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Acer Predator Helios 300

Price: £1,049 from fave.co/30JG5cg ★★★★★

Acer's Predator Helios 300 has achieved something we never thought a gaming laptop could do. It manages to be popular, powerful, and affordable. We reviewed the original Helios 300 and called it a "great notebook". Months later, we tested a model updated with Intel's 8th-gen Core i7, and clad in an eye-catching white-and-gold chassis. With a markup in price of several hundred pounds, our opinion was far more muted.



The ports have not changed from the original 7th gen Core i7 version of the Acer Predator 300 as you get plenty of ports (albeit no Thunderbolt 3)

This is basically that same updated laptop, but without the marked-up price to go with that white exterior. That's why we decided to bring in this laptop to get a closer look at what it offers – and why it's managed to hit such a sweet spot.

Looking into the specs, we can see why it's powerful (relatively, anyway): with its GeForce GTX 1060, 6-core Core i7-8750H, 16GB of RAM, 1080p/144Hz panel and 256GB SSD, it's a decently configured gaming laptop.

Considering those specs, its list price of £1,049 is pretty fair, and the 2.7kg weight is pretty bearable, too.

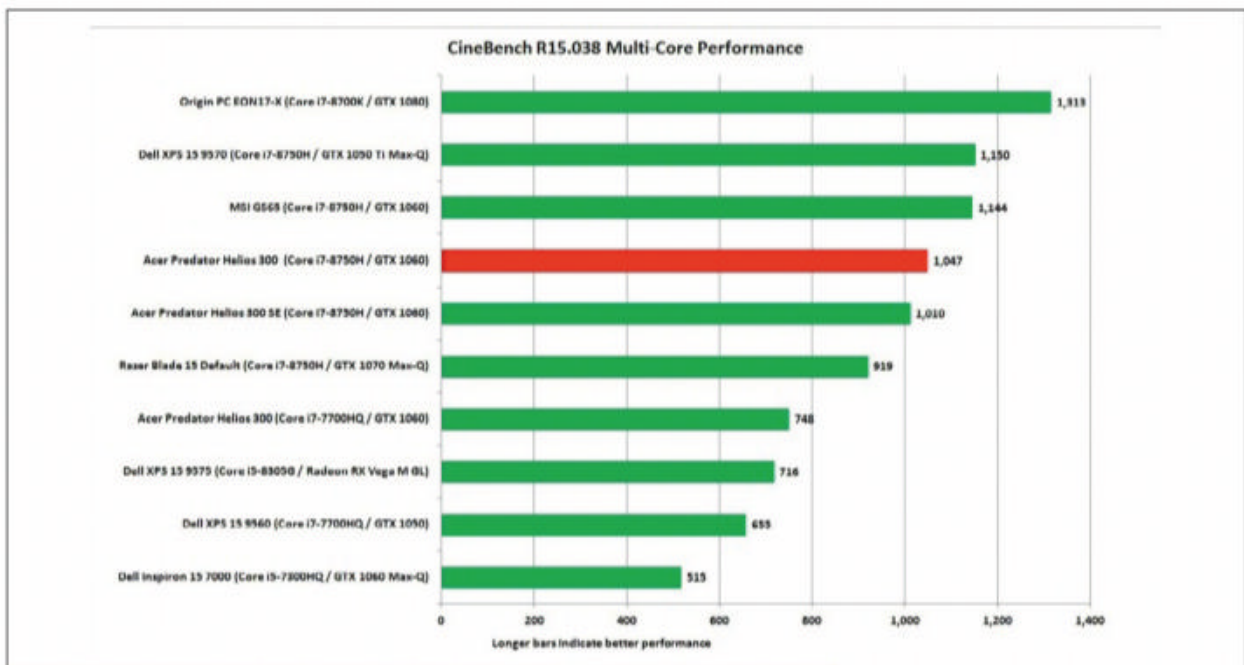
One of the few things that hasn't changed on the Predator Helios 300 is the connectivity – and that means it's starting to get a little outdated. The right

side of the Predator Helios 300 houses two USB 2.0 ports, along with a headphone jack.

On the left side you get a dedicated charging port, Gigabit ethernet (using a Realtek ethernet chip), one USB 3.1 Gen 1 Type-C (5Gb/s), one USB 3.0 Type-A, and an SD card reader. The fact that there's just one USB-C port, and it's not even Thunderbolt 3, is disappointing, though not surprising for the price.

Performance

First up is Cinebench, which can show us performance in short multi-core CPU tasks. As you can see, the current model's score is just a pinch faster than the Special Edition's score, and just a pinch slower than the Dell XPS 15 9570 and MSI GS65 – which all feature the same CPU.

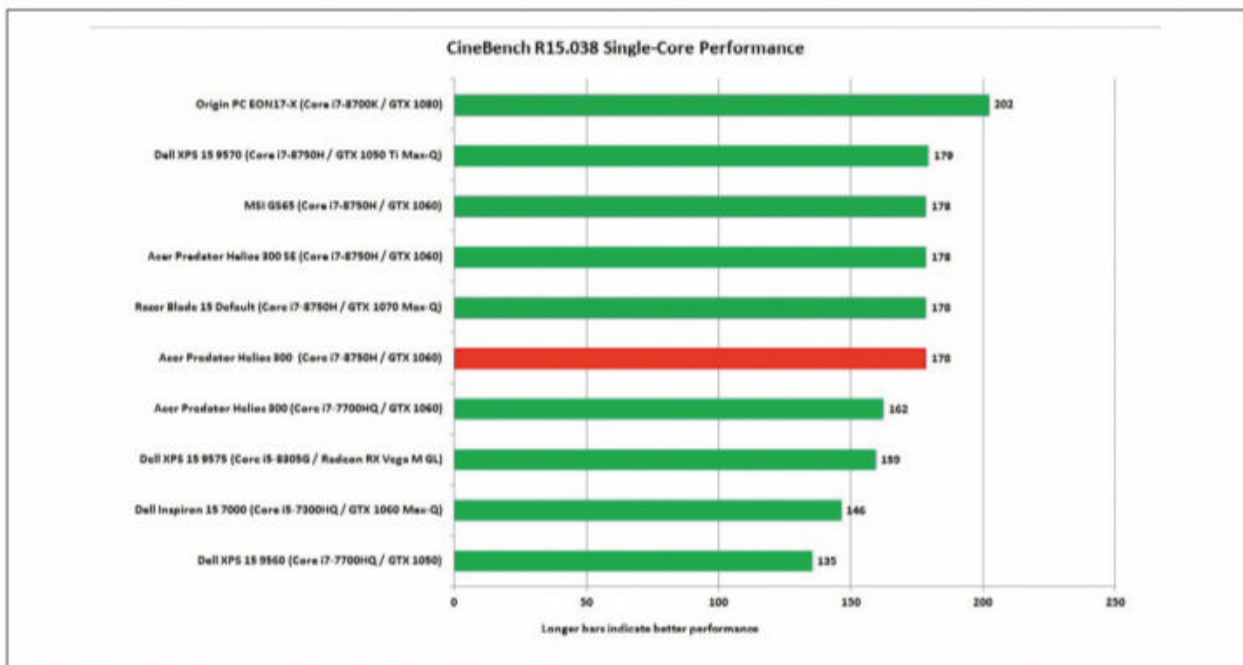


The multi-core performance of the Acer Predator Helios 300 in short-run multi-core tests is decent

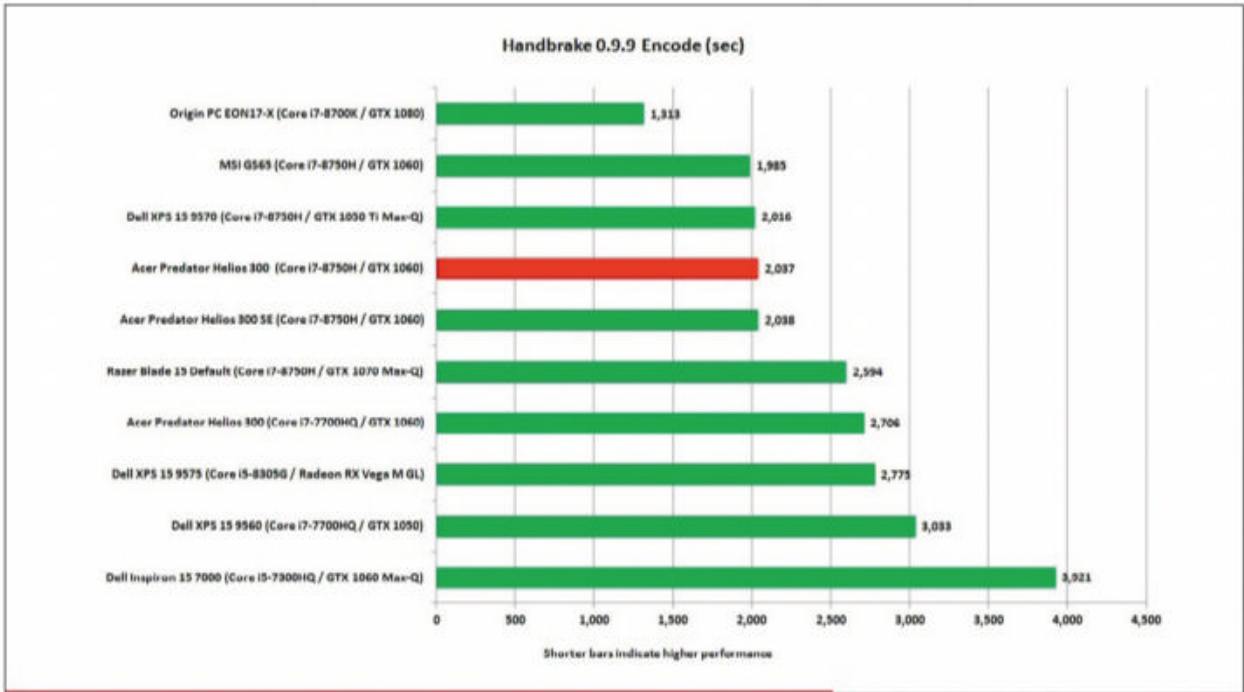
Using Cinebench to measure single-core performance, we can see performance is right where you'd hope it would be. You might think this is boring, but it's actually a good sign for the laptop to be tied with every other Core i7-8750H laptop.

We also like to check the performance of laptops in longer tasks, to see how the CPU performs (and heats up) under stress. For that, we use the free HandBrake utility to encode a 30GB video file. The task can take 30 minutes on a typical six-core laptop. It's pretty much a tie here among similar systems, except for the Razer Blade 15, which was tested in its default mode. Set it to 'gaming mode', and it falls in line with the other 6-core laptops.

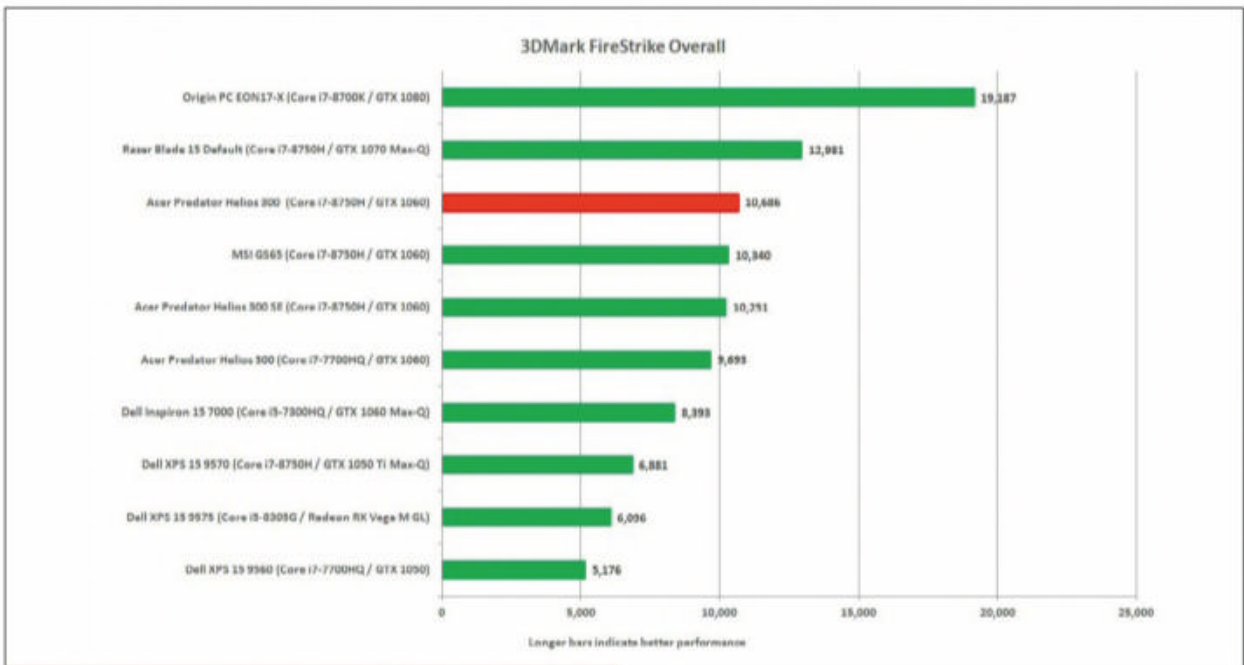
Moving onto the performance of the GeForce GTX 1060, the Acer Predator Helios 300 doesn't disappoint



It's a dead tie between the every laptop with a Core i7-8750H in it



It's mostly a tie in our encoding task which takes about 30 minutes to run on six-core laptop



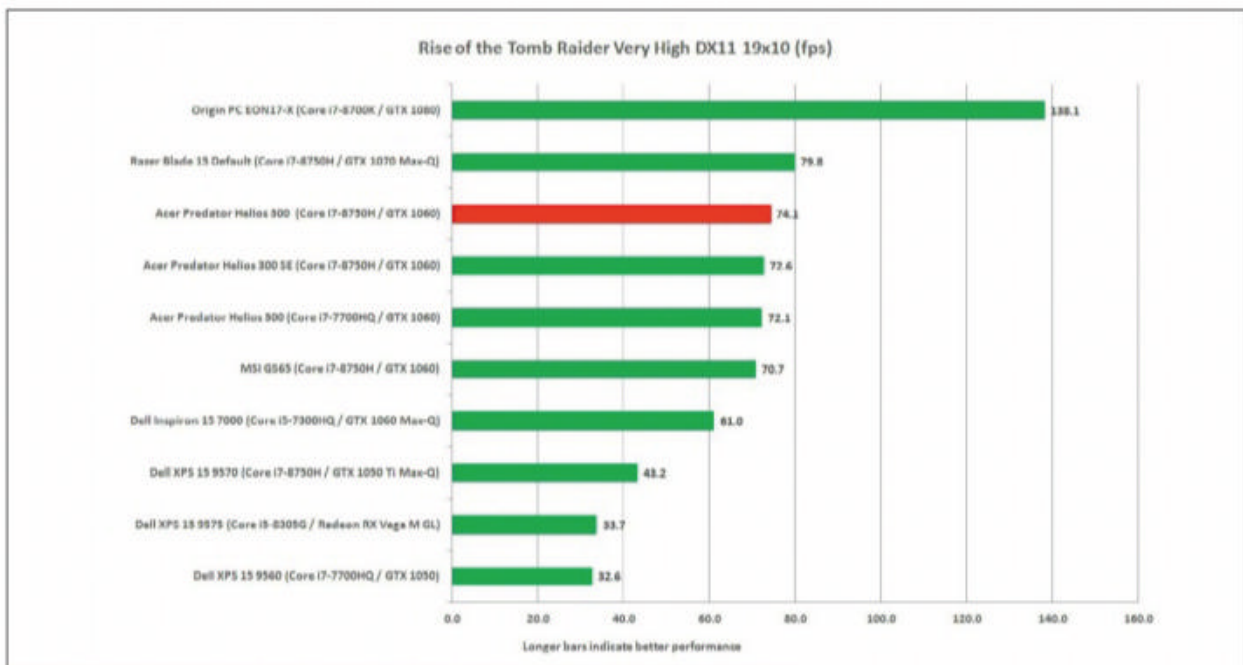
The Acer Predator Helios 300 leads the pack of GTX 1060 laptops

as we see it just barely edging out the other GTX 1060 laptops. We'll call it a tie again – which is good news.

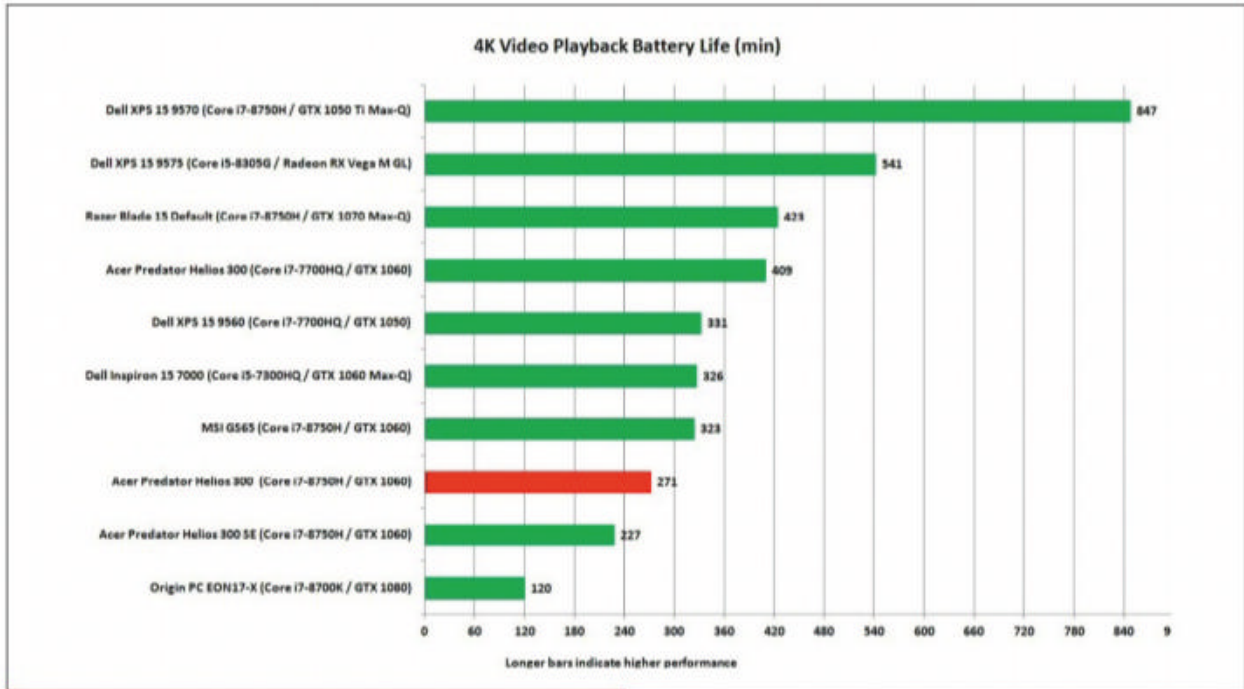
Our last gaming test uses Rise of the Tomb Raider set to Very High in DX11 mode and, yup, it's a tie again. And yes, that's a good thing.

Our final test looks at battery life. We set the PC in airplane mode to eliminate network interference, attach ear buds with volume set to medium, and set the screen brightness to a comfortable 250- to 260 nits. We charge the battery to full, unplug the laptop, and loop a 4K video until the machine shuts down.

The result with the current Predator Helios 300 is slightly better than what the SE version of the laptop achieved, but still pretty below average overall. Blame part of this on the battery size: at 48 watt-hours, it's a fairly small supply. The higher-refresh-rate panel in



The performance of the Acer Predator Helios 300 is as expected in Rise of the Tomb Raider



Battery life on the Acer Predator Helios 300 is a little underwhelming

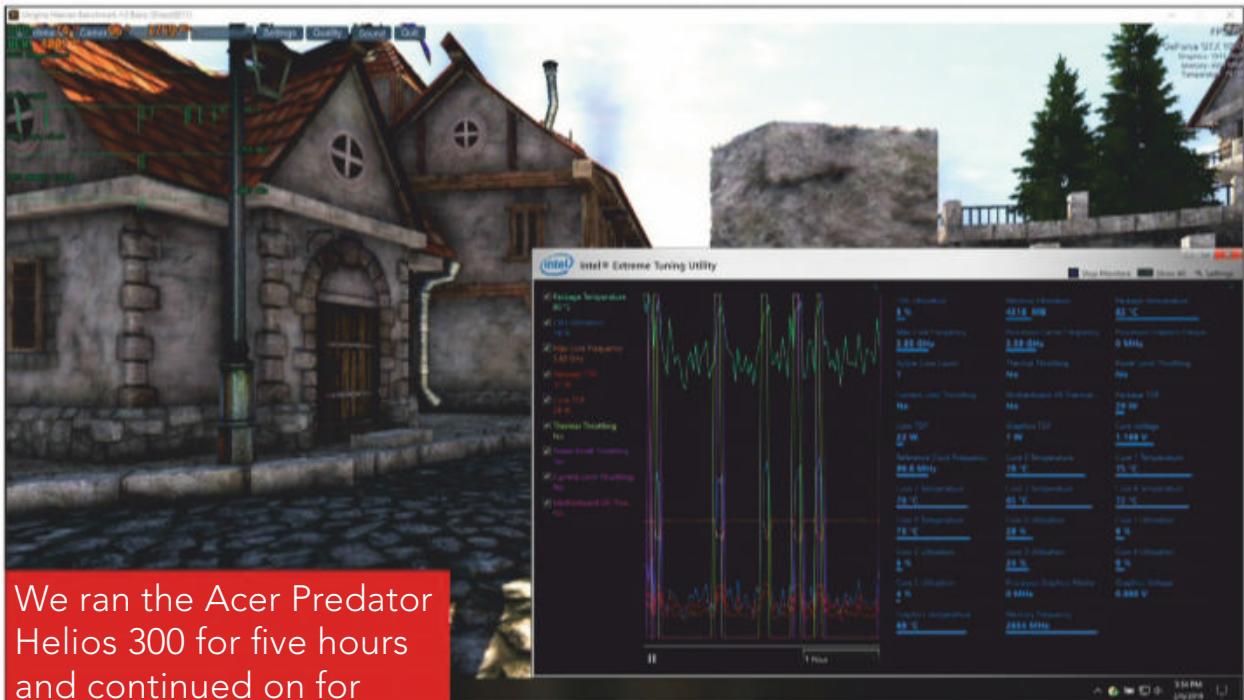
the newer version will also tax the battery. We had the same complaint with the SE version.

Remember, of course, that your battery mileage will vary depending on how you use the laptop. Trying to play any games away from the mains will quickly drain the Acer's little battery.

Heat

Scroll through any reviews of the Predator Helios 300, and you'll likely run across someone with stories of major overheating and falling performance.

To see how well the Acer holds up under a load, we cranked up the Unigine Heaven benchmark and let it loop for five hours while monitoring the GPU's performance clock speeds. Because graphics



We ran the Acer Predator Helios 300 for five hours and continued on for another 19 hours without 'overheating' issues

benchmarks rarely push the CPU hard, we also ran Cinebench using four threads to see how much performance suffered. Cinebench results were consistent, and after five hours the GPU's clock speeds remained consistent.

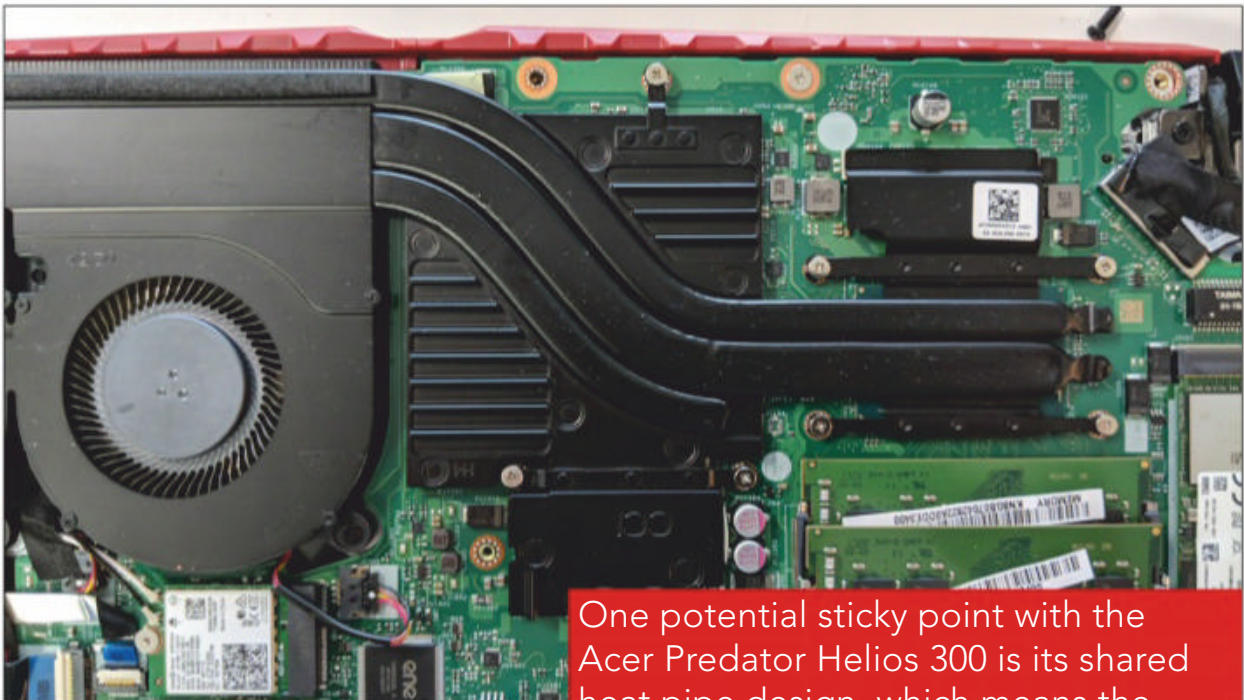
We then let the Predator Helios 300 continue to loop Heaven overnight. In the morning we checked the GPU clocks and Cinebench results, and we found nothing had changed.

Does this mean that some of the user experiences are invalid? No, but it means our particular unit had no overheating issues. We will say that this isn't the end of the story. The CPU did occasionally hit its a power limit throttle and thermal limit throttle. Power throttling keeps the CPU within its thermal limit,

while thermal throttling means the CPU is bumping right into its thermal limits. Both are indications that the Predator Helios 300 operates right at the margin of its design.

Looking inside this laptop and its design presents a few thermal challenges. To the right of the two fans (only one is shown in the picture below), you can see that the heat pipes make direct contact with the GPU first, and then the CPU.

In other gaming laptop designs, the fans are typically arrayed on the corners of the laptop, which gives the CPU or GPU with direct access to the cooling fans. More extreme designs keep the GPU and CPU on their own separate heat pipes and cooling fans. With the design, the CPU is always going to get waste heat from the GPU.

