Advanced Computer Architecture 319

Homework Essay

Submission
This essay is due at the beginning of the lecture on Mon. 26. April. It should be accompanied by a blue cover sheet which is signed confirming that it is your own work. The assignment is to be completed individually, not in pairs or in groups. A penalty of 20% will apply per day late.

Topic
Your topic is specified by the end digit of your student number. Write a survey/review of your topic in the style of a technical paper which would be published in a journal or presented at a conference. Consult the literature (ie journals in the library) for guidance on what your paper should look and sound like.

• Parallel cluster systems
  0. Available software packages (free and commercial) for PC/workstation clusters incl. symmetric multipreocessing (SMP)
  1. Hardware of parallel supercomputers, e.g. Cray X1, Red Storm, etc.
• Parallelism in modern desktop workstations
  2. Intel’s SSE
  3. AMD’s 3DNow
  4. Hyper-threading, pipelining
  5. Intel/HP EPIC - Explicitly Parallel Instruction Computing
  6. Multi-core microprocessors
  7. Graphics cards with parallel processing features
• Application areas that have benefited from use of parallel systems
  8. Weather prediction
  9. Medical applications: Drug discovery, mapping the human genome
  X. Vehicle aerodynamics and crash simulations

References
You will need to do some independent reading using the resources of the library and the internet. You will need to draw on books (like those in the recommended reading list), journals and conference proceedings (see IEEE-Explore in the library or online), and sources on the internet.

All sources used in the assignment need to be appropriately referred to (and done so in a consistent style). There should be at least 10 references.

Please be aware of the faculty policy on plagiarism!

Length
Exactly six A4 pages of text (including diagrams and references). Use a 12 point font, single-spaced with sensible margins. Diagrams may be copied from texts and journal articles and pasted into your essay (as long as you reference the source!)

Marking Breakdown
Essays will be marked on the basis of:
Relevant discussion of the topic, showing the depth and breadth of your research
Critical reasoning, showing you understand what you have read, and have thought about what it means, rather than just repeating or paraphrasing someone else’s work
Clarity and structure of writing, be concise and make sure everything is presented in a logical order
Writing style, make it look and sound like a journal paper or a technical report
Marks will be allocated 50-50 between content (what it is that you say) and presentation (how it is that you say it).