

REGISTER SETUP

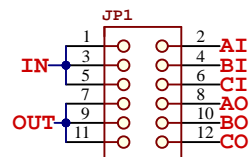


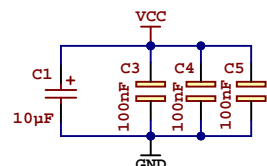
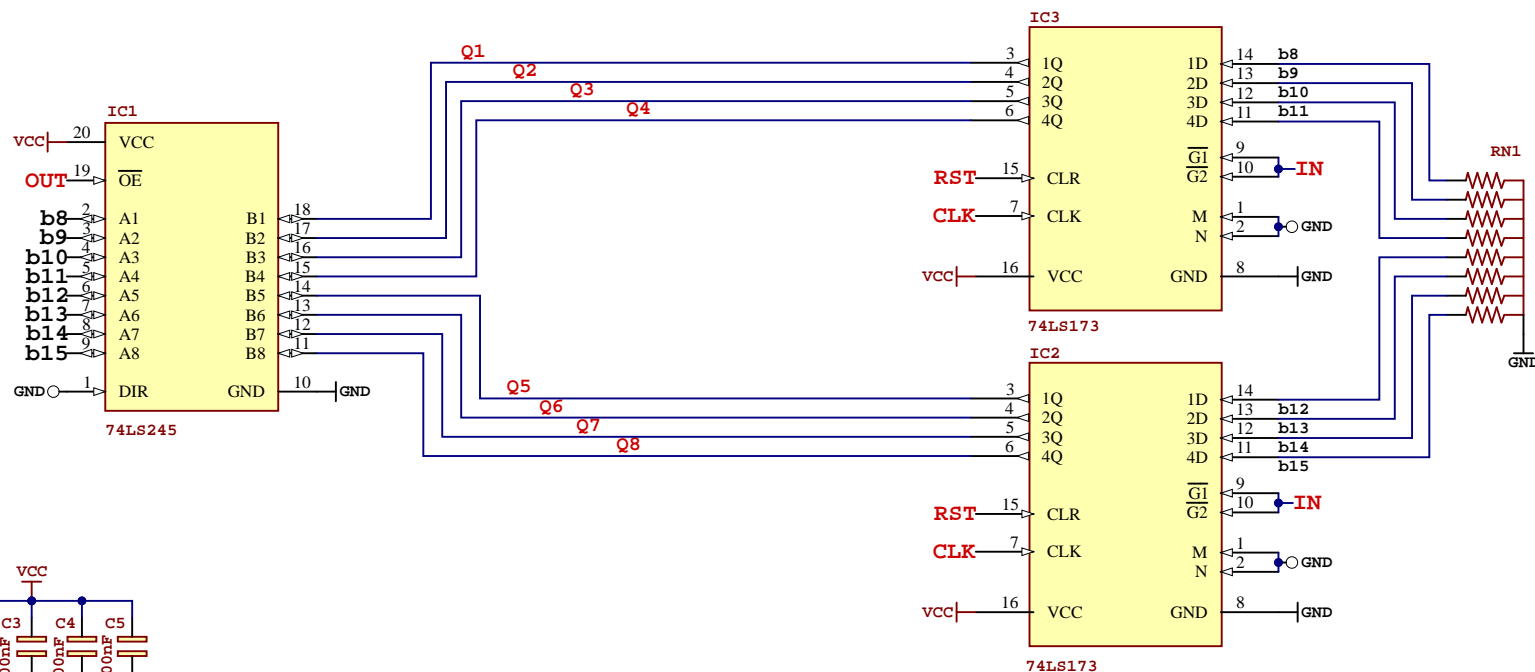
Diagram of a 4x4 crossbar switch with 4 input lines (Q1-Q4) and 4 output lines (Q2-Q5). The switch is labeled P4. The input lines are numbered 1, 3, 5, 7 and the output lines are numbered 2, 4, 6, 8. The connections are: Q1 to Q2, Q3 to Q4, Q5 to Q6, and Q7 to Q8.

The diagram shows a 7-bit parallel adder implemented using two 4-bit 74LS161 counters (P1 and P2) and a 4-bit parallel adder (74LS283). The first counter (P1) has its Q1-Q4 outputs connected to the first four inputs of the adder. The second counter (P2) has its Q1-Q4 outputs connected to the next four inputs of the adder. The adder's output is connected to the Q1-Q4 outputs of the first counter, forming a feedback loop. The final sum is shown on the Q1-Q4 outputs of the first counter.

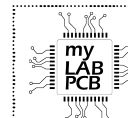
The diagram shows the P3 port with pins 1 through 24. The connections are as follows:

- Pins 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, and 23 are connected to GND.
- Pins 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, and 24 are connected to VCC.
- Pin 11 is labeled Q1.
- Pin 13 is labeled Q3.
- Pin 15 is labeled Q5.
- Pin 17 is labeled Q7.
- Pin 19 is labeled UN.
- Pin 21 is labeled RST.
- Pin 23 is labeled CLK.

