



# MacBook Pro 17" Unibody Teardown

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## INTRODUCTION

Our MacBook Pro 17" Unibody arrived on February 17. We immediately got to work disassembling it and posting teardown photos here. We comment on interesting changes and show some comparisons with other MacBook parts.

### TOOLS:

- [Phillips #00 Screwdriver](#) (1)
- [Spudger](#) (1)
- [T6 Torx Screwdriver](#) (1)
- [Y1 Tri-point Screwdriver](#) (1)

## Step 1 — MacBook Pro 17" Unibody Teardown



- We have it! Our patience has been severely tested by the month-long wait for this MacBook Pro 17".
- We'll post updates on [twitter](#) about interesting things that we discover as we go. We'll also post interesting notes in our [blog](#) over the next few days.
- Feel free to comment on specific steps as we go. If you have requests to see specific parts, we'll do our best to accommodate. There's also a [discussion going](#) in our forum.

## Step 2



- Look at all the accessories you get for \$2799!
  - An 85-watt power adapter
  - An 87 page user's manual
  - Two software restore DVDs
  - One small black cleaning cloth
- We were half-expecting Tim Cook to jump out of the box. Didn't happen.
- There is NO Mini DisplayPort adapter included. That'll be \$29, please.

## Step 3



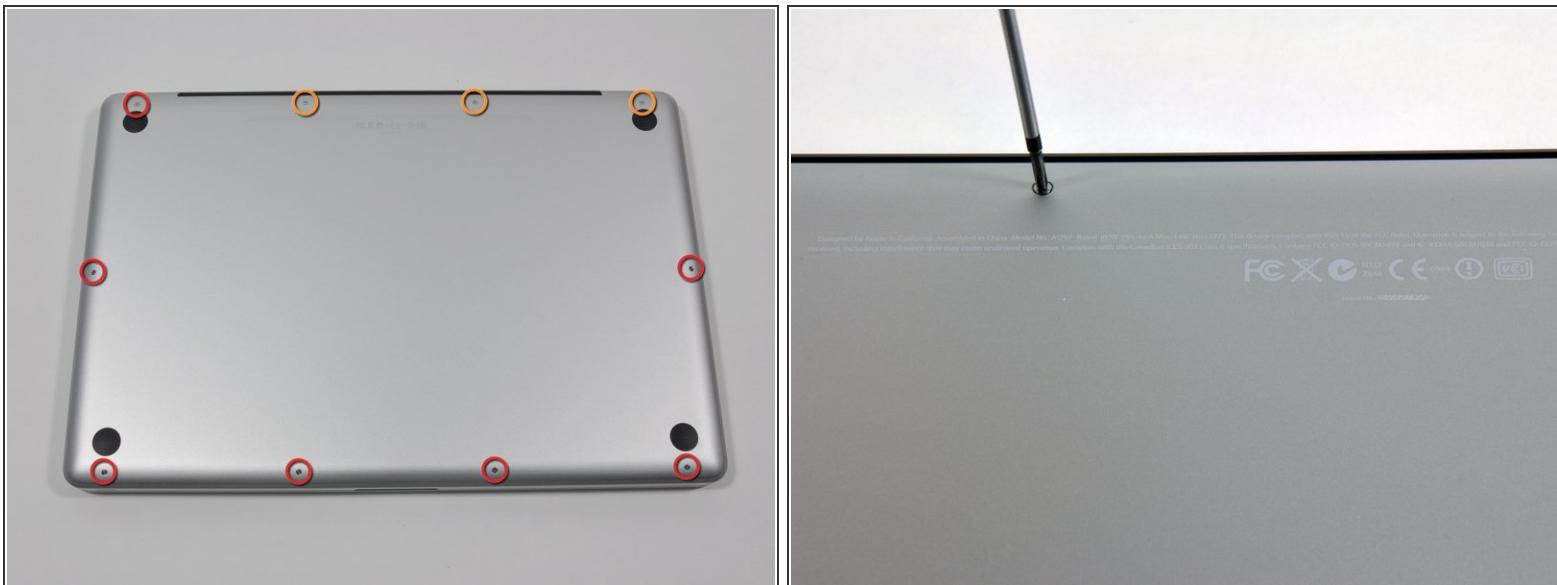
- Physical dimensions: 0.98 x 15.47 x 10.51 inches and 6.6 pounds.
- For comparison, the 15" model measures 0.95 x 14.35 x 9.82 inches and 5.5 pounds.
- There's something almost *spiritual* about the blackness of that screen. Much to our dismay, it is not full of stars and David Bowman is nowhere to be found.

