

# Licensing User Guide for Windows



June 28, 2024

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## Type Conventions Used in This Document

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Convention	Meaning or Use
<b>Bold</b>	Items in the user interface that you select or click. Text that you type into the user interface.
<i>&lt;italic&gt;</i>	Variables in commands, code syntax, and path names.
<b>Ctrl+L</b>	Press the two keys at the same time.
Courier	Code examples. Messages, reports, and prompts from the software.
...	Omitted material in a line of code.
.	Omitted lines in code and report examples.
.	
.	
[ ]	Optional items in syntax descriptions. In bus specifications, the brackets are required.
( )	Grouped items in syntax descriptions.
{ }	Repeatable items in syntax descriptions.
	A choice between items in syntax descriptions.

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# Chapter 1

## Lattice Development Tools

### Device Support and Licensing

Lattice design tools are built to help you keep innovating. Whether you are designing high-volume mobile handsets or leading-edge telecom infrastructure, our easy-to-use tools will help you bring your ideas to market faster - ahead of your competition.

### Lattice Radiant Software

Full-featured FPGA design suite offering best-in-class tools for small form factor FPGA applications. Powerful yet intuitive tools provide fast design starts and precise implementation with intelligent planning and accurate analysis.



#### Supported FPGA

- ▶ [Avant-E](#)
- ▶ [Avant-G](#)
- ▶ [Avant-X](#)
- ▶ [MachXO5-NX](#)
- ▶ [CertusPro-NX](#)
- ▶ [Certus-NX](#)
- ▶ [CrossLink-NX](#)
- ▶ [CertusPro-NX-RT](#)
- ▶ [Certus-NX-RT](#)

- ▶ [iCE40 UltraPlus](#)

## Lattice Diamond Software

Leading edge design software for Lattice FPGA families. Upgrade your design process with an easy-to-use interface, superior design exploration, optimized design flow, Tcl scripting, and more.



### Supported FPGA

- ▶ [ECP5UM](#)
- ▶ [ECP5UM5G](#)
- ▶ [LatticeECP3](#)
- ▶ [LatticeECP2M/S](#)
- ▶ [LatticeECP2/S](#)
- ▶ [LatticeSC](#)
- ▶ [LatticeSCM](#)
- ▶ [Crosslink](#)
- ▶ [CrosslinkPlus](#)
- ▶ [ECP5U](#)
- ▶ [MachXO3D](#)
- ▶ [LatticeECP2](#)
- ▶ [Mach-NX](#)
- ▶ [MachXO2](#)
- ▶ [LatticeXP2](#)

## ispLEVER Classic Software

ispLEVER Classic is the design environment for Lattice CPLDs and mature programmable products. It can be used to take a Lattice device design completely through the design process, from concept to device JEDEC or Bitstream programming file output.



**Supported FPGA**

- ▶ [ispMACH 4000](#)
- ▶ [ispMACH 4A3](#)
- ▶ [ispMACH 4A5](#)
- ▶ [ispMach 5000VG](#)
- ▶ [ispGDX](#)
- ▶ [ispGDX2](#)
- ▶ [ispLSI 1K](#)
- ▶ [ispLSI 2K](#)
- ▶ [ispLSI 5000VG](#)
- ▶ [ispXPGA-E](#)

## Lattice Propel Design Environment

Lattice Propel is a complete set of graphical and command-line tools to create, analyze, compile, and debug both FPGA-based processor system hardware and software design.

**Supported FPGA**

- ▶ [Avant-E](#)
- ▶ [Avant-G](#)
- ▶ [Avant-X](#)
- ▶ [MachXO5-NX](#)
- ▶ [CertusPro-NX](#)
- ▶ [Certus-NX](#)
- ▶ [CrossLink-NX](#)
- ▶ [CertusPro-NX-RT](#)
- ▶ [Certus-NX-RT](#)
- ▶ [ECP5U](#)
- ▶ [ECP5UM](#)
- ▶ [ECP5UM5G](#)
- ▶ [Mach-NX](#)
- ▶ [MachXO2](#)
- ▶ [LatticeXP2](#)

## iCEcube2 Design Software

Easy-to-use design tools to help you hit your cost, power, and time-to-market targets. iCEcube2 design software supports the iCE40 family of ultra-low-density FPGAs.



### Supported FPGA

- ▶ [iCE40 UltraPlus](#)
- ▶ [iCE40 LP/HX/LM](#)
- ▶ [iCE40 Ultra/UltraLite](#)

# Chapter 2

## Licensing Overview

### Introduction to Lattice Design Tools Licensing

Lattice Design Tools require a license to utilize the software. This comes into two categories: Free and Subscription Licenses.

**Free Tools licenses** permit access to certain devices with the full bitstream. With Radiant, you can still generate bitstream with a free license using Evaluation Mode for certain devices.

**Table 1: Device Support Per Design Flow**

Device Support	Radiant Free License			
	Synthesize	Map	Place & Route	Bitstream
Avant-AT-E	✓	✓	✓	Not Available*
Avant-AT-G	✓	✓	✓	Not Available*
Avant-AT-X	✓	✓	✓	Not Available*
CrossLinkU-NX	✓	✓	✓	Evaluation Mode**
MachXO5-NX	✓	✓	✓	Evaluation Mode**
CertusPro-NX	✓	✓	✓	Evaluation Mode**
Certus-NX	✓	✓	✓	✓
CrossLink-NX	✓	✓	✓	✓
CertusPro-NX-RT	✓	✓	✓	Evaluation Mode**
Certus-NX-RT	✓	✓	✓	Evaluation Mode**
iCE40 UltraPlus	✓	✓	✓	✓
Device Support	Diamond Free License			
	Synthesize	Map	Place & Route	Bitstream
ECP5UM, ECP5UM5G	✓	✓	✓	Not Available*
LatticeECP3	✓	✓	✓	Not Available*

**Table 1: Device Support Per Design Flow (Continued)**

Device Support	Diamond Free License			
	Synthesize	Map	Place & Route	Bitstream
LatticeECP2M/S, LatticeECP2/S	✓	✓	✓	Not Available*
LatticeSC, LatticeSCM	✓	✓	✓	Not Available*
Crosslink, CrosslinkPlus	✓	✓	✓	✓
ECP5U	✓	✓	✓	✓
LatticeECP2, LatticeEC	✓	✓	✓	✓
MachXO3D, MachXO3L/LF	✓	✓	✓	✓
MachXO2, MachXO	✓	✓	✓	✓
LatticeXP2, LatticeXP	✓	✓	✓	✓
Platform Manager 2, Platform Manager	✓	✓	✓	✓
Mach-NX	✓	✓	✓	✓

**Note:**

\*You need a subscription license to enable full bitstream capability.

\*\*Enables a 4-hour hardware timer. You need a subscription license to remove this and have full access to the bitstream.

Please visit the [Lattice online store](#).

## How to use this Guide

This installation guide is authored for Client Machines and License Administrators.

## Floating License Installation

- ▶ For License Administrators who set up company servers and client licenses, please refer to the [Server](#) section.
- ▶ For Clients who access the server license, please refer to the [Client](#) section to set up the local client license.

# Chapter 3

## Licensing Basics

### License Types

There are two license categories for Lattice Tools: **Node-locked** and **Floating**.

### Node-locked License

A node-locked license is confined to use on one specific machine only. The license is uncounted, which means that if software is operating on a particular machine, there is no limit on the number of instances permitted to run.

#### Node-locked License: 4 Machines = 4 Licenses



Single Node-Locked



Single Node-Locked



Single Node-Locked



Single Node-Locked

Software ***limited*** to single machine

## Free Node-locked License

```

FEATURE LSC_SYNPLIFYPRO1 lattice 2024.06 07-jun-2024 uncounted \
7F42A78D33D9 VENDOR_STRING="ispLEVER System with Synplicity \
Pro 1" HOSTID=3c918035b46f IDENTIFIER FOR NODE-LOCKED
FEATURE LSC_RADIANT lattice 2024.06 07-jun-2024 uncounted \
B8A4F2748A14 VENDOR_STRING=Radiant HOSTID=3c918035b46f
FEATURE LSC_CTL_PROPBLD lattice 2024.06 07-jun-2024 uncounted \
21D83187141F VENDOR_STRING=LSC_CTL_PROPBLD HOSTID=3c918035b46f
FEATURE LSC_CTL_PROPSDK_PFR lattice 2024.06 07-jun-2024 uncounted \
0B9EE0A36F3D VENDOR_STRING=LSC_CTL_PROPSDK_PFR \
HOSTID=3c918035b46f

INCREMENT laticemsim mgclid 2023.09 7-jun-2024 0 CFF68A588DD9FDFF1668 \
VENDOR_STRING=0A8C17B1 HOSTID=3c918035b46f ISSUER="ModelSIM Lattice" \
SN=286267877 SIGN2="1DFE 2BF3 908A 34D6 05E5 07F3 4EE6 8131 8208 A96D \
2112 F7A6 DDDF BF01 03DF 1096 2672 DC84 8CF3 91A1 89B9 C528 057D E981 \
E97C FB98 8E81 CE03 0390 5D25"

