SNS COLLEGE OF TECHNOLOGY

Coimbatore-35

DEPARTMENT OF INFORMATION TECHNOLOGY

23CST101 - PROBLEM SOLVING AND C PROGRAMMING

I YEAR I SEM

UNIT I-INTRODUCTION TO PROBLEM SOLVING TECHNIQUES

TOPIC-COMPUTER HARDWARE

CLASSIFICATION OF COMPUTERS

Microcomputer
Minicomputer
Mainframe computers
Supercomputers

Microcomputers

Microprocessor as its CPU

Input
Store
Output
Process
Control-sequence of operations

REFERENCES

- E.Balagurusamy, “Fundamentals of Computing and Computer Programming”, 2nd Edition TataMcGRaw-Hill Publishing Company Limited, (2019).
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- Herbert Schildt “C - The Complete Reference” 4th Edition, Mc Graw Hill, 2017
- P.Sudharson, “Computer Programming”, RBA Publications, 2008.
- Yashavant P. Kanetkar. “Let Us C”, BPB Publications, 2014.

MINI COMPUTERS

- Medium sized
- Multiple users simultaneously-Multiterminal,time sharing system
- Research,Business
- Expensive than Microcomputers

Mini Computer

Mainframe Computers

- Organizations-Banks,Hospitals,Railways etc.
- Central Location
- Connected to Several User Terminals-access terminals
- Larger and Expensive

Super Computers

- Most Powerful,Fastest and Expensive
- Complex scientific applications,high level of processing
- Weather forecasting,climate research,aeroplane simulations,nuclear fusion research etc.
- Multiprocessing and parallel processing technologies
- Multiprocessor enables user to divide a complex problem into smaller problems
- Multiprogramming-multiple users can access computer simultaneously
- IBM,Silicon Graphies,Fujitsu and Intel

BASIC ANATOMY OF COMPUTER SYSTEM

- Hardware
- Software

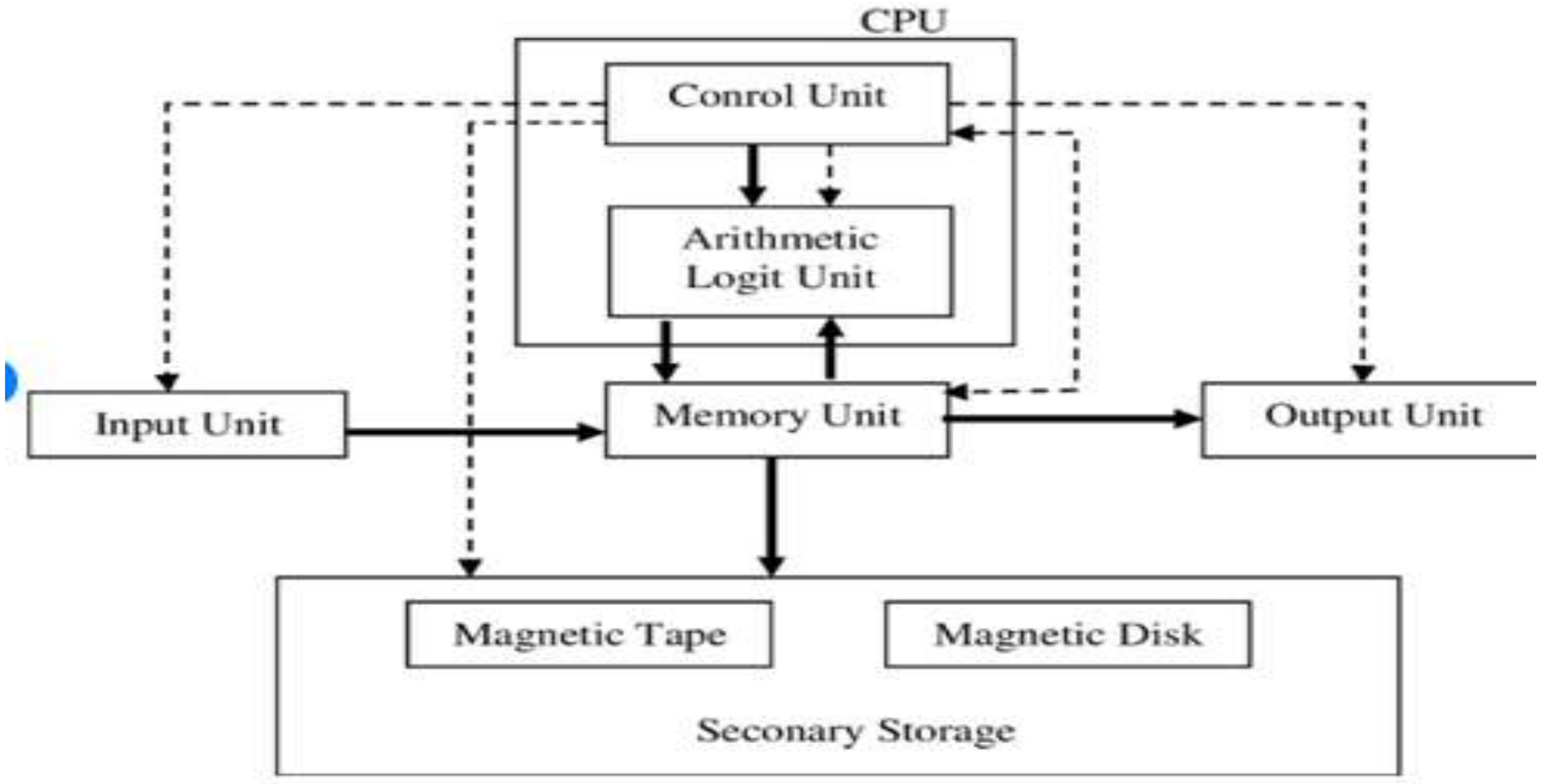
- **Hardware**
- Input devices-Accept the data on which the operations are to be performed
- eg.Keyboard,Mouse.
- Processor-CPU-Perform Calculations and Process Informations
- Output Devices-provide the output
- Memory-Stores input and output

