BLG212E Microprocessor Systems

HW#2

Due Date: 12.12.2017, 23:00

As you know, educational CPU simulator allows you to write and test programs for peripheral interface adapters (PIAs). There are two PIAs: PIA-A consists of 8 switches and PIA-B consists of 8 LEDs.

We can input 256 numbers from $00 to $FF from 8 switches. We can represent the interval of these values with 8 LEDs by dividing the range $00-$FF into 8 portions: $00-$1F, $20-$3F, $40-$5F, $60-$7F, $80-$9F, $A0-$BF, $C0-$DF, and $E0-$FF.

Write a program on educational CPU simulator which continously reads switch positions and based on the switch positions, turns on a number of LEDs as follows:

- If the hexadecimal value of switches is within the interval $00-$1F, then rightmost 1 LED will be turned on.
- If the hexadecimal value of switches is within the interval $20-$3F, then rightmost 2 LEDs will be turned on.
- If the hexadecimal value of switches is within the interval $40-$5F, then rightmost 3 LEDs will be turned on.
- If the hexadecimal value of switches is within the interval $60-$7F, then rightmost 4 LEDs will be turned on.
- If the hexadecimal value of switches is within the interval $80-$9F, then rightmost 5 LEDs will be turned on.
- If the hexadecimal value of switches is within the interval $A0-$BF, then rightmost 6 LEDs will be turned on.
- If the hexadecimal value of switches is within the interval $C0-$DF, then rightmost 7 LEDs will be turned on.
- If the hexadecimal value of switches is within the interval $E0-$FF, then all of the 8 LEDs will be turned on.