ECE216: Digital Electronics Laboratory

Exp -8

Table of Content

Experiment 8: To implement the shift register (SISO, PIPO, SIPO, PISO)

OR

Understanding the sequential logic by implementing the shift register with flip flop.

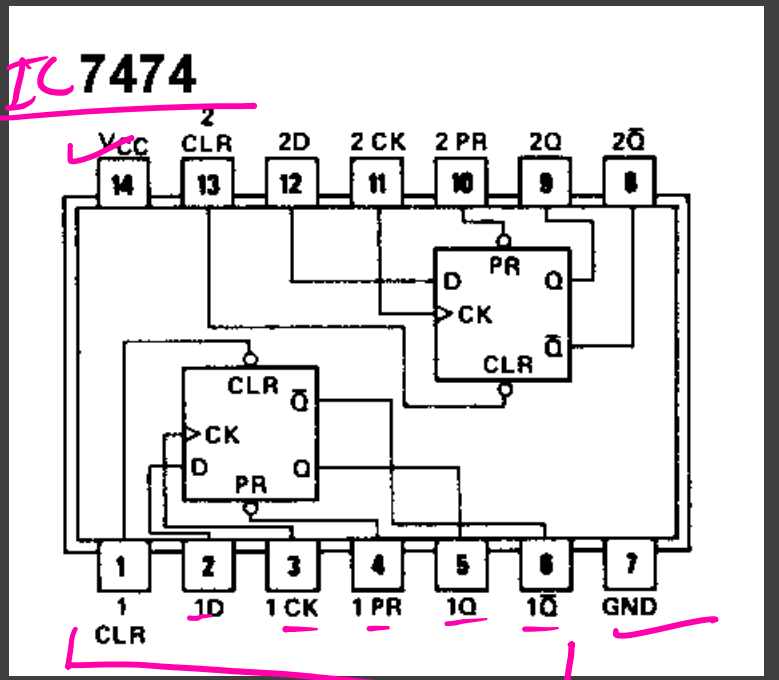
☆ Type of shift register

