



# iPad 6 Teardown

Teardown of the sixth generation 9.7-inch iPad, performed on April 3, 2018.

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## INTRODUCTION

Unveiled at Apple's recent education-focused event, we expect the new iPad is less of a "hot new sequel" and more like a "revised edition paperback with improved illustrations." While this iPad's specs reveal two major updates—an upgraded processor, and Pencil support—has Apple quietly changed anything else? Let's find out with a teardown!

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### TOOLS:

- [iOpener](#) (1)
  - [Suction Handle](#) (1)
  - [iFixit Opening Picks set of 6](#) (1)
  - [Battery Blocker](#) (1)
  - [Tweezers](#) (1)
  - [iFixit Adhesive Remover \(for Battery, Screen, and Glass Adhesive\)](#) (1)
  - [Phillips #00 Screwdriver](#) (1)
  - [Phillips #000 Screwdriver](#) (1)
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## Step 1 — iPad 6 Teardown



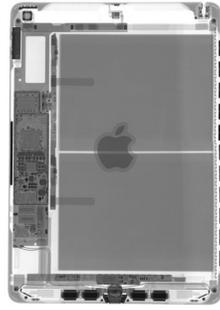
- Alright class, let's give a warm welcome the new student: iPad 6! <applause> Share with us a little bit about yourself:
  - Apple A10 fusion processor with embedded M10 motion coprocessor
  - 9.7-inch multi-touch Retina display with 2048 × 1536 resolution (264 ppi) and non-laminated display assembly
  - 32 GB or 128 GB of storage
  - 8-megapixel 1080p rear-facing iSight camera + 1.2-megapixel 720p front-facing FaceTime HD camera
  - 802.11a/b/g/n/ac dual band MIMO Wi-Fi + Bluetooth 4.2
  - Touch ID fingerprint sensor + 3-axis gyro + accelerometer + barometer + ambient light sensor
  - Apple Pencil support

## Step 2



- In the education space, Apple has some stiff competition in the form of low-cost, Google-powered laptops. How does this iPad, er, stack up against a Chromebook from [HP](#) or [Asus](#)?
- Given that schoolkids can be a bit rough on their electronics, here's an iFixit take on it:
  - iPad's glued-glass display is more vulnerable to drops. Thankfully, this is the one iPad that retains an air-gapped digitizer panel—not as visually impressive as other recent iPads, but it's *much* cheaper to replace cracked glass that isn't [LOCA](#)-bonded to the display panel underneath.
  - Separate accessories like the keyboard and Pencil add to the cost and are easier to lose—but are also easier to replace if damaged. (Note the missing key on our HP's keyboard.)
- New iPad, new model number! This year's is **A1893**.

## Step 3



- Once again, our friends at [Creative Electron](#) flex their mastery over the X-rays to let us peek through the iPad—literally.
- As expected, only minor differences are seen compared to the [previous version](#).

## Step 4



- We've been around this block a few times, so we're just going to let ourselves in: [iOpener](#) brings the heat; suction and opening tool bring the prying leverage, and voila!
- Like magic, the digitizer panel lifts separately from the display—a good sign for repair.
- ⓘ This is what we meant about non-fused display and digitizer glass being better in the event that either should break. Important for a rambunctious classroom!

## Step 5



- We're big on value, so this teardown has a sweet two-for-one: a peek into the new iPad, and an exclusive look at [iFixit things to come!](#)
- After freeing some Phillips screws, we can lift the LCD panel and disconnect it from the logic board.
- ⓘ While glass removal isn't a walk in the park, it is familiar—and [documented \(on the similar iPad 5\)](#) by your friendly neighborhood fixers.
- Safety first! Before we go any further we slide a [battery blocker](#) between the battery and the logic board to keep stray electrons from interfering with our teardown.

