VSC8574

Quad Port Dual Media QSGMII/SGMII GbE PHY with IEEE 1588

Microsemi's new GbE PHY simplifies Synchronous Ethernet and IEEE 1588 timing in Carrier Ethernet designs.

VSC8574 is the next-generation Carrier Ethernet Gigabit PHY transceiver designed to simplify the support of fully traceable timing across Gigabit Ethernet backhaul devices, cellular base stations, and other timing-critical platforms. VSC8574 supports four dual media copper/fiber ports with SGMII and QSGMII MAC interfaces. Recovered clock outputs and an integrated IEEE 1588 timing packet engine enable the VSC8574 device to meet the demands of applications requiring highly precise timing, without adding unnecessary complexity or increased cost to the design.

To meet Carrier demands for redundancy, the VSC8574 device has dual recovered clock outputs for primary and secondary timing references for Synchronous Ethernet solutions. Programmable clock squelch control is included for inhibiting undesirable clocks from propagating and preventing timing loops.

In addition to identifying PTP Y.1731 in Ethernet and IPv4/6 over Ethernet per IEEE 1588, VSC8574 supports various encapsulation links including IP over MPLS, Ethernet pseudowire over MPLS/MPLS-TP, QinQ, and MAC-in-MAC.

VSC8574 supports ring resiliency, a feature that enables PHY ports to switch between master and slave timing without interrupting the 1000BASE-T link. VSC8574 has integrated temperature monitoring and is ideal for high-temperature applications.

Microsemi's innovative EcoEthernet 2.0 technology supports Energy Efficient Ethernet (EEE) through ActiPHY™ automatic link powerdown and the PerfectReach™ intelligent algorithm that adjusts power based on cable length.

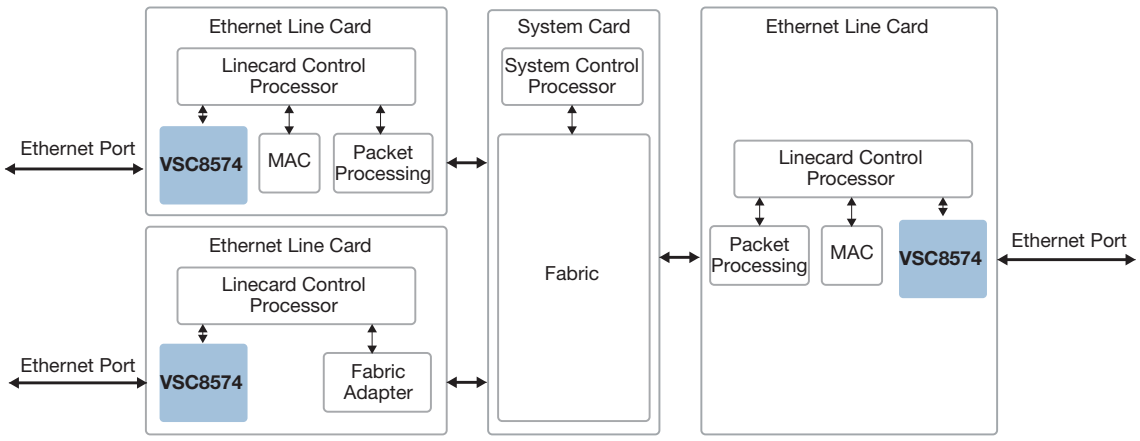
VSC8574 further supports reduced power consumption in all link operating speeds.

