month, buy a cheap colour inkjet. If printing high-quality colour photos, buy a dedicated photo printer. Look for the manufacturer's quoted 'duty cycle' - this is how many pages a month the machine can handle. Choose a duty cycle three or four times larger than your expected average usage. Also check the printer's 'engine life' or 'total print volume' - when this expires, the printer's on borrowed time and uneconomical to repair.

Quoted printer speeds often refer to the speed the printer pushes a blank sheet of paper through the device; for documents they tend to refer to lower quality settings. PCW's tests use real documents and photos, giving a better idea of print speed.

For serious inkjet photo printing, consider higher-end models that use up to eight

colour cartridges. Normal inkjets use three colours (cyan, yellow and magenta) plus black, while specialised photo printers add extra shades. Cheaper models often combine three colours in a single cartridge, which is not as economical as using separate cartridges for each colour.

Some 'convertible printers' use four separate black cartridges for longer-life mono printing and you can replace three of them with cyan, magenta and yellow cartridges for colour printing.

Laser models for business use often have a large number of paper-handling options. They're usually modular so you can add features as required. They also have a wider range of interface options and consumables. You'll often find bundled software with a printer. Their quality varies, but there can be some useful programs. The quality and usability of the driver software is vital, but it's difficult to assess before buying.

Check PCW's reviews and online forums ([www.pcw.co.uk/forums](http://www.pcw.co.uk/forums)) and read the manufacturer's technical support site for any known problems. Third-party or refurbished consumables generally work fine, but can cause problems with quality and reliability. Your warranty may not cover the use of non-approved consumables.

## TV TUNERS

1		<b>Kworld PlusTV Dual DVB-T</b> £68.14 ★★★★★ Reviewed August 07 www.kworld.com.tw/uk	A great value PCI Express card, but it's just a shame about the tacky-looking software.
2		<b>Pinnacle PCTV Dual DVB-T Diversity Stick</b> £89.99 ★★★★★ Reviewed August 07 www.pinnaclesys.com	A good-performing USB tuner that comes with decent software.
3		<b>GDI Black Gold PCIe</b> £104.58 ★★★★★ Reviewed August 07 www.blackgold.tv	Powerful and flexible, with dual digital or dual analogue capability.
4		<b>Elgato EyeTV</b> £69.95 ★★★★★ Reviewed November 06 www.elgato.com	A digital TV receiver and recorder for Mac OSX.
5		<b>Hauppauge WinTV Nova-TD</b> £64.03 ★★★★★ Reviewed August 07 www.hauppauge.co.uk	Not the best software, but it's still a solid PCI digital TV tuner.

### HOW TO BUY





Internal TV tuners require a PCI slot. External options connect via USB and are easier to set up. High-speed USB2 is often needed and devices typically require Windows ME, 2000, XP or Vista. Check if you run Windows 98 or NT. A Freeview digital tuner offers the best channel choice, picture and sound, but may need an outdoor aerial or a wideband aerial (you can check at [www.freeview.co.uk](http://www.freeview.co.uk)).

Analogue terrestrial TV tuners may give better results if using an indoor receiver. If a digital tuner receives radio it doesn't always mean digital audio broadcasting (Dab) support. Look for Teletext and subtitle support.

Digital tuners record to disk for maximum quality; analogue signals need to be digitally encoded - look for Mpeg2 hardware for realtime video and audio encoding; cheaper tuners need a CPU to do this in software.

Most analogue systems let you capture video from a VCR or camcorder. Look for composite or S-video connectors and stereo phono inputs. Typically, an hour of Mpeg2 video uses up to 2GB of disk space. VHS-quality Mpeg1 gives just over an hour on a CD. Better TV cards have personal video recorder functionality, letting you pause, fast forward and rewind live TV. They also have an electronic programme guide to record shows to your PC.

## MONITORS

20IN		<b>Sony MFM-HT205</b>	<b>£649</b> ★★★★★ Reviewed June 06 www.sony.co.uk	An elegant widescreen multimedia monitor, with superb image quality and a built-in TV tuner.
			<b>Belinea 10 20 30W</b>	<b>£319.99</b> ★★★★★ Reviewed July 06 www.belinea.co.uk
19IN			<b>LG 1960TR</b>	<b>£186</b> ★★★★★ Reviewed July 07 www.lg.co.uk
			<b>Hanns.G HX191DP</b>	<b>£199.99</b> ★★★★★ Reviewed June 07 www.hannsg.com
17IN+			<b>LG Flatron L1732P</b>	<b>£239</b> ★★★★★ Reviewed February 06 www.lge.co.uk

### HOW TO BUY

Monitor resolution is the number of picture elements (pixels) displayed on a screen. In any TFT or LCD monitor, each pixel is composed of three sub-pixels coloured red, green and blue. The number of pixels equals the 'native' resolution; a 1,024x768 TFT will have exactly that number of pixels horizontally and vertically. Users wanting 1,600x1,200 will probably need an expensive 20in model - most 19in panels are currently limited to 1,280x1,024. Modern TFTs can be viewed from a wide range of angles vertically and horizontally, but anything over +/- 45° makes no

difference in normal use. Response time is the time taken for a pixel to reach maximum brightness. Some newer monitors now have response times as low as 4ms, but 12-25ms is typical. The ISO 13406-2 standard specifies minimum requirements for display contrast, viewing angle, brightness, reflections, flicker, contrast and defective pixels. ISO 13406-2 has stringent standards for defective pixels. Only Class I TFTs are guaranteed no defective pixels - most consumer models are Class II. Some manufacturers offer dead pixel guarantees with Class II TFTs, so check the policy before you buy.

## DIGITAL CAMERAS

DIGI SLR		<b>Nikon D80</b>	<b>£699.99 (body only)</b> ★★★★★ Reviewed January 07 www.nikon.co.uk	Nikon ups the ante with a 10 megapixel sensor, bigger screen and improved functionality.
			<b>Fujifilm Finepix S9500 Zoom</b>	<b>£469.99</b> ★★★★★ Reviewed February 06 www.fujifilm.co.uk
COMPACT			<b>Fujifilm Finepix F50fd</b>	<b>£229.99</b> ★★★★★ Reviewed January 08 www.fujifilm.co.uk
			<b>Nikon Coolpix P5100</b>	<b>£299.99</b> ★★★★★ Reviewed January 08 www.nikon.co.uk
3			<b>Ricoh GR Digital II</b>	<b>£399.99</b> ★★★★★ Reviewed March 08 www.ricoh.co.uk

### HOW TO BUY

In general, the higher the megapixel count of a digital camera's sensor - and the bigger the sensor's physical size - the more detailed the images. A small sensor and high megapixel count won't always produce better image quality. Four to five megapixels is good for 8x10in or larger prints. The quoted 'effective' pixels number is the camera's true megapixel resolution. Forget digital zoom and concentrate on the optical zoom, which zooms in on the subject and produces a better-quality image. Digital zooms simply crop

into the centre of the picture. Look at the selection of automatic or preset picture modes for standard shots, portraits, night shots and landscapes, plus macro modes for close-up photography. Movie modes are not as good as a basic camcorder, but are fine for short clips to play on a PC. Most offer 15fps (frames per second), but some are 30fps, which means the video will be smoother. Keen photographers will want manual controls for aperture and shutter priority, focusing and white balance. Cameras should also provide quick access to image quality, resolution and format settings.

