Mini-Projects

CS 433

Spring 2017
Mini-Project Assignment

You are to prepare a presentation on the following features of one current commercial processor (including GPUs and any programmable special-purpose processors)

- Processor core microarchitecture
- Memory hierarchy
- Multicore and/or thread-level parallelism support, including network
Mini-Project Procedures and Schedule (1 of 3)

Step 1 (5% of grade): Due 3/2/17 5pm, but I encourage you to submit early

- Form a group of 3 students
- Send email to the TA and Prof. Adve with a list of full names of all your group members and their netids. Use the following format:
  Full-name1, netid1
  Full-name2, netid2
  Full-name3, netid3
- Include in your email your group’s conflicts for 8:30am to 5:30pm on 4/28 and 5/1 (see later slides). State exactly which parts of these windows you cannot make.
- Cc the above email to all your group members
- For full points, please conform to all stated instructions. This applies to all the steps for the project.
- Undergraduates: Please send the TA and Prof. Adve an email with your conflicts in the above windows and by the above due date.
Mini-Project Procedures and Schedule (2 of 3)

Step 2 (5% of grade): Due 3/9/17 5pm, but I encourage you to submit early

- Send an email to the TA and Prof. Adve with the following:
  - Include the email you sent for step 1
  - Any changes in partners (this should be rare and only with prior approval from Prof. Adve, the approval email should be included)
  - Prioritized list of processors you want to present (most preferred first, up to 3)
    * You are strongly encouraged to check with Prof. Adve well before this deadline to determine if your processor is appropriate (send email to her and the TA)
  - At least one reference (can be a url) that indicates that enough information is available for each choice
  - Cc all group members

- Assignments will be first come first served, so email ASAP and include multiple choices (in case your first choice is already taken)
Step 3 (90% of grade): Presentations

• The presentations will likely be on 4/28 or 5/1 depending on conflicts received (see slide 3).

• Each presentation should be 30 minutes total
  – Plan for at least 5 minutes of discussion (within the allocated 30 minutes)

• All members of the group must present and all will get the same grade

• Assume everyone has attended lectures; e.g., do not spend time explaining how n bit predictors work

• Email final presentation to the TA and Prof. Adve by 5pm the day before the first day of presentations, cc all group members

• Come early on the day of the presentations to load files on the class computer and make sure everything works (use the exact same file you emailed Prof. Adve above)

• The order of presentations will be randomly chosen at the time of the presentations
Notes on Presentation

• Time limit will be strictly enforced
• Practice your talk with your group several times – time it
• If you don’t finish on time during practice, you won’t in class
• Practice your talk with your group several times
• Ensure you know everything on your slides
• If you don’t understand something, say so or don’t include on slides
• Practice your talk with your group several times
• Don’t just get pretty pictures from web sites and read from the slides
• Remember to include citations on your slides
• Teach the class
• Use this to practice speaking skills before a friendly audience
• Experiment – ask questions, be interactive, have fun!
Sources of Information

There is a lot of unreviewed material on the web, not all of it is good.

Here are some reliable sources:

- Architecture manuals, reports from processor vendors
- IEEE Micro magazine
- Microprocessor report (hard copies available from the library)

Some technical papers in architecture conferences describe specific systems:

- ACM/IEEE Intl. Symp. on Computer Architecture (ISCA)
- ACM/IEEE Intl. Symp. on Microarchitecture (Micro)
- ACM Conf. on Architectural Support for Programming Languages and Operating Systems (ASPLOS)
- IEEE Conf. on High Performance Computer Architecture (HPCA)

IEEE Intl Solid States Circuits Conference (ISSC) – mostly circuit level info

ACM and IEEE papers are available from their digital libraries (free if you connect from your Illinois account); Grainger web site has a direct link.

Please indicate your sources on your slides (e.g., per topic)