

Quartus/Questa Install Guide

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Starting with Intel® Quartus® Prime version 21.3, the ModelSim*-Intel® FPGA edition software has been discontinued and replaced by the Questa*-Intel® FPGA. This change has since made its way to the lite edition in 21.1.

Overall this is a welcome update as Modelsim has not been in active development for some time. However, the installation and licensing process can be a bit of a challenge. This guide will take you through the process of installing and setting up Questa so that you may begin writing and running your simulations.

To begin, navigate in your preferred browser to <https://fpgasoftware.intel.com>. You will be directed to a website with links to download various software. Select Quartus Prime Lite.

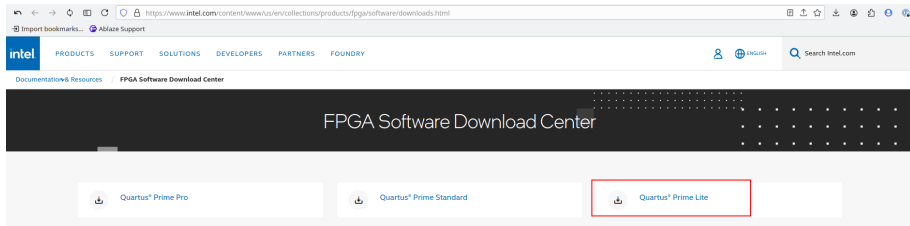
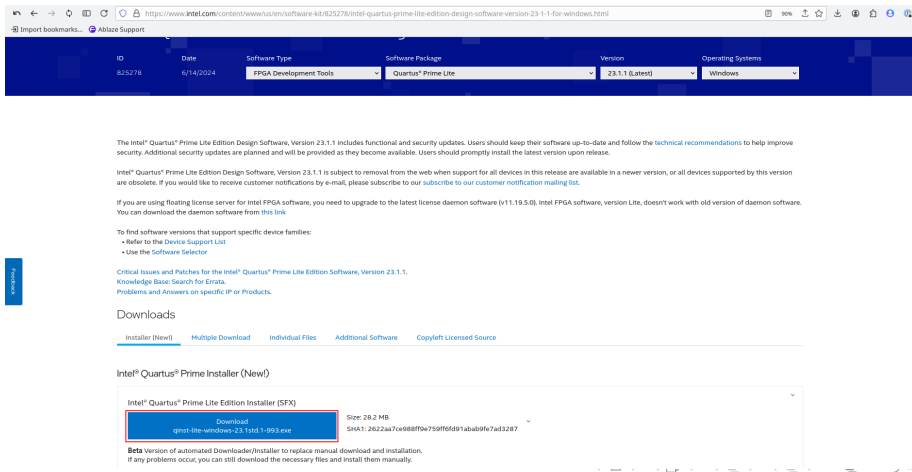


Figure: Select the Quartus Prime Lite download link

On the next page, under the Downloads section, choose to download the automated installer.



The screenshot shows the Intel Quartus Prime Lite Edition Design Software download page. At the top, there's a navigation bar with a search icon, a back icon, a forward icon, a refresh icon, and a link to 'https://www.intel.com/content/www/us/en/software-kit/825278/intel-quartus-prime-lite-edition-design-software-version-23.1.1-for-windows.html'. Below the navigation bar, there's a table with columns: ID, Date, Software Type, Software Package, Version, and Operating Systems. The table contains one row with the following data: ID: 825278, Date: 6/14/2024, Software Type: FPGA Development Tools, Software Package: Quartus Prime Lite, Version: 23.1.1 (Latest), and Operating Systems: Windows. Below the table, there's a section titled 'Downloads' with a sub-section 'Installer (New)'. Under 'Installer (New)', there's a button labeled 'Download' with the text 'qinst-lite-windows-23.1std.1-993.exe' and 'Size: 28.2 MB'. Below the button, there's a text box containing the SHA1 hash: 'SHA1: 2622aa7ce988ff9e759ff6fd91abab9fe7ad3287'. Below the text box, there's a note: 'Beta Version of automated Downloader/Installer to replace manual download and installation. If any problems occur, you can still download the necessary files and install them manually.'

