Altera Software Licensing

Introduction

This document describes options for licensing Altera® software and the steps required for licensing: obtain a license file, set it up, and specify the license location. This document also includes tips to troubleshoot licensing problems, provides answers to common questions about licensing, and includes detailed information about Altera license file formats.

Licensing Options

Altera provides a number of licensing options to customers. A specific license is required for each Altera software product.

Supported Licensed Software

An Altera software subscription enables the following software:

- Altera Quartus® II software (includes Altera SOPC Builder software and IP Base Suite)

- Altera MAX+PLUS® II software

- ModelSim®-Altera Edition software

Supported Software Subscriptions

Altera offers the following types of software subscriptions:

- FIXEDPC—a stand-alone (node-locked, single-user) PC license tied to the network interface card (NIC) ID or a Quartus II software serial number

☞ Prior to the Quartus II software version 8.0, a FIXEDPC license tied to a software guard (T-guard or dongle) was required.

Beginning with Quartus II software version 8.0, Altera issues a FIXEDPC license that is tied to the NIC ID. Additionally, if you use the Quartus II software on more than one computer, you can request one companion license for each FIXEDPC license. To request a companion license, contact Altera Customer Service at www.altera.com/corporate/contact/con-index.html.

☞ If you are using a node-locked (FIXEDPC) version of the Quartus II software for the first time, you must use your Quartus II software serial number to obtain a license file.

■ FLOATALL—a floating network license for users running the Quartus II software on Microsoft Windows, Solaris, RedHat Linux, or SUSE Linux Enterprise

☞ Beginning with Quartus II software version 6.1, floating network license subscribers are issued a FLOATALL license with OS support as previously described. If you are a subscriber to the Quartus II software version 6.0 or earlier, Altera continues to support FLOATPC, FLOATNET, and FLOATLNX with the following OS support:

■ FLOATPC, a floating network license for users running the Quartus II software on Microsoft Windows

■ FLOATNET, a floating network license for users running the Quartus II software on Windows or Solaris

■ FLOATLNX, a floating network license for running the Quartus II software on Windows or RedHat Linux

A new FLOATALL license is issued when you increase the number of seats for your existing FLOATPC, FLOATNET, or FLOATLNX license.

Altera UNIX applications are supported for the Sun Microsystems Solaris operating system for Quartus II software versions 8.0 and earlier. Altera Linux applications are supported for the RedHat and SUSE Linux operating system.

When the Quartus II software is used, the license server for the FLOATALL, FLOATNET, and FLOATLNX software subscription products does not have to be running the same operating system as client computers.

Development Kits Containing the Quartus II Software

Development kits that contain the Quartus II software include instructions about how to obtain a license for that software.

No-Cost Entry-Level Software

For PCs, Altera also offers the following no-cost entry-level software available at www.altera.com. The no-cost entry-level software does not require a license file:

■ Quartus II Web Edition software—a version of the Quartus II design software that supports selected devices and limited feature support

■ ModelSim-Altera Starter Edition—a version of the ModelSim-Altera Edition that supports selected devices and limited feature support

☞   Quartus II Web Edition and ModelSim-Altera Web Edition version 8.0 and earlier require a license file.

Altera University Program Software Licenses

The Altera University Program offers participating schools access to Altera software, licensed in one of the following ways:

■   Fixed (NIC ID based) or floating (network) licenses for universities and colleges that have applied to become members of the Altera University Program. The licensing process for these University Program licenses is the same as Altera software subscriptions.

■   MAX+PLUS II Student Edition: no-cost PC software for students.

🐾   For more information about the University Program, refer to www.altera.com.

The SOPC Builder software is automatically installed with the Quartus II software and does not require a separate license. To access other components that are not available in the default installation of the SOPC Builder software, install the MegaCore® IP Library included with the Quartus II software installation.

Table 1 summarizes the software enabled by each of the license types described in this section.

Table 1. Supported Software for Each License Type   *(Note 1)*

License Type	Quartus II	ModelSim-Altera *(2)*	MAX+PLUS II	IP Base Suite
FIXEDPC License	✓	✓	✓	✓
FLOATALL License	✓	✓	✓	✓
FLOATPC License *(3)*	✓	✓	✓	✓
FLOATNET License *(3)*	✓	✓	✓	✓
FLOATLNX License *(3)*	✓	✓	✓ *(4)*	✓
Quartus II (1-year license) *(5)*	✓	—	—	—
Quartus II Web Edition	✓ Web Edition *(6)*	✓ Web Edition *(6)*	—	—
MAX+PLUS II BASELINE	—	—	✓ BASELINE	—
MAX+PLUS II Student Edition	—	—	✓ Student Edition	—

Notes to Table 1:

(1)   The Quartus II and Quartus II Web Edition software includes integrated VHDL and Verilog HDL synthesis capabilities. MAX+PLUS II users can download the MAX+PLUS II Advanced Synthesis software from www.altera.com.

(2)   The ModelSim-Altera software is available for VHDL and Verilog HDL simulation, but the software does not support mixed language simulation.

(3)   These licenses are only available for releases prior to Quartus II version 6.1 (versions 6.0 and earlier).

(4)   These licenses are available only for PC installations of these tools.

(5)   Some Altera development kits include a license to use the Quartus II software. Development kit users are given instructions about how to obtain a license for the software. After you obtain the license, the licensing process is the same as the process for the PC evaluation software outlined in "Licenses for No-Cost Evaluation PC Software" on page 13.

(6)   The Quartus II Web Edition versions 8.1 and later do not require a license file. However, if you purchase additional IP cores, a NIC-based license file is required. ModelSim-Altera Starter Edition versions 6.4g and later do not require license files.

You can obtain or purchase Intellectual Property (IP) and Development Kit licenses from the Altera IP MegaStore at www.altera.com/ipmegastore, or through your local Altera sales office or distributor.

For more information about the OpenCore and OpenCore Plus IP evaluation programs, including licensing information, refer to *AN 320: OpenCore Plus Evaluation of Megafunctions* and *AN 343: OpenCore Evaluation of AMPP Megafunctions*.

When you order a development kit, make sure that the network card ID provided with the order is for the computer on which the development kit software is to be installed. If you do not provide the correct network card ID, you cannot automatically download your development kit software license from Altera's website because your network card ID is not in the licensing database. For instructions about how to provide an updated network card ID for your license file, refer to "How to Change Your License Information" on page 41.

Information Required to Get a License File

This section describes how to find the information required to obtain an Altera license file. Not all of this information is required for every license request. Refer to Table 2.

Table 2. Required Licensing Information for Each License Type

License Type	Licensing Requirements *(1)*
FIXEDPC License	Altera ID, software guard ID *(2)*, NIC ID, Quartus II software serial number
FLOATALL, FLOATPC, FLOATNET, or FLOATLNX License	Altera ID, NIC ID for Windows NT *(3)*, Windows 2000 *(3)*, Windows XP, Windows Vista, or RedHat Linux license servers *(4)*
	Altera ID, host ID for UNIX license server *(4)*
Quartus II Web Edition	NIC ID *(6)*
MAX+PLUS II BASELINE	NIC ID
	Hard-disk serial number *(5)*
MAX+PLUS II Student Edition	Hard-disk serial number *(5)*
Intellectual Property (IP) and Development Kit License	*(7)*

Notes to Table 2:

(1) The licensing web pages on www.altera.com include definitions and instructions about how to obtain the Altera ID, serial number, software guard ID, host ID, network interface card (NIC) ID, Quartus II software serial number, or hard-disk serial number.

(2) The Quartus II software prior to version 8.0 uses a FIXEDPC license that is tied to a software guard (a T-guard or dongle). Beginning with the Quartus II software version 8.0, Altera issues a FIXEDPC license that is tied to the network interface card (NIC ID).

(3) Quartus II software versions 6.0 and later do not support Windows NT operating systems. The Quartus II software versions 9.0 and later do not support the Windows 2000 operating system. Refer to www.altera.com/support/software/os_support/oss-index.html for updated operating system support.

(4) The FLEXlm License Manager allows up to three redundant license servers to serve a network license. The first server specified is the master; use the master's NIC ID or Host ID when obtaining a license.

(5) If the PC has more than one hard disk, select the hard disk where the Windows operating system is installed.

(6) The Quartus II Web Edition versions 8.1 and later do not require a license file. ModelSim-Altera Starter Edition for Quartus II Web Edition versions 8.1 and later do not require license files. However, a NIC-based license file is required if you have additional purchased IP cores.

(7) The Intellectual Property (IP) and Development Kit licenses are added as feature lines in the Quartus II software license file. Therefore, the licensing requirements depend on the Quartus II software license type (FIXEDPC, FLOATALL, FLOATPC, FLOATNET, or FLOATLNX).

Altera ID

Your Altera ID number is assigned by Altera when you purchase the software. This six-digit number allows Altera to identify customers when they purchase an Altera product or request technical support. For new Quartus II or MAX+PLUS II software users, the Altera ID number is printed on the software's shipping label, packing slip, or can be downloaded from the Altera website at www.altera.com/mysupport. The Altera ID number is also on some correspondence received from Altera.

If you are not the original purchaser of the license, register as a secondary user of the software on the mySupport section of the Altera website at www.altera.com/mysupport. If the Altera ID used for the license is unknown, use six zeros (000000) to request a license file.

Quartus II Software Serial Number

The Quartus II software serial number is a 15-character alphanumeric number beginning with the letter **A**. Your Quartus II software serial number is provided when you purchase the Quartus II development system.

Software Guard ID

The software guard ID is a ten-character identification. Guards that connect to the parallel port or USB port have an ID that begins with a "T" followed by nine numbers, which are displayed when you install the software. You can obtain the software guard ID using one of the following methods:

- Read it from the printed label on the guard.

- If the Quartus II software has been installed and the guard is attached, on the Tools menu, click **License Setup**. Your Software Guard ID appears under **Local System info** in the **Software Guard ID** field.

- If the MAX+PLUS II software has been installed and the guard is attached, on the Options menu, click **License Setup** (shown in Figure 1) and click **System Info** (shown in Figure 2).

☞ USB software guards are supported only for the Quartus II software versions prior to version 8.0 on Windows Vista, Windows XP, and Windows 2000.

☞ Altera uses third-party licensing dongles. The programmable features of Sentinel products are not used. You can find more information about the licensing dongles on the manufacturer's website at www.safenet-inc.com.

Figure 1. MAX+PLUS II License Setup, Tools Menu
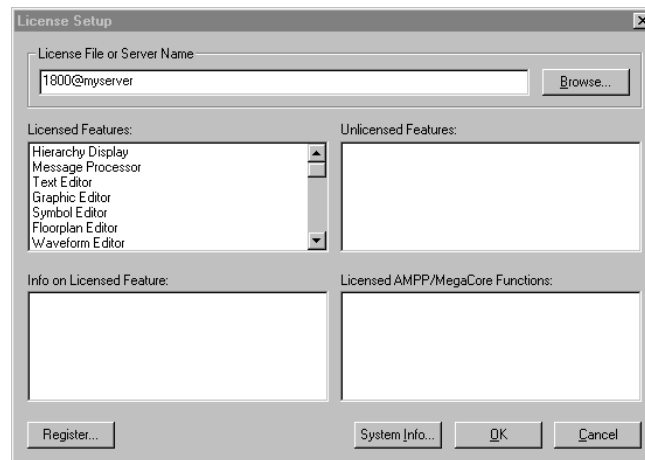
Figure 2. MAX+PLUS II System Info
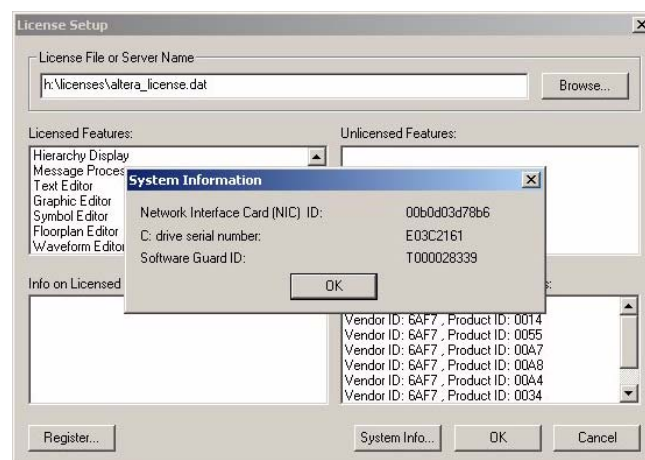
Host ID

The server host ID is an eight-character hexadecimal string that identifies the UNIX workstation that serves Altera licenses.

