PRELIMINARY

Honeywell

Honeywell SERDES Interoperability

Honeywell's SERDES provides an interface for high-speed 8b10b-based serial data communication protocols. The SERDES is capable of supporting any 8b10b communication protocol between 1 Gbps and 3.125 Gbps.

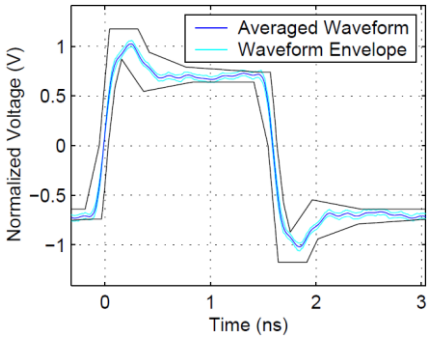
Honeywell's SERDES can be implemented in custom HX5000 ASICs, structured arrays, and is also utilized in two standard products, Trivor and Slider.

This note outlines the compliance and interoperability testing that has been performed.

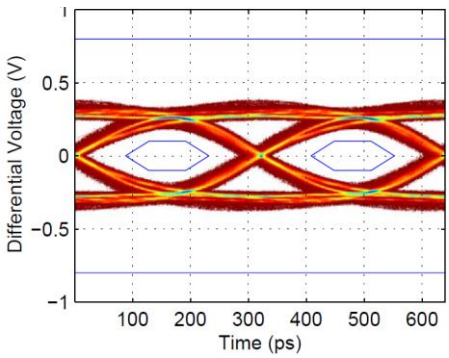
University of New Hampshire Interoperability Laboratory Testing

Independent testing at the University of New Hampshire's Interoperability Laboratory has demonstrated that Honeywell's SERDES is compliant with the 10GBASE-CX4 Physical Layer standard (Clause 54 of IEEE Std 802.3ak-2003) and XAUI Physical Layer standard (Clause 47 of IEEE Std 802.3). The primary objective of these tests was to verify that the Honeywell SERDES transmitter complies to the 802.3AE standard.

Example Waveforms from UNH-IOL Reports:



Differential Output Templates (10GBASE-CX4 Test)



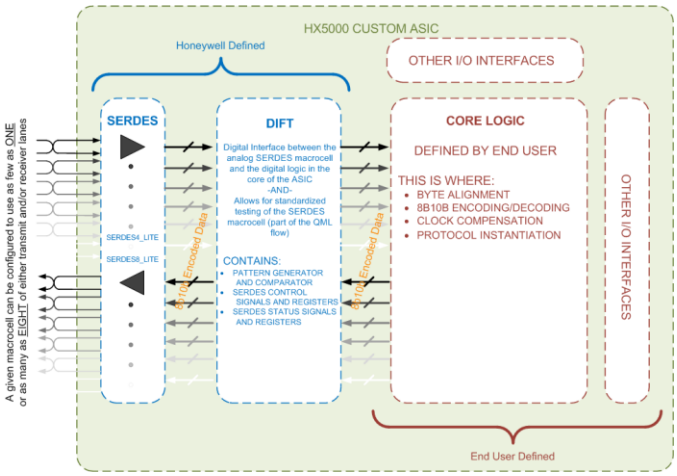
Eye Diagrams (XAUI Physical Layer Test)

Based on this testing, Honeywell's SERDES is electrically compatible and will be able to communicate with any other SERDES-based products that comply with these accepted industry standards.

Supported Protocols in ASICs and the Structured Array with SERDES (HX5SA13)

Honeywell's SERDES can be used with any* 8b10b-based protocol operating between 1 Gbps and 3.125 Gbps in custom ASIC or structured-array designs. The customer is responsible for the protocol implementation in an ASIC or structured-array.

Additional information on SERDES implementation in an HX5000 ASIC or structured-array is available upon request.



HX5000 ASIC with SERDES Concept Diagram

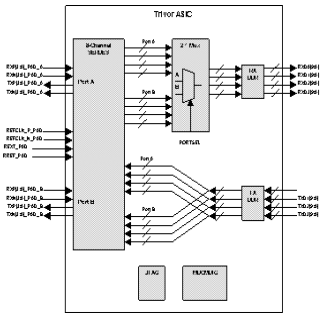
* The SERDES cannot support some specialized features available in some protocols. For example, it cannot support the ability to power-up a receiver by monitoring the data activity like in PCI-Express (the SERDES can pass PCI-Express traffic; it just doesn't support this feature).

