



iPod Touch 5th Generation Teardown

iPod Touch 5th Generation teardown, conducted October 10, 2012.

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INTRODUCTION

We got our hands on Apple's new iPod Touch. First thing we do: get inside to see just how much ["funner"](#) the new generation is compared to the older generations.

Join us for all the fun to come by following [iFixit](#) on Twitter or friending us on [Facebook](#).

[video: <http://www.youtube.com/watch?v=OWHbbxOSYDQ>]



TOOLS:

- [Heat Gun](#) (1)
 - [iFixit Opening Tools](#) (1)
 - [Spudger](#) (1)
 - [Tweezers](#) (1)
 - [Phillips #000 Screwdriver](#) (1)
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Step 1 — iPod Touch 5th Generation Teardown



- Spudgers at the ready! The 5th Generation iPod [Touch](#) sprung upon us with an early release, so we jumped out and got it on our lunch break and tore it down for dinner. It's out in stores and coming to a pocket near you.
- Tech Specs:
 - 4-inch (diagonal) widescreen Retina display with Multi-Touch IPS technology
 - 802.11a/b/g/n Wi-Fi (802.11n 2.4GHz and 5GHz) + Bluetooth 4.0
 - 5-megapixel iSight camera with LED flash and a $f/2.4$ aperture + FaceTime 1.2 MP HD camera capable of capturing HD video (720p) up to 30 fps
 - New iPod touch loop
 - Three-axis gyro + Accelerometer
 - 32 GB or 64 GB storage capacity

Step 2



- Monkey see, monkey do.
- While Apple might not provide repair instructions, they do tell you how to get your product free of the packaging—so much for the [old-fashioned way](#) of ripping into it yourself.
- We're thankful Apple has decided to provide its adoring fans with a proper unboxing procedure. We're just glad we didn't have to resort to [extreme measures](#).

Step 3



- Whether you're looking at the front or back, the new Touch is sleek.
- If the taste of the rainbow didn't give it away, the Touch has an identifying model number A1421 printed on the back.
- With an 1136-by-640-pixel resolution at 326 pixels per inch, the Touch is begging for a test drive. We like to light up our gadgets for a split second before we tear them apart, as a sort of ceremonial goodbye.
- Now that is over, let's get inside!

Step 4



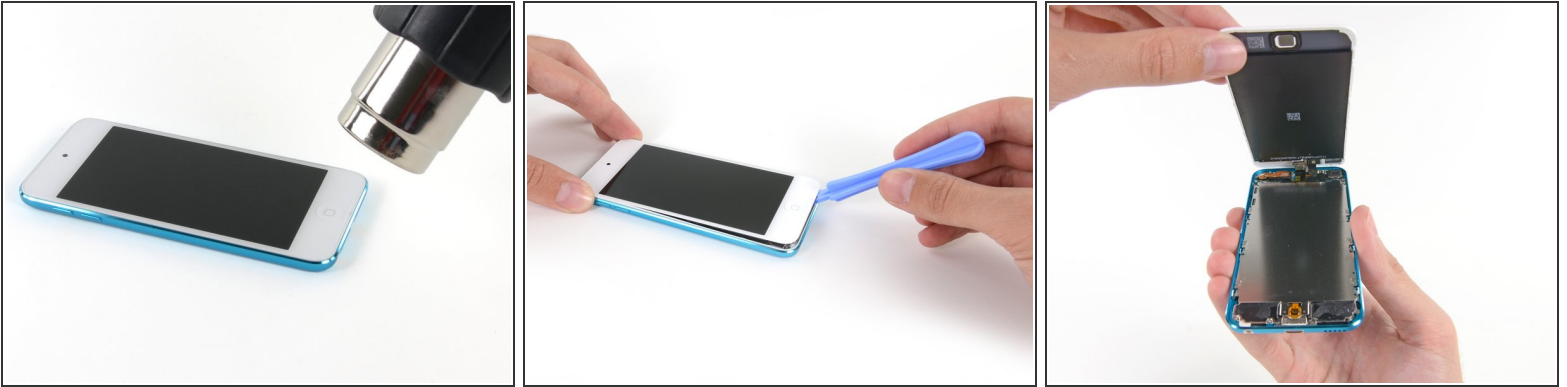
- But wait, there's more! We spy with our little eye...a button. Of course, [we just had to press the button](#).
- Apple kindly included a retractable post for "the loop" that comes with your iPod Touch.
- With any luck, this loop will prevent the unintentional iPod "drop test" that often results in shattered hopes and screens.

