Operating System
Lecture 2

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Computer Startup

bootstrap program

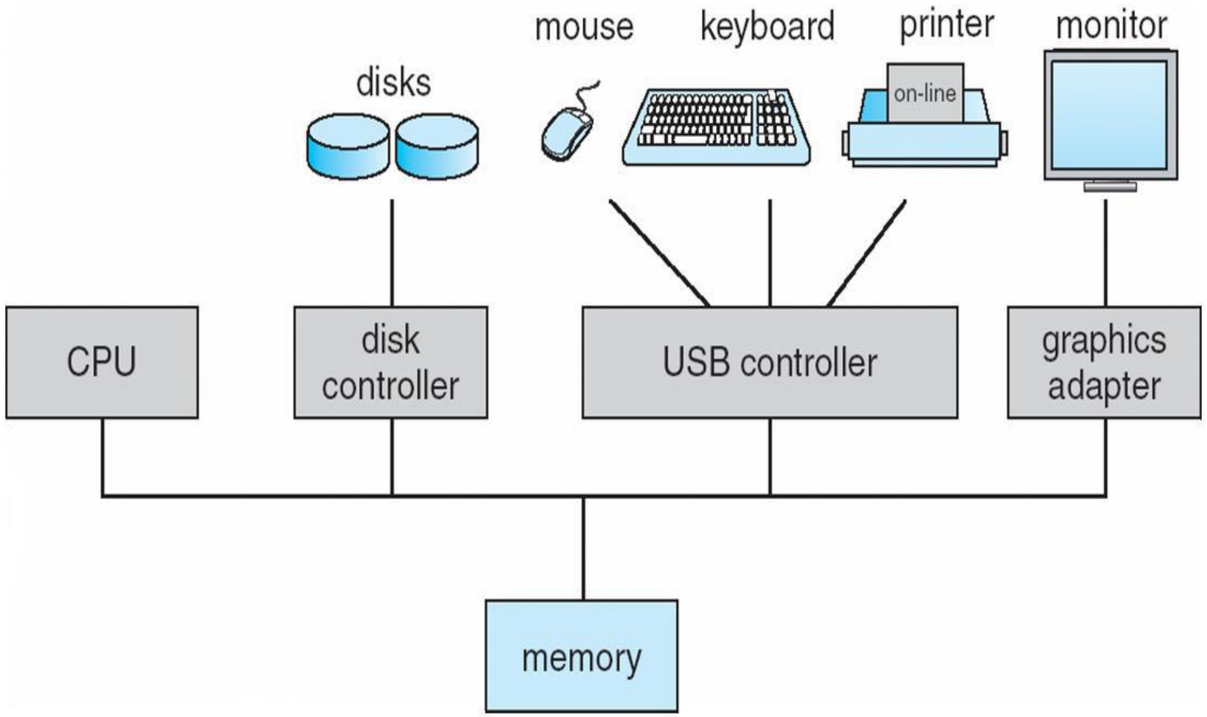
- Is loaded at power-up or reboot
- Typically stored in ROM, generally known as firmware
- Initializes all aspects of system
- Loads operating system kernel and starts execution

