Debugging in SPIM

CMPUT 229

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Outline

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How Do You Debug?

How Do You Debug?

- Breakpoints
- Single-stepping
- Inspecting variable values

Breakpoints in SPIM

- Can only set breakpoints by address or global symbol name.
  - You can make symbols in your program global using the `.globl` directive.
- Look up the address of the instruction you want to break on in the `Text Segments` pane in XSPIM.
- See all the global symbols by choosing `global symbols` in the `print` menu in XSPIM.
- Use the `p(rint)` command to show instructions in SPIM.
- Use the `print_symbols` command to show global symbols in SPIM.
- Set a breakpoint using the `breakpoints` button in XSPIM, or the `breakpoint` command in SPIM.

Stepping in SPIM

- Click `step` and enter the number of instructions to execute in XSPIM.
- Use the `s(tep)` command in SPIM.
  - Just hit enter to repeat the last command – handy when single-stepping.

Value Inspection in SPIM

- As you know, there aren't really variables in assembly language.
- There are registers, and memory, where we keep values.
- In XSPIM, the registers are listed in the top pane, and values in memory can be found in the `Data Segments` pane.
- In SPIM, use the `p(rint)` command to print values in registers or memory.

Example

- A simple program to calculate and display the Fibonacci sequence.
- But it doesn't quite work ...

Questions?