



# Xbox One Teardown

Xbox One teardown on November 21, 2013.

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# INTRODUCTION

After eight years, Microsoft has finally released a proper successor to the Xbox 360—the Xbox One. Will this be the One Xbox to rule them all? Follow us as we journey into the tower of Microsoft's new console—coming to you straight from ~~Mordor~~ New Zealand!

We regularly put pics of "the daily grind" on [Instagram](#), announce teardowns on [Twitter](#), and keep up with friends on [Facebook](#)!

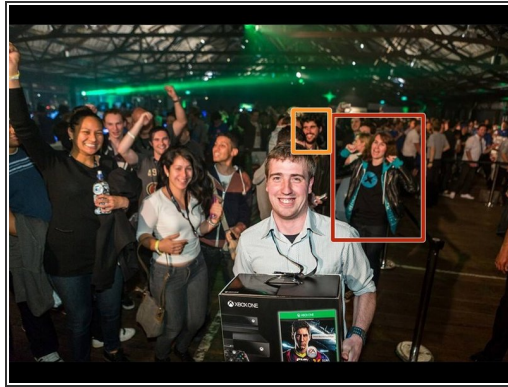
[video: <https://www.youtube.com/watch?v=83PO5Fd8gZ8>]



## TOOLS:

- [Metal Spudger](#) (1)
  - [iFixit Opening Tools](#) (1)
  - [T9 Torx Screwdriver](#) (1)
  - [T10 Torx Security Bit Screwdriver](#) (1)
  - [Spudger](#) (1)
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## Step 1 — Xbox One Teardown



- This is the One. The One we've all been waiting for this whole time. The Xbox One.
- Think we're pulling your leg with all this New Zealand funnybusiness? Check out the folks in the background of [this Xbox New Zealand release photo](#)—that would be our very own [Samantha Lionheart](#) (in red) and [Optimus Goldberg](#) (in orange).
- Tech Specs:
  - 8-core x86 processor
  - HDMI pass-through
  - 8 GB of RAM
  - 500 GB storage capacity
  - Blu-ray/DVD drive

## Step 2



- Before any teardown, we take a few test photographs.
  - We don't like to brag, but this is quite possibly the best picture of a roll of toilet paper we've ever seen. Or it just might be super-early in the morning.
  - This message is to all the toilet paper manufacturing companies out there: this is how it's done.
  - [Full resolution](#) in case you want to make it your wallpaper.
- ⓘ If anyone ever says that iFixit is not fond of toilet humor, feel free to point them to this teardown.

## Step 3



- The Day One Edition includes a commemorative controller, with appropriate inscription smack dab in the middle: "Day One 2013."
- The design of the Xbox One controller builds on that of the Xbox 360 controller, with a few updates.
- The development cost for the Xbox One controller exceeded \$100 million, according to [a Microsoft representative](#). Some of the prototypes featured built-in displays and cameras, a cartridge for emitting smells, and even a built-in projector.
- Also tumbling out of the, er, box: the Kinect 2.0 unit and a [miniature Xbox One](#) enormous power brick.

## Step 4



- 'Round the back of the console, itself, we find:
  - Power Inlet
  - HDMI Out (left) and HDMI In (right)
  - Digital Optical Audio Out
  - Two USB 3.0 Ports
  - Kinect Port
  - Infrared Output and Ethernet Port
- Possibly up to no good is a roguish third USB 3.0 port, manning the left side all by itself.



## Step 5



- Making our way to the bottom, we check the tags to find...power ratings in Spanish?
- *i* El Xbox One consume 180 Wh de energia y en modo de espera consume 20 Wh.
- The Xbox One is identified as model 1540 and was designed by the Microsoft Corporation in Redmond, WA.
- Our Xbox One was manufactured on October 14, 2013 in China.
- And, in friendly words across the back, Microsoft says "Hello From Seattle."

## Step 6



- In hopes of finding some screws, or other magical entry point, we channel our inner dentist and use a metal spudger to remove the plaque rubber feet from the console.
- Just like sitting in the dentist's chair, we have no luck here. No screws. No easy way in. Novocaine, please!



