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ANDROID ADVISOR

ISSUE
44

FROM IDG

FULL
REVIEW:

Huawei Mate 10 Pro



Remove
a virus from
an Android
device

Google
Assistant

VS

Siri



Xiaomi
Mi Mix 2

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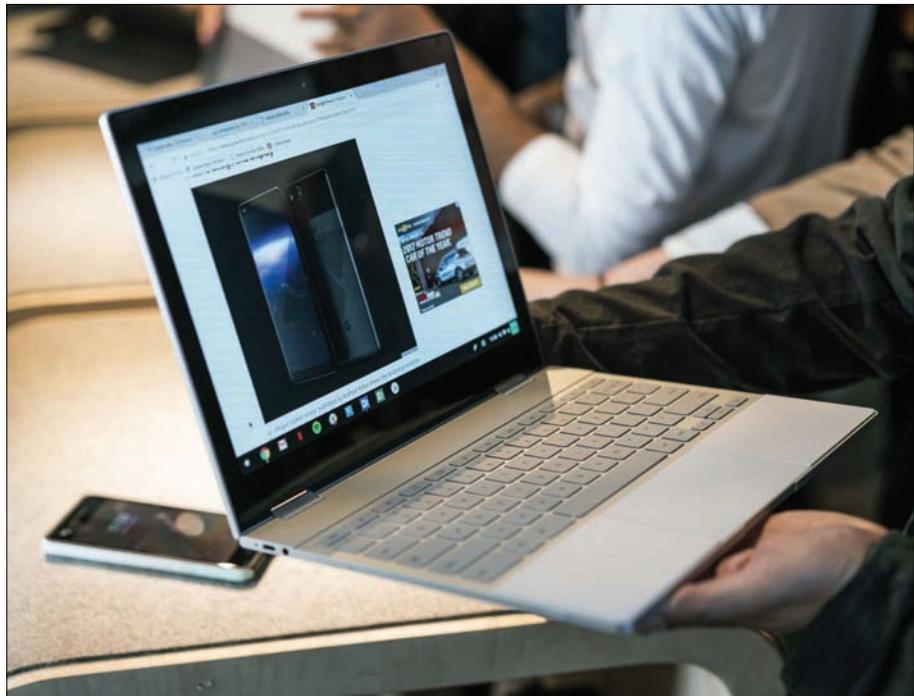
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Google Pixelbook

£1,199 inc VAT fave.co/2gTh5KM



The Pixelbook is Google's latest attempt to make the Chromebook cool. Despite two prior generations of flagship Chromebook Pixels and a handful of high-end copycats from other manufacturers, the Chromebook category remains in a rut. Typecast as cheap, disposable browsing machines or easily locked-down classroom computers, Google hasn't figured out how to make

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the Chromebook essential in the same way the smartphone is for most people.

Google's answer is to make the Pixelbook more like a smartphone. It joins the growing list of Chromebook models that support Android apps. It's also the first Chromebook to support Google Assistant, formerly available only on Android devices.

As you might guess from the Pixelbook's name, some of its features work specifically with Google's flagship Android phones. In the absence of Wi-Fi, for instance, it'll be able to tether automatically to your Pixel phone.

For this review, I've looked at both the hardware and the software experiences. The hardware is brand-new and the software we tried was still in beta, so not everything worked as planned. I can confirm the Pixelbook is a fast, capable device, but that's no longer enough. Joining forces with Android is probably the best shot Chromebooks have at becoming desirable hardware to mainstream users. Whether this strategy will work for the Pixelbook (and be broadly adopted by other Chromebook manufacturers) is still unknown.

Design

Even if the Pixelbook didn't have a bunch of Android tie-ins, it would still be the nicest Chromebook you can buy: thin, light, and full of forward-looking features. You can see the specs and prices for all the SKUs in our original Pixelbook news story, but below I have details on our particular review unit.

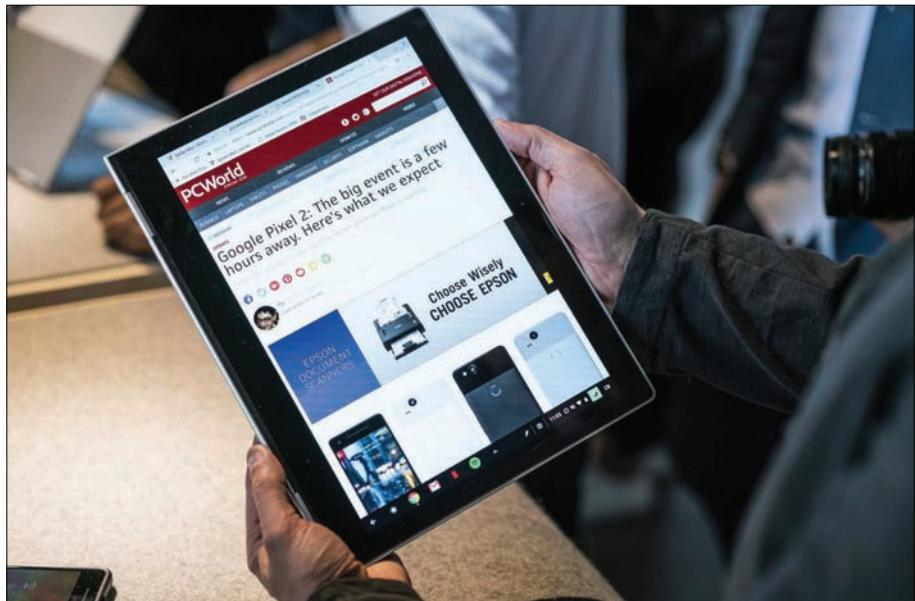
Price: £1,199

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Dimensions: 11.4 x 8.7 x 0.4 inches. This is a very thin laptop that slips easily into your bag or under your arm.

Weight: 1.1kg. This is lighter than usual compared to popular Windows 360-degree laptops, such as the latest HP Spectre x360 (1.32kg).

CPU: Intel Core i5-7Y57 1.2GHz. This is a 7th-generation (Kaby Lake) mobile CPU with two cores and four threads. It has a base clock of 1.2GHz and a maximum of 3.3GHz. As you'll see in our performance tests below, this CPU performed handily.



The 360-degree hinge lets the Pixelbook flip easily over to tablet mode for the closest thing to a full Android experience

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Graphics: Integrated Intel HD Graphics 615 (a lower-end chip).

Memory: 8GB RAM. This looks small compared to what you'd get with a Windows or Mac laptop, but for a Chromebook, it's an adequate amount.

Storage: 256GB eMMC storage. This is an affordable, if unexciting storage type that's common to Chromebooks. The highest-end Pixelbook SKU has a 512GB SSD.

Display: 12.3in, 2400x1600, 235ppi LCD touchscreen on a 360-degree hinge. The default resolution is 1200x800, which is probably easier on your eyes as well as on the laptop's power draw. The display has a very high maximum brightness of 400 nits, though we measured it even brighter. Note, however, that the brighter the display, the more power it needs.

Chassis: Aluminium unibody with 360-degree hinge, in one colour, Silver.

Keyboard: The full-size keyboard has a 19mm pitch and a short 0.9mm travel – an expected compromise in a design this slender. The keyboard is still comfortable, but I prefer the longer-throw keyboards on past Chromebook Pixels.

Trackpad: Etched glass, with soft white rubber panels on either side. Clicking, scrolling, and mousing on the pad all felt responsive.

REVIEW

Connectivity: Two USB-C for charging and 4K display support. That's it, people. No legacy USB-A, not even an SD card slot. But there is a headphone jack.

Wi-Fi: It's worth noting the broad compatibility of the antenna: 802.11a/b/g/n/ac. Also, the reason the Pixelbook has a glass upper lid area is to enhance the Wi-Fi antenna's strength.

Battery life: The 41Whr battery lasts up to 10 hours, Google says. Your mileage will vary, especially if you crank up the display brightness. See our performance section for more on the battery life.

Pixelbook Pen: A £99 option (fave.co/2xKTD9s), it measures 147mm long and 10.7mm in diameter, and weighs 21.3g. It takes a AAAA battery. It has 10ms



Google's Pixelbook Pen (middle) lacks the flat edge that keeps other similar pens from rolling away. (At left: Porsche Design Book One's Stylus; at right, Microsoft's Surface Pen)

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latency, which is fast, and recognizes 2,000 levels of pressure, which is about midrange – some competing pens have up to 4,096 levels of pressure.

Most of the shaft is aluminium, but Google says it put a white-plastic section near the nib to make the pen easier to grasp.

There's just one notable downside to this pen. Other models we've used, such as the Porsche Design Book One's Stylus and Microsoft's Surface Pen, have one flat edge to keep them from rolling. The Pixelbook Pen is perfectly round, and it rolled all over the place on my desk. It would be nice if a £99 pen were a bit harder to lose.

Google Assistant and pen support

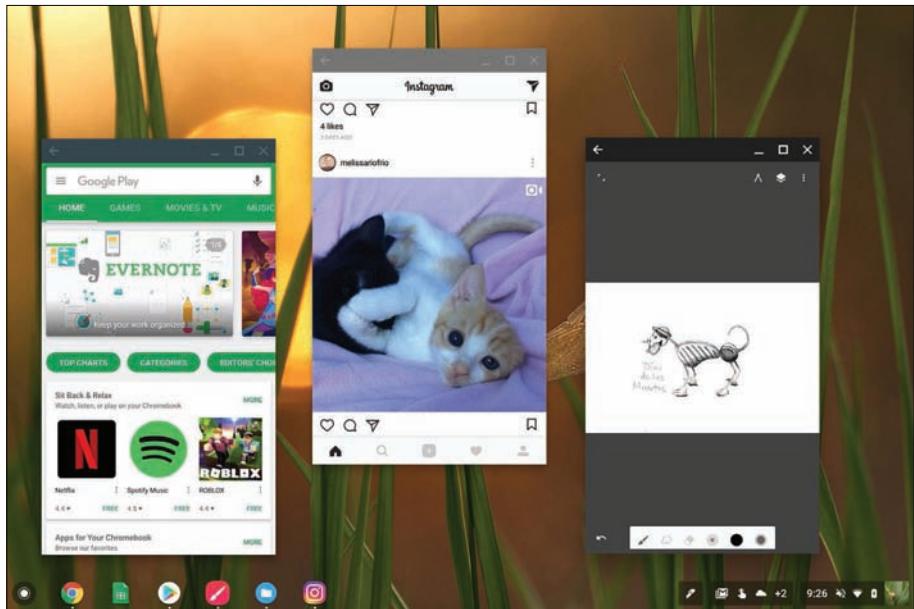
Normally I'd dive into performance next, but the Pixelbook is different. Its Android app support, along with its new capabilities relating to Google Assistant and pen support, matter much more than its speeds and feeds. And, overall, my experiences were positive.

I've tried Android apps on Chromebooks, and it's still a work in progress. Google even warned us that the Pixelbook's app behaviour would be buggy due to the beta build loaded on review units, though the problems we ran into were few and mostly minor.

Android app support matters because it gives the Chromebook a lot more to do. For diehard Android users, being able to use a favourite app on a bigger display with a keyboard improves usability significantly.

At the time of this review, however, my favourite app (Instagram), and many other Android apps, remain stubbornly puny: you can enlarge Instagram

REVIEW

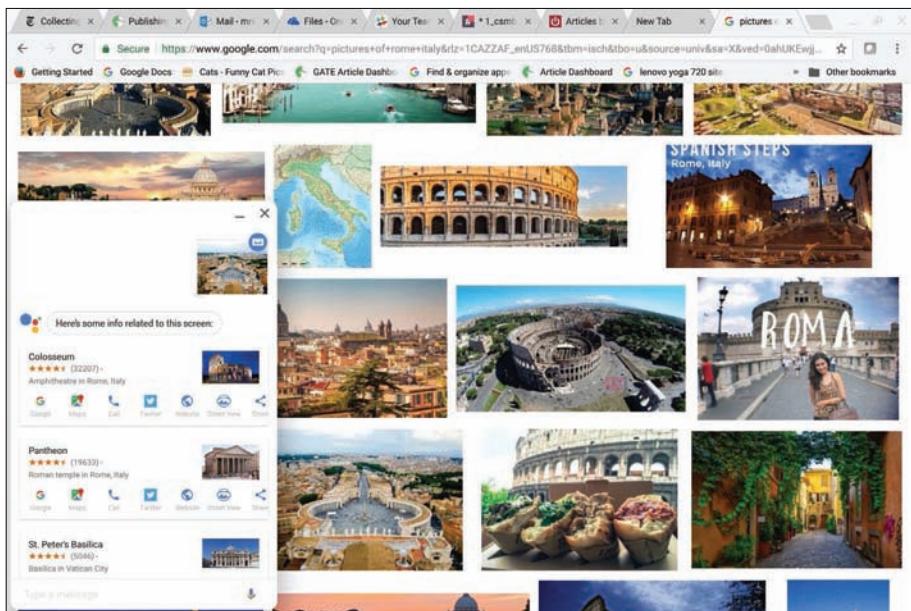


The Google Play and Painter apps on either side can expand to full-screen on the Pixelbook, but the Instagram app in the middle cannot

from smartphone to tablet format, but you can't make it full-screen. Google says it's working with developers to help apps embrace the full width of a Chromebook's screen compared to a mobile screen, but they've been saying that for a while now, so apparently it's going to take some time.

Meanwhile, adding Google Assistant to the Pixelbook inches Chromebooks closer to parity with Windows and Mac PCs, which have Cortana and Siri, respectively, to talk through schedules, tasks, and random search queries. When I added my user account to the Pixelbook, I said "OK Google" three

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Selecting a photo using the Pixelbook Pen brought up search results via Google Assistant. The results got more precise with further queries

times to train the device to recognize my voice. Then all I had to do was say “OK Google” within range of the Pixelbook’s four microphones, and Google Assistant would launch on the display, ready for my request.

If I didn’t feel like talking, I could type a query into Google Assistant’s text box. Even better, I could pick up the Pixelbook Pen, and watch Google’s AI engine really go to work. You start by holding the button on the pen’s shaft while drawing around any image or snippet of text in a Chrome web page. Once you’ve selected something and released the button, Google Assistant will try to identify the image and provide

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Using the Painter app on Google's Pixelbook with the Pixelbook Pen, it was easy and fun to make this drawing. I noticed a little pen lag, and the pen was unable to pick up some of my lighter strokes

information, or transcribe the text for you. In my tests it also seemed to learn from its mistakes: a search on an image from Rome yielded results that were slightly off, but repeat tries led to more precise responses.

For me, the real fun began when I tried drawing apps like Painter. In the course of making the sketch shown below, the pen's 10ms latency rarely distracted me, but I already found myself wishing for more levels of pressure when I wanted to create finer areas of shading. Still, the ability to get off the keyboard and trackpad and get creative is something I love about all the pen support.

