ispLEVER Installation Notice

Version 3.1 - PC

Technical Support Line: 1-800-LATTICE or (408) 826-6002

Web Update: To view the most current version of this document, go to *www.latticesemi.com.*

LEVER-IN PC 3.1.0

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Phone: 1-800-LATTICE or (408) 826-6002
E-mail: techsupport@latticesemi.com

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ispLEVER 3.1 Installation Notice

This release of the ispLEVER® 3.1 software supports all Lattice ispGDX®, CPLD, ispXPGA®, ORCA® FPGA, and ORCA FPSC device designs. The software installation includes three product installation options:

- ispLEVER HDL Base
- ispLEVER HDL Advanced
- ispLEVER Advanced System

System Requirements

Minimum PC System Requirements

- Intel® Pentium® or Pentium-compatible PC
- 512MB of memory (768MB recommended)
- Approximately 1.5 GB free disk space (2.3 GB if all ORCA FPSC devices are installed)
- Windows® XP, Windows 2000 Workstation, and Windows NT® 4.0.
- SVGA graphics display 800 X 600 (1024 X 768 or higher recommended)
- CD-ROM drive (2X or above)
- Microsoft-compatible mouse

Registration

At the end of the installation, you will use either the online registration form included in the installation setup program or the web-based registration capability to register and license your ispLEVER software. You must receive a permanent Lattice software license based on your network interface card (NIC) ID to use the software. The NIC ID is the 12-digit Physical Address. Send your registration to Lattice Semiconductor early to avoid any downtime.

Contacting Lattice Semiconductor

- Lattice Semiconductor Corporation
  5555 Northeast Moore Court
  Hillsboro, Oregon 97124-6421 U.S.A.
- Internet: http://www.latticesemi.com
- Literature Hotline: 1-888-ISP-PLDS (477-7537)
- Applications Support
  Domestic: 1-800-LATTICE (528-8423)
  International: (408) 826-6002
  Fax: (503) 268-8556

Installing ispLEVER HDL Base

The following describes product options and installation instructions for ispLEVER HDL Base.

Software Product Options

The following product options are available for the ispLEVER HDL Base installation.

Product Option	Description
ispLEVER Software	Installs the ispLEVER software high-density FPGA and CPLD Fitters for ispXPGA®, ispXPLD, ORCA® FPGA, ispLSI®, ispMACH™, MACH®, GAL®, ispGAL® and ispGDX® device design. • Project Navigator for project management and tool interface • ABEL® Compiler • Design Entry Software – Schematic tools, ABEL, VHDL, Verilog, EDIF, and Mixed-mode • Performance Analyst™ timing analyzer • Constraint Editor, for adding design control and optimization attributes • ispEXPLORER, for running one or more design control and optimization strategies • Module/IP Manager, for creating and instantiating parameterized modules and IP cores • Floorplanner, to help you meet timing requirements, reduce channel congestion, and create firm macros and intellectual properties • Gate-level Functional Simulator • Gate-level Timing Simulator
Interface Kits	Installs libraries to support major CAE Vendor tools for Design Entry, Synthesis and Simulation. VHDL and Verilog libraries are the default. MACH libraries are automatically installed. The Change button is enabled only when the Interface Kits Option is highlighted. Clicking this button opens the Select Sub-components dialog, which allows you to change your selection of Interface Kits sub-components (Verilog, VHDL, Synplicity, VeriBest, Viewlogic, and OrCad).
ispVM System	Installs the ispVM System programming software for multi-vendor device programming
ModelSim for Lattice	Installs ModelSim VHDL and Verilog RTL and gate-level timing simulator.
LeonardoSpectrum OEM	Installs LeonardoSpectrum VHDL and Verilog synthesis software.
Synplify for Lattice	Installs Synplify for Lattice VHDL and Verilog synthesis software.
ORCA Series	Installs ORCA Series 2, 3, or 4 devices, as well as the following software for ORCA device design: • Map, Place, and Route engines for design implementation • EPIC Device Editor for graphically displaying and configuring ORCA FPGAs • TRACE for static timing verification and reporting • Preference Editor, for defining preferences for ORCA FPGA designs
ORCA FPSC*	Installs ORCA FPSC devices. (Requires additional license for the Base installation.)

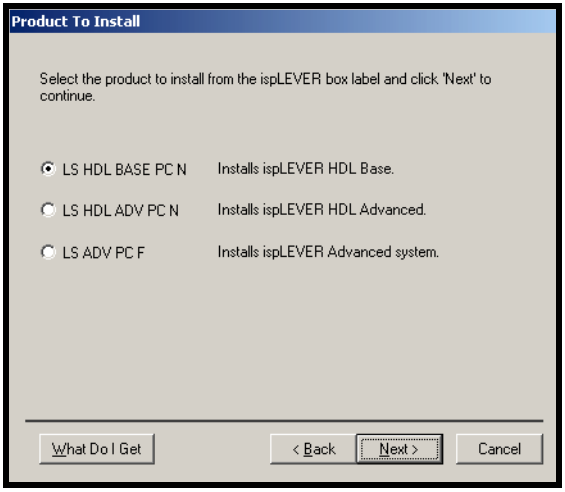
Installation Procedure

Important! You must start the installation with CD-1, which contains all the necessary files for running the ispLEVER software. CD-2 contains the optional ORCA FPSC devices. These devices will not function without the Project Navigator application from CD-1.

NOTE	If you have another OEM version of LeonardoSpectrum that you would like to continue to use, you must install the ispLEVER LeonardoSpectrum product on a separate platform. Only the most recently installed tool will work.

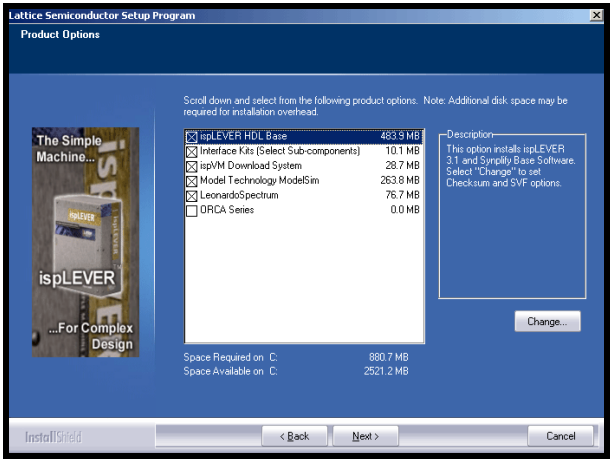
To install the Lattice ispLEVER HDL Base software:

1. Insert the ispLEVER Design Tools CD-1 into your CD-ROM drive.
2. From your Windows® desktop, choose **Start > Run**.
3. Type **`d:\setup.exe`** (where d: is your CD-ROM drive) in the Open box. Click **OK**.
4. After the Setup Program window appears, click **ispLEVER Project Navigator and 3rd Party Tools** to open the Product To Install dialog box. Select **LS HDL BASE PC N**.



5. If you want to see a description of the install components for the ispLEVER HDL Base and the minimum system requirements, click **What Do I Get** to open the Help file.
6. Click **Next** to open the Welcome To Lattice Semiconductor Setup dialog box.
7. Click **Next** to open the Software License Agreement dialog box. Read the license agreement.
8. If you agree, click **Yes** to open the Choose Destination Location dialog box.

9. The default destination folder for the ispLEVER software is `C:\ispTOOLS`. Click **Next** to accept the default. Or click **Browse** to change the drive and/or destination folder name.
10. Click **Next** to open the Product Options dialog box.



11. Select the ispLEVER components that you want to install by selecting or deselecting the check box next to each.

NOTE

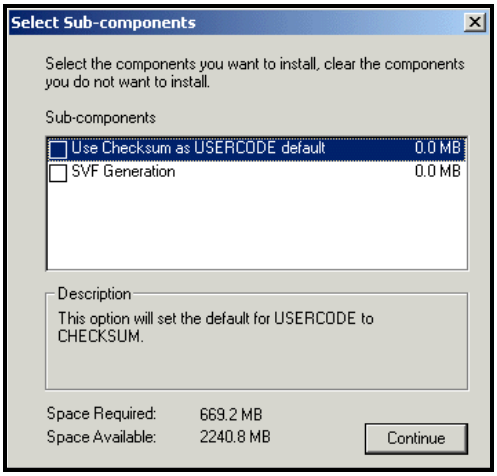
*You will need a license in order to use the ORCA FPSC devices. If you choose to install them, contact Lattice Semiconductor to obtain a license.

The ispLSI Verilog and VHDL synthesis and simulation libraries are installed by default into the `<install_path>\kits\isplsi` directory. MACH design and simulation libraries are automatically installed into the `<install_path>\kits\mach` directory.

If you want to install other libraries, such as ispXPGA, select the **Interface Kits** component, click **Change**, and then select the additional libraries you want to install.

