

# VSC7428

## 11-Port Layer 2 Gigabit Ethernet Switch with 8 Fully Integrated Copper PHYs and Embedded 32-bit CPU

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

VSC7428 is the industry's most integrated 11-port Ethernet switch with 11 SGMII ports, 8 Gigabit Ethernet copper PHYs, and an embedded CPU in a single package. VSC7428 is intended for Telecom and Carrier Ethernet applications, supporting MEF service delivery, network OAM, and Synchronous Ethernet.

The device supports combinations of up to nine SGMII ports, eight 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.

VSC7428 meets the IEEE 802.3az requirements for green energy efficient Ethernet through Microsemi'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.

VSC7428 is an excellent choice for Mobile backhaul and Microwave backhaul applications, and for provider service demarcation points in Edge and Access devices.

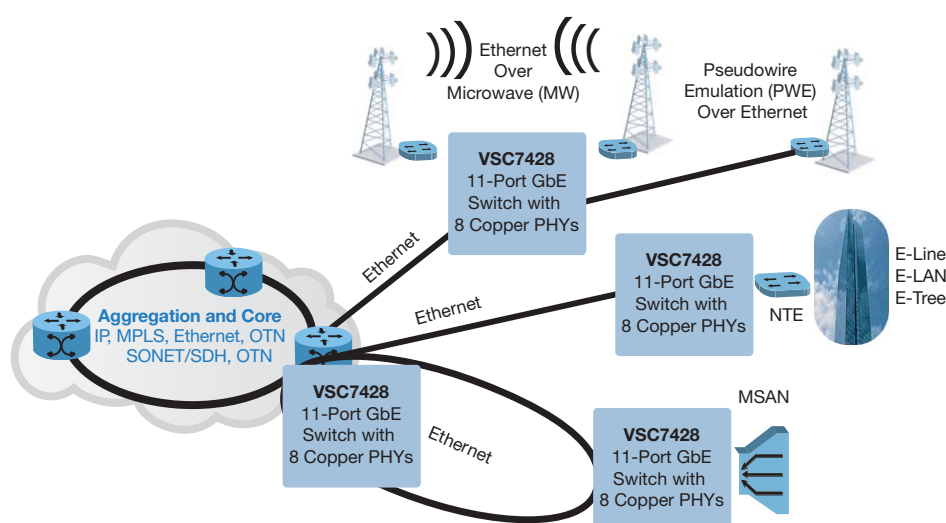
A comprehensive application programming interface (API) and software package are provided for Carrier Ethernet applications. The software package integrates easily with third-party software, preserving existing software investments while adding new, enhanced carrier functionality.

### Highlights

- 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



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## I/O Configurations

- Up to 8x 10/100/1000 Cu PHY
- Up to 9x 10/100/1000 SGMII
- 2x quad-speed 10/100/1000/2500 Mbps SGMII
- Up to 11 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
- 8x 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

## 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

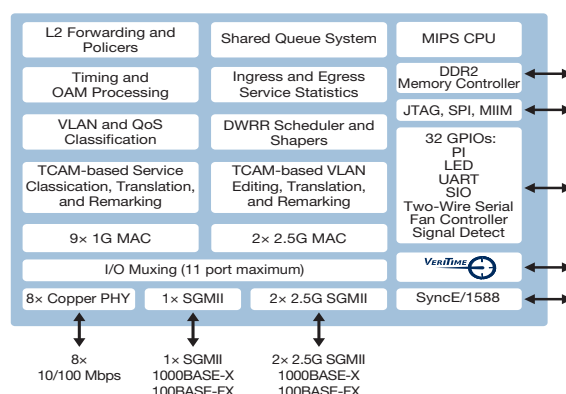
## Key Specifications

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

## Related Products

Visit [www.microsemi.com](http://www.microsemi.com) for information about these related products:

- VSC7460/VSC7462 24/12-Port Gigabit Ethernet Carrier Ethernet Switch
- VSC7364/VSC7366 24/12-Port 1GbE + 2/1x 10G Carrier Ethernet MAC
- VSC7429 26-Port Layer 2 Gigabit Ethernet Switch with 12 Integrated Copper PHYs and Embedded CPU



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