THE INNER WORKINGS OF A DESKTOP COMPUTER

VIQC MIDDLE SCHOOL – REVERSE ENGINEERING ONLINE CHALLENGE

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DELL DESKTOP COMPUTER

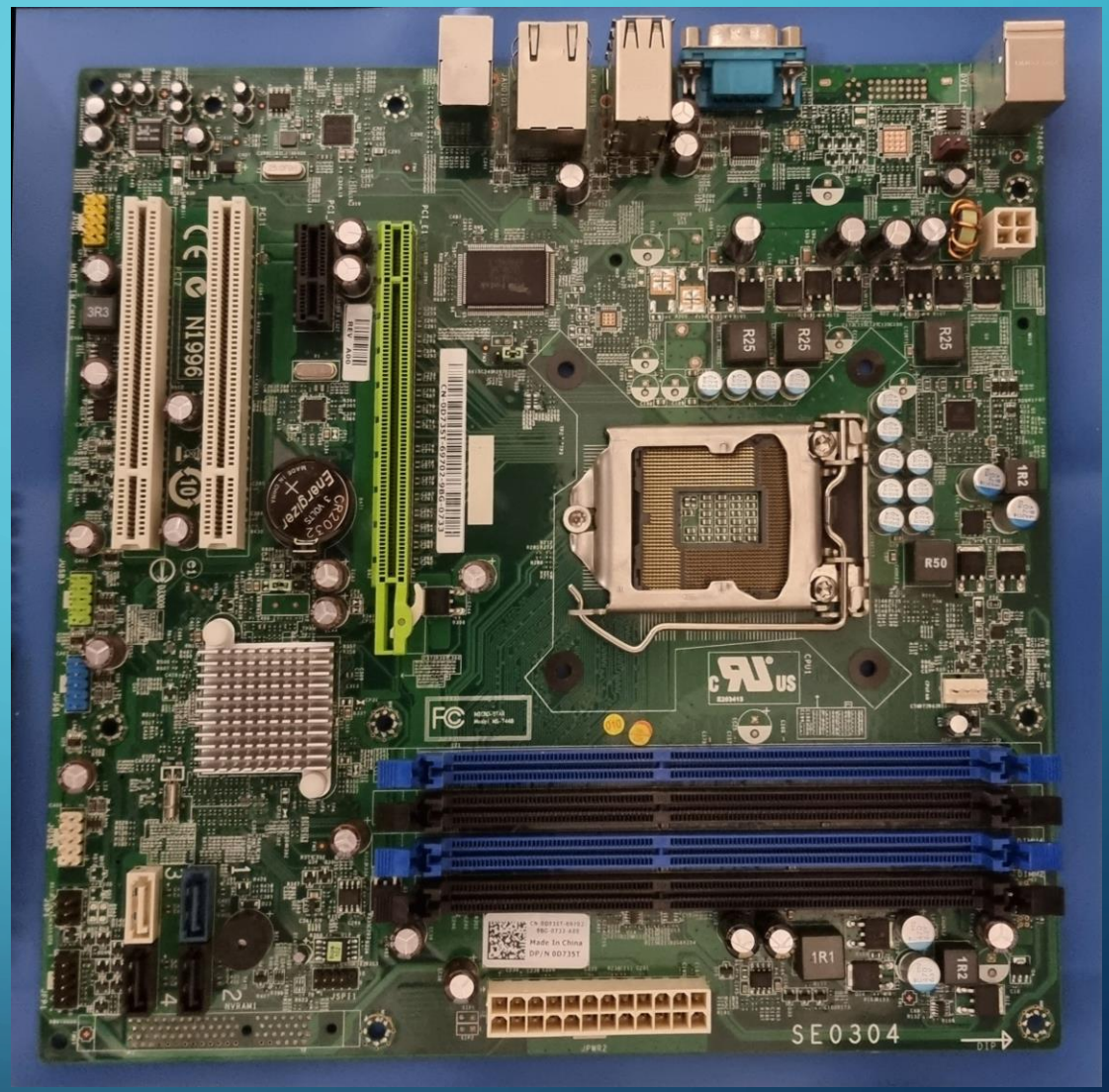
I reverse engineered an old Dell PC. I chose to do this is because we all use PCs and laptops on a daily basis and even more so during this pandemic. Students used PC's during lockdown for online learning, spending time playing games and socialising with friends, so I was intrigued to find out how they worked.

CENTRAL PROCESSING UNIT (CPU)

This is the primary component of a computer that processes instructions at millions of times per second. It runs the operating system, applications and constantly processes inputs from the user or programs.

