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- ❑ Same program
 - Computer A CC 250ps and CPI 2.0
 - Computer B CC 500ps and CPI 1.2
- ❑ Which computer is faster and by how much?
- ❑ I is the number of instructions
- ❑ $\text{CPU clock cycles}_A = I \times \text{CPI}_A = I \times 2.0$
- ❑ $\text{CPU clock cycles}_B = I \times \text{CPI}_B = I \times 1.2$
- ❑ $\text{CPU_time}_A = \text{CPU_clock_cycle}_A \times \text{Clock_cycle_time}$
 $= I \times 2.0 \times 250\text{ps} = 500 \times I \text{ ps}$
- ❑ $\text{CPU_time}_B = \text{CPU_clock_cycle}_B \times \text{Clock_cycle_time}$
 $= I \times 1.2 \times 500\text{ps} = 600 \times I \text{ ps}$
- ❑ $\text{CPUperf}_A / \text{CPUperf}_B = 600 / 500 = 1.2$

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- ❑ A(1) B(2) C(3) cycles per instruction type
- ❑ Code 1: A(2) B(1) C(2)
- ❑ Code 2: A(4) B(1) C(1)
- ❑ Which code sequence executes the most instructions?
- ❑ Which will be faster?
- ❑ What is the CPI for each sequence?
- ❑ Code 1: $2+1+2 = 5$
- ❑ Code 2: $4+1+1 = 6$
- ❑ CPU clock cycles = $\sum_{i=A,B,C} (CPI_i \times C_i)$
- ❑ Code 1: $2 \times 1 + 1 \times 2 + 2 \times 3 = 10$ cycles
- ❑ Code 2: $4 \times 1 + 1 \times 2 + 1 \times 3 = 9$ cycles
- ❑ $CPI_1 = \text{CPU clock cycles} / \text{Instruction count} = 10/5 = 2$
- ❑ $CPI_2 = \text{CPU clock cycles} / \text{Instruction count} = 9/6 = 1.5$