Lattice® Semiconductor Corporation

ispLEVER 5.0 Installation Notice

Windows XP
Windows 2000
Windows NT 4.0

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.

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LEVER-IN PC 5.0.0

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

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The ispLEVER$^®$ 5.0 software supports all Lattice Semiconductor FPGA, ispXPLD™, CPLD, ispGDX2™, ispGDX$^®$, ispGAL$^®$, GAL$^®$ device designs.

This release marks a significant upgrade of the HDL Base software installation to support all Lattice Semiconductor devices, thus eliminating the HDL Advanced and Advanced System installation options.

System Requirements

- Intel Pentium or Pentium-compatible PC
- Windows XP, Windows 2000 Workstation, and Windows NT 4.0
- 512 MB memory required; 1 GB memory recommended
- Approximately 3 GB free disk space
- Graphics display 1024 X 768
- CD-ROM drive (2X or above) or DVD-ROM drive
- Microsoft-compatible mouse and mouse driver

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 Semiconductor 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: 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 HDL Base	Installs the ispLEVER FPGA and CPLD software for LatticeXP™, LatticeEC™, LatticeECP-DSP™, ispXPGA®, ORCA® FPGA, ORCA FPSC, ispXPLD®, ispMACH™, ispGDX2™, ispGDX, ispGAL, GAL, ispLSI®, and MACH® device designs. Tools include: ◆ 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
ispVM System	Installs the ispVM® System programming software for multi-vendor device programming.
ORCA FPGAs	Installs ORCA FPGA Series 2, 3, or 4 devices.
ORCA FPSCs	Installs ORCA FPSC devices.
Synplify for Lattice	Installs Synplicity Synplify for Lattice synthesis software.
Precision RTL Synthesis	Installs Mentor Graphics Precision RTL synthesis software.
LeonardoSpectrum	Installs Mentor Graphics LeonardoSpectrum synthesis software. LeonardoSpectrum is being discontinued and will not be included in future releases. We recommend using Mentor Graphics Precision RTL synthesis software instead.
ModelSim Simulation	Installs Mentor Graphics ModelSim VHDL and Verilog RTL and gate-level timing simulator.
PAC-Designer 3.4	Installs the PAC-Designer® software. The software includes all the tools you need for design and download for Lattice Semiconductor's ispPAC® and ispClock™ devices.
Adobe Reader 6.0	Installs the Adobe Acrobat Reader 6.0 software.

Installation Procedure

The ispLEVER 5.0 software can be installed using the two ispLEVER CD-ROMs or the one ispLEVER DVD-ROM.
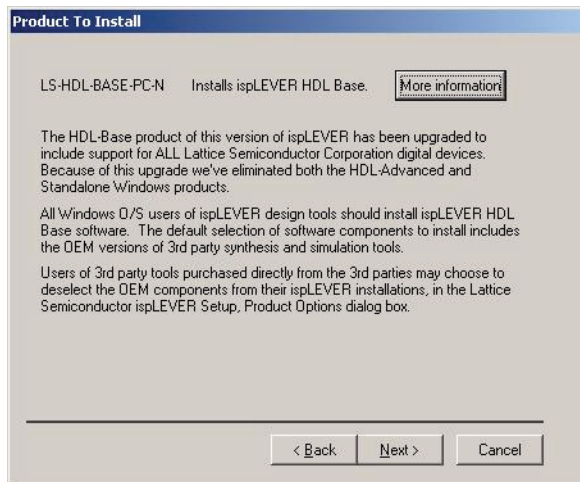
To install the Lattice Semiconductor ispLEVER HDL Base software:

