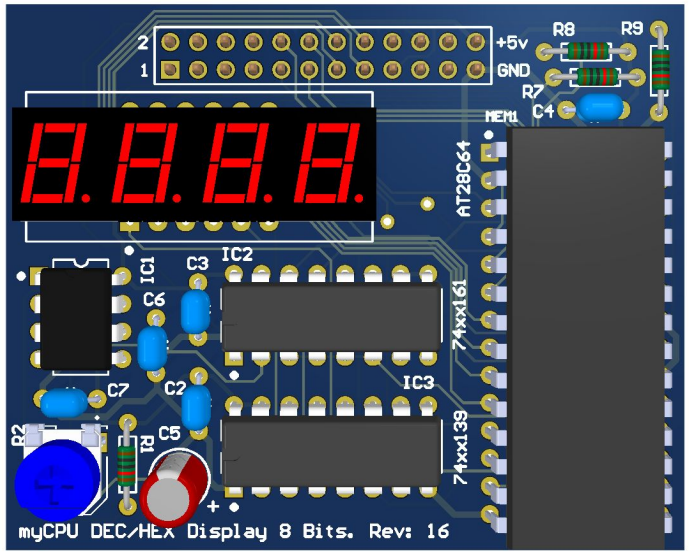
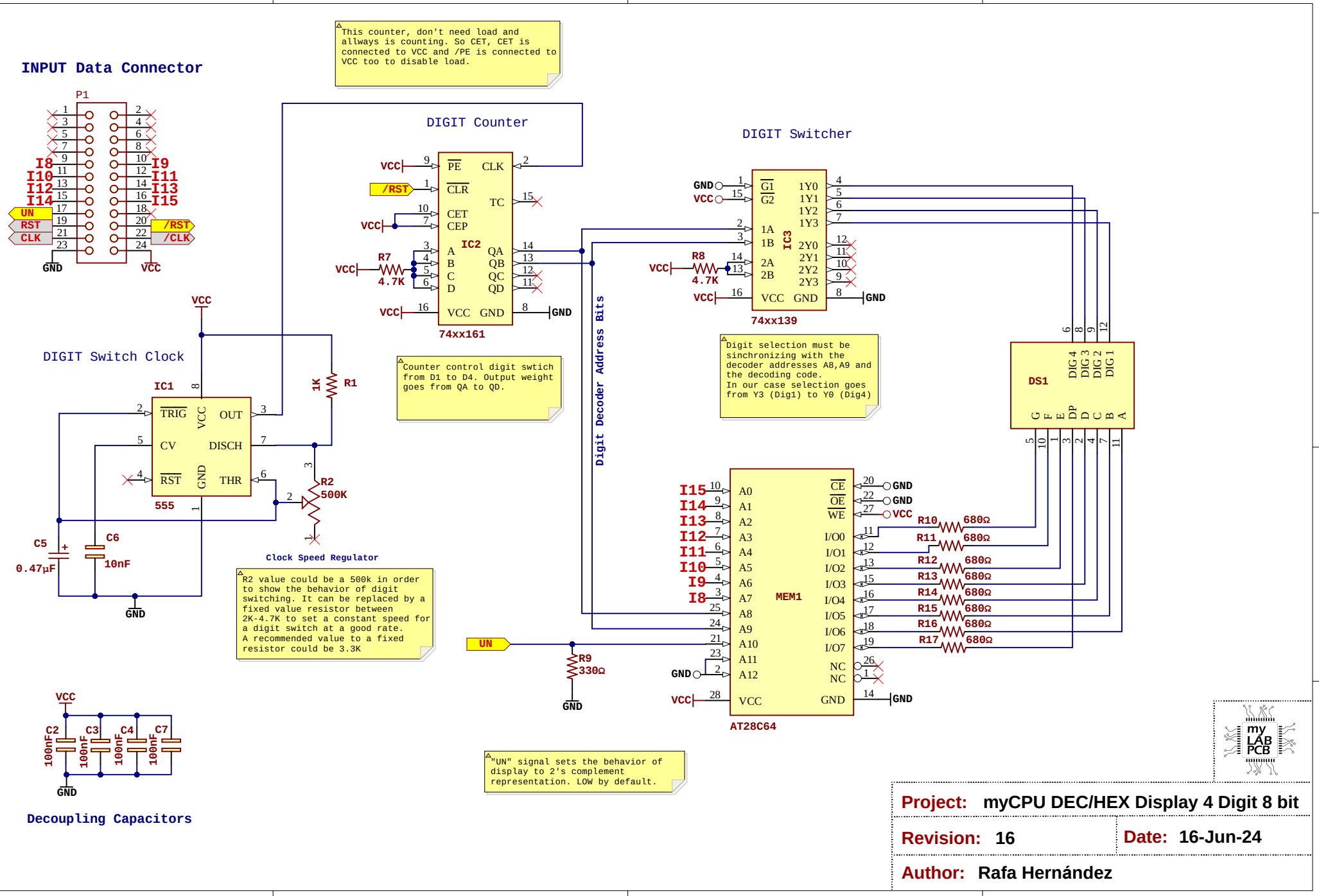
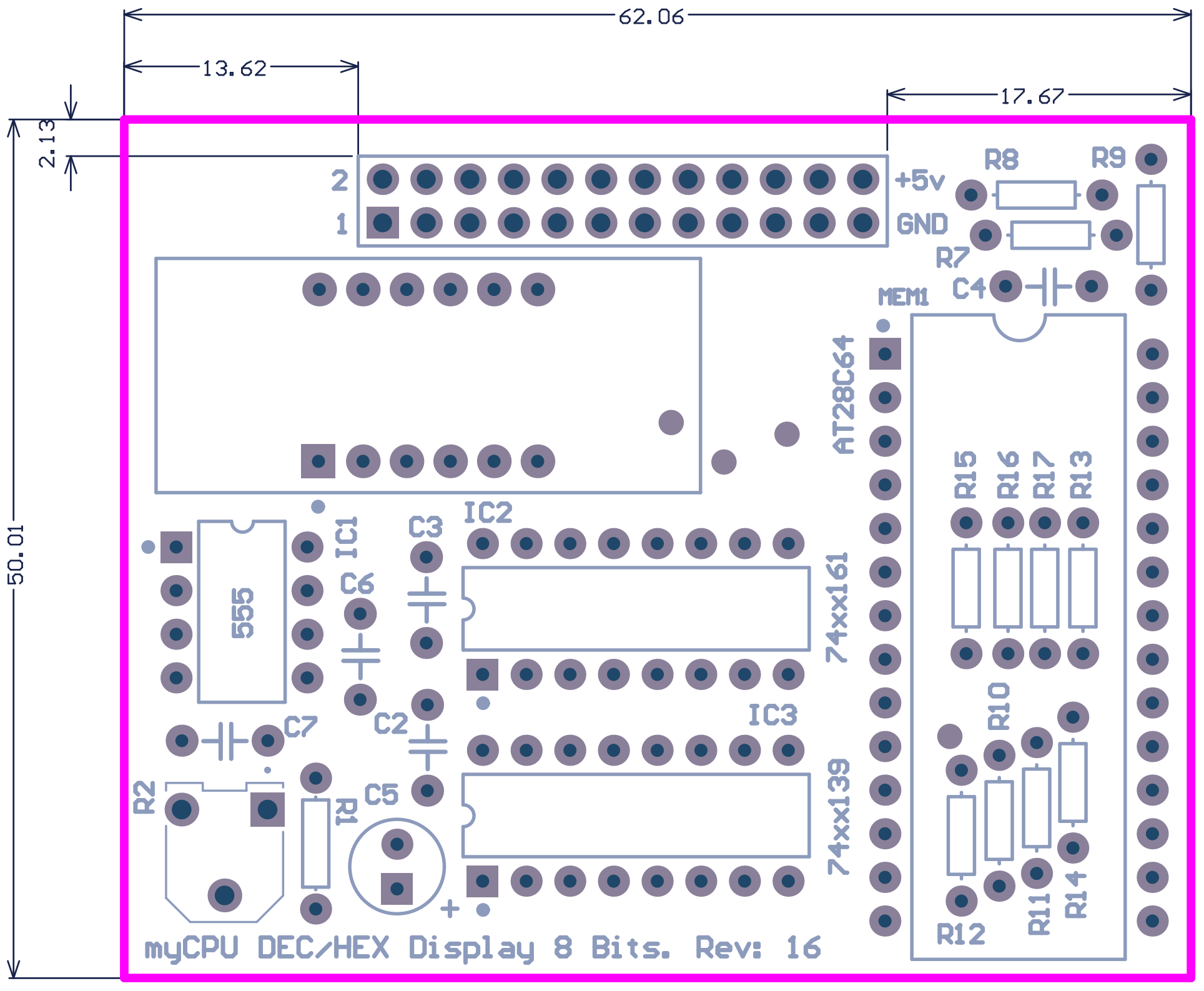
