



# Apple TV 4K 2021 Teardown

Teardown of the all-new Siri Remote, and the spec-bumped Apple TV with which it's paired.  
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## INTRODUCTION

It's been almost four years since we had a new Apple TV to tear down—an eternity in tech time, and even longer if you remember to [be a goldfish](#). But we're not complaining. Let's break out our teardown tools and hope this latest squircle-shaped streamer proves to be as long-lasting and repairable as its predecessor.

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### TOOLS:

- [iFixit Opening Picks \(Set of 6\)](#) (1)
  - [Spudger](#) (1)
  - [T3 Torx Screwdriver](#) (1)
  - [T5 Torx Screwdriver](#) (1)
  - [T6 Torx Screwdriver](#) (1)
  - [TR7 Torx Security Screwdriver](#) (1)
  - [P2 Pentalobe Screwdriver iPhone](#) (1)
  - [iFlex Opening Tool](#) (1)
  - [Tweezers](#) (1)
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## Step 1 — Apple TV 4K 2021 Teardown



- We'll skip the unboxing and get straight to our first dilemma: Which to crack open first? The black box ...
  - Apple A12 Bionic chip for that high-framerate 4K HDR viewing pleasure
  - Color balance and Thread support
  - HDMI 2.1, Ethernet, 802.11ax WiFi 6, and Bluetooth 5.0
- ... or the silver stick (a.k.a. next-generation Siri Remote):
  - Touch-enabled clickpad, Siri button on the side please
  - All-new power and mute buttons to better control your TV
  - Bluetooth 5.0, IR transmitter, and Lightning connector for charging.

## Step 2



- Let's see if a quick exterior inspection helps decide.
- The box may look familiar, but the new remote looks ... also pretty familiar, actually. It recalls the remote design from the [3rd-gen Apple TV](#), way back in 2012.
- ① That's not a bad thing. New Apple products often set trends, but one thing that nobody hurried to copy was the [frustrating Siri Remote](#) design that shipped with Apple TVs starting in 2015.
  - That's okay, Apple—be a goldfish.
- Both gizmos have their own Apple model number, namely: **A2169** for the black box, and **A2540** for the silver stick.
- If you were wondering about a hidden [service port](#) inside the Ethernet jack, we have to disappoint you. The Apple TV 4K only carries power, HDMI, and Ethernet ports. (The front also sports an infrared sensor peeking through the plastic, which we'll find later).

## Step 3



- Before we can decide which one to open first, the X-ray masters at [Creative Electron](#) send over a teardown of their own.
- X-rays have no problem penetrating the remote's aluminum shell (although usually neither do our tools, once we know where to poke).
- ① Are those *screws* at the bottom corners?

## Step 4



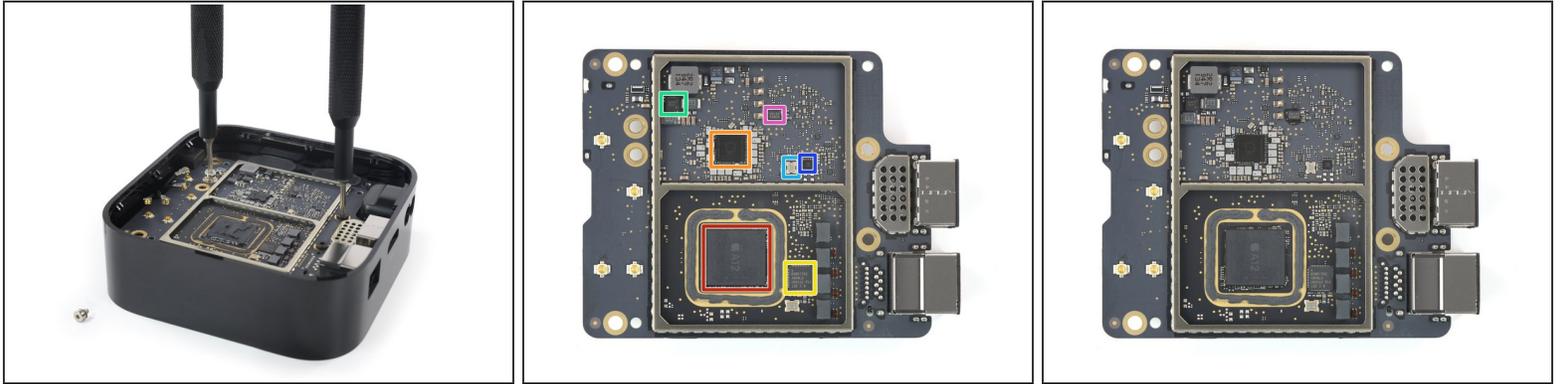
- With the black box, we know exactly where to prod and pry. Our [tried-and-tested](#) methods still work fine on this updated hardware, so we go right ahead and remove the bottom cover.
- Underneath we are greeted by the full metal fan unit seen in the Apple TV 4K, *not* the heatsinks of previous generations.