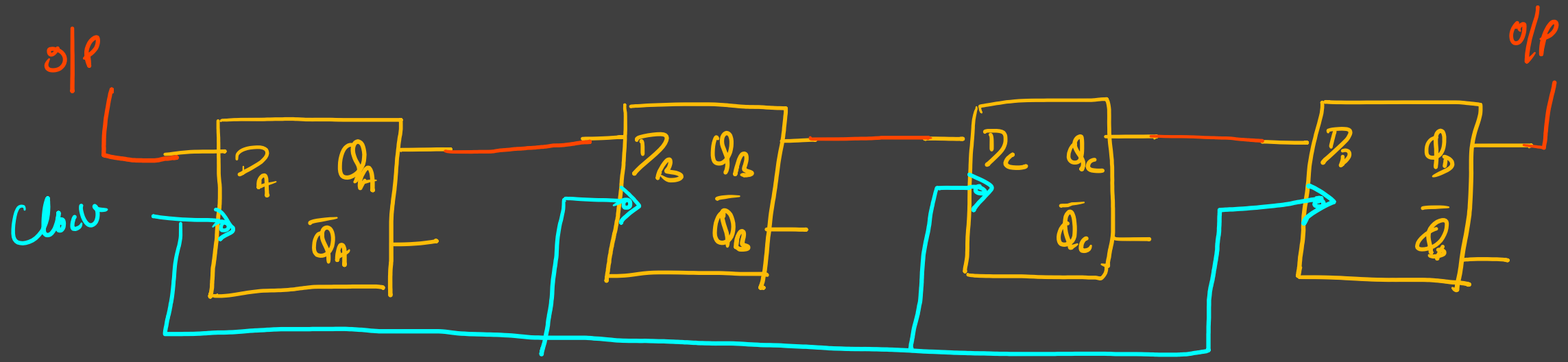
1) SISO
2) SIPO
3) PIPO
4) PISO

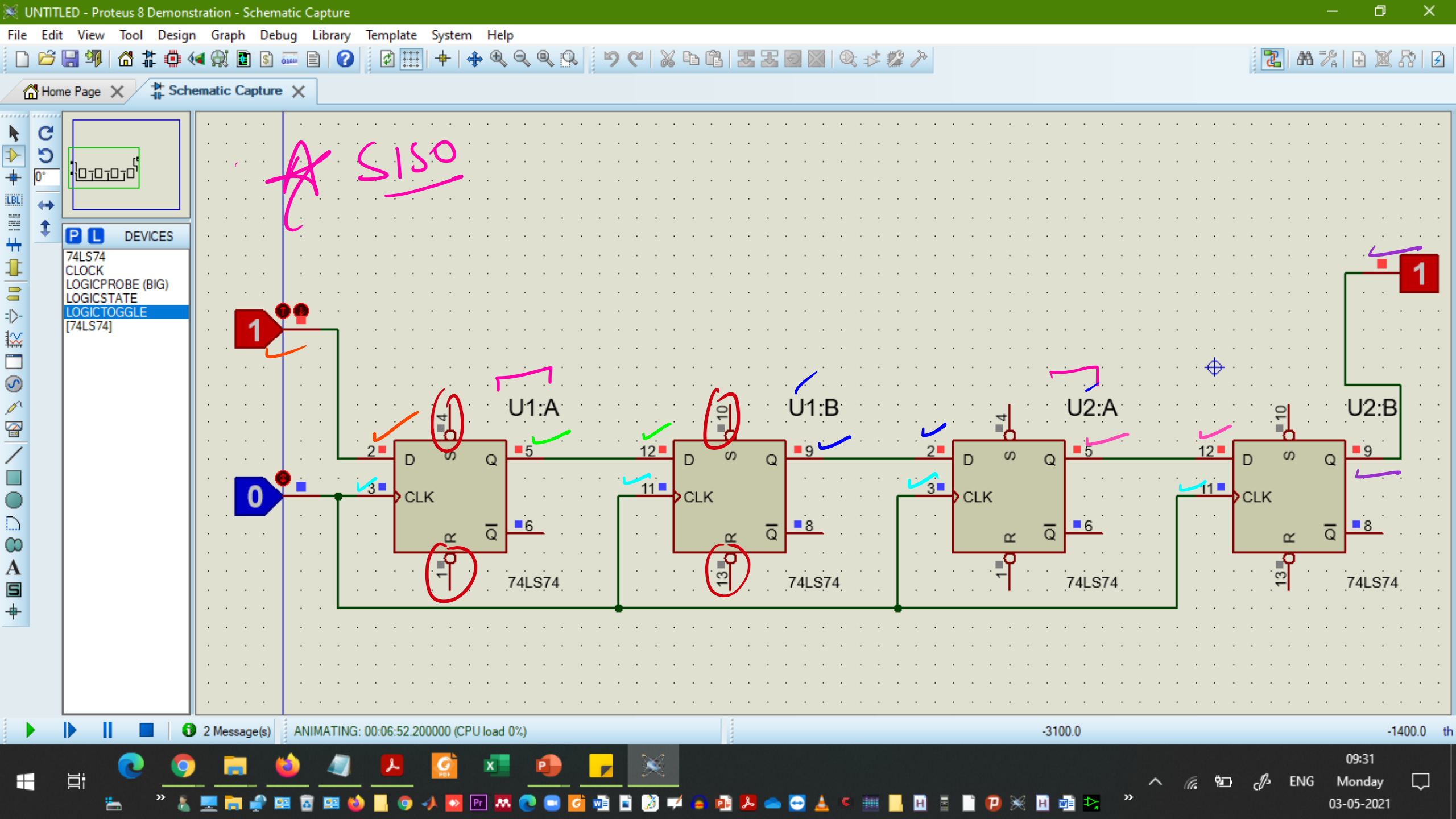
} 4-bit

SISO

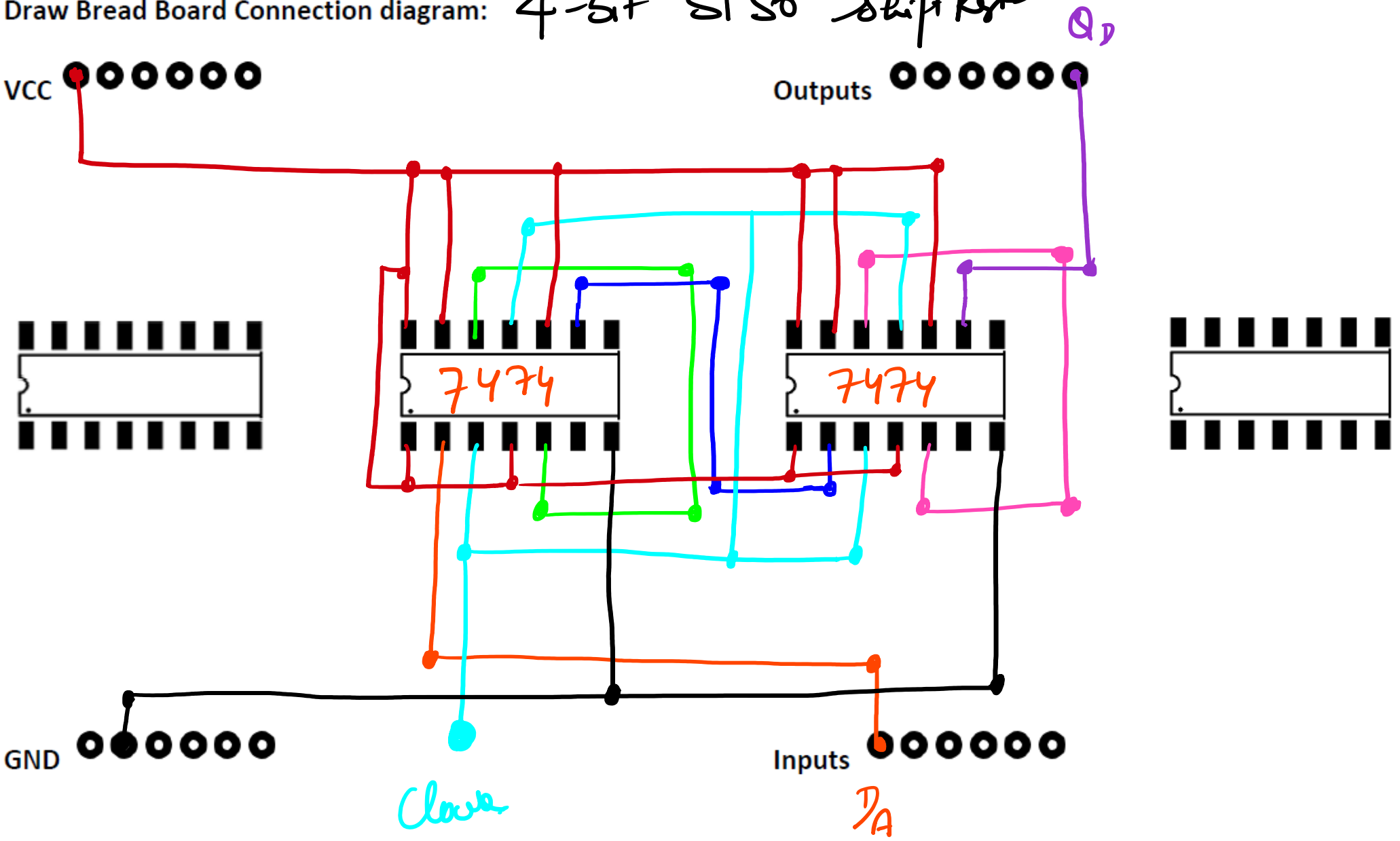
IC 7474

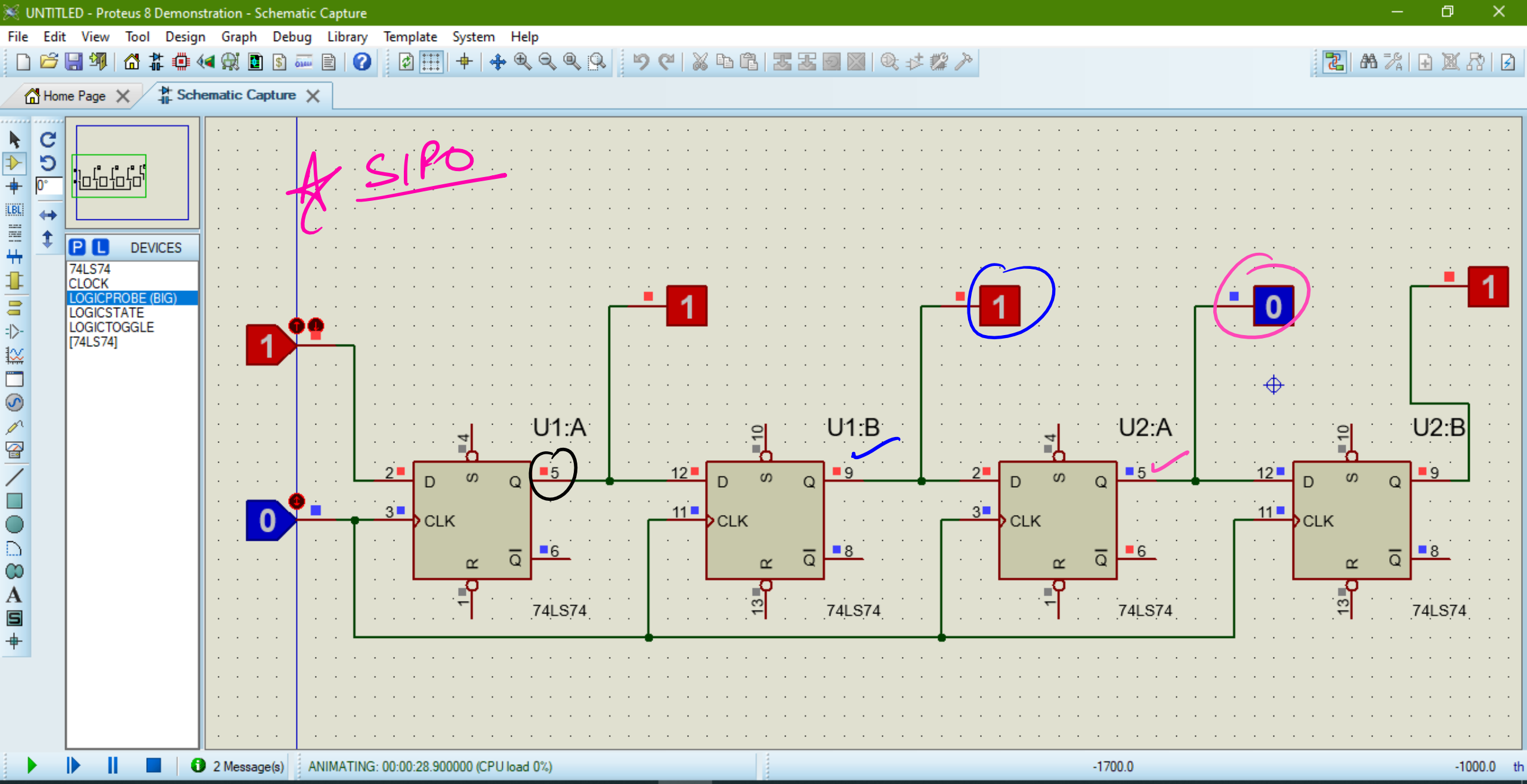





UNTITLED - Proteus 8 Demonstration - Schematic Capture
File Edit View Tool Design Graph Debug Library Template System Help
Home Page
Schematic Capture
A SISO
DEVICES
74LS74
CLOCK
LOGICPROBE (BIG)
LOGICSTATE
LOGICTOGGLE
[74LS74]
U1:A
U1:B
U2:A
U2:B
D
CLK
S
R
Q
QI
74LS74
2 Message(s)
ANIMATING: 00:06:52.200000 (CPU load 0%)
-3100.0
-1400.0
09:31
ENG
Monday
03-05-2021

