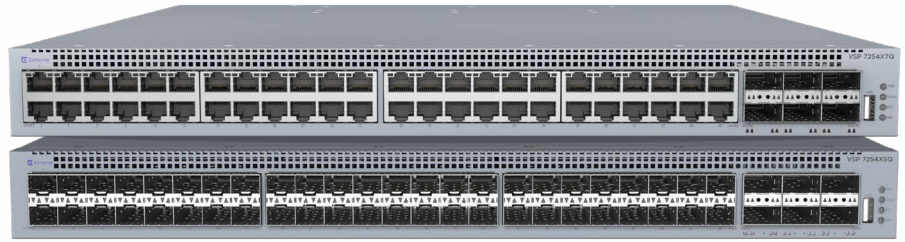


## Highlights

- High-performance 10/40 Gigabit Ethernet Switch
- 48 ports of 10 Gigabit Ethernet connectivity
- 6 ports of 40 Gigabit Ethernet for flexible Uplink or Distributed Top-of-Rack connectivity
- Non-blocking, wire-speed switching architecture
- Integrated design that is optimized for low latency
- Efficient compact form-factor that reduces power and footprint consumption
- Supports both conventional Routed IP and/or Fabric-based networking deployments



## ExtremeSwitching™ VSP 7200 Series

The Extreme Virtual Services Platform 7200 Series are space-efficient, high-performance Ethernet switches, delivering wire-speed 10 and 40 Gigabit Ethernet connectivity.

They are ideally suited to deliver high-speed Ethernet connectivity in a Top-of-Rack (ToR) role. Additionally, they provide a cost-effective 10 Gigabit Ethernet fan-out capability for existing Core Switch deployments, saving valuable ports and slots. Featuring dual, hot-swappable AC or DC power supplies and fans, the VSP 7200 is an important addition to a network manager's toolkit for creating always-on high-performance solutions.

The VSP 7200 series comes in 4 variants:

- 7254XSQ with 48 x 10 Gigabit SFP+ ports, plus 6 x 40 Gigabit QSFP+ ports
- 7254XSQ port-licensed model with 24 x 10 Gigabit SFP+ ports and 4 x 40GB QSFP+ ports initially enabled for operation
- 7254XTQ with 48 x 10BASE-T copper ports, plus 6 x 40 Gigabit QSFP+ ports
- 7254XTQ port-licensed model with 24 x 10GBASE-T ports and 4 x 40GB QSFP+ ports initially enabled for operation

VSP 7200 port-licensed models have the same physical configuration as non-port licensed models and can later be upgraded to the full port capacity of the unit – offering a flexible pay as you grow option for your deployment.

The VSP 7200 also offers both front-to-back and back-to-front airflow options providing flexibility to conform to a variety of hot-aisle/cold-aisle design requirements.

## Extreme Distributed Top-of-Rack: Creating the Latency-Reduced Network

The VSP 7200 is an integral component of our Fabric Connect strategy for end-to-end Shortest Path Bridging-based virtualized network. We are able to leverage the Fabric Connect technology to flexibly mesh multiple VSP 7200s to deliver multi-hop, low-latency for deployment scenarios that call for massive scale-out.

Extreme has architected the Distributed ToR solution to scale up to many hundreds of Switches within a single domain, with the current implementation supporting up to 512 Switches networked as a single logic Fabric. This capability delivers scale of up to 24,576 wire-speed 10 Gigabit Ethernet ports, and up to 3,072 ports of 40 Gigabit, equating to a virtual backplane capacity of 122.88Tbps. An agile building-block approach delivers extreme flexibility, with no hard-and-fast topology constraints; blocks can be small or large, and individual Switches easily interconnected with extended-reach copper or fiber cabling.

## Extreme Switch Cluster: Improving Resiliency, Enhancing Availability

Extreme Networks' Switch Cluster is a pioneering high-availability technology. Creating a single, unified, logical Core from two physically independent Switches—clustering them — ensures that no one single point-of-failure can disrupt dual/multi-homed connectivity.

The Switch Cluster technology is built using the Split Multi-Link Trunking protocol that is unique to our products, yet is fully interoperable with third party Switches, Servers, Appliances, and Routers.

Extreme's Switch Cluster technology delivers a level of network resiliency that also facilitates in-service maintenance. The deterministic nature of Switch Cluster empowers network operators to compartmentalize the network, making essential services even more resilient, and allowing for individual failures to be repaired in real-time, without service restoration work impacting on collateral components or applications.

## Extreme Fabric Connect: Replacing Complexity with Capability

Traditionally, to provision new services or to change existing ones, engineers are required to touch every device in the service path, configuring every device to enable both the active and redundant links. The bigger the network the more complex and risky this becomes.

The Extreme Fabric Connect technology is based on an extended implementation of the Shortest Path Bridging (SPB) standards of IEEE 802.1aq and IETF RFC 6329, augmented with custom enhancements that deliver Enterprise-specific optimization. It offers the ability to create a simplified network that can dynamically virtualize elements to empower efficient provisioning and utilization of resources. This can reduce the strain on the network and IT personnel.

Fabric Connect has garnered a well-earned reputation for simplifying how networks are built and improving how they are run. Independent research<sup>1</sup> reports that Fabric Connect deployments feature up to 91% less implementation time, up to 66% change less wait time, and an 85% reduction in both configuration and troubleshooting times. Similarly, Fabric Connect delivers enhanced resiliency, with failover times more than 2,500x better, and outages caused by human error virtually eliminated.

## Extreme Fabric Attach: The Missing Link for Service Automation

Extreme has developed Fabric Attach, a standards-based capability that facilitates the automatic attachment of end-point devices. Businesses can leverage Fabric Attach to dynamically deploy end-points.

