

LATEST SMARTPHONE, TABLET AND APP REVIEWS

ANDROID

ADVISOR

ISSUE
06

The best of

Google I/O



Android L • Android TV •
Android Auto • Android Wear

Meet Samsung's
best ever tablets



Why the Fire
Phone will fail



Welcome...

Well hasn't June been a bangin' month for Android. Google I/O was ending as we went to press and, although we got very little in the way of new hardware, we're more excited than ever about what's to come from the platform. In the same week we also learned how Google was bringing its Glass smartglasses to the UK (expect our full review in the next issue), and we were treated to a surprise (yes, an actual surprise) Android Wear-based smartwatch launch in the form of the Samsung Gear Live. We must be slipping.

We round up the best of Google I/O over the next few pages, and later go into more detail on Android's biggest ever OS update, for now known only as 'L' (page 11), Android Auto (page 13), Android TV (page 17) and Android Wear (page 21).

The Google I/O and Glass announcements came on the back of the launch of one of the worst-kept secrets in tech: Amazon's Fire Phone. It's not 'technically' available in the UK (since when does that stop us?) but, actually, that's probably for the best. On page 38 we'll tell you why not only will the Fire Phone fail, but how it proves the whole Kindle Fire model was a mistake for Amazon.

Let's not forget Samsung's Galaxy Premiere event. Turn to page 71 to see Samsung's latest declaration of war on Apple with its new Tab S tablets.

If you've liked this issue (or even if you haven't), get in touch via facebook.com/AndroidAdvisorUK or email marie_brewis@idg.co.uk.



Best of Google I/O 2014

Google's annual I/O developer conference kicked off on 25 June. We round up the best bits of I/O 2014

This year's Google I/O wasn't as dramatic as the I/Os of yesteryear. Nobody jumped from a blimp with a radical new face computer strapped to his face, and Larry Page neglected to step foot on stage, much less wax poetic about the infinite sadness in the world. But despite the lack of theatrics, this year's I/O was still pretty exciting, thanks to the glimpse Google offered us into its future. The tech giant unleashed a slew of updates, synergies, and even whole new platforms designed to weave computing into our everyday lives in — Google hopes

— a seamless way. Here's a look back at everything announced at Google I/O.

Upgrades for Android

First up was Android L, the successor to Android KitKat. The most blatant thing about Android L hits you square in the face right away: it looks awful pretty. Google's introducing a new aesthetic dubbed Material Design in Android L, with a focus on object depth and animation. The beauty is more than skin deep, though: Android L's bringing handy-looking improvements to the way the system handles notifications, along with an intriguing 'personal unlock' feature that does away with the lockscreen if you're already carrying another device that can provide authentication wirelessly.

Android L also boosts the OS's graphical and battery performance, ditches the stodgy old Dalvik runtime powering Android for the new and improved ART (Android Run Time), and adds more than 5,000 APIs for developers. While the launch is still months away, a developer preview is available now.

Android L





Sundar Pichai, the boss of Android, Apps, and Chrome for Google, also revealed a new initiative dubbed Android for Work, which aims to bolster Android’s security and business chops. As part of that, Pichai announced native Microsoft Office integration for Google Drive in Android. Previously, editing traditional Office files in Google Drive required a messy conversion process that was far from seamless. Android L will let you open spreadsheets, documents, and presentations files without all the muss and fuss. Proper mobile support for Google Slides is also incoming. (It’s about time.)

Pichai also announced an endeavour called Android One, designed to bring low-end phones to emerging markets such as India — and boost Android’s share of the market in the process.

Android Wear



Android all around

Android's bursting beyond smartphones these days, though — a fact clearly evident during the Google I/O keynote, where specialised versions of Android for wrists, cars and TVs all made appearances.

Google spent abundant stage time showing off Android Wear's capabilities, especially its contextual awareness and integration with Android phones. David Singleton, Google's director of engineering for Android, previewed the watch OS's Google Now-style cards and the gestures and voice commands used to control them, including a much-needed Do Not Disturb mode that tells your wrist to shut up and stop spitting out notifications. Third-party apps from Eat 24 and Allthecooks were also preened about, but the most newsworthy part of the Android Wear announcements had to do with hardware: the Wear-powered Samsung Gear Live was announced, with both it and the LG G Watch

available for preordering now. (The Moto 360 will follow later in the summer.)

The newly unveiled Android Auto, meanwhile, aims to integrate your ‘Droid with your drive in a way that’s road-responsible. Android Auto connects your phone to your car (via a cable in the onstage demo) and brings your personal apps — such as Google Calendar, Play Music and Maps — to your car’s central dashboard, clad in a familiar Android UI but optimised for the car with larger onscreen buttons and voice commands.

Google’s also trying to resuscitate the corpse of Google TV with Android TV, yet another stab at establishing a beachhead in your living room. Android TV in essence treats your TV as a bigger screen for Android itself, rather than a whole new platform. While the interface certainly looks slick, the real secret sauce could be Android TV’s search features, which draw on Google’s deep knowledge

Android Auto





repository to provide YouTube clips and information about shows. Android TV even provided accurate results to a search for ‘Oscar nominated movies from 2002’ and a vocal query about who played Katniss in *The Hunger Games*. (Jennifer Lawrence, if you’re wondering.)

Android TV

Razer announced a new pint-sized gaming console to match Google’s Android TV announcement, which will feature all of Android TV’s streaming and television navigation capabilities, but focus on Android gaming — kind of like a more TV-friendly Ouya.

Chromecast and Chromebooks

It wasn’t all Android, however. Various iterations of Chrome also stepped into the spotlight.

The nifty little Chromecast streaming media dongle is being updated with some helpful little extras. Most notably, you’ll be able to enable an

option to allow nearby entertainment junkies to cast to the device even if they aren't on the same Wi-Fi network as the Chromecast itself — a handy addition for visiting friends. Chromecast is also gaining the ability to mirror Android devices on your TV, as well as a 'Backdrop' feature that lets you customise the imagery shown during downtime.

The Chrome OS operating system is also receiving some fresh new features, thanks to deeper integration with Android. Like Android L devices, Chromebook users will soon be able to bypass passwords by using a Bluetooth-enabled Android phone for automatic authentication — merely opening the lid will log you in to both the operating system and your Google account. While paired, notifications for incoming calls and texts will appear on your Chromebook, along with low-power warnings for your phone. Google's also working to allow top Android apps to work on Chromebooks, complete with hardware-level access.

Chromecast



Underneath it all

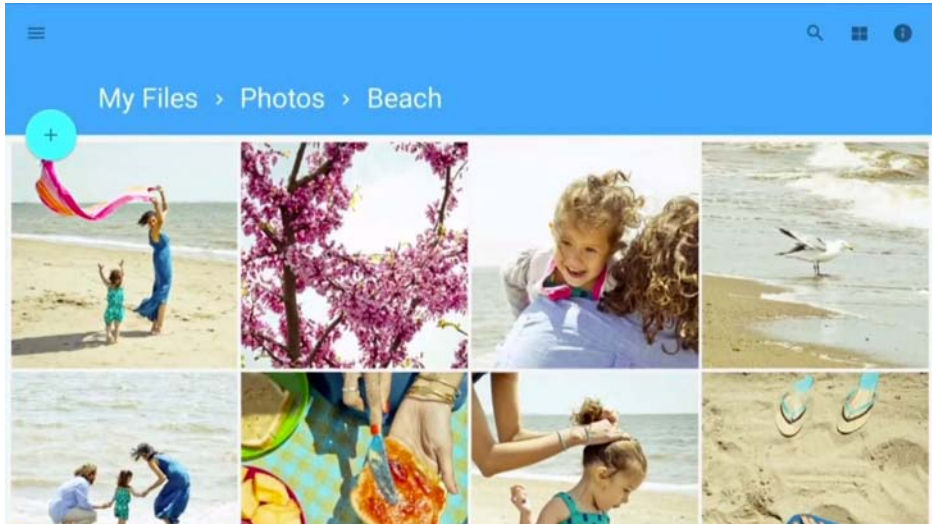
Don't let all the fancy announcements and hardware talk fool you: Google I/O is a primarily a show for developers, and Google revealed some intriguing under-the-hood announcements sure to make devs just as happy as end users.

The Play Games service underpinning Google's gaming endeavours is giving players richer profiles and cloud-based 'bookmarks', which save your in-game progress alongside a screenshot — though it's not clear how it differs from the cloud saves already available to players (and underused by developers). Developers will also be able to create daily Quests, complete with potential in-game rewards.

Shifting gears, health is the buzzword of the day, and Google's jumping on the bandwagon while playing to the potential strengths of Android Wear devices with the launch of Google Fit, a new platform designed to allow your disparate fitness apps and devices play nice together. In essence, Google Fit lets fitness gear and software share data with each other, and Google's already signed up a small army of partners for the platform.

Google Fit





Introducing Android L, Google's next mobile OS

For now known only as 'L', the next version of Android is Google's biggest Android update yet

Google unveiled the next version of Android, for now known only as Android L, at I/O 2014. Although a developer preview is available now, Android L won't be available to consumers until the autumn.

Material design

Google has revealed a new design language for Android L called 'Material'. It's a lot cleaner, and developers can make use of it in apps. The Roboto font can also be used anywhere.

Elements can be given depth, so shadows and light sources affect user interface elements in real time. App interfaces will feature touches of colour automatically generated based on the content, and there are new animations and touch feedback.

Enhanced notifications

Android L will make notifications even better than ever. For starters, you can get notifications on the lock screen — and they will be automatically ordered in priority. You will be able to swipe them away like normal or double-tap to open the relevant app.

Security

Google said security is a key element for Android and its users. A new feature will enable users to unlock their smartphone when physically near enough a device such as an Android Wear smartwatch. It's a bit like cars with keyless entry.

Battery life

Better battery life is something we always want and Google promises that Android L will bring it via a new power-saving mode. Project Volta will allow developers to identify how their apps are using battery so they make improvements.

Google said that the new battery saving mode will give a Nexus 5 an extra 90 minutes of power.

Performance

As we expected, Android L will support 64-bit processors and it will also support the ART software library, which Google says will be twice as fast as Dalvik.

Extending Android to the car with Android Auto

Google Android is everywhere, and now it's even in your car. Meet Android Auto

Following the announcement of its Open Automotive Alliance in January, Google has used its annual I/O conference to unveil plans for its next step in world dominance: Android Auto.

Like Apple's CarPlay, Android Auto relies on you bringing your own smartphone (an Android handset, naturally) and the bigger screen built into the dashboard relays information such as maps and





guidance, plus your music library and information from Google Now and other apps. As well as having much larger buttons for easy operation, Android Auto is also voice-controlled.

That's hardly a new development for car tech, but it means you'll be able to keep your hands on the wheel while choosing a new album or track; enter a destination for the satnav, reply to text messages and emails (which can be read aloud as they arrive) or make a phone call to a contact in your address book. Basically all the stuff you would want to do while driving.

Android Auto runs on your smartphone; indeed it is deeply rooted in the upcoming version of Android (the as-yet unnamed version of the OS, it could be Lollipop) which will be released in the autumn. Cars which support Android Auto are slated to go on sale "before the year end".

When shown on the in-car display, a simplified interface is used to make it less distracting, since one of Google's primary aims is to make it much safer to use tech in cars, reducing the number of accidents caused by distracted drivers.

Auto is rather like Google Now, being 'contextually aware' of whether or not you're in the car and giving you the information you want when you need it via 'cards' – just as you get with Google Now. Cards will be based on a variety of factors, including what Google Now already knows about you, the time, your location and more.

So, if you always leave for work at 8am, Android Auto will automatically show a shortcut to navigate to your workplace and provide any other information such as delays caused by heavy traffic. No need to even bring up the list of recent or favourite destinations. Just tap the card and go.



Since navigation is based on Google Maps, you can tell Android Auto to find, say, your nearest Halfords and it will direct you there. There are no limitations on POIs as with a traditional offline satnav.

A taskbar along the bottom has icons so you can switch between navigation, phone calls, music and other tasks.

Google says 40 car manufacturers are signed up to the OAA, with new members including Bentley, Nissan, Renault, Volkswagen and Volvo. That doesn't mean all will launch Android Auto cars, however.

Google also said that the SDK for Android Auto, along with a full set of APIs for audio and messaging

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As with CarPlay, members of the OAA may well be offering Android Auto versions that you'll be able to install in your current car

”

apps, will be available to developers soon. This means that when Android L is released later this year you should have a decent choice of apps to use alongside the standard Google ones.

Will you have to go out and buy a brand-new car, though? Fortunately not. As with CarPlay, aftermarket infotainment makers including Alpine, Clarion, JVC, Kenwood, LG, Pioneer and Panasonic are members of the OAA and may well be offering Android Auto versions that you'll be able to install in your current car.

Google's director of engineering, Patrick Brady, said: "It looks and feels like it's part of the car, but all of the apps are running on the phone."



Google's coming to the big screen with Android TV

Google TV is dead. Long live Android TV.
 Here's everything you need to know about it

Android TV isn't a new platform, and that's kind of the point, said Google's Dave Burke, speaking to developers. "We're simply giving TV the same level of attention as phones and tablets have traditionally enjoyed. We want you to leverage your existing skills and investment in Android and extend them to TV."

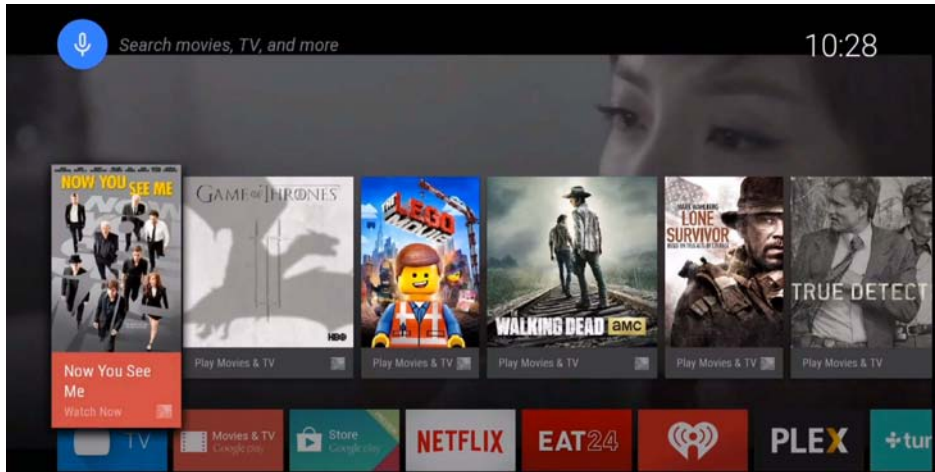
Android TV is simply a means of bringing to your TV set all of the apps and features of your Android smartphone or tablet. It will allow you to play Android games on your TV set, for instance.