Step 5



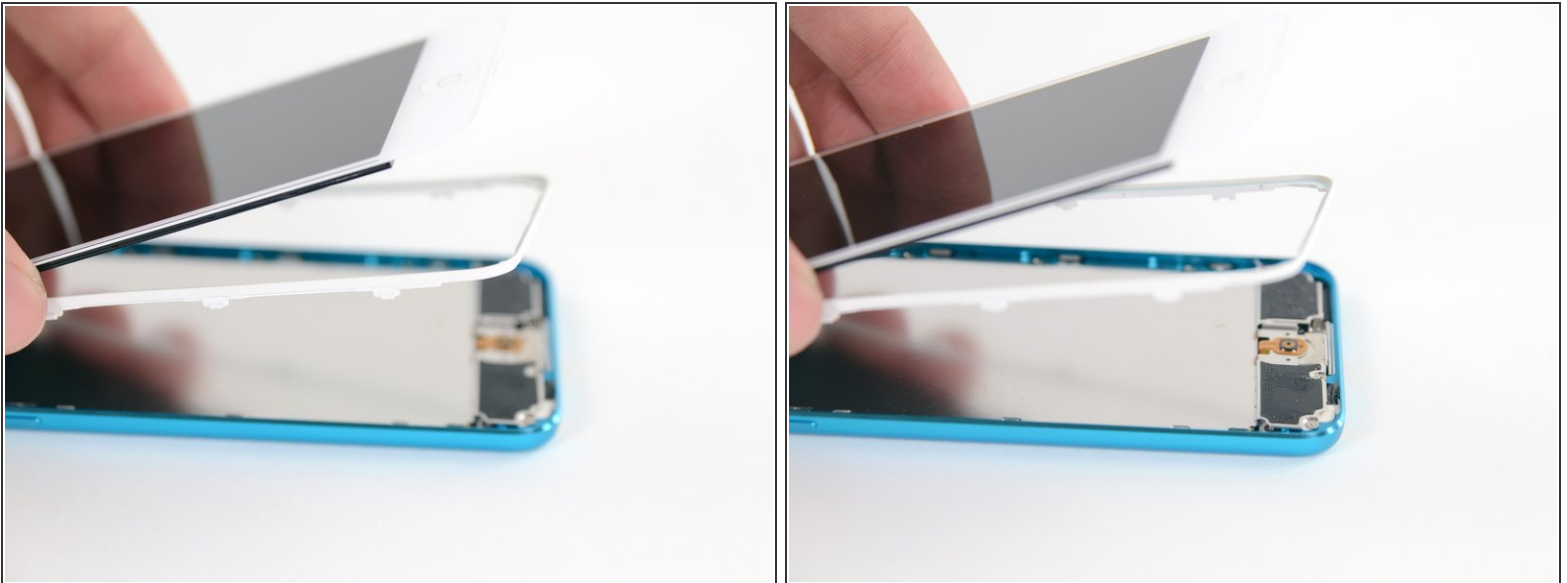
- How does the 5th Generation iPod Touch stack up to the iPhone 5? Well, literally speaking, they're fairly well matched in terms of size.
- The new iPod Touch shares the same height (within a $\pm .01$ inch difference) as the iPhone 5.
- Here is the breakdown of the numbers:
 - Height: 4.86 inches (123.4 mm) versus the 4.87 inches (123.8 mm) of the iPhone 5.
 - Width: 2.31 inches (58.6 mm) on both the Touch and the iPhone 5.
 - Depth: 0.24 inch (6.1 mm) versus 0.30 inches (7.6 mm) on the iPhone 5.
 - Weight: 3.10 ounces (88 grams) versus the 3.95 ounces (112 grams) on the iPhone 5.
- For those of you keeping track at home, the iPod is 20% smaller by volume with respect to the iPhone 5.