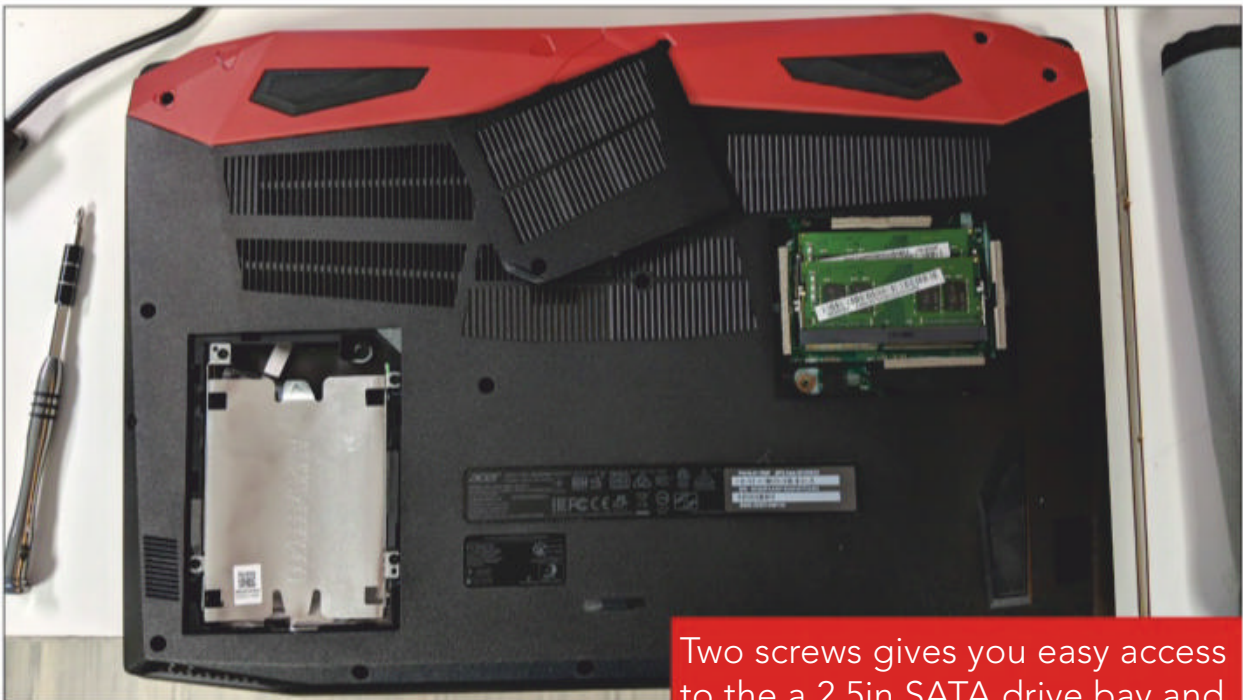


One potential sticky point with the Acer Predator Helios 300 is its shared heat pipe design, which means the CPU gets hot air off the GPU

But again: we didn't experience any serious issues, and nothing that would dissuade us from buying the Predator Helios 300.

Best upgrades

Perhaps the best feature of this laptop is the mostly friendly approach to user upgrades. Acer puts the RAM slots and a 2.5in hard drive bay behind two doors (see below). Assuming you purchased this particular model, with 16GB of DDR4/2667 RAM in dual-channel mode, we don't think you should invest in increasing the RAM. Instead, we'd open up the door for the 2.5in drive bay and drop in a 1- or 2TB hard drive. This upgrade is critical for anyone who plans to use the Helios 300 as a gaming laptop, as games today can take up to 50GB of space.



Two screws gives you easy access to the a 2.5in SATA drive bay and two SO-DIMM memory slots



If you want to upgrade the M.2 SSD in the Acer Predator Helios 300, it'll take a little more work as you have to remove more screws and then carefully pry the bottom off of the laptop

With a mere 256GB Intel NVMe SSD for the operating system, you'll likely run out of space in a month on the SSD. And that leads to our only real criticism of the upgrade options. If you want to upgrade the M.2 slot to a larger drive, you'll have to remove the entire bottom of the laptop.

The good news is that it's pretty easy to do. Just remove the screws on the bottom and then carefully split the body open with a plastic shim. There are plenty of video examples on YouTube.

With the bottom removed, you can swap the battery, M.2 SSD or M.2 Wi-Fi module. There are Predator Helios 300 owners who even remove the

cooler and apply higher-quality thermal paste to improve the heat dissipation.

Verdict

Overall, it's hard to complain much about the Acer Predator Helios 300. Sure, the battery could be larger, but then it would be heavier and bigger too. With its friendly upgrade paths, top-notch CPU and GPU, and hard-to-beat price of £1,049, this is a great option if you are looking for a gaming laptop. **Gordon Mah Ung**

Specifications

- 15.6in (1,920x1,080, 200ppi) IPS display
- Windows 10 Home
- 8th-gen Intel Core i7-8750H processor
- Nvidia GeForce GTX 1060 GPU
- 16GB DDR4 SDRAM
- 256GB SSD
- 802.11ac Wi-Fi
- 2x USB 2.0
- 1x USB 3.0 Type-A
- 1x USB 3.1 Gen 1 Type-C
- 1x HDMI
- SD card reader
- 3.5mm headphone jack
- Backlit keyboard
- Touchpad
- 48Wh lithium-ion battery
- 390x266x26.8mm
- 2.7kg



Dell G7 15 7590

Price: £1,449 from fave.co/30PuSqW ★★★★★

Dell's second-generation G7 15 gaming laptop has arrived less than a year since the original debuted last summer (and we reviewed it in the autumn). Designed for mainstream gamers who lack either the money or the confidence for Dell's flashier Alienware gaming brand, the G7 15 (Model 7590, for you diehard fans) still offers some snazzy new options – such as the 9th-generation Intel Core processor and Nvidia RTX graphics in our review unit.

In this case, however, buying the latest and greatest is an investment in the future. The brand-new CPU

offers a modest performance uptick. Only a small (and slow-growing) number of games support the RTX GPU's ray tracing talents, while earlier games see scant benefit. Don't get us wrong – the G7 15 has a lot going for it. But if you're looking for more immediate performance gratification, consider a configuration that's a little less avant-garde.

Design

Dell's gaming laptops have become less businesslike as time has passed, but they're still pretty plain. Despite the G7 15's slight angle to the front and rear faces and overabundance of vent lines, it's anyone's guess as to whether it's a supercharged gaming laptop or your work machine.

That said, there is one curious decision: a slight bump on the lid, over the hinge, protruding a quarter of an inch or so – see image on [page 18](#). Maybe this bump reinforces the hinge. Maybe it makes more room for the innards. Maybe it's a conscious design choice.

It doesn't really matter. The point is I can't remember the last laptop I reviewed where the lid wasn't simply flat. The bump proved bothersome when, say, carrying it plus a number of other flat items in a bag together, or stacking anything on top of it.

The G7 15 measures 364.3x273.4x19.9mm and weighs 2.5kg. That's (mercifully) a fraction smaller than last year's design, though still on the heavier side for a modern gaming laptop.

Things look better on the inside. Dell redesigned the bezels – the top and sides are now a dainty 0.5in, which makes it look a lot sleeker than before. Our model

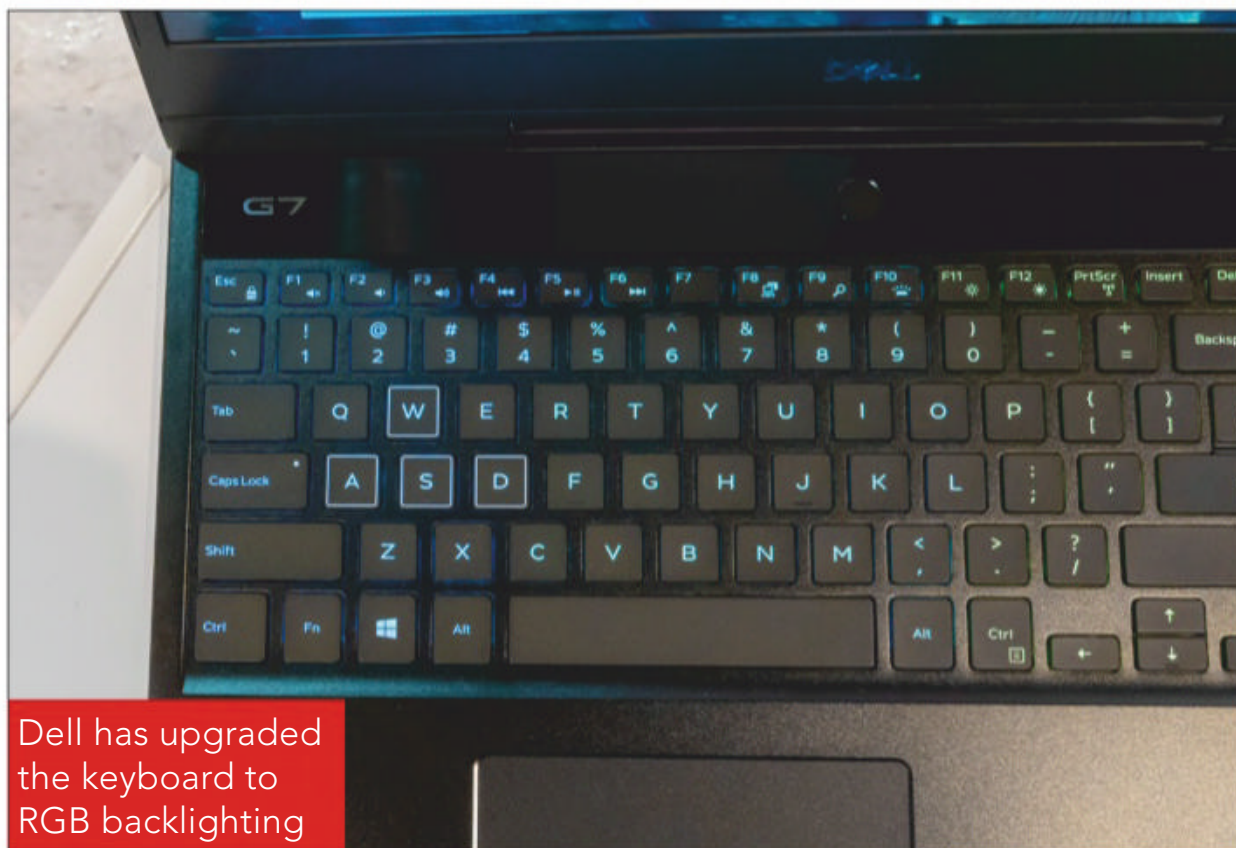


featured a 15.6in display with a 144Hz refresh rate, a rare bit of glitz. Colour reproduction and viewing angles are decent, but I found it a bit dim in brightly lit environments.

There's a full keyboard including numberpad, with the usual offset trackpad as a result. Typing is pretty standard laptop fare, though stiff up-front resistance and a crisp thock noise when bottoming out give it a slightly upscale feel.

Here's a pleasant surprise: Dell has upgraded the keyboard to RGB backlighting. As a result, we have a rare branding crossover – Alienware's Command Centre utility, enabling you to change the per-key lighting.

I'm less pleased with the trackpad. Granted, most people will use a mouse if they decide to game on the G7 15, but if you can't, it's nice to have dedicated mouse buttons. Dell has instead opted for a tap-to-click panel. It simply doesn't work well for anything more



Dell has upgraded the keyboard to RGB backlighting

complicated than web browsing, and I'm always a bit let down when I see this design on a gaming laptop.

I'm also leery of rear-facing laptop ports. The G7 15 has an SD card slot and one USB-A port on the right side, plus another USB-A, a USB-C Thunderbolt port, and headphones on the left. The rest is on the rear, including power, HDMI and Mini DisplayPort, another USB-A port, ethernet, and a lock.

Power is the one that annoys me most. Rear-facing is great for desks to control clutter, but annoying when the AC cable is hanging off your lap or bumping up against the back of an airline tray table. Last year's G7 15 arranged all its ports on the sides, so it can be done. Hopefully Dell reverts with the next model.

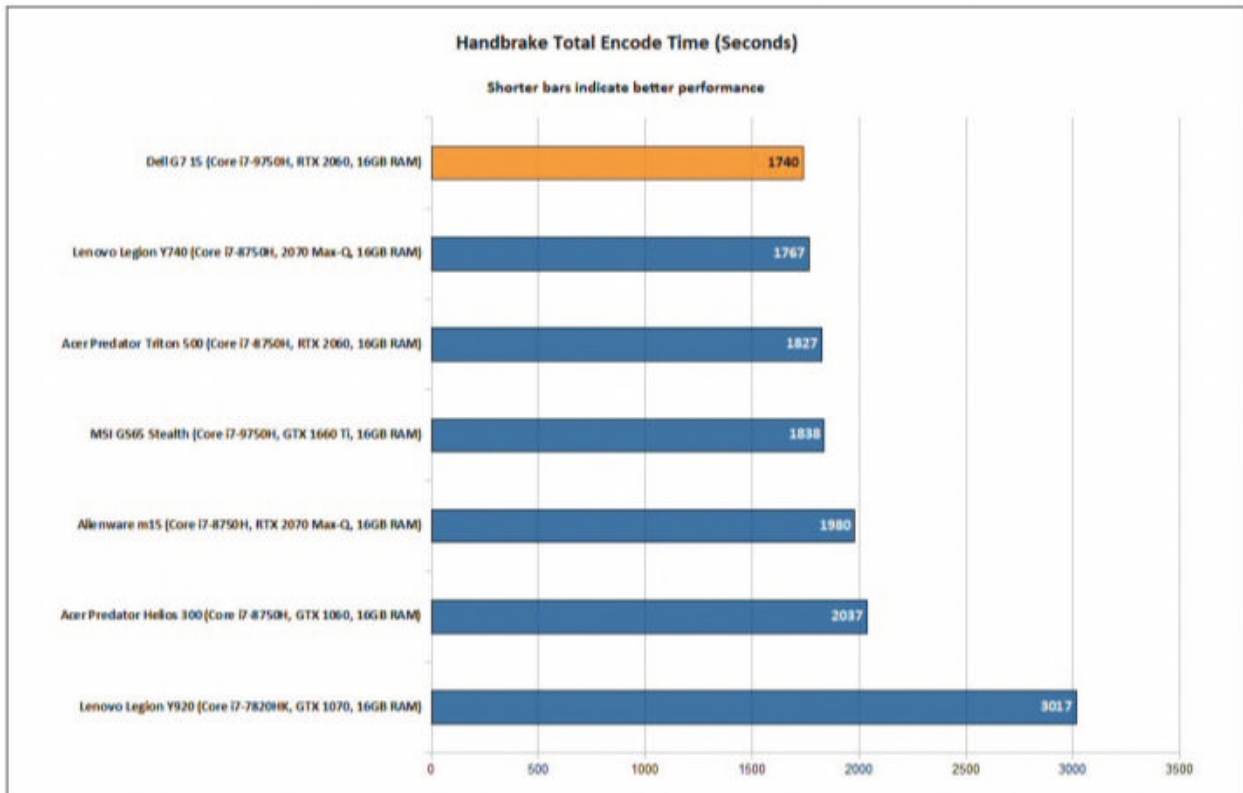
The G7 15's connectivity ports are along the rear as well as its sides



Lastly, audio. Like most laptops, the G7 15 puts out serviceable sound for everyday needs, but you'll want to buy a headset for gaming in particular. The G7 15 spins up its fans loudly and often, even when just browsing the web, and the speakers don't do a great job of cutting through the noise.

Performance

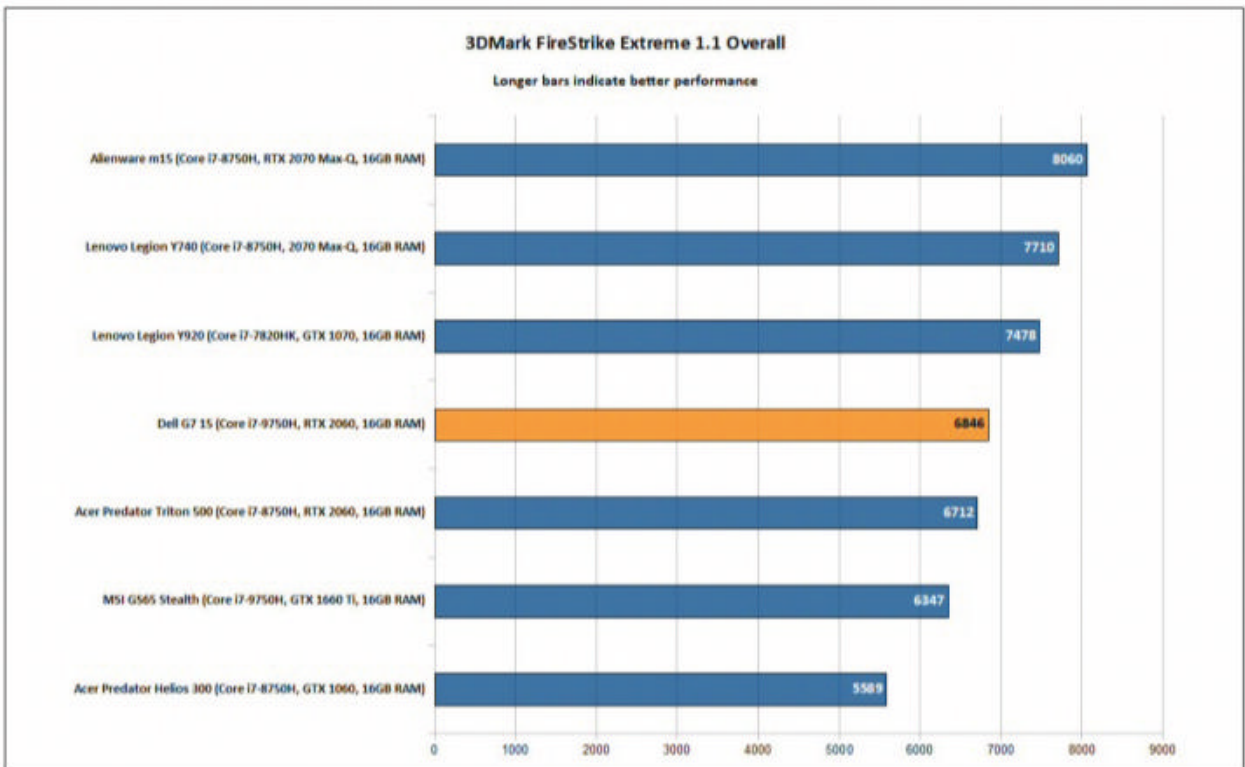
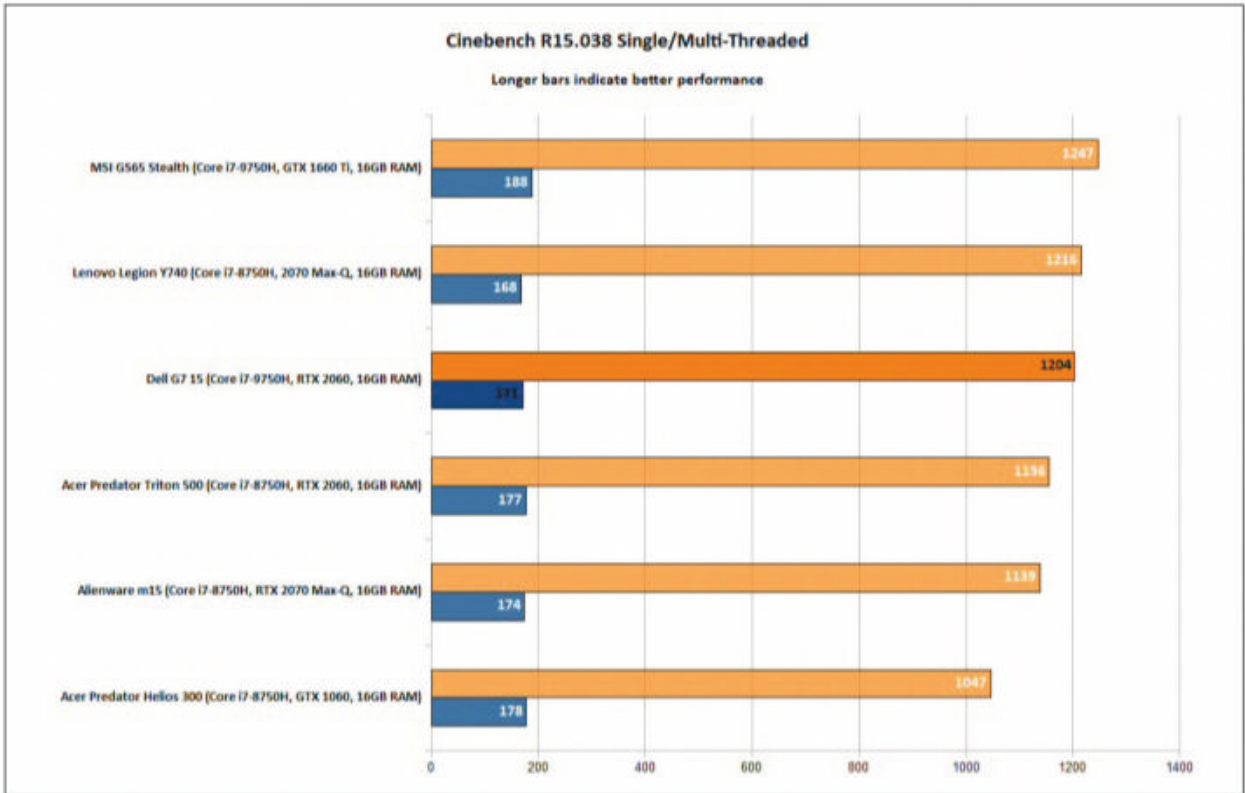
Delving inside, just how excited should we be about the Dell G7 15's new hardware? And the answer is... well, give it a mild cheer. By which I mean, the G7 15 is a marginal improvement over its predecessor. At best, it's a slightly above-average gaming laptop – and the RTX 2060 is doing most of the heavy lifting. The ninth-generation Core i7-9750H is a negligible



improvement over its predecessor, the thoroughly tried and tested Core i7-8750H.

Our HandBrake test tells the story. Here we take a 30GB MKV file and encode it to the 'Android Tablet' preset. It's an intensive task that gives us a good idea of the laptop's CPU performance at load. The G7 15 finished in about 29 minutes, a perfectly average score despite the generational jump. By contrast the Lenovo Legion Y740 and Acer Predator Triton 500, both equipped with the Core i7-8750H, finished in approximately 30 minutes.

Prior to the release of the new 9th-gen CPU Intel touted a sizable clock increase, jumping from the Core i7-8750H's base of 2.2GHz to a base of 2.6GHz on the Core i7-9750H, and from 4.1- to 4.5GHz in Turbo,

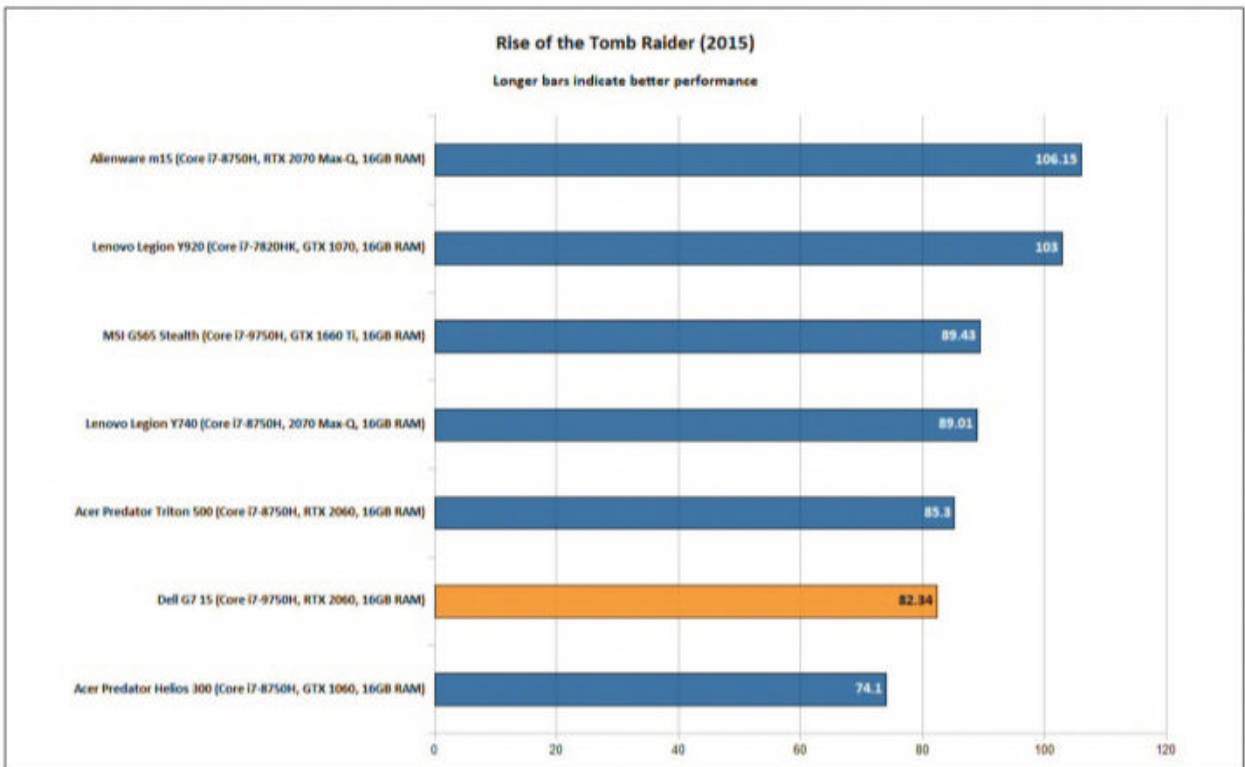
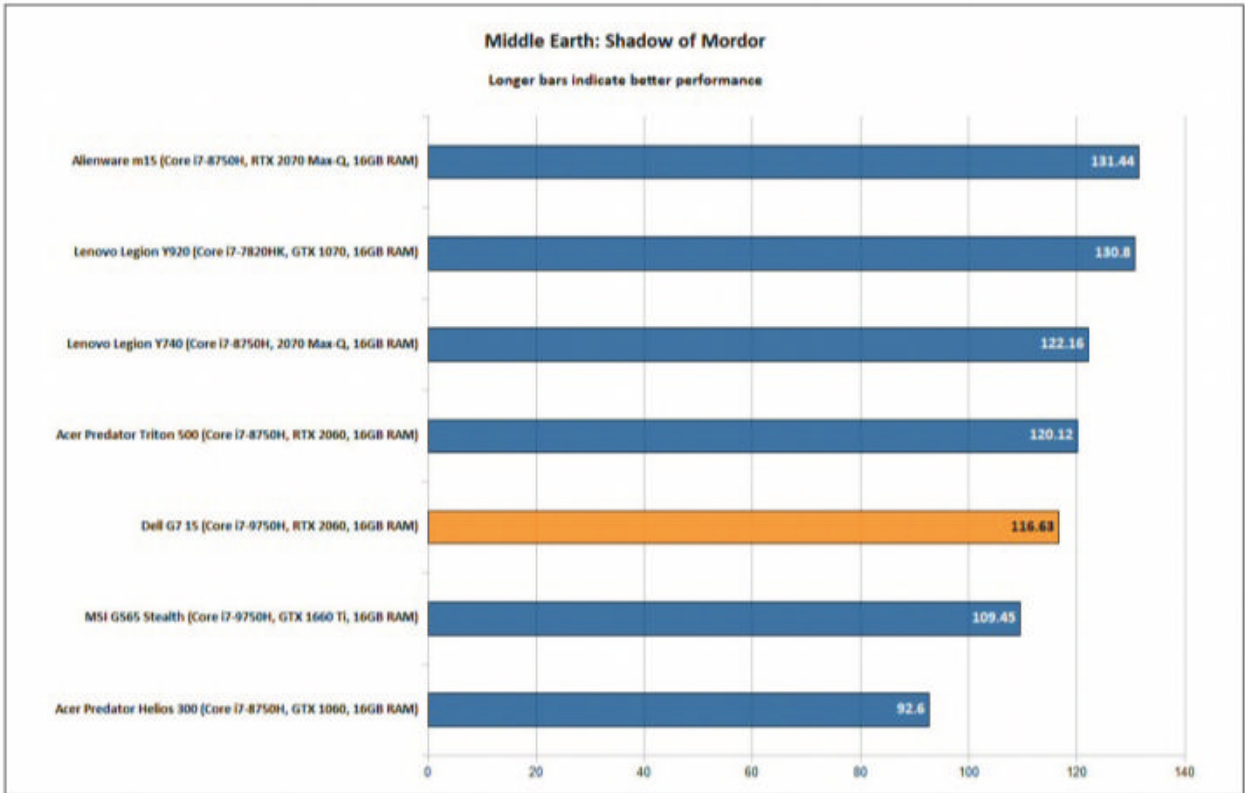


respectively. There's no discernible difference in this rigorous test. If I had to guess, the Core i7-8750H and Core i7-9750H are implemented into these laptops in almost the exact same way, due to power and heat restrictions. Thus you're paying for the newer part with minimal real-world performance benefit. You'll see the same in our Cinebench results, where the G7 15 is beaten out by Lenovo's Legion Y740 with a Core i7-8750H.

