

DENEYSEL ÇALIŞMA

- 5) Lea ax,[bx] komutu bx'in içinde bulunan değeri ax'e atar.
Aşağıda ise bunu açıklayan program:

```
AX=0000 BX=0000 CX=0000 DX=0000 SP=FFEE BP=0000 SI=0000 DI=0000
DS=154F ES=154F SS=154F CS=154F IP=0100 NV UP EI PL NZ NA PO NC
154F:0100 0000 ADD [BX+SI],AL DS:0000=CD
```

-r ax

AX 0000

:0100

-r bx

BX 0000

:0200

-a

154F:0100 lea ax,bx

^ Hatası

154F:0100 lea ax,[bx]

154F:0102

-r

```
AX=0100 BX=0200 CX=0000 DX=0000 SP=FFEE BP=0000 SI=0000 DI=0000
DS=154F ES=154F SS=154F CS=154F IP=0100 NV UP EI PL NZ NA PO NC
154F:0100 8D07 LEA AX,[BX] DS:0000=20C
```

-t

```
AX=0200 BX=0200 CX=0000 DX=0000 SP=FFEE BP=0000 SI=0000 DI=0000
DS=154F ES=154F SS=154F CS=154F IP=0102 NV UP EI PL NZ NA PO NC
154F:0102 0000 ADD [BX+SI],AL DS:0000=CD
```

7)

154F:0100 neg bx

154F:0102

-r

```
AX=0000 BX=0045 CX=0000 DX=0000 SP=FFEE BP=0000 SI=0000 DI=0000
DS=154F ES=154F SS=154F CS=154F IP=0100 NV UP EI PL NZ NA PO NC
154F:0100 F7DB NEG BX
```

-t

```
AX=0000 BX=FFBB CX=0000 DX=0000 SP=FFEE BP=0000 SI=0000 DI=0000
DS=154F ES=154F SS=154F CS=154F IP=0102 NV UP EI NG NZ AC PE CY
154F:0102 0000 ADD [BX+SI],AL DS:FFBB=00
```

a)BX yazmacında tutulan yeni değer FFBB dir.

b)Komut çalıştırıldıktan sonra “PL” işaret bayrağı “NG” olmuştur.

10)

-a

154F:0100 mov al,ff

154F:0102 add al,1

154F:0104 mov al,7f

154F:0106 add al,1

154F:0108 mov al,80

154F:010A add al,1

154F:010C mov al,ff
154F:010E inc al
154F:0110 mov al,80
154F:0112 inc al
154F:0114

-r

AX=0000 BX=0000 CX=0000 DX=0000 SP=FFEE BP=0000 SI=0000 DI=0000
DS=154F ES=154F SS=154F CS=154F IP=0100 NV UP EI PL NZ NA PO NC
154F:0100 B0FF MOV AL,FF

AX=00FF BX=0000 CX=0000 DX=0000 SP=FFEE BP=0000 SI=0000 DI=0000
DS=154F ES=154F SS=154F CS=154F IP=0102 NV UP EI PL NZ NA PO NC
154F:0102 0401 ADD AL,01→Burada AL'nin içindeki değeri 1 artırırsak zero
flag, auxiliary carry flag, carry flag aktif olur.Yalnız sign flag aktif olmaz çünkü bunu
pozitif olarak algılar.Diğer bayrakların aktif olma nedenleri de bunları hexadecimal
olarak topladığımızda anlayabiliriz.

-t

AX=0000 BX=0000 CX=0000 DX=0000 SP=FFEE BP=0000 SI=0000 DI=0000
DS=154F ES=154F SS=154F CS=154F IP=0104 NV UP EI PL ZR AC PE CY
154F:0104 B07F MOV AL,7F→Burada herhangi bir değişiklik olmamıştır.

-t

AX=007F BX=0000 CX=0000 DX=0000 SP=FFEE BP=0000 SI=0000 DI=0000
DS=154F ES=154F SS=154F CS=154F IP=0106 NV UP EI PL ZR AC PE CY
154F:0106 0401 ADD AL,01→AL=7F değerine 1 eklersek overflow bayrağı aktif
olur.Hexadecimal olarak toplamdan dolayı sekiz değerinin binary karşılığında son bitte
bir vardır ve bu işaret biti olarak da kullanılır.Bundan dolayı sign flag de “NG” olur.

