



Sony Vaio VPCZ2 CPU Heatsink Fan Assembly Replacement

This guide was made in the process of changing out the Vaio Z2 CPU Heatsink Fan Assembly. It shows the process for taking most of the laptop apart.

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INTRODUCTION

This dissassembly guide was made in the process of changing out a faulty fan unit. To access this fan the motherboard needs to be removed, as well as most other parts of the laptop. If you need to repair or replace the keyboard, this guide should get you most of the way there.

I had initially changed the fan out, but not put the thermal paste on the CPU correctly. This resulted in high fan speeds, as the laptop was compensating for the poor heat dispersion.

Before you start this project, I would suggest reading this whole guide through. Understanding what things look like on the inside will make it much easier to take the laptop apart.



TOOLS:

- [Essential Electronics Toolkit](#) (1)
 - [Anti-Static Wrist Strap](#) (1)
 - [Microfiber Cleaning Cloths](#) (1)
 - [High Content Rubbing Alcohol](#) (1)
 - [GC-Extreme thermal paste](#) (1)
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Step 1 — CPU Heatsink Fan Assembly



! I wore an anti-static strap and band for this whole process. **DO NOT ATTEMPT THIS REPAIR WITHOUT PROPPER ANTI-STATIC PRECAUTIONS.** It is incredibly easy to cause damage to your computer with static - do not take a shortcut with this.

- This laptop had been recently upgraded from Windows 7 to Windows 10. This process was fairly straightforward, and the laptop works perfectly now. A key element of this was finding and installing the various drivers to suit.
- In particular, the Intel RAID driver needs to be downloaded from the Intel website, and also the fingerprint drivers need to be found and installed.

Step 2



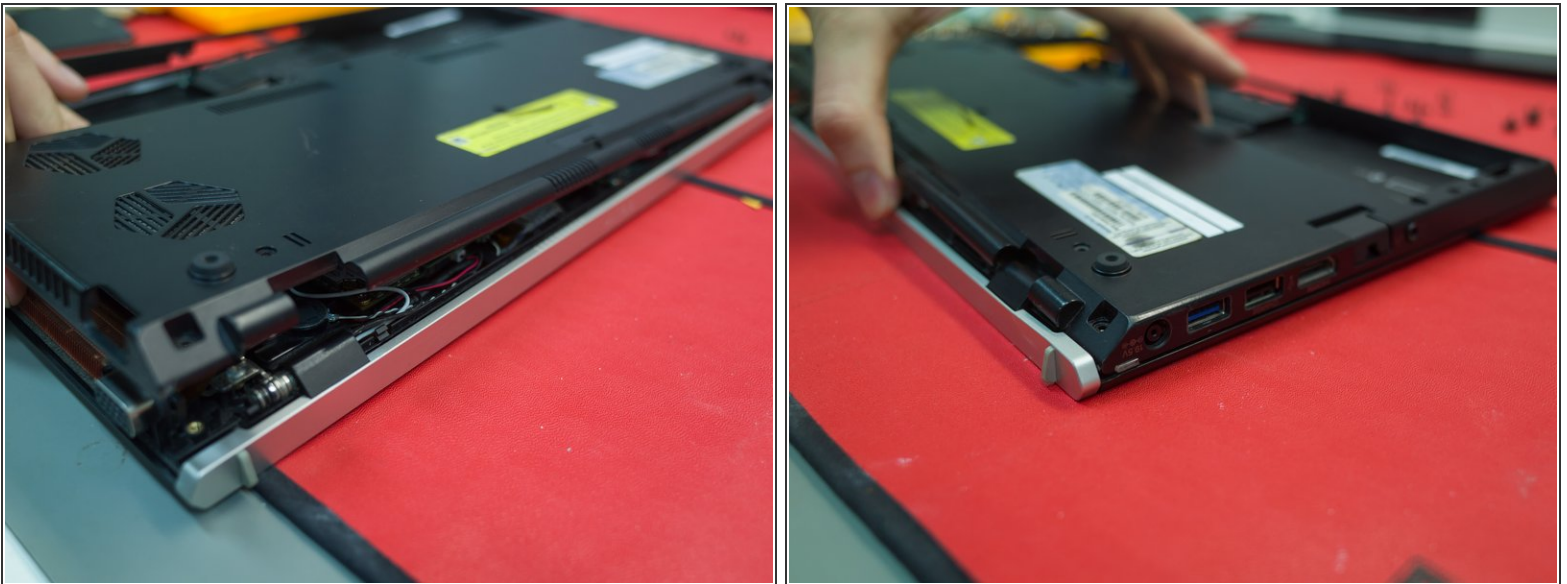
- Remove the 8 screws holding in the battery
 - Remove the battery
 - Remove all other screws on the underside of the laptop
 - Under the battery there are three more screws to remove
- i** There are two types of screws (other than the battery screws). In case you lose track; the longer screws go through the rubber feet

Step 3



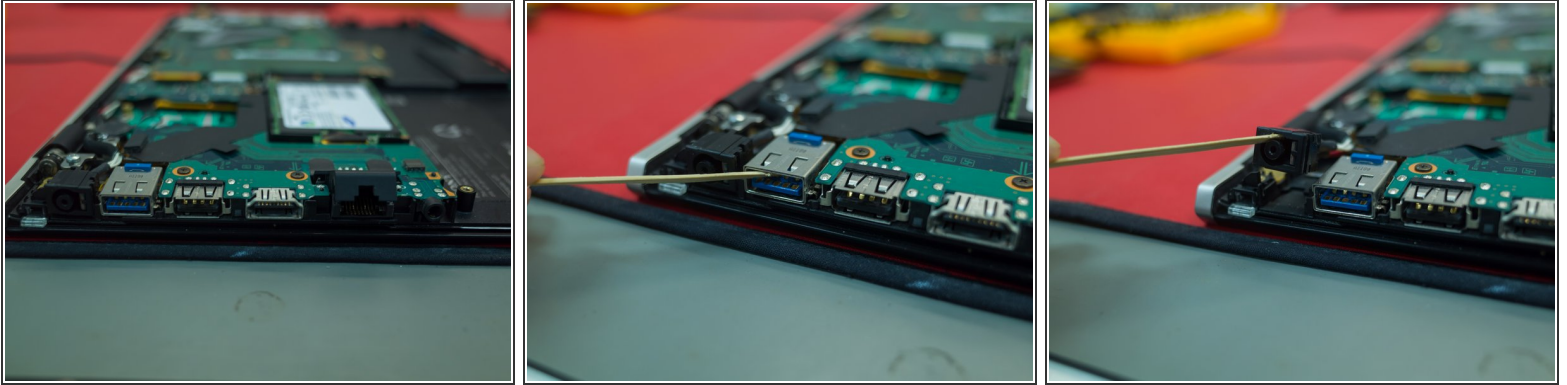
- Pry the housing apart using something malleable (I used a bamboo stick)
- Start at the front edge on the side with the VGA port & fan hole
- The VGA port is not fixed to the chassis, and can be lifted up to assist with removing the case
- I have shown the VGA port in more detail later in this guide

Step 4



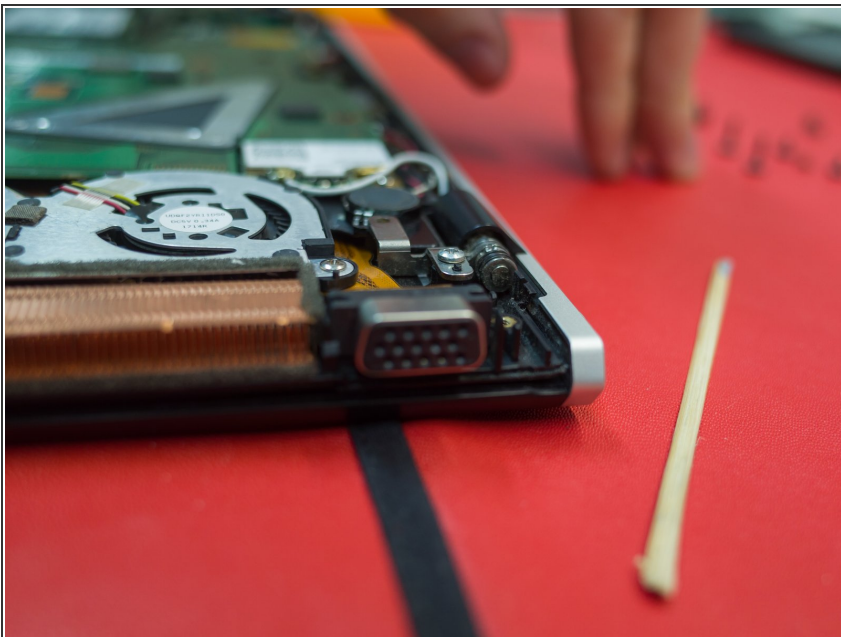
- Work your way around the back edge of the laptop. The case is held in by small clips which should pop away from the chassis easily.
- I recommend using the same malleable piece of bamboo or plastic spudger for this task.

Step 5



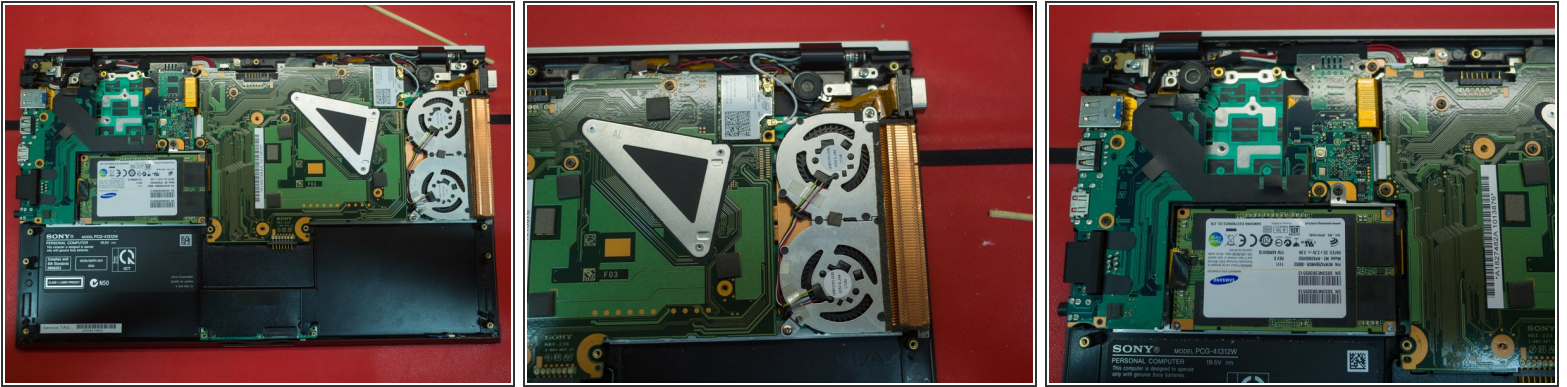
- Working your way around the other side of the laptop, the case should slide easily over the ports (HDMI/USB etc.)
- You may need to lift the Ethernet port flap
- The headphone port, USB 3.0 port, and A/C jack should move freely, and are not directly fixed to the chassis.

