



Samsung Galaxy Note8 Teardown

Teardown of the Samsung Galaxy Note8 performed on September 7, 2017.

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INTRODUCTION

The [Note7](#) came in hot but went out in a show of flames and combustion. Rising out of its ashes is ~~Fawkes~~ the Note8! Samsung has pulled out all the stops on the specs of this phone, and [added a few stops](#) where the battery's concerned. Join us—and hopefully not the local fire department—as we open up the Samsung Galaxy Note8!

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TOOLS:

- [iOpener](#) (1)
 - [iFixit Opening Picks set of 6](#) (1)
 - [Spudger](#) (1)
 - [Phillips #00 Screwdriver](#) (1)
 - [Tweezers](#) (1)
 - [Halberd Spudger](#) (1)
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Step 1 — Samsung Galaxy Note8 Teardown



- The Note8 is a *tall* phone. Let's see what occupies all that space:
 - Edge-to-edge, 6.3" Super AMOLED display, 18.5:9 aspect ratio with 2960 × 1440 resolution (521 ppi) and Gorilla Glass 5
 - Qualcomm Snapdragon 835 processor with 6 GB RAM
 - 3300 mAh battery
 - Dual-lens, dual OIS main camera system with one 12 MP wide-angle lens with $f/1.7$ aperture and one 12 MP telephoto lens with $f/2.4$ aperture
 - 64/128/256 GB of internal storage with 256 GB available via microSD expansion
 - S Pen slot, USB-C port, and headphone jack
 - IP68 dust and water resistance rating

Step 2



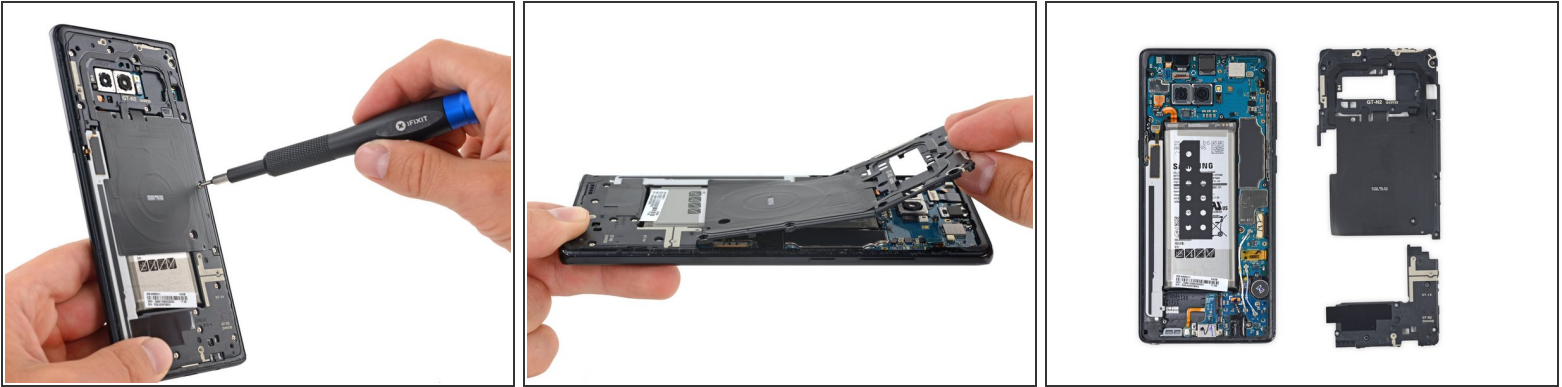
- You can see right through this phone if you squint hard and have the ability to fire [high-energy photons](#).
- The X-ray intel suggests a [somewhat familiar layout](#), but a little physical poking and prodding is definitely in order. Ready the tools!
- But first, a quick exterior comparison of the Note8 and [Note7 Fan Edition](#) reveals a bigger display, slimmer bezels, and a fingerprint sensor that has migrated to the back of the phone—where it's now joined by not one, but *two* cameras.

Step 3



- This glue-ridden heat-pry-and-slice opening procedure is certainly not our favorite, but [at least by now it's getting familiar](#). As usual, it all starts with our trusty [iOpener](#).
- Cracking open the phone, we spy a delicate fingerprint sensor cable. This makes carving through all that glue a bit treacherous as the cable might be easy to slice right through if you aren't expecting it.

