



# Xiaomi Mi 11 Teardown

A teardown of the world's first smartphone equipped with a Snapdragon 888, the Xiaomi Mi 11— including its 120 Hz screen.

Written By: Dominik Schnabelrauch



## INTRODUCTION

Xiaomi's flagship Mi 11 smartphone is packed with new tech and ready to muscle its way onto the global scene—particularly in the European market. First released in China at the end of 2020, the Mi 11 was the very first smartphone to feature the Snapdragon 888 processor. We were intrigued enough to pick one up when it went on sale globally a couple months later. Onto the teardown table it goes! Follow along and let's pull it apart.

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### TOOLS:

- [iOpener](#) (1)
  - [iFixit Opening Picks \(Set of 6\)](#) (1)
  - [Spudger](#) (1)
  - [Phillips #00 Screwdriver](#) (1)
  - [Tweezers](#) (1)
  - [iMac Opening Wheel](#) (1)
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## Step 1 — Xiaomi Mi 11 Teardown



- With so many new smartphone releases, it's easy to get a little jaded—but take a moment and just *look* at all the tech packed into this little glass slab:
  - Qualcomm SM8350 Snapdragon 888 (5 nm) chipset
  - 6.81 inch (3200 x 1440 pixels) quad-curved AMOLED DotDisplay with 1 Billion colors (TrueColor display) and a 120 Hz refresh rate
  - Triple rear camera system with a 108 MP  $f/1.9$  (OIS) wide, a 13 MP  $f/2.4$  ultrawide and a 5 MP  $f/2.4$  macro lens
  - 8 or 12 GB of RAM and 128 GB of storage (256 GB config available)
  - 5G (sub-6 GHz and mmWave connectivity), 802.11 a/b/g/n/ac/6 Wi-Fi, dual-band NFC and Bluetooth 5.2
  - 4600 mAh battery with 50 W fast wireless charging, 55 W wired and 10 W Reverse-Charging
- Did you get all that? This hardware trades blows with the [Galaxy S21 Ultra we tore down](#) earlier this week, but at a *much* lower price point. Let's investigate.

## Step 2



- Since we're in a good mood, we allow a quick chat between the Mi 11 and its predecessor, the Mi 10. What do they make of each other?
- The Mi 11 may have taken some design inspiration from the [newer iPhone line](#) in terms of camera placement. One glance at this and already we can expect a different motherboard build compared to the [elongated PCB in the Mi 10](#).
- With almost the same exterior dimensions, the most noticeable difference besides the camera bump hides at the bottom edge of the phone—the SIM tray hopped from the right to the left corner, and the speaker grille received a more stylized design.
- Speaking of speaker grilles, the earpiece opening has also been subtly resurfaced (left: Mi 11).

