Running iVerilog

Jan 2014 - NOTE13: Running iVerilog… at school and home

Your design loop has three steps/programs: iverilog (compile), vvp (simulate), and gtkwave (graphically view results).

You can download iverilog (and vvp and gtkwave) here: www.bleyer.org/icarus
This is a useful link for getting started: iverilog.wikia.com/wiki/Getting_Started

In the lab, ITS has a nice setup for using iVerilog:

- Select Start/Programs/Icarus Verilog/Icarus Verilog… this opens a Windows Explorer window at the iVerilog folder
- Double-click the "Use iverilog" script… this opens a black Command Prompt window (and makes sure your PATH variable is properly set)

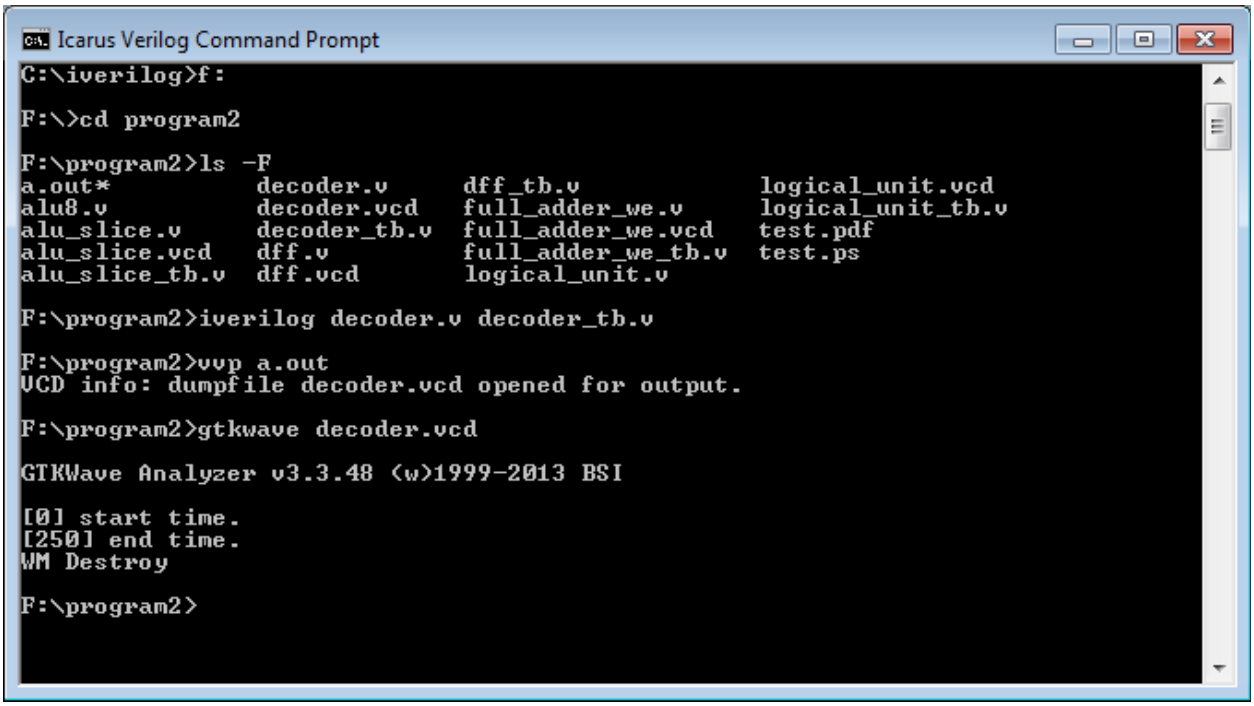
About our three programs:

- `iverilog file1.v file2.v ...`
  Compile your design. All files used in your design must be listed. If no errors, then the output is file `a.out`.

- `vvp a.out`
  Simulate the design previously compiled in the `a.out` file. The output of this step is defined in your testbench. Our convention will be to name the output file <mod>.vcd, for example `decoder.vcd` in my example.

- `gtkwave file1.vcd`
  Graphically view the input and output waveforms for your design.

Let's walk through an example… my decoder.



Here's what's happening in the black window above (my typing is **bold**):

1. **f:** - set the current folder to my f: drive
2. **cd program2** - change directory to my program2 folder
3. **ls -F** - lists the contents of this folder (the -F is optional)
4. **iverilog decoder.v decoder_tb.v** - compile my Verilog design and testbench… a.out file is created
5. **vvp a.out** - run the simulation… decoder.vcd file is created
6. **gtkwave decoder.vcd** - view the simulation results graphically

If everything works perfectly, the exit the window. Otherwise, keep this window. Make edits to your Verilog (I use Notepad++) and then do steps 4-6 over (and over) again.

Tip: in the Command Prompt window, use the arrow keys to scroll through previous commands you have typed. This can save you time and fingers.
Tip: <ALT>PrintScreen is how I grabbed that Command Prompt window. You can also use this to capture your graphical waveforms in gtkwave.