Contact the server system or network administrator to obtain this ID, or use one of the following methods to determine the server host ID:

■ Sun Solaris: Type `hostid` at the command prompt.

■ If the FLEXlm software has been installed, type `lmutil lmhostid` at the command prompt to determine the ID.

☞ You can use the FLEXlm licensing scheme to configure as many as three redundant license servers. The first server specified is the master; use the master server's NIC ID or host ID when obtaining a license.

☞ Quartus II software versions 5.0 and later do not support the HP-UX OS platform. Quartus II software versions 8.0 and later do not support the Sun Solaris platform. Refer to www.altera.com/support/software/os_support/oss-index.html for updated operating system support.

NIC ID

The NIC ID is a 12-character hexadecimal string embedded in the network interface card that Altera uses to uniquely identify the PC where the software is installed.

The NIC ID is required for network licenses when the license server machine is a PC. It is also required for licenses issued for stand-alone PC software. Refer to Table 2 on page 4 for more information.

Find the NIC ID using one of the following methods:

■ Windows: Type `ipconfig /all` ⏎ at a command prompt. The NIC ID is the physical address without the dashes. If your PC has more than one network card, you can use any of the cards' NIC IDs as long as the selected network card is always connected to the computer. Refer to Figure 3.

Figure 3. Windows NIC ID
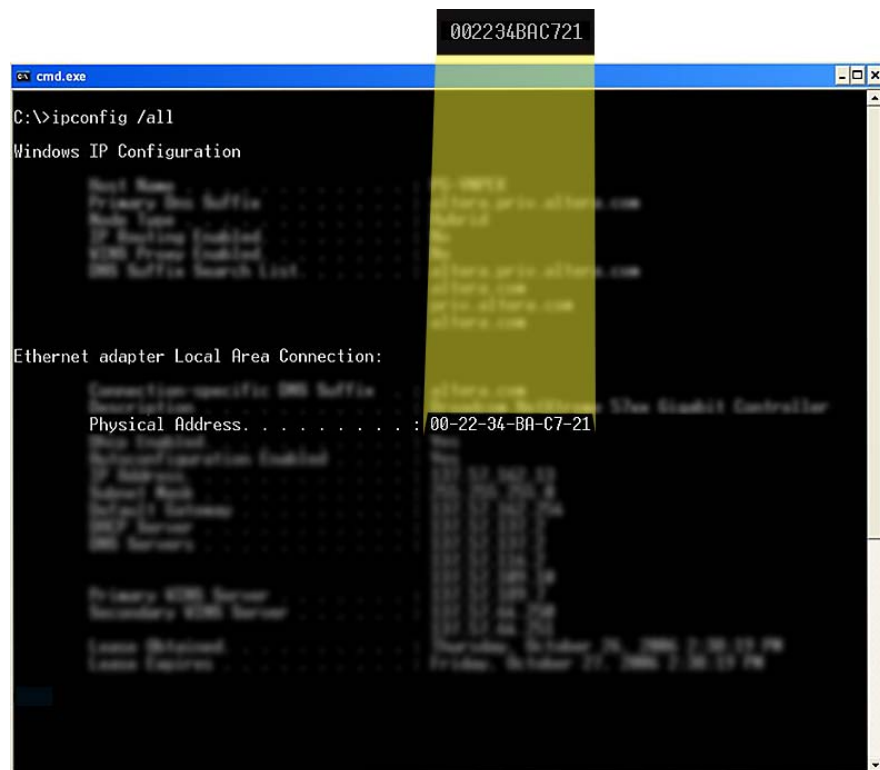
■ For Linux, at a command prompt type: `/sbin/ifconfig eth0` ⏎. The NIC ID is the ID to the right of **HWaddr**, without the colons. For example, `2234BAC721`. Refer to Figure 4.

Figure 4. Linux NIC ID

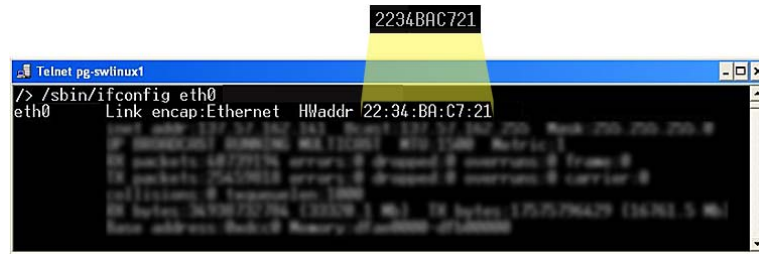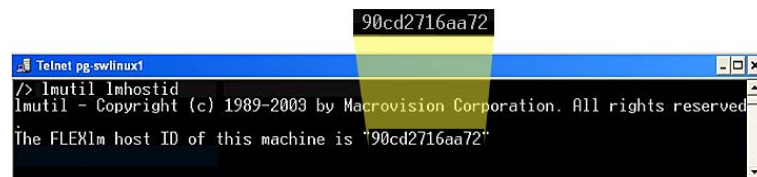- If the Quartus II software is installed, on the Tools menu, click **License Setup**. Your Network Interface Card (NIC) ID appears under **Local System info** in the **Network Interface Card (NIC) ID** field.

- If the MAX+PLUS II software is installed, on the Options menu, click **License Setup, then** click **System Info**. Refer to Figure 5.

Figure 5. MAX+PLUS II NIC ID
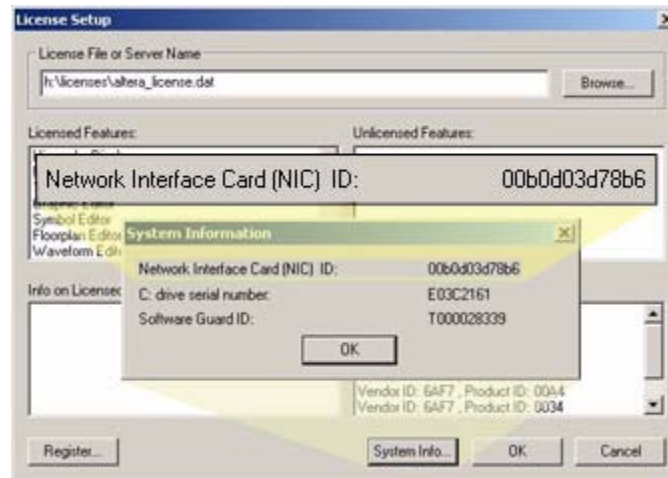
- If the FLEXlm software is installed, type `lmutil lmhostid` ↵ at a command prompt to determine the ID (Figure 6).

Figure 6. FLEXlm NIC ID

☞ Use the FLEXlm licensing scheme to configure as many as three redundant license servers. The first server specified is the master; use the master server's NIC ID or host ID when obtaining a license.

☞ If you are running the `lmutil lmhostid` command on a Solaris platform, an eight-digit System ID is displayed. Otherwise, for all other platforms, a 12-digit NIC ID is displayed.

Hard-Disk Serial Number

The hard-disk serial number is an eight-character hexadecimal ID that identifies the PC with the Altera license. Find the hard-disk serial number for the PC by any of the following methods. Ensure that the ID is eight characters long; include a leading zero if necessary.

■ For PCs running the Microsoft Windows operating system, type `vol` at a command prompt regardless of where the Windows operating system is installed. The ID is the serial number for the drive containing the **C:** drive. Refer to Figure 7.

Figure 7. Windows Volume Serial Number

■ If the Quartus II software is installed, on the Tools menu, click **License Setup.** This method ensures the correct hard-disk serial number is used if multiple hard drives are in use. Your hard-disk serial number appears under **Local Systems info** in the **C: drive serial number** field.

■ If the MAX+PLUS II software has been installed, on the Options menu, click **License Setup**, then click **System Info** (Figure 8). This method ensures use of the correct hard-disk serial number if multiple hard drives are in use.

Figure 8. MAX+PLUS II License Setup
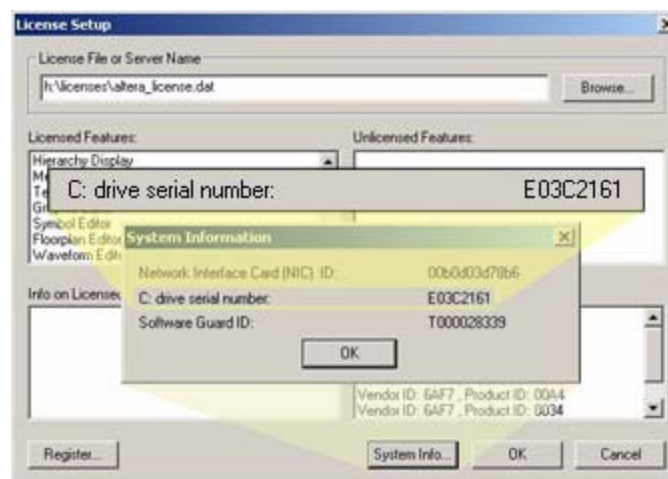
Get an Altera License File

You can request a license file automatically with some Altera software. You can also manually request a license file from the License Center on Altera's website at www.altera.com. The license file is sent to you as an email attachment. When you receive the attachment, set it up by following the steps described in "Set Up the License" on page 11.

To view information about software licensed to you and request license files, you can log onto the mySupport section of the Altera website at www.altera.com/mysupport.

Automatic License File Request

You can request a license file automatically with the latest versions of the Quartus II Subscription Edition.

☞ If you have a floating license, you must manually request a license file from the License Center on Altera's website. Follow the instructions in "Manual License File Request" on page 10.

☞ For redundant license servers, you must manually request a license file. You can contact Altera Customer Service at www.altera.com/corporate/contact/con-index.html or you can file a service request using mySupport at www.altera.com/mysupport.

1. When you start the Quartus II software, the **License Setup Required** dialog box appears. Select **Perform automatic web license retrieval**. Refer to Figure 9.

Figure 9. Quartus II License Setup
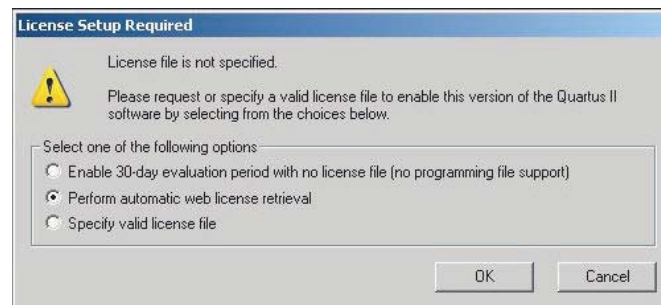
2. Follow the instructions on-screen to receive your license file by email.

3. When you receive the license, follow the steps in "Set Up the License" on page 11.

Manual License File Request

To manually request a license file, use the following procedure:

1. Browse to www.altera.com and click the **Licensing** icon.

2. Click the link for the appropriate license type. Table 1 on page 3 describes some of the available choices.

3. Follow the instructions on the screen and enter the required information to receive your license file by email. The required information varies for each license.

Table 2 on page 4 describes the required information for various licenses. For more information about gathering any required information, refer to "Information Required to Get a License File" on page 4.

