



Lab Report

LAB — 08

CSE — 206

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CSE — 206

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Lab-08

Name of the experiment: Designing 2-to-1, 4-to-1

and 2-to-1 quadruple Multiplexer (Mux). Also implement 1-to-4 line de-multiplexer.

Description:

Multiplexer: Multiplexer means many into one. A multiplexer is a circuit used to select and route any one of the several input signals to a single output. Multiplexers can handle two types of data. For digital application, they are built from standard logic gates.

Truth Table:

2-to-1 mux:

S_0	Output
0	I_0
1	I_1

4-to-1 mux:

S_0	S_1	Output
0	0	I_0
0	1	I_1
1	0	I_2
1	1	I_3

2-to-1 quadruple mux:

S	Output
0	A
1	B

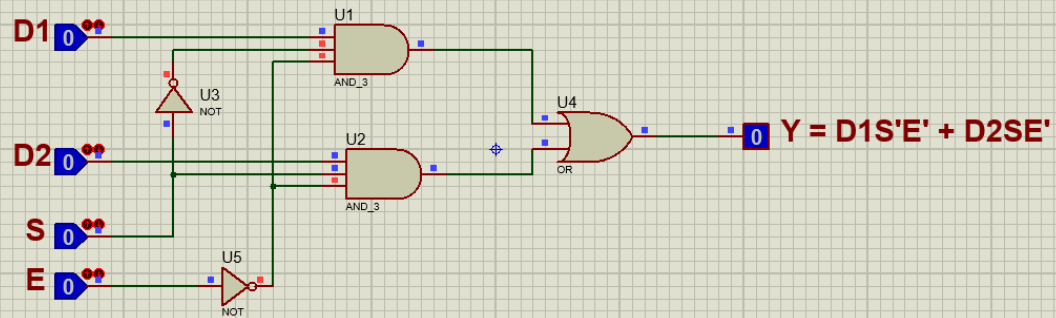
Demultiplexer:

Demultiplexer means one to many. A demultiplexer is a circuit with one input and many outputs.

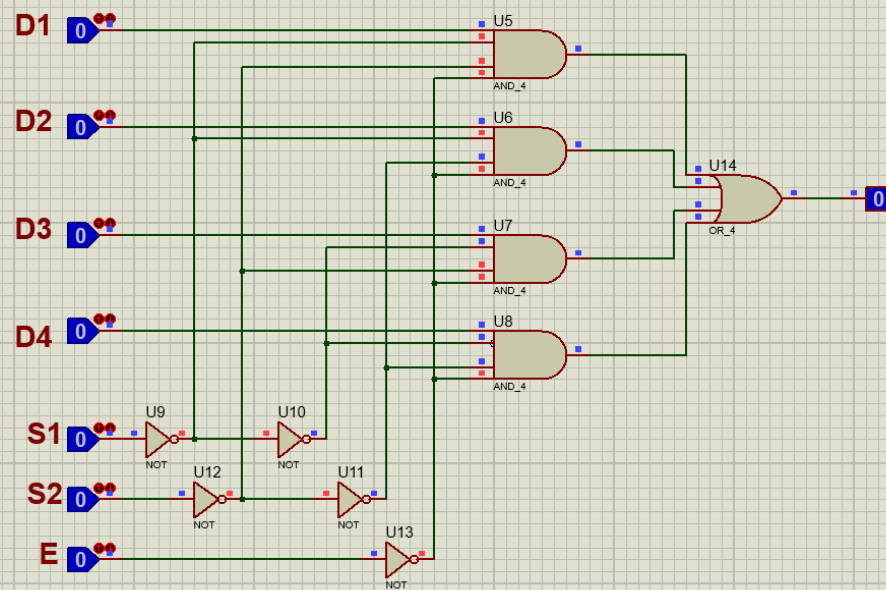
By applying control signals, we can steer any input to the output. Input = n then output will be 2^n .

