

# Operating System

Condensed Notes

May 6, 2025

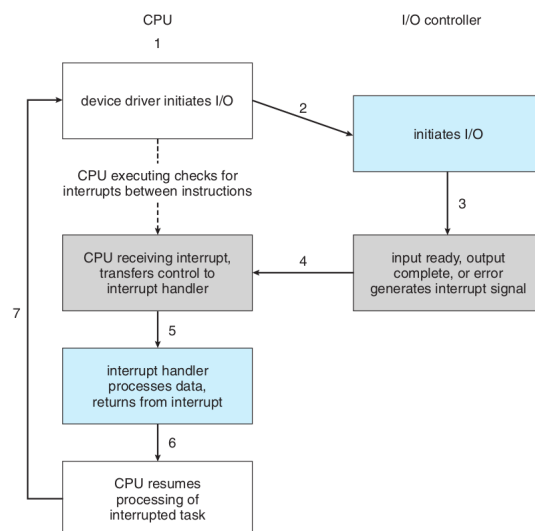
# Chapter 1

## Introduction

### 1.1 Computer-system-organisation

#### 1.1.1 Interrupts

The communication from the device to processor takes place through Interrupts. There is an interrupt line, which the processor senses after execution of every instruction and if it senses a signal it runs a routine corresponding to that signal. The figure below explains this more beautifully.



More detailed description in computer organisation notes.

## 1.2 Computer-System Architecture

### 1.2.1 Terminology

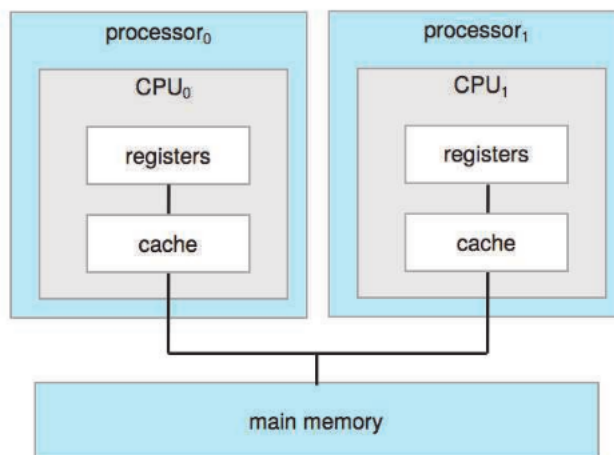
- **Core** : The most basic component that executes instructions and registers for storing data locally.

### 1.2.2 Single-Processor Systems

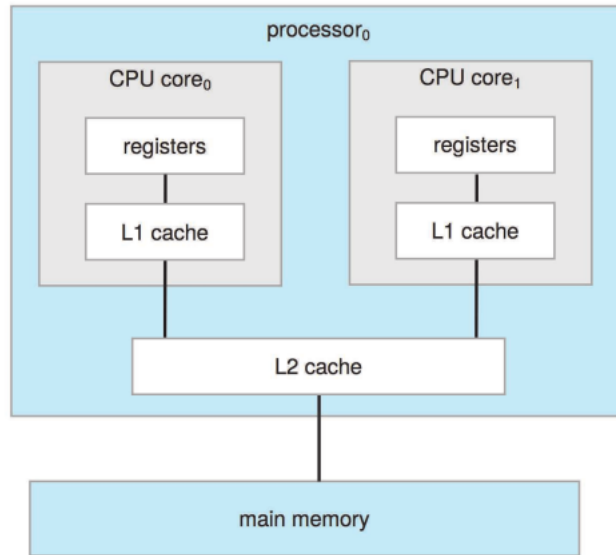
primitive computers use what is called a single processor system with one compute core capable of executing all general-purpose instructions. such system also used to have some special purpose processor for handling device specific task (simmilar to a device controller).

### 1.2.3 Multiprocessor Systems

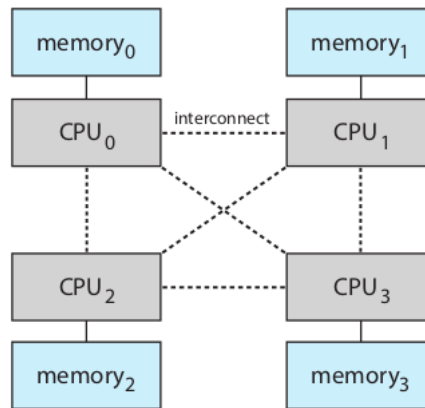
such system can have multiple single core procesor on board using a single main memory.



or a single chip housing multiple cores—symmetric multiprocessing (SME)



or each CPU (or group of CPU s) with its own local memory that is accessed via a small, fast local bus. The CPU s are connected by a shared system interconnect, so that all CPU s share one physical address space. This approach—known as non-uniform memory access, or NUMA.



### 1.2.4 Clustered Systems

Another type of multiprocessor system is a clustered system, which gathers together multiple CPU s. Clustered systems differ from the multiprocessor systems described in Section 1.3.2 in that they are composed of two or

more individual systems—or nodes—joined together; each node is typically a multi-core system. Such systems are used to provide fault tolerance mainly in servers.

# Chapter 2

## Process

### 2.1 Process and Threads

### 2.2 Omissions

1.1, 1.2.2, 1.2.3