Lenovo Thinkpad T450 Motherboard Replacement

The motherboard is the central hub of all of th...

Written By: Justin Ogihara

INTRODUCTION

The motherboard is the central hub of all of the internal components in a device. All other components in a device send signals to the motherboard, and the motherboard is usually one of the last components to fail in a device (barring unforeseen circumstances). The following symptoms can be signs of a failing motherboard:

- Blue screen of death (BSoD)
- Laptop is running very slow
- Laptop isn't booting up properly
- Laptop keeps freezing
- Other components aren't being recognized

If your Lenovo ThinkPad T450 is exhibiting any of the above symptoms, it may be time to replace the motherboard in your device. Follow these instructions to replace the motherboard in your laptop.

Please make sure to **disconnect the ZIF connector from the motherboard** prior to fully removing it from the device. You can find more information in the third image of step 27.

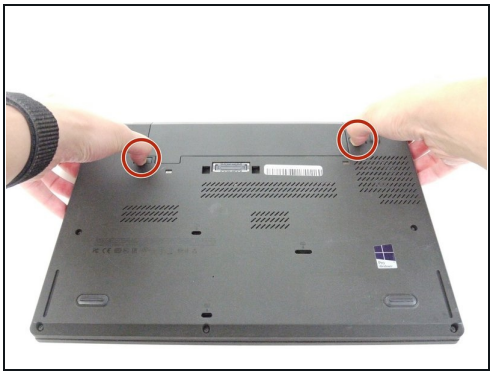
TOOLS:

JIS #00 Screwdriver (1)
iFixit Opening Tool (1)

PARTS:

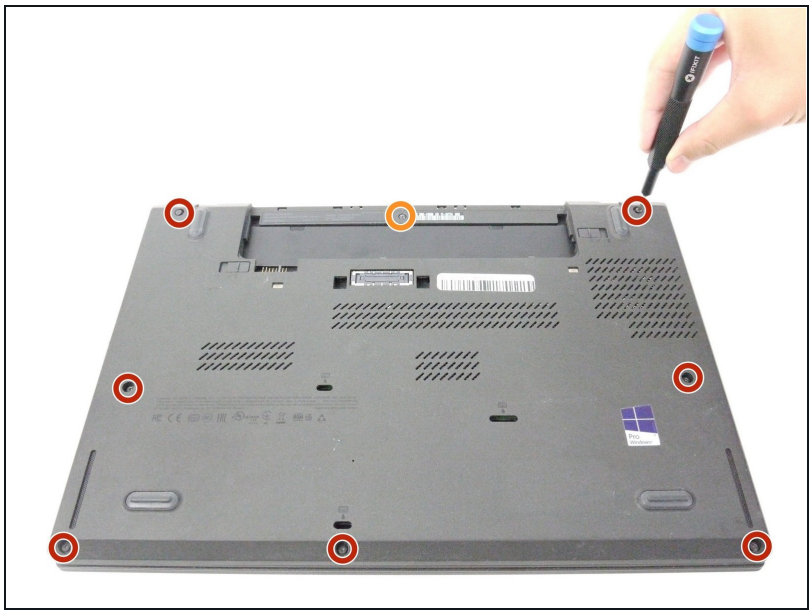
00HN525 - Lenovo Laptop Motherboard - Genuine (1)
00HN529 - Lenovo Laptop Motherboard - Genuine (1)

Step 1 — External Battery



- Using your hands, slide the two locking tabs away from each other to release the battery.
- Slide the battery up and out of the device.

Step 2 — Back Cover

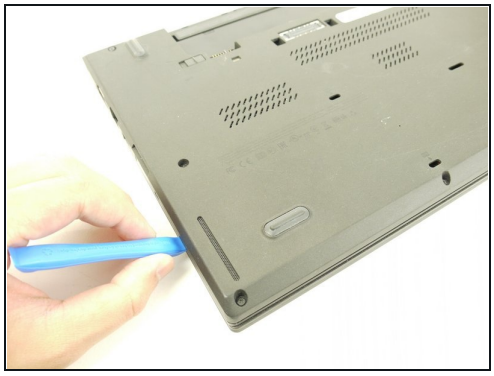


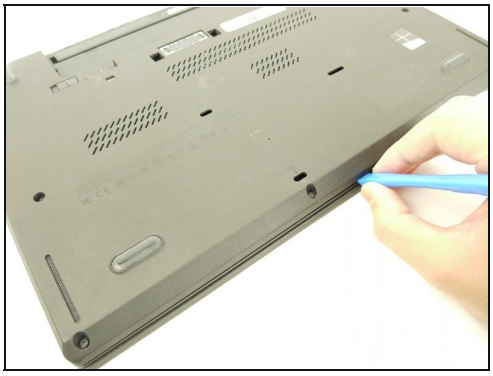
- Using the JIS #00 screwdriver, unscrew seven screws from the back cover.

  ⓘ These screws are not removable and will remain in the back cover.

- Use the JIS #00 screwdriver to remove the single 2.8 mm screw from the back cover.

Step 3

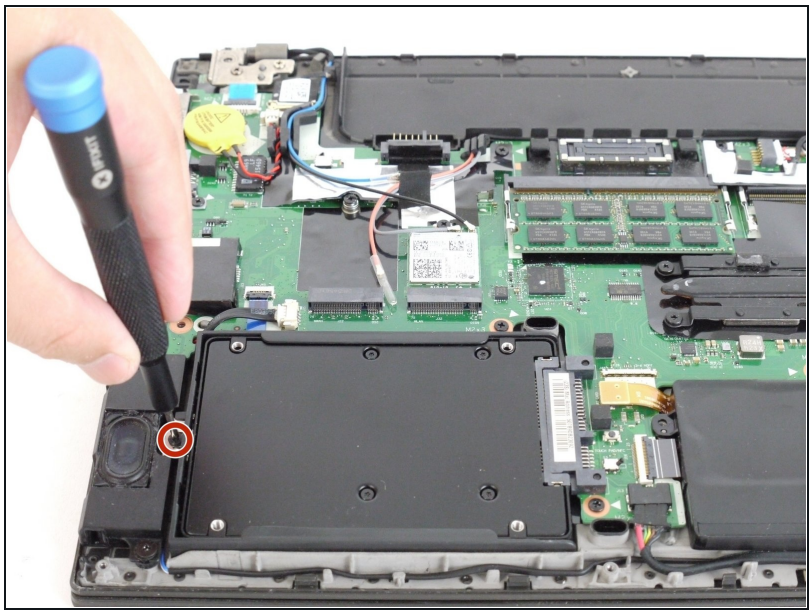




- Insert a plastic opening tool into the edges of the laptop and work your way around the edges to pry off the back cover from the device.

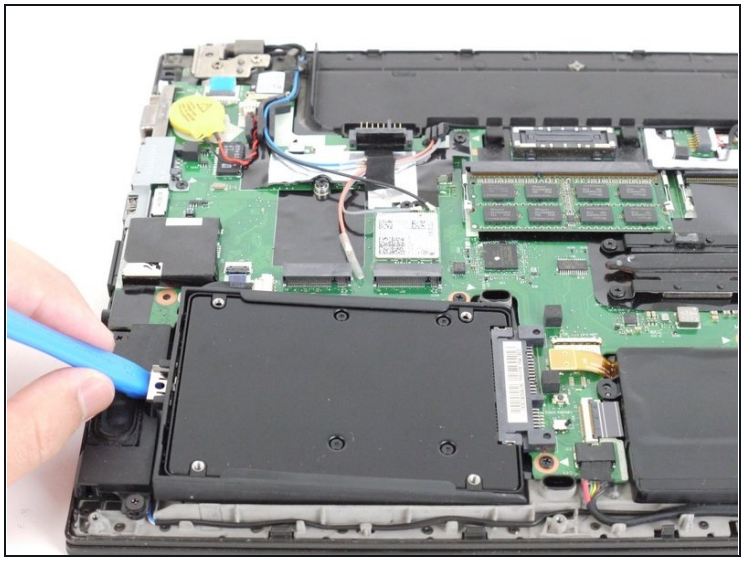
- Remove the back cover from the device.

