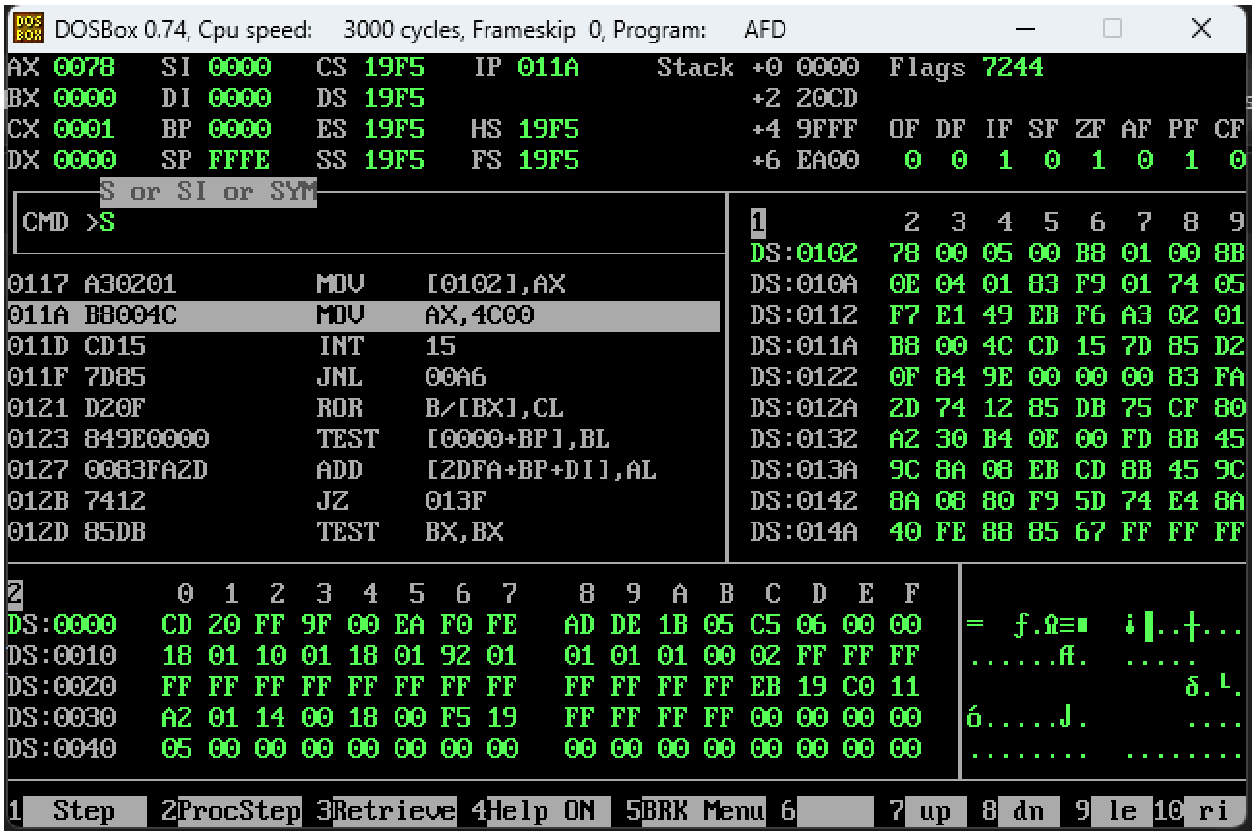
Activity 1:



