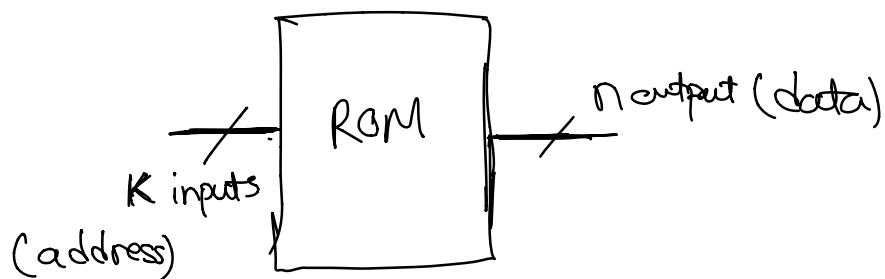
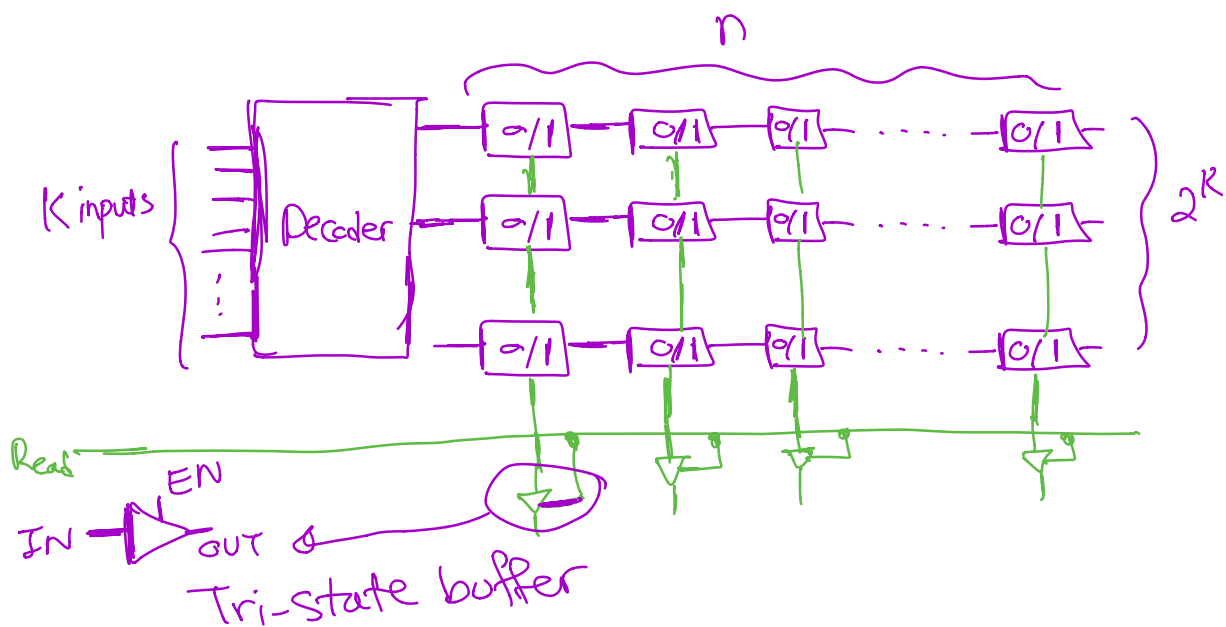


ROM / RAM / PLAs.

