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.

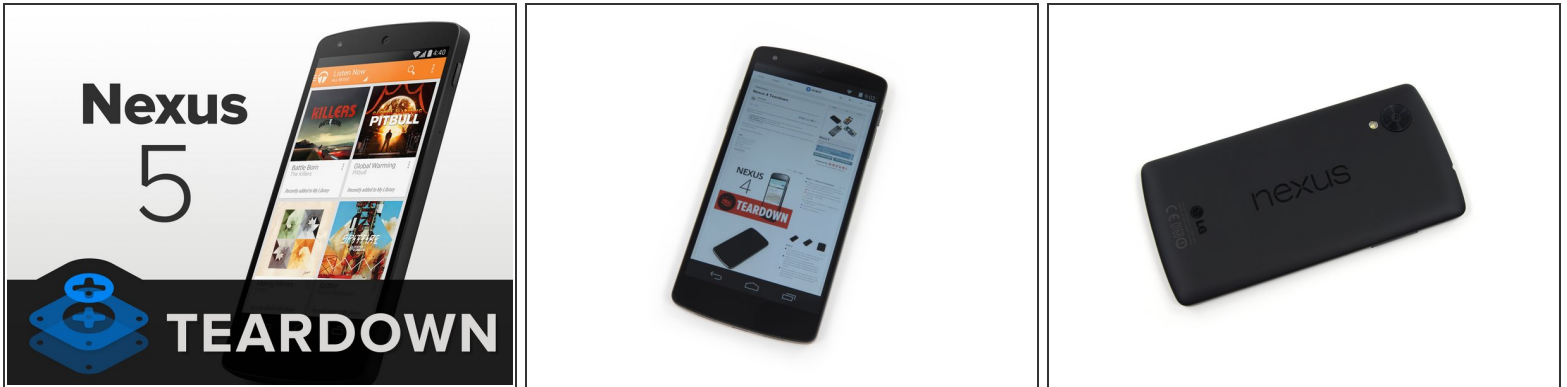[video: https://www.youtube.com/watch?v=-wq0choeCdU]

TOOLS:

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

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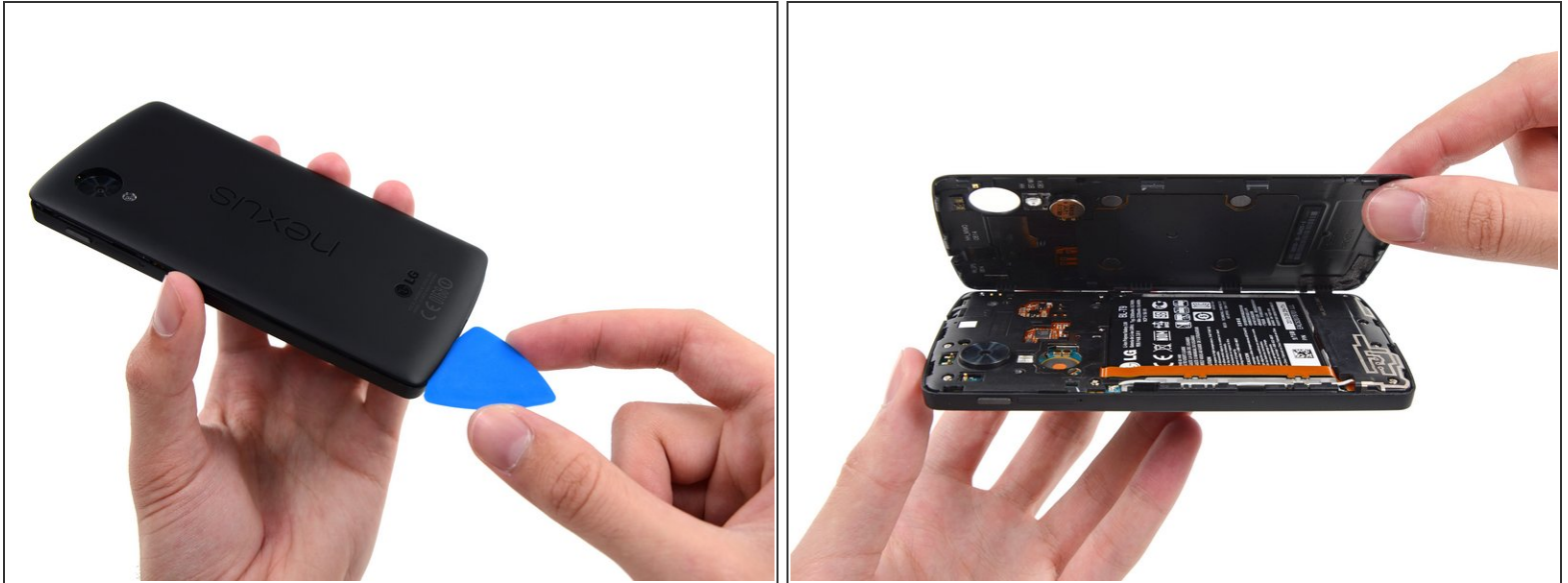
Step 1 — Nexus 5 Teardown

