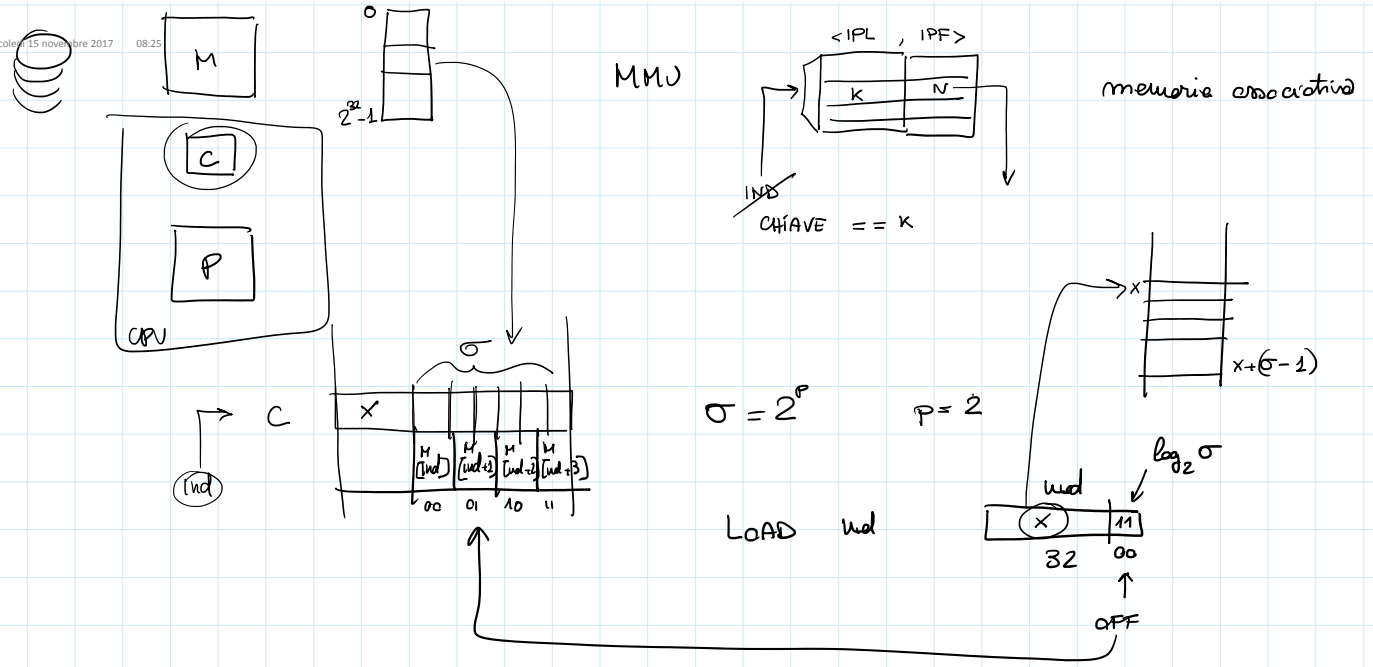
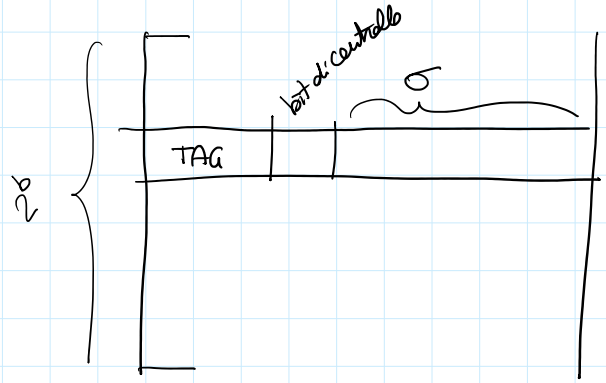


