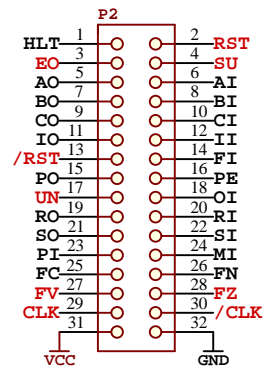
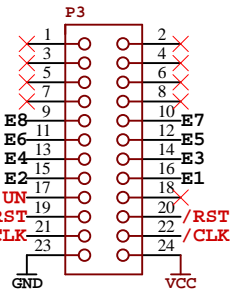


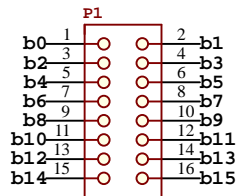
Control BUS Connector



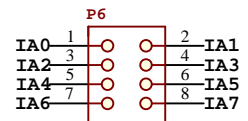
OUTPUT Connector



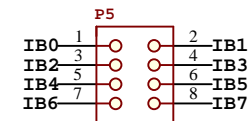
Data BUS Connector



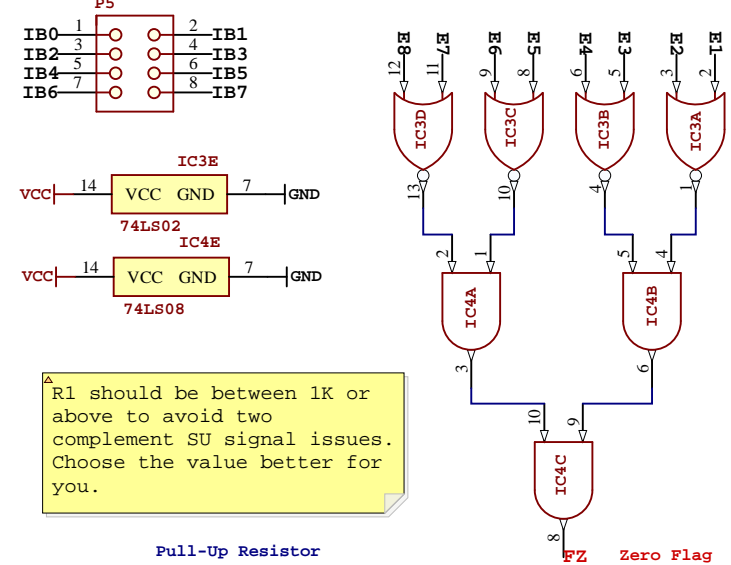
Register A input



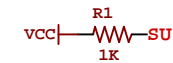
Register B Input



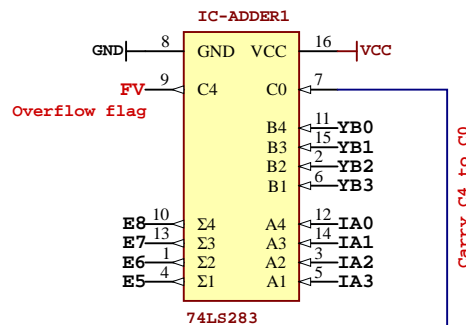
Zero Flag



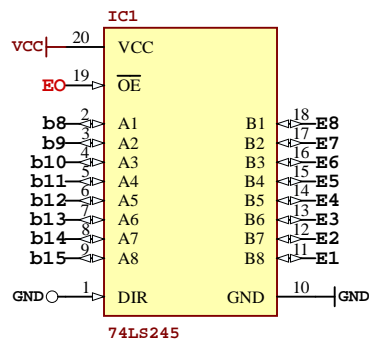
Pull-Up Resistor



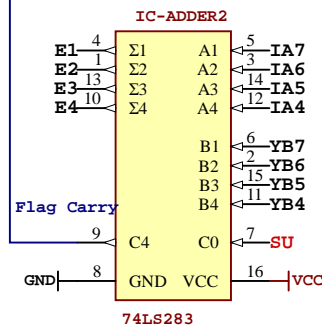
A Operation goes from E1 to E4 and carry is passed from C4 to C0. The ADDER inputs order goes from A1, B1 to A4, B4. Cascade is from IC-ADDER2 to IC-ADDER1.



