

# Memory and I/O Organization

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## Memory and Input-Output Organization

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### **Memory Hierarchy:**

- Registers → Cache Memory → Main Memory → Secondary Storage.

### **Main Memory and Memory Chip Organization:**

- RAM (Random Access Memory), ROM (Read-Only Memory), DRAM, SRAM.

### **Auxiliary and Virtual Memory:**

- Hard disks, SSDs, Page replacement policies in virtual memory.

### **Cache Memory:**

- Stores frequently accessed data to speed up processing.

### **Input-Output Organization:**

- **I/O Interfaces:** Asynchronous data transfer.

- **Modes of Transfer:** Programmed I/O, Interrupt-driven I/O, Direct Memory Access (DMA).

### **Priority Interrupt:**

- Assigns priority levels to different interrupt sources.

### **Standard I/O Interfaces:**

- **PCI (Peripheral Component Interconnect).**

- **SCSI (Small Computer System Interface).**

- **USB (Universal Serial Bus).**

### **Case Study - Advanced Processors:**

- Features of modern processors such as multi-core architecture and hyper-threading.

