

# Intel® FPGA Software Installation and Licensing

Updated for Quartus® Prime Design Suite: **24.1**

## Answers to Top FAQs:

- Q Where can I find hardware and disk requirements?**  
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- Q How to download Intel FPGA software?**  
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- Q How to get Questa\*-Intel FPGA Software License?**  
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- Q How to troubleshoot software license files?**  
**A** Intel FPGA Software License Troubleshooter
- Q How to get Installation and Licensing support?**  
**A** Intel FPGA Licensing Support Center

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## 1. Introduction to Intel® FPGA Software Installation and Licensing

This manual provides comprehensive information for downloading, installing, and licensing Intel® FPGA software.

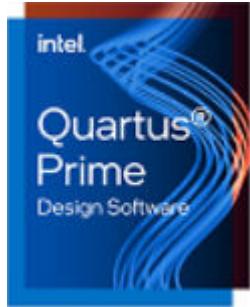
If you are unsure what an FPGA is, review [FPGA Basics](#) to help you get started.

### 1.1. Quartus® Prime Design Suite Overview

#### Quartus® Prime Software Editions

The Quartus® Prime Software is available in three editions based on your design requirements:

**Table 1. Quartus Prime Software Editions**

	Pro Edition	Standard Edition	Lite Edition
	<p>Optimized to support the advanced features in Intel FPGAs and SoCs with the following device families:</p> <ul style="list-style-type: none"> <li>• Agilex™ 5</li> <li>• Agilex 7</li> <li>• Stratix® 10</li> <li>• Arria® 10</li> <li>• Cyclone® 10 GX</li> </ul>	<p>Includes extensive support for earlier device families in addition to the following device families:</p> <ul style="list-style-type: none"> <li>• Cyclone 10 LP</li> <li>• MAX® 10</li> </ul>	An ideal entry point to Intel's high-volume device families and is available as a free download with no license file required.

## Supported Features

The following is the Quartus Prime feature support matrix:

**Figure 1.** Quartus Prime Feature Support Matrix

Software Features	Intel Quartus® Prime Pro Edition	Intel Quartus® Prime Standard Edition
Intel Agilex® 5 Device Support	✓	
Intel Agilex® 7 Device Support	✓	
Intel Stratix® 10 Device Support	✓	
New Hybrid Placer & Global Router	✓	✓
New Timing Analyzer	✓	✓
New Physical Synthesis	✓	✓
Platform Designer (formerly Qsys)	✓	✓
Partial Reconfiguration	✓	
Block-Based (Hierarchical) Design Flows	✓	
Interface Planner (formerly BluePrint)	✓	
Incremental Fitter Optimization	✓	

## Supported Intel FPGA Developmental Tools

The Quartus Prime software suite supports the following Intel FPGA development tools:

- **Questa\*-Intel FPGA Edition:** Simulates FPGA designs using Intel-specific simulation libraries. It includes all features of Siemens EDA Questa\* Core, including behavioral simulation, HDL test benches, and Tcl scripting.
- **Intel Advanced Link Analyzer:** Analyzes jitter/noise and evaluates high-speed serial link performance. It is an ideal predesign tool supporting Intel FPGA IBIS-AMI standards and enhanced models to help you understand how Intel FPGA solutions can fit your system requirements.
- **Intel SoC FPGA Embedded Development Suite:** A comprehensive tool suite for embedded software development on Intel SoC FPGAs.
- **Ashling\* RiscFree\* IDE for Intel FPGAs:** Integrated development environment for creating embedded applications on the RISC-V-based Nios® V soft processors and the Arm\*-based hard processor system.
- **Intel HLS Compiler:** A high-level synthesis (HLS) tool that accepts untimed C++ code as an input and generates production-quality register transfer level (RTL) code optimized for Intel FPGAs. This tool accelerates verification time over RTL by raising the abstraction level for FPGA hardware design. Models developed in C++ have typically verified orders of magnitude faster than RTL.
- **DSP Builder for Intel FPGAs:** Supports a model-based design flow from algorithms to hardware in a common environment.

- **Intel oneAPI Base Toolkit:** Enables you to target FPGAs for heterogeneous acceleration and simulate entire system flows by abstracting some parts of the hardware.
- **Intel Simics® simulator for Intel FPGAs:** A full-system simulator that supports defining, developing, and deploying virtual platforms.
- **FPGA AI Suite:** Provides several components to help in enabling Artificial Intelligence (AI) and creating optimized Intel FPGA AI platforms efficiently.
- **Intel FPGA Power and Thermal Calculator:** Estimates your design's power consumption and provides thermal design parameters for Intel FPGA devices, such as Agilex 7 and Stratix 10.

## 1.2. Intel FPGA Software Download Center

The Intel FPGA Software Download Center contains resources to download Intel FPGA software and IP cores.

### Related Information

- [Downloading Intel FPGA Software](#) on page 15
- [Installing Intel FPGA Software](#) on page 29
- [FPGA Software Download Center](#)

## 1.3. Intel FPGA Self-Service Licensing Center

The Intel FPGA Self-Service Licensing Center provides support for licensing Intel FPGA software. For detailed instructions about obtaining and managing licenses in the Intel FPGA Self-Service Licensing Center, refer to [Using the Intel FPGA Self-Service Licensing Center](#) on page 59.

### Related Information

- [Licensing Intel FPGA Software](#) on page 42
- [Summary of Intel FPGA Software Licenses Required](#) on page 42
- [Intel® FPGA Self-Service Licensing Center \(SSLC\)](#)

## 1.4. Before You Begin

Before you begin installing the Intel FPGA software, review the following topics to help you navigate and understand this guide:

### 1.4.1. Navigate Content Through Tasks

Use the following table to navigate this guide through user-tasks:

**Table 2. Navigate Content Through Tasks**


### 1.4.2. Prerequisites

Using the Quartus Prime software to create a basic FPGA design requires the following prerequisite knowledge:

#### Knowledge

- Basic knowledge of digital logic design.
- Basic knowledge of how to describe a hardware design using VHDL, Verilog HDL, SystemVerilog, or EDA schematic tools.

#### Training

If you are new to FPGA or the Quartus Prime software, you can review the following training modules:

- [Read Me First!](#)
- [Basics of Programmable Logic: History of Digital Logic Design](#)
- [Basics of Programmable Logic: FPGA Architecture](#)
- [Beginner Workshop for Intel FPGAs](#)
- [University Self-Guided Lab: Introduction to FPGAs and the Quartus Prime Software](#)

### 1.4.3. Acronyms

This document uses the following acronyms throughout:

**Table 3. Acronyms Used in this Document**

Acronym	Meaning
AI	Artificial Intelligence
CLI	Command-line Interface
CPLD	Complex Programmable Logic Device
DSP	Digital Signal Processing
EDS	Embedded Design Suite
EULA	End-User License Agreement
FPGA	Field Programmable Gate Arrays
GUI	Graphical User Interface

*continued...*

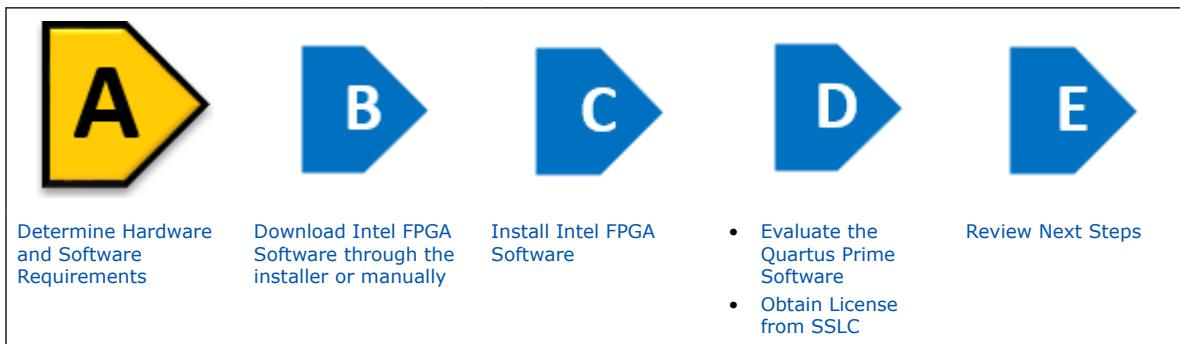
Acronym	Meaning
HLS	High-level Synthesis
IP	Intellectual Property
RAM	Random Access Memory
RHEL	Red Hat Enterprise Linux
SDK	Software Development Kit
SoC	System-on-a-Chip
SSLC	Self-service Software Licensing Center
SLES	SUSE Linux Enterprise Server
WSL	Windows* Subsystem for Linux*

## 2. Determining System Requirements

Your system must meet minimum hardware and software requirements to download, install, and run Intel FPGA software. Refer to the following sections for further details:

### **Navigate Content Through Tasks**

Use the following table to navigate this guide through user-tasks:



### 2.1. Reviewing the Quartus Prime Software Release Notes

Verify the Quartus Prime software edition and release version you are about to install supports the platform where you intend to use it. Review relevant Quartus Prime software release notes for new features, enhancements, changes to software behavior, device support status, software issues, and software patches:

- [Quartus Prime Pro Edition Software and Device Support Release Notes](#)
- [Quartus Prime Standard Edition Software and Device Support Release Notes](#)

### 2.2. Determining Hardware Requirements

Before installing the Quartus Prime software, ensure your hardware conforms to these requirements.

The Quartus Prime software requires:

- A Windows\* PC or Linux workstation.
- A minimum CPU of 64-bit Intel Nehalem (2008) or an AMD Bulldozer (2011) microarchitecture processor with SSE4.2 instruction set or later.
- A monitor capable of at least 1024 x 768 display resolution.

## 2.2.1. Disk Space Requirements

If you are using the Quartus Prime Installer, it displays the disk space needed to successfully install the software.

If you choose to download and install the software manually, your system must have at least 80 GB of free disk space to hold both zipped tar files and uncompressed installation files. The disk space may be significantly more based on the device families included in the installation. After successful installation, delete the downloaded zipped files and uncompressed zip files to release the disk space.

For disk space requirements of individual software components or Intel FPGA IP cores, follow these instructions:

1. Visit the [FPGA Software Download Center](#).
2. Select the desired software product from the collection.
3. Within the selected software product landing page, refer to the **Detailed Description > System Requirements** section. For memory recommendations, refer to the release notes under **Documentation Links** section.

*Important:* Intel recommends that your system be configured to provide virtual memory equal in size or larger than the recommended physical RAM size that is required to process your design.

## 2.2.2. Cable and Port Requirements

Using an Intel FPGA download cable or programming unit to program devices with the Quartus Prime software requires the following minimum hardware:

- USB port for connecting an Intel FPGA Download Cable (Formerly USB Blaster) or Intel FPGA Download Cable II (Formerly USB Blaster II).  
For information about the Intel FPGA Download Cable II, refer to the *Intel FPGA Download Cable II (formerly USB Blaster II) User Guide*.
- 10/100 Mb Ethernet connection for connecting an Intel FPGA Ethernet Cable download cable (formerly EthernetBlaster II Download Cable).  
For more information, refer to the *EthernetBlaster II Communications Cable User Guide*.

### Related Information

[Installing Programming Cable Drivers](#) on page 34

## 2.3. Determining Software Requirements

Consider the following requirements when installing the Intel FPGA software:

### 2.3.1. Operating System Requirements

For the most up-to-date FPGA software operating system requirements, refer to the [Operating System Support](#) page.

The Quartus Prime software requires:

**Table 4. Prerequisites For All Intel FPGA Software**

OS	Prerequisite
Any Linux OS distribution	Intel has tested using <b>GNOME</b> desktop environment and MobaXTerm for remote desktop use. Other tools may work but have not been tested.
	Native XServer software
Red Hat Enterprise Linux 8 and 9	Install the following RPM packages: <ul style="list-style-type: none"> <li>• <b>X Windows libraries:</b> make, libX11.i686, libXau.i686, libXdmcpi.i686, libXext.i686, libXft-devel.i686, libXft.i686, libXrender.i686, libXt.i686, and libXtst.i686</li> <li>• <b>For RHEL 8 and 9:</b> ncurses-compat-libs</li> <li>• <b>GIMP toolkit:</b> GTK+2</li> </ul>
SUSE Linux Enterprise 12	Install the 64-bit libpng12.so.0 library. Obtain equivalent or substitute packages listed for Red Hat Enterprise Linux or above.
Windows	<ul style="list-style-type: none"> <li>• Microsoft Visual C++ 2015-2022 Redistributable Package (x64) <i>Note:</i> The installation of Quartus Prime software installs the Microsoft Visual C++ package automatically if not already installed.</li> <li>• Install any of the unzipping tools, such as WinZip*, 7-Zip*, or WinRAR*, to extract the tar files if you download combined-files packages.</li> </ul>

#### Related Information

[Operating System Support](#)

### 2.3.2. Intel High Level Synthesis Compiler Software Requirements

The Intel HLS Compiler Pro Edition is part of the Quartus Prime Pro Edition Design Suite. You can install the Intel HLS Compiler as part of your Quartus Prime software installation or install it separately. It requires Quartus Prime and additional software to use.

The Intel HLS Compiler requires the C++ Compiler and Siemens EDA\* Questa\* Software in addition to Quartus Prime:

#### C++ Compiler

On Linux, Intel HLS Compiler requires GCC 9.3.0 including the GNU C++ library and binary utilities (binutils).

This version of GCC is provided as part of your Intel HLS Compiler installation. After installing the Intel HLS Compiler, GCC 9.3.0 is available in <installdir>/gcc.

*Important:* The Intel HLS Compiler uses the <installdir>/gcc directory as its toolchain directory. Use this installation of GCC for all your HLS-related design work.

For Windows, install one of the following versions of Microsoft\* Visual Studio\* Professional:

- Microsoft Visual Studio 2017 Professional
- Microsoft Visual Studio 2017 Community

*Important:* The Intel HLS Compiler software does not support versions of Microsoft Visual Studio other than those specified for the edition of the software.

For Questa\*-Intel FPGA Edition software requirements, refer to [Questa\\*-Intel FPGA Edition Software Requirements](#) on page 13.

#### Related Information

- Operating System Support
- Intel HLS Compiler Prerequisites

In *Intel High Level Synthesis (HLS) Compiler Getting Started Guide*

### 2.3.3. Questa\*-Intel FPGA Edition Software Requirements

The prerequisites to install Questa\*-Intel FPGA Edition depend on your OS:

**Table 5. Questa\*-Intel FPGA Edition Software Requirements**

OS	Requisite
Windows	Microsoft Visual C++ 2013 and 2019 Redistributable Packages <i>Note:</i> The installation of Questa*-Intel FPGA Edition installs these packages automatically.

#### Related Information

Operating System Support

### 2.3.4. Other Intel FPGA Software Requirements

The following table provides references to the system requirements of other development tools that Quartus Prime supports:

**Table 6. System Requirements of Other Software**

Software	References
Intel Advanced Link Analyzer	<a href="#">Intel Advanced Link Analyzer System Requirements</a>
DSP Builder for Intel FPGAs	<a href="#">DSP Builder for Intel FPGAs System Requirements</a>
Intel oneAPI Base Toolkit	<a href="#">Intel oneAPI Base Toolkit System Requirements</a> <a href="#">Intel oneAPI DPC++/C++ Compiler System Requirements</a>
Intel SoC FPGA Embedded Development Suite	<a href="#">Arm* Development Studio Requirements</a>
FPGA AI Suite	<a href="#">Operating System Requirements</a> <a href="#">Device Support</a> <a href="#">Intel Distribution of OpenVINO™ Toolkit Requirement</a>
Ashling* RiscFree* IDE for Intel FPGAs	<a href="#">Ashling* RiscFree* IDE for Intel FPGAs Device Support</a> <a href="#">Quartus Prime Software Support for Ashling* RiscFree* IDE for Intel FPGAs</a>
Intel Simics simulator for Intel FPGAs	<a href="#">Intel Simics simulator for Intel FPGAs User Guide</a>

### 2.3.5. Third-Party Software Requirements

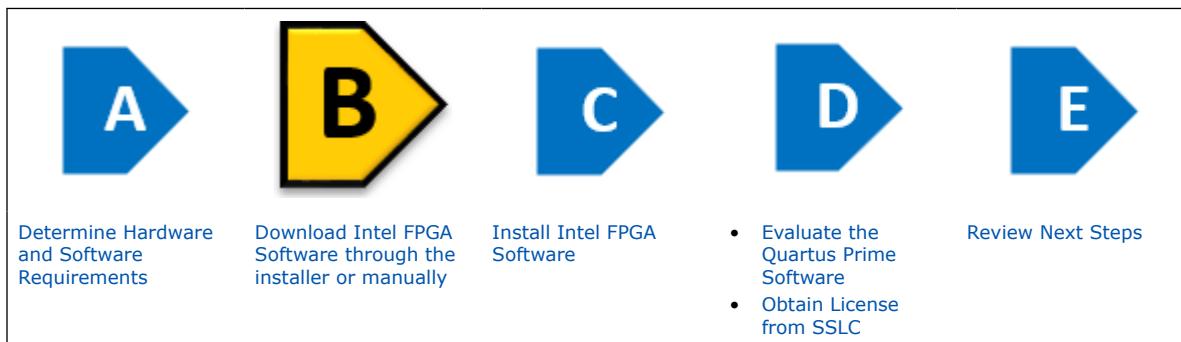
- One of the following browsers with an Internet connection for Quartus Prime software Internet resources:
    - Mozilla Firefox version 3.6 or later
    - Microsoft Edge
    - Google Chrome
- Deprecation Notice:* Support for Microsoft\* Internet Explorer 11 (IE11) desktop browser has ended as of June 15, 2022, for certain versions of Windows 10.
- If you are running the Bitdefender antivirus software, ensure to temporarily disable the software when downloading and installing the Quartus Prime software.

### 3. Downloading Intel FPGA Software

Before downloading Intel FPGA software, ensure that your system complies with all requirements described in *System Requirements & Prerequisites*.

Select and visit the desired software landing page from the [FPGA Software Download Center](#) to download software. You have several options for downloading software. Choose depending on download speed, design requirements, and installation method.

#### Navigating Content Through Tasks



#### 3.1. Software Available in the FPGA Software Download Center

- Quartus Prime Pro, Standard, and Lite Edition software<sup>(1)</sup> (includes the IP Library)
- Quartus Prime Help
- Questa\*-Intel FPGA Edition software<sup>(2)</sup>
- DSP Builder for Intel FPGAs
- FLEXIm license server software
- Intel Advanced Link Analyzer
- Stand-alone Quartus Prime Programmer and Tools<sup>(1)</sup>
- Intel High Level Synthesis Compiler
- Intel FPGA Power and Thermal Calculator
- Intel SoC FPGA Embedded Development Suite (SoC EDS)

<sup>(1)</sup> This product includes software derived from the RSA Data Security, Inc. Secure Hash Algorithm-1 (SHA-1).

<sup>(2)</sup> Download this product using the instructions in [Downloading Individual Executable Files](#) on page 24.

- Ashling® RiscFree® IDE for Intel FPGAs<sup>(3)</sup>
- FPGA AI Suite
- Intel Simics simulator for Intel FPGAs

You must install device support for Agilex 7, eASIC™ N5X, Stratix, Arria, Cyclone, or MAX device families as part of the Quartus Prime installation.

**Note:** You can also obtain older versions of software and legacy software from the Download Center. However, 13.0 and older releases are discontinued. For more information about this software discontinuation, refer to [Custom Advisory ADV2011](#) document.

#### Related Information

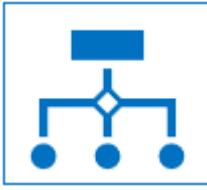
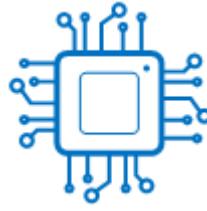
- [Determining System Requirements](#) on page 10
- [FPGA Software Download Center](#)
- [Operating System Support](#)
- [KDB Article: Is the Nios® II Software Build Tools \(SBT\) for Eclipse included in the full installation of the Quartus Prime Pro Edition software starting from version 19.1?](#)

## 3.2. Downloading Design-Specific Software Components

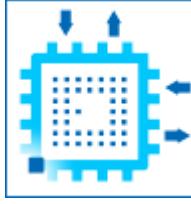
Intel provides a complete suite of development tools for every stage of your design for Intel Field Programmable Gate Arrays (FPGAs), Complex Programmable Logic Devices (CPLDs), and System-on-a-Chip (SoC) FPGAs. Using the Intel FPGA suite of development tools, you can create a complex FPGA design as a hardware engineer, write software for an embedded processor as a software developer, model a digital signal processing (DSP) algorithm, or focus on system design.

Use the following table to explore design tools specific to your design journey:

**Table 7. Software Suitable to Your Design Journey**

System Architecture Planning	Board Development	FPGA Interface Designing
 Explore the Intel FPGA devices and the design software through the <a href="#">Quartus Prime Installer</a> .	 Download the following tools using the <a href="#">Quartus Prime Installer</a> : <ul style="list-style-type: none"> <li>• Intel FPGA Power and Thermal Calculator</li> <li>• Intel Advanced Link Analyzer</li> </ul>	 Download the following tools using the <a href="#">Quartus Prime Installer</a> : <ul style="list-style-type: none"> <li>• Quartus Prime software</li> <li>• Questa*-Intel FPGA Starter Edition</li> </ul>

<sup>(3)</sup> Ashling® RiscFree® IDE for Intel FPGAs support debugging for Nios V and HPS but not for Nios II EDS.

FPGA Application/Interconnect Designing	Embedded Software Development	High-level Design Development
 <p>Download the following tools using the <a href="#">Quartus Prime Installer</a>:</p> <ul style="list-style-type: none"> <li>• Quartus Prime software</li> <li>• Questa*-Intel FPGA Starter Edition</li> </ul>	 <p>Download the following tools:</p> <ul style="list-style-type: none"> <li>• Ashling* RiscFree* IDE for Intel FPGAs using the <a href="#">Quartus Prime Installer</a>.</li> <li>• Intel Simics simulator for Intel FPGAs. See <a href="#">download instructions</a>.</li> </ul>	 <p>Download the following tools:</p> <ul style="list-style-type: none"> <li>• Intel oneAPI Base Toolkit. See <a href="#">download instructions</a>.</li> <li>• FPGA AI Suite. See <a href="#">download instructions</a>.</li> <li>• Intel HLS Compiler and DSP Builder for Intel FPGAs using the <a href="#">Quartus Prime Installer</a>.</li> </ul>

### 3.3. Determining the Download Type

Starting with the Quartus Prime Pro Edition software version 23.3, you have the option to either download the software through the Quartus Prime Installer or obtain packages manually.

The following topics provide more information about each of these options:

#### 3.3.1. Downloading Software Using the Quartus Prime Installer

The Quartus Prime Installer is a light-weight application that allows you to download and install various development tools and FPGA device files that the Quartus Prime software supports for a fresh installation, or add components or devices to an existing installation.

##### Benefits of the Quartus Prime Installer

- Saves disk space. The installer eliminates the need to download large .tar files and unzip them locally.
- Allows dynamically selecting files to download or using the default options.
- Supports pausing and resuming software downloads as desired.
- Automatically retries or resumes interrupted software download when it detects the Internet connection.
- Handles different proxy configurations.
- Supports downloading multiple software in parallel.
- Works on Windows and Linux systems.
- Works in the GUI and CLI modes.
- Supports automatic installation upon download completion.

Review the following topics for more information:

### Supported Use Cases

- Perform a fresh install of the selected components and devices.
- Update an existing Quartus Prime installation with additional components and devices. In this case, the already installed components and devices are grayed out, and you can select only those components not installed on your system.
- Add devices to your existing installation.
- Download, install, and add components through the command-line interface in the unattended mode.
- Install on lab or server machines that are not connected to the Internet.

In this case, you can download the necessary components from a machine connected to the Internet, transfer the downloaded files and Quartus Prime Installer to the machine without the Internet connection, and run the Quartus Prime Installer to install the components.

### Related Information

- [Quartus Prime Installer \(GUI Mode\)](#)
- [Quartus Prime Installer \(CLI Mode\)](#)

#### 3.3.1.1. Accessing the Quartus Prime Installer

Follow these steps:

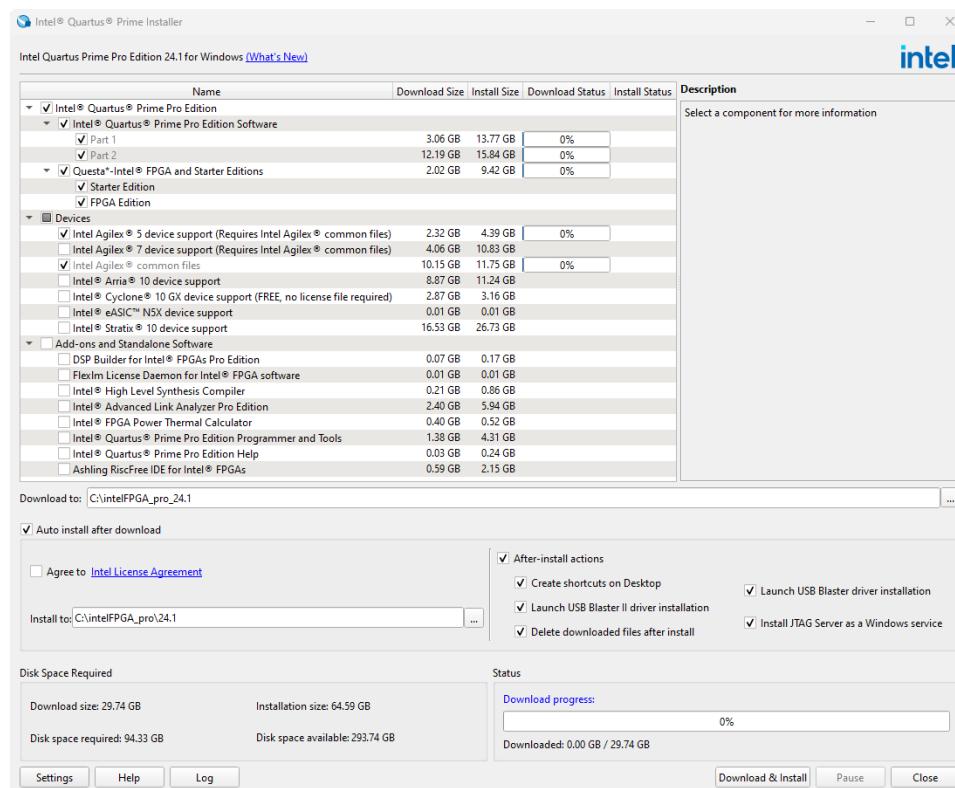
1. Visit the [FPGA Software Download Center](#) page.
2. Using the left-hand filter pane, perform the following steps to refine the search results:
  - a. Select the **Quartus Prime Design Software** option. This displays three Quartus Prime software editions (Pro, Standard, or Lite).
  - b. Select Quartus Prime Pro Edition software. This displays a list of supported software versions.
  - c. Select 23.3 or later software version.
3. In the refined list of pages, click the Quartus Prime Pro Edition download page. The product download page appears.
4. Click the **Installer** tab.
5. Click the **Download** button.

- For GUI mode, use the .run (on Linux) or .exe (on Windows) file. It automatically extracts the files to your TEMP directory and launches the installer.  
If you run the installer on a Linux system without a display, the installer errors out with an appropriate error message. In this case, use the CLI mode.
- For CLI mode, perform these steps:
  - Run the .run file with the --target <path> --noexec option on Linux or .exe file with the -d<path> -sp--noexec option on Windows to extract the files to the <path> location.  
*Note:* On Windows, do not add any space between -d and <path> in the command-line option.
  - Run the qinst.sh --cli command on Linux or qinst\_cli.bat --cli command on Windows. If you need help, run the command with --help to view the help manual. For more information about CLI commands, refer to [Using CLI Commands](#) on page 22.