- 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

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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.

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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.
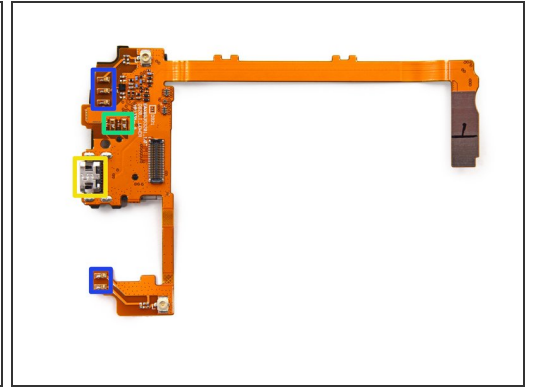
Step 6

- 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.
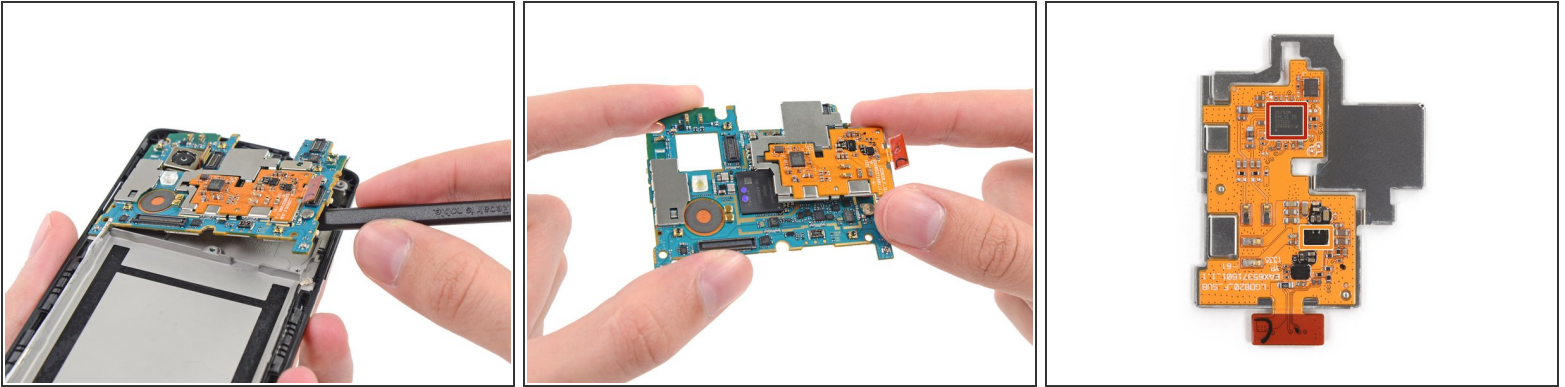
Step 7

- 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.
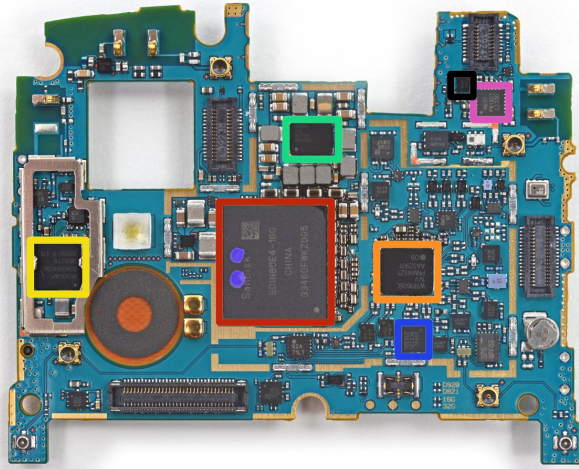
Step 8

