



Nexus 5 Teardown

Teardown of the Nexus 5 phone, November 4, 2013.

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INTRODUCTION

KitKats, snapdragons, unlocked? Google is making us feel like we've got the golden ticket, as we head into Willy Wonka's—er, the Nexus 5. Will Google's latest smartphone be a sweet treat? Or will we be having nightmares of green-haired Oompa Loompas mocking us in rhyme? Join us as we find out.

Hungry for more? Candy-coated, delicious photos on [Instagram](#), bite-sized morsels on [Twitter](#), and a lifetime supply of goodies on [Facebook](#) are all yours for the taking.

[video: <https://www.youtube.com/watch?v=-wq0choeCdU>]

TOOLS:

- [iFixit Opening Tools](#) (1)
- [iFixit Opening Picks set of 6](#) (1)
- [Phillips #00 Screwdriver](#) (1)
- [Spudger](#) (1)
- [Tweezers](#) (1)

Step 1 — Nexus 5 Teardown



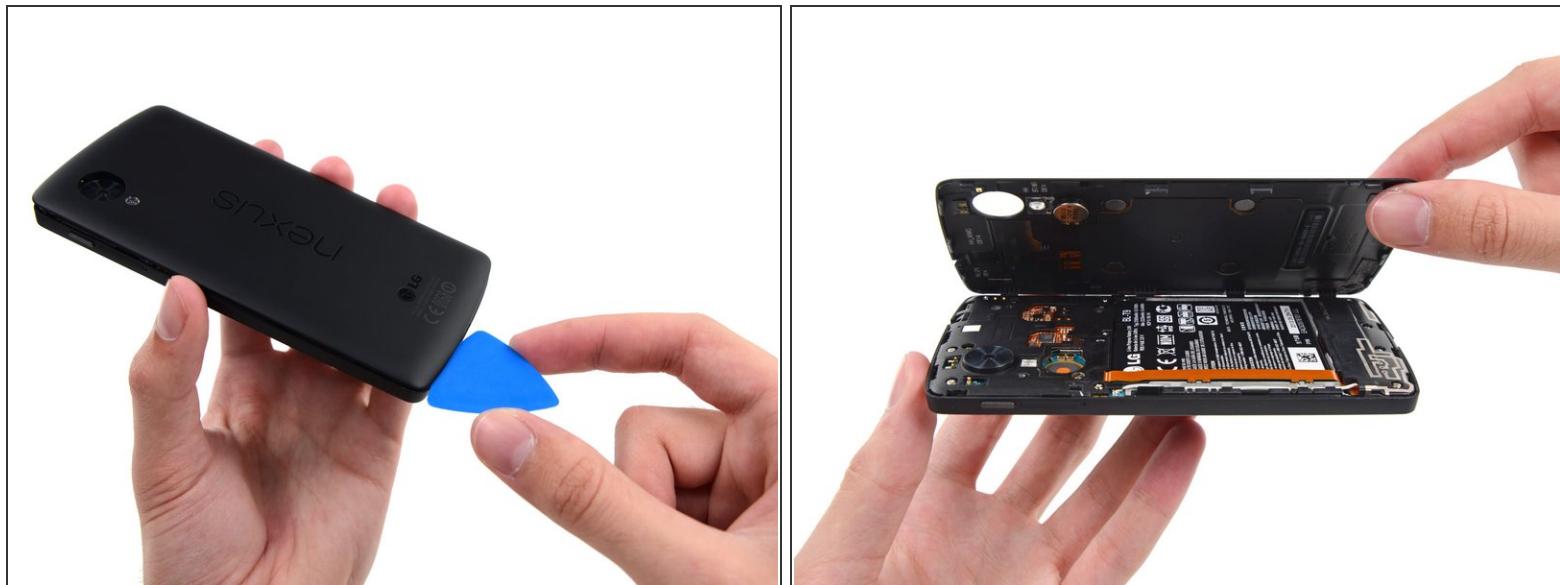
- The Nexus 5 is the first phone to ship with the latest version of Android's OS, KitKat. It may not be coated in chocolate, but it has plenty of tasty features:
 - 4.95" full HD 1920x1080 display at 445ppi
 - Quad-core, 2.26 GHz Snapdragon 800 processor and 450 MHz Adreno 330 GPU
 - 2 GB RAM
 - 8 MP/1080p rear camera with optical image stabilization, and 1.3 MP front-facing camera
 - 4G/LTE wireless support, 802.11 a/b/g/n/ac (2.4GHz and 5GHz) dual-band Wi-Fi, NFC, Bluetooth 4.0, and wireless charging
 - 16 GB or 32 GB built-in memory
 - Android 4.4 KitKat

