

1. Present State $Q_1 Q_2$	Next State $Q_1^{n+1} Q_2^{n+1}$		Flip-Flop Inputs		Output, $z_1 z_2$	
	$x=0$	$x=1$	$T_1 T_2$	$T_1 T_2$	$x=0$	$x=1$
00	00	10	0 0	1 0	11	01
01	11	01	1 0	0 0	00	11
11	11	10	0 0	0 1	01	10
10	01	11	1 1	0 1	10	01

 $T_1$ :

$Q_1 Q_2$	$x=0$	$x=1$
00	0	1
01	1	0
11	0	0
10	1	0

 $T_2$ :

$Q_1 Q_2$	$x=0$	$x=1$
00	0	0
01	0	0
11	0	1
10	1	1

$$T_1 = Q_1' Q_2' x + Q_1' Q_2 x' + Q_1 Q_2' x'$$

$$T_2 = Q_1 Q_2' + Q_1 x$$

$Q_1 Q_2$	$x=0$	$x=1$
00	1	0
01	0	1
11	0	1
10	1	0

$$z_1 = Q_2' x' + Q_2 x$$

$Q_1 Q_2$	$x=0$	$x=1$
00	1	1
01	0	1
11	1	0
10	0	1

$$z_2 = Q_1' Q_2' + Q_1' x + Q_2' x + Q_1 Q_2 x'$$

Logic Diagram