

Software Installation

EECE-4740 Advanced VHDL and FPGAs
Marquette University, ECE Dept.
Cris Ababei

Objective:

To install the software needed to work on almost all activities in this course.

1) Download and Install “Quartus Prime” of Intel Altera

NOTE: You may need to register for free to be able to download. So, create your own free user account first.

Go to:

<https://www.intel.com/content/www/us/en/software-kit/825245/intel-quartus-prime-standard-edition-design-software-version-23-1-1-for-windows.html>

And download:

“Intel® Quartus® Prime **Lite** Edition Design Software Version 23.1.1 for Windows”

Then, install it.

During installation, you should check to install “Cyclone V device support” because that is the FPGA device on our board. The installation includes also “Questa - Intel FPGA Edition”, which is simulator that we use later.

The installation will about 15GB of disk; so, make sure you have it! In my case, by default it got installed in:

C:\intel\FPGA_lite\23.1std

2) Getting and setting the free license for Questa Simulator

--To get the free license for the simulator Questa - Intel FPGA Edition (Starter Edition) login into your Intel free account. Then, go to Intel® FPGA Self-Service Licensing Center:

https://licensing.intel.com/psg/s/?language=en_US

--If you don't already have access to the Intel® FPGA Self Service Licensing Center (SSLC), enroll to get an account.

--Add your current computer through the Computers and License Files menu in the SSLC account.

--You can obtain a license for the Questa*-Intel® FPGA Starter Edition software from the Intel® FPGA Self Service Licensing Center (SSLC). Before that, you need to complete the registration process for SSLC. In SSLC, navigate to the **Sign up for Evaluation or Free License** tab, select the **Questa*-Intel® FPGA Starter Edition (License: SW-QUESTA)** product, specify the number of seats required, create a new computer or assign an existing computer, and then click on the **Generate** button.

Visit the Intel® FPGA Self Service Licensing Center (SSLC) to generate the license file.

--Select Questa*-Intel® FPGA Starter Edition SW-QUESTA

--Set #Seats to 1

--Then click Get License

--Select Assign an Existing Computer and search for or select your own laptop

--Click Generate

--Wait to receive an email with the license file, in my case: LR-210149_License.dat

--Place the .dat file in some location. I placed it inside:

`C:\intelFPGA_lite\23.1std\licenses`

--Set your LM_LICENSE_FILE environment

variable to the location and filename of the license file for Questa-Intel FPGA Edition. The LM_LICENSE_FILE environment variable should be set to the location and filename of your license file. For example, in my case I set it to:

`C:\intelFPGA_lite\23.1std\licenses\LR-210149_License.dat`

--Set the path to the license file in Quartus too:

Go to Tools->License Setup... and then select the license file in the License File option, or just paste directly the file info; in my case:

`C:\intelFPGA_lite\23.1std\licenses\LR-210149_License.dat`

--Now, you are ready to launch the Questa Simulator!

On your windows machine, Start->Intel FPGA Quartus Lite...->Questa

It should launch the simulator, which is the old-time Modelsim under a new name! You can now create a new project and run benchmark simulations.

3) Download DE1-SoC Board CD-ROM

Download the CD-ROM of the Terasic's DE1-SoC board (**Revision E**), from here:

<https://www.terasic.com.tw/cgi-bin/page/archive.pl?Language=English&No=836&PartNo=4>

Place a copy of it on your local disk for further use later. We will use some of the documents and other resource therein later. In my case, I have placed a copy here:

`M:\Terasic\DE1_SoC`