



# Huawei P9 Teardown

Torn down in Germany on April 27, 2016

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# INTRODUCTION

The Apple Huawei P9 looks classy, familiar, and well-built, and has been making waves even far from Huawei's original audiences. Just how far did Huawei go to imitate (and perhaps surpass?) the iPhone? Time to tear this sucker down and find out.

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## TOOLS:

- [P2 Pentalobe Screwdriver iPhone](#) (1)

*Yep, we're serious.*

- [Phillips #00 Screwdriver](#) (1)
- [Tweezers](#) (1)
- [iSlack](#) (1)
- [Suction Handle](#) (1)
- [Spudger](#) (1)

## Step 1 — Huawei P9 Teardown



- Huawei made an iPhone a luxury unibody phone. Are the specs as pretty as the case?
  - 5.2" 1080 x 1920 (~423 ppi) IPS-NEO LCD
  - Huawei Kirin 955 Octa-core CPU (4x 2.5 GHz Cortex-A72 + 4x 1.8 GHz Cortex-A53) and Mali-T880 MP4 GPU
  - Dual 12 MP, f/2.2, 27 mm, Leica optics, dual-LED flash; 8 MP front-facing camera
  - 32 or 64 GB internal storage, expandable via MicroSD (up to 128 GB additional)
  - Rear-case-mounted fingerprint sensor
  - Android 6.0 Marshmallow

## Step 2



- Huawei beat Apple to the smooth-rear-case-punch, offering a slim phone, without the infamous *camera bump*.
- Antenna bands, chamfered edges, brushed aluminum and—Pentalobes? The P9 seems to have taken the iPhone design as law, down to the nasty proprietary five-lobed screws.
- ⓘ This marks the first time we've seen such a tiny pentalobe screw outside the Apple ecosystem; we can only hope this is an outlier, not a trend.
- ✳ Seriously, there's no good reason to use pentalobe screws. They are shallow and have round lobes, making them excessively easy to strip. The *only* reason to use them is to prevent the average user from getting them out.

## Step 3



- Following our iPhone design hunch, we break out the iSclack, just in case there's a [sneaky fingerprint sensor cable trap](#).
- Turns out Huawei fixed that too! A long accordion-like cable allows the rear case to be almost entirely separated from the rest of the phone, making disconnection easy.
- A little heat and some prying earns us a [somewhat familiar-looking](#) fingerprint sensor.

## Step 4



- Brackets and screws start flying as we dig right in, disconnecting the battery for starters.
- First to fall: the 8 MP,  $f/2.4$ , selfie cam, its connector secured by some simple tape.
- The front-facing camera is cute (and packs a pixel-dense punch), but we're *really* after its big brother(s).
- ❗ We're *slightly* bummed we didn't get to test out the fancy software features that compliment this hardware. The Perfect Selfie will have to wait.

