

# Software Installation

EECE-4740 VHDL and FPGAs  
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## 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 will need to register for free to be able to download. So, create your own free user account first.

<https://fpgasoftware.intel.com/21.1/?edition=lite&platform=windows>

Then, select:

--Version 21.1

--Lite Edition

--OS: Windows

Click on “More”, next to “Download and install instructions:” and follow instructions.

--Download the following, on “Individual Files” tab:

-Quartus Prime (includes Nios II EDS)

-Questa - Intel FPGA Edition (includes Starter Edition)

-Cyclone V device support

--Once you downloaded the above three, install QuartusLite, which will select to install the other two as well. **The installation will about 14GB of disk; so, make sure you have it!** In my case, all was installed in:

**C:\intelFPGA\_lite\21.1**

## 2) Getting and setting the free license for Questa Simulator

--To get the free license for the simulator Questa - Intel FPGA Edition (Starter Edition) go to (requires you to login in your free account):

<https://licensing.intel.com/psg/s/sales-signup-evaluationlicenses>

--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-070595\_License.dat

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

C:\intelFPGA\_lite\21.1\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\21.1\licenses\ LR-070595\_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\21.1\licenses\LR-070595\_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.

*NOTE: If you still have trouble launching the Questa simulator, a solution is to place the license file into: C:\intelFPGA\_lite\21.1\quartus\bin64*

### 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 disk; 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**