HP Pavilion dv7 Heat Sink Replacement

These units are notorious for running at very...

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INTRODUCTION

These units are notorious for running at very high temperatures. This shows you how to get at the heat sink, graphics card, processor, and all other goodies associated with it.

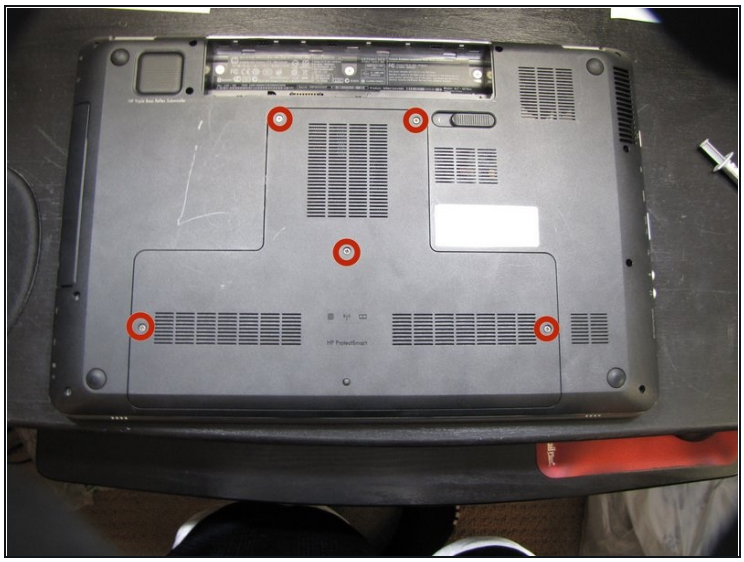
TOOLS:

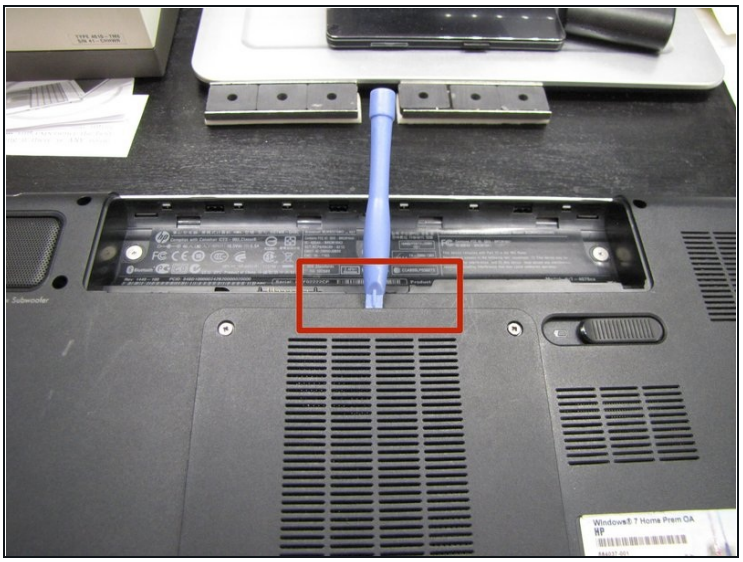
Spudger (1)
Phillips #00 Screwdriver (1)

Step 1 — Heat Sink

- The model number of this particular laptop is **DV7-4078ca** - it features a first-generation i7 processor, has beats audio, and due to the placement of the vents, is susceptible to getting uncomfortably warm.
- There are multiple hardware versions of the popular DV7 model, so depending on the specifics of yours, you may find small differences in location of screws, etc.

Step 2





- Start by flipping the laptop on its front cover. As you can see from mine, it's not difficult to scratch up the surface so I'd recommend putting a cloth or cupboard protector underneath

- The first step is to remove the middle section housing the **hard drive, wireless card, and ram**

