CS2310 F2F

M4 Problems & Exercises

You have a CPU with a 4.8 GHz clock rate. Both the fetch and execution cycles are 50% of the clock cycle. The average instruction requires 0.5 nanoseconds to complete execution. Main memory access speed for a single instruction is 2 nanoseconds on average. What is the expected average MIPS (million instructions per second) rate for this CPU? What modern microprocessor architectural features might be added to the CPU to improve its MIPS rate?

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