## ROUTERS

WIRELESS/MODEM		<b>Zyxel P-336M</b>	<b>£73</b> ★★★★★ Review: Winter 06/07 www.zyxel.co.uk	Clearly demonstrates that Super G remains a valid choice, as it is both cheap and effective.
			<b>AVM Fritz!box Fon WLAN 7140</b>	<b>£129</b> ★★★★★ Reviewed www.pcw.co.uk/2173339 www.avm.co.uk
WIRELESS			<b>D-Link DIR-655 Xtreme N</b>	<b>£115</b> ★★★★★ Review: www.pcw.co.uk/2187987 www.d-link.co.uk
			<b>D-Link DSL-G624M</b>	<b>£110</b> ★★★★★ Reviewed March 06 www.d-link.co.uk
VOIP			<b>Intertex IX66+ ADSL Airsip GW (wireless VoIP)</b>	<b>£269.08</b> ★★★★★ Reviewed March 05 www.intertex.se

### HOW TO BUY

The router is at the heart of any home network. Costing less than £100, they are an inexpensive way to take advantage of being able to share information between the computing devices in your home. A router is a simple networking device to which you connect your PCs and notebooks using a network cable. They often include built-in firewalls and other security measures, making them ideal for protecting your PCs from intruders. The router connects to your broadband modem, as long as your modem uses an RJ45 Ethernet connection - most

routers don't support USB modems. Special broadband routers, also called ADSL gateways, come with built-in ADSL modems. If your broadband is provided via a cable company's set-top box, you should buy a standard router without a built-in modem. Once hooked up, your devices can share broadband as well as swap data. Wireless (Wifi) routers are increasingly popular in the home market, allowing devices to connect to the internet and each other remotely, without the need for cables - but wireless routers usually have network (Ethernet) ports to let you connect non-wireless devices.



# PRODUCT INDEX

Below is a list of every product reviewed by PCW over the past three months, to help you find the full reviews quickly and easily in your back issues.

Key: ★ Editor's Choice ★ Recommended ★ Great Value All scores are out of five

COMPANY	PRODUCT	ISSUE	SCORE	COMPANY	PRODUCT	ISSUE	SCORE	COMPANY	PRODUCT	ISSUE	SCORE
★ 01 Communique	I'm Intouch 6	Feb 08	4	Electronic Arts	Medal of Honour: Airbourne	Dec 07	4	MSI	PR200-064UK	Jan 08	3
★ 2K Games	Bioshock	Dec 07	5	Enoetic	Photology	Feb 08	3	Navigon	7110	Feb 08	3
★ Abbyy	Finereader 9 Professional	Jan 08	4	EQS	AB15-RS690MKM	Feb 08	4	Navman	S90i	Feb 08	4
Abit	AN52	Jan 08	4	★ Exclaimer	Mail Utilities	Dec 07	3	★ Nikon	Coolpix P5100	Jan 08	4
★ Abit	Fatal1ty F-190HD	Feb 08	4	F-Secure	Internet Security 2008	Jan 08	4	OLM Group	Work Together	Dec 07	3
Acer	Aspire 7720G	Feb 08	3	Fujifilm	Finepix F50fd	Jan 08	4	Oneforall	PC Media Kit	Dec 07	3
Acer	Aspire Easystore	Feb 08	4	Fujitsu	Handydrive 300GB	Feb 08	3	Opensuse.org	Opensuse 10.3	Jan 08	3
★ Acer	Travelmate TM5520-5A1G12	Dec 07	4	Fujitsu-Siemens	Amilo Pro V3515	Dec 07	3	★ Panasonic	Toughbook CF-W7	Jan 08	4
Acer	Travelmate 6292	Jan 08	3	Fujitsu Siemens	Lifebook P7230	Jan 08	3	★ Panda	Internet Security 2008	Jan 08	5
★ Acer	P1265	Dec 07	4	Garmin	Nuvi 660FM	Feb 08	4	★ Paragon	Hard Disk Manager Suite 2008	Feb 08	4
★ Acksen	Timesheet Xpress 9.1	Feb 08	5	★ Gigabyte	GA-G31MX-S2	Jan 08	4	Patriot	Extreme Performance	Dec 07	4
★ Activision	Call of Duty 4: Modern Warfare	Feb-08	5	Gigabyte	GA-P31 DS3L	Dec 07	4	★ PC Nextday	Zoostorm 52-4201 Versatile	Dec 07	5
Advent	K200	Dec 07	3	Gigabyte	Triton 180	Jan 08	3	★ PC Specialist	Fusion 6400GTS	Jan 08	4
Advent	8112	Jan 08	3	Gordano	Vanguard	Dec 07	3	★ Philips	220WS8	Feb 08	4
AG Neovo	E-W22	Feb 08	3	Gyration	Media Centre Remote	Jan 08	3	Philips	SHD9100	Jan 08	3
Agnitum	Outpost Pro Security Suite 2008	Feb 08	4	Hanns.G	HG216DP	Feb-08	3	★ Pioneer	BDR-202	Dec 07	4
Akasa	AK-975CU	Dec 07	4	Hazro	HZ26W	Jan 08	4	Plextor	PX-B900A	Dec 07	3
Akasa	AK-F2230SM-CB	Feb 08	4	★ HP	Color Laserjet CP3505x	Jan 08	4	Prefix IT	PrefixNE	Jan 08	3
Akasa	Gemini	Jan 08	4	HP	Compaq 6715s	Dec 07	4	RAC	Satnav 220	Feb 08	3
Akasa	Revo	Jan 08	4	HP	Compaq 2710p	Jan 08	4	Rock	Pegasus 710-T7700	Feb 08	4
AMD	FireGL V3600	Jan 08	4	HP	Pavilion TX-1260ea	Jan 08	3	Saitek	Cyborg Rumble	Jan 08	3
AMD	Phenom 9700	Feb 08	3	Hercules	Webcam Classic Silver	Jan 08	4	Samsung	225UW	Feb 08	4
Amplicon	Icron Wiranger	Dec 07	3	Hi-Grade	Notino DS2200	Jan 08	3	Samsung	940UX	Jan 08	3
Antec	Veris MX-1	Jan 08	4	Hi-Grade	Notino W5700	Dec 07	2	★ Samsung	NV20	Feb 08	4
★ APC	Universal notebook Battery 70	Jan 08	4	HP	Compaq 2710p	Feb 08	3	★ Samsung	Q45-A007	Jan 08	4
Apple	iPhone	Jan 08	4	Hypertec	Firestorm FSUV2-H80U2/5	Dec 07	4	Samsung	SCX-4500	Feb 08	3
Apple	Mac OS X Leopard	Jan 08	3	IBM	Lotus Symphony	Jan 08	2	★ Sapphire	HD 2600 Pro AGP	Feb 08	4
★ Archos	605 Wifi	Dec 07	4	ID Software	Enemy Territory: Quake Wars	Jan 08	3	★ Sapphire	Radeon HD2600XT Ultimate	Dec 07	4
Asus	F5R-AP157P	Dec 07	4	Iiyama	Prolite E2201W-B	Feb 08	4	★ Sapphire	Radeon HD 3870	Feb 08	4
AVG	Internet Security 7.5	Jan 08	3	Ipdrum	IP Voicelink	Dec 07	3	Satmap	Active 10	Feb 08	4
Becker	Traffic Assist 7927	Feb 08	2	Killer Nic UK	Killernic M1	Dec 07	4	SCS Software	Bus Driver	Feb 08	3
★ Behringer	Podcastudio	Feb-08	4	Lacie	D2 Blu-ray	Dec 07	3	★ Sega	Football Manager 2008	Jan 08	5
★ Benq	MP622c	Feb 08	4	★ Lenovo	Thinkpad X61	Dec 07	4	Serif	Drawplus X2	Dec 07	3
Benq	SP831	Jan 08	3	★ Lenovo	Thinkpad X61	Jan 08	5	★ Shuttle Computers	Shuttle SG33G5M	Dec 07	5
★ Bit Defender	Internet Security 2008	Jan 08	4	★ Lexmark	C780n	Dec 07	4	★ Shuttle	SN68PTG6	Feb 08	4
Binatone	Carrera X350	Dec 07	4	★ Lexmark	X4850	Jan 08	4	Sitecom	4-Port HDMI Switch	Feb 08	4
Binatone	Carrera X430	Feb 08	3	★ LG	GGW-H10N	Dec 07	4	Smartline	Devicelock 6.2	Dec 07	3
Brother	HL-4040CN	Dec 07	4	LG	L226WTQ	Feb 08	3	★ Softalk	Share Server	Dec 07	4
★ Bullguard	Internet Security 8	Feb 08	4	★ Lindy	Data Dock	Dec 07	4	Solwise	DMP-1120w	Feb 08	3
★ Canon	Pixma MP970	Jan 08	5	Linksys	SPA962	Dec 07	3	Sony	NEC Optiarc BD-M100A	Dec 07	4
Canon	Scanfront 220	Feb 08	3	Lite-On	LH20A1S11C	Dec 07	3	Symantec	Norton Antidot	Dec 07	3
Comprousa	Compro Videomate E700	Dec 07	4	Lite-On	LH-2B1S	Dec 07	3	Symantec	Norton Internet		
Computerlinks	Ipswitch Whatsup			Logitech	Harmony 1000	Feb 08	3		Security 2008	Jan 08	4
	Gold Distributed	Feb 08	3	Magellan	Crossover GPS Europe	Feb 08	2	★ Sony	NWZ-A815	Jan 08	4
★ Coolermaster	Cosmos 1000	Feb 08	4	★ Magix	Mufin Musicfinder	Feb 08	4	★ Techsmith	Camtasia Studio 5	Jan 08	5
Coolermaster	Hyper TX2	Jan 08	4	McAfee	Internet Security Suite	Jan 08	4	★ Tomtom	Go 720	Feb 08	5
Cowon	iAudio 7	Jan 08	4	★ Medion	E3410	Feb 08	5	Tony Hawk	Helmet Cam	Feb 08	2
Crawler	Spyware Terminator 2	Dec 07	4	★ Mesh	Elite Quad 6600 CA	Dec 07	5	Toshiba	Dynadock	Dec 07	4
★ Datacolor	Spyder3 Elite	Feb 08	4	★ Mesh	G92 Pulse Pro	Feb 08	5	★ Toshiba	Satellite A210-12U	Dec 07	4
Dell	Inspiron 1720	Dec 07	4	★ Microsoft	Office Accounting 2008	Feb 08	4	Toshiba	MK2035GSS	Jan 08	4
Dell	XPS 720 H2C	Jan 08	4	Microsoft	System Center Essentials	Dec 07	3	Toshiba	Portege R500-10U	Jan 08	3
Devolo	Dlan Wireless Extender			★ Microsoft	Xbox 360 Elite	Dec 07	4	★ Trend Micro	Internet Security 2008	Jan 08	4
	Starter Kit	Jan 08	3	Mio	A501	Dec 07	3	Vasco	Digipass Pack	Jan 08	3
Diamond Discovery	Prelude	Dec 07	2	★ Mio	620t	Feb 08	4	★ Viewsonic	VX2255	Feb 08	4
DivX	Author 1.5	Jan 08	4	Mirai	Chimei CMV 222H	Feb 08	3	VMWare	Server 2.0 (beta)	Feb 08	5
D-Link	DNS-313	Feb 08	3	Mobigater	Pro	Dec 07	4	★ Western Digital	Mybook Studio	Feb 08	5
D-Link	DSM-510	Feb 08	4	★ MSI	K9AGM2-FIH	Feb-08	4	★ Western Digital	WD10EACS	Jan 08	5
EA Games	Rail Simulator	Jan 08	2	MSI	M670-018UK	Dec 07	3	★ Zalman	CNPS9700 LED	Feb 08	4
Electronic Arts	Fifa 08	Feb 08	4	★ MSI	NX8800GT	Feb 08	5	Zone Alarm	Internet Security 7.1	Jan 08	3

