

# Lab Report #3

## Saad Ahmad

### 20P-0051

In this lab we learn how to code in nasm or basically we run our first code in assembly language.

So, the format for writing the code is as follow:

**[Op-code] [Destination Operand] [Source operand]**

### For Example:

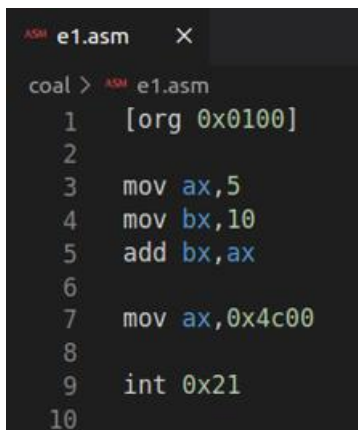
```
mov ax , 5
mov bx , ax
add ax , 5 etc
```

Now here is our first code:

### English Version:

```
mov 5 to ax
mov 10 to bx
add ax to bx
```

### Assembly version:



```
ASM e1.asm X
coal > ASM e1.asm
1  [org 0x0100]
2
3  mov ax,5
4  mov bx,10
5  add bx,ax
6
7  mov ax,0x4c00
8
9  int 0x21
10
```

## Compile the code:

```
nasm e1.asm -l e1.lst -o e1.com
```

```
DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Program: DOSBOX -
HISTORY TXT                2,672 07-04-1999 15:43
LAB1 ASM                   409 10-10-2021 22:33
LAB1 COM                   28 10-10-2021 22:34
LAB1 LST                   1,927 10-10-2021 22:34
NASM EXE                  259,638 12-09-2003 10:36
NDISASM EXE              128,460 12-09-2003 10:36
R01-01.S S                 371 02-09-2021 12:42
R01-02.S S                 371 02-09-2021 12:42
RSX EXE                  111,900 19-02-1999 15:45
RSXNT DLL                 80,896 19-02-1999 15:46
RTN ASM                   1,038 06-11-1998 15:15
RTN RC                    402 06-11-1998 15:16
RTN RES                   384 06-11-1998 15:13
SETUP TXT                  99 05-10-2021 14:42
TCOFF ASM                 591 16-11-1998 10:11
TEST ASM                  508 26-10-1998 10:12
TEST COM                  18 24-09-2021 22:41
TEST LST                  1,216 24-09-2021 22:39
TEST OBJ                   405 26-10-1998 10:12
  87 File(s)                951,917 Bytes.
   3 Dir(s)              262,111,744 Bytes free.

C:\>nasm E1.ASM -l E1.lst -o e1.com
C:\>
```

## Debugger:

```
afd e1.com
```

```
DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Program: DOSBOX -
HISTORY TXT                2,672 07-04-1999 15:43
LAB1 ASM                   409 10-10-2021 22:33
LAB1 COM                   28 10-10-2021 22:34
LAB1 LST                   1,927 10-10-2021 22:34
NASM EXE                  259,638 12-09-2003 10:36
NDISASM EXE              128,460 12-09-2003 10:36
R01-01.S S                 371 02-09-2021 12:42
R01-02.S S                 371 02-09-2021 12:42
RSX EXE                  111,900 19-02-1999 15:45
RSXNT DLL                 80,896 19-02-1999 15:46
RTN ASM                   1,038 06-11-1998 15:15
RTN RC                    402 06-11-1998 15:16
RTN RES                   384 06-11-1998 15:13
SETUP TXT                  99 05-10-2021 14:42
TCOFF ASM                 591 16-11-1998 10:11
TEST ASM                  508 26-10-1998 10:12
TEST COM                  18 24-09-2021 22:41
TEST LST                  1,216 24-09-2021 22:39
TEST OBJ                   405 26-10-1998 10:12
  87 File(s)                951,917 Bytes.
   3 Dir(s)              262,111,744 Bytes free.

C:\>nasm E1.ASM -l E1.lst -o e1.com
C:\>afd E1.COM
```

DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Program: AFD

AX 0000 SI 0000 CS 19F5 IP 0100 Stack +0 0000 Flags 7202

BX 0000 DI 0000 DS 19F5 +2 20CD

CX 0000 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 0 0 0

CMD >

0100 B80500 MOV AX,0005

0103 B80A00 MOV BX,000A

0106 01C3 ADD BX,AX

0108 B8004C MOV AX,4C00

010B CD21 INT 21

010D C3 RET

010E 89D0 MOV AX,DX

0110 89DA MOV DX,BX

1

DS:0000 CD 20 FF 9F 00 EA F0 FE

DS:0008 AD DE 1B 05 C5 06 00 00

DS:0010 18 01 10 01 18 01 92 01

DS:0018 01 01 01 00 02 FF FF FF

DS:0020 FF FF FF FF FF FF FF FF

DS:0028 FF FF FF FF EB 19 C0 11

DS:0030 A2 01 14 00 18 00 F5 19

DS:0038 FF FF FF FF 00 00 00 00

DS:0040 05 00 00 00 00 00 00 00

DS:0048 00 00 00 00 00 00 00 00

2

DS:0000 CD 20 FF 9F 00 EA F0 FE AD DE 1B 05 C5 06 00 00 = f.Ω= i|.+....