1° modo di indirizzamento della cache : COMPLETAMENTE ASSOCIATIVO



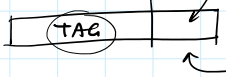
BIT CONTROLLO { Validità 0 no 1 sì

#linee × σ

Capacità $2^b \times 2^p$

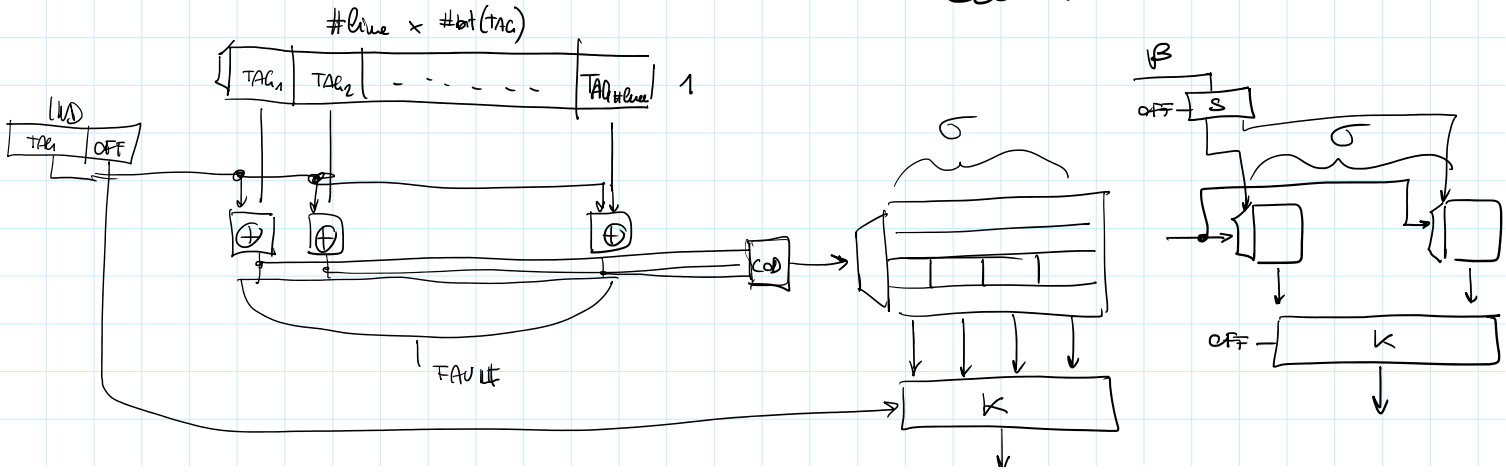
load ↑ ind

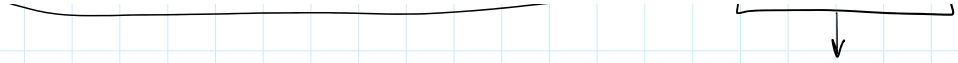
① confronto tutti i tag nella cache con la parte iniziale dell'IND che sto cercando



② se un confronto mi dà TRUE di quella linea di cache prendo la parola indicata dall offset

