CSE30321 Computer Architecture I

A Short Tutorial on XSPIM

`XSPIM` is a software that simulates the execution of MIPS assembly programs. It does a context and syntax check while loading an assembly program. In addition, it adds in necessary overhead instructions as it sees fit and keeps track of all the register and memory contents as each instruction is executed. Below, we give a quick summary on the usage of `XSPIM`.

- Go to the directory where your assembly language program is stored.
- Type `/afs/nd.edu/user14/csesoft/bin/xspim` at the prompt. (Adding the full directory to your path or making an alias for `xspim` will ease future invocations.)
- A window pops up as shown in Figure 1. The window is divided into five sections vertically.

  Section 1: displays all register contents. You only need to get familiar with the registers which we have discussed in class.

  Section 2: is the *Command Console*. Each button here corresponds to a command supported by the simulator.

  Section 3: is the *Text Segment* which displays the MIPS instructions loaded into the memory and to be executed. From left to right, we have the memory addresses, the corresponding memory contents in hex, the actual MIPS instructions, and the corresponding assembly instructions.

  Section 4: is the *Data Segment* which displays memory addresses and their contents in the data and stack segments of the memory.

  Section 5: is the *Information Console* which shows the actions taken by the simulator.

- The functions of the command buttons in the *Command Console* are summarized below:

  quit Exit from the simulator.

  load Read an assembly program file into memory.

  reload Reload the assembly program file.

  run Execute a program to completion.

  step Advance the execution of a program by a given step size.

  clear Reinitialize registers or memory. (You have a choice of what to clear. To reload a program you modified, you need to clear both the registers and the memory.)

  setvalue Set the value in register or memory.

  print Print the value in register or memory.

  breakpoint Set or delete a breakpoint.

  help Display the above message.

We will not use *terminal* and *mode* in this lab.

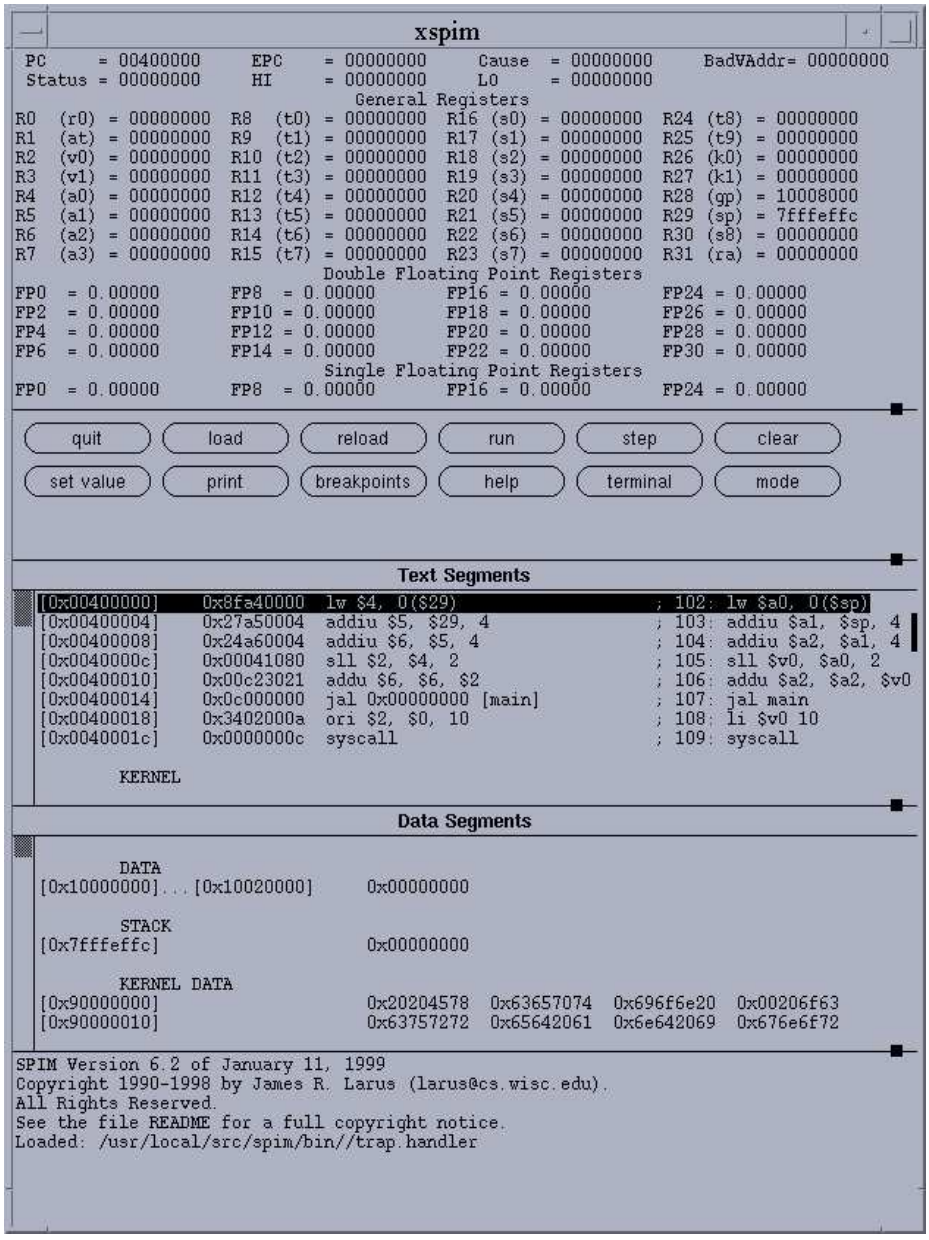

Figure 1: XSPIM Window