

LAB 07 – TASKS – 67005 – Saghir Ali – AI 3-1

TASK 01:

```
edit: C:\Users\Riphah.PROGLAB-6-10\Music\LAB7-T1.asm
file edit bookmarks assembler emulator math ascii
new open examples save compile
01 mov ax,5
02 mov bx,2
03 mov cx,ax
04 jmp calculate
05 modify:
06 sub ax,bx
07 mov dx,ax
08 jmp finish
09 calculate:
10 add ax,bx
11 jmp modify
12 finish;
```

edit: C:\Users\Riphah.PROGLAB-6-10\Music\LAB7-T1.asm

file edit bookmarks assembler emulator math ascii codes help

new open examples save compile emulate calculator convertor options help about

original source co...

```
01 mov ax,5
02 mov bx,2
03 mov cx,ax
04 jmp calculate
05 modify:
06 sub ax,bx
07 mov dx,ax
08 jmp finish
09 calculate:
10 add ax,bx
11 jmp modify
12 finish;
```

emulator: LAB7-T1.bin

file math debug view external virtual devices virtual drive help

Load reload step back single step run step delay ms: 0

registers	H	L	
AX	00	05	01016: 90 144 E
BX	00	02	01017: 90 144 E
CX	00	05	01018: 90 144 E
DX	00	05	01019: 90 144 E
			0101A: 90 144 E
			0101B: 90 144 E
			0101C: 90 144 E
			0101D: 90 144 E
			0101E: 90 144 E
			0101F: 90 144 E
			01020: 90 144 E
			01021: 90 144 E
			01022: 90 144 E
			01023: 90 144 E
			01024: 90 144 E
			01025: 90 144 E
			01026: 90 144 E
			01027: 90 144 E
			01028: 00 000 NULL
			01029: 00 000 NULL
			0102A: 00 000 NULL
			0102B: 00 000 NULL
			...

screen source reset aux vars debug stack flags

line: 12 col: 7 drag a file here to open

TASK 02:

edit: C:\Users\Riphah.PROGLAB-6-10\Music\LAB7-T2.asm

file edit bookmarks assembler emulator math ascii codes hel

new open examples save compile emulate

```
01 mov ax,0
02 mov bx,8
03 mov cx,1
04 jmp loop_start
05 increment:
06 inc ax
07 add cx,ax
08 loop_start:
09 cmp ax,bx
10 jl increment
```

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new open examples save compile emulate calculator convertor options help about

```
01 mov ax,0
02 mov bx,8
03 mov cx,1
04 jmp loop_start
05 increment:
06 inc ax
07 add cx,ax
08 loop_start:
09 cmp ax,bx
10 jl increment
```

original source co...

```
01 mov ax,0
02 mov bx,8
03 mov cx,1
04 jmp loop_start
05 increment:
06 inc ax
07 add cx,ax
08 loop_start:
09 cmp ax,bx
10 jl increment
```

emulator: LAB7-T2.bin

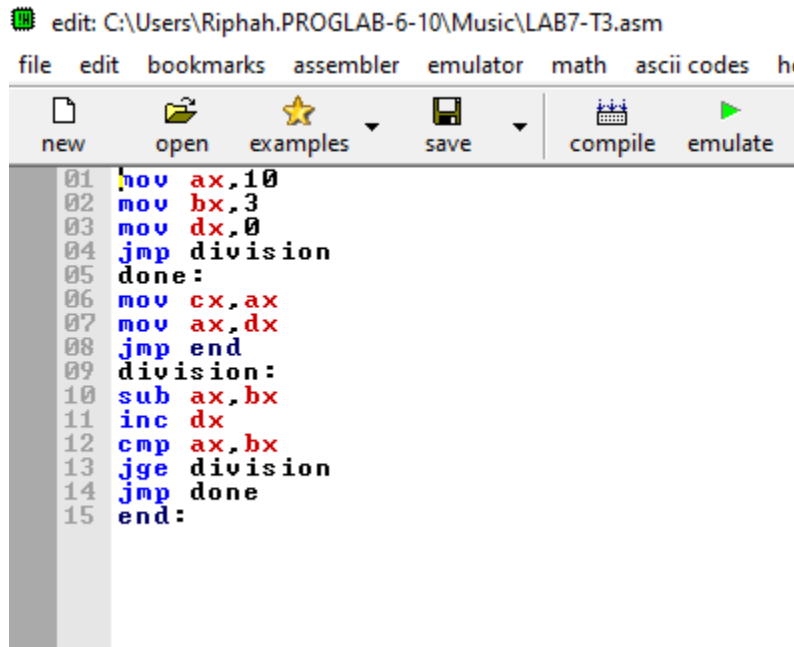
file math debug view external virtual devices virtual drive help