The Intel® Quartus® Prime Lite Edition Design Software, Version 23.1.1 includes functional and security updates. Users should keep their software up-to-date and follow the [technical recommendations](#) to help improve security. Additional security updates are planned and will be provided as they become available. Users should promptly install the latest version upon release.

Intel® Quartus® Prime Lite Edition Design Software, Version 23.1.1 is subject to removal from the web when support for all devices in this release are available in a newer version, or all devices supported by this version are obsolete. If you would like to receive customer notifications by e-mail, please subscribe to our [subscribe to our customer notification mailing list](#).

If you are using floating license server for Intel FPGA software, you need to upgrade to the latest license daemon software (v11.19.5.0). Intel FPGA software, version Lite, doesn't work with old version of daemon software. You can download the daemon software from [this link](#).

To find software versions that support specific device families:

- Refer to the [Device Support List](#)
- Use the [Software Selector](#)

Critical Issues and Patches for the Intel® Quartus® Prime Lite Edition Software, Version 23.1.1.
[Knowledge Base Search for Errata](#)
[Problems and Answers on specific IP or Products](#)

Downloads

- [Installer \(New\)](#)
- [Multiple Download](#)
- [Individual Files](#)
- [Additional Software](#)
- [Copyleft Licensed Source](#)

Intel® Quartus® Prime Installer (New)

Intel® Quartus® Prime Lite Edition Installer (SFX)

Download
qinst-lite-windows-23.1std.1-993.exe

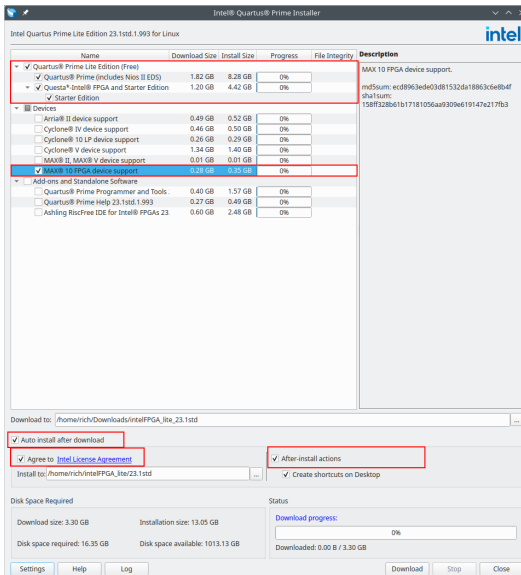
Size: 28.2 MB
SHA1: 2622aa7ce988ff9e759ff6fd91abab9fe7ad3287

Beta Version of automated Downloader/Installer to replace manual download and installation.
If any problems occur, you can still download the necessary files and install them manually.

Once the download is complete, run the installer. You will see a screen with multiple options. Ensure the following items are selected and then press Download. The download may take some time.

- Quartus Prime Lite Edition (Free) and all sub-items
- Devices: Max 10 FPGA Device Support
- Auto install after download
- Agree to intel license agreement
- After install actions

See the figure on the next page



While the download is in progress, use this time to obtain a free license to use the new software. This can be obtained by navigating in your preferred browser to <https://licensing.intel.com/>. You will have the option to sign-in or enroll. Choose enroll to create a new account. Follow the steps in the form to create a new account. **Use an email other than your school email. Using your school email will cause the licensing portal to attempt to log in via Azure, which will not work.** Once complete, the enrollment process is performed automatically and may take up to 30 minutes. You will receive an email when your account is ready.

Once you have completed the registration and are able to log into the licensing site, from the menu select “Sign up for Evaluation or Free Licenses”. From that page, select the 2nd option in the table “Questa*-Intel® FPGA Starter Edition” and set the # of seats to 1.

