



$$\bar{A}B + A\bar{B}$$

↑ ↑
或 异

A	B	$A \oplus B$	F
0	0	0	0
0	1	1	1
1	0	1	0
1	1	0	1

2.

$$F = \bar{A}\bar{C} + AC = A \odot C$$

3. P: 并点串加

$$\overline{A + B}$$

4. $F=0$

$$ABC + CD = 1$$

A:	x		B:	x
----	---	--	----	---

C: C = 1
↑
?

\checkmark D: $BC=1$ $CD=1$
 $B=1$
 $C=1$
 $D=1$

5. 时序逻辑电路:

A. 计数器^{DP} B. 寄存器^{DP}
C. 译码器^{DP} D. 触发器^{DP}

6. C:

7. a~g 1011011

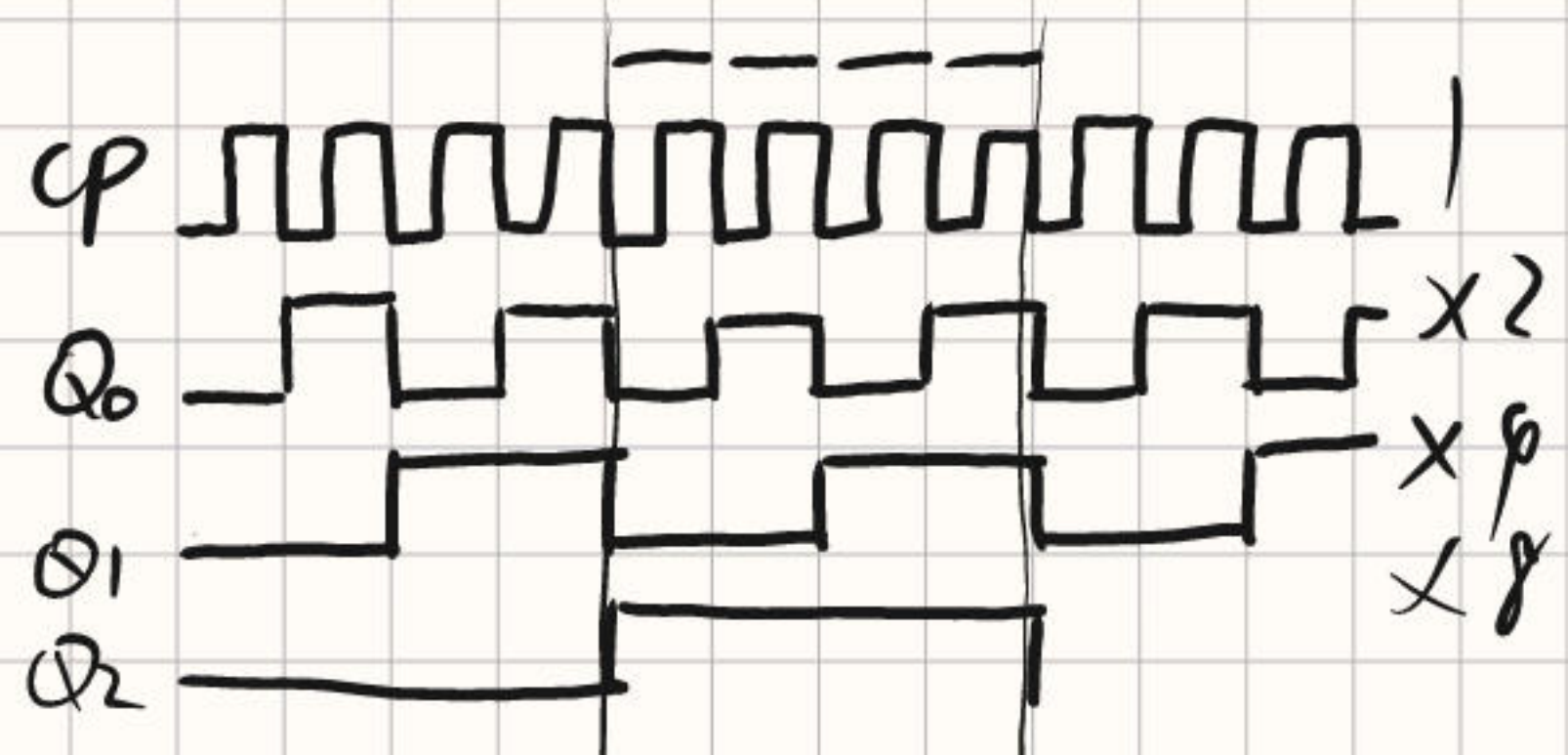
七段显示器. 共阴极接法 ☆ 不知道是啥

1011011
0100100
6432168421

8. $Q^{n+1} = T\bar{Q}^n + \bar{T}Q^n$
 $= \bar{Q}^n$

9. 6

10. $J_2 = 1 \quad K_2 = 1$
 $Q_2^{n+1} = \bar{Q}_2^n$ // 翻转 $f = \frac{1}{T}$



二、

1、

$$(65.4)_8$$

$$6 \times 8^1 + 5 \times 8^0 + 4 \times 8^{-1}$$

$$48 + 5 + 0.5$$

$$53.5_{10}$$

$$\begin{array}{r} 421 \\ 111 \end{array}$$

$$65.4_8$$

$$32$$

$$16$$

$$8$$

$$4$$

$$2$$

$$1$$

$$0.5$$

$$0.25$$

$$0.125$$

$$0.0625$$

$$0.03125$$

$$0.015625$$

$$0.0078125$$

$$0.00390625$$

$$0.001953125$$

$$0.0009765625$$

$$0.00048828125$$

$$0.000244140625$$

$$0.0001220703125$$