Step 6



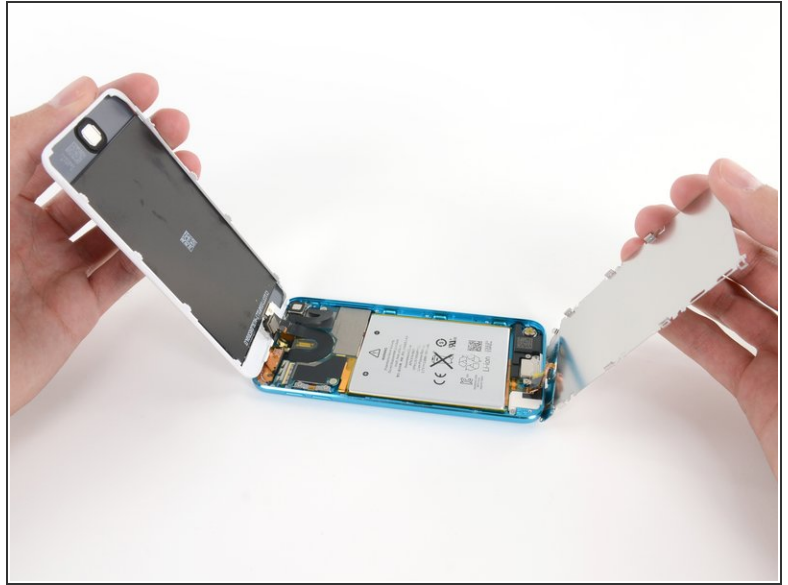
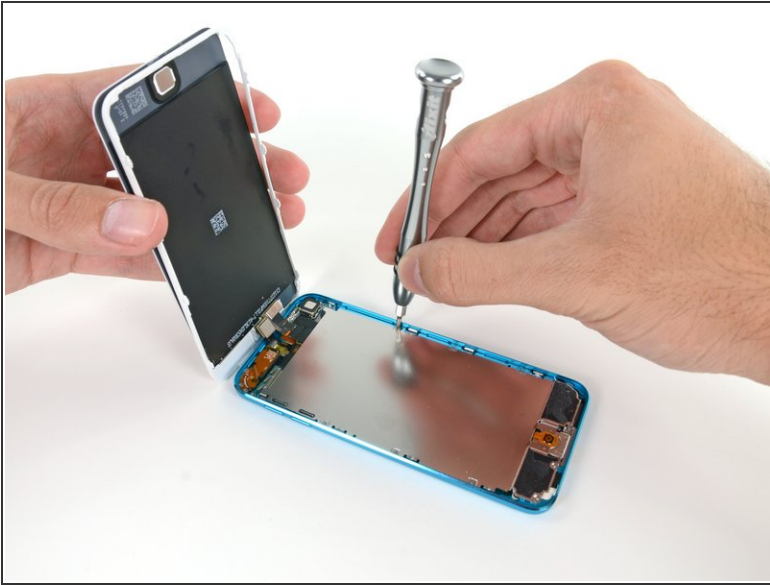
- On your mark, get set.... [HEAT GUN!](#)
- It took all of [thirty seconds](#) to soften the adhesive at the bottom and top of the Touch to a point where we weren't [terrified](#) to pry at it with an opening tool.

Step 7



- Do not adjust your screens, the images you see here have a purpose.
- In case you thought that a quick zap with the heat gun and a gentle pry is all it would take to get into the Touch, think again!
- There are clips (first image) and adhesive (second image, near the home button) holding this iPod together.

Step 8



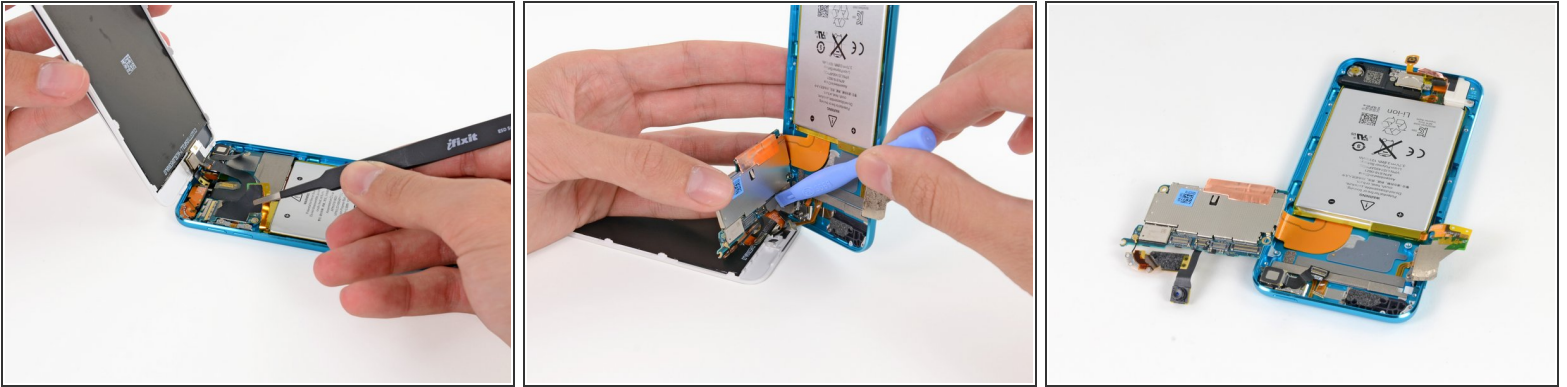
- Sadly, getting the lid off doesn't reveal any of the more "funner" we were promised. We were expecting to find a surprise—maybe a clue that would lead to the whereabouts of Jimmy Hoffa's remains—but instead we were met with an obtrusive EMI shield and several screws.