-t

AX=0080 BX=0000 CX=0000 DX=0000 SP=FFEE BP=0000 SI=0000 DI=0000
DS=154F ES=154F SS=154F CS=154F IP=0108 OV UP EI NG NZ AC PO NC
154F:0108 B080 MOV AL,80

-t

AX=0080 BX=0000 CX=0000 DX=0000 SP=FFEE BP=0000 SI=0000 DI=0000
DS=154F ES=154F SS=154F CS=154F IP=010A OV UP EI NG NZ AC PO NC
154F:010A 0401 ADD AL,01→Sign flag 8 değerinin binary karşılığından dolayı
aktif olur.Elde bayrağı ve parity bayrağı da bu toplama bağımlı olarak değişir.

AX=0081 BX=0000 CX=0000 DX=0000 SP=FFEE BP=0000 SI=0000 DI=0000
DS=154F ES=154F SS=154F CS=154F IP=010C NV UP EI NG NZ NA PE NC
154F:010C B0FF MOV AL,FF

-t

AX=00FF BX=0000 CX=0000 DX=0000 SP=FFEE BP=0000 SI=0000 DI=0000
DS=154F ES=154F SS=154F CS=154F IP=010E NV UP EI NG NZ NA PE NC
154F:010E FEC0 INC AL→1. tracedeki durum tekrarlanır yalnız “INC” komutu
kullanıldığı için “PE” ve “NC” bayrakları bu durumdan etkilenmez.

-t

AX=0000 BX=0000 CX=0000 DX=0000 SP=FFEE BP=0000 SI=0000 DI=0000
DS=154F ES=154F SS=154F CS=154F IP=0110 NV UP EI PL ZR AC PE NC
154F:0110 B080 MOV AL,80

-t

AX=0080 BX=0000 CX=0000 DX=0000 SP=FFEE BP=0000 SI=0000 DI=0000
DS=154F ES=154F SS=154F CS=154F IP=0112 NV UP EI **PL ZR AC** PE NC
154F:0112 FEC0 INC AL

-t

AX=0081 BX=0000 CX=0000 DX=0000 SP=FFEE BP=0000 SI=0000 DI=0000
DS=154F ES=154F SS=154F CS=154F IP=0114 NV UP EI **NG NZ NA** PE NC
154F:0114 0000 ADD [BX+SI],AL DS:0000=CD→**7.tracedeki durum
tekrar etmiştir.**

11)

154F:0100 mov ax,aa77
154F:0103 mov bx,c3c3
154F:0106 and ax,bx
154F:0108 not ax
154F:010A and al,bh
154F:010C not bx
154F:010E or bx,ax
154F:0110 not ah
154F:0112 or bl,ah
154F:0114 xor ax,bx
154F:0116 not bx
154F:0118 xor bh,ah
154F:011A

-t

AX=**0000** BX=**0000** CX=0000 DX=0000 SP=FFEE BP=0000 SI=0000 DI=0000
DS=154F ES=154F SS=154F CS=154F IP=0100 NV UP EI **PL NZ NA** PO NC
154F:0100 B877AA MOV AX,AA77

-t

AX=**AA77** BX=**0000** CX=0000 DX=0000 SP=FFEE BP=0000 SI=0000 DI=0000
DS=154F ES=154F SS=154F CS=154F IP=0103 NV UP EI **PL NZ NA** PO NC
154F:0103 BBC3C3 MOV BX,C3C3

-t

AX=**AA77** BX=**C3C3** CX=0000 DX=0000 SP=FFEE BP=0000 SI=0000 DI=0000
DS=154F ES=154F SS=154F CS=154F IP=0106 NV UP EI **PL NZ NA** PO NC
154F:0106 21D8 AND AX,BX

-t

AX=**8243** BX=C3C3 CX=0000 DX=0000 SP=FFEE BP=0000 SI=0000 DI=0000
DS=154F ES=154F SS=154F CS=154F IP=0108 NV UP EI **NG NZ NA** PO NC
154F:0108 F7D0 NOT AX

-t

AX=**7DBC** BX=C3C3 CX=0000 DX=0000 SP=FFEE BP=0000 SI=0000 DI=0000
DS=154F ES=154F SS=154F CS=154F IP=010A NV UP EI **NG NZ NA** PO NC
154F:010A 20F8 AND AL,BH

