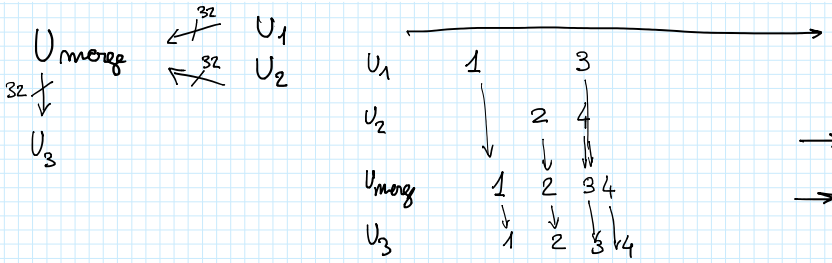
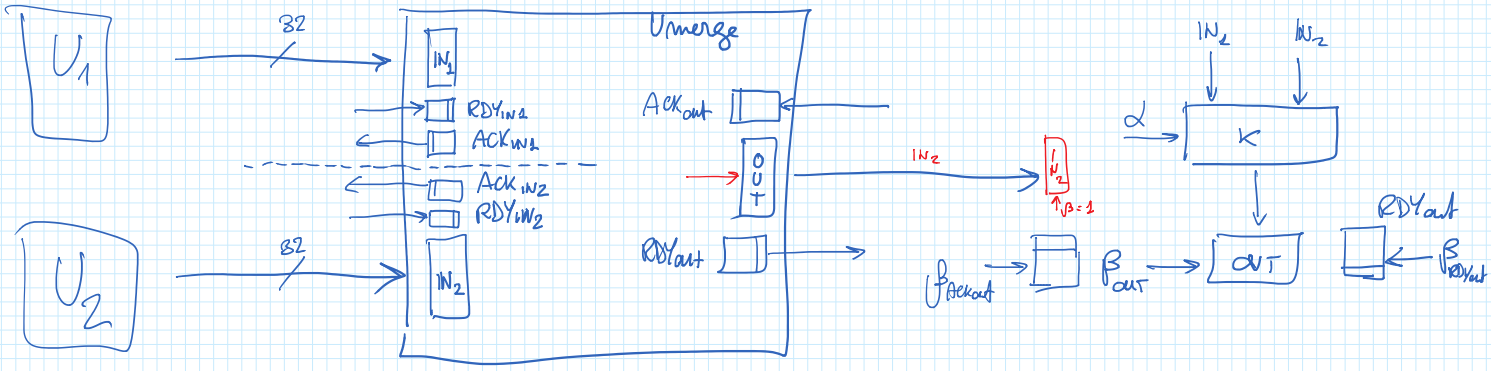




TURNO (1 bit) da quale Unità ho inviato l'ultima volta

TURNO = 0 ⇒ IN_1 → OUT (ultimo op)

= 1 ⇒ IN_2 → OUT

($\beta_i = 0$ ∀i)

∅. $(RDY_{in_1}, RDY_{in_2} = \emptyset\emptyset)$ nop, ∅

$(= \emptyset 1)$ $IN_2 \to OUT$, set RDY_{out}, $1 \to TURNO$, set ACK_{in2}, reset RDY_{in2}, ∅

$(= 1\emptyset)$

$(= 11)$

IN_1 op — interazione con U_3 — fairness — interazione con U_2

leggo $ACK_{out} = 1$

leggo TURNO

∅. $(RDY_{in1}, RDY_{in2}, ACK_{out}, TURNO = \emptyset\emptyset{-}{-})$ nop, ∅

$(= \emptyset 11-)$ ① $IN_2 \to OUT$, set RDY_{out}, reset ACK_{out}, $1 \to TURNO$, set ACK_{in2}, reset RDY_{in2}, ∅

$(= \emptyset 1\emptyset-)$ nop, ∅

$(= 1\emptyset 1-)$ stesso di con indici 1 invece di 2 ② $0 \to TURNO$ con

$(= 1\emptyset\emptyset-)$ nop, ∅

$(= 1110)$ ① reset RDY_{in1} $(= 0100)$

$(= 1111)$ ②

$(= 110-)$ nop, ∅

∅. $(ACK_{out}, RDY_{in1}, RDY_{in2}, TURNO = 0{-}{-}{-})$ nop, ∅

$(100-)$ nop, ∅

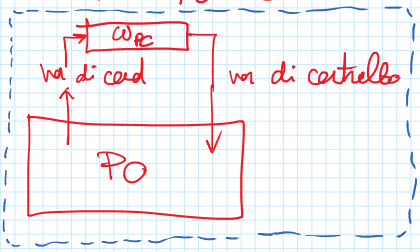
PC: { stato : n° della μ-istruzione corrente (codificato)
ω : ingressi × stato → α, β
δ : ingressi × stato → stato succ }

