

21 WINDOWS 8 LAPTOPS INSIDE

EXPERT ADVICE YOU CAN TRUST

PC ADVISOR

Best for books, web, music, games & video: From £150

MINI TABLETS TESTED

Every major 7-inch tablet reviewed



Windows 8 guides



How to add in Start Menu and Media Center, use Windows 8 File Explorer, and more



Keep kids safe online

Free and simple ways to protect your children

Best PCs for gaming

Powerful games rigs put through their paces. 10 tested: from £643



PLUS: the only **Microsoft Surface** review you need



ISSUE 211 FEB 2013

IDG | UNITED KINGDOM

Dell recommends Windows.



The power to do more

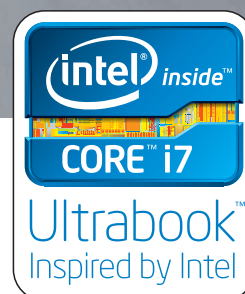


Break the boundaries of work and play.

Introducing the Dell™ XPS™ 12 Ultrabook™, inspired by Intel. Featuring the style and quality our XPS line is known for. Part laptop, part tablet, all performance. Powered by 3rd gen Intel® Core™ i7 processor, featuring vivid touch screen HD display. The epitome of form and function.



Dell.co.uk/XPS12



McAfee™ - Protect what you value.

Dell Corporation Limited: Registered in England No: 2081369. Registered Office: Dell House, The Boulevard, Cain Road, Bracknell, Berkshire RG12 1LF.

Intel, the Intel Logo, Intel Inside, Intel Core, Ultrabook, and Core Inside are trademarks of Intel Corporation in the U.S. and/or other countries. Microsoft and Windows® 8 are registered trademarks of Microsoft Corporation.

PC ADVISOR

Editor Matt Egan matt_egan@pcadvisor.co.uk
 Reviews Editor Andrew Harrison andrew_harrison@pcadvisor.co.uk
 Features Editor Jim Martin jim_martin@pcadvisor.co.uk
 Managing Editor Marie Brewis marie_brewis@pcadvisor.co.uk
 Art Editor Dominik Tomaszewski dominik_tomaszewski@pcadvisor.co.uk
 Staff Writer Chris Martin chris_martin@pcadvisor.co.uk
 Online Editor David Court david_court@pcadvisor.co.uk
 Forum Editor Peter Thomas moderator@pcadvisor.co.uk
 Helproom Editor Paul Monckton helproom@pcadvisor.co.uk
 Games Editor Alec Meer games@pcadvisor.co.uk

>> PCADVISOR.CO.UK
 >> TWITTER.COM/PCADVISOR
 >> FACEBOOK.COM/PCADVISOR

Contributors

Orestis Bastounis, Mike Bedford, Michael Burns, Martyn Casserly, Martyn Clayden, Mike Curtis, Becca Martin, Robin Morris, Nik Rawlinson, Mikael Ricknäs, Agam Shah, Nick Spence, Sandra Vogel, Roland Waddilove, Simon Williams, Briarley Van Zyl

Advertising

Advertisement Manager Tom Drummond tom_drummond@idg.co.uk
 Senior Account Manager Russell Kearney russell_earney@idg.co.uk
 Account Manager Mike Fletcher michael_fletcher@idg.co.uk

Production

Head of Digital Production Richard Bailey richard_bailey@idg.co.uk

Marketing

Chief Marketing Officer Dawn Briddon dawn_bridon@idg.co.uk
 Marketing Manager Ash Patel ash_patel@idg.co.uk
 Marketing Software Manager Letitia Austin letitia_austin@idg.co.uk
 Subscriptions Customer Services pcadvisor@subscription.co.uk

Online

Online Development Manager Adrian Black webmaster@pcadvisor.co.uk
 Web Developer Victor Chong Junior Developer John Copsey
 Web Developer Dominik Koscielak Junior Developer Aaron Bery
 Web Developer David Roberts

Accounts

Financial Director Chris Norman chris_norman@idg.co.uk
 Credit Controller Dawnett Gordon dawnett_gordon@idg.co.uk
 Purchase Ledger Clerk Lyn McNicol lyn_mcnicol@idg.co.uk
 Management Accountant Parit Shah parit_shah@idg.co.uk

Publishing

Publishing Director Simon Jary sj@idg.co.uk
 Managing Director Kit Gould kit_gould@idg.co.uk

Subscribe online:

pcadvisor.co.uk/subscribe

Subscribe by phone:

01858 438 867

Subscribe to digital editions:

pcadvisor.co.uk/magazines

Subscription enquiries:

pcadvisor@subscription.co.uk

What do you think of this issue of PC Advisor?
 We welcome feedback - email Matt Egan at
matt_egan@pcadvisor.co.uk and include the
 issue number in the subject heading



PC Advisor is published by IDG UK
 IDG UK, 101 Euston Road, London NW1 2RA. Tel: 020 7756 2800
 Printer: Wyndeham Press Group Ltd 01621 877 777
 Distribution: Seymour Distribution Ltd 020 7429 4000

No material may be reproduced in whole or part without written permission.
 While every care is taken, the publisher cannot be held legally responsible for
 any errors in articles, listings or advertisements.
 All material copyright IDG UK 2012



MATT
EGAN



One device good, two devices... better?

Is the idea of a single gadget to do everything desirable, or even possible? A decade on and I'm still not sure

Recently I was taken to task by a reader (not in itself an unusual occurrence). He suggested that *PC Advisor* was no longer about 'PCs', and that we didn't publish enough 'computer articles'.

The key point is our interpretation of the word 'computer'. By 'computer articles' he meant stories specifically about desktop PCs, running Windows. But the vast majority of what is interesting about personal computing in 2013 and beyond centres on devices ranging in size from 2- to 40in, which come in many form factors, and on multiple platforms.

For better or for worse, Windows 8 is aimed at all such devices, including phones, tablets and - yes - desktop PCs (see our Windows 8 tips on pages 104 and 114). And the purpose of a publication such as *PC Advisor* is to advise on computers of all shapes and sizes.

When I first joined *PC Advisor* in 2003 we focused almost exclusively on reviewing desktop PCs, and providing relevant troubleshooting and consumer advice. We continue to do that, of course, but our scope has widened as technology has developed.

This issue, for instance, we've been taking a look at sub-8in tablets (page 64). These devices are truly portable, able to fit into a handbag or suit-jacket pocket. And they offer a great experience for email, web, social media, music, books, movies and games. Mark my words: many people will be hoping Santa delivers an iPad mini, Nexus 7 or Kindle Fire HD this year.

With the odd exception, however, these devices aren't suited to the role of portable workhorse; they are overblown iPods, or feature-rich e-readers, rather than slimmed-down laptops. A classic example is the Kindle Fire HD. Amazon's tablet is predicted to be the must-have gift this Christmas. It's an inexpensive and easy-to-use tech toy of the highest order. But it's locked down to the extent that you can't install Android apps or change the browser, let alone update a spreadsheet.

None of which makes it a bad gadget. It may make it less-than-perfect for the majority of *PC Advisor* readers, but only if you subscribe to the idea that a portable computer such as a tablet should fulfil multiple functions, in both leisure and business time. In fact, most people who have a tablet also have a smartphone and a laptop. Many will have a dedicated e-reader and a satnav, too. So perhaps the idea of a single device taking the place of many is just plain wrong.

Microsoft clearly doesn't agree. Recently it launched the Surface RT (reviewed on page 36). It's a 10in device that's iPad-like in terms of its hardware, and aims to offer the productivity of a Windows laptop. It also offers media-consumption and -purchasing apps and - in Microsoft's view, at least - has in Internet Explorer 10.0 a web browser that can provide the same experience as the best apps, without you installing paid-for software.

Predictably, the Surface RT is no panacea. But if the Kindle Fire HD and Nexus 7 are the poster-children for media-consumption devices, the Surface may well prove to be the most interesting product of the past 12 months, offering as it does an alternative to carrying both a laptop and a tablet. How it performs may have a major bearing on how many of what kinds of device we are all carrying one year from now. ☒



64 SUB-8in TABLETS



72 GAMING PCs



84 GREEN COMPUTING



92 KEEP YOUR KIDS SAFE ONLINE

Regulars & offers

3	Welcome	28	New Products
3	Contacts	122	Cover DVD
6	Inbox	126	Subscribe!
10	News	146	Next month



10 News & analysis

14 Five years of Google Android

Android dominates the mobile world, despite many problems and flaws.

17 Windows RT 64bit in the works

ARM is working with Microsoft to tune Windows RT to run on 64bit processors.

18 Supply issues lead to iPhone 5 delays

Apple's stringent production specs aren't helping iPhone 5 supply issues.

20 How all minis link to Apple

To celebrate the launch of the iPad mini, we round up 17 other famous minis.

22 BlackBerry has a future in business

The way BlackBerry 10 implements work and personal partitions sets it apart from the competition.

24 Get the best deal on tech

We explain how to grab a bargain when buying a laptop, tablet, smartphone and more.

26 Keep the internet open

You pay for a set amount of data, so what business is it of your ISP to decide where you use it? We discuss the thorny issue of Net Neutrality.

34 Reviews

TEST
CENTRE

HARDWARE

36	Microsoft Surface RT
37	iPad with Retina display
37	HTC Desire X
38	Google Nexus 4
39	HP Envy 6-1006a Sleekbook
39	Barnes & Noble Nook Simple Touch GlowLight
40	EyeSpy247 UCam247i
40	Philips 7000 Series 46PFL7007
41	Focal XS Book
42	Nokia Lumia 920
44	Chord Electronics Index & Scamp
46	Pentax K-01
46	Honestech Audio Recorder 3.0 Plus
47	Ducky DK9008 Shine 2
47	WD My Passport Edge for Mac

APPS

50	Skype for Windows 8
51	BBC iPlayer Radio for iOS
51	Hidden Eye for Android

SOFTWARE

53	Adobe Acrobat Pro XI
54	Magix Movie Edit Pro 2013 Premium
54	Acronis True Image 2013 Plus
55	Adobe Premiere Elements 11.0
56	Ubuntu 12.10
57	Dragon NaturallySpeaking 12.0 Premium

57	F1 2012
58	Assassin's Creed III

BUSINESS

60	Canon i-Sensys LBP7680Cx
60	Pantum P2050
61	Brother MFC-J4510DW
62	Xerox WorkCentre 6605DN
62	Kensington ClickSafe Keyed Laptop Lock

SUB-8in TABLETS

66	Acer Iconia Tab A110
66	Amazon Kindle Fire HD
67	Apple iPad mini
67	Barnes & Noble Nook HD
68	Fuhu Nabi 2
68	Google Nexus 7

GAMING PCs

74	Arbico Elite 7768 OCX
74	Braebo Enforcer
76	Chillblast Fusion Firebird
76	Computer Planet i7 Extreme Gaming PC
77	Dino PC Dark Claw GTX 670
77	Overclockers UK Primo GTX 660 Windows 8 Edition
78	PC Specialist Vanquish XT680
78	Quiet PC Serenity Gamer
79	Scan 3XS Performance GTX
79	YoYoTech XDNA MKII SE

On the cover



64 Features & group tests

64 Sub-8in tablets

Sometimes a 10in tablet is just too big to chuck into a jacket pocket or handbag and take everywhere you go. Mini tablets are more easily portable, and tend to be significantly cheaper. We round up every major 7in tablet to see which is best suited to your needs.

72 Gaming PC superguide

If you're looking to play immersive Windows games, you'll need a hulking box of chips and fans at your feet. We review 10 high-spec gaming systems from UK specialists, with prices ranging from as little as £643 right up to £2,000-plus.

84 Green computing

Do your bit to help save the environment and save some cash. We explain how to choose energy-efficient tech kit, apply tweaks to reduce power consumption, and recycle your old mobile phone, PC and other gadgets.

92 Keep your kids safe online

The internet is stuffed full of great resources and activities for kids, but there's a very real danger that they'll find and do things that aren't so wholesome. We explore ways to keep your children safe online.



129 Top 5 charts: Buyer's guide

TEST
CENTRE

- 130 Ultraportable laptops
- 131 Sub-£500 laptops
- 132 £501-£1,000 laptops
- 133 £1,001+ laptops
- 134 Family PCs
- 135 All-in-one PCs
- 136 Business PCs
- 138 Media PCs
- 139 Internet security suites
- 139 Antivirus software
- 140 Sub-£150 printers
- 140 £151+ printers
- 141 Blu-ray drives
- 141 Wireless routers
- 142 USB drives
- 142 NAS drives

- 143 Projectors
- 143 Compact system cameras
- 144 Sub-£150 graphics cards
- 144 £151+ graphics cards
- 145 Sub-£200 flat-panel displays
- 145 £201+ flat-panel displays

Subscribe to PC Advisor and
SAVE 58%

See page 126

101 How to

Tech
Help

Get help with computer problems and learn how to improve your PC setup.

102 Troubleshooter

Use Apple iOS' Photos app to import and organise your photos on an iPad.

104 Helproom

PC Advisor's team of experts solves the computing problems you pose.



110 How to: Silence your PC

These ultra-quiet upgrades are the perfect weapon in your quest for aural tranquility.

114 How to: File Explorer

We introduce and explain how to use Windows 8's revamped File Explorer.

116 How to: Screencasting

A video of your onscreen activity can be a useful troubleshooting aid.



118 How to: Sandboxing

Protect Windows from dubious software downloads. Here's how to get started.

120 How to: 3D drawing

3D-modelling programs such as SketchUp can be useful if you want to see, for example, how a loft conversion will look.

Reader comments



Whether it's with useful tips, pithy observations, or a good old moan, we're always happy to hear from PC Advisor readers. For your chance to appear here, keep in touch via email, our forums, comments on our news stories, and via Facebook, Google+, Twitter and LinkedIn

letters@pcadvisor.co.uk

PC gaming is where it's at I've been gaming since the days of the old BBC B computers, and have owned one of each of the systems that followed. More recently, I've been a slave to console gaming, with the Xbox 360 and PlayStation 3. But no more: I've discovered PC gaming, and have been blown away with the quality and performance. I've even opened a free Steam account, and can now enjoy games in definition never seen before. Amazing! **David Jones**

PCA replies: We couldn't agree more, David, as you'll discover when you turn to our gaming PC superguide on page 72.

Jargon buster

Your Jargon buster in *Helproom* is excellent for less tech-savvy readers, but it would be even better if it included abbreviations from other pages, such as UAC (User Account Control). **Paul Child**

pcadvisor.co.uk

What have you got to hide?

Google has officially become a service provider with the launch of its Fiber package in Kansas City, US. But should us Brits be consumed with jealousy, or consider that residents might be paying a price in other ways (tinyurl.com/apscaow)? "Google will continue to consume knowledge, personal and otherwise, but I really don't have a problem with that," wrote *Brian Doyle*. "I've not seen anything bad come from Google knowing what's in my emails - I just see more relevant ads, which I'm comfortable with. It's just a bandwagon to jump on. Do you have something to hide?"

Windows 7 gets second-class status

Signs are mounting that Microsoft is putting all its eggs into a Windows 8 basket, with its predecessor, Windows 7, fading fast in Redmond's rear-view mirror (find out why at tinyurl.com/c6bz3de). *Robin Window* is none too impressed. "Windows 7 is still only three years old, and to think of moving it to the scrapheap is totally indefensible. This isn't screwing with the masses, as described in another comment to this story, it's completely ripping them off," he wrote.



Steve's out

Windows boss Steven Sinofsky has left the company, just two weeks after the launch of Windows 8, leaving Julie Larson-Green to take the reins. The company's silence has led to a certain amount of speculation over whether he wanted out or was pushed (tinyurl.com/be8m73c).

"If he was having cold feet about the push to a tablet-like OS for enterprise users then I can understand. I've been a Windows user since 3.1, and I'm still figuring out where everything is in Windows 8. It's not going to be a smooth transition," wrote *Jeffrey Haun*.

And it looks as though Larson-Green has some work to do in impressing consumers, too: "If she was involved in IE then she needs sacking, too!" wrote *Steve Jarvis3*. Ouch!

Flagged: Star letter

All work and no play

Would you reconsider your description of the Windows 8 Modern UI as a technology product (tinyurl.com/c2edx4w). The basic underlying operating system is technology, but the UI is straight from a cartoon. You're right that it will be a partial success, but more so if Microsoft allows the removal of the Modern 'preinterface' and doesn't attempt to force on serious users an apps store or incessant and useless web panes (or is that pains?). To me, a scientific software writer, a PC is a very useful tool; to reduce it to a toy that, on the surface, does little more than a phone is abhorrent. *Ron Unwin*

Matt Egan, editor, replies: In my experience, Ron, the Modern UI is easily bypassed, but I had to use Windows 8 as my principal platform for a while to understand that. To Microsoft, Windows 8 is an OS that can be used just as well on a desktop or laptop with a mouse and keyboard as it can on a touchscreen device. I'm not sure I wholly agree with that, but I am using a mouse and keyboard and I do find that I rarely even see the Start screen. I think the biggest problem Microsoft has is selling Windows 8 as an upgrade, reassuring existing users that it isn't as scary as they might assume. It really isn't!



Our Star letter writer wins a 128GB Crucial m4 SSD with Data Transfer Kit, worth £126. For your chance to win, tell us your thoughts on the latest tech issues:

crucial.com/uk

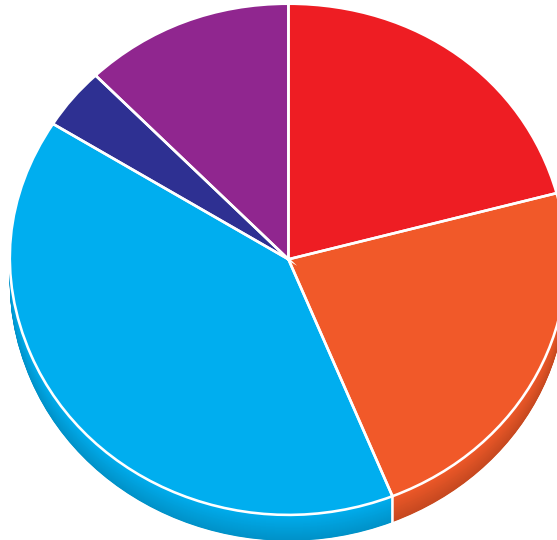
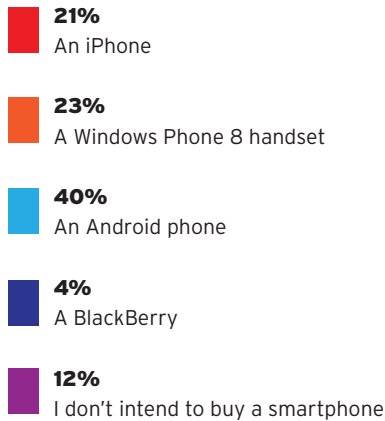
Write to us:
letters@pcadvisor.co.uk
facebook.com/pcadvisor
twitter.com/pcadvisor

Subscribe to PC Advisor and
SAVE 58%

See page 126

pcadvisor.co.uk/polls

Following the recent launches, my next smartphone will be...



Based on 3,411 votes, tinyurl.com/a45kypc

Join us online:
pcadvisor.co.uk/forums



Are tablets just a fad?

This is the question posed by forum member **robqf**, who has been admiring his girlfriend's iPad, but isn't too sure about all that finger swiping. Join the debate at tinyurl.com/bwLdc5f.

lotvic I have a Samsung Galaxy Tab, and have had to stop myself buying all the extras that would have in effect turned it into a netbook (a very expensive netbook). So, yes, I'm beginning to think it's a fad.

WhiteTruckMan 'Fad' is too strong a word, but I think there are serious issues with monolithic devices that cannot easily be repaired. Also, the mirror side to the convenience of having all your devices easily to hand in one package is the vulnerability of all to a single incident, be it accidental or malicious.

canarieslover I was planning to drop hints about the Nexus 7 as a gift idea, but then I thought about how little I have used my netbook, which was bought with the intention that it would travel with me. It'll have to be socks and sweaters again this year.

Noldi When I first bought my iPad I also used my laptop, but I haven't had that out since I worked on an Excel document in the spring. The iPad goes everywhere with me.

rickf It'll never replace my laptop for serious work, even with a keyboard.

Woolwell Not for me. My iPad fires up almost instantly, allows me to check emails on the move and battery life is long. The tech I'm having trouble finding a use for is my netbook.

kad60 I've been toying with the idea of purchasing a tablet, but for the same money I can get a fully featured Toshiba R830 laptop with all-round better prospects. ☒

facebook.com/pcadvisor



Windows 8 first impressions

With 4 million consumers reported to have upgraded to Windows 8 in the first weekend following its release, we took to our Facebook page to find out what you thought of the OS.

"I tested Windows 8 for many months and knew what to expect. I hated the OS and never thought I would adjust to it, but I did and now I love it!" **Matthew Russell**

"I really like it. I've used it at work, but not yet upgraded my home PC. I'm worried that people won't give it a chance, giving up after five minutes' use." **Antony D'Andrea**

"Windows 8 is great for tablets, but not PCs. In my eyes it makes no sense. Stick with Windows 7 or, better still, buy a Mac." **Jonny Jones**

Bargain buys

I've been looking at the Flypad Ultra tablet on eBay. It looks good on paper. Have you heard of it, is it a good buy?
Leeann Carpenter

Marie Brewis, managing editor, replies: This isn't a tablet we've had in for review, Leeann, but with tablets you generally get what you pay for - we've yet to find a cheap tablet we'd

wholeheartedly recommend. The exceptions to this rule are the Kindle Fire HD and Google Nexus 7, both of which are rumoured to be sold at a loss to encourage content sales. Unless you really need a 10in screen, we'd recommend instead looking to one of these. Check out our group test on page 64, too.

Jelly Bean and gone

The S III has finally got its upgrade to Jelly Bean. Well, it's about time. This is shockingly slow, and now Google is touting Key Lime Pie before even five percent of Droids have made it to Jelly Bean! **Robert Follis**

Apple's wrists slapped again

Back in October a judge told Apple it must run adverts stating that the Samsung Galaxy Tab did not copy its iPad; more recently, it's had its wrists slapped a second time for not making the message more prominent on its website and adding extraneous comments in its statement.

"Good. Maybe now it can go back to making things rather than playing the boogeyman." **Dorian Phillips**

"All I can say is thank heavens Apple didn't invent the wheel." **Colin Birks**

1&1 WEB HOSTING

MAXIMUM SECURITY AND MAXIMUM PERFORMANCE

Do you need more from your hosting? 1&1 Web Hosting packages offer a range of features to make your website secure and reliable. With more than 11 million customer contracts, £2 billion in annual turnover, 5000 employees and 5 high-performance data centres, 1&1 is one of the world's leading web hosts. With 20 years' hosting experience, we continue to be a reliable partner. Our new maximum security features give you even more reason to trust 1&1 for all your hosting needs.

✓ GEO-REDUNDANCY FOR MAXIMUM RELIABILITY



Your website data is stored separately in two high-performance 1&1 Data Centres. Plus, automatic daily backups included.

✓ SITELOCK FOR ALL-ROUND PROTECTION



With SiteLock your website is automatically scanned for harmful malware, viruses and other vulnerabilities. Your data will be kept safe and you can display the SiteLock protection badge on your website, showing your customers that it is credible and trustworthy.

✓ RESTORE DATA WITH WEBSITE RECOVERY



This tool allows you to recover website data that you have accidentally deleted, with a simple click of your mouse. The Website Recovery tool is easy to use through the 1&1 Control Panel.



DOMAINS | E-MAIL | WEB HOSTING | eCOMMERCE | SERVERS

12 MONTHS 50% OFF ALL 1&1 HOSTING PACKAGES

OFFERS END 31/12/12

1&1 Starter	1&1 Standard	1&1 Unlimited	1&1 Business
5 GB Webspace	50 GB Webspace	Unlimited Webspace	Unlimited Webspace
1 MySQL 5 Database (1 GB each)	10 MySQL 5 Databases (1 GB each)	100 MySQL 5 Databases (1 GB each)	Unlimited MySQL 5 Databases (1 GB each)
1000 e-mail accounts (2GB)	3000 e-mail accounts (2GB)	5000 e-mail accounts (2GB)	Unlimited e-mail accounts (2GB)
–	–	1 domain included. Choose from .co.uk, .me.uk or .org.uk	1 domain included. Choose from .co.uk, .me.uk or .org.uk
PHP 5, PHPDev, Zend Framework	PHP 5, PHPDev, Zend Framework, Perl, Python, Ruby, SSI	PHP 5, PHPDev, Zend Framework, Perl, Python, Ruby, SSI	PHP 5, PHPDev, Zend Framework, Perl, Python, Ruby, SSI
Unlimited Traffic			
1&1 Click & Build Apps: Wordpress, Joomla!®, Drupal™ and more			
1&1 Security: Geo-redundancy, SiteLock protection and Webspace Recovery			
24/7 phone and e-mail support			
£2.49 £1.19 per month*	£4.99 £2.49 per month*	£6.99 £3.49 per month*	£9.99 £4.99 per month*



1&1 Data Centres are powered by renewable energy, reducing our CO₂ emissions by 30,000 tons every year!

1&1

Call **0844 335 1211** or buy online

www.1and1.co.uk



MS SELLS 4 MILLION WINDOWS 8 UPGRADES BUT LOSES SINOFSKY

Shock news as Windows boss leaves his post just two weeks after a “spectacular start” for Windows 8

Microsoft has announced that it sold four million upgrades to Windows 8 in the first few days the operating system was on sale.

Launched on 26 October, four million users upgraded to Windows 8 in the weekend immediately following its release.

Microsoft CEO Steve Ballmer announced the statistic in a keynote. He also mentioned the firm’s Surface tablet, which is available running Windows RT, but gave no figures on how many units have been sold (read our full review on page 36).

October was a busy month for the company, since it also saw the launch of the Windows Phone 8 smartphone OS.

The four million figure may sound high, but there are 1 billion Windows users worldwide, and upgrades cost from £14.

And although Microsoft said it had seen a “spectacular start” to Windows 8, just two weeks later it announced that

the president of Windows Live and Windows, Steven Sinofsky, had left his post.

The sudden and unexpected news was announced with immediate effect. Industry spectators have suggested that Sinofsky wasn’t fully behind Microsoft’s strategy going forward, but the firm had managed to keep quiet details of the friction leading up to and during the launch of Windows 8.

Why did Sinofsky walk?

Microsoft hasn’t given an explicit reason for the sudden change in leadership, but the title of an official blog concerning the matter suggests the move was necessary to “drive the next wave of devices”.

Despite Ballmer expressing his gratitude for Sinofsky’s hard work over the years, he also said: “To continue this success it is imperative that we continue to drive alignment across all Microsoft teams,

and have more integrated and rapid development cycles for our offerings.”

Sinofsky himself has given nothing away. “It is impossible to count the blessings I have received over my years at Microsoft. I am humbled by the professionalism and generosity of everyone I have had the good fortune to work with at this awesome company,” he said.

A new leader for Windows

Julie Larson-Green has been promoted to head up Windows software and hardware engineering. After contributing to Internet Explorer, Office, Windows 7 and Windows 8, Ballmer said: “It is clear to me that Julie is the best possible person for this job.”

“In her new role Larson-Green will be responsible for all future Windows product development, in addition to future hardware opportunities,” wrote Microsoft in its blog.

SKYPE TO REPLACE LIVE MESSENGER

Microsoft has announced it will close down its Windows Live Messenger service in favour of Skype. Originally called MSN Messenger, Microsoft has decided to lay to rest Windows Live Messenger after 13 years of service. The Windows 8 maker is encouraging users to move over to Skype, which the company acquired last year.

“We will retire Messenger in all countries in the first quarter of 2013,” confirmed the Skype blog.

The firm had to fix a Skype security hole in November, which allowed anyone who had your email address to hijack your account. The ‘password-reset’ bug allowed a Skype password to be reset via a simple form, without requiring access to your inbox.



Keep up to date with PC Advisor news:

>> pcadvisor.co.uk/news >> twitter.com/pcadvisor >> facebook.com/pcadvisor >> mobile.pcadvisor.co.uk
>> pinterest.com/pcadvisor >> plus.google.com/+PCAdvisor >> youtube.com/pcadvisor

GOOGLE LAUNCHES NEXUS 4, NEXUS 10

High-end, mid-price smartphone • iPad-beating 10in tablet • 32GB, 3G Nexus 7 • Android 4.2

Despite cancelling its Android event in response to looming Hurricane Sandy, Google persisted with its plans to launch three new Nexus devices on the day Microsoft took the wraps off Windows Phone 8. The LG-manufactured Nexus 4 smartphone and Samsung-made Nexus 10 tablet were announced alongside a refresh to Google's Nexus 7 line-up.

"We're excited to announce three great new Nexus devices, in small, medium and large. They all run Android 4.2, a new flavour of Jelly Bean, which includes the latest version of Google Now and other great new features," said the company.

The Nexus 4 is a high-end smartphone with a mid-range £239 price tag. Made by LG, it has a 1.5GHz Qualcomm Snapdragon S4 Pro processor, a 4.7in (768x1280) IPS Plus screen, 2GB of memory and an 8Mp camera. It also supports wireless charging. Turn to page 38 for our review.

The Nexus 10 is the search giant's first large-screen tablet, and is a bigger version of the firm's popular Nexus 7. Google partnered with Samsung on the



create multiple user accounts, a Photo Sphere camera mode and an updated version of Google Now.

Google Play Music hits the UK

Google finally brought its Play Music store to Europe and the UK in November.

It said: "Those of you in the UK, France, Germany, Italy and Spain will be able to purchase music from the Google Play store and add up to 20,000 songs from your existing collection to the cloud for streaming to your Android devices or web browser.

"We're also launching our new matching feature to streamline the process of uploading your personal music to Google Play. We'll scan your music collection and any song we match against the Google Play catalogue will be automatically added to your online library, saving you time.

"This will all be for free - free storage of your music, free matching, free syncing across your devices and free listening."

Also new in the UK is the ability to purchase movies from Google Play.

new tablet, which has an iPad-beating 2560x1600 resolution (300ppi). It's the "highest-resolution tablet on the planet", according to Google.

Google also confirmed a refresh to its Nexus 7 line-up, in which it has replaced the 8GB model with a £159 16GB version, and added a 32GB Nexus 7 for £199. A new 32GB Wi-Fi + 3G version costs £239.

All three Nexus devices run Android 4.2 Jelly Bean, which offers new features such as the gesture typing, the ability to

Apple's iPad loses market share to Google Android tablets

Consumers may have held out on buying an Apple tablet in response to rumours of an iPad mini

Apple has seen its tablet market share decline, thanks to the growing popularity of its Android rivals.

The iPad maker has seen its share in the tablet market drop 15.1- to 50.4 percent

during the third quarter of 2012, according to IDC. The charge of Android tablets was led by Samsung and Amazon, with the former shipping 5.1 million tablets during the three-month period.

IDC reasons that some consumers may have been holding out for an iPad mini or iPad with Retina display. And despite its declining market share, Apple posted record sales figures for iPad 4 and iPad mini sales combined, which hit three million units in just three days.

Tom Mainelli, research director of tablets at IDC, said: "We believe a sizeable percentage of consumers interested in buying an Apple tablet sat out the third quarter in anticipation of an announcement about the new iPad mini. Now that the new mini and a fourth-generation full-size iPad are both shipping, we expect Apple to have a very good quarter."

The tablet market grew 49.5 percent year on year, with the top five non-Apple vendors all seeing an increase in shipments.



Turn to page 37 for our iPad 4 review and page 67 for the iPad mini



Free calls over Wi-Fi from Virgin

Virgin Media has announced its SmartCall app, which enables existing customers to make free calls from their smartphone over a Wi-Fi connection. In what Virgin Media is calling a UK first, customers will be able to utilise the unlimited calls that are provided with their landline subscription on a smartphone. The service, which is scheduled to launch in early 2013, will be available even while the user is out of the country.

MORE: tinyurl.com/d9f882m

EE responds to 4G tariff complaints

EE, formerly Everything Everywhere, has responded to complaints regarding its 4G LTE data plans. The tariffs, which start at £36 per month with 500MB of data and go up to £56 per month for 8GB, have attracted heavy criticism from the media and the public. The mobile operator said that subscribers will not use more data with a 4G connection, they will simply spend less time waiting for pages to load. See page 146 for opinion.

MORE: tinyurl.com/bq63xs3

Mobile carriers to speed 4G rollout

Ofcom has announced plans to speed up the rollout of 4G in the UK. The regulator, the government and major mobile operators have formed a jointly controlled company called Digital Mobile Spectrum to "further accelerate the rollout of 4G services next year".

MORE: tinyurl.com/d2pzzan

OFCOM FINALISES 4G LTE AUCTION PLANS

Mobile operators expected to launch 4G LTE services to rival EE in May, June

Communications regulator Ofcom has finally announced the timetable and regulation for the UK's 4G mobile spectrum auction.

We can already access 4G in the UK courtesy of EE, but the remaining mobile operators will get their chance to obtain 4G spectrum in Ofcom's forthcoming auction. Operators including O2 and Vodafone will bid for the 800MHz and 2,600MHz spectrum.

It will be the "largest ever sale of mobile airwaves" in the UK, according to Ofcom. Chief executive Ed Richards said: "There has been an important shift from preparation to the delivery of the auction, which will see widespread 4G mobile services from a range of providers."

Ofcom has set a combined reserve for the 4G spectrum at £1.3bn. Applications and deposits from

mobile operators including O2 and Vodafone can be submitted on a provisional date of 11 December.

Applications will be reviewed in December to decide which mobile operators will be allowed to bid in the auction. The auction itself will

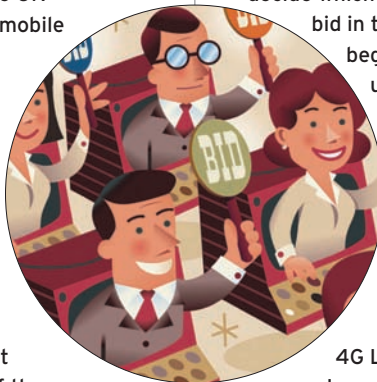
begin in January, with bids placed online using software specially designed for the task. The auction could take a number of weeks to complete.

In February or March the bidders will be informed of what they have won and sent a bill.

At this time licence fees will be due, and the licences will then be granted.

The all-important launch of rival 4G LTE services to EE will come in May or June, according to Ofcom.

"The entire industry is now focused on the forthcoming spectrum auction, with a shared goal of delivering new and improved mobile services for consumers," said Richards.



BBM VOICE OFFERS FREE CALLS OVER WI-FI

RIM has announced BBM Voice, which allows BlackBerry users to make free phone calls over Wi-Fi.

RIM's Voice service is integrated into BlackBerry Messenger (BBM). It's available in Beta form for download to BlackBerry handsets running OS 6.0 or later. Support for OS 5.0 is planned for the future, according to the company.

TA McCann, vice-president of BBM and Social Communities at RIM, said: "The new BBM Voice feature is for when you're travelling and you want to call home without worrying about phone charges."

RIM said customers can easily switch between text and calling modes in BBM, while a split-screen feature

allows the two to be conducted simultaneously. A visual indicator notifies users when a BBM contact is available for Voice.

RIM will be hoping new features such as BBM Voice will encourage customers to stay loyal to the platform until the arrival of its BlackBerry 10.0 operating system, scheduled to launch on 30 January.

Virgin Media offers unlimited data for £10 a month

Pay-as-you-go customers to benefit from cheap and unlimited mobile data plans



Virgin Media has launched two new pay-as-you-go (PAYG) smartphone tariffs that offer unlimited data or calls for just £10 per month.

'Big Data and Texts' offers unlimited data and 300 texts, while 'Big Talk' boasts unlimited landline calls and 120 anytime minutes.

Jamie Heywood, director of mobile at Virgin Media, said: "Unlimited data is a must to get the most out of the amazing

smartphones available today. People want to be connected wherever they are, so we've introduced unlimited data without the ties of a contract."

Unlimited texts can be added to either for an extra £5 per month. The £10 subscription also counts as mobile credit.

Virgin Media said it has seen a 100 percent increase in the amount of data its PAYG users consume. ☐

Power to deliver

Value the way you work
and save time and money



PIXMA

PIXMA MX895

Work the way that suits your business and deliver outstanding professional results every time with the stylish Canon MX895 printer. Built with Canon's market-leading technology and passion for imaging excellence, this device will boost your productivity and cut cost.



AirPrint

**Tablet &
Smartphone Ready**



Google
Cloud Print Ready

Internet Ready



Duplex ADF

Multipage Copying



Canon

you can



5 years of Android

Android dominates the mobile world, explains Mikael Ricknäs, despite many problems and flaws

Five years after its inception, Android is more dominant than ever in the smartphone OS market, despite facing a number of challenges along the way.

Android has endured legal battles, platform fragmentation, security issues and user complaints over upgrade delays. But none of these issues has so far seriously impacted its market share and sales, which reached record levels during the third quarter of 2012. A total of 136 million Android-based smartphones shipped around

the world, giving Google's OS a 75 percent market share, according to IDC.

"The decline of RIM, lack of Windows Phone sales and the late launch of the iPhone 5 all had a positive impact on Android sales and market share," said Francisco Jeronimo, research manager at IDC.

Apple's iOS was the second most popular OS with a 14.9 percent market share.

"People say the fragmentation is a mess, and there is some merit to that argument, but it is also indicative of Android's success,"

said Geoff Blaber, who leads the mobile device software research at CCS Insight.

The patent wars continue to be a threat to Android's future, and increase the costs of developing phones based on the OS.

"If suddenly you have got a whole lot of Intellectual Property Rights issues and you've got to pay Apple half of your profits, people might say, perhaps I am not going to support Android anymore, and maybe I'll go with Microsoft instead," said mobile analyst Richard Windsor, a Radio Free Mobile blogger.

Android's origins

Android was unveiled on 5 November 2007, when Google, T-Mobile, HTC, Qualcomm, Motorola and almost 30 other companies joined forces to announce the development of the open-source OS.

About two years earlier Google had acquired Android, the company, whose co-founder Andy Rubin is still in charge of developing the OS. It took another year before the first smartphone - the T-Mobile G1 - arrived. Android's success wasn't immediate, but by the end of 2010 it had become the most popular smartphone OS.

Google Android's impressive ascent is due to several factors.

"Android's timing was perfect: the iPhone had reset expectations, but that was specific to one product and the carriers needed a counter to Apple's success. At the same time, Symbian was struggling," said Blaber.

The cost of the OS also helped, according to Windsor. "One thing that galvanized everyone to at least consider it was the fact Android was freely available," he said.

That meant not having to pay for a software licence, and the possibility to "hack the code to pieces", he added.

Also, the user interface looked a lot like that of the iPhone, which meant vendors could offer a similar user experience at a much lower cost. The market was wide open and Google went in and took it, said Windsor.

Android tablets

However, breaking Apple's domination in the tablet market has proven much more difficult. Products such as the Motorola's Xoom family and HTC's Flyer failed, while Samsung has seen moderate success with its Galaxy Tab family.

Recently, though, the Android camp has started to make some headway.

Sales of 10.2 million units during the third quarter of 2012 were enough to increase its market share to 41.3 percent, compared to 29.2 percent a year ago, according to Strategy Analytics. At the same time, Apple's share dropped from 64.5- to 56.7 percent, the market research company said.

No single Android vendor comes close to Apple in volume terms at the moment, but the collective weight of dozens of hardware makers is helping the Android platform to grow its share.

Samsung has enjoyed success with its Galaxy line-up; its S III and NOTE II are arguably the current handsets to beat

The combination of good specifications and low prices, along with more hardware partners, wider distribution, more marketing and a growing number of tablet-ready apps has helped boost sales, according to Neil Mawston, executive director at market research firm Strategy Analytics.

Amazon helped usher in the current generation of low-priced Android-based tablets with the Kindle. But its sales have been fading in the past few quarters. Now the company is hoping to make up some ground lost during the past three months.

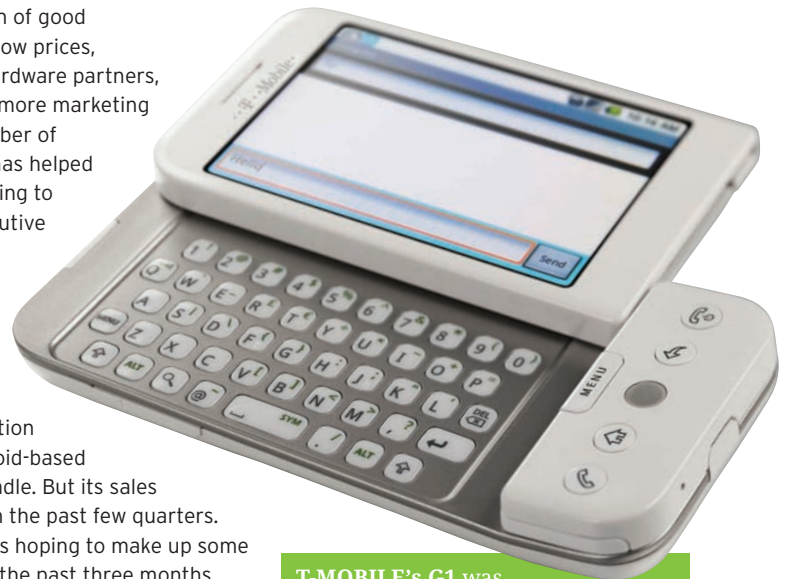
Android vs iOS vs Windows

This year's Christmas season is lining up to be more competitive than ever for the tablet vendors, and Android will again have to prove itself.

Consumers can choose between the new Google Nexus 10 tablet and an upgraded Nexus 7 (now with more storage and mobile connectivity), as well as Apple's iPad mini, Amazon's Kindle Fire and all the tablets and hybrid laptops based on Microsoft's Windows 8 and Windows RT.

"The competition is going to be intense," said Mawston.

Android's current dominance is in large part due to Samsung, while long-time Android supporters HTC and Google-owned Motorola and others are struggling to find their footing in the market.



T-MOBILE's G1 was the first smartphone to run Android

HTC's current woes are the best illustration of how difficult it is to compete with Samsung and its Galaxy family.

"The HTC One X is a great product, but it was obliterated when Samsung launched the Galaxy S III," said Blaber.

HTC, maker of the first Android-based smartphone, saw its unit sales drop to 7.3 million during the third quarter of 2012, compared to 12.7 million a year ago, according to IDC. That helped drive down HTC's net profit to \$133.5m, a 79 percent drop compared to the third quarter of 2011.

At the same time, Samsung sold 56.3 million smartphones and Apple 26.9 million iPhones, while ZTE has become the fourth largest smartphone maker.

But just like when Android was born, there aren't a lot of smartphone OS alternatives at the moment.

"That is the quandary a lot of phone manufacturers are finding themselves in," said Blaber.

Windows Phone could be that alternative, but it has yet to prove itself as a viable competitor. That could change in the fourth quarter of 2012, when multiple Windows Phone 8 smartphones will go on sale, according to IDC.

From strength to strength

Breaking Android's dominance won't be easy. In every year since the first Android smartphone was launched, the OS has outpaced the market and taken market share from the competition, according to Ramon Llamas, research manager at IDC.

Even today, more vendors are introducing their first Android-based smartphones, he said. ☒



AOC



myPlay

Play it large with the myPlay

The first thing you notice about the myPlay i2757Fm is the image quality and colour depth thanks to the impressive 68.6cm/ 27" IPS panel with a contrast ratio of 20,000,000:1 and a super wide viewing angle of 178 degrees. In addition to the super image quality you can transfer games, photos, films, presentations and documents from your smartphone or other mobile device* in a super large size and in Full HD onto the myPlay display. View content together with your friends, family or colleagues in XXL. Thanks to the myPlay's integrated MHL interface (Mobile High-Definition Link) all content from your mobile devices gets "mirrored" onto the monitor – ideal for entertainment, social networking and best of all, your professional work. A practical side effect: the mobile gadgets get charged at the same time. When size matters, show it with the myPlay from AOC (i2757Fm model).



Dismountable stand



Sensitive touch buttons integrated into the silver front band



MHL™ interface (Mobile High-Definition Link)

Model specifications: i2757Fm LED backlit, IPS panel 16:9, visible screen size 68.6 cm (27"), Full HD, VGA, Dual HDMI and MHL™ interface (Mobile High-Definition Link), SRS Premium Speaker, 5 ms response time



www.aoc-europe.com

*Only devices with Micro-USB port conforming to the MHL Consortium's standards.

AOC displays – internationally awarded time and time again:



ebuyer.com

MISCO.co.uk

SCAN

Windows RT 64bit in the works

ARM is working with Microsoft to tune Windows RT to run on CPUs based on its 64bit architecture, explains Agam Shah

There's little information on the specifics, but ARM is understood to be working with Microsoft on a version of Windows RT that will run on its 64bit CPUs. This will expand the memory capacity of devices, allowing for improved performance.

Ian Forsyth, program manager at ARM, could not comment on a specific release date for the 64bit version of Windows RT, but said ARM is continuously working with software partners to add 64bit support.

"ARM works with all its OS and ecosystem partners to inform them on next-generation technologies and enable their support," said Nandan Nayampally, head of ARM's processor marketing division.

A Microsoft spokesman also declined to comment on specifics of the 64bit version of Windows RT, saying it had no information to share at this time.

Windows RT

At the end of October Microsoft released Windows RT, a 32bit OS that works with ARM processors, and Windows 8, a 64bit OS that works with x86 processors. ARM has now announced its first 64bit processor designs: the Cortex-A57 and Cortex-A53 are based on ARM's Armv8 architecture. The chip designer said it expects servers and mobile devices based on the CPUs to hit the market in 2014.

Windows RT today runs on tablets with 32bit processors from nVidia and Qualcomm. Microsoft's Surface and Asus' Vivo Tab RT tablet run nVidia's quad-core Tegra 3, while Dell's XPS 10 and Samsung's P8510 Ativ Tab use Qualcomm's dual-core Snapdragon S4.

The 32bit Windows RT OS has a limited memory ceiling, and a 64bit version would expand the memory capacity in tablets and PCs. A 64bit version of Windows on ARM would also bring it on par with Windows 8.

nVidia is developing a processor core based on ARM's 64bit architecture under the codename Project Denver. It declined to comment on the development of 64bit software for Windows.

A Qualcomm spokeswoman said the company cannot comment at this time on specific product plans. However, Qualcomm is an ARM partner and helps to explore and evaluate emerging technologies, including 64bit software support, she said.

Compatibility

Microsoft's interest isn't surprising, since the move to 64bit would appear to be a natural progression for ARM and supporting vendors, just as it was for x86, said Charles King, principal analyst at Pund-IT.

But software would need to be written to support the 64bit ARM instruction set, and porting many x86 64bit apps is a challenge, said King. Existing apps that ran on previous versions of Windows do not run on RT.

"From a purely technical perspective, porting many common x86 applications to ARM is problematic," King said.

There are also questions on how developers will take the move from 32- to 64bit, King said. But if customers want apps, the developers will deliver.

"Fortunately, everyone involved has a year or more to sort things out," King said. ☐

AArch
64



Supply issues lead to iPhone 5 delays

Foxconn may be having supply issues tied to iPhone 5 components and Apple's stringent production specifications, reports Agam Shah

Stringent iPhone 5 production specifications established by Apple and supply issues with new components such as the Lightning port and larger screen could be responsible for Foxconn's delays of the handset, analysts have said.

Foxconn, a Chinese contract manufacturer that assembles Apple devices, said it was shipping fewer iPhones due to design and production issues.

Foxconn chairman Terry Gou said iPhone demand was strong, but the company couldn't meet Apple's requests to supply more phones. He did not provide further details on the design and production issues causing the delays. However, analysts said that an overwhelming demand for the iPhone 5 and supply chain issues could be hurting the timely production of the device.

Apple sold more than five million iPhone 5 units in the first three days of the handset being onsale. The phones have been in short supply ever since, and Apple's online

store currently reflects a three- to four-week wait for the device.

Foxconn runs a tight ship, and it's more than likely that the iPhone shipment delays are related to supplies of "components and Apple's control related to a component," said Jim McGregor, an analyst at Tirias Research.

Apple selects component suppliers, and sometimes multiple vendors supply a single component to Foxconn. Foxconn's delays could result from a lack of consistency among parts supplied by different suppliers.

"That leaves a contract manufacturer with very limited options," McGregor said.

Standards are too high

Sterne Agee analyst Shaw Wu in early October pointed to a limited supply of components such as touchscreens as a reason for iPhone shortages. Wu also pointed out that Apple has set stringent demands related to iPhone production.

"Our sources indicate that the iPhone 5 is not easy to build with Apple's very high

standards. It aims for each model to be an exact replica, where variance is measured in microns," said Wu.

Foxconn may also be having trouble adapting the production line and getting parts for many of the new features in the iPhone 5, said Dan Olds, principal analyst at Gabriel Consulting Group. New features include the Lightning port and casing.

"It's very hard to scale up any supply chain to produce these kinds of numbers of technical products in such a short time period," Olds said.

Roger Kay, president of Endpoint Technologies Associates, agreed, saying that there have also been issues with the finish and polishing of the iPhone.

"The production quality requirements have grown more stringent over time as expectations - Apple's and end users' - have risen. Maintaining consistently high-quality production is difficult," he said.

Labour unrest and high turnover rates in Chinese factories may have contributed to iPhone 5 production delays, analysts said.

No time to wait

The iPhone 5 supply issue is more visible now because of the high competition in the smartphone market, according to Olds. In the past people would be willing to wait for an iPhone, but that's not the case anymore.

"Android phones are much more competitive, and some of the folks looking at a four- to five-week wait for an iPhone 5 might take a hard look at giving an Android device a shot," he continued. ☒



IPHONE 5: How long are you prepared to wait to get your hands on one?



Ultrabook™ Inspired by Intel

Acer recommends Windows 8.



OPEN UP WITH THE ACER ASPIRE S7

OUR THINNEST, LIGHTEST TOUCH ULTRABOOK™

Her beauty is so remarkable men have been known to weep just thinking about her. But there is so much more beneath that perfect skin: a deep passion for the scientific study of marine life and a desire to translate the language of dolphins.

That's why we designed the Acer Aspire S7. With its ultra-light, sleek and durable glass casing, full HD lie flat touch screen, light sensitive backlit keyboard, Intel® Core™ i5 or Core™ i7 processor and twin cooling vents it's as smart and beautiful as the woman who uses it. The ideal tool for her to explore the world of *Tursiops truncatus* (that's dolphin to the rest of us).

Watch the full Megan Fox story online - Search 'Aspire S7'



How all minis link to Apple

To celebrate the launch of the iPad mini, Simon Jary rounds up 17 other famous minis, speculating on how each may be linked to Apple

The world of technology has suddenly gone mini-mad. Apple has launched a smaller version of its iPad tablet, called the iPad mini. And arch-rival Samsung has a Galaxy S III Mini smartphone for Apple lawyers to scrutinise.

In honour of these new tech minis we've collected a bunch of other legendary mini things, and tried - often rather tenuously - to link them to Apple.

iPod mini

The first Apple mini was 2004's iPod mini, and it was a roaring success - so much so, that for much of its existence it was sold out. The iPod mini was both physically smaller than the iPod (hardly a giant itself) and had a reduced capacity (originally 4GB). But perhaps the reason for its success was not its size, but its range of metallic colours: silver, blue, green, pink and gold.

Mac mini

Following the commercial failure of the Power Mac G4 Cube, Apple shied away from little Macs for half a decade before slicing the Cube by a fifth and creating the 5cm-high Mac mini. This Mac was intended

to lure to the bright side iPod-toting PC owners.

Sadly, the Mac mini was never a roaring success. As with the Cube, it looked so small that its price tag appeared too high, especially as you still had to buy a monitor, keyboard and mouse. The original Mac mini also had a power brick that was a third of the size as the computer itself. And, bizarrely, to add memory you needed to prise off the top with a putty knife.

The Mini

Surely the most famous mini is 1960s British auto icon the Morris Mini car, as seen in movies such as *The Italian Job*. Designed by Sir Alex Issigonis, the spartan Mini redefined the family town car, and was rushed into production following fuel rationing caused by the Suez Crisis.

It was so small compared to other cars of the time that it was dubbed not just the Mini, but the Mini Minor. Often seen as much a symbol of Britain as Big Ben, bowler hats, double-decker buses, red telephone boxes and the rain, the Mini was later revamped by Germany's BMW.



Apple link:

Unlike Apple products, the Mini car was an economy model. But, as with the iPhone, its designer was later knighted. 'Think Different' cover star and idol of Steve Jobs John Lennon, whose Apple Corps fought Apple Computer many times in the courts, was a famous Mini owner (which is another weird coincidence as the Mini was inspired by the VW Beetle).

Miniskirt

Another icon of 1960s Britain was the miniskirt, named by Mary Quant after her favourite car. This mini caused much controversy for its outrageous revelation of the female leg.

Apple link: None that I can think of, but I'm committed to keeping up the search.

Minneapolis

The 'City of Lakes' is the 48th largest city in the US. In 2005, *Popular Science* named it the Top Tech City in the US.

Apple link: This US city is sometimes known as The Mini Apple, for obvious reasons.

Mini-Me

The most famous human Mini character is Mini-Me from the Austin Powers movies.

Apple link: Mini-Me was played by 2ft 8in actor Verne Troyer, who later starred in Apple TV ads for 12- and 17in G4 PowerBooks with 7ft 6in basketball player Yao Ming.





MiniDisc

Launched in 1992, Sony's MiniDisc was a brave new storage format that could store up to 74 minutes of digitised audio – just like a CD-R, which won the audio-storage war on value for money.

Apple link: Apple used a Sony storage format from the original Macintosh right through to the mid-1990s, with the 3.5in floppy disc. But Apple had nothing to do with Sony's MiniDisc – a trend matched by just about every device maker outside of Japan.

Minnie Mouse

How could Disney follow the success of its iconic cartoon rodent Mickey Mouse? That's easy: by giving him eyelashes, an even higher voice and female clothing.

Apple link: When he sold his animation studio Pixar to Disney for \$7.4bn in 2006, Apple's then-CEO Steve Jobs became Disney's largest shareholder.

Minnie Driver

The star of *Good Will Hunting* and various other movie and TV shows started her acting career in a 1991 TV advert for Right Guard.

Apple link: I always thought she starred in TV hospital show 'ER', but that was Alex Kingston. So the link to ER's Noah Wyle, who played Steve Jobs in the movie *Pirates of Silicon Valley*, isn't the strongest I've pulled together here.



Minnie the Moocher

"Hi-De-Hi-De-Hi-De-Hi!" Cab Calloway's scat-hit 'Minnie the Moocher' is probably best remembered from the singer's comeback in the *Blues Brothers* movie, but it has been a classic since its original release in 1931.

Apple link: 'Minnie the Moocher' was once sung by Apple fan Stephen Fry on TV show 'Jeeves and Wooster'.

Minnie the Minx

Dennis The Menace for girls, *Beano* cartoon character Minnie the Minx is regarded as an icon of the Golden Age of British comics.



Apple link: She looks a bit like the Special Edition U2 iPod...

Mini Moke

The Mini was the inspiration for this Jeep-like car thing that became a hit mainly as a beach buggy, and achieved cult fame with its appearance in *The Prisoner*. The Moke was originally designed as a light military vehicle.

Apple link: With its easily swappable parts and lack of curves, the Mini Moke is nothing like a modern Apple product.

Mini Milk

Can't get your child to drink milk? Worried said child will have bones as fragile as champagne flutes? Give them a Mini Milk.

Apple link: I bet Jony Ive has had a Mini Milk.

Mini Moto

If your child has drunk a decent quantity of milk, he or she might be robust enough to have a go on a little motorbike, which is known as a Mini Moto. Adults also love riding these little bikes, and often injure or kill themselves while looking ridiculous.

Apple link: The very first Apple smartphone was the iTunes-friendly ROKR, made by Motorola (aka Moto).

Mini Golf

Surely there's no finer game on Earth than Mini Golf, which beats the tartan pants off proper golf.

Apple link: While golf should be the Apple of sports, with its high costs, premium brand and die-hard fanatics, I can't think of any sport less likely to tempt the likes of Steve Jobs and Jonathan Ive.


Blue Meanies

The Blue Meanies were buffoonish, music-hating creatures in the 1968 Beatles movie *Yellow Submarine*.

Apple link: In the movie the Blue Meanies warred against Pepperland – named after one of Steve Jobs' favourite albums. Jobs was also a known meany, and always wore blue jeans. The tallest, thinnest Meanies were known as the Apple Bonkers.

Mini egg

Mini Eggs are small chocolate eggs with a hard candy shell.

Apple link: Like the iPod and iMac, which are occasionally available in a range of colours, Mini Eggs come in white, yellow, pink and light blue hues. In Canada, they also come in turquoise, just like the Bondi Blue iMac. 

BlackBerry has a future in business

The way BlackBerry 10 implements work and personal partitions sets it apart from the competition, writes Mikael Ricknäs

Research In Motion continues to struggle as it works to finish the BlackBerry 10 mobile operating system, but the audience at the London edition of the BlackBerry 10 Jam World Tour developer event still thinks the company can play an important role in enterprise.

The arrival of the first smartphones based on BlackBerry 10 in early 2013 will be critical to RIM's future, and it needs to deliver both an OS and hardware that can compete with the latest iPhone and Android-based devices.

One of RIM's main differentiators is the multitude of management policies it offers administrators. Here, the company is still unrivalled, according to Chris Pearson, administrator at Santander.

"I haven't seen anyone else come close to the granularity RIM offers," he said.

But that RIM has the best management support in the smartphone industry is nothing new, and to remain relevant it also has to improve the usability of its products.

Getting the right Balance

Two features that impressed the audience at the Jam event in London were Balance and the ability to push content to the universal inbox. Balance lets you have personal and work partitions on your phone, and the two are separated right down to the file system, as opposed to something that has been implemented on top of the OS.

"When a person leaves, the company can issue a kill packet and all the corporate data and applications are wiped off the device. You can also block copy and pasting from personal into corporate or corporate into personal partitions," said Gregg Ostrowski, senior director, enterprise developer and technical partnerships at RIM, who spoke at the Jam event.

What sets RIM apart is how the two worlds are implemented in the user interface. By swiping across the middle of the touchscreen and pressing either the Work or the Personal button, you can quickly switch between the two environments.

There's more to come

Following his speech, Ostrowski opened the floor for questions. He was asked about the ability to do deeper application analytics, create further partitions, and connect a device to multiple servers.

The first two aren't in the works, but letting devices connect to more than one server is something the company is "very seriously investigating", Ostrowski said.

Gartner's Leif-Olof Wallin likes the way RIM has implemented the Balance feature, but he also questioned the company's ability to hold its own, especially against Apple and the iPhone in the enterprise.

"The problem with BlackBerry 10 is that it's a completely new version and it will take time before the OS is accredited to be as safe as previous versions," said Wallin.

RIM doesn't have the same extreme focus on enterprise as the company has had in the past. It's instead developing a platform that will attract consumers and still be good enough for enterprise, according to Wallin.

"We think there will be only about a 10th of the number of policies implemented on BlackBerry 10 compared to the current version of RIM OS," said Wallin.

BlackBerry 10 will still have more policies for remote management compared to Apple's iOS, but the gap will be narrower.

While the London Jam attendees should give RIM some hope, they also help illustrate its current problem. Out of 15 attendees that were seen playing with their phones prior to the event, only five were using a RIM device. ☒

“

I haven't seen anyone else come close to the granularity RIM offers

”



Vigor 2850 Series

The Ultimate 'xDSL' Router

- ADSL2+ and VDSL and Broadband Router
- IPv6 support - The new Internet protocol
- 3G (Cellular) Modem support
- 802.11n WiFi with multiple security methods
- Comprehensive and robust firewall
- VPN dial-in/dial-out with co-processor
- Configurable QoS (traffic prioritisation)
- Twin VoIP ports with PSTN passthrough
- Content Filtering (by keyword or data type)
- 802.1q VLAN tagging & multiple subnets



Ideal for ADSL today and VDSL tomorrow!
(or both at the same time!)

Get our new eBook - Real World IPv6

If you connect to the internet, you're going to need to know about IPv6. Every server, PC and every other Internet-connected device has an IP address. All available addresses have now been allocated so a new system called IPv6 has been developed. It's available now and eventually we'll all need to be using it. Learn all about it in our new eBook.

Get it from www.draytek.co.uk/ipv6

Use discount code **PCA912A** to get it for free*



Vigor120

ADSL Ethernet Modem

- True ADSL Ethernet Modem
- ADSL Parameters pre-set for UK
- ADSL & ADSL2+ Support
- Ideal for load-balancing routers or other appliances requiring ADSL
- IPv6 compatible



Vigor2710/2110 Series

SoHo ADSL/Cable Router

- ADSL2+ or Cable SoHo Router
- 802.11n WiFi
- Parental Controls & CSM
- USB Storage (NAS)
- VoIP capability with 2 phone ports
- QoS for high VoIP quality
- New Vigor2710Vn with built-in DECT base for complete SoHo VoIP/phone integration - See web site



Vigor2920 Series

Dual-WAN Ethernet

- Dual-WAN Ports (Ethernet)
- IPv6 Support
- 4-Port Gigabit LAN Switch
- 3G USB Modem support
- 802.11n WiFi
- Content Filtering
- NAS facility on USB port



Vigor3200 Series

Quad-WAN with SSL VPN

- Four Ethernet WAN ports for load balancing or WAN backup
- VPN Trunking & Failover
- 802.1q Tagged VLAN
- Robust firewall & QoS
- USB Port for 3G Connectivity
- CSM (Content Security Management)



Vigor ACS-SI

Central Management Software

- Control larger estates of routers
- Monitor uptime & activity
- Drag'n'Drop VPN Setup
- Failure & threshold alarms
- Remote/Bulk Upgrading
- Status Reporting & Logs

Vigor AP-800

Business-Class PoE WiFi

- 802.11n Access Point
- Dual-LAN Interfaces
- PoE or DC Powered
- 4-Port Ethernet Switch
- Repeater/Extender
- User Authentication
- Optional Dual-Band
- Multi-layer security



VigorSwitch

Gigabit & PoE Switches

- Gigabit Smart or L2 Managed
- 8 or 24 Port Full Power PoE
- PoE models to power:
 - IP Phones
 - IP Cameras
 - Access Points



Vigor 3900

Gigabit Quad-WAN Router

- Ethernet Gigabit WAN & LAN
- 1Gb/s Firewall Throughput
- Up to 500 VPN Tunnels
- SSL VPN & IPv6



*Code available to PC Advisor readers in the UK only. Limited time availability.
E&OE. All specifications subject to change. Please check web site for current model specifications.

DrayTek
www.draytek.co.uk

GET THE BEST DEAL ON TECH

Matt Egan explains how to grab a bargain when buying a laptop, tablet, smartphone and more

Products such as smartphones, tablets or laptops will lie under many a tree this Christmas, and are some of the best gifts money can buy. But shopping for tech can be an expensive business, full of pitfalls for the wary. Here we offer simple tips to help you get the best value when you buy technology products, as gifts or for yourself.

We've focused on tablets and laptops, but the same advice rings true for all tech products, including smartphones, cameras, satnavs and printers.

Research

It sounds obvious, but if you want to get value for money it's important to do some research. And the start of that process is researching which product is best for your needs. Remember that 'cheap' doesn't always equate to 'good value' in the technology space.

Consider tablets, for instance. Recently a reader challenged me over my assertion of a year ago that the iPad was 'well-priced'. Surely, he said, Android tablets were cheaper and product tear-downs had shown that the components were worth a lot less than Apple charged for the iPad.

But here's the thing. A tear-down of the components of a device will show how much those components cost, but it bears only a small relation to the value of that product.

I do think the iPad is well-priced, still, although the argument is more nuanced than it was when I made the comment. Back then, the only products that came anywhere near to the quality of the iPad weren't as good,

and cost at least as much. And they ran an Android smartphone OS that wasn't fit for purpose on tablets, with nary a tablet-optimised app or decent source of music and movies to be found.

The market is very different now. With the Nexus 7 and Nexus 10, Kindle Fire HD and Nook HD (see pages 64 and 67), Android hardware is getting close to iPad-quality, and these products cost a lot less than Apple's tablet. Android Jelly Bean is a proper tablet OS, with good music and movie options, although there is still a lack of apps for tablets on Android.

The Microsoft Surface RT tablet adds a decent Windows option, but it costs the same amount as the iPad.

The cost of the Nexus devices, and the tablets from e-reader makers, is subsidised to encourage content sales. As such they are instantly attractive to consumers, but those who purchase them

are making a deal: the Nook HD and Kindle Fire are locked down to the extent that they are useless bricks unless you're happy to purchase content via their respective

stores. The Nexus devices are subsidised because Google's main customer is advertisers, and it wants you to purchase apps and music, while delivering data to advertisers.

None of these things makes these tablets bad products, but it does put

the iPad's price into perspective. They are different devices for different needs.

So, before you decide on a product to buy, work out what you need it to do. Then read as many reputable reviews as you can from publications such as *PC Advisor*. Read user reviews, but take them with a pinch of salt – every product ever made has some poor user reviews, and often the criticism is based on factors that won't be relevant to you.

You'll have a much better shot at getting a bargain if you know exactly what you want.



Use price comparison

Price-comparison sites have a bad name in some quarters, and with justification. But used well they can unearth the odd bargain. And, at the very least, a visit to Google Shopping, PriceRunner, Reevo and the rest will let you know what sort of price you should be paying for your selected product.

Don't limit yourself to price-comparison websites, either. Hit the high street with a smartphone and you can utilise a raft of comparison apps while physically checking out gadgets. One of the best is Skinflint for iOS, a price-comparison app dedicated to tech. Using Skinflint you can compare the cheapest prices for tech products from more than 850 UK technology retailers. If you've done your research you can shop by specification and compare prices from major chains, online retailers and hundreds of independent retailers. And because Skinflint includes geolocation services and a barcode scanner, you can find out who has what offers in stock, wherever you are.

Reputable apps and sites such as Skinflint will endeavour to show you detailed information about vendors, as well as the total cost of purchase. But it is easy to be caught out, and there are limitations to price comparison. The business model of most comparison engines is that the company doing the comparing gets a small cut of any sale made. Given the already small margins most resellers make on technology products, and the relative ease of access to the market for online retailers, this can lead to some sharp practice. It's also why some big manufacturers and vendors make a point of stating "we are not on price-comparison sites" in their advertising.