### 3.3.1.2. Getting Started With the Quartus Prime Installer GUI

The top section of the GUI lists all downloadable components and their relevant information in a hierarchical format. You can select and download the desired components, as shown in the following image:

**Figure 2.** **Quartus Prime Installer GUI**



- The default download and installation location is C:\intelFPGA\_pro\<ver> on Windows and /<user\_home>/intelFPGA\_pro/<ver> on Linux. However, you can select a different location using the browse button and selecting the desired location.
- The **Auto install after download** and **After-install actions** options are enabled by default when you launch the GUI. However, the **Agree to the Intel License Agreement** is disabled by default. You must enable it to proceed with software download and installation.
  - If you want to review the license agreement, click the **Intel License Agreement** link to view it in your default browser.
  - If you choose to turn off the **Auto install after download** option, then **After-install actions** options are disabled, and only the **Download** button becomes available, allowing you to download selected components that you can install manually.
  - If your installation directory contains a matched version of Quartus Prime software, the installer changes into the update mode, allowing you to install additional components or uninstall components. If the installation directory does not contain a matched version of the Quartus Prime software, the installer displays an error when you click the **Download & Install** button.
  - If you are downloading for a platform (Linux or Windows) other than the one your system is running on, the **Auto install after download** option is disabled, and the tooltip shows why it is disabled.
- The bottom section of the GUI displays the download size, installation size, disk space required for download and installation, disk space available, and download status. The disk space is highlighted if the available space is less than the disk space needed. If you proceed with the download and installation, you are prompted with a warning message for insufficient disk space. The download status dynamically changes when the download is in progress.
- If you want to modify the installer settings, click the **Settings** button. Refer to [Modifying the Installer Settings](#) on page 20 for more information.
- After selecting the components and reviewing all settings, click the **Download & Install** button. Use the **Pause** button if you want to interrupt the download.
- If you encounter any error throughout the download process, use the **Log** button to invoke the Log Viewer. The log file is saved to your download directory if you only downloaded the files. However, enabling the **Auto Install** option saves the log file to your installation directory.

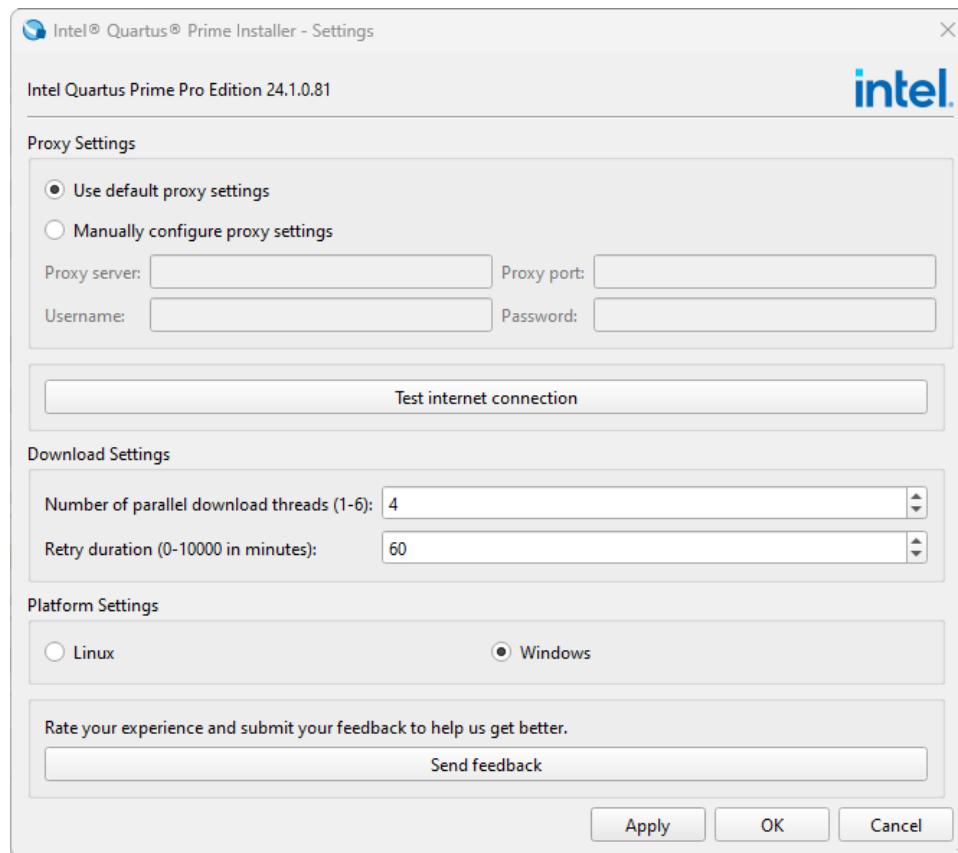
*Important:* If **Delete downloaded files after install** is enabled, downloaded files corresponding to the installed components are deleted automatically after a successful installation. If the option is disabled, you need to manually delete the downloaded files if you no longer need them.

### 3.3.1.3. Modifying the Installer Settings

The **Settings** dialog allows you to overwrite the default installer settings. It is set to the following default values:

- **Use default proxy settings** is enabled to retrieve your system's proxy settings.
- **Number of parallel download threads (1-6)** is set to 4.
- **Retry duration (0 -10000 in minutes)** is set to 60 minutes.
- **Installer Platforms** defaults to the platform your system is currently running on.

**Figure 3. Quartus Prime Installer Settings GUI**



Follow these instructions to modify the installer settings:

- You can use the **Test Internet Connection** button to confirm if your system is connected to an active Internet connection.

If the installer cannot detect your Internet connection, select the **Manually configure proxy setting** option to set up your proxy settings and establish an Internet connection manually. The installer cannot progress until it detects the Internet connection. For information about the accepted values for the proxy server, refer to [https://curl.se/libcurl/c/CURLOPT\\_PROXY.html](https://curl.se/libcurl/c/CURLOPT_PROXY.html).

*Note:* If you are behind a firewall, ensure that you **do not** have `no_proxy` variable set in your system.

- In the **Number of parallel download threads (1-6)** field, enter a value between 1 and 6 to modify the number of threads.
- In the **Retry duration (0 - 10000 in minutes)** field, you can customize the retry duration if your Internet connection interrupts or is unstable. You can enter a value between 0 and 10000 minutes. You can stop the retries within the retry period.
- You can select Linux or Windows platform, and the installer downloads files relevant to the chosen platform.

*Note:* If you are downloading for a platform other than the one your system is running on, the **Auto install after download** option in the main GUI is disabled with a tooltip that shows why it is disabled.

### 3.3.1.4. Using CLI Commands

You can run the Quartus Prime installer application entirely from the CLI and access the same functionality as the GUI interface. In this case, you must pass all the necessary parameters through the CLI only. No input is accepted through the console.

**Table 9. Command-line Options**

Option	Description
--help	Displays the help.
--cli	Runs the installer in the command-line mode. <i>Note:</i> If you pass other options without passing the <code>-cli</code> option, the following error message is displayed: <div style="background-color: #f0f0f0; padding: 5px; margin-top: 10px;"> Please use <code>-cli</code> if you want to run this app on command-line, otherwise, remove all options passed in. </div>
-view-eula	Allows you to view the End-User License Agreement (EULA). The EULA launches in your default browser if your system has a display. Otherwise, it displays the following message: <div style="background-color: #f0f0f0; padding: 5px; margin-top: 10px;"> You can view Intel License Agreement in <code>&lt;install_dir&gt;/licenses</code>. </div>
--cacert arg	Allows you to specify your own CA certificate if the certificate that comes with the installer does not work with your firewall.
--proxy <server:port> --proxy-user <user:password> --test-download	Allows you to specify your proxy settings manually if the installer cannot detect the Internet connection. For information about the accepted values for the proxy server, refer to <a href="https://curl.se/libcurl/c/CURLOPT_PROXY.html">https://curl.se/libcurl/c/CURLOPT_PROXY.html</a> .

*continued...*

Option	Description
	<p>--proxy and --proxy-user options are optional. If the installer is able to accept all other options and process the command, it runs the --test_download option first.</p> <ul style="list-style-type: none"> <li>If --test-download fails and you have not specified the proxy settings, the following error message is displayed:</li> </ul> <div style="background-color: #f0f0f0; padding: 5px; margin-top: 10px;"> <p>Internet connection cannot be established, if you're behind a firewall, please enter the proxy settings and try again.</p> </div> <ul style="list-style-type: none"> <li>If you have already passed the proxy settings but the Internet connection still fails, the following error message is displayed:</li> </ul> <div style="background-color: #f0f0f0; padding: 5px; margin-top: 10px;"> <p>Internet connection cannot be established, please recheck your internet connection or proxy settings.</p> </div> <p><i>Note:</i> If you are behind a firewall, ensure that you <b>do not</b> have no_proxy variable set in your system.</p>
--download-dir <dir>	Specifies where to download the installer files.
--install-dir <dir>	<p>Specifies where to install the application.</p> <ul style="list-style-type: none"> <li>If you specify the --install-dir option, the --auto-install option defaults to on.</li> <li>If your installation directory already has an existing installation, then passing --install-dir option displays the following error message:</li> </ul> <div style="background-color: #f0f0f0; padding: 5px; margin-top: 10px;"> <p>This application does not support updating an existing installation. You must run the installer manually after download.</p> </div> <ul style="list-style-type: none"> <li>If you specify only the --download-dir and not the --install-dir option, --auto-install is set to off.</li> </ul>
--auto-install	<p>Specifies whether to install software automatically after download completes.</p> <p><i>Important:</i> On Windows, you must run this command option as an administrator. If you execute it without the administrator rights, then passing the --auto-install option displays an error message appropriately.</p>
--bypass	Specifies whether to bypass the disk space availability check.
--accept-eula	<p>Specifies whether to accept the Quartus Prime software EULA. By passing the --accept-eula option, you are acknowledging to accept the EULA.</p> <p><i>Note:</i> If you pass only the --install-dir option without the --accept-eula option, the following error message gets displayed:</p> <div style="background-color: #f0f0f0; padding: 5px; margin-top: 10px;"> <p>You must agree to the Intel license agreement to install the software.</p> </div>
--delete-downloads	After successful installation, it only deletes the files that are installed.
--parallel-downloads <arg>	Specifies the number of parallel downloads. Supports values in the range of 1 to 6. Default is 4.

*continued...*

<b>Option</b>	<b>Description</b>
--retry-duration <arg>	Specifies the retry duration (in minutes) if the Internet connection gets interrupted. Supports values in the ranges of 0 to 10000 minutes. Default is 60 minutes.
--platform <linux/windows>	Specifies the platform (Linux or Windows) for which the installer files are downloaded. Platform defaults to the one your system is currently running on.
--components <quartus,agilex5,agilex7,stratix10,all>	Specifies components to download or install with comma-separated values. If you are updating an existing installation, the installer installs only those components that are not installed on the system yet and ignores the components already installed. Dependent components are automatically included. <ul style="list-style-type: none"> <li>• Default components are Quartus Prime and Questa*-Intel FPGA Starter Edition.</li> <li>• The default device is Cyclone 10 GX. The remaining devices, such as Agilex 5, Agilex 7, Stratix 10, Arria 10, and eASIC N5X, are optional.</li> <li>• Optional Components are Questa*-Intel FPGA Edition, DSP Builder for Intel FPGAs, FLEXIm license server, Intel High Level Synthesis Compiler, Intel FPGA Power and Thermal Calculator, Quartus Prime Programmer, Quartus Prime Help, and Ashling* RiscFree* IDE for Intel FPGAs.</li> </ul>

### 3.3.2. Downloading Software Packages Manually

You can download software packages manually using one of the following options:

#### 3.3.2.1. Downloading Individual Executable Files

To download Intel FPGA software with individual executable files:

1. Visit the [FPGA Software Download Center](#) page.
2. Using the left-hand filter pane, perform the following steps to refine the search results:
  - a. Select the **Quartus Prime Design Software** option. This displays three Quartus Prime software editions (Pro, Standard, or Lite).
  - b. Select the desired Quartus Prime software edition. This displays a list of supported software versions.
  - c. Select the desired Quartus Prime software release version.
  - d. Under **Operating System**, select the desired operating system (Linux or Microsoft Windows\*).
3. In the refined list of pages, click the desired page to download the software. The product download page appears.
4. Under the **Downloads** section, click the **Individual Files** tab.
5. Download by clicking the **Download <file\_name>** button under each software.
6. Accept the Software License Agreement by clicking the **Accept** button.

File download starts automatically.

**Attention:** Wait for all the files to download completely before beginning installation. Intel recommends verifying the shalsum <filename> to ensure the file downloaded completely. The shal value should match with that mentioned on the webpage.

#### Related Information

[Selecting the Installation Path](#) on page 31

### 3.3.2.2. Downloading .tar Files

To download Intel FPGA software with .tar files:

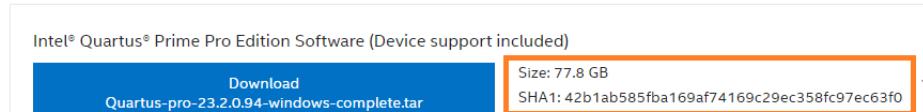
1. Visit the [FPGA Software Download Center](#) page.
2. Using the left-hand filter pane, perform the following steps to refine the search results:
  - a. Select the **Quartus Prime Design Software** option. This displays three Quartus Prime software editions (Pro, Standard, or Lite).
  - b. Select the desired Quartus Prime software edition. This displays a list of supported software versions.
  - c. Select the desired Quartus Prime software release version.
  - d. Under **Operating System**, select the desired operating system (Linux or Microsoft Windows\*).
3. In the refined list of pages, click the desired page to download the software. The product download page appears.
4. Decide which files to download and click the relevant tab:
  - If you need a single, complete .tar file, click the **Complete Download** tab.
  - If you need multiple .tar files of Quartus Prime software edition, and one or more device support .tar files, click the **Multiple Download** tab.

To verify the software and device support included in each file, view the information, if available, under the **What's Included** section.

5. Download by clicking the **Download** button under the software name.

*Important:* Wait for all the files to download completely before beginning installation. Intel recommends verifying the shasum <filename> to ensure the file downloaded completely. The sha1 value must match with that mentioned on the webpage. Example SHA1 shown in the following image:

Complete Download



Verify the checksum in the following method:

- **Linux OS:** shasum <filename>
- **Windows OS:** In the Command prompt window, type certutil -hashfile <filename>

To install the files, refer to [Installing from .tar Files](#) on page 33.

#### Related Information

[Selecting the Installation Path](#) on page 31

### 3.3.2.3. Downloading Device Support

To download device support to an existing Intel FPGA software package:

1. Visit the [FPGA Software Download Center](#) page.
2. Using the left-hand filter pane, perform the following steps to refine the search results:
  - a. Select the **Quartus Prime Design Software** option. This displays three Quartus Prime software editions (Pro, Standard, or Lite).
  - b. Select the desired Quartus Prime software edition. This displays a list of supported software versions.
  - c. Select the desired Quartus Prime software release version.
  - d. Select the operating system (Linux or Microsoft Windows\*).
3. In the refined list of pages, click the desired page to download the software. The product download page appears.
4. Under the **Downloads** section, click the **Individual Files** tab.
5. Under the **Devices** section, select the device support that you want to add.
6. Download by clicking the **Download** button under each device.

*Important:* Wait for all the files to download completely before beginning installation. Intel recommends verifying the `shasum <filename>` to ensure the file downloaded completely. The `sha1` value should match with that mentioned on the webpage.

To install the device support, refer to [Installing Device Support to Existing Installation](#) on page 33

### 3.3.2.4. Downloading Additional Software

The Quartus Prime software suite supports several Intel FPGA development tools. If you choose to download complete or multiple `.tar` files of the Quartus Prime software using the instructions in [Downloading .tar Files](#) on page 25, the package already includes all development software. However, if you want to download them separately as a standalone or add-on software, follow these steps:

1. Access the product download page as described in [Downloading .tar Files](#) on page 25.
2. Ensure that you have installed the Quartus Prime software. If not, then download the Quartus Prime software installation files and device files.
3. Select the **Additional Software** tab.
4. Download the add-on software you want to install.

*Attention:* Wait for all the files to download completely before beginning installation. Intel recommends verifying the `shasum <filename>` to ensure the file downloaded completely. The `sha1` value should match with that mentioned on the webpage.

To install the files, refer to [Installing from .tar Files](#) on page 33.

### 3.3.2.5. Downloading Copyleft Licensed Software

The Intel FPGA Download Center also supports downloading some of the copyleft licensed software that are required for FPGA development. Follow these steps to download copyleft-licensed software:

1. Access the product download page as described in [Downloading .tar Files](#) on page 25.
2. Ensure that you have installed the Quartus Prime software. If not, then download the Quartus Prime software installation files and device files.
3. Select the **Copyleft Licensed Source** tab.
4. Download the desired software you want to install.

**Attention:** Wait for all the files to download completely before beginning installation. Intel recommends verifying the `shasum <filename>` to ensure the file downloaded completely. The `sha1` value should match with that mentioned on the webpage.

To install the files, refer to [Installing from .tar Files](#) on page 33.

#### Related Information

- [What is a Copyleft License?](#)
- [copyleft.org](#)

## 3.4. Downloading Other Intel FPGA Software

### Downloading SoC EDS

Follow these steps:

1. Visit the [FPGA Software Download Center](#).
2. In the left-hand filter pane, select **Intel SoC FPGA Embedded Development Suite (SoC EDS) Pro Edition** under **Additional Software**.
3. Select Intel SoC FPGA Embedded Development Suite Pro or Standard Edition. This displays a list of product download pages.
4. Click the desired page.
5. Under the **Downloads** section, select the **Software Download** tab and download the software.

### Downloading Arm\* Development Studio

Follow these steps:

1. Visit the [FPGA Software Download Center](#).
2. In the left-hand filter pane, select **Arm\* Development Studio**.
3. Click the desired page.
4. Under the **Downloads** section, select the desired platform tab (Linux or Windows) and download the software.

### Downloading Intel Simics simulator for Intel FPGAs

Follow these steps:

1. Visit the [FPGA Software Download Center](#).
2. Select **Intel Simics simulator for Intel FPGAs** in the left-hand filter pane.
3. Click the desired page and download the software.

## Downloading FPGA AI Suite and Intel Distribution of OpenVINO Toolkit

Follow these steps:

1. Visit the [FPGA AI Suite](#) web page.
2. Under the **Get Started Today** section, use relevant download options to download the FPGA AI Suite and **Intel Distribution of OpenVINO Toolkit**.

## Downloading Intel oneAPI Base Toolkit and Intel FPGA Add-on for oneAPI Base Toolkit

Follow these steps:

1. Visit [Intel oneAPI Base Toolkit](#) web page.
2. Select the desired operating system.
3. Select the distribution method.
4. You can either sign up and download the software, or use **Continue without signing up (download starts immediately)** link to start downloading directly without signing up.
5. Visit [Intel FPGA Add-on for oneAPI Base Toolkit](#) to download FPGA add-ons for Intel oneAPI Base Toolkit.
6. Select the [FPGA platform](#).

## 4. Installing Intel FPGA Software

**Note:** Before you install the software, ensure that your system complies with all requirements described in [Determining System Requirements](#) on page 10.

To download software, refer to [Downloading Intel FPGA Software](#) on page 15.

Depending on the [download type](#), you can install the software automatically after downloading through the Quartus Prime Installer or manually.

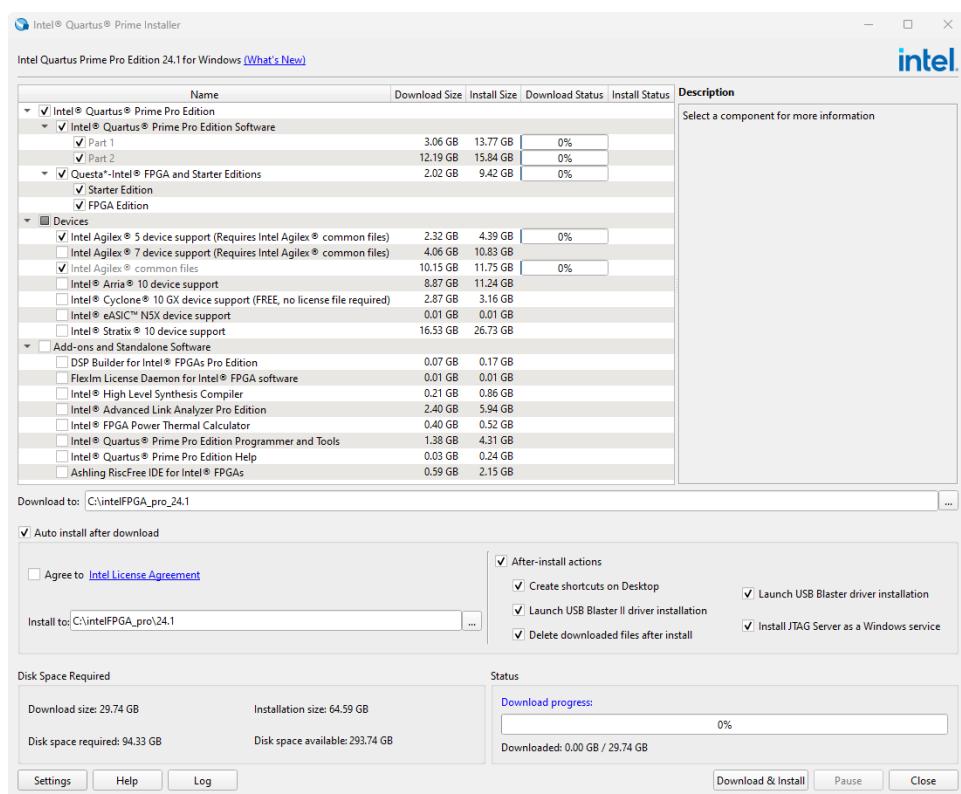
### Navigating Content Through Tasks

Use the following table to navigate this guide through user-tasks:



### 4.1. Installing Intel FPGA Software Through Quartus Prime Installer

The Quartus Prime Installer is a light-weight application that allows you to download and install various development tools and FPGA device files that the Quartus Prime software supports for a fresh installation, or add components or devices to an existing installation. For more information, refer to [Accessing the Quartus Prime Installer](#) on page 18.

**Figure 4.** **Quartus Prime Installer GUI**


- The **Auto install after download** and **After-install actions** options are enabled by default when you launch the GUI. However, the **Agree to the Intel License Agreement** is disabled by default. You must enable it to proceed with software download and installation.
  - If you want to review the license agreement, click the **Intel License Agreement** link to view it in your default browser.
  - If you choose to turn off the **Auto install after download** option, then **After-install actions** options are disabled, and only the **Download** button becomes available, allowing you to download selected components that you can install manually.
  - If your installation directory contains a matched version of Quartus Prime software, the installer changes into the update mode, allowing you to install additional components or uninstall components. If the installation directory does not contain a matched version of the Quartus Prime software, the installer displays an error when you click the **Download & Install** button.
  - If you are downloading for a platform (Linux or Windows) other than the one your system is running on, the **Auto install after download** option is disabled, and the tooltip shows why it is disabled.

## 4.2. Installing the Intel FPGA Software Manually

If you downloaded the package manually using one of the options in [Downloading Software Packages Manually](#) on page 24, use instructions in this section to install those packages.

### 4.2.1. Selecting the Installation Path

The installation path must satisfy the following requirements:

- Contain only alphanumeric characters
- No special characters or symbols, such as !\$%@^&\*<>,
- Only English characters
- No spaces

#### Default Installation Path

Linux	<home directory>/<edition>/<version number>	<home directory> is the default path of the Linux workstation, or as set by the system administrator
Windows	<drive>:\<edition>\<version number>	

where <edition>:

- intelFPGA\_lite—for Lite Edition
- intelFPGA—for Standard Edition
- intelFPGA\_pro—for Pro Edition

If you use a different path, substitute the appropriate name for <installation-directory> in the installation steps.

### 4.2.2. Installing Intel FPGA Software at the Command Prompt

You can install Intel FPGA software for Windows\* or Linux using command-line arguments. You can also group installation instructions into a custom installation script.

- To run the installer executable, use:

- Linux:

```
<product>-<version>-<os>.run
```

- Windows\*:

```
<product>-<version>-<os>.exe
```

The installation wizard appears to guide you through the installation process.

**Note:** The Quartus Prime software installer is the main installer. You must have administrator privileges to install it on Windows. It installs other software, such as DSP Builder, if that installer exists in the same location. If a standalone product is not installed by the Quartus Prime software installer, then you must install it separately.

## Example 1. Command-line Installer Examples

To see the installer's Help in Linux:

```
<product>-<version>-<os>.run --help
```

To run the installation with minimal or no interaction with the installer:

```
<product>-<version>-<os>.exe --mode unattended
--unattendedmodeui minimal
--installdir <installation directory>
--accept_eula 1
```

To install in console mode (no X display) for Linux:

```
<product>-<version>-<os>.run --mode text
--installdir <installation directory>
```

### 4.2.2.1. Command-Line Options

The available command-line arguments for the installer are:

Option	Description
--help	Displays the installer help.
--version	Displays product information.
--unattendedmodeui <unattendedmodeui>	<p>Specifies whether the installation requires user interaction. This argument is useful with unattended mode. Options are:</p> <ul style="list-style-type: none"> <li>none—(Default) Installation does not require user interaction, and no output appears.</li> <li>minimal—Installation does not require user interaction. A dialog box shows the installation progress.</li> <li>minimalWithDialogs—In addition to the installation progress bar, other dialog boxes appear. This mode may require user interaction.</li> </ul> <p><i>Note:</i> If you install in unattended mode, you must also include the --accept_eula 1 option.</p>
--mode <mode>	<p>Specifies the installation mode. For Linux, the available modes are:</p> <ul style="list-style-type: none"> <li>qt (Default)</li> <li>gtk</li> <li>xwindow</li> <li>text</li> <li>unattended</li> </ul> <p>For Windows*, the available modes are:</p> <ul style="list-style-type: none"> <li>qt (Default)</li> <li>win32</li> <li>unattended</li> </ul>
--accept_eula 1	<p>States that you accept the Intel FPGA End User License Agreement. This option is mandatory when you use unattended mode.</p> <p><i>Note:</i> To view the license agreement files prior to installation, run the installer with the --install-lic command-line option.</p>
--disable-components <disable-components>	Specifies which components you want to disable, in a comma-separated list.

*continued...*

Option	Description
--installdir <installdir>	Specifies the target installation directory for Intel FPGA software. Refer to <i>Download and Installation Prerequisites</i> for the default installation directories.
--product_copy_name <product_copy_name>	If you install multiple copies of the same software with the same version on Windows, it specifies the installation name. Default=none.
--install-lic <install_lic>	Specifies the target directory for the license agreement files.

#### Related Information

Selecting the Installation Path on page 31

### 4.2.3. Installing from .tar Files

To install Intel FPGA software with .tar files:

1. Extract the installation files into the same directory.  
The components subdirectory stores software and device installation files.
2. If you use Windows OS, extract the installation files by unzipping the .tar files.  
WinZip\*, 7-Zip\*, and WinRAR\* are examples of unzipping tools. Do not use unzip program shortcuts, such as **1-Click Unzip**.
3. Run one of the following scripts to begin installation:

**Table 10. Installation Scripts**

Quartus Prime Edition	OS	
	Linux	Windows*
Lite and Standard Editions	setup.sh	setup.bat
Pro Edition	setup_pro.sh	setup_pro.bat

The wizard appears, and guides you through the installation process.

### 4.2.4. Installing Device Support to Existing Installation

Once you complete [downloading device support](#), follow these steps to install it to an existing Intel FPGA software package:

1. Ensure the files are downloaded completely before beginning the installation process.
2. Start the Quartus Prime software.
3. Click **Tools > Install Devices** to open the Installation Wizard. If you do not see the **Install Devices** option, then on the Windows\* Start menu, go to **Intel FPGA <version number> <Lite/Standard/Pro> Edition > Device Installer**.
4. Install in the same location as the Quartus Prime software.

## 4.2.5. Installing Programming Cable Drivers

After installing the Quartus Prime software, you must also install the provided programming cable driver for any Intel FPGA download cable or programming unit that you plan to use.

Locate the appropriate drivers in the following location and install the driver according to your operating system:

- Windows:

```
<installation-directory>\quartus\drivers
```

- Linux:

```
<installation-directory>/quartus/drivers
```

For detailed information on installing drivers and setting up cables, refer to the corresponding cable user guide.

