



# Motorola Xoom Teardown

We took apart the Motorola Xoom tablet on Feb 24, 2011.

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## INTRODUCTION

The Motorola Xoom is the first android tablet powered by Google's newest OS, Android 3.0 "Honeycomb." Follow along as we peek inside this scrumptious (see what we did there...) device and devour all the delicious bits of information we can gather.

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### TOOLS:

- [Spudger](#) (1)
  - [T5 Torx Screwdriver](#) (1)
  - [T6 Torx Screwdriver](#) (1)
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## Step 1 — Motorola Xoom Teardown



- **\*Fanfare\*** Ladies and gentlemen, we present the Motorola Xoom tablet with Android 3.0 "Honeycomb."
- Geared as the first true rival to Apple's iPad, the Motorola Xoom runs on Verizon's 3G (soon to be 4G LTE) network and is offered in a WWAN/Wi-Fi combo only.
- Tech Specs:
  - 1 GHz Cortex-A9 Dual-Core Processor
  - 5.0 MP rear-facing camera with HD video recording and a 2.0 MP front-facing web cam
  - Up to 32 GB of on-board storage.
  - 10.1", WXGA 720p (1280 x 800) display.
  - 3G connectivity, with optional upgrade to 4G LTE

## Step 2



- The Xoom features a 5 MP rear camera and a 2 MP front-facing camera. At least for now, Motorola's got Apple clocked in the tablet camera arena.
- A dummy SIM card is included in the Xoom, with the inscription "Replace with SIM only after 4G upgrade."
- ⓘ Verizon's 4G LTE network requires a SIM card, so not every Verizon device will have 4G. Right now the list of compatible devices is very short: the Motorola Xoom and the still-unreleased HTC Thunderbolt.

## Step 3



- The Xoom features a widescreen 1280 x 800 LCD, compared to the iPad's more traditional 1024 x 768 LCD.
- According to Motorola, the Xoom weighs 730 grams, exactly the same as the iPad 3G, although the Xoom is noticeably thicker.
- ⓘ We make comparisons to the iPad ad nauseum, but it's hard not to when it is such a clear front-runner in the tablet market...for now.

## Step 4



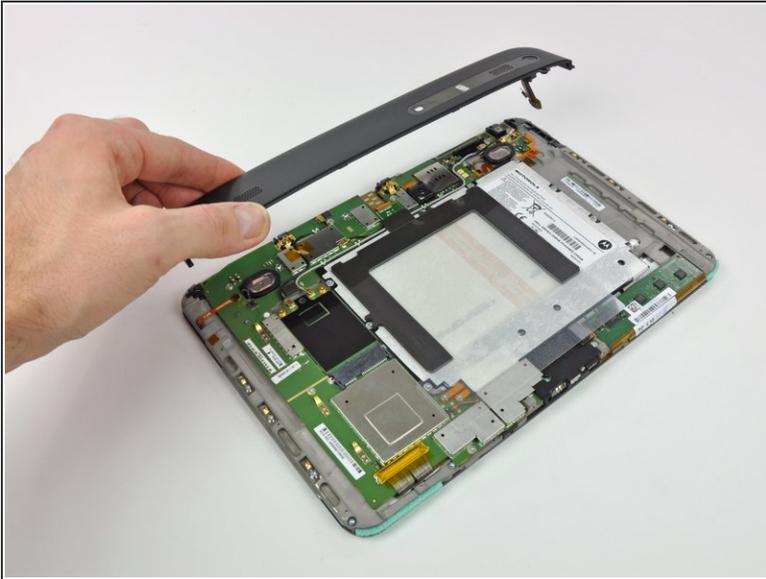
- Moving right along, lets get this thing open!
  - Two T5 Torx screws located near the Micro USB and Micro-HDMI ports secure the rear case to the Xoom.
  - Like a sliding glass door, the rear case slides off part way, and we get our first peek at what makes this tablet tick.
  - Major props to Motorola here. For the first time we didn't need any prying tools to get into a tablet.
- i** Unfortunately, the rear panel of the Xoom will only slide so far until two catch clips impede our progress. At this point what appears to be the Wi-Fi module can easily be removed. This card will probably be replaced should you ever choose to send your Xoom to Motorola for a [4G LTE upgrade](#).