Step 9



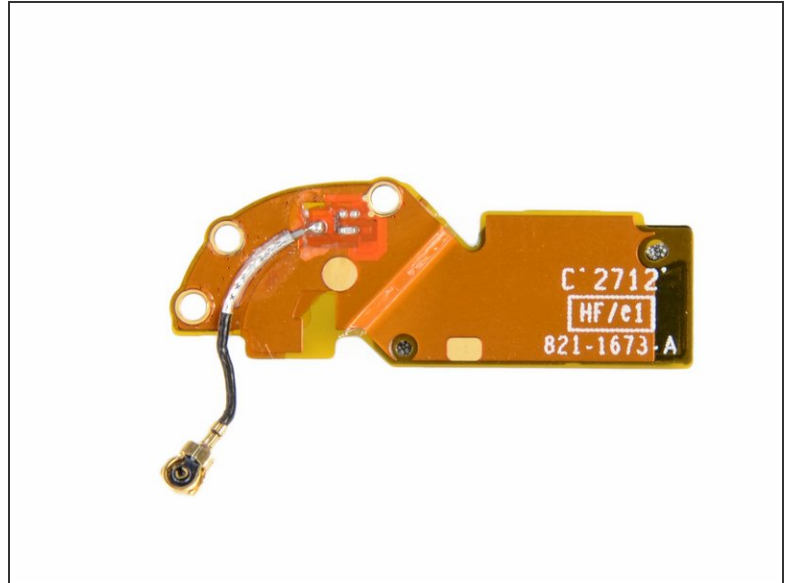
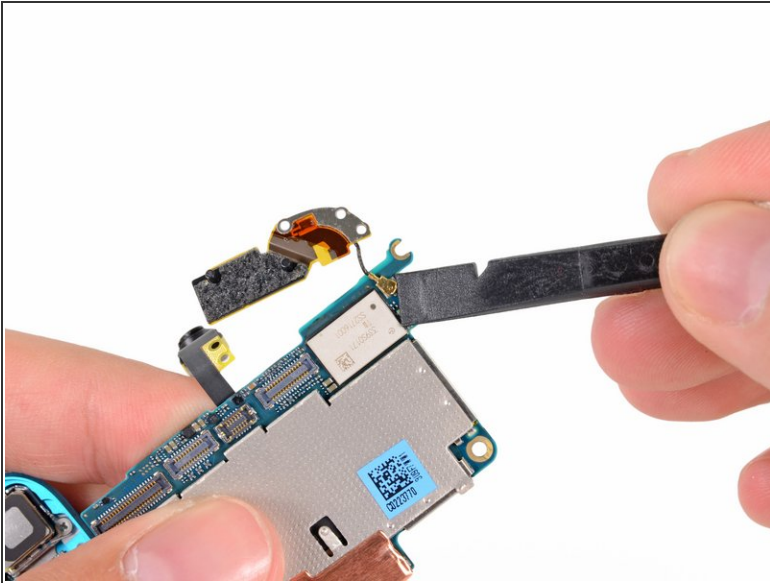
- With the EMI shield out of the way, we get our first look at the battery.
- The iPod Touch 5th Generation is optimized to provide up to 40 hours of music when fully charged.
- That is enough to get you through a standard work week.

