



Samsung Galaxy S8 Teardown

Teardown of the Samsung Galaxy S8.

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INTRODUCTION

After the Galaxy Note7's fiery exit, Samsung is hoping to bring a different kind of heat with the Galaxy S8 series. [We've carefully dissected and analyzed the Galaxy S8+](#)—and now we turn our attention its smaller twin, the Galaxy S8.

Does the S8 have what it takes to blast off without blowing up? There's only one way to find out — Ladies and gents, it is teardown time.

Ready for more teardown action? Tweet along on [Twitter](#), get friendly with us on [Facebook](#), or follow along on [Instagram](#) for all the teardown you can handle.

TOOLS:

- [iOpener](#) (1)
 - [iSlack](#) (1)
 - [iFixit Opening Picks set of 6](#) (1)
 - [Spudger](#) (1)
 - [Phillips #00 Screwdriver](#) (1)
 - [Plastic Cards](#) (1)
 - [Tweezers](#) (1)
 - [Halberd Spudger](#) (1)
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Step 1 — Samsung Galaxy S8 Teardown



- Samsung seems to have gone all-out to provide the same smartphone experience regardless of your screen size preferences, and the Galaxy S8's specs bear that out. Any of this [look familiar?](#)
 - 5.8-inch, dual-edge, Super AMOLED display with 2960 × 1440 resolution (570 ppi)
 - Qualcomm Snapdragon 835 or Samsung Exynos 8895 processor, with 4 GB RAM
 - 12-megapixel rear camera with dual pixel autofocus and 4K video capture; 8-megapixel selfie camera
 - 64 GB internal storage, expandable via MicroSD card (up to 256 GB additional)
 - IP68 water resistance rating
 - Android 7.0 Nougat

Step 2



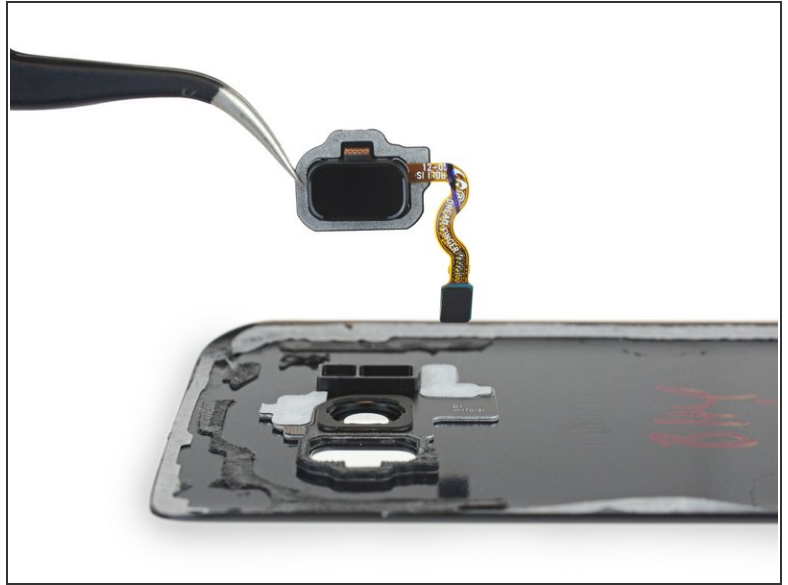
- Dimensions aside, the S8 fairly identically clones the look of the S8+. Features include:
 - Speaker grille and microphone hole
 - USB-C charging port and headphone jack (Apple: 0 Samsung: 1)
 - Pulse reader/flash assembly
 - Rear-facing camera
 - Fingerprint reader
- The S8 is a safe evolution on the S7 Edge—proportions, camera and sensor package location, and size are all fairly on par.

Step 3



- The Galaxy once again rocks the glass-on-glass design, making our lives difficult. We heat the heck out of this panel and apply plenty of prying picks.
- Once we get an edge open, the iSclack helps us crank through the rest of the gnarly adhesive (which will need replacing upon reassembly—**groan**).
- And we're in—to an S8+? This guy looks [pretty darn identical](#).