The GPU side is a bit better. The RTX 2060 is a pretty well-known entity at this point. If you look at the 3DMark FireStrike Extreme results, the RTX 2060 handily beats out both the GTX 1060 and the new half-step upgrade, the GTX 1660 Ti. That said, it falls well behind the performance of the GTX 1070, meaning Nvidia didn't quite manage one of those full-step jumps between generations. And while the RTX 2070 Max-Q makes for a mediocre 'upgrade' to the full-size GTX 1070, it also manages to beat out the RTX 2060.

The same pattern plays out in real-world gaming scenarios, as you'd expect. In Middle-earth: Shadow of Mordor, benchmarked at 1080p with the 4K texture pack, the RTX 2060's 116.6 frames per second is a small jump over the GTX 1660 Ti's score, and a more sizable jump over the GTX 1060's, but still falls short of GTX 1070-level (or RTX 2070 Max-Q) performance. In Rise of the Tomb Raider there's actually an upset, with the GTX 1660 Ti pulling slightly ahead.

Of course, the RTX 2060 can take advantage of ray-tracing in the few games that currently support it. That's little consolation if you have a huge library of existing games you still want to play.



It's worth noting at this point that the G7 15's 144Hz display is overkill when paired with an RTX 2060. Very few games will actually hit that frame rate on an RTX 2060, even if you dip down to High settings. *Shadow of Mordor*'s five years old at this point, and it still doesn't come close. That said, you'll still go well above 60fps in certain games, and I personally love how smooth 144Hz looks even when simply checking my email or moving windows around. It's overkill (and a needless battery drain, perhaps), but I'll still go to bat for it.

Speaking of battery life, that's one area where Dell does a decent job. Our battery rundown test consists of setting the fully charged laptop to loop a 4K video with the brightness set to 250 nits, until the machine shuts off. The G7 15 lasted for nearly four hours, surprisingly good for a gaming laptop with a 144Hz screen. In fact that's longer than the Alienware m15 lasted, with a battery almost twice the size – though Alienware's OLED display and fondness for RGB LEDs didn't help.

Verdict

The only question I can't figure out: Why's it so expensive? £1,449 compares poorly to some of the GTX 1070-equipped stock still floating around the market. Price is only one aspect of a review, but when a laptop feels out of step with the rest of the market I think it's worth noting. I imagine the Core i7-9750H has something to do with it, which is a shame given it barely improves upon its predecessor. Still, that's the wild world of laptop pricing for you. The G7 15 is a perfectly serviceable mid-tier machine with an understated

design and a surprisingly good keyboard. If you're dead-set on it: Ditch the 5,400rpm hard drive, and either downgrade to the GTX 1660 Ti or upgrade to the RTX 2080. Either of those offers a better cost-to-performance ratio than this poor, overpriced RTX 2060. Hayden Dingman

Specifications

- 15.6in FHD (1920x1080) IPS 144Hz Display
- Windows 10 Home
- 9th-gen Intel Core i7-9750H processor
- Nvidia GeForce RTX 2060
- 8GB, 2x 4GB, DDR4, 2,666MHz
- 1TB hard drive, 256GB SSD
- 802.11ac Wi-Fi
- MicroSD card reader
- USB-C DisplayPort
- 1x Mini DisplayPort
- 2x USB 3.1
- 1x HDMI
- 3.5mm headphone jack
- UK backlit keyboard
- Touchpad
- 60Wh 4-cell battery
- 364.3x273.4x19.9mm
- 2.5kg



Sony Xperia 1

Price: £849 from fave.co/2RBoErc ★★★★★

Just when we thought Sony had settled into a naming pattern for its flagship phones it changes track again. The grandly named Xperia 1 goes for broke on the latest Sony smartphone philosophy: do what we do best, and unapologetically so.

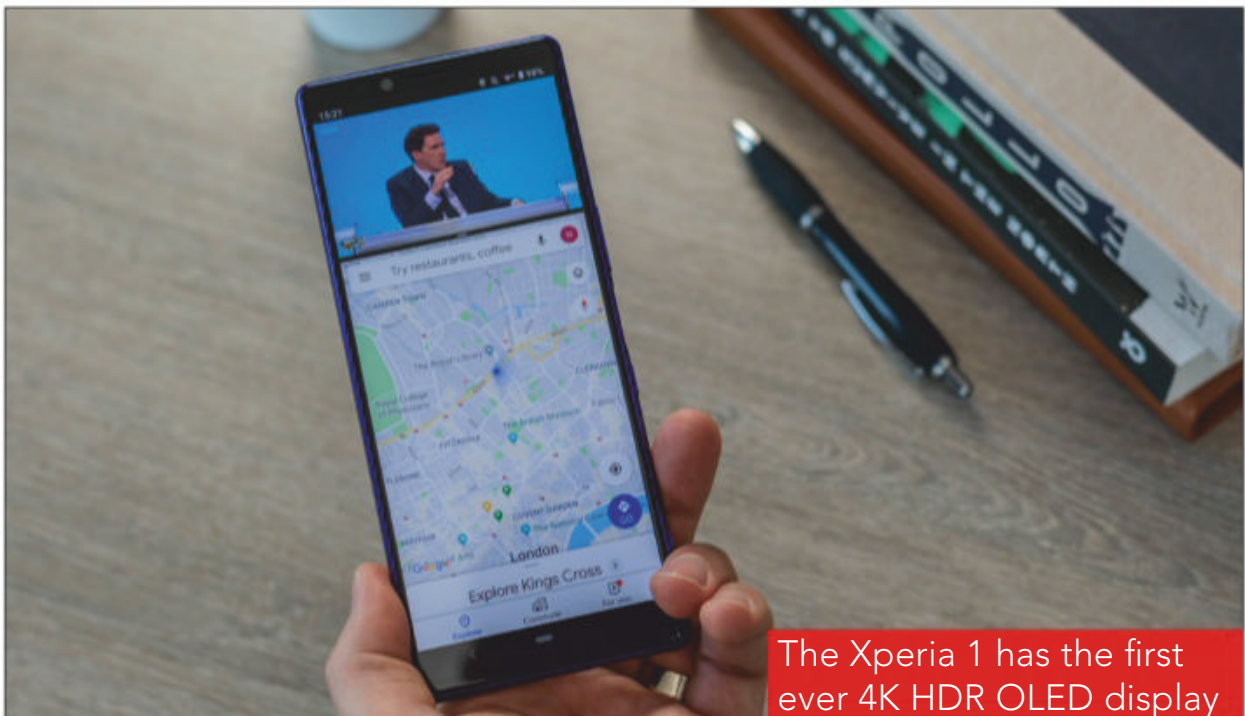
This means the Xperia 1 is a tall, thin purple 4K smartphone with pretty great cameras. It's an odd, expensive mix of a lot of good things, with some things missing. It's not for everyone, but for once, Sony is comfortable that it isn't – and the phone is all the better for it.

Display

The screen is the place to start with the Xperia 1. After 2017's Xperia XZ Premium boasted the world's first smartphone with a 4K HD LCD display, the Xperia 1 brings you the first ever 4K HDR OLED. Sony loves to be first at smartphone achievements and the display is thankfully excellent.

The resolution is a staggering 3,840x1,644 and has 643 pixels per inch. It's every bit as good as on the industry-best Samsung Galaxy S10, but does not have as good daylight visibility. I struggled to see the Xperia 1's display in the brightest conditions.

The move to an incredibly uncommon 21:9 display is so that the Xperia 1 can playback in the same ratio many movies are filmed in. Netflix already displays more than half its films in 21:9, meaning movies on the Xperia 1 are full screen with no letterboxing.



The Xperia 1 has the first ever 4K HDR OLED display

It's also handy to split-screen apps in portrait mode, allowing you to watch video in the top third and use maps in the bottom two thirds, for example – there's enough screen to not make the bottom app too cramped.

There's also no notch on the 6.5in display and leaves Sony as practically the last manufacturer not to introduce one on any of its phones. There's a hint of a forehead, but otherwise this is an unapologetically angular, thin phone that feels more like a sequel to the Xperia XZ1 than the more recent Xperia XZ2 and XZ3.

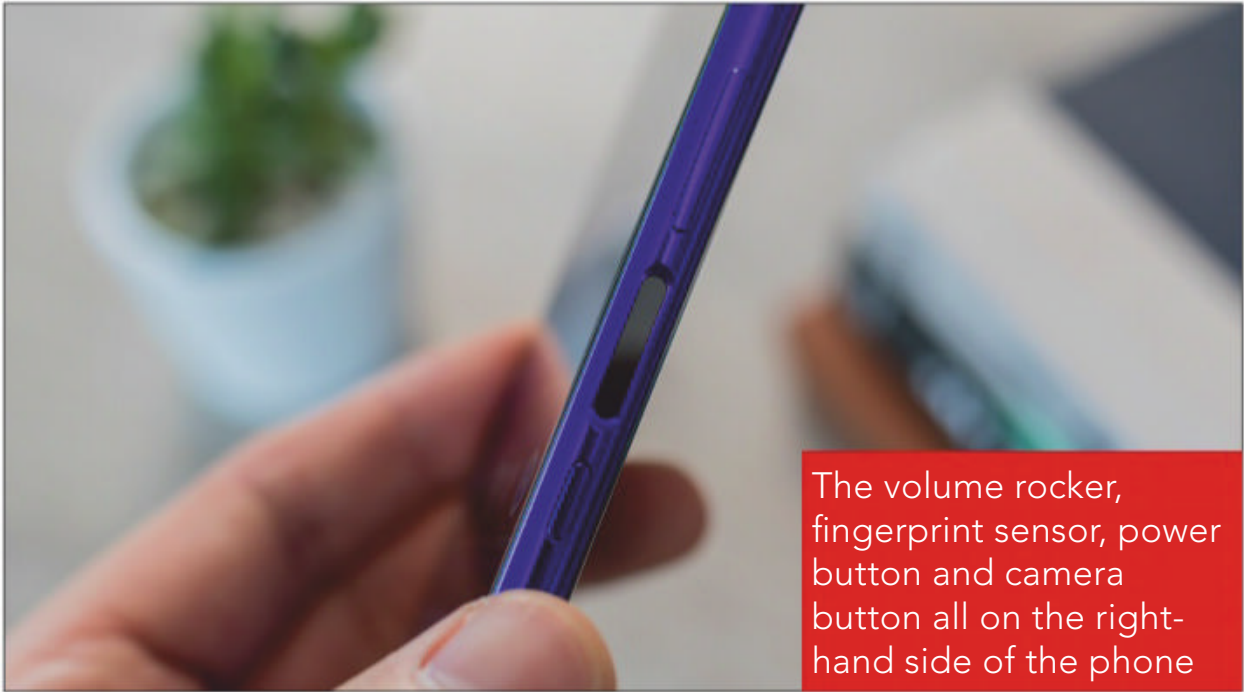
The company's first OLED on 2018's XZ3 was already good, but this one is well calibrated with good colour reproduction, and 4K video looks absolutely amazing on it.

Sony has added a 'creator mode' display setting to go along with the out the box mode, which nicks its CineAlta branding from its high-end video cameras. It basically means faithful reproduction of a specific colour gamut and 10-bit colour HDR specifications.

Sony has also nailed its video image enhancement software, noticeably sharpening video quality via the inclusion of a clever new X1 image processing engine. Watching video on the Xperia 1 is a pleasure, and when the content is 21:9 and in HD, the best on a smartphone at the time of release in June 2019.

Design

That comes at a price, though. Unless you're a film nut who wants a cinema-accurate aspect ratio screen on their phone, the tall design of the phone is weird. While it's slim enough to mean one-handed scrolling is okay,



you can forget about reaching the top of the display with your thumb.

It's not unmanageable but it's very hard to balance in one hand without a permanent pinkie wedged under the bottom edge. Annoyingly, Sony has brought back the side mounted fingerprint sensor (woo!), but in addition to a separate power button (boo!). It was always great to have the sensor on the side under the button. It's very responsive, though – so much so that I actually annoyingly unlocked the phone several times accidentally when holding it as it's right where you want to grip it.

You can still get the 2-in-1 on the Samsung Galaxy S10e, but here with the volume rocker, fingerprint sensor, power button and camera button all on the right-hand side of the phone it's a cluttered design that's hard to get used to.

It doesn't help that the Xperia 1 is one slippery customer – there are slippery glass phones, and then there is the Xperia 1. Put it on any hint of a non-flat surface – sofa arm, book, glass table – and the thing visibly slides towards doom.

Despite the dimensions, I found I grew to really like the Xperia 1's odd form factor. Going back to the iPhone XR made Apple's phone look comically short and chubby, rather than the Sony too tall and thin.

The purple unit I reviewed is not to everyone's taste, but is a deliberate hark back to the original Xperia Z of a similar hue that Sony dropped after a while. It's the boldest choice of Xperia 1 – otherwise you can go for black, white or grey.

Cameras

Where Sony excels with its actual cameras, it has usually fallen short with the quality of its smartphone cameras. It supplies hardware to many other manufacturers, but these days smartphone photography is also defined by the software processing that complements great hardware.

The Xperia 1 is the first Sony phone with triple rear cameras: 12Mp f/1.6 main sensor, 12Mp f/2.4 telephoto and 12Mp f/2.4 ultrawide. This is welcome given the XZ3 only had one and lets you get better zoom, but the ultra-wide lens' fisheye warping of the edges of images is off-putting enough to never bother using it.

Until now, imaging on Sony's flagship Xperia phones have lagged noticeably behind. The Xperia 1 rights this wrong – partly – by producing outstanding photos in many conditions. It just feels



Standard shot



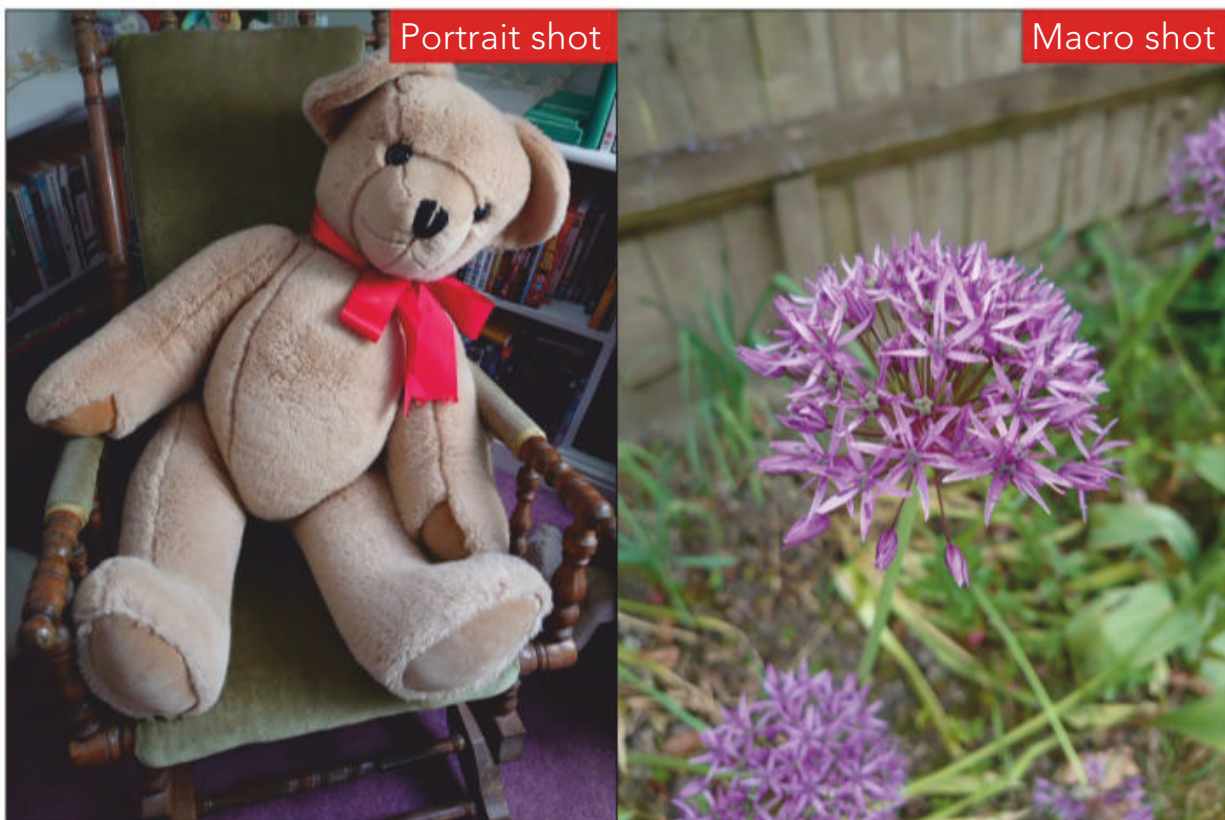
Ultra-wide shot

like you have to fight with the phone a bit in order to get the best results.

This is not a great point-and-shoot camera like the iPhone XS or Pixel 3. Those two phones consistently take great-looking shots with minimal effort. The Xperia 1 is capable of some excellent imaging, but it is a camera setup that rewards you if you know more about photography than the average person.

I found myself having to refocus many shots either by tapping on the display or using the dedicated two-step camera shutter, an addition Sony continues to include and one I love.

Some shots came out perfectly while others looked over exposed or too dark. This is probably down to my lack of pro-photography expertise, but this is my point

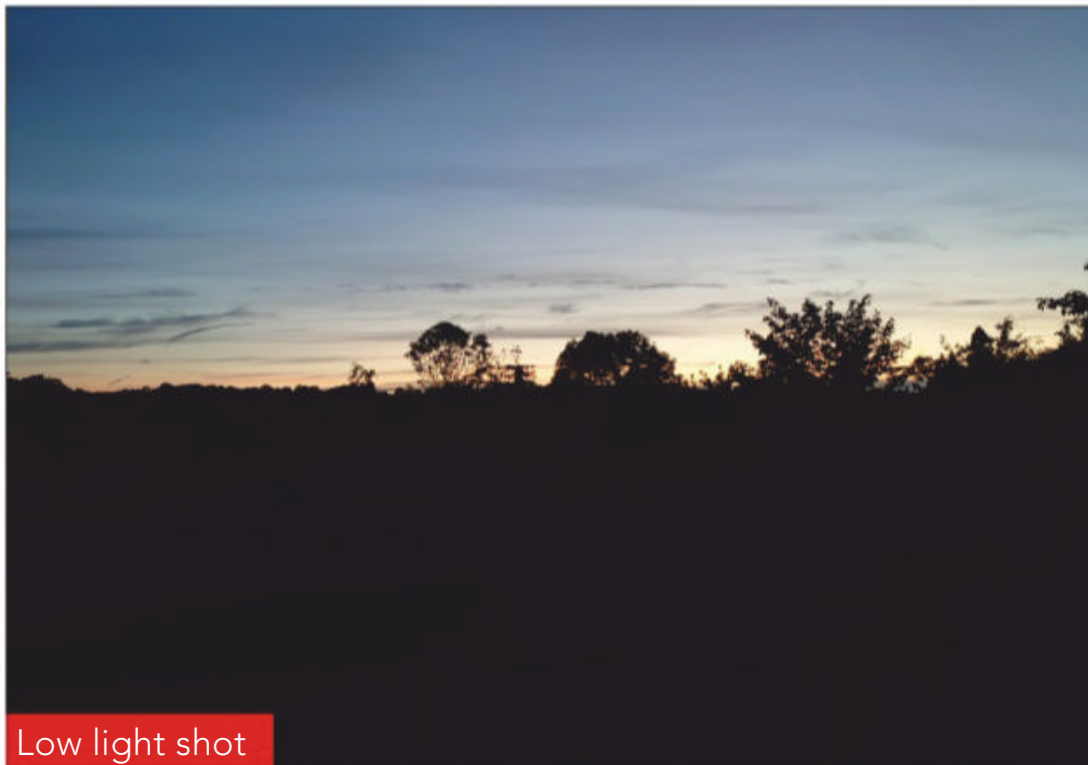


– I can take some ridiculously good photos on the Pixel 3 (if I do say so myself), but the Xperia 1 makes me work much harder.

That said, when I got it right the Xperia 1 took some astonishing photos. Detail is pin-sharp and colours aren't too saturated, though macro shots suffer from a little blur. There is no sign of a dedicated night mode like we've come to expect on phones of this price, which is a shame, but low light shots (as opposed to pitch black) come out well and manage light better than any Sony phone before.

The software-enhanced portrait mode is best left alone, as I got some great results from the natural bokeh of the lenses in auto mode.

Sony is confident enough about the video prowess of the Xperia 1 that it includes a movie-style Cinema



Low light shot

Pro app on the phone to record fully manual video. You will only get good results here if you understand how to use a fully manual video camera. It's fun to play with if you're an amateur though, and a good way into learning how to get good results without a £10,000+ cinema camera.

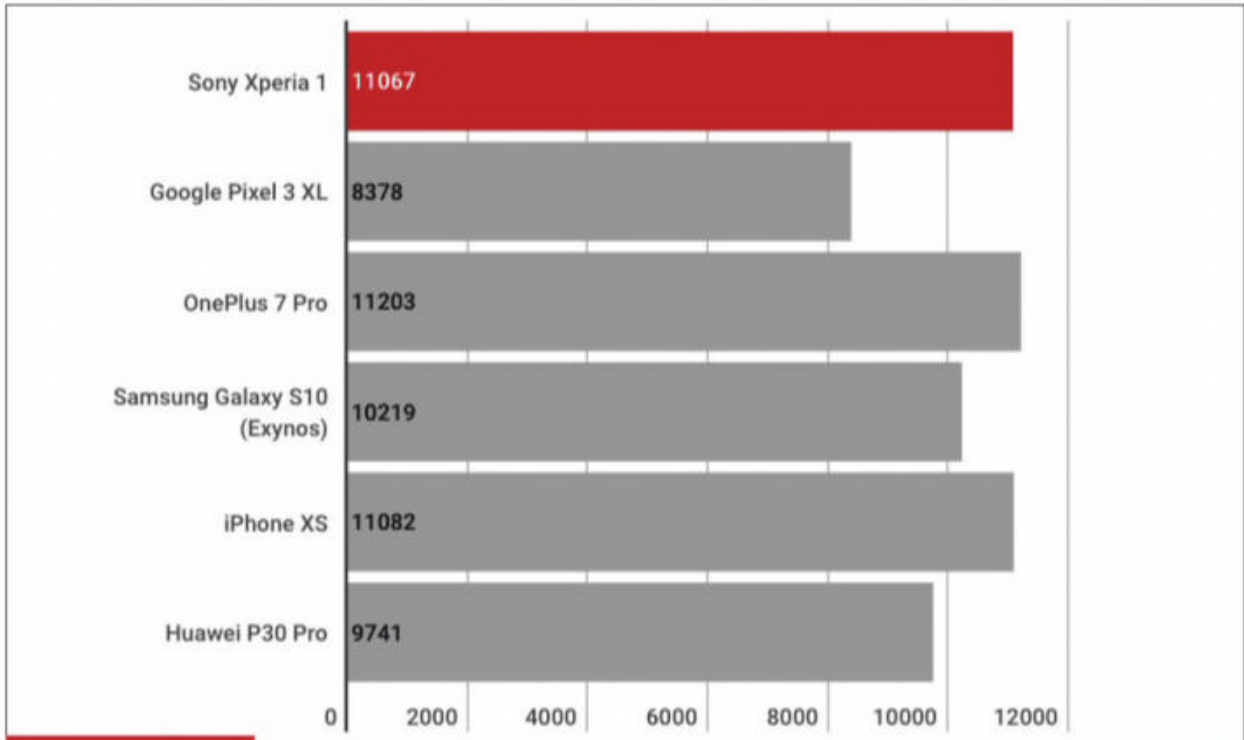
But, as with video captured in the main camera app, results suffer from lack of decent stabilization. Despite Sony building in a hybrid of OIS and EIS, I found videos shakier than acceptable in the regular camera app (Cinema Pro disables stabilization, so you can use a tripod, slider or alternative).

An unfortunate side note is the appalling front-facing camera. An 8Mp f/2.0 sensor sounds okay, but Sony has built in infuriating beauty modes into it that are not obviously disabled, and results are always washed out and blurry. Selfies in any sort of low light looked absolutely awful. It's a pretty big oversight and detracts from the phone's appeal considering the beef of the rear triple cameras.

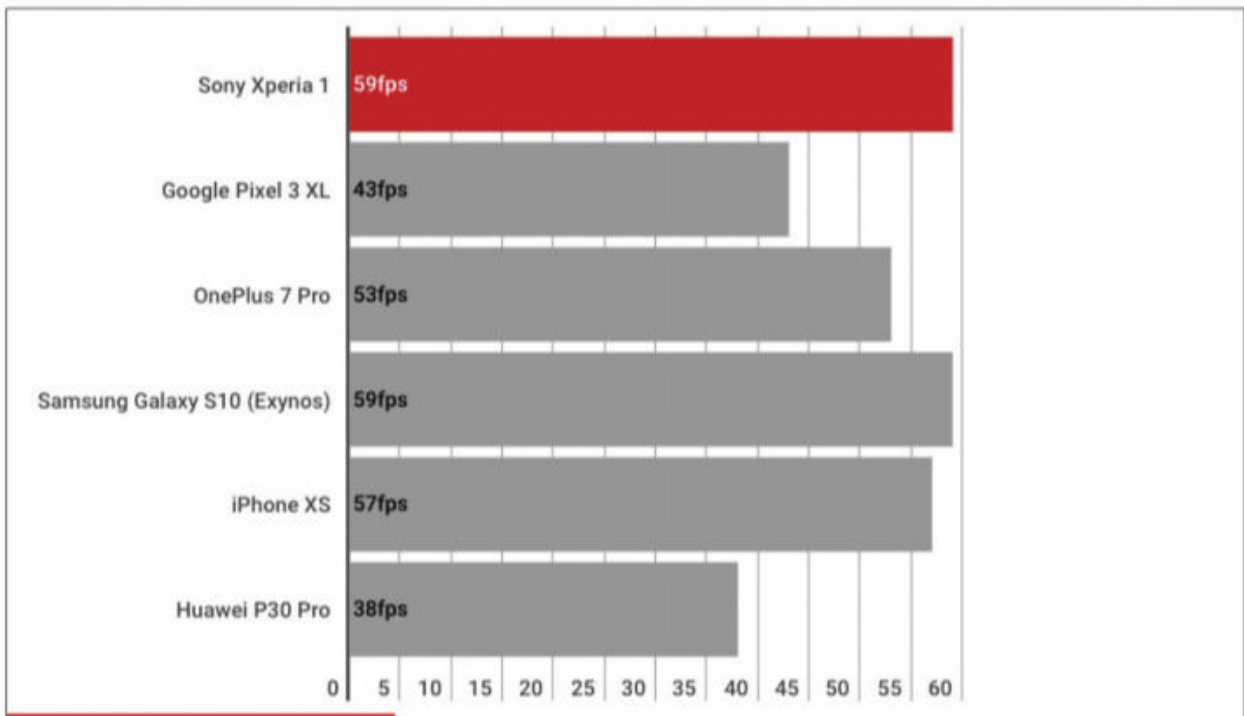
But then again Sony is really leaning into a niche market here. If you love Sony, cameras and cinema, then this is the phone of your dreams. And where other companies might panic that they haven't sold any phones, Sony seems content to buoy its smartphone business with the massive success of its TV, camera and PlayStation businesses and produce quirky products like the Xperia 1.

