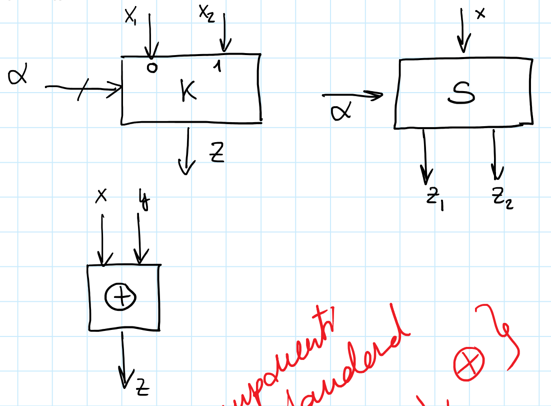
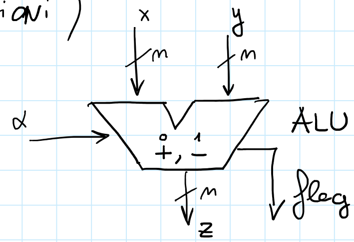
Reti combinatorie (calcolano FUNZIONI)

giovedì 22 settembre 2016 14:09





(interi) { +, −, SHL (n), SHR (n), comp a 1

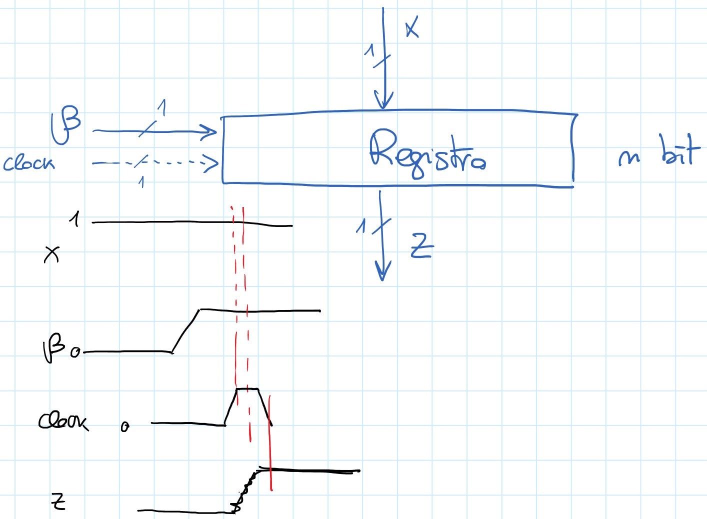
componenti standard {K, S, ALU, ⊗}

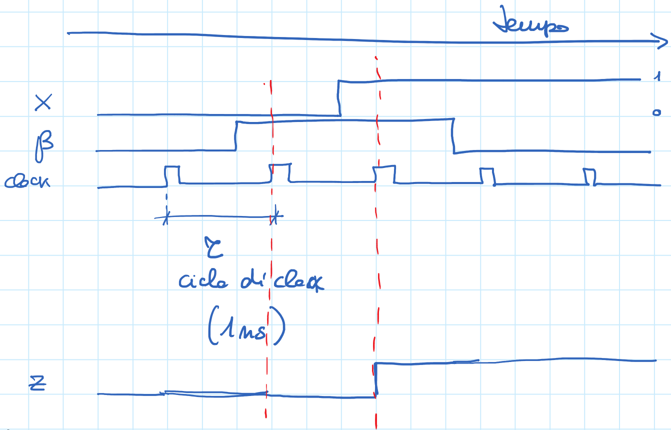
ALU (4 bit) interi positivi 0 ÷ 15

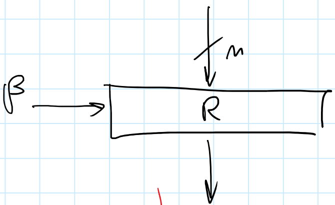
+ −

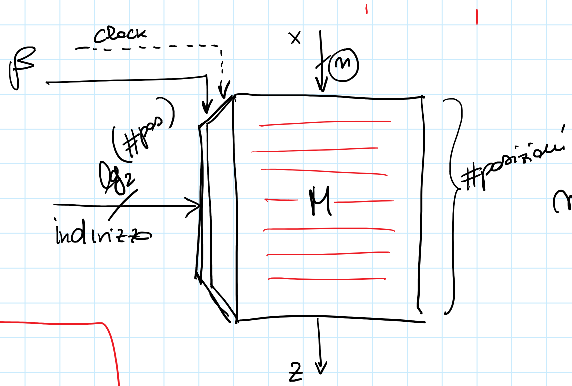
FLAG
- Z: z = 1 sse x op y == 0
- N: N = 1 sse x op y < 0
- S: S = 1 sse x op y < 0
- OW: OW = 1 sse x op y ma è rappresentabile sui bit a disposiz.

