

# VSC8514

## Quad Port Gigabit Copper EEE PHY with Synchronous Ethernet and QSGMII MAC-to-PHY Interface

Smallest package footprint quad PHY.

The VSC8514 device is a quad port Gigabit Ethernet PHY featuring Synchronous Ethernet and Microsemi's innovative EcoEthernet™ 2.0 power-saving technologies such as IEEE 802.3az Energy Efficient Ethernet (EEE), ActiPHY™ automatic link power down, and PerfectReach™, an intelligent algorithm that adjusts power based on cable length.

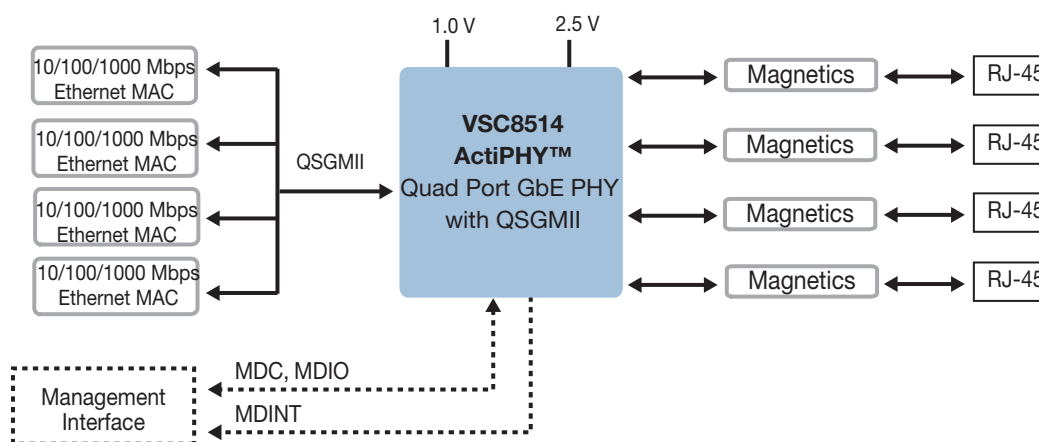
The VSC8514 device optimizes power consumption in all link operating speeds. Adjustable LED brightness control further reduces power consumption for end users.

### Highlights

- EcoEthernet™ 2.0 with IEEE 802.3az Energy Efficient Ethernet (EEE)
- Recovered clock outputs for Synchronous Ethernet
- QSGMII MAC interface

### Applications

- Data centers
- Enterprise gateways, switches, and routers
- Home gateways and wireless routers
- Internet of Things (IoT)
- PON MDUs
- Wireless backhaul



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## Quad Port Gigabit Copper EEE PHY with SyncE and QSGMII MAC-to-PHY Interface

### EcoEthernet v2.0 Energy Efficiency

- ActiPHY
- PerfectReach
- IEEE 802.3az Energy Efficient Ethernet
- Integrated LED brightness control
- Fully optimized power consumption for all link speeds
- 10BASE-Te support according to IEEE 802.3az

### Superior PHY and Interface Technology

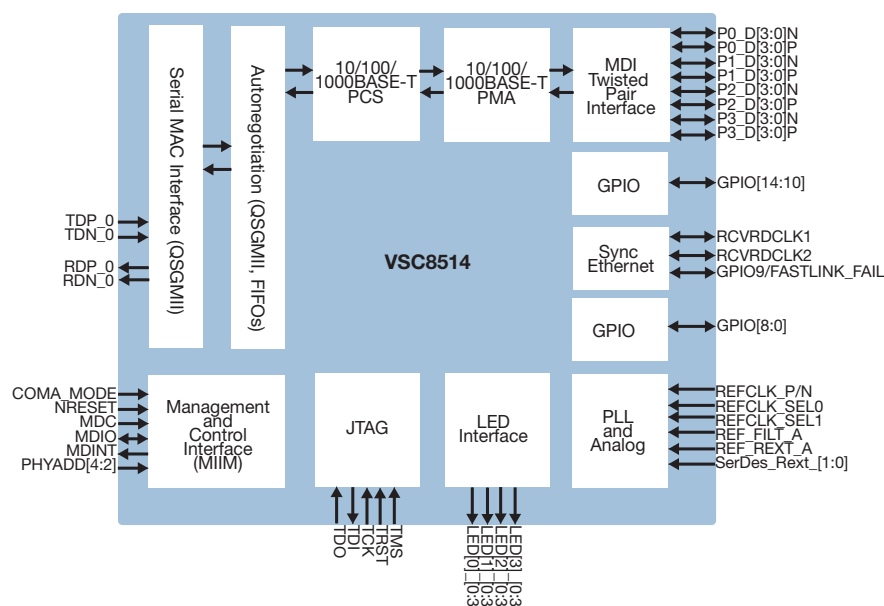
- Four integrated 10/100/1000BASE-T Ethernet copper transceivers (IEEE 802.3ab-compliant) with VeriPHY™ cable diagnostics
- QSGMII SerDes MAC interface
- Patented line driver with low EMI voltage mode and integrated line side termination resistors
- HP Auto-MDIX support and forced MDI/MDIX option
- Jumbo frame support up to 16 kB with programmable synchronization FIFOs
- IEEE 802.3bf register support provides standardized access to information about data delay between the MDI and xMII interface for a given PHY

### Synchronous Ethernet

- Recovered clock outputs with programmable clock squelch control and fast link failure indication (<1 ms) for ITU-T G.8261 SyncE applications
- Ring resiliency feature enables re-configuration of 1000BASE-T master/slave timing for switching between master/slave timing while maintaining linkup integrity

### Key Specifications

- 1.0 V and 2.5 V power supplies
- 3.3 V-tolerant 2.5 V inputs (single-ended and bi-directional TTL/CMOS I/Os)
- QSGMII v1.3 and IEEE 1149.1 JTAG boundary scan
- IEEE 802.3 10BASE-T/Te, 100BASE-TX, and 1000BASE-T compliance
- 12 mm x 12 mm, 138-pin multi-row QFN package
- VSC8514 operation temperature: 0 °C to 125 °C
- VSC8514-03 operating temperature: -40 °C to 125 °C



**Microsemi**

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