Load reload step back single step run step delay ms: 0

registers	H	L	0100:0026	0100:0026
AX	00	08	01016: 90 144 E	NOP
BX	00	08	01017: 90 144 E	NOP
CX	00	25	01018: 90 144 E	NOP
DX	00	00	01019: 90 144 E	ADD IBX + SI, AL
CS	0100		0101A: 90 144 E	ADD IBX + SI, AL
IP	0026		0101B: 90 144 E	ADD IBX + SI, AL
SS	0100		0101C: 90 144 E	ADD IBX + SI, AL
SP	FFFE		0101D: 90 144 E	ADD IBX + SI, AL
BP	0000		0101E: 90 144 E	ADD IBX + SI, AL
SI	0000		0101F: 90 144 E	ADD IBX + SI, AL
DI	0000		01020: 90 144 E	ADD IBX + SI, AL
DS	0100		01021: 90 144 E	ADD IBX + SI, AL
ES	0100		01022: 90 144 E	ADD IBX + SI, AL

screen source reset aux vars debug stack flags

TASK 03:

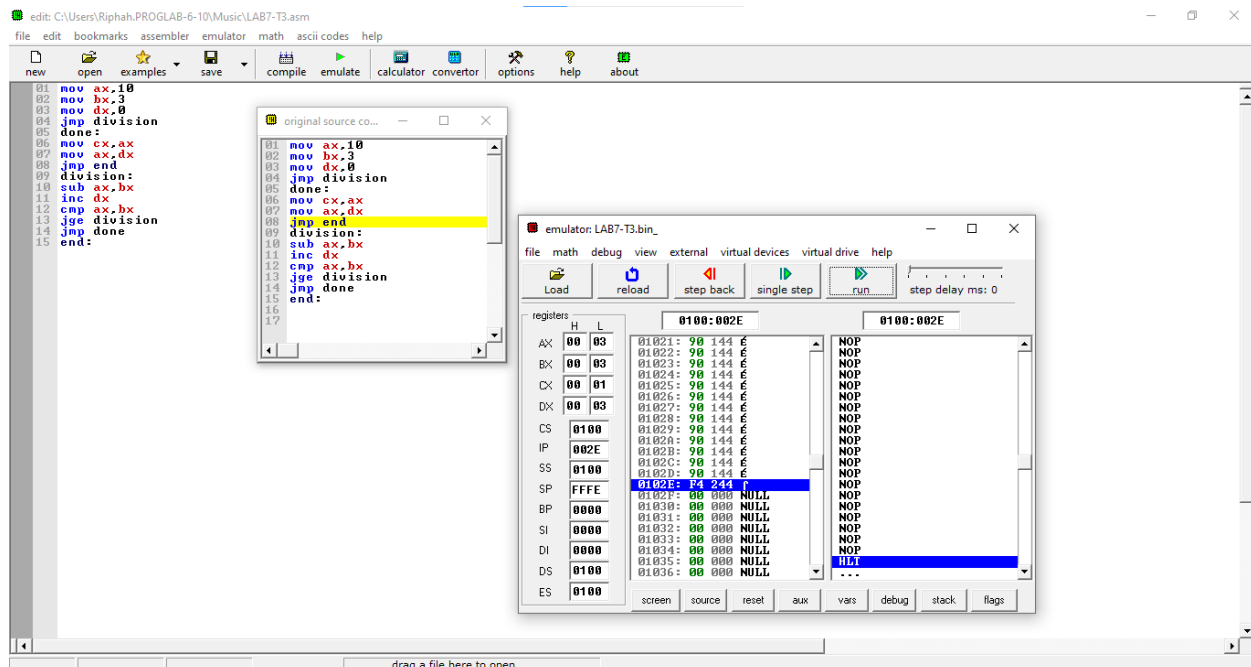


edit: C:\Users\Riphah.PROGLAB-6-10\Music\LAB7-T3.asm

file edit bookmarks assembler emulator math ascii codes h

new open examples save compile emulate

```
01 mov ax,10
02 mov bx,3
03 mov dx,0
04 jmp division
05 done:
06 mov cx,ax
07 mov ax,dx
08 jmp end
09 division:
10 sub ax,bx
11 inc dx
12 cmp ax,bx
13 jge division
14 jmp done
15 end:
```