AX=**7D80** BX=C3C3 CX=0000 DX=0000 SP=FFEE BP=0000 SI=0000 DI=0000
DS=154F ES=154F SS=154F CS=154F IP=010C NV UP EI NG NZ NA PO NC
154F:010C F7D3 NOT BX
-t

AX=7D80 BX=**3C3C** CX=0000 DX=0000 SP=FFEE BP=0000 SI=0000 DI=0000
DS=154F ES=154F SS=154F CS=154F IP=010E NV UP EI NG NZ NA PO NC
154F:010E 09C3 OR BX,AX
-t

AX=7D80 BX=**7DBC** CX=0000 DX=0000 SP=FFEE BP=0000 SI=0000 DI=0000
DS=154F ES=154F SS=154F CS=154F IP=0110 NV UP EI PL NZ NA PO NC
154F:0110 F6D4 NOT AH
-t

AX=**8280** BX=7DBC CX=0000 DX=0000 SP=FFEE BP=0000 SI=0000 DI=0000
DS=154F ES=154F SS=154F CS=154F IP=0112 NV UP EI PL NZ NA PO NC
154F:0112 08E3 OR BL,AH
-t

AX=8280 BX=**7DBE** CX=0000 DX=0000 SP=FFEE BP=0000 SI=0000 DI=0000
DS=154F ES=154F SS=154F CS=154F IP=0114 NV UP EI NG NZ NA PE NC
154F:0114 31D8 XOR AX,BX

AX=**FF3E** BX=7DBE CX=0000 DX=0000 SP=FFEE BP=0000 SI=0000 DI=0000
DS=154F ES=154F SS=154F CS=154F IP=0116 NV UP EI NG NZ NA PO NC
154F:0116 F7D3 NOT BX
-t

AX=FF3E BX=**8241** CX=0000 DX=0000 SP=FFEE BP=0000 SI=0000 DI=0000
DS=154F ES=154F SS=154F CS=154F IP=0118 NV UP EI NG NZ NA PO NC
154F:0118 30E7 XOR BH,AH
-t

AX=FF3E BX=**7D41** CX=0000 DX=0000 SP=FFEE BP=0000 SI=0000 DI=0000
DS=154F ES=154F SS=154F CS=154F IP=011A NV UP EI PL NZ NA PE NC
154F:011A 0000 ADD [BX+SI],AL DS:7D41=00

12)

a)

152D:0100 mov ax,0034

152D:0103 or al,30

152D:0105 aaa

152D:0106

-r

AX=0000 BX=0000 CX=0000 DX=0000 SP=FFEE BP=0000 SI=0000 DI=0000
DS=152D ES=152D SS=152D CS=152D IP=0100 NV UP EI PL NZ NA PO NC
152D:0100 B83400 MOV AX,0034
-t

AX=0034 BX=0000 CX=0000 DX=0000 SP=FFEE BP=0000 SI=0000 DI=0000
DS=152D ES=152D SS=152D CS=152D IP=0103 NV UP EI PL NZ NA PO NC
152D:0103 0C30 OR AL,30
-t

AX=0034 BX=0000 CX=0000 DX=0000 SP=FFEE BP=0000 SI=0000 DI=0000
DS=152D ES=152D SS=152D CS=152D IP=0105 NV UP EI PL NZ NA PO NC
152D:0105 37 AAA
-t

AX=**0004** BX=0000 CX=0000 DX=0000 SP=FFEE BP=0000 SI=0000 DI=0000
DS=152D ES=152D SS=152D CS=152D IP=0106 NV UP EI PL NZ NA PO NC
152D:0106 0000 ADD [BX+SI],AL DS:0000=CD

b)

c)

d)-a

152D:0100 mov ax,0038
152D:0103 or al,30
152D:0105 aaa
152D:0106

-r

AX=0000 BX=0000 CX=0000 DX=0000 SP=FFEE BP=0000 SI=0000 DI=0000
DS=152D ES=152D SS=152D CS=152D IP=0100 NV UP EI PL NZ NA PO NC
152D:0100 B83800 MOV AX,0038
-t