Step 10



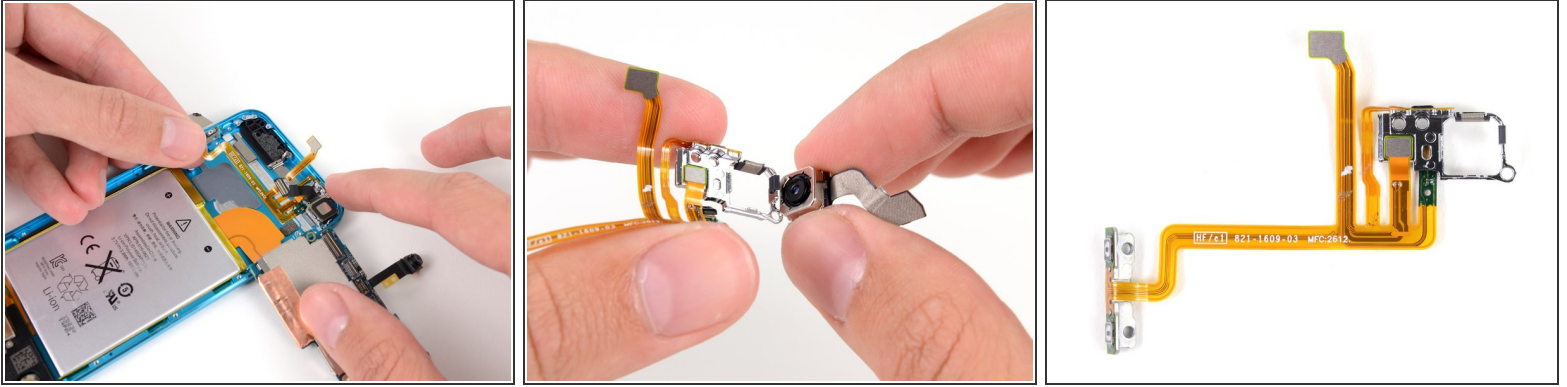
- Getting at the slew of connectors on the back side of the logic board requires a little bit of careful [navigation](#) on our part and flexibility on the iPod's part.
- No iPods were harmed in the making of this teardown. Unfortunately, we needed to pull off the soldered battery connections before we could tilt the logic board up to peek underneath.
- A [plastic opening tool](#) makes quick work of disconnecting the various connectors on the logic board.
- Unfortunately, we can't remove the logic board just yet. There is a ribbon cable routed underneath the battery that seems to lead to the lightning connector.

Step 11



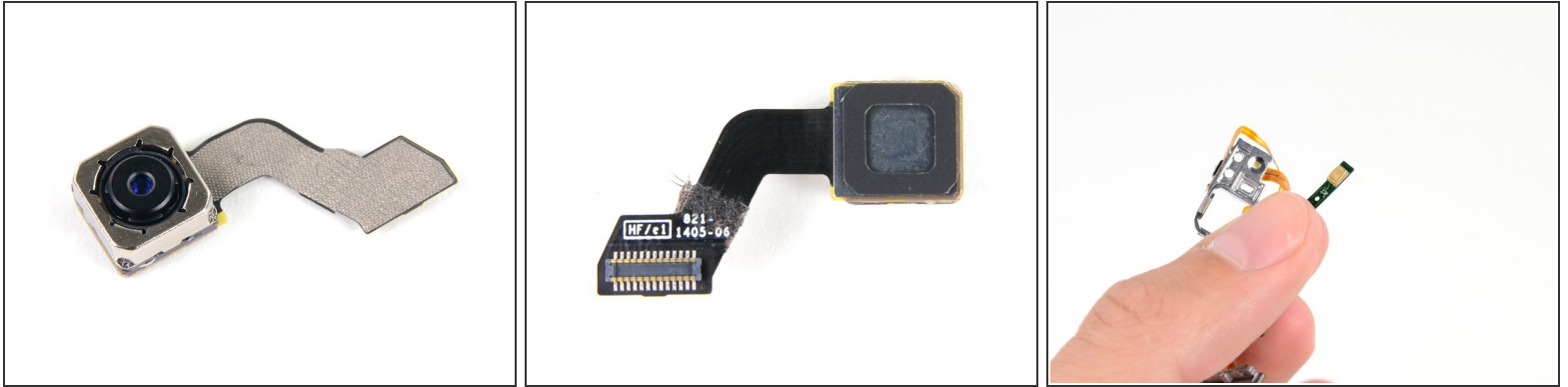
- A quick flick of the spudger is all it takes to disconnect the single antenna.
- The antenna is labeled C 2712, with a sub-label of 821-1673-A.
- The antenna is located near the top left corner. We believe this is the Wi-Fi antenna.

Step 12



- Our next step is to peel the volume buttons/microphone/LED flash/power button ribbon cable assembly from the rear case.
- The rear-facing camera is easily removed from the entire ribbon cable assembly.
- We've seen this type of design in previous Apple products. The shift to a single ribbon cable is more cost-effective for the manufacturer, but unfortunately it has a negative impact on repairability.
- Replacing one component requires replacing the entire ribbon cable assembly.