4. An email is sent to the address that you specified in the on-line form. Network congestion can cause delays in email delivery. If you do not receive an email from Altera within 12 hours of your license request, or if you do not know all the required information to complete the process, file a service request using mySupport at www.altera.com/mysupport.

5. When you receive the license, follow the steps described in "Set Up the License".

Set Up the License

After you receive your license file by email, you must set it up. To begin setting up your license, go to the section corresponding to your license type or product and follow the instructions provided.

- Quartus II Subscription Edition with ModelSim-Altera Edition on page 14
- Quartus II Subscription Edition only:
    - FIXEDPC on page 12
    - FLOATALL or FLOATPC/FLOATNET/FLOATLNX on page 13
- MAX+PLUS II with ModelSim-Altera Edition on page 14
- MAX+PLUS II only:
    - FIXEDPC on page 12
    - FLOATALL or FLOATPC/FLOATNET/FLOATLNX on page 13
- Intellectual Property (IP) Cores on page 16
- DSP Builder on page 18
- Intellectual Property (IP) and Development Kits on page 19

When you request or purchase an Altera IP core or development kit that requires a license, licensing information is provided. Use the following procedure to add a new license feature to an existing Altera license file:

1. Close any software programs provided by Altera.

2. Open the new IP or development kit license file in a text editor. The file should contain one or more lines starting with the keyword FEATURE or INCREMENT.

3. Open the existing Altera **license.dat** file in a text editor.

4. Copy the FEATURE or INCREMENT line(s) from the IP or development kit license file and paste the text into the existing Altera **license.dat** file.

CAUTION

Do not delete any FEATURE or INCREMENT lines from the existing Altera license file. Doing so results in a non-usable license file.

5. Save the Altera **license.dat** file.

☞ Ensure that the text editor does not append **.txt** (or any other extension) to the filename, such as **license.dat.txt**.

6. Go to "Set Up the License" on page 11 for instructions about how to set up the Altera license.

FIXEDPC License

To set up a FIXEDPC license, perform the following steps:

1. Make a backup copy of any existing **license.dat** file for reference.

2. Save the new **license.dat** file on your computer's hard drive. Altera recommends saving and using the **license.dat** file attached to the email. If you cannot receive email attachments, the email includes instructions about how to create a **license.dat** file.

3. If you are using the Quartus II software version 8.0 or later, skip this step. If you are using the Quartus II software version 7.2 or earlier, attach the software guard to a parallel or USB port on the PC.

The Sentinel driver for software guard-based licensing is installed automatically with the Quartus II and MAX+PLUS II software. PCs running Windows Vista, Windows XP, Windows NT, or Windows 2000 require that you install the Sentinel driver.

☞ Quartus II software versions 6.0 and later do not support the Windows NT operating system. The Quartus II software versions 9.0 and later do not support Windows 2000. Refer to the Operating System Support page on the Altera website for updated operating system support.

Installing the Sentinel driver requires administrator privileges. If you are not logged on as an administrator, or if you do not have administrator privileges when the Quartus II or MAX+PLUS II software is installed, you must manually install the Sentinel drivers after you are logged into the PC as an administrator or granted similar permissions. At the command prompt, type the appropriate command:

■ For Quartus II software:

<Quartus II installation path>\drivers\sentinel\setup ↵

■ For MAX PLUS II software:

<MAX+PLUS II installation path>\drivers\setupx86 ↵

👣 For additional information about installing the Sentinel driver, refer to the "Installing a Sentinel Software Guard" section in the *Quartus II Installation & Licensing for Windows and Linux Workstations* manual.

For additional information about FIXEDPC licenses, refer to the *Quartus II Installation & Licensing for Windows and Linux Workstations* manual.

Do not connect disk drives or any devices that use the parallel port, other than a printer or Altera parallel port download cable, to either end of the software guard. Disk drives can destroy a software guard by drawing more power than the guard is capable of handling.

Disconnect the 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 software guard.

4. Specify the license location. The license location is *<path to license file>***license.dat**, where *<path to license file>* is the full directory path to the license file, starting with the drive letter. For example, **D:\flexlm\license.dat**.

The license is now set up and you can begin using the software.

Floating Network Licenses (FLOATALL, FLOATPC, FLOATNET, FLOATLNX)

This section describes how to determine the license file location for a floating license. For instructions about how to set up a floating license server (typically performed by a system administrator), refer to "Set Up the Network Licenses" on page 20.

If individual users have not set up the network license server, complete the following steps before proceeding:

1. Get the port number and host name from the network or system administrator. This information can also be found in the license file line beginning with the word SERVER.

   Example SERVER line:
   SERVER *<hostname>* *<8 or 12 character host or NIC ID>* *<port>*

   For example:
   SERVER myserver 00B0D0ABEAEC 1800

   The license location for the user is *<port>*@*<hostname>*.

   For example:
   1800@myserver

   If a port is not listed in the **license.dat** file, specify *<port>*@*<hostname>*.

2. Proceed to "Using the LM_LICENSE_FILE System Environment Variable" on page 14.

Licenses for No-Cost Evaluation PC Software

MAX+PLUS II BASELINE is a no-cost evaluation PC software that requires license setup.

Refer to "Licensing Options" on page 1 for more information.

To set up a no-cost evaluation PC software license, perform the following steps:

1. Make a backup copy of any existing **license.dat** file for reference.

2. Save the new **license.dat** file on your computer's hard drive. Altera recommends saving and using the **license.dat** file attached to the email. If you cannot receive email attachments, the email includes instructions about how to create a **license.dat** file.

3. Specify the license location. The license location is *<path to license file>***license.dat**, where *<path to license file>* is the full directory path to the license file, starting with the drive letter. Figure 10 shows an example of specifying **C:\licenses\altera_license.dat** as the license path and filename.

Figure 10. Quartus II License Path and Filename
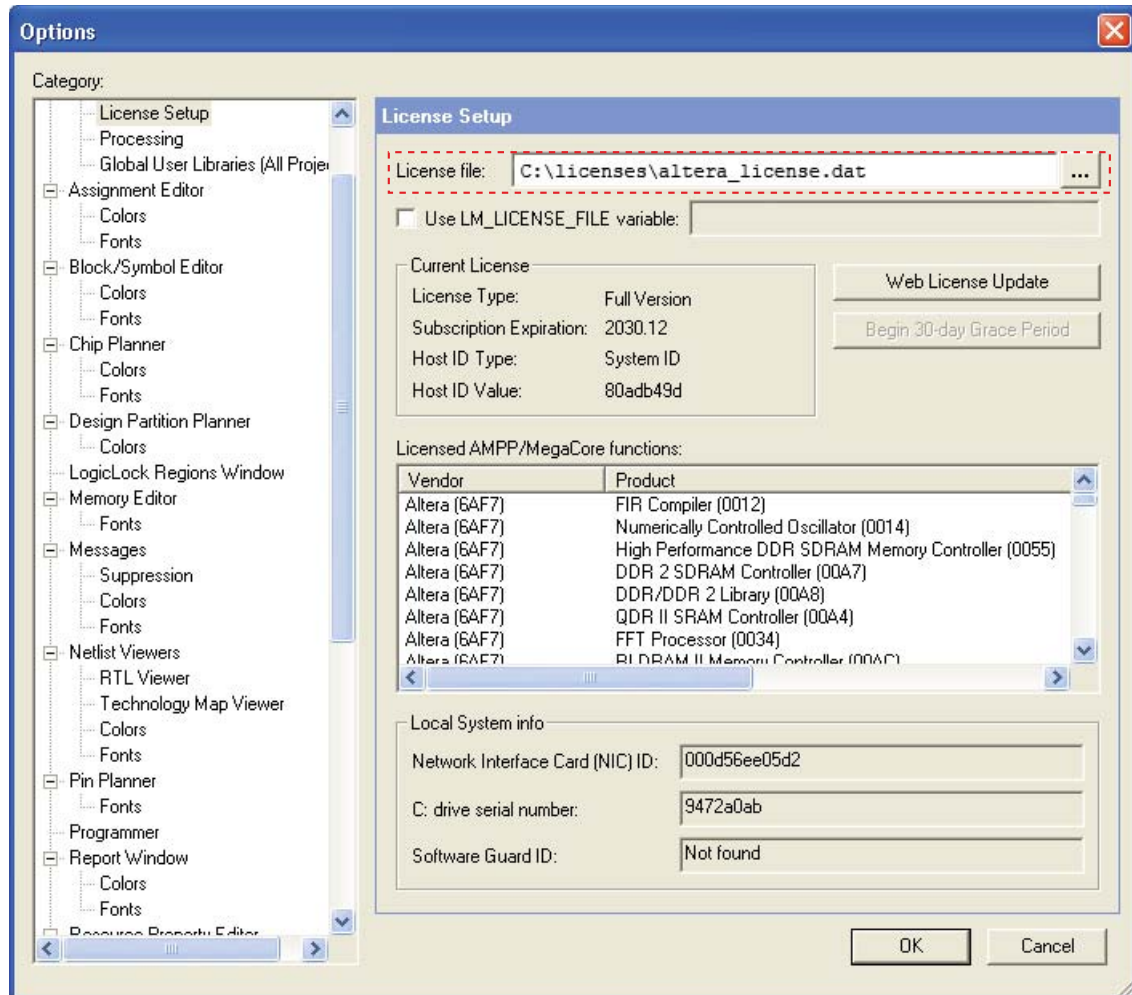
The license is now set up and you can begin using the software.

Using the LM_LICENSE_FILE System Environment Variable

Third-party tools provided by Altera require that you specify the license location in the `LM_LICENSE_FILE` environment variable. This variable also sets the Quartus II and MAX+PLUS II software licenses. Altera recommends using this method for specifying the license location.

☞ The license file specification in the Quartus II or MAX+PLUS II **License Setup** dialog box takes precedence over the `LM_LICENSE_FILE` environment variable setting for that particular software.

☞ The Quartus II software does not support the `VENDOR_LICENSE_FILE` environment variable (where `VENDOR` is the vendor daemon name). The Quartus II software supports only the `LM_LICENSE_FILE` environment variable.

Windows NT

Quartus II software version 6.0 and later does not support the Windows NT operating system. Refer to www.altera.com/support/software/os_support/oss-index.html for updated operating system support.

To set the `LM_LICENSE_FILE` environment variable in the Windows NT system control panel, perform the following steps:

1. On the Windows Start menu, click **Settings**, then click **Control Panel**.

2. Double-click the System icon in the Control Panel window.

3. Click the **Environment** tab in the **System Properties** dialog box.

4. Click the **System Variable** list to highlight it.

5. Type `LM_LICENSE_FILE` in the **Variable** box.

6. Type *<path to license file>*`\license.dat` or *<port>*`@`*<hostname>* in the **Value** box.

   To specify more than one license location with the `LM_LICENSE_FILE` environment variable, modify the existing `LM_LICENSE_FILE` environment variable and separate the different paths with semicolons (;), as shown in the following example:

   `c:\flexlm\license.dat;1800@myserver`

7. Click **Set**, then click **OK**.

The license is now set up and you can begin using the software.

Windows 2000, Windows XP, or Windows Vista Classic Control Panel View

Quartus II software version 9.0 and later does not support Windows 2000. Refer to the Operating System Support page on the Altera website for updated operating system support. To set the `LM_LICENSE_FILE` environment variable through the Windows 2000 system control panel, perform the following steps:

1. On the Windows Start menu, click **Settings**, then click **Control Panel**.

2. Double-click the System icon in the Control Panel window.

   Windows Vista Only: If your computer is running Windows Vista, a dialog box appears with a message prompting you to continue. Click **OK**.

3. Click the Advanced tab in the **System Properties** dialog box.

4. Click **Environment Variables**.

5. Click the **System Variable** list to highlight it.

6. If the license file `LM_LICENSE_FILE` exists, select it, then select **Edit**. If it does not exist, select **New** and type the filename `LM_LICENSE_FILE`.