1. Insert the ispLEVER software CD-ROM (1 of 2) or DVD-ROM into the drive. The ispLEVER Setup window automatically appears.
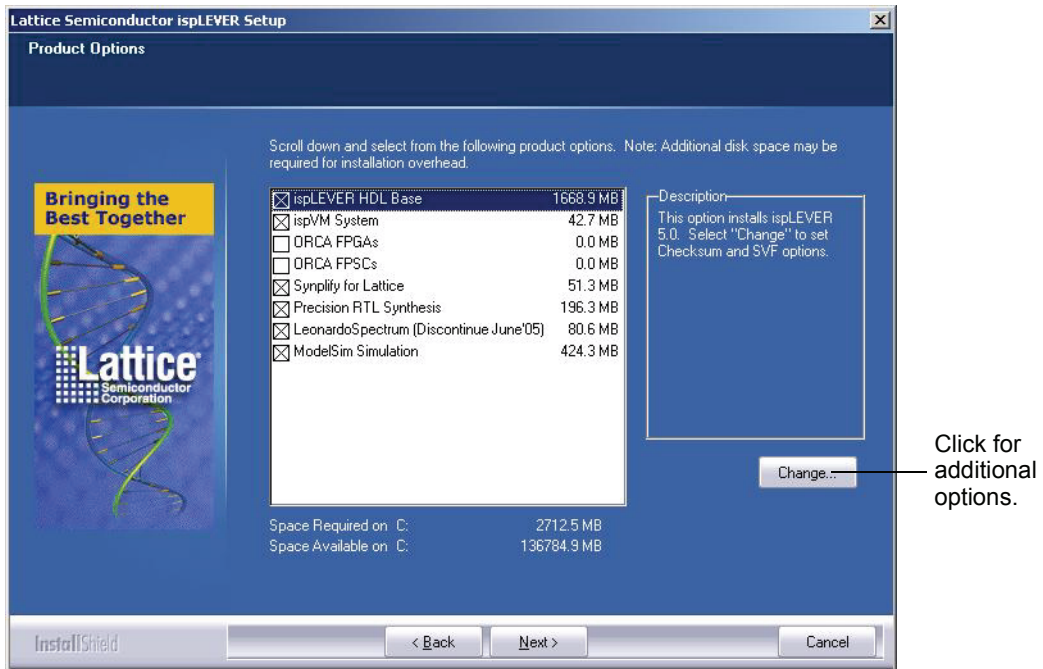

To run the installation program manually, choose **Start > Run** from your Windows desktop, and then type `d:\setup.exe` (where `d:` is your CD-ROM or DVD-ROM drive) in the Open box. Click **OK**.

2. Click **Install ispLEVER 5.0 Design Tools**. The Product To Install dialog box opens.

3. If you want to see a description of the install components for ispLEVER HDL Base and the minimum system requirements, click **More Information** to open the Help file.

4. Click **Next** to open the Welcome To Lattice Semiconductor ispLEVER Setup dialog box.

5. Click **Next** to open the Software License Agreement dialog box.

6. Read the license agreement. If you agree, click **Yes** to open the Choose Destination Location dialog box.

7. The default destination folder is `C:\ispTOOLS5_0`. Click **Browse** to change the drive or destination folder.

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

Click for
additional
options.

9. Select the ispLEVER components that you want to install by selecting or
   clearing the check box next to each. If you have third-party synthesis and
   simulation tools purchased directly from the third-party vendors, you can
   clear the OEM version of those tools.

   Some of the product options have additional options of their own (see the
   table below). To set the additional options, select a product option and
   then click **Change**.

When you select:	Click Change to also select:
ispLEVER HDL Base	Use Checksum as USERCODE default: Sets the default for USERCODE to CHECKSUM for CPLD devices. With this option, the ispLEVER software inserts the JEDEC file's checksum value into the usercode field. If the ispLEVER software is generating an ISC data file, it inserts the CRC value into the user code field.
	SVF Generation: Installs the ispVM System and sets the default for SVF Generation.
ORCA FPGAs	Specific ORCA series of FPGA devices. You can install software for some or all of the ORCA Series: ORCA 2, 3, or 4 FPGAs.
ORCA FPSCs	Specific ORCA FPSC devices. You can install software for some or all of the ORCA FPSC devices. If you install any, contact Lattice Semiconductor for a license.