```

## Subscription Node-locked License

```

| ATTENTION: The vertical bar "|" indicates the information after
| it is a comment.

| Dear Customer:

| Your license file is included below.

| The license feature lines in this file MUST remain intact and
| without modification or software will not operate.

| For quick-start installation, please refer to the licensing information in the
| email body when you received this license file as attachment.

| Edit your autoexec.bat OR Environment Variables to point to the
| proper file. For example: LM_LICENSE_FILE C:\lsc\lattice\diamond\3.11_x64\license\license.dat;

| NOTE: Feature lines will wrap to the next line. If you want to enter a line
| feed at the end of the first line, a space and a backslash "\" are
| required at the end of that line.

COMMENTS
|BEGIN
|Company Name :Lattice Semiconductor Manila
|Designer Fname :
|Designer Lname :
|Company Address :11/F Aeon Centre Lot 2-3 Blk 45 Filinvest Ctr. Alabang Zapote Road cor.
|Company Address :
|Company Address :
|Company City :Manila
|Company State :
|Company Zipcode :
|Company Country :Philippines
|Company Phone :
|Company Fax :
|E Mail Address :lic_admn@latticesemi.com
|SW Part Number :LSC-SW-RADIANT-NL
|License Type :Node Locked
|Seats :1
|KEY S/N :112522TE9T01 → SERIAL NUMBER
|KEY_ID :1234ABCD56EF → MAC ADDRESS/NIC ID

INCREMENT laticemsim mgclid 2023.09 1-dec-2023 0 FPZ5361112F4BF7D2A25 \
VENDOR_STRING=FCTA8721 HOSTID=1234abcd56ef ISSUER="ModelSIM Lattice" \
SN=283494339 SIGN2="1984 E9A9 7DA1 1B80 91B0 1184 7278 3676 B65F CE51 \
F929 EDF9 3A22 AD20 D74E 04C1 497E B559 23DE F9E4 B10B 1F7E B2F3 73FD \
819F E01D D606 4D17 5750 E23A"

FEATURE LSC_SYNPLIFYPRO1 lattice 2023.12 01-dec-2023 uncounted \
C5A64C557118 VENDOR_STRING=LSC_SYNPLIFYPRO1 \
HOSTID=1234abcd56ef

FEATURE LSC_RADIANT_SUBSCRIPTION lattice 2023.12 01-dec-2023 \
uncounted EE7B5D827711 VENDOR_STRING=LSC_RADIANT_SUBSCRIPTION \
HOSTID=1234abcd56ef

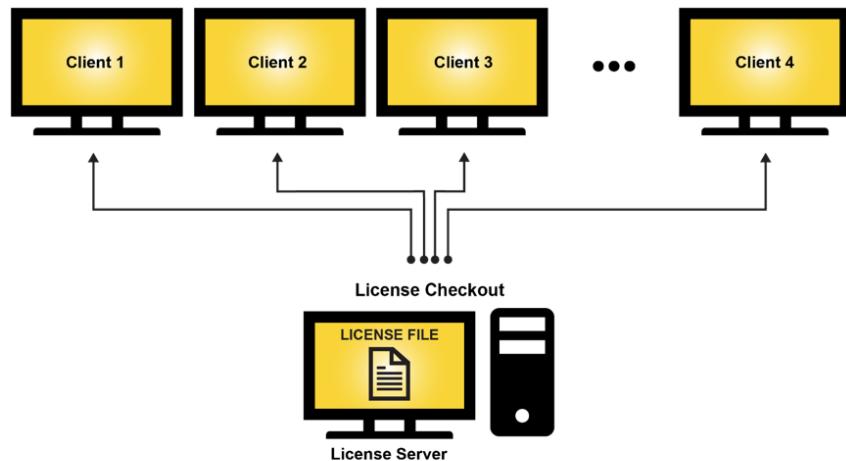
FEATURE LSC_RADIANT lattice 2023.12 01-dec-2023 uncounted \
425FD3047DB3 VENDOR_STRING=LSC_RADIANT HOSTID=1234abcd56ef

```

## Floating License

A floating license allows multiple clients to check out individual features concurrently from a shared license server. Floating licenses require the correct license server information and daemon location. Floating licenses are limited to the number of features seats specified in the license.

### Floating License: No of seats — No of machines with access



Software **available** to entire network

### Free Floating License

```

SERVER and DAEMON Lattice
FEATURE LINES
DAEMON mgcld path_to_mgcld
INCREMENT latticemsim mgcld 2023.09 12-jun-2024 1 5F66CA5DC6D6D693046C \
VENDOR_STRING=F1349F1C ISSUER="ModelSIM Lattice" SN=286315215 \
SIGN2="1C1D 35DC 9241 B719 365F CAF6 70AB B1E3 16F2 4290 577B 645F \
E45A 5495 124B 1E5A 204D 9EB2 9E85 D60E 2C30 2586 59EB F7AB A3CB BE12 \
144A 2A4A 8130 4FB0"
  
```

Annotations:

- NUMBER OF SEATS**: Points to the value '1' in the line `FEATURE LSC_RADIANT lattice 2024.06 12-jun-2024 1 E06147FFAE6E \`.
- DAEMON mgcld**: Points to the line `DAEMON mgcld path_to_mgcld`.

## Subscription Floating License

```

| ATTENTION: The vertical bar "|" indicates the information after
| it is a comment.

| Dear Customer:

| Your license file is included below.

| The license feature lines in this file MUST remain intact and
| without modification or software will not operate.

| For quick-start installation, please refer to the licensing information in the
| email body when you received this license file as attachment.

| Edit your autoexec.bat OR Environment Variables to point to the
| proper file. For example: LM_LICENSE_FILE C:\lsc\lattice\diamond\3.11_x64\license.dat;

| NOTE: Feature lines will wrap to the next line. If you want to enter a line
| feed at the end of the first line, a space and a backslash "\" are
| required at the end of that line.

COMMENTS | BEGIN
| Company Name :Lattice Semiconductor Manila
| Designer Fname :
| Designer Lname :
| Company Address :11/F Aeon Centre Lot 2-3 Blk 45 Filinvest Ctr. Alabang Zapote Road cor.
| Company Address :
| Company Address :
| Company City :Manila
| Company State :
| Company Zipcode :
| Company Country :Philippines
| Company Phone :
| Company Fax :
| E Mail Address :lic_admn@latticesemi.com
| SW Part Number :LSC-SW-RADIANT-FL
| License Type :Floating
| Seats :1 → NUMBER OF SEATS
| KEY S/N :090722INT05 → SERIAL NUMBER
| KEY_ID :3C918035B46F → MAC ADDRESS
| SERVER nodename 3C918035B46F 7788
| SERVER and DAEMON lattice daemon_path → DAEMON mgcld
| DAEMON mgcld path_to_mgcld → DAEMON mgcld
INCREMENT laticemsim mgcld 2023.09 13-jun-2024 1 FFB63A0D48A9DB889574 \
VENDOR_STRING=C0076D04 ISSUER="ModelSIM Lattice" SN=286315223 \
SIGN2="1BD1 6C48 A730 5FFA 4C4D 5A21 B201 3DF4 9FF7 B930 6290 B2D4 \
2937 4F43 C9E9 1235 04BC 3A04 410C 86EC 36B5 B476 E40C 33DE 6363 A1A7 \
60DE A13C 53DA F7EC TS_OK
FEATURE LINES FEATURE LSC_SYNPLIFYPRO1 lattice 2024.06 13-jun-2024 1 589AFD7D9039 \
VENDOR_STRING=LSC_SYNPLIFYPRO1 user_info=Trisha.Rubio@latticesemi.com TS_OK
FEATURE LSC_RADIANT_SUBSCRIPTION lattice 2024.06 13-jun-2024 1 \
4DCE473A934D VENDOR_STRING=LSC_RADIANT_SUBSCRIPTION user_info=Trisha.Rubio@latticesemi.com TS_OK
FEATURE LSC_RADIANT lattice 2024.06 13-jun-2024 1 C97847FEAE6E \
VENDOR_STRING=LSC_RADIANT user_info=Trisha.Rubio@latticesemi.com TS_OK

```

## FEATURE vs. INCREMENT in a Floating License

### INCREMENT

Increment are additive lines in which a series of lines result in the sum of all the seats.

**Increment lines: 1+4 = Total of 5 licenses**

```

INCREMENT laticemsim mgcld 2023.09 25-mar-2024(1)3F96F5C91783315ADF7B \
VENDOR_STRING=7D06295E ISSUER="ModelSIM Lattice" SN=285454249 \
INCREMENT laticemsim mgcld 2023.09 25-mar-2024(4)3F96F5C91783315ADF7B \
VENDOR_STRING=7D06295E ISSUER="ModelSIM Lattice" SN=285454249 \

```

### FEATURE

Feature lines are not additive in which only the **first feature** line will be taken into consideration in a license file.

**Feature lines: Move the 4-seat license FEATURE line to the top of the license if 4 concurrent users are needed**

```
FEATURE LSC_RADIANT lattice 2024.03 25-mar-2024 1 191937CDF4B1 \
VENDOR_STRING=LSC_RADIANT
FEATURE LSC_RADIANT lattice 2024.03 25-mar-2024 4 191937CDF4B1 \
VENDOR_STRING=LSC_RADIANT
```

## VERSION vs. EXPIRATION DATE in a License

### VERSION

The Maintenance Version covers the latest valid tool version. It needs to be greater than the software version to run the tools.

```
INCREMENT laticemsim mgcl 2023.09 25-mar-2024 4 3F96F5C91783315ADF7B \
VENDOR_STRING=7D06295E ISSUER="ModelSIM Lattice" SN=285454249 \
```

### EXPIRATION DATE

The License Expiration Date specifies the last day that the license is valid.

**After March 25, 2024, this FEATURE line is no longer valid**

```
FEATURE LSC_RADIANT_SUBSCRIPTION lattice 2024.03 25-mar-2024 1 \
B0F016E4F29A VENDOR_STRING=LSC_RADIANT_SUBSCRIPTION
```

# How to Obtain a License

## Free Licenses

Lattice offers free licenses which enable you to design and evaluate the performance of the supported devices per Software tool. To request free software licenses, see the links below. For other Software Tools, please go to the [Software Licensing](#) page.

### Radiant Free License

The free license enables full design and implementation functionality for Radiant-supported devices.

- ▶ [Request Node-locked License](#)
- ▶ [Request Floating License](#)

### Diamond Free License

The free license enables you to design and evaluate the performance of non-SERDES-based Diamond-supported devices.

- ▶ [Request Node-locked License](#)
- ▶ [Request Floating License](#)

## Subscription Licenses

Subscription licenses enable you to design and optimize solutions for supported devices in each Software tool. To purchase or renew a Software license, please go to the [Online Store](#) or contact a [local sales representative or distributor](#).

If you have purchased a Software license and received a Software Serial Number, please go to our [Subscription licensing form](#) to generate the required license.

### Subscription License 30-Day Extension

If you need a temporary license extension while license renewal is being processed, we have a solution for this scenario.

This license is only for a temporary extension to a subscription license that will expire.

To request an extension, you will need the following:

- ▶ Your subscription license serial number
- ▶ Click [Request an extension](#) and go to **My Licenses** to edit the record and click **Extend 30 days**.
- ▶ If you have not previously connected to our support portal, you will need to verify your contact information.

## How to determine the MAC address/NIC ID

The Network Interface Card ID uniquely identifies your workstation on the network. At the command prompt, you may find the NIC ID for your network card by running **ipconfig /all**. The number on the physical address line, without the dashes, is your NIC ID.

