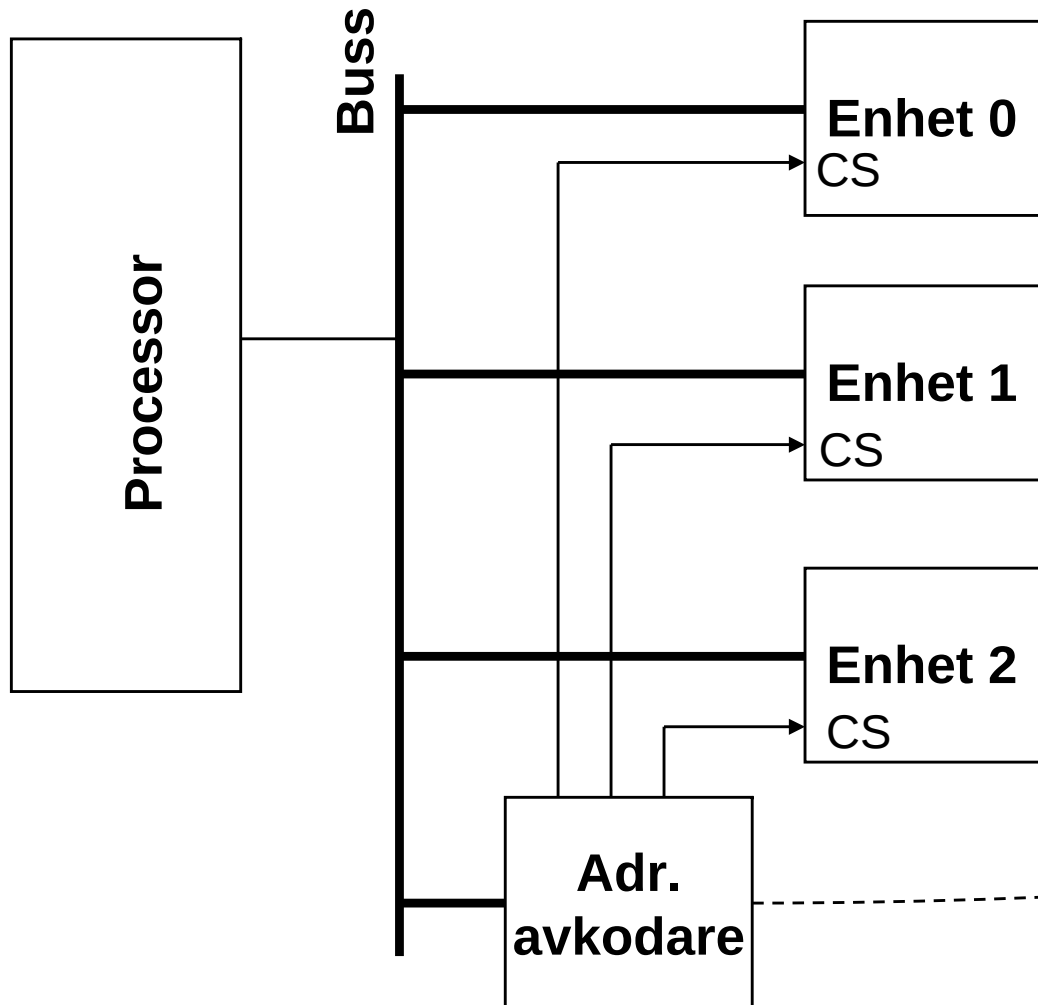


F10: Adressavkodning

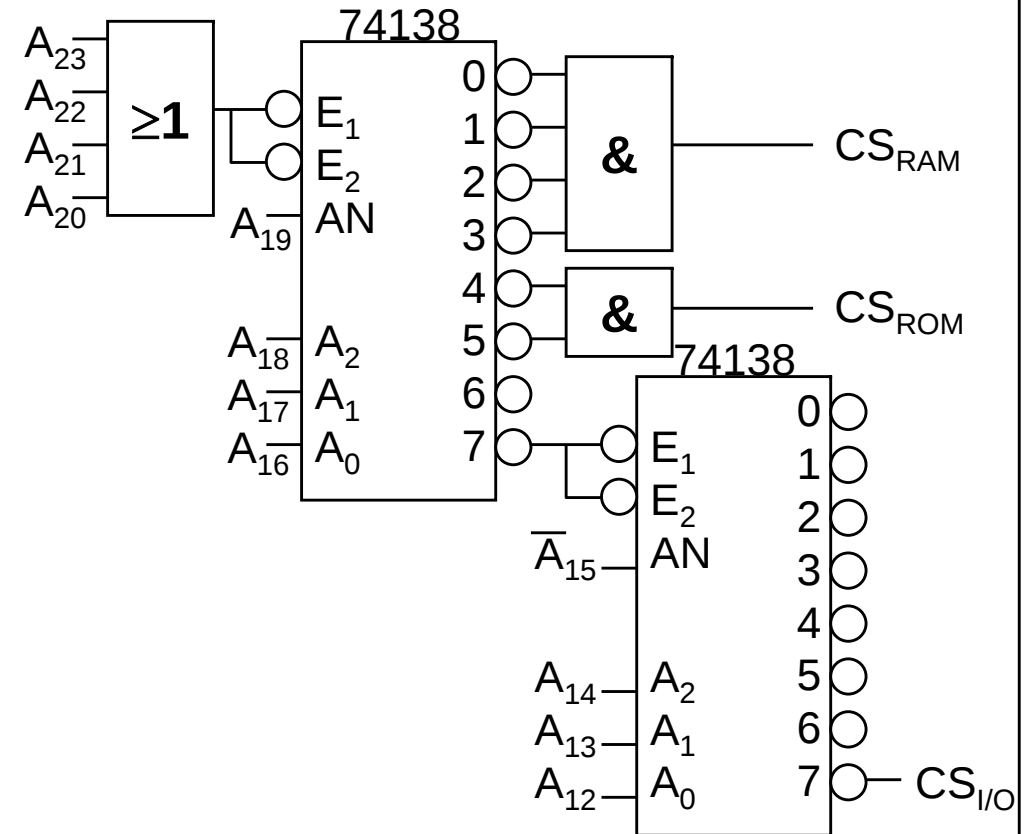