Step 6



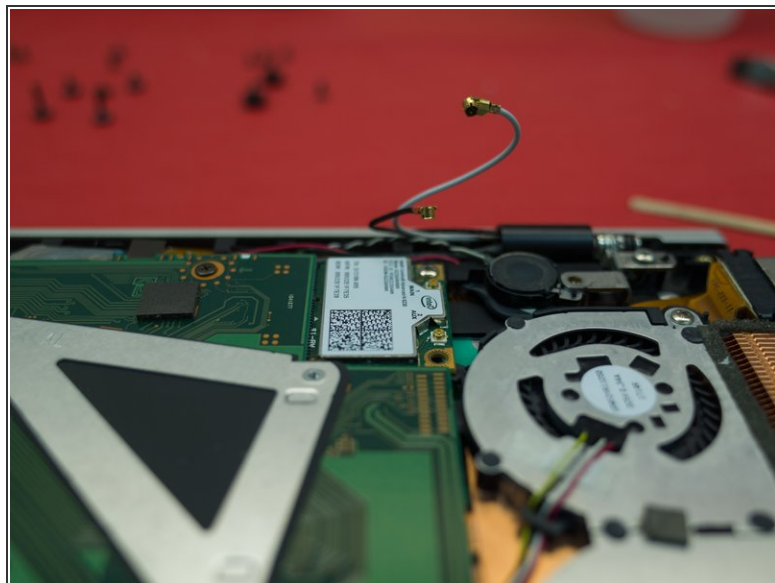
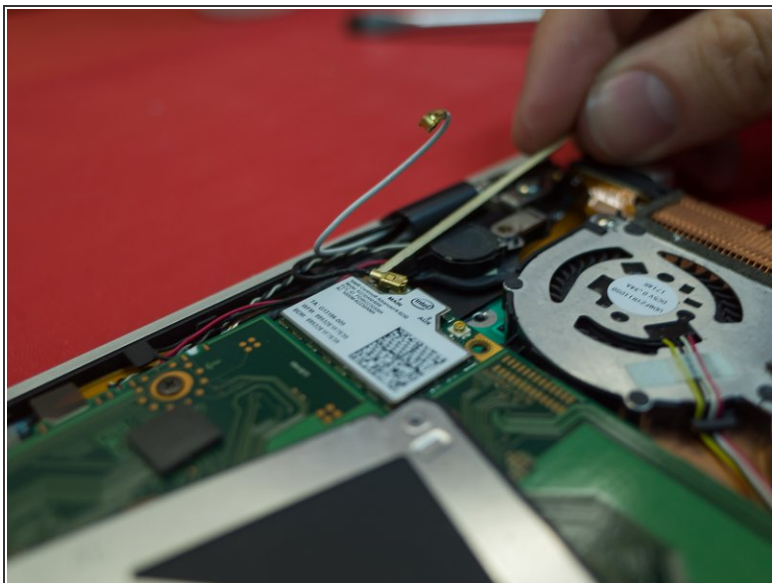
- As you can see, the VGA port sits in a slot which allows it to move up and down. It is necessary to lift this port when taking the cover off.

Step 7 — Laptop inside view



- Note that screws are marked with an arrow. This is useful when reassembling the laptop, as some screws are not entirely obvious.
- On the right is the fan & heatsink
- The triangle bracket holds in the CPU (accessed from the under side of the motherboard)
- The SSD is to the left of the motherboard
- Above the SSD is the optical board. This handles the signal for the external dock (PMD), and is responsible for transferring data fast enough to power an external GPU.

Step 8



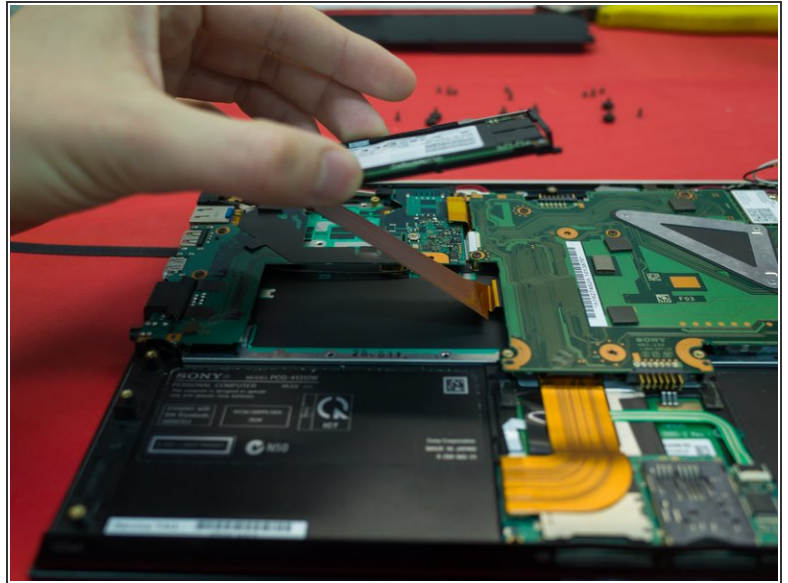
- Un-plug the two cables holding in the wifi board

Step 9



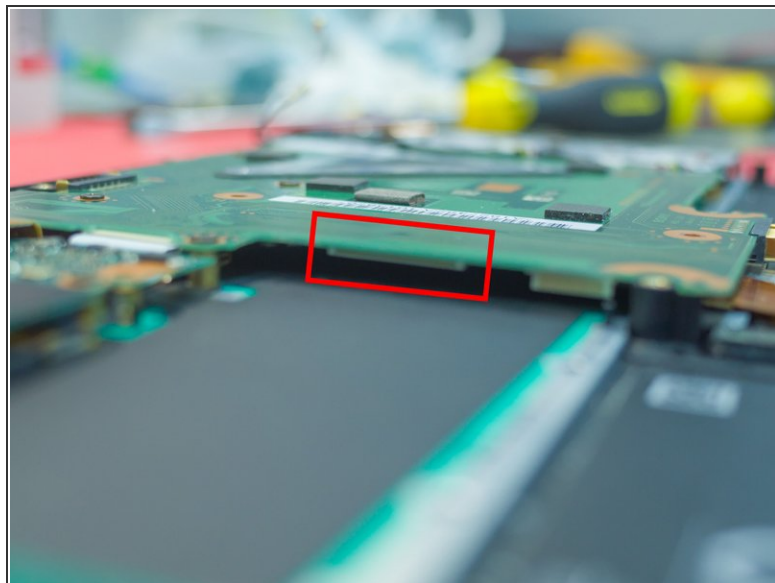
- Remove the covering for the trackpad to access the plugs attached to the motherboard. This should just slide off.

Step 10



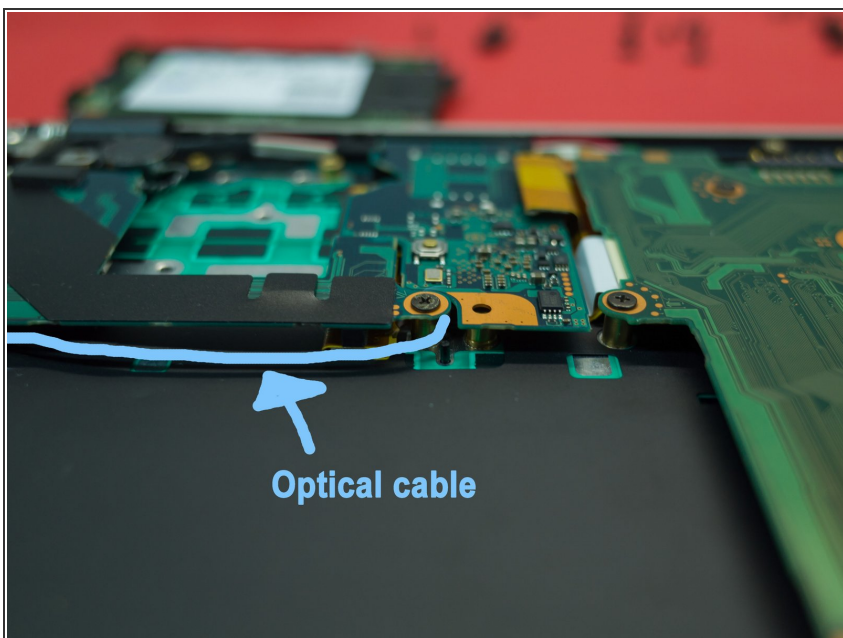
- Remove the two screws holding in the SSD.
- ⓘ Note that the SSD screw also holds in the optical board

Step 11



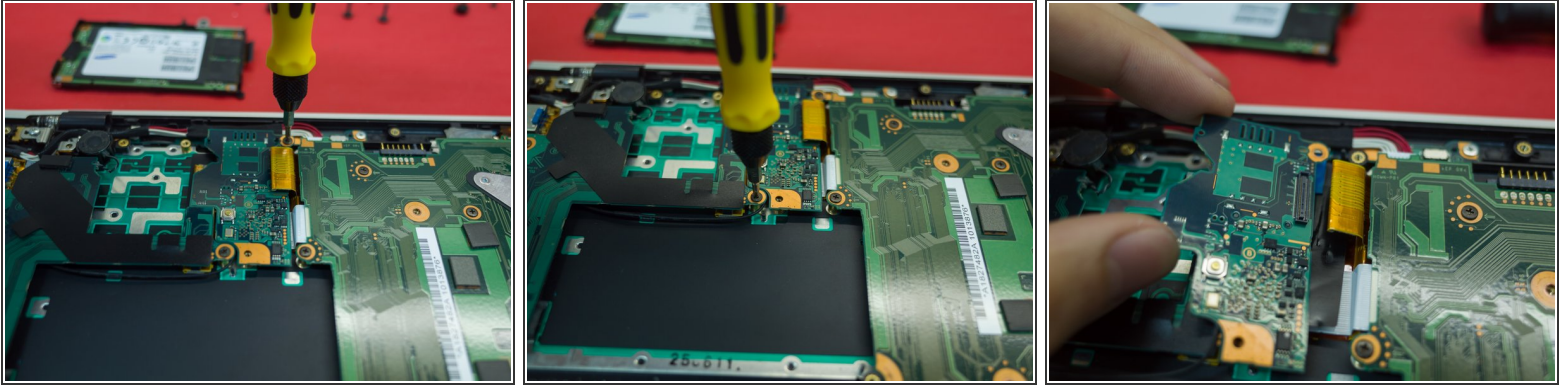
- The SSD is attached to the motherboard with a flat ribbon cable. This should just pull out.
- ⓘ I have over-exposed the second image to highlight where the SSD connector is on the motherboard.