### Related Information

- [Installing the USB Download Cable](#)  
In *Intel FPGA Download Cable (formerly USB Blaster) User Guide*
- [Setting Up the Intel FPGA Download Cable II](#)  
In *Intel FPGA Download Cable II (formerly USB Blaster II) User Guide*
- [EthernetBlaster II Communications Cable User Guide \(PDF\)](#)
- [Cable and Adapter Drivers Information](#)

## 4.2.5.1. Installing Drivers on RHEL 8 and Above and Ubuntu Versions 18 and 20 OS

To allow communication between the host computer and a development board, you must install the drivers for USB download cables, even for development kits with embedded Intel FPGA Download Cable II circuits. Configuring these options require administrator (root) privileges.

**Note:** The USB-Blaster is now the Intel FPGA Download Cable. The USB-Blaster II is now the Intel FPGA Download Cable II.

The Quartus Prime software accesses the Intel FPGA Download Cable or Intel FPGA Download Cable II through the USB file system (usbfs). To program devices, change the permissions on the ports.

Follow these steps to install on Red Hat Enterprise Linux 8 and above and Ubuntu versions 18 and 20 operating systems:

- Create a file named /etc/udev/rules.d/92-usbblaster.rules.

**Note:** In the file name, 92 is important as there is a default rule /lib/udev/rules.d/91-permissions.rules for usbfs-like devices specifying a MODE of 664. Because udev assigns priority to rules by the sort order of the file names they appear in the Intel FPGA Download Cable, you must place rules in an appropriate file.

- In the file, write the following lines, depending on the type of download cable:

— Intel FPGA Download Cable

```
SUBSYSTEMS=="usb", ATTRS{idVendor}=="09fb", ATTRS{idProduct}=="6001",
MODE="0666"
SUBSYSTEMS=="usb", ATTRS{idVendor}=="09fb", ATTRS{idProduct}=="6002",
MODE="0666"
SUBSYSTEMS=="usb", ATTRS{idVendor}=="09fb", ATTRS{idProduct}=="6003",
MODE="0666"
```

— Intel FPGA Download Cable II:

```
SUBSYSTEMS=="usb", ATTRS{idVendor}=="09fb", ATTRS{idProduct}=="6010",
MODE="0666"
SUBSYSTEMS=="usb", ATTRS{idVendor}=="09fb", ATTRS{idProduct}=="6810",
MODE="0666"
```

## 4.2.6. Installing and Configuring a JTAG Server

A JTAG Server communicates with the hardware and allows multiple programs to use JTAG resources at the same time. `jtagd` is the Linux version of `jtagserver`.

### Related Information

#### JTAG Settings tab

In *Quartus Prime Help*

### 4.2.6.1. Installing and Configuring `jtagserver` on Windows

If you install the Quartus Prime software for Windows\* on a network drive, and have a JTAG Server, then you must set up the Quartus Prime software to allow the JTAG Server to run JTAG services.

Intel recommends enabling the **Install JTAG Server as a Windows service and run automatically when Windows starts** option on the final page of the installation wizard to automatically install and run the `jtagserver` as a service upon system start up.

**Note:** For additional information about operating JTAG Server in a more secure manner, refer to the application note [AN 939: JTAG Connections Over SSH](#).

If you choose not to install the JTAG Server as a Windows service automatically, then when necessary, you can install the JTAG Server manually using the command line option, `jtagserver.exe --install` as an Administrator. The `jtagserver.exe` is available within your Quartus Prime software installation directory (`<path>/quartus/bin64`). The installed service does not run as an Administrator.

**Tip:**

- After the installation, you can either use the **Task Manager > Services** tab or the command-line option `--status` to verify if the `jtagserver` service is running.
- You can control the `jtagserver` service using the `--start` and `--stop` command-line options or using the Task Manager.

If there is no active JTAG Server process running, client applications such as Programmer automatically launches an instance of the non-persistent JTAG Server (without it running as a service) and exists after two minutes of idleness.

#### 4.2.6.2. Installing and Configuring a Local JTAG Server (jtagd) on Linux

jtagd is the Linux version of jtagserver.

In a typical operation, the client application (for example, Quartus Prime Programmer) starts the jtagd, which runs under your user account that is running the Intel FPGA software. In this mode, jtagd exits after two minutes of idleness.

If you want to connect to the JTAG Server remotely, then manually run jtagd as a process by running the command <path>/quartus/linux64/jtagd with no argument, followed by running the command jtagconfig --enableremote <password> to make JTAG Server accept connection from remote clients. This allows you to log off without terminating the jtagd process.

**Note:** For additional information about operating JTAG Server in a more secure manner, refer to the application note [AN 939: JTAG Connections Over SSH](#).

### 4.3. Using the Same Installation Files on Multiple Systems

You can install Intel FPGA software on multiple systems using the same installation files that you download once. This method reduces overall download and installation time.

To use the same installation files for multiple systems:

- Download and save the installation files to a location that is accessible by each system on which you want to install Intel FPGA software.
- To perform the installation, you can:
  - Launch the installation wizard from each system.
  - Write and run a custom installation script using the available command-line arguments.

### 4.4. Managing Multiple Versions and Copies of Intel FPGA Software

You can install multiple copies of the same version of software on the same computer.

- To specify which version you want to open by default, setting the QUARTUS\_ROOTDIR\_OVERRIDE environment variable.
- To preserve project compilation databases from an earlier version of the software before installing a newer version, open the design in the earlier version of the software and export a version-compatible database for the design.

#### Related Information

[Setting Quartus Prime Environment Variables](#) on page 36

### 4.5. Setting Quartus Prime Environment Variables

The Quartus Prime software installation process initializes environment variables. In specific cases, you can take advantage of modifying these variables.

### **QUARTUS\_ROOTDIR\_OVERRIDE**

Use this optional environment variable when you have multiple copies of the Quartus Prime software on the same computer and you want to determine which version to open by default.

- Note:** If you have multiple copies of the same version of the Quartus Prime software, the system displays an error message indicating that Quartus Prime software files cannot be found when you start the program. The solution is setting QUARTUS\_ROOTDIR\_OVERRIDE to one of the copies.

### **QUARTUS\_LIBRARY\_PATHS**

The QUARTUS\_LIBRARY\_PATHS environment variable specifies user-defined library paths.

You can use this environment variable to define multiple library paths at the same time, instead of individually adding each path to the user library.

### **PATH**

You must add \$QSYS\_ROOTDIR to the PATH variable. The \$QSYS\_ROOTDIR locates the directory at \${installdir}/qsys/bin.

In general, Intel recommends adding all \${installdir}/bin to the PATH variable to allow running a software without adding the full path.

### **LM\_LICENSE\_FILE**

The LM\_LICENSE\_FILE environment variable specifies the location of the license file. However, the Quartus Prime software overrides the value of the environment variable with the location that you specify in the **License Setup** dialog box.

- Note:** Separate multiple license servers and node locking license files with ":" (Linux) or ";" (Windows).

### **LC\_ALL**

You must ensure that your operating system locale is set up correctly. In particular, the locale you specify in LC\_ALL environment variable must match the locale settings (such as LANG). If there is a mismatch, the following Perl warning might be generated during IP generation:

```
perl: warning: Setting locale failed.
```

This warning results in IP generation failure.

- Note:** You can also set the environment variable PERL\_BADLANG=0 to avoid the Perl warning.

## Sample Setup Script

Instead of setting up the above listed environment variables individually, you can also create a script to set up the environment for a particular version in Linux as shown in the following sample:

```
Sample setup script for Quartus:  
quartus_x.x.bash (executable)  
#Setup pointers to version X.X  
export QUARTUS_ROOTDIR=<quartus-install-path>/quartus"  
export QSYS_ROOTDIR="$QUARTUS_ROOTDIR/qsys/bin"  
export ALTERAOCLSDKROOT=<some_specific_release>  
export INTELFPGAOCLSDKROOT=<some_specific_release>  
export PATH="$QUARTUS_ROOTDIR/bin:$QSYS_ROOTDIR:$PATH"  
# Adding any /bin under $ALTERAOCLSDKROOT or $INTELFPGAOCLSDKROOT to $PATH if applicable  
export LM_LICENSE_FILE=<path_to_license_file>
```

## Related Information

[Selecting the Installation Path](#) on page 31

## 4.6. Starting the Quartus Prime Software

You can run the Quartus Prime software on Windows\* and Linux.

For versions that you purchase, the Quartus Prime software prompts you for license information if it does not detect a license upon startup. You are prompted to evaluate, buy, or retrieve a license. The Quartus Prime Pro Edition software provides the additional option of running the software in free mode for Cyclone 10 GX devices only.

*Note:* You can evaluate the Quartus Prime software at no cost for a period of time.

### Starting the Intel FPGA Software on Windows

Use any of the following methods to start Intel FPGA software on Windows:

- On the Windows\* desktop, double-click the Intel FPGA software icon.
- On the Windows\* Start menu, click **Intel FPGA <version number> <Lite/Standard/Pro> Edition > Quartus**.
- At a command prompt, type:

```
<installation-directory>\bin64\quartus
```

### Starting the Intel FPGA Software on Linux

Use the following method to start Intel FPGA software on Linux:

- Type the following at the command prompt:

```
<installation-directory>/quartus/bin/quartus
```

*Note:* Starting the Quartus Prime software in a platform-specific directory on Linux (for example, <installation-directory>/linux64/quartus/), can cause problems running the software.

## Related Information

[Evaluating the Quartus Prime Software](#) on page 49

## 4.7. Updating Intel FPGA Software

To download available Intel FPGA Software updates:

1. Verify that you are using the latest version of the Intel FPGA software.
2. Visit the [FPGA Software Download Center](#) page.
3. Using the left-hand filter pane, perform the following steps to refine the search results:
  - a. Select the **Quartus Prime Design Software** option. This displays three Quartus Prime software editions (Pro, Standard, or Lite).
  - b. Select the desired Quartus Prime software edition. This displays a list of supported software versions.
  - c. Select the desired Quartus Prime software release version.
  - d. Select the operating system (Linux or Microsoft Windows\*).
4. In the refined list of pages, click the desired page to download the software.
5. On the version-specific download page, click **Updates**.
6. Download by clicking the **Download** button under each device.  
Wait for all the files to download completely before beginning the installation process.
7. Run the executable files to launch the installation wizard, which guides you through the installation process. On Windows\*, it automatically finds the existing installation to be updated. On Linux\*, you need to input the installation path of an existing installation to be updated.

*Note:* For information about the latest updates, refer to the update release notes on [www.intel.com](http://www.intel.com).

## 4.8. Installing and Uninstalling a Software Patch

Intel provides patches for the Quartus Prime and standalone Programmer software to address critical issues and protect your system against vulnerabilities.

### Installing a Software Patch

Once you have downloaded the patch you want to install, perform the OS-specific steps as follows:

#### On Linux Systems

1. Modify the patch installer file permission by running the `chmod +x <file_name>` command, which makes the file executable.
2. Run the patch installer file and proceed.
3. Accept the license agreement.
4. Specify the installation directory to update.
5. Proceed and complete the installation.

### On Windows Systems

1. Run the patch installer file. The **Patch Setup Wizard** appears.
2. Click **Next**. The **License Agreement** screen appears.
3. Accept the license agreement and proceed. The **Installation Directory** screen appears.  
The installer automatically detects the existing installation directory to update.
4. Verify if the installation directory is the one you want to update. If not, then indicate the correct installation directory.
5. Proceed and complete the installation.

*Note:*

- If a patch applies to both Quartus Prime and the standalone Programmer software, select the **Install patch to standalone Programmer and Tools installation**. Otherwise, by default, the patch is applied only to the Quartus Prime software installation.
- The **Allow patches to be uninstalled** option is on by default. It allows uninstalling the patches. However, it consumes additional disk space and slows down the installation process. You can choose to turn it off.

### Uninstalling the Patch

To uninstall a patch, use the **Uninstall** option from the **Start** menu shortcut on Windows or launch the uninstaller from the `<installation_directory>/uninstall` directory on Linux systems.

*Note:*

If you have more than one patch installed, you can uninstall patches only in the reverse order in which you installed them.

## 4.9. Uninstalling Intel FPGA Software

### 4.9.1. Uninstalling on Windows\*

1. Right-click on the Windows\* Start menu and click **Apps and Features**.
2. Point to `<software name> <version number>` > **Uninstall** `<software name> <version number>`.

The installation wizard appears and guides you through the uninstallation process.

### 4.9.2. Uninstalling on Linux

1. Ensure that none of your project files are contained in the Intel FPGA software installation directory
2. Delete the software directory.

## 4.10. Troubleshooting Installation Issues

If your installation of Intel FPGA software hangs, use the following steps to troubleshoot:

- Ensure your system meets the [hardware](#) and [software](#) requirements.
  - Ensure that your operating system is supported. Refer to [Operating System Requirements](#) on page 11 for more information.
  - Check if the [disk space](#) is sufficient for the Intel FPGA software installation.
  - If you are running any antivirus software, temporarily disable it during the Quartus Prime software download and installation process.
- Install with *Administrator* privileges.
- Verify the checksum values of the installation files to detect any file corruption.
- Retry the download and installation process with the latest software packages.

The following articles carry solutions to some of the frequently asked questions:

- [Why does the Quartus Prime installer fail on some Linux platforms?](#)
- [Why does the installation of the Quartus Prime Pro Edition Software hang during silent installation with System Center Configuration Manager \(SCCM\)?](#)
- [FLEXIm software error: Version of vendor daemon is too old \(11.16.1.0\)](#)
- [How do I install Cygwin for SoC EDS?](#)
- [How can I improve the security of my Quartus Prime Software installation?](#)
- [Why do my tar packages fail to unpack successfully?](#)
- [Which version of Intel SoC FPGA Embedded Development Suite \(SoC EDS\) version should I install for Quartus Prime edition software version 20.2?](#)
- [Why does Windows 10 crash when Nios EDS tools are used under WSL?](#)
- [Why is there a new installation file for the Quartus Prime Pro Edition version 18.1 Update 2 software for Linux?](#)
- [FlexIm software error: version of vendor daemon is too old](#)
- [Why does the Quartus Prime Pro and Standard Edition version 18.1 fail to run on Ubuntu 18.04 LTS?](#)
- [Why does get an error when hosting an Intel FPGA Software License and a Mentor Graphics license on the same server?](#)
- [What extra libraries do I need to install to use the Quartus Prime software and related tools on Linux?](#)

*Tip:*

If you are facing any issue not listed in this topic, explore [Intel FPGA Knowledge Base](#) articles or post your query on [Intel FPGA Software Installation & Licensing](#) forum.

## 5. Licensing Intel FPGA Software

Most Intel FPGA software requires using a license to enable the software. Intel provides this license in a file named `license.dat`. The Quartus Prime Lite Edition is free and does not require license. Questa\*-Intel FPGA Starter Edition is also free, but requires zero cost licenses. The Quartus Prime Pro Edition software requires no license for Cyclone 10 GX devices only.

When you purchase an Quartus Prime software subscription, the license file supports:

- The version of the Quartus Prime software you purchase
- All previous supported versions
- All versions released within a year of the purchase date

Most license entitlements for Quartus Prime software and Intel FPGA IP cores are perpetual. Any exceptions for products or complementary tools such as Questa\*-Intel FPGA Edition are noted in the license file and on the Self Service License Center as having a license expiration date.

Intel also uses licenses to enable additional software, such as purchased IP cores. For more information about licensing conditions of Intel FPGA software, refer to [Summary of Intel FPGA Software Licenses Required](#) on page 42.

### Navigating Content Through Tasks

Use the following table to navigate this guide through user-tasks:

 <a href="#">Determine Hardware and Software Requirements</a>	 <a href="#">Download Intel FPGA Software through the installer or manually</a>	 <a href="#">Install Intel FPGA Software</a>	 <ul style="list-style-type: none"> <li>• <a href="#">Evaluate the Quartus Prime Software</a></li> <li>• <a href="#">Obtain License from SSLC</a></li> </ul>	 <a href="#">Review Next Steps</a>
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### Related Information

[Intel FPGA Self-Service Licensing Center](#) on page 7

## 5.1. Summary of Intel FPGA Software Licenses Required

Intel provides licenses for purchased versions of the Quartus Prime software, the Questa\*-Intel FPGA Edition software, purchased IP cores, development kits, and university program software.

Intel Corporation. All rights reserved. Intel, the Intel logo, and other Intel marks are trademarks of Intel Corporation or its subsidiaries. Intel warrants performance of its FPGA and semiconductor products to current specifications in accordance with Intel's standard warranty, but reserves the right to make changes to any products and services at any time without notice. Intel assumes no responsibility or liability arising out of the application or use of any information, product, or service described herein except as expressly agreed to in writing by Intel. Intel customers are advised to obtain the latest version of device specifications before relying on any published information and before placing orders for products or services.

\*Other names and brands may be claimed as the property of others.

**Table 11. Summary of Intel FPGA Software Licenses Required**

Software/IP	License Key Required?	Licensing Cost Involved?	Description
Quartus Prime Lite Edition	No	No	Supports fixed node and floating license. For more information, refer to <a href="#">Quartus Prime Software License</a> on page 45.
Quartus Prime Pro Edition Quartus Prime Standard Edition	Yes	Yes	Supports fixed-node and floating licenses. You must choose one of them. <i>Note:</i> There is a single ordering code for Quartus Prime Software, which includes licenses for both Pro and Standard Editions. Buy subscription from one of the distributors under <a href="#">Distributor Partner Directory</a> . For more information, refer to <a href="#">Quartus Prime Software License</a> on page 45.
Questa*-Intel FPGA Starter Edition	Yes	No	Supports fixed-node and floating license. The Questa*-Intel FPGA Starter Edition Software does not support companion licenses. For additional information, refer to <a href="#">Questa*-Intel FPGA Edition</a> and <a href="#">Questa*-Intel FPGA Starter Edition Software License</a> on page 45.
Questa*-Intel FPGA Edition	Yes	Yes	Free with the purchase of the Quartus Prime software. Supports fixed-node and floating licenses. The Questa*-Intel FPGA Edition Software does not support companion licenses. You can also purchase the license separately from one of the distributors under <a href="#">Distributor Partner Directory</a> . License fee includes 12 months of maintenance renewable annually. For additional information, refer to <a href="#">Questa*-Intel FPGA Edition</a> and <a href="#">Questa*-Intel FPGA Starter Edition Software License</a> on page 45.
Intel Simics simulator for Intel FPGAs	No	No	Needs no additional license. You just need to accept the EULA when you install the software.
FPGA AI Suite	Yes	Yes (only for unlimited inferences)	You can download and run limited number of inferences for free. To run unlimited inferences on hardware, you must purchase FPGA AI Suite software from an <a href="#">Intel authorized distributor</a> . For additional information, refer to <a href="#">FPGA AI Suite: Getting Started Guide</a> .
DSP Builder for Intel FPGAs	Yes	Yes	A DSP Builder supports fixed-node and floating license. <ul style="list-style-type: none"> <li>A 30-day evaluation license is free. For more details, refer to <a href="#">DSP Builder for Intel FPGAs</a>.</li> <li>After 30-day evaluation license expires, you must purchase the license from an <a href="#">Intel authorized distributor</a>.</li> </ul> For additional information, refer to <a href="#">DSP Builder for Intel FPGAs (Advanced Blockset): Handbook</a> .
Intel Advanced Link Analyzer	No	No	
Intel FPGA Power and Thermal Calculator	No	No	
Intel oneAPI Base Toolkit	No	No	
Intel SoC FPGA Embedded Development Suite	Yes	Yes	There are no licensing differences between the Pro and Standard SoC EDS editions. None of the components included with the SoC EDS require a license. Only the Arm* Development Studio for Intel SoC FPGA Edition requires a license.

*continued...*

Software/IP	License Key Required?	Licensing Cost Involved?	Description
			<p>Arm* Development Studio Community Edition supports fixed-node license.</p> <ul style="list-style-type: none"> <li>• A 30-day evaluation license is free. For more information, refer to <a href="#">Arm* Development Studio for Intel SoC FPGA</a>.</li> <li>• After 30-day evaluation license expires, you must purchase the license from an <a href="#">Intel authorized distributor</a>.</li> </ul> <p>For additional information, refer to <a href="#">Intel SoC FPGA Embedded Development Suite (SoC EDS) User Guide</a>.</p>
IP Core	Varies	Varies	<p>All IPs are enabled for evaluation (at a minimum) upon installation of the combined Quartus Prime software and IP release. Production licenses for the <a href="#">IP Base Suite</a> are provided at no extra charge with each seat license of the Quartus Prime Pro Edition and Quartus Prime Standard Edition design software.</p> <p>Contact your local sales <a href="#">Intel authorized distributor</a> for support. For more details, refer to <a href="#">IP Evaluation and Purchase</a> and <a href="#">Intellectual Property (IP) Cores Licenses</a> on page 48.</p>
Siemens EDA* AXI Verification IP Suite	Yes	Yes	<p>To access it with the Quartus Prime Lite Edition software, you must upgrade to version 13.1 or higher and purchase seat licenses by contacting your Intel sales representative. For additional information, refer to <a href="#">Siemens EDA* AXI Verification IP Suite License (Intel FPGA Edition)</a> on page 49 and <a href="#">Siemens EDA* AXI Verification IP Suite</a> webpage.</p>

**Table 12. Other Licenses**

License	Description
Development Kits Containing the Quartus Prime Software	Development kits that include the Quartus Prime software include instructions for obtaining a license for that software. You can purchase development kits from the Development Kits, Daughter Cards & Programming Hardware page on Intel website. For more information, refer to <a href="#">Intel FPGA Development Kits</a> .
University Program Software Licenses	The University Program offers licensed and unlicensed FPGA software to participating universities. For use in teaching, the University Program recommends the Quartus Prime Lite Edition software, which does not require a license. The licensed commercial versions of the Quartus Prime Standard and Pro Edition software are available for installation in university laboratory facilities. Refer to the University Program pages on <a href="#">www.intel.com</a> for more information. For more information, refer to <a href="#">Intel FPGA Academic Program Teaching Materials</a> .

[Quartus Prime Software License](#) on page 45

[Questa\\*-Intel FPGA Edition and Questa\\*-Intel FPGA Starter Edition Software License](#) on page 45

[Intellectual Property \(IP\) Cores Licenses](#) on page 48

[Siemens EDA\\* AXI Verification IP Suite License \(Intel FPGA Edition\)](#) on page 49

#### Related Information

- [Development Kits, Daughter Cards and Programming Hardware](#)
- [University Program](#)

## 5.1.1. Quartus Prime Software License

### Quartus Prime Lite Edition Software License

Intel offers the entry-level Quartus Prime Lite Edition software. This software supports selected devices, provides limited feature support, and **does not** require license files.

### Quartus Prime Pro and Standard Edition License

Quartus Prime Pro Edition software and Quartus Prime Standard Edition software require a paid license (fixed or floating). However, before you purchase the license, you can obtain a [90-day no-cost evaluation license](#) from the Intel FPGA Self-Service Licensing Center that allows using the Quartus Prime software for 90 days for evaluation, including generating bitstream.

**Note:** The Quartus Prime Pro Edition software provides a free mode which supports Cyclone 10 GX devices only.

When you purchase an Quartus Prime subscription from one of the [distributors](#), you choose between a single-user license that is fixed to a specific computer, or a multi-user floating license.

- *Fixed license*—A stand-alone (node-locked, single-user) license is tied to the network interface card (NIC) ID of the computer on which you installed the software.
- *Floating license*—A floating network (multi-user) license is for users running the Quartus Prime software on multiple computers connected on a network. A license server issues licenses to computers on demand. Floating licenses are not specific to an operating system. If you want to run the FPGA software on additional computers, you can purchase additional seats to add to your floating license after its original purchase.

A subscription provides access to the Quartus Prime Pro Edition software, Quartus Prime Standard Edition, and the Questa\*-Intel FPGA Edition with one year of maintenance support. Once you have bought the subscription from one of the [distributors](#), your order gets processed, and license entitlements are set up and managed in the [Intel FPGA Self Service Licensing Center](#) (SSLC), where you can generate a license.dat file. This file enables you to use the software or IP product licensed, all previous versions, and all versions released within one year of the purchase date. For additional information, refer to [Using the Intel FPGA Self-Service Licensing Center](#) on page 59.

### Related Information

[License.dat Example Files](#) on page 84

## 5.1.2. Questa\*-Intel FPGA Edition and Questa\*-Intel FPGA Starter Edition Software License

Both Questa\*-Intel FPGA Edition and Questa\*-Intel FPGA Starter Edition require a valid software license. This license expires 12 months after the date of purchase. If you are looking for instructions to download and install Questa\*-Intel FPGA Edition and Questa\*-Intel FPGA Starter Edition, then follow the instructions provided in "*Downloading Individual Executable Files*" section to obtain the software and "*Installing Intel FPGA Software at the Command Prompt*" section to install.

## Generating the License

The Quartus Prime software requires a paid license (fixed or floating license subscription). A paid subscription provides access to the Quartus Prime Pro Edition software, Quartus Prime Standard Edition, and the Questa\*-Intel FPGA Edition with one year of maintenance support. Once you have bought the subscription from one of the [distributors](#), your order gets processed, and license entitlements are set up and managed in the [Intel FPGA Self Service Licensing Center](#) (SSLC), where you can generate a license.dat file. This file enables you to use the software or IP product licensed, all previous versions, and all versions released within one year of the purchase date.

Questa\*-Intel FPGA Starter Edition license is free and you can directly obtain it from the Intel FPGA Self Service Licensing Center (SSLC).

If you do not have access to SSLC, you must first complete registering to SSLC and create an account by visiting [Register for Intel FPGA Self Service Licensing Center \(SSLC\)](#).

*Note:*

- The Questa\*-Intel FPGA Edition software does not support [companion licenses](#). You must purchase additional licenses if you want to run the software on other computers.
- The Questa\*-Intel FPGA Edition software license does not support Remote Desktop access with node-locked, uncounted licenses.

Follow these steps to generate the license:

1. Go to the [Intel FPGA Self-Service Licensing Center \(SSLC\)](#).
2. Select the **Sign up for Evaluation or Free Licenses** option on the menu bar.
3. In the list of products displayed, select the desired option:
  - For Questa\*-Intel FPGA Starter Edition license, select the **Questa\*-Intel FPGA Starter Edition(License: SW-QUESTA)** option.
  - For Questa\*-Intel FPGA Edition license, select **Quartus Prime Software 90-Day Evaluation (Standard and Pro Editions) (License: EVALUATION-LIC)** option.
4. Under the **# of Seats** column, enter the number of seats you require.
5. Read the license terms of use.
6. Select the "I have read and agree to the terms of use of this license as listed below" check box.
7. Click **Get License**. A dialog box displays asking you to which computer should the license be assigned. You can use one of the following options:

- **Option 1:** Click **Create a New Computer** if you want to assign the license to a new computer. You must provide information about the required hardware and license type. For information about the license type, refer to [Intel FPGA Software License Types](#). For information about how to extract information about your computer hardware, refer to [Hardware Information Required When You Request a License](#).
  - **Option 2:** Click **Assign an Existing Computer** and search for the computer name/NIC ID that you have created previously in your **My Intel** account. To view your list of computers, use one of the following options:
    - Visit the **License Assistant** and select **Regenerate License by Primary Computer > View all computers** and select
    - On the SSLC menu bar, click **Computers and License Files** and select the desired option.
8. Click **Generate**. You receive an email with the license attached to your registered email address.
  9. Save the license.dat file on your computer (for example, ~/intelFPGA\_pro/LR-xxxxxx\_License.dat).

**Note:** Before using Questa\*-Intel FPGA Edition and Questa\*-Intel FPGA Starter Edition software, you must set an environment variable to point to the location of the license.

Questa\*-Intel FPGA Edition and Questa\*-Intel FPGA Starter Edition licenses appear as a FEATURE line inside the Quartus Prime license.dat file.

### **Setting Up the Questa\*-Intel FPGA Starter Edition Software License**

After you receive and save the license.dat file on your computer, follow these instructions:

**Note:** The Questa\*-Intel FPGA Edition software license does not support Remote Desktop access with node-locked, uncounted licenses.

#### **On Windows System**

1. Go to **This PC**, right-click, and select **Properties**.
2. Click **Advanced System Setting**.
3. In the **Advanced** tab, select **Environment Variable**.
4. Under **System variables**, create a new variable with the name as **LM\_LICENSE\_FILE** and value as <license.dat file path>.
5. Click **OK** and restart the Questa\*-Intel FPGA Edition software.