Step 2



- Sounds of joy emanate from the teardown factory as we find this Nexus is held together by...plastic clips!
- These clips are plenty stubborn, but nothing like the headache that a glued panel would be.
- Agent P.O.T. ([plastic opening tool](#)) is deployed to handle this noble mission.

Step 3



- We may have cheered too soon—either someone spilled some chocolate syrup, or that's adhesive securing the bottom of the case.
- *(i)* Finding glue in your gadget is as much fun as finding chewed gum on your shoe.
- Luckily this bit of foam adhesive is no match for a few swipes of a plastic opening pick. Our poor fixer souls have [seen much worse](#) recently.
- With the adhesive out of the way, we get our first peek inside this delicious new device.

Step 4



- Before taking another bite, we pause to chew over the back case:
 - We find conveniently labeled antennas for the Wi-Fi, MIMO, and GPS. It's not quite instructions, but hey, we'll take what we can get.
 - The NFC and wireless charging cables' spring contacts aren't so nicely identified, but are present and accounted for.
 - The vibrator is held in place with only a small amount of adhesive. That means an easy repair, should your phone lose its ability to [shake it up](#).
- How many [licks](#) screws does it take to get to the center of a Nexus 5?
 - No matter the number, our [Pro Tech Screwdriver Set](#) is up to the task.

Step 5



- Google gives us the Goldilocks of glue: It's just enough to hold the battery in place, but not too much—the battery can still be removed with minimal prying and virtually no bending.
- Non-LG manufacturers, take note! We don't want none of your "that ain't possible" funny business when it comes to using glue in devices.

Step 6



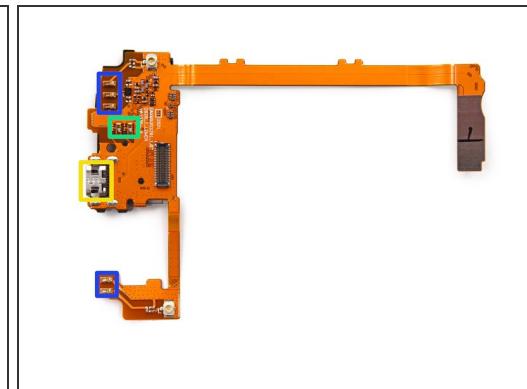
- LG's 3.8 V, 2300 mAh battery offers a slight jump in capacity over last year's [Nexus 4](#).
- Google boasts that this pack will keep you sugar-high for 17 hours of talk time, 300 hours of standby, or 7 hours of LTE web browsing.
- We're *pretty* sure this warning icon indicates that it's unsafe to let pets smaller than this battery anywhere near it.

