

Advanced Computer Systems Architecture

Chip-Multiprocessors: Applications and Architectures

CSE 526M

Prof. Patrick Crowley

Plan for Today

- Announcements
 - Friday, Apr 2, 11am:
 - Matt Adiletta
- Questions
- Today's discussion

Project Logistics

- Dates
 - Today's date: Mar 30
 - End date: **(2.5 weeks later)** Thursday, April 15
- Weekly Milestones

<i>M1</i>	<i>Mar 4</i>	<i>Implementation 1</i>
<i>M2</i>	<i>Mar 18</i>	<i>Implementation 2</i>
<i>M3</i>	<i>Mar 25</i>	<i>Implementation 3</i>
M4	Apr 1	Implementation Wrap-up
M5	Apr 8	Plan future work, Reports
M6	Apr 15	Presentations

Reports and Presentations

- Report
 - Contents
 - Problem statement, description & background
 - Your design
 - Your implementation
 - Experimental results
 - Future work
 - Division of labor
 - Length: $5 \leq \text{pages} \leq 15$
- Presentation
 - Dates: Tu 4/13 or Th 4/15
 - 20 minutes
 - All group members should contribute

From Here Forward

- Objective:
 - approach existing ideas with newly-gained knowledge of an IXP-like architecture
- We will read and discuss papers from 3 (or 4) areas
 - Instruction sets
 - Dataflow and multithreading
 - Multiprocessors and multicomputers
 - SIMD

Instruction sets (4/6-4/8)

- The Case for the Reduced Instruction Set Computer
 - Patterson and Ditzel
- Instruction Sets and Beyond: Computers, Complexity and Controversy
 - Colwell, *et al.*

Dataflow and Multithreading (4/20-4/22)

- A Preliminary Architecture for a Basic Data-Flow Processor
 - Dennis and Misunas
- Architecture and Applications of the HEP Multiprocessor Computer System
 - Smith

Multiprocessors and Multicomputers (4/27-4/29)

- Reflections in a Pool of Processors/ An Experience Report on C.mmp/Hydra
 - Wulf and Harbison
- The Cosmic Cube
 - Seitz

Single Instruction, Multiple Data (5/4)

- The Burroughs Scientific Processor (BSP)
 - Kuck and Stokes

Assignment

- Thursday (4/1)
 - Milestone 4
- Tuesday (4/6):
 - ***Commentary: The Case for RISC***