## Step 7



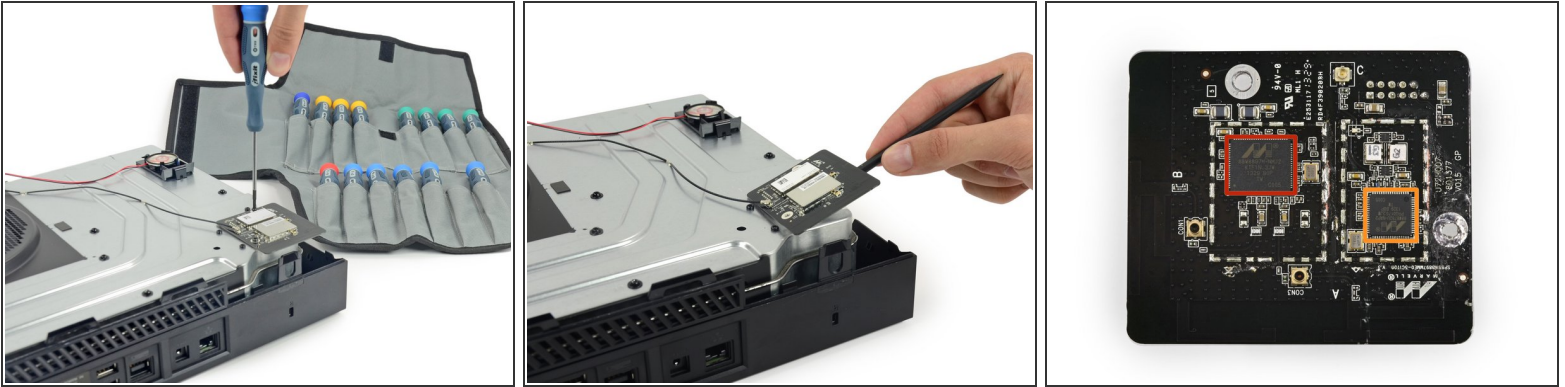
- [Don't panic](#); we're prepared.
- Despite the lack of screws, we find a way in with a plastic opening tool—prying the grille up.
- ❗ This is similar to the [Bottom Vent](#) disassembly procedure in the Xbox 360.

## Step 8



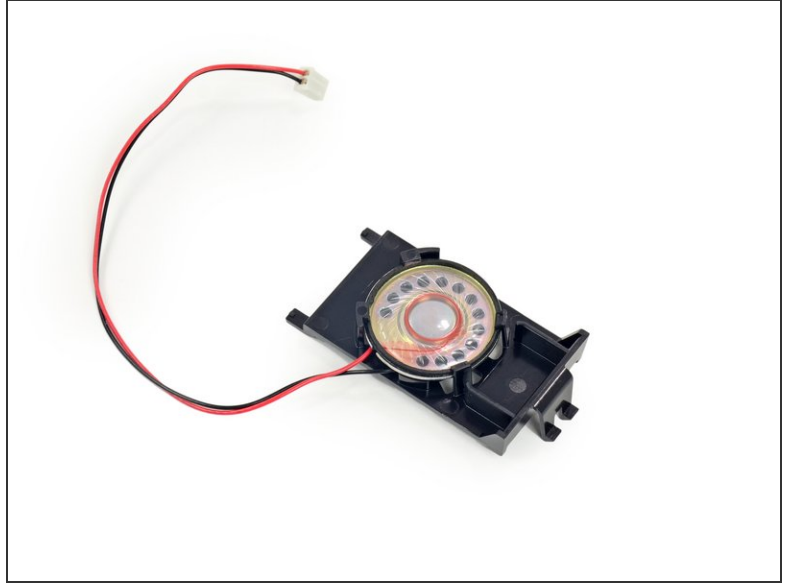
- *Speak, friend, and enter.* Giving the right password and freeing some clips, we gain access to the innards of the Xbox One.
- We flip open the top case, granting us a peek at the ~~mines of Moria~~ dark chambers within.
- While our first peek doesn't reveal much, we are ready to venture through shadow and circuit...