Step 7



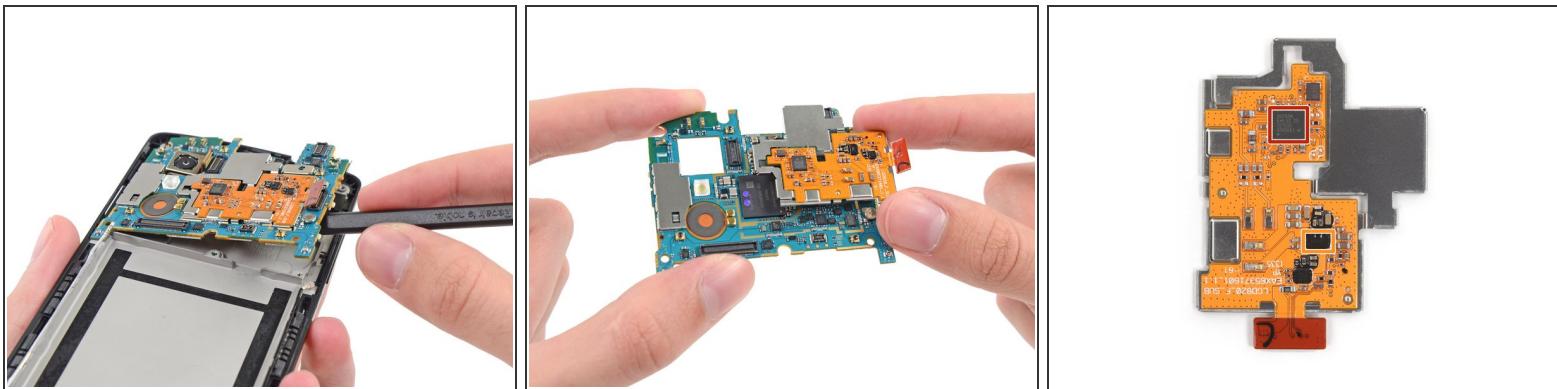
- Time to break us off a piece of this [KitKat phone](#)!
- The speaker pops out with minimal fuss; it's only secured by few screws and no cables. This is the Nexus [standard single speaker](#), despite the dual grilles.
- *(i)* No, this Nexus is not preparing for a BBQ—the second grille is for the microphone. Don't worry; we'll get there soon.

Step 8



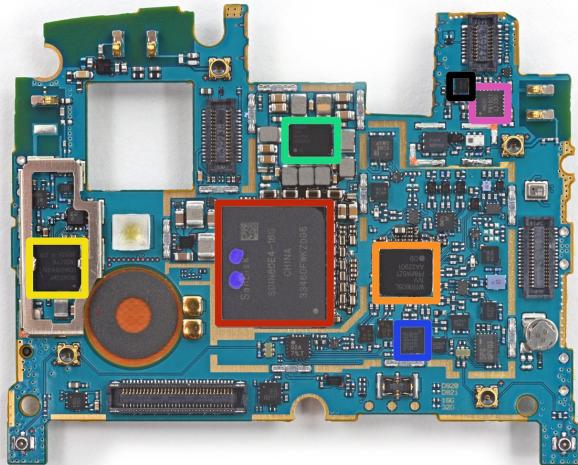
- We free the Oompa-Loompa-colored daughterboard, and she's got more goodies than the Easter Bunny:
 - Microphone
 - RGB Indicator LED
 - Micro-USB port
 - Speaker spring contacts
 - Antenna spring contacts

Step 9



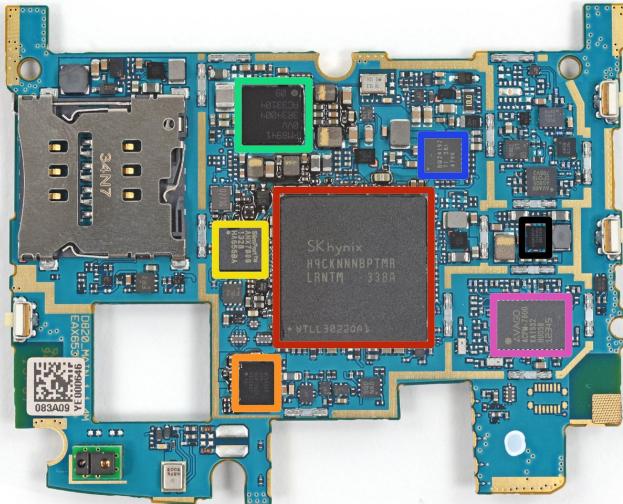
- Less tasty, but more powerful than a [Pixy Stick](#), our [spudger](#) makes motherboard removal easier than taking candy from a baby.
- We quickly spudge away the wireless charging control and NFC board. LG built this little board into an EMI shield assembly that pops in right over the motherboard.
 - [*i*](#) This shape reminds us a little of this [helpful KitKat map...](#)
- [*i*](#) NFC is the tech behind Google Wallet—one of the Nexus devices' most loved features and one often blocked by carriers. Last month, the [rumor mill speculated](#) that the Nexus 5 would feature a Broadcom NFC controller that could eliminate carriers' ability to wallet-block customers.
 - Lo and behold: the Broadcom [BCM20793M](#) NFC controller.
 - Also on board: Texas Instruments [BQ51013B](#) Qi 1.1 Compliant Wireless Power Receiver

