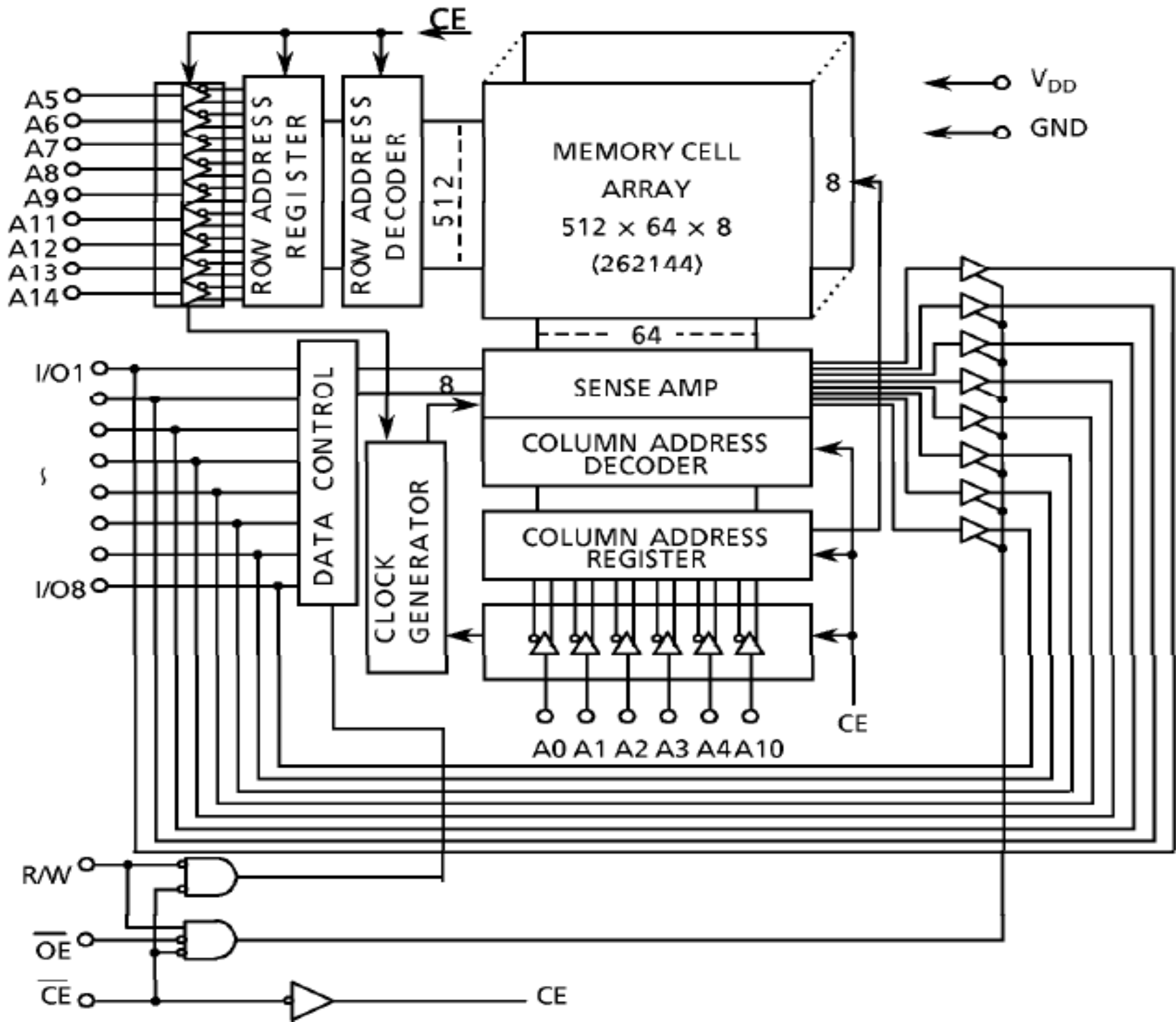


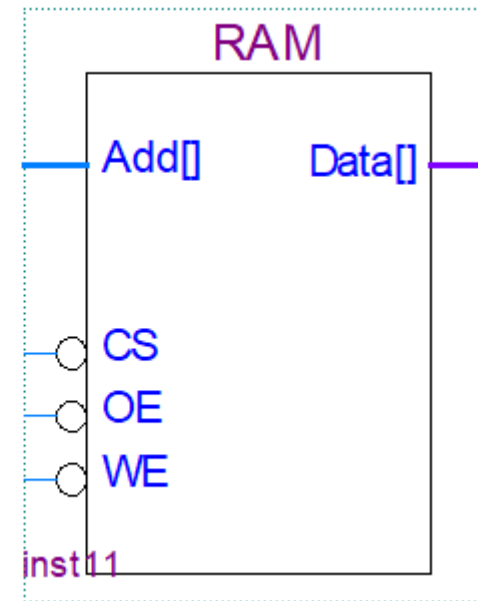
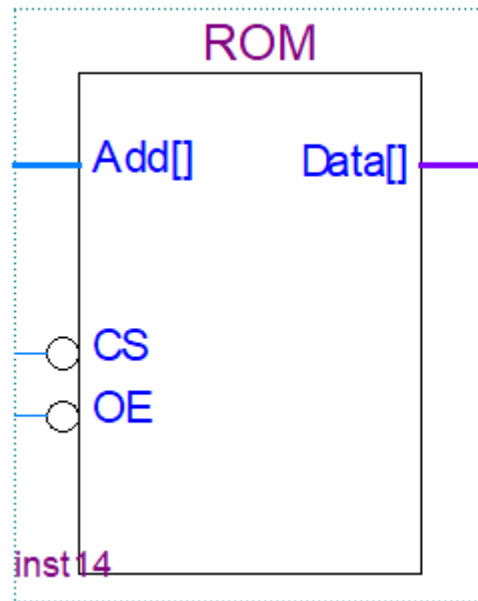
# Decodificación Memoria y Hojas de datos

- Diagrama bloques interno de chips de memoria
- Decodificación de memoria
  - Ejemplo
  - Mapa de memoria
  - Decodificadores 74139 y 74138
  - Ejemplo 32K ROM ( 2 x 16Kx8 ) y 8K RAM ( 4 x 2Kx8 )
- - Hojas de datos de circuitos integrados
  - Maximum ratings, Operation conditions, DC characteristics.
  - AC characteristics: retardos, tiempos de setup y hold