## Step 5



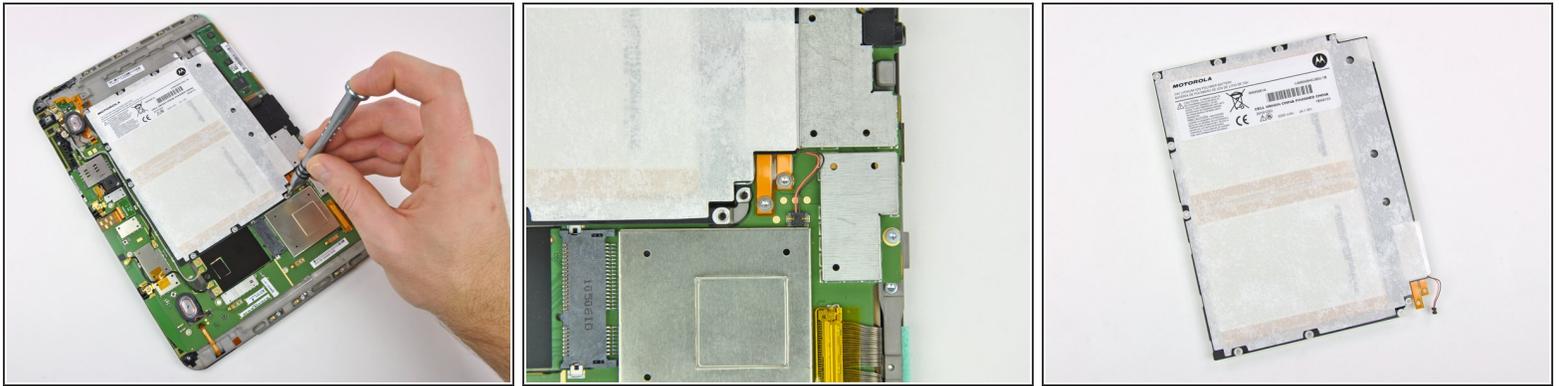
- A trusty [spudger](#) helped us release the clips securing the rear panel, and we continued tearing this device apart.
- Unfortunately, what at first seemed like user-friendliness appeared to merely be foresight on the part of Xoom developers to make the device easy for Motorola techs to upgrade.

## Step 6



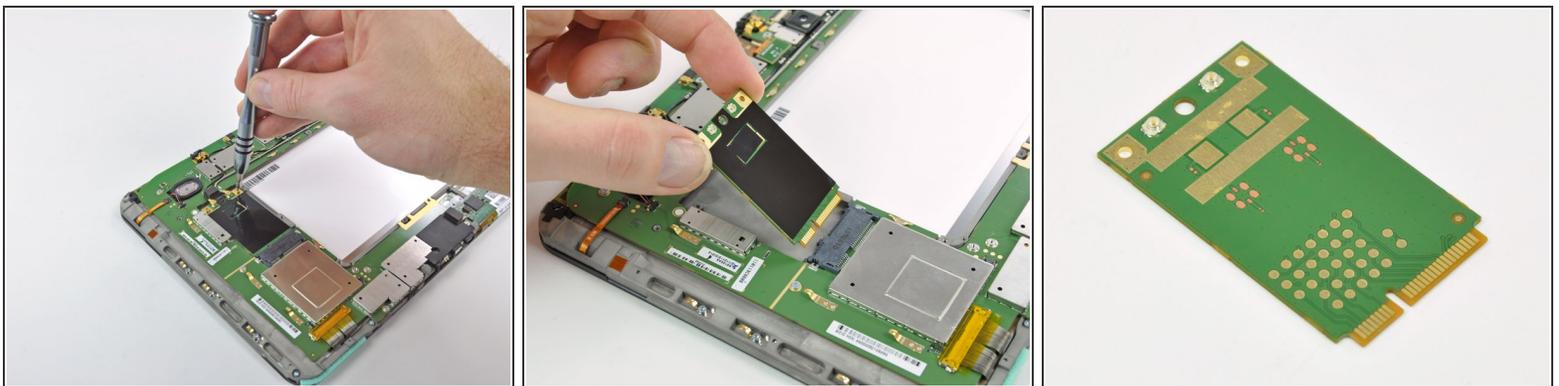
- After disconnecting the volume button ribbon cable and removing two screws, the top portion of the upper case lifts off.
- This case component houses the power button, LED diffuser, camera port, and speaker grills.
- The two-piece rear case design is a unique choice by Motorola, and makes accessibility and replacement of the inner components much more feasible.
- While the larger lower portion is made of aluminum, the upper part is made of plastic.