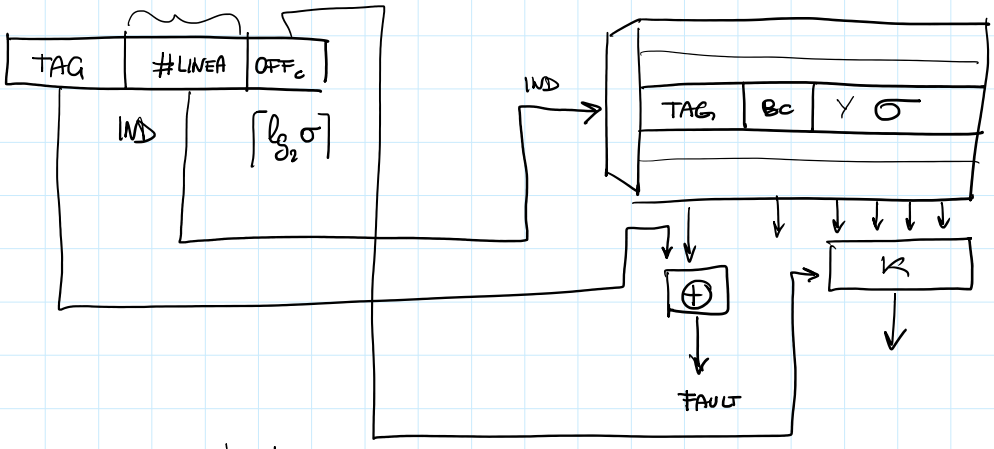
SSE Validità == 1





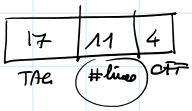
INDIRIZZAMENTO DIRETTO

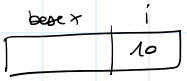
load



$\sigma = 16$

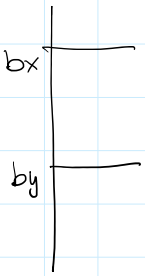
#linee 2K





N = 1K

```
for(        )
   X[i] = f(y[i])
```



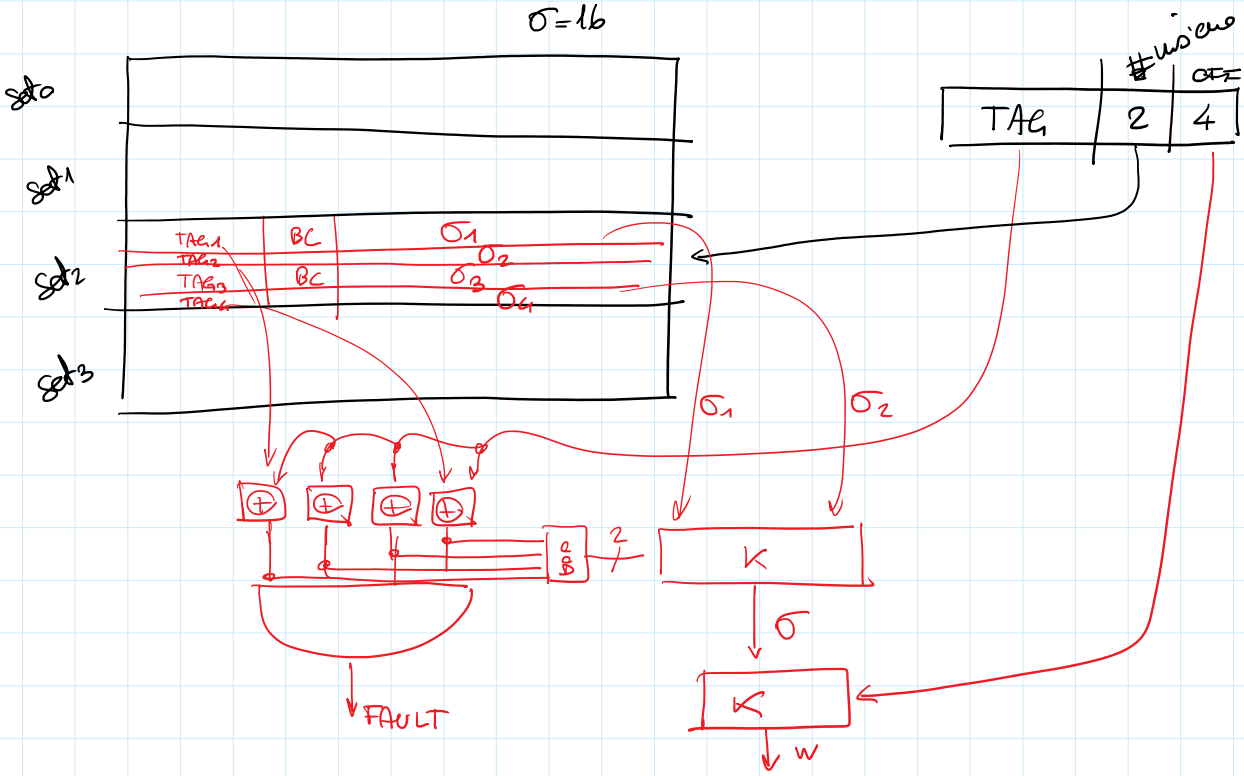
