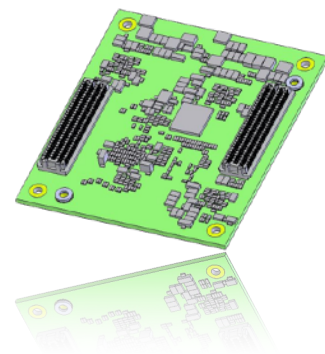


# Network Switch Module

- Designed for Industry 4.0 and IoT
- Support for TSN/HSR
- Scalable, high-performance, low-power, small-footprint
- Optional PoE (PSE/PD)

Based on new generation of highly integrated packet processors this module is designed to deliver a full portfolio of scalable, high-performance, low-power, small-footprint, feature-rich Ethernet switch modules, optimized for industrial and Internet of Things (IoT) applications operating in extended temperature range.



The extensive support in Time-Sensitive Networking (TSN) IEEE standards and High-availability Seamless Redundancy (HSR/PRP), empowers the transition to real-time communication solutions. Offering these standards in a single chip guarantees end-to-end transmission of high-priority traffic with deterministic latency and increased reliability.

Ironman integration of groundbreaking technologies TIPS (Telemetry, Intelligence, Performance, Security) technology lays out the essential foundation for innovations in network visibility, intelligence, performance, and security.

Intelligent workload management provides optimized data processing at or near the network access edge, reducing hybrid cloud bandwidth requirements; insightful telemetry reinforces automation and expedites forensic analytics; advanced security features underpin trustworthiness and provide network embedded protection from ever evolving security threats.

Integrates forwarding tables, Longest Prefix Match (LPM) tables, and flexible multiple TCAM lookups, designed to address Industrial Access deployment needs.

With comprehensive embedded security services include high-bandwidth IEEE 802.1AE Media Access Control Security (MACsec) Engine, at full device bandwidth processing capacity can provide cryptography-based security for Ethernet traffic. The family also supports a device level security including Secured Boot and Secured Storage.

The module Integrates Dual-Core ARM-v8.2 Cortex-A55 high-performance CPU Cluster, designed to meet requirements of modern Network Operation Systems. Additionally, the module integrates multiple ARMv7 Cortex-M3 (CM3) uControllers, each with its own memory that can be used running control functions such as PoE Stack, Device Initialization, Telemetry Collection or User-Specific processes and tasks.

The Control and Management subsystem integrates a16-bit DDR4 memory controller and supports rich interfaces for the internal and external management functions, that include PCI Express (PCIe) Gen3.0, Ethernet Port, eMMC, QSPI-Flash, NAND-Flash, USB 2.0 and others.

Furthermore, the module allows a wide-range modern packet processing feature-set, based on Marvell® extended-bridging (eBridge) architecture; virtual overlay networking with programmable tunnel header encapsulation; real-time flow granular telemetry and observability capabilities to facilitate network adaptation; robust QoS, load-balancing schemes and advanced congestion mechanisms, designed to meet the modern networks' needs.

The device is compatible with the Marvell Prestera® DX Family software to enable a rapid product development and time-to-market

## Network Features

- Integrated PHY
- On-board magnetic
- Jumbo Frames support
- Cut-through operation to minimize traffic latency
- IEC 62439-3 – HSR/PRP High available seamless redundancy (Parallel Redundancy Protocol)
- Time-Sensitive Networking (TSN) IEEE
- Parallel (x8) and Serial LED interface for port activity status
- Highly scalable (cascade up to 1K modules)

## Memory, Security and Hardware Features

- High bandwidth DDR4 (1G /2G options)
- eMMC (up to 256G)
- PCIe Gen3 dev or 1G OOB
- Trusted/Secure boot support
- IEEE 802.3ae standard compliant MACsec engine with capacity to process, encrypt and decrypt the entire devices bandwidth bi-directionally traffic
- RS232 CLI console
- Dimensions 80mm x 100mm
- Work temperatures -40°C — +85°C



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