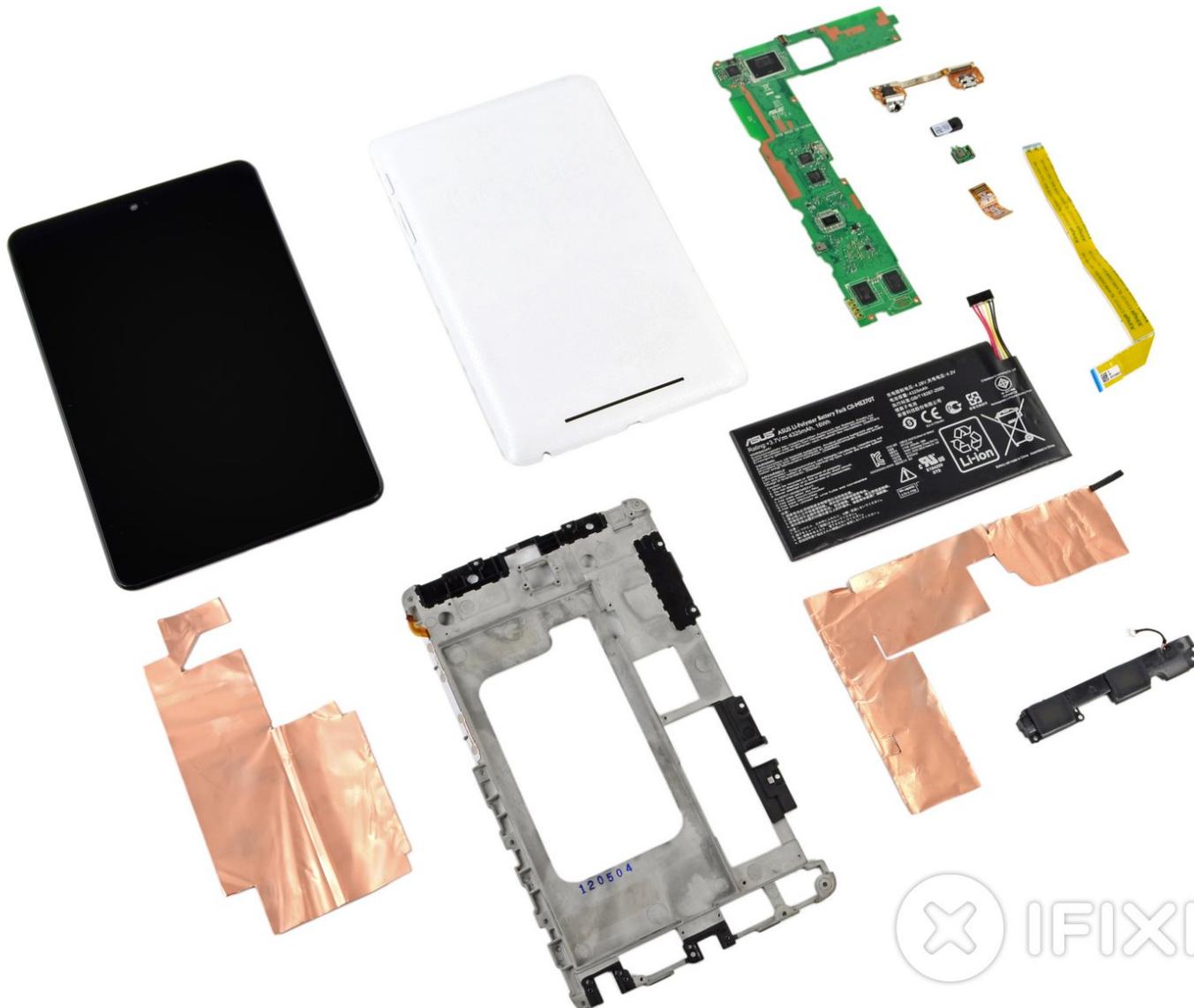




# Nexus 7 Teardown

The Nexus 7 was dismantled into pieces on July 3, 2012.

Written By: Jake Devincenzi



## INTRODUCTION

Google announced the Nexus 7 at their I/O keynote on June 27, 2012. Five days later, we tore one down. Some are calling the Nexus 7 a 'Kindle Fire killer,' but can it stack up to the Fire's impressive 8 out of 10 [repairability score](#)? We just had to find out.

