

Running Altera Quartus II with Wine

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1. Scope

This guide provides basic guidelines for running Altera's *Quartus II Web Edition* on a non-Win32 platform by using a piece of free software called *Wine*.¹ It assumes a **basic prior knowledge of using Unix-like² operating systems** and a familiarity with installing and configuring software for both the target OS and a Windows OS. *Wine* is a free implementation of much of the Windows API and therefore enables some Windows software to be run without an actual Windows installation. This guide was designed for use with *Wine* version 0.9.13, *Quartus II Web Edition* version 6.0 (both the latest release versions at the time of writing), and *Windows XP*. *Wine* versions 0.9.12 through 0.9.17 are all known to work using the method detailed herein. Using other versions of Windows for the first step is possible, but the exact method will vary somewhat and is not supported by the author. The method described was tested and known to work with late versions of GNU/Linux and FreeBSD, but they should also work with other (x86) platforms that *Wine* supports (Solaris, etc).

2. Disclaimer

Due to the ambitious nature of re-implementing most of the Windows API as well as changes within the *Quartus* software package itself, **these instructions are only known to be valid with the versions of the software listed above.** They may or may not work with other versions of *Wine* or *Quartus II*. The author will attempt to answer any questions directed towards him, but cannot guarantee that these instructions will work with different versions, or indeed the same versions, of the software involved. In short: **use these instructions at your own risk, neither Altera, the author, nor the ECE department supports using *Quartus II* with *Wine*.** This guide is provided solely in the hope that it will be useful to the reader.

¹ There exists a native Linux version of *Quartus II*, however it is not provided freely to students as is the Windows web version.

² The term *nix is used in this document to refer to any Unix-like operating system that is supported by *Wine*.

3. Setup

The basic method used involves the following steps:

1. Install *Quartus II Web Edition* on a Windows PC.
2. Copy the *Quartus II* installation (files and registry entries) to a *nix PC.
3. Remove/rename JTAG server executables.
4. Run *Quartus II* with *Wine*.

The reader must have an **existing Windows PC** and ***Wine* installed on a *nix PC**. Due to the variations in the installation procedure for various *nix OSes, this guide assumes that the details of installing *Wine* are already resolved. If assistance is needed in installing *Wine*, please refer to the *Wine User Guide* section 2: “Getting Wine” (see the “References” section below).

3.1 Installing *Quartus II*

The first step to follow is installation of *Quartus II* on a Windows PC. This is necessary because at the time of writing *Wine* does not work with the version of InstallShield used to install *Quartus II*. If this InstallShield-related bug is fixed in a future version of *Wine*, it may be possible to directly install *Quartus II* with *Wine*. If the Windows OS is NT-based (Windows NT, 2000, XP, and Server 2003), **install *Quartus II* as administrator**. After installing *Quartus II* **do not run it**. Doing so will make moving the installation more complicated. Licensing details and installation of UP2 core devices can be performed after *Quartus II* is working with *Wine*.

3.2 Copying the Quartus II installation

Once *Quartus II* is successfully installed on the Windows PC, its entire installation must be copied to the *nix PC with *Wine* installed. This involves copying all the program files and registry keys needed by *Quartus II*. To copy the program files, find the directory in which *Quartus II* was installed (by default this is C:\altera) and copy it and its contents to some portable media (such as an external hard disk or some writable optical media).³ In order to copy the needed registry keys, run `regedit.exe` and navigate to **HKEY_LOCAL_MACHINE » Software » Altera Corporation**.⁴ Right click the “Altera Corporation” key and click **Export**. Save the key on the same media that the program files were copied to. Now connect the removable media to the *nix PC. Run the program



Figure 1. Running winecfg

³ The full *Quartus II* installation is very large (nearly 750 MiB for version 6.0). Take this into consideration when selecting a transport media. This step may also be performed by copying the files over a network resource, though the procedure for doing so is not within the scope of this document.

