

Quartus® II

Installation & Licensing for Windows

Version 6.1



Altera Corporation
101 Innovation Drive
San Jose, CA 95134
(408) 544-7000
www.altera.com



QUARTUS® II

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Preface

The *Quartus® II Installation & Licensing for Windows* manual provides the information you need to install the Altera Complete Design Suite software and to start the Quartus II design software.

This manual is intended for all Quartus II software users, from beginning to advanced.

This manual provides comprehensive information for installing and licensing the Altera Complete Design Suite software, and includes information about the following topics:

- How to install the Altera Complete Design Suite software
- How to license the Altera Complete Design Suite software
- Other documentation and technical support information

Documentation Conventions

The *Quartus® II Installation & Licensing for Windows manual* uses the following conventions to make it easy for you to find and interpret information.

Typographic Conventions

Quartus II documentation uses the typographic conventions shown in the following table:

Visual Cue	Meaning
Bold Initial Capitals	Command names; dialog box, page, and tab titles; and button names are shown in bold, with initial capital letters. For example: Find Text command, Save As dialog box, and Start button.
bold	Directory names, project names, disk drive names, file names, file name extensions, software utility names, software executable names, and options in dialog boxes are shown in bold. Examples: quartus directory, d: drive, and license.dat file.
Initial Capitals	Keyboard keys, user-editable application window fields, and menu names are shown with initial capital letters. For example: Delete key and the Options menu.
“Subheading Title”	Subheadings within a manual section are enclosed in quotation marks. In manuals, titles of Help topics are also shown in quotation marks.
<i>Italic Initial Capitals</i>	Help categories, manual titles, section titles in manuals, and application note and brief names are shown in italics with initial capital letters. For example: <i>FLEXIm End Users Guide</i> .
<i>italics</i>	Variables are enclosed in angle brackets (<>) and shown in italics. For example: < <i>file name</i> > and < <i>CD-ROM drive</i> >.
Courier font	Anything that must be typed exactly as it appears is shown in Courier. For example: \quartus\bin\lmutil lmhostid.
↵	Enter or return key.
■	Bullets are used in a list of items when the sequence of the items is not important.
✓	The checkmark indicates a procedure that consists of one step only.
	The hand points to information that requires special attention.

Visual Cue	Meaning
	The feet show you where to go for more information on a particular topic.
	The exclamation mark points to information or action that you take that can cause harm to your computer or cause you to lose data.

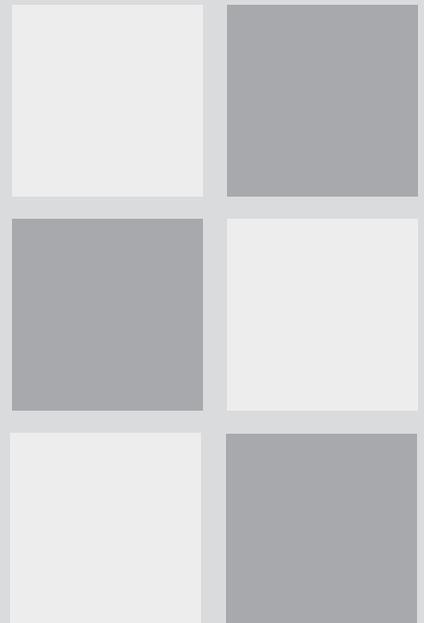
Terminology

The following table shows terminology that is used throughout the *Quartus II Installation & Licensing for Windows* manual:

Term	Meaning
“click”	Indicates a quick press and release of the left mouse button. It also indicates that you need to use a mouse or key combination to start an action.
“double-click”	Indicates two clicks in rapid succession.
“select”	Indicates that you need to highlight text and/or objects or an option in a dialog box with a key combination or the mouse. A selection does not start an action. For example: Select Chain Description File , and then click OK .
“point”	Indicates that you need to position the mouse pointer, without clicking, at an appropriate location on the screen, such as a menu or submenu. For example: On the Help menu, point to Alter a on the Web , and then click Quartus II Service Request .
“turn on”/“turn off”	Indicates that you must click a check box to turn a function on or off.

Chapter One

Installing the Altera Complete Design Suite



What's in Chapter 1:

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1

Introduction

This chapter describes the requirements and procedures for installing the Altera Complete Design Suite for Windows, which is available on a single DVD-ROM, or the following Altera software CD-ROMs (some listed CD-ROMs may not be included in your current Altera® Package):

- Quartus® II Design Software for Windows Version 6.1
- ModelSim-Altera VHDL & Verilog HDL Simulation Tool Version 6.1g
- MegaCore® IP Library Version 6.1
- Nios® II Embedded Design Suite Version 6.1 for Windows

The Altera Complete Design Suite for Windows Version 6.1 DVD-ROM includes all of the above software and additionally includes the Quartus II Web Edition Software Version 6.1 for Windows and ModelSim-Altera Web Edition Software Version 6.1g for Windows.

Altera Complete Design Suite System Requirements

Your system must meet the following minimum requirements:

- Intel Pentium III PC running at 866MHz or faster with 256-MB system memory (faster systems give better software performance)
- Disk space requirements, as described in the **readme.txt** file, which is located in the top-level directory of the Altera Complete Design Suite DVD-ROM or the Quartus II software CD-ROM. After installation, the **readme.txt** file is available from the Quartus II Help menu and in the Quartus II system directory.
- Microsoft Windows 2000, Windows XP, or Windows XP Professional x64 Edition.

PCs running Windows 2000 or Windows XP are capable of running the 32-bit version of the Quartus II software with access to virtual memory of up to 2-GB. PCs running Windows XP Professional x64 Edition are capable of running the 32-bit version of the Quartus II software with access to virtual memory of up to 4-GB and the 64-bit version of the Quartus II software with access to virtual memory of more than 4-GB.

- Microsoft Windows-compatible SVGA monitor
- CD-ROM drive (CD-ROM installation)
- DVD-ROM drive (DVD-ROM installation)
- Hummingbird Exceed XServer software is required if you want to access the Quartus II software from a Windows PC to a Linux or UNIX server.
- A web browser with an Internet connection, which is required to enable the Quartus II software Internet connectivity features. If you are using the Netscape Navigator or Microsoft Internet Explorer browser, version 5.0 or later is required.
- One or more of the following ports:
 - Parallel port for use with the ByteBlaster™ II or ByteBlasterMV™ parallel port download cable or Parallel Port Software Guard (Windows 2000 or Windows XP only)
 - Serial port for use with the MasterBlaster™ communications cable
 - USB port for use with the USB-Blaster™ download cable, the MasterBlaster communications cable, the Altera Programming Unit (APU), or the USB Software Guard (Windows 2000, Windows XP, or Windows XP Professional x64 Edition only)
 - 10/100 Mb Ethernet connection for use with the EthernetBlaster download cable



For Information About	Refer To
Specific disk space and memory requirements	The readme.txt file, which is located in the top-level directory of the Altera Complete Design Suite software DVD-ROM and the Quartus II software CD-ROM. After installation, the readme.txt file is available from the Quartus II Help menu and in the Quartus II system directory.
Updated information about system requirements and the most current version of the <i>Quartus II Installation & Licensing for Windows</i> manual	<i>Quartus II Installation & Licensing for Windows</i> manual on the Altera website.
Latest information on new features, device support, EDA interface support, and known issues and workarounds for the Quartus II software	<i>Quartus II Software Release Notes</i> document on the Altera website.
Quartus II software features and how they work with your design flow	<i>Introduction to Quartus II</i> manual on the Altera website and the Quartus II Interactive Tutorial. After installation, the Quartus II Interactive Tutorial is available from the Quartus II Help menu and in the Quartus II system directory
Altera programming hardware	<i>Altera Programming Unit User Guide</i> , <i>ByteBlaster II Download Cable User Guide</i> , <i>ByteBlasterMV Download Cable User Guide</i> , <i>EthernetBlaster Download Cable User Guide</i> , <i>MasterBlaster Serial/USB Communications Cable User Guide</i> , and <i>USB-Blaster Download Cable User Guide</i> on the Altera website.

Uninstalling or Modifying Previously Installed Versions of Altera Software

If you have installed a previous version of the Quartus®, Quartus II, or related software, you can uninstall that software, if you wish, before installing the current version of the Quartus II software or related software. You can also modify versions of the Quartus II software or related software after installation.

Uninstalling Previously Installed Versions of Altera Software

To uninstall a previous version of the Quartus or Quartus II software, or related software, versions 6.0 or earlier:

- ✓ On the Windows Start menu, point to **All Programs**, click **Altera**, and then click *<software> <version number> Uninstall, Repair or Modify*.

To uninstall a previous version of the Quartus II software, or related software, versions 6.1 or later:

1. On the Windows Start menu, point to **All Programs**, point to **Altera**, point to *<software> <version number>*, and then click *<software> <version number> Uninstall, Repair or Modify*. The Quartus 6.1 Setup Maintenance program opens.
2. Select **Remove** to remove all installed features.
3. Click **Next**.

To uninstall a previous version of the Quartus II software, or related software, that was installed with the Altera Complete Design Suite:

- ✓ On the Windows Start menu, point to **All Programs**, point to **Altera**, and then click **Uninstall Altera Design Suite<version number>**.

Modifying Versions of the Quartus II Software or Related Software

You can modify currently installed versions of the Quartus II software, or related software, to add or remove software components such as specific device family support, MegaCore IP functions, or tutorial files.

To modify an installed version of the Quartus II software, or related software, version 6.1 or later:

1. On the Windows Start menu, point to **All Programs**, point to **Altera**, point to *<software> <version number>*, and then click *<software> <version number> Uninstall, Repair or Modify*. The Quartus 6.1 Setup Maintenance program opens.