ROM : Read ONLY Memory

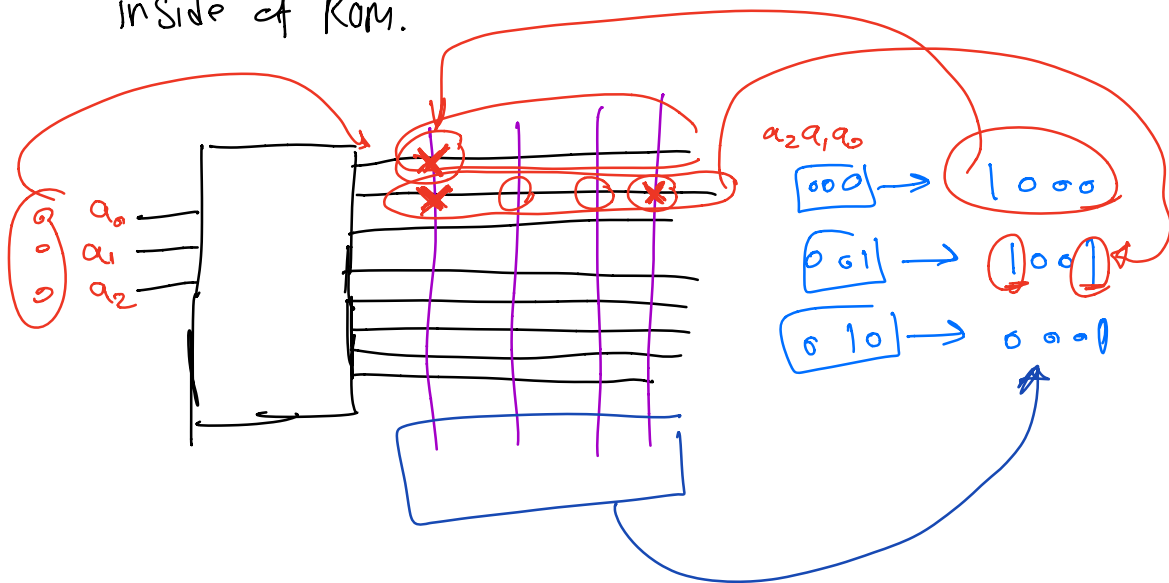


Can store 2^K bits of information.



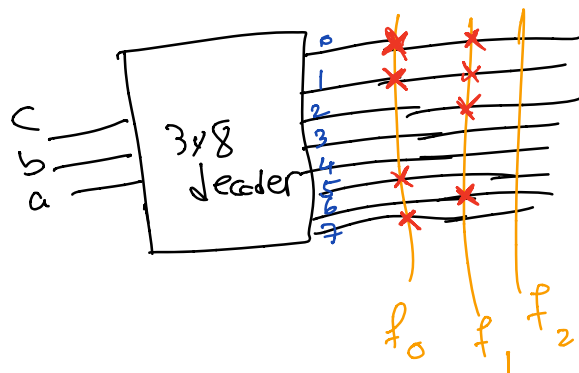
use a decoder to select one of the 2^k lines of stored data in the ROM.

We can implement multi-input/multioutput logic function inside of ROM.



Example: Implement $\begin{cases} f_0 = \sum(0, 1, 5, 7) \\ f_1 = \sum(0, 1, 2, 6) \\ f_2 = \sum(2, 3, 4) \end{cases}$ using a ROM

	a	b	c	f_0	f_1	f_2
0	0	0	0	1	1	0
1	0	0	1	1	1	0
2	0	1	0	0	1	1
3	0	1	1	0	0	1
4	1	0	0	0	0	1
5	1	0	1	1	0	0
6	1	1	0	0	1	0
7	1	1	1	1	0	0



PROM : (Programmable ROM)

Contains fuses giving logic value of '1'.

Programming means "blowing" fuses to give some bits a logic value of 0.

EPROM : (Electrically PROM)

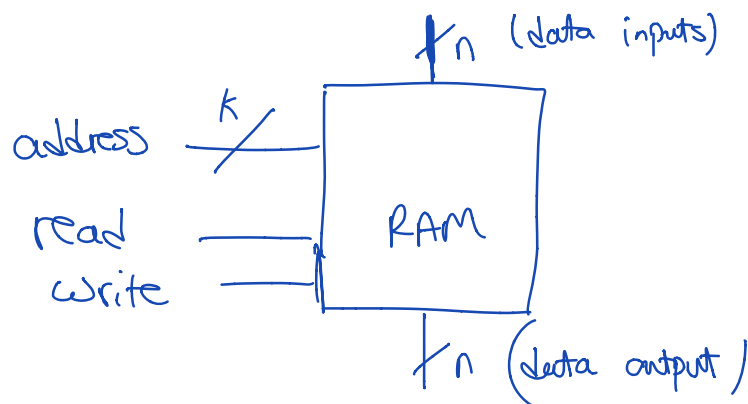
Can be erased by exposure to UV light.

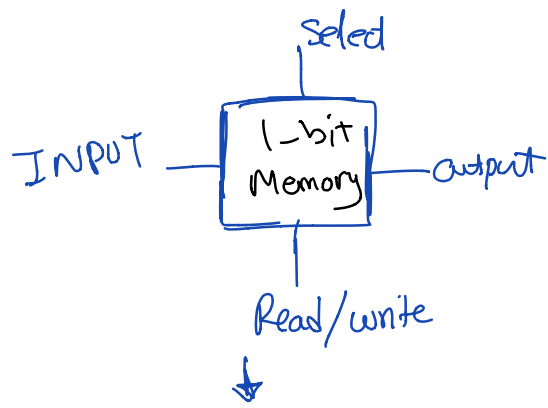
EEPROM : (Electrically Erasable PROM)

Can be erased electrically. (example: flash memory)