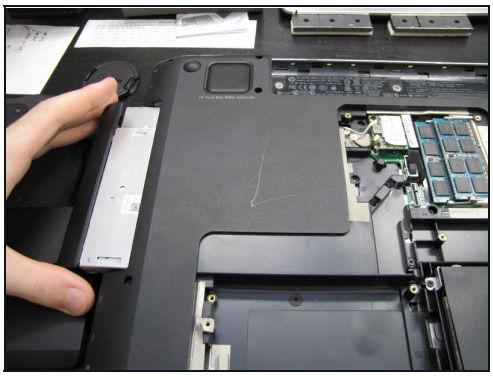
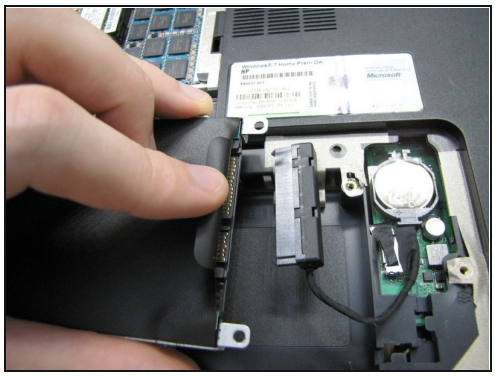
⚠ **BEFORE YOU START** - Make sure the battery is removed, and the unit is unplugged. It's also advised to wear an **anti-static wrist strap** or at least ground yourself

- There are 5 anchored screws (they don't come all the way out) that need to be loosened

- There is a small ridge just below the battery that helps in removing the cover. I used a **spudger** but if you don't have one, a small flathead screwdriver will work. Or a hard guitar pick.

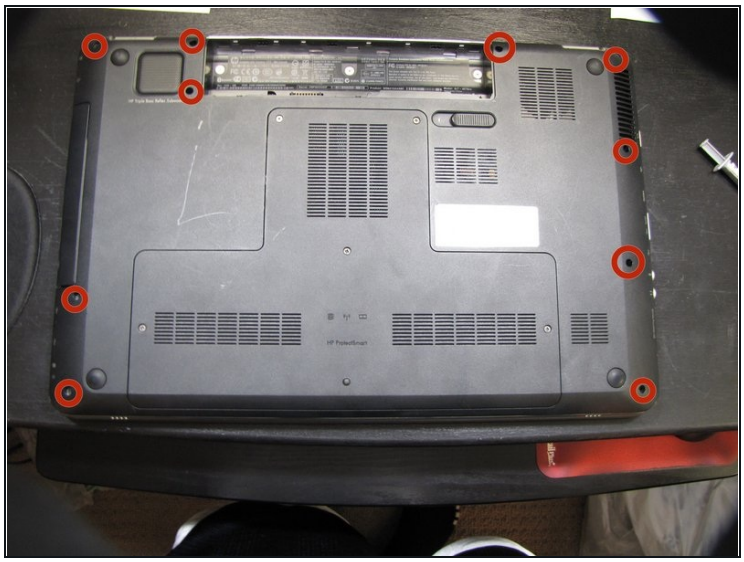
- Pry from the top - you'll notice small clips on the edges that hold it in place. They may require a little bit of force. Once you get to the bottom, just pull **north** as the clips on the bottom are larger.

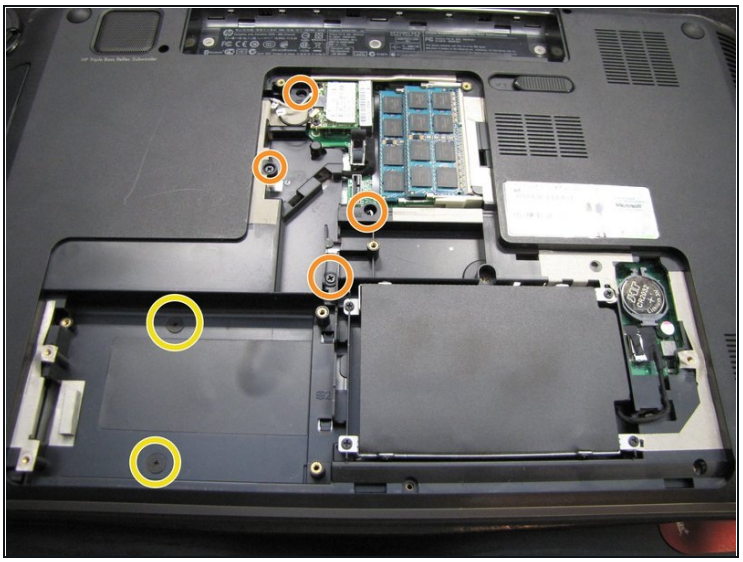
Step 3

- Next we need to remove the **hard drive**, **DVD drive** and **wireless card**
  - There are 4 standard-sized screws holding the hard drive in its mount
  - The screw that is holding the DVD drive in the case is slightly smaller than the standard screw
  - There are two screws holding in the wireless card. Remove them and it will easily come out. Also remove the **white and black antenna cables** from the card
- When the hard drive mount is removed, pull the hard drive cable away from the hard drive connectors. May take some wiggling.