## Step 3



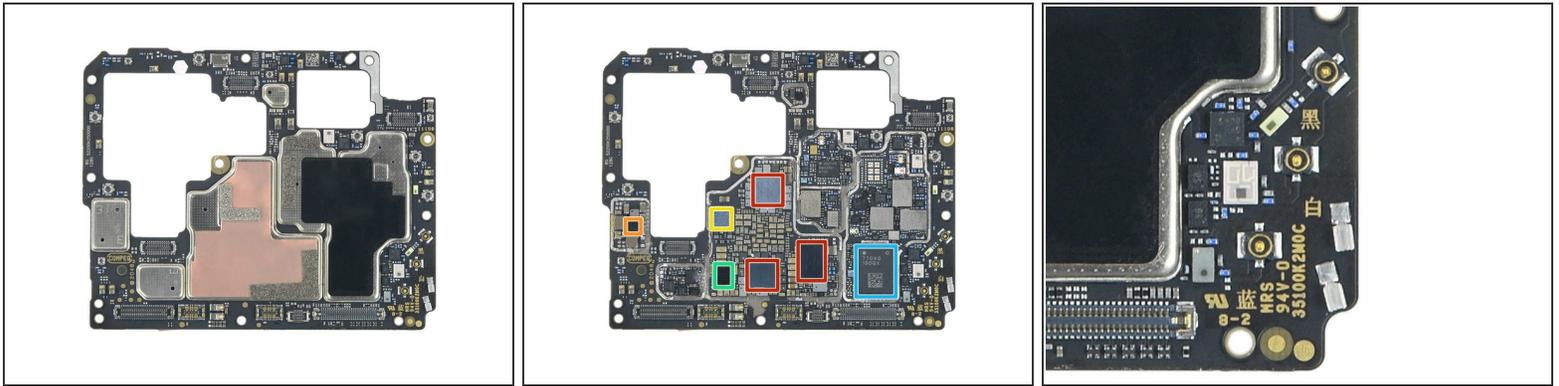
- Having dawdled enough, we dive into the Mi 11 and the rear glass magically flies off (perhaps with a bit of off-camera encouragement from our iOpener).
- ⓘ If that looked a little *too* easy, keep in mind that (1) this phone bears no official IP rating, so you'll never know how well (or how poorly) it's protected against water or dust, and (2) if we ever developed *actual* magic tools, we would definitely share them with you. Probably.
- Our [Moray Kit](#) lends us a helping hand in loosening those Phillips screws and makes the removal of the wireless charging coil a breeze.
- We're mildly excited to find a motherboard layout similar to the one in the [OnePlus Nord](#), which enables separate battery and display removals. (Fingers crossed the screen cable isn't running underneath the battery like in the [Mate 40 Pro](#).)

## Step 4



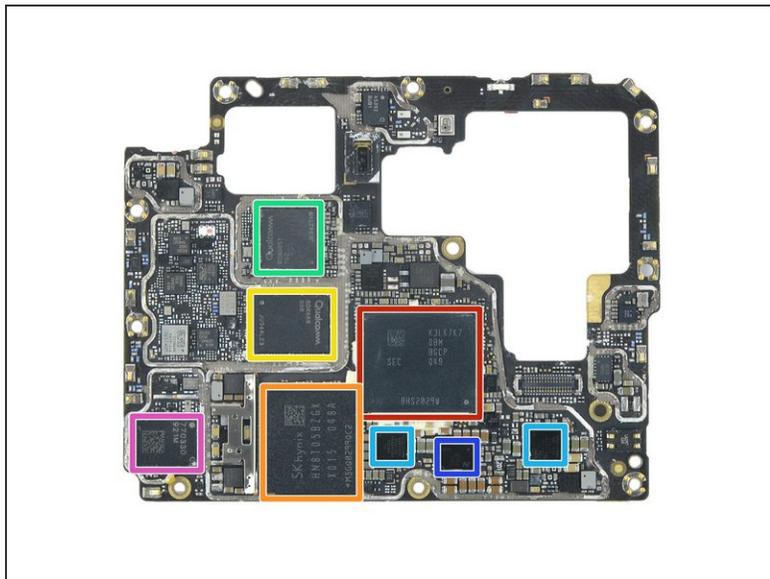
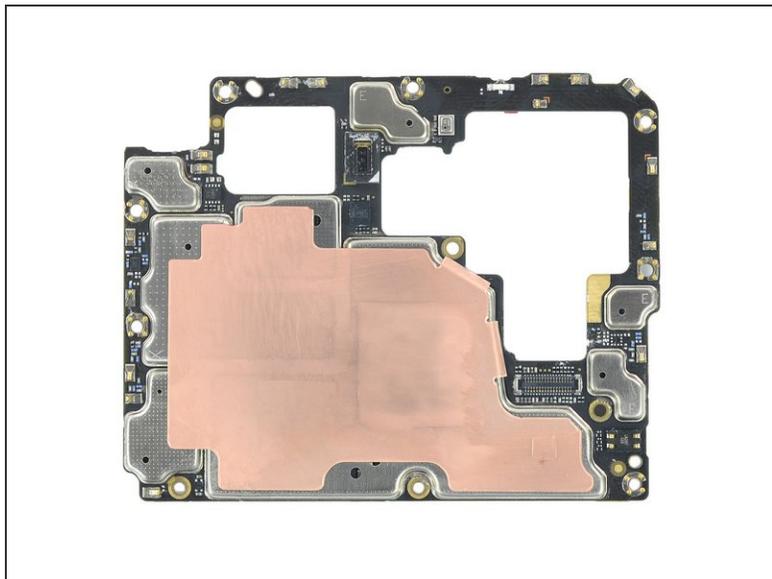
- We see three camera modules—but only two connectors to unplug? Guess we'll just yank the board out and see wha—oh. *There's* the third one, hiding underneath.
- The motherboard itself isn't difficult to remove, but it seems slightly inelegant to *require* its removal for repairs to the primary camera. On the plus side though, this camera assembly now has our [full attention](#).
- Since we already saw the 13 MP  $f/2.4$  ultrawide (OmniVision's CMOS OV13B10) in the Mi 10, the star of this show is the new 5 MP  $f/2.4$  telemacro (Samsung S5K5E9). (The 20 MP  $f/2.2$  selfie cam is a bit ordinary by smartphone standards.)
- ⓘ Telemacro offers interesting possibilities—capturing detailed closeups from a greater distance, and without blocking so much incoming light with the phone itself.
- The Mi 11 is already the *fifth* Xiaomi phone featuring the 108 MP Samsung ISOCELL Bright HMX sensor—but newly improved AI *should* translate to better shots compared to the Mi 10.
- ⓘ The Mi 11 foregoes the typical telephoto module, so you get no optical zoom here—only a 30x digital one. Sounds like big numbers, but the more you zoom the more image quality will suffer as a result.