## Step 5



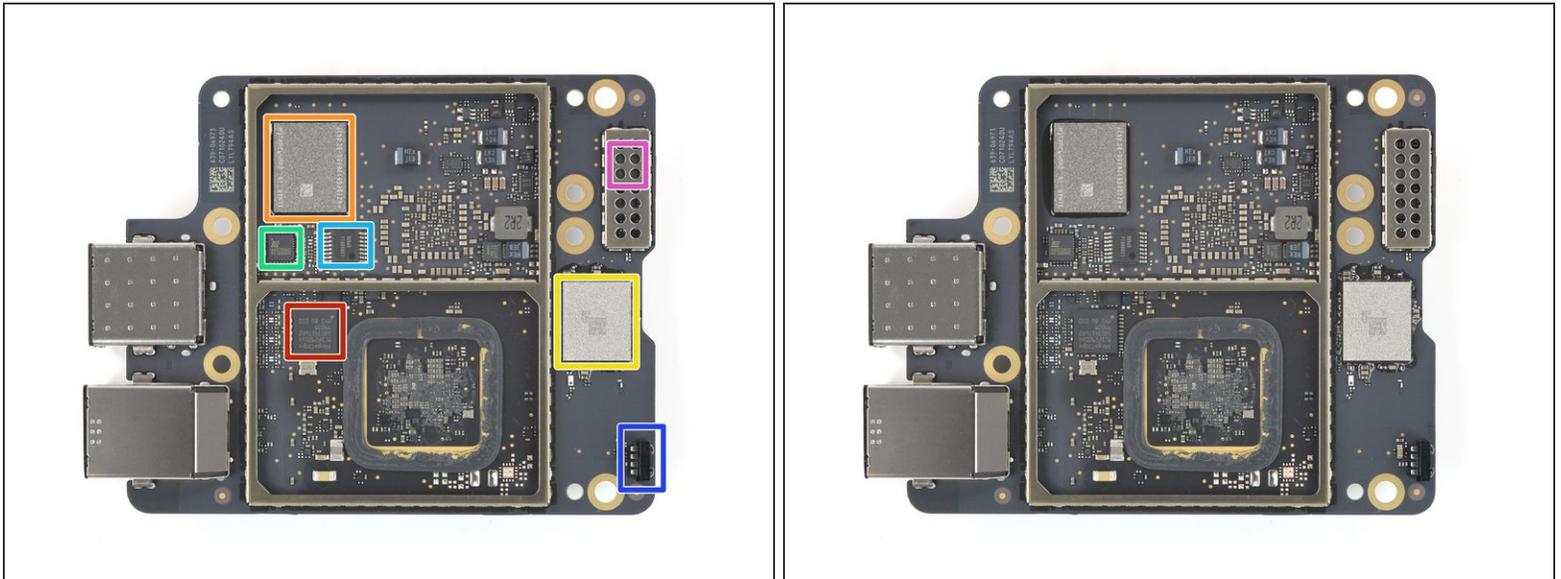
- Disassembling the cooling unit is a breeze, and unsurprisingly no different from the [previous 4K model](#).
- So far things are looking pretty familiar, so we'll fast forward a bit. Suffice to say, with a good set of tools (not pictured), the blower comes out like magic.

