Notes

Quiz

1. Which is the first program run on a computer when the computer boots up?
   A. System software
   B. Operating system
   C. System operations
   D. None

2. The primary purpose of an operating system is:
   A. To make the most efficient use of the computer hardware
   B. To allow people to use the computer
   C. To keep systems programmers employed
   D. To make computers easier to use

3. The two modes of operation of an operating system are called _____ .
   A. process and kernel
   B. ready and running
   C. interrupt and system
   D. kernel and user

4. Bootstrap programs must be provided using _____ .
   A. volatile memory
   B. erasable-programmable memory
   C. non-volatile ROM devices
   D. special magnetic disk tracks

Quiz Answers

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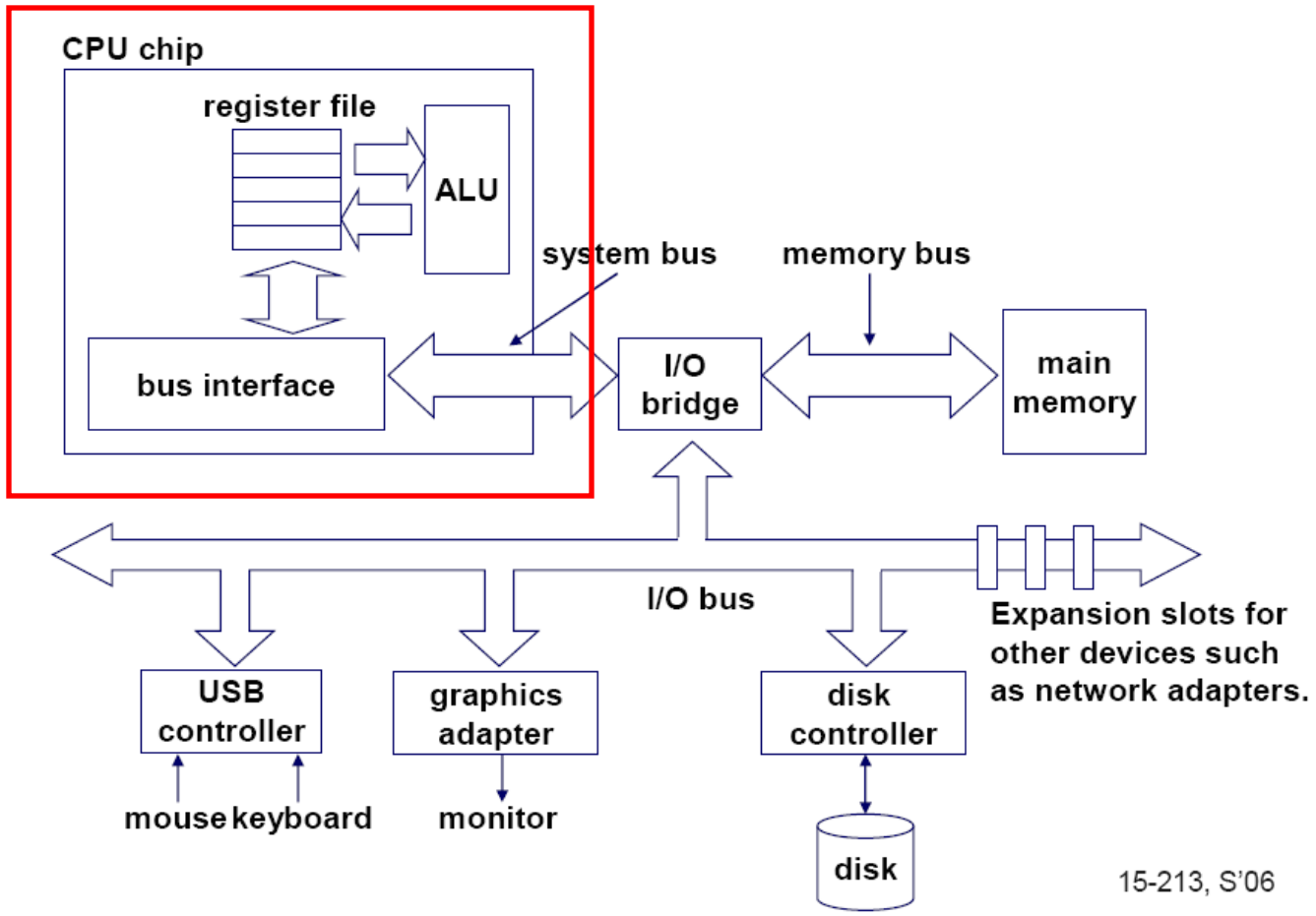
Multi-core architectures