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## CLASSIFIED ADVERTISING

### Index

#### Business & Services

Abel Internet	168
CVS International	168
Data Clinic	168
Digital Data	168
Pitney Bowes	167

#### Consumables & Dics Media

Cartridge Express	161
Label Labs	161
Manx	161
PSA Parts	162
Vitesse	162

#### Data Recovery

Data Clinic	168
Dataquest	160
Digital Data	168

#### Hardware

Computer Bargains	163
Laptop Spares	168
PC Connection	160
Supra Cables	166
Vitesse	162

#### Internet Services

Abel Internet	168
---------------	-----

#### E-Commerce

EKM Powershop	160
---------------	-----

#### Web Hosting

Fast.co.uk	162
Pipex	164
Serve 360	168

#### Software

Software Partners	161
-------------------	-----

#### PCW Marketplace

Marketplace	168
-------------	-----

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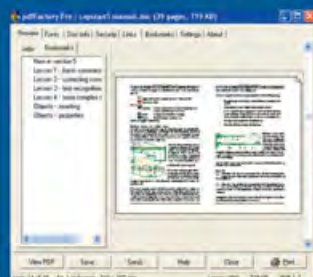
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+VAT inc VAT

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- 1GB Ram, 160GB Hard Drive, DVD+/-RW drive
- 9 in 1 Card Reader, 10/100 Lan & USB Ports
- Microsoft Windows XP Media Centre Edition
- Factory clearance refurb stock with 1 year warranty
- 17" TFT Monitor add £85+VAT (£99.88 inc VAT)
- 19" TFT Monitor add £99+VAT (£116.33 inc VAT)



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17" TFT 1GB/120GB/DVDRW  
WIFI/WEBCAM NOTEBOOK  
**£365** ~~£428.88~~  
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- 17" Widescreen CrystalBrite 1440x900 Display
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**GATEWAY**  
1GB/80GB DVDRW  
14.1" WIRELESS LAPTOP  
**£259** ~~£304.33~~  
+VAT inc VAT

- Gateway MT3104B, Intel Celeron M430 1.73GHz CPU
- 1GB DDR2 Ram, 80GB SATA Hard Drive
- DVD±RW Drive, 4 in 1 Memory Card Reader
- 14.1" UltraBright WXGA Widescreen TFT Display
- Modem, Lan, Wireless, USB and Memory Card Reader
- Microsoft Vista Home and Works 8.5 Software
- Gateway clearance/cancelled order stock 1 year wrty.



