

《汇编语言》实验报告

班级	信息十班	实验日期	2022.9.17	实验成绩	
姓名	陈澄	学号	32420212202930		
实验名称	汇编语言第二次实验				
实验目的、要求	1) 熟练掌握汇编语言程序的书写、汇编、连接等步骤 2) 掌握基本的 debug 命令，并对程序进行基本的调试				
实验内容、步骤及结果	<div>1.将给定程序输入，并汇编、连接后生成可执行文件 lab2.exe</div> <div></div> <div></div>				

2. Debug lab2.exe

```
DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, P...
Z:\>c:
C:\>debug hello.exe
-d 100
075A:0100 21 23 25 55 00 CD AB 20-00 68 65 6C 6C 6F 20 77  !#%
075A:0110 6F 72 6C 64 21 0A 0D 24-00 00 00 00 00 00 00 00  orl
075A:0120 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00  ...
075A:0130 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00  ...
075A:0140 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00  ...
075A:0150 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00  ...
075A:0160 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00  ...
075A:0170 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00  ...
-d 075a:0109
075A:0100 68 65 6C 6C 6F 20 77
075A:0110 6F 72 6C 64 21 0A 0D 24-00 00 00 00 00 00 00 00  orl
075A:0120 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00  ...
075A:0130 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00  ...
075A:0140 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00  ...
```

3. 尝试（运用 debug）：

1）将内存中字符串“world”改写成“WORLD”，并显示修改后的结果

```
DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, P...
-e 10f
075A:010F 77.
-d 10f
075A:0100 77
075A:0110 6F 72 6C 64 21 0A 0D 24-00 00 00 00 00 00 00 00  orl
075A:0120 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00  ...
075A:0130 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00  ...
075A:0140 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00  ...
075A:0150 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00  ...
075A:0160 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00  ...
075A:0170 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00  ...
075A:0180 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00  ...
-e 10f 'WORLD'
-d 109
075A:0100 68 65 6C 6C 6F 20 57
075A:0110 4F 52 4C 44 21 0A 0D 24-00 00 00 00 00 00 00 00  ORL
075A:0120 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00  ...
075A:0130 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00  ...
075A:0140 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00  ...
```

2）展示 $3F24+4A2B$ 和 $3F24-4A2B$ 的计算（用-h 和 add/sub 指令）

```
DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, P...
Welcome to DOSBox v0.74-3
For a short introduction for new users type: INTRO
For supported shell commands type: HELP
To adjust the emulated CPU speed, use ctrl-F11 and ctrl-F12.
To activate the keymapper ctrl-F1.
For more information read the README file in the DOSBox directory.
HAVE FUN!
The DOSBox Team http://www.dosbox.com
Z:\>SET BLASTER=A220 I7 D1 H5 T6
Z:\>mount c: c:/users/cc507/desktop/learn/huibian/masm
Drive C is mounted as local directory c:/users/cc507/desktop/learn/huibian/masm
Z:\>c:
C:\>debug hello.exe
-h 3f24 4a2b
894F F4F9
-▲
```

```

DOS
Box DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, P... -
DS=075A ES=075A SS=076C CS=07AC IP=0009 OV UP EI NG NZ NA
07AC:0009 FFBA0900 ??? IBP+SI+0009]
-a
07AC:0009 add ax,3f24
07AC:000C add ax,4a2b
07AC:000F mov ax,0000
07AC:0012 add ax,3f24
07AC:0015 sub ax,4a2b
07AC:0018
-t
AX=3F24 BX=0000 CX=0436 DX=0000 SP=0400 BP=0000 SI=0000 D
DS=075A ES=075A SS=076C CS=07AC IP=000C NU UP EI PL NZ NA
07AC:000C 052B4A ADD AX,4A2B
-t
AX=894F BX=0000 CX=0436 DX=0000 SP=0400 BP=0000 SI=0000 D
DS=075A ES=075A SS=076C CS=07AC IP=000F OV UP EI NG NZ NA
07AC:000F B80000 MOV AX,0000
-t

```

```

DOS
Box DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, P... -
AX=3F24 BX=0000 CX=0436 DX=0000 SP=0400 BP=0000 SI=0000 D
DS=075A ES=075A SS=076C CS=07AC IP=000C NU UP EI PL NZ NA
07AC:000C 052B4A ADD AX,4A2B
-t
AX=894F BX=0000 CX=0436 DX=0000 SP=0400 BP=0000 SI=0000 D
DS=075A ES=075A SS=076C CS=07AC IP=000F OV UP EI NG NZ NA
07AC:000F B80000 MOV AX,0000
-t
AX=0000 BX=0000 CX=0436 DX=0000 SP=0400 BP=0000 SI=0000 D
DS=075A ES=075A SS=076C CS=07AC IP=0012 OV UP EI NG NZ NA
07AC:0012 05243F ADD AX,3F24
-t
AX=3F24 BX=0000 CX=0436 DX=0000 SP=0400 BP=0000 SI=0000 D
DS=075A ES=075A SS=076C CS=07AC IP=0015 NU UP EI PL NZ NA
07AC:0015 2D2B4A SUB AX,4A2B
-t

```

- 3) 在内存中输入 MOV AX, 32H
ADD AX,AX
执行并查看 AX 的变化
修改 AX 的值为 FFFF

```

DOS
Box DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, P... -
DS=075A ES=075A SS=076C CS=07AC IP=0015 NU UP EI PL NZ NA
07AC:0015 2D2B4A SUB AX,4A2B
-t
AX=F4F9 BX=0000 CX=0436 DX=0000 SP=0400 BP=0000 SI=0000 D
DS=075A ES=075A SS=076C CS=07AC IP=0018 NU UP EI NG NZ AC
07AC:0018 0000 ADD IBX+SI],AL
-a
07AC:0018 mov ax,32h
^ Error
07AC:0018 mov ax,32
07AC:001B add ax,ax
07AC:001D
-t
AX=0032 BX=0000 CX=0436 DX=0000 SP=0400 BP=0000 SI=0000 D
DS=075A ES=075A SS=076C CS=07AC IP=001B NU UP EI NG NZ AC
07AC:001B 01C0 ADD AX,AX
-t

```

总结	能够更加熟练地掌握程序的汇编与连接以及 debug 等操作。学会了用 h,add,sub 指令进行 16 进制加减。学会了使用 a 指令在 debug 模式下以写入的方式运行汇编指令，并通过 r 指令对寄存器内的数值进行检查。
----	---