# Mac mini Late 2014 Teardown

Mac mini Late 2014 teardown on October 20, 2014.

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# INTRODUCTION

It's been two years since the Mac mini's last appearance on iFixit's teardown table, but a newly revised version joins Apple's lineup this week. Is this truly a refreshed mini, or merely a mini-refresh? Stay tuned to find out just what two years of innovation has to say for itself—it's Mac mini teardown time.

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[video: https://www.youtube.com/watch?v=g7lk36W5oDo]

## ⚙ TOOLS:

- iFixit Opening Tools (1)
- TR6 Torx Security Screwdriver (1)
- T5 Torx Screwdriver (1)
- T8 Torx Screwdriver (1)

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## Step 1 — Mac mini Late 2014 Teardown





- Apple's "affordable powerhouse" offers a range of hardware configurations (but no gold color option, so you can't configure for bling). Our unit's internals include:

  - 1.4 GHz Dual-Core Intel Core i5 (Turbo Boost up to 2.7 GHz) with 3 MB L3 cache

  - 4 GB of 1600 MHz LPDDR3 memory

  - 500 GB Hard Drive

  - Intel HD Graphics 5000

  - 802.11ac Wi-Fi + Bluetooth 4.0

  - OS X Yosemite

## Step 2



- The backside of the mini remains almost identical to the previous iteration. The only change is the omission of a FireWire port in favor of an extra Thunderbolt 2 port.

- (i) The Mac mini Late 2014 retains the model number identifier of A1347, but is distinguished by the EMC number 2840.

## Step 3



- Gone are the handy thumb indents and indicators. This mini doesn't appear to have twist-off bottom cover!

  - ⓘ We've got a bad feeling about this.

- A flick of our ~~bottle opener~~ plastic opening tool pops this (lower) cap off.

- Well that was nice! But now we're greeted with something new: a solid door where there was once handy access to the RAM and fan.

  - We're starting to feel like the locks on our apartment changed and we weren't given the new keys...

## Step 4



- Time to break down the door and see what's changed inside. The plastic bottom cover snaps onto three screws—three TR6 Torx Security screws. Really? Rude.

- This is the smallest Torx Security screw we've ever seen—our kits go down to T7 Security, so we asked our tool design team to get improvising.

- ⓘ Improvisation complete! Our packrat engineers produced a lone prototype T6 Torx Security screwdriver, a tool we originally abandoned because nobody had seen such a screw used in real life

- Thanks, Apple.
  - ⓘ *We'll get this ridiculous driver in the store shortly.*

## Step 5



- After a bit of work—more than we were expecting—we're able to flip the Wi-Fi antenna/shield plate out of the way.

- Unfortunately, we're not home free yet. One end of the Wi-Fi antenna cable is clamped firmly to the plate, while the other end is screwed down onto the logic board.

## Step 6



- Upon removal, the fan seems identical to the one from the previous model—but let's not be too quick to judge a fan by its cover.

  - *Advanced Hydraulic Bearing*

- Hmm. Interesting. What exactly is Advanced Hydraulic Bearing? Let's find out. According to [Asia Vital Components](#):

  - AHB "consists of a polished steel shaft, a sintered bearing and fluid lubricant." In this system there "is no contact between shaft and bearing" and thus "the bearing load is carried solely by a film of fluid lubricant."

- (i) AHB is best for fans that operate at a lower speed. It's better at absorbing shock and dampening vibration than traditional ball bearings, making for a quieter fan.

