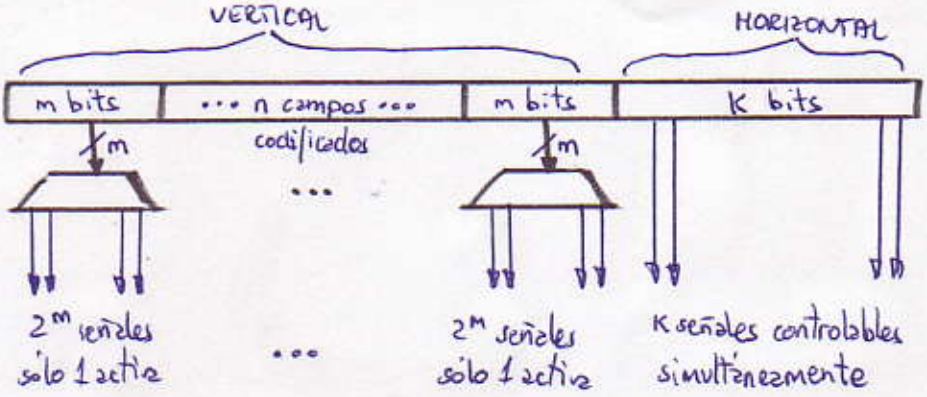
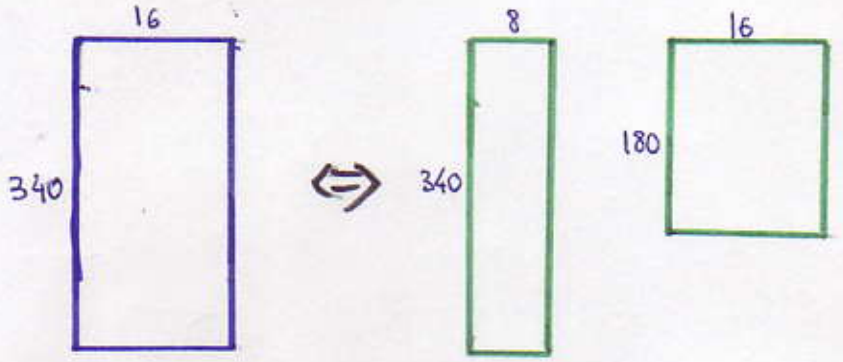
3.-



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

MÁXIMO DE SEÑALES CONTROLABLES SIMULTÁNEAMENTE: $\boxed{n + K}$

4.-



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

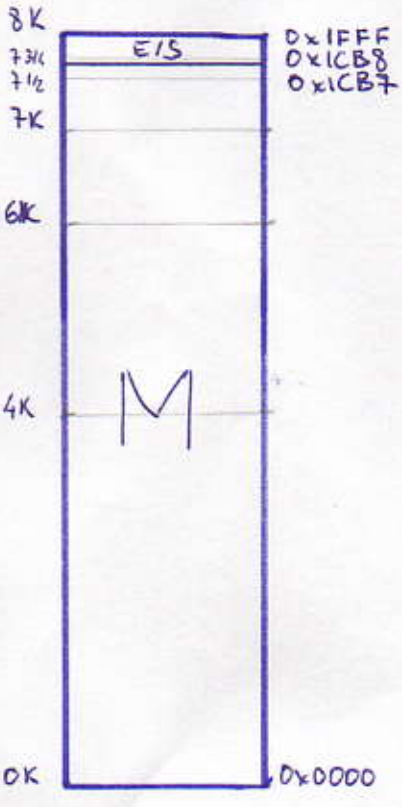
$340 \times 16 \quad - \quad 340 \times 8 + 180 \times 16$

$= (170 + 180) \times 16$

$= 350 \times 16 > 340 \times 16$ (10 x 16 más)

GASTA 160 bits MÁS

5.-



$2^{13} = 2^3 2^{10} = 8K \rightarrow$ M de Memoria; 210 x 4 de E/S (ref final)

SUPONER: 210 = nº EXACTO (no MÁXIMO)

PREGUNTA M MÁXIMO (no EXACTO)

$210 \text{ perif} \times 4 \frac{\text{puertos}}{\text{perif}} = 840$

840 | 16
40 52 | 16
8 4 3 = 0x348

$8K = 2^{13} = 10\,0000\,0000\,0000)_2 =$ 0x2000 − 0x348 = 1CB8

E/S ocupa 0x1CB8 ... 0x1FFF (840 palabras)