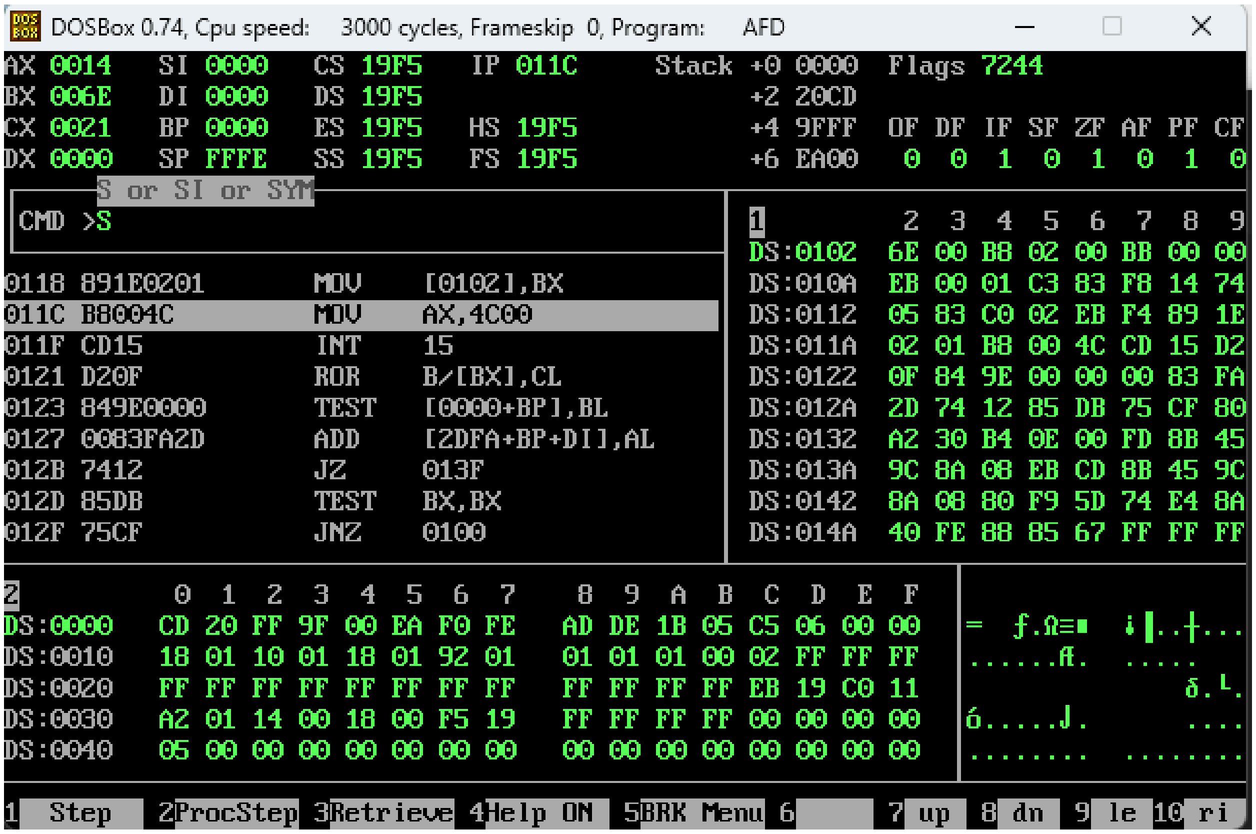
DOSBox 0.74, Cpu speed: 3000 cycles, Frameskip 0, Program: AFD

```
AX 0078   SI 0000   CS 19F5   IP 011A      Stack +0 0000  Flags 7244
BX 0000   DI 0000   DS 19F5                      +2 20CD
CX 0001   BP 0000   ES 19F5   HS 19F5            +4 9FFF  OF DF IF SF ZF AF PF CF
DX 0000   SP FFFE   SS 19F5   FS 19F5            +6 EA00   0  0  1  0  1  0  1  0
      S or SI or SYM
 CMD >S                                        1         2  3  4  5  6  7  8  9
                                               DS:0102  78 00 05 00 B8 01 00 8B
0117 A30201         MOV    [0102],AX           DS:010A  0E 04 01 83 F9 01 74 05
011A B8004C         MOV    AX,4C00             DS:0112  F7 E1 49 EB F6 A3 02 01
011D CD15           INT    15                  DS:011A  B8 00 4C CD 15 7D 85 D2
011F 7D85           JNL    00A6                DS:0122  0F 84 9E 00 00 00 83 FA
0121 D20F           ROR    B/[BX],CL           DS:012A  2D 74 12 85 DB 75 CF 80
0123 849E0000       TEST   [0000+BP],BL        DS:0132  A2 30 B4 0E 00 FD 8B 45
0127 0083FA2D       ADD    [2DFA+BP+DI],AL     DS:013A  9C 8A 08 EB CD 8B 45 9C
012B 7412           JZ     013F                DS:0142  8A 08 80 F9 5D 74 E4 8A
012D 85DB           TEST   BX,BX               DS:014A  40 FE 88 85 67 FF FF FF

2          0  1  2  3  4  5  6  7   8  9  A  B  C  D  E  F
DS:0000   CD 20 FF 9F 00 EA F0 FE  AD DE 1B 05 C5 06 00 00   =  ƒ.Ω≡■  ↓▌..┼...
DS:0010   18 01 10 01 18 01 92 01  01 01 01 00 02 FF FF FF   ......Æ.  .....
DS:0020   FF FF FF FF FF FF FF FF  FF FF FF FF EB 19 C0 11            δ.└.
DS:0030   A2 01 14 00 18 00 F5 19  FF FF FF FF 00 00 00 00   ó.....J.      ....
DS:0040   05 00 00 00 00 00 00 00  00 00 00 00 00 00 00 00   ........  ........
```

```
[org 0x0100]

jmp start
fact dw 0
num dw 5


start:
mov ax, 1
mov cx, [num]

l1:
cmp cx, 1
je term
mul cx
dec cx
jmp l1



term:
```

mov [fact], ax
mov ax, 0x4c00
int 21

Activity 2:


DOSBox 0.74, Cpu speed: 3000 cycles, Frameskip 0, Program: AFD

```
AX 0014    SI 0000    CS 19F5    IP 011C      Stack +0 0000  Flags 7244
BX 006E    DI 0000    DS 19F5                       +2 20CD
CX 0021    BP 0000    ES 19F5    HS 19F5            +4 9FFF  OF DF IF SF ZF AF PF CF
DX 0000    SP FFFE    SS 19F5    FS 19F5            +6 EA00   0  0  1  0  1  0  1  0
          S or SI or SYM
 CMD >S                                               1     2  3  4  5  6  7  8  9
                                                      DS:0102 6E 00 B8 02 00 BB 00 00
0118 891E0201        MOV    [0102],BX                 DS:010A EB 00 01 C3 83 F8 14 74
011C B8004C          MOV    AX,4C00                   DS:0112 05 83 C0 02 EB F4 89 1E
011F CD15            INT    15                        DS:011A 02 01 B8 00 4C CD 15 D2
0121 D20F            ROR    B/[BX],CL                 DS:0122 0F 84 9E 00 00 00 83 FA
0123 849E0000        TEST   [0000+BP],BL              DS:012A 2D 74 12 85 DB 75 CF 80
0127 0083FA2D        ADD    [2DFA+BP+DI],AL           DS:0132 A2 30 B4 0E 00 FD 8B 45
012B 7412            JZ     013F                      DS:013A 9C 8A 08 EB CD 8B 45 9C
012D 85DB            TEST   BX,BX                     DS:0142 8A 08 80 F9 5D 74 E4 8A
012F 75CF            JNZ    0100                      DS:014A 40 FE 88 85 67 FF FF FF

2          0  1  2  3  4  5  6  7   8  9  A  B  C  D  E  F
DS:0000   CD 20 FF 9F 00 EA F0 FE  AD DE 1B 05 C5 06 00 00   = ƒ.Ω≡■  ¡▌..┼...
DS:0010   18 01 10 01 18 01 92 01  01 01 01 00 02 FF FF FF   ......Æ.  .....
DS:0020   FF FF FF FF FF FF FF FF  FF FF FF FF EB 19 C0 11           δ.└.
DS:0030   A2 01 14 00 18 00 F5 19  FF FF FF FF 00 00 00 00   ó.....J.      ....
DS:0040   05 00 00 00 00 00 00 00  00 00 00 00 00 00 00 00   ........  ........
```

1 Step 2ProcStep 3Retrieve 4Help ON 5BRK Menu 6 7 up 8 dn 9 le 10 ri

[org 0x0100]

