Graphics cards (Abstract)

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All computers are equipped with a special video processing unit, that is called a graphics card. Even if we don't realize it, we use them in our everyday's life. They are necessary to display an image on every screen you can imagine.

The research paper war written by utilizing my personal experience with computers, graphics cards and the functionality of them. There are also some articles, that were used to write this work. They are mainly about the functionality of GPUs and about the basis knowledge.

Questions that will be answered in this work are some basic and advanced questions that a regular PC user may ask. In this work, questions like "how does a GPU work?", "How do I know when I have to upgrade my graphics card?", "How to connect a graphics card? "What is overclocking?", "What is the difference between workplace GPUs and normal (or gaming) GPUs?).

In the results all questions will be shortly answered. Beginning from the first question to the last one, the answers would be:

- A GPU works by rendering special textures and mapping them to the objects displayed on a screen. The textures are transmitted either by an analog or a digital cable. If one uses the first option, the signal hast to be converted to an analog signal first, as all graphics cards output a digital signal. The signal is then being converted back into a digital signal in order to be displayed on a screen. This process can cause loss of quality.
- Overclocking is simply pushing a card to it's limits by increasing the both GPU clock and Memory clock values, that indicate the speed of a graphics card. It is however very risky for an unexperienced computer user and not recommended, as it may damage the GPU permanently.
- Connector type are the devices, mostly cables, that connect a graphical processor with a screen in order to display the pixels. Most used connectors nowadays are the HDMI and DisplayPort Cable.
- A workstation GPU is good when working with modelling or rendering software like CAD, where there are models that match real objects in the world.

A gaming GPU is good when trying to get good visuals and good overall quality. It is recommended to get one if a user plays video games, that need a good graphical processor in order to render high quality textures.