Setting SVF files and Checksum Options

You can set the ispLEVER software to generate SVF files by default, and you can set Checksum as the USERCODE default. In the Product Options dialog box, select **ispLEVER HDL Base**, and click **Change** to open the Select Sub-components dialog box.



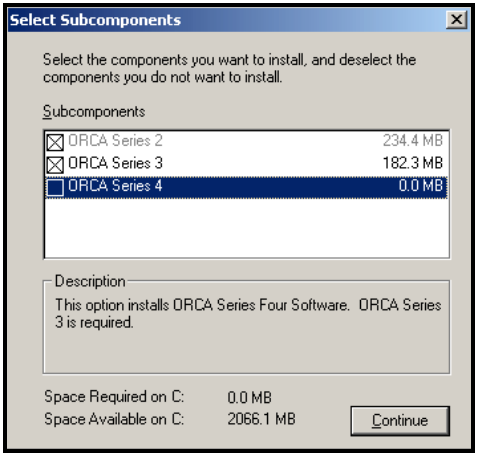
- To set SVF File Generation during installation, select **SVF Generation**. This option forces the installation of the ispVM System programming software and sets the Constraint Editor to default to SVF file generation.
- To set Checksum as USERCODE default, select **Use Checksum as USERCODE default**. After selecting the desired options, click **Continue**.

Installing ORCA FPGA Devices

You can install some or all of the ORCA FPGA Series devices. You can limit installation files depending on the ORCA Series you wish to install. *You cannot limit the devices and packages that are installed within a certain architecture family.*

To specify the ORCA Series of devices to install:

1. In the Product Options window, select **ORCA Series**.
2. Click the **Change** button.
3. In the Select Sub-components dialog box, click the check box for each ORCA Series of devices that you want to install.



You must install all available prior architectures due to device dependencies. For example, Series 4 requires that you also install Series 2 and 3. Series 3 requires that you install Series 2.

The ORCA installation includes the following software components:

- Map, Place, and Route engines for design implementation
- EPIC Device Editor for graphically displaying and configuring ORCA FPGAs
- TRACE for static timing verification and reporting
- Preference Editor for adding and editing ORCA preferences (constraints)

4. After selecting the desired options, click **Continue** to return to the Product Options dialog box.

Completing the Installation

1. In the Product Options dialog box, click **Next** to open the Select Program Folder dialog box.
2. Click **Next** to accept the default (Lattice Semiconductor). Or, change the program folder name and click **Next** to open the Start Copying Files dialog box.
3. Examine the component list in the Start Copying Files dialog box.
   - If the list is accurate, click **Next** to start the installation.
   - If you need to add or delete components click **Back** to the Product Options dialog box, make your changes, and then return to the Start Copying Files dialog box. Click **Next** to start the installation.
4. After all of the ispLEVER software files have been copied:

   If you are installing on Windows XP, Windows 2000, or Windows NT, your environment variables are automatically updated and you will be prompted to check the variables in your system Control Panel.

5. Click **Finish** when the Setup Complete dialog box appears.

Installing ORCA FPSC Devices

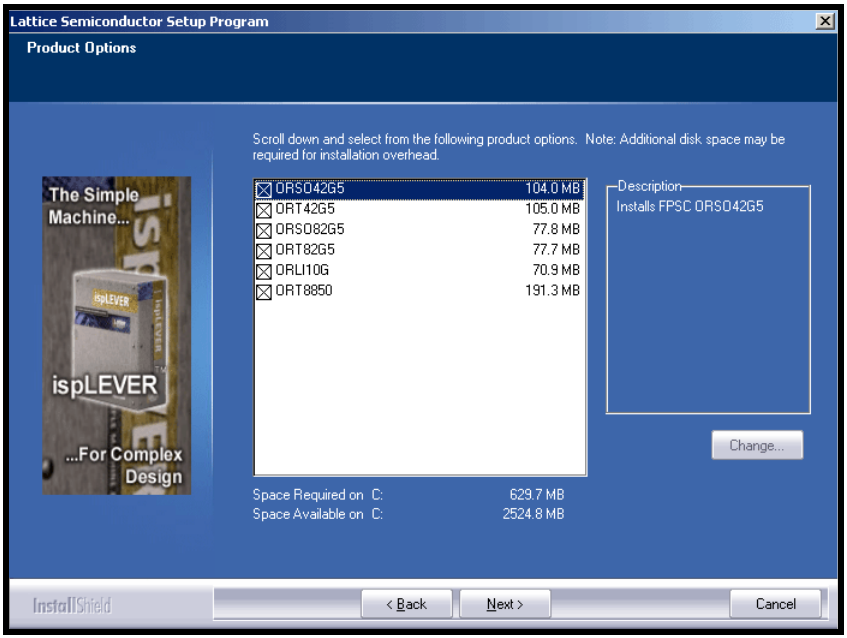
CD-2 contains the ORCA FPSC devices, which you can install after the ispLEVER software has been installed from CD-1. To use any of the ORCA FPSC devices after installing them, you must have a license. Contact Lattice Semiconductor to obtain the required license.

To install ORCA FPSC devices:

1. Insert the ispLEVER Design Tools CD-2 into your CD-ROM drive.
2. From your Windows desktop, choose **Start > Run**.
3. Type **`d:\setup.exe`** (where d: is your CD-ROM drive) in the Open box. Click **OK**.
4. After the Setup Program window appears, click **ispLEVER Project Navigator and 3rd Party Tools** to open the Product To Install dialog box. Select **LS HDL BASE PC N**.
5. Click **Next** to open the Welcome To Lattice Semiconductor Setup dialog box.
6. Click **Next** to open the Software License Agreement dialog box. Read the license agreement.
7. If you agree, click **Yes** to open the Choose Destination Location dialog box.
8. The default destination folder for the ispLEVER software is `C:\ispTOOLS`. Click **Next** to accept the default.

CAUTION!	Do not change the destination folder location. The installation software automatically selects the folder where the ispLEVER tools have been installed from CD-1. The FPSC devices must be placed in this same location.

9. In the Product Options dialog box, select the check box for each FPSC device that you want to install, and then click **Next**.



10. In the Select Program folder dialog box, accept the default location and click **Next**.
11. Examine the component list in the Start Copying Files dialog box.
    - If the list is accurate, click **Next** to start the installation.
    - If you need to add or delete components click **Back** to the Product Options dialog box, make your changes, and then return to the Start Copying Files dialog box. Click **Next** to start the installation.
12. Click **Finish** when the Setup Complete dialog box appears.

Registration and License Procedure

There are two ways to register and license your ispLEVER HDL Base software. The quickest way is to utilize the Licensing form on the Lattice Semiconductor web site. However, if you do not have Internet access, you can use the registration form included in the setup program. Either way, you can use the online registration form to obtain the network interface card (NIC) ID, which you will need to license your software.

To register and license the Lattice ispLEVER HDL Base software through the Lattice Semiconductor web site:

1. After installation is complete, click the **Registration and License Request** button in the Setup Program window. Or, exit the Setup Program and choose **Start > Programs > Lattice Semiconductor > ispLEVER Registration and License Request**. The registration form appears.
2. Note the NIC ID on your registration form. This information is automatically scanned and displayed in the Network Interface Card ID field. You will need the NIC ID for registering your software.
3. Go to the Licensing section of the Lattice Semiconductor web site (`http://www.latticesemi.com`).

   You will need the software serial number to obtain your license. The best place to find it is on the Save This Card serial number form, which is included in the product box.
4. Click **ispLEVER-HDL Base** on the Software Licensing page. The ispLEVER HDL Base License Request page appears.
5. Complete all required fields in the License Request page and click the **Submit Name** button. You will receive the Lattice license file (`license.dat`) by e-mail.
6. Copy the Lattice license file (license.dat) that you receive from Lattice Semiconductor to the ispLEVER software license directory as shown below:

   `<drive>:\ISPTOOLS\LICENSE\LICENSE.DAT`

NOTE	The license directory contains a file named license.txt, which is the Lattice license agreement. Do not rename your license.dat to license.txt or in any way replace license.txt with another file.

To register and license the Lattice ispLEVER HDL Base software with the online registration form:

1. After installation is complete, click the **Registration and License Request** button in the Setup Program window. Or, exit the Setup Program and choose **Start > Programs > Lattice Semiconductor > ispLEVER Registration and License Request**. The registration form appears.
2. Fill in the registration form completely. Your NIC ID is automatically scanned and displayed in the Network Interface Card ID field. The product serial number can be found on the Save This Card serial number form.
3. Click **OK**. Your registration information is saved automatically as a text file (`pdspsreg.txt`) in the default `isptools\prod_reg` folder.
4. E-mail the completed registration file (`pdspsreg.txt`) to `lic_admn@latticesemi.com` or print the registration file and fax it to (503) 268-8556. The registration file must include your NIC ID. Lattice will send your ispLEVER HDL Base license file to you by e-mail or fax within one working day.
5. Copy the Lattice license file (`license.dat`) that you receive from Lattice Semiconductor to the ispLEVER software license directory as shown in step 6 above.

