

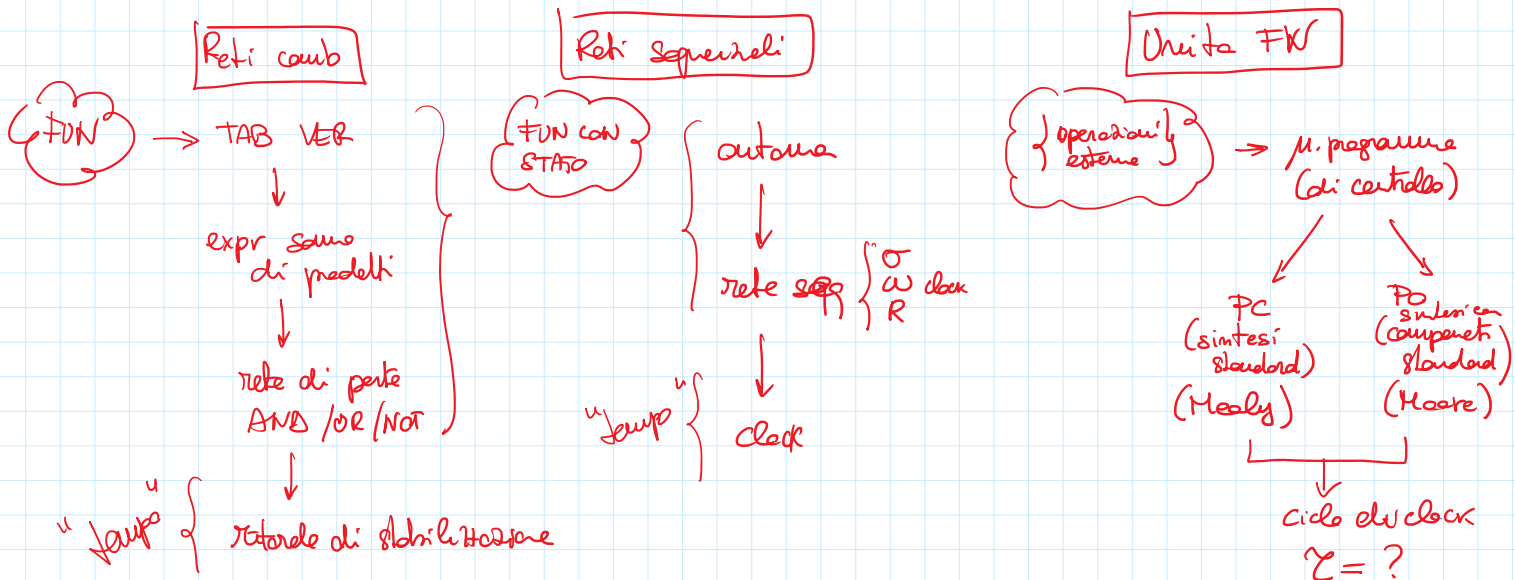
```
while (true) {
}
}
```

Implemento le "operazioni esterne"

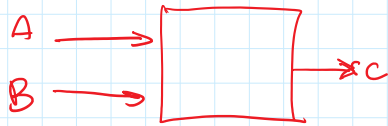
PC & PO : reti sequenziali

Variabili di condizionamento : uscite dello PO  $\equiv$  ingressi dello PC  
 $\rightarrow$  valori su cui lo PC decide come procedere nel programma di controllo

$\alpha, \beta$  : comandi che lo PC manda allo PO come conseguenza delle decisioni del programma di controllo



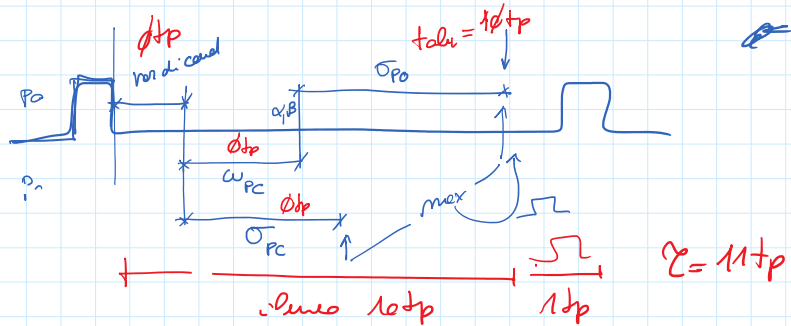
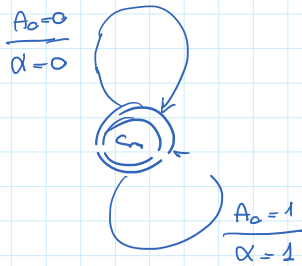
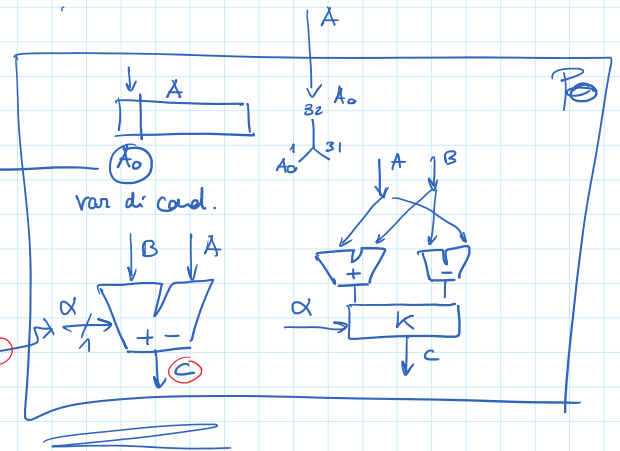
# Esempio di UFM