Step 4 — SSD



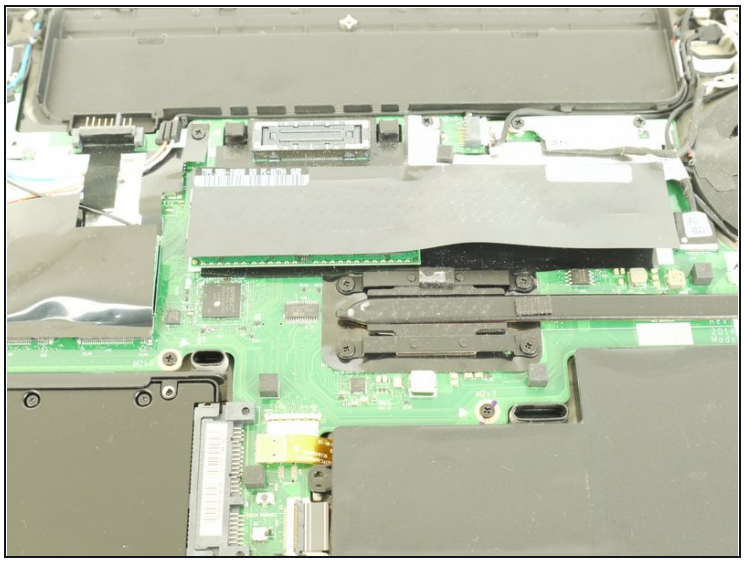
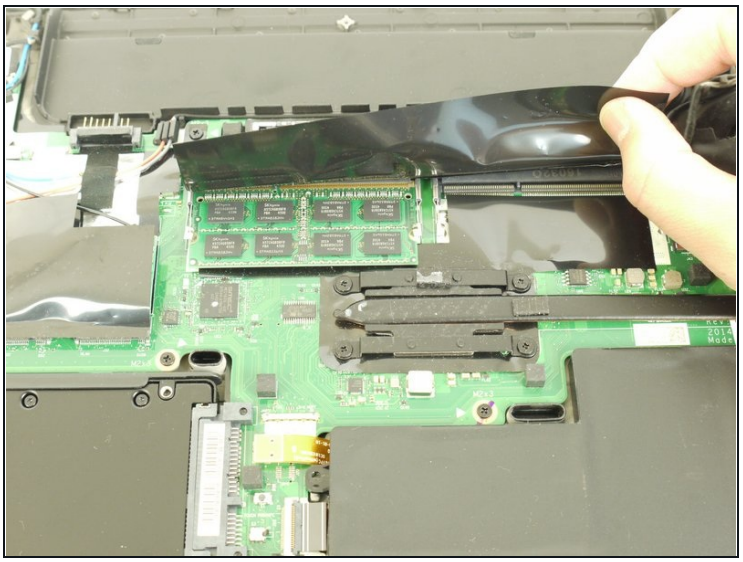
- Using the JIS #00 screwdriver, remove the single 2.8 mm screw securing the SSD to the device.

Step 5



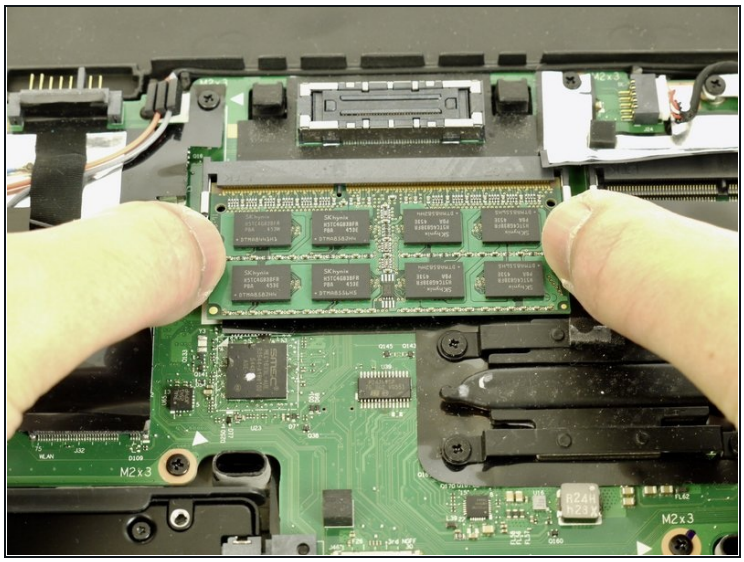
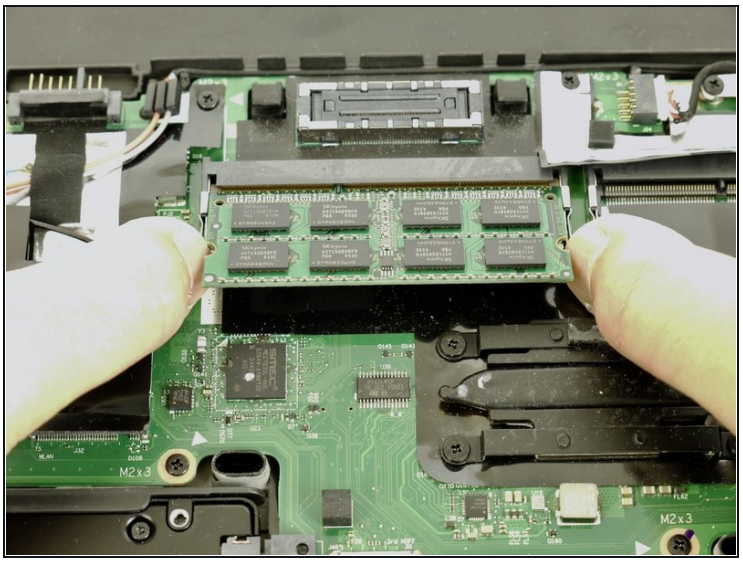
- Lift the SSD up and to the left and remove it from the device.

Step 6 — RAM

- Lift up the black piece of tape and remove it to uncover the RAM sticks underneath.

Step 7

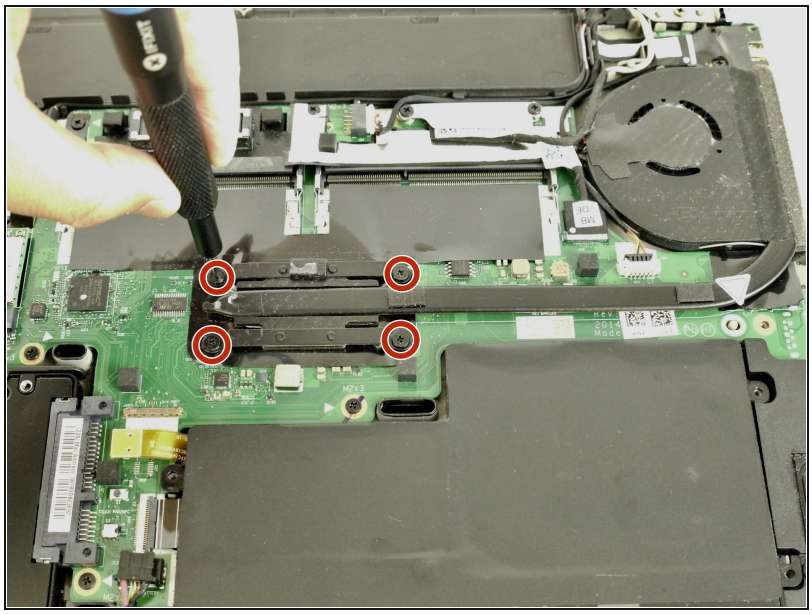
- Using your fingers, push the two clips securing the RAM away from each other to release the RAM.

