VSC8258

Quad Channel 1G/10GBASE-KR to SFI Ethernet WIS PHY with VeriTime™ and Intellisec™

VSC8258 is a quad 1G/10G serial-to-serial Ethernet PHY featuring IEEE 1588v2 and 128/256-bit MACsec encryption. It also supports dual-sided 10GBASE-KR functionality including auto-negotiation and training in a small form factor, low-power FCBGA ideal for a wide array of board-level signal integrity designs and system-level IEEE standard compliant (intelligent) Ethernet connectivity.

VeriTime™ is Microsemi's patent-pending timing technology that delivers the industry's most accurate IEEE 1588v2 timing implementation. It is the only IEEE 1588v2 solution to be validated by major OEMs in real-world tests and adopted as the preferred low-cost upgrade for meeting emerging requirements in 4G/LTE-Advanced (LTE-A).

Intellisec™ is Microsemi's patent-pending flow-based extension of the IEEE 802.1AE-based, end-to-end MACsec solution for confidential communications over any MEF CE 2.0 Ethernet or MPLS service provider connections. It is the world's first FIPS 197-certified CGM-AES 256-bit strong MACsec, with legacy support for today's CGM-AES 128-bit field deployments. The VSC8258 device supports full line rate encryption at both 1 GbE and 10 GbE speeds over multiple media types.

Target applications for the VSC8258 device include switching, IP edge router connectivity, rack mount server access through backplane, fiber and copper cable connectivity, and standalone server access (in LAN on motherboard designs or separate network adapters).

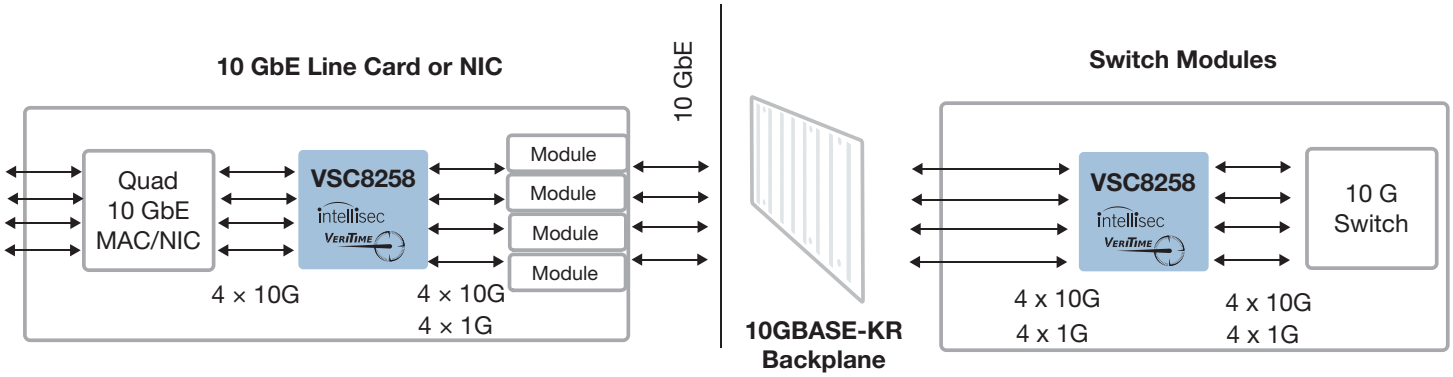
The VSC8258 device delivers excellent jitter attenuation with low power. It is well-suited for SFP+ and QSFP+ based optical modules and direct attach copper cabling as well as challenging backplane interface applications.

