Exam

Time and Location

The exam date is Tuesday, January 5th, 2010 (in U49B). Note that you cannot calculate an examination time from your slot in the sequence, since students before you may not show up. Thus, if you want to be certain to be examined, show up early.

Procedure

When it is your turn for examination, you will draw a question. The list of questions can be found below. There will be no preparation time. The actual exam lasts approximately 25-30 minutes. You should start by presenting material related to the question you drew. Aim for a reasonable high pace and focus on the most interesting material related to the question. You may bring a short list of keywords for the actual exam to remember what you have decided to present. Thus, you are not supposed to use note material, textbooks, transparencies, computer, etc. for this part.

We, the examinator and the censor, will supplement with specific questions when appropriate, and after a while, we will end the discussion of the exam question that you drew and turn to material from other parts of the curriculum. Note that all of this as well as discussion between examinator and censor about the grade is included in the 25-30 minutes, so do not count on more than 10-15 minutes for your own presentation.

Some of the questions below are very broad, so you must select the material you choose to cover. You will of course also be evaluated based on your selection of material. If you only present the simplest material, you limit the grade you can obtain. On the other hand, a good presentation of the simple material is better than a poor presentation of the harder material.

On the other hand, some of the questions are fairly narrow. If you think you have too little material, you are welcome to continue with material from a related question.

Curriculum:

The curriculum in the course consists of all the literature and exercises referenced on the weekly notes. You can rely on that you will only be examined in the parts of the material that was discussed at lectures and discussion sections. Note that the mandatory assignments are part of the curriculum, too.

Questions:

1. Single Processor Machines: Memory Hierarchies and Processor Features (Case Study: Tuning Matrix Multiply - based on slides)

2. Shared Memory Programming (Threads and OpenMP - based on slides and Chapter 7)

3. Distributed Memory Machines and Programming (Performance Models, PRAM, alpha-beta, LogP - based on slides)

4. Programming Distributed Memory Machines using Message Passing (based on slides and Chapter 6)

5. Parallel Programming Platforms (Chapter 2)

6. Basic Communication Operations (Chapter 4)

7. Dense Matrix Algorithms (Chapter 8)

8. Sorting (Chapter 9)

9. Graph Algorithms (Chapter 10)

10. Search Algorithms for Discrete Optimization Problems (Chapter 11)

11. Dynamic Programming (Chapter 12)

Note that the topics Introduction to Parallel Machines and Programming Models (week 37), Simulation, all the mandatory assignments, and Analytical Modelling of Parallel Systems is not in the list of questions, but of course we might ask questions related to these topics.