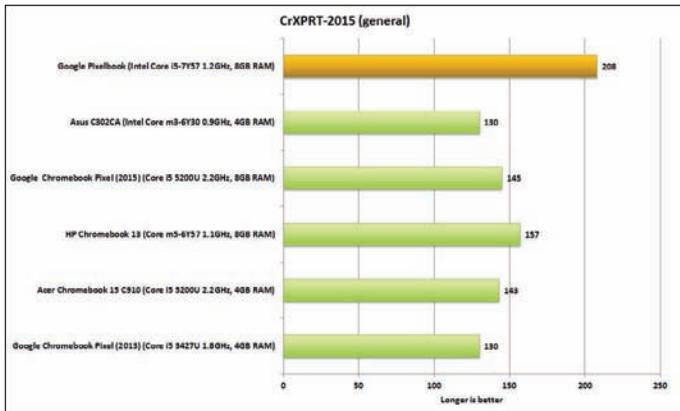
REVIEW

Kaby Lake rules

When we talk about Chromebook performance, remember that Google updates Chromes OS every six weeks. Newer models will always benefit from any recent improvements. That said, the Pixelbook's greatest advantage its 7th-generation Kaby Lake CPU, which is a little more powerful and a lot more efficient than its Skylake predecessor. An improved video engine helps, too. Compared to its 2013- and 2015-era Chromebook Pixel predecessors, the Pixelbook makes great leaps forward.

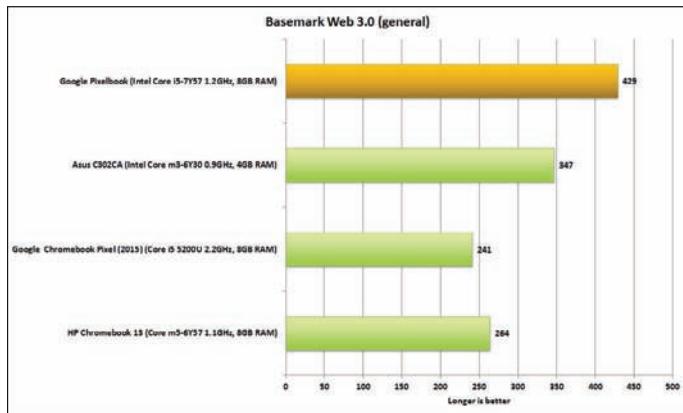
The Cr-XPRT test measures Chromebook performance in basic productivity tasks, as well as in more demanding activities, such as watching movies and playing games. Comparing the Pixelbook to Chromebooks without Kaby Lake, it's no contest.

Basemark is a broad-based benchmark that incorporates WebGL and JavaScript tests. The

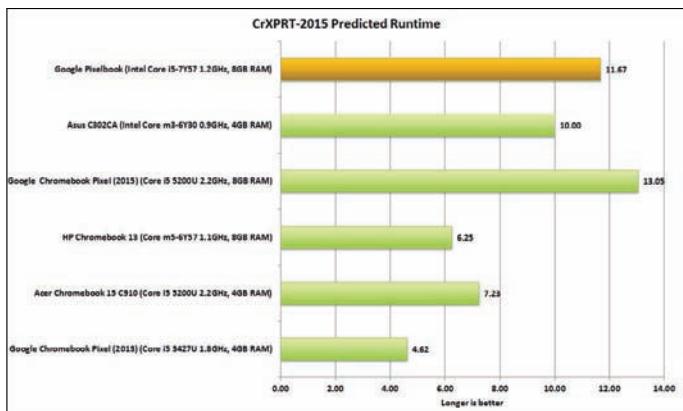


The Google Pixelbook far outpaces other high-end Chromebooks we've tested, let alone its two ancestors

REVIEW



Google's Pixelbook pulls ahead of the competition in this mix of WebGL and JavaScript tests



Google says 10 hours of batter life on the Pixelbook. The Cr-XPRT-2015 projected runtime says almost 12 hours

Pixelbook maintains its strong lead against models with 6th-gen and 5th-gen CPUs.

We also ran Cr-XPRT's predicted battery runtime test. For the test, we set the Pixelbook's brightness as

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close to 200 nits as possible, and attach headphones for audio output. The Pixelbook's projected runtime of 11.67 hours exceeds Google's spec of 10 hours and is more than enough to get you through a long day.

Verdict

The Pixelbook probably has more power than most Chromebook users will ever need. It gets a high rating not because I think everyone should buy it. Instead, the Pixelbook earns its rating because it succeeds in showing the best a Chromebook can be.

Interestingly, 'best' has evolved from simply 'premium laptop' to 'premium Chromebook-slash-Android experience'. With its 360-degree hinge, and its support for Android, Google Assistant, and pen input, the Pixelbook is prepared to become an Android phone's best friend and open up new frontiers for the humble Chromebook. **Melissa Riofrio**

Specifications

- 12.3in (2,400x1,600, 235ppi) Quad HD LCD display
- 7th-gen Intel Core i5 or i7 processor
- 8/16GB RAM
- 128/256/512GB storage
- 720p at 60fps webcam
- 3.5mm headphone jack
- 802.11a/b/g/n/ac
- Bluetooth 4.2
- 2x USB-C
- 41Whr battery
- 290.4x220.8x10.3mm
- 1.1kg

REVIEW



Google Pixel 2 XL

£799 inc VAT from fave.co/2yKBhqq ★★★★☆

Expectations were high for the second-generation Pixel phones, and Google hasn't disappointed. This year's flagship – the 2 XL – is better in almost every way, but it does come at a higher price.

Price

Prices of top-end phones have risen dramatically in the last year, and the Pixel 2 XL is more expensive

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than its predecessor. The base model – with 64GB of storage – costs £799, but you'll pay £899 for the 128GB version.

As with the original, there's no microSD slot for expanding the storage of either model. You've got one other choice: colour. The Pixel 2 XL comes in Just Black or Black and White. If you want to get the phone on contract, EE has the exclusive in the UK. There's a £9.99 up-front cost, then it's £57.99 per month for the 4GEE Max plan, which offers 8GB of data, plus unlimited calls and texts.

Design

With its 6in screen, this isn't a small phone. But thanks to minimal screen bezels it isn't as big as you might imagine. It feels exceptionally well made, and although it's tall, it's not too wide to comfortably hold in one hand and not top heavy. The aluminium has a rough texture and feels good to the touch. It also means it doesn't get covered in fingerprints.

At 175g, it's the same weight as the new iPhone X which has a marginally smaller screen at 5.8in. It's roughly the same thickness, but taller because of bigger top and bottom bezels.

Of course, there's no notch and as a bonus, there are front-facing stereo speakers. These sound great and are ideal for watching YouTube videos or playing games. They don't have much bass, but they're loud.

Getting back to those screen bezels, they're much slimmer than on the 2016 Pixel XL and it looks all the better for it. The glass is slightly curved at the edges where it meets the aluminium frame.

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The screen underneath is an OLED display that can display a wider colour gamut than before. It has an 18:9 aspect ratio and a QHD+ resolution which equates to a density of 538ppi. It has rounded corners which match the corners of the phone's body.

Colours look natural, even in the 'vivid colours' mode. That's great if you dislike the vibrant tones you get from Samsung AMOLED screens, but it does mean that it doesn't 'pop' quite as much.

It's always on, which means you can see the time and notifications without having to press a button, tap the screen or anything else: you can simply look at it.

There are other uses for the always-on screen. Around ten thousand songs can be identified and displayed when your phone is locked without calling home to Google.

One of the Pixel 2 XL's main rivals is the similarly priced Galaxy S8 Plus. This has an even bigger screen in the same size body: the screen extends right to the edges and is visible through the curved edges.



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On the Google phone there's a couple of millimetres of bezel at the edges – it's just not quite as impressive as Samsung's handset.

There's also a problem with the Pixel 2 XL: viewing angles. If you tilt the phone or look at it at an angle, whites turn blue. This isn't noticeable most of the time, but in menus and on web pages it can get annoying. And neither the Galaxy S8 nor the HTC-made Pixel 2 suffer from this problem.

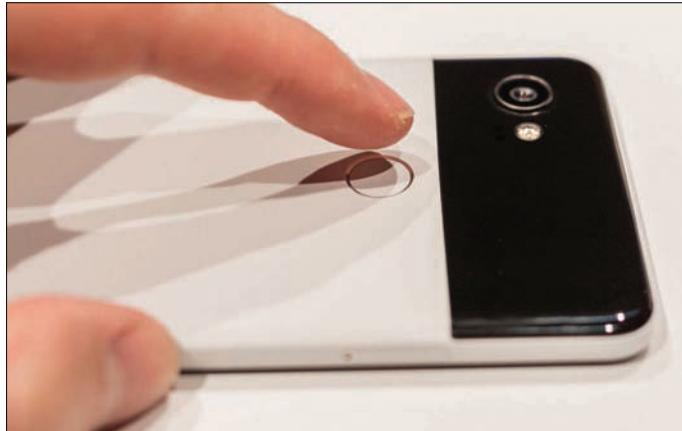
There are obvious design cues taken from the original Pixel, notably the split back. Here, though, the top section is black on both models – Gorilla glass is used to allow the radio signals to pass through rather than ugly antenna lines. This, unlike the aluminium body, does immediately get covered in fingerprints.

The fingerprint scanner is still on the back but below the glass panel rather than within it as with last year's Pixel XL. And unlike the S8's crazy location next to the camera, the Pixel 2 XL's scanner is in just the right place to fall under your finger.

There's still just one camera and an LED flash next to it, so no option for a telephoto or wide-angle photo as with most of the Pixel's rivals. But it still has a few tricks up its sleeve which we'll explain below.

The major news is that both Pixels are now water resistant, but like other phones, ditch the headphone socket in favour of digital audio via the USB-C port. The Galaxy S8, though, keeps the old minijack, which could be a dealmaker for some.

There are no buttons on the front of the Pixel: Android's navigation keys are on screen as is normal for Google phones.



Although built by LG, the 2 XL has Active Edge like the HTC-built Pixel 2. This means you can squeeze the sides to bring up the Google Assist. As with HTC's U11, you can customize how much pressure is required. That's handy as you can increase the sensitivity when the phone is in a case.

Hardware

Rumoured to use the bleeding edge Snapdragon 836 processor, the Pixel 2 XL actually has the 835. This is the current flagship from Qualcomm and it goes without saying that it means this phone is a belter when it comes to responsiveness.

Google decided to go with 4GB of RAM, less than the 6GB found in some rivals.

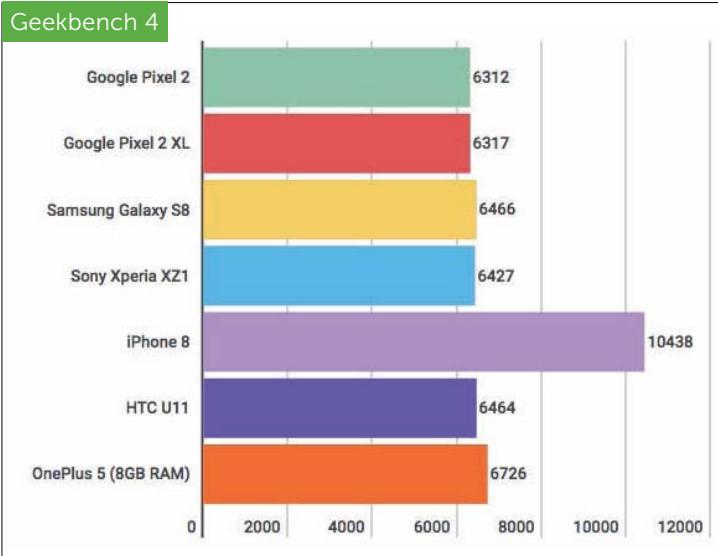
However, it certainly doesn't suffer for this: it's one of the fastest phones around. Actual benchmark results are unsurprising: we've already tested several phones with the Snapdragon 835.

REVIEW

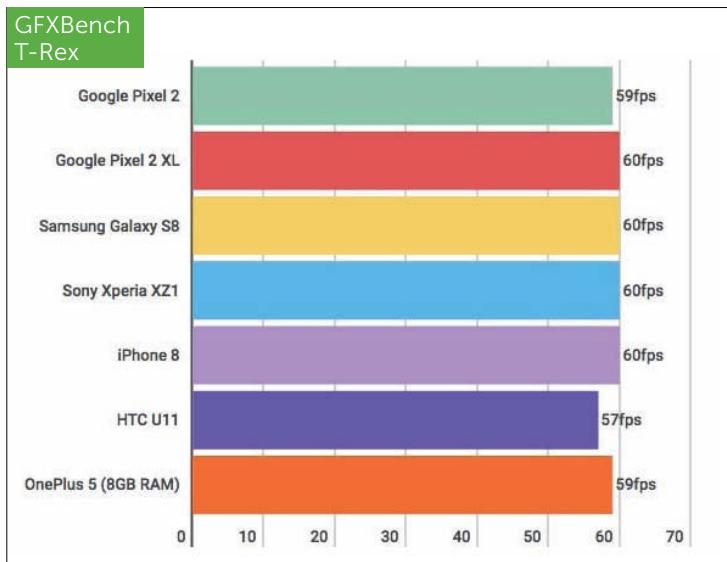
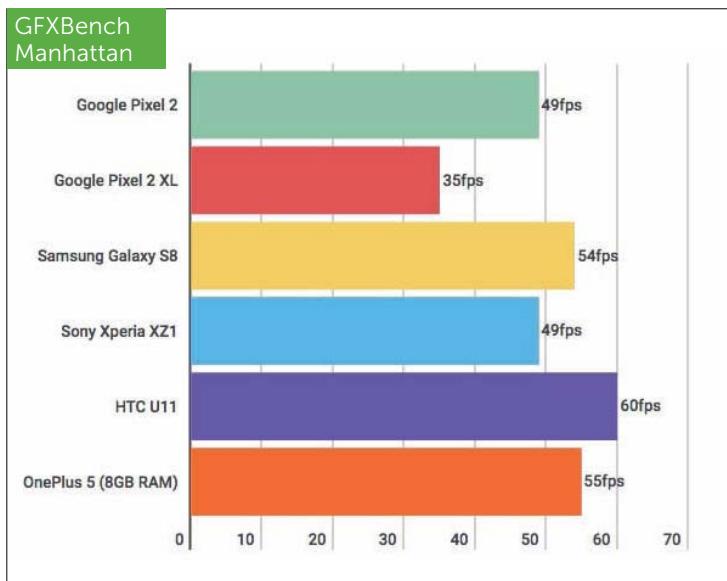
What's impressive is just how fast it feels in general use. Performance is flawless, and Android Oreo is slick.

The processing power enables unnecessary but wonderful features such as the living wallpapers. These have subtle movement, such as waves lapping at a shore, and they move slightly as you move the phone. Not enough to cause motion sickness: it's a nice touch. If you're wondering why the XL's game scores are lower than the small Pixel 2 it's because of the higher screen resolution: there are more than twice the number of pixels on the larger screen.

The Pixel 2 XL also has 802.11ac Wi-Fi, Bluetooth 5.0 (with AptX), GPS and NFC. It isn't surprising that the battery isn't removable – find us a flagship that does let you swap out the battery these days – and it has a capacity of 3,520mAh. It supports fast charging



REVIEW



	Google Pixel 2	Google Pixel 2 XL
Price	£629 (64GB), £729 (128GB)	£799 (64GB), £899 (128GB)
Operating system	Android Oreo, Google Assistant	Android Oreo, Google Assistant
Processor	Qualcomm Snapdragon 835	Qualcomm Snapdragon 835
GPU	Adreno 540	Adreno 540
RAM	4GB	4GB
Storage	64/128GB	64/128GB
Primary camera	12.2Mp single lens, dual-LED flash	12.2Mp single lens, dual-LED flash
Selfie camera	8Mp	8Mp
Audio	USB-C (earphones included)	USB-C (earphones included)
Fingerprint scanning	Yes (on the rear)	Yes (on the rear)
Waterproofing	IP67	IP67

with the included charger. It'll charge to over 70 percent in just 30 minutes in our tests, and battery life appears to be decent: we've not yet had enough time to fully test this with both light and heavy use.