Want to be kept in the loop with the latest teardowns? Follow us on [Twitter](#)!

Want to natively view our repair manuals on your Android device? [Download the iFixit app now!](#)

[video: <http://www.youtube.com/watch?v=xZL1mly7rZ0>]

### TOOLS:

- [Phillips #00 Screwdriver](#) (1)
- [iFixit Opening Tools](#) (1)
- [Spudger](#) (1)

### PARTS:

- [Google Nexus 7 \(1st Gen\) Midframe](#) (1)
- [Nexus 7 \(1st Gen\) Power & Volume Button Covers](#) (1)

## Step 1 — Nexus 7 Teardown



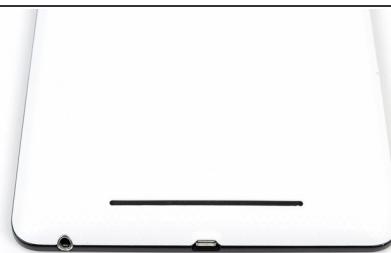
- The Nexus 7 is the latest challenger in the ever-expanding 7-inch tablet arena. Let's see what the folks at Google and Asus packed into this little package.
  - 8, 16, or 32 GB storage
  - 1 GB RAM
  - Quad-core Tegra 3 processor
  - 7" 1280x800 (216 ppi) back-lit IPS display
  - 1.2 megapixel front-facing camera
  - Android 4.1 "Jelly Bean"

## Step 2



- The only ports on the exterior of the Nexus 7 lie on its lower edge. Sorry port junkies, micro USB and 3.5 mm audio are the only gateways you'll find here.

## Step 3



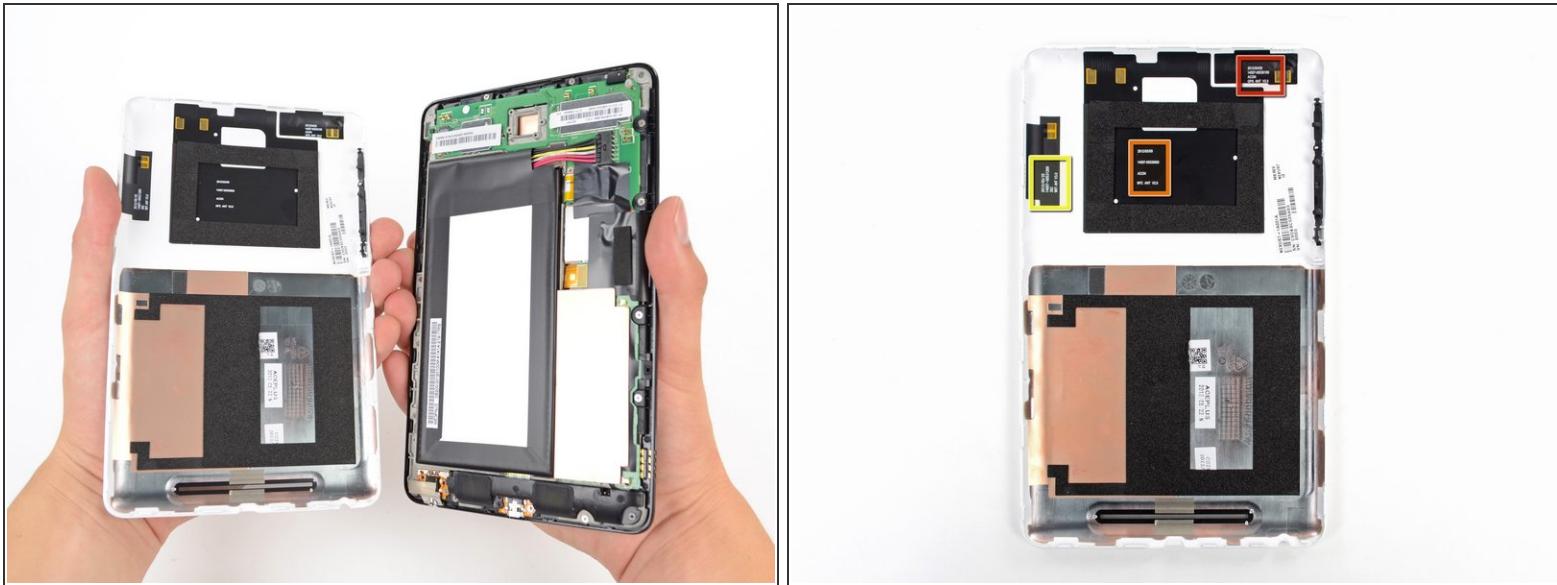
- When we first heard about the Nexus 7, we assumed it was the [secret Pentagon program](#): "A controversial intelligence program...known as Nexus 7, previously undisclosed as a war-zone surveillance effort, it ties together everything from spy radars to fruit prices..."
- Alas, this Nexus 7 is from [the other intelligence agency](#): Google. Even though it's not a secret Pentagon initiative, it does feel pretty stealthy and versatile for \$200.
- The white back of our Nexus proves it was an I/O original. And what's that? It's running an iFixit app? That's right folks; as of today, you can natively view our repair manuals on your Android device. [Download now!](#)

