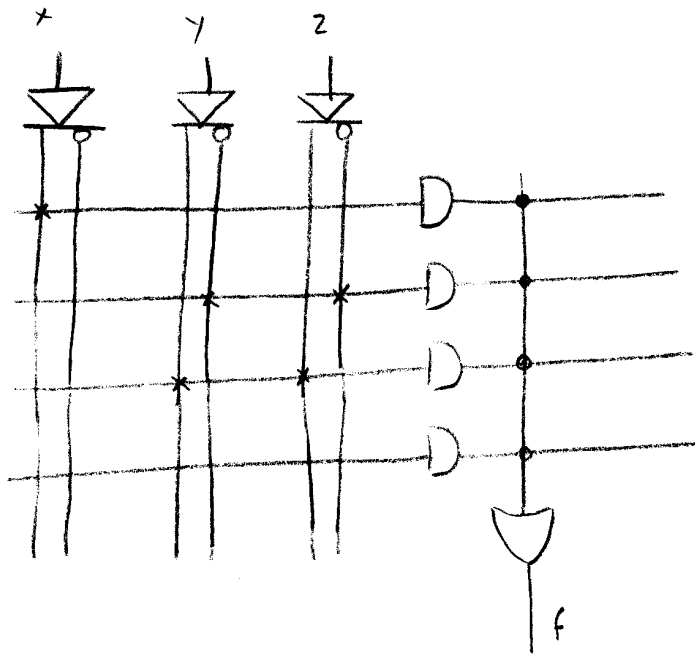


Septiembre 94 (1)

$$f(x,y,z) = \overline{x}y\overline{z} + x\overline{y}z + x\overline{y}z = \overline{x}y\overline{z} + x\overline{y}z =$$

$$= (x + \overline{y} + z)(x + y + \overline{z}) + x\overline{y}z = \underline{xx} + x\overline{y} + xz + \overline{y}z + y\overline{z} + \overline{z}y +$$

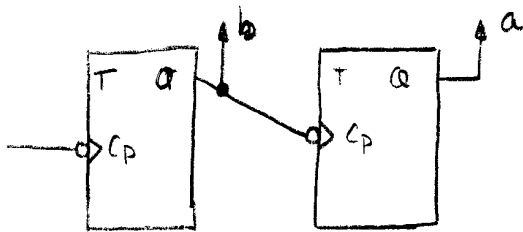
$$+ xz + yz + z\overline{z} + x\overline{y}z = x + \overline{z}y + yz$$



Septiembre 95

2 básculas T que cuentan de 0 a 3 pq se repiten los 0 cada 4 impulsos

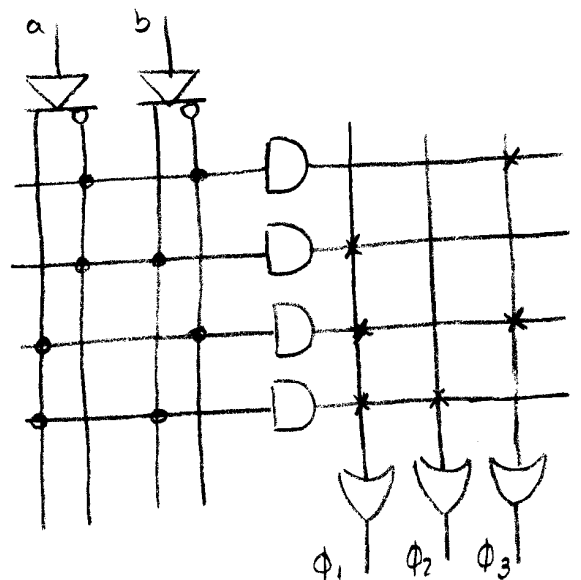
Salida	cont	Φ_1	Φ_2	Φ_3
0	0	0	0	1
0	1	1	0	0
1	0	1	0	1
1	1	1	1	0
a	b			



$$\Phi_1 = \overline{a}b + a\overline{b} + ab$$

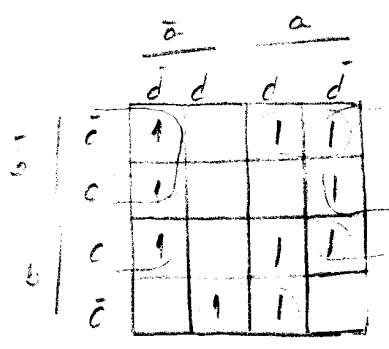
$$\Phi_2 = ab$$

$$\Phi_3 = \overline{a}\overline{b} + ab$$



Junio 97 (1)

$$f(a,b,c,d) = \bar{a}\bar{b}\bar{c}\bar{d} + \bar{a}\bar{b}c\bar{d} + \bar{a}b\bar{c}d + \bar{a}bcd + a\bar{b}\bar{c}\bar{d} + a\bar{b}c\bar{d} + a\bar{b}cd + ab\bar{c}\bar{d} + ab\bar{c}d + abc\bar{d} + abcd$$

