Huawei Watch 3 Teardown

A teardown of the Huawei Watch 3 — including a circular 1.43" display, e-SIM, temperature sensor and a 460 mAh battery. Teardown performed in July 2021.

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INTRODUCTION

The new Huawei Watch 3 is here and makes a quick stop on our teardown table, where we wait with our shiniest tools. Let's see how much need for harmony (on a mechanical level) there is. Time for a teardown!

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TOOLS:

- T4 Torx Screwdriver (1)
- Jimmy (1)
- Spudger (1)
- Phillips #00 Screwdriver (1)
- Tweezers (1)

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Step 1 — Huawei Watch 3 Teardown

- Before we dive in, let's judge this book by its cover just a little:
  - 1.43 inch circular AMOLED touch display with 466 x 466 pixels (326 ppi) and a 60 Hz refresh rate
  - 2 GB RAM and 16 GB internal storage
  - Updated sensor array with newly included temperature sensor
  - 10 W wireless charging
  - 5 ATM water resistance (50 meters)
- So far so good—let's dig deeper!

Step 2

- Looking at this huge box, we'd expect the Huawei Watch 3 to be a little bit bigger—or at least to find a couple more watches.

- This model goes by the the name **GLL-AL04** and sports a digital crown and a side button.

  📌 Does the digital crown remind you of anything? [We can't seem to place it.](#)

- On the rear we can already spot four screws securing the back cover (a good sign!) but the tiny notch behind the top band indicates a slightly more... *complex* opening procedure.

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Step 3

- The Watch 3 has some stiff competition. From left to right: Huawei Watch 2, Huawei Watch 3, and the Galaxy Watch3.

- We see an increased display size compared to its predecessor, courtesy of the smaller bezel.

- Where the Galaxy Watch3 puts that bezel to work navigating menus and scrolling, the Huawei Watch 3 delegates those tasks to its digital crown.

- On the back, we see Huawei doubled down on the optical sensors—and switched to wireless charging, as the contact pads of yesteryear are no more.

Step 4

- With the four rear Torx screws out of the way we'd hoped to get in with just an opening tool, but this year's Huawei timepiece needs a little more force.

- Some heat and a Jimmy finally crack our clam open to reveal adhesive instead of a repair-friendly rubber gasket keeping the watch watertight.

  - ⓘ The proper tool for prying would probably be a watchmaker's knife. *"Hey Celia, add a watchmaker's knife to my shopping list."*

- 📌 Strong adhesive paired with a flex cable butted up close to the cover's edge makes for a harrowing opening journey.

  - Moving that cable out of harm's way and opting for a reusable rubber gasket would simplify the procedure.

Step 5

- After popping the watch open, the Jimmy returns for some more heavy-duty prying.

- Most of the components in the sensor assembly are held in place by Phillips screws or brackets, and a couple rivets. *Riveting!* Regardless of fastener, the components are stuck on non-removable flex cables, hampering repairs. Not to mention the sensor array itself which is heavily secured to the back cover.

- All our hard work yields only *one* replaceable part on the back cover—the loudspeaker. At least we got something.

- ⓘ While optical heart rate and blood oxygen sensors are common in smartwatches, a temperature sensor is rather new. Maybe it's not the worst to check your body temperature once in a while, especially in this day and age.

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Step 6

- With one more small bracket out of the way we have full access to the battery. A little spudgering here, a little sputtering there, and the battery's free from its adhesive.

- This powerhouse is rated at **1.78 Wh** (460 mAh @ 3.87 V) and is supposed to offer you 3 days of fun with your smartwatch—or up to _14_ in "ultra-long battery life mode!"

  - (i) For comparison, the Xiaomi Mi Watch (2021) battery packs **1.62 Wh** but allegedly lasting 16 days—either an efficiency or marketing difference there. The Galaxy Watch3 comes with **1.3 Wh**, and the Apple Watch Series 6 with **1.17 Wh**.

- The battery, like many others, uses a classic soft-shell design. It makes us wonder why Apple seems to be the only manufacturer experimenting with metal pouch batteries.