DS:0010 18 01 10 01 18 01 92 01 01 01 01 00 02 FF FF FF .....f. ....

DS:0020 FF FF FF FF FF FF FF FF FF FF FF FF EB 19 C0 11 δ. L.

DS:0030 A2 01 14 00 18 00 F5 19 FF FF FF FF 00 00 00 00 6.....J. ....

DS:0040 05 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

DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Program: AFD

AX 0005 SI 0000 CS 19F5 IP 0103 Stack +0 0000 Flags 7200

BX 0000 DI 0000 DS 19F5 +2 20CD

CX 0000 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 0 0 0

CMD >

0100 B80500 MOV AX,0005

0103 B80A00 MOV BX,000A

0106 01C3 ADD BX,AX

0108 B8004C MOV AX,4C00

010B CD21 INT 21

010D C3 RET

010E 89D0 MOV AX,DX

0110 89DA MOV DX,BX

0112 EB04 JMP 0118

1

DS:0000 CD 20 FF 9F 00 EA F0 FE

DS:0008 AD DE 1B 05 C5 06 00 00

DS:0010 18 01 10 01 18 01 92 01

DS:0018 01 01 01 00 02 FF FF FF

DS:0020 FF FF FF FF FF FF FF FF

DS:0028 FF FF FF FF EB 19 C0 11

DS:0030 A2 01 14 00 18 00 F5 19

DS:0038 FF FF FF FF 00 00 00 00

DS:0040 05 00 00 00 00 00 00 00

DS:0048 00 00 00 00 00 00 00 00

2

DS:0000 CD 20 FF 9F 00 EA F0 FE AD DE 1B 05 C5 06 00 00 = f.Ω= i|.+....

DS:0010 18 01 10 01 18 01 92 01 01 01 01 00 02 FF FF FF .....f. ....

DS:0020 FF FF FF FF FF FF FF FF FF FF FF FF EB 19 C0 11 δ. L.

DS:0030 A2 01 14 00 18 00 F5 19 FF FF FF FF 00 00 00 00 6.....J. ....

DS:0040 05 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

DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Program: AFD

AX 0005 SI 0000 CS 19F5 IP 0106 Stack +0 0000 Flags 7200

BX 000A DI 0000 DS 19F5 +2 20CD

CX 000D 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 0 0 0

CMD >

0103 BB0A00 MOV BX,000A

0106 01C3 ADD BX,AX

0108 B804C MOV AX,4C00

010B CD21 INT 21

010D C3 RET

010E 89D0 MOV AX,DX

0110 89DA MOV DX,BX

0112 EB04 JMP 0118

0114 31D2 XOR DX,DX

1

DS:0000 CD 20 FF 9F 00 EA F0 FE

DS:0008 AD DE 1B 05 C5 06 00 00

DS:0010 18 01 10 01 18 01 92 01

DS:0018 01 01 01 00 02 FF FF FF

DS:0020 FF FF FF FF FF FF FF FF

DS:0028 FF FF FF FF EB 19 C0 11

DS:0030 A2 01 14 00 18 00 F5 19

DS:0038 FF FF FF FF 00 00 00 00

DS:0040 05 00 00 00 00 00 00 00

DS:0048 00 00 00 00 00 00 00 00

2

DS:0000 CD 20 FF 9F 00 EA F0 FE AD DE 1B 05 C5 06 00 00 = f.Ω= i|.+....

DS:0010 18 01 10 01 18 01 92 01 01 01 01 00 02 FF FF FF .....ff. ....

DS:0020 FF FF FF FF FF FF FF FF FF FF FF FF EB 19 C0 11 δ.ℓ.

DS:0030 A2 01 14 00 18 00 F5 19 FF FF FF FF 00 00 00 00 6.....J. ....

DS:0040 05 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

DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Program: AFD

AX 0005 SI 0000 CS 19F5 IP 0108 Stack +0 0000 Flags 7204

BX 000F DI 0000 DS 19F5 +2 20CD

CX 000D 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 0 1 0

CMD >

0106 01C3 ADD BX,AX

0108 B804C MOV AX,4C00

010B CD21 INT 21

010D C3 RET

010E 89D0 MOV AX,DX

0110 89DA MOV DX,BX

0112 EB04 JMP 0118

0114 31D2 XOR DX,DX

0116 31C0 XOR AX,AX

2

DS:0000 CD 20 FF 9F 00 EA F0 FE AD DE 1B 05 C5 06 00 00 = f.Ω= i|.+....

DS:0010 18 01 10 01 18 01 92 01 01 01 01 00 02 FF FF FF .....ff. ....

DS:0020 FF FF FF FF FF FF FF FF FF FF FF FF EB 19 C0 11 δ.ℓ.

DS:0030 A2 01 14 00 18 00 F5 19 FF FF FF FF 00 00 00 00 6.....J. ....