Above is a handy side-by-side comparison of the Pixel 2 and Pixel 2 XL.

Cameras

Dual-camera setups are in fashion at the moment, but Google eschews this in favour of just one camera both front and rear. At the rear is a 12.2Mp



snapper, though this time it has the support of optical stabilisation. It has an f/1.8 lens and the sensor has 1.4µm pixels – larger than your average sensor pixels (on a phone, that is).

This means the Pixel 2 XL can take better HDR photos by combining more frames. And this happens in the background without you noticing: HDR+ mode is enabled by default.

There's also Portrait mode without the need for a second camera, or for you to move the phone around in strange ways. For the uninitiated, it means you get a blurred background behind a nice sharp subject.

This is done using the sensor's dual pixels rather than a second lens, but Google's 'computational photography' is also used to work out what's in the foreground and the background. It also means you can use Portrait mode for selfies, too.

REVIEW

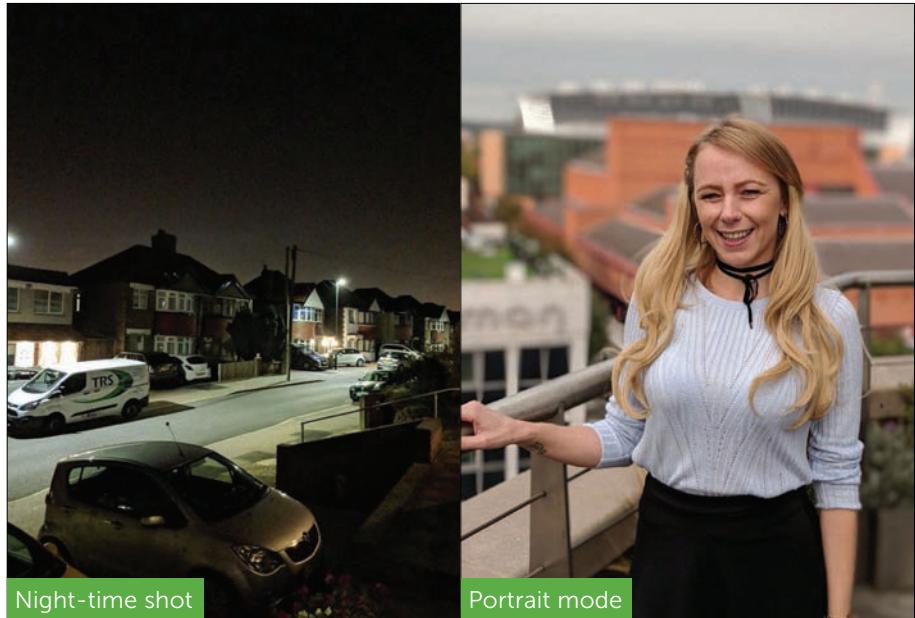


Video is shot using both OIS and EIS – Google calls this Fused Video Stabilisation – for smoother video with less blur. Video tops out at 1080p for the front camera and 4K on the rear, at 30fps. You can easily select 60fps when the main camera is set to 1080p.

One benefit of the Pixel 2 XL, as with last year's model, is that you get unlimited Google Photos storage for videos and photos at original quality. However, this time Google has put a time limit on this free storage, with a fixed end date of January 2021. Google reckons the average Pixel owner will use around 23GB per year.

Even if this is a tiny bit disappointing, the photo and video quality is anything but. It's a big claim to say

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it's the best camera on a smartphone, but Google has good reason to be confident.

In just about any light, the Pixel 2 XL takes fabulous photos. It also takes them unbelievably quickly and where you might end up with a blurry shot on another flagship, the Pixel captures the moment in biting sharpness almost every time.

Only in really low light is there a chance of a fuzzy shot, but if your subject will stay still for a second, the optical stabilisation does a great job of cancelling out your shaky hands.

Night-time photos are up there with the best. Sure, there's evidence of noise reduction but a surprising level of detail is retained even when it's really dark and

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exposure is well managed: note that the street lights don't have huge flaring in this shot.

The portrait mode is excellent, skilfully blurring the background after you take the photo. It doesn't always do a perfect job, but the effect is convincing enough.

Photos aren't over-processed: they look nice and sharp with natural colours.

Video is a little soft at 1080p, but stabilisation is excellent just as it was on the original Pixel. You'll get the most detail and sharpest picture at 4K, but you lose the ability to record at 60fps.

Audio is a mixed bag. Voices are clearly recorded, but Google seems to apply noise reduction which muffles background sounds. It's fairly effective for avoiding wind noise, though. It isn't stereo recording, which is a shame.

For slo-mo you have the same options as before: 120fps at 1080p and 240fps at 720p.

Software

Out of the box, the Pixel 2 XL runs Android 8.0 Oreo. It's one of the reasons to buy Google's phone: you get the software as Google intended it to look and work. And you'll be among the first to get Android P when that's released in 2018. Security updates are guaranteed for three years – it seems that you're expected to keep the phone until the end of 2020 at which point it's time to upgrade.

Google's tag line for the new Pixels is "Radically helpful". This isn't just referring to the Assistant though. Google plays to its strengths and has added features such as Lens (in beta and exclusive to the

REVIEW

Pixel 2) to make your phone more helpful in real-life situations. It's fine if you just want to identify email addresses and phone numbers from photos: Lens converts them to editable text so you don't have to retype them. You can also point the camera at a book or a film poster and ask how good it is to get a list of ratings and reviews. It's when pointing the camera at landmarks or plants that it starts falls down. It didn't recognize the famous St. Pancras Renaissance Hotel or several other London landmarks, and wasn't great as a plant finder.

Routines, already available on Google Home, is another handy feature. You can say something like "OK Google, let's go home" and you'll get directions home along with any text messages you've been sent. If you were listening to a podcast, it will resume after the Assistant stops speaking and can even adjust the volume so you can hear it while you're driving.



REVIEW



Daydream 2

It's little different from the first generation, but using the VR headset with the Pixel 2 is a decent experience. There's no lag at all, so less chance of feeling nauseous when playing VR games or watching videos in VR.

The main issue is still resolution. Despite the XL's 2880x1440 screen, it's still pretty easy to see the pixels. This is more of an issue when watching Netflix or YouTube VR videos. It's great to have a huge screen in front of you, but it's like having an 80in standard-definition TV, which is a shame.

The limited processing power means mobile VR games lack the visual quality of PC-based titles, too.

Verdict

The Pixel 2 XL is a fantastic phone. It's well designed, well built and looks great. The screen issues could put you off, and don't forget there's no headphone socket

REVIEW

or microSD slot. This is where the Galaxy S8 Plus comes in: it's cheaper and has both of those features and matches the Pixel in just about every area.

The Pixel does win out on camera quality – just – but has the advantage of quick updates to future Android releases and unlimited photo and video storage for three years. And it'll be an even better proposition once the price starts to come down.

Jim Martin

Specifications

- 6in (2880x1440, 538ppi) display with Corning Gorilla Glass 5
- Android 8.0 Oreo
- Qualcomm MSM8998 Snapdragon 835 processor
- Octa-core (4x 2.35GHz Kryo, 4x 1.9GHz Kryo) CPU
- Adreno 540 GPU
- 4GB RAM
- 64/128GB storage
- 12.2Mp, f/1.8, OIS, phase detection and laser autofocus, dual-LED flash
- 8Mp, f/2.4, 1/3.2in sensor size, 1.4µm pixel size, 1080p
- 3.5mm headphone jack
- A-GPS/GLONASS
- Wi-Fi 802.11ac
- Bluetooth 5.0
- NFC
- USB 3.1 Type-C
- 3,520mAh non-removable lithium-polymer battery
- 157.9x76.7x7.9mm
- 175g

REVIEW



Huawei Mate 10 Pro

£699 inc VAT from fave.co/2xQGdsN



Huawei is the biggest telecoms company on the planet, but the brand is still relatively unknown in the UK. Although other phone makers such as Samsung and Apple only very recently launched bezel-less phones, Huawei has quietly been doing this since 2014. Its Mate series has always had practically zero side bezels so although some will think that Huawei is just copying the big boys with the Mate 10, it's actually the other way around.

The past few Mates have all looked pretty much the same, but Huawei has shaken things up for 2017

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and it's no overstatement to say this is one of the best-looking phones around. It's also one of the most powerful and longest-lasting, attributes which should ensure its place on your upgrade shortlist alongside the Galaxy S8, Note8 and – maybe – iPhone 8 Plus.

Design

The Mate 10 Pro – the only model from the range that will be sold in the UK later in November – is a gorgeous-looking phone that's taller and slimmer than its predecessors thanks to the switch to an 18:9 screen and smaller top and bottom bezels than on the Mate 9. It's a bit smaller than the iPhone 8 Plus, but has a 6in screen rather than 5.5in.

A glass back is the main change from previous Mate designs. Unlike the iPhone 8 which also adopts the glass sandwich, the Mate 10 Pro doesn't support wireless charging. Instead, the Gorilla Glass 5 is there purely for aesthetics.

And it looks stunning. The glass curves on all four edges and reflects the light beautifully (see opposite). It joins the alloy frame almost invisibly and feels silky smooth in the hand.

The problem with this is that – hardened or not – glass is still glass. Huawei provides a plastic case in the box, and a screen protector is fitted at the factory, but the case hides that glorious finish so it'll always be tempting to go case-less and run the risk of the drop-smash.

At least it will continue to work if it falls in the bath: the Mate 10 is Huawei's first phone to have proper waterproofing. And since the cameras protrude by a

REVIEW



millimetre or so and aren't part of that rear glass, they should continue working even if it does get cracked.

The Mate 10 Pro comes in four colours: Midnight Blue, Titanium Grey, Pink Gold, Mocha Brown. In my eyes, the blue version looks best, but plenty of people are taken with the bronze-like Mocha Brown.

Just be sure to have a lens cloth handy at all times to clean the glass of those inevitable fingerprints.

Another departure from previous Mate designs is the stripe which highlights the dual cameras. These are still aligned vertically but are separated instead of having a single cover as on the Mate 9.

The arrangement is essentially the same, though, with 12- and 20Mp sensors, the former colour and the latter mono. Both lenses have a faster f/1.6 aperture

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to let in more light than before, but only the 12Mp camera benefits from optical stabilisation.

The fingerprint scanner sits below the cameras and is a bit larger than the Mate 9's. Having used enough phones with a rear scanner, it's just as good – if not better – than a front-mounted sensor as your finger falls naturally on it when you pick up the phone.

But therein lies the rub: you have to pick it up to access the scanner. That, or press the power button and enter your PIN or swipe pattern to unlock.

There's another slight niggle: you won't find a 3.5mm headphone jack on the Mate 10 Pro, though there is one on the standard Mate 10 (a model you can't buy in the UK).

The top edge of the phone has what looks like a headphone jack, but it's actually an IR blaster next to a microphone. This lets you control your TV or set-top box, should you want to.



REVIEW

Another oddity is that the Pro doesn't offer expandable storage via microSD whereas the standard Mate 10 does. Fortunately, the Pro packs 128GB as standard, but you'll have to be sure that's all you'll need for the lifetime of the phone.

It is a dual-SIM phone, though, and it supports 4G for both nano SIMs. The modem supports Cat 18 LTE so it's one of the first phones which can download at 1.2Gb/s. Unfortunately, you're not going to experience this in the UK for a long while as the fastest download speed to date (offered by EE) is 150Mb/s.

Huawei is calling it 4.5G, but while it's interesting, ultimately it isn't a reason to buy the Mate 10 Pro (or any other phone with similar tech.)

Display and audio

We never got the Mate 9 Pro in the UK, but that model had an OLED screen as opposed to the IPS LCD screen in the standard Mate 9. Things are the same in 2017 and it means the Mate 10 Pro should be compatible with Google's Daydream VR headsets (it isn't yet certified, but is expected to be shortly).

It has a resolution of 2160x1080 which is lower than its rivals, but in the flesh it looks great and, at 480ppi, everything looks nice and sharp. The OLED tech means contrast is fantastic and colours are also great: it has a wide colour gamut (112 percent of the NTSC standard) which allows it to display HDR10 content.

Colours pop as they do on the Galaxy S8 Plus and viewing angles are nice and wide with no noticeable colour shifting.

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The 18:9 aspect ratio screen is becoming more common, which is a good thing for the Mate 10 Pro as more apps will be optimized to run in full-screen mode. The phone lets you force any app to do this, but doesn't guarantee it'll work properly.

Unlike the Pixel 2 XL which has two front-firing stereo speakers, Huawei opts for an Apple-like approach with the top one facing the front and the bottom-firing speaker used as the second.

They're loud enough, but not particularly well balanced with the front speaker noticeably quieter.

Cameras

The lenses may have f/1.6 apertures, but the cameras are not the Mate 10 Pro's strong suit. At least, certainly not when compared to the amazing snappers on the Pixel 2 XL (see page 25).

Put simply, the Mate 10 Pro cannot resolve the same level of detail. When you look close up, photos don't look sharp and there's evidence of noise reduction, even in good light. This makes textures look a bit smeary, and it's worse in low light.

We've also reason to quibble about video quality. Everything looks a little soft at 1080p but while 4K is decent enough, there's no stabilisation on offer (despite the OIS).

Annoyingly, the same restriction is imposed if you choose to shoot at 1080p60, so you either live without stabilisation or put with less detail and half the number of frames per second to get smoother video.

Audio quality on videos is pretty good, with none of the noise reduction you get on other phones that

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makes it sound as though the recordings were made under water. It's a stereo soundtrack, too. You can see a 1080p30 clip with stabilisation enabled at tinyurl.com/y7hgbr7q.

Plus, while it's easy to be critical of the quality when really scrutinising photos at 100 percent, they look good when viewed normally. The lack of sharpness isn't noticeable: focus is actually very good.

You can snap a shot in a hurry and still get good results thanks to the array of focusing techniques (and depth perception) at the rear which mean there's no perceptible delay between tapping the shutter button and the photo being taken.



Monochrome



Portrait mode

There are lots of modes to play with including slo-mo video (which works a lot like the iPhone's and lets you adjust which portion is slowed down), a pro mode for photo and video that gives enthusiasts access to shutter speed, ISO, metering, EV correction, focus and white balance. You can even lock the last three while you make other changes.

You can also use the monochrome camera to take 20Mp photos and they're clean even in low light:

Huawei's signature light painting mode is great fun at night, and long exposures can be used to get light trails or other effects.

On top of all that, there's the option to enable Motion photos (basically the same as Apple's Live

REVIEW

Photos) and both portrait mode and 'wide aperture' mode. The latter is usable with the standard field of view which means you can take photos of several people and still get a nice blurry background.

In portrait mode, results can look great, but it doesn't always correctly detect hair. Again, though, this is only something you'd notice if you zoom in and look closely.

