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What's causing all these issues?

The failure is associated with the Nvidia graphics processors (GPU) due to a manufacturing defect in the graphics chip packaging. A weak die/package material set, which may fail with GPU temperature fluctuations. If your GPU fails, you may see intermittent symptoms during early stages of failure that include:

Random characters on the screen

Lines on the screen

Pixelated images

Most common issues caused by the fault graphic/GUP chip.

One long beep 2 short beeps when powering on the laptop.

There is no video on the computer LCD panel or external monitor.

Screen comes on but shows multiple images. Function + F4 will not switch to external monitor.

There is no video on the computer LCD panel or external monitor. The notebook has power and active LEDs.

The notebook does not start. It powers on and goes into a restarting loop.

Laptop power panel light s up, beeps then shuts down

Screen comes on but shows multiple images. Function + F4 will not switch to external monitor.

The external monitor functions but there is no image on the notebook LCD panel. (check out the LCD troubleshooting flowchart on this one)

May also cause the following issues on some models. Note: Issues listed below may not be related to the faulty GPU.

Laptop will turn on but won't stay on.

Wireless Connectivity issue.

USB issue

Onboard Network card issue

Drive detection issues.

Known models that are affected by the faulty GUP

Dell list of machines:

Inspiron 1420, Latitude D630, Latitude D630c, Dell Precision M2300, Vostro Notebook 1310, Vostro Notebook 1400, Vostro Notebook 1510, Vostro Notebook 1710, XPS M1330, XPS M1530, Dell Precision M4300, Dell Precision M65, Latitude D820, Latitude D830, Latitude D620

HP list of machines:

Pavilion DV2000, DV6000, DV9000, TX1000,

Compaq Presario list of machines:

V3000, V6000

Sony list of machines:

VGN-FZ11x, VGN-FZ18x, VGN-FZ21x, VGN-FZ31x, VGN-FZ38x,

VGN-AR11x, VGN-AR21x, VGN-AR31x, VGN-C1Zx, VGN-C2Zx,

VGC-LM1xx, VGC-LM2xx, VGC-LT1xx, VGC-LT2xx.

The following symptoms apply to Pavilion dv2000 and Presario v3000 notebooks:

There is no video on the computer LCD panel or external monitor.

Screen comes on but shows multiple images. Function + F4 will not switch to external monitor.

The following symptoms apply to the dv6000, dv9000 and v6000 series notebooks:

There is no video on the computer LCD panel or external monitor. The notebook has power and active LEDs.

The notebook does not start. It powers on and goes into a restarting loop.

Screen comes on but shows multiple images. Function + F4 will not switch to external monitor.

The external monitor functions but there is no image on the notebook LCD panel. (check out the LCD troubleshooting flowchart on this one)

F.A.Q.

Q: Is it hard to take apart the laptop to get to the mainboard?

A: No, Is not hard at all. If you know how to handle a screwdriver you can take everything apart in less than 30mins. Full detailed instructions included.

Q: Are the tools easy to obtain if I don't already have them?

A: Yes, All required tools are readily available at any hardware store (for \$15-\$30)

Reflow Temperature

BGA solder balls has a melting point of 217°C and requires a minimum reflow temperature of 235°C to ensure good wetting. Maximum reflow temperature is in the 245°C to 260°C range. You can set your heatgun to 180°C for low temperature and 245°C for high temperature. Since heatgun is away from GUP you will loose some heat so a little higher temperature is OK.

Heating is done on top of the GUP. Heating from the bottom to heat up the area is helpful too.

For a low cost heatgun low is about 300F and hight is between 600-800F. Some heatgun have the lowest temp at 700F, for those you just have to keep the gun little further away from the GPU.

Fixing the Wireless Issues

You will use the same method to fix the Wireless issue since the issue is caused by the Nvidia controller chip.

Fixing It

How to fix HP Dell display issues.



How to fix common issues on HP pavilion dv2000, dv6000, dv9000, TX1000 Compaq presario v3000, and v6000, Dell D620, D630, plus many other brands and models of laptops.

Tools

1. Small phillip screwdriver.
2. Needle-nose pliers. Or any small pliers.
3. A hot air rework station or a basic household heatgun(\$15-\$30 from any hardware store). (Buy one from Sears and return it when done if you can't afford to own one)
4. Some aluminum foil.