7. Type *<path to license file>*\`\license.dat` or *<port>*@*<hostname>* in the **Value** (**Variable Value** for Windows Vista) box.

   To specify more than one license location with the `LM_LICENSE_FILE` environment variable, modify the existing `LM_LICENSE_FILE` environment variable and separate the different paths with semicolons (;), as shown in the following example:

   ```
   c:\flexlm\license.dat;1800@myserver
   ```

8. Click **OK**.

The license is now set up and you can begin using the software.

UNIX Workstation

The following is an example of the steps required for a C shell resource file (**.cshrc**). Edit this file for each user. To set the `LM_LICENSE_FILE` environment variable in the login initialization file, such as **.cshrc**, located in the home directory, perform the following steps:

1. Type the following environment variable on a separate line in the login initialization file to specify the license location:

   ```
   setenv LM_LICENSE_FILE <port>@<hostname>
   ```

2. Save the **.cshrc** file.

3. Type the following commands at the command prompt:

   ```
   cd ↵
   source .cshrc ↵
   ```

   To specify more than one license location with the `LM_LICENSE_FILE` environment variable, modify the existing `LM_LICENSE_FILE` environment variable and separate the different paths with colons (:), as shown in the following example:

   ```
   /usr/licenses/license.dat:1800@myserver
   ```

The license is now set up and you can begin using the software.

Specify the License for Intellectual Property (IP) Cores

If you have installed and set up your license for the Quartus II software, modify the **license.dat** file to add a new license feature.

If you have not installed and set up your license for the Quartus II software, follow the instructions in the section , then return to this section to add IP Cores to your license file.

Perform the following steps to add a new license feature to an existing Altera license file:

1. Open the license email you received from Altera. The license email contains the FEATURE lines required to license the IP Cores, as shown in Example 1.

Example 1. FEATURE Line

```
FEATURE 6AF7_0012 alterad 2030.12 permanent uncounted D4D1A3EA3A4E \
VENDOR_STRING="iiiiiiiihdLkhIIIIIIIImPDuiaaaaaaaaP1X38DDDDDDDDmjz5cddd
ddddd4mGzGJJJJJJJJiqIh0uuuuuuuucYYWiVVVVVVVVcp0FVHHHHHHHHPUEakffffffff
R2FFRkkkkkkkkqL$84" HOSTID=GUARD_ID=T000028339 SIGN="186C 431D CF96
15C8 \
48DE 34E8 07EA AB4C 7B2A 3E6C C4D5 268A 3E75 D81A 9C91 180B 31FA C2D5 \
EFC9 5483 04BF E859 DE46 2D36 B879 929D 2100 0E0A CE32 B05F";
```

2. Open your Quartus II **license.dat** file in a text editor.

3. Copy the FEATURE lines from the email content and paste it at the end of your Quartus II license file.

⚠ CAUTION Do not delete any FEATURE lines from the Quartus II license file. Doing so will result in a non-usable license file.

4. Save the license file and check to ensure the following items are correct:

    ■ The text editor does not append **.txt** or other file extension to the filename, such as **license.dat.txt**. If in doubt, verify the filename at a command prompt.

    ■ A carriage return (new line) is present at the end of the last FEATURE line.

    ■ Ensure that any FEATURE line that wraps to a second or third line contains a backslash (\) at the end of each line to indicate that it continues.

    ■ Ensure that there is no backslash (\) at the end of the lines if the VENDOR_STRING line wraps to multiple lines. This is different from the FEATURE line. The backslash (\) should only be added outside of the line where the double quotation marks (") are located. Refer to Example 1.

    ■ If you are using a 64-bit version of the Quartus II software, ensure that you manually add a space between the closing double quote (") and backslash (\) at the end of the VENDOR_STRING field.

5. Start the Quartus II software and on the Tools menu, click **License Setup**.

6. Confirm that the path to your Quartus II license file appears in the **License file** box, as shown in Figure 11.

Figure 11. License Setup Page of the Options Dialog Box
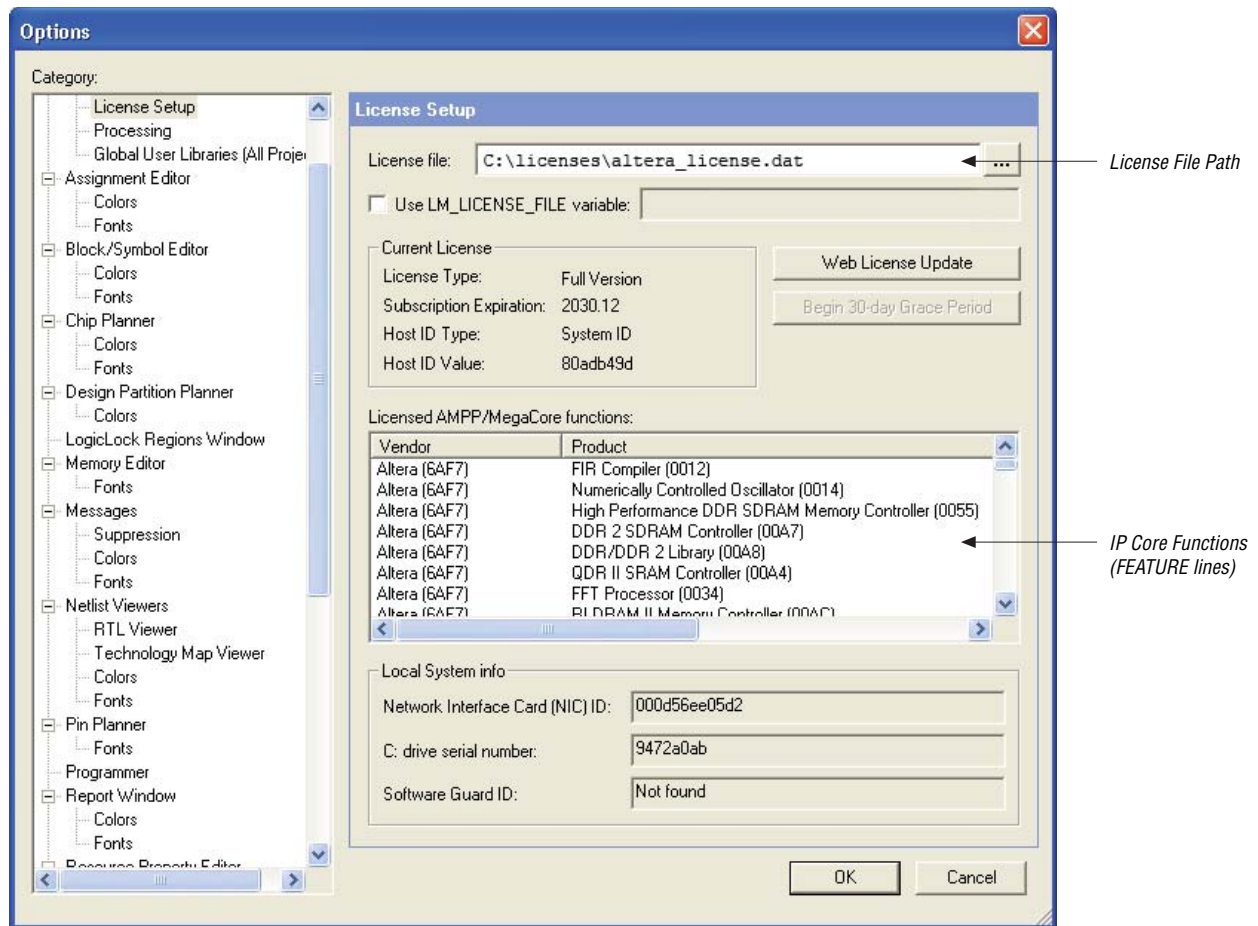
The license is now set up and you can begin using the software.

For information about how to license AMPP Megafunctions, refer to *AN 343: OpenCore Evaluation of AMPP Megafunctions*.

Specify the License for DSP Builder

If you have installed and set up your license for Quartus II software, modify the **license.dat** file to include licensing information for DSP Builder.

If you have not installed and set up your license for the Quartus II software, follow the instructions in the section "Set Up the License" on page 11, then return to this section to add DSP Builder to your license file.

Perform the following steps to add a new DSP Builder license feature to an existing Altera license file:

1. Open the license email you received from Altera.

   The license email contains the FEATURE line required to license the DSP Builder. For DSP Builder, the required FEATURE line begins with `C4D5_512A`.

2. Open your Quartus II **license.dat** file in a text editor.

3. Copy the FEATURE line from the email content and paste it at the end of your Quartus II license file.

    ⚠ **CAUTION** Do not delete any FEATURE lines from the Quartus II license file. Doing so results in a non-usable license file.

4. When the modifications are complete, save the license file and check to ensure the following are correct:

    ■ The text editor does not append **.txt** or other extension to the filename, such as **license.dat.txt**. If in doubt, verify the filename at a command prompt.

    ■ A carriage return (new line) is present at the end of the last FEATURE line.

    ■ Ensure that any FEATURE line that wraps to a second or third line contains a backslash (\\) at the end of each line to indicate that it continues.

The license is now set up and you can begin using the software.

Specify the License for Intellectual Property (IP) and Development Kits

If you have installed and set up your license for the Quartus II software, modify the **license.dat** file to include licensing information for Intellectual Property and Development Kits.

👣 If you have not installed and set up your license for the Quartus II software, follow the instructions in "Set Up the License" on page 11, then return to this section to add Intellectual Property and Development Kits to your license file.

Perform the following steps to add a new Intellectual Property and Development Kits license feature to an existing Altera license file:

1. Open the license email you received from Altera. The license email contains the FEATURE line required to license the Intellectual Property and Development Kit.

2. Open your Quartus II **license.dat** file in a text editor.

3. Copy the FEATURE line from the email content and paste the text into the existing Altera **license.dat** file.

⚠ **CAUTION** Do not delete any FEATURE lines from the Quartus II license file. Doing so results in a non-usable license file.

4. When the modifications are complete, save the license file and check to ensure the following items are correct:

    ■ The text editor does not append **.txt** or other extension to the filename, such as **license.dat.txt**. If in doubt, verify the filename at a command prompt.

    ■ There is a carriage return (new line) at the end of the last FEATURE line.

    ■ Any FEATURE line that wraps to a second or third line contains a backslash (\\) at the end of each line to indicate that it continues.

■ Ensure that there is no backslash (\) at the end of the lines if the VENDOR_STRING line wraps to multiple lines. This is different from the FEATURE line. The backslash (\) should only be added outside of the line where the double quotation marks (") are located. Refer to Example 1 on page 17.

■ If you are using a 64-bit version of the Quartus II software, ensure that you manually add a space between the closing double quote (") and backslash (\) at the end of the VENDOR_STRING field.

The license is now set up and you can begin using the software.

Set Up the Network Licenses

To set up an Altera floating network license on a Windows, Solaris, HP-UX, or Linux license server using the FLEXlm License Manager provided by Altera, perform the following steps:

☞ Quartus II software version 5.0 and later does not support the HP-UX operating system. For version 6.0 and later, the Quartus II software does not support the Windows NT operating system. Quartus II software versions 8.0 and later do not support Sun Solaris operating system. However, Altera supports Sun Solaris license servers. Quartus II software version 9.0 and later does not support Windows 2000. Refer to the Operating System Support page on the Altera website for updated operating system support.

1. Make a backup copy of any existing **license.dat** file for reference.

2. Modify the **license.dat** file obtained from Altera (as described in "Modifying the Network License File" on page 21) and save it to the hard drive. The license email from Altera includes the recommended default directory location.

   The files required for the FLEXlm License Manager are installed with the Quartus II and MAX+PLUS II software. On Windows, the FLEXlm files are in the *<Quartus II installation directory>***bin** directory or the *<MAX+PLUS II installation directory>***adm** directory. On UNIX and Linux, the FLEXlm files are in the *<Quartus II installation directory>*/*<solaris | linux>* or *<MAX+PLUS II installation path>*/**adm** directory.

