THE WORLD'S BEST-SELLING APPLE MAGAZINE

Macworld

DECEMBER 2013   IDG | UNITED KINGDOM

NEW iMACS

REVIEWED: Apple's new iMacs fully tested

- **NEW SUPER-FAST PROCESSOR**
- **FROM £1,149**

PLUS
40 iOS 7 **TIPS**

PC USER'S GUIDE TO MAC

Transition explained

iPHONE PHOTO SHOOTOUT

iPhone 5s
vs iPhone 5c
& iPhone 5

Macworld Contents

Macworld Contents

51

60

44

86

From the Editor's desk / By Karen Haslam

Hitting back at the Apple haters

Apple's "corporate thuggery", "troubled" iOS 7 launch and
iPhone 5c "order cuts" nonsense

The media covers Apple news in one of two ways: either suggesting that "Steve Jobs would never have let this happen," or offering helpful advice and information. At *Macworld*, we like to think we offer the latter. Nonetheless, Apple bashing has become a popular internet sport, and sometimes it can be difficult to find a positive angle on a story.

Most recently, we've read how everybody hates iOS 7 – so much so that an American chap is suing Apple for preventing him downgrading to iOS 6. According to Mark Menacher, "Apple's disregard for customer preferences in relation to iOS 7 is corporate thuggery."

Moreover, he says, "Steve Jobs was rough on company employees in pursuit of happy customers, but Tim Cook cultivates a culture of contempt for customer satisfaction in pursuit of corporate profits."

But let's be honest, the Jobs excuse just doesn't wash. He was more of the opinion that consumers don't know what they want until they're told. Apple thinks it knows what is best and, most of the time, it is right.

At *Macworld,* we believe iOS 7 is light years ahead of iOS 6. True, if you have an older iPhone or iPad you might have a few issues, and it can be a battery hog, but it's a refreshing change that makes your device feel new again. Getting a bit lost within the unfamiliar UI shouldn't be confused with disliking it, which is why we've published our top 40 tips for iOS 7 (see page 78).

There are more than 600 million iOS devices out there, and it's not surprising that problems occurred when they all tried to download the update at once. But, of course, the news focused on the problems and not the fact that, wow, 600 million users want a piece of this.

A month after the iOS 7 launch and *USA Today* claimed it has been Apple's "most troubled". But the initial problems

The news focused on the problems and not the fact that, wow, 600 million users want a piece of this

didn't last long and, according to market researchers, iOS 7 was on 71 percent of iOS devices within 21 days – a much faster adoption rate than that of iOS 6.

Yet another snippet of recent news suggests Apple is cutting orders for the iPhone 5c because it isn't as popular as expected. The fact no-one knows how many devices were initially ordered has been brushed under the carpet, as has the fact Apple has increased its iPhone 5s order. Given the higher profit margin on the latter, we fail to see how this is anything other than good news.

Once upon a time Apple was the underdog and, from my past life at Apple's PR agency, I know just how tough it was to get anyone to even talk about the company. Now everyone has an opinion, from *Vanity Fair* to the *Daily Mail*. After all, Apple news can attract a great deal of website traffic.

Fortunately, while bad news does sell, as long as the good news is also there then people will read it.

News

iPad Air & iPad mini with Retina display launch

The big iPad gets smaller, thinner and faster, while the mini iPad gets more pixels and a new 128GB option

BY DAN MILLER

Apple unveiled a brand-new iPad model, the iPad Air, and added to the iPad mini a Retina screen and an A7 processor at a special event on 22 October.

Contrary to rumour, no iPad 5 launched at the event. Rather, Apple launched a new iPad: the iPad Air. It's significantly thinner than its already-skinny predecessor, the iPad with Retina Display, plus it receives a bit of a speed bump.

The new model is 20 percent thinner than the fourth-generation model, and 183g lighter (weighing just 469g). In addition, while the iPad Air has the same 9.7in Retina display as its predecessor, the bezel around that screen is much smaller: 43 percent thinner than the previous generation.

But inside that slimmed-down chassis rests the new 64-bit A7 chip first seen in the iPhone 5s and M7 co-processor. Apple says these processors provide twice the CPU- and graphics performance of the previous model, while retaining a 10-hour battery life. Among the other new features Apple touted include faster 802.11n Wi-Fi with MIMO support, expanded LTE networks, improved FaceTime and iSight cameras, and dual-mics for better Siri and audio capture.

Both Wi-Fi and LTE models of iPad Air will start shipping on 1 November in silver/white and space grey/black colour choices. In the UK they'll cost the same as the iPad models they replace: the iPad Air starts at £399 for 16GB Wi-Fi and £499 for 16GB Wi-Fi plus 3G/4G, with storage options up to 128GB. The full-size iPad 2 remains in Apple's line-up at £329 for a 16GB Wi-Fi-only version.

iPad mini with Retina display

Apple also introduced a new generation of the iPad mini. Its marquee feature: a high-resolution Retina Display.

The iPad mini ups its screen resolution from 1024x768 pixels to 2048x1536 pixels, while keeping the same 7.9in (diagonal) screen size. That ups the mini's pixel density from 163 pixels per inch (ppi) to 326ppi, which is almost identical to the screen density of the iPhone 5s.

The mini gets some upgrades on the inside, too, including Apple's 64-bit A7 processor. Apple claims this processor makes the Retina iPad mini up to four times as fast as its predecessor for processor-intensive tasks, and up to eight times faster for graphics-intensive ones. Like the iPad Air, the iPad mini with Retina Display also features Apple's M7 motion co-processor. And it gains the same upgraded Wi-Fi connectivity and camera improvements as the iPad Air.

The iPad mini with Retina Display will be available in silver/white or space grey/black later in November, according to Apple – our estimate is 29 November, in line with US Thanksgiving celebrations.

The Wi-Fi versions will cost £50 more than their predecessors, at £319 with 16GB of storage, £399 for 32GB, £479 for 64GB and £559 for 128GB – a first in that capacity for the iPad mini. Cellular versions add £100 to the mini's price.

Apple will continue to sell the original iPad mini as a lower-priced option: the 16GB Wi-Fi-only iPad mini is now priced at £249 (down from £269), while the Wi-Fi + Cellular version will retail for £349 (down from £369). It's now available in space grey or silver, rather than the original black and white.

Synching files between iPad and Mac
Apple also showed off updated iLife and iWork suites for Mac, iOS and iCloud.com. The iWork apps – Pages, Numbers and Keynote – now offer full file-compatibility between OS X, iOS and PCs (via the iWork for iCloud service). They've also been completely overhauled with new designs and new features. There are also updates to iLife – iPhoto, iMovie and GarageBand – for both the Mac and iOS. The iLife software updates are free for Mac users.

Retina MacBook Pro line-up updated

Apple reveals new slimline MacBook Pro range and Mac Pro release date and price details

BY ASHLEIGH ALLSOPP

During its 22 October event, Apple updated its Retina MacBook Pro line-up, adding new Haswell processors and making the laptops even thinner than before. It also shed more light on the Mac Pro, announcing its release date (sort of) and the price of the new powerhouse.

Apple's upgraded MacBook Pro with Retina display models are now lighter than before, and also slimmer, measuring just 1.8cm thick. The 13in model comes with Intel's new Haswell chip, while the 15in option has the Crystalwell processor for improved graphics performance. The 13in MacBook has integrated Intel Iris graphics, which means it's up to 90 percent faster than the previous generation, while the 15in model has Iris Pro graphics – integrated

Slim line The upgraded MacBook Pro range is now slimmer and lighter than ever.

graphics that deliver the same performance as discrete graphics. If you go for the high-end model, you'll get nVidia GeForce GT 750M graphics, too.

The new MacBook Pros have PCIe-based flash storage, which Apple says means up to 60 over cent faster read speeds than the previous generation.

Despite all the speed boosts, the battery life has been increased. The 13in laptop now lasts for nine hours (an improvement of two hours), while the 15in option gets an extra hour at eight hours.

Both sizes of Retina MacBook Pro have 802.11ac Wi-Fi and two Thunderbolt 2 ports, too. They're available to buy from Apple now, starting at £1,099, and ship with OS X Mavericks installed.

Alongside the Retina MacBook Pro announcement came the news we've all been waiting for. The new Mac Pro, which was previewed at WWDC in June, will be available to buy in December. Prices start at £2,499 for a model with a 3.7GHz quad-core Intel Xeon E5 processor, and £3,299 for the 3.5 GHz 6-core Intel Xeon E5 processor option.

OS X Mavericks available as free download

Update your Mac operating system with great new features and it won't cost you a penny

BY SERENITY CALDWELL
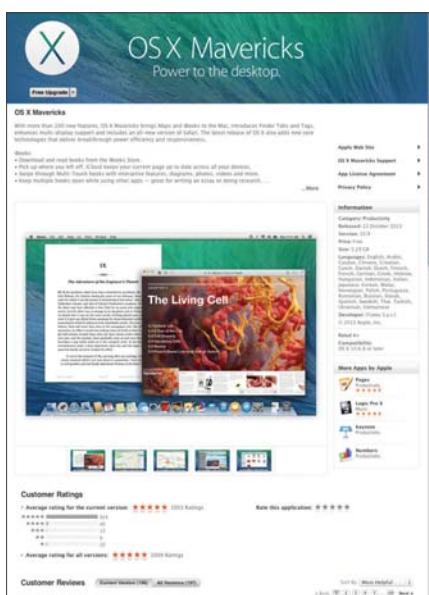
OS X Mavericks is now available to download from the Mac App Store – and it's free. The operating system brings several key under-the-hood features to OS X, new versions of popular Apple iOS apps, and full support for multiple displays.

Apple senior vice president of software engineering Craig Federighi briefly outlined some of the key technology improvements during the 22 October event. These include better battery life for laptops, compressed memory, and graphics improvements to make better use of both the memory and the CPU. He then revisited some of the features first demonstrated during June's WWDC, including Safari shared links,

enhanced notifications, Finder tags, multiple display improvements, and new Maps and iBooks apps.

But Federighi's Mavericks presentation wasn't limited to a simple features list: he took the operating system for a test drive onstage, opening a new version of the Pages app and building a presentation with help from iBooks. He also showed off a number of the previously mentioned features.

You can download Mavericks, from the Mac App Store. It's compatible with a 2007 or later iMac or MacBook Pro; a 2008 or later MacBook, MacBook Air, or Mac Pro; and a 2009 or later Mac mini. And you can upgrade straight from Snow Leopard or later.

Apple hires Burberry CEO as new head of retail

After a year with no-one leading Apple retail, the company has put Angela Ahrendts in charge

BY GREGG KEIZER AND ASHLEIGH ALLSOPP

Apple has hired Burberry CEO Angela Ahrendts as its new senior vice president for retail and online stores. She will take charge of all Apple retail, including its online store, in 2014. She'll lead a new unit overseeing both Apple's brick-and-mortar retail chain – which as of June included 408 stores worldwide – and its online store. It'll be the first time that all non-iTunes retail will be combined under one executive. Ahrendts will report directly to CEO Tim Cook and will be part of the company's leadership team.

Following the appointment's announcement, Cook sent out a company-wide memo to Apple employees informing them of Ahrendts role at the company. It says he wanted one person to lead both the online and retail stores because he believes it will "better serve our customers."

"I had never met anyone whom I felt confident could lead both until I met Angela," he continues. "She shares our values and our focus on innovation. She places the same strong emphasis as we do on customer experience."

"Angela has shown herself to be an extraordinary leader throughout her career and has a proven track record," he adds. "She led Burberry through a period of phenomenal growth with a focus on brand, culture, core values and the power of positive energy."

In hindsight, Apple and Burberry offered a clue to Ahrendts' hiring in September, when Burberry used several iPhone 5s smartphones to film its Spring/Summer 2014 fashion show in London.

It's been pointed out by former *Wall Street Journal* reporter Jessica Lessin that Ahrendts is "a watch lady," and that Burberry recently launched a high-end watch line. According to Lessin, Ahrendts "also took particular interest in the watch retailing space in Burberry stores". This could hint that Ahrendts could contribute to the iWatch, which speculation suggests Apple has been working on.

Success story

Ahrendts was a success at luxury fashion brand Burberry. Since taking the CEO chair in mid-2006, she, along with creative director Christopher Bailey, led a turnaround of the 157-year-old company, which had suffered from brand over-exposure and a resulting tarnish in the last decades of the 20th century.

She was credited with driving Burberry's digital strategy, including major social media initiatives and unifying the look of the firm's online and physical stores. She also pushed the company into new markets – including China – and kicked off new income sources. Burberry's revenue in the first half of fiscal 2013 was up eight per cent to £2bn.

By comparison, Apple retail stores generated $4.1bn (around £2.6bn) in 2013's second quarter alone.

Ahrendts, who has often credited Apple as a model for her Burberry vision, will be the company's first head of retail in almost a year. In October 2012, Cook shook up the executive ranks, ousting both Scott Forstall, who had been in charge of iOS development, and John Browett, the company's top retail executives.

Film show
Burberry filmed its Spring/Summer 2014 fashion show with an iPhone 5s after teaming up with Apple.

New role Angel Ahrendts will start her role as head of retail and online stores next year.

Browett, hired by Cook in January 2012 but who didn't start working at Apple until April 2012, raised eyebrows when he instituted a staffing-level change in the company's stores. Not only was this quickly reversed, but triggered a public apology from Apple.

It's unclear exactly when Ahrendts will join Apple. Although the company said "in the spring" in its press release, Burberry's corresponding release said she "will step down as Chief Executive Officer by mid-2014."
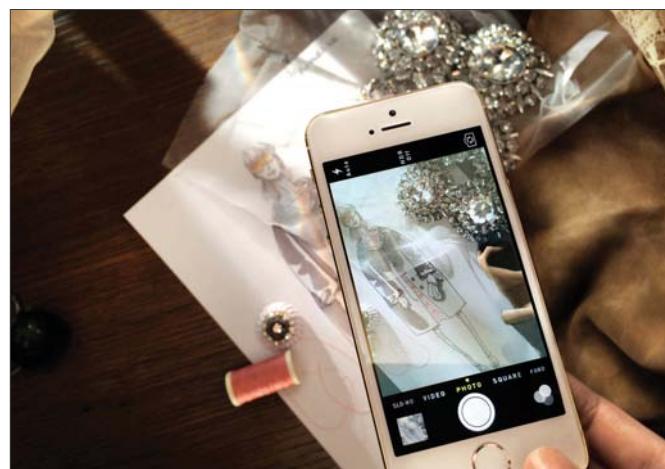
EU could force Apple to drop Lightning

EU lawmakers may compel Apple to replace Lightning connector with Micro-USB

BY KAREN HASLAM

A European Parliament's consumer protection committee has voted to standardise smartphone connectors in a move to reduce waste. As a result, it's possible that Apple will have to abandon its Lightning connector. Certain accessories are also plugged in to devices using the Lightning port.

Brussels is attempting to make every mobile phone use the same charging standard. The Micro-USB standard seems the most likely winner based on the fact that in 2009, the European standards agency chose it to be the universal port for mobile phones, and hence most manufacturers now use it.

Indeed, Apple came out in support of the International Electrotechnical Commission's recommendation for a universal Micro-USB mobile charging standard, so many expected it to launch the iPhone 5 with a Micro-USB connector, and yet it didn't. However, the company sells a Lightning to Micro-USB connector (£15, tinyurl.com/8ghlahw) in the European Union for this reason.

It still seems likely Apple will be forced to adopt the same port. The ruling needs to be approved by the European Parliament, though, and a new law may well take years to be implemented, by which time there may be a new way to charge devices such as induction.
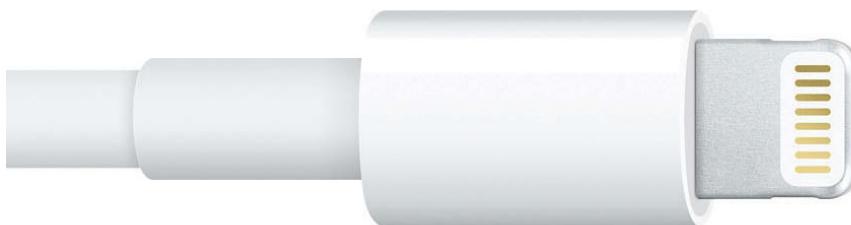
EU ruling Should European Parliament approve the new law, Apple is likely to be forced to adopt Micro-USB instead of the Lightning connector.

---

iPhone trade-in scheme launches in UK

Customers in the UK can now trade in their old iPhone for money off a new iPhone in-store

BY ASHLEIGH ALLSOPP

A pple has launched its Reuse and Recycling Programme – an iPhone trade-in service that started in the US in August – in the UK.

The company rolled out the programme to its UK retail stores on 14 October. Customers can now trade in their iPhone in exchange for a discount on their purchase of a new handset. The service allows customers to go into an Apple Retail Store with their old iPhone, which staff will then look over and give a trade-in price for. This is based on the condition of the hardware and the model. Customers can then get that value subtracted from the price of a new handset should they decide to trade-in.

"iPhones hold great value. So, Apple Retail Stores in the UK are launching a new programme to assist customers who wish to bring in their previous-generation iPhone for reuse or recycling," an Apple spokesperson has said. "In addition to helping support the environment, customers will be able to receive credit for their returned iPhone that they can use toward the purchase of a new iPhone."

Recycling scheme By trading in your old iPhone, you could get money off of Apple's new 5s and 5c in store.

Depending on the condition of your handset, you can get as little as £4 or as much as £270 off of a new iPhone.

Apple CEO Tim Cook has said that the trade-in programme aims to boost iPhone sales in Apple's retail stores.

Apple

by the Numbers

How well is the company doing, really?

Keeping track of how Apple is doing as a company is hard. The stock price goes up, then it goes down – often without any obvious reason. We hear one set of market-share numbers for smartphones, tablets and computers one day, and an entirely different set the next. Apple is doing great, says one group of analysts, while another claims the company is doomed. So how *is* Apple really doing?

To get some sense of its health, we asked four writers to dig into four different sets of numbers: the ones that Apple itself publishes every quarter, as part of the company's required financial reporting, regarding the sales of its four principal product lines – Macs, iPhones, iPads and (yes, still) iPods. We asked them to look at those numbers over as long a period as they could, to see if they could extract some long-term signals from those short-term trends.

The bottom line: Apple is doing just fine, but it's also facing some very definite – and very dangerous – threats in each of those four product lines. Those threats make this period – the autumn and winter of 2013, when the company will announce and ship new products in at least three of its lines – one of the most crucial in the company's history.

THE MAC
by the Numbers
BY IAN PAUL

in 2007, followed by the iPad three years later, Apple set off a tectonic shift in personal computing – a change that's still wreaking havoc on the entire PC market, as well as on Apple itself.

Because many of us are now equipped with tablets and smartphones, we have less need for PCs in 2013 than we did even five years ago. Analysts and critics still debate whether mobile devices have decimated the market or delayed purchases of PC replacements by a few years.

The market impact of iOS aside, the Mac has increased in popularity compared with other, non-Apple computers. Between 2009 and 2010, the number of Macs sold rose by more than 31 percent. The following year, Apple recorded nearly 22.5 percent growth for its computer business. That continued success is down to three reasons.

First, Apple's own retail stores gave the company

The PC market as a whole may be shrinking, but one area that isn't declining is the Mac. Even though it makes up an ever diminishing portion of Apple's overall revenues, the Mac's popularity has grown by leaps and bounds over the past decade.

Mac shipments up

In 2003, just over three million Macs were shipped worldwide, the majority of which were desktop PCs. At the time, the Mac was the largest contributor to Apple's bottom line, accounting for more than 72 percent of its revenue. Jump ahead to the company's 2012 financial year and 18 million Macs were sold, yet those sales amounted to less than 15 percent of the bottom line.

How did this happen? The most significant shift in Apple's business over the past decade, of course, was the advent of its mobile operating system – iOS – and related devices. Beginning with the release of the original iPhone

MAC NET SALES
Net revenue – sales minus returns – in $billions

$20	TOTAL
$15	
$10	LAPTOPS
$5	
$0	DESKTOPS

2003 2004 2005 2006 2007 2008 2009 2010 2011 2012

Source: Apple

MACS UNITS SHIPPED
Number of Macs sold (in millions)

- TOTAL
- LAPTOPS
- DESKTOPS

15

10

5

0

2003 2004 2005 2006 2007 2008 2009 2010 2011 2012
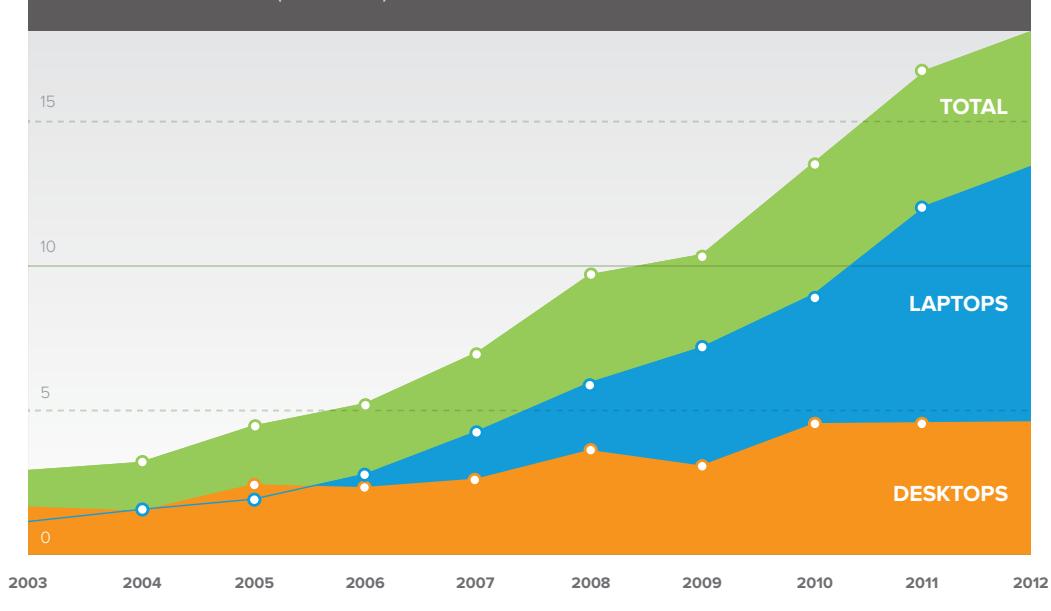
Source: Apple

more direct communication with Mac buyers and let them get hands-on time with the company's products. "Direct retail is one of the big success factors for Apple," says Mikako Kitagawa, principal analyst for market research firm Gartner.

MAC SALES
As a percent of Apple's total revenue

- DESKTOPS
- LAPTOPS
- OTHER REVENUE

2003
28%
40%
32%
57% (shown for 2007)

2007
17%
26%

2012
4%
11%
85%

Source: Apple

Secondly, Apple made the decision in 2006 to switch from PowerPC processors to Intel chips. This change in CPUs that gave the Mac's performance a leg up. "There was no comparison between PowerPC and Intel at the time," argues Patrick Moorhead, principal analyst with Moor Insights & Strategy. "[Intel] was more powerful, it was more power efficient, and it also scaled from the low end with notebooks, to the high end with workstations and the pro market."

The final reason for the Mac's continued ability to thrive is that in the same year Apple switched to Intel chips, demand for notebooks began to exceed sales of desktop machines for the first time. Soon after, the MacBook Air was introduced, a laptop designed for the mobile era. Initial models were criticised for being slow and lacking ports, but they were slim, light and beautifully designed, and

that's what seemed to matter for the mobile market.

Design touches first seen in the MacBook Air filtered through to the rest of the Mac product line. Other MacBook models were soon sporting Air-like components, such as solid-state drives, sealed batteries and unibody designs. These same features have now filtered through to the rest of the PC industry.

Macs now a smaller slice of Apple's pie
A decade ago, Apple's share of the PC market was small – around two percent of all desktops and laptops worldwide. "In 2003, [the PC industry] really was all about desktops," Moorhead says. "It was still a pretty big period of growth, particularly in the emerging regions that weren't really able to ever afford a Mac."

In more-established markets, argues Moorhead, consumers were becoming fascinated with Apple's industrial design, and with the benefits that OS X offered, such as easy-to-use video and photo management. But the company's higher prices meant that its primary customers were those willing to pay a premium for the Apple experience.

As recently as 2006, its market share was still around the two percent mark. But by the end of 2012, the Mac's popularity had more than doubled to about five percent of worldwide desktop and laptop shipments.

Apple's evolution as a company, its industrial-design aesthetic, and the ability of products like the iPod and iOS devices to attract new users
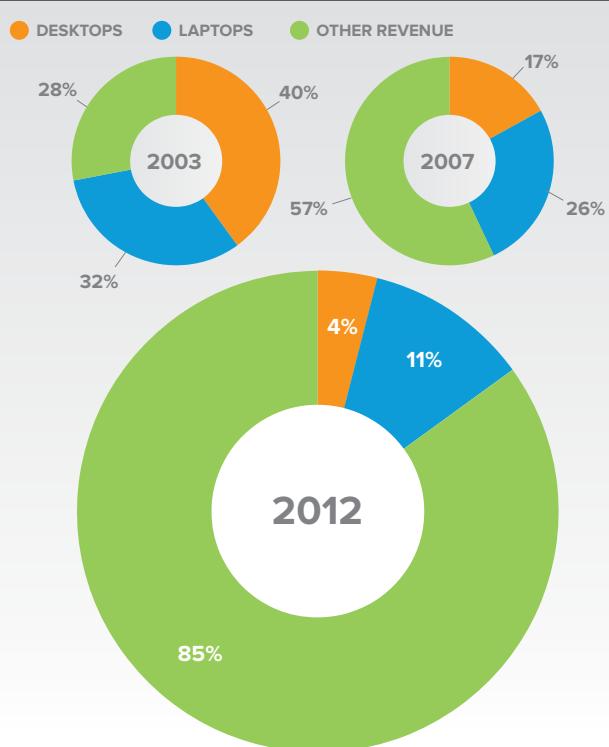
to the platform – all helped to push the Mac's growth as well.

But at the same time that the Mac was becoming more popular, the overall appeal of

portability and sub-£400 prices compared with PCs.

PC shipments, meanwhile, have steadily declined quarter after quarter. Gartner reported

before. "We think that Mac share will grow gradually, but continue to be small," believes Gartner's Kitagawa. A PC market in retreat, combined with Apple's minimum-£849 price tag, will keep the Mac beyond the reach of mass-market buyers unwilling to pay that much for a computer.

tablets, laptops and PCs are playing complementary roles in our everyday lives. Each device now suits specific situations, from crunching massive spreadsheets at the office to catching up on reading in the small hours.

WILL THE MAC AND iPAD REMAIN SEPARATE, OR WILL THE TWO CONVERGE INTO ONE DEVICE?

personal computers was beginning to wane. The rise of tablets, especially the iPad, would help precipitate a dramatic decline in demand.

Tablet shipments surged from zero in 2009 to more than 100 million by 2012, thanks to their ease of use, faster response times, greater

in July of this year that the PC industry was in the longest slump ever seen, and it's not clear when – or even whether – things might turn around.

Looking ahead
Mac sales appear set to continue increasing, although perhaps more slowly than

Whether or not the Mac's popularity exceeds current expectations, MacBooks and iMacs still have an important role to play in Apple's overall business. Along with Samsung and Lenovo, Apple is at the forefront of the so-called post-PC era. Instead of desktop or laptop computers handling each and every computing task, smartphones,

Looking into the more-distant future, it's anybody's guess as to what's in store for Apple's desktops and laptops. Will the Mac and iPad remain separate, or will the two converge into one device?

Anything's possible, but given Microsoft's struggle to realise its vision of a world of tablets, laptops and desktops all running Windows 8, Apple's approach to the Mac's evolution seems the right course.

APPLE'S NON-MAC, NON-iOS SALES ALSO RISE

Apple still makes money – more and more each year – from software, music sales, and other revenue streams. Nevertheless, those non-Mac, non-iOS streams are a smaller and smaller part of Apple's business.

- ● OTHER MUSIC-RELATED PRODUCTS, SERVICES
- ● SOFTWARE, SERVICES, OTHER SALES
- ● PERIPHERALS, OTHER HARDWARE

NET SALES, OTHER PRODUCT LINES (IN $BILLIONS)

$8
$6
$4
$2
0

2003 2004 2005 2006 2007 2008 2009 2010 2011 2012

Source: Apple
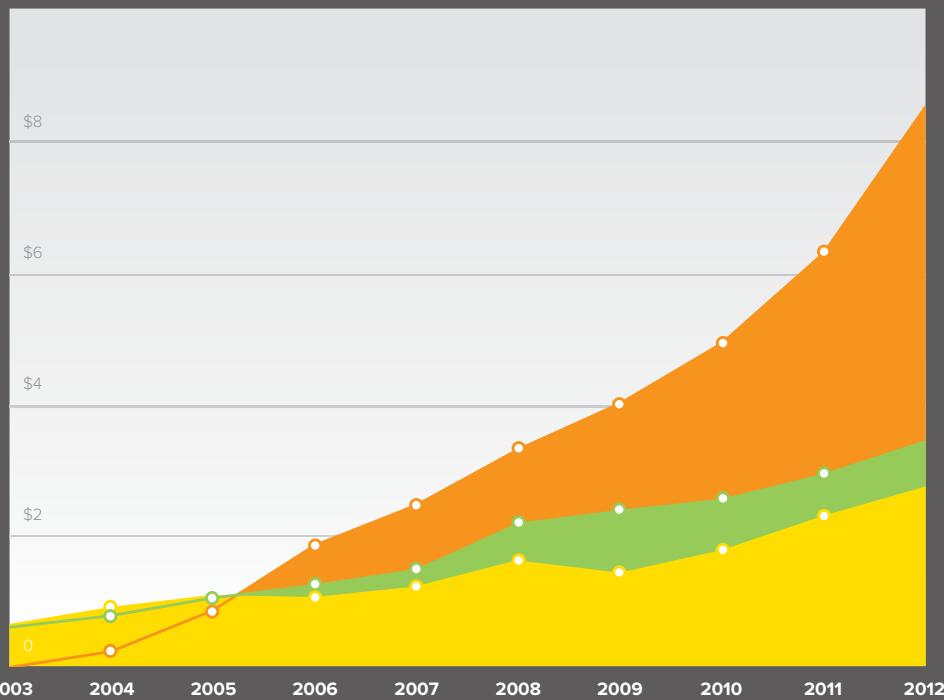
OTHER PRODUCTS AS PERCENT OF APPLE REVENUE

2003
10%
11%
1%

2012
2%
2%
5%
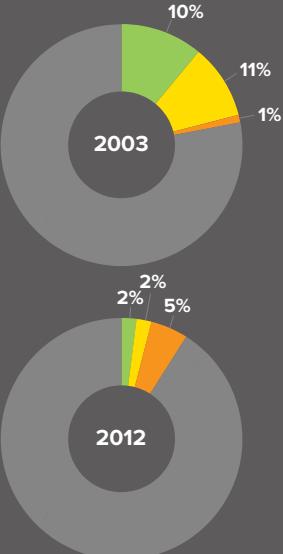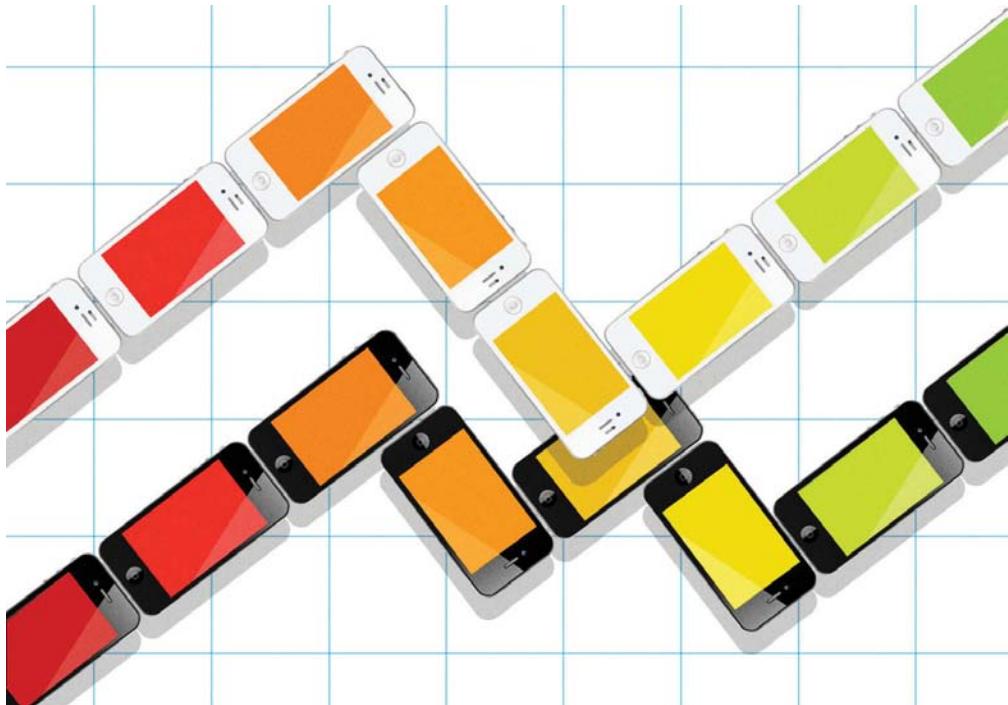
THE iPHONE
by the Numbers | BY DAN MOREN

The iPhone is not only Apple's most prominent and iconic product at present, it's also the most important to the company's bottom line. This significance means that competitors have it firmly in their sights.

The apple of Apple's eye

Right now, no arena is more contentious for Apple – with more and more competition – than the smartphone market. Although the company isn't yet in the position of living or dying by the device's sales figures, it's impossible to dispute that it's the crown jewel of Apple's product line.

In 2012, the company sold 125 million iPhones, which accounted for more than half of its revenue that year. Were the bottom to fall out of the smartphone market tomorrow, Apple wouldn't be ruined, but it would still have a major effect. So, it's not surprising that iPhone sales are the subject of intense scrutiny from analysts, tech pundits, and rank-and-file consumers.

So far, the company – and its customers and investors – have had little to worry about. Even though Apple has found itself confronted by numerous challengers in the smartphone market, the iPhone has remained a top performer in its line-up. The device has maintained a steady upward trend since its launch in 2007, every year racking up better sales, pulling in more revenue and accounting for

a higher percentage of the company's total revenue than it did the year before.

Steve Jobs once described the iPhone as one leg of the three-legged stool that made up Apple's business; the other two were the Mac and music (on its iPods). Over the past six years, the latter two legs have become shorter, while the ever-popular iPhone has picked up the slack.

Challenge and opportunity

Though Apple certainly did upend the smartphone market, it didn't by any stretch of the imagination enter it as the dominant player. In its early days, the iPhone was the upstart taking on the entrenched old-guard of the BlackBerry and, to a lesser extent, Windows Mobile. Even more challenging than its somewhat late arrival to the party was the fact that smartphones in general had made only a relatively small dent in a market dominated by so-called feature phones – handsets occupying the tier of the market between basic mobile phones and high-end smartphones.

Striking that balance in the market has been Apple's great challenge – and its opportunity – over the past few years. It wasn't until the second quarter of 2013 that smartphone sales finally exceeded those of traditional feature phones. But even now, with feature phones accounting for just under half of the world's mobile phone sales, the market still has plenty of room for smartphone sales – and Apple – to expand.

Overall, though, Apple's share of the smartphone market has remained pretty steady. According to market research firm Gartner, the iPhone captured eight percent of the market in 2008, growing to 14 percent in 2009, 16 percent in 2010, and then holding steady at 19 percent in 2011 and 2012.

Meanwhile, Google's smartphone platform, Android, has skyrocketed from a mere four percent of the market in

RIGHT NOW, NO ARENA IS MORE CONTENTIOUS FOR APPLE THAN THE SMARTPHONE MARKET

2009 to an impressive 66 percent in 2012.

But those gains are coming less at iOS's expense than from the likes of BlackBerry, Symbian, and other older platforms. This suggests that iOS's segment of the market is actually pretty stable, and perhaps not as besieged as some have argued.

Part of that is because of fragmentation in the smartphone market, and not just because of the much-promoted multitude of Android versions – eight at the last count. Yes, iOS's main rival in the smartphone market is Android, but that doesn't necessarily mean Apple's main rival is Android's developer, Google. In fact, the search giant makes relatively little money from Android, since it gives the mobile operating system away for free to its hardware partners. The only direct revenue it pulls in is from the phones that are made by its Motorola subsidiary.

iPHONE UNIT SALES
Number of iPhones sold (in millions)
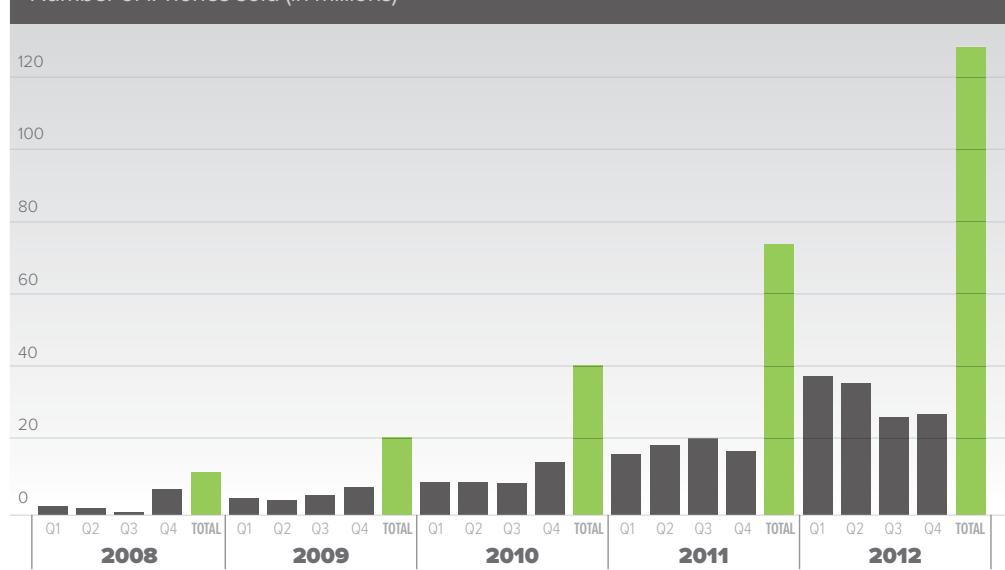
Source: Apple

Samsung, on the other hand, has risen from the pack to become the primary purveyor of Android-powered smartphones, and the South Korean company has positioned itself as the antithesis of Apple in the market, both in patent battles and in popular culture. At any given point in time, the company seems to offer half a dozen different phones, at a variety of screen sizes and price points.

Apple, for its part, still does very well when it comes to its balance sheet. While the company doesn't break out profits across its individual lines, the company as a whole continues to make money hand over fist.

But the iPhone is maturing as a product, and this means a new set of challenges are arising. Where does Apple's handset go from here?

It'll be interesting to see what the new low-priced 5c

iPHONE NET SALES
Net revenue – sales minus returns – in $billions
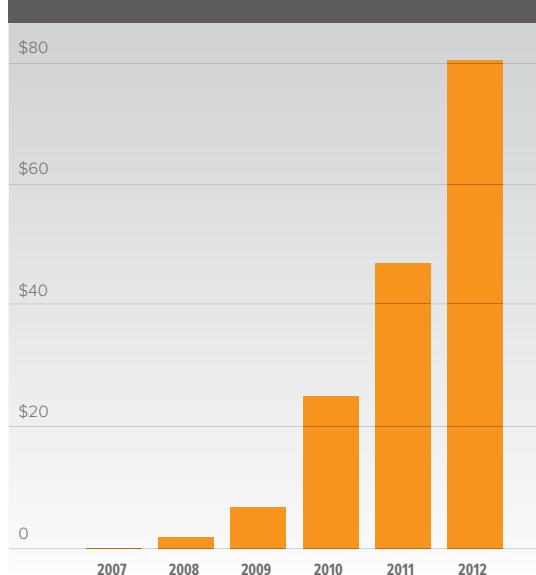
Source: Apple

iPHONE REVENUE
As a percent of Apple's total revenue
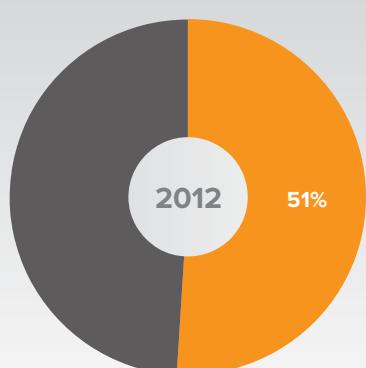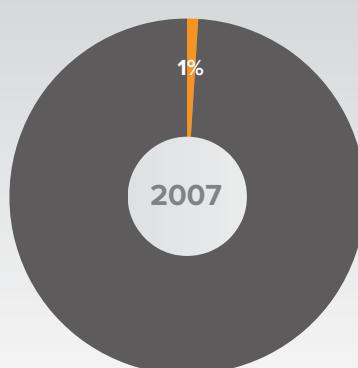
SMARTPHONE MARKET SHARE
By operating system

ANDROID **iOS** **BLACKBERRY** **WINDOWS PHONE / WINDOWS MOBILE** **OTHER**

2009
- 4%
- 14%
- 53%
- 20%
- 9%

2012
- 7%
- 3%
- 5%
- 19%
- 66%
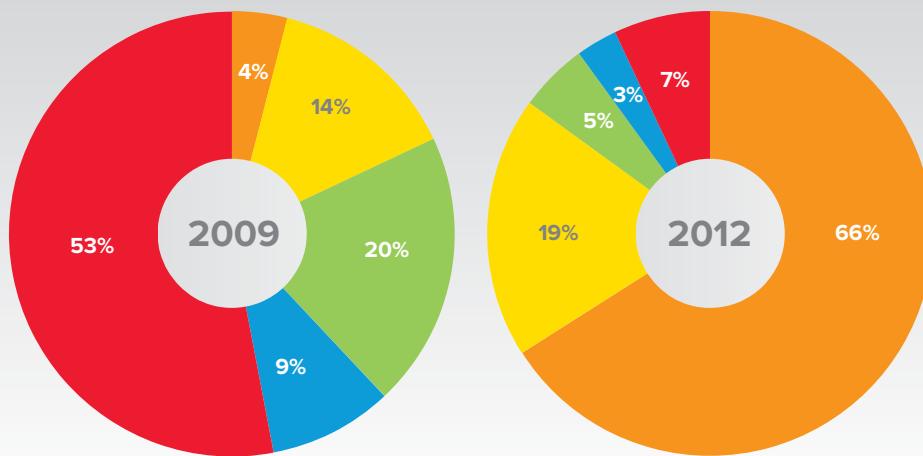
Source: Gartner

(read our review at tinyurl. com/pzenvjm) will do for Apple's bottom line and market share. The thinking goes that an iPhone with a smaller price tag could help the company compete at the low end of the market; of course, Apple is already trying to appeal to that segment by

offering previous years' phones at lower prices – and in some cases, even for free, as long as consumers sign up for a contract.

That strategy hasn't yielded entirely positive results, though. In Apple's third quarter of 2013, the average selling price of an iPhone

dropped below the £500 mark for the first time since 2009. That fall has been attributed, in large part, to a greater proportion of the handsets sold being older, cheaper models. A new iPhone, built from the ground up to be more affordable – some have wished for an iPhone

SMARTPHONE MARKET SHARE
By vendor

SAMSUNG **APPLE** **LG** **HUAWEI** **ZTE** **OTHER**

2008
- 4%
- 9%
- 87%

2013
- 38%
- 32%
- 4%
- 4%
- 5%
- 17%

Source: Gartner

designed to be sold unlocked – could reverse that trend.

Apple holds customer base
Conventional wisdom in the smartphone market is that Apple is losing its grip. But reality doesn't necessarily match conventional wisdom. A pitched battle is under way, but as in the operating system wars of the 1980s and 1990s, this isn't a winner takes all game: Apple's competitors don't need to lose for it to win, and vice versa.

In fact, the success of the iPhone seems to mirror the success of Apple's contender in that earlier fight: the Mac. The company has established a niche where it can appeal to consumers who value a high-quality product and are willing to pay a premium price. As such, Apple has maintained its customer base, even as competitors have flooded the market with cheaper offerings. And even in a world where mobile devices are becoming more prominent, the Mac is still going strong, almost 30 years after it debuted.

Contrast that with the short-lived, if meteoric, success of Apple's other flagship product, the iPod. While it reached great heights in its time, in recent years it has been superseded by the iPhone's many and varied capabilities, and its sales and share of Apple's revenues have declined accordingly.

In the long run, even more important than Apple just keeping up with the competition is that the company continues to do what it does best and offer compelling and innovative products that consumers are willing to pay for.

THE iPAD
by the Numbers | BY JARED NEWMAN

In three short years, Apple's tablet has revolutionised the PC industry. With that work done, the iPad is taking a breather. Although it was once the fastest-selling electronic device of all time, sales have slowed considerably over the past year, and they actually declined year-over-year in the third quarter of 2013. Here's how Apple got to this point, and what the slowing sales mean for the company.

iPad impact on Apple
When Apple introduced the iPad in January 2010, the rest of the industry was miles behind. Despite many months of rumours about an imminent tablet release, no other tech company was able to match Apple's sleek, £429 app-consumption machine. Early Android tablets such as Samsung's Galaxy Tab and Motorola's Xoom were flops, commercially and critically. When Google finally released a version of Android designed for tablets, it was buggy and slow, with few tablet-optimised apps available for it. The iPad wasn't just the best tablet on the market, it was the only one worth considering.

As a result, Apple reaped the rewards. In its 2010 fiscal year, it sold 7.5 million iPads, and in 2011, sales more than quadrupled to 32.4 million. With every passing quarter, year-over-year sales doubled or sometimes tripled. The past fiscal year – which ended in September 2012 – Apple sold 58.3 million iPads, pulling in net revenues of $32.4bn. The iPad seemed to be on track for the same explosive growth that the iPhone has enjoyed for years.

