

Multiplexers

Please do the following exercises individually.

Control lines

How many control lines do you need for a 32-input multiplexer?

Operating mode

Please specify the output of the multiplexer below and explain your solution.

Line number	Input signal	Control	Output signal
0	0010	101	
1	0100	001	
2	1110	100	
3	0110	011	
4	0101	010	
5	0001	000	
6	1001	001	
7	1100	110	

Multi-line multiplexer

Please draw the symbol for a 4-input multiplexer where every input has two lines and compose it by means of two single-line multiplexers.

Multiplexers

Please do the following exercises individually.

Control lines

How many control lines do you need for a 32-input multiplexer?

$$2^5 = 32 \rightarrow 5 \text{ control lines necessary}$$

Operating mode

Please specify to output of the multiplexer below and explain your solution.

Line number	Input signal	Control	Output signal
0	0010	5	0001
1	0100	1	0100
2	1110	4	0101
3	0110	3	0110
4	0101	2	1110
5	0001	0	0010
6	1001	1	0100
7	1100	6	1001

Multi-line multiplexer

Please draw the symbol for a 4-input multiplexer where every input has two lines and compose it by means of two single-line multiplexers.