$$0.00006103515625$$

$$0.000030517578125$$

$$0.0000152587890625$$

$$0.00000762939453125$$

$$0.000003814697265625$$

$$0.0000019073486328125$$

$$0.00000095367431640625$$

$$0.000000476837158203125$$

$$0.0000002384185791015625$$

$$0.00000011920928955078125$$

$$0.000000059604644775390625$$

$$0.0000000298023223876953125$$

$$0.00000001490116119384765625$$

$$0.000000007450580596923828125$$

$$0.0000000037252902984619140625$$

$$0.00000000186264514923095703125$$

$$0.000000000931322574615478515625$$

$$2. (400110)_2 \text{ 补码 } (+00110)$$

$$(-1101)_2 \text{ 补码}$$

$$\text{反码 } -1011 \xrightarrow{+1} -1100$$

补码

前面加了正负号是啥?

待看!

$$3. F(ABCD) = (\bar{A} + \bar{B}) \bar{C} \bar{D}$$

$$\bar{F} = AB + \bar{C} + \bar{D}$$

$$= AB + CD$$

$$421$$

$$4. \bar{F} = \bar{A}\bar{B}C + A\bar{B}\bar{C} + A\bar{B}C$$

5. 半加器

11 考虑进位 全加器

并串+

$$6. F = \overline{A+B+C}$$

7. ○ TTL (2分)

TTL: 电阻

8. $f_0: \overset{0.1 \times 10^6}{100\ 000} \text{ Hz}$

$T_0 = 10 \mu\text{s}$

位移时间 ($\pi - \pi$)

