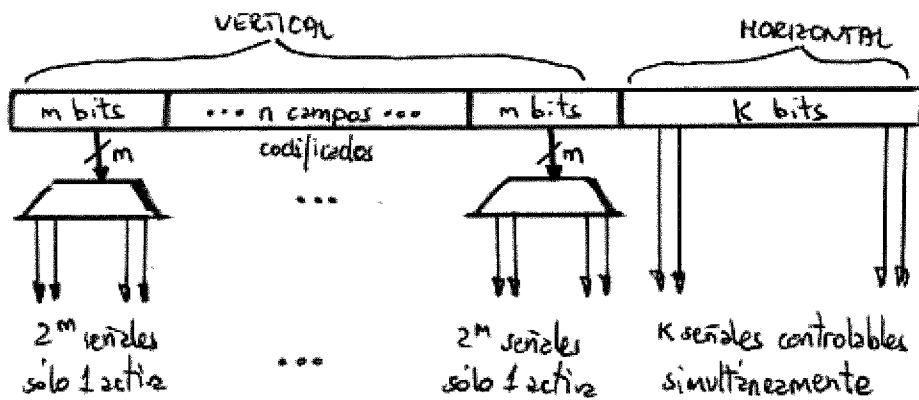


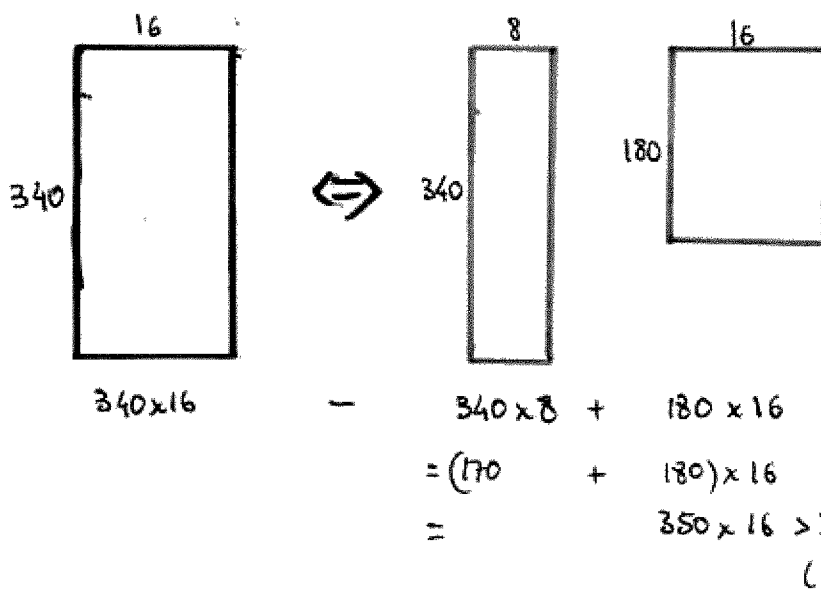
3-



TOTAL SEÑALES CONTROL EN UNIDAD PROCESAMIENTO:  $n \cdot 2^m + K$

MAXIMO DE SEÑALES CONTROLABLES SIMULTANEAMENTE:  $n + K$

4-



$$\lceil \log_2 180 \rceil = 8 \quad \begin{cases} 2^7 = 128 \\ 2^8 = 256 \end{cases}$$

GASTA  
160 bits  
MAS

5-

$$2^{13} = 2^3 \cdot 2^{10} = 8K \quad \begin{cases} M \text{ de Memoria} \\ 210 \times 4 \text{ de E/S} \\ \text{(afin)} \end{cases}$$