Step 4



- The fingerprint sensor lives in the rear case, [somewhat controversially placed](#). Using the thing (with your right hand) requires blindly stretching and blotting out the camera...
- The good news is that this sensor is modular and can be popped right off its adhesive for replacement. All it takes is a little heat and a good push.
- ① No word (yet) whether software locks ([à la iPhone 7](#)) will prevent a replacement from functioning.

Step 5



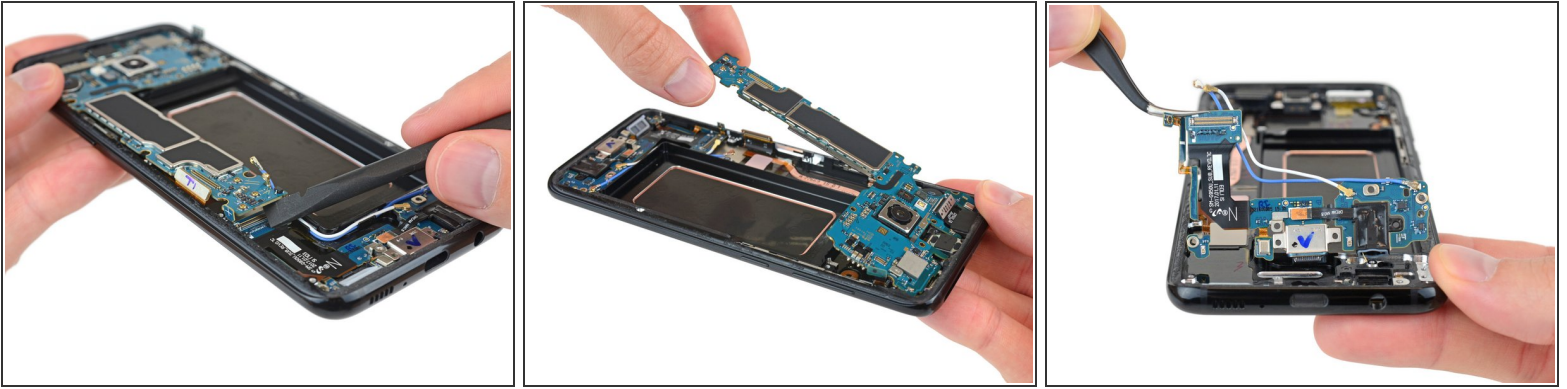
- As with its S8+ sibling, the S8 employs some sweet hardware multitasking. The speaker/antenna array, and antenna/NFC coil assembly, do double duty as the phone's midframe.
- ❗ Also like the S8+, the NFC antenna presumably does an additional job, spoofing [MST](#) to use Samsung Pay at any card reading checkout location.
- We're almost running out of things to say here—the rest of the phone looks [pretty much like the S8+](#) too, down to the wee pancake vibrator. It's like someone left the S8+ in their pocket on laundry day and it came out of the wash slightly shrunken, but no worse for wear.