Carry C4 to C0

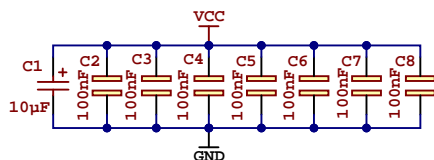


74LS245



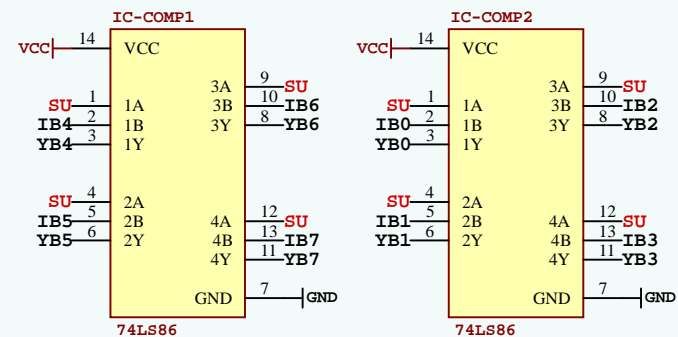
74LS283

A C0 pin, initial carry should set to SU signal. On ADD operation SU is LOW and Carry is 0, for SUB operation SU is HIGH and Carry gets 1 to accomplish two's complement binary representation.



