

CS 343 SPRING 2021 Laboratory Exercise:

QUARTUS DOWNLOAD AND SETUP

Instructor: Professor Izidor Gertner

QUARTUS DOWNLOAD AND SETUP

In this tutorial we will show you how to download and install Download Intel® Quartus® Prime Software, LITE EDITION.

Quartus Prime Lite Edition (16.0) and ModelSim as a bundle from the official webpage of Intel. Quartus Prime Lite Edition (16.0) is a logic device design software produced by Intel. ModelSim will be used to test your designs using waveform simulations.

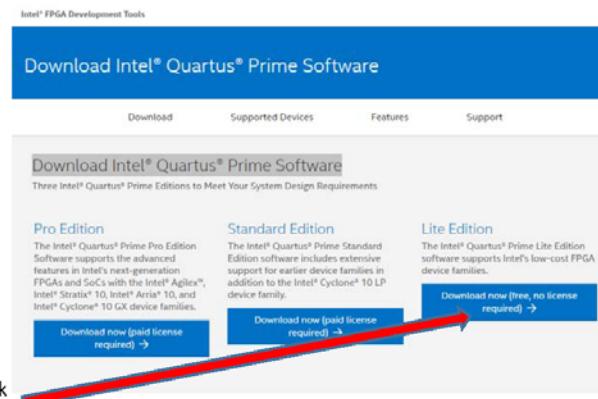
Note 1: Quartus is available both for Windows and Linux. Although this tutorial is adapted for Windows-based systems, the steps are similar for installing the software in Linux. If you have a Linuxbased operating system, please choose accordingly in step 9 of this tutorial.

Note 2: In order to improve the user experience of their customers, Intel may sometimes make changes to their website, therefore some of the images shown in this tutorial may not reflect the current look of the website, however the steps shown should give you a very close idea of how to download and setup the software needed for this course.

To download and install the necessary software that will be used in this course, follow these steps:

1. Go to INTEL's website:

<https://www.intel.com/content/www/us/en/software/programmable/quartus-prime/download.html?wapkw=quartus>



2. Click

CS 343 Spring 2021 Laboratory Exercise:

QUARTUS DOWNLOAD AND SETUP

Instructor: Professor Izidor Gertner

3. Select Operating System; Select edition and release; Read Quick start guide.
Install Device: Cyclone IV, and V.

The screenshot shows the Intel Quartus Prime Lite Edition download page. At the top, there's a navigation bar with 'Home > Downloads > Quartus Prime Lite Edition'. Below it is a sidebar with links like 'Design Software', 'Embedded Software', 'Archives', etc. The main content area is titled 'Quartus Prime Lite Edition' and shows the following details:

- Released: November, 2020
- Last Release: v20.1.1
- Select edition: Lite
- Select release: v20.1.1
- Operating Systems: Windows, Linux

A yellow box highlights the 'Operating Systems' section. Below this, there's a note about keeping software up-to-date and a list of supported device families (Arria II, Cyclone ICLP, Cyclone IV, Cyclone MAX II, MAX V, and MAX 10 FPGAs).

Combined File Individual Files Additional Software

Download and Install Instructions: More
Read more about FPGA Software v20.1.1 Installation FAQ
Start Guide

Quartus Prime Lite Edition (Free)

Quartus Prime (Includes Nios II EDS)
Size: 1.4 GB MD5: 5f9CFEB0B793CB8Ec033D2a9FeD8AC4
** Nios II EDS on Windows requires Ubuntu 18.04 LTS on Windows Subsystem for Linux (WSL), which requires you to install an Eclipse IDE manually.
** Nios II EDS requires you to install an Eclipse IDE manually.

ModelSim-Intel FPGA Edition (Includes Starter Edition)
Size: 1.2 GB MD5: 6B024AF2CE888429129246A4BC7720CD

Devices
You must install device support for at least one device family to use the Quartus Prime software.

- Arria II device support
Size: 499.1 MB MD5: 4961D39010DD1FD389FE12348B102AC6
- Cyclone IV device support
Size: 4408.0 MB MD5: 16327C9e678426L4eLU8737U8868369L
- Cyclone 10 LP device support
Size: 266.7 MB MD5: D471000086AsA97F440048DF19218B09E4
- Cyclone V device support
Size: 1.3 GB MD5: 7A09fD84875FB1E67B9D7CD2149E2B8
- MAX II, MAX V device support
Size: 11.4 MB MD5: 9eB80c0CeB4768933a62A0E6398B7E2E
- MAX 10 FPGA device support
Size: 287.4 MB MD5: FE-A62DF785421CDOc0BF78CA94790804

Note: The Quartus Prime software is a full-featured EDA product. Depending on your download speed, download times may be lengthy.

System Requirements Documentation Links Software Support Legal Notice Source code for copyleft licensed libraries

My Intel Account Help Terms and Conditions

CS 343 Spring 2021 Laboratory Exercise:

QUARTUS DOWNLOAD AND SETUP

Instructor: Professor Izidor Gertner

4. Register and Sign in

The screenshot shows two side-by-side pages from the Intel FPGA Program website.

