CSE240a Final Exam

Instructions
You can submit Word documents or PDF files. Please use size 10 Times font, single-spaced, with 1in margins. The guidelines for the length of answers will be strictly enforced, and you will not receive credit for text that exceeds the allotted space. You can use this document as a template if you like. It has the correct font size, margins, etc.

Include your name and student number at the top of each page. Number your pages.

Your work must be your own. You may not work with anyone on any aspect of this final. If you have questions, email Bryan and Steven. The consequences for cheating will be severe.

This final is open book and open note. You may also refer to any research papers available online in addition to those covered in class. You can search for papers using the ACM Portal and IEEE Explorer, but the rest of the Internet (e.g., Wikipedia) is off limits, although it probably wouldn’t help much anyway. In any case, you must cite any sources you use aside from the paper’s we’ve covered in class. Failure to do so will be considered cheating.

Please submit your answers via email to Bryan and myself. Please use the subject line “[CSE 240a Final; <your name>]”. Your answers should be typewritten in correct English (complete sentences, correct punctuation and spelling, etc.). Bryan will reply confirming that we’ve received it.

The final is due at 9:59pm on Thursday December 8th. No exceptions.

Here are the questions

1. During the course we have read and discussed papers dealing with a) instruction set design, b) out-of-order execution, c) dataflow-style execution, and d) specialization. Please read “Dataflow Mini-Gaphs: Amplifying Superscalar Capacity and Bandwidth” (available here http://dl.acm.org/citation.cfm?id=1038264.1038928) and describe its relationship to each of the above 4 topics (a-d). Provide specific examples from both the paper above and the papers we read during the quarter to support your statements. Please limit your response to the entire question to 1 page (i.e., the discussion of each topic should occupy ¼ of a page).

2. If you gave an in-class presentation: For the paper you presented (and the background reading your did to prepare your presentation), select another paper we read during the class that you feel is related (e.g., that contains related ideas, can provide additional insight, or helped you to see the paper in a broader context). Describe the specific aspects of how they are related, and describe a research question that the two papers raise when taken together. Make it clear which papers you are discussing by providing citations for each one. Please limit your response to the question to 1/2 page.

3. During the class we have discussed both Amdahl’s law and Moore’s law. A) From each of these “laws” select one of the papers we read this quarter and describe how the law played a key role in motivating or justifying the work that the paper describes. Cite specific examples in the paper to support your point. B) Select another paper for which each law plays a very small role in the paper’s motivation. Explain what other arguments the authors use to motivate their work instead by citing specific examples. You cannot use the same paper(s) for parts A and B, so you should be writing about four different papers. Please limit your response to this question to 1 page.