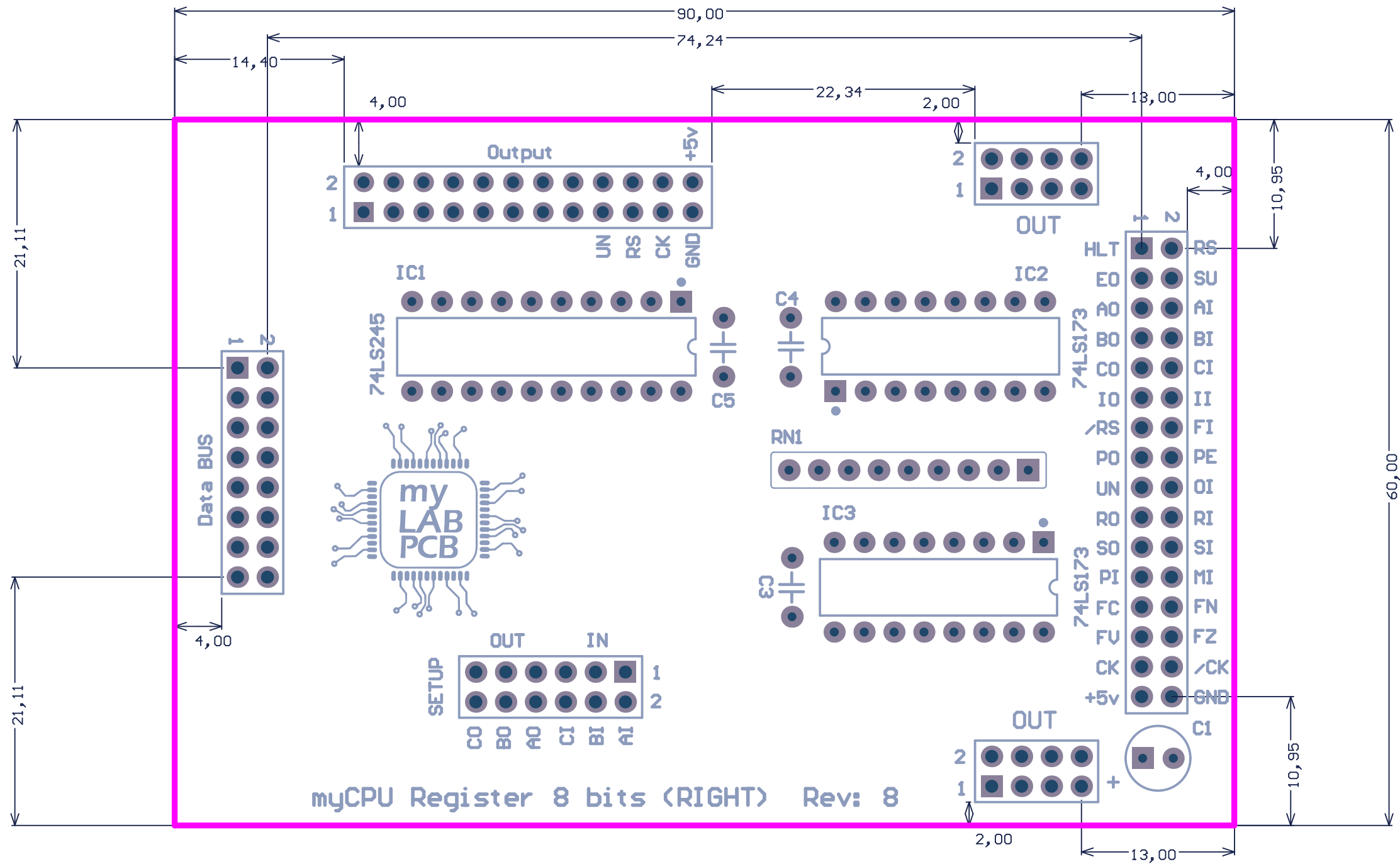
The diagram illustrates a 16-bit parallel adder constructed from two 8-bit adders. The inputs are labeled b_0 through b_{15} , and the outputs are labeled b_1 through b_{15} . A carry input P_1 is shown at the top. The 8-bit adders are connected in parallel, with their carry outputs connected to the carry inputs of the other adder.

