

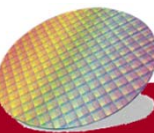


成功大學

National Cheng Kung University

Computer Architecture

Fall 2017





Course Administration

- Instructor: Ing-Chao Lin (林英超)

- email: iclin@mail.ncku.edu.tw

- Tel: +8866-2757575 ext. 62553

- Email is preferred

- Teaching Assistant:

- Lab:

- Phone: 06-2757575 ext. 62530-33

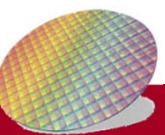
- Email: caid.ncku@gmail.com

- Course Website:

- <https://sites.google.com/a/caid.tw/home/courses/comparch/comparch2017>

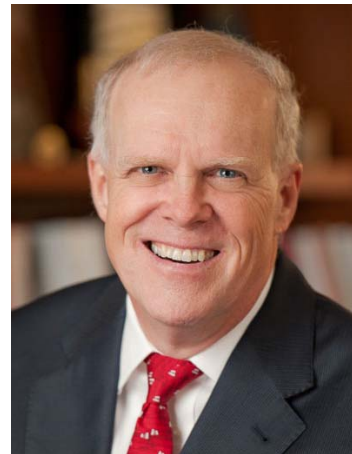
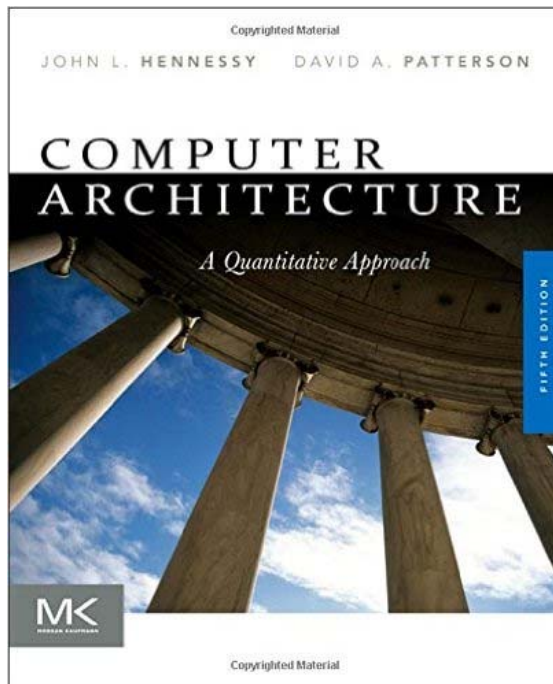
- announcement and slides will be posted here

- <http://moodle.ncku.edu.tw> – submit your homework there



Textbook (Required)

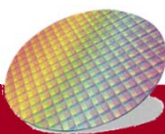
- Textbook
 - Computer Architecture: A Quantitative Approach, by John Hennessy and David Patterson, 5th edition



<http://web.stanford.edu/~hennessy/>

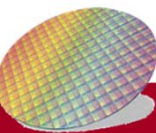
<https://people.eecs.berkeley.edu/~pattarn/>

- Inventor of RAID, RISC instruction set



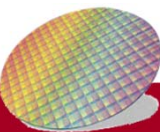


Meet with Prof. Patterson



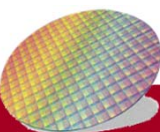
Course Contents

- We will mainly focus on
 - Fundamentals of Quantitative Design and Analysis (Ch1)
 - Memory Hierarchy Design (Ch2, Appendix B)
 - Instruction-Level Parallelism (Ch3, Appendix A)
 - Thread-Level Parallelism (Ch5)
 - Multicore system
 - Vector, SIMD and GPU Architecture (Ch4)
 - Data-Level Parallelism
- Also cover on the following if time permits
 - Warehouse-Scale Computers (Ch6)



Prerequisite

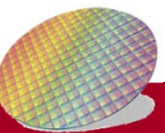
- Computer Organization, with understanding of
 - Instruction Set
 - Pipeline Design
 - Cache
- Programming Language: C/C++
 - Python is also helpful
- English





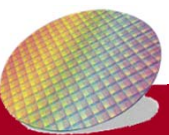
Tentative Grading (the percentage may vary by 5%)

- **Homework and Programming Assignment (30 %)**
 - Penalty for late submission: 80% for first week, 60% for second week. Will not accept after 2 weeks.
- Midterm exam (25%) (2017/11/30)
- Paper Presentation & Final Project (25 %)
- Class Participation (20%)
 - Attendance
 - In-class quick test
- **Different grading criteria for undergraduate and graduate students**
 - Paper Presentation & ~~Final Project (25 %)~~ => Paper Presentation and 2-page **survey** report



Paper Presentation and Project

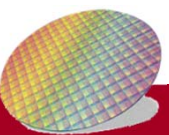
- Project: Choose a topic and read related papers. Present a paper, implement related technique, write a report
 - better grade if the paper is newer
- Milestone
 - Project Proposal
 - List the paper that you are going to read
 - One paragraph
 - Paper presentation
 - Progress Report:
 - 2-page report to update your progress
 - Final Presentation and Report
 - Class presentation and 4-page final report



Laptop & Tablet Usage Guideline

- It's ok if you use your **laptop** or **tablet** or **phone** for class-related issues, such as reading course slides.
- However, It's **NOT** allowed to use laptop or tablet for things that **are not related to class**.
- I want everyone to be here and present

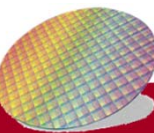
You will lose **2** points of your **FINAL** grade for each violation.





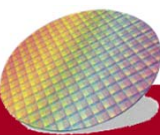
In-class quick test

- In-class quick test is a very simple test.
- Normally take less than **10** minutes.
- Cover what I taught in last class
- Basically, it is random, and will not be announced **in advance**



Reading Assignment

- Review your undergraduate textbook:
 - Computer Organization and Design
- Read Chapter 1
- We will start from Chapter 1 next week.

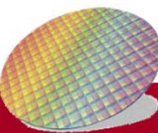


Any questions?



Contact Mail: iclin@mail.ncku.edu.tw

Tel: +886-6-2757575-62553





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Backup Slides