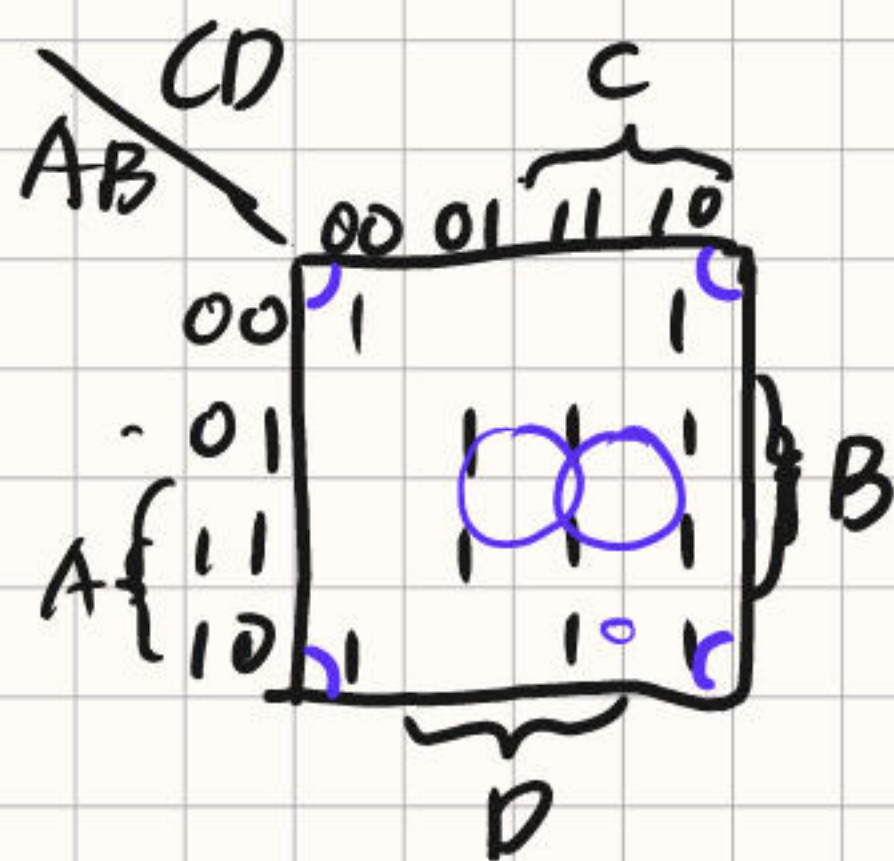
$10 \times 16 = 160$

9.

10. 1111

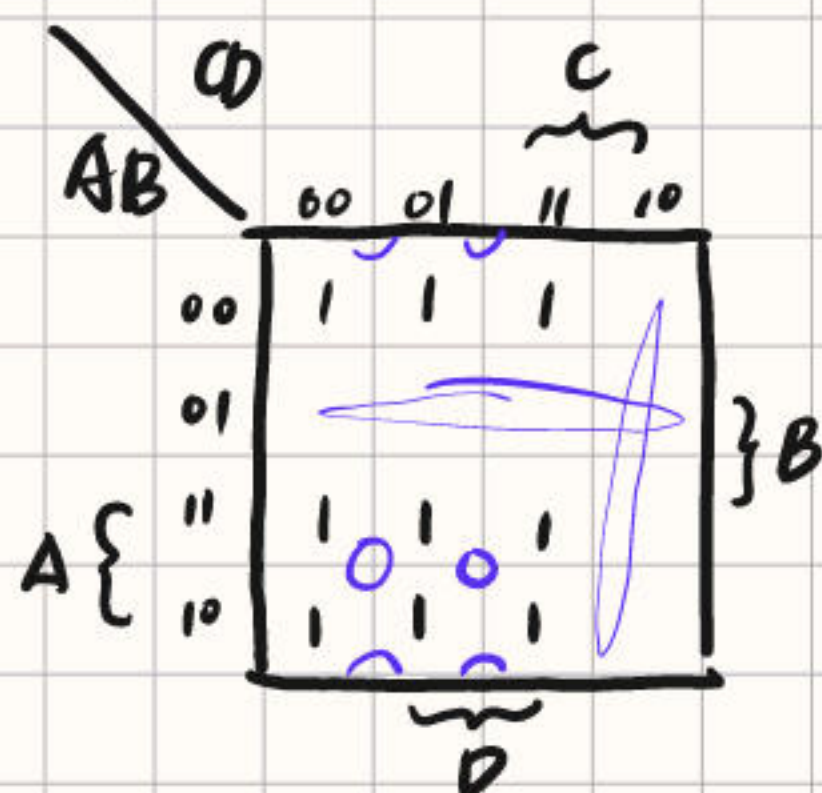
三. 化简

$$F = \bar{A}\bar{B}\bar{D} + \bar{C}\bar{D} + BD + ACD + \bar{A}\bar{B}\bar{C}\bar{D}$$



$$F = \bar{B}\bar{D} + BD + BC + \bar{A}\bar{B}\bar{C} (+ \bar{C}\bar{D}) \times$$