### Note:

Use an adapter that does not change when machine is docked vs. un-docked.

### Physical Address Example

```
Wireless LAN adapter Wi-Fi:  
  
Connection-specific DNS Suffix . :  
Description . . . . . : Realtek 8822BE Wireless LAN 802.11ac PCI-E NIC  
Physical Address. . . . . : 10-63-C8-35-6F-4B  
DHCP Enabled. . . . . : Yes  
Autoconfiguration Enabled . . . . . : Yes  
Link-local IPv6 Address . . . . . : fe80::71f1:b66d:7fab:b5a1%11(Preferred)  
IPv4 Address. . . . . : 192.168.0.29(Preferred)  
Subnet Mask . . . . . : 255.255.255.0  
Lease Obtained. . . . . : Tuesday, December 7, 2021 6:58:19 PM  
Lease Expires . . . . . : Thursday, December 9, 2021 10:01:29 AM  
Default Gateway . . . . . : 192.168.0.1  
DHCP Server . . . . . : 192.168.0.1  
DHCPv6 IAID . . . . . : 84960200  
DHCPv6 Client DUID. . . . . : 00-01-00-01-24-E3-A9-A3-E8-6A-64-CA-CD-DA  
DNS Servers . . . . . : 192.168.96.164  
192.168.80.71  
114.108.193.201  
114.108.195.1  
NetBIOS over Tcpip. . . . . : Enabled
```

# How to Fill in the Licensing Forms

## Free Web Licenses

You may generate free web licenses for certain devices that are supported by Lattice Software Tools.

### To fill in the Software Licensing Request Form

1. Ensure that you enter your NIC ID without any separator or spaces.
2. Proceed to check the tick box verifying that you are not an employee of Cadence Design Systems, Mentor Graphics Corporation, or Synopsys, Inc.
3. You may choose to include some Free IPs listed and click generate.

### Free License Software Licensing Form

**Software License Request Form**

**Note:** The license file will be sent to the web account email address:

Host NIC (physical address) \*

The Network Interface Card (NIC) ID is incomplete.  
Please enter your 12-digit NIC without any separator or spaces.

I verify that I am not an employee of Cadence Design Systems, Mentor Graphics Corporation, or Synopsys, Inc.

**Radiant Free IP (optional). Please select all that apply.**

CerthusPro-NX	CrossLink-NX/Certhus-NX
<input type="checkbox"/> Select All	<input type="checkbox"/> Select All
<input type="checkbox"/> I2C Master	<input type="checkbox"/> I2C Master
<input type="checkbox"/> I2C Slave	<input type="checkbox"/> I2C Slave
<input type="checkbox"/> Multi-Port Memory Controller	<input type="checkbox"/> Multi-Port Memory Controller
<input type="checkbox"/> SPI Flash Controller	<input type="checkbox"/> SPI Flash Controller
<input type="checkbox"/> SPI Master	<input type="checkbox"/> SPI Master
<input type="checkbox"/> SPI Slave	<input type="checkbox"/> SPI Slave
<input type="checkbox"/> UART 16550	<input type="checkbox"/> UART 16550
<input type="checkbox"/> Watchdog Timer	<input type="checkbox"/> Watchdog Timer

## Subscription Licenses

If you have purchased a Software license and received a Software Serial Number, you will be directed to our [Subscription licensing form](#) where you will need:

- ▶ A latticesemi.com account.  
It is recommended to create an account if you do not already have one yet.
- ▶ The given serial number.

**Note:**

Click **Check SN** to check if the serial number is available to license.

- ▶ The NIC/Physical address of the computer you wish to license.
- ▶ Company Name

**Subscription Licensing Page**
**Subscription Licensing Form**
**Evaluation Licenses**

Lattice offers evaluation license to enable free subscription license for end-users up to 60 days. You may raise a ticket to the [Submit Support Ticket](#) page.

## Academic License Program

We offer a 1-year Lattice Design tools license free for colleges and universities who meet our academic license program requirements. If you are a professor, and you are interested in applying, please login to your Lattice account and fill out the [application form](#) here. If you are a student, please coordinate with your professor to join this program.

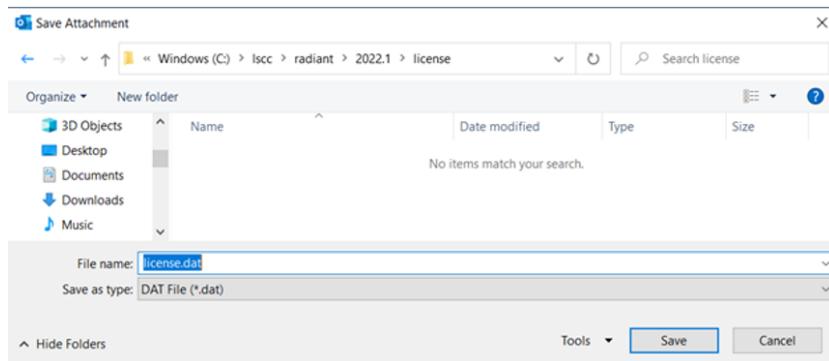
# Chapter 4

## License Installation

To fully utilize the Lattice Software Design Tools, Software Licenses must be installed properly. The process depends on the type of license you are to use.

### Node-locked License Installation

1. You will receive a license email once the license has been generated. Save the attached file (**license\_.dat**) to the installation folder of your software package (e.g. <sw\_install>\license\license.dat).

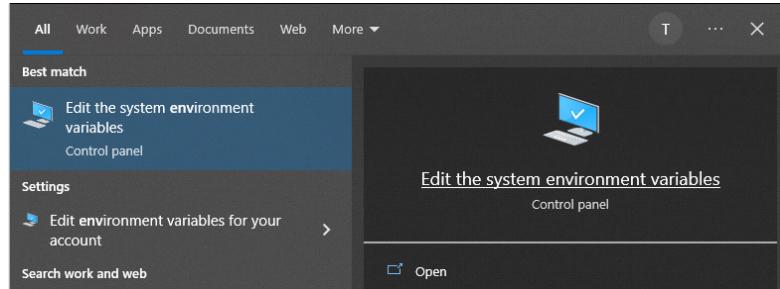


2. Change the value of your **Environment Variable** to point to the correct file.

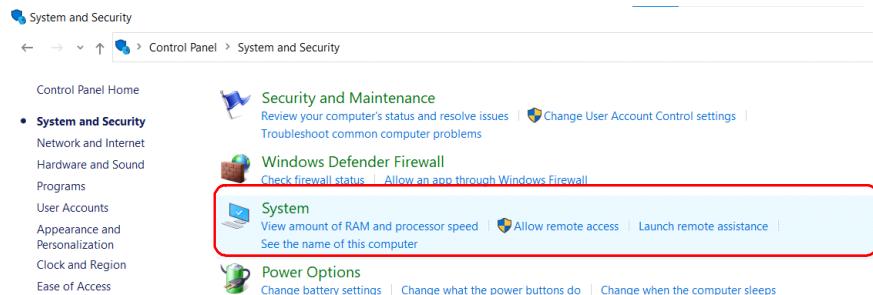
For example: **LM\_LICENSE\_FILE = <sw\_install>\license\license.dat;**

**To edit the LM\_LICENSE FILE via “env” shortcut:**

1. Click the **Search** bar next to the Windows symbol in the taskbar's upper left corner.
2. Enter **env** and click the **Open** button.

**To edit the LM\_LICENSE FILE via Control Panel:**

1. Click the **Search** bar next to the Windows symbol in the taskbar's upper left corner.
2. Navigate to **Control Panel** and select **System**.



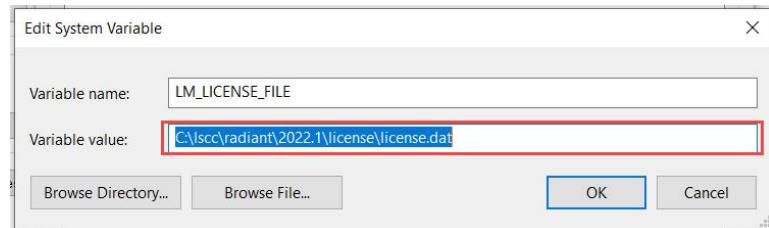
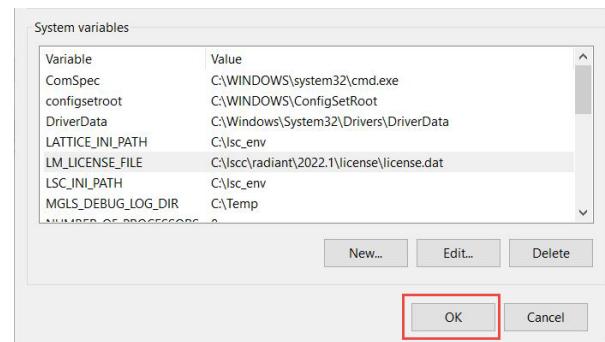
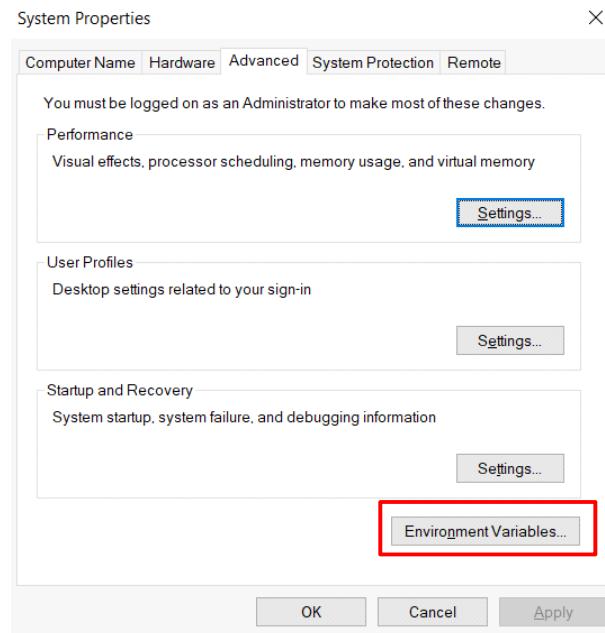
3. On the right side of the screen, click on **Advanced System Settings** and enter the computer admin username and password.



