CSCI 2321 (Computer Design), Spring 2021
Reading Quiz 10

Credit: 10 points.

1   Reading

Be sure you have read, or at least skimmed, the assigned sections of Chapter 4 of the text, starting with 4.6.

2   Instructions

Answer the questions below using *only* the course textbook (i.e., no Web searches). Please work independently rather than in groups, and include the Honor Code pledge in what you turn in, either the full pledge or just the word "pledged". (Please put this in the same document as your answers, so I don't overlook it.)

   You may write out your answers by hand and scan them, or you may use a word processor or other program, but please submit a PDF or plain text via e-mail to my TMail address. (No links to shared files on Google Drive please.) Please use a subject line that mentions the course and the assignment (e.g., "csci 2321 quiz 10" or "computer design quiz 10").

3   Questions

1. (2.5 points) The textbook says the MIPS instruction set was designed for pipelining. It points to four aspects of the design in particular; what are they? (Look for a "first", etc., list.)

2. (2.5 points) The textbook notes that the x86 architecture is not so pipeline-friendly. What does the textbook say modern implementations do to mitigate that a bit, as described in that same list?

3. (2.5 points) One might hope that a smart compiler might be a reasonable way to cope with data hazards. Can this help at all? Is it enough?

4. (2.5 points) What do programmers have to do to get the performance improvement that should come from pipelining?