Around the front the 8Mp selfie camera is decent enough and you can play with the beauty settings in the portrait mode and even toggle on the 'artistic bokeh effect' which uses the power of the Kirin 970 to figure out what's in the background and blur it. And it works surprisingly well.

The stock camera app has the same interface as before, but the AI certainly appears to help with scene recognition. A symbol appears at the bottom-left corner to indicate what it has recognized.

For example, there's almost no delay switching to foliage mode when pointing the camera at a plant. Similarly, face recognition (and tracking) worked really well when taking photos of a ballerina – despite the relatively dim lighting.

Even when its very dark, the cameras are still able to focus quickly and take sharp-looking photos with good skin tones.

Each camera has its own ISP (image signal processor) and these are used in conjunction with the AI engine to process images according to the type of scene detected. The processing power is also used to enable software zoom up to 2x, and the results can be better than the telephoto lens on the iPhone 7 Plus.

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Performance

Huawei uses its own-design processors in its phones and the latest is the Kirin 970. It's an eight-core chip and, like Apple's A11 Bionic, it has dedicated neural network hardware which allows it to handle tasks such as language translation and image classification on the phone instead of requiring it to call home to servers on the Internet.

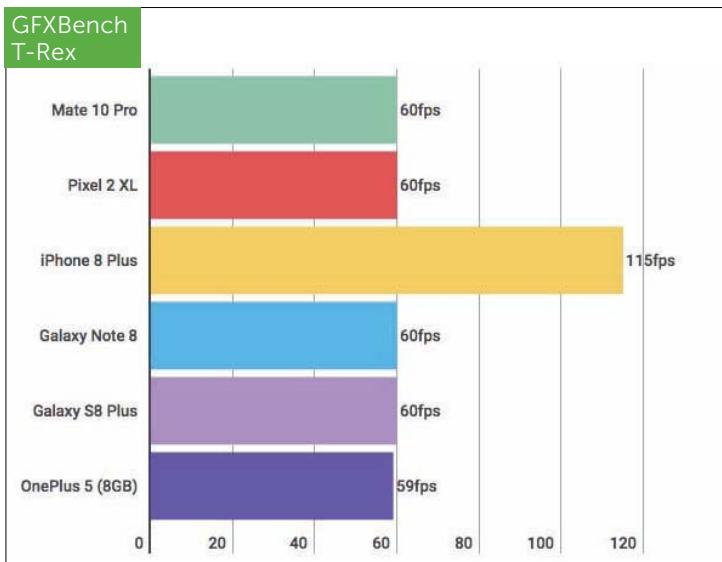
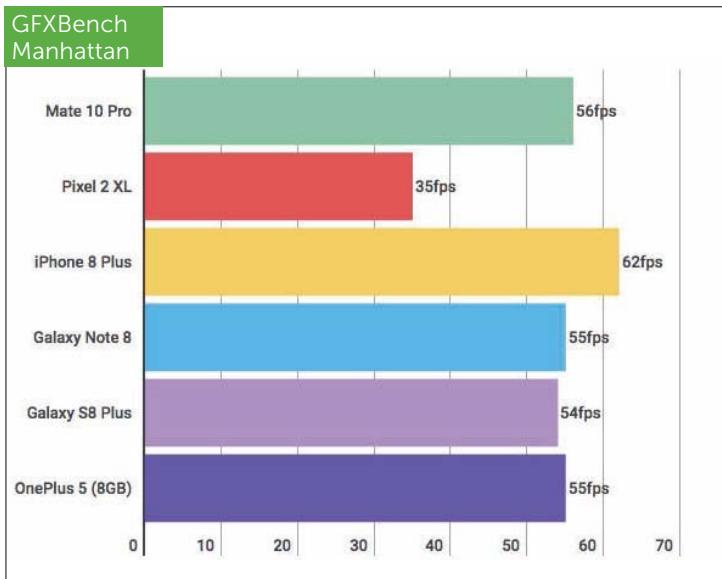
Huawei says the performance of this so-called NPU (Neural Processing Unit) is 25 times better than the main CPU, and 50 times more efficient.

Overall the Kirin 970 is 20 percent more efficient than the Mate 9's Kirin 960 and the new Mali G72-MP12 GPU is 50 percent more efficient.

All of this means the Mate 10 Pro has excellent battery life. With a 4,000mAh capacity, it easily lasts



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a day even with heavy use. And if you're not playing games, taking videos or constantly using the screen to browse the web, watch videos or send messages, it'll (almost) last two days.

When it's empty, the included SuperCharge power supply will charge the Mate 10 Pro to almost 60 percent in only 15 minutes.

As for the processor's performance, it's fantastic. It comfortably sits with Snapdragon 835-powered phones and thanks to the lower resolution than some of those phones, the GPU doesn't have such a hard time rendering all those pixels so it can deliver as many, if not more frames per second.

Only the A11 goes noticeably quicker in benchmarks, but this doesn't include image recognition. Huawei says the Mate 10 Pro can identify scenes in photos at a rate of 2000 per minute, while the iPhone 7 Plus can manage only about 500.

And in real-world use, the Mate 10 Pro feels as fast and responsive as you'd expect from a top-end flagship phone.

The real question is whether developers will use Huawei's APIs to create apps that take advantage of the NPU. If not, you're not going to see a huge benefit beyond translation and image and scene recognition or other apps Huawei itself releases.

Translation needs to improve before you can rely on it. Once you've downloaded the respective language packs, you can use the app offline

It works pretty well, but in the (admittedly hard) test above, it completely fails to translate the Spanish for department stores and calls them "large surfaces".

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Software

As you'd hope from a brand new Android phone, the Mate 10 Pro comes with Android 8.0 Oreo and this is overlaid with Huawei's EMUI interface.

EMUI is one of the most iOS-like Android interfaces out there and this makes it ideal if you're jumping ship from an iPhone. The default layout is to show all apps in a grid, but you can change this for the traditional app drawer in the settings.

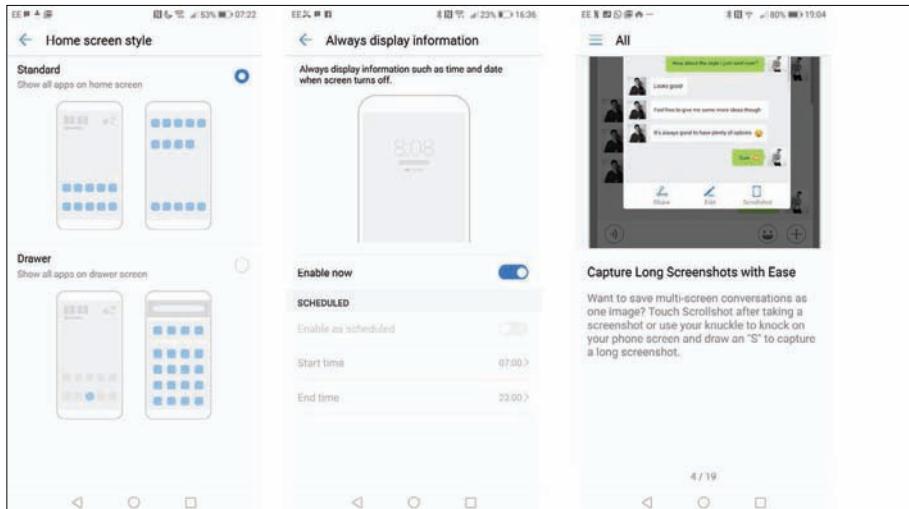
From the home screen you can drag down to get a search bar to find apps, music or other media.

The previous version was EMUI 6, but in order to match Android, this has now been bumped up to EMUI 8.0 for the Mate 10. You won't notice too many major changes, since these are lurking behind the scenes.

EMUI 8 is great to use, although it does take a bit of adjusting if you're used to plain Android. What's nice



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is that you have a choice of whether to use the usual Android soft navigation keys or EMUI's floating button.

You'll have to learn the gestures for the button, but because you can position it anywhere on the screen, it could be a quicker way to operate the phone with one hand. Disabled by default is the always-on display. This shows the time, date and notifications just like the Pixel 2 XL and Galaxy S8. You can schedule this, too, so it doesn't use power at night.

Like Motorola, Huawei adds quite a few handy features to Android, such as double-pressing the power button to launch the camera when the phone is off, and letting you quickly call someone by holding the volume down button and speaking their name.

Thanks to the wider screen, the Mate 10 Pro has a feature called Smart Split-screen. This automatically displays some apps in two columns in landscape

mode and means you can keep watching a video while replying to an email, for example.

And as with previous versions, you can use your knuckle to knock on the screen to achieve certain things. For example, a double knock takes a screenshot and you can draw letters with your knuckle to launch certain apps. You can also draw a line across the screen to enter split-screen mode – getting the knack just takes a little practice.

A potentially useful feature for some is the ability to connect a big screen using just a USB-C to HDMI adapter cable. When you do this, you get a Windows-style desktop for running apps and the phone screen becomes a virtual touchpad for the on-screen cursor. A keyboard also pops up when relevant for text entry.

The desktop environment is fairly rudimentary, but if Huawei develops it, this could be a reason to get the Mate 10 over one of your other shortlisted phones.

Verdict

The Mate 10 Pro is the best phone from Huawei yet and although the cameras aren't as good as the Pixel 2 XL's, it has a better screen, better battery life and just as much processing power. In fact, with the AI processor there's arguably more on board, but there's no guarantee that apps will appear to make use of it. Even if they don't, this is still an outstanding phone. **Jim Martin**

Specifications

- 6in (2160x1080, 402ppi) IPS display
- EMUI 8.0 (Android 8.0 Oreo)

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- Hisilicon Kirin 970 processor
- Octa-core (4x 2.4GHz Cortex-A73, 4x 1.8GHz Cortex-A53) CPU
- Mali-G72 MP12 GPU
- 4/6GB RAM
- 64/128GB storage
- Fingerprint scanner
- Dual 20Mp and 12Mp, f/1.6, OIS, 2x lossless zoom, Leica optics, phase detection and laser autofocus, dual-LED (dual tone) flash
- 8Mp, f/2.0 front camera
- Bluetooth 4.2
- GPS, A-GPS, GLONASS, BDS
- USB-C 3.1
- 4,000mAh lithium-polymer battery
- 154.2x74.5x7.9mm
- 178g



REVIEW



Xiaomi Mi Mix 2

£427 inc VAT from fave.co/2yNdMNE



Despite being introduced as a concept phone, Xiaomi's Mi Mix was the most interesting smartphone we saw in 2016. It was the phone that inspired Samsung, LG and Apple to feature 18:9 full-screen displays in their latest flagships, and it garnered so much attention in the consumer tech industry that today I have no fewer than six Chinese copycat phones sitting on my desk waiting to be reviewed, all with the product name 'Mix'.

Producing a successor to that revolutionary handset was always going to be a tough job for

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Xiaomi, but in the Mi Mix 2 it has returned a gorgeous flagship that is more manageable in the hand and significantly faster. It also features the same primary camera as the company's Mi6, which is a good thing.

Where to buy the Mi Mix 2 in the UK

There's one main problem with the Mi Mix 2: it's not officially available in the UK. We never let things like that stop us though, and our review sample was shipped in from China by GearBest.

This option is available to consumers, too, and with free shipping. But do note that legally you should pay import duty if requested, which is calculated at 20 percent of the value on the shipping paperwork plus an admin fee of around £11.

Even so, it's crazy to think a phone with this level of performance and such an awe-inspiring design is able to so heavily undercut UK flagships.

The 64GB model we've reviewed here costs just £427.14 at the time of writing. GearBest also stocks 128GB and 256GB versions at £458.47 and £489.04 respectively.

That's just £60 separating its entry- and top-end models – compare that to Apple's latest iPhone where the difference is £150.

The difference here is that if you want to buy the Mi Mix 2 you will need to pay for it upfront, then add a SIM-only deal. You won't find any contract deals on the Mi Mix 2 in the UK.

Previously with Xiaomi phones UK connectivity has been a concern, with the handsets routinely lacking support for 800MHz 4G, also known as FDD-LTE band

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20. This had meant those on the O2 network or those who piggyback it – GiffGaff, Sky Mobile, Tesco Mobile, and so on – were unable to receive 4G. But with the Mi Mix 2 4G connectivity extends to all 4G bands in use in the UK.

If you like you can even use two UK SIMs, because a key attraction of the vast majority of Chinese phones is their dual-SIM functionality, which here works in a dual-standby manner (the usual).

Unlike some of those phones this is not a hybrid SIM tray, however, so there is no possibility to swap the second SIM for a microSD card. It's important that you choose the correct amount of storage for your needs from the outset.

The down side of a phone like the Mi Mix 2 is Xiaomi handsets are rarely sold preinstalled with



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Google services, which means you need to do some work to configure the handset if you wish to use Gmail, Google Photos, Google Drive and so on. Fortunately with our sample we were able to download the Google Installer from the Mi App Store, but this isn't something we would recommend for people who don't know their way around an Android phone – especially when everything is in Chinese.

Design

It's difficult to imagine without seeing it in the flesh, but the Mi Mix 2 is even better-looking than the original. And that's even taking into account we reviewed the top-end ceramic model for the original Mi Mix, a handset that won the IDEA Gold award for design. Part of the reason for this, no doubt, is French designer Philippe Starck is back on board.

The best design change, in our opinion, is the reduced overall size. It's dropped 7mm on its height and 6mm on its width, and has even shaved off a little round its waist, now just 7.7mm thick. Unfortunately this means there is now a camera bump, which is more apparent thanks to its gold surround. We'd have preferred Xiaomi to stick to the 7.9mm design with the rear camera lying flush.

We appreciate that some people want a huge phone, but having used the Mi Mix across multiple seasons we never found a coat or jacket pocket into which it would comfortably fit without feeling as though it was going to rip the seams.

And when you have a piece of tech that large, it's surprisingly easy to drop. Not good when you have a

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fancy phone with 18K gold detailing on the rear – that remains a feature here, by the way, albeit no longer surrounding the fingerprint scanner.

2.5D curved glass at the front and slightly rounded edges at the rear are very significant in making the Mi Mix 2 feel more comfortable in the hand. To say the original was unwieldy is something of an understatement.

The Mi Mix 2 is much smaller thanks to a reduced screen size and a 12 percent smaller chin. The screen is still enormous, at 5.99in, but it was previously quite the monster at 6.4in.

It's an ideal size for watching video, playing games and getting stuff done, and though MIUI's one-handed mode may still come in handy you won't be resorting to it quite so often (this shrinks the viewable screen size to 4.5-, 4- or 3.5in). The Quick Ball feature

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remains available too, placing on screen quick access to the multitasking menu and home screen, and the ability to lock the screen or take a screenshot.

This change in screen size also means that in line with more recent 'bezel-less' flagships, such as the Galaxy Note8, Galaxy S8 and LG G6, it has an 18:9 aspect ratio rather than the Mi Mix's 17:9. In future that could mean improved app compatibility, and for now you can use the Settings menu to configure which apps are allowed to take advantage of the maximum aspect ratio.

