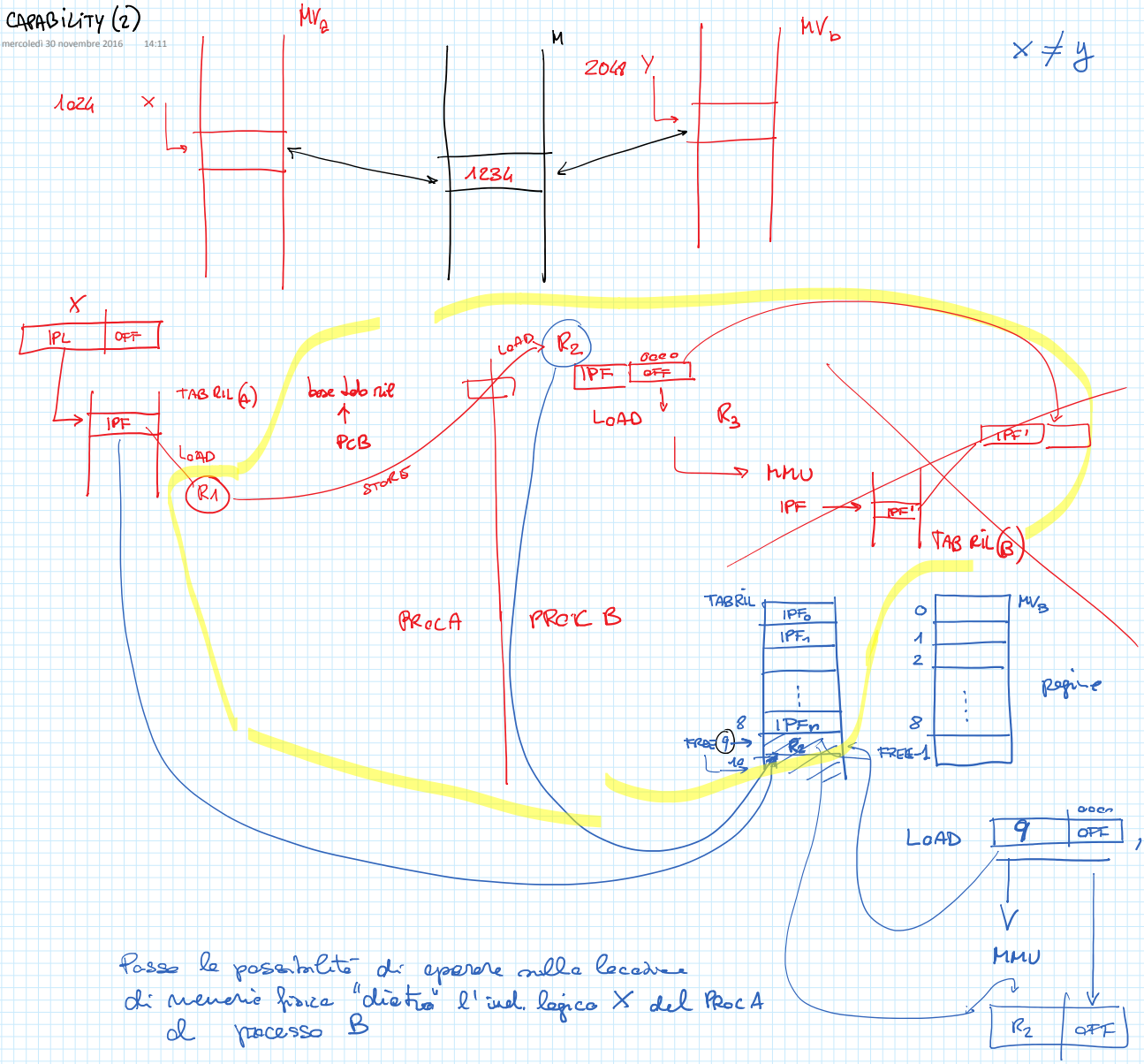
CAPABILITY (2)

mercoledì 30 novembre 2016 14:11



Passa la possibilità di operare sulla locazione di memoria fisica "diretta" l'ind. logico X del Proc A al processo B

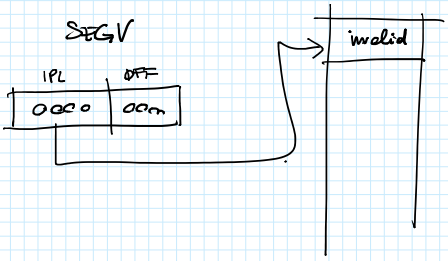
Se Proc B volesse "rilasciare" la possibilità di usare la cella di cui è stato passato il riferimento