"It's still the wild west out there, with companies big and small using every trick they can to grab your attention," said Brian Trevaskiss of technology reseller More Computers. He outlined some ways that

companies mask the true price of their products to 'win' a comparison, and then charge you more in the final analysis - something More pledges never to do.

"You'll find ex VAT prices, free delivery (but only when you spend more than £1,000), non-UK models and out-of-date sites with no stock.

"Sites come and go at a phenomenal rate. Unscrupulous cowboys set up, sell goods at below cost, rack up debts and drive away in their expensive cars, with no intention of supporting their customers or paying their suppliers," warned Trevaskiss.

So, by all means use price comparison as a reference, but don't simply plump for the 'cheapest' price you find. And if you must buy via price comparison, follow Trevaskiss' advice, even if it means paying a little more in the short term: "Buy from a retailer with a proven track record - and one that pays its UK taxes. It's worth it if your delivery doesn't turn up or your product is faulty."

To which we'd add the following: find the best deal on price comparison, then compare it to what is available from the manufacturer or vendors from whom you have previously purchased, and who you know will be around to fulfil any support requirements.

And bear in mind that some products are available only, or primarily, from their makers. So if you are looking for an inexpensive laptop, for instance, check what you can spec out on the Dell website, and see how those specifications compare with standalone SKUs you find on price comparison. The chances are Dell will compete well, and you know that it will still be around in a year or two to honour any repairs if necessary.

Check all options

eBay is no longer a flea market, and Amazon is not just a book store. These days, savvy online retailers will have a presence on eBay and Amazon Marketplace as well as the open web and price-comparison sites. Given the volumes that these market places drive they'd be foolish not to. The interesting thing from a consumer point of view is that the same vendor may have different prices and special offers across all its portals. So once you've chosen a product and worked out a price bracket, be sure to check all options.

Look at deals sites such as HotUKDeals, in which users spread the word about voucher offers and time-limited deals, saving you the job of combing the web to find them. This can be a good way to grab a bargain.

If you're buying a laptop, for instance, once you know what specification you



want, check out price comparison for an idea of the price you should be paying, then look at large commodity manufacturers such as Dell and HP to see what they can offer. At this point, it's worth looking for deals and voucher offers, because end-of-line laptops are often sold off cheaply.

Indeed, some vendors such as Lenovo-owned Medion make a virtue out of this, manufacturing only small numbers of a certain SKU, and selling them direct and through supermarkets. This keeps down costs, so you can grab a bargain, but each model is available for only a small time. So check the offers sites: you may be in luck.

Don't be upsold

So, you've worked out which product you want, examined the market-pricing and selected a reasonably priced but reputable vendor. You're almost there.

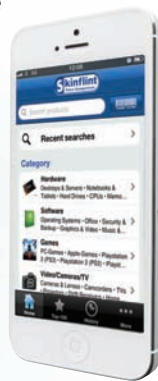
Upselling is the art of adding on pay-for extras, or convincing a consumer to buy a more expensive product at the point of sale. It happens all the time, and it can be expensive.

Retailers and manufacturers often make very little margin on tech products, so they'll try to claw back some profit by selling additional software, warranties or next-day delivery. These can be useful, but don't buy them if you don't want to.

Recently I advised a colleague's sister on the purchase of a laptop. We looked at what she required, checked the market and eventually plumped for a basic £359 Dell Inspiron laptop. In the end she bought a £499 product - the salesman had persuaded her that a thin-and-light Ultrabook was better, and sold her Microsoft Office and a three-year antivirus licence. She wasn't ripped off: the product was worth more, and the add-ons were useful and well-priced. Indeed, she got a good deal, but she spent a lot more money than she intended to - and that was avoidable.

The final word

So, there you have it: research the product, research the price, and shop wisely with care and imagination. Or, if you're a man buying Christmas presents: go to the petrol station on Christmas Eve and buy flowers and chocolates. Like last year. ☒



KEEP THE INTERNET OPEN

You pay for a set amount of data, so what business is it of your ISP to decide where you use it, asks Martyn Casserly

The recent London 2012 Olympic games had many poignant moments, but one in particular stood out for those who have a keen interest in technology. During the Opening Ceremony Sir Tim Berners-Lee, father of the internet, tweeted a message from the main stage that was displayed in huge letters all around the stadium. It read: 'This is for everyone.'

Berners-Lee's tweet was a reminder of how important the internet has become to us all. It's concerning, then, that in the past few years a political storm has been brewing over how we access the web.

The argument centres around the principle of 'Net Neutrality', and looks set to become one of the most important debates in technology for the foreseeable future.

Tim Wu, the Columbia Law School professor who coined the phrase 'Net Neutrality', recently stated that "The internet was built on the principle that carriers take your data where you want it to go, and people are allowed to communicate over the internet without interference from those in the middle. It's a pretty profound principle."

Merging content & service provision

Net Neutrality assumes the companies that supply you with a gateway to the web remain impartial to the content you enjoy and the sites you visit during your stay, treating all as equal. It's obvious, sensible, and exactly how the internet has functioned until now. But as

we increase the amount of data we consume, in particular when streaming video from services such as BBC iPlayer and YouTube, there's talk of some ISPs wanting to charge more money to ensure the quality of content they deliver remains high.

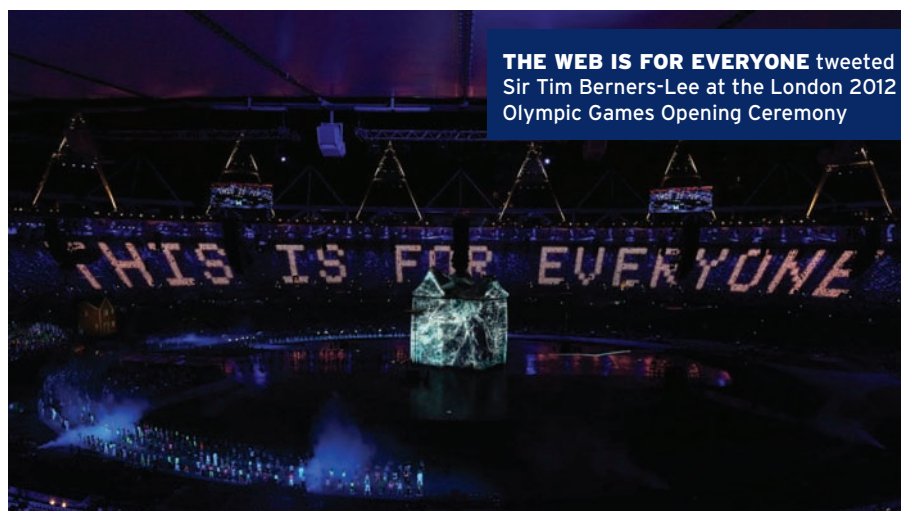
It can be easy to forget that the way we access the web is still controlled by only a handful of companies. They own the physical infrastructure that allows internet signals to pass between two points, and hold a tremendous amount of power as our reliance on the internet increases.

How would you feel if your ISP decided that to access certain sites you must pay an extra charge? If you want to access Facebook it'll cost you an extra £5 per month, and YouTube will be a tenner, for example. This scenario sounds far-fetched but, in reality, there's no law to prevent it happening.

It's reasonable to expect customers who use more data to pay more. But things aren't that simple: ISPs don't have how much data we consume in mind, but where or from whom we consume it.

Favouritism at the top

Recently, customers who bought an iPhone 5 on the US AT&T network were told they couldn't use the built-in FaceTime feature over 3G, even when such usage fell within the constraints of their data allowance. We've seen something similar here in the UK, with several operators disabling Skype and smartphone-tethering on their networks. Theoretically, this selective attitude toward which services can be enjoyed might be used to promote



THE WEB IS FOR EVERYONE tweeted Sir Tim Berners-Lee at the London 2012 Olympic Games Opening Ceremony



rival services with whom the carriers have favourable agreements.

Media-reform advocacy groups such as Free Press (freepress.net), which started the 'Save The Internet' campaign (savetheinternet.com), voice a chilling version of the future when they argue that the ISPs, and the media companies that back them, "want to tax content providers to guarantee speedy delivery of their data. They want to discriminate in favour of their own apps, services and content, while slowing or blocking competitors' services."

In 2005, AT&T caused outrage when it proposed charging increased rates to certain web companies so they could receive preferential treatment for their web traffic. This would have in effect given the paying sites faster download speeds than their rivals, and made AT&T a tidy profit.

And in 2007, Comcast, the largest cable TV and internet provider in the US, was found to be tampering with traffic to certain file-sharing sites to make them unusable.

A study by the Body of European Regulators for Electronic Communications (BEREC) and the European Commission found at least 20 percent of mobile internet users in Europe have signed contracts that allow their ISP to restrict services such as VoIP and peer-to-peer file-sharing. The same is true for home broadband.

Freedom at stake

Advocates are concerned that the internet will become a series of walled gardens, with access strictly controlled and regulated by a handful of large corporations - each of

Without **NET NEUTRALITY** access to the web would be strictly controlled

whom offer their own services and media. It's almost a return to the days of AOL and CompuServe, with customers locked into their specific version of the web.

"Big media companies want to be in charge again," said Wu. "Most media over the past 150 years has been closed: if you look at NBC or the cable networks, they decide what goes on their network. The threat comes from the fact that the broadcasters, phone and cable companies are used to that business model and want to return to it."

Controlling online content

In 2012 the SOPA, PIPA and ACTA bills were proposed in the US and Europe in an effort to curtail online content under the auspice of copyright protection. If passed, ISPs would have had to regulate the content that went through their networks. If a site was suspected of containing copyright material it could be delisted from search results, and in effect would disappear from the

internet. The bills were dropped following discontent from the online community, but the entertainment industry is thought to be preparing new ones. Their lobbying power means they will certainly be heard.

Holland was the first European country to pass a law that prevents an ISP from charging more for access to specific sites, while Chile has also created relevant legislation. The concern about Net Neutrality is so great that even President Obama spoke about it in a 2010 interview. "We've got to keep the internet open. We don't want to create a bunch of gateways that prevent someone who doesn't have a lot of money, but has a good idea, from being able to start their next Youtube, or their next Google on the internet," said Obama.

The battlelines are being drawn, and it looks like this is an issue that's set to be hard fought over the next few years, and which could decide our online experience for decades to come. ☒

CHRIS
MARTIN



<< **Google Nexus 4**

Smartphone

Manufactured by LG, the Nexus 4 is the latest smartphone from Google. It's priced as a mid-range handset, but offers several high-end features, including a 4.7in display with a 768x1280 resolution, a quad-core processor, an 8Mp camera and wireless charging. Turn to page 38 for our full review.

£239 inc VAT
play.google.com

Google Nexus 10 >>

Tablet

Google has also launched its Nexus 10 tablet, this time made by Samsung. It runs Android 4.2 Jelly Bean and has a near-field communications chip, but its standout feature is a 10.1in screen with an iPad-beating resolution of 2560x1600 pixels.

£319 inc VAT
play.google.com



**Samsung Chromebook** <<**Laptop**

Samsung's latest Chromebook offers very good value at £229. This Chrome OS laptop has an 11.6in screen and a dual-core Exynos processor, and offers a 6.5-hour runtime. With no fan inside, silent operation is promised.

£229 inc VAT

samsung.com/uk

Chromebook VS Chromebook

>> **Acer C7 Chromebook****Laptop**

Offered at an even lower price than the Samsung at £199, Acer's Chromebook is also bigger and heavier. It has an 11.6in screen and an Intel CPU. A range of ports include three USB 3.0, and Acer claims a battery life of up to 3.5 hours.

£199 inc VAT

acer.co.uk



More New Products online:
tinyurl.com/pcagadgets



⬆ Logitech Touchpad T650

Touchpad

Logitech's Touchpad T650 aims to make navigating Windows 8 a breeze, and the glass-topped touchpad supports 13 gestures. The T650 works wirelessly and runs on a rechargeable battery.

£69 inc VAT

logitech.com/en-gb

⚡ Carbon Audio Zooka

Wireless speaker

The Zooka is a Bluetooth wireless speaker that can clip on to the top of a laptop or act as a stand for a tablet or smartphone. It's available in a range of colours, and its rechargeable battery is said to last up to eight hours.

£79 inc VAT

c14audio.com



⬅ Nikon D5200

Digital SLR

The D5200 is Nikon's latest addition to its mid-range digital SLR family of cameras. The 24.1Mp CMOS sensor promises detailed images and full-HD video recording.

The D5200 has a 3in 'vari-angle' LCD screen and offers 16 scene modes.

£819 inc VAT

nikon.co.uk

Amazon Kindle Paperwhite



E-book reader

The Kindle Paperwhite is the latest addition to the Kindle family of e-readers, and the first to come with a built-in light to aid reading in the dark. Its touchscreen has a higher resolution than those of previous Kindles. A Wi-Fi + 3G version is also available.

£109 inc VAT

amazon.co.uk



HIGH SPEED, GUARANTEED QUALITY

Business Ethernet Circuits from Spitfire

Leading business class Internet Service Provision since 2000

FREE CONNECTION**

Ethernet Circuits from
£299 per month for 10Mb
EFM Copper Ethernet

Call Spitfire on
0800 319 6010 to find
out about the UK's best
guaranteed business
bandwidth

www.spitfire.co.uk

TODAY'S UPGRADE FOR LEASED LINES



Benefits of Ethernet

- Upgrades existing leased lines
- Ideal for all data hungry businesses who rely on their Internet connection
- Ideal for Spitfire SIP Trunks, a cost effective replacement for ISDN30

GEA Ethernet

- Entry level Ethernet
- Includes auto failover to VDSL
- Available as 2Mb/10Mb/20Mb
- 10Mb from £299.00
- 20MB from £399.00
- Connection £175.00

EFM Copper Ethernet

- Highly reliable multi copper pairs
- Speeds from 2Mb to 35Mb
- 10Mb from £299.00
- Free installation with 24 month contract

Fibre Ethernet

- Ultra reliable fibre connection
- Speeds from 10Mb to 1Gb
- 10Mb from £399.00
- Free installation with 36 month contract

SPECIAL OFFER: Free connection on all EFM and Fibre Ethernet circuits**
Call 0800 319 6010

If you would like to partner with Spitfire and offer these services to your customers, please call 0800 319 6500 or email partners@spitfire.co.uk to find out more.



SPITFIRE®
VOICE • INTERNET • DATA

For more information, call us on 0800 319 6010 or visit www.spitfire.co.uk
Specialists in business class Internet connectivity, SIP and Voice over IP

*Guaranteed less than 0.01% packet loss, 10ms latency, 3ms jitter and 99.93% uptime. All prices subject to availability and pricing confirmation based on your postcode.**Offer available for a limited time only, conditions apply.



Innovative • Flexible • Reliable • Supportive
Telecommunication Services to Business since 1988





Nokia Lumia 920 <<

Smartphone

The Lumia 920 is Nokia's flagship Windows Phone 8 handset, and its pinning its hopes on the smartphone helping it make a comeback. This large device has a high-res 4.5in screen, which works even when you're wearing gloves. It will appeal to photographers with its 8.7Mp Carl Zeiss camera and floating lens. Read our review on page 42.

Around £500 inc VAT

nokia.com/gb-en



<< BubblePix BubbleScope

iPhone accessory

The BubbleScope is placed over an iPhone's lens and allows it to capture 360-degree photos and videos (called 'bubbles'). The device is attached to a special iPhone case, while a BubblePix app allows you to compose and preview stills and footage.

£69 inc VAT

bubblescope.com



Toshiba U920t >>

Hybrid Ultrabook/tablet

Its name is rather bland, but the U920t is an exciting Ultrabook/tablet hybrid running the desktop version of Windows 8. It has a 12.5in touchscreen for input, but a keyboard and trackpad are also available with the device in laptop mode.

£899 inc VAT

toshiba.co.uk ☒

SPITFIRE SIP TRUNKS AND ETHERNET

The perfect converged solution



Halve your ISDN30e and Internet costs*

Upgrade to our next generation network

Call Spitfire now on **0800 319 6010** to find out how we can transform your telecoms and data usage and spend

www.spitfire.co.uk



Free Connection on all EFM and fibre Ethernet**

Spitfire specialises in converged voice and data, offering market-leading SIP Trunks, Hosted Telephony – SIP Communicator™ and Ethernet solutions for business.

Benefits of SIP Trunks:

- Save up to 50% on ISDN30e rental and 75% on connection charges
- Ideal Disaster Recovery solution
- Porting of existing BT numbers as well as our own UK wide number ranges

Benefits of Spitfire:

- Ideal for use on Spitfire Ethernet circuits- guaranteed quality from one provider
- Spitfire bandwidth, numbering and SIP Trunks in one complete package
- UK based support

Proven Interoperability with:

- 3CX • AsteriskNow • Atcom IP04
- Audiocodes Gateway • BCM50 Release 6
- Berofix Gateway Box • Cisco UC320
- Cisco UC500 • Elastix • Epygi Quadro Pro IP PBX
- Free Edition • Gigaset • Kerio Operator
- Microsoft Lync 2010 & Audiocodes Gateway
- Mitel 5000 • Mitel ICP3300 • One Access G700
- Panasonic • Patton 4552 • PBXnSIP • PIAF Purple
- SARK 650 • SARK 850 • Sangoma Vega 100
- Simply VoIP PBX • Simply VoIP • snomONE
- Switchvox • Switchvox SMB • Swyx
- Trixbox • VoIPcortex

SPECIAL OFFER: Free connection on all EFM and Fibre Ethernet circuits**
Call 0800 319 6010

If you would like to partner with Spitfire and offer these services to your customers, please call 0800 319 6500 or email partners@spitfire.co.uk to find out more



SPITFIRE®
VOICE • INTERNET • DATA

For more information, call us on 0800 319 6010 or visit www.spitfire.co.uk
Specialists in business class Internet connectivity, SIP and Voice over IP

*Cost comparison: One year BT Retail contract: 10 ISDN30e channels + 100 DDI quota + CLIP = £218.00 per month. Spitfire: 10 SIP Trunks + 100 DDIs + CLIP + 1Mb additional Etherflow bandwidth on existing Spitfire Ethernet = £74.00 per month (Etherflow = Metro Band 2A). Existing 2Mb leased line @ £450.00 per month compared with Spitfire 2Mb Ethernet leased line from £180.00 per month. **Offer available for a limited time only, conditions apply.



Innovative • Flexible • Reliable • Supportive
Telecommunication Services to Business since 1988





Nokia Lumia 920 **42**



39



37



44

ANDREW
HARRISON

ARM'd but not dangerous

Mobile computing is an inescapable theme for our reviews section this issue, after some of the most eagerly awaited new tablets and smartphones all saw their official launch within the space of a few weeks.

Apple has finally confirmed what has only been speculated before (and even pooh-poohed by the late Steve Jobs), by designing a smaller version of the iPad. Even the name of iPad mini holds up the expectation, as does the sublime attention to detail in its design. Read our review of the mini on page 67.

But competition in the under-eights category is now fierce, with cut-price mini-tablets offered at knock-down prices from some familiar non-hardware companies with vested interests to finance. We've covered the Google Nexus 7 before, thought to be a loss-leader pushed out to boost Android tablet uptake. It's reviewed on page 68.

Now the big American retailers are at it - first Amazon, then Barnes & Noble, with cost-subsidised devices the corporations hope will inspire you to open your wallet and fill their tablets with paid-for books, music and rented film downloads.

We can't be sure, but the latest Google smartphone, the spookily cheap Nexus 4 that's this time built by LG on behalf of the advertising giant, may be benefitting from incredibly slim profit margins to help further the platform's cause. Android already has huge market share, and is now the largest smartphone OS, so perhaps Google is playing a long game to help shut out Microsoft from the smartphone business. The Nexus 4 is reviewed on page 38.

But, as we found with the Nokia Lumia 920 - Microsoft's Nexus, if you will, since the Windows maker all but owns Nokia now - there's little chance of Windows Phone 8 becoming the go-to choice for a



while. Useful software availability is one obvious drawback, along with the type of teething troubles you'd expect of a generation-one Microsoft release. You'll find the Lumia 920 on page 42.

The where's-my-app theme is echoed by the Surface - or, as we should call it, the Surface RT, in contrast to a Pro version promised for next year, which should even run Windows PC programs. In the case of the Surface - ARM'd, but not especially dangerous to Apple or Google just yet - limited software is only one gotcha.

Microsoft's first PC is immature, with some obvious customisation options absent and its stability in question. These issues demand fixing for later releases, provided that Microsoft doesn't do a Zune and give up on another unloved and floundering me-too product. Until Windows Run Time becomes more viable, we suggest it first learns to walk as Windows WT. ☒

PC ADVISOR TEST CENTRE

HARDWARE

- 36 Microsoft Surface RT
- 37 iPad with Retina display
- 37 HTC Desire X
- 38 Google Nexus 4
- 39 HP Envy 6-1006ea Sleekbook
- 39 Barnes & Noble Nook Simple Touch GlowLight
- 40 EyeSpy247 UCam247i
- 40 Philips 46PFL7007
- 41 Focal XS Book
- 42 Nokia Lumia 920
- 44 Chord Electronics Index & Scamp
- 46 Pentax K-01

- 46 Honestech Audio Recorder 3.0 Plus
- 47 Ducky DK9008 Shine 2
- 47 WD My Passport Edge for Mac 500GB

APPS

- 50 Skype for Windows 8
- 51 BBC iPlayer Radio for iOS
- 51 Hidden Eye for Android

SOFTWARE

- 53 Adobe Acrobat Pro XI
- 54 Magix Movie Edit Pro 2013 Premium
- 54 Acronis True Image 2013 Plus

- 55 Adobe Premiere Elements 11.0
- 56 Ubuntu 12.10
- 57 Dragon NaturallySpeaking 12.0 Premium
- 57 F1 2012
- 58 Assassin's Creed III

BUSINESS

- 60 Canon i-Sensys LBP7680Cx
- 60 Pantum P2050
- 61 Brother MFC-J4510DW
- 62 Xerox WorkCentre 6605DN
- 62 Kensington ClickSafe Keyed Laptop Lock

Prices

All prices are RRP's quoted by the manufacturer or distributor and include VAT. Prices are intended as a guide and products are not guaranteed at our quoted price. PC Advisor's recommendations are for guidance only. The publisher takes no responsibility for purchasers' decisions.

£399 inc VAT (32GB)

Contact

■ microsoft.com

Read more

■ tinyurl.com/d887t9j

Specification

1.3GHz nVidia Tegra 3 quad-core ARM; 2GB RAM; 32/64GB flash storage; 10.6in (1366x768) LCD; 802.11a/b/g/n, 2x2 Mimo; Bluetooth; microSDXC; USB 2.0; Micro HDMI; Microsoft Office Home & Student 2013 RT (preview); 31.5Wh fixed lithium battery; 275x172x9.5mm; 686g



TABLET

Microsoft Surface RT

Windows RT, the version for ARM tablets of Microsoft's flagship OS, is finally available on a range of devices, including the company's own Surface RT tablet.

The 10.6in screen provides a fraction more room in which to manoeuvre than the iPad, but it's just as thin as Apple's tablet at 9.5mm. The Surface is easy to squeeze into a bag, and it isn't too heavy to carry, at 686g. An optional cover adds around 200g.

In contrast to the rounded iPad, the Surface has a far more angular, business-like yet sleek design.

In portrait mode, Windows 8's tile-based interface looks odd, but held in its preferred landscape mode the Surface promotes wrist strain. This tablet is very much designed to be operated from a desk.

The kickstand is an important element. A bracket flicks out at the tablet's rear, in the process revealing a microSDXC slot, but the kickstand's rake isn't adjustable.

Adding one of two keyboard covers creates what feels like a pint-sized laptop. These keyboards are a genius invention. The Touch Cover, just 3mm-thick with flat keys, initially feels strange in use, although you quickly get used to it. Its pressure-sensitive touchpads are fine for casual use, but serious typing demands the Type Cover. This is double the thickness, but fitted with real keys (albeit with minimal travel).

Both keyboard covers click securely into place, and you can even dangle the Surface from its cover without it hitting the ground.



The Surface RT feels like a premium product right out the box. We'd have given it a higher build-quality rating had it not been for an unseemly gap on the rear, through which the internals are on display.

The VaporMG chassis, made from injection-moulded magnesium, makes the slab strong and nice to the touch; although, within minutes, we'd tainted its absorbent finish with scores of fingerprints.

Performance

Windows RT can't run regular x86 software, making it all but useless when faced with legacy Windows programs. It's designed to run on ARM processors, and the Surface is fitted with a 1.3GHz nVidia Tegra 3 quad-core chip and 2GB of memory.

There's precious little software available for Windows RT, which includes our usual benchmarking utility. Through Internet Explorer 10.0 we were able to run SunSpider, in which the Surface recorded 1,024ms in the Desktop mode and 985ms in the Modern UI. Both scores trail the iPad's 854ms.

From the user's perspective the interface is extremely slick, just like Windows Phone 8. The interface animations are smooth, and tasks such as pinch-zooming in Internet Explorer are responsive.

Apps don't launch as quickly as we'd like, though, and we were often left staring at Windows 8's swirly dots for several seconds upon first launch - behaviour we've previously noted in Windows Phone 8.

At its comparable £399 price point, the 32GB Surface has twice the storage of the 16GB iPad 4. A microSDXC slot lets you add up to 64GB more. There's also a 64GB Surface RT, which costs £559 (including the Touch keyboard).

The 1366x768 pixel count is common on 15in laptops, but on a

10.6in tablet it gives a higher 148ppi pixel density. The screen looks good at a regular viewing distance, matching the Samsung Galaxy Tab 2 10.1, but it's no Retina iPad; look closer and fuzzy edges are noticeable in reading type.

More than the usual Wi-Fi, the Surface has two antennae for better wireless performance, plus Bluetooth. There's also a headphone jack, micro-HDMI, full-sized USB, and a keyboard dock and charging port. Note that the Surface won't charge over USB, although this port accepts a range of peripherals.

Our experience of battery life bemused us. We started the day with a full charge, and used the tablet for 90 mins while shooting our video review (tinyurl.com/axbrbv3), and 30 minutes browsing the web. The next day the battery was flat. Microsoft touts a seven- to 15-day idle runtime.

Software?

Most interaction is via the touchy Modern UI with its tiled design. Learn all the finger gestures and it's a breeze to navigate.

One handy feature is the ability to configure multiple user accounts. Logging into the tablet with our Windows Live account instantly populated the tablet with our contacts, email and calendar. The Store lets you buy apps, although many everyday utilities, including Facebook, Twitter, Gmail, Google Maps and Dropbox, are missing.

The Surface includes a preview of Office 2013, which runs within the Desktop tile. This makes the Surface a great portable productivity PC.

Verdict

The Surface RT is a very well built and a cleverly designed tablet. The hardware is mostly sound and Windows RT runs smoothly, but lacks decent apps. **✗ Chris Martin**

£399 inc VAT (16GB)**Contact**

■ apple.com/uk
 Read more
 ■ tinyurl.com/crstdsk

Specification

1.39GHz Apple A6X;
 16/32/64GB flash storage;
 9.7in (2048x1536, 264ppi)
 LED-backlit multitouch
 IPS display; PowerVR
 SGX554MP4 graphics;
 dual-band 802.11a/b/g/n;
 Bluetooth 4.0; optional
 4G LTE modem; 1.2Mp
 FaceTime HD front
 camera; 5Mp iSight rear
 camera; Lightning dock
 connector; 42.5Wh fixed
 lithium-polymer battery;
 241x186x9.4mm; 652g

Build: ★★★★★
 Features: ★★★★★
 Performance: ★★★★★
 Value: ★★★★★

**TABLET****iPad with Retina display****PC ADVISOR
GOLD**

It's been only seven months since the iPad 3 was released, and Apple has already replaced it. The iPad 4 looks and feels no different, but Apple has made a few tweaks.

As we've come to expect from Apple, build quality is exceptional. Attention to detail is paramount, and the iPad retains its premium feel. So what's different? There's just one visual change: the Lightning connector. The rest is hidden inside.

First and foremost is a new A6X processor. This dual-core chip with quad-core graphics is said to be twice as fast as the iPad 3's A5, with double the graphics speed, too.

Apple doesn't publish its CPU clock speeds and RAM allocation, but Geekbench unearthed a 1.39GHz chip and 1GB of memory. In this test we saw a new tablet record of 1,769 points (the iPad 3 scored 750). And the iPad put in a similarly excellent performance in SunSpider, where we measured a very good 854ms.

But numbers are just numbers: it's the real-life user performance

that counts. The iPad 4 is a nippy device and perceptibly quicker than the iPad 3 – although it's not obviously twice as fast.

The graphics are indeed impressive, and the iPad 4 managed a 39fps framerate in Egypt HD, versus its predecessor's 22fps. This is a far more noticeable improvement in real-world usage; in Apple Maps, for example, pinch-zooming is a little smoother than before.

Price and storage options are the same as they were with previous iPads: the entry-level 16GB model with Wi-Fi costs £399, while the top-tier 64GB Wi-Fi + 3G/4G version will set you back £659. Be wise with your storage choice – as before, there's no expansion slot.

The screen is still 9.7in in size, with a stunning 1536x204-pixel 'Retina' resolution. There's really no faulting this LED-backlit IPS display.

The Lightning connector is smaller and reversible, but you'll




need to buy an adaptor to hook up older 30-pin accessories.

The iPad 4 supports EE's 1,800MHz 4G LTE service in the UK. Apple has also upgraded the Wi-Fi with channel bonding.

The front camera is now up to 1.2Mp, and able to capture higher-quality 1280x720 video.

Once again, Apple touts a double-digit battery life of 10 hours.

Verdict

The iPad 4 is the fastest iPad yet. It's a solid tablet, with which we can barely find fault.  **Chris Martin**

£230 inc VAT**Contact**

■ htc.com/uk
 Read more
 ■ tinyurl.com/cn2f7w2

Specification

1GHz Qualcomm
 Snapdragon dual-core;
 Android 4.0.4; 768MB
 RAM; 4GB flash storage;
 4in (480x800, 233ppi)
 LCD; Adreno 203 graphics;
 microSD; 802.11a/b/g/n;
 Bluetooth 4.0; GSM
 850/900/1,800/1,900MHz;
 WCDMA 900/2,100MHz;
 mini-SIM; GPS; 5Mp rear
 camera with LED flash;
 480x800 video;
 Micro-USB; 6.1Wh lithium
 battery; 62x118x9.5mm

Build: ★★★★★
 Features: ★★★★★
 Performance: ★★★★★
 Value: ★★★★★

**SMARTPHONE****HTC Desire X**

You'd be forgiven for confusing the Desire X with the One S. The two are almost identical, with a clean and rounded look that's become synonymous with HTC handsets.

The Desire X is a little smaller than the One X, but a tad larger than the Desire C. It's the first time HTC has plumped for a 4in screen since the Incredible S, and the Desire X fits nicely in the hand.

The Desire X doesn't match the build quality of the One X or S. One quibble is the power button, which has very little travel and it's difficult to tell whether you've pressed it.

A typical mid-range 2012 specification includes a 1GHz Qualcomm dual-core processor, coupled with 768MB of memory.

Performance is reasonable, but nothing more. In Geekbench the HTC averaged 666 points. That's not bad, taking into account the One S' 685, but the HTC trails the budget Sony Xperia U, which scored closer to 900. In SunSpider we saw a middling time of 2,894ms.

Storage is distinctly low at just 4GB, of which only around 1GB is available. This dire situation is remedied by a microSD slot, and 25GB of Dropbox cloud storage.

The standout feature is the crisp and vivid 4in LCD. Its 480x800 resolution has a density of 233ppi.

Connectivity-wise there's 802.11n Wi-Fi and Bluetooth 4.0 with aptX support. GPS and DLNA-certification are also listed.

HTC includes a 5Mp rear camera with an LED flash. It's unusual to find no front camera for video chat. Photos are reasonable, but unremarkable, while video is available at just 800x480 pixels.

The handset runs Android 4.0, with the HTC Sense 4.0a overlay. It's not as slick as some top-end phones, but it's by no means slow. This includes a customisable lock screen, with quick access to your favourite apps, an above-average camera app, car mode, and a great set of widgets.


To the standard set of apps HTC adds Polaris Office, Facebook,



7digital and SoundHound. Beats Audio simply boosts bass.

A removable 6.1Wh battery helps the HTC through a single day's use.

Verdict

The HTC Desire X is a reasonable smartphone, but nothing more. It may serve you well on a day-to-day basis, but it's very much a no-frills handset. Those hoping for a more exciting device will want to look elsewhere.  **Chris Martin**

£239 inc VAT (8GB)

Contact

■ play.google.com

Read more

■ tinyurl.com/d7htpfj

Specification

1.5GHz Qualcomm Snapdragon S4 Pro (ARM quad-core); Google Android 4.2 Jelly Bean; 2GB RAM; 8GB/16GB flash storage; 4.7in (768x1280, 318ppi) IPS touchscreen; Adreno 320 graphics; 802.11b/g/n (dual-band with Wi-Fi Direct); Bluetooth 4.0; GSM 850/900/1,800/1,900MHz; WCDMA 850/900/1,700/1,900/2,100MHz; micro-SIM; GPS; 8Mp rear camera with LED flash; 1.3Mp front-facing camera; 1920x1080 video; 3.5mm headset jack; Micro-USB; NFC; wireless charging; 7.8Wh lithium polymer, non-removable battery; 69x134x9.1mm; 139g

PC ADVISOR
GOLD

Build: ★★★★★
Features: ★★★★★
Performance: ★★★★★
Value: ★★★★★



SMARTPHONE

Google Nexus 4

After partnering with HTC and Samsung for its smartphones, Google has now turned to LG for the Nexus 4. From the front it looks similar to the previous Samsung Galaxy Nexus. It's almost exactly the same size, and suitably thin and light at 9.1mm and 139g.

It feels great in the hand, like a premium smartphone. The black rear has a matrix of tiny silver dots, each reflecting light at a different angle. The Nexus 4 comes to life as you move it. Holographic screen or glitzy nail polish? It divided opinion at the *PC Advisor* office.

The build quality is nothing short of exceptional. The Nexus 4 is the best-built Android smartphone we've seen in a long time. The screen sits flush to the bezel, the micro-SIM tray slots in perfectly, with no gaps, and the buttons have a smooth action. The battery is fixed and there's a micro-SIM tray on the side.

All this makes the £239 8GB SIM-free price tag astonishing. The Nexus 4 is a game-changer, which allows consumers to get a high-end smartphone at an affordable price, without suffering a long contract.

Performance

A Qualcomm Snapdragon S4 Pro quad-core processor runs at 1.5GHz, and is paired with 2GB of memory. This specification is impressive on paper, and the Nexus 4 lived up to our expectations in benchmarks.

This Google handset set a new smartphone record in Geekbench, with 2,009 points. This beats the iPhone 5, Samsung Galaxy S III and Galaxy Note II, which scored 1,650, 1,659 and 1,958 respectively.

In JavaScript tests the Nexus 4 revealed slower performance. We recorded 1,906ms in SunSpider, although web browsing wasn't noticeably slow.

The Nexus 4 matches the iPhone 5's graphics performance, and achieved a very good 39fps in GLBenchmark's Egypt HD game.

The 4.7in screen offers 768x1280 pixels, with a slightly lower pixel density than the iPhone 5, at 318-versus 326ppi. The screen looks stunning, able to display excellent contrast, rich colours and high levels of detail. The viewing angles are great, too, thanks to an IPS panel.



Storage is a low point, with only 8- and 16GB versions available, and no expansion slot. Our 16GB sample had around 13GB free space.

Connectivity options include dual-band Wi-Fi (with support for Wi-Fi Direct), Bluetooth 4.0, NFC and wireless charging. You can connect the handset to an external display through a SlimPort HDMI adaptor. Missing is support for the UK's 4G LTE offering from EE.

Buying a Nexus phone previously meant having a so-so camera - not now. Colours look much more natural than from the Galaxy Nexus camera, and the extra resolution makes a huge difference. This 8Mp camera has an LED flash, too.

The camera app is speedy and easy to use. New features include HDR mode and Photo Sphere. The latter enables you to take 360-degree panoramas.

A 1.3Mp front webcam provides a decent image for video calls, with the usual graining on flat white objects, such as walls and ceilings.

Software

An advantage of buying a Google-branded handset is it's guaranteed to be running the latest version of Android, while it's left up to the manufacturers of other smartphones to decide whether to update their own software.

The Nexus 4 runs Android 4.2 Jelly Bean. Not a great deal has changed since version 4.1, but there are a few notable additions. Quick settings have been added to the notifications bar, providing quick-access toggles for brightness, Bluetooth, flight mode and more.

You can now place widgets on the lock screen for quick access to key information such as messages, emails and calendar. And, by default, you can access the camera app by swiping left. This is a nice idea, but if you use a security PIN or lock pattern then anyone who picks up your phone can see the widgets you've selected.

More cards have been added to Google's psychic Now search engine, including package tracking and film information, while Daydream mode can display content such as photos when the Nexus 4 is docked or charging. Other changes include a new clock interface and an extra column in the app menu.

The best improvement is to the keyboard. There's less need to install a third-party keyboard for gesture typing - you can key in a word simply by dragging one finger around the keyboard, drawing a line through the characters required. It takes a while to get used to, and requires both hands to hold the smartphone, but allows for much faster typing.

The Nexus 4 has a large 7.8Wh battery. We got through a whole day, with enough juice left over for the next day. Gaming or video will drain the battery faster. Lighter users might even see two days' use.

Verdict

Provided the storage capacity will suffice, the Nexus 4 is the definition of a bargain. You get the performance and features of a high-end smartphone for half the price you'd expect to pay. Unless you're set on an iPhone, the Nexus 4 is unbeatable. **Chris Martin**

£599 inc VAT**Contact**■ hp.com/uk■ [Read more](#)■ tinyurl.com/bmm7xyu**Specification**

2.1GHz AMD A6-4455M dual-core; Windows 7 Home Premium 64bit; 6GB DDR3 1,600MHz RAM; 500GB hard drive; 15.6in (1366x768) gloss LCD; AMD Radeon HD 7500G; 802.11b/g/n; gigabit ethernet; Bluetooth 4.0; 1x USB 2.0; 2x USB 3.0; HDMI; Kensington lock slot; SD slot; Beats Audio; 59Wh, non-removable battery; 374x253x20.5mm; 2.07kg

Build: ★★★★★
 Features: ★★★★★
 Performance: ★★★★★
 Value: ★★★★★

**LAPTOP****HP Envy 6-1006ea Sleekbook**

The HP Envy 6 Sleekbook represents AMD's answer to Intel's Ultrabook; in fact, the only difference between this Envy 6 Sleekbook and the Envy 6 Ultrabook is the processor inside.

Both Ultrabook and Sleekbook use the same chassis. We like the modern design of brushed black aluminium on the lid and around the keyboard, with a red matt-finish plastic base. The down side to this is a mass of uninvited fingerprints.

For a 15.6in laptop, this 2kg HP is easy to handle, if a little big to be a true ultraportable. In common with the Envy 6 Ultrabook, the keyboard is of a good quality, and we found typing smooth on the plastic Scrabble-tile-style keys.

The trackpad is large and responsive, with two integrated buttons below. But HP's software implementation is poor, so clicking the button moves the mouse cursor.

HP CoolSense is touted, and in use we found the wristrest remained cool. We weren't so impressed by the audio, labelled Beats Audio.

The Sleekbook trumps its Ultrabook counterpart in price, with £100 off the ticket. That's because it runs a cheaper AMD A6-4455M, a 2.1GHz dual-core APU that includes Radeon HD 7500G graphics. HP has added 6GB of memory, which is 2GB more than is found in its Ultrabook. Storage is a 500GB regular hard disk.

In WorldBench 6 the Sleekbook scored a disappointing 82 points. That's 30 points fewer than its Intel-based counterpart. We also ran PCMark 7, in which it managed 1,493 points. But while the benchmark figures are low, in normal Windows use the laptop feels responsive.

The integrated graphics averaged a playable 51fps in Fear at Maximum detail, beating the Intel equivalent by an impressive 31fps.


The display's native resolution of 1366x768 pixels doesn't provide high detail across the 15.6in panel. It has far from wide viewing angles, and suffers a glossy, reflective finish.



The selection of ports is good for a thin-and-light laptop, comprising HDMI, gigabit ethernet, two USB 3.0, one USB 2.0, headphone-out, mic-in and an SD card reader. There's no room for an optical drive.

HP lists longer battery life for the Envy 6 Sleekbook than the Ultrabook. In our tests, however, it ran dry 26 mins earlier, managing 6 hours 40 mins.

Verdict

The HP Envy 6 Sleekbook is £100 cheaper than HP's Intel-based version, and features improved graphics. Raw performance is much lower, however.  **Chris Martin**

£109 inc VAT**Contact**■ nook.com■ [Read more](#)■ tinyurl.com/d44cfqj**Specification**

E-reader; 800MHz TI OMAP 3621; Google Android 2.1; 256MB memory; 2GB flash storage; 6in (600x800) E Ink Pearl display; infrared touchscreen; 802.11b/g/n; microSD; micro-USB; 166x127x12.7mm; 200g

Build: ★★★★★
 Features: ★★★★★
 Value: ★★★★★

**E-READER****Barnes & Noble Nook Simple Touch GlowLight**

Barnes & Noble, a formidable power in the US e-book market, hopes to gain a foothold in the UK with its Nook e-readers and tablets (see page 67 for our Nook HD review). The GlowLight is the firm's first device that allows for reading in the dark, making it a rival for nocturnal e-readers such as the Kobo Glo and Amazon Kindle Paperwhite.

This £109 e-reader offers a high-quality touchscreen, and an equally good reading experience. Its 6in E Ink Pearl screen displays 800x600 pixels, matching its rivals.

The Nook is a sturdy device, with a rubbery finish to its rear that aids grip in the hand. At 200g, it's comfortable to hold up for extended periods.

In our tests the Nook Simple Touch GlowLight worked well, and could be used outdoors with no reflected glare in bright sunlight. LED side-lighting gives even coverage, albeit adding a slightly blue hue that shouldn't hinder the reading experience.

Battery life is advertised at more than a month's use. In the two weeks we spent testing it, the Nook didn't require a single recharge.

Unusually for an e-reader, the Nook is based on Google Android 2.1, not that this is obvious from its interface. It's straightforward to navigate, which is aided by easily understandable icons and generously spaced menus.

The Home screen, which is accessible via the 'n' button at the bottom, displays the books and publications you're currently reading, and recommendations for purchases from Barnes & Noble.

Limited customisation options include changing the font size, line spacing and margins.

The Nook is powered by a 800MHz ARM processor and has 2GB of storage, of which only 240MB is available. A microSDHC slot lets you add up to 32GB.

Barnes & Noble is really pushing its social-reading experience with preinstalled apps such as Nook




Friends and Lendme, as well as Facebook and Twitter integration.

And who said book clubs were dead? You can lend e-books to other Nook users and those with the Barnes & Noble app on their phone or tablet for up to 14 days.

The Nook shopfront claims more than 2.5 million e-books, including UK newspapers and magazines.

Verdict

Slightly chunkier than the rival Kindle Paperwhite, yet lighter, the Simple Touch GlowLight may just have found itself a niche in the market.  **Brianley Van Zyl**

£129 inc VAT

Contact

■ eyespy247.com

Read more

■ tinyurl.com/cdtbjpg

Specification

IP camera; 802.11b/g/n wireless; guest access; 640x480, 320x240, 160x120 camera resolutions; UPnP; DDNS; guest access; Android, iOS app support; microSD; motion detection and event triggering; infra-red night vision

Build: ★★★★★☆

Features: ★★★★★☆

Performance: ★★★★★☆

Value: ★★★★★☆



IP CAMERA

EyeSpy247 UCam247i

The affordability of wireless IP cameras, along with fast home- and mobile broadband, means anyone can now keep a watchful eye over something of value, such as a home, business, baby or pet, without the need to install a CCTV system.

So far, most IP cameras have been marred by cumbersome software, browser incompatibility and proprietary software plug-in requirements, making configuration and use a chore.

The UCam247i from EyeSpy247 may be the first camera that can be monitored and set up using only an app for iPhone, iPad or Android. This neatly sidesteps the software issues we've previously encountered. You don't even need to switch on a computer to view the camera's feed.

The UCam247i is connected to a router via ethernet. With the P2PCam264 app installed on our iPad, a quick press of the Add Camera button revealed the camera's serial number and IP address, which was automatically discovered on the network. Another tap gave the camera a custom name, and we then entered a password. A further tap took us to the live video feed, complete with audio.

It took less than two minutes from opening the box to monitoring the camera. If the camera isn't instantly picked up, the app lets you

scan in a QR code or manually enter its serial number.

More advanced options are found on another screen. You can configure the UCam247i to record to microSD, adjust its video quality, change the admin password, configure motion detection and connect to a wireless network.

All settings are saved on the camera. Once you've chosen a wireless network and entered its details, you can unplug the camera from the router and place it anywhere within wireless range.

In our tests the camera was listed as offline until we restarted our router. The only problem we experienced thereafter was the occasional crash when streaming live video. EyeSpy247 has assured us that this was due to an incompatibility with iOS 6.0, which has now been addressed. The Android version worked fine, and we found it just as easy to use.

Picture quality is good, especially with the quality set to maximum. Pointing the camera out of a window during the day gives excellent results, and even in a darkened room the night-vision capability is able to provide plenty of detail.

Zooming is accomplished with a quick pinch of the screen, and you can scroll around with a finger-drag. Note that there's no mechanical pan,



tilt or zoom; the UCam247i supports digital zoom and panning.

For people who don't own a smartphone, the UCam247i can be configured via a web page. Extra settings are available in this interface, such as the ability to create extra users, check detailed network information, and add the details of a dynamic DNS service to ease remote monitoring. We'd like to see these settings included in the app, to truly bypass the PC.

Verdict

Although the UCam247i is a rather basic home monitoring system, its mobile configuration should ease installation. We'd like to see all settings accessible via the app, and a version optimised for the iPad's larger screen. **Orestis Bastounis**

£1,500 inc VAT

Contact

■ philips.co.uk

Read more

■ tinyurl.com/c8hnhzu

Specification

1920x1080; 450cd/m2; stereo speakers with 2x 20W amplifier; Freeview HD; 802.11n; ethernet; 3x USB 2.0; 5x HDMI; Scart; 1,042x599x30mm; 14kg

Build: ★★★★★☆

Features: ★★★★★☆

Performance: ★★★★★☆

Value: ★★★★★☆



SMART 3DTV

Philips 7000 Series 46PFL7007

Also available in 40- and 55in, the 46in 7007 is two steps down from Philip's flagship 9707 Smart 3DTV. It's a beauty to behold, with a thin 5mm metal bezel and a smart wedge stand that doubles as a wall mount.

This active-shutter 3DTV is LED edge-lit, with a Freeview HD tuner and Wi-Fi. Philips' signature Ambilight technology lights up your wall with colours to match the onscreen action. A healthy array of ports includes five HDMI inputs.

The Smart TV button presents a thumbnail of the video source and icons for a currently limited selection of online services, including BBC iPlayer, YouTube, TED Talks, eBay and MeteoGroup.

There's Twitter and Facebook integration, a web browser and Skype, which requires a £100 PTA317 webcam. The camera combines noise-cancelling mics with a decent wide-angle view.

The bundled remote doesn't need to be in the line of sight to be effective. Flip it over and you'll find a split Qwerty keyboard that's comfortable enough to use with your thumbs.

The Philips MyRemote mobile app for iOS and Android adds other nifty features. Simply Share displays photos, music and videos from your phone or tablet on the TV, although it didn't work with our iPad. There's also a programme guide, which

is arguably easier to browse than the version found on the TV itself. Cleverly, you simply tap on a show to switch to that channel on the TV.

The 7007 supports a variety of video-, photo- and music formats, both via its three USB ports and across your network.

The menus for playing media are nippy and easy to navigate. Connect a flash drive or hard disk and the media player will automatically fire up, allowing you to select the type of media you're after at the top of the screen. It's then a case of navigating to a particular folder and playing the contents.

It's great to see MKV support, along with AVI, MP4, Mpeg and WMV.

£260 inc VAT**Contact**■ focal.com**Read more**■ tinyurl.com/cmrybjy**Specification**

2-way powered stereo speakers; 100mm polyglass mid-bass driver; 20mm aluminium-dome tweeter; 50Hz-22kHz (+3dB) specified frequency response; 2x 20W stereo class D amplifier in right speaker; 2x RCA phono, 1x 3.5mm jack audio inputs; phono-phono cable to connect to left speaker; 281x114x200mm; 5kg

Build: ★★★★★

Features: ★★★★★

Performance: ★★★★★

Value: ★★★★★

**SPEAKERS****Focal XS Book**

The Focal XS Book is a self-powered stereo system that sits on the desktop. It comprises two styled cabinets that stand around 11in tall, rectangular boxes that swell and flare toward the front to accommodate a mid-bass driver.

The styling takes a bow to Cupertino, with the speakers designed to complement Apple's aluminium iMac and MacBook Pro.

The aluminium-effect curved bodywork looks realistic, but is in fact silver-painted plastic. A plastic-framed front conceals the two-way speakers behind – a 100mm Focal main driver with polyglass membrane and a 20mm aluminium tweeter. Below this is a large aperture for bass-reflex tuning to augment efficiency and extension.

The right speaker serves as the master, with 3.5mm and RCA phono inputs for a line-level source, and another phono socket for output to the left speaker.

Power and volume are controlled by an integrated dial on the top of this speaker. You press down to toggle On/Standby, and rotate to adjust the volume. We found volume tweaks can switch off the speakers, resulting in needless frustration.

The XS Book speakers are powered by a 20W Class D amplifier. This is a typical setup, but not one that's noted for its high sound

quality. In their favour, Class D amplifiers can provide high levels of power and give controlled bass.

The speakers sound neutrally balanced from the low mid-band to high treble. Below around 200Hz, they have some artificial lift to give more punch in rock and pop material.

There's a slightly clinical quality about the XS Book: tight, crisp and reasonably focused, but a little too dispassionate. High volumes are possible, and even encouraged. At this point, the speakers could impress more with excellent low-end power and control.

Hi-hat and metallic percussion sound jangly and 'digital' at times. The electric guitar is a little abrasive when played louder, while the acoustic steel-string guitar is promoted forward in the mix.

At low volumes there is a limit in articulation. Treble is prominent, bass about right, but the mid-band is somewhat grey and enervated with an over crispness that's a signature of the speaker.

The speakers are capable of decent room-filling levels, but the sound can become congested. At




most times, there is a sense of a separate tweeter at work above the mid/bass driver, rather than an integrated sound with the mid-band flowing into natural high frequencies.

Thanks to a comfortable grasp of dynamics, the Focal XS Book has respectable control over the framework of music. This allows for an appreciation of well-timed and engaging rhythms in rock and jazz, for example.

Stereo depth is constrained, with the XS Book giving a rather two-dimensional presentation.

Verdict

The XS Book can come across as somewhat cold and dispassionate. Stereo soundstaging and mid-band articulation are not very compelling, and the overall sound is too sibilant for our taste. But these speakers can rock and swing with some conviction.  **Andrew Harrison**



With a 32GB-plus flash drive inserted you can pause live TV; recording requires a 250GB-plus disk. The system is unwieldy, though: you can't pause or rewind while recording, nor can you watch another source.

The 46PFL7007 has a 200Hz panel, but its semi-gloss finish is

reflective. The detail levels are incredible. From Blu-ray, you can see blades of grass on a football pitch, individual hairs in cat fur and every last blemish on a model's face. The picture is so sharp, it feels as though the action is happening right in front of you. Motion resolution is another strength, with moving images remaining in sharp focus.


The contrast is excellent, provided that you're sitting directly in front of the screen. Blacks are deep and convincing, but affected as you move your head. Narrow viewing angles mean colour saturation drops off, even at 45 degrees; blacks look bluish and faces go corpse-like. Colours also appear to invert.

The backlight is even, although tiny dark patches were evident in the bottom corners of our sample.

You get one pair of 3D specs in the box. The 3D quality is good, with little perceptible crosstalk, but active-shutter glasses make other light sources in sight flicker.

The EPG consumes almost the entire screen, and cuts the picture and sound. The rest of the time, the speakers built into the base deliver loud, decent-quality audio.

Verdict

Viewing angles are restrictive and the screen is reflective, but the Philips' image is searingly sharp and its 3D is impressive.  **Jim Martin**

£444 inc VAT**Contact**■ nokia.co.uk**Read more**■ tinyurl.com/ck9ctfs**Specification**

1.5GHz Qualcomm Snapdragon S4 dual-core; Windows Phone 8; 1GB RAM; 32GB flash storage; Adreno 225 graphics; 4.5in (768x1280) 332ppi IPS display; 802.11a/b/g/n; Bluetooth 3.0; GSM 850/900/1,800/1,900MHz; WCDMA 850/900/1,900/2,100MHz; LTE 800/900/1,800/2,100/2,600MHz; Micro-SIM slot; A-GPS/ Glonass; 8.7Mp rear camera with LED flash; 1.2Mp front camera; 1920x1080 video capture with optical stabilisation; 3.5mm headset jack; Micro-USB; NFC; Qi wireless charging; 7.4Wh, non-removable lithium battery; 71x130x12mm; 185g

Build: ★★★★★☆

Features: ★★★★★★

Performance: ★★★★★☆

Value: ★★★★★☆

**SMARTPHONE****Nokia Lumia 920**

Leading the charge for Nokia's attempted comeback is the Lumia 920 Windows Phone 8 handset. The design is so similar to its Lumia 900 predecessor that you'd be forgiven for confusing the two. The 900 was once the biggest Windows Phone we'd seen; now it's been trumped by the even bigger 920.

The screen sits in Galaxy S III- and HTC One X territory at 4.5in, while the handset itself is 12mm thick and weighs a brick-like 185g.

The white chassis of our sample perfectly framed the screen, with black buttons and a silver camera completing the look. The 920 is also available in black, red and yellow; each has a slippery gloss finish.

The handset feels well-made - strong, albeit plastic to the touch, with a Gorilla Glass touchscreen lying flush to the polycarbonate shell. A one-piece construction renders the battery inaccessible.

Inside is a 1.5GHz Qualcomm Snapdragon S4 dual-core processor and 1GB of memory. This handset has a conspicuously lower specification than recent quad-core Androids, but it's sufficient to run Microsoft's leaner mobile platform.

Performance

Windows Phone 8 has little support from app developers, and the benchmarking software we use for Android and iOS devices isn't available on this platform. We were able to run our usual SunSpider JavaScript test, which vindicated Microsoft's claim that Internet Explorer 10.0 is fast. We recorded an average of 922ms, which is almost as quick as the iPhone 5's 903ms.

Windows Phone 8 feels as slick as version 7.5. Navigation is effortless, although menus and lists can judder when scrolling slowly. A few apps - Nokia Maps and Cinemagraph - took longer to load.

Windows Phone 8 now supports microSD, yet Nokia hasn't followed suit. Fortunately, 32GB of storage is built-in, and Microsoft offers 7GB of cloud storage via SkyDrive (more is available to rent). A useful feature is automatic upload of content, rather like Apple's iCloud.

It may be smaller than the biggest Android competition, but we were impressed with the Lumia's display. Windows Phone 8 supports a maximum resolution of 768x1280 pixels; exploited here by Nokia, this returns an impressive pixel density of 332ppi - higher than the iPhone's 326ppi.

The Lumia's excellent contrast and eye-popping colours are complemented by a touchscreen that's very responsive - often even when wearing regular gloves.

A headphone jack and micro-USB port are the phone's only connectors, while the Lumia 920 also supports 802.11n Wi-Fi and last season's Bluetooth 3.0. NFC will be joined by Qi wireless charging in a scheduled update, and the Nokia also supports 4G LTE in the UK.

Software

Windows Phone 8 features the same brightly coloured tile-based interface as Windows 8, but lacks its Charms bar and app-switching gestures. Live tiles can be one of three sizes, depending on how much information you wish to display. You can also rearrange the tiles on the Start Screen.

A swipe from the Start Screen reveals a vertical list of installed apps. Beautiful animations escort you around the OS, but it's not an intuitive system to navigate. It can be easy to get lost, and the Back button and recent apps menu don't always take you where you expect.

SmartGlass is a useful app for those who also own an Xbox. You can control the console from the handset and interact with some games.

Within the People Hub is a feature called Rooms. In this app you can share private content such as messages, calendars and photos with whomever you choose, including non-Windows users via a somewhat complicated process.



The Kid's Corner feature may prove a boon for parents, enabling you to engage a walled-off mode in which children can interact with only the apps you allow.

Nokia adds some exclusive apps and features. Nokia Music is a free streaming service that offers 20-million-plus tracks and offers offline caching. Nokia City Lens adds an augmented reality view to the camera, while Nokia Drive provides turn-by-turn navigation.


The apps on offer in the Windows Store are sub-par to the App Store and Google Play Store. Big-name apps currently missing include Spotify, BBC iPlayer, Instagram and games Bad Piggies and Temple Run. Adobe Flash isn't supported either, so you can't view Flash-based video in Internet Explorer 10.0.

We found still photos from the 8.7Mp rear camera and its Carl Zeiss lens to be very good. Colour balance, saturation and exposure are all of a good standard, but some of our test shots weren't as sharp as we'd hoped. We also noticed how noise reduction robbed detail.

Optical image stabilisation is the standout feature, making full-HD video extremely smooth. Whereas most phones struggle in low light, we managed to get usable, but not remarkable, results.

The Lumia 920's 7.4Wh battery had 25 percent charge remaining at the end of a full day's use.

Verdict

We love the Nokia Lumia 920's fantastic screen, decent camera and jam-packed feature set. The down sides are a chunky design, spartan app store and an uncertain future for the platform.  **Chris Martin**



My
antivirus
software
stops
everything.

Except
me
working.

No slowdowns, no pop-ups, just state-of-the-art protection.

Our premium software protects your data, your privacy, and your reputation. And with our free UK-based helpline, expert advice is always on hand. So if you want antivirus software that keeps you working - choose ESET.

Try now, risk free with a 30 day money back guarantee, at
www.eset.co.uk



£990 inc VAT (Index)
£990 inc VAT (Scamp)

Contact

■ chordelectronics.co.uk
Read more
■ tinyurl.com/cpc3wfr

Specification

Index network audio streamer: 24bit/48kHz DAC; UPnP connectivity; 128x64 dot-matrix display; USB storage input; 802.11b/g/n; 10/100 ethernet; Scamp amplifier: 40W/ch into 4ohm; analogue and USB digital audio input; bridgeable to 80W mono; Class A/B; 102W external switching power supply; 160x72x41mm per unit

Build: ★★★★★

Features: ★★★★★

Performance: ★★★★★

Value: ★★★★★



NETWORK AUDIO STREAMER & D-A CONVERTER

Chord Electronics Index & Scamp

The miniaturisation of technology has allowed incredible breakthroughs in mobile computing. Meanwhile, hi-fi designers have been slower to seize upon the opportunities of micro-electronic engineering.

In the emerging disc-less future, though, there's less reason to design hi-fi separates with shelf-filling widths. Smaller component systems such as this Chordette-series combination can pack in most of the power and functionality of regular-size units.

For the Chord Electronics Index, a network audio streamer and digital-to-analogue (D-A) converter, there's little reason to be much larger than the 160x72x41mm space each diminutive hi-fi unit occupies.

In serious audio circles, there's a good excuse for building electronics this small, as it mandates shorter signal paths, potentially leading to lower losses and reduced opportunities for RF interference.

Features

The Index can play music from ripped audio files stored on a computer or NAS, as well as stream live internet radio. You can also plug in a USB drive as a local source, although it won't read an attached MP3 player.

You control the Index from a compass layout of buttons on its top, with the playing track, time data and audio bitrate indicated on a backlit display. The buttons require some concerted depressing to register your input.

A small remote has a full metal jacket to match the Chordette. The membrane switches on these are never easy to press, and the metal coat only exacerbates the problem.

The best way to control network streamers such as this is with a dedicated mobile app. Chord doesn't provide one, but you can use a generic app such as SongBook Lite.

Player, meet amp

We tested the Index with its matching Scamp amp in our system with Harbeth LS3/5A speakers and Kimber 8TC cable. The Scamp and Index can be paired in a custom support stand, the Coupé Carry, which resembles an open-frame toolbox with a carry handle.



While we applaud the electronic design, based on proper Class A/B architecture and thereby avoiding the brittle soullessness of Class D, the Scamp is not without two potentially show-stopping issues.

It lacks a simple on/off switch, so there's no way to quell the sound of its always-on cooling fan. With no external heatsinking, the fan is essential to regulate temperature.

Sound quality

Chord amps can be relied upon for vice-like control of bass, vast reserves of instantaneous slam and walk-through stereo soundstage potential. Despite their tiny proportions, the Index and Scamp followed the house sound: detailed, precise and quite enveloping in the way the hi-fi can get out of the way of the music.

And, as with other Chord kit, it can on occasion take no prisoners in less than perfect recordings. With a slight tilt toward the brightly lit and exposed, some digital music did sound a little forward and terse.

Perhaps aided by the trademark high-frequency PSU tech, there was none of the smearing and opacity that less-than-optimal linear supplies can imprint on the sound.

Solo classical guitar had the tangible in-room presence that could make you look up from other distractions to follow the beguiling

lines of nylon-strung melody and harmony. All this revealed in a natural, believable acoustic space.

Rock and pop had plenty of pace to keep attention focused, although the limited bass extension of our speakers didn't always bring out the full weight. Even without full-range monitors we could hear the clean low-end extension beneath trip-hop classics and 80s goth-rock, well-timed, unmodulated and tuneful.

As well as excellent timing, crossing the Ts of rhythm and dotting the Is of inflection, the system showed a knack for following pace when required.

Regrettably, the D-A stage of the Index is specified only up to 48kHz sample-frequency audio. And formats are limited to MP3, WAV, Flac and WMA.

Chord specifies the Scamp with 40W of power per channel, although that's into a 4ohm load - expect below 30W from more traditional 8ohm speakers. Volume was rarely wanting, though.

Verdict

The combination of Index and Scamp makes for a curious couple, a high-tech boutique design statement with real audiophile credentials. Yet despite the move into formatless digital file browsing, it also bundles the inconveniences of hair-shirt enthusiast hi-fi. **Andrew Harrison**



IPS

Slim design



LED



Bring your mobile entertainment to life

Philips IPS Display with Smart MHL

Give your smartphone a big-screen experience! Advanced Mobile HD Link technology transports content from your mobile device straight to the monitor. View your photos and videos in Full HD or experience the excitement of mobile games and apps on a 23-inch screen. The IPS display produces vivid colors with an amazing 178-degree viewing angle. Connect any MHL-compatible device to the slim, elegant monitor and it automatically charges while you're busy having fun.

See the complete range of Philips monitors at www.lcdmonitors.philips.com
Available from the following reseller partners:

ebuyer.com

MISCO.co.uk

BT Business Direct

SCAN computers

PHILIPS
www.lcdmonitors.philips.com

£428 inc VAT

Contact

■ pentax.co.uk

Read more

■ tinyurl.com/boajto8

Specification

16.28Mp; 23.7x15.7mm CMOS sensor; 3in TFT colour LCD, 921k dots; ISO 100 to 12,800 (extendable to 25,600); 1920x1080 H.264 video @30fps; SD/SDHC/SDXC slot; 121x79x59mm; 480g (body only)

Build: ★★★★★

Features: ★★★★★

Performance: ★★★★★

Value: ★★★★★



DIGITAL MIRRORLESS CAMERA

Pentax K-01

Compact system cameras appeal to anyone wanting a step up from a compact camera. They're less hefty than a digital SLR, and demand little compromise in image quality.

At 480g, the Pentax K-01 is almost as heavy and hardly smaller than a digital SLR. We found the retro-looking camera unwieldy and a little brick-like. The build quality is good, though, with a solid aluminium body and rubber sections for grip.

The standout feature is K-mount, which lets you use any of Pentax's 20 million lenses without an adaptor - ideal if you already use Pentax digital SLR lenses. But the rear of the lens has to be a certain distance from the 16Mp sensor, which limits how small the body can be. Our sample came with an 18-55mm kit lens, capable of attractive background blurring in portrait shots.

Without an optical viewfinder you're left with a 3in LCD screen on which to compose stills. We found the camera intuitive to use with easy-to-navigate menus.

Built-in image stabilisation helps keep shots shake-free. Several modes include HDR for creating high dynamic range pictures.

If you're used to the speed and ease of a digital SLR autofocus, you may be frustrated by the slower operation here. We quickly switched to manual mode to avoid wasting time, since it can take a couple of seconds for the focus to lock in low light.

Crucially, image quality is impressive, and shots are sharp to the corners of the frame. We saw very little noise, even in poor light, and there is a pop-up flash. The K-01 displayed good exposure and colour saturation in most of our test shots, with the quality comparable to that of a digital SLR camera.

Video quality is relatively good, with full-HD footage captured at up to 30fps, and 720p at 60fps. An HDMI output lets you hook up the camera to a large screen.



The K-01 offers adjustable aperture, shutter speed and ISO sensitivity during filming, although this can add audible clicking to your footage. In video mode it lacks continuous autofocus.

Audio quality is good, and there's a jack for an external microphone to improve upon the built-in mic.

Verdict

The K-mount, handy if you already own such lenses, ultimately leads to the K-01's downfall. The K-01 provides excellent images, but its boxy design and uncomfortable weight let it down. **Becca Martin**

AUDIO CASSETTE CONVERTER

Honestech Audio Recorder 3.0 Plus

If you've got a sizeable collection of LPs and cassettes, the chances are you have some hidden gems that you'd like to preserve for posterity in a modern digital format such as MP3 or audio CD. The Honestech Audio Recorder is a combined hardware- and software solution that aims to help with the minimum amount of fuss and expense.

Two years ago, Honestech brought out its Audio Recorder 2.0 to address this need, with an external 'Muzbox' through which to channel your sources. Its successor rejects this add-on in favour of a complete USB cassette player, to make converting those tapes much more intuitive.

However, the cassette player looks and feels cheap. It's a Walkman-sized portable cassette player with a fold-over plastic cover that's awkward to click into place and release. Its controls are clunky and uncomfortable to use, and the volume button is thoughtlessly positioned next to the USB port that

acts as digital output to connect to a computer.