Input Devices

- Connected using cables
- Keyboard
- Mouse
- Scanner

- Keyboard


Function keys
Prt Sc kev
Delete key
Insert key
ESC Key
Break key
Number keys
Home key
Backspace key
Tab Key
Page up key
Caps Lock Key
Enter key
Page down key
Shift Key
End key
Ctrl Key
Fn Key
Windowskey
Letter keys
Spacebar
Alt Key
Symbol Keys
Arrows Key
Computer Keyboard Keys Information's

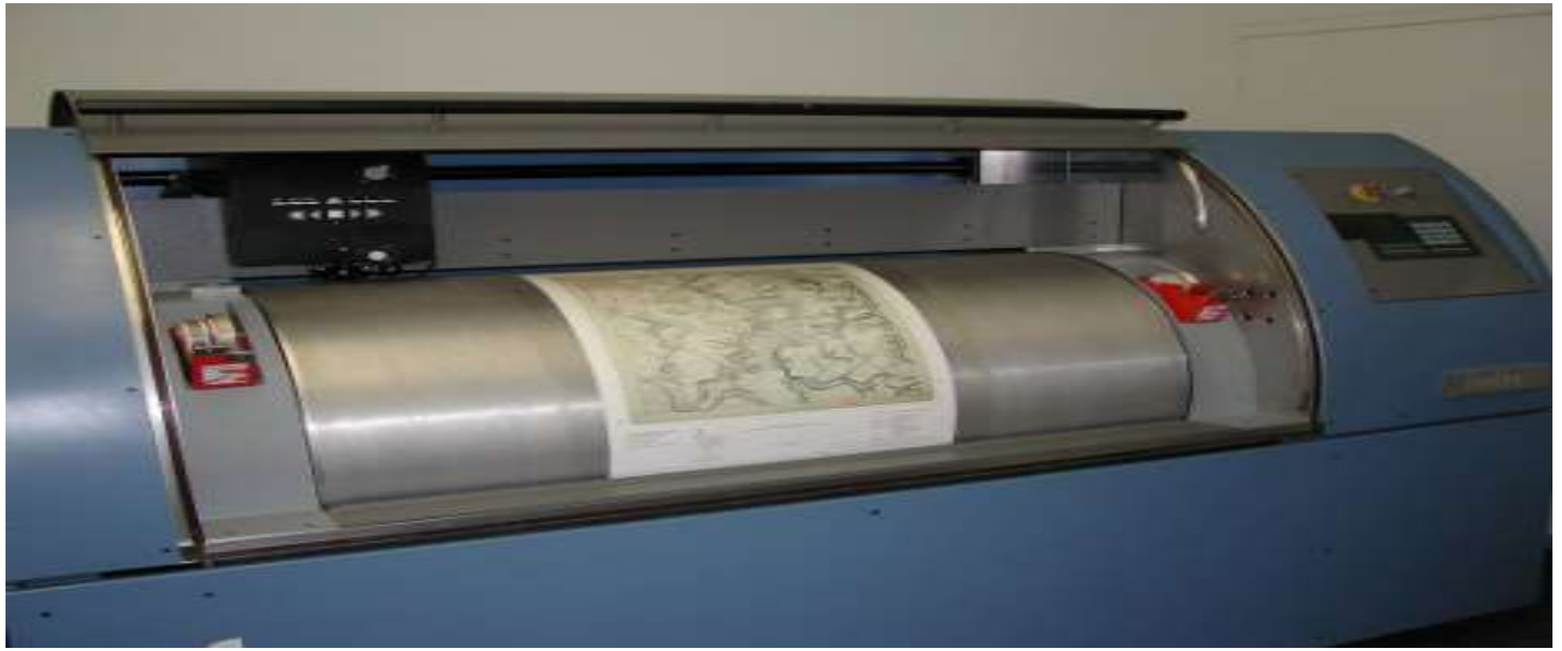

CPU
Conrol Unit
Arithmetic
Logit Unit
Input Unit
Memory Unit
Output Unit
Magnetic Tape
Magnetic Disk
Seconary Storage

