Computer Architecture

Jo, Heeseung

Class materials

http://cslab.cbnu.ac.kr

- http://software.cbnu.ac.kr > 학과소개 > 교수진소개 > 조희승

Instructor

- Jo, Heeseung (heesn@cbnu.ac.kr)
- http://cslab.cbnu.ac.kr
- Room#327, S4-1 Bldg.
- Tel: 043-261-3757
- The best way to contact me is via email

Course description

Computer architectures have been drastically evolved since early 1980. Pipelining, cache, and branch prediction have been major features in modern microprocessor design. They are invented for high performance processors first, and then equipped in PC processors we are using every day.

Topics & Materials
Digital logic design - 데이터 표현
Digital logic design - 논리회로 기초
Digital logic design - 조합논리회로
Digital logic design - 순차논리소자
Computer Abstractions and Technology
Instructions Language of the Computer
Arithmetic for Computers
The Processor1
The Processor2
Memory Hierarchy 1
Memory Hierarchy 2
Storage and Other IO Topics

Prerequisites

Prerequisites

- Mathematics in high school
- Introduction to computer systems
- Digital logic design

You should be familiar with the followings:

- Basic computer organization
- Computer hardware
- C programming skills

Timetable

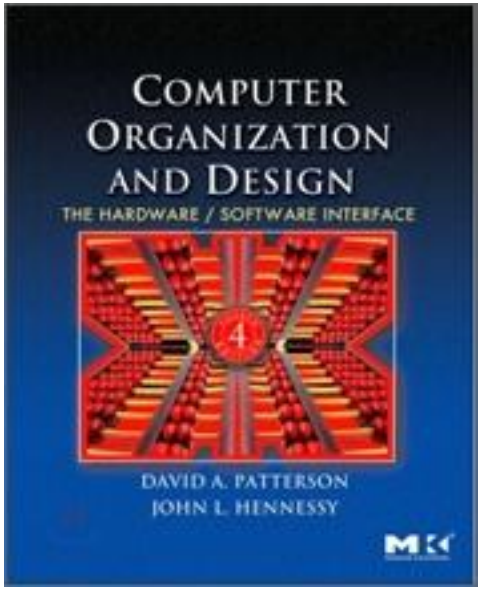
2025년 일반 1학기, 성명 : 조희승 출력일시 : 2025-02-07 16:54:16

교시 50	월	화	수(50)	목	금(50)
0교시 08:00 ~ 08:50					
1교시 09:00 ~ 09:50					
2교시 10:00 ~ 10:50					
3교시 11:00 ~ 11:50					
4교시 12:00 ~ 12:50					
5교시 13:00 ~ 13:50	컴퓨터구조 5118007-01 조희승 S4-1-106(21-106) 5교시	운영체제 5118020-01 조희승 S4-1-103(21-103) 5교시			
6교시 14:00 ~ 14:50	컴퓨터구조 5118007-01 조희승 S4-1-106(21-106) 6교시		운영체제 5118020-01 조희승 S4-1-103(21-103) 6교시		
7교시 15:00 ~ 15:50			운영체제 5118020-01 조희승 S4-1-103(21-103) 7교시		
8교시 16:00 ~ 16:50		운영체제 5118020-02 조희승 S4-1-103(21-103) 8교시		컴퓨터구조 5118007-01 조희승 S4-1-106(21-106) 8교시	
9교시 17:00 ~ 17:50		운영체제 5118020-02 조희승 S4-1-103(21-103) 9교시		운영체제 5118020-02 조희승 S4-1-103(21-103) 9교시	
10교시 18:00 ~ 18:50					

Textbook

Computer Organization and Design – The Hardware/Software Interface

- David A. Patterson and John L. Hennessy, Morgan Kaufmann Publishers
- MIPS version (Not ARM version)



Reference

동작 원리 중심의 논리회로와 컴퓨터 구조

- 전중남, 배움터

한 눈에 보이는 컴퓨터구조

- 전중남, 생능출판사

Computer Systems: A Programmer's Perspective

- Randal E. Bryant and David R. O'Hallaron,, Prentice Hall Inc.

Computer Architecture – A Quantitative Approach

- John L. Hennessy and David A. Patterson, Morgan Kaufmann Publishers.

Grading

Grading ratio (Subject to change)

- Exams: 75%
- Homework: 15%
- Etc: 10%

No cheating

- Sharing or copying of solutions
- Of course, cooperation on exams, homework, and projects
- Definitely F

Attendance policy

Do not be late!

- You should be present when I take class attendance

You can miss the class up to "three" times without any penalty

- More than 3 times, then D

Reserved seat in class

- We will use reserved seat in this class for this semester
- Your seat will be reserved at the next class

Class policy

Notebook, tablet, smartphone

Food, fluid intake

Consecutive lecture (2-hour time)

Computer architecture

Computer architecture

From Wikipedia, the free encyclopedia

In computer engineering, **computer architecture** is a set of rules and methods that describe the functionality, organization, and implementation of computer systems. Some definitions of architecture define it as describing the capabilities and programming model of a computer but not a particular implementation.[1] In other definitions computer architecture involves instruction set architecture design, microarchitecture design, logic design, and implementation.[2]

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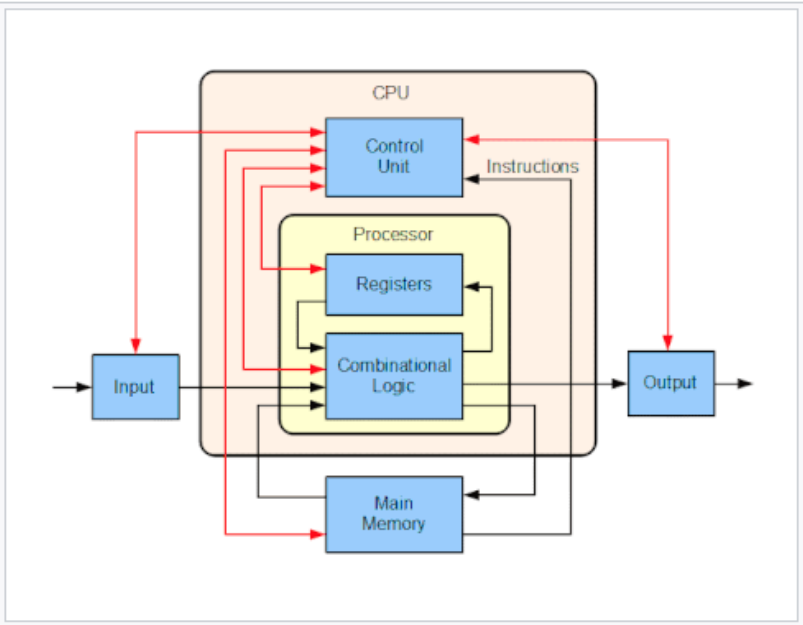

Block diagram of a basic computer with uniprocessor CPU. Black lines indicate data flow, whereas red lines indicate control flow. Arrows indicate the direction of flow.

History [edit]

The first documented computer architecture was in the correspondence between Charles Babbage and Ada Lovelace, describing the analytical engine. When building the computer Z1 in 1936, Konrad Zuse described in two patent applications for his future projects that machine instructions could be stored in the same storage used for data, i.e., the stored-program concept.[3][4] Two other early and important examples are:

- John von Neumann's 1945 paper, First Draft of a Report on the EDVAC, which described an organization of logical elements;[5] and