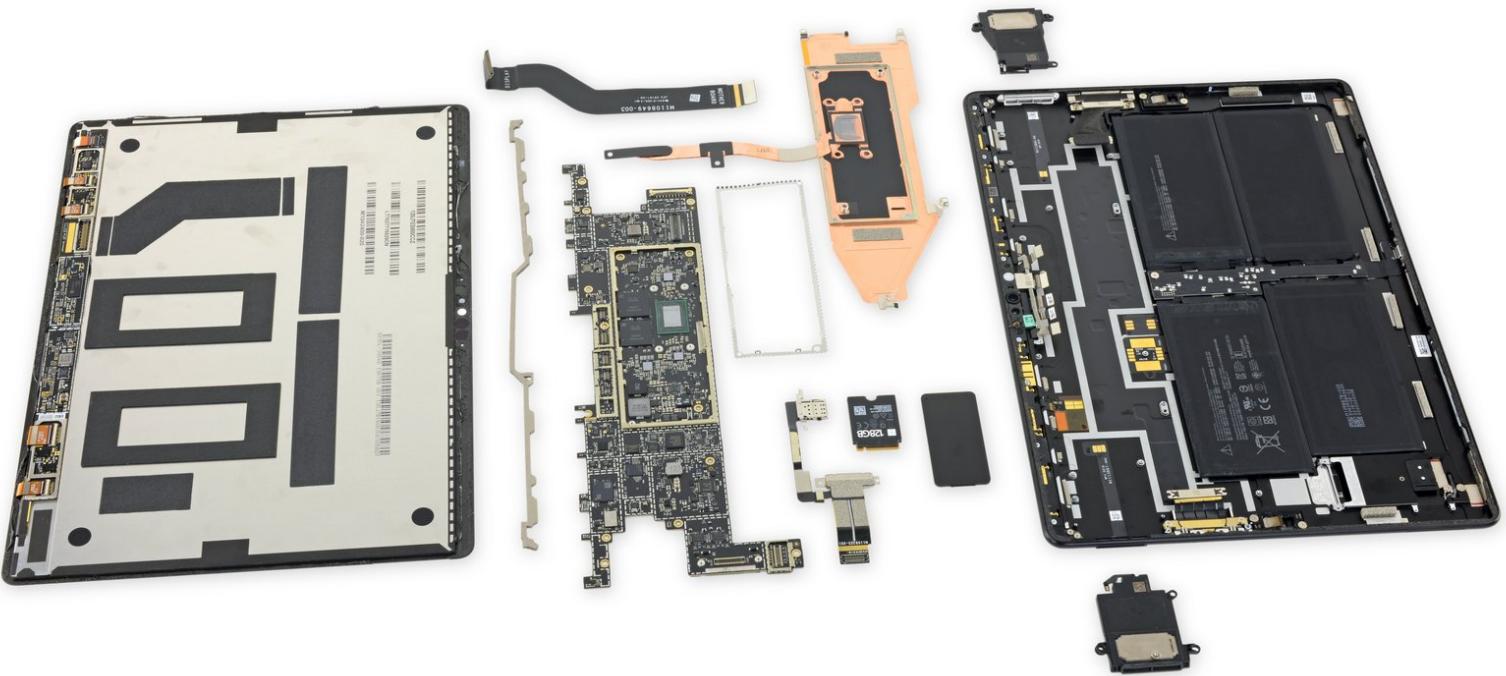




# Microsoft Surface Pro X Teardown

Teardown showing how Microsoft's thinnest device is also its most repairable, with smartly reinvented display adhesive and a user-accessible SSD.

