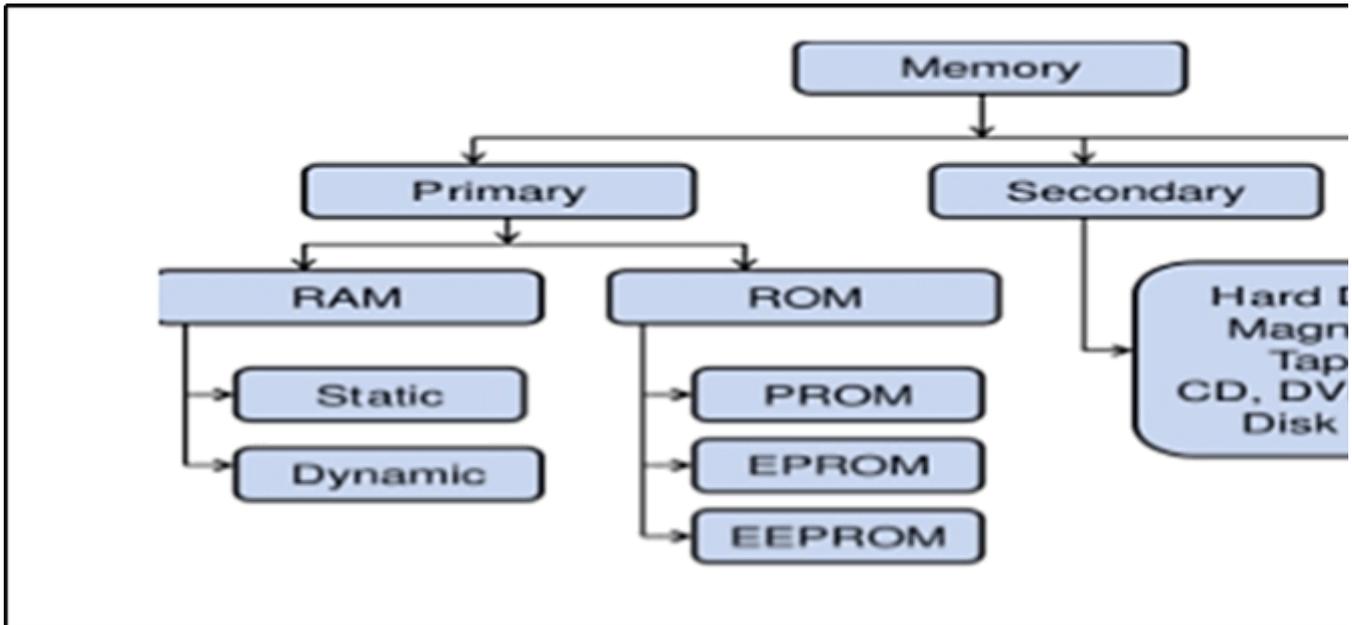


Examrace

Computer & Main Parts of Computer – Memory and Development of Computer

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Memory



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Primary Memory or Main Memory

- **Register:** Register is one of a small set of data holding places that are part of the computer processor. A register may hold an instruction, a storage address, or any kind of data (such as a bit sequence or individual characters). Some instructions specify registers as part of the instruction.
- **RAM (Random access memory)** - Random Access Memory (RAM) is a type of data storage used in computers that is generally located on the motherboard. This type of memory is volatile and all information that was stored in RAM is lost when the computer is turned off.

There are two types of Random access memory

- **Dynamic RAM** - dynamic indicates that the memory must be constantly refreshed (reenergized) or it will lose its contents.
- **Static Memory** - A computer memory that contains fixed information and retains its programmed state as long as the power is on.

Virtual memory is a feature of an operating system (OS) that allows a computer to compensate for shortages of physical memory by temporarily transferring pages of data from random access memory(RAM) to disk storage.

- **ROM (Read only memory)** - Once data has been written onto a ROM chip, it cannot be removed and can only be read. Unlike main memory (RAM), ROM retains its contents even when the computer is turned off.ROM is referred to as being non-volatile.

