
数字世界精彩无限

Unit 9

——Registers and Counters

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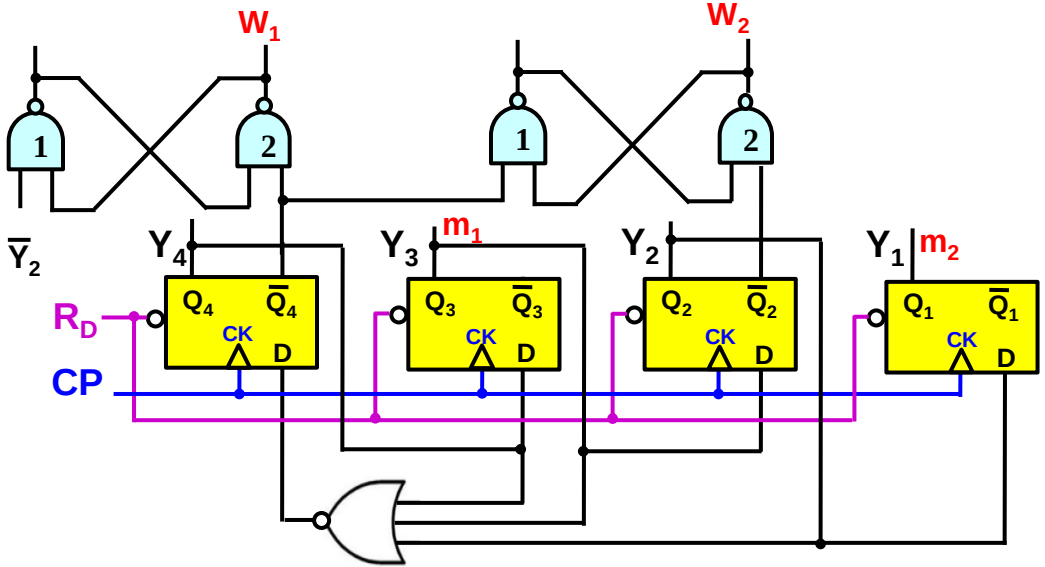
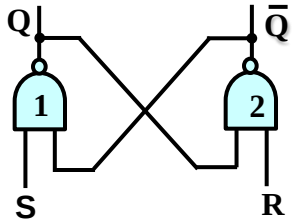
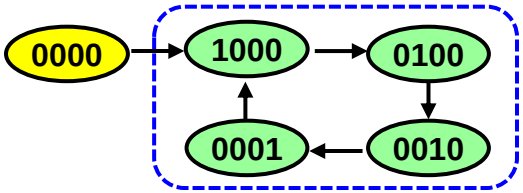
几种典型的时序逻辑部件——节拍发生器2





④ 状态图



① 输入方程

$$\begin{cases} D_1 = Y_2 \\ D_2 = Y_3 \\ D_3 = Y_4 \\ D_4 = \overline{Y_4+Y_3+Y_2} \end{cases}$$

② 次态方程

$$Y_1^{n+1} = Y_2$$

$$Y_2^{n+1} = Y_3$$

$$Y_3^{n+1} = Y_4$$

$$Y_4^{n+1} = \overline{Y_4 + Y_3 + Y_2}$$

③ 状态转换表

现态				次态				时钟
Y_4^n	Y_3^n	Y_2^n	Y_1^n	Y_4^{n+1}	Y_3^{n+1}	Y_2^{n+1}	Y_1^{n+1}	CP
0	0	0	0	1	0	0	0	↑
1	0	0	0	0	1	0	0	↑
0	1	0	0	0	0	1	0	↑
0	0	1	0	0	0	0	1	↑
0	0	0	1	1	0	0	0	↑

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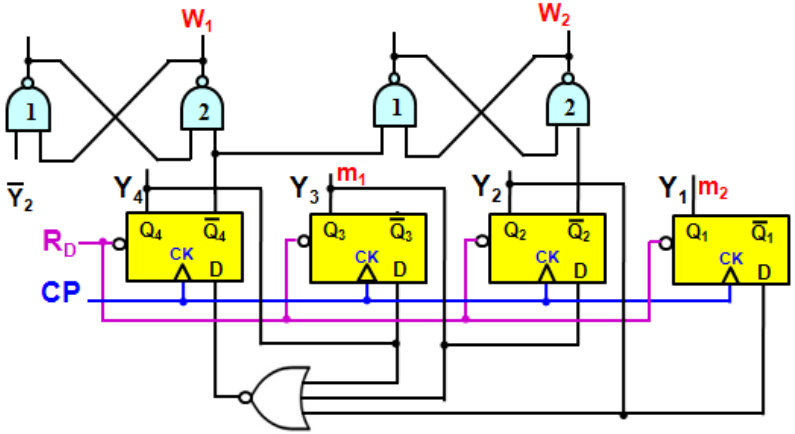

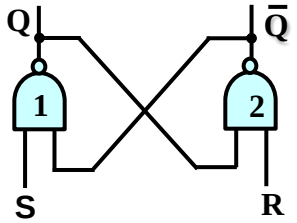

结论：2-节拍发生器

- W_1_m_1：节拍电位_节拍脉冲
- W_2_m_2：节拍电位_节拍脉冲

⑤ 确定输出

R	S	Q_{n+1}	$\overline{Q}_{n+1}$
$\overline{Y}_4$	$\overline{Y}_2$	($W_1=\overline{Q}$)	
1	1	Q_n	$\overline{Q}_n$
0	1	0	1
1	0	1	0
0	0	_	_

R	S	Q_{n+1}	$\overline{Q}_{n+1}$
$\overline{Y}_2$	$\overline{Y}_4$	($W_2=\overline{Q}$)	
1	1	Q_n	$\overline{Q}_n$
0	1	0	1
1	0	1	0
0	0	_	_