VSC8601 (10/100/1000BASE-T PHY with RGMII MAC Interface)
VSC8641 (10/100/1000BASE-T PHY with RGMII and GMII MAC Interface)

Lowest Power

- Industry's lowest power consumption 10/100/1000BASE-T PHY at 600 mW
- Powered by a single 3.3 V supply by using the optional on-chip switching regulator; eliminates the need for 1.2 V supply
- Advanced power management complies with Wake-on-LAN™ and PCI2.2 power requirements

Wide Range of Support

- Supports RGMII versions 1.3 and 2.0 (2.5 V, 3.3 V) MAC interface
- Supports GMII/MII (2.5 V, 3.3 V) MAC interface (VSC8641)
- Compliant with IEEE 802.3 (10BASE-T, 100BASE-TX, 1000BASE-T) specifications
- IEEE 1149.1 JTAG boundary scan support for improved reliability
- Greater than 10 kB jumbo frame support in all speeds to support custom SAN and LAN systems
- Legacy Power-over-Ethernet support, including intelligence for detection and activation

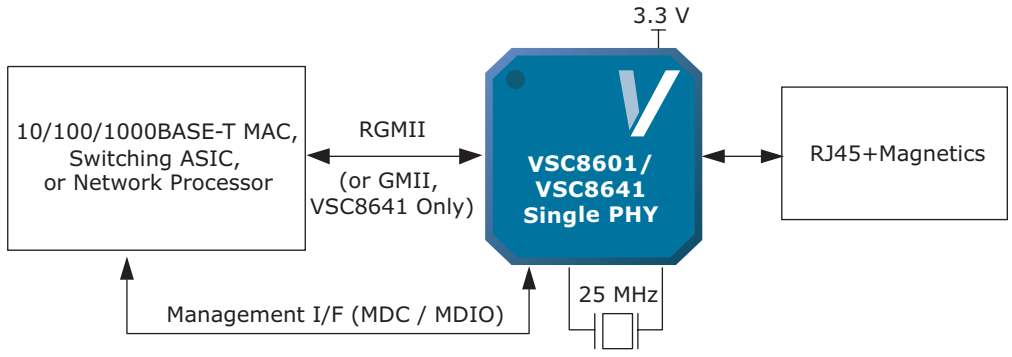
Flexibility

- Low EMI line driver with integrated line side termination resistors for a better performing design
- VeriPHY® cable diagnostics suite provides extensive network cable information such as cable length, termination status, and open/short fault location
- ActiPHY™ power management system with built-in intelligence and saving modes
- Suite of test modes, including loopback paths, Ethernet packet generators, and CRC counters to simplify design
- Programmable direct drive LEDs (three in VSC8601 and four in VSC8641), which eliminate external components and reduce EMI

Applications

- LAN-on-Motherboards, mobile PCs, and single-port RGMII applications
- Broadband CPE and wireless routers
- Gigabit Ethernet SAN, NAS, and MAN systems
- iSCSI and TOE applications
- Network-enabled devices such as printers, IP phones, and gaming appliances
- ATCA™ 3.0 and PICMG™ 2.16 Ethernet backplane applications
- GE-PON physical media dependent device (VSC8641)

Application Diagram

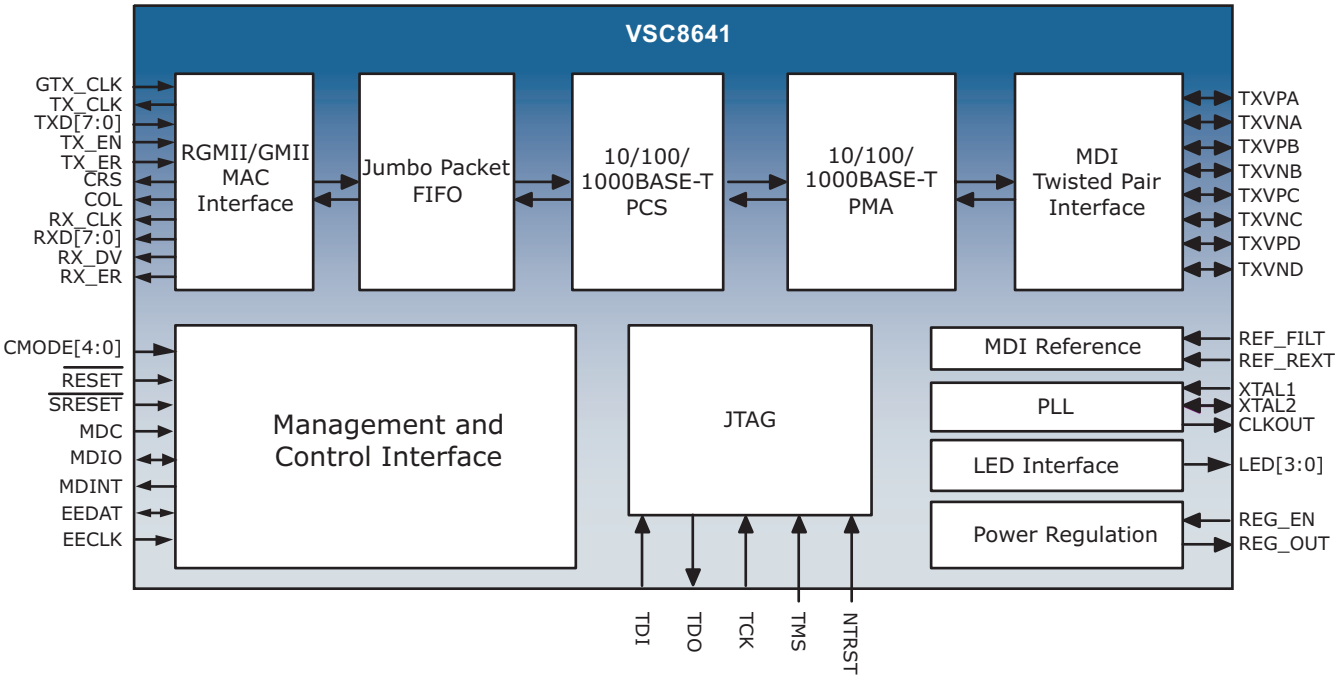


General Description

Designed for high-performance, low-power, and low-cost Gigabit Ethernet, the VSC8601 and VSC8641 are the industry's lowest-power and most highly integrated Gigabit Ethernet (GbE) PHYs. The VSC8601 is optimized for Gigabit LAN on Motherboard (GLOM) and Gigabit Ethernet switch applications, while the VSC8641 is optimized for Gigabit Ethernet Passive Optical Network (GE-PON) applications.

The devices feature integrated, line side termination to simplify PCB design, maximize board space, and create a cleaner, higher-performance product. To further reduce complexity, component count, and system cost, they include an internal 1.2 V power regulator that operates on a single 3.3 V supply. Additionally, integrated RGMII timing compensation eliminates the need for on-board delay lines.

Vitesse's mixed signal and digital signal processing (DSP) architecture assures robust performance. It supports both half-duplex and full-duplex 10BASE-T, 100BASE-TX, and 1000BASE-T communication speeds over Category 5 (Cat5) unshielded twisted pair (UTP) cable at distances greater than 140 m, displaying excellent tolerance to NEXT, FEXT, echo, and other types of ambient environment and system electronic noise.



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