Even better for Apple, the iPad was slowly representing a bigger slice of the company's revenues, reaching 26.2 percent of net sales revenue in Q3 2012. When iPad sales doubled or tripled, the tablet's revenues doubled or tripled accordingly.

But Apple's quarterly earnings statements show a drastic change in the fourth quarter of its 2012 fiscal year, which covers July through September. Year-over-year sales increased by just 26.2 percent, and revenue jumped by only 9.3 percent. The next two quarters were better, with unit sales up by 48.1 percent and 65.1 percent year-over-year, but slower revenue gains of 65.1 percent and 32.7 percent showed that average selling prices were falling.

Then came the 2013 third quarter's unit sales decline, from 17 million units to 14.6 million units year-over-year, along with a 30.5 percent drop in revenue. The pattern of growth that once mirrored that of the iPhone had come to an abrupt end. "Our view is that the iPad is being accepted faster, but likely will not be as important as the iPhone over time," UBS analyst Steven Milunovich argues in a research note that was shared with Macworld.

What's behind the sudden sales drop? Partly, it's just a matter of timing, as Apple shifted its launch of new iPads from spring to autumn and didn't benefit from the usual new hardware sales spike. Milunovich, in his research note, offers a few other theories, such as longer upgrade cycles for tablets compared with smartphones, and faster market penetration and narrower appeal than smartphones in general.

Price drops a clue
But none of those theories explain the drop in the iPad's average selling prices. Sameer Singh, an analyst best-known for his accurate cost estimates of Apple products, suggests that shrinking revenue growth is a result of the iPad going

THE iPAD WASN'T JUST THE BEST TABLET ON THE MARKET, IT WAS THE ONLY ONE WORTH CONSIDERING

iPAD NET SALES
Net revenue – sales minus returns – in $billions

Source: Apple

iPAD REVENUE
As a percent of Apple's total revenue

● iPAD REVENUE ● TOTAL REVENUE

iPAD UNIT SALES
Number of tablets sold (in millions)
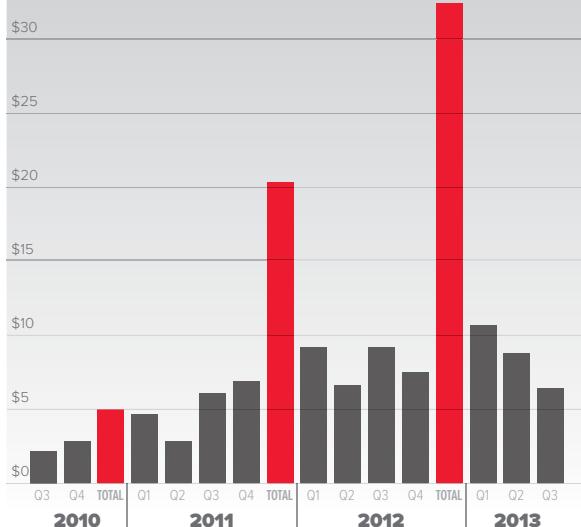
Source: Apple

mainstream. When the company began selling the £329 iPad 2 in the spring of 2012, it provided a lower entry level for new customers. The £269 iPad mini lowered the cost further, at the expense of Apple's profit margins.

"Early iPad buyers may have opted for models with higher storage, but the market began moving to consumers looking for a 'good enough' tablet," explains Singh.

It's also worth noting that when Apple dropped the price of the original iPad to £329 as the iPad 2 debuted, the company didn't feel the need to permanently offer a tablet at that price point, because there wasn't any noteworthy competition. Everything changed, however, when small, cheap tablets began to flood the market. So to blame slower iPad sales solely on hardware cycles and late adopters would be to understate the impact that cheaper tablets are having on Apple's business.

Competitive landscape
After more than a year of futile attempts to mimic the full-size iPad, Android tablet makers finally found a better angle of attack: 7in slates such as the Samsung Galaxy Tab II and the Amazon Kindle Fire undercut Apple on price and were more portable than the full-size iPad. Although they didn't receive the same critical praise as Apple's tablet, their £200-and-up price tags proved an effective lure for anyone unwilling to pay the extra for an iPad.

These alternatives started gaining traction in late 2011, when Amazon debuted the Kindle Fire and Barnes & Noble launched its Nook tablet. According to IDC, Apple's rivals grabbed 48.3 percent of the market during that holiday quarter. (Disclosure: IDC and Macworld are both owned by IDG.) From there, Apple's rivals began experiencing the kind of dramatic growth that the iPad had enjoyed in its early days, with year-over-year shipments increasing by at least 100 percent in nearly every quarter. In the quarter ending December 2012, iPad alternatives were finally on top, with 29.6 million units shipped, compared with 22.9 million iPads sold.

One theory circulated shortly after the launch of Amazon's Kindle Fire that these cheap tablets were like fruitcakes: because shipments tended to fall after the holiday season, pundits wondered whether these were the kinds of tablets that people bought as gifts but would never use themselves.

That theory isn't holding up as strongly anymore, as Android has matured and tablets such as Google's Nexus 7 have launched to critical acclaim. According to IDC, Apple's rivals shipped 29.7 million units in the first quarter of 2013 – a narrow
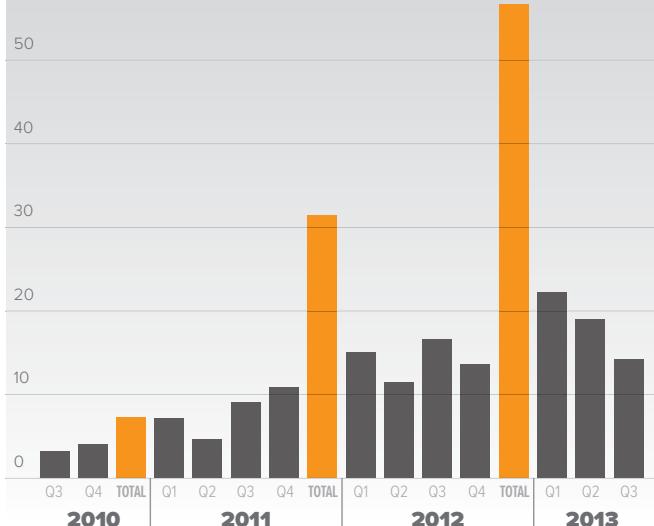
EVERYTHING CHANGED, HOWEVER, WHEN SMALL, CHEAP TABLETS BEGAN TO FLOOD THE MARKET

THE OTHER UPSIDE FOR THE IPAD IS THAT IT CONTINUES TO OUTSHINE ITS RIVALS IN USAGE SHARE

gain over the previous quarter. The post-Christmas reduction of Android tablet shipments has ceased, and last quarter, while iPad sales were falling, Apple's rivals shipped 30.5 million units – a gain of 169.9 percent year-over-year.

If you can put a positive spin on this trend for Apple, it's that the iPad mini now looks like a brilliant defensive move. Rhoda Alexander, senior manager of monitors and tablets for IHS iSuppli, says that the iPad mini represented 60 percent of iPad sales last quarter. IHS projects that the mini will represent 61 percent of iPad sales in all of 2013. The market has shifted toward smaller, cheaper tablets – and it's a good thing Apple was ready.

Sameer Singh believes that if Apple hadn't introduced the mini, then the iPad's sales probably would have been far worse than they are today. "I think it's now clear that the full-size iPad's market position wasn't sustainable given the

influx of low-cost devices," he argues in an email.

The other upside for the iPad is that it continues to outshine its rivals in usage share. A recent report by Chitika Insights states that 84.3 percent of tablet web traffic in the United States and Canada comes from the iPad. Despite Android's market-share gains, people don't seem to be using those alternatives as much.

"Research suggests a substantial buyer remorse for low-cost tablets," UBS's Steven Milunovich writes in his research report. "Apple might be right about its superior user experience luring Android customers to switch over time, and growth will re-accelerate."

Apple's success with the 9.7in iPad also puts the company in a better position than Android tablet makers, who have struggled to sell devices with larger screens. IHS iSuppli's Alexander believes that the market will swing back to larger tablets
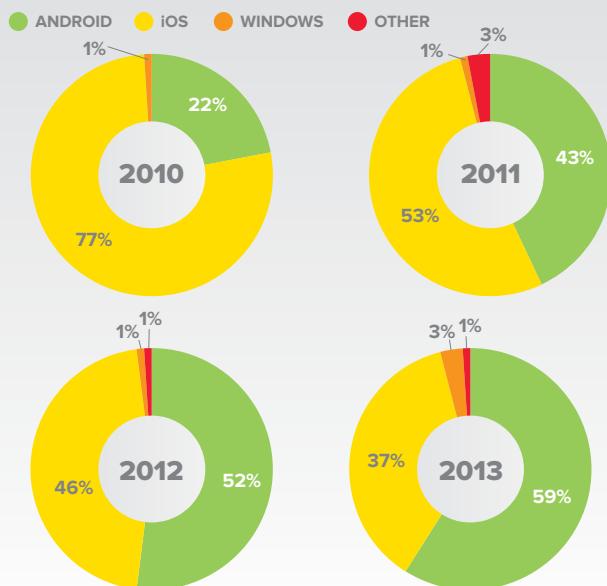
– perhaps even bigger than 10 inches – in 2015 and 2016, as people seek to derive more productivity from their tablets.

"The challenge for Apple and the Android players in the market will be, if you want to move this product to a larger screen size, you have got to make a use case that makes it compelling for users," believes Alexander.

In the meantime, look for Apple to recalibrate. The

next full-size iPad (see News, page 8) will reportedly have a new design, resembling the mini's narrowly bezelled chassis. Meanwhile, the mini could possibly get a Retina display. Both devices, along with the overhaul of iOS, will likely give Apple a much-needed boost. Gone are the days of magic and revolution – and the extraordinary sales that came with it – but the iPad still has room to grow.

TABLET MARKET SHARE
By operating system
Source: IDC
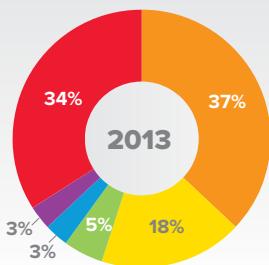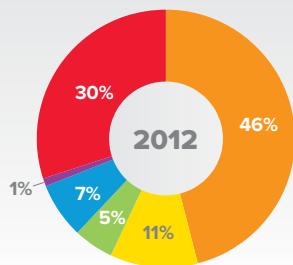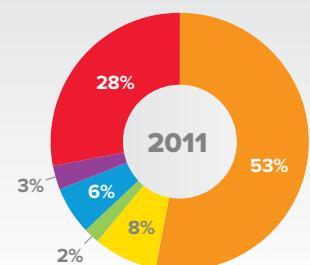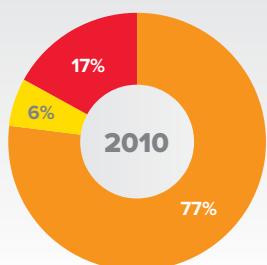
TABLET MARKET SHARE
By vendor
Source: IDC

THE iPOD
by the Numbers | BY LEX FRIEDMAN

Though the iPod still generates billions of dollars in revenue for Apple each year, it's clear that the portable digital music player's heyday has passed – not that anyone in Cupertino is likely to be too concerned about that.

When the iPod debuted on October 23, 2001, it didn't start out as a smash hit. It wasn't the first portable digital music player on the market and it then worked only with the Mac. It also earned scorn from some people for having no wireless capability and for offering less space than its competitors. Apple sold just 125,000 iPods in its first few months.

But it soon exploded in popularity. In 2002, Apple made it PC-compatible, added more storage capacity and lowered the prices. And in October 2003, Apple shipped iTunes for Windows. Until then, PC customers needed third-party software to sync their device. But iTunes' tight integration with both the iPod and Apple's nascent iTunes Music Store propelled the device to massive popularity.

In 2003, Apple sold just under a million iPods, for net revenue of $345m. Sales more than quadrupled the following year – Apple sold 4.4 million iPods for $1.3bn in revenue. In 2006, iPods accounted for $7.7bn dollars – from more than 39 million units sold that year – making up 40 percent of Apple's total revenue that year. Then, something happened.
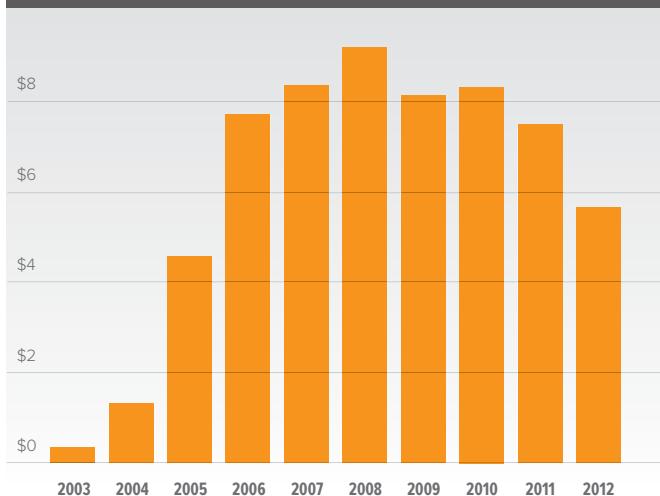
The iPhone juggernaut
Over the next two years, the iPod's revenue would continue to grow: $8.3bn in 2007, over $9.1bn in 2008 – more than 50 million iPod units in each of those years. But while its dramatic growth continued, the device's impact on Apple's overall business shrank.

In 2008, even as the iPod generated more than $9bn in revenue, and even as it achieved sales milestones, it dropped from constituting 40 percent of Apple's revenue (in 2006) to 28 percent.

That's because another product was introduced in late 2007 that would blunt the iPod's impact on the company – a little device called the iPhone. What helped drive Apple's ascendancy as one of the world's most valuable companies was the stunning amount of revenue generated by the iPhone.

In 2010, the iPod and iPhone began to cross paths in terms of their percentages of Apple's overall revenue: the former generated 39 percent of the company's revenue that year, compared with the latter's 13 percent.

From 2010, the iPhone's importance to Apple's revenue picture would only rise, and the iPod's would only fall. By 2012, the music player accounted for just four

iPOD NET SALES
Net revenue – sales minus returns – in $billions

Source: Apple

percent of Apple's revenue, less even than it had generated in 2003. Also in 2012, the iPhone accounted for more than half of the company's revenue – a level that the iPod never reached.

Amazingly, even as the iPod's financial importance to Apple plummeted, its sales didn't – at least for a while. As recently as 2010, Apple still sold 50 million iPods in a year.

But in 2011 and 2012, the number of iPods sold did drop significantly.

Drop it like it's hot

In 2011, Apple sold 42.6 million iPods. The following year, this figure fell to 35.2 million. Even at these depressed numbers, however, it's worth noting that the iPod still generated $5.6bn in revenue in 2012. That's the kind of 'declining' business many companies would be happy to suffer.

But even though the iPod is still profitable, and is still a nice-size, hobby-esque business, it's clearly a dying one. And Apple has no reason to fight its inevitable demise. Instead of trying to artificially prop up the iPod market, it's simply focusing the bulk of its attention on the areas of its business whose growth has not yet peaked.

That's why the iPhone has a great music player and Apple has (finally) released iTunes Radio, as part of the iOS 7 update. (At the time of writing, iTunes Radio was unavailable in the UK and Apple had yet to announce a launch date.) These kinds of technologies sell more iPhones, which are much more profitable than iPods.

Apple killed its music player's significance itself: first

by obviating the need for iPod revenue with the launch of the iPhone (and later, the iPad), and then by making its music player's entire feature set – the ability to store music – less compelling.

But that doesn't mean it will stop making iPods any time soon. Even a company as rich as Apple won't give up on a multibillion-dollar business until it's forced to.

The music landscape

Apple says the iPod accounts for about two thirds of the digital music player market. Creative Labs offers its line of Zen music players, some of which look a lot like the iPod. SanDisk, too, makes a variety of iPod-esque digital music players. But few buy them.

Most customers still in the market for dedicated digital players appreciate Apple's hardware and software refinements, and keep buying iPods. The trouble is that most of them already own one by now. Even more significantly, smartphones and tablets are,

for many, eliminating the need for an iPod. After all, if your iPhone can store enough of your music library to satisfy you, then why bother carrying around a separate device?

What's more, Apple (and others) clearly recognise the appeal of streaming music.

The iTunes Match service marked Apple's initial foray into streaming music. It meant that you didn't need any disk space to keep songs on your device. And when its launched in the UK, iTunes Radio will make the streaming option freely available to anyone.

iPOD UNITS SHIPPED
(in millions)

Source: Apple

iPOD VS iPHONE
As a percent of Apple's total revenue
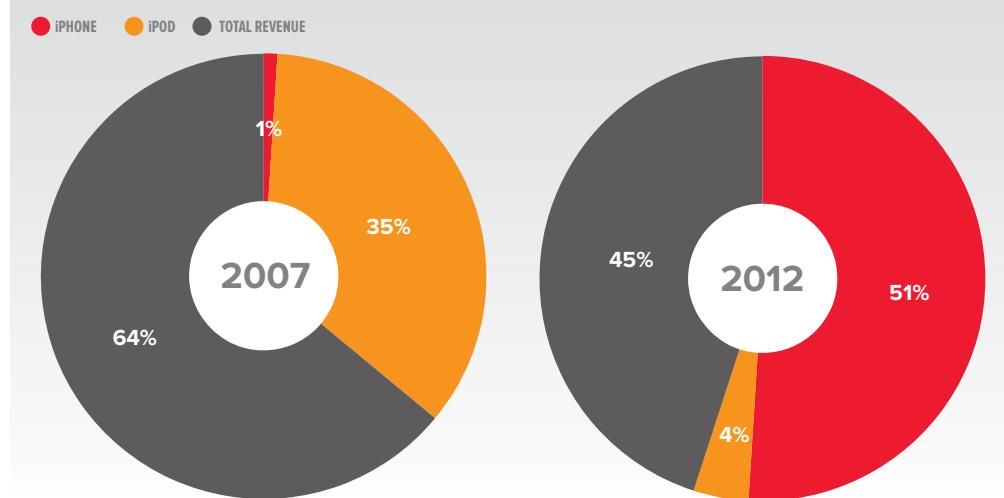
iPHONE   iPOD   TOTAL REVENUE

2007: 1%, 35%, 64%

2012: 45%, 51%, 4%

You don't have to spend a lot to get good mobile gear

BY MACWORLD STAFF

THE BUDGET TRAVELLER

Whether you prefer a MacBook or an iPad as your mobile workstation, you can't use it alone – you need to bring along other stuff to make it truly useful and to protect it from knocks and bumps. You don't need to spend a bundle, though, as there are plenty of affordable options. Here's the budget-priced gear we recommend you take on your next road trip.

Input

GRIFFIN TECHNOLOGY ELEVATOR, LOGITECH K760

A laptop stand and an external keyboard can make using your MacBook more comfortable when you are back at your desk. The Elevator (£30, tinyurl. com/mwu9nft) is a solid stand with a budget price.

Logitech's Wireless Solar Keyboard K760 (£59, tinyurl.com/ocnw3rv) offers Mac-focused keys in a compact package. Ambient light charges its battery, and the K760 can link via Bluetooth with up to three devices, so you can use it with an iPad and iPhone.

You'll also find plenty of great iPad stands on the market. For a solid cheap offering, however, consider book stands such as the Fellowes Wire Study Stand (£6, tinyurl.com/qx5fwdt).

BELKIN WIRELESS YOURTYPE NUMERIC KEYPAD

If you'd like a calculator that also pairs with your Mac to give you the numeric keypad your compact keyboard lacks, then Belkin's Mac-matching Wireless YourType numeric Keypad (£50, tinyurl.com/pfpufcu) fits the bill. Its aluminium design is the perfect complement to Apple's wireless keyboard, and along with its numeric keypad includes document navigation controls and function keys.

Satechi USB hubs

On the road, your hotel room's desk can end up playing host to more than a few USB accessories. To avoid the hassle of frequent cable-swapping, you'll need a USB hub. Satechi offers a couple of good choices here. The Premium 4 Port Aluminum USB Hub (£43, tinyurl.com/obplzrq) has a compact, Mac-matching, aluminium body; four bus-powered USB 2.0 ports; and a conveniently short USB cable.

Protection

Moshi ClearGuard

If you want to keep crumbs, dust, and other detritus from gunking up your MacBook's insides, Moshi's 11in ClearGuard Air cover (£23, tinyurl.com/mpxlnsy) does the trick with minimal distraction. The superthin, transparent film is custom-designed for your Air's keyboard.

MacLocks MacBook Air lock and security case bundle

The MacBook Air's thin, light and portable design is great for those who want to catch up on some work between meetings. However, Apple's slimline laptop is too thin to include a traditional notebook security slot, which is where MacLocks' MacBook Air lock and security case bundle comes in. It's compatible with both the 11in and 13in models (£45, tinyurl.com/nvob3ee), and once you attach the case to your laptop and lock the security cable into its slot, a thief can't detach the case without ruining the Air. A MacBook Pro option is also available (£45, tinyurl.com/owyr5bk).

MOSHI iVISORS

To prevent fingerprints and scratches from marring your screen, turn to Moshi's custom-size iVisor Air (£35) or iVisor Pro (£35 to £40) screen protectors for MacBook Air and MacBook Pro models (tinyurl.com/pbhlgq4). Unlike most protective screen films, iVisors are made of stiff material that adheres only to the edges of the screen. This design translates into quick-and-easy installation and no screen bubbles. Moshi uses a special adhesive that lets you remove, wash, and reapply the iVisor as needed.

Transportation

THULE CROSSOVER 25L

Thule's Crossover 25L Backpack (£90, tinyurl.com/orbvrjd) is very well constructed from dobby nylon, with a high-quality waterproof coating and a soft fine nylon lining. A small zipped pocket at the top contains a removable rigid box that's designed to hold your sunglasses or other crushable bits. One main compartment is sealed by a double-end zip, and sectioned off inside with a padded pocket large enough to hold a 15in MacBook. The remaining capacity is quite TARDIS-like in the amount it can carry. The shoulder straps are lined with tough EVA material and show none of the crumpling of lesser foam.

Otterbox Defender for iPad Mini

If you're looking to protect your device, look no further than Otterbox's rugged Defender series case for the iPad mini (£22, tinyurl.com/naplnsm). While it won't win any contests for its looks, it will protect your tablet better than most. The Defender comes in three parts: a slim, two-piece plastic shell that snaps onto the tablet, a stretchy black silicone layer that fits around the plastic shell, and a rigid screen cover that doubles as a stand.

SwitchEasy CoverBuddy

The CoverBuddy (£14, tinyurl.com/poy2pya) is a slim rubber hard-shell case that protects the back of your Smart Cover-clad iPad mini. And when we say "slim", we mean it: it's a svelte 1.5mm thick. It snaps onto the back of the tablet with minimal effort. The case has tiny holes around the device's speakers to allow sound out; it also includes cutouts for the Lightning port, the rear camera, the side switch, the top microphone and the headphone jack.

As designed, the CoverBuddy works beautifully with a Smart Cover. The rubbery texture is less slippery than the naked mini's back, is comfortable in the hand and it doesn't detract from the iPad's good looks.

Be.ez LA Robe sleeves

When it comes to laptop sleeves, your options are nearly limitless. But we're fans of Be.ez's LA Robe series (tinyurl.com/mcya6do). Available for all MacBook sizes, as well as iPads and other tablets (price varies by size), each LA Robe sleeve is made of a lightweight memory foam for impressive protection that adds only a few ounces to your bag.

Printed jersey fabric covers the exterior of each sleeve, and Be.ez offers dozens of designs, from basic to fashionable.

DICOTA BACKPACK CHALLENGE

Dicota's BacPac Challenge (£45, tinyurl.com/leogw67) stands out from the crowd. Not for its looks, mind, but for the fact that it lets you safely carry all your stuff, while remaining accessible.

The main bag is divided into two zipped compartments, the rear one big enough to hold MacBooks with screens up to around 15in. A Velcro strap holds it in place and there's room in front for a tablet. Two meshed pockets are ideal for power supplies and chargers. The other main compartment is for your other stuff – lunch box, bike lock or whatever else you want.

Carrying the Challenge, even when it's full, is surprisingly comfortable, thanks to both shoulder and waist straps, plus lots of thick, meshed padding. There's also a useful handle on top of the rucksack.

Sound

Sony MDR-V6 and MDR-7506

When you're travelling, you need a good set of headphones, preferably closed, over-ear cones that will keep external noise out and your music in. Sony's MDR-V6 (£53, tinyurl.com/a8y7sqt) and MDR-7506 (£65, tinyurl.com/kjexevm) headphones fit the bill at budget-friendly prices.

These almost-identical models offer studio-quality audio in a rugged package. The earpieces fold in for easier stowing, and the padded earpads and headband let you enjoy hours-long sessions.

Gear4 Xorb

The Gear4 Xorb's (£50, tinyurl.com/oq5uncx) distinctive design looks quite neat, but it's also practical. It's large enough to house both stereo speakers and a separate subwoofer, but compact enough to fit comfortably in a bag. The sound quality is very good for a speaker in this price range. There's a volume control on the back, and a separate bass control so you can tweak the bass for different types of music.

Who got slighted in the Steve Jobs movie

BY PHILIP MICHAELS

Although every biopic takes its share of liberties with the facts, *Jobs* doesn't wander too far from the historical record in its big-screen retelling of the Apple cofounder's life. Nevertheless, we reckon some people and institutions may have a problem with the movie.

Jef Raskin: Jef Raskin appears in two scenes in *Jobs:* the first as the bumbling head of the faltering Macintosh team and the second as he cleans out his desk. That hardly seems a fair depiction of a man sometimes dubbed the Father of the Macintosh. Raskin's influence on user interfaces, particularly when it came to the Mac's legendary ease of use, is undisputed. He also kept the Mac project going in the early days.

Arthur Rock: Every movie needs a villain, and in *Jobs* that part falls to Arthur Rock, Apple's bottom-line chairman who butts heads throughout the movie with the more visionary Steve Jobs. But in addition to his role as an early Apple backer, Rock was one of the first venture capitalists to invest in what would become Silicon Valley, and he helped to launch Fairchild Semiconductor and Intel.

Gil Amelio: Apple's CEO for 17 undistinguished months, from 1996 to 1997, appears as a flummoxed chief executive clearly in over his head who is promptly outwitted by Jobs for control of Apple – a portrayal that's fairly accurate.

Michael Scott and Michael Spindler: Michael Scott – Apple's CEO from 1977 to 1981 – and Michael Spindler don't appear in *Jobs* at all. In fact, they're the only Apple CEOs to be left out of the film (other than today's chief, Tim Cook). They could be a little annoyed.

Ron Wayne: Apple's third co-founder along with Jobs and Wozniak, Ron Wayne is the forgotten man of Apple's history. Wayne gets nary a mention in the movie, not even a peep about his selling back his stake in Apple to the two Steves just 12 days after the company's founding.

Any woman employed in technology between 1976 and 2001: It's a man's world in *Jobs,* where the only female characters with speaking parts are women who raised Steve Jobs, slept with him, married him, were fathered by him, or answered his phones – although you could argue that the tech world was dominated by men in the 70s and 80s.

Xerox PARC: The two visits by Apple employees – especially one in 1979 that included Steve Jobs – have taken on mythical proportions. But in *Jobs,* that moment takes place off-camera.

Not by Apple It takes more than a logo to make something feel like an Apple product.

Bride of Frankenmac:
Assembling a PC that runs Mac OS X

BY JAMES GALBRAITH

For a long time, Mac Pro users have asked themselves, 'When will Apple update its professional desktop line?'

The wait is nearly over. Apple says that a brand-new Mac Pro will be available before the end of 2013.

But the new Mac Pro is not the hulking beast with which we're familiar; rather, it's a model of compactness. The main concern about it is the lack of internal expansion and customisation options. Instead of four internal hard-drive bays, the new Mac Pro uses built-in flash storage. Users must externally connect any additional drives or PCI cards.

That makes for a tough decision: buy the Mac Pro and purchase external drives and an expansion chassis, or stick it out a few more years with the current Mac Pro.

Here's another option – one that gives you today's technology now, with competitive performance, and that costs considerably less than the 2012 Mac Pro. It may violate Mac OS X's end-user licence agreement, but you can build your own computer that runs Mac OS X, using off-the-shelf PC hardware.

We did just that and, although we found the job to be more suited to a PC enthusiast, a surprising number of useful resources are available to help.

Back in 2008, *Macworld* contributor Rob Griffiths put together a system he dubbed 'Frankenmac'. Now meet the Bride of Frankenmac.

How we built it

We're lucky to have had some help from our lab manager Tony Leung, who has years of experience in assembling PCs from scratch. The process is reasonably complex, but online resources such as tonymacx86.com and insanelymac.com are helpful, as are the knowledgeable and supportive users of their forums, who have been able to create Haswell-based computers running Mavericks. Lifehacker is another good resource, as it keeps an updated list of working components, plus a list of DIY resources.

In the lab, we found all the pieces and parts we needed. Here, then, is the parts list for the Bride of Frankenmac:

> Asus P8Z77-VPro/Thunderbolt motherboard with USB 3.0, Thunderbolt and seven PCI slots
> Quad-core Intel Core i7-3770 processor

PHOTOGRAPHY BY ROBERT CARDIN

> EVGA nVidia GeForce 660 Ti graphics card
> Seagate Barracuda ST11000DM003 7200rpm hard drive
> Blu-ray drive
> 6GB of Crucial Ballistix Sport DDR 1600MHz RAM
> 750W Antec EarthWatts power supply
> Cooler Master ATX mid-tower case with room for up to eight drives

These parts are available from resellers such as amazon.co.uk for less than £1,000; shop around for the best prices.

How fast Is It?

To compare the Bride of Frankenmac's performance with that of the Mac Pro still shipping in the US, we used our benchmarking suite Speedmark 8.

Our custom-built computer was faster than the £2,049 (now discontinued in the UK) Mac Pro in all 15 tests in Speedmark – overall, it was 23 percent faster than the Mac Pro, but a few tests were close.

When we upped the resolution on the Portal 2 test and maxed out the settings, the Bride of Frankenmac was 65 percent faster than the Mac Pro.

We also swapped the graphics cards between the two systems to see how that would affect results. Our standard Portal 2 test results were the same, regardless of the card, so the bottleneck was the CPU, not the GPU. When we cranked up the resolution and settings, the results followed the card – the nVidia card from the Bride of Frankenmac was

much faster than the Mac Pro's ATI card, regardless of which system it was in.

Comparing the results with those for a high-end 12-core Mac Pro – a £3,099 (also discontinued in the UK) system with two 2.4GHz six-core Intel Xeon processors, 12GB of RAM, and the same 1TB hard drive and ATI Radeon card as

Not a pretty face The Bride of Frankenmac (right) isn't much of a looker, but its performance makes up for its appearance.

the £2,049 Mac Pro – we saw that our Bride of Frankenmac outperformed it, too. The Bride of Frankenmac was 14 percent faster overall than this Mac Pro, but the Mac Pro was faster in a few tests – mainly those taking advantage of its 12 processing cores. Cinebench's OpenGL test, for example, was 41 percent faster on the Mac Pro.

For kicks, we installed a Kingston HyperX 3K SH103S3/240G SSD in both the Bride of Frankenmac and the 12-core Mac Pro, and re-ran the Speedmark tests. While the SSD-equipped Mac Pro and Bride of Frankenmac were 16- and 13 percent faster respectively than their hard-drive-equipped selves, the SSD Bride of Frankenmac was still 12 percent faster overall than the SSD Mac Pro.

Hurdles and Cautions

The Mac Pro's ATI card didn't initially work in the Bride of Frankenmac, but we found help in online forums. The solution wasn't elegant; it required booting on to a USB stick that we'd set up for the initial install and pressing the power button twice to put the system to sleep and

then wake it up. We also had to use the same trick every time we rebooted.

Unlike an Apple-built computer, our Bride of Frankenmac is not covered by an umbrella warranty. If the power supply conks out, we'll need to talk to Antec. And if anything else breaks, it'll be up to us to deal with the individual makers.

Future OS X updates could also prove problematic for our custom setup. When an OS X update becomes available, we'll have to wait a few days and monitor the forums to find out whether other users are running into problems with their custom systems.

Conclusions

Building your own PC running OS X is not for everyone, but if you're comfortable with breaking OS X's end-user licence agreement and you know your way around a PC's bootloader and Bios settings, assembling an expandable tower computer based on OS X seems to be an option. The price is certainly right, and the performance in most cases can equal or surpass that of Apple's current Mac Pros. Time will tell what the price and performance of the 2013 Mac Pro will be, but we know that it will not offer the internal expansion that, for most users, was the Mac Pro's most attractive asset.

Macworld Lab Test

Benchmarks: Speedmark 8

Bride of Frankenmac (1TB HD)	246
Bride of Frankenmac (240GB SSD)	278
2012 Mac Pro 12-core (1TB HD)	215
2012 Mac Pro 12-core (240GB SSD)	249
2012 Mac Pro quad-core (1TB HD)	200

Higher results/longer bars are better. Macworld Lab testing by James Galbraith, Albert Filice, and Jeff Sandstoe.

Towers of power:
A look at past Mac tower computers

BY ROMAN LOYOLA

Apple has a long history of making tower computers that weren't just tall, heavy-duty systems aimed only at power users. The design and style of its towers have always made them stand out from a skyline of beige PC towers. Here's how those designs have evolved.

Macintosh Quadra 700

1991 You might not consider the Quadra 700 to be a tower, since it was in essence a Mac IIcx case standing on its side. The Quadra 700 was released in October 1991, and had a 25MHz Motorola 68040 processor. It had two NuBus slots and a PDS (processor-direct slot), and employed SCSI to connect to external hard drives.

Macintosh Quadra 950

1992 The follow-up to the Quadra 900, the 950 is the machine that some people consider to be the first true Mac tower. If you had a bunch of NuBus cards, this was the Mac to get – the Quadra 950 (released in May 1992) had five NuBus slots, as well as a PDS. The key locked the power switch so that unauthorised people couldn't turn it on or off. The key also locked out input devices.

Macintosh Quadra 840AV

1993 Apple issued this model just a few months after releasing the Quadra 800 in July 1993. The 'AV' in the name referred to the computer's S-Video and composite-video ports – ports that weren't available in non-AV Macs. The Quadra 800 was a more affordable mini-tower alternative to the Quadra 950, but we have bad memories of this tower's case. The cover slid on and off awkwardly, and accessing the components was tricky. It contained three NuBus slots and one PDS.

Workgroup Server 9150

1994 This was the first Apple server that wasn't based on a consumer model. (Apple also declined to go the reverse route and make a consumer Mac based on the 9150's design.) Released in April 1994, the 9150 offered four NuBus slots and a PDS. Buyers had a choice of an 80MHz 601 PowerPC CPU or a 120MHz 601+ PowerPC processor.

Network Server 500

1996 The Network Server 500 (released in April 1996) was designed for enterprise networks (it cost some $11,000 [£6,771]). It didn't come with Mac OS installed; Apple instead used AIX, an IBM-developed Unix OS.

The machine had seven half-height/three full-height bays and six PCI slots, and it weighed over 35kg.

Power Macintosh 6500

1996 This case design made its debut with the Performa 6400 in August 1996. Computers with this tower design carried a built-in subwoofer, and PCI slots (two in this model) replaced the NuBus slots. The Power Macintosh 6500 also provided an option to insert an Iomega Zip drive, which wasn't found on the Performa machines.

Power Macintosh 8600

1997 Apple announced the 8600 along with the Power Macintosh 9600 in February 1997. The company then went on to use the same case design for the Power Macintosh G3, which replaced the 8600 and 9600 in November 1997. This was the last beige tower Apple ever created.

Power Macintosh G3 (Blue and White)

1999 The Bondi Blue iMac was unveiled in May 1998, and anticipation was high in regards to how Apple

would apply its new design aesthetic to its tower Macs. The answer came in January 1999, when Apple updated the Power Macintosh G3 with a new blue and white, easy-access design. The basis of this case design lived on in Apple's towers for the next five years.

Power Macintosh G4 (Quicksilver)

`2004` In September 1999, the first Power Macintosh G4 model came in a case similar to that of the Power Mac G3, but in a graphite colour. Nearly two years later, Apple unveiled a new case, the Quicksilver Power Macintosh G4; this version had four hard-drive bays, one optical-drive bay, one Zip-drive bay, four PCI slots and one AGP slot.

Power Macintosh G4 (Mirrored Drive Doors)

`2002` When you looked at this machine, two features immediately grabbed your attention: the mirrored doors on the Mac's drive bays, and the four holes near the bottom. The mirrors on the doors were purely cosmetic, serving no practical purpose. The same could be said about the four holes, although the air intake was located just underneath the tower's face, so the holes could work with that.

Power Macintosh G5

`2003` The aluminium tower made its debut in June 2003, and Apple is still using this tower design for its Mac Pro units – at least until later this year.

(The company renamed the tower the Mac Pro when it switched to Intel processors.) At one point during the G5's run, Apple used a liquid-cooling system for its CPUs.

Mac Pro

`2013` Apple is taking a fresh, surprising new approach with its latest tower design. The new Mac Pro relies on Thunderbolt 2 for expansion – no internal options are available (see pages 32-33 for some additional discussion). The machine should be released by the end of this year. For a full preview, see tinyurl.com/oej4ybf.

Macs: Line-up

PRODUCT	SPECS	RATING	PRICE	DISPLAY	SPEEDMARK 8 [1]	MORE INFO
DESKTOP						
iMac	Intel Core i5/2.7GHz (quad-core)	★★★★☆	£1,149	21.5in	194	tinyurl.com/me5utn5
	Intel Core i5/2.9GHz (quad-core)	★★★★☆	£1,299	21.5in	204	tinyurl.com/me5utn5
	Intel Core i5/2.9GHz (quad-core)	★★★★☆	£1,599	27in	238	tinyurl.com/me5utn5
	Intel Core i5/3.2GHz (quad-core)	★★★★☆	£1,749	27in	224	tinyurl.com/me5utn5
Mac Mini	Intel Core i5/2.5GHz (dual-core)	★★★★☆	£499	Not included	131	tinyurl.com/ldh4anw
	Intel Core i7/2.3GHz (quad-core)	★★★★☆	£679	Not included	164	tinyurl.com/ldh4anw
Mac Pro	Intel Xeon/3.2GHz (quad-core)	★★★☆☆	N/A	Not included	200	Discontinued in the UK
	Intel Xeon/2.4GHz (12-core)	★★★☆☆	N/A	Not included	215	Discontinued in the UK
PORTABLE						
MacBook Air	Intel Core i5/1.3GHz, 128GB	★★★★★	£849	11in	165	tinyurl.com/qc8rzdg
	Intel Core i5/1.3GHz, 256GB	★★★★★	£1,029	11in	165	tinyurl.com/qc8rzdg
	Intel Core i5/1.3GHz, 128GB	★★★★★	£949	13in	166	tinyurl.com/qzwwzus
	Intel Core i5/1.3GHz, 256GB	★★★★★	£1,129	13in	166	tinyurl.com/qzwwzus
MacBook Pro	Intel Core i5/2.5GHz (dual-core)	★★★★☆	£999	13in	121	tinyurl.com/plkm79o
	Intel Core i7/2.9GHz (dual-core)	★★★★☆	£1,249	13in	153	tinyurl.com/plkm79o
	Intel Core i7/2.3GHz (quad-core)	★★★★☆	£1,499	15in	161	tinyurl.com/plkm79o
	Intel Core i5/2.5GHz (dual-core) 128GB	★★★★★	£1,249	13in Retina	184	tinyurl.com/qefb5hw
	Intel Core i5/2.6GHz (dual-core) 256GB	★★★★★	£1,449	13in Retina	190	tinyurl.com/qefb5hw
	Intel Core i7/2.4GHz (quad-core)	★★★★★	£1,799	15in Retina	270	tinyurl.com/ouunxmn
	Intel Core i7/2.7GHz (quad-core)	★★★★★	£2,299	15in Retina	284	tinyurl.com/ouunxmn

[1] Speedmark 8 is Macworld Lab's standard test tool for benchmarking systems running Mac OS X 10.8 (Mountain Lion)
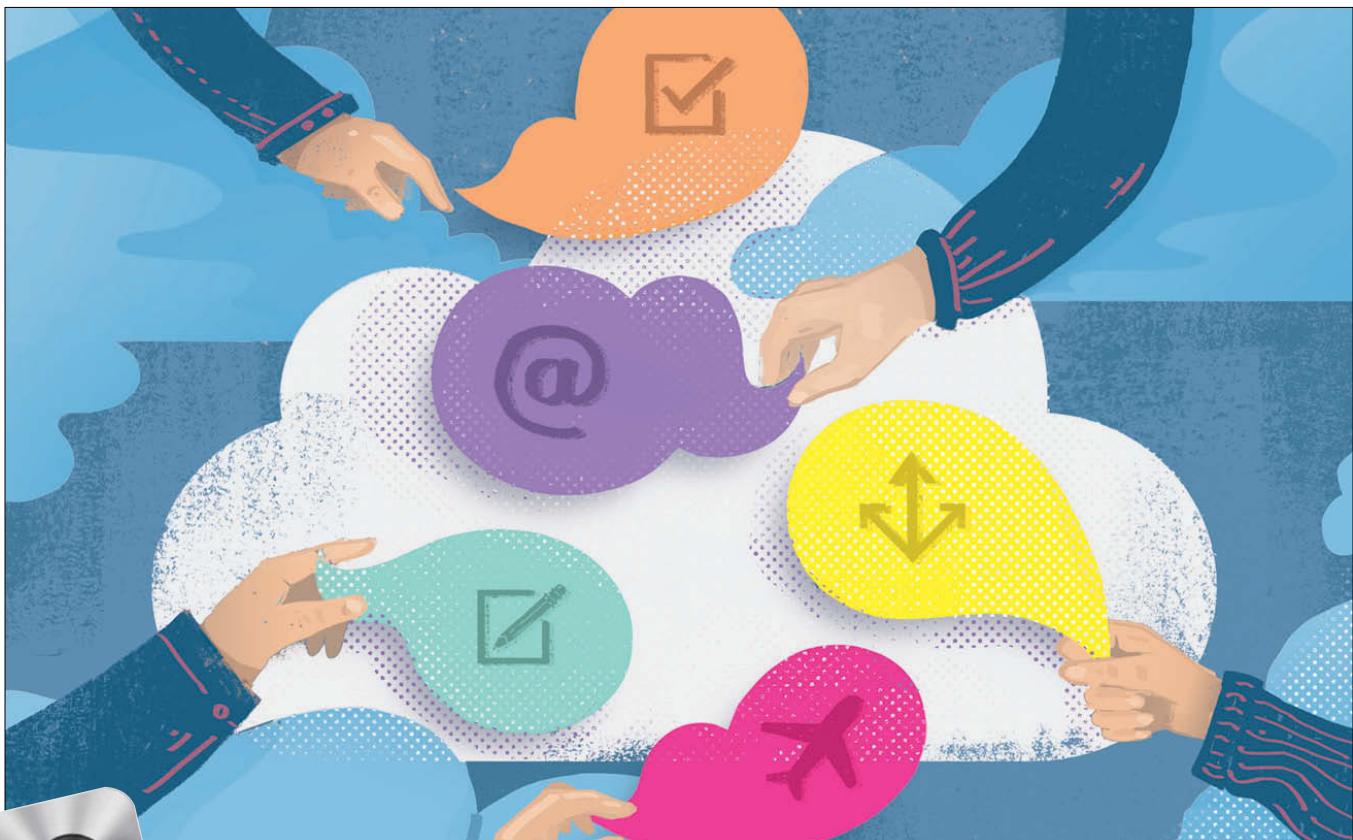
Five iCloud email tricks

Take advantage of all this free email account has to offer

BY KIRK McELHEARN

I f you have an Apple ID then you have an iCloud email account. This free account gives you up to 5GB of storage for your messages, minus what you use for documents and other data you store in the cloud. It's easy to work with your iCloud email in Apple's Mail, either on the Mac or on an iOS device. Still, you may not know about the many options and features available if you log into iCloud via the web.

Before you can take advantage of the following five tips, you need to turn on iCloud. Even if you have an Apple ID for use on the iTunes store, you may not yet have set up iCloud; for details on doing so, see tinyurl.com/Ld9gqjg.

Access email anywhere Being able to access your email via icloud.com on a shared computer will prove useful if you need to send or receive files on the road.

1. Access email anywhere

While you may check your email on your Mac, iPhone or iPad, you can also access your messages on the web. This option is useful not only if you need to obtain or send email from a shared computer, but also if you have to receive or send files when you're on the road. Just log into icloud.com, then click the Mail icon. You'll have access to all your email – and all your contacts, if you've set iCloud to sync them – so you can send and receive both messages and files. The feature can be especially convenient if you need to grab a file and print it out when you're visiting a client or a friend.

ILLUSTRATION BY JOHN PATRICK THOMAS
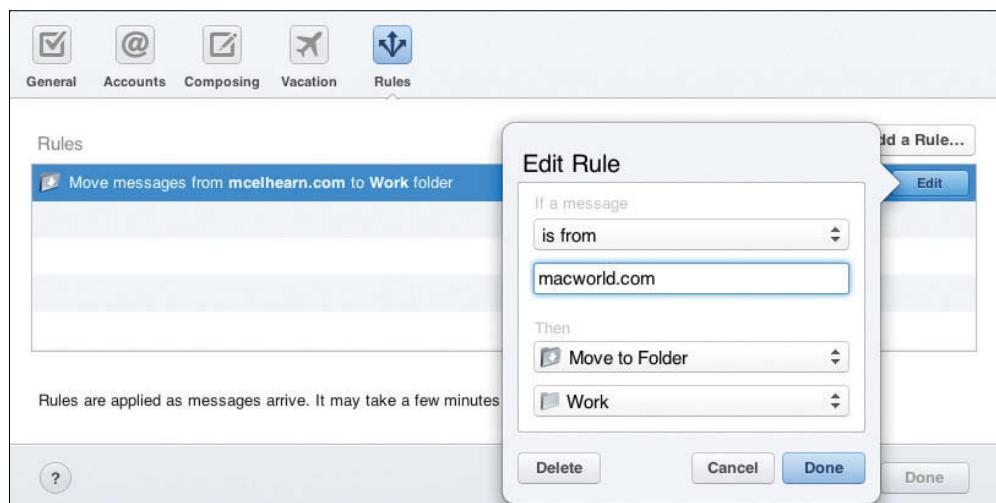
Filter all your email You can create rules so the iCloud server will act on your email before the messages reach your Mac or your iDevice.