You can also record from other external audio playback devices, such as a record player, for which a useful RCA-to-3.5mm cable is included to plug directly into your PC.

The software component is almost identical to its predecessor. As before, an Easy Wizard mode pictorially walks you through choosing your device, adjusting the volume, and using noise reduction, then either storing the results or recording to a CD in MP3 format.

The alternative Advanced mode is equally simple to navigate, but its recordings are stored as uncompressed WAV files and you can add some basic effects.

Recorded audio is either 44,100Hz or 48,000Hz 16bit mono/stereo, with MP3 bitrates ranging from 64- to 224kbps.

The sound quality is what you'd expect from a £40 conversion



kit - adequate, without any raised eyebrows. If you do want to make the most of the audio, be sure to retain the WAV format, or convert your tracks to a lossless standard such as FLAC or ALAC.

The noise reduction works best in clearing up the mid-range. There's little else to tweak, nor to get creative with if you so desire.

Verdict

If you want a basic, inexpensive method of converting old vinyl and cassette songs into MP3 or WAV, the Audio Recorder 3.0 Plus might be worth a glance. **Martyn Clayden**

Build: ★★★★★

Features: ★★★★★

Performance: ★★★★★

Value: ★★★★★



£149 inc VAT**Contact**■ duckychannel.com.tw**Read more**■ tinyurl.com/cnyLzc6**Specification**

USB wired keyboard; full-size with number keypad; Cherry MX Red switches; LED backlight with five brightness settings; DIP switches for custom settings; 1.17kg

Build: ★★★★★

Features: ★★★★★

Value: ★★★★★

**KEYBOARD****Ducky DK9008 Shine 2****PC ADVISOR
RECOMMENDED**

Like many serious keyboards the Ducky Shine 2 uses high-grade mechanical switches, and includes many touches to endear it to Windows gamers. The stand-out feature is its backlit keys, with a useful range of options in the way these keys light up.

The keys are gently scalloped for the fingertip pads, with all letter and character shapes embedded in semi-opaque white plastic, allowing light from individual LEDs below to glow through.

Our sample had Cherry MX Red switches, giving a smooth, relatively quiet action. The 'bite point' is set high, so only a small press prints letters, although frequent mis-hits meant this writer didn't find it the fastest keyboard on which to type.

The frame is very robust matt black plastic. A full-width design, there's a 10-digit number keypad to the right, and Fn keys running across the top.

There's no USB hub, but you do get a Micro-USB 2.0 port and a 1.5m

cable.

This neat design means you can instead use a shorter cable to reduce the desk spaghetti.

The real fun starts when you tap Fn and F10. We tested a blue-light model, which veered between indigo and cobalt. Also available are green, white and pink colour options.

The first press lights up just the Qwertys, punctuation and number line; a second press lights up every key; and a third puts the keys into pulse mode, with the bright underlights building and ebbing in intensity over a five-second cycle.

The fourth mode is Reactive, which works best in a darkened room. All the lights are off until you hit a key, which momentarily lights up. It's subtle, not least because your finger pad is covering the light source at the point it lights.



For *Knight Rider* fans, the final mode sets the Fn keys into a side-to-side chaser light sequence. Pointless, yet strangely cool.

You can customise the lightshow, and four DIP switches allow further tweaks. Unix typists can exchange the Ctrl and CapsLock keys, for example, while Mac users can switch Windows and Alt.

Verdict

The very well built Ducky Shine 2 packs in more functionality than any keyboard we've seen before. Professional typists may have less need for glowing keys, but gamers and enthusiasts will love this keyboard. **Andrew Harrison**

PORTABLE DRIVE**WD My Passport Edge for Mac 500GB****PC ADVISOR
RECOMMENDED****£70** inc VAT**Contact**■ wdc.com**Read more**■ tinyurl.com/bmg7sw9**Specification**

500GB portable drive; 2.5in 5,400rpm SATA hard disk; USB 3.0; bus-powered; machined aluminium construction; 112x83x11mm; 164g

Build: ★★★★★

Features: ★★★★★

Performance: ★★★★★

Value: ★★★★★



Ignore the 'for Mac' label of this portable drive. Western Digital's My Passport Edge is a highly pocketable external storage device for any PC platform, accelerated by its USB 3.0 interface.

When WD first stamped out redesigned My Passport drives in premium aluminium cases, Mac users were the obvious audience. Besides the Micro-USB 2.0 port was a FireWire 800 interface, which offers a relatively speedy way to transfer data and a useful step up in performance from dawdling USB 2.0.

Now that Apple has rigged all its latest Macs with USB 3.0, the faster connection has started to trickle into more My Passport drives, with some models slimmed down to fit a new 7mm disk inside.

The push for Ultrabooks by Intel has had an interesting side-effect in making such thinner storage. Whereas once the 2.5in SATA disk was commonly 9.5mm, we're now starting to see these single-platter hard disks in 7mm shape.

The build quality of this drive is in essence faultless, with a black anodised top melding through precision machining into the natural-finish aluminium lower section, all nipped together by four Torx screws underneath.

The only distraction from the clean design is the wide USB 3.0 port, and an LED that flashes white upon disk access.

In the lab the My Passport Edge proved to be about as quick as any 2.5in disk we've recently tested. In Windows over USB 3.0, the ATTO benchmark saw sequential speeds up to 120MB per second (MBps).

That may be a little optimistic for real-life transfers, particularly with small files, but in QuickBench for OS X we saw even 32kB files flying across at more than 100MBps.

Random read/write speeds are much slower with spinning-disk tech; averaged across all small-file sizes from 4kB to 1,024kB, the WD averaged 20- and 28MBps respectively.



From the HD Tune Pro graphs we can see that the WD reached a maximum of 115MBps reads and a minimum of 54MBps when scanning across the whole disk. Write speeds were similar, spanning 113- to 53MBps between 'empty' and 'nearly full' disk states. This gave average read/writes of 88/86MBps.

Verdict

The WD My Passport Edge for Mac 500GB is a fast, stylish, good-value portable drive, imbued with category-defining build quality and attractively slim dimensions. **Andrew Harrison**

Get Windows 8 to work for you

With a Mesh PC and Windows 8 link all your devices



Excellent all round system, now with 2nd Gen AMD A4 Processor.

mesh Matrix A4

- AMD A4 X2 5300 Processor
 - Genuine Windows® 8 64 bit
 - AMD Radeon™ HD 7480D Graphics
 - 8GB DDR3 1600MHz Memory
 - 500GB SATA III - 6GB/s 7200rpm HDD
- Plus many additional features - full spec online

£299 Inc. VAT & Delivery



Delivers a powerful entertainment experience.

mesh Elite 3470

- Intel® Core™ i5 3470 Processor
 - Genuine Windows® 8 64 bit
 - 1GB nVIDIA GeForce™ GT 620 Graphics
 - 8GB DDR3 1600MHz Memory
 - 1TB SATA III - 6GB/s 7200rpm HDD
- Plus many additional features - full spec online

£499 Inc. VAT & Delivery



Powerful gaming system with leading graphics performance.

mesh Matrix 8120 Gaming PC

- AMD Bulldozer FX 8120 Processor
 - Genuine Windows® 8 64 bit
 - 2GB nVIDIA GeForce™ GT 640 Graphics
 - 8GB DDR3 1600MHz Memory
 - 2TB SATA III - 6GB/s 7200rpm HDD
- Plus many additional features - full spec online

£529 Inc. VAT & Delivery



Great performance with Intel® Core™ i7 processor and stunning GTX graphics.

mesh Elite i7 Power Play

- Intel® Core™ i7 3770K Processor
 - Genuine Windows® 8 64 bit
 - 1GB nVIDIA GeForce™ GTX 650 Graphics
 - 8GB DDR3 1600MHz Memory
 - 1TB SATA III - 6GB/s 7200rpm HDD
- Plus many additional features - full spec online

£769 Inc. VAT & Delivery



Best Buy – Offer of the Month!
Now with 120GB SSD

mesh Elite 3770K GTX

- Intel® Core™ i7 3770K Processor
 - Genuine Windows® 8 64 bit
 - 2GB nVIDIA GeForce™ GTX 660 Ti Graphics
 - 8GB DDR3 1600MHz Memory
 - 2TB SATA III - 6GB/s 7200rpm HDD
 - 120GB Solid State Drive (SSD)
- Plus many additional features - full spec online

£1029 Inc. VAT & Delivery



Delivering top-of-the-line performance for your most demanding tasks.

mesh Slayer 3820 Gaming PC

- Intel® Core™ i7 3820K Processor
 - Genuine Windows® 8 64 bit
 - 2GB nVIDIA GeForce™ GTX 660 Ti Graphics
 - 16GB DDR3 1866MHz Memory
 - 2TB SATA III - 6GB/s 7200rpm HDD
 - 120GB Solid State Drive (SSD)
- Plus many additional features - full spec online

£1199 Inc. VAT & Delivery

For the latest Mesh offers on new technology call or go online **020 8955 0731** | www.meshcomputers.com

Please Read: Sales subject to terms & conditions (copy available on our website). Advert does not form part of a contract. Pictures shown for illustration purposes only - colours may vary. PC 3 Year Warranty - 2 Years parts & labour, 3rd Year labour only - return to base (UK Mainland only). Microsoft and Windows are registered trademarks of Microsoft Corporation in the United States and other countries. All trademarks are acknowledged. Sales line open Monday - Friday 9am - 6pm. Online ordering 24x7. Prices and specification correct at time of going to press (22/11/12). E&OE.

technologies running new Windows® 8. The ideal systems for another generation.

mesh
award winning PCs • 1987



Work, Play, Create, Celebrate

The boldest,
brightest
Windows yet!

Customise your Mesh
desktop with Windows 8



Use the leading technology to power
all your apps and gaming activities.

mesh Elite 3570K Gaming PC

- Intel® Core™ i5 3570K Processor
- Genuine Windows® 8 64 bit
- 2GB nVIDIA GeForce™ GT 640 Graphics
- 8GB DDR3 1600MHz Memory
- 1TB SATA III - 6GB/s 7200rpm HDD

Plus many additional features - full spec online

£599 Inc. VAT & Delivery



A superior PC system utilising the best
in processor and graphics technology.

mesh Matrix 8320 Gaming PC

- AMD Piledriver FX 8320 Processor
- Genuine Windows® 8 64 bit
- 1GB nVIDIA GeForce™ GTX 650 Graphics
- 8GB DDR3 1600MHz Memory
- 2TB SATA III - 6GB/s 7200rpm HDD

Plus many additional features - full spec online

£729 Inc. VAT & Delivery



High-end power and performance to
upstage all other PC platforms.

mesh Elite 3770K Pro Gaming PC

- Intel® Core™ i7 3770K Processor
- Genuine Windows® 8 64 bit
- 2GB nVIDIA GeForce™ GTX 670 Graphics
- 16GB DDR3 1600MHz Memory
- 2TB SATA III - 6GB/s 7200rpm HDD

■ 240GB Solid State Drive (SSD)
Plus many additional features - full spec online

£1299 Inc. VAT & Delivery



The most powerful gaming PC giving
you the ultimate gaming experience.

mesh Slayer 3930K Gaming PC

- Intel® Core™ i7 3930K Processor
- Genuine Windows® 8 64 bit
- 2GB nVIDIA GeForce™ GTX 680 Graphics
- 16GB DDR3 1866MHz Memory
- 3TB SATA III - 6GB/s 7200rpm HDD

■ 240GB Solid State Drive (SSD)
■ Blu-Ray Writer (read and write Blu-ray, DVD & CD)
Plus many additional features - full spec online

£1799 Inc. VAT & Delivery

Windows 8 now with all Mesh PCs
Work, Play, Create, Celebrate



All Mesh PCs come with 24x DVD RW optical
drive as standard unless stated otherwise.



Latest Technologies

Our PCs and Laptops utilise the very latest
technologies from the leading component
manufacturers in the world today.



FREE Delivery

All our PCs come with FREE delivery
(UK mainland only).



3 Year Warranty

All Mesh desktops come with a 3 Year
Warranty - 2 Years part & labour and
3rd Year labour only.



PC Service & Health Check

A one stop solution to get a more
responsive and productive PC and Laptop
(see our website for full details).



QR code scan

For the latest Mesh offers on new technology call or go online
020 8955 0731 | www.meshcomputers.com

VIDEO-CALLING APP

Skype for Windows 8

Free

Contact

■ skype.com

Read more

■ tinyurl.com/b2ddw42

System requirements

Windows 8; 10.2MB storage



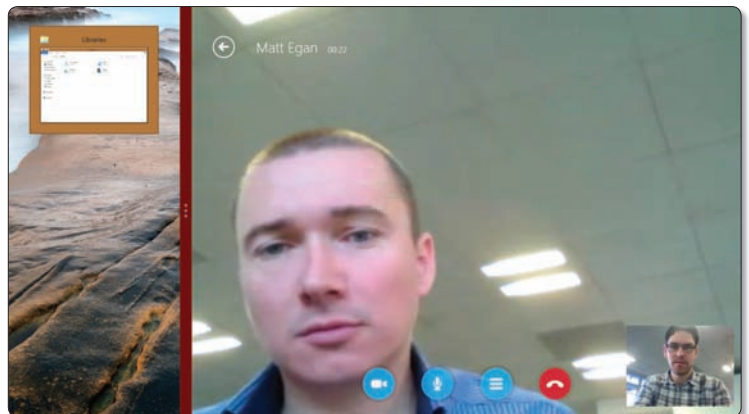
Skype is owned by Microsoft, so it was no surprise that the app made it into the Windows Store in time for the launch of Windows 8. We gave the Skype app a spin on a Samsung Series 7 tablet and our primary desktop PC, both running Windows 8 Pro.

One of the oddities of Windows 8 apps is that they exist only in the glossy tiled land that is the Modern UI. When using a tablet this is less of an issue, as you'll spend most of your time in that environment (the desktop part of Windows RT devices such as the Microsoft Surface RT is reserved predominantly for Office). But on a desktop or laptop it means you really need to have the desktop version as well as installing the app, or use Skype only in the Modern UI. You're unlikely to do the latter, as it means you can't simultaneously use Skype and any other desktop apps.

So, in Windows 8 at least, Skype - like Firefox - becomes a game of two apps. There's one difference, however: Firefox for Windows 8 is installed as a single app and then works differently in each environment. If you install Skype for Windows 8 and the original Skype you'll have two separate apps: search for 'Skype' and two identical icons will appear. If you're using a desktop or laptop PC, mainly in the desktop environment, we'd suggest that you don't bother with the Windows 8 Skype app. Unless the following is of interest...

Skyping in Windows 8

The potential killer aspect of this app is the Windows 8 split-screen functionality called 'snap screen', which is the ability to snap in windows to a portion of your screen.



With Skype for Windows 8 you can continue a Skype call with the righthand panel of your display, and get on with something else in the remaining space. You could, for instance, watch a program on BBC iPlayer while chatting about it with a friend, or work collaboratively on a document.

Importantly, apart from giving the interface a Modern UI facelift, the core video and audio calling functions have been left largely alone. By default video calls take up the full screen. You can select to have text chat on the right, too. In our tests on all devices audio and visual quality was good - exactly as it is in the existing Windows version of Skype.

But that facelift is worthwhile for tablet users and Modern UI fans. The new-look Skype is great. The design is typically Windows 8: big square panes of simple tones. Chunky icons are plonked just where you'd expect so that the Skype app is - like much of Windows 8 - comfortable to work with regardless of whether you're using a touchscreen, touchpad or mouse. Of course, if you are using a mouse and keyboard, you'll probably use the desktop app anyway.

Bespoke Windows 8 touch gestures include dragging down from the top of the screen to see recent conversations, and dragging down and holding to move and snap your Skype pane.

New features, bad points

Windows Live Messenger is integrated into this Skype app, which is a nice touch. And the app is coded in such a way that if it is running, but not actually doing anything, it doesn't take any of your processing power. That's right: zero draw on your CPU. It should be the standard.

There are some minor niggles: the notifications can be annoying. If you aren't using Skype, getting a message from the app can be useful. If you have just finished a conversation you probably don't need to be notified about it all over again, but that's what happens as soon as you leave the app.

Also, presumably in an effort to prevent power and CPU draw, the app doesn't run in the background when you are doing other things. Switch back to Skype and the messages come pouring in.

Frustratingly, we couldn't work out how to use two different logins for Skype without logging out of the OS. You can, of course, have multiple Windows accounts, each with their own Skype accounts.

Verdict

Skype for Windows 8 puts a nice, Windows 8-style sheen on to Skype's already great functionality. Being able to snap Skype to one half of your screen and use the other for a different task is a boon, but desktop users may find that sticking with their existing Skype software is the way forward. **Matt Egan**



MUSIC APP

BBC iPlayer Radio for iOS

Free**Contact**■ bbc.co.uk**Read more**■ tinyurl.com/as2qbma**System requirements**

iOS 5.0 or later; 4.6MB storage

iPlayer Radio is a great app for all iPhone- and iPod-toting BBC radio fans. As with all media-streaming apps, however, there is a price to pay: used over 3G the iPlayer Radio app will chew through your data allowance. The BBC recommends limiting prolonged use to Wi-Fi.

In our tests, a 20-minute session used around 11MB of data; prolonged streaming will quickly eat up your allowance. This is a shame, since one of the principal benefits of iPlayer Radio is it builds in BBC radio to your extremely portable smartphone, and the nature of radio is that we tend to listen to it for hours at a time.

iPlayer Radio is undeniably a good-looking app. It opens to a Stations splashscreen that features an old-school-iPod-esque clickwheel offering access to all the BBC's national stations, the World Service and a single icon for local stations. Tabs across the bottom offer access to Search, Podcasts, Alarm and More. We found the Search function a little hit and miss.




The Local Radio option in the clickwheel works in a slightly counter-intuitive way, too. It uses location data to find the BBC service that is geographically closest to you, which makes sense. But this prevents you listening to local radio from your home town if you're on the road, and we couldn't find local stations via the Search function.

It's difficult to overstate the subtle benefits of using your phone as your radio. Throughout a lazy Saturday afternoon the radio never left our side, without us once having



to retune or unplug. And when listening live you can keep up to speed with what has been played, watch live via webcam, interact with shows as they happen and share content online. There's a useful alarm function, too.

Verdict

A must-have app for all radio-loving iPhone and iPod users, iPlayer Radio brings to your fingertips a wealth of great free radio content. We urge you to keep track of your data usage, however.  **Matt Egan**



SECURITY APP

Hidden Eye for Android

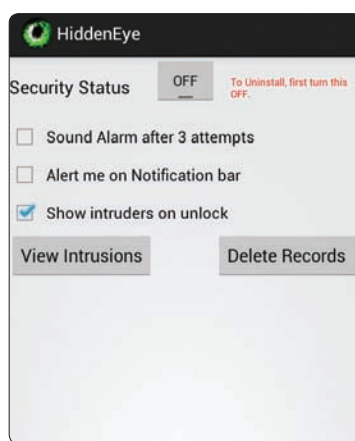
Free**Contact**■ midasensemble.com**Read more**■ tinyurl.com/cubbxve**System requirements**

Android 2.3 or later; 573kb storage

Get your own back on those who intend to 'frape' you or snatch a forbidden glimpse at your private messages and data. Hidden Eye for Android is a free, very simple app that provides photographic evidence of those who attempt to break the defences of your smartphone's PIN or pattern lock.

The idea is simple, but it's a good one. Each time the password is incorrectly entered, Hidden Eye uses the device's front-facing camera to grab a mugshot of the wannabe hacker. They are none the wiser, and likely to continue guessing your password. The result is a series of increasingly frustrated-looking close-ups, and you get the last laugh.

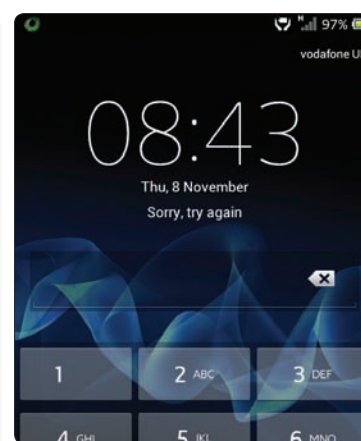
Hidden Eye is not infallible, and its photography facility doesn't work with all smartphones, notably Nexus devices. Other talents that make it worth the download include the ability to configure an alarm to sound on the third unauthorised access attempt and place an alert in the notification bar.



In the free version the alarm is simply your ringtone, although it won't sound at all if your handset is in silent mode.


Upon correctly unlocking the handset, Hidden Eye presents a series of time- and date-stamped photos of all those who have attempted to break in. You can have a giggle at their expense, or plan a more suitable punishment.

A paid-for version (93p) adds an ad-free user interface, customisable alarm sounds and the ability to delete individual images. More usefully, if your phone has been lost



or stolen, Hidden Eye can reveal its location on a map and send you photographic evidence of the thief or finder via email or Dropbox.

Verdict

Hidden Eye is a useful free app for catching snoops and frapers red-handed; the premium version adds extra functionality should your phone be lost or stolen. The camera facility doesn't work with all devices, but its ability to sound an alarm or trigger an alert may be all you need to remind you not to leave your phone lying around.  **Marie Brewis**



DinoPC.com



Like us to win amazing prizes!
[/dinopc.com](http://dinopc.com)



ROG Rampage 3930K

- Intel Core i7 3930K @ 4.5Ghz
- Corsair H60 Water Cooling
- Asus ROG Rampage IV Extreme Motherboard
- Microsoft Windows 8 Standard 64-bit
- Corsair 16GB Vengeance 1600Mhz RAM
- NVIDIA GeForce GTX 680 2GB
- Corsair 120GB Force3 SSD
- 2TB S-ATAIII HDD
- 8x Bluray RW Drive
- Corsair Graphite 600T Chassis
- Corsair 850W PSU

£1,999 inc VAT

Champions are made with winning gear!



Buy a new PC or bundle from DinoPC in December 2012 powered by an ASUS ROG motherboard and be in with a chance to win an Asus Nexus 7 tablet!



DinoPC Assassin

- Intel Core i5 3570K @ 4.3Ghz
- Xigmatek Loki Cooler
- Asus P8Z77-V LX Motherboard
- Microsoft Windows 8 Standard 64-bit
- Corsair 8GB Vengeance 1600Mhz RAM
- NVIDIA GeForce GTX 650 Ti 1GB
- 500GB S-ATAIII 6.0Gb/s HDD
- 22x Dual Layer DVD RW S-ATA
- Zalman Z11 Plus Chassis
- Xigmatek 500W PSU

£629 inc VAT
~~£719~~ inc VAT



DinoPC Black Ops II

- Intel Core i5 3570K @ 4.3Ghz
- Corsair H60 Water Cooler
- Asus P8Z77-V LX Motherboard
- Microsoft Windows 8 Standard 64-bit
- Corsair 8GB Vengeance 1600Mhz RAM
- NVIDIA GeForce GTX 660 Ti 2GB
- 1TB S-ATAIII 6.0Gb/s HDD
- Corsair Carbide 300R Chassis
- Xigmatek 700W Modular PSU

£899 inc VAT
~~£1,049~~ inc VAT



DinoPC Tyrannosaur

- Intel Core i5 3570K @ 4.3Ghz
- Corsair H100 Water Cooler
- Asus P8Z77-V Motherboard
- Microsoft Windows 8 Standard 64-bit
- Corsair 8GB Vengeance 1600Mhz RAM
- NVIDIA GeForce GTX 670 2GB
- Corsair 120GB Force3 SSD
- 2TB S-ATAIII 6.0Gb/s HDD
- Asus Xonar DG Sound Card
- Corsair Carbide 400R Chassis
- Corsair TX 650W Modular PSU

£1,269 inc VAT
~~£1,299~~ inc VAT



Discount Code:
PCADVISOR28

Get 3 day priority
build worth £45!

DinoPC.com

In proud partnership with

ASUS®

www.dinopc.com

0844 999 4123

Or visit our London office

PDF UTILITY

Adobe Acrobat Pro XI

£448 inc VAT**Contact**■ adobe.com/uk■ [Read more](#)■ tinyurl.com/a2jt7cu**System requirements**

1.3GHz processor;
Windows XP/Server/
Vista/7/8/Mac OS X 10.6.4
or later; 512MB RAM;
1.85GB drive space;
1024x768 screen

Usability: ★★★★★

Features: ★★★★★

Value: ★★★★★



As has now become the norm, Adobe's refresh of Acrobat lags behind the main Creative Suite upgrade. Acrobat XI Pro is available to rent through Creative Cloud or as a standalone purchase, while its predecessor, Acrobat X Pro, is bundled with CS 5.5 and 6.0.

For some users, though, particularly those tasked with PDF design and review, there are some good reasons to upgrade. Most of these are found in the Tools section.

Easier editing

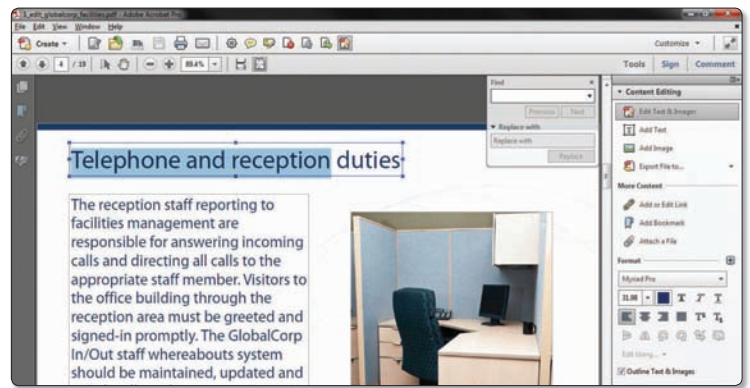
For example, when you click 'Edit Text & Images', all content within the PDF is sectioned off into editable frames. Clicking any frame brings up an arrowhead cross that allows you to move the content, with Smart Guides aiding placement.

A caret is automatically applied when you click in a frame, allowing you to delete, replace or add to the text; frames can also be resized. With each change, the text automatically reflows to suit.

You can add to the page new text blocks or images, or swap out pictures using a Replace Image command. In addition, there's a basic section for formatting the text and picture content, with the tools available context-sensitive. An expanded set of formatting options is available by clicking a Plus button.

The new editing ability also lets you perform a find-and-replace text action throughout an entire PDF, although it offers only word-by-word replacement. Text is substituted using the font currently selected in the Format palette, which further decelerates the process.

The contentious issue that you can't edit an imported PDF in Adobe InDesign, without using a plug-in,

**ACROBAT PRO XI'S** new content-editing tools forever banish static PDFs

has in part been addressed by this new workflow. Of course, the next thing you'll want to know is how you can stop someone messing with your layout. Fortunately, the Protection menu at the bottom of the Tools section offers fast access to the Restrict Editing tool, which allows you to set up and instantly apply password encryption to stop anyone editing the document.

The Tools section also features the 'Export File To...' command, which now lets you transform PDFs into PowerPoint documents. The document formatting remains intact, so this feature is bound to save time in recreating or retyping the information for a presentation slide. The resulting file can be edited within PowerPoint as if it were a native presentation.

Guided Actions are another enhancement offered in the Tools section, and step you through common PDF-management workflows. You can use presets or set up Actions for others to follow by dragging-and-dropping tools into an Action Step panel.

Integration with Adobe's EchoSign technology has enhanced Acrobat's digital-signature workflow. Typewritten, hand-drawn and image-based signatures are now available, as well as certificate signatures. You can send a signed document via EchoSign or store such files in the cloud. It's also possible to specify that a document has to be signed by others - the system can track the process and alert you once the file has received an electronic signature.

Cloud access has also been integrated into the Open/Save boxes on most Acrobat XI and Adobe Reader windows. This means any document located in SharePoint

and Office 365 libraries, as well as Adobe's own Acrobat.com, can be accessed as if it were stored on an external hard drive, with check-in/-out facilities for shared files.

There's also greater support for form creation and handling via a desktop version of Forms Central. It's very quick and effective, with a multitude of easily customisable templates. Forms Central allows existing forms to be scanned in and converted to PDF format.


PDF creation and collection

The Create options have been expanded, and you can now combine multiple file types in one PDF or Portfolio. Acrobat Pro XI can also collect Microsoft Office files (provided that the software is installed on your computer) and standard image formats. New search and content-editing tools are also present.

During conversion, Acrobat temporarily opens the host application to save individual documents as PDFs, which doesn't seem to work with older versions of Microsoft Word.

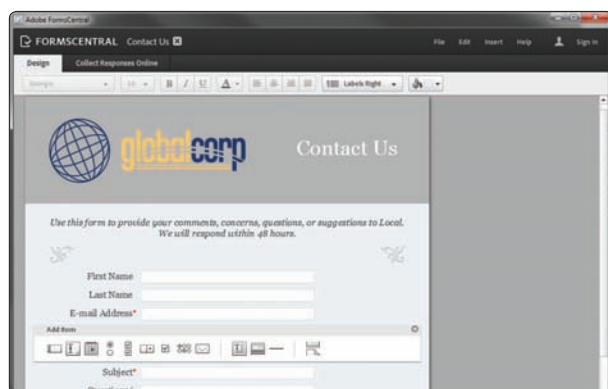
One-button PDF creation from Microsoft Office is available only for Windows. Mac users must select 'Save As PDF' in the Print dialog or install the CUPS-PDF driver.

Verdict

Acrobat Pro XI offers a substantial productivity boost to PDF management, and those who have shelled out for CS 5.5 or later may feel shortchanged. Standout features include streamlined digital signing, export to PowerPoint and Photoshop-style automation of Guided Actions. Meanwhile, 'Edit Text & Images' forever banishes static PDFs.  **Michael Burns**

FORMS CENTRAL

offers a range of easily customisable templates



VIDEO EDITOR

Magix Movie Edit Pro 2013 Premium

£99 inc VAT

Contact

■ magix.com

Read more

■ tinyurl.com/d5p78ro

System requirements

2GHz dual-core processor with 1GB RAM/2.83GHz quad-core processor with 4GB RAM; Windows XP/Vista/7/8; 2GB drive space; 1024x768 screen

Usability: ★★★★★☆

Features: ★★★★★☆

Value: ★★★★★☆



Magix's Movie Edit Pro 2013 is in essence an enhanced version of last year's Movie Edit Pro MX Plus. Three versions are available: Basic (£59), Plus (£79) and Premium (£99). Here, we review the top-of-the-range Premium product.

The interface is divided into the same three key areas as before: there's a video preview to the left, imported video clips and effects to the right, and a timeline below.

Importing clips into the Media Pool is simple. As well as support for familiar video formats such as AVI and Mpeg4, Movie Edit Pro 2013 caters for AVCHD Progressive (50p) and 3D footage.

Speed is a key factor in this upgrade, with noticeably less time required for AVCHD import - Magix claims a 40 percent improvement. Effect previews are now calculated directly on the GPU, and available in an instant.

Clips in the Media Pool can be played and added to the timeline. Video and audio from a single source will display here as one track, but separation requires only a mouse click.

Where two-camera edits are required, you can cut live between them, and the audio track is automatically synchronised.

The chroma-key feature has been beefed up with an anti-spill feature,



MAGIX MOVIE EDIT PRO 2013 is noticeably faster than its predecessor

which reduces the unsightly green halo effect around objects.

A useful slider has been added for text resizing, and a collection of new animated menu templates have been included for burning your movies to DVD or Blu-ray media.

Rival Adobe has recently released version 11.0 of its Premiere Elements video editor (see opposite page), which places the emphasis on an Optimizer that does much of the hard work for you. By contrast, Magix presents to beginners a steeper learning curve, who would do well to make use of the online training videos and forum.

The Premium edition principally differs from the Basic and Plus versions in the extra software that is bundled with the package. NewBlue Video Essentials IV offers more than 100 preset effects, which are able

to transform night into day, remove wrinkles and the like. Also included are digieffects Phenomena, which can create particle simulations such as rain, snow and smoke, and proDAD Adorage 13.0, which offers plenty of themed effects, such as family and celebration.

All three versions include Magix Photo Manager MX Deluxe.

Your edited videos can quickly and easily be shared online at Facebook, YouTube and Vimeo.

Verdict

A significant upgrade over last year's Movie Edit Pro MX Plus, Magix Movie Edit Pro 2013 is an effective tool for producing your own videos. The Premium version reviewed here includes some useful extras in the form of special-effect goodies. **✉ Martyn Clayden**

BACKUP UTILITY

Acronis True Image 2013 Plus

£63 inc VAT

Contact

■ acronis.com

Read more

■ tinyurl.com/bcmjou7

System requirements

Windows XP/Vista/7/8

Usability: ★★★★★☆

Features: ★★★★★☆

Value: ★★★★★☆



Acronis True Image is possibly the best-known of all personal backup and recovery applications. The 2013 version builds on a comprehensive forebear, offering system-, file- and non-stop backup. Acronis also promises a software sandbox, disk cloner and file shredder.

The main screen offers plenty of help for first-time users, with friendly guidance on how to select source- and destination folders, partitions or drives, to establish a backup type and set a schedule.

If you prefer to get your hands dirty, you can manually select these options and fine-tune the process.

We performed a drive backup of the 50GB partition we use for

testing antivirus software, which took 26 minutes. Performing a file backup of the same set of folders took 1 hour 2 mins, so the system route is certainly quicker.

You can examine the system backup and extract individual files if you need to.

Acronis cheekily flags 'The Cloud' as one of the advantages of installing True Image 2013. In fact, you get only a one-month trial, and the service costs around £3 per month thereafter.

You can synchronise files on your PCs with laptops, tablets and other devices by specifying the folder and running True Image's synchronisation tool. If you've paid

for Acronis Cloud and have an online backup, files are also accessible from iOS and Android apps.

Backups can be scheduled, and there's a wide range of ways to keep the overall backup size at a reasonable level, from specifying a set number of backups to setting a total storage size the program shouldn't exceed. These regimes work well and mean there are few drive-full surprises.

The Plus version of the program, reviewed here, adds two extra functions: 'Restore to dissimilar hardware' and a WinPE interface for the recovery CD or USB drive.

Windows Pre-install Environment is a slimmed-down version of

VIDEO EDITOR

Adobe Premiere Elements 11.0

£94 inc VAT**Contact**■ adobe.com/uk**Read more**■ tinyurl.com/d2gt7yp**System requirements**

2GHz processor; Windows XP/Vista/7/8/Mac OS X 10.6 or later; 2GB RAM; 4GB drive space

Usability: ★★★★★

Features: ★★★★★

Value: ★★★★★



Premiere Elements 11.0 is aimed at the iMovie-level user who isn't yet ready for Final Cut Pro X. While, superficially, iMovie '11 and Premiere Elements 11.0 look, feel and do much the same, Adobe's refresh adds a number of small improvements.

Elements supports a wide variety of formats, export options and easy-to-use effects. This helps you quickly edit nice-looking videos to play on a variety of devices.

We were able to directly import into the Organizer items from iPhoto and Aperture libraries, complete with established events and keywords. This is an optional extra step, since you can also directly pull content into Elements, but it offers some useful new capabilities, such as searching and sorting according to people and location.

Version 11.0 has a huge amount of overlap with iMovie. You'll find the same image stabilisation, film-look effects, canned templates and so forth, but Adobe has taken these features and made them simpler to use and easier to fine-tune.

The program's interface has seen an overhaul. Icons and text are bigger, and backgrounds are lighter. The primary tools aren't hidden in menus, but accessible in a row of graphical pop-up buttons.

Accommodating the app's varied userbase is a useful dual-mode



PREMIERE ELEMENTS offers several improvements, including to the interface

interface. Quick mode offers fewer, simpler choices and controls, and a single video layer; Expert reveals more options, choices, power and complexity. This duality provides a nice bridge for novice users. Edits and effects span both modes.

We were able to edit our footage, insert Hollywood-style effects with the program's FilmLooks feature, add transitions, and quickly get the results we wanted. In Expert mode you can access advanced features such as Photoshop-style layer blend modes, and 99 video layers.


Beginner-friendly features include InstantMovie, offering assorted templates for weddings, sports, outdoor events and more. Combined with Smart Trim, you can plop some random shots on a

timeline, and the program will build something watchable.

Elements provides a wealth of output choices, including for the web, DVD, Blu-ray, AVCHD, iPhone, iPad and online services.

This £94 consumer app isn't a 'lite' version of Premiere Pro. There's no GPU acceleration, no batch rendering for output, and you can't open an Elements project in Premiere Pro. Some formats require lengthy automated processing to import into the Organizer, too.

Verdict

Many of Premiere Elements' features are me-too, but Adobe has done an admirable job of enhancing the interface, creating an easier point of entry to video editing.  **Mike Curtis**

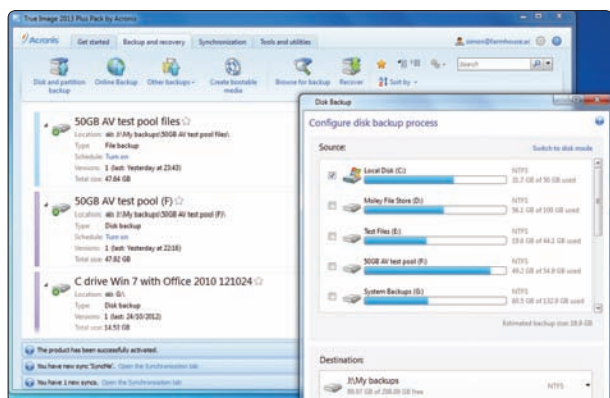
**ACRONIS TRUE**

IMAGE is possibly the best-known personal backup and recovery application

Windows, making the interface look suitably familiar but, due to Microsoft's updated licensing agreement with third parties, it has to be downloaded at the time of creating the recovery disc.

'Restore to dissimilar hardware' does as you might expect, enabling


you to install your entire system on new hardware. This will be most useful if you've upgraded an existing system with a new motherboard.

Provided the drivers are available for your new graphics card, hard drive or other component, the feature can help you quickly get up and running again. It's not a way of circumventing authentication and duplicating a system, though. Microsoft will typically detect when hardware has changed and insist that Windows is reactivated.

It would be good to think Acronis had also addressed the housekeeping drive-chuntering in which the 2012 version indulged - it frequently did so outside the

times designated for scheduled backups. During our testing, the 2013 product didn't display the same noisy activity.

Verdict

Acronis True Image 2013 is still the most comprehensive tool for backup and recovery on a PC, but it's beginning to open up to mobile access, too, with the Acronis Cloud offering. This costs extra, but it won't bankrupt you. If you don't have an effective backup strategy, True Image is a very good option, but if you already have the 2012 product and don't need cloud or Windows 8 support, an upgrade may not be necessary.  **Simon Williams**

OPERATING SYSTEM

Ubuntu 12.10 Quantal Quetzal

Free

Contact

■ ubuntu.com
■ tinyurl.com/bpduurL

System requirements

Intel/AMD x86/64 processor; 768MB RAM; 5GB drive space

Usability: ★★★★★

Features: ★★★★★



It's not just Windows 8 that's been criticised for expecting users to swallow an unpopular and ill-suited new interface. When Canonical, the company behind Ubuntu Linux, moved its default desktop OS interface to Unity in April 2012, it also alienated many loyal followers.

The issue, like the clumsy Metro tiles that can't be avoided in Windows 8, is uncannily similar – an interface designed for mobile devices is blown up to huge proportions, even on large-desk monitors better suited to the mouse-and-keyboard paradigm.

Ubuntu's Unity UI grew out of Ubuntu Netbook Remix, a workaround to make the low-res displays of mini-laptops more usable. But Unity has gently evolved since it became the default shell in 11.04, to the Unity 6.8 found in this year's 12.10 'Quantal Quetzal' release.

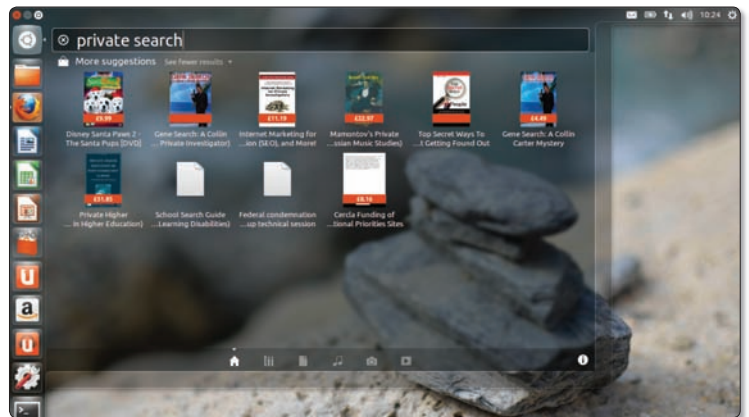
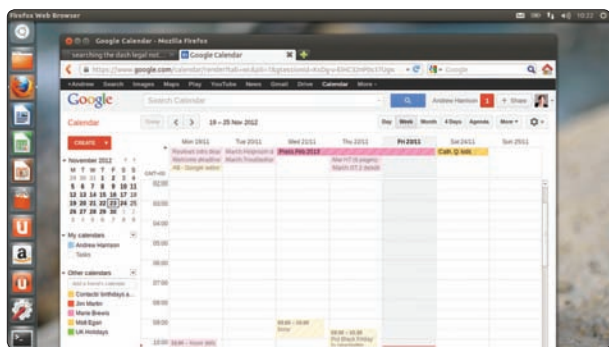
We had to reach for a dictionary to learn that Canonical's leader Mark Shuttleworth, who dreams up these codenames, is alluding to a bird of the Trogon family with iridescent green plumage and red underparts.

Commercial prospects

Thanks to some steady honing, the once-maligned Unity layout is now starting to gain traction with users. Shame, then, that Canonical has just shot itself in the other foot with the new 12.10 version.

The flak comes from Canonical's newfound commercial collaboration with Amazon. Whenever you use Unity's search bar (part of the Dash overlay that emerges from the top left corner of the screen) to find documents on your PC, your query is sent to the retail giant. It then offers vague matches with items in its online shop.

WEBAPPS are handy shortcuts to popular web pages with added functionality



By default, every local file search returns shopping results from **AMAZON**

For Amazon, the wins are obvious: it gets the opportunity to advertise its products to Ubuntu users, and to mine lots of valuable user data to expand its customer profiling. For Canonical, it's a chance to earn some cash on the side in kickback deals, a way to monetise the distribution of free software.

For the user, productivity is slowed by wasted online data traffic, privacy is violated by Unity transmitting the subject of local searches, and attention is distracted by a panel of thumbnails comprising retailed rubbish.

If you're still reading following this news, either you don't value your online dignity, or you've read the book before and know about the sort-of happy ending.

While 12.10 was still in pre-release beta, the backlash from users forced Canonical to partly reverse its decision to make a quick buck, offering a discreetly hidden 'off' switch that will keep your computing life free of nosey shopkeepers. You need to look in System Settings, and slide the button marked 'Include online search results' under 'When searching in the Dash'.

Leave the box checked, and your Dash queries will be sent not just to Amazon, but to Facebook, Twitter and the BBC, too.

Other features

For technical users there have been several changes under the bonnet. A new Linux 3.5 kernel results in low-level changes in file systems and the handling of metadata, but little that's evident to most casual

users. You can also try the new UEFI Secure Boot for improved security.

More noticeable are smoother interface graphics, perhaps aided by the move to Mesa 9.0, a software library for OpenGL 3D graphics. We noticed a snappier UI with faster rendering of actions such as window minimising, and more convincing transparency overlays when the Dash was superimposed over the desktop. Even without hardware graphics acceleration, the Unity 2D interface now feels zippier.

Little treats include the facility to right-click on Dash results to get a large preview. Certain rich web pages can be set as 'webapps'. When we logged into our work Google calendar, a small window prompted us to install Google Calendar for extra features and quicker access. A shortcut then appeared in the Launcher side dock, from which we could more quickly set calendar events, for example.

Other changes include the renaming of Update Manager to Software Updater, now available only from the Details section of System Settings. Social networkers can also log in through Online Accounts in the System Settings.

Verdict

If you'd rather not broadcast your every search term to a host of third parties, you can opt out of Ubuntu's misguided new commercial initiative. You're then left with a free operating system that is fast, stable and a more viable alternative to Windows than ever before.

✉ **Andrew Harrison**

VOICE-RECOGNITION SOFTWARE

Dragon NaturallySpeaking 12.0 Premium

£149 inc VAT**Contact**

■ nuance.co.uk
 Read more
 ■ tinyurl.com/d5zq5n3

System requirements

1.6GHz processor;
 Windows XP/Vista/7/8;
 1GB RAM; 3.2GB drive
 space; 16bit sound card;
 DVD-ROM

Usability: ★★★★★

Features: ★★★★★

Value: ★★★★★



NaturallySpeaking 12.0 Premium continues Dragon's reign as the de-facto voice-control software for Windows. If you've never used speech-recognition tools like this, it can feel like science-fiction.

Speech-recognition isn't for everyone but, after training the software to learn your voice, NaturallySpeaking translates accurately at great speed. A microphone headset in the boxed edition also improves accuracy.

A couple of new features are offered, along with the usual claimed improvements in speed and accuracy. New voice commands help you navigate Outlook.com and Gmail, with Dragon icons built into their interfaces. Geographical addresses now format correctly on the fly.

Using NaturallySpeaking is easy – once you've set it up, practised using it, and trained it to recognise your tones. Training isn't difficult, but it is time-consuming.

Nuance provides plenty of tips and documentation. You read aloud




NATURALLYSPEAKING is the de-facto voice-control software for Windows

text from the screen, which varies in difficulty, length and content. We spent half an hour training before we started. You can start immediately, then jump back to training at any point.

At the very least, choose your regional accent from an extensive list, and point the software toward your emails so it can investigate your syntax and vocabulary. This author has a hybrid Yorkshire/London accent, and a tendency to mumble as a result of an operation years ago. But we'd say the program is more than 90 percent accurate.

NaturallySpeaking remains a cinch to use. The interface is so simple as to be all but un-noticeable. A grey toolbar sits at the top of the screen, with an optional sidebar on the right. The toolbar lets you know when the microphone is active and offers access to menu items. Basic editing tools work with Word to rectify mistakes on the fly.

Verdict

This is the best speech-recognition dictation software for Windows. But it demands a significant investment in time and money.  **Matt Egan**

GAME

F1 2012

£25 inc VAT**Contact**

■ codemasters.com/uk
 Read more
 ■ tinyurl.com/cdyr8gg

System requirements

AMD Bulldozer or Intel
 Core i7 processor;
 Windows Vista/7 64bit;
 4GB RAM; 15GB drive
 space; AMD Radeon HD
 6000- or nVidia GTX
 500-series graphics card
 or better; compatible
 sound card; DVD-ROM

F1 2012 is just what fans need to keep them going during the winter break. The game lets you play the full 2012 season, with every track, car and driver present.

Even if you own the 2010 or 2011 titles, several improvements make this version worth buying.

The game starts with a Young Driver's Test, to prove your skills in Abu Dhabi. It teaches you to control the car, corner and use features such as DRS and KERS, faithfully replicating the rules of the season. It gives you a feel for the physics and a chance to tweak steering sensitivity and dead-zone.

Career mode sees you progress from a rookie driver, starting with a back-running team such as Caterham, to the top teams. Cut-scenes and emails from your agent add to the immersive gameplay.

This is no arcade racer: closer to a simulator, it's a game that will reward you if you learn the tracks.

Driving aids to allow novices to make it through a race without



F1 2012 is a superbly realistic game to keep fans going over the winter break

spinning off at the first corner. From steering and braking help, to traction control and racing lines, you can pick what to disable to tailor the game to taste, including AI difficulty.

Flashback lets you pause a race, rewind and have a second chance at making that pass or corner. Purists can avoid using it for a more realistic experience, but for everyone else it will make longer races less frustrating.

Tracks are accurately modelled and only F1 nerds might detect any mistakes. And the driving experience is so precise that you'll notice when your tyres begin to wear, or you pick

up grass or gravel, which reduces grip. The cars aren't easy to drive – exactly as you'd expect.

Even more impressive is the feeling of speed, more so than in previous games. The grandstands blur past, giving you the feeling that you're driving a 200mph machine that's at the edge of its ability.

Verdict

F1 2012 is one of the best-looking PC racers around, offering a visual and aural feast. It's demanding, though, and a title for enthusiasts rather than casual arcade racers.

 **Jim Martin**



GAME

Assassin's Creed III

£39 inc VAT

Contact

■ assassinscreed.ubi.com

Read more

■ tinyurl.com/b9qpd27

System requirements

Available on Xbox and PlayStation; PC version coming soon

Assassin's Creed III – in fact the fifth part in the series – is a giant sack full of diversions, putting even its famously content-packed predecessors to shame. Maybe its eyes are a bit too big for its stars'n'stripes-themed belly, though.

The old-world settings of the previous Assassin's Creeds are left behind in favour of a move to colonial America, and a tale that weaves in and out of that new nation's war for freedom from its British rulers.

This means more firearms and squat brick buildings, rather than towering minarets of Europe and the Middle East. But despite that, and this game's much-hyped three-year development time, gameplay is a surprisingly minor departure from what's gone before.

Stale cake

The heart of Assassin's Creed III is very similar to Assassin's Creed II, Brotherhood and Revelations. There's the pick'n'mix of third-person-perspective free-running, swordfights and collection-centric minigames in a large, open environment. There are new activities and alterations to existing ones, but it's all just a new drizzle over the same cake.

Of course, it's a pretty great cake, and the new setting, plus an impressive new graphics engine, help it taste fresh. Unfortunately, it's an awfully long time until you're allowed to eat this cake.

Assassin's Creed games, which involve learning a great many controls when compared to the average title, have always had over-long tutorial sections. The fact that the historical adventures are framed by a notorious, divisive

ASSASSIN'S CREED

III is overly concerned with events such as the battle of Bunker Hill



HUNTING is a new skill for Connor, with tradable rewards of skins and meats

modern-day sci-fi plot have also served to make their initial stages that much more drawn out.

Interestingly, the three-hour prelude/tutorial stars a different protagonist to Connor – the Native American assassin who's been glaring at the world from posters on bus stops for the past few weeks.

There are some smart storytelling ideas in this prelude and the cause of the later change in lead character, but its execution is buggy and teaches us how to do stuff we've already done in previous games.

Hunting down the action

Then there's another couple of hours of learning, as Connor finally takes centre-stage and brings with him a few new skills – specifically, hunting and skinning wildlife, and the new naval combat mode. These are the game's best additions, but the wait to use them is torturous.

It doesn't help that Connor is such a dour and charmless fellow. This series has never particularly excelled in its character creation but, in the past three games' Ezio, it at least had someone likeable.

The game manages to rob much of the drama of the American revolution, as it's more interested in Connor encountering a parade of historically famous names and playing a gimmicky part in major events, such as the Boston Tea Party and the battle of Bunker Hill, than it is in the causes of the conflict. A narrower focus would have made for a less drawn-out, bitty experience.

Two things you can't argue with, though, are the spectacle and the variety. The upside of the game jumping all over the place is a steady stream of spectacular setpieces – battles between large armies, cannonfire bombings of cities,

high-speed ship chases, fortress invasions, fluid skirmishes with tomahawks and muskets and, best of the bunch, the grand sweep of the Frontier, a huge forest zone.

Here, from high up in the treetops, alongside plunging cliffs and skulking in the undergrowth, Connor hunts animals with knife, bow, bait and traps. It's not wildly different from the 'main' game, but a lot less frenetic, thanks to the tranquil surrounding and the lack of easily angered guards. Just watch out for bears, wolves and bobcats.

Hunting animals rewards you with skins and meats, which can be sold for a pretty penny; on top of that is a deeply awkward sub-game, in which you trade food, wood and herbs created by a slowly increased population hanging around Connor's base, or use it to craft assorted ammo and upgrades.

It's an ambitious move toward a fully functioning in-game economy, which represents frontier life, but it's laid low by being depicted as nothing more than a frankly awful series of menus.

Assassin's Creed III also offers a much-needed conclusion to the sci-fi conspiracy modern-day story that's run across all five games. It'll prove divisive again, it's characteristically mopey and very little of it will make sense to anyone picking up this game without having played the others, but the prospect of future Assassin's Creeds being free from it is a pleasant one.

Verdict

Grandiose and spectacular to behold, but bloated and bitty to play, Assassin's Creed III certainly has a splendid playground, but far too many unnecessary toys within it.

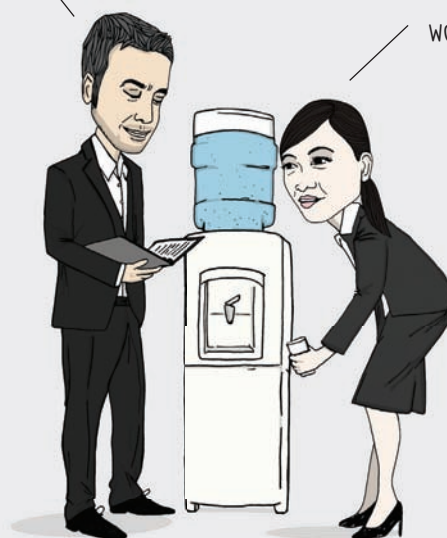
✉ **Alec Meer**



8 OUT OF 10 BUSINESSES WANT FASTER BROADBAND. HOW ABOUT 8x FASTER?

Great work Sarah,
our results have improved enormously.

8 times better
wouldn't you say?



Infinity for business

Our recent survey with the British Chambers of Commerce found that most businesses want faster broadband. Infinity for business is 8x faster than UK average broadband, so you can upload or download large files in seconds, even at the busiest times. Call or go online to see how other businesses are doing more with our superfast fibre optic broadband.

Making technology work for people.

0800 032 8596 bt.com/superfastbusinessbroadband



Broadband speed can be affected by a number of things: how far your business is from the fibre cabinet as well as the wiring in your building. Not all lines in an Infinity-enabled area can support the service. BT Infinity for business may require a BT line or similar and a fibre compatible router such as the BT Business Hub provided with Infinity. 12 or 24 month Minimum Period. Terms and conditions apply. The speeds provided by BT Infinity for business are more consistent than standard broadband, giving you 16Mb assured throughput at 90% of the internet busy period. Speeds based on UK average from Ofcom report, August 2012. BT Business commissioned research through the British Chambers of Commerce, June 2012.

£275 ex VAT
£330 inc VAT

Contact

■ canon.co.uk

Read more

■ tinyurl.com/dy66kpm

Specification

Colour laser printer;
9600x600dpi max
print resolution; quoted
print speed: B=20ppm,
C=20ppm; actual print
speed: B=13.8ppm,
C=9.4ppm; USB 2.0;
gigabit ethernet; 250
+ 50-sheet input tray;
768MB memory; UFR II/
PCL5c/PCL6/Adobe PS;
toner cost: B=£65, C=£75
x 3; print yield (pages):
B=3,400, C=2,900 x 3;
414x499x346mm; 25.2kg

Build: ★★★★★☆

Features: ★★★★★☆

Performance: ★★★★★☆

Value: ★★★★★☆



PRINTER

Canon i-Sensys LBP7680Cx

Canon's i-Sensys LBP7680Cx is a heavyweight colour laser printer with some advanced features.

The LBP7680Cx has a huge range of options, and almost every aspect of the printer can be tweaked to the nth degree. Technical users will appreciate the flexibility, but the less experienced may find it somewhat bewildering.

The text interface isn't the most intuitive we've seen, accessible via a control pad and arrow buttons. It's easy to lose track of where you are.

The Canon supports MEAP, a platform that makes available in the printer itself the Java capabilities used by developers to code apps that perform specific functions. This allows you to adapt the LBP7680Cx to perform customised duties, perhaps doing away with the need for external hardware, for instance, but it requires that your business either has somebody who knows how to tap into its capabilities, or sufficient funds to pay a third party to create a suitable application.

The Canon is also kitted out with uniFlow, which is useful for monitoring printer usage, keeping down costs and maintaining security controls, and it adds mobile printing facilities. Those wishing to keep their documents private have a number

of options, and it's easy to print from USB storage.

Up to 250 sheets can be loaded into the main compartment, with another 50 sheets available from the multipurpose tray. You can also bolt on an optional 250-sheet drawer for a potential maximum of 550 sheets. This is a reasonable input capacity but, given the large-business market at which the Canon is targeted, it may be insufficient for some customers.

Speeds of up to 20 pages per minute (ppm) are promised, although the real-world figure was much lower in our tests, at 13.8ppm. This dropped to 9.4ppm with A4 colour graphics. This is partly due to a long warm-up time, and the Canon tends to churn out a new sheet every three seconds thereafter.

If you'll mainly be running large print jobs, you'll find the Canon quickly builds up speed.

There's an automatic duplexing feature, and double-sided text saw a drop in speed from 13.8ppm to 8.2ppm – a fall of almost 41 percent.


The text quality is good, with clean and sharply defined characters that remain legible even



at small font sizes. The printer works extremely well with glossy paper and, even on plain paper, colour graphics look very pleasant. The Canon doesn't have the most exciting and sparkling of colour palettes, but the overall effect is balanced and easy on the eye.

Text running costs are very fair, at around 2p per page. Colour, though, isn't anywhere near as cheap, costing around 7.8p per page.

Verdict

The Canon has some advanced features that may make it a good choice for larger companies; small-to medium businesses may have less use for add-ons such as MEAP. The Canon is a solid and versatile – if slightly slow – printer that's trumped in several areas by cheaper competition.  **Robin Morris**

PRINTER

Pantum P2050

£50 ex VAT
£60 inc VAT

Contact

■ pantum.com

Read more

■ tinyurl.com/c764sz2

Specification

Mono laser printer;
1200x600dpi; 15.8ppm;
USB 2.0; 150-sheet input
tray; 8MB memory;
380x260x236mm; 6.1kg

Build: ★★★★★☆

Features: ★★★★★☆

Performance: ★★★★★☆

Value: ★★★★★☆



Pantum is a new name to PCA. The Chinese company hopes to become one of the leading laser printer manufacturers by the end of 2015.

The firm has kicked things off by rolling out what will be the cheapest model in its forthcoming printer line-up, with plans to release a slew of higher-specified models over the course of 2013.

The Pantum P2050 looks and feels like a deluxe version of an entry-level inkjet. This is the black model – a white and grey model is also listed, known as the P2000.

The case feels reasonably tough, and black livery gives it a brutal but smart appearance. The construction is solid, with the company at pains to

point out the use of a metal rather than plastic internal frame.

The paper input trays aren't the strongest, though, and they can be overly sensitive – the paper won't be detected by the printer if it isn't pushed right up to the edge.

Given that this printer costs only £60, it's surprising to see two input sources. There's a 150-sheet main input tray, while a second tray allows you to manually load paper.

We were also pleased to find a top-mounted output tray, from which printed pages won't easily get mixed up with blank sheets.

Unsurprisingly, given the price, there's no screen; rather, there's a single button and a pair of LEDs.

Connectivity stretches only to USB 2.0; if you need wired- or wireless networking options you'll have to wait for Pantum to release its more expensive models.

The P2050's simplicity makes for a fast installation routine. You simply lift up the lid, drop in the toner, load up the drivers and, less than five minutes later, you're done.

Pantum's speed claims are largely trustworthy. It quotes 20ppm, and we measured 15.8ppm with a 10-sheet workload. It takes around 10 seconds for the printer to start churning out pages, and speeds thereafter are much closer to 20ppm. The chances of you using such a printer for large print jobs

£150 ex VAT
£180 inc VAT

Contact

■ brother.co.uk
Read more
■ tinyurl.com/bue2dmy

Specification

Printer, scanner, copier, fax; 6000x1200 print resolution; quoted print speed: B=35ppm, C=27ppm; actual print speed: B=18.8ppm, C=12.8ppm; 2400x2400 scan resolution; USB 2.0; 802.11b/g/n; card reader; 150-sheet input tray + 20-sheet ADF; 3.7in screen; cartridge cost: B= £30, C=£30 x3; print yield (pages): B=1,200 C=1,200 x3; 2-year warranty; 480x290x185mm; 9.3kg

Build: ★★★★★☆

Features: ★★★★★★

Performance: ★★★★★☆

Value: ★★★★★☆



PRINTER

Brother MFC-J4510DW

The Brother MFC-J4510DW isn't your typical cream breeze-block multifunction printer. The low-slung top is just 185mm deep, but very wide, with support for A3 printing. Such sheets are loaded sideways to make best use of the printer's width.

Configuration is reasonably straightforward, even if this is the first printer for which we had to consult the manual to learn where to connect the USB cable.

The Brother is a joy in use, thanks to a sizeable and colourful 3.7in screen. This makes the printer very logical to operate.

With onboard fax facilities, there's a danger that a multifunction printer may get overloaded with keys. The Brother employs a clever trick, lighting up buttons only when you need them. For most tasks there are only a few selectable buttons.

Extensive connectivity options encompass Wi-Fi and ethernet. The printer also has cloud-computing credentials, and you can hook up mobile devices and insert memory cards via a range of slots.

A nice touch is the Secure Print feature, which waits until you reach the printer and enter a password before printing a document, keeping your confidential work confidential.

We also like the scanning component. The lid can be adjusted for larger material, and the 2400x2400dpi optical resolution allows for good image depth. A 20-sheet ADF is particularly useful for faxing.

Paper handling is solid, with the well-built input tray taking up to 150 sheets at a time. This is a decent amount for most purposes, although businesses making frequent use of the printer may find the paper needs to be replaced a little too often.

A3 prints should be produced in Best mode. The fastest speed we saw here was 2 mins 55 secs, versus 1 min 42 secs for an A4 page.

With A4 the text is rather faint in the fastest 18.3ppm mode. In middle mode the text is relatively dark, with none of the blurred lettering common to most inkjets, and the speed is still a decent 13.3ppm.

The top mode is better still, at the expense of speed, with pages available in our tests at a mere 1.8ppm. Text doesn't have the perfection of a good laser printer, but the quality is sufficient to pass most inspections.

In all modes colour was slightly faint and watered down. Results with photographic paper are better.




Auto duplexing is supported, with a huge hit on performance. In the fastest mode the text output drops from 18.3- to just 5.3ppm.

The Brother is reasonably quiet, although it does emit a noise like distant fireworks. This noise sometimes persists after printing.

The 600-page cartridges cost £23 for black and £15 for colour, while 1,200-page options cost £32 and £22 respectively.

Best-case running costs stand at 2.8p per page of black, and 5.7p for colour. This is reasonably competitive, but beaten by the £140 HP Photosmart 7520, which offers pages at 2.4p and 4.8p.

Verdict

If you primarily need a graphics printer, you'll find better models elsewhere. But the Brother's text output is good, and its feature set is substantial. With A3 print functionality, this printer has much to offer.  **Robin Morris**



are slim, however, and you might find the slightly more expensive Samsung ML-2955DW's 22.2ppm more appealing.

The P2050 isn't going to win awards for its text quality, but it's

serviceable. The lettering tends to be a little faint, although it remains easy to read. The Pantum struggles with detail at the smallest font sizes but, for everyday text printing, its output is adequate.


Neither is the Pantum a great graphics printer, with many of our test prints displaying significant banding. It'll certainly struggle with sophisticated material.

Running costs aren't the cheapest, but that's to be expected when you skimp on a printer's initial purchase price. The Pantum's toner is available in 1,500- and 2,300-page capacities, so you'll pay around 2.4p per page with the highest-capacity cartridge, or 4p for the smaller

version. Samsung's comparable ML-2955DW will set you back around 2.7p per page.

The running costs are certainly a factor to consider if you think you'll be turning to the P2050 for more than occasional use.

Verdict

The Pantum P2050 avoids many of the pitfalls of low-end mono laser printers. This straightforward and effective model does an acceptable job for just £60. You may want to look into the running costs before you buy, though - if you're likely to want to print in significant volumes, the low asking price will prove to be a false economy.  **Robin Morris**

£600 ex VAT
£720 inc VAT

Contact

■ xerox.co.uk
Read more
■ tinyurl.com/a6kvcug

Specification

Colour multifunction laser printer; 512MB standard memory; 1200x1200 dpi max printing resolution; 35ppm specified speed; 750-sheet standard input capacity; 1,300-sheet maximum input capacity; recommended duty cycle: up to 80,000 images/month; ethernet; optional Wi-Fi; USB 2.0; 430x528x560mm; 32.5kg

Build: ★★★★★☆
Features: ★★★★★☆
Performance: ★★★★★☆
Value: ★★★★★☆



PRINTER

Xerox WorkCentre 6605DN

The Xerox WorkCentre 6605DN is a conventional small-business multifunction printer that has been designed to provide further effective enhancements to production.

This two-tone printer is relatively space-efficient at 430x528x560mm, but weighs a reassuringly hefty 32.5kg. It's generally well built, although the input tray for the ADF and the side panel that houses the waste cartridge feel flimsy.

The standard input configuration comprises a 550-sheet feeder tray in the base, a drop-down 150-sheet multipurpose tray above, and a 50-sheet duplex ADF at the top. You can further supplement the paper capacity with an optional 550-sheet tray.

The Xerox has a bright and colourful 4.3in touchscreen, with which usability is key. The home screen links to the four main tasks - print, copy, scan and fax. Additionally, the Xerox lets you set up email connections via ethernet and print off ID cards.

The two remaining menu screens allow you to keep track of active as well as stored secure jobs, and offer access to display settings, general information and tools.

The power-save function kicks in if you leave the machine unattended for given a period, while a USB port is wisely included under the display, allowing you to scan to or print documents from an attached drive.

As well as ethernet connectivity, the Xerox offers wireless networking functionality via an optional adaptor. You can also hook up the printer to a single PC via the USB 2.0 port.

Print speeds for both mono and colour documents averaged 33ppm in our tests, with the printer able to copy documents at 12ppm. With duplex mode engaged, this speed dropped to 20ppm.

The colour printing quality is crisp and vibrant, even without you invoking the Vivid option. This is equally true of scanned images.

Using the high-capacity ink cartridges, which last 6,000 colour



pages or 8,000 for black, running costs average 3p per page for colour and 1.6p for black. In comparison, the similarly specced Dell C3765dnf colour laser printer (reviewed at tinyurl.com/dxvawrg) is slightly cheaper to run.