   ☞ If the Quartus II or MAX+PLUS II software is already installed on the license server, go to step 6. To install the FLEXlm software separately on the license server machine, continue with step 3.

3. Create a directory on the license server to contain the FLEXlm files. If it is a Windows license server, Altera recommends that you create a **C:\flexlm** directory for the files. Some daemons for floating licenses might not run unless the **C:\flexlm** directory exists.

4. Copy the following files from the appropriate directory listed above into the new directory:

   ■ **lmgrd**

   ■ **lmutil**

■ **alterad**

5. Type the following at a command prompt to start the license server:

```
<FLEXlm location>/lmgrd -c <path to license file>/license.dat \
[-l <log file name>] ↵
```

☞ Altera recommends that you specify a log file when you run a floating license server. If you experience errors with the license server, a log file makes it easier to debug the problem.

6. Type the following at a command prompt to verify the license server is running:

```
lmutil lmstat -a -c <port>@<hostname> ↵
```

Where *<port>* is the license port number and *<hostname>* is the server's host name as defined in the "Modifying the Network License File" on page 21. If you receive an error message, review the previous steps to ensure that everything is correct.

7. After you have set up the license manager server, you must specify the license for each client or user. Proceed to "Floating Network Licenses (FLOATALL, FLOATPC, FLOATNET, FLOATLNX)" on page 13.

☞ Type lmgrd -help at a command prompt to see a list and description of the available FLEXlm options.

☞ To copy the new Altera license to an existing FLEXlm license server, refer to the *Quartus II Installation & Licensing for Windows and Linux Workstations* manual available at www.altera.com.

The FLEXlm software can work with internet firewalls that require port numbers to be specified. You must specify a port number on the SERVER line in the license file. You must also specify different port numbers on each VENDOR or DAEMON line with the PORT=*<number>* syntax. Additionally, you must allow firewall access to those port numbers. The following example shows how to specify port numbers in a floating license file. To provide access through a firewall for this example, specify ports 1800, 1801, and 1802.

```
SERVER my_server 00B0D0ABCCBA 1800
VENDOR alterad D:\quartus\bin\alterad.exe PORT=1801
VENDOR mgcld D:\modelsim\win32aloem\mgcld.exe PORT=1802
```

Altera software uses the FLEXlm software to administer licensing for single or multiple users in a network installation. Follow the in "Modifying the Network License File" on page 21 to modify the license file and then set up and start the FLEXlm License Manager.

Modifying the Network License File

The **license.dat** file must be modified before it can be used by the license server. Refer to "License File Format" on page 37 for a detailed description of the license file. The first few lines of the license file are shown in the following example (your license file might not contain all the VENDOR entries, depending on which software you have enabled):

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

To modify and save the license file, perform the following steps:

1. Modify the entries in the **license.dat** file by typing in the variables as described in Table 3 (variables are enclosed in angle brackets). The host or NIC ID is already entered in the license file.

Table 3. Network license.dat File

Variable Name	Description		
<hostname>	The hostname of the server, for example, my_server.		
<port>	The port number for the license manager service on the server, for example, 1800. The port number is recommended and should be different from the port number for any other service on the machine.		
alterad "*<path to daemon executable>*" *(3), (4)*	Path to the Altera vendor daemon executable alterad.	PC	*<MAX+PLUS II installation path>*\alterad.exe or *<Quartus II installation path>*\win\alterad.exe*(1)* *<Quartus II installation path>*\bin\alterad.exe*(2)*
		Solaris *(7)*	*<MAX+PLUS II installation path>*/adm/alterad *(5)* or *<Quartus II installation path>*/solaris/alterad
		HP-UX 10.2*(7)*	*<MAX+PLUS II installation path>*/adm/alterad *(5)*
		HP-UX 11.0*(7)*	*<MAX+PLUS II installation path>*/adm/alterad *(5)*
		Linux	*<Quartus II installation path>*/linux/alterad
mgcld "*<path to daemon executable>*" *(3), (4), (6)*	Path to the Mentor Graphics vendor daemon executable mgcld.	PC	*<ModelSim-Altera install>*\win32aloem\mgcld
		Solaris *(7)*	*<ModelSim-Altera Install>*/sunos5aloem/mgls/lib/mgcld
		HP-UX *(7)*	*<ModelSim-Altera Install>*/hp700aloem/mgls/lib/mgcld
		Linux	*<ModelSim-Altera Install>*/linuxaloem/mgls/lib/mgcld

Notes to Table 3:

(1) Applicable only for Quartus II software versions 6.0 and earlier.

(2) Applicable only for Quartus II software versions 6.1 and later.

(3) In some network system environments, the license server does not have an installation of the software tool(s) that provides the necessary vendor daemon (**alterad**, **mgcld**, or **armlmd**). 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.

(4) If the path name has spaces in it, enclose the full path in quotation marks.

(5) The MAX+PLUS II software installs FLEXlm in the **/adm** directory for either Solaris or HP-UX, depending on what the user specified during installation.

(6) You can delete this line if you are not using a license for the ModelSim-Altera or Starter Edition software.

(7) Quartus II software versions 5.0 and later do not support the HP-UX operating system. Quartus II software versions 8.0 and later do not support the Sun Solaris operating system. However, Altera does support Sun Solaris license servers. Refer to www.altera.com/support/software/os_support/oss-index.html for updated operating system support.

2. When the modifications are complete, save the license file with a **.dat** extension (for example, **license.dat**) and check to ensure the following items are correct:

■ Ensure that the text editor does not append **.txt** or other extension to the filename, such as **license.dat.txt**. If in doubt, verify the filename at a command prompt.

■ Ensure that there is a carriage return (new line) at the end of the last FEATURE line.

■ Ensure that any FEATURE line that wraps to a second or third line contains a backslash (\) at the end to indicate that it continues.

Set Up a License Manager Server for Windows

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.

If you have an existing FLEXlm license server, refer to "Rereading an Existing License File" on page 24 for instructions.

Configuring a New License Server

Before you begin the configuration, ensure that the following conditions exist:

■ You have system administrator privileges to configure a new license server.

■ You have obtained a valid license file as described in "Get an Altera License File" on page 10.

■ If necessary, your license file has been modified according to the guidelines described in "Modifying the Network License File" on page 21.

The following 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:

<Quartus II installation path>\bin\lmgrd –c *<license file path>*\license.dat ↵

To configure a new license server as a Windows service, perform the following steps:

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 the **lmgrd** file, typically: *<Quartus II installation path>***bin** directory.

6. In the path to the license file box, type the location of the **license.dat** file, typically: *<drive>*:**flexlm** directory.

7. In the path to the debug log file box, type the location of your log file, typically: *<drive>*:**flexlm\debug.log** directory.

8. Click **Save Service**.

☞ To see a list and description of the available FLEXlm options, type lmgrd -help ↵ at a command prompt.

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 "Example license.dat Files" on page 39. Make sure you have also modified the license file according to the guidelines in "Modifying the Network License File" on page 21.

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.

If you are configuring a new license server and do not have an existing FLEXlm license server, refer to "Configuring a New License Server" on page 25.

To reread your license file on a license server, do one of the following:

■ Type the following command at a command prompt:

   <Quartus II installation path>\bin\lmutil lmreread ↵

■ Perform the following steps:

   a. In the **LMTOOLS** dialog box, click **Configuration using Services**.

   b. Select the name of the license server, typically **Flexlm License Server**.

   c. Click the **Start/Stop/Reread** tab.

   d. Click **ReRead License File**.

☞ To see a list and description of the available FLEXlm options, type lmgrd -help ↵ at a command prompt.

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 23 for more information.

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

1. Type the following command at a command prompt:

   <Quartus II installation path>\bin\lmtools ↵

2. In the **LMTOOLS** dialog box, click **Configuration using Services**.

3. Select the name of the license server, typically **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**.

Automatically at Startup

When configuring the license server, you can set up the license server to start automatically at startup with the **LMTOOLS** dialog box. Before you set up 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 23 for more information.

To start the license server automatically at startup with the **LMTOOLS** dialog box, perform the following steps:

1. Type the following command at a command prompt:

    <Quartus II installation path>\bin\lmtools ↵

2. In the **LMTOOLS** dialog box, click **Configuration using Services**.

3. Select the name of the license server, typically **Flexlm License Server**.

4. Click the **Config Services** tab.

5. Turn on **Use Services**.

6. Turn on **Start Server at Power Up**.

Set Up a License Manager Server for UNIX

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 new Solaris or Linux license server before starting the Quartus II software the first time.

If you have an existing FLEXlm license server, refer to "Rereading an Existing License File" on page 24.

Configuring a New License Server

Before you begin the configuration, ensure you have obtained a valid license file as suggested in"Get an Altera License File" on page 10. You must also ensure that your license file is modified according to the guidelines in "Modifying the Network License File" on page 21. The following 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 configure a new license server, type the following command at a command prompt:

*/<Quartus II installation path>/<operating system name>/*lmgrd -c
/usr/local/flexlm/licenses/license.dat ↵

Where *<operating system name>* is either Solaris or Linux.

☞ Quartus II software versions 8.0 and later do not support the Sun Solaris operating system. However, Altera does support Sun Solaris license servers.

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 "Example license.dat Files" on page 39. Make sure you have also modified the license file according to the guidelines in"Modifying the Network License File" on page 21.

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.

If you are configuring a new license server and do not have an existing FLEXlm license server, refer to"Configuring a New License Server" on page 25 for instructions.

To reread your license file on a license server, either restart the server, or type the following command at a command prompt:

/<*Quartus II installation path*>/<*operating system name*>/lmutil lmreread ↵

Where <*operating system name*> is either Solaris or Linux.

☞ Quartus II software versions 8.0 and later do not support the Sun Solaris operating system. However, Altera does support Sun Solaris license servers.

Quartus II Software Evaluation Period

The Quartus II software for PCs includes a 30-day licensing evaluation period. When you upgrade the version of your Quartus II software, you are allowed up to 30 days to install the updated license file. You can use the evaluation period by selecting **Enable 30-day evaluation period with no license file (no programming file support)** and clicking **OK** in the **License Setup Required** dialog box when you start the software.

After you install an updated license file (refer to "Set Up the License" on page 11 for more information), the Quartus II software ends the 30-day evaluation period automatically.

Tips for Resolving Licensing Problems

This section provides tips to follow when troubleshooting Altera software licensing problems. For more information, use the Licensing Troubleshooter available in the support center at the Altera website or visit the Altera Licensing page.

LM_LICENSE_FILE Environment Variable

Multiple software tools on a system can use the `LM_LICENSE_FILE` environment variable to specify the license locations. Use a semicolon (`;`) on the PC and a colon (`:`) on UNIX or Linux systems to separate multiple locations in the variable. For example, the full version of the ModelSim software uses the same license variable. When modifying the variable to add the Altera license location, do not remove any existing license locations required for software from other vendors.

license.dat File

Refer to "License File Format" on page 37 for details about each entry in the **license.dat** file. If you are experiencing problems with the license, verify that the following conditions are true:

- No features are expired.

- Any FEATURE line that wraps over to a second or third line contains a backslash (\) at the end of each line to indicate that the line continues.

- The text editor has not appended **.txt** or other extension to the filename, such as **license.dat.txt**. If in doubt, verify the filename at a command prompt.

- No "hidden" control characters exist in the license file.

  - If the license file was opened with any program that is not a plain text editor, hidden characters might be added. For example, Microsoft Excel, Word, or WordPad might insert special control characters such as a tab or carriage return. If this information is copied directly from the program and pasted into another text document, the license file can be corrupted by characters that are not always visible in a plain text editor.

  - If the license file is edited in UNIX and then copied to a PC, or vice versa, unwanted control characters can be inserted into the file if the correct file conversion procedure was not followed.

- In network licenses, you must enter a carriage return (new line) at the end of the last FEATURE line.

