

MAPPE di KAURNAUGH

	a	b	c	d	z
16 righe	0	1	0	1	1

$abcd = 0011$

	a	b	
00	01	11	10
00			
01	1		
11			
10			

uscite che comprende
 $abcd = 0101$

	e	b	z
	0	1	
0			
1			

	a	b	
0			
1			

	a	b	c	z
8 righe	0			
	1			

4 gruppi
 2^2

	a	b	
00	01	11	10
00	0	0	1
01	0	0	1
11	1	c	1
10	0	a	1

2^2 2^1 2^0

$\bar{a}\bar{b}cd$

gruppi di 2^k bit
fatti 1
adiacenti e di
forma regolare

$$ab\bar{c}d + ab\bar{c}d + abcd + abc\bar{d}$$

$$ab\bar{c}(\bar{d} + d) + abc(d + \bar{d})$$

$$2b(\bar{c} + c)$$

$$2b$$

	e	b	
00	01	11	10
00	0	1	1
01	1	1	1
11	0	1	1
10	1	1	1

2^3 b

$z = b + \bar{a}\bar{c}d + cd$

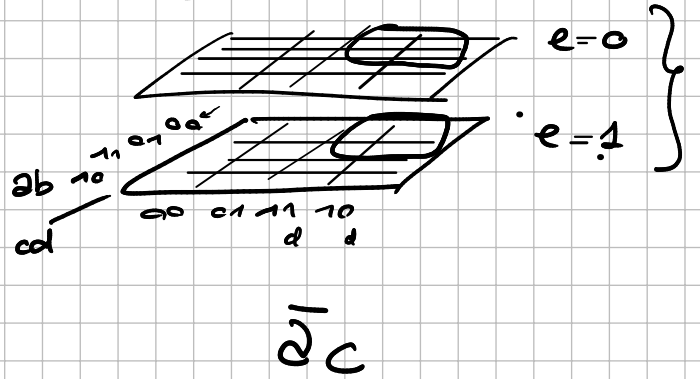
or 4 termini
3 out de 4 var
1 1 var

	e	b	
00	01	11	10
00	0	1	1
01	1	1	1
11	0	1	1
10	1	1	1

	e	b	
00	01	11	10
00	0	1	1
01	1	1	1
11	0	1	1
10	1	1	1

0	1	1	0
0	1	1	0
0	1	1	0
1	1	0	0

5 ingressi



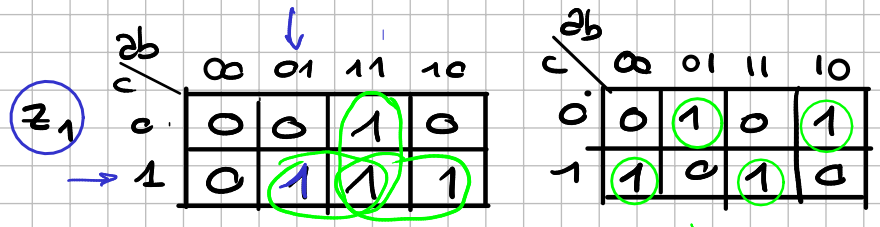
contiene "1" su 3 bit

a b c	z1 z2
0 0 0	0 0
0 0 1	0 1 ←
0 1 0	0 1 ←
→ 0 1 1	1 0
1 0 0	0 1 ←
→ 1 0 1	1 0
→ 1 1 0	1 0
→ 1 1 1	1 1 ←