Computer System Organization

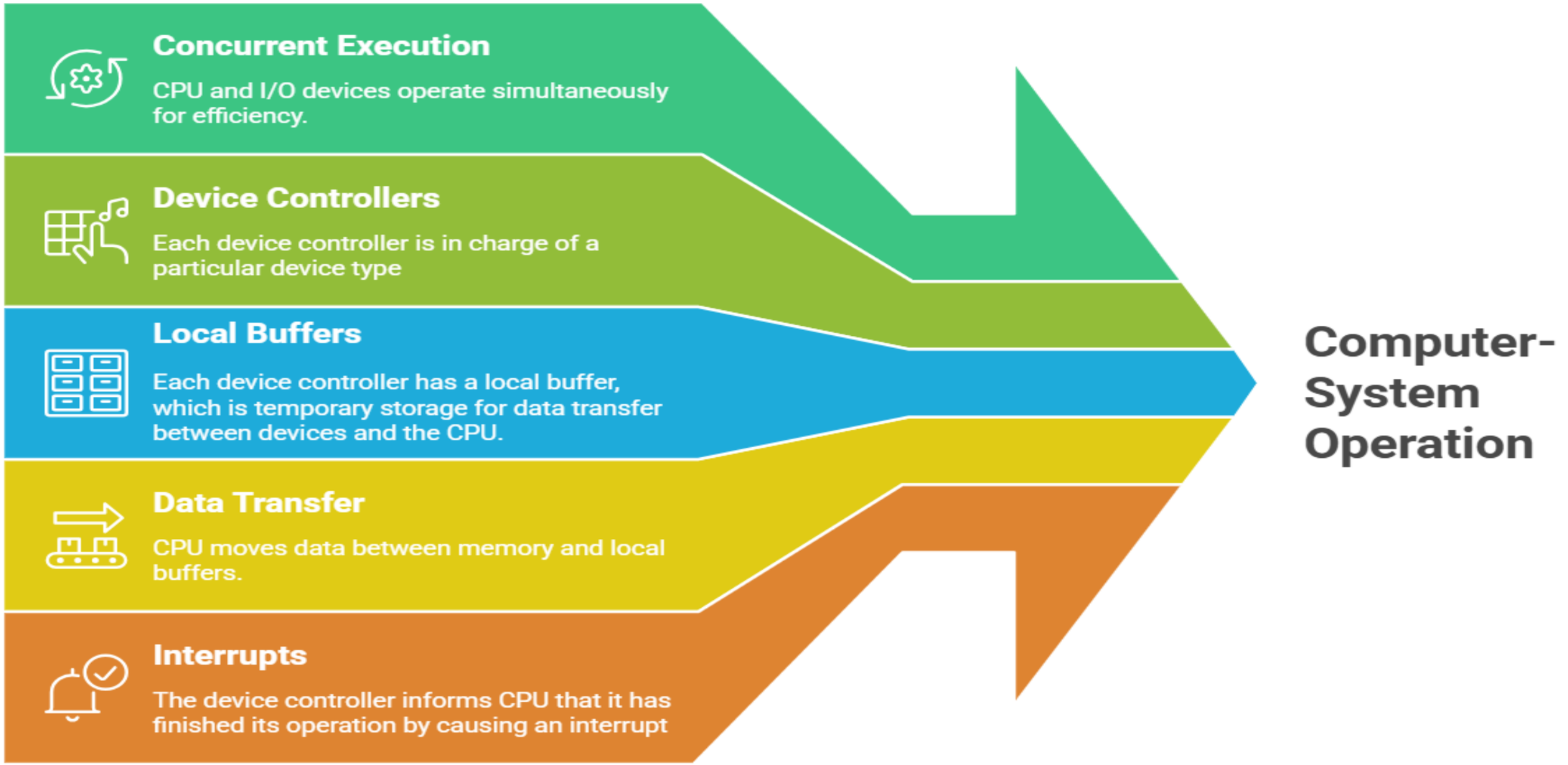
Computer-system operation

- One or more CPUs, device controllers connect through common bus providing access to shared memory