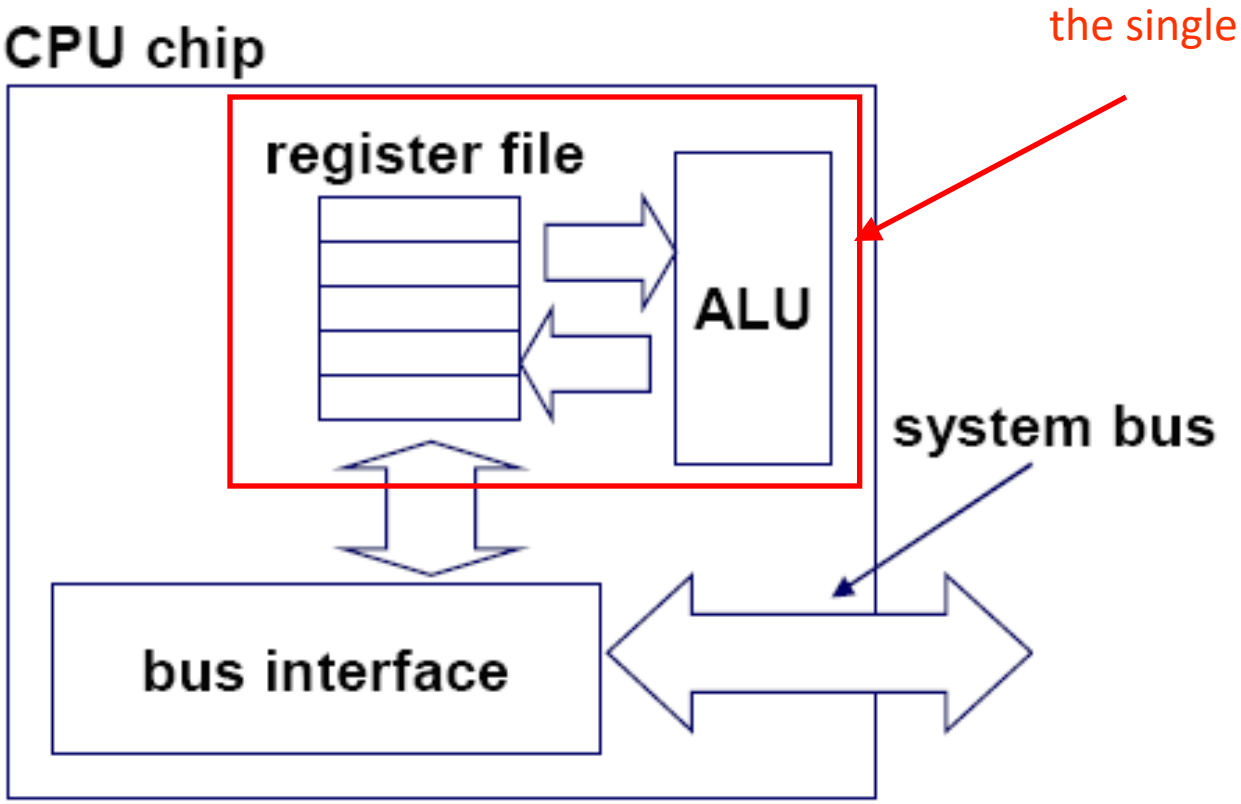
CPU (also known as **processor**)

- Multi-core means it's a single processor (CPU, Central Processing Unit) with multiple cores. Each core = two threads. A thread, in the simplest sense, is the most basic level of code execution, so two threads can be seen as two things that each core can work on simultaneously. So an Oct-core CPU (8 cores) can work on 16 things at once.
- A multi-*processor* system is a computer that actually has more than one physical socket on the motherboard to allow multiple CPUs. This is almost never seen outside of servers. In fact, it would be a very bad idea to use a multiple processor system for gaming because literally no game would know how to utilize the hardware and would most likely act very oddly if it even ran at all.

