# Storage devices

Storage Devices are the data storage devices that are used in the computers to store the data. The computer has many types of data storage devices. Some of them can be classified as the removable data Storage Devices and the others as the non removable data Storage Devices.

The memory is of **two types**; one is the **primary memory** and the other one is the **secondary memory**.  
  
The primary memory is the volatile memory and the secondary memory is the non volatile memory. The volatile memory is the kind of the memory that is erasable and the non volatile memory is the one where in the contents cannot be erased. Basically when we talk about the data storage devices it is generally assumed to be the secondary memory.  
  
The secondary memory is used to store the data permanently in the computer. The secondary storage devices are usually as follows: hard disk drives – this is the most common type of storage device that is used in almost all the computer systems. The other ones include the floppy disk drives, the CD ROM, and the DVD ROM. The flash memory, the USB data card etc.

|  |  |
| --- | --- |
| |  | | --- | | [**Magnetic storage**](http://en.wikipedia.org/wiki/Magnetic_storage) **media** | |

[Magnetic storage](http://en.wikipedia.org/wiki/Magnetic_storage) uses different patterns of [magnetization](http://en.wikipedia.org/wiki/Magnetization) on a [magnetically](http://en.wikipedia.org/wiki/Magnetism) coated surface to store information. Magnetic storage is *non-volatile*. The information is accessed using one or more read/write heads which may contain one or more recording transducers. A read/write head only covers a part of the surface so that the head or medium or both must be moved relative to another in order to access data. In modern computers, magnetic storage will take these forms:

* [Magnetic disk](http://en.wikipedia.org/wiki/Disk_storage)
  + [Floppy disk](http://en.wikipedia.org/wiki/Floppy_disk), used for off-line storage
  + [Hard disk drive](http://en.wikipedia.org/wiki/Hard_disk_drive), used for secondary storage
* [Magnetic tape](http://en.wikipedia.org/wiki/Magnetic_tape_data_storage), used for tertiary and off-line storage

|  |  |
| --- | --- |
| |  | | --- | | [**Optical storage**](http://en.wikipedia.org/wiki/Optical_storage) **media** | |

[Optical storage](http://en.wikipedia.org/wiki/Optical_storage), the typical [optical disc](http://en.wikipedia.org/wiki/Optical_disc), stores information in deformities on the surface of a circular disc and reads this information by illuminating the surface with a [laser diode](http://en.wikipedia.org/wiki/Laser_diode) and observing the reflection. Optical disc storage is *non-volatile*. The deformities may be permanent (read only media ), formed once (write once media) or reversible (recordable or read/write media). The following forms are currently in common use:

* [CD](http://en.wikipedia.org/wiki/Compact_Disc), [CD-ROM](http://en.wikipedia.org/wiki/CD-ROM), [DVD](http://en.wikipedia.org/wiki/DVD), [BD-ROM](http://en.wikipedia.org/wiki/Blu-ray_Disc): Read only storage, used for mass distribution of digital information (music, video, computer programs)
* [CD-R](http://en.wikipedia.org/wiki/CD-R), [DVD-R](http://en.wikipedia.org/wiki/DVD-R), [DVD+R](http://en.wikipedia.org/wiki/DVD%2BR), [BD-R](http://en.wikipedia.org/wiki/Blu-ray_Disc_recordable): Write once storage, used for tertiary and off-line storage
* [CD-RW](http://en.wikipedia.org/wiki/CD-RW), [DVD-RW](http://en.wikipedia.org/wiki/DVD-RW), [DVD+RW](http://en.wikipedia.org/wiki/DVD%2BRW), [DVD-RAM](http://en.wikipedia.org/wiki/DVD-RAM), [BD-RE](http://en.wikipedia.org/wiki/Blu-ray_Disc_recordable): Slow write, fast read storage, used for tertiary and off-line storage
* [Ultra Density Optical](http://en.wikipedia.org/wiki/Ultra_Density_Optical) or UDO is similar in capacity to [BD-R or BD-RE](http://en.wikipedia.org/wiki/Blu-ray_Disc_recordable) and is slow write, fast read storage used for tertiary and off-line storage.

[Magneto-optical disc storage](http://en.wikipedia.org/wiki/Magneto-optical_drive) is optical disc storage where the magnetic state on a [ferromagnetic](http://en.wikipedia.org/wiki/Ferromagnetism) surface stores information. The information is read optically and written by combining magnetic and optical methods. Magneto-optical disc storage is *non-volatile*, *sequential access*, slow write, fast read storage used for tertiary and off-line storage.

[3D optical data storage](http://en.wikipedia.org/wiki/3D_optical_data_storage) has also been proposed.

### ****Memory sticks/Pen drives****

USB flash drives are typically removable and rewritable, much smaller than a floppy disk. Storage capacities typically range from 64 MB to 64 GB. USB flash drives offer potential advantages over other portable storage devices, particularly the floppy disk.   
They have a more compact shape, operate faster, hold much more data, have a more durable design, and operate more reliably due to their lack of moving parts. Flash drives are widely used to transport files and backup data from computer to computer.

### ****Flash memory cards****

A **memory card** or **flash memory card** is a solid-state electronic flash memory data storage device used with digital cameras, handheld and Mobile computers, telephones, music players, video game consoles, and other electronics.   
Nowadays, most new PCs have built-in slots for a variety of memory cards; Memory Stick, CompactFlash, SD, etc. Some digital gadgets support more than one memory card to ensure compatibility.