

AP6120/8120

**Microelectronic Materials &
Processing**

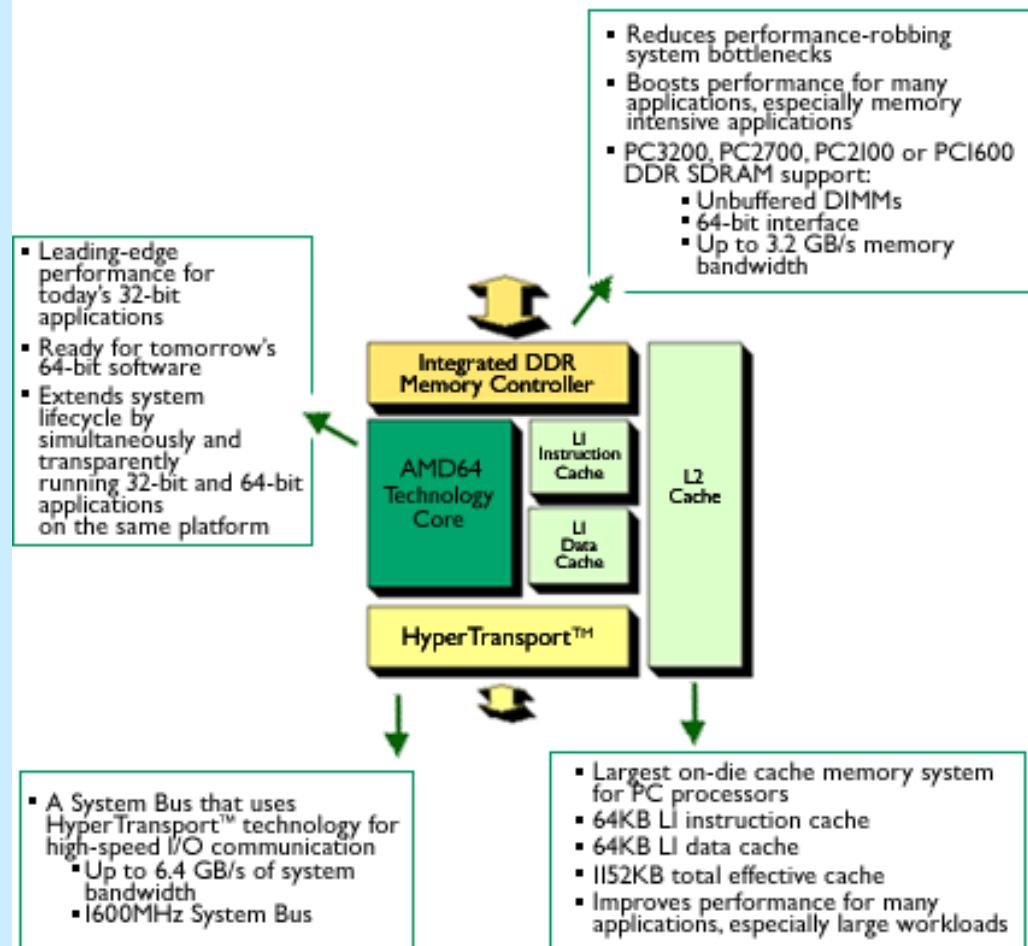
Professor Paul K. Chu

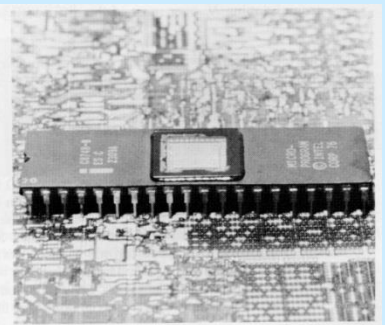
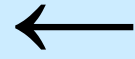
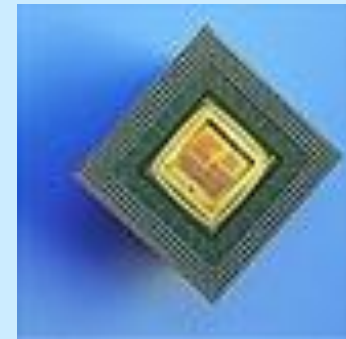
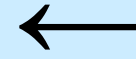
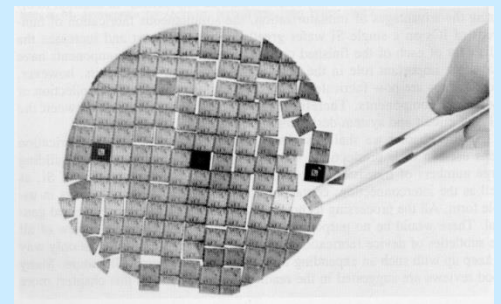
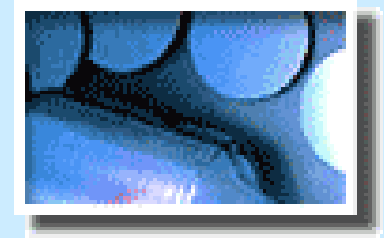
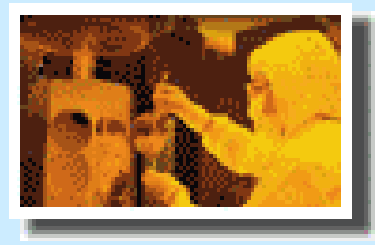
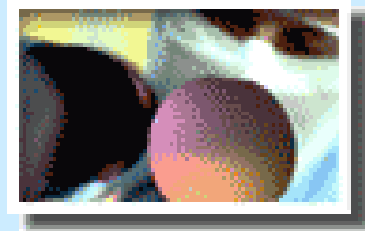
Course Objectives



- Simple microelectronic devices and building blocks of integrated circuits
- Techniques to fabricate integrated circuits
- Processing related issues

AMD Athlon™ 64 Processor Architecture





Recommended Textbooks

- **Semiconductor Devices: Physics and Technology (2nd Edition)**, S. M. Sze, *Wiley*, 2002
- **VLSI Technology (2nd Edition)**, S. M. Sze (Editor), *McGraw Hill*, 1988
- **Solid State Electronic Device (5th Edition)**, B. G. Streetman and S. Banerjee, *Prentice Hall*, 2000
- **ULSI Technology**, C. Y. Chang & S. M. Sze (Editors), *McGraw Hill*, 1996

Covered Topics (1)

- (1) Semiconductor Materials & Physics
- (2) Crystal Growth and Wafer Preparation
- (3) Epitaxy
- (4) Oxidation
- (5) Lithography
- (6) Etching

Website - <http://www6.cityu.edu.hk/appkchu/AP6120/Notes.htm>

Covered Topics (2)

- (7) Thin Film Deposition
- (8) Diffusion
- (9) Ion Implantation and Annealing
- (10) Metallization
- (11) Testing, Assembly, and Packaging

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Grading Methodology

- **Continuous Assessment (40%)**

Homework

Mid-Term Examination

Mini-Project

- **Final Examination (60%)**