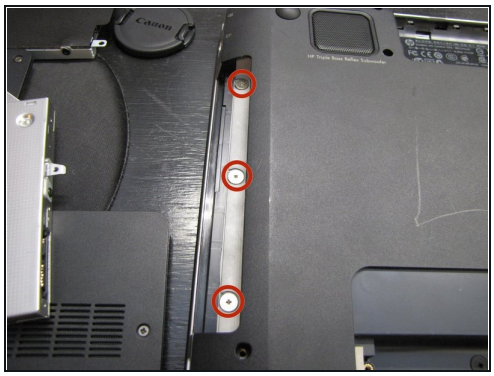
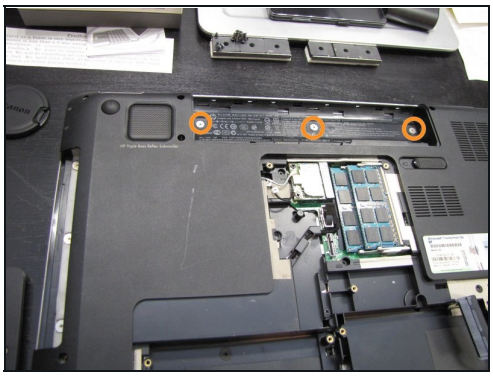
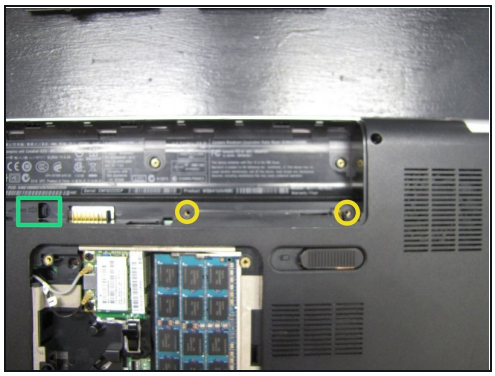
Step 4





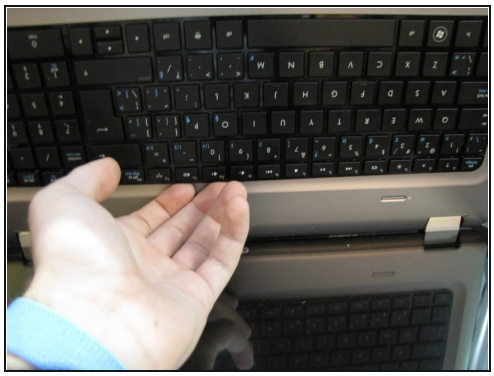
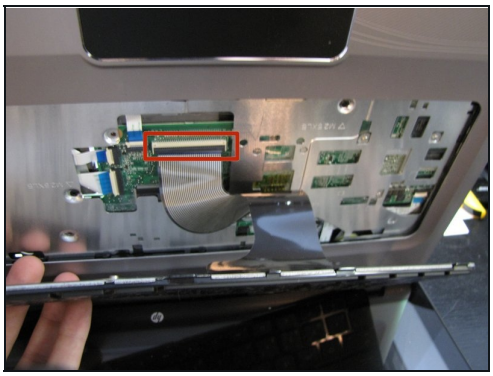
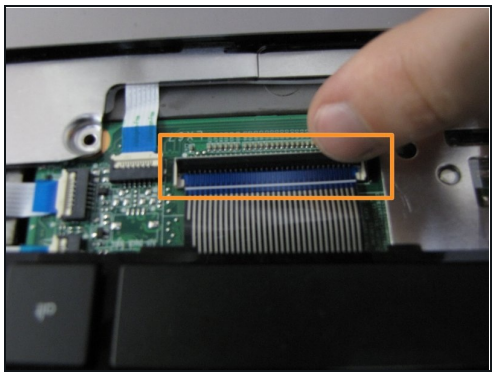
- Time to remove the majority of screws from the casing. Depending on what you're trying to accomplish, you may not need all of them. But for the sake of this guide, let's assume you do
  - On the outside of the bottom casing, we have **10 screws**, all the same size
  - Inside the unit there are **4 normal screws**
  - There are **2 black, large-headed screws** inside the hard drive bay on the left

Step 5

- Underneath where the DVD drive used to be, remove the **3 exposed large-headed screws**
- Also remove the **3 large-headed screws** from where the battery used to be
- Slightly more difficult to see, there are **2 normal-sized screws** in the battery bay
- This is the **KEYBOARD RELEASE** switch which helps in the next step with popping the keyboard out. Make note of where it is.

