Mil1394 GP2Lynx Link Layer Controller IP Core

General Purpose Link Layer Controller for 1394 AS5643

Applications

Vehicle System - Remote Node

Vehicle System - Vehicle Management Computer

Avionic Mission Systems

Benefits

Increased interface port density while reducing interface size and power

Increased performance with hardware-based AS5643 offload

Additional diagnostics and programmable operation features

Leverage proven technology for standard interface implementation

Features

AS5643 compliant interface with hardware-based STOF offload

Supports S100/S200/S400 data rates

Configurable number of GP2Lynx nodes in a single FPGA

Legacy microprocessor or AXI host interface available

Standard PHY-Link interface supports integration with PHY IP core or external PHY device

Overview

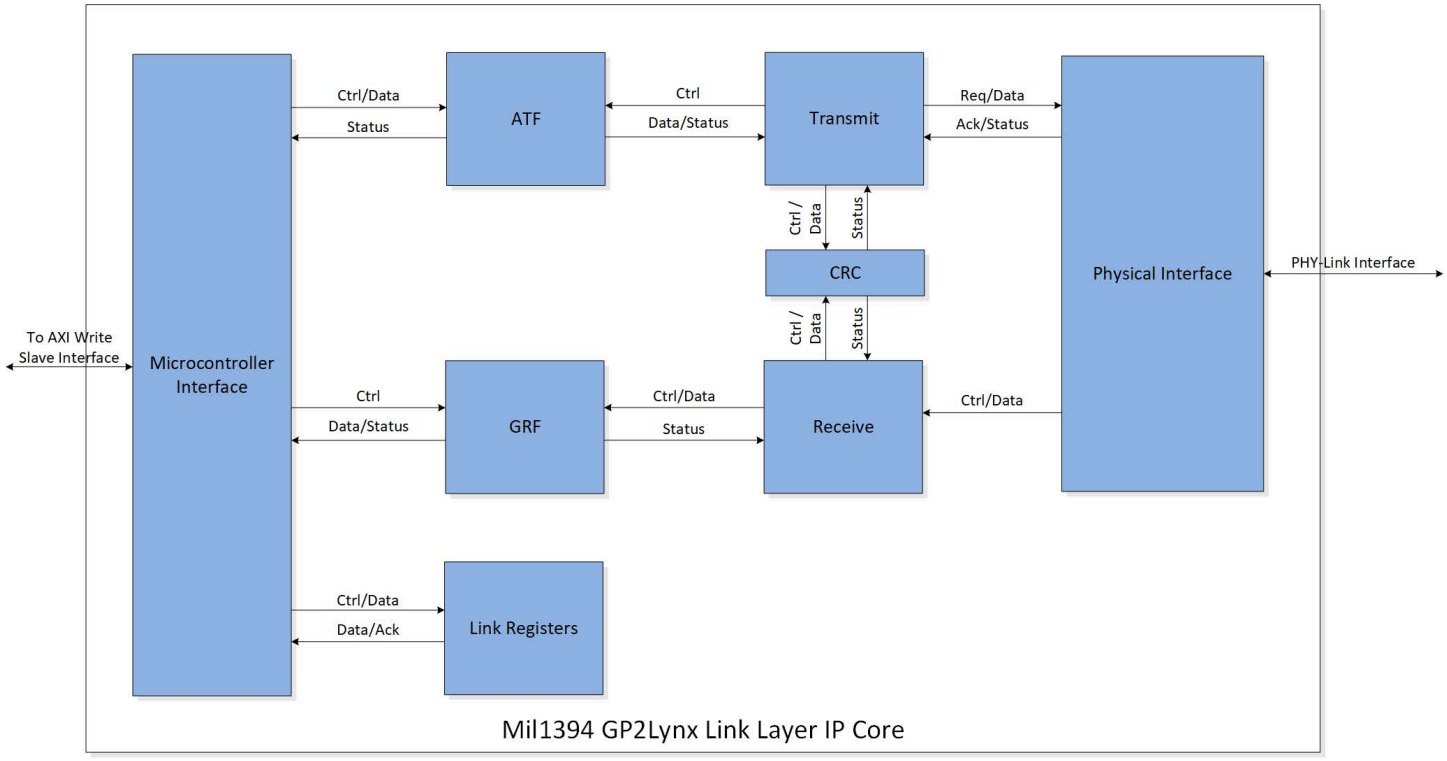
The New Wave Design and Verification (New Wave DV) 1394b GP2Lynx Link Layer IP Core provides a complete IP solution for the GP2Lynx Link Layer of the 1394 protocol.