Step 13



- The 5 MP rear-facing camera in the iPod Touch 5th Generation uses a five-element lens with a hybrid IR filter and an $f/2.4$ aperture.
- The rear-facing camera records HD (1080p) video at up to 30 frames per second with audio.
 - The rear-facing microphone (pictured third) is labeled N 2620
- Combined with autofocus and an LED flash, the new iPod Touch provides paparazzi power to the masses.

Step 14



- Next up to bat is the display.
- It's no shock to see the glass and LCD are fused. It seems this is becoming the norm for most phones/tablets.
- The back of the display assembly is labeled C112377185WF2LLT-A13GJ2A530QAJ3.
- The digitizer and LCD ribbon cables remain, along with the home button and rubber gasket.
- When comparing the Touch to the [iPhone 5 display assembly](#), it's apparent that this is a much simpler, cheaper design, despite the two having very similar functionality.

Step 15



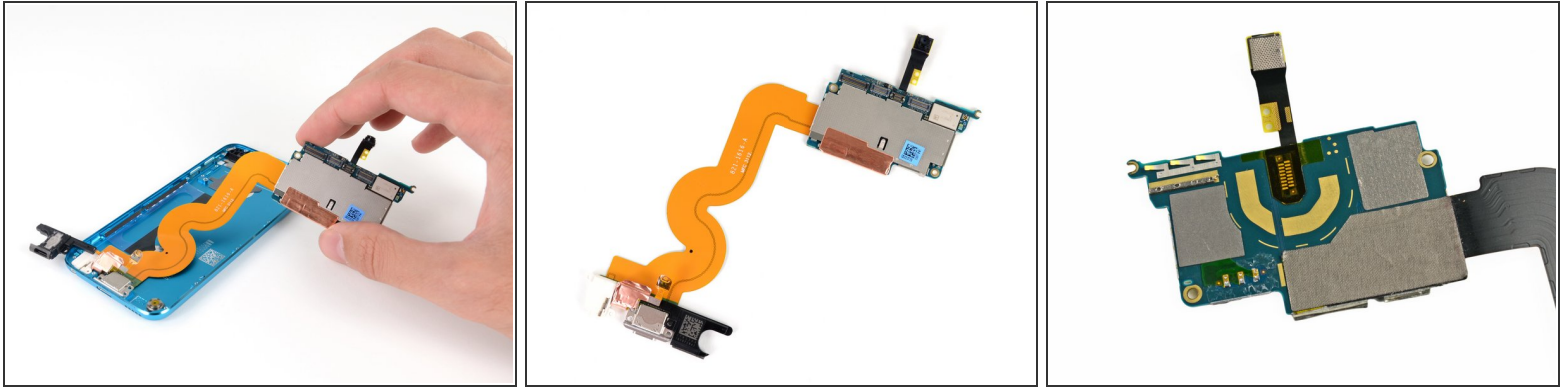
- In our recent [iPhone 5 teardown](#), we praised Apple for designing a stronger home button. The iPod Touch 5th Generation, however, is another story.
- We were somewhat disappointed with the weaker, rubber-membrane design of the iPod Touch's home button.

Step 16



- As we expected, the battery inside the Touch is secured with adhesive.
- Fortunately, the notches around the edge of the battery made tactical prying points for our plastic opening tool, freeing the battery.
- ⓘ The iPhone 5's battery utilized 3.8 V chemistry to squeeze every last second of battery life out of its Li-ion power source. Though without LTE sapping all its charge, the iPod Touch didn't require such measures.
- This Plain Jane battery provides 3.8 Wh at 3.7 V for a rating of 1030 mAh, a little more than the previous model's 930 mAh.