Single-core computer

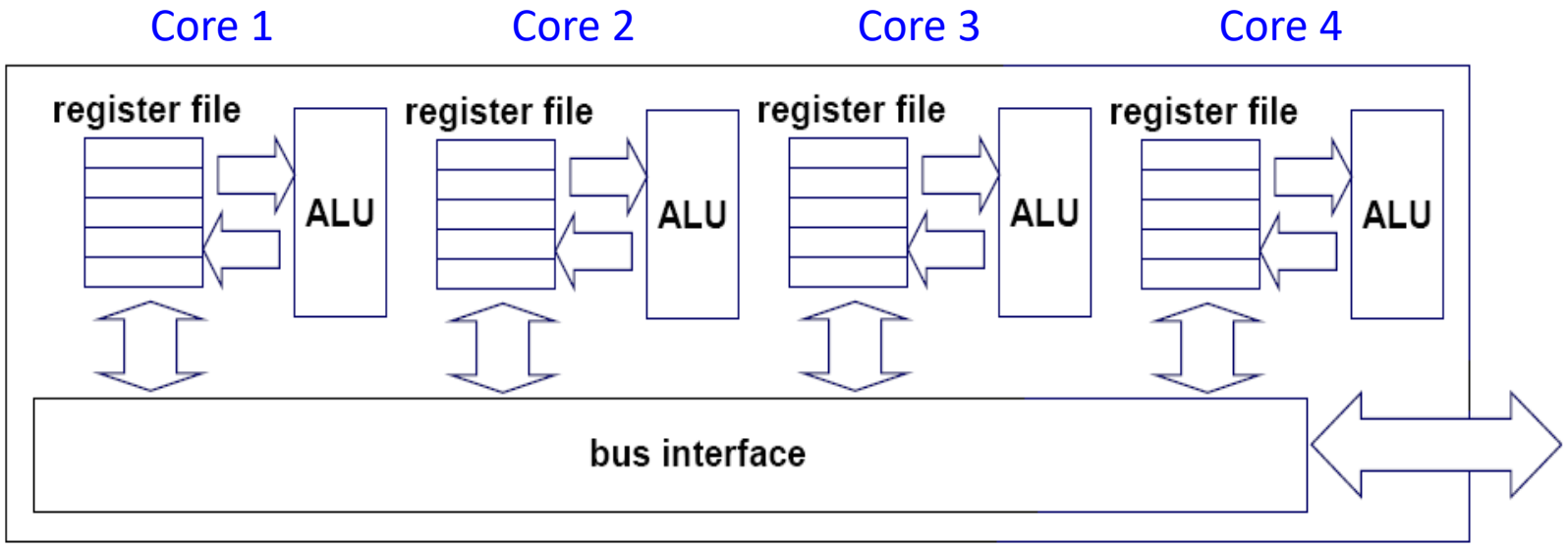


Single-core CPU chip



Multi-core architectures

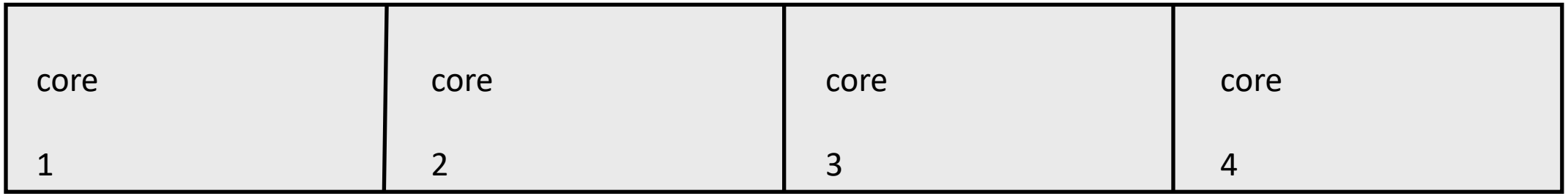
- This lecture is about a new trend in computer architecture:
  Replicate multiple processor cores on a single die.