**GATEWAY**  
INTEL CORE 2 DUO  
BLUETOOTH LAPTOP  
**£369** ~~£433.58~~  
+VAT inc VAT

- Gateway MT6824B, Intel Core 2 Duo T5200 1.6GHz
- 1GB DDR2 Ram, 120GB SATA Hard Drive,
- DVD±RW Drive, 4 in 1 Memory Card Reader
- 15.4" UltraBright WXGA Widescreen TFT Display
- Built in Intel Graphics Media Accelerator 950 card
- Modem, Lan, Wireless, Bluetooth and Firewire Port
- Microsoft Vista Home Premium & Works 8.5 Software



**eMACHINE**  
SEMPRON 3100+ 512MB  
100GB+17" TFT PC PACKAGE  
**£225** ~~£264.38~~  
+VAT inc VAT

- eMachine E3021 PC with AMD Sempron 3100+ CPU
- 512MB Ram, 100GB Hard Drive, DVD+/-RW drive
- 8 in 1 Card Reader, Modem, Lan and USB Ports
- Supplied with Keyboard, Mouse and Speakers
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- 17" TFT Monitor add £75+VAT (£88.13inc VAT)
- 19" TFT Monitor add £95+VAT (£111.63inc VAT)



**GATEWAY**  
INTEL CORE DUO  
2GB/120GB 17.1" LAPTOP  
**£450** ~~£528.88~~  
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- 17.1" UltraBright WXGA Widescreen TFT Display
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- Ms Windows Vista Home Premium & Works 8.5 Software



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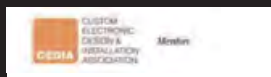


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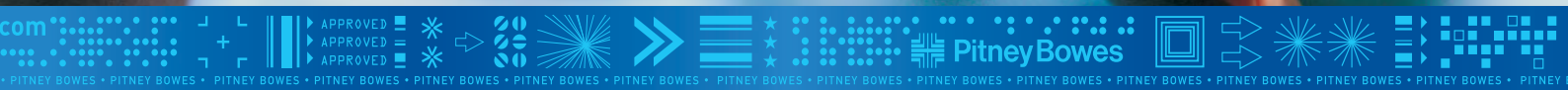
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## ON THE CD

O&O Disk Image 2 SE ● Magix Music Maker 14 Silver ● PC Tools File Recover 6.2 ● PC Tune-up 1.0 ● PC Booster 4.0



## ON THE 8GB DVD

Imsi Floorplan 3D v9 ● Crazytalk Messenger 4.6 SE ● McAfee Internet Security 2008 ● O&O Disk Image 2 SE ● Magix Music Maker 14 Silver ● PC Tools File Recover 6.2 ● PC Tune-up 1.0 ● PC Booster 4.0 ● Linux and open source

# COVER DISC

### SOFTWARE LISTING

#### ON THE CD

##### FULL VERSIONS

O&O Disk Image 2 SE  
Magix Music Maker 14 Silver  
PC Tools File Recover 6.2  
PC Booster 4  
PC Tune-up v1

##### TRIAL VERSIONS

Acronis Disk Director Suite  
Ashampoo Movie Shrink & Burn 3  
Ashampoo Powerup 3  
Directory Opus 9.1  
McAfee Internet Security 2008 - 90-day licence  
System Mechanic Pro 7.5

##### FROM THE MAGAZINE

GSpot 2.7  
Rapidweaver 3.6.5  
TweakUI  
Windows Live Photo Gallery

##### FREWARE INCLUDING

7-Zip 4.57  
Ashampoo Clipfinder 1.25  
Registry First Aid 6.1  
Yahoo Widget Engine 4.5

##### SHAREWARE INCLUDING

Abexo Registry Cleaner 5.2  
Batch Picture Resizer 1.9  
NovaPDF Pro 5.3.245  
Total Uninstall 4.40

#### ON THE 8GB DVD

##### EVERYTHING ON THE CD PLUS...

##### FULL VERSIONS

IMSI Floorplan 3D 9  
Crazytalk Messenger 4.6 SE

##### LINUX AND OPEN SOURCE

Berry Linux 0.87  
Damn Small Linux 4.2.1  
System RescueCD 0.4.2  
Ubuntu 8.04 Alpha 1

##### FROM THE MAGAZINE

Adobe Dreamweaver CS3  
Microsoft Expression Web

##### FREWARE

AVG Anti-Virus Free 7.5.503a1224  
Net Objects Fusion Essentials  
Vista Transformation Pack 8.01

##### GAME DEMOS

Need for Speed Prostreet  
Sam & Max - Season 2  
Episode #1 Ice Station Santa  
Stranger  
Timeshift  
Universe at War Earth Assault  
X Motor Racing

##### RESOURCES

100 applications

### USING THE COVER DISC

The PCW cover disc uses a web browser-style interface. To get full functionality, you'll need to use Microsoft Internet Explorer (version 5.5 or later).

Unfortunately, Netscape doesn't properly support this software. However, we have also provided links to the featured programs, so you can still copy them to your hard disk or install them manually (the standard download dialogue box will appear). Programs can be found in the \software\ folder on the disc.

#### STARTING THE DISC

The CD-Rom (or DVD) should auto-start. If it fails to do so, double-click the CD-Rom/DVD icon in My Computer or open the terms.htm file on the root of the disc.

#### PROBLEMS?

Please note that we cannot give support on individual programs contained on this disc. If you have problems running the disc, please note these guidelines:

#### FAULTY DISC

If the disc is physically damaged and will not load, return it to the address below for a replacement: PCW March 2008 cover disc, ABT, 1528 London Road, Leigh on Sea, Essex, SS9 2QG. Please provide us with your name, full address including postcode, which issue of Personal Computer World (volume and issue number) you require a replacement disc for, whether you require the CD or DVD replacement, and your subscriber number or details of where you purchased the magazine.

#### PROBLEMS INSTALLING/RUNNING THE SOFTWARE

Check the support page on the disc or check the manufacturer's site.

#### GENERAL DIFFICULTIES

Call 08700 885 995 (9.30am to 5pm Mon, Tues, Thurs & Fri; open until 8pm on Wed and 10am to 2pm Sat).

Or go to [www.pcw.co.uk/disc-support](http://www.pcw.co.uk/disc-support), where you'll find answers to FAQs, or email us at [help@pcwsupport.co.uk](mailto:help@pcwsupport.co.uk).

For software requiring registration, PCW cannot guarantee that serial codes will be available later than three months from the on-sale date of the magazine. Please avoid disappointment by registering your software promptly.

### SIX PAGES OF DISC INFO INCLUDING

- PRODUCT DESCRIPTIONS
- WORKSHOPS
- UPGRADE OFFERS
- KEY FEATURES
- CONTACT DETAILS
- NEED TO KNOW



# O&O Disk Image 2 SE

A fast, secure and effective image backup system

**R**unning backups is a tedious activity at the best of times, and conventional file-based tools really don't help. You can spend an age deciding to back up this or that file type, include one set of folders, exclude some others, but you still won't be entirely sure that you've got everything you need. And if you only back up data files, then recovering from a corrupted hard drive will still be a huge task, as you try to reinstall Windows, applications, drivers and more.

Run O&O Disk Image 2, though, and it'll create an image file of your entire hard drive. There are no filters to create, file types or folders to specify, just point, click and the program goes to work. It backs up everything, so there's no need to worry about missing important files, and

restoring your system after a disaster is just as easy, potentially saving you days of work.

Of course, backing up all your files means the process will take longer, but O&O Disk Image 2 keeps backup time to a minimum by only saving used sectors of your hard drive, and the image file it creates can also be compressed.

