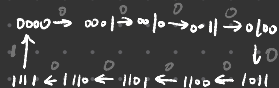


## 五、输出2421码为 $A_3 A_2 A_1 A_0$ 进位 $C$

① 状态图  $A_3 A_2 A_1 A_0$



② 状态表:

状态	进位 $C$
0000	0
0001	0
0010	0
0011	0
0100	0
0101	0
0110	0
0111	0
1000	0
1001	0
1010	0
1011	0
1100	0
1101	0
1110	0
1111	1

$$A_3$$

$A_3 A_2$	00	01	11	10
$A_1 A_0$	00	0	1	X
01	0	X	1	X
11	0	X	0	1
10	0	X	1	X

$$A_2$$

$A_3 A_2$	00	01	11	10
$A_1 A_0$	00	0	0	X
01	0	X	1	X
11	0	X	0	1
10	0	X	1	X

$$A_1$$

$A_3 A_2$	00	01	11	10
$A_1 A_0$	00	0	1	X
01	1	X	1	X
11	0	X	0	0
10	1	X	1	X

$$A_0$$

$A_3 A_2$	00	01	11	10
$A_1 A_0$	00	1	1	X
01	0	X	0	X
11	0	X	0	0
10	1	X	1	X

$$C$$

$A_3 A_2$	00	01	11	10
$A_1 A_0$	00	0	0	X
01	0	X	0	X
11	0	X	1	0
10	0	X	0	X

$$D_2 = A_2^{n+1} = A_3 \bar{A}_1 + \bar{A}_2 A_1 A_0 + A_2 \bar{A}_0$$

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

$$C = A_2 A_1 A_0$$

$$D_3 = A_3^{n+1} = A_3 \bar{A}_1 + A_3 A_2 + A_3 A_1 \bar{A}_0$$

$$D_1 = A_1^{n+1} = A_1 \bar{A}_0 + \bar{A}_1 A_0 + \bar{A}_3 A_2$$

## 六、74161 同步置数, 异步清零

状态:

0000	0
0001	1
0010	2
0011	3
0100	4
0101	5
1000	8
1010	10
1011	11
1100	12
1101	13

异步置数: 0101, 1000, 1010, 1100