Step 12



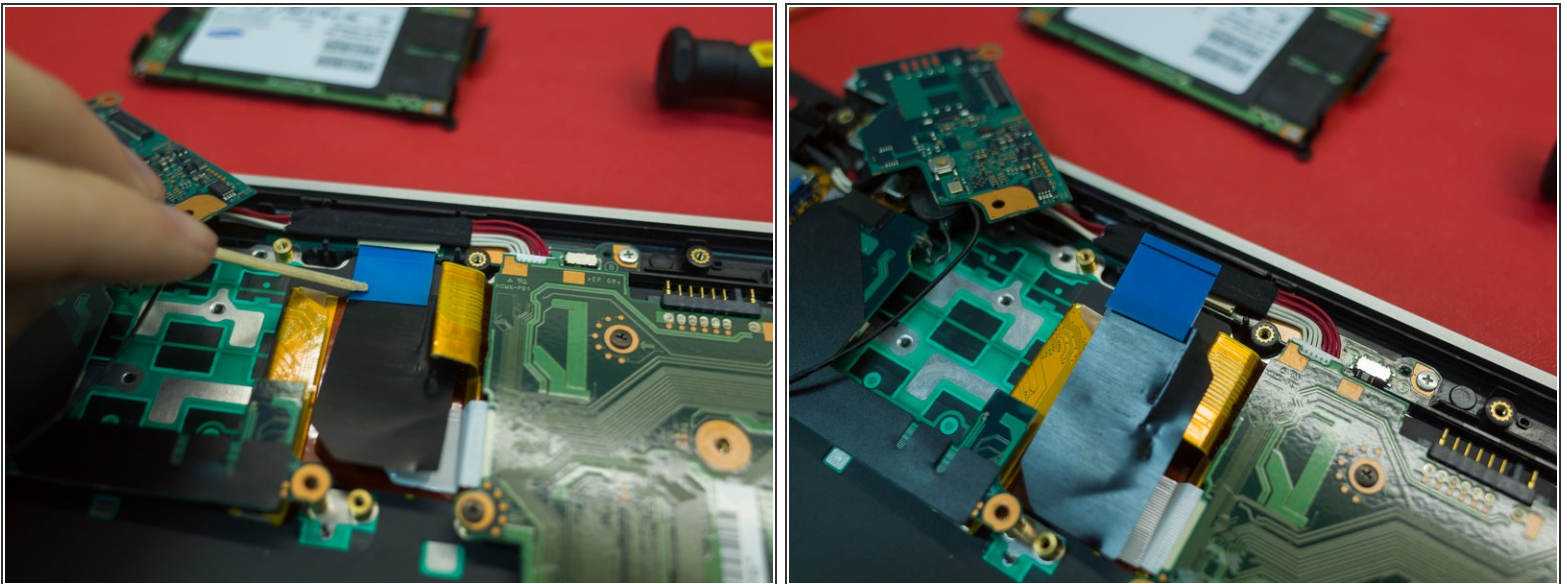
- ⓘ Note where the optical signal cable routes along the outside of the SSD bay

Step 13



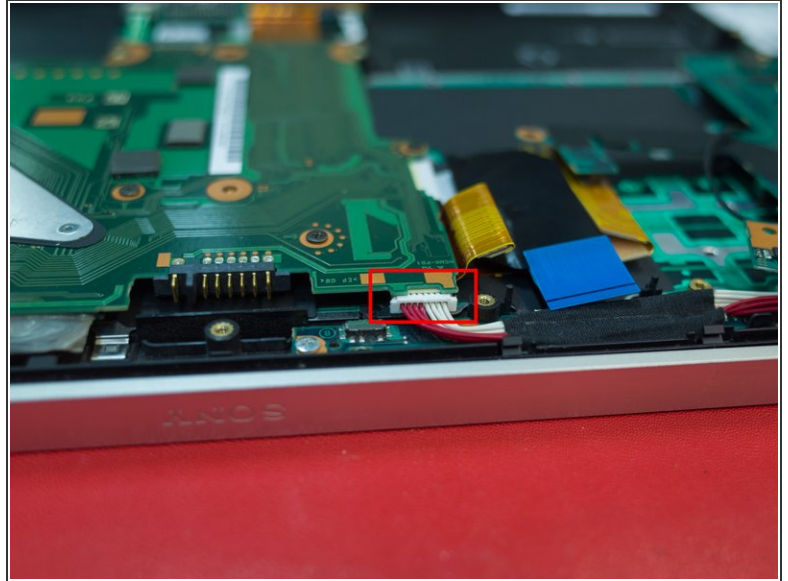
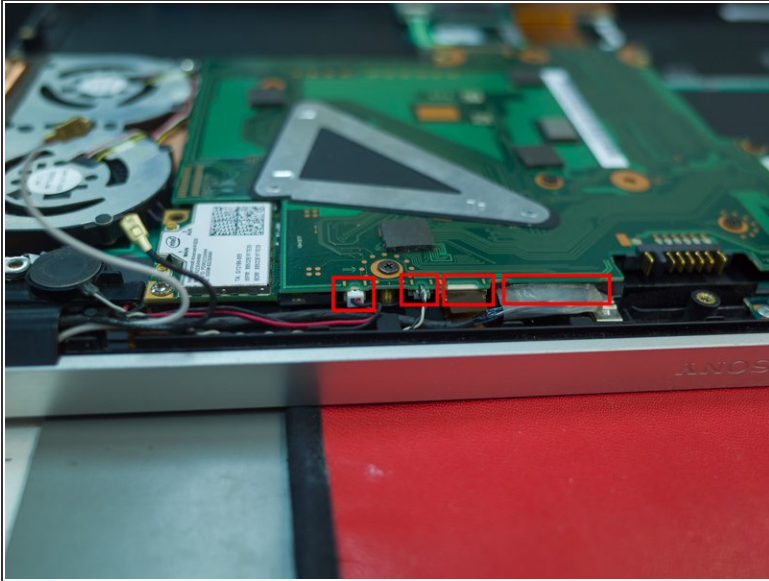
- Remove the optical board (2 screws)
- Remove the plug from the optical board to the motherboard (should pull directly up)

Step 14



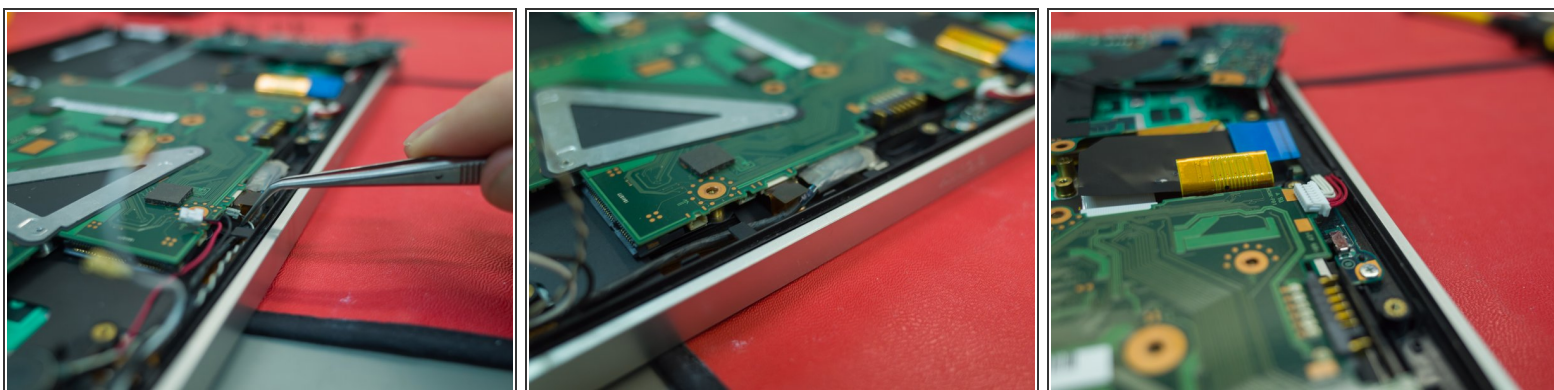
- Hold the blue plastic tab to remove the flat ribbon cable to the motherboard. This should pull straight out horizontally.

Step 15



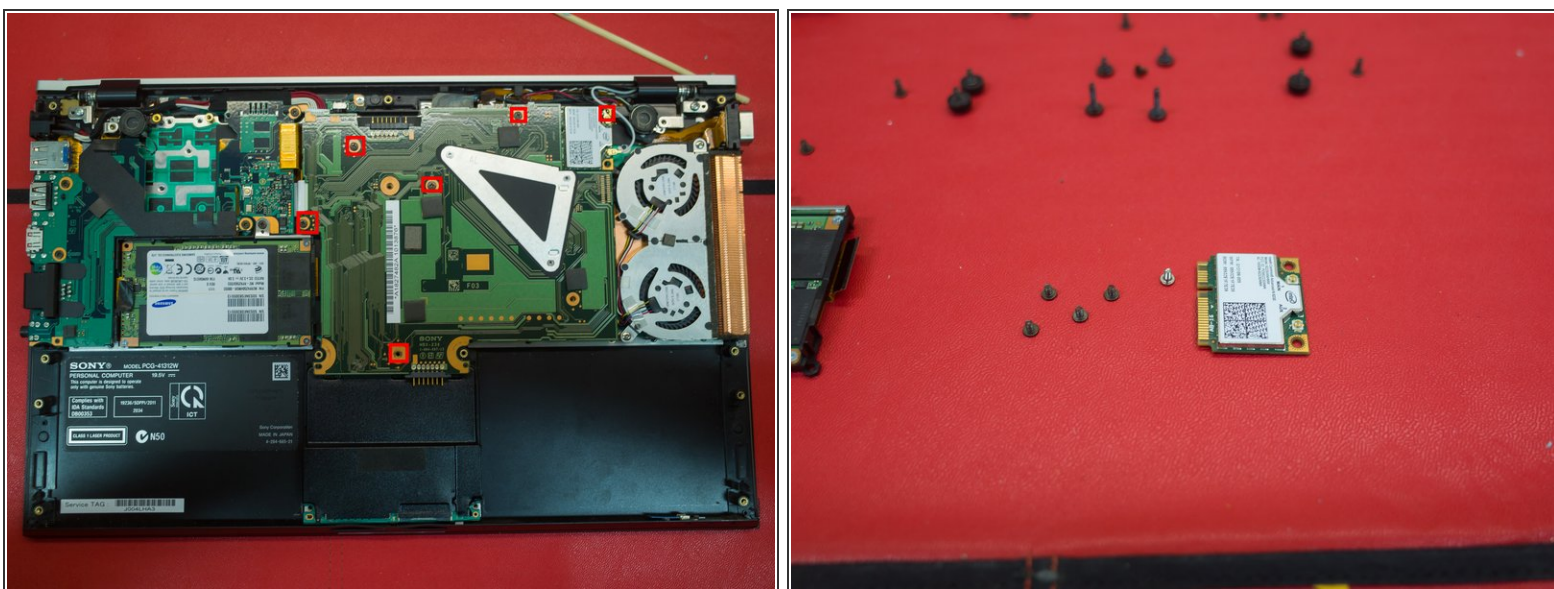
- On the back edge there are 4 plugs going into the back of the motherboard.
- I'm not 100% sure, but from the top of my head these are (left to right); speakers (red/black & black/white), VGA (ribbon), and main (flat plug type)
- There is also a power connector plug on the far side (red/white)

