SparX-5i

L2/L3 TSN-Enabled Industrial Ethernet Switch

Summary

Microchip's next-generation switch family delivers a flexible solution, driving the transition to Time-Sensitive Networking (TSN), seamless redundancy and scalable networks in the Industrial Internet of Things (IIoT).

SparX-5i is a 64 Gbps to 200 Gbps Industrial Ethernet switch family supporting a wide variety of configurations consisting of 1G, 2.5G, 10G and 25G Ethernet ports.

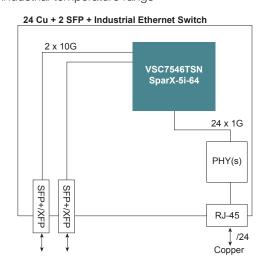
The device provides a rich set of industrial Ethernet switching features including the complete TSN feature set, L2 switching, L3 routing, seamless redundancy, high-precision timing and an extended temperature range. Using multistage versatile content aware processor (VCAPTM) technology, it delivers VLAN and QoS processing that enables delivery of differentiated services, security through intelligent frame processing and flexible frame manipulation.

A powerful 1 GHz dual-core CPU enables full management of a layer 2 and layer 3 industrial Ethernet switching solution.

A comprehensive Application Programming Interface (API) and turnkey software development package accelerates time-to-market for managed industrial Ethernet applications. The software API package integrates easily with third-party software, preserving existing software investments.

Highlights

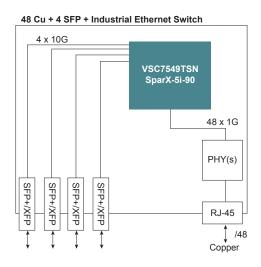
- Up to 64 \times 1G/2.5G, 32 \times 5G, 20 \times 10G and 8 \times 25G Ethernet ports
- Fully managed L2 switching and L3 routing features
- Complete TSN feature set including time aware shaping, cyclic queueing and forwarding, stream policing, highprecision time synchronization, seamless redundancy and low latency through preemption and cut-through switching
- Industrial temperature range



Applications

Industrial Ethernet switching for:

- Factory, building and substation automation
- Process control
- Physical security
- Intelligent transportation systems





Family and Features

Family of devices supporting from 64 Gbps to 200 Gbps nonblocking switching bandwidth

Part Number	Product
VSC7546TSN	SparX-5i-64
VSC7549TSN	SparX-5i-90
VSC7552TSN	SparX-5i-128
VSC7556TSN	SparX-5i-160
VSC7558TSN	SparX-5i-200

- Flexible interface options including 1/2.5/5/10/25 GbE
- Additional 1/2.5 GbE node processor interface port
- Integrated 1 GHz dual-core Arm[®] with DDR3/DDR4 SDRAM controller
- PCle® 2.0/3.0 CPU interface
- Internal shared memory buffer (8 queues per port)
- Jumbo frame support
- Strict priority and DWRR scheduler/shaper

Layer 2 Switching and Layer 3 Routing

- IEEE 802.1Q VLAN switch with 32K MACs and 4K VLANs
- Secure MAC addressing
- Push/pop/translate up to two VLAN tags on ingress and egress
- Policing with storm control and MC/BC protection
- RSTP and MSTP support
- Independent and shared VLAN learning (IVL, SVL)
- Hardware-based and software-based learning
- TCAM-based classification and VCAP-II security
- Layer 3 unicast and multicast routing

Industrial Ethernet

- TSN feature set: 802.1Qbv, 802.1Qch, 802.1Qci,
- 802.1AS-Rev, 802.1CB, 802.1Qbu
- Integrated timing: VeriTime™ (1588v2) and SyncE
- Ethernet Ring Protection Switching (ERPS)

Multicast

- Laver 2
- IPv4 and IPv6
- IGMP and MLD

PoE

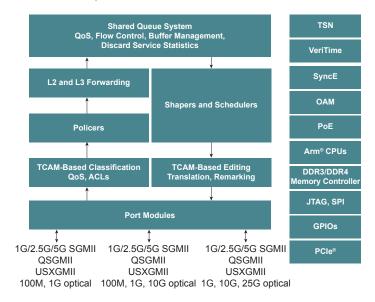
Integrated PoE controller

Key Specifications

- 25 mm × 25 mm BGA
- –40°C to 110°C operating temperature

Related Products

- Ocelot GbE switches
- 1G Ethernet PHYs
- PoE PSE ICs (forward compatible with IEEE 802.3bt)
- Unified API, IStaX™ software



For More Information

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