ⓘ The RAM stick should pop up at a 30 degree angle.

- Remove the RAM stick from the device.

ⓘ Repeat this step for any additional RAM sticks.

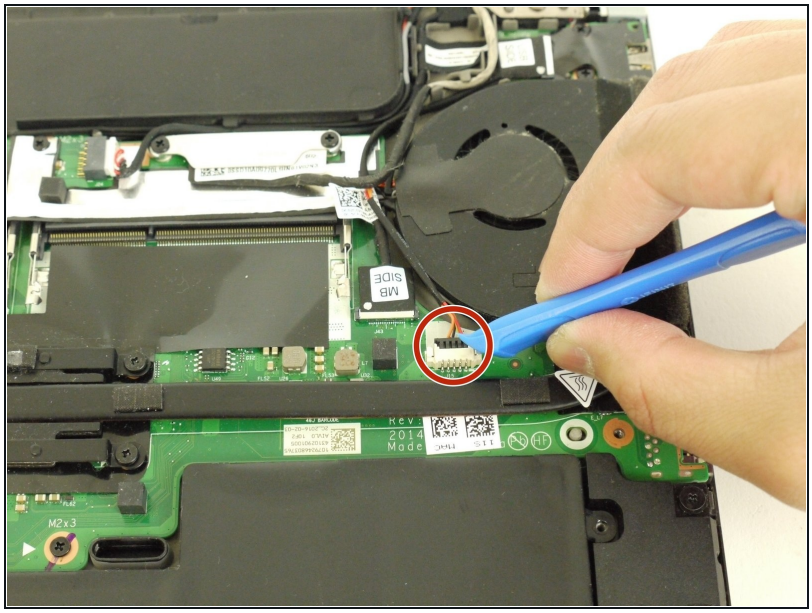
Step 8 — Fan and Heatsink Assembly



- Using the JIS #00 screwdriver, unscrew the four screws securing the fan and heatsink assembly to the motherboard.

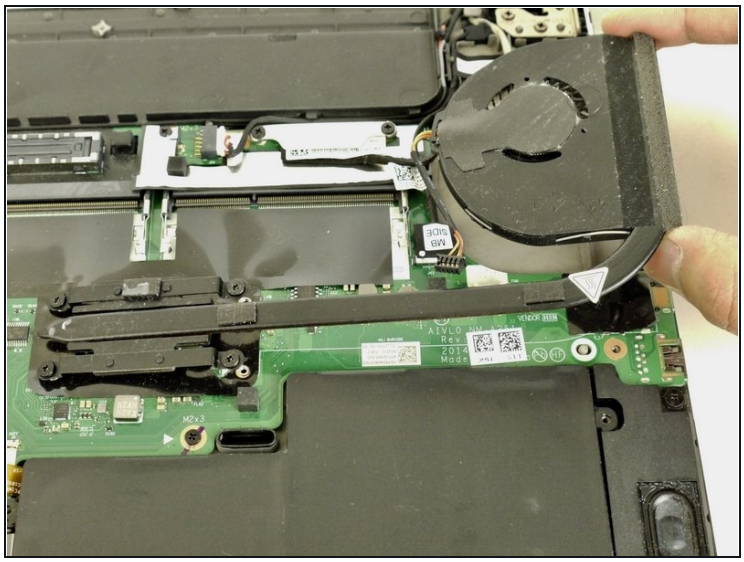
ⓘ These screws are not removable and will stay on the fan and heatsink assembly.

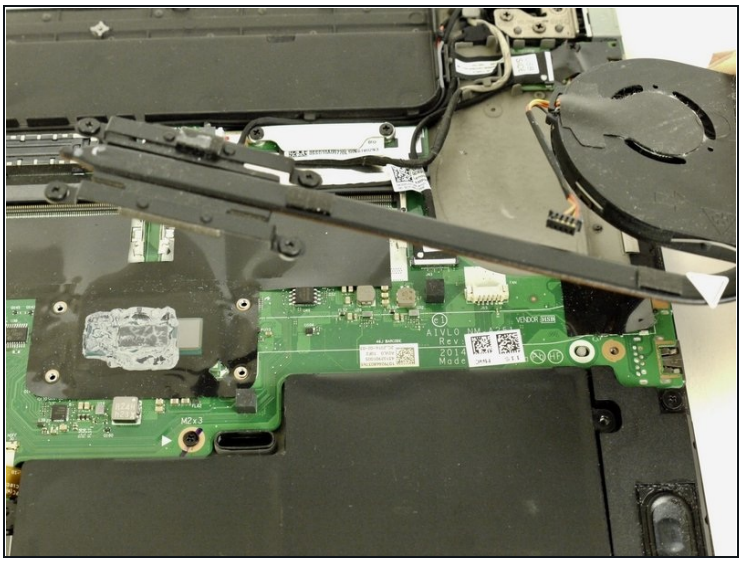
Step 9



- Disconnect the fan and heatsink assembly from the motherboard using the plastic opening tool.

Step 10

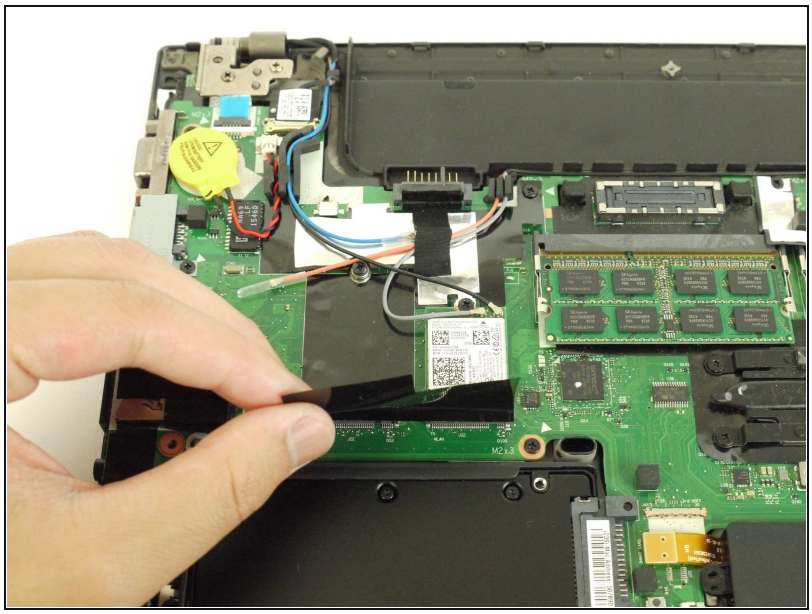




- Lift up the fan and heatsink assembly and remove it from the device.

