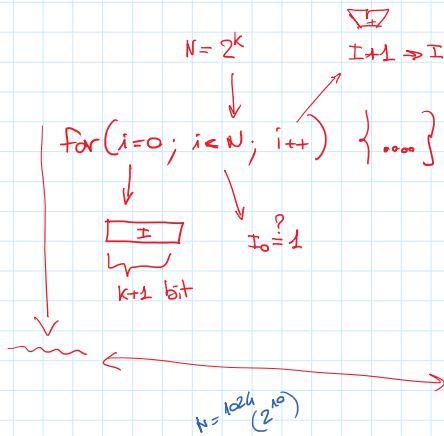


etichetta. (cond-x) μ-ops, etich  
(=Y) μ-ops', etich  
:

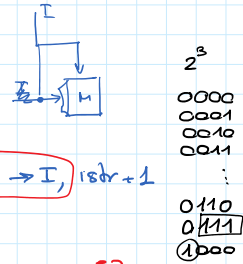
etich. μ-ops, etich  
A → B  
(A+1) → B  
primario(A) → B  
RC ad loc



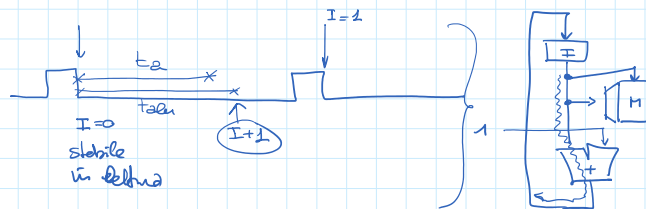
istr. 0 → I, istr+1  
istr+1. (I<sub>0</sub>=0) ..., I+1 → I, istr+1  
(=1) map, istr+2

```
for(i=0; i < N; i++) {
    M[i] = i;
}
```

istr. 0 → I, istr+1  
istr+1. (I<sub>0</sub>=0) I → M[I], I+1 → I, istr+1  
v (=1) map, istr+2  
istr+2. -----



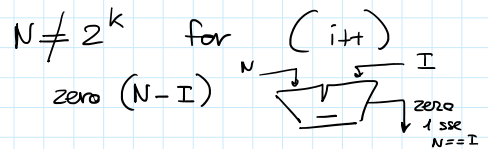
```
≡
for(i=N-1; i >= 0; i--) {
    M[i] = I
}
```



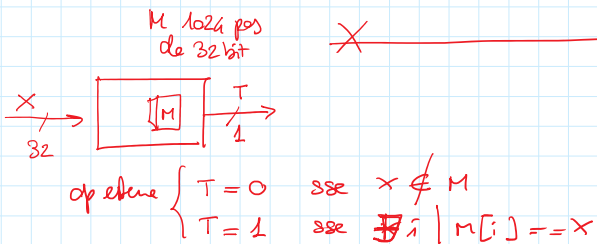
$R$  bit  $N = 2^k$

K. N-1 → I, K+1  
K+1. (OR(I) = 1) I → M[I], I-1 → I, K+1  
bit a bit  
(=0) I → M[I], K+2  
K+2. -----

istr. I ← 0, istr+1  
istr+1. (AND(I) = 0) I → M[I], I+1 → I, istr+1  
(=1) I → M[I], istr+2  
istr+2.



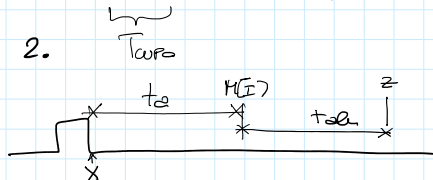
for(... i--)  
OR(I)

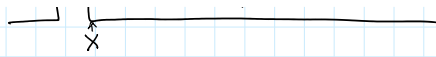
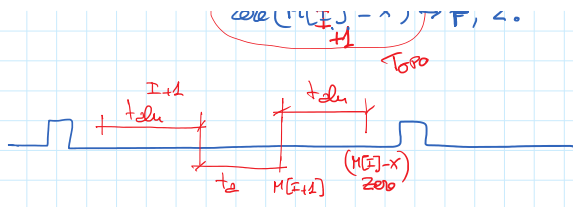


32 bit X valore da cercare  
M 1024 x 32 bit e grā in calcolatore  
1 bit T do numero cal risultato

0. 0 → I, 1  
1. zero(M[I]-x) → F, 2  
2. (I<sub>0</sub>, F = 00) I+1 → I  
zero(M[I]-x) → F, 2.

0. 0 → I, 1  
1. (I<sub>0</sub>, zero(M[I]-x) = 00)  
I+1 → I, 1.  
(=01) 1 → T, 2.  
(=1-) 0 → T, 2.





$$C = T_{WPB} + \max \left\{ \begin{array}{l} T_{OPC} \\ T_{WPB} + T_{OPD} \end{array} \right\} \delta$$



$$\begin{pmatrix} = 01 \\ = 1- \end{pmatrix} \begin{matrix} \rightarrow \uparrow, \times 3 \\ \rightarrow \uparrow, \times 3 \end{matrix}$$