INDIRIZZAMENTO ASSOCIATIVO SU INSIEMI

(4, 8) #vie della cache Assoc. su insieme

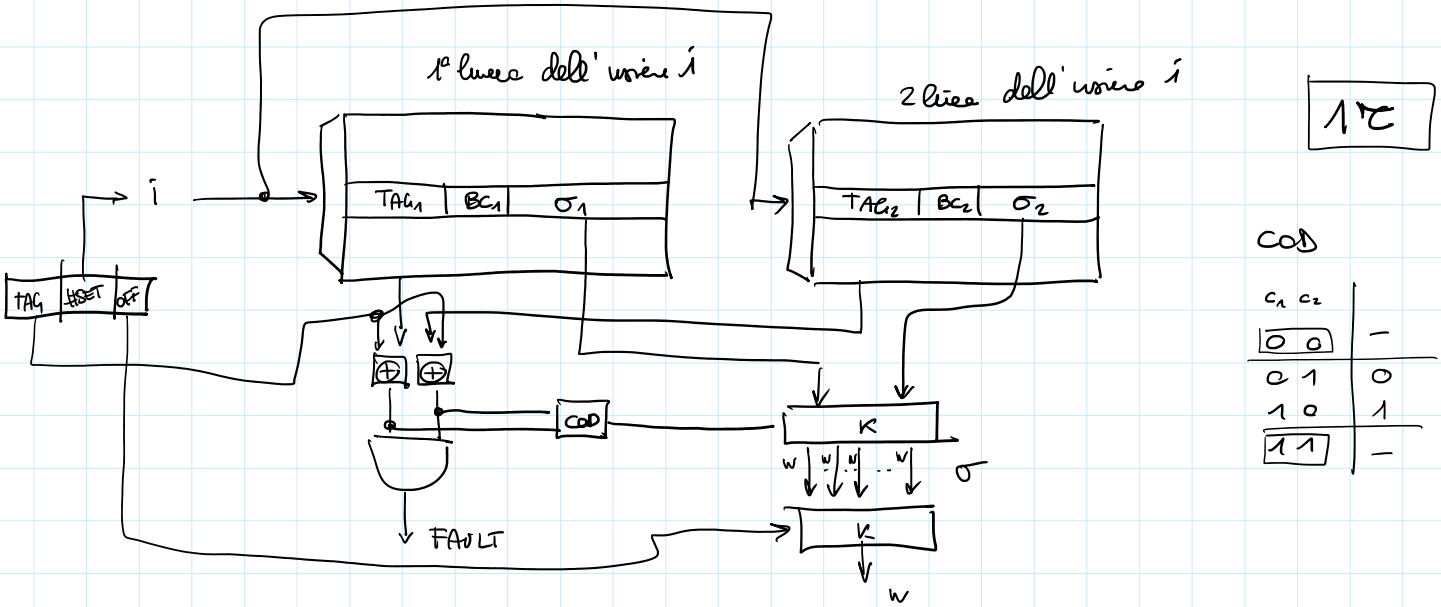
insieme di #linee x insieme linee (identificato in modo DIRETTO)

fra le #linee x insieme linee identificate in modo DIRETTO

ricerca ASSOCIATIVA



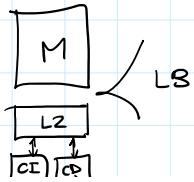
set associativa a 2 vie (2 linee x insieme) σ = 4