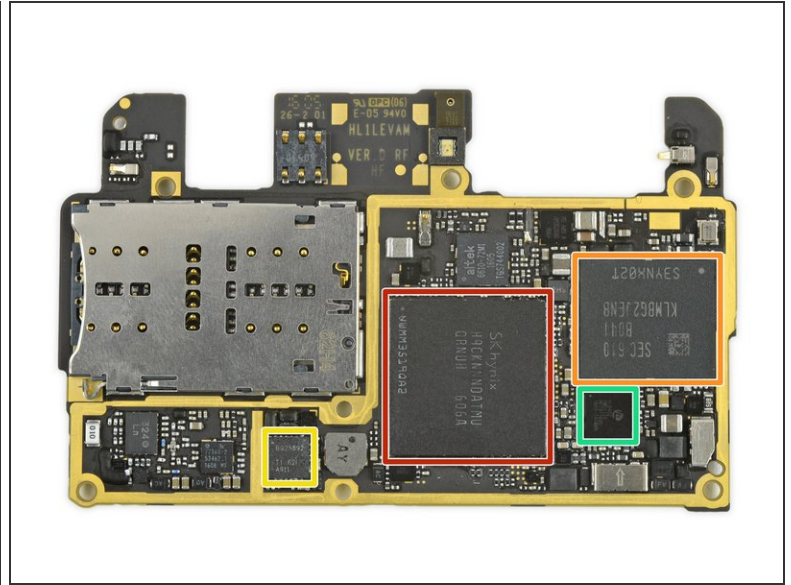
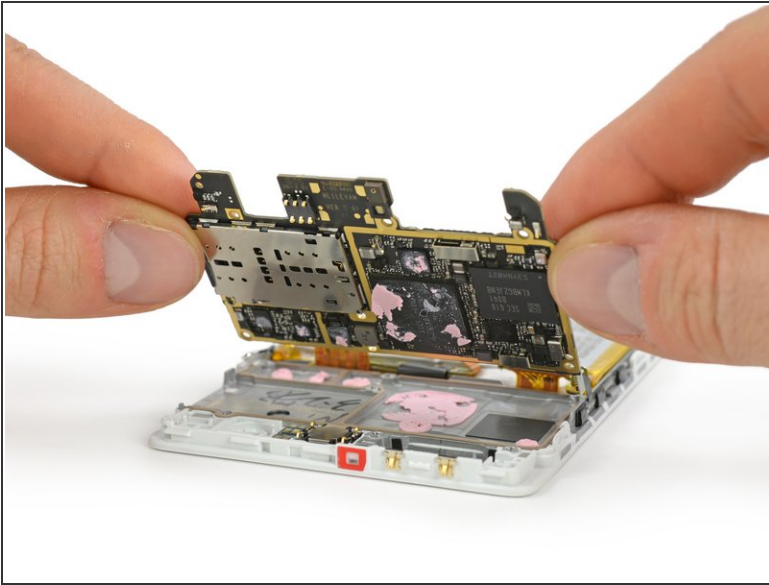
## Step 5



- The fancy dual-rear-facing camera is on a single ribbon cable, making it easy to pluck free.
  - ❗ This ([purportedly impressive](#)) dual camera unit is made up of two image sensors: An ordinary 12 MP RGB sensor, and a 12 MP monochrome sensor.
  - ★ The additional monochrome sensor aims to add depth and contrast to color photos (while functioning as a nice black-and-white camera, too).
- The dual-camera assembly is noticeably shorter than the bump-inducing iPhone 6s camera, but not by much.



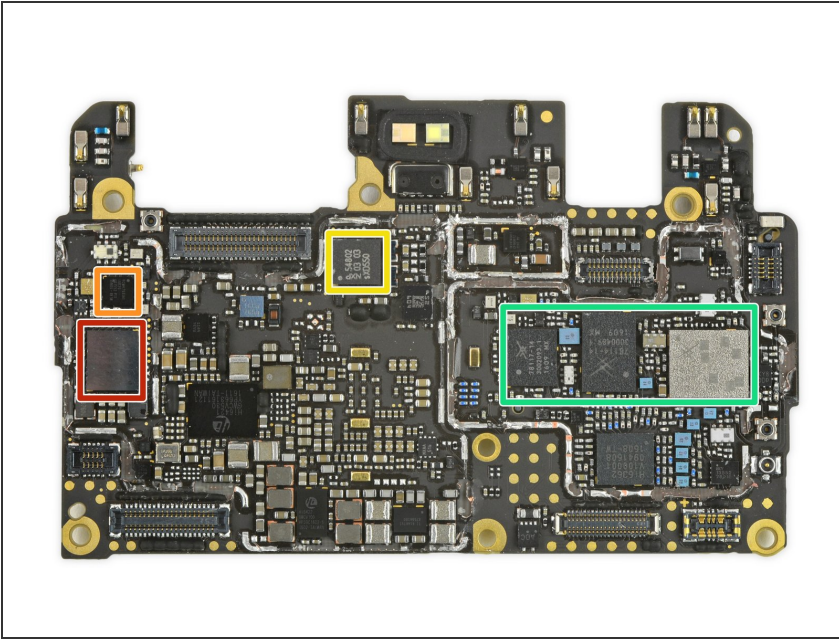
## Step 6



- Who left their gum in here? Peeling up the motherboard reveals more thermal paste in a phone than we've seen in awhile.
- Here are the front-side chips:
  - SKhynix [H9CKNNNDATMU](#) 24 Gb (3 GB) LPDDR3 RAM
  - Samsung [KLMBG2JENB](#) 32 GB eMMC flash memory
  - Texas Instruments [BQ25892](#) fast charging IC
  - HiSilicon Hi6402 audio codec