## Step 7
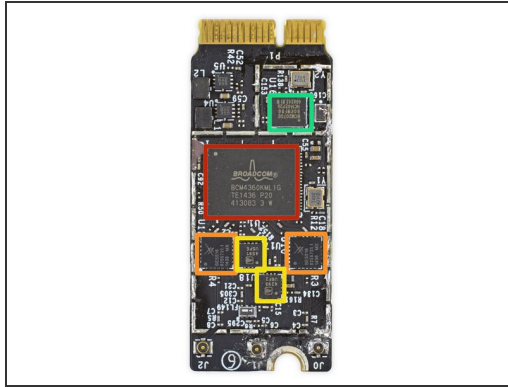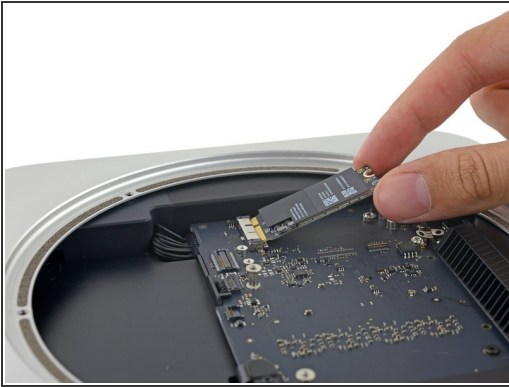


- The AirPort card is dispatched after removing one screw and disconnecting two more antennas from their sockets.

- ⓘ Gone is the funky cable-connected AirPort card of yesteryear, this AirPort card is now full-fledged PCIe, supporting Wi-Fi ac.

- Let's take a look at the ICs found on the AirPort card:

  - Broadcom BCM4360KML1G 5G WiFi 3-Stream 802.11ac Gigabit Transceiver

  - Skyworks SE5516 Dual-Band 802.11a/b/g/n/ac WLAN Front-End Module

  - RF Micro RFFM4293 2.5 GHz FEMS and RFFM4591 5 GHz FEMS

  - Broadcom BCM20702 Single-Chip Bluetooth 4.0 HCI Solution with Bluetooth Low Energy Support

## Step 8



- Using our handy hand-powered [Mac mini logic board removal tool](), we handily remove our Mac mini's handsome logic board.

- While past Mac minis have featured two SATA ports, allowing users to [upgrade their base model]() with an extra hard drive, this year we only get one.

- However, this empty socket over here may well be a spot for a PCIe cable, enabling the installation of a blade SSD.

  - (i) More on this once we get our hands on a Fusion-equipped Mac mini.

## Step 9 — Update
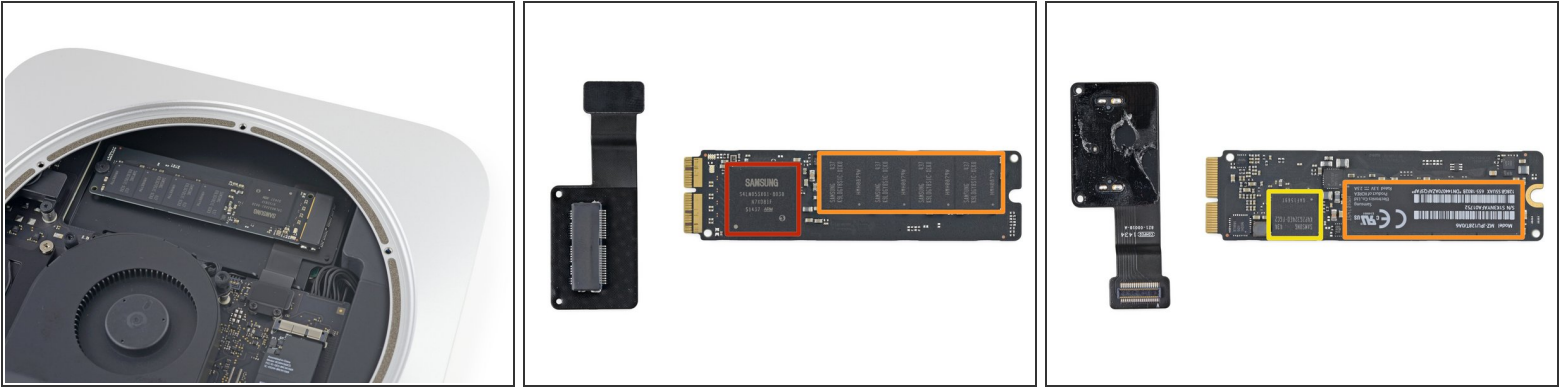


- True to our word, we cracked open a Fusion drive equipped Mac mini, and it looks like our suspicions were accurate.