2. Avoid spam with aliases

Although you have only one iCloud email account, you can set up aliases or other addresses for sending and receiving email with that account. In the iCloud email preferences, click *Accounts* and then, below the account list, click *Add an alias.* When you're creating an alias, a warning will appear if the one you want is taken. You can choose up to three aliases; for instance, you may want one for shopping and another for friends, reserving your main account for work. To avoid receiving spam on your main address, use an alias when you have to register for a website.

3. Create rules that work on all your devices

You can set up rules – filters that act on incoming email – using Mail for OS X. But these rules work only on your Mac; they don't affect your iPhone or iPad, unless

you leave the Mac on all the time. If your Mac isn't running, your email will simply flow into your iCloud account's inbox.

On the icloud.com website, you can set up rules that will move messages before they reach your devices. For example, you can filter email so that messages from your employer go into a specific mailbox.

First, create a new mailbox. With iCloud on the web, click the plus sign (+) next to *Folders,* then type a name for the new mailbox. Next, click the gear icon at the top right of the iCloud Mail interface and choose *Rules*. Click *Add a Rule* and select one of the conditions, such as if a message is from a specific person or has a subject with a particular word. In the next field, enter an email address (for a specific person), a domain name (for any messages coming from that domain), one or more words for subject filtering, or the like.

In the next section, choose *Move to Folder*, *Move to Trash* or *Forward to*. Then select the folder that should receive the message, or the address to which you want to forward it. Click *Done*.

4. Tell colleagues you're away

If you're away from work you can set an auto-response to say when you'll be back. Click the gear icon at the top-right of the iCloud Mail page, then choose *Preferences*. Click the *Vacation* icon, and check *Automatically reply to messages when they are received.* Enter the text you'd like the system to send, and click *Done*.

You can combine this tip with rules to route work messages to colleagues, too. After you've made the auto-response, click *Rules*, create a rule for specific addresses or domains, and forward the messages to the person at work who's filling in for you. When you get back just delete the rule.

5. Forward to another account

You can forward all the messages received in your iCloud account to another account. This lets you view your iCloud email when you check your main account.

Click the gear icon at the top-right of the iCloud Mail page, select *Preferences*, then click *General*. Enable *Forward my email to* and enter an email address. Check *Delete messages after forwarding*.

Create aliases to avoid spam Set up email aliases to protect your main address from junk. Use an alias to sign up for online newsletters, for example, or to post on message boards.

Easily encrypt folders

A simple Automator workflow makes data security a snap

BY CHRISTOPHER BREEN

You can use Apple's Disk Utility to convert a folder into an encrypted disk image – a protected archive that you unlock with a password. Such images are particularly helpful when you're working on confidential company documents away from the office. But the truth is that creating encrypted disk images with Disk Utility is cumbersome. Thankfully, with a simple Automator workflow, you can secure documents in an instant.

Create the workflow

Launch Automator. In the template chooser select *Application* and click *Choose*. Next, select the *Utilities* library, and from it drag *Set Value of Variable* into the workflow area over on the right side. Now select the *Files & Folders* library; from its list of actions, drag *New Disk Image* into the workflow area, after *Set Value of Variable*. Return to the *Utilities* library and drag *Get Value of Variable* into the workflow. Return to the *Files & Folders* library and add *Move Finder Items to Trash* to the workflow.

In the first action, 'Set Value of Variable', click the Variable pop-up menu. In the Variable Options window that appears, enter `sourceFolder`.

Click *Options* within the New Disk Image action, and enable the *Show this action when the workflow runs* option. Configure the Size pop-up menu in this action to read *Size Disk Image to fit contents*. Enable the *Encrypt* option. Within the 'When done' menu, choose *Unmount and return the image file*.

In the 'Get Value of Variable' action, choose *sourceFolder* from the Variable
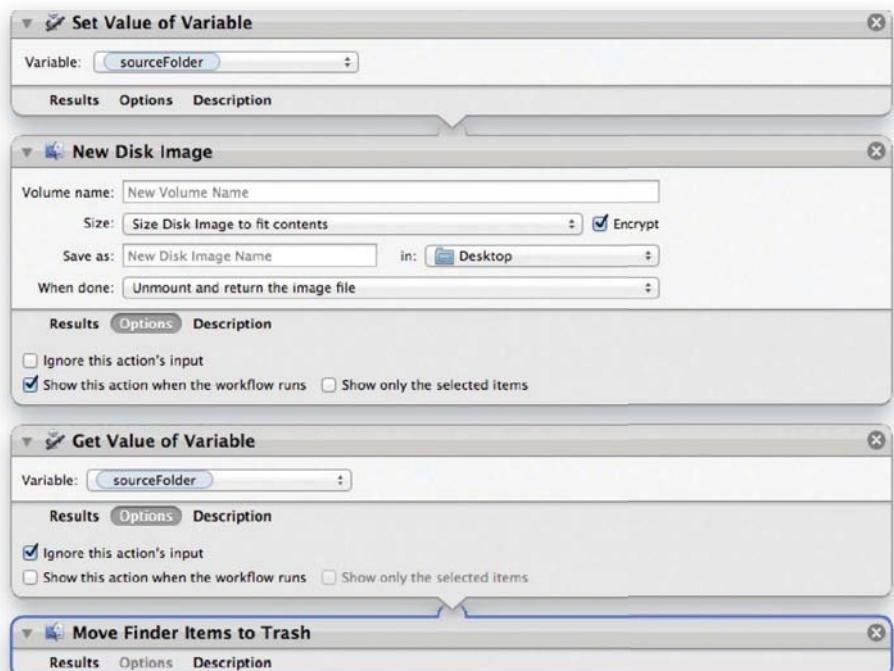
pop-up menu. Click the *Options* button; finally, enable *Ignore this action's input*.

Choose *File ➤ Save*. In the sheet that appears, name the application `Encrypt Image` and save it to the desktop.

Work the workflow

To use your new application workflow, simply drag on top of it a folder that you'd like to encrypt. A New Disk Image window will appear. Enter a name for your mounted volume in the 'Volume name' field. Click *Continue* and you'll see a password window in which you must enter and verify a password.

Enable the *Remember password in my keychain* option for the image to open without prompting you for a password.

Chances are you don't want an unencrypted version of the folder sitting

Easy encryption With the help of this completed Automator workflow, encrypting a folder full of files is quick and straightforward.

on your Mac. That's where the workflow's 'variable' actions come in.

The first one gives Automator a designation for the folder you drag on to the application workflow – sourceFolder, in this case. The 'Get Value of Variable' action says to Automator, 'Remember that folder we named sourceFolder? I want the next action to apply to it.' Enabling the 'Ignore this action's input' option instructs the workflow to work the next action's magic only on the item that bears the sourceFolder designation. If you don't enable this option, the workflow will wind up deleting the source folder as well as the encrypted archive.

Once you've created an encrypted folder, all you need do is empty the Trash to get rid of the source folder. If you're going to the trouble of encrypting an archive of sensitive material, you might wish to use *Finder ➤ Secure Empty Trash*.

Creating encrypted disk images with Disk Utility is cumbersome. Thankfully, with an Automator workflow, you can secure documents in an instant

Seven great accessories for smarter photography

Whatever you shoot with, the right add-ons can make a big difference

BY JACKIE DOVE

A firm grip Cotton Carrier's Hand Strap locks to your DSLR

Here are some of the coolest items we've found to help others see the world through your lens, whether you're taking aim with your smartphone or your DSLR.

Cotton Carrier Hand Strap: Is your camera so heavy that it makes your hand hurt? Cotton Carrier's Hand Strap (£34, amazon.co.uk) offers a secure, adjustable grip on your DSLR. The heavy-duty Velcro strap lets you tighten or loosen your hand against the camera body, making heavy cameras and lenses more comfortable to hold. The Hand Strap attaches to the camera's base with an Arca-Swiss–style plate.

LensPen DSLR Pro Kit: Fight off dust and greasy fingerprints with the LensPen DSLR Pro Kit (£14, amazon.co.uk). The LensPen works on full-size DSLR lenses; the MicroPro is ideal for tiny camera eyepieces; and the FilterKlear is great for lens filters. Each tool comes with a retractable brush on one end to remove dust, and a carbon cleaning tip on the other to scrub fingerprints and smudges.

Cinch camera strap: Comfortable, secure, adjustable and easy to use, the Cinch (lu.ma/pages/cinch, delivery to UK possible) lets you carry your camera on one shoulder or across your torso for swift camera manoeuvering. The Basic Cinch is $50 (£30), or you can get it packaged with the Plate, PodMount or Membrane Connector for $60 (£36) – each is tailored to a different camera size.

Flashpoint Video Shootskate II Dolly: With Flashpoint's Video Shootskate II Dolly (left, $75 [£46], adorama.com, delivery to UK possible), you can mount your camera and roll it across a tabletop, or on the ground for dynamic low angles. The polyurethane wheels absorb vibration, and the wheel turrets rotate 270 degrees and lock independently for a wide range of rolling motion. The base plate includes a tripod head mounting screw for attachments. Grip handles on each side give you hands-on mobility.

Photojojo iPad telephoto lens: When you're shooting with your iPad, the Photojojo iPad telephoto lens (around £15, details at photojojo.com) gives your tablet telephoto power. The lens has a manual focusing ring to help control its shallow depth of field. It also adds a bit of vignetting and a lo-fi look. The iPad mini lens has 12x telephoto power; the lens for the iPad 3 and 4 has 10x telephoto power.
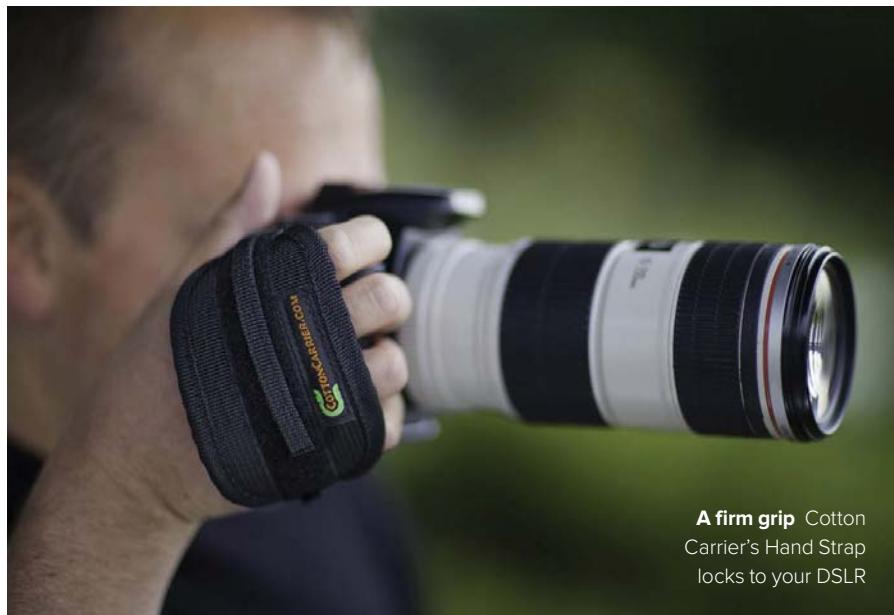
Manfrotto Pixi minitripod: The Pixi minitripod (below, £21, amazon.co.uk) steadies your camera in tight places to help keep images sharp; it doubles as an ergonomic grip for shooting videos. A mechanism lets you adjust and lock the ball head in a single movement; pushing the button releases the ball joint to move freely so you can position your subject in the frame. The Pixi works with compact cameras, compact interchangeable-lens models and entry-level DSLRs.

Luxi: Attached to your iPhone's front-facing camera, small diffusion dome Luxi ($30 [£18], esdevices.com, delivery to UK possible) helps you determine the best settings for your DSLR or camera. Your iPhone can measure the amount of light falling on the shot's subject, rather than the amount of light reflected by the subject.
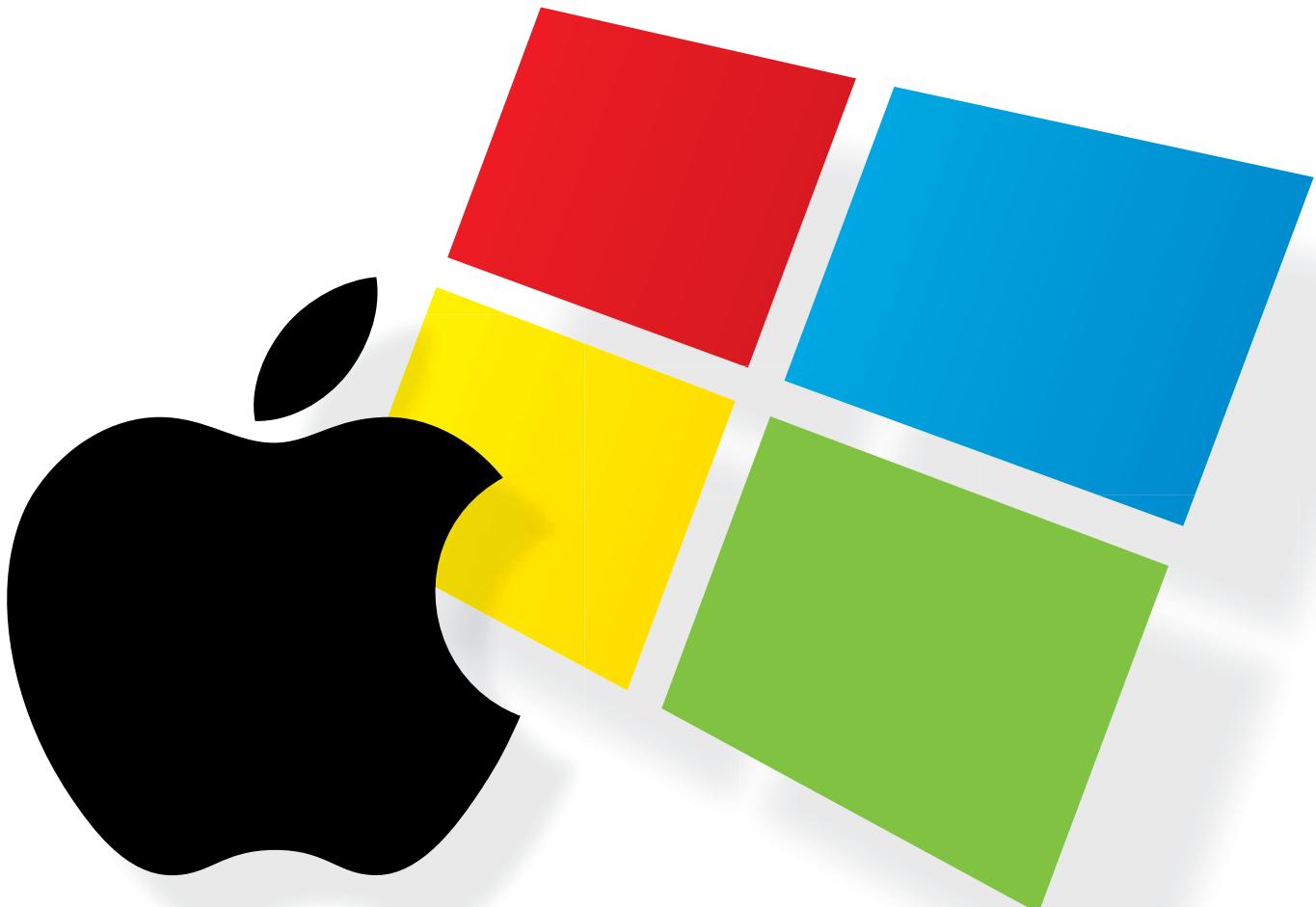
PC user's guide to the Mac

BY MARTYN CASSERLY

10 top tips for Windows PC users who are using a Mac for the first time

With Windows 8 hardly setting the world on fire, Microsoft is seeing many customers leave the platform and opt for the Mac with Apple's user-friendly operating system, OS X. Here we answer the top 10 questions new Mac users ask when trying to find their way around the OS.

1. How do I right-click on a Mac?

In the absence of dedicated buttons on Apple's mouse and trackpad, PC users are often baffled when it comes to achieving a right-click. You can either hold down <Ctrl> while you click, or you can go to System Preferences > Trackpad (or Mouse) and enable Secondary Click. With the latter option enabled, tapping two fingers on the trackpad or pressing down on the right side of the mouse effects a right-click.

2. How do I open PC files on a Mac?

Many of the files used in Windows are also supported in OS X. Common media file formats such as JPEG, MP3, MOV and AVI have compatible apps that automatically open the file when double-clicked. If you've received the file in an email, you can use the Quick Look option in the righthand panel to preview its content, or just select it and press <Space> for a preview. Formats that aren't supported by default include WMV, for which you can install the free VLC Media Player (videolan.org), and EXE, which is a Windows-only executable program.

3. How do I shut down, sleep, log out?

Until Windows 8 came along, shutting down a PC had always been a simple matter of hitting the Start menu and choosing Shut down. On a Mac, rather than hitting the

Start menu, you click the Apple menu in the top-left corner, then choose either Sleep, Restart or Shut Down. There is also an option in this menu that lets you log out. Alternatively, press the off switch and you'll be asked whether you want to shut down.

4. How do I search for a program?

The Mac has an equivalent feature to Windows' Search. It's called Spotlight, and it can locate any app or file you need. To access Spotlight you can either click on the magnifying glass icon in the top-right corner of the screen or hold ⌘-<Space> and enter the file or app name in the search bar.

Another way to find a particular program is to click the Launchpad icon in the Dock. This will bring up icons for all your installed applications. If you prefer a Windows Explorer-style search, launch Finder via the icon that looks like a blue face.

5. How do I uninstall a program?

If you're used to removing programs via Start > Control Panel > Add/remove programs, you'll find the Mac's alternative a refreshing change. You just find the application and drag it into the Trash.

Bear in mind that any icons in the Dock are merely shortcuts to the app. You will need to drag to the Trash the app icon from the Applications folder rather than the Dock. To find this right-click the icon in the Dock and choose Show in Finder.

If an app required the administrator's password to be installed you may need to dig a little deeper to remove every last file.

6. How do I close windows?

The way windows function in OS X can initially be bewildering for long-term PC users. The traffic-light buttons in the top-left of a dialog box look similar to those found in Windows, but they behave differently.

System Preferences is the Mac's answer to Windows' Control Panel. Tweak settings here.

Clicking the red cross will close the current window, but not the app itself. The quickest way to achieve this is to hold down ⌘-<Q>, or to right-click the icon in the Dock and choose Quit. The yellow minus minimises the app, but the green plus button doesn't maximise it. Instead, the pane is enlarged to a size that fits the information on the page.

You can maximise most apps by clicking on the two grey arrows in the upper-right corner of the window.

<Ctrl>-<Alt>-<Del> is better known as Force Quit on a Mac. Find it in the Apple menu.

7. What happened to <Ctrl>-<Alt>-<Del>?

OS X is a very stable operating system but, from time to time, an application may stop responding, requiring you to manually shut it down. The time-honoured <Ctrl>-<Alt>-<Del> combination that in Windows brings up the Task Manager won't work. Instead press ⌘-<Alt>-<Esc> to bring up the Force Quit window. Now select the problematic application from the list – which will often have a message next to it – and click the blue Force Quit button.

This menu can also be accessed by clicking on the Apple menu and selecting Force Quit from the drop-down menu.

Shut down, sleep and restart via the Apple menu.

8. Where is the Control Panel?

When you need to check various system- or hardware details on a PC the first port of call is the Control Panel. You won't find this on a Mac. In its place is System Preferences. To access this click on the three-silver-gears icon in the dock or click on the Apple icon in the top-left corner and then select it from the menu. Once inside you are presented with a pane displaying the various areas of the system. Simply click on the one you want to adjust and the options will appear.

9. How do I set up user accounts?

If more than one person is regularly using your Mac then you might want to create user accounts, just as you would on a PC. Navigate to System Preferences > Users and Groups, then click on the padlock in the bottom-left corner. You'll be prompted for your administrator password, then click on the plus sign above the padlock to enter a new user account. When you've finished click the padlock to save the changes.

To switch users either log out via the Apple menu or click on the username displayed in the top-right corner and select another account.

10. How do I switch open windows?

Whereas on a PC you would use <Alt>-<Tab> to switch between various open windows, on a Mac you press ⌘-<Tab> (holding down ⌘ longer if you want to see a menu of open applications). To move between windows of the same application you need to use a separate key combination: ⌘-<`> (next to the Z). Our favourite way to switch is to swipe down with three fingers and click on the window you want.

Macs Love OWC Upgrades!
Make That Mac Like New Again!

Get More Done Faster with OWC Memory!

Built to meet and/or exceed Apple specifications for high-peformance reliability, and backed by a lifetime replacement warranty!

Add up to 2x the memory and save up to 60% vs factory!

OWC provides only the highest quality memory for your Apple computer. Each module is tested to ensure it measures up to our standards. Our on-site, state-of-the-art test lab guarantees our upgrades meet, if not surpass, all Apple design specifications and our tested MaxRAM configurations exceed Apple's officially supported maximum memory. Your Mac will run faster with more memory from OWC.

Accelsior_E2 PCIe SSD for Mac Pro

Boot, Launch, Create and Save Faster

100x
FASTER
than a hard drive

Up to 960GB

The best combination of speed, capacity and connectivity available today. It utilizes the PCIe slot in Mac Pro and PCs to deliver up to 820MB/s of blistering performance.

Also great for Thunderbolt equipped Macs with an OWC Helios and other PCIe Thunderbolt Chassis.

OWC Free Online Install Videos

Not sure about upgrading your Mac, see how easy it is with OWC's free step-by-step installation videos at www.macsales.com/installvideos

OWC's detailed videos walk you through the installation of upgrades on your Mac, iPod or iPhone with step-by-step, easy to understand instruction.

Group Test

802.11ac wireless routers

We test six routers that support the latest wireless protocol, 802.11ac, for improved range, reliability and performance

BY ORESTIS BASTOUNIS

Behind its bland engineering designation, 802.11ac wireless networking has the potential for a revolution in computing technology. Dubbed gigabit Wi-Fi by some marketing departments, it promises a substantial leap forward in just about every aspect of wireless data transfers, providing better reliability, range and faster speeds.

Once fully ratified the 802.11ac specification should deliver a major boost to key aspects of the previous 802.11n standard. It will do this with a variety of new techniques, such as an increase in channel bandwidth from 20- or 40MHz to 80MHz, modulation (QAM) from 64 to 256, and an increase in the maximum number of spatial streams from 802.11n's three to eight.

It works only on the 5GHz frequency band, which is currently less troubled by interference from other routers and electronic devices that use the traditional 2.4GHz band. Optional features of 802.11n, such as beamforming, will become standard and should work more effectively than before, with clients able to direct wireless streams from the router.

The result can be a mathematical maximum sync rate of 1.3Gb/s. Real data-transfer speeds will be lower, as best-case coding rate will be 5/6 of that figure.

The 802.11ac specification is still in draft form, with ratification expected in early 2014. Until then there is no certainty of full compatibility between devices.

If you want to get a glimpse of 802.11ac's potential you'll need to find a compatible wireless router, and a mobile device that supports it, such as the MacBook Air or HTC One. Or you could try a wireless USB dongle, although these will limit performance.

As with other transitions in 802.11 wireless standards, 802.11ac routers should be backward-compatible with older wireless devices using 802.11n. This is hugely important: there are billions of mobile devices that rely on the 802.11n wireless protocol.

While you can pick up a perfectly functional 802.11n router for less than £100, even the cheapest 802.11ac models cost more. In time, every mobile device will likely incorporate this technology.

We've taken six 802.11ac routers sold with a pre-ratification specification and tested their 802.11n and 802.11ac real-world data-transfer rates. Bear in mind that none of the routers tested here have built-in ADSL modems, so are best suited to those with cable broadband. Otherwise, you'll need a separate ADSL modem, which plugs into the router's WAN port. Read on for our results.

Macworld
EDITORS' CHOICE

Apple AirPort Extreme

The AirPort Extreme has one of the most striking designs we've seen in networking kit. Its footprint is identical to that of the Apple TV, but it's taller at 168mm high. It's encased in a smooth, glossy white plastic, resulting in an attractive object that successfully hides its mundane purpose.

The internal PSU is a welcome improvement, too, with only a small figure-8 cable required to power it up.

The AirPort Extreme has six internal antennae (Apple put the antennae at the top to create a higher platform for dispersing the signal), offering simultaneous dual-band wireless networks with support for all wireless bands. A set of connectors at the rear comprises a single USB 2.0, three gigabit ethernet LAN and one ethernet port for WAN.

The router has been designed with ease of setup in mind, either via a Mac or an iPhone or iPad. Instead of the usual web-browser-based administration interface, a dedicated software application, AirPort Utility, is built into OS X. It automatically detects the router, and configuration screens load quicker than on a browser-based interface.

There's IPv6, WPA and WPA2 encryption, port forwarding and support for dynamic DNS services, but it lacks certain features such as MAC address cloning, QoS and VPN support.

Performance on both 802.11n and 802.11ac wireless bands is extremely good. It recorded one of the fastest peak 802.11ac speeds we've seen, breaking all records at 706Mb/s, before settling down for a still-impressive average of 578Mb/s at short range, and 540Mb/s at the longer 10m distance. We recorded reasonable transfer speeds on 802.11n, too, with an average 105Mb/s at long range.

The AirPort Extreme is pricey, but it offers the best experience in many ways. The lack of some advanced features might put off power users.
Read more at tinyurl.com/mfdLLsc

> **Pros:** Excellent performance, nice design, easy to set up
>
> **Cons:** Expensive, lacks advanced features
>
> **Star Rating:** ★★★★★
> **Company:** Apple, apple.com/uk
> **Price:** £169 inc VAT

Asus Wireless AC-1900

The Wireless-AC1900 (aka RT-AC68U) is the new flagship router from Asus. An attractive black-and-grey chequered design covers the front of the chassis, sprucing up what would otherwise be a monolithic black plastic box. It's sturdy, but hardly low-profile, with a 160mm-high case and three giant protruding antennae.

The 10 bright blue LEDs at the front can be distracting; fortunately there's a button to turn these off. Two more buttons are found at the side: one to shut off the wireless and another to connect via WPS. At the back are four gigabit ethernet ports, a WAN port and two USB connections.

The software is particularly good. A network map shows an incredible amount of information, superbly laid out with neat icons that indicate whether features are on or off. Asus has done an impressive job of reducing the chances of you getting lost in obscurely named menus.

A technology Asus calls TurboQAM means the router is able to handle 600Mb/s via 802.11n. It kicks in only when a certain other Broadcom device connects to it, however.

We're not sure it made a difference during our testing, since the Asus' 802.11n speeds over 2.4GHz fell at the lower end of the results in this group – just 98Mb/s at short range and 69Mb/s at 10m.

However, performance via 802.11ac over 5GHz is outstanding. The Asus' 610Mb/s figure eclipsed every other router we tested.

Asus also offers its AiCloud suite of online tools, including a mobile configuration app and Smart Sync.

With record-breaking 802.11ac results and advanced setup options, Asus deserves recommendation for power users. Although we wouldn't buy an Asus router just for the AiCloud feature, it's another string to the bow of the Wireless-AC1900.
Read more at tinyurl.com/k4zatkv

> **Pros:** Excellent 802.11ac performance, very good software
>
> **Cons:** Expensive, bulky design
>
> **Star Rating:** ★★★★☆
> **Company:** Asus, uk.asus.com
> **Price:** £189 inc VAT

Buffalo AirStation Extreme AC 1750

Routers are little more than boring plastic boxes containing chips and antennae, so manufacturers try all sorts of tricks to make their product appear more appealing. With the AirStation Extreme AC 1750 (aka WZR-1750 DHP), Buffalo has selected the same simple, unfussy design as we saw on the world's first 802.11ac router, the Buffalo AirStation 1750 (reviewed at tinyurl.com/9kqub54).

Its smooth, rubbery finish contrasts with a lighter shade of metallic grey that runs around the router's edge, giving a lovely two-tone appearance. Switch on the router and the Buffalo logo glows a bright shade of red, then white.

The power supply is external, but instead of a single unit that plugs into the wall it's a cable and a separate brick.

The home screen, also decked in two-tone grey, provides buttons linking to most of the important settings, with a single screen for Advanced settings. One unusual feature is a built-in BitTorrent client.

But for all that this router does right, we found performance disappointing. While short-range 802.11n performance was a not-terrible 111Mb/s, at longer range in our 10m setup the AirStation Extreme dropped to 65Mb/s.

Using 802.11ac over 5GHz we saw erratic results. We measured 500Mb/s on our first test, but this quickly dropped to 350Mb/s. The final average was 390Mb/s, which is far from the best speed we've seen.

At 10m range, 802.11ac throughput dropped to just 85Mb/s. We spoke to a Buffalo engineer who explained that beamforming is not yet implemented. However, we were assured that it would show up in a future firmware update.

We were disappointed with the performance of the AirStation Extreme in its current form, since it's otherwise a great router, with some excellent software tools.
Read more at tinyurl.com/mb3nctx

Pros: Simple design, nice software features

Cons: External PSU, lacking performance

Star Rating: ★★★☆☆

Company: Buffalo, buffalo-technology.com
Price: £91 inc VAT

D-Link DIR-868L

Upon seeing D-Link's DIR-868L's cylindrical design, our photographer joked that Apple had sent us an early version of the new Mac Pro. It's a fitting comparison: we can't think of many other tech products shaped like a tube.

It's certainly an unusual design, but it has a practical use, too, reducing the footprint of the router and disguising its purpose. According to D-Link, this shape also allows the router to more effectively output a signal in all directions.

D-Link also hopes to improve performance with a technology called Smartbeam. It's a form of beamforming, a technology designed to work out where is a wireless receiver and focus the signal in that direction. The difference is that here it works on 802.11n/g/b as well.

On the front are just two status lights: one indicating internet connectivity; the other showing the status of the internet connection. At the back is the usual array of connectors – four gigabit ethernet, a WAN port and a single USB 3.0 port. A tiny reset button sits at the bottom of the device. There are no ethernet activity lights.

D-Link's familiar orange colour scheme greeted us in the admin interface, a style the company has used for as long as we can remember. It may not be as attractive as the rich graphical interfaces found on other routers, but it's fully functional. Sadly, it's also easy to get lost in these settings.

The DIR-868L performed relatively well on 802.11n, achieving 137Mb/s at close range and 91Mb/s at distance. However, its 802.11ac results were disappointing, managing just 276Mb/s at 1m and 243Mb/s at 10m.

The D-Link's poor 802.11ac test results are disappointing because the DIR-868L is otherwise a solid wireless router. We are keen on the cylindrical design, and the performance over 802.11n was one of the best recorded in this group.
Read more at tinyurl.com/ksdsq89

Pros: Cylindrical design, great 802.11n performance

Cons: Poor 802.11ac performance, old admin interface

Star Rating: ★★★★☆

Company: D-Link, dlink.com
Price: £104 inc VAT

TP-Link Archer C7

The Archer C7 is slightly different from the networking products we usually see from TP Link – a company that, until now, has been known for selling no-frills but well-performing hardware.

The first change is to the router's name. We're not sure why tech companies love to brand their products with seemingly random arrays of letters and numbers, such as TPW8961ND. Archer C7 is a better, more memorable choice.

Then there's the router's appearance. Gone is the cheap-looking, boring white plastic rectangular shell from TP-Link routers of the past; in its place is a black glossy finish with three gigantic antennae.

Glossy plastic has a tendency to show fingerprints, though, and these covered the C7 minutes into our testing.

Despite the additions, TP-Link is still very aggressive on cost. And the company hasn't skimped on the features.

The most important addition is support for 802.11ac. Three external antennae provide coverage for 2.4GHz 802.11n and 5GHz wireless bands. At the back are four gigabit ethernet ports, one WAN port, plus two USB 2.0 ports.

The software interface is perhaps bland compared with the more graphical pages of some other routers, with just a simple green header and two columns of menus, but no important features are left out. That said, the plethora of entries in the menu could overwhelm some less experienced users.

The wireless performance of the Archer C7 is as good, or better, than some of its pricier rivals. Using 802.11ac, it managed 505Mb/s at short range and 486Mb/s from 10m.

Its 802.11n performance over 2.4GHz wasn't as good, but still reasonable with 110Mb/s at short range and 89Mb/s at 10m.

Respectable wireless performance, a low price and a full list of features makes the Archer C7 a truly worthy purchase.
Read more at tinyurl.com/kkjmpce

> **Pros:** Aggressively priced without skimping on features
>
> **Cons:** Attracts fingerprints, bland admin interface
>
> **Star Rating:** ★★★★☆
> **Company:** TP-Link, tp-link.com
> **Price:** £105 inc VAT

Zyxel NBG6716

The NBG6716 may be yet another router enclosed in a black plastic rectangular box, yet Taiwanese firm Zyxel has spruced up its appearance with a swirling groove of plastic that covers three quarters of the front.

Zyxel's onboard software is simple but effective, yet it doesn't work as well as that offered with some of the company's NAS drives. When you log in you'll see the aptly named Simple mode, which provides three switches for enabling power-saving mode, the firewall and the content filter, plus a pair of links to the internet and wireless settings. These settings aren't ones we imagine changing that often, so you'll spend more time in the less-well-designed Expert mode.

Four tiny, poorly drawn and unlabelled icons lead to different areas of the software. It's far from obvious to what each one refers, leading to blindly clicking on each section to find a specific option.

The NBG6716 has four gigabit ethernet ports, a WAN port and two USB 2.0 ports. A button can switch off the LEDs, making the NBG6716 less distracting in a dark room. There are other buttons to switch off Wi-Fi and eject USB devices.

The 3x3 MIMO internal antenna configuration didn't provide especially good performance. Over 802.11n we measured an average short-range transfer speed of 79Mb/s; on the same band at long range we recorded a mere 58Mb/s.

The Zyxel's 802.11ac performance was slightly better. The NBG6716 managed good performance at short range, averaging 498Mb/s. At longer range performance dropped off slightly, with the Zyxel hitting 413Mb/s. While these results are faster than any 802.11n transfer rate we've seen, some of the competition in this group test can exceed 600Mb/s.

A relatively high price and only fair-to-middling transfer rates make it difficult to recommend the NBG6716.
Read more at tinyurl.com/ohmo3td

> **Pros:** Simple onboard software
>
> **Cons:** No USB 3.0, expensive, middling performance
>
> **Star Rating:** ★★★★☆
> **Company:** Zyxel, zyxel.com
> **Price:** £153 inc VAT

HOW WE TEST

We test wireless routers through a combination of performance tests and evaluation of their features, stability, design and build, and their ease of use.

Wired network performance is rarely in contention, with most modern routers featuring gigabit ethernet ports for both WAN and LAN connections. Wired ethernet typically delivers at least 90 percent of its stated speed. Where wireless routers fail to live up to specification is in their wireless data speed, which is always considerably below the claimed performance.

To test 802.11n wireless speed, we used an Apple MacBook Pro laptop equipped with a best-specification Broadcom 3x3:3 transmit/receive front end. The 802.11n protocol allows for either one, two or three spatial streams, providing nominal maximum speeds of 150-, 300- and 450Mb/s.

Note that these figures are known as sync-rate figures and entirely notional,

and include the mandatory overhead of forward error correction. In a perfect world, using the most efficient 5/6 coding rate, ratified three-stream 802.11n will never exceed 375Mb/s.

For measuring real-world throughput we used the zPerf bandwidth tool running on OS X, with an iMac as the server, ethernet-wired to the router under test, and the MacBook as the client. Tests were performed at close- (1m) and long range (10m), using clear radio channels untrafficked by other networks. Several runs were made, from which we derived an average speed.

For 802.11ac testing, the server/client units were reversed in order that we

could use the 2013 Apple iMac's 802.11ac wireless chipset.

Subjective testing included appraising the build quality, materials used, and the style and design – these items will be used around your home so deserve to be suitably discreet or stylish.

Ease of use was judged in the initial setup procedure and advanced options.

MACWORLD BUYING ADVICE

802.11ac performance comes nowhere near to the claims of networking companies. Gigabit Wi-Fi is a misnomer; much less the claim of 1300Mb/s. You can expect no more than half that in use.

Many networking companies are all too eager to splash these theoretical speeds over product packaging. Some will even add together the 802.11n and 802.11ac speeds and claim their routers can offer 1750Mb/s. This is nonsense.

On the other hand, 802.11ac real-world speeds are substantially faster than what can be achieved with 802.11n, and the drop-off in performance at range is significantly reduced.

Some routers in our test delivered inconsistent performance, which may be a consequence of the specification remaining in draft form, with some aspects not yet fully implemented. We're hopeful that future 802.11ac routers will deliver more reliable performance.

It's important to note that while a router's 802.11ac performance is

interesting, it is 802.11n that will be in use for some time to come. Performance using this standard is crucial.

Three models stood out in our round-up: Apple's AirPort Extreme, Asus' Wireless AC-1900 and TP-Link's Archer C7. While Zyxel's NBG6716 wasn't bad, we became frustrated with its interface. Buffalo's AirStation Extreme and D-Link's

The 802.11ac performance champion is the Asus Wireless-AC1900. We loved its powerful interface and features. Its only caveat is lower 802.11n performance than we expected, although Asus has assured us that a forthcoming firmware update will specifically address this area.

But, for Mac users, the AirPort Extreme is a worthy addition to a home network

While a router's 802.11ac performance is interesting, it is 802.11n that will be in use for some time to come. Performance using this standard is crucial

DIR-868L fell short of the mark with some odd test results, although we note that the DIR-868L did provide the best overall 802.11n performance.

Choosing which 802.11ac router to buy today depends on some key factors. The TP-Link offers great value, but its interface might put off anyone who isn't especially technical.

and the clear winner here. It's powerful, and incredibly easy to administer. The advanced features it lacks may put off certain buyers, but we suspect not too many people will need to change their MAC address that regularly, for instance. We did find that the AirPort Utility software, like iTunes, is not as good on Windows as it is on OS X.

Macworld
EDITORS' CHOICE

How they shape up

Product	Apple AirPort Extreme	Asus Wireless AC-1900	Buffalo AirStation Extreme AC 1750	D-Link DIR-868L	TP-Link Archer C7	Zyxel NBG6716
Product code	ME818B/A	RT-AC68U	WZR-1750 DHP	DIR-868L	Archer C7	NBG6716
Wireless protocols	802.11b/g/n/ac	802.11a/b/g/n/ac	802.11a/b/g/n/ac	802.11a/b/g/n/ac	802.11a/b/g/n/ac	802.11a/b/g/n/ac
Radio bands	2.4- & 5GHz, simultaneous	2.4- & 5GHz, simultaneous	2.4- & 5GHz, simultaneous	2.4- & 5GHz, simultaneous	2.4- & 5GHz, simultaneous	2.4- & 5GHz, simultaneous
Antennae	6x internal	3x external	3x internal	6x internal	3x external	3x internal
Stream support	3x3 MIMO	3x3 MIMO	3x3 MIMO	3x3 MIMO	3x3 MIMO	3x3 MIMO
Processor	ARM Cortex A9 dual-core	Broadcom BCM4708	Broadcom BCM4708	Broadcom BRCM4708	Qualcomm Atheros QCA9558	MIPS 74K 700MHz
Chipset	2x Broadcom BCM4360KLMG	BCM 4360B0	Broadcom BCM4331 & BCM4360	Broadcom BRCM 4708 & BCRM 4360	Qualcomm Atheros QCA9558 & QCA9880	Qualcomm Atheros AR9558
WAN port	1x gigabit	1x gigabit	1x gigabit	1x gigabit	1x gigabit	1x gigabit
LAN port	3x gigabit	4x gigabit	4x gigabit	4x gigabit	4x gigabit	4x gigabit
USB	1x USB 2.0	1x USB 3.0, 1x USB 2.0	1x USB 3.0, 1x USB 2.0	1x USB 3.0	2x USB 2.0	2x USB 2.0
Other	Internal power supply, cooling fan	TurboQAM, AiCloud	Norton Connect Firewall, Torrent client	N/A	N/A	Qualcomm Steamboost
Dimensions	98x168x98mm	160x220x83mm	183x34x212mm	102x123x217mm	32x243x160mm	165x214x74mm
802.11n, 2.4GHz, 1m	124Mb/s	98Mb/s	111Mb/s	137Mb/s	110Mb/s	79Mb/s
802.11n, 2.4GHz, 10m	105Mb/s	69Mb/s	65Mb/s	91Mb/s	89Mb/s	58Mb/s
802.11ac, 5GHz, 1m	578Mb/s	610Mb/s	390Mb/s	276Mb/s	505Mb/s	498Mb/s
802.11ac, 5GHz, 10m	540Mb/s	570Mb/s	85Mb/s	243Mb/s	468Mb/s	413Mb/s
Power consumption	6W	9W	5W	8W	5W	5W
Price	£169	£189	£91	£104	£105	£153
Star rating	★★★★☆	★★★★☆	★★★☆☆	★★★★☆	★★★★☆	★★★★☆

Reviews

The latest software and hardware, reviewed and rated

Apple 21in and 27in iMac (2013)

Apple's latest all-in-one sets the standard for others to follow

BY ANDREW HARRISON

Pros: Cutting-edge design; great display

Cons: Can't upgrade memory

Star Rating: ★★★★★

Company: Apple, apple.com/uk

Price: 21in from £1,149, 27in from £1,599

L ike so much other computing technology in use today, Apple's iMac serves as the widely copied template for other brands' products. Witness the boom in all-in-one PCs from the likes of Dell, HP and Lenovo, for instance, and we see the same essential form as the flatscreen iMac that first launched in 2004.

Today's model is a rather different machine, redesigned last year with an LCD display that tapers to almost nothing on its edge, in contrast to what now look like chunky fat edges on all the models before it. And instead of the single PowerPC processor of old, we have quad-core Intel chips, optimised for efficiency as much as performance.

But the physical layout is much the same – a widescreen panel set in single frame, with a 'chin' below a screen that's supported on a single folded-aluminium foot. With all ports cleanly hidden behind, and free of the bluster and bolt-on ugliness of its imitators, it remains a design classic. This year's

Macworld **EDITORS' CHOICE**

update brings two principal changes in technology over last year's major refit.

21.5in iMac

The smallest and most affordable version of the Apple iMac features a widescreen display that measures 21.5 inches on the diagonal, a comfortable size for desktop productivity. It's pixel resolution is still 1920x1080, which amounts to a pixel density of around 102ppi. So Apple hasn't taken the iMac line to Retina-class display just yet, although the pixel-per-inch count is still a little higher than most regular screens.

And that panel still counts as about the finest you'll find on any desktop computer, thanks to a combination of IPS technology and the way the TFT matrix is bonded directly to the screen glass. In-plane switching panel technology was popularised by Apple with first its Cinema Display screens, then more widely with the introduction of the iPhone 4 and the iPad. We now almost take for granted the rich, accurate colours and extreme viewing fidelity that is possible with this more expensive manufacturing process.

Bonding together the elements of the screen is a huge improvement over the previous arrangement, which comprised glossy reflective LCD, covered with another pane of mirror-like glass. The addition of an optical anti-reflective coating to today's iMac completes a

> ### The physical layout is much the same – a widescreen panel set in single frame, with 'chin' below a screen that's supported on a single folded–aluminium foot

display that can be used in daylight without excessive distracting reflections.

Two main models of 21.5in iMac are offered. Both use 1TB hard drives, small laptop-sized 2.5in disks, along with 8GB of memory. Neither are designed to be user replaceable, as they're locked away behind a screen that's glued in place.

If you wish to expand either memory or storage, you'd best do it at time of purchase. You can opt for a 1TB Fusion drive, which melds the same notebook disk to a separate 128GB solid-state drive using OS X's Core Storage technology to give the benefits of faster access and plenty of space. Or you can cut straight to a purely flash-based drive, namely a 256GB or 512GB SSD. For memory, there's the option of 16GB.

The other differences between models lies in the main processor – 2.7GHz or 2.9GHz Intel Core i5 'Haswell' – and graphics processor. The cheapest model, at £1,149 still £50 premium over last year's example, uses just the integrated graphics of the Intel main chip; the dearer model has an nVidia GeForce GT 750M, one step up from that fitted to the current 15in MacBook Pro.

We tested the entry-level iMac 21.5in, and were pleasantly surprised by just

how capable the integrated graphics proved to be. Every generation of Intel Core-series graphics has shown useful improvements, and here we have a specially groomed version dubbed Intel Iris Pro. And for the first time, it can comfortably play games.

Using our benchmark test of Batman: Arkham City, Feral Games' OS X port of the game using OpenGL rendering, we noted that at default settings of 1600x900 pixels and High detail, the smallest iMac could play at a very smooth average of 55 frames per second. As important, the minimum framerate in the benchmark sequence was still 27fps, indicating a very playable setup. We edged the quality up to screen-native 1920x1080, and still saw an average rate of 47fps at Medium detail, and 44fps at High.

A more challenging test is the more synthetic Unigine Heaven test, and here the iMac managed a still-impressive 38fps at 1280x720 and Medium detail. For context, the 15in MacBook Pro with Retina display, and its nVidia GTX 650M, played at a similar quality setting at just 35fps.

The step up to Intel's Haswell generation of processors was never about ramping up raw speed. Instead the chip giant is gradually reducing power consumption in each revision, a crucial step in line with the modern world's demands for mobile computing. Consequently we weren't expecting any particular speed boost.

In the Geekbench 3 test of processor and memory speed, this 2.7GHz iMac scored 3127 points for a single core, and 10212 in the multi-processor test. Meaningless in themselves, these figures can be compared to the result of last year's 2.6GHz Retina MacBook again, which scored slightly faster at 3254 and 12670 points respectively.

Power consumption is incredibly low, given the potential performance. Absolute peak consumption with the

screen fully bright and processors at maximum, the iMac drew 85W from the mains. Sat idle with the screen at a sensible 120cd/m², it consumed just 26W.

