



07 - Volatile and Non-Volatile Storage

IT1206

Level I - Semester 1

Volatile and Non-Volatile Storage

7.3.1.1.2 Solid State Drive(SSD)

- An SSD (solid-state drive) is a type of nonvolatile storage media that stores persistent data on solid-state flash memory.
- Two key components make up an SSD:
 - [flash controller](#)
 - [NAND flash memory](#) chips
- SSDs replace traditional mechanical hard disks by using flash-based memory, which is significantly faster
- SSDs speed up computers significantly due to their low read-access times and fast throughputs

SSDs have specific benefits in the following areas:

- **Business:** Companies working with huge amounts of data (such as programming environments or data analysis) often rely on SSDs, as access times and file-transfer speeds are critical.
- **Gaming:** Gaming computers have always pressed the limits of current computing technology, justifying relatively expensive equipment for the benefit of gaming performance. That is particularly true for storage, as modern blockbuster games constantly load and write files (e.g. textures, maps, levels, characters).
- **Mobility:** SSDs have low power requirements, thus contributing to better battery life in laptops and tablets. SSDs are also shock resistant, which reduces the chances of data loss when mobile devices are dropped.
- **Servers:** Enterprise servers need SSDs to get fast reads and writes in order to properly serve their client PCs.

Different types of SSDs

- **PCIe and NVMe SSDs:** *PCI Express* (PCIe) is normally used to connect graphics cards, network cards, or other high-performance peripherals. This interface gives you high bandwidth and low latency, making it ideal when you need blazing-fast communication between the SSD and your CPU/RAM.



Different types of SSDs..

- **mSATA III, SATA III, and traditional SSDs:** Serial Advanced Technology Attachment (SATA) is an older interface that was designed specifically for storage, with speeds up to 6 GBit/s or about 600 MB per second. SATA is slowly being phased out by NVME, which is significantly faster.

