

iPhone 1st Gen Teardown



Step 1 — Teardown

We've procured our iPhone, and it's on the way to our photo studio now.

We purchased two 8 GB iPhones.

The phone has arrived!

Who wants to take bets on how long it'll take us to start selling iPhone parts?



Step 2

OK, so here's a quick overview of the basics.

The iPhone is 4.5x2.4x0.5", and weighs 4.8 ounces (0.3 pounds). For reference, 18 iPhones weigh the same as one MacBook Pro.

The display is 3.5" diagonal, 480x320 resolution. That's 153,600 pixels, or 12% as many as a 15" MacBook Pro.



Step 3

If you can't tell, we're stalling while we figure out how to get it open.

The iPhone supports four major different wireless protocols.

The List: Quad-band GSM (850, 900, 1800, 1900 MHz), 802.11b/g WiFi, EDGE, and Bluetooth 2.0 + EDR.



Step 4

Random facts:

The iPhone has H.264 video decoding, most likely in hardware.

It also has a two-megapixel camera.

Last March Micron told setteB.IT in an exclusive interview that the camera is an MT9D112D00STC model (code name K15A or MI-SOC2020).



Step 5

Front of the iPhone. The battery was partially charged when we got it.

The large touch screen is manufactured by Balda, a German company. Hopefully, this screen will be more durable and scratch-resistant than those we've seen on iPods.



Step 6

iPhone's back.

The SIM card is removable. Push a paperclip into the hole on top, and the card will come out (you may have to apply more force than you'd expect).

You cannot use a SIM card from another provider without unlocking the phone first. Currently, there is no way to use the iPhone on a non-ATT network. The only way to use it internationally is roaming with a US plan.



Step 7

We've got the iPhone apart. It was a little bit tricky.

We removed the black antenna plate first.

You can see the grounding screw on the back panel holding the antenna cable and connecting the front and back case.

Step 8

Separating the front and back case.



There's a headphone jack cable to disconnect before you can completely remove the back panel.

The headphone jack is recessed into the case, so most headphone jacks won't fit without an adapter (even if they're the right 1/8" plug).

Apple did this to reduce the strain on the narrow metal jack when you yank on the headphones. With this design, the hard plastic cable jacket absorbs most of the impact.

The headphones have a microphone built in, with a button that you pinch to answer a phone call.



Step 9

At last! The moment you've all been waiting for.

The battery is huge, and soldered to the logic board.

You can see the SIM card bracket and headphone jack on the rear panel.



Step 10

It is a 3.7 volt Li-Ion Polymer battery.

You can see at least two antenna cables connecting to the logic board.



Step 11

Disconnecting the two antenna cables.

There's a dab of glue underneath both of the antenna connectors, presumably for reliability.

One has to imagine that Apple was extra-paranoid about reliability on this phone. They've certainly learned their lessons from the iPod.



Step 12

Removing three Phillips #00 screws securing the logic board to the front panel. The screws are:

Where the screwdriver is.

Underneath the black camera in the upper right hand corner.

To the left of the battery wires that are soldered to the logic board.



Step 13

Removing the camera on the top of the phone.

Sadly, there don't appear to be any software settings — it's just point and click.



Step 14

Removing ten Phillips #00 screws around the perimeter of the iPhone.



Step 15

The battery has Apple model number 616-0290 L1S1376APPC.



Step 16

Lifting up the logic board. There are three connectors underneath. They are speaker, touch sensor, and display cables.

Disconnect the two connectors on the left side of the image.



Step 17

Disconnect the remaining connector.



Step 18

Flip up the retaining bar to free the dock connector cable.



Step 19

Close-up shot of the logic board. The logic board is two layers thick, so it's difficult to see components.

We haven't found a way to pry the two sections apart without damaging the logic board, so it's virtually impossible to tell you what's in there.



Step 20

View of the iPhone with the logic board and battery removed.



Step 21

Disconnect the antenna cable to the left of the dock connector.



Step 22

Peel up the antenna ribbon sheet from the large black plastic piece.

You can now see why the iPhone has the black lower section of the back case. The antenna encompasses this entire region.



Step 23

Remove the hollow black plastic piece that was covered by the antenna.

There is some empty space within it — the only open internal space.

There's a chip in the upper right that may be a touch screen control processor. Model numbers: S6087P1, GN03325, 2076A00R, and 1YFZASB3



Step 24

The iPhone is completely apart!

The phone had about 16 screws total, unlike many iPods. The iPod Nano only has three screws.

Step 25

After further examination, we found a way to open the logic board without completely destroying it like Think Secret did.

Samsung chip underneath the metal shield on the left side of the board on the left. Ours reads K9MCGD8U5M. The 4 GB model that Think Secret took apart had K9HBG08U1M on it, which is a 4 GB chip



Samsung memory stacked with a 620 MHz ARM architecture processor, ARM1176JZF. Could be a Samsung S3C6400. Numbers: 339S0030ARM, 8900B 0719, NOD4BZ02, K4X1G153PC-XGC3, ECC457Q3 716. The processor is likely stacked on the SDRAM, which could be two 512 Megabit chips. The processor could have H.264 and MP3 hardware decoding built in.

The chip above the ARM is a Wolfson audio chip. Part numbers WM8758BG and 73AFMN5.

The chip underneath the ARM is a Linear Technology 4066 USB Power Li-Ion Battery Charger, which Apple uses in the iPods as well.

Step 26

The chip on the bottom center that looks blank in our image actually has this text: MARVELL, W8686B13, 702AUUP. This is Marvell's 802.11b/g 18.4mm² chip.

The chip in the upper right is a Skyworks GSM/Edge Power amplifier (SKY77340).

The silver chip to the left of the Skyworks chip reads CSR 41814 3A06U K715FB. This is a CSR BlueCore4-ROM WLCSP single chip radio and baseband IC for Bluetooth 2+EDR.

The chip covered by the white sticker in the photo has the part numbers 338S0289 and 8G60710 on it. EETimes claims this is an Infineon M1817A11.

The chip with the blue dot on it is rumored to be an Intel Wireless Flash stacked 32 Mb NOR + 16 Mb SRAM chip. Part numbers 1030W0YTQ2, 5716A673, and Z717074A. EE Times adds the part #PF38F1030W0YTQ2.

The chip in the lower right reads 338S 0297 G0719. Some claim this is an Apple-branded chip, but its purpose is currently unknown.

The chip in the lower left is an Infineon PMB8876 S-Gold 2 multimedia engine. Part numbers: 337S3235, 60708, and EL629058S03.

