CSCI 2321 (Principles of Computer Design), Spring 2013

Homework 1

Credit: 20 points.

1 Reading

Be sure you have read chapter 1 of the textbook.

2 Problems

Do the following problems. You may write out your answers by hand or using a word processor or other program, but please submit hard copy, either in class or in my mailbox in the department office.

Note: With the exception of the first question, all the questions in this assignment involve doing calculations using formulas presented in the textbook. Please show enough work to make it clear how you calculated your answers.

Update: The version of this assignment originally posted made references to "part (a)" and "part (b)" of some problems, and also assumed the use of the revised printing of the textbook. Differences between parts, and between printings, have to do with inputs to problems. In this version I have listed the values I intended to be used (those in the revised printing). If you used other values I will give full credit if I can determine what values you did use and your answers are correct for them.

1. (5 points) Do problems 1.1 through 1.26 from the textbook.

2. (5 points) Do problems 1.3.2 and 1.3.4 from the textbook, using the values in the following table.

	clock rate	CPI	no. instructions	time
P1	2 GHz	1.2	20×10^9	5 s
P2	3 GHz	0.8	30×10^9	8 s
P3	3 4Hz	2.0	25×10^9	7 s

3. (5 points) Do problems 1.5.1 and 1.5.2 from the textbook, using the values in the table below. (When you are asked to say how much faster A is than B, "how much" means a ratio, e.g., A is twice as fast as B.) using the values in the following table:

	clock rate	CPI class A	CPI class B	CPI class C	CPI class D	CPI class E
P1	2.0 GHz	1	1	2	3	2
P2	3.0 GHz	1	2	3	4	3

4. (5 points) Do problems 1.14.1, 1.14.2, and 1.14.3 from the textbook, using the values in the following table.

	clock rate	CPI	no. instructions
P1	3 GHz	1.1	3×10^6
P2	2.5 GHz	1.0	0.5×10^6