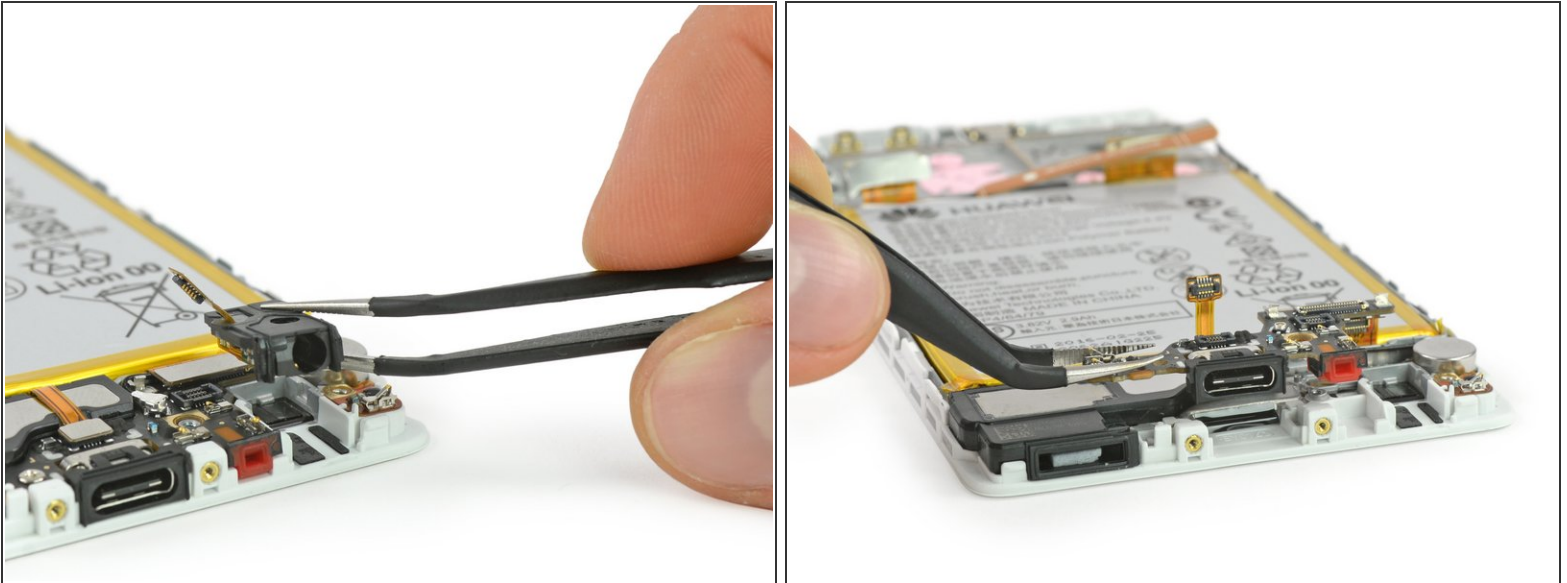


## Step 7



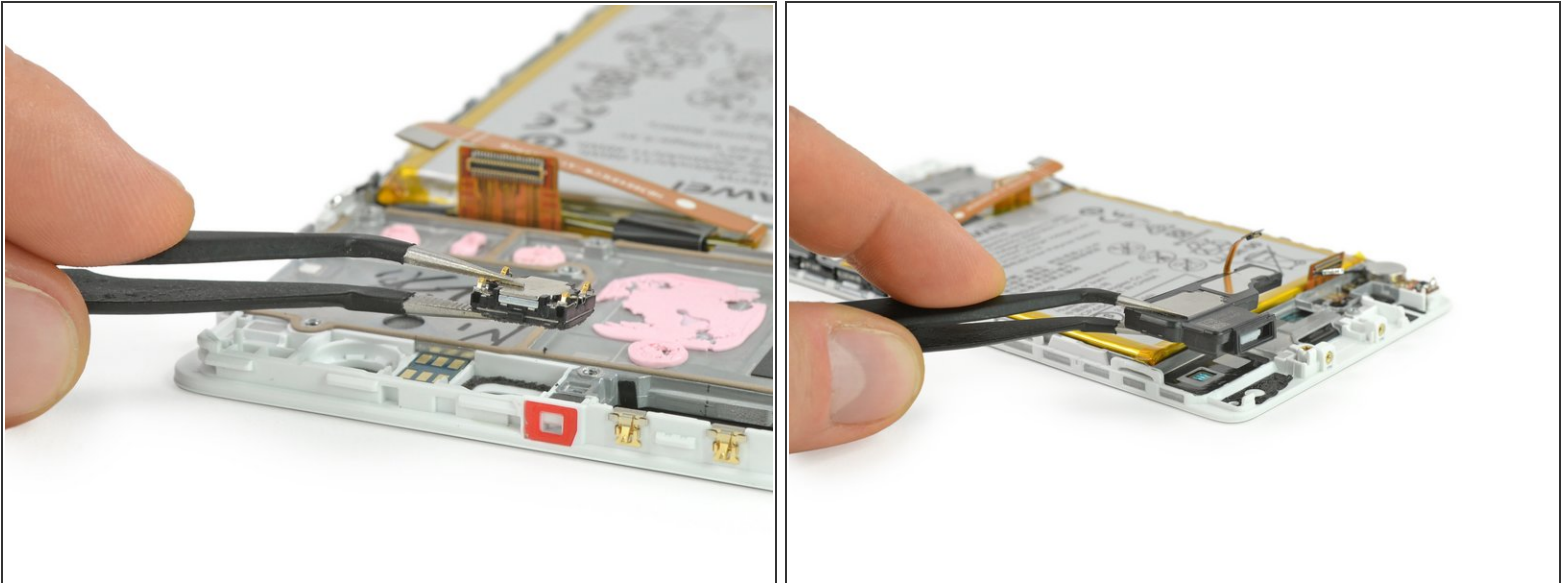
- And bringing up the rear:
  - Broadcom [BCM4345](#) 5G Wi-Fi and Bluetooth 4.0 controller
  - Broadcom BCM47531A1—likely similar to the [BCM4752](#) GNSS controller
  - NXP [54802](#) NFC controller
  - Skyworks [SKY78117](#), [SKY78114](#), and [SKY78113](#) SkyOne front-end modules for WCDMA/LTE and FDD/TDD LTE

## Step 8



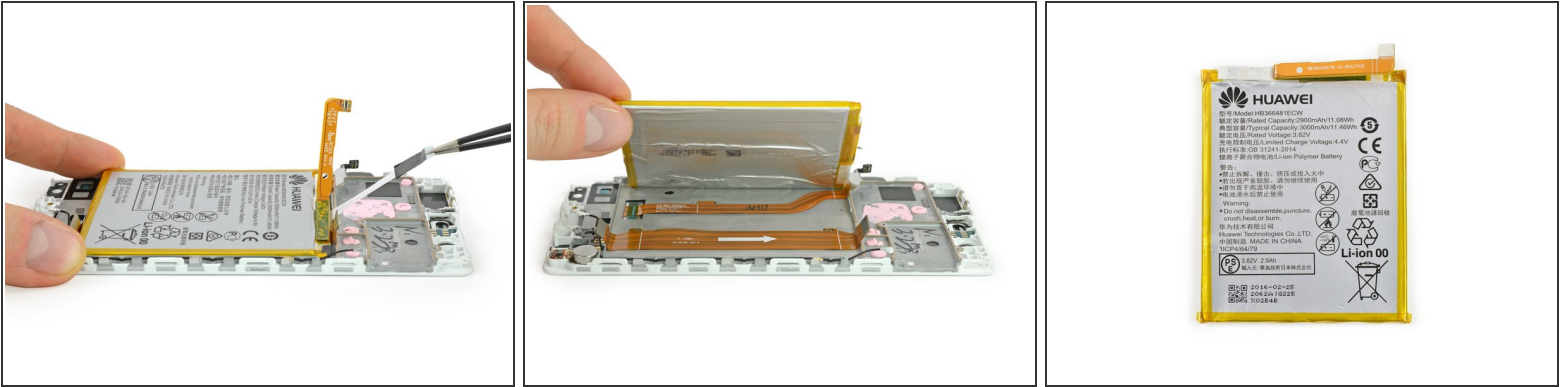
- Huawei is making it rain modular parts!
- Despite rumors of a headphone jack free iPhone, the P9 features a standard 3.5 mm audio jack, compatible with your existing headphones.
  - ⓘ It's also an independent, modular component that comes right out without desoldering!
- The USB-C daughterboard also comes free with minimal hangers-on.
  - ⓘ USB ports classically suffer a lot of wear—we plug our phones in at least once a day—so it's good to see a separate and easy to replace USB-C port.

