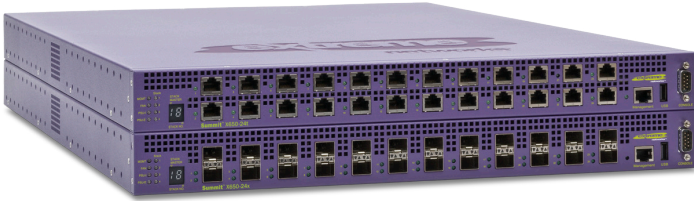# Summit® X650 Series

Summit X650 Series – The ultimate Top of Rack
10 Gigabit Ethernet switch.

High-Performance Switching and Routing

- 24-port 10 Gigabit Ethernet non-blocking switching with 363 million packet per second forwarding rate in 1 Rack Unit (RU) form factor

- 256 Gbps ultra high-speed stacking for up to 8 units in a stack to provide up to 192 10 Gigabit Ethernet ports in one logically integrated unit

Versatile Architecture

- From high-performance server switching to enterprise network aggregation and core deployment

- One network operating system for Extreme Networks® Ethernet switches everywhere in the network

- 10 Gigabit Ethernet over UTP cable and optical fiber with SFP+ transceivers for single-mode and multimode fiber installation

High Availability

- ExtremeXOS modular operating system for highly available network operation

- Carrier-grade redundant networking protocol including Ethernet Automatic Protection Switching (EAPS)

- Internal redundant AC/DC power supply and field replaceable fan tray

Future-Proof

- 48-port 10 Gigabit Ethernet non-blocking switching with 512 Gbps SummitStack™512 technology

- Future support for 40 Gigabit Ethernet and 100 Gigabit Ethernet through Versatile Interface Module (VIM) slot

The Summit® X650 series switch is a purpose built Top of Rack switch designed for emerging 10 Gigabit Ethernet enabled servers, deployed in Enterprise data centers. Summit X650 optimizes the new server deployment while providing an excellent migration path from the existing Gigabit Ethernet based servers to the 10 Gigabit Ethernet based high-performance servers, to seamlessly start the transition to the new virtualized environment.

Summit X650 provides remarkable high-density for 10 Gigabit Ethernet in a very small 1RU form factor for up to 32-port in one system and 192-port in a stacked system. Summit X650 offers two of the most advanced 10 Gigabit Ethernet technology: 10GBASE-T and SFP+ to accommodate the needs both for copper twisted pair cable and optical fiber based 10 Gigabit Ethernet.
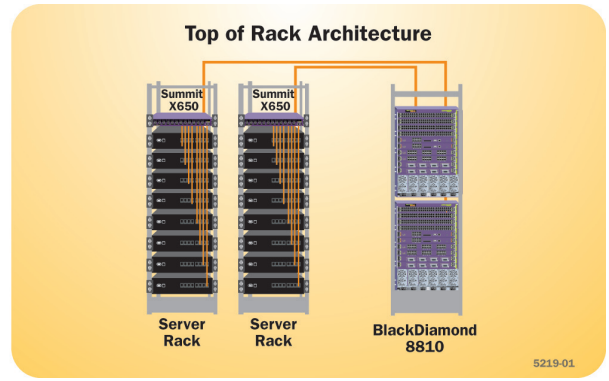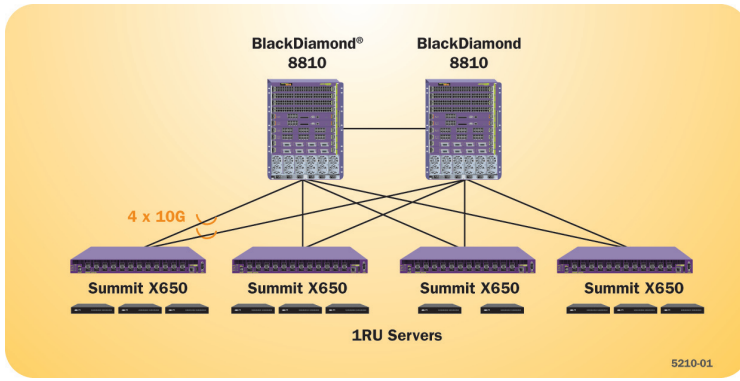
With its versatile design, Summit X650 provides exceptionally high-density Layer 2 switching with ultra low latency and highly scalable IPv4 and IPv6 unicast and multicast routing to enable Enterprise aggregation and core backbone deployment for AC powered and DC powered environments.

Summit X650 simplifies network operation by a common modular operating system, ExtremeXOS, amongst all Extreme Networks Ethernet switches. ExtremeXOS provides high availability and simplicity with one operating system everywhere in the network.