What's more, the program can also create an incremental image, where it saves only the files that have changed since your last backup, so once you've created the first complete backup, subsequent runs of the program can be very speedy. If you're short on hard drive space, then these can even be split up into DVD-sized chunks and saved to disc, with 256-bit AES encryption applied to ensure your valuable data remains for your eyes only.

## INFORMATION

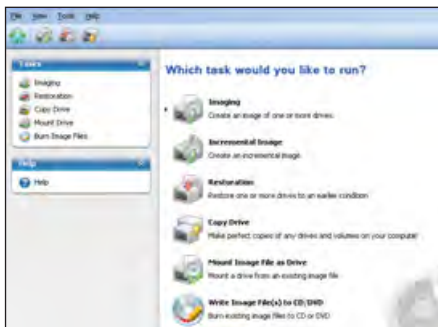
**System requirements** 512MB Ram, Windows 2000 Professional/XP/Vista, 30MB disk space

**Contact** [www.oo-software.com](http://www.oo-software.com)

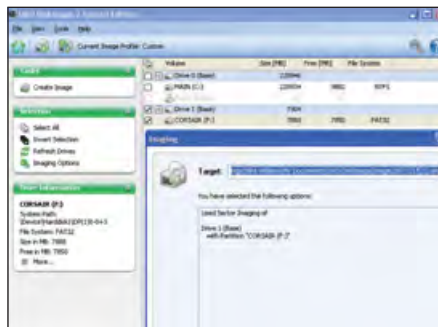
**Registration** Get your serial code from [www.oo-software.com/en/special/vnu](http://www.oo-software.com/en/special/vnu)

**Need to know** This SE version does not include the bootable Start CD provided with the Professional version, so you can't restore an entire system drive from scratch without first reinstalling Windows

## The quick and easy guide to image backups



**1** Click File > Imaging, then View > Imaging Options > Advanced > Image and browse the filters list to see files that won't be included in the image. We don't recommend expanding this too much – the whole point of image backups is to save everything – but if you're short on hard disk space you could try excluding items like your browser cache, for instance.



**2** Back in the Imaging screen, check the box next to the drive you'd like to back up. This doesn't have to be a hard drive: if you've a high-capacity bootable USB drive, say, then that might be worth backing up, too. Then click Create Image, use the Target box to tell O&O Disk Image 2 where it should save the image file, and click Start to begin the backup process.



**3** Click Tools > Convert Image if you'd like to compress or encrypt your image file. And if you want to restore just one or two files from your image, then that's easy, too. Click Tools > Mount Image File as Drive, and pick your backup. Mount the drive and it'll appear in Explorer; you can then browse it for the files you need, dragging and dropping them back onto your hard drive.

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- Securely delete sensitive files
- Improve Windows drive speeds

## EXPLORE MORE HARD DRIVE TOOLS

If you find Disk Image 2 useful, then it may be worth exploring other hard drive tools in the O&O Software range. For instance, DriveLED 2 monitors your drive and will warn you if there are signs of potential hardware failure. Defrag 10 and Clever Cache 6 optimise your drive to ensure it's delivering the best possible performance. And the company produces a whole range of data recovery tools to restore lost or deleted files, even after a hard drive format, while Safe Erase 3 ensures that if you do want to delete personal data then it will never be seen again. Prices start from only £13.99, and you can find out more at [www.oo-software.com](http://www.oo-software.com).





# Magix Music Maker 14 Silver

Compose professional-sounding songs or soundtracks in minutes

**T**he conventional route to musical success is long and difficult, packed with tedious tasks such as learning instruments, and figuring out how to read music. You'll have to put in years of practice, while writing several thousand exceptionally dull and uninteresting songs, before you can finally come up with one that's any good.

Of course, when you put it that way it does sound like hard work. Surely there must be a shortcut? Some way that just about anyone can write songs or produce music without having any musical talent at all?

Well, maybe there is. Magix Music Maker 14 Silver comes with a range of professionally produced sound loops, from bass to drums, brass to guitars, keyboards, strings and synths.

Using them couldn't be easier. If you want to hear a particular sound, then just click on it: the program will loop the sample continuously so you can hear what it's like. If it appeals, then double-click the sample to add it to your song.

Your first efforts at a tune probably won't sound so good, but that's easy to fix. If you leave the song playing you can drop in new samples, move existing ones around, change volume, pitch and more. Over time you really can build up some impressive-sounding tunes.

Once you've finished, click File > Export Arrangement to save your song. Magix Music Maker 14 Silver can create files in WAV, MP3, OGG or WMA formats, ideal for sharing, or importing into your video editor for use as custom background music.

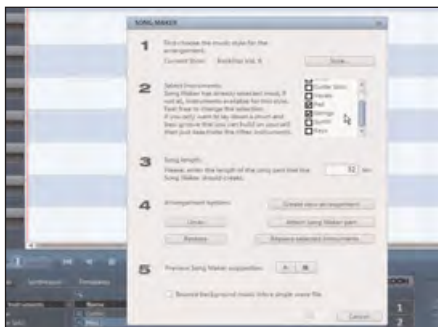
## INFORMATION

**System requirements** Windows XP/Vista, 200MB hard disk space

**Contact** [www.magix.com/uk/](http://www.magix.com/uk/)

**Registration** Not required

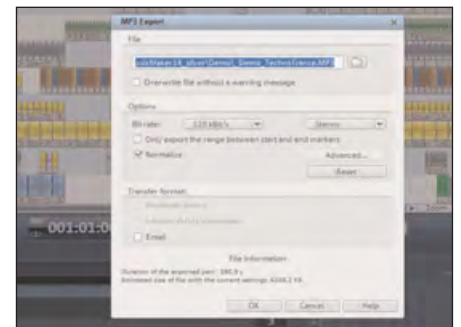
## Create a simple home video soundtrack in less than five minutes



**1** Launch Music Maker, and click Start New Arrangement > Rockpop Vol. 6 > Close. Then click File > Song Maker, choose the Rockpop library again and click OK. Select the Drum, Pad and Strings instruments, click Create new arrangement and the program will automatically create a tune. If you don't like the sound of it, simply click Create new arrangement.



**2** If the Song Maker doesn't work for you, then try creating a tune manually. Choose Rockpop Vol. 6 in the Styles box, pick an instrument category and click a sample. If you like the sound, drag and drop it onto the mixing area. Repeat the process with other samples, then click the Play button. Add, remove or rearrange samples while the song is playing to hear how things change.



**3** If inspiration isn't forthcoming and the music still sounds poor, then you can always try customising the demo song. Click File > Load Arrangement, browse to the Magix Music Maker Demo folder, and open \_Demo\_Technotrance.MMM. Cut, copy or otherwise rearrange the tune, then click File > Export Arrangement to save it in a format that your video editor will understand.

## UPGRADE OFFER

- Over 3,000 sound loops
- Add realistic virtual instruments
- Use up to 96 tracks
- Apply attractive special effects
- Full 5.1 surround-sound editing
- Create remixes with one click

## GET THE STANDARD MAGIX MUSIC MAKER

Move to the standard edition of Magix Music Maker and you'll get many more sound loops, over 3,000 in total, in a variety of different styles. You still need more? Then you could also try the program's synthesiser, virtual drummer, or ultra-realistic instruments (guitar, drums, electric piano and more). It's also possible to tweak any existing sample with a range of special effects and a powerful mastering suite. And the 5.1 editing support means it's easy to get the full surround-sound effect from all your compositions. All this can be yours for only £49.99, and you can order by clicking Help > Activate Program > Buy Now.



