26-Port Layer 2 Gigabit Ethernet Switch with 12 Fully Integrated Copper PHYs and Embedded 32-bit CPU

Vitesse's next-generation switch family delivers a comprehensive, end-to-end Carrier Ethernet solution

Highlights

- Integrated Cu PHYs
- IEEE 1588 and Synchronous Ethernet network timing
- Supports IEEE 802.3az and green energy efficiency modes with ActiPHY™ and PerfectReach™

Applications

- Carrier Ethernet switches
- Mobile backhaul
- Ethernet Access Devices (EAD): CPE, NTE, and MTU

VSC7429 is the industry's first fully integrated 26-port Ethernet switch with 12 Gigabit Ethernet copper PHYs in a single package. In conjunction with the VSC8512 12-port PHY, 24/26-port switches can be designed using only two ICs. VSC7429 is intended for Telecom and Carrier Ethernet applications, supporting MEF service delivery and timing over packet solutions for IEEE 1588 and Synchronous Ethernet.

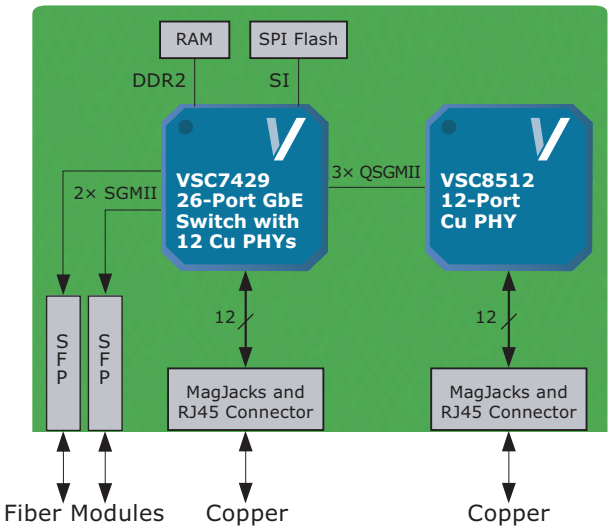
The device supports combinations of up to 26 SGMII ports consisting of 12 GbE Cu PHYs, 12 SGMII interfaces, two of which support 1G/2.5G, and up to three QSGMII ports. One of the SGMII ports can be dedicated to the CPU for packet insertion and extraction.

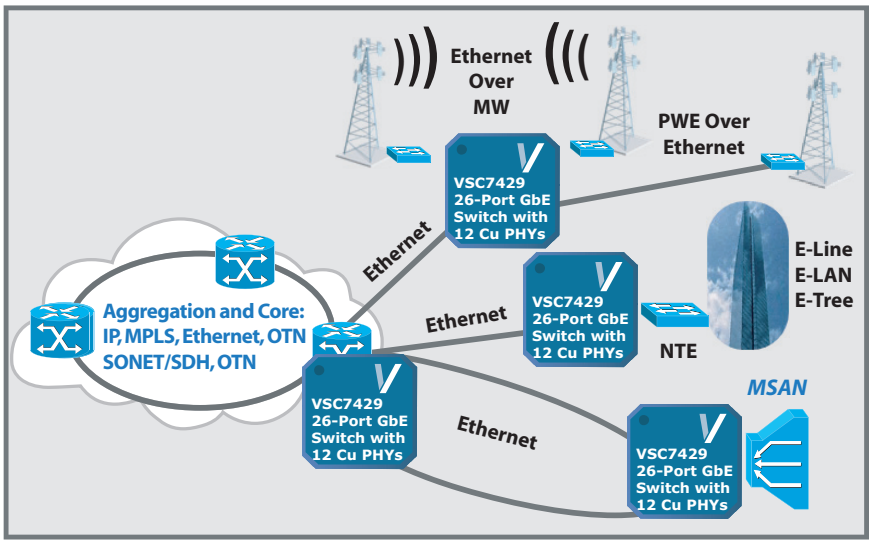
VSC7429 meets the IEEE 802.3az requirements for green energy efficient Ethernet through Vitesse's ActiPHY™ and PerfectReach™ energy efficient modes.

A powerful embedded 416 MHz MIPS processor 32-bit CPU with DDR2 external memory and DMA-based frame extraction and insertion supports timing over packet, Ethernet OAM, and performance monitoring.

VSC7429 is an excellent choice for Mobile backhaul and Microwave backhaul applications, and for service provider demarcation points in Edge and Access devices.