Fabric Attach streamlines the deployment of networking devices, compute resources and Internet of Things (IoT) end-point devices delivering substantial operational benefits. End-point devices can be deployed in real-time, without the need for IT intervention and manual configuration.

Replacing static network device configuration with dynamic programming reduces overall complexity in the network and has a corresponding benefit in reducing the risk of outage.

<sup>1</sup>Dr Cherry Taylor, Fabric Connect Customer Experience Research Report, Dynamic Markets, 2015. This report details quantitative and qualitative research with IT professionals in companies that have implemented Extreme Networks this technology.

## Extreme Fabric Extend: Taking Benefits to a Broader Audience

With Extreme's Fabric Extend technology, businesses can fully integrate remote locations with the Fabric Connect cloud. Fabric Extend enables Fabric Connect connectivity across IP-based topologies such as MPLS and Optical Ethernet. Fabric Extend is a versatile technology that can deliver VLAN and VRF extension, Layer 2 and Layer 3 Hub-and-Spoke networking, and site interconnect for dispersed Campus and Data Center locations.

Fabric Extend is supported natively on VSP 7200, 8200 and 8400 Series products, as well as on the VSP 4000 Series when deployed in combination with the Extreme Open Networking Adapter. It provides flexible and scalable Fabric Connect extension over both private and provider IP infrastructures.

## Management

The Extreme Networks VSP 7200 Series can be managed in a variety of ways. Simple on-box management functions are delivered by a web-based GUI and a generic CLI is also available for manual configuration. For centralized management of multiple devices, the Extreme Management Center delivers a comprehensive unified management capability.

This powerful appliance-based solution offers the following functionality:

- **Single Pane-of-Glass** – A fully integrated suite of tools working together to provide a comprehensive, unified view of the network, streamlining workflows and reducing operational costs.
- **Discovery and Visualization** – Providing rich network and device discovery and visualization capabilities. Includes the ability to discover network-attached devices, including servers, storage servers, switches, routers, phones, virtual machines and their hosts, plus Extreme Aura applications.
- **Fault and Diagnostics** – Leverages information collected from the network to determine the most likely cause of network outages, and correlates events to determine affected devices and services.
- **Configuration and Orchestration** – Facilitates even the most complex of network configurations through simplified, intuitive wizards and easy-to-use templates. Configuration templates are created once, stored, and then conveniently applied in order to accelerate time-to-service and reduce the risk of human error.

- **Virtualization Management** – Provides insight into the complete lifecycle of virtual machines – activation, migration, and retirement – including the automatic provisioning of those companion networking services needed to parallel VM migrations.
- **Performance Management** – Delivers tools to monitor, analyze and report application behaviors and their bandwidth utilization trends. Collected data gives valuable insight into traffic patterns, application behaviors, and top talkers. Performance management tools enable capacity planning and change monitoring.

## System Compatibility

From a software perspective, the VSP 7200 Series was introduced with the VOSS 4.2 software release; this is, therefore, the minimum level of software available to operate the Switch. The recent VOSS 7.1 release delivers the following enhancements:

- Application Telemetry
- VXLAN Hardware VTEP Configuration and Management using OVSDDB

**Application Telemetry** is a unique feature of ExtremeAnalytics that enables the ExtremeSwitching infrastructure to participate in the forwarding and analysis of network application flows. By combining packet flow information from the VSP switch along with deep packet inspection abilities of ExtremeAnalytics, it provides actionable insights into network and application performance. This all without the need for expensive sensors or collectors. With this release, an Application Telemetry agent on the VSP can now work in tandem with ExtremeAnalytics to deliver this granular visibility into application performance, users, locations and devices.

## Lifetime Warranty

Extreme includes Industry-leading warranty services for the VSP 7200 Series products. We provide complimentary next-business-day shipment of failed units for the full life of the product; next-business-day shipping to replace failed hardware worldwide. Extreme also offers complimentary basic technical support: Level 1 the supported lifecycle of the product and up to Level 3 for the first 90 days after purchase; this includes support for the shipped software version, with an optional Software Release Service available to provide access to new feature releases. As per industry norm for hardware, 'Lifetime' is defined as the production lifecycle phase, plus 5 years post-discontinuation.

## Summary

The Extreme Virtual Services Platform 7200 Series is purpose-built to support the dynamic Data Center and high-density 10 Gigabit Ethernet Top-of-Rack deployments of today. It helps alleviate infrastructure complexity and can reduce power consumption with a truly scalable and strategic architecture; it is designed to be the high-performance Top-of-Rack platform for the future.

Supporting mission-critical applications requires 24/365 always-on infrastructure, and the VSP 7200 delivers against this challenge. It is a highly strategic product that is fit-for-purpose for today's connectivity requirements and future-ready for the evolving and emerging application-driven needs of tomorrow.

Extreme brings unique differentiation to the ToR role: with a flexible, non-blocking architecture, including wire-speed Server access connections and high-speed Distributed Top-of-Rack connections. The VSP 7200 is purpose-built to support today's dynamic Data Center operations and high-density, low-latency 10 Gigabit Ethernet Top-of-Rack deployments. It can alleviate infrastructure complexity and reduce power consumption with a truly scalable and strategic architecture; it is designed to deliver a high-performance Distributed Top-of-Rack solution that fully optimizes next-generation application virtualization investments.

## Additional Information

For further information about the Extreme VSP 7200 Series please visit [www.extremenetworks.com/products](http://www.extremenetworks.com/products), and for the complete ExtremeSwitching portfolio, [www.extremenetworks.com/networking](http://www.extremenetworks.com/networking).