## Step 4



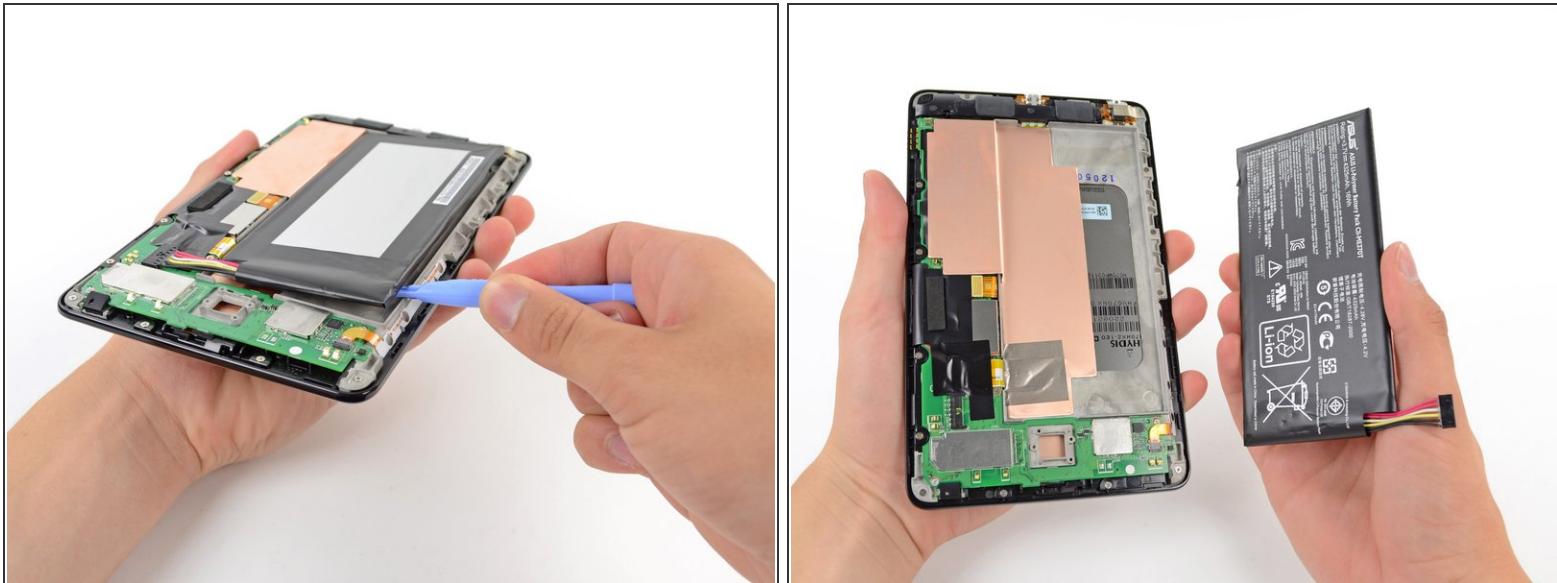
- [Plastic opening tools](#) make cracking the Nexus shell like cutting through [butter](#), thanks to its retaining clips around the perimeter of the device.
- **One millimeter.**
  - That's the difference in thickness between the 9.4 mm [glued iPad](#) and the 10.4 mm retaining-clipped Nexus.
  - That's the difference between being able to open a device and service all of its internals, and not.
  - That's the *negligible* difference between extending the life of your device through repair, as opposed to tossing it in a landfill.
- And most of all, nobody will complain about that one millimeter difference in day-to-day use, but the user-serviceability it brings will make [all the difference](#) when the [device breaks](#).