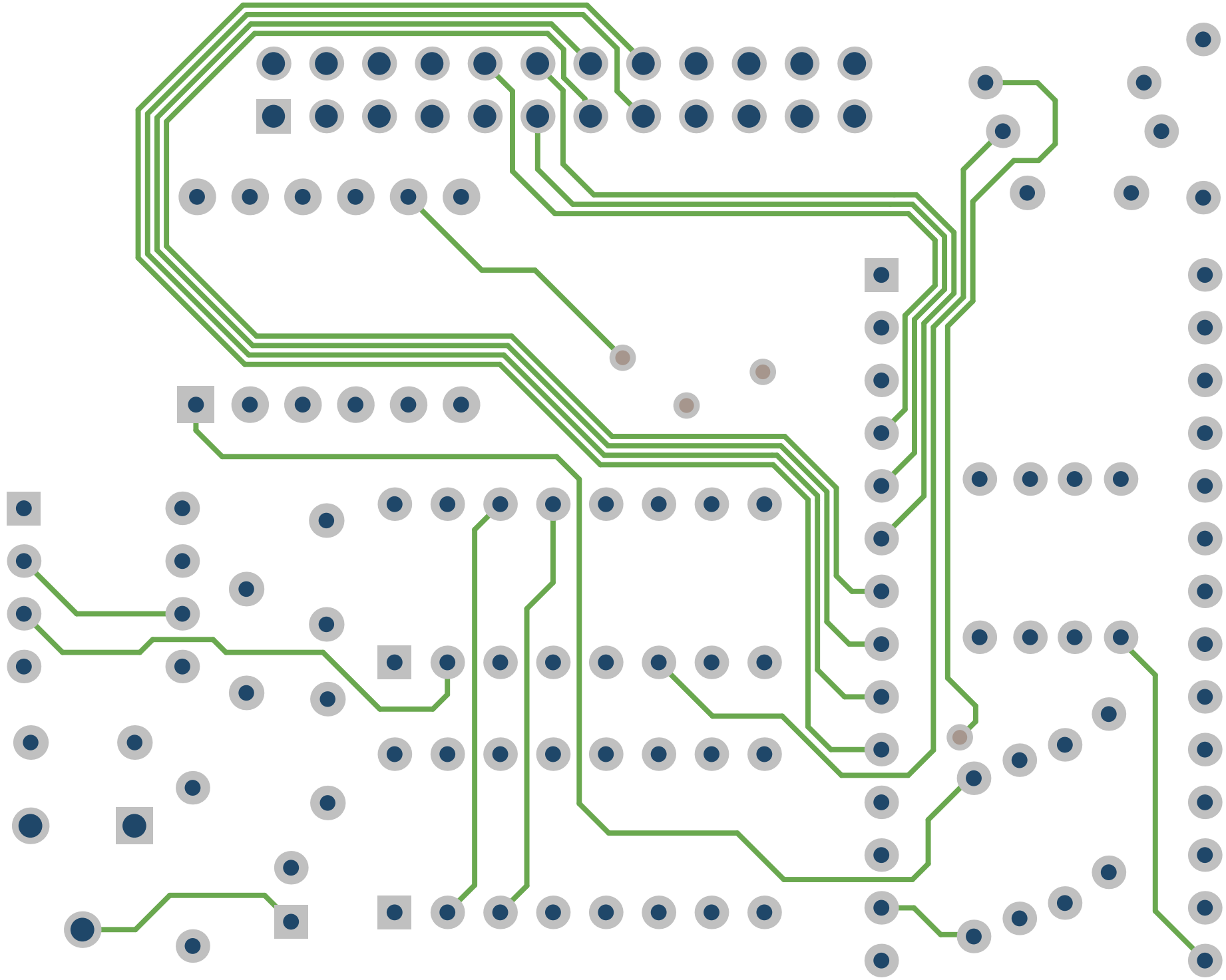
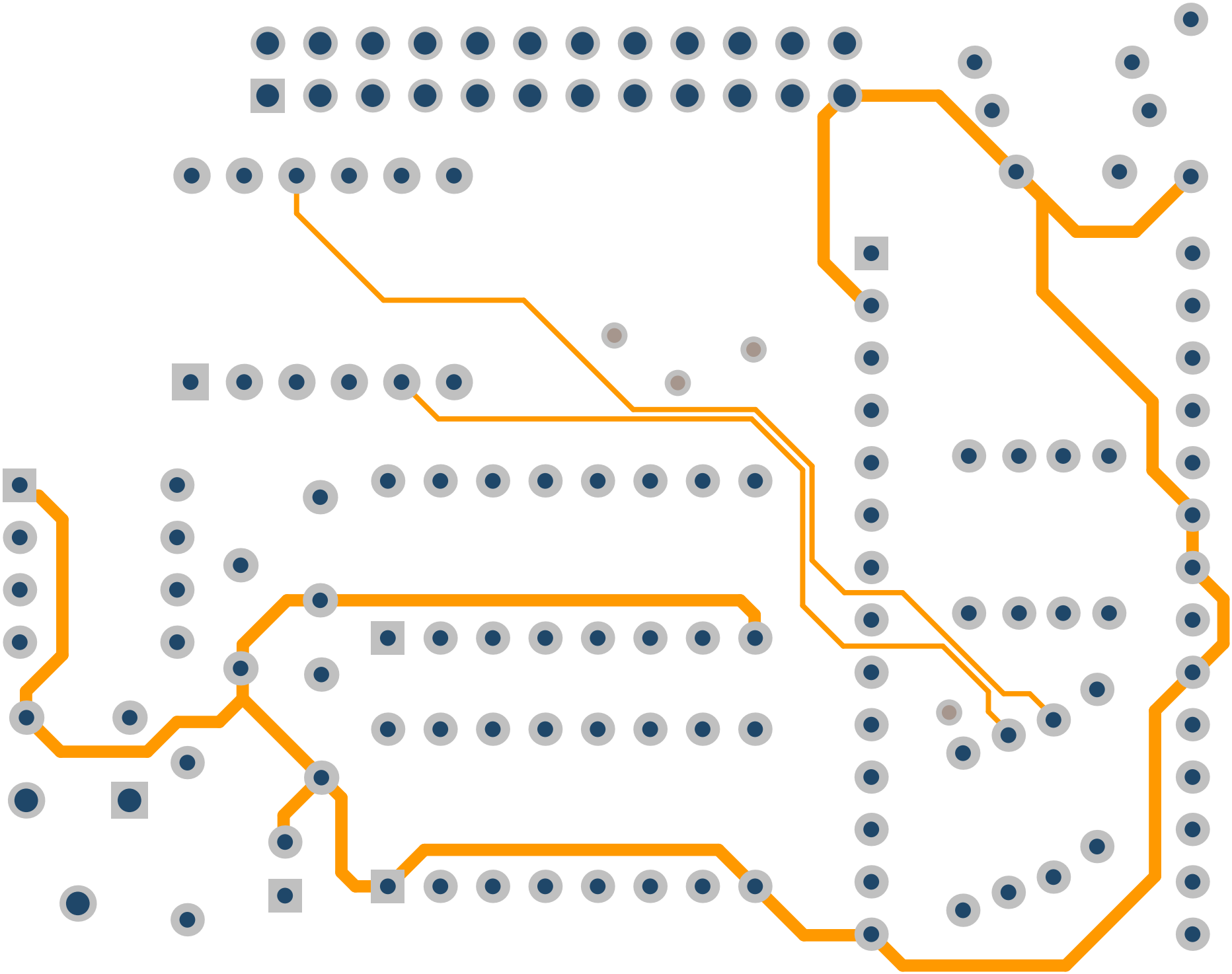
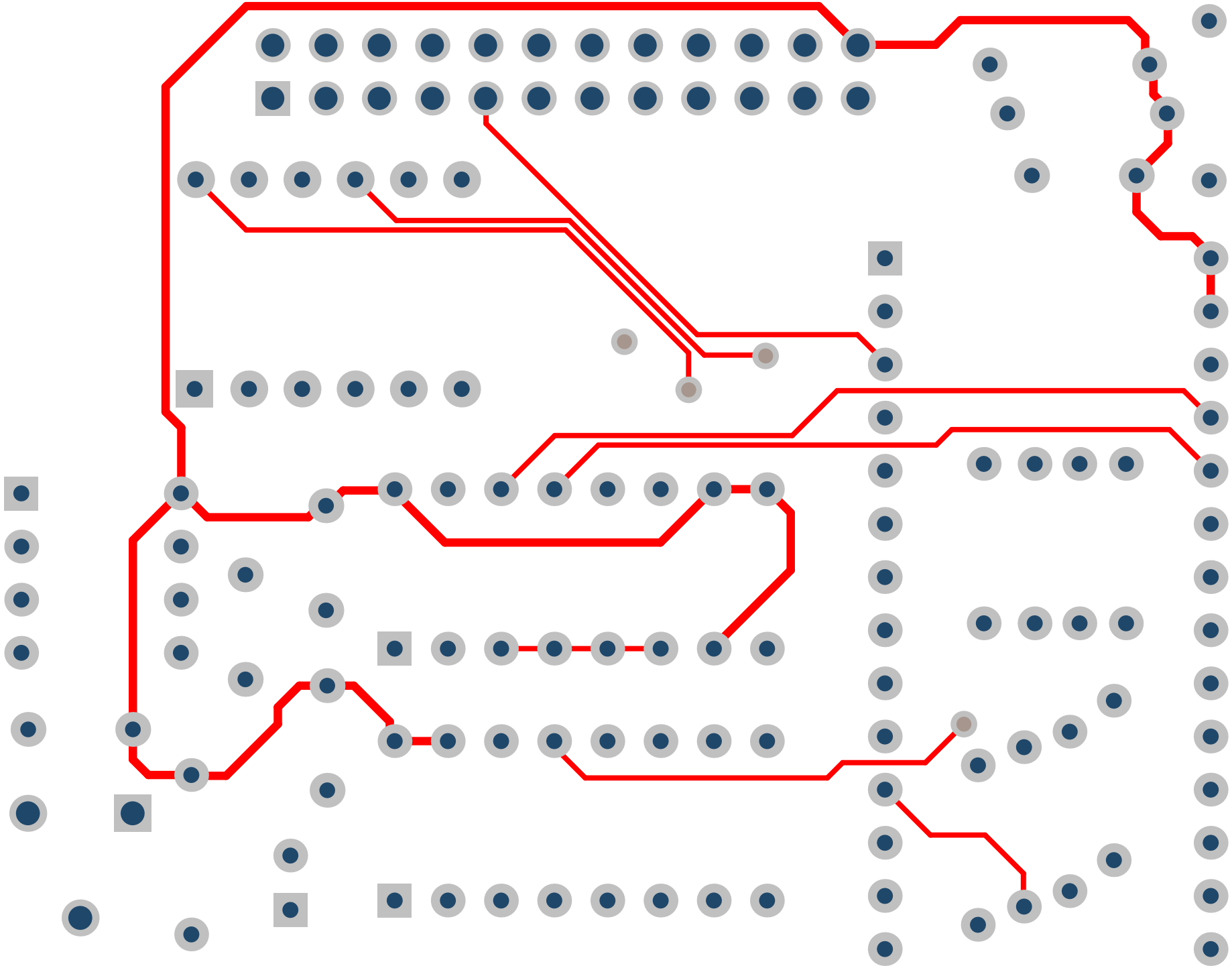

2
1
+5v
GND
R8