## Step 9



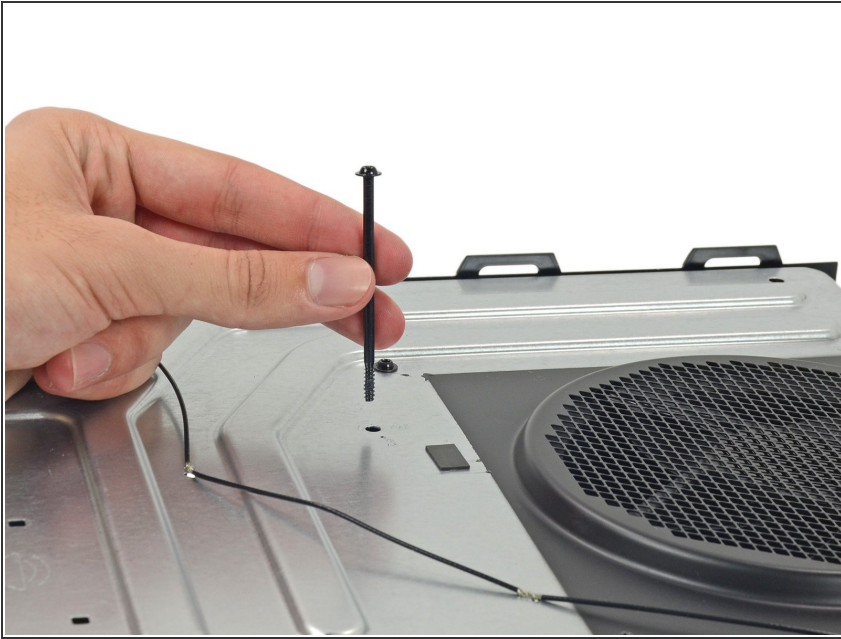
- Our Pro Tech Screwdriver Set is almost as anxious to get into this console as we are.
- The Pro Tech set was much easier to get through customs than our [backup opening tools](#).
- While we're not sure how they stand up against orcs, our screwdrivers are awesome for removing the small screws holding the Wi-Fi board in place.
- A quick wave of our spudger, and the Wi-Fi board is out and ready for inspection.
  - Marvell Avastar [88W8897](#) 2x2 MIMO Wi-Fi Combination Radio Chip Supports 802.11ac, NFC, Bluetooth and Wireless Display
  - Marvell Avastar [88W8782U](#) WLAN SOC w/USB 2.0 Interface Support

## Step 10



- This is interesting. And by interesting we mean unique. We've uncovered a speaker inside the Xbox One. Or it could be an early prototype of an arc reactor. Probably a speaker.
- We're happy that this speaker is held in place with a simple plastic bracket—no tools required.

## Step 11



- There are eight 64 mm T9 Torx screws securing the upper metal shield to the chassis.
  - ⓘ That is just over two-and-a-half inches of threaded fun!
- Game consoles are one place where we haven't seen the smaller, lighter, thinner trend taken to extremes—and we're okay with that. We like a device with a little meat on its bones, if it means finding standard fasteners like these screws—a win for repairability.
  - ⓘ Small, light, and thin **can** be [repairable](#) too! We've [seen it](#) happen.

## Step 12



- This is our first real glimpse inside the Xbox One.
- Well, that was easy. The entire Xbox One assembly simply lifts off from the lower case.
  - We appreciate a mystery, wrapped in an enigma, hidden inside a [hobbit hole](#) as much as the next person, but for repair purposes, it's nice when things are a little more straightforward.
  - How much do we care about the Hobbit Hole breakfast at Denny's? Oh, you know...



## Step 13



- In another win for repairability, the Blu-ray/DVD drive is connected to the motherboard via a SATA data connector.
- While we are tempted to re-watch the entire LOTR trilogy on Blu-ray, our own quest to destroy the One Xbox in the fires of the teardown table is more dire.
- We take a look at the underside of the optical drive, finding a few ICs and a large ribbon cable:
  - Microsoft MS0DDDSPB1 1326-BTSL ATNGS501
  - Texas Instruments 37T AVY7

