

Chapter 11: Input/Output Organisation

Lesson 01:

Input-Output devices (Peripheral devices) and IO organisation

Objective

- Learn about different I/O peripheral devices used in a computer
- Understand how using memory mapped or IO mapped organisation a processor accesses and addresses the I/O peripheral devices

I/O system peripheral devices

Division of I/O system organization into two major components

1. The I/O devices themselves
2. The technologies used to interface the I/O devices to the rest of the system

IO (input-output) devices

[Peripheral Devices]

- Keypad
- keyboard
- mice
- video display unit

IO (input-output) devices

[Peripheral Devices]

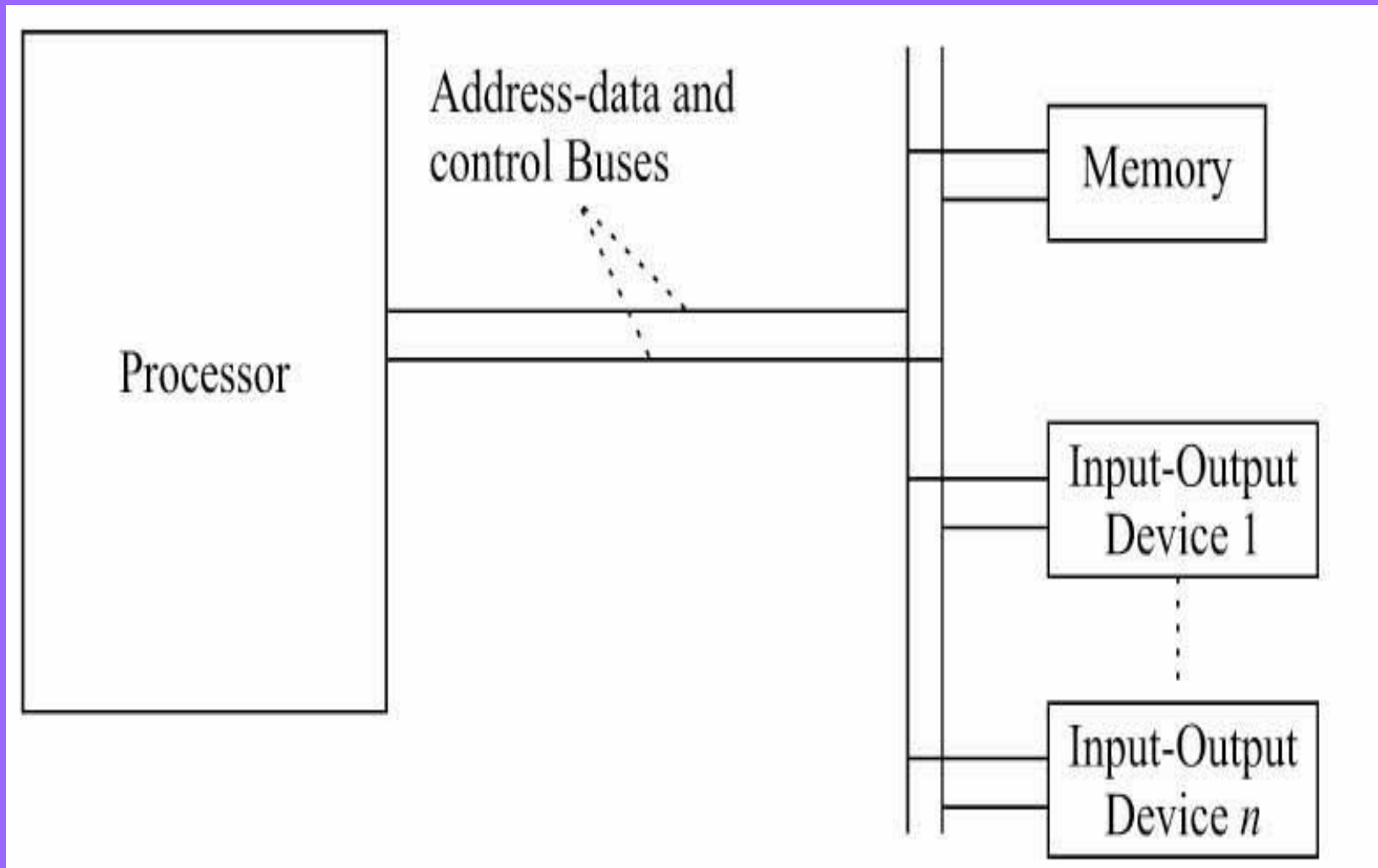
- flat panel unit
- LCD display
- Touch screen
- Printer

