



CS 101 Introduction to Computing

Semester – 2014 -15 / II Semester

Units – 2 – 0 – 2 – 3

Pre-requisite – None

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Different Types of Computers and Connectivity

- Tablets, Laptop Notebook Computers
- Personal Computers
- Workstation Computers
- Mainframe Enterprise Computers
- Supercomputers

- ETHERNET – local area networks
- Wi-Fi – Wireless area network
- Wide Area Network



Structure of a Computer

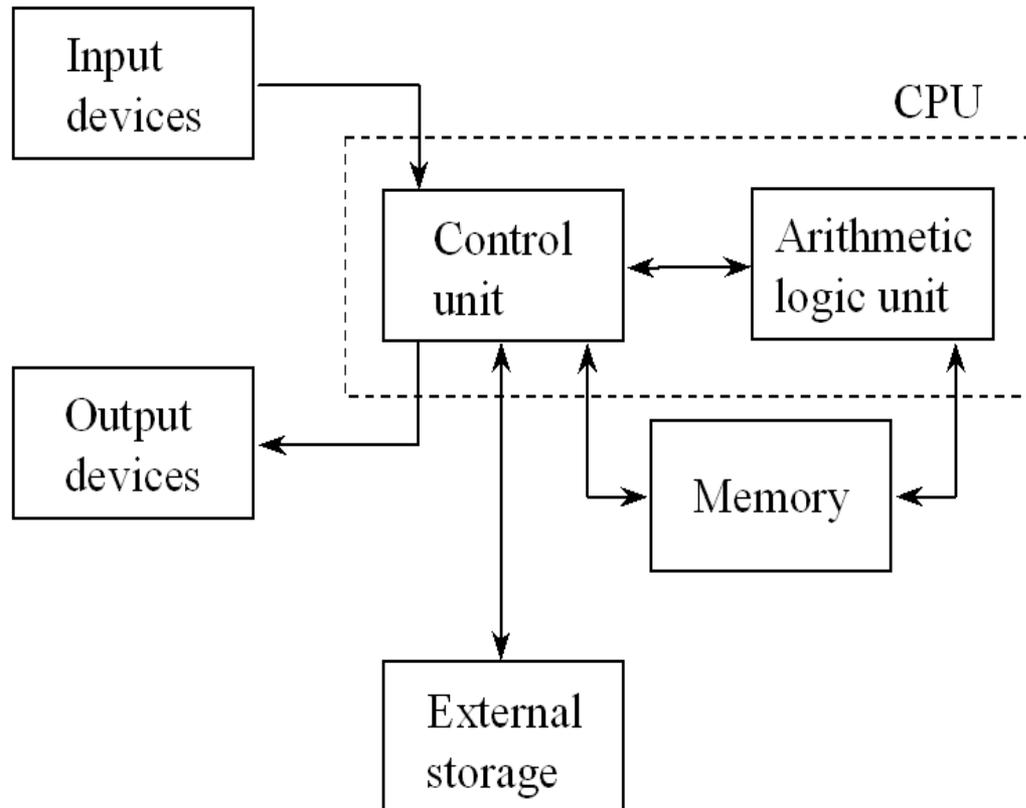


- Case
- Power Supply
- Motherboard
- Expansion Slots
- Storage devices and their controllers
- Input / Output peripherals and their controllers

- Computer Architecture
- Computer Network



Basic Elements of a Computer



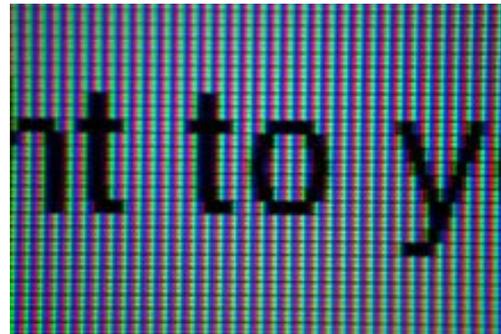
Different Input Devices



Light Pen
Joystick
Microphones
Joypad
Gamepad
Webcam
Digital Camera



Different Output Devices



Projector
Plotter
Headphones
Television
Radio
Punched Cards
Line Printers
Braille Embosser
3-D Printer