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file edit bookmarks assembler emulator math ascii codes help

new open examples save compile emulate calculator convertor options help about

original source co...

```
01 mov ax,10
02 mov bx,3
03 mov dx,0
04 jmp division
05 done:
06 mov cx,ax
07 mov ax,dx
08 jmp end
09 division:
10 sub ax,bx
11 inc dx
12 cmp ax,bx
13 jge division
14 jmp done
15 end:
```

emulator: LAB7-T3.bin

file math debug view external virtual devices virtual drive help

Load reload step back single step run step delay ms: 0

registers	H	L	0100:002E	0100:002E
AX	00	03	01021: 90 144 E	NOP
BX	00	03	01022: 90 144 E	NOP
CX	00	01	01023: 90 144 E	NOP
DX	00	03	01024: 90 144 E	NOP
CS	0100		01025: 90 144 E	NOP
IP	002E		01026: 90 144 E	NOP
SS	0100		01027: 90 144 E	NOP
SP	FFFE		01028: 90 144 E	NOP
BP	0000		01029: 90 144 E	NOP
SI	0000		0102A: 90 144 E	NOP
DI	0000		0102B: 90 144 E	NOP
DS	0100		0102C: 90 144 E	NOP
ES	0100		0102D: 90 144 E	NOP

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TASK 04:

edit: C:\Users\Riphah.PROGLAB-6-10\Music\LAB7-T4.asm

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new open examples save compile emulate calculator

```
01 mov ax,0FFFFh
02 mov bx,1
03 mov cx,5
04 jmp shift_loop
05 exit:
06 mov dx,ax
07 jmp end
08 shift_loop:
09 add ax,bx
10 dec bx
11 jnz shift_loop
12 jmp exit
13 end:
```

edit: C:\Users\Riphah.PROGLAB-6-10\Music\LAB7-T4.asm

file edit bookmarks assembler emulator math ascii codes help

new open examples save compile emulate calculator convertor options help about

original source co...

emulator: LAB7-T4.bin

file math debug view external virtual devices virtual drive help

Load reload step back single step run step delay ms: 0

registers	H	L	0100:002A	0100:002A
AX	00	00	01016: 90 144	NOP
BX	00	00	01017: 90 144	NOP
CX	00	05	01018: 90 144	NOP
DX	00	00	01019: 90 144	NOP
			0101A: 90 144	NOP
			0101B: 90 144	NOP
			0101C: 90 144	NOP
			0101D: 90 144	NOP
CS	0100		0101E: 90 144	NOP
IP	002A		0101F: 90 144	NOP
SS	0100		01020: 90 144	NOP
SP	FFFE		01021: 90 144	NOP
BP	0000		01022: 90 144	NOP
SI	0000		01023: 90 144	NOP
DI	0000		01024: 90 144	NOP
			01025: 90 144	NOP
			01026: 90 144	NOP
			01027: 90 144	NOP
			01028: 90 144	NOP
DS	0100		01029: 90 144	NOP
ES	0100		0102A: F4 244	HLT
			0102B: 00 000	NULL

screen source reset aux vars debug stack flags

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TASK 05:

edit: C:\Users\Riphah.PROGLAB-6-10\Music\LAB7-T5.asm

file edit bookmarks assembler emulator math ascii codes help

new open examples save compile emulate calculator

```
01 mov ax,9
02 mov bx,ax
03 dec bx
04 jmp check
05 process:
06 dec ax
07 add cx,ax
08 check:
09 cmp ax,0
10 jg process
11 mov dx,cx
```