- Concurrent execution of CPUs and devices competing for memory cycles

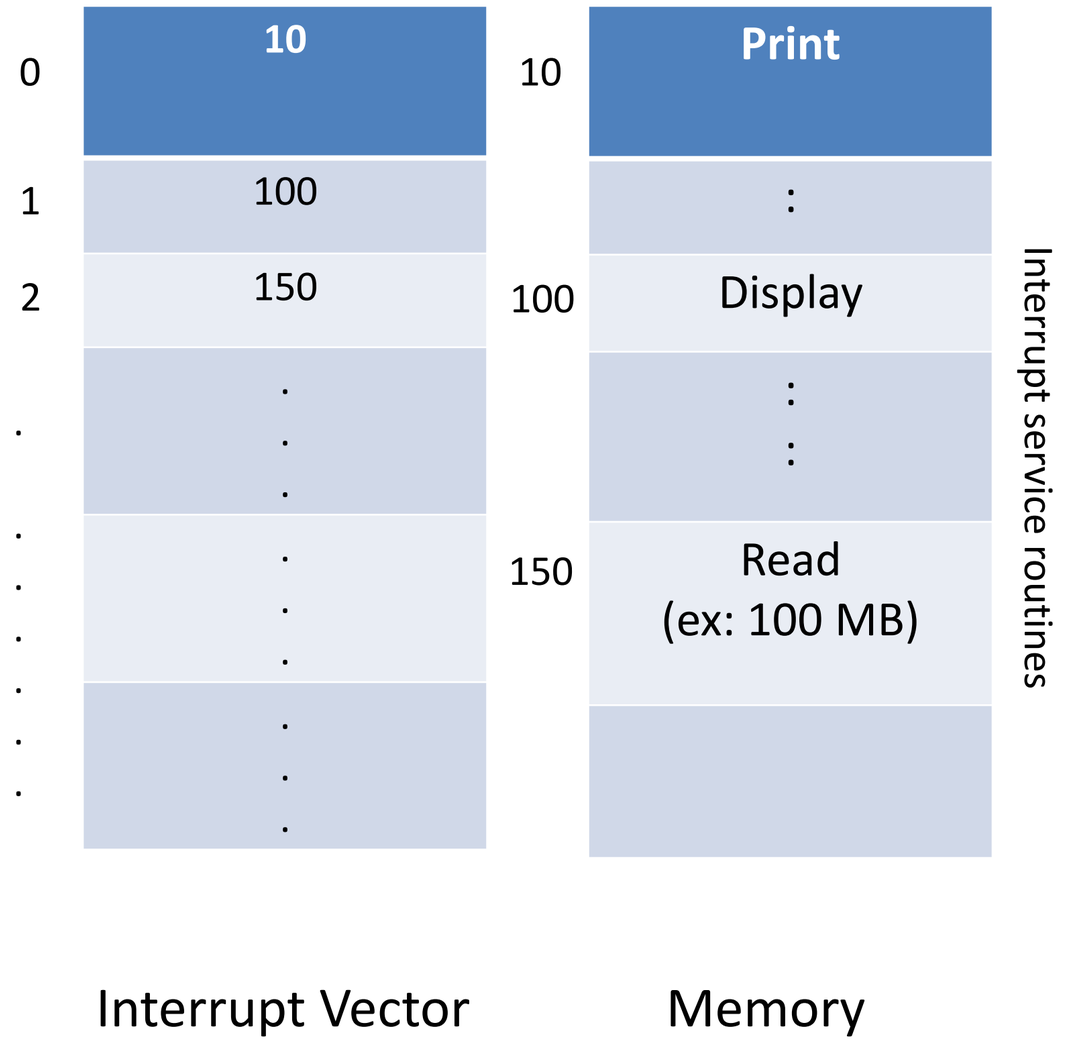


Computer System Operation



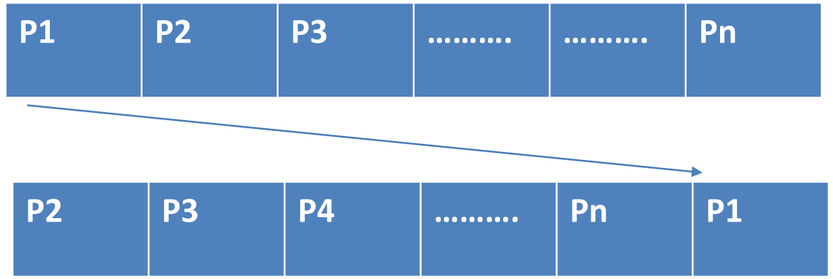
Common Functions of Interrupts

- Interrupt transfers control to the interrupt service routine generally, through the interrupt vector, which contains the addresses of all the service routines.
- Interrupt architecture must save the address of the interrupted instruction.
- A trap or exception is a software-generated interrupt caused either by an error or a user request.
- An operating system is interrupt-driven