- 5. Small tweezers (optional but helpful)
 - 6. New thermal compound, Arctic Silver if possible. (optional but very helpful)
 - 7. No-clean liquid flux.(optional but very helpful)
- You can get flux from Ebay for \$3-\$7. You'll likely find the clear one and the brownish one. The brownish one is rosin based but either one will work.



Optional item below: (very helpful if you have it)



Arctic Silver 5



No-clean flux

Instructions.

1. Using the service manual strip down the laptop to the mainboard. Make sure you remove all black plastic shields or you'll burn them.
2. Remove the CPU heatsink/fan from the mainboard.
3. Wrap aluminum foil around the GPU(this is the graphic chip near the CPU) to protect any plastic parts from melting.
4. Set the heat on your rework station or heatgun to low.

5. Preheat the GPU for 60-90 seconds. Blow at 45 degree angle 1-2 inches above and around the GPU.

(Skip to step 7 if you are using flux for your reflow or epoxy glue has been removed.)

6. Now, **GENTLY** place 4 quarters and 2 nickels on top of the GPU. This is to help put just the right amount of pressure on the chip to help the solder joints melt back together.

7. Change to high heat and blow at the GPU for 60-90 seconds. Blow at 45 degree angle 1 to 2 inches above and around the GPU.

8. Set heat back to low and blow for 30-60 seconds.

9. Let the board cool down for 30mins before reinstalling it.

Very Important Steps

10. While you still have the cooling fan off the board. Take it apart and clean it inside out. It may look clean after you cleaned off the dust outside. See pictures below and you'll know what I mean.

11. Apply thin layer of thermal paste on CPU if you have new thermal compound.

12. Put the board back and test it for power on before you put all the screws back

13. Don't forget to update the BIOS to the latest version. This will help to cool your system down and to prevent issue from coming back.

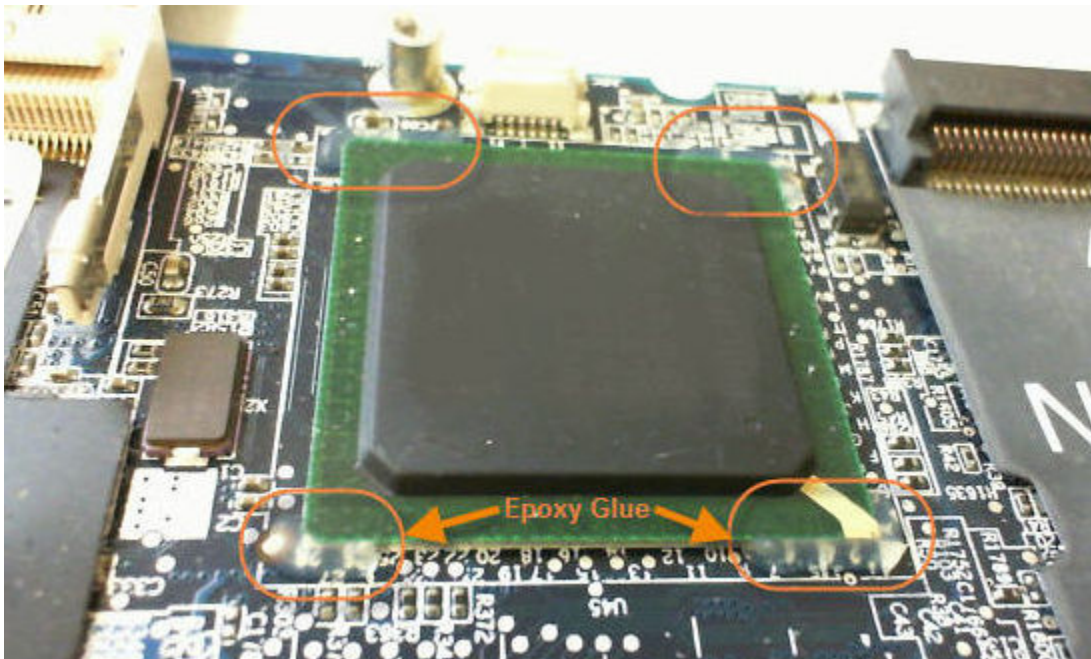
What to do if the issue does come back or the reflow didn't correct the issue?

99% of the time the reflow will correct the issue. One other Nvidia chip pictured below can also cause these problems. Reflow the controller chip pictured below with the same method.



