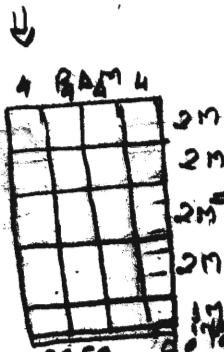
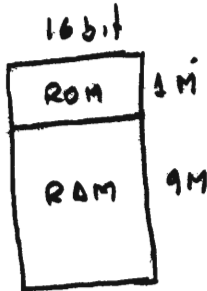


Computador { Datos 16 bits
Direc 24 bits

Diseño { RAM 2 Mpal x 4 bit = Disponibilidad
RAM 9 Mpal x 16 = Necesidad

Reservar 1 Mpal inicio para ROM 1 Mpal = 2^{20} palabras
2 Mpal = 2^{21} "



5 CC II RAM de 2M en 10M
Solo necesitamos 9 pero no podemos hacer menos de 10 = 20 Modulos

I) Expresión lógica para detectar dir. RAM válidas:

$10M = 2^{24} = 16 \text{ Mpal} \Rightarrow$ se necesitan 24 bits bus direccionales
 \Downarrow
 $A[0..23]$

| A | A ₂₃ | A ₂₂ | A ₂₁ | A ₂₀ | A ₁₉ | A ₁₈ | A ₁₇ | A ₁₆ | A ₁₅ | A ₁₄ | A ₁₃ | ... | A ₀ | |
|---|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------|----------------|-----|
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | _____ | | | | | 0 | |
| | 0 | 0 | 0 | 0 | 1 | 1 | 1 | _____ | | | | | 1 | ROM |
| | 0 | 0 | 1 | 0 | 0 | _____ | | | | | 0 | | | |
| | | | | 1 | 1 | _____ | | | | | 1 | RAM 1 = 2M | | |
| | 0 | 1 | 0 | 0 | _____ | | | | | | RAM 2 = 2M | | | |
| | 0 | 1 | 1 | 0 | _____ | | | | | | RAM 3 = 2M | | | |
| | 1 | 0 | 0 | 0 | _____ | | | | | | RAM 4 = 2M | | | |

Selección de RAM $\Rightarrow A_{23} = 0$ y $(A_{22} + A_{21} + A_{20})$

$A_{23} = 1$ y $(A_{22} \text{ y } A_{21} = 0)$

$$RAM = [\bar{A}_{23} \cdot (A_{22} + A_{21} + A_{20})] + [A_{23} \cdot \bar{A}_{22} \cdot \bar{A}_{21}]$$

La expresión $\Rightarrow \bar{A}_{23} (\bar{A}_{22} + \bar{A}_{21} + \bar{A}_{20}) + (A_{23} \cdot A_{22} \cdot A_{21})$

- Selec. RAM si $A_{23} = 0$ y en caso de $A_{22} = A_{21} = A_{20} = 1$ no selec.

La RAM 3 \Rightarrow FALSO

II) Bastan 1A RAM y 1ROM = FALSO \Rightarrow 10 RAM
1 ROM