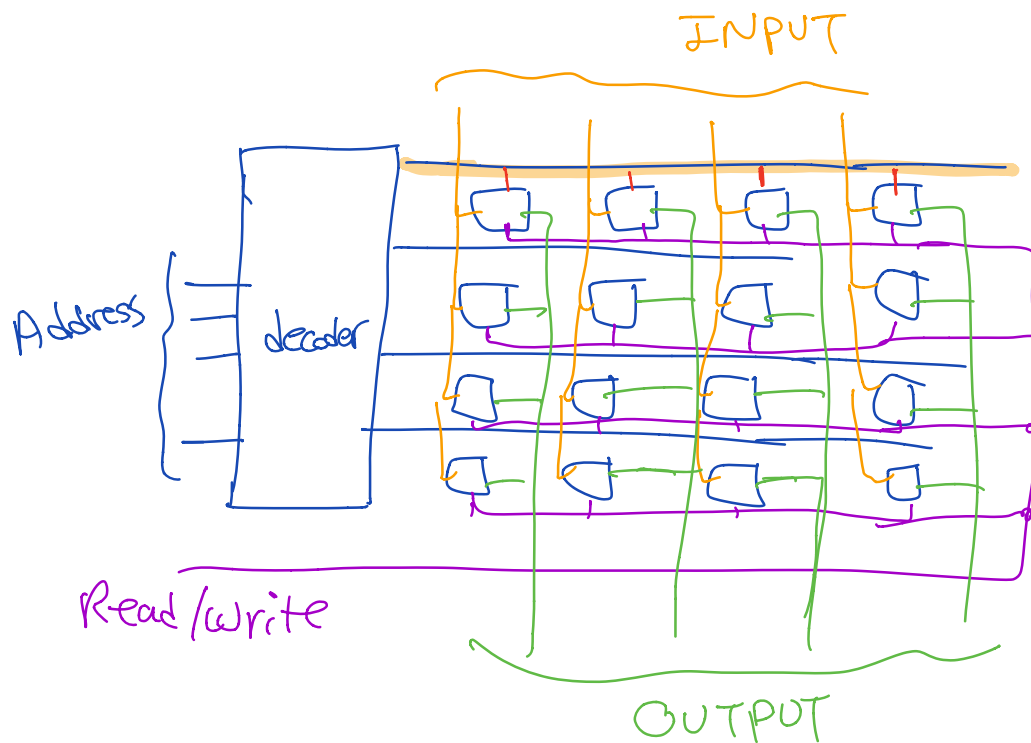
RAM (Random Access Memory)

Can both Read and write information.





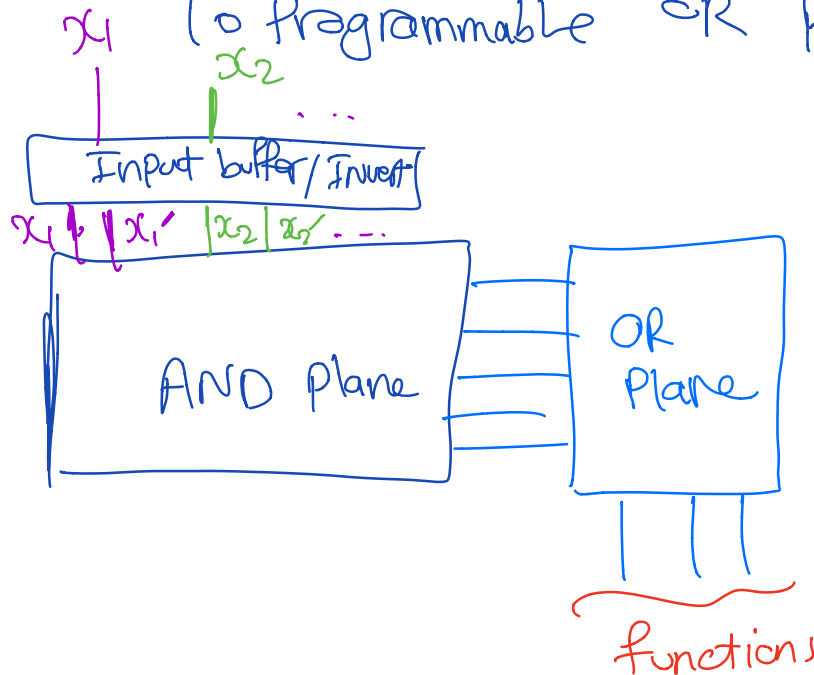
Take this 1-bit memory, replicate and connect them into an array.



PLA (Programmable Logic Array)

Consists of

- input buffers and inverters
- Programmable "AND" plane
- Programmable "OR" plane



Example :

$$\begin{cases} f_1 = x_1 x_2 + x_1 x_3 + x_1' x_2' x_3 \\ f_2 = x_1 x_2 + x_1' x_2' x_3 + x_1 x_3 \end{cases}$$

Implement functions f_1 and f_2 , using a 3-5-2 PLA.

of inputs "5" "2"
AND gates OR gates