## Step 4



- Tidbits from Apple System profiler:
- 12,820 mAh capacity. Yes, that's 12.8 AMP HOURS. Let's hope it actually lasts the 1,000 discharge cycles that Apple claims.
- Our battery already had 3 cycles on it! I wonder if the famous [factory girl](#) tested ours.
- A 2 GB DDR3 1067 MHz RAM chip is installed in each slot, as expected.
- The hard drive is a 320 GB Hitachi HTS543232L95A02 SATA drive using the NVIDIA MCP79 [AHCI controller](#).
- The model that we bought has the 'low-end', 2.66GHz Intel Core 2 Duo processor with 6MB on-chip shared L2 cache.

## Step 5



- The lower case. Apple's using wide, thin black rubber feet on the Unibody Pros, a departure from the small stubby bumpers on the Aluminum revisions.
- There are ten Phillips screws around the perimeter of the lower case to remove:
  - Seven 3 mm screws
  - Three 14 mm screws

*(i)* Apple's user manual for this computer has instructions to remove the lower case. But they got the length of one of the screws wrong. We promise to get them right in our repair guide.

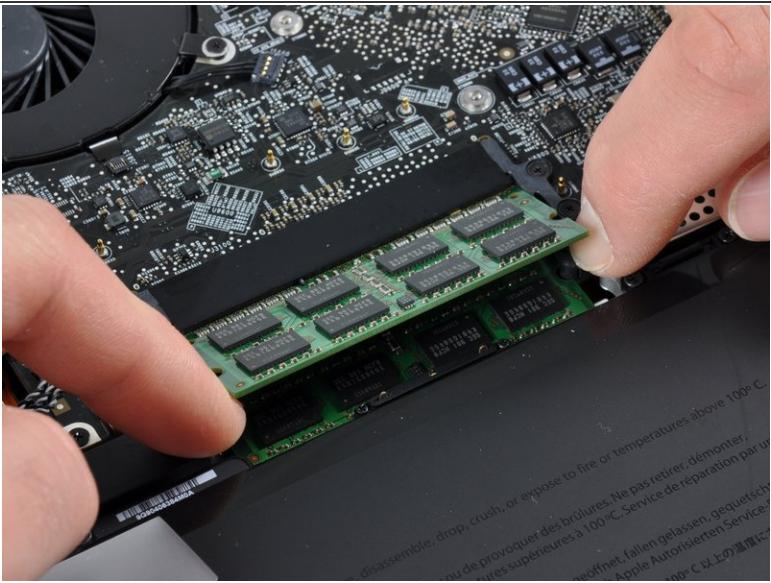
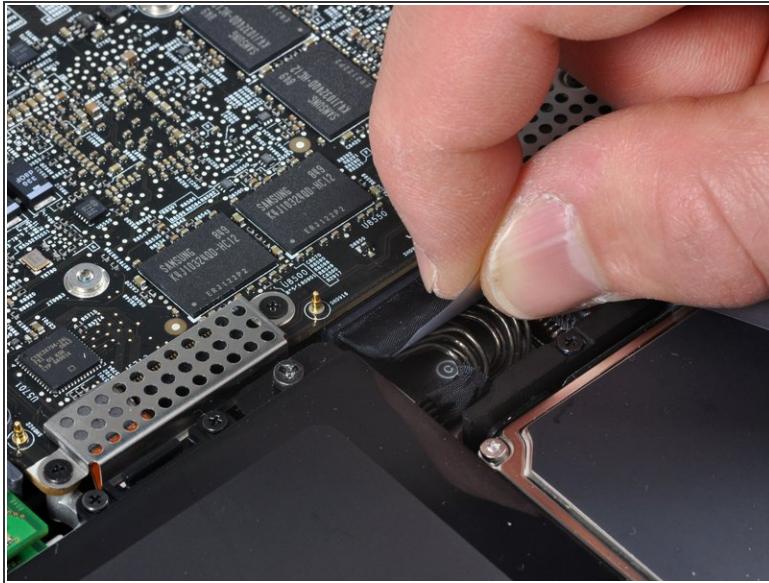
- The computer's serial number is engraved in the aluminum lower case, not the upper case like the other Unibody machines.