I/O system organization

Deployment of the input-output subsystem and IO bus(es) in a computer

- Processor must be able to send commands to the I/O devices
- Read data from them
- Most systems use a mechanism called memory-mapped I/O for this
- The processor interfaces I/O devices like a memory

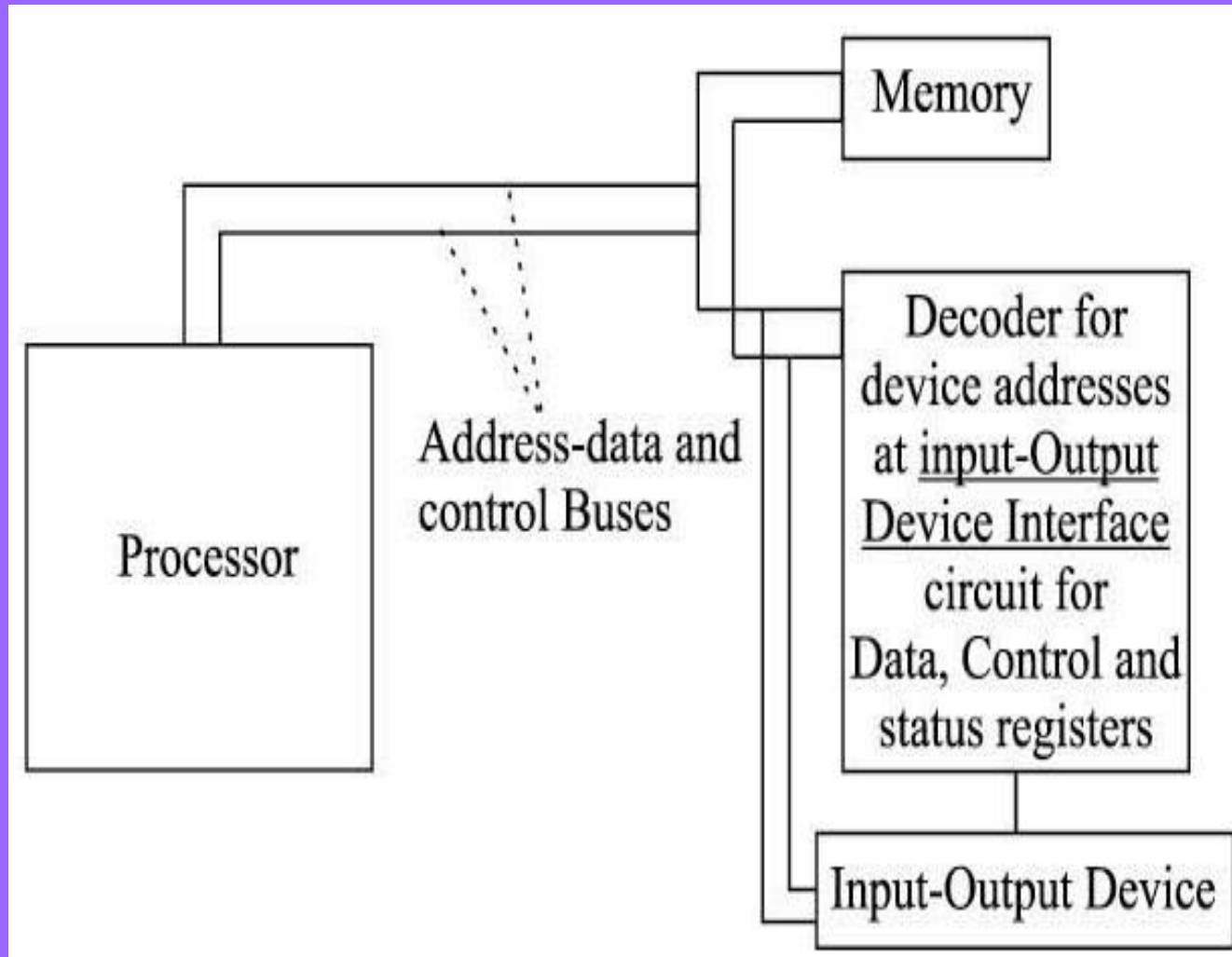
Memory mapped I/O device organization



Processor access in memory mapped organization

- By common buses, memory and common accessing instructions for a memory location, and I/O device registers

