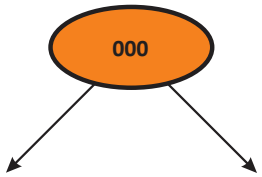
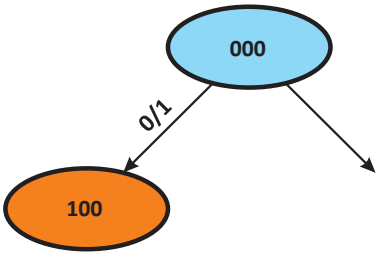
Present State				Input	Next State Decoder						Output	Next State		
State	A	B	C	X	J_A	K_A	J_B	K_B	J_C	K_C	L	A	B	C
0	0	0	0	0	1	0	0	0	0	1	1	1	0	0
	0	0	0	1	0	0	0	0	1	0	1	0	0	1
1	0	0	1	0	1	0	1	0	0	1	1	1	1	0
	0	0	1	1	1	0	1	0	1	0	1	1	1	1
2	0	1	0	0	0	1	0	1	0	1	1	0	0	0
	0	1	0	1	0	1	0	1	1	1	1	0	0	1
3	0	1	1	0	0	1	0	1	0	1	1	0	0	0
	0	1	1	1	0	1	0	1	1	1	1	0	0	0
4	1	0	0	0	1	0	1	0	0	1	1	1	1	0
	1	0	0	1	0	0	1	0	0	0	1	1	1	0
5	1	0	1	0	1	0	1	0	0	1	1	1	1	0
	1	0	1	1	1	0	1	0	0	0	1	1	1	1
6	1	1	0	0	0	1	0	1	0	1	1	0	0	0
	1	1	0	1	0	1	0	1	0	1	1	0	0	0
7	1	1	1	0	0	1	0	1	0	1	1	0	0	0
	1	1	1	1	0	1	0	1	0	1	0	0	0	0

Present-State-Next-State Table

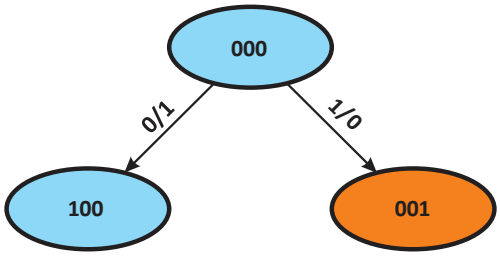


Every state has two directed edges leaving the state



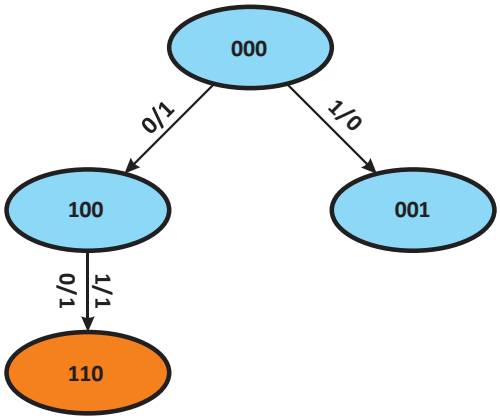
When the current state is 000 – 0 decimal, and input $X = 0$, the next state is 100 – 4 decimal and the output $L = 1$.