Performance

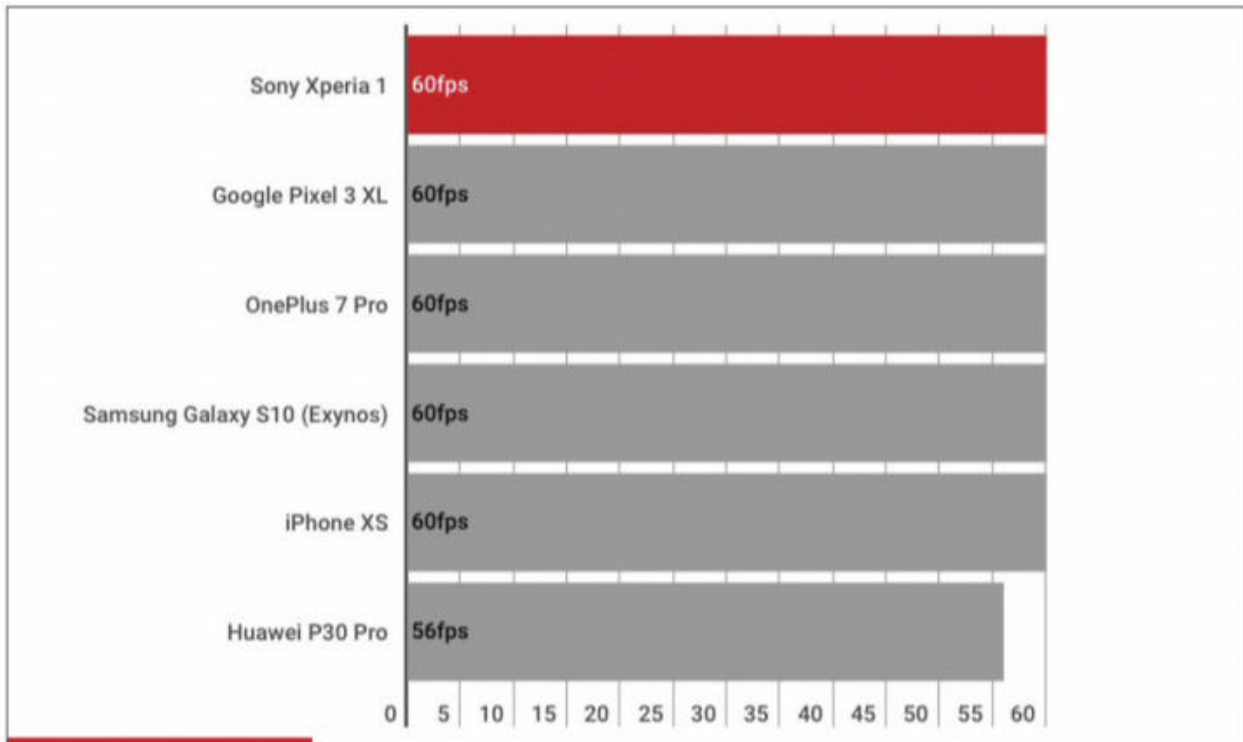
The Xperia 1 is like a short distance race winner. It screams through every task with ease thanks to the



Geekbench 4



GFXBench Manhattan



GFXBench T-Rex

Snapdragon 855. But the battery life is disappointing enough that it doesn't quite cut it over long distances compared to other high-end phones.

Considering it has the first 4K HDR OLED screen in a phone, the 3,300mAh battery is not large enough. I was battery percentage watching more often than I'd like, but having said that I never ran out over the course of a day.

In our battery test it went for eight hours and four minutes before dying, which is miles behind the 11 hours 45 minutes of the Huawei P30 Pro, but it's by no means the worst out there, getting nearly three hours more than our European Galaxy S10+.

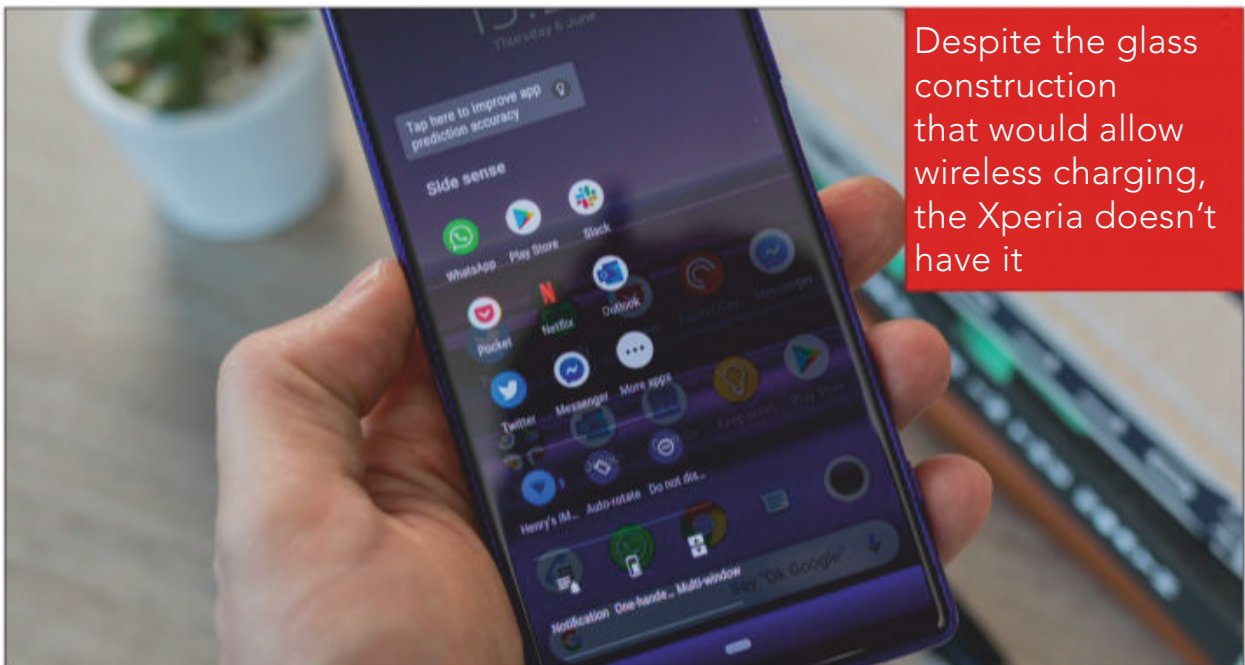
Aside from this, I have zero complaints about performance. It's a ridiculously fast phone, and the

OnePlus 7 Pro is only faster because of its rapid animations and slightly better RAM management. The raw processing power score from the Geekbench app is neck and neck with the iPhone XS:

Features

Sony has added some excellent touches on the Xperia 1, but frustratingly left out others. It has exceptional call quality, something the modern smartphone sometimes neglects. Calls to all networks in the UK were crystal clear and never dropped out, and I noticed the improvement in quality compared to my usual iPhone XR.

There's also IP68 water resistance, perfect for a podcast in the shower. If only the stereo speakers weren't so trebly. Many high-end phones can easily fill a small room with podcasts or radio, but with the Xperia 1 I was reaching for my headphones.



Luckily there are some in the box, though cheap feeling and sounding in-ears. This is a phone without a headphone jack, but there's a dongle in there to connect the 3.5mm headphones – no USB-C headphones to be seen (though I tested a couple of pairs and they worked fine).

Despite the glass construction that would allow wireless charging, the Xperia doesn't have it. Sony told me it preferred a slim design, whereas a charging coil would make the phone fatter. I don't miss wireless charging, but it's a shame not to see it on an £850 phone. You also don't get any form of face unlock, which is odd, but in keeping with the practically stock version of Android 9 Pie. Sony has kept it very minimal with hardly any changes from what you'll find on an Android One phone. Fingers crossed Sony can keep up with security updates, something the company has been very good with in recent years.

Finally, the side sense gimmick from the XZ3 is on this phone too, and it's still awful. Tap twice on the edge of the screen where it meets the bezel and you are given a software menu of recently used apps, menu options and toggles for one handed mode among other things.

It's difficult enough to get the menu to pop up as your taps have to be very precise, and I found it was always quicker to just go and do the thing you wanted to do normally rather than try and use side sense.

Verdict

The Sony Xperia 1 is a fitting flagship for 2019. It has one of the best displays ever on smartphone,

much improved rear cameras, slick performance and attractively clean software. If you value the unique display above features like face unlock or wireless charging, then it's a good fit for you.

The tall design isn't for everyone, but I like the fact Sony has admitted mainstream defeat. In crafting a phone that appeals to video and cinema lovers it certainly has backed itself into a corner, but if the Xperia 1 is loved by a few people rather than ignored by all people, then Sony has probably achieved its aim.

I found the Xperia 1 a daring, charming smartphone let down only by its temperamental cameras and slightly disappointing battery life. **Henry Burrell**

Specifications

- 6.5in (3,840x1,644; 643ppi) OLED capacitive touchscreen
- Android 9.0 (Pie)
- Qualcomm SDM855 Snapdragon 855 (7nm) processor
- Octa-core (1x 2.84GHz Kryo 485, 3x 2.42GHz Kryo 485, 4x 1.8GHz Kryo 485) CPU
- Adreno 640 GPU
- 6GB RAM
- 264GB/128GB storage
- Three rear-facing cameras: 12Mp, f/1.6, 26mm (wide), 1/2.6in, 1.4µm, predictive Dual Pixel PDAF, 5-axis OIS; 12Mp, f/2.4, 52mm (telephoto), 1/3.4in, 1.0µm, predictive PDAF, 2x optical zoom, 5-axis OIS; 12Mp, f/2.4, 16mm (ultrawide), 1/3.4in, 1.0µm
- Front-facing camera: 8Mp, f/2.0, 24mm (wide), 1/4in, 1.12µm
- Dual-band 802.11ac Wi-Fi



The Xperia 1 is the first Sony phone with three rear cameras

- Bluetooth 5.0
- A-GPS, GLONASS, BDS, GALILEO
- NFC
- Fingerprint scanner (side mounted)
- USB 3.1, Type-C 1.0 reversible connector
- Non-removable 3,330mAh lithium-ion battery
- 167x72x8.2mm
- 178g



New BittBoy V3

Price: £39 from fave.co/2Oa8Hdk ★★★★★☆

The New BittBoy V3 is a handheld retro gaming emulation device that looks like Nintendo's classic Game Boy – but has hardware powerful enough to play NES, Genesis, and even PlayStation 1 games. For £39, including an 8GB microSD card, it offers great battery life, a nice screen, and consistent emulation. At the time of writing we're also seeing some great summer discounts. It's a relatively easy option for those who like to take some favourite video

Small device,
mighty power



games on the road, as long as you're willing to deal with a few drawbacks.

Hardware

The BittBoy takes some design cues from the Game Boy. It has a similar textured-plastic feel and button placement, though it's considerably smaller and lighter. In my large hands I find myself having to readjust often because my fingers tend to overlap in the back. On the other hand, that means the BittBoy fits in pockets and takes up little to no space in a backpack – a real treat.

When it comes to battery life, the 700mAh removable lithium battery lasts surprisingly long. I

get a couple weeks' worth of playing on the train before having to recharge it via its Micro-USB port. Unfortunately there's minimal warning of battery rundown – just a tiny indicator on the home screen. If you miss that, the screen just slowly dims over the course of a few minutes, forcing you to hurry and save.

Speaking of the 2.4in IPS screen, it's big enough for most use cases, is plenty bright and sharp for all sorts of viewing options, and offers great colour rendition. Unfortunately there isn't a brightness slider – instead, you have to hold down the Select button and then use two Turbo buttons to adjust it with a few steps. For the most part I left it on full-blast.

The real problem comes when having to adjust volume of the mono speaker or headphone jack using the same method, something I do far more often.



The screen is a highlight of the system

You have to hold down Select and step through a few volume options with the B and A buttons. This is clunky and my least favourite thing about the hardware.

At least the feel of the buttons is fine. The d-pad is nice and smooth, with an even distribution of tension between the directions. It's not super-smooth to roll over from one direction to another, but I wasn't expecting perfection for the price. The face buttons have just a bit more resistance on initial press than I prefer, but there's plenty of travel and I've had no problems with false positives or missed presses.

Software

The BittBoy software support includes NES, SNES, Game Boy, Game Boy Color, Game Boy Advance, Master System, Genesis, WonderSwan, NeoGeo, and even PlayStation games via various built-in emulators. You load your ROMs onto an SD card that fits into a slot at the top. The operating system is already loaded on the device, so it couldn't be more easy to set up and use. There are options if you want to tinker with settings to get the most out of each emulator, but for the most part I've stuck with the defaults.

Like all emulation, you aren't using the original hardware the games were designed for, so everything is not guaranteed to run perfectly – or at all, in some cases. But I'm personally not a stickler for a perfect emulation experience – I just want it be as damn close as possible with minimal effort. For the most part the BittBoy achieved just that.

Older games from systems like NES and Master System worked great. Even though the BittBoy

The home screen features some built in apps and games like Cave Story and Doom



technically supports PlayStation 1 games, however, I found it to be a poor experience due to the limitation of the processor and lack of necessary buttons. Don't get me wrong – some PS1 games will run just fine, but I didn't find it was worthwhile to dig too deeply in the library. For the most part I stuck with handheld games from the various Game Boy generations, which is what I wanted to play in the first place. Each emulator has options for features such as adjusting screen ratios. Most even have support for save states, which is a plus for portability.

All in all I wouldn't call the BittBoy's user experience intuitive, as it does require a little bit of trial and error to get around, but it's relatively easy and quick. It also features options for those who want to dive deeper into customizing their emulators, and is simple to use.

Verdict

Of all the portable emulation devices I've tried, the New BittBoy V3 gets my highest recommendation. Its small size, great screen, and easy experience is only made better by its cheap price. Playing games that were made for handheld systems like the Game Boy on my TV with my Raspberry Pi-based emulator never felt quite right, so I'm glad to have the option to play these games in my hand once again. **Adam Patrick Murray**

Specifications

- 2.4in IPS display
- USB
- 700mAh battery
- 99x68x13mm

Best laptops 2019

TECH ADVISOR STAFF reveal our top recommendations



If you're looking to buy a laptop, we can help. Here at *Tech Advisor*, we've tried and tested a huge range of laptops to determine which are the best on the market. Here, you'll find our pick of the top models you can buy right now, and offer a verdict on each.

How to choose the best laptop for you

Sometimes you just can't beat a bigger screen, a keyboard and Windows for getting stuff done, and then your only choice is a laptop. There are

many different kinds, including hybrids that can be either laptop or tablet, high-end gaming laptops, cheap and cheerful budget models, and even those running macOS rather than Windows 10.

How much should you spend on a laptop?

Sometimes the best does come at a steep price, but equally you can get a lot of laptop for under £500 or even £300 – provided you need only complete basic tasks such as web browsing, writing emails and creating the odd document.

Around £500 or above can get you a nice laptop, but it's likely to have an entry-level set of specifications. We're talking a relatively basic processor, minimal SSD storage and a relatively low-quality screen. It might also be on the heavy side.

Pay £700 or more and you should get a blazing fast processor, plenty of RAM, hordes of storage and a gorgeous display. You should also expect excellent build quality and premium materials. Many these days are above £1,000.

What to look out for

We show you our favourite laptops and offer advice on how much to spend, but if you're still undecided we might be able to help break down your options further. Here we talk about screen size, storage, processors, and more to help you make your decision.

Display size

Laptop screens range from around 11- to 17in. A smaller panel might be harder to work on and offer

fewer ports, but it will be more portable. A 17in laptop, on the other hand, is a desktop replacement laptop and not deigned to be moved around often. You'll likely get a full-size keyboard and potentially an optical drive. Generally, 13in is the sweet spot for portability and usability. While many laptops have a resolution of 1,366x768, Full HD, Quad HD and even 4K laptops are available. A touchscreen will add to the cost and generally isn't needed on a laptop. Also look out for a matte, non-reflective screen.

Storage

How much storage you need depends on what you want to use a laptop for. As a general rule of thumb, we recommend you get as much as possible without wasting money on the upgrade.

An SSD will help your laptop run faster, but offers less space for your files (consider supplementing it with a portable USB drive). You can also use cloud storage – but only when you have an Internet connection.

Memory (RAM) is where programs and files are stored only while you're using them, and more is always better – up to a point. Consider 4GB a minimum, unless it's a Chromebook, with 8- to 16GB the ideal.

Processor

Unless you're going to run complex and demanding software or gaming you don't need a top-spec processor. If you're happy to splash out you're probably looking at the latest generation (8th) Intel Core i7 chip. Entry-level spec models are likely to offer a Core i3 or even a Celeron, Pentium or AMD processor instead. A

Unless you're going to run complex and demanding software or gaming you don't need a top-spec processor



Core i5 is a good mid-range choice, so check how much extra it is to upgrade before making a final decision.

The letters after the model name are important: Y and U mean they are ultra-low-power chips, which won't be great for demanding tasks but should translate to longer battery life. H means high-performance graphics, while Q means quad-core.

Buying an ultrabook or ultraportable laptop

Buying an ultraportable laptop is really no different than any laptop, except that your priorities are likely to be different. You might want an ultraportable laptop that's light and will last a long time away from the mains.

However, other people want an ultrabook that's powerful and can handle demanding applications

without breaking your back when you carry it around. Both types are available.

Some compromises are inevitable if you want a thin and light laptop, though. There's less space for a battery, so it's typical to find shorter runtimes.

Thin laptops tend to have shallow key travel, so if you need to do a lot of typing read our reviews to find out whether a keyboard is a joy or a pain to use.

Warranty and other considerations

We recommend all the laptops here: there isn't a duff one among them. None is perfect though, and what will best suit your needs might not be the device ranked at number one.

Battery life and warranty vary between laptops. The latter may differ depending on where you buy the laptop from, too. John Lewis, for example, tends to offer a longer warranty than its rivals. After-sales service is something you should consider for everything you buy. Check whether the company has a UK-based support line, and forums (including our own) are an ideal place to ascertain whether a manufacturer is good or bad at carrying out work under warranty.

When you've bought a new laptop, be sure to take a few minutes to configure it, so you can track your laptop should it ever be stolen or lost.

1. HP Envy 13 (2019)

Price: £899 from [fave.co/2y4V6JD](https://www.fave.co/2y4V6JD)

The HP Envy 13 has been one of the best lower-cost alternatives to a MacBook for several years. You get a

The HP Envy 13's design is similar to Apple's MacBook



full aluminium shell, MacBook Pro style power and even some low-level gaming skills. This 2019 version tweaks a few parts without altering the original appeal, that of a lower-cost laptop with the same visual impact as a much more expensive one. So it rivals the likes of Dell's XPS 13 ([page 64](#)), Asus's ZenBook S13 ([page 88](#)) and the Huawei MateBook 13 ([page 96](#)).

What's new? HP has switched to the new Nvidia MX250 GPU. The bad news: it makes virtually no difference. The trackpad experience is hugely improved in some ways, but its surface is now plastic rather than glass. Display quality has been bumped-up, with much better colour reproduction, brightness and contrast.

We hoped for a little more dynamism, and the trackpad downgrade stings. But you still get a laptop with power to match a £1,750 MacBook Pro, for less than the cost of the ancient £949 MacBook Air from 2017. As ever, the HP Envy 13 is a great deal.

Design

HP has not redesigned the Envy 13 significantly this year. It's an aluminium laptop with a very angular look. Its keyboard keys are sharp-looking squares and even the heat vent above the keyboard has a severe geometric pattern. The pragmatism of this lack of change is all part of the Envy 13's broader appeal. This is a metal laptop made for those after a computer that looks and feels 'nice', but doesn't ask you to pay over the odds for novelty.

It is also very portable, even if there are no particular ultra-slim or light stats worth shouting about. The HP Envy 13 weighs 1.3kg and is 14.9mm thick. However, it is also narrow as the horizontal screen borders are slim.

Just look around the keyboard. Aside from an extra column of keys, there's no space to spare.



Typing is one of the HP's highlights

Compare the HP Envy to an HP Spectre or MacBook Pro and you will notice a few obvious build cuts. Its anodized aluminium looks quite shiny, as the texture is rougher than that of the treated metal used in £1,300-plus laptops. You can't open the lid without the base trying to go with it.

There are some nice touches, though. When you fold out the Envy 13 screen, the hinge lightly lifts the screen up, adding a slight angle to the keyboard – this is like the Asus ZenBook S13. The contours of the sides also make the laptop seem slimmer than it is.

We have a lot of affection for the Envy 13. And while it hasn't really changed much in two years, it doesn't look dated yet.

Keyboard and trackpad

Typing is another highlight, and a reason to be glad HP hasn't messed with the basic HP Envy 13 design much. Keys have a chunky action, each depresses with a satisfying clonk rather than a weedy click. You could call this an old-fashioned approach, but we much prefer it to the ultra-shallow style for long-form typing.

The layout remains largely unchanged since last year. You get very square-looking keys, and a handful of function keys are shifted to an extra column to the right in order to accommodate the heat grille above the keyboard.

There's one obvious change to the keyboard. Last year we noted the Envy 13's backlight was a bit weak, and offered no level control. This time there are two intensity levels and the laptop cycles through them when you press the backlight button.

The tracked below is the source for both some of the best Envy 13 changes, and one of the biggest disappointments. HP has switched the trackpad driver, and in doing so has eradicated all the false clicks and bad scroll behaviour we just-about tolerated in the older models. The floaty action has almost entirely gone too. This is where you can depress the pad a bit before it reaches the clicker mechanism.

A much better-behaved trackpad is far easier to live with. However, HP has switched the textured glass surface of the Envy 13 2018 for textured plastic. It performs a fairly good impersonation of glass, but you can't miss the juddery swipes and tackier surface after a while.

Given the display upgrades HP has added, maybe we shouldn't grumble. But we miss the glass.

Display

On paper, the HP Envy 13's screen sounds just like that of the last model. It measures 13.3 inches across and has an IPS LCD Full HD panel.

Right from first boot-up we could tell this is a higher grade of screen than the one in the 2018 version, though. The screen looks bold and rich, where previous versions had the characteristic 'just okay' colour of a mid-range laptop. Our colorimeter thought the same. It can tell you the real colour and contrast performance of a display and the HP Envy 13 covers 97.9 percent of sRGB, up from just 78.7 percent last year. 68.2 percent coverage of Adobe RGB and 70.3 percent of DCI P3 are strong for a laptop at the price too. You'll find many models well over £1,200 that perform no better.

This colour ability is clear more-or-less from the moment you bring up the Windows 10 Start menu. The red of the Microsoft News icon looks extremely vivid and punchy, to an extent that may even seem oversaturated if you're used to a less colour-rich screen.

Contrast has improved hugely, too. We recorded 1700:1 ANSI contrast, another excellent result at any price, let alone £899. Last year's version only managed 867:1. Brightness is perhaps the most important improvement if you plan to use the Envy 13 while out of the house. Its maximum brightness is 377cd/m². Yet again, you wouldn't grumble at this at twice the price. The 2018 Envy 13 managed 281cd/m². A 35 percent increase in brightness makes the laptop much easier to use on bright days.

Right from first boot-up we could tell this is a higher grade of screen than we saw in the 2018 version



The 2019 Envy 13 is better all-round for movies, YouTube streaming and gaming as a result too. This is one of the best-performing Windows laptop screens we've ever seen at sub-£900. It's a touchscreen too, although the limited sub-135-degree rotation of the hinge means this is anything but a hybrid.

Performance

The 2019 Envy 13 uses Intel's latest CPUs, ones a 'half generation' on from those used before. HP sent us the high-end Core i7 version. It has a Core i7-8565U, 16GB RAM and a 512GB SSD. We would not recommend this version to all that many people as the entry-level model is likely to be sufficient.

Here's a summary of the models on offer:

- Core i5-8265U, 8GB RAM, 256GB SSD, MX250
- Core i7-8565U, 8GB RAM, 512GB SSD, MX250
- Core i7-8565U, 16GB RAM, 512GB SSD, MX250

Both Core i5 and Core i7 models have four cores, and are capable of just about any productivity job you push their way. We'd be happy to edit video on the Envy 13, and have edited photos with this laptop.

Want to hear something amusing? To spec up the MacBook Pro 13 to roughly the same level as this higher-end Envy 13, you have to pay over £2,000.