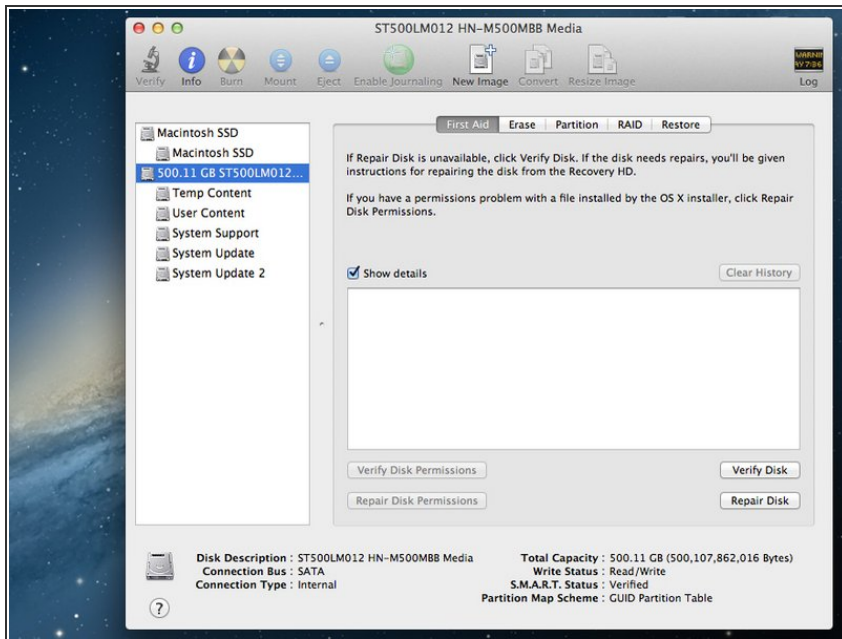


## Step 14



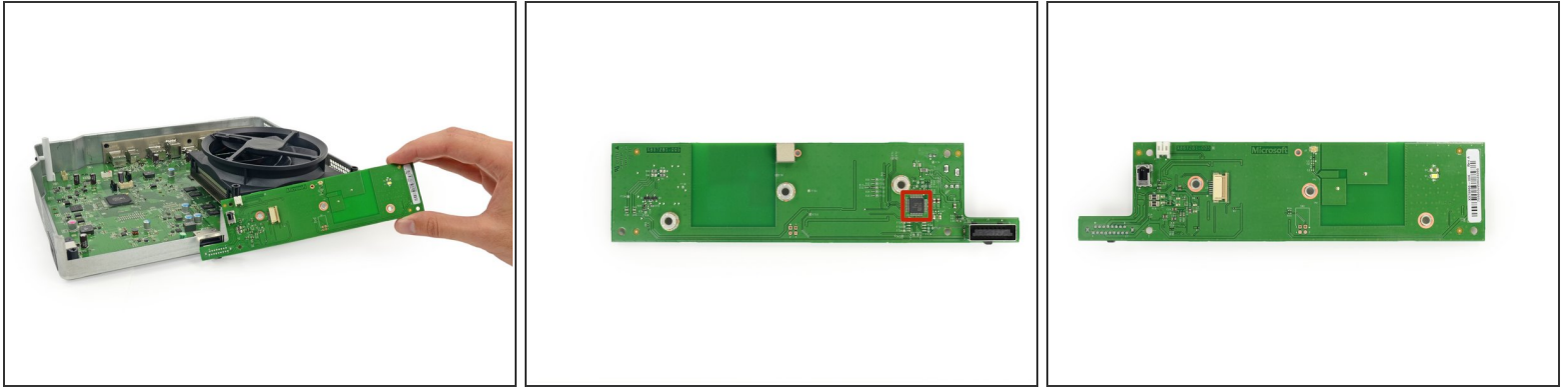
- Unfortunately, the Xbox One doesn't *officially* feature a replaceable hard drive—but then, we're not much for playing by the rules. Out it comes.
  - Bad news: replacing the hard drive requires voiding the warranty. Good news: it's a standard 2.5 inch SATA II drive. Sad news, the Xbox One doesn't support unformatted hard drives.
  - Inside our Xbox One, we find a Samsung Spinpoint M8 [ST500LM012](#) 500 GB 5400 RPM with 8MB Cache SATA II 3.0Gb/s hard drive.
- ① [Newegg](#) seems to have favorable reviews of this drive.

## Step 15



- **Teardown update:** We tossed the One's hard drive into one of the tech writers' [secondary hard drive bays](#). We found **five** NTFS partitions:
  - *Temp Content:* 44 GB capacity, 27.1GB available (in an Xbox that we never turned on).
  - *User Content:* 391.9 GB capacity, none used.
  - *System Support:* 42.9 GB capacity, 34.1 GB available.
  - *System Update:* 12.8 GB capacity, 11.8 GB available.
  - *System Update 2:* 7.52 GB capacity, 7.47 GB available.
- Sadly, we were not able to go the other way -- we didn't have a spare hard drive (in New Zealand) to put into the Xbox One. So that will have to wait for another day!

## Step 16



- The RF Module board detaches outward from the lower case.
- The back of the RF Module board features one lone IC from Info Storage Devices labeled 9160F1MS03 1327 2317B057. We believe this is an Audio User Interface chip from [Nuvoton](#).

## Step 17



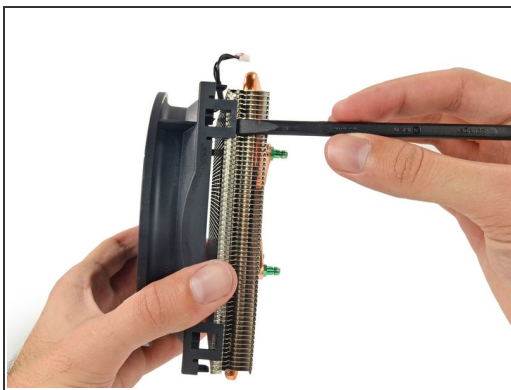
- "X" marks the spot. The heat sink/fan assembly is secured to the motherboard with a few T9 Torx screws.
- ⓘ After the infamous [red ring of death](#), we're not surprised to see a beefy cooling system on this Xbox.