## Step 5



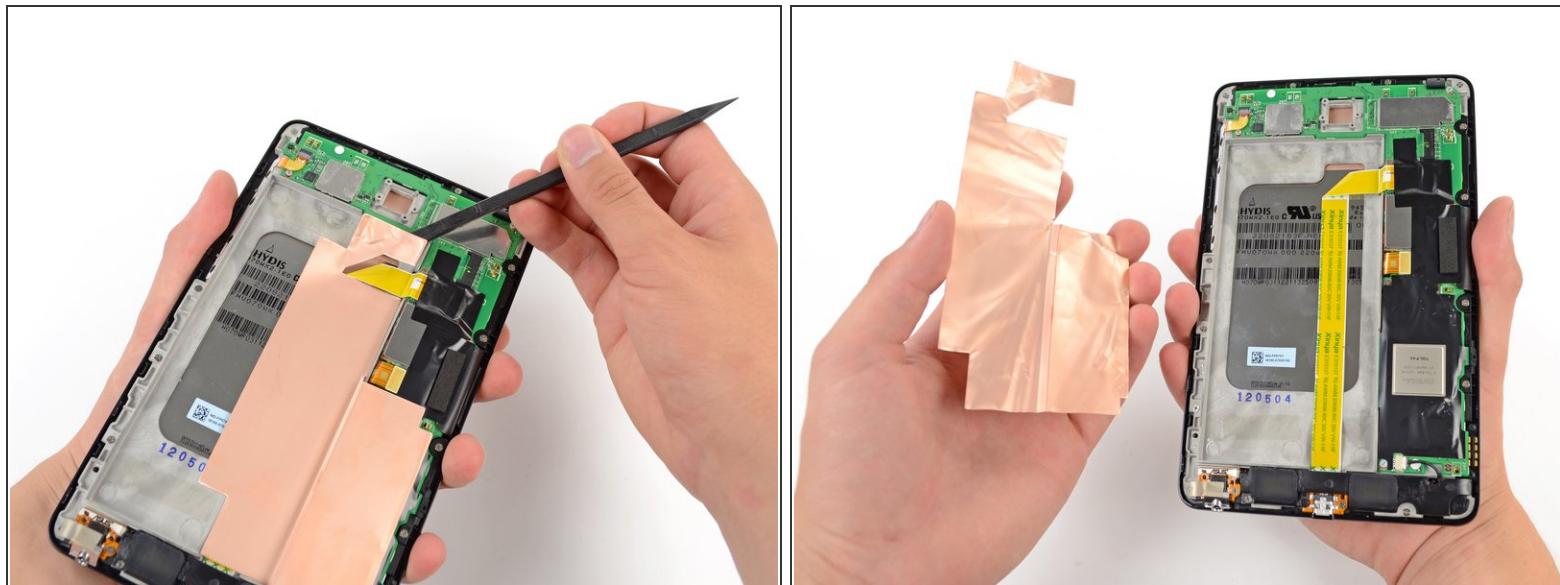
- And so it opens.
- Though the back cover's dark and light layers remind us of something a Stormtrooper would have in his arsenal, we're more interested in the cryptic markings we found:
  - GPS ANT V2.0 2012/04/20
  - NFC ANT V2.0 2012/05/09
  - WIFI ANT V3.0 2012/05/25
- We're purely speculating here, but we think these are antennas that were made somewhere between late April and late May.

## Step 6



- The front case assembly has exactly what we always expect inside a tablet: a big battery.
- The Nexus 7 has a 4326 mAh, 16 Wh battery that can last [9:49](#) hours. The Kindle Fire, by comparison, has a 4400 mAh, 16.28 Wh battery -- but only lasts [7:42](#) hours. Go figure.
- For further comparison, this time falls right in between the [batteries found in the 2012 iPad](#) models, which have 9:52 hours for HSPA and 9:37 hours for LTE. Except that the iPad 3 units are *slightly larger* at 42.5 Wh / 11500 mAh.
- Unlike the iPad batteries, this battery was actually quite easy to remove; there was only a small amount of adhesive around the metal frame.