Step 16



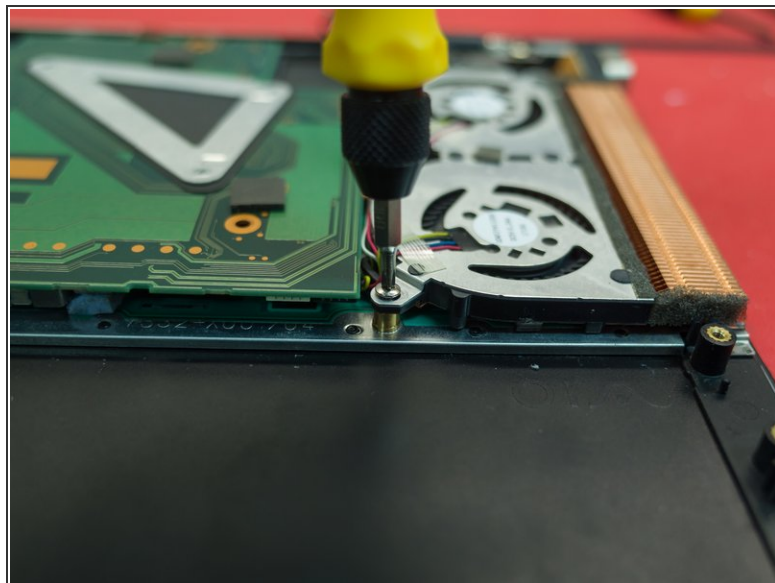
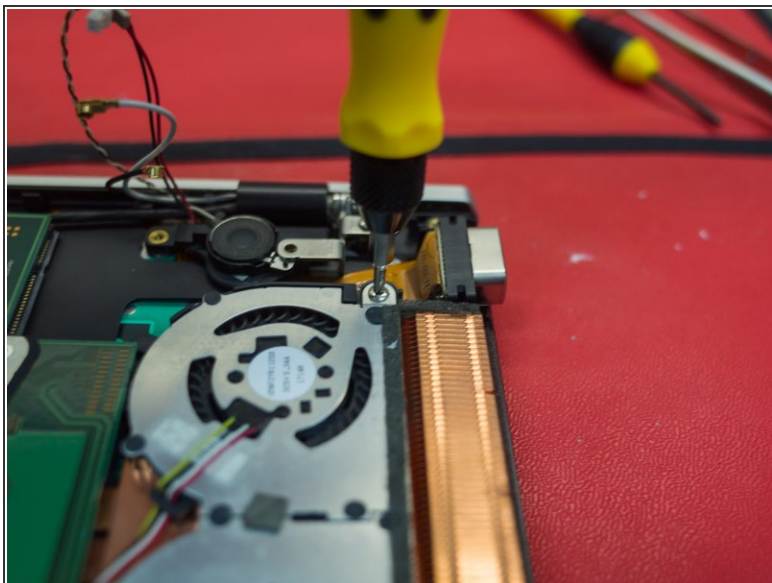
- The red/white and black/white plugs are obvious to pull out
- The VGA cable has a flat plastic tab - pull on this tab to remove/install
- The red/white power cables are also obvious
- To remove the main plug, push it straight down towards the keyboard. This is easier to do once the motherboard is free, so I would suggest leaving it in place for now.

Step 17



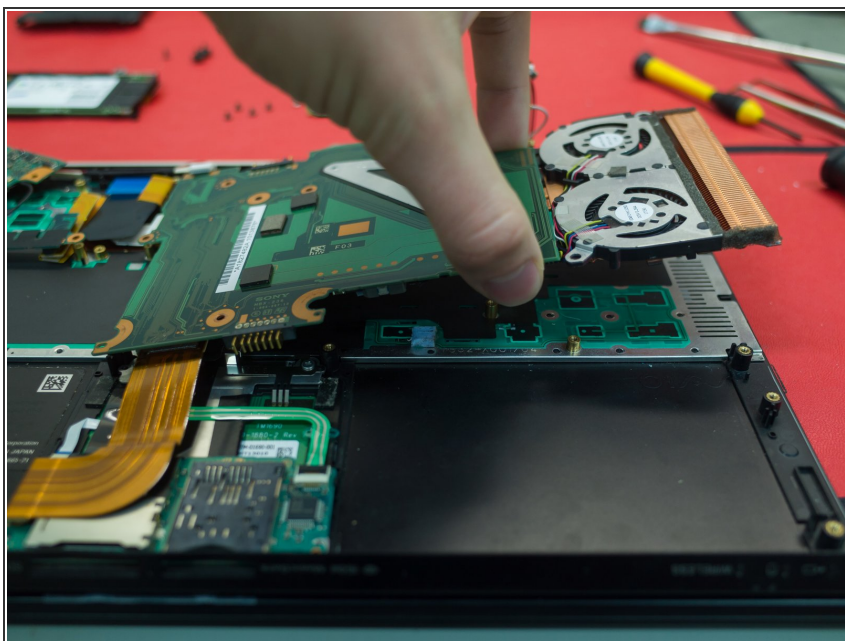
- Remove the screws holding in the motherboard (6, including the wifi board)

Step 18



- Remove the two screws holding in the fan and heatsink

Step 19

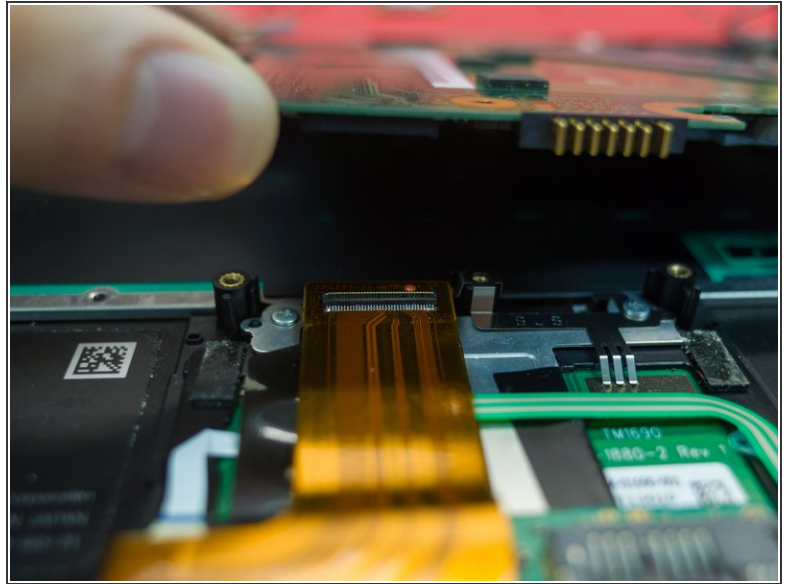
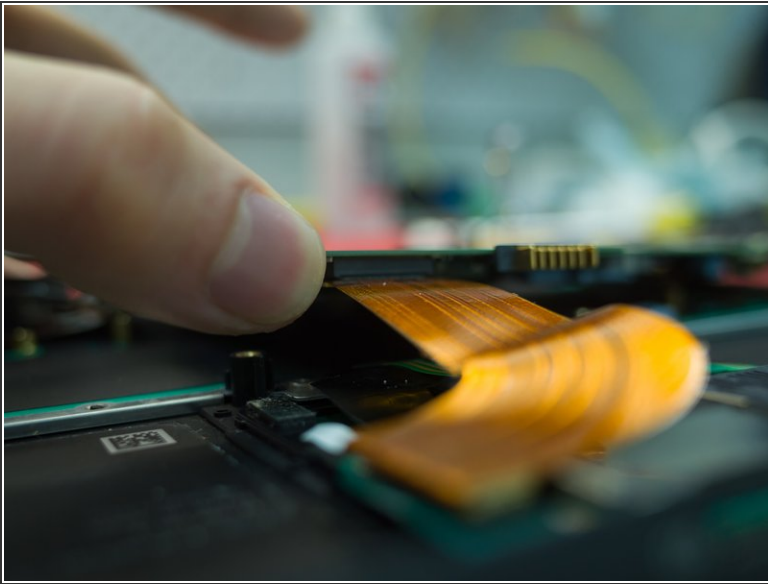


- The heatsink and fan and connected directly to the motherboard by 3 screws. These screws are attached

to the triangle bracket, and are accessible from the under side of the motherboard.

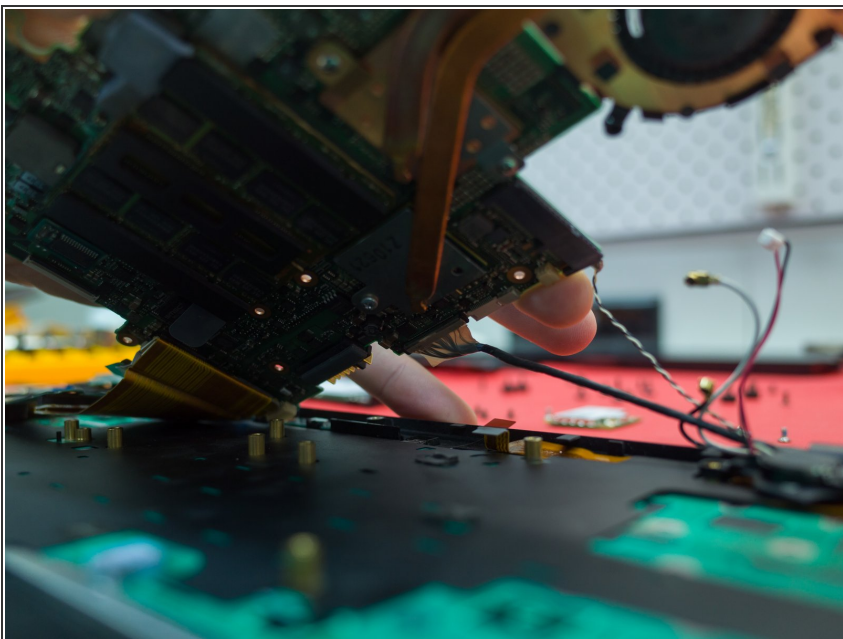
- This means that the entire motherboard needs to be disconnected to remove the CPU, fan, and heatsink.