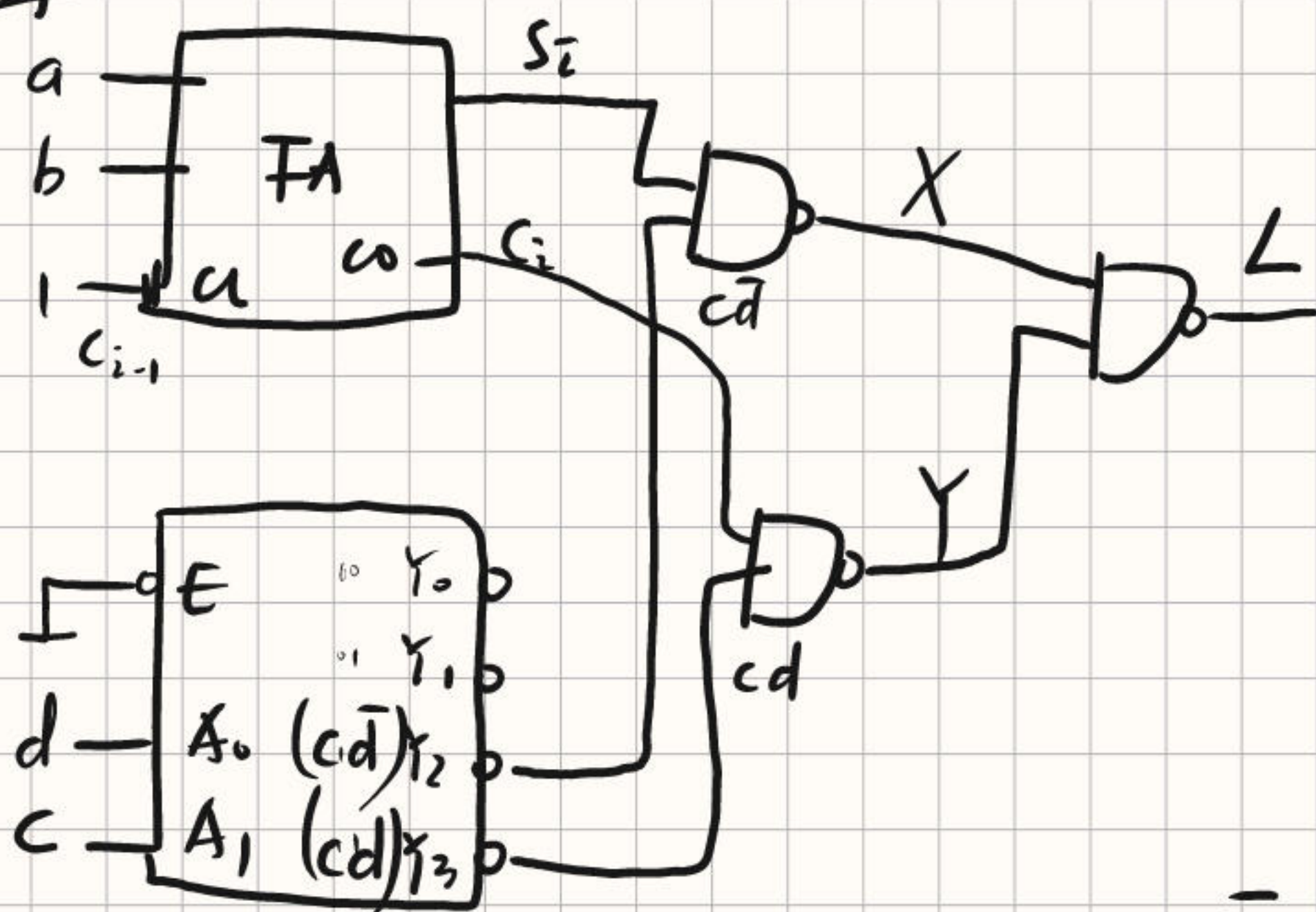
$$2. Y = A\bar{C} + AD + \bar{B}\bar{C} + \bar{B}D$$



$$\bar{Y} = \bar{A}B + C\bar{D}$$

$$Y = (A + \bar{B})(\bar{C} + D)$$

四:



$$= \bar{a}\bar{b} + ab$$

$$= (\bar{a} + b)(a + \bar{b})$$

$$= \overline{a}b \cdot \overline{a}b$$

$$S_i = a \oplus b \oplus 1 = (a\bar{b} + \bar{a}b) \oplus 1 = m \oplus 1 = \bar{m} = \overline{a\bar{b} + \bar{a}b} = Si$$

$$C_i = ab + (a \oplus b) \cdot 1 = ab \quad L = \overline{XY} = \bar{X} + \bar{Y}$$