At its brightest, the screen could output 365cd/m², more than most people would find comfortable. Its contrast ratio as measured by a checkerboard test was 540:1, which may not sound as impressive as most published specs; but this isn't unusual for an IPS display that nonetheless looks amazing.

In out colour fidelity test, it had just 1.77 delta E, a sign of little deviation from precise colours. The full 100 percent of sRGB gamut was covered, and 74 percent NTSC and 81 percent AdobeRGB.

The other significant upgrade to this year's iMac collection is with 802.11ac wireless capability. Using Apple's new AirPort Extreme Base Station (sixth Generation) we saw real transfer speeds up to 700Mb/s, the fastest 11ac performance ever measured in the IDG UK test labs.

27in iMac

Apple's biggest iMac is about more than just screen space. A larger screen can be useful for either home or professional use; the former makes entertainment more expansive when viewed from across the room, while business and professional creative people may appreciate the extra working space.

The panel is identical in construction and technology to that on the 21.5in iMac, and in our lab tests gave broadly similar results. So here we saw a slightly higher contrast ration of 560:1,

The addition of an optical anti–reflective coating to today's iMac completes a display that can be used in daylight without excessive distracting reflections

and colour gamut results of 100, 76 and 80 percent for sRGB, NTSC and AdobeRGB respectively.

The extra physical chassis size of the 27in iMac allows Apple to fit larger 3.5in desktop-class hard disks. This allows not only much bigger capacities to be offered – up to 3TB in standard or Fusion Drive configurations – but with improved disk speed compared to laptop drives. Again, there are options for a purely flash-based drives of 256GB or 512GB, albeit at Apple usual less-than-competitive pricing; these add £160 and £400 to the baseline price.

Unlike the 21.5in iMac, the 27in will always power its screen through a traditional discrete graphics processor option. These are still notebook-class mobile version, either an nVidia GeForce GT 755M for the entry model we reviewed; or 775M or even 789M for the very best that Apple now offers.

In our lab tests, the 27in iMac proved quite game friendly, with the kind of graphics horsepower that will also make this model a good choice for creative professionals whose software can take

A larger screen can be useful for either home or professional use; the former makes entertainment more expansive when viewed from across the room

advantage of GPGPU technology, such as Adobe Creative Suite software and Apple Final Cut Pro.

At default, 1600x900 pixels and High detail, we saw an average of 61fps playing the Batmark. At full-HD resolution and Medium, it managed 51fps, while screen native resolution of 2560x1440 the iMac still allowed a very playable 42fps, and a minimum framerate here that didn't dip below 31fps.

The 3.2GHz Intel Core i5 processor in this model sped it to a score of 11261 points in Geekbench 3, or 3541 points with a single core, which again demonstrates that speed is not the main benefit of the new Haswell chips.

We don't have power consumption numbers of older models to compare, but just 46W when idle and with the screen set to $120cd/m^2$ is a usefully

low figure. Until recently, a large display alone would be drawing that much power. At peak performance with screen at full brightness – a searing $415cd/m^2$ – this iMac still only needed 130W.

Macworld's buying advice
Two simple changes have wrought some exceptionally useful benefits to this year's update of the Apple iMac line. Based on the two models we tested, the Intel Haswell chips have allowed more efficient performance, which will reward with cooler running and cheaper electric bills. And in the 21.5in model we also witness Intel integrated graphics that are finally worthy of true gameplay. With the Wi-Fi upgrade to 802.11ac, the 2013 iMac is also ready for the 'gigabit wireless' future.
Read more at tinyurl.com/neo3jra

Adobe Photoshop Elements 12

Adobe introduces new tools and features to its consumer photo and video–editing software

BY ASHLEIGH ALLSOPP

Pros: Guided Edits useful; mobile options

Cons: Some textures and frames gimmicky

Star Rating: ★★★★☆

Company: Adobe, adobe.com/uk

Price: £78, £63 (upgrade)

Location, location, location The Places option lets you tag your photos to a spot on a map.

Following on from the release of its Creative Cloud suite of applications, Adobe has updated Photoshop Elements. Version 12 introduces new effects, frames and filters, as well as the Content-Aware Move tool previously seen in Photoshop CC.

As in previous iterations, the main photo-editing interface provides access to tools such as levels, exposure, colour, cropping tools and red-eye removal.

When it comes to the new effects, textures and photo frames, these appear to have been inspired by the Instagram generation. To access these, you'll need to have an image open in Quick Edit mode and click the appropriate tab in the bottom-right corner. There are 10 effects to choose from, including black and white, and vintage. If after applying one you have a change of heart, press Reset Image to remove it or use the undo and redo buttons. These effects can be combined with 10 different textures and frames. Unfortunately, we didn't always find an effect to suit our photos, and we feel the frames are gimmicky. If, however, you're looking to make some fun, quirky images for a scrapbook, perhaps, they may be fine.

If this is the first time you've used Photoshop Elements, you'll appreciate Guided mode – you follow the steps

shown and use the provided tools to create the desired effect.

Among the Guided Edits are Zoom Burst, which is ideal for giving subjects the illusion of movement; and Puzzle Effect, though, we weren't impressed with the results. There's also a Restore Old Photo Guided Edit, which takes you through the whole process of retouching a photo, including cropping, healing, removing dust, and improving the contrast and sharpness.

Get smart

One tool that Adobe has added to Elements, but not the Creative Cloud version of Photoshop, is the Auto Smart Tone enhance option. By going to the Enhance tab, you can now select Auto Smart Tone, which Adobe says intelligently learns your preferences over time to adapt the results it provides.

When you select Auto Smart Tone, a window will pop up with your original photo in the middle and four tone options around it – move the circle in the middle of the window towards the one you prefer. While intuitive and easy to use, the results aren't great. During testing, many of our photos were either too dark or too light, and we had problems getting a realistic tone. We did, however, notice that as we frequently chose a lighter tone, the four tone options became lighter over time – learning our preferences.

Another new tool is Pet-Eye Correction. If you take a photo of your treasured pet, you'll find that its eyes are often yellow when shot with a flash, so the Red-Eye removal tool doesn't work. Adobe's Pet-Eye tool operates in the same way, but eradicates the yellow instead of red. It worked well in our tests, and animal owners will appreciate it.

Within Expert mode, you'll find the new Content-Aware Move tool, which borrows some technology from Photoshop CC. We found that it provided impressive results when we tried moving a boat further down a river. Patches that didn't

Restore Old Photo Guided Edit takes you through the process of retouching a photo, including cropping, healing, removing dust and improving the contrast
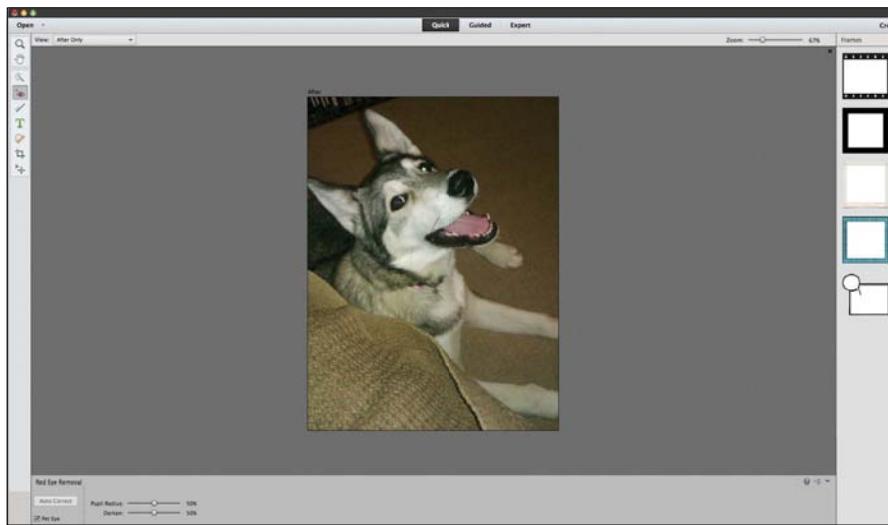
Pets corner The Pet-Eye removal tool will eradicate the yellowish tint from your pet's eye.

look great were easy to touch up using the clone stamp tool.

For more serious photographers, there's a new Open in Camera Raw feature. If you have a Raw file or a TIFF, JPEG or PSD that you want to edit, go to File > Open in Camera Raw and edit your image here before continuing.

Get organised

As for the Organizer, many of the changes focus on making the software mobile. Users can access and share their photos using the new Adobe Revel-powered Elements Mobile Albums. The Revel app, Adobe's cloud server storage service, is free from tinyurl.com/p9qe9tk, but if you want to upload more than 50 photos per month, you'll need to upgrade to Revel Premium, which costs £39 per

year. Adobe Revel works in a similar way to Apple's iCloud or Photo Stream. You'll be able to view stored photos through a web browser by logging in to your Revel account, as well as Elements 12's Organizer and in the Revel iOS app.

Adobe provides one month of unlimited Revel usage to begin with. If you're not planning on subscribing to Revel Premium when your first month is up, we'd advise you not to turn on auto syncing in the app. If you do, any picture you take with your iOS device automatically syncs with the Organizer, some of which you may not want to sync as part of your allowance of 50 photos.

When it comes to sharing, Adobe has added the ability to share images (one at a time) on Twitter in both the Revel app and Photoshop Elements itself.

Finally, the Organizer also has some new tags. You can now see Places and Event tags in the Tags/Info panel. We like the new ability to go to Places view, choose a location from the map and see only the pictures taken in that area.

Overall, the changes that Adobe has made in Photoshop Elements 12 add some significant improvements for photographers looking to spruce up their images. There are also new ways to access to photos while on the move, and share images with others.

However, the user interface isn't the most intuitive we've used, and it took us some time to get used to. If you've used previous versions of the software on a regular basis, this won't be a problem, but new users may find it tricky to get the hang of to begin with. It feels a little clumsy to use, even compared to Photoshop CC, despite it being aimed at hobbyists rather than professionals.

If you're a loyal Photoshop Elements user, this is a worthwhile upgrade that will provide numerous new features, but for those looking for a good photo editor to enhance holiday snaps or party pictures, there are cheaper and easier to use alternatives available.

Apple's iPhoto (£10 or free with a new Mac, tinyurl.com/kzqxsw4) is a good and significantly cheaper photo organiser and editor for Mac users, although it doesn't have so many editing options, focusing more on the photo library organisation. A step up from iPhoto is Aperture (£54, tinyurl.com/lm2lts5), which is also more affordable than Adobe's offering.

Macworld's buying advice

While the user interface could use some tweaking to make it more intuitive, Adobe's Photoshop Elements 12 does have many useful photo-editing and organising tools for hobbyists who don't want to fork out for Photoshop CC (one-year plan £46 per month). We would, however, suggest looking into alternatives such as iPhoto or Aperture before purchasing Elements, as they could offer you the features you need at a much lower cost.

Read more at tinyurl.com/oo34lbd

Move on The Zoom Burst feature has been designed to provide the illusion of movement.

QuarkXPress 10

Whizzier graphics, a new user interface and up-to-date OS X menus

BY SIMON ECCLES

> **Pros:** New user interface; Cocoa code
>
> **Cons:** Pricey; loss of some familiar menus
>
> **Star Rating:** ★★★★☆
>
> **Company:** Quark, quark.co.uk
>
> **Price:** £959, £359 (upgrade)

New look Here the new user interface being used with a magazine layout, with docking palettes on the right, the revised Measurements palette at top and a floating colour menu.

Quark has been busy in the past two years since the last major update to its flagship layout program.

Under the skin, the Mac version is Cocoa native for the first time. Previously it was based on Carbon, the hangover transition code from OS 9 days. Cocoa lets QuarkXPress hook into OS X features such as full-screen preview, recent file lists and language selection. If you have a Retina screen, version 10 switches to a higher resolution display. It's also been designed to run on the latest OS X Mavericks operating system.

What experienced users will notice first is the redesigned user interface. There's a new grey colour scheme and the onscreen palettes have been updated and reorganised. Palettes can now be grouped and docked to the right or left edge of the screen, with the option of automatic hiding when not in use. You can enlarge the document window to fill the screen by hiding the top menu bar.

Pull-down menus have had a rethink, with user-specifiable lists (such as colour names and style names) presented in alphabetical order. Where a menu launches a floating dialog box, you can drag the lower edge to fit in longer lists of options without scrolling

Meanwhile, the Modify and Format menus for object and type frames have been dropped, so you're obliged to use the revamped Measurement palette that appears at the bottom of QuarkXPress 9's screen. We preferred to drag the new one to the top, which is where InDesign puts

its equivalent. However, whereas experienced users could change common settings through keyboard shortcuts in the old menus, the new version requires more onscreen clicking.

The Print and New Colour menus have been changed, too. Print gets a colour preview of any page with indications of bleed, printers' marks and print area. The New Colour palette can now be enlarged to full-screen size, which helps when picking from the colour wheel, and also displays more and larger Pantone swatches at once. Numbers for the RGB sliders have been changed from percentages to show a web-friendly 1-255 as well as new Hexadecimal equivalents.

Quark's Xenon graphics engine is an important addition and greatly improves the rendering of graphics onscreen. If your computer has a dedicated graphics chip, it can use this to boost the speeds of import and printing.

Placed graphic files now always preview with the best available resolution. It's particularly good for text and vectors in EPS and PDF files, which previously were blocky bitmaps.

For imported photographs or PDF files with multiple layers, the new Advanced Image Control palette shows all the layers and you can switch their visibility on and off for any combination. Other tabs display and control the colour and alpha channels and paths. Master pages can now contain layers, too. Layers anywhere are between QuarkXPress documents.

As before, version 10 includes setup tools for digital publishing, although it hands files over to the separately sold App Studio for final formatting. It also adds the popular Page Flip effect, which previously was only available with the InDesign version of App Studio. If you're creating an ePub or Kindle document, you can embed hyperlinks and internal anchors within the program.

Macworld's buying advice
If you're a QuarkXPress 8 or 9 user, there are plenty of reasons to upgrade. And anyone unhappy with Adobe's switch to a rental-only model for Creative Cloud will appreciate the fact you can still buy or upgrade QuarkXPress 10 outright.
Read more at tinyurl.com/kc2dt8g

Avid Media Composer 7

The market leader for traditional film and video editors extends its reach

BY DUNCAN EVANS

> **Pros:** Background transcoding
>
> **Cons:** Window system can be messy
>
> **Star Rating:** ★★★★☆
>
> **Company:** Avid, avid.com/uk
> **Price:** £862, from £262 (upgrade)

Plug in You can download AMA plug-ins for hi-resolution footage from the Marketplace.

While Media Composer may have unshackled itself from AVID certified hardware dependency, don't think it's going to be adopting the cutting-edge editing of Final Cut Pro X (£199, tinyurl.com/m458dzq) or the more visual style of Adobe Premiere Pro CC (£46 per month, tinyurl.com/onou8nx). It's still as dour-looking and idiosyncratic.

Instead, the focus with this release is on making everything that bit better, or in the case of background processing, a lot better – this is now a 64-bit app. Obviously, the more memory you have and the faster the processor the better, but you'll need a minimum of 8GB for this.

On the filing front, there are Dynamic Media Folders that can automate many of those tedious tasks. Once a folder is acquired and made active, you can set up how it will deal with media added to it, whether that's copying, transcoding or consolidating. As before, this carries on as a background task.

Hi-resolution file access has improved, thanks to the unified AMA window. This allows files and volumes to be linked directly into Media Composer 7, so 2K, 4K and 5K footage can be edited. There's also support for full-frame stereoscopic 3D material from capture to edit and output. This, along with 4K workflows, Raw format AMA plug-ins and those Dynamic Media Folders push the RAM requirement up to a recommended 16GB.

As Media Composer 7 is the most capable non-linear editing system for large amounts of media, it's good to see that one of the problems of dealing with disparate resolutions has been solved. FrameFlex let's you keep the resolution of the original media, but extracts the section or specific resolution you want

from it. So, it's easy to get 4K footage and extract a 1080p clip just by marking the area you want it from. A further use is to animate the extraction window, so that different areas from the source media can be pulled out as it runs.

There are numerous small changes, but one of the more notable upgrades is with the Master Audio Fader. With this, RTAS plug-ins can be inserted to make adjustments to tones and loudness. Any audio clips on the timeline can also be enhanced with the Clip Gain control, regardless of any other track-automated functions that are set up. Another improvement concerns redrawing Waveforms – this is now cached and speeded up significantly. Also, when relinking media files, whether they are audio, video or data, there's much more control over what's included and what's specifically ignored. It's a small change, but adds to making the system work that bit quicker. A more visual aid is that of spanned markers for the timeline, but implementing it is on the clunky side.

Macworld's buying advice
Most of the changes in Media Composer 7 are performance related and speed up the workflow significantly, though, there isn't enough to attract new users.
Read more at tinyurl.com/Lbqokr3

Audio correction The RTAS plug-in filter will adjust the tone and pitch of the audio soundtrack.

Reviews

Glyphs Mini 1.5.1

Typography for the masses

BY VIC LENNARD

> **Pros:** Superb user interface
>
> **Cons:** No dedicated documentation
>
> **Star Rating:** ★★★★☆
>
> **Company:** Georg Seifert, glyphsapp.com
> **Price:** £31 (tinyurl.com/mnbv2gf)

Glyphs Mini is a cut-down version of Glyphs (£199, glyphsapp.com). It offers everything an inexperienced designer could want and almost does the full job for experienced typographers, too.

The user interface is a lesson in simplicity and elegance with an icon-view window for the letters, along with a top toolbar, a sidebar for different viewing categories and an options palette.

To edit a glyph, load the relevant typeface and double-click on a letter. The main window is replaced by a bézier-curve representation of that letter and a tab added just above the window. It's like working within a web browser, even down to using Command '+' and '-' to zoom in and out.

Whether editing an existing typeface or creating a new one, Glyphs Mini has an impressive array of tools. Some of them, such as the Roughen, Round Corners and Hatch Outline filters, are of a creative nature. Others are used to clean up paths, nodes, overlaps and corners in a created font. Unfortunately, the app lacks one crucial feature: layers. Without this, it's almost impossible to keep variations

Take a letter Glyph's user interface is clean and uncluttered.

of letters, something a font designer would certainly want to do.

Given the market it's aimed at, the program is let down by the lack of a manual or dedicated online help.

Macworld's buying advice
For just over £30, Glyphs Mini is incredible value for money. If only the online help and manual were up to scratch this would be a five-star review. **Read more at tinyurl.com/L6etwty**

Line 6 Sonic Port

Enhance your guitar playing experience through your iOS device

BY MARTYN CASSERLY

> **Pros:** Simple to set up; good sound quality
>
> **Cons:** Can't adjust levels on the device
>
> **Star Rating:** ★★★★☆
>
> **Company:** Line 6, line6.com
> **Price:** £70

There's an impressive range of music-making apps for iOS devices. But if you're more old-school and actually want to plug a real instrument into your device you'll soon discover that a ¼in jack doesn't fit into a Lightning connector, no matter how hard you try.

A solution to this problem is the Sonic Port from Line 6. Acting as an analogue-to-digital interface, the unit features an

input for your guitar lead at one end and a connector to your iOS device at the other. Owners of older units will be glad to hear that both 30-pin and Lightning connector cables are included in the box.

Line 6 has also built the Sonic Port to support Core Audio in OS X, so it will work with GarageBand, Jammit, Ampkit+, JamUp, Amplitube, and the Line 6 Mobile POD app (free, tinyurl.com/mvnz9ys), as well as many others.

The rectangular unit is fashioned from hard plastic with the majority of the casing covered in smooth rubber. It's light, but feels sturdy enough to last the rigours of gigging. It's small enough that you can slip it back into your pocket when the gig is done.

Setup is painless, as the Sonic Port is automatically detected when you plug it

Plug and play Plug a guitar into the unit, connect it to an iPad and you're good to go.

in. By itself it won't really do much, but once you've launched a suitable app the unit proves its worth.

The sound quality is excellent, and we experienced no problems with latency, which is a huge plus when you decide to record any riffs you've been working on.

Macworld's buying advice
The Sonic Port is a useful device that works beautifully and without fuss. The sturdy build, diminutive size and multi-app performance make it something that could really open up your iOS device's musical potential. **Read more at tinyurl.com/qg5f2kg**

Asus MX299Q

An ultra–wide AH–IPS monitor that also offers stylish good looks

BY DUNCAN EVANS

Pros: Stylish good looks; ultra-wide display

Cons: Onscreen menus fiddly

Star Rating: ★★★★★

Company: Asus, asus.com/uk

Price: £413

Macworld
EDITORS' CHOICE

Style icon The Asus offers a wide screen area, plus stylish looks and great performance.

The MX299Q is a smart and sexy ultra-wide monitor. To back this up, the external power supply is shaped like an Apple TV, while the base is a solid metal halo.

The screen goes right up to the edge of the bevel, though, the display area is around 1cm short of that. Along the bottom protrudes a metal strip, underneath which are located the menu buttons. They offer access to a number of preset viewing modes, including an sRGB specific one, along with 1.8 and 2.2 gamma, and a choice of three skin-tone orientated offerings.

Around the slender back are interfaces for HDMI/MHL, DisplayPort and Dual Link DVI-D. There's also a 3.5mm output audio jack and a 3.5mm input jack. The built-in audio is a brace of 3W stereo speakers, which are boosted by Bang & Olufsen ICEpower. In our tests, we found audio was significantly better than your usual monitor speakers.

Being a 29in ultra-wide monitor with a 21:9 aspect ratio, the MX299Q has a 2560x1080 resolution, which makes it quite narrow from top to bottom, but wide enough for two standard apps to run alongside each other. So, getting into the testing then and first up is the sRGB coverage, which comes in at a perfect 100 percent. NTSC is 73 percent and AdobeRGB is 79 percent. Screen uniformity brightness is also good.

Macworld's buying advice
Not only does the Asus MX299Q offer the kind of widescreen space that's ideal for multiple applications, but the quality of the display itself is also surprisingly good. **Read more at tinyurl.com/Lozkezh**

Oki MC760dn-fax

A fast and versatile multifunction colour laser printer for larger workgroups

BY CLIFF JOSEPH

Pros: Versatile, multifunction device

Cons: Slower than advertised

Star Rating: ★★★★☆

Company: Oki, oki.co.uk

Price: £1,500

Priced at £1,500, the MC760dn-fax is a multifunction colour laser printer. It's a bit of a beast, measuring 675x 522x604mm and weighing 50kg, so you'll probably need to leave it standing on the floor in a corner of your office. It's a versatile machine, though, and should quickly prove its worth, providing 1200x600dpi printing, a 600x600dpi scanner, and a fax machine with a 1000-entry address book.

Print quality is very good, with the smooth crisp text that you'd expect from a laser printer, while graphics documents benefit from a glossy finish that adds boldness to colours. However, the MC760dn-fax doesn't quite live up to Oki's claims of 28ppm performance. In our tests, we recorded overall speeds of 22ppm for mono and 17ppm for colour. .

Printing costs are quite reasonable. The printer is sold with a set of 'starter' cartridges that should last for about 4000 pages. After that you'll need to pay £78 for a black toner cartridge that lasts for around 8000 pages, while the cyan, magenta and yellow cartridges cost about £113 each and last for 6000 pages. Oki says this works out at a reasonable 1.5p per page for mono printing and 8p for colour.

Workhorse The MC760dn-fax provides performance and versatility for office users.

Macworld's buying advice
The MC760dn-fax isn't as fast as Oki claims, but it's fast enough for all but the busiest of offices. It's versatile, too, and provides competitive running costs. **Read more at tinyurl.com/mmqj69s**

G-Technology G-Raid Mini

Raid performance and reliability, combined with a semi–portable design

BY CLIFF JOSEPH

Roving RAID The G-RAID Mini is small enough to be carried around in a backpack.

> **Pros:** Good performance; high capacity
>
> **Cons:** Bigger than conventional drive
>
> **Star Rating:** ★★★★☆
>
> **Company:** G-Technology, g-technology.eu
> **Price:** £160(1TB), £290 (2TB)

The G-Raid Mini is a bit larger than a conventional portable drive, as it includes two separate 7200rpm hard drives along with a cooling fan and vent located in the base of the unit. It's not quite pocket-sized, and it weighs 1kg, but it's still small enough for you to carry around in a backpack without too much trouble.

It's equipped with a single USB 3.0 interface and two FireWire 800 ports, so it will work with older and newer Macs. There's no Thunderbolt port, though.

The drive isn't quite as portable as it could be, either. If you've got an old MacBook with FireWire 800, then the interface can provide enough power to drive the G-Raid Mini. Unfortunately, the USB 3.0 port doesn't provide enough power to run the drive, so you'll need to use the included mains power adaptor.

Performance is good, though. FireWire is showing its age and could only manage data transfer speeds of about 75MB/s for both reading and writing files. But, with the benefit of Raid 0, the USB 3.0 port romps ahead with read and write speeds of 238MB/s and 200MB/s.

If you want to switch to Raid 1 – which provides extra reliability by making duplicate copies of your files on both drives – then you'll need to use the Raid configuration utility that, for some reason, is hidden in the depths of G-Technology's website, rather than just being included with the drive itself.

Macworld's buying advice
It's a shame the G-Raid Mini still requires mains power when using its USB 3.0 interface, as that limits its usefulness as a truly portable drive. However, it's light enough to carry around in a backpack, and provides good performance and plenty of storage at a competitive price.
Read more at tinyurl.com/Lqw6fo8

Seagate Business Storage 1-Bay NAS

A frill–free network drive that's also suitable for home use

BY KARL HODGE

Simple storage Discrete and reliable, this gives good performance for the price.

> **Pros:** Configured to run out of the box
>
> **Cons:** Few bundled apps
>
> **Star Rating:** ★★★★☆
>
> **Company:** Seagate, seagate.com
> **Price:** £163

Straight out of the box, it's clear that function comes first for the Seagate Business Storage 1-Bay NAS. The enclosure is a simple black plastic box, pleasingly robust but industrially styled. At 172mm high and 60mm wide, it's one of the smallest single-bay NAS drives we've seen.

There are two USB 3.0 sockets and a Gigabit Ethernet port. A 'One Touch' transfer button lets you initiate backups and file transfers between the Seagate and an external drive.

The unit we tested came equipped with a 3TB Seagate drive – there are variations shipping with 2- and 4TB respectively. Otherwise, the configuration is identical for each unit in the range; 256MB of DRAM and a dual-core CPU running at 700MHz – a Cavium processor built around the ARM9 architecture.

This isn't a stellar set of specs, but reasonable at this price point. And performance statistics aren't bad at all. We recorded sequential read rates of around 41MB/s and write rates of just over 45MB/s – fast enough for domestic media use and backup.

Installation is easy. The bundled DVD contains a program that detects your NAS on the local network.

Macworld's buying advice
The back-to-basics styling and build yields a solid device that will appeal to users without room for bulky enclosures.
Read more at tinyurl.com/k4gg2ax

Mac Gems

Great, low-cost Mac software **Edited by Dan Frakes**

Instacast 1.0.1

★★★★☆ £12.90, Vemedio, vemedio.com/store

Apple offers a couple of apps that should make it easy to listen to podcasts: iTunes on the desktop and Podcasts on iOS. But just try making them work in tandem.

For listening on our iOS devices, we use Instacast for iOS (£2.99, tinyurl.com/qykwx8y). The software is now on OS X as Instacast for Mac.

Its main interface takes a cue from Apple's Mail, dividing the screen into three vertical panes: On the left is a list of the podcasts you subscribe to, in the middle is a list of available episodes for the selected show, and on the right is information about the selected episode.

Instacast lets you organise episodes in a couple of interesting ways. The first is to create playlists of episodes from your subscriptions. The second is to produce smart lists that automatically aggregate episodes based on criteria you define.

By default, the app downloads only the most recent episode of each subscribed podcast; if you play an older episode, it streams from the internet.

Instacast's sharing features include support for Twitter, App.net, email, iMessage, and a few other web services, though, it doesn't include any social-oriented discovery features.

Where Instacast really shines is in syncing across devices. Using the Instacast Cloud option, which is free to all registered users, you can sync subscriptions, episodes and playback status across multiple copies of the app on any supported platform.
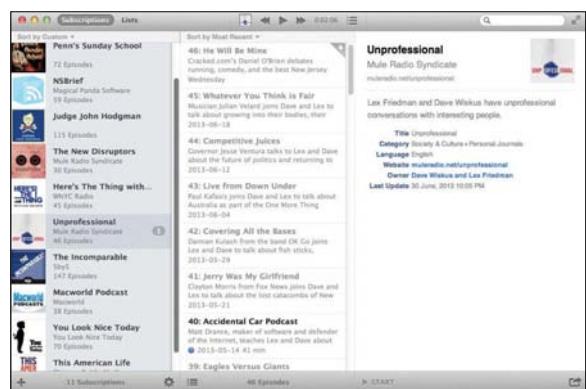
If you regularly listen to podcasts, Instacast is a great program that deserves a spot on your Mac. – MARCO TABINI

Moment 1.0.2

★★★☆☆ £3.99, Tapmates, tinyurl.com/qzwo2lt

There are loads of apps for keeping tabs on Twitter from your Mac, but few for monitoring Facebook. That's where Moment, from Tapmates, comes in.

It lives in your menu bar and lights up – and sounds an alert – whenever you receive a new Facebook notification. When you click the menu icon, you'll see your notifications, old and new alike. (Older ones are dimmed to make it easier to spot the new ones.) It's the same list you'll see if you viewed your notifications list on the Facebook website.

Click a notification and the Moment menu vanishes, opening the appropriate Facebook page in your web browser. It's a shame Moment doesn't display the page directly within the app.

Where Moment really shines, however, is in facilitating posting to Facebook. To post a photo to your timeline, for example, drag the photo onto the app's menu-bar icon, add a text status to go with it, and click the Post button. Alternatively, click the menu icon, type your status update and drag in an image. Want to post a video, or a link to a web page? You can drag those, too.

Another nice touch is that you can add friends to a post or photo just by typing their names in the 'Who Were You With?' area. The app autofills the names based on your friends list on Facebook.

Moment is tidy and elegant, and makes quick work of updating your Facebook status and keeping tabs on your notifications. – LEX FRIEDMAN

Actions

★★★½☆ £2.49, Useful, getactionsapp.com

Actions isn't just a Mac app. Rather, it's a combination of a free Mac app – Actions Server, which can be downloaded from getactionsapp.com – and Actions for iPad app (£2.49, tinyurl.com/l3onpk4). Together, they let you use your iPad to control your Mac and automate Mac tasks.

Launch the Mac app, and its icon will appear in your menu bar. The menu will show which iPad is connected and provides access to a few simple settings. Those preferences let you designate any folders, besides /Applications, in which Actions should look for apps (to make them available in the iOS app). You can also change the network port over which your Mac and iPad communicate.

Otherwise, the real work happens in the iOS app. Launch this on your iPad, and it will search your local network for Actions Server running on your Mac. You

will be prompted to enter, on your Mac, the four-digit code that appears on your iPad. Once this initial setup process is complete, your iOS device and Mac will connect automatically in the future.

The iPad app's main screen is a grid of large buttons, each with an icon, colour and text description. Each button is configured for a particular action on your Mac – tap it and its action is performed.

Actions starts with a few example buttons, but every button is customisable: tap the edit (pencil icon) button in the top-right corner to enter edit mode. In that mode, you can drag any existing button to move it, tap 'X' to delete it or tap the button itself to edit it. But the fun part is the Create/Load button. Tap Create to create your own action, or tap Load to add one of Actions' built-in actions, in lieu of creating your own.

Actions offers a clever way to get easier access to common tasks and actions. It makes your iPad feel like an extension of your Mac. It's especially great for people who want macros but don't want to have to remember a bunch of keyboard shortcuts. – DAN FRAKES

Shortcat 0.4.3.1

★★★★☆ $14 (£9), Sproutcube, shortcatapp.com

Modern graphical-user interfaces make a mouse practically mandatory, but we use one only when we have no other choice. A keyboard, unlike a mouse or trackpad, gives us haptic feedback that allows us to type without looking.

Shortcat promises to let you use the keyboard for many operations, such as clicking textual links on a web page, that normally would require a pointing device. It adds a systemwide menu to your menu bar and allows you to choose a global keyboard shortcut. Press that shortcut, and the app displays a small text-input box at the bottom of your screen. As you start typing in this, the app examines the contents of the active window (which gains a faint outline to confirm which window is being examined) and looks for actionable text items – buttons, checkboxes, files, and so on – that match the text you've typed.

Shortcat highlights the first matching item with a noticeable (yet unobtrusive) green, rounded rectangle; if that's the item you want to 'click', you simply press Return. If an onscreen element requires a double-click, press Return twice.
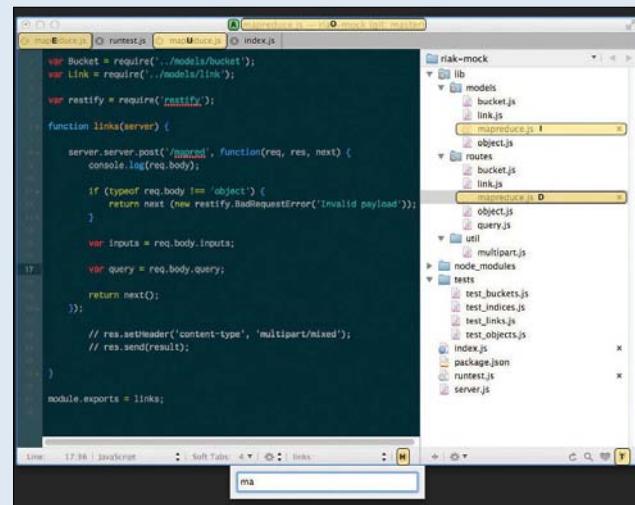
The app thus allows you to bypass your mouse completely, as long as the item you wish to activate is visible and has some sort of textual form.

Shortcat is well worth a try. It could improve your productivity more than you might expect. If you're unsure whether to buy this, the beta version is still available and can be downloaded for free. – MARCO TABINI

iFlicks

★★★★☆ £13.99, Jendrick Bertram, tinyurl.com/q647kk5

Lots of apps can transcode video from one format to another, while others let you tag media files with useful metadata. But iFlicks does both, and we've found none better at combining the two tasks. It uses a clean and Mac-like interface that makes working with it intuitive.

iFlicks can help you tag movies or TV shows you've ripped from your DVDs, recorded with an EyeTV-powered device, or downloaded from elsewhere – you can add artwork, genre, description, release date, episode titles and numbers, and more. iFlicks can also convert videos to smaller versions for iOS devices, or to take files that iTunes can't understand and make them playable on an Apple TV.

The Preset pop-up menu, where you choose the output format for files you plan to process using the utility, offers nine options: Reference File, iTunes Compatible, Universal, iPod, iPhone,

Apple TV, iPad, Apple TV 2, and New Apple TV & iPad. You can appoint any preset as the default. The Destination pop-up menu lets you select where iFlicks should save the resulting file.

One button, 'Move Original to Trash', gives you the option to transfer a file to

the Trash when iFlicks has finished encoding/tagging it. That's safer than deleting the file outright.

If you do a lot of video-file tagging and conversion, you'll be hard-pressed to find another Mac app that performs these tasks as well as iFlicks. – JONATHAN SEFF

Startupizer 2.2

★★★★☆ £6.99, Gentle Bytes, tinyurl.com/m86oqoa

Gentle Bytes' Startupizer is a utility that does one specific thing very well – managing your login items (those apps and processes that you've set to launch automatically or open every time you log in to your account on your Mac). It gives you greater control than OS X does over exactly when and how those things launch.

It automatically detects any items (apps, files, menu-bar utilities) you already have in the official login-items list. You can then select which of those Startupizer should manage. If you later add new items to OS X's login-items list (for instance, by installing a new app and opting to have it launch at login), the software detects that addition and issues an alert; you can then choose
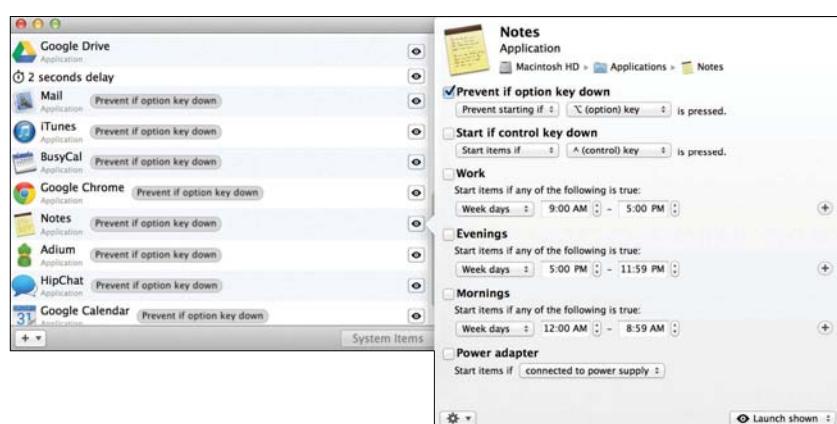
to move the new item to Startupizer's list or to leave it in the System Preferences list. Once an item is in the app's list, you can define the conditions under which it should launch.

In short, Startupizer offers the kind of control that can make your regular login sequence a lot saner. It's a great utility that makes our everyday computing life easier and more controlled. – DAN MILLER

Macworld

Subscribe to

SAVE UP TO 50%
ON YOUR SUBSCRIPTION

idg.subscribeonline.co.uk/subscriptions/macworld

IDG | UNITED KINGDOM

Help Desk

Answering your questions and sharing your tips about getting the most from your Mac

Mac OS X hints

The insider tips you won't get from Apple

BY LEX FRIEDMAN

Disable Caps Lock (or at least get a warning)

Few of us ever really want Caps Lock turned on; when we do hit that dreaded keyboard toggle, we do so accidentally. One workaround is to disable it altogether. Go to System Preferences and select the *Keyboard* preference pane. Under the *Keyboard* tab, click the *Modifier Keys* button. Finally, using the drop-down menu, set Caps Lock to *No Action* (or have it pull side duty as a bonus ⌘, <Control> or <Alt> key).

But what about people who want the option to quickly enter a mode for NONSTOP CAPITALISATION, yet still wish to avoid triggering said mode by mistake? For those troubled typists, the answer is the free utility CapSee (threemagination. com). Install it, and your Mac displays an unmissable on-screen indicator when it's in Caps Lock mode. ISN'T THAT GREAT?

Dial extensions on an iPhone easily

Whether you frequently call someone who is at extension 123, or you know that to speak to a human in tech support you need to press 2, then 1, then 2 again, you've no doubt faced the annoyance that is dialling such numbers on your iPhone: you have to pull the phone away from your ear, tap the Show Keypad button, and so on. There is a better way. You can add details to a phone number

so that your iPhone punches the right buttons on its own.

When you're editing a contact's details, tap the +*# key at the bottom left to insert a Pause or a Wait. A Pause (represented by a comma) tells your iPhone to pause 2 seconds and then dial the numbers that come next. (You can insert multiple consecutive Pauses.) A Wait, represented by a semicolon, adds a custom button next to the red End button on the phone-call screen; you tap that button to dial whatever series of digits you entered after the semicolon.

Get directions and details From Siri

You may already know that you can ask Siri for directions. For example, you might say "Take me home" when you're out and about. But you can say a few other things while your iOS device is helping you navigate. Ask Siri, "Are we there yet?" – or use a less obnoxious version of that query, such as "How much longer?" – and
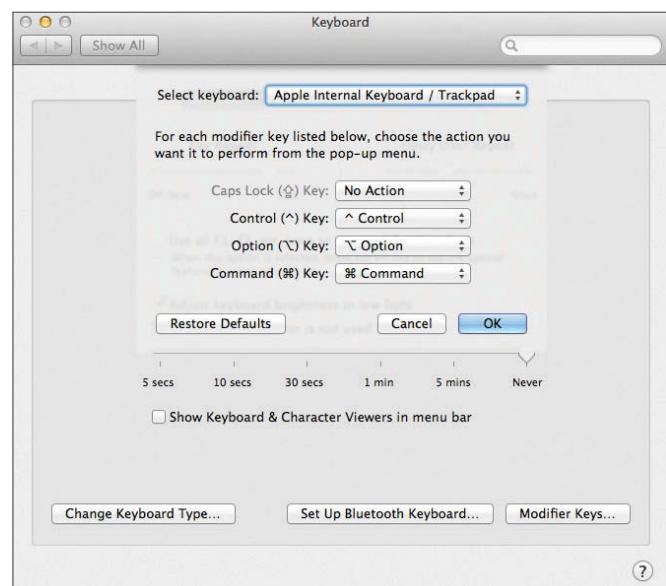
No more caps Disable the Caps lock function by setting the key to 'No Action.

you'll get an update on your estimated time of arrival. You can be more specific, too. Ask "When is my next turn?" and Siri will give you the number of minutes until you should encounter it. Petrol running low? Ask Siri where the nearest garage is, and you'll receive suggestions for fill-up spots along your route. If you tap one, though, you'll cancel your current navigation, and Siri will start directing you to the new destination instead.

Use Google Maps offline

Relying on Siri for directions means trusting Apple's Maps app, which may not be your preference. Google Maps for iOS uses the search giant's mapping data – and also lets you cache maps for

Unfortunately, reporting iMessage spam to Apple requires multiple steps. On the plus side, taking time to do so ought to help reduce this overall

offline access. If you use Google Maps on a Wi-Fi-only iPad or if you travel in locations where the cellular data service is spotty, knowing how to enable offline caching of map data is pretty important. Here's how to do it.

First, zoom in a bit, because you can't cache a widely-zoomed-out map view. Then, when you're at the spot you would like to cache, type **OK maps** into the search box, and then tap *Search*. A Google Maps icon will appear briefly, followed by a message indicating that your map data was saved. Now, even when you're offline, if you navigate to the cached areas, the map data will appear.

Help Apple stop iMessage spam
If you haven't been hit by iMessage spam, consider yourself lucky: it's awful. It's even worse when you realise that the spammers can know with certainty the message was delivered to you. Apple recently introduced a way to deal with unwanted iMessages.

Unfortunately, reporting such spam to Apple requires multiple steps. On the plus side, taking time to do so ought to help reduce this overall.

When a spam iMessage arrives, take a screenshot. (If you received the spam on your iOS device, press the *Home* and *Sleep/Wake* buttons simultaneously. If it's on your Mac, use ⌘-<Shift>-3. The image will be in your iOS camera roll, or on your Mac's desktop.) Apple also needs the complete email address or phone number of the party you received the message from. You can take a screenshot of that data, too, or copy and paste it. Finally, compose an email to imessage.spam@icloud.com. (If you get a lot of said spam, save that address as a contact.) Attach the screenshot, and include the sender details and the date and time you received the message. You won't see immediate action, but with luck Apple will pool such user reports and eliminate spammers from its iMessage network. Remember that iOS 7 lets you block

unwanted callers, texters and iMessage senders yourself.

Make Safari open tabs on the left
By default, new tabs in Safari open on the right. But some people want directional freedom; they yearn to break free from the tyranny of 'the right is right' when it comes to tab creation. You can accomplish this with AppleScript; the code below is from Hints reader xhinter. Once you've created the script, you can even give it a custom keyboard shortcut.

Make a UTC dashboard clock
The OS X Dashboard lacks a Clock widget for GMT/UTC (Coordinated Universal Time), the standard on which all time-zone offsets are based. If you want a UTC clock, don't choose London as the UK is on Greenwich Mean Time most of the year but not always on UTC, because the clocks go forward in the summer. To create a clock that always displays UTC, use Freetown in Africa (Sierra Leone). Freetown uses UTC+00:00, and doesn't change throughout the year.

Script box: Safari tabs

```
tell application "Safari"
  if windows is {} then
    make new document
  else
    tell first window
      if miniaturized then
        set miniaturized to false
        make new tab at beginning with properties
        {URL:"bookmarks://"}
        set current tab to first tab
        tell application "System Events" to tell process
        "Safari" to tell menu bar 1 to tell menu bar item "File"
        to tell menu 1 to click menu item "Open Location..."
      else
        make new tab at beginning with properties
        {URL:"bookmarks://"}
        set current tab to first tab
        tell application "System Events" to tell process
        "Safari" to tell menu bar 1 to tell menu bar item "File"
        to tell menu 1 to click menu item "Open Location..."
      end if
    end tell
  end if
end tell
```
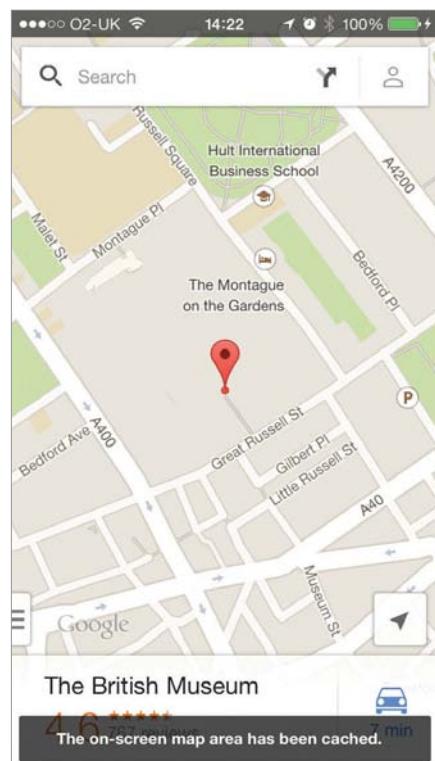

Offline maps Google Maps' caching ability is useful for navigating in areas with an unreliable cellular data service.

Mac SOS

Solutions to your most vexing Mac problems

BY CHRISTOPHER BREEN

Get the best Amazon deal

While discussing movies with a friend, I realised that I didn't own copies of Alfred Hitchcock's greatest films. Hoping to remedy this, I dashed to Amazon and found *Alfred Hitchcock: The Masterpiece Collection*. The Blu-ray set looked great, but the price – about £71 – did not.

Reviews indicated that the collection had been available for £53, a more palatable price. But how am I to know when it reaches such a discount? I turned to Twitter for answers.