Step 20



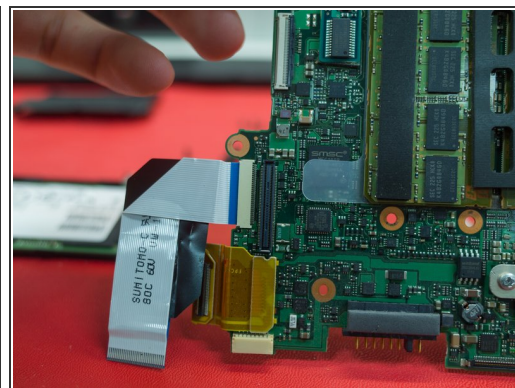
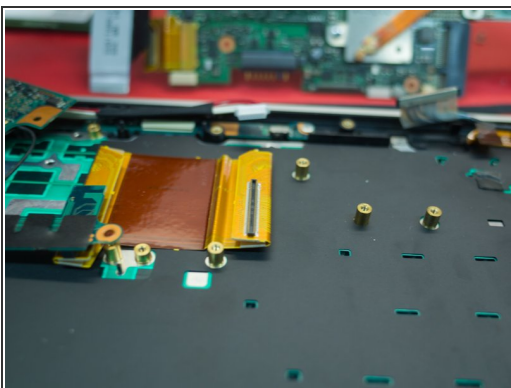
- Lift up the edge of the heatsink/fan assembly and identify the remaining connections for the motherboard.
- Disconnect the trackpad (flat cable, separates vertically from the board)

Step 21



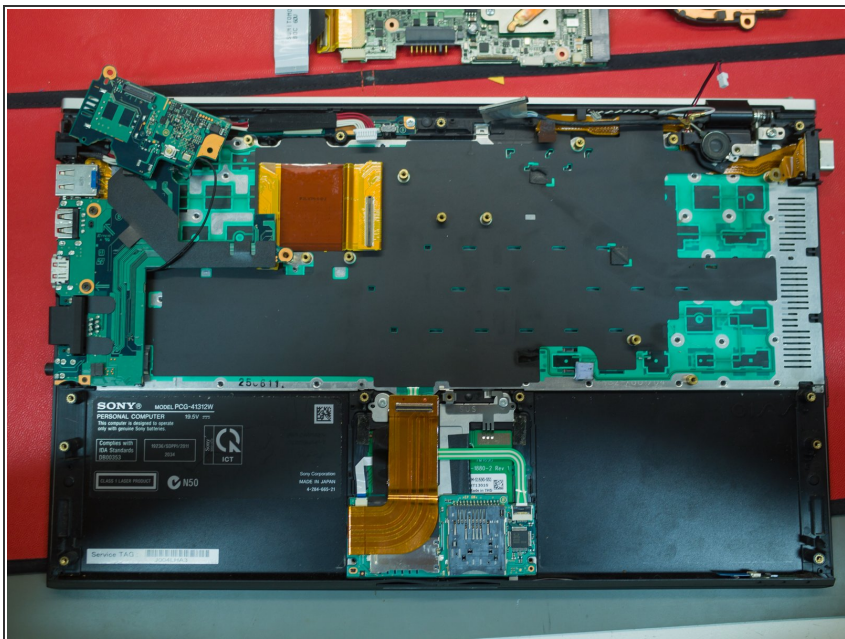
- You can see the remaining connectors on the motherboard

Step 22



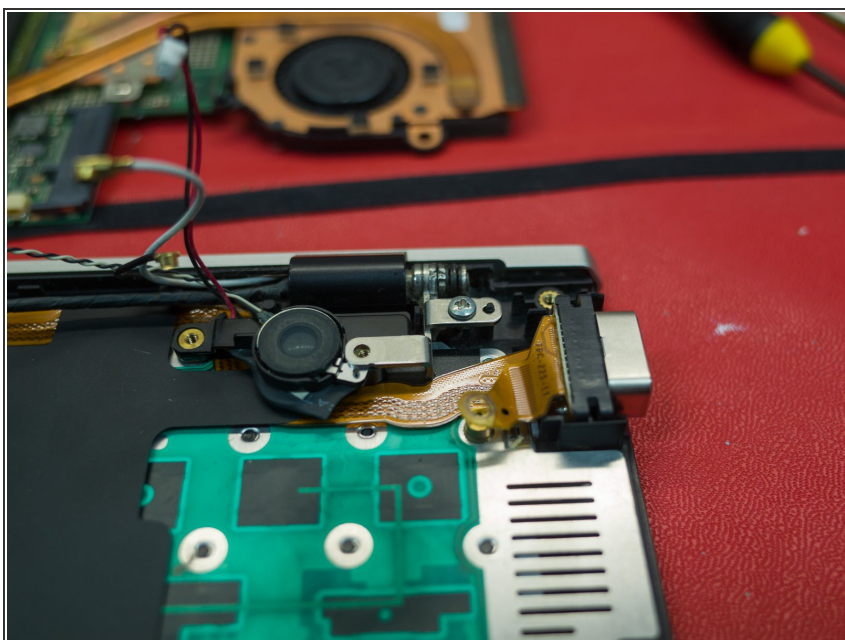
- ⓘ Underside view of removed motherboard. Here you can see the plug type and RAM
- ⓘ Note the plug type for the main motherboard cable (circled)
- ⓘ You can also see the three screws for the heatsink and fan assembly.

Step 23



- ⓘ Inside view of laptop, motherboard removed. Not much remaining in there now.

Step 24




- ⓘ View of VGA assembly, speaker, and lid hinge

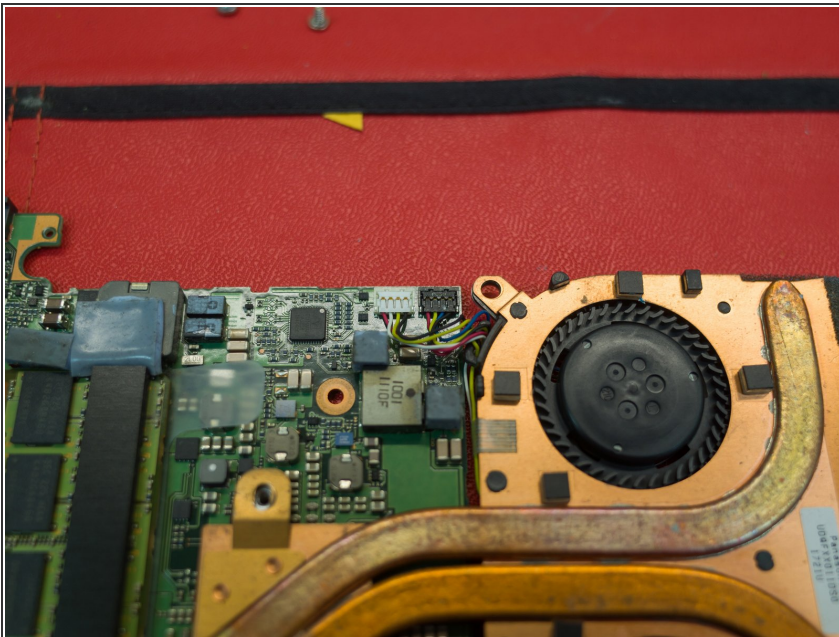
Step 25




- Remove the three screws holding on the heatsink and fan assembly.

 Note; there are two different screw lengths for this assembly

Step 26



- Unplug the two fan connector (one white, one black)

 Note; these clip in vertically, not horizontally

Step 27



- Once the fan assembly is disconnected, you can lift it up.
- ⓘ Here you'll see the bad job I did on the thermal paste, and the reason why I had to take it apart again.

Step 28



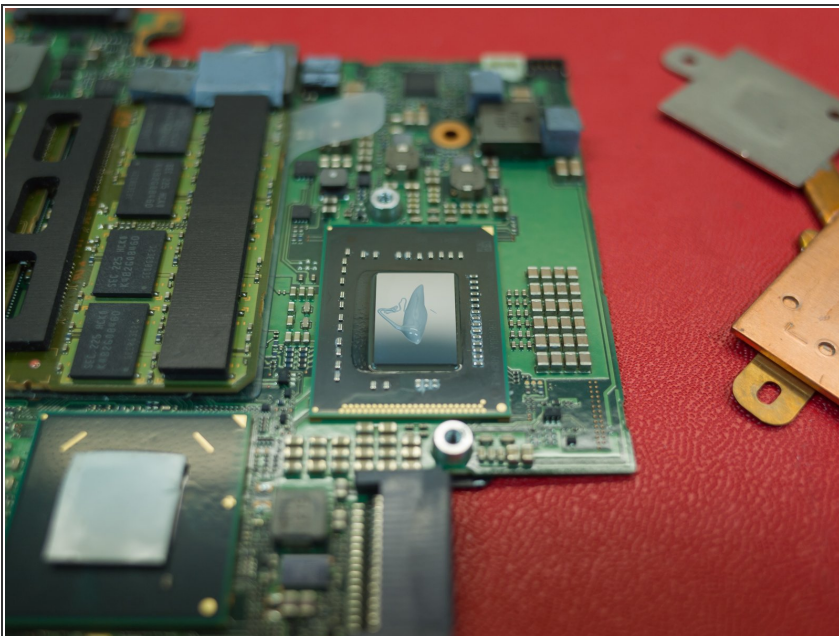
- Using a clean microfibre cloth and rubbing alcohol, wipe the old thermal paste off the CPU
- ⚠ Note: The original paste that was on the CPU was very dry and caked onto the board. Take extreme caution in removing this old paste.

Step 29



- New Cooler Master thermal paste
- It's worth spending the extra couple of bucks on a good brand of paste. It really isn't worth the trouble of having to re-do this (trust me!)