Sign In (Left):

- Header: Intel® FPGA Program
- Section: Sign In
- Link: Intel Employee? Sign in here
- Section: Intel Customer or Partner?
- Text input field (redacted)
- Text input field (redacted)
- Text: By signing in, you agree to our [Terms of Service](#)
- Checkboxes:
 - Remember me
 -
- Links:
 - Forgot your Intel username or password?
 - [Sign in FAQ](#)
 - [Contact customer support](#)

Register (Right):

- Section: Register
- Text: If you don't already have access to the Intel® FPGA Program, select the option that best meets your needs.
- Link: Register now for an individual account
- Text: request for basic access to Intel® FPGA Program tools and resources
- Link: Register now for a premier account
- Text: If you do business with Intel on behalf of a company, you can register for a premier account. With a premier account, you will have basic access to Intel® FPGA Program tools and resources, and also be eligible for Intel® Premier Support (company validation required).

5. Make sure you install the following tools:

The screenshot shows the Quartus Prime Lite Edition (Free) download page.

Quartus Prime (Includes Nios II EDS)
Size: 1.6 GB MD5: 5f-8cFEBDB7B3CB15E033D2A9F8D89AC4
** Nios II EDS on Windows requires Ubuntu 18.04 LTS on Windows Subsystem for Linux (WSL), which requires manual installation.
** Nios II EDS requires you to install an Eclipse IDE manually.

ModelSim-Intel FPGA Edition (Includes Starter Edition)
Size: 1.2 GB MD5: 650244f2cE684261282464f4BC7720CD

Cyclone IV device support
Size: 466.0 MB MD5: E6627CBC876426C4ECD8737D8B68369C

Cyclone V device support
Size: 1.3 GB MD5: 7d69D648766Fe1E67B9D7CD2149E2B8

6. Check memory requirements:

	10 GX	18 GB
10 LP	512 MB - 1.5 GB	
V	6.8 GB	
IV GX	512 MB - 2 GB	
IV E	512 MB - 1.5 GB	

7. Check Operating system support:

CS 343 Spring 2021 Laboratory Exercise:

QUARTUS DOWNLOAD AND SETUP

Instructor: Professor Izidor Gertner

OPERATING SYSTEM SUPPORT

Table 1 lists the operating system (OS) support for the Intel® Quartus® Pro Edition software, Intel Quartus Prime Standard Edition software, Intel Quartus Prime Lite Edition software, ModelSim®-Intel® FPGA Edition software, ModelSim-Intel FPGA Starter Edition software, Nios® II Embedded Design Suite (EDS), DSP Builder for Intel® FPGAs, and Intel® FPGA SDK for OpenCL® software technology.

Table 1: OS Support for Intel® FPGA Complete Design Suite Version 20.4⁽¹⁾

Software	Windows® 10	Windows Server® 2012 Enterprise	Windows Server® 2016 Enterprise	Windows Server® 2019 Enterprise	Red Hat® Enterprise Linux® 7	Red Hat® Enterprise Linux® 8	CentOS 7.5	CentOS 8.0	SUSE® SLE 12	SUSE® SLE 15	Ubuntu® 16.04 LTS	Ubuntu® 18.04 LTS	Ubuntu® 20 LTS
Intel® Quartus® Prime Pro Edition	✓	✓	✓	✓	✓ ⁽²⁾	✓ ⁽²⁾	✓	✓	✓	✓	✓	✓	✓
Intel Quartus Prime Standard Edition	✓	✓	✓	✓	✓ ⁽²⁾	✓ ⁽²⁾	✓	✓	✓	✓	✓	✓	✓
Intel Quartus Prime Lite Edition	✓	✓	✓	✓	✓ ⁽²⁾	✓ ⁽²⁾	✓	✓	✓	✓	✓	✓	✓
Intel® HLS Compiler Pro	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
ModelSim®-Intel® FPGA Edition (Pro and Standard)	✓ ⁽²⁾	–	–	–	✓ ⁽²⁾	✓ ⁽²⁾	–	–	✓ ⁽²⁾	✓ ⁽²⁾	–	–	–
ModelSim-Intel FPGA Starter Edition (Pro and Standard)	✓ ⁽²⁾	–	–	–	✓ ⁽²⁾	✓ ⁽²⁾	–	–	✓ ⁽²⁾	✓ ⁽²⁾	–	–	–
Nios® II Embedded Design Suite (EDS) (Pro and Standard)	✓ ⁽²⁾	–	–	–	–	–	–	–	✓	✓	–	–	–

8. Please refer to documentation frequently:

▪ Documentation Links

- View the following documentation for Quartus Prime software and device support details:
- [Intel Quartus Prime Software User Guide](#)
 - [Intel FPGA Software Installation and Licensing Manual](#)
 - [Intel Quartus Prime Software and Device Support Release Notes \(PDF\)](#)

CS 343 Spring 2021 Laboratory Exercise:

QUARTUS DOWNLOAD AND SETUP

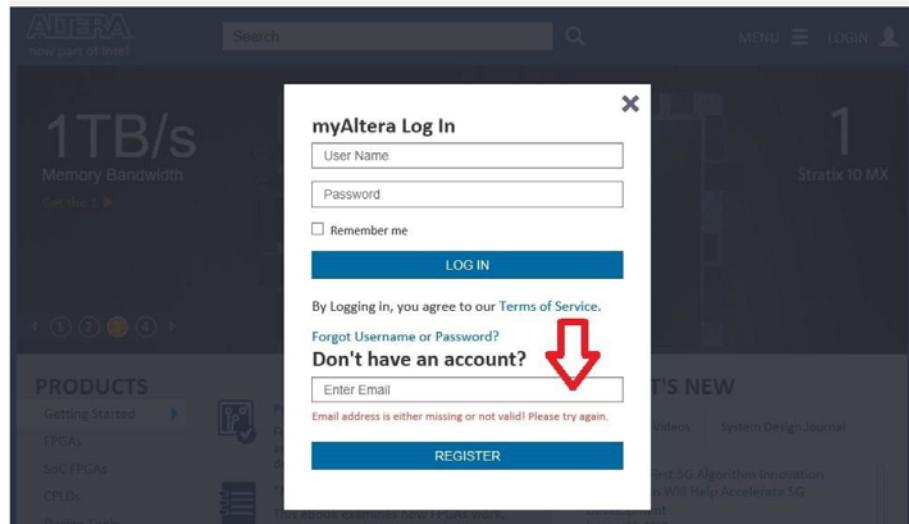
Instructor: Professor Izidor Gertner

If you choose to download older version of Quartus ver 16.1 , the following pages may be helpful:

Old news: “**Intel** and **Altera** announced on June 1, 2015, that they had entered into a definitive agreement under which **Intel** would **acquire Altera** “ <https://newsroom.intel.com/press-kits/intel-acquisition-of-altera/#gs.p3baau>

In screenshots below “Altera” has to be replaced with “Intel”.

4. If you have an Altera account, enter your account username and password and jump to step 6 of this tutorial. If you do not have an account, enter your email address in the bottom box and click **Register**.



5. Fill in the form with your personal information. A star * next to a field means that this information is required. Create a username and a password as well. Once you are done, hit **Create Account** button at the bottom of the page.
6. If all your required information was entered correctly a message will show up saying that your account was created. Now sign in using the username and password you just specified.

CS 343 Spring 2021 Laboratory Exercise:

QUARTUS DOWNLOAD AND SETUP

Instructor: Professor Izidor Gertner

[? myAltera Account Help](#) [Terms and Conditions](#)

Thank you. Your account is created. Please sign in.

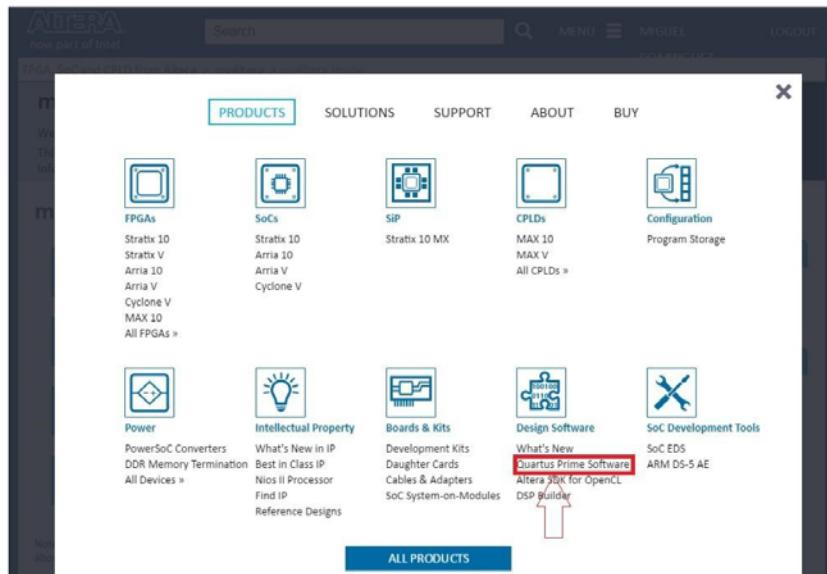
User Name [Forgot Your User Name or Password?](#)

Password

Remember me

Sign In **Cancel**

- Now **hover** the mouse over MENU, click. Then a white box will open (Make sure you are in the products section). Under the Design Software Icon you will find Quartus Prime Software, click on it as shown below.



- You will be taken to the main page of Quartus Prime Software, now click on the Download tab. **Notice** where it says **Lite Edition**, click the **Download Now** button for Lite Edition . (Make sure it is the Lite Edition since the other two are not free)

CS 343 Spring 2021 Laboratory Exercise:

QUARTUS DOWNLOAD AND SETUP

Instructor: Professor Izidor Gertner

The screenshot shows the Quartus Prime website with the 'DOWNLOAD' tab selected. A red box highlights the 'Lite Edition' tab. Below it, a red arrow points to the 'Download Now' button for the Lite Edition, which is also highlighted with a red box.

or

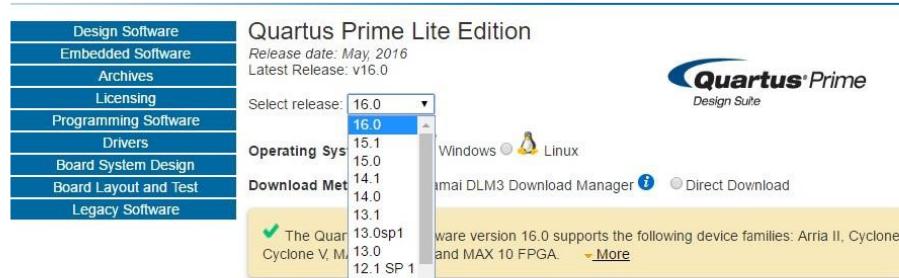
The screenshot shows the Quartus Prime website with the 'Standard Edition' tab selected. A red arrow points to the 'Download Now' button for the Standard Edition, which is highlighted with a red box.