The screen itself is a stunner, crystal clear, bright, and with realistic colour reproduction. Viewing angles are good, too. All the things we'd expect from a decent IPS panel. Xiaomi is holding out on the resolution, though, and while many of its competitors are including Quad-HD it has yet to release anything higher than full-HD on a smartphone. Actually, that's the approach Samsung has taken with its Galaxy Note8, too – Quad-HD is possible, but it's set to full-HD by default. While we won't pretend there is no visible difference between full- and Quad-HD, we really don't think it matters all that much. And when you're talking about a phone with a screen this large, it makes sense to reduce its potential impact on battery life as much as possible.

Battery life, by the way, was one of Mi Mix's strongest suits: its 4,400mAh battery could easily last two days with even heavy use. So it's disappointing to see battery capacity reduced here to 3,400mAh.

You should take into account that the screen is now smaller and the new 10nm processor significantly

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more efficient, but the reality is you're likely to find yourself with a day's usage here, probably with some juice to spare the following morning. Quick Charge 3.0 does let you rapidly refill the battery, though one thing missing is support for wireless charging – that's true for all of Xiaomi's smartphones.

However, we do like the fact the smaller battery makes the phone lighter – now 185g, previously 211g. This makes a huge difference to our overall impression of the phone.

So we mentioned that we previously reviewed the ceramic Mi Mix. The new Mi Mix 2 still has a ceramic rear panel but a 7000-series aluminium frame. It's an improvement – much nicer looking, if less at odds with other flagships on the market. Still a flat slab, but the Mi Mix 2 is now a flat slab with ultra-smooth,



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rounded edges, which results in a softer, less boxy design. Mi Mix 2 remains prone to fingerprints, but no way would you believe this was a phone that costs less than £500.

You'll find two tiny antenna lines hidden away on the top and bottom edges, along with a USB-C port, a mic and speaker grilles. There are no physical buttons on the front, but you can access home, back and multitasking buttons at the base of the screen, or tuck them away from view so you must swipe up to see them. But the Mi Mix has always been more about what it takes away than what it adds.

Forget the 'notch' on the iPhone X, or the slim area atop the screen on the Galaxy S8 and LG G6. The Mi Mix 2 – and the Mi Mix before it – has no top bezel. There is a bottom bezel, so it's not strictly bezel-less, but it is the closest we've seen yet.



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Some of the cheaper copycats have snuck in a speaker and sensors right at the very top of the screen. Mi Mix 2 does this too, which is a departure from its predecessor, but seriously – blink and you'd miss it. Mi Mix uses special technology to do away with other unsightly blemishes at the top of the handset, using a hidden ultrasonic proximity sensor and a tweaked sound-guided speaker. It's a setup that works as well as any other standard phone and call quality is good.

This does mean there's no room for the selfie camera, and this remains one of our gripes. As before, you'll find this at the bottom right corner of the Mi Mix 2, and in order to take a selfie you'll want to turn the phone upside down. Not too much of a hardship, you might think, but in our experience that doesn't work great with apps such as Snapchat.

Another notable omission is a 3.5mm headphone jack. This is the first Xiaomi phone we've seen not to include this port, and may well be a sign of things to come for the company. It's a trend started in late 2016 with the iPhone 7, causing users to resort to the USB-C port or a pair of wireless earphones for audio.

There's the phone's built-in speaker, too, of course. But we weren't overly impressed with this. It's not especially loud, and quality is a bit inconsistent.

Xiaomi does not provide any USB-C headphones in the box, but you do get a USB-C to 3.5mm audio adaptor – and a case, which is handy as cases for Chinese phones are often difficult to get hold of in the UK, or you'll be waiting so long for delivery you've already cracked the screen.

REVIEW

Performance

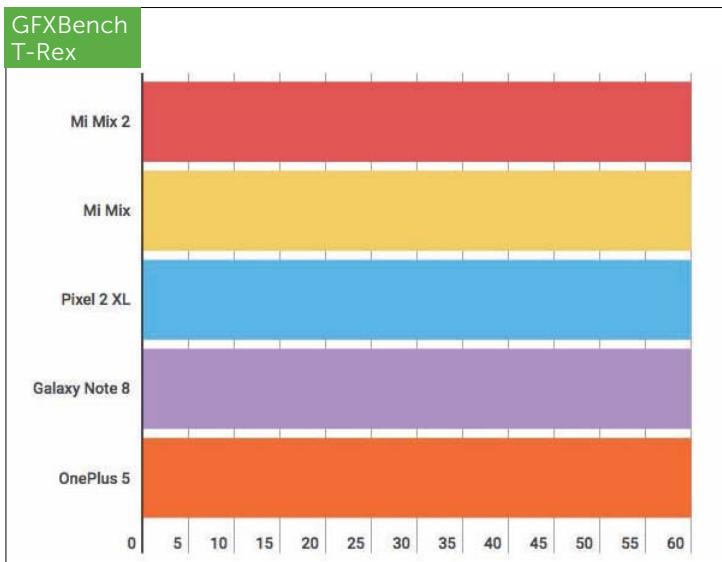
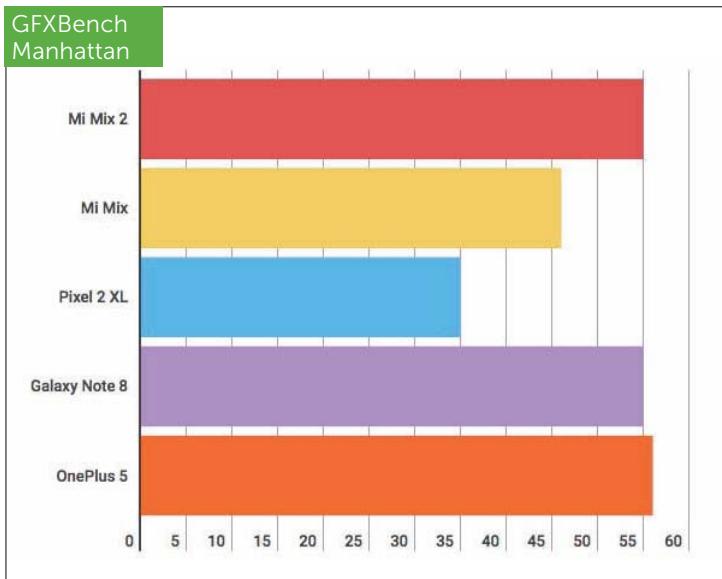
Running the 2.35GHz Qualcomm Snapdragon 821, Adreno 530 GPU and 6GB of RAM, the original Mi Mix was a force to be reckoned with. Swapping in that 14nm chip with the 10nm Snapdragon 835, also running at 2.35GHz and paired with 6GB of memory, the Mi Mix 2 now makes that phone look slow. The Snapdragon 835 makes huge savings on battery life, and significantly improves performance.

The Mi Mix 2 has performance as good as anything we've seen this year, bar the iPhone 8, and in fact its full-HD display means that it doesn't have to push so hard in our on screen graphics tests.

We've collated the results of our benchmarks for various comparable phones in the chart below, but the Mi Mix 2 is right up there with the likes of



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the Galaxy Note8, OnePlus 5 and Pixel 2 XL. And it shows a significant boost over the original Mi Mix.

We recorded a staggering 6675 points in Geekbench 4's multi-core component, which is faster than the Pixel 2 XL and only a tiny amount behind the Galaxy Note8 and OnePlus 5. Its AnTuTu score of 177903 beats the Note8's 166,832, though.

In graphics tests using GFXBench the Mi Mix 2 scored the maximum frame rate of 60fps in T-Rex, so we increased the intensity and in Manhattan it achieved a commendable 55fps. In Manhattan 3.1 and Car Chase it recorded 30fps and 24fps, which are still very respectable, easily playable frame rates.

Lastly we run JetStream, which is a JavaScript benchmark. The Mi Mix 2 scored 60.8, in line with all other Android flagships.

So what do all these numbers mean? In essence, the Mi Mix 2 is a powerhouse. We defy you to find any issue with its performance.



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In terms of space for your stuff, you get a choice of 64-, 128- or 256GB UFS 2.0 fast storage. All these options are generous, though there is no possibility of adding in more later via a microSD card. Choose carefully. Connectivity-wise the only thing missing is an IR blaster. So you get NFC and a fingerprint scanner, which is necessary for making mobile payments, fast Wi-Fi, GPS and GLONASS, OTG USB and the latest Bluetooth 5.0.

There's also dual-SIM capability that will be useful if you want to use separate contracts for home and abroad, or business and leisure, and Mi Mix 2 supports all UK 4G connectivity bands.

In this regard the MIUI operating system supports Dual Apps, allowing you to run two instances of the same app each with their own home screen shortcut. This might save you having to keep switching your logins within apps, and it ties in neatly with the second relevant software feature. Second Space lets you create a separate space on your phone that is password-protected. You can import photos, files and apps to this space, then switch between spaces using the command in the notification bar. It may come in useful if you're using two numbers on the phone, or if you have something to hide.

Camera

Mi Mix 2 has been advertised as using the same camera as the Mi6 (and, for that matter, the original Google Pixel), which is a bit confusing given that the Mi6 has a dual-camera and the Mi Mix 2 does not. Actually it has the same primary camera as the Mi6,

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the Sony IMX378, and that's a good thing. The only difference you'll find is the absence of any 'bokeh' effects. This is a 12Mp lens (previously 16Mp), with an f/2.0 aperture, phase-detection autofocus, four-axis OIS, 1.25µm pixels and a dual-tone flash.

It didn't wow us as other flagship cameras have, but it's by no means a poor offering. Detail is sharp, colours realistic, and low-light photography is acceptable if not the best we've seen, provided you allow it time to properly focus.

You can check out some of our test shots above and opposite, with auto and HDR settings respectively, and then in a low-light scene (opposite).

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There's also a 5Mp camera at the front but, as we've mentioned, awkwardly placed at the bottom right so you'll need to turn the Mi Mix 2 upside down to use it properly.

Software

As we've touched on several times within this review, the Mi Mix 2 does not run standard Android but MIUI 8.5.7, which is a custom version of Android



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7.1.1. It is quite the departure from the Android to which you will likely be familiar, with a quite different settings menu and the loss of the app tray. Fortunately there is a search bar within the settings menu that helps you to find what you're looking for, and it should all become familiar fairly quickly anyway.



We've heard several comment that there's a lot of bloatware on this phone. We reckon that's an unfair comment. Sure, there is some, but all of which can be uninstalled very easily. The remaining apps are not bloatware, but alternatives to the Google services UK users are familiar with, since Google services are not preinstalled. It is these apps that cannot be uninstalled, and the fact everything is sprawled over the home screen makes that more apparent. Our advice: group them all in a single folder and forget about them.

This is the biggest problem with the Mi Mix 2. Setting it up for UK use (on the assumption you don't speak Chinese) can be a headache. Fortunately, we found it easier on the Mi Mix 2 than we did some Xiaomi handsets, since we were able to download the Google Installer from the Mi App Store, and then download a UK keyboard and all our apps from there.

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The only app we had any issues with was Gmail, but while it kept popping up error messages it did seem to be working correctly. Our advice is to ensure all the apps you download have the necessary permissions allowed, because you can't take for granted the same seamless operation as you would on a phone preinstalled with those apps. Ensuring the likes of WhatsApp, Gmail and Facebook Messenger are allowed to autostart is also a good idea if you want to receive any messages.

While we'd prefer to use standard Android because that's what we're used to, MIUI has some real advantages – including timely updates and a huge community of users willing to provide help at online forums. We especially like Dual Apps and Second Space, but the likes of One-handed mode and Quick Ball are also useful in the Mi Mix 2 for helping you manage that enormous screen.

Verdict

We remain huge fans of the Mi Mix family, but rather than the revolutionary beast it once was Xiaomi's 'bezel-less' phone has been brought kicking and screaming into line with other Android flagships.

It may have lost some of its wow factor, but in the most part we're pleased with the changes: we love the new design, both smaller and lighter and therefore more manageable than before. We also love the improved connectivity, now with complete UK 4G support.

We don't love the reduction in battery life, though, nor the loss of the headphone jack, and we're not

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enamoured with the new camera bump. But the Mi Mix 2 is still a fantastic phone: significantly faster than its predecessor, and much better looking. Better still, it's as affordable as ever, making it a great alternative to other Android flagships – provided you can either live without or cope with having to set up Google services yourself.

In the Mi Mix 3 we would love to see Xiaomi's dual-camera implemented, plus a higher-resolution screen. Waterproofing and wireless charging would also be good shouts. **Marie Black**

Specifications

- 5.99in full-HD (2160x1080, 403ppi) display
- Android 7.1.1 Nougat (MIUI 8.5.7)
- 2.35GHz Snapdragon 835 octa-core processor
- Octa-core (4x 2.45GHz Kryo, 4x 1.9GHz Kryo) CPU
- Adreno 540 GPU
- 6GB RAM
- 64-/128-/256GB storage, no microSD support
- Fingerprint scanner
- 12Mp Sony IMX386 rear camera
- 5Mp front camera
- Dual-SIM dual-standby (2x nano)
- 4G FDD-LTE UK bands B3/B7/B20
- Bluetooth 5.0
- GPS, A-GPS, GLONASS, Beidou
- USB-C
- USB-C audio
- 3,400mAh battery
- 151.8x75.5x7.7mm
- 185g

REVIEW



Google Home Mini

£49 inc VAT from fave.co/2yKJ5IH



If you've not decided what you want for Christmas this year, let us help you with that: a Google Home Mini. (Or multiple such devices if your loved ones are feeling generous.) Why? Because it's awesome.

We love the standard Google Home, but the Mini offers the same functionality at a fraction of the price. It offers a fraction of the audio quality, too, of course, but that doesn't make us love it any less.

Available now for £49 direct from Google or third-party vendors such as John Lewis, Currys, Argos and Maplin, Google Home Mini is sufficiently affordable to gift, and cheap enough that you can dip your toes into the new world of smart home voice assistants without a significant outlay. Better still, its £49 asking price means you could potentially afford several devices.

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We do not presume to know your budget, but if you were planning to pay several hundred pounds on a home audio system or new speaker system anyway we'd suggest you instead look to the Mini. Multi-room audio support means you could have one in the kitchen, one in the lounge, another in the bedroom and even one in the landing, still with change from £200. You could then blast your favourite tunes throughout the house, or control smart-home tech such as lights and heating from wherever you stand.

What is the Google Home Mini?

For the uninitiated this is an important question. In its most basic form the Google Home Mini is a small speaker, but not a portable one since it is always-on and needs to be plugged in via its Micro-USB port at all times. If you wanted to, you could use it simply for playing music from your phone or tablet.



REVIEW

But you would be missing out on so much doing just this. This isn't just a Bluetooth speaker, it's also wireless, which means you can stream Internet radio or connect it to your Google Play Music or Spotify account. Spotify Free accounts are also supported, but if you're not paying the monthly Google Music subscription only your playlists will be accessible.

In our opinion, the music streaming and support for multi-room audio alone make the Google Home Mini worth its £49 price tag. But that would be forgetting the Google Assistant, and that's what rockets this tiny box way out of the league of ordinary wireless speakers. If you've purchased a new flagship Android phone this year you may have already interacted with Google Assistant, but you'll find her far more useful here. In her new compact home Google Assistant is the dogsbody you've always wanted.

Want to know the weather for the day ahead? Ask her. Fancy hearing the latest headlines? Ask her. Need help solving a maths problem? Ask her. Not sure what you're doing this weekend? Ask her. Got a question only a Google search will resolve? You guessed it, ask Google Assistant.