4. Click on the **Environment Variables** and under **System variables**, you will find the LM\_LICENSE\_FILE.

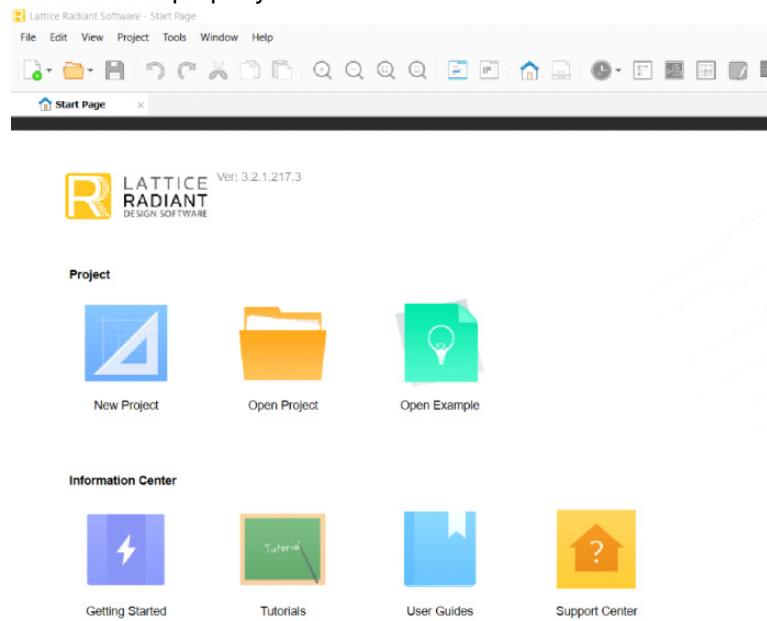
**Note:**

If you install the software tool for the first time, the LM\_LICENSE\_FILE will automatically be created with the default value <sw\_install>\license\license.dat, if you want a different license path make sure to update the environment variable.

**Note:**

If you have multiple licenses, you may add multiple license paths in the LM\_LICENSE\_FILE.

5. You should be able to open the Lattice Design Tool without error if your license is properly installed.



## Floating License Installation

### Server

You must have a license server set up on a Windows server to monitor your Radiant software license to allow floating licensing. Each client PC must have the LM\_LICENSE\_FILE variable set to point to the license file on the server.

#### To edit the License File:

You must change the license file after getting a floating license from Lattice Semiconductor to indicate the server's name and routes to the Lattice daemon. Please see the floating license example.

1. Edit the **SERVER** line by replacing *nodename* with the host name of the server for which you requested your license.dat file. You may also need to change the PORT NUMBER (7788). The port number should not be an issue.
2. Edit the **DAEMON** lattice line by replacing *daemon\_path* with the path to the lattice daemon, for example:  
C:\lsccl\radiant\<version>\ispfpga\bin\nt64\lattice.exe
3. Edit the **ModelSim DAEMON** line, replacing *daemon\_path* with the path to ModelSim Lattice Edition.

For ModelSim, the path is: <install\_path>/radiant/<version>/modeltech/win32loem/mgcl.d.

### Floating license before editing.

```
SERVER nodename 3C918035B46F 7788
DAEMON lattice daemon_path
DAEMON mgcl.d path_to_mgcl.d
INCREMENT laticemsim mgcl.d 2023.09 25-mar-2024 1 3F96F5C91783315ADF7B \
VENDOR_STRING=7D06295E ISSUER="ModelSIM Lattice" SN=285454249 \
SIGN2="1F64 52F2 73EB 90E4 200E D1F3 2206 8E1E 228D 99D8 DA83 080A \
789C QAA5 9330 0F6E 405E BD52 EEBF 496E CF30 5F08 4048 AC1A 0B81 FE1F \
D8C9 107A E56C DED9"
```

### Floating license after editing

```
SERVER LSC021083 3C918035B46F 7788
DAEMON lattice C:\lsc\radiant\2022.1\ispfpga\bin\nt64\lattice.exe
DAEMON mgcl.d C:\lsc\radiant\2022.1\modeltech\win32loem\mgcl.d
INCREMENT laticemsim mgcl.d 2023.09 25-mar-2024 1 3F96F5C91783315ADF7B \
VENDOR_STRING=7D06295E ISSUER="ModelSIM Lattice" SN=285454249 \
SIGN2="1F64 52F2 73EB 90E4 200E D1F3 2206 8E1E 228D 99D8 DA83 080A \
789C QAA5 9330 0F6E 405E BD52 EEBF 496E CF30 5F08 4048 AC1A 0B81 FE1F \
D8C9 107A E56C DED9"
```

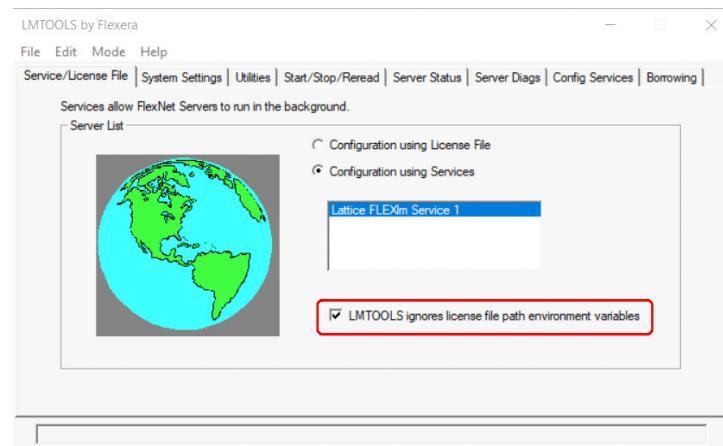
### To set up your license manager as a system service:

1. Copy the license file (license.dat) to C:\lsc\radiant\<version number>\license\license.dat.

### Note:

You can save the license to any folder if it will be correctly grabbed by LMTOOLS.

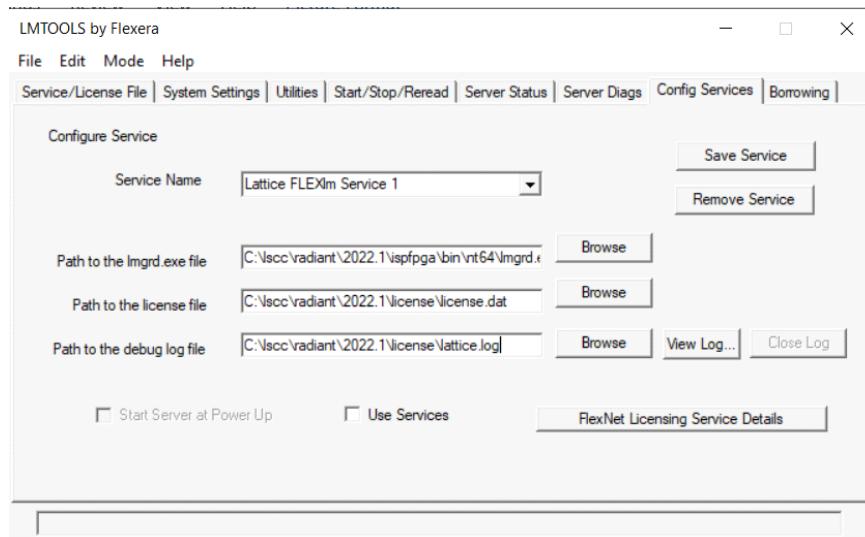
2. Open the **LMTOOLS** dialog box in this path C:\lsc\radiant\<version number>\ispfpga\bin\nt64\lmttools.exe



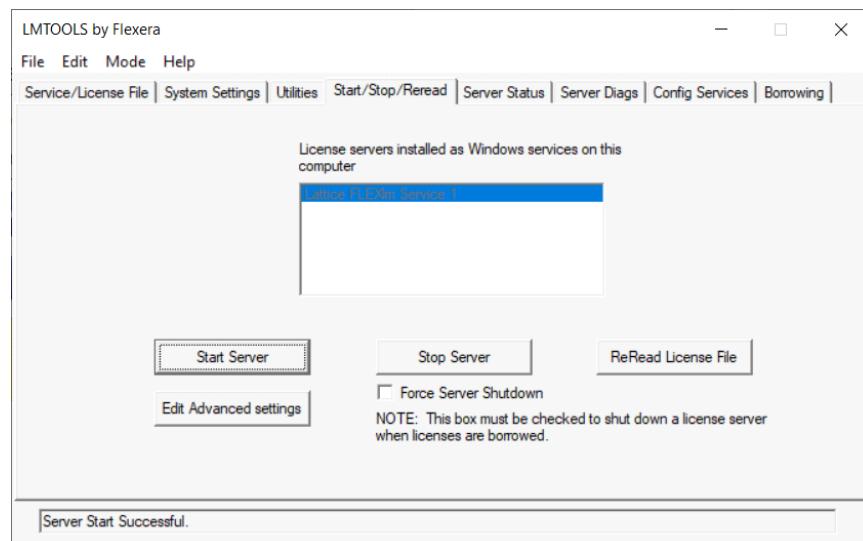
**Note:**

If the LMTOOLS checkbox is checked on the **Service/License File** tab, it results to the tool ignoring the license path in the environment variable. When unchecked, please configure your LM\_LICENSE\_FILE environment variable. See section on how to configure.

3. In the **LMTOOLS** dialog box, select the **Config Services** tab.
4. Change the name of the service to **Lattice FLEXIm Service 1**.
5. Browse and set **Imgrd.exe** to **\ispfpga\bin\nt64\Imgrd.exe**.
6. Navigate and save the license file as **licenselicense.dat**. You can also save your license in a shared folder.
7. Navigate and choose **licenselattice.log** as the debug log file.
8. Click and save the service.