Step 7
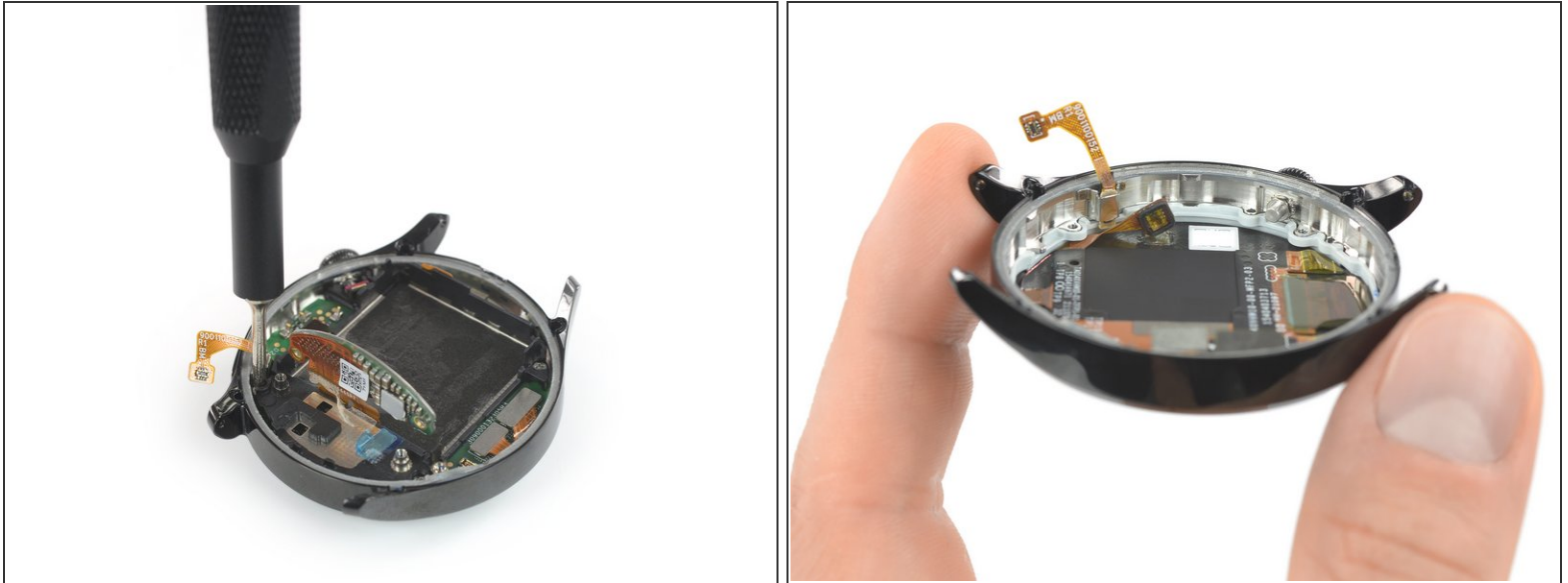
- The motherboard finally grants us a break from prying—a Phillips driver is all we need to free this board.

- Motherboard out of the way, we turn to the 1.43-inch AMOLED screen and it's back to adhesive. That display is *firmly* adhered.

  - (i) And is it just us, or is that ambient light sensor waving at us... mockingly?

- Since this watch is already in its third generation with a variety of offshoots, we'd hope for a more repair-friendly solution by now. Maybe Huawei could take a page from Samsung's Galaxy Watch book?
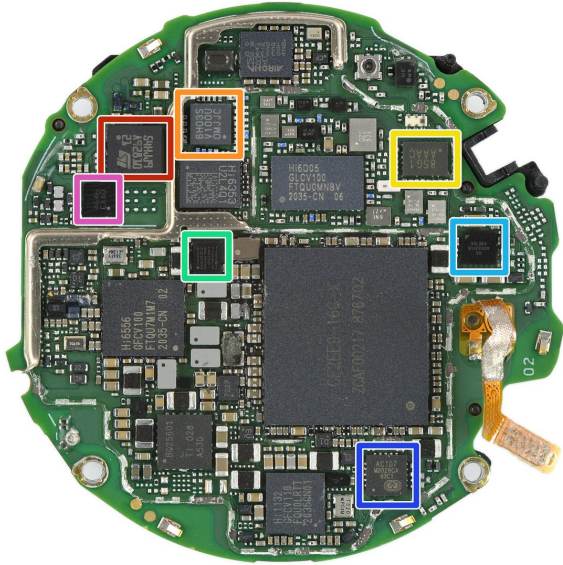
Step 8

- With the motherboard out, we find the bottom of it rather… unspectacular at first sight. A big battery recess and all of the cable connectors set up camp here, but deeper down we spot some hidden chips:

  - CMJRD11G04G 16 GB NAND flash storage (likely) layered above maybe a WiFi processor

  - Ambiq Micro AMAP42 Apollo4 SoC

  - Runic RS7222 USB 2.0 DPDT analog switch (likely)

- We're not in the mood to camp here with them for long, so we hurry over to more important sightseeing. Onward!

