**1a)**

.8086

.model small

.data

a db 06h

b db 02h

c db ?

.code

start:

MOV AX,@data

MOV DS,AX

MOV AL,a

MOV BL,b

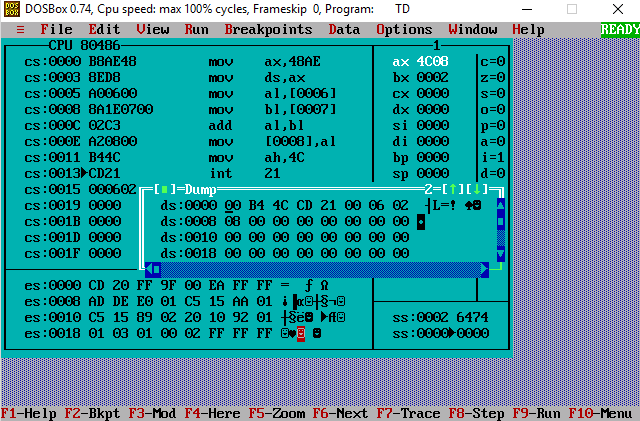
ADD AL,BL

MOV c,AL

MOV AH,4Ch

INT 21h

end start



**1b)**

.8086

.model small

.data

a dw 2001h

b dw 1212h

c dw ?

.code

start:

MOV AX,@data

MOV DS,AX

MOV AX,a

MOV BX,b

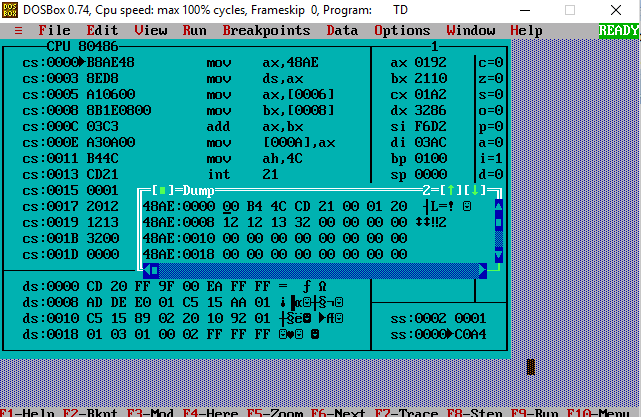
ADD AX,BX

MOV c,AX

MOV AH,4Ch

INT 21h

end start



**1c)**

.8086

.model small

.data

a db 08h

b db 04h

c db ?

.code

start:MOV AX,@data

MOV DS,AX

MOV AH,a

MOV BH,b

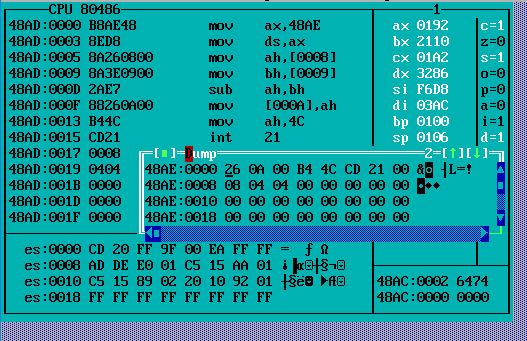
SUB AH,BH

MOV c,AH

MOV AH,4Ch

int 21h˘

end start



**2a)**

.8086

.model small

.data

a db 05h

b db 02h

c dw ?

.code

start:

MOV AX,@data

MOV DS,AX

MOV AL,a

MOV BL,b

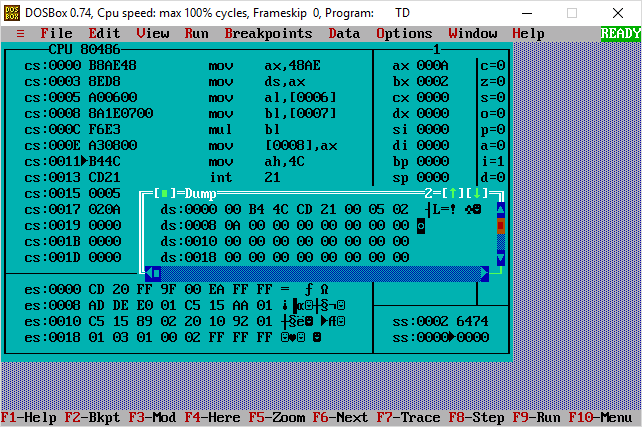
MUL BL

MOV c,AX

MOV AH,4Ch

INT 21h

end start



**2b)**

.8086

.model small

.data

a dw 2000h

b dw 0002h

c dd ?