$$X = \overline{m} \cdot c \bar{d}$$

$$Y = \overline{ab \cdot cd}$$

$$= \bar{m} \cdot c\bar{d} + abcd$$

$$= (\bar{a}\bar{b} + ab)cd + abcd$$

$$= \bar{a}\bar{b}c\bar{d} + abcd + abcd$$

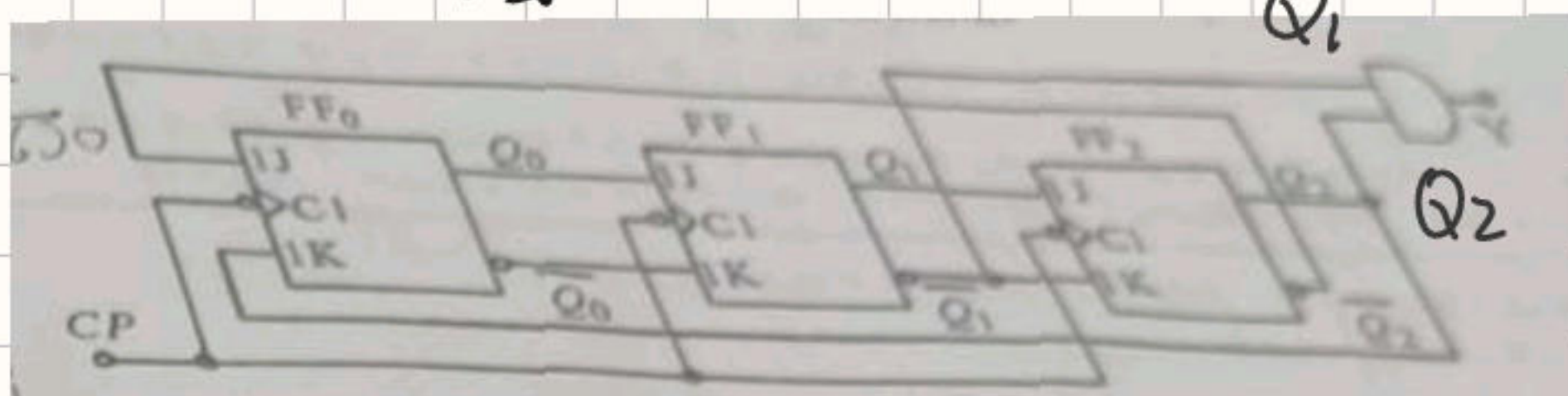
$$L = \bar{a}\bar{b}c\bar{d} + \underline{abc\bar{d}} + abcd$$

