



Lattice Propel 2.0

Release Notes

FPGA-AN-02035-1.0

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About Lattice Propel™ 2.0

Welcome to the Lattice Propel 2.0 design environment for Lattice FPGA system design. Lattice Propel is a complete set of graphical and command-line tools to create, analyze, compile, and debug both FPGA-based hardware and software processor systems.

What's New in Lattice Propel 2.0

New Device Family Support

- Lattice MachXO2™
- Lattice MachXO3L™
- Lattice MachXO3LF™

Tools and Enhancements

- Supports RISC-V CPU for state machine with tiny size of around 800 LUTs under minimum configuration and about 0.5 DMIPS/Mhz performance.
- Supports creating C++ software projects based on Lattice SoC platform.
- Supports glue logic including invert, split, concat, equation, and simple RTL components in Propel Builder.
- Supports redo/undo function in Propel Builder.
- Supports IP Packager: a tool for creating an IP package easily by editing of port, file, parameter, and memory in IP Packager.
- Provides MachXO2 template design, the *HelloWorld Project*.

Key Features

Device Family Support

- Lattice MachXO2
- Lattice MachXO3L
- Lattice MachXO3LF
- Lattice MachXO3D™
- Lattice CrossLink™-NX
- Lattice Certus™-NX
- Lattice Mach™-NX

Processor Support

- RISC-V Micro Controller (MC)
- RISC-V State Machine (SM)

Lattice Propel SDK

- Built-in industry standard components and tools for embedded software development and debugging.
- Optimized project management flow for Lattice FPGA platform.
- Supports creating both C and C++ software projects based on Lattice SoC platform.
- Supports Lattice Diamond®, Lattice Radiant™, and Propel Builder bridges.
- Integrates GDB and Open On-Chip-Debugging (OCD) with chained JTAG.
- Supports peripherals view with register description during debug session.
- Supports syntax highlighting for various development languages.

Lattice Propel Builder

- Supports IP management.
- Supports schematic design.
- Supports create SoC Project and SoC Verification in project wizard GUI.
- Supports Lattice Diamond, Lattice Radiant, ModelSim/QuartaSim, and Propel SDK bridges.
- Generates simulation environment, testbench, and script.
- Integrates ModelSim OEM.
- Supports gluelogic.
- Supports IP Packager.

Template Design and System Simulation

- Provides MachXO3D template design, the *HelloWorld Project*.
- Provides CrossLink-NX template design, the *HelloWorld Project*.
- Provides MachXO2 template design, the *HelloWorld Project*.
- Supports functional verification using system-level simulation environment for templates.

Release Contents

- Lattice Propel 2.0 software (Propel_2.0.zip)

Validation Platforms

- MachXO3D Breakout Board (REV A P/N: LCMXO3D-9400HC-B-EVN)
- CrossLink-NX Evaluation Board (REV B P/N: LIFCL-40-ENV)
- MachXO2 Breakout Board (REV B P/N: LCMXO2-7000HE-B-EVN)

System Requirements

The basic system requirements for Propel 2.0 on Microsoft Windows platform:

- Intel Pentium or Pentium-compatible PC
- 64-bit Operating System
- Windows 10
- Free Disk Space: approximately 6 GB
- Computer Memory Requirement: 2 GB minimum; 3 GB recommended
- Network adapter and network connectivity for IP server access

Release Limitations

This release of Propel 2.0 has the following limitations:

- Propel 2.0 does not support Linux platform.
- Verification engine does not support mixed-language SoC project.

Technical Support

For assistance, submit a technical support case at www.latticesemi.com/techsupport.



www.latticesemi.com