## Step 7



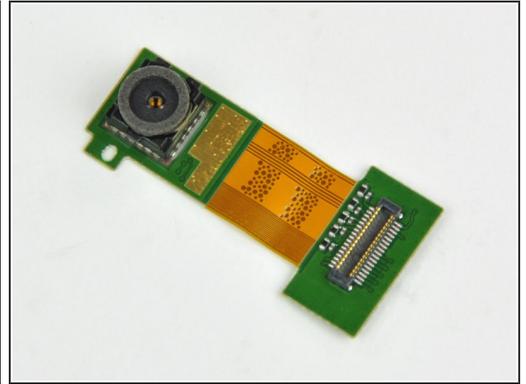
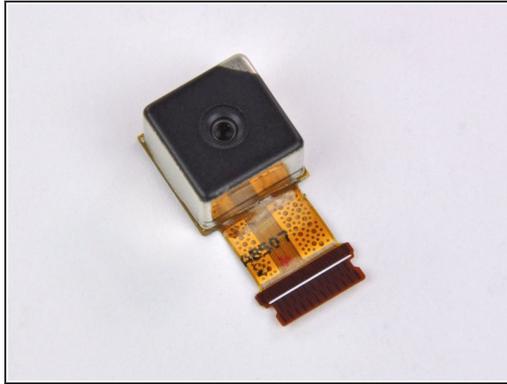
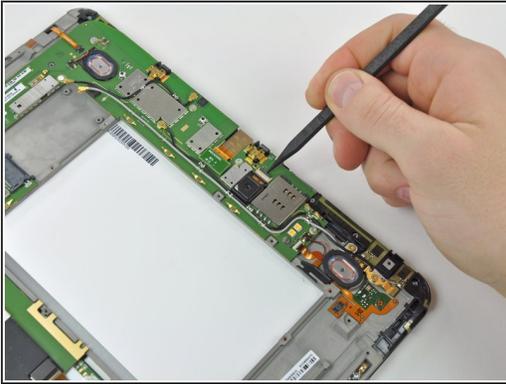
- The battery is held in by ten T6 Torx screws, with yet another two T5 Torx screws just to hold down the unique battery connector. This, of course, poses no problem to our 54-piece bit driver kit.
- The 3250 mAh, 24.1 watt-hour lithium ion polymer battery boasts a healthy 10 hours of Wi-Fi browsing and video playback, and a massive 3.3 days of MP3 playback.