Alternatively, open a command prompt and run the following command to set up the **LM\_LICENSE\_FILE** environment variable:

```
setx LM_LICENSE_FILE <path_to_license_file>;%LM_LICENSE_FILE%
```

For example: `setx LM_LICENSE_FILE C:\intelFPGA\license.dat;%LM_LICENSE_FILE%`

You can also set up the Questa\*-Intel FPGA Edition software license using the Siemens EDA license daemon mgcl, which you can find in the <Questa - Intel FPGA Edition system directory>\ directory. Before starting the Questa\*-Intel FPGA Edition software, set the MGLS\_LICENSE\_FILE environment variable to the location and file name of the Questa\*-Intel FPGA Edition license file. For example:

```
MGLS_LICENSE_FILE (<Questa installation directory>/licenses/eda/license.dat)
or with the <port>@<hostname> notation, where <port> is the license port number
and <hostname> is the license server's host name. For example,
1900@my_lic_server.
```

### On Linux System

Run one of the following commands in a command prompt window:

```
export LM_LICENSE_FILE=<path to license>:$LM_LICENSE_FILE
setenv LM_LICENSE_FILE "<path_to_license_file>"
```

You can also set up the Questa\*-Intel FPGA Edition software license using the Siemens EDA license daemon mgcl, which you can find in the <Questa - Intel FPGA Edition installation directory>/ directory. Before starting the Questa\*-Intel FPGA Edition software, set the MGLS\_LICENSE\_FILE environment variable to the location and file name of the Questa\*-Intel FPGA Edition license file. For example:

```
MGLS_LICENSE_FILE (<Questa installation directory>/licenses/eda/license.dat)
or with the <port>@<hostname> notation, where <port> is the license port number
and <hostname> is the license server's host name. For example,
1900@my_lic_server.
```

### Renewing the License

The software license expires 12 months after the date of purchase. To renew an expired license file, revisit the [SSLC](#). You can renew a license only for the version that you purchased.

### 5.1.3. Intellectual Property (IP) Cores Licenses

You only need to purchase a full production license for licensed Intel FPGA IP cores after completing hardware testing and you are ready to use the IP in production. The rest of the time, you can use the Intel FPGA IP Evaluation Mode feature to evaluate IP cores.

You must purchase the license and generate a full production license key before you can generate an unrestricted device programming file. During Intel FPGA IP Evaluation Mode, the Quartus Prime Compiler only generates a time-limited device programming file (<project name>\_time\_limited.sof) that expires at the time limit.

Intel licenses IP cores on a per-seat, perpetual basis. The license fee includes first-year maintenance and support. You must renew the maintenance contract to receive updates, bug fixes, and technical support beyond the first year.

Purchase a license through your local sales office or distributor. Intel FPGA partners can deliver third-party IP cores for evaluation with the appropriate license.

#### Related Information

- AN 320: Using Intel FPGA IP Cores Evaluation Mode
- AN 343: OpenCore Evaluation of AMPP Megafunctions
- Intellectual Property and Reference Designs
- Intel FPGA Self-Service Licensing Center

### 5.1.4. Siemens EDA\* AXI Verification IP Suite License (Intel FPGA Edition)

The Siemens EDA\* (formerly Mentor Graphics) Verification IP Suite (Intel FPGA Edition) provides bus functional models for simulation and verification. This software requires a license file.

If you are using a legacy version of Quartus II software (prior to version 12.1) and want to upgrade your software, you must regenerate your license file before continuing to use the [Siemens EDA\\* AXI Verification IP Suite \(Intel FPGA Edition\)](#) Bus Functional Models (BFMs) and Inline Monitor (Siemens EDA\* Verification IP Suite (Intel FPGA Edition)) for AXI4.

*Notice:* The Siemens EDA\* AXI Verification IP Suite License (Intel FPGA Edition) no longer supports the AXI3 BFM.

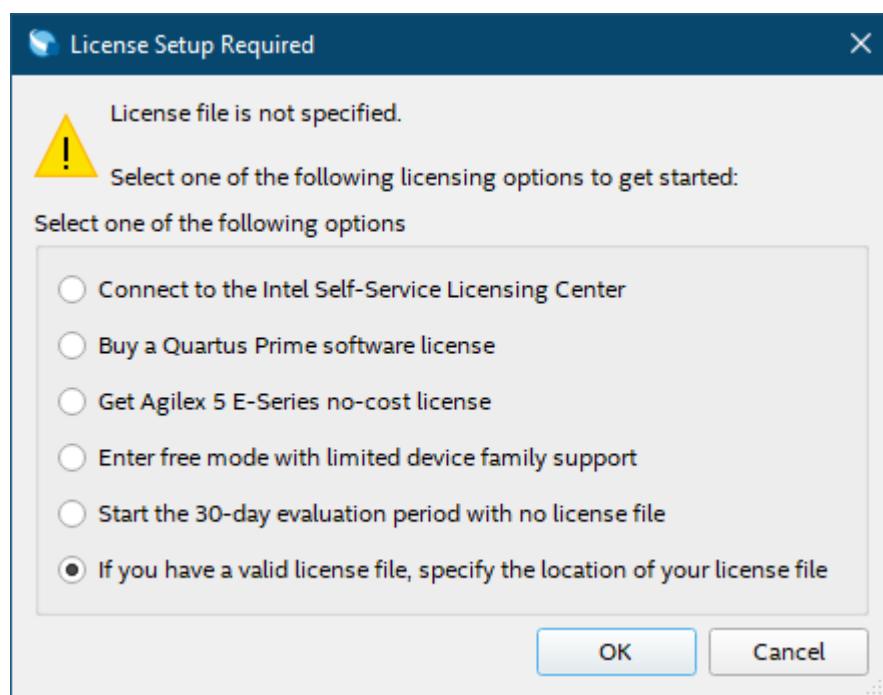
To access Siemens EDA\* Verification IP Suite (Intel FPGA Edition) with the Quartus Prime Lite Edition software, you must upgrade to version 12.1 or higher and purchase seat licenses by contacting your Intel sales representative.

## 5.2. Evaluating the Quartus Prime Software

You can evaluate the Quartus Prime software at no cost for a period of time.

When you start the Quartus Prime software, if the software cannot detect a valid license file, the **License Setup Required** dialog box displays with the available licensing options:

**Figure 5.** License Setup Required Dialog Box



**Table 13.** Quartus Prime Software Licensing Options

Option	Description
<b>Connect to the Intel Self-Service Licensing Center</b>	Launches the <a href="#">Intel FPGA Self-Service Licensing Center</a> , which allows you to view, request, activate, and manage your software licenses.
<b>Buy a Quartus Prime software license</b>	Launches your default Internet browser and displays the Buy Design Software page of <a href="http://www.intel.com">www.intel.com</a> , where you can view and purchase software.
<b>Get Agilex 5 E-Series no-cost license</b>	Acquires an Agilex 5 E-Series no-cost license file. Alternatively, once you launch the Quartus Prime Pro Edition software, you can obtain the Agilex 5 E-Series no-cost license file using the <b>Get Agilex 5 E-Series no-cost license</b> button by navigating to <b>Tools &gt; License Setup</b> .
<b>Enter free mode with limited device family support</b>	Supports only Cyclone 10 GX devices. <i>Note:</i> This mode is available only for Quartus Prime Pro Edition software.
<b>Start the 30-day evaluation period with no license file</b>	Allows using the Quartus Prime software for 30 days and generating bitstream. <i>Tip:</i> Select this option to evaluate the software before purchase.
<b>If you have a valid license file, specify the location of your license file</b>	Displays the <b>License Setup</b> page of the <b>Options</b> dialog box where you can specify the location of your license file.

### Related Information

[Agilex 5 E-Series No Cost License](#)

## 5.3. Licensing Intel FPGA Software Walkthrough

To set up a license for Intel FPGA software, follow these steps:

1. [Obtaining Necessary Hardware Information](#) on page 51
2. [Requesting a License File from the Intel FPGA Self-Service Licensing Center](#) on page 51
3. Depending on the type of license that you use:
  - [Setting up a Fixed License](#) on page 52.
  - [Setting up a License in a Network License Server](#) on page 54.

### 5.3.1. Obtaining Necessary Hardware Information

To generate a license.dat file, Intel requires information about the computer on which you want to install the license.

The following table indicates what information you need, depending on the type of license and the license host's operating system.

**Table 14. Hardware Information Necessary for Intel FPGA software licenses**

License Type	OS	Hardware Information	Notes
Fixed license	Windows* or Linux	NIC ID or software guard ID	Legacy Quartus II software version 7.2 and earlier support software guards.
Floating license	Windows* or Linux license servers	NIC ID	Use the ID from a physical NIC card, not a virtual ID.
	UNIX license servers	Host ID	Equivalent to the NIC ID.

**Important:** If you use a floating license server for Intel FPGA software, you must upgrade to the latest license daemon software (v11.18.2.0 or later). Intel FPGA software version 22.1 and later does not work with older versions of the daemon software. To download the latest daemon software, visit the [Flexlm License Daemons for Intel FPGA Software](#) web page.

Refer to [Getting Hardware Information for License](#) on page 56 for instructions on obtaining the hardware information.

With the hardware information, you are ready to go to the [Intel FPGA Self-Service Licensing Center](#).

#### Related Information

[Getting Hardware Information for License](#) on page 56

### 5.3.2. Requesting a License File from the Intel FPGA Self-Service Licensing Center

You must log into the [Intel FPGA Self-Service Licensing Center](#) to create and manage your licenses. From the [Intel FPGA Self-Service Licensing Center Home](#) page, use the new License Assistant. You can find this assistant on the bottom right corner of every page. For detailed instructions about how to obtain and manage licenses in the Intel FPGA Self-Service Licensing Center, refer to [Using the Intel FPGA Self-Service Licensing Center](#) on page 59.



For new purchases, select one of the following options and navigate through the guided steps to generate and receive the license file by email:

- Find and generate license by License Activation Code
- View your unassigned licenses and generate license

Intel sends the license file to the email address in your My Intel account profile.

**Note:** If you do not receive your license email within 12 hours of requesting a license, or if you do not know all the required information to complete the process, contact customer support via the Help option in the Intel FPGA Self-Service Licensing Center.

If you have a floating, multi-user license, the FLEXIm licensing scheme allows you to set up two redundant license servers to serve licenses. You must request a license file for redundant servers from the Intel FPGA Self-Service Licensing Center.

For software, IP, or Development Kit legacy licenses with a maintenance expiration date prior to January 1, 2009, you can now obtain a license file via the Intel FPGA Self-Service Licensing Center's **Generate Legacy Licenses** option.

**Figure 6. Intel FPGA Self-Service Licensing Center**

### 5.3.3. Setting up a Fixed License

To set up a fixed license file (single user, single computer):

1. Create a security copy of any existing license.dat file.
2. Save the license.dat file on your local hard drive. The preferred location is:

— Linux:

```
/usr/local/flexlm/licenses
```

— Windows:

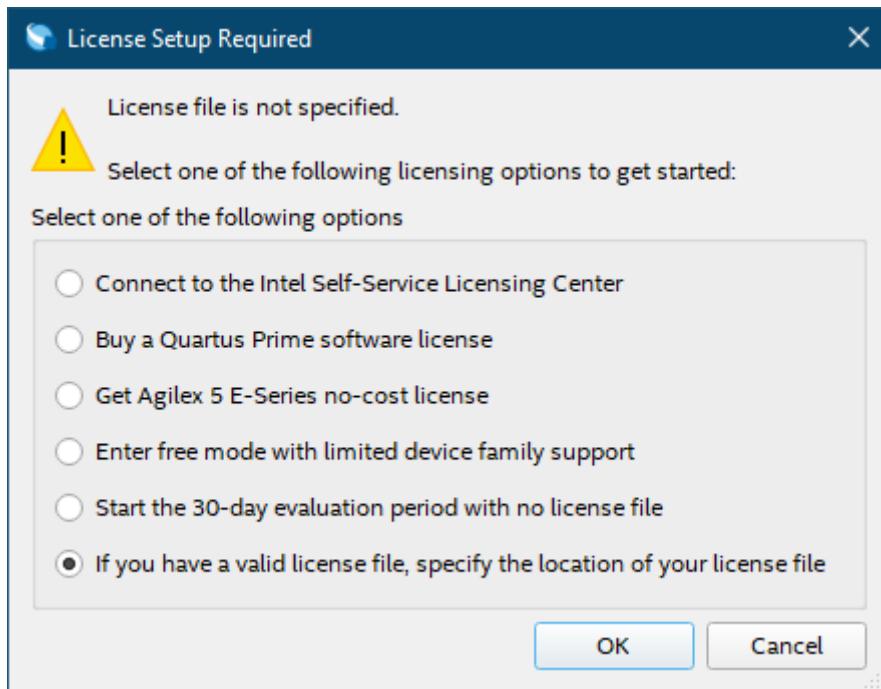
```
C:\licenses\flexlm
```

*Note:* If you save the file in other location, make sure that the path contains only alphanumeric characters, and do not include any special characters or symbols, such as !\$%^&\*<>, empty spaces, or non-English characters.

3. Start the Quartus Prime software.

If the Quartus Prime software cannot detect a valid license file, the **License Setup Required** dialog box prompts you to license, evaluate, or buy the software.

**Figure 7. License Setup Required Dialog Box**



4. Select **If you have a valid license file, specify the location of your license file**, and click **OK**.  
The **License Setup** page on the **Options** dialog box appears.
5. In the **License file** box, specify the full path name of the license.dat file, and click **OK**.

Alternatively, you can specify the license file location by using the `LM_LICENSE_FILE` environment variable. However, the location that you specify in the **License Setup** dialog box supersedes `LM_LICENSE_FILE`.

## Related Information

[Setting Quartus Prime Environment Variables](#) on page 36

### 5.3.4. Setting up a License in a Network License Server

#### 5.3.4.1. Setting up a License File in the License Server

Perform the following steps in the license server:

1. Save the license.dat file. The preferred location is:

- Windows\*:

```
<drive>:\flexlm
```

- Linux:

```
/usr/local/flexlm/licenses
```

2. Identify the hostname of the license server.
3. If the license server uses Windows\*, specify the port number for the licensing manager.

- Choose a number outside of the 27000–28000 range, and unique on the machine.

In Linux systems, the FLEXIm license manager automatically chooses a free port between 27000 and 27009.

4. Modify the SERVER line in the license.dat file to include the hostname and port number of the license server.

```
SERVER <hostname> <8 or 12-character host or NIC ID> <host port number>
```

5. Identify the path to the alterad vendor daemon executable.<sup>(4)</sup>

- Windows\*:

```
<installation_directory>\bin64\alterad.exe
```

- Linux:

```
<installation-directory>/linux64/alterad
```

6. Optionally, identify the user-defined port numbers for the alterad daemons.

The FLEXIm software works with Internet firewalls that require you to specify port numbers in the license file on the SERVER line and each VENDOR or DAEMON line. The syntax to specify a port is PORT=<number>. Finally, you must allow firewall access to those port numbers.

7. Modify the VENDOR line in the license.dat file to include the path to the alterad daemon<sup>(5)</sup> and the daemon's port number.

```
VENDOR alterad <path/to/alterad> [port=<user-defined port number>]
```

---

<sup>(4)</sup> If the license server does not provide the necessary vendor daemon, copy the required daemon from another machine, save the file in a location on the license server, and specify the daemon location on the license server in the license file.

8. If you are using a license file for the Questa\*-Intel FPGA Edition software and/or Siemens EDA AXI BFM, identify the path to the Siemens EDA\* (formerly Mentor Graphics) vendor daemon executable mgcld. <sup>(4)</sup>
9. (Optional) Identify the user-defined port numbers for the mgcld daemon.  
Allow firewall access to those port numbers.
10. Modify the VENDOR line in the license.dat file to include the path to the mgcld daemon<sup>(5)</sup> and the daemon's port number.

```
VENDOR mgcld <path/to/mgcld> [port=<user-defined port number>]
```

When you complete all modifications, ensure the license file conditions are met.

### Example 2. Setting Up Floating Network Licenses on the License Server

The following example shows how to specify port numbers in a floating license file, where ports 1800, 1801, and 1802 provide access through a firewall.

```
SERVER myServer 0123456789ab 1800
VENDOR alterad ./alterad port=1801
VENDOR mgcld ./mgcld port=1802
```

With the modified license.dat file, you can set up the FLEXIm license manager on the license server, and finally start the license server.

#### 5.3.4.2. Launching the Licensing Server

The Quartus Prime software administers licensing for single or multiple users in a network installation with the FLEXIm license manager software.

The requisites to configure a new license server are:

- System administration (Administrator) privileges.
- A valid license.dat license file.
- (Linux only) To run the FLEXIm lmgrd license server manager, make sure that the /usr/tmp directory exists.

To launch a new license server:

1. At a command prompt, type:

- Windows\*

```
<installation-directory>\bin64\lmgrd -c \path\to\license.dat
```

- Linux:

```
<installation-directory>/linux/lmgrd -c /path/to/license.dat
```

For more information about using the license manager server, refer to *Configuring the License Manager Server*.

#### Related Information

- [Selecting the Installation Path](#) on page 31

<sup>(5)</sup> If the server path has spaces in it, enclose the full path in quotation marks.

- Configuring the License Manager Server on page 87
- Using the Intel FPGA Self-Service Licensing Center on page 59

### 5.3.4.3. Specifying a Network License Server in the Quartus Prime Software

1. Start the Quartus Prime software.  
If the **License Setup Required** dialog box opens, select **If you have a valid license file, specify the location of your license file**, and click **OK**.
2. Click **Tools > License Setup**.
3. In the **License file** box, specify the port and location of the licensing server, and then click **OK**.  
Use the `<port>@<hostname>` notation, where `<port>` is the license port number and `<hostname>` is the server's host name.  
*Note:* Separate multiple license servers and node locking license files with ":" (Linux) or ";" (Windows).

Alternatively, you can specify the license file location by using the `LM_LICENSE_FILE` environment variable. However, the location that you specify in the **License Setup** dialog box supersedes `LM_LICENSE_FILE`.

*Note:* If you are using the legacy Quartus II software version 7.2 or earlier, you must also use a software guard. Attach the software guard to a parallel or USB port on your computer.

## 5.4. Getting Hardware Information for License

This appendix shows how to obtain information about the computer on which you want to install the Intel FPGA software license. Most licenses require a network interface card (NIC) ID, which is the physical address of your Ethernet card.

**Table 15. Hardware Information Necessary for Intel FPGA software licenses**

License Type	OS	Hardware Information	Notes
Fixed license	Windows* or Linux	NIC ID or software guard ID	Legacy Quartus II software version 7.2 and earlier support software guards.
Floating license	Windows* or Linux license servers	NIC ID	Use the ID from a physical NIC card, not a virtual ID.
	UNIX license servers	Host ID	Equivalent to the NIC ID.

### 5.4.1. Identifying Host's NIC ID

A network interface card (NIC) ID is a 12-digit hexadecimal string embedded in the network card that uniquely identifies a computer. You must identify the NIC ID of the computer that hosts the software installation or the license server.

*Note:* If you have a triple redundant license server for floating licenses, the first server that you specify is the master. Use the master server's NIC ID or host ID.

#### 5.4.1.1. Finding the NIC ID for Windows

Use the ipconfig utility to find the NIC ID on Windows.

- At a command prompt, type:

```
ipconfig /all
```

The command prints network information. The NIC Address appears as **Physical Address**.

**Figure 8. NIC ID in Output of ipconfig Command**

```
Ethernet adapter Ethernet 2:  
  
Connection-specific DNS Suffix . :  
Description . . . . .  
Physical Address . . . . .  
DHCP Enabled. . . . .  
Autoconfiguration Enabled . . . . .  
IPv4 Address. . . . .  
Subnet Mask . . . . .  
Default Gateway . . . . .  
DNS Servers . . . . .  
  
Primary WINS Server . . . . .  
Secondary WINS Server . . . . .  
NetBIOS over Tcpip. . . . .
```

If the system has more than one network card, you can use the NIC ID of any network card connected to the computer.

#### 5.4.1.2. Finding the NIC ID on Linux

Use the ifconfig utility to find the NIC ID on Linux.

- At a command prompt, type:

```
/sbin/ifconfig eth0
```

The command prints network information. The NIC Address appears as **HWaddr**.

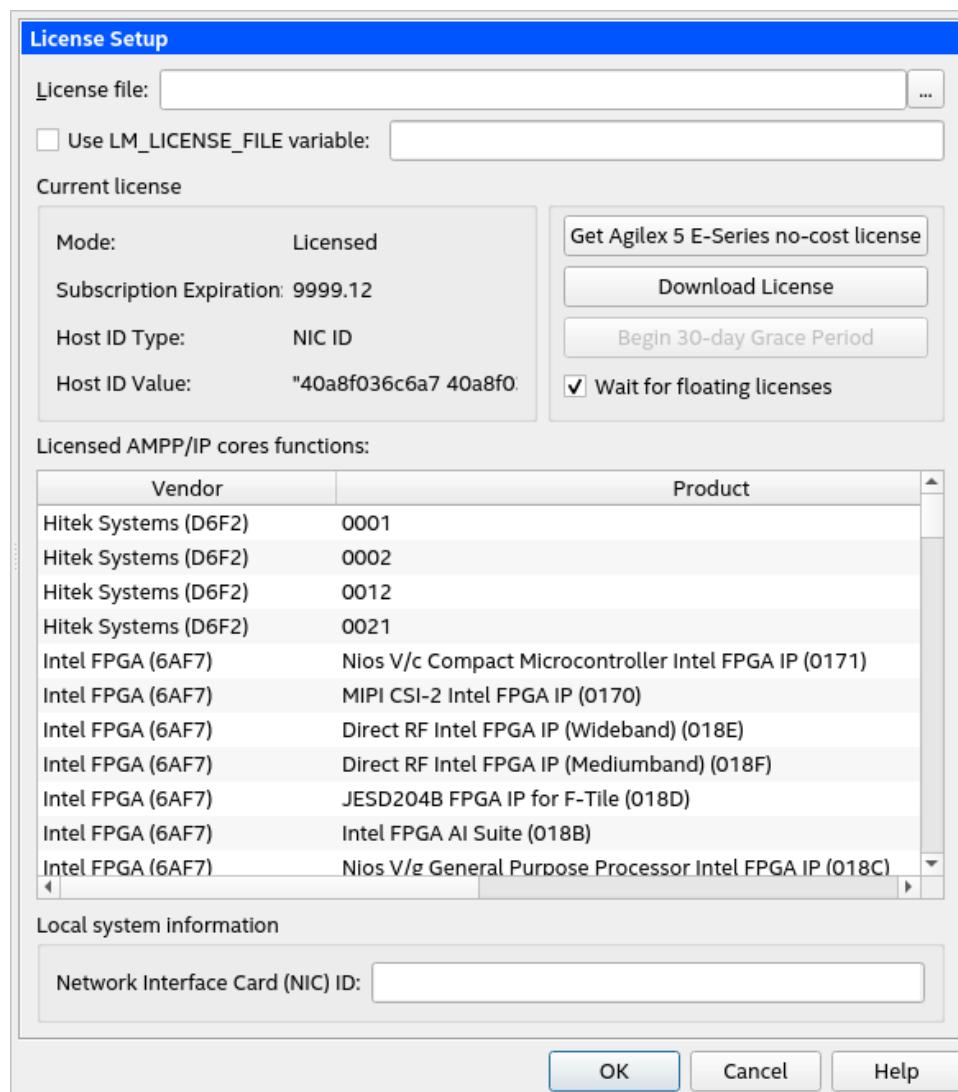
**Figure 9. NIC ID in the Output of ifconfig Command**

```
~ /sbin/ifconfig eth0  
eth0 Link encap:Ethernet HWaddr [REDACTED]  
      inet addr: [REDACTED] Bcast: [REDACTED] Mask:  
      inet6 addr: [REDACTED] Scope:  
      UP BROADCAST RUNNING MULTICAST MTU: [REDACTED] Metric:  
      RX packets: [REDACTED] errors: [REDACTED] dropped: [REDACTED] overruns: [REDACTED] frame:  
      TX packets: [REDACTED] errors: [REDACTED] dropped: [REDACTED] overruns: [REDACTED] carrier:  
      collisions: [REDACTED] txqueuelen: [REDACTED]  
      RX bytes: [REDACTED] TX bytes: [REDACTED] Memory: [REDACTED]
```

#### 5.4.1.3. Finding the NIC ID in the Quartus Prime Software

Use the following method to find the NIC ID in the Quartus Prime software:

- Display the **License Setup** settings by clicking **Tools > License Setup**.

**Figure 10. NIC ID in License Setup Settings**


The computer's NIC ID appears under **Local System info** in the **Network Interface Card (NIC) ID** field.

#### 5.4.1.4. Finding the NIC ID on Windows\* Using FLEXIm Utilities

- At a command prompt, type:

```
<installation-directory>\bin64\lmutil lmhostid
```

#### Related Information

[Selecting the Installation Path](#) on page 31

## 5.4.2. Identifying the UNIX Host ID

The license server host ID for UNIX is equivalent to the NIC ID.

## 5.4.3. Locating Your Hard-Disk Serial Number

Some versions of software use the hard disk serial number for licensing. A hard-disk serial number is an eight-character hexadecimal ID that identifies the PC with the Intel FPGA license. If the ID is not eight characters, include a leading zero.

### 5.4.3.1. Finding the Hard-disk Serial Number on a Windows\* PC

- Type the following command at a command prompt:

```
vol c:
```

In the output of the command, the hard-disk serial number is the volume serial number.

### 5.4.3.2. Finding the Hard-disk Serial Number if the Quartus Prime Software is Installed on Your Computer

- Click **Tools > License Setup**. The hard-disk serial number appears under **Local Systems info** in the **C: drive serial number** field. Verifying the hard-disk serial number with the Quartus Prime software ensures that you use the correct hard-disk serial number if your PC has multiple hard drives.

## 5.4.4. Identifying the USB Software Guard ID

Legacy Quartus II software version 7.2 and earlier support software guards. A USB software guard ID is a ten-character alphanumeric number beginning with the letter T.

- If the Quartus Prime software is installed and the guard is attached, clicking the **Tools > License Setup**. Your software guard ID appears under **Local System info** in the **Software Guard ID** field.
- Otherwise, find the software guard ID on the printed label on the guard.

## 5.5. Using the Intel FPGA Self-Service Licensing Center

The Intel FPGA Self-Service Licensing Center allows you to view, request, activate, and manage your software licenses. You must have a My Intel account to access the Self-Service Licensing Center.

Besides requesting licensing files and activating software, you can perform the following tasks with the Self-Service Licensing Center:

- **View existing licenses:** You can view all your existing licenses, including their expiration dates, available rehosts, and licensed users.
- **Renew licenses:** You can renew your existing licenses.
- **Rehost licenses:** You can transfer your existing licenses from one computer to another. You have a total of three rehosts for each license.

- **Add seats to a floating license:** You can add seats to your existing floating licenses.
- **Manage license users:** You can specify the licensed user for each of your existing licenses.
- **View license history:** You can view the license file history for each computer that you add to your My Intel account.

Additionally, you can also split a floating license, obtain a checkout license, or obtain a companion license with the Self-Service Licensing Center.

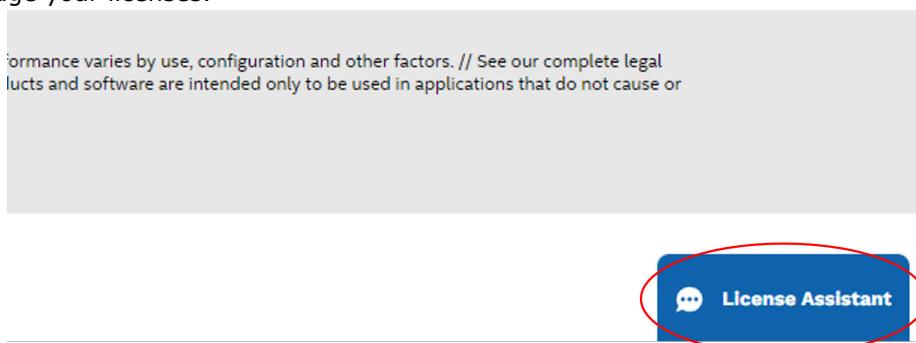
Refer to the following topics for detailed instructions:

#### Related Information

[Intel FPGA Self-Service Licensing Center](#)

### 5.5.1. Using the License Assistant

You can find the License Assistant link at the right corner of every page within the licensing center. Follow through the steps as guided by the License Assistant to manage your licenses.



