

Chapter 6 problem 19 section 1 & 2

1.

The CPU B is fastest but not convenient to us because it cannot work with FP numbers. Comparing the number of operations that CPU A and C can do yield the same results, since CPU A has 4 times the clock rate of C, and C can execute 4 time as many operations as CPU A. So altogether, lets just ignore CPU C and we get the best performance through CPU A. Loading two elements of Y and two elements of X and performing the slt operation is stored in one cycle. While CPU A is handling that, we can use CPU B to increase the count by adding the results of A. Then we stall CPU B until A produces a new result.

2.

So if we have an example like comparing two vectors of size 4 and return the number of elements where the second vector is larger than the first. This number is stored to a specific memory address and we would load 4 elements of X and 4 elements of Y to CPU C to perform the added instruction and use CPU A or B to update the total count.