Se il μ-programma ha un'unica μ-istruzione (con un numero

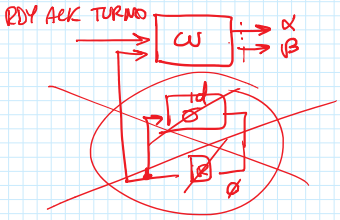
Un'unica μ-istruzione (con un numero qualunque di passi) ⟹

la PC è una rete combinatoria

UF



Unica rete reg PO



R_1	R_2	A_o	T	α_{Kturno}
0	1	1	–	1
1	0	1	–	0
1	1	1	0	1
1	1	1	1	0

8 frasi ⇒ 8 single frasi; tranne le frasi nop

$\alpha_{KTURNO} = \bar{R}_1 R_2 A_o + R_1 R_2 A_o \bar{T}$

0. (RDYin1, RDYin2, ACKout, TURNO = ∅∅– –) nop, ∅

(= ∅11–) IN2 → OUT, set RDYout, reset ACKout, 1 → TURNO, set ACKin2, reset RDYin2, ∅ ①

(= ∅1∅–) nop, ∅

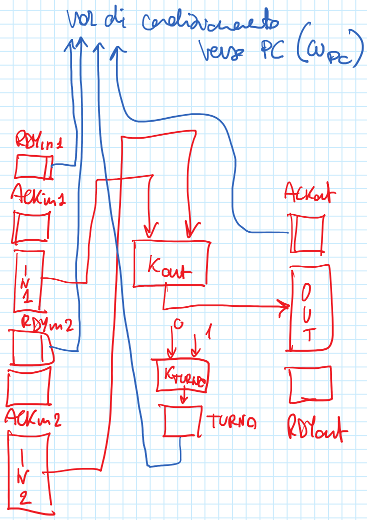
(= 1∅1–) stesso di ... con indici 1 invece di 2 ② con 0 → TURNO

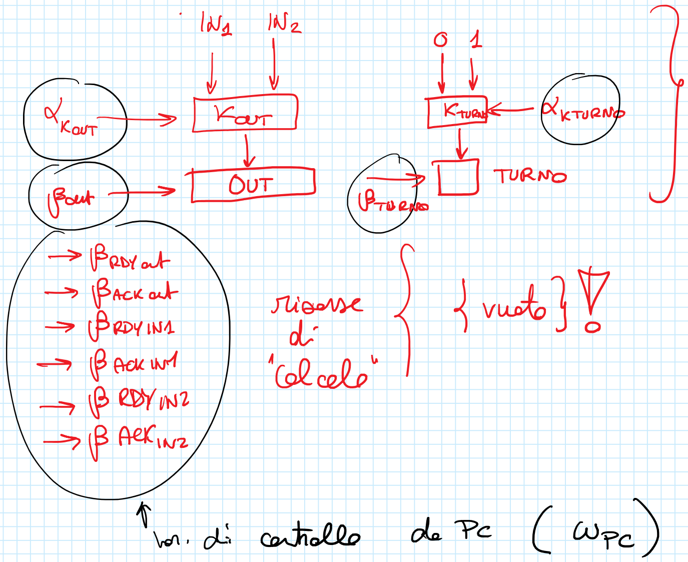
(= 1∅∅–) nop, ∅

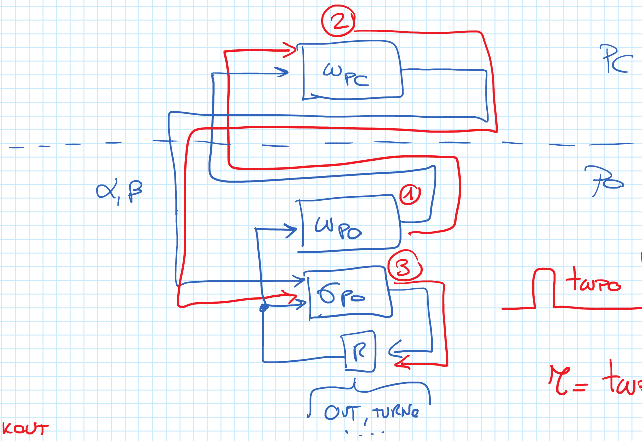
(= 1110) ①

(= 1111) ②

(= 110–) nop, ∅

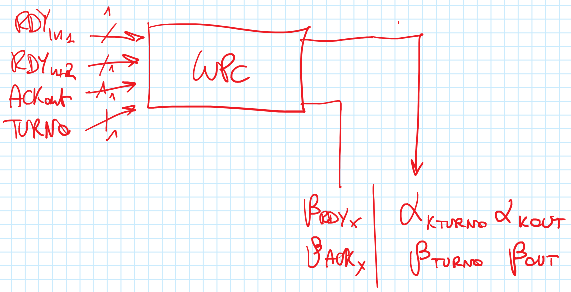






$\tau = t_{\omega PO} + t_{\omega PC} + t_{\sigma PO} + \delta$

~~max~~ { $t_{\omega PC} + t_{\sigma PO}$, ~~$t_{\sigma PC}$~~ }



RDYin1	RDYin2	ACKout	TURNO	αKturno	αKout	βout	βTURNO	βRDYin1	....