edit: C:\Users\Riphah.PROGLAB-6-10\Music\LAB7-T5.asm

file edit bookmarks assembler emulator math ascii codes help

new open examples save compile emulate calculator convertor options help about

original source co...

```
01 mov ax,9
02 mov bx,ax
03 dec bx
04 jmp check
05 process:
06 dec ax
07 add cx,ax
08 check:
09 cmp ax,0
10 jg process
11 mov dx,cx
```

emulator: LAB7-T5.bin

file math debug view external virtual devices virtual drive help

Load reload step back single step run step delay ms: 0

registers	H	L	0100:0026	0100:0026
AX	00	00	01016: 90 144 E	NOP
BX	00	08	01017: 90 144 E	NOP
CX	00	24	01018: 90 144 E	NOP
DX	00	24	01019: 90 144 E	HLL
CS	0100		0101A: 90 144 E	ADD IBK + SI, AL
IP	0026		0101B: 90 144 E	ADD IBK + SI, AL
SS	0100		0101C: 90 144 E	ADD IBK + SI, AL
SP	FFFE		0101D: 90 144 E	ADD IBK + SI, AL
BP	0000		0101E: 90 144 E	ADD IBK + SI, AL
SI	0000		0101F: 90 144 E	ADD IBK + SI, AL
DI	0000		01020: 90 144 E	ADD IBK + SI, AL
DS	0100		01021: 90 144 E	ADD IBK + SI, AL
ES	0100		01022: 90 144 E	ADD IBK + SI, AL

screen source reset aux vars debug stack flags

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TASK 06:

edit: C:\Users\Riphah.PROGLAB-6-10\Music\LAB7-T6.asm

file edit bookmarks assembler emulator math ascii codes help

new open examples save compile emulate calculator c

```
01 mov ax,0
02 mov bx,1
03 mov cx,7
04 jmp fibonacci
05 stop:
06 mov dx,bx
07 hlt
08 fibonacci:
09 mov si,ax
10 mov ax,bx
11 add bx,si
12 dec cx
13 jnz fibonacci
14 jmp stop
```

edit: C:\Users\Riphah.PROGLAB-6-10\Music\LAB7-T6.asm

file edit bookmarks assembler emulator math ascii codes help

new open examples save compile emulate calculator convertor options help about

original source co...

```
01 mov ax,0
02 mov bx,1
03 mov cx,7
04 jmp fibonacci
05 stop:
06 mov dx,bx
07 hlt
08 fibonacci:
09 mov si,ax
10 mov ax,bx
11 add bx,si
12 dec cx
13 jnz fibonacci
14 jmp stop
```

