Quartus 15.0 Web Edition Linux Installation Instructions by Aaron Abbott

I ran through and made these instructions on a fresh installation of Ubuntu 16.04 LTS 64 bit. Quartus works fine with 64 bits Linux, but ModelSim is the trouble maker since it only comes compiled for 32 bit Linux. On 64 bit machines you will need to install some 32 bit libraries that ModelSim depends on.

Download

Download `QuartusSetupWeb-15.0.0.145-linux.run` (Quartus 15 web edition installer), `ModelSimSetup-15.0.0.145-linux.run` (corresponding model sim) and `max-15.0.0.145.qdz` (CPLD support). These are all available at the same page as the Windows downloads.

I believe they must all be in the same folder so Quartus can detect them when running the installer! e.g. `~/Downloads`

Installation

1. Run `./QuartusSetupWeb-15.0.0.145-linux.run` from the directory where you downloaded the files.

   1. Accept the license agreement
   2. Choose an installation directory. The default is fine.

   3. When you get to "Select Components," you should see "Quartus II Web Edition (Free)" and its sub-boxes checked, as well as "ModelSim-Alter Starter Edition (Free)" checked. These are the right settings! If you don't see those boxes, then you probably didn't have the `ModelSimSetup-15.0.0.145-linux.run` file in the same directory as the Quartus installer.

      Note: if you did everything right, you won't have to run the ModelSim installer at all!

   4. Continue in the installer and it should start copying things. This might take a while and it might look like it has crashed. Just be patient and let it do its thing. On my laptop (5 year old Intel i7 with solid state drive), it took about 15-20 minutes.

   5. When you get to the success screen, allow the installer to make a desktop icon.

Post Installation

Installing 32 bit libraries for ModelSim

Although Quartus comes compiled for x64, ModelSim only comes in a 32 bit executable. In order to run ModelSim then, you must install a few libraries. This can be done before or after the above installation!

Here is what I did on Ubuntu 16.04 LTS x64 (the instructions are different for different Linux distributions):

1. Install 32 bit support in your distribution. On Ubuntu I needed:

   ```
   sudo dpkg --add-architecture i386
   sudo apt-get update
   sudo apt-get install libc6:i386 libncurses5:i386 libstdc++6:i386
   ```

   Additionally install several other 32 bit libraries that ModelSim needs.

   ```
   sudo apt-get install libxft2:i386 libxext6:i386
   ```

2. Open Quartus and go to `Tools > Options > General > EDA Tool Options`. Copy the path in the "ModelSim-Altera" box — for me this was `/home/aaron/altera/15.0/modelsim_ase/linuxaloem`. Paste this path into the "ModelSim" box.

3. Open a terminal and change into the directory from the previous step:

```
cd /home/aaron/altera/15.0/modelsim_ase/linuxaloem
```

4. Try running the ModelSim executable: `./vsim -help`. If it succeeds, you'll see the usage output like this and you are done setting up ModelSim!:

```
Usage: vsim [options] [[<library>.]<primary>[(<secondary>)]]...

...
```

If it fails with some output like `./vish: error while loading shared libraries: libSomelib.so.2: cannot open shared object file: No such file or directory`, install the 32 bit version of whatever library it says is missing e.g. `sudo apt-get install libsomelib2:i386`. You may have to google around to figure out the right package name.

Getting the USB Blaster working

You don't need to install any drivers to get the USB Blaster working on Linux since Quartus uses a Linux USB library instead of a driver. You do, however, have to do a little tweaking so non-root users can access it.

1. Run the following command (copy paste the whole thing into a terminal):

```
echo '# For Altera USB-Blaster permissions.
SUBSYSTEM=="usb",\
ENV{DEVTYPE}=="usb_device",\
ATTR{idVendor}=="09fb",\
ATTR{idProduct}=="6001",\
MODE="0666",\
NAME="bus/usb/$env{BUSNUM}/$env{DEVNUM}",\
RUN+="/bin/chmod 0666 %c"' | sudo tee /etc/udev/rules.d/51-usbblaster.rules > /dev/null
```

This adds a `udev` rule allowing regular users to access the blaster. Restart your computer and the USB Blaster should work fine following the same instructions as Windows sans the driver installation.

2. If you want to test it without having to actually flash a real program onto the CPLD:

   - Plug both the power and USB Blaster into the CPLD

   - Run the following depending on where you installed Quartus:

     ```
     /home/aaron/altera/15.0/quartus/bin/jtagconfig
     ```

     You should see an output similar to:

     ```
     1) USB-Blaster [3-3]
       020A60DD   5M570Z/EPM570Z
     ```