Android TV replaces Google TV. Google launched Google TV to great fanfare in 2010. Google TV was focused on simply porting the best TV content on the web into your TV. It wasn't a success, in part because of the paucity of content. In the UK at least, there wasn't much of high quality to watch on your expensive Google TV device.

Android TVs will be like other smart TVs, but instead of relying on proprietary app stores from the likes of Samsung and Sony, you will be able to access Google Play apps and content.

Android TV requires just a directional D-pad as well as voice input, which could appear in a





traditional remote, a virtual keypad on a smartphone or even a gamepad. Burke showed off the TV input framework, which allows Android TVs to handle both HDMI and streaming video.

Android TV release date

All smart TVs made by Sony in 2014 as well as all smart TVs made by Sharp, Philips and TPVision in 2015 will run on Android TV, Burke said. He also announced that LG will create Android smart TVs. Expect more to follow.

Burke also said that dedicated Android TV set-top boxes from Asus, Razr and others will launch this Autumn.

Android TV features

Key to the new features in Android TV is search (typically enough for Google). Search is powered by voice. Burke used his phone to search for content, but the remote could be used. When he

searched for Breaking Bad, he got a list of actors and YouTube clips, as well as the show itself. Thus Android TV adds the second screen experience to your one screen.

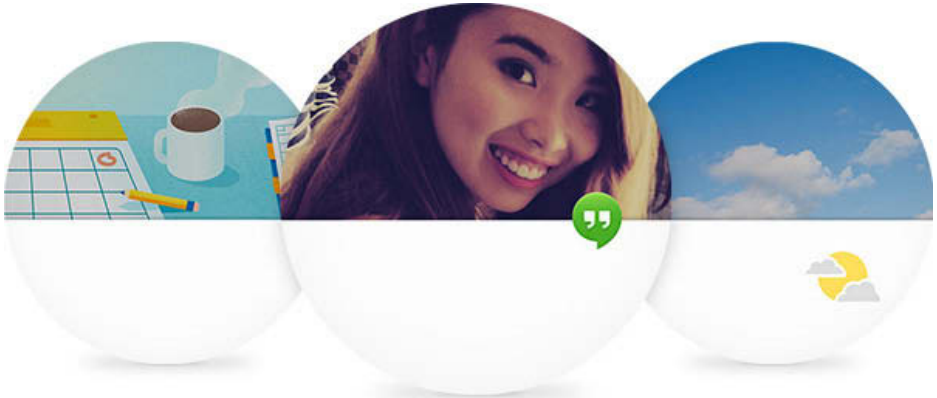
Other features included the use of your TV when you are not watching shows. Google demonstrated using your TV set as the biggest picture frame in the house, rotating images you choose.

Android TV supports Google Cast support, so you can use it just like a Google Chromecast. Google will offer a dedicated Google Play apps store for TV.

Another feature: when you press the home button on your remote (or smartphone or -watch), you see an overlay of shows and movies. There's a set of recommended movies at the top, with the most frequently-used applications tucked in below. Semantic, contextual search allows you to search for content by genre or actor. And you can ask trivia questions, too. Android TV will also recommend content based on your watching habits.

Android TV also makes your TV set a gaming device. You can download and install games from Google Play. And with the games platform you can share achievements and even play multiplayer games.





Android Wear – three new smartwatches

The LG G Watch and Samsung Gear Live are on sale now, with the Motorola Moto 360 coming very soon

Google's Android Wear was announced in March as a version of Android for wearable technology such as smartwatches. Then, during Google I/O on 25 June, Google gave us a further insight into Android Wear, and announced that smartwatches running the new software will be available to preorder from today. Here, we explain what is Android Wear and bring you a list of companies making Android Wear watches.

What is Android Wear?

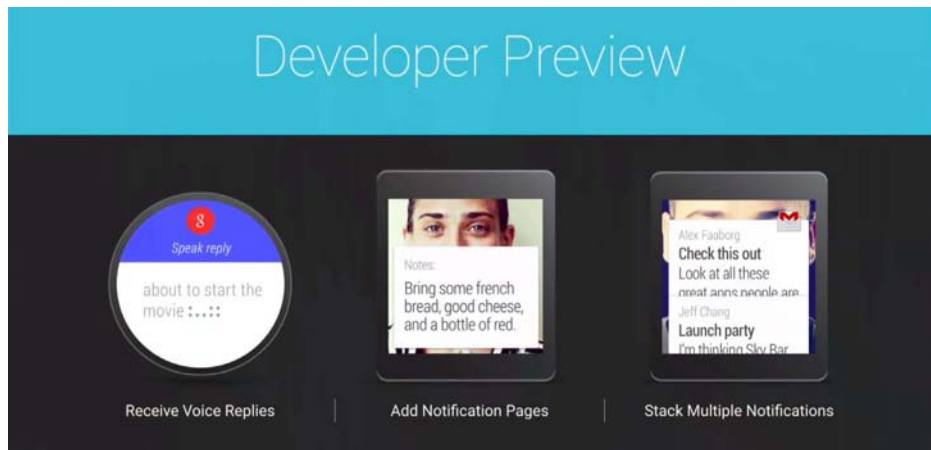
Android Wear is a new version of Google's mobile OS that extends Android to wearables, starting with smartwatches. If you keep up to date with technology you'll know that some smartwatches on

the market already run on Android, namely the Sony Smartwatch 2 and Samsung Galaxy Gear. However, those use adapted versions of the operating system, while Android Wear is Google's mobile operating system specially redesigned for wearables.

"Most of us are rarely without our smartphones in hand. These powerful supercomputers keep us connected to the world and the people we love. But we're only at the beginning; we've barely scratched the surface of what's possible with mobile technology. That's why we're so excited about wearables — they understand the context of the world around you, and you can interact with them simply and efficiently, with just a glance or a spoken word," said Google in a blog post.

What can Android Wear smartwatches do?

Google says that smartwatches with Android Wear (which can be either square or round, as Android Wear supports both shapes) is all about providing information when you need it (the average user





apparently looks at their smartphone a whopping 125 times a day), and allowing you to use voice control to get things done hands-free.

It will be able to give users useful information when they need it most. This includes emails and text messages, but also the latest posts and updates from your favourite social apps, chats from your preferred messaging apps, notifications and more. When you don't need it, you'll be able to swipe down on the display to activate a do-not-disturb mode.

It'll also give straight answers to spoken questions, using the now familiar "Ok Google" trigger. You can ask how many calories are in an avocado, what time your flight leaves, the score of the latest World Cup match. You can also say "Ok Google" to get things done, such as call a taxi, send a text, write a note, make a reservation at a restaurant or set an alarm.



You'll be able to monitor your health and fitness using an Android Wear smartwatch, too, as some models will include heart-rate monitors and pedometers. You'll be encouraged to hit your exercise goals through reminders and fitness summaries, and you'll be able to use your favourite fitness apps to get real-time speed, distance and time information on your wrist, whether you're running, cycling or walking.

When you install an app on your Android phone from the Google Play Store, it'll be automatically stored on your Android Wear smartwatch.

Google has also said that you'll be able to access and control other devices using an Android Wear device. "Just say "Ok Google" to fire up a music playlist on your phone, or cast your favourite movie to your TV," says Google. "There are a lot of possibilities here so we're eager to see what developers build."

You'll be able to use an Android Wear smartwatch to control the music you're listening to on your

Android phone as well. “The watch will act as your key in a multiscreen world,” says Google.

Google also used its I/O keynote to announce Android TV, which you’ll be able to control using an Android Wear remote.

When is Android Wear coming out?

Android Wear devices are available to preorder now through Google Play. The first two Android Wear smartwatches will be the LG G Watch and Samsung Gear Live, costing £159 and £169 respectively.

Motorola’s Android Wear smartwatch will be on sale ‘this summer,’ and there are bound to be more to come this year. Developers can download the full Android Wear SDK from Google, then start tailoring existing app notifications and creating custom apps.

During the Google I/O keynote, Google demoed the Eat24 app for Android Wear, which lets users order their favourite pizza from a takeaway restaurant within 20 seconds, requiring just a couple of taps on the watch.

The first two smartwatches with Android Wear will come from LG and Samsung, closely followed by the Motorola Moto 360 in the summer. However, Google





is also working with other partners, including HTC, Asus and fashion brand Fossil.

LG G Watch

LG has confirmed that it is one of Google's 'lead partners' for Android Wear and the LG G Watch is one of the first Android Wear devices to launch. It's available to preorder now for £159.

"The opportunity to work with Google on LG G Watch was the perfect chance for LG to really pull



out all stops in both design and engineering,” said Dr Jong-seok Park, president and CEO of LG Mobile.

“With the LG G Watch, LG is continuing the milestones we’ve set in wearables following in the footsteps of the world’s first 3G Touch Watch Phone in 2009 and the Prada Link in 2008. We’re confident that a well-designed device has the potential to take the smart wearable market by storm.”

Samsung Gear Live

The Samsung Android Wear watch was confirmed during Google’s I/O keynote on 25 June, and is available to preorder for £169. The news wasn’t surprising, though, as just hours before the keynote an internal source leaked the Gear Live specification to a Spanish site.



The new smartwatch adds to Samsung’s three other wrist-worn devices, the Gear 2, Gear 2 Neo and Gear Fit, but those run Samsung’s own Tizen OS rather than Android.

Motorola Moto 360

The Moto 360 is Motorola’s Android Wear smartwatch. “It’s time for a watch that looks and feels great and gives you the information you need, when you need it,” said Motorola. After announcing that both the LG G Watch and Samsung Gear Live



smartwatches are available to preorder now, it was disappointing to hear from Google that the Moto 360 release date is still “some time this summer”.

As you can see from the image, the Moto 360 looks like a regular wristwatch with its circular design and display. Motorola said that alerts and notifications will be subtle and users can check email, who’s calling, what time is your next meeting or social posts with “just a twist of the wrist”.

“From mechanical to electronic movements, analogue to digital faces, the wristwatch has been reinvented several times over, but the basic design has endured for a century because of its elegance and usefulness ‘at a glance’. Our vision for Moto 360 was to celebrate that history as we reimagined the wristwatch for the future,” said Motorola.

HTC One Wear

Rumours suggest HTC is planning to release a smartwatch called the One Wear in August or September. Apparently this smartwatch will have a round design similar to the Moto 360, and will be available in polycarbonate and metal models.

Google Glass Explorer programme comes to UK

The beta version of Google Glass is finally available to buy in the UK. So, what is that exactly?

Prior to Google's late-June announcement it had allowed early adopters only in the US to buy the specs while engineers continued to work on the hardware and software and third parties added to the ecosystem of apps. Although the prototype product remains in beta, anyone can now buy a Google Glass headset in the UK. So long as you're over 18, you've got £1,000 burning a hole in your pocket and Google has stock, that is.

Glass is expected to come out of beta and be officially available for sale some time this year, and





Google is sure to open up the Explorer Programme to other countries.

What is Google Glass?

Google's Project Glass is the next step in wearable technology from smartwatches. In simple terms, Google Glass is the technology behind a smart pair of glasses. Right now only Google makes Google Glass hardware, but in the future it expects spectacles manufacturers to make the hardware using Google's own software and third party apps.

The current, Google-made glasses don't have lenses, but instead has a battery powered heads-up display (HUD) which sits just above the right eye. You simply glance upward to view what's on the display. It's a bit like having your smartphone built into a pair of glasses, and in the future prescription glasses wearers will be able to add Google Glass tech to their bins.

Google's Project Glass was announced in 2012 as a concept many pigeon holed as 'vapourware'. It was given the unofficial name of 'Google Goggles'. However, Google has continued development and is well on the way to launching Glass to the public.

"We think technology should work for you—to be there when you need it and get out of your way when you don't," said Google. "A group of us from Google[x] started Project Glass to build this kind of

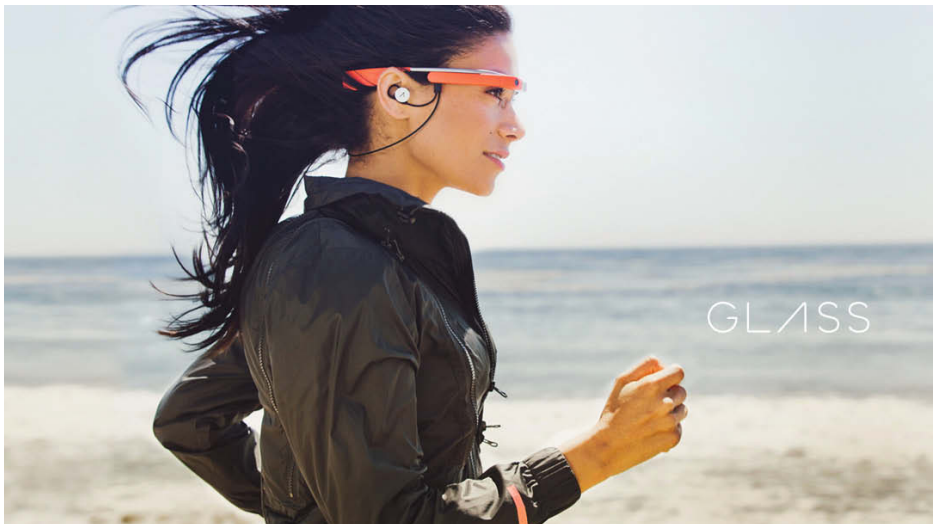
technology, one that helps you explore and share your world, putting you back in the moment.”

