IVERILOG and GTKWave Installation on WINDOWS System

Icarus Verilog forWindows

Icarus Verilog for windows is a free compiler implementation for the IEEE-1364 Verilog hardware description language.

1. Icarus verilog for windows is available at the following link:
   http://bleyer.org/icarus/
   or type icarus Verilog download for windows and select the first link

- Download the latest version of verilog setup file (iverilog-0.9.7 setup.exe (latest stable release) [10.5MB]to your machine.

2. Run the iverilog-0.8.2 setup.exe file as administrator. While installing choose install GTKWAVE option
3. It will install the iverilogand gtkwave with an interactive mode.
4. The installed folder is C:\iverilog folder
   (NOT TO THE DEFAULT FOLDER NAME 'C:\Program Files\Icarus Verilog')
5. On your Windows system search type 'System '
6. Go to 'Advanced System Settings'
7. Go to 'Environment variables '
8. Select New User Variable
9. Give any name for Variable name. A good option here is to use verilog
10. Edit the PATH environment to add the location C:\iverilog\bin
11. Click 'OK' on each pane to exit from the 'System Properties'.
12. Once installation is completed, go to the installed path and begin your programs
    For example.c:\iVerilog\bin\week1 on your command prompt.
    This will give the iverilog compilation options.

I. Setting up directories and folders

1. Create a folder for your programs in your Documents folder or on your C: drive (Window system).
2. Let's use C:\iverilog\bin\Week1.
3. Save your Verilog files to that folder.
4. You can use notepad or any other plain text editor to write your Verilog programs.

II. Compiling your Verilog program

1. You need to compile your Verilog program before you can simulate it.
2. Open up a DOS prompt (run cmd.exe from the Start menu) and type the following, hitting enter after each line:
   cd\
   cd iverilog
   cd bin
   cd Week1
   cd simple
3. By a text editor edit your verilog program and save it as ”filename.v”.
4. Next, compile this program with following command.
   C:\iverilog\bin\Week1\simple>iverilog -o testfilename.v filename_tb.v

III. Runningthe simulation

To run the simulation, type vvp test and hit Enter.
You should see output something like:
VCD info: dumpfile filename.vcd opened for output.
A is 1010, B is 0011.
A is 1100, B is 0101.

GTKWave forWindows

https://gtkwave.soft112.com/download.html
https://www.youtube.com/watch?v=OdmXrtvLrg0
https://www.youtube.com/watch?v=5Kync4z5VOw

IV. Viewing the output

You can use the GTKWave program to view the output.

From the DOS prompt, type gtkwavefilename.vcdto view the results of your simulation.

V. Troubleshooting

1. **I get the error "Unknown module type: simple" when I run iverilog!**

You might have run iverilog without all of the sources needed to define all of the modules. A common cause is compiling simple_tb.v without also compiling simple.v.

2. **I get the error "simple: Unable to open input file." when I run vvp!**

You might have forgotten to specify -o simple when you ran iverilog.

3. **The vvp program never stops running!**

Is there a $finish statement anywhere in your code? Are you sure it is getting run? You should be able to type Ctrl + C at the DOS prompt to kill the simulator.

4. **There is no data file produced!**

   Make sure your test bench includes a $dumpfile statement and a $dumpvars statement

Icarus Verilog for Ubuntu

Install iverilog by entering the following commands in the terminal:

```
sudo apt update
sudo apt install iverilog
```

GTKWave for Ubuntu

Install gtkwave by entering the following commands in the terminal:

```
sudo apt update
sudo apt install gtkwave
```

Icarus Verilog for MacOS

Install on MacOS using Homebrew

$ brew install icarus-verilog
(Optional) Install iverilog waveform dumpfile viewer - gtkwave
$ sudo port -v install gtkwave
If gtkwave installation gives Error: Failed to configure
gtk-osx-application-common-gtk2: gtk2 +quartz not installed. Do:
$ sudo port install gtk2 +quartz

GTKWave for MacOS

Link: https://www.youtube.com/watch?v=jUYkYoYr8hs

First, install GTKWave:

```
brew tap homebrew/cask
brew cask install gtkwave
```

Using Perl's package manager, install Switch:

```
cpan install Switch
```

```
perl -V:'installsitelib'
```

The last command prints out the location of where Switch is installed. If it is something like /usr/local/Cellar/perl/..., then Switch must be coppied to the correct location in /Library/Perl/5.*/:

```
sudocp /usr/local/Cellar/perl/5.*/lib/perl5/site_perl/5.*/Switch.pm /Library/Perl/5.*/
```

Run

Finally, the GTKWave command line tool can be run without any errors:

```
/Applications/gtkwave.app/Contents/Resources/bin/gtkwave
```

Add the command to ~/.bash_profile:

Now this can be added to the ~/.bash_profile with:

```
aliasgktwave= /Applications/gtkwave.app/Contents/Resources/bin/gtkwave
```

or with:

```
export PATH= /Applications/gtkwave.app/Contents/Resources/bin/:$PATH
```