AX=0038 BX=0000 CX=0000 DX=0000 SP=FFEE BP=0000 SI=0000 DI=0000
DS=152D ES=152D SS=152D CS=152D IP=0103 NV UP EI PL NZ NA PO NC
152D:0103 0C30 OR AL,30
-t

AX=0038 BX=0000 CX=0000 DX=0000 SP=FFEE BP=0000 SI=0000 DI=0000
DS=152D ES=152D SS=152D CS=152D IP=0105 NV UP EI PL NZ NA PO NC
152D:0105 37 AAA
-t

AX=**0008** BX=0000 CX=0000 DX=0000 SP=FFEE BP=0000 SI=0000 DI=0000
DS=152D ES=152D SS=152D CS=152D IP=0106 NV UP EI PL NZ NA PO NC
152D:0106 0000 ADD [BX+SI],AL DS:0000=CD

14) a)

-r

AX=**1234** BX=0004 CX=**0004** DX=0000 SP=FFEE BP=0000 SI=0000 DI=0000
DS=154F ES=154F SS=154F CS=154F IP=0100 NV UP EI PL NZ NA PO NC
154F:0100 D3C8 ROR AX,CL

-t

AX=**4123** BX=0004 CX=**0004** DX=0000 SP=FFEE BP=0000 SI=0000 DI=0000
DS=154F ES=154F SS=154F CS=154F IP=0102 NV UP EI PL NZ NA PO NC
154F:0102 D3C8 ROR AX,CL

-t

AX=**3412** BX=0004 CX=**0004** DX=0000 SP=FFEE BP=0000 SI=0000 DI=0000
DS=154F ES=154F SS=154F CS=154F IP=0104 NV UP EI PL NZ NA PO NC
154F:0104 C8 DB C8

b)

15) **ADD AL,BL sonucu:**

-a
152D:0100 mov al,66
152D:0102 mov bl,48
152D:0104 add al,bl
152D:0106
-t

AX=0066 BX=0000 CX=0000 DX=0000 SP=FFEE BP=0000 SI=0000
DI=0000
DS=152D ES=152D SS=152D CS=152D IP=0102 NV UP EI PL NZ NA PO
NC
152D:0102 B348 MOV BL,48
-t

AX=0066 BX=0048 CX=0000 DX=0000 SP=FFEE BP=0000 SI=0000
DI=0000
DS=152D ES=152D SS=152D CS=152D IP=0104 NV UP EI PL NZ NA PO
NC
152D:0104 00D8 ADD AL,BL
-t

AX=00AE BX=0048 CX=0000 DX=0000 SP=FFEE BP=0000 SI=0000
DI=0000
DS=152D ES=152D SS=152D CS=152D IP=0106 OV UP EI NG NZ NA PO
NC
152D:0106 0000 ADD [BX+SI],AL DS:0048=00

CBW komutu kullanıldıktan sonra:

MOV AL,66
CBW
ADD AL,BL
MOV BL,48

-r
AX=0000 BX=0000 CX=0000 DX=0000 SP=FFEE BP=0000 SI=0000 DI=0000
DS=152D ES=152D SS=152D CS=152D IP=0100 NV UP EI PL NZ NA PO NC
152D:0100 B066 MOV AL,66
-t

AX=0066 BX=0000 CX=0000 DX=0000 SP=FFEE BP=0000 SI=0000 DI=0000
DS=152D ES=152D SS=152D CS=152D IP=0102 NV UP EI PL NZ NA PO NC
152D:0102 B348 MOV BL,48
-t

AX=0066 BX=0048 CX=0000 DX=0000 SP=FFEE BP=0000 SI=0000 DI=0000

DS=152D ES=152D SS=152D CS=152D IP=0104 NV UP EI PL NZ NA PO NC
152D:0104 00D8 ADD AL,BL
-t

AX=**00AE** BX=0048 CX=0000 DX=0000 SP=FFEE BP=0000 SI=0000 DI=0000
DS=152D ES=152D SS=152D CS=152D IP=0106 OV UP EI NG NZ NA PO NC
152D:0106 98 CBW
-t

AX=**FFAE** BX=0048 CX=0000 DX=0000 SP=FFEE BP=0000 SI=0000 DI=0000
DS=152D ES=152D SS=152D CS=152D IP=0107 OV UP EI NG NZ NA PO NC
152D:0107 0000 ADD [BX+SI],AL DS:0048=**00**