## VSP 7254XSQ

The Extreme Virtual Services Platform 7254XSQ Ethernet Switch provides a total of 54 ports, configured as 48 ports of 10 Gigabit Ethernet, presented as SFP+ sockets, and 6 ports of 40 Gigabit Ethernet, presented as QSFP+ sockets.

The innovative design leverages an advanced chipset, featuring 2.56Tbps of switching and 1,428Mpps of frame forwarding performance.

It should be noted that the 40 Gigabit Ethernet QSFP+ ports support Channelization and can therefore be individual sub-divided into four 10 Gigabit Ethernet channels. Additionally, the 10 Gigabit Ethernet SFP+ ports also support a wide range of 1 Gigabit Ethernet SFP Transceivers.<sup>2</sup>

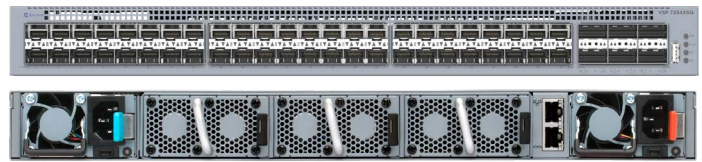
### Benefits

The VSP 7254XSQ adds significant flexibility to the Extreme Networking portfolio, and is compatible, with and complementary to, with existing products and technologies. The VSP 7254XSQ, when deployed with other Extreme or third party Ethernet Switches devices, provides a very high-capacity, high-performance connectivity solution.

The VSP 7254XSQ can be deployed as a Leaf/Top-of-Rack Switch in Spine/Leaf networks. Alternatively, it can serve as a 10GB Campus aggregation switch or even as a 10GB campus core solution for smaller networks. VSP 7254XSQ port-license models also offer flexible deployment and growth options.

The VSP 7254XSQ natively supports the Extreme Fabric Connect technology; key benefits that this technology delivers include:

- Makes the need to configure network-wide VLANs obsolete.
- Replaces multiple sequential legacy protocols with this one single unified technology.
- Totally removes the risk of network loops.
- Delivers the Edge-only provisioning model which seamlessly integrates with orchestration and automation.
- Fully optimizes all links and all devices enabling businesses to get the most out of infrastructure investments.



### Features and Capabilities

- Non-blocking, wire-speed switching architecture.
- Integrated design that is optimized for low latency.
- Flexible table architecture delivers MAC, ARP, and IP Routing scalability.
- Feature-rich support for conventional VLAN, Multi-Link Trunking, Spanning Tree technologies.
- Support for IP Routing techniques including Static, RIP, OSPF, eBGP, BGP+, ECMP, DvR/VRRP, PIM-SM/SSM, and VRF. Supports Static, RIPng, OSPFv3, BGPv6 Peering, ECMP, VRRP, and VRF for IPv6 deployments.
- Extreme Distributed Top-of-Rack technology scales up to 512 nodes: supporting up to 24,576 ports of 10 Gigabit and up to 3,076 ports of 40 Gigabit, and a virtual backbone of up to 122.88Tbps capacity.
- Extreme Networks Fabric Connect technology supports L2 Virtual Service Networks (VSNs), Layer 3 Virtual Service Networks, Inter-VSN Routing, IP Shortcut Routing, IP Multicast-over-Fabric Connect, Fabric Attached Server, Fabric Extend, Switched UNI, and Zero-Touch Fabric Connect.
- Extreme Switch Cluster technology supports Triangle and Square configurations, with both Layer 2 and Layer 3 functionality.
- Enhanced Security Mode options.

### High-Availability Power and Cooling

- Up to 2 field-replaceable, hot-swappable AC or DC internal Power Supplies
- 3 field-replaceable Fan Modules, with both Front-to-Back and Back-to-Front airflow options supported

### Warranty

- Lifetime Next Business Day shipment of replacement hardware
- Lifetime Basic Technical Support
- 90-Day Advanced Technical Support

<sup>2</sup> VSP 7254XSQ features a "PHYless" design. The pros of PHYless include lower latency and lower power consumption; crucial in the context of the Data Center Top-of-Rack. The contra is that MACsec is not supported and that certain Pluggable Transceivers are not supported; please refer to the product documentation for complete details and a listing of all specifications and compliance.

## Software Licensing

- Base Software License, included with hardware purchase, enables most features with the exception of those specifically noted as enabled by the Premier Software License.
- Premier Software License, an optional accessory, enables the following features: Layer 3 Virtual Service Networks, DvR, VXLAN Gateway, and >24 VRFs.
- Port License, an optional accessory, fully enables all 10 and 40 Gigabit Ethernet interfaces on those units originally purchased as Port-Licensed. This license is independent of, and can be used in conjunction with, the Premier Software License.

## Country of Origin

- China (PRC)
- Taiwan (for GSA models)

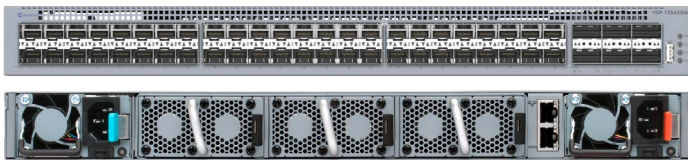


## VSP 7254XTQ

The Extreme Virtual Services Platform 7254XTQ Ethernet Switch provides a total of 54 ports, configured as 48 ports of 10 Gigabit Ethernet, presented as RJ45 ports, and 6 ports of 40 Gigabit Ethernet, presented as QSFP+ sockets.

The innovative design leverages an advanced chipset, featuring 2.56Tbps of switching and 1,428Mpps of frame forwarding performance.

It should be noted that the 40 Gigabit Ethernet QSFP+ ports support Channelization and can therefore be individual sub-divided into four 10 Gigabit Ethernet channels. Additionally, the 10 Gigabit RJ45 ports also support 100/1000Mbps connectivity.