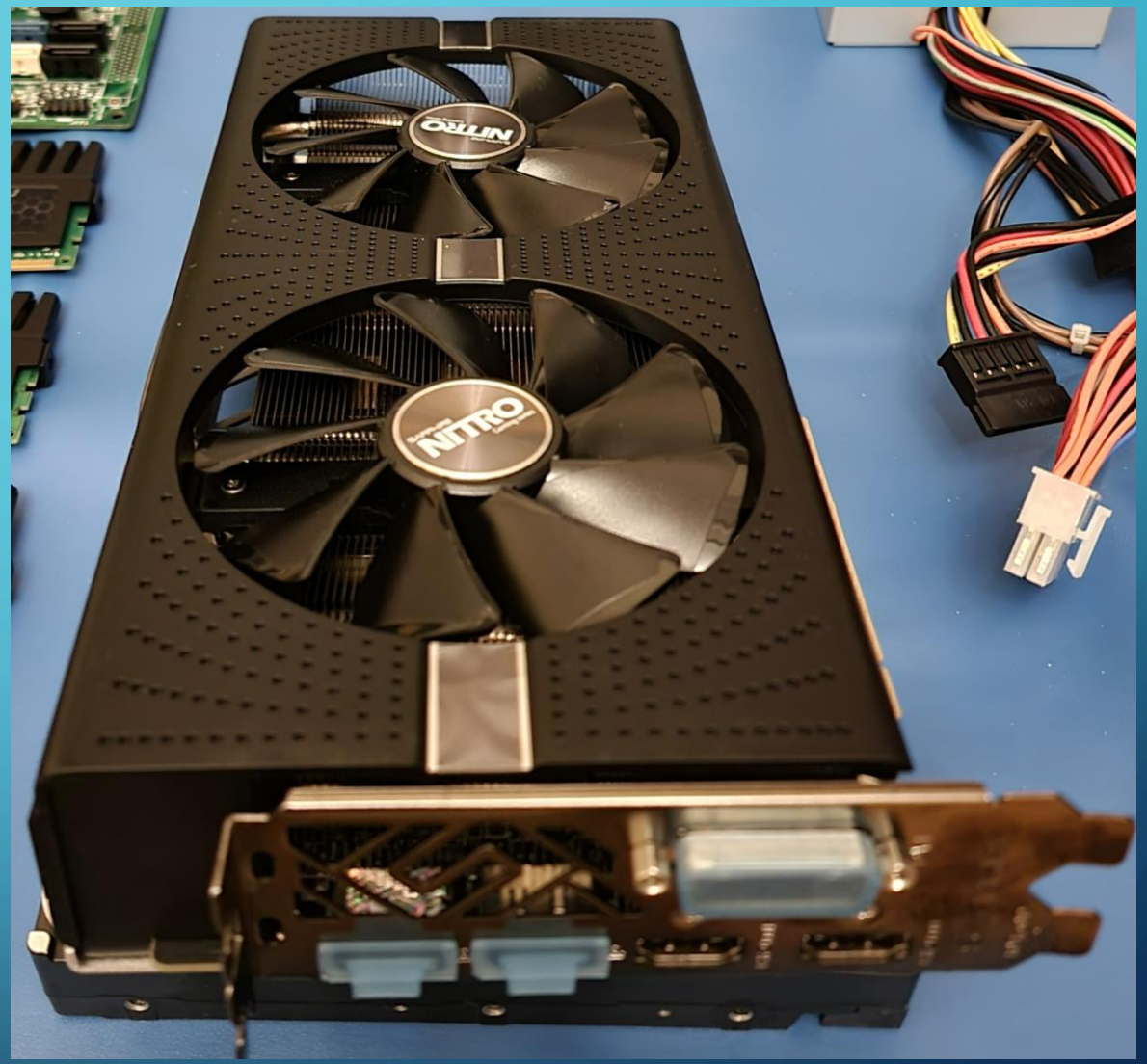
MOTHERBOARD

The motherboard is the central component that connects the other pieces of a computer together. It's a circuit board that connects the CPU to the memory and regulates the power that is transferred to parts like the hard drive from the power supply.