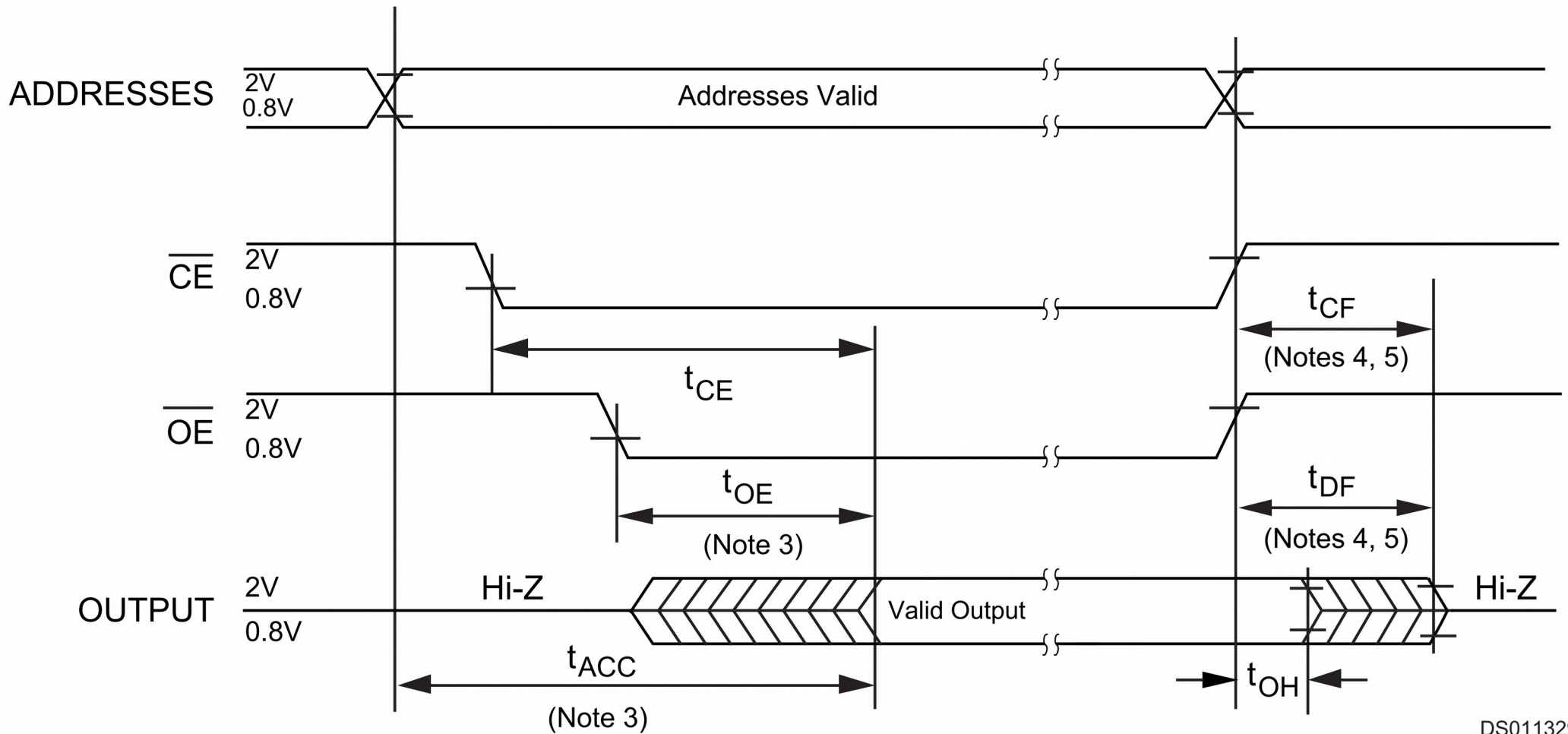


# Memorias

## (asíncronas, buses triestado)

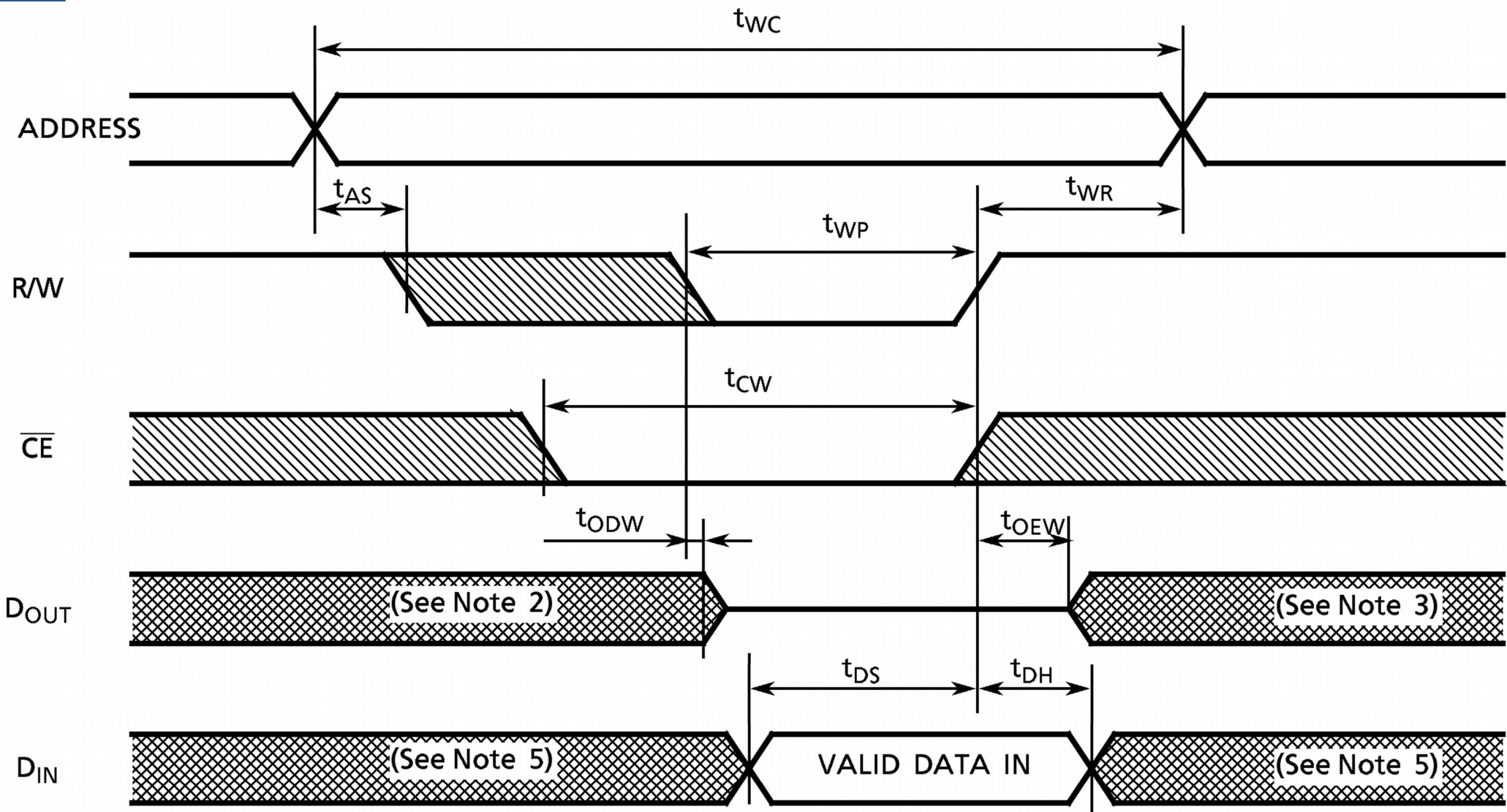