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## INTRODUCTION

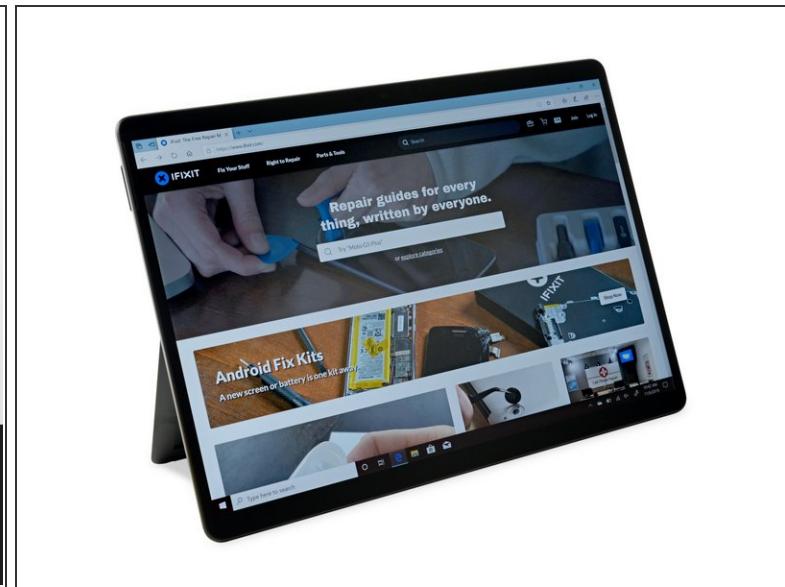
Less than a month after dropping the new Surface Pro 7, Microsoft is back with the even-newer Surface Pro X—a fresh design with hints of improved repairability. On any other Surface teardown, we'd be braced for some serious pain—but since ripping into the [Surface Laptop 3](#), we're cautiously optimistic here. Bring on the era of repairable tablets, Microsoft—we're ready. Let's see what you've got.

For more teardowns, behind-the-scenes content, and the latest-and-greatest repair news, check out our [YouTube channel](#)—and be sure to follow us on [Instagram](#), [Twitter](#), or [Facebook](#), and subscribe to our [newsletter](#).

## TOOLS:

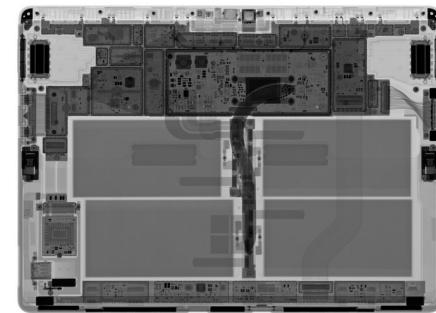
- [T3 Torx Screwdriver](#) (1)
- [T6 Torx Screwdriver](#) (1)
- [iMac Opening Tool](#) (1)
- [Heavy-Duty Suction Cups \(Pair\)](#) (1)
- [SIM Card Eject Tool](#) (1)
- [Tweezers](#) (1)

## Step 1 — Microsoft Surface Pro X Teardown



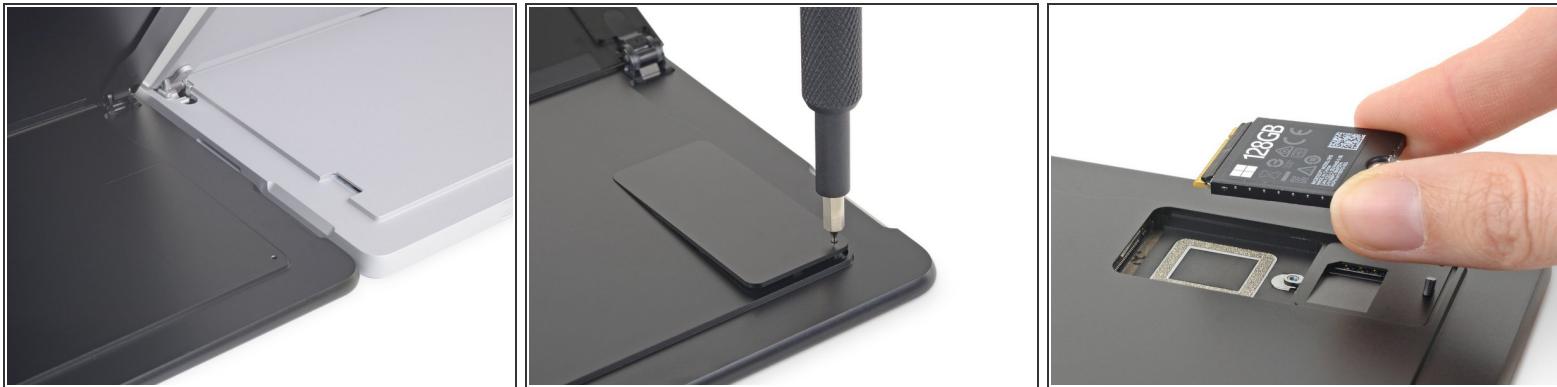
- Apart from that sweet kickstand, we're not sure what to expect here—and that's a good thing. Our teardown unit boasts the following specs:
  - 13" PixelSense display with 2880 × 1920 resolution (267 ppi)
  - Microsoft SQ1 3.0 GHz ARM processor (based on Qualcomm's Snapdragon 8cx) with a Microsoft SQ1 Adreno 685 GPU
  - 8 GB of LPDDR4X RAM (16 GB optional)
  - *Removable* 128 GB solid state drive (256 GB or 512 GB optional)
  - 5 MP and Windows Hello front-facing cameras, and one 10 MP rear-facing camera
  - Two USB-C ports and one Surface Connect port (headphone jacks are apparently not professional)
  - Wi-Fi 5 802.11ac, Bluetooth 5.0, Gigabit LTE