### Benefits

The VSP 7254XTQ adds significant flexibility to the Extreme Networking portfolio, and is compatible, with and complementary to, with existing products and technologies, the VSP 7254XTQ, when deployed with other Extreme or third party Ethernet Switches devices, provides a very high-capacity, high-performance connectivity solution

The VSP 7254XTQ can be deployed as a Leaf/Top-of-Rack Switch in Spine/Leaf networks. Alternatively, it can serve as a 10GB Campus aggregation switch or even as a 10GB campus core solution for smaller networks. VSP 7254XTQ port-license models also offer flexible deployment and growth options.

The VSP 7254XTQ natively supports the Extreme Fabric Connect technology; key benefits that this technology delivers include:

- Makes the need to configure network-wide VLANs obsolete.
- Replaces multiple sequential legacy protocols with this one single unified technology.
- Totally removes the risk of network loops.
- Delivers the Edge-only provisioning model which seamlessly integrates with orchestration and automation.

- Fully optimizes all links and all devices enabling businesses to get the most out of infrastructure investments.

### Features and Capabilities

- Non-blocking, wire-speed switching architecture.
- Integrated design that is optimized for low latency.
- Flexible table architecture delivers MAC, ARP, and IP Routing scalability.
- Feature-rich support for conventional VLAN, Multi-Link Trunking, Spanning Tree technologies.
- Support for IP Routing techniques including Static, RIP, OSPF, eBGP, BGP+, ECMP, DvR/VRRP, PIM-SM/SSM, and VRF. Additionally, supports Static, RIPng, OSPFv3, BGPv6 Peering, ECMP, VRRP, and VRF for IPv6 deployments.
- Extreme Distributed Top-of-Rack technology scales up to 512 nodes: supporting up to 24,576 ports of 10 Gigabit and up to 3,076 ports of 40 Gigabit, and a virtual backbone of up to 122.88Tbps capacity.
- Extreme Networks Fabric Connect technology supports L2 Virtual Service Networks (VSNs), Layer 3 Virtual Service Networks, Inter-VSN Routing, IP Shortcut Routing, IP Multicast-over-Fabric Connect, Fabric Attached Server, Fabric Extend, Switched UNI, and Zero-Touch Fabric Connect.
- Extreme Switch Cluster technology supports Triangle and Square configurations, with both Layer 2 and Layer 3 functionality.
- MACsec and Enhanced Security Mode options.

### High-Availability Power and Cooling

- Up to 2 field-replaceable, hot-swappable AC or DC internal Power Supplies
- 3 field-replaceable Fan Modules, with both Front-to-Back and Back-to-Front airflow options supported

### Warranty

- Lifetime Next Business Day shipment of replacement hardware
- Lifetime Basic Technical Support
- 90-Day Advanced Technical Support

## Software Licensing

- Base Software License, included with hardware purchase, enables most features with the exception of those specifically noted as enabled by the Premier Software License.
- Premier Software License, an optional accessory, enables the following features: Layer 3 Virtual Service Networks, DvR, VXLAN Gateway, >24 VRFs, and - where local regulations permit - MACsec<sup>3</sup>.
- Port License, an optional accessory, fully enables all 10 and 40 Gigabit Ethernet interfaces on those units originally purchased as Port-Licensed. This license is independent of, and can be used in conjunction with, the Premier Software License.

## Country of Origin

- China (PRC)
- Taiwan (for GSA models)

## Specifications

### General

- Physical Connectivity:
  - 48 x 10GBASE-SFP+ Ports
  - 6 x 40GBASE-QSFP+ Ports
- Channelization of 40 Gigabit ports
- Switch Fabric Architecture: 2.56Tbps Full-Duplex
- Frame forwarding rate: 1,428Mpps per Switch
- Nominal Latency: <480nsec
- Jumbo Frame support: up to 9,600 Bytes (802.1Q Tagged)

### Layer 2

- MAC Address: 224,000
- Port-based VLANs: 4,059
- Private VLANs/E-Tree: up to 200
- MSTP Instances: 12
- MLT/LACP Groups: up to 72
- MLT Links per Group: 8
- LACP Links per Group: 8 Active
- Extreme Networks VLACP Interfaces: 54, and up to 72 when all 40 Gigabit ports are Channelized
- Extreme Networks SLPP VLANs: 128

## Layer 3 IPv4 Routing Services

- ARP Entries: 32,000
- Static ARP Entries: 2000 per VRF, 10,000 per switch
- IP Interfaces: up to 506
- CLIP Interfaces: 64
- IP Routes: up to 15,488
- IP Static Routes: 1,000 per VRF, 5000 per switch
- RIP Interfaces: 200
- RIP Routes: up to 15,488
- OSPF Interfaces: 500
- OSPF Routes: up to 15,488
- OSPF Areas: 12 per VRF, 80 per switch
- BGP Peers: 12
- BGP Routes: up to 15,488
- ECMP Groups: 1,000
- ECMP Paths per Group: 8
- NLB Clusters: 200
- VRRP Interfaces: 252
- RSMLT Interfaces: 252
- IPv4 UDP Forwarding Entries: 512
- IPv4 DHCP Relay Forwarding Entries: 1024
- IP Route Policies: 500 per VRF, 5,000 per switch
- DHCP Relay Forwarding: 512
- VRF Instances: up to 256

## Layer 3 IPv6 Routing Services

- Neighbors: 8,000
- Static Neighbors: 128 per VRF, 256 per switch
- IP Interfaces: up to 506
- CLIP Interfaces: 64
- IP Configured Tunnels: 506
- IP Routes: up to 7,744
- IP Static Routes: 1,000
- RIPng Interfaces: 48
- RIPng Routes: up to 7,744
- OSPFv3 Interfaces: 500
- OSPFv3 Routes: up to 7,744
- OSPFv3 Areas: 80 per switch
- BGPv6 Peers: 24
- ECMP Groups: 1,000
- ECMP Paths per Group: 8
- VRRP Interfaces: up to 252
- RSMLT Interfaces: up to 252
- VRF Instances: up to 256

<sup>3</sup> MACsec is supported on the VSP 7254XTQ 10GBase-T ports only, not on 40Gb/s QSFP+ ports.