## Step 8



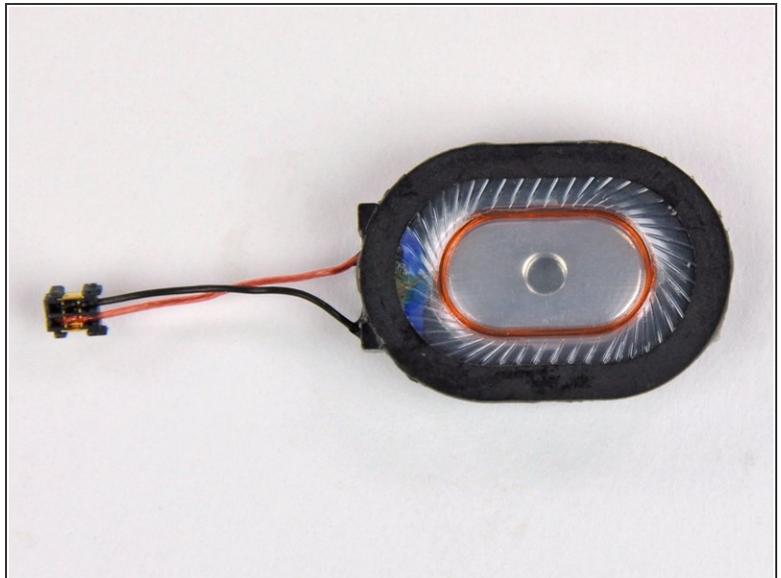
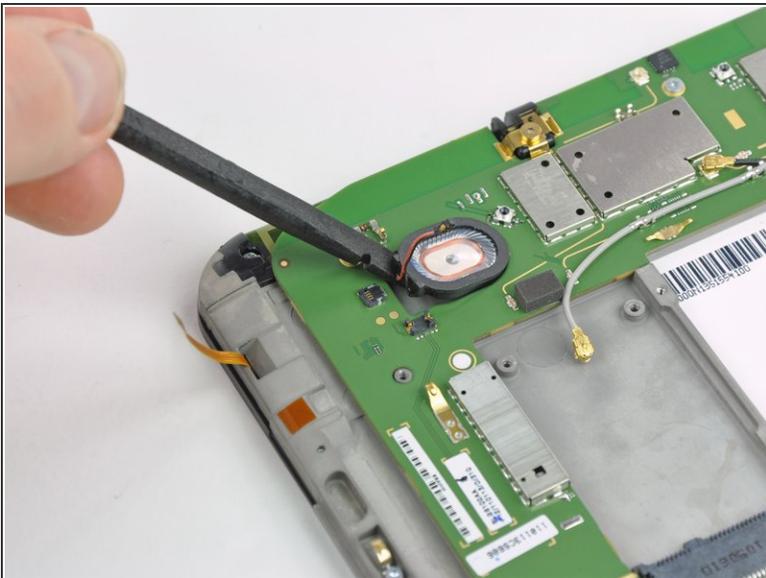
- At first glance, this appears to be a Wi-Fi board, but wait: there are no chips on it!
- It appears to be just a mini-PCI interconnect board for the antennas.
- ⓘ This board is probably just a place holder for when the 4G upgrade becomes available.