Troubleshooting

If you encounter any software-related problems after installing the ispLEVER HDL Base software, please review the following common troubleshooting scenarios before calling Lattice Support Services:

- Ensure that your environment variable settings are set correctly. Your Windows XP, Windows 2000, or Windows NT 4.0 system should contain the following environment settings:

  ```
  SET LSC_INI_PATH=<boot_drive>:\LSC_ENV

  SET LM_LICENSE_FILE=<install_path>:\ISPTOOLS\LICENSE\LICENSE.DAT
  ```

  You can verify these settings by choosing **Start > Settings > Control Panel > System**. Select the Advanced tab and the “Environment Variables” section.

NOTE	The LM_LICENSE_FILE variable is a single line entry.

- Make sure that your system video display is set to a screen resolution of 800 x 600 or more and that your video display is set to use 256 or more screen colors.

When All Else Fails

If the ispLEVER software still does not run after you have installed your new license file and confirmed that your environment variables are correct, do the following:

1. From an MS-DOS Prompt window, issue the command `set > env.txt` to create a text file that contains a listing of the environment setup for your PC.
2. Combine your license.dat file and the env.txt file in a zip file and send it via e-mail to `techsupport@latticesemi.com`. Please include an explanation of your problem.

Installing ispLEVER HDL Advanced

The following describes product options and installation instructions for ispLEVER HDL Advanced.

Software Product Options

The following product options in the table below are available for the ispLEVER HDL Advanced software.

Product Option	Description
ispLEVER Software	Installs the ispLEVER software high-density FPGA and CPLD Fitters for ispXPGA®, ispXPLD, ORCA® FPGA, ispLSI®, ispMACH™, MACH®, GAL®, ispGAL® and ispGDX® device design: • Project Navigator for project management and tool interface • ABEL® Compiler • Design Entry Software – Schematic tools, ABEL, VHDL, Verilog, EDIF, and Mixed-mode • Performance Analyst timing analyzer • Constraint Editor, for adding design control and optimization attributes for ispXPGA designs • ispEXPLORER, for running one or more design control and optimization strategies • Module/IP Manager, for creating and instantiating parameterized modules and IP cores • Floorplanner, to help you meet timing requirements, reduce channel congestion, and create firm macros and intellectual properties • Gate-level Functional Simulator • Gate-level Timing Simulator
Interface Kits	Installs libraries to support major CAE Vendor tools for Design Entry, Synthesis and Simulation. VHDL and Verilog libraries are the default. MACH libraries are automatically installed. The Change button is enabled only when the Interface Kits Option is highlighted. Clicking this button pops up the Select Sub-components dialog. Then you can change your selection of Interface Kits sub-components (Verilog, VHDL, Synplicity, VeriBest, Viewlogic, and OrCad).
ispVM System	Installs the ispVM System programming software for multi-vendor device programming
ModelSim for Lattice	Installs ModelSim VHDL and Verilog RTL and gate-level timing simulator.
LeonardoSpectrum OEM	Installs LeonardoSpectrum VHDL and Verilog synthesis software.
Synplify for Lattice	Installs Synplify for Lattice VHDL and Verilog synthesis software.
ORCA Series	Installs ORCA Series 2, 3, or 4 devices, as well as the following software: • Map, Place, and Route engines for design implementation • EPIC Device Editor for graphically displaying and configuring ORCA FPGAs • TRACE for static timing verification and reporting • Preference Editor, for defining preferences for ORCA FPGA designs
ORCA FPSC	Installs ORCA FPSC devices.

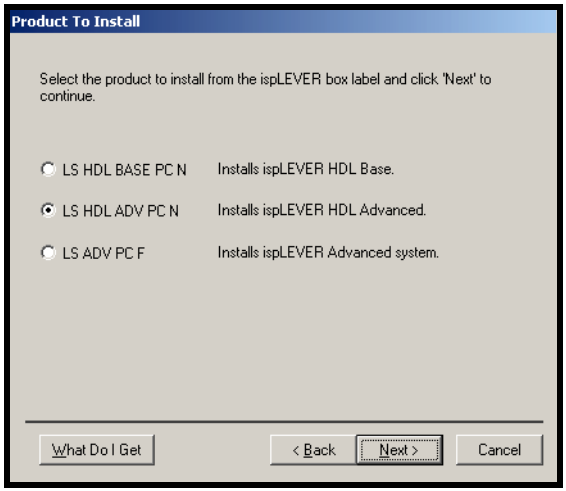
Installation Procedure

Important! You must start the installation with CD-1, which contains all the necessary files for running the ispLEVER software. CD-2 contains the optional ORCA FPSC devices. These devices will not function without the Project Navigator application from CD-1.

NOTE	If you have another OEM version of LeonardoSpectrum that you would like to continue to use, you must install the ispLEVER LeonardoSpectrum product on a separate platform. Only the most recently installed tool will work.

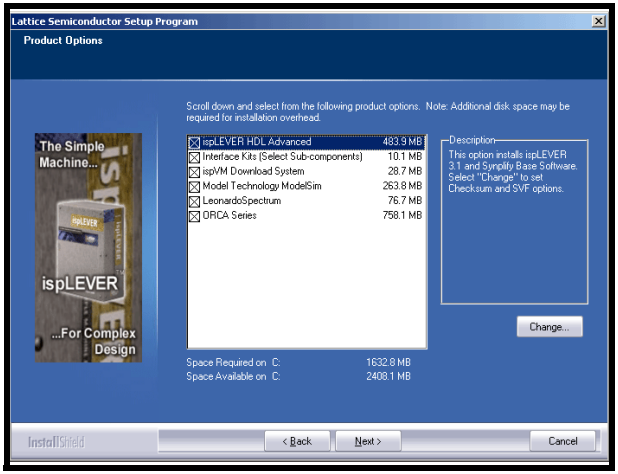
To install the Lattice ispLEVER HDL Advanced software:

1. Insert the ispLEVER Design Tools CD-1 into your CD-ROM drive.
2. From your Windows® desktop, choose **Start > Run**.
3. Type **`d:\setup.exe`** (where d: is your CD-ROM drive) in the Open field. Click **OK**.
4. After the Setup Program window appears, click **ispLEVER Project Navigator and 3rd Party Tools** to open the Product To Install dialog box. Select **LS HDL ADV PC N**.



5. If you want to see a description of the install components for the ispLEVER HDL Advanced and the minimum system requirements, click **What Do I Get** to open the Help file.
6. Click **Next** to open the Welcome To Lattice Semiconductor Setup dialog box.
7. Click **Next** to open the Software License Agreement dialog box. Read the license agreement.
8. If you agree, click **Yes** to open the Choose Destination Location dialog box.

9. The default installation location for the ispLEVER software is `C:\ispTOOLS`. Click **Next** to accept the default. Or click **Browse** to change the drive and/or installation folder name.
10. Click **Next** to open the Product Options dialog box.

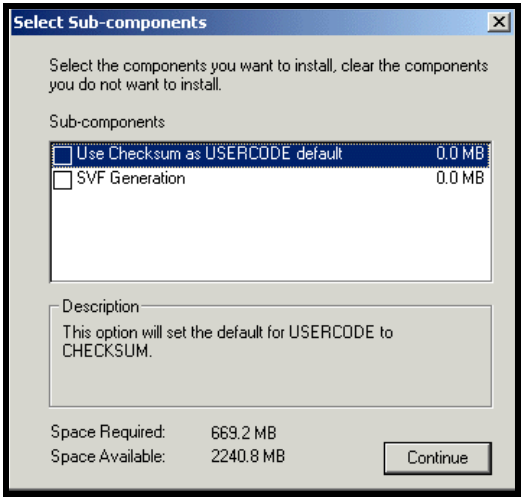


11. Select the ispLEVER software components that you want to install by selecting or deselecting the check box next to each.

NOTE	The ispLSI Verilog and VHDL synthesis and simulation libraries are installed by default into the `<install_path>\kits\isplsi` directory. MACH design and simulation libraries are automatically installed into the `<install_path>\kits\mach` directory. If you want to install other libraries, such as ispXPGA, select the **Interface Kits** component, click **Change**, and then select the additional libraries you want to install.

Setting SVF files and Checksum Options

You can set the ispLEVER software to generate SVF files by default, and you can set Checksum as the USERCODE default. In the Product Options dialog box, select **ispLEVER HDL Advanced**, and then click **Change** to open the Select Sub-components dialog box.



