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AL MUSTAQBAL UNIVERSITY

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قسم علوم التقانة الاحيائية الطبية

## Lab: (2)

### ❖Types of Computer Memory

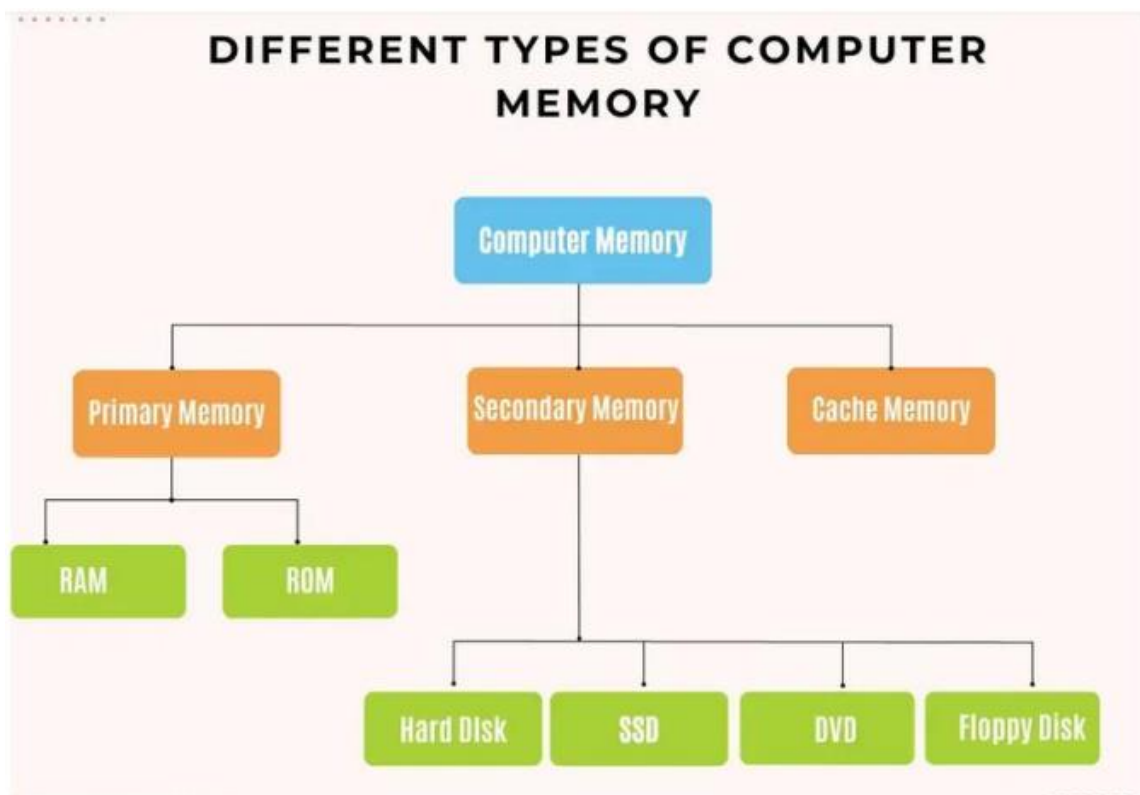
**Subject: Computer Skill I**

**Level: First**

**Lecturer: Asst. Lect. Ali Saleem Haleem**

## Types of Computer Memory

computer memory is vital for storing data and running programs on a computer. There are several different types of computer memory that serve different purposes. Understanding the different types of memory can help you better understand how your computer works. This article provides an overview of the most common types of computer memory.