DS:0040 05 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

DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Program: AFD

AX 4C00	SI 0000	CS 19F5	IP 010B	Stack +0 0000	Flags 7204
BX 000F	DI 0000	DS 19F5		+2 20CD	
CX 000D	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 0 1 0

CMD >

010B B804C	MOV	AX,4C00
010B CD21	INT	21
010D C3	RET	
010E 89D0	MOV	AX,DX
0110 89DA	MOV	DX,BX
0112 EB04	JMP	0118
0114 31D2	XOR	DX,DX
0116 31C0	XOR	AX,AX
0118 8956E4	MOV	[BP-1C],DX

1	0	1	2	3	4	5	6	7	
DS:0000	CD	20	FF	9F	00	EA	F0	FE	
DS:0008	AD	DE	1B	05	C5	06	00	00	
DS:0010	18	01	10	01	18	01	92	01	
DS:0018	01	01	01	00	02	FF	FF	FF	
DS:0020	FF	FF	FF	FF	FF	FF	FF	FF	
DS:0028	FF	FF	FF	FF	EB	19	C0	11	
DS:0030	A2	01	14	00	18	00	F5	19	
DS:0038	FF	FF	FF	FF	00	00	00	00	
DS:0040	05	00	00	00	00	00	00	00	
DS:0048	00	00	00	00	00	00	00	00	

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
DS:0010	18	01	10	01	18	01	92	01	01	01	00	02	FF	FF	FF	FF
DS:0020	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	EB	19	C0	11	
DS:0030	A2	01	14	00	18	00	F5	19	FF	FF	FF	FF	00	00	00	00
DS:0040	05	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00

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

DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Program: AFD

AX 4C00	SI 0000	CS F000	IP 14A0	Stack +0 42BD	Flags 7004
BX 000F	DI 0000	DS 19F5		+2 06C5	
CX 000D	BP 0000	ES 19F5	HS 19F5	+4 7004	OF DF IF SF ZF AF PF CF
DX 0000	SP FFF2	SS 19F5	FS 19F5	+6 010D	0 0 0 0 0 0 1 0

CMD >

010B CD21	INT	21
14A0 FB	STI	
14A1 FE	DB	FE
14A2 3825	CMP	[DI],AH
14A4 00CF	ADD	BH,CL
14A6 CB	RET	Far
14A7 51	PUSH	CX
14A8 B94001	MOV	CX,0140
14AB E2FE	LOOP	14AB

1	0	1	2	3	4	5	6	7	
DS:0000	CD	20	FF	9F	00	EA	F0	FE	
DS:0008	AD	DE	1B	05	C5	06	00	00	
DS:0010	18	01	10	01	18	01	92	01	
DS:0018	01	01	01	00	02	FF	FF	FF	
DS:0020	FF	FF	FF	FF	FF	FF	FF	FF	
DS:0028	FF	FF	FF	FF	EB	19	C0	11	
DS:0030	A2	01	14	00	18	00	F5	19	
DS:0038	FF	FF	FF	FF	00	00	00	00	
DS:0040	05	00	00	00	00	00	00	00	
DS:0048	00	00	00	00	00	00	00	00	

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
DS:0010	18	01	10	01	18	01	92	01	01	01	00	02	FF	FF	FF	FF
DS:0020	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	EB	19	C0	11	
DS:0030	A2	01	14	00	18	00	F5	19	FF	FF	FF	FF	00	00	00	00
DS:0040	05	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00

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

## Another example

Assembly version:

```
ASM e2.asm X
coal > ASM e2.asm
 1  [org 0x0100]
 2
 3  mov ax,5
 4  mov bx,10
 5
 6  mov cx,ax
 7  mov ax,bx
 8  mov bx,cx
 9
10  mov ax,0x4c00
11  int 0x21
12
```

Compile the code:

```
nasm e2.asm -l e2.lst -o e2.com
```

```
DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Program: DOSBOX - X
HISTORY TXT      2,672 07-04-1999 15:43
LAB1     ASM      409 10-10-2021 22:33
LAB1     COM       28 10-10-2021 22:34
LAB1     LST     1,927 10-10-2021 22:34
NASM     EXE    259,638 12-09-2003 10:36
NDISASM  EXE    128,460 12-09-2003 10:36
R01-01.S S       371 02-09-2021 12:42
R01-02.S S       371 02-09-2021 12:42
RSX      EXE    111,900 19-02-1999 15:45
RSX\NT   DLL     80,896 19-02-1999 15:46
RTN      ASM     1,038 06-11-1998 15:15
RTN      RC       402 06-11-1998 15:16
RTN      RES     384 06-11-1998 15:13
SETUP    TXT       99 05-10-2021 14:42
TCOFF    ASM      591 16-11-1998 10:11
TEST     ASM      508 26-10-1998 10:12
TEST     COM       18 24-09-2021 22:41
TEST     LST     1,216 24-09-2021 22:39
TEST     OBJ       405 26-10-1998 10:12
  90 File(s)          952,589 Bytes.
   3 Dir(s)        262,111,744 Bytes free.

C:\>nasm E2.ASM -l E2.lst -o E2.com
C:\>_
```