## Multicast

- IGMP Interfaces: 4,059
- PIM Active Interfaces: 128
- MLD Interfaces: 4,059
- Static Multicast Routes: 4,000
- BCB IP Multicast S,G Streams: 16,000
- PIM-SSM Static Channels: 4,000
- IP Multicast Streams: 6,000
- IP Multicast Streams (Fabric Connect-PIM Gateway Nodes): 3,000
- Fabric Connect-PIM Gateway Controllers per Region: 5
- Fabric Connect-PIM Gateway Nodes per Region: 64
- Fabric Connect-PIM Gateway Interfaces per BEB Node: 64
- Fabric Connect-PIM Gateway Source Announcements: 6,000

## Fabric Connect

- 802.1aq/RFC 6329 Shortest Path Bridging with Extreme Networks extensions
- MAC Address: 112,000
- NNI Interfaces/Adjacencies: up to 255
- BEB Nodes per VSN: 500
- Transparent UNI Ports/Switch: 54, and up to 72 when all 40 Gigabit ports are Channelized
- BCB/BEB Nodes per Region: 800
- L2 Virtual Service Networks: 4,059
- L3 Virtual Service Networks: up to 256
- IP Shortcut Routes: IPv4 15,488, and IPv6 7,488
- DvR Domains per Region: 16
- DvR-enabled L2 VSNs: up to 502
- DvR Controllers per Domain: 8
- DvR Leafs per Domain: 250
- DvR Interfaces: up to 502
- DvR Routes: up to 32,000
- L2 Multicast Virtual Service Networks: up to 2,000
- L3 Multicast Virtual Service Networks: 256
- VXLAN Gateway VTEP Destinations per Node: 500
- VXLAN Gateway VNI IDs per Node: 2,000
- Fabric Attach VLAN/VSN Assignments per Port: 94

## QoS and Filtering

- IPv4 ACE: 766 Ingress and 252 Egress
- IPv6 ACE: 256 Ingress
- L2-L4 Ingress Port Rate Limiters: 54, and up to 72 when all 40 Gigabit ports are Channelized
- Egress Port Shaper Granularity: 1Mbps to 40Gbps per Port

## Operations and Management

- Mirrored Ports: 53, and up to 71 when all 40 Gigabit ports are Channelized
- sFlow: up to 3,000 samples per second
- Fabric RSPAN: up to 1,000 VSN IDs per Region

## Supported Transceivers

- 40 Gigabit Ethernet
  - 40GBASE-QSFP+ Passive Copper Direct Attach Cables - 0.5m, 1m, 3m, 5m
  - 40GBASE-QSFP+ Passive Copper Break-Out Cables - 1m, 3m, 5m
  - 40GBASE-QSFP+ Active Optical Break-Out Cable - 7m, 10m, 15m
  - 40GBASE-QSFP+ Active Optical Direct Attach Cable - 10m
  - 40GBASE-LM4 QSFP+, up to 80m over MMF
  - 40GBASE-SR4/4x10GBASE-SR QSFP+ up to 150m over MMF
  - 40GBASE-LR4 QSFP+, up to 10km over SMF
  - 40GBASE-ER4 QSFP+, up to 40km over SMF
- 10 Gigabit Ethernet
  - 10GBASE-T, up to 100m over Cat 6a UTP/STP
  - 10GBASE-CX, up to 10m over Twinax
  - 10GBASE-SR/SW SFP+, up to 400m over MMF
  - 10GBASE-LR/LW SFP+, up to 10km over SMF
  - 10GBASE-BX10 SFP+, up to 10km over SMF
  - 10GBASE-ER SFP+, up to 40km over SMF
  - 10GBASE-ER CDWM SFP+, up to 40km over SMF
  - 10GBASE-ZR CDWM SFP+, up to 70km over SMF

Note: SFP+ sockets are also capable of supporting a wide range of 1 Gigabit Ethernet Transceivers. Extreme Networks also supports third party CDWM and DWDM Transceivers in "Forgiving Mode". Please refer to the product documentation for full details and a complete listing of all specifications and compliance.

## Standards Compliance

### IEEE

- 802.1 Bridging (Networking) and Network Management
  - 802.1D MAC Bridges (a.k.a. Spanning Tree Protocol)
  - 802.1p Traffic Class Expediting and Dynamic Multicast Filtering
  - 802.1t 802.1D Maintenance
  - 802.1w Rapid Reconfiguration of Spanning Tree (RSTP)
  - 802.1Q Virtual Local Area Networking (VLAN)
  - 802.1Qbp Equal-Cost Multi-Path (Shortest Path Bridging)
  - 802.1Qcj Automatic Attachment to Provider Backbone Bridging (PBB) Services (Partial Support)
  - 802.1s Multiple Spanning Trees (MSTP)
  - 802.1v VLAN Classification by Protocol & Port
  - 802.1ag Connectivity Fault Management
  - 802.1ah Provider Backbone Bridges
  - 802.1aq Shortest Path Bridging (SPB) MAC-in-MAC
  - 802.1X Port-based Network Access Control
  - 802.1AB-2005 Station & Media Access Control Connectivity Discovery; aka LLDP (partial support)
  - 802.1AE Media Access Control Security
  - 802.1AX Link Aggregation