9. Choose the **Start/Stop/Reread** tab.
10. Click the **Start Server** button.

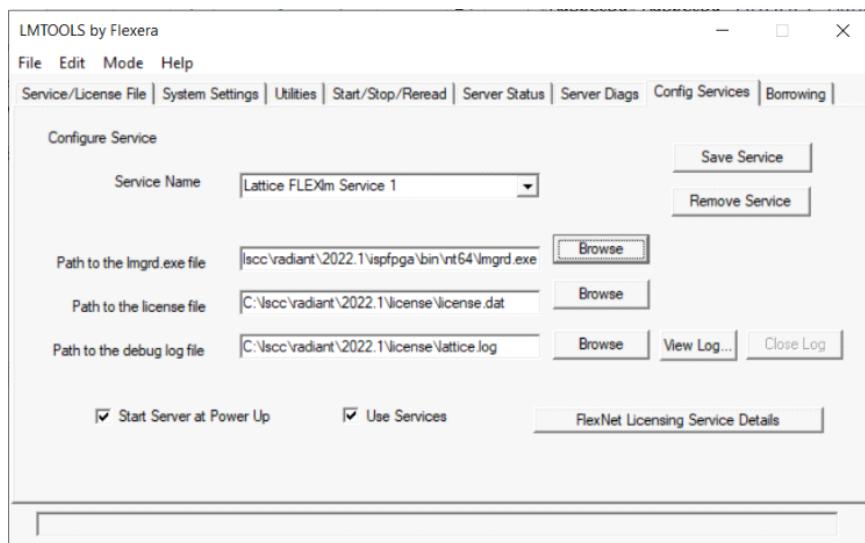


11. Navigate to the **Config Services** tab.
12. To view the lattice.log file, click **View Log**. Check to see if the license server is having any issues starting up. Close the log file if there are no issues.

```
C:\VSCC\radiant\2022.1\license\lattice.log

22:42:26 (lmgrd) SLOG: FNPLS-INTERNAL-VL1-4096
22:42:26 (lmgrd) Starting vendor daemons ...
22:42:27 (lmgrd) Started lattice (pid 14368)
22:42:27 (lattice) FlexNet Licensing version v11.16.4.0 build 252457 x64_n6
22:42:27 (lattice) SLOG: Summary LOG statistics is enabled.
22:42:27 (lattice) SLOG: FNPLS-INTERNAL-CKPT1
22:42:27 (lattice) SLOG: VM Status: 0
22:42:27 (lattice) SLOG: FNPLS-INTERNAL-CKPT5
22:42:27 (lattice) SLOG: TPM Status: 0
22:42:27 (lattice) SLOG: FNPLS-INTERNAL-CKPT6
22:42:27 (lattice) Server started on LSC021083 for: LSC_SYNPLIFYPRO1
22:42:27 (lattice) LSC_RADIANT_SUBSCRIPTION LSC_RADIANT
22:42:27 (lattice) EXTERNAL FILTERS are OFF
22:42:27 (lmgrd) Started mgold (pid 13540)
22:42:27 (lmgrd) lattice using TCP-port 58633
22:42:27 (lattice) SLOG: Statistics Log Frequency is 240 minute(s).
22:42:27 (lattice) SLOG: TS update poll interval is 600 seconds.
22:42:27 (lattice) SLOG: Activation borrow reclaim percentage is 0.
```

13. To validate license checkout, select **Start > Open Lattice Radiant Tool** (this will be noted in the lattice.log file).
14. In the **LMTOOLS** dialog box, select the **Start/Stop/Reread** tab.
15. Choose the **Stop Server**.
16. Navigate to the **Config Services** tab. Use Services and Start Server on Power-Up are also options.



17. Select **File > Exit** after clicking Save Service.
18. Restart the Windows PC to check the server system.
19. Restart the Radiant software to ensure that the license server is still operating as a service.

**To configure your LM\_LICENSE\_FILE environment variable in the Control Panel:**

1. Modify or create your **LM\_LICENSE\_FILE** in Control Panel.
2. Go to **Advanced System Settings** then **Environment Variables** to include the port@servername. The LM\_LICENSE\_FILE value in this case is: 1717@L-PF1KDFY9.

## Client

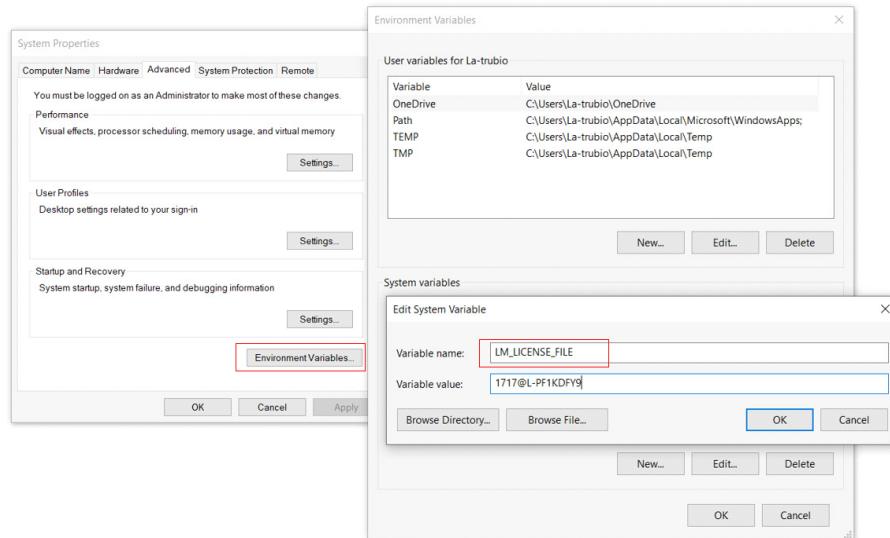
The software is installed on your license server (for license manager utilities and daemons) as well as on each client that uses a specific software.

This setting provides the best run-time performance. Install the software locally on each client that will utilize the floating license after receiving your floating license and ensuring that the license management is operating.

**To set your LM\_LICENSE\_FILE environment variable:**

1. Modify or create your **LM\_LICENSE\_FILE** in Control Panel.

2. Go to **Advanced system settings** then **Environment Variables** to include the port@servername. The LM\_LICENSE\_FILE value in this case is: 1717@L-PF1KDFY9.



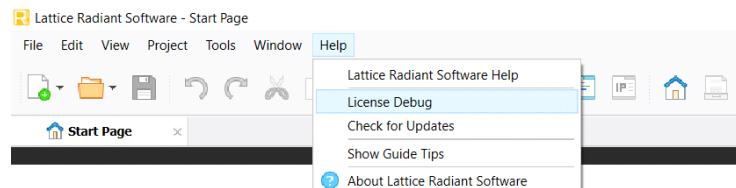
## License Debugger

The license debugger is a software feature that helps you to know the included license features in the software license. The **License File** lists the LM\_LICENSE\_FILE path. The **Feature list** lists all the features and location found with Lattice Daemon. On the Local System Information, the machine host name and NIC IDs are shown.

### To open the License Debugger in Radiant:

1. Launch the **Radiant** tool. Click on the **Help** tab.

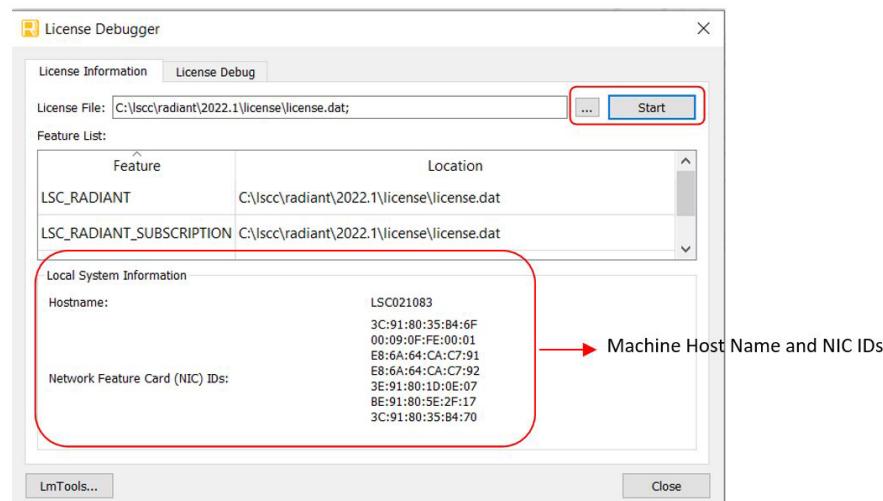
2. Under the Help tab, click on **License Debug**.



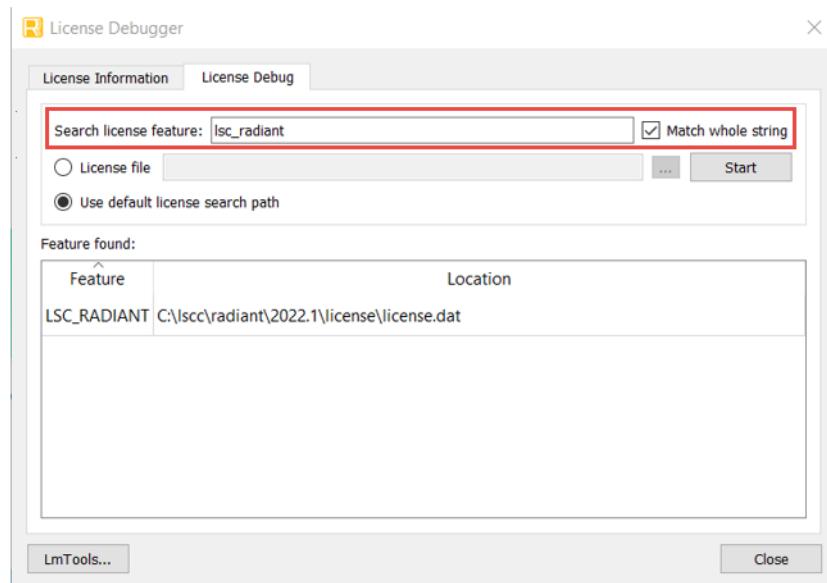
**Project**



3. Click the '...' button next to the Start to search for your license file. You can also enter your entire license path.
4. Click Start to see the included features in your license.



5. If you need to check a specific license feature, click on the License Debug button and fill in the search license feature box.



# Chapter 5

## IP (Intellectual Property) Licensing

### Introduction to IP Cores

Lattice IP Cores are pre-tested, reusable functions that allow designers to focus on their unique system architectures. These IP cores provide industry-standard functions such as PCI Express, DDR, Ethernet, CPRI, and embedded microprocessors. In addition, several independent IP providers have teamed with Lattice to offer additional high quality, reusable IP cores. For a complete listing of IP cores from Lattice and its 3rd party partners, please go to the [Lattice IP](#) page.