# Ciclo de Lectura



DS011329-4

# Ciclo de Escritura

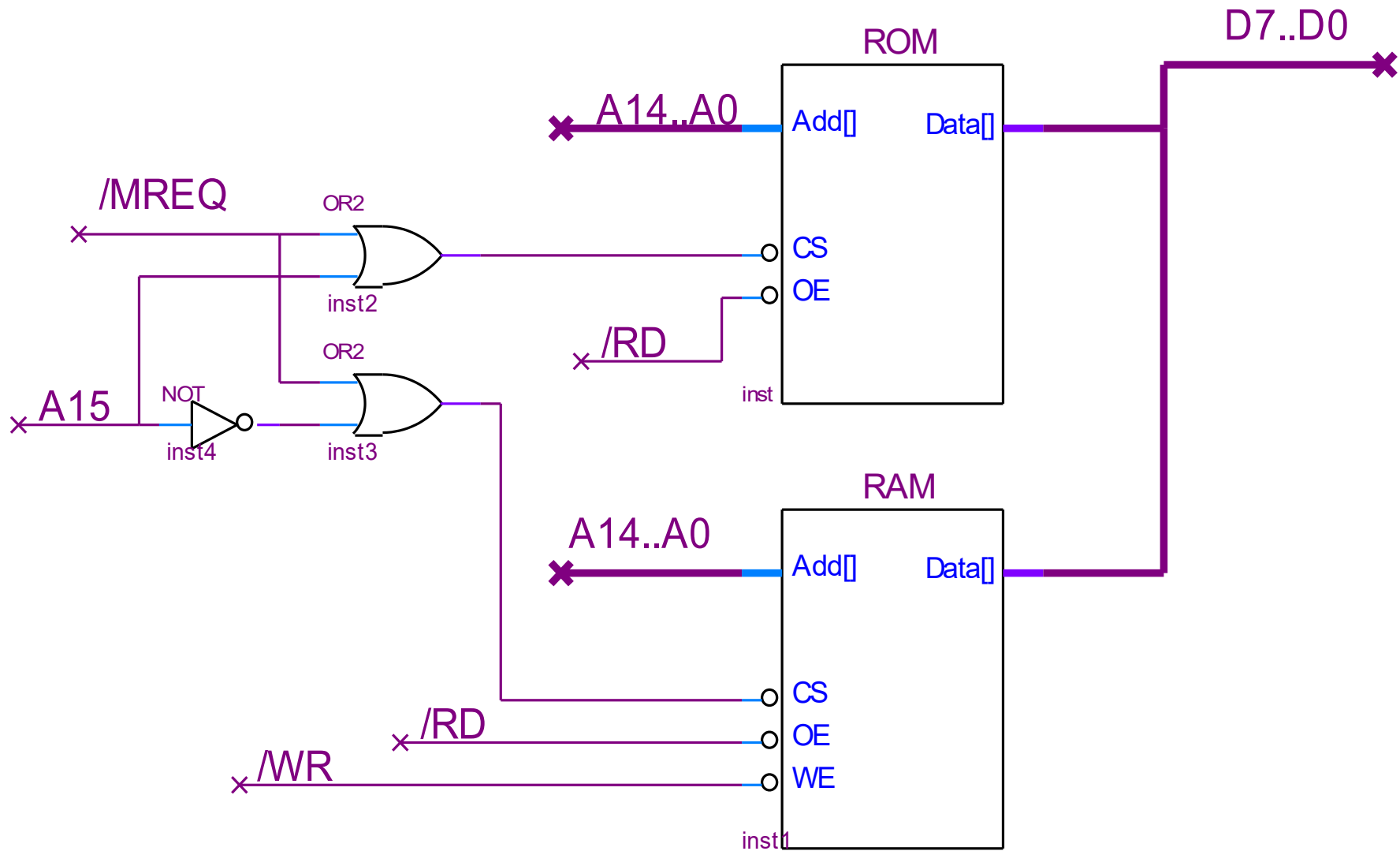


# Decodificación Memoria

- Señales de control separadas para cada chip
  - /CE: a partir de /MREQ y direcciones
  - /WE o /OE: en general /WR y /RD directo
- Ejemplo simple
  - ROM: 32Kx8
  - RAM: 32Kx8