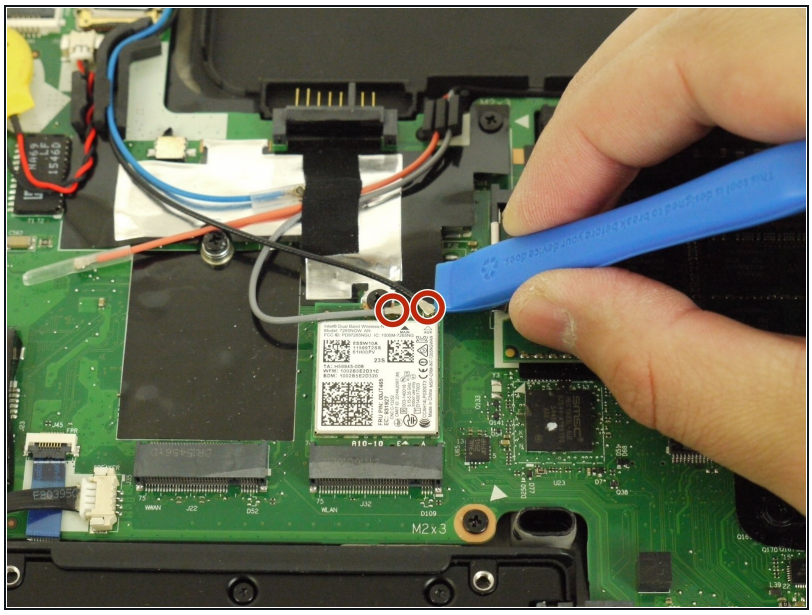
When you reassemble your device, don't forget to reapply thermal paste to the back of the heatsink and fan assembly. For proper technique and thermal paste application, please visit the How to Apply Thermal Paste guide.

Step 11 — Wi-Fi Card (WLAN)



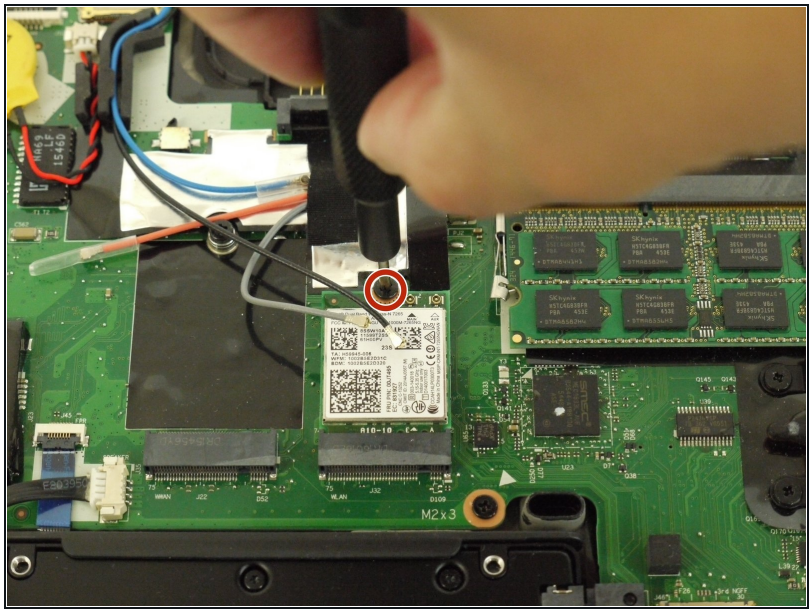
- Lift and remove the black piece of plastic to expose the Wi-Fi card.

Step 12



- Using the plastic opening tool, disconnect the two cables from the Wi-Fi card.

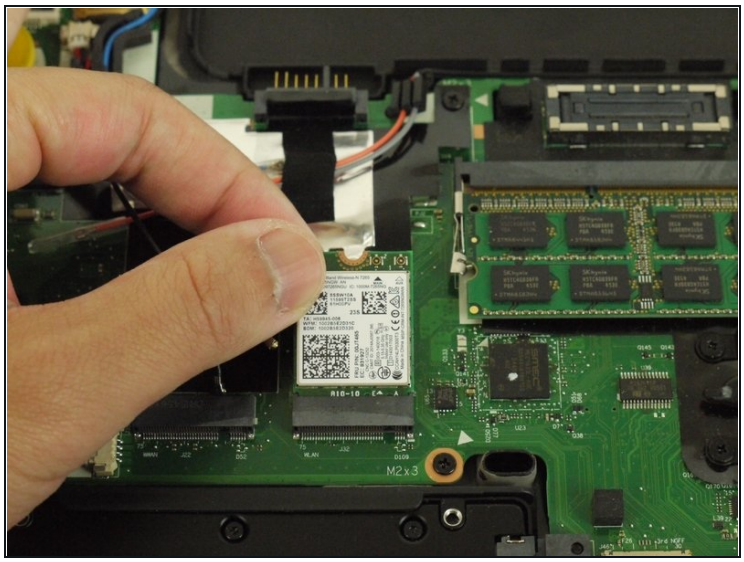
Step 13

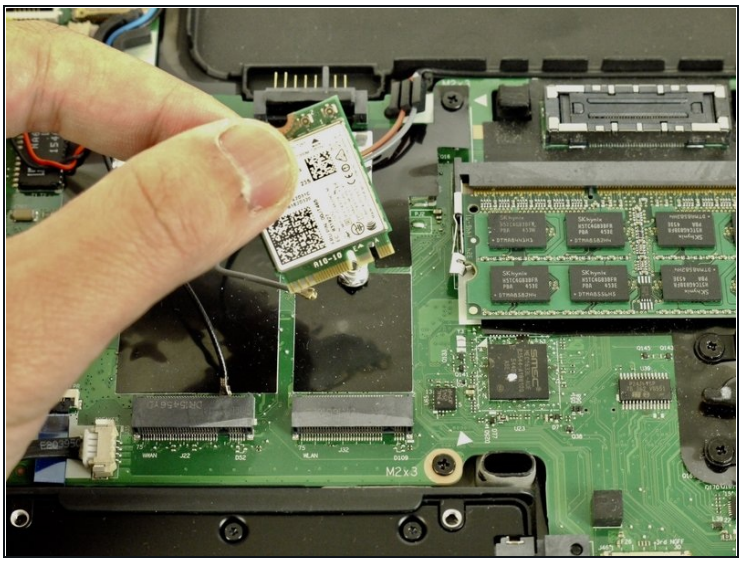


- Using the JIS #00 screwdriver, remove the single 2.8 mm screw.

ⓘ After removing the screw, the Wi-Fi card should pop up on its own.