There are three types of Read only memory (ROM)

- **PROM** - PROM stands for Programmable Read Only Memory. This form of ROM is initially blank. The user or manufacturer can write data/program on it by using special devices. However, once the program or data is written in PROM chip, it cannot be changed. If there is an error in writing instructions or data in PROM, the error cannot be erased. PROM chip becomes unusable.
- **EPROM** - EPROM stands for Erasable Programmable Read Only Memory. This form of ROM is also initially blank. The user or manufacturer can write program or data on it by using special devices. Unlike PROM, the data written in EPROM chip can be erased by using special devices and ultraviolet rays. So, program or data written in EPROM chip can be changed and new data can also be added. When EPROM is in use, its contents can only be read.
- **EEPROM** - EEPROM stands for Electrically Erasable Programmable Read Only Memory. This kind of ROM can be written or changed with the help of electrical devices. So, data stored in this type of ROM chip can be easily modified.

Cache

A cache is a place to store something temporarily in a computing environment. Cache memory, also called CPU memory, is random access memory (RAM)

RAM vs ROM

	RAM	ROM
Function	Store the currently active programs and their data.	Stores certain fixed routines such as the boot-up routines.
Volatility	RAM is volatile: When the computer is switched off, the contents are lost.	ROM is non-volatile: When the computer is switched off, the contents are not lost.
Changeable	The contents of RAM can be changed or deleted.	The contents of RAM cannot be changed or deleted.

RAM VS ROM

Memory Units

Storage capacity is expressed in terms of Bytes. The data is represented as binary digit(0s and 1s)

- Hierachy – Nibble < Bit < Byte < KB < MB < GB < TB < PB < XB < ZB < YB
- American Standard Code for Information Interchange (ASCII) is the standard code the computer industry created to represent characters(more than 64 character)

1	4 bit	Nibble
2	8 bit	1 byte
3	1024 B	1 KB(2^{10})
4	1024 KB	1 MB(2^{20})
5	1024 MB	1 GB(2^{30})
6	1024 GB	1 TB(2^{40})
7	1024 TB	1 PB(2^{50})
8	1024 PB	1 XB(2^{60})
9	1024 XB	1 ZB(2^{70})
10	1024 ZB	1 YB(2^{80})
<i>Memory units</i>		

Secondary Memory

Secondary memory is a type of computer memory that is not directly accessed by the central processing unit (CPU) of a computer and is usually available as non-volatile memory. One of the most common forms of this memory is the hard drive of a computer, which is used to store the operating system (OS) and other programs. Other forms of secondary memory include disc drives for compact discs (CDs) or digital versatile discs (DVDs), as well as removable flash memory.

- **Hard Drive** - a rigid non-removable magnetic disk with a large data storage capacity.
- **Floppy disk**- A floppy disk, also called a diskette or just disk, is a type of disk storage composed of a disk of thin and flexible magnetic storage medium, sealed in a rectangular plastic carrier lined with fabric that removes dust particles. Floppy disks are read and written by a floppy disk drive (FDD).
- **Magnetic Tape** – Magnetic tape used in recording sound, pictures, or computer data.
- **Flash memory** - a kind of memory that retains data in the absence of a power supply.
- **Optical disk** - an electronic data storage medium that can be written to and read using a low-powered laser beam.
- **CD-ROM: "Read Only"** (used for distribution of commercial software, for example) Standard storage capacity is 640MB.
- **CD-R (or CD-WORM): "Write Once, Read Many"** times
- **CD-RW: rewritable** multiple times
- **DVD: similar to CD, but with significantly larger storage capacity (4.7GB)**
- **Write once read many (WORM)** describes a data storage device in which information, once written, cannot be modified
- **Mother board** - A motherboard is the main circuit board inside a computer that connects the different parts of a computer together. It has sockets for the CPU, RAM and expansion cards (e.g. discrete graphics cards, sound cards, network cards, storage cards etc)... and it also hooks up to hard drives, disc drives and front panel ports with cables and wires. Also known as mainboard, system board.

Development of Computer

- **Abacus** - Abacus is known to be the first mechanical calculating device. Which was used to be performed addition and subtraction easily and speedily. Abacus is made up of wooden frame in which rod where fitted across with rounds beads sliding on the road.
- **Pascal Calculator** - In the year 1642, Blaise Pascal a French scientist invented an adding machine called Pascal's calculator, which represents the position of digit with the help of gears in it.
- **Analytical Engine** - a scientist from England known to be Charles Babbage invented such a machine. This device was called Analytical engine and it deemed the first mechanical computer. It included such feature which is used in today's computer language. For this great invention of the computer, Sir Charles Babbage is also known as the father of the computer.

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