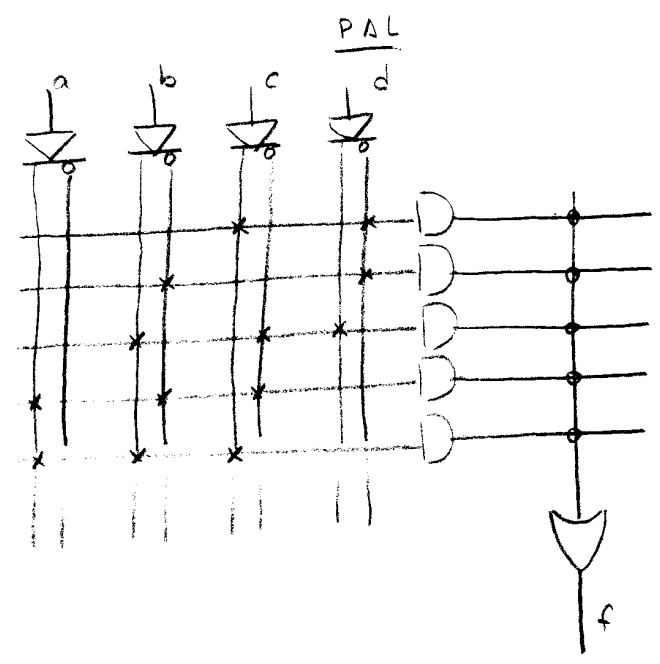
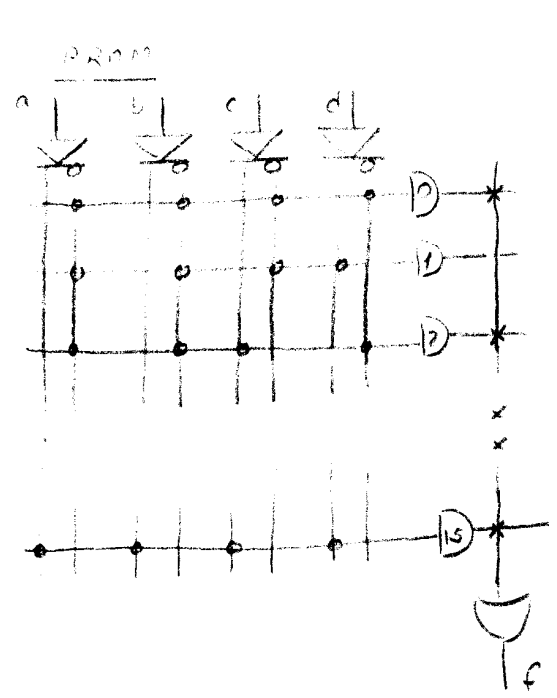


$$f = \sum m(0, 2, 5, 6, 8, 9, 10, 13, 14, 15)$$

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

PROM \Rightarrow 4 entradas y 2⁴ salidas

PAL \Rightarrow 4 x 5 + 1



Junio 96 / Septiembre 98

Conceptos básicos en lógica combinacional programable

Distinción entre PROM, PAL y PLA.