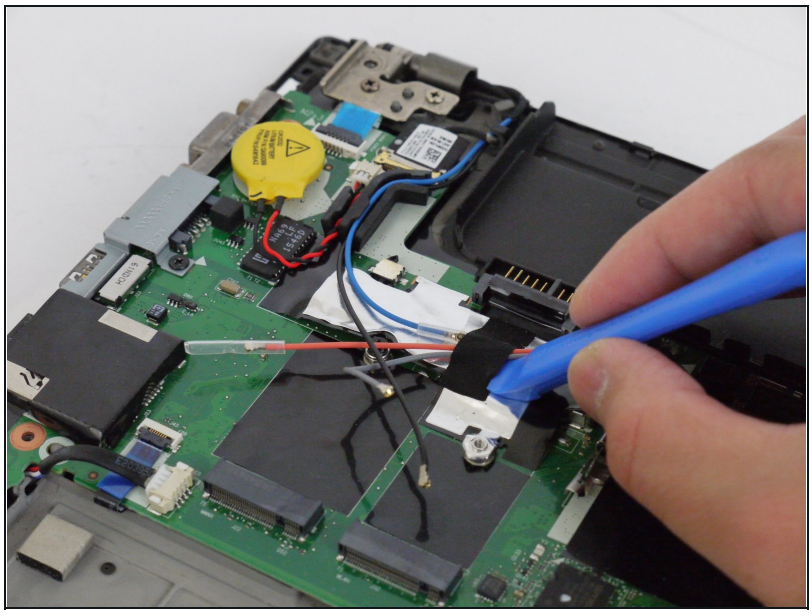
Step 14





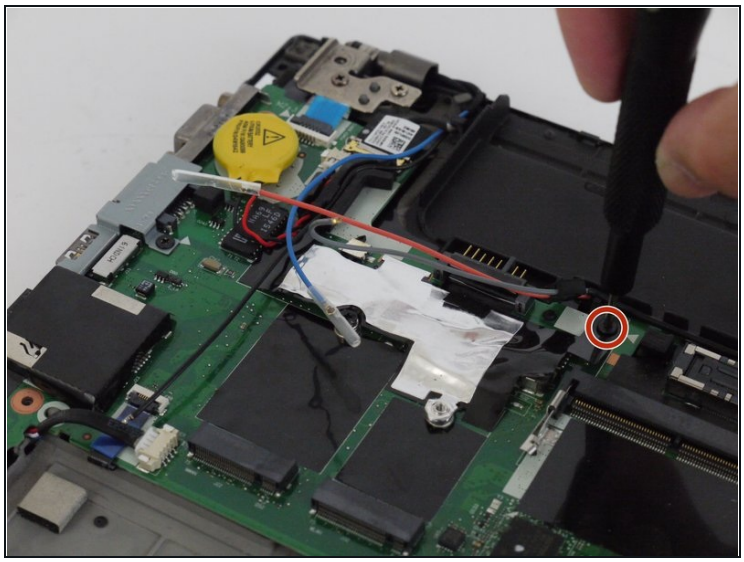
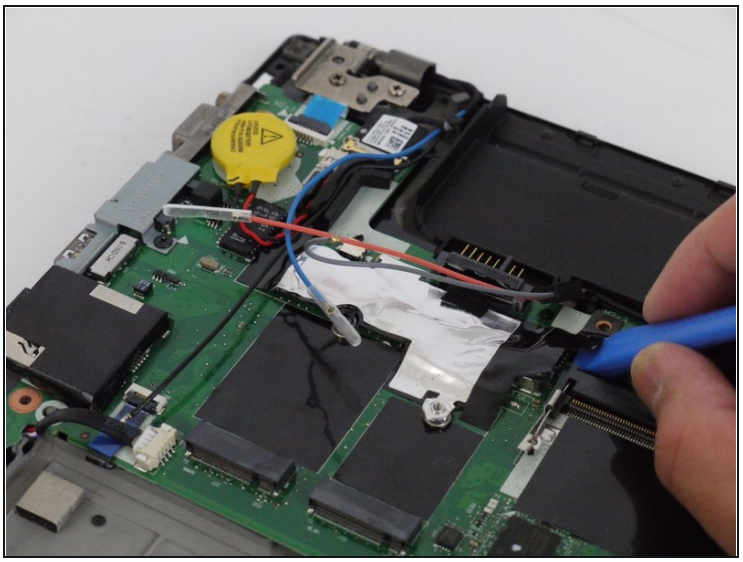
- Lift the Wi-Fi card out of the slot and remove it from the device.

Step 15 — Cables and Plastic



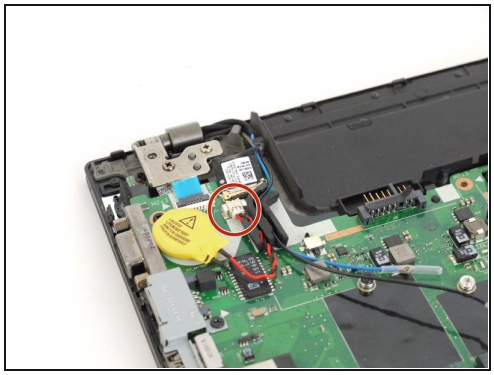
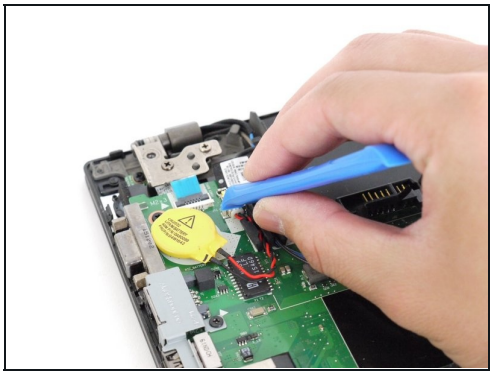
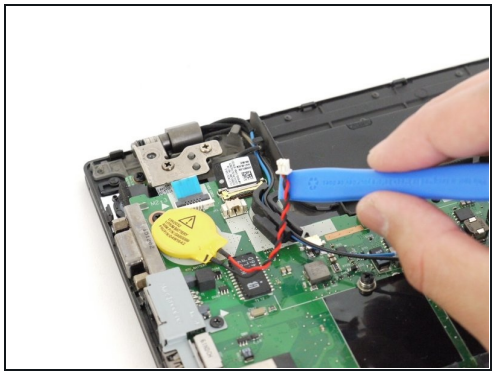
- Use the plastic opening tool to remove the black piece of tape holding the cables together.

Step 16

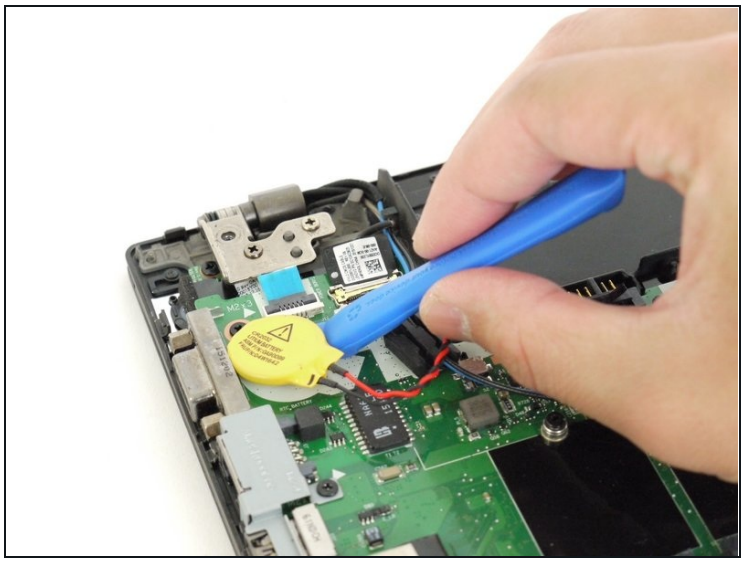
- Use the JIS #00 screwdriver to remove the single 2.8 mm screw from the motherboard.
- Remove the black plastic covering the motherboard.

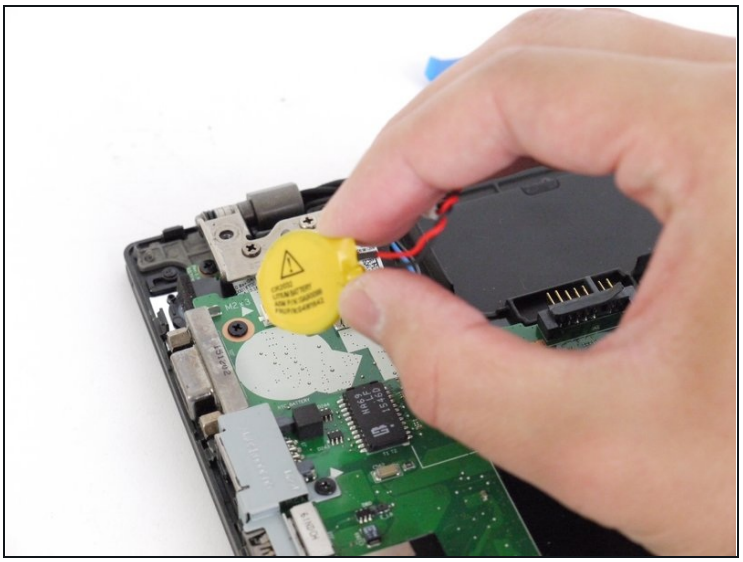
Step 17 — CMOS Battery

- Using the plastic opening tool, disconnect the CMOS battery from the motherboard.