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Step 9
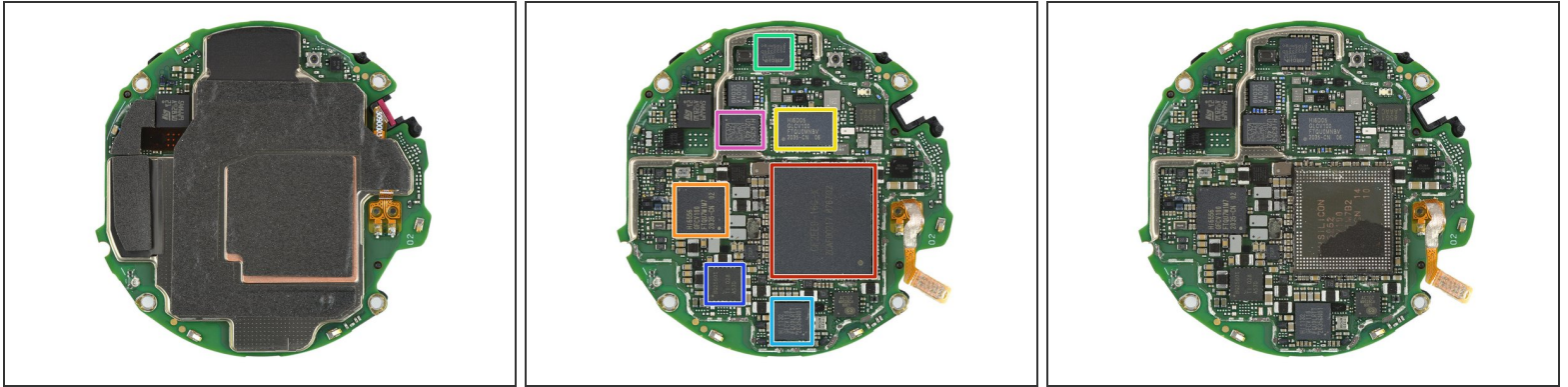
- The top of the motherboard offers the following important-looking silicon:

  - GF2EE1-16G-X 2 GB SDRAM (likely) with a HiSilicon Hi6262 Kirin 710 layered underneath

  - HiSilicon Hi6556 GFCV100 Power IC

  - HiSilicon Hi6D05 Power Amplifier Module

  - Airoha AG3335SD RFSoC GPS receiver

  - HiSilicon Hi1132—which is basically the Kirin A1 (running an ARM Cortex-M7 SoC) w/ Bluetooth controller

  - Texas Instruments BQ25601 Single Cell Battery Charger

  - HiSilicon Hi6353 RF transceiver (likely)

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Step 10

- Smaller (and still important!) bits and pieces:

  - STMicroelectronics [54HJJ9](#) NFC controller

  - HiSilicon 6H03S LNA/RF switch (likely)

  - 85G1 AAAC, likely an antenna switch module

  - HiSilicon 656211 power management IC

  - Cirrus Logic 35L36A audio amplifier

  - X-Powers [AC107](#) 2-channel audio capture A/D converter

  - Omnivision Group (formerly Will Semiconductor) [WAS4646C](#) 2:1 SPDT analog switch

Step 11

- With that, the Huawei Watch 3's time with us is over. All these glued and connected parts means we're left with a lot of big pieces, but at least the battery—which is guaranteed to eventually fail—is out of the watch.

- Unfortunately we don't see that much evolution repair-wise from this series. Quite the opposite: more components crammed in and fewer that are independently replaceable.

- Let's go ahead and see what all that means for scoring!

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Step 12 — Final Thoughts

REPAIRABILITY SCORE:

5 OUT OF 10

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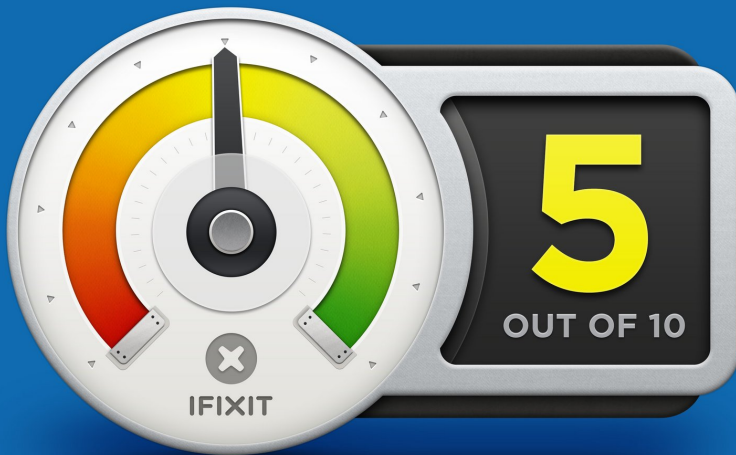
- The Huawei Watch 3 earns a **5 out of 10** on our repairability scale (10 is the easiest to repair):

  - Only press fit connectors are used with no overlapping cables.

  - Once the watch is open, the battery is easy to access and replace.

  - Opening the watch is doable, but not easy, due to the back cover's tight fit and use of adhesive instead of gaskets.

  - The only separately-accessible part on the back cover (the loudspeaker) requires some digging, and is glued into a tight recess.

  - A broken display requires replacing the main watch case which houses the screen.

  - The back cover and attached sensors requires a complete replacement if any of its components fails.