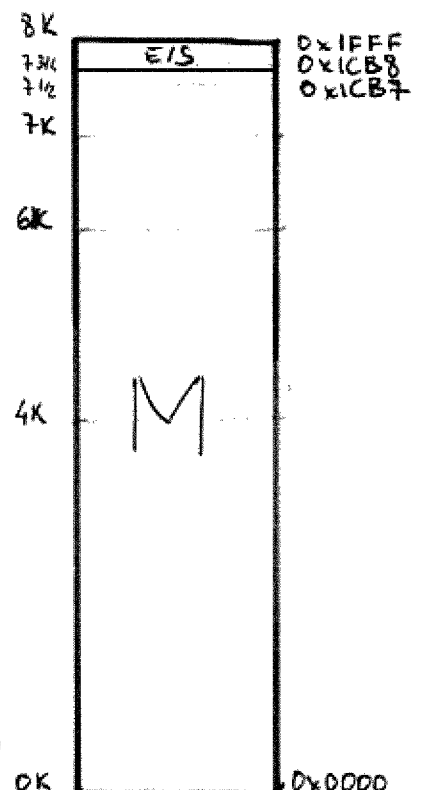
SUPONER: 210 = n° EXACTO (no MAXIMO)  
PREGUNTA M MAXIMO (no EXACTO)

$$210 \text{ perif} \times 4 \frac{\text{puertos}}{\text{perif}} = 840 \quad \begin{array}{r} 16 \\ 40 \quad 52 \quad 116 \\ 8 \quad 4 \quad 3 \end{array} = 0x348$$

$$8K = 2^{13} = 10\,000\,000\,000_2 = \begin{array}{r} 0x2000 \\ - 0x348 \\ \hline 1CB8 \end{array}$$

E/S ocupz	0x1CB8 ... 0x155F	(840 palabras)
M máxima	0x0000 ... 0x1CB7	= 0x1CB8 palabras
		= 7352 palabras
		= 8K - 840 palabras

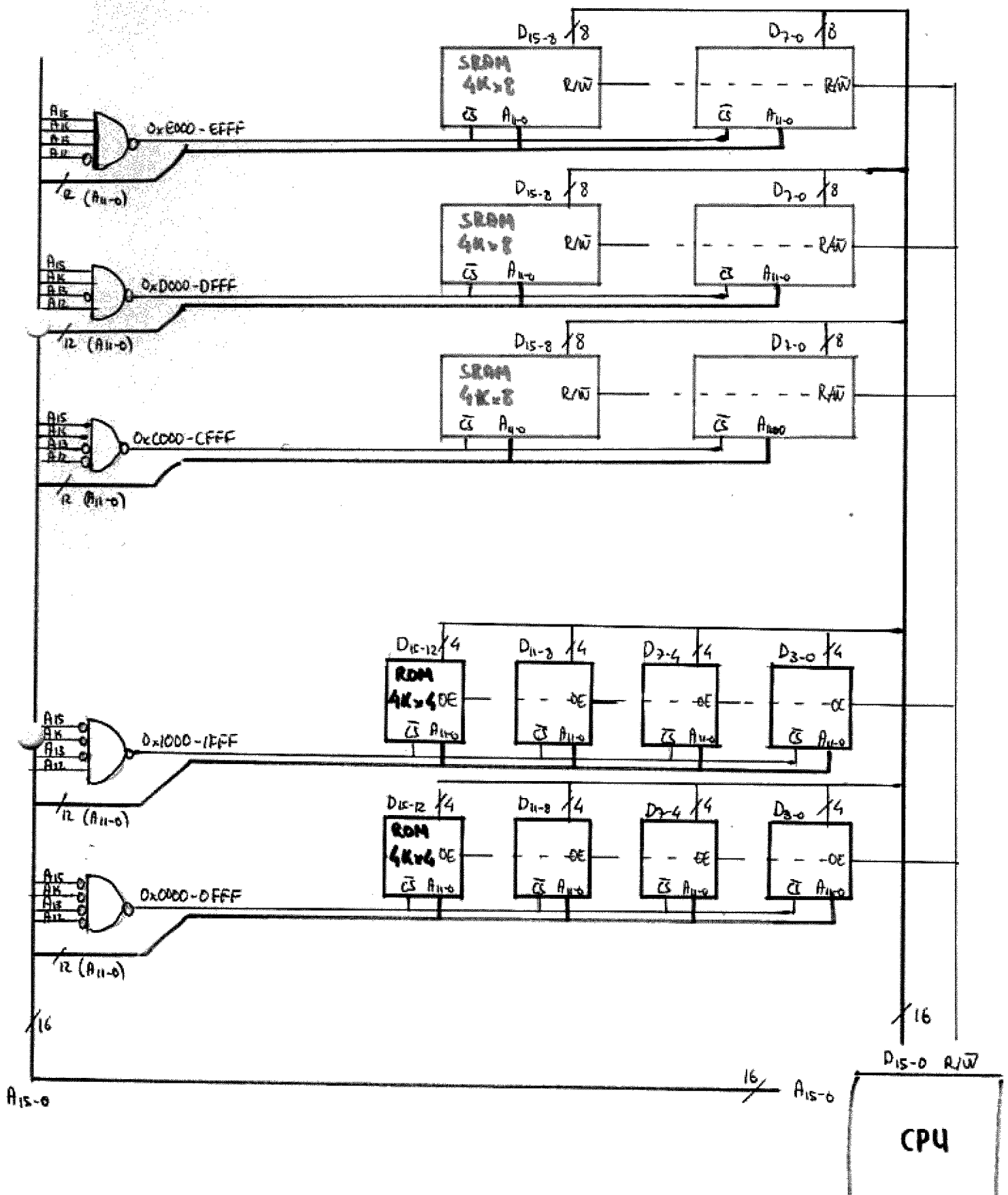
$$\left( \frac{8K = 1024}{8} \right) \left( \frac{8192}{7352} \right)$$