## Step 9



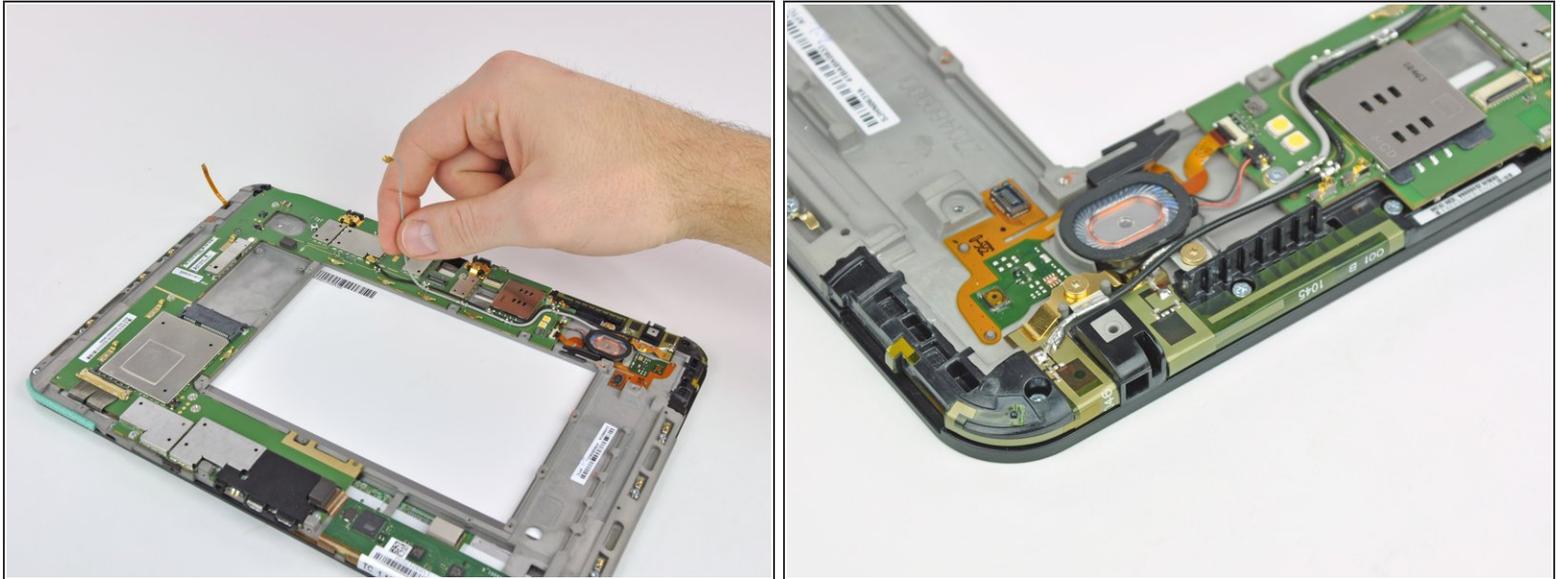
- The 5MP rear-facing camera doesn't appear to be anything special, but certainly nice enough to record some HD videos.
- With the 2MP front-facing camera, you can chat over Google Talk with Video Chat to anyone with a Gmail account.
- Unlike Motorola's other recent device, the [Atrix](#), both cameras are connected to the motherboard by separate cables. You won't have to replace a ton of other stuff should just your camera fail.

## Step 10



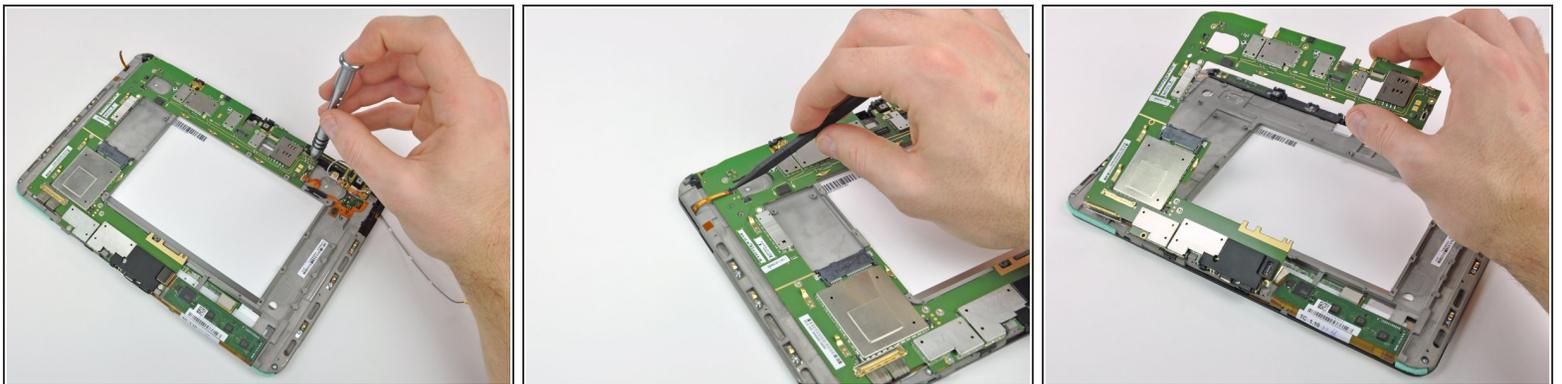
- Remember those 3.3 days of MP3 playback we mentioned? Well this is one of the two speakers that provides the sweet music to your ears.