0/1 = Input/Output

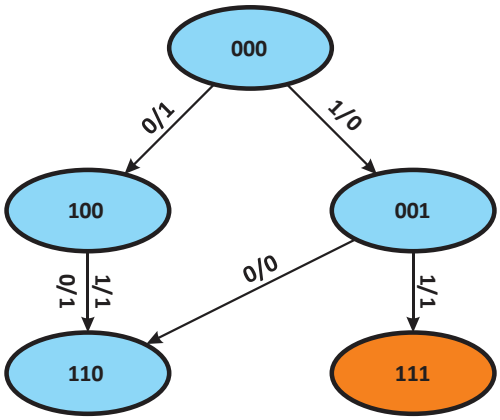


Present State=000, X=0, L=1, Next State=100

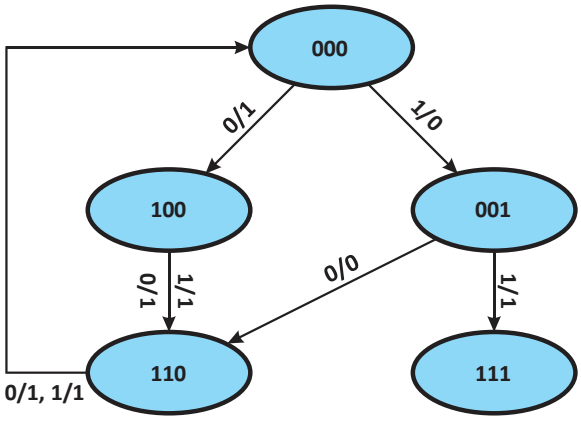
Present State=000, X=1, L=1, Next State=001



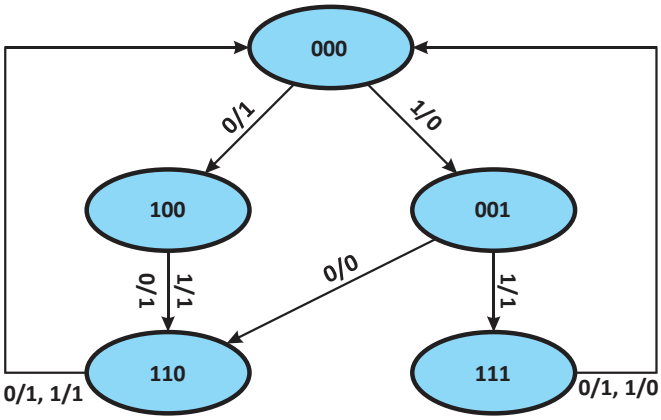
From State=100, the next state is 110, regardless of the input value X and the output is $L = 1$ for both input values.



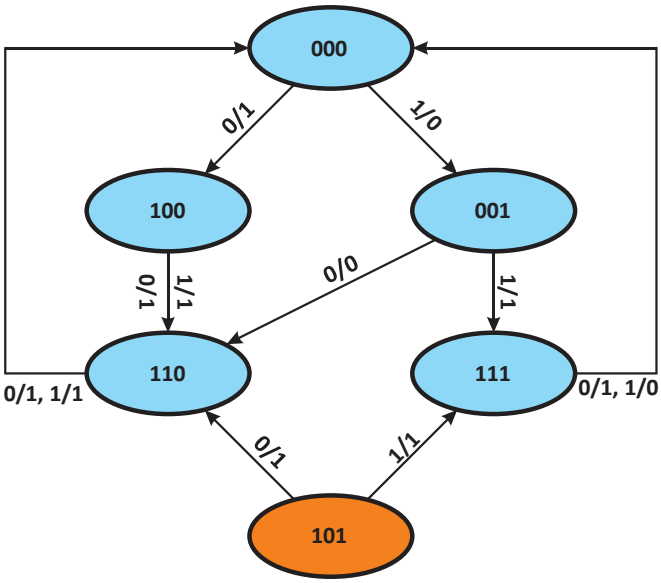
Present State=001, X=0, L=1, Next State=110
Present State=001, X=1, L=1, Next State=111



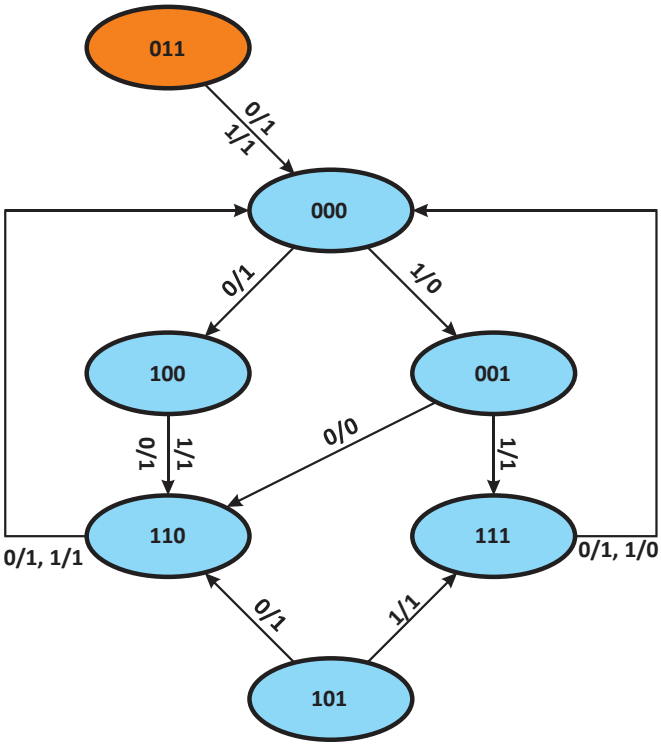
Present State=110, X=0, L=1, Next State=000
Present State=110, X=1, L=1, Next State=000