Follower John Coxon (@johncoxon) told me about the web-based service Camelcamelcamel (uk.camelcamelcamel. com), which allows you to enter the URL for an item you wish to track. You can view a history of the item's price to get an idea of how low it has been in the past. Then you enter the price you're willing to pay, and choose either email or Twitter alerts (see *Bargain hunter*).

Mike Hoffman (@MikeHoffman) pointed me to Delite Studio's Mac app Prices Drop Monitor for Amazon (free, tinyurl.com/odycg2k). Download and install it, and a shopping-cart icon appears in the Mac's menu bar. In your web browser, just navigate to the item of interest and drag its URL to that menu-bar icon. When the price of that watched item drops, you'll be notified by way of a sound, Notification Center, Growl, or email (your choice). The free app tracks up to 20 items; a £2.49 fee lets you monitor up to 50 items at a time.

Chris Lehmkuhl (@ChrisLehmkuhl) and Dave Packard (@cpadave) told me that all I have to do is add the item to my Amazon cart and leave it there, unpurchased. When the listing's price changes, the Amazon shopping cart produces a notification.

And finally, I have my own solution. In Safari go to the item's Amazon page and choose *File ➔ Open in Dashboard*. This option is the means for creating a web
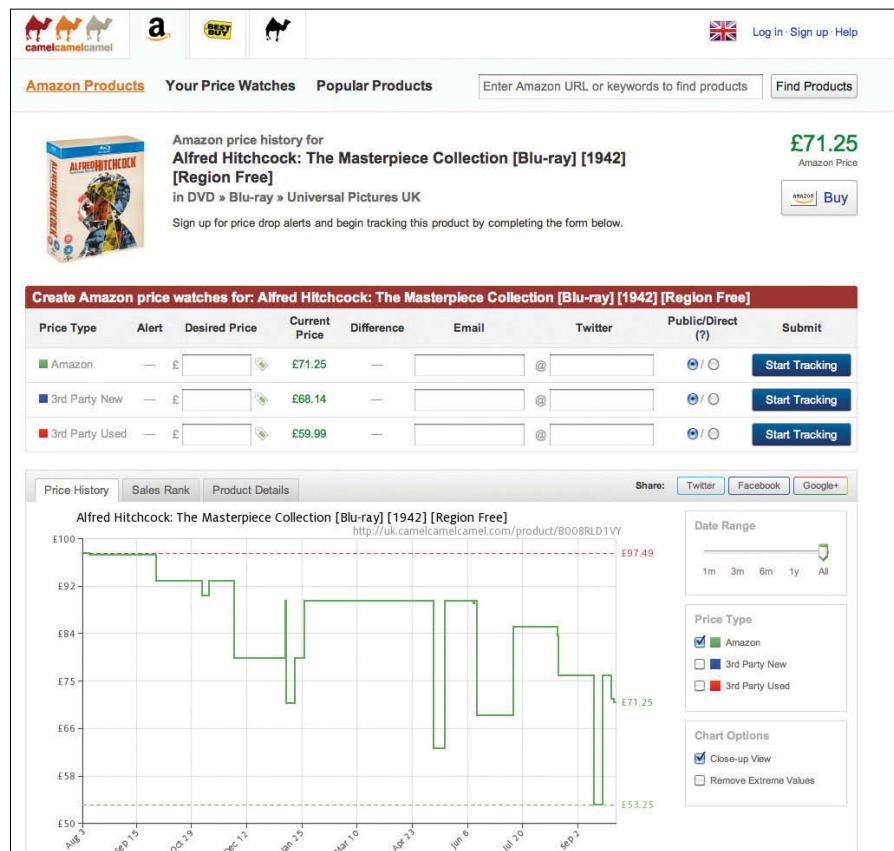
clipping. Select the item's price area, and click *Add* to make that clipping appear in Dashboard. Because clippings update whenever you switch to Dashboard, you merely need to invoke Dashboard to view the item's current price.

Fix iTunes' Truncated Tracks

Q: iTunes truncates the last 15 seconds of tracks and jumps to the next track. I don't have crossfade on, and the effect seems more prevalent on ripped CD tracks I own. I haven't subscribed to iTunes Match. What might the problem be?

Mike Barlow

A: You can do a few things to pinpoint where the problem lies. First, select one of the shortened tracks and choose *File ➔ Show in Finder*. A Finder window will

Bargain hunter Camelcamelcamel helps you choose the best time to buy items online.

open. Press the spacebar to preview the track, and drag the playhead to the end to confirm that the entire track is present. (It probably is.) You have now determined that the problem isn't with the track but with iTunes. This step saves you the trouble of re-ripping.

To make sure, return to iTunes, select the track, press ⌘-I, and in the *Options* tab confirm that *Stop Time* isn't enabled. (For those not in the know, you can shorten track playback by adjusting start and stop times in this tab.) This option is highly likely to be set as it should be, but confirming that it is helps you eliminate it as a suspect.

The next step is to delete the track from iTunes, but not from your Mac. The

system will first ask if you're sure that you want to delete it. Confirm that you are. Next, it will ask whether to delete the track from your Mac. This is something you don't want to do, so click *Keep File*. Now return to where the track is stored on your Mac, and re-add it. With any luck, it will play as it should, from start to end.

No? Then quit iTunes and, while holding <Alt>, relaunch it. The Choose iTunes Library window will appear. Click *Create Library* and save the new library to your Music folder. Navigate to one of the troublesome files, and drag it into iTunes to add it. Click the play button and see if it plays to the end. If so, your problem is with the iTunes database in your previous library. You can try to re-create that database; see tinyurl.com/mr3w6n7for Apple's instructions. The gist is that you quit iTunes, navigate to the iTunes folder (*youruserfolder*/Music/iTunes), drag the iTunes Library.itl file to the Trash, and move the iTunes Library.xml file to the desktop.

Now launch iTunes, where you'll find an empty library. Choose *File ➜ Library ➜ Import Playlist*, go to the iTunes Library.xml file on the desktop and click Choose to reload your library, complete with playlists, song ratings and play counts.

Create a bootable iPod classic

Q: **Listening to a Macworld podcast, I was intrigued by your tip about using an iPod to boot and troubleshoot a Mac. Can you provide the steps?**

Kirk Aplin

A: Configuring the iPod is reasonably easy. (Warning: doing this will wipe all the media off your iPod. Make sure you have a backup of those files before proceeding.)

Plug your iPod classic into your Mac, using the standard dock-connector-to-USB cable. If iTunes launches, quit it. Launch Disk Utility (found in Applications/Utilities). Within Disk Utility, select the iPod in the list of devices to the left. To the right, click the *Partition* tab. In the *Partition* Layout pop-up menu, choose *1 Partition*. The *Options* button below the partition area becomes active. Click it. In the sheet that appears, select *GUID*

Bugs & Fixes BY TED LANDAU

Safari heal thyself! Overall, Safari meets my requirements for a web browser. Plus, as it's an Apple product, I appreciate its tight integration with OS X and iOS. But then there's Safari's 'dark side'. All too often, something goes haywire. Web pages fail to load, or the application crashes.

For example, using my Mac Pro recently, I had a Safari window with eight tabs. Inexplicably, the content of every tab no longer appeared if I started scrolling down the page – that is, as soon as I scrolled, all I saw was a white space.

Copying a URL and pasting it into another Safari window didn't help. Reloading a page often made the situation worse, resulting in a totally blank page with the URL now 'lost' as it was gone from the address bar. Quitting and relaunching Safari did not restore the pages to normal.

Focusing first on the lost URLs, I tried checking Safari's History. Several of the pages had been open for so long, however, that they no longer appeared among the recent History items, so I would have had to search for them. Also, some pages originated from sources such as Twitter, so their URLs in History appeared in unidentifiable shortened versions.

Here's where I tripped over a feature of Safari that came to my rescue. Even though the URL was missing from the Address bar, the name of the web page was still visible in the title bar above. I created a new tab and began typing the name of a desired page, and then Safari's autocomplete kicked in, including a drop-down menu of suggested URLs, plus a Bookmarks and History section. This menu listed every web page in my History, no matter how old, that contained the text I had typed. It also listed URLs in full, even if they showed as shortened URLs in the History menu. With these lists, I recovered every missing URL.

Unfortunately, with or without the URLs, the pages still didn't load properly. That's when I remembered I also had a MacBook Pro. I opened this and launched Safari. As I had enabled iCloud Tabs, I could see a list of all the tabs in Safari on my Mac Pro and open them in Apple's browser on my MacBook. The pages opened correctly. From here, I could reread or save the pages. Now I could go back to my Mac Pro, close the tabs, and get Safari humming again. Problem solved. If you don't have a second Mac but you do have an iPad, you can accomplish the same basic feat, although saving web pages will be more work.

Share your problems by writing to bugs@macworld.com.

Partition Table and click *OK* (see *Setting the table* on page 70). Click *Apply*. Your iPod will be formatted so that it can serve as a startup volume.

Now, find the copy of the OS X Mountain Lion installer on your... What? You don't have it because it was deleted after you originally installed Mountain Lion? Launch the Mac App Store, click the *Purchased* tab, and locate 'OS X Mountain Lion' in the list. Click *Download*, and wait for it to do just that.

If you bought a Mac with Mountain Lion pre-installed, you won't have the installer. Our OS X installer expert, Dan Frakes, explains how to work around this problem at go.macworld.com/bootable (yes, the article title refers to Lion, but the advice applies to Mountain Lion as well).

Regardless of how you obtain the installer, move it outside the Applications folder so that it won't be deleted after it does its job. Launch the installer, choose the iPod as the target, and run through

Setting the table Before an iPod can serve as a bootable drive, you must format it using the GUID Partition Table option.

the process as you would with any drive. When the installation is finished, boot from the iPod and install any troubleshooting tools. Restart the Mac, booting from its regular startup drive, and tuck the iPod away.

Five reasons to buy an iPad

Q: **I'm a senior citizen who is reasonably comfortable with a Mac, but younger members of my family are urging me to purchase an iPad. I don't see why I need one when I have my computer. Care to weigh in?**

via the internet

A: It's been our experience that you can't truly understand how useful an iPad will be to you until you live with one. That said, we can provide some observations.

Portability: The main attraction is that you can carry an iPad wherever you go. If you want to check email or Twitter, or to look something up, you needn't traipse downstairs to your Mac. You can do it all from the comfort of your kitchen or sofa.

The drawback of owning such a portable and powerful device is the temptation to bang away on the thing constantly. Having to make a trip to the 'computer room' is often enough to keep you from checking Facebook or Instagram every few minutes. Putting down your iPad while you participate in the real world requires discipline.

Access: All iPads work with Wi-Fi, but if you invest in the cellular model (which costs £100 more than the Wi-Fi-only one), your iPad will be able to work just about anywhere, much as your mobile phone does. Yes, you have to pay a fee each month, but it means your iPad can almost always reach the outside world. That's a helpful feature when you need to perform
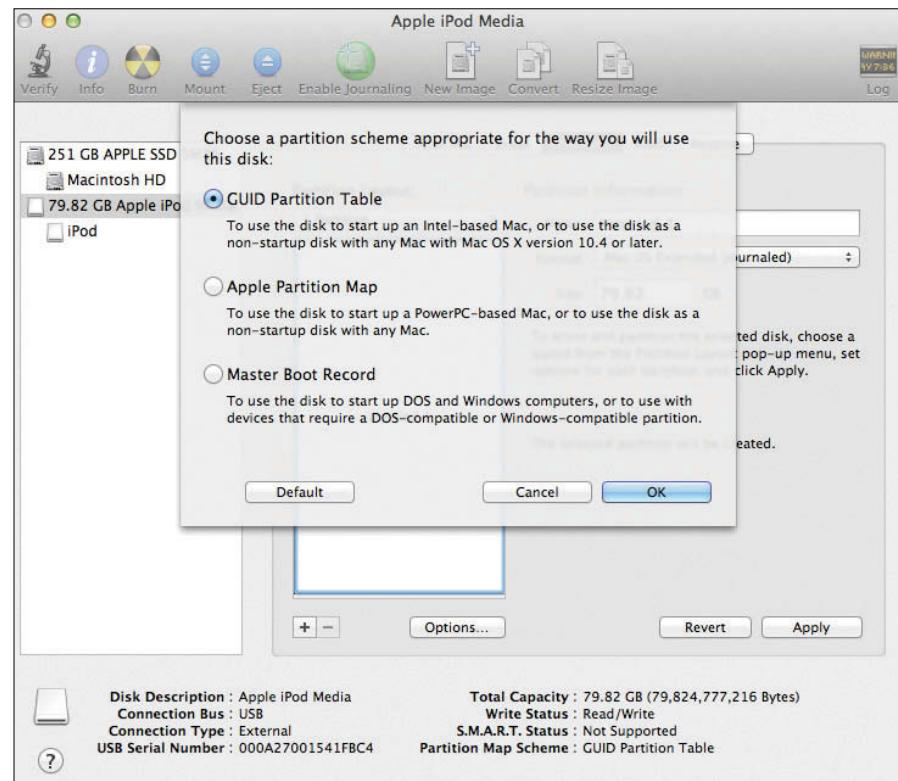
light digital duties away from home or the office and Wi-Fi isn't available.

Ease of use: With iOS, Apple has tried to redefine what it means to interact with computing devices. While some computer veterans believe that an iPad's interface is dumbed down, not everyone wants the power and flexibility that an open operating system allows. Many people want a device that lets them easily perform the tasks that interest them. The iPad does so admirably. Once you master tapping items, and once you learn how to swipe from place to place, you're well on your way.

Workspace: Regardless of how powerful a phone may be, its small screen is an impediment to performing tasks.

If you're accustomed to working on your phone, you'll be thrilled with the elbow room the iPad provides. You may not be able to type as quickly on the tablet as you can on your Mac keyboard,

but we guarantee you'll get things done a lot faster than you do with your thumbs on a phone.

Apps: This may be the greatest advantage of all. If you're a longtime Mac user, you know that Mac software pickings used to be slim. The iPad has no such problem. The last time we checked, over 375,000 apps were designed for it. Even if only one percent of them were worthwhile (and far more than that are), that would still be 3750 solid apps. With those you can read books, create works of music and art, start a journal or blog, organise your life, entertain and inform your kids, capture and edit movies and pictures, make and receive free video calls, enjoy music and movies, spend unhealthy quantities of time on Facebook and Twitter, and fling birds at pigs.

Want a reason why you shouldn't buy an iPad? Because everyone else is doing it. Some people are content to confine their computing to the Mac or PC in the back room. Real people, real events, real life are more important than their virtual counterparts. If the benefits I've outlined sound like they'll enhance real life, though, give it a go.

If you want to check email or Twitter, you needn't traipse downstairs to your Mac. You can do it all from the comfort of your kitchen or sofa

iPad&iPhone user Contents

73

78

86

I hate free things

Or, shut up and take my money, iOS games developers

Call me suspicious, but offer me something for nothing and I'll think it's a scam. (Let's face it, most of the time it is.) This is unfortunate, since we live in the Age of Free, the glorious era in which nobody pays for anything. Well, count me out.

This is the generation that decided everything should be free, and to hell with the consequences. Paying for music is effectively optional – you can listen to most mainstream tracks on Spotify or YouTube without paying a penny – while new TV episodes and films hit the torrents the moment the credits roll. Newspapers put everything online nowadays, and while a few have experimented with paywalls, it's easy to get all your news for free.

But the most unavoidable aspect of the freevolution for an avid iOS gamer like me is the trend for iPad and iPhone apps to switch to the so-called freemium model. That's the one that makes the game free to download, but then tries to make back its costs through in-app payments (IAPs).

This sounds good, and in a very few cases works well, but almost all freemium games either fail to make back their costs, or compromise their most fundamental game mechanics in search of IAPs.

Take Real Racing 3, for example. The first two Real Racing games were graphical masterpieces and played sweetly. But the third game broke with franchise tradition and went freemium. The game still looks and plays great, but mending your car between races is like talking to a particularly pushy double-glazing salesman. Don't want to pay to fix that dent? See you in eight hours.

RR3 can be played without spending any real-world cash, but the design is nevertheless, by financial necessity, built around throwing obstacles in your way and asking you to pay money to remove them. If any other form of entertainment – and certainly anything that aspired to call itself an art form – compromised itself so utterly to beg for your money, wouldn't we be up in arms? Imagine a play where the actors took a break at a crucial moment unless the audience had a whip-round. Or a film that was padded out with footage of a man creosoting a fence, just so you'd buy more popcorn.

My platonic ideal of game design is this. Someone comes up with a concept that is original and fun, and maybe even advances the medium a bit. Then the designers put all their effort into turning this concept into a game that's as enjoyable and thrilling, and funny and moving as possible. If they do this well, they are rewarded financially by strong reviews (leading to high sales) and by satisfied players buying future releases.

Imagine a play where the actors took a break unless the audience had a whip–round

Under freemium, the goal is instead to create a game that's compelling initially but frustratingly slow and obstacle-strewn later on, so the player is encouraged to spend real-world cash to skip ahead, or to seek the cheap gratification of collectibles or overpowered upgrades. Balance, a finely graded difficulty curve, a pleasurable and satisfying user experience – none of this is considered at all.

It all hearkens back to another supposedly golden era: the early days of the arcade. Games in those days would be built entirely around the need to attract passing youngsters with user-friendly design in early levels, and then to impose absurd difficulty spikes once they were hooked, to get them pumping in 10p after 10p. Many now worship that time, but the artificial, unearned difficulty – making landing zones a single pixel wide, doubling the speed of the enemies – turned the later stages of most arcade hits into a sport for obsessives only.

If you want nice things, they need to be paid for somehow. So if you don't pay for them directly, the makers that survive will be the ones that work out how to get your money in other ways. And you might like those techniques a lot less.

We don't pay for newspapers directly, so publishers come up with more and more intrusive advertising to monetise the content online. Half of us don't pay for films directly, so the other half have to sit through those awful anti-piracy adverts; software copying leads to crippling DRM. And if you don't pay for Real Racing or Plants vs Zombies, then you wind up with a gaming experience that's hollow, and cynical, and embarrassingly grasping.

So sure, there are free lunches everywhere these days, but the cutlery costs extra and all the tables face a giant advertising billboard. And I'm not hungry.

New & noteworthy

Ashleigh Allsopp presents the best new kit for your iPhone & iPad

Libratone Loop

£399
libratone.com

We rather like Libratone's latest release – the Loop. It's a wireless AirPlay speaker that can be wall-mounted or popped on a shelf, table or windowsill as a stylish and great-sounding addition to a room. Despite the lack of Bluetooth, you won't need to have a Wi-Fi connection in order to be able to play your music through the Loop. Libratone's speaker uses PlayDirect technology to create a Wi-Fi connection with any compatible device. Plus, you'll be able to stream music from services such as Spotify. The Loop is available in Pepper Black, Salty Grey or Raspberry Red, and can be customised with extra covers (sold separately) that come in a variety of colours including Passion Pink and Icy Blue.

Marshall Stanmore

£400
marshallheadphones.com

This gorgeous, vintage rock 'n' roll-inspired speaker is part of the Marshall collection. You can play your music wirelessly using Bluetooth, or hook it up to your music using the RCA input or the 3.5mm auxiliary input. It's also compatible with the Apple TV. Style does come at a price, though, as the Stanmore has a hefty £400 price tag.

Griffin PowerDock 5

£75

griffintechnology.com

If you, your family or housemates have multiple iOS devices, Griffin's new PowerDock 5 could come in handy for charging and storing them. It can power up to five iOS devices at once, all stored within charging bays big enough to house any iOS device in its case. We can see many gadget-laden households finding the PowerDock 5 convenient for keeping all their devices fully-charged and in one place.

SmallPod Air

£600

podspeakers.dk

Podspeaker has released the SmallPod Air, which supports Apple's AirPlay streaming feature. This means you can stream audio wirelessly via Wi-Fi from your iPhone, iPad or Mac. There are three colour options: black, white or red. The design is a bit of an acquired taste, but would look great in a modern office or living room. That's if you're willing to pay the £600 they'll set you back.

Parrot ZIK

£300

parrot.com/uk

Perhaps in celebration of the new gold iPhone 5s, Parrot has added new colour options to its Parrot ZIK by Philippe Starck (the man behind Steve Jobs' yacht) wireless headphones. Now, in addition to the black and silver model of the headphones, there are also new Yellow Gold, Black Gold and Rose Gold versions available. The headphones have some pretty nifty features, too, including touch panel controls, NFC and even technology that automatically pauses the music when you take the headphones off your ears. Parrot has combined technology and style seamlessly here, making the new colours a fitting companion for your 5s.

Mophie Juice Pack Helium

£70
mophie.com

Mophie's popular Juice Pack Helium battery pack case for iPhone 5 and 5s is now available in five stylish new colours: blue, purple, pink, green and red. The battery-booster can provide up to 80 per cent more battery life to your handset. It will also protect the front and back of your device from bumps, knocks and scratches.

Philips Hue

£180
meethue.com/en-GB

Smart homes are the next big thing, which means we could soon be able to control pretty much everything around us using our mobile devices. If this sounds like a future you can't wait for, you can make a start with your lighting. Philips' Hue range can be wirelessly controlled using your iOS device and a dedicated app (free, tinyurl.com/ncz96o8). You can change the colour and mood of your Hue lighting, and add a timer to have the lights wake you up in the morning, for example. You can even use it to create a disco in your living room if you choose. Plus, you can turn your lights on or off using the app, too.

CATWALK   The best-looking cases for your iPhone

Griffin Harris Tweed case
PRICE: £30
URL: store.griffintechnology.co.uk

Proporta iPhone 5c Splatter Paint case
PRICE: £15
URL: proporta.co.uk

Case scenario Pantone collection
PRICE: £20
URL: www.case-scenario.com/en/

iOS Gems

Software for Your iPhone, iPod touch and iPad

StoryPress

★★★★☆ free, tinyurl.com/lc3una5

If you've ever wanted to craft your own biography – or to collect your parents' or grandparents' stories – GhostGear Labs' free StoryPress is the place to start. It helps you record oral histories, which sound polished and professional.

After logging in to StoryPress with an email address or your Facebook account, enter your name and year of birth, and then create a cover for your first book. This includes the title, an icon from a list provided by StoryPress, and a photograph from your iPad library. Next, select a method to record your tale. Choose Dictation if you know the story you want to tell – tap a button in the app and start recording while you talk. Most of us, though, will opt for Interview Me, which gives you a choice of more than a dozen categories, each featuring an interview template of 10 or more questions.

Once you're done, upload the finished book to StoryPress.com, choosing to do so either in private or public mode. StoryPress is easy to use and provides crystal clear recording, but it would be better if users could add more photos of the event being described and record video interviews. – JOEL MATHIS

APP GEMS

Get social

iOS 7 and OS X Mavericks will offer integration with these popular social networking services, among others.

Facebook
(tinyurl.com/cuj6v4t)

Flickr
(tinyurl.com/khg6kho)

LinkedIn
(tinyurl.com/l9ypngp)

Twitter
(tinyurl.com/naulah9)

Field Trip

★★★☆☆ free, tinyurl.com/pp9jakc

The primary goal of Google's Field Trip is to guide you to cool places to eat and fun things to do in unfamiliar cities. Click a topic in a Field Trip category, such as Architecture or Historic Places, and then choose which online services Google should use to generate recommendations.

The best way to use the app is with headphones. Whenever you pass an item of interest, Field Trip pushes a notification to you and tells you what makes that spot special. It's like having a digital tour guide. – JOEL MATHIS

EMAIL
Evomail

★★★☆☆ free, tinyurl.com/nm2c85g

A new email application for Gmail users, Evomail has a couple of features that Gmail lacks, including gesture capabilities. Swipe an email from right to left, and you can release a reply to the original sender; pull a little further to reply to everyone in a list of recipients. You can share email messages via Facebook, Twitter, or SMS; Evomail colour-codes any custom-created submail boxes in Gmail.

Though Evomail is competent, it doesn't stand out from the crowd of competing email apps. It is, however, free, so is worth checking out. – JOEL MATHIS
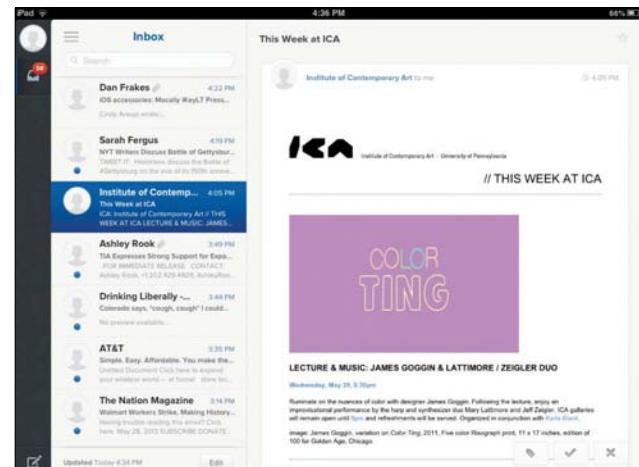
GAME
The Other Brothers

★★★★☆ £1.49, tinyurl.com/of2z5m2

The Other Brothers is a love letter to the Super Mario Brothers series and to other iconic platformers. It's also a great, challenging platformer in its own right.

Mechanics Joe and Jim witness the kidnapping of a woman, and decide to give chase. Your enemies are gun-wielding Mafia hit men, police officers, rabid dogs and environmental hazards. You'll swim, explore sewers, throw wrenches and use the various light sources to see your foes.

Our chief complaint is that the cramped level design and short missions result in frenetic pacing. You never have time to take a breath and plan your next move, as a boulder may come hurtling out of the darkness at any moment. – CHRIS HOLT

UTILITY
iBank

★★★★☆ £10.49, tinyurl.com/prdblrs

Most iOS-based financial apps either aggregate web-based data or work as display tools for information you track via a desktop app. Though iBank used to be the latter type of app, requiring iBank for the Mac (£39.99, tinyurl.com/necpj7k) to be truly useful, it can now handle all of your budgeting, banking and investment needs on its own.

Whether you download transactions directly or enter them yourself, editing and categorising transactions with iBank is a snap. Double-tapping any transaction reveals a small menu that offers options for editing, categorising or deleting the transaction. – JEFFERY BATTERSBY

40

iOS 7 tips

Get more from Apple's latest mobile operating system

By Karen Haslam and Ashleigh Allsopp

Apple's iOS 7 brings hundreds of new features to your iPad, iPhone and iPod touch device. However, all these new features, plus the new user interface design, means there's lots to learn. Over the following pages, we share 40 tips to help you master the new mobile operating system.

1 Close apps in multitasking

Multitasking is a fantastic addition to iOS 7. It lets you run apps in the background, so you can flick between programs without reloading them. But they continue to use battery power and data, so we recommend closing an app when you're finished with it.

In iOS 6, you double-press the home button to reveal a dock of all the open apps at the bottom of the screen. To quit a program, press and hold its icon until a small cross appears. Tap this to close the app. This has changed in iOS 7. Double-tapping the home button brings up a view that shows the screen of each open app, along with its icon. To close it, double-tap the home button and drag the screen preview upwards. You can close two or three programs at a time this way.

2 AirDrop

New to iOS 7 is AirDrop, a feature that makes it easy to send photos, music and the like to friends with an iOS device. To turn it on, open the Control Panel (accessed by swiping up from the bottom of your phone). You and your friend need to tap the word AirDrop and choose whether to be discoverable by just your Contacts or Everyone.
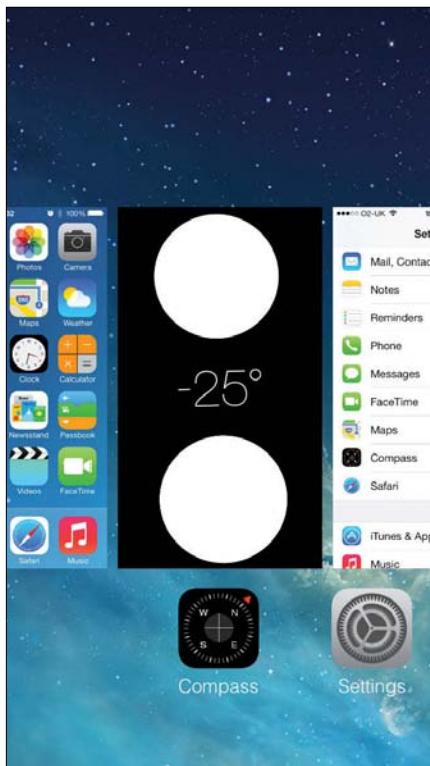
If the iCloud details of your friend aren't in your contacts list, you'll have to add these. Now that AirDrop is running, you need to go to the item you want to share, tap the Share icon (a box with an arrow pointing upwards) and select AirDrop. The friend you want to share with, and any other people nearby who have this option set up, will show up.

Choose the item and tap the icon for your friend. They should receive an alert telling them you would like to share a photo. They can tap either Accept or Decline. When you've finished using AirDrop, we advise you turn it off from Control Panel as it uses Bluetooth and leaving it on drains the battery. You'll also need to turn off Bluetooth, which can be done via Control Panel.

3 Access the spirit level

The next time you are building Ikea furniture, you'll be glad you have upgraded to iOS 7. There's now a spirit level hidden away on a second screen in Apple's Compass app.

Open Compass and after calibrating it (a case of turning the phone around in your hand), swipe from left to right. There are two spirit levels to choose from, place your phone flat on your MDF shelving and when the inclination is spot on the screen will turn green. Place the device upright and you can measure the incline or make sure that wall you just plastered is completely perpendicular.

4 Access control panel

You can quickly access the control panel, or the Control Centre as it's now known, by sliding up from the bottom of your iOS device's display. From here, whether your iPhone is locked or unlocked, you can turn on/off Airplane more, Wi-Fi, Bluetooth or Do Not Disturb.

Additionally, the Control Centre gives you access to brightness controls, music controls, the new torch feature, the timer, calculator and camera. You can also turn on or off screen rotation.

Multitasking Quit any programs you're not using as they'll continue to draw power.

AirDrop Before you AirDrop a photo, for example, to a friend they'll receive an alert.
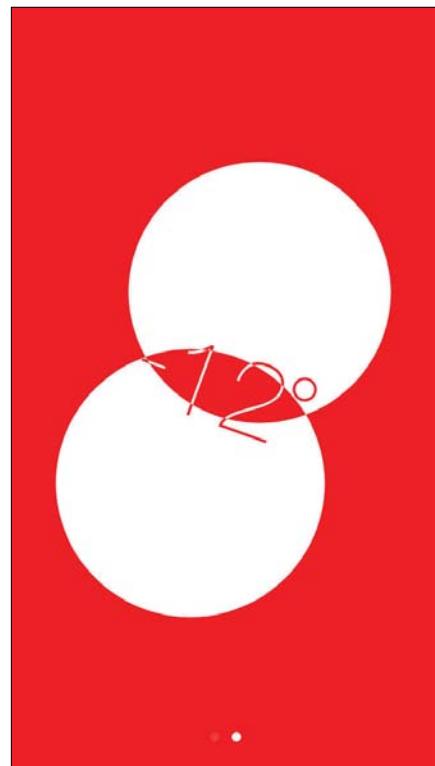
Spirit level Hidden away in the Compass app, this will be a great help to DIY fans.

5 Check cellular data use

In iOS 7, managing data hogging apps is easy. Go to Settings > Cellular and scroll down to see the Cellular Date Usage and a breakdown of which apps have been using cellular data. If any of those numbers raise alarm bells, you can toggle the switch and stop them using cellular data. You can also assess the System Services and their data use on the next page (tap System Services).

6 Time stamps in iMessage

Another thing people are missing from iOS 7 is the ability to see what time a text message or iMessage was received. iOS 6 displays time stamps (although not for every message), but they have disappeared from iOS 7. You can, however, still find out when a message was sent. Drag your finger from right to left and you'll see the time that each message was sent.

7 Delete an iMessage

In iOS 6, you need to tap the Edit button at the top of an iMessage chain to get the option to select a message and delete or clear all the messages. This has been replaced in iOS 7 by Contact, which allows you to call or FaceTime your friend, or press the 'i' to add to their Info.

So how do you delete texts? Press and hold the offending message and select More. You can now either delete that message or choose Delete All. This won't, however, remove the message from the recipient's phone.

8 Delete emails

As with iOS 7, you can remove multiple emails by tapping Edit at the top of the screen and then pressing Mark All. To delete one email, tap Edit, check the message and then tap Trash.

9 Adjust text sizes

When iOS 7 was first previewed back in June, opinion was divided over the fonts, with some complaining that the thinner lettering was too difficult to read. Apple not only responded by making the font a little thicker, but it's also made it possible for iOS 7 users to
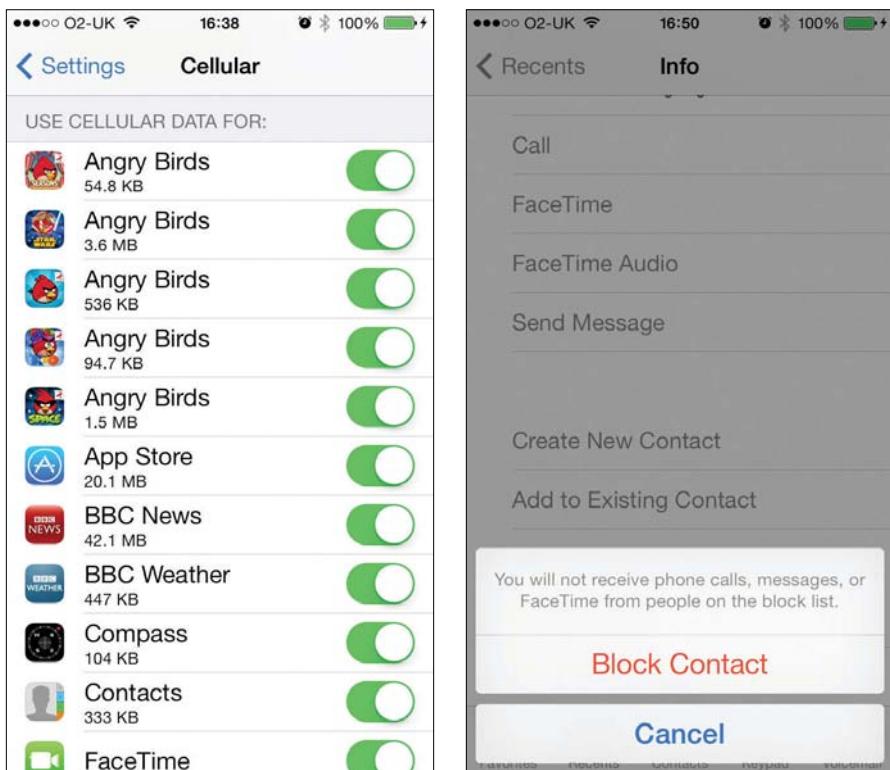
Data use If you're worried an app is using too much cellular data, you can turn this off.

make changes to the fonts themselves. To do this, access the text size properties under Settings > General > Text Size. Here you can adjust the reading size of fonts by dragging the slider. This won't make every word on your screen bigger, just the fonts within apps, but it does mean that you can change it so that the text in Messages and Mail are bigger. Not all apps support this right now, but many may in future.

10 Block nuisance callers

Back in the days of iOS 6, we wrote an article on how to block nuisance callers. It was based on a workaround because it wasn't possible to bar a caller. Now in iOS 7, you can do so.

Inside the Phone app, select Recents and if you see your problem caller's name or number, tap the 'i' beside the last time they called and on the Info screen, scroll to the bottom and select Block this Caller. You can review who's in your Blocked list by going to Settings > Phone > Blocked. You can also add people here – tap Add New and select the caller from your Contacts list. If you have a change of

Block calls It's now possible to bar nuisance callers, so they'll never trouble you again.

heart, you can unblock them by tapping Edit, then the red circle in the blocked list and finally selecting Unblock.

11 Place FaceTime audio calls

We love the idea of saving our mobile phone contract minutes by using FaceTime, but sometimes you don't want to feel like you need to give that person all your attention by appearing on camera while you are speaking to them. Now in iOS 7, it's possible to place an audio call in FaceTime – this has the added benefit of providing better audio quality than a mobile call does.

To place an audio FaceTime call, tap on a contact listing and then the telephone icon to the right of the FaceTime option. While this will save you money if you are on Wi-Fi, note that if you make a call this way over 3G or 4G it will come out of your data allowance. You'll also notice that everyone in your Contacts list will have a FaceTime and handset icon, even if they don't have an iPhone, iPad or iCloud account. If you tap the handset icon, you'll get a notification saying: "This person is not available for FaceTime Audio".

Continuous shooting The Burst Mode in iOS 7 allows you to take a quick succession of shots – perfect for a subject that keeps moving.
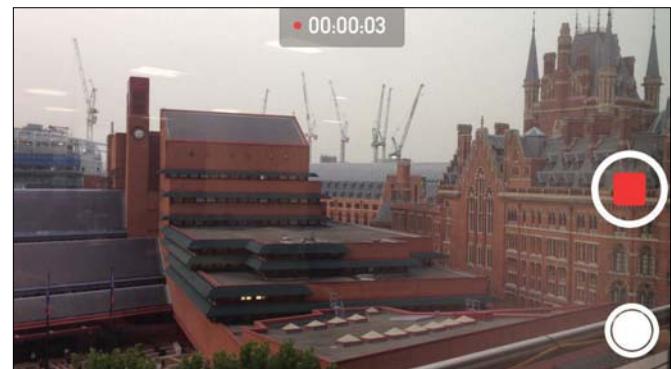
Video stills iOS 7 has the ability to take a still photo while shooting a video. To do so, tap the white button in the bottom-right corner.

12 Use Burst Mode

Most compact and digital SLR cameras offer a continuous shooting mode, so you can take a series of shots in quick succession. This is perfect at a sporting event or when you are want to get the perfect snap of a baby that keeps moving. In iOS 7, you can shoot in Burst Mode. The phone will take photos in quick succession and you can pick the one you like the best. Open the Camera, and just tap and hold the shutter button.

There's also a more advanced burst mode that's only available on the iPhone 5s. Here the iPhone will take up to 10 pictures a second and save the non-blurry pictures to your camera roll. We're not so sure why anyone would want to do this, though.

13 Take a still while videoing

Another new feature in the Camera app is the ability to take still photos while shooting a video. As soon as you start filming a white button will appear onscreen. Tap this to take still images. These are taken using the full screen, so have the same 16:9 widescreen aspect ratio as the video you are taking, unlike the standard 4:3 aspect ratio of the photos you take in the standard photo shooting mode.

14 Repeat an album in iOS 7

The Music app has been given a complete makeover in iOS 7, but a quick search on Google reveals many people asking what happened to the Repeat Album option. It's still there, though, it's a bit of a faff to get to.

Open the Music app and tap the More tab in the bottom-right corner. Next, tap the Albums option at the top. Scroll through this until you reach the one you want to listen to. Open it and you'll be taken to a track list. Click a song and you'll be taken to the screen below. Tap Repeat in the bottom-left corner, then Repeat Album.

15 View List view in Calendar

We love how the Calendar looks in iOS 7, but some readers have told us they miss iOS 6's List view, which shows all your appointments. This option is still there, though, it's hidden away.

Open Calendar, tap the magnifying glass icon and your list will appear. You can now scroll down and get the details of any upcoming meetings.

You may also be wondering about the Week view. This is accessed by turning the iPhone on its side and viewing the Calendar in Portrait mode – the same way as it worked in iOS 6.

16 Turn off parallax effect

iOS 7's parallax effect turns the screen of your iPhone into something more: a pane of glass behind which users can see a three-dimensional world that shifts and tilts alongside the device itself. Apple's design guru, Jonathan Ive says that he built these three dimensional transitions into iOS 7 to give it depth, but it appears that the movement is causing problems for some people.

There's a whole thread on Apple's support forums about this very matter, some people have even been physically sick due to the transitions. It seems some people are affected by the transitions, which can induce dizziness, vomiting and vertigo-like effects.

For most iOS 7 users, the parallax effect is a fun feature that makes your choice of wallpaper in the background of your device's home screens move about in the background as you move your handset. You can change the wallpaper on by going to settings, Wallpapers & Brightness, and tapping choose wallpaper. You can also choose from your camera roll or the default set of wallpapers provided by Apple.

Another feature of this parallex effect is the way that you return to the home screen after unlocking your phone – the app icons appear to fly into place.

If you don't like the parallax effect, you can turn it off by going to Settings > General > Accessibility and tapping Reduce Motion. You can now slide the toggle so it appears green, which means that parallax is turned off.

This won't just turn off the moving wall paper, but will stop all the animations on your iPhone that people have been complaining are making them feel sick by inducing motion sickness.

Another reason to turn off the parallax effect is that it can use up power – so by turning it off, you should be able to extend the battery life of your iPhone.

17 Extra weather information

In iOS 7, the Weather app has been transformed. You'll now see subtly animated backgrounds that reflect the current weather, as well as the forecast

for the rest of the day and week. When you first open the app, you'll see the location, weather type, temperature, an overview of the weather for the next five hours, and weather forecasts for the next five days.

By tapping on the temperature, you can access further information including humidity, chance of rain, wind and what temperature it feels like, depending on those factors.

18 Calendar appointments

When you first open the Calendars app in iOS 7, you should see your appointments for the day. Scroll up and down to view these. If you want to check the rest of your week's engagements, tap the date in the bar at the top to swap between days. Slide this to see further back or ahead.

To see the whole month, tap the month in the top-left corner. A grey dot will appear beneath dates that you have an appointment on.

If you turn your device to landscape orientation, you'll see a new view of your appointments. This shows you three or four days worth of appointments, depending on the size of your display. Scroll up and down to see those that are earlier or later in the day.

If you've forgotten the time and date of a particular meeting and need to find it quickly, tap the magnifying glass at the top-right of the screen. Here, you can search for an appointment or scroll through a list of upcoming meetings.

19 Share photos

Photos in iOS 7 are now sorted into what Apple calls Moments. This makes sharing groups of pictures easier. To do so, go to a Moment and tap the blue Share button on the right. You'll then have the option to either share this Moment or some of its photos.

Sharing a Moment will let you send all the images in that folder to a friend. If there are just a few photos, you can share via a message, email, iCloud, Facebook or Flickr. You can also copy or print from here. If you've got lots of pictures or video to share, you'll only get the option

Weather forecast Tap the temperature in the Weather app to get data such as Humidity.

Make a date Scroll up and down a particular date to see the time of upcoming meetings.

to send via a message or iCloud, and you won't be able to print (as printing video could prove to be a little tricky). To select individual photos, tap the Share button and select the items you want to share.

Owners of the iPhone 5 and later can also use AirDrop to share their photos.

20 Go to Christmas photos

The new Photos app sorts images a little differently in iOS 7. Now, if you want to find photos that were taken last December, for example, go to Photos and tap Years. Next, tap the pictures at the bottom of the '2012' group. You'll be taken to the images that were taken towards the end of the year, which will probably be your Christmas photos.

21 Set up Photo Stream

Photo Stream allows you to automatically upload new images to iCloud as you take them. This means your photos will be automatically synced to all your iCloud devices when they're connected to Wi-Fi.

To turn on Photo Stream, go to Settings > Photos & Camera and slide

the My Photo Stream button to green. Now, whenever you take a picture, you'll see it in the Albums tab in the My Photo Stream album.

If you want to share your pictures with others, tap Shared in the Photos app, and then the '+' button. Name your stream and then add the contacts you'd like to share it with. Now, when you take a new picture, you can share it with friends via the Shared Photo Stream, by tapping the '+' button and choosing the image.

22 Edit a photo

If you've taken a photo that you're pleased with but haven't applied any edits yet, you can do this through Apple's new Photos app.

Go to the image you want to edit and tap the Edit button in the top-right corner. You'll be taken to the edit screen where you can rotate an image, auto enhance it, add one of Apple's eight new filters, get rid of red-eye, or crop it using the tools in the bar along the bottom.

What's good about the app's photo editing tools is that, even if you've saved
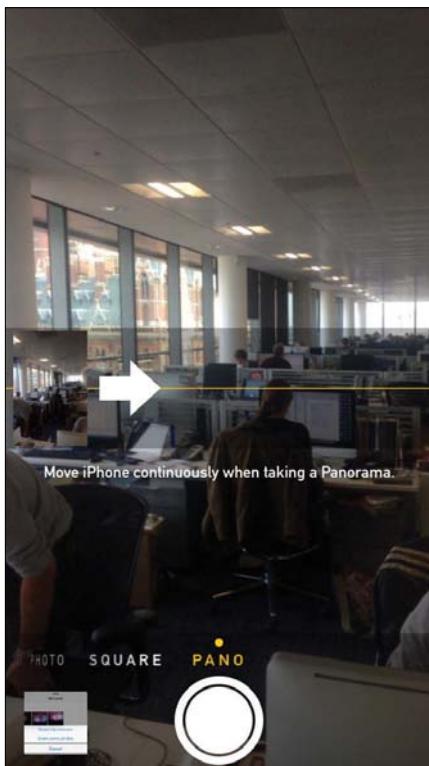
Panoramic photos Follow the direction of the white arrow until you fill up the bar.

Searching iOS To look for an item, swipe downwards from the middle of the screen.

your edit, you can go back into edit mode on that photograph and revert it back to the original image.

23 Take a panorama
To take a Panorama shot, go to the Camera app and swipe left in the centre of the display until you get to Pano. Tap the shutter button and move your iOS device in the direction of the arrow until you either fill up the bar or press the shutter button again. Using this feature, you'll capture a long, narrow Panorama image.

24 Take a square shot
Taking a square photograph in iOS 7 is easy. Open the Camera app and swipe left once to get to the Square mode. Tap the shutter button and you've taken a square shot.

25 Share a location in Maps using AirDrop
If you're about to head out to the pub, for example, and want to share its location with someone, you can do so with AirDrop. If both you and your friend have

this turned on, go to the Maps app, tap the Share button and then the contact you want to share with. If you can't see any friends in the AirDrop option, ask them to turn it on.

26 Delete a note
If there's a note in the Notes app you'd like to erase, swipe left over it and then tap the red delete button. If you have a note open and want to remove it, tap the trash can icon at the bottom of the screen.