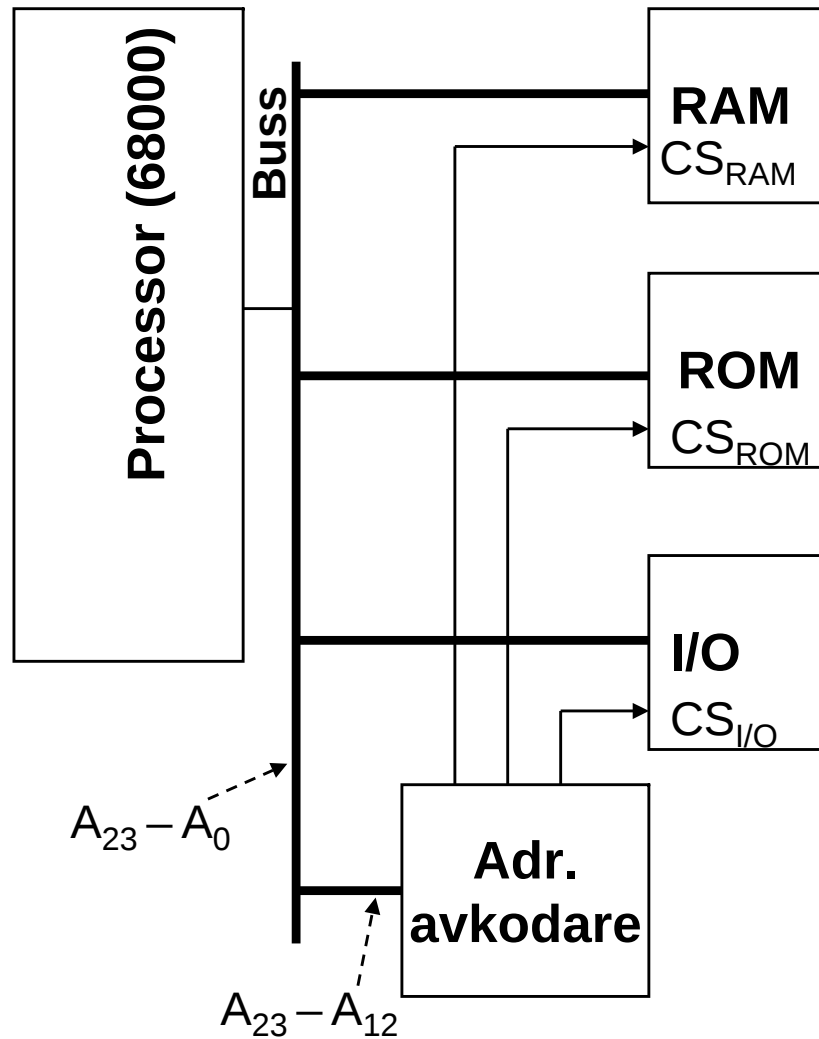
- Princip
- Analys av en adressavkodare
- Konstruktion av adressavkodare