### What is RAM (random access memory)?

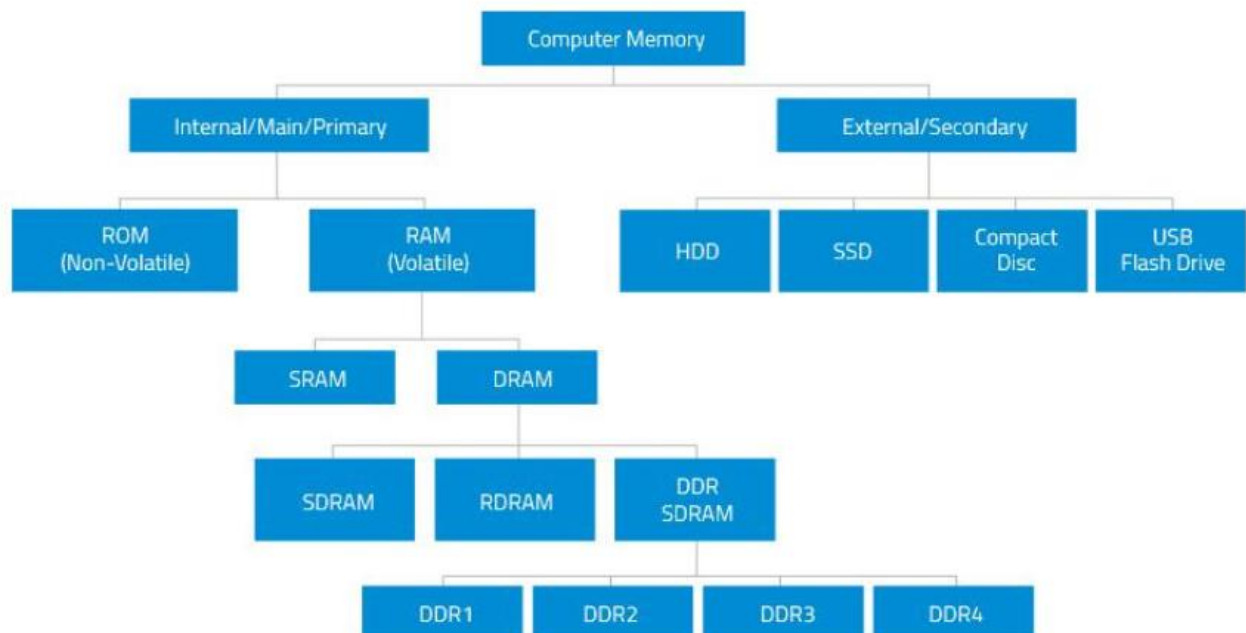
Random access memory (RAM) is the hardware in a computing device that provides temporary storage for the operating system (OS), software programs and any other data in current use so they're quickly available to the device's processor. RAM is often referred to as a computer's main memory, as opposed to the processor cache or other memory types.



## What are the types of RAM?

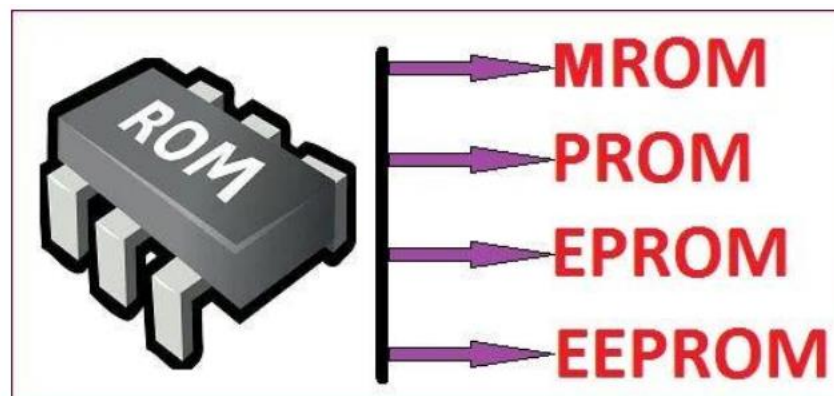
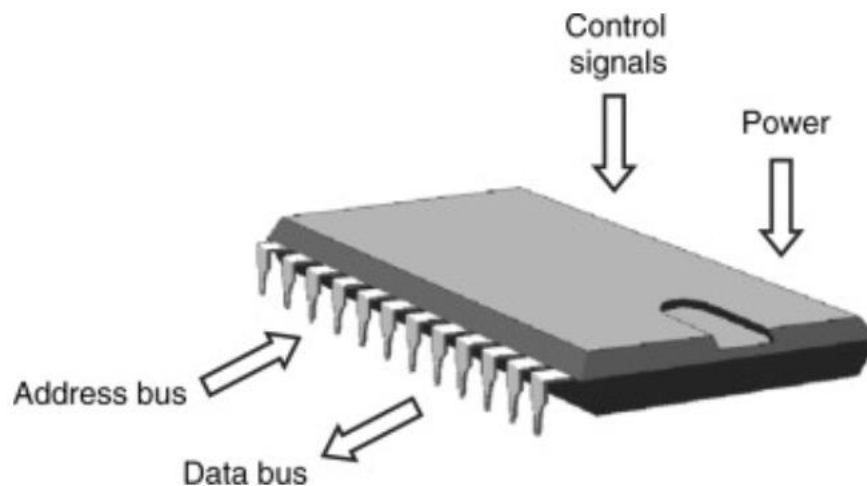
There are two main types of RAM: Dynamic RAM (DRAM) and Static RAM (SRAM).