**Table 1: Radiant Devices**

Function	IP Core	Avant	CertusPro-NX	Certus-NX	CrossLink-NX	Mach-NX	MachXO5	Cross Link	CrossLink Plus	iCE40
<b>Communications</b>	10 Gb Ethernet Mac		✓							
	SGMII and Gb Ethernet PCS		✓	✓	✓		✓			
	Triple Speed 10/100/1G Ethernet MAC	✓	✓	✓	✓		✓			
<b>Connectivity</b>	10 Gb Ethernet PCS		✓							
	GPIO		✓	✓	✓					
	PCI Express x1 Endpoint		✓	✓	✓					
	PCI Express x2 Endpoint		✓							
	PCI Express x4 Endpoint		✓							
	PCI Express Root Complex Lite x1		✓	✓	✓					

**Table 1: Radiant Devices**

Function	IP Core	Avant	CertusPro-NX	Certus-NX	CrossLink-NX	Mach-NX	MachXO5	CrossLink	CrossLink Plus	iCE40
	Gigabit SGMII Ethernet PHY	✓								
	PCI Express Root Complex Lite x4		✓							
Digital Signal Processing	CORDIC	✓	✓	✓	✓		✓			
	Divider	✓	✓	✓	✓		✓			
	FFT Compiler	✓	✓	✓	✓		✓			
	FIR Filter Generator	✓	✓	✓	✓		✓			
Processor, Controller & Peripheral	DDR3 SDRAM Controller	✓	✓							
	DDR3 SDRAM PHY	✓	✓	✓	✓					
	I2C Master		✓	✓	✓					
	I2C Slave		✓	✓	✓					
	I3C Master		✓	✓	✓		✓			✓
	I3C Slave		✓	✓	✓		✓			✓
	LPDDR2 SDRAM Controller Lite		✓	✓	✓					
	LPDDR4 SDRAM Controller	✓	✓							
	Multi-Port Arbiter for DDR3 Memory		✓	✓	✓					
	Controller		✓	✓	✓					
	Scatter Gather DMA	✓	✓	✓	✓					
	SPI Master		✓	✓	✓					
	SPI Slave		✓	✓	✓					
Neural Network Accelerators	UART 16550		✓	✓	✓					
	Watchdog Timer	✓	✓	✓	✓					
	CNN Plus Accelerator	✓		✓	✓					
	Compact CNN Accelerator									✓

**Table 1: Radiant Devices**

Function	IP Core	Avant	CertusPro-NX	Certus-NX	CrossLink-NX	Mach-NX	MachXO5	Cross Link	CrossLink Plus	iCE40
<b>Lattice Propel</b>	AHB Lite Interconnect Module			✓	✓	✓				
	AHB Lite to APB Bridge Module			✓	✓	✓				
	APB Interconnect Module			✓	✓	✓				
	I2C Master			✓	✓					
	RISC-V MC CPU IP			✓	✓	✓				
	RISC-V SM CPU IP			✓	✓	✓				
	SGMII and Gb Ethernet PCS			✓	✓					
	System Memory Module			✓	✓	✓				
	UART IP Core			✓	✓	✓				
	AXI4 to AHB-Lite Bridge	✓								
<b>Video &amp; Imaging</b>	AXI4 to APB Bridge	✓								
	AXI4 Interconnect	✓								
	2D Scaler		✓	✓	✓	✓				
	4:1 MIPI CSI-2 Bridge							✓	✓	
	Byte to Pixel Converter	✓	✓	✓	✓	✓		✓	✓	
	Color Space Converter	✓	✓	✓	✓	✓				
	CMOS to MIPI D-PHY Interface Bridge							✓	✓	
	1:2 and 1:1 MIPI CSI-2 to CSI-2 Camera Interface Bridge							✓	✓	
	MIPI CSI-2 Bridge							✓	✓	
	CSI-2/DSI D-PHY Receiver	✓	✓	✓	✓			✓	✓	

**Table 1: Radiant Devices**

Function	IP Core	Avant	CertusPro-NX	Certus-NX	CrossLink-NX	Mach-NX	MachXO5	Cross Link	CrossLink Plus	iCE40
CSI-2/DSI D-PHY Transmitter		✓	✓	✓	✓			✓	✓	
Deinterlacer		✓	✓	✓	✓					
DSI to DSI								✓	✓	
FPD-LINK Receiver		✓		✓	✓			✓	✓	
FPD-LINK Transmitter		✓		✓	✓			✓	✓	
Gamma Corrector		✓	✓	✓	✓					
MIPI D-PHY to CMOS								✓	✓	
MIPI DSI Bandwidth Reducer Display Interface Bridge								✓	✓	
MIPI DSI to OpenLDI/FPD-Link/LVDS								✓	✓	
Pixel to Byte Converter		✓	✓	✓	✓					
SLVS-EC Receiver			✓							
SubLVDS Image Sensor Receiver		✓	✓	✓	✓			✓	✓	
SubLVDS to MIPI CSI-2 Image Sensor Interface Bridge								✓	✓	
Video Frame Buffer		✓	✓	✓	✓					
Color Correction Matrix		✓								
2D Image Noise Reduction		✓								

**Table 2: Diamond Devices**

Function	IP Core	ECP5/ ECP5-5G	ECP3	ECP2M	ECP2	MachXO2	MachXO3D	XP2
<b>Communications</b>	10 Gb Ethernet MAC	✓	✓	✓	✓			
	2.5 Gb Ethernet MAC		✓					
	2.5 Gb Ethernet PCS		✓					
	CPRI	✓	✓	✓				
	CPRI 5G	✓	✓	✓				
	SPI4	✓	✓	✓	✓			✓
	SGMII and Gb Ethernet PCS	✓	✓	✓	✓			✓
<b>Connectivity</b>	Triple Speed 10/100/1G Ethernet MAC	✓	✓	✓				
	XAUI	✓	✓	✓				
	JESD204A		✓					
	JESD204B	✓	✓					
	JESD207	✓	✓					
	PCI Express x1 Endpoint	✓	✓	✓				
	PCI Express x2 Endpoint	✓		✓				
	PCI Express x4 Endpoint	✓	✓	✓				
	PCI Express Root Complex Lite x1	✓	✓	✓				
	PCI Express Root Complex Lite x4	✓	✓	✓				
	PCI Express x1 Endpoint - Optimized for ECP5UM5G	✓						
	PCI Express x2 Endpoint - Optimized for ECP5UM5G	✓						

**Table 2: Diamond Devices**

Function	IP Core	ECP5/ ECP5-5G	ECP3	ECP2M	ECP2	MachXO2	MachXO3D	XP2
Digital Signal Processing	PIPE		✓					
	PCI Master/ Target 33		✓	✓	✓	✓		✓
			✓	✓	✓	✓		✓
	PCI Target 33		✓	✓	✓	✓		✓
	PCI Target 66		✓	✓	✓			✓
	Serial RapidIO		✓					
	Tri-Rate Serial Digital Interface (SDI) PHY		✓					
Communication	Block Convolutional Encoder		✓	✓				✓
	Block Viterbi Decoder		✓	✓				✓
	Cascaded Integrator- Comb (CIC) Filter		✓	✓				✓
	CORDIC	✓	✓	✓				✓
	Distributed Arithmetic (DA) FIR Filter		✓	✓				✓
	Divider		✓	✓				✓
	Dynamic Block Reed-Solomon Decoder		✓	✓	✓			✓
	FFT Compiler	✓	✓	✓				✓
	FIR Filter Generator	✓	✓	✓				✓
	Interleaver/De- interleaver		✓	✓				✓
	Machine Learning	✓						
	Median Filter	✓						
	Numerically- Controlled Oscillator (NCO)							

**Table 2: Diamond Devices**

Function	IP Core	ECP5/ ECP5-5G	ECP3	ECP2M	ECP2	MachXO2	MachXO3D	XP2
	Peak Cancellation Crest Factor	✓						
<b>Processor, Controller &amp; Peripheral</b>	DDR SDRAM Controller Pipelined		✓	✓	✓	✓		✓
	DDR2 SDRAM Controller Pipelined		✓	✓	✓	✓		✓
	DDR3 SDRAM Controller	✓	✓					
	DDR3 SDRAM PHY	✓	✓					
	LPDDR SDRAM Controller					✓		
	LPDDR2 SDRAM Controller Lite	✓						
	LPDDR3 SDRAM Controller	✓						
	Scatter Gather DMA	✓	✓		✓	✓		✓
<b>Neural Network Accelerators</b>	CNN Accelerator	✓	✓					
<b>Lattice Propel</b>	AHB Lite Interconnect Module					✓	✓	
	AHB Lite to APB Bridge Module					✓	✓	
	APB Interconnect Module					✓	✓	
	EFB Module						✓	
	I2C_Monitor						✓	
	QSPI_Master_ Streamer						✓	
	QSPI_Monitor						✓	

**Table 2: Diamond Devices**

Function	IP Core	ECP5/ ECP5-5G	ECP3	ECP2M	ECP2	MachXO2	MachXO3D	XP2
System Functions	RISC-V MC CPU IP					✓	✓	
	RISC-V SM CPU IP					✓	✓	
	System Memory Module					✓	✓	
	UART IP Core					✓	✓	
Video & Imaging	2D Edge Detector		✓	✓	✓			✓
	2D FIR Filter		✓	✓	✓			✓
	2D Scaler	✓	✓	✓	✓			✓
	Color Space Converter	✓	✓	✓	✓			✓
	Deinterlacer		✓	✓	✓			✓
	Display Interface Mux							
	DVB-ASI		✓					✓
	Gamma Corrector	✓	✓	✓	✓			✓
	Median Filter		✓	✓	✓			✓
	Video Frame Buffer	✓	✓	✓	✓			✓

## Introduction to IP Licensing

Each Lattice IP core is a set of compiled code that implements a basic function, like a DDR2 memory controller, or a Tri-speed MAC, and is targeted/optimized for a specific Lattice FPGA family. You can first use the IP tools in Diamond or Radiant to configure some parameters in the IP core (for example, with DDR2, you might configure the data word width to a particular length).

The IP tool generates a compiled **netlist**, which is sometimes called a **black box**, because while you can connect the inputs and outputs, you cannot see inside this compiled design. Finally, using Diamond or Radiant, you can integrate the IP with your custom RTL to create your final design, which can then be programmed into a Lattice FPGA. This custom code is sometimes called a **wrapper** as it wraps around the IP core to create the final design.

After you have completed your design, you can generate a bitstream file and program a Lattice FPGA

If you have a copy of Diamond or Radian, you already have access to all the IP core **code** via the IPExpress or IP Catalog tool. When you purchase an IP core, you now have a license to fully utilize this code - i.e. you have purchased a **key**, which comes in the form of a file called **license.dat**.

