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Product Brief

Marvell® Prestera® 98DX45xx Ethernet Switches Series

A Family of 1/2.5/5/10/25/40/50/100/200/400G Ethernet Switches for Enterprise Access and Edge

Overview

Marvell® Prestera® 98DX45xx series are highly-integrated, scalable feature-rich high-capacity stackable 24 and 48 ports intelligent multilayer Ethernet switches, purpose-built to address the specific requirements of the borderless enterprise access, as mobility and cloud applications extend the traditional boundaries.

Digital transformation and the emerging technology landscape – remote access, cloud-native models, proliferation of IoT devices, artificial intelligence (AI) applications, WiFi6, cybersecurity threats, media-rich applications, smart edge services – are dramatically changing the expectations from the network access and edge operation.

Digital disruption is creating a pressing need for faster speeds and more access connectivity options in the enterprise. Media-rich applications and WiFi6 increasing bandwidth requirements are placing tremendous pressure on the access network. 98DX45xx multigigabit speeds on all downlink ports is transformative to capitalize on Wi-Fi 6 and 802.11ac Wave 2 wireless performance with the existing Ethernet access cabling, while delivering management simplicity. 10/25/50/100G uplinks provide backwards compatibility with legacy equipment while enabling migration to higher capacity reflective of the access bandwidth growth. Ultra-high bandwidth stacking enables fixed form factor platforms to seamlessly deliver high quality of experience for bandwidth intensive applications, whether wireless or wired connected.

98DX45xx protects the investment, accommodating for the scale and the throughput growth. This family of premium switches integrate large policy control lists (ACLs) and highly scalable fungible flow and forwarding databases, programmable to dynamically allocate resources and optimizing the behavior throughout the networks deployment needs.

98DX45xx is an integral part of the unified Prestera Ethernet switch and Alaska PHY Enterprise solution set, architected from the ground up to accelerate digital transformation on the network edge. TrackIQ, NetIQ and SecureIQ groundbreaking technologies lay out the essential foundation for innovations in network visibility, intelligence and security.

SecureIQ multilayer zero-access trust security programmable sensors and line-rate 256b MACSec encryption on all network-facing downlink and uplink ports, deliver network-embedded trustworthiness, enable integration with security tools for real-time suspicious patterns identification and provide protection to the hardware and network software from ever-evolving security threats.

TrackIQ precise application-aware telemetry collection at line-rate and predictive health reporting enable actionable analytics applications and expedites forensic troubleshooting. Variety of data export and streaming options provides high degree of integration with analytics tools flexibility.

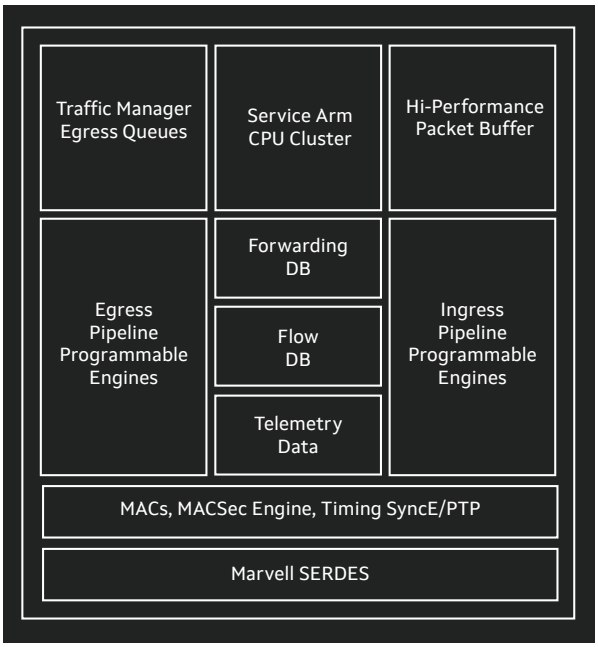
NetIQ programmable engines, embedded compute and robust workload management enable smart services offload, accelerate intelligent data processing at or near the network access edge, reducing hybrid cloud bandwidth requirements, and empower AI-driven autonomous networking.

SyncE and high accuracy one-step and two-step PTP further usher network deployments that require precise time synchronization.

The unified software development kit (SDK) industry-standard switch abstraction interfaces enable networking system vendors to easily migrate across networking silicon choices, reduce development costs and accelerate time to market.

The 98DX45xx family of Ethernet switches, designed to operate in fixed and modular chassis platforms, are ideal for Enterprise Access and Edge deployments.