- In network licenses, all paths to license daemons are correct. If the path name has spaces in it, enclose the full path in quotation marks, not Microsoft "smart" quotation marks.

Quartus II Software

- If the **license.dat** file contains an error in the license server name, or if the path to the **license.dat** file is incorrect, the Quartus II user interface might run more slowly while the computer searches the network for the non-existent license. If this problem occurs, edit the license file to correct the error or specify the correct pathname for the **license.dat** file.

- To instruct the Quartus II software check the Altera website for an updated license file, on the Tools menu, click **Options**. In the **License Setup** page, click **Web License Update**. If an updated license file exists, the Quartus II software automatically downloads and installs the correct license.

☞ The automatic update feature is only supported for FIXEDPC licenses and the Quartus II Web Edition software.

👣 For further information about setting up Quartus II software licenses, refer to the *Quartus II Installation & Licensing for Windows and Linux Workstations* manual.

MAX+PLUS II Software

■ If the **license.dat** file contains an error in the license server name, or if the path to the **license.dat** file is incorrect, the computer might appear to freeze while it searches the network for the non-existent license. If this problem occurs, use End Task in the Windows Task Manager or the kill command in UNIX to close the MAX+PLUS II software. Or, you can wait until the software opens, then edit the license file to correct the error or specify the correct pathname for the **license.dat** file.

■ You can also edit the LM_LICENSE_FILE variable for MAX+PLUS II software in the **maxplus2.ini** file located in the MAX+PLUS II installation directory. This variable is the same as that shown in the software's GUI, but editing the **maxplus2.ini** text file does not require that the MAX+PLUS II software be open. This entry takes precedence over the LM_LICENSE_FILE environment variable. With the MAX+PLUS II application closed, open the **maxplus2.ini** file in a text editor and type or edit the following line:

LM_LICENSE_FILE=<*path to file*>\license.dat ↵

👣 For additional information about the MAX+PLUS II software, refer to the *MAX+PLUS II Getting Started* manual.

ModelSim-Altera Software

■ Specifying ModelSim-Altera Edition License Files and Servers

If you license the ModelSim-Altera Edition software with a floating license running on a Windows license server, you might receive an error message that the server cannot start **mgcld** because there might be another copy of **mgcld** running. To resolve this problem, create a directory called **c:\flexlm** on the license server, and place the license file in this directory.

The ModelSim-Altera Edition software requires that the LM_LICENSE_FILE variable is set to the location of the license file. This software tool from Mentor Graphics can also be affected by the MGLS_LICENSE_FILE environment variable.

For Mentor Graphics applications, including ModelSim-Altera Edition, the locations of license files and servers can be specified in five places. If multiple values are set, only the first one found is used. The following search order is used:

a. MGLS_LICENSE_FILE set in the environment

b. MGLS_LICENSE_FILE set in the registry

c. LM_LICENSE_FILE set in the environment

d. LM_LICENSE_FILE set in the registry

e. **C:\flexlm\license.dat** (FLEXlm default license file location)

If the Mentor Graphics license is installed on a PC, the `MGLS_LICENSE_FILE` takes precedence over `LM_LICENSE_FILE` settings. If both are specified, you should use `LM_LICENSE_FILE` to point to the ModelSim license server and only use `MGLS_LICENSE_FILE` to point to the license server for other Mentor Graphics applications. Also, if you use the `MGLS_LICENSE_FILE` variable, the ModelSim license server and other Mentor Graphics applications license servers should be on the same machine.

■ Specifying Licensed HDL

If you can open the ModelSim-Altera Edition software, but a licensing error occurs when trying to load or compile a design, the OEM software tool (versions 6.1g and earlier) can be licensed for either VHDL or Verilog HDL, but not both. The Quartus II software issues an error message when trying to compile a Verilog HDL design if the license file is enabled for VHDL support only or vice versa.

☞ ModelSim-Altera Edition (6.4a and later) corresponding to Quartus II versions 9.0 and later supports both VHDL and Verilog HDL simulation. However, the OEM software tool does not support mixed language simulation.

■ Unable to Checkout License

If you have a floating license and the **mgcld** license daemon is too old or not compatible with the required ModelSim-Altera **mgcld** daemon, you will receive a fatal error message that the license is unable to be checked out.

To resolve this problem, you must use the **mgcld** daemon in *<ModelSim-Altera installation directory>***win32aloem** instead of the **mgcld** daemon, included with the Quartus II software version in *<Quartus II installation directory>***win**. If you require the **mgcld** daemon for a different operating system, download the appropriate file at the License Daemon Downloads on the Altera website.

You might encounter a similar error if the **lmgrd** and **lmutil** versions are not compatible with the ModelSim-Altera software. You can find the compatible daemons at *<ModelSim-Altera installation directory>***win32aloem**. However, for the Quartus II software, you must use the daemons included in *<Quartus II installation directory>***win**.

Special Licensing Procedures for the ModelSim-Altera Edition Software on a PC for Versions Prior to 5.5e

The ModelSim-Altera Edition software for versions prior to 5.5e requires some additional steps for a PC license. These extra steps are not required for UNIX workstations or versions 5.5e and later because the `LM_LICENSE_FILE` setting is sufficient to license the ModelSim-Altera Edition software for the latest versions.

In the applicable software versions, the PCLS utility runs during the software installation and allows you to specify the license file for the ModelSim software. If the license file was not set up when the software was first installed, or the incorrect license location was specified, run the PCLS utility after installation to correctly specify the license file. To run the PCLS utility after software installation, run the **setup.exe** file located in the *<ModelSim installation directory>***drivers****pcls** directory.

To use the PCLS utility to set up the license file when the PCLS utility runs automatically during installation or manually after installation, perform the following steps:

1. In the Mentor Graphics licensing window, click **Next** to transfer the required files to the computer.

2. In the Configure Licensing window, click **Custom**.

3. In the Select configuration options window, ensure that only **3. Define product license locations** is turned on. This option is turned on by default.

4. Click **Next**.

5. In one of the following forms, type in the location of the license file in the window that appears (refer to "Quartus II Software Evaluation Period" on page 26):

   <path to license file>\license.dat

   or

   <port>@*<hostname>*

6. Click **Next**, then click **Finish**.

7. Restart the PC.

☞   The port that you specify for the license server must not be used by another application. Otherwise, it will cause a contention for the same port on the license server machine and you will receive a network license error.

Network License Port

When the network or system administrator modifies the floating network **license.dat** file, the port number entry is optional. Generally, using the PORT number is faster than auto port, which is used when no port number is specified. If a port is specified, ensure that it is a unique port number on that machine to avoid port conflicts with other applications. If the port appears in the **license.dat** file, specify the port in the *<port>*@*<hostname>* format or the license does not work.

Network License Debugging Log

FLEXlm has an optional log file. If you encounter problems, go back to the license setup and specify a log file. Attempt to start the license service again and look in the log file for applicable error messages.

👣   Refer to "Set Up the Network Licenses" on page 20 for information about enabling the debug log.

Network License Daemons

In some network system environments, the license server computer does not have an installation of the software tools that provide the necessary vendor daemons (**alterad**, **mgcld**, or **armlmd**). In this case, copy the required daemon from another computer that does have the software installed. You can find the file in the directory location specified in Table 3 on page 22. Save the file in a similarly named directory or any other location on the license server—the correct daemon location on the license server must be specified in the license file.

☞   Be careful when transferring these files between computers. If you are using FTP to transfer the daemons from one computer to another, be sure to specify the "binary" transfer mode.

To determine the version number of a license daemon, run it at a command prompt with the –v option.

To debug a problem with a floating license server, use the following command to report the status of a floating license on a license server, including whether the license is up and how many seats are available:

```
lmutil lmstat -a -c <port>@<host> ↵
```

Frequently Asked Questions

This section contains frequently asked questions relating to Altera software licensing.

Q: Can my Linux network license for the Quartus II software work without internet connection?

A: If you use a network license for the Quartus II software on a private network that is not connected to the internet, you should use the IP address of the license server instead of its hostname in the SERVER line of the license file, and the LM_LICENSE_FILE variable on client computers. Alternately, if you use the hostname of the license server, ensure that there is an entry in the **/etc/hosts** file for the license server.

Q: Is a new license file required for every version of the Quartus II software or the MAX+PLUS II software that I receive?

A: If you have purchased a subscription product, any license file that you receive from Altera is valid for all versions of the Quartus II or MAX+PLUS II software released for one year after the subscription product was purchased.

Your **license.dat** file contains version information that allows you to determine which versions of the software you can enable. Example 2 shows a FEATURE line from a sample **license.dat** file:

Example 2. *Example Feature Line*

```
FEATURE maxplus2 alterad 2000.12 permanent uncounted 9689C798AD0F
```

The 2000.12 in the license file in Example 2 is the version information for the MAX+PLUS II software. In this license file example, any version of the software released up to and including December 2000 is enabled.

You can check the version of the Quartus II software by clicking **About Quartus II** on the Help menu. In the bottom portion of the **About Quartus II** dialog box, you can find the software version enclosed within parentheses.

You can check the version of the MAX+PLUS II software by clicking **About MAX+PLUS II** on the Help menu. The top portion of the **About MAX+PLUS II** dialog box contains the software version enclosed within parentheses.

Q: Can I enter a comment in an Altera license file (FLEXlm)?

A: Yes. Comments can be specified in Altera **license.dat** files using the # symbol (Example 3).

Example 3. license.dat Files Using the # Symbol

```
# Altera Baseline license file tied to hard disk
FEATURE maxplus2 alterad 2006.12 permanent uncounted B4EF65C4F538 \
    HOSTID=DISK_SERIAL_NUM=7d0050f
```

Q: Why do I receive the message "The Serial Number you entered does not exist in our databases" when I request a new license on the Altera website?

A: If you are using a new software guard ID (T-Guard) to request a new license, go to the mySupport section of the Altera website, www.altera.com/mysupport, and request a license as described in "Information Required to Get a License File" on page 4.

Q: Why do I receive an email with the content message "The information you entered is not in Altera's database"?

A: If you recently purchased the Quartus II software and you are using an NIC ID to request a license, go to the mySupport section of the Altera website, www.altera.com/mysupport, and request a license as described in "Information Required to Get a License File" on page 4.

Alternatively, you can use the Quartus II software serial number that you received to request a license at the Altera website.

Q: I just upgraded to the latest version of the Quartus II software. Now my Altera software says the license is not valid, but I know I have purchased an Altera software subscription. What should I do?

A: If you want the Quartus II software to check the Altera website for license file updates, on the Tools menu, click **License Setup**. In the **License Setup** page, click **Web License Update**. If an updated license file exists, the Quartus II software automatically downloads and installs the correct license.

☞ The automatic update feature is supported only for FIXEDPC licenses and the Quartus II Web Edition software.

Alternatively, go to the Altera website and request a new license file as described in the instructions in "Information Required to Get a License File" on page 4. If your license file expires and you renew your subscription, you must get a new license file with the new expiration date.

Q: Can I use a Novell Netware server as the license server for the floating-node version of the Quartus II or MAX+PLUS II software with Windows 98 or Windows NT clients?

A: No. To run the floating-node license version of the Quartus II or MAX+PLUS II software, the license server must reside on either a Windows Vista, Windows XP, Windows NT, Windows 2000, UNIX, or Linux server using the TCP/IP protocol.

☞ Quartus II software versions 3.0 and later do not support the Windows 98 operating system. Quartus II software versions 6.0 and later do not support the Windows NT operating system. The Quartus II software versions 9.0 and later do not support the Windows 2000 operating system. Refer to the Operating System Support page on the Altera website.

Q: Can I combine my Altera network license with other software tool licenses so that I only require one license file?

A: Altera recommends using a separate license file for Altera software to avoid possible problems and confusion. In a UNIX environment, you can start multiple services for **lmgrd** using different port numbers. For PCs, use the FLEXlm control panel and change the **Service Name** under the **Setup** tab to a different name for each copy of **lmgrd.exe**.