Beyond the Explorer models, Google looks like it will be launching Google Glass to the public later this year. In it’s FAQ about prescription Google Glass the firm said: “This marks the next phase in the evolution of Glass as we move toward a wider consumer launch later in 2014.”

Although Google charges developers and testers £1,000 for Google Glass, the consumer model will supposedly be sold for less than this – how much less, we don’t know.

What can Google Glass do?

With the combination of the HUD, a camera, microphone and GPS, Google Glass can carry out various tasks – much like a smartphone. To get a list of options you say “Ok glass”.





From here on you can use your voice to operate Google Glass. For example, it can take a picture if you say “take a picture” or send a message which you dictate. It can also record video, provide info via a Google search, give directions, translate your voice and perform a Google Hangout video call.

With Google Now, Google Glass can provide information before you even attempt to search for it. For example, it can provide details of a flight. Developers are also creating apps for Google Glass so there's plenty of potential for other functions.

The Explorer edition of Google Glass isn't compatible with regular glasses. However, Google has launched its range of prescription frames which includes two ‘twist-on’ sunglasses. It's called the Titanium Collection and consists of four different ‘feather-light’ styles — thin, bold, curve and split.

Google has launched an app called MyGlass to go with Google Glass. It requires Android 4.0.3 Ice Cream Sandwich or later, and can be used to configure and manage Google Glass.

Google Glass will be available in five colours; Charcoal, Tangerine, Shale, Cotton and Sky.

Amazon unveils its first smartphone

Want a Fire Phone? Tough. It's available only in the US, and it's probably best that it stays that way

Amazon has announced its first smartphone. The Amazon Fire Phone has a quad-core chip and 2GB RAM, and runs Amazon's own operating system, and allows users to scan products in the physical world and then buy them direct from Amazon. There's Dynamic Perspective, in which four front-facing cameras allow the user to interact with the phone via facial recognition. This allows for auto-scrolling, tilting and navigating menus — all without needing to touch the screen.

Amazon has added support for the technology to the built-in apps including maps and games. For example, you can 'peek' in maps to see Yelp ratings, or move your head around in Lili to look around corners or objects.

There's also Firefly, with which you point your camera at physical world posters, notes and even TV shows in order to save new contacts, make phone calls, send emails and visit websites without having to type in any details. It can even perform OCR in magazines,



or on posters to identify text. It's probably best thought of as a 'universal Shazam', recognising movies and TV episodes and even live TV, then using information from IMDb to show information on actors and related details so you can add titles to your watchlist.

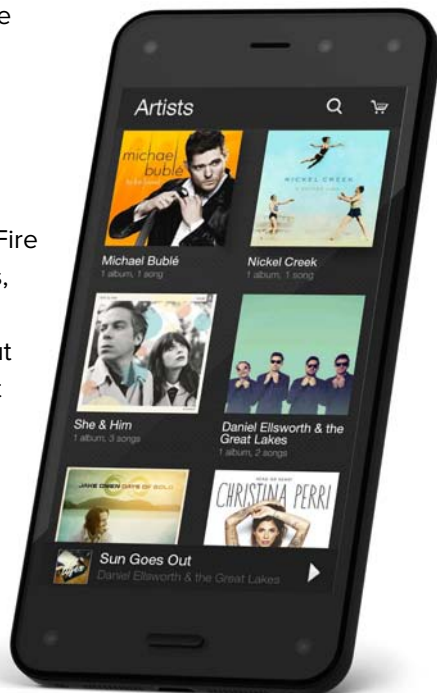
Critically Firefly also works for music, letting you get information on the song that's playing and offering a link to buy it. From Amazon, of course.

Sound good? Well you can't have it.

Why Brits can't buy it

Here's why. The Fire Phone is a relatively mediocre device. What makes it interesting is the way it integrates into Amazon's world. Walk down the street, see something you like, scan it and Amazon will deliver it next day. Hear a song a TV show, Firefly it and you can buy and download it to your handset.

This is both what makes the Fire Phone interesting to consumers, and how Amazon expects it to generate revenue and profit. But for the experience to be good it requires seamless integration with a huge number of third-party sites, services and stores. You need local licensing deals with music, movie, books and TV makers. FireFly needs to understand barcodes and local language.





When the Kindle Fire launched in the US, it took around 18 months to get to the UK. And this was principally because of the requirement to get all the content owners to sign up to deals that worked in the UK. The Fire Phone adds a whole other layer of complexity to this, and for it to work for Amazon users need to be able to spend, spend, spend from day one. Unless it is a huge failure we will get a Fire Phone, but probably generation two, probably in a year or so. However, you can buy a Fire Phone, even if you live in the UK. The question is: why?

How to buy the Fire Phone in the UK

Buying the hardware is easy. Ideally you need a friend who lives in the US, because the easiest and cheapest method is to get someone over there to buy your Fire Phone, and then ship it to you.

If you don't have a US contact (and expect them to start appearing on eBay at inflated prices soon),



the alternative is to hop on a plane with a credit card, have a short trip to the States and combine it with a spot of tech shopping. The challenge here is that to buy a smartphone you may need a US street address. Your Amazon account certainly will.

Either way, you should also be aware that you may be required to pay duty to import your Fire Phone into the UK. If it is posted to you the package will likely be opened, and you will get a letter requiring additional payment. If you carry it through customs you will likely get away with it, but we couldn't possibly recommend that.

How to use the Fire Phone in the UK

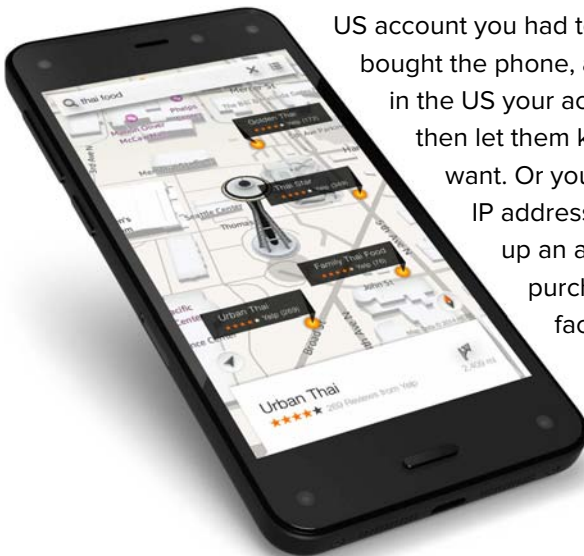
Even in the US the Fire Phone is locked to AT&T, so in order to use your phone as a phone in the UK you will need to get it unlocked (or use it with Wi-Fi only). Elsewhere on these pages I've written a detailed feature on how to unlock a phone, but suffice to say

there are two methods and neither is guaranteed to work. You can source and use an unlock code, or use a cable to connect to an unlock server. The former will likely be tricky for a phone that is not available in the UK, but is worth a try. You are more likely to have success with a cable, if you can find one. And a third-party phone unlock store may be your friend here.

But buyer beware: this a phone that is locked down in the US, so there is no guarantee that you will be able to unlock it to use with UK SIMs. The good news is that a failed unlock attempt is unlikely to damage your Fire Phone.

But in order to use it properly you need a US Amazon account — and you need to pretend you are in the US to use it. So, you can use the US account you had to set up when you bought the phone, and give someone in the US your account details, and then let them know what you want. Or you can spoof a US IP address on your PC, set up an account and make purchases there. Let's face it: it's not ideal.

So the question is not *can* you buy a Fire Phone in the UK, but why would you?



The Fire Phone shows the Kindle Fire failed (and that it will also fail)

The pile 'em high, sell 'em cheap philosophy may be failing, so what now for Amazon hardware?

The Fire Phone launch tells us that technology's most disruptive company is caught in too minds. The Kindle Fire must be failing, and the Fire Phone starts out on shaky ground.

Amazon in late-June confirmed the world's worst-kept secret in launching its first smartphone. And when Amazon does anything, we watch very closely.



This is, after all, the little book store that did big things. A company that went from book reseller to retail giant, to tech hardware maker to publisher and media company. All without turning much of a profit to speak of. All of which leads to a market valuation of around \$150bn.

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People buy more stuff when it is easier to buy than it is not to buy

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Amazon's founder and CEO Jeff Bezos is, simply, a visionary. He worked out how to sell books online. He then understood that Amazon wasn't a book company, it was a brilliant logistics organisation that could get you stuff the next day. And he also grasped two key truths:

1. People buy more stuff when it is easier to buy than it is not to buy
2. US tech investors don't need big profits to invest in disruptive businesses

Hence, Bezos is a rich man and you should pay attention when Amazon launches a new product.

Amazon: disrupting markets since 1994

The Amazon Kindle popularised e-books and changed the way millions of people bought- and consumed reading material. In doing so it took a



chainsaw to the business of traditional book sellers such as Waterstones and Borders.

And then came the Kindle Fire. The Kindle Fire reversed the business model for tablets. A consumption device of similar physical calibre to the iPad, the Kindle Fire is a tablet that costs very little to buy upfront.

The catch, such as it is, is that you are locked to Amazon's marketplace for books, music, movies and apps. The idea being that in your lifetime of ownership you will generate more profits for Amazon than it cost it to build you your Kindle Fire.

Kindle Fire: A game changer (for Amazon)

What was most interesting about the Fire Phone announcement was the way it make clear that the model has now changed.

To recap: Kindle Fire is cheap to buy, and Amazon makes its money from the apps and media you buy. The idea is that the cheapness leads to volume, which is where a low-margin business such as Amazon makes its money.

But the Amazon Fire Phone is actually expensive for a handset with mediocre specs. It's a 4.7in smartphone with what is now a middle-of-the-pack display. The processor and RAM are what you would expect for a high-end smartphone, as are the onboard storage options. There is no expansion slot.

In and of itself the Amazon Fire is not spectacular — but we didn't expect that. We did, however, expect that it would be cheap. But at more than \$600 SIM-free, the Amazon Fire Phone is a Galaxy S5/HTC One M8/iPhone 5s-type purchase. This is a mid-range phone priced at the top end of the market.

If you don't believe me, take this analysis from IDC's Francisco Jeronimo: "The device brings nothing disruptive or particularly innovative to end-users to justify such pricing. This will be a tough sell when compared to devices from the likes of Samsung, Apple or Sony."

And that could be a problem. If the Fire Phone is not cheap enough to attract casual users, it has to be awesome enough to convert iPhone or Android users. And at first blush it looks like it is neither.



Here's what Geoff Blaber of CCS Insight has to say: "Amazon is a low-margin business entering an intensely competitive and cost-sensitive business in smartphones. To justify that investment and to drive Prime adoption Amazon has to differentiate through disruption rather than joining the status quo."

So obviously the device itself is not the point. Not the whole point, at least.

Caught between two business models?

With the Fire Phone Amazon is selling not just a phone, but a portable access device to all of Amazon. The ability to purchase what you see in the physical world with a single click. And for that to work Amazon needs lots of manufacturers and

vendors to jump on board. And to get them you need a lot of consumers to buy the Amazon Fire Phone — which makes the high-end price seem odd.

At last night's event spent Amazon loads of time talking about how much its customers love its services. It repeatedly stressed that although not many people use Amazon Prime, those that do use it absolutely love it.

It was noticeable that in a hall that held only 300 people Amazon made sure a proportion of the audience were Amazon fans, and developers. They devoted a lot of the evening to getting those invited users and developers to talk about how great Amazon is. It felt a little forced.

I think Amazon is slightly confused as to its aims with the Fire. That in turn



makes me think it isn't making any money on the Kindle Fire model, and now they are trying to make sure that however many people buy Fire Phone they make a profit from each one. A profit from every customer, regardless of the margins it makes once the hardware is in action.

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The price of the Fire Phone suggests the business model Amazon tried with tablets may not be working as expected

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Francisco Jeronimo puts it better: “The price of the Fire Phone may also suggest that the business model that Amazon tried on tablets with the Kindle Fire may not be working as expected. By making no money on hardware Amazon was expecting to attract users to their Kindle Fire tablet and profit from selling the content. If that was a success there would be no reason for Amazon not to pursue the same business model today. In fact, it is much more likely that consumers will shop more on Amazon with a smartphone than with a tablet.”

All well and good. Make an expensive phone, sell it for an expensive price. It doesn't need to be the most popular. And as Amazon said last night: it doesn't matter if few people use a product, as long as you make a good profit from each one.

But at the same time Amazon seems desperate to get developers onboard, because all of these sexy parallax and UI features will work only if developers create content for them. And the shopping function

requires vendors and manufacturers. This requires Fire Phones to become mass market products with an audience that is attractive to developers and stores. And this itself seems unlikely when the Fire Phone is available from one network, in one country.

But without support from app makers and product vendors you have to wonder just how interested will

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There seems to be a lack of clear vision as to what and who the Fire Phone is for

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be the majority of phone users in trading up to a phone that is locked to Amazon.

Flaming star or flipping burn out?

I don't know if the Fire Phone will fail, but I think its announcement tells me that Kindle Fire is failing. And there seems to be a lack of clear vision as to what and who the Fire Phone is for.

I'll give the final word to CCS Insight's Geoff Blaber: "Amazon has been at the forefront of disruption in the hardware business but this announcement fails to repeat the impact of the Kindle or Kindle Fire tablet. This is contrary to the strategy of pricing hardware at cost to drive retail sales and service adoption – Amazon seems uncharacteristically caught between two business models."



Inside the HTC One M8

It looks great from the outside, but interior chaos makes repairing a broken HTC One M8 difficult

HTC's One M8 is probably the most stylish smartphone you can buy right now, but what lies beneath that brushed-metal frame? Let's find out what's inside the HTC One M8.

Digging into the innards of a smartphone with a 90 percent metal unibody case is not a job for the fainthearted. Luckily, then, iFixit.com has got all the right tools for the job.