To get this file, you need to complete a request using the [IP Subscription License Form](#). After completing the required fields in the form, we will email you a new license.dat file, which works with Diamond or Radian, and unlocks the IP core.

## Types of IP Licenses

There are 2 ways you can purchase a license to use Lattice IP cores. The type of IP license you purchase is reflected by the part number you order; so, there is only one way to license any specific IP core part number. These license types include:

- ▶ **Single Machine Annual License:** Individual IP core that is limited to a single machine installation only. The use period is up to 1 year, so the license will expire at the end of the 12-month term. Upon expiration, you will still be able to use programming bitstream files generated over the previous year but will not be able to generate new bitstream files without the hardware timer. Part numbers for annual licenses will end in a suffix like -US. Extensions to this 1-year period are available.
- ▶ **Site Perpetual License:** This IP license is a floating license installed on a server. There is no expiration date to this license type, but a one-seat license is given for each item you purchase. Part numbers for site licenses will end in a suffix like -UT. These products are specific to a single type of IP and a single target FPGA technology.

For more information and support in IP licensing, please visit the [Lattice IP Support](#) page.

## Free IP Licenses

Lattice offers free IP that requires licenses which can be generated through the [Licensing](#) page.

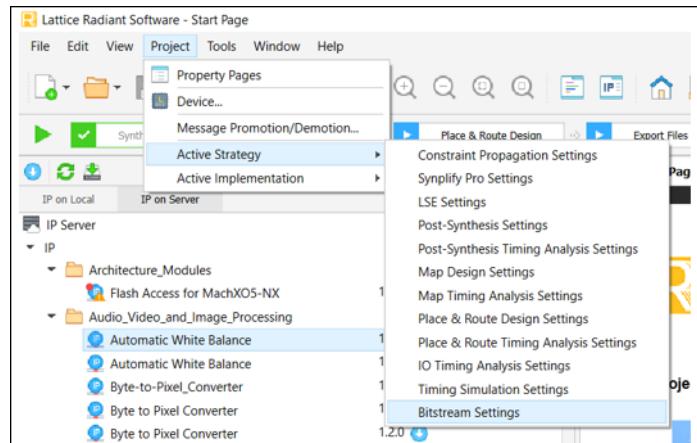
# Evaluation Mode in IP

## What are the limitations of using IP in Evaluation Mode?

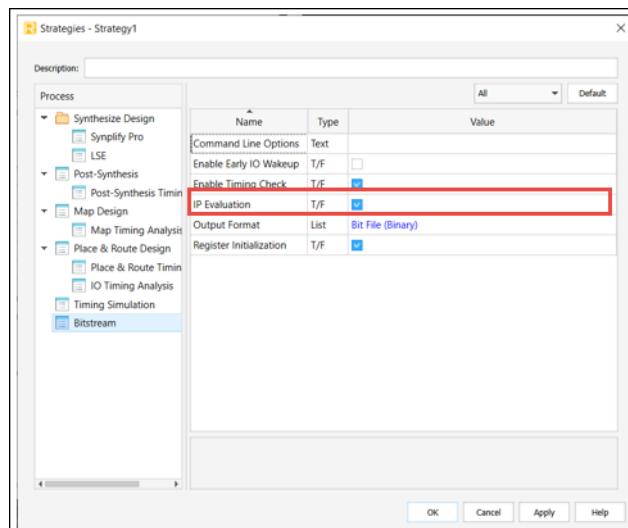
You can do nearly all your design and prototyping work without an IP license. If you do not have a license to use the IP core, the software will insert a **hardware timer** into the programming bitstream. This will cause the bitstream to **time-out** after a set period - usually from 30 minutes to about 4 hours. After the period expires, you can re-program the FPGA to reset the period. Also, without an IP license, full timing simulation is not available.

### To turn on Evaluation Mode:

1. In the Project Tab, click **Active Strategy > Bitstream Settings**.



2. Check the **IP Evaluation** tick box.



3. Click **Apply** and **OK** to exit.

# Chapter 6

## Frequently Asked Questions

### 1. How do I manage my subscription licenses?

- ▶ Log in to our website, <https://www.latticesemi.com/> and go to **Support -> Licensing**.
- ▶ Under **Purchase/Renew Radiant License**, click **Subscription licensing**.
- ▶ Select **My Licenses** to view all licenses generated for your email address.

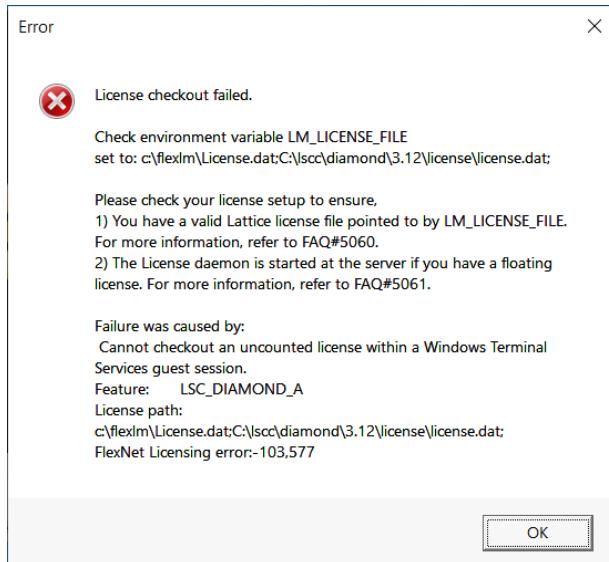
### 2. Why do I get the following warning: "WARNING - Device1 iM4A3-64/32 is a mature device, please contact Lattice for the license to enable this device" when loading a program for my CPLD?

Please keep in mind that when programming mature devices, you must use the Diamond Programmer stand-alone version. The Diamond Integrated Programmer (a programmer integrated into the Lattice Diamond software) lists the mature devices in the Device Selection and scans them, but it cannot program mature devices, even with the Mature Device license. Bypass is the only available operation.

- ▶ To program the mature device, visit our licensing page and request a [Diamond-free license](#).

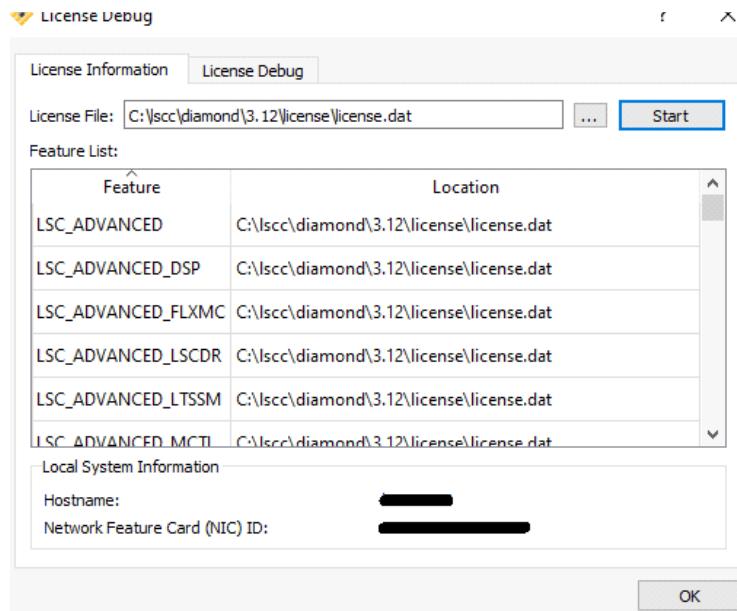
### 3. Why is my license invalid when I use a remote desktop?

When a Node-locked licensed is used in remote connections, the error described below occurs. For more information on the difference between a Node-locked and a Floating License, you may check on License Types.

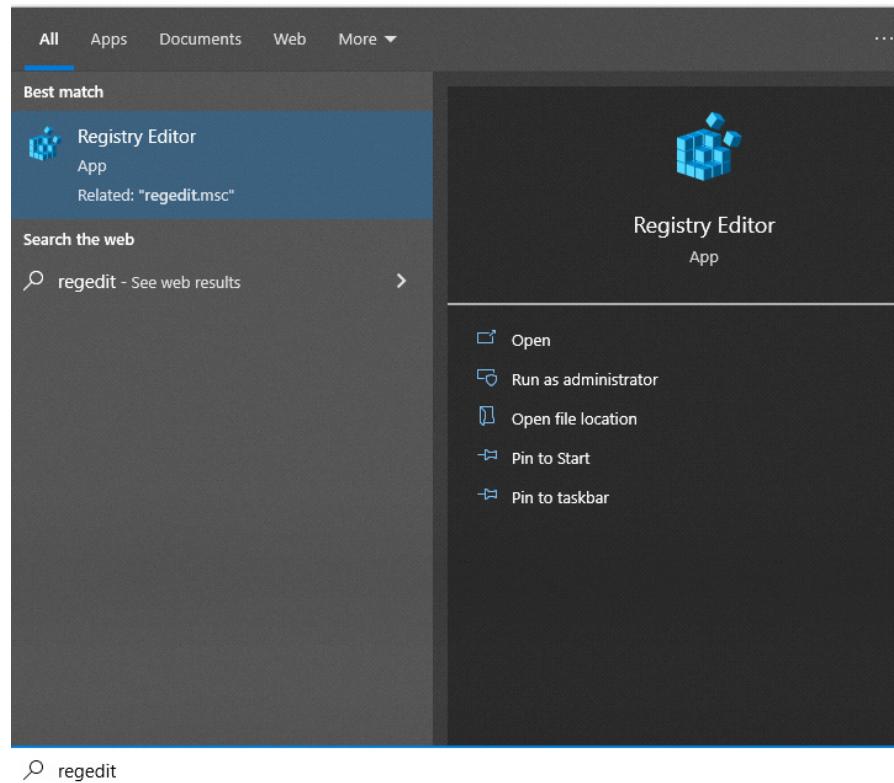


#### 4. How to improve Diamond/Radiant/Propel software startup speed caused by invalid license paths?

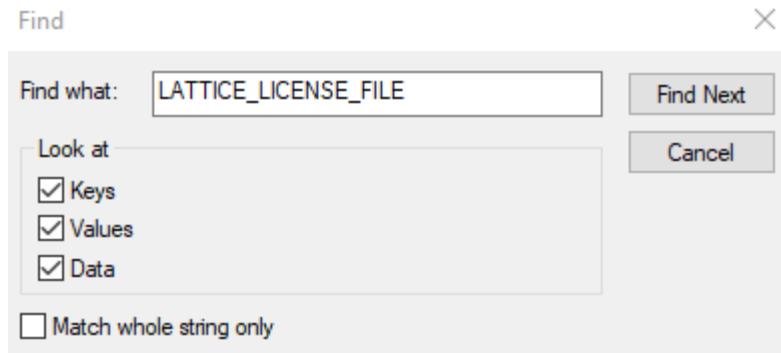
- ▶ In most cases, license paths can be edited using the LM\_LICENSE\_FILE in Windows Environment Variables (Windows Search Box >Edit Environment Variables).
- ▶ However, there are instances during software startup wherein the tool may search for previously used paths that no longer exist (for example, Network License Path). To verify this, go to Help > License Debug and press start. There should be no licensing errors as shown below.



