

RedHsrPrp

A low-footprint, highly configurable, 100% hardware only IEC62439 HSR and PRP solution, specifically designed for high-availability distributed systems. Allows running network redundancy completely independent and standalone from the user application.

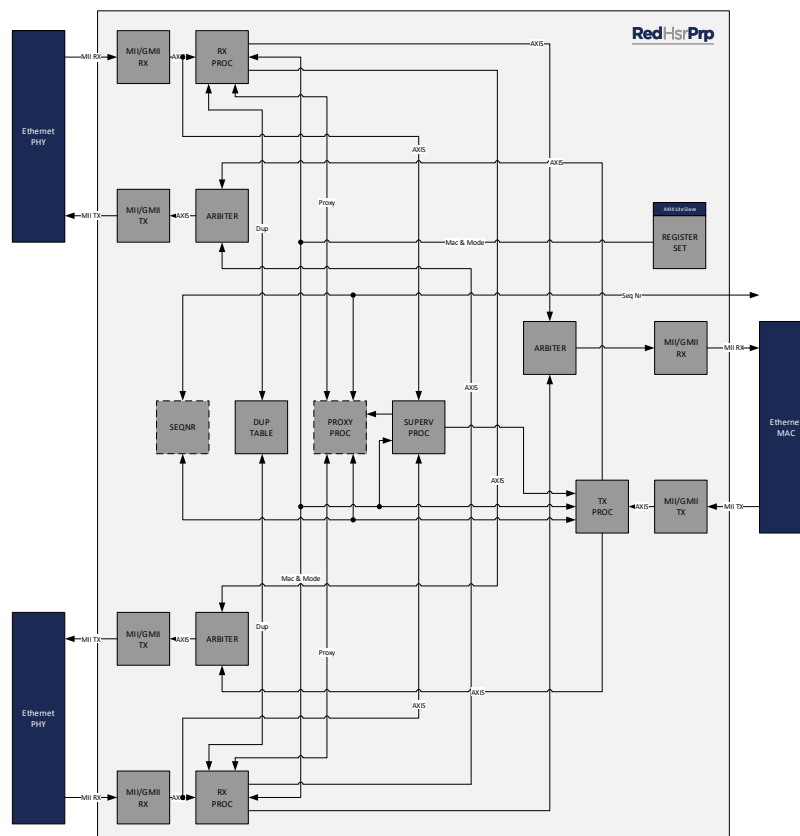
Key Features:

- IEC62439-3 HSR and PRP
- Full line speed frame handling
- 100% hardware only solution
- Supports up to 256 nodes
- Optional RedBox functionality
- VLAN and Tail tagging
- Vendor independent

Typical Applications:

- Ethernet based automation networks
- High availability environments
- Substation automation
- Distributed data acquisition
- Test and measurement
- Etc.

IP Core Architecture:



Specification:

IEC62439-3	Parallel Redundancy Protocol (PRP) and High Availability Seamless Redundancy (HSR) with ModeH and optional ModeX support as Dual Attached Node (DAN) or Redundancy Box (RedBox) supporting up to 256 nodes on the interlink Support for up to 2 ²⁰ entries in the Duplicate Table Supervision frame generation and analysis in HW On-the-fly frame tagging and un-tagging of uplink frames, no retagging if tagged frames are received External sequence number request port Special handling for Supervision and PTP frames VLAN and Tail tagging support, tagging, untagging and filtering Prepared for use in combination with PTP
Performance	Full line speed frame handling, offloading network redundancy 10/100/1000 Mbit/s support, intercepts (R)(G)MII interfaces between MAC and PHY
Portability	100% hardware only solution, no dependency on external CPU Vendor independent, written in plain VHDL Low footprint and low frequency requirements
Modularity	Slim and standardized interfaces are used
Configuration	No CPU required, standalone configuration with signals Axi4 lite slave support, for status and configuration

Deliverables:

- Ip core in plain VHDL
- Testbench in plain VHDL
- Reference Design
 - Top level VHDL file
 - Timing Constraint SDC files
 - Vivado/Quartus Project file

Related Products:

- PTP Transparent Clock
- PTP Ordinary Clock
- PTP Hybrid Clock
- Universal Net Red
- Adjustable Clock
- Signal Timestamper
- Signal Generator



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