You can perform the following tasks using the License Assistant:

**Table 16. Performing Licensing Tasks with License Assistant**

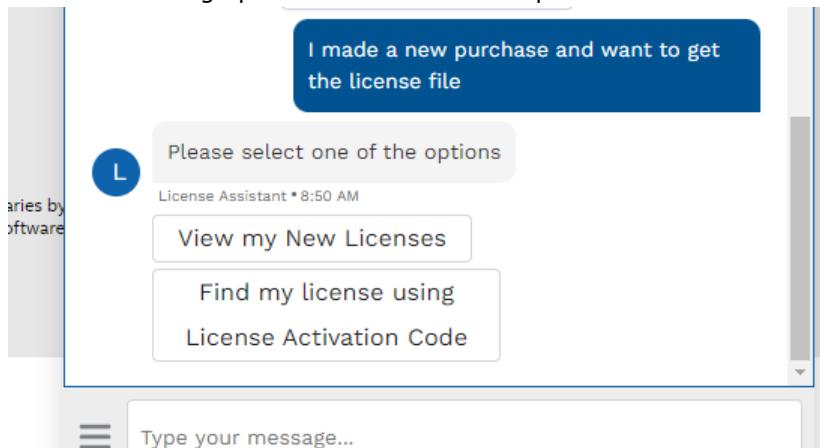
Task	Description
<b>Find and generate license through the License Activation Code</b>	The License Activation Code is the code that you receive in the delivery confirmation email from Intel or the distributor from whom you made the purchase.
<b>View your unassigned licenses and generating the license</b>	Unassigned licenses are your new licenses where you have not assigned a computer yet.
<b>Regenerate license by Primary Computer</b>	Use this option when you want to generate the latest license file for the licenses associated to your computer.
<b>Rehost and generate a license</b>	Using this option, you can change the computer on a specific license record, or you can edit the computer information (for example, changing primary computer ID, adding redundant or companion servers) and generate license.

*continued...*

Task	Description
<b>Renew and generate a license</b>	If you have recently made a renewal purchase and you want to apply the renewal purchase on your existing license to extend the dates and get the updated license file
<b>Create companion license for your fixed licenses</b>	A companion license grants license portability to a fixed product license. Each fixed product can be assigned up to three computers; an office, a lab, and a home computer if all are only used by the same person.
<b>Create a temporary checkout license for your floating licenses</b>	A checkout license enables portability for users with only floating seat licenses. The license administrator can issue a two-week fixed license, allowing one of the users to have access to the same product licenses from the network while traveling with a laptop.

### 5.5.2. Getting a License File with Your New Purchase

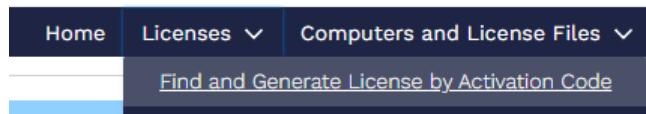
Select one of the following options and follow the steps in the License Assistance:



#### Option A: Finding Your License by Activation Code and Generating License

Follow these steps:

1. On the menu bar, select **Licenses > Find and Generate License by Activation Code.**



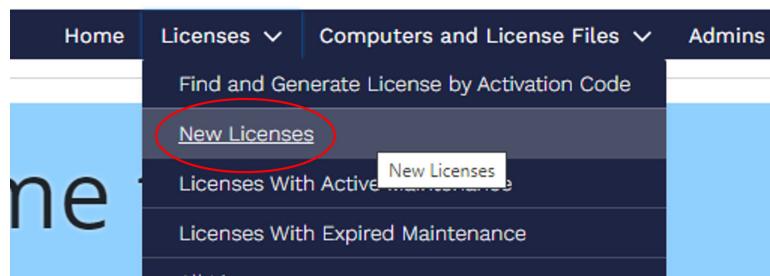
2. Enter the license activation code that you received in the email and click **Search**.
3. Select the license and click **Next**.
4. Assign a computer that you have previously added to your account or add a new computer.

#### Option B: Viewing Your New Licenses and Generating Licenses

Follow these steps:

1. On the menu bar, select **Licenses > New Licenses**.

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2. Click the **License Name** link.
3. On the actions bar, click **Generate License**.
4. Assign a computer that you have previously added to your account or add a new computer.

### 5.5.3. Viewing Licenses

1. On the menu bar, select **Licenses**. The following default license list view appears.

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**Table 17. Default Licenses**

License Type	Description
New Licenses	Use this option to view licenses that do not have a computer assigned yet or your renewal and add seat licenses.
Licenses with Active Maintenance	Use this option to view all licenses that are under active maintenance.

*continued...*

License Type	Description
Licenses with Expired Maintenance	Use this option to view all licenses that have not expired but maintenance support has ended.
All Licenses	Use this option to view all licenses in your account excluding the Legacy Licenses.
Legacy Licenses	Use this option to view all non-expired licenses with a maintenance expiration date prior to 1st, January 2009.

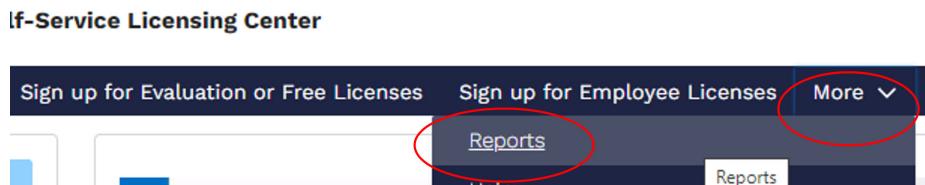
2. To search licenses, select one of the license types under the **License** menu and type the search keyword in the **Search this list** field.
3. Click **Printable View** to export the list of licenses.
4. To view a license detail, click the **License Name** link in any of the license list view as described in the table above .

#### 5.5.4. Filtering Your Licenses

You can use one of the following methods to filter and view your licenses:

##### Filtering and Exporting Licenses Using Reports

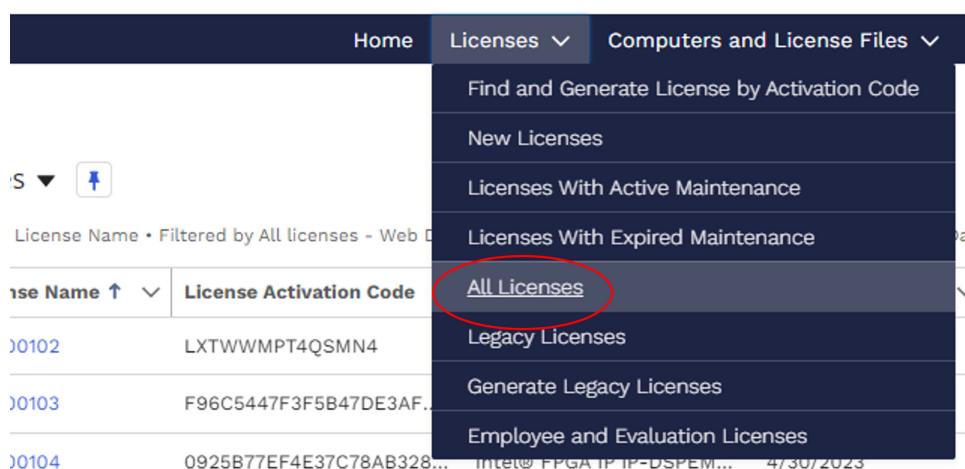
1. On the menu bar, select **Reports**.



2. Select **All Reports** in the **Reports** left navigation. The following license related reports appear:
  - Active Maintenance Licenses
  - All Licenses
3. Click the **All Licenses** report.
4. Click the **Filters** icon in the report to apply filters and view the report.
5. Click the **Export** icon in the report to export the list of licenses either as a formatted report or details only report in the excel format.

##### Filtering Licenses Using Custom List Views

1. On the menu bar, select **Licenses > All Licenses**.



The screenshot shows the 'Licenses' dropdown menu open. The 'All Licenses' option is circled in red.

License Name ↑	License Activation Code
J0102	LXTWWMMPT4QSMN4
J0103	F96C5447F3F5B47DE3AF...
J0104	0925B77EF4E37C78AB328...

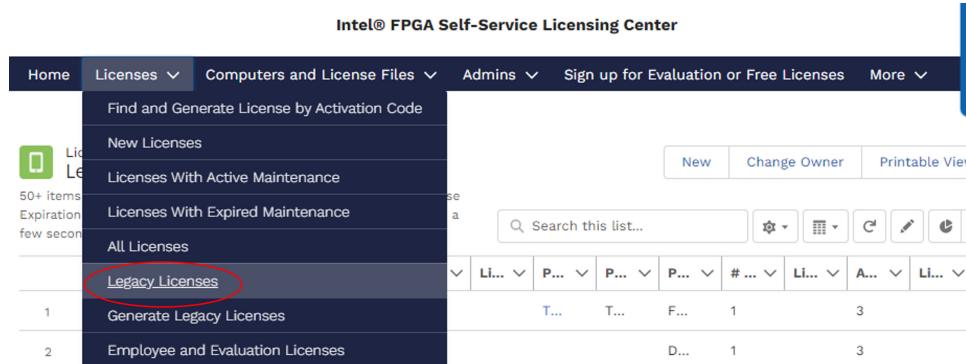
2. Click the **Gear** icon and select **Clone**.
3. Enter a name for your custom list view and click **Save**.
4. Click the **Filter** icon to modify the filter criteria to view the specific licenses that you desire.
5. Click the **Gear** icon and choose **Select Fields to Display** to modify the fields that you see in the list view.

### 5.5.5. Viewing and Generating a Legacy License

**Note:** Legacy licenses are non-expired licenses with a maintenance expiration date prior to 1st, January 2009.

#### Viewing a Legacy License

On the menu bar, select **Licenses > Legacy Licenses**.



The screenshot shows the 'Legacy Licenses' list page. The 'Legacy Licenses' link in the 'Licenses' dropdown menu is circled in red.

	New	Change Owner	Printable View
Search this list...			
Li... P... P... P... # ... Li... A... Li...	T... T... F... 1 3		
D...	1 3		

### Generating a Legacy License

1. On the menu bar, select **Licenses > Generate Legacy Licenses**.
2. For a copy of a legacy development kit, software, or IP license with a maintenance expiration date prior to January 1, 2009, enter your Software Guard, NIC ID, or Host ID. Refer to [Getting Hardware Information for License](#) on page 56 for more information.
3. Click **Get License**.

Intel® FPGA Self-Service Licensing Center

[Home](#) [Licenses](#) [Computers and License Files](#) [Admins](#) [Sign up for Evaluation or Free Licenses](#) [More](#)

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[ ] [Get Legacy Software/IP/Development Kit Licenses](#)

For a copy of a legacy development kit/software/IP license with a maintenance expiration date prior to January 1, 2009, please enter your Soft Guard, NIC ID or Host ID.([What's this?](#))and Click on Get License button.

Get License

### 5.5.6. Viewing Licenses or License Files Associated to a Computer

1. On the menu bar, select **Computers and License Files > Active Computers**.
2. Click the link in the Primary Computer ID column of your computer.
3. Click the **Entitlements** tab.

Intel® FPGA Self-Service Licensing Center

[Home](#) [Licenses](#) [Computers and License Files](#) [Admins](#) [More](#)

---

[ ] [License L-279574](#)

[Generate License](#) [Split Seats](#) [Add Licensed User](#) ▼

DETAILS	Related	
License Name	<a href="#">Related</a>	License Record Type <span style="color: blue;">(i)</span>
L-279574		Original
Status		Web Display Flag <input checked="" type="checkbox"/>
Licensed		

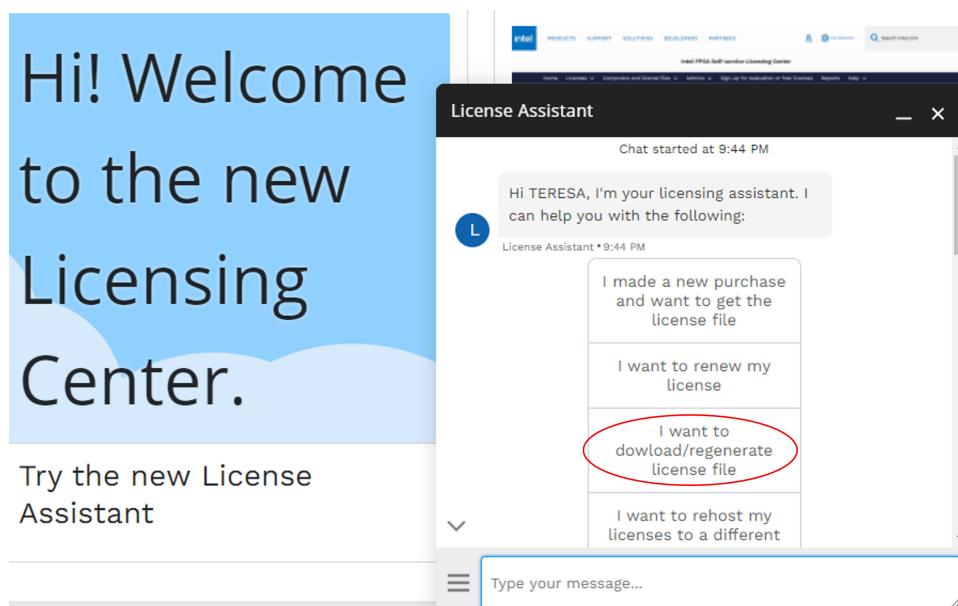
The **Licenses** section displays the licenses associated with the computer. The **License Generation Requests** section displays the previously generated license files for the computer.

### 5.5.7. Regenerating a License File

Use one of the following methods to regenerate a license file:

#### Regenerating License Using the License Assistant

Select the **Regenerate license by Primary Computer** option and follow the steps in the License Assistance.



### **Regenerating License Using Computers and License Files Menu**

1. On the menu bar, select **Computers and License Files > Active Computers**.
2. Click the link in the **Primary Computer ID** column of your computer.
3. On the actions bar, click **Generate License**.

The screenshot shows the "Intel® FPGA Self-Service Licensing Center" interface. At the top, there's a navigation bar with "Home", "Licenses", "Computers and License Files", "Admins", and "More". Below that, a license record is displayed for "L-279574". On the right, there's an actions bar with buttons for "Generate License" (which is circled in red), "Split Seats", "Add Licensed User", and a "Generate License" button. Under the "L-279574" section, there are tabs for "DETAILS" and "Related". In the "DETAILS" tab, there are fields for "License Name" (L-279574), "Status" (Licensed), "License Record Type" (Original), and "Web Display Flag" (checked). There are also "Edit" and "Delete" buttons.

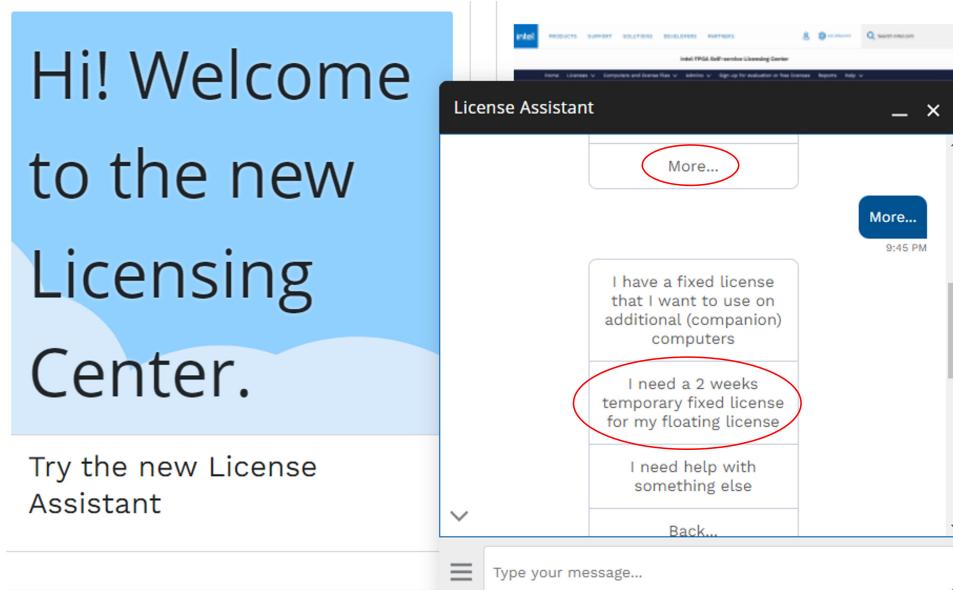
### **5.5.8. Generating a Temporary Checkout License**

Use one of the following methods to generate a temporary checkout license:

**Note:** A checkout license enables portability for users with only floating seat licenses. The license administrator can issue a two-week fixed license, allowing one of the users to have access to the same product licenses from the network while traveling with a laptop.

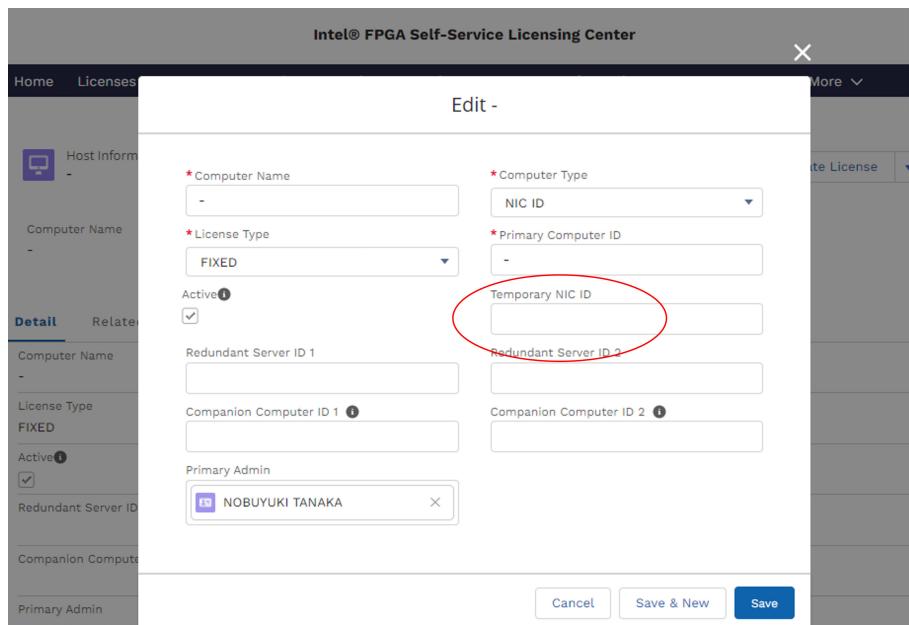
## Generating a Temporary Checkout License Using the License Assistant

Select the **Create Temporary Checkout License for Your Floating License** option and follow the steps in the License Assistance.



## Generating a Temporary Checkout License by Adding a Temporary NIC ID

1. On the menu bar, select **Computers and License Files > Active Computers**.
2. Click the **Primary Computer ID** link of the computer for which you want to generate a temporary checkout license.
3. Click **Edit**.
4. Enter the Temporary NIC ID.



The screenshot shows the 'Edit' screen for a license in the Intel® FPGA Self-Service Licensing Center. The 'Temporary NIC ID' field is circled in red.

Field	Value
Computer Name	-
Computer Type	NIC ID
License Type	FIXED
Primary Computer ID	-
Active	<input checked="" type="checkbox"/>
Temporary NIC ID	(highlighted)
Redundant Server ID 1	
Redundant Server ID 2	
Companion Computer ID 1	
Companion Computer ID 2	
Primary Admin	NOBUYUKI TANAKA

5. Click **Save**.
6. Click **Generate Temporary Checkout License**.

### 5.5.9. Generating a Companion License

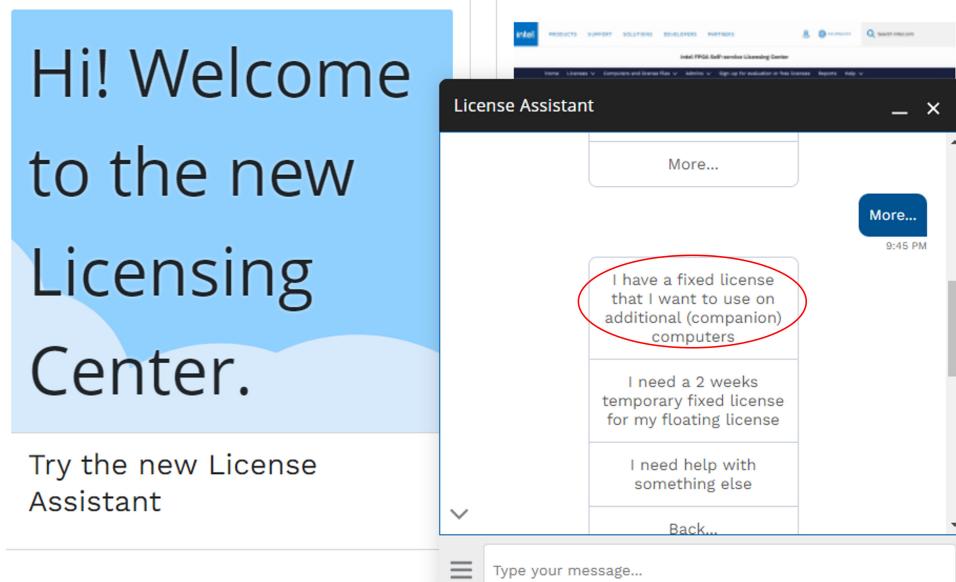
A companion license grants license portability to a fixed product license. Each fixed product can be assigned to up to three computers: an office, a lab, and a home computer if all are only used by the same person.

Use one of the following methods to generate a companion license:

**Attention:** The Questa\*-Intel FPGA Edition software does not support companion licenses. You must purchase additional licenses if you want to run the software on other computers.

#### Generating a Companion License Using the License Assistant

Select the **Create companion license for your fixed licenses** option and follow the steps in the License Assistance.



### Generating a Companion License by Adding Companion Computer ID Details

1. On the menu bar, select **Computers and License Files > Active Computers**.
2. Click the **Primary Computer ID** link for the computer for which you want to generate a temporary checkout license.
3. Click **Edit**.
4. Enter the Companion Computer ID1 and/or Companion Computer ID2.

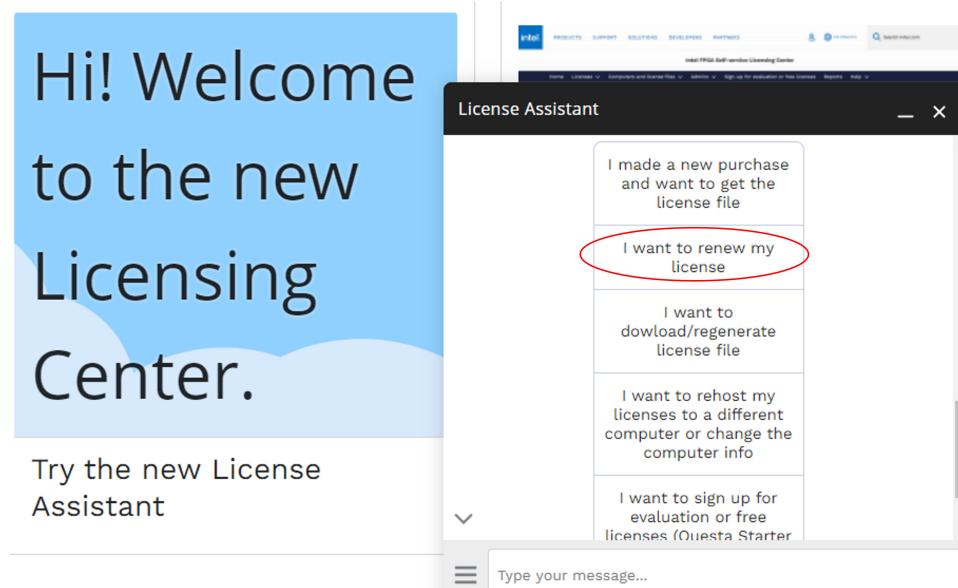
5. Click **Save**.
6. Click **Generate License**.

## 5.5.10. Renewing Your License

Use one of the following methods to renew your license:

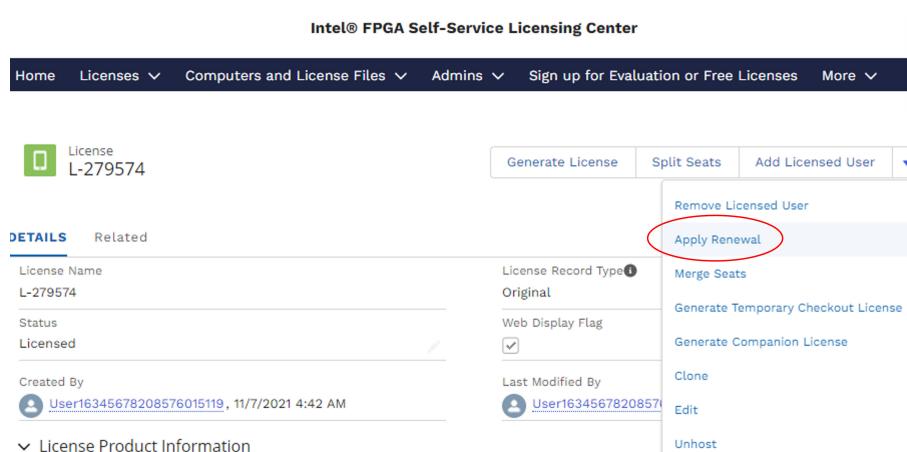
### Renewing License Using the License Assistant

Select the **Renew and Generate License** option and follow the steps in the License Assistance.



### Applying for Renewals Using the Licenses Menu

1. On the menu bar, select **Licenses > New Licenses**.
2. Click the **License Name** link of the license you want to use to renew your existing license.
3. On the drop-down menu in the **Actions** bar, click **Apply Renewal**.



4. Enter the number of seats to renew.
5. Select your existing eligible license to renew.

*Note:* You can only view licenses that are already assigned to a computer.

6. Select your existing eligible license to renew.
7. Click **Confirm**.

### 5.5.11. Managing a Computer Profile

Create a computer profile in the Intel FPGA Self-Service Licensing Center to allow the assignment of licenses.

1. Log in to the [Intel FPGA Self-Service Licensing Center](#).
2. On the menu bar, click **Computer and License Files > All Computers**. Existing computer profiles, if any, displays.
3. Click the **New** button to create a new computer profile.
4. Perform these steps in the **Create Computer** dialog box:
  - a. Type your computer name in the **Computer Name** field. You can specify any name meaningful to you in this field.
  - b. Select the **License Type** for your computer. Your software license type must match the license type (float or fixed) of any license you want to assign your computer.
  - c. Select the primary **Computer Type** for your computer. The primary computer type is the NIC ID, Host ID, or software guard ID.
  - d. Type your NIC ID, host ID, or software guard ID number in the **Primary Computer ID** field. For details about how to extract information about your computer hardware, refer to [Getting Hardware Information for License](#) on page 56 or [Hardware Information Required When You Request a License](#).
  - e. [FOR FIXED LICENSE] If you have a fixed license and want to use your license for multiple computers, you can specify up to two companion IDs in the **Companion ID** and **Companion ID 2** fields.  
Your companion ID is your NIC ID, Host ID, or software guard ID. You can use your license or associated companion license only on one computer at a time.
  - f. [FOR FLOATING LICENSE] If you have a floating license, you can set up your license on up to two redundant license servers. Type the NIC ID or Host ID for redundant servers in the **Redundant Server ID 1** and **Redundant Server ID 2** fields.
  - g. Click **Save** to save the profile.