- Mouse-Pointed device

- Scanner-Converts documents and images as digitized image
- Colored images-collection of RGB
- Proportions of RGB colors assigned to a dot -Color description

- 1.Flatbed Scanner-Scanner head moves across a page from top to bottom-scan graphics,oversized documents,pages from books

- 2.Drum Scanner-Fixed scanner head,image to be scanned is moved across the head.Used to scan prepress materials



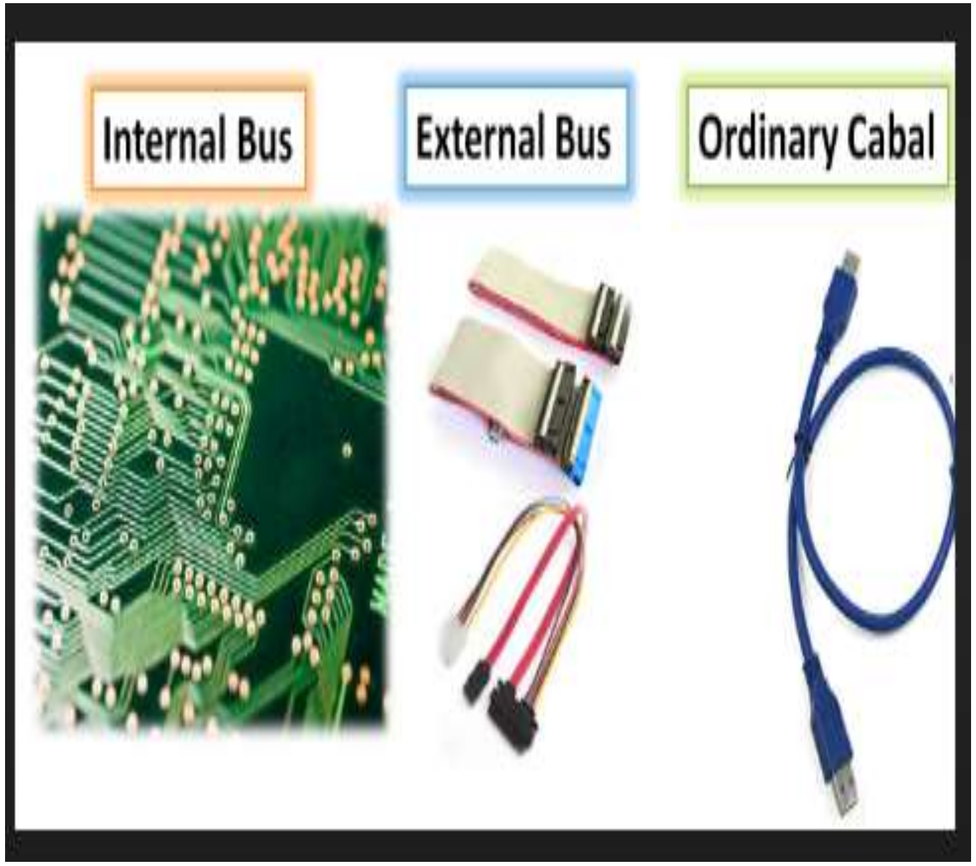
- 3.Slide Scanner-Scan photographic slides directly to produce files