Draw Bread Board Connection diagram: 4-bit SISO shift Reg

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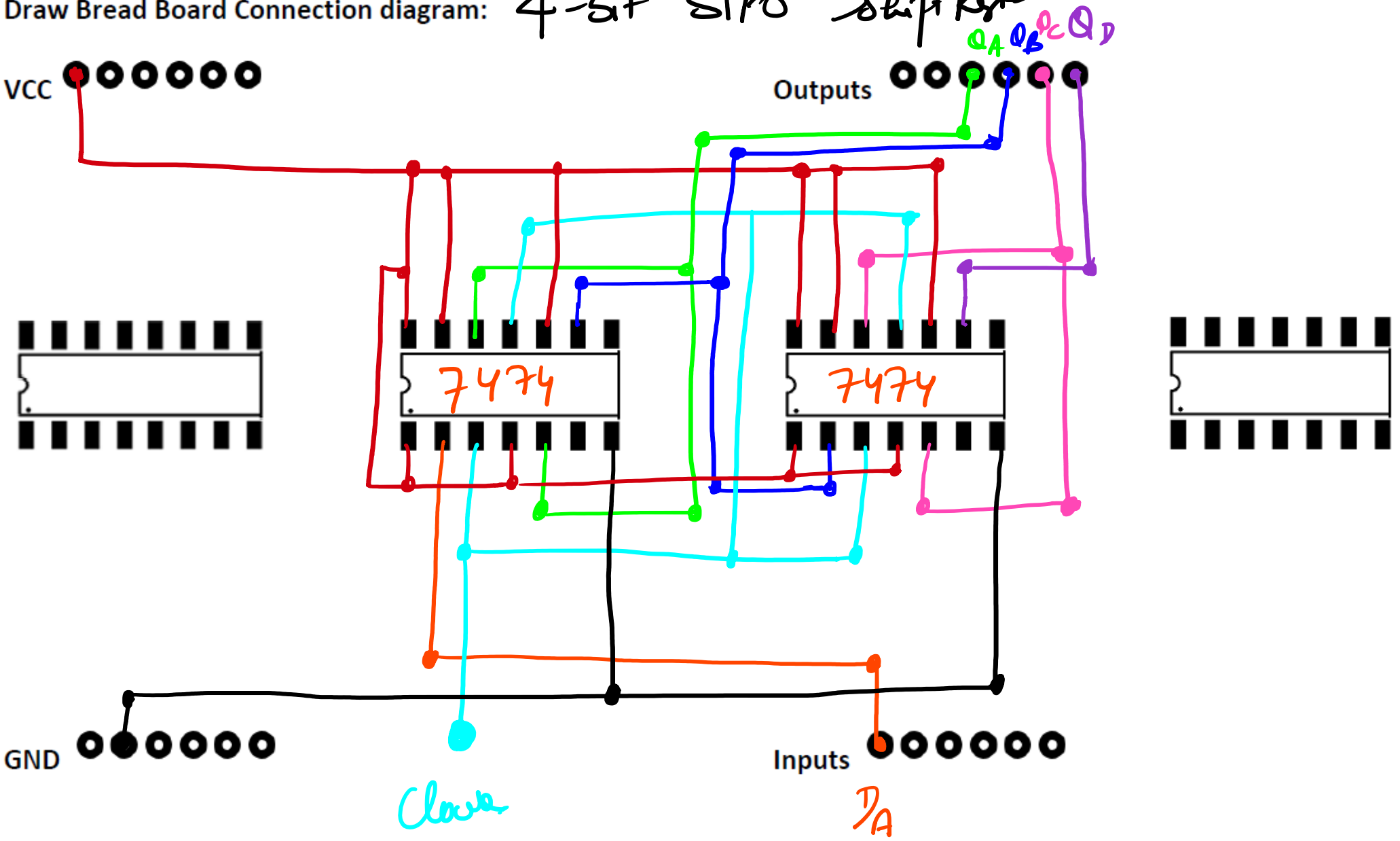
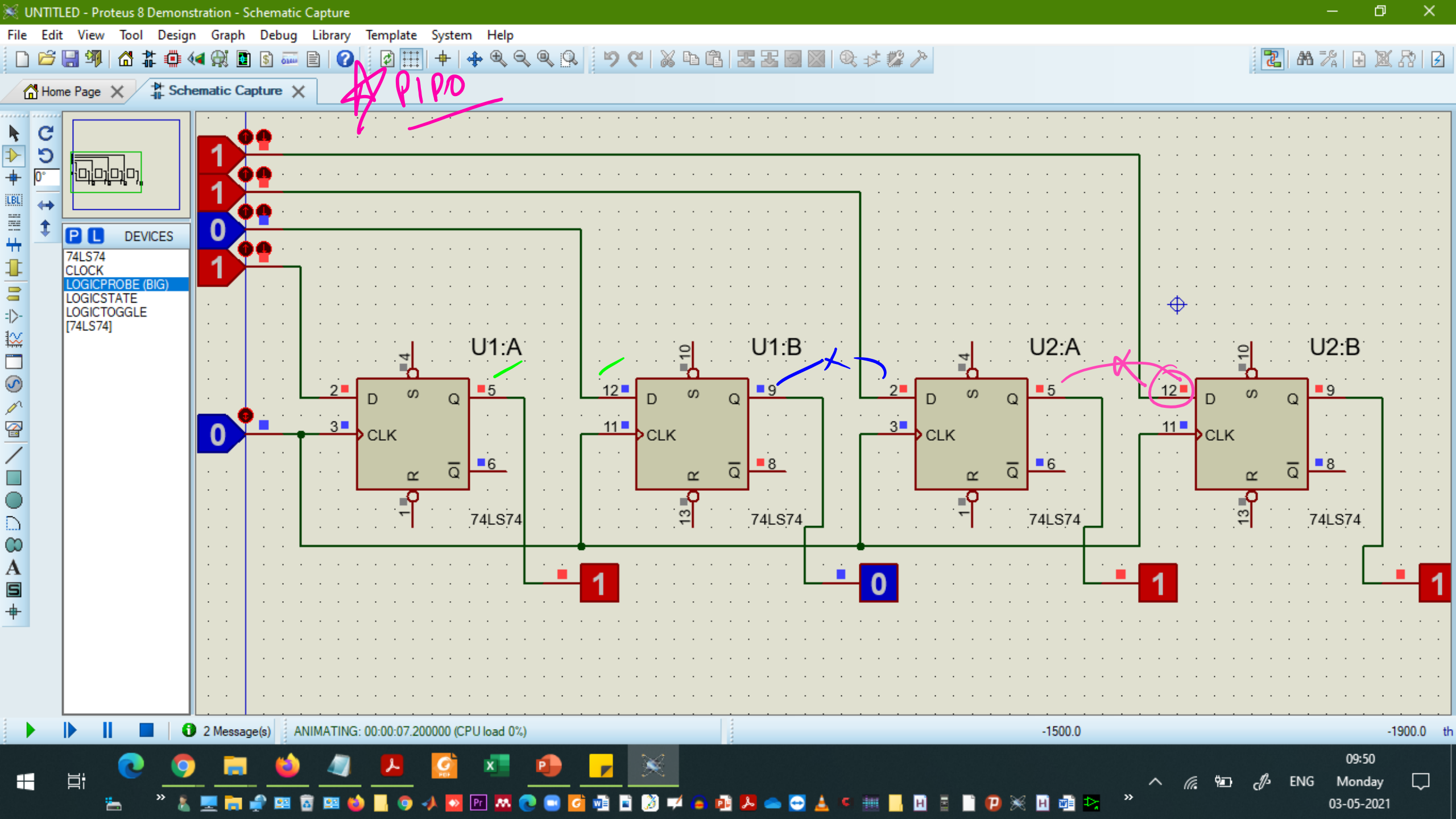
Schematic Capture
SIPO
DEVICES
74LS74
CLOCK
LOGICPROBE (BIG)
LOGICSTATE
LOGICTOGGLE
[74LS74]
1
0
U1:A
U1:B
U2:A
U2:B
D
CLK
S
R
Q
QI
74LS74
2 Message(s)
ANIMATING: 00:00:28.900000 (CPU load 0%)
-1700.0
-1000.0
09:44
ENG
Monday
03-05-2021