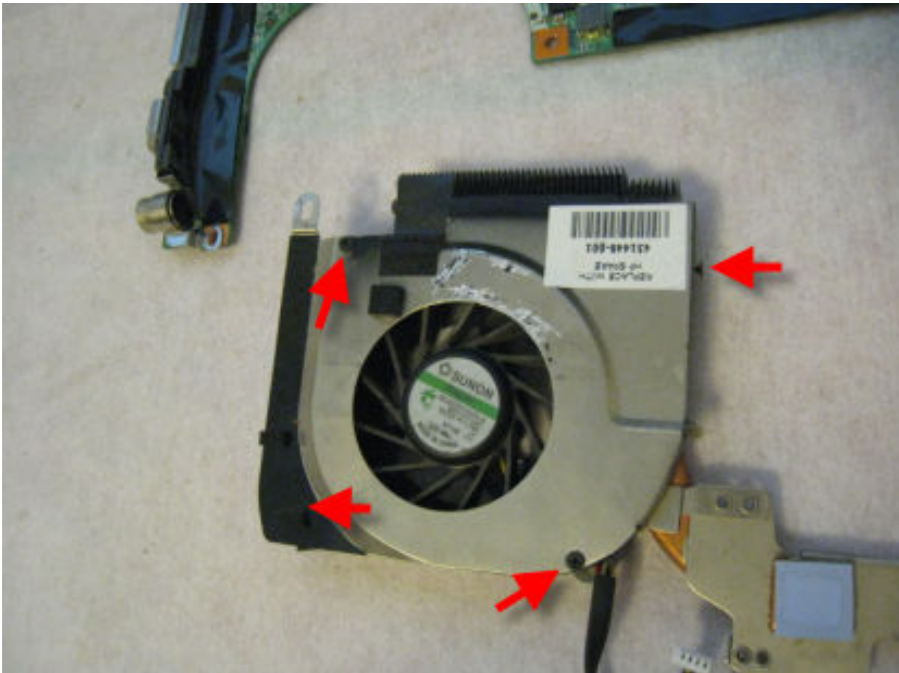
Nvidia controller chip near the wireless card.

Another step you can take if the above steps did not fix the problem is to remove the epoxy glue around the GPU then reflow again. Protect the surrounding with aluminum foil and use heatgun to heat and remove epoxy glue. See video on site.





Cooling fan



Remove the screws to clean the inside.



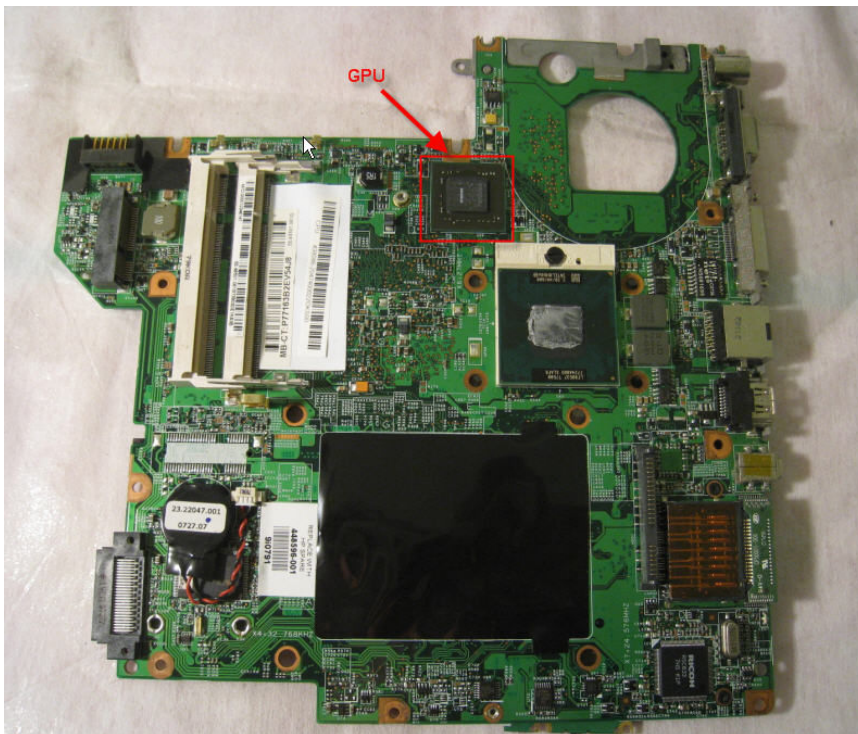
This is how dirty the inside is. I've seen worst.



