

Marvell® Teralynx® 7 Data Center Ethernet Switch

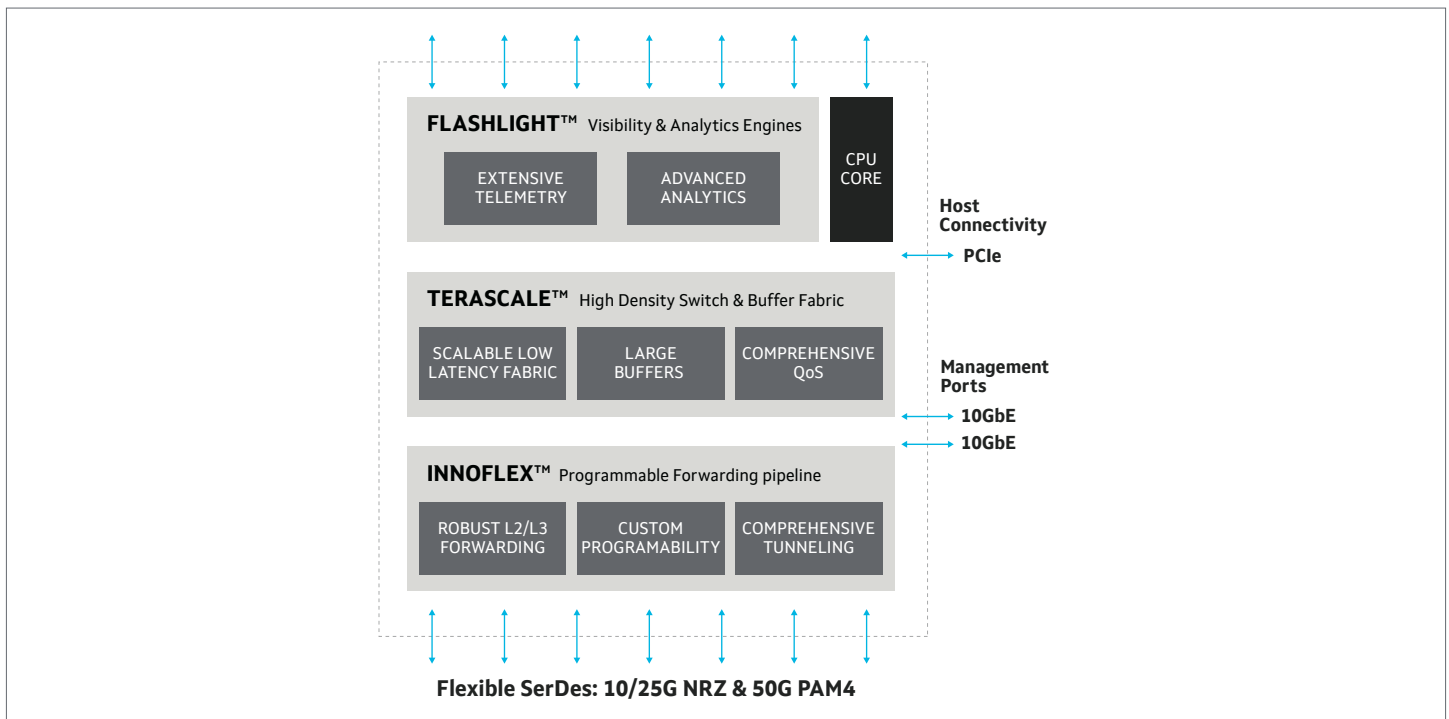
The world's fastest and most scalable switch family – 3.2 Tbps through 12.8 Tbps – featuring industry-leading analytics, low latency and programmability

Overview

Data centers are set to dominate IT infrastructure across the Cloud, Enterprises and Service Providers. Continued adoption of cloud, mobile, video, Anything-as-a-Service (XaaS), big data analytics, and machine learning is driving rapid growth of traffic inside data center networks and with end users. Architectural shifts such as micro-services based applications and the move to distributed storage using flash/NVMe over fabric are further increasing Ethernet traffic. In addition to an unlimited thirst for bandwidth, critical data center requirements include deeper, actionable analytics, programmability, high power efficiency, low latency and flexibility. These factors demand a fresh, innovative and focused approach to scalable, high performance networking silicon.

