

Problemas Sesión 8

3.13

(a) L1 ^{32B} L2

$$T_c = \frac{1}{f} = \frac{1}{2 \cdot 10^9} = 5 \cdot 10^{-10} \text{ s}$$

$T_a = 1 \text{ c}$

100% w/ L2

$$T_{exe} = N \cdot cpi \cdot T_c = \# \text{ ciclos} \cdot T_c \rightarrow \# \text{ ciclos} = \frac{T_{exe}}{T_c} = 4 \cdot 10^9 \text{ ciclos}$$

$f = 2 \text{ GHz}$

$T_{exe} = 2 \text{ s}$

100% hits

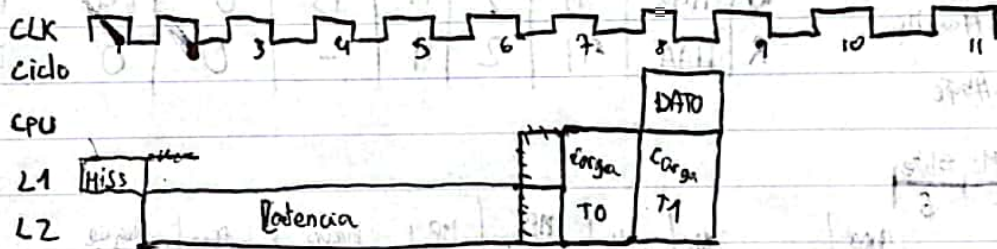
10% access

20% fill L1

(b)

$$\# \text{ ciclos}_{pen} = 5 \text{ Latencia} + 4 \text{ cto} + 1 \text{ c}_{L1} = 10 \text{ ciclos}$$

(c)



(d)

$$\# \text{ ciclos}_{pen} = 5 + 0,7 \cdot 1 + 0,1 \cdot 2 + 0,1 \cdot 3 + 0,1 \cdot 4 = 6,6 \text{ ciclos}$$

70% to
100% to

$$T_{exe} = T_c \cdot \# \text{ ciclos} = 5 \cdot 10^{-10} \cdot (4 \cdot 10^9 + 6,6 \cdot 10^9) = 2,76 \text{ s}$$

$$\begin{aligned} T_0 &\rightarrow 0,2 \cdot 0,7 \cdot 7 \\ T_1 &\rightarrow 0,2 \cdot 0,1 \cdot 8 \\ T_2 &\rightarrow 0,2 \cdot 0,1 \cdot 9 \\ T_3 &\rightarrow 0,2 \cdot 0,1 \cdot 10 \end{aligned}$$

(e)



(f)

$$\# \text{ ciclos}_{pen} = 5 + 1 = 6 \text{ ciclos}$$

$$T_{exe} = \# \text{ ciclos} \cdot T_c = 5 \cdot 10^{-10} \cdot (4 \cdot 10^9 + 6 \cdot 10^9) = 2,6 \text{ s}$$

9

ganancia = $\frac{3}{2,76} = 1,0869$ continuación anticipada

ganancia = $\frac{3}{2,6} = 1,15384$ transferencia en desorden

3.14

16 bits CPU

16 bits

CACHE

3-assoc

LRU

12 bloques

64 B/bloque

Cb+wa

tipo	hex	TAG	pie	H/M	Bus remp.	MP Bytes W	MP Bytes R
R	B12B	B1	0	M	AC	0	64
R	B145	B1	1	M	AC	0	64
R	B1AF	B1	2	M	AC	64	64
R	B1C4	B1	3	M	AC	64	64
W	4387	43	2	H	-	0	0
R	1108	11	0	M	43	64	64
W	1199	11	2	M	13	0	64
R	11AA	11	2	H	-	0	0

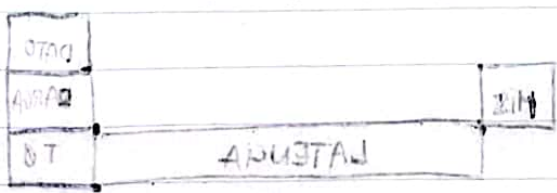
$\frac{12b}{30000} = 4 \times 10^{-6}$ 2 Hanz MC

6 bytes #byte
2 bytes x bloque

TAG	#Hanz MC	#byte
8	2	6

6

tipo	@	bloques	TAG	#Hanz	MC H/M	MP #B W	MP #B R	bloques actual buffer	buffer H/M	Hay un problema bu Pfor
R	B12B	2C4	B1	0	M	0	128	-	M	
R	B145	2C5	B1	1	M	0	64	2C5	H	
R	B1AF	2C6	B1	2	M	64	64	2C6	H	
R	B1C4	2C7	B1	3	M	64	64	2C7	H	
W	4387	10E	43	2	H	0	0	2C8	2	2. NO HAY 2.
R	1108	044	11	0	M	64	128	2C8	F	
W	1199	046	11	2	M	0	128	045	F	
R	11AA	046	11	2	H	0	0	047	?	3.



$2.5 / (2.5 \times 10^{-6} + 10^{-6}) = 1000$

$1000 = 2 + 1 = 1002$