Step 4



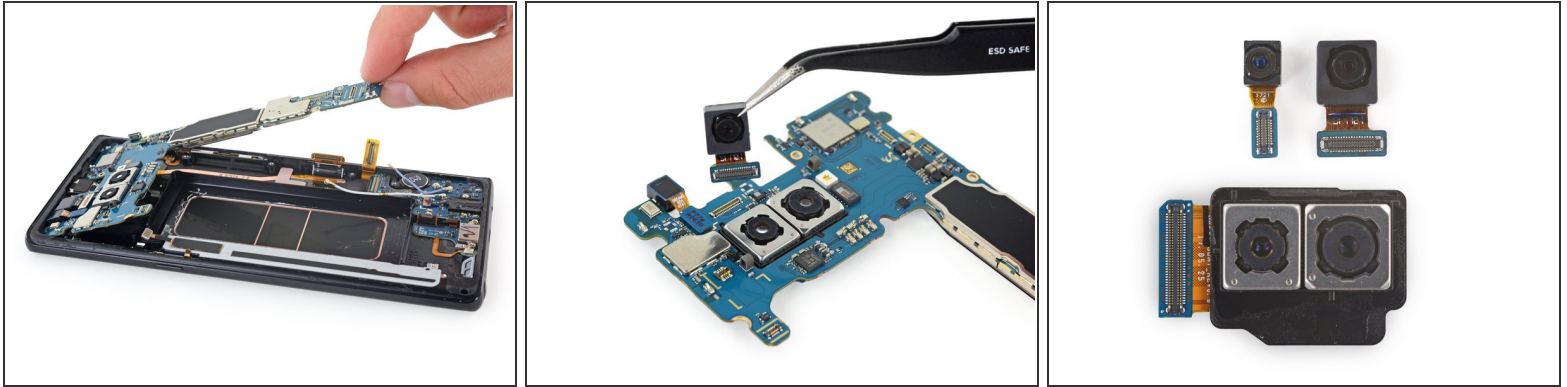
- We are pleased that we get to use a Phillips [driver](#) to remove the midframe/NFC antenna/PMA and Qi wireless charging coil combo.
- After removing that maxed-out midframe, we remove the bottom speaker assembly to get our first peek at the internals.
- ① Familiar components, [unfamiliar places](#)— the battery is placed nearly dead-center, and the vibrator migrated to the bottom right. Goodbye standard Note/Galaxy S layout.
- Is this a subtle response to past battery woes, or just Samsung working to tidy up? Time to take a look at that power plant.

Step 5



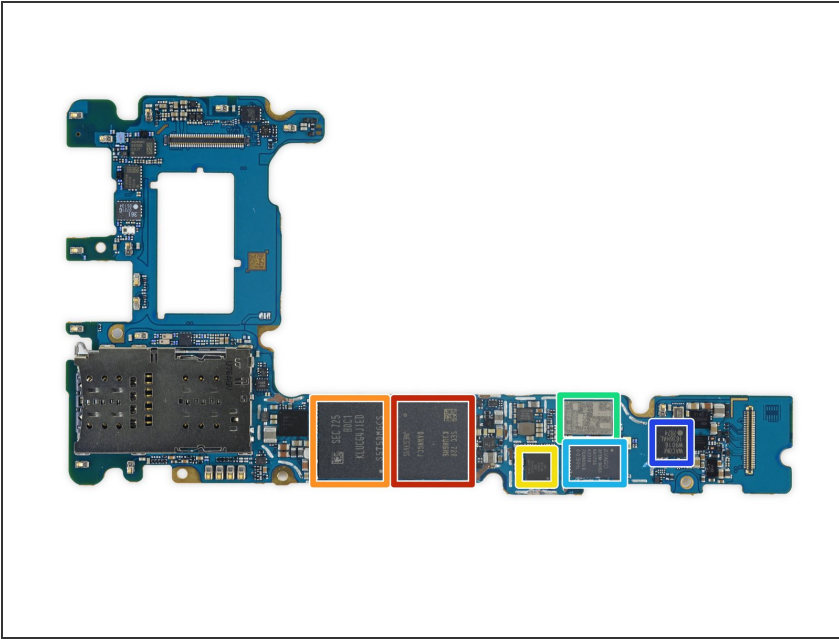
- In line with other recent Samsung phones, the battery squats in a little pit of glue-lined sadness, but we quickly set to work digging it free.
- A little heat can help soften the glue here, but heat and lithium-ion batteries form a combustible mix—so we opt for a [different solution](#).
- This Samsung SDI-made battery plonks down **12.71 Wh** (3300 mAh at 3.85 V) of capacity.
- That's 6% less than the [Note7's 13.48 Wh](#)—but keep in mind that battery burned in more ways than one. The [safely revamped battery in the Fan Edition](#) clocked in at only 12.32 Wh, so this actually represents an improvement (assuming of course no fire).