Of course, the HTC One M8 has been around some time now, so there's plenty of stuff we already know. We know this 146.36x70.6x9.35mm, 160g chassis hides a 2.3GHz Qualcomm Snapdragon 801

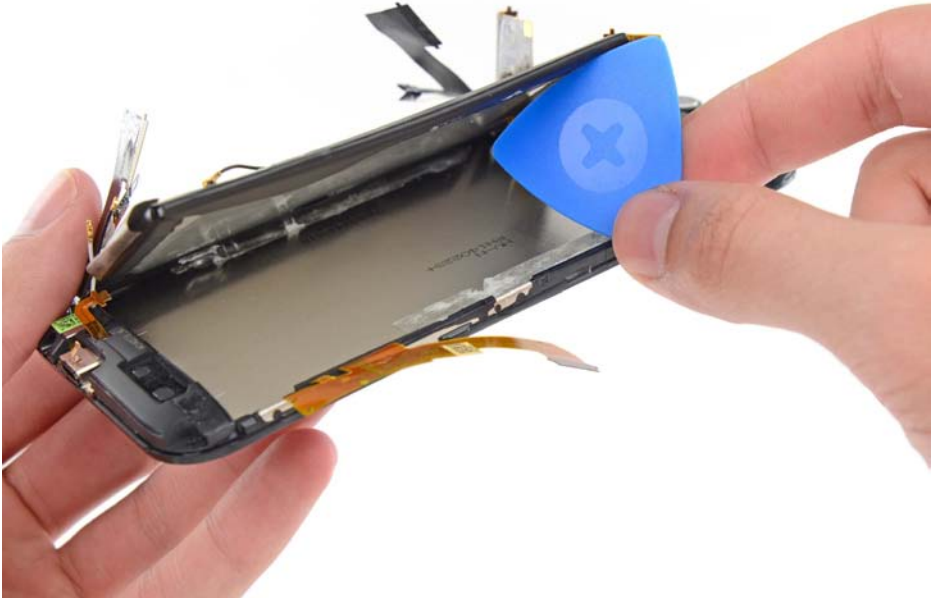
chip, 2GB of RAM, Adreno 330 graphics and 16- or 32GB of internal storage (plus a microSDXC slot). From the front the BoomSound stereo speakers and 5in full-HD (1920x1080, 441ppi) screen are clear to see.

There are twin cameras on the rear — one an UltraPixel camera and the other able to capture depth — plus a 5Mp snapper at the front, and the HTC One M8 supports dual-band 802.11a/b/g/n/ac Wi-Fi, Bluetooth 4.0, NFC, IR and GPS. Software-wise it runs Android 4.4 KitKat with HTC Sense 6.0.

But what about the stuff we don't know? Let's rip apart the HTC One M8 and see what's inside.

- Beauty is only skin-deep. Despite that fancy design on the outside, inside the HTC One M8 there's an awful lot of tape. And cables. And glue. So much glue.





- iFixit.com lists the exact hardware found inside the device: Elpida FA164A2PM 2GB RAM + Qualcomm Snapdragon 801 quad-core 2.3GHz CPU; SanDisk SDIN8DE4 32GB NAND flash memory; STMicroelectronics 0100 AA 9058401 MYS; Qualcomm PM8941 and PM8841 power management ICs; Avago ACPM-7600 power amplifier module; Synaptics S3528A touchscreen controller; Qualcomm WTR1625L RF transceiver and WTR1625.
- A non-removable battery usually refers to one that won't freely pop in and out and will require some careful handling to replace. In the HTC One M8 the battery is not only 'non-removable', it's hidden below the motherboard. And there is an insane amount of glue adhering it to the midframe.



- Worse, you'll have to get under the motherboard and battery to get to the screen. And that's the part you're most likely to want to replace — so it's a good job HTC offers one free screen replacement within the first six months. HTC's glue budget must have been running low by this point: the display is surprisingly easy to remove. That said, iFixit.com managed to sever the digitiser cable in the process.

iFixit.com awards all the devices it tears down a repairability score, and it's no surprise that the HTC One M8 scored just two out of a possible 10 points. It's difficult to get inside that metal case, both battery and screen are buried below the motherboard, and there is so much tape and glue sticking everything together that it's a wonder that the HTC One M8 looks so gorgeous on the outside. You might want a case to protect the HTC One M8.

Inside the Samsung Galaxy S5

Samsung's Galaxy S5 stands accused of having a plastic build, but what does it look like on the inside?

Samsung's Galaxy S5 stands accused of having a plastic build, but what does it look like on the inside? We're not so keen on pulling apart our GS5 so, luckily for us, the good guys over at iFixit.com have done the job for us. Here's some stuff you might not know about the Galaxy S5.





Samsung Galaxy S5: What we know

The Samsung Galaxy S5's specification is no secret. In fact, the S5 is an incredibly popular device, with sales completely outstripping those of the S4. You might even own one.

So what is inside? The Samsung Galaxy S5 is an Android 4.4 KitKat smartphone with a 5.1in (1920x1080, 432ppi) Super AMOLED display. It pairs a 2.5GHz Qualcomm Snapdragon 801 chip with 2GB of RAM and Adreno 330 graphics, plus there's 16- or 32GB of internal storage and a microSDXC card slot that lets you add a further 128GB.

The Samsung Galaxy S5 supports some unique connectivity features, with its 802.11a/b/g/n/ac wireless supported with MIMO technology and a download booster, allowing it to combine the power of Wi-Fi and 4G to offer super-fast downloads. And you get NFC, Bluetooth 4.0, IR and Micro-USB 3.0 — no surprises there.

It's a skinny smartphone, just 8.1mm thick and 145g, but packs in a 2800mAh removable battery whose capacity is boosted with an extreme power saving mode. And let's not forget the 16Mp rear camera and front-facing 2Mp webcam, heart-rate monitor and fingerprint sensor.

SIM-free, the Galaxy S5 costs around £479.

Samsung Galaxy S5: What we now know

- Despite its waterproofing (which is evident in the form of a rubber gasket on the underside of the rear cover), peeling off the back of the Samsung Galaxy S5 is easier than peeling a banana. At least that's what the guys at iFixit.com tell us. So, that plastic, dimpled case isn't so nasty after all.



- The only way to get into the Galaxy S5 is glass-first, and that's a lot trickier than you might expect, with both the home button cable and some sticky adhesive proving masterful oppositions. Unlike previous Galaxy smartphones, the S5 “sandwiches components between the display and the battery in their own difficult-to-access compartment”, according to iFixit.com. The Samsung Galaxy S5 also has not one, but two midframes.
- The exact chips found inside are as follows:
Elpida FA164A2PM — the same 2GB RAM package as inside the HTC One (M8), and different from the 2GB Samsung chip found in Chipworks’ analysis;
Quad-core 2.5 GHz CPU likely layered beneath;
Samsung KLMAG2GEAC-B0 16GB onboard memory; Avago ACPM-7617 multi-mode, multi-band RF front end; Murata KM4220004 (likely Wi-Fi module); C1N75R UMR3; Maxim Integrated MAX77804K (System PSoC) and





MAX77826; STMicroelectronics 32A M410; WEP GRG28 antenna switch module; Qualcomm WTR1625L RF transceiver (another encore from the HTC One M8); Qualcomm WFR1620 receive-only companion chip; Qualcomm PMC8974 power management IC; Lattice LP1KSD 84071R25 low-power FPGA; Invensense MP65M gyroscope/accelerometer; Qualcomm WCD9320 audio codec; SIMG 8240B0 mobile HD-link transmitter and NXP 47803 NFC controller.

iFixit.com awards a repairability score to all the devices it tears down. It awarded the Samsung Galaxy S5 five out of a possible 10 points — the same score as the OnePlus One phone. It's easy to take out the battery and all the parts will be easy to get hold of, but the need to get past the display to undertake any repairs adds risk.



Inside the OnePlus One

The OnePlus One is a great phone on paper, but what's inside the OnePlus One?

There's lots of stuff we already know about the OnePlus One. We know it's got a 5.5in IPS screen, a 2.5GHz Qualcomm Snapdragon 801 processor, 3GB of RAM and 16- or 32GB of storage. And we know there's a 13Mp camera (5Mp at the front), a 3100mAh battery and various connectivity features such as the latest 802.11ac Wi-Fi, Bluetooth 4.0, GPS and NFC.

We also know that it has an amazing price (\$299/€269 for the 16GB model) and we know it's a pretty impressive device — and pretty big, too.

But that's pretty much all we know because, like the rest of the world, we are STILL waiting for our

OnePlus One. Luckily for us, iFixit.com has got its hands on the OnePlus One phone and delivers some interesting insights.

For starters, did you know the OnePlus One is supplied inside a fancy red box, along with a power adaptor, a SIM ejector tool (that you can put on your keyring) and an inside-out USB connector? Us neither, because we STILL don't have one.

And, did you know that although the back cover doesn't appear to be removable, it clearly is? The OnePlus One's 3100mAh lithium-polymer battery inside is not (technically) removable, however, with its cable hidden under a screwed-in panel.

Finally, something you would know only by dissecting the OnePlus One: the exact spec of what's found inside. iFixit.com found the following hardware: Samsung K3QF7F70DM-QGCF 3GB LPDDR3 RAM; Qualcomm Snapdragon 801 likely layered beneath; Qualcomm WCD9320 Audio Codec; AGD2 2402 WX9DR (likely gyroscope); RM8941; 8407 CEH 05KTJ; B02419; P0911 3193; Toshiba THGBMBG9D8KBAIG eMMC 5.0 64GB Onboard Storage; Skyworks SKY77629-21 Power Amplifier Module; Qualcomm WCN3680 802.11ac/



FM/BT 4.0 Combo Chip; Qualcomm WTR1625L RF Transceiver; Skyworks SKY85709 WLAN Front-End Module; and a Synaptics S3508A Touchscreen Controller. Oh, and there's a water-damage indicator, so don't get any ideas if you drop your phone down the toilet.

iFixit.com awards a repairability score to all the devices it tears down, and the OnePlus One achieves five out of a possible 10 points. Although the OnePlus One uses standard screws and fairly modular components, the battery connector is trapped under a plastic panel and the LCD and digitiser glass are fused together and require heat to be removed from the midframe.





5 things we want to see in the Samsung Galaxy S6

Here's our wishlist for the Samsung Galaxy S6. Can Samsung turn its S5 into a winner?

We've seen the Samsung Galaxy S5 and all it has to offer, and we're already over it. Now our thoughts have turned to what's coming next from Samsung. Or, rather, what we hope is coming next in the Samsung Galaxy S6.

Better build quality

The biggest downfall of the Galaxy S5 is its cheap and nasty plastic build quality. It really isn't good enough for a high-end smartphone, especially when you compare it to devices such as the HTC One M8. We want Samsung to up its game on this front with the Galaxy S6. Show us some metal, Samsung.

Improved battery life

The Galaxy S5 doesn't have appalling battery life, and the Ultra Power Saving mode is handy. However, it doesn't have wireless charging and we still want more battery life as standard. Hopefully the Galaxy S6 can provide this with some new technology.

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A phone that can flex to avoid breaking or even roll up would be amazing

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64-bit processor

The Galaxy S5 not having a 64-bit processor wasn't a massive deal, but we certainly want to see it in the Galaxy S6 — especially since Android L will support it, and Qualcomm has already announced its 64-bit Snapdragon 810 and 808 chips.

Pump up the res

Samsung has announced the Galaxy S5 LTE-A in its home market of Korea, which is a beefed-up S5 with a Quad HD screen. It's not coming to the UK, though, and that's not fair. Sort it out, Samsung.

Bend me, don't break me

Samsung has been showing off bendy screen tech for a while, yet we've seen it only in the somewhat bizarre Galaxy Round. In the Galaxy S6 we want to see a flexible design — and not just for the sake of it. A phone that can flex to avoid breaking or even roll up would be amazing.

5 things we want to see in the HTC One M9

HTC's already on to a winner with its One M8, but things can always be done better

Let's hope you're reading this, HTC, because we have some demands. Here's our wishlist of features we'd like to see in the HTC One M9.

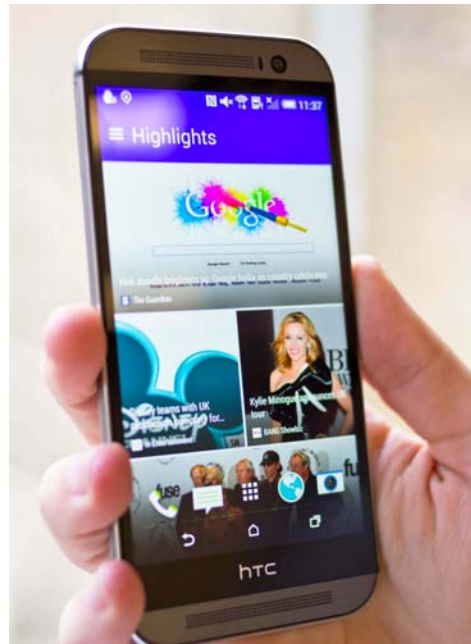
Waterproof design

The HTC One M8 has one of the best and most luxurious designs on the market. It's a seriously desirable lump of beautifully crafted metal. However, you can't take it in the shower or jump in a swimming pool with you.

Dust- and waterproof designs are still rare, with few manufacturers other than Sony offering it on their high-end smartphones and tablets. Samsung recently went down the same route with the Galaxy S5, and it's definitely something we'd like to see from HTC and the One M9.

Quad-HD screen

Full-HD screens are great and, although there's nothing wrong with the display on the HTC One M8, LG has just proved



that there's a place for Quad-HD resolution on smartphones with the G3. Write that one down, HTC.

More storage

If you go and buy an HTC One M8 in the UK, you won't have to spend long deciding what model to buy. That's because there's only one: 16GB – albeit in several colours, and with a microSDXC slot. It seems that 16GB is now the standard for premium smartphones, but it really ought not to be.