10. Click **Next** to open the Select Program Folder dialog box. The default name of the program group is Lattice Semiconductor 5.0. If you want to change the name, change it in the Program Folder field.

11. Click **Next** to open the Start Copying Files dialog box.

12. Verify the settings when displayed.

13. Click **Next** to start installing ispLEVER components. If you are using the CD-ROMs, the installer will prompt you to swap disks during the installation.

14. At the end of the installation, the ispVM System Download Parallel Port Driver dialog box opens. This driver is required to program Lattice Semiconductor devices using the ispDOWNLOAD® parallel port cable. Click **Yes** if you need the driver. Click **No** if you don't.

15. In the following dialog box, verify the environment variables. Click **Next**.

16. In the InstallShield Wizard Complete dialog box, click **Finish**.

17. Wait for the original ispLEVER Setup window to return. In the ispLEVER Setup window, you can install other software, register and license the ispLEVER software, or exit the setup program.

18. After exiting the setup program, remove the CD-ROM or DVD-ROM from the drive.

Registration and License Procedure

There are two ways to register and license your ispLEVER HDL Base software. The quickest way is to use the Licensing form on the Lattice Semiconductor web site. Or, you can send a registration form by e-mail or fax.

Registering Through the Web Site   To register and license the Lattice Semiconductor ispLEVER HDL Base software through the Lattice Semiconductor web site:

1. After installation is complete, click **Registration and License** in the ispLEVER Setup window. Or, exit the Setup program and choose **Start > Programs > Lattice Semiconductor 5.0 > ispLEVER Registration and License Request**. The registration form appears.

2. Note the NIC ID and the hard disk ID from the registration form.

3. Go to the Licensing section of the Lattice Semiconductor web site (www.latticesemi.com/license).

4. Click **ispLEVER-HDL Base** on the Software Licensing page.

5. Log in with the user ID and password from the Save This Serial Number card, which is included in the product box. The ispLEVER HDL Base License Request page appears.

6. Complete all required fields in the License Request page and click **Submit Name**. You will receive your Lattice Semiconductor license file (`license.dat`) by e-mail.

7. Copy the license file (`license.dat`) to the ispLEVER software license directory as shown below:

   `<`*drive*`>:\ispTOOLS5_0\license\license.dat`

Note

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

Registering by E-mail or Fax   To register and license the Lattice Semiconductor ispLEVER HDL Base software by e-mail or fax:

1. After installation is complete, click **Registration and License** in the ispLEVER Setup window. Or, exit the Setup program and choose **Start > Programs > Lattice Semiconductor 5.0 > 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 Serial Number card.

3. Click **OK**. Your registration information is saved automatically as a text file (`pdspsreg.txt`) in the default `ispTOOLS5_0\prod_reg` folder.

4. E-mail the completed registration file 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 Semiconductor will send your ispLEVER HDL Base license file by e-mail or fax within one working day.

5. Copy the license file (`license.dat`) to the ispLEVER software license directory as shown below:

   `<`*drive*`>:\ispTOOLS5_0\license\license.dat`

Note

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

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 Semiconductor Support Services:

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

```
SET LSC_INI_PATH=<boot_drive>:\LSC_ENV
SET LM_LICENSE_FILE=<path>:\ispTOOLS5_0\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 1024 x 768 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, gather the following items:

◆ A screen capture showing the error message.

◆ A text file that contains a listing of the environment setup for your PC. From an MS-DOS Prompt window, issue the command `set > env.txt`.

◆ Your `license.dat` file.

Combine these items in a zip file and e-mail it to `techsupport@latticesemi.com`. Include an explanation of the problem.

Optional Floating License Setup

To enable a floating license, you need to have a license server set up on a Windows 2000 or 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. At the prompt in an MS-DOS window, type: `ping <hostname>`

The following files are in the `\ispTOOLS5_0\ispcpld\bin` directory. They are used for license management.

`lflxutil.dll`	Lattice Semiconductor 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.
`lmtools.exe`	Sets up the server for floating licenses.

Note

The ispLEVER 5.0 software uses FLEXlm 9.2 license administration software. Users of the ispLEVER 3.1 or older software must bring down the previous license daemon and start the new license daemon.

Editing the License File

The following is an example of a floating license file.