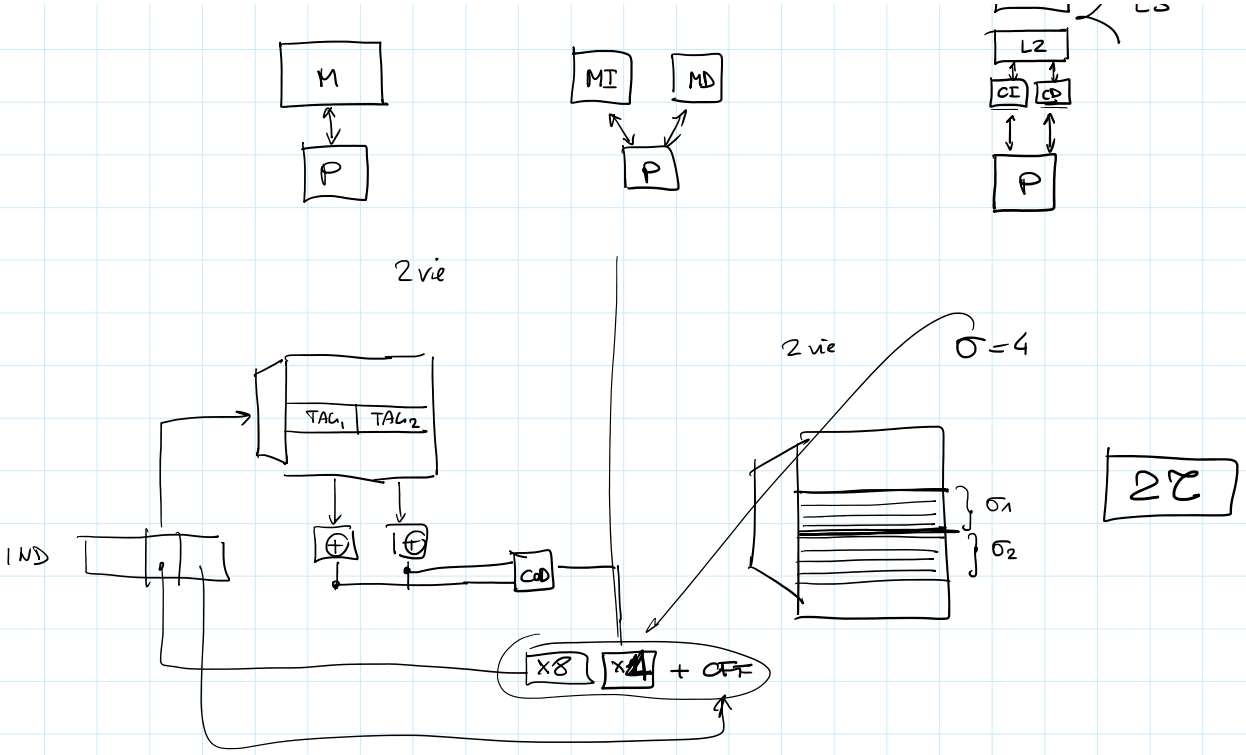


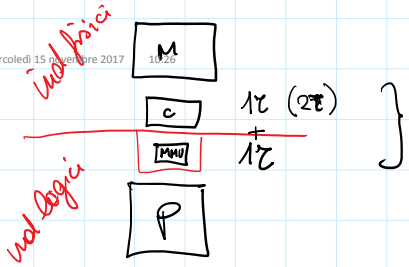
1 C

COD

c_1	c_2	
0	0	–
0	1	0
1	0	1
1	1	–

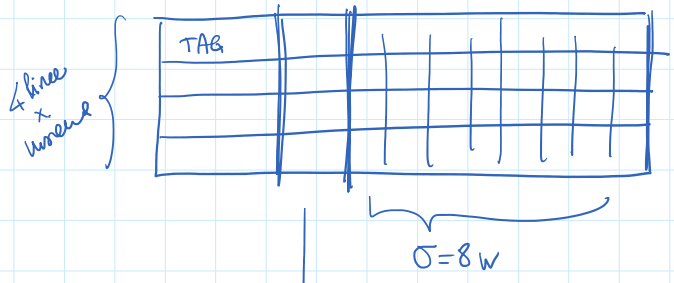


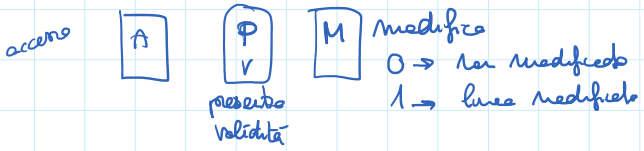

M
P
MI
MD
P
L2
CI
CD
P
2 vie
2 vie
σ=4
TAG1
TAG2
IND
CMD
σ1
σ2
2C
x8
x4
+ OFF



$t_a = 2^{(3)} \tau$

cache set associative





1 → TAG è significativo e la σ punta a zero nella parte finale della linea

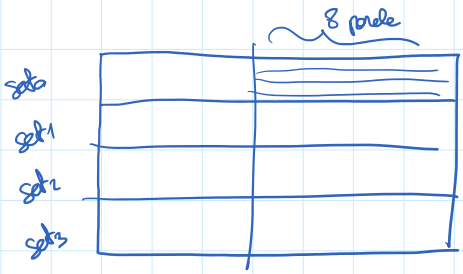
0 → la linea è vuota

periodicamente → tutti i bit di accesso = Ø

∀ accesso alla linea i della cache $A_i = 1$

Se ho bisogno di una linea "libera" scelgo linea col bit a Ø

Set assoc a 4 vie con $O = 8$ $\#set = 4$