The Google Assistant tells jokes, funny stories and interesting facts, she can host quiz games, sing you happy birthday, help the children with their homework, set alarms and timers, play music and cast videos, movies and photo slide shows to your TV.

If you have any smart tech in your home – lights, heating, switches and so on – she can control it, and if she doesn't already have integrated support you'll likely be able to configure it through IFTTT, which is

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not as scary as it sounds. Partnerships are already in place for big names such as Philips Hue, Samsung Nest and WeMo and more will certainly follow.

Why Google Assistant is better than Amazon Alexa?

If you're new to smart speakers and the idea of smart virtual assistants, trying to work out whether you should go down the Amazon Echo route or the Google Home route could be tricky. Both offer reasonably cheap entry points (the Echo Dot costs £49 from fave.co/2yLE2aZ), both are said to offer much the same functionality, and for now at least the Amazon Echo has by far the highest market share.

So why is that? For a start Amazon Echo came out in the UK a good year before Google Home, giving it the head start it needed to find its way into consumer homes all over the country. It used some of that time to build up its 'Skills' database, albeit with thousands of entries you will likely never use, such as apps that can insult you or tell you what noise a dog makes when given a very specific command. But it does – for now – have better native support for smart-home services than does Google Assistant.

It has also benefited from various Amazon deals days that see the Echo vastly reduced in price, making it worth a punt even if you're not sure about the whole concept of smart speakers. And, for a long time, it had no real competition. Today tech manufacturers are queuing up to reveal these type of devices with Alexa, Google Assistant or Cortana (Microsoft's offering) built in.

REVIEW

Amazon's Echo family are brilliant devices, but you shouldn't consider buying one if you don't subscribe to Amazon Prime. Also, Google Assistant is better.

Google Assistant doesn't need you to search for and enable skills to answer your queries – this device hails from Google, the daddy of online search. So while Alexa can handle the sort of queries that have a Wikipedia page, or shopping questions, Google Assistant can just run a web search for you and throw out the most likely result.

Use both side by side for only a short while and you'll see that Google Assistant is both more intelligent and more resourceful than Alexa. While it will try to answer any question you ask it, Alexa will more often than not return its favourite phrase: 'Hmmm, I don't know that one.'

But what we love most about Google Assistant is the ability to converse with it using very natural



REVIEW

language, whereas Alexa prefers a more formulaic approach. It's also got a real personality, so it feels less like you're having a conversation with a box and more like you're chatting to an actual assistant. People skills is something Alexa definitely lacks, even if it has a great many technical 'Skills'.

Of course, we're not completely writing off Alexa, and one of our biggest gripes with the Google Assistant is there is still no way to change the wake word from either

Okay Google or Hey Google. (You can't change the Google Assistant's name either.) It doesn't sound like a big deal, but over time it becomes a real tongue twister. Alexa is simply a lot easier to say.

We also would have liked to seen an audio jack, as found on the Echo Dot, enabling you to hook up the Google Home Mini to a more powerful speaker. That's a big omission here.

What's the difference between Google Home and Google Home Mini?

If you've decided to buy a speaker with the Google Assistant built-in, your next question will be why the Mini and not the standard box. There's obviously a huge difference in price between the £49 Mini and the £129 Google Home, so the Mini must be lacking something big, right?

Actually no, not really. Provided you're not placing the utmost importance on audio quality, anyway. The Mini is smaller simply because it has less powerful audio hardware, though in our tests we were surprised by how loud it was and how well it handled vocals,

REVIEW



if not mids and lows. You might actually prefer its smaller footprint and new fabric covered design, too.

It also lacks Google Home's customizable bases, which are available at extra cost, but the Mini comes in a choice of three colours: Charcoal, Chalk and Coral, better known as black, grey and pink. Surely one of these will suit your home decor.

Originally both devices offered a touch interface as well as their always-on mics. On the standard box there's a capacitive button on top that can wake the assistant, pause and resume playback, and a capacitive dial that controls volume.

You can adjust volume on the Google Home Mini by tapping the left side of the device to turn down volume, and the right side to turn it up. But the top touch-sensitive area has been permanently disabled by Google because it was over-sensitive and listening in on conversations when it shouldn't. That's a shame,

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and hopefully not indicative of Google's quality control, but it's by no means a necessary feature.

Design

Google Home Mini is not simply a smaller version of the standard box. This is a small pebble-shaped device with a coloured fabric cover through which a row of four LEDs are visible. These light up to alert you when the Google Assistant is listening to you or thinking about your request.

We reckon it looks nicer than the original, and certainly nicer than the puck-like Amazon Echo Dot with which it competes. You'd proudly display the Google Home Mini within your home. But you might have to give it a dust every so often.

It's very lightweight at 173g, but as we noted the fact it must be always-on and always plugged in means you're unlikely to carry it around. A built-in



REVIEW

battery would be handy, but you'd be forever recharging it. A rubber base (in the case of our black review sample a cool orange colour) stops it slipping on the surface. Here you'll also find a switch to turn off the microphone, should you want some privacy for whatever reason.

It feels very nice to the touch, but unfortunately with the key touch feature disabled you're unlikely to be jabbing it too often. It's just as easy to control the volume by saying 'Okay Google, volume up' or 'Okay Google, volume 50 percent' from wherever you stand as it is to walk up to and physically tap either side of the device, though these controls are very sensitive.

Audio quality

Inside the Google Home Mini is a single 40mm driver that offers 360-degree sound. Its bigger brother has three 2in drivers, so let's just say we weren't expecting great things from the Google Home Mini in terms of audio playback.

We were surprised. The Mini is loud enough to fill a room with sound, provided it is positioned carefully. It also does a great job with highs and vocals, and is perfect for playing the kind of pop music you find on mainstream radio stations, but it falls down further down the spectrum. It's not a bass speaker. If you want that you want the Google Max (which comes out in the UK next year).

So, while many users will be more than happy with its audio capabilities, audiophiles' ears will bleed tears that even Google Assistant cannot comfort.

We jest. Sort of.

REVIEW

It's not the best portable speaker we've ever heard and it's not going to win any awards for its playback potential. But it does the job. And for many people that's the most important thing.

They want music, they want it loud, and they want it in every room of the house. Google Home Mini can do that, with a little help from its friends when you set up multiroom audio.

We found Google Home Mini's twin built-in mics did a good job of understanding our commands, even when we were getting tongue-twisted over the wake command. You might need to raise your voice if music is playing loud, but overall it deals with background noise with minimal fuss.

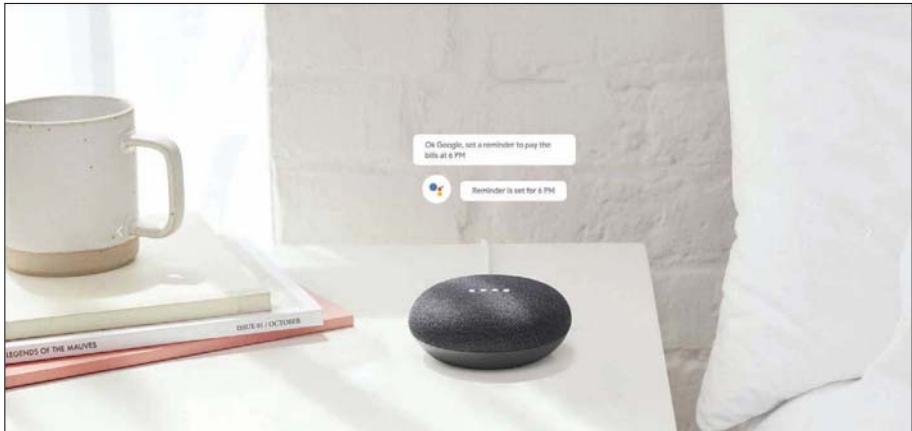
Verdict

We're clearly big fans of the Google Assistant, and any device that makes it more accessible to the masses is well worth a second look in our book. If budget was no option then the standard Google Home offers significantly better audio quality, but for most people budget will unfortunately come into play should they wish to set up speakers in every room of the house.

Audiophiles aren't going to be impressed by Google Home Mini's reproduction of lows and mids, but we're not all audiophiles. Many users will be quite satisfied with its highs, and for everyday conversing with the Assistant the 40mm driver is adequate.

We do prefer Google Assistant to Alexa, despite its fewer 'Skills', but something we'd love to see Google borrow from Amazon is a more natural wake word and the Dot's AUX port. Add in the ability to connect the

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Google Home Mini to a more powerful speaker and its purchase becomes a no-brainer. **Marie Black**

Specifications

- Google Assistant
- 40mm driver, 360 sound
- Far field voice recognition with off switch
- Touch controls
- Dual-band 11ac Wi-Fi
- Bluetooth
- Android and iOS compatible
- Chromecast and Chromecast Audio built-in
- Micro-USB
- 98x42mm
- 173g

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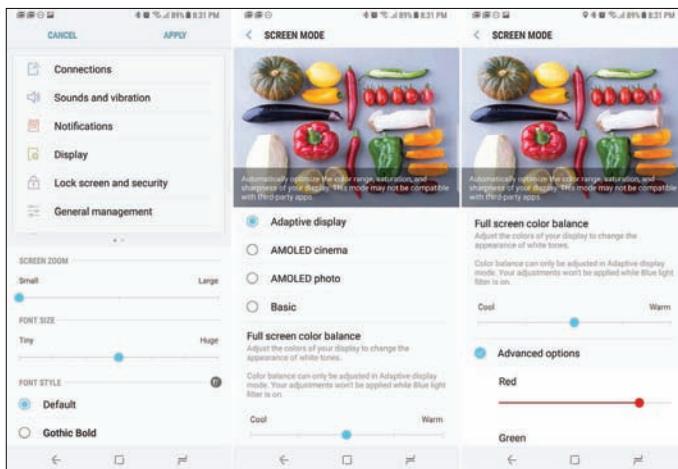


Samsung Galaxy Note8 tips and tricks

RYAN WHITWAM's tips will help you get more from your phone

Samsung has come back from last year's Note 7 disaster with the Galaxy Note8, a phone so jam-packed with features, you might still be learning things about it when the time comes for your next upgrade. The Note8 includes all the cool stuff Samsung bakes into all its phones, and then adds all

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The Galaxy Note8 affords granular control over exactly how its AMOLED display will look

the S Pen stuff. So why not accelerate your learning process? Here are 10 tips that will guide you to the very best features the Note8 offers.

1. Display adjustments

The Galaxy Note8 has one of the best displays available on a smartphone, and you can make a few adjustments to tweak it just right for your eyes. Head into settings and find Display > Screen mode.

There are four different modes from which to choose, including Adaptive, AMOLED cinema, AMOLED photo, and basic. There's a demo picture at the top of the screen so you can see how each one will look. Adaptive mode gives you the most options. At the bottom of the list you'll find a slider to make the colours cooler or warmer. Tap the

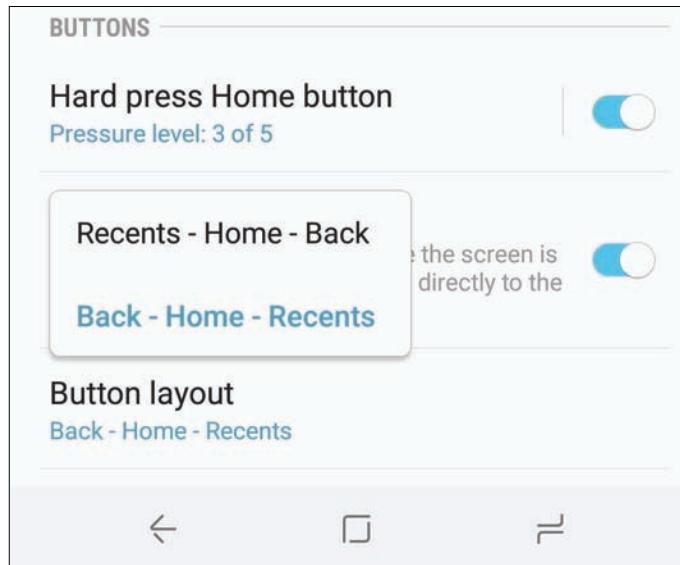
FEATURE

advanced checkbox, and you get sliders for the red, green, and blue channels.

You should also check out the 'Screen zoom and font' menu. The default zoom level is a little large for a device as big as the Note8, but you can lower it by dragging the slider left so more content fits on the screen. If you have trouble seeing everything at the default zoom, you can also make it larger by dragging the slider to the right.

2. Tweak your Note8 navigation buttons

Like the Galaxy S8, the Note8 has on-screen navigation buttons. You can change the way these buttons work in Settings > Display > Navigation bar.



For everyone frustrated by Samsung's navigation button layout, you can seek relief in this settings menu

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There's a 'Hide' button on the far left of the navigation bar that makes the buttons accessible only with a swipe up. So, if you don't intend to use this feature, turn the button off in this menu. And if you prefer the standard Android button order (back – home – overview) rather than Samsung's (overview – home – back), you can change that here as well.

You'll need to experiment with the pressure-sensitive home button, which works even when the phone is in full-screen mode or asleep. The default pressure level is 3 out of 5, but you can make it easier (or harder) to trigger. You can also set the hard-press home button to skip the lock screen entirely when your phone is not securely locked.

3. Customize Note8 Air Command

The Note8's Air Command popup is where you access all your favourite apps and features for the phone's S



You can customize the Note8 Air Command feature by going to Settings > Advanced features > S Pen

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Pen. All you need to do is remove the S Pen from its holder to bring up the floating Air Command icon. But what if you don't want it to always be there on the screen? That requires a trip into the settings.

To make changes to how Air Command works, head into Settings > Advanced features > S Pen, and then scroll down to the Air Command section. If you want to keep Air Command from opening every time you take out the S Pen, change the Removal option to 'Do nothing'. You can still open Air Command at any time by pressing the side button on your S Pen. It's also a good idea to take a look at what shortcuts are included in Air Command. Tap the Shortcuts link in this menu, and drag whatever apps and S Pen features you want over to the right. To get rid of one, tap the minus icon.

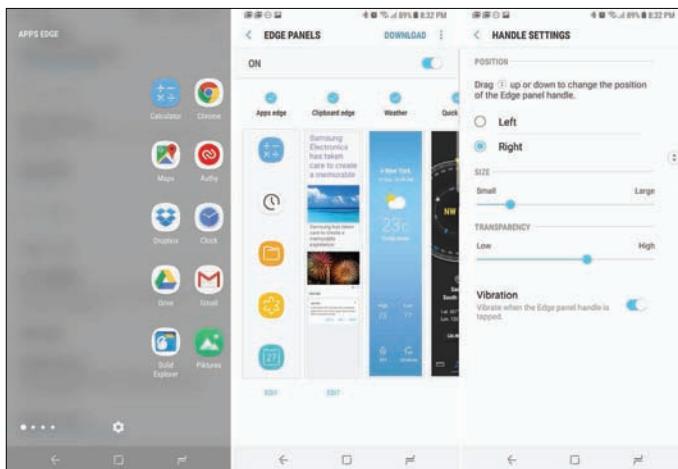
4. Edit your Note8's Edge Panel

The Edge Panel is always available on the Note8 as a translucent bar on the right side of the display. If you want to move it or change what's available, you'll have to dig into the settings a bit. Go to Settings > Display > Edge screen > Edge panels to see what's currently enabled.