Princip

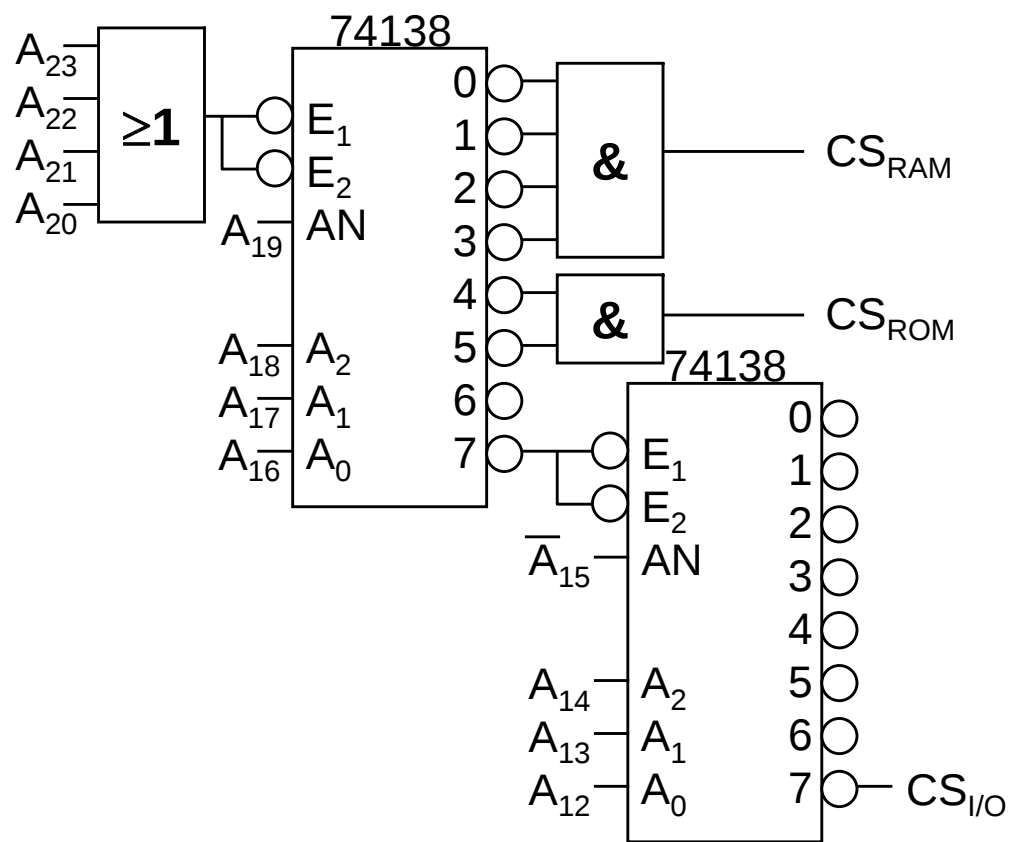


**Adressavkodaren
bestämmer vilken
basadress varje enhet
får sig tilldelad**

Analys av en adressavkodare



Forts.