## Step 2



- Unlike the fairly-iterative Surface Pro 7 released last month, the Pro X is a complete redesign—the first in many years. And it comes with a [new model number: 1876](#).
-  What a great year, 1876. Feels like just yesterday we were tearing down Alexander Graham Bell's new "[telephone](#)."
- If you need a teardown TL;DR, here's an X-ray overview from [Creative Electron](#) showing everything on our agenda.
- Compared to the Pro 7, we note the Pro X's rounded corners, narrower profile, and reductified port selection.
- If you're in the market for a thin professional Windows tablet, wave goodbye to the USB-A port, MicroSD card slot, and headphone jack. [USB-C is the future](#), it seems.

## Step 3



- With the kickstands raised, we can see that the Pro X gets a sleeker hinge—likely shaving off precious thickness.
- i* And if you [look closely](#), you'll find the faint outline of what can only be described as a secret trap door in the Pro X. Lucky for us, it's not [guarded by a three-headed dog](#).
- We poke the ([magnetically](#) secured!) trap door with our SIM eject bit, and...
  - Voilà!* Underneath, an SSD (held down by a T3 screw) and a SIM slot!
  - And hey, this SSD looks super familiar. A [quick comparison](#) with the 256 GB drive we pulled from the Surface Laptop 3 confirms both devices are using the same drive. Standardization is great for repairs!
- As an experiment, we try powering on the Pro X *sans*-SSD, and... no sign of life. We wouldn't expect it to boot up—but it's *so* dead, we sort of suspect the SSD acts as a battery kill switch [like we found in the Laptop 3](#).
- Unlike the Laptop 3 with its [hidden screws](#), we don't find any fasteners lurking under this kickstand. Alas, this probably won't be a magical opening experience. We arm our iOpeners and brace ourselves for heavy adhesives...

## Step 4



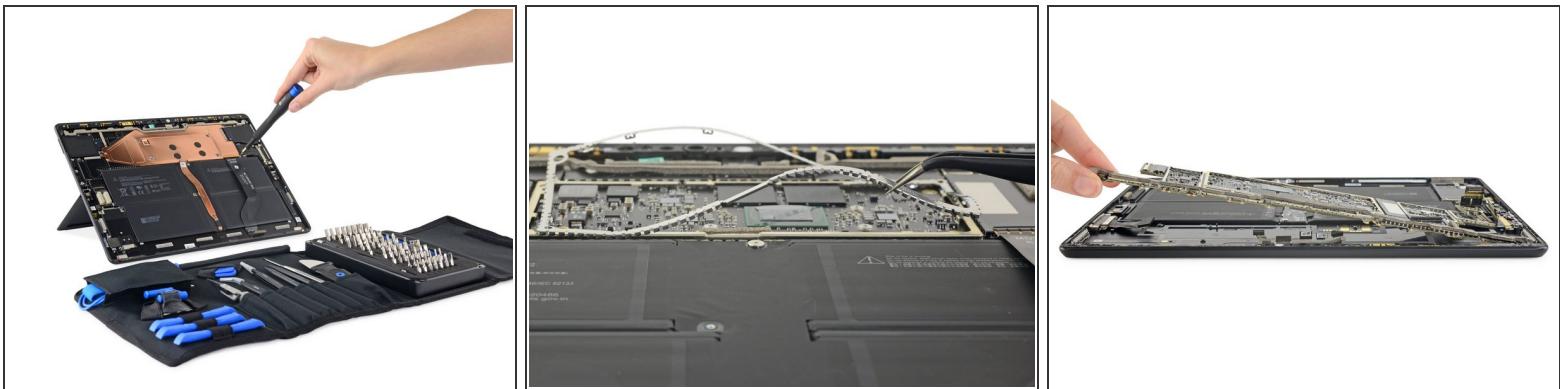
- But first—a little suction (maybe more than a little) to try and lift the display near the speaker grille.
- Look ma, no heat! Perhaps our iOpeners can take the day off—we're able to cut right in, [iMac-style](#).
- No goopy tendrils hold this display down—it comes off clean!
- This friendly, cuttable foam adhesive is truly an improvement over [previous Surface Pro devices](#)—and pretty much *all other tablets* with glued-down screens. High heat, furious cutting and prying, glue-covered tools, and (frequently) [accidentally cracked screens](#) are "features" we will happily kiss goodbye.
- Not pictured: the teardown team performing a celebratory dance around the photo table. We never thought we'd get into a Surface Pro this easily.