## Step 9



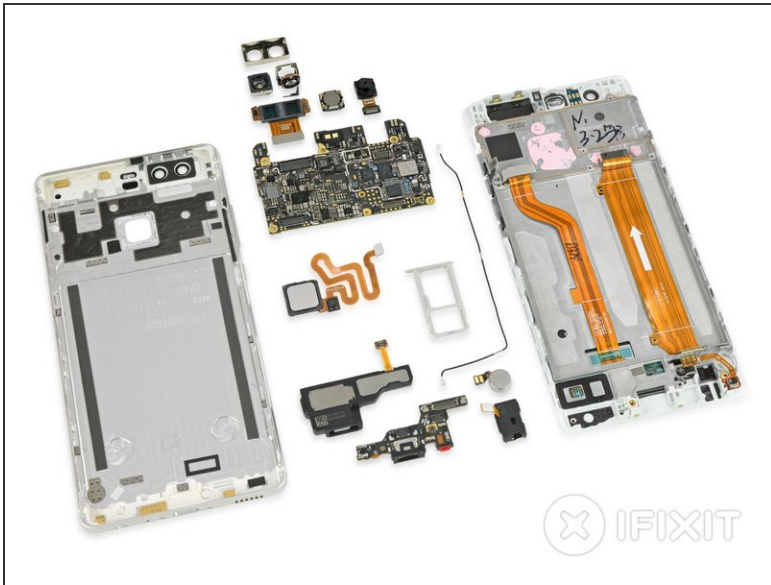
- The itty bitty spring-contact-connected earpiece speaker pops right out of the display assembly.
  - ⓘ Spring contacts are always a nice find, they make disassembly nearly foolproof.
- The loudspeaker (complete with foam plug) takes a little encouragement from a plastic opening tool, but is shortly freed as well.
  - ⓘ That bit of foam may be a method of ingress proofing for the speaker, keeping dust and pointy objects at bay. But it looks a bit like an afterthought, if you ask us.

## Step 10



- Pulling at some familiar black tabs we are elated to find adhesive pull tabs under the P9's battery.
  - ❗ We can't praise these tabs enough. They are an easy-to-use and inexpensive way to secure the battery in a reversible manner.
- And a good thing, too—with those two orange interconnect cables under the battery, prying through thick adhesive easily could have been dangerous for Mr. P9's health.
- Huawei lists a couple specs for their battery: A "rated capacity" of 11.08 Wh and a "typical capacity" a bit higher at 11.46 Wh.
- That puts the P9 battery ahead of the [iPhone 6s Plus](#)'s 10.45 Wh and just under the [Samsung Galaxy S7](#)'s 11.55 Wh battery.

## Step 11



- Huawei P9 repairability score: **7 out of 10** (10 is easiest to repair):
  - Modular components with spring contacts, thoughtful cabling, and minimal adhesive all make repair cheaper and easier.
  - The battery is straightforward to access. Removing it requires knowledge of the adhesive removal technique, but is not difficult.
  - The display assembly is a fused unit, and replacement requires near complete disassembly of the phone.
  - The P9 inexplicably uses Pentalobe security screws on the exterior, requiring a specialty screwdriver to open the phone.