Marvell's Teralynx Ethernet Switch Silicon family has been architected from the ground up to provide the most optimized Ethernet solutions for data centers. Marvell delivers the world's highest performance switch silicon with large buffers, unmatched analytics through fine-grain telemetry, line-rate programmability, the industry's best power efficiency in terms of performance per watt and very low latency. Marvell offers the broadest range of data center switches ranging from 3.2Tbps to 12.8Tbps, enabling compelling and unique systems such as 128 ports of 100GbE, 64 ports of 200GbE and 32 ports of 400GbE.

Block Diagram



Key Features

Features	Benefits
<ul style="list-style-type: none">Industry leading performance and scale enables customers to deploy fewer network switches and tiers dramatically reducing cost, power, latency & management	<ul style="list-style-type: none">Switch capacity up to 12.8Tbps with large buffers
<ul style="list-style-type: none">50G SerDes lowers cost/bit and enables higher scale IO such as 200GbE & 400GbE with backward compatibility	<ul style="list-style-type: none">Up to 256 SerDes that support 10G, 25G and 50G IO speed with proven, robust interoperability
<ul style="list-style-type: none">Breakthrough visibility and analytics capabilities enable predictive, faster & more accurate issue resolution, higher automation and self-healing autonomous networks	<ul style="list-style-type: none">Industry's first switch to include high port count 200G and 400G connectivity using 50G PAM-4 with support for 10 / 25 / 40 / 50 / 100 / 200 and 400GbE connectivity
<ul style="list-style-type: none">Superior power efficient switch drives overall data center efficiency and better TCO	<ul style="list-style-type: none">Industry leading power efficiency, with 2X performance per watt over alternatives
<ul style="list-style-type: none">Up to 128 ports of 100GbE, 64 ports of 200GbE, or 32 ports of 400GbE enables flatter & cost-effective networks	<ul style="list-style-type: none">Comprehensive IP forwarding and highly scalable/flexible layer 2 and 3 tables for IPv4, IPv6 and hybrid networks
<ul style="list-style-type: none">InnoFlex™ programmable forwarding pipeline enables support of custom & new standard protocols without requiring ASIC spins to future proof the network	<ul style="list-style-type: none">Line-rate programmability to accommodate future networking protocols with software upgrades
	<ul style="list-style-type: none">Extensive tunneling capabilities such as IP-in-IP, GRE, MPLS, VXLAN and Geneve
	<ul style="list-style-type: none">Very low latencies - cut-through and store-and-forward
	<ul style="list-style-type: none">Advanced QoS/traffic management feature set such as DCB, RoCE and QCN
	<ul style="list-style-type: none">FLASHLIGHT™ delivers breakthrough visibility and telemetry, including support for P4 In-band Network Telemetry (INT) along with critical extensions

Customer Deployment Scenarios

- Data center networking infrastructure for the Cloud, Enterprises, HPC and Service Providers
- Fixed and modular (chassis) switches
 - Single chip fixed switches for ToR, Leaf & Spine
 - Multi-chip fixed switches for Leaf & Spine
 - Multi-chip modular switches for EoR, Leaf & Spine

Software Support

- Common software development kit (SDK) across entire product line to help customers develop network operating software (NOS) stack easily
- High performance and highly resilient, modern software with a clean-sheet design
- Support for open APIs, including OCP SAI (Switch Abstraction Interface)

128 x 100G Switch

MARVELL TERALYNX

6-12X ADVANTAGE OVER ALTERNATIVES

- 6X over 6.4Tbps switch chips
- 12X over 3.2Tbps switch chips
- Dramatically lowers cost, power and latency with simpler management
- Superior visibility and analytics

Single Chip System Design Examples

- 1U: 32 x 400G (QSFP-DD or OSFP)
- 1U: 32 x 100/200G
- 2U: 64 x 100/200G (QSFP28/56)
- 4U: 128 x 100G (QSFP28)

Multi Chip System Design Examples

- 2U: 64 x 400G (QSFP-DD or OSFP)
- Chassis: 128 x 400G (i.e. 512 x 100G ports)
- Chassis: 256 x 400G (i.e. 1024 x 100G ports)

Ordering Information

Part Number	Capacity (Tbps)	# of SerDes @ Gbps	100G ports	200G ports	
IVM77700	12.8	256 @ 10/25/50	128	64	32
IVM77610	8	160 @ 10/25/50	80	40	
IVM77500	6.4	256 @ 10/25	64	32	-
IVM77310	3.2	128 @ 10/25	32	16	-



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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