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VSC8502

Dual Port GbE Copper PHY with Synchronous Ethernet and RGMII/GMII Interface

Low-power PHY supports IEEE 802.3az Energy Efficient Ethernet.

The VSC8502 device is designed for space-constrained 10/100/1000BASE-T applications. It features integrated line-side termination to conserve board space, to lower EMI, and to improve system performance. To further reduce system complexity, component count, and system cost, the VSC8502 device can operate from a single 3.3 V supply using integrated voltage regulators that provide the necessary 1.0 V and 2.5 V rails for operation. Additionally, integrated RGMII timing compensation eliminates the need for on-board delay lines.

The VSC8502 device includes Microsemi's EcoEthernet™ 2.0 technology that supports Energy Efficient Ethernet and power saving features to reduce power based on link state and cable reach. The device optimizes power consumption in all link operating speeds and features Wake-on-LAN (WOL) power management using magic packets.

The VSC8502 device also includes fast link failure indication for high-availability networks. Fast link failure indication identifies the onset of a link failure in less than 1 ms typical to go beyond the IEEE 802.3 standard requirement of 750 ms ±10 ms (link master).

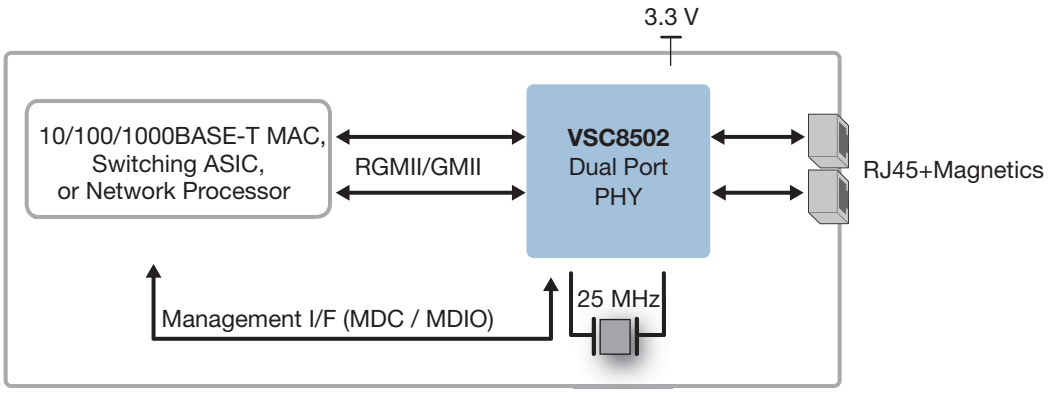
Synchronous Ethernet and Ring Resiliency™ are supported. The device has two recovered clock outputs for Synchronous Ethernet applications. Programmable clock squelch control is included to inhibit undesirable clocks from propagating and to help prevent timing loops. Ring Resiliency allows a PHY port to switch between master and slave timing references with no link drop in 1000BASE-T mode.

Highlights

- EcoEthernet™ 2.0, the gold standard for Energy Efficient Ethernet (EEE)
- Wake-on-LAN (WOL)
- Fast link failure indication
- Synchronous Ethernet support
- Dual recovered clocks for timing reference
- Ring Resiliency™
- Integrated voltage regulator
- Pin compatible with VSC8501

Applications

- IoT applications such as digital signage, eHealth, and industrial grade switches
- Consumer electronics such as CPE, UHDTV, media servers, and NAS
- Wireless backhaul
- Small cells, femtocells



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VSC8502

Dual Port GbE Copper PHY with Synchronous Ethernet and RGMII/GMII Interface

Superior PHY and Interface Technology

- Two integrated 10/100/1000BASE-T Ethernet copper transceivers (IEEE 802.3ab compliant) with VeriPHY™ cable diagnostics software
- Patented line driver with low EMI voltage mode and integrated line-side termination resistors
- Wake-on-LAN using magic packets
- HP Auto-MDIX and manual MDI/MDIX support
- RGMII/GMII MAC interface
- Jumbo frame support up to 16 kilobytes with programmable synchronization FIFOs

Synchronous Ethernet Support

- Recovered clock outputs with programmable clock squelch control and fast link failure indication (<1 ms typical) for ITU-T G.8261/Y.1361 compliant Synchronous Ethernet (SyncE) applications
- 1000BASE-T Ring Resiliency to switch between master and slave timing without dropping link
- Clock output squelch to inhibit clocks during auto-negotiation and no link status

Best-in-Class Power Consumption

- EcoEthernet™ 2.0 green energy efficiency with ActiPHY™, PerfectReach™, and IEEE 802.3az Energy Efficient Ethernet
- Fully optimized power consumption for all link speeds
- Clause 45 registers to support IEEE 802.3az Energy Efficient Ethernet and IEEE 802.3bf

Key Specifications

- Compliant with IEEE 802.3 (10BASE-T, 100BASE-TX, and 1000BASE-T)
- Supports GMII
- Supports RGMII version 1.3, and 2.5 V and 3.3 V CMOS for RGMII version 2.0
- Devices support operating temperatures of –40 °C ambient to 125 °C junction or 0 °C ambient to 125 °C junction
- Optionally reports if a link partner is requesting inline Power over Ethernet (PoE and PoE+)
- Available in 12 mm x 12 mm, 135-pin multi-row QFN package

Related Products

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

- VSC8501
- VSC8514

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