## Step 11



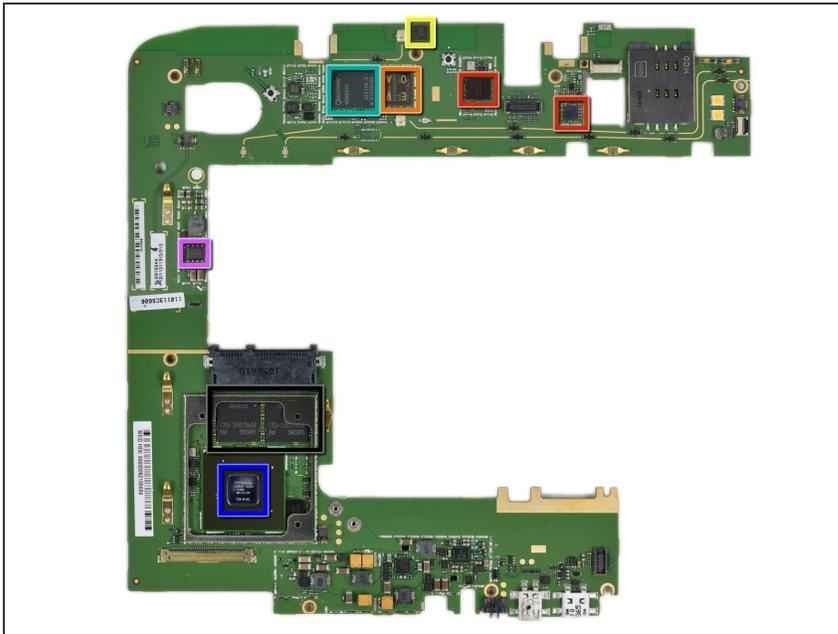
- The Xoom's antennas seem to be wrapped along the outer edge of the case.

## Step 12



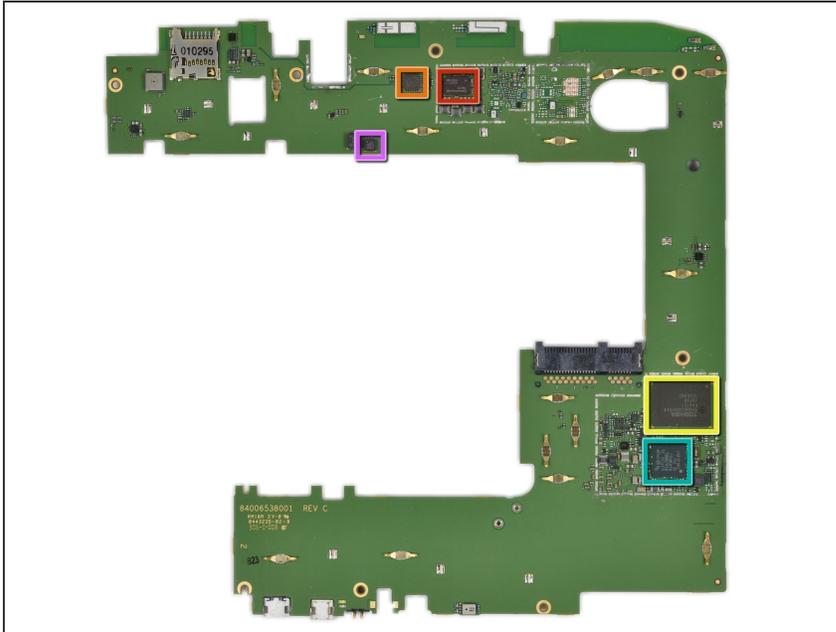
- A few Torx screws and ribbon cables later, and it's time to get to work on the motherboard!
- Now we begin the daunting task of trying to remove the EMI shields to reveal all that IC goodness.

