

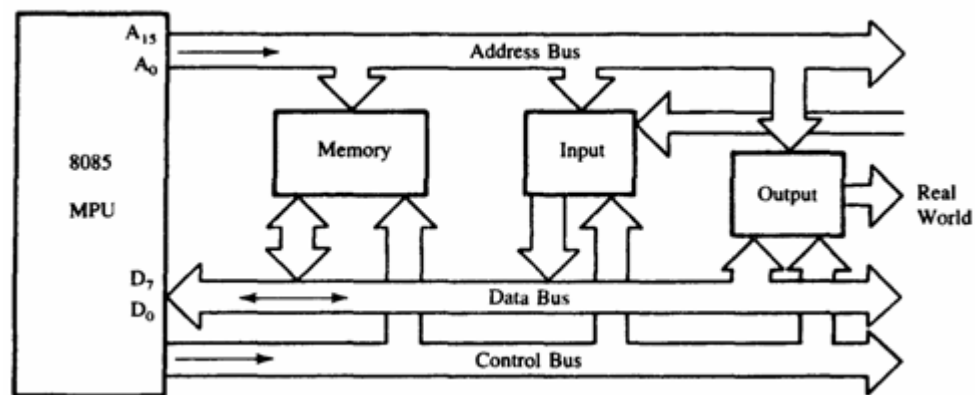
8085 Bus Structure

There are three buses in Microprocessor:

1.Address Bus

2.Data Bus

3.Control Bus



1.Address Bus:-Generally, Microprocessor has 16 bit address bus. The bus over which the CPU sends out the address of the memory location is known as Address bus. The address bus carries the address of memory location to be written or to be read from.

The address bus is unidirectional. It means bits flowing occurs only in one direction, only from microprocessor to peripheral devices.

We can find that how much memory location it can using the formula 2^N . where N is the number of bits used for address lines.

here, $2^{16} = 65536\text{bytes}$ or 64Kb

So we can say that it can access upto 64 kb memory location.

Q.-> If a processor has 4 GB memory then how many address lines are required to access this memory?

Ans: $4\text{GB} = 4 * 1\text{GB}$

$$4 = 2^2$$

$$1\text{GB} = 2^{30}$$

$$4\text{GB} = 2^2 * 2^{30} = 2^{32}$$

So 32 address lines are required to access the 4 GB memory.

2.Data Bus:-8085 Microprocessor has 8 bit data bus. So it can be used to carry the 8 bit data starting from 00000000H(00H) to 11111111H(FFH). Here 'H' tells the Hexadecimal Number. It is bidirectional. These lines are used for data flowing in both direction means data can be transferred or can be received through these lines. The data bus also connects the I/O ports and CPU. The largest number that can appear on the data bus is 11111111.

It has 8 parallel lines of data bus. So it can access upto $2^8 = 256$ data bus lines.

3.Control Bus:-The control bus is used for sending control signals to the memory and I/O devices. The CPU sends control signal on the control bus to enable the outputs of addressed memory devices or I/O port devices.

Some of the control bus signals are as follows:

- 1.Memory read
- 2.Memory write
- 3.I/O read
- 4.I/O write.