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**LG has proved there's a place for
Quad-HD resolution on smartphones.
Write that one down, HTC**

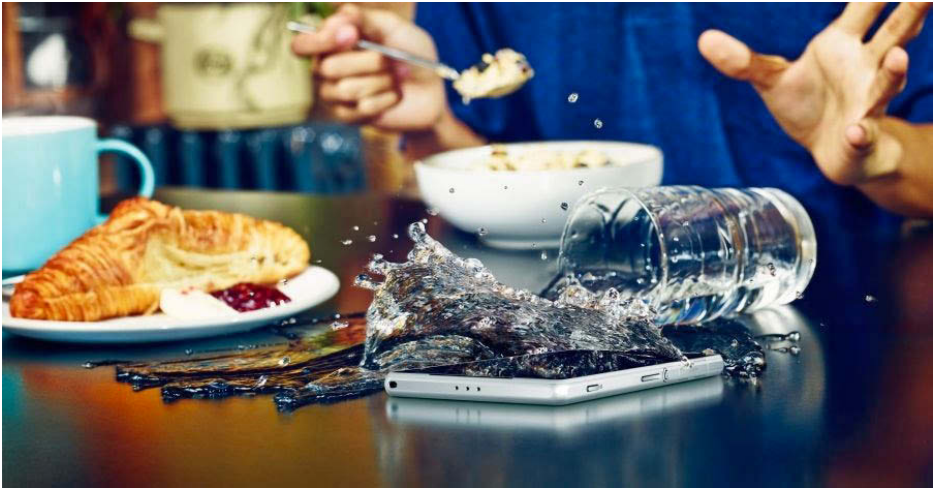
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Wireless charging

We always want more battery life from smartphones, but something missing entirely from the One M8 is wireless charging. It's still an uncommon feature for smartphones, but we don't think it should be. The technology has been around for long enough and is easy enough to implement.

64-bit processor

If the rumours are to be believed then the HTC One M9 will be released in the first quarter of 2015. This ties in nicely with when Qualcomm expects devices to start shipping with its Snapdragon 810 processor under the bonnet. Add to that the fact the upcoming Android L OS supports 64-bit, and it's probable that we'll be welcoming into the world a 64-bit HTC One in, ooh, about nine months.



5 things we want to see in the Sony Xperia Z3

Sony's Xperia Z3 could we with us within months, so here are a few last-minute requests

Dear Sony. We're excited about the upcoming Xperia Z3 smartphone. But to make us **really** excited, we have a few requests. Here are five great things we want to see in the Sony Xperia Z3.

Thinner, lighter, stronger

This is tough on Sony, which with the Xperia Z1 first popularised the idea of a dust- and waterproof smartphone. But the nature of smartphone consumers is that we always want more. And the case of the Zperia Z3 is no different.

Rumours suggest that the Z3 will be equipped with a metal frame. And if such online chatter is to be believed this will include a PVD coating that creates an attractive mirror-like finish. It should look like stainless steel, but be much firmer and lighter. And these are all things we like the sound of.

We're happy for Sony to stick to the Xperia model of big oblong handsets, but we want the new one to both thinner and stronger. So please, Sony, make the Xperia Z3 more able to deal with accidental damage from bumps and scrapes.

Faster, more powerful **– but with two-day battery life**

Yup, give us something good and yet we still want more. The Xperia Z2 is one of the fastest of a superfast breed of smartphones that are on





the market right now. In truth the pace race for mobile tech has plateaued, and despite what the benchmarks will tell you all top-level smartphones perform just as well as they need to. But as we start to do more with our smartphones it would be great to have a phone that could handle multiple simultaneous computational and networking tasks. Even better one that not only lasts all day, but doesn't need charging every day.

Rumours suggest that the Xperia Z3 will be faster and more powerful than its predecessor, with a 2.5GHz Qualcomm Snapdragon 801 processor, 3GB of RAM and Adreno 420 graphics. So, Sony, make sure the code is sufficiently tight to avoid battery drain, and pack in a massive battery cell. Especially if the display is as good as we hope...

Quad-HD, curved display

The LG G3 and Oppo Find 7 have set the benchmark, and now Sony must follow. Mustn't it? Most Xperia Z3 rumours suggest that Sony is set to concentrate primarily on performance, and will stick with 'only' a full-HD display with the Z3. But we hope for something more. After all, what's the point in

having a great big phone like a flagship Sony Xperia if it doesn't come with a great big screen.

A better camera

This is no criticism of the Xperia Z2's camera, which is its outstanding feature — a 20.7Mp camera with pulsed LED flash. But the rumour that excites us

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The rumour that excites us most is that Sony may improve the camera further in the Z3

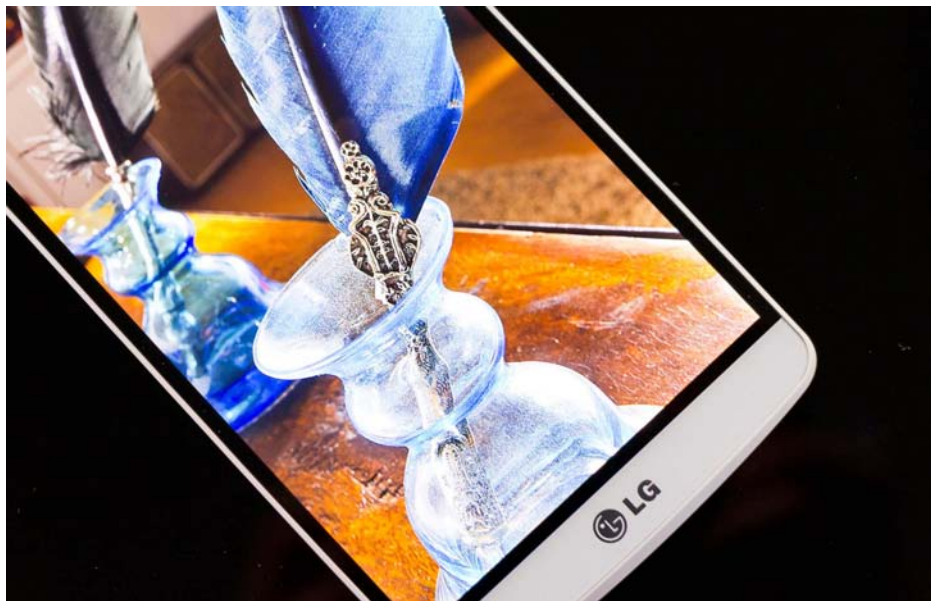
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most is that Sony may improve the camera further in the Z3. We're hoping for a 23.7Mp camera, with ultra sensitivity to dim light and the ability to capture in 4K. We've also read rumours of optical image stabilisation and a 6x optical zoom. Want.

A cost of no more than £550

When Sony launched the Xperia Z it had an SRP of £549. The Xperia Z1 launched at £599, and the Xperia Z2 was £559.

More importantly, you can buy the Xperia Z2 for anywhere between £500 and £550. The market is more crowded than ever with good, high-end devices. And notwithstanding all of the above, the Xperia Z3 will have to be outstanding to, well, stand out. And to compete with the now excellent mid-range Androids it will have to be something special. But also it will have to be priced correctly.



5 things we want to see in the LG G4

The LG G3 is our current pick of the smartphone market, but we always want more. More, LG, MORE!

LG has impressed us with both the G2 and the G3 and, although we have little complaint, we still want it to show us something even better in the G4. Here's our wishlist for LG's next flagship.

Android L

Hot off the back of I/O, this one's a given. If the LG G4 isn't running Android L we will be annoyed, and that's an understatement.

64-bit processor

LG opted for a Qualcomm Snapdragon 801 processor clocked higher than its rivals at 2.5GHz in the G3. For the G4 we want the next big thing in mobile chips, and that's 64-bit. The iPhone 5s already has it, and Android L will support it, so no excuses, LG.

Waterproof design

LG has yet to be swayed by the merits of IP 67-certified dust- and waterproofing credentials, insisting that it's not really that useful for consumers. No, LG, not at all useful when you drop your phone in the loo or a mischievous friend chucks you in the pool, smartphone and all.

Not having to worry about your phone in the bathroom or kitchen is a real boon, and there's no denying that shooting photo and video underwater is cool. Add it to the G4 please, LG.

Better battery life

We say this about every smartphone that hits the market, but as their functionality increases and we can spend more and more of our lives on them the less we want our, erm, lives to be cut short. The G3 has tricks up its sleeve to last so long with that big, beautiful Quad-HD screen, but we still want more.

Cheap, but not tacky

That LG has done so well in the smartphone market is partly down to its pricing model. Rather than making no profit on hardware like Google, LG undercuts its rivals but still makes a few quid. Keep up the good work here, LG.



Move over for the Quad HD Oppo Find 7, LG

If you've never heard of Oppo, look it up. Its Find 7 is not only cheaper than the G3, but shares many of its specs

Chinese manufacturer Oppo announced its Find 7 on 19 March. The Find 7 is, compared to smartphones from heavyweights Samsung, LG, HTC and Sony, a relatively unknown entity, but it has some amazing hardware — including a Quad HD screen — and a great price.

Oppo's €399 Find 7a (a lower-spec version of the Find 7) is available now, while the €479 Oppo Find 7 itself is available to preorder, with a shipping date of "early July". Visit europe.oppostyle.com to make a purchase or register your interest. The first 1,000 orders get a free iLike Power Bank, too.

At such a low cost the Find 7's hardware is amazing. For starters, LG will no longer be the only

smartphone manufacturer with a Quad HD screen — the Oppo Find 7 matches its 5.5in (2560x1440, 534ppi) display. Like the LG's this is a capacitive multitouch IPS panel, here with 16 million colours and a 1,000:1 contrast ratio, and protected with Gorilla Glass 3. You'll be able to operate the Find 7's display when wearing gloves or with wet fingers, too.

It's not quite as compact as LG's G3, but inside this beefy 173g, 152.6x75x9.2mm handset you'll find the same 2.5GHz Qualcomm Snapdragon 801 quad-core chip and Adreno 330 graphics, plus the 3GB of RAM that LG supplies only in its 32GB version of the G3. There's 32GB of storage as standard here, and you can add up to 128GB with a microSDXC card.

The Oppo Find 7 QHD has a 13Mp rear camera with Pure Image 2.0, a hardware and software solution based on six physical lenses, a Sony IMX214 sensor and f/2.0 aperture. Oppo claims the Find 7 QHD can take 50Mp photos through software enhancement, plus it can record 4K and slo-mo video, and HDR is built into the hardware. With a 32-second exposure Oppo says crystal-clear night





shots are possible. At the front is a 5Mp camera with an 80-degree wide-angle sensor perfect for selfies.

As you might expect connectivity stretches to 4G LTE, 802.11b/g/n Wi-Fi (5GHz), Bluetooth 4.0, GPS and NFC. The Oppo Find 7 QHD is also fitted with a removable 3000mAh lithium-polymer battery, which supports Rapid charge, allowing you to achieve a 75 percent charge in just 30 minutes, and to get enough juice for a two-hour phone call in just five minutes. A thermal protective coating prevents the Find 7 overheating during charging.

The Oppo Find 7 QHD is built around a solid aluminium-titanium alloy frame. It comes in white or black, with a carbon-fibre-effect rear. MaxxAudio should offer crisp, clear sound quality.

A key difference between the Oppo Find 7 and its competitors is that it runs ColorOS, which is based on Android 4.3 Jelly Bean. Oppo says an update based on KitKat is in the works and will roll out to both Find 7 and Find 7a.



Oppo Find 7 vs Oppo Find 7a

The Oppo Find 7 and Find 7a have many specifications in common, but the cheaper Standard version has some slightly slimmed-down specs. The chassis is the same size, and also available in black or white, but has a polycarbonate shell.

The 5.5in display supports a full- rather than Quad-HD resolution, at 1920x1080 pixels and 403ppi. The battery capacity is slightly reduced (to 2800mAh), the RAM allocation is just 2GB, and the Snapdragon chip is clocked lower at 2.3GHz. Inside you'll get 16- rather than 32GB of storage, although the Find 7a also features a microSDXC slot for adding a further 128GB.

Surprisingly, ePrice has reported slightly lower performance scores in its benchmarks for the Find 7 vs the Find 7a, but that Quad HD screen no doubt requires a fair bit of processor muscle. It also found the Find 7's display delivers colder colours than the Find 7a.

Samsung Galaxy Tab S 8.4 to rival iPad mini

The Tab S 8.4 is Samsung's best-ever compact Android tablet, and its priced to kill the iPad mini

Samsung has unveiled its Galaxy Tab S 8.4, a compact KitKat tablet with an 8.4in screen. Here we compare the Samsung Galaxy Tab S 8.4 and key rival the Apple iPad mini 2 (aka Apple iPad mini with Retina display) to find out whether Apple or Samsung makes the best compact tablet.

Price and UK availability

Apple's iPad mini 2 is already on sale in the UK, priced from £319 for the base model with 16GB of storage to £659 for the 128GB model with 4G.



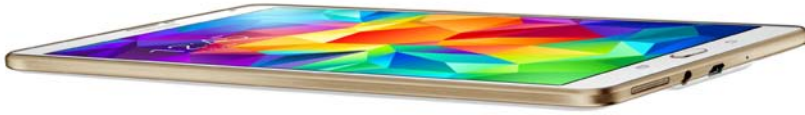
Samsung's Galaxy Tab S 8.4 will go on sale in the UK on 4 July, matching the iPad mini at £319 with 16GB of storage, or £419 with 4G LTE connectivity. A 32GB model will also be available.

When the Samsung Galaxy Tab S 8.4 was first announced we were surprised to learn it was to be more expensive than the iPad mini. Yes, more expensive versions of the iPad mini 2 are available, but at their comparable points — 16GB with and without 4G connectivity — the iPad was to come in £30 cheaper. But as we said at the time: "Whereas the iPad mini will retain its price until the next version is unveiled by Apple, Samsung's Galaxy Tab S 8.4 will quickly fall in price — even by its 4 July launch it could well be available at a lower price than the iPad mini." Indeed, a week before its 4 July launch Samsung has matched Apple's pricing. Also see: 25 best tablets 2014.

Design and build

Apple's iPad mini 2 is available in Space Grey and Silver, while the Samsung Galaxy Tab S 10.4 will come in Titanium Bronze and Dazzling White.





Despite featuring a larger 8.4in screen, Samsung's Galaxy Tab S 8.4 is the more compact tablet, both thinner and lighter than the 7.9in-screen iPad mini 2. It's just 6.6mm thick and 294g (298g with 4G) to the iPad's 7.5mm and 331g. The iPad mini 2 is also wider, at 134.7mm versus the Tab's 125.6mm, but the Galaxy is taller, at 212.8mm versus the iPad's 200mm.