- DRAM (pronounced DEE-RAM), is widely used as a computer's main memory. Each DRAM memory cell is made up of a transistor and a capacitor within an integrate circuit, and a data bit is stored in the capacitor. Since transistors always leak a small amount, the capacitors will slowly discharge, causing information stored in it to drain; hence, DRAM has to be refreshed (given a new electronic charge) every few milliseconds to retain data.
- SRAM (pronounced ES-RAM) is made up of four to six transistors. It keeps data in the memory as long as power is supplied to the system unlike DRAM, which has to be refreshed periodically. As such, SRAM is faster but also more expensive, making DRAM the more prevalent memory in computer systems.



## What is Read-Only Memory (ROM)?

Read-only memory (ROM) is a type of non-volatile memory used in computers and other electronic devices. Data stored in ROM cannot be electronically modified after the manufacture of the memory device. Read-only memory is useful for storing software that is rarely changed during the life of the system, also known as firmware. Software applications, such as video games, for programmable devices can be distributed as plug-in cartridges containing ROM.



**Different Types of ROM**



## Difference between RAM and ROM

| N. | ROM   | RAM   |
|----|---|---|
| 1  | ROM stands for Read Only Memory.  | RAM stands for Random Access Memory.  |
| 2  | Data in ROM cannot modified or erased, you can only read data of ROM.             | You can modify , edit or erase data in RAM.   |
| 3  | ROM is a non-volatile memory that retain data even after the power is turned off. | RAM is a volatile memory that stores data as long as power supply is given.         |
| 4  | ROM is slower than RAM.   | Speed of RAM is more than speed of ROM.   |
| 5  | ROM is cheap as compared to RAM.  | RAM is costly as compared to ROM.   |
| 6  | A ROM chip can store multiple megabytes (MB) of data.                             | A RAM chip can store only a few gigabytes (GB) of data.                             |
| 7  | CPU cannot easily access data stored in ROM.                                      | CPU can easily access data stored in RAM.   |
| 8  | ROM is used to store firmware, BIOS, and other data that needs to be retained.    | RAM is used for the temporary storage of data currently being processed by the CPU. |