## Step 6



- We removed the screws, and we're rotating off the lower case now.
- The second picture reveals the beautiful internals. Look how huge that battery is!
- The serial number is now engraved on the lower case, not on the Unibody upper case as they do on the 15" Pro and 13" Unibody.

## Step 7



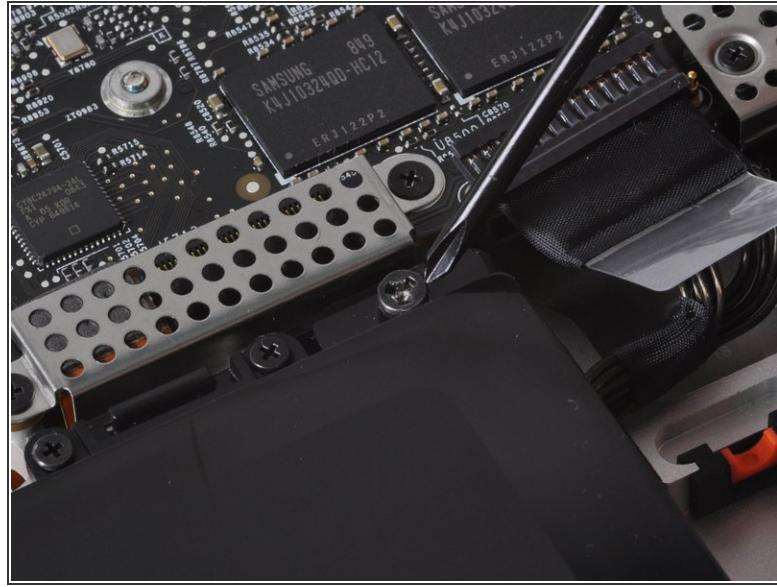
- Disconnecting the battery connector.
- It's probably a good idea to disconnect this cable before continuing to disassemble the machine.
- The second photo is removing a 2 GB DDR3 RAM chip.

## Step 8



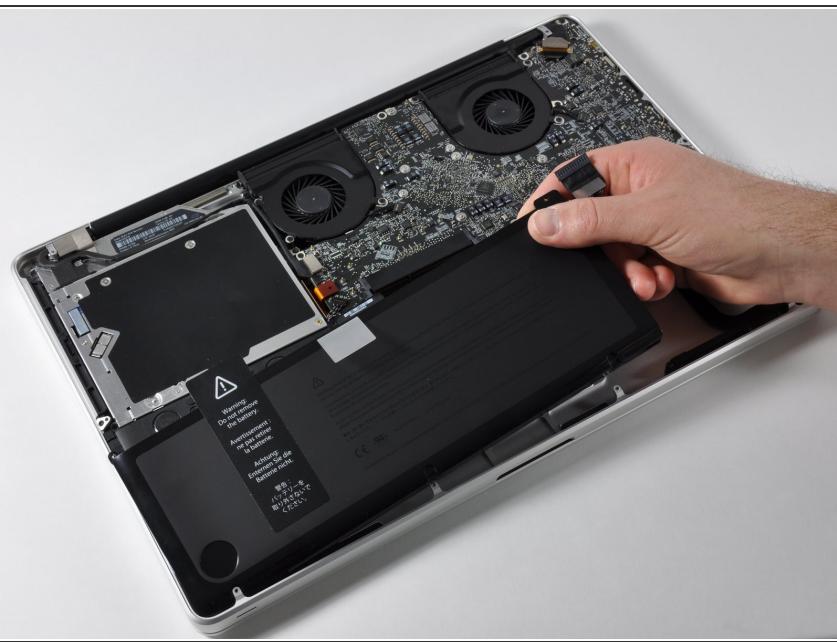
- To remove the hard drive, unscrew the two small Phillips screws holding the black plastic hard drive bracket to the chassis. Pull up on the white plastic tab and lift the hard drive out of the case, being careful not to strain the SATA cable.
- Carefully disconnect the Serial ATA cable.