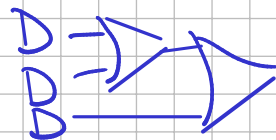
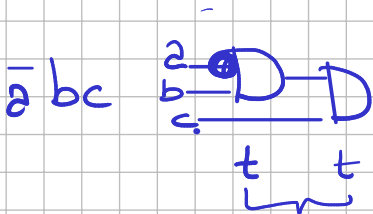
$$z_1 = \bar{a}bc + a\bar{b}c + abc\bar{c} + abc$$

$$z_2 = \bar{a}bc + \bar{a}b\bar{c} + a\bar{b}\bar{c} + abc$$

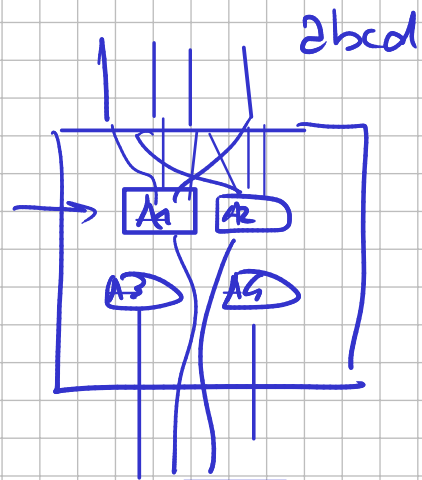
8



$$z_1 = ab + \bar{b}c + ac$$



a b c d	z1 z2 z3 z4
1 - - -	1 0 0 0
0 1 - -	0 1 0 0
0 0 1 -	0 0 1 0
0 0 0 1	0 0 0 1
0 0 0 0	0 0 0 0



$$z_4 = \bar{a}\bar{b}\bar{c}d$$

$$z_1 = (\bar{a}b + \bar{a}) = \bar{a}\bar{b}\bar{c}d$$

$$z_4' = a + b + c + \bar{d} = -$$

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

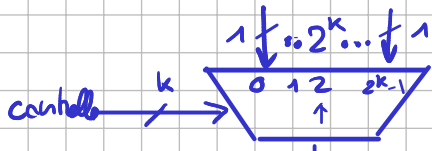
$$= (\overline{a} + \overline{b}) \cdot \overline{a}$$

$$(\overline{a} + \overline{b}) \cdot \overline{a}$$

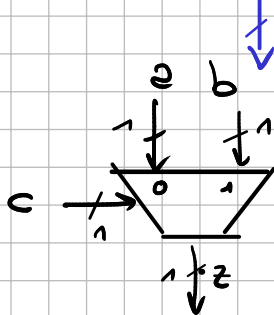
$$\leftarrow \overline{a}$$

MOX Multiplexer

upemi dati



k=2

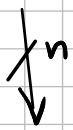


2 rit
"di porte"
(2 livelli
di porte
1 AND
1 OR)

a	b	c	z
0	0	0	0
0	0	1	0
0	1	0	1
0	1	1	1
1	0	0	1
1	0	1	1
1	1	0	1
1	1	1	1

z =

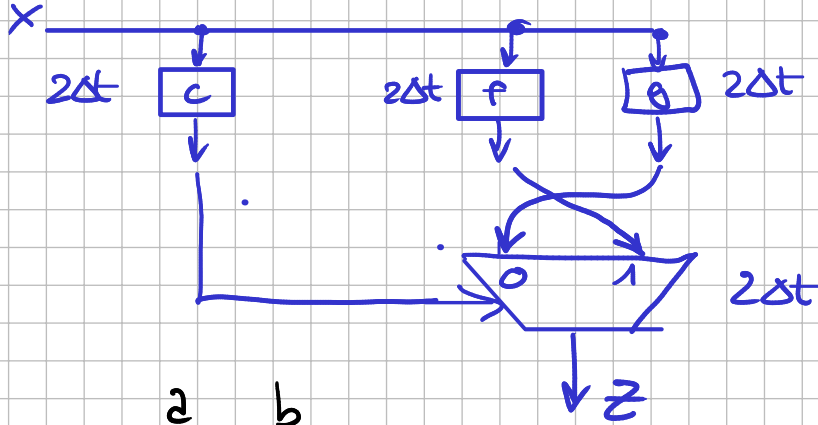
$$\bar{a}bc + a\bar{b}c + ab\bar{c} + abc$$