Step 18

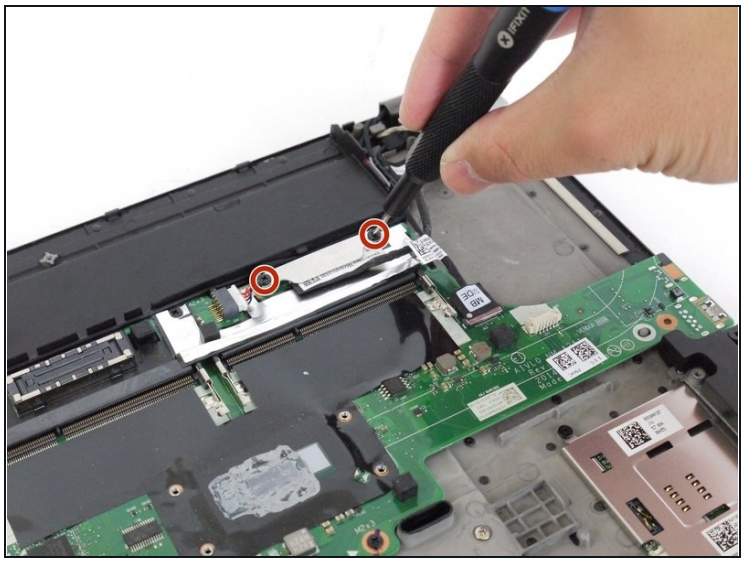


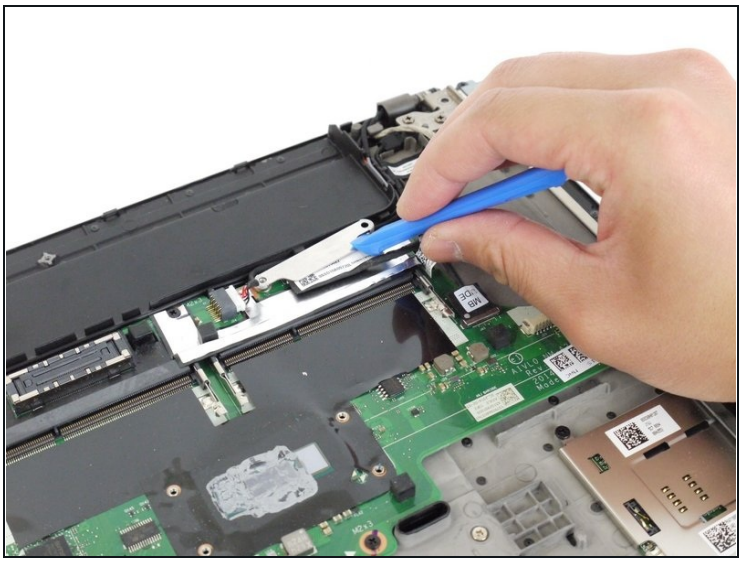


- Insert the plastic opening tool underneath the CMOS battery and pry it up and away from the motherboard.

When you reassemble your device, you may need to reapply adhesive to the back of the CMOS battery.

Step 19 — Motherboard

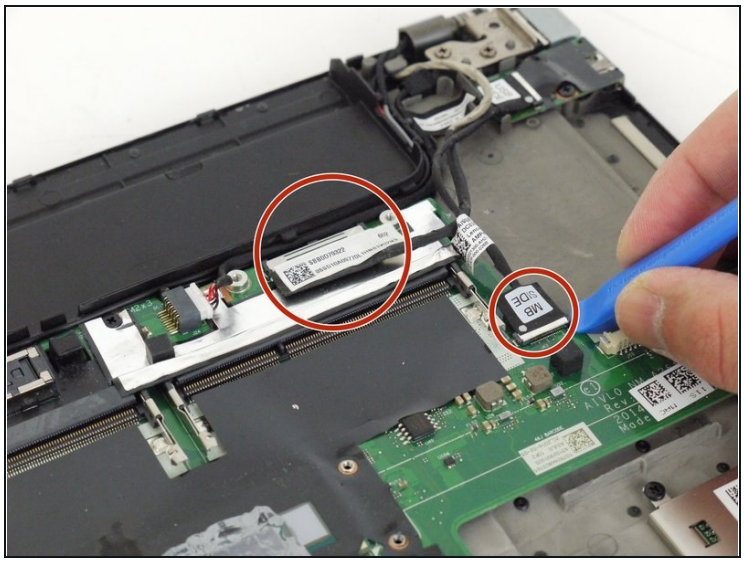


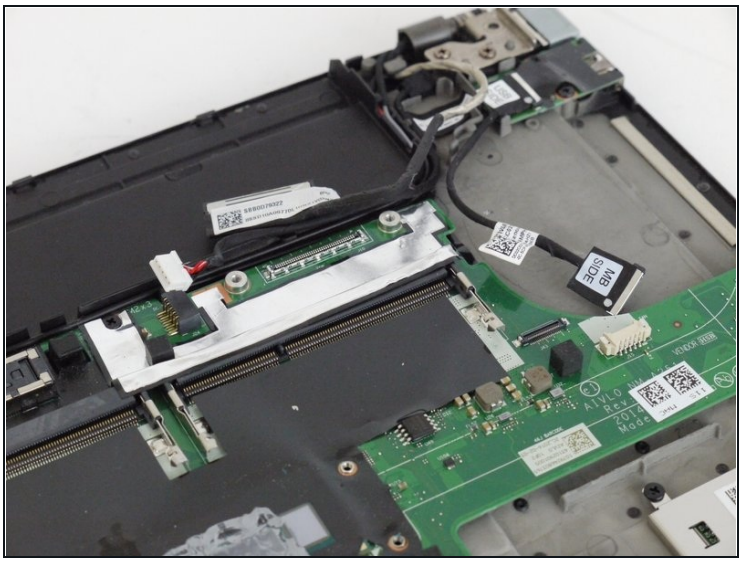


- Use the JIS #00 screwdriver to remove two 2.8 mm screws securing the display cable bracket to the motherboard.

- Remove the display cable bracket from the device.