	A_{23}	A_{22}	A_{21}	A_{20}	A_{19}	A_{18}	A_{17}	A_{16}	A_{15}	A_{14}	A_{13}	A_{12}
CS_{RAM}	0	0	0	0	1	0	-	-	-	-	-	-
CS_{ROM}	0	0	0	0	1	1	0	-	-	-	-	-
$CS_{I/O}$	0	0	0	0	1	1	1	1	0	1	1	1

	A_{23}	A_{22}	A_{21}	A_{20}	A_{19}	A_{18}	A_{17}	A_{16}	A_{15}	A_{14}	A_{13}	A_{12}
min	0	0	0	0	1	0	0	0	0	0	0	0
max	0	0	0	0	1	0	1	1	1	1	1	1
min	0	0	0	0	1	1	0	0	0	0	0	0
max	0	0	0	0	1	1	0	1	1	1	1	1
min	0	0	0	0	1	1	1	1	0	1	1	1
max	0	0	0	0	1	1	1	1	0	1	1	1

Forts

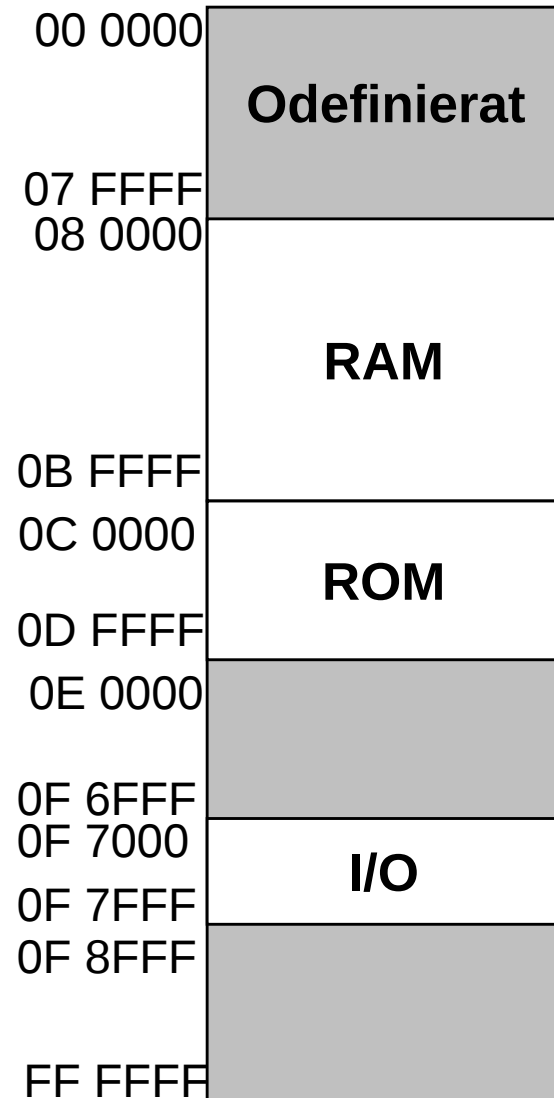
		A ₂₃	A ₂₂	A ₂₁	A ₂₀	A ₁₉	A ₁₈	A ₁₇	A ₁₆	A ₁₅	A ₁₄	A ₁₃	A ₁₂
RAM	min	0	0	0	0	1	0	0	0	0	0	0	0
	max	0	0	0	0	1	0	1	1	1	1	1	1
ROM	min	0	0	0	0	1	1	0	0	0	0	0	0
	max	0	0	0	0	1	1	0	1	1	1	1	1
I/O	min	0	0	0	0	1	1	1	1	0	1	1	1
	max	0	0	0	0	1	1	1	1	0	1	1	1

Storlek:

RAM är $2^{18} = 256$ kB

ROM är $2^{17} = 128$ kB

I/O är $2^{12} = 4$ kB

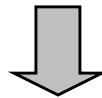


Konstruktion av adressavkodare

- Starta med en definition av adressområdet (minneskarta)
- Sätt upp en tabell med *min* och *max* adresser för varje CS
- Ersätt *min/max* adresser med 0/1/x för varje bit
- Definiera implementering
 - *Avkodare: Identifiera bitar som ska avkodas och sätt samman*
 - *Grindar: Ta fram de logiska uttrycken för avkodade bitar*