$x_1 x_2 x_3 x_4$ $y_1 y_2 y_3 y_4$ α	$z_1 z_2 z_3 z_4$ Z S
512 {	





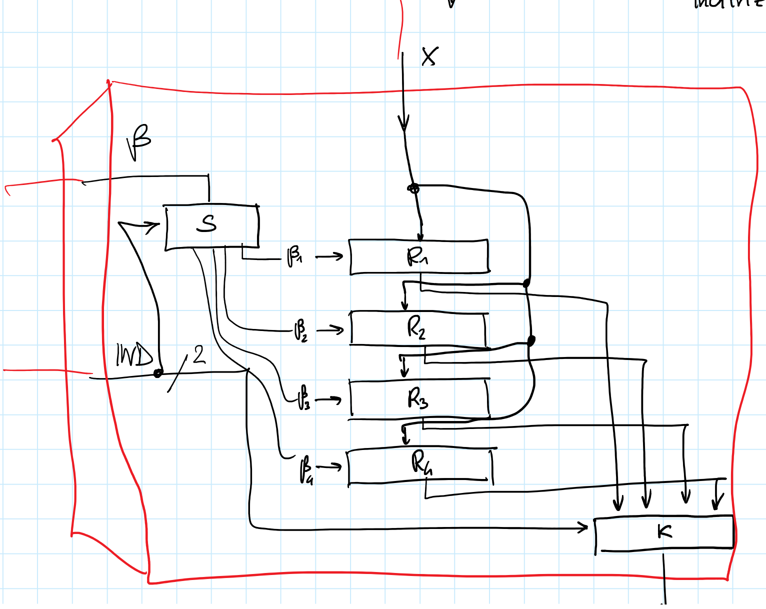


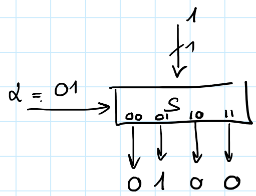


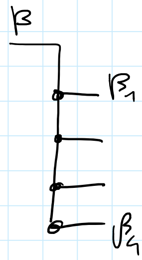
memorie

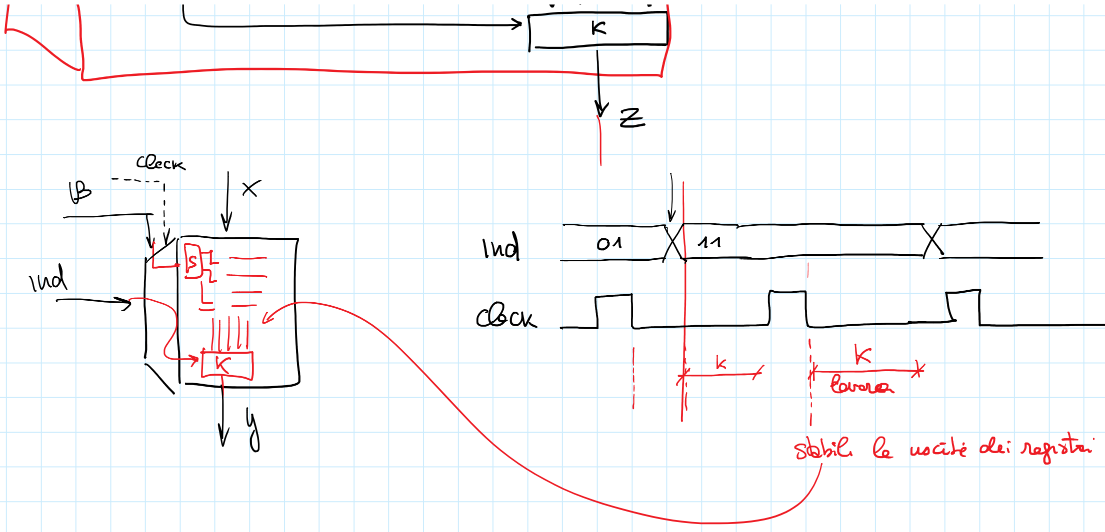
n bit x posizione

posizioni (ognuna da n bit)