$$\begin{aligned} A \geq 0 & \quad C = A + B \\ A < 0 & \quad C = -A + B = B - A \end{aligned}$$

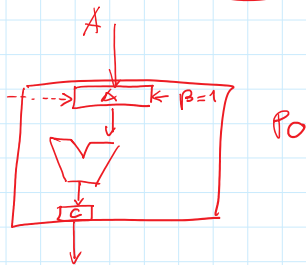
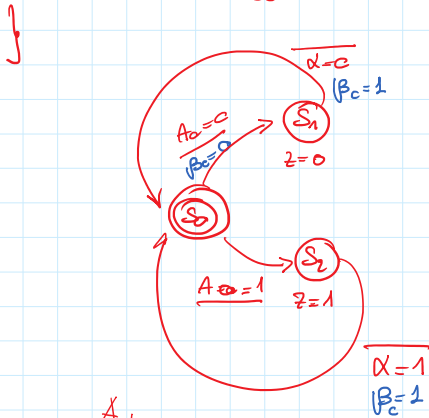
Specifica "a parole" dell'unico op esteso che voglio implementare

```
while (true) {
    if (A >= 0) then C = A + B;
    else C = B - A;
}
```

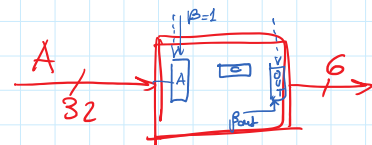


```
while (true) {
```

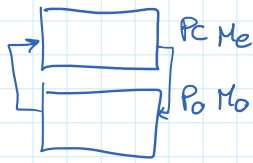
```
    z = A0;
    if (z == 0) then C = B + A
    else C = B - A
```



Unità che riceve parole e ne cerca gli "1" mettendo il risultato in uscita.



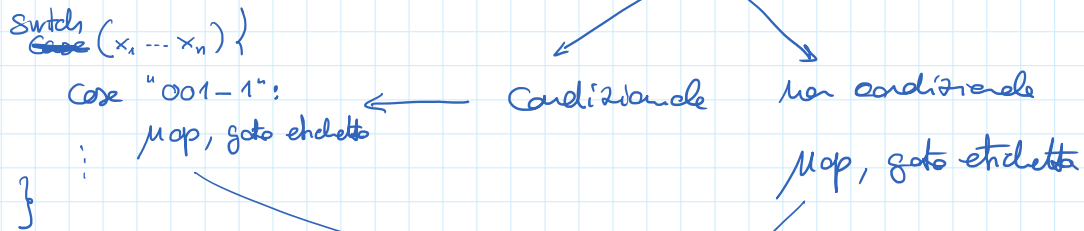
```
c = 0;
for (i = 0; i < 32; i++) {
    if (A0 == 1) { c++; }
    A <<= 1;
}
```



Al. linguaggio a struttura di fase

programma = seq di  $\mu$ -istruzioni

↳ etichette. frase

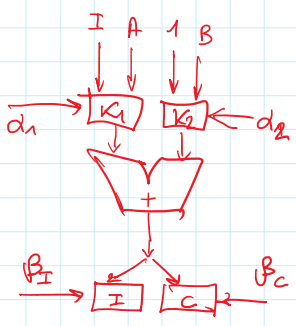
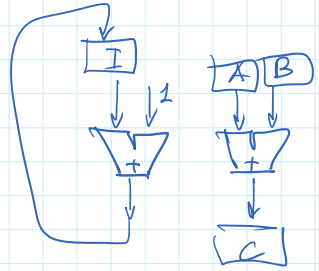