Samsung app store. Tap the checkbox above each panel to turn it on or off, and long-press on any panel to enter reordering mode. Many of the panels – for example, weather and the clipboard manager – have additional settings to configure. Look for the edit button at the bottom to access those settings.

To change the appearance or location of the edge panel handle, tap the menu button and select 'Handle

FEATURE



You can edit your Edge Panel apps (shown on the far left) via granular controls in Settings

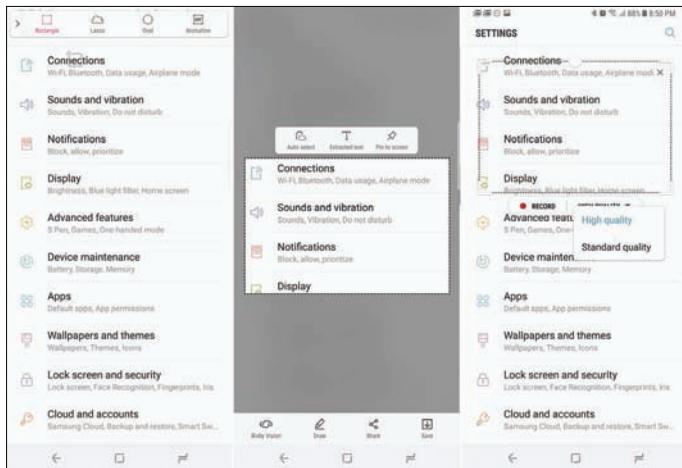
settings'. This screen lets you change the location, opacity, and size of the handle.

5. Make animated GIFs with Note8 Smart Select

Even if you make tweaks to Air Command, you'll want to keep Smart Select in the mix. Among other tricks, this S Pen feature lets you grab a cropped screenshot in just a few seconds. After launching Smart Select, you're shown a selection bar at the top of the screen with options for square, round, lasso, and GIF selections. The first three are just regular screenshots, so use the S Pen to highlight what you want. You can also draw on the resulting image before saving.

The GIF capture is great for sharing quick video clips with friends, and it works similarly to the static

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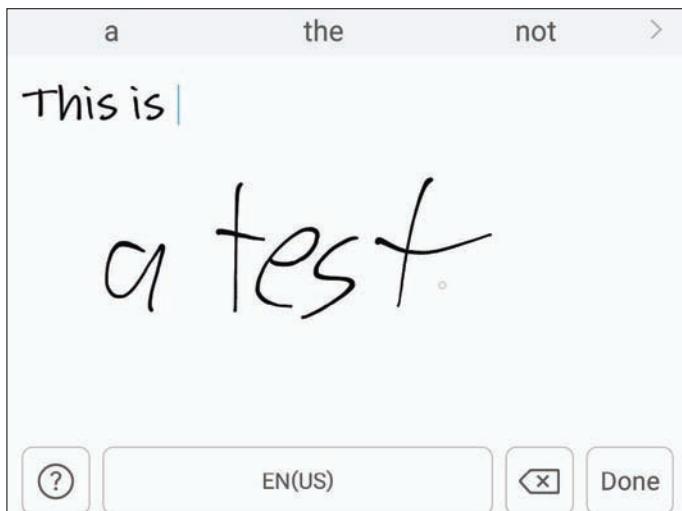
Note8 Smart Select: come for regular image cropping (as shown here), but stay for the simple animation creation

capture methods. Move the selection box where you want to capture the GIF, and check your quality setting at the bottom. Hit record when you're ready to go, and stop when you've recorded what you want. You can then draw directly on top of the GIF, and save or share the resulting animation. Bottom line: it's one of the quickest, most convenient tools around for making animated GIFs.

6. Using Note8 handwriting input

The S Pen makes drawing and annotating a breeze, but what about inputting text? Samsung has built handwriting input into the core of the Note8, so you can use the S Pen in almost any text field. To open handwriting input mode, simply hover the S Pen over a text field and tap the blue icon that appears.

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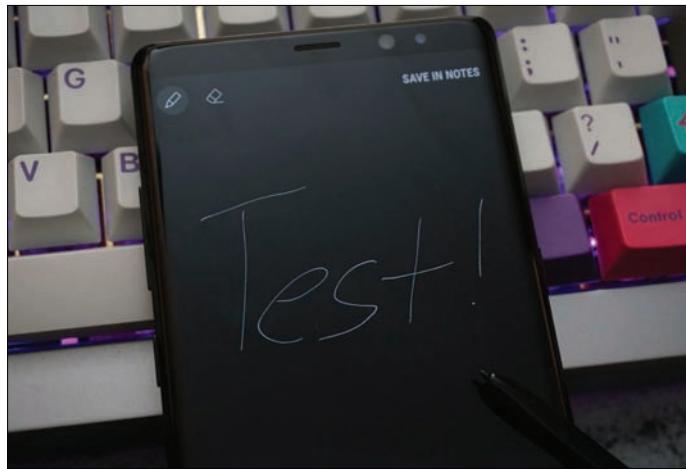
A writing area will replace your keyboard, and then you can go to town.

Samsung's handwriting recognition system is extremely accurate, so feel free to go as fast as you like. Whenever you pause, the input field will transcribe what you've written into text. Just make sure you leave enough room between words to make it obvious there's a space, and you shouldn't have any issues. When you're done adding text, tap the Done button, and it will all be dropped into the field you selected previously.

7. Note8 screen-off memo

If you need to jot down a quick note, don't even bother unlocking your phone. Pop out the S Pen, and

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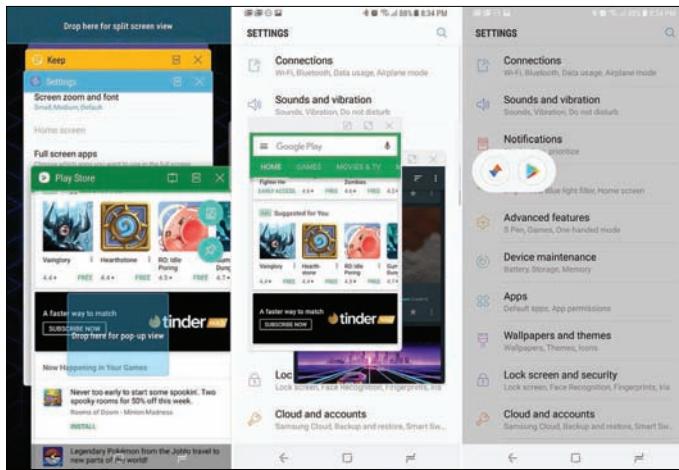
The Note8's screen off memo feature lets you quickly jot down handwritten notes, without unlocking your phone

the Note8 automatically enters screen-off memo mode. You get a black screen with a basic pen tool and an eraser. Write your note, and tap the button in the corner to save it to the Samsung Notes app. You can set up this app to sync to the Samsung Cloud so you don't lose your notes.

8. Pop-up view for more powerful multitasking

All Android phones running the Nougat system or higher have split-screen mode, but Samsung goes one better on the Note8. You can open almost any app as a resizable floating window in Pop-up View. There are two ways to launch this. The easiest is to open the overview screen and long-press on the app you want to open in a window. Drag it down to

FEATURE



Pop-up View gives you flexibility over app placement on the large Note8 display

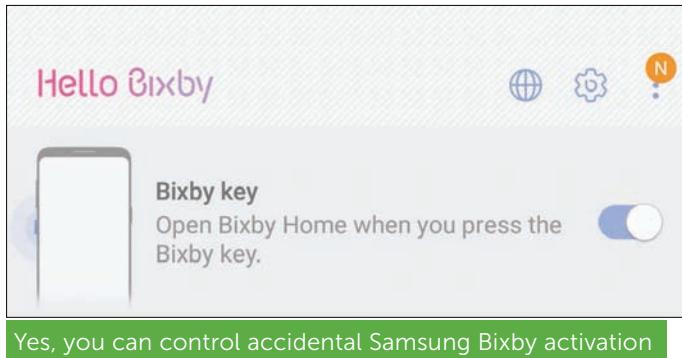
the middle of the screen and release in the indicated box to launch it as a Pop-up. Alternatively, you can open an app in Pop-up from split-screen mode. Tap in the middle between the two apps and press the Pop-up View button.

When an app is in Pop-up View, it can be moved and resized freely just like a window on your computer. The buttons at the top of the floating window let you close, maximize, and minimize the app. Minimized apps stay on the screen as a floating icon, which you can tap at any time to reopen.

9. Turn off Samsung's Bixby button

Samsung's Bixby voice assistant means well, but the placement of the physical button can be annoying. It's on the left edge of the phone, right under the

FEATURE



volume rocker. An accidental press opens the Bixby Home panel, interrupting what you're doing. Luckily, however, a few tweaks can make Bixby less annoying while preserving functionality.

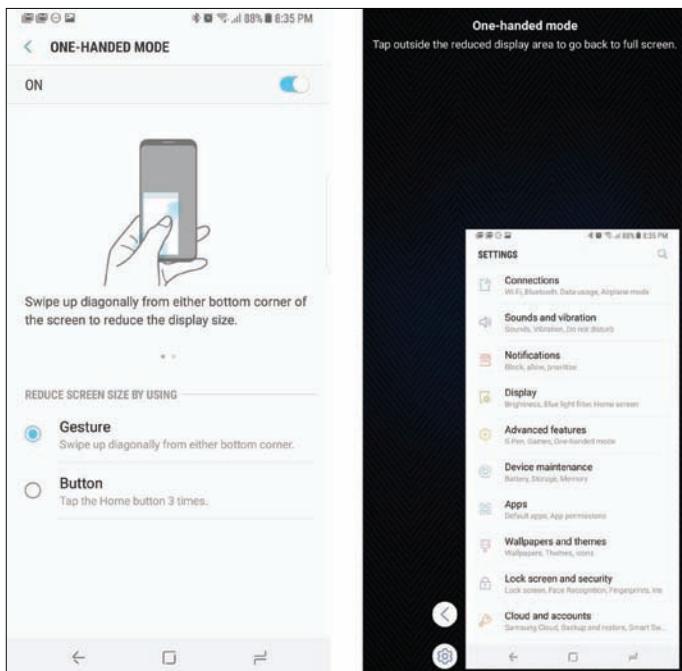
In Bixby Home, check your settings and activate the Bixby Voice features. This can be accessed by a long-press of the Bixby button. Back on the main Bixby screen, tap the settings icon at the top, and turn the toggle for launching Bixby via the button to off.

While it may seem like you're disabling Bixby, you're just making it harder to trigger accidentally. You can long-press the Bixby button at any time to issue a voice command, although it doesn't work in all apps. A single tap of the button doesn't do anything, but you can still access Bixby Home with a short-press followed by a long-press.

10. Note8's one-handed mode

The Galaxy Note8 is a big phone, so it can be arduous to use one-handed. Still, there's an option for one-handed mode under Settings > Advanced Features

FEATURE



The Note8's screen off memo feature lets you quickly jot down handwritten notes, without unlocking your phone

> In addition to turning it on, you should check the options for activating it. You can use a gesture (swipe up from the bottom corner of the screen) or a button press (triple-press the home button). One-handed mode shrinks the display down into the corner, making everything easier to reach. The arrow button switches the screen to the other corner, and tapping outside the screen area returns to normal mode.

These tips should get you well on your way to being a Note8 expert, but there's a lot more to learn. Samsung really does 'kitchen sink' phones.



HOW TO Remove a virus from an Android device

MARIE BLACK explains how to clean out your handset

Android viruses are rare, but they exist. Almost exclusively installed via dodgy apps, the best way to avoid an Android virus is to keep to the secured confines of the Google Play store.

Should your device get lumbered with some malware, we will explain how to put it into Safe mode, if necessary remove the malicious app's administrator status and then uninstall the app.

HOW TO

If this fails a factory reset should remove the bug once and for all, though you would prefer not to have to do so if your Android isn't backed up.

Before we begin, it's worth pointing out that your Android phone or tablet probably doesn't have a virus. What you're more likely to be seeing is an ad that wants to convince you the device is infected and that you need to download an app, or sluggish behaviour.

To prevent further threats, you might also want to install an antivirus app for your phone or tablet. You'll find our pick of the best in our round-up of the best mobile antivirus.

If you are convinced that malware is at large, read on for instructions on removing it from your device.

Where do Android viruses come from?

The number-one way an Android virus finds its way onto your phone or tablet is on the back of an app.

This is true of all the biggest Android viruses to hit the headlines over recent years: Gunpoder, Ghost Trojan, Googlian and Godless all came to be in this manner, while Mazar sneaks in via a text message prompting you to download the Tor browser (guess what: you're not downloading the Tor browser).

More recently, Checkpoint has alerted Android users to the FalseGuide botnet malware, which gets on to user devices through dodgy walkthrough apps for Pokémon Go and FIFA found in Google Play, then turns them into silent botnets used for adware.

These apps get around Google's defences due to the non-malicious nature of their first component, says Checkpoint, but users should immediately

HOW TO

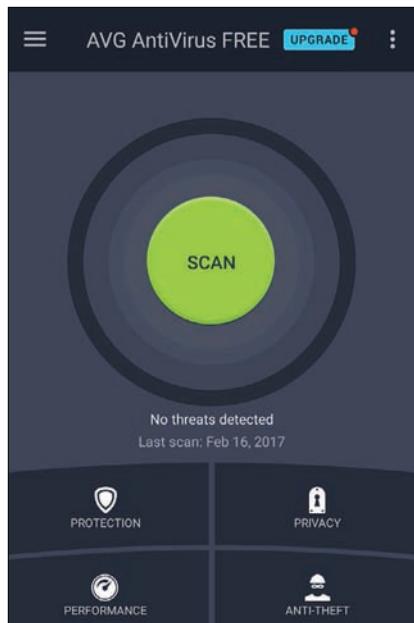
be suspicious by their request for device admin permission, which should not be given to any app. This prevents the app being deleted from your Android.

Android viruses have various aims, with some running malicious processes on your device, some stealing your personal information and others downloading additional software, which may not always be malicious itself. Whatever they're up to, you don't want them there.