Step 6

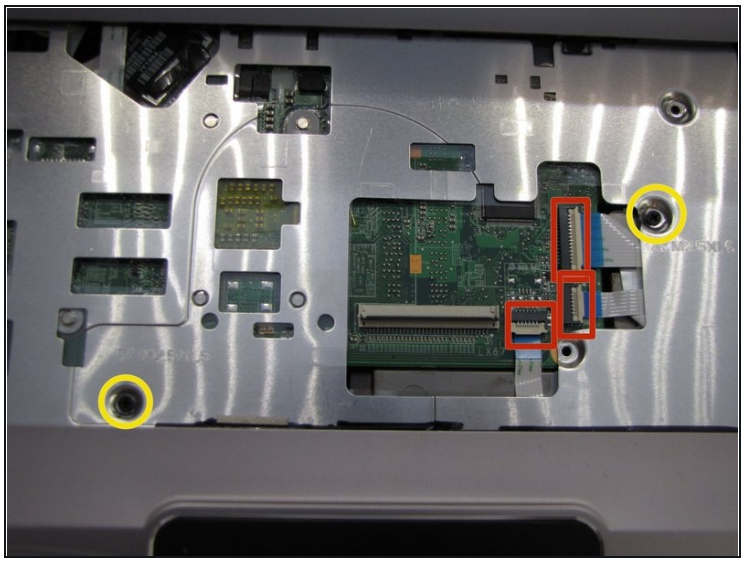
- After removing the screws securing the keyboard, you will need to flip the **keyboard release switch** to the left (in previous step). You should feel the release slightly make the switch less springy

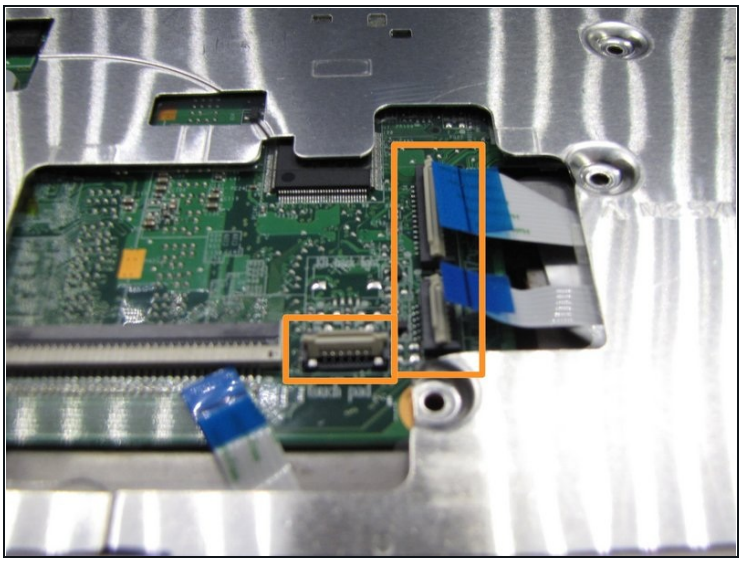
- There are still clips on the sides of the keyboard holding it in, so you may need a prying tool to remove the keyboard (eg. spudger, guitar pick). This shouldnt be too hard

⚠ Since the keyboard is made of relatively flimsy metal, you may find that if you pull too hard you can bend the keyboard. It's usually correctable though.

- Don't completely pull out the keyboard as there is a **large ribbon cable** connecting the keyboard to the case. To remove this, flip the black part of the **motherboard connector** UP. This will allow easy removal of the ribbon cable