emulator: LAB7-T6.bin

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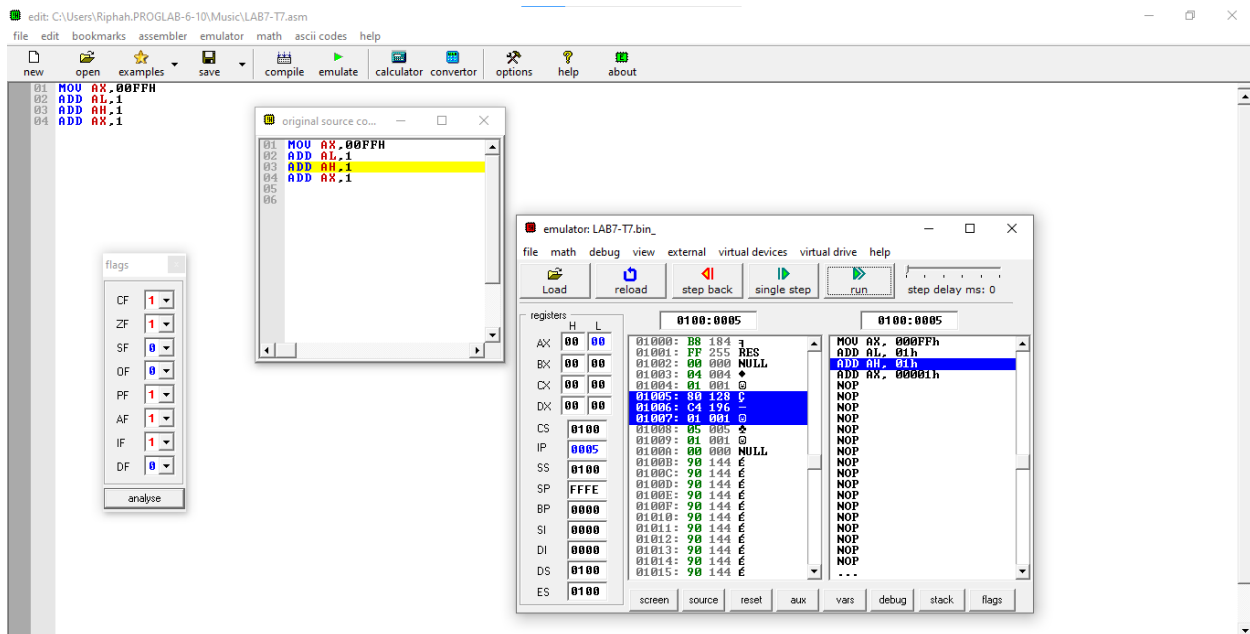
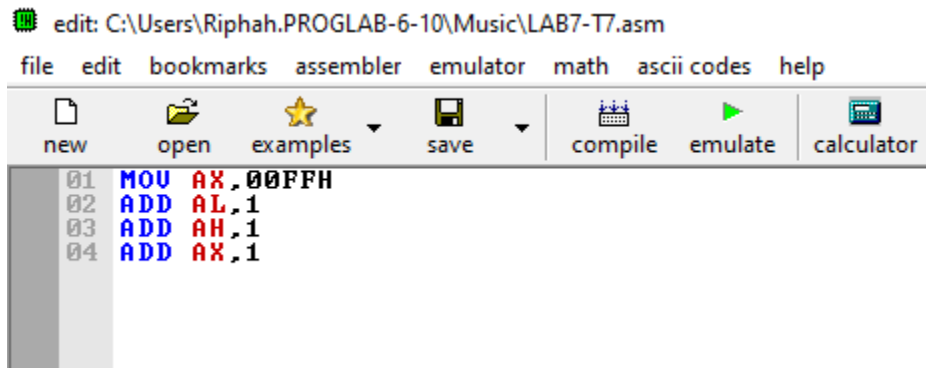
Load reload step back single step run step delay ms: 0