Display

Apple is well known for the quality of its amazing Retina displays, the idea behind which is that they are sufficiently high-res that the human eye is unable to distinguish between individual pixels and there is no need to go any higher. Actually, LG proved at its recent LG G3 launch that we can tell the difference, and its Quad HD screen is more true to life than anything we've seen from Apple.

But back to Apple and Samsung. Apple has fitted its iPad mini 2 with a 7.9in IPS multitouch panel with 2048x1536 pixels, which equates to a pixel density of 326ppi. Samsung instead plumps for a Super AMOLED panel in its Tab S 8.4, but it's both larger and higher in resolution: 8.4in, 2560x1600, 359ppi.

Processor and memory

It's difficult to compare the performance of the Samsung Galaxy Tab S 8.4 and Apple iPad mini with Retina display without getting them into our lab and running some benchmarks, particularly given the fact the two are running different operating systems.

Whereas the iPad mini 2 is fitted with the 1.3GHz Apple A7 chip, the same 64-bit chip with motion co-processor featured in the iPhone 5s and Apple iPad Air, Samsung has fitted its own Exynos Octa-core chip, which pairs four 1.9GHz cores with four 1.3GHz cores. Samsung also supplies 3GB of memory to the iPad mini's 1GB. Note that this does not necessarily mean the Samsung Galaxy Tab S 8.4 will be faster — software plays a huge part in performance.

Storage

Apple might win on the storage front in terms of how much usable storage is available out of the box, but Samsung's Galaxy Tab S 8.4 features a microSDXC slot that lets you add cards up to 128GB in capacity. And we're pretty sure it won't cost you £240 to buy a 128GB memory card, which is the price difference between Apple's 16- and 128GB iPad minis. Indeed, you'll find one as cheap as £50 over at Amazon.





Connectivity

Both iPad mini 2 and Samsung Galaxy Tab S 8.4 feature Bluetooth 4.0, 802.11a/b/g/n/ac Wi-Fi with MIMO and GPS, and are available in versions with 4G LTE connectivity. The Samsung also supports IR and Wi-Fi Direct but, more importantly, uses the industry-standard Micro-USB port for charging or connecting to a PC; Apple uses its proprietary Lightning port. Plus, the Galaxy Tab S has a fingerprint scanner.

Cameras

The Samsung Galaxy Tab's cameras offer more megapixels both front and back, although we're unlikely to make use of either tablet's 5- (Apple) and 8Mp (Samsung) rear cameras. Even if they do both support full-HD video recording at 30fps, and the Galaxy Tab benefits from an LED flash. Let's face it, we'd look pretty stupid.

More likely is we might want to use the front-facing camera for video chat — probably Skype on the Tab, and both that and FaceTime on the iPad. Here the Samsung's camera is slightly better on paper, at 2.1Mp versus the iPad's 1.2Mp iSight camera. Of course, neither will take mind-blowing photos, and both will do the job.

Software

Right now the Samsung Galaxy Tab S 8.4 runs Android 4.4 KitKat and the iPad mini 2 runs iOS 7. Both will be upgraded when the next versions of each platform are released — Android later this year to Android L, and iOS 8 is expected in September. Read more about Android L on page 11.

Battery life

We can't properly measure battery life until we have the Samsung Galaxy Tab S 8.4 in our lab. All we know is that it's fitted with a 4900mAh battery. Meanwhile, Apple claims that its iPad mini 2 will last 10 hours of web browsing.

Bottom line

It's difficult to decide which tablet is best without having both devices in our lab for thorough testing. This is Android Advisor, however, and we would take the Samsung Galaxy Tab S 8.4's larger, higher-resolution screen, more compact size and weight, potentially faster performance, Micro-USB port, better cameras and fingerprint scanner over anything the iPad mini has to offer. But if you are a fan of Apple's devices, the software alone may make this decision for you.



Meet Samsung's best ever tablet, the Tab S 10.5

It's not just the iPad mini that has to look over its shoulder, the iPad Air is also in Samsung's firing line

Samsung announced its latest Android tablet at its Galaxy Premiere event, the Galaxy Tab S 10.5. So, how does the new tablet shape up against the iPad Air?

Price and UK availability

The iPad Air starts (as every 9.7in iPad so far has) at £399. That's for the 16GB Wi-Fi only version, and don't forget that you don't get built-in GPS unless you buy a 4G/LTE model, which costs £100 more than the equivalent Wi-Fi only version.



The Tab S 10.5 also starts at £399, which is for the 16GB Wi-Fi only version, but this does have built-in GPS, regardless of whether you buy the LTE model or not. We're led to believe LTE models will be £100 more expensive than the Wi-Fi-only equivalent. It will go on sale in the UK on July 4th.

Design and build

Samsung hasn't deviated too much from previous Galaxy Tab design, but it's impressive how thin the Tab S is. Samsung claims 6.6mm, while the iPad Air is thicker at 7.5mm.

The Tab S 10.5 weighs 465g, with a couple extra if you go for the LTE version. That's the same at the iPad Air at 469g, and we very much doubt anyone will notice the extra 9g for the LTE version.

You get a choice of 'Dazzling White' or 'Titanium Bronze', and the iPad comes in Silver or Space Grey.

The Tab S has a physical home button and two touch-sensitive buttons, with stereo speakers

mounted on the side. The rear is made from dimpled plastic, which is noticeably inferior to the iPad's aluminium. We thought the Bronze version looked more upmarket than white, and both look less plasticky than the Galaxy S5.

Display

This is where things get interesting, as Samsung is extremely proud of the Tab S's 10.5in screen. It uses Super AMOLED technology, and has a resolution of 2560 x 1600 (WQVGA). A pixel density of 280ppi means that everything looks nice and crisp, and the 16:10 aspect ratio is normal for an Android tablet.

An adaptive display mode aims to adjust the display's gamma, saturation and sharpness depending on the content, or you can select which mode you want to use.

The iPad Air has the usual 4:3 aspect ratio and a resolution of 2048 x 1536 pixels – that's 264ppi. It's a 9.7in IPS panel and is a really great screen.

In terms of numbers, the Tab S wins, but whether that extra screen real-estate and those pixels make it a better tablet is debatable. On the one hand, yes, a bigger screen is better for some things, but on the other, the iPad Air is just that bit smaller.

Samsung has done well, though, to keep the Tab S's overall dimensions down – it's a desirable tablet.



Processor and hardware

The Tab S 10.5 uses Samsung's Exynos 5 Octa-core CPU, or a Qualcomm Snapdragon 800 depending on where in the world you buy it. There's 3GB of RAM. Storage-wise, it's either 16 or 32GB, but with the option of expanding via microSD up to 128GB.

The iPad Air has Apple's A7 chip, but Apple doesn't quote clock speeds or RAM. Storage options range from 16 to 128GB, and there's no changing the storage once you've purchased.

The Tab S has an IR blaster and fingerprint scanner – both taken from the Galaxy S5 – and both features which the iPad lacks.

Another win over the iPad is 802.11ac Wi-Fi (the Air has dual-band 802.11n), but there's no NFC.

Cameras

The Galaxy Tab S 10.5 has an 8Mp rear facing camera with an LED flash and a 2.1Mp front facing camera. Meanwhile, the iPad Air has a 5Mp rear camera (capable of 1080p video) and a 1.2Mp front-facing 720p webcam.

It's fairly safe to say that the Tab S wins here. The iPad also lacks the slo-mo effect which was bestowed only on the iPhone 5S.





Software

The Galaxy Tab S 10.5 runs Android 4.4.2 KitKat with Samsung's latest TouchWiz software. It looks just the Galaxy S5 interface since it uses the same icons, widgets and drop-down notification bar.

The iPad Air runs iOS 7 (soon to be iOS 8). The winner here is down to personal preference.

Bottom line

It's too early to say which tablet is the best, as we still need to test performance, battery life and camera quality among other things. However, it's clear that the Tab S 10.5 is a strong rival to the iPad Air, but for those who own other Apple products the iPad Air may remain the obvious choice.

Review:

EE Kestrel

The UK's cheapest 4G smartphone is available from just £99, but is it any good? We find out

£99 (or from £14/month) • ee.co.uk • ★★★★★☆

EE's Kestrel, a rebranded Huawei handset, is the UK's cheapest 4G smartphone, available for £99 on PAYG (with a £10 top-up), or free on a £13.99/month contract with 500MB of data, 500 minutes and unlimited texts. So what do you get for such a tiny amount of cash? Read our EE Kestrel review to find out.

Design and build

The Kestrel is built by Huawei, and uses the same rectangular grey slab for a chassis as the company's Ascend G6. It feels incredibly lightweight at 145g,





and at 133x65x7.85mm it's a comfortable size to use in one hand, but the Kestrel is very plasticky in its appearance. At this price we wouldn't normally argue, although Motorola's cheaper £89 Moto E looks more stylish by comparison.

The front and rear has a matt finish that makes it feel less cheap, but a band running around the circumference has that giveaway plastic sheen.

As with just about every other Android phone you'll find a volume rocker and power button on the Kestrel's right edge and Android's Back, Home and Menu software buttons below the screen. Less standard is the Micro-USB port at the top and a headphone socket at the very bottom of the phone's left edge. It's all a bit back to front. We'd rather the latter sat at the top or bottom, making it easier to listen to music through headphones with the Kestrel in your pocket. It's only a minor quibble, although lefties will find it infuriating — how are they going to multitask while listening to their tunes?

On the back you'll find the EE logo, a small speaker and a 5Mp camera with LED flash. This rear cover is removable, allowing you to access

the microSD card- and micro-SIM slots. It's not particularly sturdy, and there's a definite creakiness in the hand and a rattle as you place it down on the desk. That said, the 2000mAh battery is not removable, so once the cover is clipped in place you'll probably just leave it there.

(On the subject of that battery, EE specifies 12 hours of talk time and up to 370 hours on standby, which is reasonable for a budget phone. We're still conducting our battery tests, but you can expect the Kestrel to endure a full day's use.)

In design, the Kestrel's saving grace is its screen. No, it's not the best display we've seen, but it's large, at 4.5in, very bright, and at 540x960 pixels (or 245ppi) it has a decent resolution compared with many budget phones. Viewing angles are decent,



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It will never beat the HTC One M8s and LG G3s of this world, but the Kestrel gives budget rivals a run for their money

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too. Given that this is a 4G smartphone, with its unique selling point super-fast internet on a budget, that's important: you will want to watch video on the Kestrel and, as we'll see next, it has the hardware to back up that requirement.

Hardware and performance

The Kestrel is no different to any other phone made by Huawei: it has specs you'd expect to find in a much more expensive smartphone. Inside, you'll find a 1.2GHz Qualcomm Snapdragon 400 quad-core processor, along with 1GB of RAM and 8GB (5.3GB usable) of internal storage. The Kestrel is never going to beat the HTC One M8s and LG G3s of this world, but in our benchmarks it gave its budget rivals a very good run for their money.

In SunSpider we measured 1150ms. That's faster than the Motorola Moto E's 1877ms and Sony Xperia M2's 1647ms. More interesting is the fact it's also faster than the Huawei Ascend P7's 1296ms.

In Geekbench 3.0 the Kestrel recorded 339 points in the single-core test, and 1152 points in the multi-core test. That's just slightly higher than the 2013 Moto G (334 points, SC) and Sony Xperia M2 (316 points, SC; 1076, MC), and a great deal faster than the ZTE Blade V (213 points, SC) and the Moto E (608 points, MC).

Finally, we ran GFXBench 3.0's T-Rex test, in which the EE Kestrel managed 14.4fps. That's not a great result, but it's on a par with the Ascend P7, and slightly faster than the Moto E and 2013 Moto G. The Kestrel also had a stab at Manhattan, in which it recorded 6.9fps.

Of course, benchmarks are only half the story. Just in downloading the necessary software to run these benchmarks we had to restart the Kestrel, and it's something we did far more frequently than we would have liked. It certainly wasn't difficult to confuse this budget phone.

Then again, navigation is fairly nippy, and the only thing that slowed us down was the crowded home screens from which you can delete only the shortcuts to apps you've personally installed. We'll come back to this in our Software section.

Cameras

The Kestrel's cameras are rather basic, but they'll do the job. You get a 1Mp snapper at the front for selfies and video chat, while a 5Mp camera is paired with an LED flash at the back. You can't really ask for more at this price. You can check out the quality in some of our test shots below.

It was a pretty miserable day but, even so, we found the colours very dull and saw a lot of unwanted noise.





Connectivity

The main reason you'd choose the EE Kestrel over any other budget smartphone is its 4G connectivity. Motorola has also added 4G to the 2014 edition of its Moto G, but that phone costs an extra £50 (and £50 is a lot of money when you're talking about a £99 phone). You won't find 4G connectivity in other budget phones such as the Moto E and ZTE Blade V, for example.

So why do you want 4G? In essence it offers Wi-Fi-like speeds on a mobile connection. EE also offers what it calls 'Double-speed 4G', with 20Mb/s downloads on average (max 60Mb/s) and 11Mb/s uploads. 4G is not available all over the country, however, so if you don't frequent the larger cities it may be of little use to you.

It's important to note that you will also need decent EE coverage in your area: the Kestrel is SIM-locked to its network.

You'll also get Bluetooth and GPS connectivity with the EE Kestrel, but don't expect such luxuries as NFC and the very latest dual-band Wi-Fi connectivity at this price.

Software

The Kestrel runs Android 4.3 Jelly Bean, whereas even the cheaper £89 Motorola Moto E runs Android 4.4 KitKat. It's not the latest version of Google's mobile platform, but it is a very stable OS, and EE says an update to KitKat is being considered. Clearly that isn't much of a promise, so if you're bothered about your phone running KitKat you might prefer to look elsewhere.

On top of this is the EmotionUI interface, on which we weren't especially keen. There is no Apps menu, with icons for everything instead placed on the Kestrel's multiple home screens — some loose, and others grouped into folders. If there's an app that came preinstalled that you have no desire ever to use then forget about tucking it away in the Apps menu, or better yet uninstalling it. If it came on the



phone then it stays on the phone. No, it stays on the home screen. Arrggh! The control freak inside me just can't handle all this mess.