- 4.Handheld scanner-moved by end user across the page to be scanned.Inexpensive and small in size.

PROCESSOR

- Control Unit(CU) plus ALU.
- CU-Stores instruction set and transfers the data and the instructions to ALU
- CPU also gets information from hardware devices
- Motherboard-Connects CPU with input,output devices

- Buses-Electrical pathways,eg.data bus,address bus
- System Clock-Synchronizing,Faster Clock=Faster processing speed
- Microprocessor-Component of CPU
- ROM-Permanent Memory,cannot be modified by end user.
- RAM-Primary memory until computer is used,RAM chips connected to RAM slots



- Video Card/Sound Card-Video card interface between monitor and CPU
- Video cards include their own RAM and microprocessors for speeding up the processing and display of a graphic.Placed on extension slots,these slots allow us to high-speed graphic display cards to the motherboard.
- A Sound card-circuit board on motherboard used to enhance sound capabilities of a computer
- Sound Cards are plugged to the Peripheral Component Interconnect(PCI) slots.PCI slots enable connection of networks interface card,modem cards and video cards to motherboard

OUTPUT DEVICES

- Available to the end user
- Monitor
- Printer
- Speaker
- Plotter

- Monitor(Screen)-Visual displays of textual and graphical information
- Connected to Video card /CPU
- Monitors
- 1.Cathode Ray Tube(CRT)
- 2.Liquid Crystal Display(LCD)

- CRT-Large monitors,more space
- Good quality visual display than LCD
- CRT screens contain red,green and blue phosphors-electrons strike RBG phosphors it irradiates to produce image
- Intensity if the beam is changed

- LCD-Thin Monitors,light weight and occupy lesser space
- Arrayed in front of light source or reflector
- consume very small amount of electric power.
- Monitor size-measured diagonally
- Monitor resolution(dot pitch)-number of picture elements or pixels of the screen

- Printer-Transfer text onto paper sheets
- Dot Matrix-Low quality,high volume applications like invoice printing,cash registers,impact printers that use perforated sheet,striking a pin against a ribbon to produce its impression,multiple copies

- Inkjets Printers-slower,high quality photographic prints
- printed head moves horizontally from left to right,ink is sprayed onto the paper
- ink in inkjet is heated to create a bubble.The bubble burst in high pressure

- Laser Printers-Microprocessor,ROM and RAM -high quality,quick,without being connected to a computer
- microprocessor,RAM,ROM,cylindrical drum,toner and laser beam,pagemaker software
- printer driver software
- Performance-DPI(dots per inch) and pages per minute (PPM)

- Speaker-Electromechanical transducer -converts electrical signal to sound,audio drivers
- Plotter-print large documents eg.engineering drawing
- Binary signals coordinates printer head to be positioned
- Drum Plotter-circlesdrawing arm,paper moves back and forth
- Flat-bed plotter-FLat drawing surface and two drawing arms,low speed,large in size
- Inkjet plotter-Spray nozzles,clogged,regular maintainence
- Electrostatic plotter- quality print,highest speed,charged electric wires and special dielectric paper
- Electric wires are supplied with high voltage that attracts the ink in the toner and fuses it with the dielectric paper


Drum plotter