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Subject: Quals question
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Q. If I wanted to compare the performance of two computer systems on a set of floating point intensive benchmarks using MFLOPS, how would I go about it?

A. Measure normalized MFLOPS of each benchmark. Begin by counting the number of normalized floating point operations in the source program. This number, which is the same for both computers, is divided by execution time of the benchmark to produce MFLOPS. Use harmonic mean to get an average MFLOPS rating across the set of benchmarks for each computer. This measure will track execution time which is the real measure of performance. Compare the machines using the average MFLOPS rating.

Q. Compare a branch prediction buffer (BPB) and a branch target buffer (BTB).

A. Talk about the cost versus performance of the two schemes.
BPB: low cost. Can reduce cost by eliminating the tag. Only useful for conditional branches.

BTB: higher cost because it must store tag and target address. BTB can be used for both conditional branches and unconditional branches. The BTB has lower branch delay on a hit than the BPB.

Given the same area a BPB would have more entries and better prediction accuracy and than the BTB.

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