It is possible to move around these shortcuts, of course, so if I owned the Kestrel I'd probably put all the stuff in which I was the least interested on the last home screen. But, to be fair, for Android novices who can own an smartphone for months and never even know that there is a Settings menu (trust me, I know a few), it's probably a pretty useful approach.

So why do we need to make things even more basic with a Simple Home menu? This tile-based interface will be a great fit for beginners, but to me it's just a poor man's Windows Phone, with no live information and it's nowhere near as pretty.

And then there's the never-ending scrolling list of toggles in the notification bar. The Kestrel's overall approach to navigation and organisation is a bit like someone doing the washing and then dumping it on the floor rather than tidying it away in the drawer, since it'll probably end up there anyway. Doesn't anyone ever put anything away anymore?

Bottom line

We like the Kestrel, we really do. We don't like its design and build quality, and we hate its user interface, but in other respects the Kestrel has a lot going for it. Whereas network operators haven't yet been able to make 4G connectivity available UK-wide, at least the hardware on which to enjoy it is now available even to those on tight budgets. At £99, you get a pretty good screen, better performance than you should probably expect at this price, and the promise of 4G connectivity.



Review:

Samsung Galaxy K Zoom

A compact zoom camera with an Android smartphone built-in

£400 • samsung.com/uk • ★★★★★

The concept of bolting a huge zoom lens to the back of a smartphone isn't new. In fact, Samsung has already tried a couple of times in the past with the Galaxy Camera and Galaxy S4

Zoom. Both were bad products and were arguably the worst of both worlds instead of being the best. They were underpowered, and their cameras weren't particularly good.

Clearly, then, Samsung is determined to make the marriage work third time around with the new Galaxy K Zoom. It takes a smartphone, which looks like a hybrid of the S4 and S5, and shoehorns in a 10x optical zoom lens.

Software-wise, Android KitKat is order of the day as is Samsung's TouchWiz interface. It's all very familiar if you already have a Samsung smartphone: there's S Voice, the Samsung app store and Dropbox preinstalled.

Hardware and specs

If you're considering a K Zoom then you're clearly more serious about photography than the average smartphone owner. So, the important specifications concern the camera side of things.

The lens zooms from a nice wide-angle 24mm (equivalent) to 240mm, or 4.4-44mm in real terms. Its maximum aperture ranges from f/3.1 to f/6.3. The 20.7Mp sensor is the type you'd find in a budget compact camera, measuring the usual 1/2.3in. That's much bigger than the normal smartphone camera sensor, though.



It can shoot 1080p video at 30 or 60 frames per second, and there's the same choice at 720p. Stabilisation is optical rather than electronic.

ISO ranges from 100 to 3200, and the Galaxy K Zoom's continuous shooting mode runs at a claimed 3fps when using autofocus.

There are dual microphones, one at each end of the phone, and a slimline flash and AF assist LED on the rear. You get a dedicated dual-stage shutter button, so it's possible to lock focus and then recompose your shot. Using the touchscreen you can choose separate focus and exposure points.

For the smartphone, there's a 4.8in Super AMOLED screen with a 1280x720 resolution. Processing power comes from a combination of a 1.3GHz quad-core- and a dual-core 1.7GHz processor.

It's paired with 2GB of RAM and 8GB of internal storage. As you'd expect, you can also pop in a microSD card to add up to 64GB extra – something you'll need to store lots of photos and HD video.





Design and build

Inevitably, you'll have to make some compromises if you want a whacking great zoom lens in your smartphone. At 200g, the K Zoom isn't particularly light and although it's impressively thin for a camera, its 20.2mm thickness means it's not going to slip easily into a trouser pocket.

There's no finger grip as with the old S4 Zoom, and the dimpled plastic panel unclips to reveal the removable battery. The fact it's removable is essential since you'll want to carry at least one spare around with you on special occasions to get through a whole day. Shooting lots of video and photos drains the cell quicker than you'd imagine.

From the front, you wouldn't suspect anything was unusual about this smartphone as it looks just like Samsung's other recent models.

There's a silver band around the edge and a physical home button flanked by two touch-sensitive

buttons. The off-centre front camera has a 2Mp sensor, so for hi-res selfies use the self-timer and balance the K Zoom somewhere suitable.

Screen

Apart from the screen resolution, which is lower than we'd like, the K Zoom has a great screen. Colours pop on the AMOLED panel, and viewing angles are great. Watching videos is a particular treat on the 16:9 screen, as is composing photos and shooting videos – you can easily see whether they're in focus.

Processor

The 'Hexa core' Exynos 5 processor sounds better than it is. For the most part, Android is nice and smooth but during our testing there was the occasional stutter when flipping between home screens and in apps.





Web pages load quickly, and it was quick to zoom around Google maps. Gaming performance is acceptable, with 24.5fps in the GFXBench T-Rex test, but the new Manhattan test shows the Galaxy K Zoom's limit: it ran at just 4fps.

We also saw an average of 909ms in SunSpider 1.0.2, and 2140 in Geekbench 3 (871 points for the single-core test).

Photo and video

What you're probably more interested in is the K Zoom's photo and video quality. Overall, it's not bad at all, especially when compared with the current batch of mid-range (and even flagship) smartphones.

Shots are generally well exposed and sharp, but you'll need a steady hand to avoid blur at full zoom. The OIS system does its job and kept most of our telephoto shots free from blur, and autofocus is quick, too. Plus, the face detection and tracking system works well.

The wide-angle position allows you to capture much more than most smartphones, so it's great not only for landscapes but also indoor group photos where you can't move any further back.

Photos are ideal for sharing on social media, but they don't stand up to close scrutiny in Photoshop. In 100 percent crops there's an obvious lack of detail. The noise-reduction system is the most likely culprit: it does a good job of suppressing noise, but at the



expense of fine detail, resulting in smudgy skin tones and brickwork, for example.

It takes a couple of seconds to fire up the camera app when the K Zoom is off and locked, and it's a shame you can't launch the camera app using the shutter button. Instead you have to press the sleep/wake button or home button, then swipe the camera icon. It will be fine for most occasions, but don't expect instantaneous DSLR-like responsiveness.

The screen makes for a great viewfinder, except in bright sunshine when it's difficult to see because of the glare.

The camera app itself is easy to use and allows you to choose picture and movie sizes. By default, photos are taken with a 16:9 aspect ratio which looks fine on the screen, but it cuts the resolution to 15Mp. It's better to go for the full 20.7Mp resolution which has a 4:3 aspect.

Disabled by default is a manual mode which gives you control over shutter speed, aperture, EV correction and ISO, but there's no white balance control. More useful would have been aperture- and

shutter-priority modes, but we suspect few people would use these and the manual mode anyway.

There's an unusual Pro Suggest mode where you can choose from presets saved by other users, such as 'vivid colours' or 'cross process'. The clever part is that the five presets are suggested only after you've half-pressed the shutter and the scene has been analysed. Whether you'll find it useful is debatable, but it can be a nice timesaver as you won't necessarily have to apply effects after taking the photo.

Video is decent enough, too. Detail levels are good, and footage is sharp (there's definitely some software sharpening happening in-camera, though).

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Clips look much better than the average smartphone video, and you can zoom in closer to the action during filming

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It isn't as good as a dedicated HD camcorder, but it's unfair to compare the K Zoom to one.

Clips look much better than the average smartphone video though and you get the benefit of being able to zoom during filming and get much closer to the action. A niggle is that the audio temporarily switches from stereo to mono when you zoom in or out. This could be a bug – we're yet to hear back from Samsung on that. It's good to see a quiet zoom mode which slows down the motor to prevent it making unwanted noise on your videos. Audio – often an overlooked aspect of video – is more than acceptable.

Test photos







Bottom line

As with the Galaxy S4 Zoom and Galaxy Camera before it, the K Zoom is a niche product. It's for those who want better-quality photos from their smartphone, and it delivers on that front. The mere fact it has a 10x zoom makes all the difference between a usable photo and a blurry dot when you can't physically move closer to your subject, such as when you're at the zoo. The problem is those are the occasions when you'd probably take a better camera along with you anyway.

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**It's a much better combination
of a smartphone and a camera than the
Galaxy S4 Zoom**

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There's also the problem that the K Zoom is all about compromise. The extra weight and bulk is simply annoying when you're not taking photos, and battery life is a worry if you'll be taking photos and video all day long. Currently it isn't even possible to buy spare batteries for the K Zoom.

If you're one of the few who want a smartphone with a decent camera and an optical zoom, the K Zoom isn't a bad choice. Unlike the Lumia 1020, the Samsung runs Android so you won't have to compromise on the choice of apps.

It's a much better combination of a smartphone and camera than the S4 Zoom, even if both the smartphone and camera could be better.

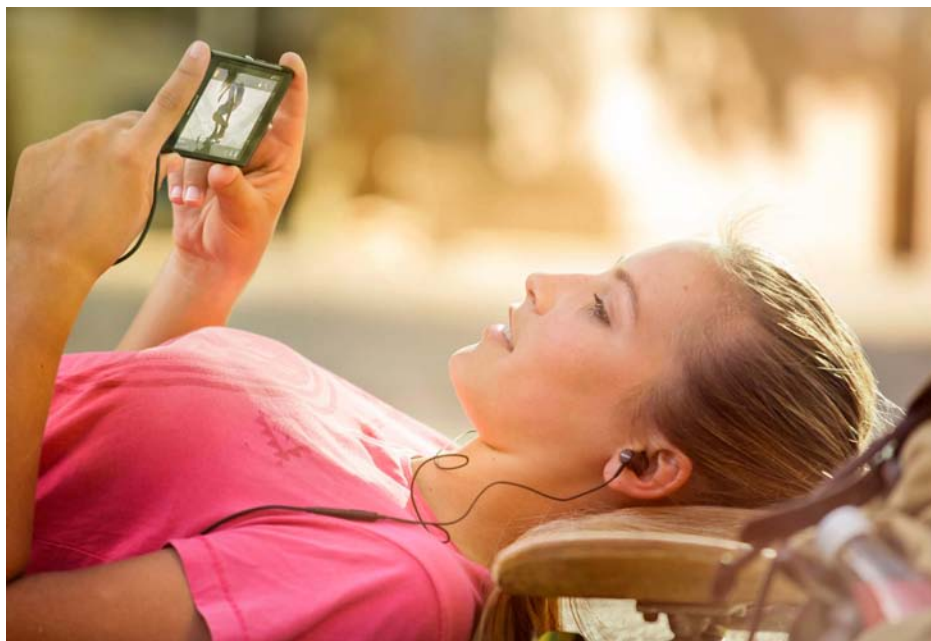
Review:

Sony Xperia M2

This mid-range Android smartphone looks good, but is merely average under the hood

£229 • sony.co.uk • ★★★★★☆

The Xperia M2 is a 4.8in Android smartphone from Sony. It's smaller and much cheaper than its high-end 5.2in sibling the Xperia Z2, which costs £560 compared with the M2's £230, but that also means you get significantly less impressive specs from this mid-range phone.





The Sony Xperia M2 will cost you £229 inc VAT from Sony's online shop. The M2 certainly looks worth the money, but when you compare its specs and performance with the £135 Motorola Moto G, you'll find that it's not dissimilar, despite the much lower price tag. Our review sample was supplied by Clove, which is selling the Xperia M2 for £210.

Design and build

Before we get down to the finer details, let's take a look at the Sony Xperia M2 from the outside. It's a simple, square device with a glass front and back joined by mirrored, metallic edge. Not only does the Sony Xperia M2 look premium, but it feels it too, with the combination of glass and metal that's often found in flagship devices. Overall, it's reasonably sleek but the bezels around the screen are pretty huge, though no bigger than an iPhone's.

This makes the overall size and thickness of the Sony Xperia M2 140mm by 71mm by 8.6mm, with a weight of 148 grams. We actually found that the Xperia M2 feels great in the hand, and is comfortable to use during phone calls. We found the



screen size to be ideal – not too small but not too big like some flagship smartphones that are slipping into the ‘Phablet’ category.

The M2 is available in black and purple, but we tried the white model. We think the black model is the most attractive, though. It looks like a high-end device despite the mid-range price.

Around the edge of the device, you’ll find Sony’s circular, protruding power button on the middle of the right side of the smartphone, below the sealed flap that covers the SIM card and microSD card slot and above the volume rocker and the camera shutter button. On the bottom of the device is the M2’s speaker, on the top is the headphone jack, and on the left hand side near the top of the device is the Micro-USB port for charging and connecting the M2 to a computer.

Despite the seals over some of the ports, the M2 isn't waterproof like a lot of Sony's devices, so it's lacking a bit when it comes to durability.

On the front of the M2 there are no physical buttons, and on the rear all you'll find is the camera and LED flash.

Hardware and performance

As mentioned above, the Sony Xperia M2 has a 4.8in qHD display. Its resolution is 540x960, which makes it 229ppi.

We were concerned about the pixel density, as it's far lower than the 326ppi of the iPhone 5S, and even the budget Motorola Moto G, but we actually found that the screen was bright, colourful and sharp, even when reading small text on web pages.



The viewing angles on the M2 are good too, though we did find that the screen is reflective and shows up fingerprints and smudges rather clearly.

When it comes to actually using the Sony Xperia M2, we found that it coped well with the majority of tasks we threw at it. It sports a Qualcomm Snapdragon 400 quad-core processor clocked at 1.2GHz, so is directly comparable with the likes of the Motorola Moto G. That processor is coupled with 1GB of RAM. Launching apps was a speedy affair and the device was responsive with little or no lag, though it did struggle with the Camera app at times.

The Sony Xperia M2 scored 316 in the single-core Geekbench 3 test and 1076 in the dual-core test, which is slightly lower than the scores from the Moto G, despite the higher price tag. The Moto G starts at just £135 compared with the Xperia M2's £229, so that's a £100 saving.





The M2 faired better than the Moto G in our graphics tests, with speeds of 15.4fps, but not so well in the browser-based SunSpider test, where the Moto G proved to be a bit quicker at 1512ms compared with the 1647ms average from the M2.