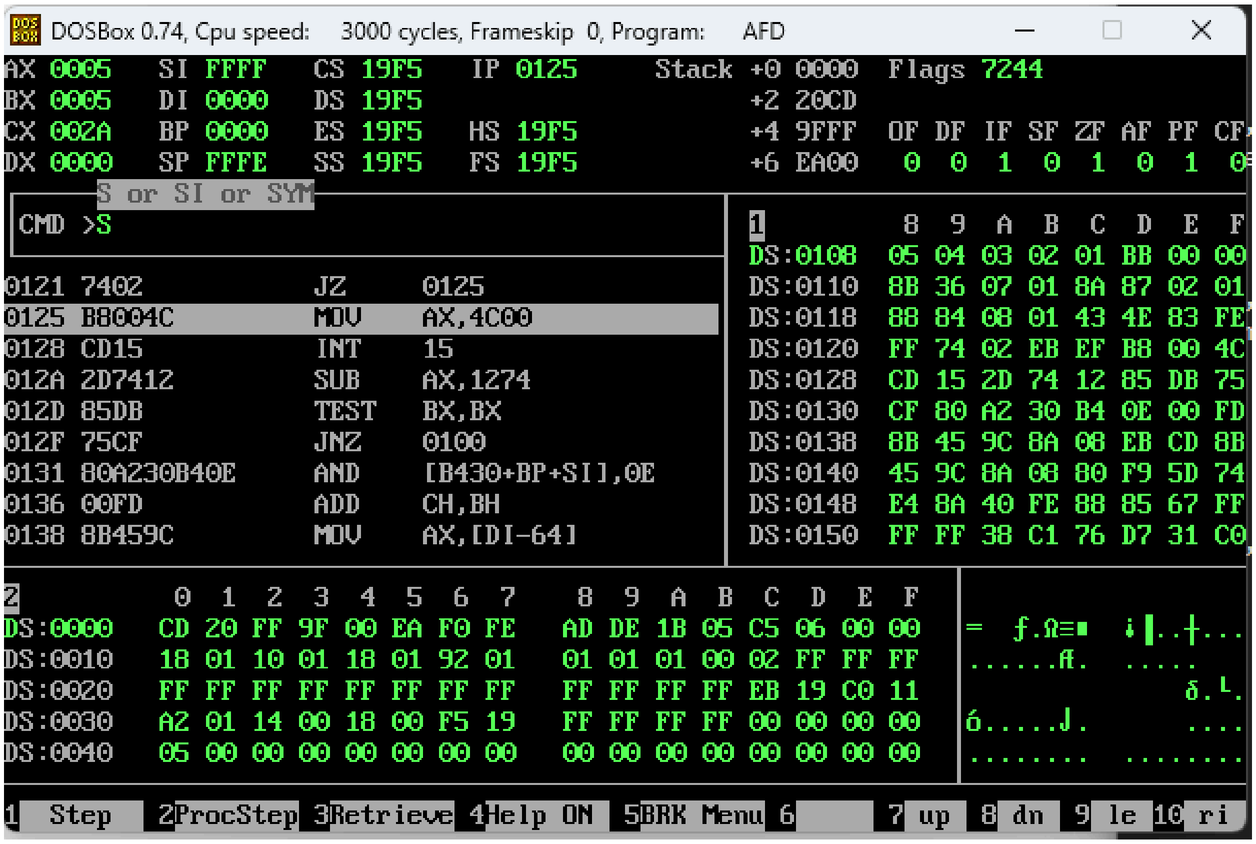
jmp start
sum_even dw 0

start:
mov ax, 2
mov bx, 0
jmp l1

l1:
add bx, ax
cmp ax, 20
je term
add ax, 2
jmp l1

term:
mov [sum_even], bx
mov ax, 0x4c00
int 21

Activity 3:



```
DOSBox 0.74, Cpu speed:    3000 cycles, Frameskip  0, Program:    AFD
AX 0005    SI FFFF    CS 19F5    IP 0125       Stack +0 0000   Flags 7244
BX 0005    DI 0000    DS 19F5                        +2 20CD
CX 002A    BP 0000    ES 19F5    HS 19F5             +4 9FFF   OF DF IF SF ZF AF PF CF
DX 0000    SP FFFE    SS 19F5    FS 19F5             +6 EA00    0  0  1  0  1  0  1  0
        S or SI or SYM
 CMD >S                                          1          8  9  A  B  C  D  E  F
                                                 DS:0108   05 04 03 02 01 BB 00 00
0121 7402          JZ     0125                   DS:0110   8B 36 07 01 8A 87 02 01
0125 B8004C        MOV    AX,4C00                DS:0118   88 84 08 01 43 4E 83 FE
0128 CD15          INT    15                     DS:0120   FF 74 02 EB EF B8 00 4C
012A 2D7412        SUB    AX,1274                DS:0128   CD 15 2D 74 12 85 DB 75
012D 85DB          TEST   BX,BX                  DS:0130   CF 80 A2 30 B4 0E 00 FD
012F 75CF          JNZ    0100                   DS:0138   8B 45 9C 8A 08 EB CD 8B
0131 80A230B40E    AND    [B430+BP+SI],0E        DS:0140   45 9C 8A 08 80 F9 5D 74
0136 00FD          ADD    CH,BH                  DS:0148   E4 8A 40 FE 88 85 67 FF
0138 8B459C        MOV    AX,[DI-64]             DS:0150   FF FF 38 C1 76 D7 31 C0

2           0  1  2  3  4  5  6  7   8  9  A  B  C  D  E  F
DS:0000    CD 20 FF 9F 00 EA F0 FE  AD DE 1B 05 C5 06 00 00   =  ƒ.Ω≡▪  ¡▌..┼...
DS:0010    18 01 10 01 18 01 92 01  01 01 01 00 02 FF FF FF   ......Æ.  .....
DS:0020    FF FF FF FF FF FF FF FF  FF FF FF FF EB 19 C0 11                δ.└.
DS:0030    A2 01 14 00 18 00 F5 19  FF FF FF FF 00 00 00 00   ó.....⌡.      ....
DS:0040    05 00 00 00 00 00 00 00  00 00 00 00 00 00 00 00   ........  ........

1 Step  2ProcStep 3Retrieve 4Help ON  5BRK Menu 6       7 up  8 dn  9 le 10 ri
```