27 Turn off badges in Notification Centre
If you don't like the red badges that appear on app's icon whenever you get an update or message, you'll be pleased to hear that turning them off is easy. Go to Settings > Notification Centre. You'll need to go into individual apps to turn

off badges. So, for example, if you want to turn off Messages badges, tap Messages, and then use the Badge App Icon slider to turn them off.

28 Search
To search your iPad or iPhone, slide downwards from anywhere on your device other than the very top (which will show Notifications Centre) or the bottom (Control Centre) of the device. You'll now be able to type your search.

29 Turn off location services to save battery
Leaving location services turned on can drain your battery significantly faster than if you turn it off. If you're not using Maps or an app that requires your location, it's worth turning this off. Go to Settings > Privacy and tap Location Services. From here, you can toggle the feature on or off. You can turn off Location Services for individual apps, too.

30 Swipe to next Safari page
You can swipe between pages in Safari in iOS 7. If you want to return to the page you were on previously, swipe left. To go forwards, swipe right.

31 Turn off background app refresh option
As mentioned in Step 1, iOS 7's new multitasking feature lets you have your iOS device refresh your apps in the background ready for when you want to use them. However, this can cause an increase in data usage and a battery life decrease, so you might want to turn it off.

To turn off background app refresh, go to Settings > General and then slide Background App Refresh to off.

32 Automatically update apps in iOS 7
New to iOS 7 is the option to have it update your apps automatically. It

If you don't like the red badges that appear on app's icon whenever you get an update or message, you'll be pleased to hear that turning them off is easy

can also automatically download new purchases on to your other iOS devices.

To turn this feature on, go to Settings > iTunes & App Store and then scroll down to Automatic Downloads. Here, you can choose to allow automatic downloads of new music, apps and books. You can also set app updates to download automatically.

Additionally, if you're happy to use your internet data allowance for this feature, which we wouldn't recommend unless your allowance is unlimited, you can turn on the Use Cellular Data option.

33 Add apps and music to your Wish List

When you're browsing the App Store or iTunes Store on your device, you might come across an item that you want to download later. In iOS 7, you can add these to your Wish List.

Go to the item you want to add and tap the share icon in the bar along the top. From here, you can tap Add to Wish List. When you want to look at what's in your Wish List later, tap the far-right icon in the top bar and then Wish List.

34 Toggle settings in Siri

Siri can now toggle system-wide settings for you, and open the Settings menu for a particular app or command. So, for example, you can tell it to: "Turn on Bluetooth".

35 Use Siri to find out what's Trending on Twitter

Siri has much closer integration with Twitter. So if, for example, you ask "What's trending on Twitter", it'll tell you. You can also ask what someone is saying on Twitter to see their recent tweets.

36 Use Siri to change the search engine

Siri's default search engine is now Bing. If you don't want to use Microsoft's offering, you can tell Siri to "Search Google for Macworld," for example.

37 Change search engine in Safari

You can also change the search engine in Safari if you want to. Go to Settings > Safari > Search Engine and choose between Google, Yahoo and Bing.

38 Remove a contact from Recents in email

When you create a new email in iOS 7, typing in the first letter of the recipient will bring up a list of people you've recently emailed. You can remove a contact from the Recents list by tapping the 'i' next to their name and then choosing Remove From Recents.

39 Open a tab in Safari

With the Safari improvements comes a new tabs system. You can open up to 24 tabs, or pages, in the Safari app. To access them, you'll need to tap the square icon in the bottom-right corner of the screen. You'll then see a scrollable 3D view of your tabs. To open a new one, tap the '+' button in the centre of the bottom of the screen. You can also open a link in a new tab by tapping and holding on that link and selecting the Open in New Page option.

40 Close a tab in Safari

After tapping the square icon to bring up the view of your tabs, you can close tabs by tapping the cross button.

Wish list If there's an album you want to download later, add it to your Wish List.

Search with Siri You can ask iOS 7's voice assistant to use a specific search engine.

Close tabs Tapping the small cross in the top-left corner will close an open page.

iPhone photo shootout

BY KAREN HASLAM

We discover the difference in camera quality between the iPhone 5, 5c and 5s

While the iPhone 5c uses the same iSight camera as the older iPhone 5, the iPhone 5s benefits from an improved image signal processor in the A7 chipset, and boasts a clever two-part LED flash, known as a 'True Tone' flash, a larger f/2.2 aperture, and better low-light sensitivity thanks to larger sensor pixels.

Using all three handsets we ran a series of tests in various conditions to find out how these improvements can impact photo quality. For example, we took low-light shots to find out what effect has the jump from f/2.4- to f/2.2 aperture, and zoomed in on some of our photos to witness the level of detail that can be achieved by the iPhone 5s' larger pixels.

Note that photo quality may be affected by paper stock and print quality. See the originals at tinyurl.com/q9c2xb8.

Low light with flash

The iPhone 5s' True Tone flash mixes two LED light sources of different temperatures to shed more natural light on your subject. This should avoid the washed-out glare of most smartphone flash units. We took some photos in the dimly lit St Pancras Renaissance Hotel. *PC Advisor* editor Jim Martin has a nasty case of red-eye with both the iPhone 5 and 5c, but more so the former. There's little difference in skin tones, but the iPhone 5s image is clearer, and the flash has lit his face rather than the surroundings.

Low light without flash: people

With its wider aperture and larger pixels, the iPhone 5s should perform better than the iPhone 5 and 5c in low-light photography without a flash. Given that the iPhone 5 and 5c supposedly use the same camera, however, what really surprised us was the improved quality of the 5c over the iPhone 5.

The 5s captured clear, crisp shots with plenty of detail, accurate colour reproduction and little noise. The 'Sprinkler valve' wording on the sign on the door reveals a world of difference between the iPhone 5s and the iPhone 5c. We felt that the reds were a little too red in the iPhone 5c example.

Low light without flash: objects

In our below example of the tap the iPhone 5s is the clear winner. The iPhone 5c and iPhone 5 were equally affected by noise.

Colour reproduction

Colour reproduction is an important factor in assessing a camera's quality. Even in this age of Instagram, no-one really wants their images too heavily saturated. The difference in colour reproduction is evident in our test shots from the iPhone 5, 5c and 5s, with the latter able to produce far more accurate colour than the cheaper iPhone 5c and older iPhone 5. This is particularly noticeable in the reds, as seen in our example below.

At a glance there doesn't appear to be a lot of difference between the three photographs below. Despite the low-light conditions, however, the iPhone 5s offered a brighter image.

HDR photos

Apple's Camera app has offered an HDR mode since iOS 4.1. A high-dynamic-range image combines a series of under-, over- and properly exposed photographs. The best parts of each is selected to produce a composite image that is high in detail both in the shadows and the highlights.

One area of photography in which we find HDR mode useful is when capturing shots of windows, as seen in our examples below. The iPhone 5 and 5c offer similar-quality HDR photography, although we found the 5c offered clearer detail when we zoomed in on our test shots.

iPhone 5   iPhone 5c   iPhone 5s

Light and dark

We also took some snaps without HDR to see how the cameras dealt with areas of light and dark within a photo.

Examined close-up some subtle differences could be detected. For example, with the iPhone 5s image colours were brighter and crisper around the windows of the St Pancras Renaissance Hotel, while the iPhone 5c was veered toward the red, and the iPhone 5's efforts were blurry and washed-out. The text on the Euston Road sign was also clearer in the iPhone 5s image.

The iPhone 5s performed the best in the dark windows of the British Library; the iPhone 5's photo was especially pixelated.

There was a marked difference between blue sky and white clouds with the 5s, but less of a distinction with the 5 and 5c.

iPhone 5   iPhone 5c   iPhone 5s

Larger pixels

Whereas much of Apple's smartphone competition has been cramming in the megapixels, Apple believes that it's the quality of the camera sensor that is important. In other words, it's not about the number of megapixels; it's how big they are.

In the iPhone 5s the pixel width has increased from 1.4- to 1.5 µm. That's just 100-nanometre per pixel, but larger pixels yield greater electrical output, leading to clearer images in low-light conditions without resorting to messy noise-reduction techniques.

As you can see from our examples, in most cases we found the best clarity in photographs taken by the iPhone 5s. However, we also found the iPhone 5c performed better than the iPhone 5, with images from the latter appearing relatively blurred and washed out.

A good way to judge the effect of the iPhone 5s' larger pixels is to utilise the zoom. When we zoomed in on the windows of the St Pancras Renaissance Hotel we found the iPhone 5's photo shows far more noise than that of the iPhone 5s.

iPhone 5   iPhone 5c   iPhone 5s

Macro photographs

These close-up shots were taken without zoom, enabling us to assess how well the iPhone could focus. We found all three phones struggled to find and maintain a focus point. Interestingly, the iPhone 5c managed to focus more closely on the flower's anthers than did the iPhone 5 and 5s. We expected the iPhone 5s to win this test.

As we have noted in our assessment of several of our other test shots, however, the iPhone 5s overdid it somewhat with the reds. The iPhone 5s gave the most faithful reproduction in terms of colour and the level of detail shown in the flower's petals. Once again, the iPhone 5's attempt appeared less crisp.

Motion photography

They say never to work with children or animals… probably because they don't stay still for long. The iPhone 5s' burst mode is a solution to this problem, able to reduce motion blur by taking four shots and blending together the best bits of each. The iPhone 5 and 5c also feature a burst mode, although they won't automatically stitch together the resulting series of photographs.

Burst mode on the iPhone 5s can also take a series of photos and display the best of the bunch. You can change its selection, but we felt it did a pretty good job.

For each phone we picked the best image from a series of shots of a cat. All the photos were pretty good, although the cat's whiskers and fur were more clearly defined in the iPhone 5s photograph.

Panorama

Our final comparison is of the Panorama (or Pano) modes. We were interested in how each handset coped in stitching together scenery.

One of the iPhone 5s' new features is the ability to adjust the lighting as you pan, which was perfectly demonstrated in the panoramic shot we took of the staircase. We expected the efforts of the iPhone 5 and iPhone 5c to be reasonably similar, so we were surprised by how blown out were the windows in the iPhone 5c's image. We will endeavour to investigate this further.

Our final photo is a panorama of a landscape. All the phones did a good job of stitching together the images, but we did notice that the sky on the lefthand side was more blown out in the iPhone 5c and iPhone 5 images.
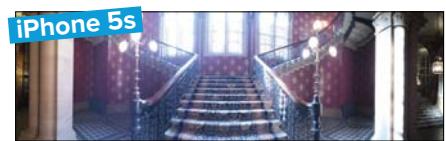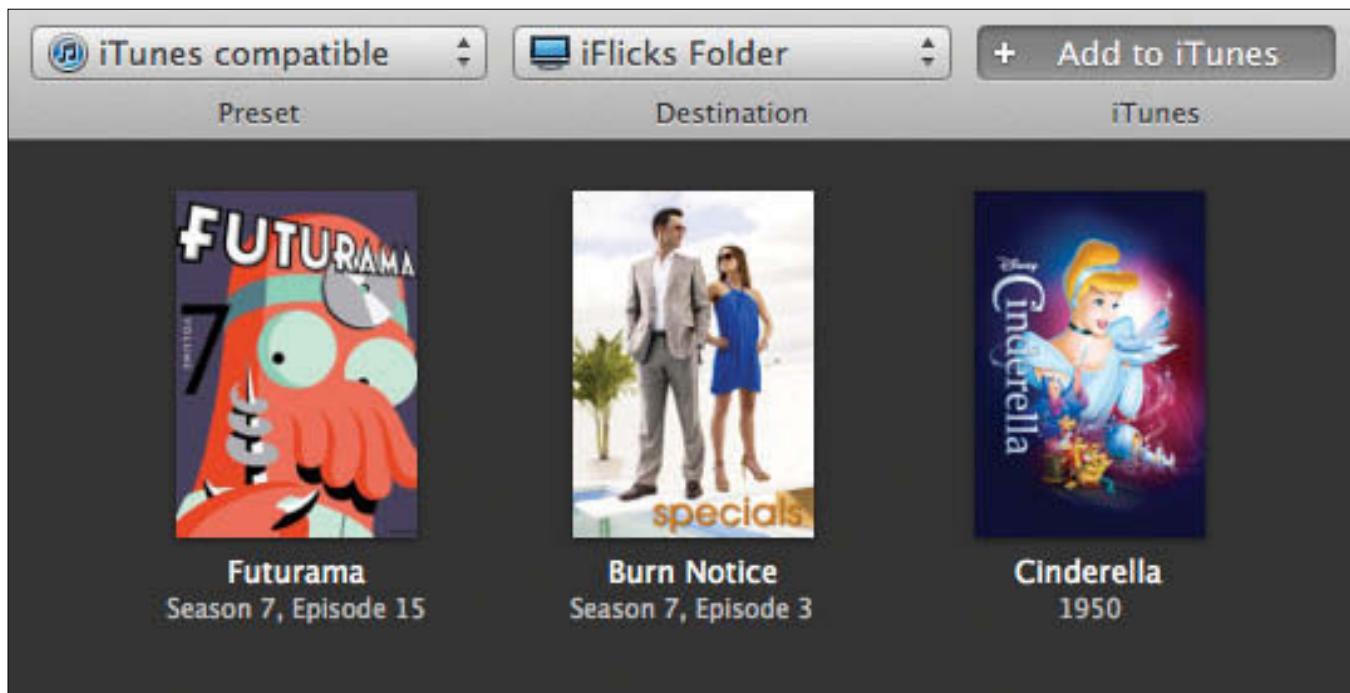
Apps for bending iTunes to your will

A quick look at five essential tools that every iTunes user should have

BY JONATHAN SEFF

If you use iTunes regularly, you've probably experienced a litany of frustrations with the software – and accumulated a list of 'I wish it did this' items. Here are five tools that will help you bend iTunes to your will.

1. Change the cursor size

When it consisted of music albums encoded as 128kbps MP3 files, your iTunes library was probably a manageable size. But add in TV programmes, movies, home videos and Apple Lossless CD rips, and even the mightiest of hard drives can start to get cramped.

So what's the solution? You could buy a big external drive and move your entire iTunes folder to this, to handle current and future content. But that can be a complicated process, and you might not want to opt for the all-or-nothing approach. For us, TuneSpan (£10.49, tinyurl.com/l2fgaj5) from Random Applications is the way to go. With it, you can relocate (span) content to

multiple hard drives to free up space on your main drive, while continuing to see, play and sync everything in iTunes as you normally would.

2. HandBrake

For legal issues, iTunes can't rip your purchased DVDs to copy to your iOS devices or play on your Apple TV. But many third-party programs can, and HandBrake (free, handbrake.fr) is at the top of our list of apps for such purposes.

You can use it to pull movies and TV shows off the DVDs you've bought over the years and convert them to a format suitable for your Apple devices, at the same time including subtitles/closed-captioning data or removing unwanted audio tracks, for example, in the process.

3. iFlicks

Once you've ripped your DVDs, you're left with files, and absolutely no tagging metadata to help iTunes sort and display them properly.

To fix that problem, you'll need a tagging utility. (These are also very useful if you record TV shows from free, over-the-air signals using an EyeTV-type device.) Our favourite tagging utility is iFlicks (£13.99, tinyurl.com/q647kk5).

This app looks up metadata from online TV show and movie databases, and can add tags such as episode names, movie release dates, descriptions, and cover art to your files.

iFlicks is also a video transcoding app that can convert files from one format to another to make smaller versions of big

You can relocate content to multiple hard drives to free up space on your main drive, while continuing to see, play and sync everything in iTunes

files, or turn non-iTunes-compatible videos into Apple-friendly ones, for example.

4. Everything on Doug's AppleScripts for iTunes

If you've tried but failed to do something in iTunes – or if it handles the task at a less-than-stellar level – there's a good chance that Doug's AppleScripts for iTunes (tinyurl.com/7a6kdq) has what you're looking for. The site offers almost 450 AppleScripts that perform actions within iTunes to make your life easier.

You can view the newest or the most-popular scripts on the site, browse by category, or search for something you're looking for. Here are some of our favourite AppleScripts from Doug's:

Remove n Characters From Front or Back lets you delete a number of characters from the beginning or the end of the Song Name, Album, Artist, Comments, Composer or Show tag. If you have lots of tracks that include the track number as part of the name, this script can clean them up in no time.

Albumize Selection renumbers the track number for songs to their current play order, and can change the album name for the tracks at the same time.

Copy Tag Info Tracks to Tracks is useful if you decide to re-rip CDs in a different format or at a higher bitrate and want to retain your metadata. With this AppleScript, you can copy selected tags from the old files to the new ones, overwriting any tags the new ones have with your personalised data.

Dupin and **Dupin Lite** do a much better job than iTunes' built-in Show Duplicate Items command of finding and zapping duplicate files, letting you easily tame overflowing libraries.

5. X Lossless Decoder

iTunes supports many different audio formats now, but some still force it to surrender. For example, Apple created its own lossless audio format – Apple Lossless – but it omitted support for the widely used, open-source FLAC (Free Lossless Audio Codec) format.

If you come across FLAC, Ogg Vorbis, Monkey's Audio (.ape), Shorten (.shn), or Wavpack (.wv) files that you want to get into iTunes, download tmkk's X Lossless Decoder, aka XLD (free, tinyurl.com/avotgn2). It can change to and from a number of audio formats, and is especially helpful with converting lossless and high-resolution audio files.

You can even use it to rip your CDs better, verifying ripped tracks against an internet database so you can be sure that the resulting files are bit-perfect copies of the music on your CDs.

All the stats iFlicks can add tags such as cover art, episodes names, and more to your shows.

Ask the iTunes Guy

Using workarounds to solve some of iTunes' problems

BY KIRK McELHEARN

This month's column deals with solutions to problems that use little-known features of iTunes or third-party software. The questions this time can be solved only with a workaround, or by using iTunes in a way it's not designed to work.

Q: **I have tracks on a CD that, when ripped with iTunes, have skips and clicks. Is there any way I can fix this?**

A: It's possible that there's a problem with the disc itself; you can test it by playing it on a CD player. If it plays correctly, it's fine and your computer is just having trouble ripping it. In that case there's an interesting workaround that may get you clean audio files.

Insert the CD in your Mac's drive, and double-click its icons in the Finder. You'll see a number of icons for audio files, one per track. Drag the files (tracks) that won't rip correctly to a folder on your desktop; this will create uncompressed AIFF files.

Next, create a new, empty playlist in iTunes, and drag the files to that playlist. Listen to them, and see whether they have the same errors; if not, you can use them. You'll need to tag the files – add information for album, artist and track numbers – before converting them using iTunes. Select the files, then right-click and choose Create *file format* Version, where *file format* is the import format you've selected in iTunes' General preferences. When the conversion is done, delete the AIFF files.

Q: **I would like to filter songs by genre, but many songs could fit in multiple genres. Is there a way to assign more than one genre to a particular song?**
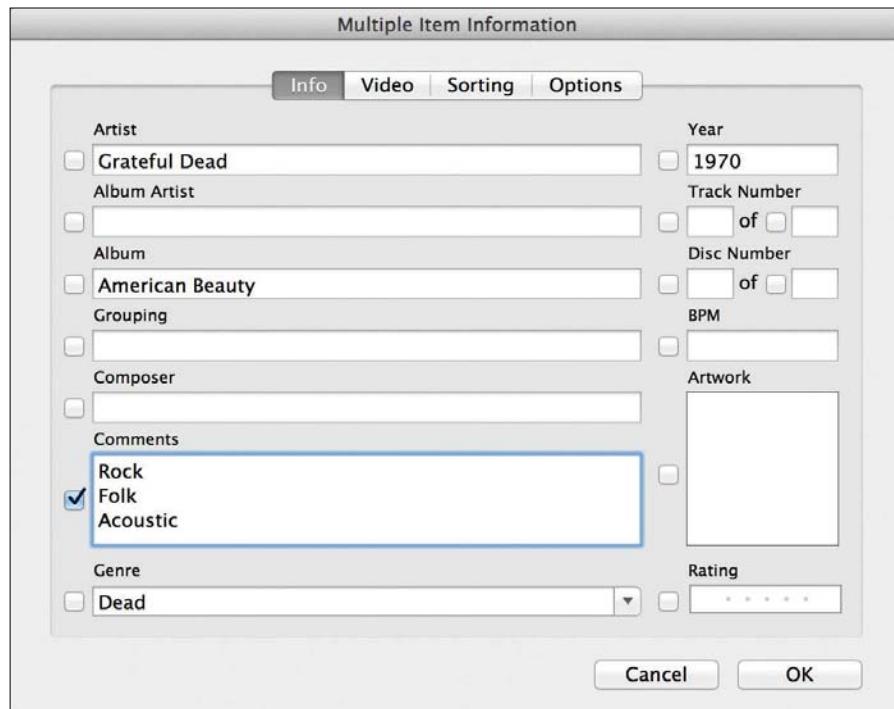
A: Unfortunately no, and we think iTunes should offer both genres and subgenres. There are a couple of workarounds we can suggest here, however.

The first is to create your own genres that contain subgenres. If you type a name in the Genre field, iTunes will create it. So, in place of Rock, you might create genres such as *Rock - Folk* and *Rock - Pop*. This still limits you to one level of subgenre, though you could create genres; for example, *Rock - Pop - 1960s*.

The second workaround uses the Comments tag. You can enter any text

Add multiple genres Enter names of secondary genres using the comments field.

you wish in this tag, such as the name of a secondary genre. You can then create smart playlists that look for keywords in this field. To do so, select one or more songs, and press ⌘-I. Click *Info*, enter your text in the Comments field, and then click *OK*. Note that if you already have text in that field, entering text in this way will overwrite the existing text, and you'll need to edit each song individually if the songs have different comments. Then you can create smart playlists that look at the text in the Comment field and combine them in whatever ways you want.

Q: **I have several cases where an artist has released multiple albums with the same name. Is there a way to stop iTunes from merging these into one?**

A: Alas, no. The only workaround in this situation is to cheat in the album tag. For example, I have three albums by Peter Gabriel, each named *Peter Gabriel*. In the appropriate album tags, I entered *Peter Gabriel 1* (aka *Car*), *Peter Gabriel 2* (aka *Scratch*), and *Peter Gabriel 3* (aka *Melt*).

Do you even own yourself anymore?

Your face could be being used in online advertising, but what can you do about it?

Congratulations on becoming the new face of Google. I'd never have guessed your face would be used to sell everything from mobiles to underwear.

Oh… you're as surprised as anybody. Didn't you hear? It turns out that Google's latest venture is to put your face in its adverts and plaster them across the web. Remember to smile. I do hope you're not expecting to get paid for this, incidentally.

Google's plan is to take your photograph from Google+ and connect it to adverts based upon your social-networking activity.

Google+ is like Facebook, only stunningly less popular (to be fair I find it more interesting; so it's 'swings and roundabouts'). Even given Google+'s astonishingly low profile, this new move has proven controversial.

There is a concerted, if slightly humorous, campaign to replace everybody's photograph with that of Google's executive chairman Eric Schmidt. So his mug gets splattered over ads for Samsung phones and dog soap. It's a funny idea, but just as taking 'Killing In The Name Of' to number-one at Christmas didn't halt 'X Factor', changing your profile image to Schmidt isn't going to bring Google to its knees.

For its part Google makes it easy to opt out: go to your Google+ endorsement settings (plus.google.com/settings/endorsements) and untick the option 'Based upon my activity, Google may show my name and profile photo in shared endorsements that appear in ads'. Then just click Save.

It's a good move on Google's part but, just like the Schmidt-mugshot campaign, its unlikely to make any difference. My parents and family are unlikely to even know (or perhaps even care) what Google Shared Endorsements are, much less

know how to turn them off. But between Gmail, YouTube and Google Maps, eventually they'll end up with a Google+ account, and they'll give something the thumbs-up one day and boom, they're advertising stuff to me the next. Google knows this, which is why it's gone for an opt-out rather than opt-in system.

Of course, not everybody thinks Shared Endorsements is a bad idea. Larry Kim, CTO of Wordstream, says "They're good for users because they provide crowdsourced information to help them

geek & poke

ISN'T IT GREAT? WE HAVE TO PAY NOTHING FOR THE BARN

YEAH! AND EVEN THE FOOD IS FREE

PIGS TALKING ABOUT THE "FREE" MODEL
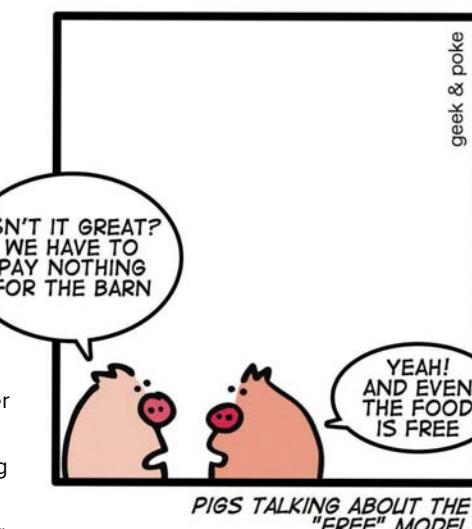
make purchasing decisions. (And they're not just the opinions of random strangers, they're people you know.) They're good for advertisers because they increase both clickthrough and conversion rates. And high CTRs put more money in Google's pockets."

Everybody's a winner, right? I can't help but feel that Google is winning a little more than most here, though. If I log into iTunes and write a review, then share that with my friends on Facebook, I'm in control. But it seems a little rich of Google to stick my face next to an endorsement for something I haven't written.

Google should also remember that not everything I 'Like' or 'follow' online are things of which I approve. Lots of people liked my post about my cat dying; they didn't 'like' how upset I was. Shared Endorsements would probably have made me the face of Whiskas.

I happen to also 'Like' some products that rival those I create; mostly because I'm nosey. Just because I like something doesn't mean I want to be seen next to it, grinning like a loon and giving a thumbs-up: "Buy this one. Not mine".

I ticked 'opt-out' pretty quickly. But opting out of the internet itself isn't an option, and Google is such a central part of the web that we have a right to be worried about it.

Senator Al Franken from Minnesota seems to be one of the few politicians who 'gets' technology and social media. The more "average Americans depend on Google and Facebook daily," says Frankin, "the less incentive companies have to respect your privacy."

"If you don't want some kind of super-profile being created for you based on everything you search, every site you surf, and every video you watch on YouTube," says Franken, "then you will have to find a search engine that's comparable to Google. Not easy."

Franken is also on record as saying: "If you want a free email service that doesn't use your words to target ads to you, you'll have to figure out how to port years of Gmail messages somewhere else, which is about as easy as developing your own free email service."

There's an adage about the internet: "If you're not paying for it, you're not the customer; you're the product being sold."

It's always worth bearing this in mind whenever anybody says Android devices are a great deal. Apple sells great devices; Google sells your information.

IMAGE CREDIT: @GEEKANDPOKE, TINYURL.COM/273QDKX

Buyers' Guide

Mac Pro   COMING THIS YEAR

Apple has given us a 'sneak peek' of its all-new Mac Pro, which has been completely redesigned both internally and externally. The new model has a cylindrical case, and the entire top acts as a handle for carrying it. That's possible because the new version is about one-eighth of the size of the previous Mac Pro tower, and stands at 9.9in tall. The new design is built around a 'unified thermal core' that aims to keep the Mac Pro cool.

Under the hood, there's an Intel Xeon E5 processor. It can have up to 12 cores, and offers double the CPU performance of the current Mac Pro. It uses a third-generation PCI Express architecture, and 1866MHz ECC DDR3 RAM. When it comes to graphics, the new Mac Pro has dual AMD FirePro workstation-class GPUs, and can run three 4K displays. It's up to two-and-a-half times faster than its predecessor, and delivers seven teraflops of computer power.

Apple is outfitting the new Mac Pro with PCIe-based flash memory, which is 10 times faster than traditional desktop hard drives. It has four USB 3.0 ports, six Thunderbolt 2 sockets, gigabit ethernet and HDMI.

Apple was forced to remove the current Mac Pro from sale in Europe after an amendment to a safety regulation left it incompliant.

Price: £TBC
Pros: PCIe flash memory; six Thunderbolt 2 ports
Cons: No internal expansion options; some software will need rewriting
Macworld preview: tinyurl.com/oz6evf4

MacBook Pro   UPDATED 11/06/12

It's now over a year since Apple updated its range of 'regular' MacBook Pros. They offer a speed boost over their late-2011 predecessors thanks to brand new processors and video components, and feature updated technology, including USB 3.0.

The traditional models hold fast to their unibody design, upgradeability and price, and are targeted at the mid-market of non-creative professionals that seeks to balance features with affordability. They're not flashy like the Retina MacBook Pros, but offer advantages in price and in terms of flexibility.

If you bought one of the MacBook Pros in 2011, there's no compelling reason to purchase one of these, and if you're considering buying one now, we recommend holding off for a month or so, as Apple is likely to update the range soon. However, the company could equally do away with the range altogether, and with it the only Mac with a CD drive.

Price: 13in £999 to £1,249, 15in £1,499
Pros: USB 3.0; Intel Core i7 Ivy Bridge processors; nVidia graphics; Thunderbolt
Cons: No 17in model available
Full review: tinyurl.com/plkm79o

iMac   UPDATED 24/09/13

Apple has unveiled a new iMac, which has been updated to include the fourth-generation Intel Haswell quad-core processors. The benefits of Haswell for desktop computers is not as profound as for laptops, as a big factor is lower power consumption, and therefore better battery life. But, Haswell could mean you'll save on your electricity bill, and should also help your machine stay quieter and cooler.

The 2013 iMac retains the slimline aluminium design of its predecessor along with the beautiful-looking display. It's available in 21.5in and 27in sizes, with prices starting at £1,149 for a 2.7GHz quad-core i5 version of the smaller model.

Among the build-to-order options is the Fusion Drive – a hybrid storage device combining flash storage with a regular hard drive. The 1TB option is available for an extra £160 on all iMac models, while the 3TB drive can only be installed on the 27in machines and costs £280.

Price: 21.5in £1,149 to £1,299, 27in £1,599 to £1,749
Pros: Thin design; updated processor; improved graphics
Cons: Less repairable; no optical drive or FireWire 800 ports
Full review: tinyurl.com/me5utn5

MacBook Air   UPDATED 10/06/13

The new MacBook Airs look identical to last year's models, but it's inside where Apple has been busiest – swapping Intel Ivy Bridge chips for the new, fourth-generation Intel Core Haswell processor.

The big news is a much longer battery life, as well as improved wireless network, better graphics and energy efficiency enhancements. Apple claims that the 11in Air's battery life has nearly doubled from five to nine hours, while the 13in model has increased from seven to 12 hours. Macworld Lab couldn't replicate Apple's tests exactly, but did find a significant improvement over last year's models of up to a massive 75 percent.

The new Air is designed for power savings, and includes more energy-efficient Intel Core i5 (and Core i7 CPUs as build-to-order options). These chips have a slower clock speed to save energy, but can still deliver 40 percent faster graphics performance.

Both Airs support video mirroring and have an onboard 720p FaceTime HD camera. Connectivity options include a Thunderbolt port and two USB 3.0 sockets.

Price: 11in £849 to £1,029, 13in £949 to £1,129
Pros: Stylish; super-slim; lightweight Mac laptop with amazing battery life
Cons: Fewer slots than MacBook Pro
Full review: tinyurl.com/p2nnpka

MacBook Pro Retina display

The MacBook Pro with Retina display isn't just a groundbreaking release, combining stunning performance and portability in a Mac laptop. The beautiful screen will also force you to change the way you interact with a laptop. Its numbers are truly mind-boggling: 2880x1800 pixels – that's 220 pixels per inch – for a total of 5.18 million pixels on a 15.4in backlit screen. The 13in version boasts 2560x1600 pixels. By comparison, the regular 13in MacBook Pro has 1280x800 pixels, while the 15in model offers 1440x900.

The processors used in this range are part of Intel's Ivy Bridge technology, which are smaller and more power efficient than the previous generation of Sandy Bridge chips. The Retina MacBook Pro is the future of Apple's laptop line – and it's a bright, shining symbol of excellence. The display is something to be marvelled at, and the lightweight, smaller design addresses the demand for our devices to be even more portable.

Price: 13in £1,249 to £1,449, 15in £1,799 to £2,299
Pros: Stunning Retina display; USB 3.0; thinner design; Ivy Bridge processors
Cons: No optical drive; expensive; flash storage
Full review: tinyurl.com/mxydp9q

iPad mini

Apple's iPad mini is a 7.9in tablet that's just 7.2mm thick, making it 23 percent thinner than the full-size iPad. It weighs half as much as Apple's third-generation tablet, and has the same 1024x768 resolution as the iPad 2, so existing iPad-optimised apps will work on this new model. The device is available in white with silver, or black with slate, much like the iPhone 5.

The iPad mini uses Apple's dual-core A5 chip, it has a FaceTime HD front-facing camera and a 5Mp iSight camera on the back. It also has LTE 4G capabilities.

Of course, it uses the new Lightning connector. Apple says that, like other iPads in its line-up, it still offers 10 hours of battery life; the company boasts that the iPad mini uses the largest and thinnest battery its ever made.

Apple offers a range of new Smart Covers with its tiny tablet too, which are available in a range of colours.

Price: Wi-Fi £269 to £429, Wi-Fi + 4G £369 to £529
Pros: Incredibly thin and light; Siri; 1080p video recording; Wi-Fi and 4G LTE
Cons: No Retina display; price higher than rivals; A5 processor isn't cutting-edge
Full review: tinyurl.com/pn9nzzc

Mac mini

Of all the hardware changes unveiled at the end of last year, the Mac mini's were probably the most modest – at least on the outside. Externally, it's more or less unchanged from its previous incarnation, save for the introduction of USB 3.0 ports. It still has Thunderbolt and HDMI sockets, as well as an SDXC card reader. It's 7.7 inches square and 1.4 inches deep, which is where it earn its 'mini' name.

Inside, however, this has faster processors. Apple claims it's up to twice as fast – a 2.5GHz dual-core i5 chip and 500GB hard drive in the £499 model, and a 2.3GHz quad-core i7 chip with a 1TB hard drive in the £679 option. Both have improved graphics, while the new Fusion Drive is an optional configuration.

An £849 mini with OS X server is also available, featuring a 2.3GHz quad-core i7 processor, improved graphics and larger hard drives.

Price: £499 to £679, mini with OS X Server £849
Pros: USB 3.0, faster graphics; quad-core processors; optional Fusion Drive
Cons: No optical drive; doesn't come with a monitor or keyboard
Full review: tinyurl.com/oc3uyl5

iPad with Retina Display

Despite unveiling the third-generation iPad just seven months previously, Apple launched its fourth-generation tablet – known as the iPad with Retina Display – in October 2012. The new device uses the company's own A6X chip, a new processor that further improves upon the speed performance of the A6. Apple claims that it's twice as fast as the A5X, with double the graphics performance. It gets the same 10 hours battery life as the third-generation iPad.

New to the fourth-generation iPad is a FaceTime HD front-facing camera and a Lightning port that replaces the 30-pin connector of old. And, according to Apple, the Wi-Fi is twice as fast as in the previous generation. The new tablet replaces the iPad 3 completely, and sits in the new iPad line-up, alongside the iPad 2 and mini. It follows the same pricing as the third iPad did, starting at £399.

Price: Wi-Fi £399 to £639, Wi-Fi + 4G £499 to £739
Pros: Fast processor and graphics enhancements; 4G works in UK; Retina display
Cons: Lightning adaptor; quite heavy; gets expensive when you add memory
Full review: tinyurl.com/pyfwhfn

Buyers' Guide

iPhone 5c

Speculation about the new iPhone 5c, had left many potential customers expecting a cheaper model; however, this isn't cheap. As our Macworld US colleagues put it, the 5c "looks a bit like the iPhone 5 had a baby with the plastic-backed iPhone 3GS." This is the first time Apple's handset has been available in anything other than black and white – it's available in pink, yellow, blue, green or white. It's constructed from a polycarbonate shell, crafted from a single piece of plastic, and feels good to hold and well built without being heavy. The polycarbonate surface is grippy, too. It's slightly longer and a little heavier than the iPhone 5. On the inside is a A6 chip, the same processor as the iPhone 5.

Price: 16GB £469, 32GB £549
Pros: Feels good to hold; won't slip out of your hand
Cons: Not cheap; colours not to everyone's taste
Full review: tinyurl.com/qjogxkf

iPod nano

In the case of the iPod nano, bigger is definitely better, but this is by no means a big nano. It's the thinnest iPod model yet, a massive 50 percent leaner than the previous generation at 5.4mm. It has a built-in pedometer for fitness fans, though, the lack of a clip could prove a problem to joggers. The 2.5in display is sufficient for the operating system that the nano runs.

Price: £129
Pros: Elegant, slimline design; Bluetooth
Cons: Expensive, low-resolution screen
Full review: tinyurl.com/nplaqqt

iPod touch

The iPod touch has the same 4in Retina display as the iPhone 5c and 5s. It also features an A5 chip, allowing it to run Siri, as well as a 5Mp iSight camera, which can record 1080p HD video. A recent update adds a Space Grey version.
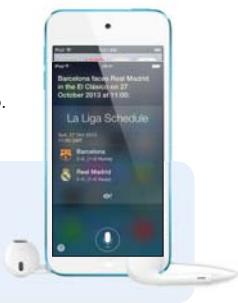
Price: 16GB £199, 32GB £249, 64GB £329
Pros: Colour choices; compact camera alternative
Cons: No remote on the headphones
Full review: tinyurl.com/lxl3f3y

iPhone 5s

As with previous iPhone 's' model launches, the 5s looks very similar to its predecessor and feels similar, too, with no noticeable added weight and not much new to look at. However, there are three new colour options: silver, gold and 'space grey'. In addition to these colours, the 5s has a metallic ring around the Home button, which is part of the new Touch ID fingerprint sensor feature. This unlocks the device, though, you'll still need a passcode as a backup to access the device. In addition to unlocking the 5s, the sensor can be used to make secure purchases from the iTunes Store or the iBookstore. On the inside there's a new A7 chip, making it the first 64-bit phone. According to Apple this means the 5s is twice as fast as the 5. The camera has also been given a significant boost. While it's still 8Mp, it features a new five-element Apple-designed lens with a larger f/2.2 aperture. A dual-LED flash should mean better low-light photos.

Price: 16GB £549, 32GB £629, 64GB £709
Pros: Improved camera; new colours; fingerprint sensor; A7
Cons: No battery improvements; more expensive than iPhone 5
Full review: tinyurl.com/o6aqgrb

iPod classic

Lacking the connectivity and wide screen of the iPod touch and the nano's array of tricks, the classic doesn't feel new or innovative. It's brilliant if you want to take a large collection of your media with you. It's got 160GB of storage space, but you may prefer a flash storage device, which has no moving parts that could be damaged.

Price: £199
Pros: Excellent battery life; improved UI
Cons: Sluggish interface; unresponsive controls
Full review: tinyurl.com/ol5wzn5

iPod shuffle

At £40 for 2GB of storage, the fourth-generation shuffle is not only the perfect entry-level iPod, it's also a solid second device for iPhone users who want to keep it simple while exercising.

Price: £40
Pros: Smart looks; much-improved controls
Cons: No way to lock controls
Full review: tinyurl.com/of7nxde

Product	Processor	Display	RAM	Storage	Ports & connections	Graphics card	Star rating	Price	Speedmark 8 score*
Mac mini	Dual-core Intel Core i5 2.5GHz	None	4GB	500GB (5400rpm)	Thunderbolt, FireWire, HDMI, SDXC, 4x USB 3.0	Intel HD Graphics 4000	★★★★☆	£499	131
	Quad-core Intel Core i7 2.3GHz	None	4GB	1TB (5400rpm)	Thunderbolt, FireWire, HDMI, SDXC, 4x USB 3.0	Intel HD Graphics 4000	★★★★☆	£679	164
	Quad-core Intel Core i7 2.3GHz (server)	None	4GB	2x 1TB (5400rpm)	Thunderbolt, FireWire, HDMI, SDXC, 4x USB 3.0	Intel HD Graphics 4000	N/A	£849	
iMac (2013)	Quad-core Intel Core i5 2.7GHz	21.5in LED (BL)	8GB	1TB (5400rpm)	2x Thunderbolt, SDXD card slot, 4x USB 3.0, gigabit ethernet	Intel Iris Pro	★★★★☆	£1,149	212
	Quad-core Intel Core i5 2.9GHz	21.5in LED (BL)	8GB	1TB (5400rpm)	2x Thunderbolt, SDXD card slot, 4x USB 3.0, gigabit ethernet	nVidia GeForce GT 750M with 1GB GDDR5 memory	N/A	£1,299	
	Quad-core Intel Core i5 3.2GHz	27in LED (BL)	8GB	1TB (7200rpm)	2x Thunderbolt, SDXD card slot, 4x USB 3.0, gigabit ethernet	nVidia GeForce GT 755M with 1GB GDDR5 memory	N/A	£1,599	
	Quad-core Intel Core i5 3.4GHz	27in LED (BL)	8GB	1TB (7200rpm)	2x Thunderbolt, SDXD card slot, 4x USB 3.0, gigabit ethernet	nVidia GeForce GT 775M with 2GB GDDR5 memory	N/A	£1,749	
Mac Pro	Quad-core Intel Xeon 3.2GHz	None	6GB	1TB (7200rpm)	18x SuperDrive (DL), FireWire, PCI Express	ATI Radeon HD 5770 or HD 5870 (1GB)	★★★☆☆	N/A	200
	Twelve-core Intel Xeon 2.4GHz	None	12GB	1TB (7200rpm)	18x SuperDrive (DL), FireWire, PCI Express	ATI Radeon HD 5770 or HD 5870 (1GB)	★★★☆☆	N/A	215
MacBook Pro with Retina Display	Quad-core Intel Core i7 2.4GHz	15in Retina	8GB	265GB flash storage	Thunderbolt, USB 3.0, HDMI, SD card slot	Intel HD Graphics 4000 & nVidia GeForce GT 650M	★★★★★	£1,799	270
	Quad-core Intel Core i7 2.7GHz	15in Retina	8GB	512GB flash storage	Thunderbolt, USB 3.0, HDMI, SD card slot	Intel HD Graphics 4000 & nVidia GeForce GT 650M	★★★★★	£2,299	284
	Dual-core Intel Core i5 2.5GHz	13in Retina	8GB	128GB flash storage	Thunderbolt, USB 3.0, HDMI, SD card slot	Intel HD Graphics 4000	★★★★★	£1,249	184
	Dual-core Intel Core i5 2.6GHz	13in Retina	8GB	256GB flash storage	Thunderbolt, USB 3.0, HDMI, SD card slot	Intel HD Graphics 4000	★★★★★	£1,449	190
MacBook Pro	Dual-core Intel Core i5 2.5GHz	13in LED (BL)	4GB	500GB (5400rpm)	USB 3.0, SD card slot, FireWire, Thunderbolt	Intel HD Graphics 4000	★★★★☆	£999	121
	Dual-core Intel Core i7 2.9GHz	13in LED (BL)	8GB	750GB (5400rpm)	USB 3.0, SD card slot, FireWire, Thunderbolt	Intel HD Graphics 4000	★★★★☆	£1,249	153
	Quad-core Intel Core i7 2.3GHz	15in LED (BL)	4GB	500GB (5400rpm)	USB 3.0, SD card slot, FireWire, Thunderbolt	Intel HD Graphics 4000 & nVidia GeForce GT 650M (512MB)	★★★★☆	£1,449	161
MacBook Air	Dual-core Intel Core i5 1.3GHz	11in LED	4GB	128GB flash storage	USB 3.0, Thunderbolt	Intel HD Graphics 5000	★★★★★	£849	165
	Dual-core Intel Core i5 1.3GHz	11in LED	4GB	256GB flash storage	USB 3.0, Thunderbolt	Intel HD Graphics 5000	★★★★★	£1,029	165
	Dual-core Intel Core i5 1.3GHz	13in LED	4GB	128GB flash storage	USB 3.0, Thunderbolt, SD card slot	Intel HD Graphics 5000	★★★★★	£949	166
	Dual-core Intel Core i5 1.3GHz	13in LED	4GB	256GB flash storage	USB 3.0, Thunderbolt, SD card slot	Intel HD Graphics 5000	★★★★★	£1,129	166

*Speedmark 8 is Macworld's standard test tool for benchmarking systems running Mountain Lion

*Longer is better

Buyers' Guide

Apple AirPort Time Capsule
Full review: tinyurl.com/lh6pjqu ★★★★☆

apple.com/uk, 2TB £249, 3TB £349

Back up your Mac with AirPort Time Capsule, Apple's wireless hard drive that works with Time Machine in OS X. This new version is also a Wi-Fi base station featuring the 802.11ac technology, which is said to provide up to three times faster Wi-Fi.

Pros: Easy to use; combines network storage and high-speed 802.11ac Wi-Fi in a single unit

Cons: Expensive; doesn't include an ADSL or modem cable

Apple AirPort Extreme Base Station
Full review: See page 46 ★★★★★

Macworld EDITORS' CHOICE

apple.com/uk, £169

The latest version of the AirPort Extreme Base Station offers simultaneous dual-band support and the new 802.11ac Wi-Fi technology to provide wireless access for devices including Macs, iOS devices and the Apple TV.

Pros: Excellent performance, nice design, easy to set up

Cons: Expensive, lacks advanced features

Apple Lightning to 30-pin adaptor
Full review: tinyurl.com/nkqfbfz ★★★★☆

apple.com/uk, £25

If you want to connect the iPhone 5, 5s or 5c to an speaker system with a 30-pin dock, or other 30-pin audio or syncing dock device, then this is the way to do it (although we'd suggest the version with a cable to avoid the precarious balancing act). We're disappointed that it only works with audio and not video.

Pros: Enables you to connect the iPhone 5, 5s or 5c to older dock and speaker systems

Cons: Puts an extra two centimetres on the iPhone 5; Lightning feels a bit small to be holding up an iPhone; doesn't output video

Apple Thunderbolt Display
Full review: tinyurl.com/nkhkzm8 ★★★★☆

apple.com/uk, £899

For owners of the 2011 MacBook Air, the Thunderbolt Display is a fantastic way to get iMac-like features in one of the lightest laptops available. If your Mac doesn't have Thunderbolt, the inflexible Thunderbolt Display is a little less interesting.

