Lattice Diamond Software 3.12 SP1 Release Notes

Welcome to Lattice Diamond® software, the complete design environment for Lattice Semiconductor Field Programmable Gate Arrays (FPGAs).

What's New in Diamond Software 3.12 SP1

▶ **New Device Support:**

- ECP5 Family

  - ECP5U™ 12k/25k/45k,TQFP144 Package is generally available.

▶ **Tool and Other Enhancements:**

- **Bitstream File** – A note regarding the use of Evaluation IP has been added to the bitstream file.

- **FlexLM Licensing Package –** Diamond software installer provides standalone FlexLM executable zip file.

What's New in Diamond Software 3.12

▶ **New Device Support:**

- Mach-NX™ 50K (LFMNX)

  - CBG256, FBG484, and LBG484 are available under license control. Please contact Lattice Technical Support.

► **Updated Device Support:**

  o CrossLink™Plus (LIFMDF)

   ▪ 6000 80CKFBGA is generally available

  o MachXO3D™

   ▪ Supports up to eight Analog Sense and Control (ASC) devices

   ▪ 9400 69WLCSP is generally available

  o MachXO2™ ZE

   ▪ 1200 36WLCSP

   ▪ 4000 81WLCSP

► **Tool and Other Enhancements:**

  o Newly integrated Siemens ModelSim® Lattice FPGA Edition simulator replaces Aldec Active-HDL™ Lattice Edition simulator.

  o SystemVerilog Support – as follows:

   ▪ File Hierarchy View – The ability to read and produce a hierarchical file view of design.

   ▪ Hierarchy Viewer – The ability to read and produce hierarchical view in Netlist Analyzer and Floorplan View.

   ▪ Reveal – support for SystemVerilog for Reveal Inserter and Reveal Analyzer.

Support for Third-Party Synthesis and Simulator Tools

The Synopsys Synplify Pro® for Lattice synthesis tool and the Siemens ModelSim Lattice Edition simulator tool are included in the Diamond software.

► **Synopsys Synplify Pro FPGA synthesis software version R-2021.03L-SP1**

  ► Release Notes for Synplify Pro are located in
  ..\<*install_directory*>\diamond\3.12\synpbase\doc\.
  The file name is release_notes.pdf.

  ► A full set of documents for Synplify Pro are also located in
  ..\<*install_directory*>\diamond\3.12\synpbase\doc\.

► **Siemens ModelSim Lattice Edition 2020.3 revision 2020.10**

  ► Release Notes for ModelSim Lattice Edition are located in
  ..\<*install_directory*>\diamond\3.12\modeltech\. The file names are RELEASE_NOTES.html or RELEASE_NOTES.txt.

> ◤ A full set of documents for ModelSim Lattice Edition are located in
> ..*<install_directory>*\diamond\3.12\modeltech\doc\.

Siemens Questa® 2020.4

Supported Devices

Lattice Diamond can be used with either a free license or a subscription license. The two licenses provide access to different device families.

Device Family	Free License	Subscription License
ASC	◄	◄
ECP5U	◄	◄
ECP5UM™		◄
ECP5UM5G™		◄
LatticeEC™	◄	◄
LatticeECP™	◄	◄
LatticeECP2™	◄	◄
LatticeECP2M™		◄
LatticeECP2S™		◄
LatticeECP2MS™		◄
LatticeECP3™		◄
LatticeSC™		◄
LatticeSCM™		◄
LatticeXP™	◄	◄

Lattice Diamond Software 3.12 SP1 Release Notes
Release Notes – October 15, 2021

Device Family	Free License	Subscription License
LatticeXP2™	◄	◄
LFMNX (Mach-NX)	License-controlled. Contact Lattice Technical Support.	
LIFMD (CrossLink)	◄	◄
LIFMDF (CrossLinkPlus)	◄	◄
MachXO™	◄	◄
MachXO2	◄	◄
MachXO3D	◄	◄
MachXO3L™	◄	◄
MachXO3LF	◄	◄
Platform Manager™	◄	◄
Platform Manager 2™	◄	◄

System Requirements

The basic system requirements for Lattice Diamond are:

▶ Intel Pentium or Pentium-compatible PC, or AMD Opteron system support (Linux only)

▶ One of the following operating systems:

   ▶ Windows 10 (64-bit)

   ▶ Red Hat Enterprise Linux 6.9/7.4. The host operating system is supported in 64-bit only.

