VSC7416
7-Port Layer-2 SGMII Gigabit Ethernet Switch with MPLS/MPLS-TP Support and VeriTime™

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

VSC7416 contains five 10/100/1000 Mbps SGMII/SerDes ports and two 2.5G SGMII/SerDes ports. The VSC7416 device provides a rich set of Carrier Ethernet switching features such as MPLS/MPLS-TP, MEF Ethernet services, hierarchical QoS scheduling, provider bridging, protection switching, OAM, and Synchronous Ethernet.

For critical network timing applications, VSC7416 uses VeriTime™, Microsemi's patent-pending distributed timing technology that delivers the industry's most accurate IEEE 1588v2 timing implementation.

VSC7416 supports advanced TCAM-based service SLA guarantees. Security is assured through frame processing using a TCAM-based Versatile Content Aware Processor (VCAP).

An embedded 416 MHz MIPS processor 32-bit CPU with DDR2/DDR3 external memory and DMA-based frame extraction and insertion supports VeriTime™ as well as injection of advanced data flows for service activation measurement (SAM) testing.

VSC7416 is an excellent choice for Mobile backhaul and for service provider demarcation points in Edge and Access devices.
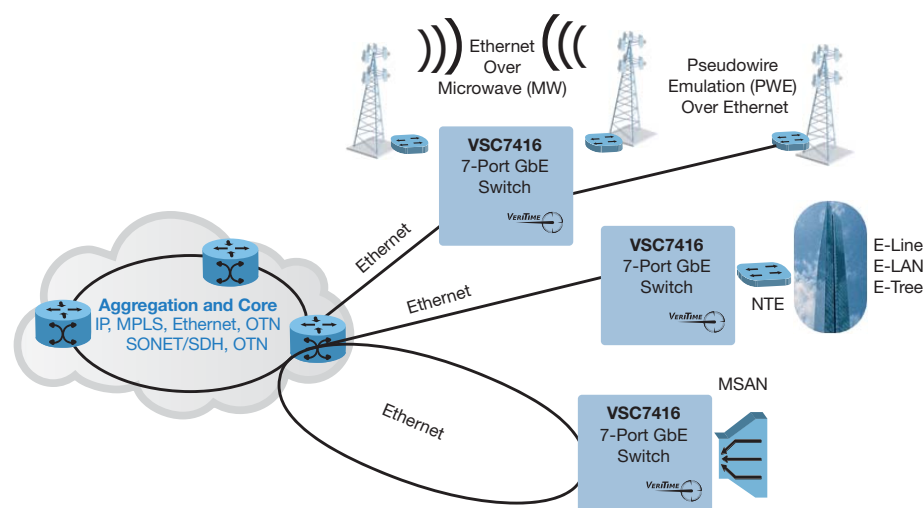
A comprehensive application programming interface (API) and software package are provided for Carrier Ethernet applications. The software package integrates easily with third-party software, preserving existing software investments while adding new, enhanced carrier functionality.

Highlights

- Ethernet, MPLS, and MPLS-TP
- MEF UNI and NNI functionality
- Hardware-based Ethernet OAM, performance monitoring, and service activation measurement (SAM)
- Network demarcation
- Hierarchical QoS priority for queuing and subscriber separation
- Service protection (linear, ring)
- Integrated timing: VeriTime™, SyncE

Applications

- Wireless and mobile backhaul (small cell)
- Ethernet/MPLS demarcation

Architecture

- Integrated shared packet memory
- Fully nonblocking wire-speed switching performance for all frame size
- 8 QoS classes with thousands of queues that can be assigned to ports, QoS classes, and services
- OAM and performance monitoring (IEEE 802.1ag ITU-T Y.1731, ITU-T Y.1564)
- Protection switching (ITU-T G.8031, ITU-T G.8032)
- Advanced security and prioritization available through a multi-stage TCAM engine

Layer 2 Switching

- IEEE 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

Carrier Ethernet Features

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

VeriTime™ Features

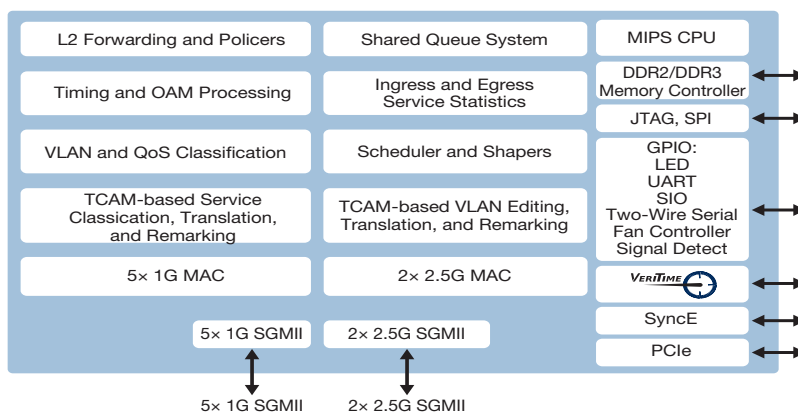- L2 IEEE 1588v2
- Boundary clock and transparent clock

Key Specifications

- 24 mm × 24 mm thermally enhanced TQFP package
- 1.5 W typical power dissipation
- Operating temperature –40 °C to 125 °C

Related Products

Visit www.microsemi.com for information about these related products:
- VSC7418 11-Port Layer 2 Gigabit Ethernet Switch with MPLS/MPLS-TP and VeriTime™
- VSC7460/VSC7462 24/12-Port Gigabit Ethernet Carrier Ethernet Switch with VeriTime™
- VSC7428 11-Port Layer 2 Gigabit Ethernet Switch with 8 Integrated Copper PHYs and Embedded CPU with VeriTime™

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