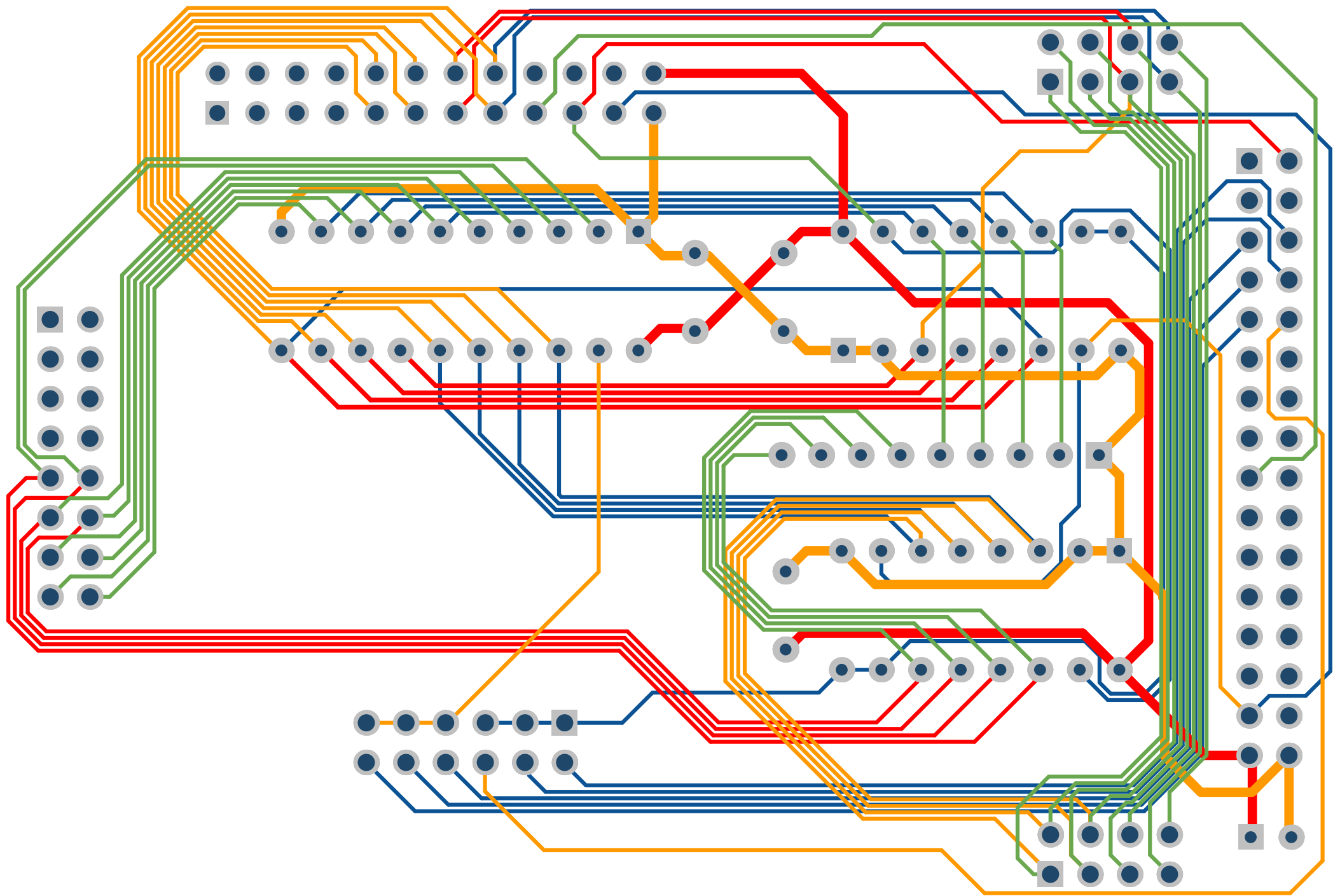


Decoupling Capacitors



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Bill of Materials

Designator	Description	Value	Q
C1	Electrolytic capacitor 16v/50v	10µF	1
C3, C4, C5	Ceramic or tantalum capacitor	100nF	3
IC1	Non inverting bus transceiver	74LS245	1
IC2, IC3	4-bit D-Type Register with 3 state outputs	74LS173	2
JP1	Pin Header, THT, pitch 2.54mm, Dual Row, Vertical, 12p	12p	1
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	1
P4, P5	Pin Header, THT, pitch 2.54mm, Dual Row, Vertical, 8p	8p	2
RN1	Resistor array 8 elements,9 pins	1K	1



Assembly List

Designator	Description	Value
C1	Electrolytic capacitor 16v/50v	10 μ F
C3	Ceramic or tantalum capacitor	100nF
C4	Ceramic or tantalum capacitor	100nF
C5	Ceramic or tantalum capacitor	100nF
IC1	Non inverting bus transceiver	74LS245
IC2	4-bit D-Type Register with 3 state outputs	74LS173
IC3	4-bit D-Type Register with 3 state outputs	74LS173
JP1	Pin Header, THT, pitch 2.54mm, Dual Row, Vertical, 12p	12p
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
P4	Pin Header, THT, pitch 2.54mm, Dual Row, Vertical, 8p	8p
P5	Pin Header, THT, pitch 2.54mm, Dual Row, Vertical, 8p	8p
RN1	Resistor array 8 elements, 9 pins	1K