Target Applications

- Top of Rack switch for servers in Enterprise data centers

- High-performance 10 gigabit core switch for a small network

- High-performance 10 gigabit aggregation switch in a traditional three tiered network

- Interconnect switch providing low latency connections for HPCC

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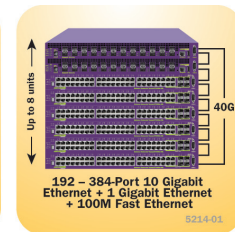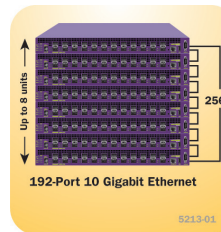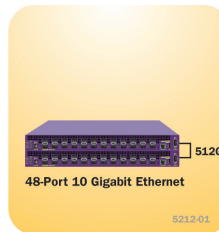**Top of Rack Architecture**

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High Performance Switching and Routing

- 24-port 10 Gigabit Ethernet non-blocking switching at 363 million packets per second forwarding rate in 1 rack unit form factor
- 48-port 10 Gigabit Ethernet non-blocking switching at 714 million packets per second with optional 512 Gbps stacking module
- 256 Gbps ultra high-speed stacking for up to 8 units in a stack to provide up to 192 10 Gigabit Ethernet ports in one logically integrated unit
- 32-port 10 Gigabit Ethernet per 1 rack unit height with optional 8-port 10 Gigabit Ethernet SFP+ interface module
- Low latency switching for High Performance Cluster Computing

Versatile Architecture

- From high-performance server switching to Enterprise network aggregation and core deployment by supporting highly-scalable Layer 2 and IPv4/v6 unicast and multicast routing
- One network operating system for the Extreme Networks Ethernet switches everywhere in the network
- 10GBASE-T for up to 100 meters over UTP and SFP+ for fiber installation
- Flexible SummitStack™ architecture provides virtualized switching system for 10 gigabit, gigabit and Fast Ethernet ports

Virtualized Port Density in a Stack	Rack Units	Stacking Bandwidth
24-port 10G	1RU	–
32-port 10G	1RU	–
48-port 10G	2RU	512 Gbps
192-port 10G	8RU	256 Gbps
192-384-port 10G + 1G + 100M	8RU	40 Gbps

512G

48-Port 10 Gigabit Ethernet

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Up to 8 units   256G

192-Port 10 Gigabit Ethernet

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Up to 8 units   40G

192 – 384-Port 10 Gigabit Ethernet + 1 Gigabit Ethernet + 100M Fast Ethernet

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High Availability

- ExtremeXOS® modular operating system for highly-available network operation
- Carrier-grade redundant networking protocol including Ethernet Automatic Protection Switching (EAPS)
- Hot-swappable redundant AC/DC power supply and field-replaceable fan tray with front to back cooling

Specifications

Ports	24-port 10GBASE-T or 24-port SFP+ with one VIM1 slot
Layer 2/3/4 throughput	363 million Packets Per Second (PPS) (24-port 10GbE wire rate) and up to 506 million PPS aggregated throughput (with VIM1-10G8X)
Management port	One 10/100/1000BASE-T RJ-45 port for out-of-band management
Console port	RS-232 DB-9 console port
USB Interface	USB memory support for image/configuration upload/download
Power Supply	Dual redundant AC or DC, Hot swappable PSU, 7.5A@115VAC, 3.5A@230VAC, 800W (Summit X650-24t: 10GBASE-T), 5.7A@115VAC, 2.7A@230VAC, 600W (Summit X650-24x: SFP+)
Fan/Cooling	Removable fan module / Front to back cooling
Dimensions and Weight	1.73 x 17.35 x 25 (inch) / 26.5 inch depth including PSU handle, 22.25 lbs (without PSU), 2.75 lbs (AC PSU)
Layer 2 Switching	IEEE 802.D, IEEE 802.1W, IEEE 802.1S, EAPSv2, ESRP
Layer 3 Routing	Static, RIPv1,RIPv2,OSPFv2,OSPFv3, IS-IS, BGP4
VLANs	4,094 VLANs with Port, 802.1Q tag, Protocol, MAC-based VLAN
IP Multicast Routing	PIM-DM, PIM-SM, PIM-SSM, Multicast Source Discovery Protocol (MSDP)
ACL	Ingress and egress ACL support
QoS	8 egress queues per port, 802.1p, Diffserv, ACL based, Strict Priority and WFQ with min/max bandwidth control
Stacking Support	SummitStack (40 Gbps Default), SummitStack256 (256 Gbps), SummitStack512 (512 Gbps)

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