Step 6



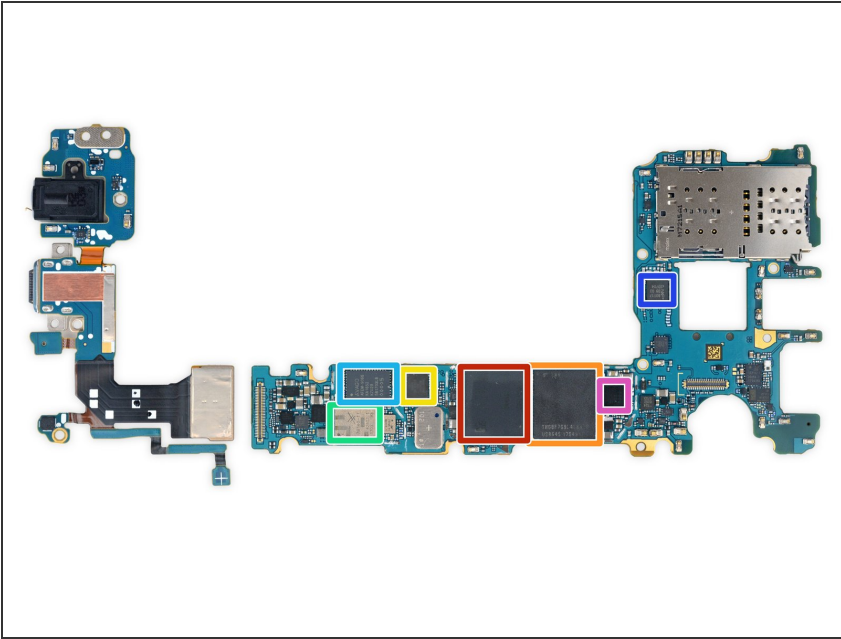
- You'd think that after Samsung's [less than stellar battery record](#), they'd have a quick eject system for these little ~~bombs~~ packs. And yet, this cell is firmly (and we mean *firmly*) adhered.
- And it's not like it's especially hard to have a removable battery—it's done [all over](#) the [phone world](#).
- The Samsung-branded [battery](#) clocks in at 11.55 Wh—comparable to the Google Pixel's 10.66 Wh, but dwarfing the (slightly smaller) [iPhone 7](#)'s 7.45 Wh battery.
- ⓘ The capacity comparison may look impressive, but [reports](#) seem to suggest that the actual performance is nothing to cheer about.

Step 7



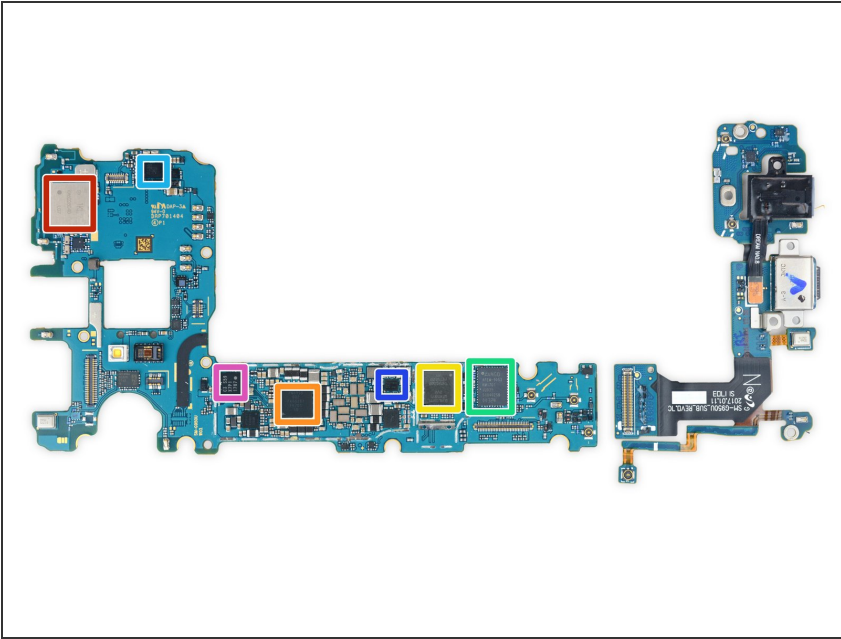
- The I/O board connector is *under* the motherboard in these late-model Galaxy phones. Because why not make things harder?
 - The motherboard itself pops out with relative ease, giving us a peep at that now-Samsung-standard heatpipe.
 - The I/O daughterboard configuration matches the S8+ right down to the modular headphone jack.
-  Since we've already gone through the [camera shenanigans](#), let's get straight to the chips.