Verdict

If you want a sturdy office workhorse with easily accessible menus, good print speeds and high colour quality, the Xerox WorkCentre 6605DN will prove to be a sensible investment. **Martyn Clayden**

£37 ex VAT
£44 inc VAT

Contact

■ kensington.com
Read more
■ tinyurl.com/c5ggydk

Specification

Kensington cable lock; 7x7 steel cable with PVC coating; 12.7mm low profile lockhead; two keys included; 1.5m cable; 179g

Build: ★★★★★☆
Features: ★★★★★☆
Performance: ★★★★★☆
Value: ★★★★★☆



LAPTOP LOCK

Kensington ClickSafe Keyed Laptop Lock

**PC ADVISOR
RECOMMENDED**

The author of this review hasn't knowingly suffered any malware in 20 years of computing, but he has had four PCs stolen in the past eight. Physical theft of your computing kit is as much a threat today as ever.

Kensington provides the industry standard for physical lockdown through its ubiquitous lock slot. You'll find this 7x3mm aperture on many big-ticket laptops, desktop PCs, NAS drives, monitors and more.

Typically, a toughened steel cable with a keyed- or combination lock is inserted into this slot and used to chain the device to an immovable object. Now, though, the company is offering a variation on the theme with its ClickSafe locks.

Available with either a keyed- or combination lock, ClickSafe makes securing your PC a much faster, more convenient operation. Its two-part design removes the need to carefully line up the lock with the slot on the laptop; a metal nipple is permanently attached to the device by a hex screw, and the lock

is simply pressed into place when required. The key or code needn't be used to lock the device either, although this does mean you'll need to double-check you're in possession of the key beforehand. Spare keys are available to registered owners.

The small metal attachment that fixes to your device is easily installed using the supplied Allen key. In place, the lock forms a seal over the screw to prevent tampering.

We found the lock would snap into place with a satisfying click every time. A larger area of your device is in contact with the lock, too, making it less likely that a thief could lever apart the pairing.

The unavoidable drawback of ClickSafe is that it requires the metal nipple to be in place at all times. This may not be convenient if your laptop travels in a snug case that won't accommodate the 7.4mm-high protuberance.

Build quality is very good. The lockhead is made of chrome-plated steel, while the cable is a tough steel



hawser in a 5mm-thick, seven-bundle bunch, finished in PVC to prevent corrosion and collateral damage.

Kensington offers several ClickSafe products: Keyed Different is a single lock and key; Single Key comprises several locks that operate with one key; and Master Keyed offers multiple locks and keys, all accessible via a single master key.

Verdict

If you're not one to regularly leave your keys at home, ClickSafe simplifies lockdown of valuable hardware. **Andrew Harrison**



Buy now pay later¹.

Spent your IT budget, no cash available? Why not get your business hardware now and start paying in 3 months!



Vostro™ 3560
More internal muscle and a larger visual workspace in an advanced laptop.

Includes 2 days delivery*

£319

Excl. VAT

E-Value code: PPUK5-SBNS5630

Lease it: 36 months' lease only £11.73PM*

- Intel® Core™ i3-2328M Processor (2.20GHz, 3MB Cache)
- Windows 8 Pro
- 2GB Memory
- 320GB Hard Drive
- 15.6" (40cm) HD WLED Screen
- 1 Year Limited Warranty - Collect & Return



Touch Screen

OptiPlex™ 9010 AIO

Engage your workforce with an all-in-one touch desktop optimised for IT control.

Includes £632 savings & free delivery*

£679

Excl. VAT

E-Value code: PPUK5-X11901006

Lease it: 36 months' lease only £29.37PM*

- Intel® Core™ i3-3225 Processor (3.30GHz, 3MB Cache)
- Windows 8 Pro
- 4GB Memory
- 500GB Hard Drive
- Monitor not included
- 3 Years Basic Warranty - Next Business Day



Vostro™ 270
Powerful, flexible and easy to manage, the Dell Vostro 270 is built for small business.

Includes 2 days delivery*

£279

Excl. VAT

E-Value code: PPUK5-SBDS304

- Intel® Core™ i3-3220 Processor (3.30GHz, 3MB Cache)
- Windows 8 Pro
- 2GB Memory
- 500GB Hard Drive
- Monitor not included
- 1 Year Limited Warranty - Collect & Return

Our range of business laptops starts from as little as £249 and desktops from just £299, call or click to find out more.

Dell.co.uk/business or call 0844 444 3642

Offers valid 29/11 - 26/12/2012

Call lines open Monday to Friday 8am to 8pm and Saturdays 9am to 6pm

¹Documentation fee applies. VAT will be debited at first available billing date. Finance and hire facilities are available from Dell Capital Services (provided by GE Capital Solutions Limited 2630 The Quadrant, Aztec West, Bristol BS32 4GQ Registered in England and Wales No. 06299476 Registered Office: Meridian, Trinity Square, 23/59 Staines Road, Hounslow, Middlesex. TW3 3HF) to UK limited company customers who intend to use the equipment for business purposes only. This is not an offer to supply finance or hire facilities. Terms and Conditions apply. All applications are subject to status, acceptance by Dell Capital Services and credit scoring is used when assessing an application. An automatic credit scoring system may be used. Any prices shown are not binding on Dell Capital Services and may vary without notice. This promotion is valid until 31st December 2012, we reserve the right to withdraw or extend the promotion. All products may be subject to different promotional offers and such offers may change without prior notice. The Terms and Conditions of finance and hire and a written quotation are available upon request.

²2 days is subject to conditions available at www.dell.com/uk/business/p/ships-fast-most-popular and is NOT guaranteed. Free Delivery is a limited time offer. Leasing costs are quoted on a Per Month (PM) basis.

Dell Products, Registered in Ireland. Reg. No. 191034 c/o P.O. Box 69, Bracknell, Berkshire RG12 1RD. Subject to availability. UK business customers only. Terms and Conditions of Sales, Service and Finance apply and are available on www.dell.co.uk. Third party products are covered by third party manufacturer's warranty. Prices and specifications are correct at date of publication and may change without notice. Prices exclude VAT and delivery unless otherwise stated. Promotional offers limited to maximum 5 systems per customer. Availability and terms of Dell Services vary by region. They are subject to Terms and Conditions which can be found at www.dell.co.uk/service-descriptions/smallandmediumbusiness. Dell Services do not affect customer's statutory rights. Microsoft®, Windows®, Microsoft® Office 2010 and Windows® 7 and Windows 8 are trademarks or registered trademarks of Microsoft Corporation in the United States and/or other countries. Celeron, Celeron Inside, Core Inside, Intel, Intel Logo, Intel Atom, Intel Atom Inside, Intel Core, Intel Inside, Intel Inside Logo, Intel vPro, Itanium, Itanium Inside, Pentium, Pentium Inside, vPro Inside, Xeon, Xeon Phi, and Xeon Inside are trademarks of Intel Corporation in the U.S. and/or other countries.



Sub-8in tablets



Photography by Dominik Tomaszewski

We round up the latest and greatest mini tablets to help you decide which is right for you

A couple of years ago it was easy to choose which tablet to buy. There was very little choice, and the iPad was pretty much the only sensible option.

Now, though, there are hundreds of tablets on the market, and it's particularly tricky to decide which 7- to 8in model is right for you. Here, we explain what you should look for in a tablet.

The first step is to work out what will be your primary use for the tablet. This will help you to choose a model based on such factors as weight, physical size, storage capacity, screen resolution and quality, features such as GPS receivers and more.

Operating system

A tablet's operating system is important: it determines which apps are available, as well as whether the tablet can handle your existing documents and multimedia files.

Buy a 'vanilla' Android tablet such as the Nexus 7, and you'll have a versatile piece of hardware that has access to the well-stocked Google Play app store. However, unlike Apple's App Store, Google Play is not a curated environment. The quality of the apps it offers can vary wildly, and some may even contain malware. It's important to keep your wits about you when downloading apps, checking out the Permissions requested and reading user reviews. For a selection of apps

verified by our own *PC Advisor* editors, head to our Best Android Apps Advisor at tinyurl.com/BestDroidApps.

Conversely, unlike Apple's locked-down system, you're free to drag-and-drop files on to an Android tablet from any computer, which is more convenient than using iTunes. That's not to say everything you upload to your tablet will be in a format it supports, and it won't always 'just work' as it would with an iPad or iPad mini.

Apple doesn't support Flash, so an iPad won't play the videos on the BBC's news website, for example. Neither do some Android tablets - notably those running Android 4.1 Jelly Bean. While websites are slowly moving to HTML5, many still rely on Flash. In many cases, though, a workaround is available in the form of an app.

Other tablets, such as Amazon's Kindle Fire HD, run a custom version of Android and don't allow you to access Google Play. The Fire HD offers Amazon's app store, from which you can buy books and magazines, and Amazon-owned Lovefilm for video streaming.

Storage

Some tablets have a memory card slot that allows you to add capacity when their storage starts to run low. If such a facility isn't available, as is the case with the iPad and iPad mini, you will need to work out how much storage space you're likely to need and purchase a suitable model. If you think you've done this and still run into storage-capacity problems, workarounds are offered by Wi-Fi-enabled hard drives, such as Kingston's Wi-Drive, and cloud storage, but it's far more convenient to have all your files in one place and not be reliant on an active internet connection.

In general terms, 16GB is a sensible minimum, but for those who want are likely to install lots of apps and keep a movie collection on their device, 32GB or more is better.

Connectivity

All tablets have Wi-Fi and most have Bluetooth connectivity, but 3G/4G access is usually available as an optional extra (or not at all). If you need to get online on the move, a 3G- or 4G-capable tablet makes sense; if you'll only ever use the tablet in your home or office, it's probably a waste of money - the cellular version of the iPad mini is £100 more expensive than the Wi-Fi version, for example.

If you later change your mind, you can always tether the tablet to your smartphone and utilise its internet connection, or connect to a 3G/4G hotspot (often known as MiFi) that has a data SIM inside.

Look for Bluetooth 4.0 for backward compatibility and lower power consumption with the latest supported devices.

Performance

Just about any tablet can cope with firing off the odd email and chatting on Facebook, but some cheaper tablets skimp on processing power and can be frustrating in use. Apps take longer to load and some demanding websites, such as Google Maps, or those that make heavy use of Flash, can bring an underpowered tablet to its knees.





Build	★★★★★
Features	★★★★★
Performance	★★★★★
Value	★★★★★
Overall	★★★★★

ACER ICONIA TAB A110

£179 inc VAT • acer.co.uk • tinyurl.com/c4thsul

At first glance the Iconia Tab A110 looks very similar to the Nexus 7, but it's thicker and heavier. The build quality is reasonable and the tablet feels robust, but we're not fond of its dated slab-like design and plasticky feel - at this price we expect better.

In common with the Nexus 7, the A110 has an nVidia Tegra 3 processor and 1GB of RAM. Both devices offer excellent performance and, although the Acer didn't come out on top in any test, it scooped some of the best results in our benchmarks.

The storage capacity is rather low at just 8GB, but you can pop in a microSD card to add up to 32GB. Unlike the Nexus 7, the Iconia Tab is fitted with an HDMI output for connection to a large screen.

The 7in screen is where the A110 stumbles. Its 1024x600 resolution is lower than expected for the money, and viewing angles leave something to be desired when compared with those of Google's tablet's in-plane switching (IPS) panel.

You get 802.11n Wi-Fi, Bluetooth 3.0 and GPS. There's no rear-facing camera, but a front-facing 2Mp camera is sufficient for conducting video chat and snapping self-portraits.

The A110 ships with a near-stock installation of Android 4.1 Jelly Bean, to which Acer has tweaked the Home screen to operate in landscape mode and added power-plan options to the notification bar.

Preinstalled apps comprise the usual set of Google services, including YouTube, Gmail and Chrome. There's also the Google Now search engine, which draws on the extensive information Google holds on you to help it predict what you're looking for.

The lack of Adobe Flash support is becoming less of a problem for Android 4.1 devices, with new apps designed to offer a workaround. The BBC has updated its iPlayer app to make it compatible with Google's now Flash-less OS, for example.

We found the Acer's battery lasted a couple of days with occasional and varied use. It endured 7.5 hours of our video-looping test, falling short of the Nexus 7.

VERDICT: With an extra £20 slapped on the price tag, a chunky design, a mediocre screen and meagre storage capacity, the Acer Iconia Tab A110 can't compete with the Google Nexus 7. If you need HDMI or microSD compatibility, though, the Acer is a strong performer. **CM**



Build	★★★★★
Features	★★★★★
Performance	★★★★★
Value	★★★★★
Overall	★★★★★

AMAZON KINDLE FIRE HD

£159 inc VAT • amazon.co.uk • tinyurl.com/ch6cLnz

The 7in Kindle Fire HD runs a heavily customised version of Android that's unrecognisable from its Ice Cream Sandwich blueprint.

Amazon's interpretation is slick, easy to use and intuitive, with a carousel of recent apps, books, sites and more on the Home screen.

In each section you can switch between local and cloud-stored content. Amazon throws in 5GB of web space for your documents, photos and videos, while a Cloud Player app stores up to 250 audio tracks (or up to 250,000 for £22 per year).

It's possible to drag-and-drop files from a PC to the Fire HD's 16GB internal storage capacity, but we found some photos displayed at the wrong aspect ratio and a handful of our MP3 files were ignored. There's no support for removable memory cards.

The Kindle Fire HD is rumoured to be sold at a loss to encourage content sales, so it's no surprise to find strong similarities with Amazon's Kindle e-readers. The interface is almost identical to that of a traditional E Ink Kindle, yet the experience is very different, given the Fire HD's LCD screen. It's not nearly as easy to read in bright light, and it's reflective. Viewing angles are very good, though, while the characters are sharp and words are easy to read.

Naturally, the Kindle Fire HD offers the same excellent selection of e-books as a traditional Kindle, while Whispersync technology lets you carry on reading any title from where you left off.

Amazon owns Lovefilm, so those who hold a subscription to this service can also stream movies on the tablet. The Fire's speakers are also better able to handle audio than those offered by most tablets.

Amazon's Appstore has many popular apps, but its collection isn't as extensive as that found in Google Play - in fact, you won't find any Google apps at all. The Fire HD also lacks a GPS receiver, but you can use Google Maps via the non-Flash-friendly browser.

At just under 400g, the Fire HD is heavy. Build quality is good, but performance isn't as fast as we'd like. In use, the tablet doesn't feel as snappy as an iPad mini or Nexus 7, especially when browsing or launching apps. Battery life is very good, though.

VERDICT: If you want something that's easy to use - particularly for reading e-books - and don't need GPS, the Fire HD is a good buy. But the faster Google Nexus 7 offers better value at this price. **JM**



APPLE iPad MINI

£269 inc VAT • apple.com/uk • tinyurl.com/cljwuvv

Not wanting to pass up a slice of the 7in tablet pie, Apple went against its earlier misgivings over the usability of smaller-screen tablets with the release of the iPad mini. Accordingly, although it's the same physical size as its rivals, it packs a larger 7.9in screen.

This extra space gives the iPad mini around 35 percent more screen real-estate than a 7in tablet. We like the 4:3 aspect ratio, despite it producing a letterbox effect with widescreen movie playback.

The screen has the same 1024x768 resolution as the iPad 2. It has a higher pixel density because it's around 2in smaller, but the definition isn't as crisp as that of Apple's Retina displays. It's an IPS panel, though, so colours are vibrant and viewing angles are excellent.

What strikes you when you pick up the iPad mini is how light it is, at less than half the weight of a third- or fourth-generation iPad. The build quality is spectacular and the tablet feels as solid as a rock.

The iPad mini uses the new Lightning connector, so you'll need an adaptor to use 30-pin accessories – not all of which will work.

Both cameras are brilliant – the rear one especially so. It takes sharp photos in dim conditions and great-looking images with accurate colours in good light. It's great for videos, too, and not too large that you'll feel uncomfortable using it as a camera.

Another similarity with the iPad 2 is the CPU. The A5 chip is getting old, but our benchmarks can attest to it still being able to pull its weight. Importantly, the iPad mini feels snappy in use. Battery life is good at 7 hours 21 mins, and reducing the screen brightness from its unnecessary maximum ups this to more than 10 hours.

Siri's presence is a surprise, with the A5 chip routinely blamed for the absence of Apple's voice assistant in the iPad 2. The mini has most of the other headline iOS 6.0 features, too, including flyover maps and VIP mail, but the Camera app lacks a panorama mode.

One neat addition to iOS is that it recognises if you're resting your thumb on the side of the screen or interacting with an app. The side bezels are just 5mm wide, so touching the screen is inevitable, especially when reading an e-book.

VERDICT: The iPad mini is a premium tablet with a price to match, but it offers good value in comparison to the iPad 4. It's a shame Apple couldn't include a Retina screen, a faster processor and GPS. **JM**



BARNES & NOBLE NOOK HD

£159 inc VAT • nook.com • tinyurl.com/cm8Lqkg

The Nook HD is the first tablet to launch in the UK from US bookseller Barnes & Noble. This 7in model weighs about the same as an iPad mini and is comfortable to hold in one hand. There's a choice of two bezel colours, white and grey, and two storage capacities: 8GB costs £159, 16GB costs £189. A microSDXC slot lets you add a further 64GB.

The Nook HD has its sights firmly set on the Kindle Fire HD, and Barnes & Noble points out that there's a mains charger in the box (it won't charge over USB, though), and no lock-screen adverts.

The tablet is lighter than the Fire HD, but it's the screen that really wins the Nook this fight. The 1440x900 IPS panel has a pixel density of 243ppi, which is almost as high as that of the new iPad. Colours and contrast are excellent, as are viewing angles.

The Nook HD runs a heavily customised version of Android Ice Cream Sandwich. However, the system is so tightly locked down it makes the Kindle Fire HD look like an open platform. There's no way to install apps from anywhere other than the Nook store, which has a limited selection of popular titles. There's Angry Birds Star Wars, Words With Friends and Netflix, but no BBC iPlayer yet. The apps are curated, so you'll find only those tailored to the Nook's screen.

It's a similar story for newspapers and magazines, for which UK content is still sparse. The video section, in which you can rent or buy movies for offline viewing or streaming, launches in December.

We like that the Nook HD supports password-protected user profiles, allowing content to be restricted based on who's using the tablet. Backgrounds can also be personalised, and things like bookmarks and notes are user-specific, even though several family members could be reading the same content. You can even set up separate email accounts.

The interface is pared down and very easy to use, and we like the physical Home button. The content in Barnes & Noble's store is of a very high quality. The tablet's performance is also up to scratch, but it's a shame there's no camera for Skype – this is a device designed purely for content consumption.

VERDICT: We can hardly find fault with the hardware, but UK-specific content is sorely lacking. Much is promised, but you'll be taking a risk if you jump in and buy one right now. **JM**



Build	★★★★★
Features	★★★★★
Performance	★★★★★
Value	★★★★★
Overall	★★★★★

FUHU NABI 2

£150 inc VAT • fuhu.com • tinyurl.com/bm9tbp2

California-based Fuhu makes some bold claims about its nabi 2 tablet for kids. A quick look at the specs reveals an nVidia Tegra 3 processor, just like the Nexus 7. It also has a non-toxic silicone bumper, so it shouldn't be easily damaged, even if dropped on to concrete.

There's 8GB of storage, a microSD slot for adding up to 32GB more, plus micro USB and mini HDMI ports. You also get a front 2Mp camera and a pair of speakers at the rear.

The 7in screen is the first sign of weakness. It has a 1024x600 resolution, which is a step up from the Kurio 7 (800x480), but lower than that of the Nexus 7 (1280x800). In practice, this is a problem only when browsing the web, where things feel cramped. It's not an IPS panel, so viewing angles are narrow.

Fuhu boasts that the nabi 2 comes with £120 worth of software. Many apps are 'lite' or 'starter' editions, which nag you to upgrade. The Painting app includes only six pictures to colour in, for example.

As well as full versions of Angry Birds and Fruit Ninja HD you get Fuhu's Fooz Kids, which includes educational games and a chore list. Fooz Kids also has a curated list of websites, videos and web-based crafts, which you have full control over in the Parental Dashboard.

Fooz Kids needs anglicising, currently referring to Kindergarten, grades and math. The exercises themselves are okay for older kids, but you'll have to supervise younger ones who are unable to read. Fuhu says a big update is on its way to the nabi 2, with anglicisation happening over the coming months.

The MeeGenius e-book app comes with a decent selection of kids' books. More apps and games can be bought through the App Zone store, which has a rather limited choice. It's relatively easy to add Amazon's Appstore, but not Google Play.

We'd have no issues leaving a child unsupervised with the nabi 2, since the Maxthon web browser allows visits to whitelisted sites only.

Performance-wise, the nabi 2 is great. It's fast for playing games and browsing websites. Battery life is pretty good, lasting around eight hours in our tests, but it takes three hours to recharge.

VERDICT: It's not without its faults, but the nabi 2 is the best kids' tablet around. You're unlikely to want to use it yourself, but it does allow you to use the full Android interface when you need to. **JM**



Build	★★★★★
Features	★★★★★
Performance	★★★★★
Value	★★★★★
Overall	★★★★★

**PC ADVISOR
RECOMMENDED**

GOOGLE NEXUS 7

£199 inc VAT • play.google.com • tinyurl.com/cgba439

Google's Asus-manufactured Nexus 7 is still the benchmark for inexpensive 7in tablets. It runs Android 4.1 Jelly Bean and has a 7in (1280x800) screen. It's relatively thin and light at 10.9mm and 336g.

Designed to be predominantly used in portrait mode, we found one-handed use in either orientation comfortable. Buttons and ports are kept to a minimum: micro USB and headphone jacks are on the bottom edge and a four-pin side dock can be used for accessories.

The Nexus 7 is a well-made, premium tablet. We saw some rippling at the top and bottom edges of the screen when pressed hard, but most tablets suffer the same problem. The IPS panel provides excellent contrast, brightness and viewing angles. It's great for web surfing and playing games, but even more so for watching films.

A quad-core processor and a healthy 1GB of RAM are great to see at this price. The Nexus scored well in Geekbench, with 1,452 points. It also managed 20fps in the demanding Egypt HD graphics test.

The 16GB Nexus 7 costs just £159 but, since you can't add to this capacity, it makes more sense to opt for this new 32GB version for £40 more. And for a further £40 you can add cellular connectivity.

Bluetooth, GPS and near-field communications (NFC) are included, but there's no rear-facing camera for quick snaps. A 1.2Mp front-facing camera is adequate for video chats.

Android 4.1 looks much the same as Ice Cream Sandwich, but Google has improved the OS' performance and responsiveness. Jelly Bean is slick, and closes the gap between Android and iOS.

Web surfing with the default Chrome browser is smooth; pages load quickly, while zooming and scrolling are similarly speedy. Notifications now show more information about each alert and let you carry out tasks without launching the associated app.

A recent update allows the Home screen to display in landscape mode. Dictation works offline, and you get Google Now. Note the lack of Flash support in Android 4.1, though.

Battery life is seriously impressive: our video looped for a whopping 9 hours and 40 minutes.

VERDICT: The Nexus 7 remains one of the best choices for those who don't want or need a 10in tablet. If your budget isn't limited, the iPad mini is a very tempting alternative. **CM**



Embrace

For Kindle, iPad® Mini
and other small tablets



In-Genius

For iPhone® 5, Galaxy S3
and many more!



SlimStand

For iPad® Mini and New iPad®



scan to shop now!

Something for everyone under the tree!

See what's jingling this season at Tuff-Luv.com!



How we test

We fully charge each tablet and loop an MP4 movie to test and compare battery life. The volume is set to 50 percent and brightness to 100 percent. Wi-Fi is turned on, but Bluetooth and GPS (where applicable) are disabled. This test also allows us to assess the quality of the screen and speakers.

We use the SunSpider JavaScript test to compare each tablet's web-browsing speed (a lower score is better here), and Geekbench for general system performance (a higher score is better). Finally, GLBenchmark's Egypt HD test allows us to assess the graphics.

We also note the responsiveness and accuracy of the touchscreen with general typing and navigation, especially with text-heavy sites that require more precision when selecting options and clicking links.

In terms of screen quality we inspect the brightness, contrast, colour accuracy, clarity and viewing angles, and make comments in response to our subjective assessment within each review.

We also test each device's camera(s) by taking pictures and videos in a range of environments, both indoor and outdoor, examining the speed and fidelity of the focus, colour, and audio quality.


Conclusion

Content is king when it comes to tablets. You can have the greatest hardware in the world, but if you can't download your favourite apps, watch films using your Netflix subscription or buy the e-books you want to read, you will feel frustrated.

The Kindle Fire HD and Nook HD are more limited than Google's Nexus 7, since they're unable to access the Google Play app store. The Nook has the least choice of UK content - for now, at least.

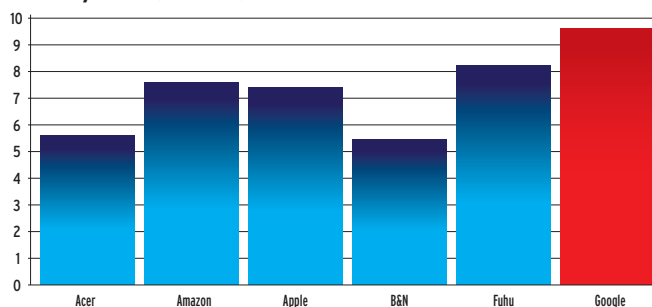
The Nexus 7 isn't perfect, and we'd like it to have a microSD slot, for example, but it gives you all the flexibility of a high-end Android tablet. A cellular version with 32GB of storage is now available, too. The Nexus 7 is well-deserving of our Recommended award.

Like the Nook HD, the Nabi 2 has lots of potential. If you're looking for a kids' tablet, it's the best around. It's in desperate need of anglicising, though, which should happen over the next few months.

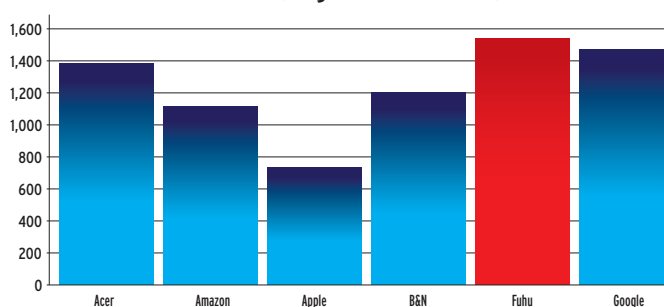
If you've got more cash to spend, the iPad mini is an obvious choice. However, the relatively low-resolution screen is a niggle, and we wouldn't be surprised if Apple launches a Retina version with a faster processor in 2013, so it could be worth waiting. 

	ACER £179 inc VAT 	AMAZON £159 inc VAT 	APPLE £269 inc VAT  PC ADVISOR RECOMMENDED
Model	Iconia Tab A110	Kindle Fire HD	iPad mini
Product code	A110	X43Z60	MD531B/A
Screen	7in (1024x600) capacitive multitouch	7in (1280x800) capacitive multitouch	7.9in (1024x768) capacitive multitouch
OS	Android 4.1 Jelly Bean	Amazon custom (Android 4-based)	iOS 6.0.1
Processor	1.3GHz quad-core nVidia Tegra 3	1.2GHz dual-core TI OMAP 4460	1GHz dual-core Apple A5
Graphics	Quad-core ULP GeForce	Dual-core PowerVR SGX540	Dual-core PowerVR SGX543MP2
RAM	1GB	752MB	512MB
Capacity tested	8GB	16GB	16GB
Expandable memory	microSDHC up to 32GB	N/A	N/A
Wi-Fi	802.11b/g/n (2.4GHz)	802.11b/g/n (dual-band)	802.11b/g/n (dual-band)
Bluetooth	Bluetooth 3.0	Bluetooth 4.0	Bluetooth 4.0
3G	N/A	N/A	Optional
Camera (front, rear)	2Mp, N/A	1.3Mp, N/A	5Mp, 1.2Mp
Video recording	720p	720p	1080p/720p
GPS receiver	Yes	No	No
App Store	Google Play	Amazon Appstore	Apple App Store
Ports	Micro USB, micro HDMI, 3.5mm headphone	Micro USB, micro HDMI, 3.5mm headphone	Lightning connector, 3.5mm headphone
Dimensions	193x127x11.7mm	137x193x10.3mm	135x200x7.2mm
Weight	385g	395g	308g
Warranty	1-year return-to-base	1-year return-to-base	1-year return-to-base
Battery	12.7Wh	16.4Wh	16.3Wh
Battery life (mins)	5 hours 39 mins	7 hours 42 mins	7 hours 21 mins
Geekbench score	1,389	1,124	752
SunSpider score (ms)	1,747	1,783	1,442
GLBenchmark 2.5.1	16fps	8fps	24fps

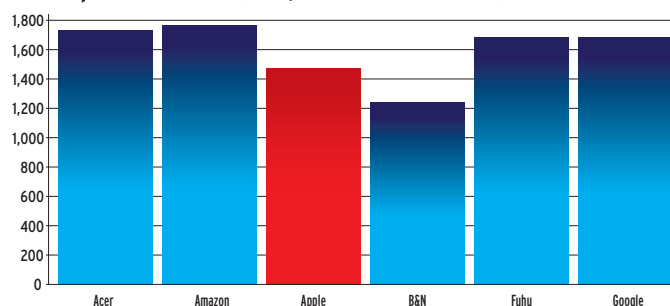
Battery life (hours)



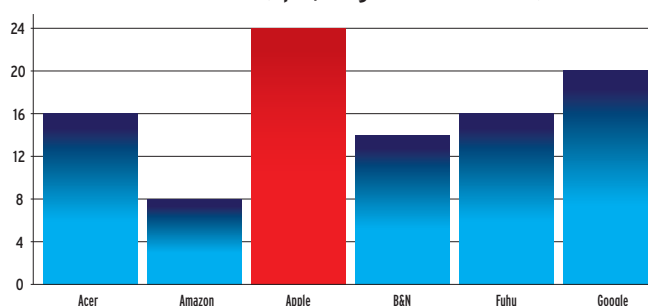
Geekbench 2 score (higher is better)



SunSpider score (ms, lower is better)



GLBenchmark 2.5.1 (fps, higher is better)



	BARNES & NOBLE £159 inc VAT ★★★★★	FUHU £150 inc VAT ★★★★★	GOOGLE £199 inc VAT ★★★★★ PC ADVISOR RECOMMENDED
	Nook HD	nabi 2	Nexus 7
	Nook HD	nabi 2	Nexus 7
	7in (1440x900) capacitive multitouch	7in (1024x600) capacitive multitouch	7in (1280x800) capacitive multitouch
	B&N custom (Android 4-based)	Android 4.0 Ice Cream Sandwich	Android 4.1 Jelly Bean
	1.3GHz dual-core TI Omap 4470	1.3GHz quad-core nVidia Tegra 3	1.3GHz quad-core nVidia Tegra 3
	Dual-core PowerVR SGX544	Quad-core ULP GeForce	Quad-core ULP GeForce
	1GB	1GB	1GB
	8GB	8GB	32GB
	microSDXC up to 64GB	microSDHC up to 32GB	N/A
	802.11b/g/n (2.4GHz)	802.11b/g/n (2.4GHz)	802.11b/g/n (2.4GHz)
	Bluetooth 3.0	Bluetooth 3.0	Bluetooth 4.0
	N/A	N/A	N/A
	N/A, N/A	2Mp, N/A	1.2Mp, N/A
	N/A	720p	720p
	No	No	Yes
	Nook store	App Zone	Google Play
	Proprietary dock connector, 3.5mm headphone	Micro USB, mini HDMI, 3.5mm headphone	Micro USB, 3.5mm headphone
	127x194x11mm	221x154x29mm	120x199x10.6mm
	315g	600g	336g
	1-year return-to-base	1-year return-to-base	1-year return-to-base
	4,050mAh	3,850mAh	16Wh
	5 hours 25 mins	8 hours 7 mins	9 hours 40 mins
	1,199	1,551	1,452
	1,248	1,678	1,665
	14fps	16fps	20fps

GAMING PCs

If you're looking to play immersive Windows games, you need a hulking box of chips and fans by your feet. Paul Monckton rounds up 10 games-tuned systems

Gamers want power, excitement and flat-out speed. Gaming PCs therefore represent the only desktop PC category in which we allow processor overclocking.

Processor

All but one of the PCs here use overclockable Intel processors and compatible motherboards. Each takes advantage of the excellent price/performance ratio of the Core i5-3570K, or the supreme power of the more expensive Core i7-3770K, which has double the number of processing threads.

We use PCMark 7 to benchmark the general performance of each machine. Differences are largely down to the level of overclocking, but also depend on the availability of fast memory and an SSD.

Graphics card

Graphics cards fall in and out of favour as AMD and nVidia leapfrog each other with the latest technologies. It's wise to base your GPU decision on the type of games you like to play, since many titles are sponsored by a particular graphics hardware maker and likely to run better on its own cards. In this group test nVidia sweeps the board, but an AMD Radeon HD might be better suited to your needs.

Never skimp on the graphics card in a gaming PC - it'll be the single most expensive component. Accordingly, many of the PCs here are fitted with an nVidia GTX 680. You can often save money with a factory-overclocked card that has a lower base specification, such as the GTX 670 OC selected by Dino PC. This managed to outpace some of the slower GTX 680-based systems in our tests.

If you choose a motherboard that supports SLI or CrossFireX, you may be able to add a second card when funds become available.

Cooling

Cooling is essential if an overclocked CPU is not to overheat, and a standard Intel CPU cooler simply won't do. Expect to find large heat

sinks, often with multiple fans. Liquid-cooling systems can offer reduced noise and greater cooling capacity than airflow alone.

The dust filters attached to a computer's fans can help reduce incoming debris from clogging up your machine and causing it to overheat.

Gamers like their systems to look the part, but the case also needs to be practical. Internal cable management aids airflow, while fan controllers let you reduce noise or boost cooling as necessary.

Monitor

Look for a monitor that's large, clear and offers a fast response time. Look for an IPS rather than TN panel if possible, and console gamers may also appreciate a display that has multiple inputs.

Peripherals

The keyboard and mouse you use can make a huge difference to your performance. An enthusiast system should come with peripherals designed for gaming. You'll benefit from wired rather than wireless devices, which tend to be more responsive. Look for high-resolution mice, and keyboards with programmable keys and backlighting.

High-grade mechanical switches in keyboards can have a better 'feel' and provide longer life than cheap membrane switches. Some draw attention to the W, A, S, D keys with a different colour or texture. Also consider a gaming headset with a built-in mic.

Warranty

Warranty terms are crucial in this category. The longer the better, but also look for a collect-and-return rather than return-to-base option. Beware of long warranties that cover only labour charges.



Photography by Dominik Tomaszewski



ARBICO ELITE 7768 OCX

£1,149 inc VAT • arbico.co.uk • tinyurl.com/cq9csz4

At £1,149, the Arbico Elite 7768 OCX appears to be a great-value gaming rig, but that's before you factor in the additional cost of a monitor, keyboard and mouse, and speakers or headphones. At least this way you get to choose peripherals that suit your needs.

The PC comes with a 3.4GHz Intel Core i5-3570K processor, which Arbico has overclocked to 4.4GHz. This modest increase allows for a decent boost in performance, without the demand for an overly expensive case and cooling system.

The Arbico's 1TB Seagate hard drive is complemented by a 120GB OCZ Vertex 4 SSD, which offers good read/write speeds.

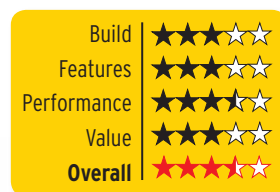
Arbico has selected a CIT Jupiter system case. It's a snug fit for the many internal components, yet cable-management features help keep things tidy. The CPU is fitted with a twin-fan Xigmatek Gaia cooler, and both storage drives are mounted in right-angle bays.

A generous 16GB of RAM is supplied, along with a Blu-ray reader and Creative X-Fi Xtreme sound card. The latter offers up to 7.1-channel surround-sound processing and support for OpenAL and EAX 4.0 gaming effects, as well as optical digital input and output connections. The Creative card lacks the hardware acceleration of the more advanced Recon 3D seen elsewhere, though.

Tweakers will appreciate the MSI Z77A-G45 motherboard. Its graphical UEFI is mirrored by its Windows-based counterpart, which has an identical user interface. This board supports easy one-click overclocking and nVidia SLI, should you want to add a second graphics card to boost gaming framerates.

The supplied Gainward-branded nVidia GeForce GTX 680 graphics card provides ample power for gaming, although this particular version isn't as fast as some of the factory-overclocked models seen in other PCs in this group. In our tests this resulted in slightly less impressive framerates than other PCs based on the GTX 680.

VERDICT: Arbico's base-unit-only system is available with a low initial purchase price, and affords you full choice over the monitor and gaming peripherals you want to use. It delivers more than adequate performance, but is outclassed by much of the more expensive and better-equipped competition in this round-up.



BRAEBO ENFORCER

£1,499 inc VAT • braebo.com • tinyurl.com/bvkmmw3

Braebo's Enforcer is supplied with everything you need to start playing intensive games out of the box. It's a powerful PC, which incorporates an Intel Core i5-3570K overclocked to 4.5GHz.

Housed in a Cooler Master Storm Enforcer system case, the Braebo conceals behind closed doors its Blu-ray- and empty drive bays until access is required. Four front-facing USB ports are provided at the top of the case, two of which support USB 3.0.

A Gigabyte Z77 D3H motherboard is fitted with a generous 16GB of DDR3 memory, while a large Cooler Master heatsink keeps the processor cool. This was a little wonky in our review sample, but it wasn't detrimental to the Braebo's performance.

Overall benchmarking results were less than stellar, however. Although the processor is fast, PCMark makes liberal use of the graphics card when determining overall system performance; the Enforcer has one of the least powerful GPUs here, a GTX 660 Ti.

The 'Ti' suffix denotes a marked improvement over the standard GTX 660, which is found in Overclockers UK's system. In our tests, gaming performance at Medium quality was pretty good, but at Ultra quality the 660 Ti lagged behind the GTX 670 and 680.

The system includes a 120GB SanDisk SSD and a roomy 2TB hard drive, although the latter is only a 5,400rpm model.

The Cooler Master Storm branding continues to the peripherals. The Cooler Master Storm QuickFire Pro keyboard incorporates fast Cherry MX Red switches, with multimedia shortcuts and partial LED backlighting, while the Cooler Master Storm Sentinel Advance II mouse offers an adjustable resolution up to 8200dpi, built in macro memory, programmable buttons and multicolour LED lighting effects.

Braebo supplies the Enforcer with a 24in Edge 10 display. It's adequate for gaming, but its image quality is underwhelming. The display also lacks an HDMI input, which may put off console gamers.

VERDICT: The Braebo Enforcer comes in a cool-looking case and offers some good gaming peripherals but, despite a fast processor and a heap of overclocking, a relatively underpowered graphics card results in lacklustre performance. This system is also rather expensive; as we reveal over the following pages, you can get more for less.

Design your own PC

Total control from the start

Intel IVY Bridge

This is the perfect way to create your own custom built PC from the ground up.



- ✓ Intel i3, i5, i7 2 & 4 Core CPUs
- ✓ Supports upto 32 GB RAM
- ✓ Gigabyte B75 & Z77 Motherboards
- ✓ 30 different hard drives options.
- ✓ Pick from 30 product groups.

starts from
£277
Inc VAT

Intel Sandy Bridge Extreme

Use our advanced online custom PC builder to design your own EXTREME Intel PC



- ✓ Intel i7 4 & 6 Core CPUs
- ✓ Supports upto 64 GB RAM
- ✓ Gigabyte X79 Motherboards
- ✓ 30 different hard drives options.
- ✓ Pick from 30 product groups.

starts from
£796
Inc VAT

AMD FX

Design your own AMD FX PC supporting 8 cores for extreme performance!



- ✓ AMD FX 4, 6 & 8 Core CPUs
- ✓ Supports upto 32 GB RAM
- ✓ Gigabyte B75 & Z77 Motherboards
- ✓ 30 different hard drives options.
- ✓ Pick from 30 product groups.

starts from
£254
Inc VAT

Next Day Delivery PCs

ND 2000 Gaming PC

Amazing Price & Performance!

- ✓ AMD FX 4100 (4 x 3.6 GHZ)
- ✓ 4 GB DDR3 1333 MHZ RAM
- ✓ 1 TB (1000 GB) SATA-III
- ✓ Gainward NVIDIA GTX 650 1 GB
- ✓ Gigabyte 78LMT-USB3 Motherboard



Now Only
£489
Inc VAT

ND 3000 Gaming PC

Customise & order this PC online by 4PM for FREE next day delivery!

- ✓ i7 3570 (4 x 3.4 GHZ)
- ✓ 8 GB DDR3 1333 MHZ RAM
- ✓ 1 TB (1000 GB) SATA-III
- ✓ Gainward NVIDIA GTX 660 Ti 2 GB
- ✓ Gigabyte Z77-D3H Motherboard



Now Only
£811
Inc VAT

ND 4000 Gaming PC

Customise & order this PC online by 4PM for FREE next day delivery!

- ✓ i7 3770K (4 x 3.5 GHZ)
- ✓ 16 GB DDR3 1333 MHZ RAM
- ✓ 1 TB (1000 GB) SATA-III
- ✓ Gainward NVIDIA GTX 660 2 GB
- ✓ Gigabyte Z77-D3H Motherboard



Now Only
£897
Inc VAT

computer planet
.co.uk
the best custom computers on the planet

Design your own PC at WWW.ComputerPlanet.co.uk
or call **0161 660 9150** 9:30 AM - 5:30 PM Monday to Friday.

MOTHERBOARDS POWERED BY

GIGABYTE™



CHILLBLAST FUSION FIREBIRD

£1,199 inc VAT • chillblast.com • tinyurl.com/cfdnsp9

Say, for a moment, that you fancy a complete gaming system that offers the fastest framerates available and costs less than £1,200. Stop reading. Go and buy the Chillblast Fusion Firebird.

The processor is a mighty 3.5GHz Intel Core i7-3770K, overclocked to an impressive 4.6GHz. This nets you a maximum CPU speed that's equal to or faster than any other system reviewed here, along with the benefit of the Core i7's four extra processing threads over the i5.

This amount of processing power is enough to propel the Fusion Firebird toward the top of the PCMark performance chart; in fact it came second, beaten only by a surprisingly good performance from the lower-specced Computer Planet system.

But when it comes to gaming, nothing can touch the Firebird and its factory-overclocked Palit Jetstream GeForce GTX 680 graphics card. Turn to our performance graphs on page 82 and it's instantly obvious that this machine outpaced all the competition in each of our five gaming tests, at both Medium and Ultra quality settings. That's a remarkable achievement at this price.

Of course, when choosing a gaming PC you won't be concerned only with raw performance; peripherals also play a major role. Chillblast throws in a 23.6in Iiyama IPS monitor. Its 5ms response time means the Iiyama is fast enough for serious gaming, and the image it provides is of a significantly higher quality than that of almost every other monitor included here.

The Logitech MK260 wireless keyboard and mouse combo is a perfectly serviceable set, but it's not really aimed at gamers. We'd prefer to see wired USB and PS/2 connections, and the mouse also lacks programmable gaming keys and high resolution.

The system is housed in a tidy Corsair Carbide 200R system case, which is less impressive than those supplied with much of the competition. It's also a little cramped inside, where Chillblast has squeezed in a large Akasa Nero 3 cooler, a Blu-ray drive and a card reader. Cable management and tool-free bays are also present.

VERDICT: Chillblast's Fusion Firebird offers exceptional performance and value for money with little compromise. All it lacks is specialist gaming peripherals and a suitably futuristic-looking system case.



COMPUTER PLANET i7 EXTRME GAMING PC

£1,907 inc VAT • computerplanet.co.uk • tinyurl.com/bp82mdc

At the pricier end of the spectrum is Computer Planet's i7 Extrme Gaming PC, a machine that looks very much like it means business.

The huge Cooler Master HAF-X case makes for an imposing system, and is covered in rugged-looking protrusions, fan-mounting points and multiple external hot-swap drive bays. It also features a transparent side panel, which is fitted with a large cooling fan.

Through this panel you can see some fancy illumination, which also shines through the mesh in the top of the case. You'll also notice the Corsair H80 liquid-cooled heatsink, complete with a radiator that's fitted with a pair of fans and attaches to the rear of the case.

A 240GB Corsair Force GS SSD and 1TB Seagate hard disk are housed in transversely mounted caddies, of which there are five in all. The SSD offers double the storage capacity of most of the competition, and enough room for storing some games.

Two sticks of 4GB Corsair Vengeance Red memory are installed, providing a visually pleasing contrast to the blue finish of the Gigabyte GA-Z77-DH3 motherboard. Also here is an overclocked nVidia GeForce GTX 680 graphics card and a hardware-accelerated Creative Sound Blaster Recon 3D sound card.

The Cooler Master case's 'HAF' suffix refers to High Air Flow, which is crucial for overclocked systems that use fan-based cooling. Inside is acres of space and supremely tidy cabling for optimal airflow. You would also have room to squeeze in another graphics card, if only the motherboard supported such functionality.

Power, reset and fan LED switches can be hidden behind a sliding panel to prevent you accidentally shutting down the system when fumbling for one of the many front-facing USB ports.

Fitted with an Intel Core i7-3770K overclocked to 4.3GHz, this PC delivers the best overall performance here as judged by PCMark 7. Gaming performance is also superb.

In addition to a 24in HDMI-equipped Iiyama, Computer Planet throws in a dedicated gaming keyboard and mouse.

VERDICT: This is an expensive, but phenomenally fast PC, built to a high standard. The large 240GB SSD is a definite plus point, and the roomy system case offers plenty of room for expansion.



Build	★★★★★
Features	★★★★★
Performance	★★★★★
Value	★★★★★
Overall	★★★★★

**PC ADVISOR
RECOMMENDED**

Build	★★★★★
Features	★★★★★
Performance	★★★★★
Value	★★★★★
Overall	★★★★★



DINO PC DARK CLAW GTX 670

£1,249 inc VAT • dinopc.com • tinyurl.com/d9tnxpq

Not only is this system from Dino PC a Dark Claw, it's also a dark horse, combining high performance and a low price.

The Dark Claw is proof of the fact you don't need a GTX 680 graphics card to go head-to-head against the bigger boys in gaming warfare. Dino PC has selected a less expensive nVidia GeForce GTX 670, then overclocked it to the max. In several of our gaming tests the Dino PC beat pricier systems fitted with a GTX 680.

Dino PC has also selected a 3.4GHz Intel Core i5-3570K CPU, here pushed up to 4.5GHz, which is a sensible increase for an air-cooled system that's built into a relatively small case.

The Carbide 200R system case has a very clean, minimalist design, which lends it a rather classy and unassuming look. Its front panel is largely plain, save for a DVD drive (Blu-ray isn't supported) and power/reset switches. A couple of audio jacks and a pair of USB 3.0 ports are also provided here.

Inside, things are just as clean and tidy. Cables are neatly tucked away, and the matt black internal finish continues through to the Xigmatek Knighthawk processor cooler. There's also room for extra cooling fans to be fitted top and bottom, although you won't need them at the system's current specification.

An Asus P8Z77-V LX motherboard forms the backbone of the system. It's very similar to the non-LX version selected by Chillblast and PC Specialist, but it lacks support for multiple nVidia graphics cards. It also omits the built-in Wi-Fi you get with these systems.

There's a 23.6in Asus VS247H display, a stylish and good-looking monitor with pleasingly good image quality for a TN panel.

The Dino PC is supplied with some impressive input devices, too. After all, why enter battle with a mere mouse when you could use a rat? Dino PC provides a Cyborg Rat 3, which has programmable buttons and switchable DPI settings and looks suitably hardcore. The Cyborg V7 keyboard looks equally bonkers, with multicolour backlit keys and a touch-sensitive backlit control panel.

VERDICT: The Dark Claw is a great gaming PC that offers excellent performance at a low price. It's outpaced by the less expensive Chillblast and lacks Blu-ray, but offers superior gaming peripherals.

OVERCLOCKERS UK PRIMO GTX 660 WINDOWS 8 EDITION

£643 inc VAT • overclockers.co.uk • tinyurl.com/d288LkL

It's deliciously ironic that our first gaming PC from Overclockers UK isn't overclocked, nor is its 3.1GHz Intel Core i5-3450 overclockable. It is, however, by far the least expensive PC here, although you'll still need to budget for a monitor, keyboard and mouse.

The CPU and nVidia GeForce GTX 660 graphics card may be considerably slower than the competition, but this PC turned in some respectable performance scores. We recorded 5,507 points in PCMark 7, and gaming framerates that are high enough to play most games at 1920x1080 pixels, albeit at lower quality settings. Only in Sniper Elite V2 at the game's Ultra quality setting did the Overclockers system produce unplayable framerates.

To put all this into perspective, you'll get around 80 percent of the PCMark performance achieved by Computer Planet's chart-leading i7 Extrme Gaming PC for a third of the price.

You do, however, miss out on some important features. A small and not particularly quick 60GB Intel 330 SSD is included, and the hard drive offers a relatively meagre 500GB capacity. You're likely to run into disk-space issues with this system, and should expect to have to carefully manage your use of the SSD.

The Gigabyte H61MA-D2V motherboard is less powerful than the Z77-Express-based boards found in every other system. It also lacks many functions – not just in the realm of overclocking, but also in the terms of upgradability and built-in features. It's a micro-ATX board with precious little room for expansion and no support for the 6 gigabits per second (Gbps) SATA speeds offered by both the installed drives, although USB 3.0 is included.

The Xigmatek Asgard II midi tower case is small and rather basic. It looks somewhat unimpressive when stood next to the competition, but the case is appropriate for a system that doesn't require any special cooling when operating at full speed.

Blu-ray support is another victim of cost-cutting, and has been bumped in favour of a cheaper DVD writer.

VERDICT: If you love games, but would rather not empty your bank account to buy a gaming PC, the Primo GTX 660 offers the best value for money in this round-up.

Build	★★★★★
Features	★★★★★
Performance	★★★★★
Value	★★★★★
Overall	★★★★★



PC SPECIALIST VANQUISH XT680

£1,399 inc VAT • pcspecialist.co.uk • tinyurl.com/coqe5hr

The Vanquish XT680 is a mid-priced gaming system with strong overall performance and a selection of premium peripherals that make it well worth your consideration.

It's based on a 3.4GHz Intel Core i5-3570K chip, overclocked to a whopping 4.6GHz, and PC Specialist has also fitted a powerful nVidia GeForce GTX 680 graphics card, 16GB of RAM and a fast 120GB Kingston HyperX SSD. You also get a 1TB 7,200rpm hard disk for additional storage space.

All this is assembled inside a rugged-looking Cooler Master HAF 912 system case, which is a smaller version of the HAF-X selected by Computer Planet. The HAF 912 maximises internal airflow, and there's a Corsair H60 to liquid-cool the CPU.

It may be compact, but the HAF 912 features dust filters over all inlets, and offers plenty of drive bays and cable-management holes.

Despite its high overclock, the Vanquish's scores in our performance tests sit in the middle of the pack. This is no surprise, given that its stock graphics card is up against several overclocked versions. Not only does this affect gaming framerates, making the PC Specialist the slowest gaming PC of the GTX 680-based systems here, but the PCMark 7 general-performance benchmark also takes into account graphics speed.

PC Specialist has gone to town with the monitor it supplies with this machine. You get a huge 27in (1920x1080) Iiyama display with a trio of inputs. The large screen area is useful when playing games or watching Blu-ray movies, but the contrast levels are rather wishy-washy when compared to some of the displays supplied with competing systems, such as Scan's Asus PB278Q.

A matching Arctosa keyboard and Deathadder mouse set from Razer is included, the former supporting programmable macro keys and the latter sporting a 3500dpi infrared sensor – be sure to specify a left-handed version if required.

VERDICT: Solid, if not earth-shattering performance, combined with decent gaming peripherals and a whopping 27in monitor make the PC Specialist Vanquish XT680 a good mid-price purchase for any serious gamer. This PC represents good value for money.

Build	★★★★★
Features	★★★★★
Performance	★★★★★
Value	★★★★★
Overall	★★★★★



QUIET PC SERENITY GAMER

£2,066 inc VAT • quietpc.com • tinyurl.com/dy5xbzd

Unashamedly expensive, the Serenity Gamer has to not only take on all challengers in terms of performance and features but, equally importantly, perform these tasks while remaining whisper-quiet.

The 3.5GHz Intel Core i7-3770K processor is the same high-end chip employed in Chillblast's much faster Fusion Firebird system, but Quiet PC has overclocked it to just 4.2GHz (versus 4.6GHz), bringing you the most serene fragging experience you could imagine.

Thermolab's Trinity heatsink is a traditional fan-based cooler, albeit a jolly quiet one. It does an admirable job, but you wouldn't want to push the system any further than 4.2GHz with a small cooler such as this. The pricey Core i7 chip is therefore rather wasted here.

In PCMark 7 the Quiet PC recorded just 5,092 points, which is way down there with the slowest Core i5 systems. The Serenity Gamer offers somewhat better gaming framerates, though.

The nVidia GeForce GTX 680 is one of the fastest graphics cards in this group, yet Dino PC's £750 cheaper Dark Claw raced ahead of the Quiet PC in our gaming tests, armed with a lower-spec GTX 670.

The build quality of this system is superb. Quiet PC selects only the quietest components, which do tend to be more expensive.

The Nanoxia Deep Silence 1 system case is a good example, fitted with sound-damping materials and hinged doors, excellent cable-management and removable dust filters for quick maintenance.

A Creative Sound Blaster Recon 3D sound card has been installed, but we were disappointed to find that the optical drive lacks support for Blu-ray. However, that's perhaps less of a surprise, given the small Zalman TM-230 monitor, which lacks the high image quality of the displays supplied with some competing systems.

Also included is a set of high-quality gaming peripherals from SteelSeries, comprising a weighty 7G keyboard, an eight-button Sensei Raw Gaming mouse with programmable macros and a Siberia v2 gaming headset with a retractable microphone.

VERDICT: This very expensive system from Quiet PC delivers superb quality, excellent gaming peripherals and supremely quiet operation. However, its performance is rather unambitious, and may leave you lusting after more raw power.



Build	★★★★★
Features	★★★★★
Performance	★★★★★
Value	★★★★☆
Overall	★★★★★

SCAN 3XS PERFORMANCE GTX

£1,849 inc VAT • scan.co.uk • tinyurl.com/csvfph

**PC ADVISOR
RECOMMENDED**

Housed in an unassuming and deceptively compact Corsair Carbide 300R case, the 3XS Performance GTX from Scan is one of the most powerful gaming PCs in this round-up.

The case's minimalist good looks are combined with good airflow and convenient drive-bay caddies for easy upgrades. Inside, a 3.4GHz Intel Core i5-3570K has been pushed right up to 4.6GHz. It's cooled by a huge Thermalright Macho cooler, fitted with multiple heatpipes and a single fan. Scan has also squeezed in a factory-overclocked EVGA nVidia GeForce GTX 680 graphics card and an Asus Xonar DG 5.1 sound card, which provides EAX effects for gaming, and Dolby Headphone for surround processing via a headset.

The motherboard is the popular Gigabyte GA-Z77-D3H, also employed by Braebo and Computer Planet. It's powerful, but it lacks the Wi-Fi and nVidia SLI support of the board selected by Quiet PC.

Performance-wise the 3XS lives up to its name, and it delivered very high scores in PCMark 7 and across all our gaming tests. However, it's also the third most expensive system on test.

Some of this budget has been spent on a superb Asus PB278Q monitor with delicious IPS panel, a height-adjustable pivoting stand and a pin-sharp 2560x1440-pixel resolution. It outclasses every single display in this round-up.

Completing the package is a bundle of Corsair gaming goodies: you get a Vengeance K60 keyboard, a Vengeance M70 mouse and a Vengeance 1300 headset. The K60 features a brushed-aluminium housing and uses Cherry MX Red mechanical switches. The W, A, S, D keys are red and feature a grippy soft touch, as do the weapon-selecting number keys 1-6. The keyboard also provides a 20-key rollover via the USB interface.

The M60 mouse is constructed from aluminium and features a sniper button, which will temporarily change the dpi setting to allow for better controlled aiming.

VERDICT: It may be pricey, but excellent performance, high build quality and an amazing 27in monitor make for fluid and immersive gameplay that's hard to match. This is a great all-round gaming system that won't take up a huge amount of space.

Build	★★★★★
Features	★★★★★
Performance	★★★★★
Value	★★★★☆
Overall	★★★★★



YOYOTECH XDNA MKII SE

£1,699 inc VAT • yoyotech.co.uk • tinyurl.com/cjr6akv

YoYoTech's striking XDNA MKII has a very distinctive look. The subtle curves of the Corsair Graphite Series 600T mid-tower case seem to bulge out, scarcely able to contain the power within.

An almost entirely meshed top surface allows for maximum airflow from the pair of white-illuminated 200mm fans. These can be regulated using a large rotary control knob at the front, where you'll also find five USB ports (one of which supports USB 3.0), along with FireWire, headphone and microphone ports.

A transparent drive bay is visible at the front of the case, inside which a quantity of white fluid can be seen sloshing around. This doesn't just look cool, it also forms a key part of the CPU's liquid-cooling system. YoYoTech has custom-built this cooling solution, which it designed specifically for the XDNA MKII SE.

Flicking the two catches on the side panel opens up the case, revealing yet more transparent plumbing in all its milky splendour. These tubes stand out in stark contrast to the black case interior and Asus Z77 Sabertooth motherboard.

With a sophisticated cooling system such as this we expected some serious overclocking. Surprisingly, YoYoTech has pushed its Intel Core i5-3750K only so far as 4.4GHz. The result: a hugely over-engineered PC, with disappointing performance.

Something went horribly wrong during our PCMark 7 testing on this system, resulting in a significantly lower score than we expected. The PC performed better in our gaming tests, but its GTX 670 graphics card can't keep up with the GTX 680s seen elsewhere.

A 24in Asus VE247H HDMI monitor is included, which is better than most TN panels of its size, but it's no match for the IPS panels in terms of image quality. The display features HDMI and DVI inputs and has a standard 1920x1080 pixel resolution.

Also included are a Corsair K60 keyboard, M60 mouse and Vengeance 1500 USB 7.1 surround-sound gaming headset.

VERDICT: Superb build quality and a custom-built liquid-cooling system set apart this PC from the rest, but we would have hoped for better overall performance and a faster overclock of the CPU. Ultimately, this PC failed to reach its considerable potential.

