



Overheating Graphics Card Thermal Paste Replacement

Graphics cards are a component of a computer to...

Written By: Chris Imperiale



INTRODUCTION

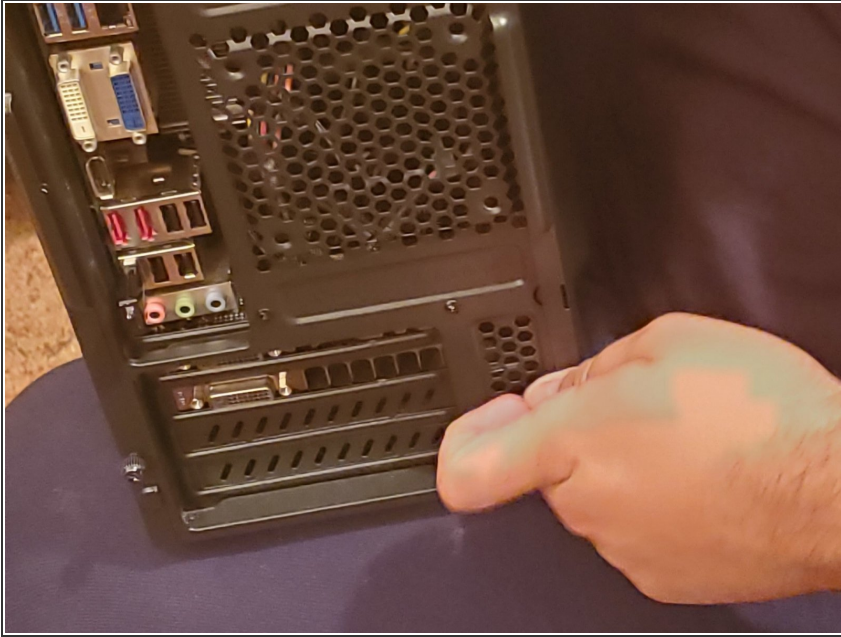
Graphics cards are a component of a computer to accelerate video display capabilities, particularly when it comes to playing video games. Like all components, they require heat management to operate normally. During normal operation, cool air is drawn in from the surrounding environment into the heat sink, which is designed to counter-act the generation of heat from the graphics processor. This cool air is converted to hot air, and expelled out of the back of your machine. To assist in this process, a thermally conductive paste (called thermal paste) is applied between the surface of the graphics chip and the copper heat sink. However, over time, this paste will lose its ability to conduct heat, which can cause premature failure of your graphics card.

This guide will teach you to safely remove your graphics card's heat sink from the circuit board, so you can replace the thermal paste and keep your machine running. For the sake of this guide, an NVIDIA GeForce GTX 660 by EVGA is used.

TOOLS:

- [Phillips #00 Screwdriver](#) (1)
 - [Isopropyl Alcohol \(90% or Greater\)](#) (1)
 - [Cotton Swabs](#) (1)
 - [Thermal Paste](#) (1)
-

