VSC8664

Quad Port 10/100/1000BASE-T PHY and 100BASE-FX/1000BASE-X SerDes with Recovered Clock Outputs

The industry's first PHY with dual recovered clock outputs delivers carrier-quality Synchronous Ethernet.

Helping OEMs to capitalize on the cost reduction and optimization of Synchronous Ethernet, the VSC8664 addresses the challenges in providing fully traceable timing across TDM backhaul links, cellular base stations, and other Synchronous Ethernet applications. With dual recovered clock outputs, the VSC8664 meets and goes beyond the requirements of the ITU-T Recommendation G.8261/Y.1361.

Supporting four copper/fiber ports and SGMII MAC interfaces, the VSC8664 includes a highly integrated feature set to ensure low-cost, rapid deployment.

Meeting the carrier demands for redundancy, the VSC8664 features dual recovered clocks to enable a primary and secondary timing reference. Programmable clock squelch control is included to inhibit undesirable clocks from propagating and to help prevent timing loops.

VSC8664 is the first GbE PHY to provide clock recovery in combination with an SGMII interface, making layouts simpler than RGMII/GMII solutions. Also featured is a fast link failure indication that can indicate the onset of a link failure in less than 1 ms, a critical feature for support of synchronization timing.

VSC8664 helps to lower the component count without sacrificing capabilities or utility, resulting in more cost-effective production and deployment. Its patented, low electromagnetic interference line driver and integrated line side termination resistors conserve both power and printed circuit board space. With an integrated I2C multiplexer to control SFPs or power-over-Ethernet modules, VSC8664 also eliminates the need for an external two-wire serial device.

Microsemi's mixed signal and digital signal processing (DSP) architecture yield robust performance, supporting both full and half duplex 10BASE-T, 100BASE-TX, and 1000BASE-T over >140 meters of CAT-5, unshielded twisted pair cable, with industry leading tolerance to NEXT, FEXT, Echo, and system noise. With dual, high-performance 1.25 Gbps SerDes, VSC8664 maximizes receive jitter tolerance and minimizes transmit jitter in comparison to single SerDes architectures.

Applications

- Copper and fiber-based synchronous Ethernet systems
- SGMII-to-SFP designs
- Multiport, SGMII-based Gigabit Ethernet (GbE) designs

Low Power

- Low power consumption with three power savings modes
- ActiPHY™ power management system with built-in intelligence and saving modes
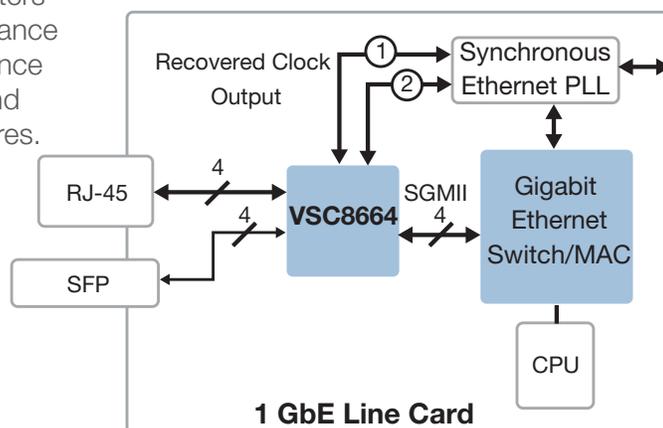
1 GbE Line Card

Wide Range of Support

- Compliant with IEEE 802.3 (10BASE-T, 100BASE-TX, 1000BASE-T, 100BASE-FX, and 1000BASE-X) specifications
- Support for 802.3ah unidirectional transport for 100BASE-FX and 1000BASE-X fiber media
- Support for >16 kB jumbo frames in all speeds with programmable synchronization FIFOs
- Supports Cisco SGMII v1.7 and 1000BASE-X MACs, IEEE 1149.1 JTAG boundary scan, and IEEE 1149.6 AC-JTAG

Synchronous Ethernet

- Recovered clock output support for G.8261 and IEEE-1588 synchronous Ethernet applications, including programmable squelch control
- Patent-pending, fast link fail indication (<1 ms) to provide an earlier indication of a link failure to critical metro ethernet traffic and synchronization links

Flexibility

- Integrated quad I2C multiplexer to control SFPs or PoE modules, eliminating the need for an external two-wire serial device for the control and status of SFP or PoE modules

- VeriPHY® cable diagnostics suite provides extensive network cable information such as cable length, termination status, and open/short fault location
- Extensive test features (including near end, far end, and connector loopback, and Ethernet packet generator with CRC error counter) to decrease time-to-market

Advanced SerDes

- Dual, high-performance 1.25 Gbps SerDes to maximize receive jitter tolerance and minimize transmit jitter (in comparison to single SerDes architectures)
- Supports 100BASE-FX fiber, 1000BASE-X fiber, and triple-speed copper SFPs over SerDes pins
- Advanced SerDes feature capabilities including transmitter amplitude control, receiver equalization, and link integrity status information

Related Products

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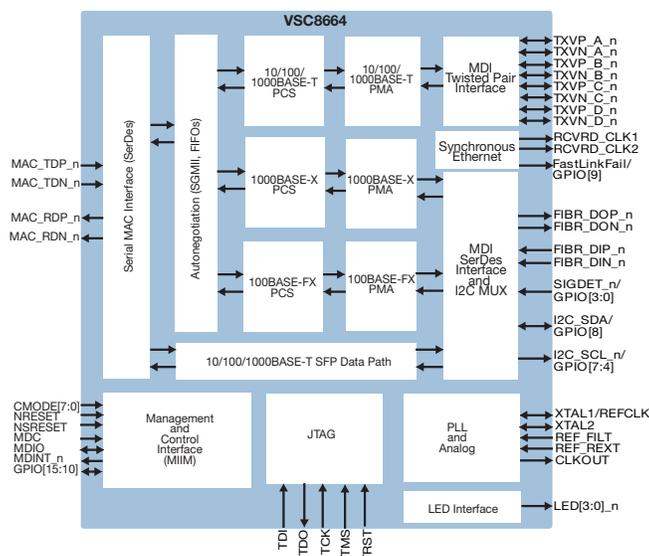
Microsemi Corporate Headquarters
One Enterprise, Aliso Viejo, CA 92656 USA
Within the USA: +1 (800) 713-4113
Outside the USA: +1 (949) 380-6100
Sales: +1 (949) 380-6136
Fax: +1 (949) 215-4996
email: sales.support@microsemi.com
www.microsemi.com