ab \ cd	00	01	11	10
00				1
01				
11			1	1
10				

$$L = abc + \bar{a}\bar{b}c\bar{d}$$

主: 驱动+ 状态+ 输出+

2. 状态转换表 3. 逻辑功能图



$$J_2 = Q_1 \quad J_1 = Q_0 \quad J_0 = \bar{Q}_2$$

$$K_2 = \bar{Q}_1 \quad K_1 = \bar{Q}_0 \quad K_0 = Q_2$$

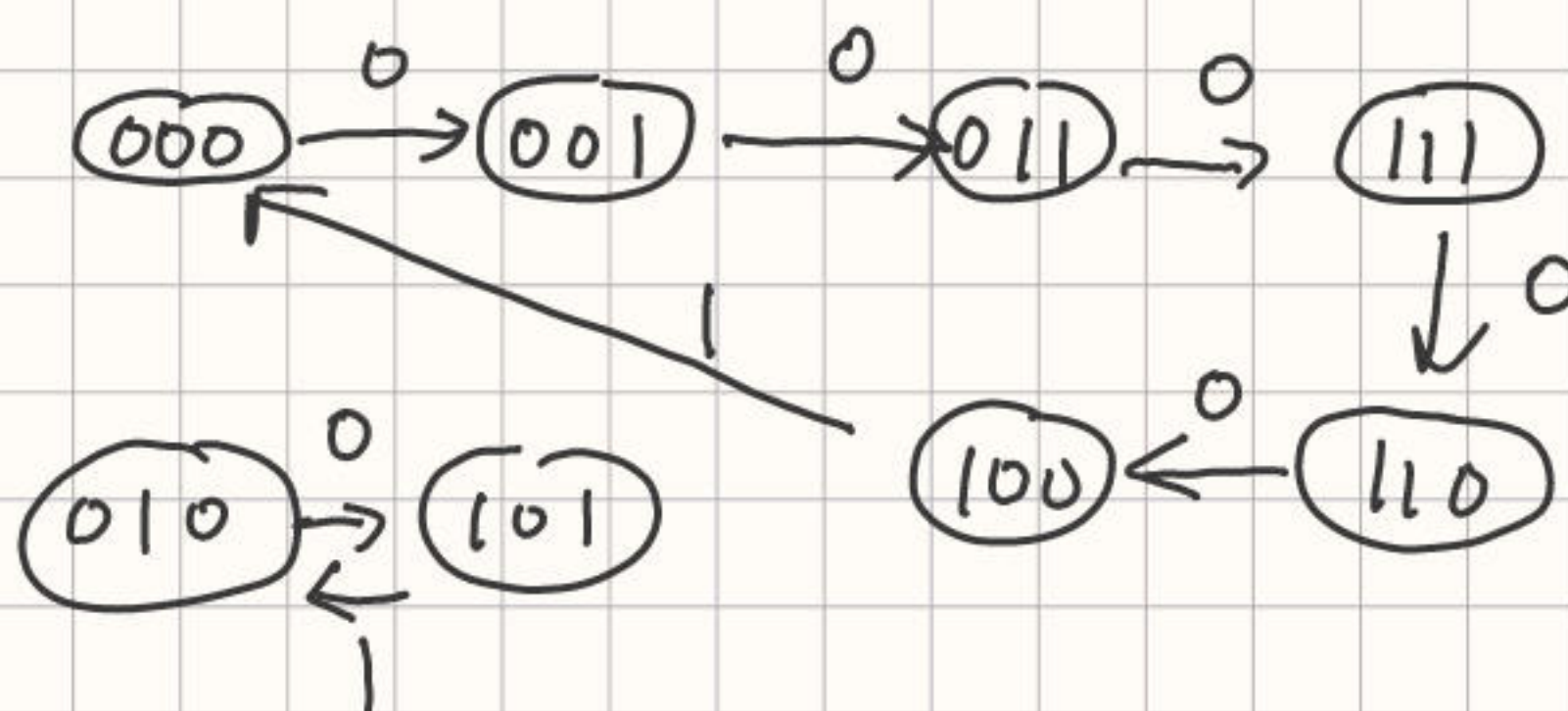
$$\begin{aligned} Q_2^{n+1} &= J_2 \bar{Q}_2^n + \bar{K}_2 Q_2^n = Q_1 \bar{Q}_2^n + Q_1 Q_2^n = Q_1 \\ Q_1^{n+1} &= J_1 \bar{Q}_1^n + \bar{K}_1 Q_1^n = Q_0 \bar{Q}_1^n + Q_0 Q_1^n = Q_0 \\ Q_0^{n+1} &= J_0 \bar{Q}_0^n + \bar{K}_0 Q_0^n = \bar{Q}_2 \bar{Q}_0^n + Q_2 Q_0^n = \bar{Q}_2 \end{aligned}$$