## Step 7



- Our trusty [spudger](#) makes quick work of the copper film found beneath the battery.
- This could be a heat sink since it seems to be made of a copper alloy, possibly copper-tungsten, or copper-molybdenum. However, it is more likely that it's just an EMI shield.
- [Engadget remarks](#) that the Nexus 7 doesn't get "disconcertingly hot," rather "just a little toasty".

## Step 8



- Next, we used our [driver](#) to remove the Phillips screws holding the speaker assembly in place.
- Full disclosure: we don't just make awesome teardowns—**we sell [parts](#). And [tools!](#) Lots and lots of tools.**
- Like this [handy-dandy electronics tool kit](#) that we use to take apart the newest gadgets. We assembled the most-used iFixit tools and put them all in one kit for your convenience.
- We sell [Mac parts & upgrades](#), parts for [iPhone screen repair](#), kits for fixing the infamous [Xbox Red Ring of Death](#), and even a product called the [Monster Battery Pack 9000](#).
- **We need your support** to continue building the [free repair manual](#) for everything in the world.

## Step 9



- *Pop!* Off comes a connector, and the speaker assembly is free.
- The Nexus 7's speakers might not be quite the caliber of the [Q](#), but there is already talk of [speaker docks](#) to come.
- Although the [official Nexus page](#) says there's a *speaker* in the back, we clearly see a pair of drivers.

## Step 10



- Although it looks like caution tape, the I/O cable isn't stopping us from digging in deeper.
- A few more screwdriver twists and the two part I/O set is out.
- The Nexus 7 I/O set houses a standard 3.5mm headphone jack and USB port.

## Step 11



- The L-shaped motherboard is littered with connectors and screws, but nothing too difficult for our [Pro Tech Toolkit](#).
- We are guessing that this number is not the date code on expired milk, but rather a part manufacture date. It reads 12 05 04, indicating a May 4, 2012.

## Step 12



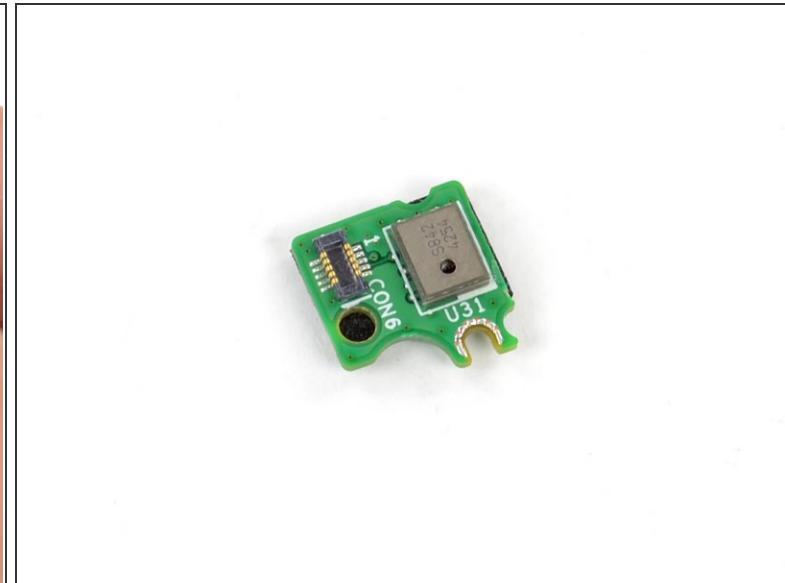
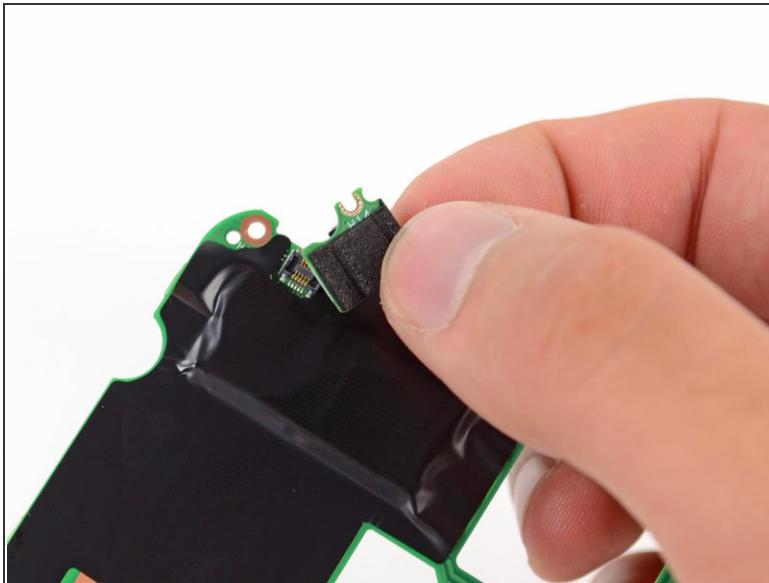
- The Nexus 7 comes stacked with 1 GB of Hynix [H5TC2G83CFR](#) DDR3 RAM, the same model found in the [MacBook Pro with Retina Display](#).
- This isn't the "in case of emergency" kind of seal to break, but we broke it anyway to get the motherboard out.