The Core includes all functionality needed to meet the AS5643 specification including: Asynchronous Transmit, Isochronous Receive, STOF handling, STOF regulated transmit functions, and CRC generation/checking.

At the PHY-Link interface, the Core is built for connecting to any PHY implementing the defined standard PHY-Link interface. This interface is compatible with the New Wave DV PHY IP core as well as discrete PHY Layer integrated circuits.

This General Purpose IEEE-1394 Link Layer Controller (LLC) core is targeted towards aerospace and defense and has been used on a wide range of FPGAs at varying operating data rates. The Core comes with test-benches and example code, making design integration a straightforward task.

Evaluation versions of the GP2Lynx Link Layer IP Core are available and New Wave DV has a set of standard form factor boards featuring FPGAs, 1394b connectors and transformers, and off-the-shelf reference designs for quick evaluation of the IP core.



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Functional Description

The New Wave DV Mil1394 GP2Lynx Link Layer IP core was developed as a 1394-AS5643 compliant IP-based replacement for existing discrete GP2Lynx Link Layer Controller integrated circuits without AS5643 support.

Use of an IP Core-based implementation for 1394 also significantly mitigates future obsolescence issues. Discrete component 1394 options are now offered by only one vendor. Since the GP2Lynx core from New Wave DV can operate in all FPGA technologies including but not limited to AMD(Xilinx), Intel (Altera), and Microchip (Microsemi); future implementation options are assured.

In the GP2Lynx core, New Wave DV provides capabilities that are not available in the 1394 discrete components. These additional capabilities include diagnostic information, hardware-based AS5643 STOF offload, AXI based host interfaces, and custom configuration options.

By taking advantage of modern FPGA technology, and using this IP core along with 1394b PHY core from New Wave DV, it is feasible to implement in one FPGA what used to be implemented in 8-10 discrete components. Each of those discrete integrated circuits being the size of the one FPGA/ASIC using the New Wave DV IP cores. This is a board-space savings for high-density 1394 applications of roughly 10:1.

Technical Specifications

Core is delivered in netlist format including constraint files.

SUPPORTED DEVICES
AMD (Xilinx): Virtex, Kintex, Artix, Zynq FPGAs
Intel (Altera): Stratix, Arria, Cyclone FPGAs
Microchip (Microsemi): SmartFusion2, Igloo2 FPGAs

SUPPORTED RATES
S100/S200/S400

OPERATING FREQUENCIES
S100: 12.288Mhz
S200: 24.576MHz
S400: 49.152MHz

Mil1394 GP2Lynx Host Adapter Cards

In addition to the Mil1394 GP2Lynx Link Layer Controller IP Core, New Wave DV provides standard form factor Mil1394 GP2Lynx Link Layer Controller interface cards that incorporate the core along with software drivers. Available in PMC/XMC/PCIe form factors, New Wave DV 1394 cards provide up to 30 ports in a single card.

Complete Product Support Program

Our customers can attest to our exceptional support. New Wave DV provides an industry-standard warranty on its products, but it is the human factor that makes our support so valuable to our customers. Our team takes the time and effort to ensure a positive customer experience.

Our Commitment

New Wave DV is committed to providing the latest innovations in technology, architectures, and techniques to keep our customers one step ahead of the rest. Our products, complete with the Development Framework, are intended to offer our customers an entirely unique out-of-the-box experience.

Ordering Information

700-FW200-00-A0 (Altera), M0 (Microsemi), X0 (Xilinx): 1394b GP2Lynx Link Layer core, S100/S200/S400 rate support

700-FW200-10-A0 (Altera), M0 (Microsemi), X0 (Xilinx): 1394b GP2Lynx Link Layer core, includes PHY Layer core, S200/S400 rate support

Other product configurations are available. Please contact us.

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