SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107

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DEPARTMENT OF COMPUTER SCIENCE AND TECHNOLOGY

COURSE NAME : 19IT301 COMPUTER ORGANIZATION AND ARCHITECTURE

II YEAR / III SEMESTER

Unit 1 : BASIC STRUCTURE OF COMPUTER

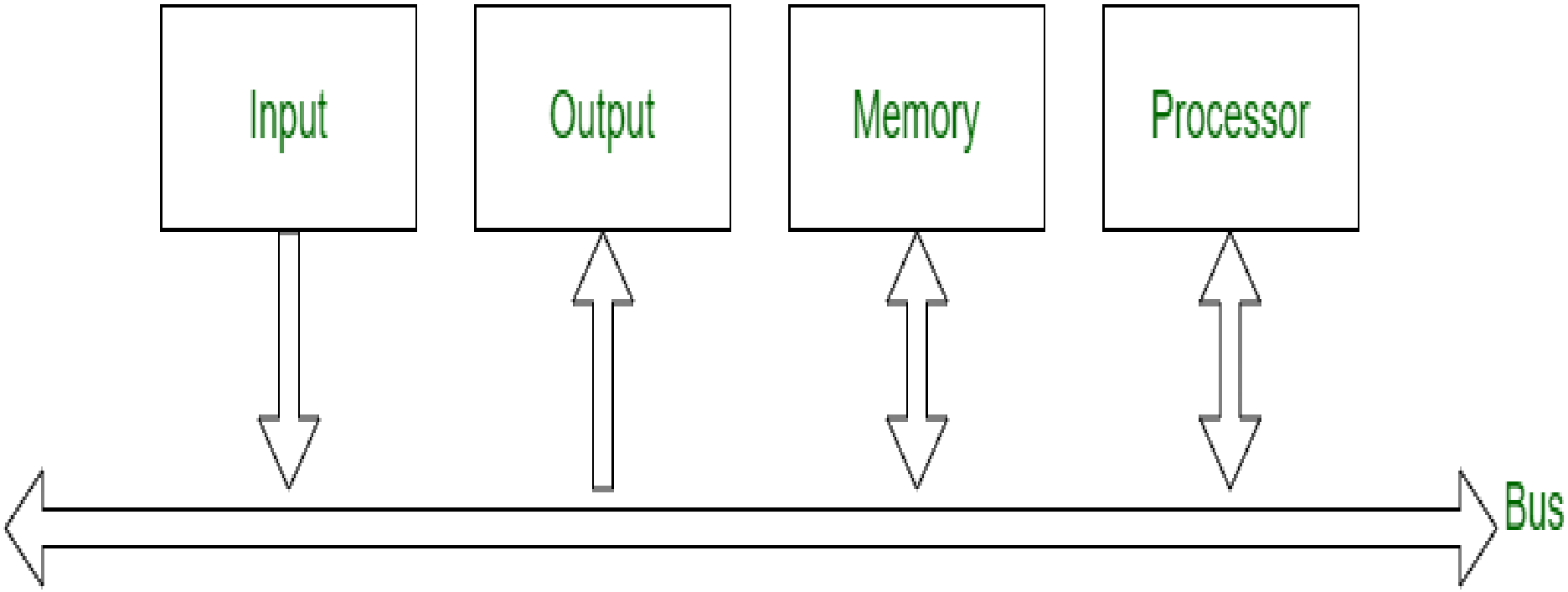
Topic : BUS STRUCTURES

Bus structures

- When a word of data is transferred between units, all its bits are transferred in parallel, that is
- The bits are transferred simultaneously over many wires, or lines ,one bit per line.
- A group of lines(wires) that serves as a connecting path for several devices of a computer is called a bus.
- The lines that carry the data, the bus must have lines for address and control purpose.

Bus structures

- The can be used for only one transfer at a time.
- Two units can actively use the bus at any given time.
- Single bus structure is low cost
- Its flexibility for attaching peripheral devices.
- Multiple buses achieve more concurrency in operations by allowing two or more transfers to be carried out at the same time.
- It is better performance and increased cost.



Single Bus Structure

Bus structures

- Printer example – processor to printer.
- A common approach is to use the concept of buffer registers to hold the content during the transfer. There are three types of buses:

Address bus :

- It is the set of lines that carry (transfer) address information about where in memory the data is to be transferred to or from.
- It is an unidirectional bus.
- The address bus consists of 16, 20, 24 or more parallel signal lines.
- On these lines CPU sends out the address of the memory location.

Data Bus

- The Data bus Carries(transfer) data from one component (source) to other component (destination) connected to it.
- The data bus consists of 8, 16, 32 or more parallel signal lines.
- The data bus lines are bi-directional.
- This means that CPU can read data on these lines from memory or from a port, as well as send data out on these lines to a memory location.

- **Control bus:**

The Control Bus carries the Control and timing information.

1. What is Bus?
2. What are the types of bus?

Reference

1. Carl Hamacher, Zvonko Vranesic and Safwat Zaky, “Computer Organization”, McGraw-Hill, 6th Edition 2012.


Thank You!