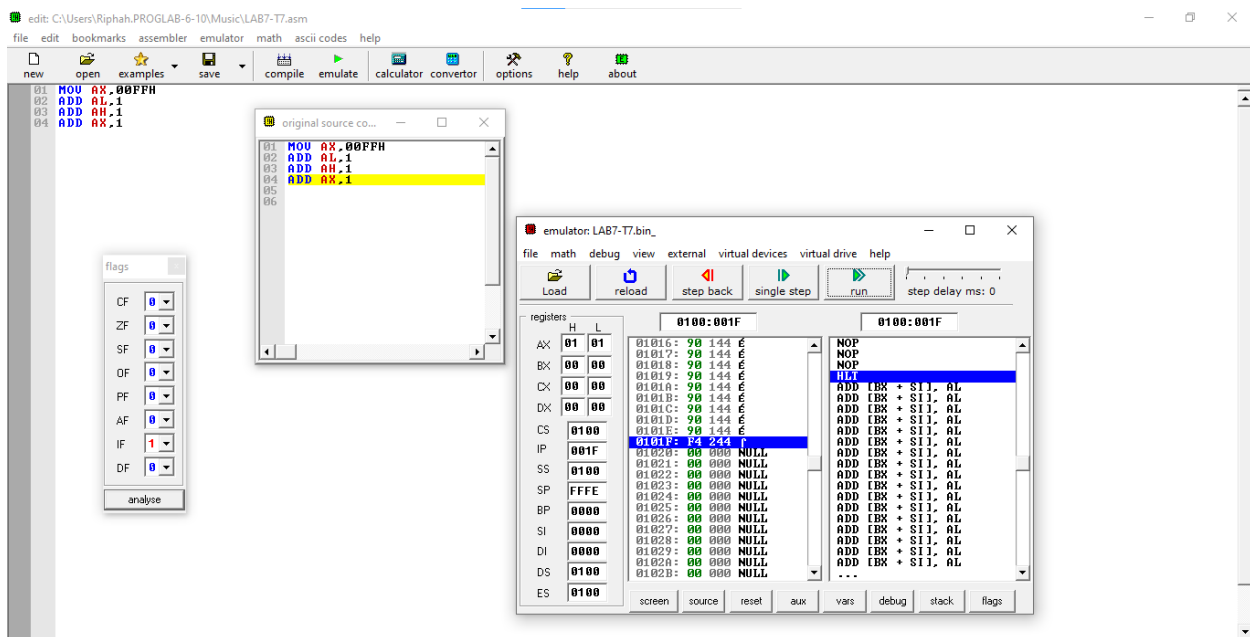
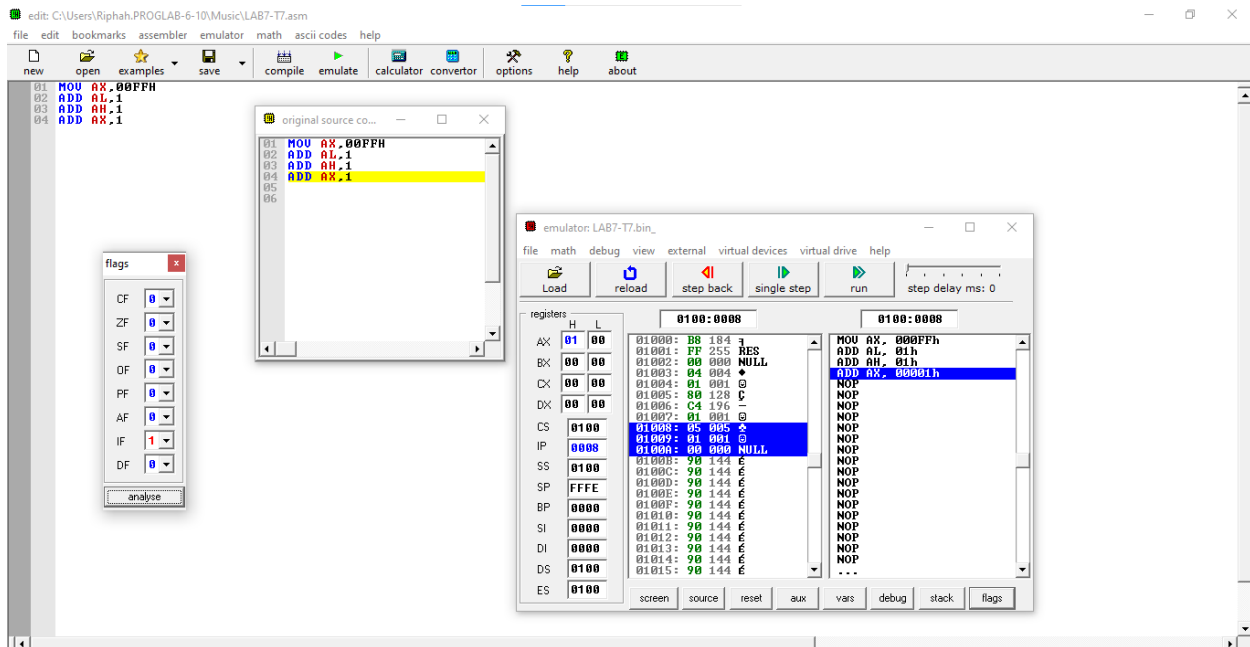
registers	H	L	0100:0000	0100:0000
AX	00	00	01000B: 8B 139 1	MOV DX, BX
BX	00	15	01000C: D3 214 4	MOV SI, AX
CX	00	00	01000E: 8B 139 1	MOV AX, BX
DX	00	15	01000F: F0 240 2	ADD BX, SI
CS	0100		01010A: 8B 139 1	DEC CX
IP	0000		010111: C3 195 1	JNE 00Eh
SS	0100		010112: 03 003 3	JMP 00Bh
SP	FFFE		010113: DE 222 1	NOP
BP	0000		010114: 49 073 1	NOP
SI	0008		010115: 75 117 1	NOP
DI	0000		010116: F7 247 2	NOP
DS	0100		010117: EB 235 2	NOP
ES	0100		010118: F2 242 2	NOP
			010119: 90 144 1	NOP
			01011A: 90 144 1	NOP
			01011B: 90 144 1	NOP
			01011C: 90 144 1	NOP
			01011D: 90 144 1	NOP
			01011E: 90 144 1	NOP
			01011F: 90 144 1	NOP
			010200: 90 144 1	...