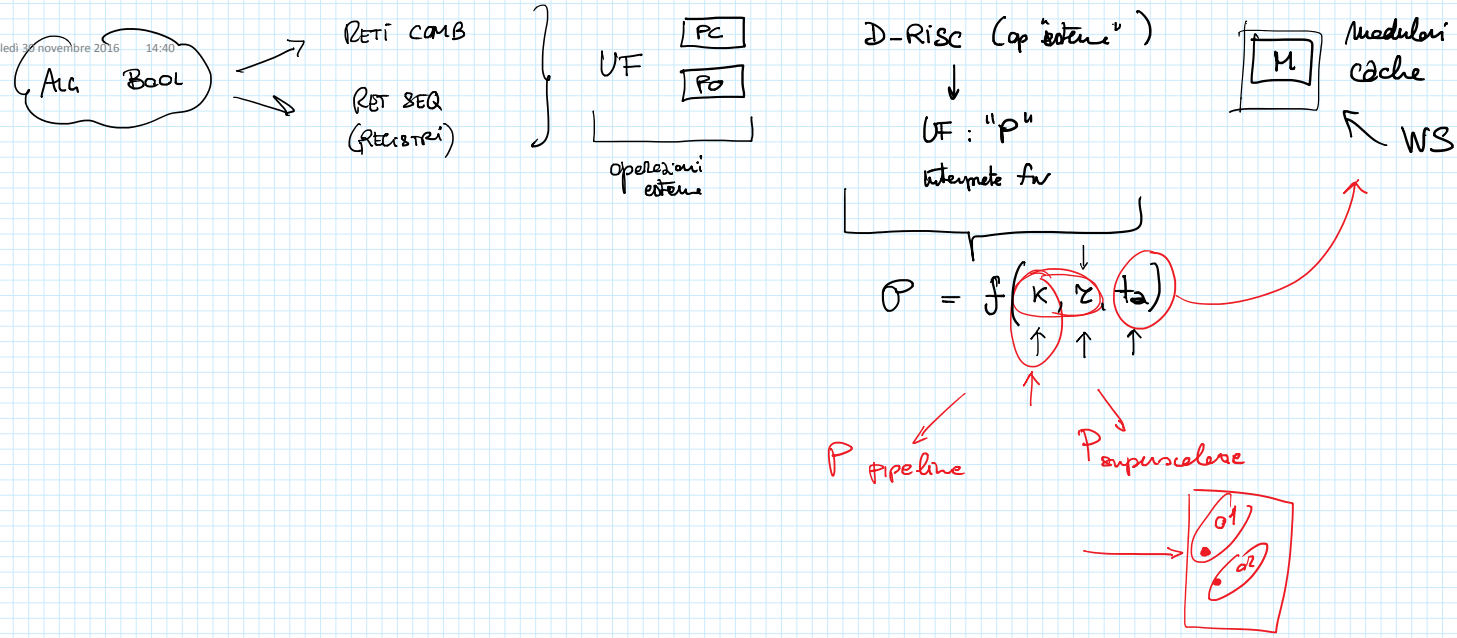
⇒ FREE --

(TAB RIL termina a pag 8)

```
int ** x;
```

f(**x)

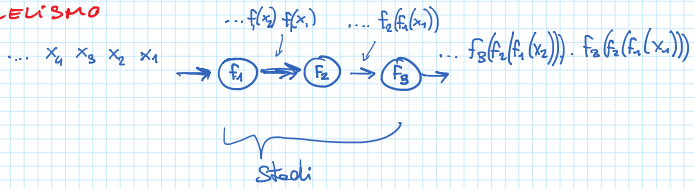



ALG BOOL
RETI COMB
RET SEQ (REGISTRI)
UF
PC
PO
operazioni esterne
D-RISC (op "esterne")
UF : "P"
interprete fw
P = f(K, Σ, t2)
P pipeline
P superscalare
M
moduli cache
WS
01
02

FORME di PARALLELISMO

mercoledì 30 novembre 2016 14:51

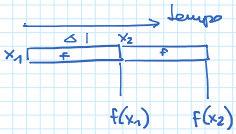
PIPELINE



Latenza (L) tempo per completare un calcolo da quando inizio a quando finisco

$\forall$ stadi i avrà una latenza L_i

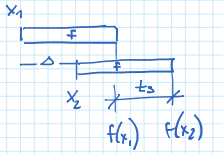
Tempo di servizio (T_S) tempo che intercorre fra l'inizio di due risultati successivi