## Step 6



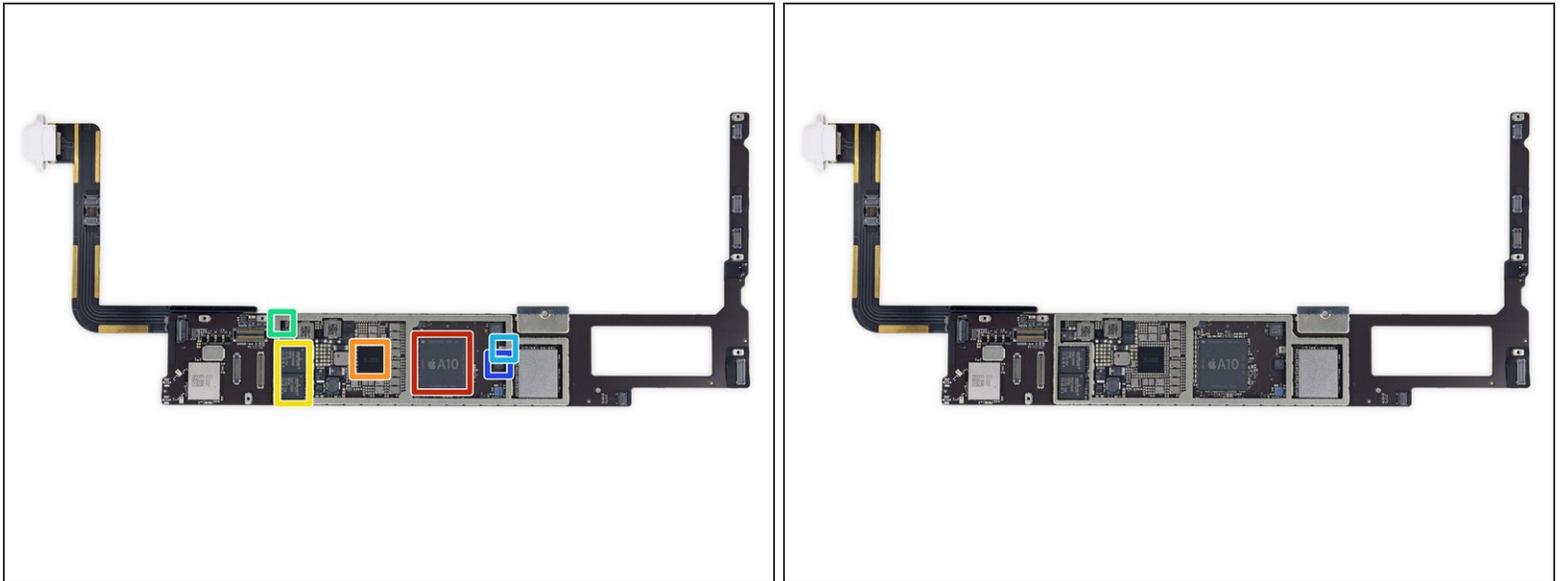
- With the display out of the way, we can safely disconnect the digitizer.
- The digitizer has the same two cables as [before](#), but they look a little different than last year.
  - Could they have changed slightly for Pencil compatibility?
- Look what we found hiding under a shield! The same NXP 8461A1 Touch ID chip that we saw in the [last model](#).
- ⓘ Our [wallpaper images](#) for iDevices have been exceedingly popular—there's no denying Apple makes some gorgeous internals. If you wanted some wallpaper to educate you about your iPad's components, [we've got you covered!](#)