Step 8



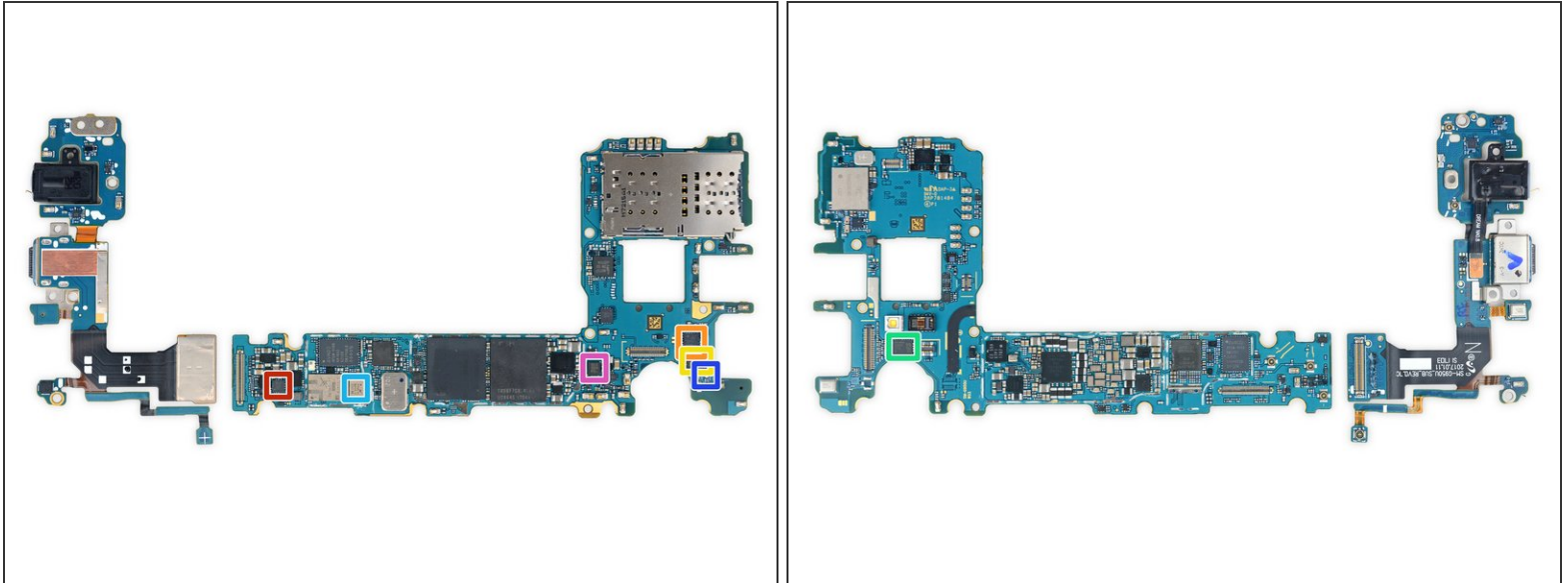
- We checked the ~~genetics~~ chips in the S8 to see if it is truly a smaller twin of the [S8+](#):
 - Samsung [K3UH5H50MM-NGCJ](#) 4 GB LPDDR4 RAM layered over the [MSM8998](#) Snapdragon 835
 - Toshiba [THGBF7G9L4LBATR](#) 64 GB UFS (NAND flash + controller)
 - Qualcomm [WCD9341](#) Aqstic audio codec
 - Skyworks SKY78160-11 WLAN front end module
 - Avago AFEM-9066 power amplifier module
 - NXP Semiconductor [PN80T](#) NFC controller w/ secure element
 - Silicon Mitus SM5720 interface PMIC