- To set SVF File Generation during installation, select **SVF Generation**. This option forces the installation of the ispVM System programming software and sets the Constraint Editor to default to SVF file generation.
- To set Checksum as USERCODE default, select **Use Checksum as USERCODE default**. After selecting desired options, click **Continue**.

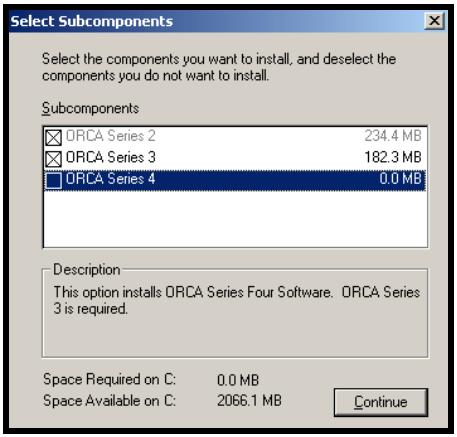
Installing ORCA FPGA Devices

You can install some or all of the ORCA FPGA Series devices. You can limit installation files depending on the ORCA Series you wish to install. *You cannot limit the devices and packages that are installed within a certain architecture family.*

To select the ORCA Series devices to install:

1. In the Product Options window, select **ORCA Series**.
2. Click the **Change** button.

3. In the Select Sub-components dialog box, click the check box for each ORCA Series of devices that you want to install.



   You must install all available prior architectures due to device dependencies. For example, Series 4 requires that you also install Series 2 and 3. Series 3 requires that you install Series 2..

   The ORCA installation includes the following software components:

   - Map, Place, and Route engines for design implementation
   - EPIC Device Editor for graphically displaying and configuring ORCA FPGAs
   - TRACE for static timing verification and reporting
   - Preference Editor for adding and editing ORCA preferences (constraints)

4. After selecting desired options, click **Continue** to return to the Product Options dialog box.

Completing the Installation

1. In the Product Options dialog box, click **Next** to open the Select Program Folder dialog box.
2. Click **Next** to accept the default (Lattice Semiconductor). Or, change the program folder name and click **Next** to open the Start Copying Files dialog box.
3. Examine the components list in the Start Copying Files dialog box.
   - If the list is accurate, click **Next** to start the installation.
   - If you need to add or delete components, click **Back** to the Product Options dialog box, make your changes, and then return to the Start Copying Files dialog box. Click **Next** to start the installation.
4. After all of the ispLEVER software files have been copied:

   If you are installing on Windows XP, Windows 2000, or Windows NT, your environment variables are automatically updated and you will be prompted to check the variables in your system Control Panel.

5. Click **Finish** when the Setup Complete dialog box appears.

Installing ORCA FPSC Devices

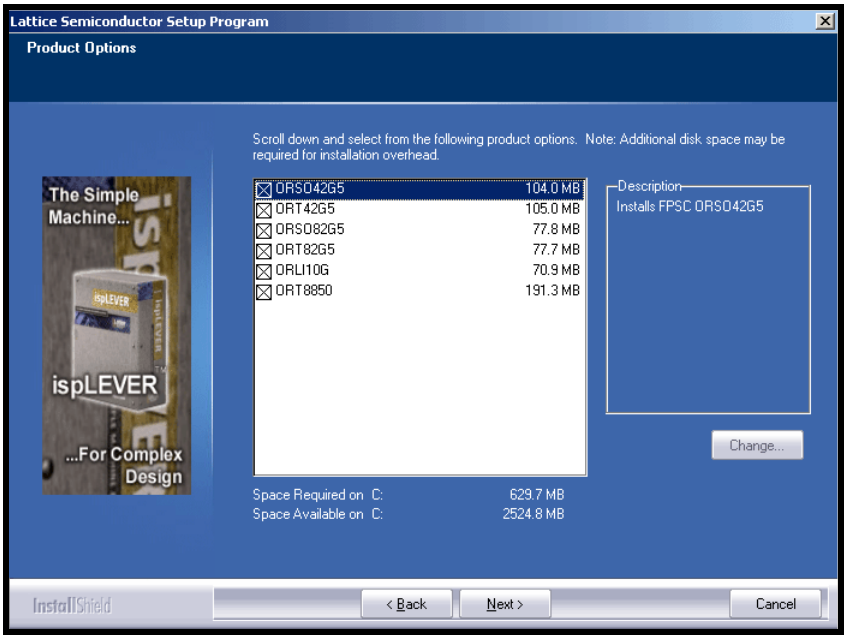
CD-2 contains the ORCA FPSC devices, which you can install after the ispLEVER software has been installed from CD-1.

To install ORCA FPSC devices:

1. Insert the ispLEVER Design Tools CD-2 into your CD-ROM drive.
2. From your Windows desktop, choose **Start > Run**.
3. Type **`d:\setup.exe`** (where d: is your CD-ROM drive) in the Open box. Click **OK**.
4. After the Setup Program window appears, click **ispLEVER Project Navigator and 3rd Party Tools** to open the Product To Install dialog box. Select **LS HDL ADV PC N**.
5. Click **Next** to open the Welcome To Lattice Semiconductor Setup dialog box.
6. Click **Next** to open the Software License Agreement dialog box. Read the license agreement.
7. If you agree, click **Yes** to open the Choose Destination Location dialog box.
8. The default destination folder for the ispLEVER software is `C:\ispTOOLS`. Click **Next** to accept the default.

CAUTION!	Do not change the destination folder location. The installation software automatically selects the folder where the ispLEVER tools have been installed from CD-1. The FPSC devices must be placed in this same location.

9. In the Product Options dialog box, select the check box for each FPSC device that you want to install, and then click **Next**.



10. In the Select Program folder dialog box, accept the default location and click **Next**.
11. Examine the component list in the Start Copying Files dialog box.
    - If the list is accurate, click **Next** to start the installation.
    - If you need to add or delete components click **Back** to the Product Options dialog box, make your changes, and then return to the Start Copying Files dialog box. Click **Next** to start the installation.
12. Click **Finish** when the Setup Complete dialog box appears.

Registration and License Procedure

There are two ways to register and license your ispLEVER HDL Advanced software. The quickest way is to utilize the Licensing form on the Lattice Semiconductor web site. However, if you do not have Internet access, you can use the registration form included in the setup program. Either way, you can use the online registration form to obtain the network interface card (NIC) ID, which you will need to license your software.

To register and license the Lattice ispLEVER HDL Advanced software through the Lattice Semiconductor web site:

1. After installation is complete, click the **Registration and License Request** button in the Setup Program window. Or, exit the Setup Program and choose **Start > Programs > Lattice Semiconductor > ispLEVER Registration and License Request**. The registration form appears.
2. Note the NIC address on your registration form. This information is automatically scanned and displayed in the Network Interface Card ID field. You will need the NIC ID for registering your software.
3. Go to the Licensing section of the Lattice Semiconductor web site (`http://www.latticesemi.com`).

   You will need the software serial number to obtain your license. The best place to find it is on the Save This Card serial number form, which is included in the product box.
4. Click **ispLEVER-HDL Advanced** on the Software Licensing page. The ispLEVER HDL Advanced License Request page appears.
5. Complete all required fields in the License Request page and click the **Submit Name** button. You will receive the Lattice license file (`license.dat`) by e-mail.
6. Copy the Lattice license file (`license.dat`) that you receive from Lattice Semiconductor to the ispLEVER software license directory as shown below:

   `<drive>:\ISPTOOLS\LICENSE\LICENSE.DAT`

NOTE	The license directory contains a file named `license.txt`, which is the Lattice license agreement. Do not rename your `license.dat` to `license.txt`, or in any way replace `license.txt` with another file.

To register and license the Lattice ispLEVER HDL Advanced software with the online registration form:

1. After installation is complete, click the **Registration and License Request** button in the Setup Program window. Or, exit the Setup Program and choose **Start > Programs > Lattice Semiconductor > ispLEVER Registration and License Request**. The registration form appears.
2. Fill in the registration form completely. Your NIC ID is automatically scanned and displayed in the Network Interface Card ID field. The product serial number can be found on the Save This Card serial number form.

3. Click **OK**. Your registration information is saved automatically as a text file (`pdspsreg.txt`) in the default `isptools\prod_reg` folder.
4. E-mail the completed registration file (`pdspsreg.txt`) to `lic_admn@latticesemi.com`, or print the registration file and fax it to: (503) 268-8556. The registration file must include your NIC ID. Lattice will send your ispLEVER HDL Advanced license file to you by e-mail or fax within one working day.
5. Copy the Lattice license file (`license.dat`) that you receive from Lattice Semiconductor to the ispLEVER software license directory as shown in step 6 above.