R9
R7
C4
MEM1
AT28C64
IC1
C3
IC2
C6
74xx161
C7
C2
IC3
R2
R1
C5
74xx139
myCPU DEC/HEx Display 8 Bits. Rev: 16

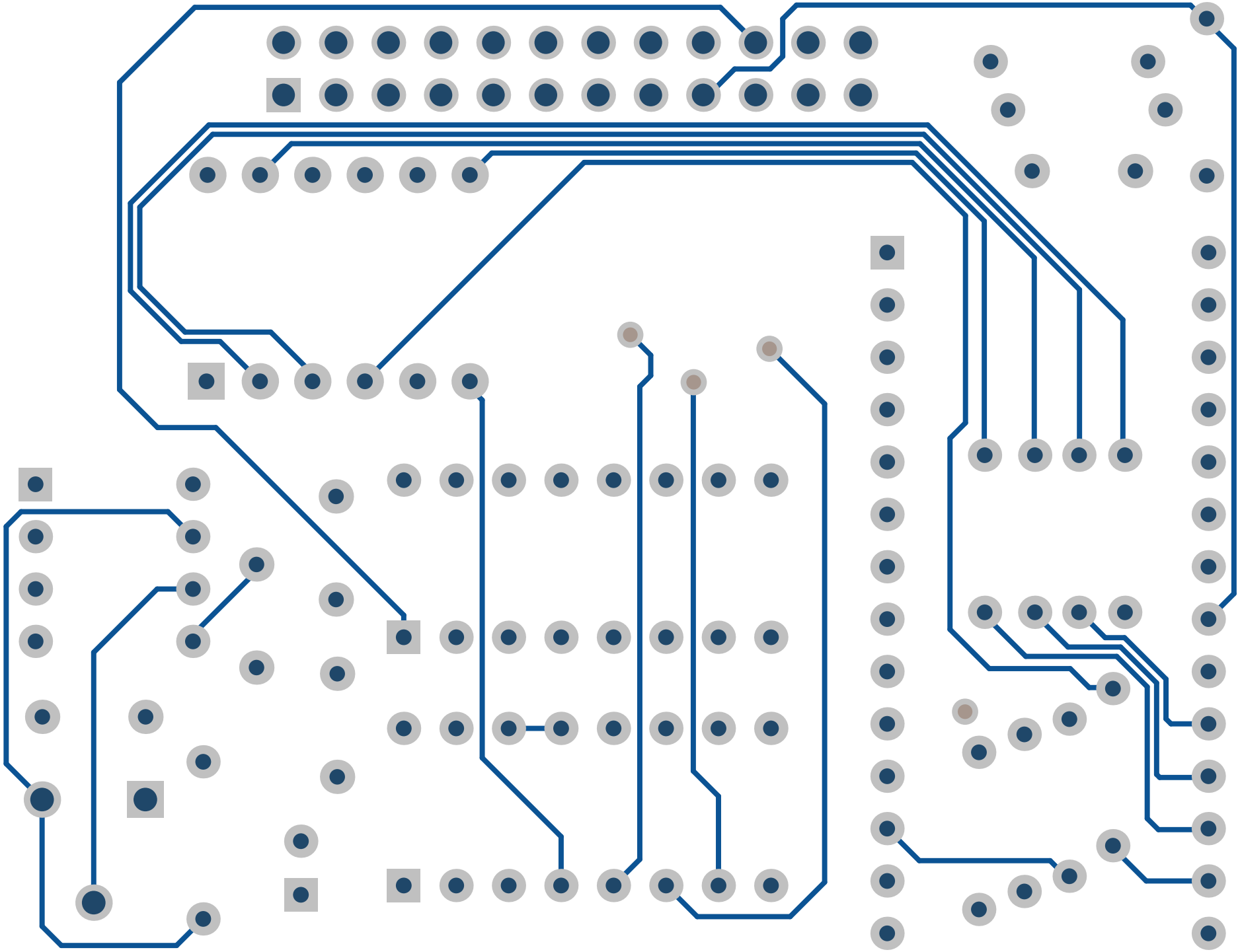

INPUT Data Connector
P1
I8
I9
I10
I11
I12
I13
I14
I15
UN
RST
CLK
/RST
/CLK
GND
VCC
This counter, don't need load and allways is counting. So CET, CET is connected to VCC and /PE is connected to VCC too to disable load.
DIGIT Counter
IC2
74xx161
PE
CLK
CLR
TC
CET
CEP
A
B
C
D
QA
QB
QC
QD
R7
4.7K
Counter control digit swtich from D1 to D4. Output weight goes from QA to QD.
