

SP3_1 Learning basic digital I/O: combinational circuit *Comp_4bit*

I. Specifications of *Comp_4bit*

The aim of this preparatory laboratory assignment is to invent a 4-bit radix-2 comparator (*Comp_4bit*) using a microcontroller PIC18F4520. Study and adapt truth table and features from Chapter 1 arithmetic tutorials.

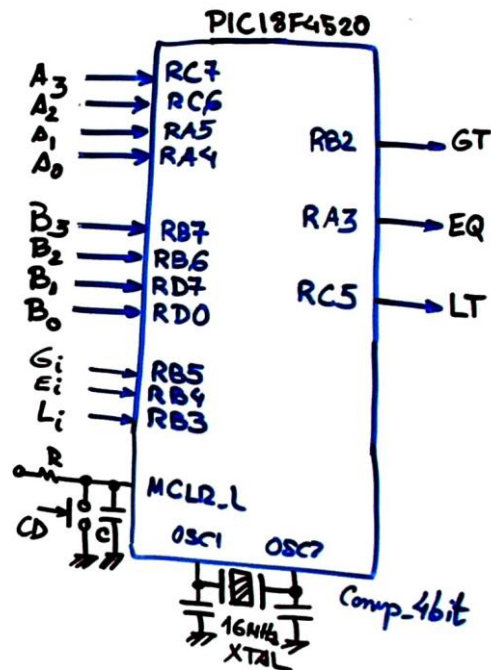


Fig. 1 *Comp_4bit* symbol and PIC18F4520 pin connections.

II. Planning.

Follow the same procedure studied P9 tutorial Dual_MUX_4 or Adder_BCD_1digit.

- Hardware schematic (adding switches, buttons and LED to the circuit represented in Fig. 1 in Proteus)
- Software (MPLABX + XC8)
 - o Hardware-software diagram
 - o RAM variables
 - o init_system()
 - o read_inputs()
 - o write_outputs()

III. Development

IV. Test

Solve the circuit (develop & test) step by step using watch window for debugging purposes. One signal at a time.