Debugger:

afd e2.com

```
DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Program: DOSBOX -
HISTORY  TXT          2,672 07-04-1999 15:43
LAB1     ASM          409 10-10-2021 22:33
LAB1     COM           28 10-10-2021 22:34
LAB1     LST          1,927 10-10-2021 22:34
NASM     EXE         259,638 12-09-2003 10:36
NDISASM  EXE         128,460 12-09-2003 10:36
R01-01.S S           371 02-09-2021 12:42
R01-02.S S           371 02-09-2021 12:42
RSX      EXE        111,900 19-02-1999 15:45
RSXMT    DLL         80,896 19-02-1999 15:46
RTN      ASM         1,038 06-11-1998 15:15
RTN      RC           402 06-11-1998 15:16
RTN      RES          384 06-11-1998 15:13
SETUP    TXT           99 05-10-2021 14:42
TCOFF    ASM          591 16-11-1998 10:11
TEST     ASM          508 26-10-1998 10:12
TEST     COM           18 24-09-2021 22:41
TEST     LST          1,216 24-09-2021 22:39
TEST     OBJ           405 26-10-1998 10:12
  90 File(s)          952,589 Bytes.
   3 Dir(s)         262,111,744 Bytes free.

C:\>nasm E2.ASM -l E2.lst -o E2.com
C:\>afd E2.COM
```

DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Program: AFD -

AX 0000 SI 0000 CS 19F5 IP 0100 Stack +0 0000 Flags 7202

BX 0000 DI 0000 DS 19F5 +2 20CD

CX 0011 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 0 0 0

CMD >

0100 B80500 MOV AX,0005

0103 BB0A00 MOV BX,000A

0106 89C1 MOV CX,AX

0108 89D8 MOV AX,BX

010A 89CB MOV BX,CX

010C B8004C MOV AX,4C00

010F CD21 INT 21

0111 DAEB ESC 15,BL

1 0 1 2 3 4 5 6 7

DS:0000 CD 20 FF 9F 00 EA F0 FE

DS:0008 AD DE 1B 05 C5 06 00 00

DS:0010 18 01 10 01 18 01 92 01

DS:0018 01 01 01 00 02 FF FF FF

DS:0020 FF FF FF FF FF FF FF FF

DS:0028 FF FF FF FF EB 19 C0 11

DS:0030 A2 01 14 00 18 00 F5 19

DS:0038 FF FF FF FF 00 00 00 00

DS:0040 05 00 00 00 00 00 00 00

DS:0048 00 00 00 00 00 00 00 00

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 = f.Ω≡ i|.+....

DS:0010 18 01 10 01 18 01 92 01 01 01 01 00 02 FF FF FF .....f. ....

DS:0020 FF FF FF FF FF FF FF FF FF FF FF FF EB 19 C0 11 δ.ℓ.

DS:0030 A2 01 14 00 18 00 F5 19 FF FF FF FF 00 00 00 00 6.....J. ....

DS:0040 05 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



DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Program: AFD

AX 0005	SI 0000	CS 19F5	IP 0103	Stack +0 0000	Flags 7200
BX 0000	DI 0000	DS 19F5		+2 20CD	
CX 0011	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 0 0 0

CMD >

0100 B80500	MOV	AX,0005	DS:0000	CD 20 FF 9F 00 EA F0 FE
0103 B80A00	MOV	BX,000A	DS:0008	AD DE 1B 05 C5 06 00 00
0106 89C1	MOV	CX,AX	DS:0010	18 01 10 01 18 01 92 01
0108 89D8	MOV	AX,BX	DS:0018	01 01 01 00 02 FF FF FF
010A 89CB	MOV	BX,CX	DS:0020	FF FF FF FF FF FF FF FF
010C B804C	MOV	AX,4C00	DS:0028	FF FF FF FF EB 19 C0 11
010F CD21	INT	21	DS:0030	A2 01 14 00 18 00 F5 19
0111 DAE8	ESC	15,BL	DS:0038	FF FF FF FF 00 00 00 00
0113 0431	ADD	AL,31	DS:0040	05 00 00 00 00 00 00 00
			DS:0048	00 00 00 00 00 00 00 00

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	= f.Ω= i  ..†...
DS:0010	18 01 10 01 18 01 92 01	01 01 01 00 02 FF FF FF	.....ff. ....
DS:0020	FF FF FF FF FF FF FF FF	FF FF FF FF EB 19 C0 11	δ.ℓ.
DS:0030	A2 01 14 00 18 00 F5 19	FF FF FF FF 00 00 00 00	6.....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

DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Program: AFD

AX 0005	SI 0000	CS 19F5	IP 0106	Stack +0 0000	Flags 7200
BX 000A	DI 0000	DS 19F5		+2 20CD	
CX 0011	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 0 0 0

CMD >

0103 B80A00	MOV	BX,000A	DS:0000	CD 20 FF 9F 00 EA F0 FE
0106 89C1	MOV	CX,AX	DS:0008	AD DE 1B 05 C5 06 00 00
0108 89D8	MOV	AX,BX	DS:0010	18 01 10 01 18 01 92 01
010A 89CB	MOV	BX,CX	DS:0018	01 01 01 00 02 FF FF FF
010C B804C	MOV	AX,4C00	DS:0020	FF FF FF FF FF FF FF FF
010F CD21	INT	21	DS:0028	FF FF FF FF EB 19 C0 11
0111 DAE8	ESC	15,BL	DS:0030	A2 01 14 00 18 00 F5 19
0113 0431	ADD	AL,31	DS:0038	FF FF FF FF 00 00 00 00
0115 D2	DB	D2	DS:0040	05 00 00 00 00 00 00 00
			DS:0048	00 00 00 00 00 00 00 00