Troubleshooting

If you encounter any software-related problems after installing the ispLEVER HDL Advanced software, please review the following common troubleshooting scenarios before calling Lattice Support Services:

- Ensure that your environment variable settings are set correctly. For Windows XP, Windows 2000, and Windows NT 4.0, your system should contain the following environment settings:

  ```
  SET LSC_INI_PATH=<boot_drive>:\LSC_ENV

  SET LM_LICENSE_FILE=<install_path>:\ISPTOOLS\LICENSE\LICENSE.DAT
  ```

  You can verify these settings by choosing **Start > Settings > Control Panel > System**. Select the Advanced tab and the “Environment Variables” section.

NOTE	The `LM_LICENSE_FILE` variable is a single line entry.

- Make sure that your system video display is set to a screen resolution of 800 x 600 or more and that your video display is set to use 256 or more screen colors.

When All Else Fails

If the ispLEVER software still does not run after you install your new license file(s) and confirm your environment variables are correct, do the following:

1. From an MS-DOS Prompt window, issue the command `set > env.txt` to create a text file that contains a listing of the environment setup for your PC.
2. Combine your license.dat file and the `env.txt` file in a zip file and send it via e-mail to `techsupport@latticesemi.com`. Please include an explanation of your problem.

Installing ispLEVER Advanced System

The following describes product options and installation instructions for the ispLEVER Advanced System software.

Software Product Options

The ispLEVER Advanced System supports EDIF, ABEL, and Schematic only. VHDL and Verilog design entries are not supported. The following product options are available.

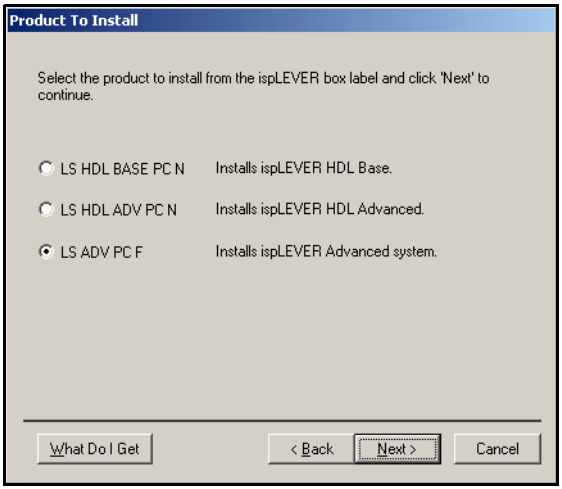
Product Option	Description
ispLEVER Advanced System Software	Installs the ispLEVER software high-density FPGA and CPLD Fitters for ispXPGA, ispXPLD, ORCA FPGA, ispLSI, ispMACH, MACH, GAL, ispGAL and ispGDX device design: • Project Navigator for project management and tool interface • ABEL® Compiler • Design Entry Software – Schematic tools, ABEL, VHDL, Verilog, EDIF, and Mixed-mode • Performance Analyst timing analyzer • Constraint Editor, for adding design control and optimization attributes for ispXPGA designs • ispEXPLORER, for running one or more design control and optimization strategies • Module/IP Manager, for creating and instantiating parameterized modules and IP cores • Floorplanner, to help you meet timing requirements, reduce channel congestion, and create firm macros and intellectual properties • Gate-level Functional Simulator • Gate-level Timing Simulator
Interface Kits	Installs libraries to support major CAE Vendor tools for Design Entry, Synthesis and Simulation. VHDL and Verilog libraries are the default. MACH libraries are automatically installed. The Change button is enabled only when the Interface Kits Option is highlighted. Clicking this button pops up the Select Sub-components dialog. Then you can change your selection of Interface Kits sub-components (Verilog, VHDL, Synplicity, VeriBest, Viewlogic, and OrCad).
ispVM System	Installs the ispVM System programming software for multi-vendor device programming
ORCA Series	Installs ORCA Series 2, 3, or 4 devices, as well as the following software for ORCA device design: • Map, Place, and Route engines for design implementation • EPIC Device Editor for graphically displaying and configuring ORCA FPGAs • TRACE for static timing verification and reporting • Preference Editor, for defining preferences for ORCA FPGA designs
ORCA FPSC	Installs ORCA FPSC devices.

Installation Procedure

Important! You must start the installation with CD-1, which contains all the necessary files for running the ispLEVER software. CD-2 contains the optional ORCA FPSC devices. These devices will not function without the Project Navigator application from CD-1.

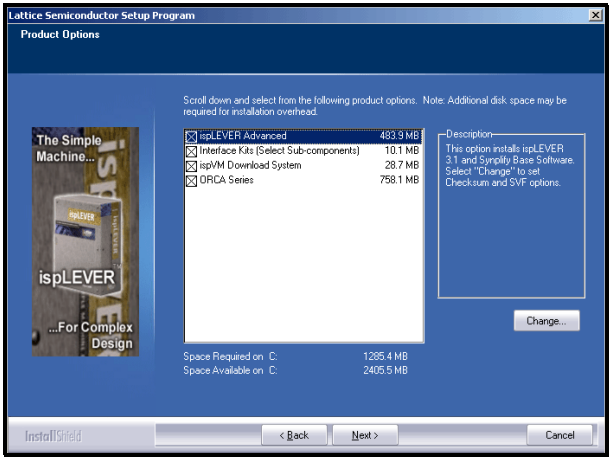
To install the Lattice ispLEVER Advanced System software:

1. Insert the ispLEVER Design Tools CD-1 into your CD-ROM drive.
2. From your Windows® desktop, choose **Start > Run**.
3. Type **`d:\setup.exe`** (where d: is your CD-ROM drive) in the Open field. Click **OK**.
4. After the Setup Program window appears, click **ispLEVER Project Navigator and 3rd Party Tools** to open the Product To Install dialog box. Select **LS ADV PC F**.



5. If you want to see a description of the optional components to install for the ispLEVER Advanced System and the minimum system requirements, click **What Do I Get** to open the Help file.
6. Click **Next** to open the Welcome to Lattice Semiconductor Setup dialog box.
7. Click **Next** to open the Software License Agreement dialog box. Read the license agreement.
8. If you agree, click **Yes** to open the Choose Destination Location dialog box.
9. The default installation location for ispLEVER software is `C:\ispTOOLS`. Click **Next** to accept the default. Or click **Browse** to change the drive and/or installation folder name.

10. Click **Next** to open the Product Options dialog box.



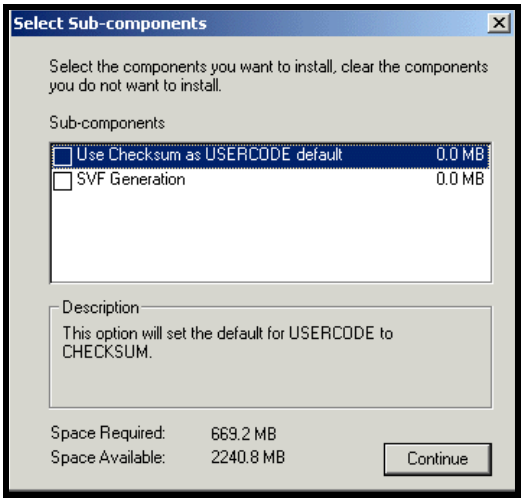
11. Select the ispLEVER product option that you want to install by selecting or deselecting the check box next to each.

NOTE	The ispLSI Verilog and VHDL synthesis and simulatiozn libraries are installed by default into the `<install_path>\kits\isplsi` directory. MACH design and simulation libraries are automatically installed into the `<install_path>\kits\mach` directory. If you want to install other libraries, such as ispXPGA, select the **Interface Kits** component, click **Change**, and then select the additional libraries you want to install.

Setting SVF files and Checksum Options

You can set the ispLEVER software to generate SVF files by default, and you can set Checksum as the USERCODE default. In the Product Options dialog box, select **ispLEVER Advanced System**, and then click **Change** to open the Select Sub-components dialog box.

- To set SVF File Generation during installation, select **SVF Generation**. This option forces the installation of the ispVM System programming software and sets the Constraint Editor to default to SVF file generation.
- To set Checksum as USERCODE default, select **Use Checksum as USERCODE default**. After selecting desired options, click **Continue**.

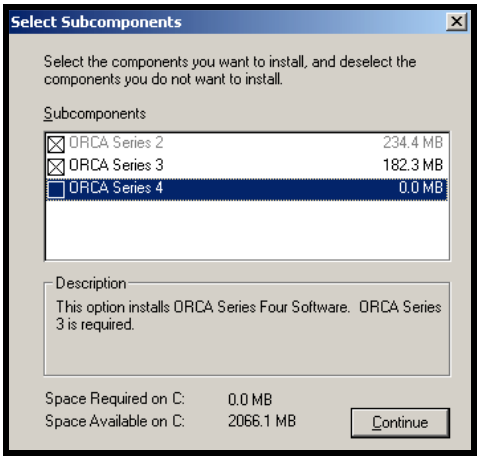


Installing ORCA FPGA Devices

You can install some or all of the ORCA FPGA Series devices. You can limit installation files depending on the ORCA Series you wish to install. *You cannot limit the devices and packages that are installed within a certain architecture family.*

To select the ORCA Series devices you wish to install:

1. In the Product Options dialog box, select **ORCA Series**.
2. Click the **Change** button.
3. In the Select Sub-components dialog box, click the check box for each ORCA Series of devices that you want to install.