- The empty connector is now filled—by a PCIe cable, glued to the top of the hard drive tray.

- The SSD matches the one we found in the MacBook Air 13" Mid 2013 with the same chips:
  - Samsung S4LN053X01-8030 (ARM) flash controller

  - 8 x Samsung K9LDGY8SIC-XCK0 16 GB flash storage

  - Samsung K4P2G324ED 512 MB RAM

## Step 10
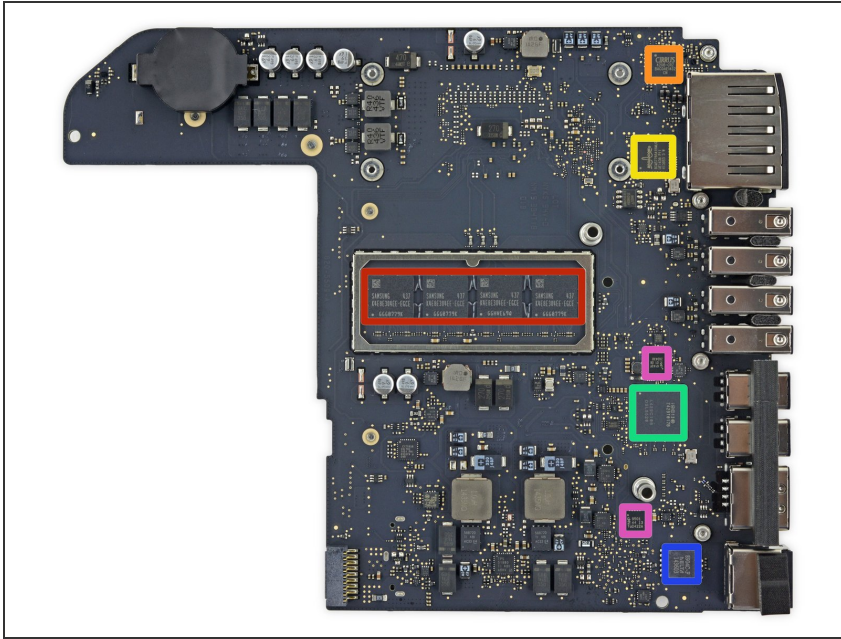


- Let's have a look at the ICs on the logic board:

  - Samsung K4E8E304EE-EGCE 8 Gb LPDDR3 DRAM (8 Gb x 4 = 32 Gb = 4 GB)

    ⚠ Unfortunately, the RAM is **soldered** to the logic board. This means that if you want to upgrade the RAM, you can only do so at time of purchase.

  - Cirrus Logic 4208-CRZ Audio Codec (a returning champion from a bevy of recent Apple products including the Mid 2013 MacBook Air and Mac Pro)

  - Broadcom BCM57766A1KMLG Ethernet PCIe Controller with SD3.0 Card Reader and ASF 2.0