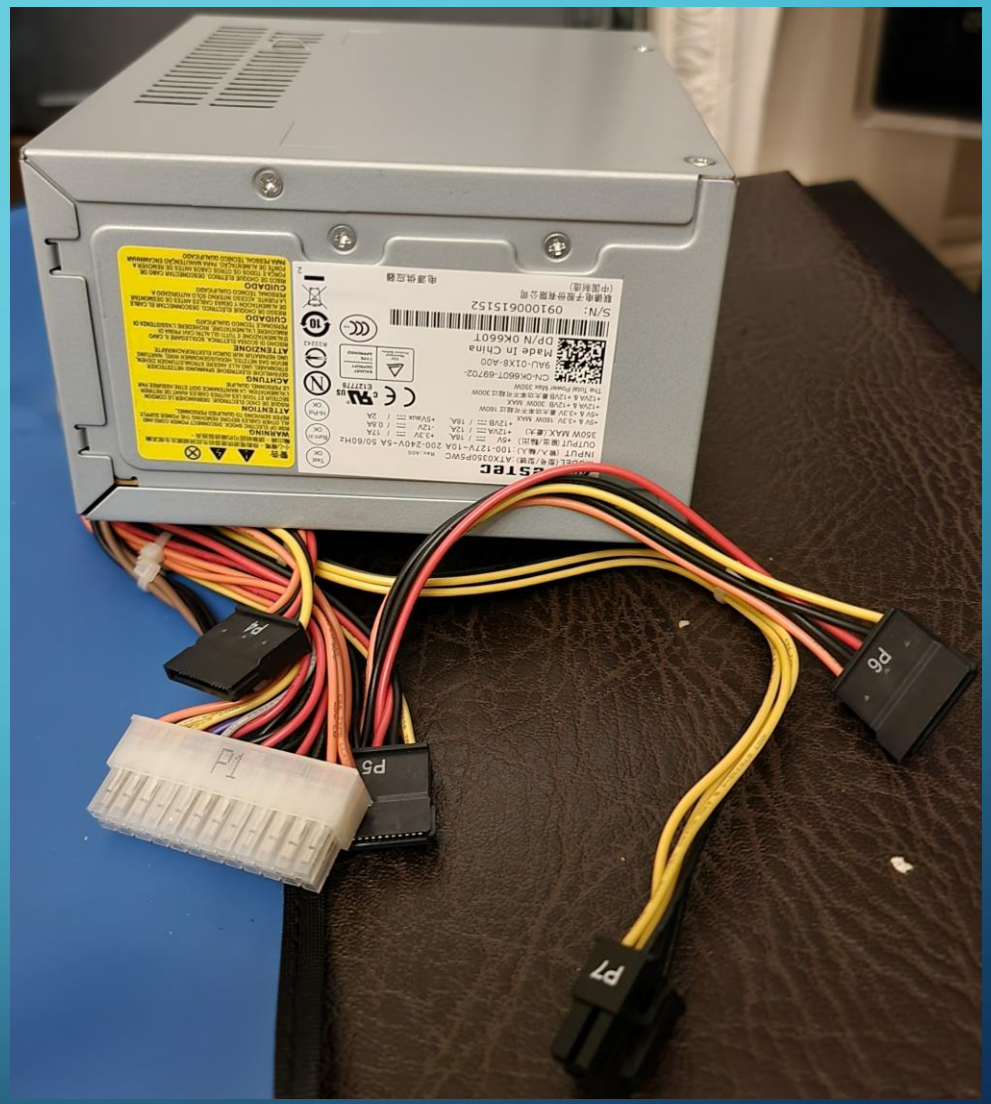
GRAPHIC PROCESSING UNIT (GPU)

A GPU is an electronic processor which renders all images on a computer screen.



POWER SUPPLY

This supplies power to the computer. It receives power from an electrical outlet and converts the current from alternating current to direct current as this is what is required by the computer.