You can combine the Altera license with other licenses if the other software tools are using the same version of **lmgrd**. Always use the latest version of **lmgrd**, which is typically the version shipped with the latest version of the Quartus II or MAX+PLUS II software.

If the license server is on a UNIX system, use the **lmver** <*filename*> utility to check the versions of **lmgrd** and **alterad**. The default file names are **lmgrd.exe** and **alterad.exe**.

If the license server is on a PC, the version of **lmgrd** is the same as the FLEXlm License Manager version installed with the Quartus II or MAX+PLUS II software. To verify the version of **lmgrd**, open the FLEXlm License Manager through the PC server Control Panel window on the Start. The version information is under the **About** tab.

If you have an **lmgrd** version conflict between Altera software and another software tool, you must use a separate Altera **license.dat** file.

Q: Why is my NIC ID reported as all zeros (000000000000) when using the Netbios NET CONFIG command?

A: If the Quartus II software is not installed, you can use the ipconfig /all command to obtain the physical address of the NIC. If you have installed the Quartus II software, use the **lmutil lmhostid** command as described in "Information Required to Get a License File" on page 4. If you are currently using the Netbios protocol for a LAN rather than TCP/IP, this command returns 000000000000 as the physical address of all NICs.

☞ You must be running the TCP/IP protocol to use Altera floating licenses. This license does not work with any other protocols, such as IPX or Netbios.

Q: Why does the Quartus II software report my NIC ID as FFFF00000000 in Windows 2000?

A: This problem might occur if you are using the Quartus II software version 2.2 or earlier, a license file that is tied to your NIC ID, and you are not connected to a network.

To resolve this issue, set a variable in the Windows registry by performing the following steps:

⚠ Using the Registry Editor incorrectly can cause serious problems that might require
CAUTION you to reinstall your operating system. Use the Registry Editor at your own risk.

1. Back up the registry before editing it. If the system is running Windows NT or Windows 2000, also update the emergency repair disk (ERD).

☞ The Quartus II software versions 6.0 and later do not support the Windows NT operating system. The Quartus II software versions 3.0 and later do not support the Windows 98 operating system. Quartus II software versions 9.0 and later do not support the Windows 2000 operating system. Refer to the Operating System Support page on the Altera website.

2. Go to the command prompt or select **Run** from the Windows Start menu and then type `regedit` ↵ to open the Registry Editor.

3. Browse to `HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Tcpip\Parameters\`.

4. Right-click the **Parameters** folder, select **New**, and then select the **DWORD Value**.

5. Set the **Name** field to **DisableDHCPMediaSense**.

6. Double-click the **DisableDHCPMediaSense** field (created in step 5) and set the **Value Data** field to **1**.

7. Close the Registry Editor.

Q: Why do I get an NIC or host id of `FFFFFFFFFFFF` when I use the FLEXlm utilities?

A: You might see a NIC or host id of `FFFFFFFFFFFF` when running the FLEXlm utilities if the IPX/SPX driver is not loaded on your machine.

To install the IPX/SPX driver in systems running the Windows NT operating system, perform the following steps:

☞ The Quartus II software versions 6.0 and later do not support the Windows NT operating system.

1. Open the Control Panel.

2. Double-click the Network icon and click the **Protocols** tab.

3. Click **Add**. The available protocols appear.

4. Turn on the **NWLink IPX/SPX Compatible Transport** protocol option and accept the selection by clicking OK. If the necessary files are not on the hard drive, insert the Microsoft Windows NT CD-ROM to install the driver.

☞ You must have Administrator privileges to install the IPX/SPX protocol on a Windows NT machine.

5. After the driver is installed, close all open dialog boxes and restart the computer.

Q: How can I check if the Quartus II software recognizes my software guard (T-guard), NIC ID, or hard disk serial number?

A: On the Tools menu, click **License Setup** and look under **System info** for the Network Interface Card (NIC) ID, **C:** drive serial number, and **Software Guard ID**. The Quartus II software versions 8.0 and later do not support the software guard.

Q: Why does the Quartus II System info section indicate "`Not found`" for the software guard ID?

A: The Quartus II software versions 8.0 and later do not support a software guard. If you are using the Quartus II software version 7.2 and earlier, the Quartus II software indicates "Not found" if there are communication problems with the parallel port. Try rebooting your machine with the software guard attached to make sure that your PC recognizes the software guard.

Q: What is the difference between FLOATALL, FLOATPC, FLOATNET and FLOATLNX?

A: Currently, Altera offers only the FLOATALL floating network license, which provides the license to all operating systems supported by Altera software.

However, Altera continues to support existing FLOATPC, FLOATNET, and FLOATLNX subscribers. No changes are required for the operating systems supported by these licenses.

Refer to "Licensing Options" on page 1 for information regarding the floating network licenses.

As a legacy user (FLOATPC/FLOATNET/FLOATLNX), when you add new seats, your license file will contain an INCREMENT line that signifies the same support as a FLOATALL floating network license. If you only renew an existing license (FLOATPC/FLOATNET/FLOATLNX), your license support remains the same.

Q: Why do I receive the message **"Error: Unable to check out a license"** when I attempt to load Altera's original equipment manufacturer (OEM) version of the ModelSim tool?

A: This error occurs if you have not completed the license install portion of the ModelSim installation process. This error only applies to the ModelSim-Altera software for versions prior to 5.5e.

Re-install the ModelSim OEM software if the path to your ModelSim OEM license is not correctly specified. Refer and follow the steps in "Special Licensing Procedures for the ModelSim-Altera Edition Software on a PC for Versions Prior to 5.5e" on page 29.

Q: Can I host my existing and new floating Quartus II Subscription Edition license on one server?

A: No, you cannot host two licenses with an identical FEATURE line (old and new licenses) in one server. You must use a different license server to host the licenses separately.

Q: Can my Quartus II software licensing option be different from the IP licensing options (For example, the Quartus II software is licensed using node-locked and IP using float)?

A: No, the IP licensing option is tied to the Quartus II software licensing (Quartus II Subscription or Wed Edition) option. If you use the Quartus II Web Edition software, you can only use the node-locked licensing option. However, you can move your IP between systems while adopting the Quartus II software licensing style that the IP is tied to.

Q: I am using the Quartus II Web Edition software. Can I purchase any Altera IP? What IP licensing options do I have?

A: Altera delivers all IP cores, including the Nios II embedded processor, as a single MegaCore IP library package. For the Quartus II Web Edition software, you can purchase both Altera IP and third-party IP cores. The IP licensing option is tied to the Quartus II software licensing option. For the Quartus II Web Edition software, you can only use the node-locked licensing option.

Messages

This section describes actions to take when you receive errors that might be related to licensing.

Error: "System clock has been set back" in the MAX+PLUS II Software

You receive the "System clock has been set back" error message if the vendor daemon has detected one or more system files dated in the future compared to the system clock.

One possible solution is to locate the files that have an invalid date stamp and to open each file and then save it so that it has the correct date/time stamp. The vendor daemon primarily looks at system files in the following directories:

■ **C:** (The root directory)

■ The directory where your Microsoft Windows files are installed (for example, **C:\WINNT)**

■ Your MAX+PLUS II software directory (for example, **C:\MAXPLUS2**)

One way to find the affected files is to use the Windows **Find** utility. Search by **date** and specify files with a date later than today's date. Some files might be hidden, so make sure that the **Find** utility is configured to display all files.

If your MAX+PLUS II software was installed with an incorrect system clock, you might have to perform the following steps:

1. Uninstall the MAX+PLUS II software.

2. Set the system clock to the current time and date.

3. Restart the PC.

4. Reinstall the MAX+PLUS II software in a different directory.

Message: "Current license file support does not include 'Graphic Editor' Application or Feature in the MAX+PLUS II Software"

Because all Altera licenses include support of the graphic editor, the "Current license file support does not include 'Graphic Editor' application or feature in the MAX+PLUS II Software" error means that the MAX+PLUS II software cannot find your license file. Follow the directions in "Licensing Options" on page 1 to obtain, set up, and specify your license.

Network Licensing Error: "Can't connect to daemon on license server -- make sure lmgrd is running on server host and that it has the correct port number" (Quartus II or MAX+PLUS II network licensing)

You may receive this error when using the port@host notation to specify the location of your Quartus II or MAX+PLUS II license file. This may occur if there is contention for the same port on the license server machine.

To correct the error, ensure that the port specified for the license server is not in use by another application

License File Format

This section describes in detail the lines in the Altera license file and shows example Altera license files.

SERVER, VENDOR, and USE_SERVER Lines

A floating node network license file starts with SERVER, VENDOR, and USE_SERVER lines to describe the license server. Fixed PC (network interface card (NIC)/hard-disk) license files do not contain these entries. These license lines for floating node network licenses 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.

Table 4 lists the elements of the SERVER and VENDOR license lines.

You can use the FLEXlm licensing scheme to configure as many as three redundant network license servers. 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 4. Elements of SERVER and VENDOR Lines for Floating Licenses

Element Name	Description
hostname	The host name of the server. This entry in the **license.dat** file must be edited.
8- or 12-character host or NIC ID	The PC NIC or UNIX Host ID of the server. You must supply this ID to Altera when purchasing the license. Do not modify this ID in the **license.dat** file.
port	The port number. Refer to "Network License Port" on page 30.
daemon	The vendor daemon name (do not edit). The Altera daemon for all versions of the Altera Quartus II and MAX+PLUS II software is called **alterad**. The Mentor Graphics daemon (used for the ModelSim-Altera software) is called **mgcld**. The ARM daemon for the ARM features of the ARM Development Suite (ADS) is called **armlmd**.
path	The path to the vendor daemon on the server. You must edit this entry. Refer to "Network License Daemons" on page 30.

FEATURE and INCREMENT Lines

All Altera licenses contain FEATURE and possibly INCREMENT lines to describe the software features that are licensed by the **license.dat** file. The FEATURE line, shown in the following example, is structured as follows:

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

☞ Certain features use the term INCREMENT; these lines are structured in the same way as FEATURE lines.

The backslash (\) character indicates that the FEATURE or INCREMENT line continues on the next line in the text file. All lines that wrap to the next line should end with the \ character. The last line of each FEATURE does not require the backslash. The elements in brackets [] are present only in some license features or increments. Example 4 shows a FEATURE line, followed by an INCREMENT line

Example 4. Feature Line Followed by an Increment Line

```
FEATURE quartus alterad 2008.08 permanent uncounted \
DCCEB19418F8 HOSTID=GUARD_ID=T000012345 SIGN="1550 C629 137A \ DD8D
D03D 03E6D0D9 C38C D199 3080 974B E845 D638 BA30 640D 0C21 \ B521 F9BD
677B 5B76 51A2 197E BB12 01BA B4E6 6B3D 7911 1176 3972 \ 3591"

INCREMENT leospecls1vhdl mgcld 2008.08 06-nov-2008 uncounted \
FC7DF29B5682D1F9B412 VENDOR_STRING=F5730874 HOSTID=GUARD_\
ID=T00001234 SUPERSEDE ISSUER=aLTERAV2.0
```

Table 5 explains the different elements of the FEATURE and INCREMENT lines.

Table 5. Elements of the FEATURE and INCREMENT Code Lines (Part 1 of 2)

Element Names	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 cannot be used. Applies to trial licenses. For Altera license subscriptions, the entry 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 Altera.
vendor_string	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) MegaCore functions often contain node-locked feature lines in floating-node licenses. Software guard: HOSTID=GUARD_ID=<*Software guard number*> Network interface card (NIC): HOSTID=<*NIC ID*> Hard-disk serial number: HOSTID=DISK_SERIAL_NUM=<*Hard-disk ID*>
issuer	The name of the issuer of the license. This applies to ModelSim software only.

