Quiz 1

If you are shopping for a microprocessor, will you choose a CISC (Complex Instruction Set Computer) or RISC (Reduced Instruction Set Computer) architecture, if they both can execute 2 Million Instructions Per Second (MIPS)? Why?

Solution

Let M = the number of instructions per second.

The basic performance equation states T = (N x S) / R. Since M is the number of instructions per second, we have M = R / S. Therefore the performance equation now becomes T = N / M.

We are given that for both the RISC and CISC machines the number of instructions per second is the same. Therefore, the only variable left is N, which is the total number of instructions in the program.

To minimize T, the program execution time, we need to minimize N. We know that in a CISC machine N is smaller and S is larger than in a RISC machine. Thus, since N is smaller, a CISC machine will give a lower value for T making it faster in executing a given program.

Therefore, given the above information, the CISC processor would be a better choice.