Step 17



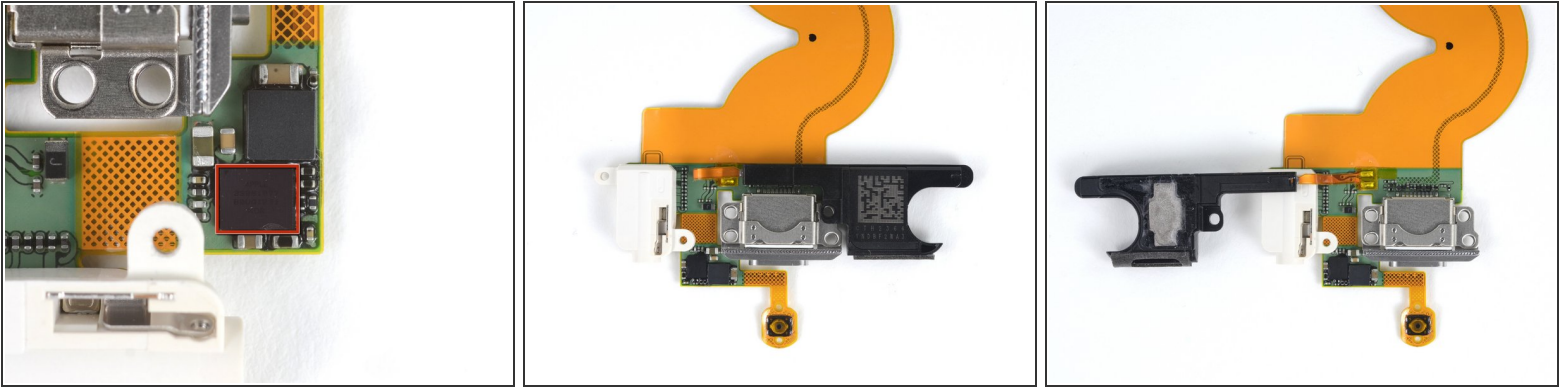
- Confirming our suspicions, the Lightning connector/headphone jack/microphone ribbon cable is indeed soldered to the logic board.
- This is just another example of how Apple is simplifying and grouping the components in its products. Unfortunately, in doing so, it's inadvertently putting an end to repairability.
 - We can't suss out the reason behind the shape of this ribbon cable. Perhaps Apple put it there for sh*ts and wiggles?
- The backside of the logic board.

Step 18



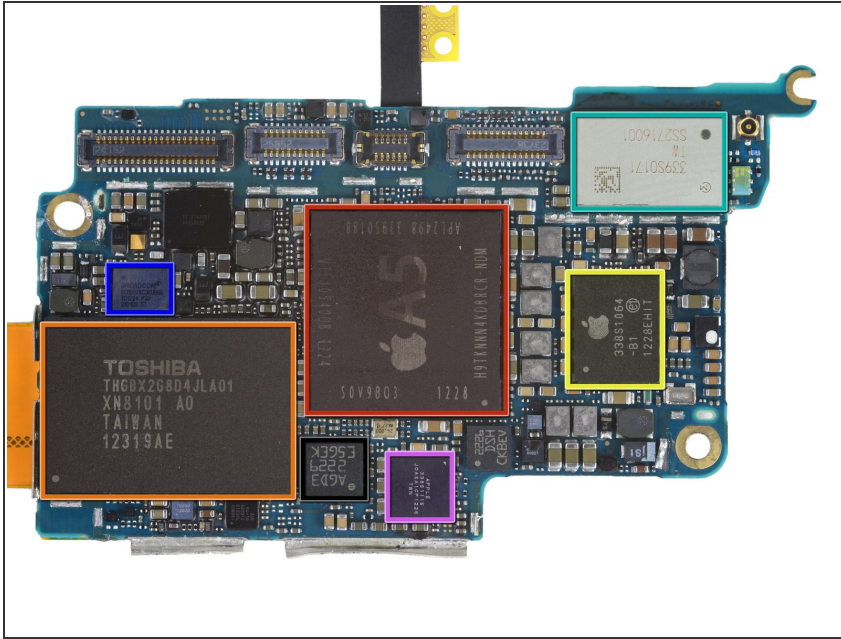
- Our case rests, just an empty shell of what it used to be.
- This was a great chance for us to take a closer look at the inside of the loop post.
 - The squared-off edges got us excited about unscrewing the post from the rear case, but we were disappointed when it just spun in place, suggesting a pressed fit.