Table 5. Elements of the FEATURE and INCREMENT Code Lines (Part 2 of 2)

Element Names	Description
sign	An authorization code generated by Altera.
TS_OK	Enables remote login for node-locked licensed Quartus II software (includes Altera IP, Nios II IDE, and DSP Builder).

Table 6 shows the available Altera license features.

Table 6. Available Altera License Features *(Note 1)*

Feature Name	Description
quartus	Quartus II software
maxplus2	MAX+PLUS II software
maxplus2web	The no-cost MAX+PLUS II BASELINE (and Student Edition) software
maxplus2vhdl	VHDL support in the MAX+PLUS II software *(2)*
maxplus2verilog	Verilog HDL support in the MAX+PLUS II software *(2)*
alteramtivlog	ModelSim-Altera Verilog HDL Simulator *(3)*
alteramtivsim	ModelSim-Altera VHDL Simulator *(3)*
altera_mainwin	Quartus II software component for UNIX workstations*(4)*
altera_mainwin_lnx	Quartus II software component for Linux workstations*(4)*

Notes to Table 6:

(1)   This table does not include license features for any intellectual property (IP), development kits, or special license codes used for the Quartus II Limited Edition software.

(2)   VHDL and Verilog HDL support is included only with certain MAX+PLUS II licenses.

(3)   Each Altera fixed PC license subscription includes VHDL and Verilog HDL.

(4)   This license feature is not required for Quartus II software version 6.1 or later.

Example license.dat Files

This section includes the text from several example **license.dat** files. License files vary, depending on the type of licenses and the software that is enabled.

☞   These examples should be used only for reference. They can be used only on the specified system.

Example of Fixed PC Software Guard License

Example 5 shows a **license.dat** file that contains a license for the Quartus II and MAX+PLUS II software, as well as the ModelSim-Altera simulation tool for Verilog HDL designs. This license file works on a PC that has software guard number T000012345 attached to its parallel port.

Example 5. Fixed PC Software Guard License

```
FEATURE maxplus2 alterad 2008.08 permanent uncounted \
    340519099B0C HOSTID=GUARD_ID=T000012345 SIGN="0608 D7A2 \
    5B60 664A F62E 9F38 D8F6 17C1 4E9E 1D6C 3BA6 05E5 02F7 3843 \
    4C3D 03BE 4EE7 547D D0EA A892 589E 7ACD 3405 C2EF AE86 FBC8 \
    8119 7AC4 D67B 4D55"
FEATURE quartus alterad 2008.08 permanent uncounted \
    DCCEB19418F8 HOSTID=GUARD_ID=T000012345 SIGN="1550 C629 \
    137A DD8D D03D 03E6 D0D9 C38C D199 3080 974B E845 D638 BA30 \
    640D 0C21 B521 F9BD 677B 5B76 51A2 197E BB12 01BA B4E6 6B3D \
    7911 1176 3972 3591"
FEATURE maxplus2verilog alterad 2008.08 permanent uncounted \
    6D0AAD2810CD HOSTID=GUARD_ID=T000012345 SIGN="0BCE 1EB7 \
    6C3B 4E9E 888C 3547 FEF5 C66C 46C6 B548 DE67 B2E2 9F24 B9ED \
    6B58 0F63 1691 7088 C54F C16C 775B F236 9497 2D67 7303 F59D \
    EF76 458A DC18 DE6F"
FEATURE maxplus2vhdl alterad 2008.08 permanent uncounted \
    52D6BEE7BB16 HOSTID=GUARD_ID=T000012345 SIGN="0E2C 79DC \
    8D731AF3 E4CC C50C 8437 4F65 376C 3C37 C793 1907 30DC 1AD3 \
    472A 0921 89BB 8EAF 0D0C F323 2B05 4C0C F489 FE39 F5AF 9516 \
    C330 BF33 66AD 56E0"
INCREMENT alteramtivlog mgcld 2008.08 06-nov-2008 uncounted \
    3D46FE26D65468F9598A VENDOR_STRING=6D75455F \
    HOSTID=GUARD_ID=T000012345 SUPERSEDE ISSUER=Alterav3.4
INCREMENT alteramtivsim mgcld 2008.08 06-nov-2008 uncounted \
    7DF63EC6713D919E4927 VENDOR_STRING=D5A8792D \
    HOSTID=GUARD_ID=T000012345 SUPERSEDE ISSUER=Alterav3.4
```

Example of Floating Node Network License for a PC Server

Example 6 shows a **license.dat** file that contains a license for the Quartus II and MAX+PLUS II software, as well as the ModelSim-Altera simulation tool and the ARM Development Suite. This license specifies that two users can run the software simultaneously.

This license file works when the PC with NIC ID 00B0D0ABCCBA is set up as a license server and the users point to the license location. The lines before the USE_SERVER line reflect the license setup for the software used in this example.

Example 6. Floating Node Network License for a PC Server

```
SERVER my_server 00B0D0ABCCBA 1800
VENDOR alterad D:\quartus\bin\alterad.exe
VENDOR mgcld D:\exemplar\leospec\license\win32\mgcld.exe
USE_SERVER
FEATURE maxplus2 alterad 2002.11 17-nov-2002 2 BEA74BD15BB0 \
    SIGN="03FC DC78 1118 C0C1 B593 5E1E 0832 11D8 7428 F4F3 230C \
    C3AF AFC0 9AE4 7E9B 070F A19A D4CD 44D0 299B D465 5862 6CEC \
    8BB3 9D93 B824 4BE2 FB99 D705 8DDB"
FEATURE quartus alterad 2002.11 17-nov-2002 2 A11BC4A526B2 \
    SIGN="15A6 HF26C F1A4 A440 F429 3E8F AC6D 0FFF 78FC F445 \
    FD28 942B BC11H 010B 69B1 1853 941D 175F 7CAC 4A06 BD64 \
    E7DA AF76 3E67 8719 E8E6 0BBD A73B DC0A FB6D"
FEATURE maxplus2verilog alterad 2002.11 17-nov-2002 2 \
    08614200CEAA H SIGN="1DFC 7B75 B194 81D2 928C ED60 7A7A \
    B34D E3AD 3F1E 4732 2DC9 4F94 5064 D896 1960 A3A3 1925 \
    283F 89B5 0912 4664 0843 26C9 6D7A 33D2 708D C486 A3A3 E017"
FEATURE maxplus2vhdl alterad 2002.11 17-nov-2002 2 6B9C4626696C \
    SIGN="08F4 D975 CA4E 5746 C624 03ED B78C FBD9 FA0B C849 98AC \
    A1DC DE61 7159 8BF2 04F2 F426 1E00 C88D 7261 FD83 127F CCD1 \
    A3FE 4DFE 4EE6 B29E A542 F04E 2D86"
INCREMENT alteramtivlog mgcld 2002.11 17-nov-2002 1 \
    CC2D93913206DA20BE61 VENDOR_STRING=A93AB626 \
    SUPERSEDE ISSUER=Alterav2.0
FEATURE altera_mainwin alterad 2002.11 17-nov-2002 1 \
    AF891F2969BC SIGN="19E0 545D 4FAC 830E EA16 EB3A FCAD DF79 \
    0761 869D F861 6313 C630 77AA 3AD6 11F0 69FD FCBF E8D8 \
    2088 D19A 5682 27D3 6A80 4CB9 EAB4 CE2B 78A3 C6DB 00FE"
FEATURE altera_mainwin_lnx alterad 2002.11 17-nov-2002 1 \
    83900F81977F SIGN="1A19 14F4 11F1 7FED C73E 78BF CC89 \
    09D7 B469 AF59 B85A ABAB 854A 35E5 115E 1F6E 35BF 7B9C \
    BB8B A4AF 8D61 46B0 1902 8B18 4C3D 581D 064C 4146 0843 BBA8"
```

Example of Hard-Disk-Based MAX+PLUS II BASELINE License

Example 7 shows a **license.dat** file that contains a license for the MAX+PLUS II BASELINE software. This license works on the PC with hard-disk serial number 07d00123. The leading zero does not appear in the license file but is required when requesting a license.

Example 7. Hard-Disk-Based MAX+PLUS II BASELINE License

```
FEATURE maxplus2web alterad 2002.11 17-nov-2002 uncounted \
    368EC33D9680 HOSTID=DISK_SERIAL_NUM=7d00123 SIGN="01A0 \
    D1B3 F570 2FA5 2EF1 7EA1 B4B1 3738 5BDF 8106 2933 5021 \
    8CA3 4B07 02E1 0E24 85A8 97E7 538B EC86 660B 3813 A0CF \
    8335 69F4 0657 529B 4CAE 48E7 7D53"
```

How to Change Your License Information

If you wish to transfer your license to another computer, Altera can update your license information for the new computer. You can request this by filing a service request on Altera's mySupport website, www.altera.com/mysupport. You can also file a service request to transfer your software license to a coworker.

Conclusion

This document describes the techniques and procedures for obtaining and setting up licenses for Altera-provided software. If you are unable to access the software after reading this document, refer to the License Troubleshooter or visit the Altera Licensing page for more information.

Referenced Documents

This application note references the following documents:

■ *AN 320: OpenCore Plus Evaluation of Megafunctions*

■ *AN 343: OpenCore Evaluation of AMPP Megafunctions*

■ *MAX+PLUS II Getting Started* manual

■ *Quartus II Installation & Licensing for Windows and Linux Workstations* manual

Document Revision History

Table 7 shows the revision history for this document.

Table 7. Document Revision History   (Part 1 of 2)

Date and Document Version	Changes Made	Summary of Changes
March 2009 v2.3	■ Updated "Messages" on page 36 by added the following subsections: → "Error: "System clock has been set back" in the MAX+PLUS II Software" on page 36 → "Message: "Current license file support does not include 'Graphic Editor' Application or Feature in the MAX+PLUS II Software"" on page 36 → "Network Licensing Error: "Can't connect to daemon on license server -- make sure lmgrd is running on server host and that it has the correct port number" (Quartus II or MAX+PLUS II network licensing)" on page 37	—
March 2009 v2.2	■ Updated the following sections: → "Frequently Asked Questions" on page 31 → "Set Up the License" on page 11 → "Windows 2000, Windows XP, or Windows Vista Classic Control Panel View" on page 15 → "ModelSim-Altera Software" on page 28 → "Network License Port" on page 30	Updated for the Quartus II software 9.0 release. Removed reference to *Quartus II Installation & Licensing for Linux Workstations*. Updated product terminology.
November 2008, v2.1	■ Change to document page size to 8.5" × 11" ■ Updated the following sections: → Licensing Options → Software Guard ID → NIC ID → Hard-Disk Serial Number → Automatic License File Request → Set Up the Network Licenses → license.dat File → ModelSim-Altera Software → FEATURE and INCREMENTAL Lines → Example of Fixed PC Software Guard License → Example of Floating Node Network License for a PC Server ■ Updated Table 1 and Table 2.	Updated Altera's licensing document to support the Quartus II Software version 8.1. Removed reference to *FLEXlm End User's Guide.*
May 2008, v2.0	Added changes relating to the use of a FIXEDPC license.	Updated Altera's licensing document to support the Quartus II Software version 8.0

Table 7. Document Revision History   (Part 2 of 2)

Date and Document Version	Changes Made	Summary of Changes
October 2007, v1.9	Added licensing support for Windows Vista.	Updated Altera's licensing document to support the Quartus II Software version 7.2.
May 2007, v1.8	The changes made to this document include: ■ Minor text and formatting corrections ■ Updated Table 1 ■ Added section: "Referenced Documents"	Updated Altera's licensing document to support the Quartus II Software version 7.1.
March 2007, v1.7	The changes made to this document include: ■ Added support for Cyclone III devices ■ Added section: "Set Up a License Manager Server for Windows" ■ Added section: "Set Up a License Manager Server for UNIX"	Updated Altera's licensing document to include support for Cyclone III devices. Additionally, two new sections were added to provide instructions and examples on how to set up a license manager for Windows and UNIX servers.