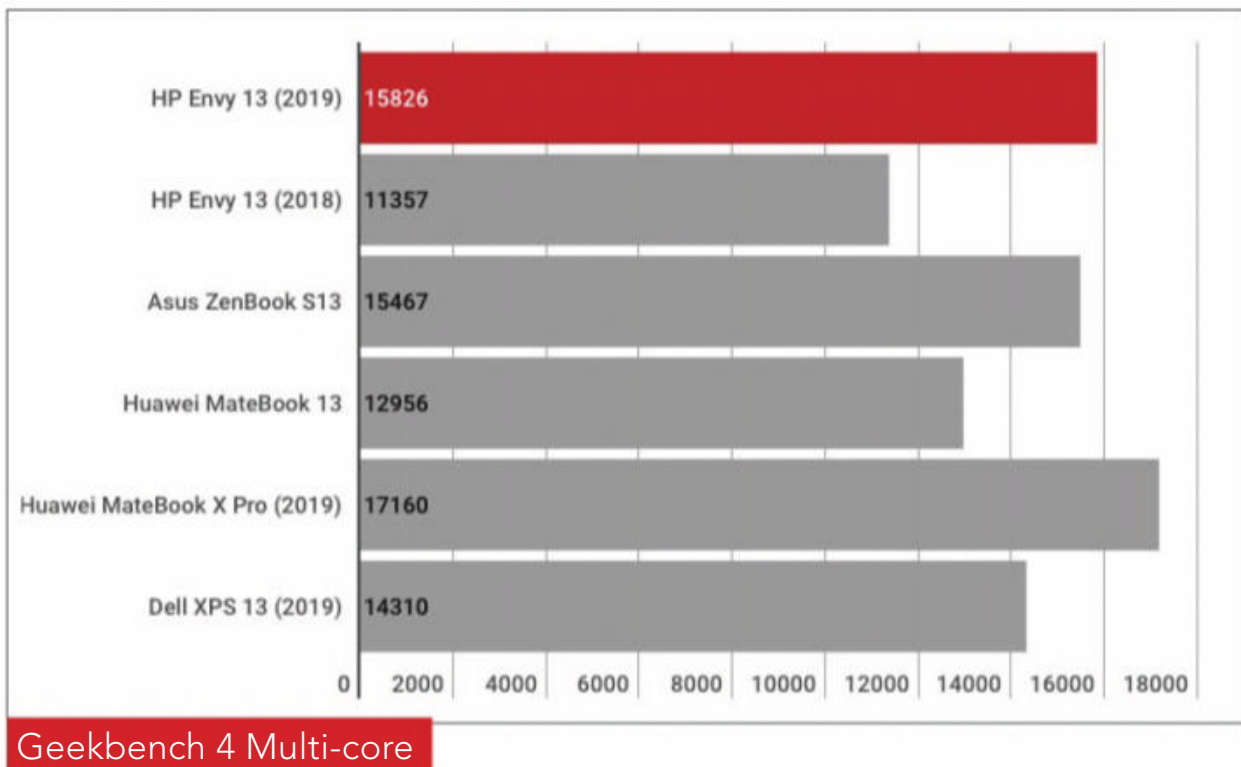
It scores 3838 in PC Mark 10. This is only slightly better than the 3759 of the Core i5 version we reviewed last year. PC Mark is designed to be a fairly contextualized test, emulating apps you might use day to day.

That performance similarity demonstrates why we recommend the cheaper Core i5 version to most. The difference is not huge in most scenarios, although a bump up to 16GB RAM is useful for all sorts of more demanding apps, as well as general multi-tasking.

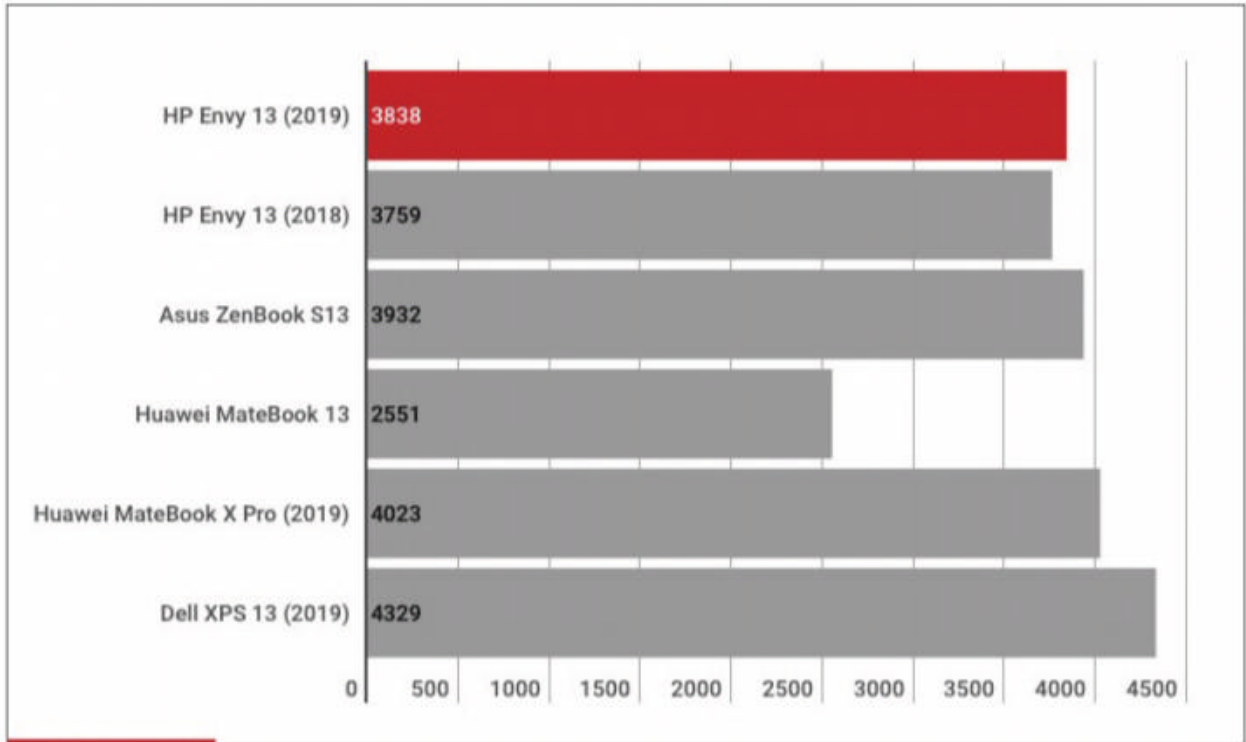
In one other respects we're slightly disappointed by the Envy 13. But it's largely Nvidia's fault.

You get Nvidia's brand new MX250 GPU. It's a low-power graphics chipset for laptops without cooling systems designed to get rid of the extra heat of a true gamer's card. Still, key rivals like the Huawei MateBook 13 and Dell XPS 13 rely on integrated graphics, and the ZenBook S13 has the older MX150.

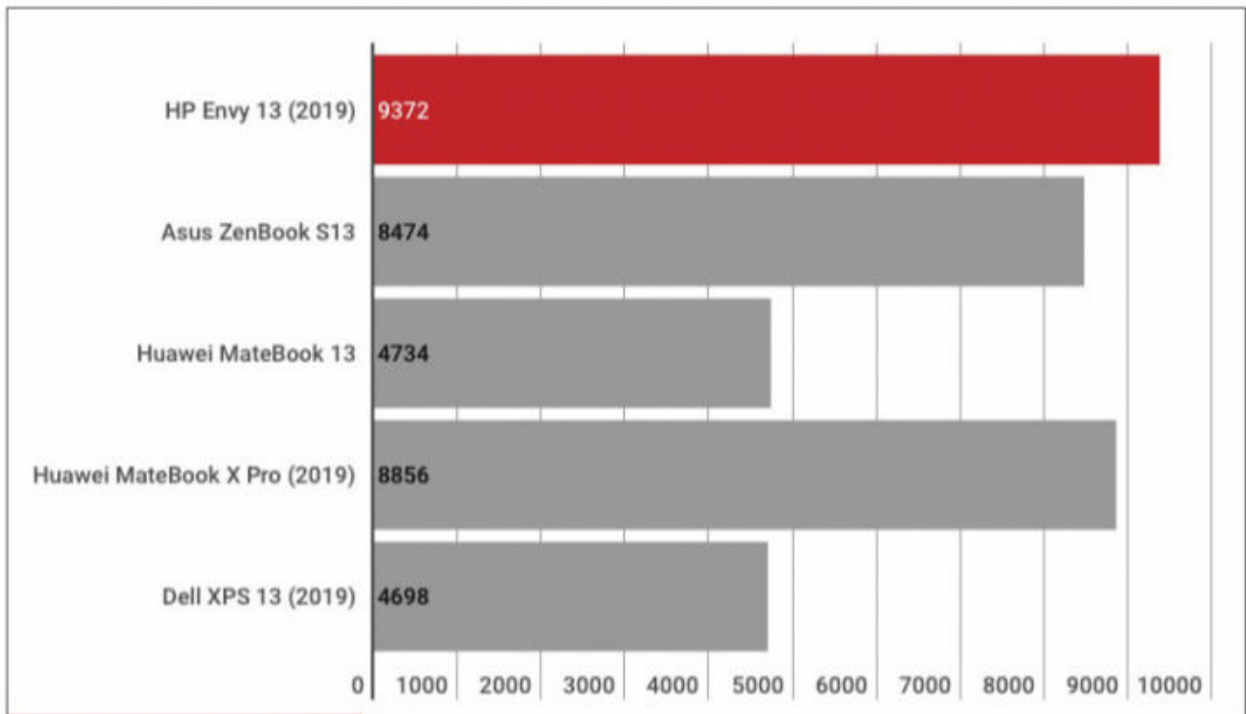
Here are our benchmarks so you can see how the Envy 13 performs against its rivals. We've included the MateBook X Pro as it also has the MX250 GPU.



Geekbench 4 Multi-core



PCMark 10



3D Mark (Sky Diver)

We hoped for some significant improvement over the MX150 used last year, but there's barely any difference. Just like the last version, the Envy 13 also gets the lower-power version of the MX250. This is no great surprise considering how slim the laptop is.

It can just about play Ghost Recon: Wildlands, at 1080p with the graphics set to 'low'. It averages 30.2fps, so you will see some slow-down in busy scenes. At 'medium' graphics this drops to 19fps, and a dismal 4.2fps at Ultra. The performance drop is compound the humble amount of video RAM.

You can play tricky games with the HP Envy 13, but only at very stripped-back settings. We also did some mild stress testing and found the 'Low' graphics 30fps result drops to 28fps after a couple of runs, suggesting some heat-related throttling.

Warhammer II runs at 21.4fps, medium settings, dropping to 12.8fps at 'high' visuals. We found you can get a much smoother 33fps average if you switch the resolution down to 720p. You can play games like The Witcher 3 on this laptop.

This is still much better than the results you'd get with the UHD 620 integrated graphics of most other laptops in this class. The HP Envy 13 isn't a laptop for gamers, but it's far better at playing games than a lot of thin and light models.

Connectivity and audio

You get two full-size USB 3.0 ports, a microSD slot (very rare these days) and a USB-C 3.1 socket. The power adaptor is separate too, so the USB-C is not taken up when charging.

The HP has decent connectivity options



HP also includes a USB-C adaptor. It's a little breakout cable with an HDMI socket. There's even a webcam 'kill switch' on the side, handy if you're worried about hackers accessing the Envy 13 camera. It's worth noting that the USB-C port does support Thunderbolt 3 though, which is a shame.

The HP Envy 13 speakers are Bang & Olufsen branded, like those of several other HP laptops. This is no guarantee of quality, but we're fairly happy with the results here.

There's a hint of bass to give kick drums actual representation, solid mid-range presence and perfectly respectable volume on tap. At high volumes there's a little mid distortion with some content, but considering this is not a 'money no object' laptop we're just happy these speakers make movie soundtracks listenable.

Battery life

HP also seems to have improved battery life a little with this generation. We found the last Envy 13 lasted

nine hours between charges. This one lasted 10 hours one minute, playing the same video on loop at 120cd/m². According to a Windows 10 battery report, the laptop has a 53.6Wh battery, only fractionally larger than the last model.

Whether down to luck, peculiarities of the air temperature or genuine efficiency savings, this appears to be a commendably long-lasting laptop considering it has a quad-core Intel Core CPU inside.

Verdict

The HP Envy 13 is in some ways a very routine update of a crowd-pleaser laptop.

HP hasn't changed the design fundamentals. And it's not even much more powerful than the last, especially considering the CPU and GPU have both been upgraded. You can blame Intel and Nvidia for that.

However, HP has improved it in other ways. Display quality is much improved and the trackpad has been entirely tamed, with new drivers and a tweaked pad design. We lose out too, though, as the glass surface of the old model has been replaced with plastic.

You win some, and lose some. But the HP Envy is still one of the very best 'mid-range' laptops.

Andrew Williams

Specifications

- 13.3in (1,920 1,080) Full HD 165ppi IPS LCD glossy
- Windows 10 Home
- 1.8GHz Intel Core i7-8565U (4.6GHz boost) 4 cores, 8 threads
- Nvidia GeForce MX250 2GB GPU

- 16GB 2133MHz DDR3 RAM
- 512GB SSD
- 802.11b/g/n/ac 2x2 MIMO
- Bluetooth 4.1
- 1x USB-C 3.1
- 2x USB 3.1
- microSD card slot
- Stereo speakers
- HD webcam
- Single mic
- 3.5mm headset jack
- UK tiled keyboard with numberpad
- Two-button trackpad
- 53.6Wh lithium-ion battery, non-removable
- 307x212x14.5mm
- 1.27kg

2. **Dell XPS 13 9380 (2019)**

Price: £1,169 from [fave.co/2y0briC](https://www.fave.co/2y0briC)

When the big news surrounding the latest version of the Dell XPS 13 is its camera position, that's both good and bad. It's good because the camera is one 'feature' that some customers (and competitors) have used to batter what has otherwise been the most trend-setting laptop of recent memory.

If you recall, the original Dell XPS 13 9343 from 2014 crammed a 13.3in laptop into the space an 11in laptop would normally occupy. Dell relied on 'InfinityEdge' bezels to shrink the foot print of the XPS 13 to unbelievable levels. Just about every laptop maker now offers their own narrow bezel designs.



Dell has moved the camera above the screen

But Dell's implementation compromised convenience for slimness, moving the camera around the bottom bezel. No more. After years of mocking, it has thrown in the towel and moved the camera above the screen, though in doing so the XPS 13 9380 lost the ability to use your face to sign into Windows Hello.

The bad news? The camera's movement overshadows other upgrades in the Dell XPS 13 9380. You'd hardly know the XPS 13 packs Intel's newest ultra-low power consumption Core i7-8565U, for instance – the first laptop we've tested with this 'Whiskey Lake U' chip. Beyond a fair performance bump, other changes in the CPU include native support for USB 3.1 10Gb/s and integrated Wi-Fi support (except for the radio).

If you're thinking "that's it?" then, well, you can understand all the excitement over moving the Dell XPS 13's camera to the top bezel. So let's start there.



Dell caved and moved the camera to top bezel on the new XPS 13 9380

Camera

Dell wasn't about to give up the narrow bezels to fit the camera in, so it opted for a 2.25mm diameter camera using four elements, compared to typical three element cams. The camera is also built using the same precision usually reserved for higher-end smartphones, the firm says, and sharper in corners than previous designs.

We compared the new XPS 13 9380's camera against the XPS 13 9370, which positioned its camera in the middle of the bottom bezel, and also against the XPS 13 9360, which put its camera in the lower-left corner.

For the tests, we positioned all the laptop screens at similar angles, with our hands on the keyboard. Our eyes were on the same spot on the screen: dead centre, where you'd be looking in a video conference.



The first image is from the XPS 13 9360's lower-left corner camera



The XPS 13 9370 put the camera in the middle of the bottom bezel

It gets somewhat better with the XPS 13 9370 and its low-centre-mounted camera, but then you can see when someone needs a manicure and some hand lotion. If you don't mind your colleagues sniggering that you must be working as a dish washer on the side, then this positioning is okay, though you also get a good amount of 'turkey neck' at this angle.

Finally, we have the new Dell XPS 13 9380's conventional top-mounted camera. While we actually prefer the exposure of the previous images, the new camera's position is a vast improvement because it looks like we're paying attention to our three bosses. It also minimizes turkey neck and doesn't let colleagues gawk at your chapped hands.

As we mentioned, the new XPS 13 9380 ditches infrared support for Windows Hello, but Dell does



The newest XPS 13 9380 finally moves the camera to the top bezel

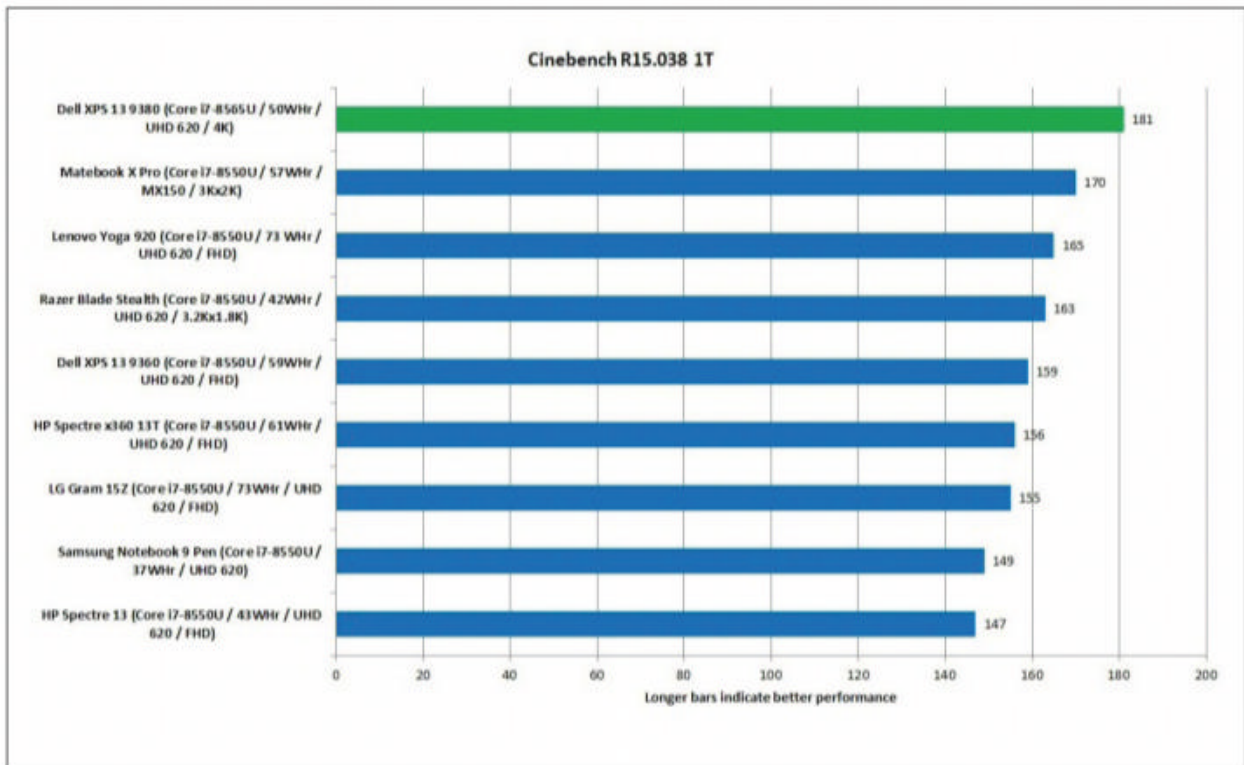
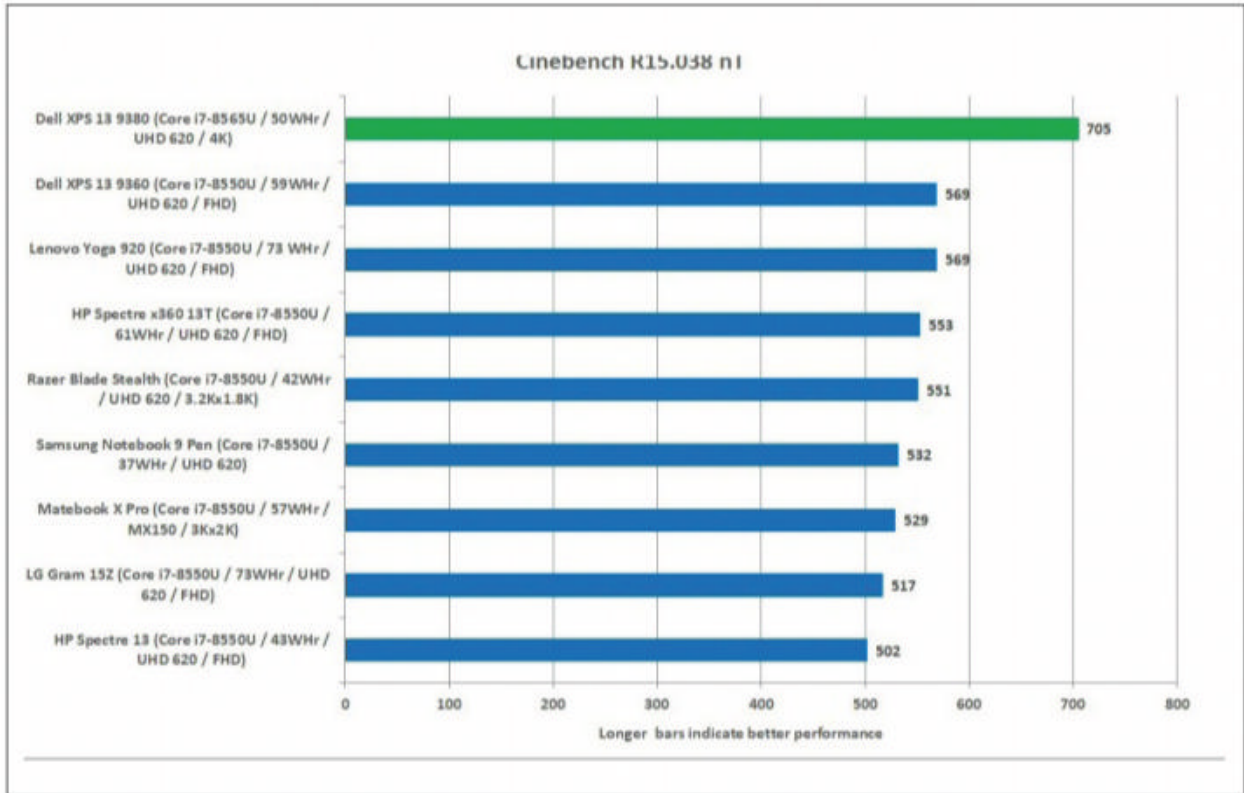
offer a finger-print reader integrated into the power button as an option.

Whiskey Lake U performance

There's one more very important thing inside the XPS 13 9380 that nerds care about: performance. It is the first laptop we've reviewed with Intel's Whiskey Lake U Core i7-8565U. The 14nm chip is essentially an improved version of the 14nm Kaby Lake R used in other 8th-generation CPUs. The performance bump mostly comes from higher clock speeds. Thanks to whatever magic Intel has mustered, Whiskey Lake U can run up to 500MHz faster than its predecessor. The other change is actual hardware mitigation against the Meltdown exploits that boiled over last year. Intel's previous laptop CPUs featured security updates applied

The Dell XPS 13 9380 shows just how much smaller you can make a 13in laptop over a much older and definitely unfashionable 13in laptop with wide bezels





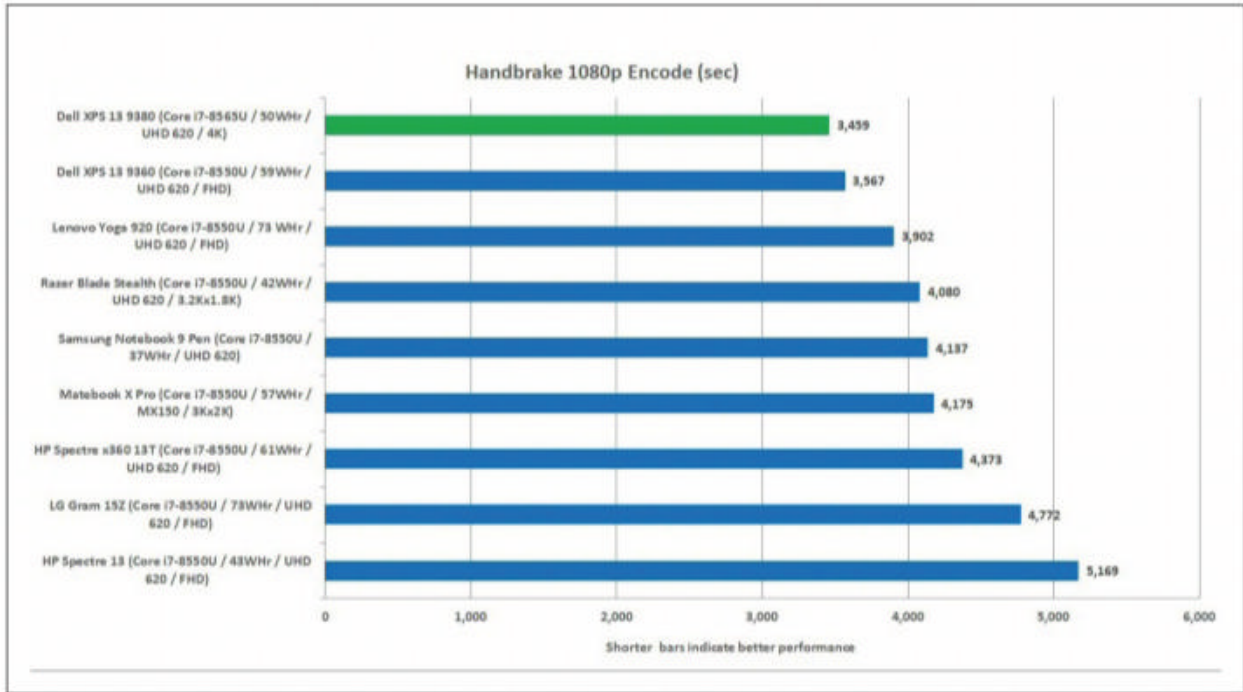
through firmware only. Whiskey Lake implements changes in hardware against Meltdown Variant 3 and Variant 5. But the biggest hit to performance, Spectre Variant 2 fixes, won't change much.

Our first test is Maxon's Cinebench R15. It's a free benchmark based on Maxon's older Cinema4D rendering engine. The test is multi-threaded and probably isn't what most XPS 13 9380 users will run, but it's still a fair representation of what you're likely to see from the laptop and CPU in shorter multi-threaded workloads. Those occasional multi-threaded tasks in Excel or that rare multi-threaded Adobe Photoshop filter would likely see similar performance bumps.

For comparison, I rounded up Cinebench scores from eight Kaby Lake R, Core i7-8550U laptops of varying sizes and shapes. As you can see, the new Dell XPS 13 9380 has about a 20 percent multi-threaded performance advantage. We can attribute some of that to the new Dell XPS 13 9380 design's upgraded cooling – more cooling usually means more performance – and some to the higher clocks that the Whiskey Lake U chip can run at.

But Cinebench R15's view of multi-threaded performance probably doesn't reflect much real-world usage. The vast majority of software and games that people use relay a single-thread or two – especially on a 13in laptop. To get a better gauge of how Google Chrome or Microsoft Word will respond, we again rely on Cinebench, but measure performance on a single-thread.

Here, the performance gap closes between the 8th-gen Kaby Lake R laptops and the 8th-gen Whiskey



Lake U in the XPS 13. The Kaby Lake R Core i7 is only about 13 percent slower on paper than the Whiskey Lake U. A win is a win though, and the XPS 13 9380 still tops the chart.

Both of the previous loads test fairly short runs. Since laptops have limited ability to dissipate heat, their CPUs have to run at slower clocks when they're under a sustained load. To test a longer task, we use Handbrake 0.9.9 and transcode a 30GB 1080p MKV file using the built-in Android Tablet preset. The workload takes around an hour or more for laptops to complete.

Besides measuring CPU performance, this test also lets us gauge how well laptops deal with heat. Some laptop makers decide to crank up fan speeds or crank down clock speeds. Others decide to let the shell of the laptop heat up, too. Dell tends to swing for the fences in performance and you see that reflected here.