```
SERVER nodename 00609779b32b 7788

DAEMON lattice daemon_path

FEATURE LSC_ADVANCED lattice 8.0 01-jan-9999 1 \
   0EE574B4F060 VENDOR_STRING="ispLEVER Advanced"
FEATURE LSC_ADVANCED_ORCA lattice 9.0 01-jan-9999 1 \
   61895B81F943 VENDOR_STRING="ispORCA System"
FEATURE LSC_SYNPLIFY lattice 8.0 01-jan-9999 1 9A755FEF54C6 \
   VENDOR_STRING="ispLEVER System with Synplicity"

DAEMON mgcld path_to_mgcld

INCREMENT latticemti mgcld 2014.09 19-may-2005 1 \
   6D40B9E3B643B2C52810 VENDOR_STRING=A5AF73D2 \
   SUPERSEDE ISSUED=19-may-2004 ISSUER=Latticev1.2
INCREMENT leospecls1 mgcld 2014.09 19-may-2005 1 \
   3D50B933AB29951E4F44 VENDOR_STRING=5EA654C6 \
   SUPERSEDE ISSUED=19-may-2004 ISSUER=Latticev1.2
INCREMENT leospecls1lat mgcld 2014.09 19-may-2005 1 \
   8D70C963E1197A5559CD VENDOR_STRING=65AA3FCF \
   SUPERSEDE ISSUED=19-may-2004 ISSUER=Latticev1.2
INCREMENT leospecls1veri mgcld 2014.09 19-may-2005 1 \
   3DD069136C717799083D VENDOR_STRING=32F562F8 \
   SUPERSEDE ISSUED=19-may-2004 ISSUER=Latticev1.2
INCREMENT leospecls1vhdl mgcld 2014.09 19-may-2005 1 \
   8D701923148E0F231DD2 VENDOR_STRING=F21F4D0D \
   SUPERSEDE ISSUED=19-may-2004 ISSUER=Latticev1.2
INCREMENT psyncpblatmgc_c mgcld 2014.09 19-may-2005 1 \
   6DE1AHB19967884982EC VENDOR_STRING=EA55184F \
   SUPERSEDE ISSUED=19-may-2004 ISSUER=Latticev1.2
```

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:\ispTOOLS5_0\ispcpld\bin\ispdsdmn.exe`

3. Edit the mgcld DAEMON line by replacing *path_to_mgcld* with the path to the mgcld daemon. For example:

   `C:\ispTOOLS5_0\precision\lib\mgcld.exe`

4. When you are editing these lines, make sure they are entered exactly as you received them.

License Server Setup

To set up your license manager as a system service:

1. Copy the license file (`license.dat`) that you received from Lattice Semiconductor to `<install_path>\license\license.dat`.

2. Double-click the `<install_path>\ispcpld\bin\lmtools.exe` file to open the LMTOOLS dialog box.

3. Choose the Config Services tab in the LMTOOLS dialog box.

4. Change Service Name to `Lattice FLEXlm Service 1`.

5. Use Browse to set `lmgrd.exe` to `<install_path>\ispcpld\bin\lmgrd.exe`.

6. Use Browse to set the license file to `<install_path>\license\license.dat`.

7. Use Browse to set the debug log file to `<install_path>\license\lattice.log`.

8. Click **Save Service**.

9. Select the **Start/Stop/Reread** tab.

10. Click **Start Server**.

11. Select the **Config Services** tab.

12. Select **View Log** to view 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 > Accessories > ispLEVER System** to verify license checkout (this will be reflected in the `lattice.log` file). Close ispLEVER.

14. Choose the **Start/Stop/Reread** tab in the LMTOOLS dialog box.

15. Select **Stop Server**.

16. Select the **Config Services** tab. Select **Use NT Services** and **Start Server at Power-Up**.

17. Click **OK** and then select **File > Exit.**

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 Semiconductor Applications for a valid floating license file.

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

◆ Ensure that your environment variable settings are set correctly, including the TEMP user variable. 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=<path>:\ispTOOLS5_0\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 1024 x 768 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, gather the following items:

◆ A screen capture showing the error message.

◆ A text file that contains a listing of the environment setup for your PC. From an MS-DOS Prompt window, issue the command: `set > env.txt`