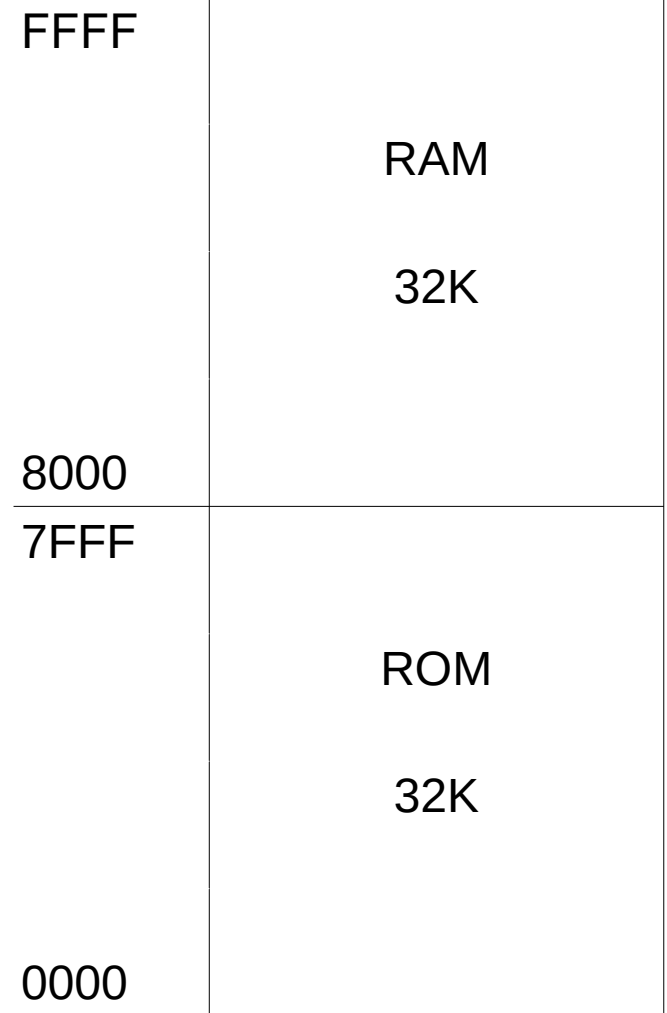
# Ejemplo

## 32K ROM + 32K RAM



# Mapa de Memoria

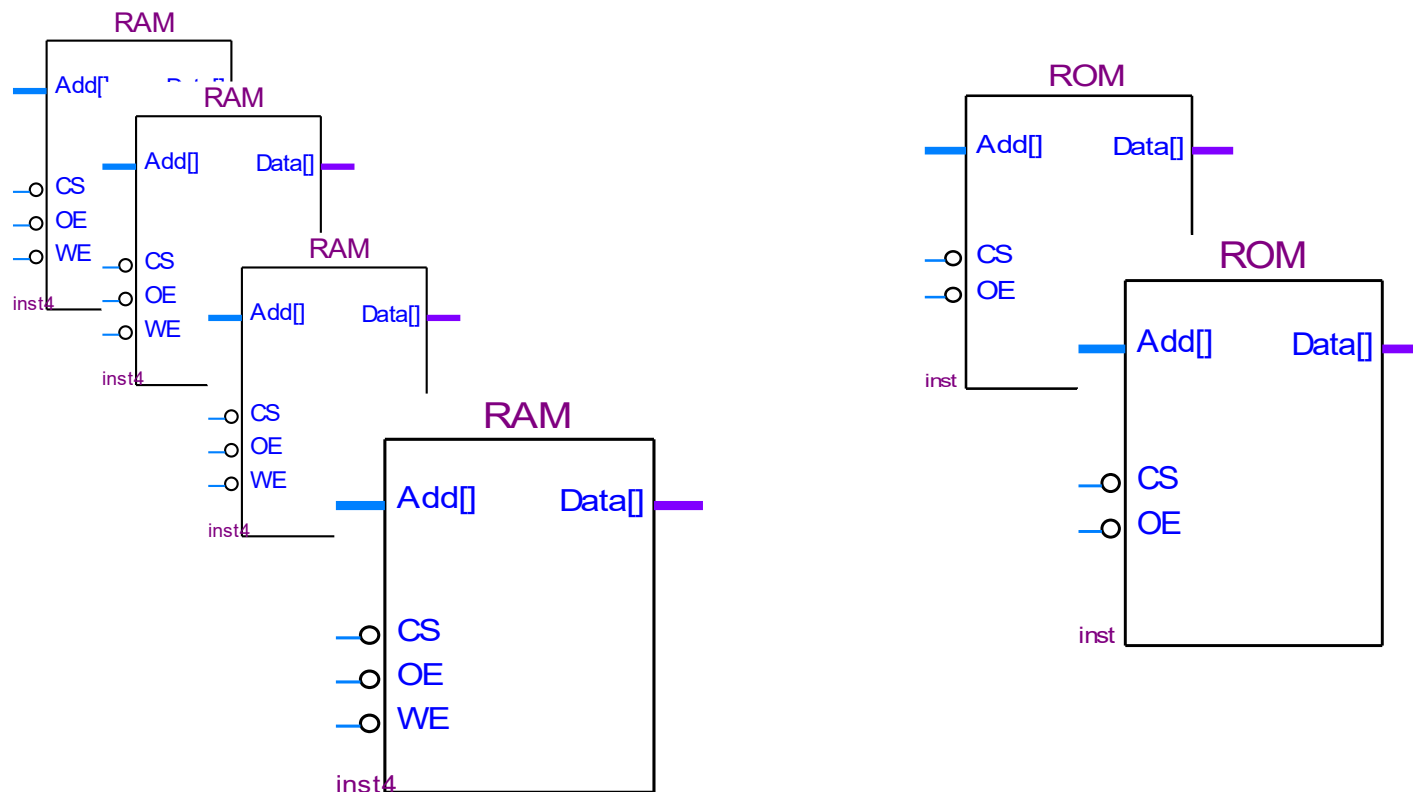
- Esquema representando qué chip se habilita en cada parte del espacio de memoria.
- En el ejemplo 32K+32K





