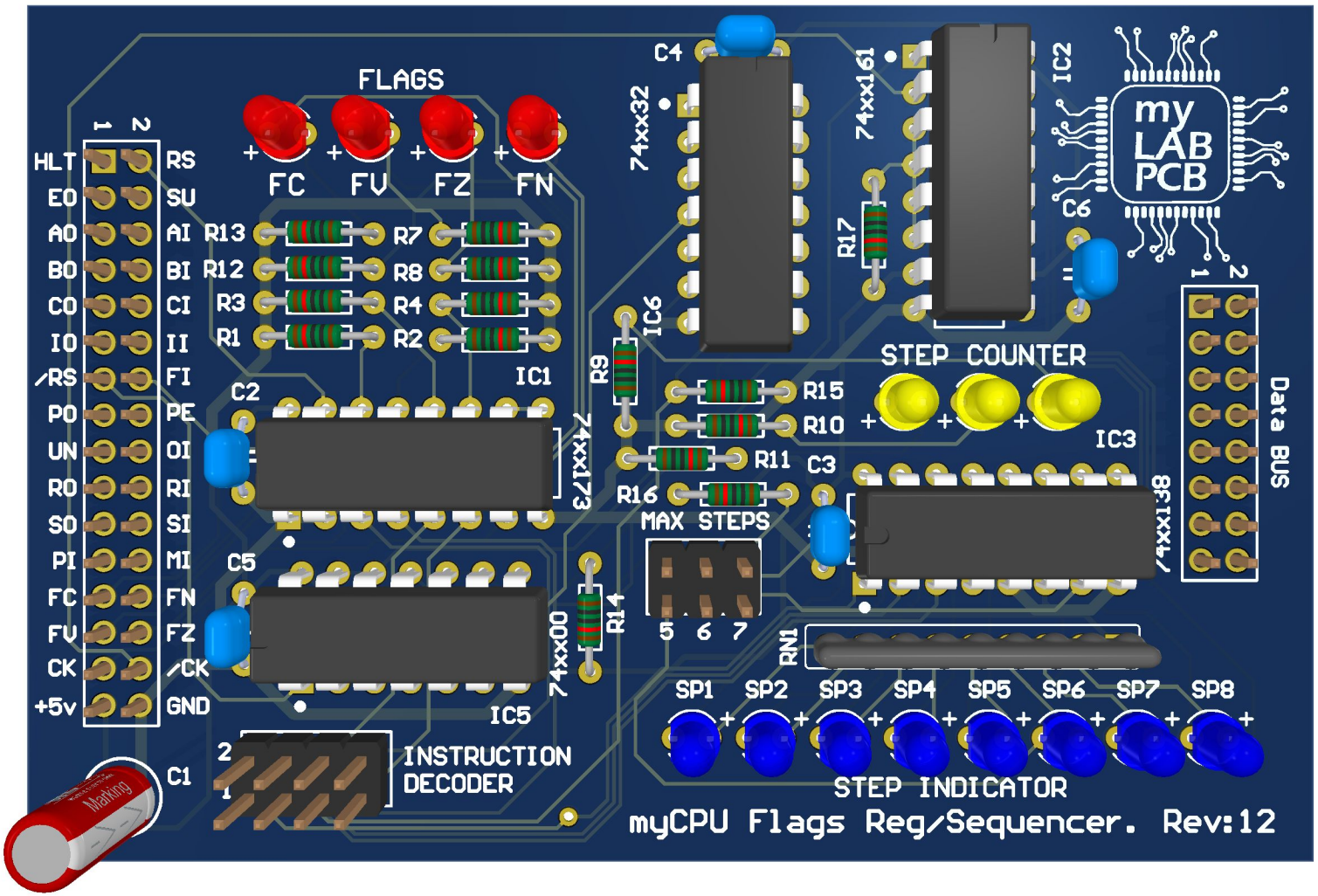
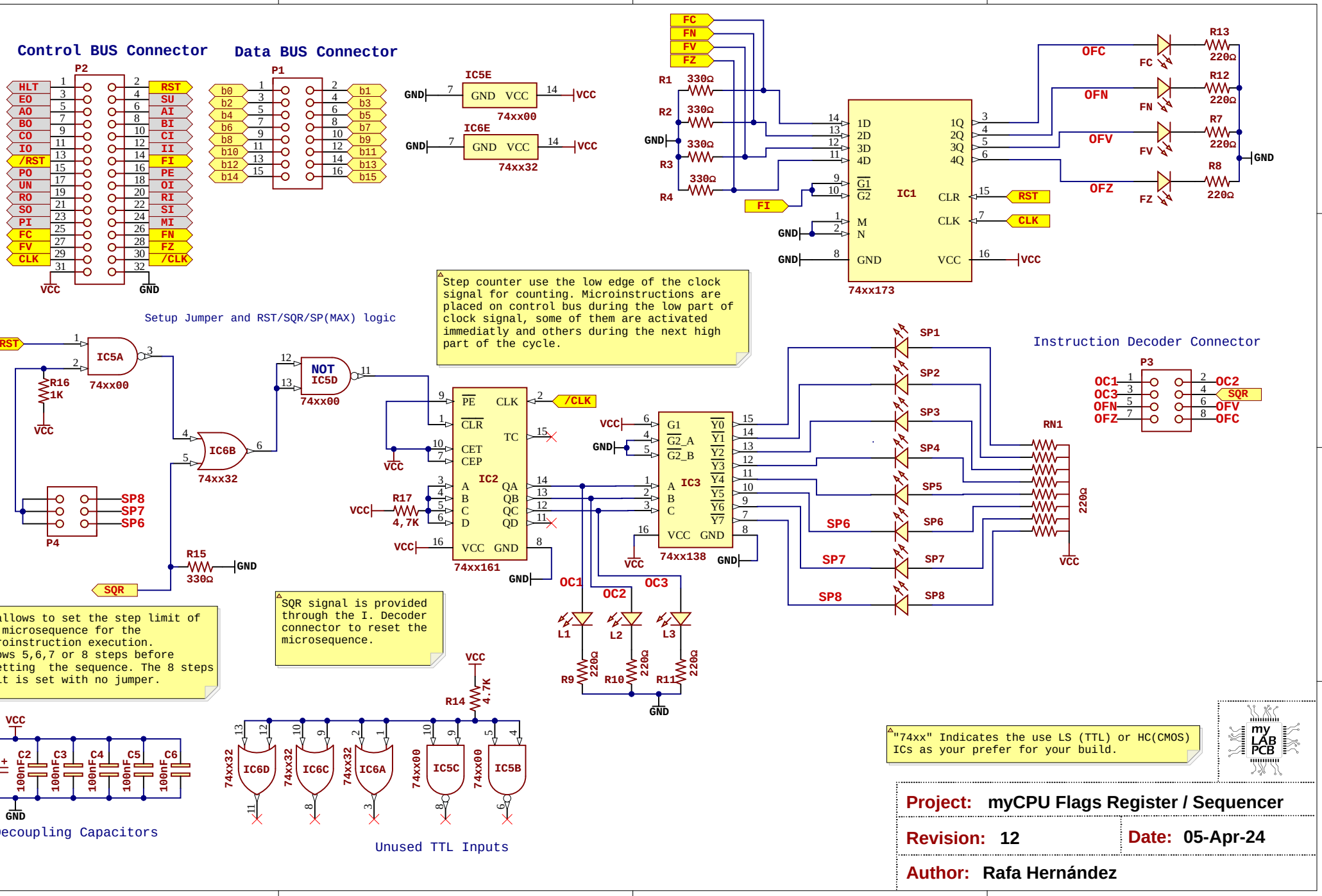
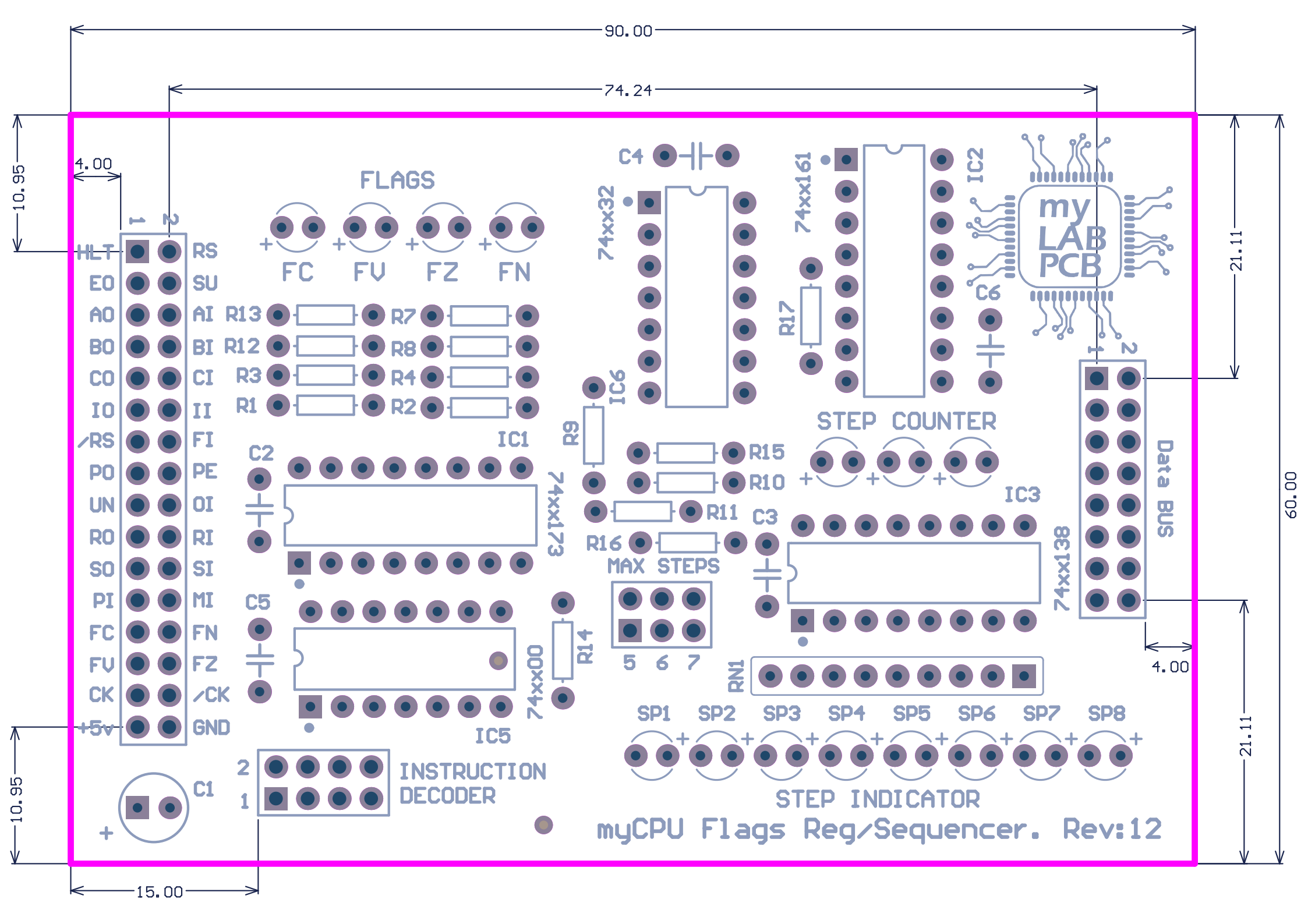
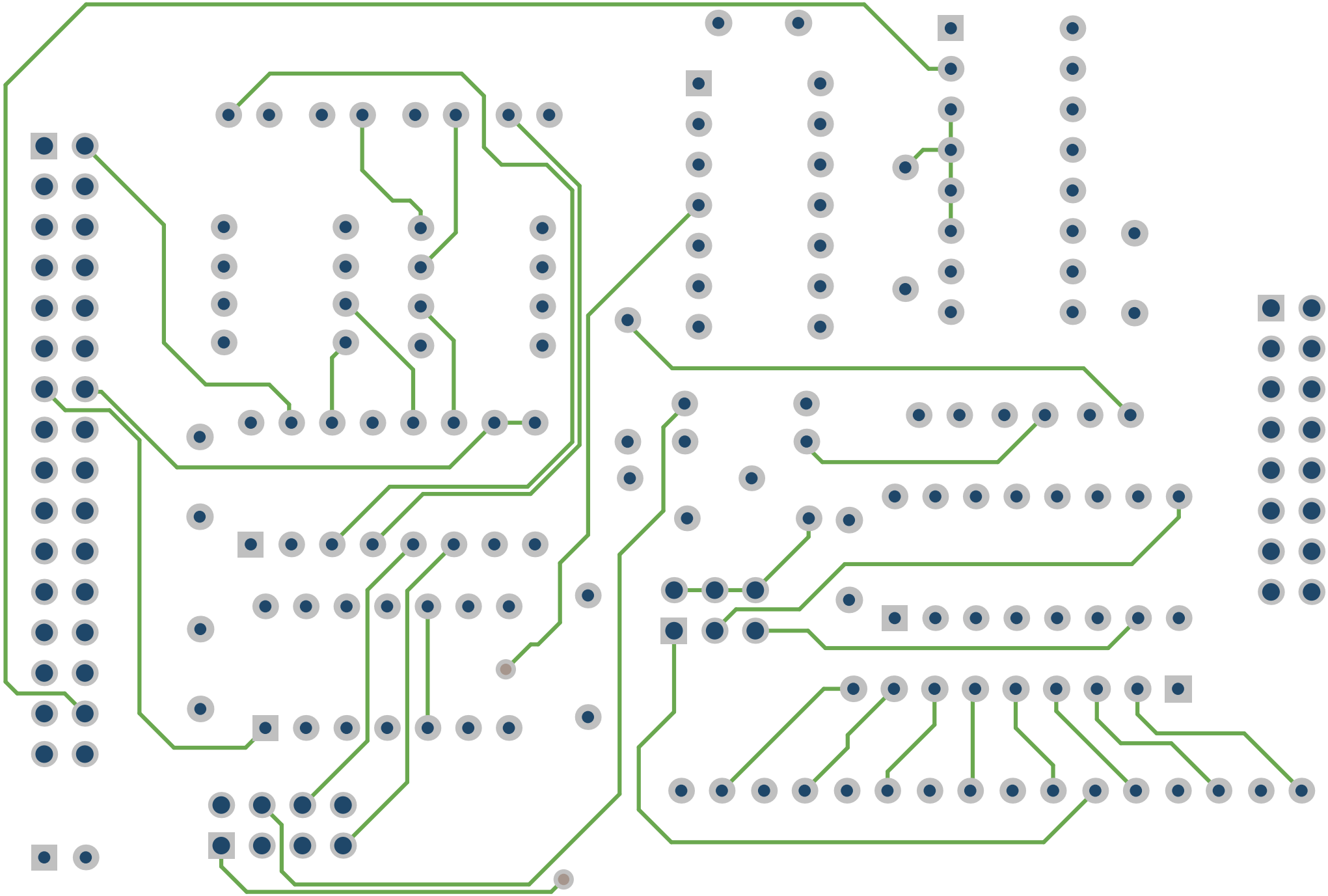
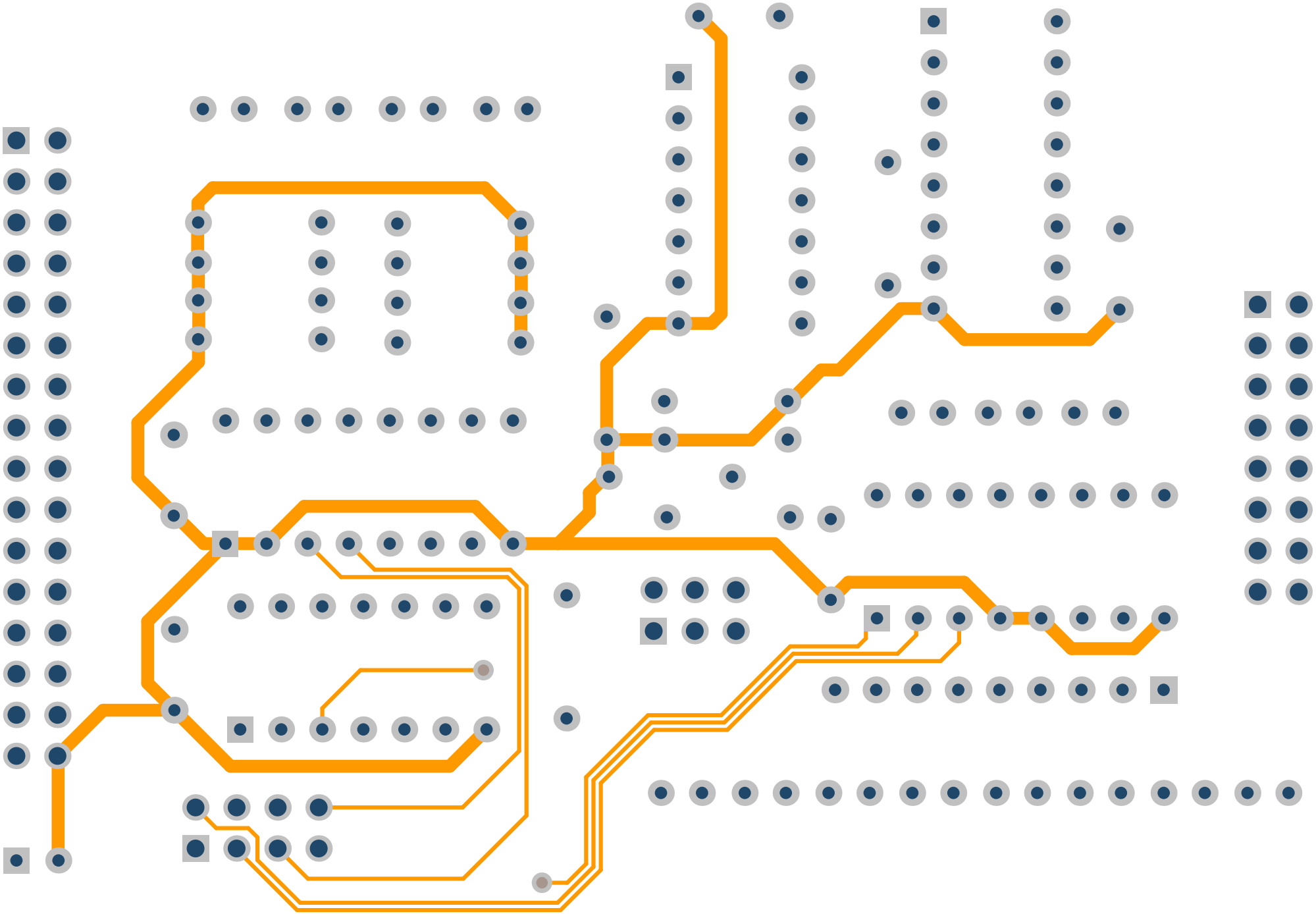
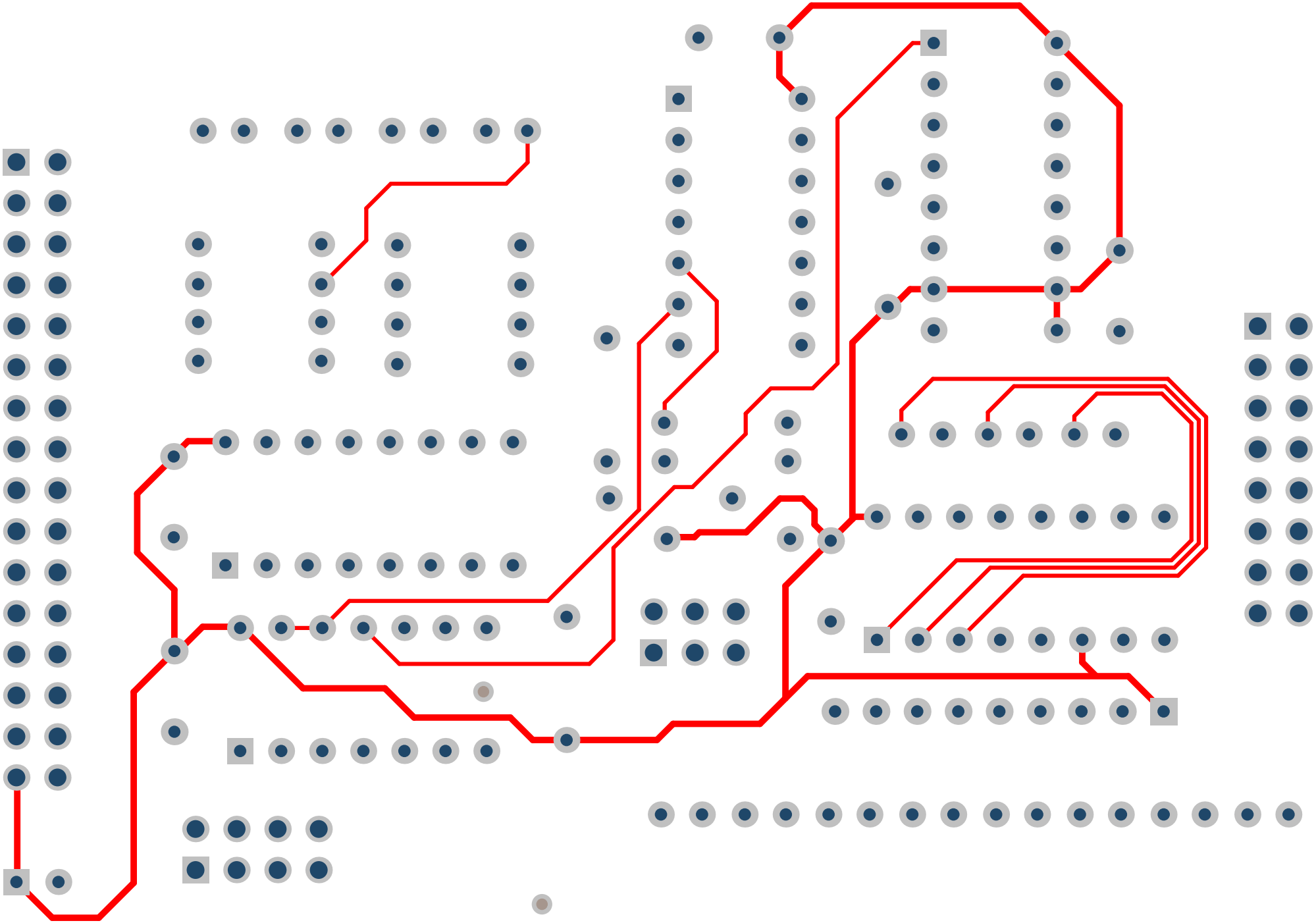

FLAGS
FC
FV
FZ
FN
HLT
EO
AO
BO
CO
IO