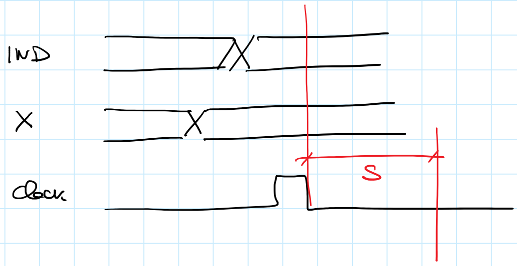








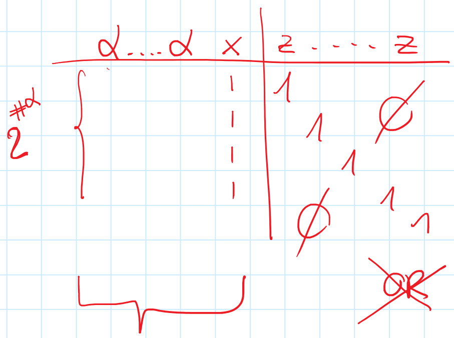
t_K tempo di stabilit. del K



t_S tempo di stabilit. del S.

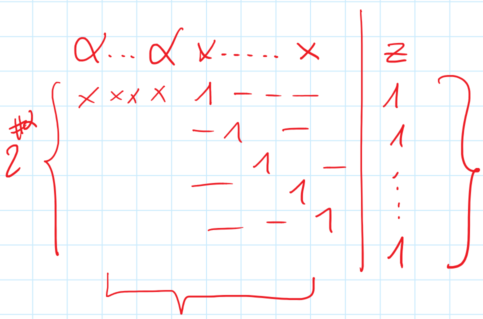
$t_K \overset{?}{\gtreqless} t_S$

Selettore



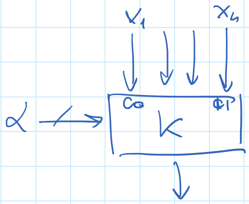
⇒ livelli AND

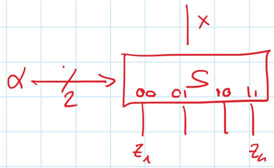
commutatore



termini in OR

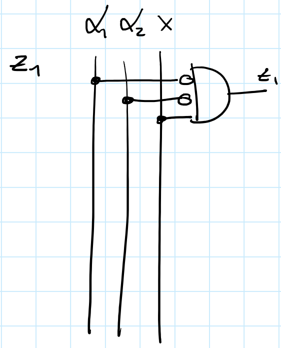
⇒ livelli AND = uguale





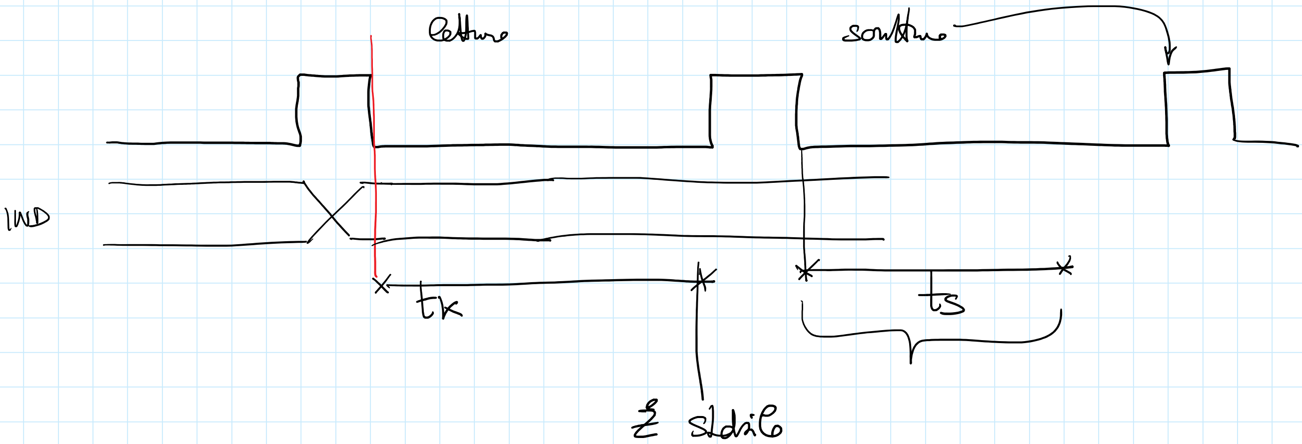
α_1	α_2	x	z_1	z_2	z_3	z_4
0	0	1	1	0	0	0
0	1	1	0	1	0	0
1	0	1	0	0	1	0
1	1	1	0	0	0	1

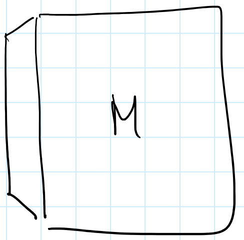
$$z_1 = \bar{\alpha}_1 \bar{\alpha}_2 x$$