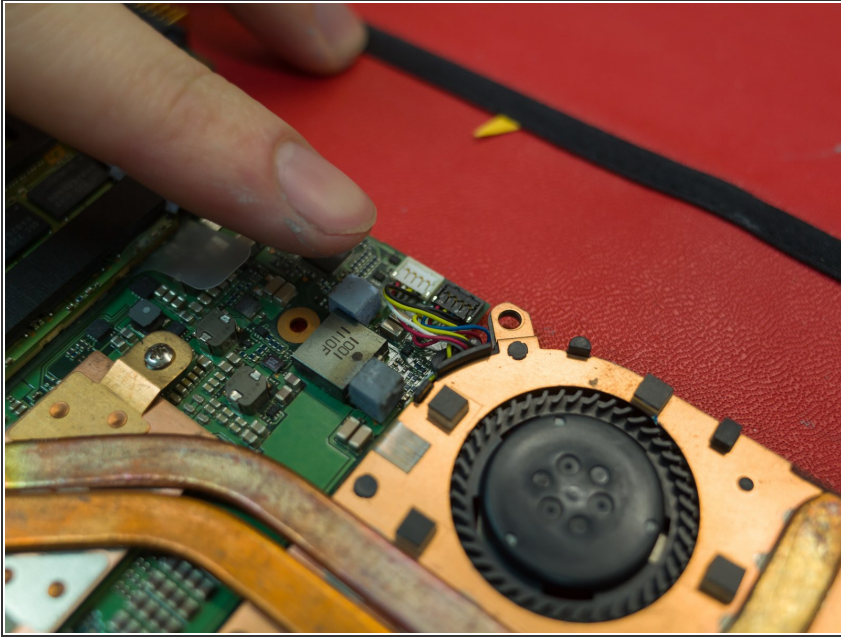
Step 30



- Clean the remaining paste of the heatsink side of the assembly (far right in the picture)
- Small strip of paste going lengthways on the CPU. You want to avoid air bubbles in the thermal paste.

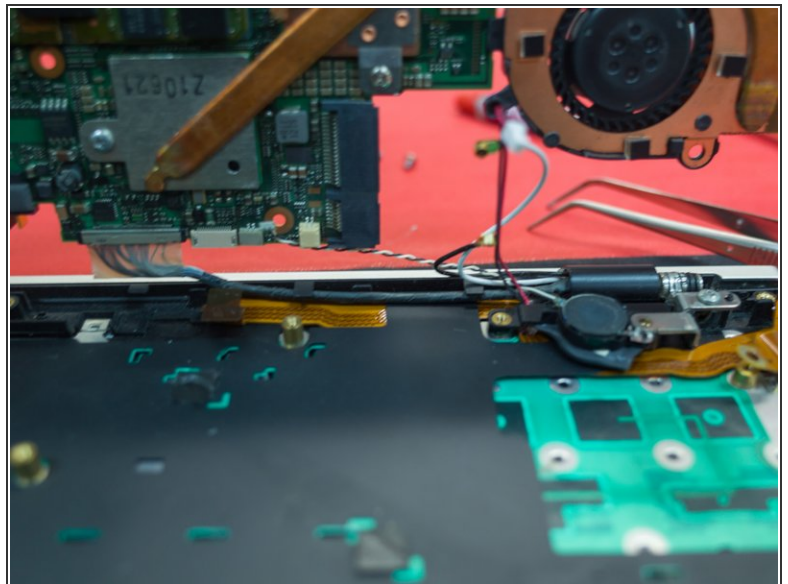
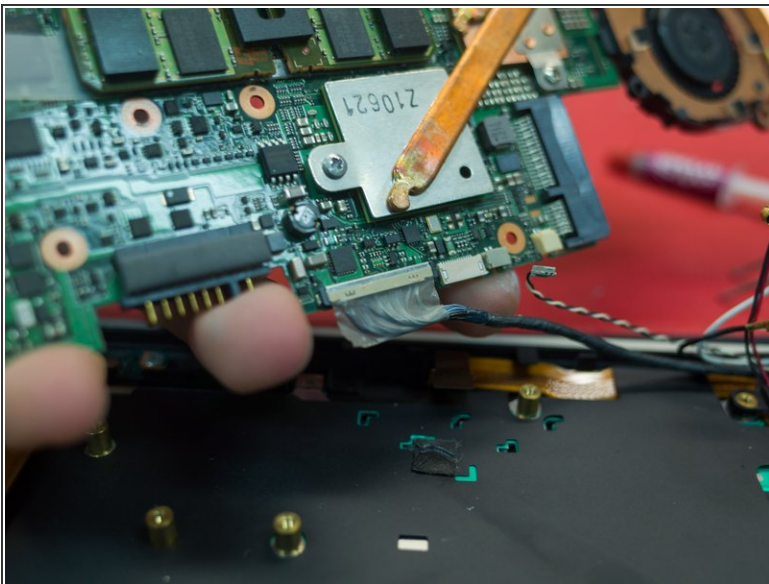
⚠ Note: This was actually a bit too much paste. Once you put the heatink and fan assembly on, it will spread out on its own. Avoid the temptation to spread the paste out!

Step 31



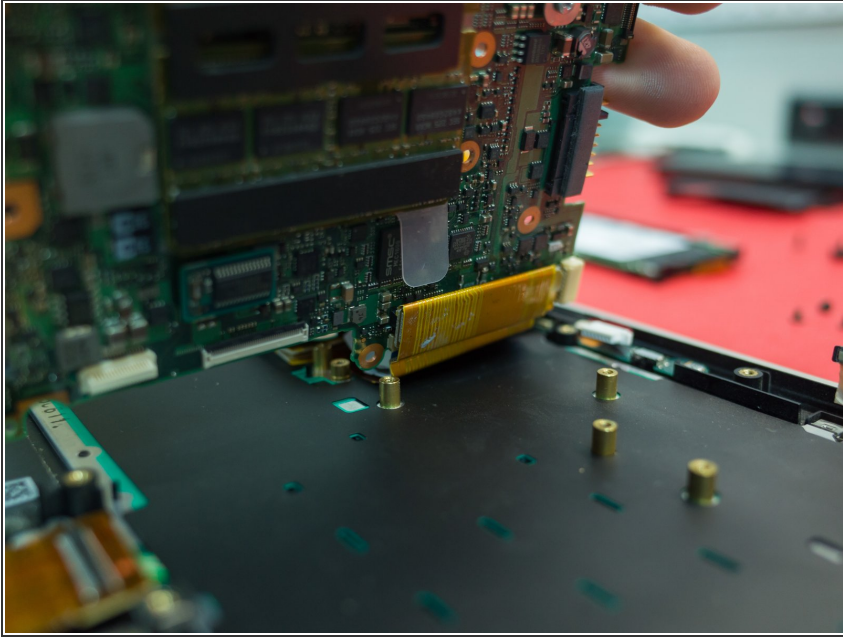
- Carefully place the heatsink and fan assembly onto the CPU and attach the three screws.
- Plug the fan power cables back in (as I mentioned earlier, these should slot straight down into the socket)

Step 32



- I attached the main motherboard cable first, as it was the most difficult in my opinion. You could plug these back up in whichever order suits you.
- ⓘ Take your time to make sure that everything is plugged up securely, as you can tell, it's not something you'll want to do a 2nd time.

Step 33



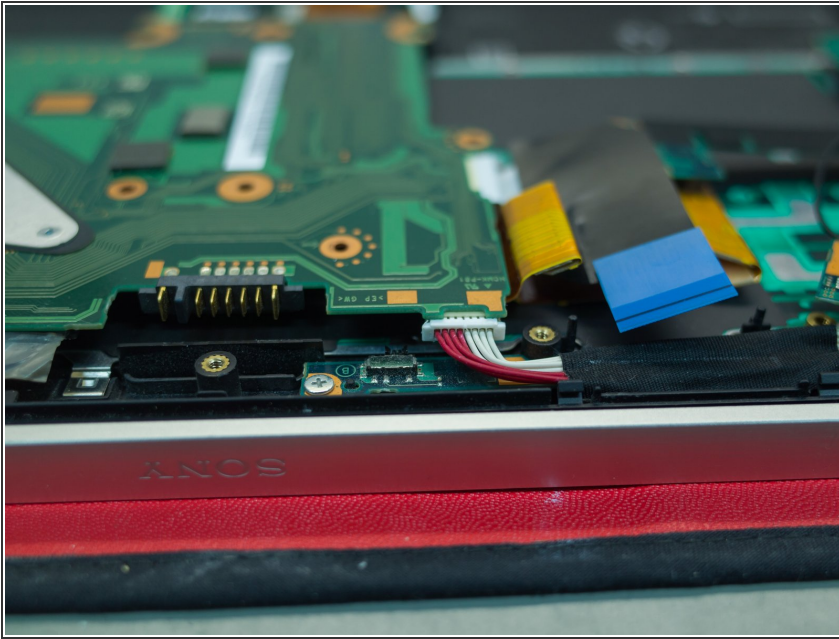
- Plug up the large flat cable to the motherboard

Step 34



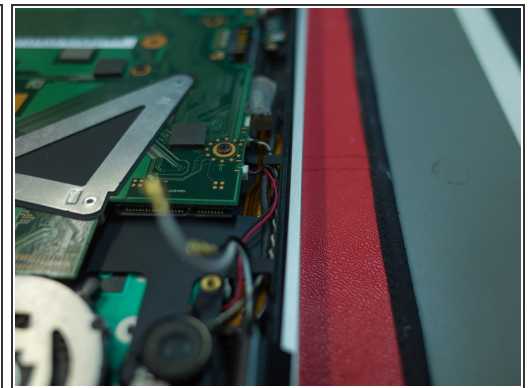
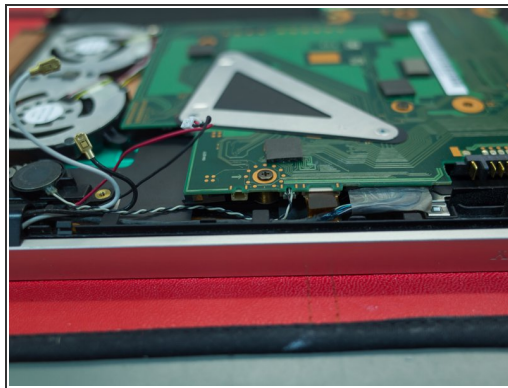
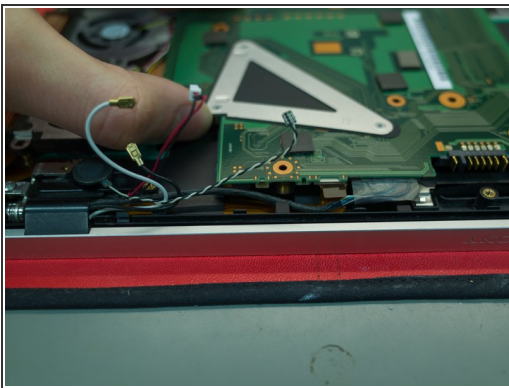
- Attach the trackpad cable

Step 35



- Attach the motherboard power
- Put the 5 screws back in for the motherboard
- Put the 2 screws back in for the heatsink and fan assembly

