



NORTH SOUTH UNIVERSITY

Department of Electrical and Computer Engineering

Assignment – 01

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Course No. : CSE 331
Course Title : Microprocessor Interfacing & Embedded System
Section : 6
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Ans. to the ques. no. 31

Given,

$$DS = 1200H$$

$$BX = 0100H$$

$$SI = 0250H$$

a) $\text{mov } [100H], DL$

- Direct address mode

Here,

Source is DL which is 8-bit

Destination field have direct number as offset.

So, the segment will be Data Segment (DS)

$$\therefore \text{Physical Address} = DS \times 10H + \text{offset}$$

$$= 1200H \times 10H + 100H$$

$$= 12000H + 100H$$

$$= 12100H$$

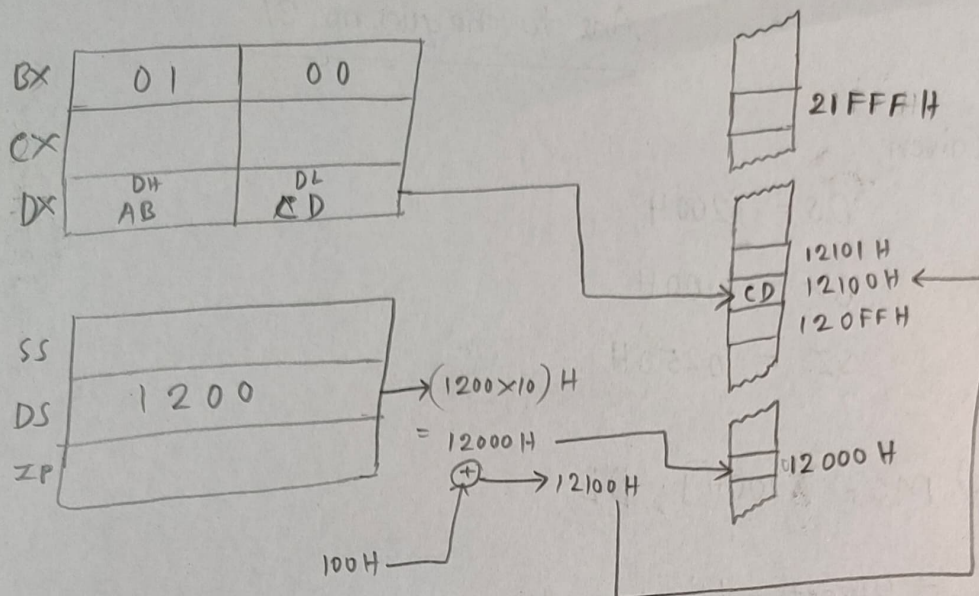


Diagram after execution

b) `MOV [SI + 100H], EAX`

— register relative addressing mode

Here

Source is EAX, which is 32 bit

Destination field have index register and direct number, as offset.

As, it is SI, memory segment will be Data segment.

$$\therefore \text{Physical Address} = \text{DS} \times 10\text{H} + \text{Offset}$$