2. Select **Modify** to select new program features to add, or to select currently installed features to remove.
3. Click **Next**.
4. Select the features you want to install or deselect the features you want to uninstall.
5. Click **Next**.

Altera Complete Design Suite

The Altera Complete Design Suite for Windows version 6.1 is an integrated software installation solution that allows you to install the Quartus II software and related software, which are listed in [“Introduction” on page 2](#), from one DVD-ROM.

The Altera Complete Design Suite for Windows uses a Setup program that automatically launches once you start the installation process. The Setup program allows you to select the software you want to install and automatically guides you through the installation process.

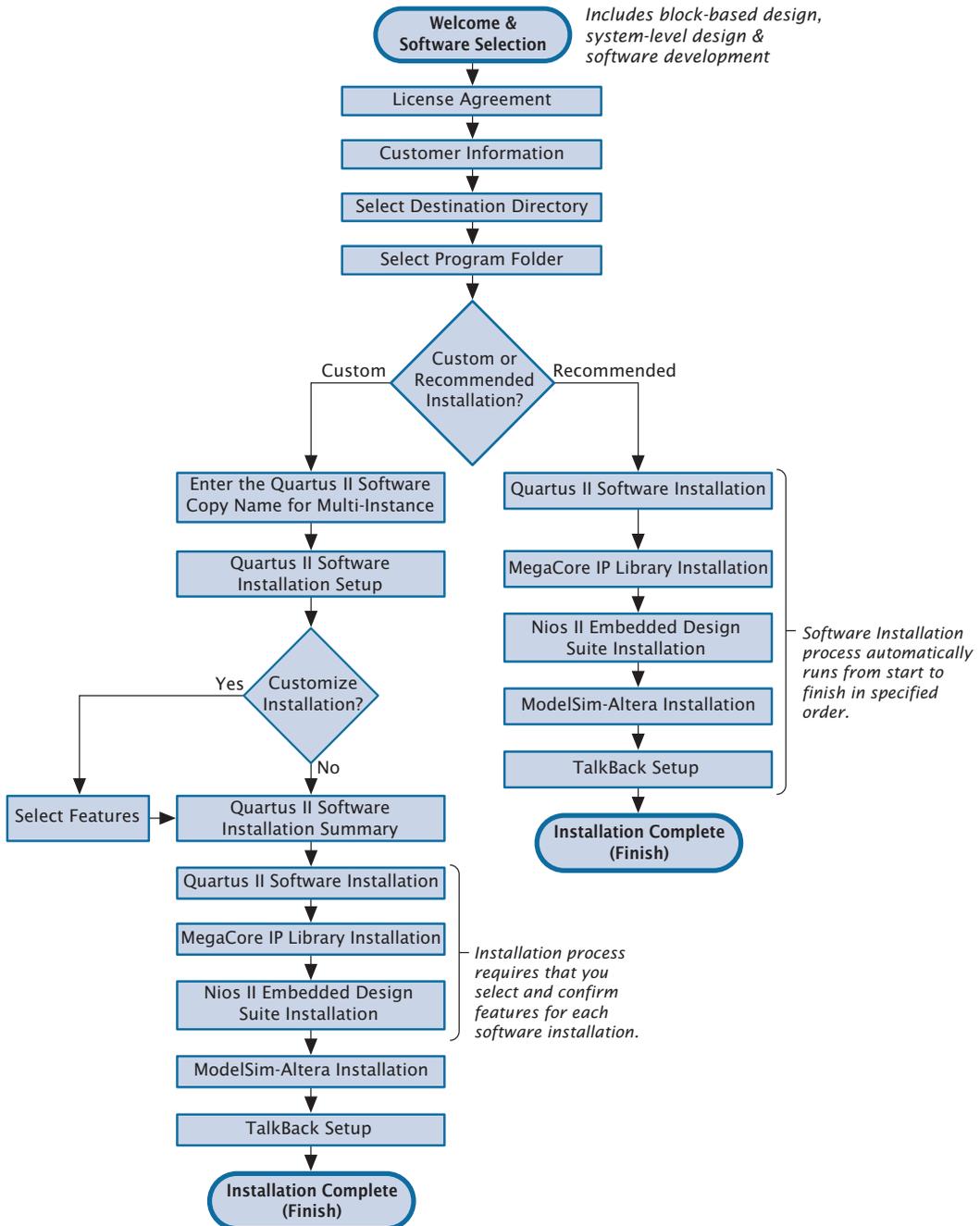
You can choose to perform a recommended or custom installation. A recommended installation automatically installs the software that you specified in the beginning of the Setup program using all program features and default settings. A custom installation allows you to customize options for each software installation.

Choosing a custom installation also allows you to select either a complete or custom installation for each software.

You can also access educational and reference materials, such as software video demos and reference designs from the Altera Complete Design Suite for Windows.

The Altera Complete Design Suite for Windows installation flow is shown in [Figure 1](#).

Figure 1. Altera Complete Design Suite Installation Flow



Quartus II Software

The Quartus II software is the first software installed during the Altera Complete Design Suite for Windows, Version 6.1 recommended (complete) installation. You can choose to perform a complete installation, which installs the Quartus II software with all program features and default settings, or a custom installation, which allows you to select specific program features.

If you select a custom installation, you can select any of the following software components to customize your Quartus II software installation:

- Quartus II software
- Quartus II software 64-bit components (Quartus II software Subscription Edition only)
- Device support
- Third-party EDA tool interfaces
- Quartus II Interactive Tutorial files

You can select specific device families for device support in the Quartus II software.

You must select **Quartus II software 64-bit components** during installation if you want to run the 64-bit version of the Quartus II software.

MegaCore IP Library

The MegaCore IP Library is the second software installed during the Altera Complete Design Suite for Windows version 6.1 recommended (complete) installation. You can choose to perform a complete installation, which installs the MegaCore IP Library with all program features and default settings, or a custom installation, which allows you to select specific program features.

If you select a custom installation, you can select any of the following IP components to customize your MegaCore IP Library installation:

- Communications
- DSP
- Interfaces
- Nios II IP
- SOPC Builder IP
- Embedded Peripherals

You can select specific MegaCore functions to install with the MegaCore IP Library. Because the Altera Complete Design Suite does not check for dependencies between MegaCore functions, you must ensure that you install all dependent MegaCore functions with the MegaCore functions that you select.

You also can add or remove any individual MegaCore function after you have completed the MegaCore IP Library installation. To add or remove an individual MegaCore function, perform the procedure in [“Uninstalling or Modifying Previously Installed Versions of Altera Software”](#) on page 4.

Nios II Embedded Design Suite

The Nios II Embedded Design Suite is the third software installed during the Altera Complete Design Suite for Windows version 6.1 recommended (complete) installation. You can choose to perform a complete installation, which installs the Nios II Embedded Design Suite with all program features and default settings, or a custom installation, which allows you to select specific program features.

If you select a custom installation, you can select any of the following components to customize your Nios II Embedded Design Suite installation:

- Nios II Software Development Tools
- Verilog examples
- VHDL examples
- Tutorials

ModelSim-Altera Software

The ModelSim-Altera software is the fourth software installed during the Altera Complete Design Suite for Windows version 6.1 recommended (complete) installation.

Installing the Altera Complete Design Suite DVD-ROM

You should be aware of the following information before you install the Altera Complete Design Suite for Windows, Version 6.1 DVD-ROM:

- You must have system administration (Administrator) privileges.
- You must have the Altera Complete Design Suite for Windows, Version 6.1 DVD-ROM to perform the installation.
- By default, the Setup program installs the Altera Complete Design Suite for Windows, Version 6.1 software in the `<drive>:\altera\
<version number>` system directory, where `<version number>` is the number of the Quartus II software version; for example, the default directory for the Quartus II software version 6.1 is `<drive>:\altera\61`.
- You can install multiple copies of the same version of the Altera Complete Design Suite for Windows, Version 6.1 on the same PC. Subsequent installations of the software can have a user-defined name. By default, the Setup program uses the format “**Quartus II <version number> (Copy <number>)**” for multiple copies of the Quartus II software, where **Copy <number>** is the number of Quartus II software installations that are installed on the PC; for example, the default name for a second copy of the Quartus II software version 6.1 is **Quartus II 6.1 (Copy 2)**. When installing a Quartus II service pack on a PC that has multiple copies of the same version of the Quartus II software installed, the installation program allows you to choose the copy of the Quartus II software that receives the service pack.
- If you want to preserve project compilation databases from an earlier version of the Quartus II software before installing a newer version, Altera recommends that you open the design in the earlier version of the software and export a version-compatible database for the design by clicking **Export Database** on the Project menu. After you have installed a newer version of the Quartus II software, you can import the database in the new version by clicking **Import Database** on the Project menu. For more information about importing and exporting version-compatible databases, see “Exporting and Importing Version-Compatible Database Files” in Quartus II Help. Version-compatible database files are available in Quartus II software version 4.1 and later.

Follow these steps to run the Setup program on your PC:

- 1.** Insert the Quartus II Complete Design Suite for Windows, Version 6.1 DVD-ROM into your DVD-ROM drive. The Quartus II Install DVD-ROM window appears automatically, offering several options. If the DVD-ROM is in the drive, and the Setup program is not already running, start the Setup program manually by performing the following steps:
 - a.** On the Windows Start menu, click **Run**.
 - b.** In the **Run** dialog box, type `<DVD-ROM drive>:\install`.
 - c.** Click **OK**.
- 2.** Click **Install subscription package** or **Install free package** to install the Quartus II software and related software. Installing the subscription package requires a paid subscription license, and installing a free package requires a free license.