## Step 13



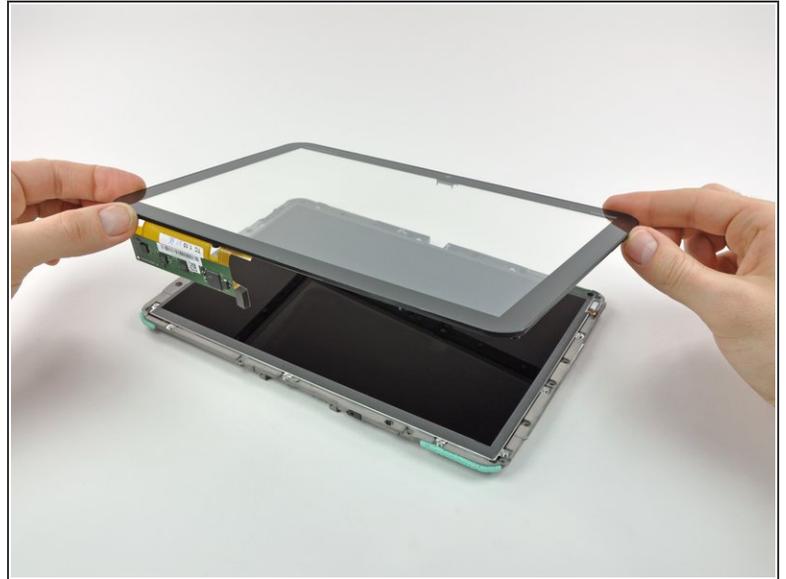
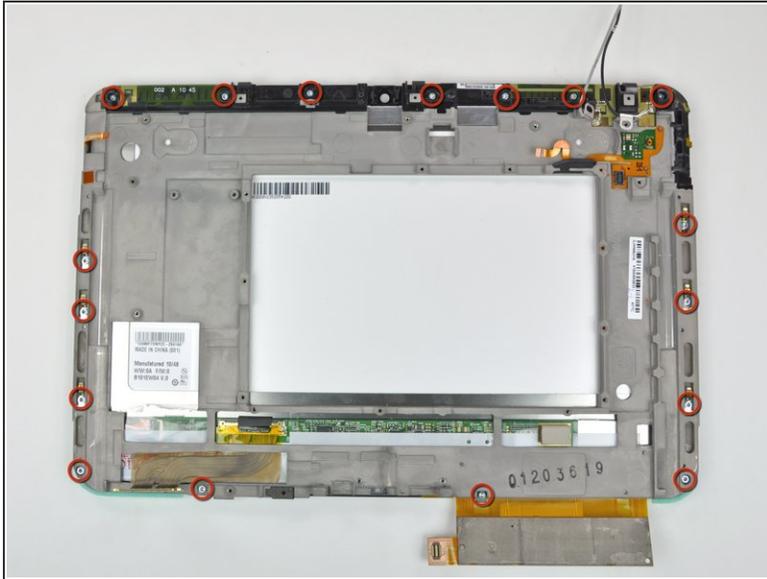
- Front side of the motherboard (here's the [gigantic](#) version):
  - Broadcom [BCM4329](#) 802.11n Wi-Fi, Bluetooth 2.1, and FM Tuner. There's also a Broadcom [BCM4750](#) Single-Chip AGPS (located nearest the top right corner).
  - Hynix H8BCSOQG0MMR 2-chip memory [MCP](#)
  - [AKM 8975](#) Electronic Compass
  - Qualcomm [MDM6600](#) supporting HSPA+ speeds of up to 14.4 Mbps
  - Nvidia Tegra T2 dual-core ARM Cortex-A9 CPU and ultra-low power GeForce GPU.
  - Texas Instruments 54331 Step Down SWIFT DC/DC Converter with Eco-Mode
- Samsung K4P4G154EC DRAM