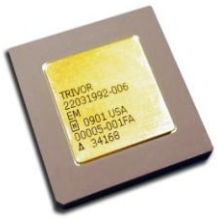
Standard Products

Two standard products have been developed using Honeywell's SERDES. The first is Trivor (HXSRD01) which is a quad-redundant, full duplex SERDES device that supports 1GE, XAUI 10GE, 1GFC, 2GFC and XAUI 10GFC. The second is Slider (HXSRD02) which is a quad lane SERDES device that supports the 1x/4x sRIO

protocol and protocol-independent general-purpose SERDES applications.

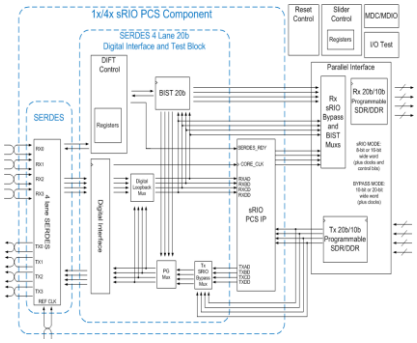
Trivor (HXSRD01)





- Quad-Redundant SERDES
- 1GE – PMA sublayer and portions of the PCS layer in accordance with IEEE802.3-2005 clause 36
- XAUI 10GE – PMA sublayer and portions of the PCS layer in accordance with IEEE802.3ae-2002 clause 48
- Fibre Channel – implements physical interface (FC-0) and transmission protocol (FC-1)
- 8-bit Parallel Interface

Slider (HXSRD02)



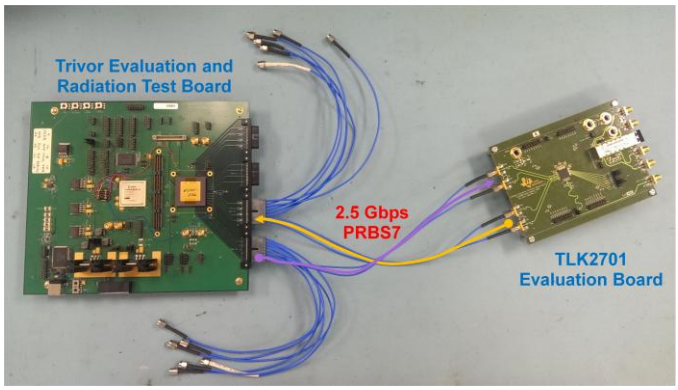
- Quad lane SERDES
- 1x/4x Serial RapidIO (sRIO) PCS PHY by Mercury Systems™
- Protocol-Independent SERDES
- Programmable 8-bit/16-bit Parallel Interface

Both of these devices have demonstrated PMA sublayer interoperability with other SERDES-based products in industry in their respective protocols. In addition, Trivor has demonstrated 1GE and XAUI 10GE interoperability with other devices including FPGAs and protocol test equipment.

Trivor and TLK2701 Interoperability Demonstration

Interoperability has been demonstrated between several of Honeywell's SERDES-based devices with other devices available in the industry. Most notable is the interoperability testing between Trivor and the TI© TLK2701. The testing utilized the internal pattern generation and comparison of the PRBS7 pattern at 2.5 Gbps.

This demonstrated the physical-layer compatibility between Honeywell SERDES-based products and TI.



Eye Diagrams (XAUI Physical Layer Test)

Trivor supports both Gigabit Ethernet and Fibre Channel protocols where the TLK2701/TLK2711 products are part of the *WizardLink* transceiver family.

Although these two protocols are not identical, they are both 8b10b protocols and align to the same comma characters. For this reason, Trivor and the TLK2701 and TLK2711 can establish a communication link.

Slider would have to be configured in the protocol-independent general-purpose SERDES mode as the sRIO protocol is not compatible with *WizardLink*. A WizardLink-like protocol would have to be instantiated on the companion FPGA.

In addition to the TLK2701 testing, Honeywell SERDES products, including Trivor, Slider, and HX5000 ASICs, have been used to demonstrate both PMA sublayer and full protocol interoperability with FPGAs, switches, and protocol test equipment

Summary

Honeywell's SERDES-based products, including the standard products Trivor and Slider, are compliant with industry standards and have demonstrated compatibility with products in the market.