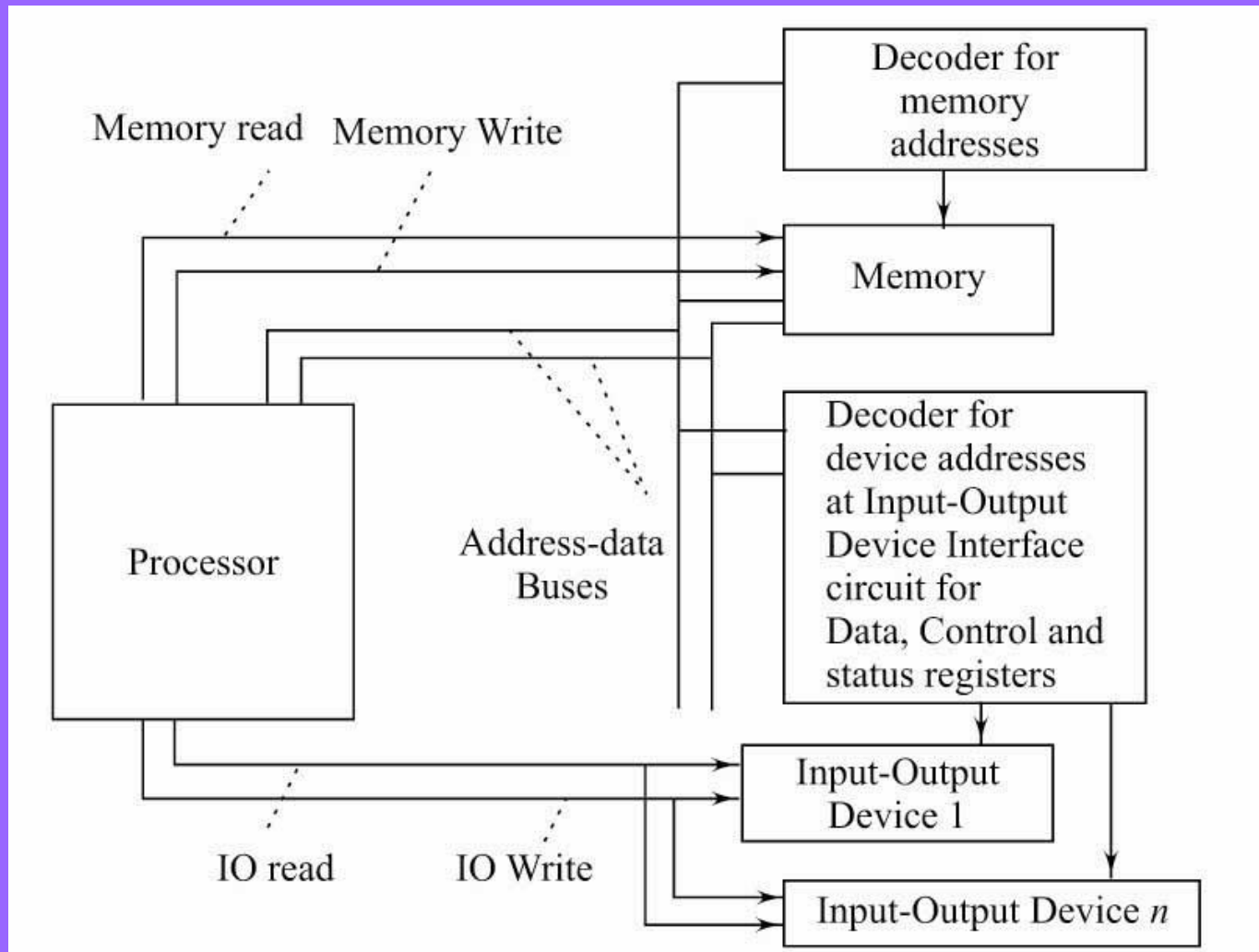
Memory-Mapped I/O Device Organization using Address Decoder, and I/O Circuits



Memory as well as IO

- Interface using address decoder, and I/O circuits accessing Data, control and status Registers

IO mapped I/O device organization



Processor access in IO mapped organization

- Special instructions to control I/O devices
- Separate control signals, which are issued when processing instructions for the I/O operations

Summary

We Learnt

- Number of IO devices in a computer
- Memory mapped IO access
- IO mapped separate IO access
- Decoder
- Control, status and data registers in a device

End of Lesson 01 on
**Input-Output devices (Peripheral
devices) and IO organisation**