CpE 313 Fall 2004
Microprocessor Systems Design
Addendum to HW 05
Due via email by 5 PM on Wednesday, October 13.

Problem 1 (*submitted by Tom's group*)

RISCy Computers Corporation is designing a new microprocessor. The benchmark on which they have chosen to evaluate their processor has 60% integer instructions. The CPI for integer instructions on their existing design, called "bRISCy," is 6.25. The CPI for floating point instructions on bRISCy is 12.8. What is the average CPI of the benchmark on the bRISCy design?

(a) 7
(b) 3.75
(c) 9.4
(d) 8.87

Problem 2 (*submitted by Scott Schulte*)

What is the new CPI if the bRISCy computer corporation reduced the amount of integer instructions to 40% of the total instructions?

(a) 8.87
(b) 11.6
(c) 10.18
(d) 9.4

Problem 3 (*submitted by Radha Kalyani*)

Given data in Problem 1, what is the percentage of benchmark execution time spent in integer operations?

(a) 37.5%
(b) 42.3%
(c) 60%
(d) 40%

Problem 4 (*submitted by Shoukat, based on Tom's group*)

Assume that the floating point instructions have only the following two subtypes; floating point **multiply** and floating point "remaining." Assume that the floating point **multiply** instructions are 3% of the total instructions (integer plus floating point) and have a CPI of 40. The CPI of the "remaining" floating point instructions is

(a) 12.8.
(b) $40 - 12.8$.
(c) $12.8 - 0.03 \times 40$.
(d) $\frac{(12.8 \times 0.4) - (0.03 \times 40)}{0.37}$.