# Standards Compliance (cont.)

## IEEE (cont.)

- 802.3 Ethernet
  - 802.3-1983 CSMA/CD Ethernet (ISO/IEC 8802-3)
  - 802.3i-1990 10Mb/s Operation, 10BASE-T Copper
  - 802.3u-1995 100Mb/s Operation, 100BASE-T Copper, with Auto-Negotiation
  - 802.3x-1997 Full Duplex Operation
  - 802.3z-1998 1000Mb/s Operation, implemented as 1000BASE-X
  - 802.3ab-1999 1000Mb/s Operation, 1000BASE-T Copper
  - 802.3ae-2002 10Gb/s Operation, implemented as 10GBASE-SFP+
  - 802.3an-2006 10Gb/s Operation, 10GBASE-T Copper
  - 802.3ba-2010 40Gb/s and 100Gb/s Operation
  - 802.3bm-2015 40Gb/s and 100Gb/s Operation, implemented as 40GBASE-QSFP+ & 100GBASE-QSFP28

## IETF

- 768 UDP
- 783 TFTP
- 791 IP
- 792 ICMP
- 793 TCP
- 826 ARP
- 854 Telnet
- 894 Transmission of IP Datagrams over Ethernet Networks
- 896 Congestion Control in IP/TCP internetworks
- 906 Bootstrap Loading using TFTP
- 950 Internet Standard Subnetting Procedure
- 951 BOOTP: Relay Agent-only
- 959 FTP
- 1027 Using ARP to Implement Transparent Subnet Gateways
- 1058 RIP
- 1112 Host Extensions for IP Multicasting
- 1122 Requirements for Internet Hosts - Communication Layers
- 1155 Structure and Identification of Management Information for TCP/IP-based Internets
- 1156 MIB for Network Management of TCP/IP
- 1157 SNMP
- 1212 Concise MIB Definitions
- 1213 MIB for Network Management of TCP/IP-based Internets: MIB-II
- 1215 Convention for Defining Traps for use with the SNMP
- 1256 ICMP Router Discovery
- 1258 BSD Rlogin
- 1271 Remote Network Monitoring MIB
- 1305 NTPv3
- 1321 MD5 Message-Digest Algorithm
- 1340 Assigned Numbers
- 1350 TFTPv2
- 1398 Ethernet MIB
- 1442 SMIv2 of SNMPv2
- 1450 SNMPv2 MIB
- 1519 CIDR
- 1541 DHCP
- 1542 Clarifications and Extensions for BOOTP
- 1573 Evolution of the Interfaces Group of MIB-II
- 1587 OSPF NSSA Option
- 1591 DNS Client
- 1650 Definitions of Managed Objects for the Ethernet-like Interface Types
- 1657 Definitions of Managed Objects for BGP-4 using SMIv2
- 1723 RIPv2 Carrying Additional Information
- 1812 Router Requirements
- 1850 OSPFv2 MIB
- 1866 HTMLv2
- 1907 SNMPv2 MIB
- 1930 Guidelines for creation, selection, and registration of an AS
- 1981 Path MTU Discovery for IPv6
- 2021 Remote Network Monitoring MIBv2 using SMIv2
- 2068 HTTP
- 2080 RIPng for IPv6
- 2131 DHCP
- 2138 RADIUS Authentication
- 2139 RADIUS Accounting
- 2139 RADIUS Accounting
- 2236 IGMPv2 Snooping
- 2284 PPP Extensible Authentication Protocol
- 2328 OSPFv2
- 2362 PIM-SM
- 2404 HMAC-SHA-1-96 within ESP and AH<sup>6</sup>
- 2407 Internet IP Security Domain of Interpretation for ISAKMP<sup>6</sup>
- 2408 Internet Security Association and Key Management Protocol
- 2428 FTP Extensions for IPv6 and NAT
- 2452 TCP IPv6 MIB
- 2453 RIPv2
- 2454 UDP IPv6 MIB
- 2460 IPv6 Basic Specification
- 2463 ICMPv6
- 2464 Transmission of IPv6 Packets over Ethernet Networks
- 2466 MIB for IPv6: ICMPv6 Group
- 2474 Differentiated Services Field Definitions in IPv4 and IPv6 Headers
- 2475 Architecture for Differentiated Service
- 2541 DNS Security Operational Considerations
- 2545 BGP-4 Multiprotocol Extensions for IPv6 Inter-Domain Routing
- 2548 Microsoft Vendor-specific RADIUS Attributes
- 2572 Message Processing and Dispatching for SNMP
- 2573 SNMP Applications
- 2574 User-based Security Model for SNMPv3
- 2575 View-based Access Control Model for SNMP
- 2576 Coexistence between v1/v2/v3 of the Internet-standard Network Management Framework
- 2578 SMIv2
- 2579 Textual Conventions for SMIv2
- 2580 Conformance Statements for SMIv2
- 2597 Assured Forwarding PHB Group
- 2598 Expedited Forwarding PHB OAandM RFCs
- 2616 HTTPv1.1
- 2710 MLD for IPv6
- 2716 PPP EAP TLS Authentication Protocol
- 2787 Definitions of Managed Objects for VRRP
- 2818 HTTP over TLS