$$= 1200\text{H} \times 10\text{H} + \text{SI} + 100\text{H}$$

$$= 12000\text{H} + 0250\text{H} + 100\text{H}$$

$$= 12350\text{H}$$

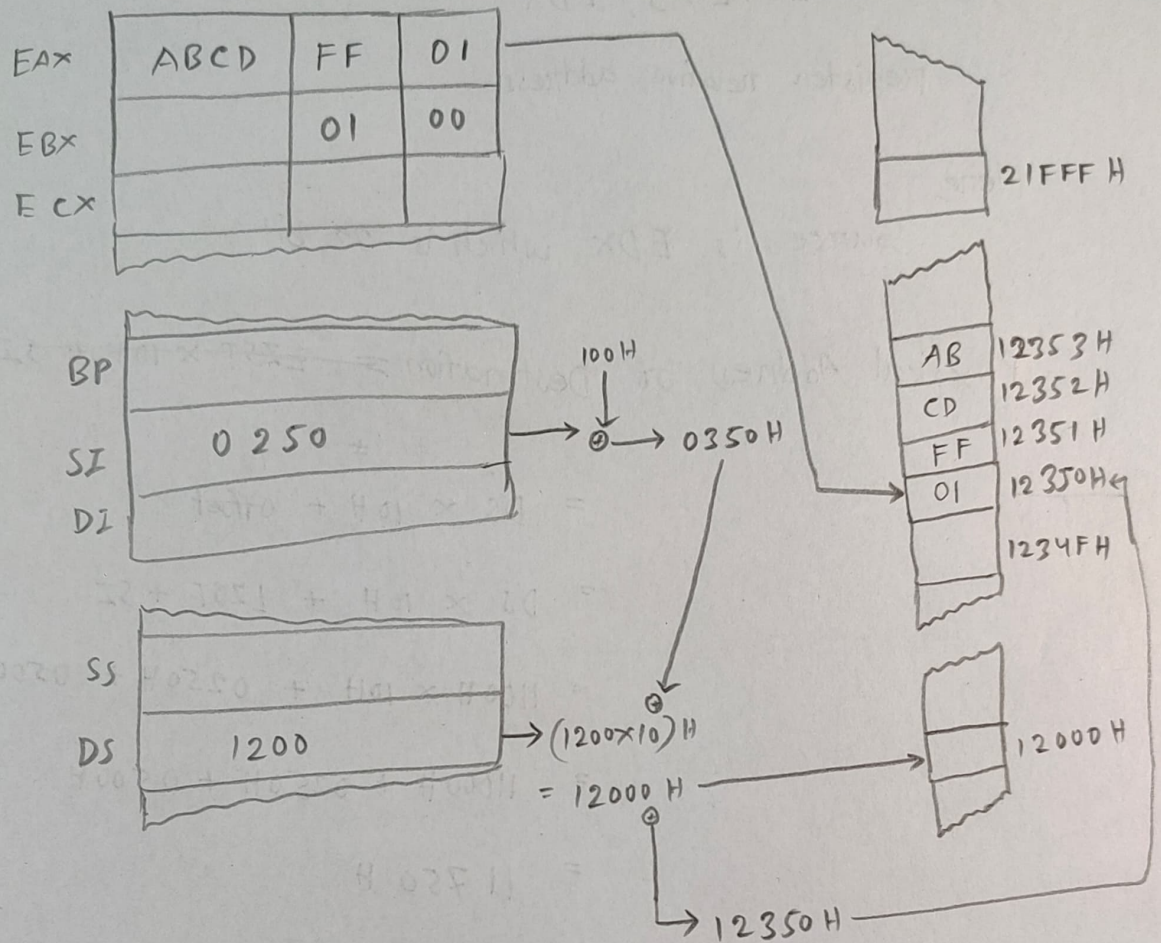


Diagram after execution

Ans. to the ques. no. 32

Given,

DS = 1100 H

BX = 0200 H

LIST = 0250 H

SI = 0500 H

a) `MOV LIST[SI], EDX`

- register relative address

Here,

Source is EDX which is 32 bit

Physical Address of Destination = ~~ES~~ $DS \times 10H + SI$

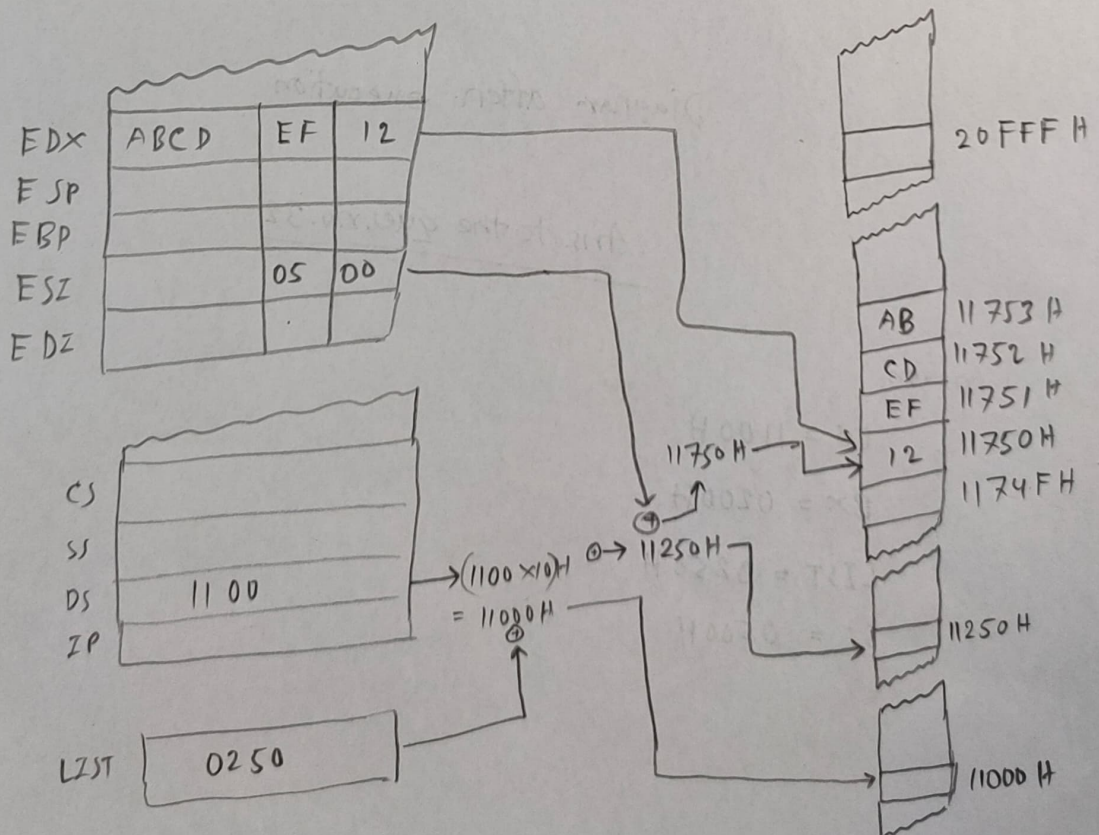
$$= DS \times 10H + \text{offset}$$

$$= DS \times 10H + LIST + SI$$

$$= 1100H \times 10H + 0250H + 0500H$$

$$= 11000H + 0250H + 0500H$$

$$= 11750H$$



b) MOV CL, LIST[BX+SI]

- Base relative plus index addressing mode

Physical Address of Source = ~~DS × 10H~~

$$= DS \times 10H + LIST + BX + SI$$

$$= 1100H \times 10H + 0250H + 0200H + 0500H$$

$$= 11000H + 0250H + 0200H + 0500H$$

$$= 11950H$$

Ans. to the ques. no. 0.37

Given,

$$DS = 1300H$$

$$SS = 1400H$$

$$BP = 1500H$$

$$SI = 0100H$$

a) MOV EAX, [BP + 200H]

- Register relative addressing mode

Hence,

Source referring to memory location which is 8 bit.

But destination 32 bit. Not allowed

Instruction will be ~~At~~,

MOV AL, [BP + 200H]

Physical Address of Source = ~~DS~~ × SS × 10H + BP + 200H

$$= 1400H \times 10H + 1500H + 200H$$

$$= 14000H + 1500H + 200H$$

$$= 15700H$$

b) MOV AL, [BP + SI - 200H]

