

Getting Started with sim11

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NOTICE: This document is old and incomplete.

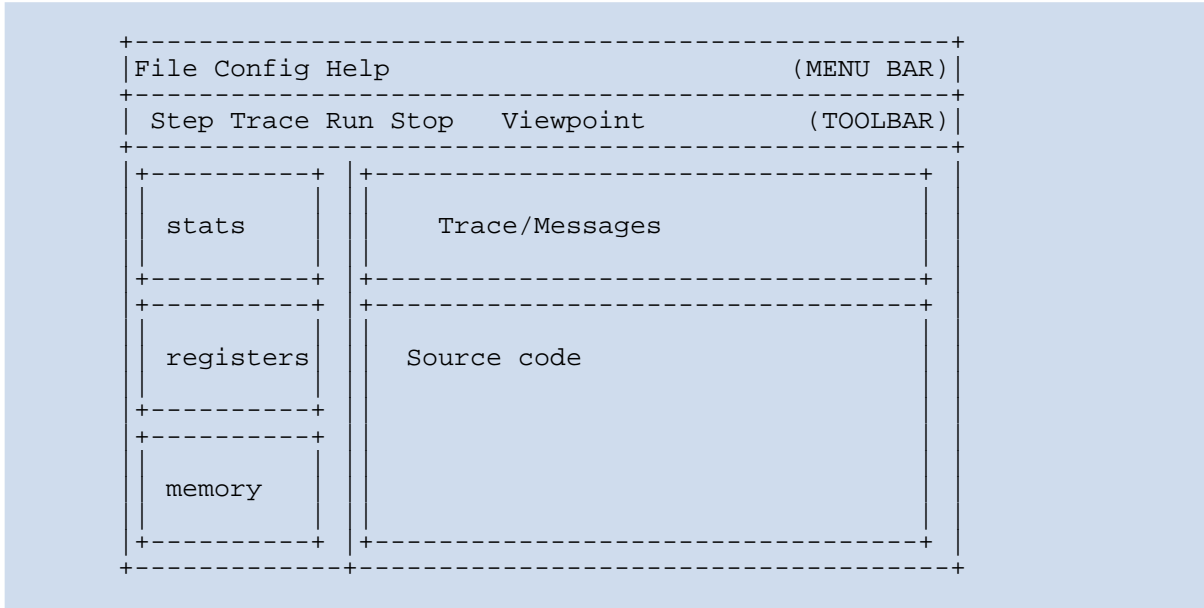
A simple introduction to some of the features available in the GUI for sim11.

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1. User Interface Overview

When you run the command `sim11`, you get a screen that looks something like:



2. The File button

The `File` button in the menu bar is the place to start. Press the button and then press the `Samples` choice. After a short delay, a window pops up allowing you to select an assembly language file to load into the simulator.

Double click on the file `ex1-simple.asm`. This loads the source and object code for the example; messages indicating this are displayed in the `Trace/Messages` window and the source code is displayed in the `Source Code` window.

3. Single Stepping

Note that the program counter is initialized to `0x6000`. (All the registers are displayed in hexadecimal.) Furthermore, the source code line corresponding to the instruction at this address is highlighted in the `Source Code` window.

Click the `Step` button in the `Toolbar` to single step the next instruction (`clra` in this case which clears `Accumulator A` to zero.) Once it has executed, the `AccA` register value (in the `Registers` window) is updated to its new value. Furthermore, the `Trace` window shows the

disassembled instruction that has just been executed and the values of all the registers. Similarly, the source code window highlights the next instruction. (Thus the trace window shows the previous instruction and the source window indicates the next instruction.)

Continue single stepping 3 more times until the instruction at address 0x6008 is highlighted. The next exercise explains how to use Breakpoints.

4. Breakpoints

Single-stepping can get tedious. You can also run at full speed, but in this case it is useful to set Breakpoints to stop full speed simulation.

You set a Breakpoint (or unset one previously set) by clicking in the Brk box on the line where you want the breakpoint.

You can now simulate at full speed by clicking the Run button in the Toolbar. The program stops again quickly. The tracing is disabled during full speed simulation, but the message indicates that 8 instructions that took 31 clock cycles were simulated.

5. Viewpoints

Although tracing and updating the visual display of register contents is disabled during full speed simulation, you can view the contents of selected memory locations during full speed simulation. This is done by setting *viewpoints* at the desired memory locations.

The variables of interest are at locations 0x7000 and 0x7001. Click the Viewpoint button to set one up and enter the address you want. (You can set up as many Viewpoints as you want.)

Run the program a few times. It will continue to stop at the breakpoint, but the values in the Viewpoint(s) will change. (The astute reader may note that the program generates the Fibonacci series.)

To demonstrate that viewpoints work even without breakpoints, remove the current breakpoint (by clicking on its box) and click Run. The program will now run without stopping, but the Viewpoints will be updated dynamically (and quickly). (If you have set other breakpoints, delete each one when it is hit and click Run again; eventually all breakpoints will be removed and the simulation will proceed at full speed.)

To stop the full speed simulation, click the Stop button.