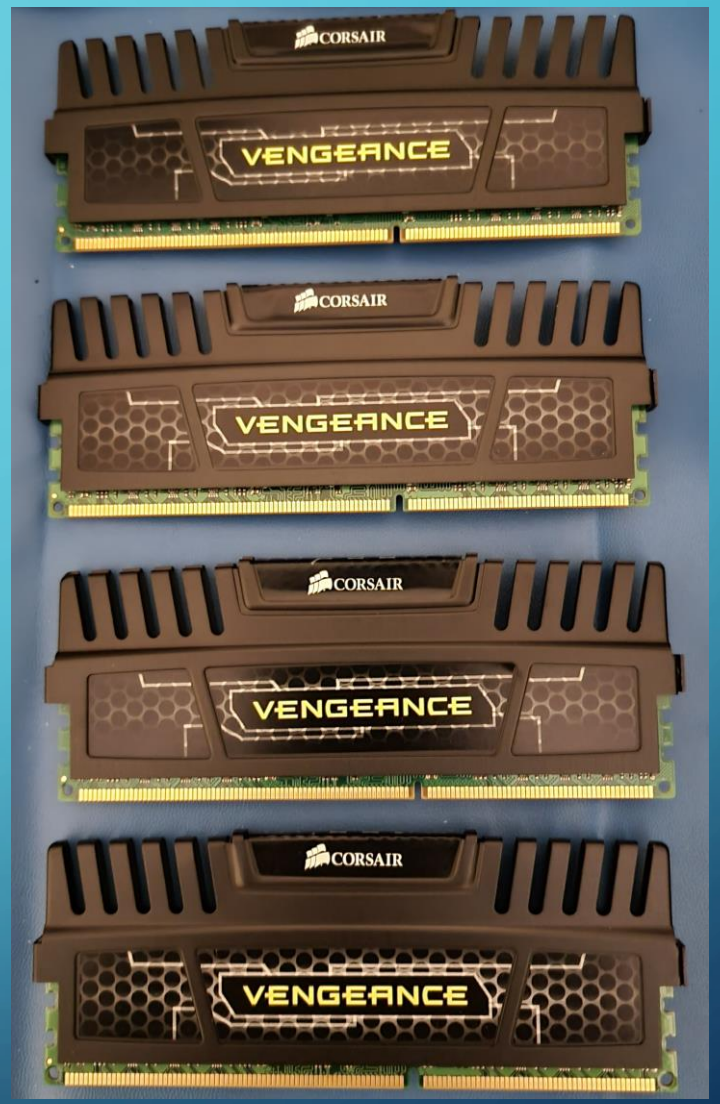


CENTRAL PROCESSING UNIT (CPU) COOLER

The cooler conducts heat away from the CPU to stop it over heating. The CPU is the brain of the computer and it gets hot when working. If too hot, it will shut down or malfunction so a cooler is required to keep it at the correct temperature.

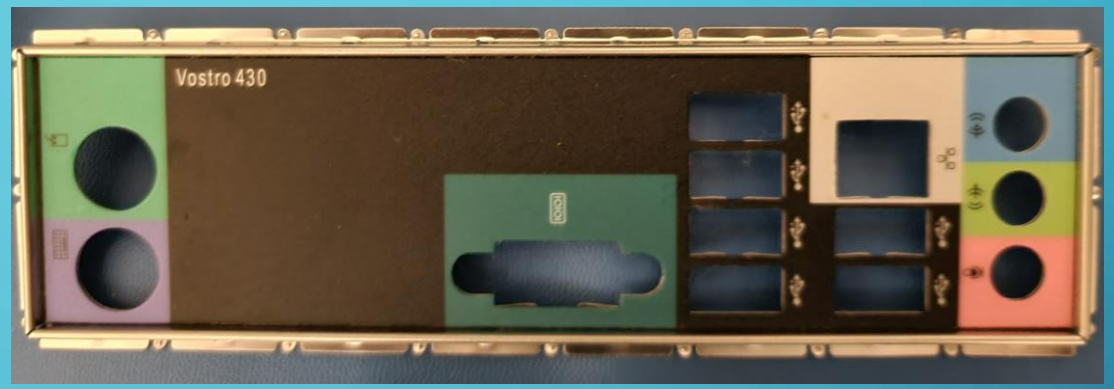
RANDOM ACCESS MEMORY (RAM)

This is memory used by the computer when it is on. The amount of RAM in a device determines how much memory the operating system and open applications can use. Adding more RAM to a PC allows it to run faster.



MOTHERBOARD REAR IO

These various ports are how we connect things to the PC. The mouse, keyboard, monitor and cables for the internet are connected here.



HARD DISK DRIVE (HDD)

HDDs do not need electrical power to maintain their data. They store data magnetically using a collection of spinning magnetic discs, which record individual pieces as binary code. Data is recorded using a write head and data read by a read head from the disk. The appearance is similar to a turntable, but the hard disk spins hundreds of times faster than a record.

SOLID STATE DRIVE (SSD)

An SSD is a type of storage device similar to a HDD. It stores, reads and writes data and maintains stored data in a permanent state even without power.

Unlike HDDs, SSDs do not have any moving parts which allows them to access data much faster.

WHAT I HAVE LEARNT FROM REVERSE ENGINEERING A DELL DESKTOP PC

From this experience I have learnt how PC's are constructed, what the main components are and how we can upgrade certain components to make it more powerful, efficient and faster more machine.