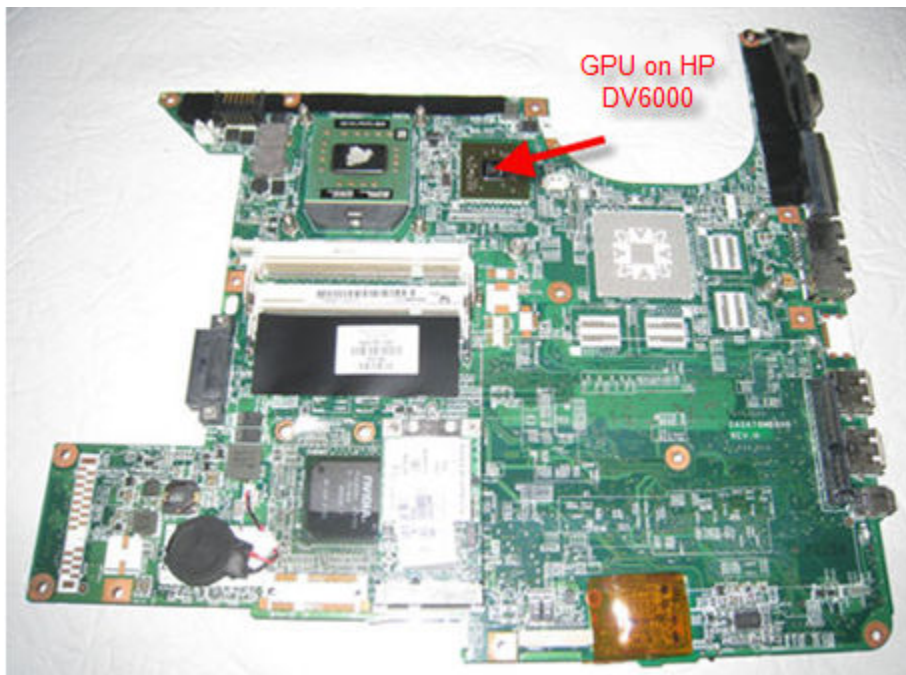
Protect components around the GPU with aluminum foil to avoid plastic parts from melting. **Don't wrap the whole board. You need to let the heat out or it will melt the plastic parts.**



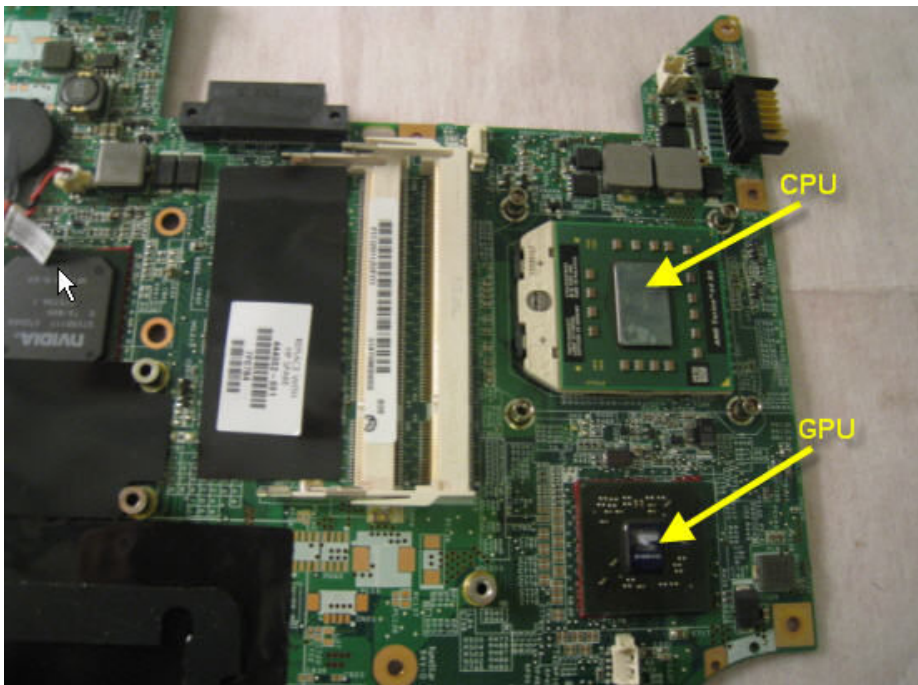
Add 4 quarters and 2 nickels to add little weight and pressure. **(Skip this step if epoxy glue has been removed.)**



Location of the GPU on a HP DV2000.



Location of the GPU on a DV6000



Location of the GPU on a DV9000



Location of the GPU on Dell D620



Location of GPU on Dell D630.