Step 19



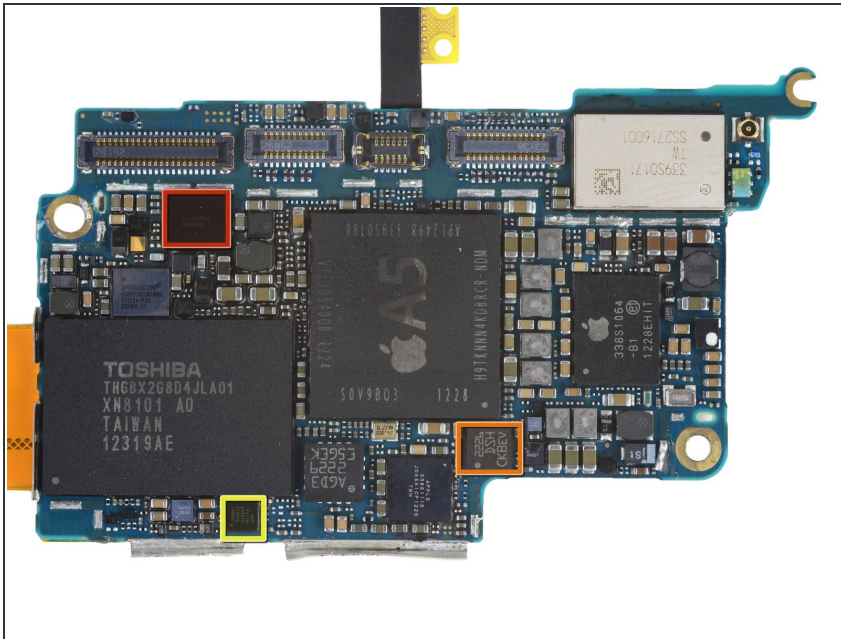
- Snuggled away under the lower left corner of the Lightning connector, we find the Apple 338S1077 Cirrus audio codec. This is the same audio codec found in the [iPhone 5](#).
- The long, winding ribbon cable road ends at the [Lightning](#) dock.
- Fortunately, this Apple proprietary technology has been [cloned](#) just in time for the release of the iPod. Accessories are soon to follow.

Step 20



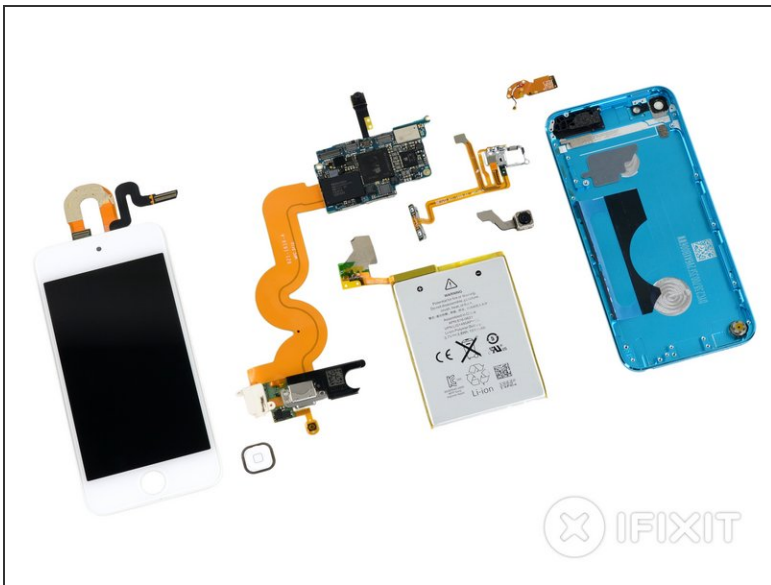
- The iPod Touch finally shows us what's up its sleeve:
 - Apple A5 dual-core processor, with 4 Gb (512 MB) of Mobile DDR2 RAM, denoted by the [H9TKNNN4KDBRCR](#) silkscreen label on the A5
 - Toshiba [THGBX2G8D4JLA01](#) 256 Gb (32 GB) NAND flash
 - Apple 3381064 dialog power management IC (similar to the [Apple 338S1131](#))
 - Murata 339S0171 Wi-Fi module
 - Broadcom BCM5976 touchscreen controller
 - Apple 338S1116 is unknown at this time (although it bears a striking resemblance to the [Apple 338S1117](#) found in the iPhone 5)
 - STMicroelectronics low-power, three-axis gyroscope (AGD3/2229/E5GEK)

Step 21



- More tricks:
 - Texas Instruments 27AZ5R1 touchscreen SoC
 - STMicroelectronics 2226 DSH CKBEV
 - NXP Semiconductors 1608A1

Step 22



REPAIRABILITY SCORE:



- iPod Touch 5th Generation Repairability: **3 out of 10** (10 is easiest to repair).
- While very difficult, opening the case and replacing components is not impossible.
- The battery is flanked by notches that make prying it out of the rear case fairly easy.
- Many components are soldered together, requiring either a very difficult or very expensive repair if any one part breaks.
- The Touch has no external screws. Instead, a combo of clips and adhesive makes it difficult to open the case.
- Cables connected to the logic board run over the top and connect on the bottom, making it difficult to remove the board or disconnect the cables.