[org 0x0100]

jmp start
arr db 1, 2, 3, 4, 5
len db 4
reverse db 0, 0, 0, 0, 0

start:
mov bx, 0
mov si, [len]

l1:

mov al, [arr + bx]
mov [reverse + si], al

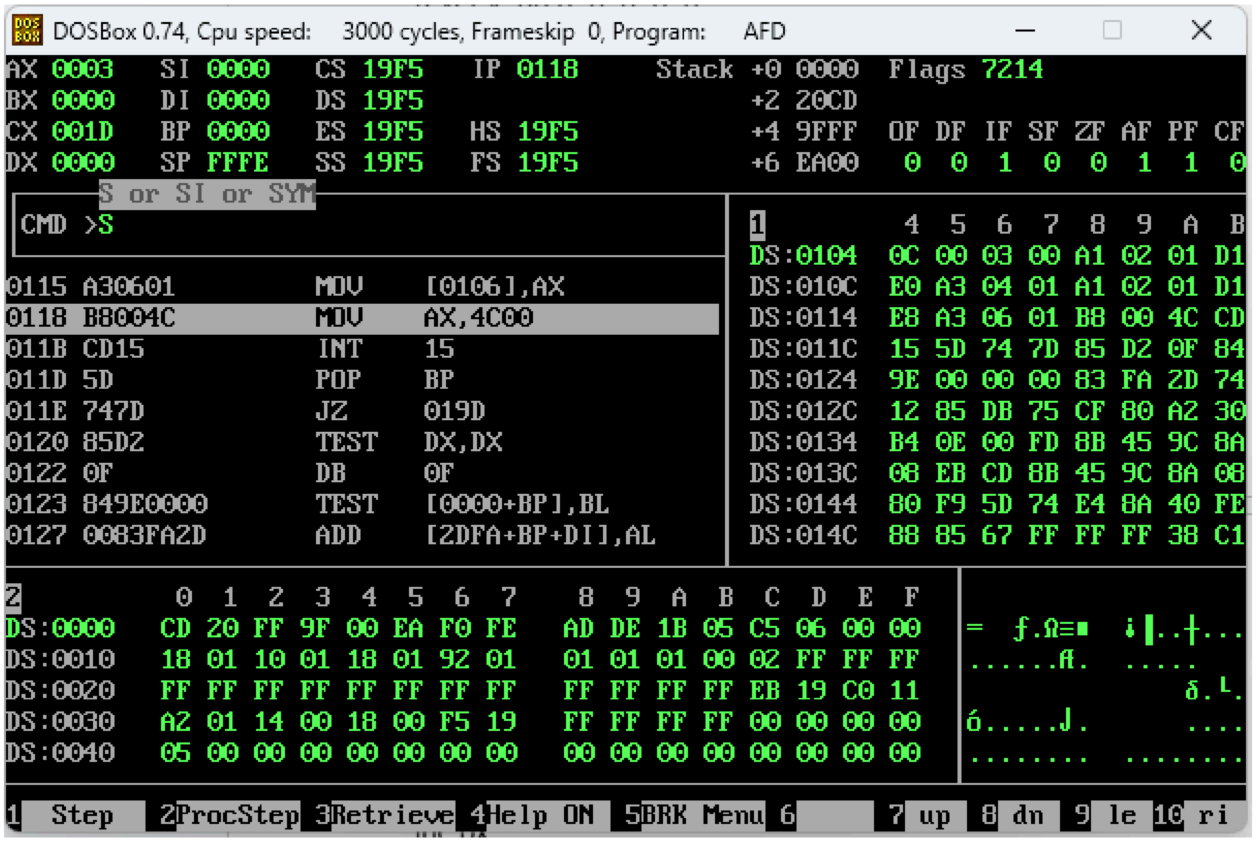
inc bx
dec si
cmp si, -1
je term

jmp l1

term:

mov ax, 0x4c00
int 21

Activity 4:



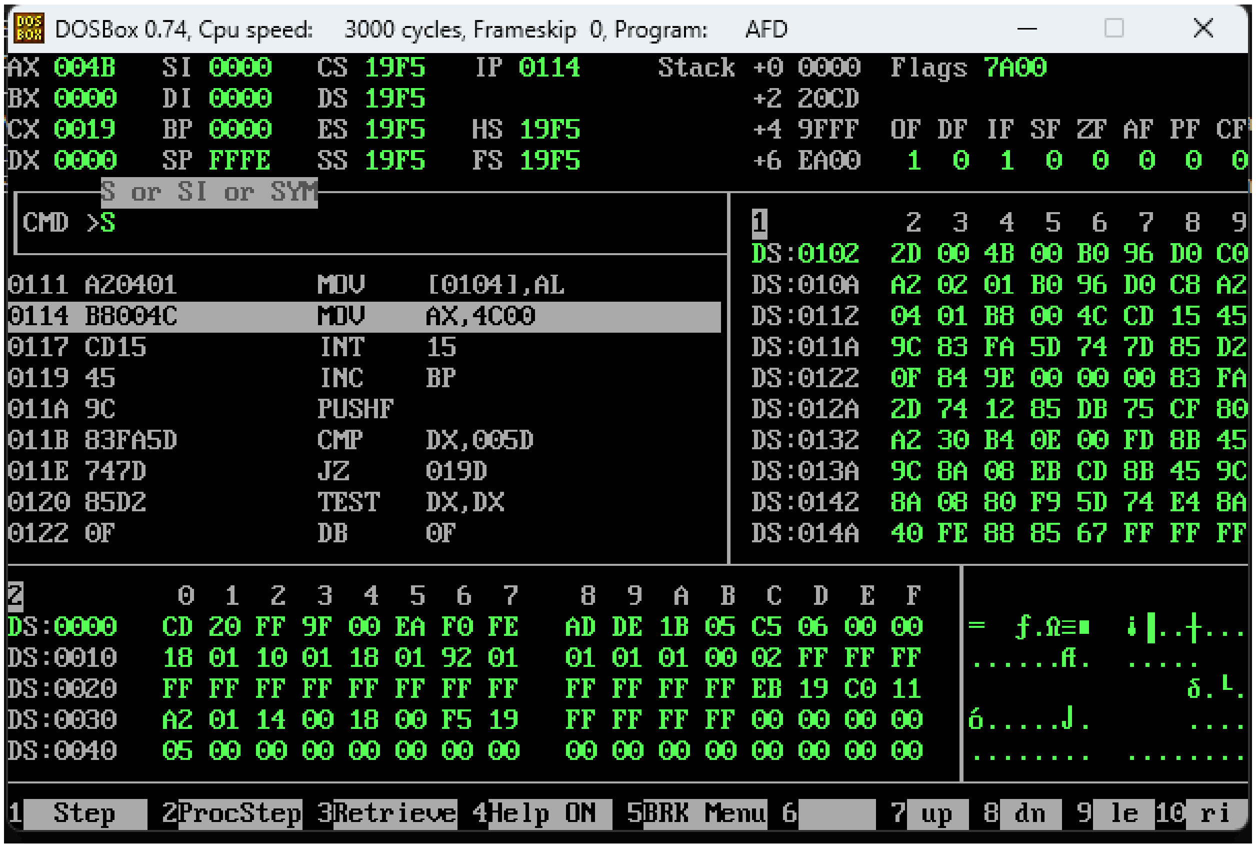
```
DOSBox 0.74, Cpu speed:    3000 cycles, Frameskip  0, Program:    AFD
AX 0003   SI 0000   CS 19F5   IP 0118      Stack +0 0000  Flags 7214
BX 0000   DI 0000   DS 19F5                      +2 20CD
CX 001D   BP 0000   ES 19F5   HS 19F5            +4 9FFF  OF DF IF SF ZF AF PF CF
DX 0000   SP FFFE   SS 19F5   FS 19F5            +6 EA00   0  0  1  0  0  1  1  0
            S or SI or SYM
 CMD >S                                      1        4  5  6  7  8  9  A  B
                                             DS:0104  0C 00 03 00 A1 02 01 D1
0115 A30601           MOV    [0106],AX       DS:010C  E0 A3 04 01 A1 02 01 D1
0118 B8004C           MOV    AX,4C00         DS:0114  E8 A3 06 01 B8 00 4C CD
011B CD15             INT    15              DS:011C  15 5D 74 7D 85 D2 0F 84
011D 5D               POP    BP              DS:0124  9E 00 00 00 83 FA 2D 74
011E 747D             JZ     019D            DS:012C  12 85 DB 75 CF 80 A2 30
0120 85D2             TEST   DX,DX           DS:0134  B4 0E 00 FD 8B 45 9C 8A
0122 0F               DB     0F              DS:013C  08 EB CD 8B 45 9C 8A 08
0123 849E0000         TEST   [0000+BP],BL    DS:0144  80 F9 5D 74 E4 8A 40 FE
0127 0083FA2D         ADD    [2DFA+BP+DI],AL DS:014C  88 85 67 FF FF FF 38 C1

2        0  1  2  3  4  5  6  7   8  9  A  B  C  D  E  F
DS:0000  CD 20 FF 9F 00 EA F0 FE  AD DE 1B 05 C5 06 00 00  = ƒ.Ω≡■  ¡▌..┼...
DS:0010  18 01 10 01 18 01 92 01  01 01 01 00 02 FF FF FF  ......Æ.  .....
DS:0020  FF FF FF FF FF FF FF FF  FF FF FF FF EB 19 C0 11              δ.└.
DS:0030  A2 01 14 00 18 00 F5 19  FF FF FF FF 00 00 00 00  ó.....J.      ....
DS:0040  05 00 00 00 00 00 00 00  00 00 00 00 00 00 00 00  ........  ........
1 Step  2ProcStep 3Retrieve 4Help ON  5BRK Menu 6       7 up  8 dn  9 le  10 ri
```

[org 0x0100]

jmp start
num dw 6
multResult dw 0

```
divResult dw 0

start:
mov ax, [num]
shl ax, 1
mov [multResult], ax

mov ax, [num]
shr ax, 1
mov [divResult], ax

mov ax, 0x4c00
int 21
```