Pros: Can charge Apple laptops; USB 2.0, FireWire 800 and ethernet connectivity; single cable from Mac cuts down clutter

Cons: Stand lacks flexibility; reflective screen limits display placement; few customisation options

Apple 27in LED Cinema Display
Full review: tinyurl.com/onaxe2n ★★★★☆

apple.com/uk, £899

Apple's 27in LED Cinema Display makes a good companion to any Mac with a Mini DisplayPort connection, but is especially well suited to portable Mac users who can take advantage of the MagSafe power connector and the display's USB ports to attach peripherals.

Pros: MagSafe connector to charge Mac portables; built-in speakers and iSight

Cons: Limited adjustment options; glossy screen is prone to glare; Apple doesn't officially support using the display with anything but Mini DisplayPort

Apple Magic Trackpad
Full review: tinyurl.com/qd474vb ★★★★☆

apple.com/uk, £59

If you're a big fan of the multitouch trackpads on Apple's laptops, the Magic Trackpad is for you. It gives you the same clickable, glass surface and multitouch gestures, as those laptop trackpads in a wireless desktop model – with the bonus of nearly twice the trackpad area.

Pros: Large multitouch surface; works identically to Apple's laptop trackpads; rugged, portable design matches Apple's keyboards; easy setup

Cons: Not as precise as using a mouse or trackball; not ideal for large screens or multiple displays

Apple Magic Mouse
Full review: tinyurl.com/nc9o95e ★★★★☆

apple.com/uk, £59

Although it's not perfect, the Magic Mouse successfully combines design and usability. It's great as a two-button wireless mouse, but if you need more than two buttons, the Magic Mouse is not for you.

Pros: Looks stunning; multitouch is easy to master; excellent tracking; very fast reconnect after idle

Cons: Low profile; may not be comfortable for larger hands; some modes are confusing; buttons and speed settings can't be programmed; expensive

Apple Keyboard
Full review: tinyurl.com/px5rj8c ★★★★☆

apple.com/uk, £56

As a portable option that makes typing more comfortable, Apple's own Bluetooth keyboard also complements any iOS device, although you would need an additional case or stand for your iPhone or iPad to make typing truly convenient.

Pros: Low profile; lightweight; portable; Apple function keys; instant pairing; great brushed-aluminium styling

Cons: Some function keys missing; no carry case; no numeric keypad; could be too cramped for some users; no dock for iOS devices

Apple TV
Full review: tinyurl.com/or86u3u ★★★☆☆

apple.com/uk, £99

At £99, the third-generation Apple TV continues to offer as excellent value as the previous model - and now it supports higher-quality video, too. The content keeps growing, but is still rather limited.

Pros: Minimal design; easy to set up and start using; automatically syncs with iTunes; small and quiet; much lower price than before

Cons: No longer offers a hard drive; focused on movie and TV rentals via iTunes but prices seem high and the model may not suit the UK audience

Apple AirPort Express Base Station
Full review: tinyurl.com/q4xqszq ★★★★☆

apple.com/uk, £79

Owning an Apple router is a great option for those multiple Apple devices, and it's an easier and smarter way to set up and manage a network in the home or small office. Its big brother's faster ethernet connections and external hard drive support may be worth paying the extra for.

Pros: Small and neat; AirPlay functionality; dual antennas; good software interface that can be used from Mac or iOS device

Cons: No longer plugs directly into a wall; only has 100base-T ethernet sockets

Apple Logic Pro X

apple.com/uk, £139

Full reviews: tinyurl.com/nfgavnz

★★★★★

Macworld EDITORS' CHOICE

Logic Pro X offers a lot of great new features at a price that even starving musicians can afford. Thanks to its easier-to-use interface, Logic Pro X becomes a viable next step for GarageBand users, and everyone with an iPad should be happy with the convenience wrought by the free Logic Remote app.

Pros: Affordable; easy-to-use interface; realistic sounds; great new features

Cons: Not compatible with 32-bit plug-ins

Apple iTunes 11

apple.com/uk, free

Full reviews: tinyurl.com/q6z4jl2

★★★★☆

iTunes 11 is worth installing. The speed and stability improvements alone make it worthwhile to us. We also like most of the new features, especially Up Next and the visual Album Folders. The cleaner style is welcome too. On the whole, it's a lot better than its predecessor.

Pros: 64-bit code runs much faster than before; Up Next, Playback Sync and MiniPlayer all great features; cleaner more stylish interface

Cons: Removal of Sidebar is a bit of a shock (you can get it back though); iTunes Match could be better; no Gapless Playback or View Duplicates

Apple iLife: iMovie, GarageBand, iPhoto '11

apple.com/uk, £10

Full reviews: tinyurl.com/pvb4gx9, tinyurl.com/ns8n545, tinyurl.com/ntybaly

★★★★☆

iMovie '11 has a few standout features and other enhancements. The changes in GarageBand – expanded lessons, How Did I Play, and the addition of Flex Time and Groove Matching – are useful. The improved code and polished UI of iPhoto improve the overall experience.

Pros: iMovie: improved audio editing, fun Movie Trailers. GarageBand: Flex Time and Groove Matching. iPhoto: improved Facebook and Flickr integration

Cons: iMovie: no native AVCHD editing or direct import. GarageBand: Limited external control of amps and effects. iPhoto: editing controls untouched

Apple iWork: Pages, Keynote, Numbers '09

apple.com/uk, £13

Full review: tinyurl.com/o94cgo7, tinyurl.com/pp8w93q, tinyurl.com/ppv2o3z

★★★★☆

Pages '09 is an excellent update to what was already a good, but limited word processing and consumer-oriented page layout program. If you create presentations Keynote is worth the price of iWork. Power users will still find Excel superior to Numbers.

Pros: Pages: Full Screen, Outline modes. Keynote: animation tools; Theme Chooser. Numbers: Beautiful templates; added functions

Cons: Pages: no 'shared file' warning. Keynote: Audio can't span selected slides; no support for QuickTime VR. Numbers: limited printing options

iWork for iCloud beta: Pages, Keynote, Numbers

apple.com/uk, free

Full review: tinyurl.com/kk5cvyv, tinyurl.com/osz2w97, tinyurl.com/nfn843c

The different applications that make up iWork for iCloud are beautiful to behold and are capable of making equally gorgeous documents. Although we encountered a few bugs, for example, you can't collaborate with others in Pages, it is still in beta. And it's free.

Pros: Gorgeous interface; can access and edit documents anywhere; saves documents online; free

Cons: Not compatible with all browsers; not as many tools as desktop counterparts

Apple Aperture 3

apple.com/uk, £54

Full review: tinyurl.com/ppc2d6d

★★★★☆

A lot has changed in this version of Aperture, so much in fact that it feels a little different, but it's all the better for it: improved RAW engine, updated sorting options, more powerful search features, much more versatile adjustments tools, among many others.

Pros: Vastly improved slideshows; impressive new brushes; multitouch aware; ability to split and merge libraries; easy export to Flickr and Facebook

Cons: Sporadic reports of problems when upgrading older libraries; web page creation not overhauled; need a powerful Mac and lots of RAM to run well

Apple Final Cut Pro X 10.0.3

apple.com/uk, £199

Full review: tinyurl.com/qge2d5k

★★★★☆

With FCP X 10.0.3, the ugly ducking feel is receding. While many improvements are still needed, especially for those who work in multi-user environments, this update indicates that Apple is listening to the concerns of the video community that put Final Cut Pro on the map.

Pros: Multicam; relink media; automatic backup; migrate previous projects; multiple small improvements

Cons: External monitoring still in beta; reliance on third-party support for key features

Apple Logic Express 9

apple.com/uk, £159

Full review: tinyurl.com/qcyo2yu

★★★★★

Macworld EDITORS' CHOICE

Logic 9 is first-class home-recording software for all types of musicians, especially guitarists. It offers streamlined audio editing, plenty of loops and instruments, stacks of virtual amps/speakers and pedals for guitarists, and it reads GarageBand files.

Pros: Plenty of virtual amp/speaker/pedal combos; ability to add chord diagrams to printed music; lots of loops and instruments; high-quality effects

Cons: Interface still dense despite streamlining; could use more templates and a tutorial for beginners

Apple OS X Mountain Lion

apple.com/uk, £13

Full review: tinyurl.com/pu3bl6x

★★★★☆

Mountain Lion is a solid update, with a great collection of new features. While nothing in the interface has hugely changed, we like the implementation of Notification Center. Perhaps of more importance are all the subtle interactions of iCloud, and in this sense the OS is a triumphant success.

Pros: iCloud is far more integrated; Notifications Center is great; Twitter and Facebook sharing is useful; Reminders and Notes both well implemented

Cons: Quite a few design inconsistencies; Documents in the Cloud isn't intuitive to use after years of Finder usage

Apple iOS 7

apple.com/uk, free

Full review: tinyurl.com/neyno5u

★★★★★

Macworld EDITORS' CHOICE

This is Apple's first new mobile operating system since Jony Ive took over as lead designer and his influence is clear in the radical redesign. There's a lot more to this than looks alone, though. New features include background multi-tasking, and the Control Center, which ensures all your apps are only a swipe away.

Pros: Radical new design; background multi-tasking; animation effects; Control Center

Cons: Will not be avilable for older devices; some features limited on iPhone 4 and 4S, and iPad 2 and 3

Buyers' Guide

Infinity Blade III
Full review: tinyurl.com/nclkcck ★★★★☆
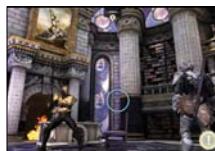
infinityblade.com/the-game/3, £4.99

Infinity Blade III looks brilliant, plays well, and adds lots of new features; but none of them alter the fundamental gameplay mechanics, which are starting to get a bit tired. If you're new to the series, then this is the best Infinity Blade yet, but IB veterans might want to keep their £4.99 for something a bit more original.

Pros: Superb, almost unparalleled graphical quality; slick combat mechanics; lots of collectible items; blacksmith

Cons: Lack of major gameplay enhancements; high price (for an iOS game)

Deus Ex: The Fall
Full review: tinyurl.com/no5qv74 ★★★★★ **Macworld** EDITORS' CHOICE

eu.square-enix.com/en/home, £4.99

Deus Ex: The Fall is a pretty marvellous game, and one that says a lot about the ambitions and capabilities of mobile developers. At £4.99 it's on the expensive side for an iOS title, and it's also fairly brief. But while it lasts The Fall is neatly designed, graphically stunning and loads of fun.

Pros: Graphically stunning; ambitious; enjoyable

Cons: Requires iOS 5.0 or later

Ending for iPad
Full review: tinyurl.com/km4soeo ★★★★★ **Macworld** EDITORS' CHOICE

robotacid.com/flash/ending, £1.49

This devious puzzler will either make you feel very smart or very stupid. As stripped down aesthetically as it could possibly be, the lack of flashiness or interruption suits the thoughtful, careful challenges well. For the price, Ending for iPad is a fantastic bargain.

Pros: So tiny, yet so complete; evolves throughout; brutal but accessible

Cons: Text-free menus are confusing; a few frustrating levels

XCOM: Enemy Unknown
Full review: tinyurl.com/lyqca6s ★★★★☆

2kgames.com, £10

Sometimes it's hard not to scoff at 'tablets are the consoles of the future' claims, but XCOM's surprising comfort on touchscreen is a strong suggestion that it might well be true after all. At £10 the price will take some swallowing, but this tense, slick strategy game is one to keep you busy for weeks, not mere days.

Pros: The full PC/console experience; endlessly replayable; enthrallingly unforgiving

Cons: Expensive; slightly finickety controls

Limbo
Full review: tinyurl.com/ll3acev ★★★★★ **Macworld** EDITORS' CHOICE

limbogame.org, £2.99

Austere, melancholy, yet often hilarious, Limbo is a work of art. Puzzle gaming experts may consume its evocative delights so quickly that they're left demanding more, while the less able may find the steep learning curve towards the end somewhat taxing, but both groups will find something here to love.

Pros: Beautiful-looking; eerie, atmospheric audio; well-designed puzzles; total lack of dead wood, padding or repetition

Cons: A bit short (if you're a solid puzzle player); controls a tad fiddly on iOS

Wacom Bamboo Loop
Full review: tinyurl.com/mdg8xne ★★★★☆

wacom.com/gb/en, free

Lo-Mob Superslides is an attractive addition to any iPhone photographer's collection of apps, that while hardly essential, offers some suitably subtle results that are easy on the eye. The ability to randomise photos by refreshing an image also ensures your vintage-looking pictures don't start looking stale or too similar.

Pros: Shows potential; attractive results easily achieved; Facebook integration; share via Twitter, Tumblr and Instagram; backed by quality Wacom name

Cons: Numerous top in-app purchases will deter many; accessing contacts buggy; competing in a busy field for social networking apps; need to ideally budget for a stylus

Lo-Mob Superslides
Full review: tinyurl.com/pm4crmg ★★★★☆
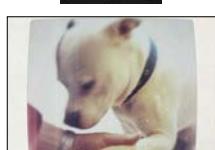
aestesis.net, 69p

Lo-Mob Superslides is an attractive addition to any iPhone photographer's collection of apps, that while hardly essential, offers some suitably subtle results that are easy on the eye. The ability to randomise images simply by refreshing an image, also ensures your vintage-looking images don't start looking stale or too similar.

Pros: Seductive and subtle collection of film processes and frames; simple interface; good resolution output and sharing options; cheap

Cons: Lacks range of photo editing tools; limited number of frames at launch; a little similar to existing Lo-Mob app

Perfect B&W
Full review: tinyurl.com/nzz24jc ★★★★★ **Macworld** EDITORS' CHOICE

ononesoftware.com, £1.49

There are plenty of photo manipulation apps on the market, but for getting arty with monochrome images, especially with one-click looks, this one is great. Precision tools among the Options would be interesting, but at this price it's hard to compare the app with more powerful features present in desktop image-editing software.

Pros: Instant preset artistic looks; takes full advantage of iOS camera; integration with social media; compositional aids; non-destructive workflow; inexpensive

Cons: Some of the manual adjustment options could be fine-tuned and improved; more border/frame choices would be welcome
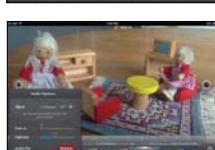
iStopMotion for iPad
Full review: tinyurl.com/ppfxc2h ★★★★☆

boinx.com, £6.99

This is a fantastic app if you're into stop-motion animation. It's easy to use, and the set of shooting and editing tools are great. Although welcome, the audio feature feels too limiting to be recommended, and you'd be advised to export your film and work on the sound in another app.

Pros: Camera overlay; Navigator that jumps to any part of your movie; timelapse option; ability to use an iPhone, iPod touch as a remote camera; easy to use; free update

Cons: The audio tools feel too basic and their limitations make them of little use

Typic Pro
Full review: tinyurl.com/ov77os7 ★★★★★ **Macworld** EDITORS' CHOICE

typicapp.com, £1.49

Typic Pro offers a photo-editing tool, with Instagram-like filters that let you add stylish captions to iPhone photos and transform them into design pieces. We'd like to see a wider range of fonts and design elements in the future, though. If you like the look of Typic Pro but want to test it out first, the developers offer a free version, too.

Pros: Free version available; good selection of fonts and design elements, filters, frames, effects and soon; can create high-resolution images to share

Cons: Would like a wider range of design elements

Day One
dayoneapp.com, £6.99 — Full review: N/A — ★★★★☆

With Day One, the filters are off. Free of the Facebook effect, your life and thoughts become your own. There are no work colleagues to fear offending, no friends who'll feel left out. It's a diary for the social-media age that you don't need to share.

Pros: Integrates with iOS version; markdown support; calendar based input

Cons: No local encryption; only one image per entry

Parallels Access
parallels.com/uk, £54 per machine, per year — Full review: tinyurl.com/p68ebm2 — ★★★★☆

It's a shame that a truly innovative piece of software that shows real transformative potential is so expensive. Compared to its free rivals, Parallels Access is the clear winner on feature count, and its ability to rejig a desktop display onto an iPad's screen is second-to-none, but at £54 per machine per year it's more than we'd pay.

Pros: Appification process is fantastic; makes Mac remote desktop much easier to use

Cons: Too expensive; replaces a similar but cheaper app; currently only works on iPad

---

Documents by Readdle
readdle.com, free — Full review: tinyurl.com/oc3ubwg — ★★★★☆

Documents has been awarded 'Editors' Choice' by Apple in more than 70 countries, which is a fair reflection of the app's quality and usefulness, despite some files not, as yet, being compatible. Readdle's latest offering appears more appealing when you consider, unlike many alternative file management apps, it's free.

Pros: Convenient way of organising and viewing files; attractive user interface; ability to share documents; now universal; free

Cons: Lacks support for some popular file formats; apparent crashes on older Apple mobile devices

---

Beesy
beesapps.com, £3.99 — Full review: tinyurl.com/o6nw8el — ★★★★★ — **Macworld EDITORS' CHOICE**

Beesy isn't the cheapest or simplest iPad note-taking app out there, but it offers value for money with a comprehensive set of business-focused tools. If you're willing to put in the time, then the app, with its automated features, will likely become your first choice for organising your business.

Pros: Fully featured set of tools; excellent integration with native Apple and Microsoft apps; attractive interface; new built-in tutorials; Evernote integration

Cons: Learning curve requires effort despite new tutorials; potentially plenty of data to enter; in-app purchases required for additional features; no iPhone version ye

---

1Password
agilebits.com, £5.49 — Full review: tinyurl.com/oak63xy — ★★★★★ — **Macworld EDITORS' CHOICE**
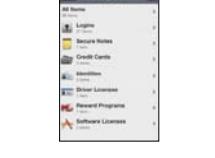
Keep your digital life safe with this updated gatekeeper. 1Password is an excellent, secure data manager for every user, regardless of their sophistication. Its execution is practically flawless and a significant improvement over previous releases on all fronts.

Pros: Strong security for passwords and other important data; user-friendly interface; seamless syncing

Cons: Existing customers will have to buy version 4 all over again

---

Flipboard
flipboard.com, free — Full review: tinyurl.com/lb3qg83 — ★★★★★ — **Macworld EDITORS' CHOICE**

Flipboard is a must have app, more so with the introduction of iOS 7, one that showcases Apple's invention to great effect, while maintaining a lead over similar social-news aggregators. Beautifully tactile and responsive, it makes reading anything on your iDevice an absolute pleasure.

Pros: Attractive, clean user friendly design; good range of pre-defined news categories; ability to customise news and sources to suit own interests

Cons: Some new features are iOS 7 specific only; minor bugs reported

---

Reeder 2
reederapp.com/ios, £2.99 — Full review: tinyurl.com/m2t27wq — ★★★★☆

Reeder 2 appears to be a worthy upgrade, although teething bugs and the lack of new and extra features may disappoint, especially as the app costs £2.99. That said, developer Silvio Rizzi has nicely tweaked a great RSS reader, especially following the demise of Google Reader, which can only get better with iOS 7.

Pros: New streamline, attractive look is intuitive and easy on the eye; good syncing and sharing support; some options to change text size and more

Cons: Buggy; computability improvements needed with third- party syncing services; new look unlikely to convince older users to upgrade when cheaper options available

---

Shazam
shazam.com, free — Full review: tinyurl.com/ndbht56 — ★★★★★ — **Macworld EDITORS' CHOICE**

For music fans, Shazam is an essential app, one that should also appeal to casual users who simply want to identify a song from an ad or drama. Its ability to identify even the most obscure of tracks is very impressive.

Pros: Excellent hit rate identifying tracks; improved user interface; good iTunes and YouTube integration; ability to share track information via Facebook and Twitter

Cons: Auto Tagging currently iPad only; mainstream tracks dominate music discovery extras in Shazam Pulse and interactive maps

---

Yahoo Weather
uk.yahoo.com, free — Full review: tinyurl.com/qemq7zn — ★★★★★ — **Macworld EDITORS' CHOICE**

Yahoo Weather stands out thanks to accurate forecasts, good balance of information and an attractive yet simple design. The addition of flickr photos reflecting different times of the day from across the world, is both a worthy addition and a distraction on days when you wouldn't want to go out unless you had to.

Pros: Accurate forecasts; attractive design; cool use of flickr/Project Weather photos; ability to save locations to favourites; interactive radar, satellite, heat, and wind maps

Cons: No Notification Center integration or weather alerts; Ultraviolet information is only available in select countries

---

Traktor DJ
native-instruments.com, £13 — Full review: tinyurl.com/oywqadm — ★★★★☆

Traktor DJ is a truly remarkable app, though it does have a few limitations, which make us think most DJs won't replace their trusty MacBook Pros with iPads just yet. But this doesn't detract from the hours of fun Traktor DJ can provide, for obsessed music aficionados and laid-back listeners alike.

Pros: Intuitive touch-based interface; effects and filters add spice to music; able to record your efforts

Cons: No pitch bend; impossible to listen to one deck while the other plays; limited by iPad's internal storage

iOS APPS: BUSINESS & PRODUCTIVITY

iOS APPS: ENTERTAINMENT & LIFESTYLE

Buyers' Guide

Harman Kardon Go+Play Wireless
Full review: tinyurl.com/p2pznbo ★★★★☆

uk.harmankardon.com, £279

The Harman Kardon Go+Play is a great speaker system that offers high-quality audio, easy wireless connectivity, and great volume and bass. It's also a great-looking speaker system. The lack of a rechargeable battery and AirPlay does count against it, though.

Pros: Great audio; easy to set up; chic styling; great carry handle
Cons: Lacks AirPlay; old-fashioned battery compartment; overly large

X-Mini Max Duo
Full review: tinyurl.com/nx2r822 ★★★★☆

store.x-mini.com, from £49

At £49, the X-Mini Max Duo speakers aren't exactly an impulse purchase, but they remain solidly affordable. While not illegal-rave-spec, they sound great for such portable units (alternatively, you could say they're wonderfully portable for such decent-sounding speakers) and look pretty good, too.

Pros: Extremely portable; lightweight, small and compressible; decent sound
Cons: Somewhat lacking in audio richness and lower end punch

Cambridge Audio Minx Air 100
Full review: tinyurl.com/p9z5utc ★★★★☆

cambridgeaudio.com, £330

Although it isn't a portable speaker, the Minx Air 100 is one of the most versatile wireless speakers around. Its ho-hum looks matter not when you consider it has aptX Bluetooth and AirPlay support, and it sounds great to boot. You can get better sound if you spend an extra £100, but it's good value at this price.

Pros: You won't be disappointed with the sound quality; Bluetooth and AirPlay support
Cons: Setting up for AirPlay is a slight faff

Pioneer A3 XW-SMA3-W
Full review: tinyurl.com/q2qwrxf ★★★★☆

pioneer.eu/uk, £269

The Pioneer A3 is a good sounding speaker, with AirPlay and other wireless compatibility. The water-proofing and battery are both a nice touch, too. This makes up for the sound quality, which is okay, but not amazing. We found the setup initially tricky, but on the whole we think this is a great speaker choice.

Pros: AirPlay compatible; waterproof; built-in battery; decent sound quality
Cons: Not enough bass; setup was tricky

Bowers & Wilkins Z2
Full review: tinyurl.com/nswede4 ★★★★★

Macworld EDITORS' CHOICE

bowers-wilkins.co.uk, £329

Bowers & Wilkins's £699 A7 remains the priciest AirPlay speaker we've tested, and it sounds exceptional. The company's Z2 costs half as much, but it still sounds very, very good. While the Z2 can't rival the A7's sound, it's far more affordable, is considerably smaller, and it offers a Lightning dock for wired playback.

Pros: Offers both AirPlay and a Lightning-connector dock; very impressive sound
Cons: Cheap, plastic remote

Line 6 Sonic Port
Full review: tinyurl.com/m64xeax ★★★★☆

uk.line6.com, £69.95

The Sonic Port is a useful device that works beautifully and without fuss. The sturdy build, diminutive size, and multi-app performance make it something that could really open up your iOS device's musical potential. At less than the price of a decent pedal, we think it's a terrific bargain.

Pros: Simple to set up; compatible with any Core Audio app; no latency; good sound quality; solid construction; output directly to an amp
Cons: Can't charge iOS device when Sonic Port is plugged in; no way to adjust input and output levels on the device itself

HiRise
Full review: tinyurl.com/qj73ga7 ★★★★☆

twelvesouth.com, £34

For a company that takes great pride in producing accessories for Apple and only Apple, the latest in the HiRise stable is a fine addition to Twelve South's product range. While perhaps not the most essential HiRise accessory, it does at least ensure your iPhone 5, 5s or iPad mini complete with case, are never far from your gaze.

Pros: Solid, attractive build; secure fit; adjustable height settings; portable
Cons: Requires some assembly; tight fit requires two hands to remove iDevice; portrait mode only; not recommended for full-size iPad (4th generation); pricey

Sphero 2.0
Full review: tinyurl.com/pbomdvq ★★★★☆

gosphero.com, £99

Overall, Sphero 2.0 is faster, brighter and more responsive, and could provide endless hours of fun if remote control objects, robots and augmented reality is your thing. We can imagine it being the star Christmas present this year, with the whole family itching to have a go, though, at £99 it's not cheap.

Pros: Faster; brighter; lots of compatible apps; great fun; robust
Cons: The novelty could wear off quickly

Sanho iUSBportCAMERA
Full review: tinyurl.com/odfteje ★★★★☆

hypershop.com, £279

Armed with an iPad, the iUSBportCAMERA is a useful, yet not essential, addition to a photographer's Canon or Nikon tool kit, although it still shows great potential and will likely improve with revisions. The ability to view images on the larger iPad screen is also a plus.

Pros: Control your camera remotely; simple to set up; 4GB of built-in memory; ability to transfer files between mobile device and USB
Cons: USBport app iPad only; limited support for other devices; currently only compatible with Canon/Nikon DSLR cameras; hot shoe extension bar likely required; expensive

Logitech FabricSkin Keyboard Folio
Full review: tinyurl.com/lomnnhu ★★★★☆

logitech.com/en-gb, £129

The Logitech FabricSkin Keyboard Folio is not without issues: there's the additional weight and there's the extra bulk that it adds. Then there's the price and the rubber keys. But it remains the cleverest solution we've seen for adding a keyboard to the iPad.

Pros: Stylish and professional-looking case; smart magnetic on/off function; balanced keyboard capable of touch-typing on; makes iPad suitable for work on a regular basis
Cons: Adds quite a bit of weight and bulk to an iPad; fabric keyboard not as tactile as a plastic one; expensive

AKG K311
Full review: tinyurl.com/n3cjhjj
★★★☆☆

uk.akg.com, £15

At £15, it's hard to be too unkind to the AKG K311. They're not the best set of earphones we've heard, though they're not the worst either. And at this price they're the cheapest we've come across for a long time. We'd probably suggest going up to the Apple EarPods at £25, but for £15 this is a good set of headphones.

Pros: Extremely cheap; comfortable; sturdy

Cons: Sound quality is markedly average; no iPhone controls

Klipsch Image X10i
Full review: tinyurl.com/qzrfmh3
★★★★★

Macworld EDITORS' CHOICE

klipsch.com, £249

Klipsch's Image X10i in-ear headphones come with a two-year warranty, which is reassuring when you are spending a whopping £249. But, if you have that sort of money to spend, and you're looking for a good, comfortable part of in-ear headphones – without caring so much about making calls – then these are a great buy.

Pros: Incredibly comfortable; light; good acoustic seal; really clear sound reproduction; you can find them for under £100 on Amazon

Cons: Bling; not great for phone calls

Nocs NS600 Crush
Full review: tinyurl.com/mztrp96
★★★★☆

nocs.se, £149

If you're into dance and electronic music, then these headphones deliver exceptional quality. They're not cheap though, and if you have a wider taste in music you should probably go for something a little more accurate.

Pros: Powerful bass; stylish design; Kevlar-coated wire; great for dance fans

Cons: Mid-range isn't so hot for traditional rock music

Plantronics Backbeat 903+
Full review: tinyurl.com/pkdayrx
★★★★☆

plantronics.com/uk, £50

It can be a bit tricky getting the darn things hooked over your ears, but the light, rugged design of the Backbeats make them a good choice when you're exercising at the gym or out running in the park. The audio quality is also very good, considering the current low price.

Pros: Affordable; lightweight; good sound quality

Cons: Can be fiddly hooking them over your ears; the maximum volume level isn't very high

---

Altec Lansing Muzx Ultra mXx606   Full review: tinyurl.com/nr8tra4
★★★★★

Macworld EDITORS' CHOICE

alteclansing.com, £80

These in-ears have a smart-looking remote on the cable and excellent overall sound quality. The sound is rich and warm, with good breadth across the spectrum; the bass feels punchy without overshadowing any of the upper notes.

Pros: Interesting designs; fantastic sound quality across a wide spectrum of musical styles

Cons: Slight artificial feel to some guitar music

Logitech UE 6000
Full review: tinyurl.com/plfv8bh
★★★★☆

logitech.com/en-gb, £169

We liked these headphones a lot. They combine stunning bass and superb treble audio with nice styling, and the active noise cancellation technology makes them ideal for long journeys. They come with a padded carry case, an audio splitter and a replaceable audio cable, too.

Pros: Amazing bass and treble audio; iPhone controls; separate earphone cable; noise cancellation technology

Cons: Heavy weight; audio not great for rock and vocal music

The House of Marley Buffalo Soldier Full review: tinyurl.com/l7r9dzy
★★★★☆

thehouseofmarley.co.uk, £79

The Buffalo Soldier headphones are a decent pair of on-ears with good environmental credentials. The audio is on a par with other headphones at this price point, but we were impressed with the fit and finish. They are a good set of headphones, though the Bob Marley branding is a bit weird.

Pros: Great build quality; good audio; solid environmental credentials; it's nice to have tech products made from wood

Cons: The whole Bob Marley branding thing seems a bit strange

---

Logitech UE 9000
Full review: tinyurl.com/odr6b4b
★★★★☆

logitech.com/en-gb, £299

The high price of the Logitech UE 9000 is what's stopping us recommending them outright. If you can find them at a discount in the sub-£200 price range, we'd give them serious consideration for the convenience of the combination of Bluetooth and high-capacity internal battery.

Pros: Very well constructed; plenty of detail across all frequencies

Cons: Mediocre active noise cancelling; minimal headband padding; high price

---

Jabra Revo
Full review: tinyurl.com/nzfghmh
★★★★☆

jabra.co.uk, £187

Although the Jabra Revo wireless headphones are not exactly cheap, they warrant their price tag thanks to the good looks, features, comfort, durability, wireless performance and overall sound quality. These are a very solid pair of headphones.

Pros: Stylish appearance; comfortable; durable; impressive audio performance; good battery life; NFC pairing available; touch control panel

Cons: Not cheap

AKG K67 Tiësto
Full review: tinyurl.com/omruy2m
★★★★☆

uk.akg.com, £99

There's a strong fashion element to the K67, with their chunky earpieces and celebrity-DJ branding. However, they do provide very good sound quality for dance, rock and pop music, and are well worth considering if you're looking for a portable set of headphones that you can wear outdoors or carry around with you.

Pros: Strong bass sound; folds flat for travelling

Cons: Expensive, chunky on-ear design may not suit everyone

Buyers' Guide

Sony DSC-RX1R
Full review: tinyurl.com/ma6sqxs ★★★★☆

sony.co.uk, £2,599 (35mm lens)

Thanks to a lens aperture range from f/2.0 to f/22 plus a focal distance up to infinity, it's a jack of all trades device, providing lovely shallow-depth-of-field results where a subject's sharp but the background's attractively soft. Superb it may be, but whether the RX1R is worth it depends on the application to which you may wish to put it.

Pros: High-resolution full frame sensor in a small-ish camera package; high quality bright aperture lens; built-to-last metal construction suggests a device fashioned for war

Cons: Hard to justify on price alone; no viewfinder built in (accessory viewfinder is pricey, too); short-ish battery life of 200+ shots

Sony A58
Full review: tinyurl.com/ouje6wb ★★★★☆

sony.co.uk, £419 (18-55mm lens)

Sharp and well-saturated images from the camera, as well as ultra-smooth video clips, confirm this cheaper than average model as a jack of all trades. So if you don't mind an electronic viewfinder as opposed to the traditional optical version supplied by a regular DSLR, the Sony A58 can currently be considered a steal.

Pros: Well saturated colours and warm feel to images; rear LCD can be tilted up or down; DSLR-style handling yet quicker to get video recording up and running

Cons: The rear LCD screen is smaller than most rivals (even if it can be tilted)

Pentax K-50
Full review: tinyurl.com/pf5xgkn ★★★★☆

pentax.co.uk, £599 (18-55mm lens)

The Pentax K-50 is so nearly a great camera, but a slightly bland design and lack of adjustable LCD when used as viewfinder let it down. However, if you plan on using this camera in the rain and snow, the semi-pro level of ruggedness makes for a worthy investment.

Pros: Camera body and supplied lens are both weatherproofed, while internal sensor shift shake reduction mechanism means specially image stabilised lenses are not required

Cons: Body design reflects price in being chunky with big buttons and relatively frill free; LCD is fixed rather than angle adjustable

Canon EOS 100D
Full review: tinyurl.com/kp72zsc ★★★★☆

canon.co.uk, £579 (body only) or £749 (18-55mm lens)

Canon's 18Mp EOS 100D is the world's smallest and lightest DSLR. That being said, at dimensions of 116.8x90.7x69.4mm and weighing 407g (body only), it's still a meatier proposition than most compact system cameras (CSC) if you want a model with the option to change lenses.

Pros: Smaller and lighter build makes carrying DSLR body and lens less of a drag, yet more compact proportions haven't obviously compromised picture quality

Cons: The lighter construction results in more obvious camera shake in lower light; no angle adjustable LCD

Nikon D7100
Full review: tinyurl.com/o57zqlr ★★★★☆

nikon.co.uk, £1,099

The Nikon D7100 is a new range-topping 24Mp APS-C sensor DSLR for aspirational amateurs. It's a respectable showing, though if extras like weatherproofing aren't required there are cheaper alternatives delivering a very similar still image quality.

Pros: Weather resistant; high res backplate LCD; high res sensor; top plate LCD window as short cut to key settings; compatible with over 60 Nikon lenses; 51 selectable AF points

Cons: Basic image quality no better than most DSLRs costing £500+; non-angle adjustable LCD; common image artefacts like pixel fringing still present

Panasonic Lumix DMC-GX7
Full review: tinyurl.com/q5o9mzg ★★★★★

Macworld EDITORS' CHOICE

panasonic.co.uk, £899 (14-42mm lens)

While not cheap at £899 with a 14-42mm kit zoom, we love the look of its images, largely due to the well-saturated colours delivered. In short, the Lumix DMC-GX7 is hands down the best G-series model that Panasonic has produced to date.

Pros: Solid metal build; angle adjustable eye-level viewfinder and tilting rear LCD; very quiet operation; smooth zoom action

Cons: Backplate button smaller than we'd like; not an APS-C sensor; looks expensive unless directly compared with rivals offering similar features

Canon EOS M
Full review: tinyurl.com/pg8eh9v ★★★★☆

canon.co.uk, £379

We were very impressed with the quality achievable at various focal lengths, with consistently pin-sharp results, and we were able to achieve some lovely DSLR-like shallow depth of field effects. This is a 'safe' starter option for anyone wanting their first CSC.

Pros: Large image sensor; excellent build quallity; access to a plethora of own brand lenses; superb image quality that packs a punch even with 18-55mm kit zoom

Cons: No built-in flash or Wi-Fi; narrow 'grip' to front; lacks eye-level viewfinder; LCD screen is non tilting

Fujifilm X-M1
Full review: tinyurl.com/nsvqqoq ★★★★☆

fujifilm.eu/uk, £679 (16-50mm zoom)

Those keen amateur photographers who up until now had been considering an Olympus Pen for its 'old-fashioned' levers and dials, or even a Leica at a push, will perhaps now want to take a closer look at what Fuji is offering these days, and in the case of the XM-1 for a fair amount less.

Pros: Large APS-C image sensor and competent kit zoom lens; solid-feel build; beautifully natural colours and attractive soft focus effects achieveable

Cons: No built-in electronic or optical viewfinder, which while it keeps down the price also limits its enthusiast appeal

Samsung Galaxy NX
Full review: tinyurl.com/o5wgep4 ★★★★☆

samsung.com/uk, £1,299 (18-55mm iFunction zoom)

The first thing that strikes you about the Galaxy NX is its massive 4.8in touchscreen. It's also the world's first Android-powered camera, but none of that matters if the picture quality is lacking, and we're pleased to report that the Samsung takes richly detailed photos. The high price is an issue, though.

Pros: Richly detailed colourful results thanks to larger lens mount and sensor; wow factor of giant 4.8in Android powered touchscreen; multiple connectivity options

Cons: Very pricey as a first-of-its-kind device; big screen inevitably adds to the overall size of the Galaxy NX; oddly misses out on NFC connectivity

Pentax Q7
Full review: tinyurl.com/qe8fba4 ★★★☆☆

pentax.co.uk, £399 (5-15mm zoom)

While the Q7 may not sport a large APS-C sensor, it nevertheless holds appeal as currently the smallest mirrorless interchangeable lens camera on the market. Impressively, this diminuitive device has managed to squeeze in a spring-loaded flash and a vacant hotshoe for accessories. Picture quality is decent, too.

Pros: Diminuitive-sized body and lens system that will comfortably fit into a jacket pocket; warm, colour-rich images and subtly shallow depth of field results achievable

Cons: Enthusiasts will decry the small sensor size as making the Q system seem like something of a non starter; fixed LCD; no Wi-Fi; no viewfinder

Fujifilm X20

Full review: tinyurl.com/ocqw56n

★★★★☆

fujifilm.eu/uk, £499

This a revamped version of Fujifilm's X10 keeps the same gorgeous outer shell, but adds under-the-bonnet performance tweaks. It's a retro-styled premium compact camera with rock solid build and feature set.

Pros: Feels great in the hand thanks to solid build; clever function implementation; camera can be activated or deactivated via a twist of its lens adds a further point of difference

Cons: Certain rivals have both a larger sensor and higher resolution for this price; maximum aperture not as bright as some competitors; smaller LCD screen than many

Sony Cyber-shot DMC-RX100

Full review: tinyurl.com/ovobhps

★★★★★

Macworld EDITORS' CHOICE

sony.co.uk, £549

The RX100 is as good as premium compacts get – especially with current street prices taking £100 off the manufacturer's asking price. It's a monster when it comes to features, plus delivers near DSLR-like pictures with a similarly hefty 'bite'.

Pros: Palm-sized compact; reassuringly solid; larger than average sensor and resolution given its proportions; bright/fast lens; ability to control functions via twist of the lens ring

Cons: Pricey for a compact on which the lens cannot be swapped; tiny rear plate buttons require fingernail precision

Samsung EX2F

Full review: tinyurl.com/oeeauy3

★★★★☆

samsung.com/uk, £429

Samsung's top-end pocket compact is aimed at those who want better than the average snapper, but not interchangeable lenses. Its photos resemble those from the very good snapshot camera that it is, rather than cheating users into thinking they've just shot something with a digital SLR.

Pros: Bright lens for DSLR-style shallow depth of field effects and low light shooting; tilt and swivel back screen; built-to-last metal construction

Cons: Costs almost as much as a starter DSLR or compact system camera, which arguably would offer even more creative scope in the long run despite the extra bulk

Nikon Coolpix P7700

Full review: tinyurl.com/oz63s6b

★★★★☆

nikon.co.uk, £499

Nikon's Coolpix P7700 is a premium compact that shoehorns in many features found on digital SLRs. Creative flexibility at your fingertips is what's provided here, though potential purchasers will want to weigh that up against its extra bulk and sensor that, while bigger than most compacts, is still small compared to DSLRs.

Pros: Broader focal range than direct rivals; solid build; comprehensive feature set with dials and wheels falling under the fingertips; angle adjustable LCD screen

Cons: Physically bulkier than competitors; doesn't have an optical viewfinder

Panasonic Lumix DMC-LX7

Full review: tinyurl.com/px5cev9

★★★★☆

panasonic.co.uk, £449

As a point-and-shoot camera for those wanting to upgrade to something better or a smaller back up for someone owning a G-series compact, the LX7 cuts the proverbial mustard but, despite being as consistently competent and reliable as one might hope, it doesn't stand above the Samsung EX2F or the Sony RX100.

Pros: Relatively lightweight and compact dimensions for a metal build enthusiasts' camera; bright aperture lens; built-in visual effects; hotshoe and accessory port

Cons: Fixed screen LCD; priced not a great deal cheaper than one of Panasonic's interchangeable lens G-series compacts system cameras

JVC Everio GZ-EX515

Full review: tinyurl.com/m7hmbhx

★★★☆☆

jvc.co.uk, £329

Despite the flip-out screen and the icons displayed on it being a little small, the GZ-EX515's monitor offers touchscreen operation. It has Wi-Fi, the ability to expand the memory in use via removable media and a decent zoom range, but there's little here we haven't seen before.

Pros: Easy to use; quiet and smooth zoom action; Wi-Fi built in; intuitive to use via flip-out touchscreen LCD; affordable price

Cons: Plastic look and feel to body; standard entry-level option

Sony Handycam HDR-CX410VE

Full review: tinyurl.com/kyk8xfw

★★★★☆

sony.co.uk, £479

The Sony's zoom action is smooth, but autofocus isn't as rapid to adjust when zooming in on your subject, which means the image is blurred for a couple of seconds before drifting back into focus. It's a handsome-looking camcorder that also provides a USB lead tucked into the handgrip. It doesn't have Wi-Fi, though.

Pros: Solid build; very quiet operation; smooth zoom action

Cons: No Wi-Fi built in (yet available as optional extra); focus slower to adjust when changing subjects mid recording than others here

Panasonic HC-V720

Full review: tinyurl.com/nwxcd5b

★★★★☆

panasonic.co.uk, £493

Stereo sound courtesy of a large front microphone and wider overall proportions have allowed for more features than certain camcorders in its class. The Panasonic HC-V720 displays an extra layer of sophistication that we feel is worth having, even if you're paying a little more for it.

Pros: More solid build than cheaper camcorder rivals; more comprehensive feature set

Cons: Broader dimensions means this unit sits less comfortably in the palm than narrower rivals

Canon Legria HF R48

Full review: tinyurl.com/o35sjvz

★★★★☆

canon.co.uk, £429

Seemingly aimed at family users as much as anyone else thanks to its child-friendly features, the Canon Legria HF R48 moves with the times by featuring Wi-Fi and dual recording. It's a camcorder that covers all bases.

Pros: Palm-sized proportions; built-in Wi-Fi; quiet and smooth zoom action when adjusting framing mid recording; easy to use; flip-out touch screen operation

Cons: Pricey; could be quicker when changing focus mid recording

Sony VG20

Full review: tinyurl.com/nf86kpv

★★★★★

Macworld EDITORS' CHOICE

sony.co.uk,£1,500

With the amount of manual controls on offer, as well as the inputs and versatility of the extra lenses, the Sony VG20 is perfect for the advancing amateur or aspiring independent filmmaker.

Pros: Superb image quality, menu controls, removable lenses

Cons: Confusing manual controls

Buyers' Guide

BenQ GW2760HS
Full review: tinyurl.com/nf3wvfy ★★★★★ **Macworld** EDITORS' CHOICE

benq.co.uk, £210

This is a superb monitor to choose to go with a Mac mini or as an external display for your MacBook Air or MacBook Pro. At around £200, it offers premium quality and high performance at a price normally associated with a much lower-quality display.

Pros: Large 27in display; flicker-free technology; non-glossy AG matte coating; fantastic colour gamut range; unobtrusive bezel; amazingly low price

Cons: Resolution not as high as Apple Cinema Display; colour accuracy isn't as good as a high-end monitor

AOC Q2963Pm
Full review: tinyurl.com/nxdagmk ★★★★☆

aoc-europe.com/en, £354

AOC's Q2963Pm is a 29in wide-aspect LCD, with LED backlighting a 2560x1080-pixel resolution. It's a good-looking display, with a gun-metal grey finish. During testing, brightness consistency was impressive, and colour consistency was good, too.

Pros: Ultra-wide 29in display; good screen brightness and colour consistency; stylish cabinet and good selection of interfaces; quick refresh rate; very good value

Cons: Below par brightness and contrast; some wayward colours; stand is very short and doesn't rotate; not much vertical resolution

Asus ProArt PA249PQ
Full review: tinyurl.com/k5pqgeu ★★★★☆

asus.com/uk, £460

there's a certain industrial aesthetic going on with the 24in ProArt PA249PQ. While the frame is fairly thick, the back is rugged but stylish. It's also worth noting that the display is 1620x1200 pixels, which gives extra height on the vertical. However, the ProArt is all about colour, with a 10-bit colour display and 12-bit internal LUT.

Pros: Solid physical build; excellent colour consistency; 16:10 aspect; USB 3.0 ports for fast charging; wealth of interfaces; built-in speakers; easy to use menu

Cons: Colour accuracy some way off; very heavy; can't read menu buttons when monitor is on; average contrast.; only 1920px resolution

NEC MultiSync EA294WMi
Full review: tinyurl.com/moubmgb ★★★★★ **Macworld** EDITORS' CHOICE

nec-display-solutions.com/p/uk, £582

If you want to feel like you're getting a lot for your money, then look no further than the MultiSync EA294WMi 29in wide-aspect IPS LCD panel with LED backlight. At a shade under 10kg, it's also arm-strainingly heavy, but the advantage of the hulking great back panel is that it's festooned with interfaces alongside the power supply

Pros: Very wide display gives lots of desktop space; lots of brightness power; eco saving modes; no real light leak; sturdy construction; high resolution; lots of interfaces

Cons: Some colour variation along the top third of the display; not quite 100 percent sRGB; incredibly heavy and bulky; not very stylish; lacks vertical resolution

Philips 272P4QPJKEB
Full review: tinyurl.com/oskluyc ★★★★☆

philips.co.uk, £490

It's big and while it may not be beautiful, this 27in monitor offers some great connectivity and throws in a webcam as well. It's built to last, has a rock-solid stand, and an impressively crisp and detailed display with absolutely no flaws or variations. The high resolution and wide viewing angles are also commendable.