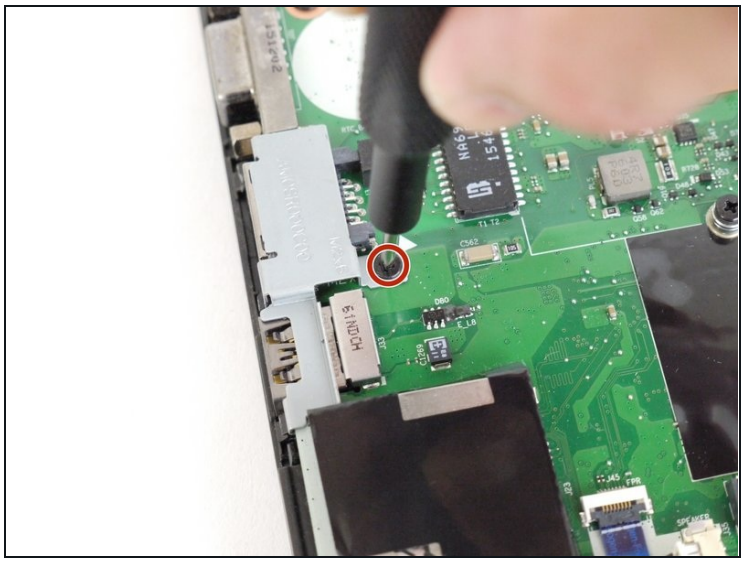
Step 20

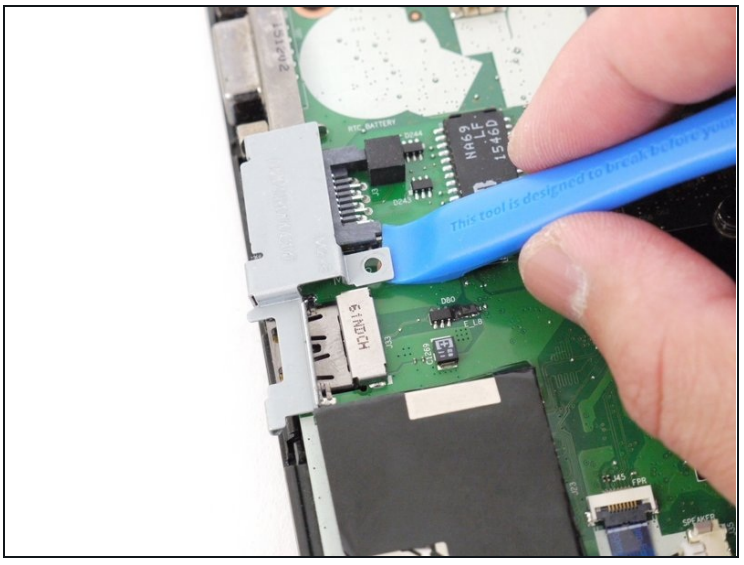




- Disconnect the daughterboard cable and the display cable using the plastic opening tool.

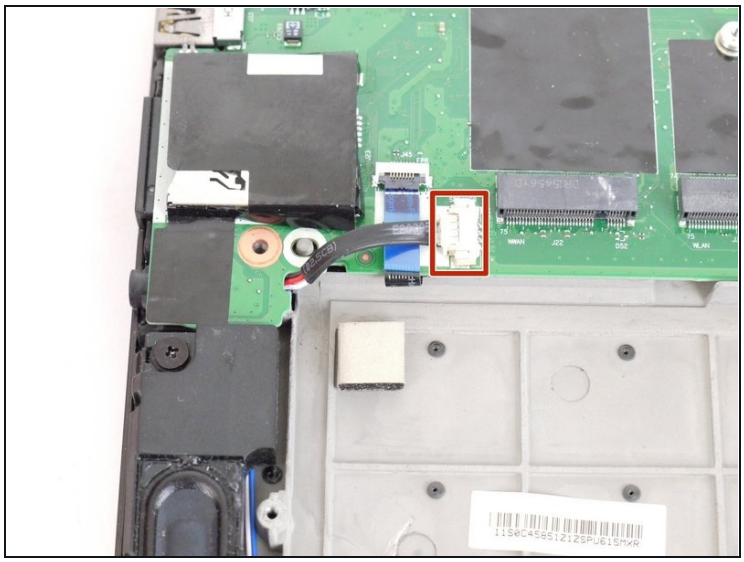
Step 21

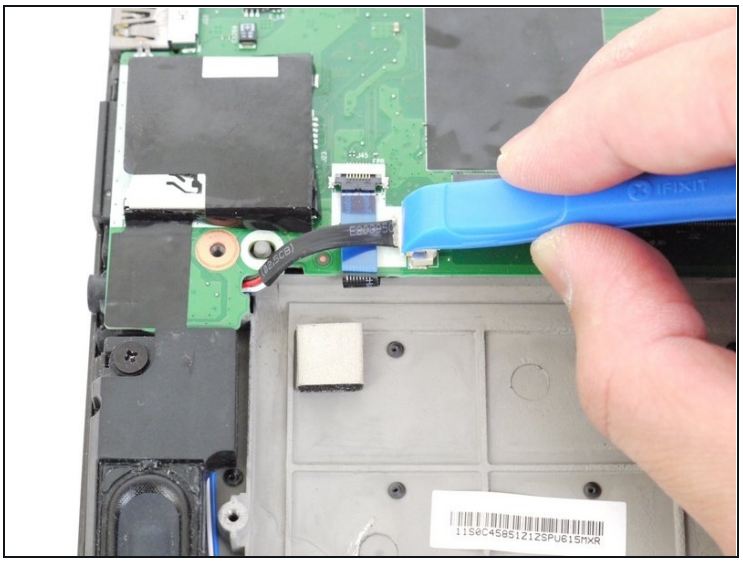




- Using the JIS #00 screwdriver, remove the single 5 mm screw securing the bracket to the motherboard.
- Remove the metal bracket from the device.

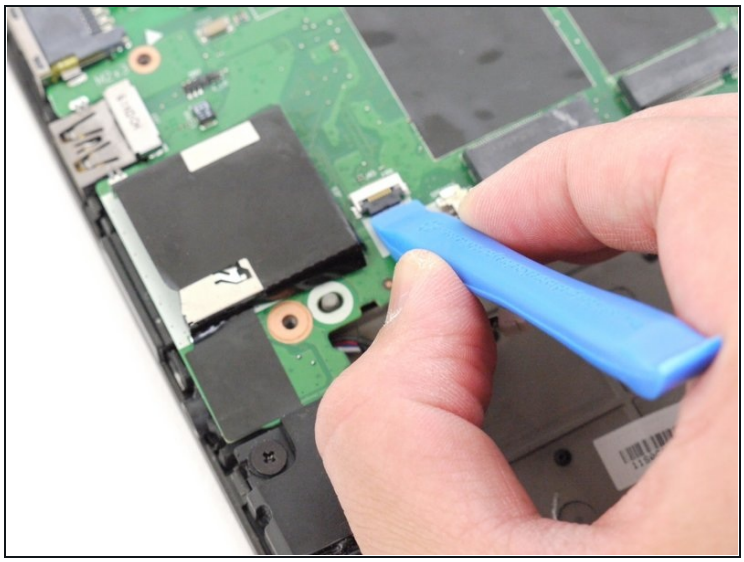
Step 22





- Disconnect the speaker cable from the motherboard using the plastic opening tool.

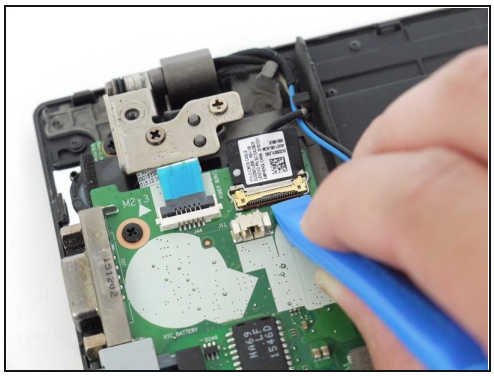
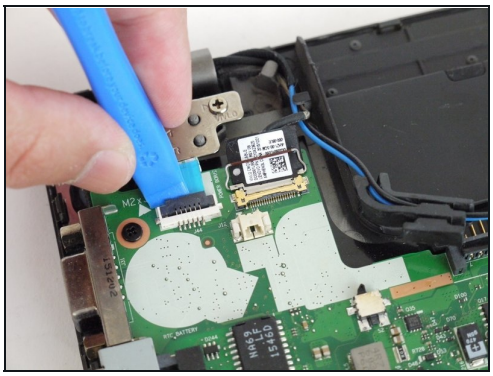
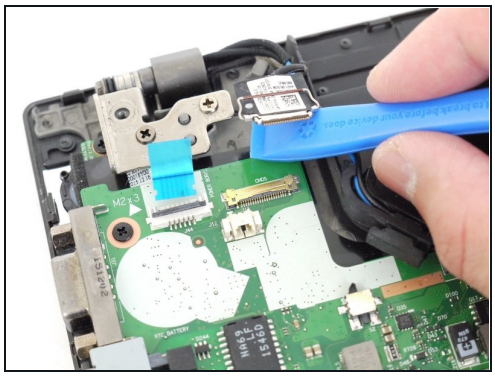
Step 23



- Using the plastic opening tool, flip up the locking tab on the zero insertion force (ZIF) connector and disconnect the cable from the motherboard.