You must install all available prior architectures due to device dependencies. For example, Series 4 requires that you also install Series 2 and 3. Series 3 requires that you install Series 2.

The ORCA installation includes the following software components:

- Map, Place, and Route engines for design implementation
- EPIC Device Editor for graphically displaying and configuring ORCA FPGAs
- TRACE for static timing verification and reporting
- Preference Editor for adding and editing ORCA preferences (constraints)

4. After selecting desired options, click **Continue** to return to the Product Options dialog box.

Completing the Installation

1. In the Product Options dialog box, click **Next** to open the Select Program Folder dialog box.
2. Click **Next** to accept the default (Lattice Semiconductor). Or, change the program folder name and click **Next** to open the Start Copying Files dialog box.
3. Examine the component list in the Start Copying Files dialog box.
   - If the list is accurate, click **Next** to start the installation.
   - If you need to add or delete components, click **Back** to the Product Options dialog box, make your changes, and then return to the Start Copying Files dialog box. Click **Next** to start the installation.
4. After all the ispLEVER software files have been copied:

   If you are installing on Windows XP, Windows 2000, or Windows NT, your environment variables are automatically updated and you will be prompted to check the variables in your system Control Panel.

5. Click **Finish** when the Setup Complete dialog box appears.

Installing ORCA FPSC Devices

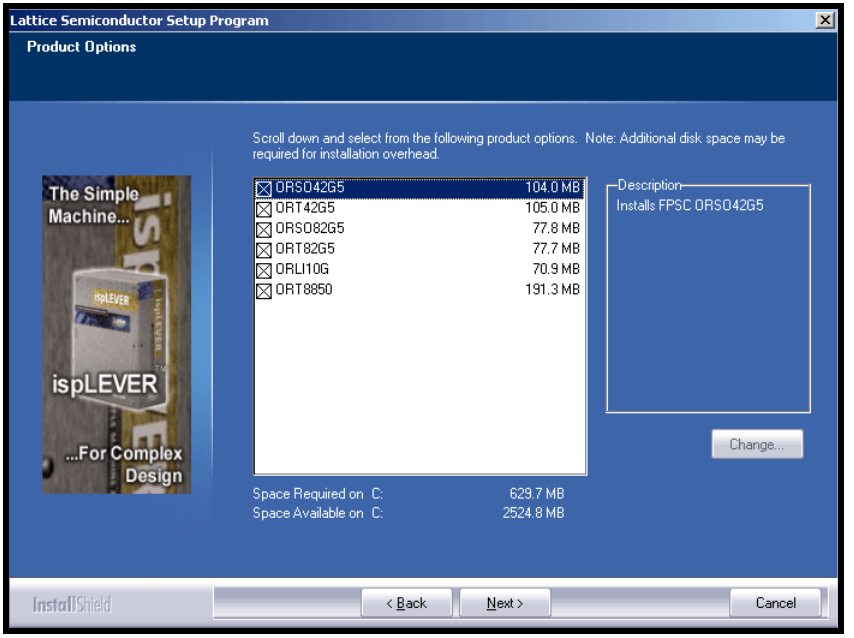
CD-2 contains the ORCA FPSC devices, which you can install after the ispLEVER software has been installed from CD-1.

To install ORCA FPSC devices:

1. Insert the ispLEVER Design Tools CD-2 into your CD-ROM drive.
2. From your Windows desktop, choose **Start > Run**.
3. Type **`d:\setup.exe`** (where d: is your CD-ROM drive) in the Open box. Click **OK**.
4. After the Setup Program window appears, click **ispLEVER Project Navigator and 3rd Party Tools** to open the Product To Install dialog box. Select **LS ADV CP F**.
5. Click **Next** to open the Welcome To Lattice Semiconductor Setup dialog box.
6. Click **Next** to open the Software License Agreement dialog box. Read the license agreement.
7. If you agree, click **Yes** to open the Choose Destination Location dialog box.
8. The default destination folder for the ispLEVER software is `C:\ispTOOLS`. Click **Next** to accept the default.

CAUTION!	Do not change the destination folder location. The installation software automatically selects the folder where the ispLEVER tools have been installed from CD-1. The FPSC devices must be placed in this same location.

9. In the Product Options dialog box, select the check box for each FPSC device that you want to install, and then click **Next**.



10. In the Select Program folder dialog box, accept the default location and click **Next**.
11. Examine the component list in the Start Copying Files dialog box.
    - If the list is accurate, click **Next** to start the installation.
    - If you need to add or delete components click **Back** to the Product Options dialog box, make your changes, and then return to the Start Copying Files dialog box. Click **Next** to start the installation.
12. Click **Finish** when the Setup Complete dialog box appears.

Registration and License Procedure

There are two ways to register and license your ispLEVER Advanced System software. The quickest way is to utilize the Licensing form on the Lattice Semiconductor web site. However, if you do not have internet access, you can use the registration form included in the setup program. Either way, the online registration form can be used to scan your network interface card (NIC) ID, which you will need to license your software.

To register and license the Lattice ispLEVER Advanced System software through the Lattice Semiconductor web site:

1. After installation is complete, click the **Registration and License Request** button in the Setup Program window. Or, exit the Setup Program and choose **Start > Programs > Lattice Semiconductor > ispLEVER Registration and License Request**. The registration form appears.
2. Note your NIC ID on your registration form. This information is automatically scanned and displayed in the Network Interface Card ID field. You will need the NIC ID for registering your software.
3. Go to the Licensing section of the Lattice Semiconductor web site (`http://www.latticesemi.com`).

   You will need the software serial number to obtain your license. The best place to find it is inside the cover of the Lattice CD-ROM folder, inside the product box, or on the Save This Card, which is included in the product box.
4. Click **ispLEVER Advanced Compiler PC** on the Software Licensing page. The ispLEVER Advanced License Request page appears.
5. Complete all required fields in the License Request page. Click the **Submit Name** button. You will receive the Lattice license file (`license.dat`) by e-mail.
6. Copy the Lattice license file (`license.dat`) that you receive from Lattice Semiconductor to the ispLEVER software license directory as shown below:

   `<drive>:\ISPTOOLS\LICENSE\LICENSE.DAT`

NOTE	The license directory contains a file named `license.txt`, which is the Lattice license agreement. Do not rename your `license.dat` to `license.txt`, or in any way replace `license.txt` with another file.

To register and license the Lattice ispLEVER Advanced System software with the online registration form:

1. After installation is complete, click the **Registration and License Request** button in the Setup Program window. Or, exit the Setup Program and choose **Start > Programs > Lattice Semiconductor > ispLEVER Registration and License Request**. The registration form appears.
2. Fill in the registration form completely. Your NIC ID is scanned and displayed in the Network Interface Card ID field. The product serial number can be found on the Save This Card serial number form.
3. Click **OK**. Your registration information is saved automatically as a text file (`pdspsreg.txt`) in the default `isptools\prod_reg` folder.
4. E-mail the completed registration file (`pdspsreg.txt`) to `lic_admn@latticesemi.com`, or fax it to (503) 268-8556. Lattice will send your ispLEVER Advanced System software license file to you by e-mail or fax within one working day.
5. Copy the Lattice license file (`license.dat`) that you receive from Lattice Semiconductor to the ispLEVER software license directory. For example:

   `<drive>:\ISPTOOLS\LICENSE\LICENSE.DAT`

NOTE	The license directory contains a file named `license.txt`, which is the Lattice license agreement. Do not rename your `license.dat` to `license.txt`, or in any way replace `license.txt` with another file.

6. Ensure the license environment variables are set as follows:

   `SET LM_LICENSE_FILE=<drive>:\ISPTOOLS\LICENSE\LICENSE.DAT`

Optional Floating License Setup

To enable a floating license, you need to have a license server set up on a Windows NT server to monitor your ispLEVER software license. Each client PC must have the `LM_LICENSE_FILE` variable set to point to the license file on the server.

Before you start the server setup, ensure you have TCP/IP installed and that the client machines can ping the server by name. **Ping** is a command entered from the prompt in an MS-DOS window. Type `ping <hostname>`.

The following files are in the `\ispTOOLS\ispcpld\bin` directory. They are used for license management.