Divisione fra interi (con ALU che fa solo + e -)

$$X/Y = \begin{cases} \text{risultato} & R \\ \text{resto} & Q \end{cases} \quad 10/6 \begin{cases} 1 \\ 4 \end{cases}$$

```

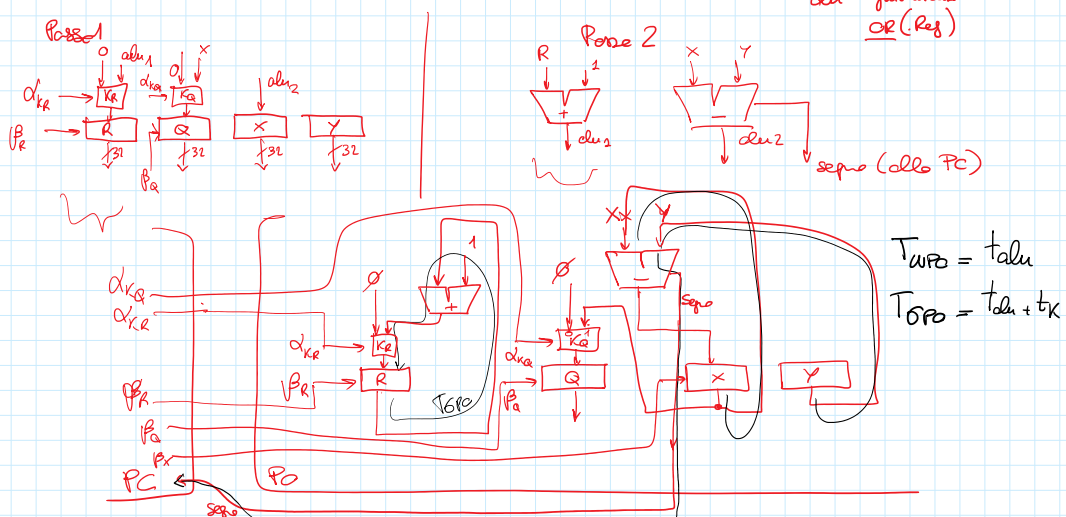
R=0 Q=0
while (x-y >= 0) {
    R++;
    X=X-y;
}
Q=X;
    
```

$x \ y$   
 $10/6$   
 $R=0 \ Q=0$   
 $R=1$   
 $x=4$   
 $Q=4$

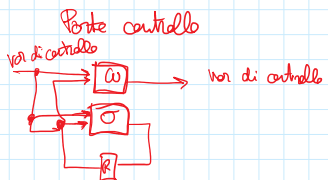
Insieme da 32 bit

- $\emptyset. R \leftarrow \emptyset, Q \leftarrow \emptyset, 1$   
 1. ( $\text{segno}(x-y) = \emptyset$ )  $R+1 \rightarrow R, (x-y) \rightarrow X, 1.$   
 ( $= 1$ )  $x \rightarrow Q, 2.$

Po: 2 passi  
 - considerare tutte le risorse di rotolo e i loro possibili usi  
 - considerare tutte le funzioni di calcolo



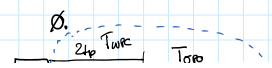
- $\emptyset. R \leftarrow \emptyset, Q \leftarrow \emptyset, 1$  sono  $Q$  ed  $R \Rightarrow \beta_Q = \beta_R = 1$   
 $\beta_i: i \neq R, Q \Rightarrow \emptyset$   
 1. ( $\text{segno}(x-y) = \emptyset$ )  $R+1 \rightarrow R, (x-y) \rightarrow X, 1.$  } 2 passi  
 ( $= 1$ )  $x \rightarrow Q, 2.$

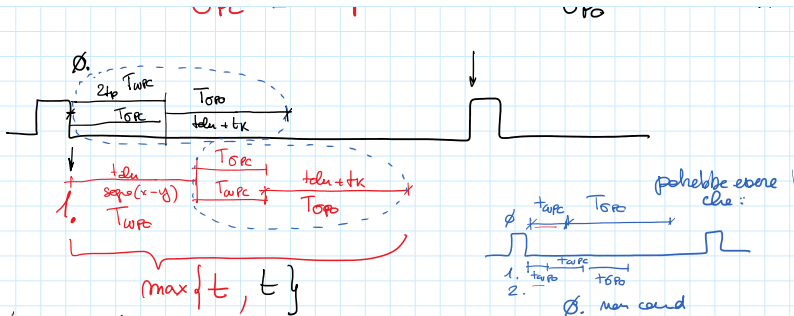


stati  $\equiv n$ -istruzionali  $\{ \emptyset, 1 \}$   
 1 bit

s	segno(x-y)	s'	$\alpha_{KR}$	$\alpha_{KR}$	$\beta_Q$	$\beta_R$	$\beta_X$
$\emptyset$	-	1	0	0	1	1	$\emptyset$
1	$\emptyset$	1	-	1	$\emptyset$	1	1
1	1	$\emptyset$	1	-	1	$\emptyset$	$\emptyset$

$T_{upc} = 2tp$   
 $T_{opc} = 2tp$   
 $T_{upo} = t_{alu}$   
 $T_{opo} = t_{alu} + t_k$





$\emptyset. R \leftarrow \emptyset, Q \leftarrow \emptyset, 1$   
 1.  $(\text{seguo}(x-y) = \emptyset) \quad R+1 \rightarrow R, (x-y) \rightarrow x, 1.$   
 $(=1) \quad x \rightarrow Q, 2.$

$$\mathcal{C} = T_{a1} + \max \left\{ \begin{array}{l} T_{a1} \\ T_{a1} + T_{a2} \\ \vdots \\ T_{a1} + \dots + T_{a_n} \end{array} \right\} + \delta$$

Max (T\_{a\_j} di ogni o delle p-istruzioni)  
 ↑ max (T\_{a\_j} di ogni o delle p-istruzioni)

maggiore o uguale "se" del valore di  $\mathcal{C}$

0. --- T\_{a1}, T\_{a2}, ..., T\_{a1}, T\_{a2} ⇒ C\_0  
 1. --- T\_{a1}, T\_{a2}, ..., T\_{a1}, T\_{a2} ⇒ C\_1  
 2. --- T\_{a1}, T\_{a2}, ..., T\_{a1}, T\_{a2} ⇒ C\_2  
 ⋮  
 ⇒ C = max