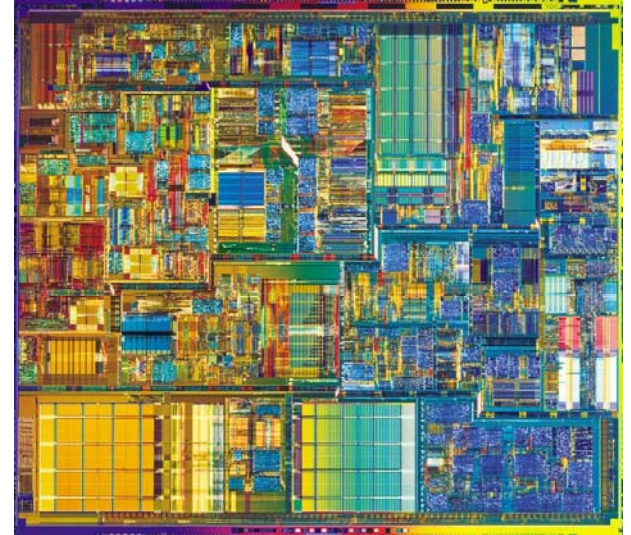


# Graduate Offerings in Computer Engineering Area – Fall 2007

- ECE 632 VLSI Design
- ECE 635 Computer Organization & Design
- ECE 686 Algorithms to Implementations

# ECE 632: VLSI Design

- Learn about modern digital integrated circuit design
  - circuit analysis, design, and simulation
  - logic, flip-flops, memory, arithmetic units
  - leakage, variation, scaling issues
- Lecture-style class with semester-long, student-defined research/design project
  - learn to use state-of-the-art CAD tools for IC design while exploring a research question related to modern circuit design



# ECE 635

## Computer Organization & Design

- This class includes both lectures and labs
- It has three broad objectives
  - Introduction to VHDL and electronic CAD
  - Design of complex synchronous devices at the register transfer level (Computer Design)
  - Hardware organization and acceleration (pipelines, superscalar, memory control, system-on-chip, etc.)
- Computer architecture is a prerequisite

# ECE 686

## Algorithms to Implementations

- Explore the relationships between algorithms and the hardware/software implementations of those algorithms, from high-level algorithms to low-level circuits and machine code
  - design, modeling, simulation, optimization, tradeoffs
  - languages, data structures, formalisms
  - algorithms/applications include: image, biomedical, digital signal processing; networking, communication, security protocols; computer graphics, computational photography; control, automation systems; etc.
  - implementation platforms include: single- and multi-core processor architectures, graphics processors, computer grids, embedded processors, DSP processors, FPGAs, ASICs, SOCs, etc.
- Seminar-style course discussing and presenting recent papers with significant, student-defined research/design project
  - Given interdisciplinary nature of course, students should come with their own expertise and be prepared to contribute that expertise to course discussions, presentations, projects