How to avoid Android viruses and malware

Don't install apps from outside Google Play unless you know what you're doing: This functionality should be disabled by default, but to check you can open your phone or tablet's Settings menu, go to Security, then ensure the Unknown Sources option is disabled

Avoid cloned apps: 99 percent of the time you will be safe downloading apps from Google Play, but malicious code has been found within apps there. Avoid downloading what appear to be cloned apps from unknown developers, or apps that simply don't do what they say they do



HOW TO

Check app permissions: No matter from where you are installing an app, check its required permissions before hitting Install. Never allow an app device admin permission, which prevents it being deleted. And does a video player really need to see your contacts? You can also check reviews online and browse the developer's website to see whether it's a genuine operation or cowboy business

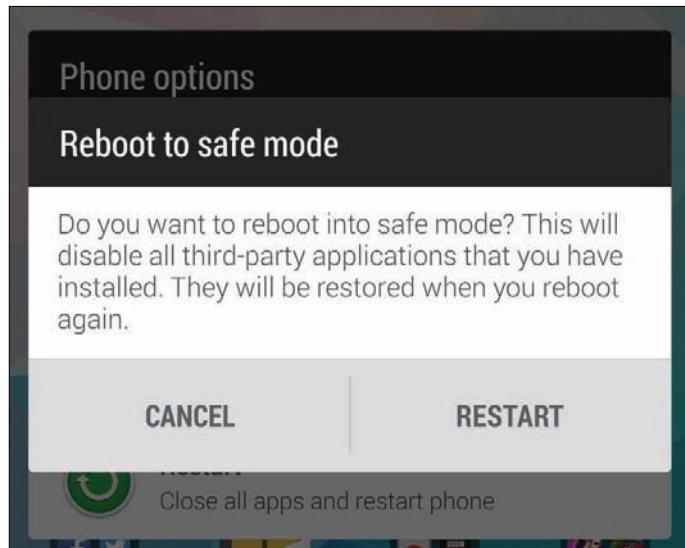
Keep Android up to date: The latest version of the Android operating system won't necessarily be available for your phone or tablet, but you should check that it is as up to date as it can be. Next time you upgrade, consider a brand that is known for its timely operating system updates (for example, Nokia).

Install an antivirus app: You don't need to install antivirus on Android, but it can give you peace of mind if you're concerned about viruses, and the apps often have other useful functionality too. Be warned that Android antivirus is known to occasionally report false-positives, but if you know an app is okay you know an app is okay. Our favourite antivirus option is BitDefender, but there's also plenty of other options for mobile security software in this separate article.

Remove a virus

Put your phone or tablet into Safe mode. This prevents any third-party apps running, including any malware. Press the power button to access the power off options, then press and hold Power off to bring up an option to restart in Safe mode.

HOW TO



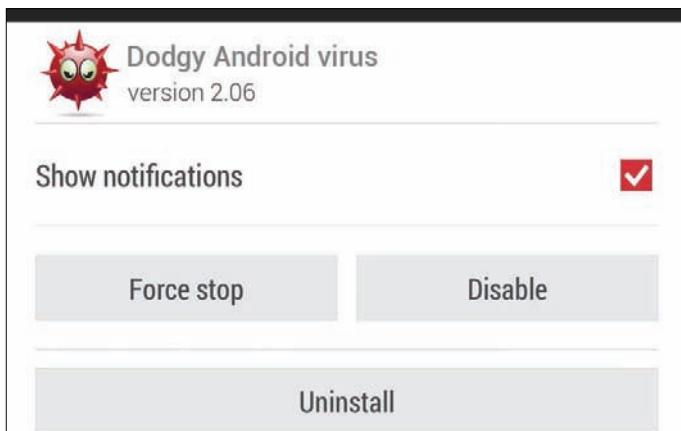
If this doesn't work for your device then you should Google 'How to put [your model name] into Safe mode' and follow the instructions. When in Safe mode you'll see 'Safe mode' at the bottom left of the screen. Open your Settings menu and choose Apps, then make sure you're viewing the Downloaded tab.

Chances are you will know when your device started misbehaving, and you can usually line that up with a new app you might have downloaded.

If you don't know the name of the app you think has infected your Android phone or tablet, go through the list and look for anything dodgy-looking or that you know you haven't installed or shouldn't be running on your device.

Tap on the malicious app (clearly it won't be called 'Dodgy Android virus', this is just an illustration) to

HOW TO



open the App info page, then click Uninstall. In most cases, this is all you need to do to remove the virus, but occasionally you might find the Uninstall button is greyed out. This is because the virus has given itself Device administrator status.

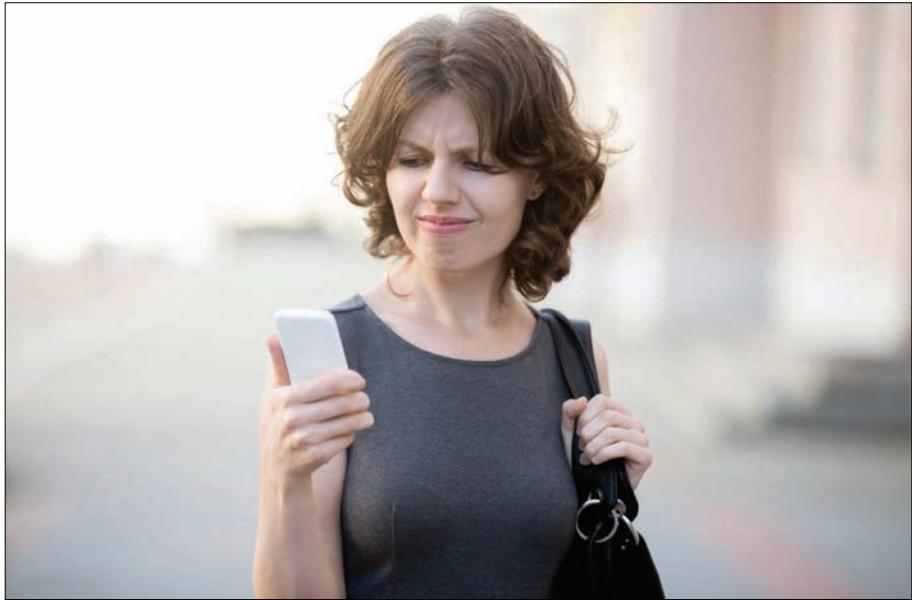
Exit the Apps menu and tap on Settings, Security, Device Administrators. Here you'll find a list of any apps on your phone or tablet with administrator status.

Simply untick the box for the app you want to remove, then tap Deactivate on the next screen.

You should now be able to return to the apps menu and remove that app.

With the virus now off your Android phone or tablet, all you need to do is restart the device to take it out of Safe mode.

Now that it's working correctly it's a good time to back up whatever important data you have stored on the device, and install an Android antivirus app to protect you from any future viruses.



HOW TO Block ads

If you're fed up with ads, MATT EGAN shows how to block them

Both standard adverts and pop-up adverts are not only intrusive on a mobile device, but they can do serious damage to your phone bill if you're on a limited data plan. Downloading heavy web-pages takes enough data: you don't need the additional cost of paying to load up an ad man's marketing message.

Blocking these adverts is easy enough, but you may need to change your choice of web browser to do so. Choose Opera or the Ad-block browser, for example, and you can block all ads from displaying on your

HOW TO

phone, but even if you wish to stick with Chrome you can banish pop-up ads. Here are tricks to try to get yourself a much happier, ad-free browsing experience. You can also check out the best mobile browsers there are to choose from.

Use the Opera browser

This is by far the simplest way to avoid adverts while browsing on Android, since the free Opera Browser now contains a built-in ad blocker. However, it might not be an ideal solution for you if you use Google Chrome or Firefox on your other devices (if that's the case see our third tip).

You don't need to do anything special – just install Opera and use it like any other browser, with none of the hassle of ads. You can download Opera Browser free from Google Play at tinyurl.com/bstpcu3.

Install the free Adblock Browser

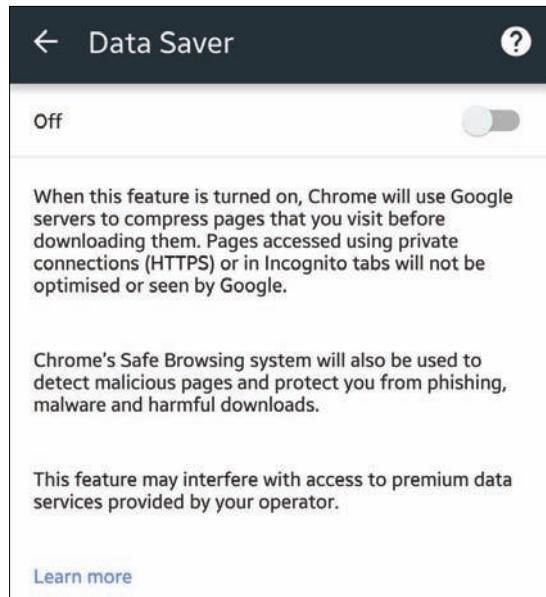
Another alternative to your current browser is the free Adblock Browser, made by the same company as the notorious Adblock desktop extension.

You can download the Adblock Browser free from Google Play at tinyurl.com/y8kLtn8q.

Block pop-up ads in Chrome

If it's only the pop-up ads that bother you and you'd rather not have to install a second browser, then these can be blocked in Google's Chrome browser. Launch it, tap on the three dots at the top right of the screen, then choose Settings, Site Settings. Scroll down to Pop-ups and ensure the slider is set to Blocked.

HOW TO



Use Data Saver mode

If you are sticking Chrome, there is another step you can take to avoid data-hogging content online.

Data Saver compresses aspects of web pages that aren't required on mobile devices. It offers a smoother web browsing experience, and savings on your data bill as your phone no longer struggles to pull down unnecessary ads and animations.

It can lead to a somewhat flatter browsing experience, and it is possible that some web pages will look wonky. But you can always disable Data Saver – it's a two-second job.

Open up Chrome, and then hit the three dots menu icon in the top right-hand corner. Choose Settings, then find Data Saver. Ensure this is set to On.



Why Google Assistant is winning the AI game

Google's new toys make the gap between Apple and Google even wider, argues MICHAEL SIMON

You might have missed the Apple references during the recent Google Pixel 2 event, but they were there. There was VP of Product Management Mario Queiroz telling the crowd, "We don't set aside better features for the larger devices." Or pointing out that "even iMessages" would be transferred over when you decide to switch. And let's not forget the woman taking a big bite out of an apple during the Pixel 2's intro video.

OPINION

In fact, it seemed like every new Google product released last month had a singular message seemingly aimed squarely at Apple. Google might have a long way to go before it starts selling iPhone-like numbers of Pixel phones, but there is one important area where it's firmly in the lead, and it has nothing to do with bezels or beats. It's about intelligence.

At Apple's September iPhone X event, Tim Cook pulled out Steve Jobs's old Wayne Gretzky quote about skating to where the puck is going, but there's only one firm that's thinking forward right now and it's not Apple – it's Google. New hardware might have been the reason for the event, but machine learning was the strongest undercurrent, and the message Google sent was clear: our AI is better than yours.

Brains before beauty

Google CEO Sundar Pichai kicked off the Made by Google event by talking about his favourite topic: machine learning. It's not enough that Google makes uncannily accurate search algorithms anymore. Google is using its AI smarts to make its products more responsive and adaptable to each user's lifestyle.

It's not about specs (although the Pixel phones have really good ones) or design (although the Google Home Max will look good in any room). In fact, none of Google's new products are all that interesting on the surface, but what's inside is leaps and bounds ahead of what Apple is doing with Siri and iPhone X. It's about smarts, and Google has integrated Google Assistant and machine learning into every one of its devices in a, dare I say it, Apple-like way.



There's the impulse-buy Google Home Mini and the high-fidelity Max to put Assistant in every room of your house. Active Edge on the Pixel lets you squeeze the sides of your phone to launch Assistant. And the Assistant-powered Pixel Buds feature a remarkable live translation feature. Google's latest products are designed from the inside out to be smarter than they are pretty, a big bet that consumers are tired of good-looking gadgets that put form before function. And if it's right, Apple could be playing catch-up for years to come.

Conversations, not commands

Apple's first home AI speaker won't hit shelves until December, but Google already has three of them. When it was announced in June, HomePod appeared

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to have an advantage over Google Home and Amazon Echo with its high-fidelity, room-sensing smarts, but now Google Home Max has landed, and it might be even better.

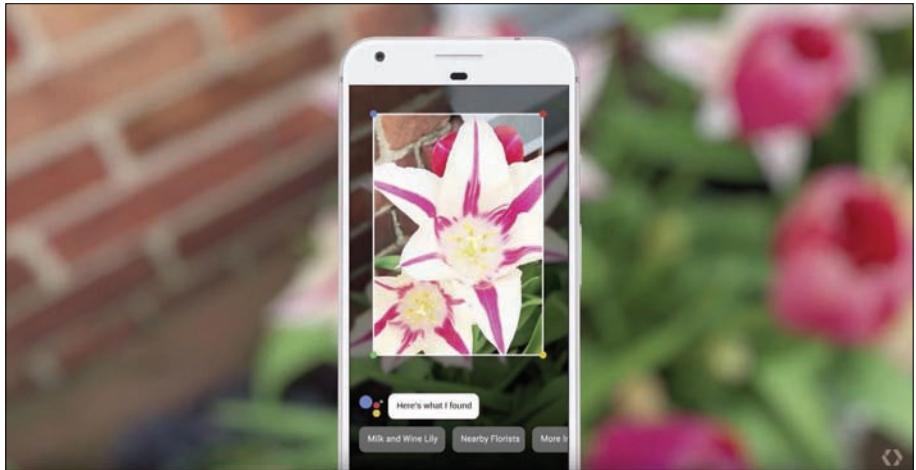
Like HomePod, Google Home Max uses machine learning to analyse your space to deliver optimal sound, but Google's method gets more granular and fine-tunes the sound based on the song you're listening to as well as adjusting based on Max's surroundings. But if they're even when it comes to sound, the real difference-maker is Google Assistant.

Apple has improved Siri's speech patterns in iOS 11, but for the most part, its AI ambitions have been relatively conservative. Google Assistant isn't just better at recognizing what you're saying, it's more contextual and conversational, which leads to an all-around better experience. And with the new routines feature, you'll be able to combine several tasks (like shutting the lights, setting an alarm, and activating your security system) with a single phrase. It even recognizes your voice over the other people in your home. With Siri, commands are islands unto themselves, while Google Assistant is practically like talking to an actual person.

A smarter camera lens

It was just a year ago when Assistant was limited to Pixel phones and Google Home, and now it's everywhere: headphones, watches, speakers, not to mention hundreds of millions of Android phones.

And now Google is branching out beyond simple voice commands. Exclusive to the Pixel phones (at



least for now) is a new app called Google Lens, and it has the potential to be just as instrumental to Google's AI push, if not more so. A combination of augmented reality and artificial intelligence, Google Lens uses your phone's camera to identify buildings or flowers, scan and store phone numbers, even input Wi-Fi passwords, all without needing to jump around to various apps.

This isn't a fancy box for Google Assistant, it's a whole new set of skills. Apple doesn't have anything close to this type of functionality, and Google is set to begin shipping it in a few weeks. If it's as fast as accurate as it is in Google's demos, it will be nothing less than a game-changer for search.

Big beautiful brain

Google is in a unique position to excel in the AI space. Where Apple needs to keep wowing us with drool-

OPINION

worthy hardware to get noticed, Google has taken a utilitarian approach to its design, banking on AI to drive the experience. The Pixel 2 isn't as pretty as the iPhone X or even the iPhone 8 for that matter, but Google is selling brains before beauty.

In its first year, Google Assistant has advanced further than Siri has in the past seven. And it's getting smarter every day. Not only is it basically on every phone that ships (including iPhones), but it's in our homes, our cars, on our wrists, gathering information and learning how to better respond to our needs. And with Google Lens, there's no telling how intelligent it will be this time next year.

Google might never design a phone that's as beautiful as iPhone X. But one thing is for sure: It's closer than Apple is to making one that's smarter than a Pixel.



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A photograph of a wooden toolbox filled with various hand tools like a tape measure, screwdriver, and wrench, resting on a laptop keyboard. The background is slightly blurred.

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