Intel® FPGA Self-Service Licensing Center



Figure: Sign up for Free Licenses

	Product	# of Seats
1	<input type="radio"/> Intel® Quartus® II Software SW-QUARTU...	1
2	<input checked="" type="radio"/> Questa*-Intel® FPGA Starter Edition SW-...	1
3	<input type="radio"/> Intel® FPGA MAXPLUS2WEB	
4	<input type="radio"/> Intel® FPGA IP PLS-WEB	

Figure: Questa License with 1 seat

Finally, mark the 2 option boxes at the bottom of the screen and press the blue “Get a License” button.

In the new screen that appears, select the “+New Computer” option. Here you will need the following information

- Computer Name
- Physical NIC Address

To obtain the first, from the launch bar of your PC, search for “This PC”. On the right side of the

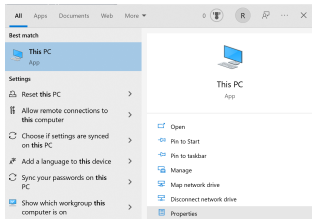


Figure: Select Properties from the “This PC” menu

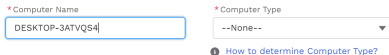
In the properties dialog, you will find the device name under Device Specifications. Place this value in the “Computer Name” field of the Create Computer dialog on the licensing page.

Device specifications

Device name DESKTOP-3ATVQS4

Figure: Device name from computer properties



Create Computer



The image shows a 'Create Computer' dialog box. It has two main fields: '* Computer Name' and '* Computer Type'. The '* Computer Name' field is a text box containing 'DESKTOP-3ATVQS4'. The '* Computer Type' field is a dropdown menu currently showing '--None--'. Below the dropdown is a small icon and a link that says 'How to determine Computer Type?'.

Figure: Create Computer Dialog

Leave the properties dialog open. We will need it again later.

To obtain the physical NIC address, press  +  to open the run prompt. Inside the prompt type “cmd” without quotes and press OK to open the command prompt. In the command prompt that follows, type “ipconfig /all” and press enter.

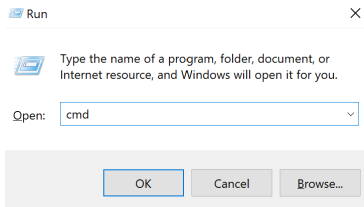


Figure: Run Prompt

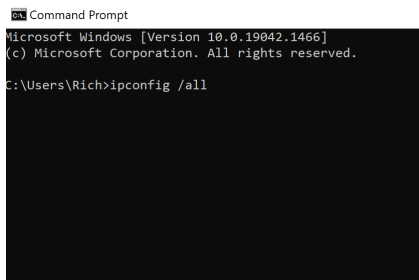


Figure: Command prompt

This command will list several characteristics of your network interfaces. From this list, find the “physical address” line. Type the corresponding number without hyphens (“-”) into the Primary Computer ID field of the Create a Computer dialog. If you have multiple NICs, the dialog provides options for secondary and tertiary IDs that you can place them in. Please be aware that if you are using a virtual machine, you will need to make sure that your setup does not reinitialize mac addresses at every boot. The details of this setup are beyond the scope of this guide.

```
Select Command Prompt

Wireless LAN adapter Wi-Fi:

Connection-specific DNS Suffix . : 
Description . . . . . : Broadcom 802.11ac Network Adapter
Physical Address . . . . . : 88-E9-FE-85-F2-E8
DHCP Enabled. . . . . : Yes
Autoconfiguration Enabled . . . : Yes
Link-local IPv6 Address . . . . : fe80::e98f:99e2:27f1:6f1a%8(Preferred)
IPv4 Address. . . . . : 192.168.1.8(Preferred)
```

Figure: Caption

* Computer Type

--None--

[How to determine Computer Type?](#)

* Primary Computer ID

88E9FE85F2E8

Finally in the Create a Computer dialog select “License Type” and set it to fixed, and select “Primary ID” and set it to NIC. Then click on the blue “Generate License” button.

Wait for the software installation to complete before continuing.

Once the software is installed, download the .dat license file sent to the email associated with your login and save it to a location where it won't get accidentally deleted.

