EE312: Assignment II

Embedded Systems

September 24, 2020

Report the contents of the Flag Registers and Calculate T-States for the execution of each code.

1. Write a code to clear the accumulator, add 47H and save the result after subtracting 92H and after adding 64H. Specify the answers you would expect at the target memory locations.

2. Load the data byte $A8H$ in register C. Mask the higher-order bits $(D_7 - D_4)$, and save the lower-order bits $(D_3 - D_0)$ at memory location $5040H$.

3. Load the data byte $8EH$ in register D and $F7H$ in register E. Mask the lower-order bits $(D_3 - D_0)$ from both the data bytes. XOR the higher-order bits $(D_7 - D_4)$ and save the output to the memory location $5040H$.

4. Load the 8-bit numbers $X1$, $X2$, $X3$ and $X4$ stored at respective addresses $A1$, $A2$, $A3$ and $A4$. Compute $X1 \bar{+} X2 + X3.\bar{X4}$.

5. Add two 16-bit numbers $1040H$ and $2311H$ and store the result at memory location $511FH$.

6. Implement the following expressions using the 8085 instruction set

   (a) A.B + ((B.C).(B + C))'

   (b) A + B.(A + C) + A.C

7. Load the 8-Bit Number $D7 - D6 - D5 - D4 - D3 - D2 - D1 - D0$ from the Memory Location A. Write a code to generate the following Bit Pattern

   $0 - 0 - (D7.D1) - (D6.D0) - (D5.D3) - (D4.D2) - 0 - 0$

   Save the Result to the Memory Location $A + 01H$

   NOTE: "+" represents OR, "." represents AND, "'" represents NOT. A, B and C are 1-bit values. Store the result at the memory location $2100H$.