### What is hard disk drive (HDD)?

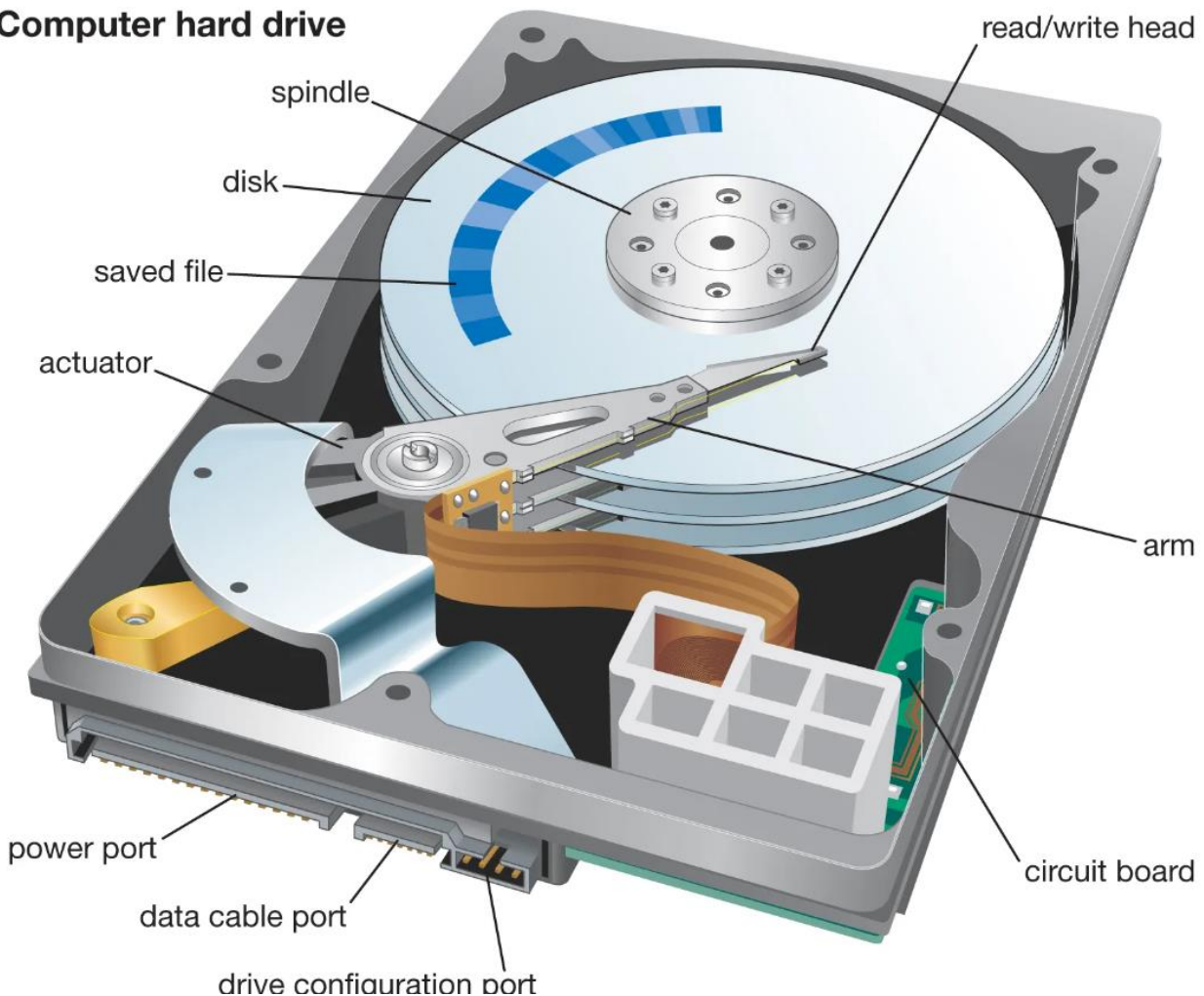
is an internal or external computer component that stores data, such as the operating system, applications, and user files. HDDs are “non-volatile” storage devices, meaning they retain stored data even when power isn't being supplied

### How does a hard drive work?

An HDD includes two main elements; a spinning platter and an actuator arm.

- The platter is a circular magnetic disk containing tracks and sectors that retain data.
- The actuator arm moves across the platter to read and write data.

## Computer hard drive



## What are flash drives used for?

What is a USB Drive? A USB drive, also referred to as a flash drive or memory stick, is a small, portable device that plugs into the USB port on your computer. USB drives are commonly used for storage, data backup, and transferring files between devices.





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