## Step 9



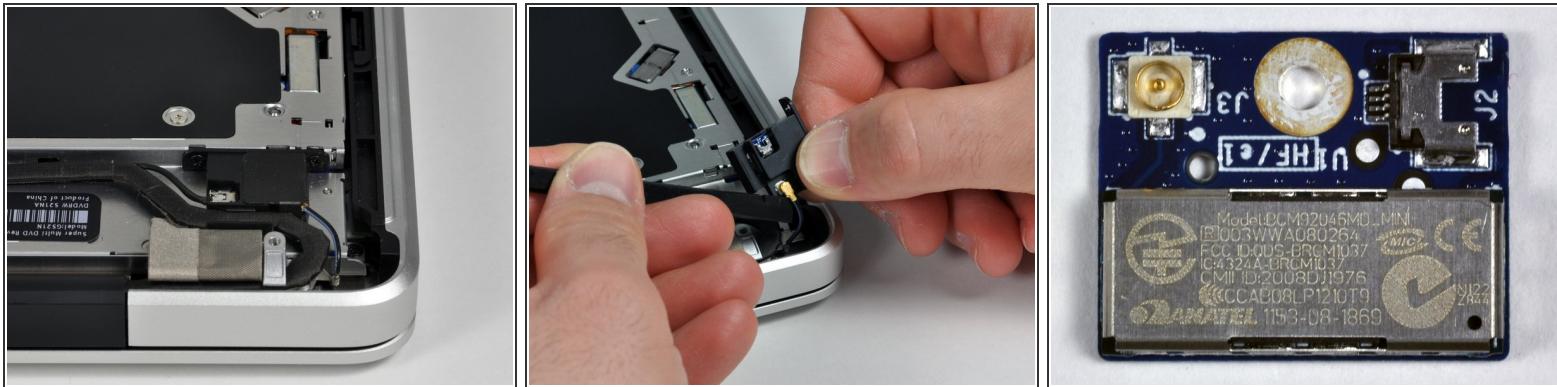
- Ignoring all manufacturer warnings, we are removing the non-removable battery. Hold your breath!
- There are three tri-wing screws holding the battery to the Unibody case.

## Step 10



- Removed the battery! That was pretty easy.
- It's only a matter of time until you'll be able to buy this battery online from companies like us.
- Removing the battery in the 17" is reminiscent of the MacBook Air-- several screws to remove the lower case, a few screws on the battery, and it's free.
- The battery is Apple model #A1309, 7.3V 95Wh (12820 mAh).
- Tree huggers everywhere will be relieved to know that it "contains no Mercury (Hg)."
- The battery weighs 20.1 ounces (1.25 pounds or 570 grams). That's 20% of the computer's weight!

## Step 11



- The Bluetooth board is right behind the optical drive, next to the hinge.
- It's very nice that Apple moved this out of the display assembly (where it is located in the MacBook Unibody and 15" MacBook Pro Unibody). No longer does a Unibody owner need to replace their entire display assembly (\$\$\$) when their Bluetooth goes out.
- It has an Anatel logo on it: BCM93046MD MINI 003WWA080264 FCC iD:QDS-BRCM1037.
- Like the other Unibody machines, the Airport card is in the display assembly clutch cover.

## Step 12



- The 8x slot-loading SuperDrive (DVD±R DL/DVD±RW/CD-RW).
- The internal design of this machine is pretty consistent with the 15" MacBook Pro. We'll be posting some part comparison shots later to show relative sizing.