Highlights

- Single and two-step IEEE 1588v2 time stamping over encapsulated links including MPLS and PBB
- MPLS and Ethernet Y.1731 OAM support
- EcoEthernet™ 2.0 green technology for energy efficiency

Applications

- Wireless backhaul systems
- Carrier Ethernet cellular base stations
- Industrial automation systems



Microsemi makes no warranty, representation, or guarantee regarding the information contained herein or the suitability of its products and services for any particular purpose, nor does Microsemi assume any liability whatsoever arising out of the application or use of any product or circuit. The products sold hereunder and any other products sold by Microsemi have been subject to limited testing and should not be used in conjunction with mission-critical equipment or applications. Any performance specifications are believed to be reliable but are not verified, and Buyer must conduct and complete all performance and other testing of the products, alone and together with, or installed in, any end-products. Buyer shall not rely on any data and performance specifications or parameters provided by Microsemi. It is the Buyer's responsibility to independently determine suitability of any products and to test and verify the same. The information provided by Microsemi hereunder is provided "as is, where is" and with all faults, and the entire risk associated with such information is entirely with the Buyer. Microsemi does not grant, explicitly or implicitly, to any party any patent rights, licenses, or any other IP rights, whether with regard to such information itself or anything described by such information. Information provided in this document is proprietary to Microsemi, and Microsemi reserves the right to make any changes to the information in this document or to any products and services at any time without notice.

VSC8574

Quad Port Dual Media QSGMII/SGMII GbE PHY with IEEE 1588

Best-in-Class Power Consumption

- Lowest power quad port GbE PHY in the industry
- EcoEthernet 2.0 green energy efficiency modes including ActiPHY, PerfectReach, and IEEE 802.3az
- Integrated temperature monitoring and LED brightness control
- Fully optimized power consumption for all link speeds

Superior PHY and Interface Technology

- Four integrated 10/100/1000BASE-T Ethernet copper transceivers (IEEE 802.3ab compliant) with VeriPHY™ cable diagnostics
- Four 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 (<1 ms) for G.8261 SyncE applications
- Supports IEEE 1588v2 timestamp packet correction
- Flexible transmit and receive frequency timing per PHY port
- 1000BASE-T ring resiliency for switching between master/slave timing while maintaining link up integrity
- Integrated quad I2C mux to control SFP and PoE modules
- Supports IEEE 802.3bf timing and synchronization

Key Specifications

- 1.0 V core and 2.5 V I/O power supplies
- 3.3 V-tolerant 2.5 V inputs
- 17 mm × 17 mm ball grid array package
- Supports QSGMII v1.3, SGMII v1.9, IEEE 1149.1 JTAG boundary scan, and IEEE 1149.6 AC-JTAG
- Compliant with IEEE 802.3 (10/1000 BASE-T, 100BASE-TX, 100BASE-FX, and 1000BASE-X)

Related Products

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

- 1 GbE Carrier Ethernet switches, PHYs, and MACs
- 10/40/100G PHY solutions
- Electronic dispersion compensation CDRs and backplane signal conditioners

Microsemi Corporate Headquarters
One Enterprise, Aliso Viejo, CA 92656 USA
Within the USA: +1 (800) 713-4113
Outside the USA: +1 (949) 380-6100
Sales: +1 (949) 380-6136
Fax: +1 (949) 215-4996
email: sales.support@microsemi.com
www.microsemi.com

Microsemi Corporation (Nasdaq: MSCC) offers a comprehensive portfolio of semiconductor and system solutions for communications, defense and security, aerospace, and industrial markets. Products include high-performance and radiation-hardened analog mixed-signal integrated circuits, FPGAs, SoCs, and ASICs; power management products; timing and synchronization devices and precise time solutions; voice processing devices; RF solutions; discrete components; enterprise storage and communications solutions, security technologies, and scalable anti-tamper products; Ethernet solutions; Power-over-Ethernet ICs and midspans; custom design capabilities and services. Microsemi is headquartered in Aliso Viejo, California, and has approximately 4,800 employees worldwide. Learn more at www.microsemi.com.

©2011–2016 Microsemi Corporation. All rights reserved. Microsemi and the Microsemi logo are registered trademarks of Microsemi Corporation. All other trademarks and service marks are the property of their respective owners.

VPPD-02790. 1.0 . 4/16