Draw Bread Board Connection diagram: 4-bit SIPO shift Reg

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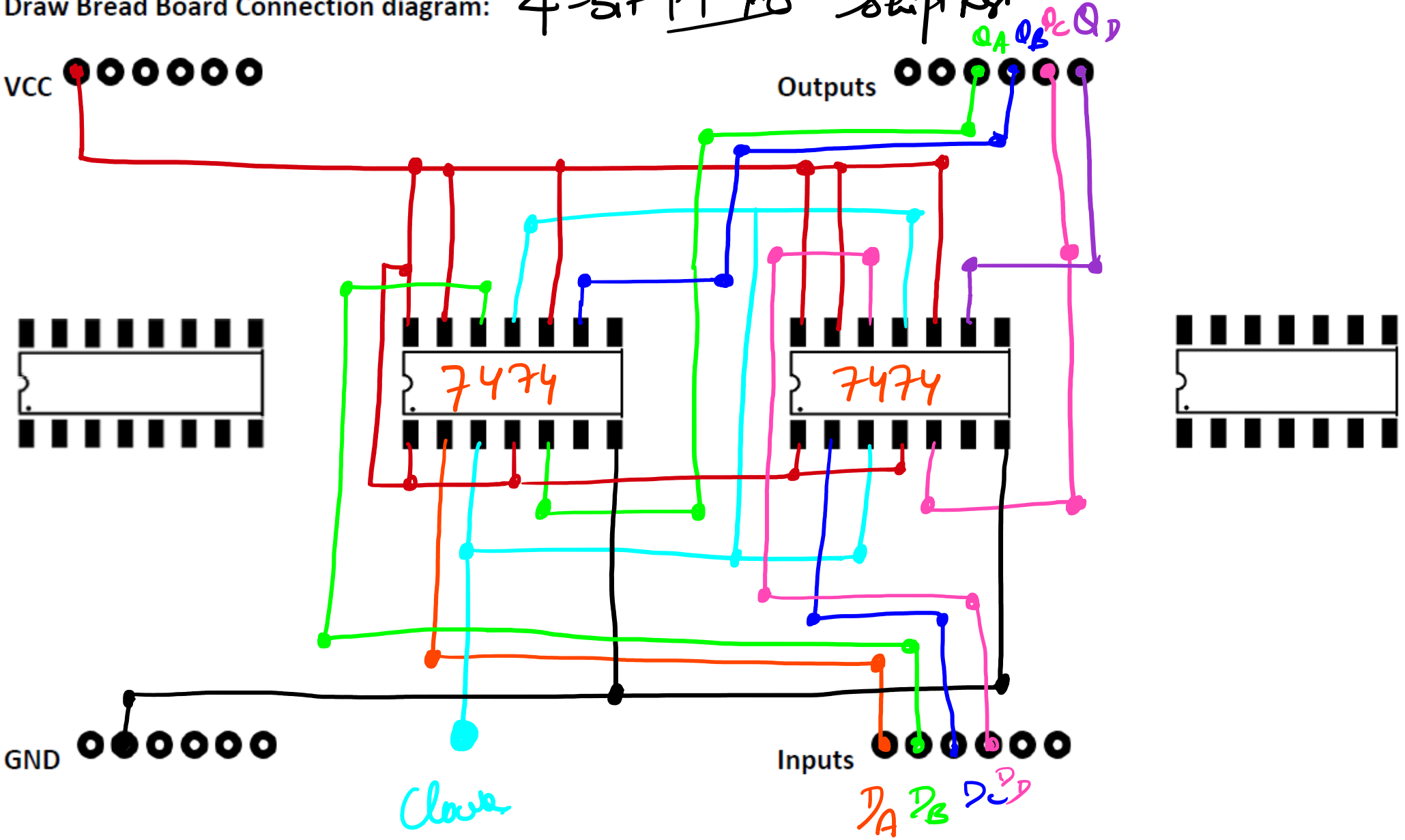
Schematic Capture
PIPO
DEVICES
74LS74
CLOCK
LOGICPROBE (BIG)
LOGICSTATE
LOGICTOGGLE
[74LS74]
U1:A
U1:B
U2:A
U2:B
D
CLK
S
R
Q
QI
74LS74
2 Message(s)
ANIMATING: 00:00:07.200000 (CPU load 0%)
-1500.0
-1900.0
09:50
ENG
Monday
03-05-2021