- 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
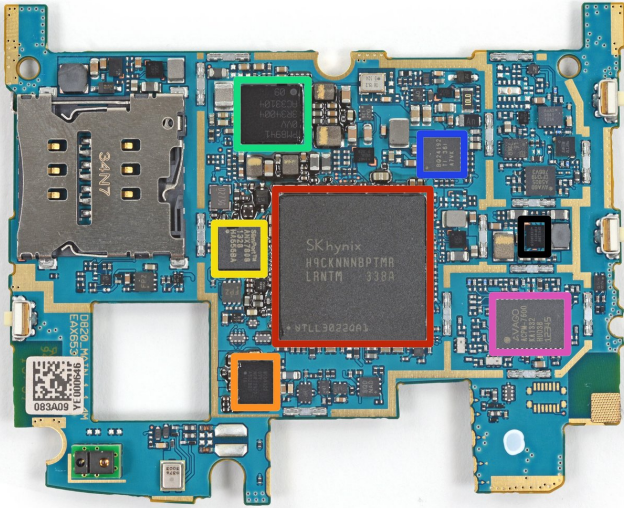 - Antenna spring contacts

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

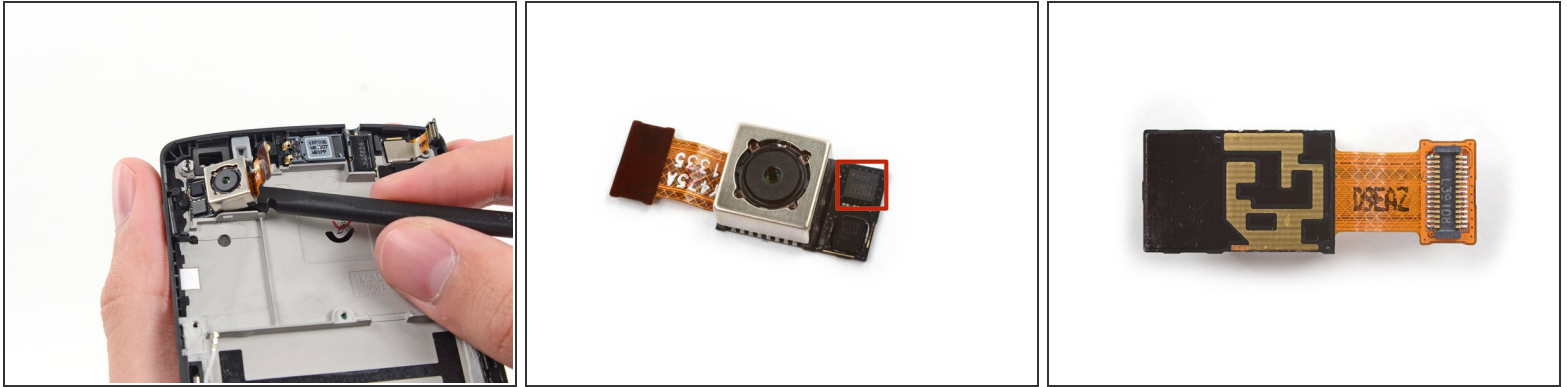This document was generated on 2020-11-14 01:43:24 PM (MST).