Step 10



- That's some scrumptious silicon! Feast your eyes on these ICs:
 - Sandisk SDIN8DE4 16 GB NAND flash
 - Qualcomm [WTR1605L](#) LTE/HSPA+/CDMA2K/TDSCDMA/EDGE/GPS transceiver
 - Qualcomm [PM8841](#) power management IC
 - Broadcom [BCM4339](#) 5G Wi-Fi combo chip with integrated power and low-noise amplifiers (the updated version of the [BCM4335](#)).
 - Avago RFI335
 - InvenSense [MPU-6515](#) six-axis (gyro + accelerometer) MEMS MotionTracking device
 - Asahi Kasei [AK8963](#) 3-axis electronic compass

Step 11



- SK Hynix [H9CKNNNBPTMRLR-NTM](#) 2 GB LPDDR3-1600 RAM
- The Quad-core, 2.26 GHz Snapdragon 800 SoC is layered beneath the RAM
- Qualcomm [WCD9320](#) audio codec
- Analogix [ANX7808](#) SlimPort transmitter
- Qualcomm PM8941 power management IC
- Texas Instruments [BQ24192](#) I2C controlled 4.5 A USB/adapter charger
- Avago ACPM-7600 Multi Mode, Multi Band RF power amplifier
- Qualcomm [QFE1100](#) Envelope Tracking IC

Step 12

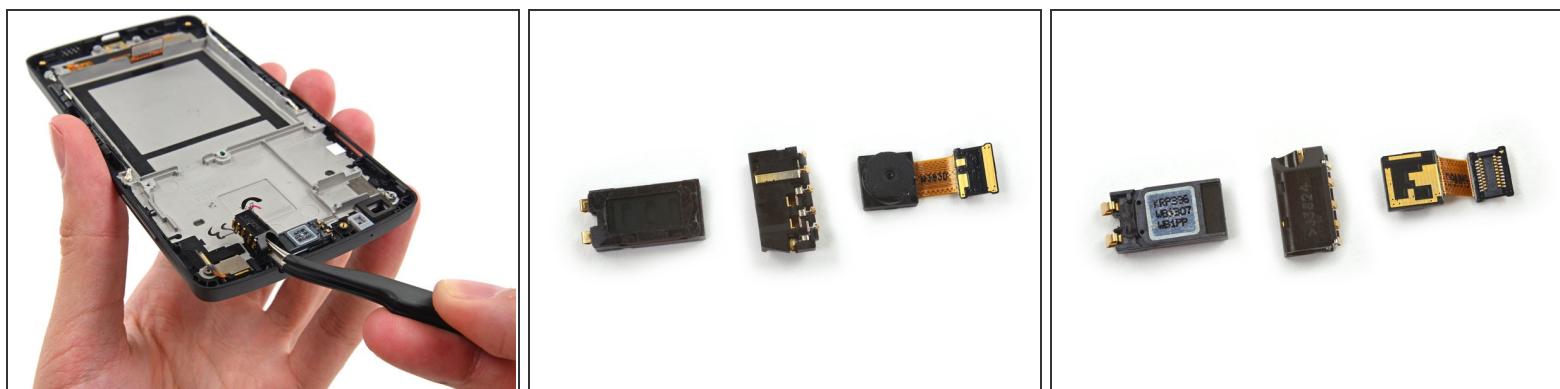


- Out next is the 8MP rear-facing camera.

i Google has taken some criticism for the less-than-impressive image capture in last year's candy-powered devices. This year they've added Optical Image Stabilization (OIS), but we've only heard [tepid reviews so far](#).