27	2	3
TAG	#set	OFF

$N = 1024$

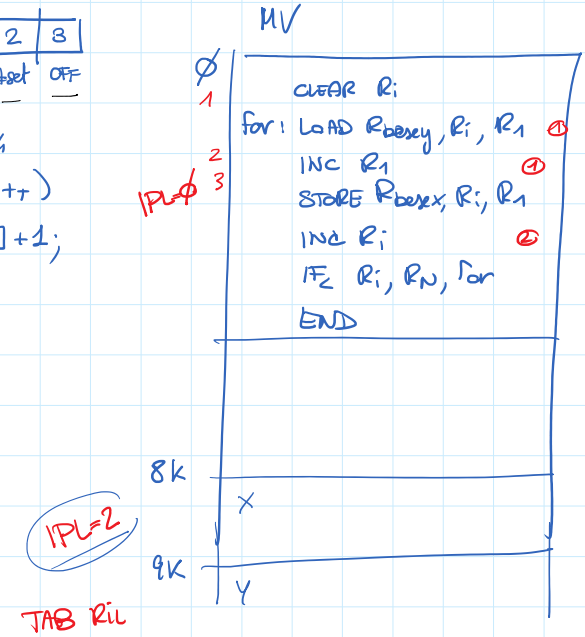
```
for(i=0; i<N; i++)
    X[i] = y[i] + 1;
```

MV

```
0   CLEAR Ri
1   for: LOAD Rbasey, Ri, R1   (1)
2        INC R1                (1)
3        STORE Rbasex, Ri, R1
         INC Ri                (2)
         IF< Ri, RN, for
         END
```

IPL = 0

		prima della MMU	dopo MMU	
FETCH LOAD	IND (CLEAR)	0	1K + 0	(1)
FETCH	IND (LOAD ①)	1	1K + 1	(2)
LOAD	IND (Rbasey + Ri)	8K	2K	(3)
FETCH	IND (INC ①)	2	1K + 2	(4)
FETCH	IND (STORE)	3	1K + 3	(5)
STORE	IND (Rbasex + Ri)	9K	8K + 1K	(6)
		4	1K + 4	(7)
		5	1K + 5	(8)
		1	1K + 1	(9)
		8K + 1		
		2		
		3		
		9K + 1		