$$Y = \bar{Q}_1 Q_2 = Q_2 \bar{Q}_1$$

状态转移表

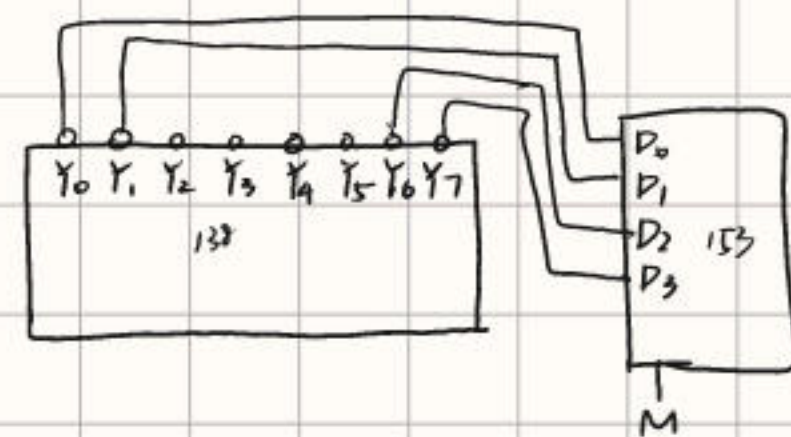
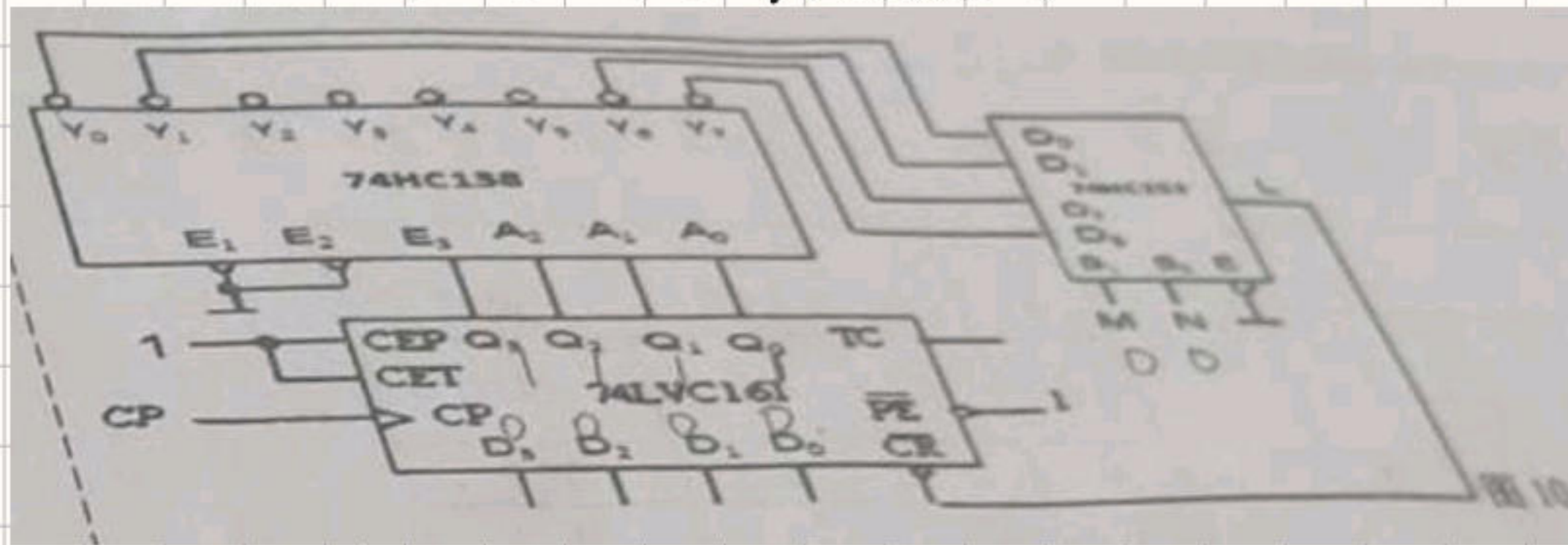
Q_2	Q_1	Q_0	Q_2^{n+1}	Q_1^{n+1}	Q_0^{n+1}	Y
0	0	0	0	0	1	0
0	0	1	0	1	1	0
0	1	0	1	0	1	0
0	1	1	1	1	1	0
1	0	0	0	0	0	1
1	0	1	0	1	0	1
1	1	0	1	0	0	0
1	1	1	1	1	0	0

转移图: $(Q_2 Q_1 Q_0) \rightarrow Y$



逻辑功能, 从零开始的 6 进制
进位计数器

六：当 $MN=00, 01, 10, 11$ 等不同输入时



电路分别是几进制计数器

8421

① $MN=00$ 时 $L=D_0=Y_0$ // 1个电平为0

$\rightarrow Y_0=0, \overline{CR}$ 清零.

$A_2A_1A_0=000$ 时

$Q_3=1, Q_2Q_1Q_0=0$

$D_3D_2D_1D_0: 0000 \rightarrow 0111$

(1000)

0000

$MN=00$ 8进制

② $MN=01$ $L=D_1=Y_1$

$A_2A_1A_0=001, Y_1=0.$

$D_3D_2D_1D_0: 0000 \rightarrow 1000$
 (1001)

9进制

8421

③ $MN=10$ $L=D_2=Y_6$

$A_2A_1A_0=110, Y_6=0$

$D_3-D_0: 0000 \rightarrow 1101$
 (1110)

13

14进制

$$\textcircled{4} MN=11 \quad L=D_3=Y_7$$

$$A_2A_1A_0=111 \quad Y_7=0$$

8421

$$D_3-D_0: \quad \begin{array}{c} 0 \\ 0000 \end{array} \rightsquigarrow \begin{array}{c} 14 \\ 1110 \end{array}$$

15进制.

$$\begin{array}{c} \swarrow \quad \nwarrow \\ \text{---} \\ 1111 \\ \text{---} \\ 15 \end{array}$$

