

# Storage Devices



# Storage Devices



- A computer storage device is any type of hardware that stores data
- Computer's primary hard drive stores the operating system, applications, and files and folders for users of the computer
- Without a storage device, your computer would not be able to save any settings or information

# Storage Devices



There are two different types of storage devices:

- **Primary Storage Devices:**

Generally smaller in size, are designed to hold data temporarily and are internal to the computer. They have the fastest data access speed, and include RAM and cache memory.

- **Secondary Storage Devices:**

These usually have large storage capacity, and they store data permanently. They can be both internal and external to the computer, and they include the hard disk, compact disk drive and USB storage device.

# Storage Devices



The following are some additional examples of storage devices that are used with computers

- Floppy Disk
- Hard Disk
- Magnetic Tapes
- CDs and DVDs
- Memory Sticks and Pen Drives
- Flash Memory Cards

# Floppy Disk



- A floppy disk is a data storage medium that is composed of a disk of thin, flexible floppy magnetic storage medium encased in a square or rectangular plastic shell.
- Floppy disks are read and written by a floppydisk drive.

## **Application**

- Any use where small files such as word processing, small spreadsheets and databases need to be moved from one computer to another. Useful to backup small data files.

# Floppy Disk



## **Advantages:**

- Floppies are cheap and can be used many time
- Floppies are easy to transport and handle

## **Disadvantages:**

- Floppies don't have much storage capacity
- Floppies can get affected by heat
- They have to handle more carefully
- Slow data transfer rate



# Fixed Hard Disk



- Used to store large amounts of digital information in computers
- Hard disk drives are used to store operating systems, software and working data.
- Suitable for any application which requires very fast access to data for both reading and writing to.
- May not be suitable for applications which need portability.
- Almost all computers used a fixed hard disc. Used for on-line and real time processes requiring direct access.
- Used in file servers for computer networks to store large amount of data.

# Fixed Hard Disk



## Advantages

- Large storage capacity
- Stores and retrieves data much faster than a floppy disk or CD-ROM
- Data is not lost when you switch off the computer
- Usually fixed inside the computer so cannot get lost.
- Cheap
- Hard disks can be replaced and upgraded as necessary
- Can have two hard disks in a machine, one can act as a mirror of the other and create a back up copy.

## Disadvantages

- Hard disks eventually fail which stops the computer from working.
- The disk is fixed inside the computer and cannot easily be transferred to another computer.





Portable hard disks are good fun because you can carry data about all over the place and transfer information, programs, pictures, etc. between computers.

**Advantages:**

- Greatly improved data cargo carrying capacity
- Portable

**Disadvantages:**

- To be handled quite carefully, and when being transported should be wrapped in something soft and put in a padded bag.
- More expensive than other forms of removable media.

**Application**

- Portable disks are used to store very large files which need transporting from one computer to another and price is not an issue.

# Magnetic Tape



- **Magnetictape** has been used for **data storage** for over 50 years.
- When storing large amounts of data, tape can be substantially less expensive than disk or other data storage options
- Tape storage has always been used with large computer systems.
- Modern usage is primarily as a high capacity medium
- for backups and archives.

# Magnetic Tape



## **Advantages:**

- Relatively cheap per megabyte of storage
- Can store large amounts of data - over 100 Gb
- Can be set up to do the back-up overnight or over the week
- Magnetic tape can be recorded over and reused repeatedly.

## **Disadvantages:**

- Needs serial access, so can be quite slow to access data
- Need a special piece of equipment to record and read the data on the tape
- Magnetic tape has a lifespan of 15 years. Data quality gradually destroys over time.

# Magnetic Tape



## Application

- Magnetic tapes are used for application which requires extremely large storage capacity where speed of access is not an issue.
- It is commonly used for backups of file servers for computer networks, in a variety of batch processing applications such as reading of bank cheque, payroll processing and general stock control.

# CDs and DVDs



- CDs tend to be used for large files (but smaller than 1 GB) which are too big for a floppy disc to hold such as music and general animation
- DVDs are used to hold very large files (several GB) such as movie films
- Both CDs and DVDs are portable i.e. they can be transported from one computer to another
- Both can be used to store computer data
- These are the smallest form of memory available in the market today.
- Widely used as removable storage.
- Though expensive than other forms they can be easily written to and updated.
- There are three types of CD/DVD
  - **CD ROM/DVD ROM,      CDR/DVD R,      CDRW/DVDRW**

# CD



## Advantages

- Small
  - Portable
  - Cheap
  - Fast than magnetic tapes to read the data

## Disadvantages

- Fairly Fragile/breakable
- Easy to scratch or snap
- Smaller Storage capacity than DVD and hard disk
- Slower to access than hard disk

# DVD



## **Advantages**

- Very large storage capacity
- Sound and picture quality is excellent
- Cheap
- DVDdrives can read CD

## **Disadvantages**

- Do not work in CD Drives
- Easily damaged by Scratching or breaking



# USB Flash Drives



- 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
- Flash drives are widely used to transport files and backup data from computer to computer.
- They have a
  - More compact shape
  - Operate faster
  - Hold much more data
  - Have a more durable design
  - Operate more reliably due to their lack of moving parts

# USB Flash Drives



## **Advantages:-**

- Less energy consumption (good for laptops).
- Faster than normal HDs.
- Longer life
- Portable
- Doesn't jam your computer
- Can use on multiple devices
- Non volatile in nature

## **Disadvantages:-**

- Expensive
- Easy to lose
- Not much storage in some cases.

# Memory Card



- 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.

# Memory Card



## **Advantages:-**

- Small in size thus occupy less space.
- Small size but large data storage capacity.
- Even work on players made enabled to read memory card.
- Good brand's memory work really superb and easily and fast.
- Cheaper rates good quality
- Non-volatile
- Require less amount of power
- Highly portable

## **Disadvantages:-**

- Can get corrupted very fast if not handled carefully.
- Cannot be attached or read on the computer without proper hardware unlike pen drive.
- Can be lost or misplaced
- Can be break easily
- Sometimes work slow.