Installing Related Software

The Setup program also allows you to install the ModelSim-Altera software, the MegaCore IP Library, and the Nios II Embedded Design Suite. All of this software is included in the Altera Complete Design Suite DVD-ROM, but may not be included in Altera partner development kits. To install these programs, make sure the **ModelSim-Altera**, **MegaCore IP Library**, or **Nios II Embedded Design Suite** options are turned on in the Setup program. If you decide to install these software tools at another time, you must then perform a custom installation to install only specific software.

You can click **Help me choose** to access the Quartus II Software: Subscription & Web Edition Comparison page of the Altera website (www.altera.com), which compares the features of the Quartus II Subscription software with the Quartus II Web Edition software.

- 3.** If you want to install the Stand-Alone Programmer and the Stand-Alone SignalTap® II Logic Analyzer, click **Install Quartus II software v6.1 Stand-Alone Programmer**. The Setup program starts automatically and guides you through the installation process.

4. If you will run the Quartus II software with a network (multiuser) license, and not a node-locked (single-user) license, click **Install FLEXlm Server** to install the FLEXlm License Manager software on the license server only. The Setup program installs the FLEXlm License Manager version 9.2 on the user workstation.

The Quartus II software supports network license servers on PCs running Windows 2000, Windows XP, or Windows XP Professional x64 Edition; on UNIX workstations running Solaris 8 or 9; and on PCs running Linux (Red Hat Enterprise Linux 3.0 or 4.0 or SUSE Linux Enterprise Server 9). You do not need to install the FLEXlm License Manager software on network client PCs or on PCs running the Quartus II software using a node-locked (single-user) license. Refer to [“Upgrading or Setting Up a License Manager Server” on page 27](#) for more information about setting up the license manager server.

5. If you want, you can view education and reference materials by clicking one of the following buttons:
 - **Documentation**
 - **readme.txt file**
 - **Quartus II and Nios II video demos**
 - **Reference designs (Internet access required)**
6. Select the software that you want to install under **Select the software you want to install**.
7. Select **Recommended install** or **Custom install** under **Select install type**. If you click **Custom install**, you can specify which software components you want to install. If you click **Recommended install**, all of the software that you selected under **Select the software you want to install** will automatically be installed with default settings.
8. You can turn on the TalkBack feature in the Quartus II software to enable Altera to receive limited compilation design information, but not design logic. The TalkBack feature helps Altera to understand how customers use the Quartus II software and devices, so Altera can focus on improving features most important to users.

You can turn on the TalkBack feature by turning on **Turn on the Quartus II software TalkBack feature** in the **TalkBack Options** dialog box, which appears at the end of the Altera Complete Design Suite installation process if the option is not already turned on. You can also

turn the TalkBack feature on or off, once you have installed the Quartus II software, in the **TalkBack Options** dialog box from the **Internet Connectivity** page in the **Options** dialog box.

Installing the Quartus II Software with CD-ROMs

The Quartus II software uses a Setup program for installation. You can optionally request CD-ROMs in lieu of the Altera Complete Design Suite DVD-ROM.

You should be aware of the following information before you install the Quartus II software:

- You must have system administration (Administrator) privileges.
- You must have both disk one and disk two of the Quartus II Design Software for Windows CD-ROMs to perform the installation. You begin the installation with disk one and are prompted to insert disk two when necessary.
- By default, the Setup program installs the Quartus II software in the `<drive>:\altera\<version number>\quartus` system directory, where `<version number>` is the number of the Quartus II software version; for example, the default directory for the Quartus II software version 6.1 is `<drive>:\altera\61\quartus`.
- You can install multiple copies of the same version of the Quartus II software on the same PC. Subsequent installations of the Quartus II software can have a user-defined name. By default, the Setup program uses the format “**Quartus II <version number> (Copy <number>)**” for multiple copies, where **Copy <number>** is the number of Quartus II software installations that are installed on the PC; for example, the default name for a second copy of the Quartus II software version 6.1 is **Quartus II 6.1 (Copy 2)**. When installing a Quartus II service pack on a PC that has multiple copies of the same version of the Quartus II software installed, the installation program allows you to choose the copy of the Quartus II software that receives the service pack.

- If you want to preserve project compilation databases from an earlier version of the Quartus II software before installing a newer version, Altera recommends that you open the design in the earlier version of the software and export a version-compatible database for the design by clicking **Export Database** on the Project menu. After you have installed a newer version of the Quartus II software, you can import the database in the new version by clicking **Import Database** on the Project menu. For more information about importing and exporting version-compatible databases, see “Exporting and Importing Version-Compatible Database Files” in Quartus II Help. Version-compatible database files are available in Quartus II software version 4.1 and later.

Follow these steps to run the Setup program on your PC:

1. Insert disk one of the Quartus II Design Software for Windows CD-ROM into your CD-ROM drive. The Quartus II Install CD window appears automatically, offering several options. If the CD-ROM is in the drive, and the Setup program is not already running, start the Setup program manually by performing the following steps:
 - a. On the Windows Start menu, click **Run**.
 - b. In the **Run** dialog box, type `<CD-ROM drive> \install`.
 - c. Click **OK**.
2. Click **Install Quartus II and Related Software** to install the Quartus II software and related software. The Setup program starts automatically and guides you through the installation process.



Installing Related Software

The Setup program also allows you to install the ModelSim-Altera software, the MegaCore IP Library, and the Nios II Embedded Design Suite. The CD-ROMs for this software are included in the Quartus II subscription packages, but may not be included in Altera partner development kits. To install these programs, make sure the **ModelSim-Altera**, **MegaCore IP Library**, or **Nios II Embedded Design Suite** options are turned on in the Setup program, and follow the installation process for those CD-ROMs. If you decide to install these software tools at another time, follow the installation instructions located in “Installing the ModelSim-Altera Software with a CD-ROM” on page 16, “Installing the MegaCore IP Library with a CD-ROM” on page 16, or “Installing the Nios II Embedded Design Suite with a CD-ROM” on page 17.

You can select a full installation or a custom installation. If you select a custom installation, you can select which device families you want to install, and you can also select whether you want to install EDA interfaces or tutorial files.

3. If you want to install the Stand-Alone Programmer and the Stand-Alone SignalTap II Logic Analyzer, click **Install Stand-Alone Programmer**. The Setup program starts automatically and guides you through the installation process.
4. If you will run the Quartus II software with a network (multiuser) license, and not a node-locked (single-user) license, click **Install FLEXlm Server** to install the FLEXlm License Manager software on the license server only. The Setup program installs the FLEXlm License Manager version 9.2 on the user workstation.

The Quartus II software supports network license servers on PCs running Windows 2000, Windows XP, or Windows XP Professional x64 Edition; on UNIX workstations running Solaris 8 or 9; and on PCs running Linux (Red Hat Enterprise Linux 3.0 or 4.0 or SUSE Linux Enterprise Server 9). You do not need to install the FLEXlm License Manager software on network client PCs or on PCs running the Quartus II software using a node-locked (single-user) license. Refer to [“Upgrading or Setting Up a License Manager Server” on page 27](#) for more information about setting up the license manager server.

5. If you want to view the Quartus II software **readme.txt** file, click **View Quartus II readme.txt file**.
6. You can turn on the TalkBack feature in the Quartus II software to enable Altera to receive limited compilation design information, but not design logic. The TalkBack feature helps Altera to understand how customers use the Quartus II software and devices, so Altera can focus on improving features most important to users.

You can turn on the TalkBack feature by turning on **Turn on the Quartus II software TalkBack feature** in the **TalkBack Options** dialog box, which appears at the end of the Quartus II software installation process if the option is not already turned on. You can also turn the TalkBack feature on or off, once you have installed the Quartus II software, in the **TalkBack Options** dialog box from the **Internet Connectivity** page in the **Options** dialog box.

Installing the ModelSim-Altera Software with a CD-ROM

You can install the ModelSim-Altera software on PCs running Windows 2000, Windows XP, or Windows XP Professional x64 Edition. The **readme.txt** file in the **quartus** directory on the CD-ROM provides information on the ModelSim-Altera software operating requirements and licensing. You should read the **readme.txt** file before installing the ModelSim-Altera software. You must have system administration (Administrator) privileges to install the ModelSim-Altera software.

To install the ModelSim-Altera software on a PC, follow these steps:

1. Insert the ModelSim Altera VHDL & Verilog HDL Simulation Tool, Version 6.1g CD-ROM into your CD-ROM drive.
2. On the Windows Start menu, click **Run**.
3. In the **Run** dialog box, type `<CD-ROM drive>:\modelsim\pc\modelsim-altera.exe`.
4. Click **OK**. The Setup program starts automatically and guides you through the installation process.

Installing the MegaCore IP Library with a CD-ROM

You can install the MegaCore IP Library on PCs running Windows 2000, Windows XP, or Windows XP Professional x64 Edition. The **readme.txt** file in the top-level directory on the CD-ROM provides information on the MegaCore IP Library. You should read the **readme.txt** file before installing the MegaCore IP Library. You must have system administration (Administrator) privileges to install the MegaCore IP Library.

To install the MegaCore IP Library on a PC, follow these steps:

1. Insert the MegaCore IP Library Version 6.1 CD-ROM into your CD-ROM drive.

2. On the Windows Start menu, click **Run**.
3. In the **Run** dialog box, type `<CD-ROM drive>:\windows\setup.exe`.
4. Click **OK**. The Setup program starts automatically and guides you through the installation process.



For Information About

Using MegaCore functions with the Quartus II design software

Refer To

MegaCore user guides that are installed with the MegaCore IP Library and on the Altera website.

Installing the Nios II Embedded Design Suite with a CD-ROM

You can install the Nios II Embedded Design Suite on PCs running Windows 2000, Windows XP, or Windows XP Professional x64 Edition. The **readme.txt** file in the top-level directory on the CD-ROM provides information on the Nios II Embedded Design Suite. You should read the **readme.txt** file before installing the Nios II Embedded Design Suite. You must have system administration (Administrator) privileges to install the Nios II Embedded Design Suite.