## Step 13



- Out comes the 1.2 MP front-facing camera.
- Much like the [Kindle Fire](#), the Nexus 7 contains no rear-facing camera. It does, however, contain a front-facing one for video chatting.
- Is the absence of a rear-facing camera that big of a deal for a tablet? That depends. Do you want to [look silly](#) taking pictures with it?

## Step 14



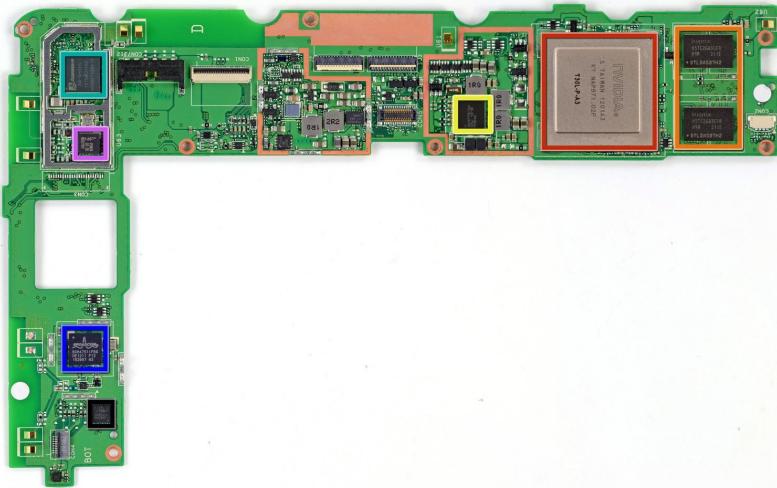
- We are eager to get to that motherboard, but it seems we have another goodie to pull off it first.
- Seated on the top left of the motherboard is one of the two microphones.
- One of the new features in Jelly Bean is improved voice recognition. Is it as good as Siri? Will it remind you to put the [gazpacho on ice](#)? We would tell you the answers to these questions, but the microphone probably doesn't do us much good in its current state.

## Step 15



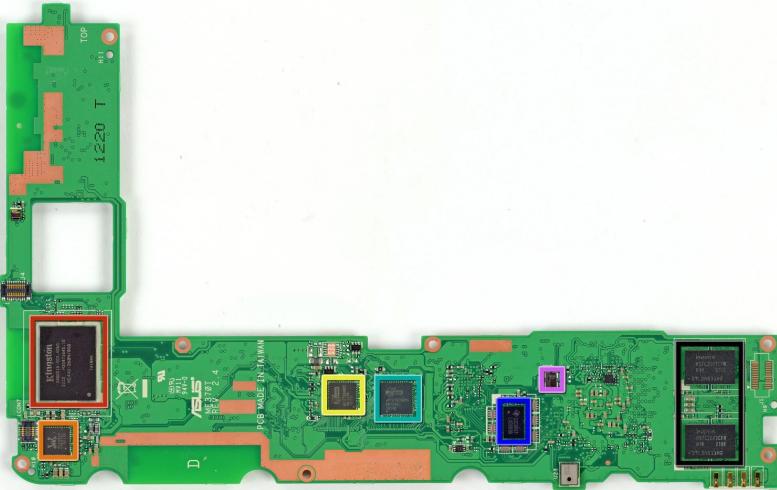
- By the way: we also make software for teaching people to do things. [\*\*Dozuki\*\*](#) makes it easy to create vibrant how-to manuals.
- Dozuki is great for:
  - [\*\*Standardized work instructions\*\*](#): improve quality by documenting how to get things done, one step at a time.
  - [\*\*Building product support sites\*\*](#): make your customers love you by teaching them how to do amazing things.
  - [\*\*Training and e-learning software\*\*](#): we've used Dozuki to teach over ten million people to repair electronics.
  - [\*\*Online community platform\*\*](#): build a knowledge base of expert knowledge with Answers, the Q&A engine that drives the popular [iFixit Answers](#).