## Step 13



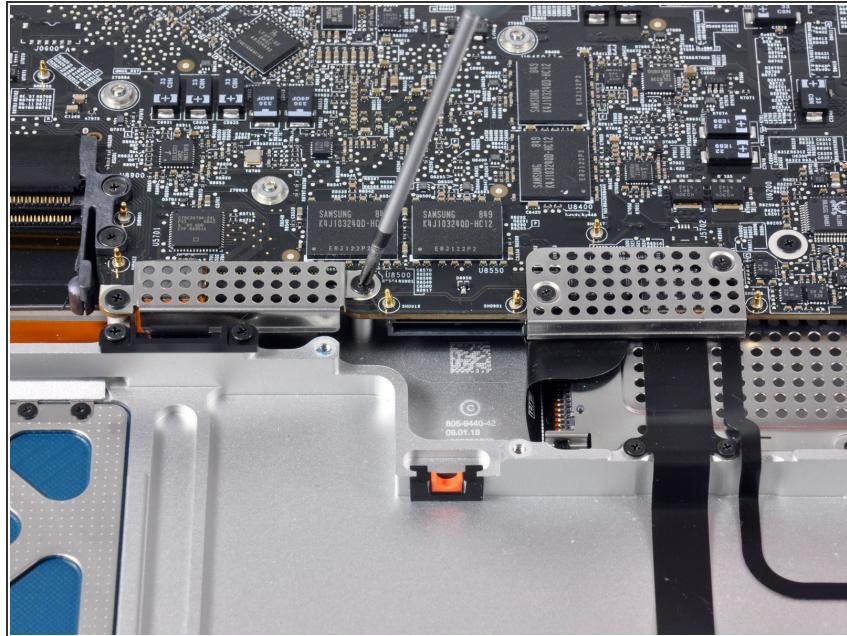
- The bottom of the logic board.
- The component density is amazing. Here's a [large version](#).
- There are four Samsung K4J10324QD-HC12 chips, likely video RAM for the NVidia 9600 chipset.

## Step 14



- On left: 15" Unibody fan. On right: 17" Unibody fan. Below: A North Carolina 'first-flight' quarter.
- The Sunon manufactured fan says 'MagLev' on it. That's interesting! Part #: [MG45070V1](#)
- [Sunon's site](#) says, "By using magnetic levitation force (MagLev), these fans feature zero friction with no contact between shaft and bearing. With excellent rotational stability, the MagLev fan eliminates vibration and typical wobble and shaking typically experienced in fan motors. MagLev also provides excellent high temperature endurance that results in long life."
- Apple's used similar fans in MacBooks in the past.

## Step 15



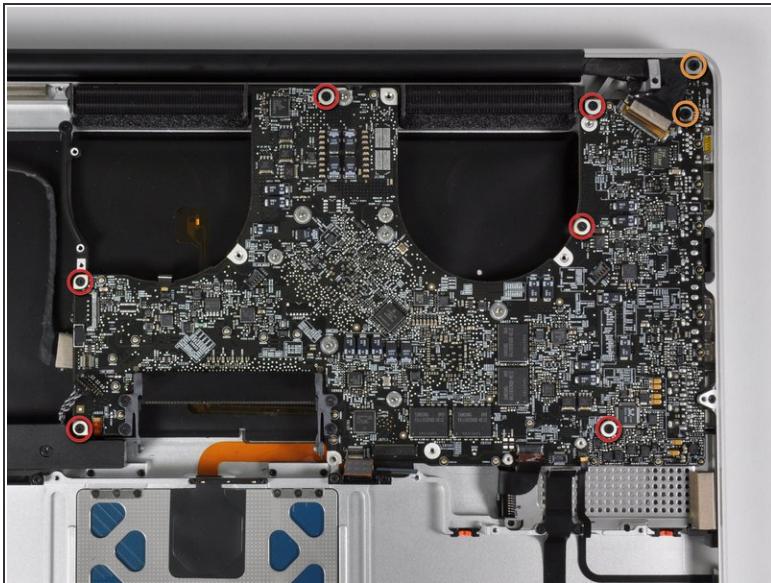
- Removing the Phillips screws securing the perforated metal covers to the Unibody. These covers seem to protect the ribbon cable connections for the trackpad, keyboard, express card, and the serial ATA hard drive. Apple hasn't used metal shields like this before.

