Computer Architecture
Chapter 0: Introduction

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Instructor & TAs

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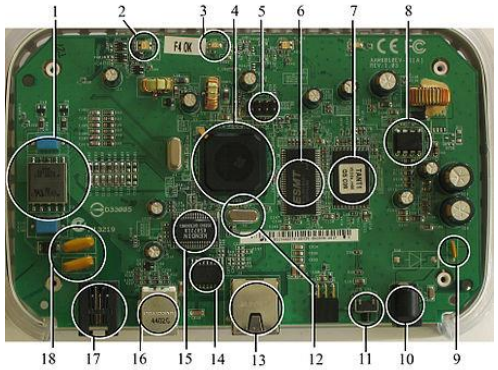
Computer

- Q: What is a **Computer**?
- A: “an ***electronic machine*** that is used for storing, organizing, and finding words, numbers, and pictures, for doing calculations, and for controlling other machines” – Cambridge dictionary
- A: “a ***general-purpose device*** that can be programmed to carry out a set of arithmetic or logical operations automatically” - Wikipedia

Computer classification

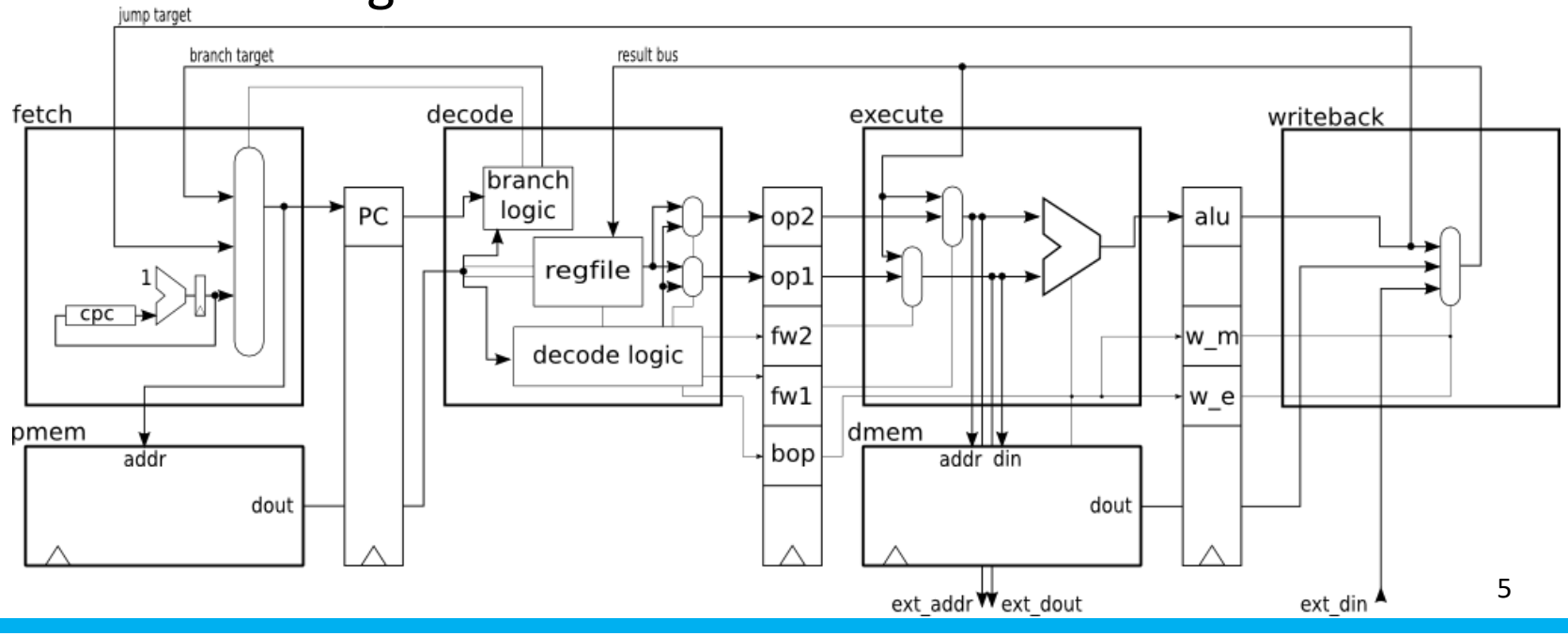
- Desktop computers
- Server/Super computers
- Embedded computers