## IETF (cont.)

- 2819 Remote Network Monitoring MIB
- 2863 Interfaces Group MIB
- 2865 RADIUS
- 2869 RADIUS Extensions (partial support)
- 2874 DNS Extensions for IPv6
- 2925 Definitions of Managed Objects for Remote Ping, Traceroute, and Lookup Operations
- 2933 GMP MIB
- 2934 PIM MIB for IPv4
- 2992 ECMP Algorithm
- 3046 DHCP Relay Agent Information Option 82
- 3162 RADIUS and IPv6
- 3246 Expedited Forwarding PHB
- 3315 DHCPv6
- 3339 Date & Time on The Internet: Timestamps
- 3376 IGMPv3
- 3411 Architecture for Describing SNMP Management Frameworks
- 3412 Message Processing and Dispatching for SNMP
- 3413 SNMP Applications
- 3414 USM for SNMPv3
- 3415 VACM for SNMP
- 3416 Protocol Operations v2 for SNMP
- 3417 Transport Mappings for SNMP
- 3418 MIB for SNMP
- 3484 Default Address Selection for IPv6
- 3513 IPv6 Addressing Architecture
- 3569 Overview of SSM
- 3513 IPv6 Addressing Architecture
- 3569 Overview of SSM
- 3579 RADIUS Support for EAP
- 3587 IPv6 Global Unicast Address Format
- 3596 DNS Extensions to support IPv6
- 3748 Extensible Authentication Protocol
- 3810 MLDv2 for IPv6: Host Mode-only
- 3879 Deprecating Site Local Addresses
- 4007 IPv6 Scoped Address Architecture
- 4022 TCP MIB
- 4087 IP Tunnel MIB
- 4113 UDP MIB
- 4133 Entity MIB Version 3 (partial support)
- 4193 Unique Local IPv6 Unicast Addresses
- 4213 Basic Transition Mechanisms for IPv6 Hosts and Routers
- 4250 SSH Assigned Numbers
- 4251 SSH Protocol Architecture
- 4252 SSH Authentication Protocol
- 4253 SSH Transport Layer Protocol
- 4254 SSH Connection Protocol
- 4255 DNS to Securely Publish SSH Key Fingerprints
- 4256 Generic Message Exchange Authentication for SSH
- 4291 IPv6 Addressing Architecture
- 4292 IP Forwarding Table MIB
- 4293 IP MIB
- 4301 Security Architecture for IP<sup>6</sup>
- 4302 IP Authentication Header<sup>6</sup>
- 4303 IP Encapsulating Security Payload<sup>6</sup>
- 4308 Cryptographic Suites for IPsec
- 4363 Definitions of Managed Objects for Bridges with Traffic Classes, Multicast Filtering and Virtual LAN Extensions (partial support)
- 4429 Optimistic DAD for IPv6 (partial support)
- 4443 ICMP for IPv6
- 4541 Considerations for IGMP & MLD Snooping Switches
- 4552 Authentication/Confidentiality for OSPFv3
- 4601 PIM-SM: Revised Protocol Specification
- 4607 Source-Specific Multicast for IP
- 4675 RADIUS Attributes for Virtual LAN and Priority Support (partial support)
- 4835 Cryptographic Algorithm Implementation Requirements for ESP and AH
- 4861 Neighbor Discovery for IPv6
- 4862 IPv6 Stateless Address Auto- Configuration
- 5095 Deprecation of Type 0 Routing Headers in IPv6
- 5176 Dynamic Authorization Extensions to RADIUS
- 5187 OSPFv3 Graceful Restart (Helper-mode)
- 5308 Routing IPv6 with IS-IS
- 5340 OSPF for IPv6
- 5424 The Syslog Protocol
- 5798 VRRPv3 for IPv4 and IPv6
- 5905 NTPv4: Protocol and Algorithms Specification
- 5997 Use of Status-Server Packets in RADIUS
- 6105 IPv6 Router Advertisement Guard
- 6329 IS-IS Extensions supporting Shortest Path
- 6933 Entity MIBv4 (partial support)
- 7358 VXLAN: A Framework for Overlaying Virtualized L2 Networks over L3 Networks (partial support)
- 7610 DHCPv6 Shield: Protecting against Rogue DHCPv6 Servers
- Internet-Draft IP/IPVPN services with IEEE 802.1aq SPB networks (draft-unbehagen-spb-ip-ipvpn-00)
- Internet-Draft SPB Deployment Considerations (draft-lapuh-spb-deployment-03)

<sup>6</sup> Implemented to deliver IPsec capability for Control Plane traffic only.

