

Computer Systems Architecture II

Chip-Multiprocessors: Applications and Architectures

CSE 561M

Prof. Patrick Crowley

Plan for Today

- Questions
- Today's discussion

Project Logistics

- Weekly Milestones
 - Milestone report due each week
 - Submit proposal Feb 26
 - Final presentation Apr 15
- Focus this week: Design

Project Milestones

<i>M0</i>	<i>Feb 26</i>	<i>Project Proposal</i>
M1	Mar 4	Design
M2	Mar 18	Implementation 1
M3	Mar 25	Implementation 2
M4	Apr 1	Implementation 3
M5	Apr 8	Wrap-up, Prepare reports
M6	Apr 15	Presentations

Project Teams & Clusters

- Cluster 1
 - Eitan Marder-Eppstein, Stu Glaser
 - Erik Church, Paul Sebert
- Cluster 2
 - Joe Clinch, Rich Hill
 - Steve Prochazka, Mark Dunn
- Cluster 3
 - Steve Nann
 - Tam Vu Ngoc
 - Dan Vianello
- Cluster 4
 - Mart Haitjema, Ritun Patney
 - Shakir James

Design Considerations

- Plugin structure
 - Do all threads do the same thing?
 - What data must be shared?
 - How are threads coordinated?
 - Think about alternatives before choosing a design
- Resource allocation
 - How many NP routers/MEs/threads will you use?
 - Which memories will hold your data structures?
 - Which hardware units will you use?
- Framework requirements
 - What traffic will be needed to utilize your plugin?
 - What end-host applications will be used?
 - What network topology will you use?
 - What does your final evaluation/demo scenario look like?
 - Do you have a NP router framework “wish list”?

Plugin structure

- Are you reducing an algorithm to practice on one or more processors?
 - What choices or assumptions have you made in your design? How might you have done it differently?
- What is the overall structure of your plugin?
 - Pipeline?
 - Pool of processors/threads?
- Does your application structure require significant and fast data sharing?

Resource allocation

- Where will your code execute?
 - How many NP routers, MEs, threads?
- Where is your data stored?
 - Registers, local memory, scratch, SRAM, DRAM
- Are you using any hardware units?
- How will your threads communicate?

Framework requirements

- What are your I/O requirements?
- Have you defined workloads and data sets?
 - What type of traffic do you need?
 - What end-host applications will you use?
 - Does your choice of network topology matter?
- How will you test and evaluate your application?
- Does the Plugin framework permit everything you'll need to do?

Milestone Reports

1. Did you meet Milestone N ?
 - a. If yes, congratulations! Include any report material created (design documents, etc).
 - b. If no, why not? How can this be corrected in the schedule and avoided in the future?

2. Are you ready to tackle Milestone $N+1$?
 - a. What tasks must be completed?
 - b. Do you foresee any problems or delays?

3. Are you on track to complete the project?
 - a. Do you need to adjust scope or work habits?
 - b. Explain any other concerns.

Assignment

- Tuesday
 - Milestone 1: Design Due
 - Use the template in this presentation and post your milestone report to the newsgroup. Bring a hardcopy to class.
- Thursday
 - J&K: Ch. 13