## Step 18



- Wondering what the upside down teardown crew snacks on during teardowns?
  - Arnott's Shapes Chicken Crimpy (baked **NOT** fried).
  - Hello Panda biscuits
  - Yan Yan (x2)
  - Griffin's MallowPuffs

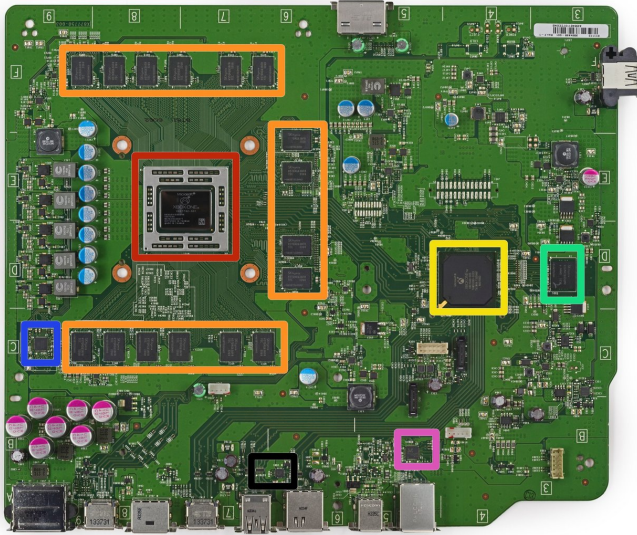
## Step 19



- We're happy to report that, should your new Xbox One have cooling issues, replacing the fan or heat sink is easy-breezy.
  - All it takes is a simple flick of the spudger to separate the 112 mm diameter fan from the heat sink.
- i** That's one small step to replace, one giant leap for repairability.



## Step 20



- What do our elf eyes see? An army of integrated circuits. The heavy hitters include:
  - X887732-001 DG3001FEG84HR (includes AMD "Jaguar" 8-core CPU + AMD Radeon Graphics GPU)
  - 16x SK Hynix [H5TQ4G63AFR](#) 4 Gb (512 MB) DDR3 SDRAM (total of 16 x 512 MB = 8 GB)
  - X861949-005 T6WD5XBG-0003
  - SK Hynix H26M42003GMR 8 GB eMMC NAND Flash
  - ON Semiconductor NCP4204 GAC1328G Integrated Power Control IC
  - Realtek RTL 8151GNM Ethernet Controller
- Texas Instruments [TPS2590](#) 3-V to 20-V High Current Load Switch

## Step 21



- The backside of the motherboard is a glorious, green field, void of any integrated circuits.
- As always, a big thanks to the folks at [Chipworks](#) for helping us determine names of the doodads we found inside the Xbox One!
- If you haven't, already, check out their in-depth [analysis of the PS4!](#)

## Step 22

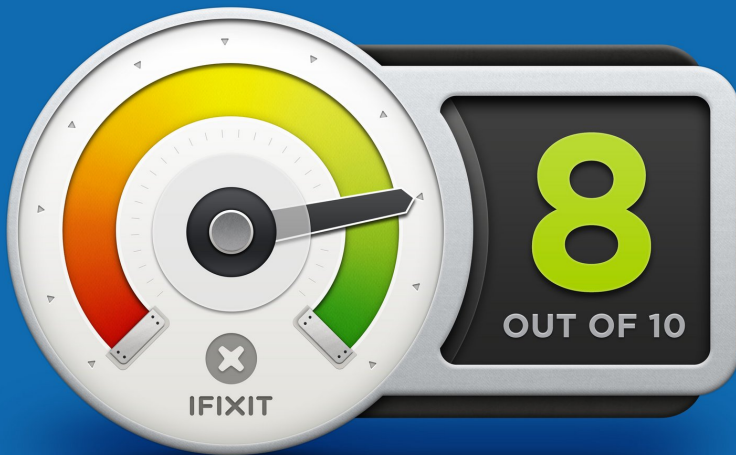


- With that, game time is over! Let's tally up this console's repairability score.



## Step 23 — Final Thoughts

### REPAIRABILITY SCORE:



- Microsoft Xbox One Repairability Score: **8 out of 10** (10 is easiest to repair):
- Only a few tools are required to take the whole console apart. The opening procedure is similar to, but much easier than, any Xbox 360.
- Once inside, a clean, no-nonsense modular design allows the drives, fan, heat sink, wireless board, and front daughterboard to be easily replaced.
- Clips instead of screws make opening the case more difficult than necessary, but the absence of adhesive and proprietary screws helps soften the transgression.
- The hard drive is relatively difficult to access; you'll have to void the warranty if you'd like to upgrade/replace it.

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