(Images from Internet)

Computer Architecture

- Q: What is **Computer Architecture**?
- A: “the science and art of ***selecting*** and ***interconnecting*** hardware components to create computers that meet functional, performance and cost goals” - WWW Computer Architecture Page



The Course

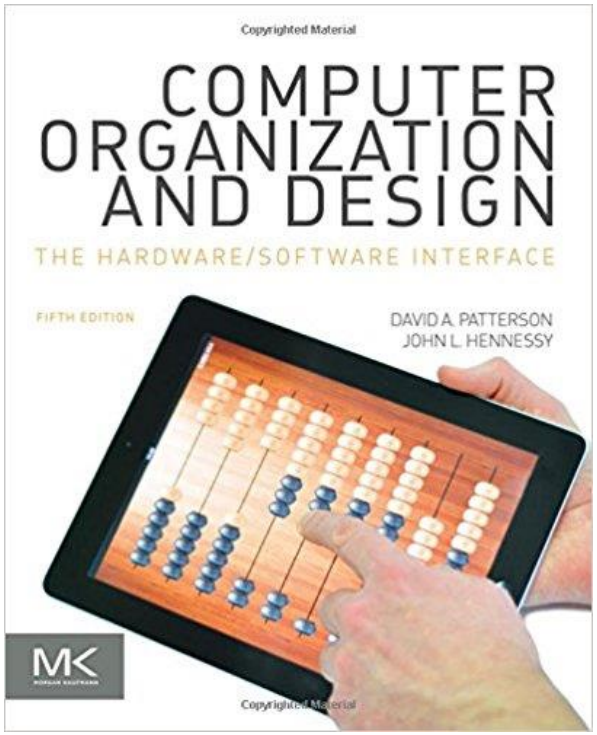
- Elementary course for both ***Computer Engineering*** and ***Computer Science***
- Contents:
  - Performance evaluation
  - Instruction set architecture
  - Computer arithmetic
  - Data-path and control signals
  - Memory system
  - I/O
  - Multicores, Multiprocessors, and Clusters

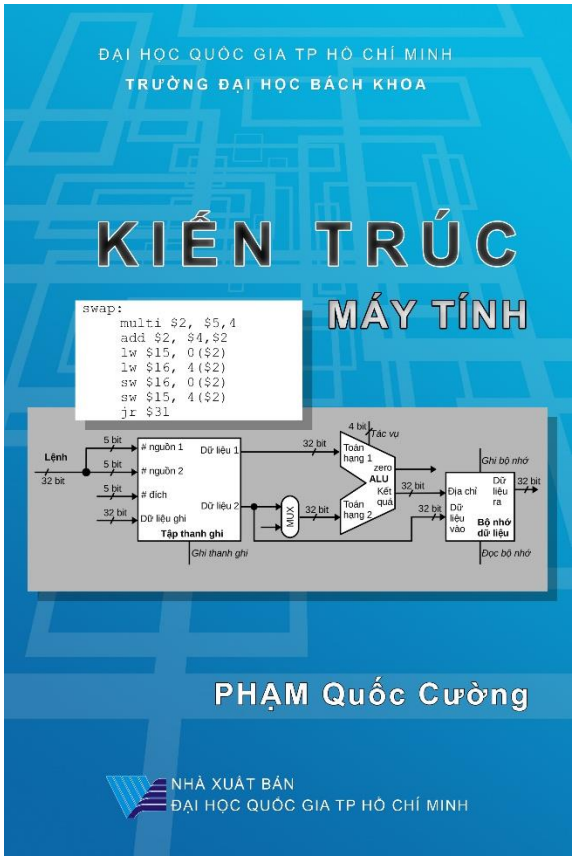
Course Outcomes

- Fundamental outcomes:
  - Understand the structure, organization of a computer system: the main components and the basic principles of its operations
- ***Computer Engineering*** students:
  - Design basic components of a digital computer using HDL
- ***Computer Science*** students:
  - Write and optimize small programs and fragments of codes to demonstrate an understanding of machine level operation

Learning Materials

- Slides: www.cse.hcmut.edu.vn/~cuongpham
- Textbooks





Assessment

- Lab + Project/assignment: 30%
- Quiz (15’): 10%
- Mid-term: 20% (mandatory) – multiple choices, closed books
- Final exam: 40% (mandatory) – multiple choices, closed books