DIGIT Switcher
IC3
74xx139
G1
G2
1A
1B
2A
2B
1Y0
1Y1
1Y2
1Y3
2Y0
2Y1
2Y2
2Y3
R8
4.7K
Digit selection must be sinchronizing with the decoder addresses A8,A9 and the decoding code.
In our case selection goes from Y3 (Dig1) to Y0 (Dig4)
DS1
DIG 4
DIG 3
DIG 2
DIG 1
G
F
E
DP
D
C
B
A
Digit Decoder Address Bits
DIGIT Switch Clock
IC1
555
TRIG
OUT
CV
DISCH
RST
THR
R1
1K
R2
500K
C5
0.47µF
C6
10nF
Clock Speed Regulator
R2 value could be a 500k in order to show the behavior of digit switching. It can be replaced by a fixed value resistor between 2K-4.7K to set a constant speed for a digit switch at a good rate.
A recommended value to a fixed resistor could be 3.3K
MEM1
AT28C64
A0
A1
A2
A3
A4
A5
A6
A7
A8
A9
A10
A11
A12
I/O0
I/O1
I/O2
I/O3
I/O4
I/O5
I/O6
I/O7
CE
OE
WE
NC
R10
R11
R12
R13
R14
R15
R16
R17
680Ω
R9
330Ω
"UN" signal sets the behavior of display to 2's complement representation. LOW by default.
C2
C3
C4
C7
100nF
Decoupling Capacitors
my LAB PCB
Project: myCPU DEC/HEX Display 4 Digit 8 bit
Revision: 16
Date: 16-Jun-24
Author: Rafa Hernández


62.06
13.62
17.67
2.13
50.01
2
1
+5v
GND
R8
R9
R7
C4
MEM1
AT28C64
IC1
555
C6
C3
IC2
74xx161
R15
R16
R17
R13
C7
C2
IC3
74xx139
R10
R2
R1
C5
R12
R11
R14
myCPU DEC/HEX Display 8 Bits. Rev: 16









Bill of Materials

myCPU DEC/HEX Display 4 Digit 8 bit

Description	Value	Q
Ceramic or tantalum capacitor	100nF	4
Electrolytic capacitor 16v/50v	0.47µF	1
Ceramic or tantalum capacitor	10nF	1
Display 7 segments 4 digits, common cathode, size 0.36"	Red	1
555 Timer	555	1
4-Bit sync counter	74xx161	1
Decoder/Demultiplexer Dual 2-to-4	74xx139	1
EEProm 64K, 8K x 8 bits	AT28C64	1
Pin Header, THT, pitch 2.54mm, Dual Row, Vertical, 24p	24p	1
Resistor Axial	1K	1
Variable resistor, Horizontal, 3 pins	500K	1
Resistor Axial	4.7K	2
Resistor Axial	330Ω	1
Resistor Axial	680Ω	8

Assembly List

myCPU DEC/HEX Display 4 Digit 8 bit

Designator	Description	Value
C2	Ceramic or tantalum capacitor	100nF
C3	Ceramic or tantalum capacitor	100nF
C4	Ceramic or tantalum capacitor	100nF
C5	Electrolytic capacitor 16v/50v	0.47µF
C6	Ceramic or tantalum capacitor	10nF
C7	Ceramic or tantalum capacitor	100nF
DS1	Display 7 segments 4 digits, common cathode, size 0.36"	Red
IC1	555 Timer	555
IC2	4-Bit sync counter	74xx161
IC3	Decoder/Demultiplexer Dual 2-to-4	74xx139
MEM1	EEProm 64K, 8K x 8 bits	AT28C64
P1	Pin Header, THT, pitch 2.54mm, Dual Row, Vertical, 24p	24p
R1	Resistor Axial	1K
R2	Variable resistor, Horizontal, 3 pins	500K
R7	Resistor Axial	4.7K
R8	Resistor Axial	4.7K
R9	Resistor Axial	330Ω
R10	Resistor Axial	680Ω
R11	Resistor Axial	680Ω
R12	Resistor Axial	680Ω
R13	Resistor Axial	680Ω
R14	Resistor Axial	680Ω
R15	Resistor Axial	680Ω
R16	Resistor Axial	680Ω
R17	Resistor Axial	680Ω