- base ^{relative} plus index addressing mode

Physical Address of Source = SS × 10H + BP + SI - 200H

$$= 1400H \times 10H + 1500H + 0100H - 200H$$

$$= 14000H + 1500H + 0100H - 200H$$

$$= 15400H$$

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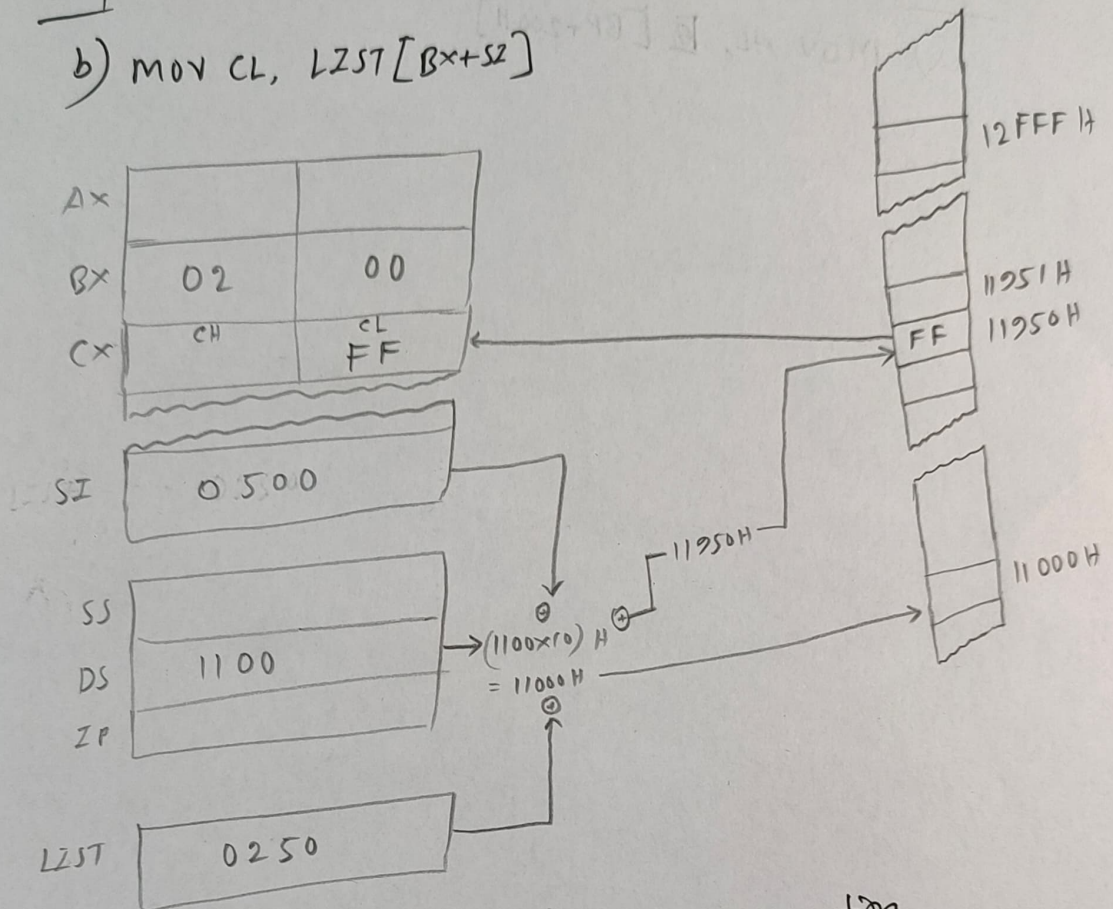
b) `MOV CL, LZST[BX+SI]`