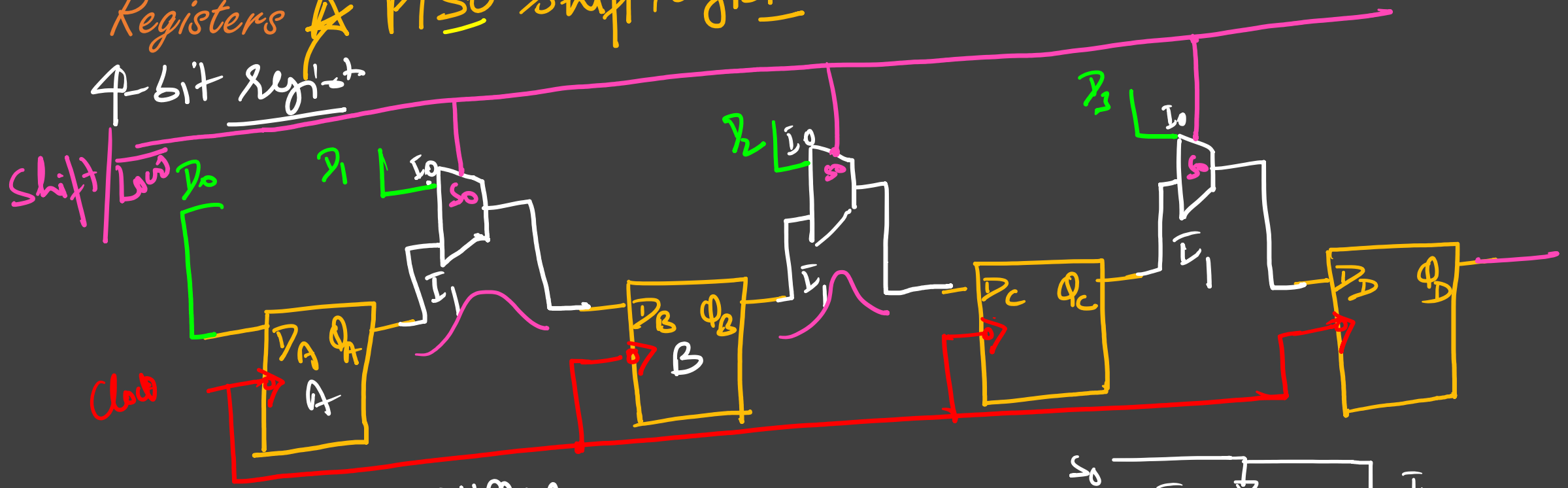
Draw Bread Board Connection diagram: 4-bit PI PO shift Reg