α_1	α_2	x_1	x_2	x_3	x_4	z
0	0	1	–	–	–	1
0	1	–	1	–	–	1
1	0	–	–	1	–	1
1	1	–	–	–	1	1

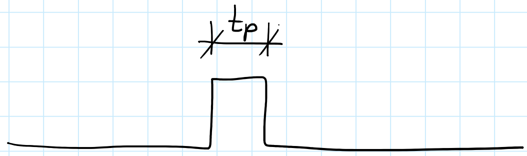
$$z = \bar{\alpha}_1 \bar{\alpha}_2 x_1 + \bar{\alpha}_1 \alpha_2 x_2 + \alpha_1 \bar{\alpha}_2 x_3 + \alpha_1 \alpha_2 x_4$$





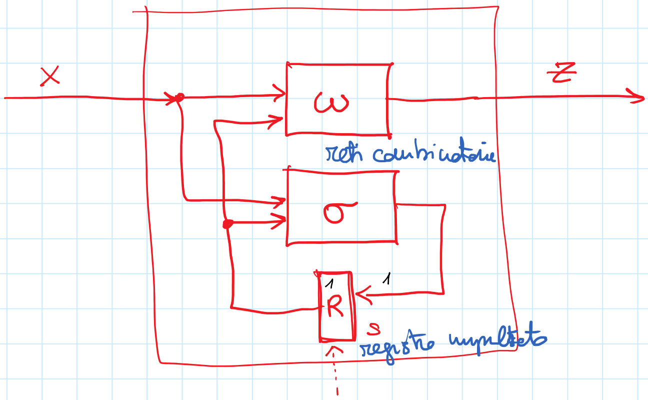
t_α

t_k t_s $t_\oplus$ t_{alu}

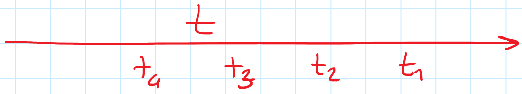


Reti sequenziali

$$usc = f(ing, stato)$$

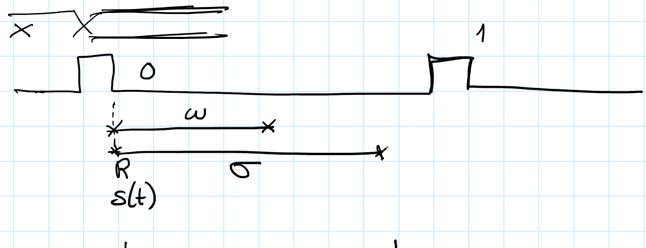


Rete seq di Mealy



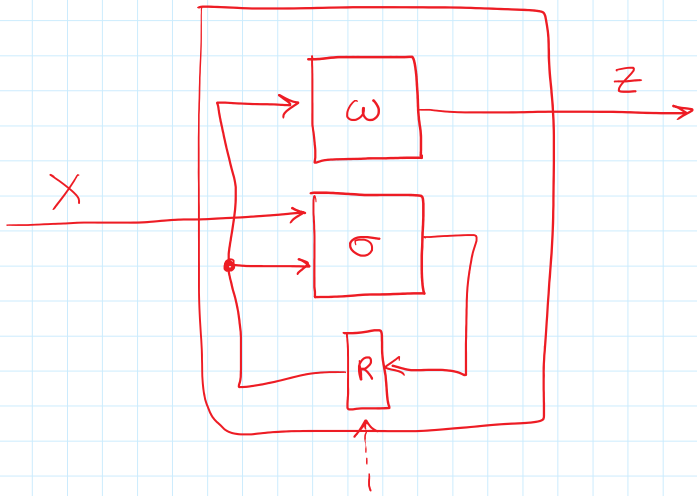
$$z(t) = \omega(x(t), s(t))$$

$$s(t+1) = \sigma(x(t), s(t))$$



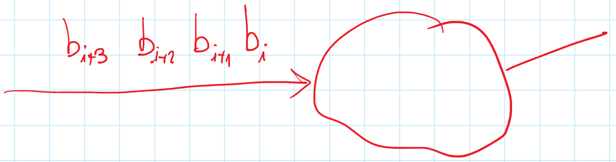
$$\max\{t_\omega, t_\sigma\} < \tau$$

Rete seq di Moore



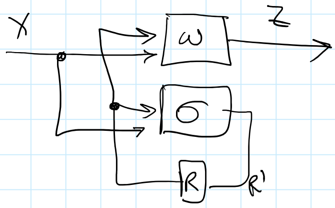
$$z(t) = \omega(s(t))$$

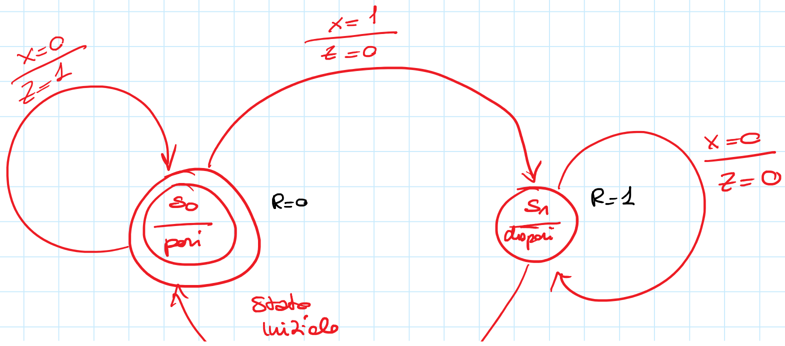
$$s(t+1) = \sigma(x(t), s(t))$$



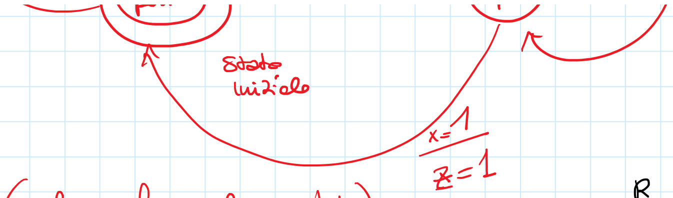
0 se # bit a 1 ricevuti fin'ora è dispari

1 '' '' '' pari





R'



R 1 bit (x chè ho solo 2 stati)

$\log_2 2 = 1$