## Step 16



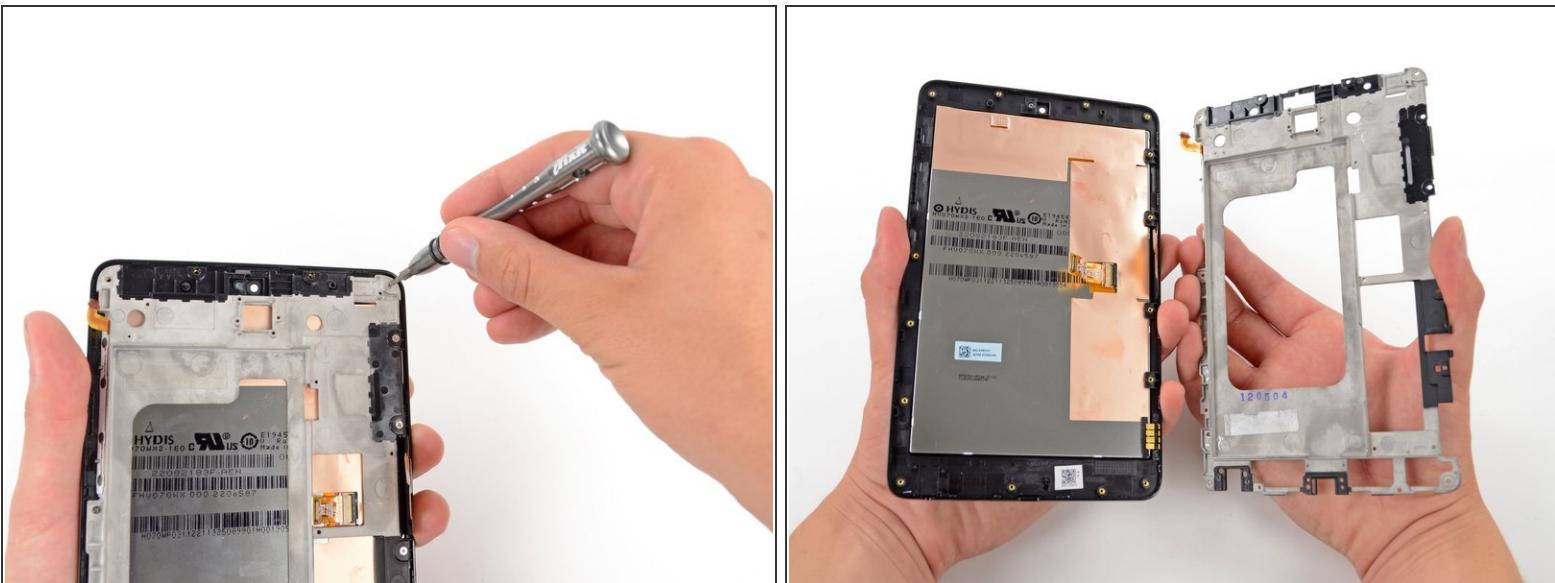
- Here she is, the motherboard:
  - NVIDIA [T30L](#) Tegra 3 processor
  - Hynix [HTC2G83CFR](#) DDR3 RAM
  - Max [77612A](#) inverting switching regulator
  - AzureWave [AW-NH665](#) wireless module
  - Broadcom [BCM4751](#) integrated monolithic GPS receiver
  - NXP 65N04 Integrated NFC Chip
  - Invensense [MPU-6050](#) gyro and accelerometer

## Step 17



- On the flipside:
  - Kingston [KE44B-26BN/8GB](#) 8GB flash
  - Realtek ALC5642
  - ELAN eKTF36248WS EKTF3624 series 16-bit touch panel signal processor MCU
  - ELAN eKTH10368WS EKTH1036 series touch panel controller
  - Texas Instruments [SN75LVDS83B](#) LVDS LCD display driver
- Hynix [HTC2G83CFR](#) DDR3 RAM