CS 343 SPRING 2021 Laboratory Exercise:

QUARTUS DOWNLOAD AND SETUP

Instructor: Professor Izidor Gertner

8. From the pull-down menu select **Quartus Prime Lite Edition version 16.0**



9. Make sure the option for Windows and Akamai DLM3 Download Manager are selected (Chose Linux if you have a Linux-based operating system).



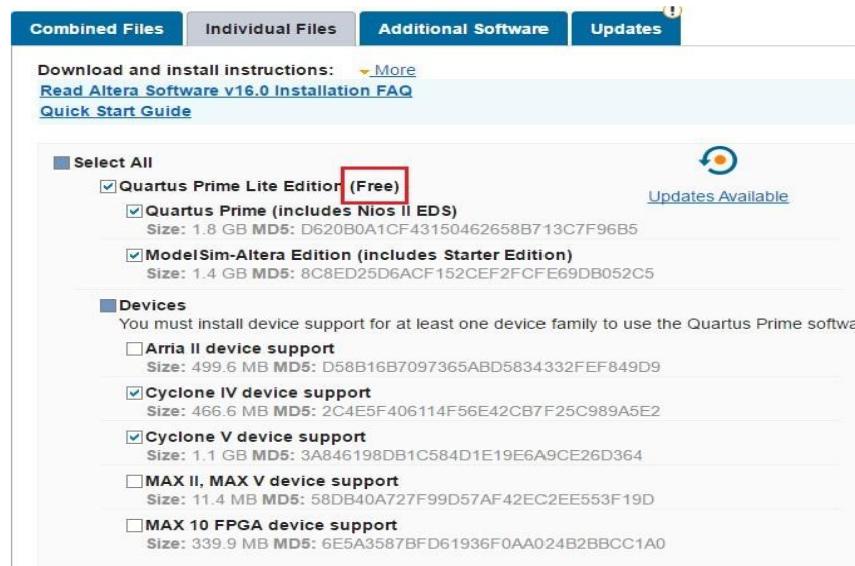
CS 343 SPRING 2021 Laboratory Exercise:

QUARTUS DOWNLOAD AND SETUP

Instructor: Professor Izidor Gertner

If you choose to download newer version of Quartus ver 16.1 skip this page and go to the next page.

10. Choose the files shown in the picture and then click Download Selected Files. Notice that we will also download ModelSim, an important tool for our projects.



11. Your files will be downloaded using the Akamai Download Manager. A message will prompt you to install Akamai NetSession Interface. Click Download the installer.

CS 343 SPRING 2021 Laboratory Exercise:

QUARTUS DOWNLOAD AND SETUP

Instructor: Professor Izidor Gertner

You can download a newer version of Quartus Version 16.1

Quartus Prime Lite Edition

Release date: November, 2016
Latest Release: v17.0

Intel® Quartus® Prime
Design Software

Select release: 16.1 ▾

Operating System ⓘ Windows ⓘ Linux

Download Method ⓘ Akamai DLM3 Download Manager ⓘ Direct Download

✓ The Quartus Prime software version 16.1 supports the following device families: Arria II, Cyclone IV, Cyclone V, MAX II, MAX V, and MAX 10 FPGA. → [More](#)

Combined Files Individual Files Additional Software Updates

Download and install instructions: → [More](#)
[Read Intel FPGA Software v16.1 Installation FAQ](#)
[Quick Start Guide](#)

Select All

Quartus Prime Lite Edition (Free)
Size: 1.7 GB MD5: CA6C71EE9B6AAB051D4A7E9FDC02C01D

ModelSim-Intel FPGA Edition (includes Starter Edition)
Size: 1.1 GB MD5: 81EAE2F2D55ABECD4F1265FCDFE74760

Devices
You must install device support for at least one device family to use the Quartus Prime software

Arria II device support
Size: 499.6 MB MD5: 77E151BBF3876F6110AB94F7C6A68047

Cyclone IV device support
Size: 466.7 MB MD5: 70A27B31D439D6271650C832A9785F2C

Cyclone V device support
Size: 1.1 GB MD5: 8386E6891D17DC1FAF29067C46953FC7

MAX II, MAX V device support
Size: 11.4 MB MD5: AFC8FF969FBA63E84D5D40AE812F83A2

MAX 10 FPGA device support
Size: 331.3 MB MD5: 013AACB391EAD32FF8E094D9D14987C3

Updates Available

Download Selected Files

Note: The Quartus Prime software is a full-featured EDA product. Depending on your download speed download times may be lengthy.

System Requirements

CS 343 SPRING 2021 Laboratory Exercise:

QUARTUS DOWNLOAD AND SETUP

Instructor: Professor Izidor Gertner

Select Systems Requirements TAB ad verify if your Operating System is supported..

OS Support. PLEASE MAKE SURE YOU HAVE SUPPORTED OS!