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TASK 07:





edit: C:\Users\Riphah.PROGLAB-6-10\Music\LAB7-T8.asm



edit: C:\Users\Riphah\PROGLAB-6-10\Music\LAB7-T8.asm

file edit bookmarks assembler emulator math ascii codes help

new open examples save compile emulate calculator convertor options help about

01 **MOV AX, 0F0F0H**
02 **ADD AL, 0FH**
03 **ADD AH, 0F0H**
04 **ADD AX, 0F0F0H**

original source co...

01 **MOV AX, 0F0F0H**
02 **ADD AL, 0FH**
03 **ADD AH, 0F0H**
04 **ADD AX, 0F0F0H**
05
06

flags

CF 1
ZF 0
SF 1
OF 0
PF 0
AF 0
IF 1
DF 0

analyse

emulator: LAB7-T8.bin_

file math debug view external virtual devices virtual drive help

Load reload step back single step run step delay ms: 0

registers

	H	L
AX	E0	FF
BX	00	00
CX	00	00
DX	00	00
CS	0100	
IP	0000	
SS	0100	
SP	FFFE	
BP	0000	
SI	0000	
DI	0000	
DS	0100	
ES	0100	

0100:0000

Address	Value	Comment
01000: B8 184		
01001: F0 240		
01002: F0 240		
01003: 04 004		
01004: 0F 015		
01005: 80 128		
01006: C4 196		
01007: F0 240		
01008: 05 005		
01009: F0 240		
0100A: F0 240		
0100B: 90 144		
0100C: 90 144		
0100D: 90 144		
0100E: 90 144		
0100F: 90 144		
01010: 90 144		
01011: 90 144		
01012: 90 144		
01013: 90 144		
01014: 90 144		
01015: 90 144		

MOV AX, 0F0F0H
ADD AL, 0FH
ADD AH, 0F0H
ADD AX, 0F0F0H
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
...

screen source reset aux vars debug stack flags

edit: C:\Users\Riphah\PROGLAB-6-10\Music\LAB7-T8.asm

file edit bookmarks assembler emulator math ascii codes help

new open examples save compile emulate calculator convertor options help about

01 **MOV AX, 0F0F0H**
02 **ADD AL, 0FH**
03 **ADD AH, 0F0H**
04 **ADD AX, 0F0F0H**

original source co...

01 **MOV AX, 0F0F0H**
02 **ADD AL, 0FH**
03 **ADD AH, 0F0H**
04 **ADD AX, 0F0F0H**
05
06

emulator: LAB7-T8.bin_

file math debug view external virtual devices virtual drive help

Load reload step back single step run step delay ms: 0

registers

	H	L
AX	01	EF
BX	00	00
CX	00	00
DX	00	00
CS	0100	
IP	001F	
SS	0100	
SP	FFFE	
BP	0000	
SI	0000	
DI	0000	
DS	0100	
ES	0100	

0100:001F

Address	Value	Comment
01016: 90 144		
01017: 90 144		
01018: 90 144		
01019: 90 144		
0101A: 90 144		
0101B: 90 144		
0101C: 90 144		
0101D: 90 144		
0101E: 90 144		
0101F: 90 144		
01020: 00 000		NULL
01021: 00 000		NULL
01022: 00 000		NULL
01023: 00 000		NULL
01024: 00 000		NULL
01025: 00 000		NULL
01026: 00 000		NULL
01027: 00 000		NULL
01028: 00 000		NULL
01029: 00 000		NULL
0102A: 00 000		NULL
0102B: 00 000		NULL

NOP
NOP
NOP
NOP
ADD [BX + SI], AL
ADD [BX + SI], AL
ADD [BX + SI], AL
ADD [BX + SI], AL
ADD [BX + SI], AL
ADD [BX + SI], AL
ADD [BX + SI], AL
ADD [BX + SI], AL
ADD [BX + SI], AL
ADD [BX + SI], AL
ADD [BX + SI], AL
ADD [BX + SI], AL
ADD [BX + SI], AL
ADD [BX + SI], AL
...

screen source reset aux vars debug stack flags