## Step 16



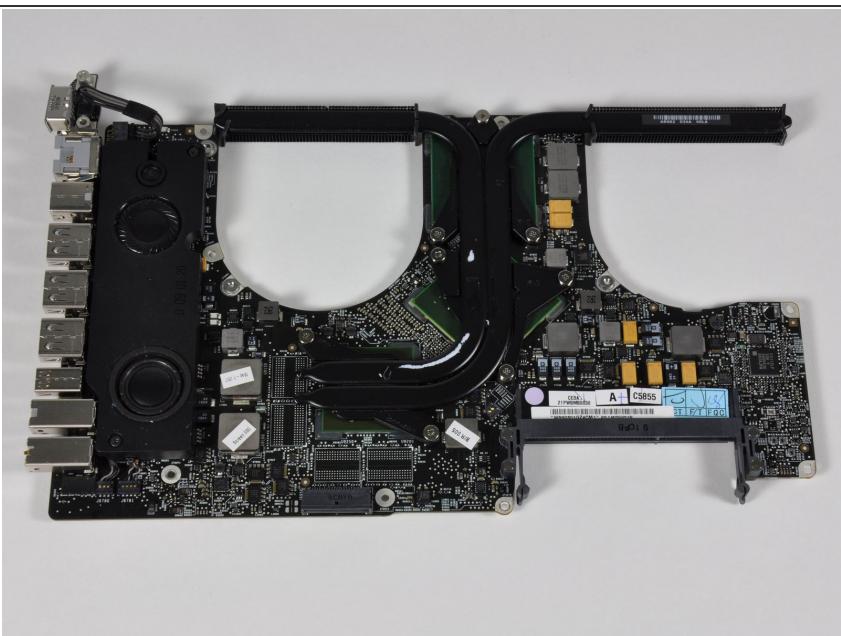
- Bottom of logic board with fans removed.
- Disconnecting a number of connector cables:
  - LVDS, keyboard backlight, iSight, speaker, IR/sleep sensor, trackpad, keyboard, Express card, hard drive, and battery indicator light

## Step 17



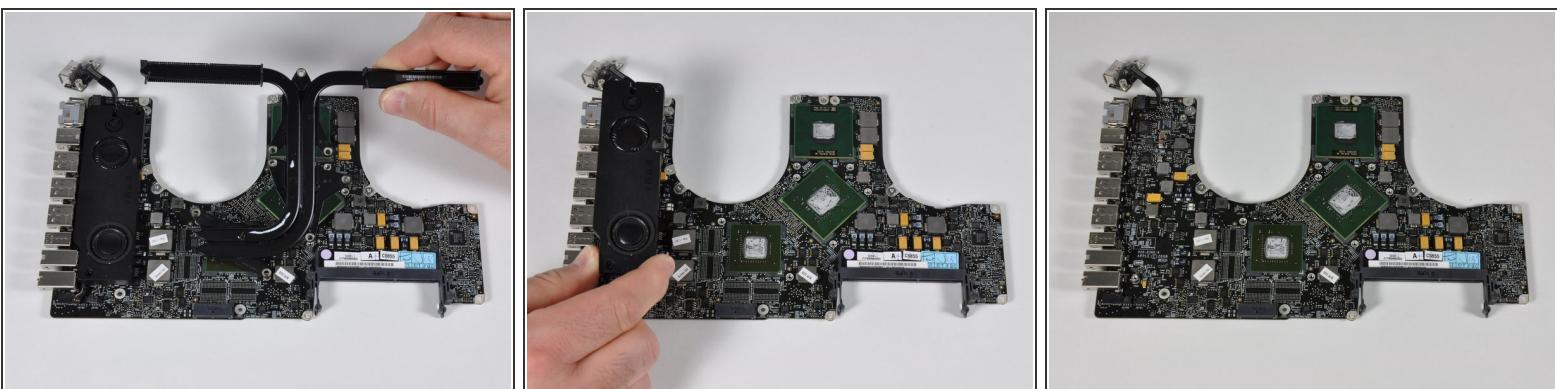
- The logic board with all connectors removed.
- Remove the following eight screws:
  - Six 3 mm Phillips from the logic board
  - Two 7.2 mm Phillips from the MagSafe board
- Second image: removing logic board.

## Step 18



- Top of logic board.
- The speakers are mounted on the left next to the ports.
- The heat sink covers the two NVidia chipsets and the processor.
- This machine has 512 MB video memory for the NVidia 9600M. The 9400M chipset shares 256 MB of system memory. You have to log out to switch between graphics chipsets.