Step 1 — GPU Thermal Paste

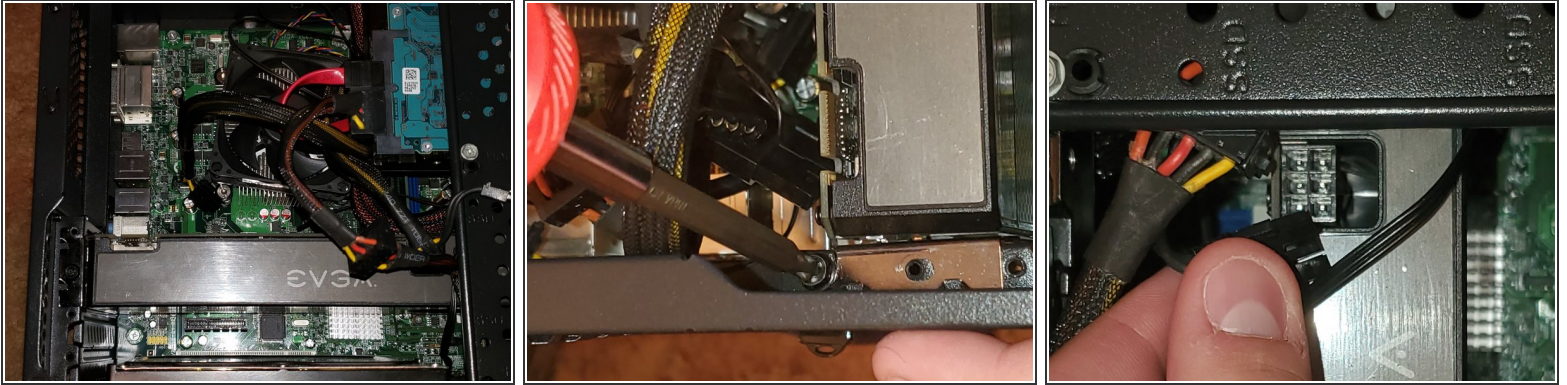


⚠ Make sure to turn your computer off first, then disconnect the power supply cable. Ground yourself with metal or a strap to prevent the anti-static electric shock from damaging your computer.

⚠ Before proceeding, be sure that the thermal paste is not electrically conductive.

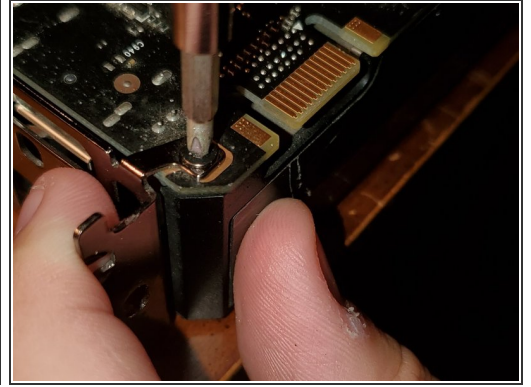
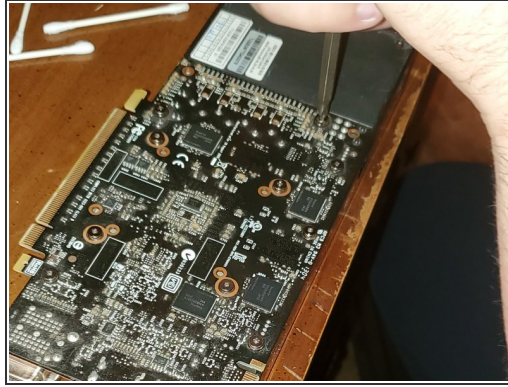
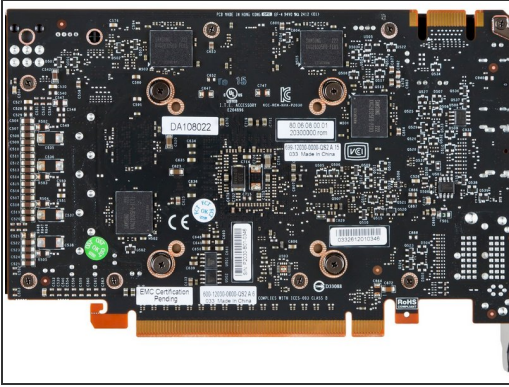
i Discharge any remaining energy stored in your system by pressing the power button, even after disconnecting the power supply, so this can prevent the risk of static electricity damage.