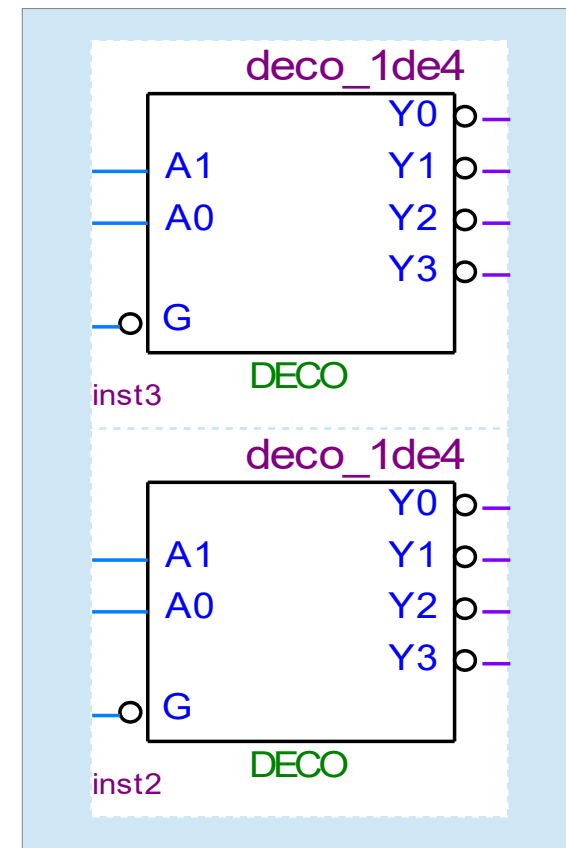
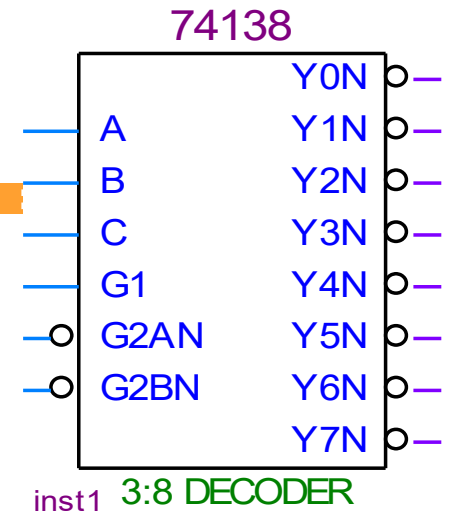
# Otro Ejemplo

- 8K RAM: 4 x 6116 (chips de 2Kx8)
- 32K ROM: 2 x 27128 (chips de 16Kx8)

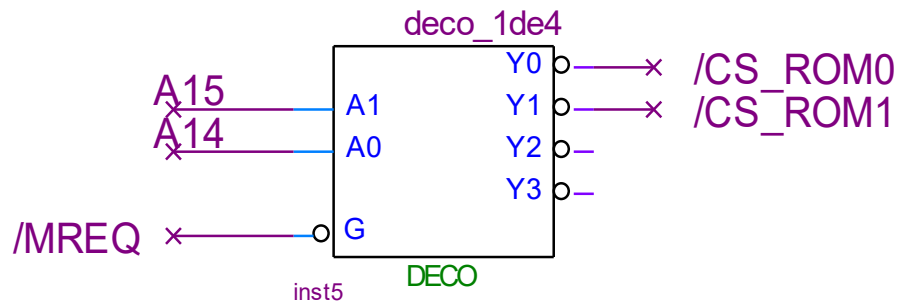


# Decodificadores

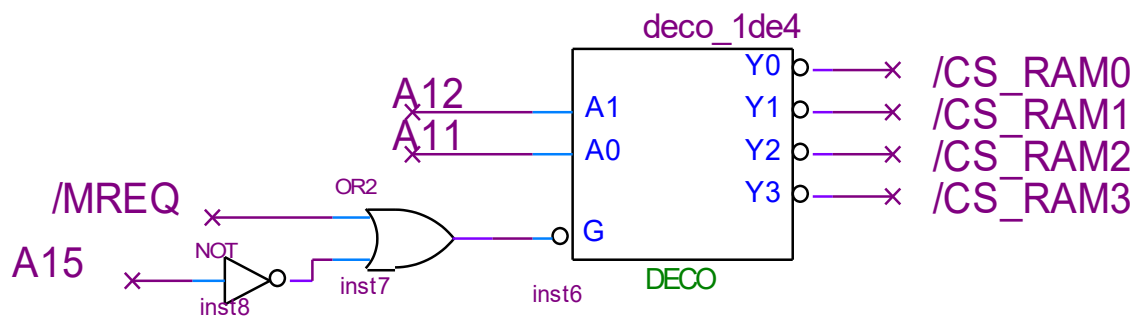
- 74138 (1-of-8 decoder)
- 74139 (dual 1-of-4 decoder)