Decoupling Capacitors

Two complement input

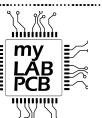


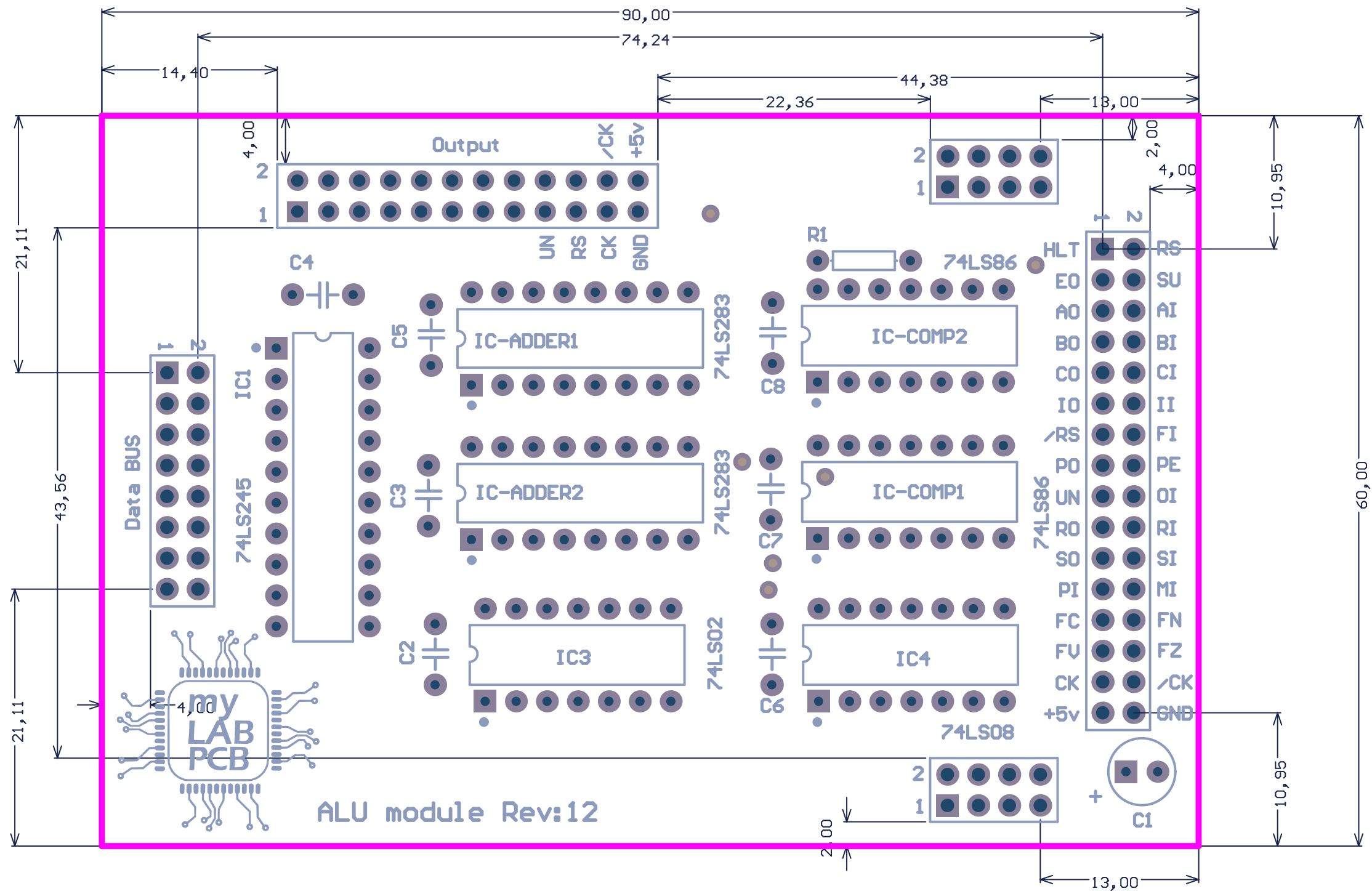
Project: myCPU ALU module

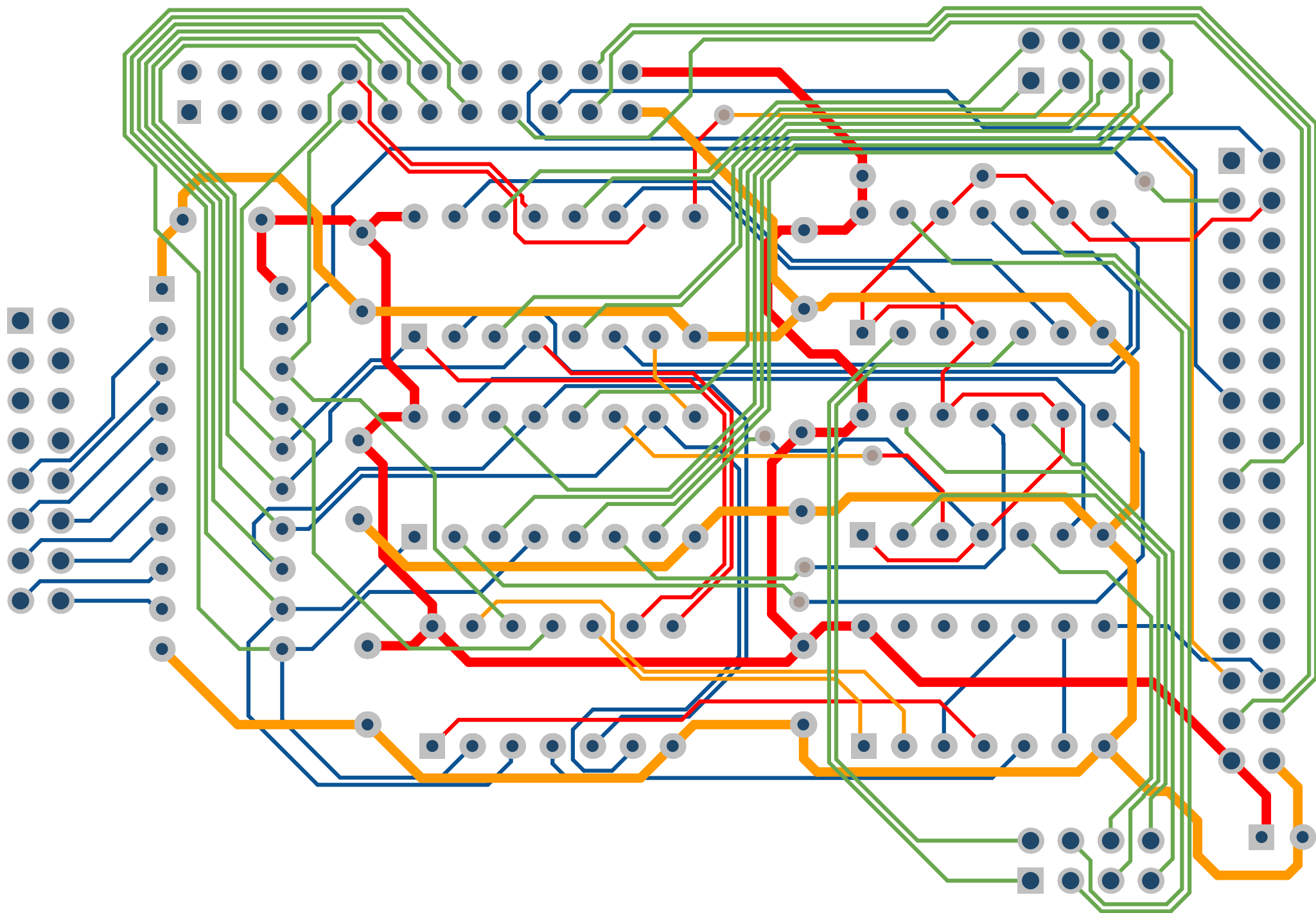
Revision: 12

Date: 24/06/2022

Author: Rafa Hernández









Bill of Materials

| Designator | Description | Value | Q |
|------------------------|---|------------|---|
| C1 | Electrolytic capacitor 16v/50v | 10 μ F | 1 |
| C2, C3, C4, C5, C6, C7 | Ceramic or tantalum capacitor | 100nF | 6 |
| C8 | Ceramic capacitor | 100nF | 1 |
| IC1 | Non inverting bus transceiver | 74LS245 | 1 |
| IC3 | Quad 2-input NOR gates | 74LS02 | 1 |
| IC4 | Quad 2-input AND gates | 74LS08 | 1 |
| IC-ADDER1, IC-ADDER2 | 4-Bits Full adder with fast carry | 74LS283 | 2 |
| IC-COMP1, IC-COMP2 | Quad 2-input XOR gates | 74LS86 | 2 |
| P1 | Pin Header, THT, pitch 2.54mm, Dual Row, Vertical, 16p | 16p | 1 |
| P2 | Pin Header, THT, pitch 2.54mm, Dual Row, Vertical, 32p | 32p | 1 |
| P3 | Socket Header, THT, pitch 2.54mm, Dual Row, Vertical, 24p | 24p | 1 |
| P5, P6 | Pin Header, THT, pitch 2.54mm, Dual Row, Vertical, 8p | 8p | 2 |
| R1 | Resistor Axial | 1K | 1 |



Assembly List

