Marvell® Prestera® 98EX56xx Ethernet Switches Series

A Family of 10/25/40/50/100/200/400G Ethernet Switches for Enterprise Aggregation and Core

Overview

Marvell® Prestera® 98EX56xx series deliver scalable feature-rich high-capacity Ethernet switches designed to address the emerging needs of borderless Enterprise. Marvell groundbreaking technologies lay out the essential foundation for innovations in network visibility, intelligence, performance and security in modern campus networks, while delivering higher bandwidth required for network resiliency and in order to accommodate for the latest LAN and Wi-Fi6 access points technologies capacities.

The switches integrate high performance 28G and 56G I/O technology, supporting up to 400GbE ports on the larger devices. These high-performance links provide the capacity for the North-South network traffic driven by the Hybrid Cloud and Co-location deployment trends of cloud services for traditional enterprise networks.

Supporting the traditional 24 and 48 port interfaces at either 25/50/100GbE these devices allow for aggregation of the access switches for various size campus deployments. Mixing these downlink speeds with 2 to 8 uplink ports at 100/200/400G provide the substantial capacity increase corresponding to the speed upgrades driven in the access by the WiFi6 standards, multigigabit wired equipment and general growth in workloads bandwidth.

The Marvell® Prestera® 98EX56xx series also enables advanced high port radix system designs either in modular form factor or via port breakout modes enabling each individual 100G QSFP28 interface to support 4 individual ports at independent speeds. This high radix connectivity option scales to up to 1024 ports enabling a collapse of the aggregation and core layers or the access and aggregation layers reducing the network from 3 to 2 layers.

98EX56xx is an integral part of the unified Prestera® Ethernet switch and Alaska® PHY Enterprise solution set, architected from the ground up to accelerate the digital transformation. TrackIQ, NetIQ and SecureIQ groundbreaking technologies lay out the essential foundation for innovations in network visibility, intelligence and security.

SecureIQ multilayer security programmable security sensors, security-groups segmentation and optionally integrated line-rate 256b MACSec encryption, deliver network-embedded protection, essential for making the network access more secured and resilient against 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.
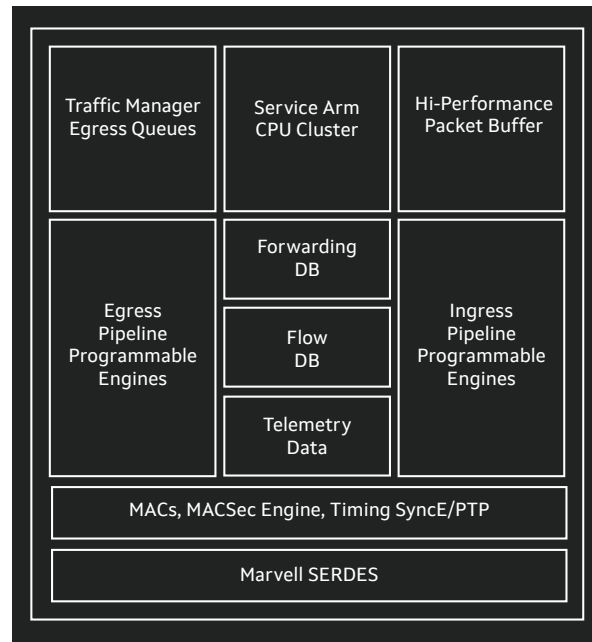
NetIQ programmable engines, embedded compute and robust workload management enable smart services offload, accelerate intelligent data processing at or near the network access edge, reducing hybrid cloud bandwidth requirements, and empower AI-driven autonomous networking.

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 98EX56xx family of Ethernet switches, designed to operate in fixed and modular chassis platforms, are ideal for Enterprise Aggregation and Core deployments.

Block Diagram

98EX56xx 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
A wide range of port density and speed options centered around traditional 24 and 48 port downlinks with 2 to 8 uplinks FASTER technology	• Flexible design choices from 800Gbps to 8Tbps capacity per device • High radix systems of up to 1024 ports enabling collapse of physical network layers
Optional 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

SecureIQ multilayer network-embedded advanced security
  - Optional IEEE 802.1AE GCM-AES-128/256 and GCM-AES-XPN-128/256 compliant IEEE 802.1AE Media Access Control Security (MACsec)* Engine
 	
  - Programmable security sensors
 	
  - Micro-segmentation to security-groups
 	
  - Secure Control Technology (SCT) and Network Shield Technology (NST)
	• Protective cryptography-based Ethernet traffic security
	
	• Detective security: Integration with security tools for real-time suspicious patterns identification
	• Proactive security of security zones and agile group policies for lateral movement prevention and remediation
	• Reactive control and management plane security and DDOS protection

NetIQ Intelligent processing accelerators, programmable engines and embedded compute resources	• Enable offloading control functions such as telemetry/security and user-specific processes and tasks

| 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 Chassis Supervisor Switch, Aggregation/Core Fixed Switch or Core Chassis Supervisor Switch

