

17

a)

ciclo	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Com	ACT				RD											PRE			
@	@F				@C														
Data	LAT	LAT	LAT	LAT	LAT	LAT	LAT	LAT	D0	D1	D2	D3	D4	D5	D6	D7	LAT	LAT	

b)

$$T_{\text{ciclo}} = 1/(200 \cdot 10^6) = 5\text{ns} \Rightarrow T_{\text{ciclos}} \cdot n^{\circ}\text{ciclos} = 85\text{ns}$$

c)

$$\text{AnchoDeBanda}_{\text{teorico}} = \text{BytesTransferidos}/(T_{\text{ciclo}} \cdot n^{\circ}\text{ciclos}_{\text{teoricos}}) = 64/(5 \cdot 8) = 1,6 \text{ GB/s}$$

d)

$$\text{AnchoDeBanda}_{\text{real}} = \text{BytesTransferidos}/(T_{\text{ciclo}} \cdot n^{\circ}\text{ciclos}_{\text{real}}) = 64/(5 \cdot 17) = 752,93 \text{ MB/s}$$

e)

$$1,5 \cdot 10^{-3}(((7+2) \cdot 300 + 8 \cdot 800 + 8 \cdot 200)/25) = 0,642 \text{ W}$$

$$\Rightarrow E = P \cdot \text{tiempo} = 0,642 \cdot (5 \cdot 10^{-9} \cdot 100) = 3,21 \cdot 10^{-7} \text{ J}$$

f)

ciclo	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Com	ACT				RD							PRE							
@	@F				@C														
Data	LAT	LAT	LAT	LAT	LAT	LAT	LAT	LAT	D0/1	D2/3	D4/5	D6/7	LAT	LAT					

8.

a)

$$T_{\text{exec}} = 10 \cdot 5 \cdot 10^9 \cdot 1,8 = 90\text{s}$$

b)

$$5 \cdot 10^9 \text{ accesos}$$

c)

$$T_{\text{fallada}} = 13 \text{ cicles}$$

d)

$$T_{\text{ma}} = 1 + 0,1 \cdot 13 = 23 \text{ ns}$$

e)

$$\text{CPI} = \text{CPI}_{\text{ideal}} + \text{CPI}_{\text{mem}} = 1,8 + 1 \cdot 0,1 \cdot 13 \cdot 1,1 \text{ c/i}$$

f)

$$T_{\text{exec}} = N \cdot \text{CPI} \cdot T_c = 155\text{s}$$

g)

$$P(\text{fallada 1 y no falla 2}) = 0,1 \cdot 0,7 = 7\%$$

h)

$$P(\text{fallada 1 y falla 2}) = 0,1 \cdot 0,3 = 3\%$$

i)

$$5 \text{ ciclos}$$

j)

$$15 \text{ ciclos (del 2 al 16)}$$