Sequential Logic Circuits Applications

Registers ~~&~~ PISO shift register

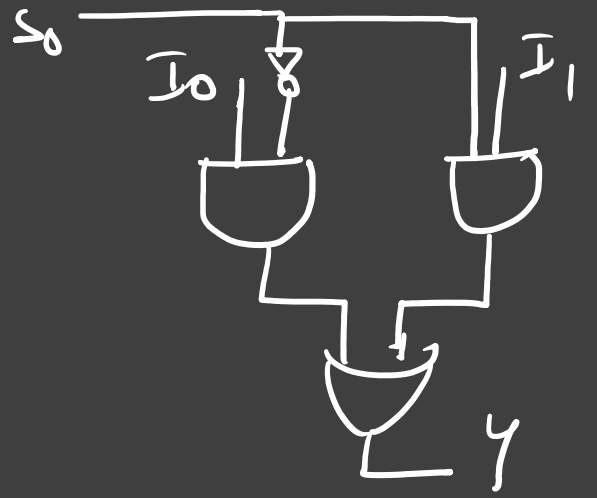
4-bit register



2:1 Mux

4:1 Mux

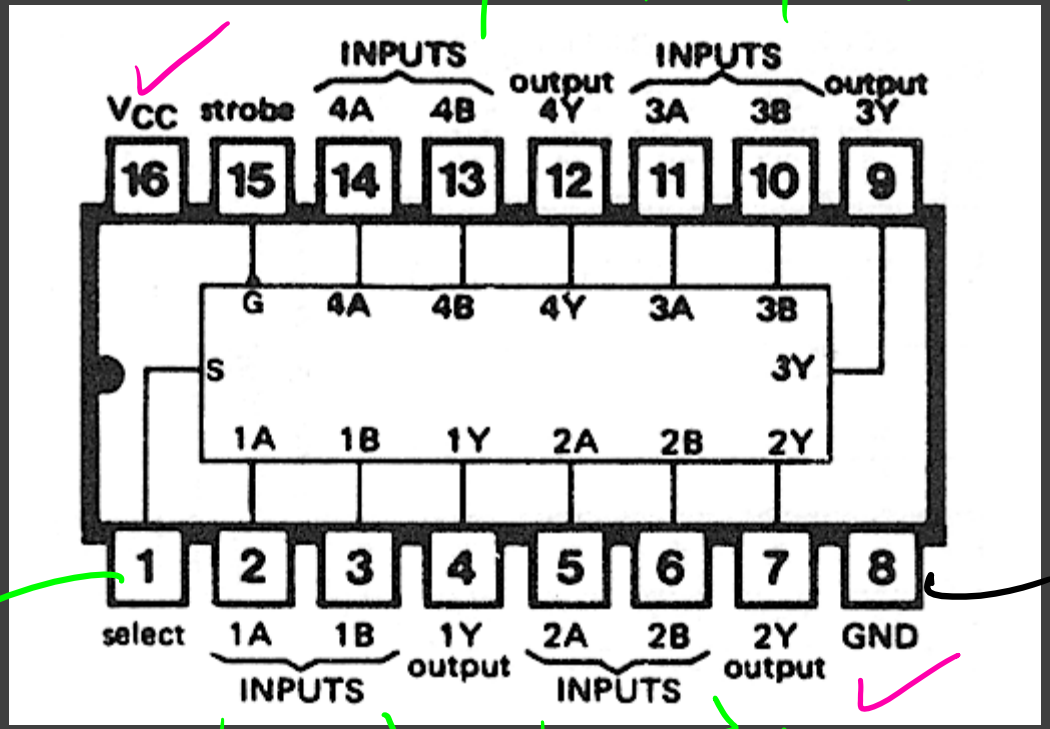
74153

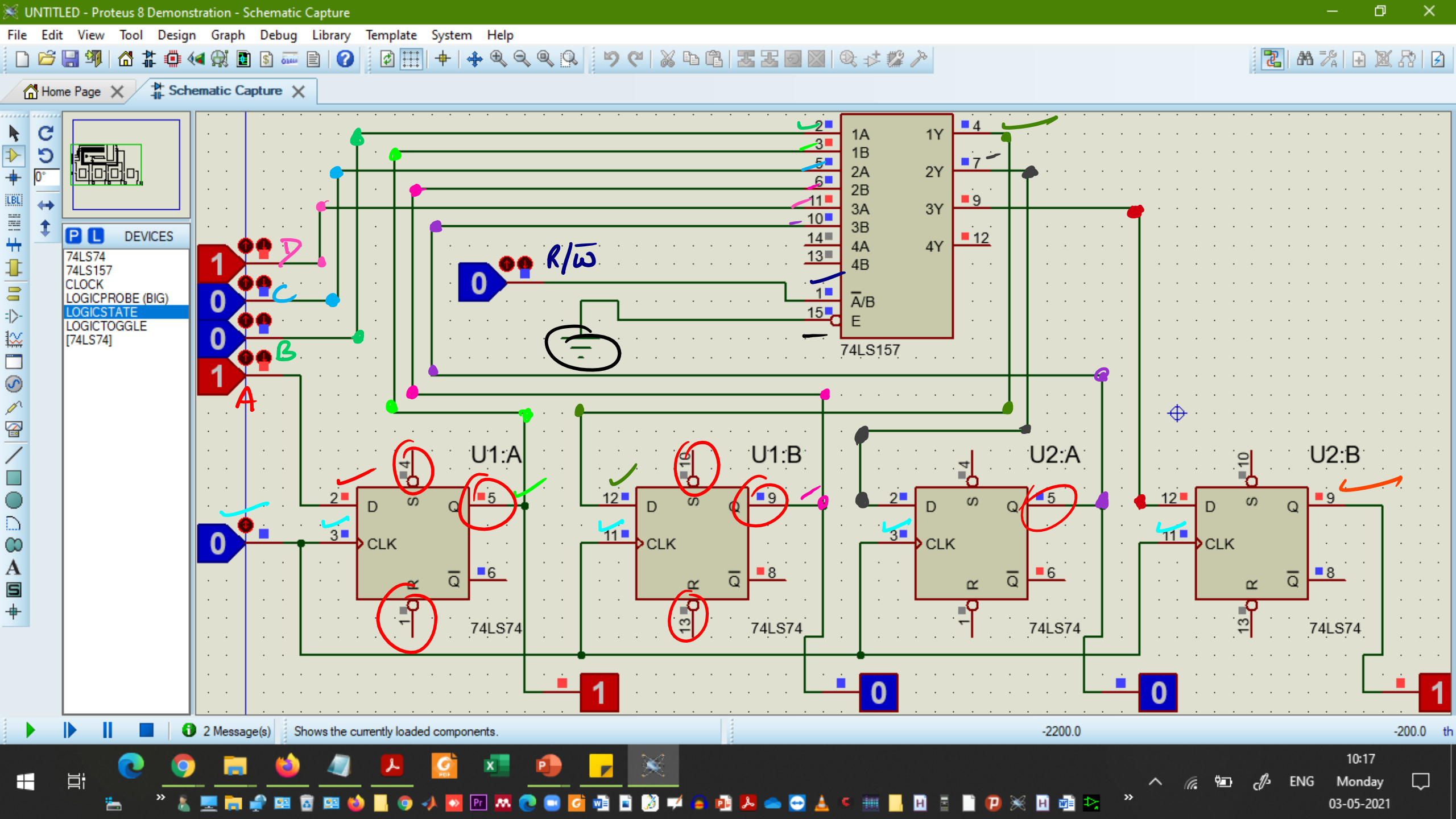


Shift / $\overline{Load}$

R / $\overline{W}$

IC 74157


INPUTS
INPUTS
Vcc
strobe
4A
4B
output 4Y
3A
3B
output 3Y
16
15
14
13
12
11
10
9
G
4A
4B
4Y
3A
3B
S
3Y
1A
1B
1Y
2A
2B
2Y
1
2
3
4
5
6
7
8
select
1A
1B
1Y output
2A
2B
2Y output
GND
INPUTS
INPUTS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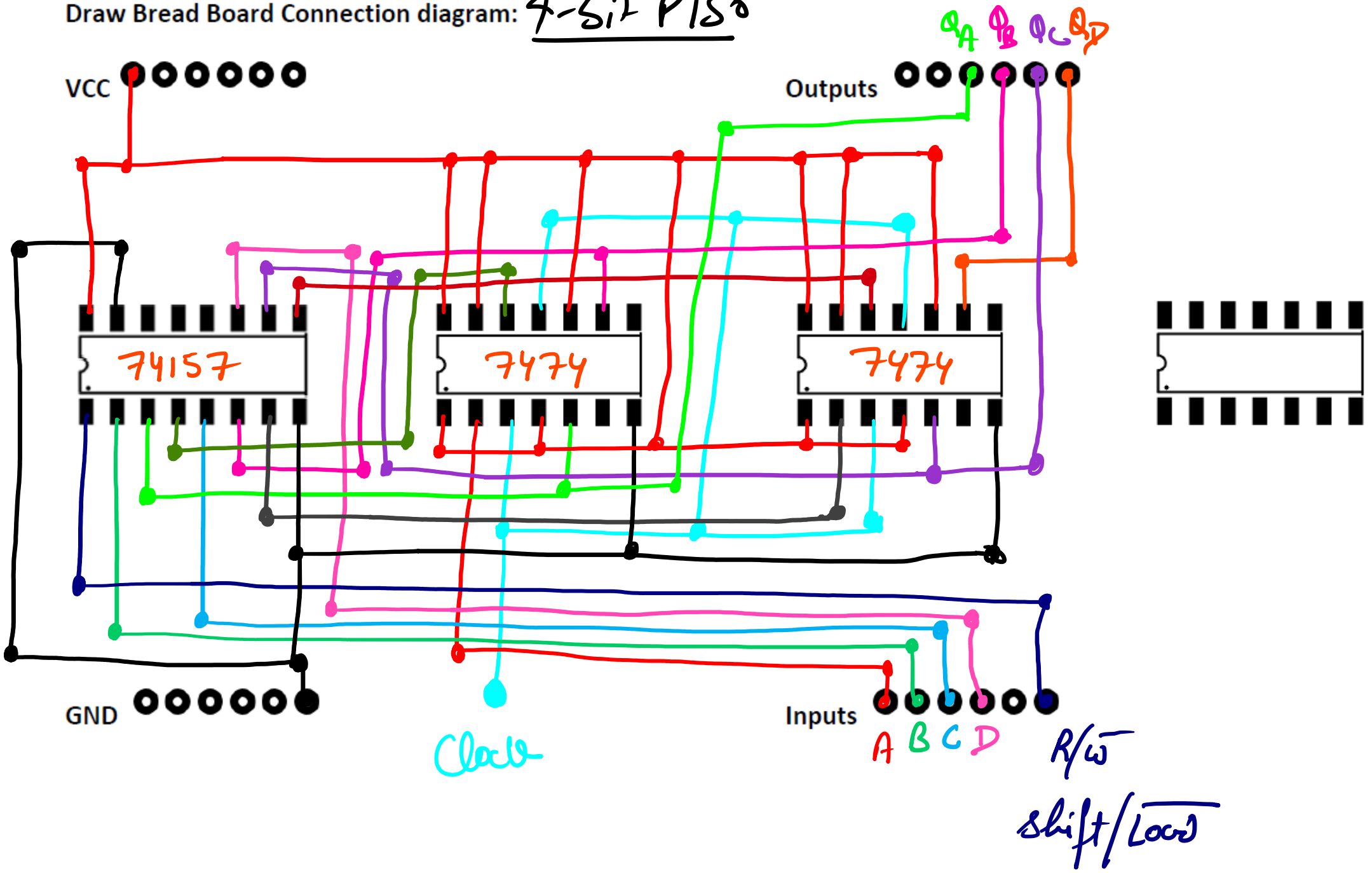
DEVICES
74LS74
74LS157
CLOCK
LOGICPROBE (BIG)
LOGICSTATE
LOGICTOGGLE
[74LS74]
D
C
B
A
R/w
1A
1B
2A
2B
3A
3B
4A
4B
A/B
E
1Y
2Y
3Y
4Y
74LS157
U1:A
U1:B
U2:A
U2:B
D
CLK
S
R
Q
Q
74LS74
2 Message(s)
Shows the currently loaded components.
-2200.0
-200.0
10:17
ENG
Monday
03-05-2021

Draw Bread Board Connection diagram: 4-bit PISO



Next CA4 (4 May 2021)

(03-04 PM) Google

Syllabus Exp 7, Exp 8

- 10 Marks (Write up)
- 10 Marks (Simulation)
- 10 Marks (MCQ/Short Answer)

1 hr

Next to Next

7 May 2021

(05-06 PM) Google

Syllabus Exp 5, 6, 7, 8

30 MCQ, 1 Mark each with 0.25 -ve Marks for wrong answers

1 hr