/RS
PO
UN
RO
SO
PI
FC
FV
CK
+5v
RS
SU
AI
BI
CI
II
FI
PE
OI
RI
SI
MI
FN
FZ
/CK
GND
R13
R12
R3
R1
R7
R8
R4
R2
IC1
C2
74xx173
C5
74xx00
IC5
R14
R9
IC6
C4
74xx32
R15
R10
R11
R16
MAX STEPS
5 6 7
C3
74xx161
IC2
R17
C6
STEP COUNTER
IC3
74xx138
RN1
SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8
STEP INDICATOR
Data BUS
INSTRUCTION
DECODER
C1
Marking
myCPU Flags Reg/Sequencer. Rev:12

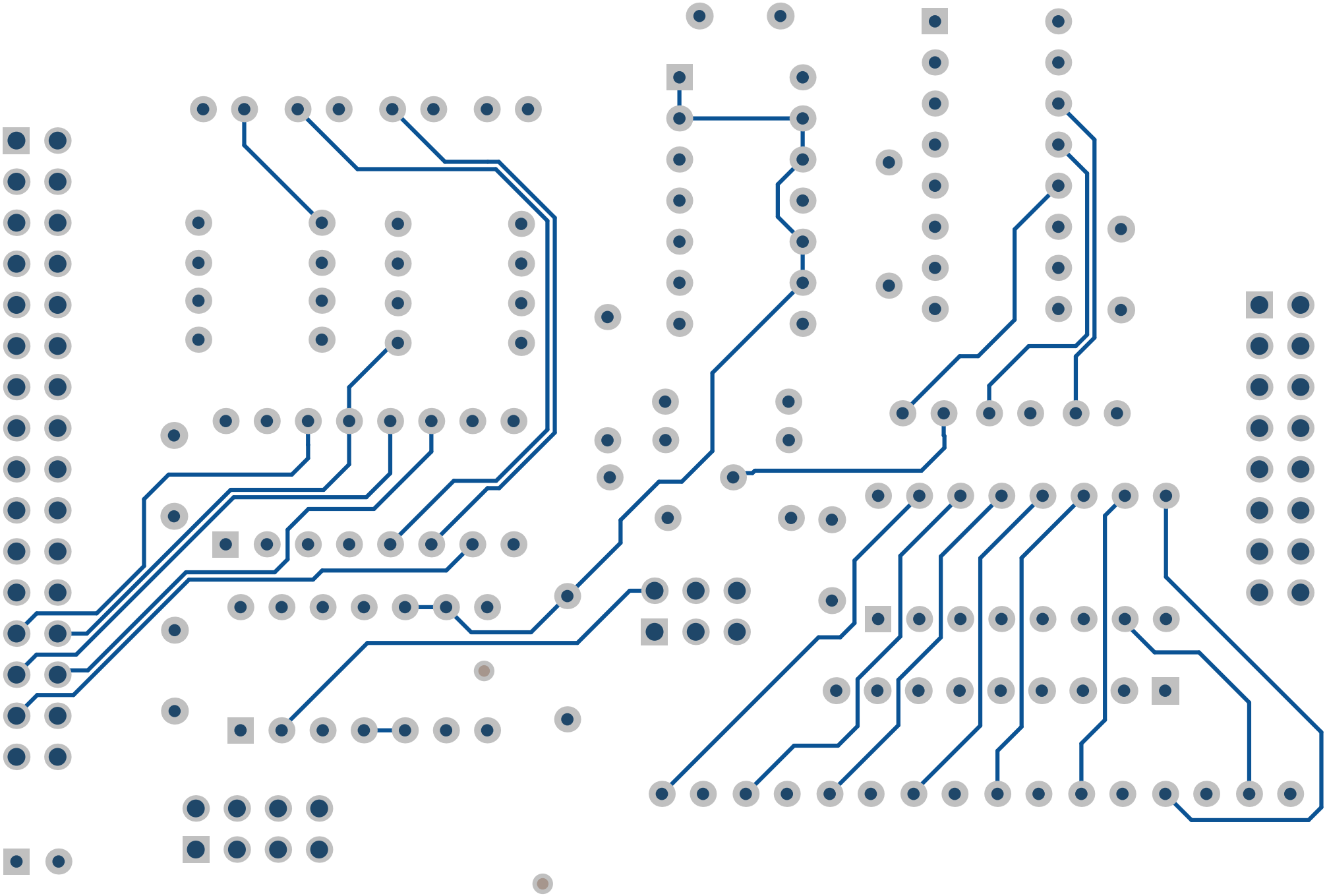

Control BUS Connector
Data BUS Connector
P2
HLT EO AO BO CO IO /RST PO UN RO SO PI FC FV CLK
RST SU AI BI CI II FI PE OI RI SI MI FN FZ /CLK