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	= f.Ω= i  ..†...
DS:0010	18 01 10 01 18 01 92 01	01 01 01 00 02 FF FF FF	.....ff. ....
DS:0020	FF FF FF FF FF FF FF FF	FF FF FF FF EB 19 C0 11	δ.ℓ.
DS:0030	A2 01 14 00 18 00 F5 19	FF FF FF FF 00 00 00 00	6.....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



DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Program: AFD

AX 0005	SI 0000	CS 19F5	IP 0108	Stack +0 0000	Flags 7200
BX 000A	DI 0000	DS 19F5		+2 20CD	
CX 0005	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 0 0 0

CMD >

0106 89C1	MOV	CX,AX	DS:0000	CD 20 FF 9F 00 EA F0 FE
0108 89D8	MOV	AX,BX	DS:0008	AD DE 1B 05 C5 06 00 00
010A 89CB	MOV	BX,CX	DS:0010	18 01 10 01 18 01 92 01
010C B8004C	MOV	AX,4C00	DS:0018	01 01 01 00 02 FF FF FF
010F CD21	INT	21	DS:0020	FF FF FF FF FF FF FF FF
0111 DAE8	ESC	15,BL	DS:0028	FF FF FF FF EB 19 C0 11
0113 0431	ADD	AL,31	DS:0030	A2 01 14 00 18 00 F5 19
0115 D2	DB	D2	DS:0038	FF FF FF FF 00 00 00 00
0116 31C0	XOR	AX,AX	DS:0040	05 00 00 00 00 00 00 00
			DS:0048	00 00 00 00 00 00 00 00

DS:0000	CD 20 FF 9F 00 EA F0 FE	AD DE 1B 05 C5 06 00 00	= f.Ω= i  ..†...
DS:0010	18 01 10 01 18 01 92 01	01 01 01 00 02 FF FF FF	.....fl. ....
DS:0020	FF FF FF FF FF FF FF FF	FF FF FF FF EB 19 C0 11	δ. L.
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

DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Program: AFD

AX 000A	SI 0000	CS 19F5	IP 010A	Stack +0 0000	Flags 7200
BX 000A	DI 0000	DS 19F5		+2 20CD	
CX 0005	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 0 0 0

CMD >

0108 89D8	MOV	AX,BX	DS:0000	CD 20 FF 9F 00 EA F0 FE
010A 89CB	MOV	BX,CX	DS:0008	AD DE 1B 05 C5 06 00 00
010C B8004C	MOV	AX,4C00	DS:0010	18 01 10 01 18 01 92 01
010F CD21	INT	21	DS:0018	01 01 01 00 02 FF FF FF
0111 DAE8	ESC	15,BL	DS:0020	FF FF FF FF FF FF FF FF
0113 0431	ADD	AL,31	DS:0028	FF FF FF FF EB 19 C0 11
0115 D2	DB	D2	DS:0030	A2 01 14 00 18 00 F5 19
0116 31C0	XOR	AX,AX	DS:0038	FF FF FF FF 00 00 00 00
0118 8956E4	MOV	[BP-1C],DX	DS:0040	05 00 00 00 00 00 00 00
			DS:0048	00 00 00 00 00 00 00 00

DS:0000	CD 20 FF 9F 00 EA F0 FE	AD DE 1B 05 C5 06 00 00	= f.Ω= i  ..†...
DS:0010	18 01 10 01 18 01 92 01	01 01 01 00 02 FF FF FF	.....fl. ....
DS:0020	FF FF FF FF FF FF FF FF	FF FF FF FF EB 19 C0 11	δ. L.
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

DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Program: AFD

AX 000A	SI 0000	CS 19F5	IP 010C	Stack +0 0000	Flags 7200
BX 0005	DI 0000	DS 19F5		+2 20CD	
CX 0005	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 0 0 0

CMD >

010A 89CB	MOV	BX,CX	1	0	1	2	3	4	5	6	7
010C B8004C	MOV	AX,4C00	DS:0000	CD	20	FF	9F	00	EA	F0	FE
010F CD21	INT	21	DS:0008	AD	DE	1B	05	C5	06	00	00
0111 DAEB	ESC	15,BL	DS:0010	18	01	10	01	18	01	92	01
0113 0431	ADD	AL,31	DS:0018	01	01	01	00	02	FF	FF	FF
0115 D2	DB	D2	DS:0020	FF	FF	FF	FF	FF	FF	FF	FF
0116 31C0	XOR	AX,AX	DS:0028	FF	FF	FF	FF	EB	19	C0	11
0118 8956E4	MOV	[BP-1C],DX	DS:0030	A2	01	14	00	18	00	F5	19
011B 8946E6	MOV	[BP-1A],AX	DS:0038	FF	FF	FF	FF	00	00	00	00
			DS:0040	05	00	00	00	00	00	00	00
			DS:0048	00	00	00	00	00	00	00	00

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
DS:0010	18	01	10	01	18	01	92	01	01	01	00	02	FF	FF	FF	FF
DS:0020	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	EB	19	C0	11	
DS:0030	A2	01	14	00	18	00	F5	19	FF	FF	FF	FF	00	00	00	00
DS:0040	05	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00

= f.Ω= i |..†...

.....ff. ....