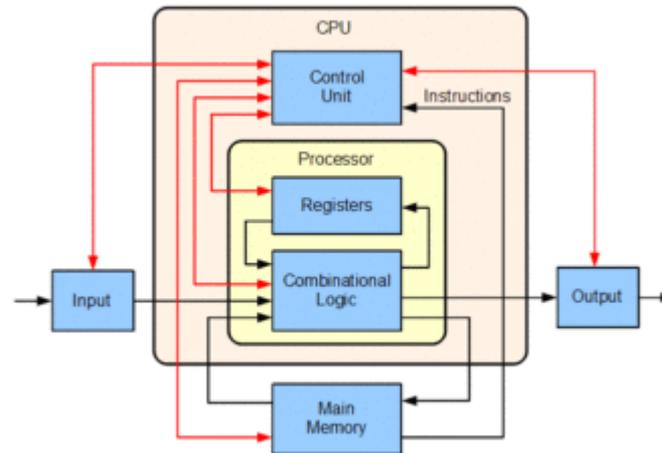
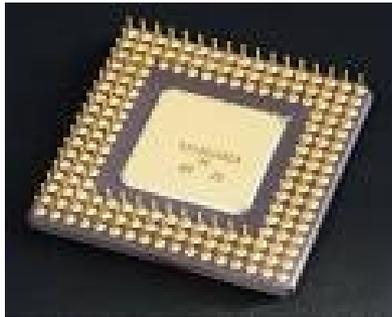


Different External Storage Devices

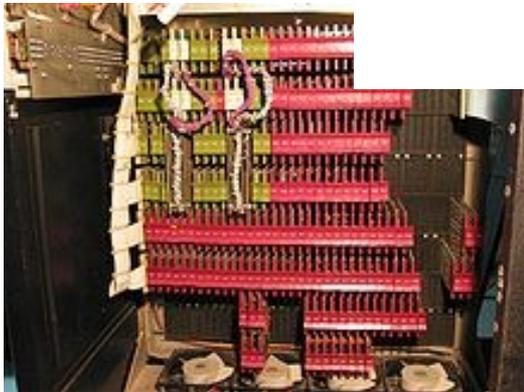


- Magnetic Storage
 - Cassette Tapes
 - Floppy Disks
- Optical Storage
 - Compact Disks (CD)
 - Digital Versatile Disks (DVD)
- Solid State Storage
 - Flash Memory
- Microfilms
- Disk Enclosures
- Zip Disks
- Punched Cards

Central Processing Unit



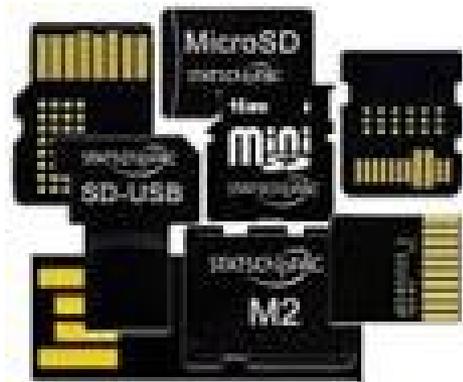
CU - Central
Processing Unit
ALU - Arithmetic
Logical Unit
ALU
Basic Arithmetic Unit
CU
I/O Control Unit