VCC GND
P1
b0 b2 b4 b6 b8 b10 b12 b14
b1 b3 b5 b7 b9 b11 b13 b15
IC5E
IC6E
GND VCC
74xx00
74xx32
FC FN FV FZ
R1 330Ω
R2 330Ω
R3 330Ω
R4 330Ω
FI
IC1
1D 2D 3D 4D
1Q 2Q 3Q 4Q
G1 G2
M N
CLR CLK GND VCC
RST CLK
74xx173
OFC OFN OFV OFZ
R13 R12 R7 R8 220Ω
Step counter use the low edge of the clock signal for counting. Microinstructions are placed on control bus during the low part of clock signal, some of them are activated immediatly and others during the next high part of the cycle.
Setup Jumper and RST/SQR/SP(MAX) logic
/RST
IC5A
R16 1K
74xx00
NOT IC5D
IC6B
74xx32
P4
SP8 SP7 SP6
R15 330Ω
SQR
PE CLK CLR TC CET CEP
IC2
A B C D QA QB QC QD
VCC GND
74xx161
/CLK
R17 4,7K
G1 G2_A G2_B
IC3
A B C
Y0 Y1 Y2 Y3 Y4 Y5 Y6 Y7
74xx138
SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8
RN1 220Ω
Instruction Decoder Connector
P3
OC1 OC3 OFN OFZ
OC2 SQR OFV OFC
P4 allows to set the step limit of the microsequence for the microinstruction execution. Allows 5,6,7 or 8 steps before resetting the sequence. The 8 steps limit is set with no jumper.
SQR signal is provided through the I. Decoder connector to reset the microsequence.
