The Major two types of Main Memory are RAM & ROM

RAM
Random Access Memory

It is normally organised as words of fixed length.

WORD :- The memory stores binary information in groups of bits called words. A word in memory is an entity of bits that moves in and out of storage as a unit.

→ A memory word is a group of 1's and 0's and may represent a number, an instruction code, one or more alphanumeric characters, or any other binary-coded information.

Normally the total numbers of words in memory are some power of 2. like 2^0, $2^1 - - 2^n$. 8 bits, 16 bits, 32 bits.

The main Memory Can be both read and written into, therefore it is called read-write memory.

Communication between a memory and its environment is achieved through data input and output lines; address selection lines and control lines that specify the the direction of transfer.
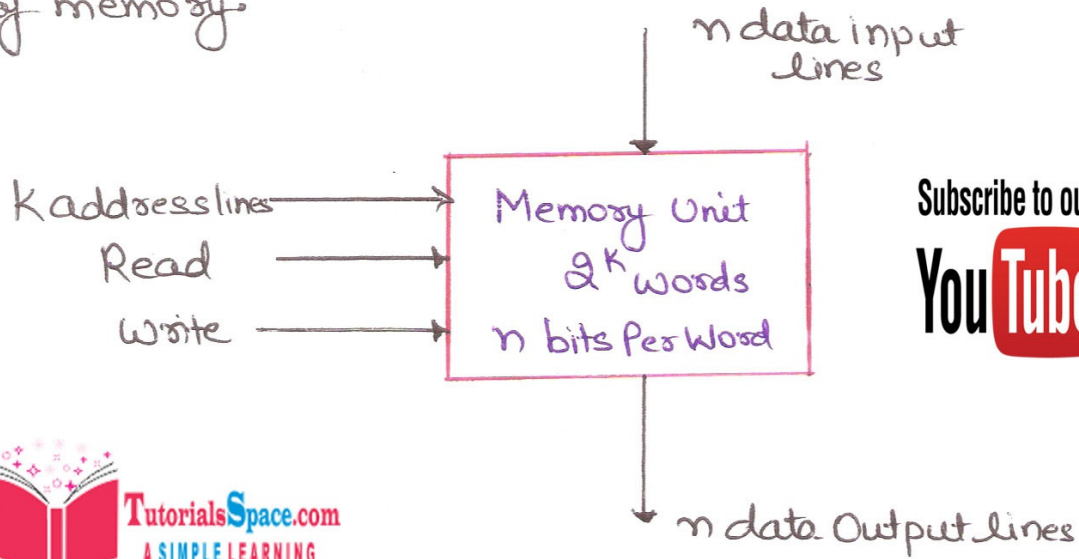
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The n-data input lines provide the information to be stored in memory, and the n data output lines Supply information Coming out of memory.

n data input lines

K address lines ⟶

Read ⟶

Write ⟶

Memory Unit 2^K words
n bits Per Word

n data Output lines

BIOCK DIAGRAM OF RAM.

→ The K-address lines provide a binary no. of K bits that Specify a particular word Chosen among the 2^K available Inside the memory. The two Control inputs specify the direction of transfer desired.

For Transferring a new word to be stored into memory

→ Apply the binary address of the desired word into the address lines.

→ Apply the data bits that must be stored in memory into the data Input lines.

→ Activate the write input.

The Memory Unit will then take the bits presently available in the input data lines and store them in the word specified

by the address lines.

Steps for transferring a stored word out of memory

→ Apply the binary address of the desired word into the address lines.

→ Activate the Read Input.

The memory unit will then take the bits from the word that has been selected by the address and apply them into the output data lines.

The Content of the Selected word does not change after Reading.

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