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URK22CS1103

Computer Organization

1) Advantages of Von Neuman Architecture.

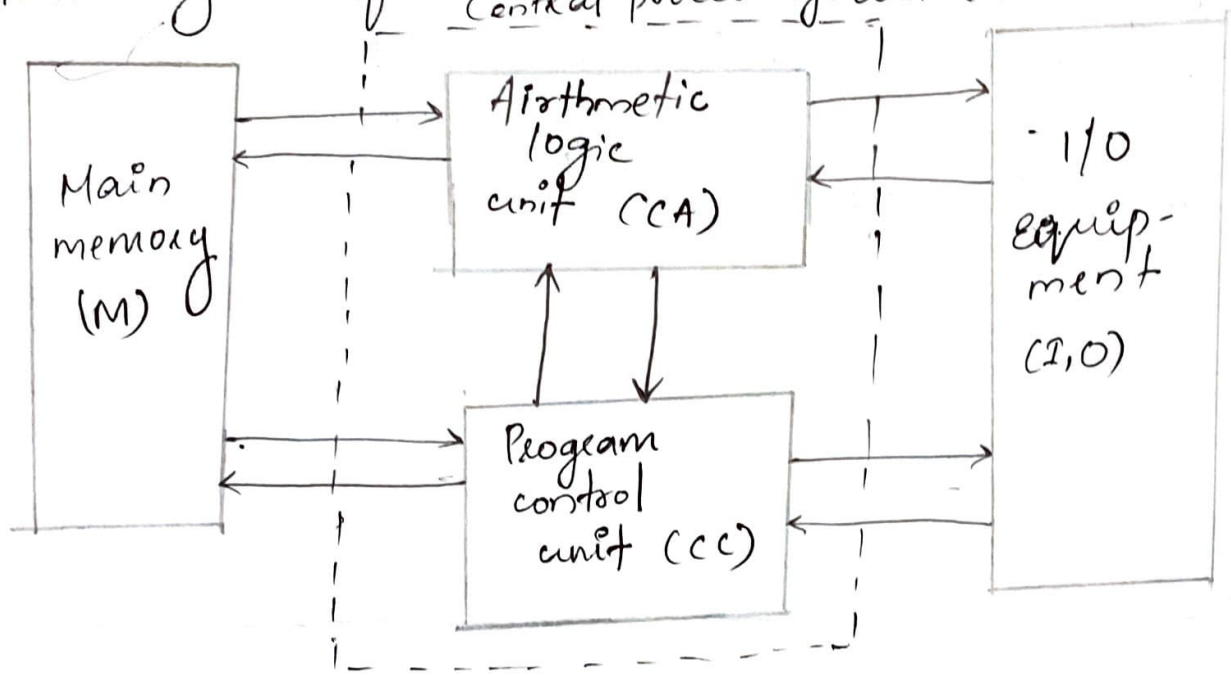
- Control Unit gets data and instruction in the same way from one memory. It simplifies design and development of the Control Unit.
- Data from memory and from devices are accessed in the same way.
- Memory organization is in the hands of progeammers.
- Development of Control Unit is cheaper and faster than Harwaed.
- It is better for desktop computers, laptops, workstations and high peformance computers.
- The programs can be optimised in smaller size
- The code is executed serially and takes more clock cycles.

2) ~~Draw~~ Working Principle of ~~Non~~ Von Neuman Architecture.

- The Von Neuman computer architecture follows a step-by-step process called the fetch-execute cycle. The fetched instructions is then decoded to determine the operation and operands involved. The instruction is executed, which may involve arithmetic, logic or control operations. If necessary, the computer accessess memory or registers. The cycle repeats fetching the next

instruction and executing it, until the program is complete or a specific condition is met. This sequential process allows the von neumann computer system to execute instructions one after another, enabling a wide range of computing tasks.

3) Block diagram of von neumann computer.



Memory: It stores data & instructions. It is a storage component.

Control Unit: The control unit is responsible for coordinating & controlling the activities of the computer. It fetches instructions from memory.

Arithmetic and Logic Unit: The ALU performs arithmetic operations subtraction, multiplication, addition, division. It is the component that carries.

4. Type of bus arbitration

Bus Arbitration is the procedure by which the active bus master accesses the bus.

Two types of bus arbitration

1. Centralized Bus Arbitration in which the necessary arbitration is carried out by a lone bus arbitrator
2. Distributive Bus Arbitration in which every device takes part in choosing a new bus master.