OC1 OC2 OC3
L1 L2 L3
R9 R10 R11 220Ω
R14 4.7K
C1 10µF
C2 C3 C4 C5 C6 100nF
Decoupling Capacitors
IC6D IC6C IC6A IC5C IC5B
74xx32 74xx32 74xx32 74xx00 74xx00
Unused TTL Inputs
"74xx" Indicates the use LS (TTL) or HC(CMOS) ICs as your prefer for your build.
my LAB PCB
Project: myCPU Flags Register / Sequencer
Revision: 12
Date: 05-Apr-24
Author: Rafa Hernández


90.00
74.24
10.95
4.00
21.11
60.00
FLAGS
FC
FZ
FV
FN
HLT
EO
AO
BO
CO
IO
/RS
PO
UN
RO
SO
PI
FC
FV
CK
+5v
RS
SU
AI
BI
CI
II
FI
PE
OI
RI
SI
MI
FN
FZ
/CK
GND
R13
R12
R3
R1
R7
R8
R4
R2
C4
74xx32
IC6
R9
74xx161
IC2
R17
C6
my
LAB
PCB
Data BUS
STEP COUNTER
IC1
C2
74xx173
R15
R10
R11
R16
MAX STEPS
5
6
7
IC3
C3
74xx138
C5
74xx00
R14
RN1
4.00
SP1
SP2
SP3
SP4
SP5
SP6
SP7
SP8
STEP INDICATOR
IC5
INSTRUCTION
DECODER
C1
15.00
myCPU Flags Reg/Sequencer. Rev:12









Bill of Materials

myCPU Flags Register / Sequencer

Description	Value	Q
Electrolytic capacitor 16v/50v	10µF	1
Ceramic or tantalum capacitor	100nF	5
Led 3mm Round	Red	4
4-bit D-Type Register with 3 state outputs	74xx173	1
4-Bit sync counter	74xx161	1
3-Line to 8-Line decoder/demultiplexer	74xx138	1
Quad 2-input NAND gates	74xx00	1
Quad 2-input OR gates.	74xx32	1
Led 3mm Round	Yellow	3
Pin Header, THT, pitch 2.54mm, Dual Row, Vertical, 16p	16p	1
Pin Header, THT, pitch 2.54mm, Dual Row, Vertical, 32p	32p	1
Pin Header, THT, pitch 2.54mm, Dual Row, Vertical, 8p	8p	1
Pin Header, THT, pitch 2.54mm, Dual Row, Vertical, 6p	6p	1
Resistor Axial	330Ω	5
Resistor Axial	220Ω	7
Resistor Axial	4.7K	1
Resistor Axial	1K	1
Resistor Axial	4,7K	1
Resistor array 8 elements,9 pins	220Ω	1
Led 3mm Round	Blue	8

Assembly List

myCPU Flags Register / Sequencer

Designator	Description	Value
C1	Electrolytic capacitor 16v/50v	10µF
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
FC	Led 3mm Round	Red
FN	Led 3mm Round	Red
FV	Led 3mm Round	Red
FZ	Led 3mm Round	Red
IC1	4-bit D-Type Register with 3 state outputs	74xx173
IC2	4-Bit sync counter	74xx161
IC3	3-Line to 8-Line decoder/demultiplexer	74xx138
IC5	Quad 2-input NAND gates	74xx00
IC6	Quad 2-input OR gates.	74xx32
L1	Led 3mm Round	Yellow
L2	Led 3mm Round	Yellow
L3	Led 3mm Round	Yellow
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	Pin Header, THT, pitch 2.54mm, Dual Row, Vertical, 8p	8p
P4	Pin Header, THT, pitch 2.54mm, Dual Row, Vertical, 6p	6p
R1	Resistor Axial	330Ω
R2	Resistor Axial	330Ω
R3	Resistor Axial	330Ω
R4	Resistor Axial	330Ω
R7	Resistor Axial	220Ω
R8	Resistor Axial	220Ω
R9	Resistor Axial	220Ω
R10	Resistor Axial	220Ω
R11	Resistor Axial	220Ω
R12	Resistor Axial	220Ω
R13	Resistor Axial	220Ω
R14	Resistor Axial	4.7K
R15	Resistor Axial	330Ω
R16	Resistor Axial	1K
R17	Resistor Axial	4,7K
RN1	Resistor array 8 elements,9 pins	220Ω
SP1	Led 3mm Round	Blue
SP2	Led 3mm Round	Blue
SP3	Led 3mm Round	Blue
SP4	Led 3mm Round	Blue
SP5	Led 3mm Round	Blue
SP6	Led 3mm Round	Blue
SP7	Led 3mm Round	Blue
SP8	Led 3mm Round	Blue