You'll only get 8GB of internal storage in the Sony Xperia M2, of which 5GB is available to the user. There is a microSD card slot but that'll only let you add an extra 32GB to the device. This gives the Xperia M2 a one-up on the Moto G, though, which lacks a microSD slot altogether, though there is a new Moto G with a microSD slot coming soon.

Sony has partnered with Box to offer 50GB of free storage for those who activate their account before 2015 begins, so for that extra file storage in the cloud, this is a real boon.

The Sony Xperia M2 features NFC and 4G LTE, which are other features that the Moto G is missing. There's also the usual Wi-Fi, Bluetooth 4.0, GPS and a Micro-USB port.

Unlike most Sony phones, the Xperia M2 doesn't have metal contacts for a docking or charging station – the only charging option is via Micro-USB.

Camera

Where the Sony Xperia M2 really falls down is the camera. There are lots of features in the camera app, including scene selection, HDR, panorama and some fun apps like Timeshift Burst and Picture Effects, but unfortunately the quality of the photographs was less than satisfactory. The M2 seems to oversharpen photographs leaving noise,



grain and a lack of detail. It takes so long for each photo to render once it's taken, too, that we found ourselves waiting for a minute or two to see whether our photo came out in focus, which is not ideal.

The camera is 8Mp and is capable of capturing 1080p videos. It has an LED flash, though we'd



suggest using this sparsely as it's quite harsh (as many flashes are).

The Xperia M2 also has a front-facing camera for selfies and video calls, though it's a fixed focus 0.3Mp VGA camera so don't expect great results. It's capable of capturing 480p video, too.

One positive thing we can say about the camera features on the M2 is that there is a dedicated camera button, which makes launching the Camera app easier and also acts as a shutter button.

Software

In terms of software, the Xperia M2 runs Android 4.3 Jelly Bean. Sony says that there is a planned upgrade to version 4.4.2 KitKat in the future, though.

Sony's Android interface is clean and simple, particularly compared with the interface found on Samsung and HTC devices, but it doesn't have any interesting extras, aside from the Stamina Mode.

As it's Sony, though, you will get access to the Walkman, Sony Select and PlayStation Mobile apps with the Xperia M2, as well as those aforementioned camera add-ons.

Battery life

The battery life of the Sony Xperia M2 is impressive, and definitely one of its selling points. We found that it could last for two days of normal use between charging. We watched videos, played games, browsed the web and made phone calls regularly while using it, and never had to charge our M2 more than once in a day and a half.

The battery can last even longer if you turn on Stamina Mode, which will mean all unnecessary tasks will not take place while the screen is off,



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The M2 looks like a premium smartphone with a mid-range price tag, but you can get more for your money elsewhere

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helping preserve power. Wi-Fi, data and background activities are among the tasks that'll resume only when you turn the screen back on in Stamina Mode, although you'll still be able to receive phone calls and messages on the Xperia M2.

The battery is non-removable, though, so you won't be able to carry a spare battery with you to swap in if you're running low on juice.

M2 vs Z2: What's the difference?

Aside from the price (the Z2 is £569), there are many differences between the Xperia M2 and Sony's flagship Xperia Z2. The Z2 has a bigger and better display, complete with a 2.3GHz Quad-Core processor, water- and dust-proof design, a better battery life and a whopping 20.7 megapixel camera that can capture 4K video.

Bottom line

The Sony Xperia M2 certainly looks like a premium smartphone, but carries a surprisingly mid-range price tag. With a more impressive camera and more storage we'd be really impressed, but we think you can get more for your money elsewhere. It's worth investigating the cheaper Moto G, or if you've got a little extra budget the Google Nexus 5, which has a lot going for it and is still under £300.



Save money using any SIM in any phone

Is your device network-locked? No problem. Unlocking your phone to work with any SIM is usually straightforward

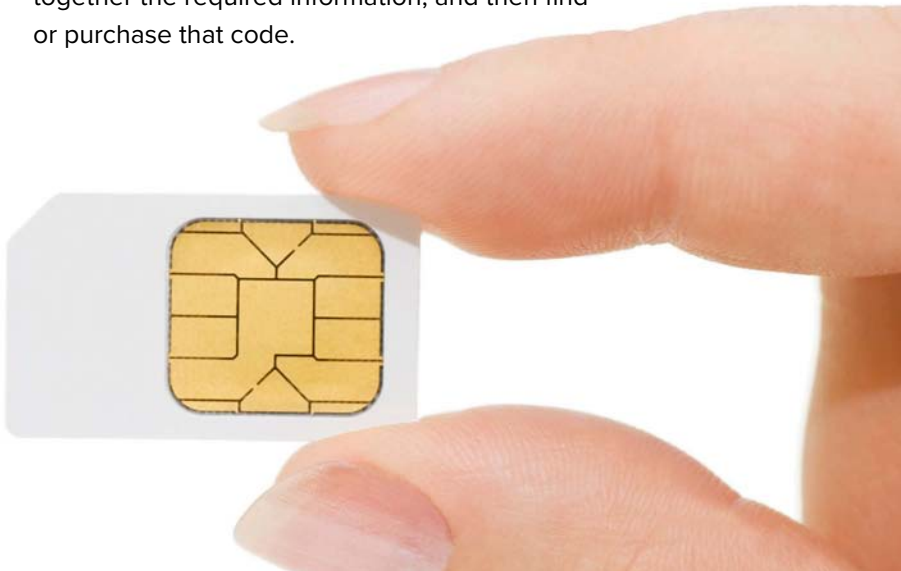
It is not universally known, but almost always you can save money in the long run by buying a smartphone SIM free, and then choosing a data-and calls package on the basis of the cost of the SIM alone. So if you are buying a new phone go for the SIM free option. But if you already have a phone you like, are out of contract, and want to choose any SIM package, you need to unlock your phone. Here we explain how to unlock your phone so that it can take any SIM.

Buy an unlocked phone

The easiest way to use any SIM in your handset, is to buy a smartphone that is unlocked and SIM free. This may sound like an obvious point, but it is only easy when you know how. Phones are typically sold in three distinct ways: on contract, pay as you go, and SIM free. And with a SIM free phone you can choose your network on the basis of price of data and calls, although it is likely the phone itself will cost a bit more. Of course, you are reading this because you already have a phone into which you want to put your choice of SIM.

Unlock your smartphone using a code

There are two ways of unlocking an existing smartphone. The hardware method using a cable is always an option, and we'll outline it below. But much easier is to unlock your phone via input of a software code. First you need to get together the required information, and then find or purchase that code.





The information you need is your phone's brand and model number, the network to which it is locked, and the IMEI code. We'll presume you know the phone model and the network. To find the IMEI `*#06#` into your handset as if you were making a call. You won't have to hit 'call', just note down the unique (and long) number that appears.

Presuming that your phone is relatively modern, the first call should be to your current network. Although the network won't want to lose your custom, they should offer to sell you an unlock code. If your phone can be unlocked your network will give you a quote for a code. It is also possible that your phone can't be unlocked, but your network can at least tell you that, and save you trying to find a code elsewhere. The cost of an unlock code can vary depending on handset and network, but if your phone can be unlocked expect to pay around £20.

According to Moneysavingexpert Vodafone give free unlock codes to customers who have been on contract for more than a year, and charges £20 to all other customers. O2 also lets contract customers

unlock handsets for free, regardless of their tenure of custome. With O2 it is £15 if you've been a PAYG customer for over a year. O2 iPhone customers can pay £15 to unlock at any point.

If your network can't sell you a code — or charges too much — but you can unlock your phone via this method, you could shop around for a cheaper code. You know those 'Phone unlock' shops on the high street and stalls on the local market? This is what they are selling. Some shoe repair- and key cutting stores also offer this service. You can also find such codes online but this is a murky world into which to dip your toe. Personally we'd rather buy from a store to which we can return if the code doesn't work, but





if you are looking online, be sure you know exactly what you're getting before you pay.

Finally, if you have an older phone, you may find that you can re-use a code from an older handset. And the good news is that communally minded phone users sometimes post these online for free sharing. Sites such as Unlockapedia are worth a visit, then. The chances are that you won't be able to find a free code, but you may as well have a go.

Once you have a code you now need to use it to unlock the handset. This process is pretty simple. Just pop in a SIM card for any network other than the one to which your phone is locked. You'll be prompted to put in your code. You may be in luck and be able to use your normal qwerty keyboard, but more likely you'll be able to input only numbers in this way and the letters will require you to use multiple presses of the * and # keys. (You will get only five attempts to enter the correct code, but getting it wrong won't brick your phone. It will just mean that you have to take it back to the network to get it unlocked).

Once you are successful you will get a message telling you that the phone is unlocked. Find a cheap SIM and away you go!

Unlock your smartphone using a cable

If you can't unlock your smartphone using a code, you may be able to do so using a cable attachment. You can either pay to have it unlocked this way — we're back on the high street or at the local market. Again, we'd rather see the whites of the eyes of the person we are paying to mess about with our smartphone, so we'd tend to go local.

The other option is to do it yourself. Do a quick Google for 'phone unlock cable' and you will see plenty of options. You need to buy a cable and then use it to connect to a free unlock server for your brand of phone. It's not an especially complicated process, and fonefunshop.co.uk is a good place to start. It will cost you a few quid, however, and if things go wrong you are on your own.





How to get Facebook Slingshot in the UK

Facebook has unveiled its Slingshot image messaging app, but it's not available outside the US. Or is it?

Facebook Slingshot is a bit like Snapchat, allowing you to snap, scribble on and then send photos to other users, which they can unlock only by slinging you back another picture. The Slingshot app is available for Android and iOS, but only in the US. Here we explain how to get Facebook Slingshot in the UK.

Android allows you to install apps from any third-party source, provided that you've enabled the permission in Settings, Security, Unknown sources. All you then need is the .apk file.

We Googled 'Facebook Slingshot apk file' and found several sources from which we could download it. Pick one, then tap Download.

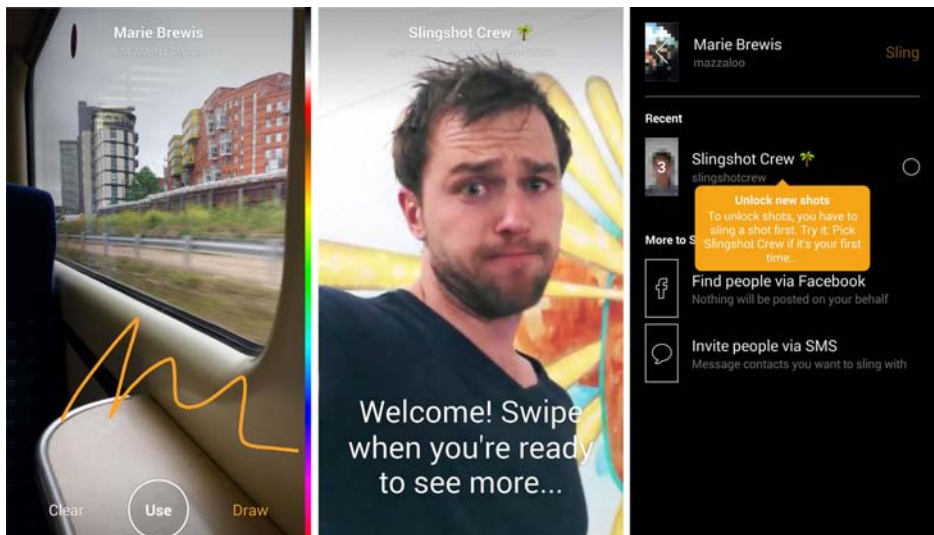
Once the Slingshot .apk has downloaded to your device, find it within your Downloads folder and select to open it using the Package Installer.

Accept Facebook Slingshot's permissions, then tap to Install the app. Click Open when it's finished.

Slingshot will prompt you to set up an account. Bizarrely, although the app isn't available in the UK, Facebook Slingshot is more than happy to accept a UK phone number.

Next you'll be prompted to take a photo, using your device's front or rear camera. You can then draw on top of the image if you want. Click Use to sling your first pic.

This is the first time you've used Facebook Slingshot, so you don't have any existing friends. Slingshot prompts you to sling your pic to the Slingshot crew, or you can find people to invite via Facebook, your phone contacts or SMS. They will need to sling you back a photo to unlock it.





How to install the Nexus Android KitKat launcher

Turn any Android phone into a vanilla Google Play Edition handset with the Android KitKat launcher

Google Play Edition smartphones are great, but they are limited to certain models and typically sold in the US. However, you can make your own by installing the Nexus 5 Android 4.4 KitKat launcher. Get the vanilla Android experience offered on the Nexus 5 by following our guide. (We've used the Huawei Ascend P7; some screens may look different on your device.)

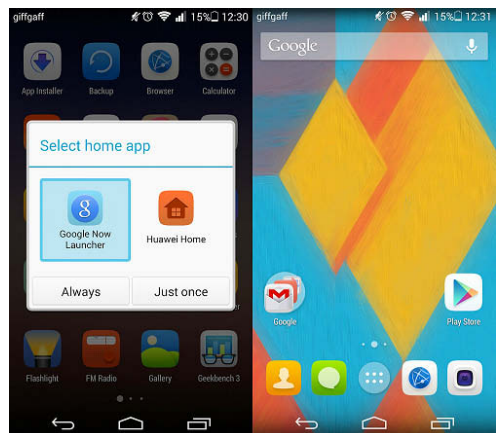
1. In order to install the Nexus 5 launcher you'll need to tweak a setting on your phone. Go to Settings, Security then tick the box beside 'Unknown sources'. This enables the installation of third-party apps.

2. Before you download and install the Nexus 5 launcher, check you have the latest version of Google Search via the Play store. If there's an available update, download and install it.

3. Now you're ready to download the Nexus 5 launcher. Head to <http://j.mp/1btMZku> on your smartphone and hit Ok when prompted.

4. Once the .apk has downloaded to your device, either tap it in the notification bar or find it in your Downloads folder to run the file. Select Install.

5. You've now got the Nexus 5 launcher and, in essence, your own Google Play Edition smartphone. Hit the home button, select the Google Now Launcher and tap 'Always'. Tap through the welcome screens showing the new UI and you're done.



If you don't like the Nexus 5 launcher you can get things back to normal by performing a factory reset.