ⓘ For more information on different types of cables and connectors, please visit the Recognizing & Disconnect Cable Connectors guide.

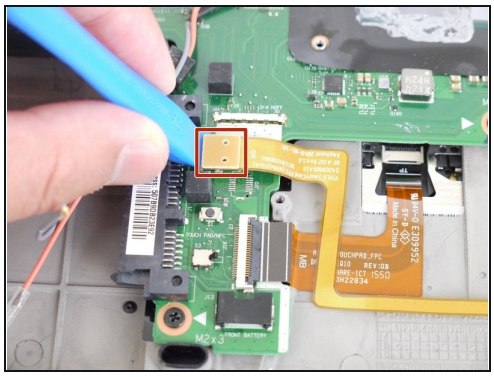
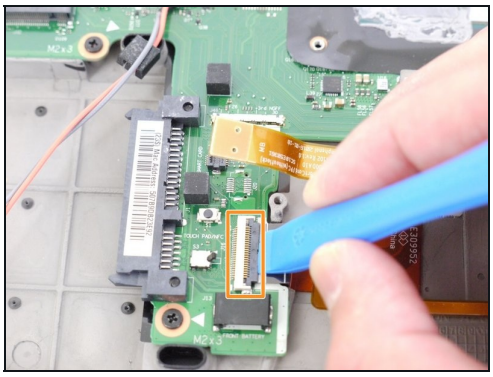
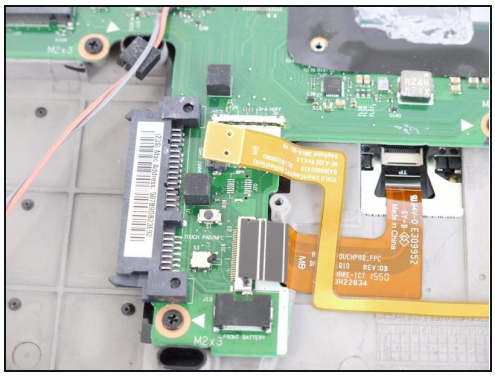
Step 24

- Using the plastic opening tool, disconnect the CMOS and power cables.

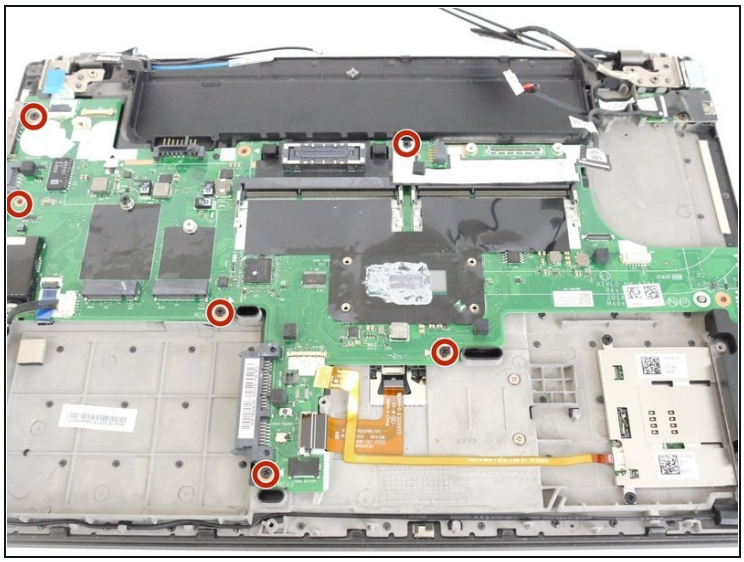
ⓘ The power cable is a zero insertion force (ZIF) connector. For more information on disconnecting ZIF connectors, please visit the Recognizing & Disconnecting Cable Connectors guide.

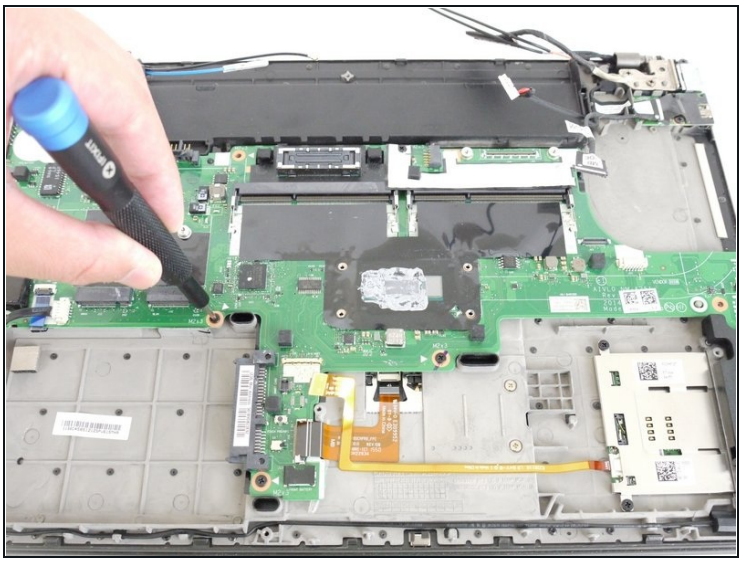
Step 25

- Using a plastic opening tool, disconnect the smartcard reader cable from the motherboard.
- Using the same plastic opening tool, flip up the locking tab and disconnect the trackpad cable from the motherboard.

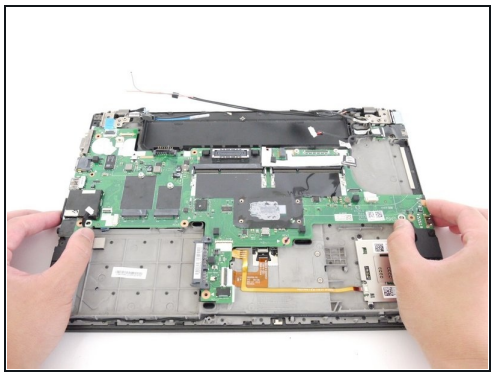
Step 26

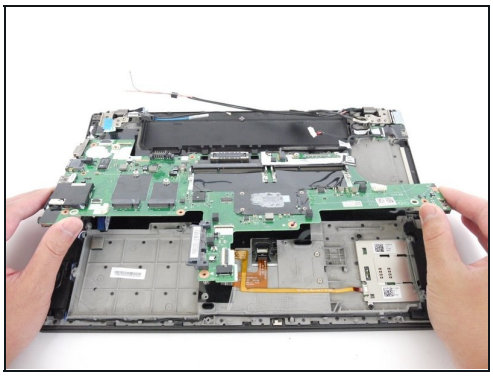


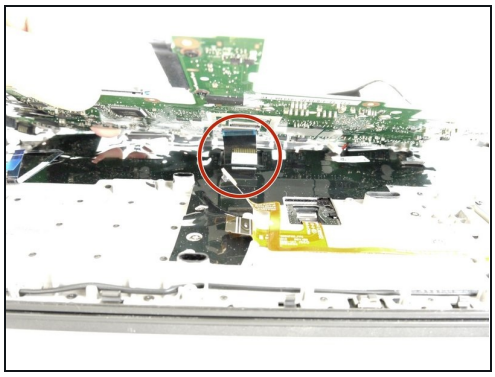


- Using the JIS #00 screwdriver, remove six 2.8 mm screws securing the motherboard to the device.

Step 27







- Carefully grab the motherboard and lift it up slightly off of the device.

⚠ Do not completely remove the motherboard from the device. There is a zero insertion force (ZIF) connector underneath the motherboard.

- Disconnect the ZIF connector and remove the motherboard from the device.

ⓘ For more information on zero insertion force (ZIF) connectors, please visit the Recognizing and Disconnecting Cable Connectors guide.

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

Take your e-waste to an R2 or e-Stewards certified recycler.