Step 36

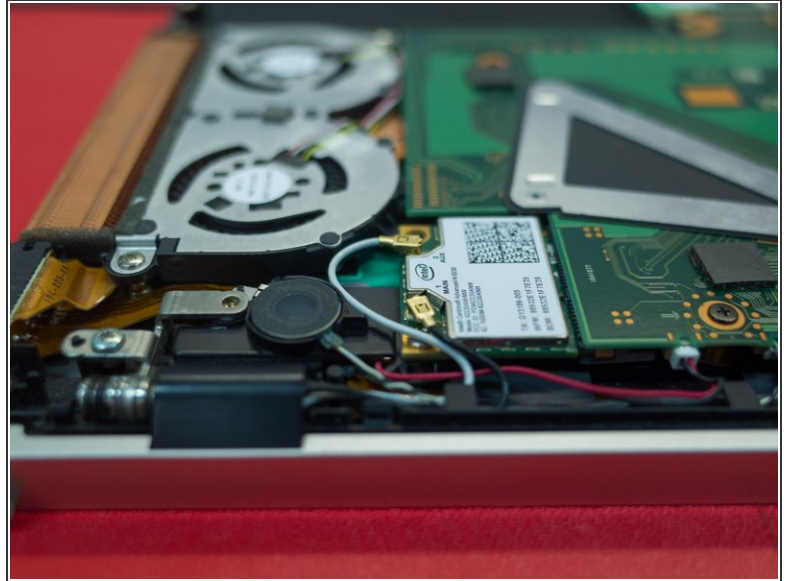
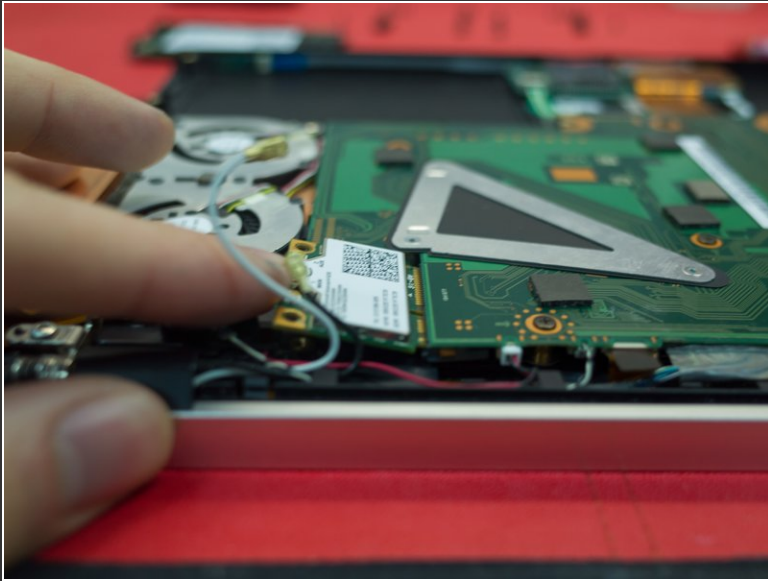


- Attach the speaker cables & VGA port

i Note: be careful with the cabling here. Pay attention to how the cables sit, and make sure they are not going to be pinched by other pieces.

! I actually damaged the VGA cable when I did this the first time. It was a cheap part to fix, but again - be careful, you can damage these parts.

Step 37



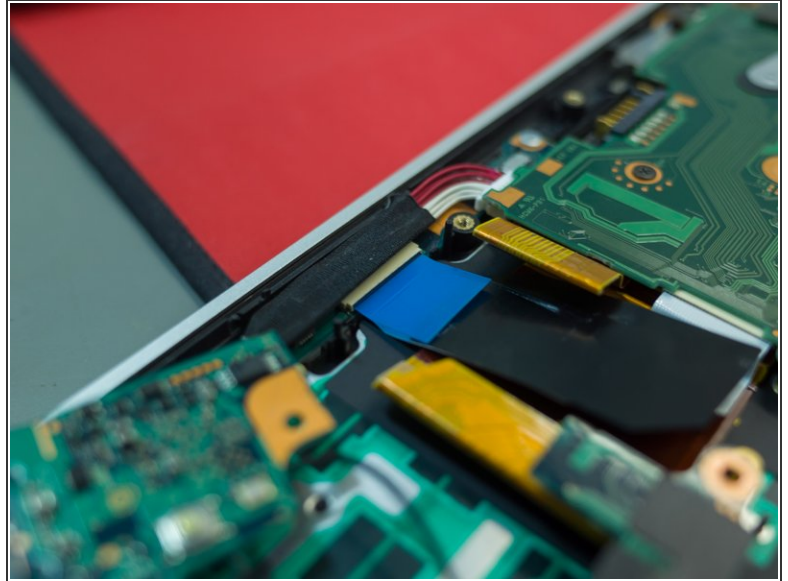
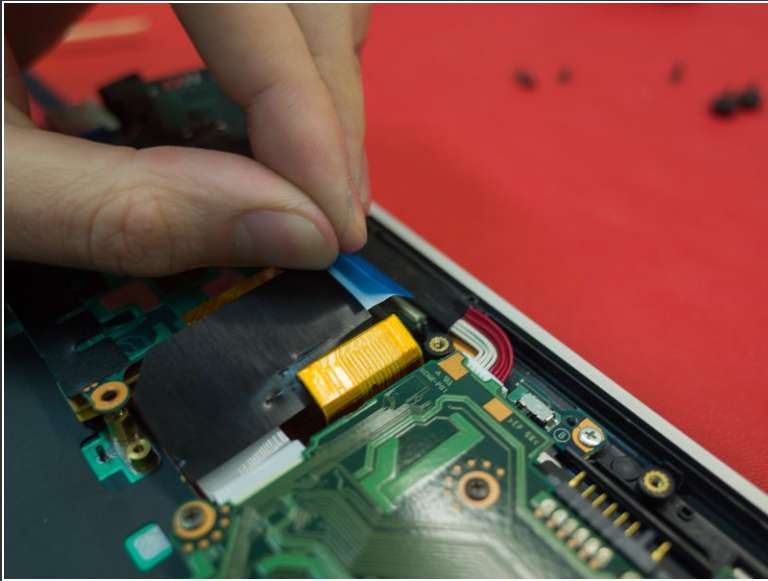
- Replace the wifi card and plug up the white and black cables

Step 38



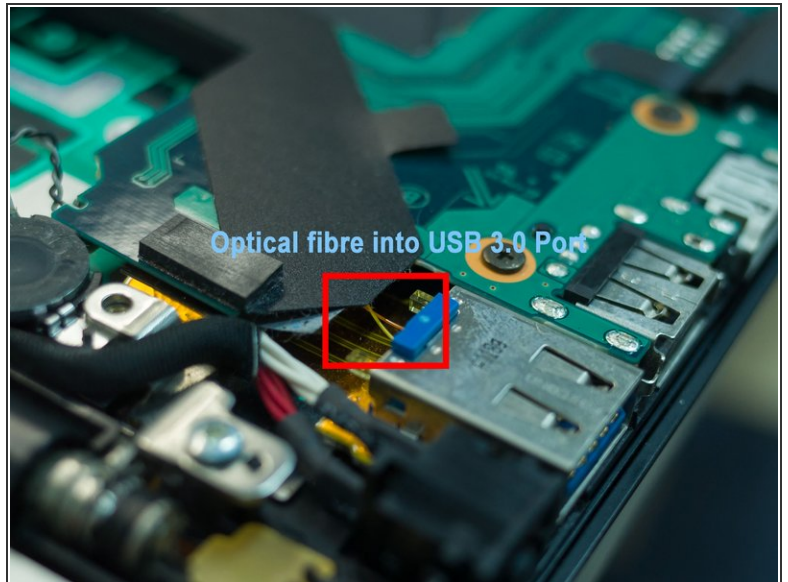
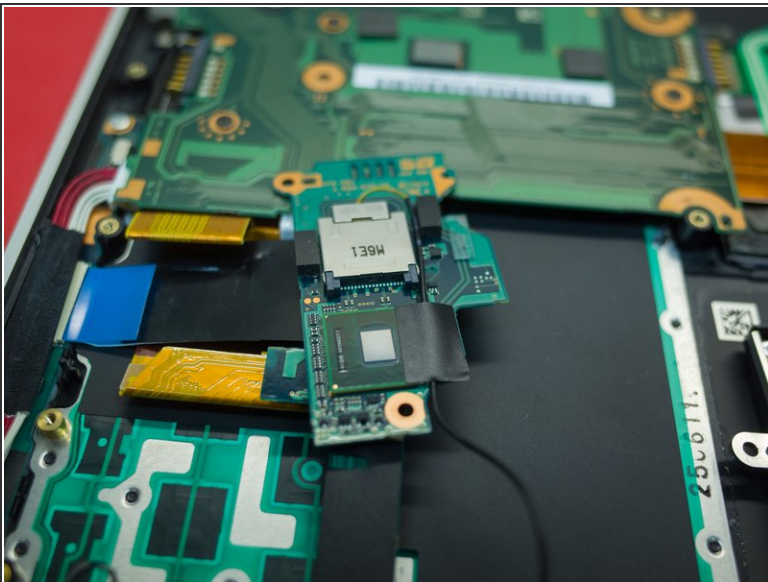
- Replace the SSD cable (slides straight into the port on the motherboard)