## Ordering Information

Part Code	Description
EC7200A1F-E6	VSP 7254XSQ 54-port Ethernet Switch, supporting 48 x 10GBASE-SFP+ & 6 x 40GBASE-QSFP+ ports. Includes single 460W AC Power Supply, Front-to-Back Airflow Fans, and Base Software License. Slide Rack Mount Kit sold separately.
EC7200A1B-E6	VSP 7254XSQ 54-port Ethernet Switch, supporting 48 x 10GBASE-SFP+ & 6 x 40GBASE-QSFP+ ports. Includes single 460W AC Power Supply, Back-to-Front Airflow Fans, and Base Software License. Slide Rack Mount Kit sold separately.
EC720001F-E6	VSP 7254XSQ 54-port Ethernet Switch, supporting 48 x 10GBASE-SFP+ & 6 x 40GBASE-QSFP+ ports. Includes single 800W DC Power Supply, Front-to-Back Airflow Fans, and Base Software License. Slide Rack Mount Kit sold separately.
EC7200A3F-E6	VSP 7254XSQ Port-Licensed 54-port Ethernet Switch, initially supporting 24 x 10GBASE-SFP+ & 4 x 40GBASE-QSFP+ ports. Includes single 460W AC Power Supply, Front-to-Back Airflow Fans, and Base Software License. Slide Rack Mount Kit sold separately.
EC7200A3B-E6	VSP 7254XSQ Port-Licensed 54-port Ethernet Switch, initially supporting 24 x 10GBASE-SFP+ & 4 x 40GBASE-QSFP+ ports. Includes single 460W AC Power Supply, Back-to-Front Airflow Fans, and Base Software License. Slide Rack Mount Kit sold separately.
EC7200A2F-E6	VSP 7254XTQ 54-port Ethernet Switch, supporting 48 x 10GBASE-T & 6 x 40GBASE-QSFP+ ports. Includes single 800W AC Power Supply, Front-to-Back Airflow Fans, and Base Software License. Slide Rack Mount Kit sold separately.
EC7200A2B-E6	VSP 7254XTQ 54-port Ethernet Switch, supporting 48 x 10GBASE-T & 6 x 40GBASE-QSFP+ ports. Includes single 800W AC Power Supply, Back-to-Front Airflow Fans, and Base Software License. Slide Rack Mount Kit sold separately.
EC720002F-E6	VSP 7254XTQ 54-port Ethernet Switch, supporting 48 x 10GBASE-T & 6 x 40GBASE-QSFP+ ports. Includes single 800W DC Power Supply, Front-to-Back Airflow Fans, and Base Software License. Slide Rack Mount Kit sold separately.
EC7200A4F-E6	VSP 7254XTQ Port-Licensed 54-port Ethernet Switch, initially supporting 24 x 10GBASE-T & 4 x 40GBASE-QSFP+ ports. Includes single 800W AC Power Supply, Front-to-Back Airflow Fans, and Base Software License. Slide Rack Mount Kit sold separately.
EC7200A4B-E6	VSP 7254XTQ Port-Licensed 54-port Ethernet Switch, initially supporting 24 x 10GBASE-T & 4 x 40GBASE-QSFP+ ports. Includes single 800W AC Power Supply and, Back-to-Front Airflow Fans, and Base Software License. Slide Rack Mount Kit sold separately.
<b>Power Supplies</b>	
EC7205A1F-E6	460W 100-240V AC Power Supply for VSP 7254XSQ, Front-to-Back Airflow.
EC7205A1B-E6	460W 100-240V AC Power Supply for VSP 7254XSQ, Back-to-Front Airflow.
EC7205A0F-E6	800W 100-240V AC Power Supply for VSP 7254XTQ, Front-to-Back Airflow.
EC7205A0B-E6	800W 100-240V AC Power Supply for VSP 7254XTQ, Back-to-Front Airflow.
EC8005001-E6	800W DC Power Supply for VSP 7200/8000, Front-to-Back Airflow.
<b>Licenses</b>	
380176	VSP 7200/8000 Premier License
380177	VSP 7200/8000 Premier License with MACsec. Note: This license is not applicable to the VSP 7254XSQ.
386914	Port License for VSP 7200. Optional license that enables all ports, for use on 1 Switch, and may be used independently or in combination with Premier Software License.
<b>Accessories</b>	
EC8011002-E6	Slide Rack Mount Kit (300-900mm).
EC7200BTF-E6	Spare/Replacement Fan Module for VSP 7200, Back-to-Front Airflow, 3 required per Switch.
EC7200FTB-E6	Spare/Replacement Fan Module for VSP 7200, Front-to-Back Airflow, 3 required per Switch.
AL2011020-E6	DB-9 Female to RJ-45 Console Connector (RED).
AL2011021-E6	DB-9 Male to RJ-45 Console Connector (BLUE).
AL2011022-E6	RJ-45/DB-9 Integrate Console Cable.

## Ordering Information (cont.)

Part Code	Description
<b>GSA Models</b>	
EC720001F-E6GS	VSP 7254XSQ, GSA Version. Includes single 800W DC Power Supply, Front-to-Back Airflow Fans, and Base Software License. Slide Rack Mount Kit sold separately
EC720002F-E6GS	VSP 7254XTQ, GSA Version. Includes single 800W DAC Power Supply, Front-to-Back Airflow Fans, and Base Software License. Slide Rack Mount Kit sold separately
EC7200A1B-E6GS	VSP 7254XSQ, GSA Version. Includes single 460W AC Power Supply, Back-to-Front Airflow Fans, and Base Software License. Slide Rack Mount Kit sold separately
EC7200A1F-E6GS	VSP 7254XSQ, GSA Version. Includes single 460W AC Power Supply, Front-to-Back Airflow Fans, and Base Software License. Slide Rack Mount Kit sold separately
EC7200A2B-E6GS	VSP 7254XTQ, GSA Version. Includes single 460W AC Power Supply, Back-to-Front Airflow Fans, and Base Software License. Slide Rack Mount Kit sold separately
EC7200A2F-E6GS	VSP 7254XTQ, GSA Version. Includes single 460W AC Power Supply, Front-to-Back Airflow Fans, and Base Software License. Slide Rack Mount Kit sold separately

Notes of product ordering and hardware installation considerations:

- Power cord is not included and must be ordered separately for switches and power supplies. For a list of available power cords, please refer to "Lifecycle Notification on VSP Power Cord Models" at: <http://bit.ly/2q1YBgo>
- Extreme Networks recommends that Customers order a Slide Rack Mount Kit with every unit; the 300-900mm kit is designed to fit within most 4-post rack mount systems. Rack mounting with just two post ears would likely cause warping of the rack due to the weight of the unit and is therefore not recommended. Customers are advised to use mounting ears only in conjunction with a supporting shelf.
- A Console Cable is not shipped with the unit and, if required, must be ordered separately.
- All GSA part codes have Taiwan as their Country of Origin



<http://www.extremenetworks.com/contact>

©2020 Extreme Networks, Inc. All rights reserved. Extreme Networks and the Extreme Networks logo are trademarks or registered trademarks of Extreme Networks, Inc. in the United States and/or other countries. All other names are the property of their respective owners. For additional information on Extreme Networks Trademarks please see <http://www.extremenetworks.com/company/legal/trademarks>. Specifications and product availability are subject to change without notice. 11931-0420-13