

VSC8582

Dual-Port 10/100/1000BASE-T, 100/1000BASE-X PHY with Synchronous Ethernet, VeriTime™, Intellisec™, and QSGMII/SGMII MAC

The PHY enables network-wide Layer 2 MACsec encryption and preserves nanosecond-level IEEE 1588v2 network timing accuracy with a simple PHY upgrade.

The dual port VSC8582 GbE PHY with Intellisec and VeriTime is ideal for securing cloud network applications including e-commerce, databases, collaboration, smart grid, video, and enterprise or government communications.

Intellisec enables a realistic and affordable Layer 2 MACsec security solution. Intellisec is a patent-pending technology enabling IEEE 802.1AE MACsec encryption end-to-end over any network, including multi-operator and cloud-based networks, independent of the network's awareness of security protocols. Intellisec is not limited to traditional MACsec link-based box-to-box applications. Likewise, IntelliSec scales easily with the number of interfaces delivering significant cost savings in network deployment.

VeriTime™ is Microsemi's patent-pending timing technology that delivers the industry's most accurate IEEE 1588v2 timing implementation. Integration of MACsec with IEEE 1588v2 time stamping in the PHY is an efficient and low cost method to protect data passing through the network while maintaining highly accurate time of day (ToD). For these applications, the device supports daisy-chaining of SPI interfaces for IEEE 1588v2 time stamping to reduce the number of pins required on a target ASIC, SoC or FPGA.

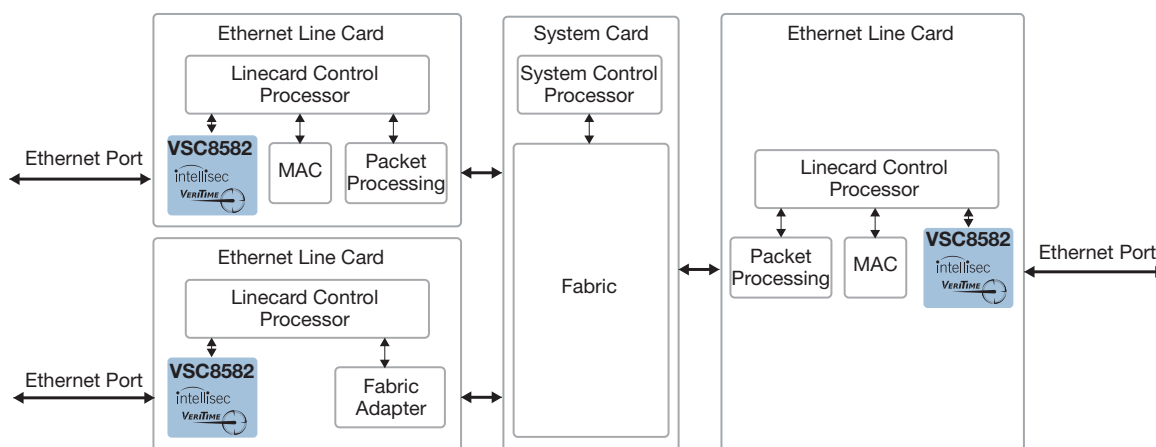
VSC8582 supports Y.1731 OAM and MPLS-TP OAM for accurate delay measurement and performance monitoring. In addition, the VSC8582 includes dual recovered clock outputs for timing references in Synchronous Ethernet solutions. Using Microsemi's Ring Resiliency™ technology, the PHY switches between master and slave timing without interrupting the 1000BASE-T link.

Highlights

- Part of the world's first and only NIST FIPS197 128/256-bit MACsec-support family of GbE PHYs
- 802.1AE-2006, 802.1AEbn-2011, and 802.1AEbw-2013 compliant
- Exclusive patented "Tag-in-the-Clear" and "Flow-Based" technologies enable MACsec to work in any IPv4 or IPv6-based network capable of supporting VLANs and/or MPLS
- One-step and two-step VeriTime™ timestamping over encapsulated links including MPLS and PBB
- MPLS and Ethernet Y.1731 OAM
- EcoEthernet™ 2.0 green technology
- Supports clause 45 MDIO register access
- Enhanced SPI interface supports high port count IEEE 1588 applications

Applications

- Wireless backhaul systems
- Carrier Ethernet cellular base systems
- Industrial automation systems
- Secure data center to data center interconnects



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Best-in-Class Power Consumption

- Voltage-mode dual port GbE PHY
- EcoEthernet 2.0 green energy efficiency modes with ActiPHY automatic link power down, PerfectReach™ intelligent cable algorithm, and IEEE 802.3az (including support for legacy MACs not supporting IEEE 802.3az)
- Fully optimized power consumption for all link speeds

Superior PHY and Interface Technology

- Two integrated 10/100/1000BASE-T Ethernet copper transceivers (IEEE 802.3ab compliant) with VeriPHY™ cable diagnostics
- Two dual media copper/fiber ports with unidirectional IEEE 802.3ah support
- SGMII and QSGMII SerDes MAC interface
- Patented line driver with low EMI voltage mode and integrated line side termination resistors
- HP Auto-MDIX support
- Integrated AC-coupling capacitors for SGMII interface
- Jumbo frame support up to 16 kB with programmable synchronization FIFOs

Advanced Carrier Ethernet Support

- Recovered clock outputs with programmable clock squelch control and fast link failure indication (typical < 1 ms) for G.8261 SyncE applications

- IEEE 1588v2 timestamp packet correction support
- Flexible transmit and receive frequency timing per PHY port
- 1000BASE-T ring resiliency for switching between master/slave timing while maintaining linkup integrity
- Integrated dual I2C Mux to control SFP and PoE modules
- IEEE 802.3bf timing and synchronization support
- IEEE 802.1ae MACsec with 256/128-bit encryption support

Key Specifications

- 1.0 V core and 2.5 V I/O power supplies
- 3.3 V-tolerant 2.5 V inputs
- QSGMII v1.3, SGMII v1.9 and IEEE 1149.1 JTAG boundary scan support
- Compliant with IEEE 802.3 (10/1000 BASE-T, 10BASE-Te, 100BASE-TX, 100BASE-FX, and 1000BASE-X)
- Various SKUs available supporting an operating temperature range from 0 °C ambient to 125 °C junction OR -40 °C ambient to 125 °C junction

Related Products

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

- 1 GbE PHYs
- 10 GbE PHYs