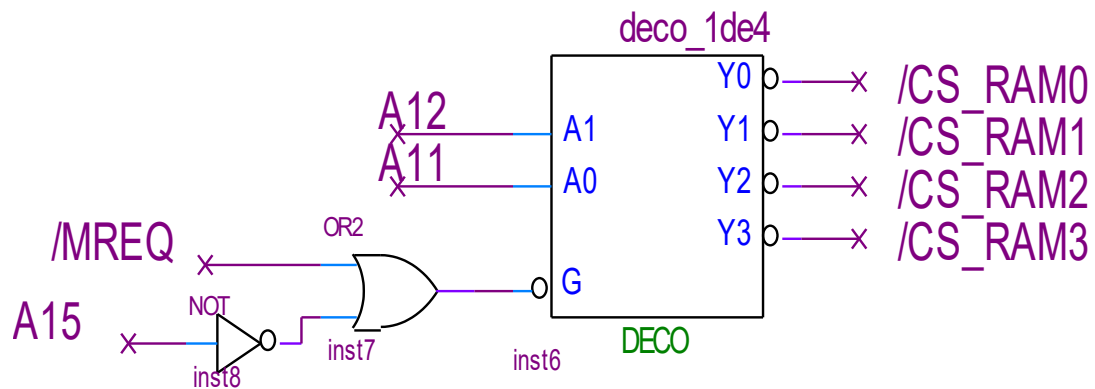
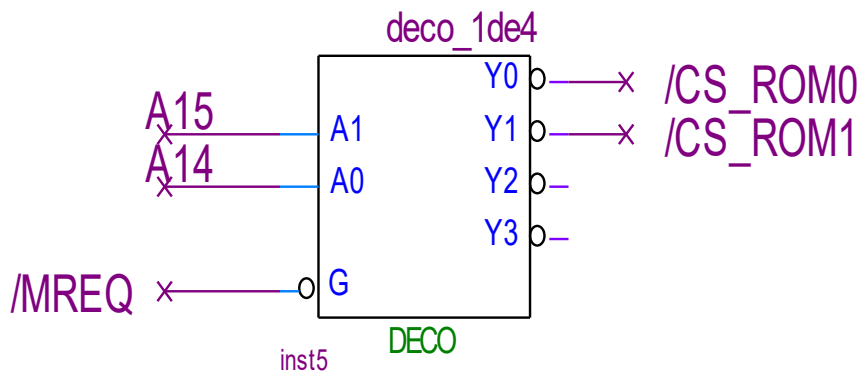
# 4 x 2K + 2 x 16K



A15	A14	A13	A12	A11	chip
0	0	-	-	-	ROM0
0	1	-	-	-	ROM1
1	x	x	0	0	RAM0
1	x	x	0	1	RAM1
1	x	x	1	0	RAM2
1	x	x	1	1	RAM3