.code

start:

MOV AX,@data

MOV DS,AX

MOV AX,a

MOV BX,b

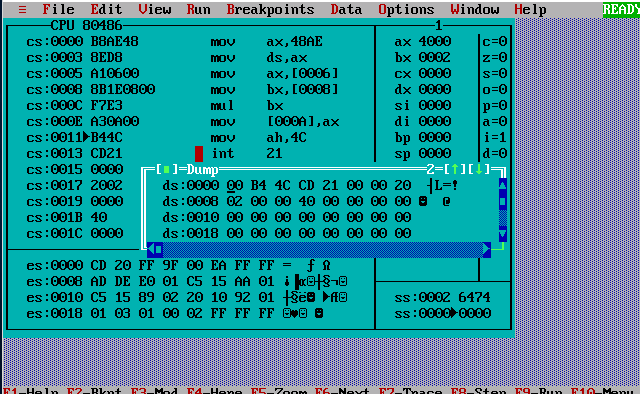
MUL BX

MOV c,AX

MOV AH,4Ch

INT 21h

end start



**3a)**

.8086

.model small

.data

STR1 db 01h,02h,03h,04h,05h,06h,07h,08h,09h,10h

STR2 db ?

.code

start:

MOV AX,@data

MOV DS,AX

MOV ES,AX

LEA SI,STR1

LEA DI,STR2

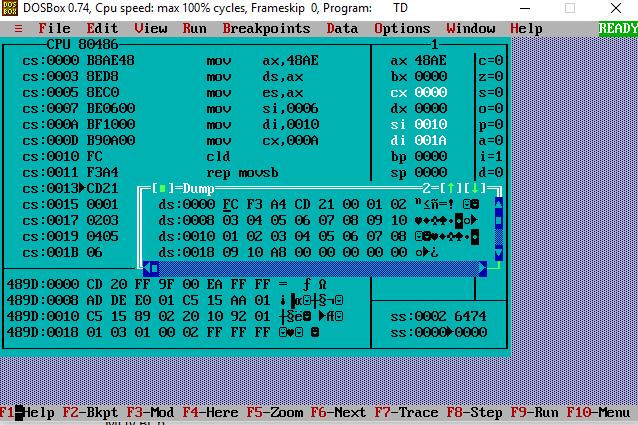
MOV CX,0Ah

CLD

REP MOVSB

INT 21h

end start



**3b)**

.8086

.model small

.data

a db 01h,02h,03h,04h,05h,06h,07h,08,09h,0Ah

b db ?

.code

START: MOV AX,@DATA

MOV DS,AX

MOV ES,AX

LEA SI,a

LEA DI,b

MOV AX,0000h

MOV CL,0Ah

MOV BL,0Ah

CLC

LOOP1: ADD AL,[SI]

INC SI

DEC CL

JNZ LOOP1

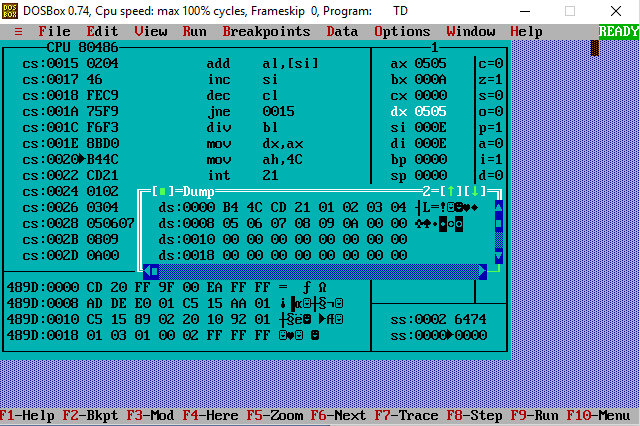
DIV BL

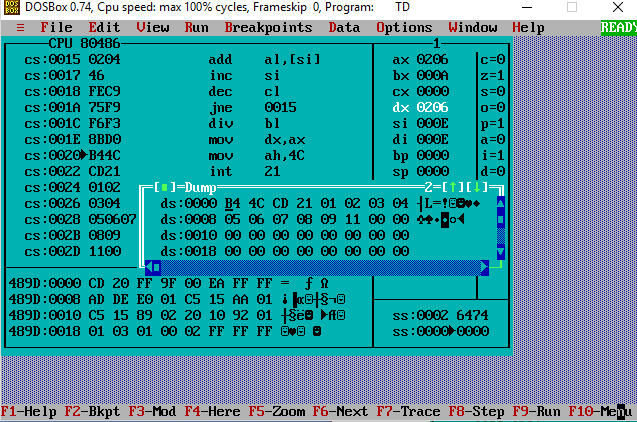
MOV DX,AX

MOV AH,4Ch

INT 21h

END START





**3c)**

.8086

.model small

.data

a dw 0008h

b dw 0004h

c dw ?