Step 6



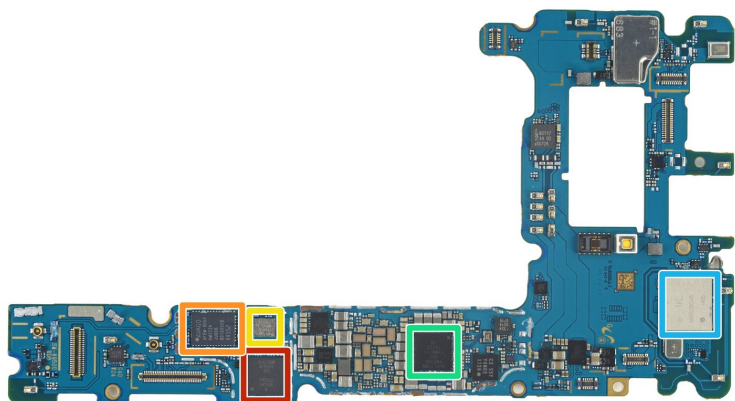
- Next we get our hands on the motherboard, along with the Note8's many cameras.
- If we were impressed with the number of cameras [last time](#), the new Note ups the ante with *four* cameras:
 - Facing the front of the phone we have an iris scanner and an 8 MP, $f/1.7$ camera.
 - Facing the rear we have Samsung's new dual camera module: one wide-angle and one telephoto camera, both with OIS. This system allows for some [pretty cool new features](#).
 - [OIS confirmed](#). This magic bonus image reveals a squad of dense, dark shapes—those'd be the magnets—surrounding both camera lenses. Neat!

Step 7



- Let's notate what powers all of this screen:
 - Samsung [K3UH6H60AM-NGCJ](#) 6 GB LPDDR4X SDRAM layered over a [Qualcomm Snapdragon 835](#)
 - Samsung [KLUCG4J1ED-B0C1](#) 64 GB UFS flash storage
 - Qualcomm [WCD9341](#) Aqstic audio codec
 - Skyworks 78160-11 power amplification module
 - Avago AFEM-9066 power amplification module
 - Wacom W9018 touch control IC

Step 8



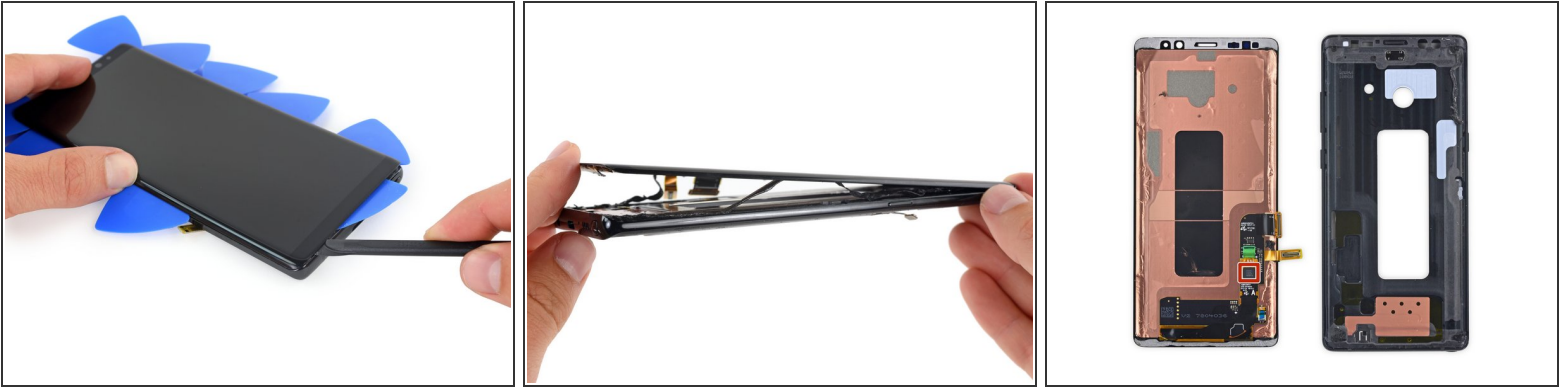
- Flipping the board over we find:
 - Qualcomm [WTR5975](#) RF transceiver
 - Avago AFEM-9053 power amplification module
 - Skyworks [77365](#) quad-band GSM/GPRS/EDGE power amplification module
 - Qualcomm PM8998 PMIC
 - Murata KM7628048 Wi-Fi module

Step 9



- We reserve the right to continue bellyaching about the opening procedure on these phones, but once inside it's not all bad news.
- The USB-C port, a component that will experience wear, can be removed with the daughterboard.
- Meanwhile, the 3.5 mm headphone jack is present (huzzah!) and completely modular. We find this [essential](#) on premium handsets.
- All that, plus an IP68 water/dust ingress protection rating that [bests Apple's efforts](#). Not too shabby.
- The front-facing sensor assembly is also present on its own little board—another easily replaceable module!
- Next we open up the S Pen compartment ... to find the S Pen. Kind of obvious I guess, but we couldn't help ourselves.

