Assignment Three

Chapter 1

Problems

12.

12. Which of the following instructions cannot be coded in 8088/86 Assembly language? Give the reason why not, if any. To verify your answer, code each in DEBUG. Assume that all numbers are in hex.
(a) MOV AX,27   (b) MOV AL,97F   (c) MOV DS,9BF2
(d) MOV CX,397   (e) MOV SI,9516   (f) MOV CS,3490
(g) MOV DS,BX   (h) MOV BX,CS   (i) MOV CH,AX
(j) MOV AX,23FB9   (k) MOV CS,BH   (l) MOV AX,DL

答：

(a) √

(b) ×：AL是 8 位寄存器，97F有12位。

(c) ×：立即数不能转移到段寄存器。

(d) √

(e) √

(f) ×：立即数不能转移到段寄存器且CS的值不可以随意更改。

(g) √

(h) √

(i) ×：CH是8位寄存器，AX是16位寄存器。

(j) ×：AX是16位寄存器，23FB9有20位。

(k) ×：CS的值不可以随意更改。

(l) ×：AX是16位寄存器，DL是8位寄存器。

14.

14. If CS = 3499H and IP = 2500H, find:
(a) The logical address
(b) The physical address
(c) The lower and upper ranges of the code segment

答：

(a) The logical address is 3499H: 2500H.

(b) The physical address is (34990 + 2500)H = 36E90H.

(c) The lower range is 34990H. The upper range is (34990 + FFFF)H = 4498FH.

19.

19. If an instruction that needs to be fetched is in physical memory location 389F2 and CS = 2700, does the code segment range include it or not? If not, what value should be assigned to CS if the IP must be = 1282?

答:

If CS = 2700, the lower range is 27000 and the upper range is (27000 + FFFF) = 36FFF.

The code segment range doesn't include 389F2.

If the IP must be 1282, the CS must be (389F2 - 1282) >> 1 = 3777.

31.

31. The following registers are used as offsets. Assuming that the default segment is used to get the logical address, give the segment register associated with each off-set.
(a) BP   (b) DI   (c) IP
(d) SI   (e) SP   (f) BX

答:

(a) SS

(b) DS

(c) CS

(d) DS

(e) SS

(f) ES

33.

33. Find the status of the CF, PF, AF, ZF, and SF for the following operations.
(a)MOV BL,9FH   (b) MOV AL,23H   (c) MOV DX,10FFH
    ADD BL,61H   ADD AL,97H   ADD DX,1

答:

(a) CF = 1, PF = 1, AF = 1, ZF = 1, SF = 1

(b) CF = 0, PF = 0, AF = 0, ZF = 0, SF = 1

(c) CF = 0, PF = 1, AF = 1, ZF = 0, SF = 1

34.

34. Assume that the registers have the following values (all in hex) and that CS = 1000, DS = 2000, SS = 3000, SI = 4000, DI = 5000, BX = 6080, BP = 7000, AX = 25FF, CX = 8791, and DX = 1299. Calculate the physical address of the memory where the operand is stored and the contents of the memory locations in each of the following addressing examples.
(a) MOV [SI],AL   (b) MOV [SI+BX+8],AH
(c) MOV [BX],AX   (d) MOV [DI+6],BX
(e) MOV [DI][BX]+28,CX   (f) MOV [BP][SI]+10,DX

(g) MOV [3600],AX   (h) MOV [BX]+30,DX
(i) MOV [BP]+200,AX   (j) MOV [BP+SI+100],BX
(k) MOV [SI]+50,AH   (l) MOV [DI+BP+100],AX.

答：

(a) PA = DS(shifted left) + SI = 24000；FF

(b) PA = DS(shifted left) + SI + BX + 8 = 2A088；25

(c) PA = DS(shifted left) + BX = 26080；FF

(d) PA = DS(shifted left) + DI + 6 = 25006；80

(e) PA = DS(shifted left) + DI + BX + 28 = 2B0A8；91

(f) PA = SS(shifted left) + BP + SI + 10 = 3B010；99

(g) PA = DS(shifted left) + 3600 = 23600；FF

(h) PA = DS(shifted left) + BX + 30 = 260B0；99

(i) PA = SS(shifted left) + BP + 200 = 37200；FF

(j) PA = SS(shifted left) + BP + SI + 10 = 3B010；80

(k) PA = DS(shifted left) + SI + 50 = 24050；25

(l) PA = DS(shifted left) + DI + BP + 100 = 2C100；FF

36.

36. Show the contents of the memory locations after the execution of each instruction.
(a) MOV BX,129FH   (b) MOV DX,8C63H
     MOV [1450],BX   MOV [2348],DX
     DS:1450 ....   DS:2348 ....
     DS:1451 ....   DS:2349 ....

答：

(a)

DS: 1450   9F

DS: 1451   12

(b)

DS: 2348   63

DS: 2349   8C