`lflxutil.dll`	Lattice FLEXlm interface DLL
`lmgrd.exe`	The license server program
`lmutil.exe`	FLEXlm utility for diagnosing, reporting, and controlling licensing

`ispdsdmn.exe`	The ispLEVER software licensing daemon
`installs.exe`	May be needed for server management
`flexlm.cpl`	Sets up the server for floating licenses

Editing the License File

The following is an example of a floating license file.

```
SERVER nodename HOSTID=00078FF13295

DAEMON lattice daemon_path

FEATURE LSC_ADVANCED lattice 8.0 01-jan-9999 1\
   8C9136CA9F6A \VENDOR_STRING="ispLEVER Advanced"
```

> ***NOTE*** The "\" followed by a carriage return indicates a line continuation.

1. Edit the SERVER line by replacing *nodename* with the host name of the server for which you requested your `license.dat` file.
2. Edit the Lattice DAEMON line by replacing daemon_path with the path to the Lattice daemon. For example: c:`\ispTOOLS\ispcpld\bin\ispdsdmn.exe`
3. When you are editing these lines, make sure they are entered exactly as you received them. **All entries are case sensitive.**

License Server Setup

To set up your license manager as a system service:

1. Copy <*`install_path`*>`\ispcpld\bin\flexlm.cpl` to `c:\winnt\system32`.
2. Copy the license file (`license.dat`) that you received from Lattice to <*`install_path`*>`\license\license.dat`.
3. Double click the **FLEXlm Manager** icon in your Control Panel. The FLEXlm Manager dialog box appears.
4. Choose the Setup tab in the FLEXlm Manager dialog box.
5. Change Service name to "Lattice FLEXlm License Manager."
6. Use Browse to set lmgrd.exe to <*`install_path`*>`\ispcpld\bin\lmgrd.exe`.
7. Use Browse to set the license file to <*`install_path`*>`\license\license.dat`.
8. Use Browse to set the debug log file to <*`install_path`*>`\license\lattice.log`.
9. Select the Control tab. Select **Yes** to save changes when prompted.
10. Start the license manager.

11. Click **OK**. The FLEXlm Manager dialog box closes.
12. Open the `lattice.log` file. Check to see if there are any problems starting the license server. If there are no problems, close the log file.
13. Choose **Start** > **Programs** > **Lattice Semiconductor** > **ispLEVER System** to verify license checkout (this will be reflected in the `lattice.log` file). Close ispLEVER.
14. Double click the **FLEXlm Manager** icon in your Control Panel. The FLEXlm Manager dialog box appears.
15. Select **Stop the license server**. When the Server to Shutdown window appears, choose the ispLEVER software license server (7788@*hostname* by default). Click **OK**.
16. Select the Setup tab. Select **Use NT Services** and **Start Server at Power-Up**.
17. Click **OK** and then select **Yes** to save changes when prompted.
18. Restart the NT System.
19. Start the ispLEVER software again to verify that the License Server is running as a service.

Floating License Configuration

In this configuration, the ispLEVER software is installed on your NT license server (for license manager utilities and daemons) and on each client that uses the ispLEVER software. This configuration gives the best run time performance.

Install the ispLEVER software on the license server first. After you receive your floating license and ensure the license manager is running, install the ispLEVER software locally on each client that will use the floating license.

Set `LM_LICENSE_FILE` to point to the `<`*`install_path`*`>\license\license.dat` file on the license server.

Troubleshooting

If you encounter problems with your license, refer to the following table for common FLEXlm error messages and possible causes or solutions.

FLEXlm Error Message	Possible Causes or Solutions
Invalid parameter [-42, 252]	• The LM_LICENSE_FILE variable has not been set properly. • The license file is invalid. • An invalid feature is specified in the license file.
Invalid parameter [-42, 252:10061] Winsock error code	• You have a floating license, and the license daemon has not been started at the Windows NT server. • The network connection between the server and the client has not been established.
Invalid parameter [-12, 122] Invalid returned data from license server	The nodename of the Windows NT server does not match the one in your floating license file.
Invalid parameter [-5, 222] No such feature exists	The feature could not be found in the license file.
! License Check Failed	You either have a node-locked license or you don't have a license file. Contact Lattice Applications for a valid floating license file.

If you encounter any software-related problems, please review the following common troubleshooting scenarios before calling Lattice Support Services:

- Ensure that your environment variable settings are set correctly. For Windows XP, Windows 2000, and Windows NT 4.0, your `system` should contain the following environment settings:

  ```
  SET LSC_INI_PATH=<boot_drive>:\LSC_ENV

  SET LM_LICENSE_FILE=<install_path>:\ISPTOOLS\LICENSE\LICENSE.DAT
  ```

  You can verify these settings by choosing **Start > Settings > Control Panel > System**. Select the Advanced tab and the "Environment Variables" section.

- Make sure that your system video display is set to a screen resolution of 800 x 600 or more and that your video display is set to use 256 or more screen colors.

When All Else Fails

If the ispLEVER software still does not run after you install your new license file and confirm your environment variables are correct, do the following:

1. From an MS-DOS Prompt window, issue the command `set > env.txt` to create a text file that contains a listing of the environment setup for your PC.
2. Combine your `license.dat file` and the `env.txt` file in a zip file and send it via e-mail to `techsupport@latticesemi.com`. Please include an explanation of your problem.

Running Multiple Versions

The ispLEVER software now allows you to run ORCA designs on platforms that have both 3.1 and previous versions installed.

For previous versions of the ispLEVER software, the environment variables `%FOUNDRY%` and `%FPSC%` must be defined specifically for that release, and `%PATH%` must contain an entry pointing to `%FOUNDRY%/bin/nt`. These variables, which were set up automatically by the previous release's installer, must not be removed if you wish to continue using the older ispLEVER release.

The ORCA tools in the 3.1 release no longer require these variables and are not affected by other installations of previous versions of the ispLEVER software.

If you wish to use command line versions of 3.1 ORCA tools, you may:

- Run them in the ispLEVER Console Window as is.
- Include in `PATH` an entry pointing to `<installation directory>\ispfpga\bin\nt`, and then run the ORCA program in a window outside of the Project Navigator.

If you wish to use command line versions of previous ORCA tools, run them in any window outside of the ispLEVER Project Navigator.

Installing ispLEVER on a Remote Client-Server

You can install the ispLEVER software on a remote server and then mount a client system and run the software across your network. This feature works for any number of users, all ispLEVER software tools, and all supported devices.

Before you Start

Before you start installation, be aware of the following items:

- *Microsoft Windows NT 4.0, 2000, or XP must be running on your PC*.
- *You must be logged in as Administrator or belong to the Administrator Group*. See the documentation that came with your PC for details on setting up user privileges. You will be unable to install new programs without these privileges.

- *Before installation, you should have all requested information*. You will need to supply the following:
  - Your Name
  - Company Name
  - Address, City, State, ZIP/Postal Code, Country
  - Phone number, Fax number
  - Platform (Windows XP Professional, Windows 2000 Professional SP2 or later, WinNT4.0 SP6a or later)
  - Software Serial Number (for multi-seat licenses include all serial numbers)

In this procedure, the drives `C:` and `M:` are used as examples. You can substitute your drives as required.

1. On the server, install the ispLEVER 3.1 software at `C:\LATTICE_SW\ISPTOOLS3.1`. Make sure the server software runs correctly, including licenses at `C:\LATTICE_SW\ISPTOOLS3.1\license\license.dat`, where `\LATTICE_SW` is the mounted root name on the server and it should have sharing privileges.
2. Install to program group "Lattice Semiconductor 3.1 Server."
3. On the client, mount `\\servername\LATTICE_SW M:`
4. On the client, go to `M:\isptools3.1` and double-click `remotecl.exe`. It is important to do this to ensure that you are using the correct `remotecl.exe` for this version of the software.
5. The Remote Client Setup will ask for the location of the server software (`M:\isptools3.1`). It will error out if it does not find a key program in this tree.
6. The Remote Client Setup will prompt you for the location of the client machine for installing the client files. Choose `C:\isptools3_1.client`. Make sure no blank spaces are used in the program path.
7. Select the program group "Lattice Semiconductor 3.1 Client."
8. When the remote client is finished, set `LM_LICENSE_FILE=M:\isptools3.1\license\license.dat` and confirm it works by selecting one of the examples now on the client, and then compile.

Installing Adobe Acrobat Reader

Many of the documents in the Lattice Semiconductor ispLEVER documentation set require Adobe® Acrobat® Reader for viewing and printing. If you do not have Acrobat Reader 4.0 or if you have an earlier version of Acrobat, we recommend that you install it to ensure proper viewing and printing of the documents.

To install Acrobat Reader 4.0 on your machine:

1. Run the `setup.exe` file on CD-1 as you would for ispLEVER installation.
2. In the Lattice Semiconductor Setup Program window, click **Install Document Viewer**.
3. In the Acrobat Reader 4.0 Setup window, click **Next**. You can click **Cancel** to exit the setup in the Exit Setup dialog box.

