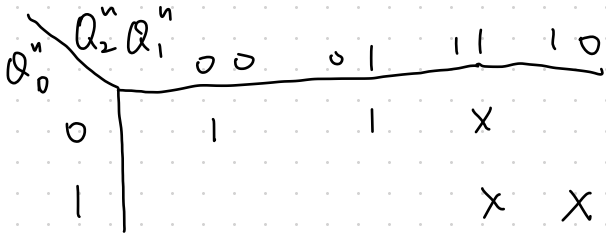
一、

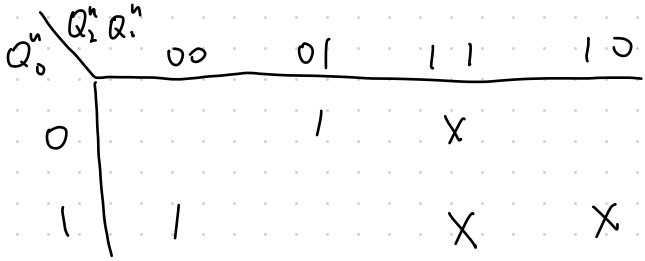
功能表.

Q_2^n	Q_1^n	Q_0^n	Q_2^{n+1}	Q_1^{n+1}	Q_0^{n+1}	D_2	D_1	D_0
0	0	0	0	0	1	0	0	1
0	0	1	0	1	0	0	1	0
0	1	0	0	1	1	0	1	1
0	1	1	1	0	0	1	0	0
1	0	0	0	0	0	1	0	0

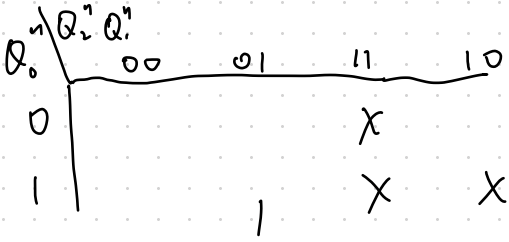
卡诺图.