To install the Nios II Embedded Design Suite on a PC, follow these steps:

1. Insert the Nios II Embedded Design Suite for Windows CD-ROM into your CD-ROM drive.
2. On the Windows Start menu, click **Run**.
3. In the **Run** dialog box, type `<CD-ROM drive>:\launcher.exe`.
4. Click **OK**. The Setup program starts automatically and guides you through the installation process.

Installing the TCP/IP Protocol

If you do not already have the TCP/IP protocol installed on the PCs in your network, you must add it to your networking configuration.



For Information About

Installing the TCP/IP protocol on PCs running Windows 2000, Windows XP, or Windows XP Professional x64 Edition

Refer To

Windows 2000, Windows XP, or Windows XP Professional x64 Edition documentation or to the Microsoft website at www.microsoft.com.

Setting up the Quartus II Software with a JTAG Server on a Network Drive

If you install the Quartus II software on a network drive and have a JTAG server, you must set the Quartus II software to allow the JTAG server to run JTAG services.

To set the Quartus II software to enable the JTAG server to run JTAG services:

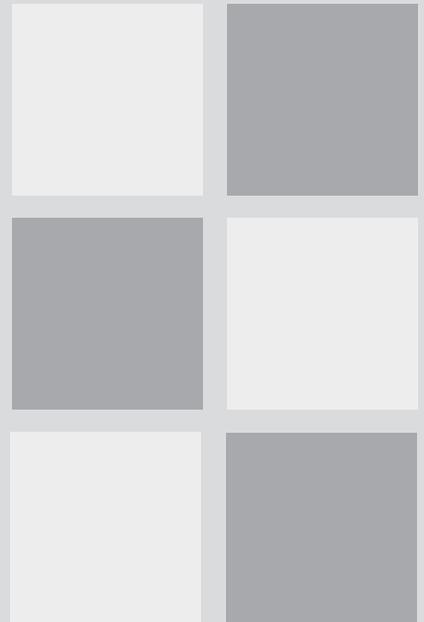
1. On Windows Start menu, click **Run**.
2. In the **Run** dialog box, type `<drive>:\<Quartus II software system directory path>\:jtagserver --install <username> <password>`. Where the `<username>` `<password>` are the username and password of the JTAG server.

or

- ✓ Install the Quartus II software on a local drive.

Chapter Two

Licensing the Quartus II Software



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2

Introduction

This chapter describes how to license the Quartus II software and related software.



Using Automatic Web License Retrieval

If you are using a node-locked (FIXEDPC) license and are a new user or are upgrading to a new version of the Quartus II software, you can perform an automatic web license retrieval at startup, which allows you to upgrade your license file automatically. For more information on this option, go to [“Starting the Quartus II Software” on page 37](#).

To set up your license for the Quartus II software, you must perform the following steps, which are described in more detail in this chapter:

1. If necessary, obtain a license file. The Quartus II software requires a valid, unexpired **license.dat** license file for each server that supports a network (multiuser) license or for each node-locked (single-user) license. This same license file can also enable the additional Altera simulation tools included with Altera software subscriptions, as well as the MAX+PLUS II software.
2. If you are using a network license (FLOATALL or ADD-FLOATALL), modify the license file.



Network License for the Quartus II Software Version 6.0 or Earlier

For Quartus II software version 6.0 or earlier, the network license is FLOATPC, FLOATNET, or FLOATLNX.

3. If you are using a network license, set up and configure the FLEXlm license manager server.

or

If you are using a node-locked (FIXEDPC) license, install a Sentinel Software Guard.

4. Start the Quartus II software.

5. Specify the location of the license file.
6. Register for an Altera.com account. (Optional)

Obtaining a License File

When you start the Quartus II software, if the software cannot detect a valid license file, you are asked whether you want to run in evaluation mode for 30 days, perform an automatic license retrieval from the Altera website, or specify the correct location of a valid license file.

You can also obtain a license file, **license.dat**, from the Licensing section of the Altera website at www.altera.com/licensing if you have the following information:

- Your Altera ID, which is a six-digit number that is provided when you purchase the Quartus II development system. This number is listed on the packing list that is shipped with the Quartus II software.
- Your serial number, which can be one of the following numbers:
 - If you have a network (multiuser) license version of the Quartus II software, the serial number is printed on the side of the Quartus II shipping box, and on the *Registration & License File Request Form*, which is also included with the Quartus II software package. This number begins with the letter G, and is followed by five digits (*Gxxxxx*).
 - If you have a node-locked (single-user) version of the Quartus II software, the serial number is the number on your Software Guard. This number begins with the letter T.
- Your Network Interface Card (NIC) number. To find your Windows 2000, Windows XP, or Windows XP Professional x64 Edition server NIC number by using FLEXlm utilities, type the following command at a command prompt:

```
<drive>:><Quartus II system directory>\bin\lmutil lmhostid ␣
```



Saving Previous license.dat Files

Altera recommends that you save any previous **license.dat** file in a temporary directory, in case you need to refer to it later.

To obtain a license file, follow these steps:

1. Start the Quartus II software as described in the “Starting the Quartus II Software” on page 37.
2. Select **Perform automatic web license retrieval** to request a valid license file automatically from the Altera website. If you are using a node-locked (FIXEDPC) license and the Quartus II software is able to retrieve a license file successfully from the website, you can skip the remaining steps of this procedure. If you are using a network (multiuser) license, or if the Quartus II software is not able to retrieve a license file, you are guided through the licensing procedure.

or

To request a license file at a later time, go to the Licensing section of the Altera website at www.altera.com/licensing. The Altera Software Licensing page appears.

3. If you are using a node-locked (single-user) license, select the FIXEDPC license option.

or

If you are using a network (multiuser) license, select the FLOATALL or ADD-FLOATALL license option.



Network License for the Quartus II Software Version 6.0 or Earlier

For Quartus II software version 6.0 or earlier, the network license is FLOATPC, FLOATNET, or FLOATLNX.

4. Specify the requested information.
5. You will receive an e-mail from Altera with a **license.dat** file attached, as well as the license file text. Altera recommends using the attached license file if you are using a node-locked (single-user) license. If you

are using a network (multiuser) license, you may either use the attached license file, or copy the lines from the attached license file to an existing license file. If you are using the **license.dat** file with both the Quartus II software and the MAX+PLUS II software, Altera recommends that you save the **license.dat** file in a top-level directory named *<drive>:\flexlm*.

For Information About	Refer To
Additional methods of finding your NIC number	Altera website at www.altera.com .
Using the FLEXlm utilities	<i>FLEXlm End Users Guide</i> , which is available from the Support Services section of the Macrovision website at www.macrovision.com .

Figure 1 shows the Quartus II FEATURE line of a sample license file for a node-locked (single-user) license that uses a Software Guard.

Figure 1. Sample Node-Locked (Single-User) License File

<i>Feature name</i>	<i>Daemon name</i>	<i>Release date</i>	<i>Expiration date</i>	<i>Number of licenses requested</i>	<i>Authorization code</i>
FEATURE quartus	alterad	2006.12	permanent	uncounted	2BC9FE52E0F3 \
HOSTID=GUARD_ID=T000002287 SIGN="1C66 DAC6 1DAB C886 727B 65DF FAC2 B479 3E3C \					
656D 3561 E5D0 BBA3 C45C 4DDC 0F2F 68F5 4DF1 6F63 7785 2F5D 1480 1B0A 70DE \					
2220 1952 DDCD 9F4D 6D61 A177"					

Figure 2 on page 24 shows a sample single-server network license file for a PC.

Figure 2. Sample Single-Server Network License File

<i>Server name</i>	<i>Server host ID name</i>	<i>Optional port number</i>	<i>Number of licenses requested</i>	<i>Authorization code</i>
<pre>SERVER alice 00c04f6bead6 1800</pre>				
<pre>VENDOR alterad "<drive>:\altera\quartus42\bin\alterad.exe"</pre>				
<pre>USE_SERVER</pre>				
<pre>FEATURE quartus alterad 2006.12 permanent 5 7A496D25A602 SIGN="1C66 DAC6 1DAB C886 \</pre>				
<pre>727B 65DF FAC2 B479 3E3C 656D 3561 E5D0 BBA3 C45C 4DDC 0F2F 68F5 4DF1 6F63 \</pre>				
<pre>7785 2F5D 1480 1B0A 70DE 2220 1952 DDCD 9F4D 6D61 A177"</pre>				
<i>Feature name</i>	<i>Daemon name</i>	<i>Release date</i>	<i>Expiration date</i>	

If you are using the Quartus II software with a node-locked (single-user) license, skip to [“Installing a Sentinel Software Guard” on page 33](#).

The FLEXlm licensing scheme allows you to set up three redundant license servers to serve a network (multiuser) license. You can obtain a license file for redundant servers by performing the steps described earlier in this section for obtaining a license file. [Figure 3](#) shows a sample redundant server license file.