.code

start:MOV AX,@data

MOV DS,AX

MOV AX,a

MOV BX,b

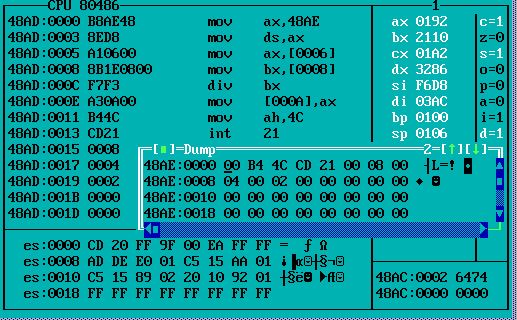
DIV BX

MOV c,AX

MOV AH,4Ch

INT 21h

end start



**4a)**

.8086

.model small

.data

a db 02h,01h,06h,03h

b db ?

.code

start:MOV AX,@data

MOV DS,AX

MOV ch,04h

Loop2:MOV CL,04h

LEA SI,a

Loop1:MOV AL,[SI]

MOV BL,[SI+1]

CMP AL,BL

JC DOWN

MOV DL,[SI+1]

XCHG [SI],DL

MOV [SI+1],DL

DOWN:INC SI

DEC CL

JNZ Loop1

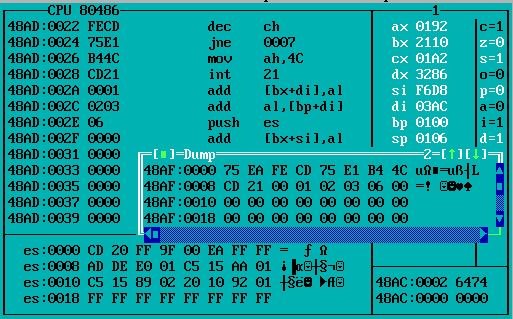
DEC CH

JNZ Loop2

MOV AH,4Ch

INT 21h

end start



**4b)**

.8086

.model small

.data

a db 02h,01h,06h,03h

b db ?

.code

start:MOV AX,@data

MOV DS,AX

MOV CH,04h

Loop2:MOV CL,04h

LEA SI,a

Loop1:MOV AL,[SI]

MOV BL,[SI+1]

CMP AL,BL

JNC DOWN

MOV DL,[SI+1]

XCHG [SI],DL

MOV [SI+1],DL

DOWN:INC SI

DEC CL

JNZ Loop1

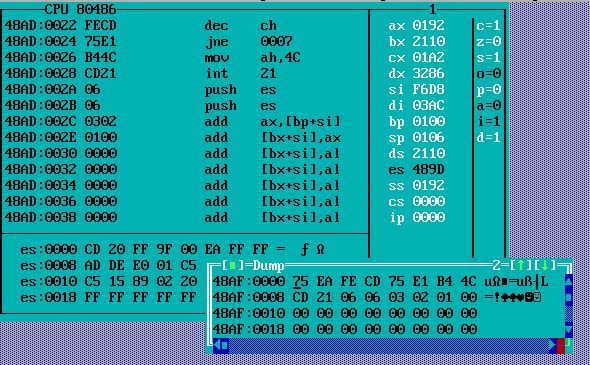
DEC CH

JNZ Loop2

MOV AH,4Ch

INT 21h

end start



**5a)**

.8086

.model small

.data

a dw 01h,02h,03h,04h,05h,06h,07h,08h,09h,10h

.code

start:MOV AX,@data

MOV DS,AX

LEA SI,A

MOV DX,00h

MOV BL,02h

MOV CL,10h

Loop1:MOV AX,[SI]

DIV BL

CMP AH,00h

JNZ Loop2

INC DH

JMP Loop3

Loop2:INC DL

Loop3:ADD SI,2

DEC CL

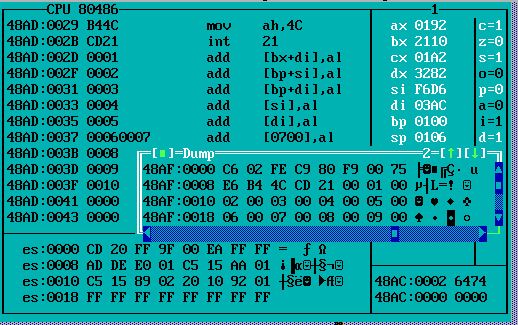
CMP CL,00h

JNZ Loop1

MOV AH,4Ch

INT 21h

end start



**6a)**

.model small

.data

a dw 3629h

b dw 4738h

.code

start:

mov ax,@data

mov ds, ax

mov ax,a

mov bx,b

add al,bl

daa

mov bl,al

adc ah,bh

mov al,ah

daa

mov bh,al

mov cx, 0404h

l2: rol bx, cl

mov dl, bl

and dl, 0fh

cmp dl,09

jbe l4

add dl,07

l4: add dl,30h

mov ah,02

int 21h

dec ch

jnz l2

mov ah, 4ch

int 21h

end start



**6b)**

.model small

.data

a dw 5102h

b dw 3203h

.code

start: mov ax,@data

mov ds, ax

mov ax, a

mov bx, b

sub al,bl

das

mov bl,al

sbb ah,bh

mov al,ah

das

mov bh,al

mov cx,0404h

l2: rol bx,cl

mov dl,bl

and dl,0fh

cmp dl,09

jbe l4

add dl,07

l4: add dl,30h

mov ah,02

int 21h

dec ch

jnz l2

mov ah,4ch

int 21h

end start



**7a)**

.model small

.data

a db 0Eh

.code

start: mov ax,@data

mov ds,ax

mov al,a

mov bl,al

add al,bl

xor al,bl

shr al,01

mov cl,02h

mov bl,al

l1: rol bl,04

mov dl,bl

and dl,0fh

cmp dl,09

jbe l2

add dl,07

l2: add dl,30h

mov ah,02h

int 21h

dec cl

jnz l1

mov ah,4ch

int 21h

end start



**7b)**

.model small

.data

a db 78h

.code

start: mov ax,@data

mov ds,ax

mov al,a

mov ah,al

rol ah,04

and ax,0f0fh

or ax,3030h

mov bx,ax

mov dl,bh

mov ah,02

int 21h

mov dl,bl

mov ah,02

int 21h

mov ah,4ch

int 21h

end start



**7c)**

.model small

.data

a db 78h

digit1 db ?

digit2 db ?

.code

start: mov ax,@data

mov ds,ax

mov bl,0fh

mov al,a

and al,bl

mov digit1,al

mov al,a

rol al,04

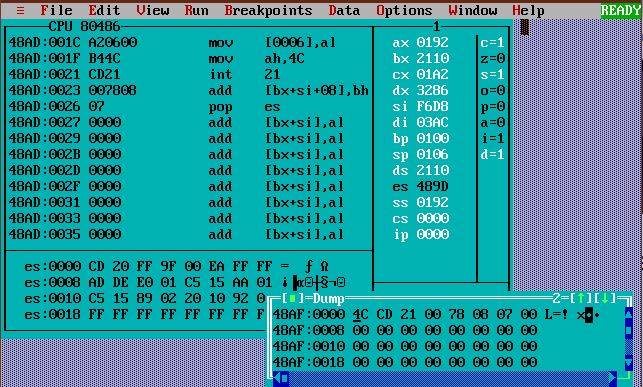
and al,bl

mov digit2,al

mov ah,4ch

int 21h

end start



**8a)**

.model small

.data

a db 41h,42h,43h,44h,45h,46h,47h,48h,49h,4ah,4bh,4ch,4dh,4eh,4fh,50h,51h,52h,53h,54h,55h,56h,57h,58h,59h,5ah

.code

start: mov ax,@data

mov ds,ax

lea si,a

mov cl,1ah

l1: mov dl,[si]

mov ah,02

int 21h

inc si

dec cl

jnz l1

mov ah,4ch

int 21h

end start



**8b)**

.model small

.data

.code

start: mov ax,@data

mov ds,ax

l1: mov ah,08

int 21h

cmp al,30h

jz last

mov dl,al

mov ah,02

int 21h

jmp l1

last: mov ah,4ch

int 21h

end start



**9a)**

.model small

.data

mat1 db 02h,01h,01h,01h,01h,01h,01h,01h,01h

mat2 db 01h,02h,01h,01h,01h,01h,01h,01h,01h

mat3 db 9 DUP(0)

.code

start: mov ax,@data

mov ds,ax

mov ch,03h

mov cl,03h

mov bp,03h

lea bx,mat3

lea si,mat1

lea di,mat2

mul3: mov al,[si]

mov bh,[di]

mul bh

mov bh,00h

add [bx],al

inc si

add di,03h

dec cl

done1: jnz mul3

mov dl,[bx]

add dl,30h

mov ah,02

int 21h

mov dl,20h

mov ah,02

int 21h

inc bx

mov cl,03h

sub si,03h

sub di,08h

dec bp

rdone: jnz mul3

mov dl,0ah

mov ah,02

int 21h

mov dl,0dh

mov ah,02

int 21h

add si,03h

sub di,03h

mov bp,03h

dec ch

jnz mul3

mov ah,4ch

int 21h

end start