## Step 5



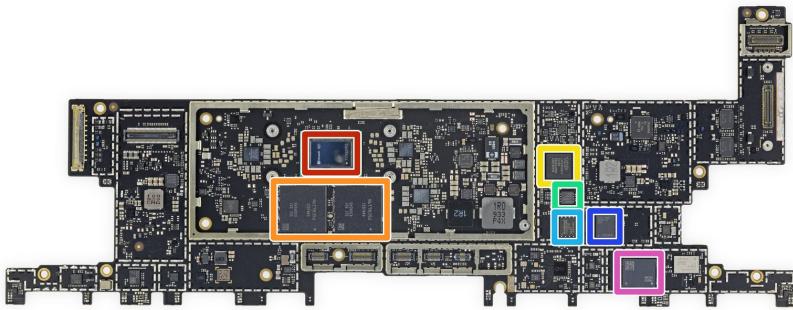
- While relatively painless, this opening procedure is not without hurdles—we see a few flex cables along the bottom of the display, dangerously close to the path of our cutting tools.
- That said, it gets even painless-er when we start removing the adhesive. It peels off like magic—no mess! This is the kind of change we've been pleading for. If you *must* glue together a super thin, space-constrained device, this is how you should do it. (But don't do it on a [desktop](#), okay? Because that's just lame.)
- Our excitement is real, but let's pause to peruse these display chips. We've got:
  - Microsoft X904163 and X904169 display drivers
  - Winbond Q16FWUXB2 1921-681C DR80006
  - Analogix ANX2684 1920 C975AA
  - SiW SW50014A 8266631T 1844
  - SiW SW5077 J004370V 1920