Figure 3. Sample Redundant Server License File

<i>Server name</i>	<i>Server ID number</i>	<i>Optional port number</i>	<i>Number of licenses requested</i>	<i>Authorization code</i>
<pre>SERVER alice 00c04f6bead6 1800</pre>				
<pre>SERVER king 00c4fbbd170 1800</pre>				
<pre>SERVER queen 00c4fbbd320 1800</pre>				
<pre>VENDOR alterad "<drive>:\altera\quartus42\bin\alterad.exe"</pre>				
<pre>USE_SERVER</pre>				
<pre>FEATURE quartus alterad 2006.12 permanent 5 7A496D25A602 SIGN="1C66 DAC6 1DAB C886 \</pre>				
<pre>727B 65DF FAC2 B479 3E3C 656D 3561 E5D0 BBA3 C45C 4DDC 0F2F 68F5 4DF1 6F63 \</pre>				
<pre>7785 2F5D 1480 1B0A 70DE 2220 1952 DDCD 9F4D 6D61 A177"</pre>				
<i>Feature name</i>	<i>Daemon name</i>	<i>Release date</i>	<i>Expiration date</i>	



For Information About

Setting up and administering license servers, including setting up three redundant license servers

Refer To

FLEXlm End Users Guide, which is available from the Support Services section of the Macrovision website at www.macrovision.com.

Modifying the License File

If you have a network (multiuser) license, the **license.dat** file must be modified before it can be used by the license server. See *Application Note 340 (Altera Software Licensing)*, which is available from the Literature section of the Altera website at www.altera.com/literature, for a detailed description of the license file.



If You Have a Node-Locked (Single-User) License

If you have a node-locked (single-user) license, you can skip this section and go to “Installing a Sentinel Software Guard” on page 33.

The first few lines of the license file are shown in the following example (your license file may not contain all the `VENDOR` entries, depending on which software you have enabled):

```
SERVER <host name> <8- or 12-character host or NIC ID> <port number>  
VENDOR alterad "<path to daemon executable>"  
VENDOR mgcld "<path to daemon executable>"
```

To modify the license file, follow these steps:

1. In the **license.dat** file, type the variables that are described in [Table 1](#). The host or NIC ID will already be entered in the license file.

Table 1. Variables to Modify in the License File (license.dat)

Variable Name	Description	Directory
<host name>	The host name of the server; for example, my_server.	
<port number> (1)	The port number for the license manager service on the server; for example, 1800. The port number is optional and should be different from the port number for any other service on the machine.	
alterad "<path to daemon executable>" (2)	Path to the Altera vendor daemon executable alterad.	\<Quartus II system directory>\bin\alterad.exe
mgcld "<path to daemon executable>" (2)(3)(4)	Path to the Mentor Graphics vendor daemon executable mgcld.	\<ModelSim-Altera system directory>\win32ao1em\mgcld.exe
<p>Notes:</p> <p>(1) If you do not specify a port number in the license file, the FLEXlm License Manager will automatically choose a free port between 27000 and 27009. However, to prevent port number conflicts, you can specify a port number. If three redundant servers are being used, you must specify a port number. For PC-based license servers, Altera recommends that you specify a port number of 1800. However, you can use any unused port number between 0 and 64000.</p> <p>(2) In some network environments, the license server does not have an installation of the software tool(s) that provides the necessary vendor daemon (alterad or mgcld). In this case, copy the required daemon from another machine that does have an installation of the software. Find the file in the directory location specified. Save the file in a similarly named directory or any other location on the license server. Specify the daemon location on the license server in the license file.</p> <p>(3) If the path to the server has spaces in it, enclose the full path in quotation marks.</p> <p>(4) If you are not using a license file for the ModelSim-Altera software, you may delete this line.</p>		

2. Make sure the license file meets these guidelines:

- The license file name must have a **.dat** extension. If your text editor adds **.txt** or another extension to the file name, such as **license.dat.txt**, you must rename the file to have only a **.dat** extension.
- The license file must have a carriage return at the end of the last **FEATURE** line.
- Any **FEATURE** line that wraps to a second or third line outside of the **VENDOR_STRING** specification must contain a backslash (\) at the end of each line to indicate that it continues. Inside the double quotes of the **VENDOR_STRING**, backslashes should not be used.



For Information About

Refer To

Modifying the license file for the Quartus II and MAX+PLUS II software and for other EDA tools

Application Note 340 (Altera Software Licensing) on the Altera website.

Upgrading or Setting Up a License Manager Server

This section provides instructions for upgrading or setting up the FLEXlm License Manager server software on a PC running Windows 2000, Windows XP, or Windows XP Professional x64 Edition. A system administrator should perform these steps to configure license servers after the Quartus II software is installed.



If You Have a Node-Locked (Single-User) License

If you have a node-locked (single-user) license, you can skip this section and go to [“Installing a Sentinel Software Guard” on page 33](#).

Upgrading the FLEXlm License Server Software

To support network licensing, the Quartus II software requires the FLEXlm License Manager software version 8.0 or later. The Quartus II Setup program installs version 9.2 of the FLEXlm License Manager server software on Windows 32-bit systems or version 11.1.1 of the FLEXlm License Manager server software on Windows XP Professional x64 Edition systems on your user workstation, but you should also verify that the version of the FLEXlm License Manager software or the license server is 8.0 or later. Go to [“Installing the Altera Complete Design Suite DVD-ROM” on page 10](#) for more information on installing the FLEXlm License Manager server software. If the FLEXlm License Manager software is version 8.0 or later, skip to [“Rereading an Existing License File” on page 29](#).

To determine which version of the FLEXlm License Manager server software you are using:

- ✓ On the computer running the FLEXlm License Manager server software, type the following commands at a command prompt:

```
<drive>:\<FLEXlm system directory path>\lmgrd -v ↵  
<drive>:\<FLEXlm system directory path>\alterad -v ↵
```

If the **lmgrd** or **alterad** daemons are not from the FLEXlm software version 8.0 or later, you must upgrade both daemons with the versions provided in the installation of the Quartus II software.

To upgrade an older version of the FLEXlm License Manager server software, follow these steps:

1. Make a backup copy of the **lmgrd** and **alterad** daemons you are currently using.
2. To overwrite or replace the daemons you are currently using, copy the new versions of the files to the computer running the license server. You may have to shut down the license server software to complete this step.

If you used the Quartus II Setup program to install the FLEXlm License Manager server software, the current version of the **lmgrd** and **alterad** daemons are located in the following directories:

```
<drive>:\<Quartus II system directory>\bin\alterad  
<drive>:\<Quartus II system directory>\bin\lmgrd
```

3. Copy the FLEXlm software **lmutil** utility from the Quartus II system directory to the license server.
4. Restart the FLEXlm license server by typing the following commands at a command prompt:

```
<drive>:\<FLEXlm system directory path>\lmutil -c lmdown  
  <license file path> ↵  
<drive>:\<FLEXlm system directory path>\lmgrd -c <license file path>  
  [-l <optional log path>] ↵
```

Rereading an Existing License File

The Quartus II software uses the FLEXlm software to administer licensing for single users or for multiple users in a network installation. 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 server is version 8.0 or later, you can add, by copying and pasting, the Altera FEATURE lines from your Quartus II **license.dat** file into your existing license file. Paste the Quartus II FEATURE line as shown in the sample license file in [Figure 1 on page 23](#). Make sure you have also modified the license file according to the guidelines in [“Modifying the License File” on page 25](#).

If you make these changes to your license file, you must reread the license file or restart the license server before you can run the Quartus II software for the first time.

Refer to [“Upgrading or Setting Up a License Manager Server” on page 27](#) to verify that you are using the latest supported version of the FLEXlm License Server software, or if you need to upgrade an older version of the FLEXlm License Server software.



Configuring a New License Server

If you do not have an existing FLEXlm license server, and you need to configure a new license server, skip to [“Configuring a New License Server” on page 30](#).

To reread your license file on a license server:

- ✓ Type the following command at a command prompt:

```
<drive>:\<Quartus II system directory>\bin\lmutil lmreread ␣
```

or

- ✓ Restart the license server.



For Information About

Using the FLEXlm utilities to administer and troubleshoot the FLEXlm License Manager software

Refer To

FLEXlm End Users Guide, which is available from the Support Services section of the Macrovision website at www.macrovision.com.

Configuring a New License Server

The Quartus II software uses the FLEXlm software to administer licensing for single users or for multiple users in a network installation. If you do not have an existing FLEXlm license server, you must configure a license server before starting the Quartus II software for the first time.



Before You Configure a New License Server

You should be aware of the following information before you configure a new license server:

- Configuring a new license server requires that you have system administration (Administrator) privileges.
- If you have an existing FLEXlm license server, refer to “[Rereading an Existing License File](#)” on page 29.
- Make sure you have obtained a valid license file according to the guidelines in “[Obtaining a License File](#)” on page 21, and that you have modified the license file according to the guidelines in “[Modifying the License File](#)” on page 25.
- These instructions assume that you have installed the **license.dat** file in the **<drive>:\flexlm** directory. If you have installed the license file in a different directory, substitute the appropriate path name for that directory.

To launch a new license server:

- ✓ Type the following command at a command prompt:

```
<drive>:\<Quartus II system directory>\bin\lmgrd -c  
<license file path>\license.dat ↵
```

To configure a new license server as a Windows service:

1. Type the following command at a command prompt:
`lmtools ↵`
2. In the LMTOOLS dialog box, click **Configuration using Services**.
3. Click the **Config Services** tab.
4. In the **Service Name** box, type `Flexlm License Server`.

5. In the **Path to the lmgrd.exe file** box, type the location of your **lmgrd** file, usually the `<drive>:\<Quartus II system directory>\bin` directory.
6. In the **Path to the license file** box, type the location of your **license.dat** file, usually the `<drive>:\flexlm` directory.
7. In the **Path to the debug log file** box, type the location of your debug log file, usually the `<drive>:\flexlm\debug.log` directory.
8. Click **Save Service**.



For Information About

Refer To

Configuring a new UNIX workstation license server

Quartus II **readme.txt** file.

Setting up and administering license servers, including setting up three redundant license servers

FLEXlm End Users Guide, which is available from the Support Services section of the Macrovision website at **www.macrovision.com**.