A comprehensive application programming interface (API) and software package are provided for Carrier Ethernet applications. The software package integrates easily with third-party software, preserving existing software investments while adding new, enhanced carrier functionality.





I/O Configurations

- 12× 1G Cu PHY, 3× QSGMII, 1× SGMII, 1× 1G/2.5G SGMII
- 12× 1G Cu PHY, 10× SGMII, 2× 1G/2.5G SGMII
- 10× 1G Cu PHY, 8× SGMII, 2× 1G.2.5G SGMII

Architecture

- Shared memory buffer with per-port and CoS memory management
- 4 Mb packet memory
- Hierarchical MEF compliant policing and scheduling
- 8 priorities and 8 CoS queues per port with strict or deficit-weighted round robin scheduling
- Shaping/policing per queue and per port
- Advanced security and prioritization available through a multistage TCAM engine
- 12× integrated 10/100/1000BASE-T Ethernet copper transceivers (IEEE 802.3ab compliant) with ActiPHY and PerfectReach power management and VeriPHY™ cable diagnostics
- Integrated 416 MHz MIPS CPU with DDR2 and serial flash interface

Layer 2 Switching

- 802.1Q VLAN switch with 8K MACs and 4K VLANs
- Push/pop up to two VLAN tags
- IPv4/IPv6 multicast
- Policing with storm control and MC/BC protection
- RSTP and MSTP support
- Hardware and software-based learning
- Link aggregation (IEEE 802.3ad)
- Independent and shared VLAN learning (IVL, SVL)
- Jumbo frame support

Key Specifications

- 27 mm × 27 mm thermally enhanced BGA package
- Operating temperature –40 °C to 125 °C

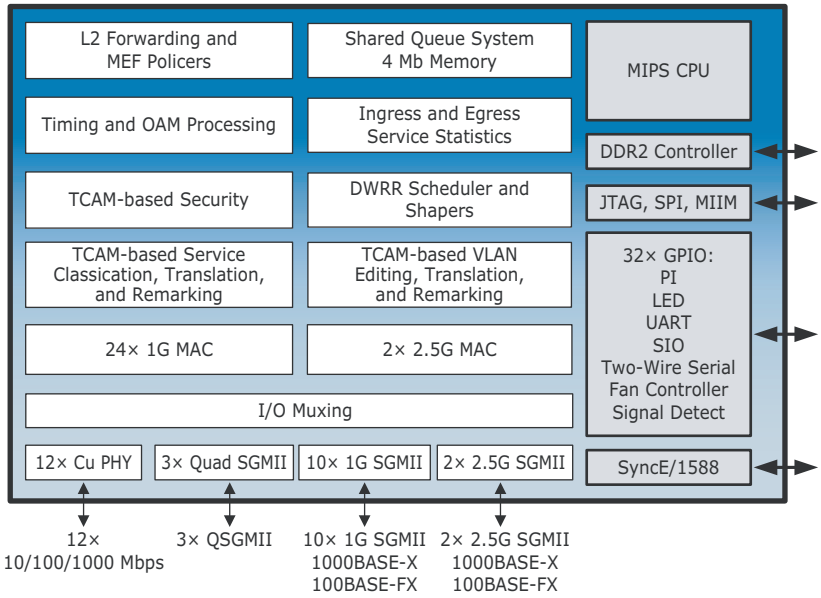
Carrier Ethernet Features

- Provider Bridging (PB)
- MEF E-Lane, E-Line, and E-Tree services
- Dual leaky bucket policers with remarking and statistics
- OAM and protection switching
- L1 Synchronous Ethernet
- L2 IEEE 1588
- Enhanced Carrier Ethernet API

Related Vitesse Products

Visit www.vitesse.com for information about these related Vitesse products:

- VSC7460/VSC7462 24/12-Port Gigabit Ethernet Carrier Ethernet Switch
- VSC7364/VSC7366 24/12-Port 1GbE + 2/1× 10G Carrier Ethernet MAC
- VSC7428 11-Port Layer 2 Gigabit Ethernet Switch with 12 Integrated Copper PHYs and Embedded CPU
- VSC8512 12-Port 10/100/1000BASE-T PHY with SGMII and QSGMII MAC Interface



Vitesse Semiconductor Corporation
741 Calle Plano • Camarillo, CA 93012 USA • Tel: +1.800.VITESSE • +1.805.388.3700 • Fax: +1.805.987.5896 • www.vitesse.com