⁴ Regedit on Windows can be run by selecting **Start » Run » regedit » OK**

winecfg and click the “Applications” tab.⁵ Change the “Windows Version” box to match the version of Windows that was used to install *Quartus II* and then click OK. Next run regedit (on the *nix PC) and click **Registry » Import Registry File...** Find the file containing the registry keys exported earlier and click Open. Verify that the keys were imported correctly by again navigating to **HKEY_LOCAL_MACHINE » Software » Altera Corporation**. Exit regedit. Finally, copy the *Quartus II* installation files to the location in the *Wine* virtual drive C corresponding to their original location on the Windows PC. For example, if the *Wine* virtual drive C is located at `~/.wine/drive_c` (its default location) and *Quartus II* was installed to `C:\altera`, copy the “altera” folder to `~/.wine/drive_c/altera`.⁶

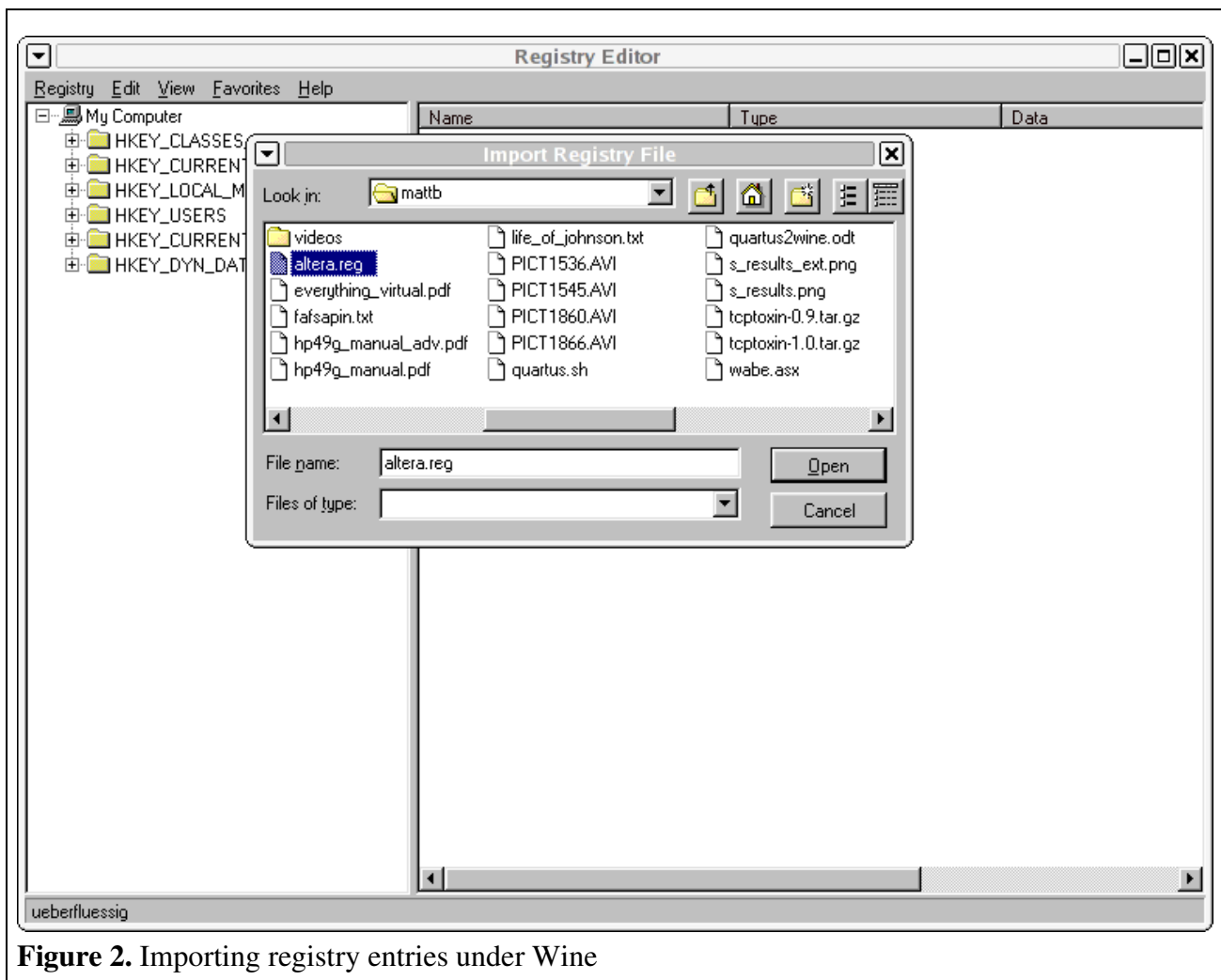


Figure 2. Importing registry entries under Wine

⁵ All of the *Wine*-related programs given should be run from a terminal under X11.