$$D_0 = Q_0^{n+1} = \overline{Q_2^n}\ \overline{Q_0^n}$$

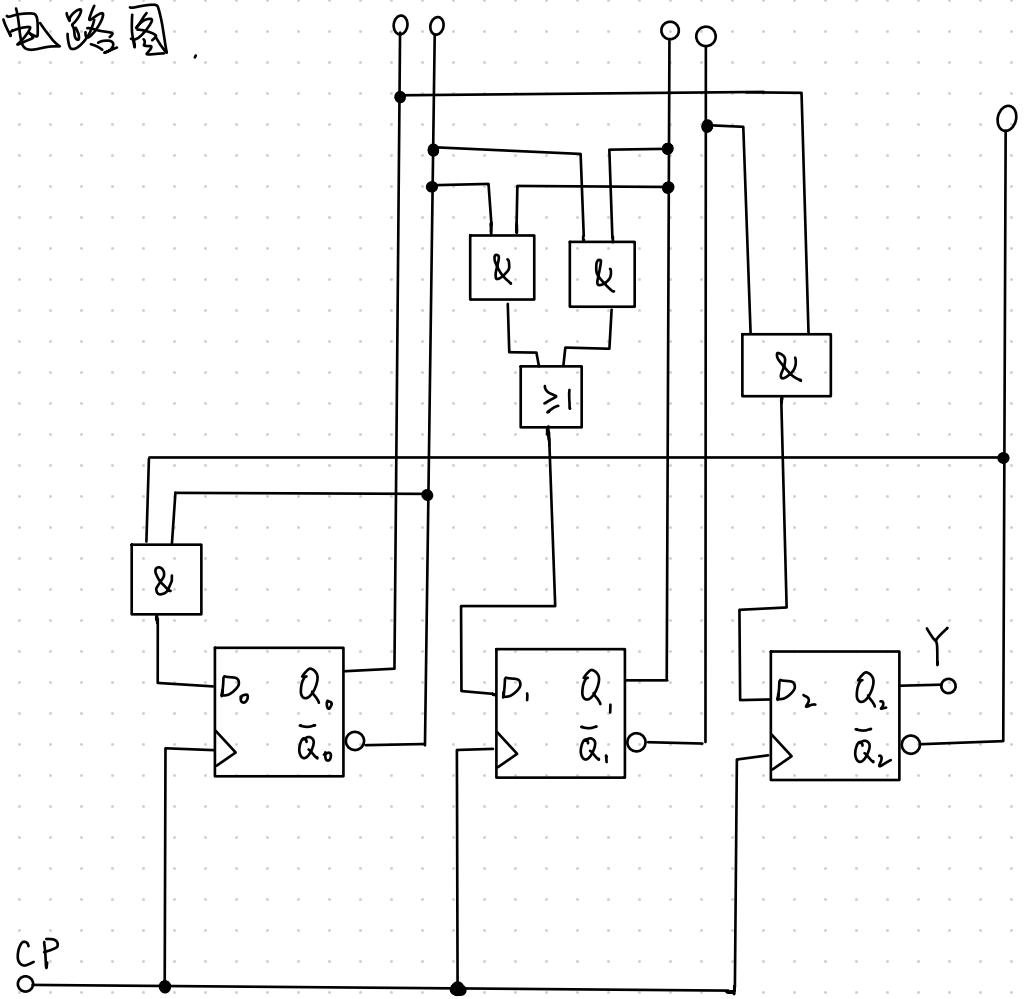


$$D_1 = Q_1^{n+1} = \overline{Q_0^n}\,Q_1^n + Q_0^n\,\overline{Q_1^n}$$



$$D_2 = Q_2^{n+1} = Q_1^n Q_0^n$$

电路图.



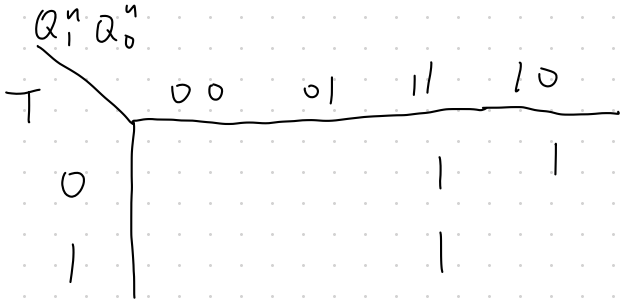
二、

功能表

Q_1	Q_0	T	Y
0	0	0	0
0	0	1	0
0	1	0	0
0	1	1	0
1	0	0	1
1	0	1	0
1	1	0	1
1	1	1	1

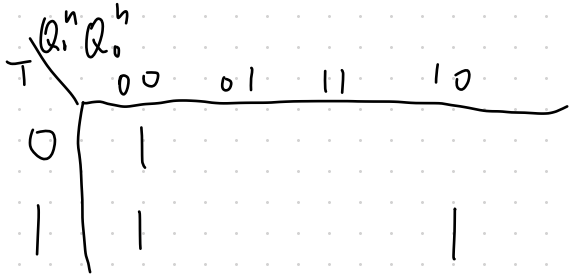
卡诺图

输出方程：



$$Y = Q_1^n Q_0^n + \overline{T} Q_1^n$$

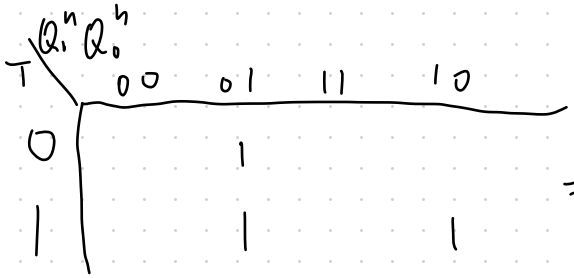
状态方程：



$$Q_0^{n+1} = \overline{Q_1^n}\,\overline{Q_0^n} + T\overline{Q_0^n}$$

$$= (\overline{Q_1^n} + T)\overline{Q_0^n} + 0\,Q_0^n$$

$$\Rightarrow \begin{cases} J_0 = \overline{Q_1^n} + T \\ K_0 = 1 \end{cases}$$



$$Q_1^{n+1} = \overline{Q_1^n} Q_0^n + T Q_1^n \overline{Q_0^n}$$

$$\Rightarrow \begin{cases} J_1 = Q_0^n \\ K_1 = \overline{T\overline{Q_0^n}} \\ \quad = \overline{T} + Q_0^n \end{cases}$$

电路图