2012

一、(1) $(110111)_2=(55)_{10}=(\underbrace{0101}_{5}\ \underbrace{0101}_{5})_{8421}$

1+2+4+16+32

(2) $2^{16}\times 8=64k\times 8=512K$

16位地址线 → 2^{16}个存储单元　8位数据线 → 每个存储单元8位

(3) OCJ　TSTJ　内时

第三字初始

(4) 并行　逐次　双积分型

双积分型是一种间接ADC

(5) 增加保护环　低通滤波电路　选通脉冲

课本原话

二、最简与一或式：

$Y=B\bar{C}+AB\bar{C}E+\bar{B}(A\oplus D)+B(A\odot D)$

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

最简或与式：

对偶式：$Y'=(B+\bar{C})(A+B+\bar{C}+E)\left(\bar{B}+\overline{(\bar{A}+\bar{D})\cdot(A+D)}\right)\left(B+(A+\bar{D})(\bar{A}+D)\right)$

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

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

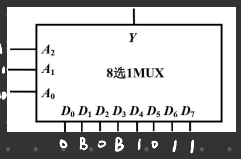
$=ABD+A\bar{C}D+\bar{A}B\bar{D}+\bar{A}\bar{C}\bar{D}$

再对Y'求对偶：

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

三、因为A在M_1M_0的四项组合中均有出现，所以$A_2A_1A_0$分别输入$A-M_1-M_0$。

	A	M_1	M_0	F
D_0	0	0	0	F=A=0
D_1	0	0	1	F=0⊙B=B
D_2	0	1	0	F=AB=0
D_3	0	1	1	F=A+B=B
D_4	1	0	0	F=A=1
D_5	1	0	1	F=1⊙B=0
D_6	1	1	0	F=AB=1
D_7	1	1	1	F=A+B=1



（本题题设较灵活，仅供参考，合理即可）

四、

输出函数：$Y = \overline{\overline{Q_2} \cdot Q_1} = Q_1 Q_2$ 为Moore 型

激励函数：

$J_2 = Q_0 Q_1$　　$J_1 = Q_0$　　$J_0 = \overline{Q_2 Q_1}$

$K_2 = Q_1$　　$K_1 = \overline{\overline{Q_0} \overline{Q_2}}$　　$K_0 = 1$

次态方程式：

$Q_2^{n+1} = Q_0 Q_1 \overline{Q_2} + \overline{Q_1} Q_2$

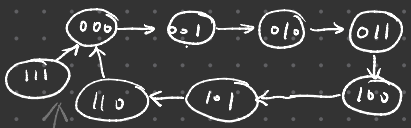
$Q_1^{n+1} = Q_0 \overline{Q_1} + \overline{Q_0} \overline{Q_2} Q_1$

$Q_0^{n+1} = \overline{Q_1 Q_2} \overline{Q_0}$

状态表：

现态 Q_2	Q_1	Q_0	次态 Q_2'	Q_1'	Q_0'	Y
0	0	0	0	0	1	0
0	0	1	0	1	0	0
0	1	0	0	1	1	0
0	1	1	1	0	0	0
1	0	0	1	0	1	0
1	0	1	1	1	0	0
1	1	0	0	0	0	1
1	1	1	0	0	0	1

状态图：

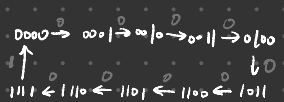


可以自启动

无效序列可以返回有效序列

五、输出2421码为 $A_3A_2A_1A_0$ 进位 C

① 状态图 $A_3A_2A_1A_0$



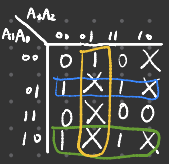
② 状态表：

现态	次态	C
0000	0001	0
0001	0010	0
0010	0011	0
0011	0100	0
0100	1011	0
1011	1100	0
1100	1101	0
1101	1110	0
1110	1111	0
1111	0000	1

A_3^{n+1}

A_2^{n+1}

A_1^{n+1}



A_0^{n+1}

C

$D_2 = A_2^{n+1} = A_3\bar{A}_1 + \bar{A}_2A_1A_0 + A_2\bar{A}_0$

$D_0 = A_0^{n+1} = \bar{A}_0$

$C = A_2A_1A_0$

$D_3 = A_3^{n+1} = A_3\bar{A}_1 + A_3A_2 + A_3A_1\bar{A}_0$

$D_1 = A_1^{n+1} = A_1\bar{A}_0 + \bar{A}_1A_0 + \bar{A}_1A_2$

六、74161 同步置数，异步清零

状态：