⁶ Here, the tilde character (~) refers to the user's home directory; usually `/home/username`

3.3 Removing JTAG server executables

Before running *Quartus II* under *Wine*, the executables (.exe extension) that provide JTAG services must be removed or renamed. JTAGserver is a service run by *Quartus II* to provide connectivity with devices that interface Altera boards to the PC. Disabling this service disables the ability to communicate with Altera boards when running *Quartus II* under *Wine*, but is necessary because the server tends to hang and prevent *Quartus II* from starting.⁷ The simplest method to prevent *Quartus II* from starting the JTAG server is to delete or move the executables that contain the server program. To do this, navigate to the directory into which the Altera files were copied and then to the subdirectory `quartus60/bin` (the full path would be `~/ .wine/drive_c/altera/quartus60/bin` in the example given earlier). Either delete or move the files named `jtagserver.exe` and `jtagconfig.exe`. Do the same in the subdirectory `quartus60/win`, which contains identically named binaries. The example in Figure 3 shows the creation of subdirectories to which the JTAG-related programs are then moved.

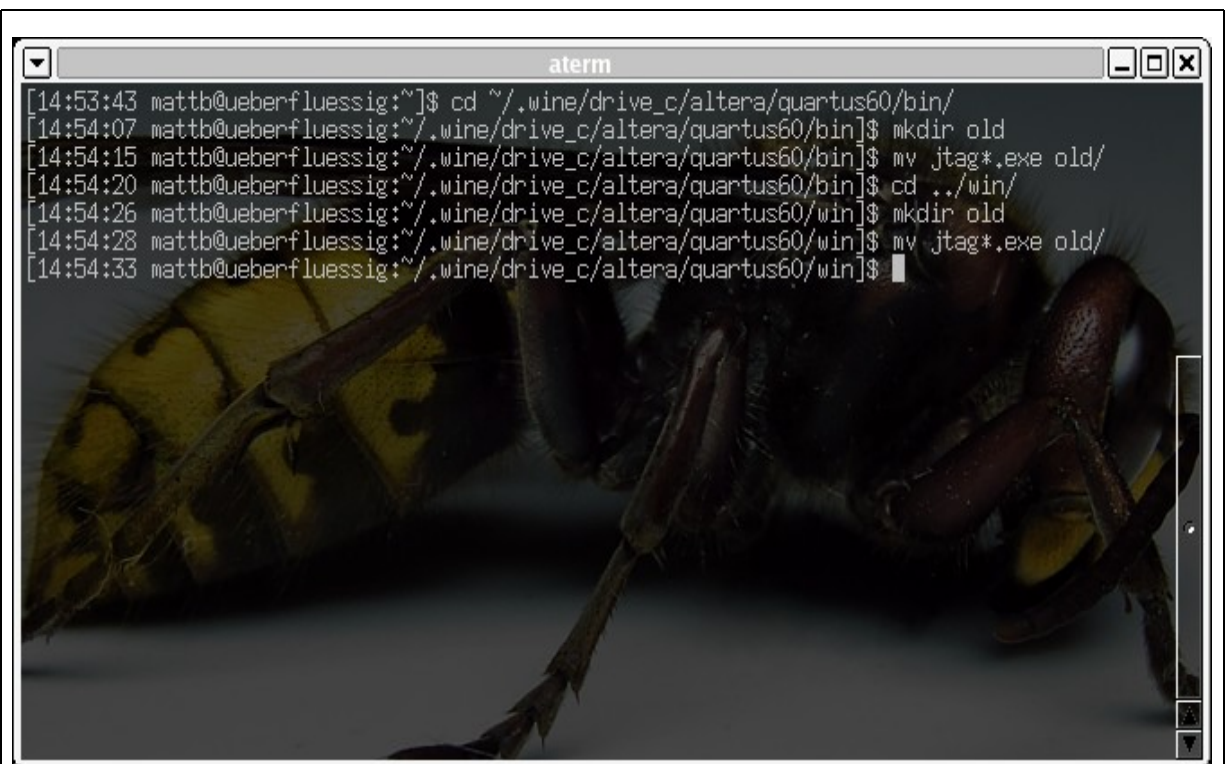


Figure 3. Moving JTAG executable files

⁷ It is unknown whether it is possible to successfully use the JTAG server in a *Wine* environment. This guide will be updated in the event that a successful method is found to do so.

3.4 Run Quartus II with Wine

Now navigate back to the directory containing the *Quartus II* executables (quartus60/bin). *Quartus II* may be run under *Wine* with the command `wine quartus.exe`. Several error messages will be printed to the terminal's STDERR, but none of them should prevent the program from starting.



Figure 4. Warning dialog

A dialog like the one shown in Figure 4 will warn that *Quartus II* is not fully registered (in the program installation sense, not the licensing sense) and will appear every time the software is started. Simply click OK to proceed. More error dialogs warning that *Internet Explorer* is not installed will also appear and can be dismissed with OK. The *Quartus II* main window should soon appear. The software may now have its licensing information updated and be used normally. *Quartus II* may be started again with the same command used above. Note, however, that it **must be started from the** quartus60/bin **directory** or it will be unable to locate the files it needs. For convenience, a short shell script may be used to start *Quartus II*. An example is shown in Figure 5.