## Step 7



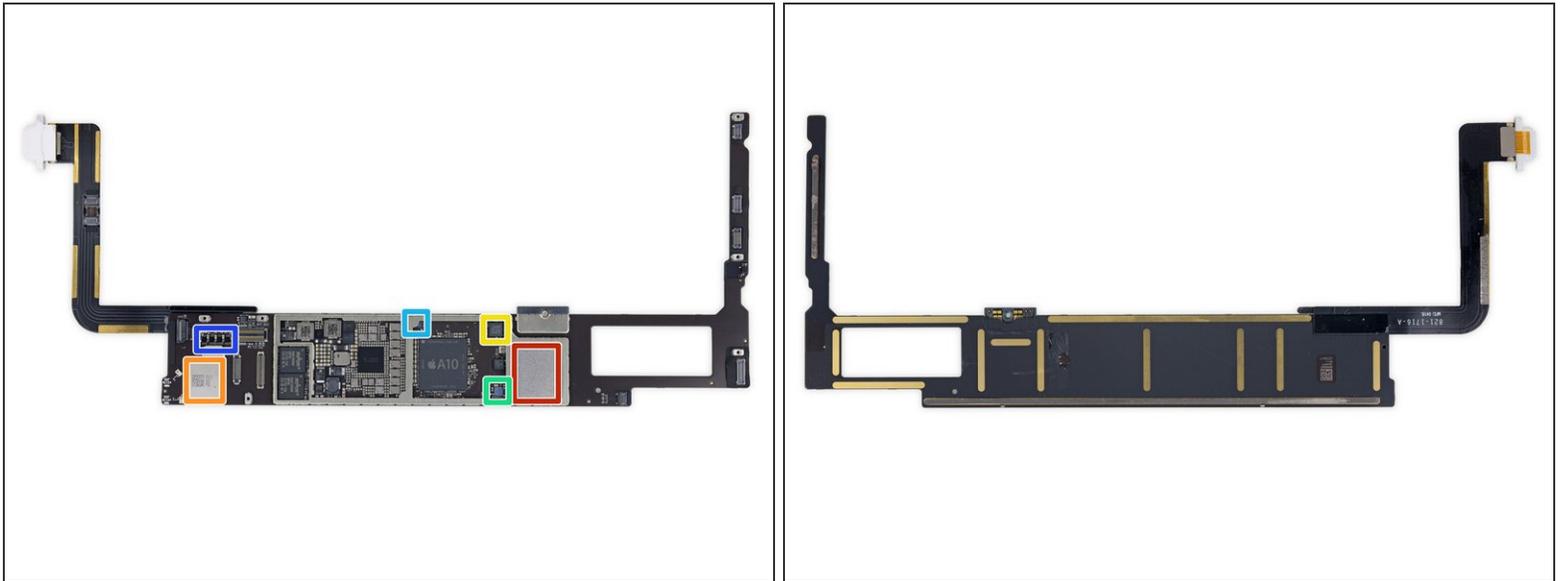
- Strong adhesive binds the logic board to the case, so we meet it with some [liquid fists!](#)
- Pow! The offending adhesive quickly gives way, and the board comes out in one piece.
- ... And an unfortunate part of that piece is the Lightning connector, a high-use part that will very likely break before the rest of the logic board. You'll need some pretty serious microsoldering chops to pull off a simple port replacement here.

## Step 8



- We've been hard pressed to find major updates so far, but maybe Apple snuck something fun onto the logic board:
  - Apple A10 Fusion APL1W24 SoC (also found in the [iPhone 7](#)) with 2 GB Micron [MT53B256M64D2TP-062 L XT:C LPDDR4 SDRAM](#) layered beneath
  - Apple 343500203-A0, likely a PMIC, possibly a revision of the [iPad 5's 343S001441-A0](#)
  - 2x Broadcom [BCM15900B0](#) touch screen controller found in the [10.5"](#) and [12.9" iPad Pro](#)
  - ⓘ Our guess is the new Pencil support comes in part thanks to this "Pro"-grade chip.
  - NXP Semiconductor display port multiplexer (likely)
  - Bosch Sensortec pressure sensor
  - Invensense accelerometer