Highlights

- Standards supported include IEEE 1588v2/Y.1731 OAM (4 ns), IEEE 802.1AE (128/256-bit MACsec), IEEE 802.3ae, IEEE 802.3ap, SFF-8431, ITU-T G.8261, and ITU-T G.8262
- Support for 10G LAN, 10G WAN, and 1G modes
- Support for SFP+/QSFP+ line modules and 10GBASE-KR backplanes between 1.25 Gbps and 10.3125 Gbps (including auto-negotiation and training)

Applications

- Multi-port serial-to-serial signal conditioning
- 10GBASE-KR-compliant backplane transceivers
- Networks requiring high-accuracy time synchronization
- Encryption, authentication, and data integrity across WAN data center interconnections
- Multi-port XFI/KR to SFI/SFP+ 10 GbE switch cards, router cards, and network adapters



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Built-in Self-Test and SyncE

The VSC8258 device provides a complete suite of on-chip instrumentation including built-in self-test (BIST) functions, line-side and client-side circuit loopbacks, pattern generation, and error detection. Its highly flexible clocking options support LAN and WAN operation using a single 156.25 MHz reference clock rate. Support for Synchronous Ethernet (SyncE) is also included.

Range of Support

- IEEE 1588v2/Y.1731 OAM precision timing support at 1.25 Gbps and 10.3 Gbps
- Compliant with IEEE 802.1AE specifications for 128/256-bit MACsec support
- Compliant with IEEE 802.3-2012 and SFF-8431 electrical (SFI) specifications
- 9.95 Gbps WAN and 10.3 Gbps LAN operation, as well as 1.25 Gbps Ethernet support
- Standard SFP+ and QSFP+ applications
- 10GBASE-KR (IEEE 802.3-2012) for 10G backplanes, including 1.25 Gbps and 10.3 Gbps auto-negotiation
- Adaptive equalization receiver and programmable multi-tap transmitter pre-emphasis
- SPI, MDIO, and two-wire serial slave management interfaces

Key Specifications

- 1.4 W, typical, for each bidirectional channel
- 1.2 V and 0.97 V core power supplies (2.5 V TTL supply)

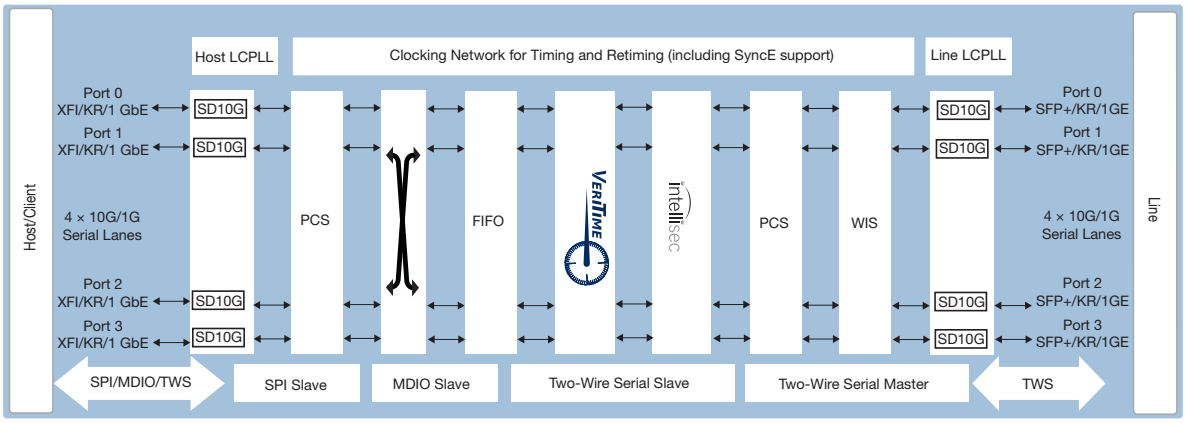
Flexibility and Tools

- 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)
- Flexible clocking options that enable Layer 1 support for Synchronous Ethernet
- Passive copper cable support for lowest connectivity cost

Related Products

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

- VSC8256 and VSC8257
- VSC8489, VSC8490, and VSC8491
- VSC8582 and VSC8584
- VSC7442, VSC7444, and VSC7448
- VSC7460, VSC7462, and VSC7468



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