## Step 6



- A few Torx screws later, the logic board is free and exposes these chips on the top:
  - Apple A12 Bionic SoC—yep, the same chip from the [2018-era iPhones](#)—paired with Micron MT53D384M64D4SB-046 XT:E 3 GB mobile LPDDR4 SDRAM memory
  - Apple APL1091 338S00673 power management IC
  - Broadcom BCM57762A0KMLG Gigabit Ethernet controller
  - Alpha & Omega Semiconductor AONE36196 MOSFET
  - T245 MrHP crystal oscillator
  - Lattice Semiconductor [iCE5LP4K](#) iCE field programmable gate array (FPGA)
  - Macronix [MX25U8035F](#) 8 Mb serial NOR flash memory

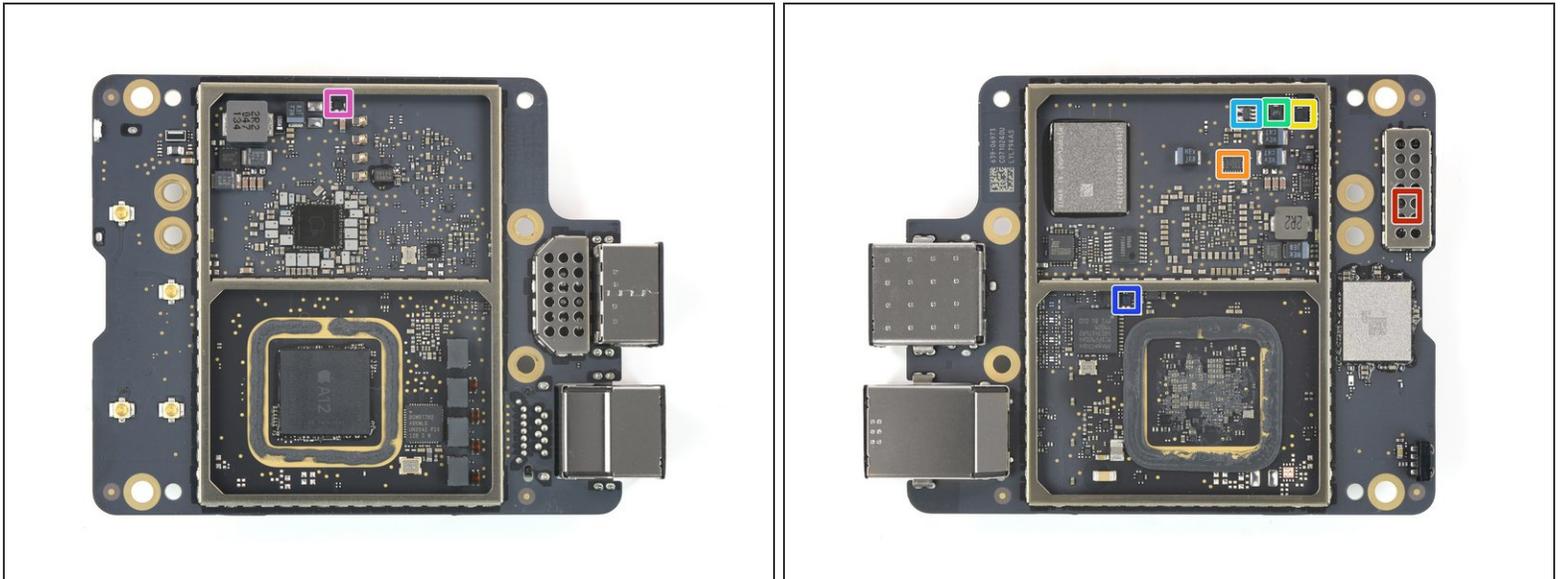
## Step 7



● ... and these underneath:

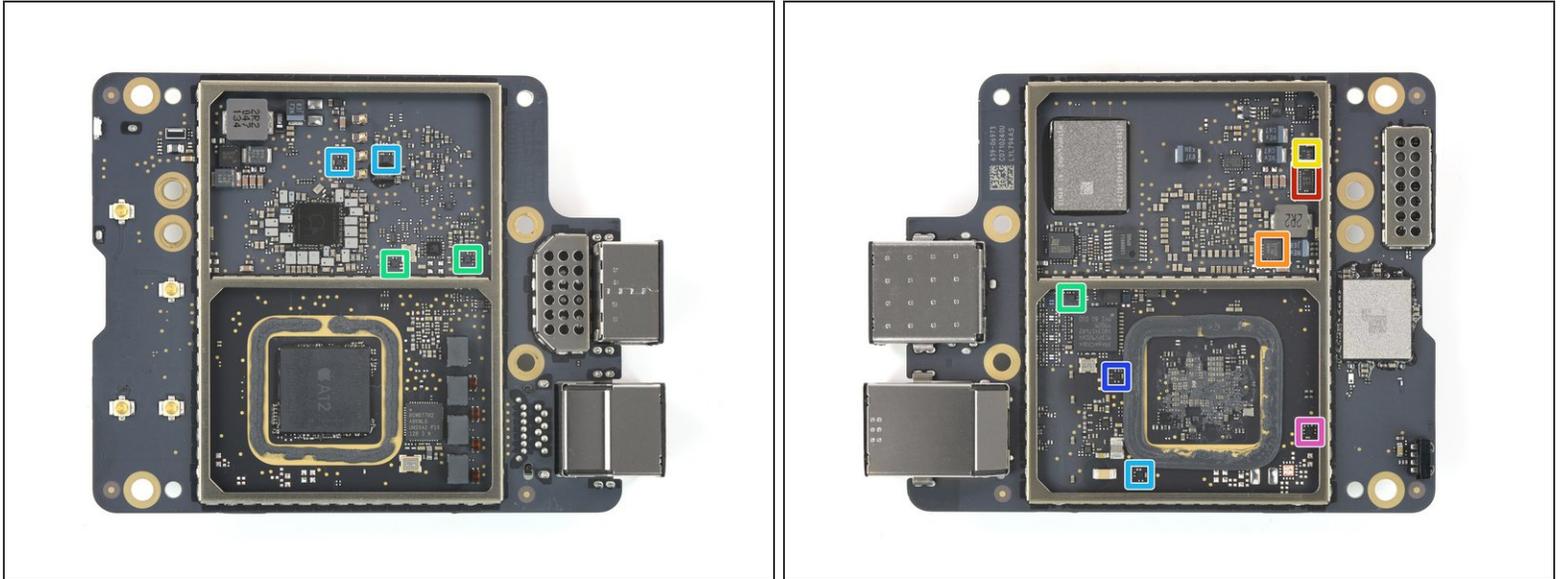
- Kinetic Technologies ([formerly Megachips](#)) MCDP2920A4 DisplayPort 1.4 to HDMI 2.0 converter
- SK Hynix H230EG8126AD0-BC 32 GB NAND flash memory
- Murata 339S00763 Wi-Fi/Bluetooth module
- Lattice Semiconductor [SiL9437CNUC](#) audio return channel receiver/transmitter
- ON Semiconductor [LC89091JA](#) digital audio interface receiver
- Infrared receiver
- Nordic Semiconductor [nRF52833](#) Bluetooth 5.2 SoC w/ NFC and Zigbee

## Step 8



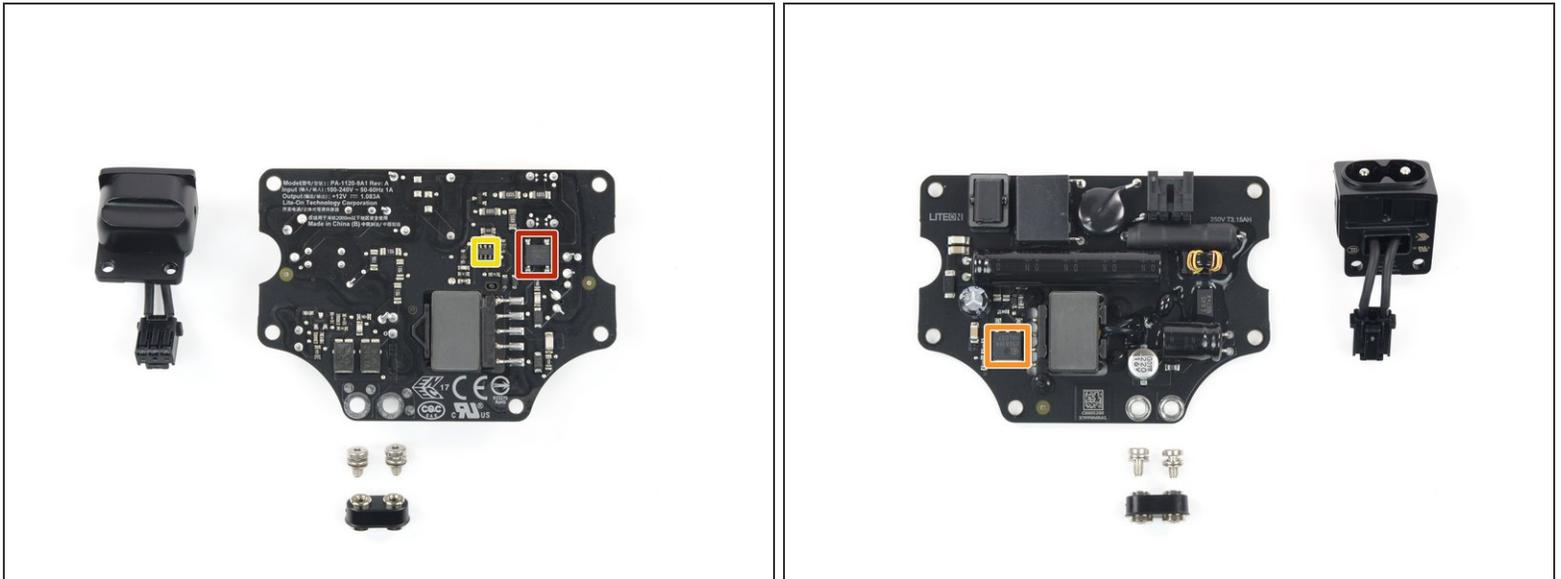
- IC identification bonus round:
  - Skyworks [SKY66404-11](#) 2.4 GHz Zigbee/Thread/Bluetooth front-end module (FEM) (likely)
  - Dialog Semiconductor [SLG46538](#) mixed signal array
  - Texas Instruments CD3255 power monitor (likely)
  - Texas Instruments [INA213](#) current sense amplifier
  - ON Semiconductor [LMV331SQ3T2G](#) single comparator
  - ON Semiconductor [FPF2495C](#) over-voltage, over-current load switch
  - ON Semiconductor [FPF2498BUCX](#) load switch