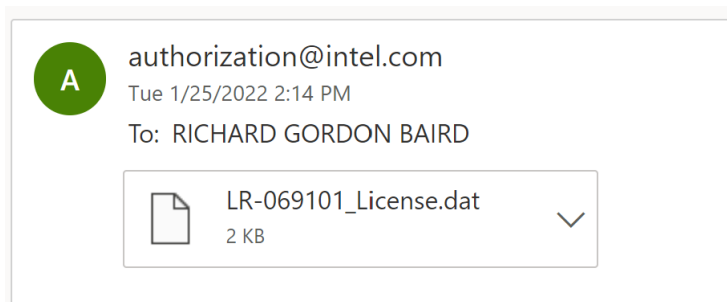
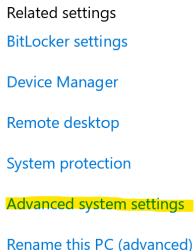


Figure: Save the .dat file to a safe location

Once saved go back to the computer properties dialog from slide 7. On the right side – or bottom if the dialog isn’t expanded – find and select “advanced System Settings”.



Related settings

BitLocker settings

Device Manager

Remote desktop

System protection

Advanced system settings

Rename this PC (advanced)

Figure: Advanced System Settings

From here Select “Environment Variables” → “User Variables” → “New”

From here add the variable name “LM_LICENSE_FILE”. Set as the value the path to the .dat file downloaded earlier. Press Okay and Okay and close the system properties. See the next slide for a visual guide.

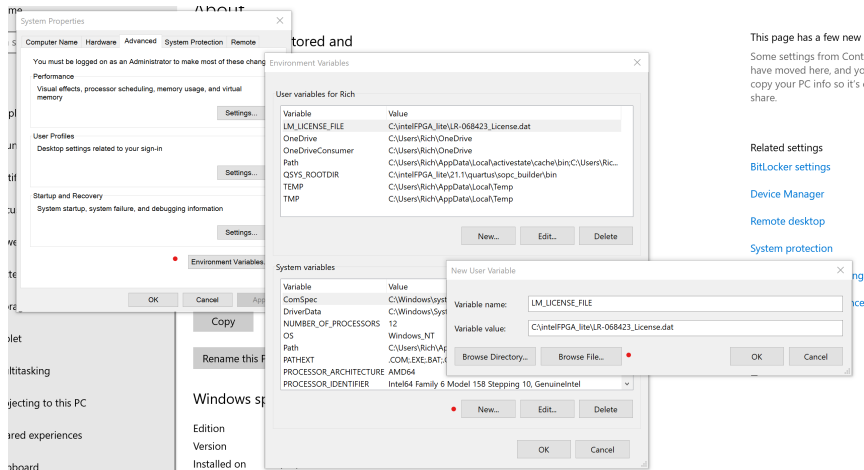
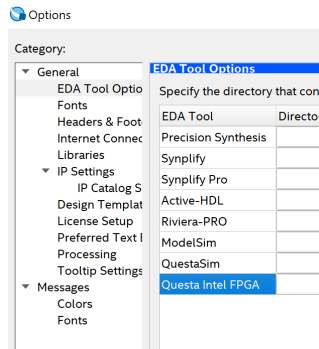
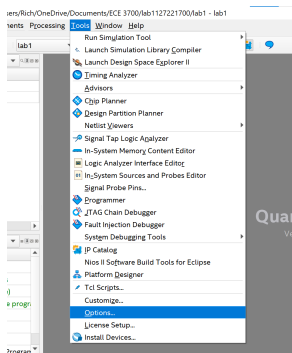


Figure: Add environment variable

Launch Quartus and go to tools → options → EDA Tool Options → Questa Intel FPGA

Type the location of the Questa executable in the space provided. On windows the default location is C:\intelFPGA\21.1\questa_fse\win64



Go to Assignments → Settings → EDA Tool Settings → Simulation

Select the “Tool name:” drop down and choose “Questa Intel FPGA” and press okay.

