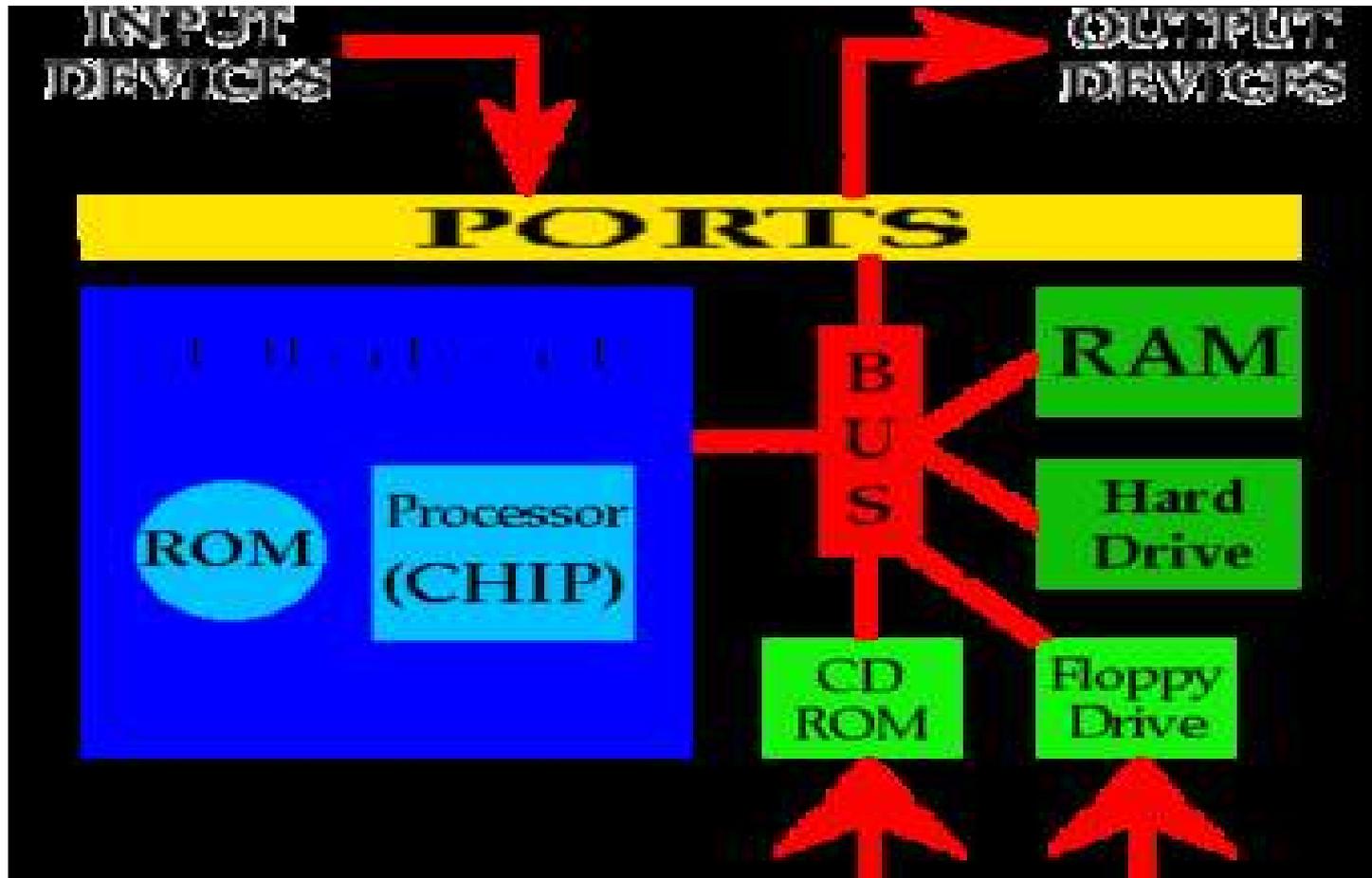# STORAGE DEVICES

INTRODUCTION

- A computer is a electronic device that accepts the data from the user, process it, produce the result.

- Display them to the users, and stores the results for future usage.

TYPES OF STORAGE DEVICES

- Primary storage device
  - RAM
  - ROM

- Secondary storage device
  - Hard disk
  - CD and DVD
  - Erasable disks

Primary Memory

- Primary memory is a computer memory that is accessed directly by CPU.

- This includes several types of memory, such as processor catche and system ROM…RAM,

- Random access memory, consists of one or more memory modules that temporarily store data while a computer is running.

Random Access Memory

- RAM(Random Access Memory) is the internal memory of CPU for storing data, program, and program result.

- It is a read/write memory which stores data until the machine is working.

- As soon as the machine is switched off, data is erased.

Read Only Memory

- ROM stands for **Read Only Memory**. The memory from which we can only read but cannot write on it.

- This type of memory is non-volatile. The information is stored permanently in such memories during manufacture.

- ROM chips are not only used in the computer but also in other electronic items like washing machine and microwave oven.

Secondary Storage

- Secondary storage also known as backing storage.

- Data is written from memory to secondary storage when data is no longer being actively used, for retrieval at a later time.

- The time a computer takes to access data stored on secondary storage is longer then the time taken accessing data from a memory.

Hard Disk Drive

- Hard disk drive is made up of a series of circular disks called **platters** arranged one over the other almost ½ inches apart around a **spindle**.

- Disks are made of non-magnetic material like aluminum alloy and coated with 10-20 nm of magnetic material.

- Standard diameter of these disks is 14 inches and they rotate with speeds varying from 4200 rpm (rotations per minute) for personal computers to 15000 rpm for servers.

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- Data is stored by magnetizing or demagnetizing the magnetic coating.

- A magnetic reader arm is used to read data from and write data to the disks.

- A typical modern HDD has capacity in terabytes (TB).

CD Drive

- CD stands for **Compact Disk**. CDs are circular disks that use optical rays, usually lasers, to read and write data.

- They are very cheap as you can get 700 MB of storage space for less than a dollar.

- CDs are inserted in CD drives built into CPU cabinet. They are portable as you can eject the drive, remove the CD and carry it with you.

There are three types of CDs −

- **CD-ROM (Compact Disk – Read Only Memory)** − The data on these CDs are recorded by the manufacturer. Proprietary Software, audio or video are released on CD-ROMs.

- **CD-R (Compact Disk – Recordable)** − Data can be written by the user once on the CD-R. It cannot be deleted or modified later.

- **CD-RW (Compact Disk – Rewritable)** − Data can be written and deleted on these optical disks again and again.

DVD Drive

- DVD stands for **Digital Video Display**. DVD are optical devices that can store 15 times the data held by CDs.

- They are usually used to store rich multimedia files that need high storage capacity.

- DVDs also come in three varieties – read only, recordable and rewritable.

Pen Drive

- Pen drive is a portable memory device that uses solid state memory rather than magnetic fields or lasers to record data.

- It uses a technology similar to RAM, except that it is nonvolatile.

- It is also called USB drive, key drive or flash memory.

Blu Ray Disk

- Blu Ray Disk (BD) is an optical storage media used to store high definition (HD) video and other multimedia filed.

- BD uses shorter wavelength laser as compared to CD/DVD.

- This enables writing arm to focus more tightly on the disk and hence pack in more data. BDs can store up to 128 GB data.

Thank You!