Memory



Memory Devices
IC, VLSI
Random Access
Memory
Read Only Memory
Managing Memory



Connection Between Memory and Processor

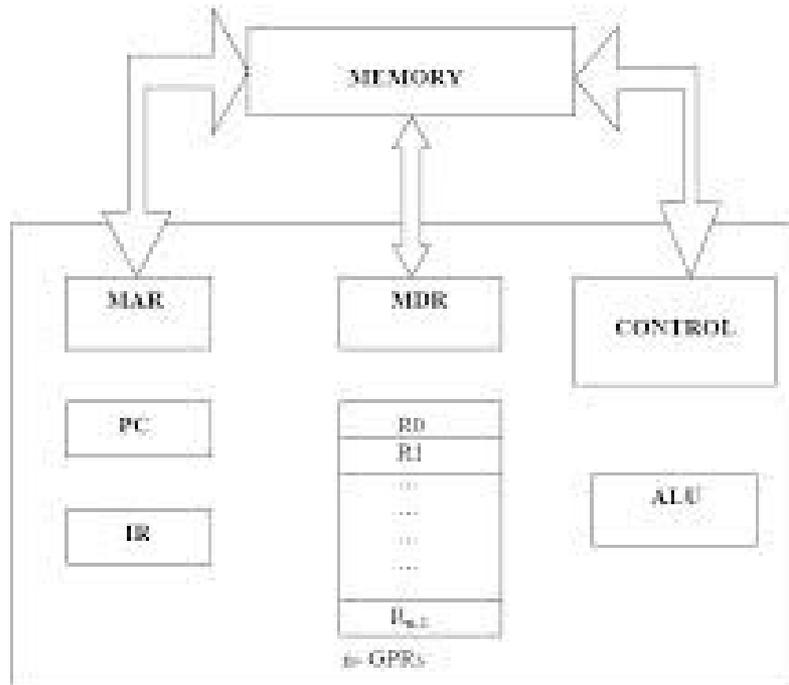
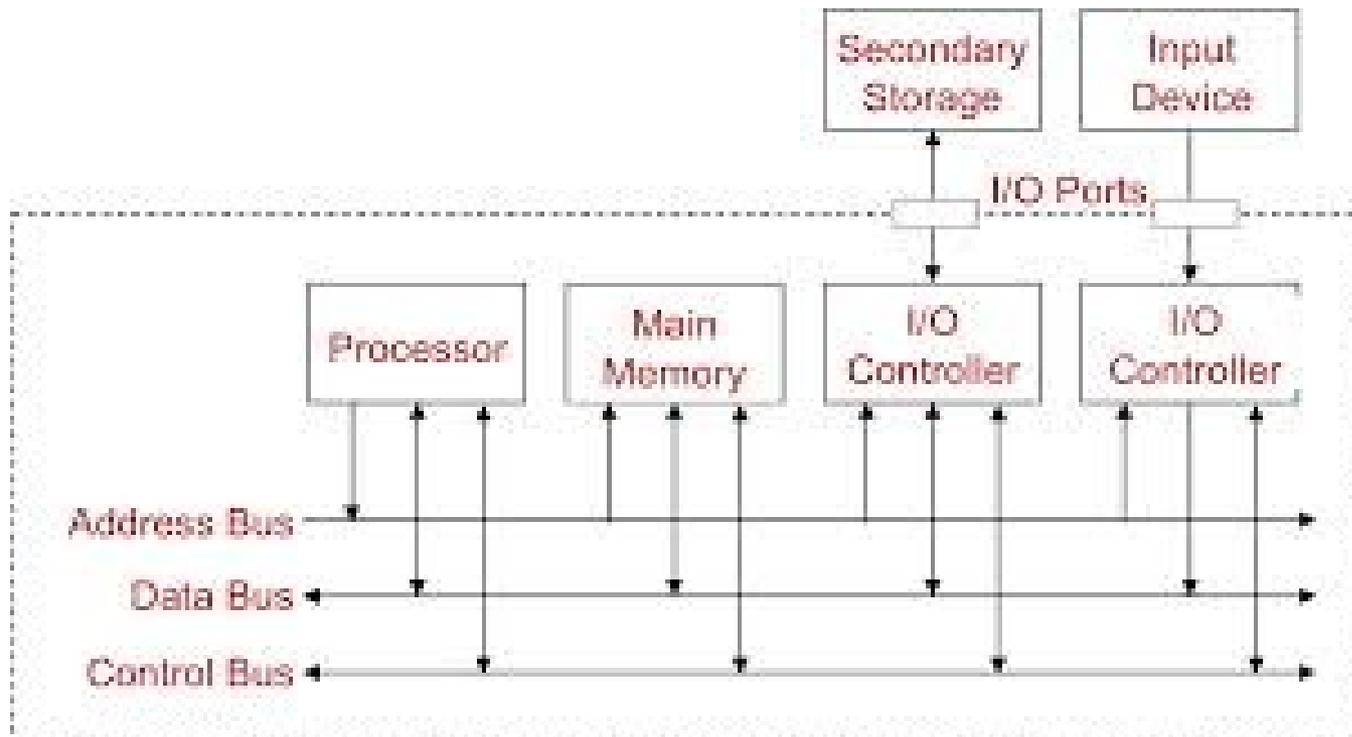


Fig. 3.1.9 - Connection between the processor and the memory

IR - Instruction Register
PC - Program Counter
R0 ... R (n-1)
General Purpose Registers
MAR -
Memory Address Register
MDR -
Memory Data Register
ALU
Arithmetic Logic Unit
CPU
Central Processing Unit



Bus Architecture





Concept of a Computer Program

- High Level Programming
- Source code
- Syntactical and Logical Errors
- Compilation and Execution
- Input / Output data
- Operating Systems
- Compilers
- Interpreters



Source Code Processing

- Syntactical errors in source code
- Language errors in source code
- Compilation of source
 - Generate object code using a compiler
- Execute the object code

- Translate the line using an interpreter
- Process the result immediately





Programming Languages

- Interpretive Languages
 - LISP
 - Python
- Compiling Languages
 - Fortran – 77
 - Pascal
 - C
- Object-oriented Languages
 - Java



Program Execution

- Run the program using data
 - Run time errors
 - Analysis of run time errors
- Menu-driven program
 - Menu invokes a command
 - Command gets executed
 - Program is back to wait mode
 - Data is put in a file
 - Menu-driven data creates file



Operating Systems

- Computer system software
 - DOS
- Multi-window, Multi-process
 - Windows
 - UNIX
- Coordination of all functions is carried out by the operating system
- All applications run in OS domain



Thank You!

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