Step 39



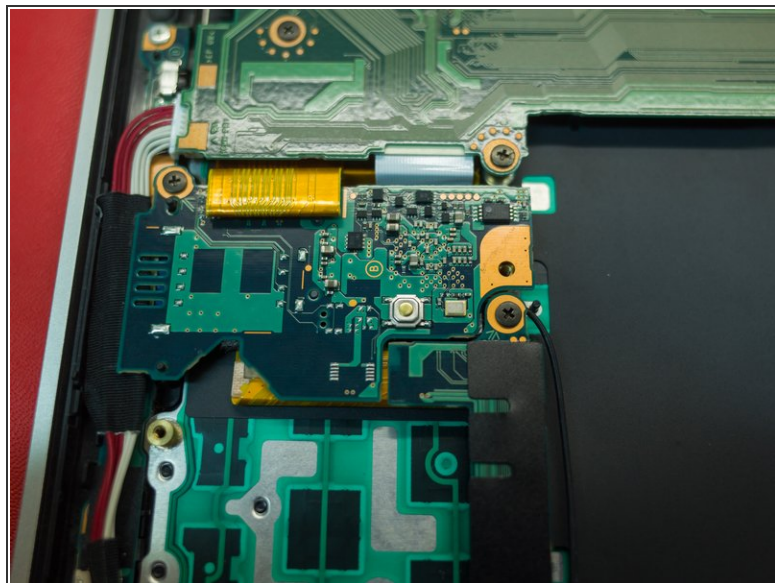
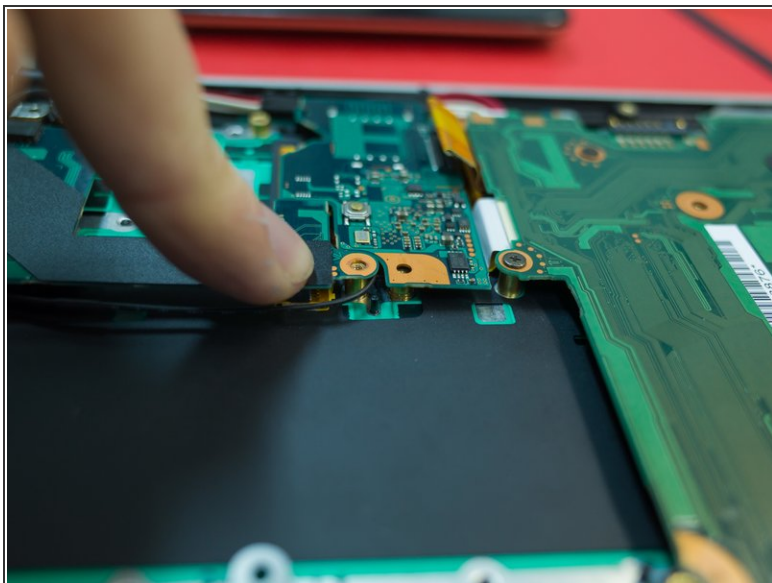
- Replace the flat ribbon cable to the connector, using the blue plastic strip to push it into the port.

Step 40



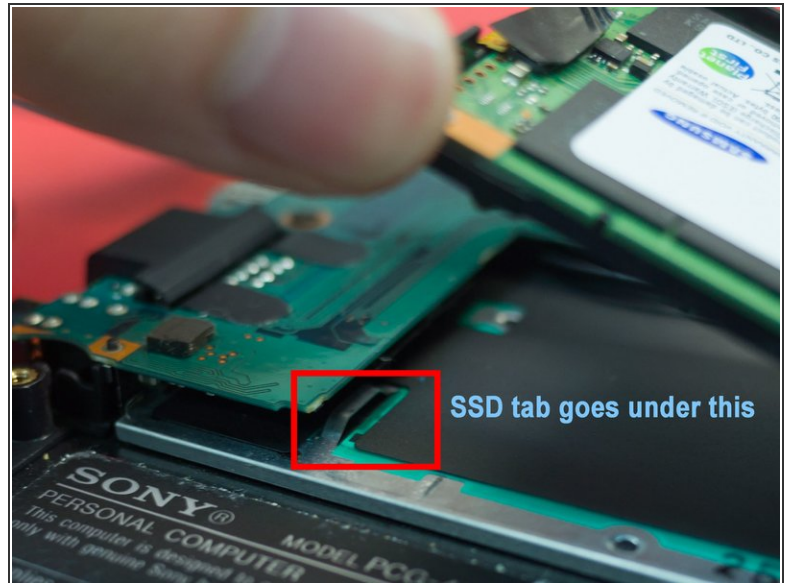
- i** This is the optical board. You can see here the two optical fibre cables that go into the USB 3.0 port to communicate with the optional Power Media Dock (PMD).
- i** I believe they use fibre for this application because of the bandwidth required to run an external GPU

Step 41



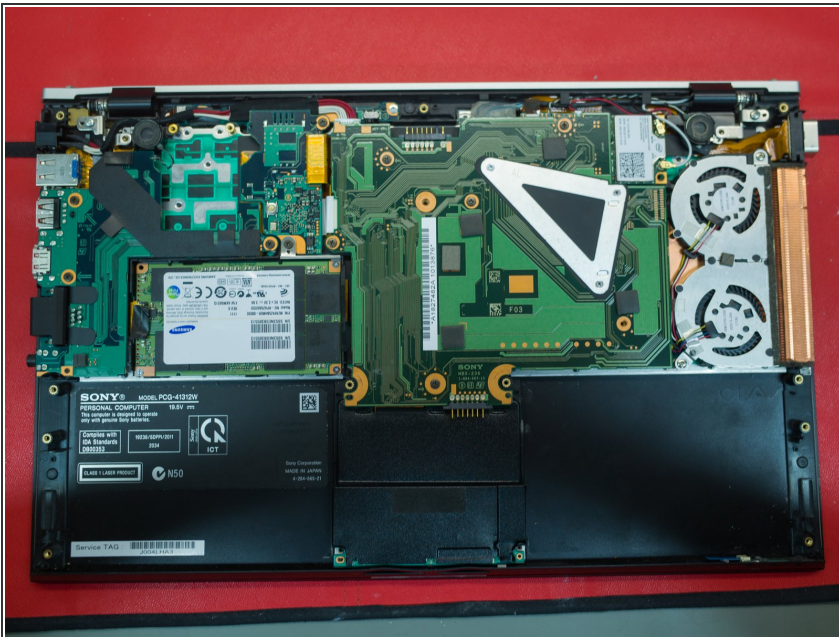
- Replace the two screws holding the optical board.
- ⓘ The optical board tends to spring up, and you may need to hold it down while you screw it back in.
- ⓘ Pay attention to where that optical cable goes - this is relatively fragile, you don't want it getting caught between a screw or a board.

Step 42



- The SSD caddy has a notch on the left side. This needs to sit under the housing on the chassis.

Step 43



- Everything all plugged back up and screwed in.
- As with before, check the components for the arrows which indicate where the screws go. Those screws in the laptop case actually go through the case into the chassis.

Step 44



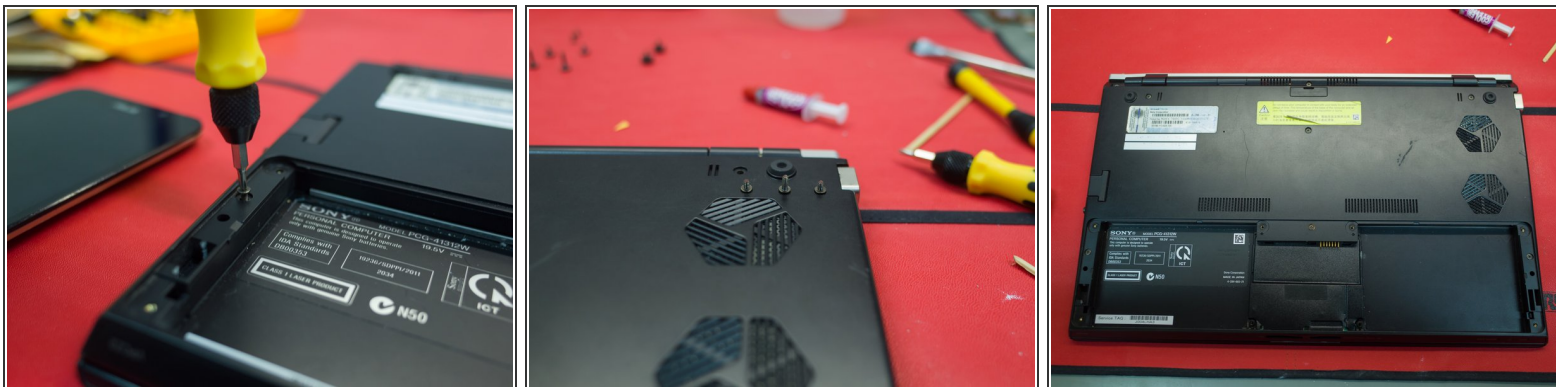
- Start reassembly from the USB side of the laptop.

Step 45



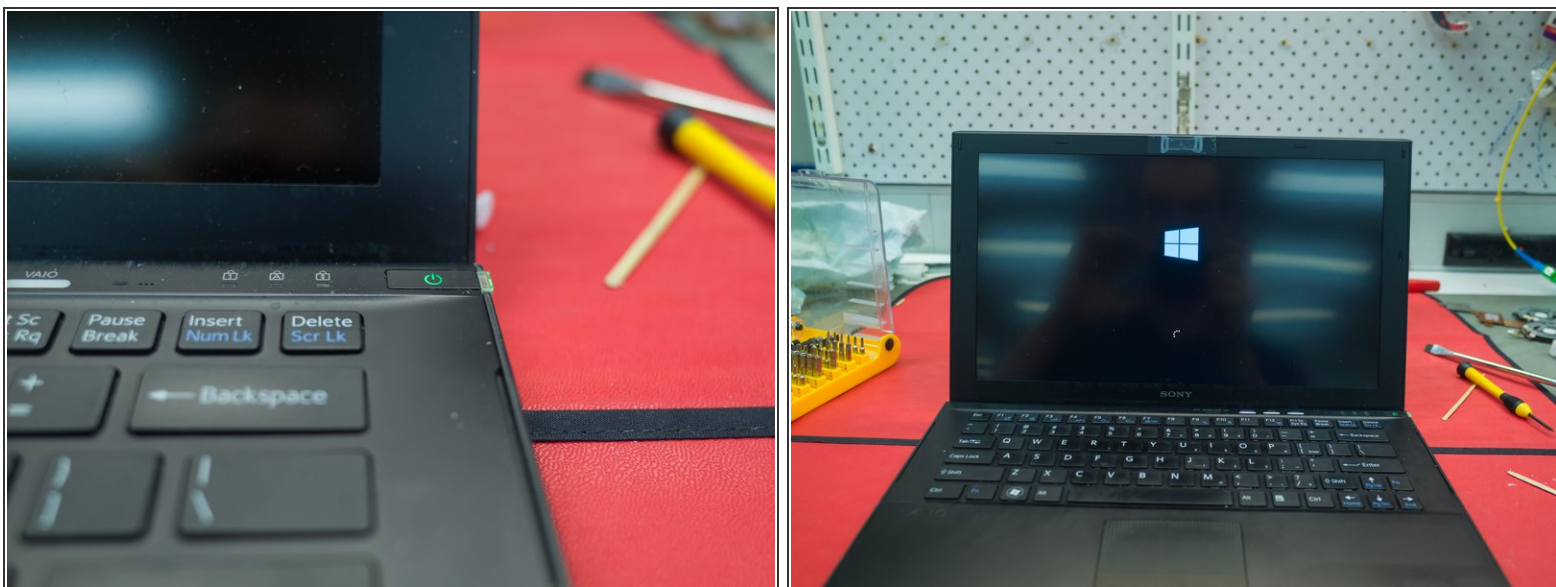
- Around the otherside, lift the VGA port up and align it in the case before lowering the case onto the chassis

Step 46



- Replace the screws, fire it up!

Step 47



- Success!

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