PC ADVISOR
BEST BUY

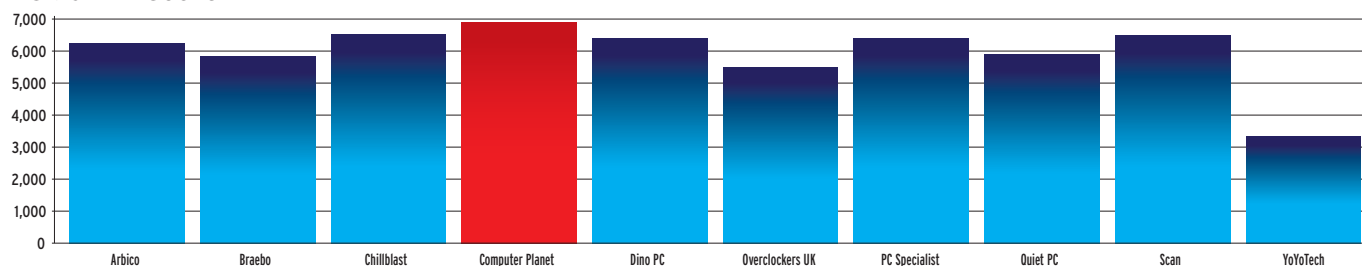
	ARBICO £1,149 inc VAT ★★★★★	BRAEBO £1,499 inc VAT ★★★★★	CHILLBLAST £1,199 inc VAT ★★★★★	COMPUTER PLANET £1,907 inc VAT ★★★★★	DINO PC £1,249 inc VAT ★★★★★	
Model	Elite 7768 OCX	Enforcer	Fusion Firebird	i7 Extrme Gaming PC	Dark Claw GTX 670	
Processor	3.4GHz (OC @4.4GHz) Intel Core i5-3570K	3.4GHz (OC @4.5GHz) Intel Core i5-3570K	3.5GHz (OC @4.6GHz) Intel Core i7-3770K	3.5GHz (OC @4.3GHz) Intel Core i7-3770K	3.4GHz (OC @4.5GHz) Intel Core i5-3570K	
CPU cooler	Xigmatek Gaia	Cooler Master	Akasa Nero 3	Corsair H80, Arctic Silver 5 Thermal Compound	Xigmatek Knighthawk	
Memory	16GB DDR3 1,600MHz	16GB DDR3 1,333MHz	16GB DDR3 1,600MHz	8GB DDR3 1,600MHz	8GB DDR3 1,866MHz	
Storage	120GB OCZ Vertex 4 SSD + 1TB Seagate HDD	120GB SanDisk SSD + 2TB White Label HDD	120GB Intel 330 Series SSD + 2TB Seagate Barracuda HDD	240GB CorsairForce GS SSD + 1TB Seagate HDD	120GB Corsair Force3 SSD + 1TB Hitachi HDD	
Power supply	600W Xilence	620W Seasonic	600W Corsair	750W XFX	550W Corsair	
Motherboard	MSI Z77A-G45	Gigabyte Z77 D3H	Asus P8Z77-V	Gigabyte GA-Z77-D3H	Asus P8Z77-V LX	
External USB ports	4x USB 3.0, 8x USB 2.0	4x USB 3.0, 6x USB 2.0	4x USB 3.0, 4x USB 2.0	6x USB 3.0, 6x USB 2.0	2x USB 3.0, 4x USB 2.0	
Display	Not supplied	Edge10 (1920x1080) TN panel with VGA and DVI	23.6in Iiyama X2377HDS (1920x1080) IPS panel with HDMI, VGA and DVI	24in Iiyama PLE2409HDS (1920x1080) LCD panel with HDMI, DVI and VGA	23.6in Asus VS247H (1920x1080) TN panel with HDMI, DVI and VGA	
Graphics card	Gainward nVidia GeForce GTX 680, 2GB VRAM	MSI nVidia GeForce GTX 660 Ti, 2GB VRAM	Palit Jetstream nVidia GeForce GTX 680, 2GB VRAM	Gigabyte nVidia GeForce GTX 680 3X OC Windforce, 2GB VRAM	Gigabyte nVidia GeForce GTX 670 OC, 2GB VRAM	
Sound	Creative XtremeAudio	Onboard	Onboard	Creative SoundBlaster Recon3D 7.1, Logitech LS21 2.1 speakers	Onboard	
Networking	Gigabit ethernet	Gigabit ethernet	802.11n, gigabit ethernet	Gigabit ethernet	Gigabit ethernet	
Other ports	HDMI, 2x DVI, optical digital input, audio ports	DVI, VGA, optical S/PDIF	HDMI, 2x DVI, DisplayPort, PS/2	2x HDMI, 3x DVI, DisplayPort, eSATA, FireWire, PS/2	HDMI, 2x DVI, DisplayPort	
Case	CIT Jupiter Case	Cooler Master Storm Enforcer	Corsair Carbide 200R	Cooler Master HAF-X	Corsair Carbide 200R	
Keyboard & mouse	Not supplied	Cooler Master CM Storm Quick Fire Pro, Sentinel Advanced II	Logitech MK260	Corsair Vengeance M60 mouse, Logitech G105 keyboard, Razer Goliathus gaming pad	Cyborg rat3 mouse, Cyborg V7 keyboard	
Optical drive	Samsung BD-ROM/DVD±RW combo	Lite-On BD-ROM/DVD±RW combo	LG BD-ROM/DVD±RW combo	LG BD-ROM/DVD±RW combo	TSST DVD±RW	
Operating system	Windows 8	Windows 8	Windows 8	Windows 8	Windows 8	
Extras	None	None	Optional Family Software package, card reader	Webroot Internet Security (1 year), Nero, CyberLink PowerDVD	BullGuard security, surge protector	
Case dimensions	435x190x478mm	229x485x524mm	210x497x430mm	230x550x590mm	270x590x560mm	
Warranty	2-year return-to-base	3-year return-to-base, 30-day collect-and-return	2-year collect-and-return	3-year manufacturer warranty, 60-day collect-and-return	3-year PromoCare	
PCMark 7 score	6,239	5,833	6,498	6,875	6,412	
Hard Reset	129, 123	135, 120	156, 138	145, 128	150, 131	
Lost Planet 2	88, 74	95, 66	104, 81	97, 76	91, 74	
Stalker CoP	233, 117	232, 93	273, 122	269, 120	255, 116	
Alien vs Predator	107, 58	85, 45	113, 61	104, 57	107, 58	
Sniper Elite V2	90, 22	78, 19	95, 24	92, 24	86, 22	

All gaming scores given at Medium and Ultra settings, measured in fps

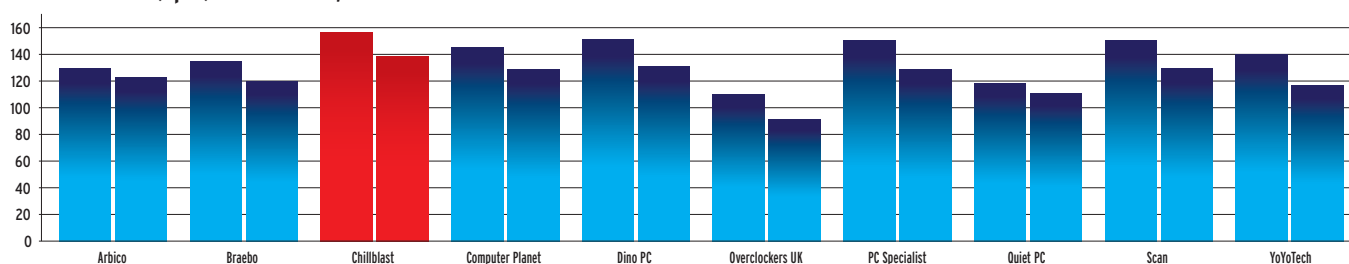


	OVERCLOCKERS UK £643 inc VAT ★★★★★	PC SPECIALIST £1,399 inc VAT ★★★★★	QUIET PC £2,066 inc VAT ★★★★★	SCAN £1,849 inc VAT ★★★★★	YOYOTECH £1,699 inc VAT ★★★★★
	Primo GTX 660 Windows 8 Edition	Vanquish XT680	Serenity Gamer	3XS Performance GTX	XDNA MKII SE
	3.1GHz Intel Core i5-3450	3.4GHz (OC @4.6GHz) Intel Core i5-3570K	3.5GHz (OC @4.2GHz) Intel Core i7-3770K	3.4GHz (OC @4.6GHz) Intel Core i5-3570K	3.4GHz (OC @4.4GHz) Intel Core i5-3570K
	Standard Intel cooler	Corsair H60 liquid cooler	Thermolab Trinity	Thermalright Macho	Custom water-cooling system
	8GB DDR3 1,600MHz	16GB DDR3 1,600MHz	16GB DDR3 1,600MHz	8GB DDR3 1,600MHz	8GB DDR3 1,600MHz
	60GB Intel SSD + 500GB Seagate HDD	120GB Kingston HyperX SSD + 1TB Hitachi SSD	128GB Crucial m4 SSD + 2TB Seagate Barracuda Green HDD	240GB OCZ Agility 3 SSD + 2TB Seagate Barracuda HDD	128GB Crucial v4 SSD + 1TB Seagate Barracuda HDD
	400W PC Power & Cooling Silencer MK III	650W Corsair TX650	700W Nexus RX-7000	600W Corsair GS600	750W Corsair CX
	Gigabyte H61MA-D2V	Asus P8Z77-V	Gigabyte GA-Z77X-UD5H-WB	Gigabyte GA-Z77-D3H	Asus Z77 Sabertooth
	2x USB 3.0, 8x USB 2.0	6x USB 3.0, 2x USB 3.0	6x USB 3.0, 4x USB 2.0	6x USB 3.0, 4x USB 2.0	4x USB 3.0, 4x USB 2.0
	Not supplied	27in Iiyama E2773HDS (1920x1080) with HDMI, DVI and VGA	23in Zalman TM-230 (1920x1080) TN panel with 2x HDMI, VGA and audio ports	27in Asus PB278Q (2560x1440) IPS panel with HDMI, DVI, VGA, DisplayPort, Component, Composite	23.6in Asus VE247H (1920x1080) panel with HDMI, DVI and D-Sub
	Gigabyte nVidia GeForce GTX 660 Windforce 2X, 2GB VRAM	Palit nVidia GeForce GTX 680, 2GB VRAM	Gigabyte nVidia GeForce GTX 680, 2GB VRAM	EVGA nVidia GeForce GTX 680, 2GB VRAM	PNY nVidia GeForce GTX 670, 2GB VRAM
	Onboard	Onboard	Creative SoundBlaster Recon3D 7.1	Asus Xonar DG 5.1	Onboard
	Gigabit ethernet	802.11n, gigabit ethernet	802.11n, gigabit ethernet, Bluetooth 4.0	Gigabit ethernet	Gigabit ethernet
	DVI, D-Sub	eSATA, PS/2	HDMI, DVI, VGA, DisplayPort, eSATA, FireWire, S/PDIF	HDMI, 2x DVI, DisplayPort	HDMI, DisplayPort, 2x eSATA, optical S/PDIF, 6x audio ports
	Xigmatek Asgard II	Cooler Master HAF 912	Nanoxia Deep Silence 1	Corsair Carbide 300R	Corsair 600T
	Not supplied	Razer Arctosa keyboard, Razer Deathadder mouse	SteelSeries 7G keyboard, SteelSeries Sensei Raw mouse	Corsair K60 keyboard, Corsair M60 mouse	Corsair K60 keyboard, Corsair M60 mouse
	Overclockers DVD±RW	Samsung BD-ROM/DVD±RW combo	Sony AD-7280S DVD±RW	Pioneer DVD±RW	Samsung DVD±RW
	Windows 8	Windows 8	Windows 8 Pro	Windows 8	Windows 8
	None	Microsoft Office 2010 Starter Edition	SteelSeries Siberia v2 Gaming Headset	Corsair Vengeance 1300 headset	Corsair Vengeance 1500 headset, BullGuard Internet Security 2012
	185x475x408mm	230x496x480mm	220x532x517mm	522x565x285mm	507x592x265mm
	2-year collect-and-return	3-year collect-and-return	2-year collect-and-return, open-case policy	1-year collect-and-return, 2-year return-to-base (parts and labour)	3-year return-to-base (labour only after first year), 30-day collect-and-return
	5,507	6,413	5,902	6,485	3,327
	108, 91	149, 128	118, 110	149, 129	140, 117
	71, 56	92, 75	91, 76	93, 77	84, 68
	180, 84	265, 116	221, 118	254, 121	248, 107
	82, 43	107, 58	109, 59	112, 60	96, 55
	62, 16	88, 22	91, 23	94, 23	80, 20

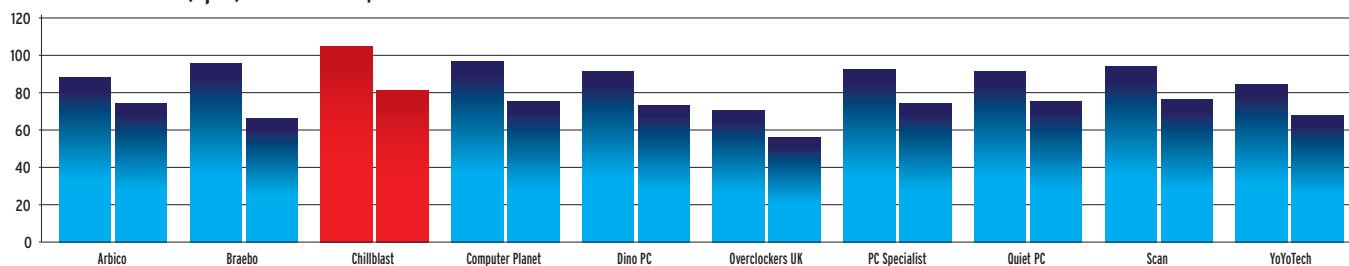
PCMark 7 score



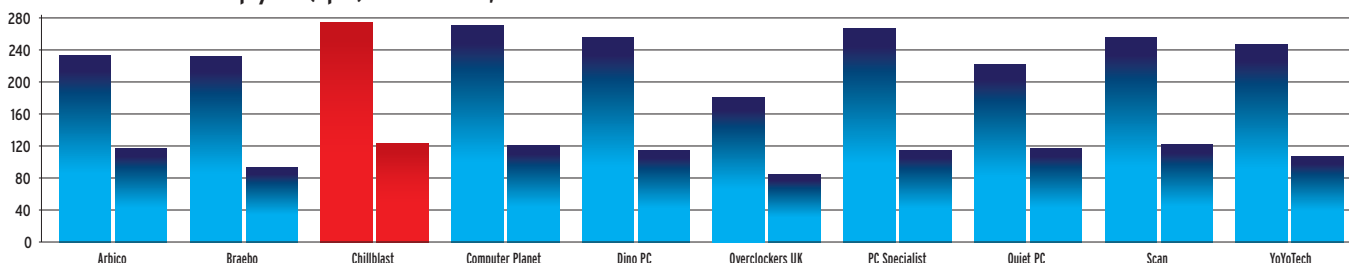
Hard Reset (fps): Medium, Ultra



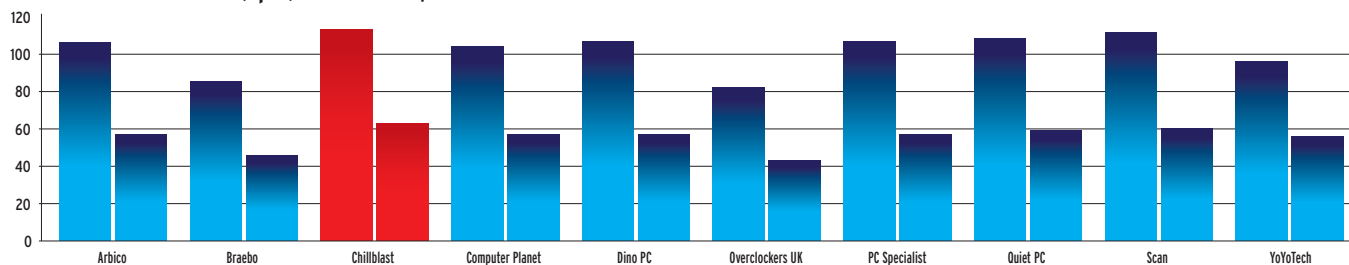
Lost Planet 2 (fps): Medium, Ultra



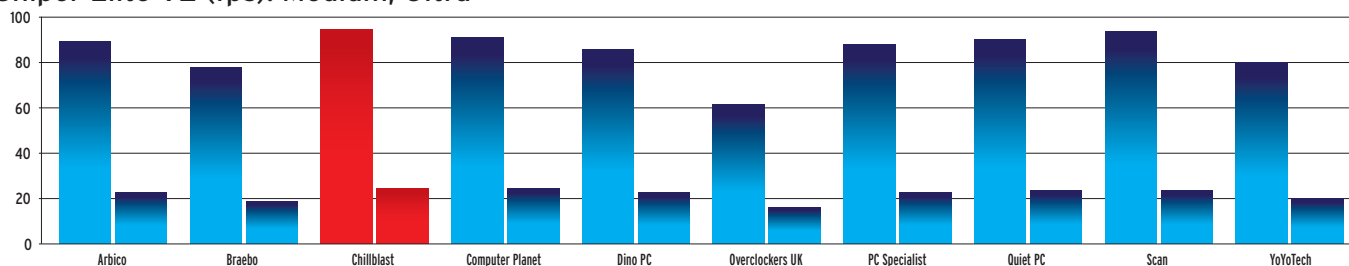
Stalker: Call of Pripyat (fps): Medium, Ultra



Alien vs Predator (fps): Medium, Ultra



Sniper Elite V2 (fps): Medium, Ultra





Conclusion

This is a fine set of Ivy Bridge-based gaming PCs, with prices ranging from the £643 Overclockers UK Primo GTX 660 to the mighty Quiet PC Serenity Gamer, which will cost you more than £2,000.

Every system here will provide a great gaming experience, but the individual machines have their own strengths and weaknesses. All but the Overclockers system employ a large amount of overclocking, which significantly boosts performance.

Although CPU power is important for gaming, the graphics card will have by far the greatest effect on your framerates. Most PCs here favour the nVidia GeForce GTX 680

for its uncompromising performance, but a factory-overclocked GTX 670 can perform just as well for significantly less money.

Special mention has to go to the Overclockers UK system for its incredibly low price. If you have only £650 to spend, you'll get plenty of enjoyment from this system at a game's lower quality settings.

If you have around double this amount to spend, Chillblast's Fusion Firebird offers an almost impossible price/performance ratio, providing gaming framerates that consistently beat all challengers. It came second in our PCMark 7 tests, too. The Chillblast's standard wireless keyboard

and mouse combo is unlikely to impress, but you could spend another couple of hundred pounds on upgrading these and still have a system that beats the competition on value.

Overclocking demands powerful fans, which are able to shift around large volumes of air to keep the system cool. If you'd rather not hear a sound from the workings of your PC, Quiet PC's Serenity Gamer is an expensive, but supremely quiet option.

If you want to really crank up the action, YoYoTech's custom cooling solution could be a good starting point. You'll want a faster graphics card and CPU overclock for the best gaming performance, however.

How we test

Application performance

We test each PC for performance, measuring its speed in everyday computing tasks and its ability to play games. We asked vendors to submit their systems running Windows 8, but our long-standing benchmark, WorldBench 6, won't work with Windows 8.

For this group test we instead turned to PCMark 7, an industry-recognised test suite that uses 25 different workloads to measure areas such as storage, computation, image- and video manipulation, web browsing and gaming. We understand that results from this benchmark are not absolute, with Intel driver issues in Windows 8 meaning video-transcoding tests can present sub-optimal results. Nevertheless, the results give an idea of the relative performance.

Gaming performance

We use five games to evaluate graphics performance. We crank up the quality levels to 1920x1080 in all tests except the Medium-quality Stalker: Call of Pripyat and Alien Vs Predator tests, which are conducted at 1280x720 resolution.

Framerates are recorded using the following games and quality settings:

Hard Reset: Medium quality, no AA, no motion blur; Ultra quality with MSAA and motion blur.

Lost Planet 2: Medium quality, no AA; Ultra quality, 16x AA.

Stalker: Call of Pripyat: Medium quality, no AA; Ultra quality, 4x AA.

Alien Vs Predator: 720p resolution, all options on Maximum quality; 1080p resolution, all options on Maximum quality.

Sniper Elite V2: All options set to Medium quality, advanced shadows off, Supersampling off; all options set to Ultra quality, Advanced shadows - high, 4x Supersampling.

Overclocking

Because gamers demand the best performance from their hardware, we allow

vendors to overclock PCs in this category. We require that any tweaked component is designed for overclocking, and that the PC vendor offers a comprehensive warranty.

Subjective assessment

We pay close attention to the physical characteristics of each PC, its noise output and its build quality, delving inside the case and taking note of the quality of components used, cabling and airflow.

Good-quality peripherals are also important, and where they are supplied we note the ergonomics of the keyboard and mouse. Ordinary wireless keyboard and mouse combos are frowned upon, whereas fast, responsive peripherals will impress in this category.

Support

Differences in warranty terms can impact our scoring. Long warranties are sought after, but we also look at the terms and conditions - specifically, whether faulty systems must be returned to the vendor at your own cost and if both parts and labour are included. ☒



Do your bit to help save the environment and save some cash. Mike Bedford explains how to choose energy-efficient tech kit, apply tweaks to lower power consumption, and recycle your old gadgets

Deciding to take the green option isn't always an easy choice. Your mind might tell you that you ought to do your bit to save the planet by opting for a couple of weeks in Bognor Regis to avoid air travel but, in your heart, that dream holiday in the Caribbean is far more appealing.

It's no easier when it comes to buying a car. Certainly, you can save money by going for the environmentally friendly alternative,

but at the expense of so much more. After all, a Toyota Yaris isn't going to give a Porsche 911 Carrera S a run for its money.

We've got some good news for you: saving the planet doesn't translate to going without in computing. Here, by making some sensible choices, you can enjoy as much performance as you need and, at the same time, make a worthwhile saving in your household budget and reduce your carbon footprint.



Whether or not you're a paid-up member of Greenpeace, it's worth knowing how much your kit costs to run, as well as the impact it has on the environment. You'll then be in a better position to take steps to reduce both your financial outlay on electricity and your PC's harmful effect on the planet.

Here, we'll look at ways of monitoring how much energy your kit is using and how to save money by adjusting your computer's

power settings. Even the simplest of measures can make a huge difference.

Green computing doesn't end with streamlining your existing gear, though. When your PC has had its day, there are more environmentally friendly ways in which to dispose of it than dumping it in landfill. Indeed, legislation has been brought in to make sure this doesn't happen. We'll look at ways to recycle your electrical gear and

investigate what the law says about the manufacturer's responsibilities.

We'll also look at some alternative ways to get rid of your old kit. While the financial benefits might not be huge, the chances are you'll be able to earn a bit of pocket money for your old computing equipment. Alternatively, several charities would welcome your technology cast-offs and make good use of abandoned kit.



Small business owners are all too aware that you often have to invest money to turn a profit. We're not suggesting you ditch all your old gear and invest in 'greener' equipment, though. Not only would that be extremely costly, but there's also the environmental impact to consider.

It's been estimated that the amount of carbon dioxide generated in manufacturing a computer is more than double the amount the average machine produces in four years.

Similarly, it would take a long time to recover the cost of a new low-power PC via savings on your electricity bills. Our advice is not to buy an environmentally friendly PC now, but to do so when your current system no longer meets your technical requirements. At that time, including the power efficiency in the criteria you consider when making your choice is simply common sense.

Replacing your kit right away isn't rational from either an economic or an environmental viewpoint. Fortunately, there are things you can do to improve the energy-efficiency of your current equipment.

Reducing consumption

The cost of running a PC isn't enough to justify a premature upgrade but, in the light of the recent unprecedented rises in energy prices, it might encourage you to make some changes. There are worthwhile savings to be made that'll have very little impact on your computer's performance or your convenience.

Top of our list is turning off the PC when it's not in use. Depending on its age and power-saving settings, you could reduce the running costs from £50 to £12 per year.

That's for an office PC. If you regularly leave your home PC switched on, which is likely to be more powerful and less frequently in active use, the savings could be greater. Multiply that saving by the number of computers you own, and you've got no excuse for not shutting down.

Worried that frequently starting up and shutting down the PC will cause it to prematurely wear out? Nonsense. We've yet to find an expert who believes this to be true. What's more, with PCs faster than ever to start up, the benefits associated with an always-on system are less appealing.

Don't forget to also turn off any peripherals, such as printers and speakers, which you likely use even less frequently than the PC itself. The only possible exception is your wireless router, if you're using it to get smartphones, tablets, consoles, TVs and other gadgets online. But, these days, many routers have a scheduling feature, allowing you to switch on Wi-Fi between certain times only. We don't believe you need a web connection while you're asleep or at work in the office.

POWER OPTIONS: Specify at what point the screen should blank and the PC enter sleep mode

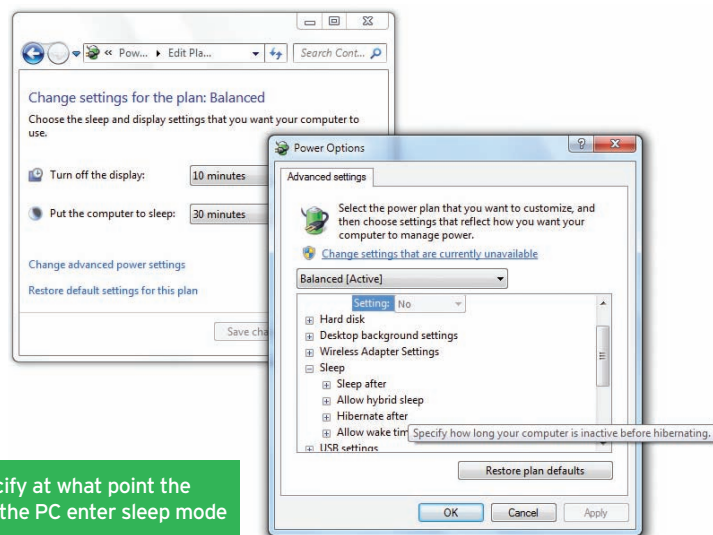
It's possible to configure your PC to reduce its power consumption. Because it's likely to remain the dominant operating system for some time yet, we'll concentrate on Windows 7. However, a few words on Windows 8 are appropriate, since a number of this operating system's new features have a bearing on energy-efficiency.

Perhaps the most relevant is the startup time. While claims of reduced boot times are made with every new Windows release, it seems that the improvement offered in this latest upgrade is particularly significant. This might strengthen our argument that PCs should be turned off when they're not in use, but flies in the face of the new 'Always On, Always Connected' mode Microsoft is promoting. For the sake of a few seconds, we still recommend turning off your PC and leaving the 'Always On, Always Connected' mode to handheld devices such as smartphones and tablets.

To adjust Windows 7's power-saving features, open the Start menu and type Power Options in the Search bar. Open Power Options from the list of results returned. Here, you have at least two choices, and potentially more if the manufacturer has added its own. You'll certainly find the 'Balanced' and 'Power saver' modes.

Since performance may be jeopardised in Power Saver, we suggest you choose Balanced and adjust it to suit your needs. To do so, click 'Change plan settings'.

The period of inactivity before the screen times out and the length of time before the PC enters sleep mode are the most important when it comes to saving energy. Decreasing these times will reduce power consumption, but may make using the machine less convenient. Bearing this in mind, select values suitable for your usage pattern.



If you want to further fine-tune the power settings, click 'Change advanced power settings' to display the Advanced Settings dialog box. Assuming that you're using the Balanced power plan, ensure that this mode is selected in the menu at the top and adjust the options to meet your needs.

Although it's primarily intended for laptops, you might choose to enable hibernation. If you leave your PC for a long period of time, it'll save all your applications in their current state and shut down. It will take less time to wake than from a cold boot, but longer than from sleep mode, so it wouldn't make sense to choose the five minutes it takes to make a coffee.

To enable hibernation, click the plus sign next to Sleep. This will display more options, including the hibernation period. Click the blue hibernate value and specify a suitable time.

Another option you might like to adjust, since hard disks are mechanical and therefore power-hungry, is the period of inactivity before the hard disk is switched off. In selecting this value bear in mind that a slight delay is caused by spinning up the hard disk after it's been turned off although, realistically, it's not too long.

Our emphasis here is on computing equipment, but it would be remiss of us to not also mention the other pieces of electronic gear that are unnecessarily using electricity in our homes.

No doubt you've heard it before, but the number-one source of electricity wastage is the various devices that are often left on standby 24/7. Although each device by itself doesn't consume much energy, this may be lulling us into a false sense of security.

According to a survey by the Energy Trust, it all adds up. It says the average household spends between £50 and £86 per year, which corresponds to 9- to 16 percent of total electricity consumption, on nothing. Have a think about all those TVs, set-top boxes, DVD players, PVRs, audio systems, games consoles and the like, then decide whether there's a reason to leave them on standby.

A few devices need to be left on standby to do their job, of course. For example, a PVR can follow its recording schedule only if it's powered on. But this is the exception, rather than the rule.

Even 'black brick' power supplies of the type used to power or recharge laptops and mobile phones consume a surprisingly large

amount of energy, even when the device they power has been disconnected.

It's been reported, for example, that some mobile phone chargers consume 3W while the phone is being charged, 2W once the phone is fully charged but still connected, and a quarter of a Watt when plugged in with no phone connected. In all probability, the only



thing preventing you from turning off standby devices or unplugging power supplies when you've finished with them is remembering to do so, but the financial saving might well be the incentive you need.

If you need proof, try measuring your electricity consumption with all these devices on standby or plugged in, and then with them switched off or unplugged. You'll find a device for measuring electricity usage on page 89.

Recycling

There are several reasons why you might want to get rid of your old computing gear.

Most drastically, it might have suffered a hard-disk failure or the power supply has burned out and a repair isn't economically viable. Alternatively, although it served you well when you first bought it, your PC might no longer be able to cope with the demands of modern software. On the other hand, perhaps your kit is still relatively new, but your needs have changed and, as a result, you need a PC that has a larger-capacity hard disk, more memory or a faster processor.

In the latter case, a better option than dumping your computer, from both a financial and an environmental viewpoint, is to upgrade it. But this isn't always possible, of course.

For example, the motherboard dictates the types of processor you can install, and having to change both the motherboard and the processor can become a major undertaking – and an expensive one at that. If, when you've done your homework, you discover that your old PC either can't be upgraded or it doesn't seem to be a financially sensible option to do so, it will still have some resale value.

If you don't know anyone in the local area who'd like to take it off your hands, selling your computer via an online service such as eBay or Gumtree would be a good bet. If you want a guaranteed sale, although you probably won't get as good a price, you could also consider CeX (Computer eXchange), which has both a web presence (uk.webbuy.com) and almost 200 high-street stores branded as Entertainment Exchange.

If your PC has died you almost certainly won't be able to sell it other than for parts, and if it's just run out of steam because it's old, its resale value will be low. However, there are better things you can do with it than dump it in a skip. If you really have to take it to a disposal and recycling centre, do make sure that you deposit it in the area designated for electronic equipment.



ENTERTAINMENT EXCHANGE will buy your old PC, although you may not get as much money as you'd like

Don't take your old tech gear to **LANDFILL** until you've tried every other option



If you do buy a new PC, you may find that the retailer is willing to take your old system off your hands. According to the European Waste Electrical and Electronic Equipment directive (WEEE), retailers must either offer this service or make a financial contribution to the recycling facilities offered by the local council when you buy equipment from them.

Ensuring that your old computer gear is recycled means that toxic substances don't enter the environment – and there'll be some additional environmental benefit, since using the various recovered substances will reduce consumption of the Earth's resources.

If your old gear is still working, even though it's under-powered, there is no shortage of charities that would welcome its donation. Many towns and cities have charities that provide furniture and other household items to families in need, but some won't accept electrical items because they're unable to ensure that they're safe to use.

Needless to say, this won't apply to the various charities that are specifically set up to find a good home for unwanted computers. We're not going to give any specific examples or make any recommendations here, since which charities you decide to support is a very personal choice. However, a Google

search for 'computer charity' will return plenty of possible options.

At one time, many of these charities would even accept non-working PCs, which they would strip for spare parts and use to build new systems. Today, though, you'll tend to find that charities will take only systems that are less than five years old and in working condition. Bizarrely, according to one such charity, the WEEE directive allows only working equipment less than five years old to be reused, insisting that equipment that doesn't adhere to this criteria is recycled.

Whichever means you choose to dispose of your old equipment, do bear in mind that you should protect yourself from confidential data on the hard disk falling into the wrong hands. Most respectable charities will securely wipe all data from the disk, but if you're disposing of your kit elsewhere, or even if you just want some extra peace of mind, make sure you adequately wipe the disk before

handing it over. Bear in mind that simply deleting the data doesn't remove it beyond recovery. For advice, peruse our guide to destroying data at tinyurl.com/cuxyLz3.

While our main emphasis has been on disposing of old computers, the same advice applies to other electronic gear. From old mobile phones to games consoles and more, you should first consider selling your gear or donating it to a charity, opting to recycle only as a last resort. Remember that there are plenty of companies that specialise

Systems provided on behalf of
COMPUTER AID INTERNATIONAL
are used in a nurse's training school





in buying mobile phones, and charities that are specifically on the lookout for them. SellMyMobile.com, for example, is a comparison service that finds you the best price for your old handset.

Rather than disposing of your old gear, a better idea might be to re-use it yourself. It may no longer be useful for its intended purpose, but an old PC can have a new life as a media server or NAS device. Read our walkthrough at tinyurl.com/d4unvrb for advice on how to convert an old computer into a personal cloud server, and head to tinyurl.com/crkovL6 to find out how to utilise it as a NAS device.

Unless you really do want a cloud server or NAS device, though, this isn't a particularly environmentally friendly option: it'll form yet another piece of kit consuming energy. If you do need a NAS or media server, though, it's a cheaper option than buying new kit.

How green are manufacturers?

Generally speaking, today's computers are more energy-efficient than those of a few years ago. Some companies, such as TinyGreen PC (tinygreenpc.com), sell systems that are specifically designed to consume small amounts of power. Choosing a computer on its power-efficiency credentials is surely a sensible move.

However, given that statistic about the environmental impact of manufacturing a PC being more substantial than that of using it, should you consider the green credentials of the manufacturer when you buy a new PC?

Several charities are actively seeking out donations of old **MOBILE PHONES**

If you're concerned about the environment, you'll probably think this is a no-brainer – but it's important to consider whether companies really do differ that much in how much damage they cause to the planet in manufacturing and distributing their wares.

According to Greenpeace, there is a difference in their environmental impact, and it certainly should be a factor when it comes to choosing your kit. In its latest 'Guide to Greener Electronics', Greenpeace indicates how its evaluation criteria includes issues such as the company's own energy-efficiency, the energy-efficiency of its products, its use of toxic substances in manufacturing, its recycling policy and its use of sustainable

materials. The rankings are shown on the Greenpeace website and, while scores differ substantially, it's interesting to note that the best-rated companies (HP led the pack in November 2011) score well below the maximum of 10 points.

Interesting as it might be, Greenpeace's ranking includes only 15 of the world's largest manufacturers of electronic gear and, in addition to computers, that list includes manufacturers of TVs and mobile phones.

Unless you're intent on buying a big-name PC, this guide won't help you choose a manufacturer based on its environmental credentials. What's more, while the large companies in the Greenpeace guide will manufacture many of the parts in their PCs themselves, the same isn't true of most of the smaller manufacturers.

Since these manufacturers buy in components such as motherboards, hard disks, power supplies and cases from the same few Far-Eastern manufacturers, differences between the environmental footprint of these smaller system builders will not be nearly as large. Indeed, you might think it makes more sense to go to a small local system builder in preference to buying a big-brand computer that will have been shipped to and fro between factories, warehouses and stores.

Green gadgets to save money

Working on the assumption that you can control only what you can measure, a gadget that monitors your energy use is a useful piece of kit. The simplest and cheapest type of energy monitor plugs into a mains socket, while the device you want to check plugs into the monitor. Your electricity consumption – either instantaneous or cumulative – is

The **SMARTENERGY KIT** measures power consumption in your home





Energenie's **ENERGY SAVING POWER METER** is useful and affordable, at £14

displayed on an LCD. The Energy Saving Power Meter from Energenie costs just £14.

A more comprehensive solution is offered by AlertMe. The SmartEnergy kit (£50) comprises a SmartEnergy hub, which connects to a spare ethernet port on your router and wirelessly communicates with the power monitor(s), and a SmartMeter Reader, which clips around the cable entering your electricity meter and communicates with the hub to provide data on your home's total electricity consumption.

Information is displayed on the standalone SmartDisplay, which is also part of the kit, or you can access the information using a mobile app or AlertMe's website.

You might also consider adding one or more SmartPlugs (£25), which also communicate with the hub and allow you to monitor the energy consumption of specific devices, such as your printer. You could even move around the SmartPlugs to see, for example, how much it's costing you to power all those devices that are left on standby.

Seeing how much it's costing you to keep kit turned on unnecessarily will probably provide you with the motivation to switch it off, but it's all too easy to forget once the novelty wears off.

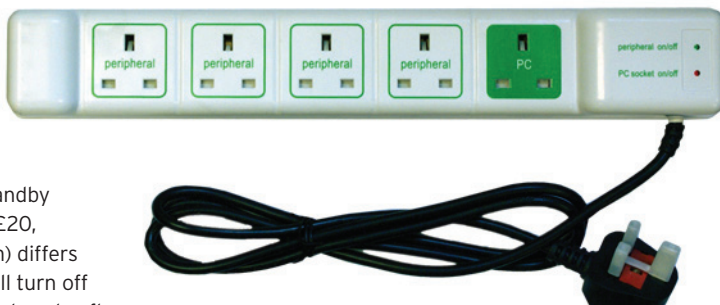
This is where equipment designed to automatically turn off equipment comes in

handy. Energy Egg (£40, energyegg.com), for example, uses a motion detector to decide whether a room is unoccupied, then automatically turns off your electrical equipment. We've reviewed the Energy Egg at tinyurl.com/d7m326o.

While this is a good idea for peripherals such as printers, speakers and external hard disks, we advise against using the Energy Egg with a computer. PCs should always be shut down using Windows' Start menu, and we'd hate to see you lose any work you were in the middle of.

The Bye Bye Standby Powerdown Strip (£20, byebyestandby.com) differs slightly in that it will turn off up to four peripherals only after you turn off your PC.

If you'd rather hold the controls for shutting down your tech, Belkin's Conserve Switch (£15, belkin.com) may be ideal. You simply plug your various peripherals into the device, and it will turn them all off when you press the button on a remote control from up to 20m away.



The **POWERDOWN STRIP** will turn off four peripherals when you switch off the PC

Unplug chargers when not in use. Even when a device's battery is full, a charger will continue to draw power from the mains. This applies even if you've disconnected the device itself from the charger.

Configure Power Options. Your PC might be using more power than you think, even when it's shut down. You probably won't turn off your PC if you're leaving it only to make a coffee or answer the phone, but do configure Windows' Power Options so that it'll go into an energy-saving mode of some description during periods of inactivity.

Monitor your power usage. A few extra pence a day spent on electricity doesn't sound like a lot, but it all adds up. There are considerable savings to be made if you have several PCs, each with a range of peripherals.

A cheap power meter will show you how much electricity your kit is using. Plug your gear into one of these and it'll provide the motivation you need to start saving.

Automate power-off. Consider investing in a device that automatically turns off your kit when it detects a period of inactivity. ☒

The **ENERGY EGG** switches off electrical devices when you leave the room



NEW PC ADVISOR APP DOWNLOAD IT FOR **FREE** TODAY!



The latest news,
reviews and tutorials
available on the go
on iPhone & Android





Keep your kids safe online

The internet is stuffed full of great resources and activities for kids, but there's a danger they'll find and do things that aren't so wholesome. Jim Martin explores ways to keep your children safe online



Kids these days are digital natives. They've grown up with the internet and have no concept of what life was like without it.

They're completely at home with technology: using a mouse or touchscreen to navigate is as much a life skill as learning to read and write.

In fact, many young children learn to use a touchpad or touchscreen long before they can read or write, using colours and symbols in place of words to navigate websites and get to a video or game they like.

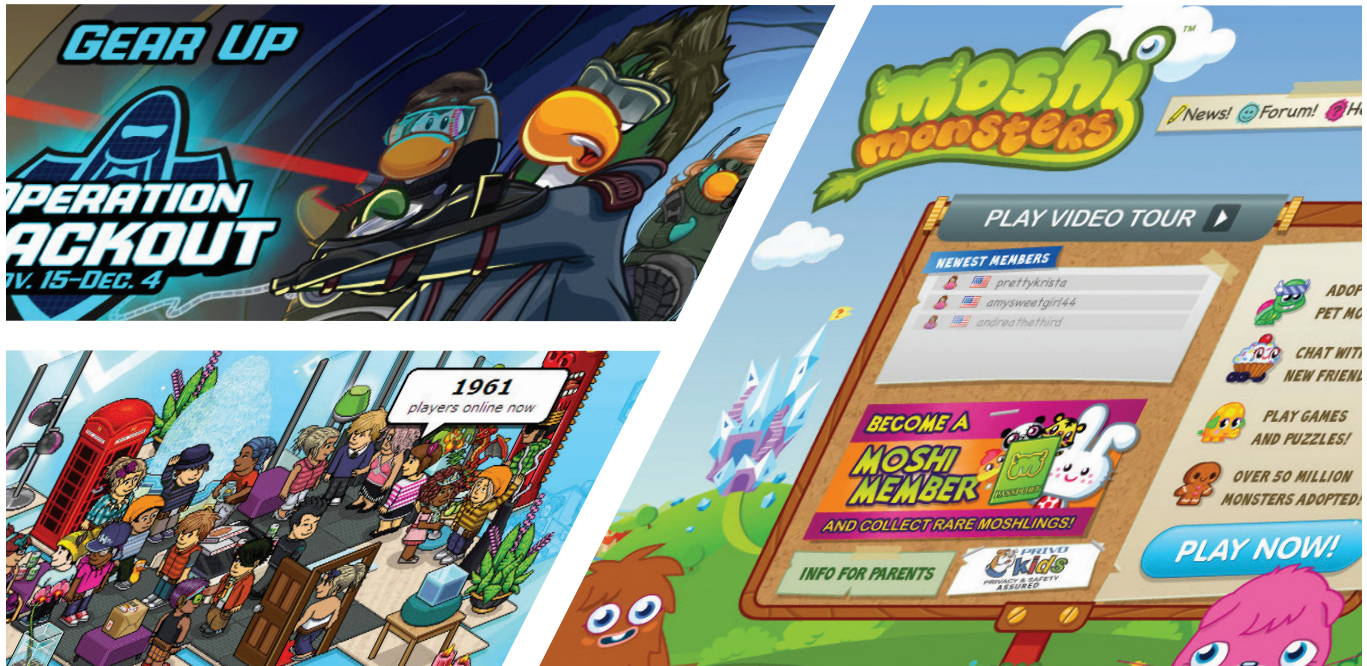
Whatever the age of your kids, it's important to keep them safe when browsing websites, using social-networking services such as Facebook, and chatting with friends using instant-messaging programs.

Although your children may know more about using a computer and the internet than you do, it's your responsibility to ensure they're protected from the parts of the web that present a danger to them.

Much of the internet is a fabulous resource for kids, whether they're using Wikipedia to help them with homework, playing online games, visiting social networks, or enjoying videos, music and more. However, there is an equal number of websites that you wouldn't want them going anywhere near.

In this feature, we'll look at the dangers and explain how you can protect your children from them. Much of our advice is common sense, but we'll also look at some applications such as parental control software that can act as a digital nanny, protecting your children when you're not around.

You've probably heard plenty of 'scare stories' about identity theft, online bullying and illegal downloads, but the threats are real. You can't afford to simply hope that everything will be okay.



THE DARK SIDE OF THE WEB

Websites: Even if you've not seen much evidence of it in your own web browsing, it isn't difficult to imagine the kind of things you wouldn't want your kids to see. Pornography is an obvious example, and the web is full of it.

Young kids might accidentally stumble upon a porn website by clicking on a photo or link without understanding what they're doing; older teens might actively seek it out.

There is also a plethora of gambling sites, plus those that promote drugs, guns and other things your kids shouldn't be looking at.

Even YouTube isn't necessarily safe. Innocent searches could easily turn up unsuitable material. For example, some people seem to enjoy swapping the soundtracks of, say, children's cartoons with foul-mouthed lyrics.

Social networks: Facebook and other social-media sites are great places for sharing photos and chatting. They're especially good for allowing children to keep in touch with friends and family who don't live nearby.

Privacy is something of an issue with social networks, though. It's all too easy to incorrectly configure the security settings or unwittingly draw unwanted attention by leaving them at their defaults. You don't want your kids sharing any personal details, such as their address or phone number, for example, or letting everyone know that you're going on holiday for two weeks and the house will be empty.

Online games: Virtual online worlds are becoming increasingly popular with kids aged around six-plus. Sites such as moshimonsters.com, clubpenguin.com and habbo.com allow the child to be a character in the game. They can join for free, and you can pay for in-game add-ons if desired.

A core feature of each of these games is your child's ability to chat with both new and old friends. Every click is monitored and every word moderated, but you can never know for sure with whom they're chatting. While all three websites claim to offer safe environments for kids, you should still supervise them as they play.

KIDS' GAMING SITES aren't necessarily safe just because they're monitored

Instant messaging and email: Although only older children will have any need to access such services, instant-messaging and email clients make it possible for just about anyone to contact them.

Innocent-sounding messages from an innocent-sounding youngster might in fact be a paedophile grooming your child by establishing their trust. Such conversations have been known to lead to real-world meetings where anything could happen.



ONLINE BULLYING is an entirely different prospect to that which occurs in the playground

Information overload: We all know how easy it is to lose hours enjoying online content, and it's becoming increasingly important that children get to grips with technology. But sitting motionless at a computer desk could mean your kids aren't getting enough fresh air and exercise, or perhaps they're putting off bed time to stay up chatting on Facebook or playing games. Staring at a screen for too long isn't good for their eyes either.

Bullying: The ease of communicating online has some clear disadvantages. Bullying is bad enough in the playground, but online it's taken to a whole new level. It's easy for other kids to bully a child through social networks and instant messages, even email. Unflattering photos can be posted online and lead to insults, taunting and threats. Importantly, because the torture is mental rather than physical, you may be none the wiser if your child keeps quiet and you're not actively keeping an eye on things.

Illegal downloads and malware: There are plenty of sites from which you can illegally download video, music and games. This presents a huge temptation to cash-strapped teenagers, and even those who perhaps don't realise there is anything wrong with their behaviour. However, such activity can also bring problems for you, the bill payer, since you pay for the internet connection and are responsible for anything that's downloaded.

There's also a much greater risk of inadvertently downloading malware and viruses, which become far more common when you venture into the seedier parts of the web. Search for any kind of pirated material and you'll see pop-up adverts for unsavoury sites, many of which offer porn.

WHAT YOU CAN DO

The threats are real, and they're scary, but it takes only a little time, effort and outlay to make sure your child is safe online.

Common sense plays a big part here. For a start, we'd recommend not allowing a child to have a PC or laptop in their bedroom. Ideally, you'll have a family computer in the lounge or dining room, with a screen that faces into the room for easy monitoring. This will discourage most inappropriate activities, since it takes only a momentary glance for you to cotton on to what they're up to.

Secondly, you must talk to your child. Explain (in a way appropriate to their age) the dangers that the internet could pose to them, and why they can't have a PC in their room.

Also encourage them to tell you if they see anything that makes them uncomfortable or upsets them, or simply isn't what they expected. You can delete inappropriate websites from your browser's history, and add the URL to a parental-control filter list (see *Software* below for more on this).

If your child receives threatening or frightening messages, explain to them that coming to you won't lead to you banging on the other child's door and making the situation worse. Rather, you can add the sender's address to an email client's blocked list.

You should also make it clear what is and is not acceptable behaviour online. Only you can decide these terms, but you can't expect your kids to know they're doing something wrong if you haven't set any boundaries.



You might, for example, tell your child that they're not allowed to download files from a website or share a file without your permission. You could also set rules about which online chat services are allowed, and ban them from replying to unsolicited emails or signing up for free accounts without you first checking that it's okay.

SOFTWARE

Many people decide that they want to limit their children's screen time, including TV, games consoles and using the internet. On a computer you can install programs, typically called parental-control software, which can determine when the internet can be accessed. Usually, you'll be able to choose blocks of time when internet access is allowed; for the rest of the time, it will be unavailable.

For parental controls to be effective, you'll need to give each child their own user account on the computer. Having individual accounts means you can apply certain rules to each child, according to their age.

Open the Control Panel from Windows' Start menu, click User Accounts and select 'Manage another account'. Choose 'Create a new account' and select Standard user rather than Administrator. This will prevent them from installing new programs and making other changes to the computer. Make sure each account is password-protected.

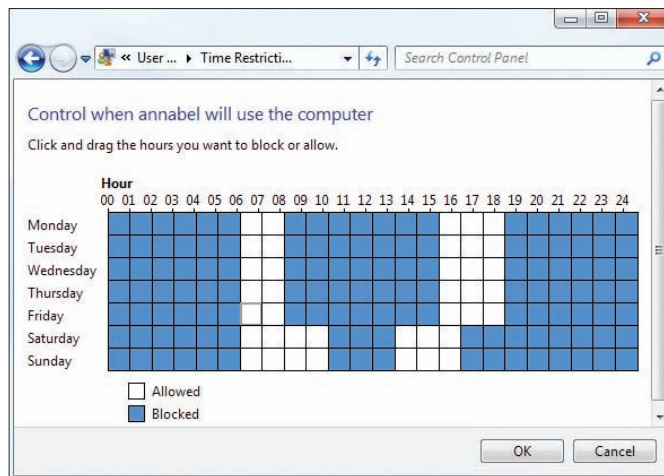
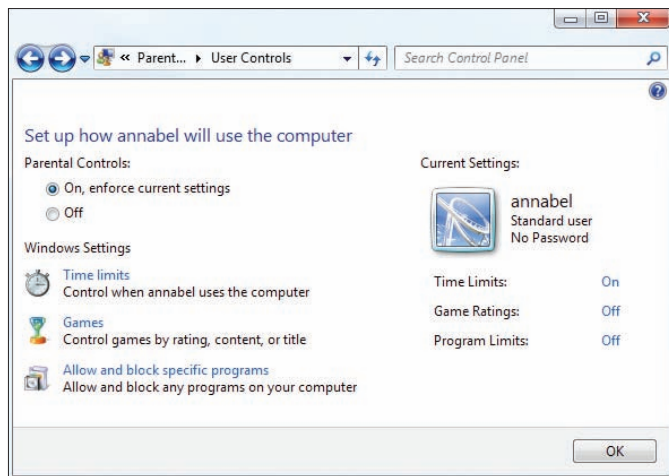
Windows 7 has built-in parental controls, which are useful to some extent, but they can't restrict internet access to certain times of the day. What you can do is restrict how many hours your child can use the computer,

which games they can play (according to age rating or game name) and which programs they can run.

In Windows 8, parental-control features have been beefed up and renamed Family Safety. When you create a standard user account in Windows 8, you're given the option to enable or disable this feature.

Family Safety offers a significant improvement over Windows 7's parental controls. You can control both the number of hours the child can use the computer and when they can use it, and you can even select different times for each day of the week. Family Safety also lets you remotely monitor the child's activity, and change settings via the Family Safety website.

Windows 7 users can download Family Safety for free, since it's a part of Windows Live (tinyurl.com/cznnpua). It allows you to block or allow certain websites, manage who



your child can contact via Windows Live apps and view activity reports.

Some web browsers, media players and other programs also have built-in age or content restrictions:

Internet Explorer (IE) 9.0 uses Windows 7 and Vista's built-in parental controls and additionally provides content filtering. Click the cog icon at the top-right corner, then Internet Options. Select the Content tab, and click Enable in the Content Advisor section. For each type of content in the list you can specify the severity of the restriction, and set a password for turning on and off filtering.

Google Chrome, disappointingly, has no parental controls. However, if Google is the default search engine, you can enable SafeSearch when signed into your Google account. Head to google.co.uk and click the cog icon to the right of the screen. Choose Search settings to find and adjust the feature, then click the Lock SafeSearch link.

Mozilla Firefox doesn't have parental controls, but you can install the FoxFilter add-on from tinyurl.com/6s7977g. This does a similar job to IE's content filter.

YouTube has a safety mode, although it's well hidden. To enable it, scroll to the bottom of the page and look for a Safety: Off message. Click the arrow to the right, choose On, then press Save.

iTunes: You can restrict content that can be downloaded from the iTunes Store by age rating. To access the parental settings in iTunes 10.x, go to Edit, Preferences, then click

INTERNET EXPLORER is one of the better browsers for parental controls

on the Parental tab. There you can disable access to podcasts, radio and the iTunes Store or restrict films, TV shows and music.

Bear in mind that no content filter is perfect, and there are no guarantees that objectionable content will be blocked all the time. This is why it's a good idea to keep computers in communal areas and keep a physical eye on what your children are up to.

PARENTAL CONTROLS

Since not all software has built-in filters, it's a good idea to install some parental-control software that can act as a digital nanny and monitor any application on the PC.

When choosing parental control software there are several features to look out for:

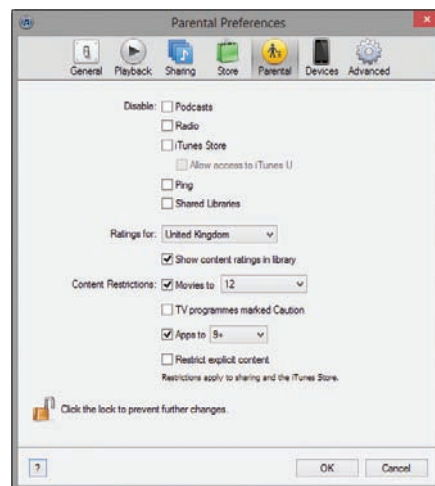
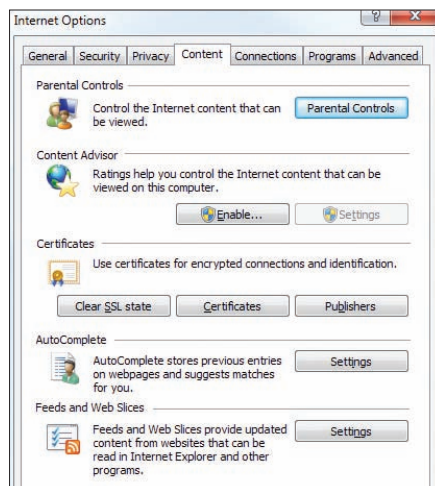
Age-specific settings: What's appropriate depends on a child's age. A 15-year-old should be allowed access to a wider range of websites than, say, a 10-year-old. Good software offers age-appropriate settings.

WINDOWS 8 has built-in settings for controlling a child's use of the computer

Keyword filters: Many packages block content based on keywords, and should be intelligent enough not to block websites that include an otherwise banned word in its URL. For example, a search for Middlesex might be deemed inappropriate by some packages.

Black- and whitelists: Some packages filter websites based on their category, such as drugs, pornography and weapons. They can also have blacklists (sites that are disallowed) and whitelists (sites that are allowed). However, with the sheer number of new websites popping up every day, it's best to install a package that can intelligently process a list of search results and determine whether a particular site contains objectionable content.

ITUNES 10.x lets you restrict music and video downloads by their age rating





A child is just as likely to get up to no good on a **TABLET** as on a desktop

Scheduling: Not only should you be able to specify when your child can use the computer (ideally you should be able to choose different times for each day), but also place a limit on the total time spent on the PC each day. The software should also be able to block the browser or other specific applications at certain times. This will prevent kids being distracted by games when they're supposed to be doing their homework, for example.

IM monitoring: If you allow your child to use an instant-messaging service, parental-control software should be able to monitor their conversations and prevent them from

sending personal details even to approved friends. Most IM conversations aren't encrypted, so anyone could be listening in.

Application blocking: Not all parental-control packages support this, but it's worth buying one that allows you to prevent specific apps from being used at certain times.

Remote management and alerts: The best software allows you to make changes to the PC running the parental-control software from another computer. It should also send you alerts if, say, it detects an attempt to visit a blocked website. Finally, it should send you a detailed log so you can easily see what your child has been up to, how long they've used the computer and more.

It's a good idea to explain to your child how the software works, and whether you're monitoring their every move, rather than acting in secret and scolding them when they do something wrong.

Also bear in mind that parental control software isn't infallible, and isn't an excuse to leave your kids unsupervised when using the computer. Ultimately, it's your responsibility to ensure they stay safe. Older children will always find ways around such safety measures, including using USB flash drives acting as proxies to let them browse any website they like (it can be beneficial to disable the USB ports and DVD drives in the computer's Bios for this reason).

Windows Phone 8 offers **KID'S CORNER**, a sandboxed environment for children



Use OpenDNS

A great way to enable website filtering for all devices connecting to the internet through your broadband router is to use OpenDNS.

Instead of using the DNS servers provided by your ISP (the servers that convert a website's friendly name such as google.co.uk into the internet address 74.125.224.72), you use OpenDNS's servers.

In essence, you need simply make one small change to your router's settings and any device connecting to the internet via your home network will be routed through OpenDNS's system, which filters websites. There's no charge for the service, and it's configurable for low- or high-level blocking as well as more fine-grained control over which categories of site to block, including any phishing sites.

To use OpenDNS, you first need to sign up for a free account at tinyurl.com/7s39Low.

Clearly, any settings you make will apply to everyone in the house, so you can't block some sites for your kids, yet continue to access them yourself through the same router.

Microsoft's Family Safety is a good free option, but if you're willing to pay then try AVG's Family Safety or Net Nanny.

SMARTPHONES & TABLETS

Windows isn't the only OS that your kids are likely to use these days. With the proliferation of smartphones and tablets, children can access pretty much all the content you might have blocked on a desktop PC or laptop.

An easy way to restrict internet access and any other communication is to enable

flight mode before you give the device to your child. Savvy kids will easily work out how to disable this, however.

Windows Phone 8

Mobile OSes vary in their support for parental controls, with Windows Phone 8 leading the pack with its Kid's Corner. This is a separate, sandboxed area in which your child can access only the apps, games, music and videos you select for them.

Configuring Kid's Corner is simple, and your child can access it by swiping left rather than up on the lock screen. If they do swipe up they'll see the usual PIN entry screen, and won't be able to access the main phone features. It's ideal if you want to share your own phone with a child.

To enable Kid's Corner, go to Settings, then Kid's Corner. You can tap each app, game, video and music track you're happy for your kids to play.

iOS

Apple has added some parental controls to iOS, but they will apply to anyone who uses the iPhone, iPad or iPod touch - not just kids.

To set up an iPhone, iPad or iPod touch for your kids to use, tap Settings, General, Restrictions. You'll have to enter a PIN to enable restrictions, preventing a child from getting around them.

You can disable certain built-in apps such as Safari, but you can restrict other apps only by their age rating (or disallow access entirely). Similarly, you can restrict films by age, TV shows by those rated Caution and music or podcasts with explicit content.

You will also probably want to disable location services for social-networking apps. There are lots of other privacy settings that prevent apps from accessing your data, and you can disable multiplayer games and the adding of new friends in Game Center.

ANDROID's app store offers content filtering, while the free Kid Mode app is similar to Windows Phone's Kid's Corner



iOS offers Guided Access and several ways in which you can restrict activity

Safari itself has no parental controls, but you can disable it and install another browser, such as AVG's Family Safety. This is a free app that blocks inappropriate or malicious sites.

It's sensible to disable in-app purchases, as well as the ability to install apps.

New in iOS 6.0 is Guided Access. This in effect disables all hardware buttons once an app has been opened, preventing kids from

accessing anything else. You'll find the setting in General, Accessibility.

Once enabled, triple-press the Home button after launching an app to enable Guided Access. You can then draw on the screen to disable certain areas. Tap the Options button to disable touch altogether.

Android

Google's Android OS doesn't have much in the way of parental controls, although its Google Play app store does offer content filtering. This means you can restrict which apps are downloaded. To do this, simply launch Google Play, then press the Menu button and choose Settings, Content filtering. You can allow apps rated for low, medium or high maturity.

This goes some way to preventing kids from downloading inappropriate apps, but there are many alternative apps you can install that do a more thorough job.

Consider the free Kid Mode app. This provides something similar to Windows Phone 8's Kid's Corner. It lets kids play their favourite Android games, read stories and paint pictures, but there's no way to accidentally buy anything, delete your emails or access another app.

There are also lots of parental-control apps in Google Play, many of which are free. We recommend those from Kaspersky, Norton and the popular Funamo. ☒



DiskStation DS213air NAS server

The first ever Synology NAS with a built-in router

Synology® DiskStation DS213air is a one stop solution for wireless sharing, web applications and centralised storage. Specifically designed for home users and small offices

- Built-in WiFi for Wireless Environment
- Support up to 8TB personal storage
- Features SuperSpeed USB 3.0
- Energy Efficient & Noise-Free Design
- Hassle-free System Installation with Mobile Devices
- Mobile Apps available at App Store, Google Play & Market Place



Can be purchased at

amazon.co.uk

dabs.com

ebuyer.com

OVERCLOCKERSUK

TIME TO GO DIGITAL



Don't miss a single copy of **PC Advisor** by subscribing digitally

1 issue
£2.49

6 months
£14.99

1 year
£19.99

PC ADVISOR

 **ITUNES DOWNLOAD**

 **ZINIO DOWNLOAD**

JIM
MARTINTech
Help

Peace of mind

Does your PC sound more like an aeroplane taking off than a piece of precision technology? We'll show you how to save your ears, without emptying your bank account, on page 110.

Downloading apps from the internet is a risky business: you've no way of checking whether the software you're about to install contains a virus, spyware or other malicious code. A similar risk is present when opening email attachments. That's why it's a good idea to run such things in a sandbox. We explain how on page 118.

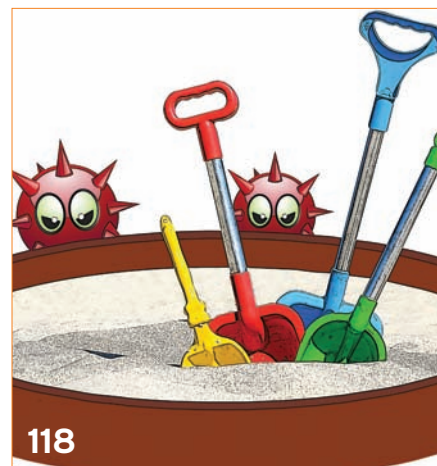
Taking screenshots to illustrate a point is something we do in every issue of *PC Advisor*. However, it's also possible to record a video of what's happening on your desktop. Find out how to use the free CamStudio utility on page 116.

If you've upgraded to Windows 8, or bought a PC running the new OS, you'll notice that Microsoft's tweaks go beyond the addition of the tiled Modern UI. Windows Explorer, for example, has been updated; we guide you through the changes on page 114.

SketchUp is one of the most popular 3D-modelling tools, and useful if you want to see, for example, how a loft conversion will look. Find out more on page 120.

Index

Troubleshooter	102
Helproom	104
Silence your PC	110
Windows 8 File Explorer	114
Screencasting	116
Sandboxing	118
3D drawing	120



QUICK TIP: CHANGE THE WINDOWS 7 WELCOME SCREEN

Given how well the option is hidden in Windows 7, you may not know that you can change the Welcome screen to display your own image.

Some editing of the Registry is involved, so type **regedit** in the Start menu Search box and press Enter to bring up the Registry Editor. Now find the following string: `Hkey_Local_Machine\Software\Microsoft\Windows\CurrentVersion\Authentication\LogonUI\Background`.

Double-click `OEMBackground` and set the value to 1. If you can't find it, right-click an empty area and create a new DWORD with that name.

Your image must be no bigger than 256Kb and match your screen resolution. Save it in `C:\Windows\System32\oobe\info\backgrounds`.

Bear in mind that later changing your Windows theme will reset the Registry value you changed. ☒



Manage photos on an iPad

Nik Rawlinson explains how to use the iPad's Photos app to import and organise your photos

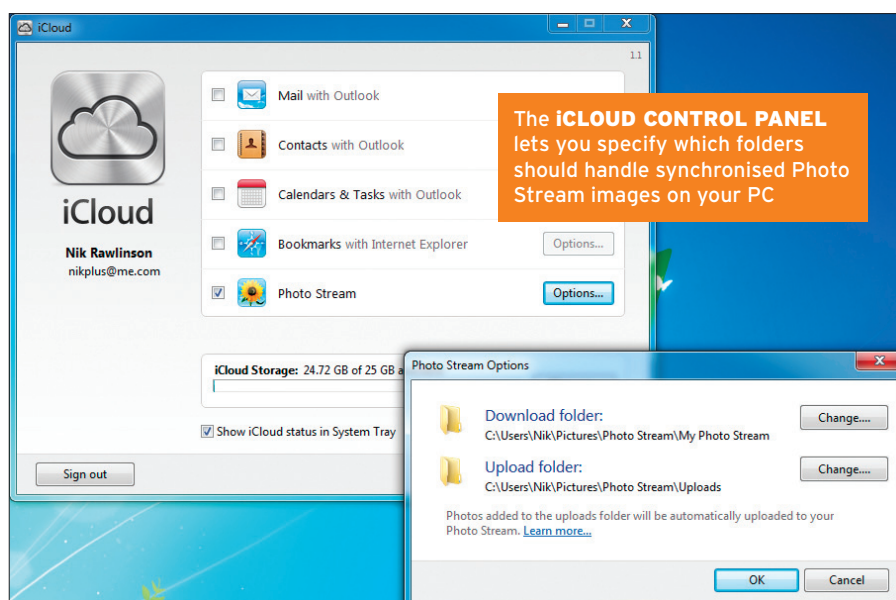
With high-resolution displays and equally capable cameras in every iOS device, Apple is building itself a pretty impressive photography line-up. It's paired with super simple synchronisation, courtesy of iCloud, and a sturdy, simple management app in the shape of Photos.

Yet the way the iPad files your photos can still be confusing. It's not immediately clear what an Event might be, or how it differs from an Album, while the seemingly arbitrary deletion of pictures from your Photo Stream could well leave you scratching your head. So, too, could the difference between Photo Stream and Photos, and why the pictures you take on your iPhone seem to pop up uninvited on your iPad.

With a little orientation and a few minutes spent tapping around the interface, all should become clear. Here, we'll guide you through the various features of Photos in iOS 6.0, but most of our advice also applies to iOS 5.0. We'll show you how to organise your photos, manage your Photo Stream, import pictures from Windows - or directly from your camera - and how you can share them with friends.

Photos vs Photo Stream

There's a subtle distinction between the Photos and Photo Stream tabs in the Photos app. Any pictures or screenshots that appear in Photos were taken on your iPad. If you have an iCloud account and you've enabled Photo Stream (tap Settings, iCloud, Photo Stream), any images you capture are



immediately copied to Apple's servers and then synchronised to your other iOS devices.

At the same time, any photos or grabs that originated on those other devices will be synchronised via the server back to your iPad. These are the pictures that you'll see when you open Photo Stream.

Your Photo Stream will store a maximum of 1,000 images from the past 30 days. Older images are removed from Photo Stream, but remain on the device on which they were shot. So, photos taken on your iPhone will appear in your iPad's Photo Stream for 30 days; if you want them to remain there after this period, you'll need to tap Edit, then

select the photo, then tap the Save button to permanently store them on your iPad.

Mac users can set up either iPhoto or Aperture to synchronise their libraries across OS X and iOS. Windows users can do the same by downloading the iCloud Control Panel from icloud.com/icloudcontrolpanel. Open this from within Windows Control Panel and specify the default synchronisation folders on your PC. Any images dropped into the upload folder will be synchronised to your iOS devices, while images created on those devices will automatically appear in the PC's download folder.

The iCloud Control Panel lets you specify which folders should handle synchronised Photo Stream images on your PC.

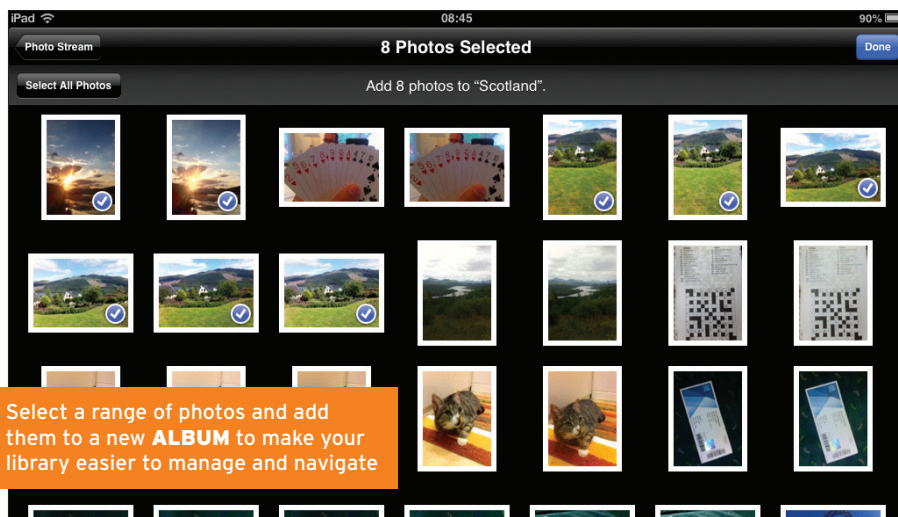
Events

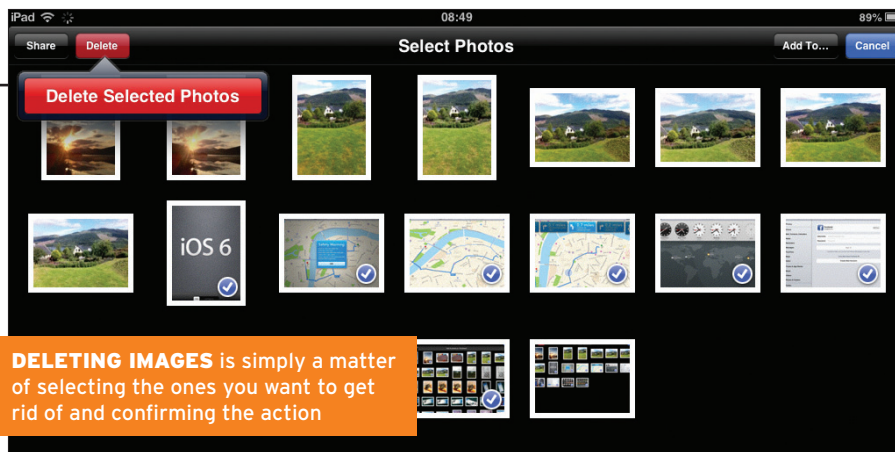
The Events tab will likely remain a mystery for most PC users as it's relevant only to those using iPhoto on the Mac. It's used as a place in which to store synchronised Events from Apple's photo-editing app for OS X.

Mac users can configure iTunes to synchronise iPhoto Events to their iPads.

Importing photos

The simplest way to import photos is to use your Photo Stream folders in Windows, or iPhoto or Aperture on the Mac. However, you can also import images directly from





DELETING IMAGES is simply a matter of selecting the ones you want to get rid of and confirming the action

a memory card or over USB using Apple's £25 iPad Camera Connection Kit. It works with the first three iPad generations (if you've bought an iPad 4 then you'll need to use a Lightning adaptor or buy the updated version of the Camera Connection Kit). It supports standard image formats such as Jpeg and a range of RAW formats, plus H.264 and Mpeg4 video.

The 30-pin kit comprises two adaptors for the standard Dock connector, one of which is home to an SD card slot, while the other has a USB socket. Connecting either adaptor automatically opens the iOS Photos app, through which you can select the images you want to save to your library.

How to create and manage albums

Some albums are automatically created, such as Camera Roll and a folder of edited images maintained by iPhoto for iOS. However, you can also create your own, which simplifies the task of managing your photos by letting you break them down into logical groups.

Tap the Albums tab, followed by the '+' at the top of the screen. Give your new album a name and tap Save. You now need to decide which images it should contain. Browse the Photos and Photo Stream tabs, tapping on the photos you want to add to the album. Tap Done when you've finished.

You can later add more images to the album by opening it and tapping Edit, Add Photos; you can remove images by tapping Edit, selecting the photos to delete, then tapping Remove. They're released from the album, but not physically deleted from your iPad, so you'll still find them in Photos.

Select a range of photos and add it to a new Album to make your library easier to manage and navigate.

How to delete photos

To remove images from your iPad, go to the Album or Photo Stream in which they're stored. Tap Edit, select the images to delete, then tap the red Delete button and confirm the action with 'Delete Selected Photos'.

If Photo Stream is active then any photos accidentally deleted from your device can be recovered from iCloud.

Message; you can also print or copy the picture, use it as wallpaper or the icon for a contact, and save it to a shared Photo Stream.

Shared Photo streams are published online, with a public URL that you can pass on to friends and family with whom you want to share your images. These are turned off by default, so you'll need to activate the feature through Settings, iCloud, Photo Stream, Shared Photo Streams.

Select more than one but fewer than five images and the Twitter option disappears. Select more than five and you lose the option to email your images.

Note that just as Twitter was built into iOS 5.0 at the core, the same is now true of Facebook. This means you can post direct to either social network from the default iOS apps without using a third-party client.