Step 7

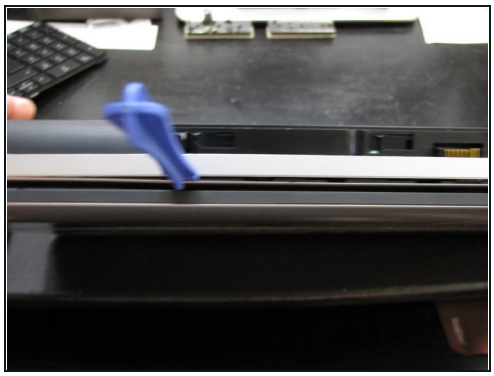
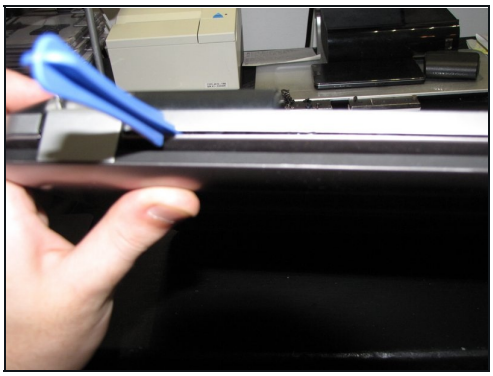
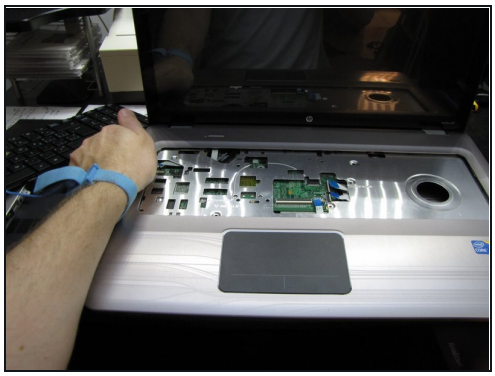




- Flip the computer so that it is now sitting on its base
- There are **3 newly-exposed ribbon cables** that need to be removed from the motherboard
- Instead of flipping the black/blue part, **flip the white part** of these smaller connectors
- Remove the **2 standard screws** securing the casing pieces together

⚠ I recommend flipping down the connectors while resuming repair so they don't get accidentally broken. **It is an incredible pain to fix them if they do**

Step 8

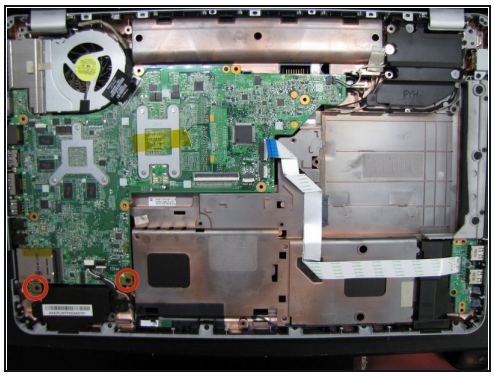
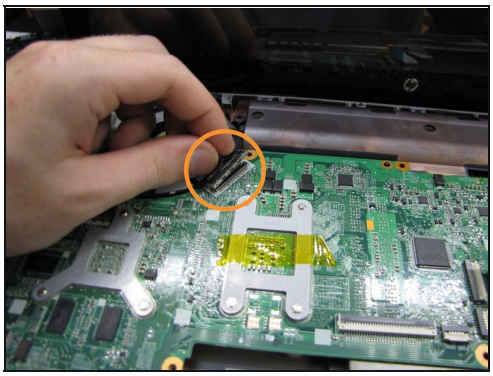
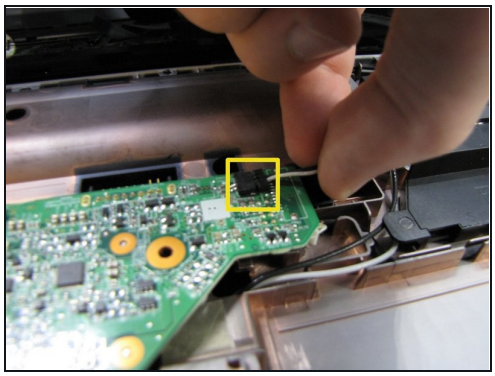
- At this point, all of the screws holding the two halves of the case should be removed. Time to **pry the bottom and top half of the case from each other**

ⓘ Don't be surprised if this takes a while. Also don't worry about being too gentle with the clips on the case - if they break, they will still be held in place by the screws we've just taken out

ⓘ The first shot shows the **area around the hinges - I recommend starting here**. Just beside the left side of the battery I found it especially stuck... you'll probably need some heavy use of your spudger, just be cautious when using a **screwdriver** as it can **bend the plastic permanently**

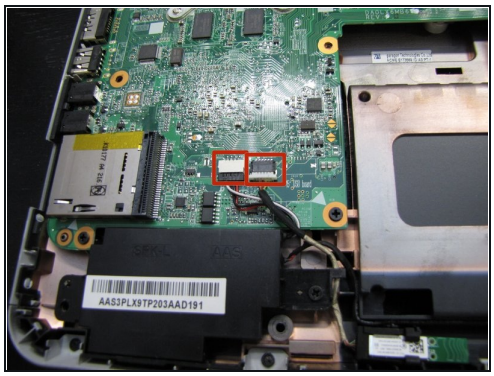
- Once the back is separated, just use your hands to pry from the sides. Move towards the bottom. Once at the bottom, **pull north** and it should separate the top case from the bottom half