98EX56xx Typical Deployment Scenario – Enterprise Aggregation
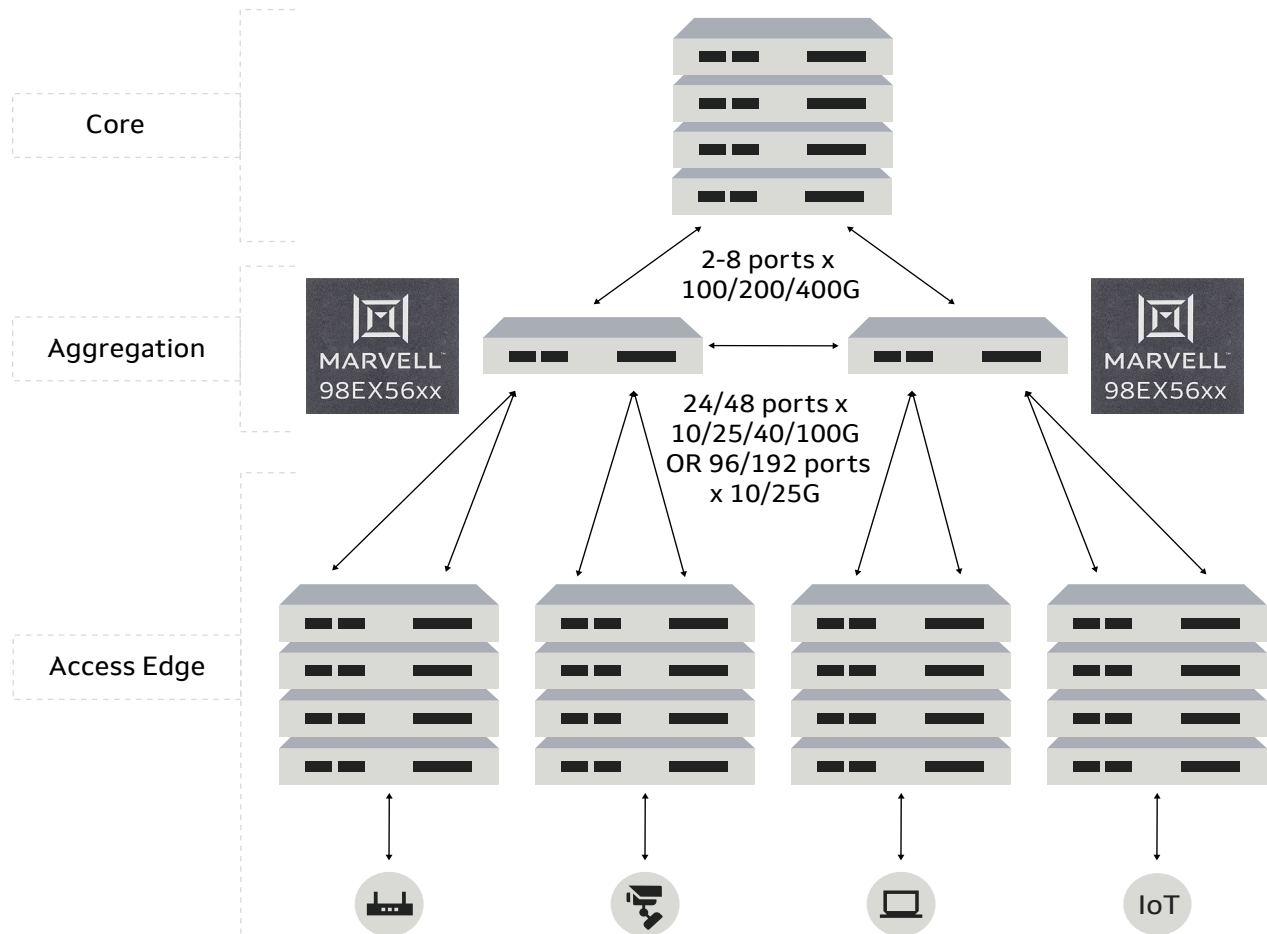
Ordering Information

Part Number	Description
98EX5650	48x40/100GbE Downlink Ports supporting breakout up to 192 ports of 10/25GbE with 3.2T of uplinks with port speeds ranging from 10/25/50/100/200/400GbE
98EX5630	24x40/100GbE Downlink Ports supporting breakout up to 96 ports of 10/25GbE with 1.6T of uplinks with port speeds ranging from 10/25/50/100/200/400GbE
98EX5614	48x1/10/25GbE Downlink Ports with 800G of uplinks with port speeds ranging from 10/25/50/100GbE
98EX5604	24x1/10/25GbE Downlink Ports with 400G of uplinks with port speeds ranging from 10/25/50/100GbE

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

MARVELL™

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.

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