# PC Tools File Recover 6.2

Recover lost files in a flash with this essential recovery tool

Maybe you chose the wrong menu option, or clicked Yes instead of No. It could have been a virus, maybe even a program bug. But the cause doesn't matter nearly as much as the effect: a valuable file has been deleted and you've no obvious way to get it back.

If you're unprepared then this is probably the moment you Google 'free undelete tool' and start looking for a possible solution. But of course that's really not the ideal approach. The more you use your PC after an accidental deletion, the greater the chance that your lost file will be overwritten, which means you'll have lost it forever. That's why it's best to be proactive and install PC Tools File Recover 6.2 right now, so it's there whenever you need help.

Take our advice and recovery should be easy. Launch the program, click Start Quick Scan, and it'll scan through your file system, collecting the details of any deleted files it can find. Browse through the folders, locate the one you need, click Recover and it'll be quickly restored.

If you never got around to installing the program, or just didn't notice your file had been deleted for a very long time, then the procedure may not be quite so straightforward. But don't give up – there's still hope. Select the Advanced Scan option instead and you're able to choose the more detailed Physical Scan, which searches through your entire hard drive. This uses a detailed knowledge of file structures to identify your data, and so can recover files even if their original location has been overwritten.

## INFORMATION

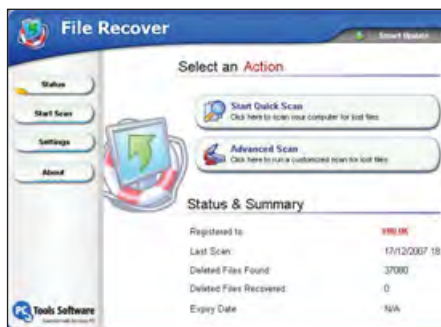
**System requirements** Windows 98/ME/2000/XP, 14MB hard disk space

**Contact** [www.pctools.com](http://www.pctools.com)

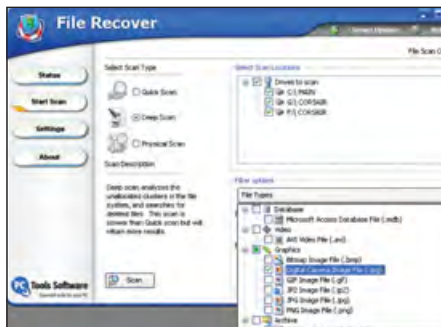
**Registration** Point your browser at [www.pctools.com/file-recover/free/promo/VNUFR60108](http://www.pctools.com/file-recover/free/promo/VNUFR60108)

**Need to know** Licence expires on 1 February 2009

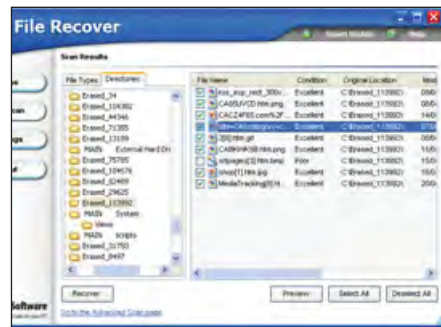
## Restore accidentally deleted files in three simple steps



**1** Launch PC Tools File Recover and you'll find a Quick Scan option that checks your entire file system for deleted files. If the file's folder entry has been overwritten, though, this probably won't turn up anything; in which case you'll have to try a more in-depth approach. Click Advanced Scan instead, and choose the Deep Scan type: it's slow, but has a better chance of recovering files.



**2** By default, PC Tools File Recover will scan all your drives, including any USB drives you have attached, and look for any of a wide range of file types. And that's effective, but takes a while. So to speed things up, select only the drives you want scanned and (if there's only one or two) the file types you'd like recovered. You can also filter the results by file name and size.



**3** Launch the scan, then wait as PC Tools File Recover crawls all over your hard drive. Be patient, this may take a while, especially if you've lots of free space. Once it's finished you'll be able to see the list of deleted files and sort it by folders or file type. Browse through the list, check the boxes next to whichever files you need, click Recover, and File Recover will do its best to restore them for you.

## READER OFFER

- Real-time spyware protection
- Clean and optimise the Registry
- Powerful anti-virus engine
- Maintain your PC privacy
- Free your inbox from spam
- All-in-one system optimisation

## SAVE 20 PER CENT ON PC TOOLS

This is the latest version of File Recover, which means there's no upgrade deal available, but if you find the program useful there are other PC Tools applications you might like to explore. Registry Mechanic repairs and optimises your Registry, Spam Monitor keeps the junk out of your inbox, and Privacy Guardian wipes internet and application tracks from your hard drive. PC Tools Internet Security 2008 combines anti-virus, anti-spyware, firewall and spam protection in one powerful package. Prices start at around £20 and you can save 20 per cent on any of these products by using the coupon code VNUFR60108. Learn more at [www.pctools.com/file-recover/free/promo/VNUFR60108](http://www.pctools.com/file-recover/free/promo/VNUFR60108).



# PC Tune-up 1.0



Why are most uninstall programs so useless? Determining which shared DLLs (Dynamic Link Libraries) to remove can be tricky. But that doesn't explain why so many uninstall tools say they've finished, yet still manage to leave Start menu entries, desktop shortcuts or orphaned Windows startup program entries.

If you look deeper into the Registry it's even worse. Left to its own devices your Registry will gradually fill up with the remnants of long-removed programs, which will consume more memory and slow down your PC. But install PC Tune-up 1.0 and you regain control of your Registry, sweeping away

## INFORMATION

**System requirements** Windows 2000/XP/Vista, 5MB disk space

**Contact** <http://largesoftware.com>

**Registration** Optional (see <http://largesoftware.com/html/pctuneup-register-amp.html>)

**PC Tune-up can detect hundreds, even thousands of Registry problems in just a few minutes**

the junk and restoring its original performance.

The program starts with a quick Registry backup; useful if you decide to undo any changes later. Next, PC Tune-up will scan your Registry for problems. Choose the Quick Scan and this will usually take just a few minutes.

The Repair stage displays a report on anything that's been found. You're able to fix all problems, or just those you select.

Finally, there's the Defrag stage, which fully removes old entries and reduces the Registry to its smallest possible size. This will be faster to load, requires less memory, and delivers a small but welcome boost in your PC's performance.

## UPGRADE OFFER SAVE 15 PER CENT ON PC TUNE-UP 2

The latest version of PC Tune-up adds new control over Startup programs, making it easy to remove the ones you don't need. It comes with a set of custom PC tweaks to improve system performance, and includes security tools that provide dynamic protection against malware. There's a new Magic Button that automates the Registry cleaning process, taking care of everything with a single click. The list price for all this is around £15, but with our 15 per cent discount you need only pay about £13: visit <http://largesoftware.com/html/pctuneup-pcmag-upgrade.html> to order.

# PC Booster 4.0



Optimising your PC can be a time-consuming task, not least because it's often so difficult to find the settings you need. So if you're tired of poking around the Registry, or working six dialogues deep in some obscure Control Panel applet, then you'll appreciate PC Booster.

