Lattice Propel 1.0

Release Notes

FPGA-AN-02025-1.0

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About Lattice Propel™ 1.0

Welcome to the Lattice Propel™ 1.0 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.

Key Features

Platform

- Supports Lattice MachXO3D platform.

Processor and IPs

- Supports RISC-V MC processor IP with RV32I & Zicsr ISA.
- Encapsulates Timer and Programmer Interrupt Controller (PIC) in the processor IP.
- Supports GNU Project Debugger (GDB) debug through JTAG port.
- Supports foundation IPs for system bus (AHB-Lite, APB), system memory, and configuration of Embedded Functional Block (EFB) of MachXO3D device.
- Provides Board Support Package (BSP) support for RISC-V and foundation IPs.

Propel Builder

- Implements a desired system simply with drag-and-drop instantiation and wizard-guided configuration and parameterization.
- Automates the task of integrating IP components.
- Supports downloadable IP from IP catalog.

Propel SDK

- Built-in industry standard components and tools for software development and debugging.
- Optimized project management flow for Lattice FPGA platform.
- Integrates GDB and Open On-Chip-Debugging (OCD) with chained JTAG.

Template Design and System Simulation

- Provides template design, the *HelloWorld* project.
- Supports functional verification using system-level simulation environment for templates.

Release Contents

- Propel 1.0.exe

This version of Lattice Propel 1.0 release need work with Lattice Diamond 3.11.0.396.4_Diamond_x64.exe and the two Diamond Control Pack packages, 3.11.0.396.4_Control_Pack_Encryption_Security_x64.exe and 3.11.0.396.4_Ngo_Encryption_Pack_x64.exe. This Diamond 3.11.0.396.4_Diamond_x64.exe and the two Diamond Control Pack packages, 3.11.0.396.4_Control_Pack_Encryption_Security_x64.exe and 3.11.0.396.4_Ngo_Encryption_Pack_x64.exe, are required for building and downloading the bitstream file.

Notes:
- Do not install any Diamond Service Pack package.
- The patch B3.11.2.446.3_patch130150_x64.exe is required for the simulation of the PFR2.0 project.

Validation Platforms

- MachXO3D Breakout Board (REV A P/N: LCMXO3D-9400HC-B-EVN)
- MachXO3D PFR Demo Board (REV A P/N: LCMXO3D-PFR-EVN)

System Requirements

The basic system requirements for Propel 1.0 on Microsoft Windows platform:

- Intel Pentium or Pentium-compatible PC
- 64-bit Operating System
- Windows 7 or Windows 10. Windows 10 is recommended.
- Free Disk Space: approximately 3 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 1.0 has the following limitations:

- Propel 1.0 does not support Linux platform.
- Propel Builder only supports one RISC-V core per system.

Known Issue

There is one known Issue for Propel 1.0.

Issue: When creating a C project in Lattice Propel 1.0, the differences between upper case and lower case letters in the C project name cannot be detected in Propel 1.0.

Workaround: None.

Technical Support

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