## Step 5



- Everything exciting on these [dark boards](#) is covered by heat dissipating copper or graphite foils.
- We brute-force our way beyond those shields—accepting some *minor* damage along the way—and find these chips:
  - Qualcomm PM8350 PMIC, Qualcomm PM8350C PMIC, PM8350BH
  - Silicon Mitus-SM3010B-display power management chip
  - WCD9380 Qualcomm Aqstic audio codec
  - Lionsemi LN8282 Wireless Charging Management Chip
  - Qorvo QM77040 Front-End Module
- ⓘ At the bottom right are three coax connectors—each accompanied by a Chinese character for white, blue, or black, per the corresponding cable color. Same goes for the connectors at the opposite end of the cables. Nice little cues for error-free reassembly, if you can read them! (A more universal set of indicators would be ideal though.)

## Step 6



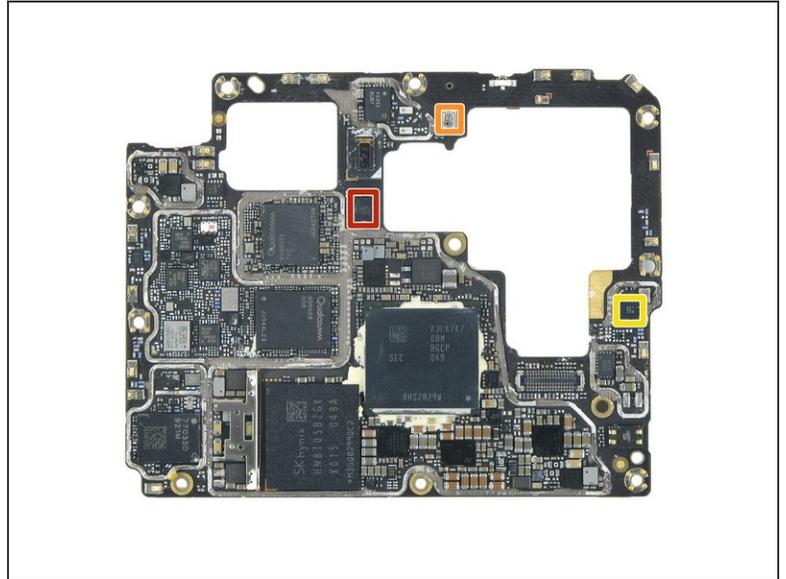
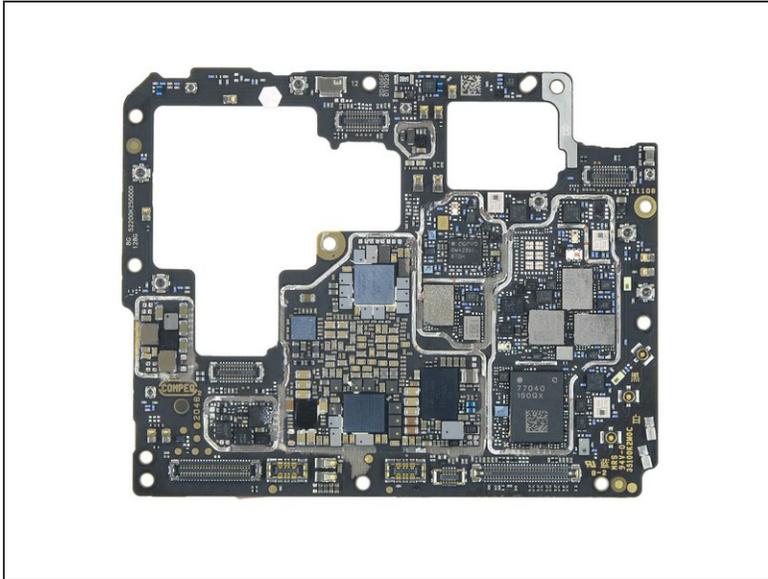
- And on the ~~even darker~~ rear side, a huge expanse of copper conceals these tiny bits of silicon:
  - [Qualcomm SM8350 Snapdragon 888 \(5 nm\)](#) with integrated X60 modem, layered underneath Samsung K3LK7K70BM-BGCP 16 Gb LPDDR5 3200MHz
  - SK Hynix HN8T05BZGK 128GB flash memory chip UFS 3.1
  - Wi-Fi/BT 5.2 WCN 6851 Wi-Fi 6 wireless combo SoC
  - Qualcomm SDR868-RF transceiver chip
  - Qualcomm SMB1396 fast charging chip
  - Nuvolta NU1619A wireless power receiving chip
  - Qorvo QM77033D front-end module

## Step 7



- Our awesome community members noticed that we missed some chips and helpfully chipped in:
  - NXP Semiconductor SN100T secure element
  - Qualcomm QDM2310 front end module
  - Qualcomm PMR735A power management IC
  - Qorvo QM42391 front end module (likely)
  - Qualcomm QPA5581 front end module
  - Qualcomm QPM5677 band n77/78 power amplifier module
  - NXP Semiconductor BGU80x9 GPS/GLONASS/Galileo/COMPASS low noise amplifier

## Step 8



- We sense some sensors:
  - STMicroelectronics [LSM6DSM](#) 3-axis accelerometer and gyroscope (Likely)
  - Bosch Sensortec [BMP280](#) pressure sensor
  - Bosch Sensortec [BHI260AB](#) 3-axis accelerometer and gyroscope

## Step 9



- We didn't exactly miss the [weird cable snakes](#) encountered in the Mate 30 Pro, but it seems the time has come to face a similar threat in the Mi 11.
  - These three coax cables running down to the daughterboard are threaded over and under each other, making them annoying to remove. In an ideal world, they'd simply float out of the way, like in this photo that we totally didn't stage.
- Last bits before the battery: this small linear actuator vibration motor, and the daughterboard. PS, while there's no official IP rating for the Mi 11, we spot a decent amount of rubber gasketry around the speaker and charging port areas.
- Both the USB-C charging port and the SIM card reader are soldered to the daughterboard. Thankfully it's easy enough to reach, and the part itself doesn't look too expensive (although ideally we'd still prefer separate components to make individual repairs easier).

