

Main Memory SLO # 4.1

MAIN MEMORY:

Each computer has main memory, which is also called internal storage or main storage. The memory unit is an integral physical part of computer and directly controlled by computer. Thus the data in main memory is automatically accessible. The information is stored in unique location identified by an address. Normally memory unit is divided into two parts, ROM and RAM.

RAM:

It is an abbreviation for “Random Access Memory”. Almost all memory is randomly accessible including ROM memory. So it can justifiably be called users memory. Ram Memory is temporarily highly accessible, high speed work area. It holds only one measure program and data in a section of memory at a time after the task is completed, it can be erased and new program can be placed in a work space. It is also called volatile memory.

ROM:

It is an abbreviation for “Read Only Memory” Is a type or preprogrammed memory that contains one or more programs vital to computers needs. All computers used Rom to hold certain startup programs such as routines that start disk drives, load operating system into memory and transfer of control to new loaded operating system. This routine is known as Boots-Trap Program. It is a permanent memory. Some memories are listed below.

1. PROM Programmable Read Only Memory.
2. EPROM Erasable Programmable Read Only Memory.
3. EEPROM Electrically Erasable Programmable Read Only Memory.
4. EAPROM Electrically Alterable Programmable Read Only Memory.

SIMM:

It is an abbreviation for “Single In-Line Memory Modules”. The capacity of RAM is a computer affects computer’s power. More RAM can make computer run faster. The computer does not necessarily have to load a complete program into its main memory to run it. However greater is the part of a program it can fit into memory, the faster the program will run. Many RAM chips are installed on a small circuit board. These RAM chips are wired together to form a single

module of large memory called Single Line Memory Modules (SIMMs). SIMM has contact terminals on its one side. It can easily be plugged into the motherboard. SIMMs had different capacities such as 128Mbytes, 256Mbytes, 512Mbytes or 1Gbytes with varying speed.

DIMM:

It is an abbreviation for “Dual In-Line Memory Modules”. SIMMs were popular by PC user in 1980s but has now been replaced by DIMMs. Like SIMMs, Dual In-Line Memory Modules (DIMMs) have been developed installing many RAM chip. DIMMs provide larger capacity as compared to SIMMs. DIMMs have wider data bus and thus have higher rate of data transfer. DIMMs are available in several configuration having different capacities and speeds. You can expand RAM capacity of your computer by simply plugging-in more DIMMs.

UNIT OF MEASUREMENT:

The basic memory unit of a digital computer is a bit, which stand for binary digit. Bit represents a binary number that is either 0 or 1. The memory of a computer is composed of cells. Each cell contains one bit information. Each memory cell has a value 0 or 1 represented by ON or OFF state of the cell. As bit is a very small unit of data therefore bits are grouped into bigger units. A group of four bits is called a nibble and that of eight bits is called a byte. A byte is generally used to express the memory of computer.

| | | | | |
|------------------|---|----------------|---|----------------|
| 1 Nibble | = | 2^2 bits | = | 4 Bits |
| 1Byte | = | 2^3 bits | = | 8 Bits |
| 1 Kilobytes (KB) | = | 2^{10} bytes | = | 1024 Bytes |
| 1 Megabytes (MB) | = | 2^{20} bytes | = | 1024 Kilobytes |
| 1 Gigabytes (GB) | = | 2^{30} bytes | = | 1024 Megabytes |
| 1 Terabytes (TB) | = | 2^{40} bytes | = | 1024 Gigabytes |

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