
SPIM simulator

CSE 410, Spring 2004
Computer Systems

<http://www.cs.washington.edu/education/courses/410/04sp/>

Reading and References

- See the Resources section on the SPIM web page for documentation on SPIM
 - » <http://www.cs.wisc.edu/~larus/spim.html>

SPIM simulator

- SPIM lets you write MIPS assembly language code and run it on a PC
- PCSpim is installed on the machines in the Math Sciences Computing Center
- You can download versions for Windows and all varieties of *nix (including MacOS X) from the web site
 - » <http://www.cs.wisc.edu/~larus/spim.html>

Spim display

- Register panel
 - » register names and numbers
- Text segment panel
 - » note jump and link to “main” at [0x00400014]
 - » your code defines the label “main”
- Data and Stack segment panel
- Message panel

PCSpim

File Simulator Window Help

[Icons: Open, Save, Print, Hand, Help, Mouse]

PC = 00400000 EPC = 00000000 Cause = 00000000 BadVAddr= 00000000
 Status = 00000000 HI = 00000000 LO = 00000000

General Registers

R0 (r0) = 00000000	R8 (t0) = 00000000	R16 (s0) = 00000000	R24 (t8) = 00000000
R1 (at) = 00000000	R9 (t1) = 00000000	R17 (s1) = 00000000	R25 (t9) = 00000000
R2 (v0) = 00000000	R10 (t2) = 00000000	R18 (s2) = 00000000	R26 (k0) = 00000000
R3 (v1) = 00000000	R11 (t3) = 00000000	R19 (s3) = 00000000	R27 (k1) = 00000000

```

[0x00400010]    0x00c23021    addu $6, $6, $2                    ; 144: addu $a2, $a2, $v0
[0x00400014]    0x0c100009    jal 0x00400024 [main]             ; 145: jal main
[0x00400018]    0x00000000    nop                                ; 146: nop
[0x0040001c]    0x3402000a    ori $2, $0, 10                    ; 148: li $v0 10
[0x00400020]    0x0000000c    syscall                           ; 149: syscall
[0x00400024]    0x34020004    ori $2, $0, 4                     ; 7: li $v0,4 # print_s
[0x00400028]    0x3c041001    lui $4, 4097 [str]                ; 8: la $a0,str # addr(st
  
```

DATA

```

[0x10000000]...[0x1000fffc]    0x00000000
[0x1000fffc]                    0x00000000
[0x10010000]                    0x6c6c6548    0x6f57206f    0x0a646c72    0x00000000
[0x10010010]...[0x10040000]    0x00000000
  
```

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 Loaded: C:\apps\PCSpim\trap.handler
 Memory and registers have been cleared, and the simulator reinitialized.

C:\home\finson\cse410\ex\hello.s has been successfully loaded

For Help, press F1

PC=0x00400000 EPC=0x00000000 Cause=0x00000000

Context editor

- You can use any text editor you like to write the source code
- Context editor provided in MSCC
 - » it has a highlighter for MIPS assembly language
 - » it doesn't try to be a word processor

ConTEXT - [C:\home\finson\cse410\ex\hello.s]

File Edit View Format Project Tools Options Window Help

MIPS Assembler

hello.s

```
.data
str:
.asciiz "Hello World\n"

.text
main:
li $v0,4 # print_string code
la $a0,str # addr(str)
syscall # print it

jr $ra # return
```

Ln 3, Col 29 | Insert | Sel: Normal | DOS | File size: 181

hello.s

```
.data
str:
    .asciiz    "Hello World\n"

.text
main:
    li    $v0,4    # print_string code
    la    $a0,str  # addr(str)
    syscall        # print it

    jr    $ra      # return
```