Activity 5:

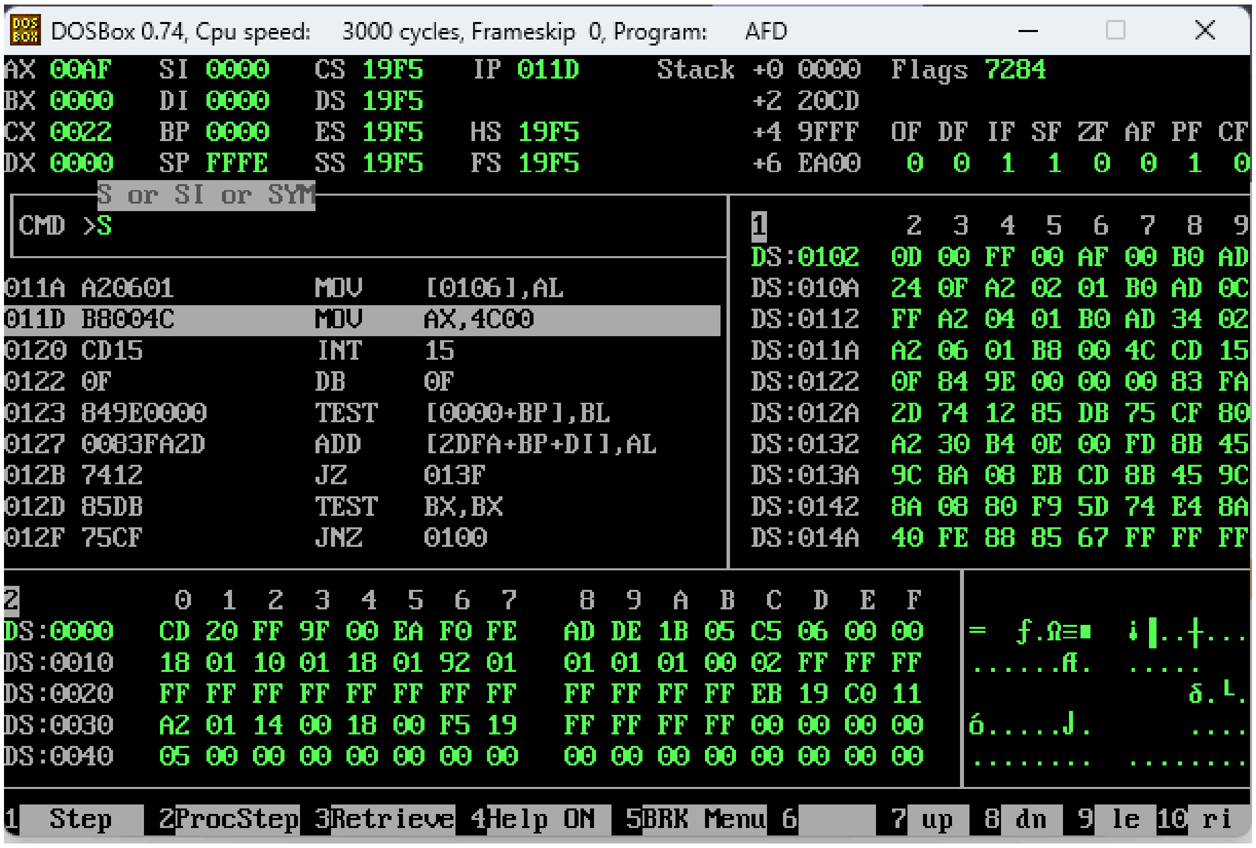


```
DOSBox 0.74, Cpu speed:    3000 cycles, Frameskip  0, Program:    AFD
AX 004B   SI 0000   CS 19F5   IP 0114      Stack +0 0000  Flags 7A00
BX 0000   DI 0000   DS 19F5                      +2 20CD
CX 0019   BP 0000   ES 19F5   HS 19F5            +4 9FFF  OF DF IF SF ZF AF PF CF
DX 0000   SP FFFE   SS 19F5   FS 19F5            +6 EA00   1  0  1  0  0  0  0  0
      S or SI or SYM
 CMD >S                                         1        2  3  4  5  6  7  8  9
                                                DS:0102  2D 00 4B 00 B0 96 D0 C0
0111 A20401          MOV    [0104],AL           DS:010A  A2 02 01 B0 96 D0 C8 A2
0114 B8004C          MOV    AX,4C00             DS:0112  04 01 B8 00 4C CD 15 45
0117 CD15            INT    15                  DS:011A  9C 83 FA 5D 74 7D 85 D2
0119 45              INC    BP                  DS:0122  0F 84 9E 00 00 00 83 FA
011A 9C              PUSHF                      DS:012A  2D 74 12 85 DB 75 CF 80
011B 83FA5D          CMP    DX,005D             DS:0132  A2 30 B4 0E 00 FD 8B 45
011E 747D            JZ     019D                DS:013A  9C 8A 08 EB CD 8B 45 9C
0120 85D2            TEST   DX,DX               DS:0142  8A 08 80 F9 5D 74 E4 8A
0122 0F              DB     0F                  DS:014A  40 FE 88 85 67 FF FF FF

2          0  1  2  3  4  5  6  7   8  9  A  B  C  D  E  F
DS:0000   CD 20 FF 9F 00 EA F0 FE  AD DE 1B 05 C5 06 00 00   =  ƒ.Ω≡■  i▌..┼...
DS:0010   18 01 10 01 18 01 92 01  01 01 01 00 02 FF FF FF   ......Æ.  .....
DS:0020   FF FF FF FF FF FF FF FF  FF FF FF FF EB 19 C0 11             δ.└.
DS:0030   A2 01 14 00 18 00 F5 19  FF FF FF FF 00 00 00 00   ó.....J.      ....
DS:0040   05 00 00 00 00 00 00 00  00 00 00 00 00 00 00 00   ........  ........
1 Step  2ProcStep 3Retrieve 4Help ON  5BRK Menu 6       7 up  8 dn  9 le 10 ri
```

```
[org 0x0100]

jmp start
rolResult dw 0  ;0010 1101->2D
rorResult dw 0  ;0100 1011->4B

start:
```

```
mov al,150
ROL AL, 1
mov [rolResult], al

mov al, 150
ROR AL, 1
mov [rorResult], al

mov ax, 0x4c00
int 21
```