The program gives you access to powerful Windows performance tweaks, including Prefetcher and File Indexing optimisations. You're able to change interface settings, doing everything from hiding the shortcut arrows on shortcuts to speeding up the Start menu. And it's easy to change the location of key folders such as Favorites or My Documents.

## INFORMATION

**System requirements** Windows 98/ME/2000/XP, 10MB disk space

**Contact** [www.avanquest.co.uk](http://www.avanquest.co.uk)

**Registration** Visit [www.avanquest.co.uk/vnu/pb4/register](http://www.avanquest.co.uk/vnu/pb4/register)

**PC Booster includes tools to monitor free memory, and recover Ram when you need it most**

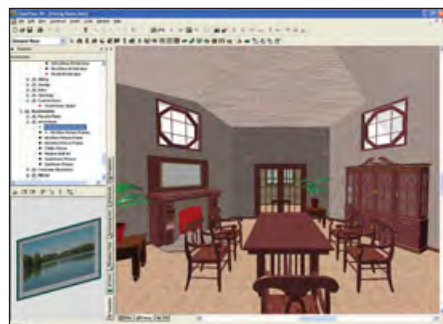
There are some interesting hard drive tweaks, too. As long as your drive uses the NTFS file system, you can almost certainly improve its speed by optimising the NTFS Master File Table, and disabling the Last Access time stamp and legacy 8.3 file name support.

Experts can tweak these settings manually, but if you're less confident there's always the Auto Tune option, where PC Booster decides exactly what changes it should make. And if you don't like the results, that's not a problem. The program backs up your original settings before you start, and you can restore them at any time by clicking File > Restore Backup.

## UPGRADE OFFER SAVE £5 ON PC BOOSTER 5

The latest version of PC Booster features a faster memory recovery engine and a new section for XP hard disk and system tweaks. The Auto Tune process has been optimised, and a 'Before and After' view benchmarks your PC both before and after running any tweaks, so you can clearly see how much of a difference it has made. The list price for PC Booster 5 is £19.95, but after our chunky 25 per cent discount you need only pay £14.95. Visit [www.avanquest.co.uk/vnu/pb4/offer](http://www.avanquest.co.uk/vnu/pb4/offer), click Add to Cart and use the promotional code BOOSTER to get this special price.

# IMSI Floorplan 3D v9

ON OUR  
COVER  
DVDFULL  
VERSION

It had to happen eventually. The endless stream of makeover, style and property-based TV shows have persuaded you that it's time to revamp your own home. But how, exactly? That's where IMSI Floorplan 3D v9 comes in.

No architectural knowledge is required. It all starts with a simple, if slightly dull plan view, where you draw the walls that will make up your room (or rooms).

Next you'll add doors and windows to complete the basic structure. And these aren't just generic objects. Floorplan 3D comes with a huge library of window and door types, so you should find one to match the effect you need.

## INFORMATION

**System requirements** Windows 98/ME/2000/XP, 150MB disk space

**Contact** [www.avanquest.co.uk](http://www.avanquest.co.uk)

**Registration** Click 'Obtain Serial and Activation Code' from the Install menu, or visit [www.aanquest.co.uk/vnu/fp9/register](http://www.aanquest.co.uk/vnu/fp9/register)

**Floorplan 3D's visualisations help ensure that your design ideas will work in the real world**

Your rooms can then be dressed with the appropriate furniture and appliances, again chosen from the hundreds of library options available.

Finally, switch to 3D View and Floorplan 3D will generate an attractively rendered 3D model of your design. You're able to create 3D walkthroughs around the model, see what it looks like, and get a feel for how the design might work in real life. Don't like something? Resize or reposition it and play around until you're happy. Then print the design to share with others, or export it in DXF format if you'd like to share your ideas with an architect.

## UPGRADE OFFER

### SAVE 20 PER CENT ON FLOORPLAN 11

Move to Floorplan 11 and you'll benefit from the brand new lighting feature. How much will come through your bedroom in the morning? Now you can set up your position and view sunlight by the time of day. You'll also get many more 3D objects, some useful preview options to check your design as it's being rendered, and the program is fully compatible with Windows Vista. Normally Floorplan 11 would cost £29.99, but with our promotional code **TURBO20** you'll pay only £23.99, a 20 per cent discount. Visit [www.avanquest.co.uk/vnu/fp9/offer](http://www.avanquest.co.uk/vnu/fp9/offer) to order.

# Crazytalk Messenger 4.6 SE

FULL  
VERSIONON OUR  
COVER  
DVD

## INFORMATION

**System requirements** Windows 2000/XP/Vista, 300MB disk space, DirectX 9 and Windows Media Encoder 9 for WMV export, text-to-speech engine (see Help file)

**Contact** [www.reallusion.com/crazytalk](http://www.reallusion.com/crazytalk)

**Registration** Not required

**This isn't a photo – it's just one of the animated virtual characters bundled with Crazytalk Messenger**

Animated talking characters have been around for years, from annoying agents in Microsoft Office to pointless gimmicks such as Ananova's 'virtual newsreader'. So you're probably not going to feel very enthusiastic about Crazytalk Messenger, an application that can create videos of virtual characters delivering whatever message you like. But this program really is something different.

The characters in Crazytalk Messenger aren't the usual feeble animations: they're gorgeous girls, attractive guys and cute kids. Pick one you'd like to deliver an email message or a greeting for your website, type whatever you

want them to say in a box, and they'll speak in a variety of customisable voices. The results can then be saved in AVI, RM or WMV format video, ready for use.

The most fun comes in creating your own characters, though. Import a picture of anyone, click the mouse a few times on the eyes and mouth, and Crazytalk will immediately animate the image for you. This moves the program to a whole new level. Simply use the text-to-speech interface to have them deliver whatever message you need. Whether you need to spice up a website, or just want to play a practical joke, Crazytalk Messenger is well worth a look.

## UPGRADE OFFER

### PROFESSIONAL CRAZYTALK LIVE FOR £50

Crazytalk Messenger exports AVI files that you could use on a website, but for the best online experience you'll see much better results with Crazytalk Live. This delivers more control over file size and outputs 3GPP files for mobile viewing. It'll create the HTML necessary to embed the video in your own web page. And your Crazytalk characters will be handled using a tiny, 50KB component that will automatically be installed on the computer of anyone who visits your site. Yet despite the list of professional features, the price is still a very home user-oriented £50. Visit [www.reallusion.com/crazytalk](http://www.reallusion.com/crazytalk).



# COMPETITION

## WIN! Alienware PC and Age of Empires III



To mark the launch of the newest game in the Age of Empire series, Age of Empires III: Asian Dynasties, PCW has teamed up with Microsoft to offer prizes worth £1,000.

Our first prize this month is an Alienware gaming PC and a copy of Age of Empires III: Asian Dynasties as well as the original Age of Empires III game. Five runners-up will also win a copy of Age of Empires III: Asian Dynasties and the original Age of Empires III game.

The latest title in this acclaimed series introduces thrilling new stories with new heroes and villains who find themselves in the midst of some of Asia's most pivotal historical events, both factual and fictional.

You'll wield the symbolic power of immense wonders of the world and lead the armies of China, India or Japan in a struggle for dominance against the European powers, or against each other.

Asian Dynasties lets you crush opponents with ranks of new military units, such as the Chinese Flame Thrower, the Indian Siege Elephant, or the fierce Japanese Shogun. Or you can play the role of master diplomat, and befriend your allies at the Consulate, bidding your time and building a force of foreign weaponry.