Select release: 16.1 ▾

Operating System Support		Memory Recommendations		EDA Interface Information			
Software	Windows 7 SP1 (64-bit)	Windows 8.1 (64-bit)	Windows 10 (64-bit)	Windows Server 2008 R2 SP1 Enterprise (64-bit)	Red Hat Enterprise Linux 5.10 (64-bit)	Red Hat Enterprise Linux 6.5 (64-bit)	Red Hat Enterprise Linux 7.2 (64-bit)
Operating System Support for Intel FPGA Software Version 16.1(1)							
Quartus Prime Pro Edition software	✓	✓	✓	✓	✗	✓	✓ (5)
Quartus Prime Standard Edition software	✓	✓	✓	✓	✓	✓	✓ (5)
Quartus Prime Lite Edition software	✓	✓	✓	✓	✓	✓	✓ (5)
ModelSim-Intel FPGA Edition software	✓ (2)	✓ (2)(3)	✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)
ModelSim-Intel FPGA Starter Edition software	✓ (2)	✓ (2)(3)	✓ (2)	✓ (2)	✓ (2)	✓ (2)	✓ (2)
Nios II EDS	✓	✓	✗	✓	✓	✓	✗
DSP Builder for Intel FPGAs	✓	✓	✓	✓	✓	✓	✓
Quartus II Stand-Alone Programmer	✓	✓	✓	✓	✓	✓	✓
SoC Embedded Design Suite	✓	✗	✓	✓	✓ (2)	✓ (2)	✗
Intel FPGA SDK for OpenCL™	✓	✓	✓	✗	✗	✓	✓
JNEye	✓ (4)	✓ (4)	✓ (4)	✗	✗	✗	✗

Notes:

1. Starting with ACDS v14.0, Intel FPGA software only supports 64 bit versions of the OS listed in Table, unless specified.
2. The 32 bit library files are required to run the software on Linux 64 bit platforms.
3. Windows 8.0 only.
4. Both 32 bit and 64 bit are supported.
5. Only KDE desktop manager is supported.

CS 343 SPRING 2021 Laboratory Exercise:

QUARTUS DOWNLOAD AND SETUP

Instructor: Professor Izidor Gertner

Select memory recommendation TAB. Please make sure you have sufficient memory.

Select release: 16.1 ▾

Operating System Support		Memory Recommendations	EDA Interface Information
Minimum Disk Space for Intel FPGA Software Version 16.1			
Software		Minimum Disk Space	
Quartus Prime Pro Edition		25 GB	
Quartus Prime Standard Edition		36 GB	
Quartus Prime Lite Edition		14 GB	
Stand-Alone Programmer		1.7 GB	
Intel FPGA SDK for OpenCL		45 GB	
SoC Embedded Design Suite		6 GB	
JNEye		3 GB	

Intel recommends that your system be configured to provide virtual memory equal to the recommended physical RAM that is required to process your design.

Recommended Physical RAM for Intel Devices 16.1

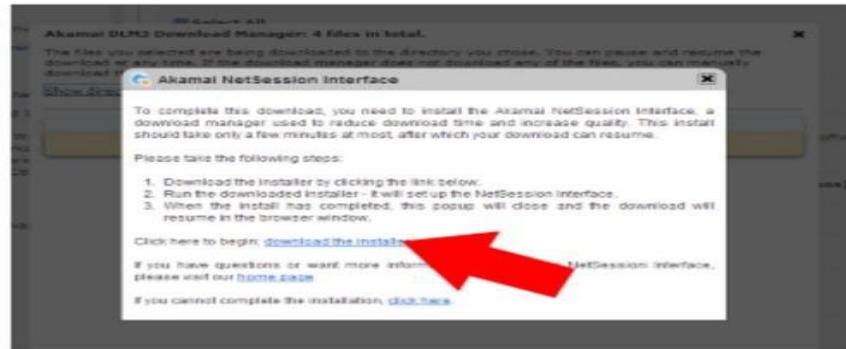
Family	Recommended Physical RAM
Arria	II GX
	II GZ
	V
	V GZ
	10
Cyclone	IV E
	IV GX
	V
MAX	II
	V
	10 FPGA
Stratix	IV
	V

CS 343 SPRING 2021 Laboratory Exercise:

QUARTUS DOWNLOAD AND SETUP

Instructor: Professor Izidor Gertner

Please make sure you use supported Operating System. Upgrade RAM if you need to , and make sure you have at least 20 GBytes of free space on your HDD or SSD.



12. If Windows asks you for permission to run the installer, click Run.

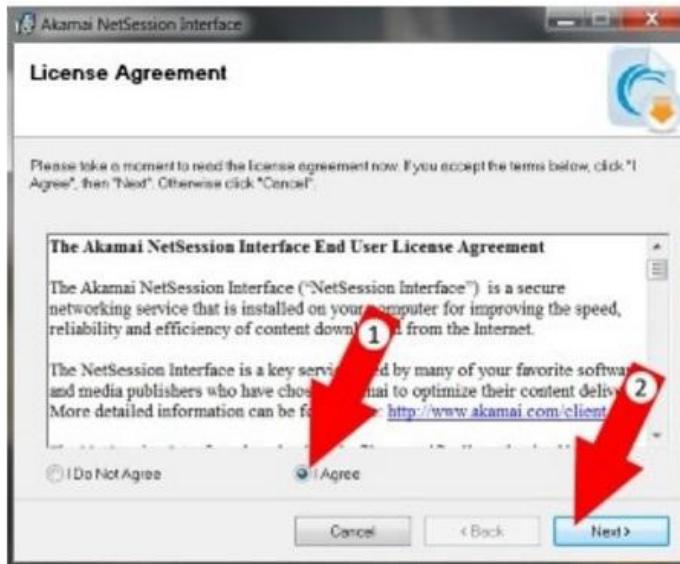


13. Click on the I Agree option and then hit the Next button

CS 343 SPRING 2021 Laboratory Exercise:

QUARTUS DOWNLOAD AND SETUP

Instructor: Professor Izidor Gertner



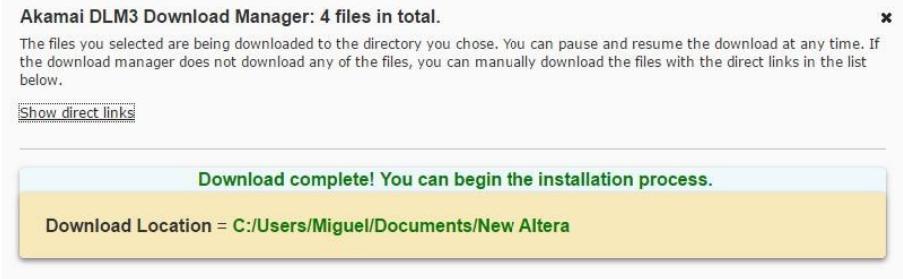
14. After Akamai NetSession Interface installs it will proceed to download the Quartus Prime Lite files. A progress bar in your browser will keep track of your download and show you the remaining time. You have to wait until it finishes downloading all files.



CS 343 SPRING 2021 Laboratory Exercise:

QUARTUS DOWNLOAD AND SETUP

Instructor: Professor Izidor Gertner



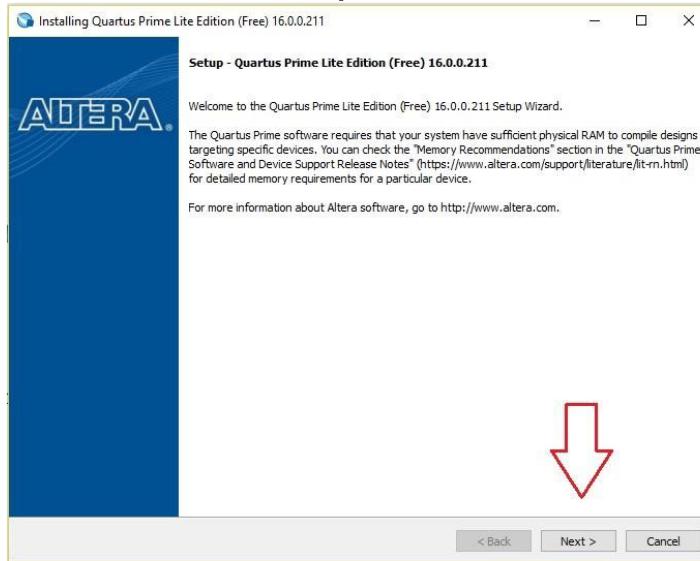
15. After it finishes downloading all necessary files, a message will appear: hit **Open**. (Or Windows will ask you if you want to open this file). In case nothing happens you can go to the directory where your file is located and open "QuartusLiteSetup16windows.exe" Or
“QuartusLiteSetup-16.0.0.211-windows.exe”

16. Quartus Prime Lite will begin to install now, click **Next**.

CS 343 SPRING 2021 Laboratory Exercise:

QUARTUS DOWNLOAD AND SETUP

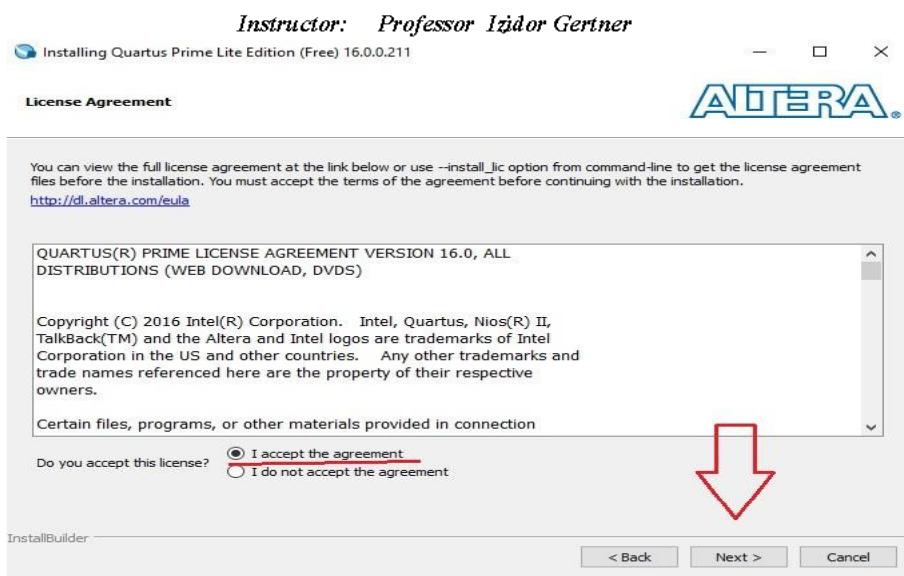
Instructor: Professor Izidor Gertner



17. Accept the License agreement and click Next. Then you will be asked where to install the software, the default directory that shows up will be fine in most cases, just click Next