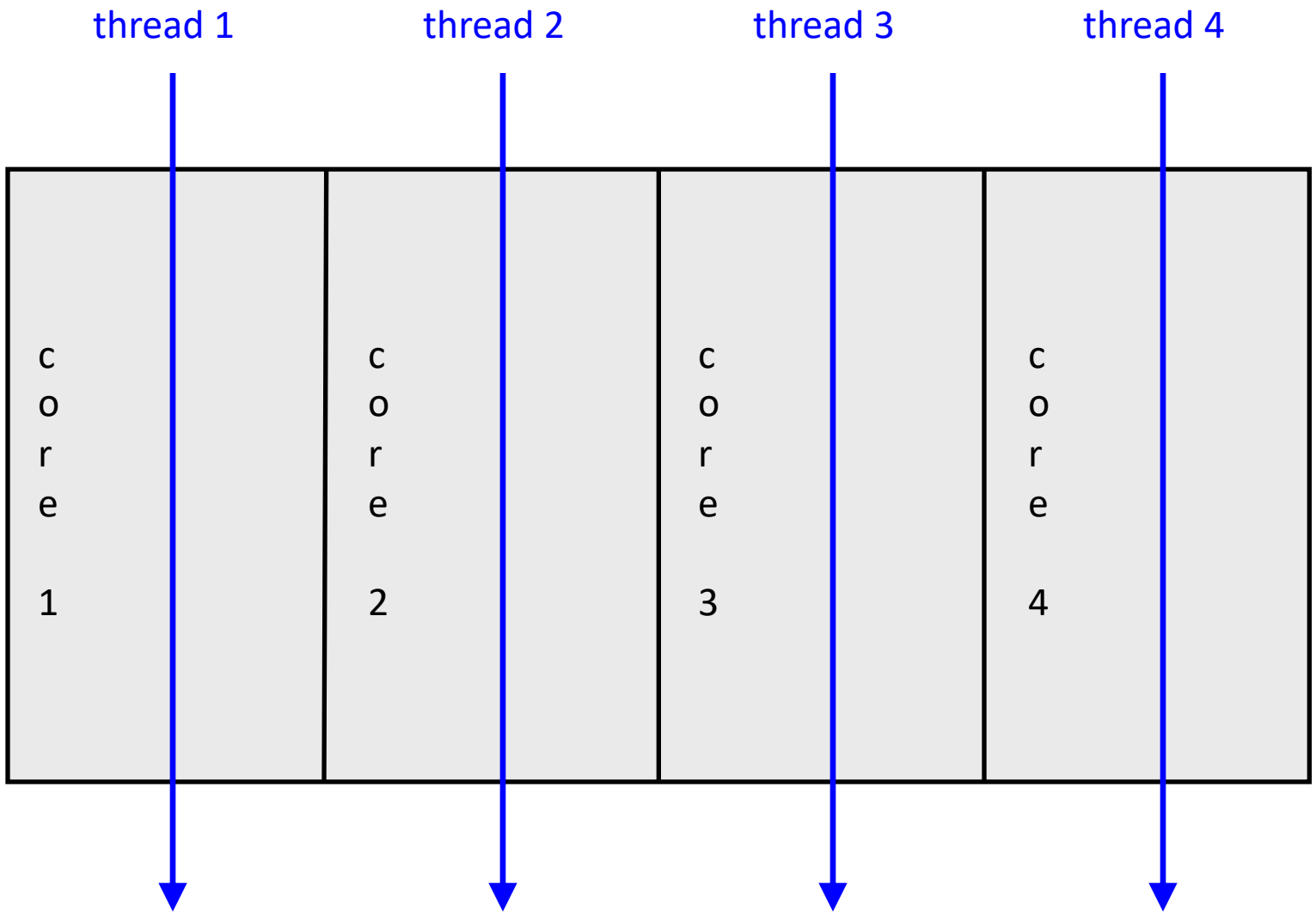
Multi-core CPU chip

Multi-core CPU chip

- The cores fit on a single processor socket
- Also called CMP (Chip Multi-Processor)



The cores run in parallel



Inter-core bus