Step 2



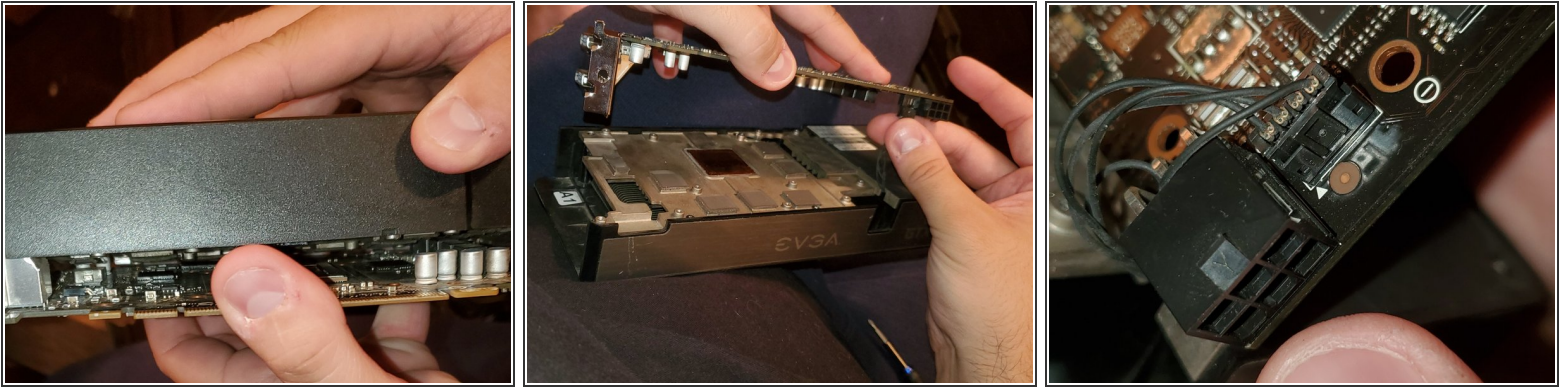
- Using a Philips #00 screwdriver, unscrew the two screws holding the video card in place.
- Remove the 6-pin PCIe power connector. This is a cable that supplies your GPU with extra power from your power supply.
- ⓘ Underneath the heatsink, there is an additional 4-pin connector next to the 6-pin PCIe connector. This is for the fan; you will need to disconnect this when you separate the heat sink from the Printed Circuit Board (PCB).
- On the motherboard, press the tab on the side of the PCI Express slot (the port the GPU is connected to) and pull on the graphics card to remove it from your system.

Step 3



- Unscrew all screws on the bottom of the graphics card. This will allow you to remove the heatsink from the graphics card.
- ⓘ Remove all screws of the heat sink, and do not forget to remove the screw located in the back corner of the graphic card.
- ⓘ You do not need to remove the screws for the extra cooling fan, but you must remove the screws fixing the PCB board with the heat sink together.

Step 4



- Gently pull on the heatsink to remove the heatsink from the graphics card.

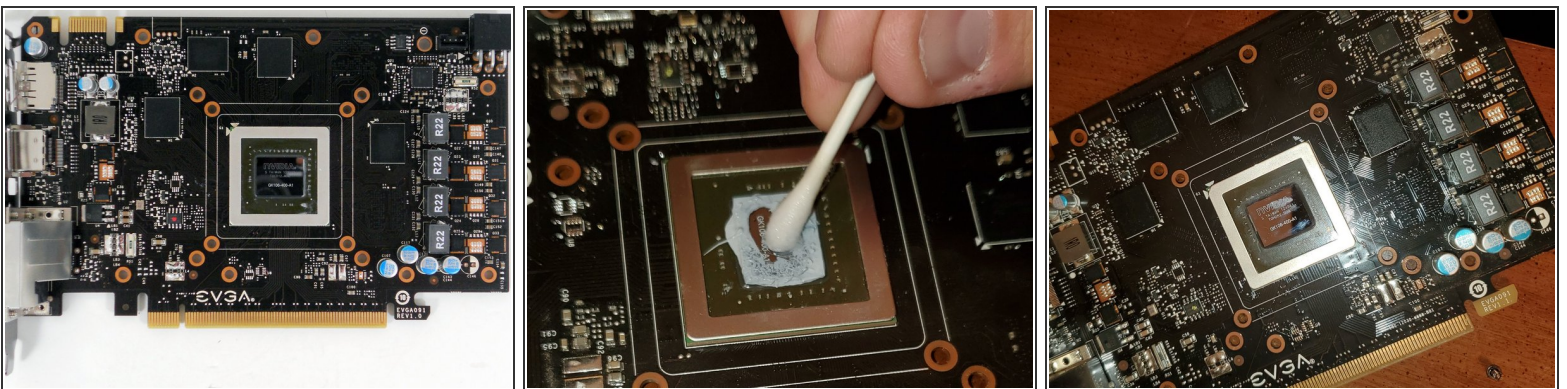
⚠ Do not pull it too hard, as you will need to remove the cable from the heat sink's fan to separate the two pieces completely.