Truth Table:

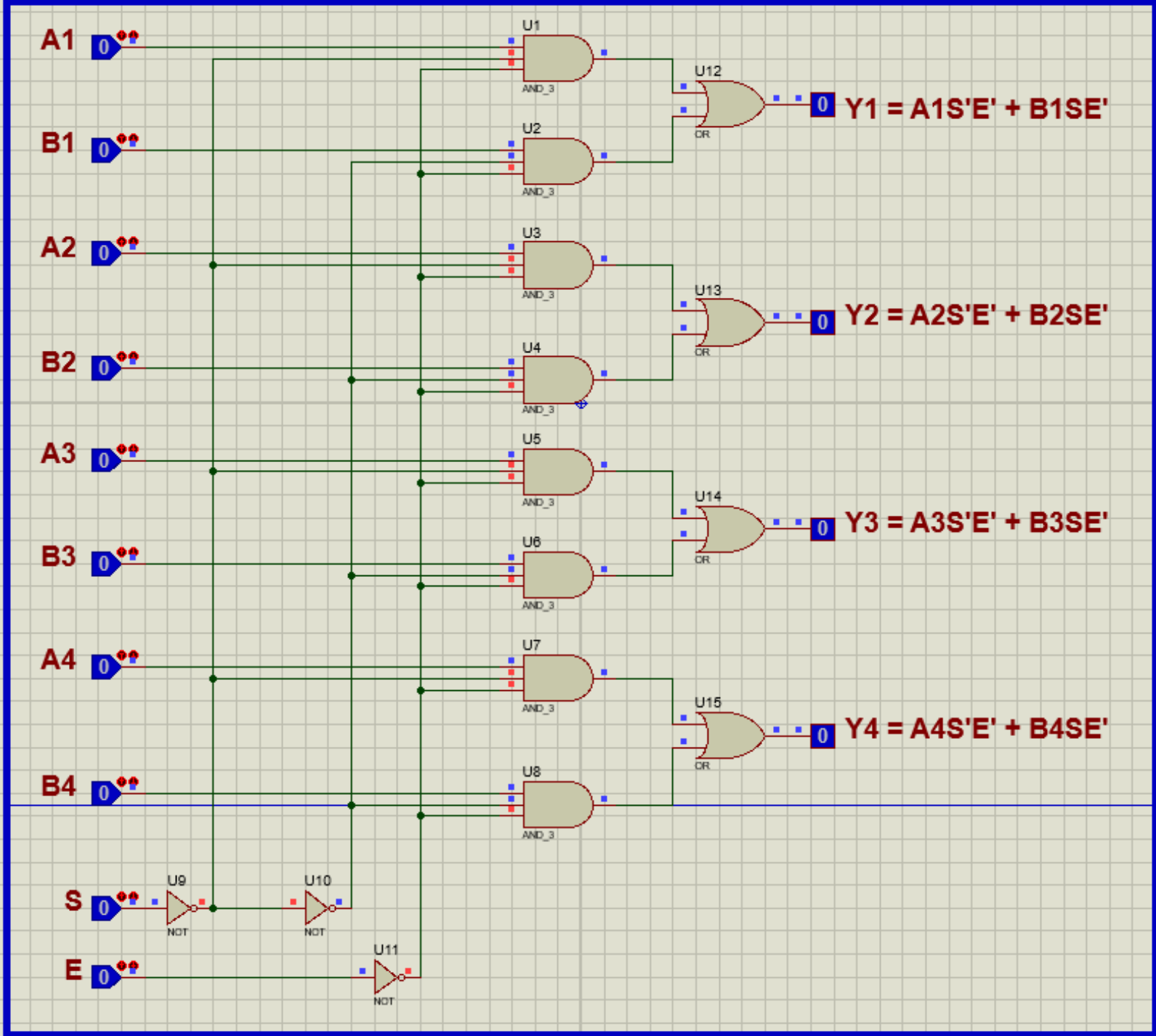
S_1	S_0	D_3	D_2	D_1	D_0
0	0	0	0	0	1
0	1	0	0	1	0
1	0	0	1	0	0
1	1	1	0	0	0