To edit an existing computer profile:

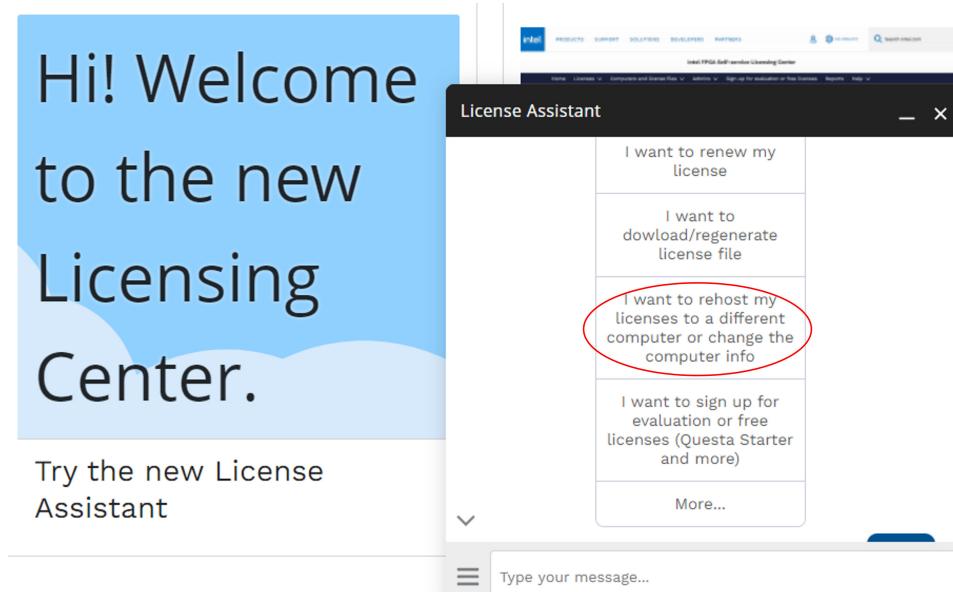
1. On the menu bar, click **Computer and License Files > All Computers**. Existing computer profiles, if any, displays in the **All Computers** table.
2. Click the drop-down arrow icon at the end of a computer profile entry and select **Edit**. Edit <profile\_id> dialog box displays.
3. Modify the profile details and click **Save**.
4. If you want to change the owner of the profile, then click the drop-down arrow icon at the end of a computer profile entry again and select **Change Owner**. Change Owner dialog box displays.
5. Search the new owner name in the search users field and click **Submit**. This triggers an email notification to the new owner.

## 5.5.12. Rehosting a License on a Different Computer

Use one of the following methods to rehost a license on a different computer:

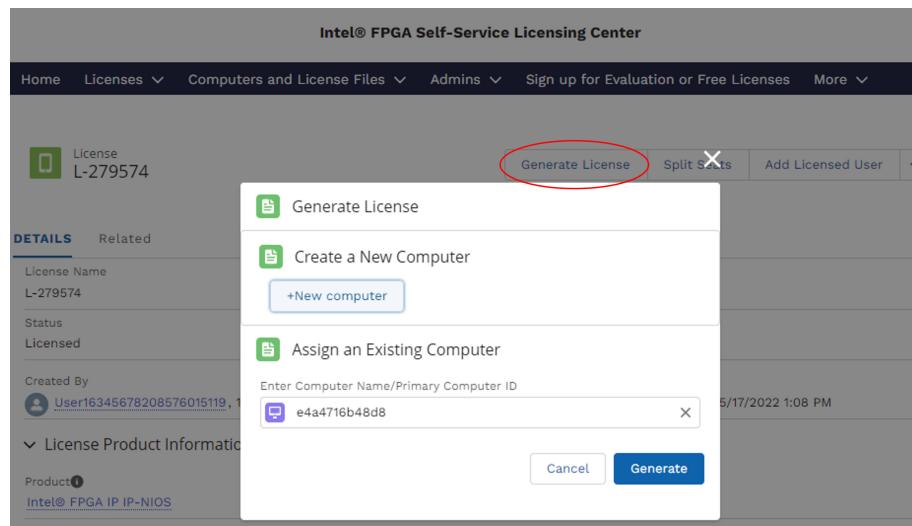
### Rehosting a License Using the License Assistant

Select the **Rehost and generate license** option to move a license to a different computer. Follow the steps in the License Assistance.



### Rehosting by Changing the Computer Associated With the License

1. On the menu bar, select **Licenses > All Licenses**.
2. Click the **License Name** link of the license that you want to rehost on a different computer.
3. On the actions bar, click **Generate License**.



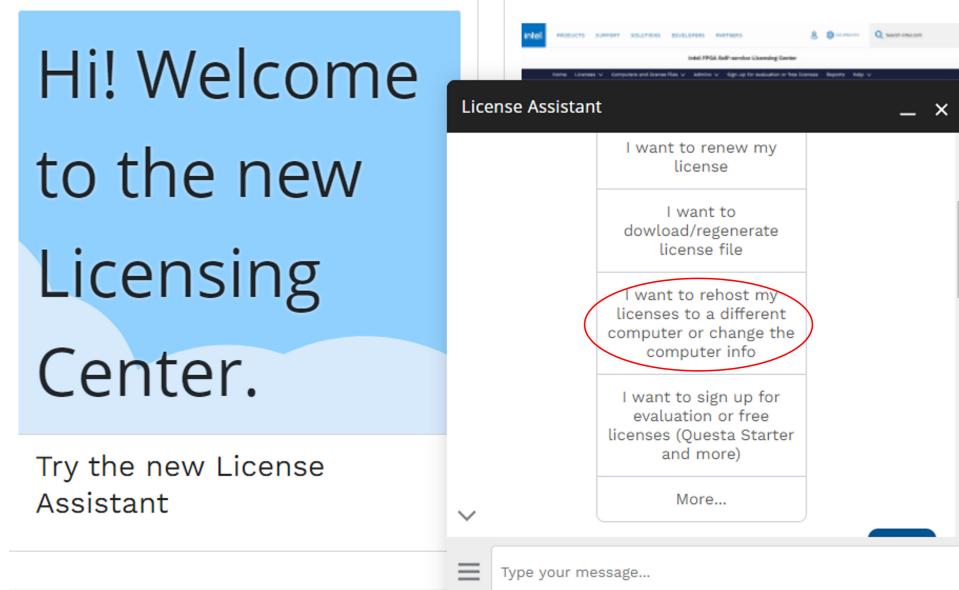
4. Create a new computer or use another existing computer.

### 5.5.13. Rehosting All Licenses from Current Computer to a Different Computer

Use one of the following methods to rehost all licenses:

#### Rehosting Licenses Using the Licenses Assistant

Select the **Rehost and generate license** option to change the computer information for all licenses. Follow the steps in the License Assistance.

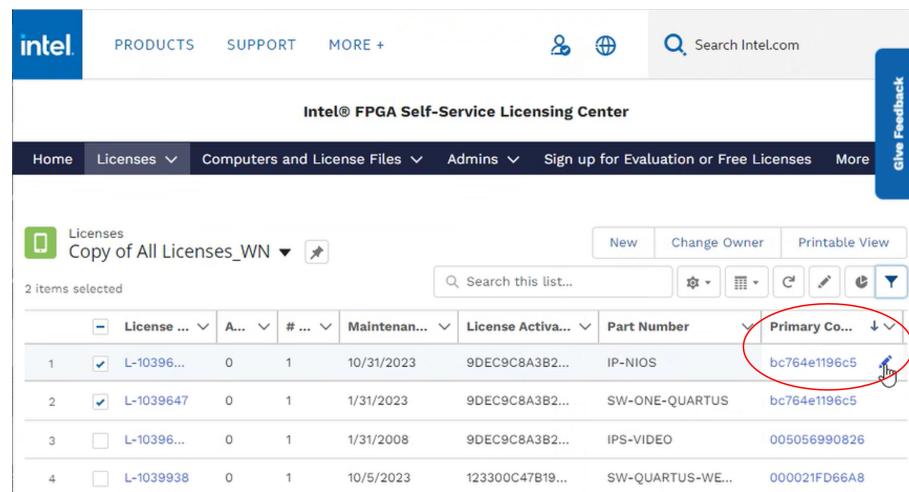


### Rehosting Licenses by Changing Computer Details

1. On the menu bar, select **Computers and License Files > Active Computers**.
2. Click the **Primary Computer ID** link of the computer that you want to edit.
3. On the action bar, click **Edit**.
4. Modify the computer details.
5. Click **Save**.

### 5.5.14. Rehosting Multiple/Partial Licenses from Current Computer to a Different Computer

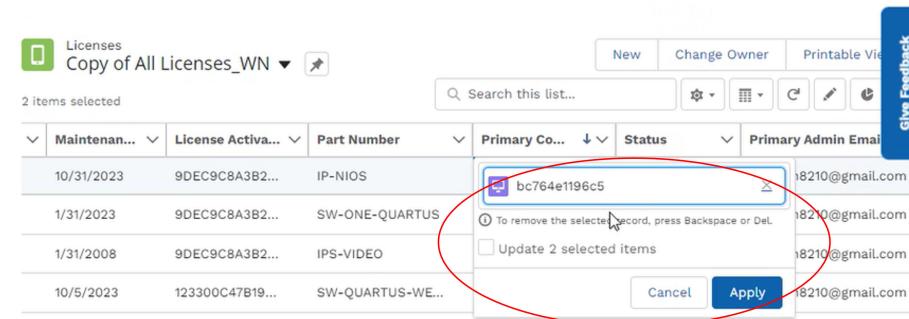
1. On the menu bar, select **Licenses > All Licenses**.
2. Select the **Multiple/Partial Licenses Name** link on the licenses that you want to rehost from the current computer to a different computer.
3. In the **Primary Computer** column, click the pencil icon.



The screenshot shows the Intel® FPGA Self-Service Licensing Center interface. The top navigation bar includes links for intel, PRODUCTS, SUPPORT, MORE +, user profile, and a search bar. Below the navigation is the title "Intel® FPGA Self-Service Licensing Center". The main content area has tabs for Home, Licenses, Computers and License Files, Admins, and a sign-up link. Under the Licenses tab, there's a sub-menu for "Licenses" and a dropdown for "Copy of All Licenses\_WN". A table lists four license entries. The columns include License ID, Activation Date, Part Number, Primary Computer ID, and Admin Email. The "Primary Computer" column header is circled in red. The first two rows have the "Primary Computer" field populated with "bc764e1196c5".

	License ...	A... # ...	Maintenan...	License Activat...	Part Number	Primary Co...
1	<input checked="" type="checkbox"/> L-10396...	0	1	10/31/2023	9DEC9C8A3B2...	IP-NIOS bc764e1196c5
2	<input checked="" type="checkbox"/> L-1039647	0	1	1/31/2023	9DEC9C8A3B2...	SW-ONE-QUARTUS bc764e1196c5
3	<input type="checkbox"/> L-10396...	0	1	1/31/2008	9DEC9C8A3B2...	IPS-VIDEO 005056990826
4	<input type="checkbox"/> L-1039938	0	1	10/5/2023	123300C47B19...	SW-QUARTUS-WE... 000021FD66A8

4. Change to the new host ID.



The screenshot shows the same Intel® FPGA Self-Service Licensing Center interface as the previous one, but with a modal dialog box open over the table. The dialog box is titled "bc764e1196c5" and contains a message: "To remove the selected record, press Backspace or Del." It also has a checkbox "Update 2 selected items" and two buttons: "Cancel" and "Apply". The background table and its data remain the same as in the previous screenshot.

5. Select the **Update selected items** option and click **Apply**.

## 5.5.15. Sharing a License with Another User

You can add or remove licensed users for your existing licenses. Licensed users are granted access to their assigned licenses.

### Adding a Licensed User

1. On the menu bar, select **Licenses > All Licenses**.
2. Click the **License Name** link on the license that you want to share with another user.
3. On the actions bar, click **Add Licensed User**.

The screenshot shows the 'Intel® FPGA Self-Service Licensing Center' interface. At the top, there's a navigation bar with 'Home', 'Licenses', 'Computers and License Files', 'Admins', and 'More'. Below the navigation bar, a license record is displayed: 'License L-279574'. To the right of the license name is a horizontal button bar with 'Generate License', 'Split Seats', and 'Add Licensed User'. The 'Add Licensed User' button is circled in red. Below the license name, there are tabs for 'DETAILS' and 'Related'. Under 'DETAILS', the 'License Name' is listed as 'L-279574' and 'License Record Type' is 'Original'. A vertical ellipsis icon is on the right side of the details section.

4. Enter the email address, first name, and last name of the user with whom you want to share this specific license.  
The licensed user receives an email notifying them that they have been added as a licensed user and now have access to the specific license that they have been assigned.
5. Click **Save**.

### Removing a Licensed User

1. On the menu bar, select **Licenses > All Licenses**.
2. Click the **License Name** link of the license for which you want to remove a user.
3. On the actions bar, click **Remove Licensed User** in the drop-down list.

The screenshot shows the 'Intel® FPGA Self-Service Licensing Center' interface. At the top, there's a navigation bar with 'Home', 'Licenses', 'Computers and License Files', 'Admins', and 'Sign up for Evaluation or Free Licenses'. Below the navigation bar, a license record is displayed: 'License L-279574'. To the right of the license name is a horizontal button bar with 'Generate License', 'Split Seats', and 'Add Licensed User'. A vertical ellipsis icon is on the right side of the button bar. A dropdown menu is open at the 'Add Licensed User' position, showing options: 'Remove Licensed User' (which is circled in red), 'Apply Renewal', 'Merge Seats', 'Generate Temporary Checkout License', and 'Generate Companion License'. Below the dropdown menu, there are tabs for 'DETAILS' and 'Related'. Under 'DETAILS', the 'License Name' is listed as 'L-279574' and 'License Record Type' is 'Original'. There's also a 'Web Display Flag' checkbox which is checked. A vertical ellipsis icon is on the right side of the details section.

### Related Information

- [Setting up a License in a Network License Server](#) on page 54

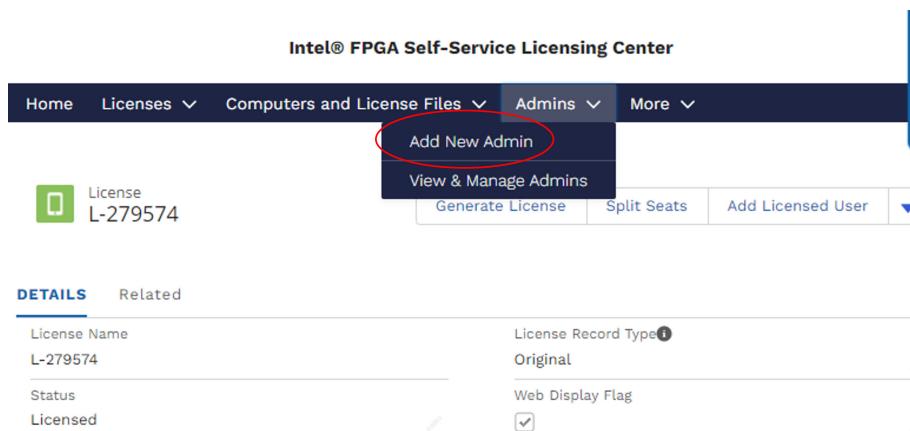
- Configuring the License Manager Server on page 87

## 5.5.16. Adding Delegate Administrators to Your Licenses and Computers

**Note:** Adding an administrator delegate provides access to all your licenses and computer.

### Adding a New Administrator

- On the menu bar, select **Admins > Add New Admin**.

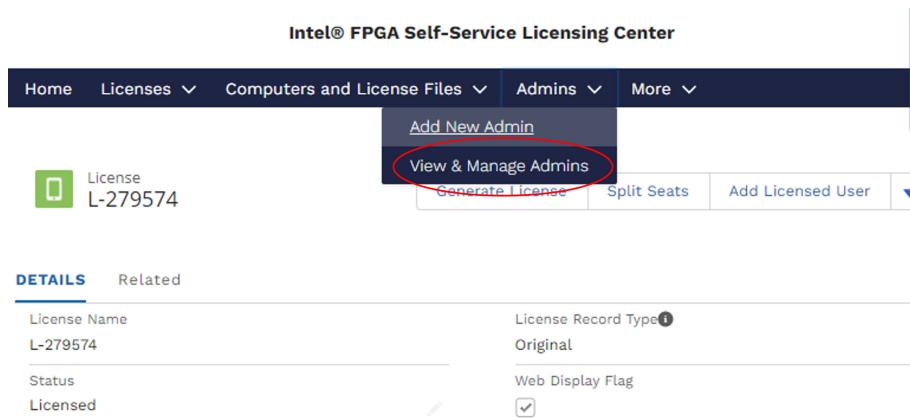


The screenshot shows the Intel® FPGA Self-Service Licensing Center interface. At the top, there is a navigation bar with links for Home, Licenses, Computers and License Files, Admins (which is currently selected and has a dropdown menu), and More. The Admins dropdown menu is open, showing two options: "Add New Admin" (highlighted with a red circle) and "View & Manage Admins". Below the navigation bar, there is a license card for "License L-279574". Underneath the license card, there are two tabs: "DETAILS" (selected) and "Related". The "DETAILS" tab displays information about the license, including its name, record type (Original), and status (Licensed). There is also a checkbox for "Web Display Flag" which is checked.

- Enter the first name, last name, and the email of the admin that you want to add.
- Click **Save**.

### Viewing the List of Administrators

- On the menu bar, select **Admins > View & Manage Admins**. A list of active additional administrators appears.

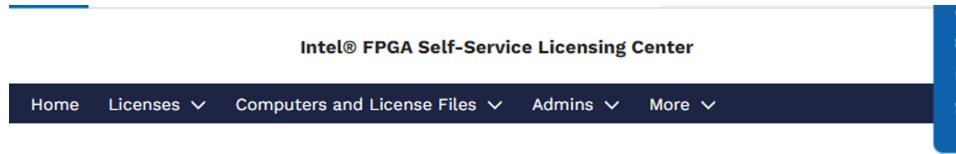


The screenshot shows the Intel® FPGA Self-Service Licensing Center interface, similar to the previous one but with a different menu selection. The "View & Manage Admins" option in the Admins dropdown menu is highlighted with a red circle. The rest of the interface is identical to the previous screenshot, showing the license details for "License L-279574" and the "DETAILS" tab with its respective fields.

- To view all administrators, including previously active administrators, change the list view drop-down from **My Active Delegate Admins** to **My Delegate Admins**.

## 5.5.17. Splitting Seats on Your License and Generating Licenses

1. On the menu bar, select **Licenses > All Licenses**.
2. Click the **License Name** link of the license where you want to split seats.
3. On the actions bar, click **Split Seats**.

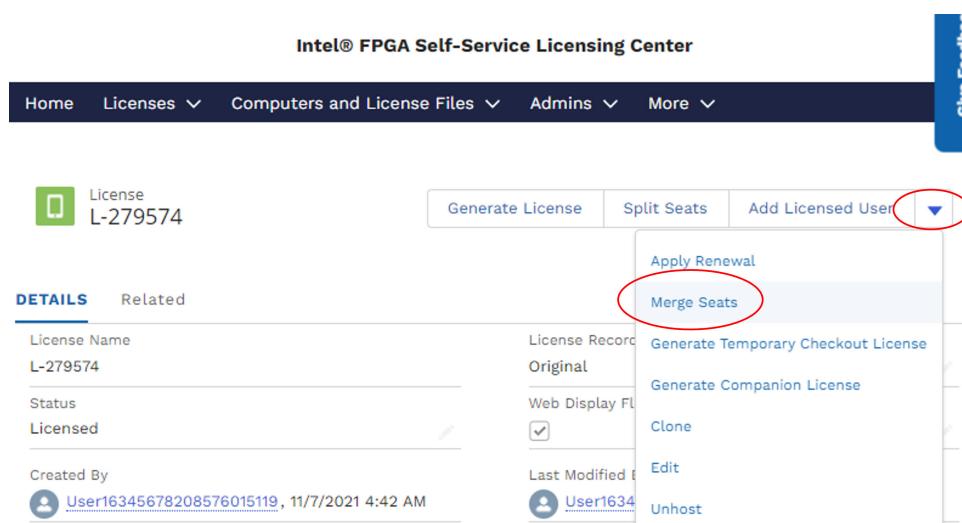


The screenshot shows the Intel® FPGA Self-Service Licensing Center interface. At the top, there's a navigation bar with links for Home, Licenses, Computers and License Files, Admins, and More. Below the navigation bar, there's a section for a specific license named "L-279574". On the right side of this section, there are three buttons: "Generate License", "Split Seats", and "Add Licensed User". The "Split Seats" button is circled in red.

4. Enter the number of seats to move.
  5. Select the number of servers to which you want to move the seat.
    - **Move the seat(s) to one server:** This means that your split seats are still residing in the same server.
    - **Move each seat to a unique server:** This means that your split seats are still residing in the same server, and you must perform a rehost to transfer them to another computer.
- The table shows the updated number of seats and products that you have.
6. Click **Confirm**.
  7. Click **Generate License** on each of the split license to assign a computer and get license file.

### 5.5.18. Merging or Adding Seats on Your License and Generating License

1. On the menu bar, select **Licenses > All Licenses**.
2. Click the **License Name** link for the license that you want to merge with another license.
3. On the actions bar, click the drop-down icon and select **Merge Seats**.



The screenshot shows the Intel® FPGA Self-Service Licensing Center interface. In the top right corner, there is a red circle around the 'Give Feedback' button. Below it, the main content area shows a license entry for 'L-279574'. On the right side of the license details, there is a dropdown menu with several options. One option, 'Merge Seats', is highlighted with a red circle.

4. Enter the number of seats to merge.
5. Select the license that you want to merge these seats with.
6. Click **Save**.

### 5.5.19. Adding Floating Seats

You can add floating seats to an existing floating license to increase the number of users available. Adding additional seats to an existing floating license may affect its maintenance expiration date.

1. Log in to the [Intel FPGA Self-Service Licensing Center](#).
2. On the menu bar, click **Licenses > All Licenses**.
3. Click the license name for which you want to add or remove a licensed user. License details page displays.
4. On the drop-down menu in the Actions bar, click **Merge Seats**.
5. Enter the number of seats to add.
6. Select the license that you want to merge these seats into.
7. Click **Save**.

When you add additional seats to an existing floating license, the new maintenance subscription term of the floating license is calculated by adding the total number of maintenance months for the existing and new seats, and then dividing by the total number of seats. Any partial number is rounded up to the nearest whole number.

#### Example 3. Floating License Example

If you have an existing floating license with ten seats that expires in five months and you purchase two additional seats, your updated floating license maintenance subscription might expire in seven months for all twelve seats.

### 5.5.20. Signing Up for an Evaluation or No-Cost License

1. Select **Sign up for Evaluation or No-Cost Licenses**.

Home   Licenses ▾   Computers and License Files ▾   **Sign up for Evaluation or No-Cost Licenses**   More ▾

Select Product & Add Additional Details   Add Host & Generate License

Web Description	Maintainance Expiration ⓘ	License Expiration ⓘ
<input checked="" type="radio"/> Intel® Quartus® Prime Software 90-Day Evaluation (Standard and Pro Editions) (License: EVALUATION-LIC)	2024-05-07	2024-05-07
<input checked="" type="radio"/> Questa®-Intel® FPGA Starter Edition (License: SW-QUESTA)	2025-02-07	
<input checked="" type="radio"/> Nios® V/m Microcontroller Intel® FPGA IP (License: IP-NIOSVM)	2025-02-07	
<input checked="" type="radio"/> Nios® V/g General Purpose Processor Intel® FPGA IP (License: IP-NIOSVG)	2025-02-07	
<input checked="" type="radio"/> Nios® V/c Compact Microcontroller Intel® FPGA IP (License: IP-NIOSVC)	2025-02-07	
<input checked="" type="radio"/> MIPI CSI 2 Intel® FPGA IP (License: IP-MIPI-CSI-2)	2025-02-07	
<input checked="" type="radio"/> MIPI DSI 2 Intel® FPGA IP (License: IP-MIPI-DSI-2)	2025-02-07	
<input checked="" type="radio"/> Discontinued - MAX+PLUS® II Software License for Student and University Members (License: PLS-WEB)	2025-02-07	
<input checked="" type="radio"/> Discontinued – Intel® Quartus® II Software (License: SW-QUARTUS-WE-FIX)	2025-02-07	
<input checked="" type="radio"/> Discontinued – MAX+PLUS® II Software (License: MAXPLUS2WEB)	2025-02-07	

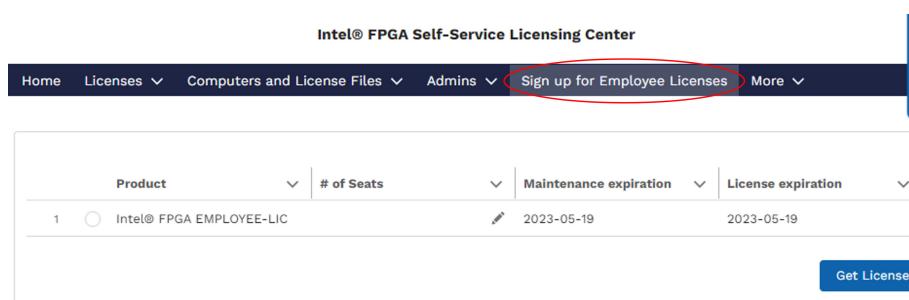
2. Select the product that you want to sign up.
3. Add one or more optional license features. Use **Select/Unselect All Options** checkbox if you want to select all optional products.
 

*Note:* This option is only available when an evaluation or no-cost license has optional license features configured with it.
4. Enter the number of seats in the **# of Seats** field.
5. Click **Next**.
6. Assign a computer that you have previously added to your account or add a new computer using the **New Computer** button. Refer to [Managing a Computer Profile](#) on page 71 for more information.
7. Select the **Terms of Use** checkbox to accept the terms of use.
8. Optional: Select the **Feedback** checkbox if you want to provide feedback.
9. Click **Generate**.

### 5.5.21. Signing Up For an Employee License

*Note:* This feature is only available for Intel employees or Intel contingent workers.

1. Select **Sign up for Employee Licenses**.



The screenshot shows the Intel® FPGA Self-Service Licensing Center interface. At the top, there is a navigation bar with links for Home, Licenses, Computers and License Files, Admins, and More. A red circle highlights the "Sign up for Employee Licenses" button in the Admins section. Below the navigation bar, there is a table with columns for Product, # of Seats, Maintenance expiration, and License expiration. One row is visible, showing "Intel® FPGA EMPLOYEE-LIC" with 1 seat, maintenance expiration on 2023-05-19, and license expiration on 2023-05-19. At the bottom right of the table is a blue "Get License" button.

2. Select the Employee license product that you want to sign up.
3. Enter the number of seats in the **# of Seats** column.
4. Select the **Terms of Use** checkbox to accept the terms of use.
5. Click **Get License**.
6. Assign a computer that you have previously added to your account or add a new computer.

## 5.6. About Intel FPGA Software License Files

This section contains details about the syntax of Intel FPGA Software License Files.

### Related Information

- [Configuring the License Manager Server](#) on page 87
- [Setting up a License File in the License Server](#) on page 54

### 5.6.1. License File Components

This topic describes the different parts of the Intel FPGA license file (`license.dat`).

#### 5.6.1.1. License File Header

Intel FPGA license files have headers that contain identifying information specific to the license, such as the type of license, the primary computer and companion IDs, issue and expiration dates, and a product license summary.

The following example shows the header of a floating server license file that contains a license for the Quartus Prime software and the Questa\*-Intel FPGA Edition software:

```
# Intel Corporation Software and/or Intellectual Property License File
# Issued 09 June 2020
# Upgrade to these products will no longer be available after the Maintenance
Expiration
# date unless licenses are renewed.
# Floating Server License
# Primary Machine Name-xxxxxxxx
# Primary Machine ID-Host ID XXXXXXXXXXXX
# Redundant Server 2-N/A
# Redundant Server 3-N/A
# Product License Summary:
# QUARTUS PRIME PRO FLOAT, 1 Seat(s)
# - Maintenance Expiration of 2019.09
# Quartus II SE Floating, 2 Seat(s)
# - Maintenance Expiration of 2018.02
# Quartus II SE Floating, 1 Seat(s)
# - Maintenance Expiration of 1899.12
```

```
# Questa Intel FPGA Edition Software, 1 Seat(s)
# - Maintenance Expiration of 2015.08
# - License Expires 09-Jun-2022
...
```

### 5.6.1.2. SERVER, VENDOR, and USE\_SERVER Lines

A floating license file starts with SERVER, VENDOR, and USE\_SERVER lines to describe the license server. Fixed license files do not contain these entries. These license lines are structured as shown in the following example:

```
SERVER <hostname> <8 or 12-character host or NIC ID> <port>
```

```
VENDOR <daemon> <path>
```

```
USE_SERVER
```

The USE\_SERVER line designates the license file as a floating license.

You can configure up to three redundant network license servers with the FLEXIm licensing scheme. In this case, there are three SERVER lines, one for each license server machine. The first server specified is the master.

Typically, a license file contains multiple VENDOR lines; one for each required license vendor daemon. Some license files might use the DAEMON keyword instead of VENDOR.