How to share photos

You've probably noticed the Share button next to Delete. Its function is obvious, but it's worth exploring its options as iOS 6.0 massively extends the range of available sharing tools. Which options are available to you depend on how many images you have selected. Select just one and you can use the full range: Twitter, Facebook, Email or

The range of **SHARING OPTIONS** open to you depends on the number of images you have selected

If you're a member of Twitter or Facebook, simply authorise iOS to post to your account through the Settings app. You'll find the entries for Twitter and Facebook halfway down the lefthand column. ☒



YOUR QUESTIONS ANSWERED

Expert computing advice

We tackle readers' hardware and software conundrums

MISSING WINDOWS FEATURES

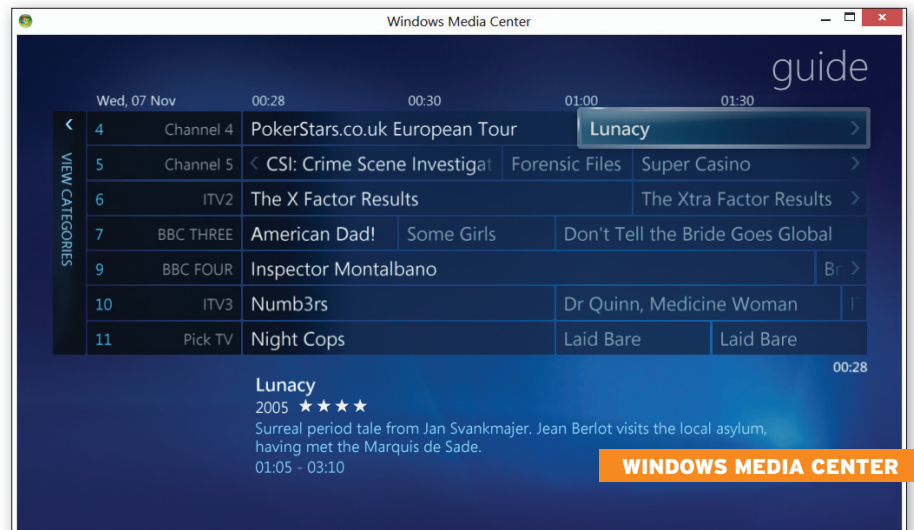
Q I've recently taken the plunge and upgraded from Windows 7 Professional to Windows 8 Pro. It's taking a little getting used to, but on the whole I'm happy with it. Happy, that is, apart from my discovery that several features are no longer available since the upgrade. I was prepared for the Start Menu to disappear, but I was a little more surprised to find Media Center was gone, along with Windows XP Mode and all my desktop gadgets. I used several gadgets and had files and settings saved inside the Windows XP Virtual machine, which I hope have not been deleted. Is there any way to get these features back in Windows 8?

You're right that several features in Windows 7 Professional are no longer present in Windows 8 Pro. Furthermore, the upgrade process gives you no warning that these features will be removed.

Fortunately, most of the features can be reinstated using third-party apps.

Windows Media Center

Windows Media Center has been taken out of the core Windows distribution and made available as a paid-for extra. However, the add-on is free for Windows 8 Pro users until 31 January 2013.



WINDOWS MEDIA CENTER

Head to tinyurl.com/c7ahxfo and enter your email address. Microsoft will send you a product key to enable the feature.

Windows XP Mode

Windows XP Mode is trickier to deal with than Media Center. As you're no longer running Windows 7 Professional, you won't be able to download and install it.

Thankfully, the upgrade process doesn't delete your Windows XP Mode virtual disk. The original XP installation is stored in a .vhd file, which you will usually find in C:\Program Files\Windows XP Mode.

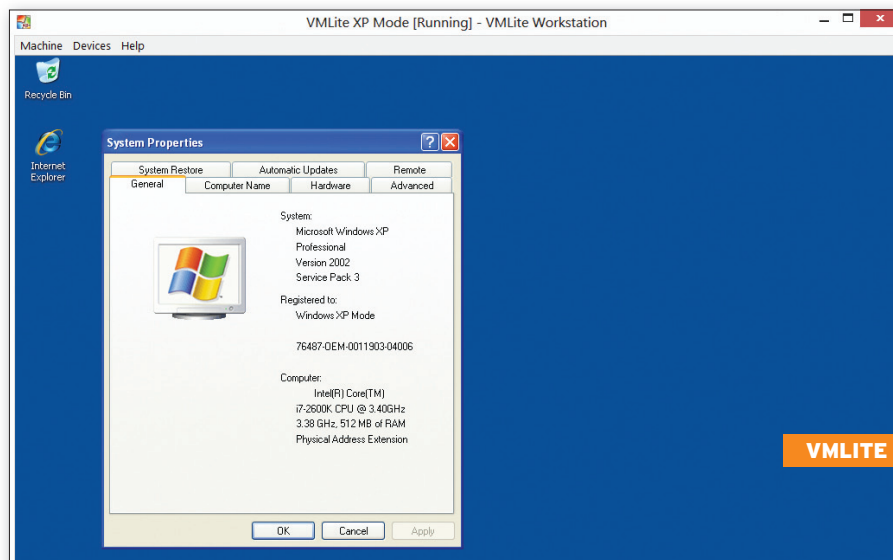
This is a clean installation of Windows XP and doesn't contain any changes you might have made by installing programs or adjusting settings. It's still possible to retain those; find out how at tinyurl.com/cs6cLzc.

VMLite XP Mode

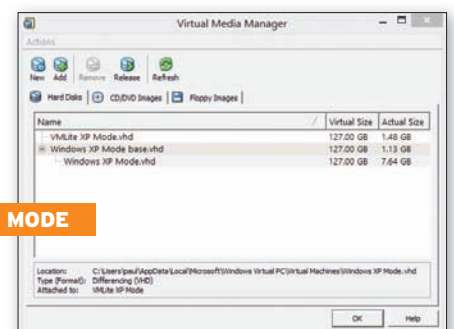
While most virtualisation software runs as well on Windows 8 as it does on Windows 7, you'll need a specific version of the software to handle the activation of the XP Mode installation. VMLite XP Mode, free from vmlite.com, is one such solution.

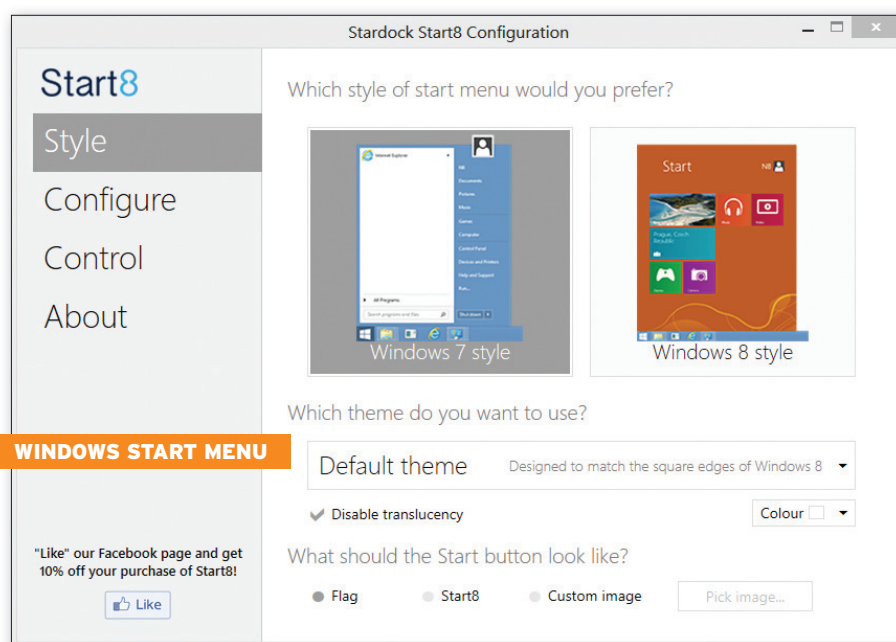
Download and install VMLite XP Mode, then follow the instructions to import your Windows XP Mode installation.

By default, VMLite XP Mode will import the base XP Mode .vhd file. You'll need to manually install the VMLite Guest Additions by choosing 'Install Guest Additions' from the Devices menu. Follow the onscreen instructions and reboot the virtual PC.



VMLITE XP MODE





Windows Start Menu

With the Start Menu officially discontinued, you're forced to instead use the new Modern UI Start screen. You'll probably find you get used to it far more quickly than you would expect. However, if you really want to stick with the old system, or if you want to maintain a consistent interface between a

network of Windows 7 and 8 PCs, you can use a third-party program to reinstate the familiar Start Menu.

One such program is Start8 from Stardock (stardock.com). It costs \$4.99 (around £3), but offers a configurable Start Menu that can be displayed in a traditional Windows 7 format or as a smaller pop-up

version of the Start screen. It also lets you go straight to the desktop on bootup.

There are also free alternatives, such as Classic Shell (classicshell.sourceforge.net) and Power8 (tinyurl.com/bxey559).

Gadgets in Windows 8

If you used any of the desktop gadgets in Windows 7, you will have noticed that they are no longer available in Windows 8. Microsoft has ceased support for gadgets under the new OS.

There's no official way to reinstall your gadgets, but you can get them back by installing a free utility called 8Gadgetpack, available from tinyurl.com/9mhmjdj.

Installing this utility will create a gadget sidebar to which you can add any of the gadgets you had previously installed in Windows 7, without you having to download them again. All user settings should also be preserved. If you don't like the sidebar, you can close it and place the gadgets directly on the desktop.

You should be aware that Microsoft removed support for gadgets as a security precaution, although you'll be no less secure as you were using them under Windows 7. Do some research before installing any gadgets you find online, given that the official repository is now gone.

QUICK TIP: SHUT DOWN WINDOWS 8 FASTER

With the Start Menu missing from Windows 8, the familiar method of shutting down by clicking the Start button and selecting Shut down is also absent. The most obvious, but also somewhat laborious, method is to bring up the Charms, click the power icon and then select Shut down.

If you're looking at the desktop you may find it quicker to click the taskbar and press Alt, F4 to bring up a Shut down menu. However, if this simply isn't quick enough, you can create your own Shut down button by creating a shortcut.

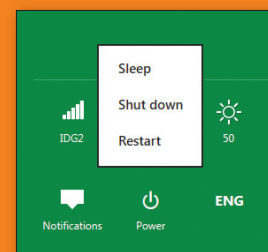
Open File Explorer and pick a folder where you would like to store your shortcut. Right-click in the file pane and select New, Shortcut. In the 'Type the location of the item:' field enter **shutdown /s /t 0**, then click Next. Name this shortcut Shut down and click Finish.

You can right-click your shortcut and select 'Pin to Start' to make it appear on the Start page and/or 'Pin to Taskbar' to make

it appear as a button on your taskbar. Be careful, though, as clicking this shortcut will effect an immediate Shut down, with no chance to back out.

You can create variations on the button by using various options with the Shut down command. These include, among others, /r to restart instead of shutting down, /g to restart with all your current applications reloaded, /h to hibernate the PC and /hybrid to prepare the system for fast startup.

If you like, you can change the icon to something prettier by right-clicking it and selecting Properties, then going to the Shortcut tab and clicking Change icon, ignoring any warning messages that may pop up.

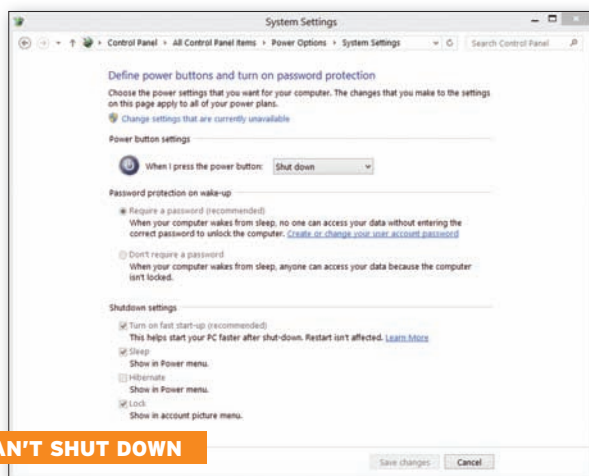


CAN'T SHUT DOWN

Q Since upgrading my PC from Windows 7 Pro to Windows 8 Pro I've been able to shut down properly. I select Shut down, but every time the PC restarts itself. I've resorted to holding down the power switch, but Windows now thinks it's having problems starting up and is attempting to repair the issue. What can I do to fix this?

This problem can occur for a number of reasons. Sometimes it's caused by devices such as over-sensitive USB mice, which are configured to wake the system from sleep when they pick up vibrations. Other times it can be due to faulty device drivers.

Given that the system was working correctly before the upgrade, a likely culprit in your scenario is the new Hybrid Shutdown mode offered by Windows 8. We've seen this happen on a system where hibernation had been previously disabled, causing some



CAN'T SHUT DOWN

confusion when the system was upgraded; the Windows 8 Shut down procedure, which uses a new form of hibernation, failed.

To check your own system, go to the desktop and press Windows, X, then select Power Options. Now click 'Choose what the power button does'.

Look under Shut down settings. Here, you would usually find an option for 'Turn on fast startup (recommended)'. If this option is missing, hibernation is probably disabled.

To enable hibernation, open a command prompt using the Administrator account and type `powercfg /H on`. Now restart the system and return to the Shut down settings



to see whether the fast startup option has appeared. Select this option, then try shutting down the system. You don't need to enable the Hibernate option in the list. With any luck it will now shut down correctly.

Other users have cured shutdown problems by disabling fast startup.

MANAGING SSD SPACE

Q My PC is fitted with a 60GB SSD. The OS is installed on this, and most of my other files are stored on a 1TB hard drive. I love the speed the SSD provides, but no matter how much I try to keep it clear my C drive is almost full. I've used the Windows Disk Cleanup and CCleaner, but I don't want to have to keep manually running these processes.

Running out of storage space is a common problem with smaller-capacity SSDs. Windows loves to save temporary files and all sorts of other information to the Windows system drive by default, so even if you install all your applications on a different drive your boot drive will fill up over time.

One way to get around this problem is to identify the folders that are becoming

full and move them to your secondary drive by creating a junction. A junction functions much like a shortcut, except that all references to the original location are silently directed to your secondary drive, without the application needing to know what's going on.

Indeed, when viewed via File Explorer or from any application, your files and folders will still appear to reside on your SSD.

You'll need to do a little bit of command line work to set this up, but Windows has the required tool built-in.

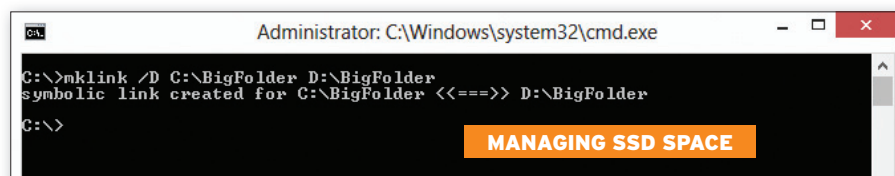
Assuming you have a folder on drive C called 'BigFolder', we can move it to drive D and then create a junction.

First move the folder to D:\BigFolder, but keep an empty folder on C called BigFolder.

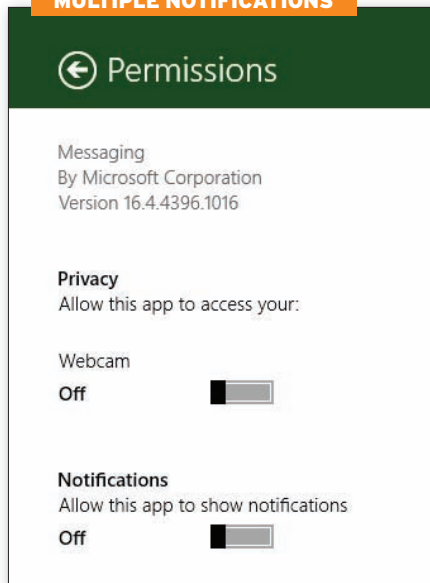
Open a command prompt with Administrator privileges and type `mklink /D C:\BigFolder D:\BigFolder`.

Now if you look inside C:\BigFolder, you will see the contents of D:\BigFolder. Windows and applications can continue to use C:\BigFolder as before, but no space is actually consumed up on drive C.

It's best to keep these links to a minimum and use them only where necessary. Don't attempt to use this trick with any components of Windows itself or you may run into problems, and you should definitely avoid creating infinite loops by linking to folders to other folders within themselves.



MANAGING SSD SPACE

MULTIPLE NOTIFICATIONS**MULTIPLE NOTIFICATIONS**

Q How do I stop the Windows 8 Messaging app from putting notifications on my screen. I want to use the old Windows Messenger client, but I now get duplicate messages in the form of pop-ups from the built-in app.

To stop these pop-ups head to the Start screen and start up the Messaging app by clicking on its tile. Now bring up the Charms and select Settings, then Permissions. Here you can disable the notifications function.

Once you've done this, the app will no longer send you the pop-up messages and you can continue to use the classic Windows Messenger app uninterrupted.

BLACK BORDERS ON MONITOR

Q I've recently bought a 24in monitor for my PC, which I'm using via an HDMI connection. When I plug it in I get a 1920x1080 image on the screen, but it has a large black border around the edges. How can I get rid of this?

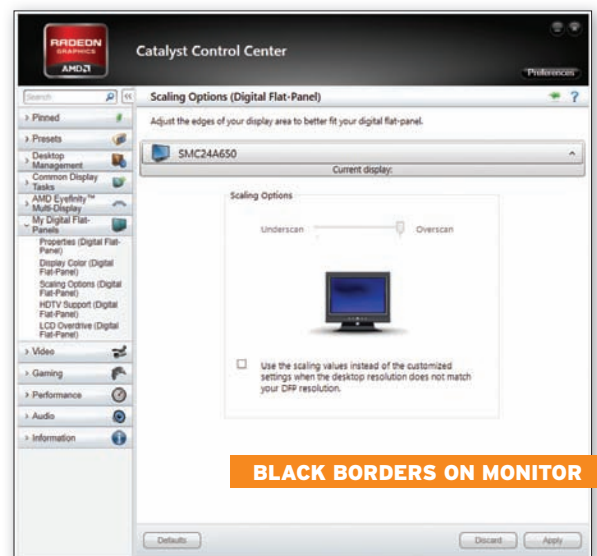
It sounds as though you're using an AMD Radeon graphics card and the picture is being automatically scaled for a TV. To fix the problem, right-click the desktop and select 'Catalyst Control Center'. If this option doesn't appear then you may need to install the latest graphics driver software, which can be downloaded from tinyurl.com/85w9by.

Select 'My Digital Flat-panels' in the Catalyst Control Center, then choose 'Scaling Options (Digital Flat-Panel)'. Move the slider from Underscan to

Overscan to remove the black borders from your screen.

LARGE FILE PROBLEM

Q I'm trying to copy a 4.5GB file on to the memory card in my Google Android smartphone, but it's not working. All other files seem to copy correctly, but this one appears to be too large for the card, even though there's plenty of free storage space. Can you help?



Continues >>

TECH JARGON BUSTER

VIRTUAL PC: In effect a software version of a physical PC, which is able to run its own operating system and applications. Typically, a virtual PC will boot up in its own window and is often used to run a different OS to that installed on the host PC. You could use a virtual PC to try out a version of say, Linux, without having to install it on your main system.

Microsoft's free Virtual PC works in versions of Windows up to and including Windows 7, but has been superseded in Windows 8 by the faster and more robust Hyper-V system. This is incompatible with other virtualisation software.

FAT32: A file system introduced by Microsoft in 1996 and commonly used to store information on lower-capacity disks

and memory cards. Its key advantage is that almost all OSes and devices can read the format, but it's limited in that no single file can exceed 4GB.

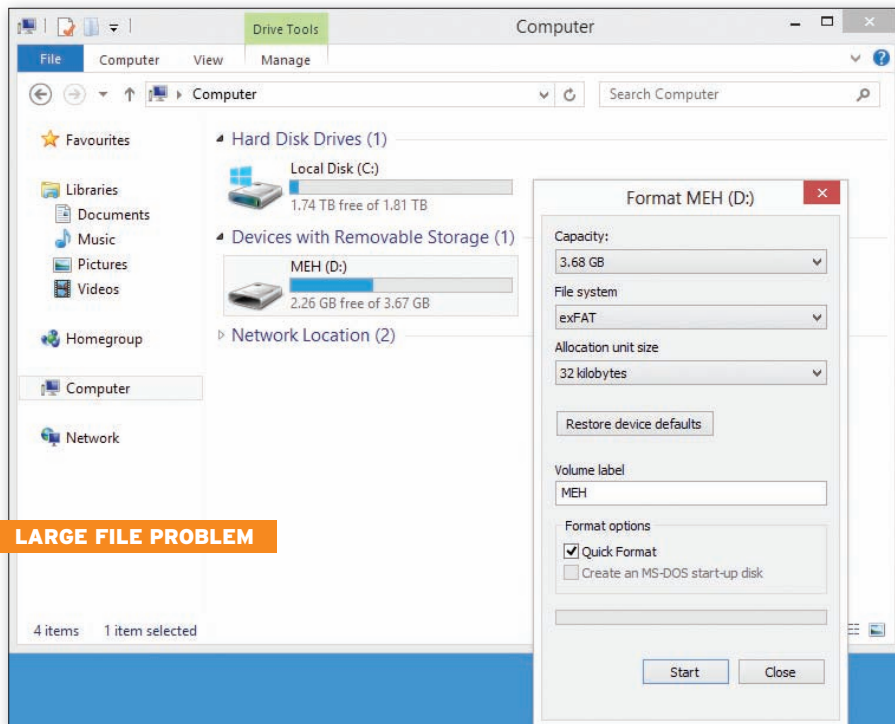
SDHC/SDXC: Secure Digital High Capacity and Secure Digital eXtended Capacity are designations given to larger-capacity SD memory cards and can apply to full-size, mini- and micro-SD variations.

SDHC cards support capacities up to 32GB and are formatted with the FAT32 file system, while SDXC cards can theoretically support up to 2TB - although 128GB versions are the largest currently available. These use the exFAT file system and also enable greater data-transfer speeds. You can manually reformat an SDXC card to use FAT32 if necessary.

It's important to note the distinction between these card formats as not all devices can handle SDHC or SDXC cards. You should therefore check your device compatibility prior to purchase.

Charms: Windows 8 brings with it a raft of new interface features, one of which is the use of Charms. Usually hidden from view, the Charms slide on to the screen when you swipe a finger inwards from the right side of the screen, place your mouse pointer in the top-right corner or press Windows, C on the keyboard.

This column of monochromatic icons consists of a selection of context-sensitive icons, which provide quick access to functions and settings relevant to what you're currently doing on your PC.



LARGE FILE PROBLEM

This problem is caused not by your memory card running out of space, but by a limitation on the maximum size of a file. It's imposed by the FAT32 system typically used when formatting memory cards.

You may find that copying the same large file works when using the phone's internal memory rather than the card, but if you want to use the card for files larger than 4GB it's going to have to use an alternative file system to FAT32.

Microsoft's exFAT system is designed with this in mind, and in theory can cope with any file size up to 144,100,000GB.

The exFAT file system has been adopted by many, but not all, Android phones. If your phone supports exFAT you can format the card to use the system on your PC using a card reader. The phone will then be able to store and read files larger than 4GB.

The Samsung Galaxy S III is an example of a phone that supports the exFAT file system as standard. The exFAT format is also supported by PCs and laptops running Windows XP and Mac OS X 10.6.5 or later, and therefore presents a useful solution for transferring large files between desktop and mobile platforms. ☒

CONTACT US

Email your Helproom questions to helproom@pcadvisor.co.uk. Please use 'Helproom' as the subject header and give your full name, the operating system you're using and other product details. We will let you know by email if your query has been selected for inclusion in these pages. If your query is urgent, you may find it useful to visit our forum at pcadvisor.co.uk/helproom.

Helproom aims to give you the best assistance possible. But, given the

limitations of this type of advice, we can't guarantee what we say will work and we can't accept responsibility for any damage arising as a result.

Always back up your system before you make any changes, including software installations.

Please note that we are unable to respond to letters or telephone requests, but we will endeavour to answer queries submitted by email or via our Helproom forum.

For more PC help go to:
pcadvisor.co.uk/helproom



SEARCH THE PC ADVISOR FREE ONLINE HELPROOM



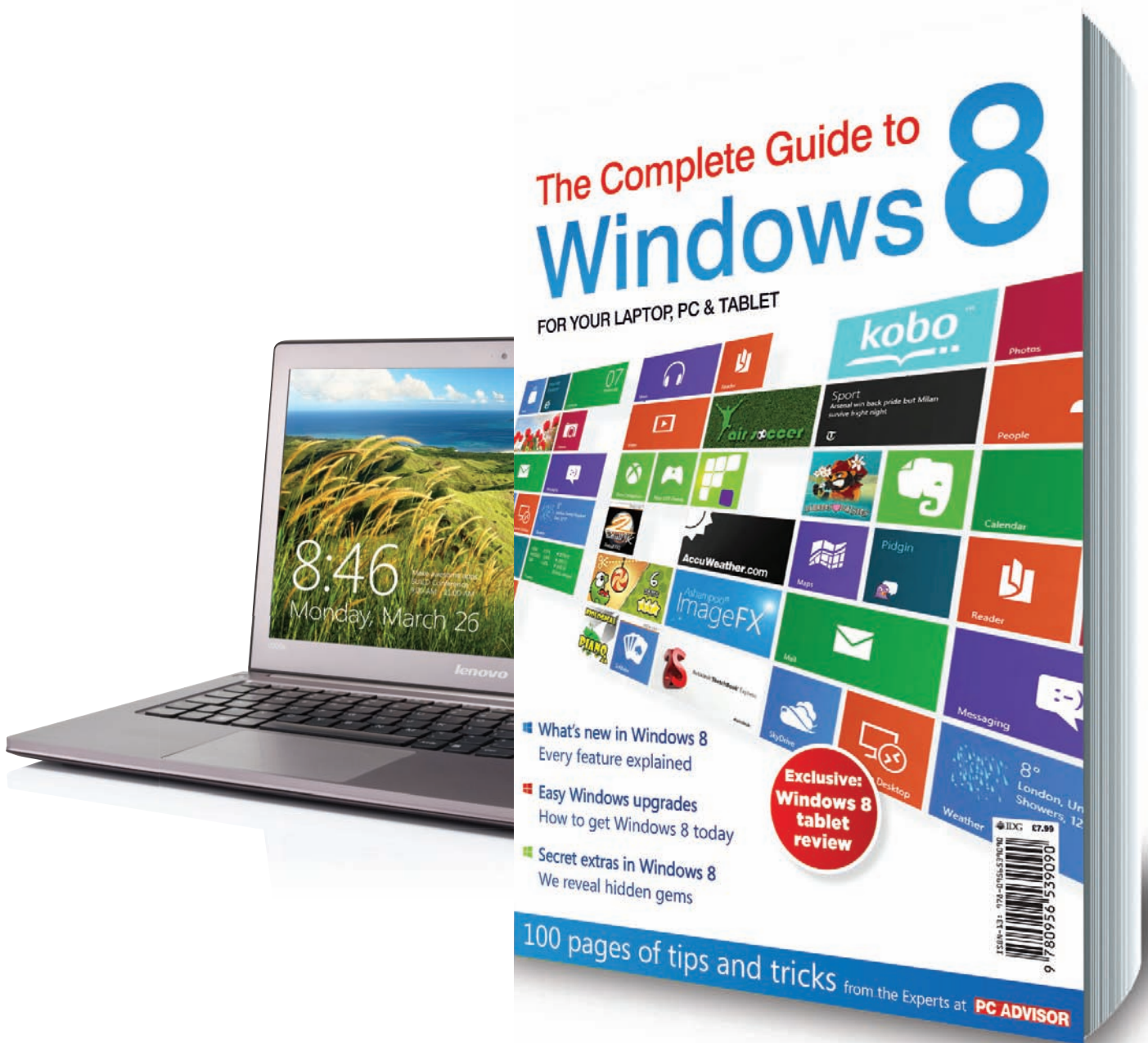
The PC Advisor online Helproom contains an indispensable database of answers to common questions regarding all aspects of PC problems. This ranges from general Windows issues to problems with specific apps, and covers all types of PC hardware and software, including system components and peripherals.

Alternatively, you can ask for help from the experts on our online forums. Sign up to be a registered user - which is free - and then browse to one of the discussion forums. In the Helproom your first stop should be the searchable database of frequently asked and previously answered queries. With more than 1.5 million forum posts, you'll almost certainly find your answer in this archive of queries - just enter a few keywords.

If our online database can't solve your problem, try posting a question in the Helproom forum, where more than 200 queries are answered every day. The forum is manned by our team of Helproom Angels, who are ready and willing to lend a hand with anything from system crashes to virus alerts.

helproom@pcadvisor.co.uk
pcadvisor.co.uk/helproom

ALL YOU NEED TO KNOW ABOUT WINDOWS 8



Available from WHSmith stores

Also available in digital format via Zinio 

The perfect partner for Microsoft's hotly awaited operating system

Ultra-quiet upgrades



If your PC sounds more like an aircraft taking off than a piece of precision technology, join Martyn Casserly's quest for aural tranquility



PCs require maintenance to keep them performing at an optimum level. Over time, parts wear out, screws work their way loose, and dust accumulates inside the case. A noticeable side effect is increased noise. When new, your PC may have been a monument to mechanical efficiency and whisper-quiet operation; a few short years later, it likely sounds more like a diesel generator.

So, what can be done to quieten the constant racket emanating from below the desk? Wrapping the case in a blanket or surrounding it with cushions might dampen the noise, but a PC requires good airflow to avoid cooking the internal components.

Moving the unit into a cupboard will garner the same results – and it's impractical. Thankfully, there are easier and less destructive ways of minimising sonic emissions.

One thing to check before you begin is whether the PC's Bios settings allow you to control the fan speed. Look in the Bios (usually accessible by pressing F1 or

Del during bootup) for an H/W Monitor section. If there's an option here along the lines of 'CPU Smart Fan Target', you'll be able to specify the maximum temperature that the CPU is allowed to reach. We recommend you select a temperature below 60°C. Save and reboot.

A wealth of quiet fans, power supplies, CPU coolers, cases and soundproofing kits are available online from sites such as quietpc.com. These will be the perfect aid in your quest for aural tranquility.

Quiet upgrades are easy to administer, but can make a big difference to the operation of your computer. If one of your fans is particularly boisterous, you can replace it with a super-quiet alternative. And if the power supply is whining like a dentist's drill, perhaps it's time to plump for a quiet-fanned model.

In the following guide, we show you what types of quiet kit are available. We also explain how you can make a few small, low-cost tweaks that will go a long way in silencing a noisy PC.

CHOOSE QUIET KIT

The first thing to determine when tackling a noisy PC is which parts are responsible for the racket. A few simple tests will enable you to identify the troublesome component(s). A basic rule, though, is that any component with moving parts is a likely suspect.

Fans

In many cases it's the PC's fan(s) at the heart of the problem. To find out which fan is responsible for the noise, power off the machine, open the case, then hold a pencil or other thin, non-metal item between a fan's spokes to prevent it spinning. Now power on the machine and see whether stopping the fan has an effect on the level of noise. If it's still just as loud, try the same trick with each of the other fans fitted inside the case in a process of elimination. Remember that CPU coolers, graphics cards and power supplies usually have their own fans, too.



Bigger fans spinning slower than their smaller siblings can move the same volume of air, so buying a larger fan can reduce noise. To make things quieter still, the 120mm AcoustiFan DustProof (£17, tinyurl.com/d3hz8ku) has a sealed motor to prevent dust clogging up the mechanics and reduce noise.

If you're a gamer, you'll need a high-performance fan such as the 120mm Scythe Gentle Typhoon (£17, tinyurl.com/cvogLt8). It won't be completely silent, but Scythe has implemented various vibration-reduction techniques to lessen the fan's audible impact. Be sure to measure the size of your existing fans before making a purchase; typically they'll be either 80mm, 92mm or 120mm.

Apple recently announced a new asymmetric fan design for the MacBook Pro. Here, the frequency range is increased by breaking up the regularity of the fan blades. In theory, this should replace a constant hum with a dissipated sound.

Fans can be almost entirely avoided if you go down the water-cooling route. This gets expensive very quickly, mind. You can read our walkthrough on liquid-cooling your CPU at tinyurl.com/c4zej82.

Another option is to buy an oversized 'passive' heatsink for your processor, and a graphics card with a similar passive cooler. However, you'll still need one or two fans fitted inside the case to keep air moving over these heatsinks.

Optical drives

Discs spinning at speed can spoil your enjoyment of a movie. Speed-limiting software, such as CD-Bremse (tinyurl.com/cvc5wop) and Nero CD-DVD Speed (tinyurl.com/2wxrpzp) can aid older



Tech Help



models, while newer optical drives such as the LG BH10LS38 (£74, tinyurl.com/aL6ty64) have onboard software that automatically adjusts the spin speed in relation to the task at hand.

Cases

Although cases have no moving parts, cheaply made models can rattle in use. With the vibrations created by spinning drives and fans already driving you to distraction, the last thing you need is the system case adding its creaks to the chorus. A badly ventilated case can also cause the internal temperature to rise, thus requiring the dreaded fans to spin up to maximum speed.

Noise-reducing cases tend to employ higher-quality components in their construction, with sound-deadening material and softer feet on the bottom to reduce the transference of vibrations to the ground.

A good example of a reasonably priced quiet case is the Nexus Thrio 310 (£40, tinyurl.com/cqbc5nk). The interior is lined with noise-absorbing material, various bumpers stop rattles, and you can even mount the power supply unit upside down to expel the hot air it generates straight out the case.

For those with bigger budgets, the NoFan CS-70 system case (£179, tinyurl.com/bece2m2) is designed to eschew fans and promote natural convection cooling. The only snag is that it will accept only MicroATX motherboards. The less attractive CS-80 (£89, tinyurl.com/brqkL4x) will take a full-size ATX board.

Hard drives

Hard drives are slowly being replaced by their silent brethren, solid-state drives (SSDs). It's still early days for this technology, so SSD prices remain comparatively high, but increasingly we're seeing PCs that install the OS on a small SSD (such as the Crucial 64GB m4, £60, tinyurl.com/cnktnao) and then use the cheaper hard disk for mass storage. This gives you a nice performance hike, minimises the use of noisy hard disks, and the drives run cooler, so there's less demand for fans to spin into action. SSDs also enable Windows to feel far more responsive, with faster startup and shutdown times.



CPU coolers

When choosing a new processor cooler, be aware that some require access to the underside of the motherboard, and their fitting is a far more involved job than it is with those that attach to the top. Also be sure to select a model that matches your processor's socket type; Quiet PC marks all the products it sells with the relevant socket type, and offers a helpful guide to choosing a CPU cooler at tinyurl.com/autbun8.

Models range from the cheap and cheerful Siberian Quiet (£7, tinyurl.com/aup8wco), which is designed for small-chassis machines, to the NoFan CR-95C IcePipe (£94, tinyurl.com/bdw6pk2), which is completely fanless and suited to Intel third-generation Core processors (aka Ivy Bridge).



Graphics cards

Graphics cards do some serious work and therefore need plenty of cooling. In other words, they can make a right old din. Manufacturers such as HIS and Gigabyte offer specially designed quiet models. An example is the Gigabyte nVidia GeForce GTX 660 Ti Windforce (£252, tinyurl.com/c4p2st9).

If you don't want to change your graphics card, instead consider adding a quieter fan. The Arctic Cooling Accelero Extreme GTX Pro (£33, tinyurl.com/bL8sne4) is a quiet cooler for nVidia GTX graphics cards, while the Gelid Solutions Icy Vision Rev 2 (£32, tinyurl.com/boxcr7s) works well with a range of AMD and nVidia cards.



PSUs

Don't even contemplate opening up your PSU to replace its fan. You'll need to exchange the entire unit for a silent version, of which several options are available.

If your computing demands aren't particularly intensive, but your need for silence is utmost, opt for something like the NoFan P400-A (£145, tinyurl.com/aoyN3oo). Gamers should look to models such as the AeroCool Strike-X (£49, tinyurl.com/azgm7Lf), which offers 600W of power and has a quiet 139mm fan and a striking design. Those who just want a simple, affordable PSU for everyday use would appreciate the Zalman GS-500w (£40, tinyurl.com/cs6ywcZ), which is a fine budget model.

Fan controllers

If your Bios doesn't allow you to tweak the fan speed, another manipulation method is offered by a fan controller. These devices allow you to monitor and adjust the RPM of each connected fan, and let you keep an eye on the internal temperature of your machine.

The Scythe Kaze-Master (£29, tinyurl.com/atfdoqo) fits in an optical drive bay and offers control over up to four fans. It also notes the spin speeds and internal temperatures on a built-in LCD. We explain how to fit a fan controller on page 113.

If you don't want to go down the hardware route, a solid software solution is the free SpeedFan (almico.com). As well as allowing you to control your PC's fan speeds, SpeedFan can also cleverly read the temperature sensors that are built into the motherboard/processor. ☒

Continues >>

SILENCE YOUR PC FOR LESS THAN £70

Our trusty old office machine can be rather voluminous at times, so it was the perfect candidate for our attempts to silence a PC for less than £70. The noise it generates is typical of a three-year-old PC, so the upgrades we explain here will apply to many a system.

We selected four items from quietpc.com to help us in our quest to silence the machine. First up is dual-layer soundproofing material, which will be attached to the inside surface of the case's side panels to effectively insulate any rattling and absorb the various noises emitted by the internal components.

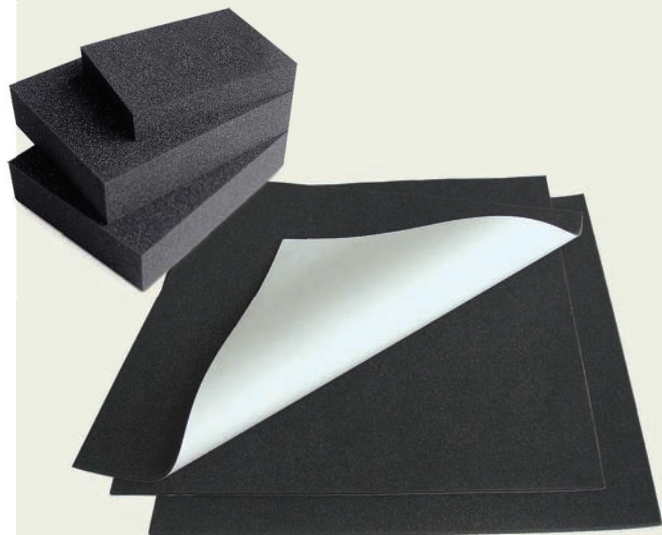
The old rickety fans will be replaced by a pair of Dustproof AcoustiFans. Thanks to their sealed motors, dirt and dust will be unable to clog things up, making them both durable and quiet.

Vibrations on the inside of the case will be dampened by AcoustiFoam blocks, which fit into empty drive bays and help to alleviate the sonic emissions that spinning optical and storage drives add to the overall tone of a PC.

Finally, we'll fit a set of anti-vibration feet. These simple additions are made of a softer compound than most standard case feet and are designed to reduce the amount of vibration transferred to the floor. This might not be an issue if you have soft carpets, but those with homes and offices sporting wooden floors will welcome the reduction in noise they offer.

Step 1. Before fitting the soundproofing sheets, measure the size of the panel you want to insulate. You may need to cut them to size, and should be careful not to cover any ventilation holes. Next, simply remove the backing paper and gently press the material into place. If you make a mistake, immediately remove the sheet and try again.

Step 2. The foam blocks are very easy to fit. The pack includes a single 3.5in- and two 5.25in blocks, which will slide into empty optical and storage drive bays. Simply open the case, decide which drive bays you want to fill, then gently push the foam



bricks into the relevant gaps. Be careful not to snag the material on any sharp edges inside the case.

Step 3. Unscrew your existing fans.

Using the provided soft mounts, affix the replacement fans. You can either plug each fan into the normal three-pin socket on the motherboard to run at full speed, or use the provided cable to plug them into four-pin Molex connectors from the power supply. You can then choose one of three speed settings via the coloured leads: Full (black), Medium (blue) or Low (white).



Step 4. To attach the feet to the bottom of the case, simply unscrew or peel off the originals. Clean the surface and dry it with kitchen towel to ensure the adhesive will have something to hold on to. Take the four new feet, remove the backing paper, and press them firmly into place. Hold for a few seconds and you're done.

Having reassembled our machine, there is a noticeable difference in the amount of noise it creates. It isn't silent, of course. If it's still causing too much racket, a further reduction in noise can be achieved by replacing the power supply and/or CPU cooler.

The problem with starting a project such as this is that it becomes rather addictive; already, we're eyeing up one of those fancy cases and a new CPU cooler. We wonder whether the budget would stretch to a water-based system... ☒



FIT A FAN-SPEED CONTROLLER



If you like to manually control your computer's fan speeds, a fan controller is a simple and effective addition. You simply attach the fans to the controller, bypassing the motherboard, and can then adjust their RPM via control dials on the outside of your machine.

Some controllers also have temperature gauges that can be positioned in discrete locations around the inside of your system case (on the hard disk or the outside base of the processor cooler, for example). These report the current temperature in critical areas of your system.

Fan controllers such as the Scythe Kaze-Master controller, which we explain how to fit here, can control up to four fans.

Step 1. Connect the power cable to the four-pin socket on the back of the controller marked 'Power1', but don't plug it into the PSU connectors just yet. Also fit any of the included fan adaptor leads into the four sockets marked 'Fan1', 'Fan2' and so on. They're a little tight, so be careful not to damage anything.

Step 2. Fit the leads for the temperature gauges. They're numbered in relation to the fans. You'll want to place the gauges close to their relevant fans to accurately monitor and control the internal temperature. They can be positioned either way up and secured using the provided yellow stickers.

Step 3. Now slide the control panel into an empty 5.25in drive bay and secure it with the provided screws. Attach the other ends of the fan adaptor leads and power supply. Now reassemble the side panels of the case, turn on the power and watch for the LED display on the controller to come to life.

Step 4. Above each dial on the panel you'll see the fan's RPM and the temperature. To adjust the RPM simply turn the relevant dial and the fan will speed up or slow down, either of which affects the temperature. As a general rule, we recommend running machines below 50°C to help preserve the components. ☐

Managing your files in Windows 8



If you've recently upgraded to Windows 8, you'll have noticed more than a few changes. Sandra Vogel explains how to browse the new File Explorer



Although Windows 8 has a new user interface, you'll typically find that you use the traditional desktop for a good proportion of the time. As well as removing the familiar Start menu, Microsoft has overhauled File Explorer (previously better known as Windows Explorer), and added new features.

File Explorer is where you can access and manipulate all the content stored on your computer. You can copy, move, rename and delete files.

With each iteration of Windows, File Explorer has become more sophisticated. Previous refinements allow you to preview files and create Libraries, for example.

In Windows 8, Microsoft has added to File Explorer greater functionality. It's built in its Ribbon toolbar, with which users of Office 2007 or later will be familiar.

The Ribbon is very much like Marmite; you either like it or hate it. Some people say it occupies too much screen space; others enjoy the quick access to lots of features

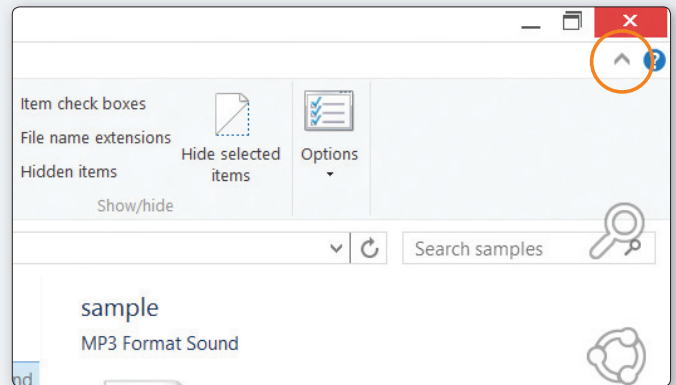
that it offers. The good news for those in the former camp is that you can hide File Explorer's Ribbon toolbar. But for those who are willing to give it a try, manipulating files and folders should become a lot easier.

If you don't have any plans to upgrade your OS just yet, but like the look of the new File Explorer, you can add to Windows 7 many of its features using a free utility called Better Explorer (better-explorer.com). This software even adds a few extra features, such as tabs, allowing you to have open a number of File Explorer windows and easily switch between them.

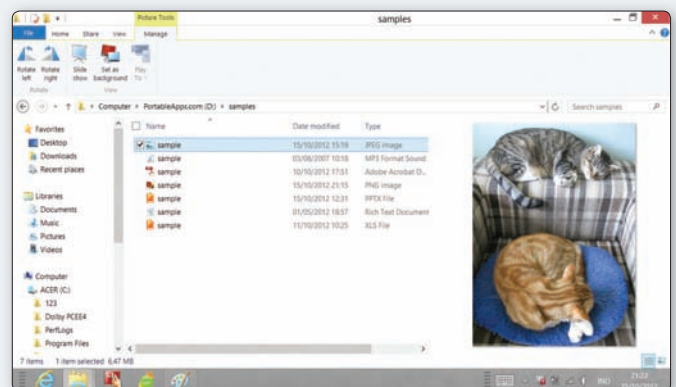
In the following tutorial, we'll guide you through using Microsoft's revised File Explorer, and show you how to manage your files with the new Ribbon toolbar.

For more help in getting to grips with the radically new operating system, check out our Windows 8 Advisor at tinyurl.com/9h79xxr, and help forum at tinyurl.com/cognj4o.

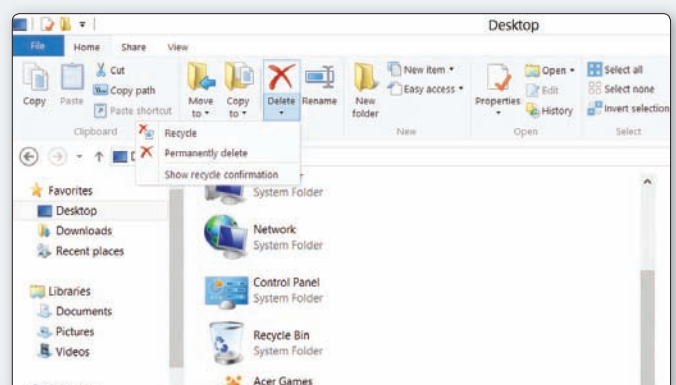
GET TO GRIPS WITH FILE EXPLORER



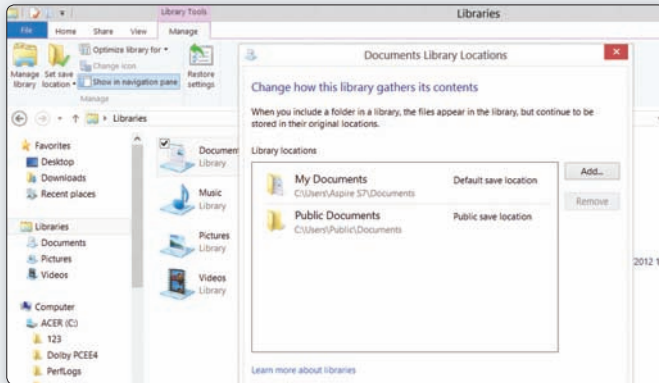
START The Ribbon toolbar won't be to all tastes, but you don't have to have it on display all the time. Simply click the small arrow at the far right of the menu bar to maximise screen space by hiding the Ribbon when it isn't required.



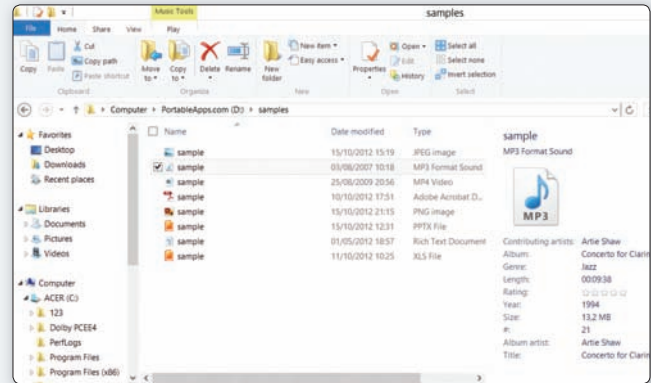
4 Selecting an image file brings up more content-specific functions in File Explorer. Rotation comes into play when viewing an image in the Preview Pane; you can also set a photo as the wallpaper or view multiple images in a slideshow.



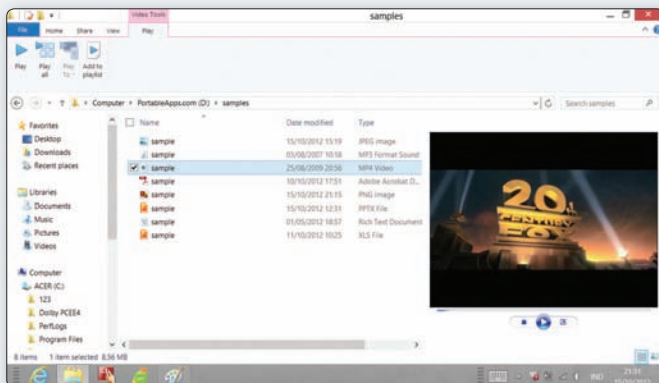
7 Folders are easily managed from the Ribbon's Home tab. Copy, Move and Rename options are here, and you can create new folders, too. The Delete option lets you decide whether to permanently delete items or send them to the Recycle Bin.



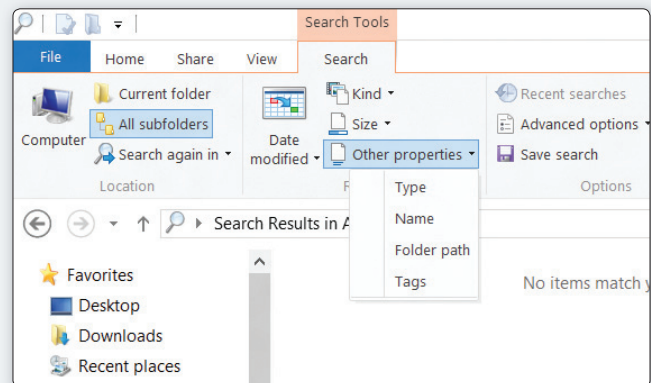
2 The Ribbon toolbar makes Libraries a bit easier to manage in Windows 8 than Windows 7. You can easily add folders to a Library. The folders and their contents themselves don't move - a Library is a virtual grouping of files scattered in various folders.



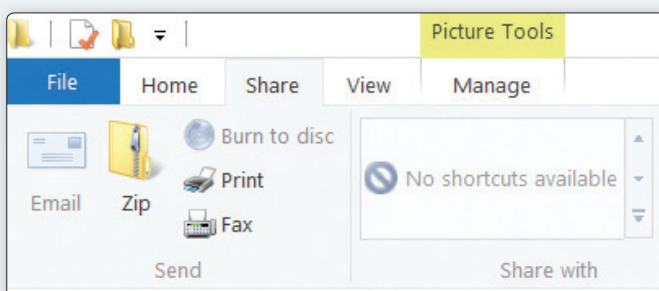
3 Functions dedicated to music can be found in File Explorer. You can play single tunes or every track in an album, and even manage playlists. Note how the music options are available only when a music file is selected.



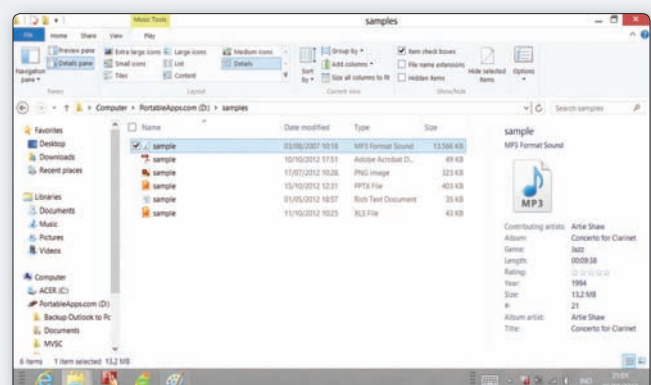
5 Video files also get their own controls in File Explorer. As with audio, you can play a single video or all clips in a folder, and add videos to a playlist. Note that Windows Media Player controls are found in the Preview Pane.




6 Sophisticated searching is possible, thanks to the comprehensive set of options available on the Ribbon. These become available as soon as you begin typing into the Search box. You can filter files by type, date and size, for example.



8 Some useful file-sharing options are also available in the revamped File Explorer. Icons on the Ribbon let you email, print or fax files, as well as burn them to disc or wirelessly share them with selected people or groups.

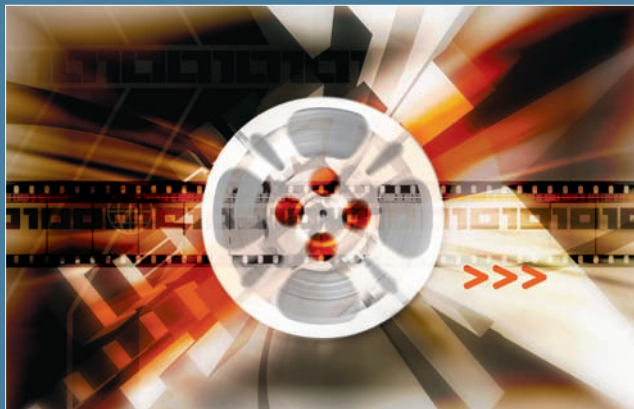


9 The Preview Pane has been joined on the View tab by the Details Pane to provide file information. What you get varies depending on the file format; videos display the framerate, bitrate, frame size, video length and more, for example. 

Record onscreen action in Windows



Recording footage of your onscreen activity can be a useful troubleshooting aid. Mike Bedford explains how to get started using free CamStudio



Capturing the contents of a PC's screen, using either Windows' built-in facility or a dedicated utility such as SnagIt, is a useful technique. Indeed, all the screengrabs you see in *PC Advisor* were created this way.

Screengrabs have many uses. If you teach IT, for example, you'll find them invaluable in the creation of course notes and presentations that explain how to use particular applications. Or, if you're on the other side of the educational divide, they could come in handy for illustrating your coursework.

If your friends and family frequently request your advice on PC troubleshooting, a screengrab could help you answer their queries.

Conversely, if your latest software purchase refuses to behave itself, and you're fed up with explaining to support staff what's happened, you can send them visual proof that the software is faulty.

Sometimes a single still image of the screen isn't enough. Rather than send a series of screengrabs, a single video clip that plays back your

onscreen actions can be a better solution.

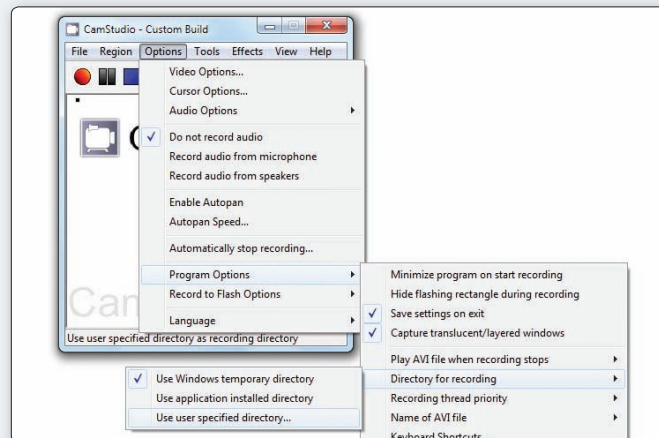
Screen recordings, also known as screencasts, can include an audio commentary and captions that help to explain the behaviour to which you're hoping to draw attention. The end result can be sent via email to tech support or a willing tech-savvy friend, or the video can be hosted on your website.

Screencasting might sound as though it's a more complicated and potentially more expensive solution than capturing screengrabs, but it needn't be. While many of the more fully functional screengrab utilities are paid-for products, such as Camtasia Studio, the package we've chosen for recording your onscreen action is free.

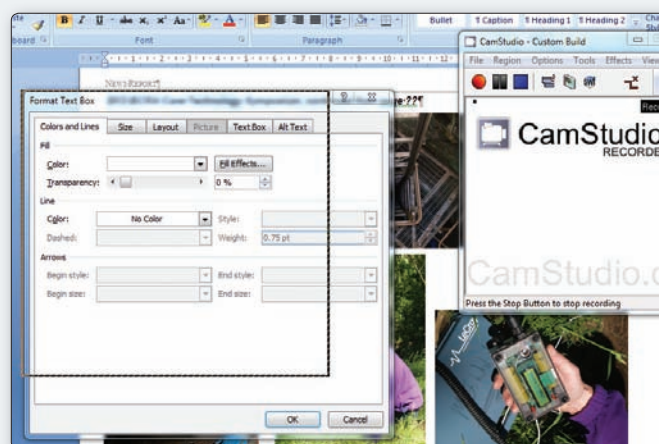
We'll use CamStudio in the following walkthrough, which you can download from camstudio.org. With our help, you should find screencasting quickly becomes second nature.

CamStudio will list any video codecs installed on your PC, but we recommend installing Xvid if you don't already have it (xvid.org).

CAPTURE WHAT'S HAPPENING ONSCREEN WITH CAMSTUDIO



START Specify a folder for your recordings in Options, Program Options, 'Directory for Recording'. Click the red Record button, then minimise the app and carry out the task you wish to video. Now maximise CamStudio and click the blue Stop button.

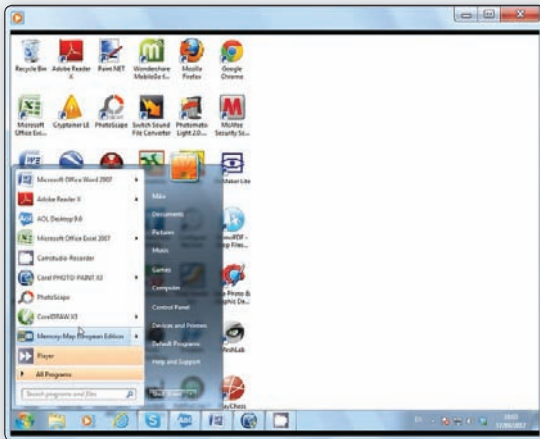


4 If you want to record only part of the screen select Region, Region and start recording. Click and drag to select an area, then update the numbers to ensure they are even. Green/yellow 'corners' reveal which part of the screen is being recorded.

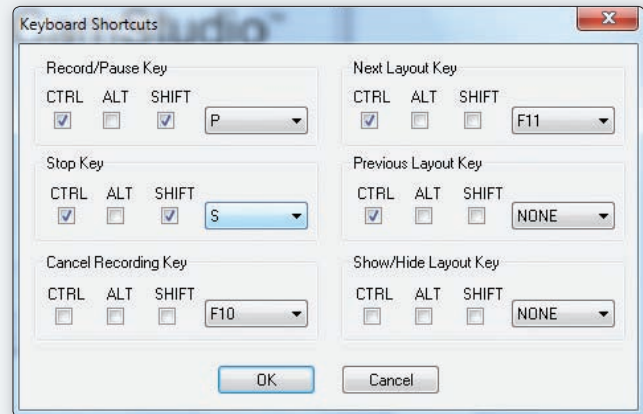
USING SHAPES AS CAPTIONS

Captions form an important part of screencasts, but CamStudio can be rather unhelpful on your first attempt to add one. Despite it having a built-in library of shapes that you can use as text boxes, CamStudio doesn't know where to find it until you tell it where to look. So, the first time you attempt to add a caption, CamStudio won't offer you any shapes.

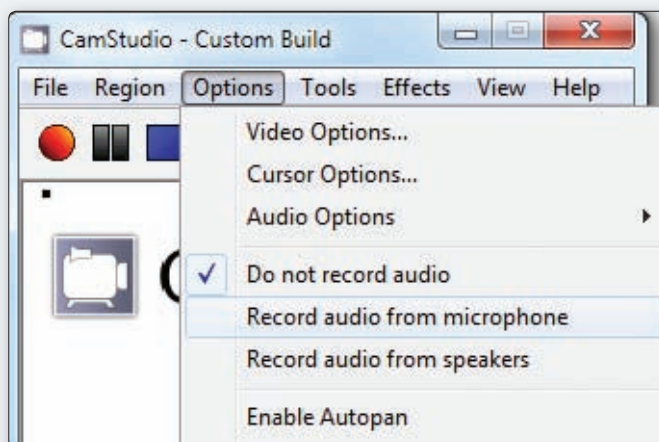
To tell CamStudio where to find the shapes library, select Screen Annotations from the Tools menu and open the Shapes tab. For now, this folder will be empty. Next, select 'Open Shape Library' from the Screen Annotations, Library menu. In the Load Shapes



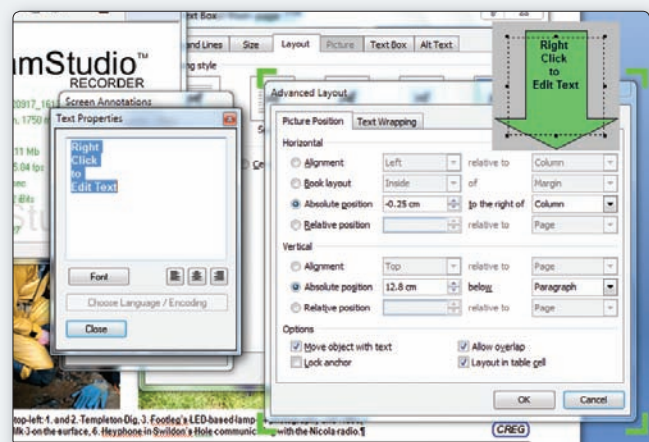
2 Windows Media Player will immediately play the recording. You'll notice that the recording includes the CamStudio window at the start and end of the recording; since this part of the video isn't needed, we'll deal with how to avoid this in the next step.



3 First, select Options, Program Options, 'Minimize program on start recording'. Next, select Options, Program Options, Keyboard Shortcuts and define keys for Stop and Record/Pause. You can now end recording without pressing the Stop button.



5 To also record audio select Options, 'Record audio from speakers'. To add audio after the video was captured select Options, 'Record audio from microphone'. If this doesn't work, ensure your mic is selected as the Audio Capture Device in Audio Options.



6 Pause recording to maximise the app and add a caption. Select Tools, Screen Annotations, then select and drag into position a shape on the Shapes tab. Right-click the box and select 'Edit Text' to enter a caption, then continue recording. ☒

dialog box, browse to the shapes library and click Open. If you're using the most recent version of CamStudio in Windows 7, you'll find it at C:\Program Files (x86)\CamStudio 2.6b.

Now, when you try to add a shape, as we did in Step 6 above, you'll be presented with a list of available shapes. Although you can't preview how each looks, the filenames are suitably descriptive, for example 'Plain' and 'Point Right'. However, if you do end up selecting a shape for a text box that you don't like, it's easy to delete it and select another. To delete a shape, right-click it and select Close from the drop-down menu that appears.



Run software in a protective sandbox



Protect your Windows installation from dubious software. Roland Waddilove shows you how to test downloads in a protective sandbox



If you never used the internet there would be little need for security software – but life without the web would be unthinkable. The internet can be extremely useful for a wide range of activities, from social networking with friends to collaborating on work projects with colleagues.

Viruses, Trojans, spyware and other malware can find their way on to your PC through various mechanisms. They can be automatically downloaded when you visit a dodgy site, or you might be tricked into running them via an email attachment or on the back of a legitimate program.

It's important to install and keep up to date both an antivirus and an anti-spyware program, but these alone are not infallible. You can boost your PC's defences with a sandbox. In the same way that children might play in a physical sandbox out of harm's way, you can set up a virtual sandbox as a safe place in which to browse the web and run software.

You might think you know what's safe and what's not,

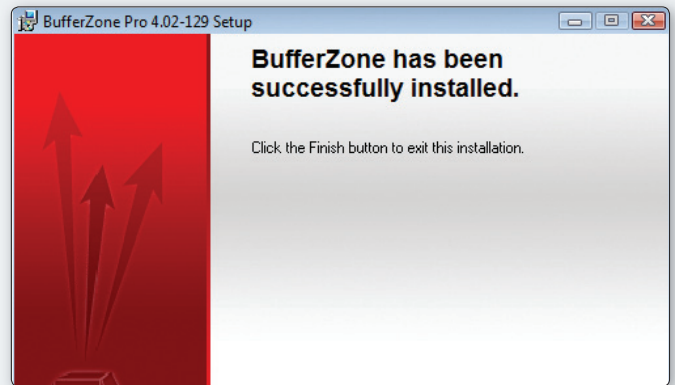
but it's easy to get caught out. And if less tech-savvy members of the family are also using the PC, a sandbox can be a useful safeguard.

Any software running within a sandbox is unable to access your Windows installation. It won't be able to change settings, mess with files, attack your web browser or play out any other of its malicious intentions.

A sandbox makes the web a much safer place, whether you're using it to conduct web chats, for online banking or, as we outline here, testing software. Having tested your download in the sandbox, you'll know whether it's safe to install it on your hard drive. You can also open email attachments in safety.

Several free sandbox utilities are available, such as BufferZone Pro and Sandboxie. In the following tutorial we'll show you how to use BufferZone Pro. You can download and run software, open email attachments, browse the web, chat and more in a safe zone. You can even access USB devices.

SET UP A SANDBOX



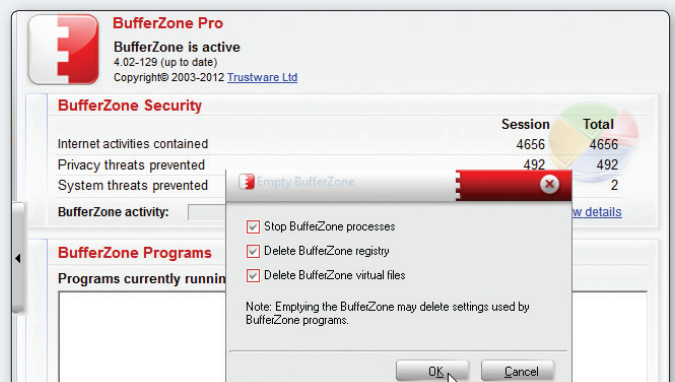
START

Head to trustware.com and download BufferZone Pro. Open your PC's Downloads folder and double-click BufferZoneProFree.msi to install the software. Click through the pop-ups, then restart Windows.



4

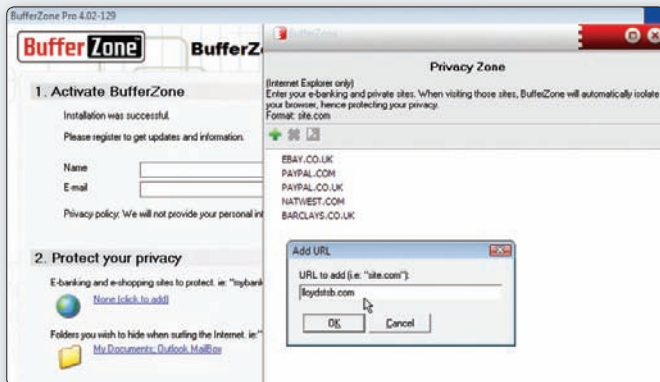
Click Finish and BufferZone will open a web browser. You can now browse the web and download software. We downloaded Notepad++ 6.2, but any site or software will do. Open the Downloads folder and notice that the setup file has a .virtual file extension.