## Step 10



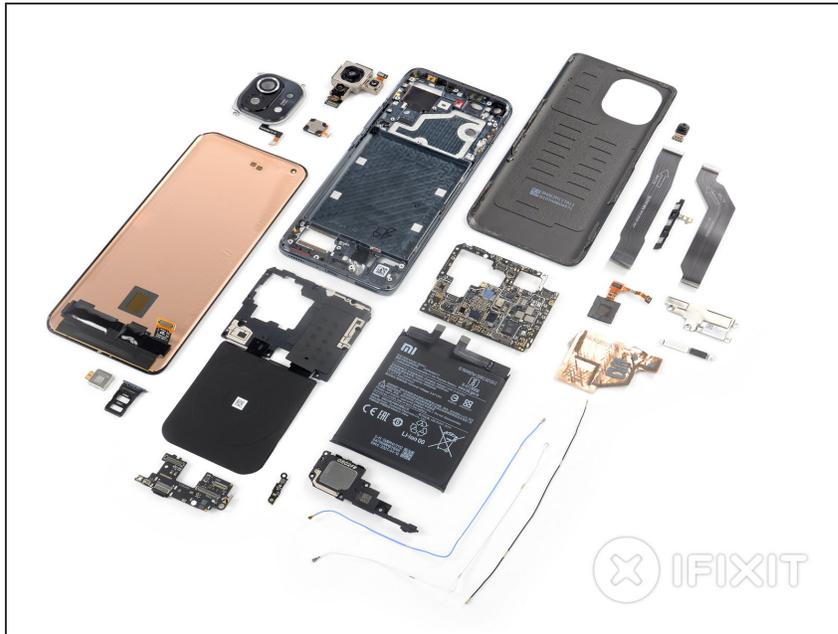
- Although the battery is initially obstructed by a bunch of cables, we're glad to find at least some handy pull tabs for easier removal.
- Power-wise, the battery offers 17.8 Wh and comes in a tad below the 18.4 Wh in the Xiaomi Mi 10.
  - Whilst this sounds like stuffed pockets compared to other phones like the [iPhone 12 Pro Max](#) (14.13 Wh) or the [Samsung Galaxy Note 20](#) (16.69 Wh), keep in mind that the Mi 11 has to feed its large 120 Hz screen and power the latest Snapdragon 888 chipset and its X60 modem.
- ⓘ And actually this battery consists of *two* 2300 mAh cells connected in parallel. Charging two cells via two separate connectors makes it possible to push more electrons into the phone faster, especially when the state of charge is low.

## Step 11



- The AMOLED DotDisplay—one of the Mi 11's [power eaters](#)—shines with up to 120 Hz adaptive refresh rate and a WQHD+ resolution of 3200 x 1440 pixels (~515 ppi). It also packs a blistering 480 Hz touch sampling rate.
- Curved displays can create a novel "infinity edge" look, but they are usually a pain to remove. But with some encouragement from our [iMac Opening Wheel](#), the display comes off splinter-free—should we thank the lack of an IP rating for that?
- The ultra-thin optical in-display fingerprint sensor [by Goodix](#) hides under the display and requires some gentle pulling to come free.
- Lastly, we'll peel apart the Mi 11's vapor chamber cooling system, which combines with these multiple layers of graphite *and* AI to keep this machine cool. Copper and graphite are both [very efficient at offloading heat](#), so we're not sure how much the AI actually contributes here—but sure, why not!

## Step 12



- Since there's nothing left to pull out of this phone, it's time for a quick sum-up:
  - Once again Xiaomi packed a device with cutting-edge hardware, being evidently unwilling to make decisions between 5G and a 120 Hz screen. Time will tell if they found a winning balance, or just made a phone that will quickly chew through dual-cell batteries.
  - We're happy to see an internal design that accommodates independent battery and screen removals.
  - At the end of the day it's still glued together, so reassembly won't be fun—but at least the adhesives used here aren't as tough as some.

## Step 13 — Final Thoughts

### REPAIRABILITY SCORE:



- The Xiaomi Mi 11 earns a **4 out of 10** on our repairability scale (10 is the easiest to repair):
  - Only one standard Phillips screwdriver is needed.
  - The adhesive isn't super stubborn, although that might be because of the missing IP rating.
  - Many components are modular.
  - The screen and battery can be replaced separately, although the process can certainly be tedious.
- The glass body makes drop damage more likely, and the curved glass requires special tools or is likely to break during repairs.
- To replace the in-display fingerprint sensor, you'll need to remove the whole display—which can result in a broken screen.