## Step 9



- IC Identification bonus round, part two:
  - Renesas PWM DC/DC controller
  - Texas Instruments TPS62130B step-down converter
  - Texas Instruments [TPS715A01](#) 80 mA / adj. LDO regulator
  - Diodes Incorporated [74LVC2G07FW5-7](#) dual buffer
  - Diodes Incorporated [74LVC1G07FW5-7](#) single buffer
  - Diodes Incorporated [74LVC2G04FW5-7](#) dual inverter
  - Diodes Incorporated [74LVC1G04FW5-7](#) single inverter

## Step 10



- The power supply board still lies buried under a hefty metal body for heat dissipation. We find the same conductive posts and modular [C7 socket](#) as in the past.
- ⓘ If you ever wondered: the cable used for the Apple TV may also fit in the power brick of your MacBook, or older iPad and iPhone chargers.
- Some more silicon ID, while we're here:
  - Diodes Incorporated (formerly Lite-On) ABS20MH bridge rectifier
  - Infineon [IPD65R1K4C6](#) N-channel MOSFET
  - NXP Semiconductor [TEA1833LTS](#) switched mode power supply controller

## Step 11



- That's about it for the black box, but we're not *remotely* done yet.
- Starting off with an [iPhone-like](#) opening procedure, we remove two P2 Pentalobe screws from the bottom edge of the aluminum wand.
- On a hunch, we also scoop off the circular clickpad—from there, it's simple to disconnect it from the remote's main board.

## Step 12



- But when pushing out the interior towards the front (like some [iPod mini](#) users may remember), all the buttons are going [cross-eyed](#). So what's the trick here?
- For a closer look, we pop off every button like it was [2010](#) (first appearance of an aluminum remote for the Apple TV).
- And boy do we find things.