Step 10



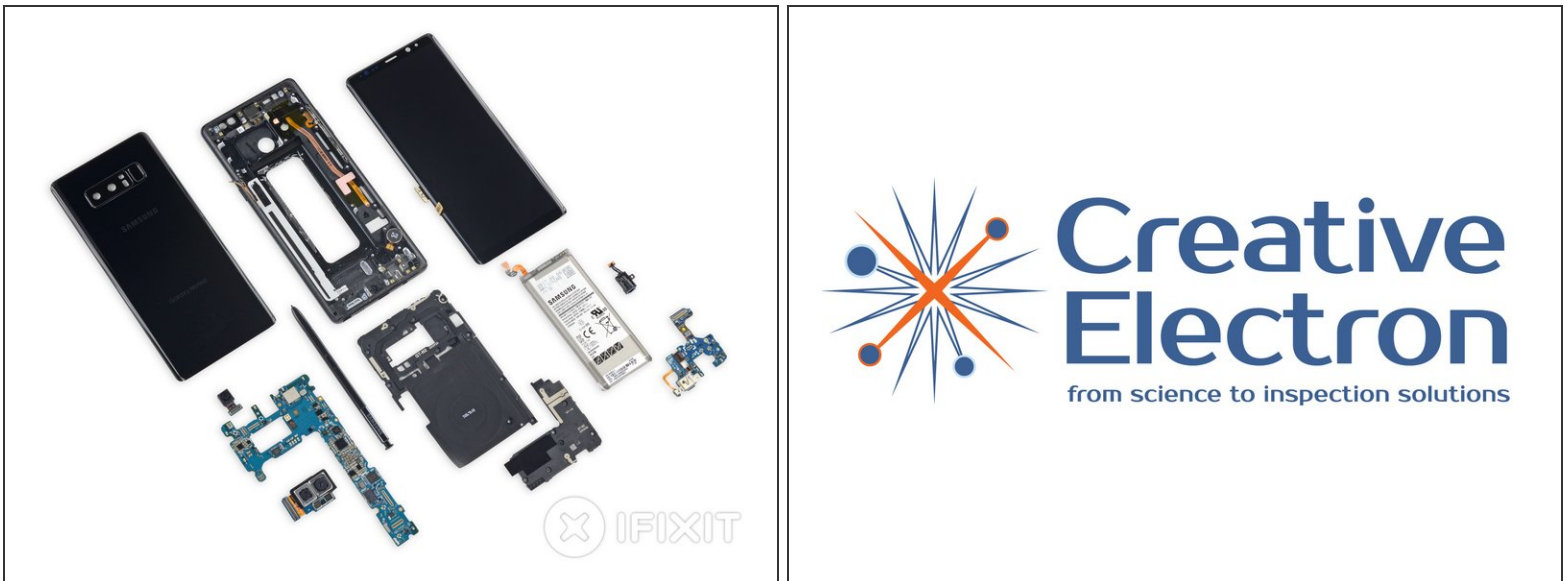
- The Note8's OLED panel has been much ballyhooed, with many superlatives, but we're mostly just interested in how it comes off.
- Answer: bring heat and allllll your opening picks.
- ⓘ This Samsung-manufactured display [bests all previous smartphone displays](#) and represents a significant step forward from what we saw in the S8 series just a few months ago. Small wonder that [a certain fruit company wants in on the action](#).
 - Along for the ride: Samsung S6SY661X (likely touch controller)

Step 11



- With both the Note7 and Note8 styluses on hand, we couldn't help but do our own comparison—Star Wars style.
- After glorious combat we asked our friends at [Creative Electron](#) to show us the inner-workings of the S Pen.
- ❗ Unfortunately, they found no kyber crystals.

Step 12



- We hope you took notes along the way, because this Note is kaput!
- Big thanks to [Creative Electron](#) for once again bringing our teardown into a new dimension!
- Feast your eyes on all the bits and stay tuned for a score.

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Step 13 — Final Thoughts

REPAIRABILITY SCORE:



- The Samsung Galaxy Note8 earns a **4 out of 10** on our repairability scale (10 is the easiest to repair):
 - Many components, including all of those that experience wear, are modular and can be replaced independently.
 - The only screws in this phone are standard Phillips screws.
 - The battery *can* be replaced, but tough adhesive and a glued-on rear panel make it unnecessarily difficult.
 - All repairs require removing the glass rear panel, which is challenging due to the large amount of adhesive.
 - Replacing the display requires removing the glass rear panel and the display, both of which are fragile and secured with strong adhesive.