## Step 19



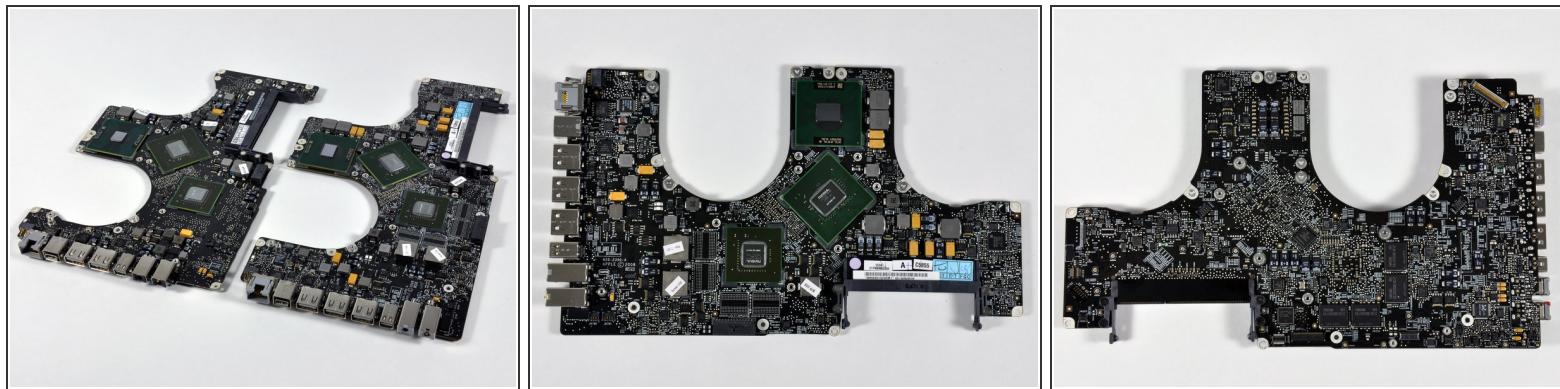
- Removing the black heat sink and heat conduit.
- Second image: The processor and two NVidia chipsets revealed!
- Intel processor: Intel 5831C024 SLGEL AV80576T9550 2.66 / 6M / 1066
- No surprises there: 2.66 GHz, 6 MB L2 Cache, 1066 MHz bus, just as advertised.

## Step 20



- We removed the heat sink thermal compound so you can see the die markings.
- Left image: Intel processor. No die markings!
- Middle image: NVidia L901B138 0902B3 PB9487.000 MCP79MXT-B3
- Right Image: NVidia 50N3BF 0850C1 NK6791.S1W NB9P-GS-W2-C1

## Step 21



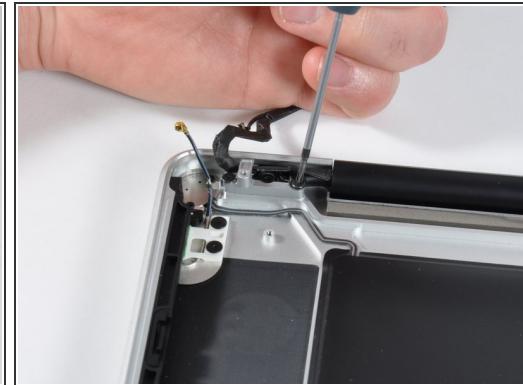
- Left: 15" Unibody logic board
- Right: 17" Unibody logic board
- What's different? The biggest difference to you is the additional USB port. Oh, and \$800.
- The [low-end 15" board](#) that we took apart in October only has 256 MB video memory (Samsung RAM soldered onto the board). The high-end 15" and this 17" have 512 MB video RAM.

## Step 22



- The most famous upper case in the world, Apple's 'brick' CNC-manufactured Unibody case.
- The second shot shows the speaker placement. We took the speakers out and put them on top of the case in the same position and orientation that they are internally.

## Step 23



- We removed the display assembly.

ⓘ Here we have the 13", 15", and 17" MacBook displays stacked together.

## Step 24



- Clockwise from top left: Logic board, heat sink, display, unibody upper case, battery, hard drive, speakers. Fans, RAM, and optical drive are in the center.
- There you have it! Be sure to check back often for more first looks, guides, and quality parts!