| Desig. | Description | Value |
|-----------|---|------------|
| C1 | Electrolytic capacitor 16v/50v | 10 μ F |
| C2 | Ceramic or tantalum capacitor | 100nF |
| C3 | Ceramic or tantalum capacitor | 100nF |
| C4 | Ceramic or tantalum capacitor | 100nF |
| C5 | Ceramic or tantalum capacitor | 100nF |
| C6 | Ceramic or tantalum capacitor | 100nF |
| C7 | Ceramic or tantalum capacitor | 100nF |
| C8 | Ceramic capacitor | 100nF |
| IC1 | Non inverting bus transceiver | 74LS245 |
| IC3 | Quad 2-input NOR gates | 74LS02 |
| IC4 | Quad 2-input AND gates | 74LS08 |
| IC-ADDER1 | 4-Bits Full adder with fast carry | 74LS283 |
| IC-ADDER2 | 4-Bits Full adder with fast carry | 74LS283 |
| IC-COMP1 | Quad 2-input XOR gates | 74LS86 |
| IC-COMP2 | Quad 2-input XOR gates | 74LS86 |
| P1 | Pin Header, THT, pitch 2.54mm, Dual Row, Vertical, 16p | 16p |
| P2 | Pin Header, THT, pitch 2.54mm, Dual Row, Vertical, 32p | 32p |
| P3 | Socket Header, THT, pitch 2.54mm, Dual Row, Vertical, 24p | 24p |
| P5 | Pin Header, THT, pitch 2.54mm, Dual Row, Vertical, 8p | 8p |
| P6 | Pin Header, THT, pitch 2.54mm, Dual Row, Vertical, 8p | 8p |
| R1 | Resistor Axial | 1K |