- Next to where the 6-pin power connector is, is the fan connector. Handling the heat sink's fan cable from the sides, gently remove the cable from the slot.

⚠ If you pull the fan cable from the cable itself, you will likely destroy the fan cable.

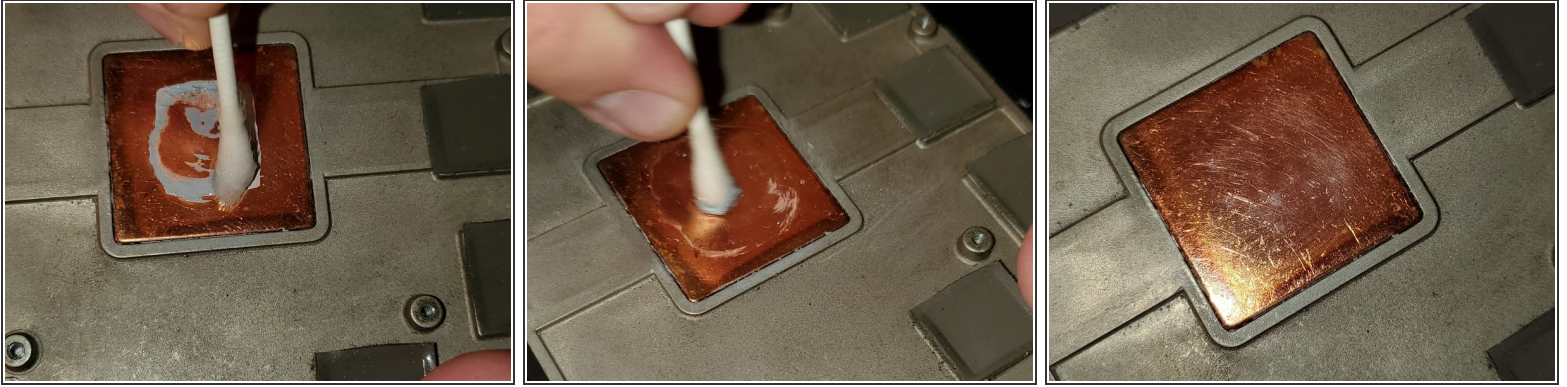
- ☑ When reassembling, do not make any adjustments when seating the cooler to the PCB, as this can affect the seal of the thermal paste, and reduce its effectiveness.

Step 5



- Wipe the top of the graphics chip gently with 91% isopropyl alcohol to remove the old thermal paste, avoid being too rough to prevent scratching the chip.

Step 6



- Repeat that process on the heatsink. This will allow for even distribution of the thermal paste to fill properly.

Step 7



- Place a small pea-sized drop of your new thermal paste on the graphic chip center.

⚠ Do not apply too much Thermal Paste, it can spill over the sides of the Graphic chip which can cause issues and it will be a mess to clean up.

- ① Do not spread the paste before reassembling the graphic card with the cooler, the cooler pressure will evenly distribute the thermal paste.

To reassemble your device, begin with Step 4, then work backwards from there.

Be sure to reconnect the fan to the graphics card before you begin to screw the heat sink down.

Be sure to tighten the screws in a star pattern. This will evenly distribute the force between the heat sink and graphics card, making the thermal paste work better.