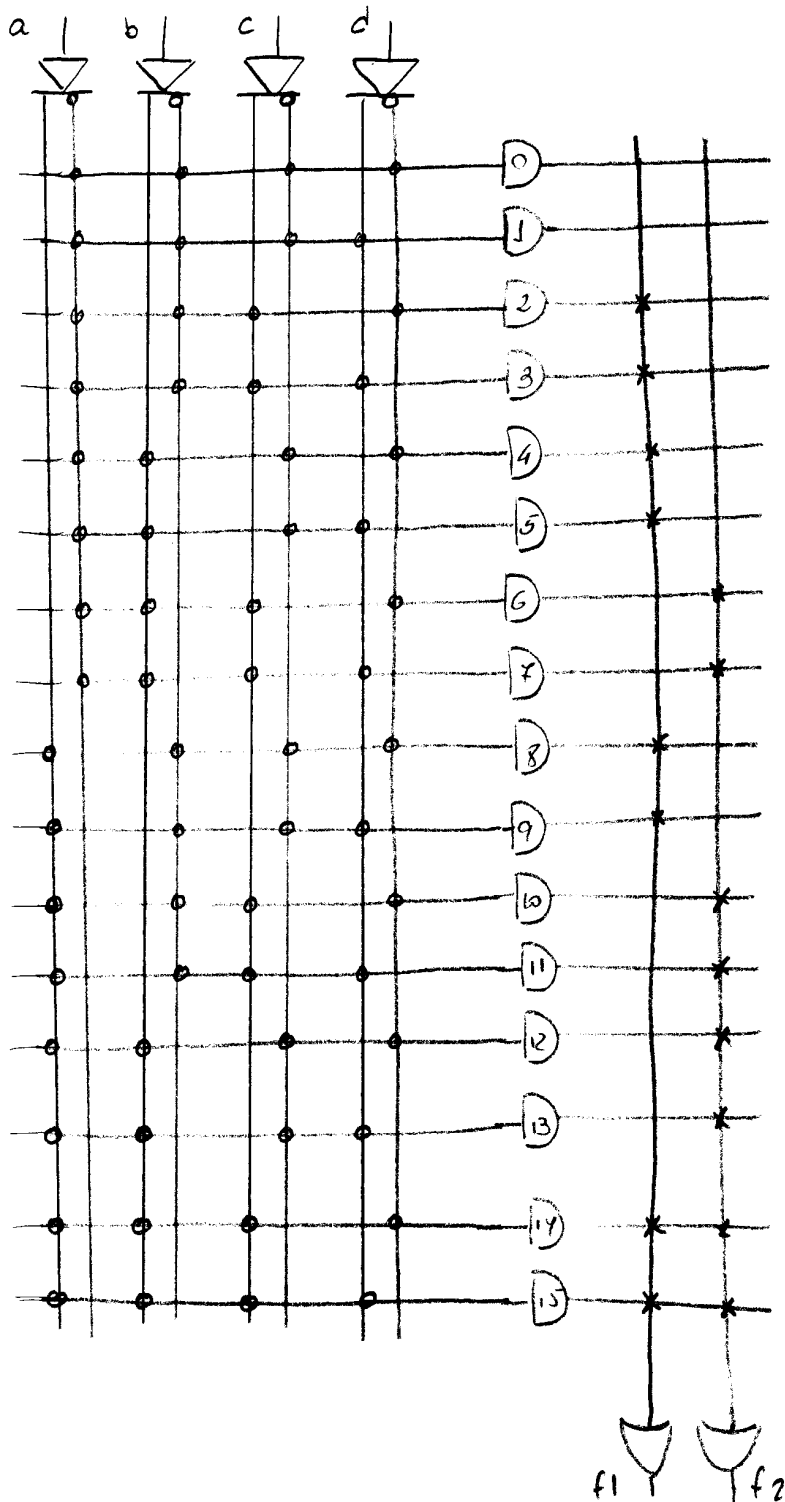
Diseñar f_1 y f_2 con la PLD más adecuada

$$f_1 = \bar{a}\bar{b}\bar{c}d + \bar{a}\bar{b}c\bar{d} + \bar{a}b\bar{c} + a\bar{b}\bar{c}\bar{d} + abc + \bar{a}b\bar{c}\bar{d}$$

$$f_2 = \bar{a}bcd + \bar{a}\bar{b}cd + abc\bar{d} + ab\bar{c} + \bar{a}bcd + a\bar{b}cd + abcd$$

Como las funciones tienen muchos términos minterm, una forma sencilla de implementar y que no requiere simplificación es mediante PROM

PROM - 4 entradas 2 salidas



$$f_1 = \frac{\bar{a}\bar{b}c\bar{d}}{2} + \frac{\bar{a}\bar{b}cd}{3} + \frac{\bar{a}b\bar{c}\bar{d}}{8} + \frac{\bar{a}b\bar{c}d}{9} + \frac{\bar{a}bc}{5} + \frac{abcd}{14} + \frac{abc\bar{d}}{15} = \sum m(2, 3, 4, 5, 8, 9, 14, 15)$$

$$f_2 = \frac{\bar{a}bcd}{7} + \frac{\bar{a}\bar{b}cd}{11} + \frac{\bar{a}bc\bar{d}}{12} + \frac{\bar{a}bc\bar{d}}{13} + \frac{\bar{a}bc\bar{d}}{14} + \frac{\bar{a}bc\bar{d}}{15} + \frac{abcd}{15} = \sum m(6, 7, 10, 11, 12, 13, 14, 15)$$