▶ Approximately 5.75 GB free disk space

▶ RAM adequate for your FPGA design. For guidelines see Memory Requirements.

▶ Network adapter and, for a floating license, network connectivity

   A node-locked license is based on the physical (hard-coded) address provided by the network adapter. Network connectivity is not required for a node-locked license. In the absence of a network

connection, you can install the NWLink IPX/SPX protocol to force recognition of your NIC card ID (see the Installation Notice).

A floating license requires access to the license server, so both a network adapter and connectivity are required.

▶ JavaScript-capable Web browser

Memory Requirements

The following table lists the minimum memory requirements (64-bit software) and the recommended memory for the Lattice Semiconductor devices supported by Diamond.

Designing for LatticeECP3 with more than 95K LUT on a Windows system requires a 64-bit operating system.

Table 1 Recommended Memory

Device	Size	Minimum	Recommended
ECP5U/UM/UM5G	*All*	*4 GB*	*6 GB*
LatticeEC, LatticeECP	Up to 20K LUT	1 GB	1.5 GB
	Up to 50K LUT	1.5 GB	2 GB
LatticeECP2/M	Up to 20K LUT	1.5 GB	2 GB
	Up to 50K LUT	2 GB	3 GB
	Up to 100K LUT	2 GB	4 GB
LatticeECP3	Up to 95K LUT	4 GB	6 GB
	Up to 150K LUT	6 GB	8 GB
LatticeSC/M	Up to 40K LUT	1.5 GB	2 GB
	Up to 115K LUT	2 GB	5 GB
LatticeXP, LatticeXP2	Up to 20K LUT	1 GB	1.5 GB

Device	Size	Minimum	Recommended
	Up to 50K LUT	1.5 GB	2 GB
MachXO, MachXO2, MachXO3D, MachXO3L, Mach-NX	All	512 MB	1 GB
LIFMD (CrossLink), LIFMDF (CrossLinkPlus)	All	512 MB	1 GB
Platform Manager, Platform Manager 2	All	512 MB	1 GB

Extending Memory on Windows

Note that increasing the amount of memory available to applications decreases the amount available for the file cache, paged pool, and nonpaged pool, which can affect applications with heavy networking or I/O.

Use the `BCDEdit /set increaseuserva 3072` command to set the boot entry option to 3 GB. For details, see Microsoft article "BCDEdit /set": msdn.microsoft.com/en-us/library/ff542202.aspx

▶ When installing the Red Hat Enterprise Linux version, be sure to install the PERL modules XML::Parser, XML::DOM, and XML::RegExp. These PERL modules are available at www.cpan.org.

Known Issues

Following are known issues with this release and workarounds for them. For the complete list, see: https://www.latticesemi.com/view_document?document_id=51101

If your target device is LFMNX, the device selector shows incorrect PIO count.

For assistance with the issue, please contact Lattice Technical Support.

Versions affected: Diamond 3.12
Devices affected: LFMNX
Bug number: SOF-130616

If your target device is LFMNX, there may be a PIO count mismatch between Device Selector and MAP and PAR Report.

For assistance with the issue, please contact Lattice Technical Support.

Versions affected: Diamond 3.12 SP1
Devices affected: LFMNX
Bug number: SOF-130990

Contacting Technical Support

FAQs
The first place to look. The Answer Database on the Lattice Semiconductor Web site provides solutions to questions that many of our customers have already asked. Lattice Applications Engineers are continuously adding to the Database.

Technical Support Assistance
Submit a technical support case via www.latticesemi.com/techsupport.

For Local Support
Contact your nearest Lattice Sales Office.