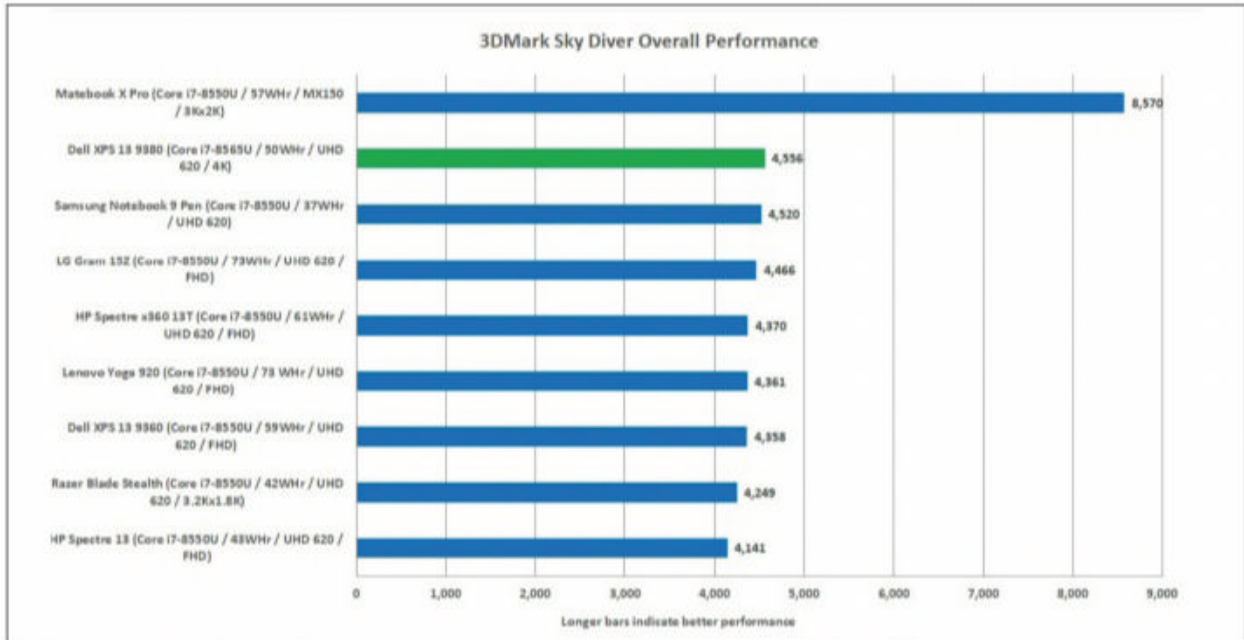
The Dell XPS 13 9380 and its Whiskey Lake U come in first place, but the older XPS 13 9360 with its Kaby Lake R chip isn't that far behind. The larger 14in Lenovo Yoga 920 is about 12 percent slower than the new XPS 13 9380, and the Razer Blade Stealth is 16 percent slower. Again, much of what you see here is represented by the available cooling, how much space there is for that cooling, and what the laptop maker opts to prioritize.

The last to cross the finish line is the HP Spectre 13, which finishes a whopping 39 percent slower than the new XPS 13 9380. The reason is simple: HP touted the Spectre 13 as the "thinnest laptop" in the world at just over 10mm thick. Well, you don't get there without compromises. In fact, the Spectre 13 isn't the thinnest in the world anymore as Acer's Swift 7 now claims that at 8.98mm thick, and with its Core i7-7Y75 CPU it's even slower than the Spectre 13.

Graphics performance

While Dell's new XPS 13 9380 is technically faster than its predecessors in overall 3DMark Sky Diver performance, it's really a tie, isn't it? As you can see, they're almost all the same except for small differences due to thermals and run-to-run variances. The fastest is Huawei's MateBook X Pro but it features a discrete GeForce MX150 GPU.

But can you game on the Dell XPS 13 9380? Sort of. Intel's integrated graphics have become steadily better over the years, but to play games you'll need to play at 720p resolution at Low graphics settings, or possibly Medium settings in older games. To really get your



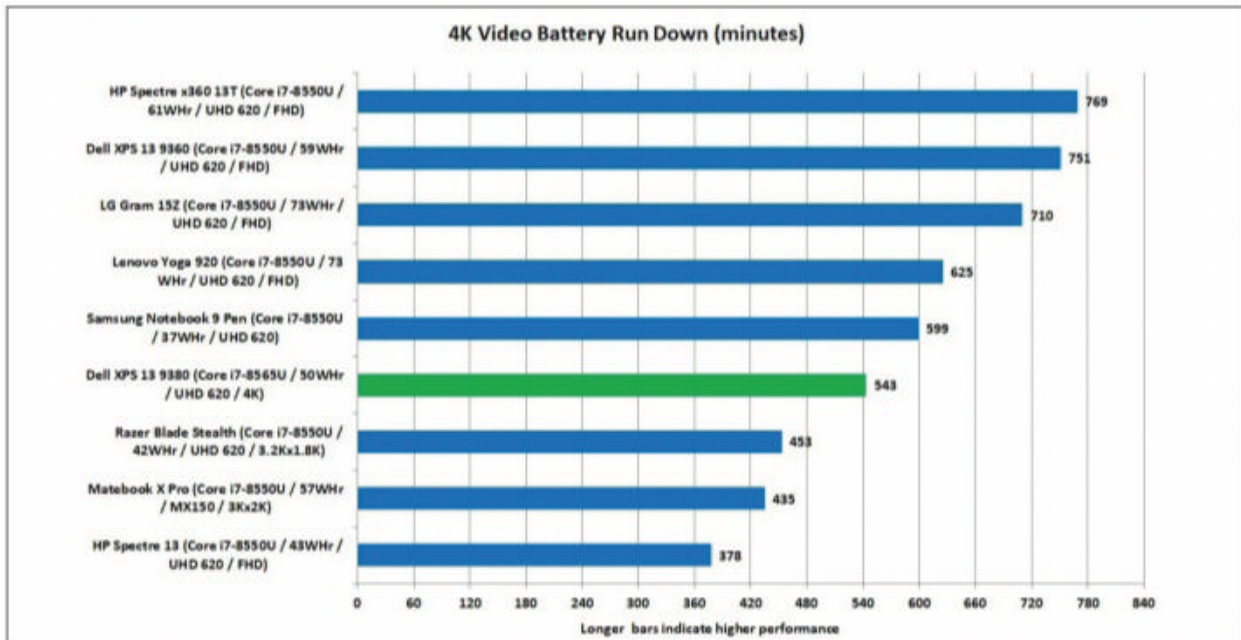
Just how boring has the performance curve of Intel's integrated graphics been? You can see that one UHD 620 laptop is essentially the same as all the others

game on with the XPS 13 9380, we recommend picking up an external Thunderbolt 3 graphics box.

Battery life

Our final cross-vendor platform test looks at one of the most important categories for laptops: Battery life. We set the screen at a relatively bright 250- to 260 nits and then loop a 4K video on airplane mode until it dies. For audio, we use a pair of analogue earbuds to minimize differences from the speakers. It basically mimics what you'd get trying to watch a movie in a well-lit office building.

Among all of the tests we ran, this is the only one where the XPS 13 9380 loses, but you shouldn't be surprised. There's a battery penalty to be paid for



The battery life of the new XPS 13 9380 is decent for a 4K laptop, but you'd probably get another few hours of run time for opting for a lower-resolution XPS 13 9380 with the 1920x1080 or FHD screen instead

having a high-resolution 4K touchscreen. In fact, if you look at the results closely, you'll see that most of the laptops on the bottom of this list feature higher-resolution panels. The XPS 13 9380's screen contains about 8.3Mp, the Razer Blade Stealth is about 5.7Mp, and the MateBook X Pro packs 6Mp. Generally, the more pixels, the more work it takes to achieve the same brightness as a lower-resolution screen, so a typical 1,920x1,080 panel and its mere 2Mp can be a huge power advantage.

Dell's XPS 13 9380 does pretty well at about nine hours of playback. With its pixel density that's really not as bad as we expected. (It gets bright, too, at 400 nits maximum.) Still, compare that to 12 hour-plus endurance of the HP Spectre x360 13t

and Dell XPS 13 9360 and you really wonder if the 4K panel is worth the trouble.

We generally don't recommend the 4K option for small laptops, but consumers like the 'sound' of 4K so it's there. We suspect that if you opted for the 1080p version, you'd definitely add another few hours of playback, and won't likely be disappointed by the lower resolution.

Coil whine

While we've long loved the XPS 13 series, there have been off and on reports of 'coil whine'. This is essentially electrical noise that's audible to your ears. Most high-performance video cards and other computer equipment can have coil whine.

The XPS 13 (and the XPS 15 in particular) have been often criticized for 'excessive' whine. One problem with



judging coil whine is that it's often not always the same from laptop to laptop – some units might have it, while others won't. It doesn't help gauging the problem when some people can hear it and some can't, either.

The XPS 13s that we've tested over the years haven't exhibited coil whine – until now. The Dell XPS 13 9380 emitted a coil whine perceptible in a quiet room. The whine seemed to emanate from the left side of the unit, but we should note that it was intermittent and in an office environment. We had to put our head almost on the keyboard to hear it.

Is it something we think you should be concerned about? Probably not, but we'd be remiss if we didn't mention it.

Verdict

Most will dismiss the Dell XPS 13 9380 as a 'meh' update. We'd tend to agree, as the CPU update offers a small (albeit real) performance bump. The problem with that narrative is it ignores the position of the strength the XPS 13 comes from. The previous model reigned as most everyone's top ultra-thin laptop, including our own – until you got to the webcam placement. By taking that criticism away, the already-great Dell XPS 13 9380 is a better laptop.

While the version we're reviewing today is over the top with its 4K panel, 16GB of RAM, 512GB SSD, Core i7-8565U, and Windows Home, you can expect similar performance in versions with smaller SSDs and lower-resolution displays. In fact, we'd probably recommend those first unless you absolutely are set on the 4K panel. **Gordon Mah Ung**

Specifications

- 13.3in 4K Ultra HD (3,840x2,160) InfinityEdge Touch display
- Windows 10 Home (64-bit)
- 8th gen Intel Core i7-8565U processor
- Intel UHD Graphics 620 GPU
- 16GB LPDDR3 RAM
- 512GB M.2 PCIe NVMe SSD
- 802.11ac Wi-Fi
- USB 3.1
- Thunderbolt 3
- Bluetooth 4.1
- 3.5mm headphone jack
- microSD slot
- HD webcam
- 302x199x11.6-7.8mm
- 1.23kg

3. Microsoft Surface Laptop 2

Price: £1,249 from fave.co/2Q4wMCj

In 2017 Microsoft introduced its first traditional own-brand clamshell laptop. Now it's back with a refreshed model with 8th-generation Intel and a brand-new colour.

Price

Microsoft has sensibly kept the price of the Surface Laptop 2 the same as its predecessor. Various options are available, so you can get your hands on one without breaking the bank. We reviewed the £1,249 version.

Here's a list of the different models:



The Surface Laptop 2 is exactly the same size and shape as its predecessor

£979: Core i5, 8/128GB

£1,249: Core i5, 8/256GB

£1,529: Core i7, 8/256GB

£2,079: Core i7, 16/512GB

£2,529: Core i7, 16GB/1TB

Which one you'll want depends on your personal needs, of course. However, we don't think the average users will have to go beyond the Core i5 with 256GB of storage. It's worth noting that Microsoft is still selling the original Surface Laptop for a very tempting £649 at fave.co/2PGU41I.

Design

The Surface Laptop 2 is exactly the same size and shape as its predecessor. Not changing the design



might make it hard to tell it apart from the first generation model, but considering we loved the original, we're not too fussed. It doesn't look dated, and it still feels like a premium laptop.

It measures 308.02x223.2x14.47mm and weighs 1.25kg, so it's perfectly portable. The aluminium casing is sturdy and well-made, and the Alcantara fabric around the keyboard adds a distinctive touch of luxury. What it looks like after months and months of use is another matter, though. If you're worried, then buying one of the darker models is a better bet. It's available in Black, Platinum, Burgundy, and Cobalt Blue.

When it comes to the keyboard and trackpad, they're also the same as those found on the previous Surface Laptop. We liked them before and still do

now. The keys are nicely spaced and sit in a sunken section, so are flush with the palm rest. You get a nice smooth action when typing and there's a three-level backlight. Our only complaint is that the keyboard flexes too much towards the centre.

The trackpad is exactly what you want – a decent size, smooth and responsive. The integrated buttons still make a loud click, but it's not a big deal.

Display

The Surface Laptop 2 has a 13.5in PixelSense display with a resolution of 2,256x1,504 and 201ppi. The aspect ratio of 3:2 is squarer than the traditional 16:9, but works well for editing word documents and spreadsheets, if not watching video.

Having touch input (10-point) can be useful, and Microsoft's laptop is compatible with the Surface Pen (£99 from [fave.co/2z8vewH](https://www.fave.co/2z8vewH)), with its 4,096 levels of pressure sensitivity. It's an optional extra though, as is the Surface Dial (£89 from [fave.co/2PDXwKI](https://www.fave.co/2PDXwKI)), which can only be used off-screen here.

The display is crisp and colourful, though we would have liked smaller bezels, which would allow a larger screen size within the same chassis.

Processor

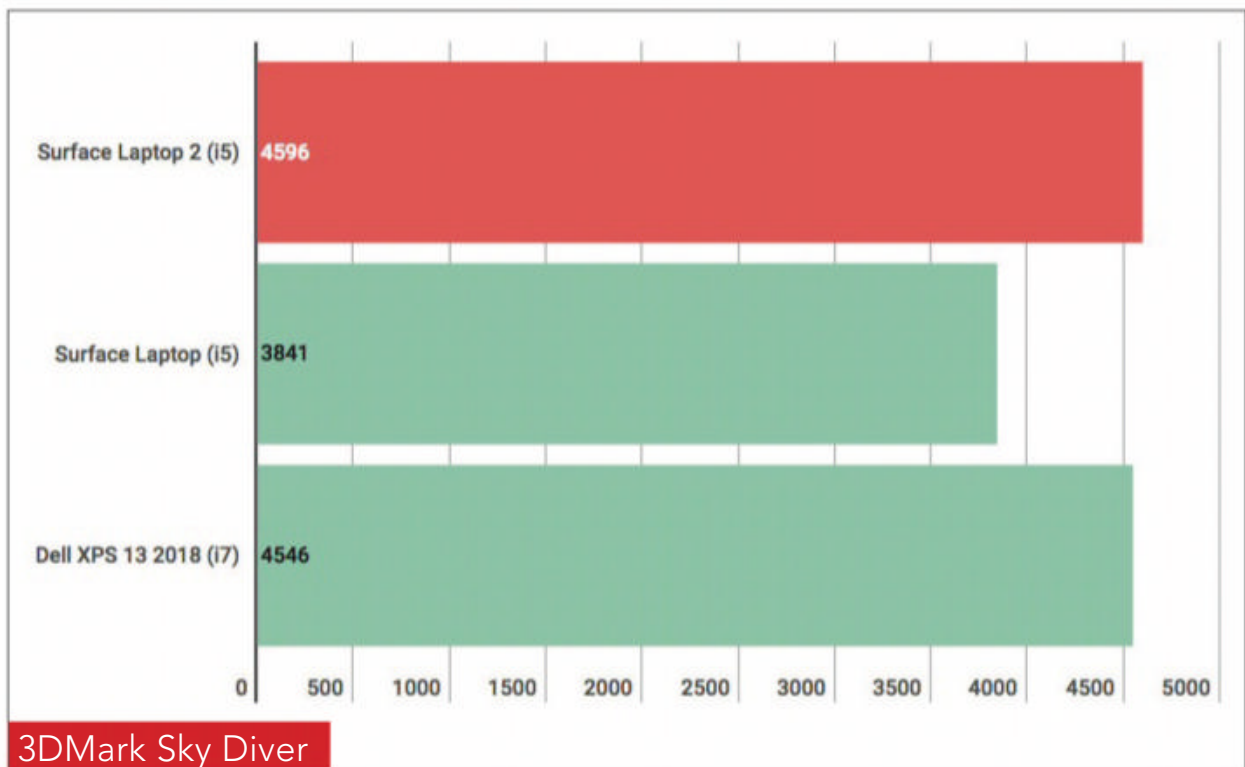
The major change in the Surface Laptop 2, apart from the new black model, is an upgrade in the engine room. Microsoft has, as you would expect, fitted an 8th-generation Intel processor in contrast to the 7th-generation chip used in the original Surface Laptop. They still use the Kaby Lake architecture, but have R on

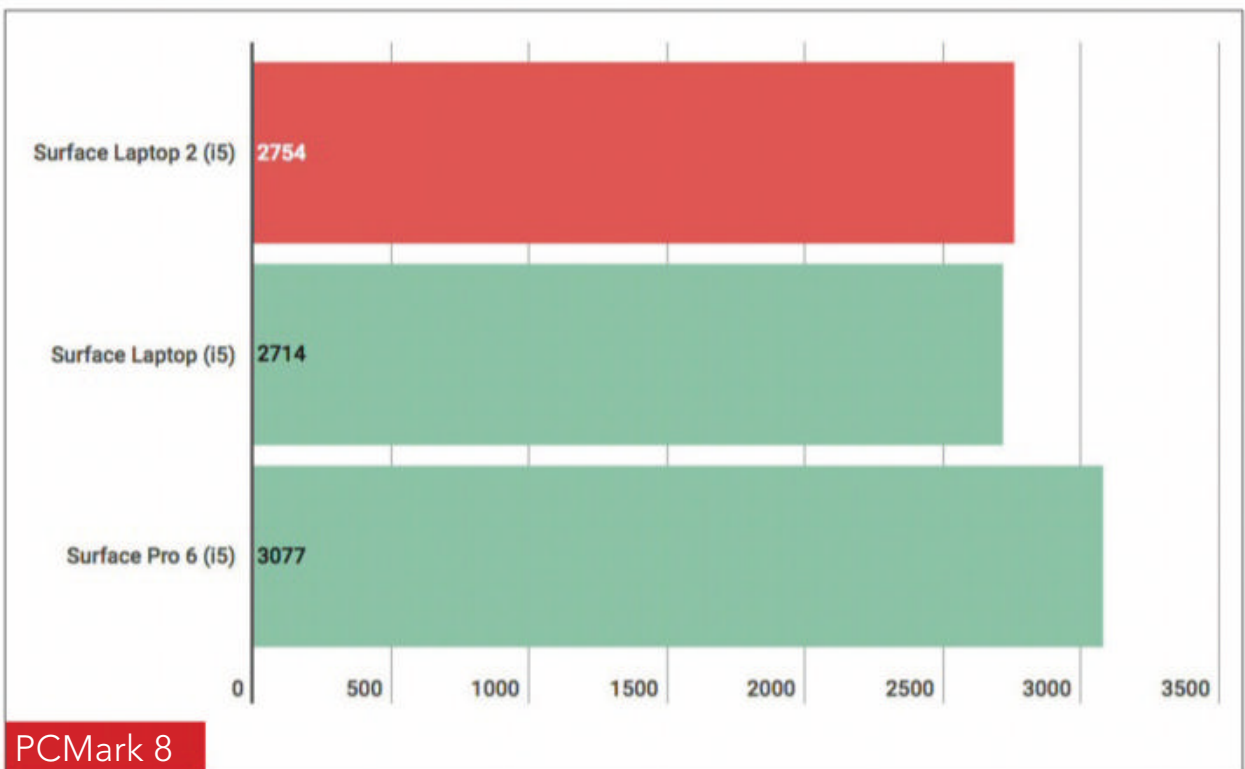
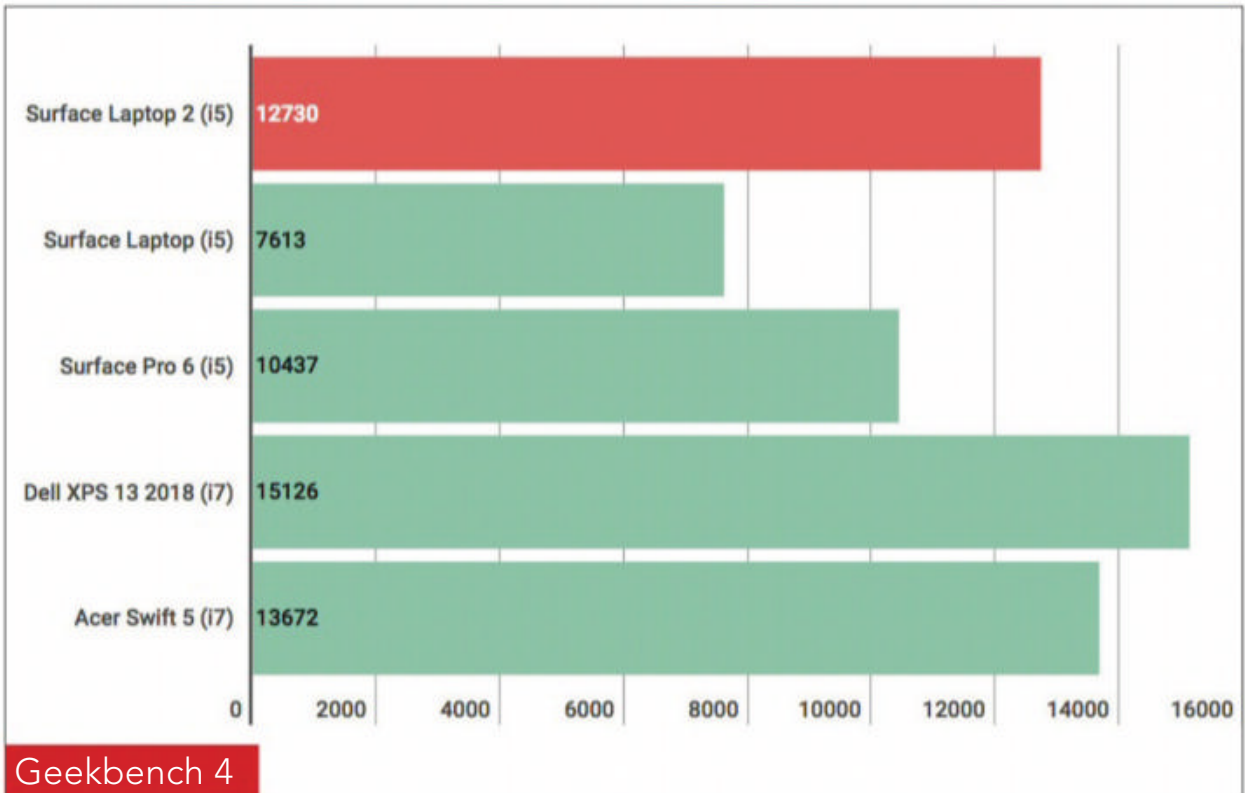
the end for 'refresh'. The main difference is a jump from dual- to quad-core and there's a choice of two chips:

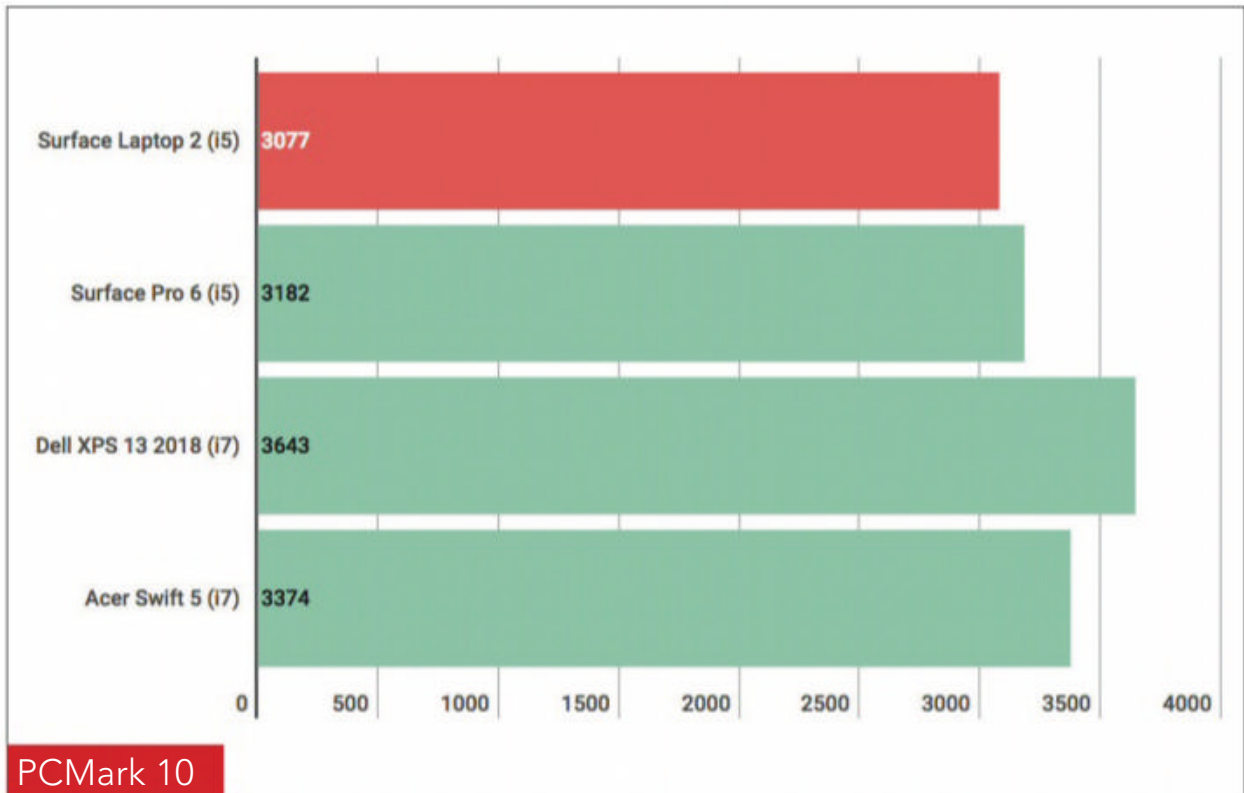
- Core i5-8250U, 1.6GHz (3.4GHz Max Turbo)
- Core i7-8650U, 1.9GHz (4.2GHz Max Turbo)

The amount of memory has also doubled, so you get at least 8GB, while the top two models have 16GB if you should need it. The final thing on the core list is storage and there are four capacities to choose from – 128-, 256-, 512GB or 1TB.

Choosing the right model can be tricky, especially when it comes to the processor and memory. If you can't work out whether you should plump for a Core i7, then ask yourself if you're going to use the Surface Laptop 2 for demanding tasks, such as video







editing, CAD software, or higher end gaming. If the answer is yes, then splashing out could save you time and frustration. Doubling up to 16GB of RAM will also help with 3D modelling, for example, though 8GB will be enough for the likes of Adobe Photoshop.

As we touched upon earlier, the Core i5 model is fine for most consumers looking to browse the Internet, run office software and do some casual gaming – especially now it’s quad-core. You just need to pick how much storage is enough. It’s a shame Microsoft charges an extra £270 to go from 128- to 256GB, though it might be worth it in the long run, remembering that Windows 10 takes up some of the storage.

When it comes to performance, Microsoft claims that the Surface Laptop 2 is a whopping 85 percent

faster than its predecessor. That's not what we've found, but there's still a sizable jump in Geekbench 4 and 3DMark.

In PCMark 10, the score is decent (we've included some rivals to compare as well as the Surface Pro 6), but our score in PCMark 8 is oddly low, showing almost no improvement.

Battery life

We were blown away with the battery life on offer with the original Surface Laptop. It lasted a whopping 16 hours, which was more than Microsoft's claim of 14 and a half hours, and the best we'd seen from any laptop. This time, the battery life claim is exactly the same despite a change in hardware. In our identical test – looping a 720p video at 120cdm² (50 percent brightness) – the Surface Laptop 2 lasted a more modest 12 hours and 41 minutes.

A drop is obviously not what we want to see, but this is still a decent result and we'll take it considering the boost in computing performance.