6-

ROM  $0 \times 0000 - 0 \times 1FFF = 2^{13} = 8K \text{ palabras} = 8K \times 16$  MODULOS  $4K \times 4$   
 $\times (2 \times 4) \text{ 8 MODULOS}$

SRAM  $0 \times C000 - 0 \times EFFF = 3 \times 2^{12} = 12K \text{ pzl} = 12K \times 16$  MODULOS  $4K \times 8$   
 $\times (3 \times 2) \text{ 6 MODULOS}$



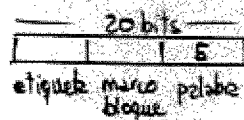
7-

$$\text{Mem} = M = 2^{20}$$

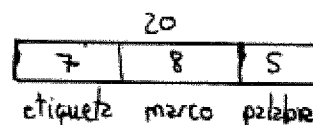
$$\text{Cache} = 8K = 2^3 2^{10} = 2^{13}$$

$$\text{Bloque} = 32 = 2^5$$

a) DIRECTA

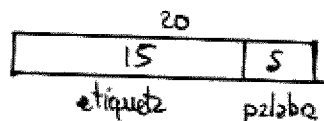
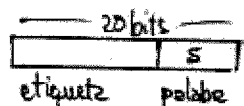
CUANTOS BLOQUES  
HAY EN CACHE?

$$\frac{2^{13} \text{ pal/cache}}{2^5 \text{ pal/bloque}} = 2^8 \frac{\text{bloques}}{\text{cache}}$$



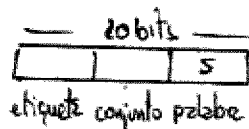
$$7 = 20 - (8 + 5)$$

b) ASOCIATIVA

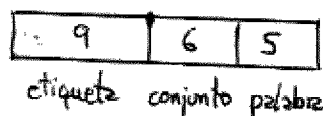


$$15 = 20 - 5$$

c) ASOCIATIVA CONJUNTOS

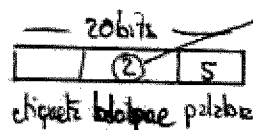
CUANTOS CONJUNTOS  
HAY EN CACHE?

$$\frac{2^8 \text{ bloques/cache}}{4 \text{ bloques/conjunto}} = 2^6 \frac{\text{conj}}{\text{cache}}$$

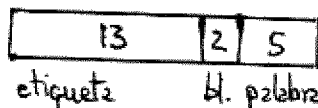


$$9 = 20 - (6 + 5)$$

d) SECTORES 4 bl.



$$\frac{4 \text{ bloques/sector}}{2^2 \text{ bloques/sector}} = 2^2 \frac{\text{bloques}}{\text{sector}}$$



$$13 = 20 - (2 + 5)$$