Starting and Stopping the License Server

When configuring the license server, you can start and stop the license server with the **LMTOOLS** dialog box. Before you start or stop the license, you must configure a new license server as a Windows service. Refer to “[Configuring a New License Server](#)” on page 30 for more information.

To start or stop the license server with the **LMTOOLS** dialog box:

1. Type the following command at a command prompt:
`<drive>:\<Quartus II system directory>\bin\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 **Start/Stop/Reread** tab.

5. To start the server, click **Start Server**.

or

To stop the server, click **Stop Server**.

Starting the License Server Automatically at Startup

When configuring the license server, you can setup the license server to start automatically at startup with the **LMTOOLS** dialog box. Before you setup the license server to start automatically at startup, you must configure a new license server as a Windows service. Refer to [“Configuring a New License Server” on page 30](#) for more information.

To start the license server automatically at startup with the **LMTOOLS** dialog box:

1. Type the following command at a command prompt:

```
<drive>:\<Quartus II system directory>\bin\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**.

Installing the FLEXlm Software on Another License Server

You can install the FLEXlm software on an additional license server.

To install the FLEXlm software on another license server, perform the following steps:

1. Create a directory named `<drive>:\<Quartus II system directory>\bin` on the additional license server.
2. Copy the following files from the `<drive>:\<Quartus II system directory>\bin` directory of your original Quartus II software into the new directory:
 - `lmgrd`
 - `lmutil`
 - `alterad`
 - `lmtools`

You can also install the FLEXlm software on another license server with the **Install FLEXlm Server** button in the Setup program. Refer to “[Installing the Altera Complete Design Suite DVD-ROM](#)” on page 10 for more information.

Installing a Sentinel Software Guard

If your Quartus II development system uses a node-locked license and includes a Sentinel Software Guard, you must make sure the Sentinel driver is installed and then install the Software Guard before you can specify a license file.



Before You Install the Sentinel Software Guard

You should be aware of the following information before you install a Sentinel Software Guard:

- If you have a network (multiuser) license, you can skip this section and go to “[Starting the Quartus II Software](#)” on page 37.
- Current Quartus II single-user license packages provide USB Software Guards only. Parallel Port Software Guards are no longer provided in Quartus II software packages; however, they are still supported for backward compatibility. Parallel Port Software Guards are not supported on 64-bit systems.

Installing the Sentinel Driver

The Sentinel driver is required for all Quartus II software systems running on Windows XP Professional x64 Edition that use a USB Software Guard, and for systems running on Windows 2000 or Windows XP that use a Parallel Port Software Guard. The Sentinel driver is installed automatically with the Quartus II software.



Sentinel Driver Installation Requirement

Installing the Sentinel driver requires that you have system administration (Administrator) privileges.

If the Sentinel driver is not installed, you can install it by following these steps:

1. On the Windows Start menu, click **Run**.
2. If you are installing the USB Software Guard on systems running on Windows 2000 or Windows XP, type the following command in the **Run** dialog box:

```
<drive>:\<Quartus II system directory>\drivers\sentinel\  
setup.exe /usb /q3 ↵
```

or

If you are installing the USB or Parallel Port Software Guard on systems running on Windows XP Professional x64 Edition, type the following command in the **Run** dialog box:

```
<drive>:\<Quartus II system directory>\drivers\sentinel\  
win_xp64\sentinst64.exe /S /v"/qn" ↵
```

3. In the Sentinel Driver Setup Program window, on the Functions menu, click **Install Sentinel Driver**. (Windows 2000 or Windows XP only)
4. In the **Sentinel Install** dialog box, click **OK**. (Windows 2000 or Windows XP only)
5. Restart your computer at the prompt. (Windows 2000 or Windows XP only)

Setting Up USB Software Guard Support for Remote Desktop

If you want to use a USB software guard with the 64-bit version of the Quartus II software, and you want to run the Quartus II software with Remote Desktop, you must set up the software guard with the following procedure:



Remote Desktop USB Software Guard Setup Requirement

Setting up USB software guard support for Remote Desktop with the 64-bit version of the Quartus II software requires that you have system administration (Administrator) privileges.

To set up USB software guard support, follow these steps:

1. If the 64-bit version of the Quartus II software is not already installed on a local drive, copy the following executable to the local drive:

```
<drive>:\<Quartus II system directory>\drivers\sentinel\  
win_xp64\sentprotserv64xp64.exe
```

2. On the Windows Start menu, click **Run**.
3. Type the following command in the **Run** dialog box:

```
<drive>:\<Quartus II system directory>\drivers\sentinel\  
win_xp64\sentprotserv64xp64.exe -i
```

4. Restart your computer.

Installing the USB Software Guard

To install the USB Software Guard on a PC running Windows 2000, Windows XP, or Windows XP Professional x64 Edition, follow these steps:



Software Guard Operating System Compatibility

The USB Software Guard is supported only on PCs running Windows 2000, Windows XP, or Windows XP Professional x64 Edition.

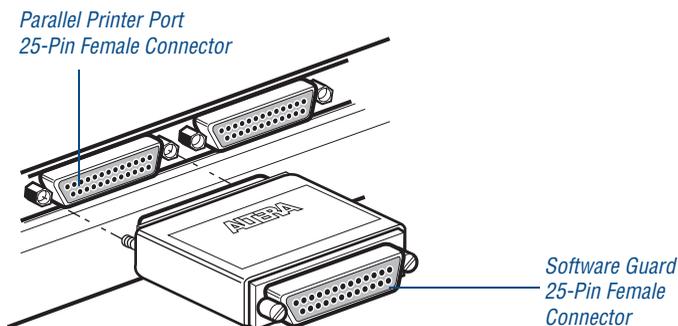
1. Locate an unused USB port on the computer.
2. Insert the USB Software Guard into the USB port.

Installing the Parallel Port Software Guard

To install the Parallel Port Software Guard on a PC running Windows 2000 and Windows XP, follow these steps:

1. Locate a parallel printer port (that is, an LPT port) on the computer. If you have a printer connected to this port, you must disconnect it temporarily.
2. Insert the 25-pin male connector end of the Software Guard into the 25-pin female connector of the parallel printer port, as shown in [Figure 4 on page 36](#).

Figure 4. Attaching the Parallel Port Software Guard to a PC



3. If necessary, reinsert the printer cable connector into the female connector of the Parallel Port Software Guard.



Parallel Port Software Guard Warnings

You should be aware of the following information after you insert a Parallel Port Software Guard:

- Do not connect disk drives that use the parallel port or any device, other than a printer or the ByteBlaster II or ByteBlasterMV download cable, to either end of the Parallel Port Software Guard. Disk drives can destroy a Parallel Port Software Guard by drawing more power than the guard is capable of handling.
- Disconnect the Parallel Port Software Guard before using the parallel port to transfer data between computers using a data transfer program. Failure to do so can cause damage to the Parallel Port Software Guard.

Starting the Quartus II Software

You can start the Quartus II software after installation is complete. In order to enable Quartus II features, however, you must specify the license file, either within or outside the Quartus II software. For information about how to specify your license file, refer to the next section, “[Specifying the License File](#).”

You can start either the 32-bit or 64-bit version of the Quartus II software, if you have installed the Quartus II software 64-bit components and if your system is capable of running the 64-bit version of the Quartus II software. Refer to [Chapter 1, “Altera Complete Design Suite System Requirements.”](#) for system requirements. When you install the Quartus II software, the 64-bit version of the Quartus II software is also installed automatically during a recommended installation.

To start the Quartus II software:

- ✓ On the Windows Start menu, point to **All Programs**, point to **Altera**, point to **Quartus II <Quartus II software version>**, and then point to **Quartus II <Quartus II software version> (32-bit)** or **Quartus II <Quartus II software version> (64-bit)**.

or

- ✓ Open a new command prompt window and type the following command:

```
<drive>:\<Quartus II system directory>\bin\quartus ←
```

When you start the Quartus II software, if the software cannot detect a valid license file, you will see a prompt with the following options:

- **Enable 30-day evaluation period with no license file (no programming file support)**—This option allows you to continue to use the Quartus II software for 30 days without programming file support. After 30 days, you must have a valid license file in order to use the software.
- **Perform automatic web license retrieval**—This option displays the Licensing section of the Altera website, which allows you to request a license file automatically. If you are using a node-locked (FIXEDPC) license, the Quartus II software retrieves the license file automatically from the website. If you are using a network (multiuser) license, or if the Quartus II software is not able to retrieve a license file, you are guided through the licensing procedure. See [“Obtaining a License File” on page 21](#) for more information.
- **Specify valid license file**—This option displays the **License Setup** page of the **Options** dialog box, which allows you to specify the location of your license file. See the next section, [“Specifying the License File,”](#) for more information.

Specifying the License File

Once you have obtained a license file and set up a network license server (for multiuser licenses) or installed a USB or Parallel Port Software Guard (for single-user licenses), you must specify the location of the license file for each user (or “client”). You can specify the license file with one of the following methods, which are described in more detail in this section:

- Specify the license file with the Quartus II software.
- Specify the license file with the Windows 2000, Windows XP, or Windows XP Professional x64 Edition **System** control panel.



Specifying the License File for the ModelSim-Altera Software

If you are using the ModelSim-Altera simulation software, which is included with Altera software subscriptions, and/or you are using the MAX+PLUS II software, you must specify the license file with the **System** control panel.

Specifying the License File within the Quartus II Software

You can specify the location of your license file from within the Quartus II software.



Specifying the License File from within the Quartus II Software

Specifying the license file from within the Quartus II software does not require system administration (Administrator) privileges.

To specify your license file within the Quartus II software, follow these steps:

1. Start the Quartus II software as described in the “[Starting the Quartus II Software](#)” on page 37.

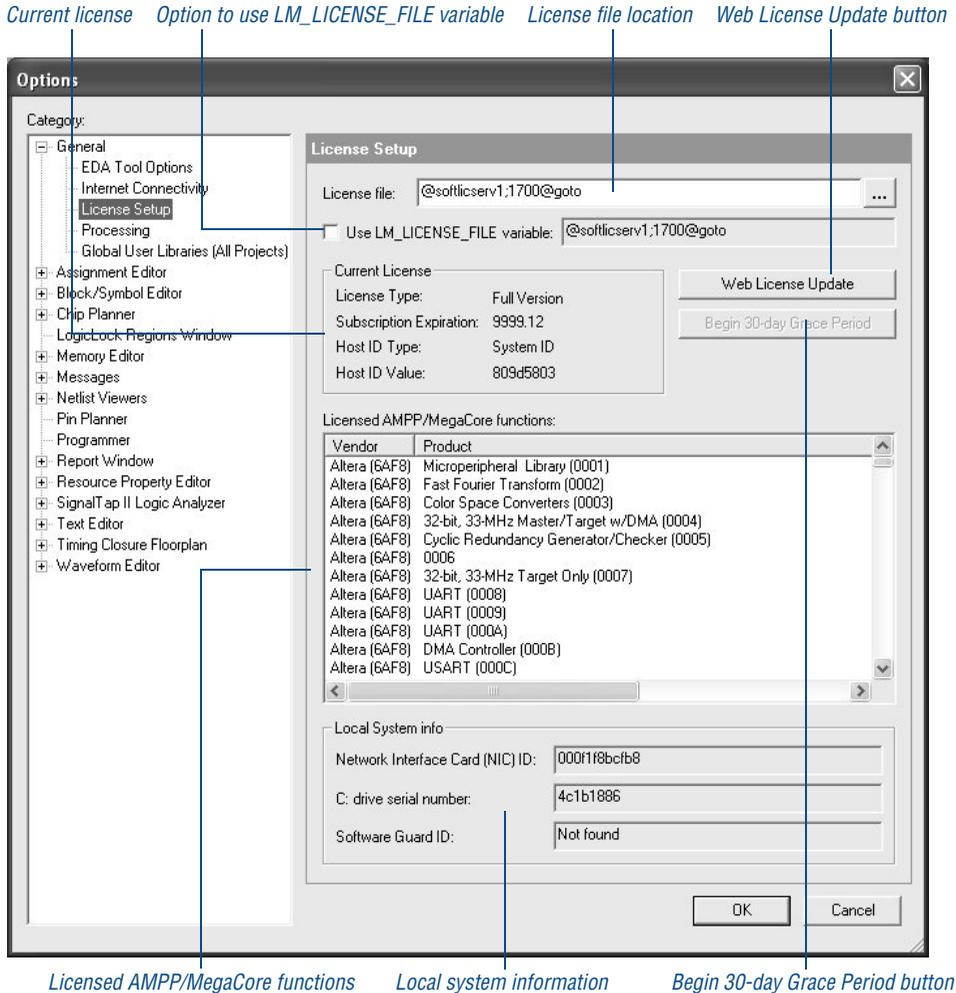


Starting the Quartus II Software for the First Time

When you start the Quartus II software, if the software cannot detect a valid license file, you are asked whether you want to run in evaluation mode for 30 days, request a valid license file automatically from the Altera website, or specify the correct location of a valid license file.

2. Select **Specify valid license file** to specify the name of the license file. The **License Setup** page of the **Options** dialog box appears. [Figure 5](#) shows the **License Setup** page.

Figure 5. License Setup Page of the Options Dialog Box



- In the **License file** box, specify the full path name of your **license.dat** file. You can browse to locate your **license.dat** file. Altera recommends that you store the **license.dat** file in a directory named **c:\licenses:\flexlm**.

You can also specify the location of the license server by typing a name of the format `<port>@<host>` instead of a license file path name, where `<host>` is the name of the machine running the license server and `<port>` is the port listed in the **license.dat** file. Refer to [Figure 2 on page 24](#) for a sample network license file to determine your port and

server name, and see [Table 1 on page 26](#) for more information about port numbers. If there is no port listed in the `license.dat` file, you can simply specify `@<host>`.



Specifying Multiple License Files

If you have more than one license file or server, separate the port and host specifications with semicolons (;), with no spaces between the names and numbers.

or

If you want to use the current `LM_LICENSE_FILE` value specified in the **System** Control Panel, turn on **Use LM_LICENSE_FILE variable**.

4. If you want the Quartus II software to check the Altera website for license file updates, click **Web License Update**.
5. If you want the Quartus II software to automatically check the Altera website for license file updates upon startup, turn on **Check the Altera web site for license updates at startup** in the **Internet Connectivity** page of the **Options** dialog box.
6. If you want to use the Quartus II software in the “Subscription Expiration” grace period and did not already specify that option at startup, click **Begin 30-day Grace Period**. The “Subscription Expiration” grace period allows you to use the Quartus II software with programming file support for 30 days. When the grace period expires, you must obtain an updated license file at the Altera website to continue using the Quartus II software with programming file support.
7. Click **OK**.

The **Licensed AMPP/MegaCore functions** list of the **License Setup** page lists all of the AMPP and MegaCore functions that are available for the license.

Specifying the License File with the Windows System Control Panel

You can specify the location of your license file from outside the Quartus II software by setting system variables in the Windows 2000, Windows XP, or Windows XP Professional x64 Edition **System** Control Panel.



Specifying the License File in System Control Panel

Specifying the license file in the **System** Control Panel requires that you have system administration (Administrator) privileges.

To specify the license file in the Windows 2000, Windows XP, or Windows XP Professional x64 Edition **System** Control Panel, follow these steps:

1. On the Windows Start menu, click **Control Panel**.
2. Double-click the **System** icon in the Control Panel window.
3. In the **System Properties** dialog box, click the **Advanced** tab.
4. In the **Advanced** tab, click **Environment Variables**.
5. Under **System Variables**, click **New**. The **New System Variable** dialog box appears.
6. In the **Variable Name** box, type `LM_LICENSE_FILE`.
7. In the **Variable Value** box, type either `<drive>:\flexlm\license.dat` or a name of the format `<port>@<host>`, where `<host>` is the name of the server and `<port>` is the port listed in the `license.dat` file. Refer to [Figure 2 on page 24](#) for a sample network license file to help you determine your port and server name. Refer also to [Table 1 on page 26](#) for more information about port numbers. If there is no port listed in the `license.dat` file, you can simply specify `@<host>`.



Specifying Multiple License Files and/or Servers

If you have more than one license file or server, separate the port and host specifications with semicolons (;), with no spaces between the names and numbers.

8. Click OK.

If you want the Quartus II software to use the `LM_LICENSE_FILE` setting from your **System** Control Panel rather than from another license file setting, make sure **Use LM_LICENSE_FILE variable** is turned on in the **License Setup** page in the **Options** dialog box.

Registering for an Altera.com Account

Your copy of the Quartus II software is registered at the time of purchase; however, in order to use the mySupport website to view and submit service requests, you must also register for an Altera.com account and an Altera user name. You can use your Altera user name to access your Altera.com account. Although use of the mySupport website requires you to have an Altera.com account, this account also makes it easier to use many other Altera website features, such as the Download Center, Licensing Center, Altera Technical Training online class registration, or Buy On-Line-Altera eStore features.

To register for an Altera.com account, follow these steps:

1. Go to the mySupport website:
 - ✓ To start your web browser and connect to the mySupport website while running the Quartus II software, on the Help menu, point to **Altera on the Web**, and then click **Quartus II Service Request**.

or

 - ✓ Point your web browser to the mySupport website at **www.altera.com/mysupport**.
2. Follow the instructions on the mySupport website to register for an Altera.com account.

If you are not a current Altera subscription user, you can still register for an Altera.com account and an Altera user name.

Licensing Related Software