Seq di  $\mu$ -op

op fra registri

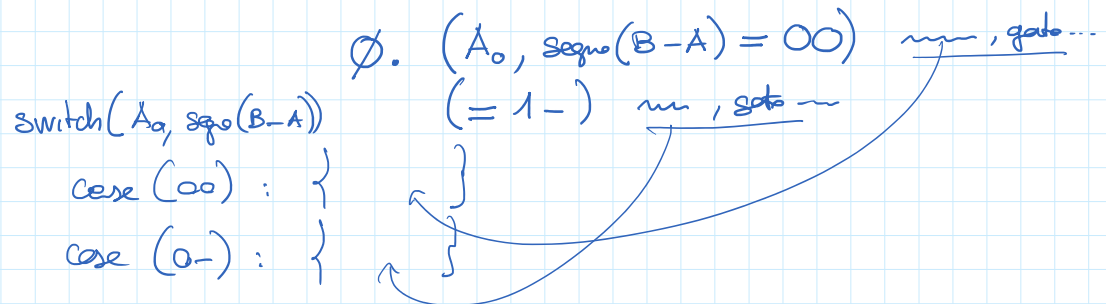
- $A + B \rightarrow C$
- $A \rightarrow B$
- $A \gg 1 \rightarrow A$        $\text{SHR}(A, 1) \rightarrow A$
- $IN \rightarrow M[IND]$
- $M[IND] \rightarrow B$
- $M[IND] + A \rightarrow B$

$I + 1 \rightarrow I, A + B \rightarrow C$   
 esegui \* e subito esegui \*

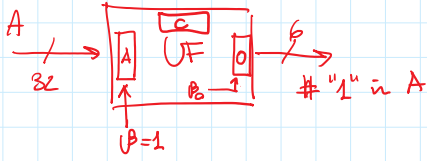


0.  $I + 1 \rightarrow I$ , goto 1      ( $d_1=0, d_2=0, \beta_I=1, \beta_C=0$ )
1.  $A + B \rightarrow C$ , goto 2      ( $d_1=1, d_2=1, \beta_I=0, \beta_C=1$ )

frase condizionale (esempio)



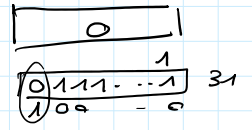
# Esempio



```

while(true)
{
    C = 0;
    for(i=0; i<32; i++)
    {
        IF(A0 == 1) C++;
        A = SHL(A, 1);
    }
    0 = C;
}
    
```

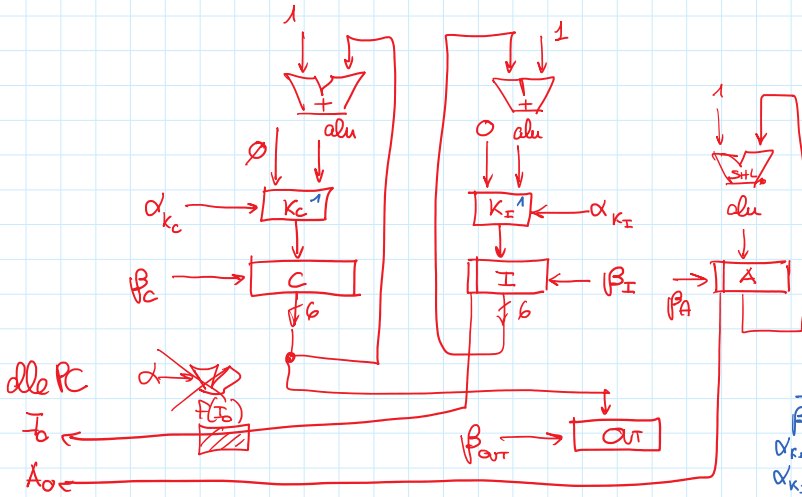
I da 6 bit



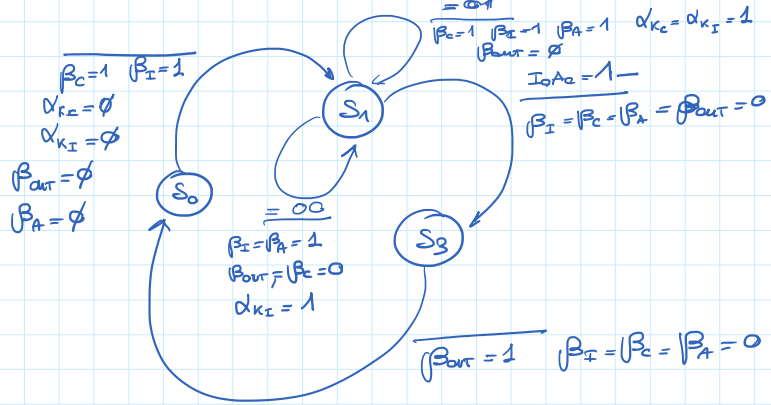
- et id
- 1.  $(I_0, A_0 = 1)$  map, 3  $\beta_C = 0$   
 $(= 01)$   $C+1 \rightarrow C, I+1 \rightarrow I, \beta_C = 1$   
 $SHL(A, 1) \rightarrow A, 1$
  - $(= 00)$   $I+1 \rightarrow I, SHL(A, 1) \rightarrow A, 1$   
 $\beta_C = 0$

3.  $C \rightarrow 0, \phi$   $\beta_C = 0$

(Fwd ottenzese è un reg di upero)  $\beta_C = 1$   $INA \rightarrow A$



alle PC  
 $I_0$   
 $A_0$



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