2 to 1 Line MUX

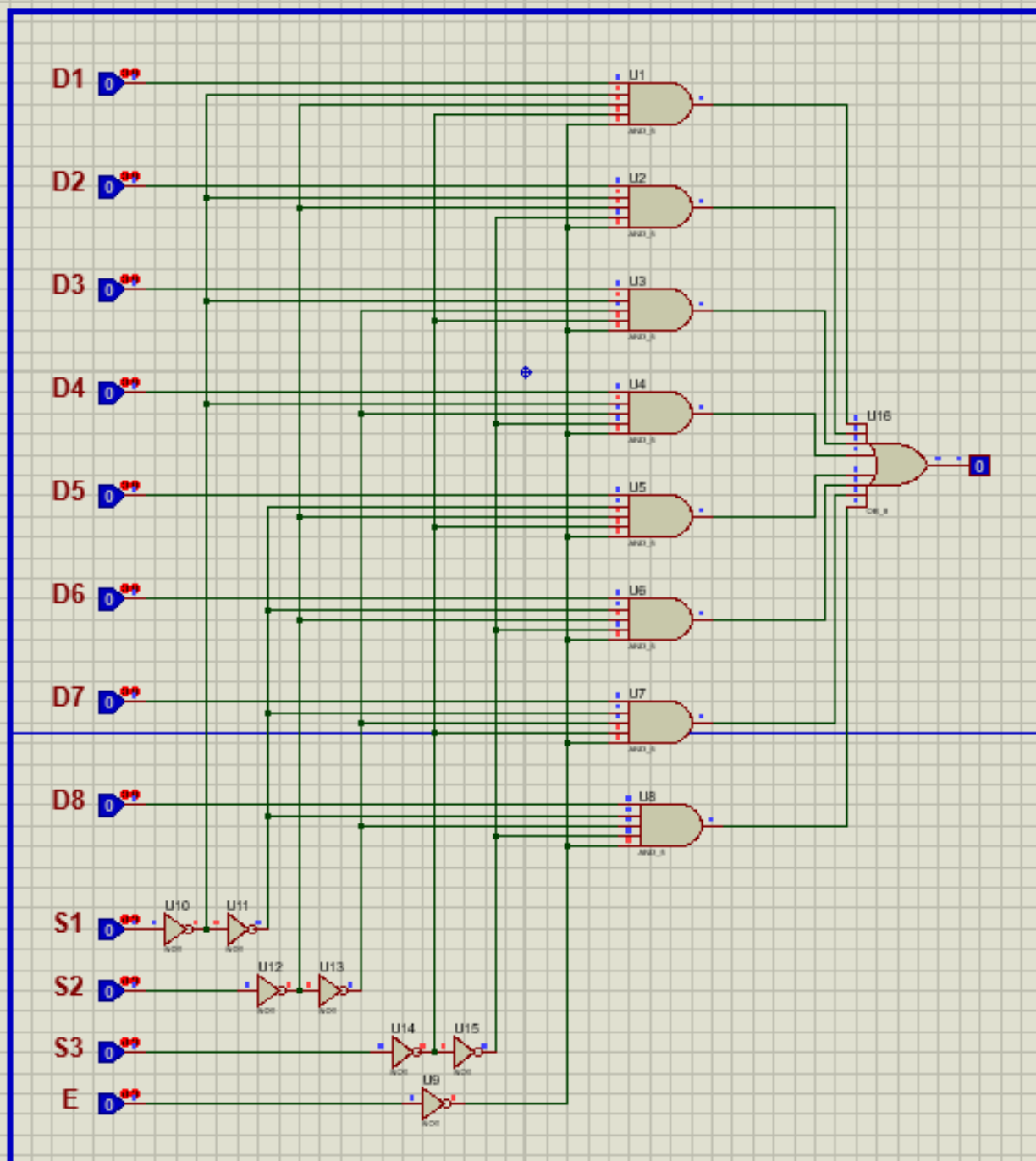


4 to 1 Line MUX



Quadropole 2 to 1 Line MUX

$$Y = S1 S2 S3 D1 + S1 S2 S3 D2 + S1 S2 S3 D3 + S1 S2 S3 D4 + S1 S2 S3 D5 + S1 S2 S3 D6 + S1 S2 S3 D7 + S1 S2 S3 D8$$



Function

Conclusion:

- (i) We have learnt about Mux and Dmux
- (ii) We have learnt how to design a circuit of a mux and dmux.
- (iii) We have learnt the differences between Mux and Dmux.
- (iv) We have learnt how to implement functions using mux and dmux.

THE END
