How to install a new GPU

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**Introduction**

GPU stands for graphics card. GPUs are capable of rendering graphics in both 2D and 3D. Having installed a high-quality GPU, it can provide you with graphics performance and games can be played at higher resolution, at faster frame rates, or both. GPUs are critical components of modern computers that enable us to enjoy stunning visuals and video content on our screens. However, as technology advances, older GPUs may struggle with newer, more demanding applications and games. That's why upgrading your GPU is an essential task that can dramatically enhance your computer's performance and extend its lifespan.

What’s particularly great about upgrading your GPU is that it can revitalize your computer without requiring you to replace the entire hardware, which sometimes can be costly. Replacing only the GPU can be a cost-effective way that can extend the lifespan of your computer and at the same time, make it run smoother and faster. Without replacing the whole computer, and only replacing and upgrading the GPU can give gamers, software developers, editors, high frame rates and resolution that can make the job faster and smoother.

The new GPUs, with the latest models, have a lot to offer. The GPUs are designed with improved power efficiency, faster processing speeds, and more memory than the older versions. Modern GPUs are equipped with technology that enables upscaling to significantly boost gaming performance. Simply said, the technique downscales each frame to the resolution selected within the game before upscaling it. During the upscaling process, techniques are utilized to guarantee that the image keeps as much of its original quality as possible. Overall, the technology makes rendering faster while maintaining image quality.

In summary, upgrading your GPU is a smart choice that can provide numerous benefits to your computer's performance and efficiency. Whether you're a gamer, content creator, or just need a more powerful computer for your daily tasks, a new GPU is an investment that can pay off in spades. With improved power efficiency, faster processing speeds, and more memory, a new GPU can help you unlock the full potential of your computer and take your productivity to the next level.

**Materials needed:**

* New GPU
* Screwdriver
* Anti-static wrist strap
* Motherboard
* Power supply unit
* Computer Case

**Instructions:**

**Phase 1: Compatibility/ preparing to install:**

1. Check compatibility: Step one is to check if the new GPU you want to buy is compatible with your computer's motherboard, power supply unit (PSU), and case.

A. ***CAUTION: Before anything, make sure your new GPU is compatible with the motherboard and PSU and that it fits in the computer case. Use pcpartpicker.com for compatibility if unsure.***

1. Backup important data: Before upgrading any component in your computer, it is important to back up any important data, such as documents, photos, and videos.
2. Uninstall old GPU drivers: If you're upgrading from an old GPU, it's important to uninstall the old GPU drivers from your computer. Uninstalling an old driver can help keep it from interfering with the new one. This can help prevent conflicts with the new GPU drivers and ensure that your computer is running smoothly.
3. Prepare your workspace: When upgrading any component in your computer, it's important to have a clean, well-lit area. Make sure to have the proper tools for uninstalling and installing the old and new GPU.

**Phase 2: Accessing the components:**

1. Power off and unplug computer: Make sure to unplug any power cables connected to the computer.

A picture containing indoor

Description automatically generated **Caption:** wires are unplugged, no power.

1. Finding the panel: Find the panel to open the case, and locate any screws thats holding

the panel shut.

![A picture containing indoor, microwave, oven

Description automatically generated A picture containing text, indoor, computer

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**Caption:** Find the panel and the screws holding it shut. Remove the screws, and take out the panel.

1. Preparing to remove the old GPU: find any screw/ clips that are holding the GPU in place. Usually there is one screw to the left of the GPU that’s holding it in and a clip located to the right of the

GPU located on the motherboard.

![A picture containing indoor, electronics

Description automatically generated A picture containing text, electronics

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**Caption:** Find the screw that's holding your GPU in. Unscrew it and unclip the gpu from the PCIe slot.

**Phase 3: removing and installing the old/ new GPU:**

1. Screw and clips: unscrew any screw that is holding the GPU in place and unclip it from the motherboard.
2. Removing the GPU: There may be a PCIe wire connected to your GPU from the power supply depending on your GPU power (some may not require the PCIe wire), Simply unconnect it and pull out the old GPU by pulling it towards you.

A picture containing text, electronics

Description automatically generated **Caption:** After unscrewing, pull the GPU towards you.

1. Locate the PCIe slot: PCIe slot is where the old/ new GPU should be installed. It is usually located at the lower part of the motherboard. This may differ between motherboards.

![A close-up of a computer

Description automatically generated with low confidence]()**Caption:** Location of the PCIe slot.

1. Installing the new GPU: Locate the PCIe slot, make sure to not touch the connectors at the bottom of the GPU and to line it up with the slot on the motherboard, afterwards simply push the GPU against the slot until you hear a click or see the clip holding on the GPU.
2. Securing the GPU: Screw the GPU into the case to hold it in place. The screw is usually on the left side.

![A knife on a table

Description automatically generated with low confidence A close-up of a computer chip

Description automatically generated with low confidence]()

**Caption:** push the new GPU into the PCIe slot and screw the GPU in place.

1. Connect PCIe wire: There is an 8 pin PCIe coming from the power supply that must be connected to the GPU. (Depends on the model and power of your GPU some GPU take 6 pin

PCIe connector, 8 PCIe pin connector, or neither).

**B.** Warning: **Do not forget to plug in the PCI-E cable. Some GPUs like this one need a lot of power to run.**



Caption: Find the location of PCI-E slot (if it has one) and push the PCI-E into the slot as shown above.

1. Installing the panel back: After removing the old GPU and installing the new GPU, you can no screw back on the panel.

 **Caption:** put back the panel and screw it in.

**Phase 4: Installing new drivers:**

1. Uninstalling old driver: Before installing any new drivers, make sure the old driver is uninstalled. If not it may cause conflicts with the new GPU drivers .

Text

Description automatically generated **Caption:** uninstall old drivers before new drivers.

1. Finding the appropriate driver: Usually, there is a disk that comes with a new GPU that is used to install the GPU drivers. If there are no disks, then do the following.
2. Go to your GPU manufacturer’s website: After finding the GPU manufacturer’s website, there you can input your GPU specifications and it will find the newest driver.

Graphical user interface, website

Description automatically generated**Caption:** Find the GPU manufacturer website and download the new drivers.

1. Installing drivers: After finding the correct driver, you can install it right away on their website free of charge.
2. Verify installation: To verify that the new driver has been installed correctly, you can check the device manager or use a tool like GPU-Z to view your GPU's specifications and driver version.
3. Testing: After installing the new drivers for your new GPU, now you can run tests or your daily tasks on your computer.

Text

Description automatically generated **Caption:** Go to Device Manager, and check if your driver is up to date.

**Glossary:**

**GPU** - Graphics Processing Unit, a component in a computer responsible for rendering images and videos.

**PSU** - Power Supply Unit, a component in a computer responsible for providing power to all other components.

**PCI-E** - Peripheral Component Interconnect Express, a high-speed serial computer expansion bus standard used to connect hardware devices to a computer's motherboard.

**Driver** - A software component that allows the operating system to communicate with hardware devices such as GPUs.

**Device Manager** - A tool in Windows operating system that displays all installed hardware devices on a computer and their properties.

**Motherboard** - The main circuit board in a computer that connects all of the other components together, including the CPU, memory, storage devices, and expansion cards.

**Compatibility** - The ability of different hardware and software components to work together without conflicts or issues

**Workspace** - The physical environment where you will be working on your computer, including the desk, lighting, and other tools and equipment necessary for the task.

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