## Step 9



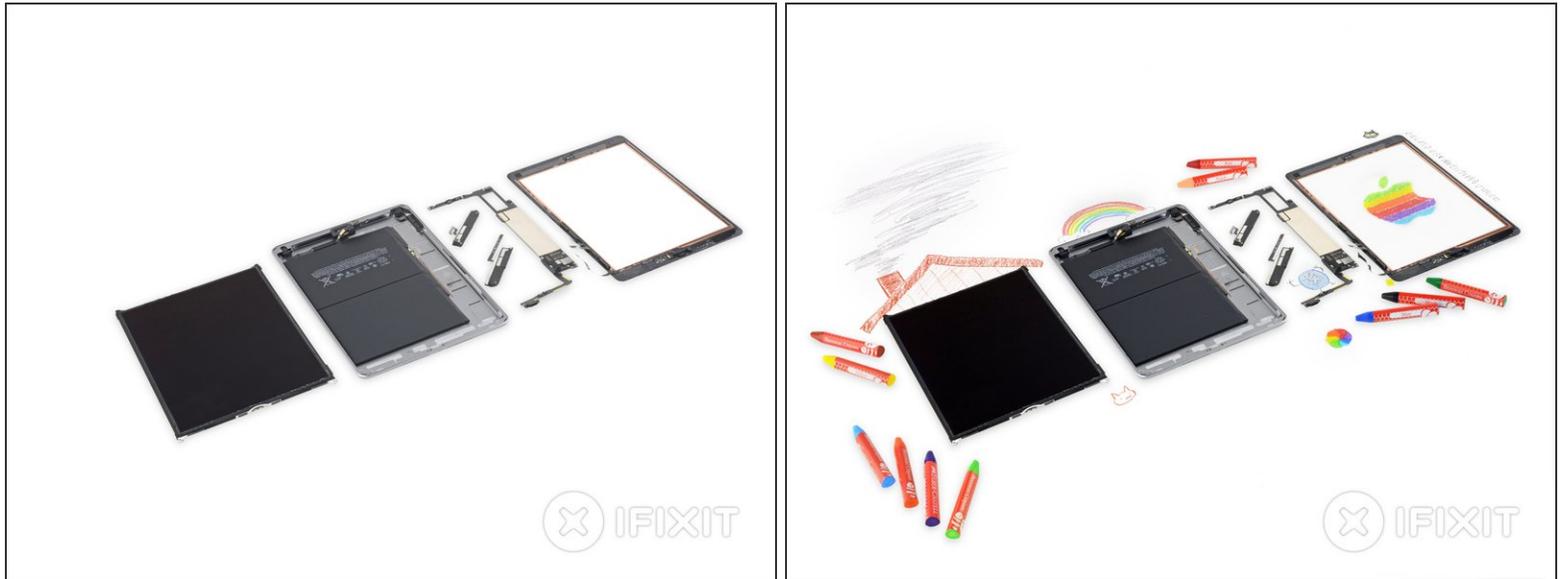
- And here is part two of the open-book open-notes chip ID test:
  - Toshiba TSB3236LX3536TWNB1 32 GB flash memory
  - USI 339S00448 Wi-Fi/Bluetooth module
  - NXP [80V18](#) PN80V NFC controller
  - Cirrus Logic [CS42L83A](#) low power audio codec
  - Cirrus Logic audio amplifier (likely)
  - Maxim Integrated [MAX98357B](#) class AB audio amplifier x4
- Are there extra credit chips hiding on the backside? Nope. We checked.

## Step 10



- We're pleased to see that Apple continues to use the [battery from the iPad 5](#) here—model number A1484 with a 32.9 Wh capacity.
- i Not only does this make more of the same battery available, but reusing existing manufacturing lines usually means less waste!
- We're not as pleased that they also brought over the same repair-impeding adhesive from the iPad 5.
- Apple gave us a hopeful glimpse of easy iPad battery removal [once before](#), but we haven't seen anything like it since.
- The good news is that you can already get a [replacement battery](#)—and if you're a large organization servicing a lot of iPads, you only need to stock one part covering several models. (That is, if you can ever get the original batteries out in the first place.)

## Step 11



- Our work here is done. Thanks for checking out this teardown. Now it's time for recess!
- If you want to take this teardown home with you, check out our [internals wallpaper](#), and the [X-ray wallpaper](#)!
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- Thanks again, [Creative Electron](#)!

## Step 12 — Final Thoughts

### REPAIRABILITY SCORE:



- The 6th-Generation iPad earns a **2 out of 10** on our repairability scale (10 is the easiest to repair):
  - The LCD is easy to remove once you separate the cover glass/digitizer.
  - Air-gapped, separately replaceable cover glass and LCD makes many drop damage repairs far less expensive.
  - As in all iPads, a solid barrier of very strong adhesive bars the way to any repairs, and makes rework a sticky proposition.
  - More adhesive holds nearly everything else in place. Battery replacement is particularly challenging.
  - The LCD has foam sticky tape adhering it to the front panel, increasing risk of damage during disassembly.