

Experiment - 2

- Q) Assume internal clock frequency of the 8086 CPU is 10 MHz. Calculate manually time required to transfer FFFFH bytes in all the cases mentioned in a) and c) above

→ As the given frequency is 10 MHz. So we can calculate the time period for one single T state :

$$\begin{aligned}\text{time period} &= \frac{1}{f} \\ &= \frac{1}{10} \\ &= 0.1 \text{ sec}\end{aligned}$$

So, as we know generally the size of mov expression / instruction is of 16 bits i.e. 2 bytes and we need 2 machine cycles 8 T state

So time required to execute move instruction is $7 * 0.1 \text{ sec} = 0.7 \text{ sec}$

As mov instruction transfers 2 bytes of a time. So we need total of data/2 instructions i.e. FFFFH/2 instruction to transfer the data

So total time required to transfer the data is $(\text{FFFFH}/2) * 0.7 =$

$$\text{FFFFH} * 0.7 = 22936 \text{ seconds}$$

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So if we compare the cases of a, b & c we can conclude that the time requirement is near by same if we ignore the time requirement for special instructions like string