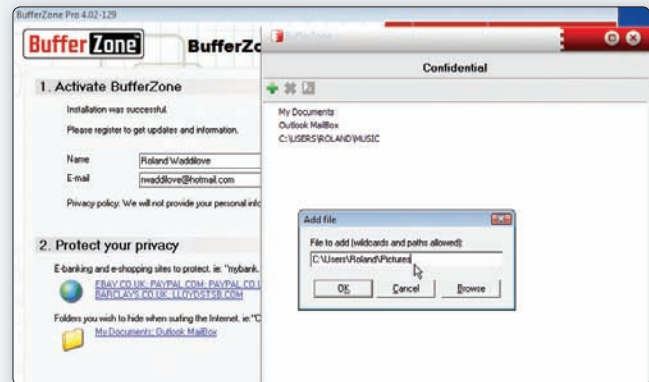
7

If you decide not to keep the program you installed, right-click the BufferZone icon and select Open. Click Empty BufferZone at the bottom and tick all the options. This clears every file and every change the program has made.

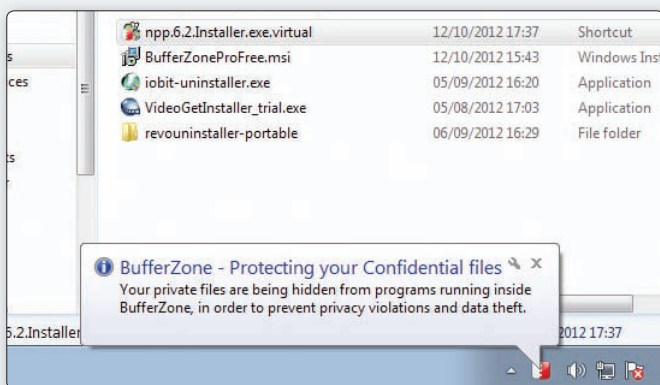
Tech Help



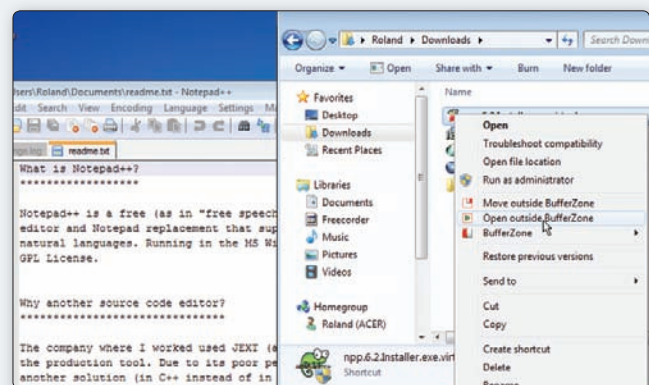
2 BufferZone Pro starts up with Windows; enter your name and email to activate it. To configure certain sites to always run in the sandbox, click 'None (click to add)' under 'Protect your privacy'. Click the + button and enter the URLs of shopping and banking sites.



3 It's also possible to hide folders on your PC while you're browsing the web. BufferZone hides My Documents and the Outlook Mailbox by default; to add more, click the + button and type in the path to the folder you wish to hide.



5 Double-click the setup file to install your program. It will look like any other software installation, but notice the BufferZone messages in the bottom-right corner. BufferZone is protecting the computer during the installation.



6 Although the program appears to be installed and running, it is locked inside BufferZone and can't access Windows or your local hard drive. To install the program on your hard drive, right-click the setup file and choose 'Open outside BufferZone'.



8 Sliders let you adjust BufferZone's leniency when it comes to battening down the PC's hatches. Select the Policy tab on the left side of the window, then choose something between Maximum and No protection for such things as external devices.

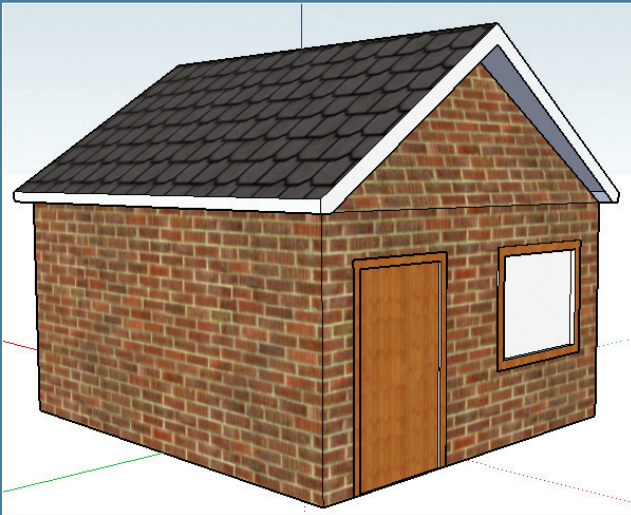


9 Select the Configuration tab, then choose the Settings tab. Here you can password-protect BufferZone, perhaps to prevent a child from changing anything. On the Misc tab, you can schedule automatic clearing of downloaded files.

Draw 3D models with SketchUp



SketchUp is one of the most popular 3D-modelling tools, and useful if you want to see, for example, how a loft conversion will look. Jim Martin explains all



Until recently SketchUp was a Google product; it's now part of Trimble. Google's ownership, plus a free-to-use version of the application, has made it popular with millions of people. Fortunately, there's still a free version.

Although it's very powerful, SketchUp is easy to use. You can use it for creating 3D models of houses, furniture or just about anything - even 2D floorplans.

We can only scratch the surface of SketchUp's capabilities here but, armed with the basic knowledge of how to use the main tools, you'll be able to quickly draw to scale real-world objects.

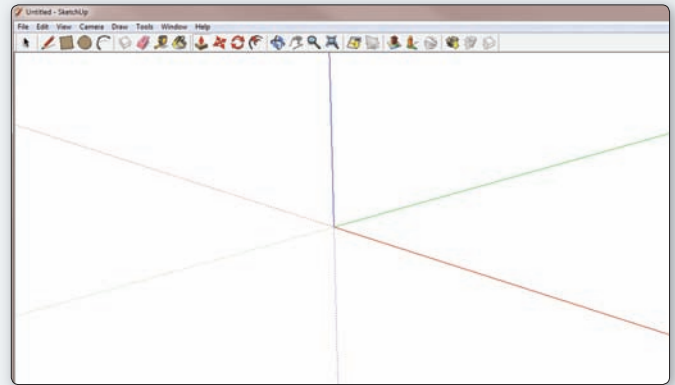
Although you can use SketchUp on a laptop (the system requirements aren't demanding), you really need a proper mouse with a clickable scrollwheel to be efficient, particularly for moving around your models. Otherwise, you'll be forever clicking on the zoom, pan and orbit tools to move and resize the model onscreen.

One of the key things to learn about SketchUp is that you'll use the keyboard to draw a line or rectangle to a certain length or size. When you begin drawing a line in a certain direction, simply type its length, for example '0.62m', and press Enter. Alternatively, you can type '0.62' if you've picked a template with units set to metres. You can also type '62cm' or '620mm' to achieve a line of the same length.

If you follow our tutorial here, you'll end up with a basic model of a house. You can add textures using the Paint Bucket tool, then choose from the selection of materials, such as bricks or roofing. If you plan to use textures, make sure you draw your model to actual size or the bricks, for example, will appear too large or too small.

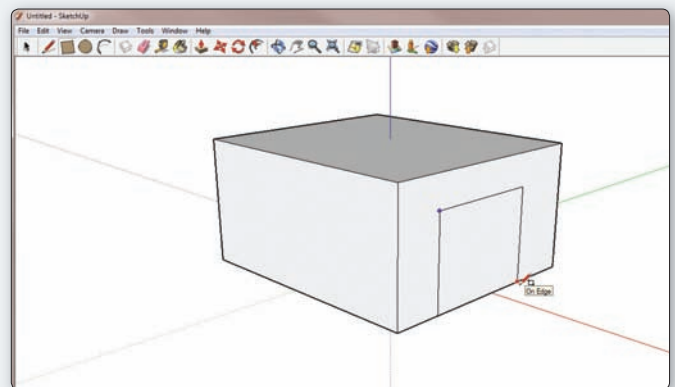
To get started, download and install SketchUp from sketchup.com. Click the Download SketchUp button, then choose the Download SketchUp link.

DRAW A 3D MODEL



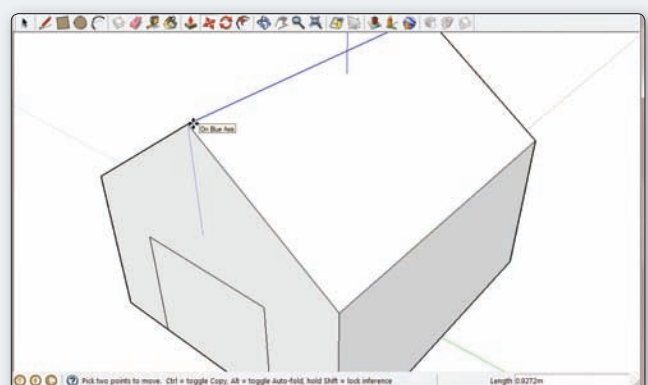
START

Launch SketchUp and click the Choose Template button on the welcome screen. Choose 'Architectural Design - Millimeters' and click 'Start using SketchUp'. The main application will load with a 3D view.



4

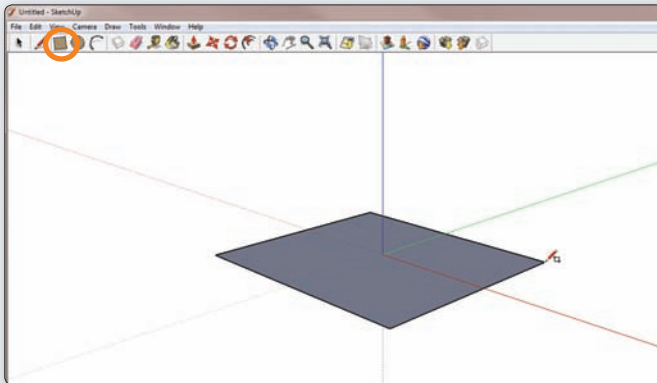
Using the rectangle tool (press R), draw another rectangle on one of the box's surfaces. SketchUp snaps to edges and endpoints, making it easy to line up elements. You can find the midpoint of a line by hovering the cursor near it.



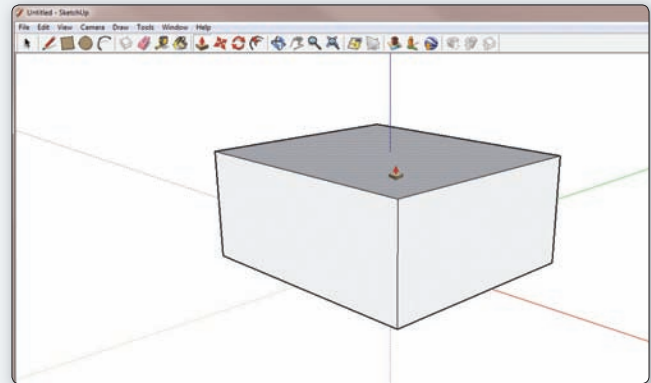
7

Highlight the line using the Select tool (press Space) and use the Move tool (press M) to create a roof. Make sure the line snaps to the blue axis to ensure the apex remains in the middle, rather than skewed to one side.

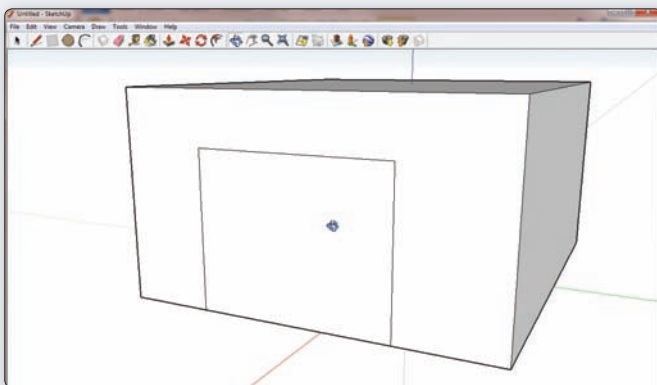
Tech Help



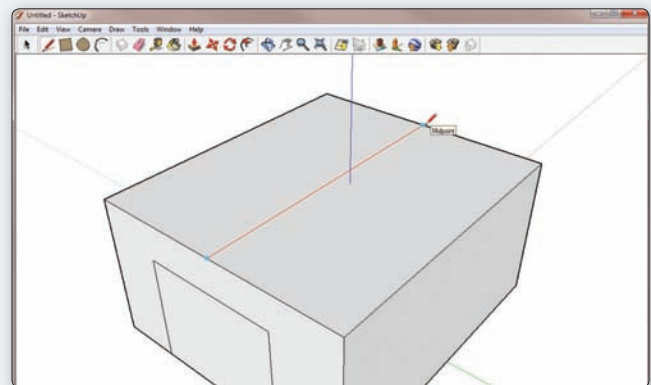
2 Click Camera, Standard Views, Iso, then click the Rectangle tool (third from left). Click onscreen, move your mouse to draw the rectangle, then click again to finish. Most tools in SketchUp work this way - there's minimal click-and-drag.



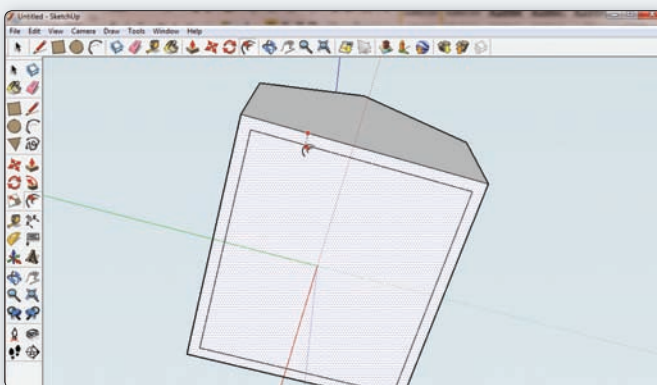
3 Select the Push/Pull tool (press P) and click inside your rectangle. Move your mouse upwards to 'pull' the surface and make a 3D box. You can make objects a specific size by starting to draw, then typing in a number and pressing Enter.



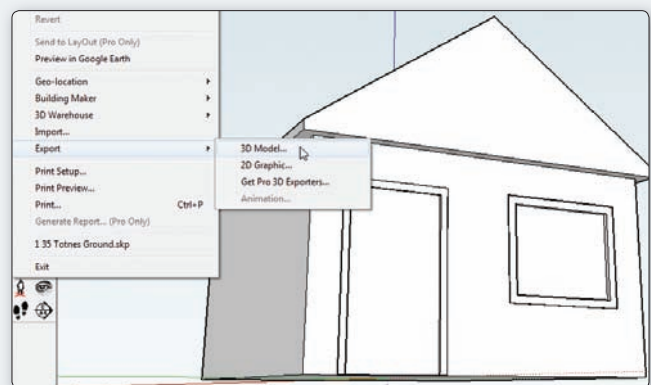
5 To look around your model, use the Orbit, Pan and Zoom tools. Instead of selecting them from the toolbar, click your mouse wheel and drag to orbit your model, roll the wheel to zoom in and out, and click the wheel while holding Shift, then drag to pan.



6 SketchUp will automatically snap to the three axes (red, blue or green) to help you draw accurately. Select the Line tool (press L) and orbit the model to better see the top. Draw a line between two midpoints to divide it in half.



8 The offset tool is one of the most useful. Orbit the model to view it from below and use the Offset tool (press F) to create an offset slightly in from the edges. With the Push/Pull tool (press P), push the offset upwards to just below the roofline to create an overhang.



9 You can use the Pencil, Rectangle, Offset and Push/Pull tools to create windows and doors with ease. When you're finished, save your model. You can export it using the File, Export menu. Commonly, people export 3D models to Google Earth. ☒

The Cover disc is free with print issues of *PC Advisor* magazine, available in all good newsagents

LETITIA AUSTIN



East-Tec Eraser 2012

FULL PROGRAM

ONLINE
REGISTRATION
REQUIRED

Installation details

Go to My Computer. Right-click the disc icon and open the disc. Select Files 21\ East-Tec Eraser 2012 and open the install file

Online registration required: head to tinyurl.com/7yLbvoj

System requirements

300MHz processor;
Windows 98/2000/XP/
Vista/7; 128MB RAM;
10MB drive space

Protect your data and privacy and remove all evidence of your activity with East-Tec Eraser 2012.

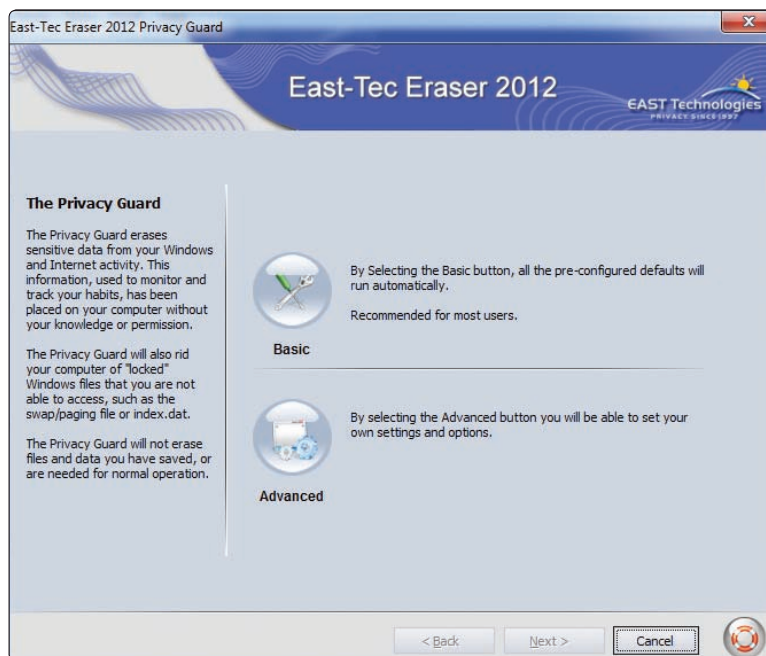
East-Tec Eraser meets and exceeds government- and industry standards for the permanent erasure of digital information. It removes every trace of sensitive data from your computer - including Internet history, web pages, pictures, cookies, conversations, confidential documents and emails - as well as your external drives, floppy disks, CDs, DVDs and USB flash drives.

East-Tec Eraser 2012 cleans away evidence from the latest versions of the most popular internet browsers and hundreds of popular programs.

It offers an intuitive interface and wizards, automatic cleaning of your computer at specified intervals, an Anti-Surprise key to protect your privacy in emergency situations (such as when your boss leans over your shoulder), support for custom privacy needs, user-defined erasure methods, built-in safety features that prevent you from accidentally removing critical files or folders, password protection, and more.

Features

- Destroys evidence of online activity and sensitive data
- Supports all popular web browsers and programs
- Securely erases CDs, DVDs, hard drives and USB flash drives



Visit our website for more software special offers: pcadvisor.co.uk/special-offers

The Cover disc is free with print issues of PC Advisor magazine, available in all good newsagents

Bitdefender Total Security 2013

FULL PROGRAM

**ONLINE
REGISTRATION
REQUIRED**

Installation details

Go to My Computer. Right-click the disc icon and open the disc. Select Files 21\ Bitdefender Total Security 2013 and open the install file

Online registration required: follow the links during installation

System requirements

800MHz processor; Windows XP/Vista/7/8; 1GB RAM; 1.8GB drive space

Bitdefender Total Security 2013 builds on the company's #1-ranked antimalware technology to secure online transactions, protect mobile devices from loss or theft, automatically back up files and tune-up PCs.

Award-winning antivirus

Bitdefender's antivirus technology ranks high in major independent testing labs (AV-Comparatives, AV-Test, VB100), beating competitors including Norton, Kaspersky, McAfee and Microsoft.

Bank, shop with confidence

Never worry about hackers stealing your account information again! Bitdefender Total Security 2013 automatically opens all your e-banking and -shopping pages in a separate iron-clad, secure browser.



Silent security

Bitdefender Autopilot allows you to play games and watch movies without interruptions or slowdowns.

Control lost/stolen devices

Anti-Theft gives you a head start in locking, locating or wiping your missing laptops or netbooks. ☒

ABBYY FineReader 11.0

FULL PROGRAM (THREE-MONTH LICENCE)

**ONLINE
REGISTRATION
REQUIRED**

Installation details

Go to My Computer. Right-click the disc icon and open the disc. Select Files 21\ABBYY FineReader and open the install file

Online registration required: follow the links during installation

System requirements

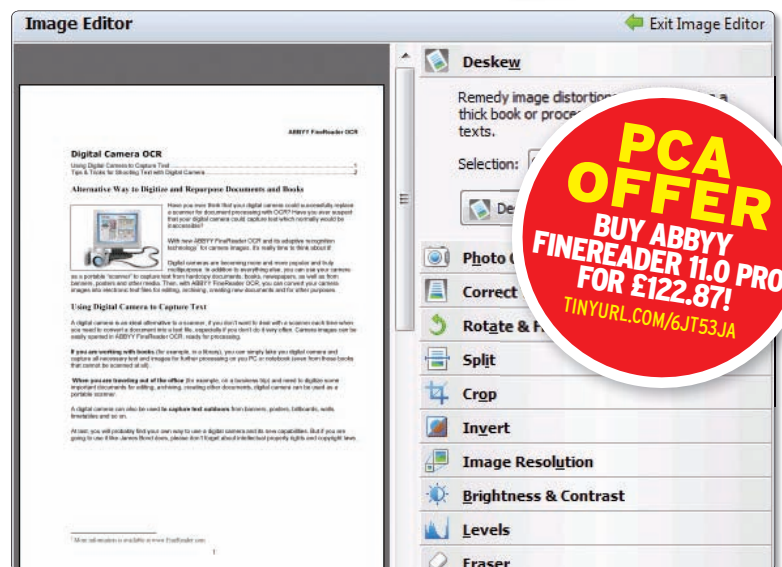
1GHz processor; Windows XP/Vista/7; 1GB RAM; 700MB drive space

Extracting or editing text and images from a PDF can be tricky, as can quickly locating an archived document and searching its contents. ABBYY's award-winning optical character recognition software can save you time.

FineReader makes its easy to turn documents and PDFs into text you can use. Copy text into an email or presentation, publish it online, edit it in Microsoft Word or Excel, or build searchable document archives.

Save the time and resources typically spent on copying text from scanned-in paper documents, PDF files and digital images. FineReader can significantly reduce your manual workload, reading and converting files into text you can copy and paste, search or edit.

Whether you want to create searchable files for easily accessible archives, or edit an old contract or brochure, FineReader is an ideal



choice for productive work. Its intelligent technology delivers high levels of accuracy, while its tools are designed to make document-digitalisation processes more efficient.

The latest version combines intelligent document analysis, new tools for increasing processing efficiency and support for more file formats. ☒

1-abc.net Synchronizer 5.0

FULL PROGRAM

The Cover disc is free with print issues of *PC Advisor* magazine, available in all good newsagents

ONLINE
REGISTRATION
REQUIRED

Installation details

Go to My Computer. Right-click the disc icon and open the disc. Select Files 21\1-abc.net Synchronizer 5.0 and open the install file

Online registration required: follow the links during installation

System requirements
Windows XP/Vista/7

With multiple copies of our files stashed on internal and external hard drives, USB sticks, SD cards and more, overwriting the latest version is all too common an occurrence. This is where 1-abc.net Synchronizer steps in.

Synchronizer 5.0 is able to compare folders, detecting both new and modified files, and always saves the latest version to both folders.

You can configure the program to operate on-demand or at specified times, and synchronise as many local and external folders as you wish. Synchronizer can be installed on most removable media. ☒



**PCA
OFFER**
SAVE 33% ON
CLEANING BOX
- JUST £15.33!
TINYURL.COM/3Y2APOF

Zoner Photo Studio 15.0 Pro

FULL PROGRAM (THREE-MONTH LICENCE)

ONLINE
REGISTRATION
REQUIRED

Installation details

Go to My Computer. Right-click the disc icon and open the disc. Select Files 21\Zoner Photo Studio 15.0 Pro and open the install file

Online registration required: follow the links during installation

System requirements
Windows XP/Vista/7; 1GB RAM; 350MB drive space

Version 15.0 of Photo Studio Pro brings new tools for downloading, managing, editing and sharing your digital photos.

A new Import Module allows photos from an attached camera to automatically download to the folders of your choice.

For dynamic backups to another folder or external disk there's Synchronization. Make alterations to your photos and Zoner will also back up the originals.

The Manager now offers Quick Search, while a new Quick Edits bar offers fast access to the most commonly used edits. New Quick



**PCA
OFFER**
BUY ZONER PHOTO
STUDIO 15.0 PRO
FOR £56.14!
TINYURL.COM/D8DDAX8

Filters, with which it takes just seconds to imitate the style of a classic Polaroid, Lomo or Diana camera, have also been added.

A Tilt-shift feature lets you alter the depth of field in your digital

photographs. Save your settings as a preset in the Editor, and you can batch-edit snaps in the Manager.

Zoner Photo Studio 15.0 Pro also offers a new Contrast method for creating HDR photographs. ☒

DISC INSTRUCTIONS

Place disc in drive. Open the file 'Click here to begin.pdf' for extra information.

The disc on the cover of *PC Advisor* is supplied as is, subject to the following terms. The disc is provided to readers of *PC Advisor* for their personal use and may not be resold or copied for distribution.

The publisher shall have no liability without limitation for any losses or damage arising from using these programs or taking advice from the cover-disc helpline, including any loss of profit, damage to equipment or data, interruption of business, or any other damage, whether direct or accidental. It's recommended that you back up your applications and important data before installing this software.

Where telephone numbers or URLs are given for registration, these may be valid only for a limited period. We cannot be held responsible for discontinued offers. This doesn't affect your statutory rights. All product descriptions given here are provided by original software developers.

PC Advisor Extra

From the March 2013 issue the PC Advisor Cover Disc will be re-packaged as 'PC Advisor Extra'. PC Advisor is committed to ensuring all its customers continue to receive the same great content. Full programs and extended software trials can be downloaded using the install file included on the disc; additional content will be made available via re-direct URLs.

If your disc is missing or faulty, please visit pcadvisor.co.uk/cd/replacement to request a replacement. The code for February's disc is PCA0213DISC. Please allow 14 days for delivery. Other FAQs are answered at pcadvisor.co.uk/cd/faq.

THE WORLD'S GREATEST PC MAGAZINE

Expert advice you can trust anywhere & any time

PCAdvisor.co.uk



join the community



twitter.com/PCAdvisor



facebook.com/PCAdvisor



tinyurl.com/PCALinkedIn

EXPERT ADVICE YOU CAN TRUST
PC ADVISOR

Online



Print



Mobile



Digital

CHRISTMAS **GIFT IDEAS** FOR TECH ENTHUSIASTS

DVD | 50 LAPTOPS AND PCs REVIEWED

PC ADVANCE

WINDOWS 8 THE REALITY CHECK

Every new feature examined

Speed up any PC for just £25

The pros and cons of upgrading

The most in-depth Windows 8 review you can read

UP TO 58% OFF

DVD WORTH £117

Uninstaller 4.3
Removal of unwanted software
Setup Windows

iPhone 5 vs Android
The best phones you can buy in our smartphone group test

Best tablets revealed

- Great gadgets for any budget
- Google Nexus vs Samsung
- Best 7in & 10in tablets tested

28 pages of tips & tricks

- Protect your laptop, tablet & phone
- Set up a Powerline network
- Build a website in minutes
- Get more from MS Word

ISSUE 209 DEC 2012 PRICE £5.99

ISSN 1471-7395

9 771471 739034

IDG | UNITED KINGDOM

12-MONTH GIFT SUBSCRIPTIONS FROM JUST £29.99

Subscribe online at
subscription.co.uk/idg/XT12
 OR call 01858 438 687



£29.99
 SAVE
 58%

The essential companion for your PC. Bringing you all the latest news, reviews and features. Every issue comes with a cover disc packed with exclusive programs and software.



£29.99
 SAVE
 64%

Keeps you up to date with everything Apple. Packed with the latest news, reviews and masterclasses, Macworld ensures you get the most from your Apple products.



£29.99
 SAVE
 60%

Inspiration for digital creatives. Digital Arts is packed with great tutorials and features on the latest tips and techniques across illustration, graphics and animation to make sure you create your best art work ever!



£24.99
 SAVE
 65%

iPad&iPhone User delivers you the latest product reviews, must-have apps, accessories, step-by-step tutorials and more. The essential mag for your Apple gadgets.

EXPERT ADVICE YOU CAN TRUST

PC ADVISOR

on your mobile



PC Advisor's up-to-the-minute news, in-depth technology reviews, opinion and world-famous tech forums are now available on your mobile phone.

The PC Advisor mobile site is specially optimised for your mobile phone, whether it's a Nokia, Samsung, LG, Sony, BlackBerry or iPhone.

mobile.pcadvisor.co.uk

PC ADVISOR TEST CENTRE

PC Advisor's charts rank and rate the best products every month. If you're looking to buy the latest and greatest kit, look no further than our 100-plus reviews



Ultraportable laptops



Laptops



Family PCs



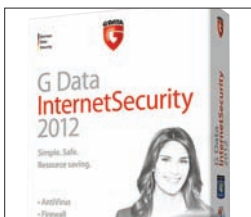
All-in-one PCs



Business PCs



Media PCs



Security software



Printers



Blu-ray drives



Wireless routers



USB drives



NAS drives



Digital cameras



Graphics cards



Flat-panel displays

Prices

Laptops

Laptops up to £500
£501 to £1,000
£1,001 and over

Printers

Printers under £150
£151 and over

Graphics cards

Graphics cards under £150
£151 and over

Flat-panels

Flat-panels under £200
£201 and over

Prices listed are those quoted by the distributor or manufacturer and include VAT. They are intended only as a guide and you may see products on sale for less or more than our quoted price.

If you're interested in purchasing one of the products reviewed here then please contact the manufacturer or supplier directly, mentioning both *PC Advisor* and the issue in which you saw the product. If it won't supply the product as reviewed, contact us at letters@pcadvisor.co.uk.

Manufacturers are under no obligation to feature reviewed products on their websites. *PC Advisor's* recommendations are for guidance only. The publisher takes no responsibility for purchasers' decisions.

Star ratings and Gold, Recommended and Best Buy badges are awarded at the time of the original review and given in relation to the market competition at that time.

Read reviews of 12,600-plus products, extended analysis and price comparisons, then buy direct online: pcadvisor.co.uk/reviews

Index

Ultraportable laptops.....	130
Sub-£500 laptops.....	131
£501-£1,000 laptops	132
£1,001+ laptops	133
Family PCs.....	134
All-in-one PCs.....	135
Business PCs	136
Media PCs.....	138
Internet security suites	139
Antivirus software	139
Sub-£150 printers.....	140
£151+ printers	140
Blu-ray drives	141
Wireless routers	141
USB drives	142
NAS drives	142
Projectors.....	143
Compact system cameras.....	143
Sub-£150 graphics cards.....	144
£151+ graphics cards.....	144
Sub-£200 flat-panel displays.....	145
£201+ flat-panel displays	145

Ultraportable laptops



	1 Apple MacBook Air 13in	2 Samsung 900X4C	3 Apple MacBook Air 11in	4 Asus Zenbook UX32A	5 Lenovo IdeaPad U410
Price	£1249 inc VAT	£940 inc VAT	£849 inc VAT	£799 inc VAT	£649 inc VAT
Website	Apple.com/uk	Samsung.com/uk	Apple.com/uk	Uk.asus.com	Lenovo.com/uk
Build rating	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
Features rating	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
Performance rating	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
Value rating	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
Overall rating	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
Processor	1.8GHz Intel Core i5-3427U	1.7GHz Intel Core i5-3317U	1.7GHz Intel Core i5-3317U	1.7GHz Intel Core i5-3317U	1.8GHz Intel Core i3-3217U
RAM	4GB DDR3L	8GB DDR3	4GB DDR3L	4GB DDR3	4GB DDR3
Storage	256GB SSD	128GB SSD	64GB SSD	500GB HDD + 24GB SSD	500GB HDD + 24GB SSD
Screen size	13.3in	15in	11.6in	13.3in	14in
Screen resolution	1400x900	1600x900	1366x768	1366x768	1366x768
Graphics	Intel HD Graphics 4000	Intel HD Graphics 4000	Intel HD Graphics 4000	Intel HD Graphics 4000	nVidia GeForce 610M
Video memory	N/A	N/A	N/A	N/A	1GB
Wireless	802.11a/b/g/n	802.11a/b/g/n	802.11a/b/g/n	802.11a/b/g/n	802.11b/g/n
Ethernet	Via adaptor only	Gigabit	Via adaptor only	N/A	Fast
Bluetooth	✓	✓	✓	✓	x
USB	2x USB 3.0	2x USB 3.0, 1x USB 2.0	2x USB 3.0	3x USB 3.0	2x USB 3.0, 2x USB 2.0
FireWire	x	x	x	x	x
Thunderbolt	✓	x	✓	x	x
DisplayPort	✓	x	✓	x	x
HDMI	x	✓ (Micro HDMI)	x	✓	✓
DVI	x	x	x	x	x
VGA	x	x	x	✓	x
eSATA	x	x	x	x	x
Media card slot	✓	✓	x	✓	✓
Audio	Headphone jack, mic	Headphone jack, mic	Headphone jack, mic	Speakers, headphone jack, mic	Speakers, headphone jack, mic
Optical drive	N/A	N/A	N/A	N/A	N/A
Extras	HD webcam, multitouch trackpad, backlit keyboard	Webcam	HD webcam, multitouch trackpad, backlit keyboard	Webcam	Webcam
Operating system	Mac OS X 10.8 Mountain Lion	Windows 7 Home Prem 64bit	Mac OS X 10.8 Mountain Lion	Windows 8 64bit	Windows 8 64bit
Bundled software	iLife 11	Samsung Recovery Solution	iLife 11	Asus utilities	CyberLink YouCam, VeriFace
Fear (Max detail)	29fps	28	28fps	27fps	49fps
Battery	50Wh lithium-ion	62Wh lithium-ion	35Wh lithium-ion	48Wh lithium-ion	48Wh lithium-polymer
Battery life	8 hrs 20 mins	8 hrs 3 mins	6 hrs 10 mins	7 hrs 8 mins	5 hrs 35 mins
WB 6/PC Mark 7 score	132/4,497	125/not tested	129/not tested	123/2,519	95/2,265
Dimensions	325x227x4-17.5mm	375x237x15mm	300x192x3-17mm	325x223x7-18.7mm	344x235x21mm
Weight	1.34kg	1.67kg	1.07kg	1.5kg	1.8kg
Warranty	1-year return-to-base	1-year return-to-base	1-year return-to-base	1-year return-to-base	1-year return-to-base
Verdict	<ul style="list-style-type: none"> • Decent turn of speed • Stunning battery life • Nice 256GB SSD • Faster framerates • Ultra quiet 	<ul style="list-style-type: none"> • Sleek and stylish • Good matt screen • Comparatively fast • Great battery life • Lots of memory 	<ul style="list-style-type: none"> • Reasonable price tag • Very light and compact • Strong performance for size • Good graphics • Great build quality 	<ul style="list-style-type: none"> • Premium build and feel • Decent speed • Large, responsive trackpad • Playable framerates • Not all models have the SSD 	<ul style="list-style-type: none"> • Attractive laptop • Sensible price tag • Quick resume from standby • Reasonable battery life • Not particularly fast
FULL REVIEW	TINYURL.COM/8C7LYCO	TINYURL.COM/6VZ5TOG	TINYURL.COM/CCPOANM	TINYURL.COM/D54NZ7F	TINYURL.COM/CJL7QN9

>> Buying advice



Ultraportable laptops

Apple's MacBook Air sets the standard for thin-and-light laptops, which are usually referred to as Ultrabooks or ultraportable laptops.

Most run fast and silent SSDs for storage, which can partly explain their higher retail price, but some manufacturers are now fitting slim 7mm hard disks.

All Ultrabooks run Intel CPUs (AMD variants are known as Sleekbooks), often a low-power version identifiable by its U suffix. The 1.7GHz Intel Core i5-3317U is a popular example.

Beware of cheap glossy panels with poor contrast and colour gamut and, if possible, judge in person the screen quality and viewing angles before you buy.

Ports are limited due to space constraints, but look for built-in ethernet or dongles that allow full-size ports to be connected.

A smaller chassis means a smaller, often non-removable battery. Expect six-plus hours of life.

There's no room for an optical drive, but you can always connect an external USB version.

READ MORE: TINYURL.COM/CEAHEZK

Sub-£500 laptops	    				
	Acer Aspire V3-571	Toshiba Satellite Pro L850	Samsung RV511	Lenovo IdeaPad S205-1038	Acer V5-571
Price	£450 inc VAT	£475 inc VAT	£500 inc VAT	£350 inc VAT	£480 inc VAT
Website	Acer.co.uk	Toshiba.co.uk	Samsung.com/uk	Lenovo.com/uk	Acer.co.uk
Build rating	★★★★☆	★★★★☆	★★★★☆	★★★★☆	★★★★☆
Features rating	★★★★☆	★★★★☆	★★★★☆	★★★★☆	★★★★☆
Performance rating	★★★★☆	★★★★☆	★★★★☆	★★★★☆	★★★★☆
Value rating	★★★★☆	★★★★☆	★★★★☆	★★★★☆	★★★★☆
Overall rating	★★★★★	★★★★☆	★★★★☆	★★★★★	★★★★★
Processor	2.5GHz Intel Core i5-2450M	2.3GHz Intel Core i3-2350M	2.53GHz Intel Core i3-380M	1.6GHz AMD E450	1.4GHz Intel Core i3-2367M
RAM	6GB DDR3	6GB DDR3	6GB DDR3	4GB DDR3	8GB DDR3
Storage	500GB hard drive	750GB hard drive	640GB hard drive	500GB hard drive	500GB hard drive
Screen size	15.6in	15.6in	15.6in	11.6in	15.6in
Screen resolution	1366x768	1366x768	1366x768 pixels	1366x768 pixels	1366x768
Graphics	Intel HD Graphics 3000	Intel HD Graphics 3000	nVidia GeForce 315M	AMD Radeon HD 6310M	Intel HD Graphics 3000
Video memory	N/A	N/A	1GB	N/A	N/A
Wireless	802.11a/b/g/n	802.11b/g/n	802.11b/g/n	802.11b/g/n	802.11b/g/n
Ethernet	Gigabit	Gigabit	Gigabit	Gigabit	Gigabit
Bluetooth	✓	✓	✓	✓	✓
USB	1x USB 3.0, 2x USB 2.0	2x USB 3.0, 1x USB 2.0	3x USB 2.0	3x USB 2.0	1x USB 3.0, 2x USB 2.0
FireWire	x	x	x	x	x
Thunderbolt	x	x	x	x	x
DisplayPort	x	x	x	x	x
HDMI	✓	✓	✓	✓	✓
DVI	x	x	x	x	x
VGA	✓	✓	✓	✓	✓
eSATA	x	x	x	x	x
Media card slot	✓	✓	✓	✓	✓
Audio	Headphone jack, mic	Headphone jack, mic	Headphone jack, mic	Headphone jack, mic	Speakers, headphone jack
Optical drive	8x DVD±R	8x DVD±R	8x DVD±R, 4x DVD±RW, 8x DVD-ROM	N/A	8x DVD±R
Extras	Webcam	Webcam	Webcam	Webcam	Webcam
Operating system	Windows 7 Home Prem 64bit	Windows 7 Pro 64bit	Windows 7 Home Prem 64bit	Windows 7 Home Prem 64bit	Windows 7 Home Prem 64bit
Bundled software	Microsoft Office Starter	Microsoft Office Starter	None	None	Microsoft Office Starter
Fear (Max detail)	16fps	15fps	33fps	18fps	16fps
Battery	48Wh lithium-ion	48Wh lithium-ion	48Wh lithium-ion	48Wh lithium-ion	37Wh lithium-ion
Battery life	5 hrs 18 mins	5 hrs 46 mins	5 hrs 15 mins	5 hrs 38 mins	5 hrs 2 mins
WorldBench 6 score	123	107	105	53	84
Dimensions	380x253x33mm	380x242x34mm	382x256x34mm	290x168x29mm	382x253x21-23mm
Weight	2.6kg	2.3kg	2.4kg	1.5kg	2.3kg
Warranty	1-year collect-and-return	1-year carry-in	1-year return-to-base	1-year return-to-base	1-year collect-and-return
Verdict	<ul style="list-style-type: none"> • Strong general performance • Not much gaming potential • Excellent trackpad, keyboard • Reflective screen • Decent battery life 	<ul style="list-style-type: none"> • i3 processor isn't the fastest • Anti-glare matt screen • Capacious hard drive • Keys lack depth • Windows 7 Professional 	<ul style="list-style-type: none"> • Solid performance for an i3 CPU in WorldBench 6 • Good hard-drive capacity • Light gaming potential • Reflective screen 	<ul style="list-style-type: none"> • Extremely portable • More powerful than a netbook • Glossy screen • Rather slow 	<ul style="list-style-type: none"> • Slower Core i3 chip • 8GB of RAM • No ethernet • Onboard graphics • Decent battery life
FULL REVIEW	TINYURL.COM/CQKL4PD	TINYURL.COM/CYH2F5H	TINYURL.COM/5TVT8AE	TINYURL.COM/6G5EKQK	TINYURL.COM/CABAX8Z

>> Buying advice



Sub-£500 laptops

Budget laptops are quick enough for most people, but economies are often made in build quality.

At the top end of the category you should find a highly capable Intel Core i-series processor. This will probably be a second-gen Sandy Bridge chip (ix-2xxx part number), but look out for a newer Ivy Bridge model (ix-3xxx).

Windows 7 and 8 run on 2GB of RAM, but 4GB or more is useful.

Hard disks are the norm at this price, with 250GB enough for most people. If you're a video hoarder look for 500GB or more.

Wi-Fi is standard, but Bluetooth is not a given at the price.

The bodywork and display are the main areas in which costs are cut. Expect creaky plastic bodies,

bendy frames and faux-metal paint jobs. Keyboards and trackpads are also likely to feel cheap and erratic.

Gloss screens hide inferior image quality. Colours are vivid, but the contrast may be poor. Check the visibility at an angle.

Some laptop manufacturers scrimp on the battery. Look for a rating of 48Wh or more.

READ MORE: TINYURL.COM/CA9EXZ6

£501-£1,000 laptops	1 	2  PC ADVISOR BEST BUY	3 	4 	5 
	Samsung Series 5 550P7C	Lenovo G570	HP ProBook 4530s	Sony Vaio SVS1311N9E	Lenovo IdeaPad Z580
Price	£850 inc VAT	£505 inc VAT	£562 inc VAT	£849 inc VAT	£730 inc VAT
Website	Samsung.co.uk	Lenovo.com/uk	Hp.com/uk	Sony.co.uk	Lenovo.com/uk
Build rating	★★★★☆	★★★★☆	★★★★☆	★★★★☆	★★★★☆
Features rating	★★★★☆	★★★★☆	★★★★☆	★★★★☆	★★★★☆
Performance rating	★★★★☆	★★★★☆	★★★★☆	★★★★☆	★★★★☆
Value rating	★★★★☆	★★★★☆	★★★★☆	★★★★☆	★★★★☆
Overall rating	★★★★☆	★★★★☆	★★★★☆	★★★★☆	★★★★☆
Processor	2.3GHz Intel Core i7-3610QM	2.5GHz Intel Core i5-2450M	2.3GHz Intel Core i5-2410M	2.5GHz Intel Core i5-3210M	2.1GHz Intel Core i7-3612QM
RAM	8GB DDR3	6GB DDR3	4GB DDR3	4GB DDR3	8GB DDR3
Storage	1TB hard drive	750GB hard drive	640GB hard drive	500GB hard drive	1TB hard drive
Screen size	17.3in	15.6in	15.6in	13.3in	15.6in
Screen resolution	1600x900	1366x768	1366x768	1366x768	1366x768
Graphics	nVidia GT 650M	AMD Radeon HD 6370M	AMD Radeon HD 6470M	Intel HD Graphics 4000	nVidia GeForce GTX 630M
Video memory	2GB	1GB	1GB	N/A	2GB
Wireless	802.11a/b/g/n	802.11b/g/n	802.11b/g/n	802.11a/b/g/n	802.11b/g/n
Ethernet	Gigabit	Gigabit	Gigabit	Gigabit	Gigabit
Bluetooth	✓	✓	✓	✓	✓
USB	2x USB 3.0, 2x USB 2.0	4x USB 2.0	4x USB 2.0	2x USB 3.0, 1x USB 2.0	2x USB 3.0, 2x USB 2.0
FireWire	x	x	x	x	x
Thunderbolt	x	x	x	x	x
DisplayPort	✓	x	x	x	x
HDMI	✓	✓	✓	✓	✓
DVI	x	x	x	x	x
VGA	✓	✓	✓	✓	✓
eSATA	x	x	x	x	x
Media card slot	✓	✓	✓	✓	✓
Audio	Speakers, headphone jack, mic	Headphone jack, mic	Speakers, mic	Speakers, headphone jack, mic	Speakers, mic
Optical drive	BD-ROM, 8x DVD ± R drive	BD-ROM, 8x DVD ± R drive	8x DVD ± R drive	8x DVD ± R drive	BD-ROM, 8x DVD ± R drive
Extras	Webcam	Webcam	Webcam, ExpressCard/34	Webcam	None
Operating system	Windows 8 64bit	Windows 7 Home Prem 64bit	Windows 7 Pro 64bit	Windows 8 Pro 64bit	Windows 7 Home Prem 64bit
Bundled software	CyberLink Media Suite	None	ArcSoft Total Media Suite	Sony utilities	CyberLink PowerDVD 10.0
Fear (Max detail)	122fps	32fps	42fps	27fps	79fps
Battery	56Wh lithium-ion	48Wh lithium-ion	47Wh lithium-ion	49Wh lithium-ion	48Wh lithium-ion
Battery life	7 hrs 20 mins	5 hrs 1 min	4 hrs 44 mins	7 hrs 10 mins	5 hrs 49 mins
WorldBench 6 score	136	96	115	124	153
Dimensions	408x270x30mm	377x250x35mm	374x256x32mm	331x225x24mm	376x245x35mm
Weight	3.1kg	2.6kg	2.36kg	1.7kg	2.44kg
Warranty	1 year return-to-base	1 year return-to-base	1 year collect-and-return	1 year return-to-base	1 year return-to-base
Verdict	<ul style="list-style-type: none"> • Superb gaming framerates • Plenty of overall speed • Sturdy, but cheap-looking • Blu-ray support 	<ul style="list-style-type: none"> • Superb price • Blu-ray drive • Good overall performance • Some gaming capability • Now has a Core i5 CPU 	<ul style="list-style-type: none"> • Reasonably rugged build • Solid performance • Screen has a matt finish • No USB 3.0 ports • Fingerprint reader 	<ul style="list-style-type: none"> • Lengthy battery life • Fingerprint reader • Poor viewing angles • Touchpad takes some getting used to 	<ul style="list-style-type: none"> • Blu-ray playback • Strong overall performance • Stylish casing • Good complement of RAM • Screen a little too glossy
FULL REVIEW	TINYURL.COM/BPR5F3V	TINYURL.COM/6FZZ4XE	TINYURL.COM/84BFM4X	TINYURL.COM/CFRZSE3	TINYURL.COM/92GOLXY

>> Buying advice



£501-£1,000 laptops

If you're prepared to pay more than £500, you can get a laptop with a better selection of internal components, a higher-quality build, and faster performance.

Most laptops at this price have 15.6in widescreen displays, but beware of budget panels with a coarse resolution - 1366x768 pixels is wide, but creates fuzzy text and

images. Look for anti-glare matt panels over glossy screens.

Intel introduced its third-gen Core chips in 2012, aka Ivy Bridge, which offer integrated GPUs capable of half-decent gameplay. You'll also find 2011's Sandy Bridge chips, identifiable by a leading 2 rather than 3 on the part number.

Battery life can stretch to six hours, but don't take it as a given.

Expect at least one USB 3.0 port, which allows for faster data transfer with compatible peripherals. Gigabit ethernet is now standard, and you may find even faster ports such as eSATA or Thunderbolt at this price.

Look for 4GB of RAM, and an SSD if you don't mind offloading media files to external storage.

READ MORE: TINYURL.COM/BUHSEAR

£1,001+ laptops	1	2	3	4	5
	Apple MacBook Pro Retina	Alienware M14x	Dell Latitude E6330	Samsung Series 7 700G7C	Toshiba Qosmio X870-11Q
Price	£1,799 inc VAT	£1,350 inc VAT	£1,375 inc VAT	£1,350 inc VAT	£1,520 inc VAT
Website	Apple.com/uk	Alienware.co.uk	Dell.co.uk	Samsung.com/uk	Toshiba.co.uk
Build rating	★★★★★	★★★★★	★★★★☆	★★★★☆	★★★★☆
Features rating	★★★★★	★★★★☆	★★★★☆	★★★★☆	★★★★☆
Performance rating	★★★★★	★★★★★	★★★★☆	★★★★☆	★★★★★
Value rating	★★★★☆	★★★★☆	★★★★☆	★★★★☆	★★★★☆
Overall rating	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
Processor	2.3GHz Intel Core i7-3615QM	2.66GHz Intel Core i7-3720QM	2.9GHz Intel Core i7-3520M	2.3GHz Intel Core i7-3610QM	2.3GHz Intel Core i7-3610QM
RAM	8GB DDR3L	8GB DDR3	6GB DDR3	16GB DDR3	16GB DDR3
Storage	256GB SSD	64GB SSD, 500GB HDD	128GB SSD	1.5TB HDD	128GB SSD, 1TB hard drive
Screen size	15.4in	14.1in	13.3in	17.3in	17.3in
Screen resolution	2880x1800 pixels	1600x900 pixels	1366x768 pixels	1920x1080 pixels	1920x1080 pixels
Graphics	nVidia 650M, Intel HD 4000	nVidia GeForce GT 650M	Intel HD Graphics 4000	nVidia GeForce GTX 675M	nVidia GeForce GTX 670M
Video memory	1GB	1GB	N/A	2GB	3GB
Wireless	802.11a/b/g/n	802.11b/g/n	802.11a/b/g/n	802.11b/g/n	802.11b/g/n
Ethernet	Via adaptor only	Gigabit	Gigabit	Gigabit	Gigabit
Bluetooth	✓	✓	✓	✓	✓
USB	2x USB 3.0	2x USB 3.0, 1x USB 2.0	1x USB 3.0, 2x USB 2.0	2x USB 3.0, 2x USB 2.0	4x USB 3.0
FireWire	x	x	x	x	x
Thunderbolt	✓ (2)	x	x	x	x
DisplayPort	✓	✓	x	✓	x
HDMI	✓	✓	✓	✓	✓
DVI	x	x	x	x	x
VGA	x	✓	✓	✓	✓
eSATA	x	x	x	x	x
Media card slot	✓	✓	✓	✓	✓
Audio	Headphone jack, Toslink out	Headphone jack, mic	Headphone jack, mic	Headphone jack, mic	2x Harman Kardon speakers
Optical drive	N/A	8x DVD±R, 2.4x DVD-RW, 4x DVD+RW, 8x DVD-ROM	8x DVD±R, 2.4x DVD-RW, 4x DVD+RW, 8x DVD-ROM	6x BD-ROM, 8x DVD±R, 2.4x DVD-RW, 4x DVD+RW	BD-RE/DVD±RW DL
Extras	HD webcam, multitouch trackpad, backlit keyboard	N/A	Fingerprint reader	HD webcam, Dolby Home Theater v4	Webcam, Kensington lock
Operating system	Mac OS X 10.7.4 Lion	Windows 7 Home Prem 64bit	Windows 8 64bit	Windows 7 Home Prem 64bit	Windows 7 Home Prem 64bit
Bundled software	iLife 11	None	Dell Backup	Samsung Recovery	Toshiba Blu-ray Disc Player
Fear (Max detail)	N/A	84fps	N/A	N/A	205fps
Battery	99Wh lithium-polymer	63Wh lithium-ion	60Wh lithium-ion	89Wh lithium-ion	47Wh lithium-ion
Battery life	N/A	5 hrs 7 mins	6 hrs 24 mins	3 hrs	2 hrs 18 mins
WorldBench 6 score	N/A	168	163	123	170
Dimensions	359x247x18mm	337x258x38mm	335x223x25mm	410x285x50mm	417x272x43.7mm
Weight	2kg	2.9kg	1.6kg	3kg	3.5kg
Warranty	1-year return-to-base	1-year in-home support	3-year return-to-base	1-year international	1-year carry-in
Verdict	<ul style="list-style-type: none"> • Gorgeous super-resolution Retina display • Outstanding build quality • Wonderfully light and slim • Effortless to use 	<ul style="list-style-type: none"> • Great gaming system • Stunning WorldBench score • Cool looks • Glossy screen can be difficult to read 	<ul style="list-style-type: none"> • Good Windows speed • Strong battery life • Only 6GB RAM • Save £40 without fingerprint reader 	<ul style="list-style-type: none"> • Not the fastest laptop in general Windows use • Good graphics controller • Vast 17.3in screen • Blu-ray drive 	<ul style="list-style-type: none"> • Desktop-replacement model • Huge 16GB of RAM • Plastic build quality • Active-shutter 3D tech • Good for gaming
FULL REVIEW	TINYURL.COM/7YGC3KJ	TINYURL.COM/CLGSCMV	TINYURL.COM/CBA725B	TINYURL.COM/C93VN8N	TINYURL.COM/C3F8XP2

>> Buying advice



£1,001+ laptops

Invest £1,000 or more in a laptop, and you can be reasonably sure of getting a high-quality PC.

Sometimes that money will be spent on getting a thin-and-light laptop, with good performance to boot. Alternatively, you may prefer a rugged laptop that's able to withstand wear and tear on the road, or a performance-first

high-powered workstation.

Whatever your need, accept no compromises in build quality.

The best laptops should offer very good screens. Beware of glossy shiny panels that allow distracting reflections in certain lighting conditions.

Ultratables may have 256GB or more of solid-state storage, but won't have an optical drive or GPU.

Workstation laptops will have faster – often quad-core – CPUs and a mobile graphics processor.

Rugged laptops are engineered for strength, at the expense of light weight and sleek design. Look out for milspec standard ratings, such as MIL-STD-810G.

You'll find a wide range of ports, high-grade components and extras.

READ MORE: TINYURL.COM/CC3KBMM

Family PCs	1  PC ADVISOR BEST BUY	2  PC ADVISOR RECOMMENDED	3 	4  PC ADVISOR BEST BUY	5 
	CyberPower Infinity Achilles Elite	Chillblast Fusion Galaxy	Eclipse Explorer Touch i5357r785	Chillblast Fusion Orb	Quiet PC IcePipe A43 Silent PC
Price	£999 inc VAT	£799 inc VAT	£999 inc VAT	£799 inc VAT	£1,206 inc VAT
Website	Cyberpowersystem.co.uk	Chillblast.com	Eclipsecomputers.com	Chillblast.com	Quietpc.com
Build rating	★★★★☆	★★★★☆	★★★★☆	★★★★☆	★★★★☆
Features rating	★★★★☆	★★★★☆	★★★★☆	★★★★☆	★★★★☆
Performance rating	★★★★☆	★★★★☆	★★★★☆	★★★★☆	★★★★☆
Value rating	★★★★☆	★★★★☆	★★★★☆	★★★★☆	★★★★☆
Overall rating	★★★★☆	★★★★☆	★★★★☆	★★★★☆	★★★★☆
Processor	3.2GHz Intel Core i5-3470	3.4GHz Intel Core i5-3570K	3.4GHz Intel Core i5-3570K	3.4GHz Intel Core i5-3570K	2.8GHz Intel Core i5-3450S
RAM	8GB DDR3	8GB DDR3	16GB DDR3	16GB DDR3	8GB DDR3
Storage capacity	60GB SSD + 1TB HDD	2TB HDD	2TB HDD	1TB HDD + 120GB SSD	223GB SSD
Motherboard	Gigabyte GA-B75M-D3H	Asus P8B75-M LX	Asus P8Z77-V LX	Asus P8B75-M LX	Gigabyte GA-Z77MX-D3H
CPU cooler	Standard Intel cooler	Standard Intel cooler	Standard Intel cooler	Standard Intel cooler	NoFen IcePipe CR-95C
Power supply	500W Cooler Master	700W Chillblast	650W EZCool	700W Chillblast	400W NoFen (fanless)
Screen	23.6in Iiyama PLT2451MTS-B	22in Dell ST2220T	23.6in Iiyama PLT2451MTS-B	23.6in Iiyama	23in Zalman TM-230
Screen resolution	1920x1080 pixels	1920x1080 pixels	1920x1080 pixels	1920x1080 pixels	1920x1080 pixels
Graphics card	Palit nVidia GeForce GTX 660	VTX AMD Radeon HD 7770	VTX AMD Radeon HD 7850	XFX AMD Radeon HD 6850	Intel Graphics HD 2500
Video memory	2GB	1GB	1GB	1GB	N/A
Wireless	N/A	N/A	N/A	802.11b/g/n	N/A
USB	2x USB 3.0, 6x USB 2.0	3x USB 3.0, 8x USB 2.0	3x USB 3.0, 5x USB 2.0	3x USB 3.0, 8x USB 2.0	3x USB 3.0, 8x USB 2.0
Media card slot	x	x	x	✓	x
Sound card	Onboard	Onboard	Onboard	Onboard	Onboard
Speakers	N/A	2x Logitech S220	2x Logitech LS21	Logitech S220 2.1	N/A
Case	Cooler Master HAF912	Xigmatek Asgard Pro	902 Series	Chillblast Vantage	Silent fanless case
Keyboard	Logitech K120 keyboard (wired)	Logitech Cordless MK260	Microsoft Comfort Curve Keyboard 3000 (wired)	Logitech Cordless MK260	Gigabyte GK-KM6150 combo (wired)
Optical drive	Lite-On Blu-ray/DVD combo drive	LG Blu-ray/DVD combo drive	Lite-On Blu-ray/DVD combo drive	Samsung Blu-ray/DVD combo drive	Optiarc DVD drive
Operating system	Windows 8 64bit	Windows 8 64bit	Windows 8 64bit	Windows 7 Home Premium 64bit	Windows 8 64bit
Bundled software	None	CyberLink software	None	CyberLink software	None
Crysis (Low/Medium)	137/101fps	149/104fps	159/108fps	157/109fps	42/20fps
WorldBench 6, PCMark 7	N/A, 5,609	N/A, 3,759	N/A, 3,786	193, N/A	N/A, 5,675
Warranty	3-year RTB (labour only)	2-year collect-and-return	1-year return-to-base	2-year collect-and-return	2-year collect-and-return
Verdict	<ul style="list-style-type: none"> 60GB SSD enables blistering performance Superb graphics card for gaming Smart Connect Technology LAN Optimizer Iiyama touchscreen doesn't allow for the full Windows 8 experience Enthusiasts should upgrade to the i5-3570K CPU 	<ul style="list-style-type: none"> The lack of an SSD seriously curtails the PCMark 7 score Dell multitouch display is a high-quality IPS model Decent graphics card for gaming Nice Xigmatek case 	<ul style="list-style-type: none"> Vast storage capacity General Windows performance is a little slow Great gaming graphics card Iiyama touchscreen doesn't allow for the full Windows 8 experience 	<ul style="list-style-type: none"> Great performance 16GB of RAM Superb 24in Iiyama in-plane switching screen Wi-Fi and card reader Not the cheapest system Runs Windows 7 	<ul style="list-style-type: none"> Fanless PC is utterly silent in operation High price No touchscreen 223GB SSD is generous, but there's no hard drive for additional storage No Blu-ray support
FULL REVIEW	TINYURL.COM/BPHY7OW	TINYURL.COM/BWPSQSV	TINYURL.COM/D4D8VWG	TINYURL.COM/8D6N6FU	TINYURL.COM/CZ6A77P

>> Buying advice



Family PCs

Changes in exchange rates and component supply issues mean we can't guarantee PCs listed here will be available as specified. All our prices include delivery charges.

A family PC needs to offer decent performance in every area, able to cater for the needs of each individual - but there are some areas where you can cut costs.

If you're not itching to play the latest games, opt for integrated rather than dedicated graphics. AMD processors are more adept in this regard, while Intel CPUs offer faster application performance.

Intel's Core i5-3570K will form the core of a powerful home PC, although the older Core i5-2500K may be offered at lower cost and supports easy overclocking.

Consider 4GB of RAM and a 500GB hard drive as the minimum; both are easy to upgrade later.

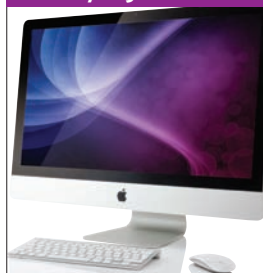
Screen quality is crucial, with the best displays using IPS tech. A Blu-ray drive will help make the most of a 23.6in full-HD monitor.

For Skype, watching films and listening to music, decent speakers and a webcam are essential.

READ MORE: [TINYURL.COM/BL4UREB](http://tinyurl.com/BL4UREB)

All-in-one PCs	1	2	3	4	5
	PC ADVISOR BEST BUY	PC ADVISOR BEST BUY	PC ADVISOR RECOMMENDED	PC ADVISOR RECOMMENDED	
	Apple iMac 27in 2.7GHz	Lenovo IdeaCentre A720	HP Z1 (WM429EA)	Asus ET2411NTI	PC Spec PowerGlide Extreme
Price	£1399 inc VAT	£1,299 inc VAT	£2,500 inc VAT	£999 inc VAT	£899 inc VAT
Website	Apple.com/uk	Lenovo.com/uk	Hp.com/uk	Uk.asus.com	Pcspecialist.co.uk
Build rating	★★★★★	★★★★☆	★★★★★	★★★★☆	★★★★☆
Features rating	★★★★☆	★★★★☆	★★★★☆	★★★★☆	★★★★☆
Performance rating	★★★★★	★★★★☆	★★★★★	★★★★☆	★★★★★
Value rating	★★★★☆	★★★★☆	★★★★☆	★★★★☆	★★★★☆
Overall rating	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
Processor	2.7GHz Intel Core i5-2500S	2.3-3.3GHz Intel Core i7-3610QM	3.5-3.9GHz Intel Xeon E3-1280	3.1-3.5GHz Intel Core i5-3450	3.4-3.8GHz Intel Core i5-3570K
RAM	4GB DDR3	8GB DDR3	8GB DDR3	6GB DDR3	8GB DDR3
Storage capacity	1TB hard drive	750GB hard drive	1TB hard drive	1TB hard drive	2TB hard drive
Screen	27in IPS glossy	27in MVA 10-point touchscreen	27in IPS	23.6in TN 2-point touchscreen	24in TN 2-point touchscreen
Screen resolution	2560x1440	1920x1080	2560x1400	1920x1080	1920x1080
Graphics card	AMD Radeon HD 6770M	nVidia GeForce GT 630M	nVidia Quadro 1000M	nVidia GeForce GT 630M	nVidia GeForce GT 640
Video memory	512MB	2GB	2GB	1GB	1GB
Wireless	802.11a/b/g/n	802.11b/g/n	802.11a/b/g/n	802.11b/g/n	802.11b/g/n
Ethernet	✓	✓	✓	✓	✓
Bluetooth	✓	✗	✗	✗	✗
USB	4x USB 2.0	2x USB 3.0, 2x USB 2.0	2x USB 3.0, 4x USB 2.0	2x USB 3.0, 3x USB 2.0	2x USB 3.0, 5x USB 2.0
FireWire	✓	✓	✓	✗	✗
Thunderbolt	✓	✗	✗	✗	✗
HDMI	✗	✓	✗	✓	✓
Media card slot	✓	✓	✓	✓	✓
Max disc speeds	8x DVD±R, 4x DVD±R DL, 8x DVD-ROM	BD-ROM/DVD±RW	DVD±R	BD-ROM/DVD±RW	BD-ROM/DVD+RW
Extras	Webcam, wireless keyboard	720p webcam, tuner, remote, wireless keyboard and mouse	2Mp webcam, wired keyboard and mouse	1.3Mp webcam, woofer, wireless keyboard and mouse	2Mp webcam, SATA dock
Operating system	Mac OS X 10.7 Lion	Windows 7 Home Premium 64bit	Windows 7 Professional 64bit	Windows 7 Home Premium 64bit	Windows 7 Home Premium 64bit
Power consumption	67W (idle), 180W (under load)	45W (idle), 111W (under load)	82W (idle), 210W (under load)	34W (idle), 93W (under load)	54W (idle), 132W (under load)
Crysis (720p)	133fps	111fps	109fps	104fps	111fps
Crysis (1080p)	12fps	8fps	7fps	7fps	8fps
WorldBench 6 score	147	140	172	163	169
Dimensions	650x517x207mm	650x220x480mm	660x419x59mm	590x461x230mm	571x128x464mm
Weight	13.8kg	11.6kg	21kg	10.8kg	10.5kg
Warranty	1-year return-to-base	1-year return-to-base	3-year onsite	1-year return-to-base	1-year collect-and-return
Verdict	<ul style="list-style-type: none"> Peerless design and build quality Fantastic high-quality 27in screen Excellent gaming speed WorldBench score not as high as some OS X operating system 	<ul style="list-style-type: none"> Sleek and stylish 10-point touchscreen Strong software and multimedia features Relatively low WorldBench performance score 	<ul style="list-style-type: none"> Excellent display Not a touch interface Superb all-round performance No Blu-ray support Many ports and connectors are hard to access 	<ul style="list-style-type: none"> Strong build quality Screen has decent colour, but poor contrast and viewing angles Only two touch points Speaker system well above average Doesn't offer the best value 	<ul style="list-style-type: none"> Good gaming performance Uninspiring plastic looks Quad-core Intel i5-3570K packs lots of power Fans are too noisy No preinstalled software
FULL REVIEW	TINYURL.COM/7THNXU8	TINYURL.COM/93EUU4F	TINYURL.COM/CJ8MCMCA	TINYURL.COM/CHJDOMU	TINYURL.COM/9K8WGS0

>> Buying advice



All-in-one PCs

Changes in exchange rates and component supply issues mean we can't guarantee PCs listed here will be available as specified. All our prices include delivery charges.