Connectivity

There's more to the Surface Laptop 2 that is the same as last year's model. You get the same 720p webcam, stereo microphones and 'Omnisonic' speakers with Dolby Audio Premium. It also offers the same array of ports, of which there are not many beyond the proprietary Surface Connect port used for charging. There's still no USB-C or SD card slot which is a shame. Instead, you get a headphone jack, Mini DisplayPort and a lone USB 3.0 socket.

Software

One criticism of the original Surface Laptop was that it came with Windows 10 S, which namely meant only being able to install applications from the official store. That's not what Windows users want or expect, and although an upgrade to Pro was available for free, it wasn't an ideal situation.

For the Surface Laptop 2, the firm has opted for Windows 10 Home, which is a much better solution. Getting the operating system we all expect on a Microsoft own-brand laptop is the way it should be. There's no bloatware and you can make use of things such as Windows Hello to log in and Cortana.

Verdict

Microsoft might not have given the Surface Laptop an overhaul with this new model, but not much needed changing. The main upgrades are the new Intel processors and getting at least 8GB of RAM, both of which combine for a nice boost in performance. The black colour is the other major change and looks stunning. We'd like more ports and the battery life has taken a dip, but the specs boost makes this worth it. If you stick to one of the cheaper models, which should be fine for most consumers, then this is still one of the best laptops around. The slight spanner in the works is that you can now get the original for just £649, which is very tempting if you're trying to save money and don't need the newer specs. **Chris Martin**

Specifications

- 13.5in (2,256x1,504; 201ppi) PixelSense Display,



The Surface Laptop 2 looks fantastic and is portable enough for you to carry around with you

- aspect ratio 3:2, 3.4 million pixels
- Windows 10 Home
- Microsoft Office 365 30-day trial
- Surface Pen enabled
- Compatible with Surface Dial off-screen interaction
- 10-point multi-touch
- Corning Gorilla Glass
- 8th Gen Intel Core i5 or i7
- Intel UHD Graphics 620
- 8GB, 16GB RAM
- 128GB, 256GB, 512GB/1TB SSD
- 720p HD camera (front-facing)
- Stereo microphones
- Omnisonic speakers with Dolby Audio Premium
- 3.5mm headphone jack
- USB 3.0
- Mini DisplayPort

- Surface Connect port
- 802.11ac Wi-Fi wireless networking
- Bluetooth 4.1
- Up to 14.5 hours video playback
- 308.02x223.20x14.47mm
- 1.25kg
- 12 months in-store support and technical assistance

4. **Asus ZenBook S13**

Price: £1,499 from fave.co/2x8ujeL

Asus is further cementing its position as one of the most interesting laptop manufacturers on the market, proving that it's not afraid to take risks and try out new form factors.

Take the ZenBook S13. The almost bezel-less design makes it look extremely clean and tight, and the inclusion of the 'reverse notch' places the webcam in a space where it doesn't increase the size of the top bezel. It's one of the more interesting designs we saw at CES 2019 – where the device launched.

After using the laptop intensively for two weeks, including putting it through its paces as my main device while covering E3, I'm happy to confirm that this is a laptop that's as powerful as it is portable and should meet most users' needs – as long as you can afford it.

Design

When looking at the device for the first time, the biggest impression comes from the screen. The bezels are almost non-existent on the sides and also on the top, making the viewing experience extremely

The ZenBook S13's almost bezel-less design makes it look extremely clean and tight



slick as the display almost touches the edges of the laptop. This design allows for a staggering 97 percent screen/body ratio on the 13.9in display, which is only FHD but very pretty to look at nonetheless.

A maximum brightness of 400 nits puts it at the upper end of most laptops we've tested, and contrast and colour reproduction have impressed, too. The only real downside is the glossy finish, which means that even with that brightness it can still be a slight struggle to use outside or in other bright, glare-filled conditions.

It's what's above the screen that matters more, though. The webcam is held within a notch that protrudes from the centre of the top bezel – an inverse of what you're probably used to seeing cutting into the displays of most modern phones. It's small enough



to still fit within the design and works very well thanks to the gently curved edge – it also provides a little lip that you can use to open the lid too, which is more useful than you may imagine in a time of extremely slim design and small form factors.

There are a couple of little design details that make the S13 feel very tailored and premium. The diagonally brushed aluminium on the keyboard deck and the cut line above the function keys make it stand out just that little bit more from the vast array of laptops on the market these days, though I'll admit that the silver finish on the lid is a little too shiny and garish for my tastes – your mileage may vary.

Like most of the modern Asus laptop line it also has the company's ErgoLift hinge – a slightly odd-looking design that I nonetheless love, as it gently lifts the keyboard up to a comfortable



typing angle while clearing space below the body, improving both cooling and audio performance.

The keyboard is comfortable and responsive, with a surprisingly deep travel, and it sits somewhere in the middle of the clicky-mushy spectrum. The wide trackpad is a little more of a let down, though: it works well, but there's a slight drag to the finish, a friction every time you slide your finger across. There's also a fingerprint sensor built into the top-right corner. This is quick and reliable, though we would prefer it built into the power button or elsewhere on the body, rather than taking up trackpad space.

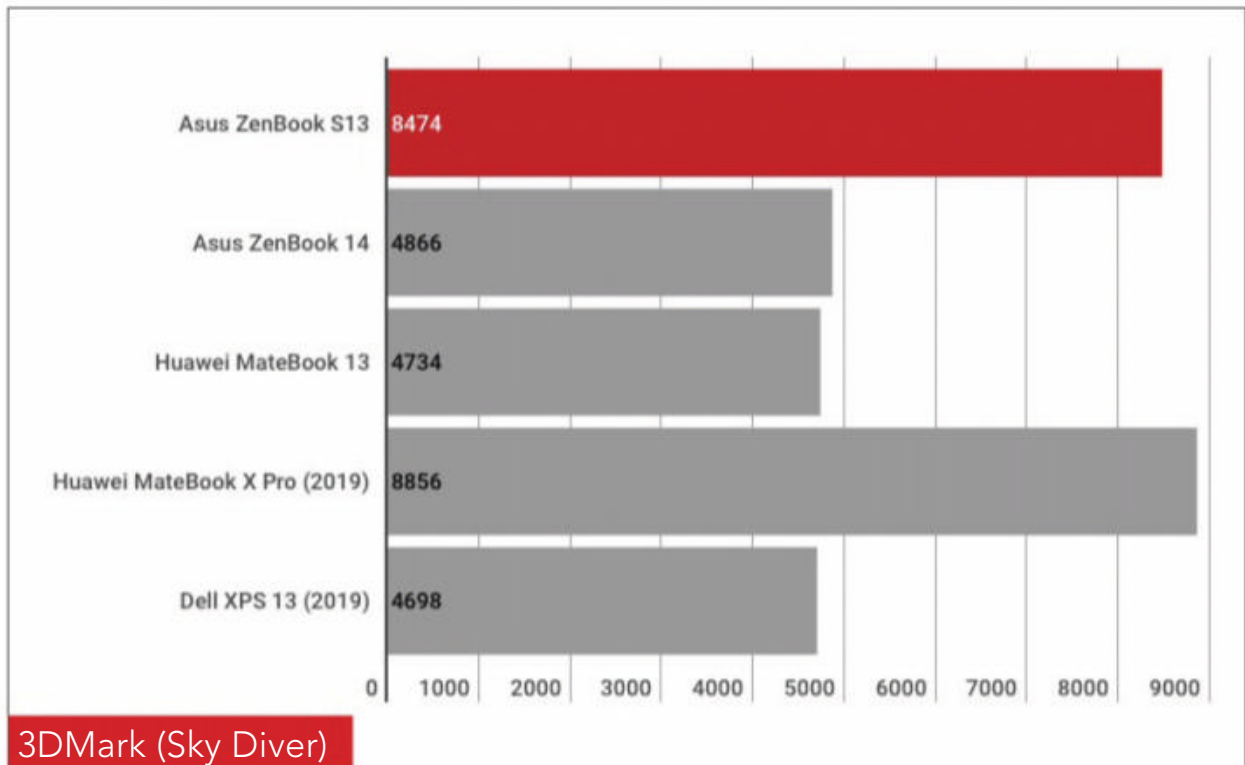
The S13 is also absolutely tiny: at 316x129x19.5mm and weighing just 1.1kg this is about as portable a laptop as you're going to get with what is almost a 14in display – essentially it's a 14in laptop in the body of a (small) 13in one, which is a major achievement.

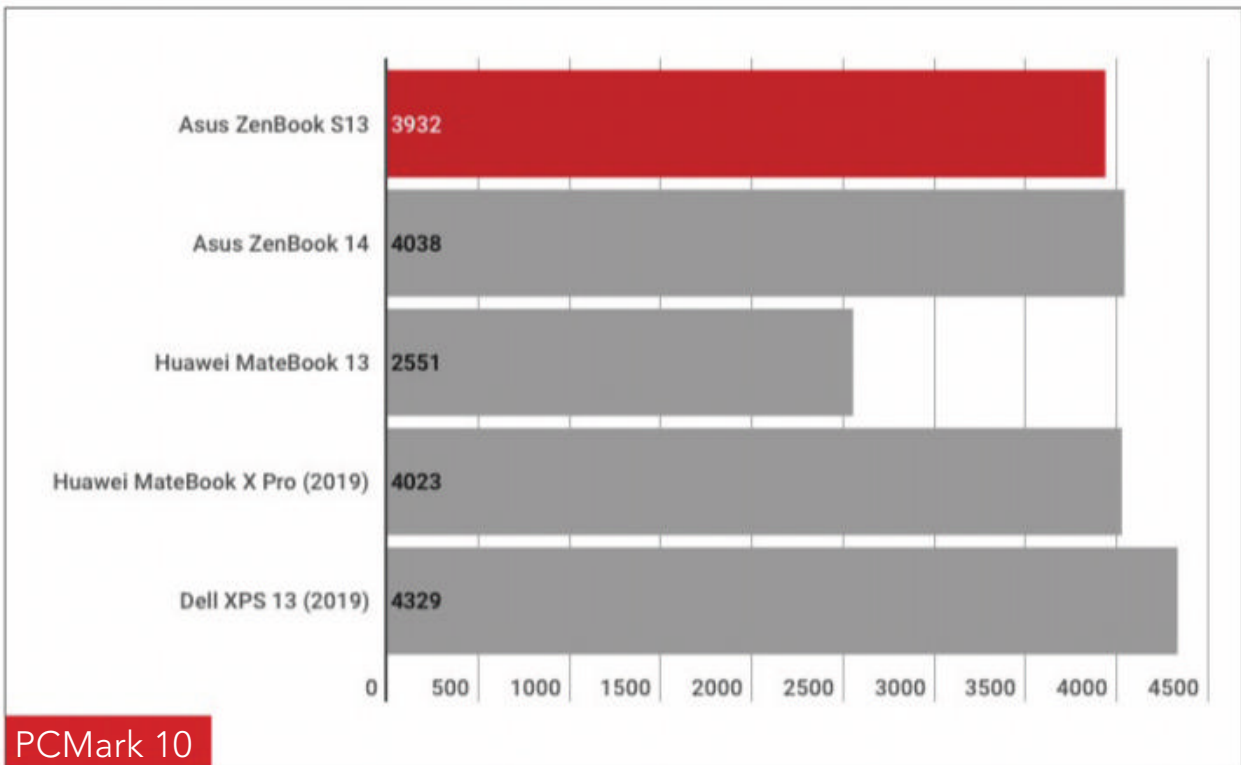
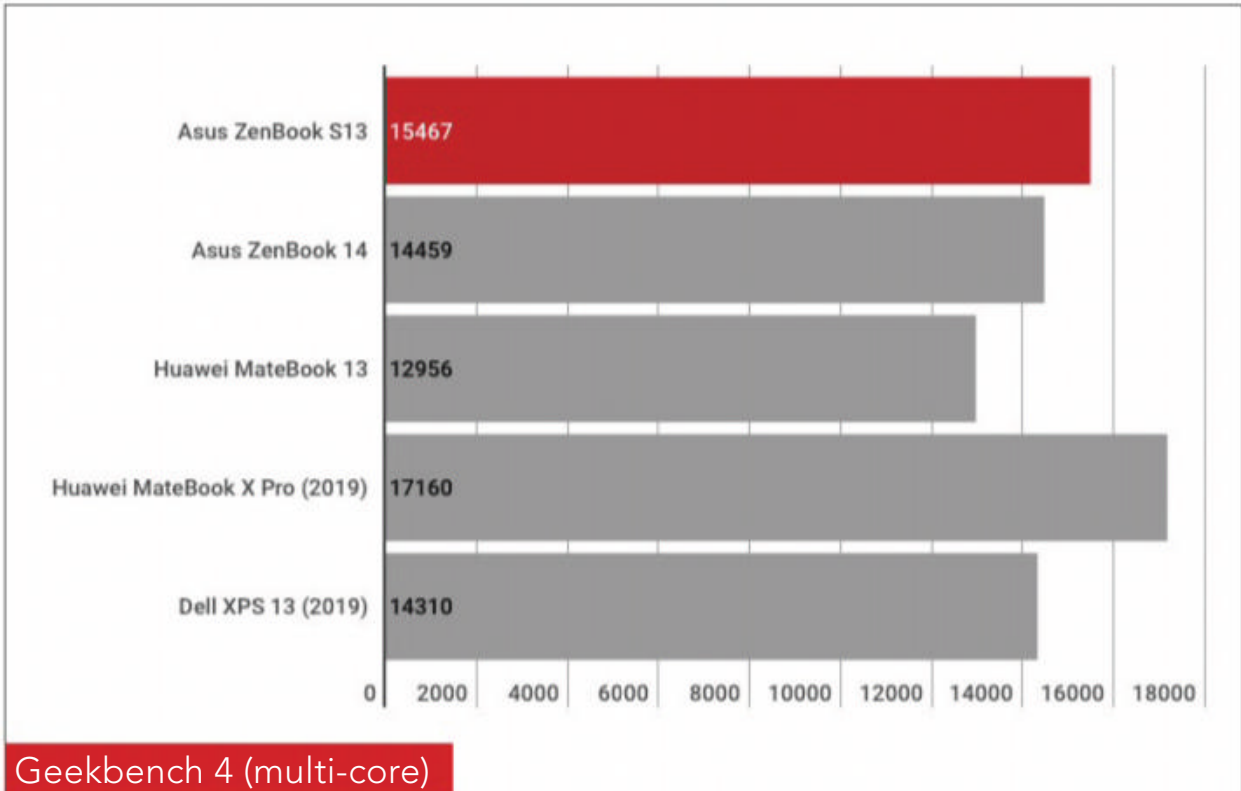
There's not even any real compromise on ports to achieve that, in part thanks to a tapered design. That means that the thick end of the wedge includes two USB-C ports (one of which is used for charging) along with microSD, USB-A, and a 3.5mm audio jack. If that's not quite enough for you, Asus throws in a USB-C dongle that adds in an extra USB-A port and HDMI, though sadly there's no Ethernet included.

Performance

Something this small and pretty surely can't have impressive specs under the hood too, right?

Asus have made sure the ZenBook S13 is well equipped with an Intel Core i7-8565U processor, backed up by a discrete Nvidia GeForce MX150 graphics card – a rarity in this sort of form factor. It





won't be enough to compete with a proper gaming PC, but it will make the S13 perfectly capable of basic gaming and creative tasks – I used it for audio, photo, and video editing on the road with no complaints.

The processor and graphics are supported by a 512GB SSD and 16GB of RAM.

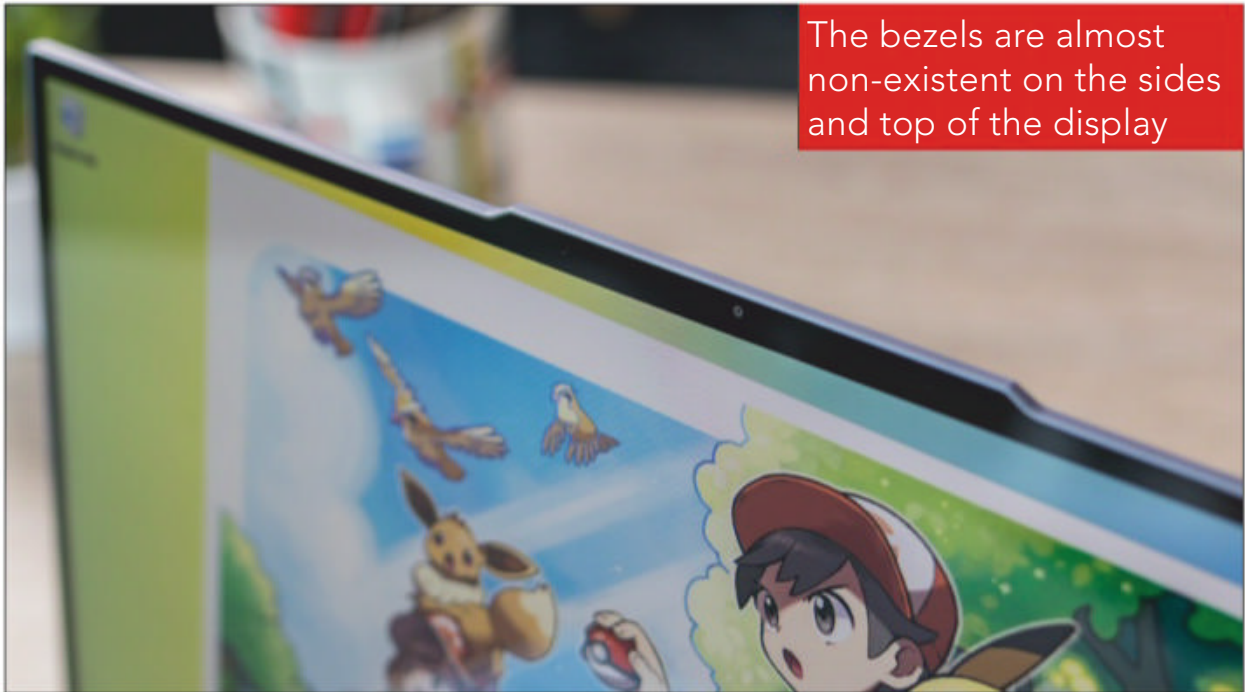
In terms of actual use, that converts to seriously solid benchmarking performance (using our 16GB RAM model). Geekbench's CPU test and PCMark's multitasking test both put the S13 up with just about every comparable ultrabook, while on the 3D Mark graphics test it and the MateBook X Pro leave everything else in the dust – that's the impact of the MX150 GPU. As a reminder though, at comparable specs this is cheaper than all of these rivals except the ZenBook 14.

Despite all that internal oomph, battery power is solid too – the S13 delivered just under 13 hours of continuous video in our battery test, in line with last year's ZenBook and ahead of the XPS 13. Once again the MateBook X Pro just edged it, but that's a much bigger and pricier device.

Verdict

Asus has been making dependable laptops for years without earning the hype of Dell or Apple's latest, but the ZenBook S13 is a sign that this is an under-appreciated company operating at the top of its game.

Right now you cannot find an ultrabook that crams specs like this into a body this small, and the S13 does it all while undercutting most of the market on price. That's not even mentioning the reverse notch – what



could have been a design gimmick but in fact keeps the bezels slim, while providing an unexpectedly handy lip for opening the laptop.

The silver finish might be a bit bling and the trackpad isn't the best, but those are minor complaints in the grand scheme of things. If you can afford to drop a grand and a half and want discrete graphics in an ultra-portable package, the S13 is a very easy recommendation. **Dominic Preston**

Specifications

- 13.9in (1,920x1,080, 200ppi) LED-backlit IPS Full HD display
- Windows 10 Home
- 8th-gen Intel Core i7-8565U processor
- Nvidia GeForce MX150 GPU
- 8GB/16GB 2133MHz LPDDR3 on-board RAM

- 512GB PCIe SSD
- 802.11ac Wi-Fi
- 2x USB 3.1 Gen 2 Type-C (support fast charging, data transfers and display connectivity)
- USB 3.1 Gen 2 Type-A
- MicroSD card reader
- 3.5mm headphone jack
- Bluetooth 5.0
- Asus SonicMaster stereo audio system
- Full-size backlit keyboard
- Touchpad with fingerprint reader
- HD webcam
- 50Wh 3-cell lithium-polymer battery
- 316x195x12.9mm
- 1.1kg

5. **Huawei MateBook X Pro**

Price: £1,299 from fave.co/2Obrm8A

Huawei's new MateBook X Pro builds on its predecessor – which was the firm's first-ever laptop – with upgrades galore including a touchscreen, better performance and a lower price. It's called the X Pro rather than the X2 because the firm is pitching it against MacBook Pro and hoping that the lower price (and Windows) will tempt buyers away from Apple's offering.

Design

This is undeniably a great-looking laptop. It also feels reassuringly well built and light enough to carry around, possibly diminutive enough to fit into the tablet pocket of your backpack, too.

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Cheap constant access to piping hot media

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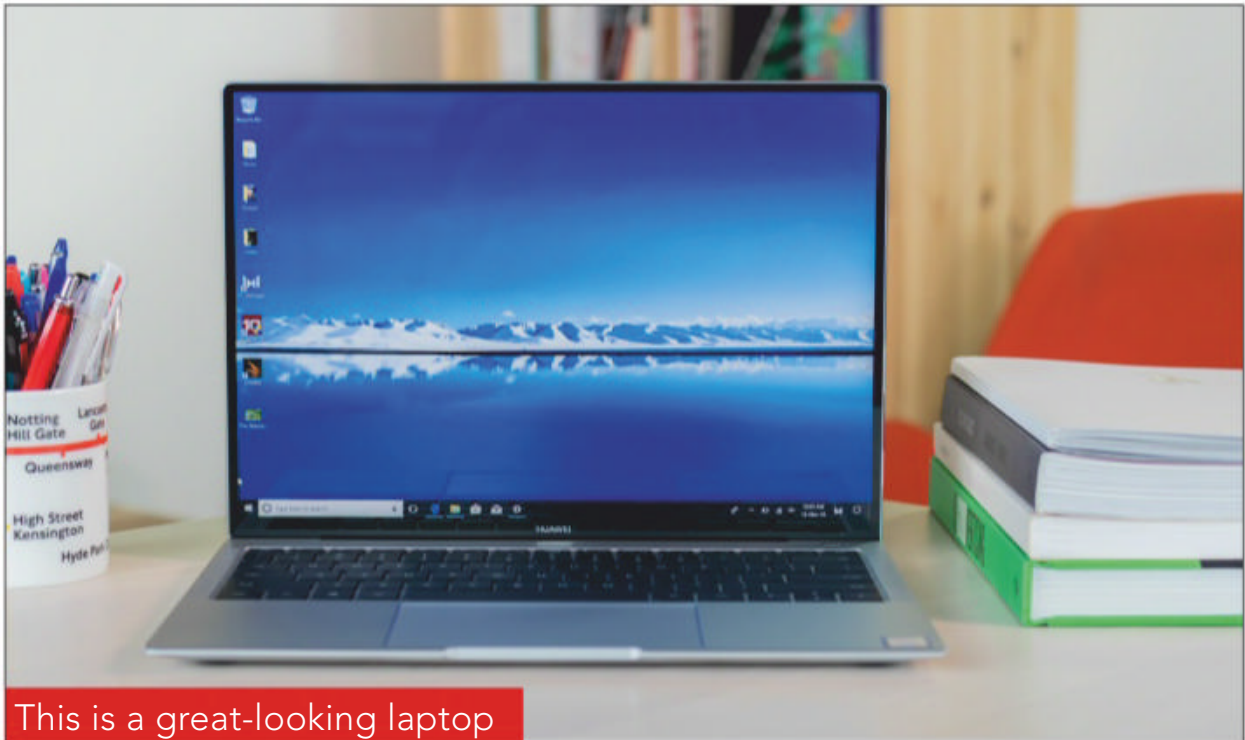
One site



AVXLIVE **ICU**

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We have everything for all of your needs. Just open <https://avxlive.icu>



This is a great-looking laptop

Comparisons with the MacBook Pro are inevitable as Huawei has taken much inspiration from Apple in the MateBook X Pro's design. Flip it over and you'd be hard-pushed to tell which is which: even the screws are in the same positions.

If you're familiar with the old MateBook X – a laptop that wasn't widely available to buy in the UK – you probably will notice the screen has grown and the bezels shrunk.

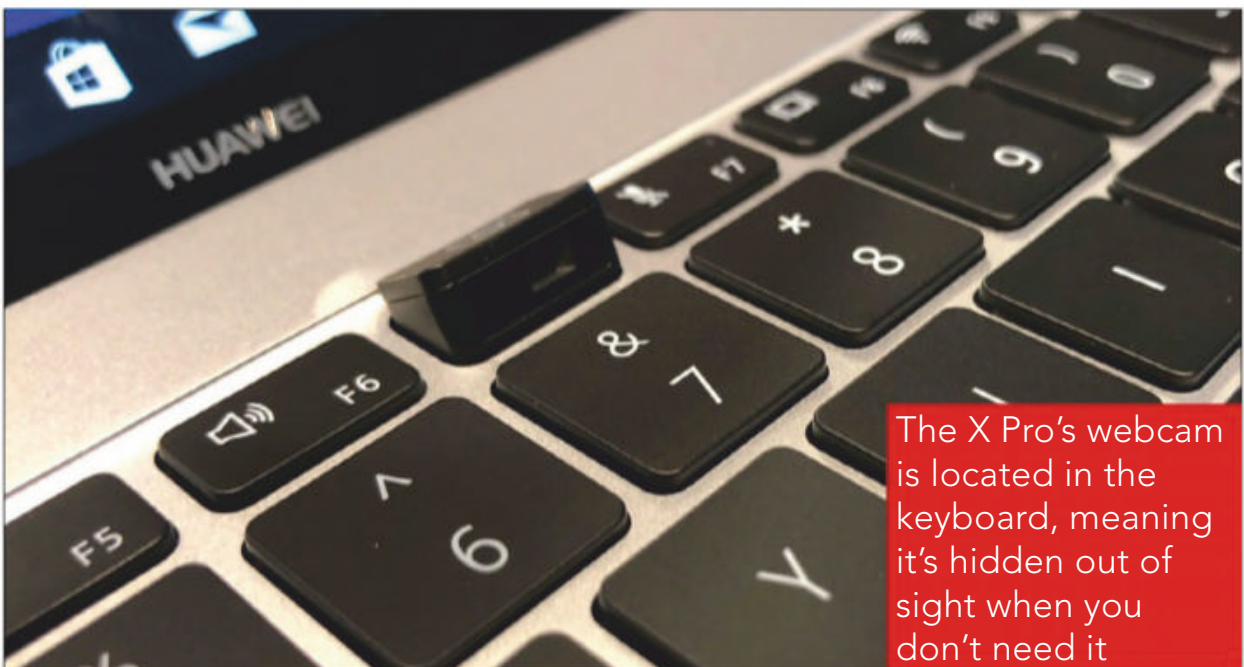
In a chassis that's basically the same size, Huawei has managed to fit a 13.9in panel and increased the resolution to 3,000x2,000 pixels. It has also added a touch layer, so you can use all 10 digits on it simultaneously. A sheet of Gorilla Glass covers the entire display, running right to the edges of the lid. However, the hinge design hasn't changed so the

screen stops at around 130 degrees – it doesn't fold flat against the desk or even underneath the keyboard for a tablet mode. That's not really a problem as such as this isn't meant to be a convertible or hybrid.