In addition to licensing the Quartus II software, you must also license any other related Altera software you install. This section contains licensing procedures for the MegaCore IP Library, Nios II Embedded Design Suite, and ModelSim-Altera.

MegaCore IP Library

Once you purchase a license for any of the IP MegaCore functions, you can request a license file from the Licensing section of the Altera website at www.altera.com/licensing and install it on your computer.

If you have already installed a license for a IP MegaCore function, and then you receive a new license file for a new IP MegaCore function, you can either append the license file to your existing **license.dat** file, or you can specify the MegaCore function's **license.dat** file in the Quartus II software.

Nios II Embedded Design Suite

You can create, compile, and generate time-limited FPGA programming files for Nios II hardware systems without obtaining a license file. To generate non-time-limited FPGA programming files and flash programming files, you must obtain a license for the Nios II processor core in addition to the license for the Quartus II software. You do not need a license if you will only develop software using the Nios II IDE.

ModelSim-Altera

You can request a ModelSim-Altera license file from the Licensing section of the Altera website at www.altera.com/licensing and install it on your computer.

The ModelSim-Altera software supports licenses using the Mentor Graphics license daemon **mgcld**. The **mgcld** daemon is located in the *<installation directory>\win32aloem* directory.

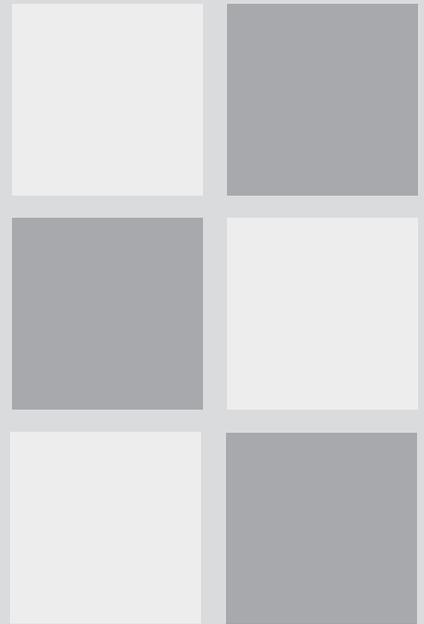
Before starting the ModelSim-Altera, you must set your `LM_LICENSE_FILE` environment variable to the location and filename of the ModelSim-Altera license file. For example, the `LM_LICENSE_FILE` environment variable should be set to the location and file name of your license file (*<installation directory>\licenses\eda\license.dat*) or with the port@host notation (*1900@set*).

To set your `LM_LICENSE_FILE` environment variable to the location and file name of the ModelSim-Altera license file, follow these steps:

- 1.** On the Windows Start menu, click **Control Panel**. The **Control Panel** appears.
- 2.** Double-click **System**. The **System Properties** dialog box appears.
- 3.** On the **Advanced** tab of the **System Properties** dialog box, click **Environment Variables**.
- 4.** Under **System Variables**, select `LM_LICENSE_FILE`.
- 5.** Click **Edit**. The **Edit System Variable** dialog box appears.
- 6.** In the **Variable value** box, type the location of your license file.
- 7.** In the **Edit System Variable** dialog box, click **OK**.
- 8.** In the **Environment Variables** dialog box, click **OK**.
- 9.** In the **System Properties** dialog box, click **Apply**.

Chapter Three

Documentation & Technical Support



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3

Starting the Quartus II Interactive Tutorial

The Quartus II software version 6.1 includes the new Flash-based Quartus II Interactive Tutorial. The modules of this tutorial teach you how to use the basic features of the Quartus II design software, including design entry, compilation, timing analysis, simulation, and programming.

This tutorial includes audio and Flash animation components, and is best experienced with a sound card and speakers and at least 1024x768 display resolution.

To start the Quartus II Interactive Tutorial after you have successfully installed the Quartus II software:

- ✓ On the Help menu, click **Tutorial**.

Once you start the tutorial, you can jump immediately to any tutorial module by clicking the **Contents** button. Once you select a tutorial module, you can click **ShowMe**, **GuideMe**, or **TestMe** at any time to jump directly to the tutorial mode that best suits your learning style.

Using Quartus II Help

The Quartus II software includes a platform-independent Help system that provides comprehensive documentation for the Quartus II software and more details about the specific messages generated by the Quartus II software. You can view Help in one of the following ways:

- Press F1 from a highlighted menu command or active dialog box for context-sensitive help.
- Press Shift+F1 or click **Context-Sensitive Help**  on the toolbar. The pointer turns into a Help pointer. You can then point to a menu command or active window and click for context-sensitive help.
- On the Help menu, click **Index** to view the **Index** tab. The Index lets you search for and display all Help topics related to a keyword or phrase.
- On the Help menu, click **Search** to perform a search with the **Search** tab. The Search finds a maximum of 500 topics containing the search keyword.

- On the Help menu, click **Contents** to view the **Contents** tab. The Contents outlines the design flow and groups related topics into folders, but does not list all the topics in Quartus II Help.
- On the Help menu, click **Messages** to view the **Messages** list. The Messages list provides an alphabetical list of all messages and offers detailed Help on each message.
- On the Help menu, click **Glossary** to view the Glossary list. The Glossary list provides definitions to key terminology in the Quartus II software.



For Information About	Refer To
Using Quartus II Help	“Help Menu Commands” in Quartus II Help. “Using Quartus II Help Effectively” in Quartus II Help.

Getting Help on a Message

To view Help on an individual message, follow these steps:

- ✓ In the Messages window, right-click the message on which you want to receive Help, and then click **Help**.

To view the entire alphabetical list of messages:

- ✓ On the Help menu, click **Messages**.

or

- ✓ On the Help menu, click **Contents**, and then select **Messages List** from the end of the Contents.

Contacting Altera

You can contact Altera for technical support and product information.

Technical Support

If you need technical support, you can visit the Altera website or the mySupport website, or you can call the Altera Applications Department.

Table 1. Quartus II Technical Support Resources

Resource	Description
Altera website:	www.altera.com
mySupport website:	www.altera.com/mysupport or, on the Help menu, point to Altera on the Web , and then click Quartus II Service Request in the Quartus II software. This website allows you to submit, view, and update technical support service requests.
Telephone:	(800) 800-EPLD (7:00 a.m. to 5:00 p.m. Pacific time, M–F) You need your 6-digit Altera ID to access the hotline. (408) 544-8767 (7:00 a.m. to 5:00 p.m. Pacific time, M–F)



Registering for an Altera.com Account

In order to use the mySupport website to view and submit service requests, you must also register for an Altera.com account. An Altera.com account is required only for using the mySupport website; however, having an Altera.com account will also make it easier for you to use many other Altera website features, such as the Download Center, Licensing Center, Altera Technical Training online class registration, or Buy On-Line-Altera eStore features. For more information, refer to “Registering for an Altera.com Account” on page 43 in Chapter 2, “Licensing the Quartus II Software.”

Product Information

If you need the latest Altera product information or literature, go to the Literature section of the Altera website at www.altera.com/literature. You can also purchase printed sets of documentation from the Shop Altera website at www.shopaltera.com.



For Information About	Refer To
Altera technical support services and product information	The Contact Altera section of the Altera website.

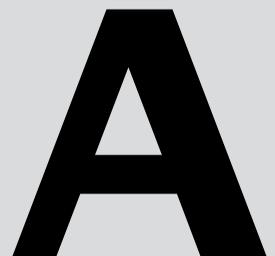
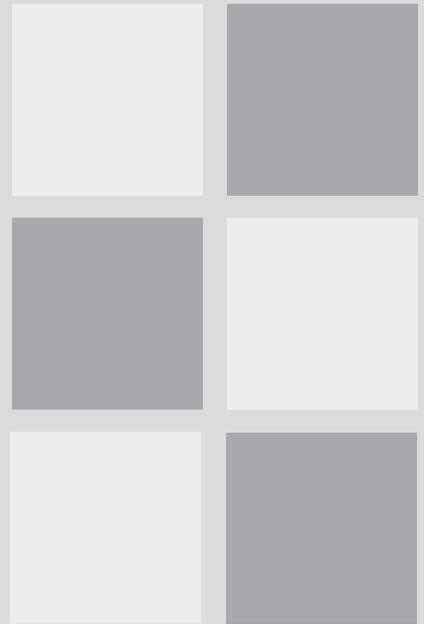
Revision History

The information contained in the *The Quartus II Installation & Licensing for Windows* manual version 6.1 revision 1 supersedes information published in previous version.

The version 6.1 manual is updated to contain comprehensive information for installing and licensing the Altera Complete Design Suite software.

Appendix A

Altera Complete Design Suite File Organization



What's in Appendix A:

Altera Complete Design Suite File Organization

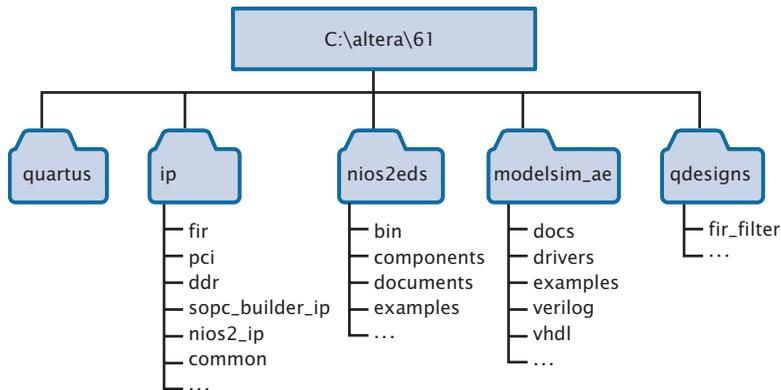
Altera Complete Design Suite File Organization

During the Altera Complete Design Suite installation, one top-level directory is created:

The `\altera\<version number>` directory contains system software and data files and includes the subdirectories shown in Figures 1 and 2.

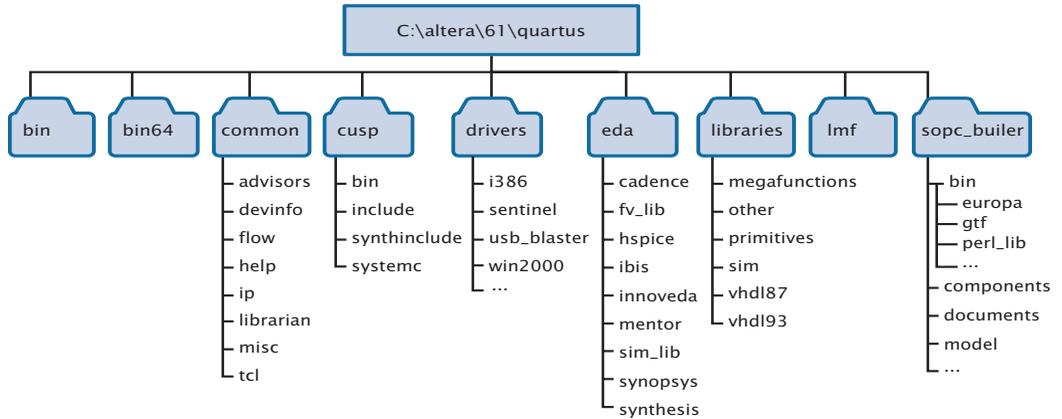
The main `\altera\<version number>` directory includes the subdirectories shown in Figure 1.

Figure 1. Altera Complete Design Suite System Directory (<drive>:\altera\<version number>)



The `\altera\<version number>\quartus` directory includes the subdirectories shown in Figure 2.

Figure 2. Quartus II Software System Directory (<drive>:\altera\<version number>\quartus)



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