**Table 18. Elements of the SERVER and VENDOR Lines for Floating Licenses**

Element Name	Editable	Description
hostname	yes	The host name of the server in the license.dat file.
8- or 12-character host or NIC ID	no	The PC NIC or UNIX Host ID of the server. You must supply this ID to www.intel.com when purchasing the license.
port	n/a	The port number.
daemon	no	The vendor daemon name: <ul style="list-style-type: none"> <li>alterad daemon: Quartus Prime software</li> <li>mgclld daemon: Questa*-Intel FPGA Edition software</li> <li>armlmd daemon: ARM features of the ARM Development Suite (ADS)</li> </ul>
path	yes	The path to the vendor daemon on the server. You must edit this entry.

### 5.6.1.3. FEATURE and INCREMENT Lines

All Intel FPGA license files contain FEATURE, and possibly INCREMENT lines, to describe the software features that are licensed by the license.dat file. Certain features use INCREMENT lines, which are structured similarly as FEATURE lines. The FEATURE line is structured as shown in the following example:

```
FEATURE <name> <daemon> <version> <expiration> <# of licenses> <authcode>
[<vendor_string>] [<hostid_lock>] [SIGN] [SUPERCEDE] [<issuer>]
```

A backslash (\) character indicates that the FEATURE or INCREMENT line continues on the next line in the text file. The last line of each FEATURE line does not require the backslash. Elements in brackets [ ] are present only in some license FEATURE or INCREMENT lines. The example below shows a FEATURE line, followed by an INCREMENT line.

```
# FEATURE START
# The following is a license file for the Quartus PRIME PRO Edition Fixed
# Number of seat licenses is 1
# No license expiration date
FEATURE maxplus2 alterad 2021.05 permanent uncounted B36133371D28 \
    HOSTID=e4a4716b48d8 SIGN="1A0F EECF 699E A64A 1E3A 83D1 BADC \
    7763 B15D 98FA EF7F A371 E02F 4D9F D9CF 0BCE 2A9C 2650 20FA \
    42CF ABD8 006A D037 DA2C 703B 9CFC 43E5 1A01 0C56 4D6D"
FEATURE quartus_pro alterad 2021.05 permanent uncounted 46499B9E717E \
    HOSTID=e4a4716b48d8 TS_OK SIGN="08EF B762 CF6A 18CC FF95 B124 \
    2FB0 F8F0 7A43 CAFE C88E DC28 5AC4 5F69 FFFB 1C1C DBF6 7A79 \
    87E7 FFEF D8C2 F96F 461A 0D38 DB4B 4E5B 840E F3F6 F314 4DE9"
# FEATURE END
#####
INCREMENT alteramtivsim mgcld 2022.06 9-jun-2022 1 4F127AC9C4D11138B611 \
    \
    VENDOR_STRING=98B0746B ISSUER=Intel SN=175935529 SIGN2="0FEF B2F5 0646 \
    9F02 0405 423D D8B4 B072 3EFE 6CAA F66B 5E40 1C50 AAFE 3C0A 1869 269F \
    492D 2D25 1CFE 1AA1 060D F7E3 96A6 7BA8 6CE1 B7D1 AC24 2797 376B"
# FEATURE END
#####
```

**Table 19. Elements of the FEATURE and INCREMENT Code Lines**

Element Name	Description
name	The feature name.
daemon	The name of the vendor daemon that manages the feature. This name corresponds to a VENDOR line in network/server licenses.
version	Any version of software released up to and including this date is licensed. Software with a later version date does not function using this license file.
expiration	The date after which the software or service pack cannot be used. The expiration date applies to trial licenses. For Intel FPGA license subscriptions, the expiration is permanent.
# of licenses	The number of concurrent users that can run each feature. For some license types, the entry is uncounted.
authcode	An authorization code generated by Intel.
vendor_strings	Specified for certain third-party license features.
hostid_lock	Specified if a feature is node-locked to a software guard, NIC ID, or hard-disk serial number. Intellectual property (IP) Intel FPGA IP functions often contain node-locked feature lines in floating licenses. <ul style="list-style-type: none"> <li>• Software guard: HOSTID=GUARD_ID=&lt;Software guard number&gt;</li> <li>• Network interface card (NIC): HOSTID=&lt;NIC ID&gt;</li> <li>• Hard-disk serial number: HOSTID=DISK_SERIAL_NUM=&lt;Hard-disk ID&gt;</li> </ul>
issuer	The name of the QuestaSim* license issuer.
sign	An authorization code generated by Intel.
TS_OK	Enables remote log on for fixed license Quartus Prime software (includes Intel FPGA IP, Nios II Software Build Tools for Eclipse, and DSP Builder).

The following table describes the available Intel FPGA license features. This table does not include license features for any intellectual property (IP), development kits, or special license codes used for the Quartus Prime Lite Edition software.

**Table 20. Available Intel FPGA License Features**

Feature Name	Description
quartus	Quartus Prime Standard Edition software
quartus_pro	Quartus Prime Pro Edition software
intelqsim	Questa*-Intel FPGA Edition Simulator <b>(1)</b>
intelqsimstarter	Questa*-Intel FPGA Starter Edition Simulator <b>(2)</b>

### 5.6.2. Using a FLEXIm Options File

If the license file contains FEATURE and INCREMENT lines for the same software but different maintenance dates, the license server may grant newer licenses from the FEATURE line to users running older versions of software, which leaves fewer licenses for users running newer versions of software.

By default, the license server grabs licenses from the first matching FEATURE or INCREMENT line in the license file. If all the licenses in the first FEATURE or INCREMENT line are in use, the license server attempts to grab licenses from the next FEATURE or INCREMENT lines, until the end of the license file. A FLEXIm options file allows you to control which users can grab which licenses by creating pools of licenses for each FEATURE and INCREMENT line.

To create a FLEXIm options file that controls a floating license server:

1. In a new text file, add a GROUP line for each user group you want to create, with a list of user names, separated by spaces for each group, as follows:

```
GROUP <group name> <username 1> <username 2>
```

Users can be members of more than one group as shown in the following example:

```
GROUP quartus2010 kjones bknight root administrator
```

```
GROUP quartus2009 bknight cface root administrator
```

2. Add an INCLUDE line for each INCREMENT and FEATURE line in the license file for the product you want to control.

Set the VERSION keyword to the maintenance date or version date on the INCREMENT or FEATURE line from the license file. The GROUP field controls which group or groups can use the license line as follows:

```
INCLUDE <product name>:VERSION=<maintenance date> GROUP <group name>
```

For example:

```
INCLUDE quartus:VERSION=2010.12 GROUP quartus2010
INCLUDE quartus:VERSION=2009.06 GROUP quartus2009
INCLUDE ip_base:VERSION=2010.12 GROUP quartus2010
INCLUDE ip_base:VERSION=2009.06 GROUP quartus2009
```

3. Save the options file <filename>.dat.
4. Add the options file as the last option on the VENDOR line in the license file, as shown in the following example:

```
VENDOR alterad "C:\lic\alterad.exe" "C:\lic\alteraOptions.dat"
```

5. Restart the FLEXIm license server, or reread the license file.

#### Related Information

[Rereading an Existing License File on a License Server](#) on page 90

### 5.6.3. License.dat Example Files

This topic includes several example license.dat files. License files vary, depending on the type of licenses and the software that is enabled. License examples in this section should be used only for reference; they are not valid for actual licensing.

#### 5.6.3.1. Fixed PC Software Guard License Example

The following example shows a license.dat file that contains a license for the IP Base Suite and the Quartus Prime Pro Edition software. This license file works on a PC that has the host ID e4a4716b48d8.

```
#####
FEATURE START# FEATURE START
# The following is a license file for the IP Base Suite Package part number for
IP
# Base Suite (NCO, FFT, FIR Compiler II)
# Number of seat licenses is 1
# No license expiration date
PACKAGE ip_base alterad COMPONENTS="6AF7_00D8 6AF7_0014 6AF7_0034" \
    OPTIONS=SUITE SIGN="153B EB57 5B09 B585 D1D5 3EA8 1CC3 CB52 \
        DC01 2214 9CDA 4A26 598F 76C2 C126 00FE 5122 A135 BCB7 9D0A \
        2BAD 5F03 BE38 FE97 EDF8 5B2A 55F2 99E3 1468 72B8"
INCREMENT ip_base alterad 2021.05 permanent uncounted CBFAF3E3783C \
VENDOR_STRING="iiiiiiihdLkhIIIIIIUPDuiaaaaaaaa11X38DDDDDDDDpjz5cd
dddddddtmGzGJJJJJJJbqIh0uuuuuuugYYWiVVVVVVVbp0FVHHHHHHHBUeakffff
ffffFD2FFRKkkkkkkkWL$84" \
    HOSTID=e4a4716b48d8 TS_OK SIGN="0571 823B B38A 3D50 F9F5 B760 \
        77A7 08A3 5195 999C A11D 901B 54A6 AB40 4438 0137 FD4A 6625 \
        51C9 3A43 7C37 DADE 84D8 6FC6 1A9B E31C 1972 A291 8EBF A56B"
# FEATURE END
#####
# FEATURE START
# The following is a license file for the Quartus PRIME PRO Edition Fixed
# Number of seat licenses is 1
# No license expiration date
FEATURE maxplus2 alterad 2021.05 permanent uncounted B36133371D28 \
    HOSTID=e4a4716b48d8 SIGN="1A0F EECF 699E A64A 1E3A 83D1 BADC \
        7763 B15D 98FA EF7F A371 E02F 4D9F D9CF 0BCE 2A9C 2650 20FA \
        42CF ABD8 006A D037 DA2C 703B 9CFC 43E5 1A01 0C56 4D6D"
FEATURE quartus_pro alterad 2021.05 permanent uncounted 46499B9E717E \
    HOSTID=e4a4716b48d8 TS_OK SIGN="08EF B762 CF6A 18CC FF95 B124 \
        2FB0 F8F0 7A43 CAFE C88E DC28 5AC4 5F69 FFFB 1C1C DBF6 7A79 \
        87E7 FFEF D8C2 F96F 461A 0D38 DB4B 4E5B 840E F3F6 F314 4DE9"
# FEATURE END
#####
# End of Intel Corporation Software and/or Intellectual Property
License File. Issued 06/09/2021
```

### 5.6.3.2. Floating Network License Example

The example below shows a license.dat file that contains a license for the Quartus Prime Pro Edition software and the IP Base Suite. This license specifies that a single user can run the software and works when the PC with NIC ID 09876543 is set up as a license server and the user points to the license location.

```
#####
SERVER <hostname> 09876543 <port number>
VENDOR alterad <path to daemon executable>
VENDOR mgcl&dlt;path to daemon executable>
USE_SERVER
#####
# FEATURE START
# The following is a license file for the IP Base Suite Package part number for
IP
# Base Suite (NCO, FFT, FIR Compiler II)
# Number of seat licenses is 1
# No license expiration date
PACKAGE ip_base alterad COMPONENTS="6AF7_00D8 6AF7_0014 6AF7_0034" \
    OPTIONS=SUITE SIGN="153B EB57 5B09 B585 D1D5 3EA8 1CC3 CB52 \
        DC01 2214 9CDA 4A26 598F 76C2 C126 00FE 5122 A135 BCB7 9D0A \
        2BAD 5F03 BE38 FE97 EDF8 5B2A 55F2 99E3 1468 72B8"
INCREMENT ip_base alterad 2019.09 permanent 1 54C8E8A1FBA8 \
VENDOR_STRING="iiiiiiihdLkhIIIIIIUPDuiaaaaaaaa1X38DDDDDDp{jz5cd
ddddd&dtmGzGJJJJJJJbqIh0uuuuuuugYYWiVVVVVVVbp0FVHHHHHHBUEakffff
ffffD2FFRkkkkkkWL$84" \
    DUP_GROUP=UHD SIGN="02CC FF71 2A69 9432 0127 5793 5D3D C5B9 \
        B2D4 F31C 63E4 5735 3333 0156 7A6F 0A06 683D E4DB EC19 EF83 \
        DFCA CDBB A994 042B F35B ABF7 4215 391B 4ADB 0A70"
# FEATURE END
#####
# FEATURE START
# The following is a license file for the Quartus PRIME PRO Edition Floating
# Number of seat licenses is 1
# No license expiration date
FEATURE quartus_pro alterad 2019.09 permanent 1 5BF77FD6D23D \
    SIGN="03E9 8852 506A 279B EEB5 D51B 7019 13CB 14EF 386E 5A1A \
        3270 4A3B 3289 E028 0CBA CF01 DF36 30CC CAEE A561 AB7D 5FEE \
        4B91 E405 0923 2FEO 51F7 D3D2 7DE7"
# FEATURE END
#####
# End of Intel Corporation Software and/or Intellectual Property
License File. Issued 06/09/2021
```

### 5.6.4. Syntax of license.dat License File

The license.dat file must meet these conditions to ensure license integrity:

- The text editor does not append .txt or any other file extension to the file name, for example, license.dat.txt, otherwise the software cannot find the license.
- The last FEATURE line ends with a carriage return (new line).
- Any FEATURE line that wraps to a second or third line must have a backslash (\) at the end of each line to indicate that the statement continues. However; VENDOR\_STRING statements that wrap to multiple lines do not need a backslash (\). The backslash should only be added outside the line with double quotation marks (").
- The license file does not have hidden control characters:
  - Opening the license file with any software other than a plain text editor may add hidden characters.  
For example, WYSIWYG editors such as Microsoft Excel, Word, or WordPad, may insert special control characters such as a tab or carriage return. Pasting special control characters into another plain text document can corrupt the license, even if those characters are invisible in a plain text editor.
  - If you edit the license file in one operating system, then copy the license file in another operating system, and then copy the license file to the Windows\* operating system, the second operating system may insert unwanted control characters into the license file. Make sure that you correctly convert the file.

For information about the contents of a license file and example licenses, refer to [About Intel FPGA Software License Files](#)

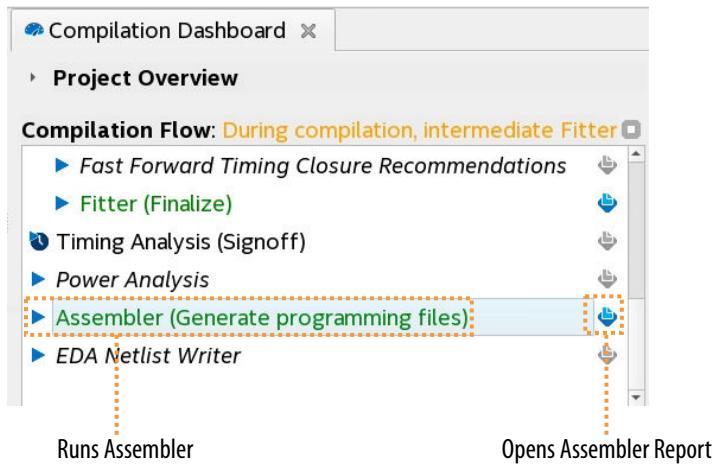
## 5.7. Checking the IP License Status

You can check the license status of all IP in an Quartus Prime project by viewing the Assembler report.

To generate and view the Assembler report in the GUI:

1. Click **Assembler** on the Compilation Dashboard.
2. When the Assembler (and any prerequisite stages of compilation) complete, click the **Report** icon for the Assembler in the Compilation Dashboard.

**Figure 11. Assembler Report Icon in Compilation Dashboard**



3. Click the **Encrypted IP Cores Summary** report.

**Figure 12. Encrypted IP Cores Summary Report**

Assembler Encrypted IP Cores Summary			
Show:	Visible	Hide	<input type="button" value="Filter"/> <<Filter>>
	Vendor	IP Core Name	License Type
1	Intel FPGA	Signal Tap (6AF7 BCE1)	Licensed
2	Intel FPGA	Signal Tap (6AF7 BCEC)	Licensed

To generate and view the Assembler report at the command line:

1. Type the following command:

```
quartus_asm <project name> -c <project revision>
```

2. View the output report in /output\_files/<project\_name>.asm.rpt.

```
+-----+
; Assembler Encrypted IP Cores Summary ;
+-----+-----+-----+
; Vendor ; IP Core Name ; License Type ;
+-----+-----+-----+
; Intel   ; PCIe SRIOV with 4-PFs and 2K-VFs (6AF7 00FB) ; Unlicensed ;
; Intel   ; Signal Tap (6AF7 BCE1)                         ; Licensed  ;
; Intel   ; Signal Tap (6AF7 BCEC)                         ; Licensed  ;
+-----+-----+-----+
```

## 5.8. Configuring the License Manager Server

### 5.8.1. Installing the FLEXIm License Manager Server Software on Another License Server

To install the FLEXIm license manager server software on an additional license server:

1. On the additional license server, create a directory that mimics the location of the Intel FPGA software:

- Windows\*

```
<installation-directory>\bin64
```

- Linux

```
<installation-directory>/linux64
```

2. From your local computer, copy the following files from the location of the Intel FPGA software to the new directory on the licensing server:
  - lmgrd
  - lmutil
  - alterad
  - lmtools (Windows\* only)

## 5.8.2. Upgrading the FLEXIm License Manager Server Software

To support network licensing, the Intel FPGA software requires the FLEXIm license manager server software version 11.19.5.0 or later. The installation process for Quartus Prime software installs the FLEXIm software version 11.19.5.0. However, you should also verify that the FLEXIm software version of the license server is 11.19.5.0.

On the license server running the FLEXIm software, type at a command prompt:

Windows*	<pre>&lt;FLEXIm system directory&gt;\lmgrd -v</pre> <pre>&lt;FLEXIm system directory&gt;\alterad -v</pre>
Linux	<pre>/&lt;FLEXIm system directory&gt;/lmgrd -v</pre> <pre>/&lt;FLEXIm system directory&gt;/alterad -v</pre>

Starting from the Quartus Prime software version 24.1, version of the lmgrd or alterad daemon is 11.19.5.0. If the lmgrd or alterad daemons on your system is not version 11.19.5.0, you must upgrade both daemons with the versions that the Quartus Prime software provides.

*Note:*

You can only have one vendor daemon running at a time on a single system. For example, alterad and mgclld can co-exist, but you cannot have two running daemons of alterad. If you have an Intel FPGA software license and Questa\*-Intel FPGA Edition Software license, and also have other Siemens EDA\* QuestaSim\* software license. You can either merge all of them into a single file or put all Siemens EDA\* QuestaSim\* software licenses in a single file. If you do the later, you need to remove the VENDOR mgclld line from the Intel FPGA software license file. You cannot have Siemens EDA\* licenses across two files for the same license server.

If a soft reload through the lmutil lmreread command failed, shut down the current license daemons before reloading them again.

To upgrade an older version of the FLEXIm software:

1. Make a backup copy of your current lmgrd and alterad daemons.
2. Copy the new versions of the files to the license server over your current daemons.

If you installed the FLEXIm software using the Quartus Prime installer, the current versions of the lmgrd and alterad daemons are in:

Windows*	<installation-directory>\quartus\bin64\alterad.exe <installation-directory>\quartus\bin64\lmgrd.exe
Linux	/<installation-directory>/quartus/linux64/alterad <installation-directory>/quartus/linux64/lmgrd

3. Restart the FLEXIm license server by typing at a command prompt:

Windows*	<FLEXIm system directory>\lmutil lmdown -c <license file path> <FLEXIm system directory>\lmgrd -c <license file path>[-l <optional log path>]
Linux	/<FLEXIm system directory>/lmutil lmdown -c <license file path> /<FLEXIm system directory>/lmgrd -c <license file path> [-l <optional log path>]

#### Related Information

- [Rereading an Existing License File on a License Server](#) on page 90
- [License Daemon Downloads](#)
- [FlexIm License Daemons for Intel FPGA Software](#)

### 5.8.3. (Windows Only) Starting and Stopping the License Server

After changing the license configuration, you must restart the license server.

**Note:** Before you start or stop the license server, you must configure a new license server as a Windows\* service.

To start or stop the license server in the **LTOOLS** dialog box:

1. Type the following command at a command prompt:  
`<installation-directory>\bin64\lmttools`
2. In the **LTOOLS** dialog box, click **Configuration using Services**.
3. Select the name of the license server, usually **FlexIm License Server**.
4. Click the **Start/Stop/Reread** tab.
5. Click **Start Server** or **Stop Server**.

### 5.8.4. (Windows Only) Starting the License Server Automatically

Before you set up the license server to start automatically at startup, you must configure the license server as a Windows\* service.

To start the license server automatically at startup:

1. At a command prompt, type:

```
<installation-directory>\bin64\lmttools
```

2. In the **LMTOOLS** dialog box, click **Configuration using Services**.
3. Select the name of the license server.  
Usually **Flexlm License Server**.
4. Click the **Config Services** tab.
5. Turn on **Use Services**.
6. Turn on **Start Server at Power Up**.

### 5.8.5. Rereading an Existing License File on a License Server

If you change the license file, you must reread the license file or restart the license server before you can run the Quartus Prime software again. If you have an existing FLEXlm license server with an existing license file for the MAX+PLUS® II software, or software from another vendor, and the FLEXlm license manager server software is version 11.11.1, you can copy and paste the FEATURE lines from your Quartus Prime license.dat file into your existing license file. Make sure you modify the FEATURE lines for your server.

- At a command prompt, type:

Windows*	<code>&lt;Intel Quartus Prime system directory&gt;/linux64\lmutil lmreread</code>
Linux	<code>&lt;Intel Quartus Prime system directory&gt;\bin64\lmutil lmreread</code>

**Note:** You can see a list and description of the available FLEXlm options by typing lmgrd – help at a command prompt.

#### Related Information

[Setting up a License File in the License Server](#) on page 54

## 5.9. Troubleshooting License File Issues

Generally, to troubleshoot licensing issue, perform these steps:

1. Check that the license file has not expired.
2. Regenerate the license from the SSLC.
3. Verify that the **LM\_LICENSE\_FILE** environment variable points to the location of the license.dat file. The setup of the environment variable depends on the OS on your PC. For more information, refer to

Visit the following links for additional help with troubleshooting Intel FPGA software license files:

- [Quartus Prime Software Licensing Questions and Answers](#)
- [Intel FPGA Software License Troubleshooter](#)
- [Intel FPGA Licensing Support Center](#)

The following articles carry solutions to some of the frequently asked questions:

- [Does the Questa\\*-Intel FPGA Starter Edition software require a license file?](#)
- [Why can't I check out a floating license for Questa\\*-Intel FPGA Edition version 10.3c?](#)
- [Why doesn't my Quartus Prime software license work on RedHat 7.x?](#)
- [Why does the Quartus Prime software fail to detect a floating license?](#)
- [How do I determine whether the Intellectual Property \(IP\) that I used in my design is licensed?](#)
- [How can I stop older versions of the Quartus Prime software or IP from using newer floating network licenses?](#)
- [When is a license checked out by the Quartus Prime software, IP cores, and Questa\\*-Intel FPGA Edition software?](#)
- [Is there a specific environment variable that I can use for Quartus Prime software licensing, such as ALTERAD\\_LICENSE\\_FILE?](#)
- [How do I get my license if it does not show in the self-service licensing center because the maintenance expired before January 1, 2009?](#)
- [How do I determine whether the Intellectual Property \(IP\) that I used in my design is licensed?](#)
- [Why does the Quartus Prime software fails to detect a floating license?](#)

*Tip:*

If you are facing any issue not listed in this topic, explore [Intel FPGA Knowledge Base](#) articles or post your query on [Intel FPGA Software Installation & Licensing](#) forum.

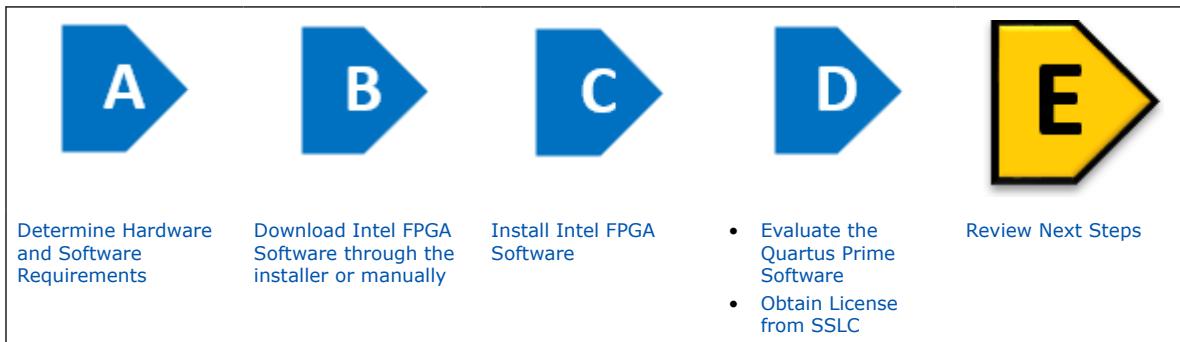
## 6. Next Steps After Installing and Licensing the Software

Once you complete installing and licensing the required Intel FPGA development software, your system should now be ready to begin FPGA design development. Refer to the following topics for additional resources and training to help you get started:

- [Additional Resources](#) on page 92
- [Training](#) on page 93

### Navigating Content Through Tasks

Use the following table to navigate this guide through user-tasks:



### 6.1. Additional Resources

Resource	Description
<a href="#">Intel Community - Intel FPGA Software Installation &amp; Licensing Forum</a>	Allows you to post queries and get responses to Intel FPGA software installation and licensing issues.
<a href="#">Intel FPGA Software Download and Installation Support page</a>	Provides high-level help to get started with the Intel FPGA software installation and download.
<a href="#">Intel FPGA Knowledge Base</a>	Provides links to applicable articles that span a variety of FPGA related issues.
<a href="#">Intel FPGA Self-Service Licensing Center</a>	Provides support for licensing Intel FPGA software.
<a href="#">Intel FPGA Software License Troubleshooter</a>	Answers frequently asked questions about licenses.
<a href="#">AN 320: Using Intel FPGA IP Evaluation Mode</a>	Describes the Intel FPGA IP Evaluation Mode that allows you to evaluate licensed Intel FPGA IP cores in simulation and hardware, before deciding to purchase a full production IP core license.
<a href="#">How to Setup Intel Quartus Prime Licenses</a>	YouTube* video that demonstrates how to setup Intel Quartus Prime licenses.
<a href="#">Setting up and debugging Intel Quartus floating licenses</a>	YouTube* video that demonstrates how to set up and debug Intel Quartus floating licenses.

*continued...*

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\*Other names and brands may be claimed as the property of others.

ISO  
9001:2015  
Registered

Resource	Description
Free IP Base Suite Licenses	Provides a list of such free IP Base Suite licenses. To help shorten your design time, Intel provides full-production licenses for some of the most popular IP cores in the Intel FPGA IP Base Suite, which is free with the Quartus Prime software.
Intel FPGA Licensing Support Center	Provides information on license types, getting a license file, setting up a license file, and resolving license-related issues.
Quartus Prime Pro and Standard Software User Guides	Each user guide in the Pro Edition and Standard Edition collection covers a specific topic and is designed to help you easily and efficiently find the information you need to see your design through to completion.
Intel FPGA Power and Thermal Calculator User Guide	Describes the Intel FPGA Power and Thermal Calculator (PTC). The current version of the Intel PTC supports Agilex 7 and Stratix 10 devices.
Intel Advanced Link Analyzer User Guide	Describes the Intel Advanced Link Analyzer that is a state-of-the art jitter/noise eye link analysis tool. This tool allows you to quickly and easily evaluate high-speed serial link performance.
Questa*-Intel FPGA Edition Quick-Start: Quartus Prime Pro Edition User Guide	Demonstrates how to simulate an Quartus Prime Pro Edition design in the Questa*-Intel FPGA Edition simulator.
Questa*-Intel FPGA Edition Quick-Start: Quartus Prime Standard Edition User Guide	Demonstrates how to simulate an Quartus Prime Standard Edition design in the Questa*-Intel FPGA Edition simulator.
Intel HLS Compiler Pro Edition: Getting Started Guide	Describes how to initialize your Intel HLS Compiler environment and review various design examples and tutorials provided with the Intel HLS Compiler.
DSP Builder for Intel FPGAs (Advanced Blockset): Handbook	Describes DSP Builder, which is a high-level synthesis technology, that optimizes the high-level, untimed netlist into low-level, pipelined hardware for your target FPGA device and desired clock rate.
Get Started with the Intel oneAPI Base Toolkit for Linux*	Provides Linux-specific getting started instructions for Intel oneAPI Base Toolkit.
FPGA AI Suite: Getting Started Guide	Provides an overview and installation instructions of FPGA AI Suite, and a process-walkthrough of running inference on a Resnet50 graph, including performance and area estimation.
Intel SoC FPGA Embedded Development Suite (SoC EDS) User Guide	Describes the Intel SoC FPGA Embedded Development Suite (SoC EDS) comprehensive tool suite for embedded software development on Intel FPGA SoC devices.
Ashling* RiscFree* IDE for Intel FPGAs User Guide	Describes the RiscFree* IDE for Intel FPGAs Arm-based HPS and Nios V processors.