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

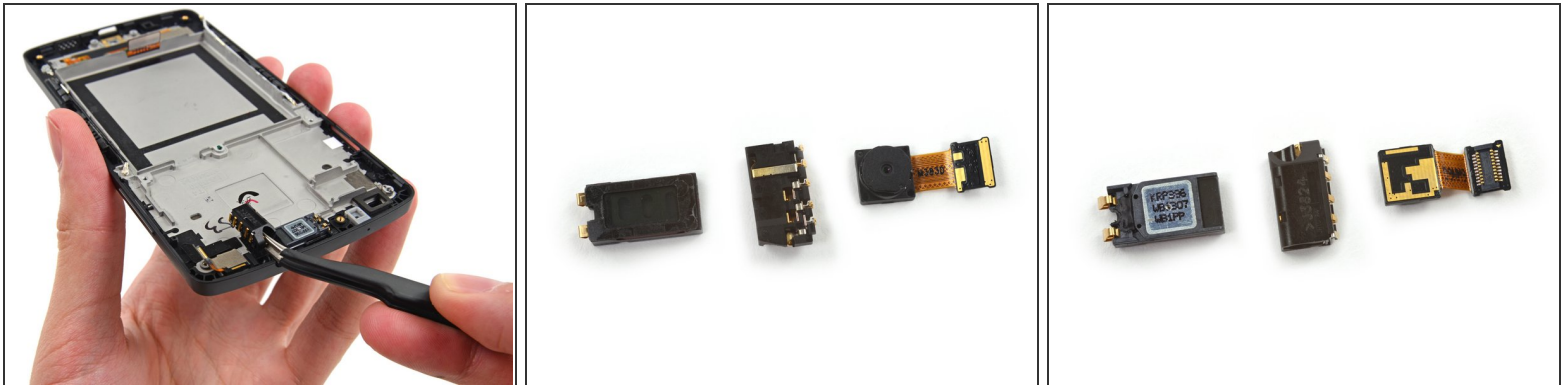 - Asahi Kasei AK8963 3-axis electronic compass

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

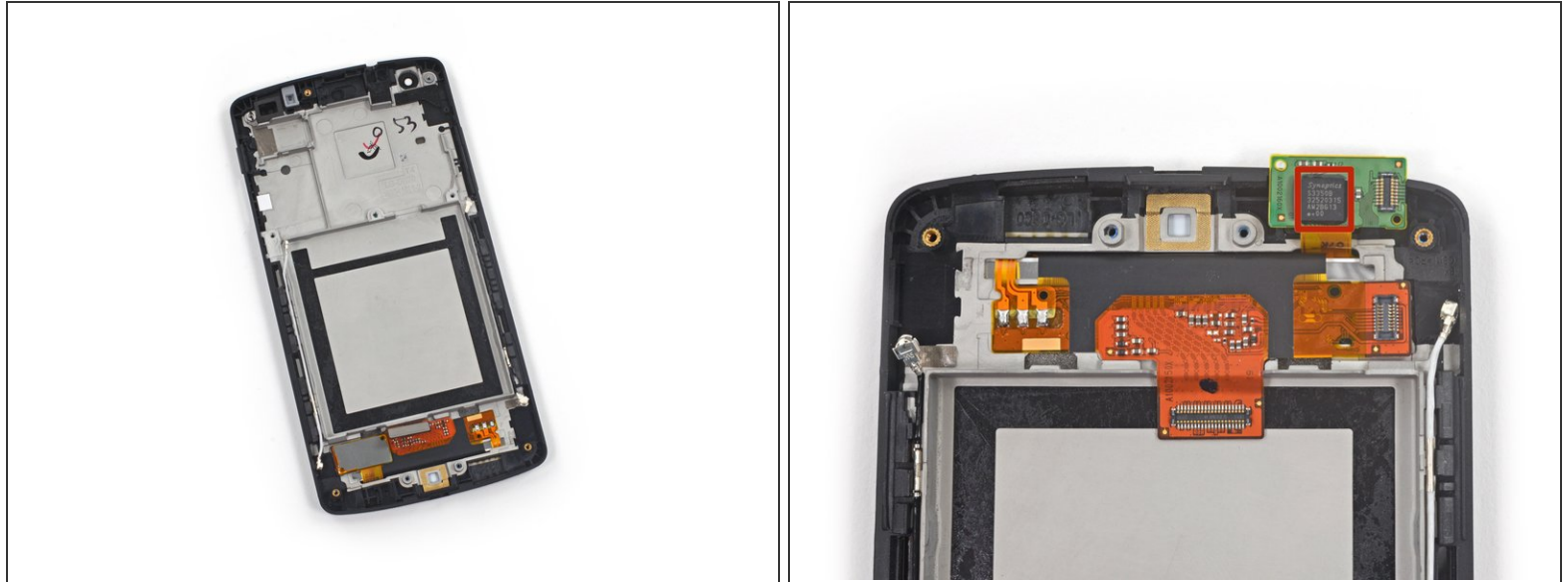This document was generated on 2020-11-14 01:43:24 PM (MST).

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.

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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

- 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.

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