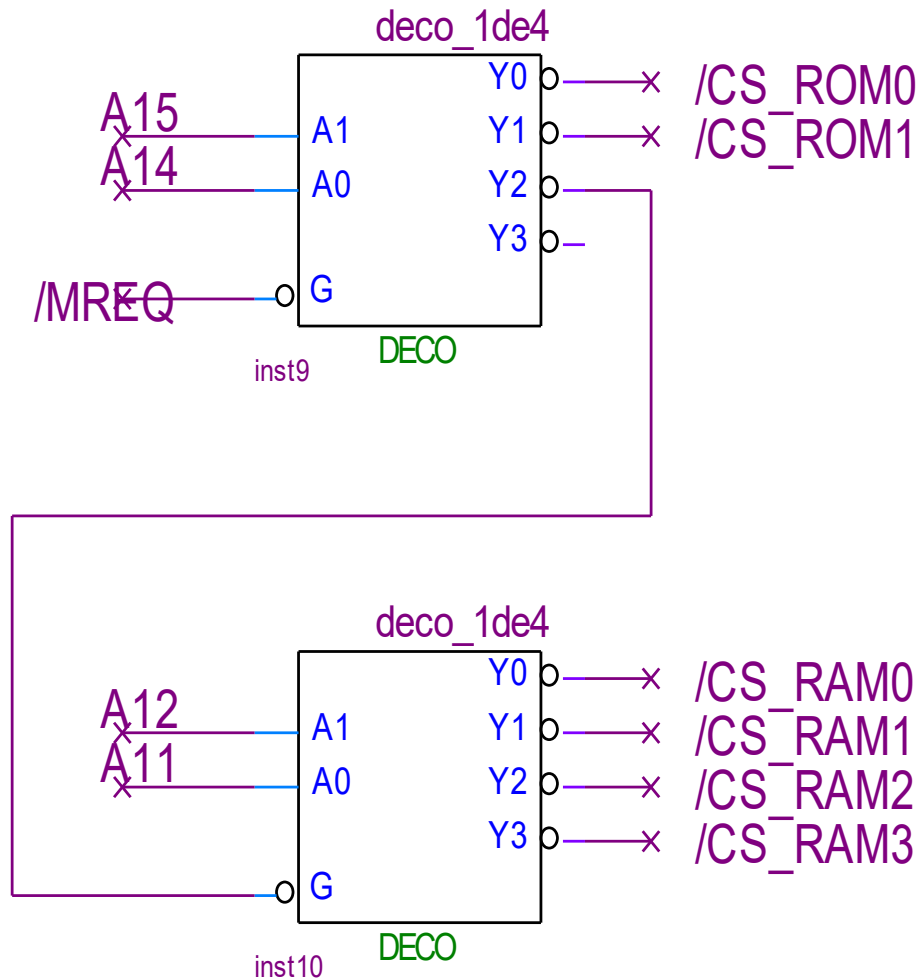


# 4 x 2K + 2 x 16K



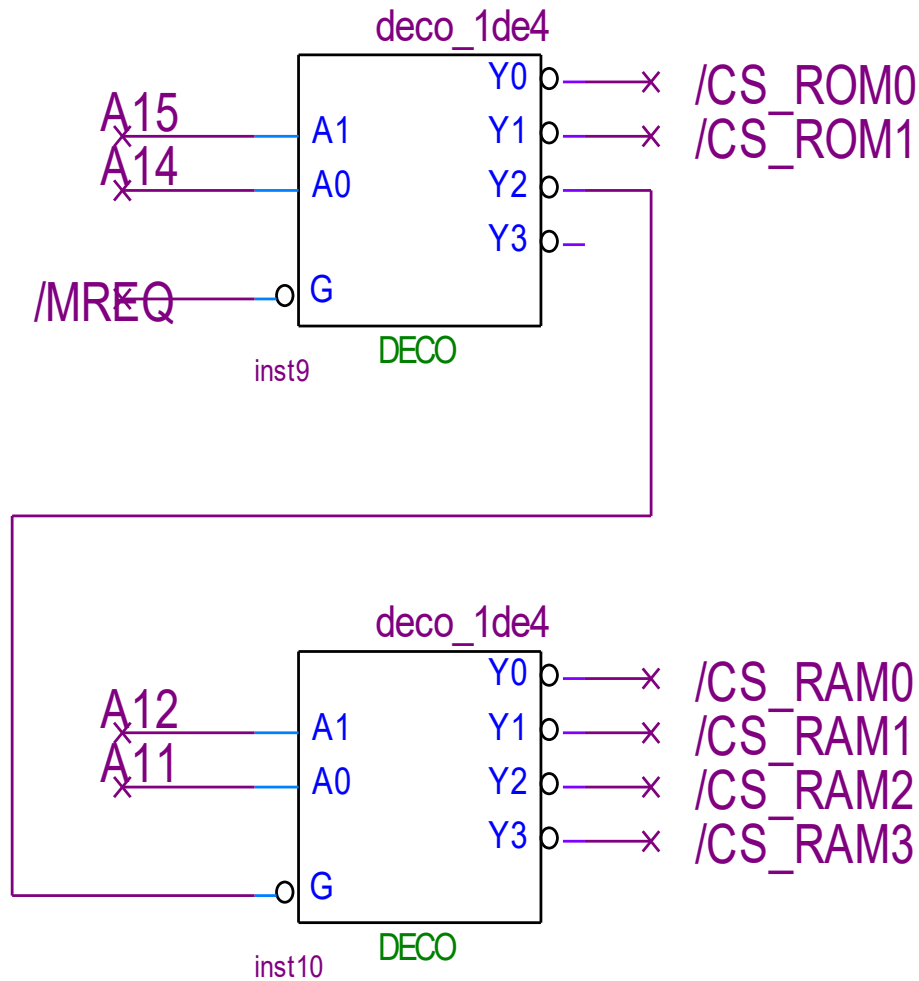
FFFF	RAM3 (fantasma)
	...
	...
	RAM0 (fantasma)
	RAM3 2K
	RAM2 2K
	RAM1 2K
8000	RAM0 2K
7FFF	ROM1 16K
0000	ROM0 16K

# 4 x 2K + 2 x 16K variante



A15	A14	A13	A12	A11	chip
0	0	-	-	-	ROM0
0	1	-	-	-	ROM1
1	0	x	0	0	RAM0
1	0	x	0	1	RAM1
1	0	x	1	0	RAM2
1	0	x	1	1	RAM3

# 4 x 2K + 2 x 16K variante



FFFF	
	vacío
	4 fantasmas 8K
	RAM3 2K
	RAM2 2K
	RAM1 2K
	RAM0 2K
8000	
7FFF	
	ROM1 16K
	ROM0 16K
0000	