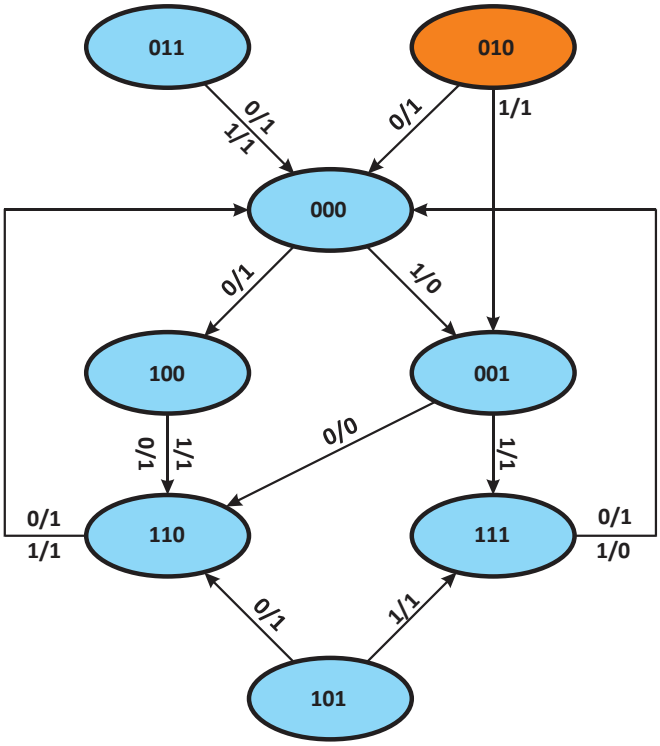
Present State=111, X=0, L=1, Next State=000
Present State=111, X=1, L=0, Next State=000



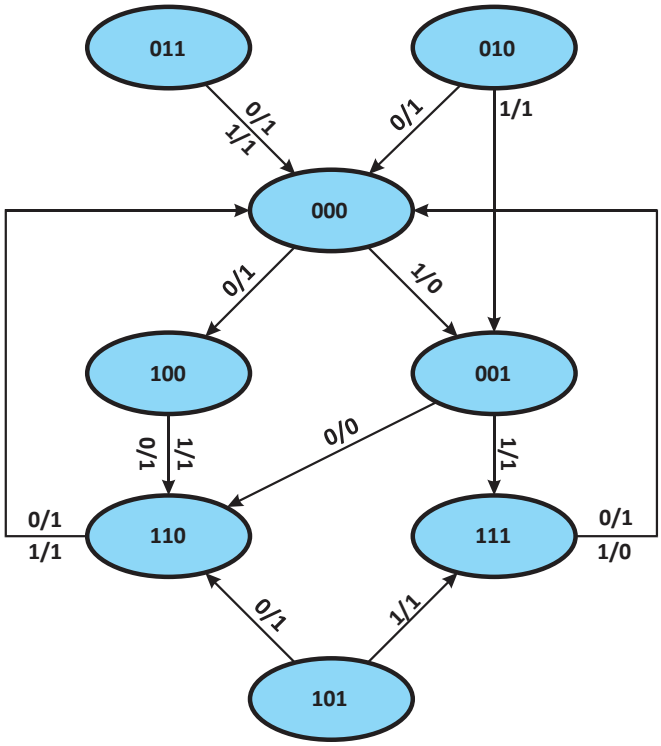
Present State=101, X=0, L=1, Next State=110
Present State=101, X=1, L=1, Next State=111



Present State=011, X=0, L=1, Next State=000
Present State=011, X=1, L=1, Next State=000



Present State=010, X=0, L=1, Next State=000
Present State=010, X=1, L=1, Next State=001



State Diagram

State changes take place on the falling edge of the clock