## Step 6



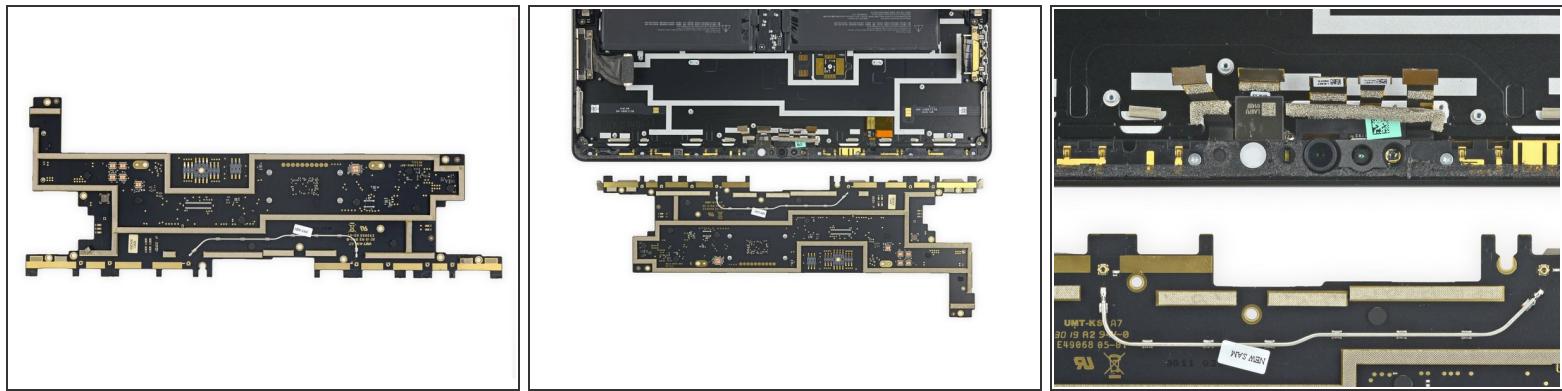
- We came armed with our entire [Pro Tech Toolkit](#), but only need a single Torx bit to twirl away the heat sink screws.
- Here's one thing we're glad Microsoft *didn't* change: All the screws so far are just Torx. That was the [previous Surface Pro's](#) sole positive repairability point, and it's good to see it return.
- Supporting the heat sink is an interesting bit of ~~abstract art~~ intermediate frame-age. We briefly pause to contemplate its meaning before pulling it away from the board.
- With the heat sink and quite a few shields and screws out of the way, the motherboard slides out. Time for some silicon sleuthing!

## Step 7



- Here's what we dug up:
  - Microsoft [SQ1](#) 3.0 GHz ARM processor
  - Samsung [K3UH5H50AMJGCL](#) 4 GB LPDDR4X RAM x2, for 8 GB total
  - NXP LPC54S00TJ EV180 microcontroller
  - Macronix [MX25U1635E](#) serial NOR flash memory
  - Winbond [26Q256JW](#) 256 Mb serial flash memory
  - Qualcomm SDR8150 RF transceiver and modem
  - Qorvo 78052 14CEM [RF Fusion MHB](#)

## Step 8



- The back side of board is devoid of interesting silicon, but we can't help but notice the strange silver jumper wire clinging to it. Hey wait a minute, this thing actually [looks kinda familiar](#).
- What's it for? You're welcome to inspect where it's routed and try to guess!
  - We think it may be a shielded diversity antenna of some kind, with a grounded exterior to insulate RF to and from the interior signal lead. The accompanying sticker *NEW SAM* could be labelling the wire as a Surface Antenna Mount.
  - That said, NEW SAM could be anything: *Super Activity Monitor*; [\*Silver Aerobic Master\*](#); *Slippery Agile Meerkat*; *Solidified Aerodynamic Meter* ... The possibilities are endless. Leave your NEW SAM guesses in the comments below.