Konstruktion av adressavkodare

RAM 00 0000 – 0F FFFF
 ROM1 10 0000 – 17 FFFF
 ROM2 18 0000 – 1F FFFF



		A ₂₃	A ₂₂	A ₂₁	A ₂₀	A ₁₉	A ₁₈	A ₁₇	A ₁₆	A ₁₅	A ₁₄	A ₁₃	A ₁₂	A ₁₁	A ₁₀	A ₉	A ₈	A ₇	A ₆	A ₅	A ₄	A ₃	A ₂	A ₁	A ₀
RAM	min	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	max	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ROM1	min	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	max	0	0	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ROM2	min	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	max	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Konstruktion av adressavkodare

		A_{23}	A_{22}	A_{21}	A_{20}	A_{19}	A_{18}	A_{17}	A_{16}	A_{15}	A_{14}	A_{13}	A_{12}	A_{11}	A_{10}	A_9	A_8	A_7	A_6	A_{15}	A_4	A_3	A_2	A_1	A_0
RAM	min	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	max	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ROM1	min	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	max	0	0	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ROM2	min	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	max	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

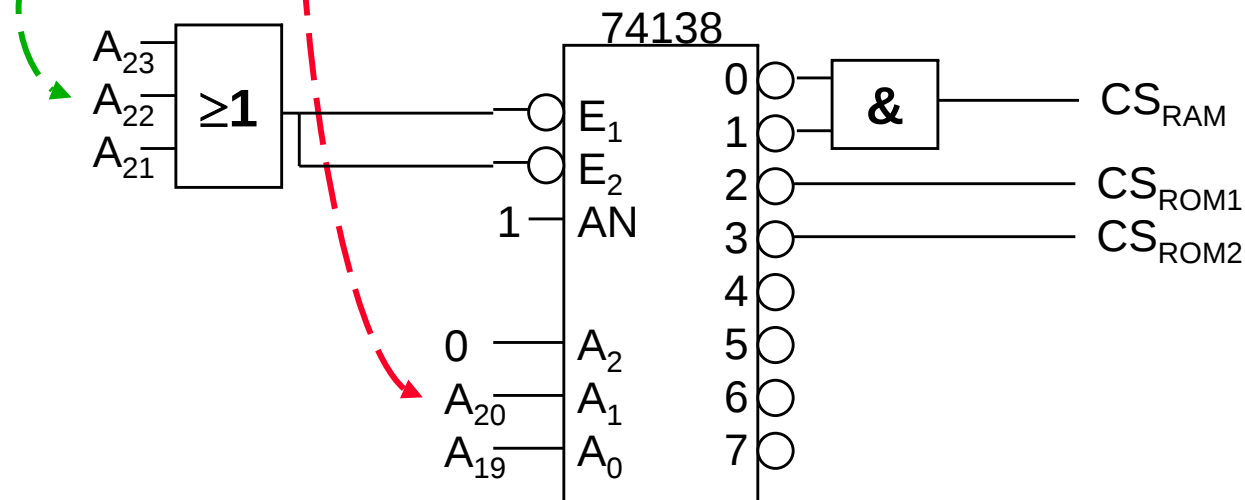
	A_{23}	A_{22}	A_{21}	A_{20}	A_{19}	A_{18}	A_{17}	A_{16}	A_{15}	A_{14}	A_{13}	A_{12}	A_{11}	A_{10}	A_9	A_8	A_7	A_6	A_{15}	A_4	A_3	A_2	A_1	A_0
RAM	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ROM1	0	0	0	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ROM2	0	0	0	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Avkodade bitar

