

# 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.

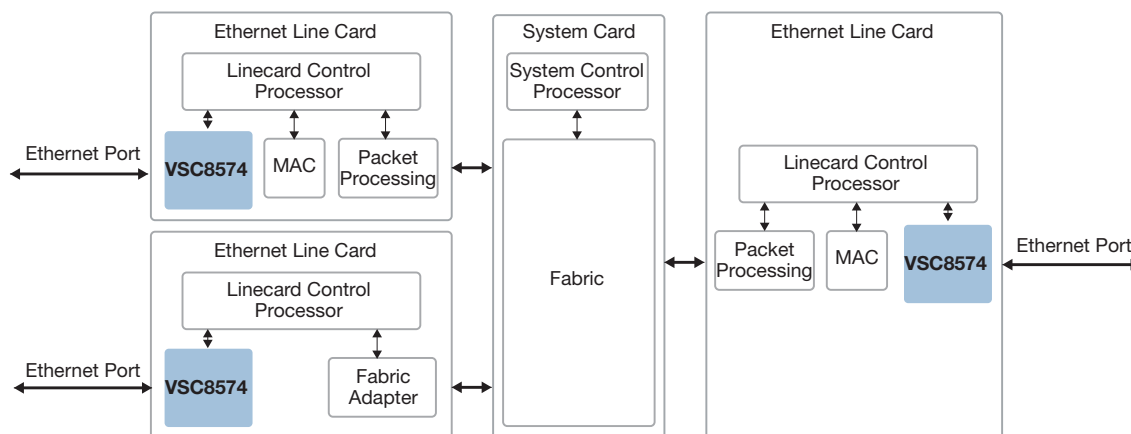
VSC8574 further supports reduced power consumption in all link operating speeds.

### 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



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### 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](http://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



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