4. In the Software License Agreement window, click **Accept**.
5. In the Choose Destination Location dialog, either accept the default folder location or use the **Browse** button to install your folder of choice.
6. Click **Next**. Acrobat Reader is installed to the location you specified.

Updating the ispLEVER Software from the Web

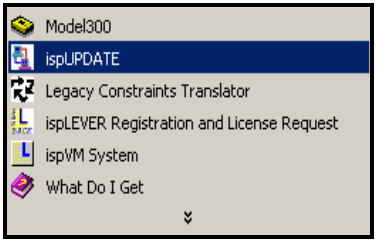
The ispUPDATE feature allows you to easily set up a proxy server to query the Lattice website for new software updates, device support, and enhancement. You can download patches and update files directly to your computer's disk drive.

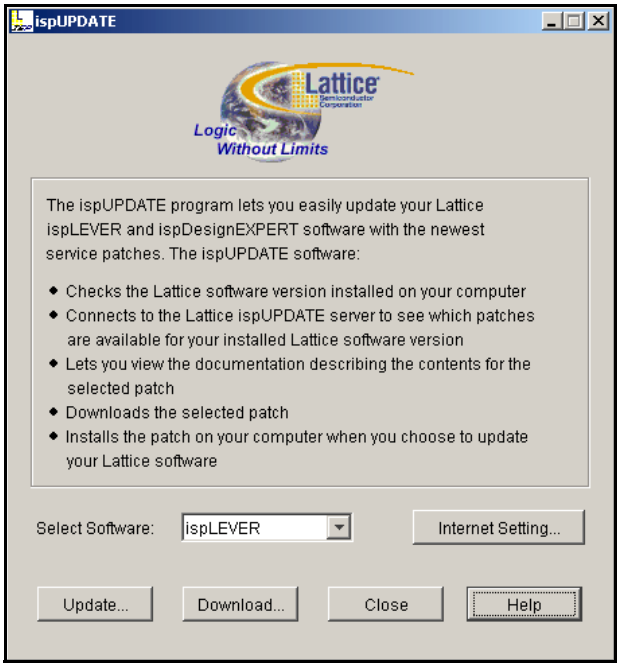
> **– *NOTE*** You must have a web browser installed on your workstation to use ispUPDATE.

The ispUPDATE Window allows you to select the software version to be updated when multiple versions of the software are installed on the same computer.

To start ispUPDATE:

1. From the Lattice program menu, select ispUPDATE to open the program.

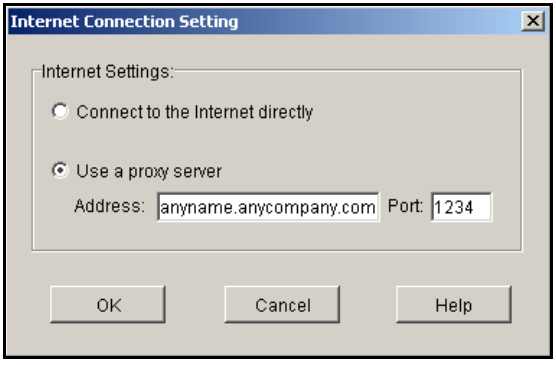




2. In the Select Software list, select the Lattice software program that you want to update.

- *NOTE*	If the selected software is not installed on your computer, the Update button is disabled.

3. Click **Internet Setting** to open the Internet Connection Setting dialog. Choose one of the following options, and then click **OK**.



If your organization has a firewall, your browser may need to go through a proxy server before connecting you to the Internet. The proxy server prevents outsiders from breaking into your organization's private network.

- **Connect to the Internet directly** – Select this option if you do not have to go through a proxy server.
- **Use a proxy server** – Select this option if you have to go through a proxy server. Ask your system administrator for the URL address and port assignment.

Using the Update Feature

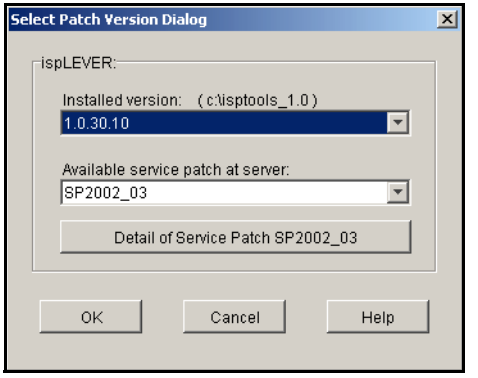
Use the Update feature when you want to update your currently installed Lattice software.

To use Update:

1. Click **Update**.

   The ispUPDATE software automatically determines the installed version of the selected Lattice software program. If there are no service patches available for the chosen release, a message box appears saying so.

2. Click **OK** to close the ispUPDATE dialog box.
3. If a Service Patch is available for the installed version, the Select Patch Version dialog box opens.

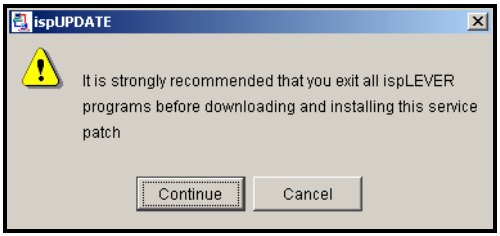


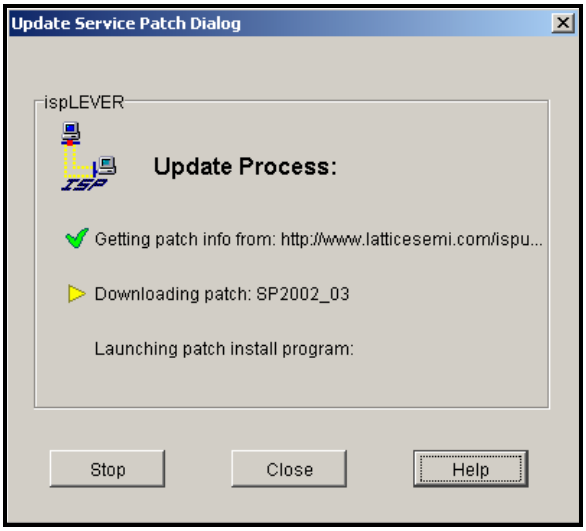
4. In the dialog box, do the following:
   - Select the Installed version you want.
   - Select the service patch you want.
   - Optionally, click Details of Service Patch to open your default browser and view the description of the service patch.

- *NOTE*	If no services patches are available for the selected installed version, you will not see a button under the list boxes labeled **Detail of Service Patch**.

   - Click **OK** to close the dialog box.

5. The ispUPDATE message dialog appears. Click **Continue**. The ispUPDATE program begins downloading the service patch and automatically launches the installation program.



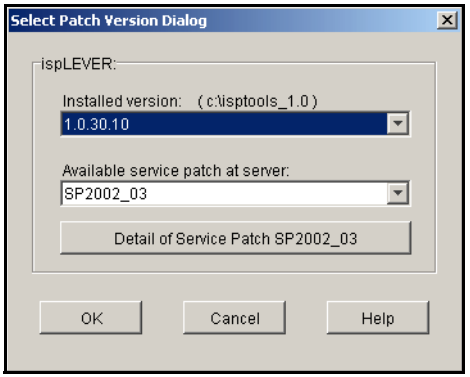


Using the Download Feature

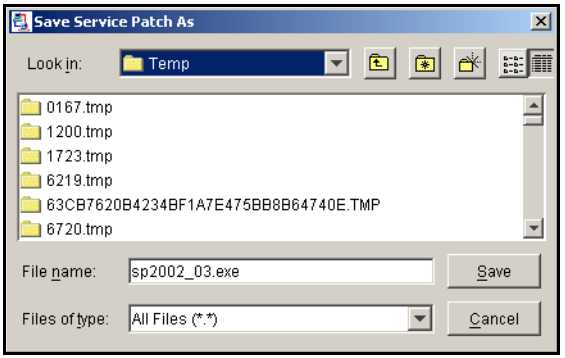
Use the Download feature when you want to download any of the available service patches for all Lattice software releases, regardless of whether they are installed on your computer.

To use download:

1. Click **Download** to open the Download Service Patch dialog and the Select Patch Version dialog box.
2. In the Select Patch Version dialog box, do the following:



- Select the software version you want.
- Select the service patch you want
- Optionally, click Details of Service Patch to open your default browser and view the description of the service patch.
- Click **OK** to open the Save Service Patch dialog box.



3. Navigate to a location on your computer where you want to save the file, and then click **Save**. The ispUPDATE software starts downloading the service patch.

Running the Patch Install Program

After you have downloaded the service patch, you can install it to update your Lattice software.

To install the service patch:

1. Go to the location where you saved the service patch.
2. Double-click the service patch file (`<file_name>.exe`) and follow the on-screen setup instructions.

Refer to the Online Help *Introduction* section for more information about ispUPDATE.