0. $(RDY_{in1}, RDY_{in2}, ACK_{out}, TURNO = \emptyset\emptyset--)$ nop, $\emptyset$ ①

$(=\emptyset 11-)$ $IN_2 \to OUT$, set RDY_{out}, reset ACK_{out}, $1 \to TURNO$, set ACK_{in2}, reset RDY_{in2}, $\emptyset$

$(=\emptyset 1\emptyset-)$ nop, $\emptyset$

$(=1\emptyset 1-)$ stesso di con indici 1 invece di 2 ② $0 \to TURNO$ con

$(=1\emptyset\emptyset-)$ nop, $\emptyset$

$(=1110)$ ①

$(=1111)$ ②

$(=110-)$ nop, $\emptyset$

R_1	R_2	A_0	T	β_{OUT}
0	1	1	—	1
1	0	1	—	1
1	1	1	0	1
1	1	1	1	1
1	1	1	—	

$\beta_{OUT} = \bar{R}_1 R_2 A_0 + R_1 \bar{R}_2 A_0 + R_1 R_2 A_0 \bar{T} + R_1 R_2 A_0 T =$

$R_1 R_2 A_0 (\bar{T} + T)$

$(\bar{T} + T) = 1$

$R_1 R_2 A_0$

$\tau = t_{WPB} + t_{WPC} + t_{OPO} + \delta = 5t_p$

$t_{WPB} = \emptyset t_p$

t_{WPC}: 4 var di condizionamento $\Rightarrow$ max 4 ingressi x AND; 8 flussi $\Rightarrow$ max 8 ingressi x OR $\Rightarrow 2t_p$

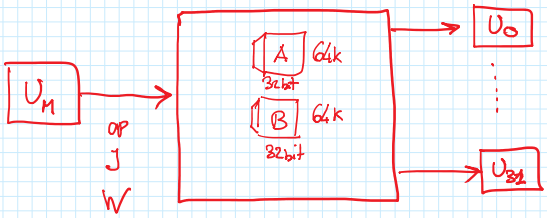
t_{OPO}: $\to t_K = 2t_p$

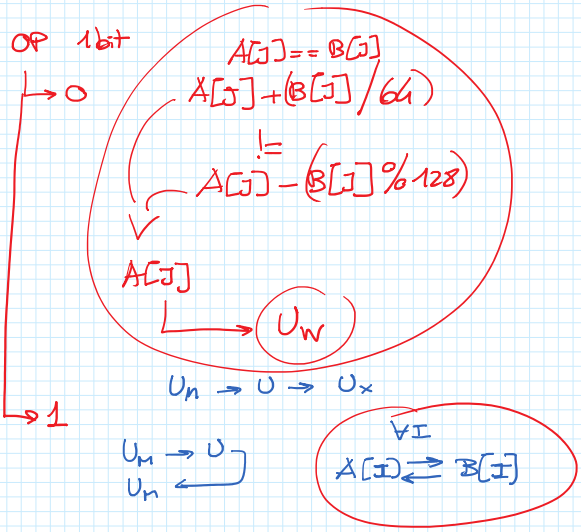
$\delta = t_p$

$T = \tau \cdot \sum_{op-elem} k_i \cdot p_i$

è una sola $p_\emptyset = 1$ $k_0 = ? = 1$

$T = \tau$





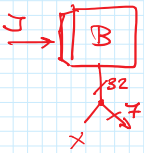
$p(op=0) = p(op=1) = 0.5$

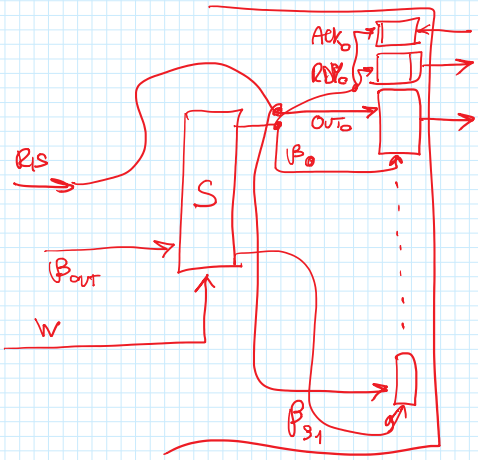
OP=0

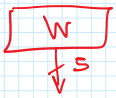
Zero (A[J] - B[J])
Vor di condizionamento

B[J]/64 SHR (6)

B[J] % 128







i. (W = 00000) $ACK_0 = 1$ RIS → OUT_0,
ACK_1
00001

32 passi

i. (W, ACK_0, ACK_1, ... ACK_{31} = $\overline{00000}$ 1 - - - .... -) W
RIS → OUT_0, reset ACK_0, set RDY_0, ..

(= 00001 - 1 - ..... -) RIS → OUT_1 .....
5 32

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