```
#!/bin/sh
# quartus.sh - start Quartus II under Wine

cd ~/.wine/drive_c/altera/quartus60/bin
wine quartus.exe &>/dev/null
```

Figure 5. Simple script to start Quartus II

4. Known caveats

As these instructions have demonstrated, there are a number of caveats to running *Quartus II* (indeed, any piece of software) on *Wine*. Some known issues with using this method follow:

1. *Quartus II* cannot communicate with any attached devices since this functionality is provided by the disabled JTAGserver.
2. Without Internet Explorer installed, *Quartus II's* help files cannot be viewed directly from the software. However, the help files can be extracted and viewed with any web browser with a package called chmlib or one of its front-ends like chmtools or GnoCHM (both listed below in “References”). The CHM help files included with *Quartus II* are in the `quartus60/common/helpsubdirectory`.
3. Printing directly from *Quartus II* is not advisable since there are alignment issues in the process of creating PostScript output. It may be preferable to save the project files and print on a Windows workstation with *Quartus II* installed. Printing directly from *Quartus II* under *Wine* may result in badly aligned output. However, changing the preferred fonts within *Quartus II* options may help the alignment problems significantly.
4. Anything the author has or has not personally used or tested may or may not work. C'est la vie.

5. Contacting the author

If further assistance is needed in setting up *Quartus II* with *Wine*, the reader may contact the author at <matt.britt@gatech.edu>. The author will attempt to answer questions to the best of his ability, but can only provide very limited support beyond these instructions. If the reader finds any additional caveats or tests these instructions successfully (or unsuccessfully) with different versions of the software than used in this text, the author would appreciate having the information emailed to him for inclusion in future versions. Feedback on the correctness and readability of this guide is also appreciated.

6. References

1. Wine User Guide. Available in several formats from <http://www.winehq.com/site/documentation>
2. DDL Manual Appendix B. <http://diglab.ece.gatech.edu/downloads/Lab1/DDLAppendixB.pdf>
3. chmlib. Library for accessing Windows help files. <http://66.93.236.84/~jedwin/projects/chmlib/>
4. chmtools. Console tools based on chmlib. <http://www.speakeasy.org/~russotto/chm/>
5. GnoCHM. GTK-based (graphical) help viewer based on chmlib. <http://gnochm.sourceforge.net/>