Block Diagram



98DX45xx Architecture Block Diagram

Key Features

Features	Benefits
Unified feature-rich Prestera architecture	· Comprehensive enterprise-access tailored functionality with uniform behavior and consistency across the entire enterprise network
Flow-aware programmable data processing VXLAN, VXLAN-GPE, Geneve, IP-GRE, EVPN, SRv6, MPLS-SR Encapsulations	· Investment protection to support future use cases · Flexible Network Virtualization Overlays
High-performance Control and Management Subsystem with integrated Arm Cortex CPU cores and advanced management interfaces	· Services offload
Multi-Rate 10M/100M/1G/2.5G/5G/10G ports USGMII/USXGMII Switch-PHY interface, conveying multiple 10/100M/1G/2.5G/5G/10G Ethernet ports over a single SerDes lane	· Flexible options connecting end-devices at speeds ranging from 10M to 10G · Ideal for 24 and 48 ports platforms with multigigabit connectivity to support high-performance wired and IEEE 802.11ac and IEEE 802.11ax Access Points
10/25/40/50/100/200/400GbE ports	· Solutions with 10/25/50/100GbE uplinks and up to 800G stacking capacity
IEEE 802.1AE GCM-AES-128/256 and GCM-AES-XPN-128/256 compliant IEEE 802.1AE Media Access Control Security (MACsec)* Engine	· Protective cryptography-based Ethernet traffic security on all network-facing downlink and uplink ports
SecureIQ multilayer network-embedded advanced security - Programmable security sensors - Micro-segmentation to security-groups - Secure Control Technology (SCT) and Network Shield Technology (NST)	· Providing zero-trust access integrated security · Enables tools integration for real- time suspicious patterns identification · Enables agile group policies and security zones enforcement, preventing malicious traffic lateral movement and quick remediation · Control and management plane protection and DDOS attacks mitigation
NetIQ Intelligent processing accelerators, programmable engines and embedded compute resources	· Power intelligent data processing at the network edge, in-network compute, AI-feature-engineering, auto-healing and auto-adaptation

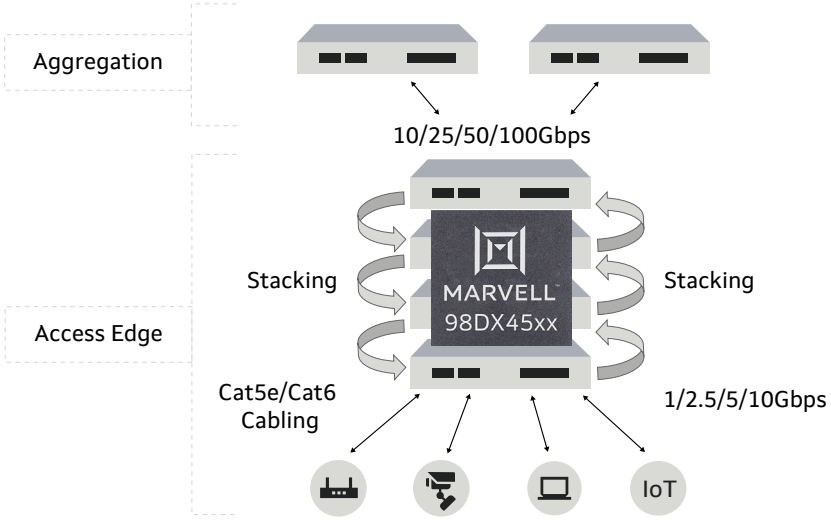
Features	Benefits
TrackIQ Application-aware telemetry - Accurate scalable line-rate traffic telemetry without missing a flow - Flexible telemetry export methods, protocols and formats - Latency measurement and statistics for every packet - Anomaly and exceptions detection - Elephant and mice flow detection, burst and duration measurements - Performance, utilization and queuing status and statistics monitoring	• Application-aware visibility and predictive health reporting enable actionable analytics and expedite root cause analysis
Time Synchronization	• High accuracy one-step and two-step PTP • SyncE

Note: MACsec is only available on MACsec-enabled Part Numbers.

Target Applications

Enterprise: Access Switch, Access Chassis Line Card Switch, Embedded Systems designs

98DX45xx Typical Deployment Scenario – Enterprise Access



Ordering Information

Part Number	Description
98DX4510	48x1GbE Downlink Ports with 10/25GbE Uplinks and 100GbE Stacking Ports
98DX4530	48x1/2.5GbE Downlink Ports with 10/25GbE Uplinks and 100GbE Stacking Ports
98DX4550	48x1/2.5/5GbE or 24x10GbE Downlink Ports with 10/25GbE Uplinks and 100GbE Stacking Ports
98DX4590	48x1/2.5/5GbE or 24x10GbE Downlink Ports with 10/25/50/100GbE Uplinks and 100/200/400GbE Stacking Ports

Note: For more information and complete part numbers list, contact Marvell Sales.

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To deliver the data infrastructure technology that connects the world, we're building solutions on the most powerful foundation: our partnerships with our customers. Trusted by the world's leading technology companies for 25 years, we move, store, process and secure the world's data with semiconductor solutions designed for our customers' current needs and future ambitions. Through a process of deep collaboration and transparency, we're ultimately changing the way tomorrow's enterprise, cloud, automotive, and carrier architectures transform—for the better.

Marvell_98DX45xx_PB Revised: 07/20