◆ Your `license.dat` file.

Combine these items in a zip file and e-mail it to `techsupport@latticesemi.com`. Include an explanation of the problem.

Running Multiple Versions

The ispLEVER software now allows you to run ORCA designs on platforms that have both 5.0 and previous versions installed.

For versions of ispLEVER software prior to 3.0, 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, versions 3.0 and newer, no longer require these variables, and are not affected by installations of previous versions of ispLEVER software.

If you wish to use command line versions of 5.0 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 to 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)

Installation Procedure

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 5.0 software at `C:\LATTICE_SW\ISPTOOLS5_0`. Make sure the server software runs correctly, including licenses at `C:\LATTICE_SW\ISPTOOLS5_0\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 5.0 Server."

3. On the client, mount `\\<`*servername*`>\LATTICE_SW M:`

4. On the client, go to `M:\isptools5_0` 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:\isptools5_0`). 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:\isptools5_0.client`. Make sure no blank spaces are used in the program path.

7. Select the program group "Lattice Semiconductor 5.0 Client."

8. When the remote client is finished, set the `LM_LICENSE_FILE` environment variable. It is recommended when using a client-server setup that you use a floating license. Then set `LM_LICENSE_FILE=7788@nodename`. Confirm it works by selecting one of the examples now on the client and then compile.

Installing PAC-Designer Software

In addition to the ispLEVER software, you have the option of installing the PAC-Designer software. The software includes all the tools you need for design and download for Lattice Semiconductor's ispPAC devices.

To install PAC-Designer on your PC:

1. Run the `setup.exe` file as you would for ispLEVER installation.

2. In the Lattice Semiconductor ispLEVER Setup window, click **Install PAC-Designer 3.4**. A setup wizard will guide you through the installation.

3. Obtain a valid license from the Lattice Semiconductor web site (www.latticesemi.com/license). Follow the instructions on the licensing page of the web site to obtain a valid `license.dat` file.

4. Restart your computer before running the PAC-Designer software.

5. Configure the JTAG (programming) interface. The ispPAC family uses a JTAG serial interface for programming, uploading, and verification. Set up PAC-Designer with the port address via the JTAG Options dialog box.

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, version 6.0 or later, we recommend that you install it to ensure proper viewing and printing of the documents.

To install Acrobat Reader 6.0 on your PC:

1. Run the `setup.exe` as you would for ispLEVER installation.

2. In the Lattice Semiconductor ispLEVER Setup window, click **Install Adobe Reader 6.0**.

3. In the Acrobat Reader 6.0 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.

7. Click **Finish** to exit the wizard.

Updating the ispLEVER Software from the Web

After you have registered and licensed your installation, check the Lattice Semiconductor web site for new software updates, device support, and enhancements. Make sure you have the latest software by checking for updates regularly.

To check for updates, go to the Lattice Semiconductor program menu and select **ispUPDATE**. The ispUPDATE program can automatically check for and download updates. For instructions, click **Help** in the ispUPDATE dialog box.