

Introduction

COMPUTER - Common Multi Purpose Utility based Technical and
Electronical Resources

“Computer is an electronic resources (Instrument /Device) , designed and developed to performed mathematical and logical operations (Multi Purpose job) with high speed and more accuracy”.

But it is not possible to perform multipurpose operations with single instrument . Means that,

“ Computer is a collection of electronic devices, where, each one device perform their operation / job individually under the monitoring and control of controlling unit, in shareable data mode with high speed and more accuracy”.

Computer get data from user through input device , store temporarily or permanently in memory, perform mathematical and logical operation through microprocessor (Brain of Computer) and produce output result through output devices and also get data from remote user through network devices and transfer output data to remote user through network devices on demand.

In this way, we can say that a Computer consist of two important component and one integrated component :

1. Hardware component : the component of computer, designed and developed mechanically and electronically that can be touch , see and feel and responsible to perform operations / jobs physically , known as hardware component. Important hardware components are :
 - a. Input Unit - collection of input devices attached as per nature of data
 - i. Keyboard
 - ii. Mouse
 - iii. Scanner
 - iv. Microphone
 - v. Digital camera
 - vi. Joystick
 - vii. OCR
 - viii. MICR
 - ix. OMR

- x. Light pen
 - xi. Touch panel
 - xii. Barcode Reader etc
- b. Central Processing Unit – It is collection of three important component /devices
- i. Control Unit – Logical software component that will discuss under software component.
 - ii. Primary Memory Unit : Temporary memory responsible to store data before and after processing . It Includes :
RAM, ROM (BIOS) , PROM, EPROM, EEPROM, Flush ROM.
 - iii. Arithmetic and logic Unit (ALU) : Microprocessor with multiple coprocessor
- c. OutPut Unit : Collection of output devices as per nature of data to output.
- i. Soft copy output device : Provide output data for small time Period that can not show further as proof .
 - 1. Visual Display Unit (VDU) : It Include , cathode ray tube (CRT), Liquid Crystal Device(LCD), Light Emitting Diode(LED)
 - 2. Sound Amplifier (Speaker)
 - 3. Projector
 - ii. Hard copy output device : Provide output data printed on paper that can show further as proof.
 - 1. Printer
 - 2. Plotter
- d. Secondary Memory Unit : Store data Permanently as record or transfer to other places .It is Auxiliary memory.
- i. Electronic Memory – Memory Chip, Pen drive
 - ii. Magnetic memory - HDD (Hard Disk Drive), Floppy Disk, Zip Disk ,Cartridge tape, tape reel etc.
 - iii. Optical Memory - Compact disk (CD), Digital Versatile/Video Disk (DVD) etc.
- e. Network Devices - NIC(Network interface Card), Modem, Communication Wire, Wireless Device etc.
2. Software Component : Logical Part of Computer, responsible to operate the hardware component and perform job as per demand in special monitoring. It can not be seen ,touch only feel. It is written in computer programming language . There are several type of software components installed in computer memory. Some important are:

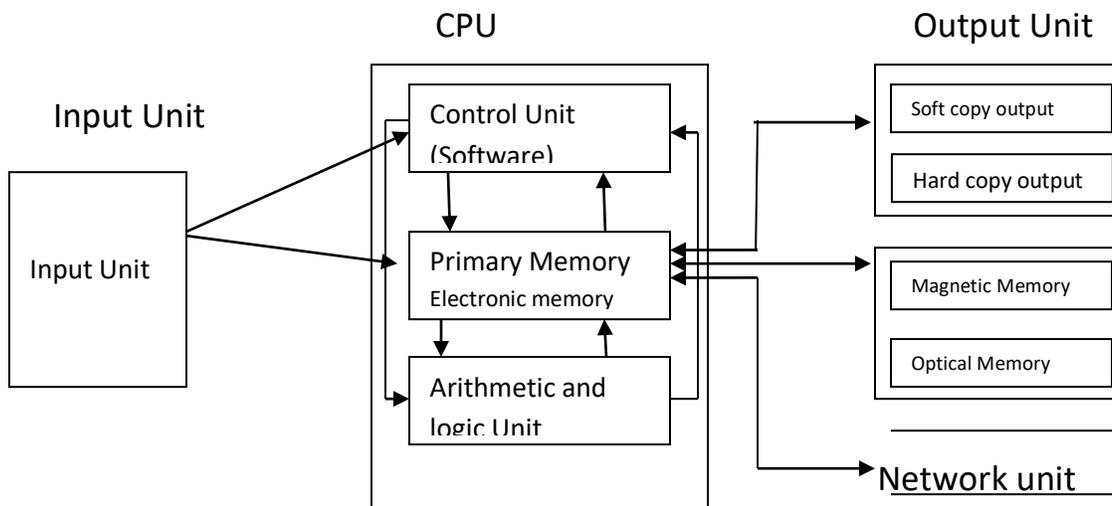
- a. System software : responsible to operate the computer system/hardware . Important system software are:
 - i. Language processor : Interpreter , Assembler, Compiler which is responsible to translate the program/command/ instruction written in computer language into machine understandable form.
 - ii. Debugger , Linker, Loader : System Program which is responsible to check the errors , link the function before execution, and loading into memory for execution.
 - iii. Computer BIOS(Basic input output software) : System software loaded in ROM that provide basic instruction to “boot” the computer when we press ON button.
 - iv. Operating System: Basic software work as manager to operate attached devices as per requirement of works/operations. Operating system prepare the machine ready to work. It also provide a platform to run different real life application software.
- b. Application Software : Software which is designed and developed on demand of user for performing works/jobs related to real world application area. There is no limitation of application softwares that is vary from organization to organization or one application jobs to other. Followings are important ;
 - i. Office automation software : MSoffice , Star office
 - 1. Word processor : Msword
 - 2. Spreadsheet program: MS excel
 - 3. Presentation software: MS powerpoint ,corel presentation
 - 4. Database software : MS Access
 - ii. Desktop Publishing software : Page maker, coreldraw, photoshop
 - iii. Accounting software : Tally ERP,BM etc
 - iv. Tele communication software
 - v. Research and development software
 - vi. Military and defense software
 - vii. Hospital Management software
 - viii. Hotel Management software
 - ix. Management Information System
 - x. ERP software
 - Etc
- c. Utility software : This is supporting software , used to analyze, configure and maintain the computer system . utility programs may be

requested by application programs during their execution for multiple purpose. Some important are:

- i. Disk defragmenters
 - ii. Disk checker
 - iii. Disk cleaner
 - iv. Disk space analyzer
 - v. Disk partitioning program
 - vi. Backup utilities
 - vii. Disk compression
 - viii. File Manager
 - ix. Anti virus program
 - x. Date compression utility
 - xi. Cryptographic software
 - xii. Launcher application
 - xiii. Registry Cleaner
 - xiv. Network utilities
- Etc

Block Diagram of Computer

Internal arrangement of components of computer to build up the computer system is known as block diagram .



Working Principle of Computer

All the devices attached in the computer system work in shareable data mode under the monitor and control of the control unit which is logical unit (software

part). All the data , command and request are generated by Input unit and transferred to computer primary memory under monitoring of control unit. After feeding the instruction and data, CU passes instruction to ALU for processing by getting necessary data form primary memory and after processing, ALU transferred the output data to primary memory and inform to CU that process is completed and result is stored on particular memory address . Again if ,Instructions are given by user through input device to CU for output, either to display ,printing or storing permanently then CU instruct the Primary memory to send output result to respective output device as per instruction.

The same principle is repeated in case of inputting data from network devices or secondary storage and process is completed in above mentioned manner.

Data moves between the devices through the Bus System(Wire) by which devices attached together.

Characteristics of Computer

Followings are important characteristics of Computer :

1. Speed : computer can perform millions of operation per second.
2. Accuracy : A Computer is very fast ,reliable and robust electronic device, gives accurate result.
3. Automation : Being a very fast and accurate , computer are automatable device that can perform a task without any user intervention.
4. Diligence : Computer never get tired of a repetitive task.
5. Versatile : computer can perform different type of job related to our real life application area.
6. Memory : Computer can store huge amount of data for long period and data can transfer one device /place to other device place easily.
7. Economical : computer are considered as short term investment for achieving long term gain.

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