δ. L.

ó.....J. ....

.....

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

DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Program: AFD

AX 4C00	SI 0000	CS 19F5	IP 010F	Stack +0 0000	Flags 7200
BX 0005	DI 0000	DS 19F5		+2 20CD	
CX 0005	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 0 0 0

CMD >

010C B8004C	MOV	AX,4C00	1	0	1	2	3	4	5	6	7
010F CD21	INT	21	DS:0000	CD	20	FF	9F	00	EA	F0	FE
0111 DAEB	ESC	15,BL	DS:0008	AD	DE	1B	05	C5	06	00	00
0113 0431	ADD	AL,31	DS:0010	18	01	10	01	18	01	92	01
0115 D2	DB	D2	DS:0018	01	01	01	00	02	FF	FF	FF
0116 31C0	XOR	AX,AX	DS:0020	FF	FF	FF	FF	FF	FF	FF	FF
0118 8956E4	MOV	[BP-1C],DX	DS:0028	FF	FF	FF	FF	EB	19	C0	11
011B 8946E6	MOV	[BP-1A],AX	DS:0030	A2	01	14	00	18	00	F5	19
011E C746F60000	MOV	[BP-0A],0000	DS:0038	FF	FF	FF	FF	00	00	00	00
			DS:0040	05	00	00	00	00	00	00	00
			DS:0048	00	00	00	00	00	00	00	00

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
DS:0010	18	01	10	01	18	01	92	01	01	01	00	02	FF	FF	FF	FF
DS:0020	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	EB	19	C0	11	
DS:0030	A2	01	14	00	18	00	F5	19	FF	FF	FF	FF	00	00	00	00
DS:0040	05	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00

= f.Ω= i |..†...

.....ff. ....

δ. L.

ó.....J. ....

.....

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

Now the last code:

Assembly version:

```
ASM Lab1.asm X
coal > ASM Lab1.asm
1  [org 0x0100]
2
3  mov ax,0
4  mov ax,6
5
6  add ax,6
7  add ax,6
8  add ax,6
9  add ax,6
10 add ax,6
11
12 mov ax, 0x4c00
13 int 0x21
14
```

Compile the code:

nasm Lab1.asm -l Lab1.lst -o Lab1.com

```
DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Program: DOSBOX -
HISTORY  TXT          2,672 07-04-1999 15:43
LAB1     ASM           460 13-10-2021 19:08
LAB1     COM           26 13-10-2021 19:09
LAB1     LST          3,823 13-10-2021 19:09
NASM     EXE         259,638 12-09-2003 10:36
NDISASM  EXE         128,460 12-09-2003 10:36
R01-01.S S           371 02-09-2021 12:42
R01-02.S S           371 02-09-2021 12:42
RSX      EXE        111,900 19-02-1999 15:45
RSXNT    DLL         80,896 19-02-1999 15:46
RTN      ASM          1,038 06-11-1998 15:15
RTN      RC           402 06-11-1998 15:16
RTN      RES           384 06-11-1998 15:13
SETUP    TXT           99 05-10-2021 14:42
TCOFF    ASM           591 16-11-1998 10:11
TEST     ASM           508 26-10-1998 10:12
TEST     COM           18 24-09-2021 22:41
TEST     LST          1,216 24-09-2021 22:39
TEST     OBJ           405 26-10-1998 10:12
  90 File(s)          954,534 Bytes.
   3 Dir(s)        262,111,744 Bytes free.

C:\>nasm Lab1.ASM -l Lab1.lst -o Lab1.com
C:\>
```

Debugger:

afd Lab1.com

```
DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Program: DOSBOX -
HISTORY TXT 2,672 07-04-1999 15:43
LAB1 ASM 460 13-10-2021 19:08
LAB1 COM 26 13-10-2021 19:09
LAB1 LST 3,823 13-10-2021 19:09
NASM EXE 259,638 12-09-2003 10:36
NDISASM EXE 128,460 12-09-2003 10:36
R01-01.S S 371 02-09-2021 12:42
R01-02.S S 371 02-09-2021 12:42
RSX EXE 111,900 19-02-1999 15:45
RSXNT DLL 80,896 19-02-1999 15:46
RTN ASM 1,038 06-11-1998 15:15
RTN RC 402 06-11-1998 15:16
RTN RES 384 06-11-1998 15:13
SETUP TXT 99 05-10-2021 14:42
TCOFF ASM 591 16-11-1998 10:11
TEST ASM 508 26-10-1998 10:12
TEST COM 18 24-09-2021 22:41
TEST LST 1,216 24-09-2021 22:39
TEST OBJ 405 26-10-1998 10:12
90 File(s) 954,534 Bytes.
3 Dir(s) 262,111,744 Bytes free.

C:\>nasm Lab1.ASM -l Lab1.lst -o Lab1.com
C:\>afd Lab1.COM
```

DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Program: AFD -

AX 0000 SI 0000 CS 19F5 IP 0103 Stack +0 0000 Flags 7200

BX 0000 DI 0000 DS 19F5 +2 20CD

CX 001A 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 0 0 0

CMD >

0100 B80000 MOV AX,0000

0103 B80600 MOV AX,0006

0106 050600 ADD AX,0006

0109 050600 ADD AX,0006

010C 050600 ADD AX,0006

010F 050600 ADD AX,0006

0112 050600 ADD AX,0006

0115 B8004C MOV AX,4C00

0118 CD21 INT 21

DS:0000 CD 20 FF 9F 00 EA F0 FE

DS:0008 AD DE 1B 05 C5 06 00 00

DS:0010 18 01 10 01 18 01 92 01

DS:0018 01 01 01 00 02 FF FF FF

DS:0020 FF FF FF FF FF FF FF FF

DS:0028 FF FF FF FF EB 19 C0 11

DS:0030 A2 01 14 00 18 00 F5 19

DS:0038 FF FF FF FF 00 00 00 00

DS:0040 05 00 00 00 00 00 00 00

DS:0048 00 00 00 00 00 00 00 00

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 = f.Ω≡ i|.+....

DS:0010 18 01 10 01 18 01 92 01 01 01 01 00 02 FF FF FF .....f. ....

DS:0020 FF FF FF FF FF FF FF FF FF FF FF FF FF EB 19 C0 11 δ.L.

DS:0030 A2 01 14 00 18 00 F5 19 FF FF FF FF 00 00 00 00 6.....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

```
DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Program: AFD -
AX 0006 SI 0000 CS 19F5 IP 0106 Stack +0 0000 Flags 7200
BX 0000 DI 0000 DS 19F5 +2 20CD
CX 001A 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 0 0 0

CMD >
0103 B80600 MOV AX,0006
0106 050600 ADD AX,0006
0109 050600 ADD AX,0006
010C 050600 ADD AX,0006
010F 050600 ADD AX,0006
0112 050600 ADD AX,0006
0115 B8004C MOV AX,4C00
0118 CD21 INT 21
011A E489 IN AL,[89]

1 0 1 2 3 4 5 6 7
DS:0000 CD 20 FF 9F 00 EA F0 FE
DS:0008 AD DE 1B 05 C5 06 00 00
DS:0010 18 01 10 01 18 01 92 01
DS:0018 01 01 01 00 02 FF FF FF
DS:0020 FF FF FF FF FF FF FF FF
DS:0028 FF FF FF FF EB 19 C0 11
DS:0030 A2 01 14 00 18 00 F5 19
DS:0038 FF FF FF FF 00 00 00 00
DS:0040 05 00 00 00 00 00 00 00
DS:0048 00 00 00 00 00 00 00 00

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 = f.Ω≡ i|..+...
DS:0010 18 01 10 01 18 01 92 01 01 01 01 00 02 FF FF FF .....ff. ....
DS:0020 FF FF FF FF FF FF FF FF FF FF FF FF EB 19 C0 11 δ.L.
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
```

```
DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Program: AFD -
AX 000C SI 0000 CS 19F5 IP 0109 Stack +0 0000 Flags 7204
BX 0000 DI 0000 DS 19F5 +2 20CD
CX 001A 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 0 1 0

CMD >
0106 050600 ADD AX,0006
0109 050600 ADD AX,0006
010C 050600 ADD AX,0006
010F 050600 ADD AX,0006
0112 050600 ADD AX,0006
0115 B8004C MOV AX,4C00
0118 CD21 INT 21
011A E489 IN AL,[89]
011C 46 INC SI

1 0 1 2 3 4 5 6 7
DS:0000 CD 20 FF 9F 00 EA F0 FE
DS:0008 AD DE 1B 05 C5 06 00 00
DS:0010 18 01 10 01 18 01 92 01
DS:0018 01 01 01 00 02 FF FF FF
DS:0020 FF FF FF FF FF FF FF FF
DS:0028 FF FF FF FF EB 19 C0 11
DS:0030 A2 01 14 00 18 00 F5 19
DS:0038 FF FF FF FF 00 00 00 00
DS:0040 05 00 00 00 00 00 00 00
DS:0048 00 00 00 00 00 00 00 00

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 = f.Ω≡ i|..+...
DS:0010 18 01 10 01 18 01 92 01 01 01 01 00 02 FF FF FF .....ff. ....
DS:0020 FF FF FF FF FF FF FF FF FF FF FF FF EB 19 C0 11 δ.L.
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
```



DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Program: AFD

AX 0012	SI 0000	CS 19F5	IP 010C	Stack +0 0000	Flags 7214
BX 0000	DI 0000	DS 19F5		+2 20CD	
CX 001A	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

CMD >				1	0	1	2	3	4	5	6	7
0109 050600	ADD	AX,0006	DS:0000	CD	20	FF	9F	00	EA	F0	FE	
010C 050600	ADD	AX,0006	DS:0008	AD	DE	1B	05	C5	06	00	00	
010F 050600	ADD	AX,0006	DS:0010	18	01	10	01	18	01	92	01	
0112 050600	ADD	AX,0006	DS:0018	01	01	01	00	02	FF	FF	FF	
0115 B8004C	MOV	AX,4C00	DS:0020	FF	FF	FF	FF	FF	FF	FF	FF	
0118 CD21	INT	21	DS:0028	FF	FF	FF	FF	EB	19	C0	11	
011A E489	IN	AL,[89]	DS:0030	A2	01	14	00	18	00	F5	19	
011C 46	INC	SI	DS:0038	FF	FF	FF	FF	00	00	00	00	
011D E6C7	OUT	[C7],AL	DS:0040	05	00	00	00	00	00	00	00	
			DS:0048	00	00	00	00	00	00	00	00	

