Lattice Diamond Software 3.12 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

- **New Device Support:**
  - Mach-NX™ 50K (LFMNX)
    - FBG484 is license-controlled. Please contact Lattice Technical Support.
- **Updated Device Support:**
  - CrossLink™Plus (LIFMDF)
    - 6000 80CKFBGA is generally available
  - MachXO3D™
    - Supports up to eight Analog Sense and Control (ASC) devices
  - MachXO2™ ZE
    - 1200 36WLCSP
    - 4000 81WLCSP
- **Tool and Other Enhancements:**
  - Newly integrated Mentor® ModelSim® Lattice FPGA Edition simulator replaces Aldec Active-HDL™ Lattice Edition simulator.
  - 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.

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™	◀	◀
LatticeXP2™	◀	◀
LFMNX (Mach-NX)	License-controlled. Contact Lattice Technical Support.	
LIFMD (CrossLink)	◀	◀
LIFMDF (CrossLinkPlus)	◀	◀

Device Family	Free License	Subscription License
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
	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

Device	Size	Minimum	Recommended
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

RedHat version 7.4 can't open Programmer

This issue requires the user to update to a Linux driver from RedHat in order to support version 7.4. This fix ensures that it is backward compatible with previous versions of RedHat.

Refer to the *Lattice Diamond 3.12 Installation Notice for Linux* for RedHat instructions.

Versions affected: Diamond 3.12
Devices affected: All
CR129730

Exporting IBIS models for L-ASC10 device

When trying to generate the IBIS model for ASC L-ASC10 devices, there is a place holder for the content data.

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

Versions affected: Diamond 3.12
Devices affected: All
CR130306

Device selector does not show correct PIO count

The PIO cell count shown in the device selector is 384 when the actual value is 379.

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

Versions affected: Diamond 3.12
Devices affected: LFMNX
CR130616

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.