Anders Maraviglia

1. A Translator, in the form of either a compiler or an interpreter, is used to transform high-level language into machine readable code. A compiler takes the code and converts it all at once into assembly code, which is then through an assembler to get binary machine code.
2. .5 nanoseconds
3. a. 30,000,000,000 cycles and 20000000000 instructions for processor 1, and 40000000000 cycles and 18181818181 instructions for processor 2.

b. The new clock rate should be around 3.9 GHz

1. a. The global CPI for implementation 1 is around 2.77, and 2 for implementation 2.

b. The clock cycles required for cases 1 and 2 are, respectively, 7.2 and 4.

c. The second implementation is faster, since the CPU time is 51.8 versus 16

1. a. The average cycle time for each program is, respectively, 1.1Hz and 1.25Hz.

b. It runs Compiler B’s code .88 times faster than compiler A’s.

c. The new processor runs in .66 seconds, around 2/3 and 5/8 times faster than the old processors respectively.