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
DS:0010	18	01	10	01	18	01	92	01	01	01	00	02	FF	FF	FF	FF
DS:0020	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	EB	19	C0	11	
DS:0030	A2	01	14	00	18	00	F5	19	FF	FF	FF	FF	00	00	00	00
DS:0040	05	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00

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

DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Program: AFD

AX 0018	SI 0000	CS 19F5	IP 010F	Stack +0 0000	Flags 7204
BX 0000	DI 0000	DS 19F5		+2 20CD	
CX 001A	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 0 1 0

CMD >				1	0	1	2	3	4	5	6	7
010C 050600	ADD	AX,0006	DS:0000	CD	20	FF	9F	00	EA	F0	FE	
010F 050600	ADD	AX,0006	DS:0008	AD	DE	1B	05	C5	06	00	00	
0112 050600	ADD	AX,0006	DS:0010	18	01	10	01	18	01	92	01	
0115 B8004C	MOV	AX,4C00	DS:0018	01	01	01	00	02	FF	FF	FF	
0118 CD21	INT	21	DS:0020	FF	FF	FF	FF	FF	FF	FF	FF	
011A E489	IN	AL,[89]	DS:0028	FF	FF	FF	FF	EB	19	C0	11	
011C 46	INC	SI	DS:0030	A2	01	14	00	18	00	F5	19	
011D E6C7	OUT	[C7],AL	DS:0038	FF	FF	FF	FF	00	00	00	00	
011F 46	INC	SI	DS:0040	05	00	00	00	00	00	00	00	
			DS:0048	00	00	00	00	00	00	00	00	

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
DS:0010	18	01	10	01	18	01	92	01	01	01	00	02	FF	FF	FF	FF
DS:0020	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	EB	19	C0	11	
DS:0030	A2	01	14	00	18	00	F5	19	FF	FF	FF	FF	00	00	00	00
DS:0040	05	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00

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



```
DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Program: AFD -
AX 001E SI 0000 CS 19F5 IP 0112 Stack +0 0000 Flags 7204
BX 0000 DI 0000 DS 19F5 +2 20CD
CX 001A 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 0 1 0

CMD >
010F 050600 ADD AX,0006
0112 050600 ADD AX,0006
0115 B8004C MOV AX,4C00
0118 CD21 INT 21
011A E489 IN AL,[89]
011C 46 INC SI
011D E6C7 OUT [C7],AL
011F 46 INC SI
0120 F60000 TEST [BX+SI],00

DS:0000 CD 20 FF 9F 00 EA F0 FE
DS:0008 AD DE 1B 05 C5 06 00 00
DS:0010 18 01 10 01 18 01 92 01
DS:0018 01 01 01 00 02 FF FF FF
DS:0020 FF FF FF FF FF FF FF FF
DS:0028 FF FF FF FF EB 19 C0 11
DS:0030 A2 01 14 00 18 00 F5 19
DS:0038 FF FF FF FF 00 00 00 00
DS:0040 05 00 00 00 00 00 00 00
DS:0048 00 00 00 00 00 00 00 00

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 = f.Ω= i|.+.+.
DS:0010 18 01 10 01 18 01 92 01 01 01 01 00 02 FF FF FF .....f. ....
DS:0020 FF FF FF FF FF FF FF FF FF FF FF FF EB 19 C0 11 .....δ.Λ.
DS:0030 A2 01 14 00 18 00 F5 19 FF FF FF FF 00 00 00 00 6.....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
```

```
DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Program: AFD -
AX 0024 SI 0000 CS 19F5 IP 0115 Stack +0 0000 Flags 7214
BX 0000 DI 0000 DS 19F5 +2 20CD
CX 001A 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 0 1 0

CMD >
0112 050600 ADD AX,0006
0115 B8004C MOV AX,4C00
0118 CD21 INT 21
011A E489 IN AL,[89]
011C 46 INC SI
011D E6C7 OUT [C7],AL
011F 46 INC SI
0120 F60000 TEST [BX+SI],00
0123 8B46F6 MOV AX,[BP-0A]

DS:0000 CD 20 FF 9F 00 EA F0 FE
DS:0008 AD DE 1B 05 C5 06 00 00
DS:0010 18 01 10 01 18 01 92 01
DS:0018 01 01 01 00 02 FF FF FF
DS:0020 FF FF FF FF FF FF FF FF
DS:0028 FF FF FF FF EB 19 C0 11
DS:0030 A2 01 14 00 18 00 F5 19
DS:0038 FF FF FF FF 00 00 00 00
DS:0040 05 00 00 00 00 00 00 00
DS:0048 00 00 00 00 00 00 00 00

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 = f.Ω= i|.+.+.
DS:0010 18 01 10 01 18 01 92 01 01 01 01 00 02 FF FF FF .....f. ....
DS:0020 FF FF FF FF FF FF FF FF FF FF FF FF EB 19 C0 11 .....δ.Λ.
DS:0030 A2 01 14 00 18 00 F5 19 FF FF FF FF 00 00 00 00 6.....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
```

