

	NextState		Output	
	i=0	i=1	i=0	i=1
A	B	C	0	0
B	D	F	0	0
C	G	E	0	0
D	D	F	0	1
E	G	E	1	0
F	G	E	0	1
G	D	F	0	1

Binary

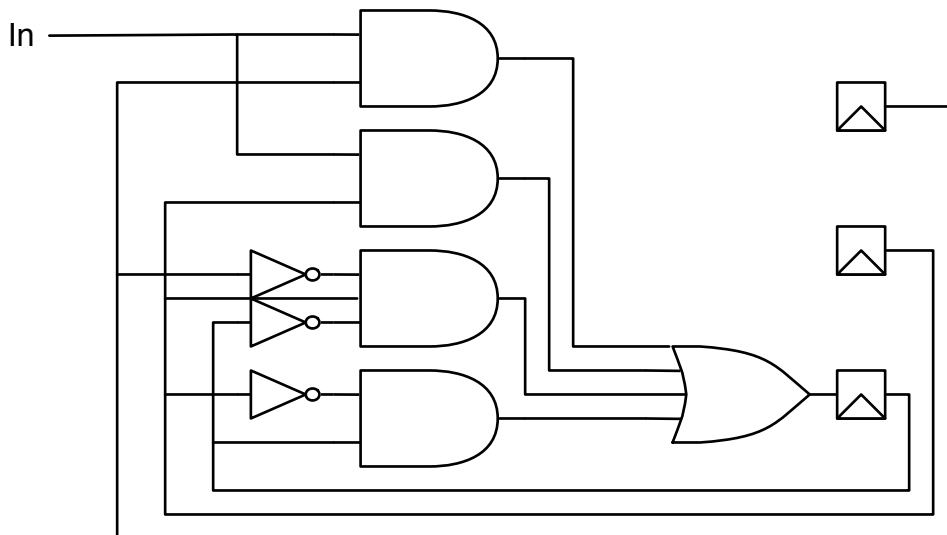
- A = 000
- B = 001
- C = 010
- D = 011
- E = 100
- F = 101
- G = 110

Input
Previous State

NextState	Output
0000	0
0001	0
0010	0
0011	0
0100	0
0101	0
0110	0
0111	1
1000	1
1001	0
1010	0
1011	1
1100	0
1101	1

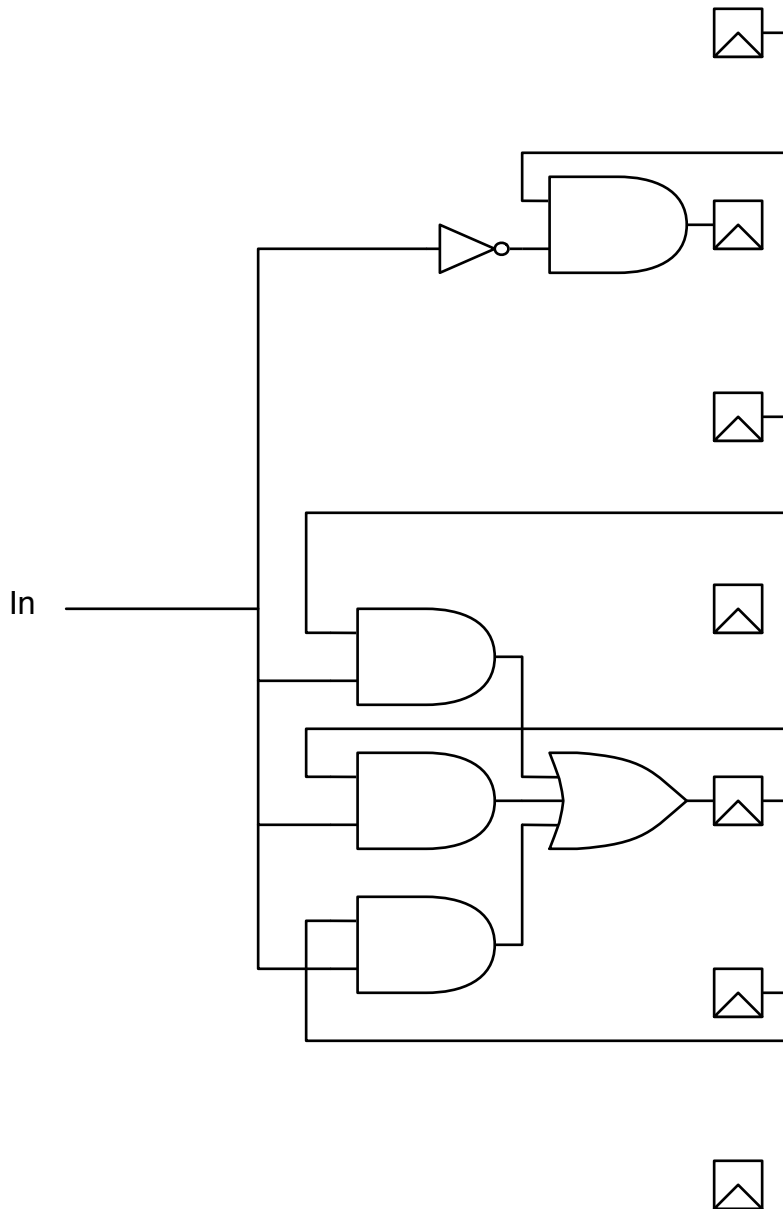
So,In	00	01	11	10
00	0	1	0	1
01	0	1	1	1
11	1	1	x	1
10	0	0	x	1