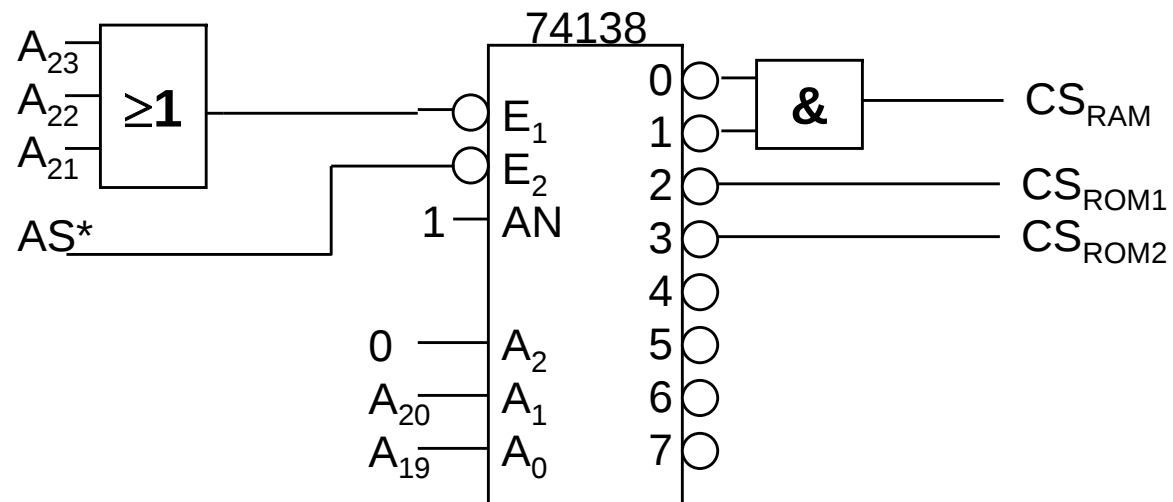
Konstruktion av adressavkodare

	A_{23}	A_{22}	A_{21}	A_{20}	A_{19}	A_{18}	A_{17}	A_{16}	A_{15}	A_{14}	A_{13}	A_{12}	A_{11}	A_{10}	A_9	A_8	A_7	A_6	A_5	A_4	A_3	A_2	A_1	A_0
RAM	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ROM1	0	0	0	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ROM2	0	0	0	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

