Tri-Speed Ethernet IP

IP Version: v2.3.0

Release Notes

FPGA-RN-02036-1.4

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Contents

1. Introduction

This document contains the Release Notes for the Tri-Speed Ethernet IP. For specific details about the IP, refer to the following:

- Tri-Speed Ethernet IP User Guide (FPGA-IPUG-02084)
- Tri-Speed Ethernet Driver API Reference (FPGA-TN-02341)

Tri-Speed Ethernet IP v2.3.0

Software	Software Version	Summary of Changes
Lattice Radiant™	2026.1	• Added LFD2NX-15P, LFD2NX-25P, and LFMXO5-25P device support. • Enabled LUT optimization for SGMII (SERDES) mode. • Enabled SGMII (LVDS) option in the GUI for LFD2NX-15P, LFD2NX-25P, and LFMXO5-25P devices.

Tri-Speed Ethernet IP v2.2.0

Software	Software Version	Summary of Changes
Lattice Radiant	2025.2	• Added Avant™ G/X30 and Certus™-N2 device support. • Removed MDIO interface. • Parameterized Half Duplex mode and AXIS FIFO mode for LUT-reduced design implementations. • Enhanced timing and LUT optimization.

Tri-Speed Ethernet IP v2.1.0

Software	Software Version	Summary of Changes
Lattice Radiant	2025.1.1	• Added SGMII (SERDES) and MAC + SGMII (SERDES) support for Avant devices. • Sampled AXIS (tvalid_o and tready_o) signals with clock enable signal for easier integration of 10M/100M support. • Fixed the reference clock selection in the SGMII (SERDES) example design for CertusPro™-NX devices. • Enhanced LUT optimization. • Enabled SDC flow and updated timing constraints for easier integration by replacing set_clock_groups with set_false_paths.

Tri-Speed Ethernet IP v2.0.0

Software	Software Version	Summary of Changes
Lattice Radiant	2025.1	• Renamed IP from *Tri-Speed Ethernet MAC* to *Tri-Speed Ethernet*. • Renamed MAC + MPCS to MAC + SGMII (SERDES) option for CertusPro-NX devices. • Renamed MAC + SGMII to MAC + SGMII (LVDS) option for all supported devices. • Enabled MAC + SGMII (LVDS) for all Nexus-based devices. • Enabled RGMII support for all Nexus-based devices. • Enhanced RGMII support for all devices with reduced clock sources. • Enabled SGMII (SERDES) only mode and example design support for CertusPro-NX devices. • Added 10M/100M support for MAC + SGMII (SERDES) and SGMII (SERDES) only options. • Added LFD2NX-15/25/35/65 + LFMXO5-35/35T/65/65T device support.

Software	Software Version	Summary of Changes

		• Deprecated non-simplified clock source implementation.
		• Added more reference clock source inputs for the MAC + SGMII (SERDES) and SGMII (SERDES) for CertusPro-NX devices.
		• Driver updates:
		  • Added GMII control interface functionality.
		  • Added functions to enable/disable TX and RX MAC separately.
		  • Added functions to enable/disable interrupts.
		  • Added functions to get/clear interrupt status.
		  • Removed the *ethernet_packet_handle* function.

Tri-Speed Ethernet IP Earlier Versions

IP Version	Summary of Changes
1.7.1	• LUT optimization for Avant devices. • Added Nexus™ 2 device support. • Reduced clock sources required for IP adoption. • Added support for standalone SGMII PHY-only option with a new example design. • Added enhancements for improved signal integrity on the SGMII PHY IP for Avant device support. • Enhanced the statistic counter by adding a counter for the cumulative number of bytes transmitted or received.
1.6.0	• Added MAC+MPCS mode for CertusPro-NX devices. • Added RMII mode, under mac_only configuration. • Added RGMII hardware example design. • Added low frequency support for system clock. • Added Statistic Counter lite mode. • Removed Classic mode, under mac_only configuration. It is not fully compliant with the IEEE specification.
1.5.1	• Added LAV-AT-E30 support. • Reverted AXIS FIFO update for hardware validation bug fix.
1.5.0	• Added Avant-AT-G/X device support. • Added MII/GMII mode, under mac_only configuration. • Added 10M/100M support for RGMII mode. • Updated AXIS FIFO.
1.4.2	Updated driver files.
1.4.1	Updated for Propel™ software support.
1.4.0	Added Stat Counters.
1.3.0	• Added Avant device support. • Added MAC+PHY mode for Avant devices. • Added AXI4L host interface. • Updated CSR memory width from 8 bits to 32 bits.
1.2.0	Added LFMXO5 device support.
1.1.0	• Added LFCPNX device support. • Added RGMII interface.
1.0.1	• Added LFD2NX device support. • Added AXI4-stream interface.
1.0.0	Initial release.

References

- Tri-Speed Ethernet IP User Guide (FPGA-IPUG-02084)
- Tri-Speed Ethernet Driver API Reference (FPGA-TN-02341)
- Avant-E web page
- Avant-G web page
- Avant-X web page
- Certus-NX web page
- CertusPro-NX web page
- CrossLink-NX web page
- MachXO5-NX web page
- Lattice Solutions IP Cores web page
- Lattice Solutions Reference Designs web page
- Lattice Solutions Boards web page
- Lattice Solutions Demonstrations web page
- Lattice Propel Builder software web page
- Lattice Radiant Software web page
- Lattice Insights for Lattice Semiconductor training courses and learning plans

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