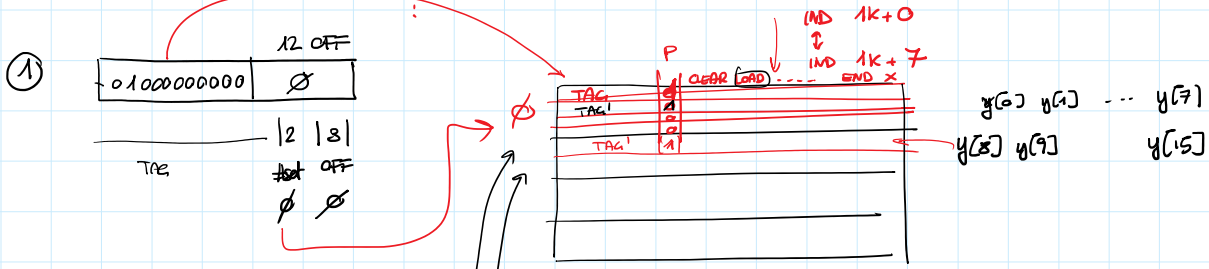


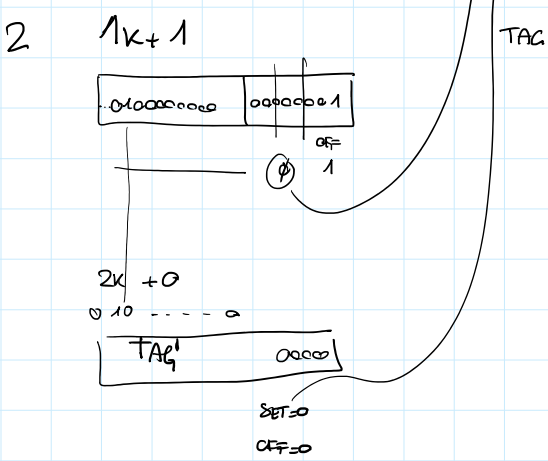
IPL = 2

TAB RIL

0	1024	1
1	2048	
2	8192	1

pagine = 4K



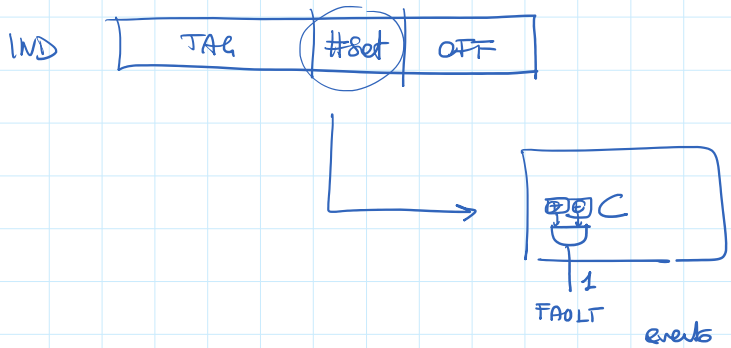


2K + 8

TAG'	01	000

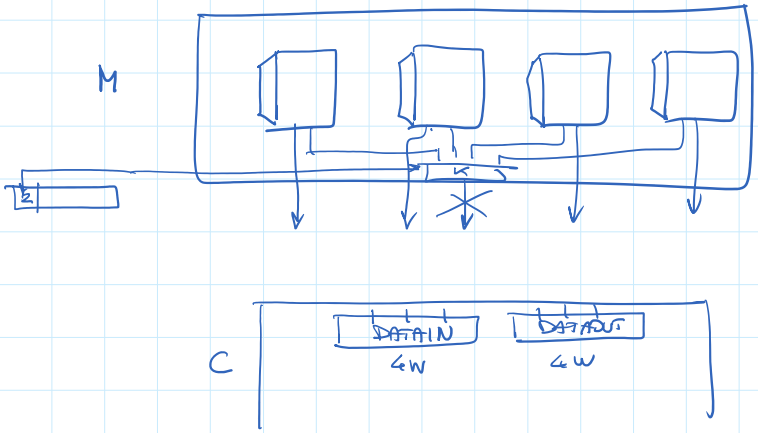
↳ #set 1

FAULT



evento inviato dalla UF "CACHE" ?

1) Selezionare una linea di cache "vittima"
   #linea 3 nella #set 1
2) se M==1 ⇒ scritto in M
   ordinare un burst di σ parole
   all'interfaccia di C verso M
3) ordinare la lettura di σ parole
   da M in #linea 3 di #set 1



$\frac{\sigma}{m}\ T_m$ + comm.