In The Name of God

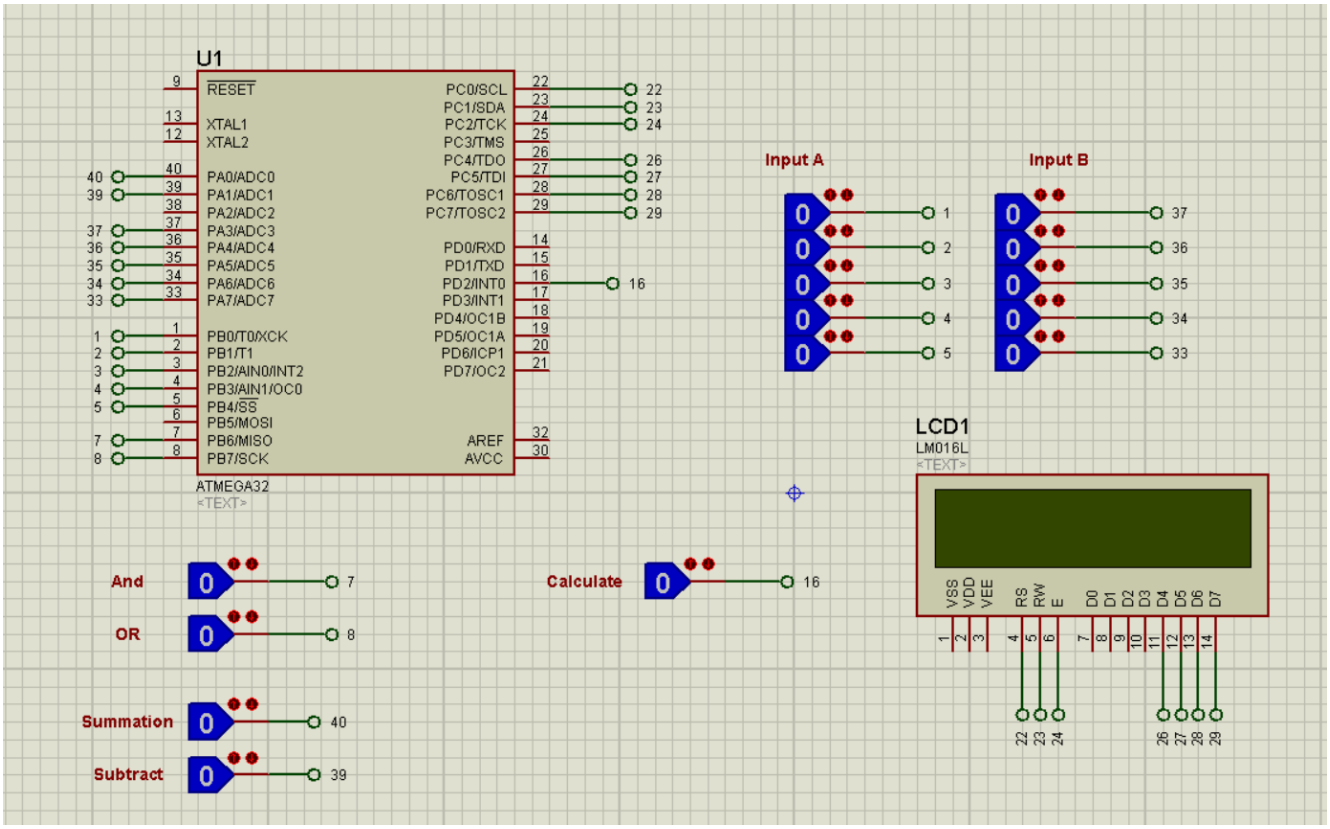
Micro Processors – HW 3 – AVR

Fall 2019

In this homework you are asked to implement a micro processor with the abilities of accepting **two binary numbers** as inputs and executing some **logical** and **arithmetic** operations on the inputs and **printing** the output in **both** binary and decimal form.

First of all the user sets the input bits (as shown in the figure on page 2) and then chooses the desired operation (**Summation** or **Subtraction** or **Bitwise And** or **Bitwise OR**) and then **sends an interrupt** (Int0 of the micro | on posedge). After calculating the result, the system shall print the decimal output on the LCD , then wait for **2 seconds** and then print the output in Binary form. Notice that the output shall have carry and you must also handle the carry. (you should not ignore the carry). Assume that the input number are 5 bits each and only 1 operator will be chosen at a time. You must give both your Code-Vision project and Proteus design. The cleanliness of the design is also a great matter (Please label your design as shown in the figure and also avoid messy wiring.)

- Cheating will have -**50** points as penalty.


U1
RESET
XTAL1
XTAL2
PA0/ADC0
PA1/ADC1
PA2/ADC2
PA3/ADC3
PA4/ADC4
PA5/ADC5
PA6/ADC6
PA7/ADC7
PB0/T0/XCK
PB1/T1
PB2/AIN0/INT2
PB3/AIN1/OC0
PB4/SS
PB5/MOSI
PB6/MISO
PB7/SCK
PC0/SCL
PC1/SDA
PC2/TCK
PC3/TMS
PC4/TDO
PC5/TDI
PC6/TOSC1
PC7/TOSC2
PD0/RXD
PD1/TXD
PD2/INT0
PD3/INT1
PD4/OC1B
PD5/OC1A
PD6/ICP1
PD7/OC2
AREF
AVCC
ATMEGA32
<TEXT>
Input A
Input B
LCD1
LM016L
<TEXT>
VSS
VDD
VEE
RS
RW
E
D0
D1
D2
D3
D4
D5
D6
D7
And
OR
Summation
Subtract
Calculate