All of the FSM implementations in these notes are incomplete. See the solutions to homework 8 for complete FSM implementation drawings.



One-Hot

A = 0000001
B = 0000010
C = 0000100
D = 0001000
E = 0010000
F = 0100000
G = 1000000



Output

A =	0000	
B =	0001	
C =	0010	
D =	0100	
E =	1000	
F =	0101	
G =	0110	

	NextState	Output
00000	0001	0
00001	0010	0
00010	0100	0
00011	0101	0
00100	0110	0
00101	1000	0
01000	0100	0
01001	0101	1
01010	0110	0
01011	1000	1
01100	0100	0
01101	0101	1
10000	0110	1
10001	1000	0

S_2, S_1

S_0, I_n

	00	01	11	10
00	0	1	1	1
01	0	0	1	1
11	1	x	x	0
10	1	x	x	1

$S_3 = 0$

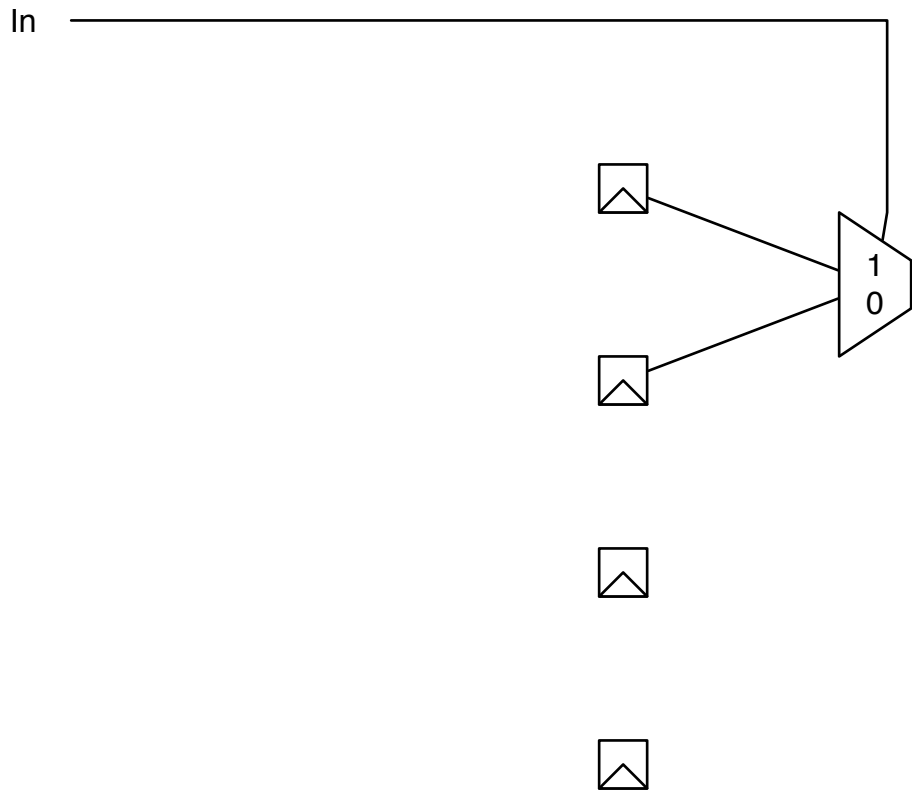
This is a single 5 variable K-map.

S_2, S_1

S_0, I_n

	00	01	11	10
00	1	x	x	x
01	0	x	x	x
11	x	x	x	x
10	x	x	x	x

$S_3 = 1$



	Number of flip-flops	Complexity of next state logic	Complexity of output logic
Binary	Lowest	High	High
One-hot	High	Low	Low
Output	Low	High	Lowest