All-in-one PCs build into a large (21- to 27in) monitor all the components they require to run, making them an excellent and stylish solution for saving space.






However, with limited internal space for cooling, all-in-one machines tend to include less powerful components than traditional desktops. Expect to find integrated or laptop graphics processors and mobile CPUs inside.

All-in-ones aren't usually easy to upgrade, but many are pre-packed with Wi-Fi, Bluetooth, speakers and even Blu-ray players.

Touchscreen displays are likely to become more desirable once Windows 8 is released. If you buy one now, ensure the image quality hasn't been compromised and that it's sufficiently responsive to touch.

The quality of the supplied keyboard and mouse (usually wireless) is critical. TV tuners and HDMI ports are welcome additions.

READ MORE: TINYURL.COM/87VW5KJ

Business PCs	1  PC ADVISOR BEST BUY	2  PC ADVISOR RECOMMENDED	3  PC ADVISOR RECOMMENDED	4  PC ADVISOR RECOMMENDED	5 
	Chillblast Fusion Obsidian	Apple Mac mini	PC Specialist MPC-2120	Eclipse eBiz i321r755	Arbico FX4130 Office PC
Price	£549 inc VAT	£429 inc VAT	£539 inc VAT	£599 inc VAT	£500 inc VAT
Website	Chillblast.com	Apple.com/uk	Pcspecialist.co.uk	Eclipsecomputers.com	Arbico.co.uk
Build rating	★★★★☆	★★★★★	★★★★☆	★★★★☆	★★★★☆
Features rating	★★★★☆	★★★★☆	★★★★☆	★★★★☆	★★★★☆
Performance rating	★★★★☆	★★★★☆	★★★★☆	★★★★☆	★★★★☆
Value rating	★★★★☆	★★★★☆	★★★★☆	★★★★☆	★★★★☆
Overall rating	★★★★☆	★★★★☆	★★★★☆	★★★★☆	★★★★☆
Processor	3.4GHz Intel Core i5-3570K	2.3GHz Intel Core i5-2415M	3.3GHz Intel Core i3-2120	3.1GHz Intel Core i3-2100	3.6GHz AMD FX-4100
RAM	8GB DDR3	2GB DDR3	4GB DDR3	8GB DDR3	8GB DDR3
Storage capacity	1TB SATA 6Gbps	500GB SATA	1TB SATA 6Gbps + 120GB SSD	1TB SATA 3Gbps	500GB SATA 6Gbps
Motherboard	Asus P8H61-M LE/USB3	Apple Mac mini board	Intel DH67CF	Asus P8H61-M LE/USB3	Asus M5A78L M/USB3
CPU cooler	Standard Intel cooler	Custom active cooler	Standard Intel cooler	Standard Intel cooler	Xigmatek Apache
Power supply	500W EZCool	85W Delta Electronics	160W Power Man	450W unbranded	650W Ace
Screen	21.5in Asus VE228T	N/A	N/A	2x 21.6in AOC F22+	N/A
Screen resolution	1920x1080 pixels	N/A	N/A	1920x1080	N/A
Graphics	Intel HD Graphics 4000	Intel HD Graphics 3000	Intel HD Graphics 2000	AMD Radeon HD 7750	Asus nVidia GT 430
Video memory	N/A	N/A	N/A	1GB	1GB
USB	2x USB 3.0, 8x USB 2.0	4x USB 2.0	2x USB 3.0, 7x USB 2.0	3x USB 3.0, 6x USB 2.0	2x USB 3.0, 4x USB 2.0
Sound	Onboard	Onboard	Onboard	Onboard	Onboard
Speakers	Built into monitor	Not supplied	Not supplied	Not supplied	Not supplied
Case	Cit Shade	Apple Mac mini unibody	In-Win BM643	Generic 437-16 series	Ace Ecco 250
Keyboard	Logitech MK260 (wired)	Bluetooth Keyboard, Magic Trackpad (optional)	Logitech K200 (wired)	Logitech MK120 (wired)	Logitech MK120 (wired)
Optical drive	24x Sony DVD±RW	N/A	8x Samsung DVD±RW	22x Samsung DVD±RW	24x Sony DVD±RW
Operating system	Windows 7 Professional 64bit	Mac OS X 10.7 Lion	Windows 7 Professional 64bit	Windows 7 Home Prem 64bit	Windows 7 Professional 64bit
Bundled software	Microsoft Office 2010 Starter	iLife	Microsoft Office 2010 Starter	Microsoft Office 2010 Starter	None
WorldBench 6 score	176	117	154	139	128 (est)
Power consumption	39W/97W/9,603J	9W	22W/55W/11,440J	43W/93W/48,081J	63W/163W/73,676J
Warranty	2-year collect-and-return	1-year collect-and-return	3-year RTB (labour only)	1-year RTB	2-year RTB (labour only)
Verdict	<ul style="list-style-type: none"> Packs the latest Ivy Bridge processor Strong components and performance Superior 22in flat-panel HD 4000 a cut above the usual onboard graphics 	<ul style="list-style-type: none"> Beautifully compact Good performance No DVD drive Very low power consumption Quiet and elegant Versatile OS X operating system 	<ul style="list-style-type: none"> Small-form-factor PC takes up little desk space Very low power consumption Performance is adequate, but not stunning Graphics card only an onboard HD 2000 	<ul style="list-style-type: none"> Dual-screen system Neither of the screens are of great quality CPU isn't very powerful Windows 7 Home Premium not aimed at office users 	<ul style="list-style-type: none"> Sound-damping materials keep noise to a minimum Low price for a system with Windows 7 Professional Performance some way behind the fastest here No monitor included
FULL REVIEW	TINYURL.COM/CNOALAZ	TINYURL.COM/88GUG5H	TINYURL.COM/CT9ZR4J	TINYURL.COM/CVFKRRZ	TINYURL.COM/CRTC8M8

>> Buying advice



Business PCs

Changes in exchange rates and component supply issues mean we can't guarantee PCs listed here will be available as specified. All our prices include delivery charges.

Provided you have sufficient RAM (at least 2GB, but preferably 4GB), any modern CPU will provide enough power for low-level admin tasks. Intel's Core i3 provides

ample performance for general use and come with integrated graphics, saving you the cost of buying an additional card.

In a typical networked business environment there will be storage available on the LAN, so you're unlikely to need a large hard drive. A 500GB drive should be ample.

Wireless keyboards and mice can cause issues in the workplace

due to interference between adjacent workstations. A decent wired kit is ideal, while quiet-typing keyboards can be less distracting.

For small businesses with just one or two PCs, Windows 7 Home Premium is cheaper but can't connect to servers. The Pro edition is a better option for businesses, especially if you need compatibility with older software.

Chillblast.com

sales@chillblast.com 0845 45678 31

WINDOWS 8
BASED PCS NOW
AVAILABLE (OR YOU
CAN HAVE WINDOWS
7 AT NO EXTRA
CHARGE!)

CHOOSE YOUR PC ADVISOR AWARD WINNING PC SYSTEM



FUSION ORB

Our best ever family PC Package!

- Chillblast Vantage Case
- Intel Ivybridge Core i5 3570K CPU
- Asus P8B75-M LX Motherboard
- 16GB PC3-10666 DDR3 Memory
- Chillblast Radeon 7770 1GB Graphics Card
- 120GB SATA III Solid State Drive
- 1000GB SATA III 7200rpm Hard Disk
- Samsung Blu Ray / DVD-RW Combo Drive
- Chillblast 700watt EZCool PSU
- 23" Iiyama IPS High End Monitor
- Keyboard mouse and speakers
- Windows 7 Home Premium 64 bit
- Logitech Speakers, Webcam, 802.11N

£665.83 ex VAT



PC ADVISOR
BEST BUY



FUSION GALAXY

Incredible touch screen Windows 8 PC!

- Xigmatek Asgard Pro Case
- Intel Core i5 3570 CPU @ 3.4GHz
- Asus P8B75-M LX Motherboard
- 8GB PC3-10666 DDR3 Memory
- AMD Radeon 7770 1GB Graphics Card
- 2000GB SATA III 7200rpm Hard Disk
- LG Blu Ray / DVD-RW Combo Drive
- Chillblast 700watt PSU
- Onboard High Definition Audio
- Windows 8 64bit (or Windows 7)
- Dell ST2220T Touch Screen with IPS!
- Logitech Cordless Keyboard & Mouse

£665.83 ex VAT

FUSION OBSIDIAN

With Ivy Bridge Technology!

- CIT Shade Micro ATX Case
- Intel Ivybridge Core i5 3570K CPU
- Asus P8H61-M LE/USB3 Motherboard
- 8GB PC3-10666 DDR3 Memory
- Intel HD4000 Graphics Card
- 1000GB SATA III 7200rpm Hard Disk
- Sony 24x DVD RW Drive
- 500W EZCool Power Supply
- Windows 7 PROFESSIONAL 64bit OEM
- Top quality 22" Asus VE228T Monitor
- Logitech Keyboard and Mouse
- All systems come with 2 year warranty!

£458.00 ex VAT






The UK's most awarded PC Builder

But dont just take our word for it...

- Three time Winner of PC Pro Excellence Award!
- Twice Winner of PC Advisor Best Desktop Brand!
- Computer Shopper & Expert Reviews Best PC Manufacturer 2012!
- All awards voted for by readers & customers!



*Chillblast won more awards in the leading IT press publications PC Pro, PC Advisor and Computer Shopper combined than any other retailer 2010-2012

Media PCs	 1 PC ADVISOR BEST BUY	 2 PC ADVISOR RECOMMENDED	 3 PC ADVISOR RECOMMENDED	 4 PC ADVISOR RECOMMENDED	 5 PC ADVISOR RECOMMENDED
	Chillblast Fusion Vacuum Mini	Apple Mac mini	Quiet PC Streacom FC5-Z77	Tranquil PC Media One	Quiet PC Zeno NT-H67
Price	£999 inc VAT	£896 inc VAT	£1,491 inc VAT	£1,009 inc VAT	£1,444 inc VAT
Website	Chillblast.com	Apple.com/uk	Quietpc.com	Tranquilpc.co.uk	Quietpc.com
Build rating	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
Features rating	★★★★☆	★★★★☆	★★★★★	★★★★☆	★★★★☆
Performance rating	★★★★★	★★★★☆	★★★★★	★★★★☆	★★★★☆
Value rating	★★★★★	★★★★☆	★★★★☆	★★★★☆	★★★★☆
Overall rating	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
Processor	3.1GHz Intel Core i5-3450S	2.53GHz Intel Core i5-2520M	2.5GHz Intel Core i7-3770T	2.5GHz Intel Core i3-2100T	3.3GHz Intel Core i3-2125
RAM	8GB DDR3	4GB DDR3	8GB DDR3	4GB DDR3	8GB DDR3
Storage capacity	240GB SSD	500GB 2.5in HDD	128GB SSD	80GB SSD	1TB 2.5in HDD
Motherboard	Asus P8H77-I	Apple Mac mini board	Gigabyte GA-Z77M-D3H	Intel DH61AG	Gigabyte GA-H67N-USB3-B3
CPU cooler	Passive cooler	Custom active cooler	Heatpipes built into case	Tranquil cooling solution	Zeno heatpipe cooling
Power supply	External 150W Pico	85W Delta Electronics	External 160W Pico	External 19V DC supply	1,000W Zeno
Graphics	Intel HD Graphics 4000	AMD Radeon HD 6630M with 256MB video memory	Intel HD Graphics 4000	Intel HD Graphics 3000	Intel HD Graphics 3000
TV tuner	BlackGold BGT3620	x	TBS 6284 Quad DVB-T2	x	Black Gold BGT3600
Wireless	802.11n via adaptor	Dual-band 802.11n	x	x	x
Ethernet	Gigabit	Gigabit	Gigabit	Gigabit	Gigabit
Bluetooth	x	✓	x	x	x
USB	2x USB 3.0, 8x USB 2.0	4x USB 2.0	2x USB 3.0, 4x USB 2.0	2x USB 3.0, 2x USB 2.0	2x USB 3.0, 4x USB 2.0
Ports	S/PDIF, HDMI, VGA	S/PDIF, HDMI, FW800, TB	HDMI, VGA, DVI	S/PDIF, HDMI, DVI	S/PDIF, HDMI, VGA
Case	Streacom FC8 Black fanless	Apple Mac mini unibody	Streacom FC5	Tranquil PC Media One	Zeno NT-TX2000
Keyboard and mouse	Xebec	Bluetooth Keyboard, Magic Trackpad	Microsoft Wireless Desktop 3000	x	Microsoft Wireless Desktop 3000
Remote control	✓	✓	✓	✓	✓
LCD screen	x	x	x	x	x
Optical drive	Sony BD-ROM	SuperDrive DVD ± RW	Sony BD-ROM	Sony DVD ± RW	BD-ROM/DVD ± RW
Sound	Onboard	Onboard	Onboard	Onboard	Onboard
Operating system	Windows 7 Home Prem 64bit	Mac OS X 10.7 Lion	Windows 7 Home Prem 64bit	Windows 7 Home Prem 64bit	Windows 7 Home Prem 64bit
Media software	WMC	iLife	WMC, ArcSoft TotalMedia	WMC	WMC, ArcSoft TotalMedia
Crysis (Low/Medium)	40/19	77/48fps	48/31	27/13	45/20fps
MediaEspresso time	1 min 57 secs	8 mins 33 secs	1 min 42 secs	4 mins 14 secs	3 mins 14 secs
WorldBench 6 score	169	123	172	123	141
Idle consumption	26W	10W	28W	19W	36W
Max consumption	73W	Not tested	74W	45W	Not tested
Warranty	2-year collect-and-return	1 year collect-and-return	2-year collect-and-return	3-year return-to-base	2 years collect-and-return
Verdict	<ul style="list-style-type: none"> Generally noiseless operation Cute looks and great build quality SSD is fast, but more storage is needed Xebec keyboard replaces a remote control 	<ul style="list-style-type: none"> Beautifully compact Great for graphics Good performance No DVD drive Very low power consumption Quiet and elegant 	<ul style="list-style-type: none"> Generally noiseless operation Great performance SSD is fast, but more storage is needed Price tag is high 	<ul style="list-style-type: none"> High-quality looks No Blu-ray or TV support External storage needed Not great performance 	<ul style="list-style-type: none"> Blu-ray drive included Silent, fanless operation Best multimedia playback of group Dual digital TV tuners Stylish Zalman case Expensive
FULL REVIEW	TINYURL.COM/BQM62QH	TINYURL.COM/88GUG5H	TINYURL.COM/D9GP87X	TINYURL.COM/C4NPQ5F	TINYURL.COM/7S2ZWXD

GLOSSARY: FW800: FireWire 800 TB: Thunderbolt WMC: Windows Media Center

>> Buying advice



Media PCs

Changes in exchange rates and component supply issues mean we can't guarantee PCs listed here will be available as specified. All our prices include delivery charges.

You can use any PC to create a media centre, but a quiet system is preferable. It's important to strike a balance between power consumption and performance -

not only will the PC probably be left switched on for long periods, but a high-performance processor will generate large amounts of heat, and cooling that chip can involve noisy whirring fans.


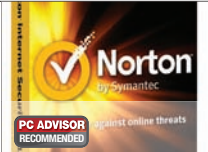



Fanless systems can be built using large passive heat sinks or heat pipes, although you can find ultra-quiet tweakable fans if fitting one is unavoidable.

SSDs have no moving parts, making them silent in use. They're expensive, mind, so consider setting up a NAS elsewhere in your home for extra storage.






A TV tuner is desirable; you'll need a dual-tuner to watch and record shows simultaneously.

Also look for a Blu-ray drive and a wireless keyboard and mouse.

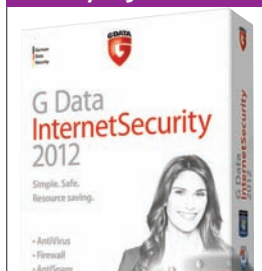
READ MORE: TINYURL.COM/CGFOD2K

Internet security suites					
	G Data InternetSecurity	Norton Internet Security	Bitdefender Internet Security	Kaspersky Internet Security	Trend Micro Titanium IS
Annual price	£34 inc VAT	£49 inc VAT	£29 inc VAT	£39 inc VAT	£39 inc VAT
Licence terms	1 PC, 1 year	1 PC, 1 year	1 PC, 1 year	1 PC, 1 year	3 PCs, 1 year
Website	Gdatasoftware.co.uk	Uk.norton.com	Bitdefender.co.uk	Kaspersky.co.uk	Uk.trendmicro.com
Overall rating	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
Signature-based detection	100 percent	99.9 percent	100 percent	99.3 percent	97.5 percent
Malware blocking (full)	100 percent	100 percent	96.2 percent	100 percent	92.3 percent
Malware blocking (partial)	N/A	N/A	0 percent	N/A	3.8 percent
Clean-up of malware	60 percent	50 percent	90 percent	60 percent	70 percent
On-demand scan speed	109 secs	68 secs	116 secs	71 secs	93 secs
On-access scan speed	116 secs	154 secs	265 secs	280 secs	314 secs
Interface design	Good	Very good	Superior	Very good	Very good
Verdict	<ul style="list-style-type: none"> Excellent detection rates Good value Low impact on resources Confusing interface 	<ul style="list-style-type: none"> Good all-rounder Fast scan times Clean interface Flagged some false-positives 	<ul style="list-style-type: none"> Impacts system resources Very strong malware blocking and removal Intuitive interface 	<ul style="list-style-type: none"> Strong block rate Above-average scan times Can affect PC performance Interface needs tweaking 	<ul style="list-style-type: none"> Set-it-and-forget-it security Flagged some false-positives Reasonable scan speeds Ideal for novice users
FULL REVIEW	TINYURL.COM/7CZT5XB	TINYURL.COM/CVVDWUR	TINYURL.COM/75H3WUK	TINYURL.COM/6UEHPMW	TINYURL.COM/7QTBA6

GLOSSARY: • IS: Internet Security

Antivirus software					
	Norton AntiVirus	Bitdefender Antivirus Pro	G Data AntiVirus	Kaspersky Anti-Virus	Trend Micro Titanium AV+
Annual price	£39 inc VAT	£24 inc VAT	£34 inc VAT	£39 inc VAT	£39 inc VAT
Licence terms	3 PCs, 1 year	3 PCs, 1 year	3 PCs, 1 year	3 PCs, 1 year	3 PCs, 1 year
Website	Norton.com	Bitdefender.co.uk	Gdatasoftware.com	Kaspersky.co.uk	Uk.trendmicro.com
Overall rating	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
Signature-based detection	98.7 percent	97.5 percent	99.4 percent	95.7 percent	98.4 percent
Malware blocking (full)	96 percent	68 percent	84 percent	88 percent	88 percent
Malware blocking (partial)	0 percent	20 percent	4 percent	4 percent	8 percent
Clean-up of active malware	80 percent	80 percent	80 percent	80 percent	80 percent
On-demand scan speed	121 secs	126 secs	111 secs	103 secs	187 secs
On-access scan speed	272 secs	327 secs	336 secs	310 secs	249 secs
Interface design	Very good	Very good	Very good	Very good	Very good
Verdict	<ul style="list-style-type: none"> Smooth user interface Large 'Fix Now' button Moderate impact on system performance 	<ul style="list-style-type: none"> Very good performance for malware removal Average scan speeds Three interface tiers 	<ul style="list-style-type: none"> Strong malware detection, blocking and removal Good user interface, but poorly translated 	<ul style="list-style-type: none"> Well-designed interface Easy to use On-demand single-file scans Impacts PC performance 	<ul style="list-style-type: none"> Set-it-and-forget-it security Cloud-based protection Requires web connection Good performance
FULL REVIEW	TINYURL.COM/4P5YXCP	TINYURL.COM/66SK77U	TINYURL.COM/6BFXWCS	TINYURL.COM/6HQA2WB	TINYURL.COM/4HUORV3

>> Buying advice



Security software

Every connected PC should have at least antivirus, antispyware and a firewall, and it's important that each is kept up to date. Avoid installing more than one real-time scanning component.

We work with world-renowned independent security testing lab AV-Test.org to evaluate the effectiveness of security software.

No security software is foolproof, but some are significantly better than others. And factors such as ease of setup, scan speeds, interface design and ability to deal with new threats set them apart.

The best products will offer parental controls, cloud protection, anti-phishing, anti-rootkit, virtual web browsers and keyboards, link

and file scanners, gaming modes, online backup and more.

The best value is usually offered by a three-user licence, but you can save some cash if your household has only one PC.

There are some good free antivirus products but, as in life, you get what you pay for.

[READ MORE: TINYURL.COM/7NR8FSM](http://tinyurl.com/7NR8FSM)

Sub-£150 printers	    				
	1 PC ADVISOR GOLD	2 PC ADVISOR BEST BUY	3 PC ADVISOR RECOMMENDED	4 PC ADVISOR RECOMMENDED	5
	Samsung ML-2955DW	Oki C110	Canon MX895	HP Photosmart 7520	Canon Pixma MG4150
Price	£98 inc VAT	£140 inc VAT	£145 inc VAT	£140 inc VAT	£60 inc VAT
Website	Samsung.com/uk	Oki.co.uk	Canon.co.uk	Hp.com/uk	Canon.co.uk
Overall rating	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
Technology	Mono laser	Colour laser	Colour inkjet	Colour inkjet	Colour inkjet
Max print resolution	1200x1200dpi	1200x600dpi	9600x2400dpi	9600x2400dpi	4800x1200dpi
Actual print speed	B=22.2ppm	B=15.8ppm/C=2.5ppm	B=11.9ppm C=7.3ppm	B=17.6ppm C=7.9ppm	B=8.6ppm/C=3.8ppm
Scan/fax facilities	none	None	1200x2400 scans, fax	1200x2400 scans	1200x2400dpi scans
Supported interfaces	USB 2.0, 802.11b/g/n, ethernet	USB 2.0	USB 2.0, 802.11b/g/n, ethernet	USB 2.0, 802.11b/g/n, HP ePrint	USB 2.0, 802.11b/g/n
Cost per page	B=2.7p	B=3.6p/C=5p	B=2.9p/C=12.5p	B=2.4p/C=4.8p	B=2.8p/C=4.5p
Media card/auto duplex	✓	✗	✓	✓	✓
Input capacity	251 sheets	100 sheets	150 sheets + 35 ADF	125 sheets + 20 tray + 25 ADF	100 sheets
Dimensions	348x338x197mm	396x380x275mm	491x448x218mm	454x551x220mm	449x304x152mm
Weight	7.2kg	14.4kg	11.7kg	8.6kg	5.7kg
Warranty	1 year	3 years	1 year	1 year	2 years
Verdict	<ul style="list-style-type: none"> Speedy for the price Slim but well-defined text Reasonable running costs Wi-Fi/wired network support 	<ul style="list-style-type: none"> Good value even at £140 Performs better than an equivalent inkjet No duplex mode 	<ul style="list-style-type: none"> Excellent photo quality Both Wi-Fi and Ethernet Scans and faxes Not the fastest printer 	<ul style="list-style-type: none"> Nice 4.3in touchscreen Separate photo/ADF trays Good speed for an inkjet Competitive running costs 	<ul style="list-style-type: none"> Excellent value at £60 Decent middle-mode speeds Complex control panel High text running costs
FULL REVIEW	TINYURL.COM/CCLSZDM	TINYURL.COM/YLNO5RV	TINYURL.COM/92YQ4SF	TINYURL.COM/98G9XTE	TINYURL.COM/6UJBGDJ

£151+ printers	    				
	1 PC ADVISOR BEST BUY	2 PC ADVISOR BEST BUY	3 PC ADVISOR RECOMMENDED	4	5
	Kyocera Mita FS-1320D	Kyocera FS-C5250DN	Kyocera Ecosys FS-4300DN	Brother HL-5450DN	Dell C3765dnf A4 Colour
Price	£170 inc VAT	£450 inc VAT	£917 inc VAT	£240 inc VAT	£700 inc VAT
Website	Kyoceramita.co.uk	Kyoceramita.co.uk	Kyoceramita.co.uk	Brother.co.uk	Dell.co.uk
Overall rating	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
Technology	Mono laser	Colour laser	Mono laser	Mono laser	Colour laser
Max print resolution	1200x1200dpi	600x600dpi	1200dpi	1200x1200dpi	600x600dpi
Actual print speed	B=26.1ppm	B=24.8ppm/C=18.3ppm	B=41.2ppm	B=32ppm	B=35ppm/C=35ppm
Scan/fax facilities	None	None	None	None	Scanner and fax
Supported interfaces	USB 2.0	USB 2.0, ethernet	USB 2.0, ethernet	USB 2.0, ethernet	USB 2.0, ethernet
Cost per page	B=1.4p	B=1.2p/C=5.2p	B=0.4p	B=1.2p	B=0.9p/C=1.8p
Media card/auto duplex	✓	✗	✗	✗	✗
Input capacity	250 sheets	500 + 50 sheets	500 + 100 sheets	250 + 50 sheets	550 + 150 + 50 sheets
Dimensions	375x393x250mm	390x523x397mm	380x416x320mm	371x384x245mm	558x439x530mm
Weight	12kg	30kg	14.6kg	10.5kg	32.6kg
Warranty	2 years	2 years	2 years	1 year	1 year
Verdict	<ul style="list-style-type: none"> No frills business laser Lacks Wi-Fi and ethernet Modest running costs Auto-duplex support 	<ul style="list-style-type: none"> Blistering speed Huge paper capacity Colour printing isn't perfect Hefty 	<ul style="list-style-type: none"> High printing speed Excellent paper handling, expandable to 2,600 sheets Stunning running costs 	<ul style="list-style-type: none"> Strong mono print speed Reasonable print costs Solid print quality No LCD display 	<ul style="list-style-type: none"> High speed and quality Wireless as an option Low running costs Multiple paper-feed sources
FULL REVIEW	TINYURL.COM/6GG9UKV	TINYURL.COM/7QMXVZA	TINYURL.COM/9Y9HHT3	TINYURL.COM/96CP7G6	TINYURL.COM/DXVAWRG

GLOSSARY: • B: mono • C: colour • ppm: pages per minute

>> Buying advice



Printers

Most printers are inkjet or laser models, and there are colour and mono flavours of each. Lasers tend to be more expensive to buy, but provide better-quality output, particularly where text is involved.

The price you pay instore is only the beginning; also consider the cost of replenishing the ink and paper. Duplexing lets you print to

both sides of a sheet, saving paper but slowing output.

Multifunction printers can save you money if you also require scanning facilities; some models include copy and fax functions, too.

A USB port lets you connect a printer to a single PC, but built-in wireless networking allows it to join a home or office network.

A memory card slot will let you bypass a PC for printing.

Never trust a manufacturer's claimed print speeds; we run our own tests to properly assess each printer's performance.

High-capacity paper trays and auto document feeders are also worth looking for.

READ MORE: TINYURL.COM/BUX9QM0

Blu-ray drives	    				
	1	2	3	4	5
	LG BH10LS38	Lite-On iHBS212	LG BP40NS20	Lite-On iHES112-115	Buffalo BR3D-12U3
Price	£65 inc VAT	£87 inc VAT	£90 inc VAT	£50 inc VAT	£199 inc VAT
Website	Uk.lge.com	Liteonit.eu	Uk.lge.com	Liteonit.eu	Buffalotech.com
Overall rating	★★★★★	★★★★☆	★★★★☆	★★★★☆	★★★★★
Blu-ray speeds	10x -R, 8x -R DL, 2x -RE, 10x -ROM	12x -R, 8x -R DL, 2x -RE, 8x -ROM	6x -R, 6x -R DL, 2x -RE, 6x -ROM	12x -ROM	12x -R, 12x -R DL, 2x -RE, 8x -ROM
DVD speeds	16x ±R, 8x ±R DL, 6x -RW, 8x +RW, 12x -RAM, 16x -ROM	16x ±R, 8x ±R DL, 6x -RW, 8x +RW, 12x -RAM, 16x -ROM	8x ±R, 6x ±R DL, 6x -RW, 8x +RW, 5x -RAM, 8x -ROM	8x ±R, 8x ±R DL, 6x -RW, 8x +RW, 8x -ROM	16x ±R, 8x ±R DL, 6x -RW, 8x +RW, 5x -RAM, 8x -ROM
Max storage	50GB	50GB	100GB	8.5GB	50GB
Interface type	SATA (internal)	SATA (internal)	USB 2.0 (external)	SATA (internal)	USB 3.0 (external)
Label technology	LightScribe	LightScribe	None	None	None
Software	(OEM - add £5 for software)	CyberLink Blu-ray Suite	PowerDVD, PowerProducer	None	PowerDVD, PowerProducer
Dimensions	146x170x41mm	146x170x41mm	160x153x22mm	158x145x22mm	160x220x50mm
Weight	749g	650g	380g	700g	1.1kg
Warranty	1 year	2 years	1 year	2 years	2 years
Verdict	<ul style="list-style-type: none"> • 10-speed internal writer • Attractive front panel • Reliable performance • Very good value 	<ul style="list-style-type: none"> • 12-speed internal writer • Issues during testing • Noisy during operation • Average with 4x media 	<ul style="list-style-type: none"> • Attractive external model • Maxes out at 6x BD-R (most media is only 6x) • Supports triple-layer BD-R 	<ul style="list-style-type: none"> • Playback only • No software included with many bundles • Low price 	<ul style="list-style-type: none"> • 12-speed external writer • Power supply required • Bulky design • Expensive
FULL REVIEW	TINYURL.COM/8YTUJEF	TINYURL.COM/65PXHUJ	TINYURL.COM/BS8UAFF	TINYURL.COM/8SYECMW	TINYURL.COM/453BX7L

Wireless routers	    				
	1	2	3	4	5
	Cisco Linksys E4200	Apple AirPort Express	D-Link N600	D-Link DIR-857	AVM FritzBox Fon 7390
Price	£115 inc VAT	£79 inc VAT	£70 inc VAT	£150 inc VAT	£190 inc VAT
Website	Linksysbycisco.com	Apple.com/uk	Dlink.com	Dlink.co.uk	Fritzbox.eu
Overall rating	★★★★★	★★★★☆	★★★★☆	★★★★☆	★★★★☆
Standards supported	802.11a/b/g/n	802.11a/b/g/n	802.11a/b/g/n	802.11a/b/g/n	802.11a/b/g/n
Frequency modes	2.4GHz/5GHz (concurrent)	2.4GHz/5GHz (concurrent)	2.4GHz/5GHz (concurrent)	2.4GHz/5GHz (concurrent)	2.4GHz/5GHz (concurrent)
WEP/WPA/WPA2	✓✓✓	✓✓✓	✓✓✓	✓✓✓	✓✓✓
USB port/Network port	✓✓	✓✓	✓✓	✓✓	✓✓
Firewall	NAT/SPI	NAT/SPI	NAT/SPI	NAT/SPI	NAT/SPI
Eco mode	x	x	x	x	x
Ethernet ports	Gigabit WAN, 4x gigabit LAN	10/100 LAN, 10/100 WAN	4x gigabit LAN, 1x gigabit WAN	4x gigabit LAN, 1x gigabit WAN	4x gigabit LAN
Throughput (near/far)	226/92Mbps	94Mbps/not tested	142/115Mbps	125/37Mbps	92/38Mbps
Dimensions	225x160x25mm	98x98x23mm	111x93x145mm	212x160x34mm	226x160x48mm
Weight	335g	240g	330g	342g	not specified
Warranty	1 year	1 year	1 year	1 year	5 years
Verdict	<ul style="list-style-type: none"> • Excellent performance • Dual-band Wi-Fi • Guest login feature • In short supply 	<ul style="list-style-type: none"> • Sleek, flat and square look • Concurrent 2.4/5GHz • Extremely easy setup • Digital audio output 	<ul style="list-style-type: none"> • Cloud features • Parental controls • Excellent value • Interesting looks 	<ul style="list-style-type: none"> • Parental controls • Media-sharing options • 3x3 Mimo antenna for speed • Strong performance 	<ul style="list-style-type: none"> • Supports landline and internet telephony • Dual-band Wi-Fi • USB port
FULL REVIEW	TINYURL.COM/6Z7BDKM	TINYURL.COM/C4ZAYEM	TINYURL.COM/9LGFF8Y	TINYURL.COM/82KWLJO	TINYURL.COM/3QUJZBX

>> Buying advice



Blu-ray drives

A single Blu-ray Disc holds the equivalent of 35 CDs or five DVDs. It might look like a DVD, but its shorter wavelength and narrow blue laser beam allow it to hold greater capacity. It's the storage method of choice for HD and 3D video content.

External drives are easier to install, portable, and can be shared

between PCs, but they will cost you considerably more than internal models, and may not be as quick.

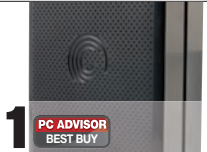




If you opt for an internal drive, ensure you have enough space inside your PC. Most internal drives use the SATA interface, so check you've got a compatible port.






Look for a drive that also supports several DVD formats, but don't obsess about write speeds.

You should be able to get 16-speed DVD writing, but it's not worth paying more to save seconds.

You may find that the Blu-ray media currently on the market isn't fast enough to enjoy your chosen drive's maximum write speeds. Six-/eight-speed BD-R capabilities are standard, but even six-speed BD-R media is still rare.

READ MORE: [TINYURL.COM/70EPYL6](http://tinyurl.com/70EPYL6)

External hard drives	 1 PC ADVISOR BEST BUY	 2 PC ADVISOR RECOMMENDED	 3 PC ADVISOR GOLD	 4	 5 PC ADVISOR BEST BUY
	Seagate FreeAgent GoFlex	iStorage diskAshur DT 3TB	G-Tech G-Raid Thunderbolt	WD My Book Thunderbolt Duo	WD My Passport Studio
Price	£180 inc VAT	£295 inc VAT	£750 inc VAT	£375 inc VAT	£120 inc VAT
Website	Seagate.com	Istorage-uk.com	G-technology.com	Wdc.com	Wdc.com/en
Overall rating	★★★★☆	★★★★★	★★★★★	★★★★☆	★★★★★
Capacity tested	3TB	3TB	8TB	4TB	1TB
Capacity range	1TB to 3TB	1TB to 3TB	4TB to 8TB	4TB to 6TB	500GB to 1TB
Disk size	3.5in	3.5in	3.5in	3.5in	2.5in
Spin speed	7,200rpm	5,400rpm	7,200rpm	7,200rpm	5,400rpm
Transfer speed	94MBps (USB 3.0)	155MBps (USB 3.0)	329MBps	223MBps	76MBps (FireWire 800)
Encryption	192bit	256bit	None	None	256bit
Other interfaces	Optional FireWire 800	None	None	None	FireWire 800, USB 2.0
Software	Memo Backup	None	None	WD Drive Utilities	WD utilities
Dimensions	158x124x44mm	183x112x40mm	235x130x85mm	165x157x99mm	126x84x22mm
Weight	1kg	1.2kg	2.3kg	2.2kg	334g
Warranty	2 years	3 years	3 years	3 years	3 years
Verdict	<ul style="list-style-type: none"> Great speed for USB 3.0 Great value for capacity Separate storage drive and USB 3.0 dock 	<ul style="list-style-type: none"> Hardware encryption is difficult to break and requires no software Superb performance 	<ul style="list-style-type: none"> Fast Thunderbolt interface Real-world speed can exceed 200MBps Pricy, but huge capacity 	<ul style="list-style-type: none"> Thunderbolt interface Not as fast as some Thunderbolt Raid drives Quiet and cool operation 	<ul style="list-style-type: none"> Superbly built FireWire 800 and USB 2.0 interfaces AES encryption
FULL REVIEW	TINYURL.COM/BN2Z92F	TINYURL.COM/BMGKSVY	TINYURL.COM/CXEF6MH	TINYURL.COM/C6TADAH	TINYURL.COM/6FAWBNE

NAS drives	 1 PC ADVISOR BEST BUY	 2 PC ADVISOR RECOMMENDED	 3 PC ADVISOR RECOMMENDED	 4	 5
	Synology DS412+	Zyxel NSA325	Qnap TS-419P II	Netgear ReadyNAS Pro 6	Iomega StorCenter px6-300d
Price	£510 inc VAT (diskless)	£100 inc VAT (diskless)	£460 inc VAT (diskless)	£853 inc VAT (diskless)	£576 inc VAT (diskless)
Website	Synology.com	Zyxel.co.uk	Qnap.com	Netgear.co.uk	Go.iomega.com
Overall rating	★★★★★	★★★★★	★★★★★	★★★★☆	★★★★★
Drive bays	4	2	4	6	6
Processor	2.13GHz Intel Atom D2700	1.6GHz processor	2GHz Marvell 88F66282	2.66GHz Intel Pentium	1.8GHz Intel Atom D525
Memory	1GB DDR3	512MB DDR2	512MB DDR3	2GB DDR2	2GB DDR3
Remote access	✓	✓	✓	✓	✓
eSATA	✓	x	✓	x	x
USB port	2x USB 3.0, 1x USB 2.0	2x USB 2.0	4x USB 2.0	2x USB 3.0, 1x USB 2.0	1x USB 3.0, 2x USB 2.0
Raid options	0/1/5/5+s/6/10/JBOD	0/1/JBOD	0/1/5/6/10/JBOD	0/1/5/6/10	0/1/10/5/5+s/6
Software	DSM 4.0	zPilot	TurboNAS 3.6.1	Netgear RAIDiator	EMC LifeLine, Iomega Link
Dimensions	165x203x233mm	108x205x147mm	177x180x235mm	170x250x285mm	257x176x270mm
Weight	2kg	1.8kg	3kg	7.3kg	4.9kg
Warranty	2 years	1 year	2 years	5 years	3 years
Verdict	<ul style="list-style-type: none"> Superb read/write performance Powerful options Attractive and intuitive 	<ul style="list-style-type: none"> Cheapest drive here Decent performance and features for the money Complex interface 	<ul style="list-style-type: none"> Well priced Robust cabinet construction Solid performance Old but effective interface 	<ul style="list-style-type: none"> Most expensive NAS here Mostly strong performance Internal power supply Complex admin interface 	<ul style="list-style-type: none"> High-quality construction Features suitable for home and business use Decent performance
FULL REVIEW	TINYURL.COM/6UUL4DE	TINYURL.COM/7B9EPW8	TINYURL.COM/72N4GBN	TINYURL.COM/84JD226	TINYURL.COM/7AT8HA5

>> Buying advice



NAS drives

NAS drives are ideal for businesses or home users who require large amounts of dependable and secure storage, accessible to anyone logged into the local wired or wireless network.

Instead of connecting a hard disk directly to one PC, the NAS is connected to a network via a router. Many NAS drives are

typically supplied without disks, letting you add your own selection.

Most NAS drives allow virtual partitions, letting you keep data such as PC backups separate from media files. Home-oriented NAS drives also include media servers to allow easy streaming of content.

To augment data integrity, access speed, capacity, or all

three, individual hard disks can be combined in a number of Raid configurations. Raid 0 'stripes' data across multiple drives to increase access speeds. Raid 1 mirrors the contents of one drive on to another, providing a cloned backup. Raid 5 is available with three-plus drives and combines both advantages.

READ MORE: TINYURL.COM/7H3HCNR

Projectors					
	1 PC ADVISOR GOLD	2	3	4	5
	InFocus ScreenPlay SP8600	Vivitek Qumi Q2	Dell M110	ViewSonic Pro8300	NEC NP43
Price	£670 inc VAT	£400 inc VAT	£401 inc VAT	£850 inc VAT	£610 inc VAT
Website	Infocus.com	Vivitek.co.uk	Dell.co.uk	Viewsoniceurope.com/uk	Nec-display-solutions.co.uk
Overall rating	★★★★★	★★★★☆	★★★★☆	★★★★☆	★★★★★
Projection technology	DLP	DLP	DLP	DLP	DLP
Resolution (pixels)	1920x1080	1280x800	1280x800	1920x1080	1024x768
Brightness ¹ , Contrast	1,800, 5,000:1	300, 2,500:1	300, 10,000:1	3,000, 4,000:1	2,300, 1,600:1
Image size	300in	30-90in	80in	300in	300in
Supported aspect ratios	16:10, 16:9, 4:3	16:10, 16:9, 4:3	16:10, 16:9, 4:3	16:9, 4:3	16:9, 4:3
Noise levels (dB)	30 (26 eco)	32 (28 eco)	36 (32 eco)	33 (29 eco)	37 (32 eco)
Connections	VGA, HDMI, CM, CP, SV, USB	VGA, HDMI, USB	VGA, HDMI, CM, CP, USB	VGA, HDMI, SV, USB	VGA, SV, USB
Lamp/lamp life	230W/4,000 hrs	LED/30,000 hrs	LED/10,000 hrs	230W/4,000 hrs	200W/1,000 hrs
Dimensions	326x254x104mm	162x102x32mm	105x104x37mm	332x110x264mm	246x72x177mm
Weight	3.4kg	635g	360g	3.9kg	1.7kg
Warranty	5 years	3 years	2 years	3 years	2 years
Verdict	<ul style="list-style-type: none"> • Smooth video playback • Full-HD resolution • Great contrast levels • Bright, colourful image 	<ul style="list-style-type: none"> • Now fantastic value • Lightest model here • DLP-Link enables 3D display • Exceptional lamp life rating 	<ul style="list-style-type: none"> • Ultra-small and -light • Good colour • Long-life LED lamp • Remote control costs extra 	<ul style="list-style-type: none"> • Good brightness levels • Flexible connectivity • Lacks colour depth, and cinematic content suffers 	<ul style="list-style-type: none"> • Portable business model • Strong Auto Focus • Customisable settings • Decent image quality
FULL REVIEW	TINYURL.COM/3HQANPV	TINYURL.COM/3TXMWPK	TINYURL.COM/77S8D6D	TINYURL.COM/9PU6XJS	TINYURL.COM/62W3796

¹Ansi lumens GLOSSARY: • CM: component • CP: composite • SV: S-Video

Compact system cameras					
	1 PC ADVISOR RECOMMENDED	2 PC ADVISOR BEST BUY	3 PC ADVISOR GOLD	4	5
	Panasonic DMC-G3 (14-42mm)	Nikon D5100 (18-55mm)	Sony Alpha NEX-5 (18-55mm)	Canon EOS 600D (18-55mm)	Olympus E-PM1 (14-42mm)
Price	£400 inc VAT	£530 inc VAT	£510 inc VAT	£590 inc VAT	£390 inc VAT
Website	Panasonic.co.uk	Nikon.co.uk	Sony.co.uk	Canon.co.uk	Olympus.co.uk
Overall rating	★★★★★	★★★★☆	★★★★★	★★★★☆	★★★★★
Megapixel rating	16Mp	16.2Mp	14.6Mp	18Mp	12.3Mp
Maximum resolution	4592x3448 pixels	4923x3264 pixels	4592x3056 pixels	5184x3456 pixels	4032x3024 pixels
Optical zoom	3x	3x	3.1x	3x	3x
Maximum aperture	f3.5-f5.6	f3.5-f5.6	f3.5-f5.6	f3.5-f5.6	f3.5-f5.6
LCD size	3in	3in	3in	3in	3in
Media card	SD/SDHC/SDXC	SD/SDHC/SDXC	MS/SD/SDHC	SD/SDHC/SDXC	SD/SDHC/SDXC
Battery/life	1x lithium-ion/270 shots	1x lithium-ion/660 shots	1x lithium-ion/not specified	1x lithium-ion/440 shots	1x lithium-ion/330 shots
ISO range	100 to 6400	100 to 6400	200 to 12800	100 to 6400	200 to 12800
Dimensions	115x84x47mm	124x97x79mm	111x59x38mm	133x100x80mm	110x64x34mm
Weight	336g	510g	229g	570g	217g
Warranty	3 years	3 years	1 year	1 year	2 years
Verdict	<ul style="list-style-type: none"> • Great dSLR alternative • Rotating touchscreen • Strong video-capture mode • Very fast autofocus 	<ul style="list-style-type: none"> • Excellent stills and video • Suitable for novice and intermediate photographers • Plenty of lenses available 	<ul style="list-style-type: none"> • Compact • Great performance • Great colour fidelity • Takes clean, sharp shots 	<ul style="list-style-type: none"> • Top-notch photo results • Fully auto/manual modes • Articulated LCD screen • Strong video capture 	<ul style="list-style-type: none"> • Compact camera • Likable art filter modes • High ISO suffers noise • No built-in flash or EVF
FULL REVIEW	TINYURL.COM/7JCXJCR	TINYURL.COM/6UTE9KK	TINYURL.COM/37XOZX5	TINYURL.COM/72STE88	TINYURL.COM/BLMYMJW

>> Buying advice



Compact system cameras

Compact system cameras (or interchangeable-lens cameras) bridge the gap between compacts and digital SLRs. They are ideal for those who want the versatility and quality of a digital SLR, with the ease of use of a compact.

A mirrorless design allows compact system cameras to be smaller than digital SLRs, while the

lack of an optical viewfinder means an LCD is used for composition and review. Large sensors allow them to rival an SLR for image quality.






Compact system cameras are ready to shoot in seconds, and most offer burst modes that capture several frames per second.






Although the camera lens can be swapped, not all will be compatible with your chosen

model. Panasonic and Olympus both use the Micro Four Thirds system, but Sony has its own E-mount system and Samsung uses NX-mount lenses.

Most compact system cameras record HD video, but the quality varies. If this is a priority, choose a model that can record 1080p video and also has a microphone input.

READ MORE: TINYURL.COM/7DPM3SX

Sub-£150 graphics cards	    				
	1	2	3	4	5
	Sapphire HD 7770 OC	Sapphire Radeon HD 7750	Asus Radeon HD 6670	PNY XLR8 GTX 650 Ti	Gigabyte GeForce GT 640 OC
Price	£105 inc VAT	£85 inc VAT	£60 inc VAT	£130 inc VAT	£96 inc VAT
Website	Sapphiretech.com	Sapphiretech.com	Uk.asus.com	Pnyeuropa.com	Uk.gigabyte.com
Overall rating	★★★★☆	★★★★☆	★★★★☆	★★★★☆	★★★★☆
Graphics processor	AMD Radeon HD 7770	AMD Radeon HD 7750	AMD Radeon HD 6670	nVidia GeForce GTX 650 Ti	nVidia GeForce GT 640
Installed RAM	1GB GDDR5	1GB GDDR5	1GB DDR3	1GB GDDR5	2GB DDR3
Memory interface	128bit	128bit	128bit	128bit	128bit
Core/memory clock	1GHz/1,150MHz	800MHz/1,125MHz	800MHz/900MHz	928MHz/1,350MHz	1,050MHz/1,800MHz
Ramdac	400MHz	400MHz	400MHz	400MHz	400MHz
Stream processors	640	512	480	768	384
Power connectors	1x 6-pin	None	None	1x 6-pin	None
Interface	PCI Express	PCI Express	PCI Express	PCI Express	PCI Express
DirectX	11.1	11.0	11.0	11.0	11.0
Digital interface	DVI, HDMI, Mini-DisplayPort	DVI, HDMI, DisplayPort	DVI, HDMI	2x DVI, 1x Mini-HDMI	2x DVI, HDMI
Warranty	3 years	2 years	3 years	2 years	3 years
Verdict	<ul style="list-style-type: none"> • Faster than 7750 • Good value at just £20 more • Only 128bit memory • Low sound levels 	<ul style="list-style-type: none"> • Offers better overall value than the GT 640 OC • Some way behind the 7770 • Light on power 	<ul style="list-style-type: none"> • Great-value video card • 800MHz core clock memory • 128bit memory limits appeal • Lacks power for some games 	<ul style="list-style-type: none"> • Plenty of performance • Good set of specifications • Hampered by 128bit memory interface 	<ul style="list-style-type: none"> • Costs more than 7750 • Falls far behind 7770 • The best version of this card • Three digital connectors
FULL REVIEW	TINYURL.COM/BWJ7BL9	TINYURL.COM/7ZB5OE3	TINYURL.COM/3LM8HGE	TINYURL.COM/8Z5BDCZ	TINYURL.COM/9OSWMK2

£151+ graphics cards	    				
	1	2	3	4	5
	MSI GeForce GTX 670	Zotac GeForce GTX 680	Asus GTX 660 Ti	Asus HD 7870 DirectCU II	XFX 7970 3GB GDDR5
Price	£295 inc VAT	£400 inc VAT	£250 inc VAT	£210 inc VAT	£320 inc VAT
Website	Uk.msi.com	Zotac.com	Uk.asus.com	Uk.asus.com	Xfxforce.com
Overall rating	★★★★☆	★★★★☆	★★★★☆	★★★★☆	★★★★☆
Graphics processor	nVidia GeForce GTX 670	nVidia GeForce GTX 680	nVidia GeForce GTX 660 Ti	AMD Radeon HD 7870	AMD Radeon HD 7970
Installed RAM	2GB GDDR5	2GB GDDR5	2GB GDDR5	2GB GDDR5	3GB GDDR5
Memory interface	256bit	256bit	192bit	256bit	284bit
Core/memory clock	915MHz/1,502MHz	1,006MHz/1,502MHz	967MHz/6,008MHz	1GHz/1.2GHz	925MHz/1,375MHz
Ramdac	400MHz	400MHz	400MHz	400MHz	400MHz
Stream processors	1,344	1,536	1,344	1,280	2,048
Power connectors	2x 6-pin	2x 6-pin	2x 6-pin	2x 6-pin	1x 6-pin, 1x 8-pin
Interface	PCI Express	PCI Express	PCI Express	PCI Express	PCI Express
DirectX	11.0	11.0	11.0	11.1	11.1
Digital interface	2x DVI, HDMI, DisplayPort	2x DVI, HDMI, DisplayPort	2x DVI, HDMI, DisplayPort	DVI, HDMI, 2x Mini-DP	DVI, HDMI, 2x Mini-DisplayPort
Warranty	2 years	5 years	2 years	2 years	2 years
Verdict	<ul style="list-style-type: none"> • Almost on a par with 7970 • Low power consumption • Same memory bandwidth as GTX 680 	<ul style="list-style-type: none"> • Fastest single-GPU card • Low power consumption • Price drop to 7970 weakens this card's value for money 	<ul style="list-style-type: none"> • Faster than 7870 • Nicely priced • Can boost clock to 1,058MHz • Compares well to GTX 670 	<ul style="list-style-type: none"> • GTX 660 Ti is better value • Cheaper than GTX 670, but behind on framerates • Modest power consumption 	<ul style="list-style-type: none"> • Good performance • Not as powerful or as efficient as GTX 680 • Close to 7870 on value
FULL REVIEW	TINYURL.COM/CRDW78J	TINYURL.COM/C6C37QO	TINYURL.COM/D5BV2NG	TINYURL.COM/BUFMAFF	TINYURL.COM/6UZRVXC

>> Buying advice



Graphics cards

The key feature of a graphics card is its GPU. Produced by AMD or nVidia, this determines the quality of images displayed and their refresh speed. The more powerful the GPU the better, but you can get away with a lesser card by turning down a game's detail levels.

Even those on a budget should be able to get at least 1GB of DDR

video memory. Look for GDDR5 rather than GDDR3 RAM. This in effect quadruples the clock speed (GDDR3 merely doubles it).








The memory interface (or bus) governs how much data can be sent at once, so a 256bit interface lets through twice as much data as a 128bit interface. Graphics cards with the best combination of memory interface size and


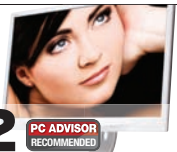




clock speed should produce the best performance.

DirectX 11.x support is required for advanced, modern games; cheaper cards lack the firepower to do such titles justice, however.

Check that a card will fit inside your PC and you have sufficient connections from the power supply unit before you buy.

READ MORE: [TINYURL.COM/7BPUHQE](http://tinyurl.com/7BPUHQE)

Sub-£200 flat-panels					
	1 	2 	3 	4	5
	Viewsonic VX2336s-LED	AOC i2352Vh	AOC i2353Fh	Iiyama ProLite XB2472HD	Viewsonic VX2460H-LED
Price	£132 inc VAT	£132 inc VAT	£145 inc VAT	£190 inc VAT	£141 inc VAT
Website	Viewsoniceurope.com	Aoc-europe.com	Aoc-europe.com	liiyama.co.uk	Viewsoniceurope.com
Overall rating	★★★★★	★★★★★	★★★★★	★★★★☆	★★★★★
Screen size	23in	23in	23in	24in	23.6in
Panel type	In-plane switching	In-plane switching	In-plane switching 3D	Vertical alignment	Twisted Nematic
Native resolution	1920x1080 pixels	1920x1080 pixels	1920x1080 pixels	1920x1080 pixels	1920x1080 pixels
Pixel pitch	0.27mm	0.27mm	0.27mm	0.28mm	0.27mm
Brightness	233cd/m²	258cd/m²	225cd/m²	Not measured	250cd/m²
Static contrast ratio	710:1	731:1	666:1	Not measured	710:1
Response time	14ms	5ms	5ms	8ms	5ms
Digital connector	DVI	DVI, HDMI, VGA	2x HDMI, VGA	DVI, HDMI	2x HDMI
Dimensions	548x426x201mm	247x185x399mm	550x388x188mm	570x215x438mm	581x447x194mm
Weight	3.6kg	3.2kg	5.6kg	6.2kg	3.5kg
Warranty	3 years	3 years	3 years	3 years	3 years
Verdict	<ul style="list-style-type: none"> Currently difficult to obtain Excellent value IPS panel Strong image quality Slow response rate 	<ul style="list-style-type: none"> Good value IPS panel Accurate colours Plain styling Few extras 	<ul style="list-style-type: none"> Wide viewing angles Excellent colours Attractive, slimline design No DVI connection 	<ul style="list-style-type: none"> Wonderful 24bit colour reproduction Viewing angles not great Height-adjustable stand 	<ul style="list-style-type: none"> Slim and stylish looks Good range of inputs One of the better examples of TN technology
FULL REVIEW	TINYURL.COM/86JF4W2	TINYURL.COM/7HXTVPV	TINYURL.COM/7TWLB2A	TINYURL.COM/3DYX75Z	TINYURL.COM/CSQ2H7P

£200+ flat-panels					
	1 	2 	3 	4	5
	Viewsonic VP2365-LED	Philips Brilliance 241P4QPYES	NEC MultiSync EA232WMI	Viewsonic VP2765-LED	Philips Brilliance 248X3LFHSH
Price	£190 inc VAT	£230 inc VAT	£260 inc VAT	£360 inc VAT	£205 inc VAT
Website	Viewsoniceurope.com/uk	Philips.co.uk	Nec-display-solutions.co.uk	Viewsoniceurope.com/uk	Philips.co.uk
Overall rating	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
Screen size	23in	24in	23in	27in	23.6in
Panel type	In-plane switching	Advanced MVA	In-plane switching	Advanced MVA	Twisted nematic
Native resolution	1920x1080 pixels	1920x1080 pixels	1920x1080 pixels	1920x1080 pixels	1920x1080 pixels
Pixel pitch	0.27mm	0.28mm	0.27mm	0.31mm	0.27mm
Brightness	238cd/m²	299cd/m²	Not measured	1,200cd/m²	326cd/m²
Static contrast ratio	681:1	1,691:1	Not measured	378:1	800:1
Response time	6ms	12s	14ms	25ms	2ms
Digital connector	DVI	DVI, DisplayPort	DVI, DisplayPort	DVI, DisplayPort	2x HDMI
Dimensions	548x433x250mm	565x220x395-518mm	550x220x379mm	642x365x474-608mm	578x443x194mm
Weight	5.4kg	5.9kg	5.8kg	8.5kg	5.1kg
Warranty	3 years	3 years	3 years	3 years	3 years
Verdict	<ul style="list-style-type: none"> Premium IPS panel Superb colour reproduction Wide viewing angles DVI port only 	<ul style="list-style-type: none"> Very strong image quality Excellent viewing angles Rotate, height adjustability Four-port USB hub 	<ul style="list-style-type: none"> High-calibre IPS screen Impressive colour depth Poor 14ms response rate Height/tilt-adjustable stand 	<ul style="list-style-type: none"> Large 27in display Low resolution for size Poor viewing angles Slow response for games 	<ul style="list-style-type: none"> Graceful design Illuminated Lightframe bezel reduces eye fatigue Twisted nematic panel
FULL REVIEW	TINYURL.COM/5WMJLR9	TINYURL.COM/6VVODAP	TINYURL.COM/4CQGNVW	TINYURL.COM/86T3PFM	TINYURL.COM/6MJA2NS

>> Buying advice



Flat-panel displays

You'll spend most of your working day staring at the screen, so it makes sense to choose one that's comfortable to view.

The panel size will largely depend on your budget and amount of desk space, but those measuring 22in and above tend to offer a full-HD resolution. All but the cheapest models also have at

least one digital interface (DVI, HDMI or DisplayPort). VGA (or D-Sub) is an analogue interface, and won't provide as clean a signal.

The panel technology is important. Twisted nematic (TN) is the budget option, offering fast response times but limited viewing angles. Multiple vertical alignment (MVA) and patterned vertical alignment (PVA) screens offer

better viewing angles and higher contrast ratios than TN, but slower response times. Advanced MVA screens are more responsive.

In-plane switching (IPS) panels offer excellent viewing angles, contrast and colour accuracy, but they can be rather pricey.

Get a matt rather than gloss coating for fewer reflections.

READ MORE: TINYURL.COM/6RMBVR6

JIM
MARTIN



OM4G! How much data?

No doubt you've seen the TV ads for EE's 4GEE service, and possibly witnessed your local Orange or T-Mobile shop being rebranded EE at the end of October. The company is currently the only UK mobile operator with a 4G network, so holds a monopoly over super-fast mobile broadband.

We've seen truly impressive 4G performance in tests, which can match or even beat your home-broadband connection in both upload and download speed. In the real world it's unlikely you'll see the



circa-40Mbps speeds we were able to enjoy before EE made public its 4G network, but there's a good chance of you being able to access a connection that's between five and 10 times faster than 3G. That's assuming you live or work in one of the 16 cities in which 4G is available.

However, we were surprised by EE's 4G tariffs. The pricing was always going to be high, but we didn't expect to see such meagre data allowances. It's absurd that a 500MB plan even exists. With a 4G connection running at 10Mbps, you'd burn through that in seven minutes.

Yet EE suggests you wind down on your commute home by streaming a film. Given the faster connection, you'd probably want to stream it in HD. That's 3.2Mbps if you're streaming from BBC iPlayer, so a typical two-hour film would use just under 3GB of data.

Oddly, EE offers only 8GB of data per month with its top package, which costs an eye-watering £56 per month (or £66 if you want a 12- rather than 24-month contract). There's no unlimited data option.

EE hasn't explained this decision, and is putting out mixed messages about how it expects people to use 4G. It likens 4G to a high-speed train, claiming that you'll cover the same distance per journey (or use the same amount of bandwidth per activity), but in less time. But EE also says you can play games, watch TV and stream HD movies on the go.

The point of having fast mobile broadband is to enable on the move the sort of activities you would previously have enjoyed only over Wi-Fi. Until the data limits are brought into line with home-broadband packages, streaming 'The Apprentice' in HD will remain an unaffordable luxury. ☒

Next issue

ISSUE 212 ON SALE 4 JANUARY 2013

**TEST
CENTRE**

Media-centre PCs

Give yourself a front-row seat with a home-theatre PC that can hold all your music, films and photos, and even double as a PVR for recording and pausing live TV.

**TEST
CENTRE**

Monitor round-up

See the bigger picture with a large screen for your desktop PC. We review six of the latest flat-panel displays.

**TEST
CENTRE**

Wireless routers group test

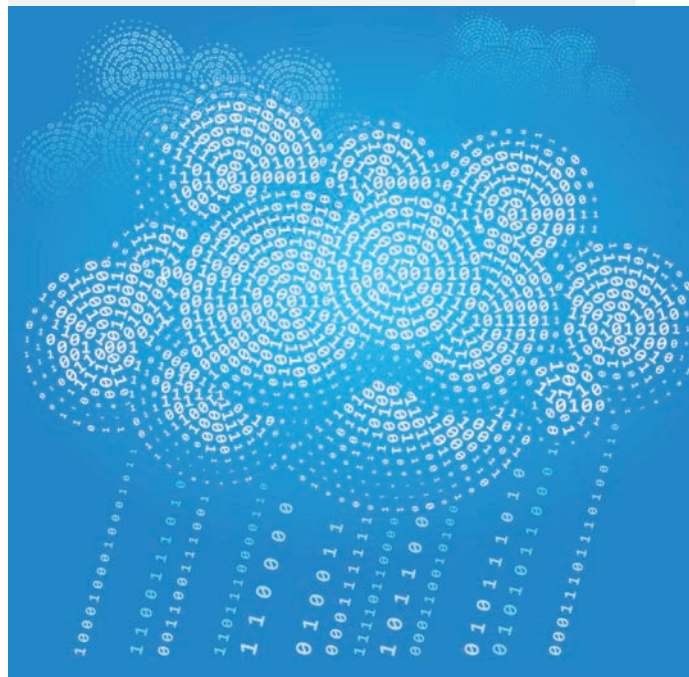
We test a range of super-fast 802.11ac routers, as well as dual-band models that work on the 5GHz band for better range and speed.

Digitise your old stuff

We show you how to preserve your dusty old collection of photographs, negatives, slides, LPs and VHS cassettes in modern digital formats.

Cloud storage

Confused about the cloud? We demystify online storage and backup, comparing the various services that specialise in storing and sharing your files, photos, music, documents and more.



Subscribe to PC Advisor and
SAVE 58%

Dell recommends Windows.



The power to do more

Give the gift
of inspiration.



Introducing the Dell™ XPS™ 12 Ultrabook™, inspired by Intel. Featuring the style and quality our XPS line is known for. Part laptop, part tablet, all performance. Powered by 3rd gen Intel® Core™ i5 processor, featuring vivid touch screen HD display. The epitome of form and function.



XPS 12

Innovative flip and fold design gives you touch-screen computing in both a powerful PC and fully functional tablet.

£999

Including VAT & Delivery

E-Value Code: PCPUK12-N00X1202

- Intel® Core™ i5-3317U Processor
- Windows 8
- 4GB Memory & 128GB Solid State Hard Drive
- 12.5" (32cm) WLED Full HD (1920 x 1080) Touch screen
- Intel® HD Graphics 4000



XPS 13

With impeccable attention to every detail, the XPS 13 combines premium materials and ultimate performance.

£899

Including VAT & Delivery

E-Value Code: PCPUK12-N0013Z45

- Intel® Core™ i5-3317U Processor
- Windows 8
- 4GB Memory & 128GB Solid State Hard Drive
- 13.3" (34cm) HD LED Screen
- Intel® HD Graphics 4000



Power
&
Performance



Rated 4 out of 5 stars | Sep 2012

XPS 14

With up to 11 hours of battery life and a backlit keyboard it is built to keep pace with your busy life.

£959

Including VAT & Delivery

E-Value Code: PCPUK12-N00X1445

- Intel® Core™ i5-3317U Processor
- Windows 8
- 4GB Memory & 500GB Hard Drive + 32GB mSATA SSD
- 14" (36cm) HD LED Screen
- Single 1GB AMD Radeon™ HD 630M Graphics Card



Protect your Dell

Your XPS comes with 1 year Next Day In-Home Hardware Support with Premium Software Phone Support. This will cover all of your hardware and software issues and queries. You can extend this support to a longer term or customise with a suite of other services, including Accidental Damage Protection.

Dell.co.uk/protectyourdell



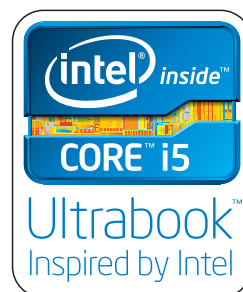
Give inspiration. Get remarkable savings.
Dell.co.uk/XPS or call **0844 444 4672**.

Offers end 26/12/2012

8am-9pm Weekdays, 9am-6pm Saturdays, 10am-7pm Sundays and Bank Holidays

McAfee™ - Protect what you value.

Offers due to end 26/12/2012. Dell Products, c/o P.O. Box 69, Bracknell, Berkshire RG12 1RD, United Kingdom. Subject to availability. Prices and specifications may change without notice. Delivery charge is £20 incl. VAT per system (unless otherwise stated). Consumers are entitled to cancel orders within 7 working days beginning the day after the date of delivery; Dell collection charge is £23 incl. VAT for system purchases and £11.50 incl. VAT for accessory purchases. Terms and Conditions of Sales, Service and Finance apply and are available from www.dell.co.uk. Delivery charges range from £5.75 to £14.95 incl. VAT (20%) per item for items purchased without a system. Promotional offers limited to maximum 5 systems per customer. Saving is the difference between the total offer price versus the current online price for the basic system with promotional components upgraded individually. Selected systems are available for shipment within 2-3 working days following the date of order confirmation, though delivery dates are not guaranteed and this offer is subject to availability. Dell's general Terms and Conditions of sale apply and are available on www.dell.co.uk. Dell Services do not affect customer's statutory rights. They are subject to Terms and Conditions which can be found at www.dell.co.uk/consumerservices/termsandconditions. Intel, the Intel Logo, Intel Inside, Intel Core, Ultrabook, and Core Inside are trademarks of Intel Corporation in the U.S. and/or other countries. Microsoft and Windows® 8 are registered trademarks of Microsoft Corporation.



Samsung
GALAXY Note
10.1



Note, the new way
to transform images in
Adobe Photoshop Touch

Chop, crop and change your photos with Photoshop Touch, pre-installed and optimised for S-Pen. Follow step-by-step tutorials, apply professional effects and share instantly on Facebook.

Available at



samsung.com/uk/galaxynote10-1

©2012 Samsung Electronics Co. Ltd. Apps may require a fee. Screens simulated. Appearance of device may vary. Google, Android and other marks are trademarks of Google Inc. Adobe, the Adobe logo, Acrobat, Adobe Premiere, After Effects, FrameMaker, PageMaker, Photoshop and PostScript are either registered trademarks or trademarks of Adobe Systems Incorporated in the United States and/or other countries.