Pros: Consistent colour across entire surface; no light leak; sharp display; built-in 2Mp webcam; LED-backlit LCD

Cons: Lacks lots of contrast; very heavy; average looks; slowish refresh rates; touch-sensitive controls are hard to see

Wacom Cintiq 13HD
Full review: tinyurl.com/ojgujkw ★★★★☆

wacom.com/gb/en, £749

The new Cintiq 13HD might just be the hottest little creative tool of 2013. It's a great piece of kit, and takes up way less space than the Cintiq 24HD (below). If anything, the screen is just a tad too small, though. We found our eyes straining after an hour.

Pros: Great drawing experience; many ways to hold it and stand it on your desk; brilliant screen; very easy to carry around with you

Cons: Screen is a little bit too small for long-term use; a better Wacom-tablet may be around the corner; you need to remember to buy an adaptor

Wacom Cintiq 24HD
Full review: tinyurl.com/pw8r9fc ★★★★★ **Macworld** EDITORS' CHOICE

wacom.com/gb/en, £1,999

For digital artists, designers and animation pros there is no substitute. As an upgrade, it doesn't represent a quantum leap over 2010's 21UX, but taken alone it represents a valuable investment for creatives looking to squeeze more out of their workday.

Pros: Huge working area; improved tablet buttons; supports Mini DisplayPort, VGA, DVI-I, DVI-A; ergonomic and widely adjustable; VESA mountable

Cons: Not at all portable; requires two people to move it; difficult to accommodate in tight workspaces or in a two-monitor setup

Wacom Inkling
Full review: tinyurl.com/p9ymd6k ★★★★★ **Macworld** EDITORS' CHOICE

wacom.com/gb/en, £149

The highest praise we can give is this; we didn't want to send the Inkling back. It has clear, professional applications in design and the arts but, more importantly, it's load of fun. If you're in the market for a budget graphics tablet, we suggest you give the Inkling a look first.

Pros: Use a real pen to draw with; upload in bitmap or vector format to supported programs

Cons: Early users have reported layer shifting issues and occasional export glitches

Datacolor Spyder4Elite
Full review: tinyurl.com/ob7sghp ★★★★☆

datacolor.com, £179

Colour profiling is an onerous tasks that's pretty much an essential requirement for designers, photographers and anyone working with images or video. The Spyder4Elite is easy to use – though there's advanced options for those that need them – and produces great results.

Pros: Easy to use; supports Cineon, NTSC, PAL and HDTV standards; can also calibrate iPhone, iPad and projector; colour gamut graph; advanced tests

Cons: Ambient light test not well explained; sometimes awkward to navigate back to previous settings; some advanced tests difficult to find

Wacom Intuos5 Touch
Full review: tinyurl.com/nkkthh2 ★★★★★ **Macworld** EDITORS' CHOICE

wacom.com/gb/en, £199

The Intuos5 feels like Wacom's first major attempt to recreate the experience of working with canvas. We can't wait to see how Wacom takes this technology forward.

Pros: Touch and pen interface; ExpressKeys HUD is useful and unintrusive; all tablet sizes feature wireless option; new design

Cons No Bluetooth model

Booq Mamba Shift Backpack Full review: tinyurl.com/nwnfxhz ★★★★☆

booqeurope.com/eu, £121

Impressively spacious, the Booq Mamba Shift Backpack is a serious consideration for anyone who needs to carry a MacBook, iPad and accessories regularly on long journeys. With a wealth of pockets, zips and compartments, it's also a useful option for keeping all your accessories in one organised place.

Pros: Solid, sturdy design; great capacity for storage; padded area for MacBook storage; detachable pouch; good range of pockets; quality zips

Cons: Expensive; big and bulky when full; unique ID number system is no guarantee of retrieving your belongings

Rain Design mStand 360 Full review: tinyurl.com/pcxn2ek ★★★★★ **Macworld** EDITORS' CHOICE

raindesigninc.com, £60

The Rain Design mStand 360 is a simple product, superbly executed, and potentially invaluable to anyone that regularly uses their MacBook – or any other laptop – with outboard peripherals on the desk. This inspired piece of aluminium deserves gold.

Pros: Simple product; superbly executed; potentially Invaluable

Cons: None

AluBase Full review: tinyurl.com/njkrhrr ★★★★★ **Macworld** EDITORS' CHOICE

just-mobile.eu, £39

The AluBase is a simple Apple-esque design that complements your MacBook, and while it's footprint is small, you can be confident that your MacBook won't tip over. If you are looking for a solution that will allow you to close your MacBook and tidy it away while using an external monitor, it's a great solution.

Pros: Neat media centre solution; space saving; Apple-esque styling

Cons: Your Mac may overheat if you are using processor intensive applications, so keep an eye on it; you will need to plug the MacBook in and a mouse is essential

Devolo dLAN 500 AV Wireless+ Starter Kit Full review: tinyurl.com/pw4gjck ★★★★☆

devolo.co.uk, £130

This simple and efficient gadget will make your home network faster and more stable in about five minutes. Powerline offers ethernet-like internet access anywhere there's a power socket, and wireless adaptors like this product create powerful new Wi-Fi hotspots around the home.

Pros: Fast, stable home networking; simple installation; pass-through power socket

Cons: Not as fast as advertised (but none is)

Fitbit One Full review: tinyurl.com/pevocg6 ★★★★☆

fitbit.com/uk, £80

The Fitbit One costs £80, and while that may sound a lot, it's considerably cheaper than competing devices such as Nike's FuelBand, which costs £130. Overall, if you're looking for something to motivate you to exercise more and accurately measure your steps, the Fitbit One is a reasonably-priced gadget with lots of functions.

Pros: Tiny; lots of features; shows how many floors climbed; tracks sleep; built-in alarm; automatically syncs via Bluetooth; motivates users to exercise more

Cons: Inconvenient and easy to lose proprietary USB cable; size of the device means its easy to leave at home in pocket or on other item of clothing

Belkin Thunderbolt Express Dock Full review: tinyurl.com/ponv8ho ★★★★★ **Macworld** EDITORS' CHOICE

belkin.com/uk, £249

The Thunderbolt Express Dock was worth the wait. It's not the cheapest of the available solutions, but it's the more versatile with its Thunderbolt pass-through function. When a dock like this 'just works' as intended, it's a joy to use and greatly simplifies the use of a Thunderbolt-equipped notebook on the desktop.

Pros: It just works

Cons: Notable shortfall in USB performance

Mitsubishi EX321U-ST Full review: tinyurl.com/m52kha4 ★★★★☆

mitsubishi-presentations.com, £603

Getting this projector up and running is easy, so it may well be the model to get if you're looking for a projector to be shared by various office workers or teachers without going through too much training.

Pros: Short throw is ideal for smaller rooms; good vibrant picture quality; 3D capability; Crestron RoomView Support

Cons: Heavy

Sony VPL-DX140 Full review: tinyurl.com/pkewsyo ★★★★☆

sony.co.uk, £580

The VPL-DX140 is an entry-level projector designed for the classroom. It has a good brightness, produces sharp and clear images, and is capable of playing 720p high-definition video natively. Weighing in at 2.5kg, it's slightly heavier than a MacBook Pro, but its sleek design means it will easily fit into a backpack.

Pros: Bright picture quality even on Eco-Mode; nice styling; fast on/off features mean you don't have to hang around

Cons: Doesn't have an easy setup mode; speaker lacks power

Epson EB-1945W Full review: tinyurl.com/ndaco5p ★★★★★ **Macworld** EDITORS' CHOICE

epson.co.uk, £1,300

All-in-all this is a great projector for the office or classroom. The weight is a big issue, though, and we certainly wouldn't recommend adding 4kg to travel pack. Also the price takes it into a whole different bracket. However, images are crisp and clear, and impressive even in daylight.

Pros: Powerful projector best suited to a fixed office and classroom environment

Cons: Bigger and heavier than most portable projectors, so mostly useful for a fixed office and classroom environment; expensive

Arcam rBlink Full review: tinyurl.com/myeasy4 ★★★★☆

arcam.co.uk, £160

The Arcam rBlink currently fills a gap in the market – that of connecting a wireless device (such as an iPhone) to your current home speaker system. At £160 it's not a cheap option, given that it's just a wireless Bluetooth system with a digital to audio converter inside. But the quality of the audio is high, and it's easy to set up.

Pros: Easy to set up; high-quality audio conversion; enables you to use your current hi-fi system wirelessly

Cons: Expensive for a wireless converter

Buyers' Guide

Epson AcuLaser C3900DN
Full review: tinyurl.com/l8lxjk7 ★★★★☆

epson.co.uk, £400

It might be overkill for many small businesses – especially the self-employed people who work from home – but the C3900DN will earn its keep if you need a fast printer that can handle fairly high volumes of work with competitive running costs.

Pros: Fast; good print colour for mono and colour; competitive running costs

Cons: Initial purchase price of toners is very high

Kyocera FS-C5150DN
Full review: tinyurl.com/mun9sa6 ★★★★★

Macworld EDITORS' CHOICE

kyocera.co.uk, £240

If you need to print lots of colour documents every day, then the FS-C5150DN may not be fast enough for you. However, its competitive running costs ensure it's still a good choice for any business needing a high-quality printer that keeps costs under control.

Pros: Low purchase price; competitively priced toner cartridges

Cons: No Wi-Fi or AirPrint; colour printing is relatively slow

Brother HL-3170CDW
Full review: tinyurl.com/ot9dz3w ★★★★☆

brother.co.uk, £240

At just £240, Brother's HL-3170CDW is a good entry-level laser printer for home users or small businesses that need to step up from an inkjet printer. It's relatively compact for a laser printer, but if you buy the cartridges directly from Brother, then the running costs can be quite high. We recommend shopping around online.

Pros: Fast, compact colour laser printer; low purchase price; Wi-Fi and iOS support

Cons: Running costs are a little above average

Oki C321dn
Full review: tinyurl.com/m25oopq ★★★★☆

oki.co.uk, £220

Oki's C321dn is one of the most affordable colour laser printers currently available, with a number of online stores selling it for around £220. It's a fairly basic model, as you might expect, but it provides good performance and print quality, along with moderate running costs.

Pros: Low initial cost; good performance; attractive colour output

Cons: No Wi-Fi or iOS support; slightly above average running costs

Canon i-Sensys LBP7110Cw
Full review: tinyurl.com/omktbd9 ★★★☆☆

canon.co.uk, £220

It's not particularly fast by the standards of laser printers, and the cost of the colour cartridges means that it's really only suitable for occasional colour printing. However, the LBP7110Cw is still a good, affordable option for small businesses that need a high-quality, low-volume printer for their business documents.

Pros: Low purchase price; low costs for mono printing

Cons: High costs for colour printing; no Mac software in the box, single-function printer

Epson Expression Photo XP-850
Full review: tinyurl.com/o7v39vf ★★★★☆

epson.co.uk, £250

There's room for improvement in text quality, but the Expression Photo XP-850 will appeal to hobbyists and home workers who need high-quality photo output as well as features such as a fax machine and document feeder. That combination may make it something of a niche product, but its versatility will ensure that it earns its keep.

Pros: Excellent photo output; ethernet and Wi-Fi networking; scanner and fax

Cons: Text quality could be improved; not very fast

HP OfficeJet Pro 251dw
Full review: tinyurl.com/oaf3cau ★★★★☆

hp.com/uk, £180

The OfficeJet Pro 251dw isn't perfect. Its colour printing could be faster, and the lack of a built-in scanner is disappointing in a printer costing almost £200. Even so, it provides good quality for text, graphics and photos, and its highly competitive running costs make it an excellent choice for home workers and small businesses.

Pros: Fast text printing, good quality for text and graphics; highly competitive running costs; supports AirPrint

Cons: Colour and photo printing could be faster; no scanning/copying features

Brother MFC-J4510DW
Full review: tinyurl.com/qz3wlo4 ★★★☆☆

brother.co.uk, £214

This grey and white box is fairly attractive, not too bulky and offers solid all-round performance, but is that enough to justify such a high price? We've seen it for sale online at closer to £175, and the running costs do compensate to some extent, but that still looks a premium price for what is really a solid mid-range device.

Pros: The Brother MFC-J4510DW can print on A3 paper, but the quality falls behind the best

Cons: Too expensive to buy; no Mountain Lion driver in the box; average print quality

Canon Pixma MG6350
Full review: tinyurl.com/oelf46c ★★★★☆

canon.co.uk, £169

The Canon Pixma MG6350 has excellent print quality and a real premium feel to make it worth every penny. It has a big touch panel with glowing buttons and an automatic paper tray - great added touches. There's no doubt that it's a top-quality printer. It's a real all-rounder.

Pros: Sleek, in black or white; classy touch controls; flawless document quality and very good photos

Cons: We had speed issues; it's expensive to run; you'll need a lot of desk space

Epson Expression Photo XP-750
Full review: tinyurl.com/o9hfeqn ★★★★☆

epson.co.uk, £229

The Epson Expression XP-750 has brilliant photo quality, but you'll have to forgive the less impressive documents. It retains the quality of a multi-ink system and the flexibility of multiple paper trays in a body that's neat and compact though, and is a good choice for serious photographers.

Pros: Compact yet carries plenty of paper; superb photo quality; a fast all-rounder

Cons: Expensive to buy and run; middling document quality

Qnap TS-1269U-RP

Full review: tinyurl.com/k36jc8c

★★★★★

Macworld EDITORS' CHOICE

qnap.com/en, £1,987

The TS-1269U-RP is Qnap's attempt to bring enterprise-level storage to small business settings. Though corners have been cut, with Atom architecture and limited RAM, it's fast and robust. It won't take an IT engineer to install it either.

Pros: Comprehensive RAID support; 12 accessible drive bays; 2.5in or 3.5in support

Cons: First assembly is a chore

LaCie 5big Thunderbolt

Full review: tinyurl.com/ns3kbxb

★★★★★

Macworld EDITORS' CHOICE

lacie.com/uk, from £979

What you lose in native, full RAID capability, you gain in speed and storage capacity. For a drive that undercuts similar storage devices in price – and that does it so stylishly – this makes the 5big Thunderbolt a choice investment. Think about it in particular if you need to handle large files in a team environment.

Pros: Plug and play out of the box; hot swappable drives; up to 20TB storage

Cons: No other connectivity options

G-Technology G-Dock ev

Full review: tinyurl.com/qjtzuhl

★★★★★

Macworld EDITORS' CHOICE

g-technology.com, £599

Designed with media professionals and enthusiastic hobbyists in mind, the G-Dock is like a next-generation ZIP drive. It combines portability and storage capacity in one gorgeous, high performance box. And with dual Thunderbolt connectivity, you won't lose that all-important port if you have other compatible peripherals.

Pros: RAID formats support; eject a disk and replace with another; dual Thunderbolt ports

Cons: Not sure about the rough finish

Qnap TurboNAS TS-269L

Full review: tinyurl.com/p2eh4mc

★★★★★

Macworld EDITORS' CHOICE

qnap.com/en, £324

We've tested several NAS drives lately and the TurboNAS TS-269L competes well in terms of build, features and specs. It's not a budget choice though, retailing at an enclosure-only price that some rivals beat with fully-populated models. If you're a small business or serious home media enthusiast, it's worth the extra.

Pros: Superior build quality; supports 3.5 or 2.5in drives; HD streaming from the box

Cons: A little more expensive than similarly specified rivals

Netgear ReadyNAS Duo V2

Full review: tinyurl.com/o8f4nqs

★★★★☆

netgear.co.uk, £386

Netgear's ReadyNAS Duo V2 compares similarly in performance terms with Synology's DiskStation, but beats it on the build front. Macho metal grills make this an industrial-looking construction. This is the kind of NAS you'd buy if you lived in a converted loft with exposed pipes and weathered beams.

Pros: Chunky, industrial lines; user friendly OS

Cons: Lower CPU spec

Seagate Slim Portable for Mac

Full review: tinyurl.com/nxun5ta

★★★★☆

seagate.com/gb/en, £65

This new version of the Slim Portable for Mac retains its attractive, portable design, while providing USB 3.0 performance and better value for money. Its 500GB capacity might be too small for some, but that's its only real limitation and the drive is hard to beat if you just need a portable backup drive at a competitive price.

Pros: Extremely thin; lightweight portable hard drive; good performance

Cons: Only available with 500GB capacity

G-Technology G-Drive Mobile USB

Full review: tinyurl.com/pz5ecux

★★★★☆

g-technology.eu, £90 (750GB), £110 (1TB)

Professional users who need a really fast backup drive may want to look elsewhere. However, the G-Drive Mobile USB still performs well enough for routine Time Machine backups, and its lightweight, slimline design makes it very easy to carry when you're travelling with your MacBook.

Pros: Slim, light, portable drive with solid, attractive design

Cons: Moderate performance

Axtremex Micro SSD

Full review: tinyurl.com/oap5ej7

★★★★★

Macworld EDITORS' CHOICE

axtremex.com, £300 (256GB)

The Micro SSD is a long-awaited storage device – a tiny, portable flash-based drive that can approach the kind of performance promised by the USB 3.0 standard, high speed that's been waiting to be released from modern flash memory. Operation in OS X was flawless, making this an easy recommendation for Mac users.

Pros: Flawless operation in OS X

Cons: None

WD My Passport Ultra

Full review: tinyurl.com/n8szhes

★★★★☆

wdc.com/en, £69 (500GB), £89 (1TB)

It could definitely be a bit more rugged, and we'd like to see a proper Mac version with either a Thunderbolt or FireWire interface. But if you just want a basic USB 3.0 drive that's light, portable and provides good performance for file backups, then the My Passport Ultra will do the trick at a very competitive price.

Pros: Slim, light portable USB 3.0 drive; good value for money; high performance for file backups

Cons: No FireWire or Thunderbolt interface; plastic case isn't very rugged

Firmtek miniSwap U3

Full review: tinyurl.com/p76md7g

★★★★★

Macworld EDITORS' CHOICE

firmtek.com, £94

The FirmTek miniSwap U3 enclosure, for all it's robustness and performance is astonishingly cheap. The enclosure takes up very little room on your desktop – or in your bag. We'd be happy to carry it around with a MacBook.

Pros: Very high speeds with SSD drive installed; no additional power supply required with USB 3.0

Cons: Quite heavy; plastic release button on drive door

Buyers' Guide

Smith Micro Manga Studio 5 EX
Full review: tinyurl.com/psadd3s ★★★★☆

manga.smithmicro.com, $210 (£130)

Whether you opt for Manga Studio 5 or 5 EX, you're getting a worthy upgrade to 4 EX that isn't just a powerful tool for creating comic book art – but, as many artists are proving, is powerful for creating amazing digital art in general.

Pros: Excellent performance; updated brush engine; layer modes; multiple file handling; custom brush creation; new user interface; EX4 page and story file importing

Cons: Only two features difference between the cheaper standard version and the EX version

Maxon Cinema 4D R15
Full review: tinyurl.com/nprhhdu ★★★★☆

maxon.net; Prime £720, Broadcast £1,380, Studio £3,120, upgrade from £276

Overall this release adds stability and refinements, as well as more flexibility and power — especially on the rendering side. Most of the updates seem to have been well thought-out, and definitely build on what was already a very solid package.

Pros: Ease of Use; new Team Render; newly developed Irradiance Cache; updated Bevel tool; Intel Embree in physical renderer; extremely stable

Cons: Hoped for more updates to Modeling workflow; no updates to BodyPaint 3D; no updates to UV editing

Autodesk Mudbox 2014
Full review: tinyurl.com/o3mmgt4 ★★★☆☆

autodesk.co.uk, £840, upgrade £588

Regardless of any retopology issues, Mudbox remains a great choice for producing digital sculptures and is unmatched in 2D/3D texture painting. However, since the main new features in Mudbox 2014 are for retopology – and they're not up to par with those found in the competition, it's difficult to recommend the 2014 upgrade.

Pros: Top-notch 3D sculpting and 2D/3D painting workflows; excellent, normal map, displacement and vector displacement man extraction tools; shallow learning curve

Cons: Retopologising imported or scanned models requires that models be prepped prior to retopology, which is a bit odd

Corel Painter X3
Full review: tinyurl.com/nkd2bmd ★★★★☆

corel.com/uk, £315, £158 (upgrade)

If you're looking to upgrade from a previous version, there are some pretty enticing improvements to X3 that may well be worth it – but like all upgrades, it's whether you feel that the additions will be of use to your own creative process.

Pros: Intuitive improvements; affordable

Cons: Steep learning curve

Adobe InDesign CC
Full review: tinyurl.com/m3gvmqo ★★★★☆

adobe.com/uk, £17 per month single-app plan, £37 a month for teams

InDesign CC contains very few new features – from a user's perspective this isn't a major upgrade. However, if your work involves creating ePub books, you'll want it just for the improvements to ePub formatting. Numerous enhancements to the font menus make choosing fonts much more efficient and flexible.

Pros: Retina display support; font menu and ePub improvements; QR code generator

Cons: Meagre new features

Adobe Edge CC
Full review: tinyurl.com/kw7po7t ★★★★☆

adobe.com/uk, £17 per month single-app plan, £37 a month for teams

Unless you require the animation features of Edge Animate, we would find the price hard to justify. For more experienced teams, we're not sure how useful these tools are when simpler tools may suffice. However, if you're already a Creative Cloud member and heavily wedded to Adobe's app ecosystem, they may prove more useful.

Pros: Tight integration with other Creative Cloud applications; preview design and code easily on iOS and Android devices; use web fonts on your desktop

Cons: Applications lack native UI and share an inconsistent design; preview functions limited to Chrome browser; applications not available to purchase separately

Adobe Illustrator CC
Full review: tinyurl.com/kcuu7uv ★★★★☆

Adobe, adobe.com/uk, £17 per month single-app plan

Illustrator CC introduces three new features that will be a useful addition to every designers toolkit. The first of these is the Touch Type tool, which lets you edit each letter individually. Secondly, you can now have a brush made up of a raster image. And finally, there's the Kuler online palette generation tool. We're sold on it.

Pros: Smarter workspace appearance; extensive resources; Kuler iPhone app interaction; improved type control

Cons: Commitment to CC, uninspiring bitmap image strokes

Adobe Premiere Pro CC
Full review: tinyurl.com/lnvay73 ★★★★☆

Adobe, adobe.com/uk, £17 per month single-app plan

The most obvious change with Premiere Pro CC is that you are now leasing the software, and if you stop subscribing you can't use it. The plus side is that, unless you're paying for Premiere Pro alone, you'll have access to After Effects CC, Photoshop CC and Illustrator CC.

Pros: Good relinking; file handling; improved import/export support; media browser works well; better timeline management; audio syncs for multicam

Cons: High spec required for Mercury engine; colour grading not as clever as FCP; not the fastest renderer

Adobe Dreamweaver CC
Full review: tinyurl.com/ny34xej ★★★★☆

Adobe, adobe.com/uk, £17 per month single-app plan

For those wedded to Dreamweaver, upgrading is a no-brainer upgrade, even if there's hardly a glut of new features. It's also a powerful tool for working on sites created with the program itself, as you'd expect. For those who've abandoned Dreamweaver, there's little reason to return. For newcomers, it's a decent product.

Pros: Edge Web Fonts integration; user-friendly responsive site workflow; great CSS Designer panel

Cons: Default responsive layout is dated; still a weighty – and sometimes sluggish – app; 'Adobe OS' UI can be fiddly

Modo 701
Full review: tinyurl.com/pqe8ogf ★★★★☆

thefoundry.co.uk, £967 for individual licence

If you weren't convinced by Modo before, it's probably still not for you as it has its own style and way of doing things. For those interested primarily in modelling, it's worth spending time getting over the learning curve as 701 is a clear leader here. Match it with ZBrush and you have an unbeatable system.

Pros: Significant architecture enhancement; modelling tools are best in class; progressive rendering engine is a time-saver; new particle engine allows for complex simulations

Cons: Layered PSDs don't incorporate into texturing workflow properly; rigging is poor; general workflow is convoluted; shader tree is difficult to master

TouchRetouch
Full review: tinyurl.com/ns5xgq6 ★★★☆☆

adva-soft.com, £6.99

TouchRetouch is limited in scope and certainly isn't attempting to compete with all-round editing tools such as Photoshop Elements. However, the program does do a better job than iPhoto when it comes to the specific task of removing blemishes and other unwanted details from photos.

Pros: Simple, affordable retouching program that eliminates blemishes and unwanted details from photos

Cons: Limited range of editing tools; Retouch tool is sometimes too sensitive to finger pressure on mouse

Zepheer 2.0
Full review: tinyurl.com/nufz2zu ★★★★☆

candysquare.com, £6.99

Very affordable and a lot of creative, retro effects for your money. There are shortcomings in the interface in places, but with the variety of texture overlays and borders there's more going on here than in rival app, Analog. Certainly worth a look.

Pros: Over 150 filter effects covering cameras, films and retro styles; lots of border and texture overlay effects; some control over how the various elements are applied

Cons: Interface is weak in places; no randomising function for effects; not enough control over some of the elements

Capture One Pro v7
Full review: tinyurl.com/lt8korf ★★★★☆

phaseone.com, £195

Capture One Pro does feel a little rough around the edges, with Adobe's Lightroom being cheaper and more polished if you need an all-round package. But as a Raw converter, it's hard to beat, with excellent colour and tone editing tools, combined with efficient tools for organising and managing large image collections.

Pros: Very clean Raw conversion; tethered shooting; easy output of multiple versions

Cons: Basic masking; no plug-in architecture; relatively high price

Perfect Photo Suite 7.5
Full review: tinyurl.com/n82f57k ★★★★☆

ononesoftware.com £161

As a standalone package, it's a little uneven – the workflow for layers and masks are particularly clumsy. If this is your focus, then it's better to look elsewhere. The other modules, though – Portrait, Effects, B&W, Focus and Resize – are all worth having, and make for a handsome collection of utilities.

Pros: Vast range of effects; everything under one roof; resizing is excellent; Portrait and FocalPoint are useful; largely consistent interface; B&W is a real time-saver

Cons: Layers and masks clumsy and separate; FocalPoint uses different interface; Portrait isn't as good as Portrait Professional (see below)

Adobe Photoshop CC
Full review: tinyurl.com/lo9leu9 ★★★★☆

adobe.com/uk, £17 per month single-app plan

This release has plenty for you to get your teeth into. There's something for everyone, but the real star is the Camera Shake Reduction filter. The improvements to the 3D engine are also notable. As it is, this is a decent release with usable functions rather than unnecessary bloat.

Pros: Camera shake filter; 3D performance increased; Spot Removal in Camera Raw excellent; upsampling is better than CS6; vector objects with corners can be re-edited

Cons: Smart Sharpen not massively better; upsampling not as good as third-party plug-ins; limited 3D format support; numerous windows use old colour scheme

Adobe Lightroom 5
Full review: tinyurl.com/ljcwse2 ★★★★☆

adobe.com/uk, £57 or from £17 per month for Creative Cloud subscription

Busy photographers may view Lightroom 5 as the release where they can let go of Photoshop for most tasks. New features keep coming and propel Lightroom ahead of Apple's Aperture. The fact you don't have to subscribe to own your copy is also good.

Pros: Lots of ways to sort images; build catalogues; creative presets; Healing Brush good for simple areas; considerable control over exposure; retrograde geotagging

Cons: Library getting overly complex; some bugs; Upright tool well hidden; Advanced Healing Brush not called that in the app

ArtRage 4
Full review: tinyurl.com/nvreaov ★★★★★ **Macworld EDITORS' CHOICE**
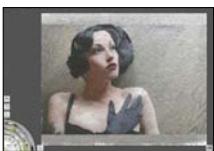
artrage.com, £35

It's easy to recommend ArtRage, as the latest improvements make it more flexible and powerful. While it isn't on a par with the tools available in Painter, it has a massively easier learning curve and can produce excellent results in very little time.

Pros: Natural media watercolours and oils react with each other and the canvas; uncluttered interface; pen and tablet support; configurable user options; cheap

Cons: Lacks variety of natural media tools; not much in the way of filters; weak on the lighting front; tools aren't as sophisticated as Painter; can be slow at times

Portrait Professional 11
Full review: tinyurl.com/nrfnvnz ★★★★★ **Macworld EDITORS' CHOICE**

anthropics.com, £19

Portrait Professional packs in a large number of very well-implemented features, but attempts to make everything as simple to use and as well-explained as possible. Skin-smoothing can be as extensive or subtle as you like, and it's possible to tweak all the other features.

Pros: Automatic face detection and mask application; quick and easy presets; slider controls; excellent touching up brush; can enhance every facial feature and shape, plus hair

Cons: Sometimes automatic mask isn't aligned properly; adjusting the mask can move other elements unexpectedly; isn't as good at dealing with images with significant shadow

Color FX Pro
Full review: tinyurl.com/p8j5f2m ★★★★★ **Macworld EDITORS' CHOICE**

kingsvalleytech.com, £5.49

With a slick interface, Color FX Pro is a fast and fun way to apply retro effects to your photographs with quite some variation. Add borders, frames, filters, textures, and more. The software also supports Raw files and up to 40Mp images.

Pros: Lots of effects; adjust the strength and fine adjust for varied effects; save combinations as presets, supports Raw files and up to 40Mp images

Cons: Needs to have more randomisation for frames and separate RGB colour controls; before and after preview is a separate screen; new presets are limited

Great Photo Pro
Full review: tinyurl.com/pl9nf3x ★★★★★ **Macworld EDITORS' CHOICE**

everimaging.com, £6.99

If parts of Great Photo Pro look familiar, it's because some of the modules in it have been available as standalone apps. This brings everything together to offer an interesting tool kit without the effort of going into Photoshop. You're getting quite a lot for your money.

Pros: HDR image creation; retro styles; Raw photo processing; image correction; edit the colour styling; add vignettes; great value for money

Cons: File management is clumsy; mouse is too sensitive; there's no variation in the retro themes; the Big Aperture is a little hit and miss; adjustments are global

Buyers' Guide
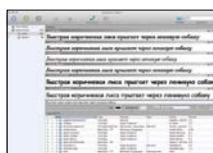
Extensis Suitcase Fusion 5
Full review: tinyurl.com/lpwyxgp ★★★★☆

extensis.com; £84, upgrade £42

The latest upgrade to Extensis' font-management system doesn't give you as many new features as did v.4 but, as designers adopt Creative Cloud, Suitcase Fusion users will inevitably need the new plug-ins. The QuickComp feature is attractive and works well if you're doing initial concept work.

Pros: Adobe CC in-app support, QuickComp template previewing, tweaked user interface
Cons: No support for Adobe Typekit

NoteSuite 1.0
Full review: tinyurl.com/px4wrd3 ★★★★☆

notesuite.io, £2.99

NoteSuite is a good note-taking app, even if it can't quite outgun rivals such as Evernote. However, its outstanding feature is the smooth iCloud syncing, which will definitely appeal to anyone that uses an iPad or multiple Macs.

Pros: Affordable, versatile tools for organising notes and to-do lists; automatic iCloud syncing; works on Mac and iPad
Cons: No iPhone version; fewer features than the iPad version

TopXNotes
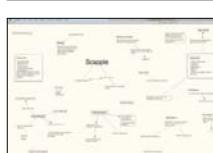Full review: tinyurl.com/q9kh4xk ★★★★☆

tropic4.com, £27

TopXNotes's price is pretty steep, but it's clear its features were designed for those who take the task of keeping notes seriously. If you fall within this audience, the app does its job capably and efficiently, with an impressive array of features and a user interface that's well thought out and provides an excellent user experience.

Pros: Plenty of functionality at your fingertips; effortless search features; helpful MultiView for perusing multiple documents
Cons: MultiView windows don't resize properly

Scapple for OS X
Full review: tinyurl.com/oo6vv93 ★★★★☆

literatureandlatte.com, £10

If you are prepared to embrace thinking visually, Scrapple is a useful tool that could turn small ideas into big ones without too many headaches. Equally, it's a handy way of collecting scraps of ideas that may not come to anything, but make more sense when seen together.

Pros: Drag and drop simplicity; freeform note making; Scrivener integration; ability to easily export notes for sharing and printing; iCloud support; MathType support; inexpensive
Cons: Users need to start mapping ideas visually and regularly; some features including iCloud support dependent on OS X

Rosetta Stone TOTALe
Full review: tinyurl.com/ovy46zc ★★★★☆

rosettastone.co.uk, £150

While there are other, cheaper options for learning a new language, TOTALe's immersive nature is impressive as is the range of languages on offer. The pricing is more than reasonable with the annual subscription costing less than a tutor once a month. Try the online demo for a taste of the course.

Pros: Intuitive to use; well-designed website; studio sessions with native speakers
Cons: Lack of translation is frustrating at times

aText
Full review: tinyurl.com/ndzwdbz ★★★★☆
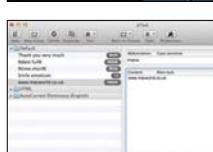
trankynam.com/atext, £2.99

A price of just £2.99 is a bargain for a piece of software that eliminate a lot of tedious and repetitious typing. It's simple enough for casual home users, but the ability to work with HTML and other types of code snippets gives it potential for professional users too.

Pros: Versatile text-expanding program; bargain price
Cons: Provides little help for first-time users

SiteMaker Moonfruit Standard
Full review: tinyurl.com/ndfemre ★★★★★ **Macworld EDITORS' CHOICE**

moonfruit.com, £7.20 per month

Moonfruit is a polished, slick, web-design application, with nearly all the features you could need. It's well-designed and makes it easy to customise a template. All the key features are in place to create a modern-looking, full-featured site that's easy to edit.

Pros: Very well-designed; easy to select and customise a template; key features in place
Cons: Low storage allowance

1&1 MyWebsite Personal
Full review: tinyurl.com/ojxq2oy ★★★★☆

1and1.co.uk, £6 per month, £72 per year

1&1 MyWebsite Personal is a decent tool for putting together a standard website. There are a lot of predefined templates, 300 to be precise, so finding something from which you can work is easy.

Pros: 300 templates; straightforward; automatic picture-size optimisation
Cons: Template categories are less than helpful

Curio 8.3
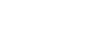Full review: tinyurl.com/ngeudze ★★★★☆

zengobi.com, £72

Re-vamped, re-styled free-form project manager makes it easy to create and organise all manner of tasks, add and link to external information, define and prioritise deadlines and present the entire thing in an easy-to-navigate series of electronic whiteboards. Good exporting and powerful search features too.

Pros: Rich set of features, easy to add external material, good export options, iCal integration, flexible interface suits a wide range of different tasks and projects, new lower price
Cons: Curio's structure means it can't support a Replace feature; synchronising Styles via Dropbox isn't for fainthearted; selecting multiple items in a list is a bit cumbersome

FileMaker Pro 12
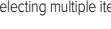Full review: tinyurl.com/oorwmn8 ★★★★★ **Macworld EDITORS' CHOICE**

filemaker.co.uk, £131

With the new version of its entire FileMaker product line, FileMaker extends its dominance of the Mac OS X and iOS database world by offering improvements that will be valued by every type of FileMaker user.
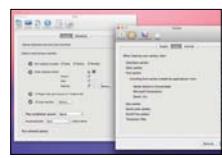
Pros: Strong asset management features; enhanced Container fields; powerful designer toolset; no change to price
Cons: File format change and associated upgrade costs

Cocktail 6.7
Full review: tinyurl.com/noq5co6 ★★★★☆

maintain.se, £10

While most of Cocktail's features already exist on the Mac, being able to access them without using a number of system tools and Terminal make Cocktail a highly useful utility. The unregistered version of Cocktail allows for 10 launches before timing out – that should be sufficient for you to decide whether it is right for you.

Pros: Comprehensive set of repair and maintenance tools; additional Automator actions; automatic Pilot mode; software frequently updated

Cons: Some tools are complex to use

Freeway Pro 6
Full review: tinyurl.com/kx9toz4 ★★★★☆

softpress.com, £104

This design-led tool will let you publish content-rich web sites in modern browsers, fairly simply, at a very fair and reasonable price. It's not perfect: we feel laying out elements could do with some automation, for example, and Freeway Pro apparently has only one level of undo.

Pros: Publish content-rich sites; fair price; HTML 5 support; 20 percent discount to education, charities and the elderly

Cons: Could do with more automation; one level of undo

Samepage.io
Full review: tinyurl.com/lxgbhjc ★★★★★ **Macworld EDITORS' CHOICE**

kerio.co.uk, free

Kerio Samepage.io has appeal to small businesses and individuals who used Workspace before, but it's far more accessible to newcomers, with its much reduced learning curve. It's free to try too, so if you're managing team projects, take a look.

Pros: Cloud based; remotely hosted; build your own team collaboration or project space; 10GB storage in free version

Cons: Workspace users may be disappointed the software has been replaced by Samepage

CleanMyMac 2.0.2
Full review: tinyurl.com/qftexvd ★★★★★ **Macworld EDITORS' CHOICE**

macpaw.com, £34

Here we have a seasoned utility that can deal with almost every aspect of data cleaning. It's expensive when compared with single-function open source apps, but its integrated approach is well worth it. There's a good reason why CleanMyMac has built up an enviable reputation and this version will only further enhance that.

Pros: Excellent user interface; comprehensive set of tools; clear explanations of scan results; highly configurable

Cons: A little expensive

PrivacyScan 1.2
Full review: tinyurl.com/qygtfer ★★★★☆

macscan.securemac.com, $14,99 (£9.70)

PrivacyScan is a worthwhile addition to anyone's set of security tools. It's easy to use, handles most modern web browsers and also supports common Mac apps. As long as you remember to run it, you can rest assured that your privacy will remain protected.
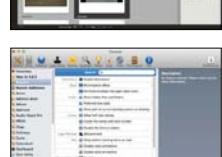
Pros: Easy to use; can remove an array of privacy threats; supports most modern browsers and essential Mac apps; includes secure shredding as well as standard delete

Cons: No scheduling or automation features; no ability to preserve some data

Extensis Portfolio Server 11.0.1
Full review: tinyurl.com/o73r6tx ★★★★★ **Macworld EDITORS' CHOICE**

extensis.com, Studio £1,798, POA for Professional and Enterprise editions

Portfolio Server effortlessly handles media management, and support for more file types and client customisation is welcome. Flash is required for all Client and Server web browsers, so may restrict your Client base. The Studio version has a one catalogue/three-user restriction.

Pros: Rapid and effective cataloguing of growing range of assets; more user customisation; AutoSync folders; enhanced keywording and metadata features

Cons: Flash-based web clients restricts some use; Studio version is limited to one catalogue and three users

MacPilot 5
Full review: tinyurl.com/otcmx63 ★★★★★ **Macworld EDITORS' CHOICE**

koingosw.com, £13

When System Preferences doesn't give you enough control over your Mac's settings, turn to MacPilot 5. If you can afford the £13 that MacPilot currently costs, you'll get much more control over your Mac.

Pros: Gives you control over preferences usually accessed via the Terminal

Cons: Lots of features you'll never need

CloudMark DesktopOne
Full review: tinyurl.com/opcy97z ★★★★★ **Macworld EDITORS' CHOICE**

cloudmark.com, free

With DesktopOne you can as good as say goodbye to spam – and at zero cost if Basic mode is adequate for your uses. Once installed, it's completely transparent, aside from increasing the file count in your Spam folder. Our reviewer couldn't remember the last time they gave a product five stars, but this deserves them.

Pros: Basic mode (suitable for most users) is free; no setting up; integration with two main email apps; totally transparent in use

Cons: None

Parallels Desktop 8
Full review: tinyurl.com/okzpcp4 ★★★★★ **Macworld EDITORS' CHOICE**

parallels.com/uk, £64, £34 upgrade

Although it's more expensive than Fusion 5, Desktop 8 has an edge in 3D performance and in the way it integrates Windows programs into the Mac operating system, so people who need to use Windows software on a regular basis will find that it's well worth that little bit extra.

Pros: Improved performance and ever-tighter integration with the Mac OS

Cons: More expensive than Fusion

VMware Fusion 5
Full review: tinyurl.com/o9boajv ★★★★★ **Macworld EDITORS' CHOICE**

vmware.com/uk, £39

When it comes to the basic task of running Windows on a Mac, then Fusion 5 still performs very well and is easy to use. And, at just £39, it's also the more affordable option than Parallels (above) for people who only need to use Windows software every now and then.

Pros: Good performance for routine computing tasks with Windows software; cheaper than Parallels Desktop

Cons: Gaming performance could still be improved

Apple can't innovate anymore

What's Apple achieved since Steve Jobs' death two years ago this October? Er, quite a lot

Quite a few technology pundits appear to be stuck in some kind of delusional loop. They're convinced that without Steve Jobs Apple is doomed. He was, they argue, a man who created at least 17 new devices before breakfast, before disrupting an industry or two over lunch. In the afternoon, he made new operating systems, just for fun.

Reality, however, doesn't quite match this picture. Jobs was indeed a visionary, but he happened to be surrounded by brilliant minds; and after the sad death of Apple's founder, those minds have gone on to create brilliant things. Here are some of the highlights:

1. Three new iPhones (ish)

The iPhone 4s was the last model that Steve Jobs had any involvement with. Since then, we've had three more: the iPhone 5, 5s and 5c.

For the first time, the line isn't just bumping previous tech down a level when a new model is released: although the 5c's guts are similar to the 5's, the new design represents an attempt by Apple to widen the iPhone's market.

2. iOS 7

Jobs reportedly loved the skeuomorphism within iOS, which is presumably why Game Center looked like it had wondered in drunk from a casino. Instead, iOS 7 has a minimal theme based on spindly type, white space and careful use of colour.

3. iPad mini

Steve Jobs famously said the company would never sell a seven-inch tablet. Then again, he also argued that people didn't read books not long before iBooks appeared, so his outburst should probably be taken with a pinch of salt.

Still, post-Jobs, Apple made a mini-me for the iPad, the tablet that revolutionised an industry. It was too expensive, complained many pundits; it'd never sell. Except it did, and by the truckload.

4. Mac Pro

With Jobs at Apple's helm, there were question marks over the company's dedication to the pro market. Tim Cook shattered such illusions, responding to a concerned Apple user via an email. Apple was "working on something really great" for pros, and it would arrive in 2013.

At WWDC 2013, the new Mac Pro was revealed, with Apple's Phil Schiller grumbling "Can't innovate anymore, my ass" as the futuristic all-black desktop unit elicited gasps and cheers.

5. Charitable donations

Under Steve Jobs's watch, Apple wasn't known for charitable excess,

> ## Jobs was a visionary, but he happened to be surrounded by brilliant minds
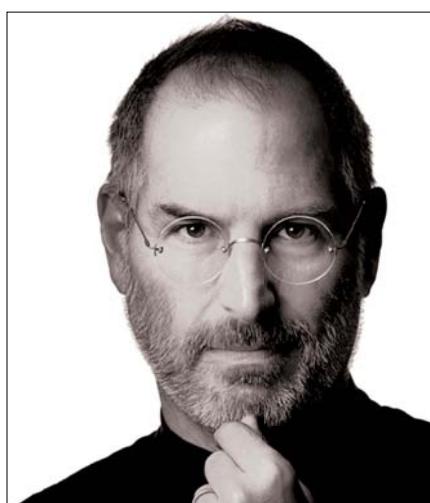
although his widow, Laurene Powell Jobs, says the Jobs family gave substantial contributions in secret. But now that Tim Cook is in the hot seat, things have changed, and Apple now more publicly gives to charity.

6. Personnel changes

Brain drain is perhaps Apple's biggest threat in a post-Steve Jobs world, along with recognising (or not) talent and using it most appropriately (or not).

Former Dixons CEO John Browett was hired to head up Apple's retail operation, to the astonishment of many. A few months later, he was dispatched. Also gone: Scott Forstall, largely responsible for the success of iOS, but reportedly someone who very much rubbed people up the wrong way.

Along with showing a ruthless streak when it came to staff, Cook has been savvy too: tech genius Bob Mansfield was encouraged to stay on, Craig Federighi was placed in command of both OS X and iOS, and Jony Ive was given leadership over all aspects of Apple's human interface work. In theory, this should make for a less volatile Apple behind the scenes, and more unified output across hardware and software.

7. And the rest

Okay, but apart from three new iPhones, iOS 7, the iPad mini, a revolutionary Mac Pro, a ton of public charitable donations, and major staff changes, what has Apple done since Steve Jobs died? Nothing, that's what!

Well, apart from the Retina iPad, a revamped iMac, iTunes Radio, a new iPod touch, the upcoming OS X Mavericks, the MacBook Pro with Retina display, and regularly making analyst Gene Munster punch a wall by not in fact revealing an Apple television.

iUSBportMini
BY HYPER✚DRIVE

£89

Wireless Flash Drive for iPhone®, iPad® and Android®

+ Built-in MicroSDXC expansion slot, USB host port and wireless router
+ Powered by a 950mAh rechargeable battery that last up to 3 hours
+ Creates its own wireless network to share MicroSDXC/USB data
+ Stream up to 3 different 1080p HD movies with 3 different devices
+ Stream music, photos and documents with up to 8 different users
+ Perform 2-way file transfer with up to 8 different users
+ Built-in standard USB connector to function as a normal USB flash drive
+ Free iOS/Android/Web app
+ Also works with hundreds of HTTP/FTP/WebDAV/DLNA/PTP client apps

ANDROID APP ON
Google play

Available on the
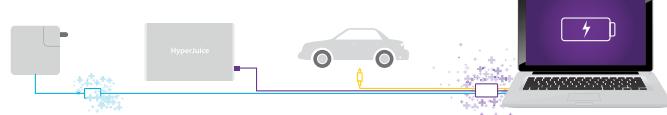**App Store**

Dual **12W** USB

HYPER ✚ JUICE²

£299

World's Most Advanced Battery Pack for Apple® MacBook® & USB

+ 100Wh/27,000mAh
+ Recommended for Retina MacBooks
+ Sleek aluminum enclosure that matches the look of the Apple MacBook
+ OLED displays battery percentage, temperature, and remaining charge time
+ Dual 12 W USB. Charge 2 iPads or any USB device at the fastest speed
+ Upgradeable. Replaceable battery cells, logic board, and aluminum casing

MAGIC BOX

Use MagicBox to power and charge your MacBook in the car, with
HyperJuice External Batteries and MacSafe Power Adapater