

PROBLEM 2: COUNTERS

out/state: $2 \rightarrow 0 \rightarrow 1 \rightarrow 6 \rightarrow 7$

	$Q_2\ Q_1\ Q_0$	$Q_2^+\ Q_1^+\ Q_0^+$	$D_3\ D_2\ SR_0$	$Y_2\ Y_1\ Y_0$
0	0 0 0	0 0 1	0 0 10	0 0 0
1	0 0 1	1 1 0	1 1 01	0 0 1
2	0 1 0	0 0 0	0 0 0X	0 1 0
3	0 1 1	X X X	X X XX	X X X
4	1 0 0	X X X	X X XX	X X X
5	1 0 1	X X X	X X XX	X X X
6	1 1 0	1 1 1	1 1 10	1 1 0
7	1 1 1	0 1 0	0 1 01	1 1 1

$$D_2 = Q_2 \bar{Q}_0 + \bar{Q}_1 Q_0$$

$Q_2\ Q_1$	Q_0	D_2
00	0	1
01	0	X
10	1	X
11	0	0

$$D = Q_0 + Q_2$$

$$S_0 = \bar{Q}_2 Q_1 Q_0 + Q_2 \bar{Q}_0$$

$Q_2\ Q_1$	Q_0	D
00	0	1
01	0	X
10	1	X
11	1	1

$Q_2\ Q_1$	Q_0	S_0
00	0	0
01	0	X
10	1	X
11	1	0

$$R_0 = Q_0$$

$Q_2\ Q_1$	R_0
00	0
01	X
10	X
11	1