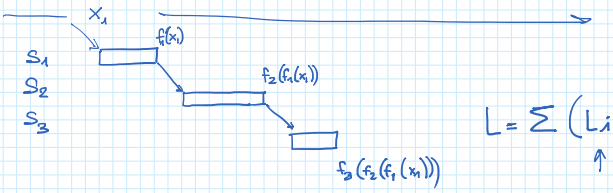
stadio seq $T_S = L$

$$L_{pipe} = \sum_{i=1}^{n\,stadi} L_i$$

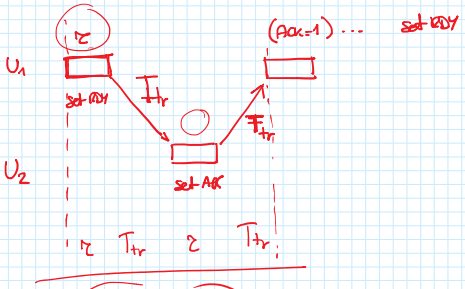
L_i è la latenza del singolo stadio



$t_2 \neq L$



$$L = \sum (L_i + t_{comun})$$

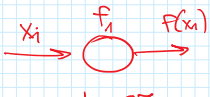


f_1

Ø. (RDY=0) wait, Ø
(RDY=1) 1

1. 2

2. (ACK=0) wait, 2
(=1) .... set RDY, Ø

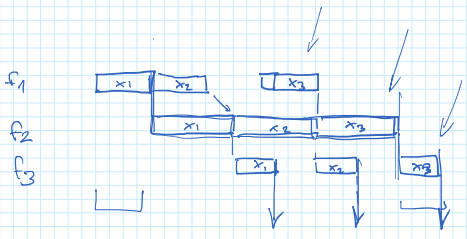


$t_{comun} = 2(\tau + T_{tr})$

sse $T_{tr} = \emptyset$

se $L_i \geq 2\tau$

$\Rightarrow t_{comun} = ! \emptyset$



$$T_S = \max\{T_{S_i}\}$$

T_C tempo di completamento $\approx$ Latenza

fra l'arrivo di x_1 e la produzione di $f_3(f_2(f_1(x_m)))$

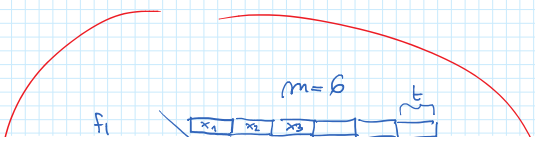
↑ ultimo task da calcolare

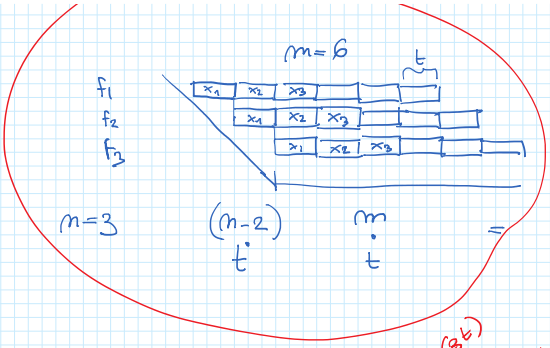
PIPELINE

$T_C \approx m \cdot T_S$

$(m \gg n$

↑ numero degli stadi)





$= t((n-2)+m) \approx mt$

$m >> n$

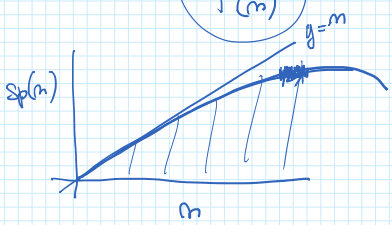
Ideale

n

$T_{seq} = m(s+t) = mt$

$T_{id} = \frac{T_{seq}}{n}$

$Speedup(n) = \frac{T_{seq}}{T(n)}$



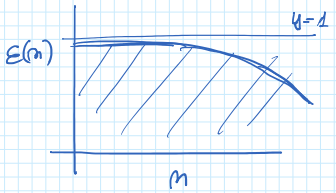
(numero degli stadi)

Efficienza

$E(n) = \frac{T_{id}(n)}{T(n)} = \frac{mt}{(n-2+m)t}$

$m >> n$

$E = 1$

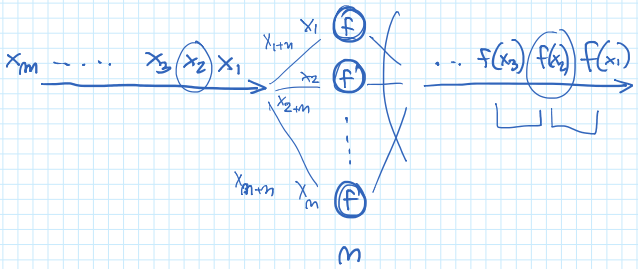


$T_{id} = \frac{T_{seq}}{n}$

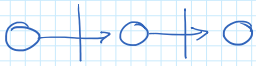
$E(n) = \frac{\frac{T_{seq}}{n}}{T(n)} = \frac{T_{seq}}{n\,T(n)} = \frac{speedup(n)}{n}$

FARM (replicazione funzionale)

mercoledì 30 novembre 2016 15:57



$L = t_{sched} + t_f + t_{collector}$



$T_S = \max\{t_{sched}, \frac{t_f}{n}, t_{coll}\}$

t_f = latenza del calcolo di f (in sequenza)