## 6.2. Training

You can take up the following training to learn more about the development tools and software you have installed:

- [The Quartus Prime Software: Foundation \(Standard Edition\) \(Online Training\)](#)
- [The Quartus Prime Software: Foundation \(Pro Edition\) \(Online Training\)](#)
- [Instructor-Led Training: Using Intel Quartus Software](#)
- [Using the Quartus Prime Standard Edition Software: An Introduction](#)
- [Verilog HDL Basics](#)
- [Verilog HDL Advanced](#)
- [VHDL Basics](#)
- [SystemVerilog with the Quartus Prime Software](#)
- [How to Begin a Simple FPGA Design](#)

- University Self-Guided Lab: Become an FPGA Designer in 4 Hours
- Intel FPGA Power and Thermal Calculator for Intel FPGA Devices
- Arm Development Studio for Intel SoC FPGAs Ask an Expert
- DSP Builder Advanced Blockset: Getting Started
- Introduction to FPGA AI Suite with Intel OpenVINO Toolkit
- Using FPGAs with the Intel oneAPI Toolkits
- Using oneAPI with Intel FPGAs Ask an Expert
- Introduction to Optimizing FPGAs with the Intel oneAPI Toolkits
- Instructor-Led Training: Intel SoC FPGA Basics
- University Self-Guided Lab: Introduction to Simulation and Debug of FPGAs

For more Intel FPGA trainings, refer to the [Intel FPGA Technical Training Catalog](#) and [Intel FPGA channel on YouTube](#).

## A. Intel FPGA Software Installation and Licensing Archives

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For the latest and previous versions of this guide, refer to [Intel FPGA Software Installation and Licensing](#). If a software version is not listed, the guide for the previous software version applies.

## B. Document Revision History for Intel FPGA Software Installation and Licensing

Document Version	Quartus Prime Version	Changes
2024.04.09	24.1	<ul style="list-style-type: none"> <li>Removed the support for AXI3 BFM in <i>Siemens EDA* AXI Verification IP Suite License (Intel FPGA Edition)</i>.</li> </ul>
2024.04.01	24.1	<ul style="list-style-type: none"> <li>Removed libnsl from <i>Operating System Requirements</i>.</li> <li>Updated FLEXIm license manager software version to 11.19.5.0 in <i>Upgrading the FLEXIm License Manager Server Software</i>.</li> <li>Added support for generating bitstream with "Start the 30-day evaluation period with no license file" option in <i>Evaluating the Quartus Prime Software</i>.</li> <li>Enhanced <i>Quartus Prime Software License</i> to include information about the 90-day evaluation license.</li> <li>Revised the information in the following topics: <ul style="list-style-type: none"> <li>— <i>Downloading Software Using the Quartus Prime Installer</i></li> <li>— <i>Accessing the Quartus Prime Installer</i></li> <li>— <i>Getting Started With the Quartus Prime Installer GUI</i></li> <li>— <i>Modifying the Installer Settings</i></li> <li>— <i>Using CLI Commands</i></li> </ul> </li> <li>Removed <i>Nios II Embedded Design Suite License</i> topic as Nios II has been deprecated.</li> <li>Removed in Nios II EDS License from <i>Summary of Intel FPGA Software Licenses Required</i>.</li> <li>Removed the requirements for Ubuntu Enterprise Linux in <i>Operating System Requirements</i>.</li> <li>Removed <i>Windows* Subsystem for Linux* (WSL 1) on Windows Requirements for Nios II EDS</i>.</li> </ul>
2023.12.04	23.4	<ul style="list-style-type: none"> <li>Updated the number of default parallel download threads and its range in <i>Modifying the Installer Settings</i> and <i>Using CLI Commands</i>.</li> <li>Added <i>Installing and Uninstalling a Software Patch</i>.</li> <li>Updated the instructions in <i>Accessing the Quartus Prime Installer</i>.</li> </ul>
2023.10.02	23.3	<ul style="list-style-type: none"> <li>Major reorganization of topics done in all chapters.</li> <li>Removed references to Intel FPGA SDK for OpenCL™.</li> <li>Split the <i>Downloading and Installing Intel FPGA Software</i> into separate chapters as <i>Downloading the Intel FPGA Software</i> and <i>Installing the Intel FPGA Software</i>.</li> <li>Merged <i>About Intel FPGA Software License Files</i> and <i>Using the Intel FPGA Self-Service Licensing Center</i> chapters with <i>Licensing Intel FPGA Software</i> chapter.</li> <li>Renamed <i>Types of Intel FPGA Software Licenses</i> as <i>Summary of Intel FPGA Software Licenses Required</i>.</li> <li>Renamed <i>Windows* Subsystem for Linux* (WSL) on Windows Requirements</i> as <i>Windows* Subsystem for Linux* (WSL 1) on Windows Requirements for Nios II EDS</i>.</li> <li>Merged <i>Intel Quartus Prime Software License</i> and <i>Intel Quartus Prime Lite Edition Software License</i> topics.</li> </ul>

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Document Version	Quartus Prime Version	Changes
		<ul style="list-style-type: none"> <li>Revised the instructions in <i>Signing Up for an Evaluation or No-Cost License</i>.</li> <li>Removed the topics <i>Development Kits Containing the Intel Quartus Prime Software</i> and <i>University Program Software Licenses</i> and merged their information with <i>Summary of Intel FPGA Software Licenses Required</i>.</li> <li>Removed the occurrences of RHEL 7 as Intel no longer supports this version.</li> <li>Added the following new topics: <ul style="list-style-type: none"> <li>— <i>Before You Begin</i></li> <li>— <i>Navigating Content</i></li> <li>— <i>Downloading Design-Specific Software Components</i></li> <li>— <i>Prerequisite Knowledge and Training</i></li> <li>— <i>Acronyms</i></li> <li>— <i>Quartus Prime Design Suite Overview</i></li> <li>— <i>Verifying the Quartus Prime Release</i></li> <li>— <i>Other Intel FPGA Software Requirements</i></li> <li>— <i>Determining the Download Type</i></li> <li>— <i>Downloading Software Using the Quartus Prime Installer</i></li> <li>— <i>Accessing the Installer</i></li> <li>— <i>Getting Started With the Quartus Prime Installer GUI</i></li> <li>— <i>Modifying the Installer Settings</i></li> <li>— <i>Using CLI Commands</i></li> <li>— <i>Downloading Copyleft Licensed Software</i></li> <li>— <i>Downloading Copyleft Licensed Software</i></li> <li>— <i>Downloading Other Intel FPGA Software</i></li> <li>— <i>Installing Intel FPGA Software Through Quartus Prime Software Installer</i></li> <li>— <i>Next Steps After Installing and Licensing the Software</i></li> <li>— <i>Additional Resources</i></li> <li>— <i>Training</i></li> <li>— <i>Troubleshooting License File Issues</i></li> <li>— <i>Troubleshooting Installation Issues</i></li> </ul> </li> </ul>
2023.07.05	23.2	Made minor corrections to the script in <i>Setting Quartus Prime Environment Variables</i> .
2023.06.26	23.2	<ul style="list-style-type: none"> <li>Revised the instructions in <i>Quartus Prime Software License</i> and <i>Questa*-Intel FPGA Edition and Questa*-Intel FPGA Starter Edition Software License</i>.</li> <li>Updated the image in <i>Signing Up for an Evaluation or Free License</i>.</li> </ul>
2023.04.03	23.1	<ul style="list-style-type: none"> <li>Updated product family name to "Intel Agilex 7."</li> <li>In <i>Questa*-Intel FPGA Edition and Questa*-Intel FPGA Starter Edition Software License</i>, added a note about Questa*-Intel FPGA Edition software not supporting companion licenses.</li> </ul>
2023.01.31	22.4	<ul style="list-style-type: none"> <li>Added a new appendix to provide detailed instructions for using the Intel FPGA Self-Service Licensing Center.</li> <li>Moved few licensing center related topics from the <i>Licensing FPGA Software</i> chapter to the <i>Using the Intel FPGA Self-Service Licensing Center</i> appendix.</li> <li>Reorganized few topics within the <i>Licensing FPGA Software</i> chapter to improve the logical flow.</li> </ul>
2022.12.19	22.4	<ul style="list-style-type: none"> <li>Maintenance release.</li> </ul>

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Document Version	Quartus Prime Version	Changes
2022.09.26	22.3	<ul style="list-style-type: none"> <li>Added Ashling RiscFree* IDE for Intel FPGAs in <i>Software Available in the FPGA Software Download Center</i>.</li> <li>Added frequently asked questions on the front page of this guide.</li> <li>Revised the requirements in <i>Questa*-Intel FPGA Edition Software Requirements</i>.</li> </ul>
2022.06.21	22.2	<ul style="list-style-type: none"> <li>Added a note about upgrading the daemon software for floating license server in <i>Obtain Necessary Hardware Information</i>.</li> <li>Updated an image in the <i>Request a License File from the Self Service Licensing Center</i>.</li> <li>Updated the FLEXlm license manager server software version to 11.18.2.0 in <i>Upgrading the FLEXlm License Manager Server Software</i>.</li> <li>Removed Microsoft Internet Explorer browser and updated its deprecation notice in <i>Software Requirements</i>.</li> <li>Merged the topics <i>Installing Drivers on Red Hat Enterprise Linux Systems</i> and <i>Installing on Red Hat Enterprise Linux 7 or Above</i> and updated the topic title.</li> <li>Updated the instructions in <i>Installing on RHEL 7 or Above and Ubuntu Versions 18 and 20 OS</i>.</li> <li>Removed the lib32ncurses5 software prerequisite package for Ubuntu and replaced it with libncurses5-dev:i386 in <i>Software Requirements</i>.</li> <li>Added information about specifying Questa*-Intel FPGA Edition software license using the mgclld license daemon and included a note about using Questa*-Intel FPGA Edition software license with Remote Desktop in <i>Questa*-Intel FPGA Edition and Questa*-Intel FPGA Starter Edition Software License</i>.</li> </ul>
2022.03.28	22.1	<ul style="list-style-type: none"> <li>Updated the instructions to access memory recommendations in <i>Minimum Hardware Requirements</i>.</li> <li>Added a deprecation notice for Microsoft Internet Explorer version 11.0 in <i>Software Requirements</i>.</li> <li>Updated the instructions to download software from the FPGA Software Download Center in the following topics: <ul style="list-style-type: none"> <li>— <i>Downloading and Installing Intel FPGA Software</i></li> <li>— <i>Downloading Individual Executable Files</i></li> <li>— <i>Downloading .tar Files</i></li> <li>— <i>Adding Device Support and Other Intel FPGA Software to Existing Installation</i></li> <li>— <i>Updating Intel FPGA Software</i></li> </ul> </li> <li>Made minor command syntax change in the file names in <i>Installing Intel FPGA Software at the Command Prompt</i>.</li> <li>Updated the image of FPGA Self-Service Licensing Center page in <i>Request a License File from the Self Service Licensing Center</i>.</li> <li>Added instructions to generate the license and set up the license in <i>Questa*-Intel FPGA Edition and Questa*-Intel FPGA Starter Edition Software License</i>.</li> <li>Updated the following topics entirely: <ul style="list-style-type: none"> <li>— <i>Managing Licensed Users</i></li> <li>— <i>Renewing a License</i></li> <li>— <i>Managing a Computer Profile</i></li> <li>— <i>Transferring a License File to Another Computer</i></li> <li>— <i>Adding Floating Seats</i></li> </ul> </li> <li>Updated the license setup image in <i>Finding the NIC ID in the Intel Quartus Prime Software</i>.</li> <li>Updated the software requirements for RHEL 8 in <i>Software Requirements</i>.</li> </ul>

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Document Version	Quartus Prime Version	Changes
2021.12.13	21.4	<ul style="list-style-type: none"> <li>Modified the topic titles from <i>Questa*-Intel FPGA Edition Software License</i> and <i>Intel Quartus Prime Lite Edition</i> and <i>Questa*-Intel FPGA Starter Edition Software License</i> to <i>Questa*-Intel FPGA Edition</i> and <i>Questa*-Intel FPGA Starter Edition Software License</i> and <i>Intel Quartus Prime Lite Edition Software License</i>, and merged some of their information.</li> <li>Updated <i>Software Requirements</i> and <i>Installing Intel FPGA Software at the Command Prompt</i> topics to suggest that the Intel Quartus Prime software needs administrator privileges on Windows for installation.</li> </ul>
2021.10.04	21.3	<ul style="list-style-type: none"> <li>Added a note about additional information available for setting up JTAG server connection over SSH in <i>Installing and Configuring jtagserver on Windows</i> and <i>Installing and Configuring a Local JTAG Server (jtagd) on Linux</i>.</li> <li>Changed all occurrences of "ModelSim - Intel FPGA Edition" to "Questa - Intel FPGA Edition".</li> <li>Changed all occurrences of Mentor Graphics to Siemens EDA.</li> <li>Renamed "Mentor Graphics AXI Verification IP Suite (Intel FPGA Edition)" to "Siemens EDA AXI Verification IP Suite (Intel FPGA Edition)".</li> <li>Renamed all occurrences of "ModelSim - Intel FPGA Starter Edition" to "Questa*-Intel FPGA Starter Edition".</li> <li>In <i>Software Available in the Download Center</i>, changed MD5 Message Digest Algorithm to SHA-1.</li> <li>Updated <i>Intel Quartus Prime Environment Variables</i> topic with additional information for PATH variable and added a sample script to setup the environment.</li> <li>In <i>Questa*-Intel FPGA Edition Software Requirements</i>, updated the OS requirements.</li> <li>Updated the licensing details in <i>Licensing Intel FPGA Software</i>.</li> <li>Under <i>Chapter 4, Licensing FPGA Software Walkthrough</i> section, removed <i>Activate Product</i> topic and updated the instructions in <i>Request a License File from the Self-service Licensing Center</i>.</li> <li>Updated the Ubuntu OS prerequisites in <i>Software Requirements</i>.</li> <li>Updated the details for Questa in <i>Specifying the License for the Questa*-Intel FPGA Edition Software</i>.</li> <li>Changed <code>alteramtivsim</code> and <code>alteramtivlog</code> to <code>intelqsim</code> and <code>intelqsimstarter</code> and removed a note about <code>alteramtivsim</code> and <code>alteramtivlog</code> license subscriptions in <i>FEATURE</i> and <i>INCREMENT Lines</i>.</li> </ul>
2021.06.21	21.2	<ul style="list-style-type: none"> <li>Updated the Red Hat Enterprise Linux versions to 7 and 8 in <i>Software Requirements</i> and <i>ModelSim* - Intel FPGA Edition Software Requirements</i>.</li> <li>Added <i>Questa*-Intel FPGA Edition</i> to the list in <i>Software Available in the Download Center</i>.</li> <li>Added a note about the Quartus Prime software installer in <i>Installing Intel FPGA Software at the Command Prompt</i>.</li> <li>Added a note about the <code>--install-lic</code> option for <code>--accept_eula</code> in <i>Command-Line Options</i>.</li> <li>Added Windows 10 method of starting the Intel FPGA software in <i>Starting the Quartus Prime Software</i>.</li> <li>Removed the topic <i>Installing on Red Hat Enterprise Linux 6</i> as RHEL 6 is no longer supported.</li> <li>Added Windows 10 method of adding device support in <i>Adding Device Support and Other Intel FPGA Software to Existing Installation</i>.</li> <li>Added Windows 10-specific instruction to <i>Uninstalling on Windows*</i>.</li> <li>Made minor updates to requirements in <i>Intel High Level Synthesis Compiler Software Requirements</i>.</li> <li>Updated the license sample in <i>FEATURE</i> and <i>INCREMENT Lines</i>.</li> </ul>

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Document Version	Quartus Prime Version	Changes
		<ul style="list-style-type: none"> <li>Updated the license sample in <i>Floating Network License Example</i>.</li> <li>Updated the license sample in <i>Fixed PC Software Guard License Example</i>.</li> <li>Removed Windows 7 support.</li> </ul>
2021.03.29	21.1	<ul style="list-style-type: none"> <li>Updated <i>Installing Windows* Subsystem for Linux* (WSL) on Windows</i> to include an additional package that is necessary when building a custom library with Nios II EDS.</li> <li>Updated the requirements in <i>Minimum Hardware Requirements</i> and <i>Software Requirements</i> topics.</li> </ul>
2020.12.14	20.4	<ul style="list-style-type: none"> <li>Updated the list of Ubuntu prerequisite packages in <i>Software Requirements</i>.</li> <li>Renamed the topic <i>Installing and Configuring a JTAG Server</i> and its subtopics.</li> <li>Updated the topics <i>Installing and Configuring jtagserver on Windows</i> and <i>Installing and Configuring a Local JTAG Server on Linux</i> completely.</li> <li>Document maintenance updates.</li> </ul>
2020.09.28	20.3	<ul style="list-style-type: none"> <li>Removed the occurrences of SoC EDS from the guide.</li> <li>Added additional instructions in <i>Installing Windows Subsystem for Linux (WSL) on Windows</i>.</li> <li>Made the following updates in <i>Software Available in the Download Center</i>:           <ul style="list-style-type: none"> <li>Added Intel High Level Synthesis Compiler and Intel FPGA Power and Thermal Calculator to the software list.</li> <li>Included Intel Agilex and eASIC N5X devices.</li> <li>Added a note about discontinuation of older releases.</li> </ul> </li> <li>Removed the topic <i>Installing on Red Hat Enterprise 4 or Earlier Versions</i>.</li> <li>Changed the topic title <i>Installing on Red Hat Enterprise 5 and 6</i> to <i>Installing on Red Hat Enterprise Linux 6</i> since Red Hat Enterprise Linux 5 version is no longer supported.</li> <li>Modified description about the license entitlements and removed the mention of Intel FPGA SDK for OpenCL in the additional software list in <i>Licensing Intel FPGA Software</i>.</li> <li>Updated the HLS requirements in <i>Intel High Level Synthesis Compiler Software Requirements</i>.</li> <li>Added SUSE Linux Enterprise Server 12 to the list in <i>ModelSim - Intel FPGA Edition Software Requirements</i>.</li> <li>Updated the \$QSYS_ROOTDIR directory to \${installdir}/qsys/bin in <i>Quartus Prime Environment Variables</i>.</li> <li>Removed Red Hat Linux Enterprise 5 in <i>ModelSim - Intel FPGA Edition Software Requirements</i> and <i>Software Requirements</i> topics.</li> <li>Added an entry for Windows in <i>Software Requirements</i>.</li> </ul>
2020.07.13	20.2	<ul style="list-style-type: none"> <li>Added a note about having multiple license versions running on a system in <i>Upgrading the FLEXlm License Manager Server Software</i>.</li> <li>Removed all occurrences of the ALTERAD_LICENSE_FILE environment variable since it is deprecated and should no longer be used.</li> </ul>
2020.06.22	20.2	<ul style="list-style-type: none"> <li>Updated the processor requirements in <i>Minimum Hardware Requirements</i>.</li> </ul>

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Document Version	Quartus Prime Version	Changes
2020.04.13	20.1	<ul style="list-style-type: none"> <li>Added CPU requirements to <i>Minimum Hardware Requirements</i>.</li> <li>Removed a step about Akamai DLM3 in <i>Downloading Individual Executable Files</i> since it is no longer supported.</li> <li>Updated step 6 (which described download options) completely in <i>Downloading .tar Files</i>.</li> <li>Updated step 5 (which described download options) completely in <i>Adding Device Support and Other Intel FPGA Software to Existing Installation</i>.</li> <li>Updated step 5 (which described download options) completely in <i>Updating Intel FPGA Software</i>.</li> </ul>
2019.12.16	19.4	<ul style="list-style-type: none"> <li>Updated the <i>Upgrading the FLEXIm License Manager Server Software</i> topic completely.</li> <li>Corrected typo in <i>Installing Windows Subsystem for Linux (WSL) on Windows</i>.</li> <li>Minor correction in the title of <i>Installing Programming Cable Drivers</i>.</li> <li>Removed some repetitive topics under <i>Starting the Quartus Prime Software</i>.</li> </ul>
2019.09.30	19.3	<ul style="list-style-type: none"> <li>Added "Checking the IP License Status" topic.</li> <li>Added footnote for Nios II EDS changes in <i>Software Available in the Download Center</i> and added cross-reference links. Added the same information in <i>Nios II Embedded Design Suite License</i> topic.</li> <li>In <i>Environment Variables</i> topic, added PATH variable section and moved text related to \$QSYS_ROOTDIR beneath this section.</li> <li>Updated a note in <i>FEATURE</i> and <i>INCREMENT</i> lines about mixed language support.</li> <li>In <i>Upgrading the FLEXIm License Manager Server Software</i> topic, added a link to the License Daemon Downloads page and updated the FLEXIm software version to 11.16.1.0.</li> <li>Added a new topic <i>Installing Windows Subsystem for Linux (WSL) on Windows</i>.</li> </ul>
2019.06.27	19.1	<ul style="list-style-type: none"> <li>Removed the topic <i>Set Up a Floating Network License on a Local Computer</i> since it was outdated.</li> <li>Renamed "Mentor Graphics* Verification IP (VIP) Altera Edition" to "Mentor Graphics AXI Verification IP Suite (Intel FPGA Edition)".</li> <li>In <i>License File Header</i> topic, updated the license header sample to remove references to Altera.</li> <li>In <i>Obtain Necessary Hardware Information</i>, added Linux OS support for fixed licenses.</li> <li>Added footnote about Remote Desktop limits to "Specifying the License for the ModelSim - Intel FPGA Edition Software."</li> </ul>
2019.04.01	19.1	<ul style="list-style-type: none"> <li>In <i>Quartus Prime Environment Variables</i>, added LC_ALL variable to the list to explain the Perl warning observed if there is a mismatch in the locale setting.</li> <li>In <i>Software Available in the Download Center</i>, added footnote about RSA Data Security, Inc. MD5 Message-Digest Algorithm.</li> <li>In <i>Software Requirements</i> topic, updated RHEL, Ubuntu, and SUSE package details.</li> <li>Global changes: <ul style="list-style-type: none"> <li>Rebranded Altera URLs to Intel URLs.</li> <li>Rebranded myAltera to My Intel along with the related screenshots.</li> </ul> </li> </ul>
2018.09.24	18.1.0	<ul style="list-style-type: none"> <li>Added statement that the Quartus Prime software installer does not support spaces in the installation path.</li> <li>Renamed <i>Installation Directory</i> topic to <i>Installation Path</i>.</li> </ul>

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<b>Document Version</b>	<b>Quartus Prime Version</b>	<b>Changes</b>
2018.05.07	18.0.0	<ul style="list-style-type: none"> <li>Reorganized content.</li> <li>Moved content about getting hardware information to Appendix.</li> <li>Added how to install USB drivers for Red Hat Enterprise systems.</li> <li>Added software requirements for Intel High Level Synthesis (HLS) Compiler.</li> <li>Added information about specifying more than one licensing server.</li> <li>Removed references to automatic web license retrieval.</li> <li>Removed instructions to set environment variables on Linux and Windows.</li> <li>Created a Licensing Intel FPGA Software Walkthrough topic.</li> <li>Updated the supported Red Hat Linux version number (5, 6 and 7 instead of 5 and 6).</li> </ul>
2018.04.16	17.1.0	Updated licensing information for ModelSim - Intel FPGA Edition software
2017.11.06	17.1.0	<ul style="list-style-type: none"> <li>Fixed outdated links from topic: "Using the Self-Service Licensing Center"</li> <li>Added topics: "Installing Intel FPGA Software at the Command Prompt" and "Downloading and Installing Intel FPGA Software on Multiple Systems"</li> <li>Removed command-line information from "Additional Installation Procedures"</li> </ul>
2017.07.19	17.0.0	<ul style="list-style-type: none"> <li>Removed "How to Contact Us" topic</li> </ul>
2017.05.08	17.0.0	<ul style="list-style-type: none"> <li>Included new free licensing mode for Intel Quartus Prime Pro Edition software, which supports Intel Cyclone 10 GX devices only.</li> <li>Removed all references to Solaris, which is no longer supported.</li> <li>Added make as a required Linux library.</li> </ul>
2016.10.31	16.1.0	<ul style="list-style-type: none"> <li>Removed all references to Talkback feature.</li> <li>Changed instances of Altera to Intel FPGA.</li> </ul>
2016.05.02	16.0.0	Removed instructions on downloading .iso files, which are no longer supported.
2015.11.02	15.1.0	Updated to reflect the new Quartus Prime Lite, Standard, and Pro Edition software.
2015.05.04	15.0.0	<ul style="list-style-type: none"> <li>Reorganized the document.</li> <li>Added a quick start for fixed, single user licenses.</li> </ul>
2015.03.09	14.1.1	<ul style="list-style-type: none"> <li>Updated the supported Red Hat Linux version number (5 and 6 instead of 6 and 7)</li> <li>Changed recommended screen resolution from 768 x 1024 to 1024 x 768</li> </ul>
2014.12.15	14.1.0	<ul style="list-style-type: none"> <li>Updated RPM package prerequisite information for Red Hat Linux Enterprise 7 and ModelSim-Altera Edition software and SoC EDS on systems running Red Hat Linux Enterprise 7</li> <li>Added Microsoft redistributable package requirements for ModelSim-Altera Edition</li> <li>Updated FLEXIm license server version to 11.11.1</li> <li>Updated available software in the "Altera Software" topic</li> <li>Removed references to Windows XP and Windows Server 2003</li> <li>Updated terminology in the "Adding Floating Seats" topic</li> <li>Updated instructions for the "Setting Windows Environment Variables" topic</li> <li>Added a firewall example to the "Modifying the Network License File" topic</li> </ul>

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Document Version	Quartus Prime Version	Changes
2014.18.08	14.0a10.0	<ul style="list-style-type: none"> <li>Updated RPM package prerequisite information for Red Hat Linux Enterprise 6 and ModelSim-Altera Edition software and SoC EDS on systems running Red Hat Linux Enterprise 6</li> </ul>
June, 2014	14.0.0	<ul style="list-style-type: none"> <li>Updated "Cables and Ports" topic.</li> <li>Updated "Upgrading or Setting Up a License Manager Server" topic.</li> <li>Updated "Quartus II General Environment Variables" topic.</li> <li>Updated "Download and Installation Prerequisites" topic.</li> <li>Removed references to 32-bit Quartus II software.</li> <li>Added "Downloading and Installing Altera Software Updates" topic.</li> <li>Updated "Rehosting a License" topic.</li> <li>Updated 32-bit libraries in "Download and Installation Prerequisites" topic.</li> <li>Updated "Modifying the Network License File" topic.</li> </ul>
Nov, 2013	13.1.0	<ul style="list-style-type: none"> <li>Added references to Altera SDK for OpenCL in "Altera Software" topic.</li> <li>Updated information about downloading .tar files in "Installation Options" topic.</li> <li>Removed note about installing software separately from "Installing Device Family Support" topic.</li> </ul>
May, 2013	13.0.0	<ul style="list-style-type: none"> <li>Removed references to the TCP/IP protocol in "More Download, Installation, and Setup Procedures" topic.</li> <li>Removed references to SOPC Builder in "Supported Software Subscriptions" topic.</li> <li>Removed the "Individual Software Files" topic, and "Using the 64-Bit Version of the Quartus II Software for Linux" topic.</li> <li>Updated Altera Complete Design Suite DVD information in "Altera Software" topic.</li> <li>Removed reference to Windows Vista in "Cables and Ports" topic.</li> <li>Updated downloading, installing, and uninstalling Altera software information in "Altera Download Center" topic.</li> <li>Updated information about installing the FLEXIm software in "Upgrading the FLEXIm License Manager Server Software" topic.</li> </ul>