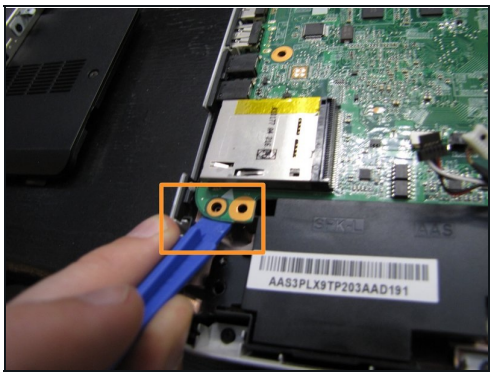
Step 9

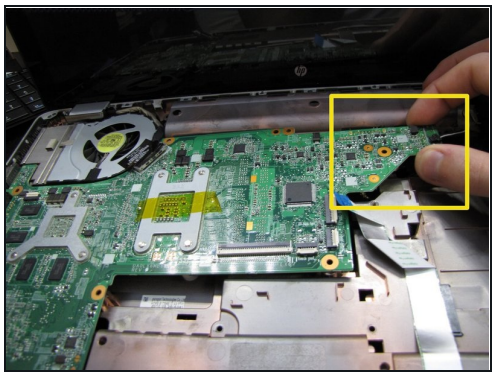




- Finally - a full look at the motherboard! Some connectors left, but we're getting there
  - To start, remove the **2 screws** at the bottom of the motherboard holding it in
  - Remove the **snap connector** that connects to the motherboard by **pulling straight up** on the tab
  - On the far right of the motherboard, there is a **right-facing connector** that runs to the wireless card. **Wiggle** the connector out, to the right.

Step 10







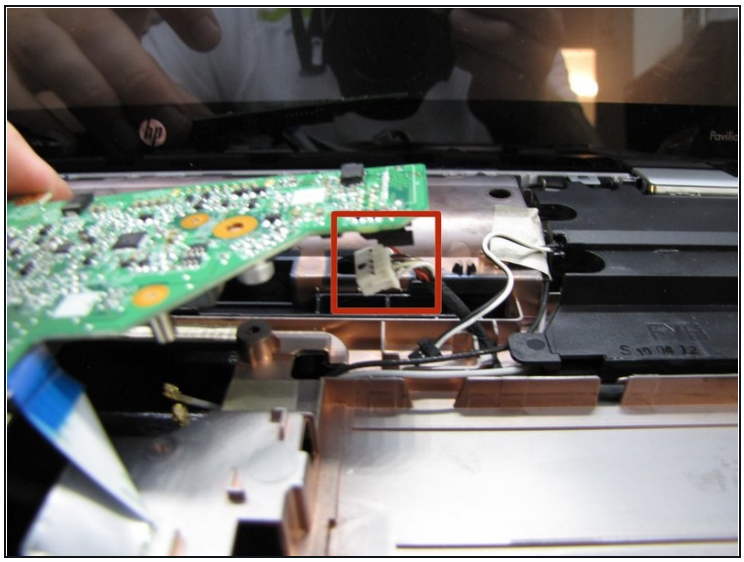
- We are almost done with the **top** of the motherboard - just slide the two **opposite-colored** connectors south. May need a little wiggle to convince them fully.

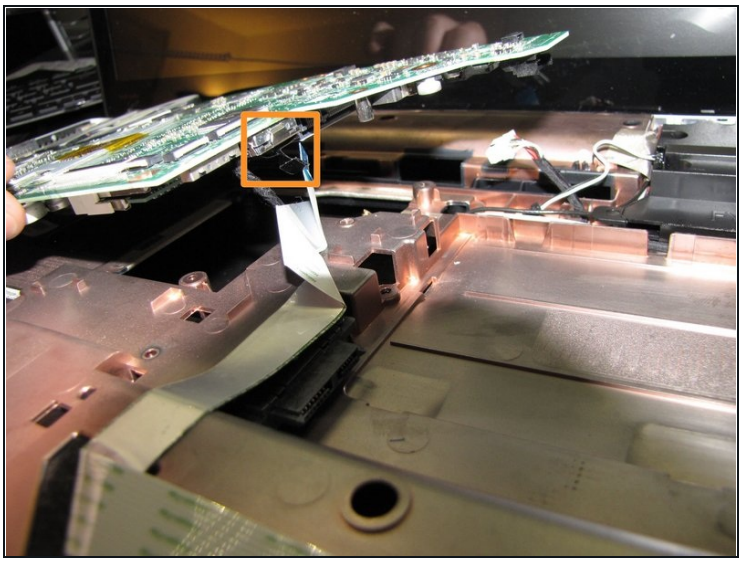
ⓘ We will now attempt to start lifting the motherboard - **DON'T USE PRESSURE!** We still have cables from the bottom to remove