  - Intel DSL5520 Thunderbolt 2 Controller

  - Delta Electronics LFE8904C-F Discrete LAN Filter

  - NXP 6142F and NXP PCA9501BS 8-bit I/O Expander

## Step 11
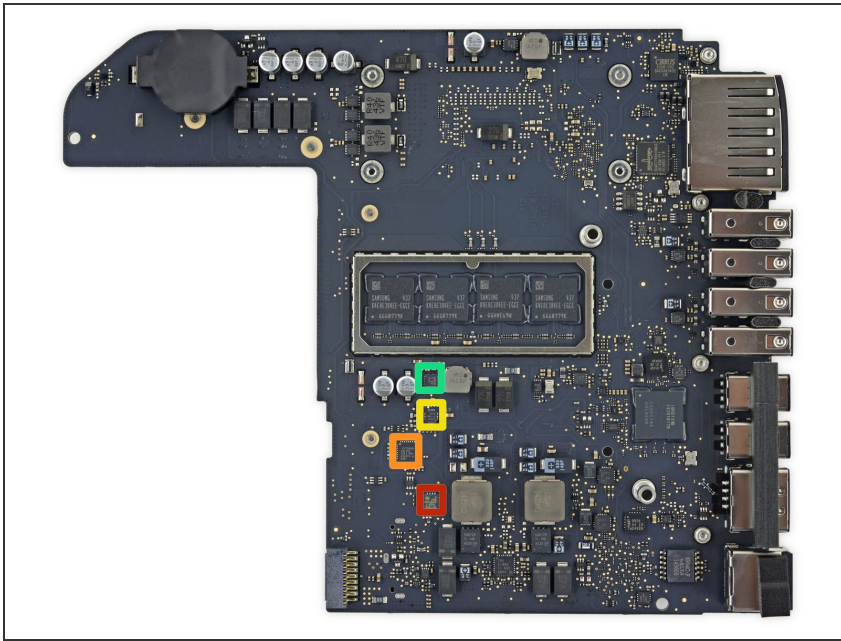


- The IC party continues:

  - Microchip Technology [1428-7 420BE5A BMY](#) System Management Bus (SMBus) Temperature Sensor

  - Cypress Semiconductor [CY7C63833 LTXC](#) enCoRe II Low Speed USB Peripheral Controller

  - Texas Instruments [TPS51916](#) DDR3 Memory Power Solution Synchronous Buck Controller

  - Texas Instruments [58873D](#) Synchronous Buck NexFET Power Block MOSFET Pair

# Step 12
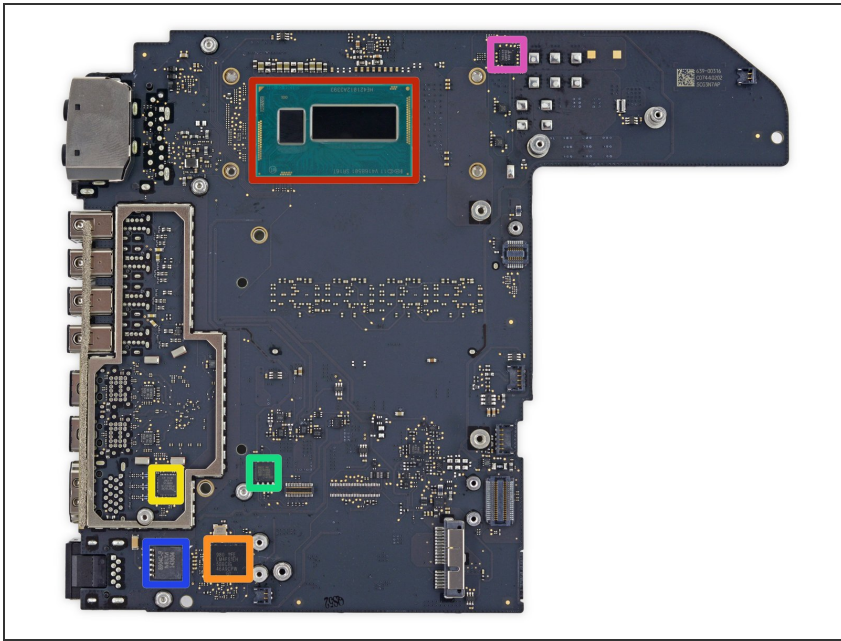


- The IC after-party:
  - Intel Core i5-4260U Processor with Intel HD Graphics 5000
  - Texas Instruments/Stellaris LM4FS1EH Microcontroller
  - Parade PS8401A HDMI Jitter Cleaning Repeater
  - Macronix MX25L6406E 64 Mb CMOS Serial Flash
  - Delta Electronics LFE8904C-F Discrete LAN Filter
  - Intersil 958 26AHRZ M419VL

## Step 13



- We've got the power (supply) at the tips of our fingers. It's an easy extraction, even if it took a while to get here.

- We get a slight rush before we realize it is the same as the 2012 model...which was the same as the *2011* edition.

  - ⓘ In the immortal words of Gertrude Stein, "This is the lesson that history teaches: *Repetition.*" (Put another way: Apple doesn't fall far from the tree.)