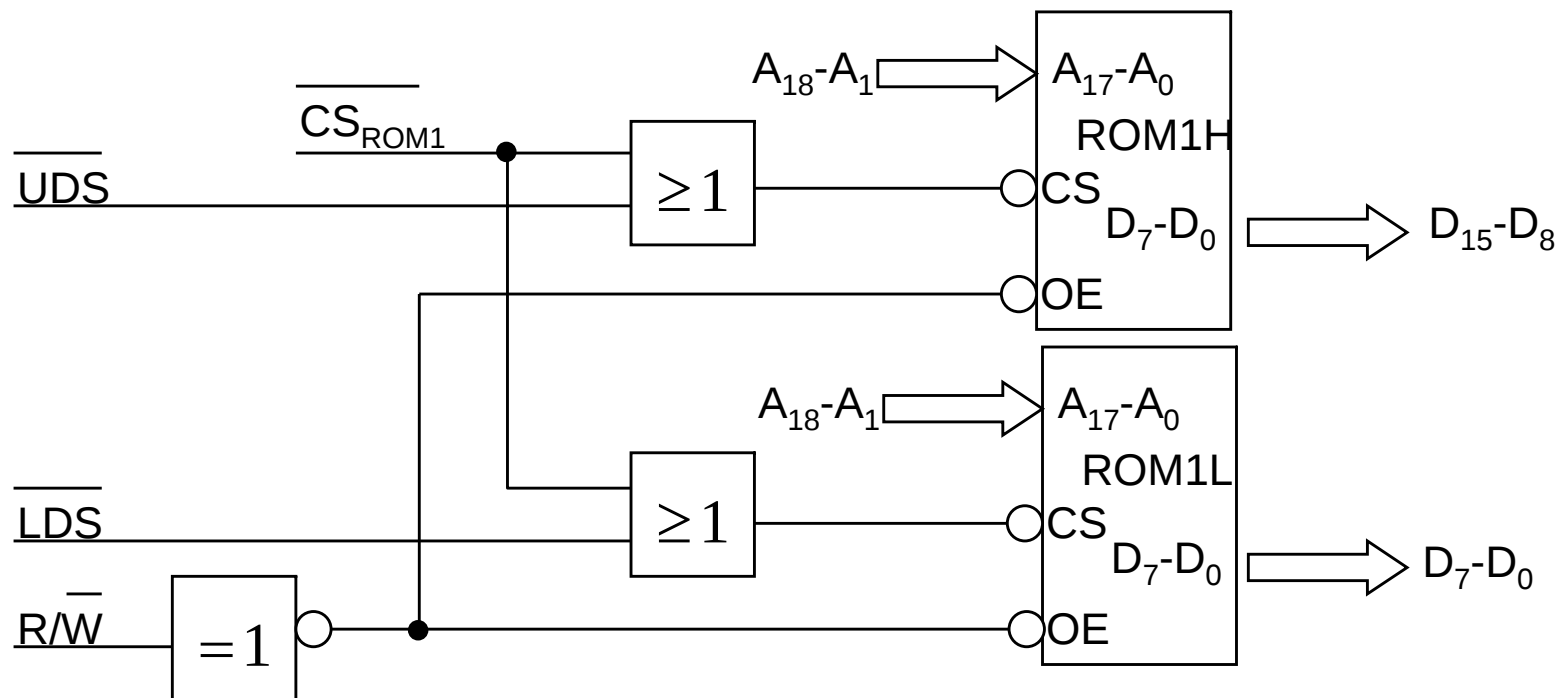
Avkodade bitar



Inkoppling av adressavkodare

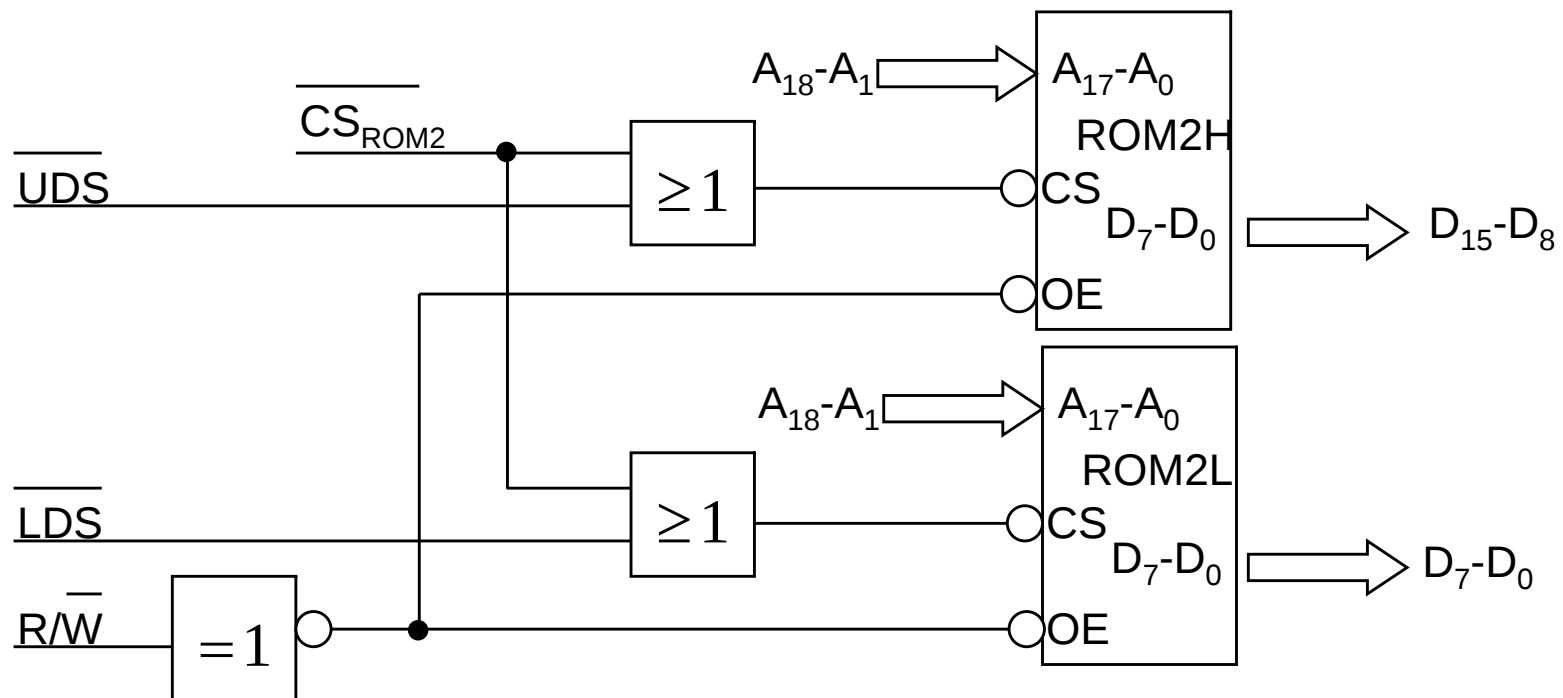


Inkoppling av ROM1



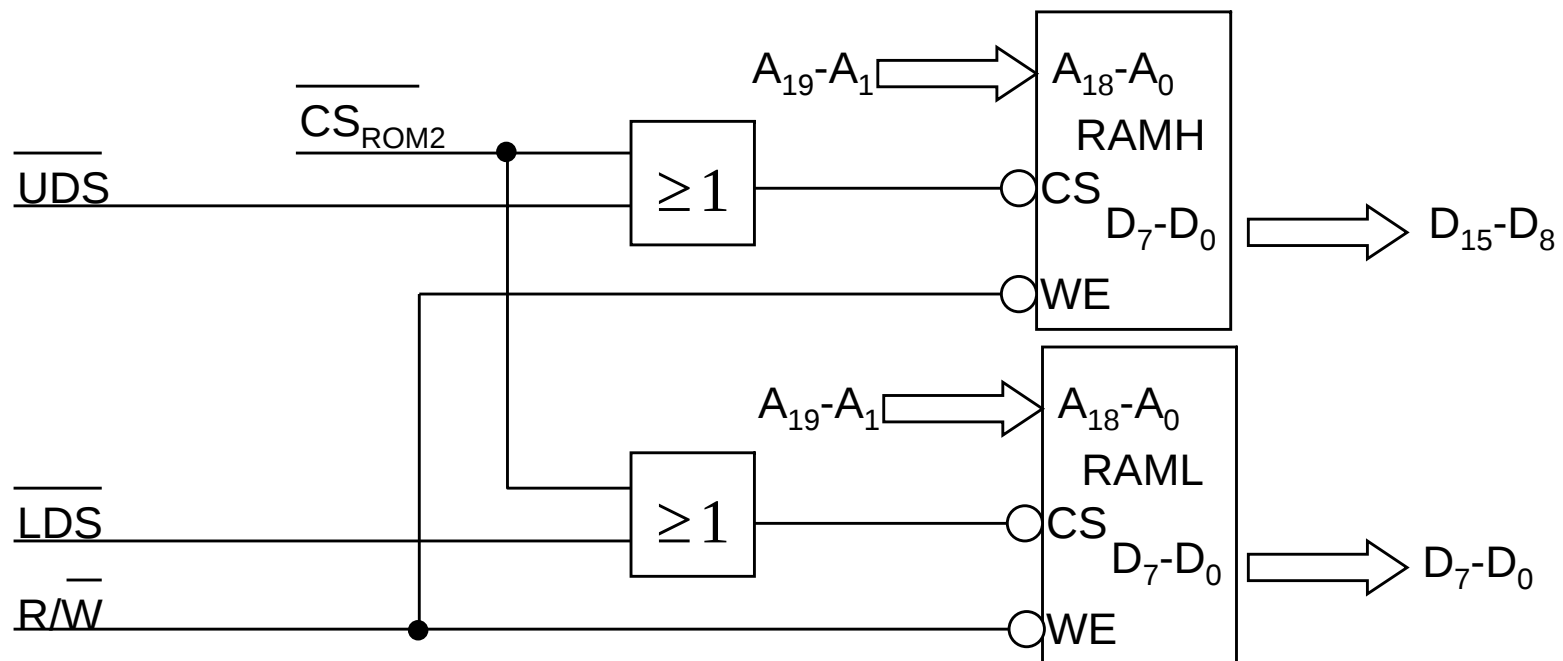
Storlek: $2^{19}=2^9 \times 2^{10} = 512 \text{ kB}$

Inkoppling av ROM2



Storlek: $2^{19}=2^9 \times 2^{10} = 512 \text{ kB}$

Inkoppling av RAM



Storlek: $2^{20} = 1 \text{ MB}$