Diagram after execution

33/

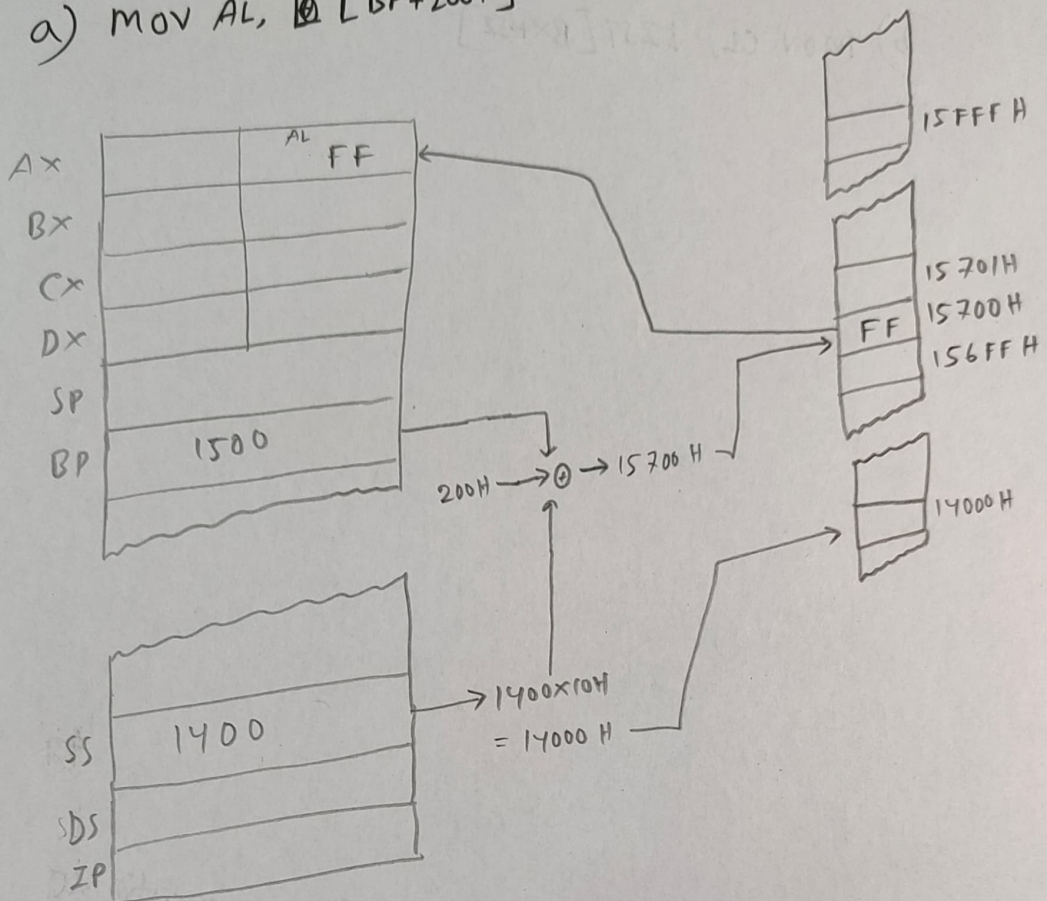
a) `MOV AL, [BP+200H]`

Diagram after execution

33)

b) MOV AL, [BP+SI-200H]

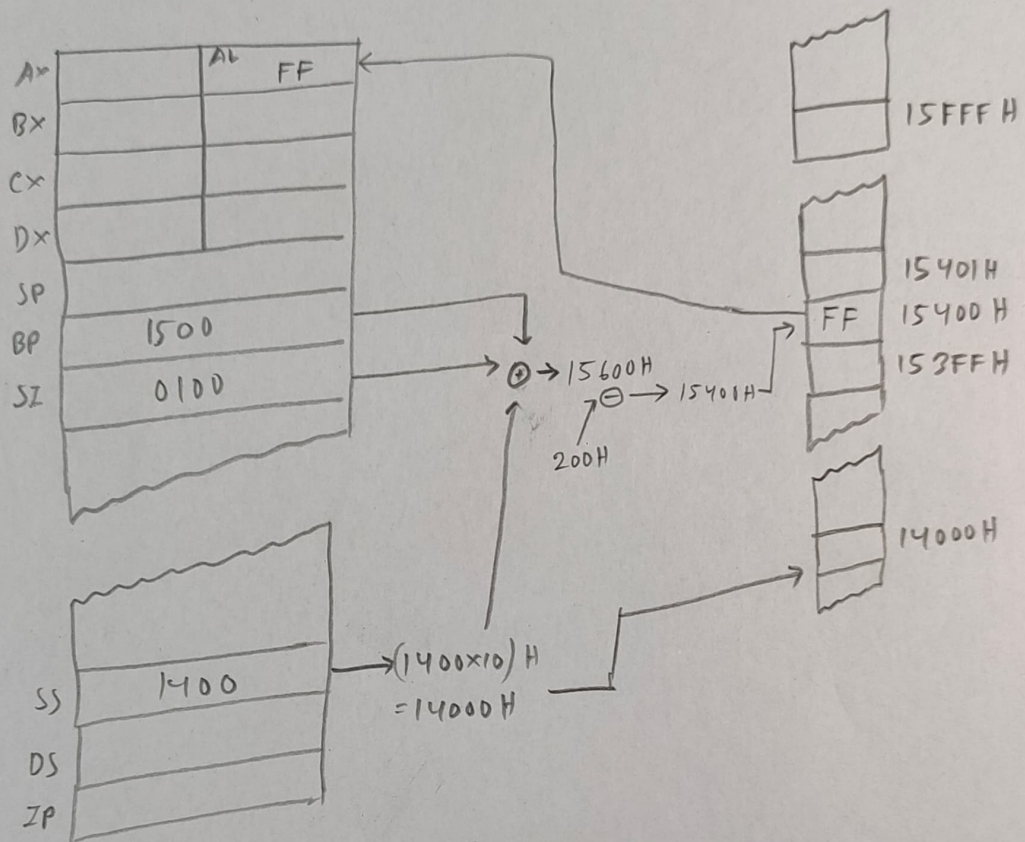


Diagram after execution