VSC8489-15

Single Channel WAN/LAN/Backplane RXAUI/XAUI to SFP+/KR 10 GbE PHY with Optional VeriTime™

Microsemi's single channel PHY provides support for IEEE 802.3ae 10 Gbps Ethernet and optional IEEE 1588v2, as well as hardware-based KR operation for single channel Ethernet-based applications.

The single channel VSC8489-15 complements Microsemi's portfolio of single, dual, and quad channel integrated IEEE 802.1AE MACsec and IEEE 1588v2 Ethernet PHY transceivers.

VeriTime™ is Microsemi's patent-pending timing technology that delivers the industry's most accurate IEEE 1588v2 timing implementation. The IEEE 1588v2 timing integrated in the PHY is the quickest, lowest cost method of implementing the timing accuracy that is crucial for maintaining existing timing-critical capabilities during the migration from circuit-based to packet-based architectures.

The VSC8489-15 device supports time stamping for 1588 PTP ordinary clock, boundary clock, and one-step and two-step transparent clock modes of operation, along with complete Y.1731 OAM performance monitoring capabilities.

The device meets the SFP+, SR, LR, ER, ZR, direct attach copper, and OM3 (300 meters) and OM4 (400 meters) multi mode fiber host requirements, in accordance with the SFF-8431 specifications. It also compensates for optical impairments for above SFP+ applications, along with degradations of the PCB.

VSC8489-15 provides KR support, including Clause 72 link training, Clause 73 backplane autonegotiation, and optional Clause 74 FEC. The transmit path incorporates a multitap output driver to provide flexibility to meet the demanding IEEE 802.3ap 10GBASE-KR Tx output launch requirements.

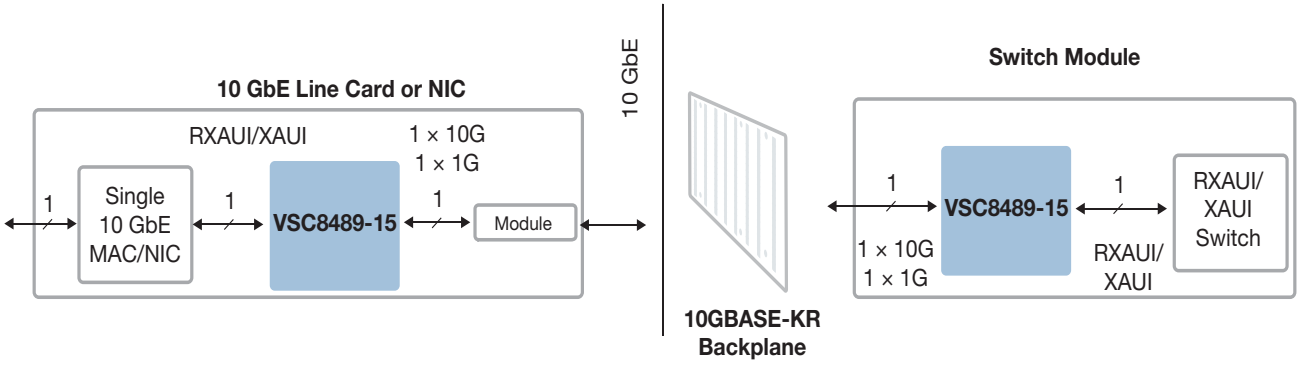
The device uses a single 156.25 MHz reference clock for LAN/WAN operation. Its flexible clocking options enable Layer 1 support for Synchronous Ethernet. A complete suite of BIST functionality includes line and client loopbacks along with pattern generation and error detection.

Highlights

- Single port 10 Gbps PHY-only mode
- IEEE 1588v2 compliant
- Configurable LAN and WAN support
- RXAUI/XAUI host-side connectivity
- SFP+ I/O with KR support
- 1 Gbps Ethernet mode support

Applications

- Single-port RXAUI/XAUI to SFI/SFP+ line cards or NICs
- 10GBASE-KR compliant backplane connections
- Carrier Ethernet and broadband access networks requiring IEEE 1588v2 timing and synchronization
- Data center WAN interconnections
- 10 Gbps Ethernet switch cards and router interface modules



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Single Channel WAN/LAN/Backplane RXAUI/XAUI to SFP+/KR 10 GbE PHY with Optional VeriTime™

Range of Support

- IEEE 1588v2/Y.1731 OAM precision timing support at 1.25 Gbps and 10.3 Gbps
- Compliant to IEEE 802.3ae and SFF-8431 electrical (SFI) specifications
- 9.95 Gbps WAN and 10.3 Gbps LAN operation, as well as 1.25 Gbps Ethernet support
- Supports all standard SFP+ applications
- Support for 10GBASE-KR (IEEE 802.3ap) for 10G backplanes, including 1.25 Gbps and 10.3 Gbps auto-negotiation and link training
- Adaptive equalization receiver and programmable, multitap transmitter pre-emphasis
- Synchronous Ethernet support
- MDIO/SPI and two-wire serial slave management interfaces

Key Specifications

- 1.7 W typical for a single bidirectional channel
- 1.2 V and 1.0 V core power supplies (2.5 V TTL supply)
- 0 °C ambient to 110 °C junction temperature range

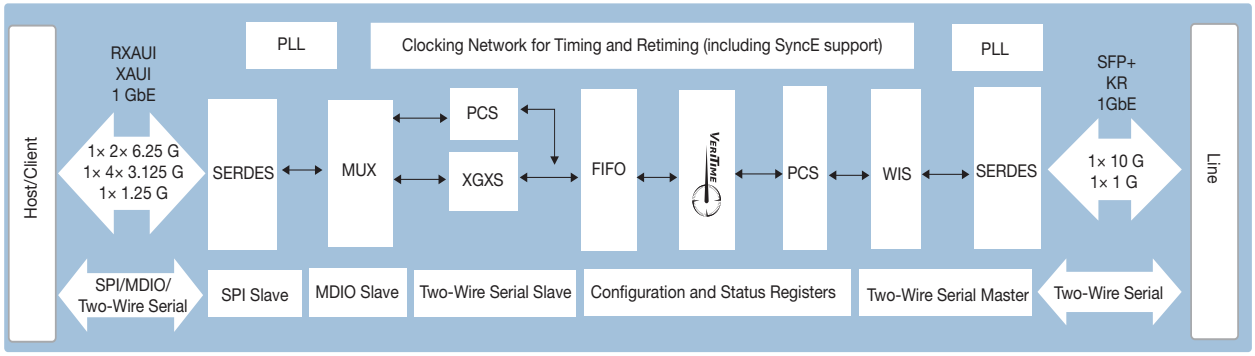
Flexibility

- Optional 2 channel input design on the host side for failover protection
- VScope input signal monitoring integrated circuit
- Host-side and line-side loopbacks with BIST functions
- I/O programmability for lane swap, invert, amplitude, slew, pre-emphasis, and equalization
- Optional forward error correction (FEC)
- Synchronous Ethernet support with flexible clocking
- Passive copper cable support for low-cost DAC connectivity
- Pin-compatible with VSC8489, VSC8490, and VSC8491

Related Products

Visit www.microsemi.com for information about these related products:

- VSC8489
- VSC8490
- VSC8491
- VSC8572
- VSC8574
- VSC8584



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