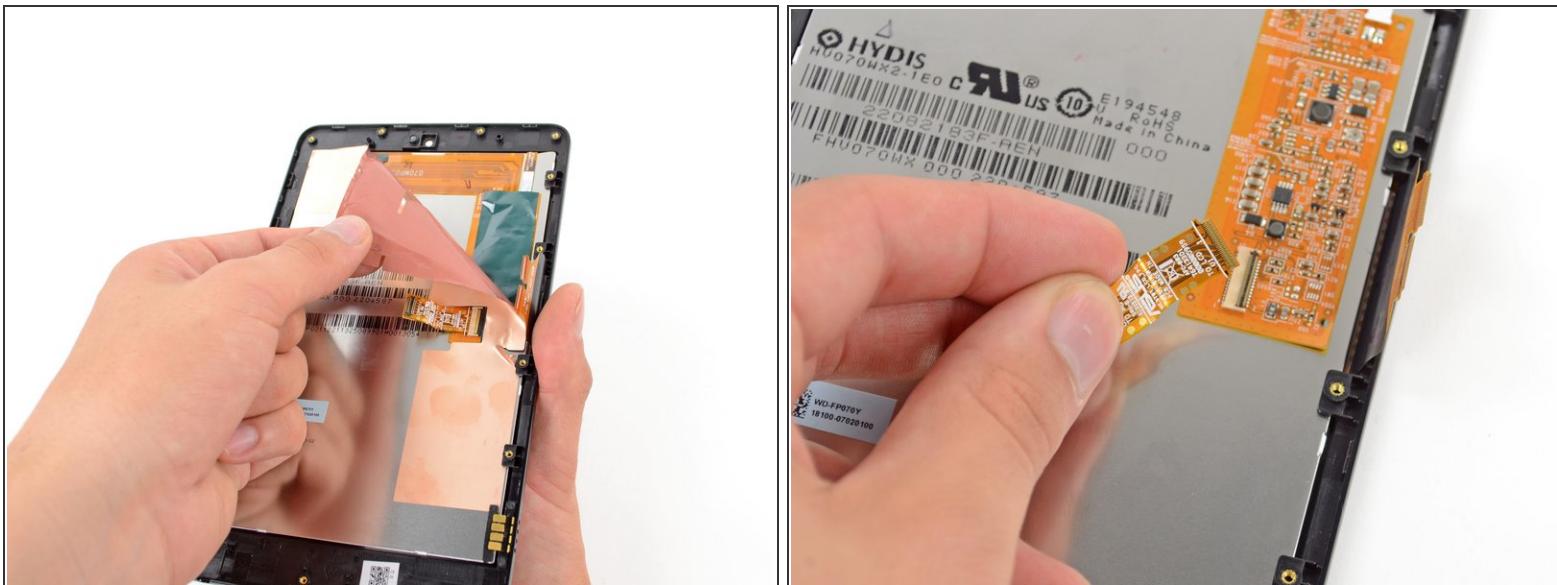
## Step 18



- The frame comes off with the turn of a [screwdriver](#), revealing another copper alloy shielding the LCD.

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## Step 19



- We are approaching the display assembly. *Nexus 7, lower your (copper) shields!*
- We have one final cable to remove before we can (hopefully?) remove the LCD from the front glass.

ⓘ Fingers crossed.

## Step 20



- Here we have the 7-inch, 1280x800 HD display, manufactured by Hydis and designated model HV070WX2.
- As is becoming a trend, the LCD is fused to the [Corning glass](#). We have not heard if this glass is Gorilla Glass or Gorilla Glass 2, and we have broken [far too many displays](#) recently to dig any further.
- Sadly, this fusion makes the cost of repairing shattered glass much higher, as it will require replacing the whole display assembly—LCD included.

## Step 21



- Nexus 7 Repairability Score: **7 out of 10** (10 is easiest to repair)
- The rear case is very easy to open, and requires minimal prying effort with a plastic opening tool to remove.
- All fasteners inside are Phillips #00 screws—no security or proprietary screws here.
- Battery replacement can be accomplished without soldering—or even a screwdriver.
- Many components, including the I/O ports, can be replaced independently of the motherboard.
- Copper alloy sheets provide convenient shielding, but they could tear during disassembly.
- The LCD does not separate from the display glass, increasing repair costs.