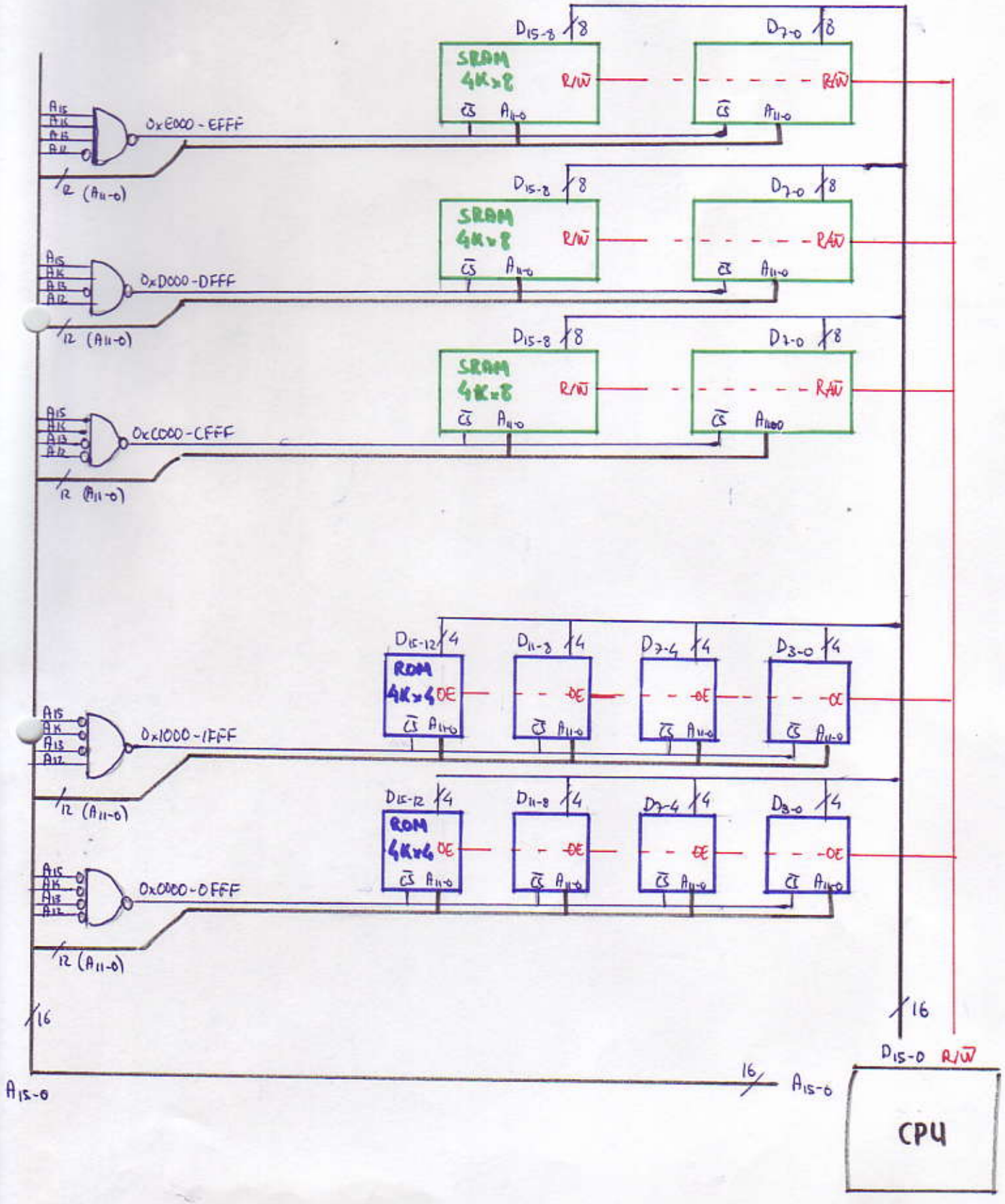
M máxima 0x0000 ... 0x1CB7 = 0x1CB8 palabras = 7352 palabras

$(8K = 1024 \cdot 8 = 8192)$ $(8192 - 840 = 7352)$ = 8K − 840 palabras

6:-

ROM $0x0000 - 0x1FFF = 2^{13} = 8K$ palabras $= 8K \times 16$ MODULOS $4K \times 4$ $\times (2 \times 4)$ 8 MODULOS

SRAM $0xC000 - 0xEFFF = 3 \times 2^{12} = 12K_{pal} = 12K \times 16$ MODULOS $4K \times 8$ $\times (3 \times 2)$ 6 MODULOS



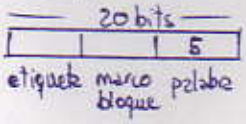
7.-

Mem = 1M = 2^{20}

Caché = 8K = $2^3 2^{10} = 2^{13}$

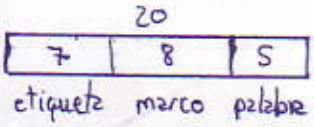
Bloque = 32 = 2^5

a) DIRECTA



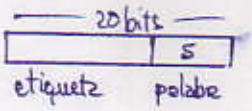
CUANTOS BLOQUES HAY EN CACHE?

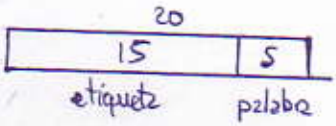
$\frac{2^{13}\ pal/cache}{2^5\ pal/bloque} = 2^8\ \frac{bloques}{cache}$



7 = 20 − (8+5)

b) ASOCIATIVA



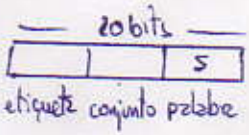


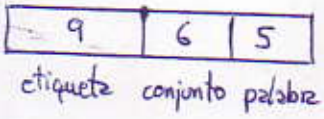
15 = 20 − 5

c) ASOCIATIVA CONJUNTOS 4v

CUANTOS CONJUNTOS HAY EN CACHE?

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

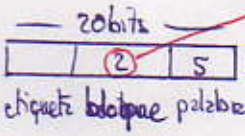


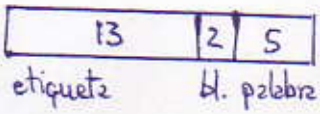


9 = 20 − (6+5)

d) SECTORES 4 bl.

4 bloques/sector = 2^2 bloques/sector





13 = 20 − (2+5)