Step 9



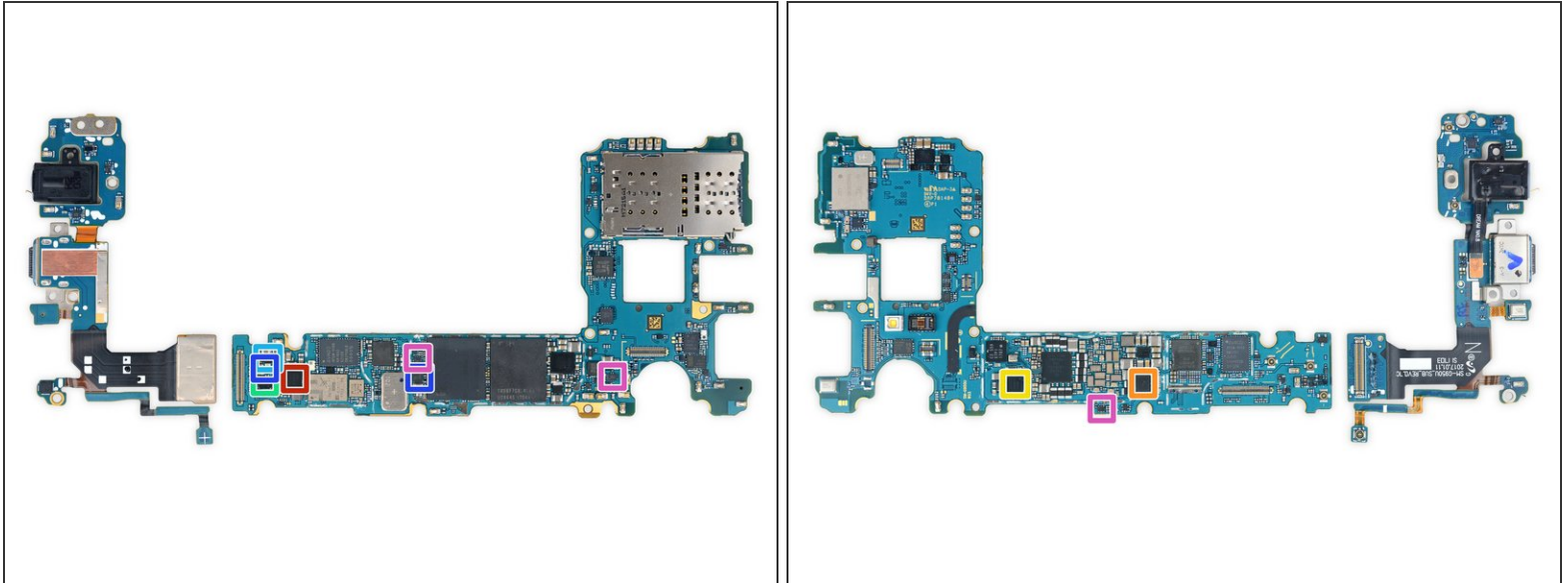
- On the opposite side we find:
 - Murata KM6D28040 Wi-Fi Module
 - Qualcomm PM8998 (similar to [PM8920](#)) Power Management
 - Qualcomm [WTR5975](#) RF Transceiver
 - Avago AFEM-9053 power amplifier (likely)
 - IDT P9320S wireless power receiver
 - Maxim MAX77838 companion PMIC (similar to [MAX77829](#)) (for AMOLED displays)
 - Samsung S59X7P1 image processor (likely)