Septiembre 97 111

$$f_1 = \overline{x}yz \cdot x\overline{z}\overline{y} \cdot \overline{x}y\overline{z} \cdot \overline{x}\overline{y}z$$

$$f_1 = (\overline{x} + \overline{y} + \overline{z})(\overline{x} + z + y)(x + \overline{y} + z)(x + y + \overline{z})$$

x	y	z	f ₁
0	0	0	1
0	0	1	0
0	1	0	0
0	1	1	1
1	0	0	0
1	0	1	1
1	1	0	1
1	1	1	0

$$f_1 = \overline{x}\overline{y}\overline{z} + \overline{x}yz + x\overline{y}z + x\overline{y}\overline{z} = \sum m(0, 3, 5, 6)$$

$$f'_1 = \sum m(0, 3, 5, 6)$$

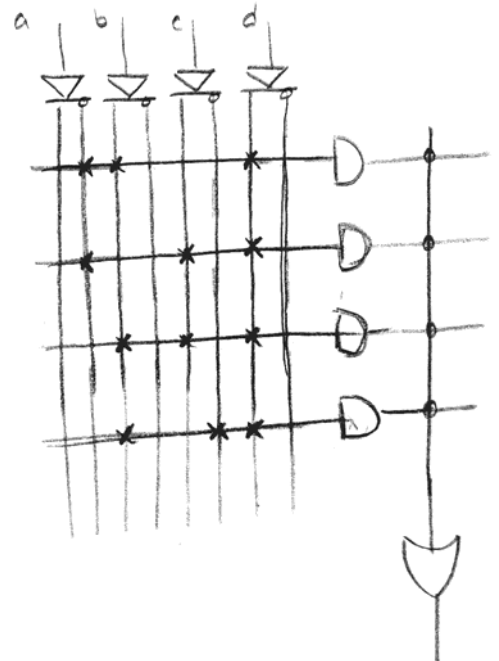
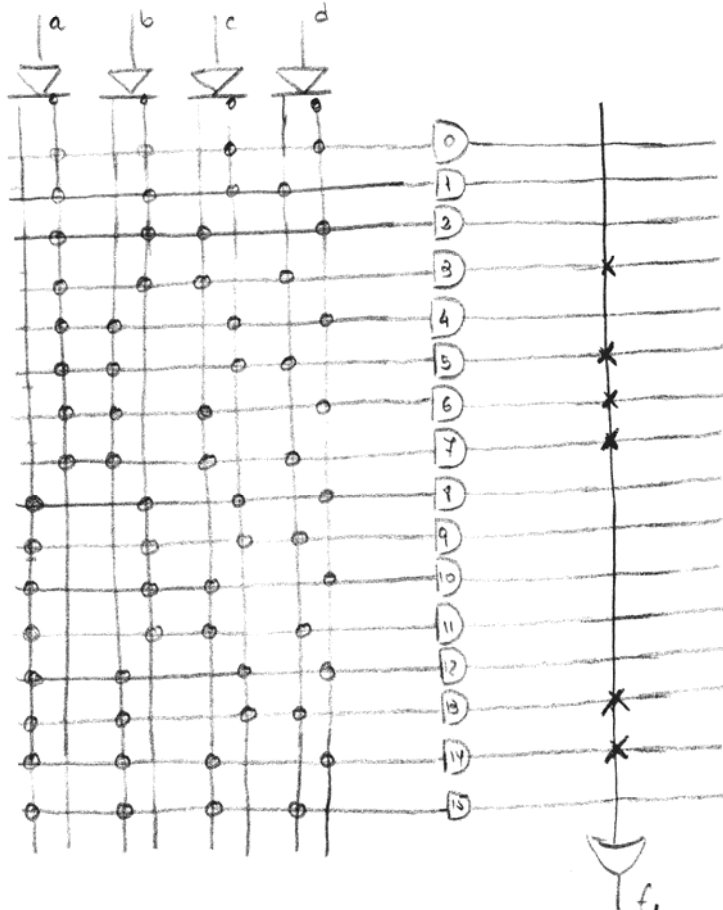
$f_1 = f'_1 \Rightarrow$ Los dos circuitos misma f

Junio 98 12)

$$f_1 = \prod M(0, 3, 4, 5, 6, 7, 11, 13, 14, 15) \Rightarrow \overline{f}_1 = \prod M(1, 2, 8, 9, 10, 12)$$

$$f_1 = \overline{\prod M(1, 2, 8, 9, 10, 12)} = \overline{M_1 + M_2 + M_8 + M_9 + M_{10} + M_{12}} = m_{14} + m_{13} + m_7 + m_6 + m_5 + m_3$$

PROM simpli $\Rightarrow f_1 = \overline{a}bd + \overline{a}cd + bcd + b\overline{c}d$ POC



Mayo 2002 / Septiembre 2002 / Septiembre 2003

Circuitos PAL

- Arquitectura

- Configuraciones de salida y explicación del funcionamiento de una macrocelda

Junio 2002

- Lógica combinatorial programable

- Arquitecturas básicas

- PROM.