Build quality is top-notch and there's the same all-metal unibody design with diamond-cut edges and a sandblasted satin finish. Huawei's flower logo is now on the lid alongside the company's name and it certainly looks good even if it'll be unfamiliar to many who see it. You can open the screen with one finger and the base remains on the desk: the hinge's stiffness is perfect.

In a bid to trump the MacBook Pro, the new MateBook is fractionally thinner (by 0.3mm) and lighter (by 400g) than its rival.

The trackpad is bigger than before and the backlit keyboard is now spill-proof. As there's no room for a webcam above the screen, Huawei has cleverly hidden it in the keyboard. Just press it and up it pops, ready



The X Pro's webcam is located in the keyboard, meaning it's hidden out of sight when you don't need it

for action (see opposite). When you don't need it, it's hidden out of sight: handy for security, too.

Its position is far from ideal, though. As with other laptops that place the webcam below the screen, the viewing angle is less than flattering. In the MateBook X Pro's case, the camera points at your chest rather than your face if you sit in a normal working position. So you'll have to move back further than normal if you want your face to be in the shot on video calls.

Four mics are present and allow far-field use. That means you can stand the other side of the room and talk to your audience, or ask Cortana for assistance.

As with its predecessor, the power button has a built-in fingerprint sensor, which is compatible with Windows Hello. From a cold boot, it'll take just 7.8 seconds until you see Windows 10's login screen and it's marginally quicker if the laptop's already in hibernation mode. The fast start-ups aren't exaggerated: we've measured similar times in our own tests.

On the sides, ports are swapped around a little. Instead of a USB-C port on either side, you'll now find a traditional rectangular USB port on the right. That's useful because no-one wants to have to carry an adaptor just to plug in a flash drive.

There are two USB-C ports, but they're now on the left. One can be used for data and charging, and the other supports Thunderbolt 3, which means you can hook up an external graphics card.

We're unconvinced many people will want to spend a lot of money on a graphics card and a special external PCIe enclosure to play games on a 14in laptop, but it's possible nonetheless.

It's good to see a standard headphone socket, but disappointing not to find any kind of card reader.

The top-spec model, which we are reviewing here, has a Core i7 processor, the 8th-gen 8550U. It also has 16GB of RAM, a 512GB NVMe SSD and an Nvidia MX150 graphics chip. The latter means you can have reasonable gaming performance without stumping up for an external GPU.

In the lower-spec version is an i5-8250U, 8GB of RAM and no separate GPU. That means you get essentially the same graphics power as the original MateBook X which also used the Intel chip's built-in graphics. And it isn't much cop for gaming.

Oddly, the hard drive on our review model is partitioned into 80GB for Windows 10 and 380GB for your files. This is far from ideal, since Windows updates and apps (which you'll install on the C: drive by default) will quickly fill it up.

Another upgrade is the audio system. There are now four separate speakers, with tweeters added alongside the stereo woofers. There's Dolby Atmos branding again. Sound is very good for a laptop this thin. The speakers offer a good stereo soundstage, and even good surround effects. They're reasonably loud, but sound does get a little muddy at very high volumes when there's a lot going on in the soundtrack. But at normal listening levels, it's great.

Display

Returning to the screen for a moment, Huawei has used the same LTPS technology it uses in some of its phones. It's an LCD panel, which uses a different

type of silicon to regular LCD displays. Put simply, this allows higher resolutions and lower temperatures, and also happens to be cheaper to manufacture. A win-win situation, really.

In use, the screen is excellent with great detail, colours, contrast and viewing angles. The downside to a glass screen is that it's highly reflective so you might have struggle to see what you're doing if there's bright light hitting it.

If you didn't know better, you'd assume it was an IPS screen, and with those thin bezels, it looks wonderful.

Keyboard and touchpad

The touchpad is large, like the MacBook's, and with Windows 10 you can use all sorts of gestures to navigate: two fingers to scroll up and down, three fingers to switch between apps and pinch-to-zoom.



The keyboard is spill-proof and backlit and the keys have just the right amount of travel and resistance. The only niggle is that – like the MacBook Pro – the keyboard has a US layout that places the @ symbol on the 2 key instead of a UK keyboard, which has it on the ' key.

Performance

Performance is as good as you'd expect from an Intel Core i7/Nvidia MX150 combo. Windows 10 Home is very responsive, largely thanks to the NVMe SSD which far exceeds the read and write speeds you get with a standard SATA-connected SSD – over 3GB/s for reading and around 1.3GB/s for writing.

However, the MateBook X Pro does get warm. Even browsing certain websites can cause it to heat up, and the fan kicks in more regularly that you might like. It's not an obtrusive sound, but still noticeable in a quiet room or office.

For such a thin and light laptop, the 15X is pretty powerful



Running especially intensive apps causes internal temperatures to rise even more, with the fan running at full speed during benchmarks. That isn't particularly surprising, but something worth bearing in mind if you're planning to do a lot of video editing or gaming.

The MX150 graphics chip is a lot more powerful than the Intel UHD 620. In the 3DMark Fire Strike test, it scored 2574. That's more than double the score from the Intel GPU which managed only 1,083. However, the MX150 isn't as quick as a GTX 1050. Oddly, though, Dell no longer sells an XPS 13 with one of those and sticks exclusively with the UHD 620 for the 2018 range.

The bottom line here is that the Nvidia chip offers enough power for playing games at medium resolutions and graphical quality settings. And that's pretty amazing in a laptop this thin and light.

Battery life

Huawei quotes a run-time of 12 hours for playing back HD video. It also says that using the bundled USB-C charger for 30 minutes will provide around six hours of use.

The original MateBook X lasted around 10 hours in our tests, which is good but not outstanding. And it's the same story with the X Pro. Running a video on loop with brightness set to 120cd/m² saw the battery last a hair over 10 hours.

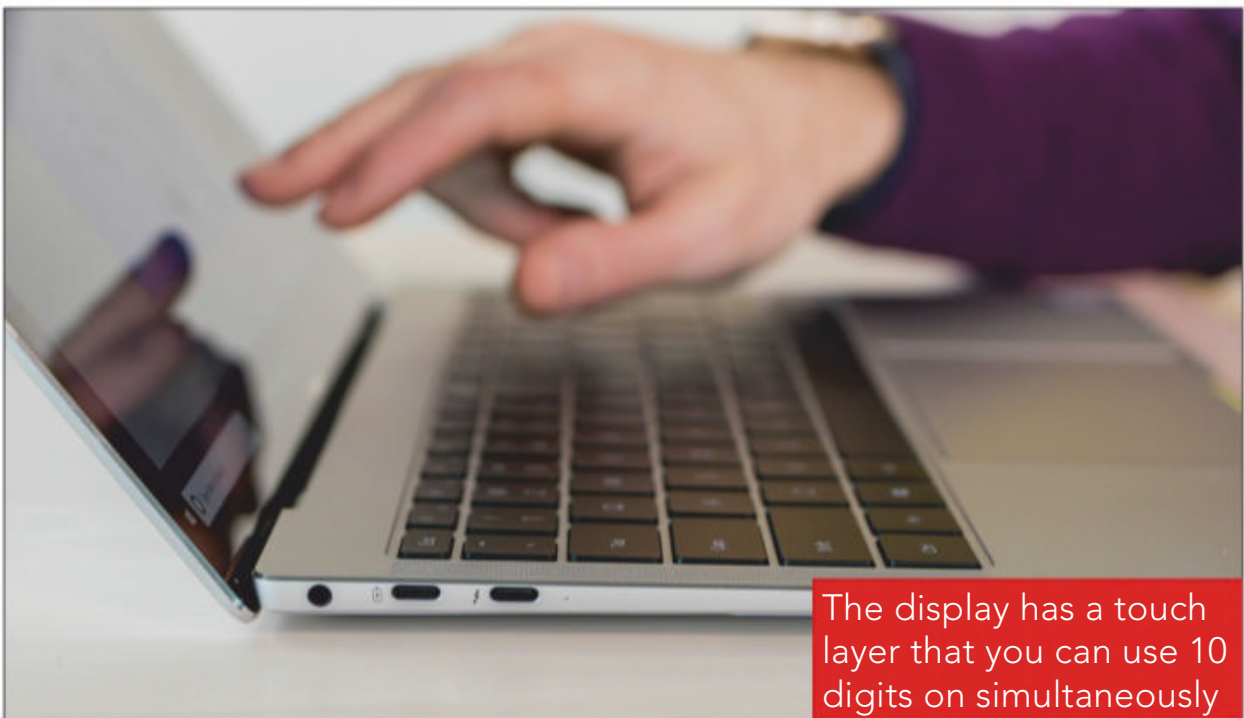
In the real world, we saw roughly eight hours of use which isn't wonderful, but when you consider the power on tap, it's not terrible. Plus, the power supply is small and light so you can take it with you.

Huawei has installed a power profile which it reckons makes the laptop around 15 percent more power efficient than the original, but the aggressive screen time outs (just 15 seconds of inactivity) quickly become annoying so you'll probably want to change it to a couple of minutes at least.

The same power profile could also be responsible for the dim maximum brightness that's set by default. When you disable auto-brightness you can turn it up to much more acceptable levels.

Verdict

At £1,299, the MateBook X Pro certainly offers better specifications than the MacBook Pro for the same or less money. It's a contender for this year's best laptop: a premium ultraportable that's well designed and has plenty of power on tap. **Jim Martin**



The display has a touch layer that you can use 10 digits on simultaneously

Specifications

- 13.9in (3,000x2,000, 260ppi) LTPS touchscreen
- Windows 10 Home
- 8th Generation Intel Core i5-8250U/Core i7-8500U CPU
- 8/16GB LPDDR3 RAM
- 256/512GB NVMe PCIe SSD
- Wi-Fi 802.11a/b/g/n/ac, 2.4/5GHz 2x2 MIMO
- Bluetooth 4.1
- 1x USB-C
- 1x Thunderbolt 3
- 1x USB-A
- Pop-up webcam
- Front-facing 1Mp camera
- 3.5mm headset jack
- 57.4Wh lithium-polymer battery
- 304x217x14.6mm
- 1.33kg



New Windows 10 build improvements revealed

Windows 10 Insider build 18932 is part of Microsoft's 20H1 release, due in early 2020. MARK HACHMAN reports

Microsoft has revealed that a new Insider build will improve the way eye tracking works, and let users tweak how they receive notifications within Windows. In the same vein, an updated Your Phone app will allow Windows users to interact with notifications they receive on Android phones.

Most users will see the greatest benefit from the updated Notifications, found within the Action Centre within the lower right-hand corner of your Windows

screen. Microsoft also overhauled the Eye Control UI, which uses eye tracking to help those who can't use a mouse or a trackpad to navigate Windows.

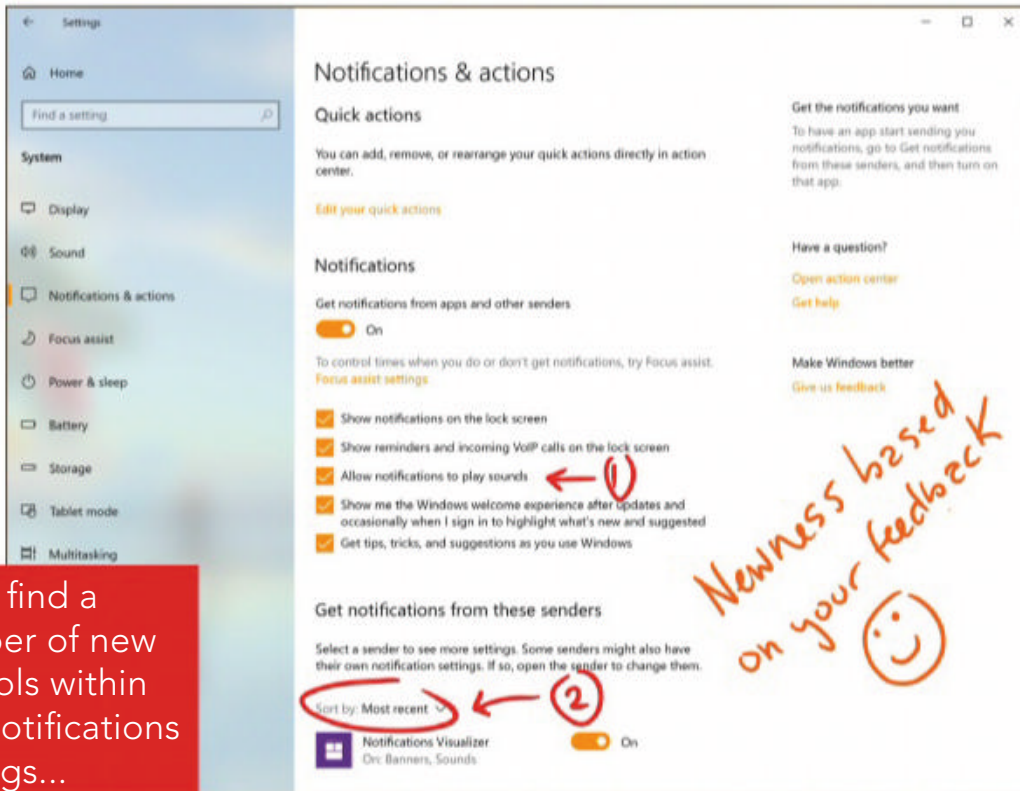
Windows Insider build 18932 is part of what you might call Microsoft's "feature release" of Windows 10, also known as 20H1. To test them out, your Windows 10 PC will need to be on the Fast Ring of the Windows Insider programme, accessible from the Windows 10 Settings > Update & Security menu. Microsoft recently revealed plans for what might be called an 'improvement release' of Windows, also known as 19H2. Similar to a service pack, 19H2 can be tested out via the Slow Ring of the Insider programme.

A nest of notifications

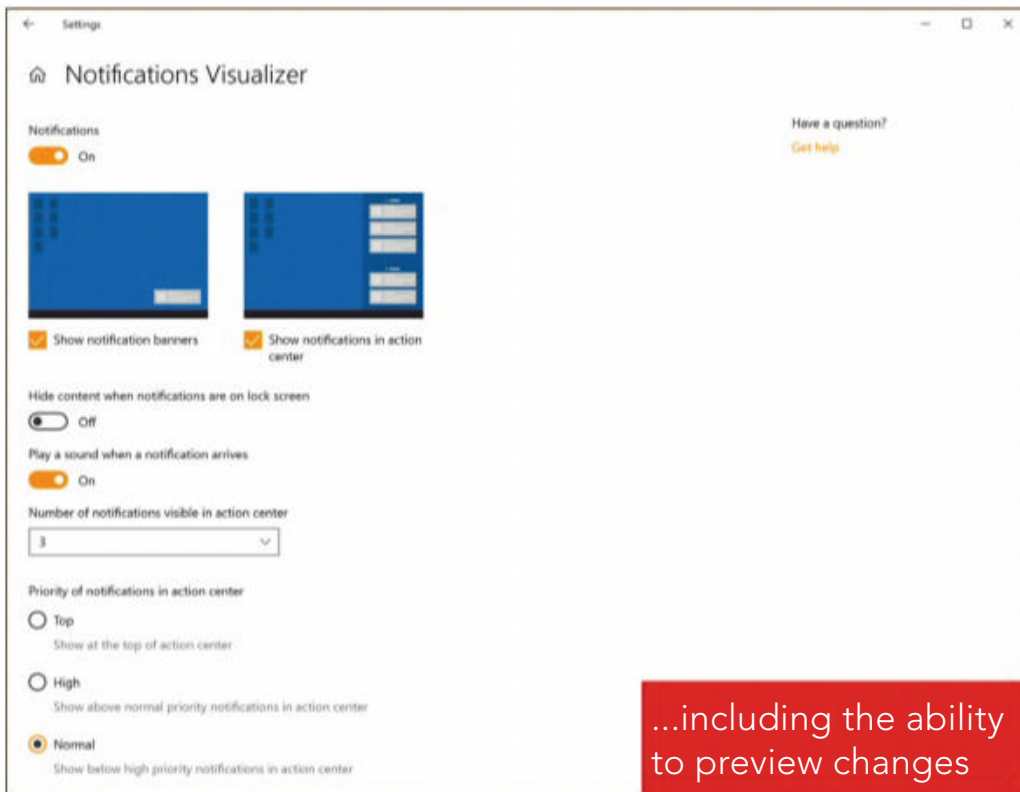
Notifications slide in and out from the Action Centre. Sometimes they go unnoticed, and sometimes they're distracting. Focus Assist, already within the May 2019 Update of Windows 10, allows you to suppress all notifications except for the important ones. Now, there's even more control: when a notification slides out, you can click the gear icon (assuming you're fast enough) and have a choice: either turn off all notifications for that app, or open the notifications settings menu for that app for further control.

The notifications section within the settings (Settings > System > Notifications and Settings) now includes two controls: a toggle that allows notifications to play sounds, and a way to more easily find a particular app through a 'most recent' drop-down list.

This particular settings menu also includes a 'Notifications Visualizer', which allows you to see



You'll find a number of new controls within the Notifications settings...



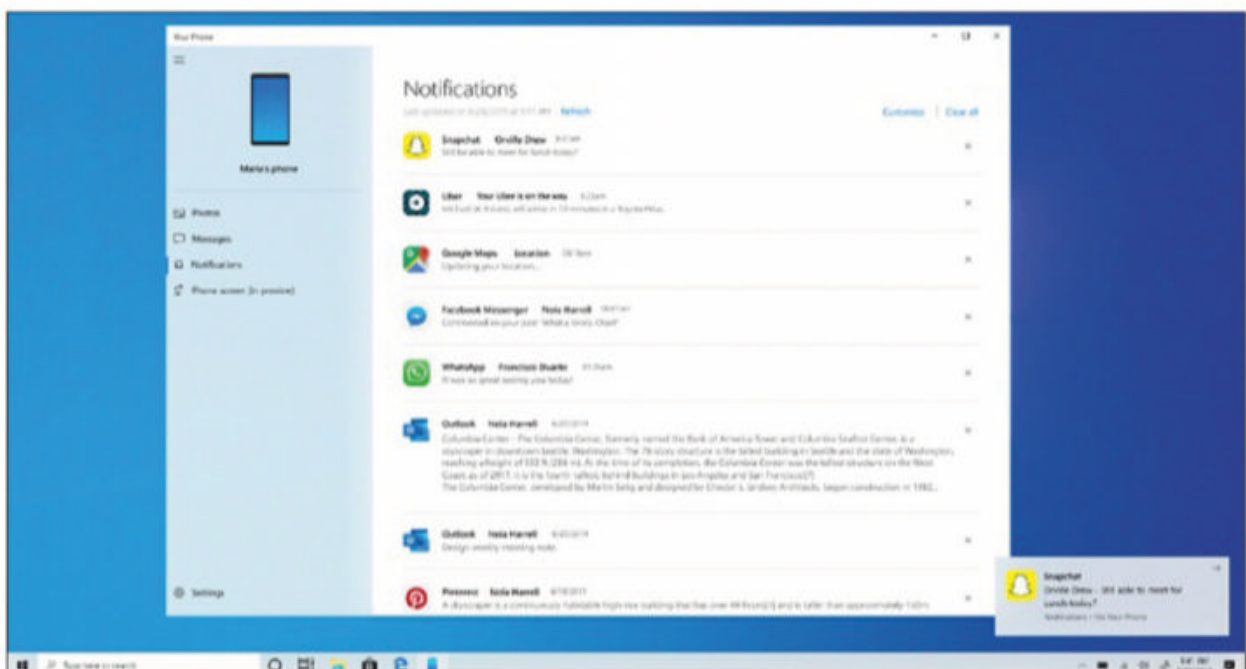
...including the ability to preview changes

the results of your decisions in a mock-up of the page before it goes live. There are a lot of different controls and options – good for some, but possibly overkill for many.

Your Phone includes Android notifications

In the past few weeks, Microsoft has signalled that Android notifications would be coming to Your Phone, the app that connects your Android phone to Windows. (Your Phone is also available for iPhones, but due to Apple's controls, the functionality is extremely limited.) Notification support within Your Phone simply means you'll be able to click on and interact with notifications that show up in Your Phone with your keyboard and mouse.

Unfortunately, Your Phone is still hamstrung by the need to support specific phones, as well as the new



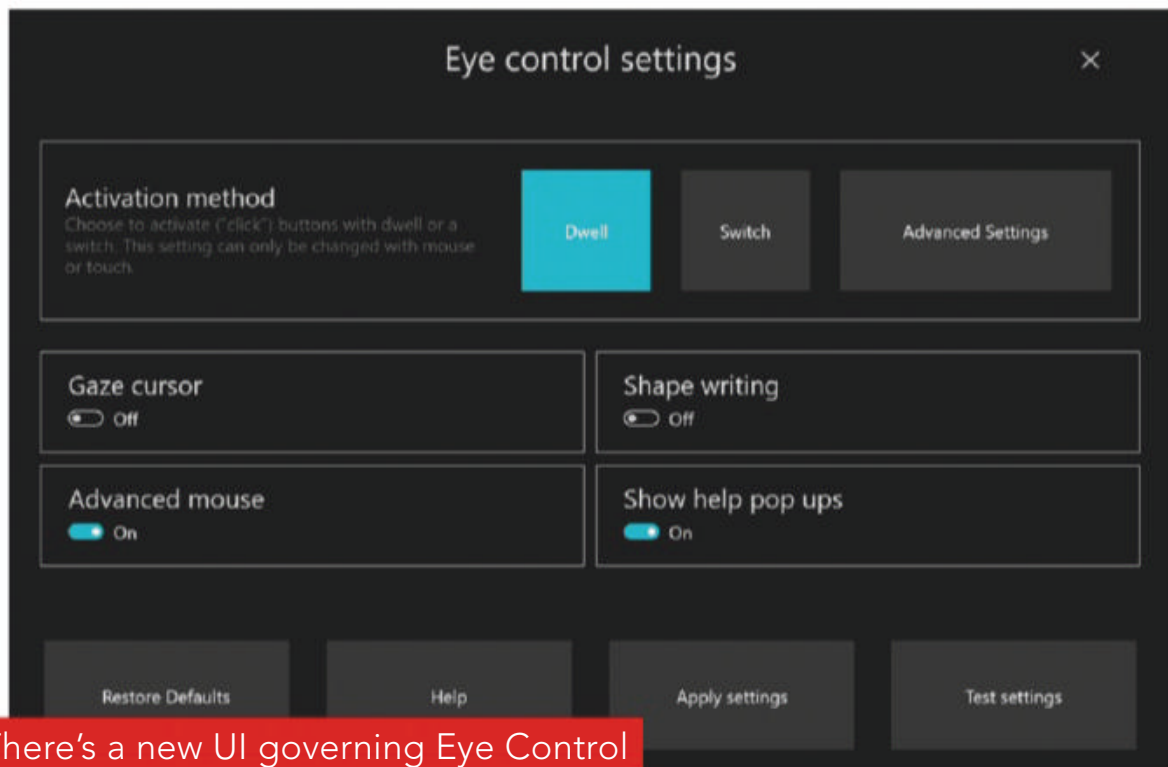
Your Phone now supports Android notifications

Insider Build. If you don't have a PC with a Bluetooth radio that supports the low-energy peripheral mode – you'll need to dig into the Device Manager and the properties of your Bluetooth radio to figure this out – you're out of luck. (Microsoft's Surface Go does, but other PCs, such as the Microsoft Surface Book 2, do not.) You'll also need a supported phone:

- Samsung Galaxy S10e, S10, S10+, S9, S9+, S8, S8+
- Samsung Galaxy A8, A8+
- Samsung Galaxy Note 9, Note 8
- OnePlus 6, 6T

Eye Control gets more control

Microsoft's Eye Control is generally thought of as an assistive technology, though it can be used as a



productivity tool, too. You'll need an eye-tracking peripheral such as the Tobii Eye Tracker 4C, or else a laptop with eye tracking integrated directly inside.

The three new improvements include the ability to 'drag and drop' an object via your eyes, so that the precise controls now include the ability to move an object via your eyes. Secondly, Microsoft has improved the 'pause' feature to completely hide the Eye Tracker UI, allowing a user to watch a full-screen video without UI interference. Finally, the ability to click a button is not just confined to eye tracking; there's an option to use a physical switch as well.

Microsoft also added a redesigned settings menu to provide an overview of the available controls, and added more fine-grained controls to Narrator and the Magnifier UI.



Microsoft's dual-display Surface could emulate Android apps

If a phone is a content-consumption device, maybe this is the Surface 'phone' that people hoped for. **MARK HACHMAN** reports

A new report from IHS Markit suggests Microsoft may build Android emulation into future Surface devices, specifically the rumoured 'Centaurus' dual-screen PC said to launch early 2020.

IHS Markit told Forbes that the dual-screen device, with two 9in displays, would be powered by Intel's 10nm Lakefield system-on-a-chip. Microsoft's new Windows Core OS (WCOS) will serve as the operating system, IHS added. (Microsoft hasn't confirmed that it's necessarily working on a future successor to Windows, but we know that devices like the Surface Hub 2 will include new 'experiences', said to be WCOS.) IHS also said the device would include 5G WWAN connectivity. While that itself would not be surprising, Microsoft has yet to design a Surface that has made LTE or 5G connectivity part of the base platform.

Assuming IHS Markit's report is correct, the new element would be the inclusion of an Android emulator. (Microsoft hasn't yet commented, and we wouldn't expect them to; IHS Markit also hasn't responded to a request for further comment.)

Several Android emulators already exist for Windows PCs. BlueStacks is a favourite, though KoPlayer, MeMu, and others all provide alternatives. All three run within a virtual machine within Windows, just like Windows Sandbox.

A Surface for consuming content?

When word of 'Centaurus', er, surfaced before, we wondered if potential buyers would really want to work on a dual-screen device, given the lack of a proper keyboard. It's possible, however, that Microsoft sees Centaurus more akin to a traditional smartphone: much more of a pocket computer than a traditional phone, and much more of a content-consumption platform than a traditional Surface. Though Microsoft Office

apps exist for Android and iOS phones, it's a safe bet that the primary task of content creation occurs on traditional PCs with a keyboard.

Intel's Twin Rivers concept PC that the company showed off at Computex still provides one of the best justifications of that premise. While that device was shown running a traditional Windows 10 installation, the scenarios that the company showed – such as a comic book reader – were much more geared toward recreational content-consumption than anything else. In that concept, Windows 10 looked like an afterthought.

Windows can run in a relatively low-power environment – either on top of an Intel tablet processor, or else even an ARM chip such as the



Qualcomm Snapdragon. Run an Android emulator on top of it, and the performance requirements remain minimal: BlueStack 4 requires just a fourth-gen Core i5 for optimal performance. Intel's Lakefield seems like overkill, but we don't know anything about its performance, save for the fact that its big-little architecture uses the same power-sipping design techniques as ARM.

Microsoft obviously failed in the phone market. Former chief executive Bill Gates recently admitted to the failure of Windows Phone as his greatest mistake. Microsoft's ARM-powered Surface Go hasn't dramatically changed the world, either. What's telling about the Gates interview is that he admits that the lack of apps was a critical element in Microsoft's failure in the mobile market. Android solves that problem.

There's still a big question – if an Android emulator is the key, why not just buy an Android phone? – but Microsoft's thought process on dual-display devices may be becoming clearer. Maybe this will be the Surface 'phone' that everyone expected.