VSC7423

7-Port, Layer-2 Gigabit Ethernet Switch with VeriTime™ , 5 Integrated Copper PHYs, and Embedded 32-bit CPU

Microsemi's next-generation Ethernet switch delivers a comprehensive, end-to-end Carrier Ethernet solution.

VSC7423 is one of the most versatile GbE switches in the industry. It integrates seven SGMII ports, five Gigabit Ethernet copper PHYs, and an embedded CPU into a single package. It also provides full support for MEF service delivery, network OAM, and Synchronous Ethernet (SyncE) timing. It is ideal for Telecom and Carrier Ethernet applications, Mobile and Microwave backhaul applications, and for provider service demarcation points in Edge and Access devices.

For critical network timing, the VSC7423 device uses VeriTime™, Microsemi's patent-pending distributed timing technology that delivers the industry's most accurate IEEE 1588v2 implementation.

The VSC7423 device can be configured to support combinations of up to five SGMII ports, five GbE Cu PHYs, and two 1G/2.5G SGMII uplink ports. One of the SGMII ports can be dedicated to the CPU for packet insertion and extraction. Its powerful, embedded 416 MHz MIPS 32-bit CPU with DDR2 external memory and DMA-based frame extraction and insertion supports VeriTime™, Ethernet OAM, and performance monitoring. VSC7423 meets IEEE 802.3az requirements for green, SyncE operation with Microsemi's ActiPHY™ and PerfectReach™ modes.
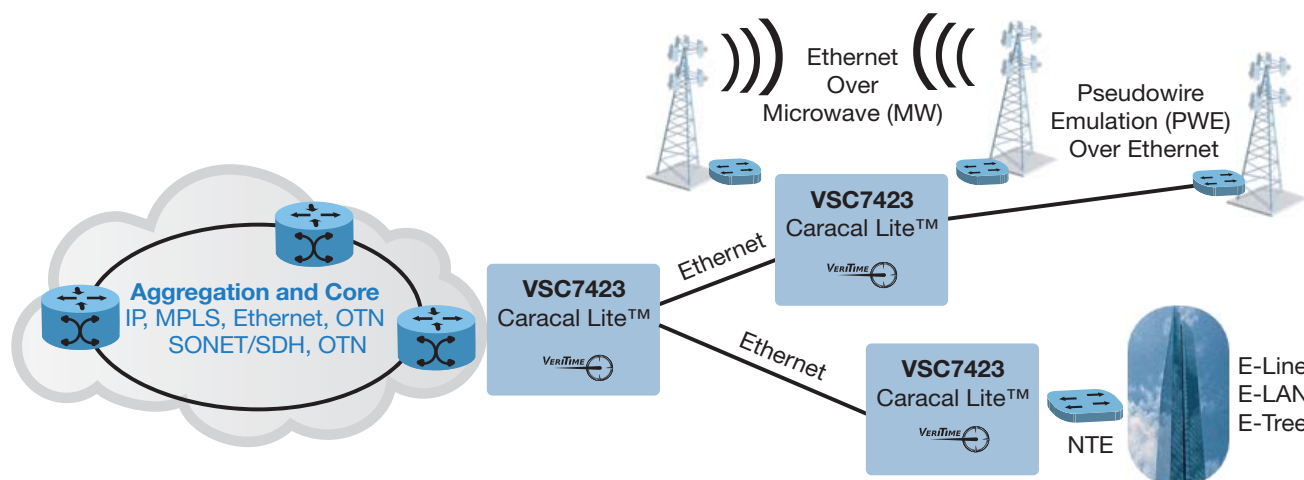
A comprehensive application programming interface (API) and software package are provided for Carrier Ethernet applications. The software package integrates easily with third-party software, preserving existing software investments while adding new, enhanced carrier functionality.

Highlights

- Fully integrated copper PHYs
- Integrated timing: VeriTime™, SyncE
- EcoEthernet™ 2.0 with ActiPHY™, PerfectReach™, and support for IEEE 802.3az Energy Efficient Ethernet

Applications

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

I/O Configurations

- Up to 5× 10/100/1000 Cu PHY
- Up to 5× 10/100/1000 SGMII
- 2× quad-speed 10/100/1000/2500 Mbps SGMII
- Up to 7 ports supporting 100BASE-FX or 1000BASE-X SerDes

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 multi-stage TCAM engine
- 5× 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 BGA thermally enhanced package
- Operating temperature –40 °C to 125 °C

VeriTime™ Features

- Level-2 IEEE 1588v2
- Boundary clock and transparent clock

Carrier Ethernet Features

- Provider Bridging (PB)
- MEF E-Lane, E-Line, and E-Tree services
- Dual leaky bucket policers with re-marking and statistics
- OAM and protection switching
- Level-1 Synchronous Ethernet (SyncE)
- Enhanced Carrier Ethernet API

Related Products

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

- VSC7428 11-Port, Layer 2, GbE Carrier Ethernet Switch with VeriTime™
- VSC7460/VSC7462 24/12-Port GbE Carrier Ethernet Switch with VeriTime™
- VSC7416/VSC7418 7/11-Port, 1GbE Carrier Ethernet Switch with VeriTime™
- VSC7429 26-Port Layer 2 Gigabit Ethernet Switch with VeriTime™, 12 Copper PHYs, and Embedded CPU
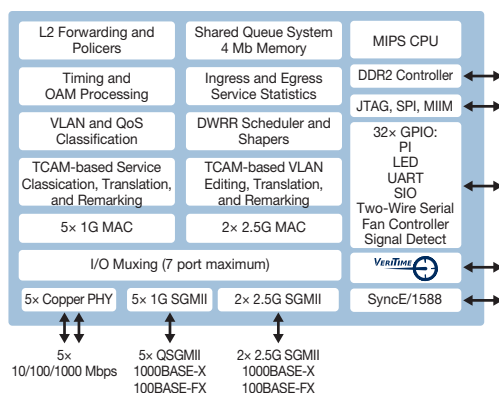
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