ω

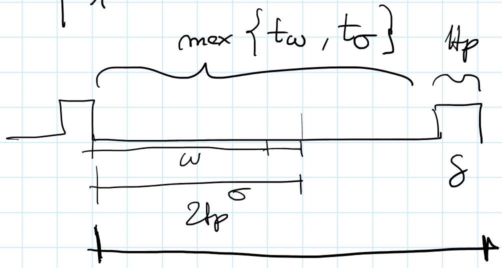
R	X	Z
0	0	1
0	1	0
1	0	0
1	1	1

$Z = \overline{R}\,\overline{X} + RX$ (2tp)

σ

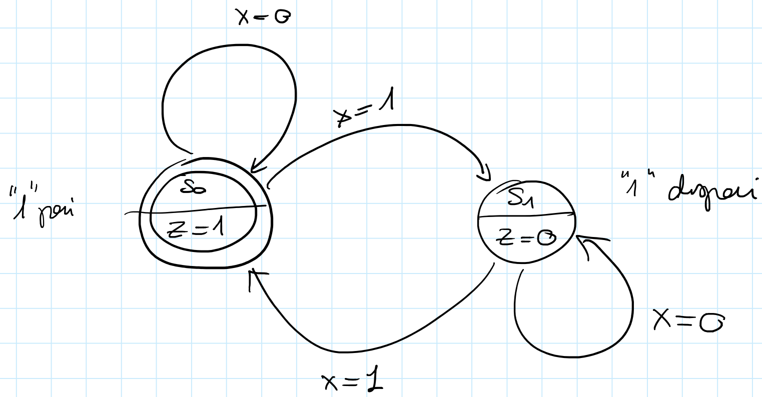
R	X	R'
0	0	0
0	1	1
1	0	1
1	1	0

$R' = \overline{R}X + R\overline{X}$ (2tp)



$\tau = 2t_p$? NO!! $\tau = 3t_p$

$\tau = \max\{t_\omega, t_\sigma\} + \delta$



4

mercoledì 21 settembre 2016 13:59

5

mercoledì 21 settembre 2016 13:59

6

mercoledì 21 settembre 2016 13:59

7

mercoledì 21 settembre 2016 13:59

8

mercoledì 21 settembre 2016 13:59

9

mercoledì 21 settembre 2016 13:59

10

mercoledì 21 settembre 2016 13:59

11

mercoledì 21 settembre 2016 13:59

12

mercoledì 21 settembre 2016 13:59

13

mercoledì 21 settembre 2016 13:59

14

mercoledì 21 settembre 2016 13:59

15

mercoledì 21 settembre 2016 13:59

16

mercoledì 21 settembre 2016 13:59

17

mercoledì 21 settembre 2016 13:59

18

mercoledì 21 settembre 2016 13:59

19

mercoledì 21 settembre 2016 13:59

20

mercoledì 21 settembre 2016 13:59