- Start by putting your lifting tool between the casing and the bottom of the motherboard - you have to "lift" it off this peg to be able to move it further

- Grab the far right side of the board and start lifting straight up about a "quarter-inch" - it will expose the bottom motherboard connections

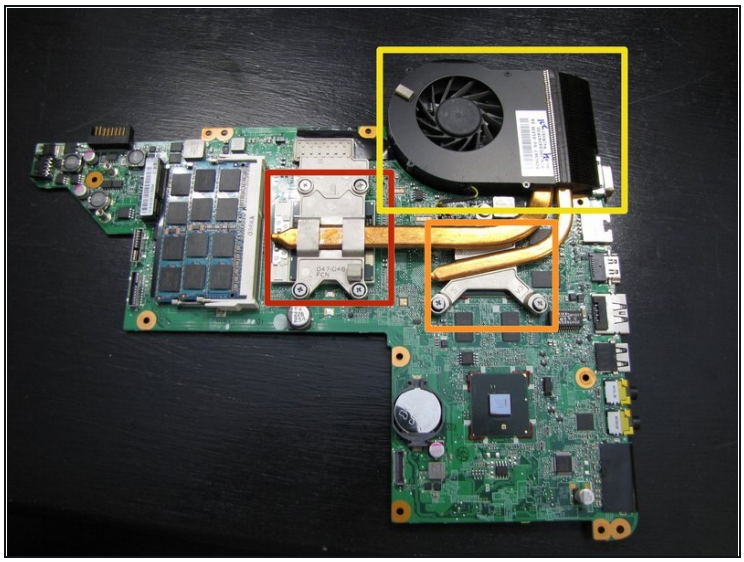
Step 11

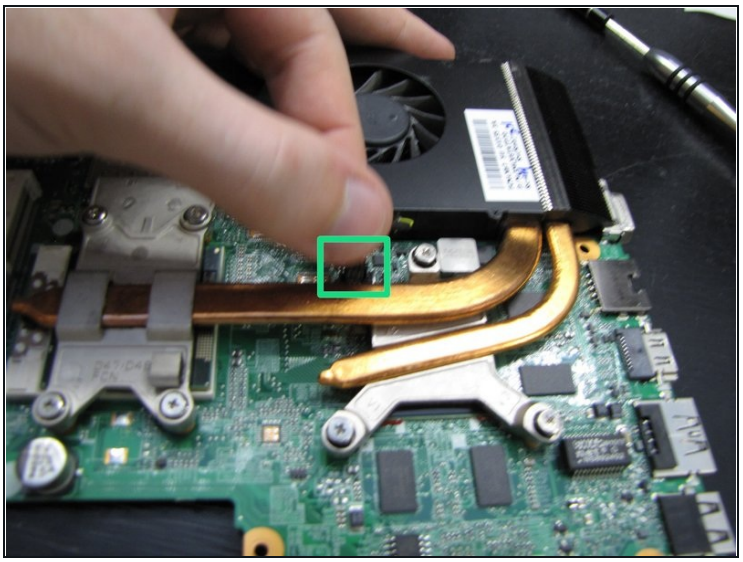




- Underneath the far right side of the motherboard, you'll see another slide connector - pull it to the right
- I originally forgot to pull out the other end of the hard drive connector - to simplify matters, pull straight down from the motherboard using the **pull tab**
- That's all that should be securing the motherboard - now to remove, **slowly wiggle motherboard while pulling it right** - the left-side accessory plugs need to clear the side of the case. Once they are far enough away, use your left hand to **pull the left side of the motherboard up** - eventually it should just freely pull off of the case.