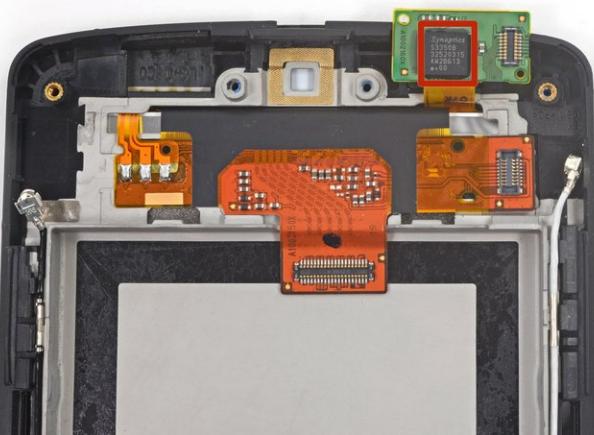
- The Nexus 5's OIS is powered by an InvenSense [IDG-2020](#) dual axis gyroscope.

Step 13



- We pop out the last of the bite-sized morsels in the Nexus 5:
 - Earpiece speaker
 - Headphone jack
 - 1.3 MP front-facing camera.
- What a treat! These components were modular and only lightly adhered, seasoned just to our repair tastes.

Step 14

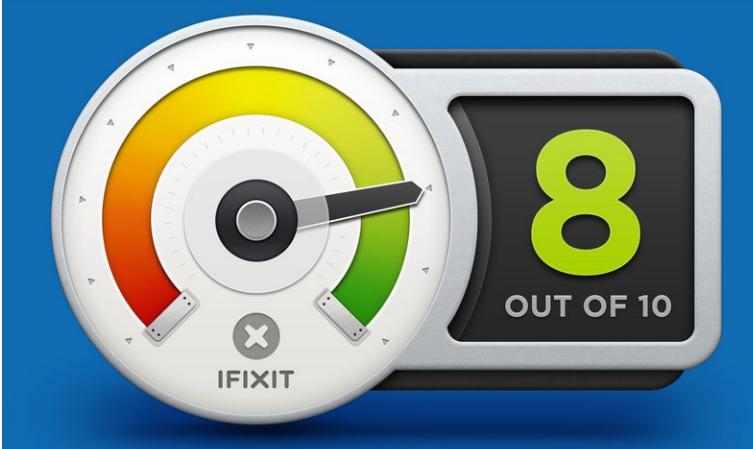


- Unfortunately, our hopes come crashing down like a blood sugar crash after a candy binge: the front panel is one fused flustercluck.
- While we saw this in the [Nexus 4](#), we had hoped the LG/Google team could learn the error of their ways.
- Alas, the front frame, LCD, and glass are doomed to a single shared death sometime down the road to [Candy Land](#).
 -  Imagine if one cavity meant losing *all* your teeth... Talk about a hard pill to swallow.
- Tucked in at the base of the display, a Synaptics S3350B IC provides touchscreen control.

Step 15



REPAIRABILITY SCORE:



- Nexus 5 Repairability Score: **8 out of 10** (10 is easiest to repair).
- Very modular design allows independent replacement of several wear-prone components—like the headphone jack and speakers.
- Only very mild adhesive holds the battery in place, making it fairly easy to safely remove and replace.
- Standardized screws (ten identical #00 Phillips) simplify repairs and reassembly.
- The back cover is held in place with plastic clips. Sturdy and rather difficult to remove, but easier than glue.
- The glass and LCD are fused to the display frame. Fixing broken glass will be either expensive or very difficult.

To reassemble your device, follow these instructions in reverse order.