## Step 14
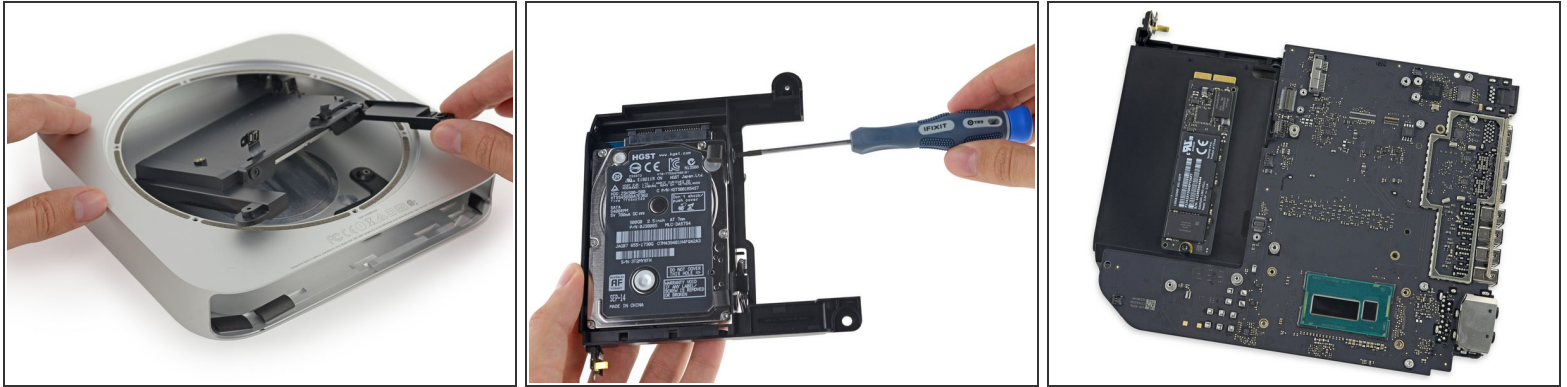




- Before we go, let's pull out the hard drive tray and take a look at the platter drive our mini came loaded with.

- Tucked under the tray: a 500 GB, 5400 RPM HGST hard drive, coming in at 2.5" wide and 7 mm thin.

- And on the top of the tray, a promising mounting point for a blade-style PCIe SSD, presumably what we'll find in a Mac mini equipped with Fusion Drive.

  - ⓘ To test just how promising, we dropped in the SSD from our  recently torn down 27" Retina 5K iMac (and used its mounting screw). Looks like a nice fit!

## Step 15
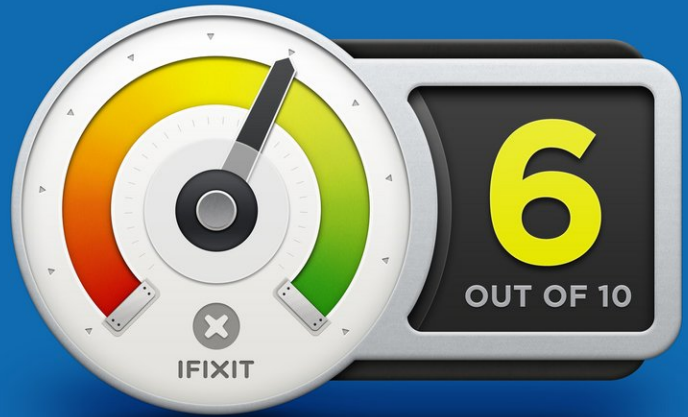


- Mac mini Late 2014 Repairability: **6 out of 10** (10 is easiest to repair).

- There's no glue anywhere inside that needs to be removed while disassembling the mini.

- With the proper tools, disassembly is straight-forward and simple.

- T6 Torx Security screws are intended to lock you out of your mini, and make it hard to clean the fan or replace the hard drive.

- The CPU is soldered to the logic board and not user-upgradeable.

- The RAM is now also soldered to the logic board, and not user-upgradeable.

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