Age of Empires III: The Asian Dynasties adds three new civilisations, 15 monumental Asian Wonders, the new Export resource, new random maps, three five-scenario campaigns that feature all new Age of Empires III characters, Eastern native tribes, and new Home City content.

With hordes of new content, including updated maps to be explored, there are loads of



new ways of winning and trading. And this version sees the return of the Wonders – a favourite gameplay element in Age of Empires II.

Our top winner will get the most out of this game by playing on an Alienware gaming PC with a Core 2 Duo E6750 2.66GHz processor, 2GB of 800MHz DDR2 Ram, a 512MB Geforce 8800 GT graphics card and a 500GB hard disk.

For your chance to win, enter online at [www.pcw.co.uk/competitions](http://www.pcw.co.uk/competitions). The competition opens on 24 January and closes on 22 February.

**How many armies can you take control of in Asian Dynasties?**

- a) 2
- b) 3
- c) 8

This competition is open to readers of PCW, except for employees (and their families) of Incisive Media, and Alienware. PCW is the sole judge of the competition and the Editor's choice is final. Offer applies to residents of the UK and the Irish Republic only. Entrants must be over the age of 18 and only one entry per household will be accepted. Winners will be selected at random from all correct entries received. No cash alternative is available in lieu of prizes. Incisive Media will use all reasonable endeavours to notify the winner(s) within 14 days of the close of the competition. Incisive Media reserves the right to substitute the prize for one of greater or equal value if circumstances make this unavoidable. Prizes will be dispatched by the competition sponsor(s) and the winner(s) name(s) and address(es) will be provided to the competition sponsor(s) for this purpose. No purchase of the magazine is necessary to enter the competition. Incisive Media will use all reasonable efforts to ensure that the prizes are as described on this page. However, Incisive Media cannot accept any liability in respect of any prize, and any queries regarding a prize should be taken up directly with the sponsor of that prize.

The winner of the Christmas competition is Susan Walters, who wins a Shuttle XPC G5 3101M Blu-ray entertainment PC.

## ENTER ONLINE AT [www.pcw.co.uk/competitions](http://www.pcw.co.uk/competitions)

# On the web

[www.pcw.co.uk](http://www.pcw.co.uk)

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Our labs blog, the Test Bed, gives you regular updates on the latest gossip, technology trends and products.

→ <http://labs.pcw.co.uk> → <http://www.reportlabs.com/testbed>

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You may recognise some entries in this blog from our Letters pages, but they are published here first, letting you add your views and comments.

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Prices: All prices include Vat unless otherwise stated.

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## 10 tips for buying safely

- 1 Get written quotes from shops specifying components used, or print off and keep spec sheets from websites.
- 2 Use a credit card if possible for purchases of £100 or more; you could get compensation from the card company if a supplier goes out of business.
- 3 Keep good records, storing receipts, correspondence in one place.
- 4 In England and Wales, the onus is on retailers to prove that faults found within six months on purchases are not inherent.
- 5 Goods ordered online, by phone or post can be returned under the Distance Selling Regulations without explanation within a reasonable time – this is widely accepted as being seven days.
- 6 Open and inspect all goods as soon as possible after delivery and make sure they work.
- 7 Companies are not obliged to repair or replace goods damaged by accident or misuse, unless it is caused in transit by a delivery service.
- 8 Companies cannot charge for a service that isn't being delivered, but never stop a direct debit while under contract.
- 9 Consumers should not suffer financial loss for repairs that are not their fault, so claim back carriage charges.
- 10 If a dispute arises, take advice from Consumer Direct at [www.consumerdirect.gov.uk](http://www.consumerdirect.gov.uk).





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# Personal Computer World

# NEXT MONTH

**ON SALE 21 FEBRUARY 2008**

## 30 years of PCW

Next month we're celebrating our 30th anniversary, and we've put together a very special edition of PCW to mark the occasion. We've also taken the opportunity to make some improvements to the look and feel of the magazine and added some great new sections. So keep an eye out for the new-look PCW at your newsagent!



## Ultimate desktops vs ultimate laptops

How do today's most powerful PCs stack up against the fastest laptops? There's only one way to find out...

## Colour laser MFDs

Colour laser printers are getting cheaper and multifunction devices are increasingly popular. Combine the two and, in theory, you should have a winning combination. We check out six of the most affordable models.



## The evolution of PC gaming

Ever since the first text adventure computer game, gaming technology has had a symbiotic relationship with advances in PC technology. We investigate how this relationship works and how it has had major repercussions far outside the world of gaming.



**There's lots more in April's PCW  
DON'T MISS IT...**

# MARCH 2003

In March 2003, we looked at 11 TFT monitors (15in and 17in ) for an amazingly affordable £300. However, after extensive testing it turned out that image quality didn't vary hugely between the individual designs. Price and styling did, though, and the AOC model managed to scoop the top spot.

Next up, in our PC group test, we compared a selection of 10 PCs priced at £999. Since then, just one of the 10 manufacturers featured has disappeared, but six have become retailers, rather than system builders, with cut-throat margins to blame. And it was just the small addition of DVD authoring software that made Evesham a winner.



From the archives: Take a look at the important events in technology five, 15 and 25 years ago.

Sata (serial ATA) was one of the new technologies we were abuzz with in 2003. We saw little incentive to upgrade to the new standard since it performed identically to parallel ATA hard drives, but predicted a bright future when speeds were ramped up. The real benefit has been the smaller cables making systems tidy inside.

In news, Nik Rawlinson reported AOL had successfully sued a mass-mailing spammer for \$7m. Spammers cost AOL a lot of money in 2003, and in watching its own back AOL may have done a service to us all since from then on, spammers had legal precedents to worry about.

# MARCH 1983

In March 1983, PCW got its first glimpse of the mouse. Explaining it to readers as a "user-friendly creature that enables the user to feel in control of the total program... you skate the mouse around your desk and a pointer moves correspondingly on the screen". We were, nonetheless, disappointed that it didn't mean we could do away with the keyboard entirely. "A keyboard is still essential for the text input," explained our reviewer. "But so long as a secretary is on hand for the text-inputting bit, it is amazing what you can do with a mouse."

We also mused over the number of new computer magazines going on sale every month. "We stopped counting earlier this year when the total reached more than 25 regular computing magazines in the UK. To read them all would, by our calculations, take a fortnight each month," we wrote.

Very few of the titles then gracing the newsstands are still around today and with our 30th birthday looming next month, none have been going as long as PCW.



# MARCH 1993

In 1993 we looked at the technology behind the hit movie *Terminator 2*; in particular the transformation scenes involving the liquid metal T1000 robot that takes on the form of other characters. The work was created by Industrial Light & Magic using Silicon Graphics workstations, with 40MHz processors and 64MB of system memory.

There were plenty of new product announcements, and rumours were circulating about the Intel Pentium processor that would offer a 50 per cent speed increase over the 486DX2, but costing two or three times as much. Creative Labs announced a 16-bit version of its Soundblaster soundcard, which cost a staggering £249 and offered 20 voices in FM quality.

Microsoft was working on project Chicago, which would eventually be launched as Windows 95. In 1993 Microsoft had poached Roger Heinen from Apple to work on a database to be included in Windows. Clearly, it was just coincidence that Windows 95 had an Apple look and feel.





# Unfortunately, most cyber-criminals aren't this stupid



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