CS 343 SPRING 2021 Laboratory Exercise:

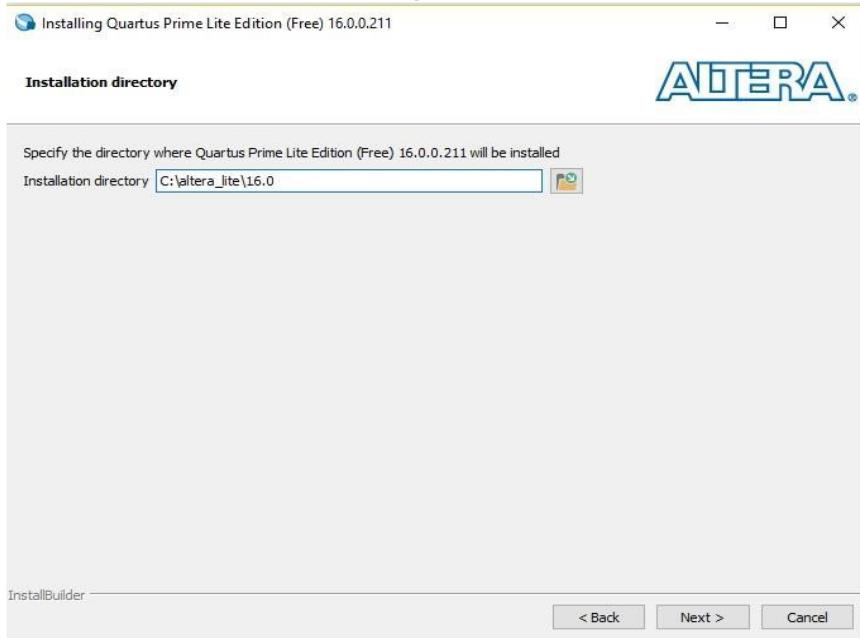
QUARTUS DOWNLOAD AND SETUP



CS 343 SPRING 2021 Laboratory Exercise:

QUARTUS DOWNLOAD AND SETUP

Instructor: Professor Izidor Gertner

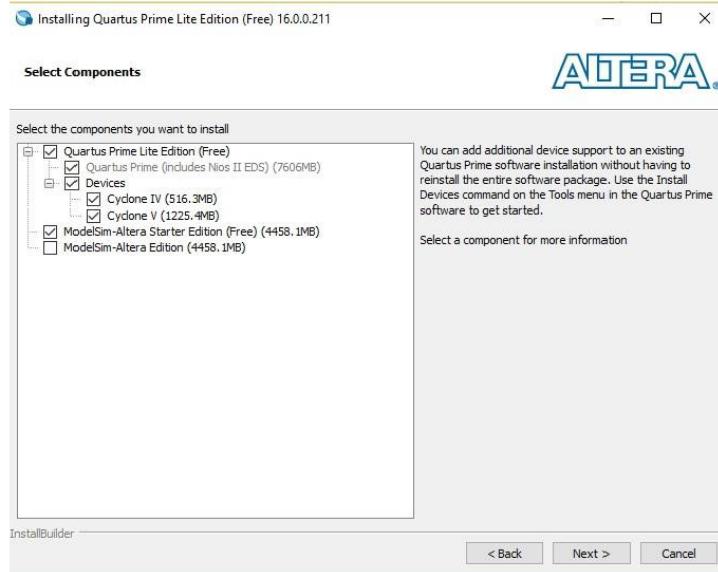


18. You will be asked which components of the software you want to install. Since we already chose which software we needed during the download steps you just have to check mark the same squares shown in the next image. Click Next

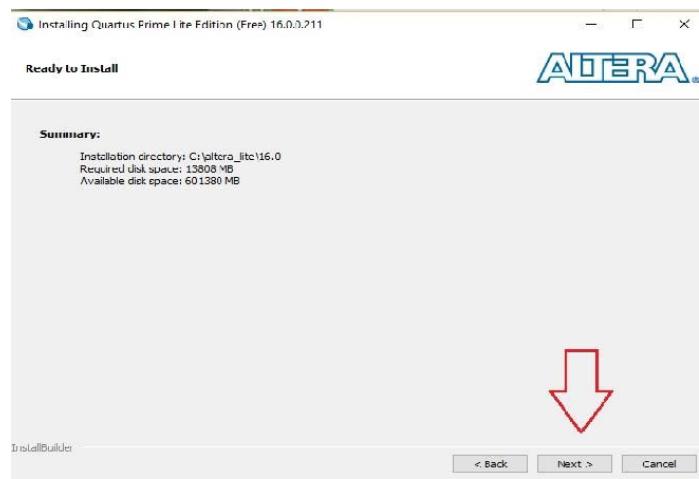
CS 343 SPRING 2021 Laboratory Exercise:

QUARTUS DOWNLOAD AND SETUP

Instructor: Professor Izidor Gertner



19. A summary with the disk space information will appear, click **Next**

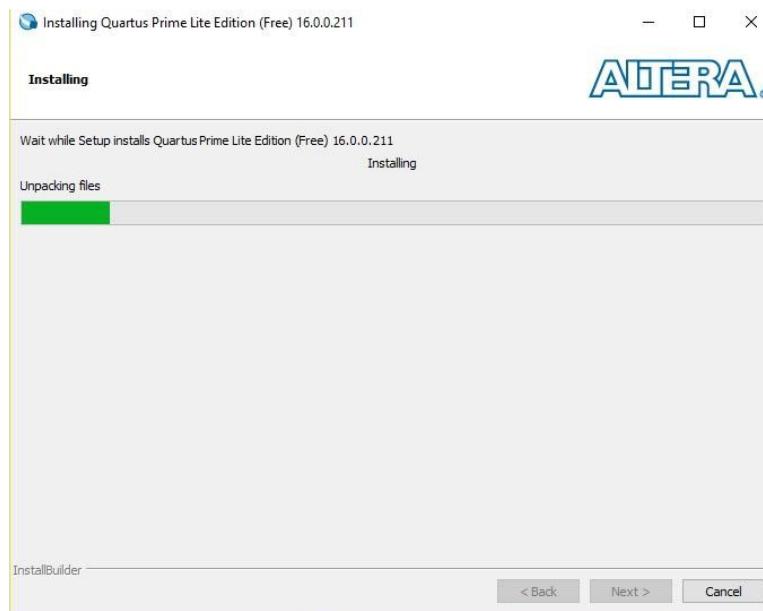


CS 343 SPRING 2021 Laboratory Exercise:

QUARTUS DOWNLOAD AND SETUP

Instructor: Professor Izidor Gertner

20. Quartus Prime Lite and its components will begin installing.

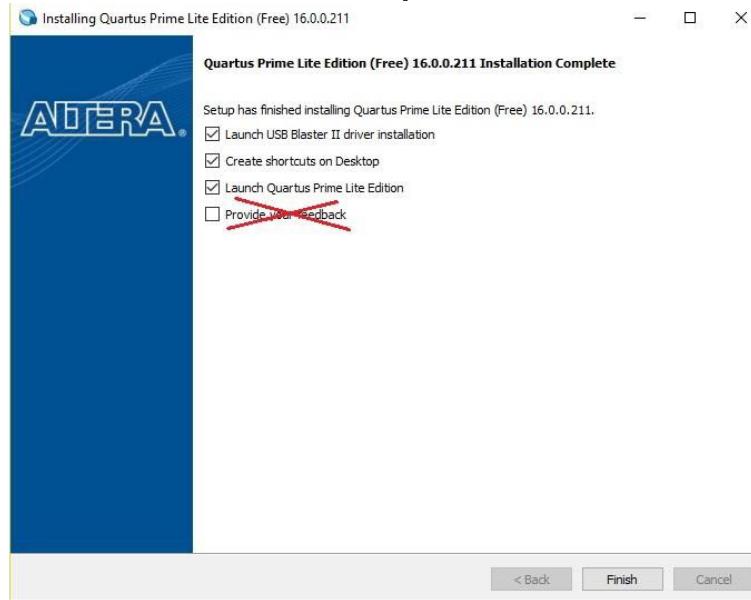


21. Once it is done installing, you can choose to create a shortcut in the Desktop and launch Quartus at this time. Deselect Provide feedback if you do not want to submit any information right now. Then click **Finish**.

CS 343 SPRING 2021 Laboratory Exercise:

QUARTUS DOWNLOAD AND SETUP

Instructor: Professor Izidor Gertner



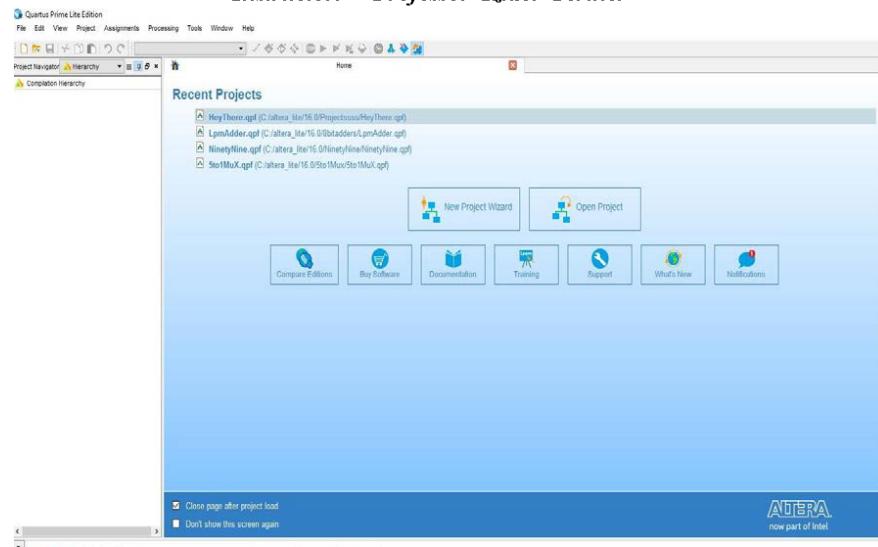
22. A message will pop up asking to buy or run the software. Click the Run the Quartus Prime Lite software option and then hit OK.

23. Quartus Prime Lite window will open and you are now ready to begin designing your circuits.

CS 343 SPRING 2021 Laboratory Exercise:

QUARTUS DOWNLOAD AND SETUP

Instructor: Professor Izidor Gertner



OR

CS 343 SPRING 2021 Laboratory Exercise:

QUARTUS DOWNLOAD AND SETUP

Instructor: Professor Izidor Gertner