七:

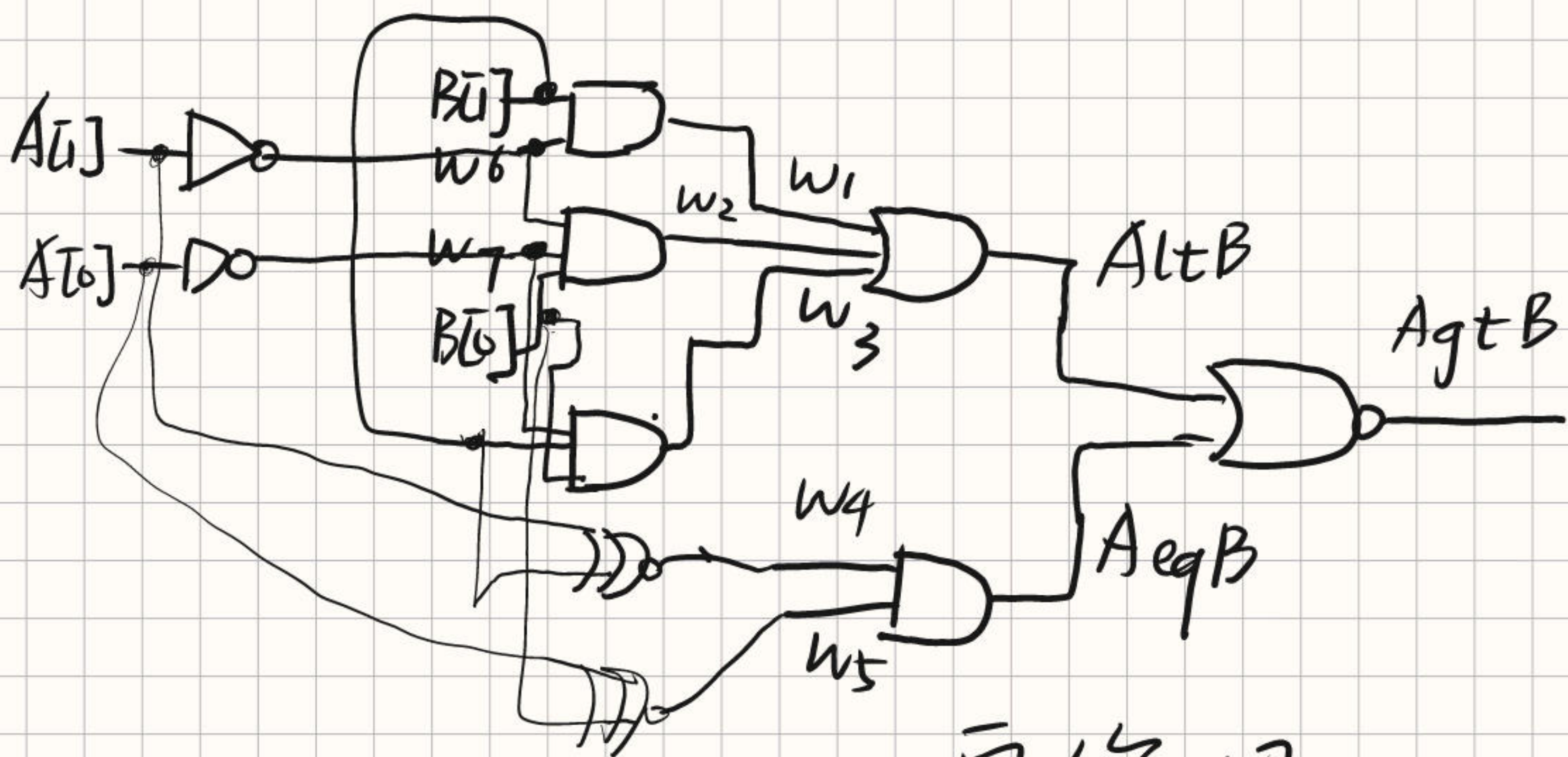
$A[1]$
 $A[0]$

$B[1]$
 $B[0]$

$AgtB$

$AltB$

$AeqB$



画你妈~♡

$Xnor$ 同或 \Rightarrow $A \oplus B$ 鬼题目

异或 \Rightarrow $A \oplus B$

nor 或非 \Rightarrow

