

A Guide on Getting ModelSim to Work on Linux

by Justin Andrienas

Caveat: This works for my system, and it seems to work for other people judging by my research, but your results may vary.

Another caveat: I have no idea whether the USB Blaster can actually be made to work on Linux. Supposedly it can, but I haven't been able to try it. You may end up having to use Windows anyway so you can program your CPLD.

My system is 64-bit Xubuntu 18.04, running Quartus 18.1.

- 1) Download and install Quartus according to the instructions [here](#).
 - a) Open Quartus and go to **Tools>Options>EDA Tool Options**, and make sure the path for ModelSim-Altera is set to `/<YOUR_DIRECTORY>/modelsim_ase/bin`
 - b) Go to **Assignments>Settings>EDA Tool Settings** and make sure the Simulation Tool Name is set to ModelSim-Altera.
- 2) Navigate to the Quartus installation directory in terminal. For example, if I had installed it in `/opt/`, then navigate to `/opt/modelsim_ase/bin` and run:

```
cd /opt/modelsim_ase/bin
./vsim
```

If this opens ModelSim, then congratulations, you have no more problems! More likely, though, you'll probably get something like:

```
could not find ../../linux_rh60/vsim
```

Open the vsim file with the below line (or equivalent):

```
sudo gedit vsim
```

and change the line `vco="linux_rh60"` to `vco="linux"`

Also, change the line `mode=${MTI_VCO_MODE:-" "}` to `mode=${MTI_VCO_MODE:-"32"}`

Save and exit.

Try running `./vsim` in the terminal again, and if the ModelSim GUI comes up, you're good to go!

- 3) If you get the error below or something like it, it means you have a relatively recent version of freetype, a font setting package, and this breaks ModelSim for reasons nobody understands.

```
** Fatal: Read failure in vlm process (0,0)
Segmentation fault (core dumped)
```

To solve this, download freetype 2.4.12 from [here](#).

Extract the .tar archive you downloaded, and compile it.

```
cd ~/Downloads/  
cd freetype-  
2.4.12  
./configure --build=i686-pc-linux-gnu "CFLAGS=-m32" "CXXFLAGS=-  
m32" "LDFLAGS=-m32"  
make -j8
```

Now, go back to `modelsim_ase`.

```
sudo mkdir lib32  
sudo cp ~/Downloads/freetype-2.4.12/objs/.libs/libfreetype.so*  
./lib32
```

Now, edit `vsim` to ensure it uses the new libraries.

```
sudo gedit bin/vsim
```

Look for this line: `dir=`dirname $arg0``

And insert the following new line under it: `export LD_LIBRARY_PATH=${dir}/lib32`

Save and exit.

You'll probably try `/opt/modelsim_ase/bin/vsim` again, and you'll probably get another error.

- 4) Many of the errors that are not caused by any of the preceding factors are caused by the fact that the free version of ModelSim is 32-bit, and your system is probably 64-bit and therefore lacks 32-bit libraries. Install all these packages, and hopefully the pain will stop.

```
sudo apt-get install gcc-multilib g++-multilib \  
lib32z1 lib32stdc++6 lib32gcc1 \  
expat:i386 fontconfig:i386 libfreetype6:i386 libexpat1:i386  
libc6:i386 libgtk-3-0:i386 \  
libcanberra0:i386 libice6:i386 libsm6:i386 libncurses5:i386  
zlib1g:i386 \  
libx11-6:i386 libxau6:i386 libxdmcp6:i386 libxext6:i386  
libxft2:i386 libxrender1:i386 \  
libxt6:i386 libxtst6:i386
```

Finally, one last time:

```
cd /opt/modelsim_ase/bin  
./vsim
```

Perhaps the gods of Linux will smile upon you this day, and the GUI will come up.

If none of this works, I'm so sorry.

Note: Opening ModelSim through the Quartus GUI still won't work, I haven't figured out how to fix that yet. You have to launch it manually through terminal using `vsim`, and then import your HDL files through the ModelSim GUI to run simulations.

Also, you may not be able to see any of the HDL code in ModelSim because the font is microscopic. This is fixable, just go into the configuration files and change all the values for fonts to 20.

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