## Step 14



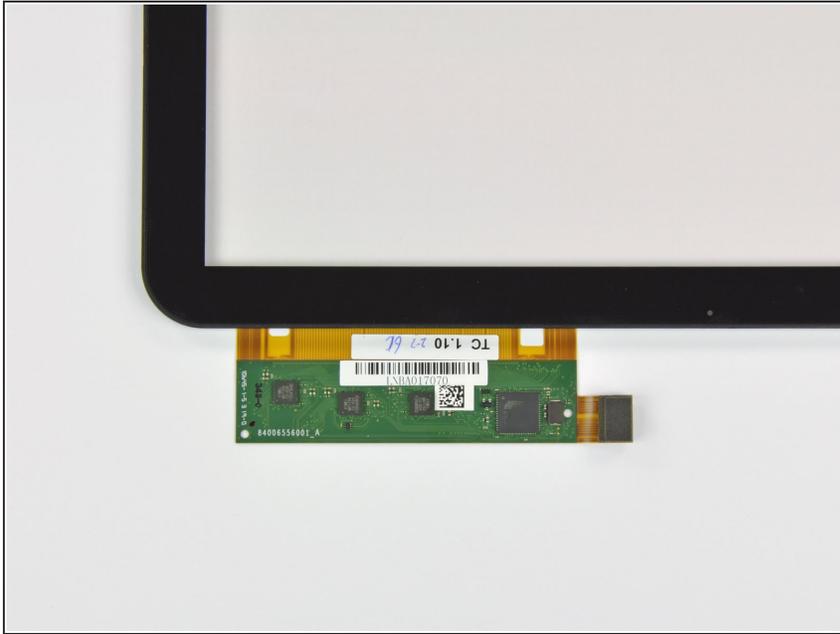
- Major players on the back side of the motherboard ([gigantic](#) version):
  - Qualcomm [PM8028](#) RF Power Management IC
  - Atmel [TINY45](#) 8-bit RISC-based Microcontroller with 4KB in-system programmable flash
  - Toshiba THGBM2G8D8FBAIB 32GB eMMC NAND Flash
  - Kionix [KXTF9](#) MEMS Motion Sensing Accelerometer
  - ST Ericsson CPCAP 2.2TC22 DC Power Management
    - ⓘ According to [Chipworks](#), the CPCAP 2.2TC22 is a single chip SoC that integrates analog and mixed signal functions, including power management, energy management, audio, and interfaces.
  - Check out the [die photo](#) of the CPCAP 2.2TC22, courtesy of Chipworks.

## Step 15



- There are 17 [!] screws holding the front panel to the magnesium framework.
  - We didn't [explicitly test](#) the metallurgical nature of the framework, but we are pretty sure it's magnesium.
- After a little bit of prying, the front panel separates from the rest of the display assembly -- a refreshing change from some other [popular devices](#). Although to be completely fair, Apple's [iPad](#) also doesn't have an LCD fused to the front glass.

## Step 16



- The touchscreen controller is an Atmel [mXT1386](#), a 4-chip controller designed for touchscreens up to 15.6". It supports as many as 15 distinct inputs.
- This is a large application version of the mXT224 touchscreen controller used in the [Motorola Atrix](#).
- The mXT1386 is Atmel's largest application touchscreen controller. The next smallest handles screen sizes up to 10.1", suggesting that this one was designed specifically for devices like the Xoom.

**Step 17**

- Motorola Xoom tablet Repairability Score: **8 out of 10** (10 is easiest to repair)
  - There's no proprietary screws or fasteners in the machine -- everything comes out with a spudger and a couple of Torx screwdrivers.
  - LCD and front panel glass are not fused together. That's great news for folks unfortunate enough to drop their Xooms and crack their glass.
  - Individual components (like the cameras) are separately attached to the motherboard, allowing each component to be replaced on an individual basis.
  - By our count, there are 57 screws in the Xoom, of either the T5 or T6 Torx variety.
  - Everything is accessible but somewhat inconvenient to repair -- there's just a lot of labor involved with removing that many screws.

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