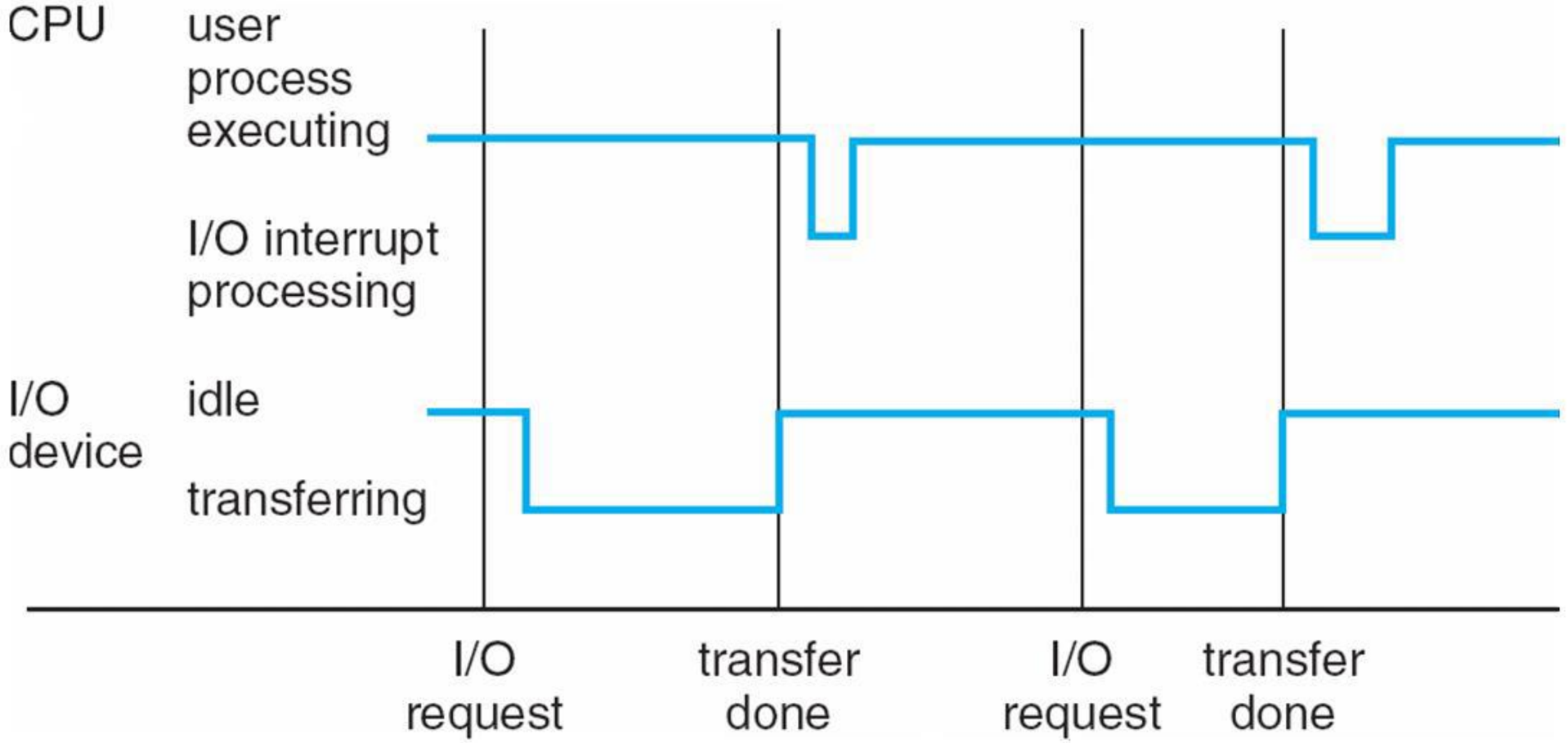


Interrupt Handling

- The operating system preserves the state of the CPU by storing registers and the program counter.
- Separate segments of code determine what action should be taken for each type of interrupt.



Interrupt Handling




Thank
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