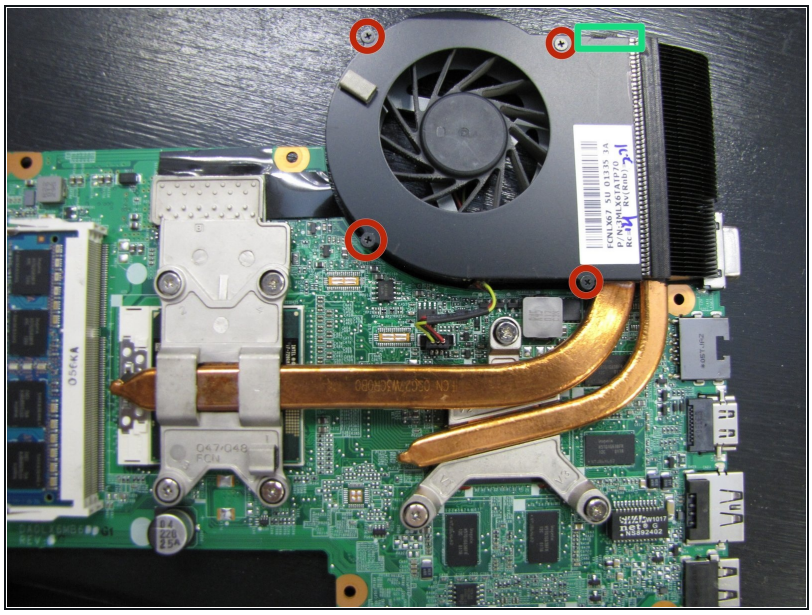
Step 12





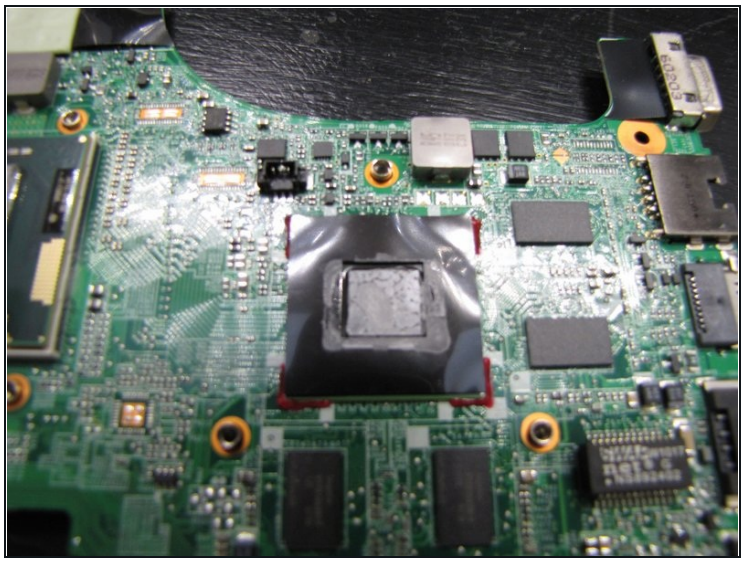
- I've flipped over the motherboard to expose the main components that I'll be working with - take note of specific locations that might be worth a close look:
  - Processor
  - Graphics card
  - Fan / Heat sink assembly
- If you plan on removing the fan/heat sink, just keep in mind that there is still a power connection for the fan to remove - pull straight up.

Step 13



- Since you've come this far, no matter what your reason is for taking your laptop apart, I highly recommend a **thorough fan cleaning** which actually requires disassembly of the fan
  - There are **4 small screws** holding the top of the fan cover on - Don't be surprised if they are **very tight**. Just hold the other side of the fan with your other hand so you don't put too much pressure on the motherboard itself.
  - Once these 4 screws are removed, you'll be able to remove the top plate. **Your work isn't done** - you'll also notice that there's a piece of **glued foam** between the heat sink grille and the fan. Remove it as best you can, or simply **cut it off** (won't drastically affect results)
  - You should now be able to pull the grill away from the fan - you'll probably notice a thick rope of dust sandwiched inside the two - **do your best to remove all of it**

Step 14



- Since cooling is such an issue with this notebook, if you take the heat sink off of the processor and the graphics card, **use fresh thermal paste** and **remove the old thermal paste** on the two parts. It's that greyish residue on the chips. It's not unreasonably expensive and it can really help with cooling issues

- You may want to look at a **separate guide for applying and removing thermal paste**, it's not entirely complicated but you don't want to make a mess of your work and need to **redo it later**

- Hopefully once you put it all back together, your DV7 provides you with years of valuable service. **Just remember not to over-tighten screws** so that if you have to do it again, there's still enough thread to pull them out again!

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