## Step 9



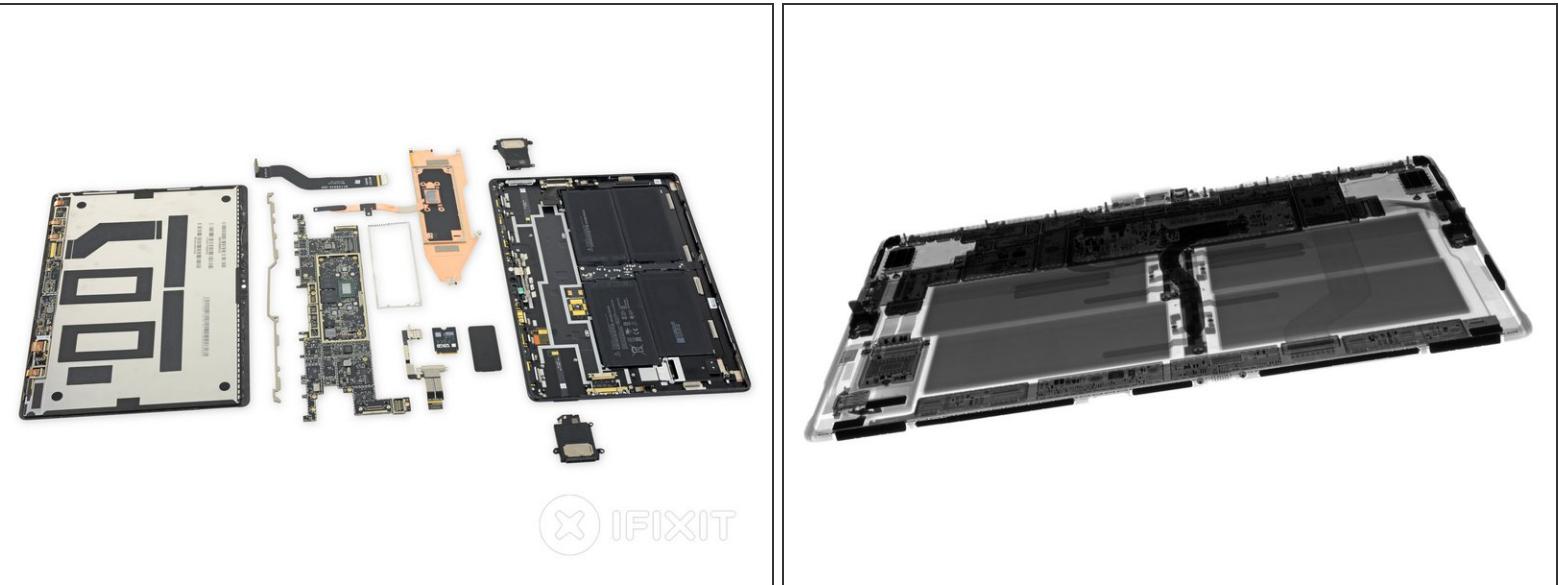
- We're used to seeing some fancy mechanics driving the kickstand hinge in these Surface Pros, but this time we're treated to *even more* fancy mechanics.
- The SSD cover sits on one side of a tiny see-saw, waiting for a friendly SIM eject tool or paperclip to come along and sit on the other side. When that happens, the see-saw pushes the SSD cover away from the case, and *bam!* Just like that you can upgrade your storage.
- When we're done at the world's smallest playground, we move over to the SSD interface and SIM reader, which come out as one module.
- *(i)* We're intrigued by how much space this module takes up, and all the more impressed that Microsoft carved out the necessary real estate to include such a repair-friendly feature in a tablet as thin and light as the Pro X.

## Step 10



- Step right up and get yer battery specs! We spent long enough wrestling with the [last uberglued Microsoft battery](#) to know better than to mess with this one. We opt to leave it be.
  - **(i)** This quad-cell, 38.2 Wh battery is unsurprisingly smaller than the [45 Wh battery in the Surface Pro 6](#), and just slightly bigger than the [12.9" iPad Pro's 36.5 Wh twin-cell](#).
- What's left? Modular USB ports, flanked by the kickstand hinge mechanism and the case buttons. And at the far end lies the Surface Connect port—also modular.
- You may be surprised to read the word *modular* so much in a Surface Pro teardown. So are we! We've done some deep breathing and pinched ourselves multiple times, but this does *appear* to be reality.
- If only they could inno-vent some way to secure that battery in a more repair-friendly way. Maybe next time?

## Step 11



- *Ta-da!* That's all for now, folks. Here are all the little bits of this Surface.
- It would seem that Microsoft has placed at least one foot on the repairability train—between this Pro X and the Laptop 3, we can hardly believe all the repair-focused changes they've made!
- The SSD is truly user-replaceable, requiring only a SIM eject pin and a T3 driver—no need to remove the screen. That's awesome to see in such a slim form factor. As a bonus, it's the same SSD as in the Laptop 3, meaning more standardization and better support from third parties.
- In a first for tablets, the display is held down with friendly foam adhesive that doesn't require heat or solvents to remove. We still don't like adhesive, but this is a fair compromise on a tablet.
- What does all that mean? Time to give this thing a score.

## Step 12 — Final Thoughts



- Microsoft's Surface Pro X earns a **6 out of 10** on our repairability scale (10 is the easiest to repair):
  - The user-removable SSD makes for easy upgrades and data security that doesn't require device destruction.
  - To the extent that screws are used, they are all standard Torx fasteners.
  - Many components are modular and can be replaced independently.
  - (Almost) all repairs require display removal, with an improved procedure that needs no heat, but necessitates careful prying.
  - The battery is firmly glued in place, with its connector pinned under the motherboard—requiring near-total disassembly for service.