

Problem 1. A local junk yard offers older CPUs with non-Beta architectures that require several clocks to execute each instruction. Here are the specifications:

Model	Clock Rate	Avg. clocks/Inst.
x	40 Mhz	2.0
y	100 Mhz	10.0
z	60 Mhz	3.0

You are going to choose the machine which will execute your benchmark program the fastest, so you compiled and ran the benchmark on the three machines and counted the total instructions executed:

x: 3,600,000 instructions executed  
y: 1,900,000 instructions executed  
z: 4,200,000 instructions executed

Based on the above data which machine would you choose?

Problem 2.

A. What does the following piece of Beta assembly do?

```
I = 0x5678
B = 0x1234
LD(I, R0)
SHLC(R0, 2, R0)
LD(R0, B, R1)
MULC(R1, 17, R1)
ST(R1, B, R0)
```

B. What is the result stored in R0?

Problem 3.

You are given that the word at memory address 0 has a binary form of

000001000000000110000001000000001

A. What is the byte stored in address 0, 1, 2 and 3, respectively?

B. What are the hexadecimal forms of the bytes?