Step 10



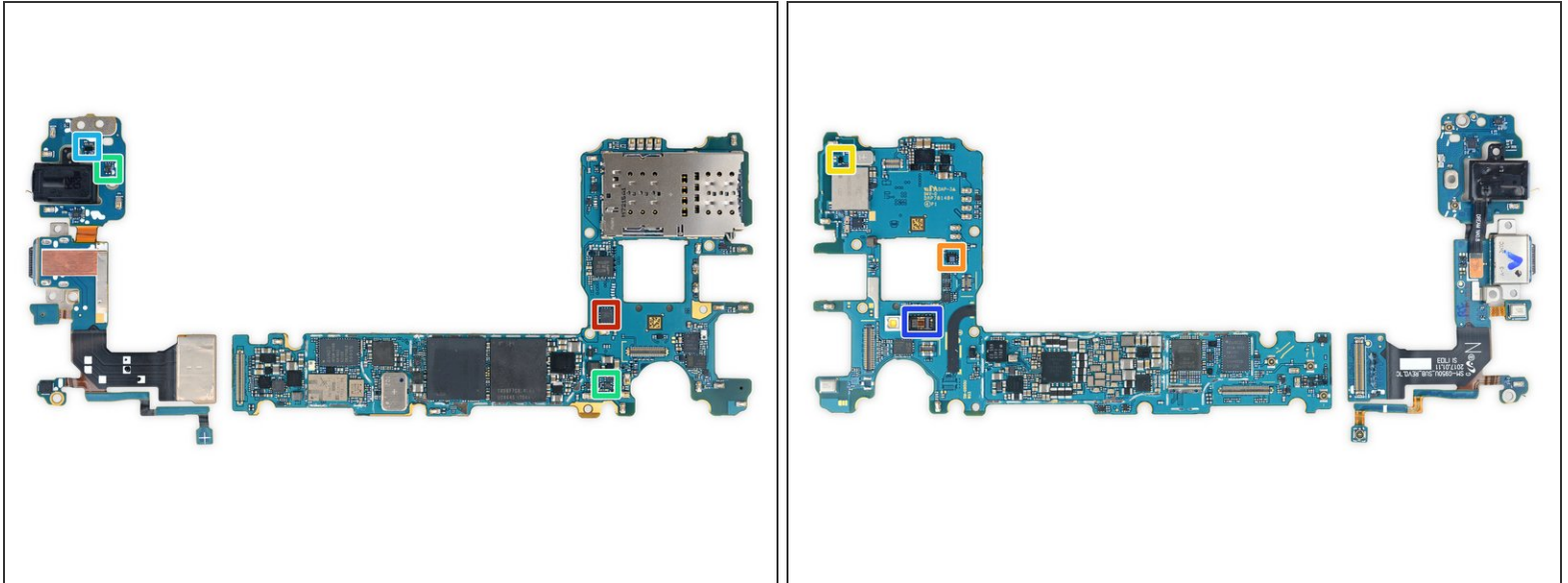
- IC Identification, pt. 2:
 - RDA Microelectronics RDA6213N FM transceiver (likely)
 - Skyworks [SKY13716-11](#) low band LNA front end module
 - Qualcomm ? D5319 mid-band diversity
 - Qualcomm ? D5320 high-band diversity (likely)
 - Skyworks [SKY77365-11](#) power amplifier module
 - NXP Semiconductor [BGU8103](#) GPS/GLONASS/Galileo/BeiDou Low Noise Amplifier
 - NXP Semiconductor [PCAL6524](#) 24-bit I/O expander

Step 11



- IC Identification, pt. 3:
 - Maxim MAX98506 audio amplifier
 - Qualcomm [PM8008](#) power management
 - Samsung S2MPB02 power management
 - Samsung S2MM005X02 USB power delivery controller (likely)
 - ON Semiconductor FPF3688UCX load switch
 - ON Semiconductor [FAN48618](#) voltage regulator and Richtek [RT8010GQW](#) 1 A DC/DC converter
 - Vishay [DG2730](#) 2 port, 480 Mbps DPDT USB 2.0 analog switch and NXP Semiconductor [NCX2200](#) comparator

Step 12



- IC Identification, pt. 4 (sensors):
 - STMicroelectronics [LSM6DSL](#) 3-axis accelerometer/gyroscope
 - STMicroelectronics [LPS22HB](#) Pressure Sensor
 - AKM Semiconductor AK09916C 3-axis electronic compass
 - Ablic (formerly Seiko Instruments) [S-5712CCDL1-I4T1U](#) Hall Effect Sensor
 - Semtech SX9320 Proximity Sensor (likely)
 - Analog Devices ? Heart Rate Sensor

Step 13



- That's it for the vanilla S8. If you haven't already guessed, we've got a [more detailed breakdown of the S8+](#), so check it out if you haven't already.
- With that, let's give the Galaxy S8 its repairability score.

Step 14 — Final Thoughts

REPAIRABILITY SCORE:



- The Samsung Galaxy S8 earns a **4 out of 10** on our repairability scale (10 is the easiest to repair):
 - Lots of components are modular and can be replaced independently.
 - The battery *can* be replaced, but tough adhesive and a glued-on rear panel make it unnecessarily difficult.
 - Front and back glass make for double the crackability, and strong adhesive on both makes it tough to access the internals for any repair.
 - Because of the curved screen, replacing the front glass without destroying the display is extremely difficult.