Activity 6:



```
DOSBox 0.74, Cpu speed:     3000 cycles, Frameskip  0, Program:     AFD
AX 00AF    SI 0000    CS 19F5    IP 011D      Stack +0 0000  Flags 7284
BX 0000    DI 0000    DS 19F5                       +2 20CD
CX 0022    BP 0000    ES 19F5    HS 19F5            +4 9FFF  OF DF IF SF ZF AF PF CF
DX 0000    SP FFFE    SS 19F5    FS 19F5            +6 EA00   0  0  1  1  0  0  1  0
             S or SI or SYM
 CMD >S                                              1        2  3  4  5  6  7  8  9
                                                     DS:0102  0D 00 FF 00 AF 00 B0 AD
011A A20601          MOV    [0106],AL                DS:010A  24 0F A2 02 01 B0 AD 0C
011D B8004C          MOV    AX,4C00                  DS:0112  FF A2 04 01 B0 AD 34 02
0120 CD15            INT    15                       DS:011A  A2 06 01 B8 00 4C CD 15
0122 0F              DB     0F                       DS:0122  0F 84 9E 00 00 00 83 FA
0123 849E0000        TEST   [0000+BP],BL             DS:012A  2D 74 12 85 DB 75 CF 80
0127 0083FA2D        ADD    [2DFA+BP+DI],AL          DS:0132  A2 30 B4 0E 00 FD 8B 45
012B 7412            JZ     013F                     DS:013A  9C 8A 08 EB CD 8B 45 9C
012D 85DB            TEST   BX,BX                    DS:0142  8A 08 80 F9 5D 74 E4 8A
012F 75CF            JNZ    0100                     DS:014A  40 FE 88 85 67 FF FF FF

2           0  1  2  3  4  5  6  7    8  9  A  B  C  D  E  F
DS:0000    CD 20 FF 9F 00 EA F0 FE   AD DE 1B 05 C5 06 00 00   =  ƒ.Ω≡■  ↓▌..┼...
DS:0010    18 01 10 01 18 01 92 01   01 01 01 00 02 FF FF FF   ......Æ.  .....
DS:0020    FF FF FF FF FF FF FF FF   FF FF FF FF EB 19 C0 11               δ.└.
DS:0030    A2 01 14 00 18 00 F5 19   FF FF FF FF 00 00 00 00   ó.....⌡.      ....
DS:0040    05 00 00 00 00 00 00 00   00 00 00 00 00 00 00 00   ........  ........

1 Step  2ProcStep 3Retrieve 4Help ON  5BRK Menu 6       7 up  8 dn  9 le 10 ri
```

```
[org 0x0100]

jmp start
andResult dw 0  ;
orResult dw 0  ;
xorResult dw 0  ;
```

```
start:
mov al,173
and al, 15 ; 0000 1111 -> 0D
mov [andResult], al

mov al, 173
or al, 255 ; 1111 1111 -> FF
mov [orResult], al

mov al,173
xor al, 2 ; 0000 0010 -> AF
mov [xorResult], al

mov ax, 0x4c00
int 21
```