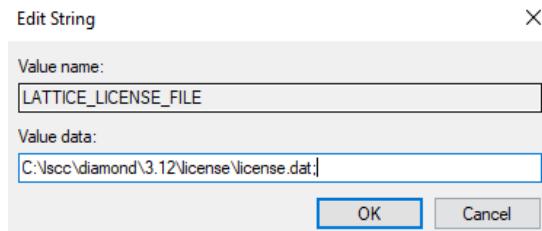
- ▶ If issues occur because of invalid paths not found in the LM\_LICENSE\_FILE environment variable, you can manually modify the registry item. You can exit Diamond or Radiant and type REGEDIT in the Windows Search Box.



- ▶ Open the Registry Editor and go to Edit > Find and search for LATTICE\_LICENSE\_FILE. This may take a few minutes.



- ▶ When the search results show the LATTICE\_LICENSE\_FILE registry entry, double-click it and delete any licensing locations that are no longer needed.



- ▶ To see if the program startup has improved, press OK and open Lattice Diamond or Lattice Radiant.

## 5. How to determine the MAC Address for Debian OS?

- ▶ You need to upgrade first to Debian testing for dependency on a newer library because Debian does not name the ethernet adaptor eth0.

### To fix this using systemd:

```
apt install net-tools (for ifconfig -a)  
create /etc/systemd/network/80-eth0.link  
[Match]  
  
MACAddress=08:62:66:4a:22:e5 (your ethernet adaptor MAC  
address)  
  
[Link]  
  
Name=eth0  
  
then run update-initramfs -u  
then reboot.
```

### Note:

This workaround appears to have additional issues with script errors that may have dependencies on RHEL, as well as various requirements on 32-bit libraries before installing iCECube2.

## 6. How do I use the Serial Number I received from Lattice License Administrator to obtain my Software license?

- ▶ Log in to <https://www.latticesemi.com/> and navigate to <http://www.latticesemi.com/en/Support/Licensing> or Support > Licensing. Click Diamond Subscription License. When you are in the License Generation page, here are the options you can do.
  - ▶ Requesting a new license
    - ▶ Select New License or Request a New License.
    - ▶ Enter your Company Name and NIC (open an MS-DOS window and type "ipconfig /all" and press Enter. The MAC Address is a 12-digit hexadecimal value split into pairs with dashes, like this: 00-01-02-66-1D-E0. For Linux, type ifconfig -a).
    - ▶ Enter the Serial Number and click check SN. Save the file assuming no errors appear.
    - ▶ Your license should be delivered to your mailbox within a few minutes.

- ▶ Renewal of expired license
  - ▶ Go to My Licenses.
  - ▶ Choose the expired license record you want to renew with your new Serial Number and press E (for edit).
  - ▶ Select Request Renewal, then enter the Company Name, First Name, Last Name, Email, Serial Number and proceed click.
  - ▶ Select SN and save assuming no errors appear.
  - ▶ Your license should be delivered to your mailbox within a few minutes.
- ▶ License Extension
  - ▶ Go to My Licenses.
  - ▶ Choose the expired license record you want to renew with your new Serial Number and press E (for edit).
  - ▶ Scroll down to find the Extend 30 Days button and click Extend.
  - ▶ Your license should be delivered to your mailbox within a few minutes.

## 7. How can I switch or transfer my license to a different computer or PC?

To change or transfer a license to new computer or PC, submit a technical support case with the new computer's MAC address at <https://www.latticesemi.com/Support/SubmitSupportTicket>.

The license will be generated shortly after License Admin acknowledges the request.

## 8. How can I configure a floating license in RHEL7 using only license management files?

1. Edit the server, daemon, and ModelSim daemon lines to license.dat file in /nas/storage/lattice. You can change the PORT numbers used that suit your needs, as shown below:

SERVER lattice-lic-server 0052376A34FC 17700

DAEMON lattice /nas/storage/lattice/bin/lin64/ PORT=50500

Replace the daemon\_path with the ModelSim Lattice Edition path. For ModelSim, the path is: % <install\_path>/diamond/3.12/modeltech/win32loem/mgcl

Please visit the [link](#) for the license daemons.

2. Download the Lattice RPM: diamond\_3\_12-base-240-2-x86\_64-linux.rpm  
from: <https://www.latticesemi.com/Products/DesignSoftwareAndIP/FPGAandLDS/LatticeDiamond>  
to: /tmp/lattice/ on the Linux server

3. List the contents of the rpm and look for the license binaries lmgrd|lattice

```
cd /tmp/lattice/
rpm -qlpv diamond_3_12-base-240-2-x86_64-linux.rpm | less
rpm -qlpv diamond_3_12-base-240-2-x86_64-linux.rpm | egrep -i
lattice
rpm -qlpv diamond_3_12-base-240-2-x86_64-linux.rpm | egrep -i
license
rpm -qlpv diamond_3_12-base-240-2-x86_64-linux.rpm | egrep -i
lmgrd
rpm -qlpv diamond_3_12-base-240-2-x86_64-linux.rpm | egrep -i
'ispfpga'
drwxr-xr-x 2 root root 0 Dec 2 22:21 /usr/local/diamond/3.12/ispfpga
-rwxr-xr-x 1 root root 778858185 Dec 2 22:01 /usr/local/diamond/3.12/
ispfpga/ispfpga.tar.gz
```

4. Extract the linux license binaries from the rpm file: ispfpga.tar.gz using the rpm2cpio and cpio and tar commands

```
cd /tmp/lattice
rpm -qlpv diamond_3_12-base-240-2-x86_64-linux.rpm | egrep -i
'ispfpga'
drwxr-xr-x 2 root root 0 Dec 2 22:21 /usr/local/diamond/3.12/ispfpga
-rwxr-xr-x 1 root root 778858185 Dec 2 22:01 /usr/local/diamond/3.12/
ispfpga/ispfpga.tar.gz
rpm2cpio diamond_3_12-base-240-2-x86_64-linux.rpm | cpio -idmv
...
./usr/local/diamond/3.12/examples/examples.tar.gz
./usr/local/diamond/3.12/ispfpga
-->./usr/local/diamond/3.12/ispfpga/ispfpga.tar.gz <<-----THIS IS
THE TAR FILE YOU WILL NEED
./usr/local/diamond/3.12/license
./usr/local/diamond/3.12/license/license.txt
...

```

5. List the contents of the tarfile ispfpga.tar.gz looking for the lmutil lmgrd and lattice daemons

```
tar -tvf ./usr/local/diamond/3.12/ispfpga/ispfpga.tar.gz | egrep -i '
lmutil|lmgrd|lattice'
-rwxr-xr-x relman/neosoft 1351888 2019-10-30 02:05 bin/lin64/lattice
-rwxr-xr-x relman/neosoft 1170840 2019-07-08 23:06 bin/lin64/lmgrd
-rwxr-xr-x relman/neosoft 1138392 2019-07-08 23:06 bin/lin64/lmutil
```

---

6. Extract the Imgrd loutil and lattice daemons from the tarfile

```
tar -xvf ./usr/local/diamond/3.12/ispfpga/ispfpga.tar.gz bin/lin64/lattice  
tar -xvf ./usr/local/diamond/3.12/ispfpga/ispfpga.tar.gz bin/lin64/Imgrd  
tar -xvf ./usr/local/diamond/3.12/ispfpga/ispfpga.tar.gz bin/lin64/loutil
```

-----

copy the files to nas storage dir for the license server to use

```
cp -R /tmp/lattice/bin /nas/storage/lattice/
```

```
cd /nas/storage/lattice/bin/lin64/
```

Verify the files are correct for the Linux OS you are using

file lattice

```
lattice: ELF 64-bit LSB executable, x86-64, version 1 (SYSV),  
dynamically linked (uses shared libs), for GNU/Linux 2.6.18, stripped  
.lattice -v
```

```
11:15:47 (lattice) FlexNet Licensing version v11.16.4.0 build 252457  
x64_lsb
```

```
./Imgrd -v
```

```
Imgrd v11.16.4.0 build 252457 x64_lsb - Copyright (c) 1988-2019  
Flexera. All Rights Reserved.
```

```
./loutil -v
```

```
Copyright (c) 1989-2019 Flexera. All Rights Reserved.
```

```
loutil v11.16.4.0 build 252457 x64_lsb
```

7. On the Linux server, start the license service

```
start server: /nas/storage/lattice/bin/lin64/Imgrd -c /nas/storage/lattice/  
license.dat -l /nas/storage/lattice/licence.log
```

```
stop server: /nas/storage/lattice/bin/lin64/loutil lmdown -c /nas/  
storage/lattice/license.dat
```

```
query server: /nas/storage/lattice/bin/lin64/loutil lmstat -c /nas/  
storage/lattice/license.dat
```

```
check service: ps fuxwa | egrep -i 'Imgrd|lattice' | egrep -v grep  
ps fuxwa | egrep -i 'Imgrd|lattice' | egrep -v grep
```

8. Query the lattice server showing ALL the licenses available and usage:

```
/nas/storage/lattice/bin/lin64/loutil lmstat -a -c /nas/storage/lattice/  
license.dat
```

# Revision History

The following table gives the revision history for this document.

Date	Version	Description
06/28/2024	1.1	<ul style="list-style-type: none"><li>▶ Added Avant-G and Avant-X devices.</li><li>▶ Removed ispLEVER Classic Free License table.</li></ul>
11/22/2023	1.0	Initial release.