## Step 13



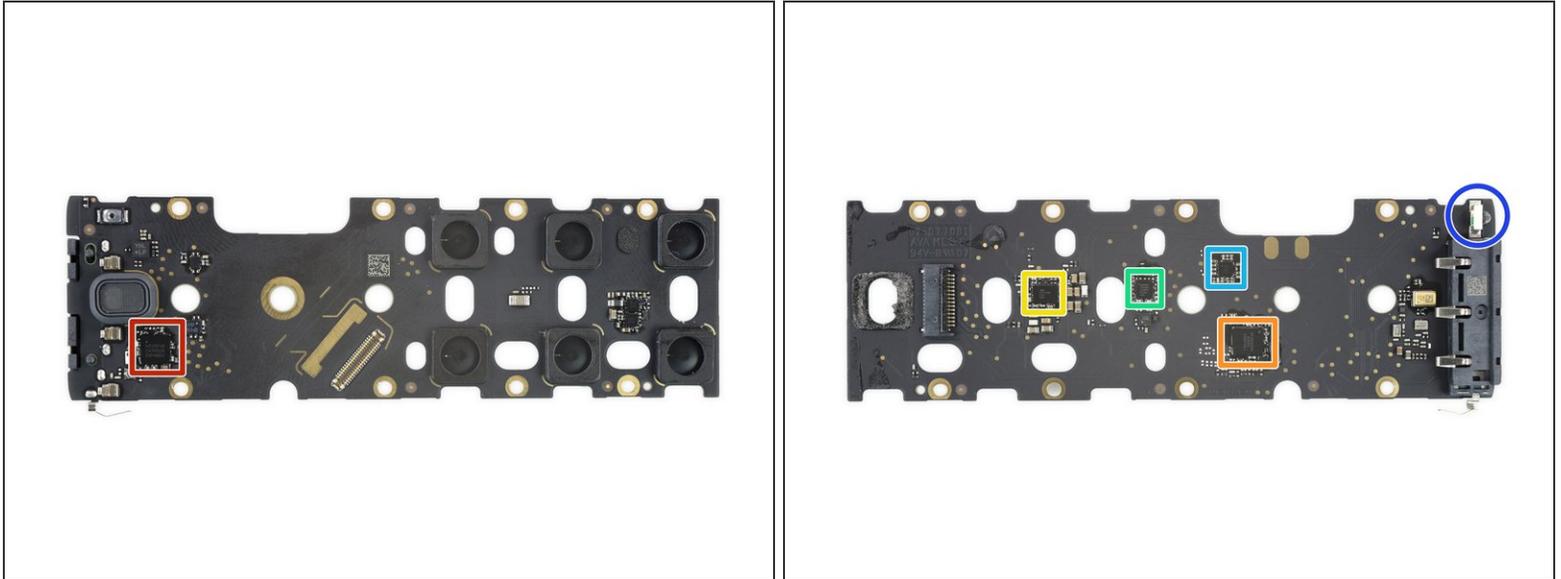
- To go any further, we first need to move that nifty little Siri side button out of the way. Otherwise the power button will obstruct the tech sled and hinder its removal.
- If you can pull off the power button beforehand, it might be enough to just slide the Siri button sled back to get the internals out. As always, service instructions would be helpful, if Apple ever decides to share them—for now, we'll have to work it out on our own.
- Fussiness aside, this should still prove easier to reassemble than something that was [glued together](#).

## Step 14



- What remains is no challenge for our [Minnow Driver Kit](#).
- The battery and charging port combo connects to the back of the main board via a ZIF connector, much the same as in the [4th generation remote control](#).
- The power cell offers 1.52 Wh (398 mAh at 3.81 V), which is fractionally less than the 1.55 Wh (410 mAh) in the [previous design iteration](#).
- ☑ We'd hoped to find a slightly [more user friendly method](#) for two of the most likely repairs on this remote (charging port and battery).
  - The battery at least is likely to last longer than it would in a smartphone or tablet, since it won't go through charge cycles nearly as often. As long as it's not defective or subjected to uncomfortable temperatures, you should get at least a few years out of it.

## Step 15



- What else lies inside this remote? On the top side:
  - Nordic Semiconductor [nRF52840](#) Bluetooth 5/Zigbee/NFC SoC
- ... and on the bottom:
  - Analog Devices 343S00092 capacitive touch controller
  - Maxim Integrated MAX77277 power management
  - NXP Semiconductor CBTL1610A3 port controller
  - (e1) AA5 105 (maybe Dialog Semiconductor audio codec)
  - Infrared diode

## Step 16



- That's it for this round—time to put this back together and load up a fresh episode of *Mythic Quest*.
- We'll end on a high note, which is to say: This is still pretty repairable for a streaming box. We have a few niggles, but you could do a lot worse.
- *Hey Siri*, set a reminder—let's do this again in another four years.

## Step 17 — Final Thoughts

### REPAIRABILITY SCORE:



- The Apple TV 4K (2021) earns an **8 out of 10** on our repairability scale (10 is the easiest to repair):
  - Modular construction and only a few major components simplifies repair.
  - The remote's battery and Lightning cable are soldered together—but not to anything else, so they should be inexpensive to replace.
  - The power supply AC-in jack is modular.
  - The remote itself can be fussy to service and it's guarded by pentalobe screws, but it's not glued together.
  - Most of the I/O ports on the streaming box are soldered to the logic board.