VSC7420-04

10-Port Layer 2 Gigabit Ethernet Switch with 8 Fully Integrated Copper PHYs

Microsemi's next-generation switch device delivers the industry's lowest power GbE switching solution.

VSC7420-04 is the industry's first fully integrated 10-port Gigabit Ethernet switch with eight copper PHYs in a single package.

The device leverages Microsemi's 65 nm technology, resulting in one of the most cost-effective and lowest power consumption solutions in the industry. It includes the most advanced Ethernet energy efficiency features for bringing green technology solutions to market.

A rich set of Ethernet switching features, such as Layer 2 forwarding with VLAN and QoS processing, enables the delivery of differentiated services. The VSC7420-04 device contains an 8051 CPU for light management of the switch.

A comprehensive application software package is provided for LED control, loop indication, device overheat protection, and other enhanced functions.

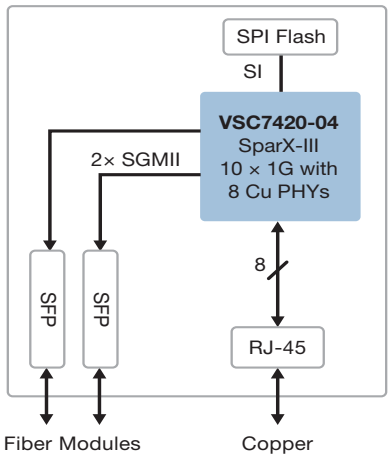
Highlights

- Supports IEEE 802.3az and green energy efficiency modes with ActiPHY™ and PerfectReach™
- Lowest BOM solution requires only one IC
- Up to two SGMII ports with 100 Mbps and 1 Gbps fiber support

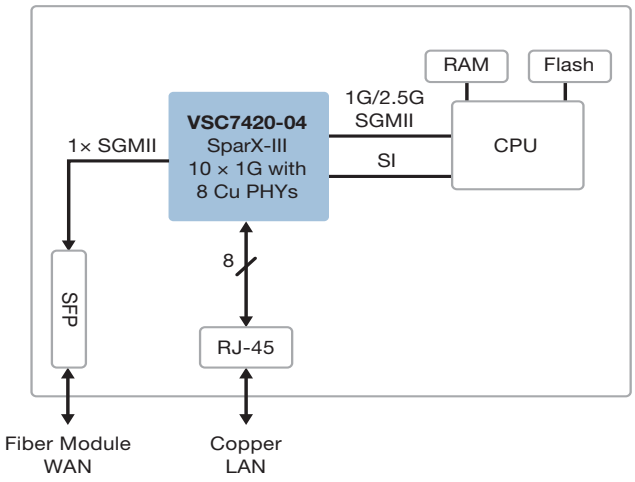
Applications

- Unmanaged and Lightly Managed Ethernet switches
- Industrial switches and routers
- Customer premises equipment (CPE) and outdoor equipment
- VPN, firewall, and UTM appliances

VSC7420-04 in a 10-Port 1-Gigabit Industrial Switch Application



VSC7420-04 in a 9-Port 1-Gigabit Industrial Router Application



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VSC7420-04

10-Port Layer 2 Gigabit Ethernet Switch with 8 Fully Integrated Copper PHYs

Best-in-Class Power Consumption

- Lowest power 10-port Gigabit Ethernet switch available in the market
- Green energy efficiency modes including ActiPHY™, Perfect-Reach™, and Draft IEEE 802.3az
- Single IC reduces overall power requirements
- Optimal power consumption for all link speeds

Features

- Eight integrated IEEE 802.3ab-compliant 10/100/1000BASE-T Ethernet copper transceivers with VeriPHY™ cable diagnostics
- Two quad-speed 10/100/1000/2500 Mbps SGMII
- Integrated 250 MHz 8051 CPU with 64 KB internal storage
- Serial interface for external CPU register access
- Device overheat protection
- Hardware loop detection
- Integrated fan controller
- 8 K MAC addresses and 4 K VLAN support
- Push/pop VLAN tag
- Supports IEEE 1149.1 JTAG boundary scan, IEEE 1149.6 JTAG, 1 Gbps SGMII, and 100BASE-FX and 1000BASE-X

Layer 2 Switching

- 10-port Gigabit Ethernet switch with nonblocking wire-speed performance
- Link aggregation (IEEE 802.3ad) with programmable traffic distribution based on Layer 2 through Layer 4 information
- Wire-speed hardware-based learning and CPU-based learning configurable per port
- Independent and shared VLAN learning
- Jumbo frame support up to 12.2 kilobytes with per-port programmable MTU
- Provider Bridging (VLAN Q-in-Q) support (IEEE 802.1ad)
- 4 megabits of integrated shared packet memory

QoS

- Eight QoS queues per port with strict or deficit-weighted round robin scheduling
- QoS classification based on IEEE 802.1p and IPv4/IPv6 DSCP
- Data rate shaper and policer per-queue, per-port for both ingress and egress directions
- Full-duplex flow control (IEEE 802.3x) and half-duplex back-pressure, symmetric and asymmetric
- Multicast and broadcast storm control with flooding control

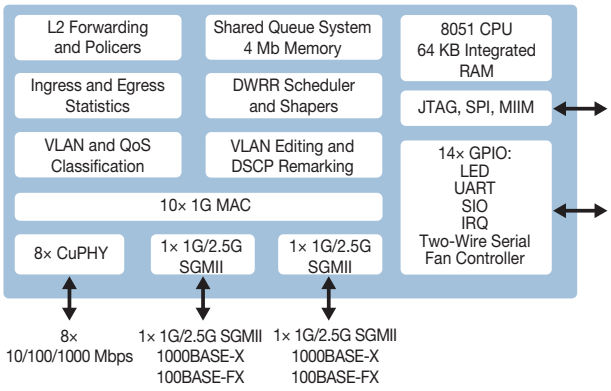
Key Specifications

- 1 V core power supply
- 2.5 V I/O power supplies
- 24 mm × 24 mm thin QFP package
- –40 °C to 125 °C temperature range

Related Products

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

- Ethernet switches
- 1G copper PHYs



Microsemi Corporate Headquarters
One Enterprise, Aliso Viejo, CA 92656 USA
Within the USA: +1 (800) 713-4113
Outside the USA: +1 (949) 380-6100
Sales: +1 (949) 380-6136
Fax: +1 (949) 215-4996
email: sales.support@microsemi.com
www.microsemi.com

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