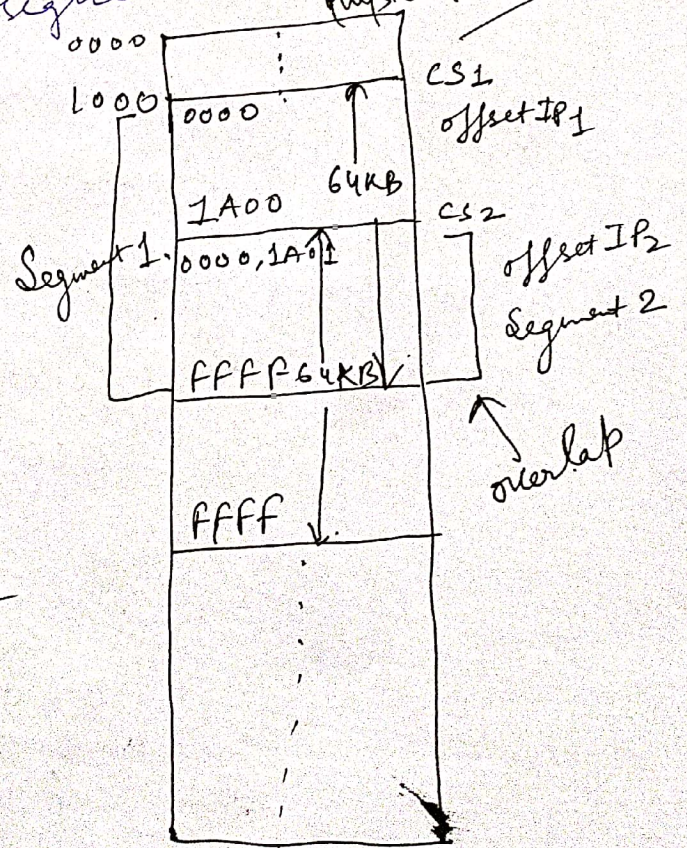
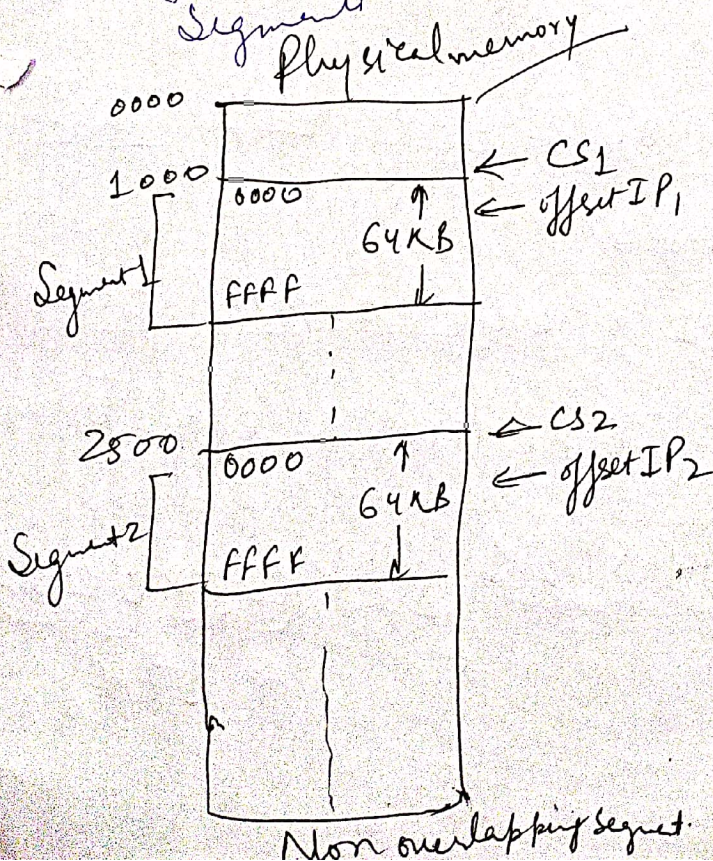


$$2^{20} = 1 \text{ MByte}$$

Memory Organ's Segmentation.

The CPU 8086 is able to address 1 M bytes of physical memory. The complete 1 M bytes memory can be divided into 16 segments each of 64 K bytes size. The address of the segments may be assigned as 0000H to F000H respectively. The offset address values from 0000H to FFFFH, so, that the physical addresses range from 00000H to FFFFFH, in the above said case, the segments are called non-overlapping segments.

Suppose a segment starts at a particular address and its maximum size can be 64 K bytes. But if another segment starts before this 64 K bytes location of the first segment, the two segments are said to be overlapping segments.



Main advantages of the Segmented memory Scheme:-

- 1) Allows the memory Capacity to be 1M bytes although the actual address to be handled are of 16 bit size.
- 2) Allow the placing of Code, data & Stack portions of the same program in different parts of memory, for data & Code protection.
- 3) Permits a program and or its data to be put into different areas of memory each time the program is executed.

In overlapped are 2 locations:

$$PA = CS_1 + IP_1 = CS_2 + IP_2$$

for ex. Segment address $\rightarrow 1005H$
 offset address $\rightarrow 5555H$

Segment address $\rightarrow \underline{0001} \underline{0000} \underline{0000} \underline{0101}$

Shifted by 4 bit position $\rightarrow$

$\underline{0001} \underline{0000} \underline{0000} \underline{0101} \underline{0000}$

+ 0101010101010101

$\underline{0001} \underline{0101} \underline{0101} \underline{1010} \underline{0101}$

Physical address (1 5 5 A 5)H.