c \ ab	00	01	11	10
0	0	0	1	1
1	0	1	1	0

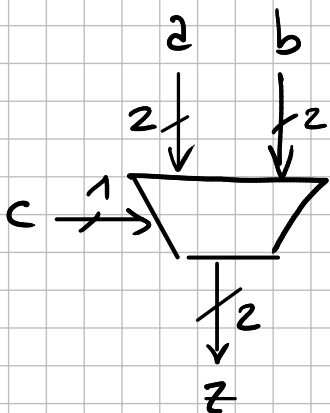
$$z = a\bar{c} + bc$$

If(c(x)) then f(x) else g(x)



dt

c, f, g,
sono funzioni
lo cui expr Alg.
Boole si implementa
con 2 liv di porte

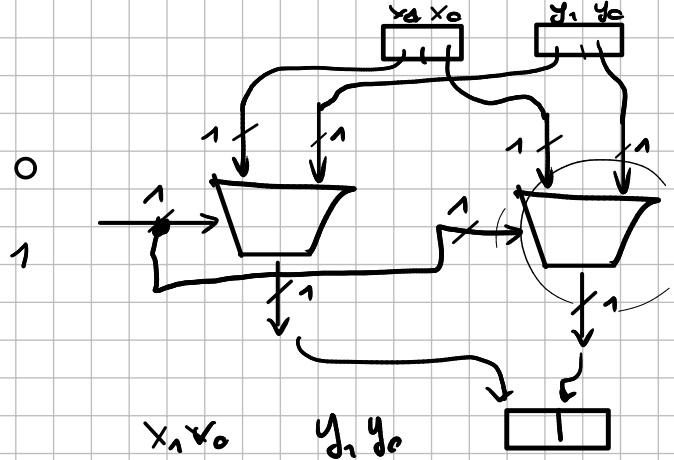


c	a	b	z
0	0	-	0
0	1	-	1 ←
1	-	0	0
1	-	1	1 ←

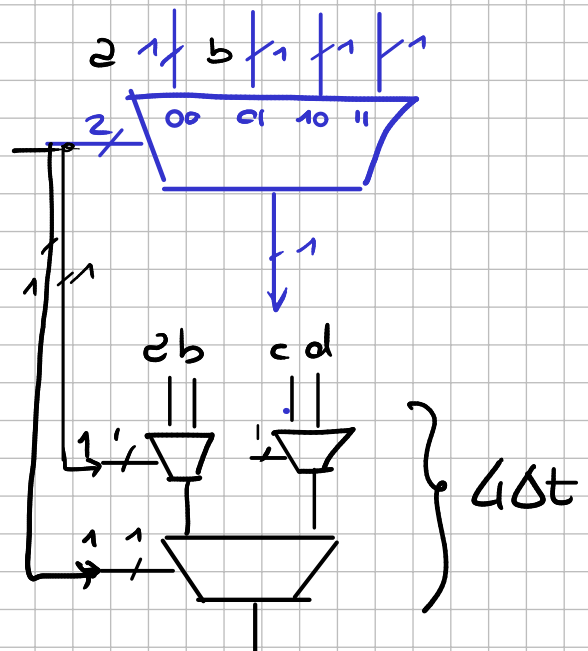
c \ ab	z
0	1
1	1

2dt

$$z = a\bar{c} + bc$$



20t



40t

e	ctr	a	b	c	d	z
00	1	-	-	-	-	1
01	-	1	-	-	-	1
10	-	-	1	-	-	1
11	-	-	-	1	-	1

20t

$$z = \bar{e}_1 \bar{e}_2 z + \bar{e}_1 e_2 b + e_1 \bar{e}_2 c + e_1 e_2 d$$

$$\log_8 256 = \frac{\log_2 256}{\log_2 8} = \frac{8}{3}$$

$$8 \times 8 \times 8$$