

Product Highlights:

- High-performance 10/40 Gigabit Ethernet Switch
- 80 ports of 10 Gigabit Ethernet configured as SFP+ sockets
- 4 ports of 40 Gigabit Ethernet configured as QSFP+ sockets
- Efficient compact form-factor that reduces power and footprint consumption
- Supports both conventional Routed IP and/or Fabric-based networking deployments
- Delivers high-end functionality, performance, and scalability while helping avoid the 'Chassis Tax'

Avaya Virtual Services Platform 8284XSQ

Compact Form-Factor Ethernet Switch designed to deliver sophisticated yet simplified functionality in deployments for mid-sized business.

Avaya heralds the introduction of a new concept in networking, the Compact Form-Factor Ethernet Switch, a concept that seeks to address the needs of middle business; from the mid-market up to mid-sized Enterprises.

Mid-sized businesses are increasingly dependent upon application access and IT systems – much like their larger siblings – however they typically do not have the same levels of IT or funding resources available to build-out reliable networks using conventional techniques and products. They too seek advanced networking capabilities, but need these to be delivered in a streamlined, simplified, and cost-effective package.

The VSP 8000 Series features tight integration between the Industry's leading hardware and Avaya's proven VSP Operating System and this delivers a compelling package of enhanced levels of functionality and robustness. Leveraging Avaya's unique virtualization technologies, businesses can benefit from real-time service agility, avoiding the delays associated with conventional design, and the outages introduced in trying to maintain them. The Compact

Form-Factor (CFF) design revolutionizes the cost/benefit proposition for the mid-market/mid-sized Core Switch role; delivering higher port density, better price/port, lower entry price-point, enhanced power efficiency, reduced maintenance, smaller physical footprint, and easy scalability. Essentially, the CFF gives business what they need, and at the same time helps them avoid the 'Chassis Tax'.

The VSP 8284XSQ is the first model in the new VSP 8000 Series range of products. With it, businesses can easily transition their network from the inefficiencies of legacy technologies, migrating to a genuine next-generation solution that dramatically reduces the operational burden and helps realize revolutionary operational benefits. Every IT department is seeking solutions that enable them to spending less of



VSP 8284XSQ 84-port Switch



Front View



Rear View

The VSP 8000 Series features tight integration between the Industry's leading hardware and Avaya's proven VSP Operating System and this delivers a compelling package of enhanced level of functionality and robustness.

their time maintaining basic operations; the VSP 8284XSQ is just such an offering. The platform can deploy and operationalize quickly, minimize ongoing operational burden, and enable real-time, in-service change and maintenance. The VSP 8284XSQ enables businesses to put their finite IT resources to work on important value-adding projects. Additional benefits include lifetime warranty, reduced maintenance costs, and all-inclusive software licensing; combining to deliver a package with a dramatically enhanced total cost of ownership.

Leveraging both next-generation hardware and software technology provides a solution that is ready to support both today's requirements and tomorrow's emerging needs. The VSP 8284XSQ enables business to future-proof with a highly software-definable network virtualization solution.

Product Overview

The new Avaya Virtual Services Platform 8284XSQ Ethernet Switch provides a total of 84 fixed ports, configured as 80 ports of 10 Gigabit Ethernet, presented as SFP+ sockets, and 4 ports of 40 Gigabit Ethernet, presented as QSFP+ sockets.

The innovative design leverages the most advanced chipset from the Industry's leading supplier, featuring 2.56Tbps of switching and 1,428Mpps of frame forwarding performance. The chipset is designed to deliver Terabit-scale, wire-speed capabilities, with a fully integrated 10/40/100 Gigabit

ASIC architecture that facilitates multiple design opportunities. Latency has been optimized, with a 40% advance over current best examples. New intelligent buffer technology self-tunes thresholds for excellent burst absorption, offering a 5x efficiency gain over existing static designs. A flexible, Unified Forwarding Table allows for future in-field optimization, with up to four mission profiles supported. This chipset also includes embedded support for a range of enabling technologies such as DCB, SPB, VXLAN, PIM, FCoE, and NAT/PAT.

Benefits

The VSP 8284XSQ adds significant flexibility to the Avaya Networking portfolio, and is compatible with, and complementary to, existing products and technologies. Introducing the Compact Form-Factor concept, the VSP 8284XSQ, when deployed with other Avaya or third party Ethernet Switches devices, provides very high-capacity, high-performance connectivity solution for mid-sized Campus networks.

Building the Core using the cost-effective VSP 8284XSQ and the Avaya Switch Cluster technology enhances the resiliency posture normally available to mid-sized business. In addition to the various high-availability factors offered by expensive Chassis-based products (i.e. CPU, Switch Fabric, Power, Cooling, and of course Link), the combination of Switch Cluster and distributed hardware delivers total physical independent, including the ability to have the 'Core' split and

deployed in different physical locations, independent and isolated control planes (meaning genuine process separation, isolation, and greater protection), and in-service software upgrades and be easily enacted. The VSP 8284XSQ brings to the mid-sized Core the advantages that deploying Switch Cluster on Avaya's Chassis-based products has delivered for many years to larger networks, but now offering it at a price-point more compatible with mid-sized business.

The VSP 8284XSQ also natively supports the Avaya Fabric Connect technology. Some of the key advantages that Fabric Connect delivers include:

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

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

Connect to virtualize the network delivers fundamental change. Rather than the network appearing as a mass of individual devices it becomes an opaque cloud, where we only need to touch the single unique device that is providing service directly to the end-point. Fabric Connects automatically and instantly propagates all of service attributes to every other node within the cloud.

Fabric Connect has the added advantage of separating and segmenting traffic to unique service constructs. This has advantages in delivering 'stealth networking' solutions that help with compliance for business processes such as PCI and HIPAA.

Creating an autonomic network delivers crucial advantages. It means that businesses no longer need to configure the Core of the network for every service change; service change is only configured at the Edge of the network, and this has dramatic impacts for the entire change paradigm. Network segmentation means that each service is uniquely encapsulated and carried independent of every other service. Leveraging a single unified protocol, with integrated IP Multicast, enables Fabric Connect to deliver the Industry's premium solution for simplified, scalable, and resilient IP Multicast-based applications. The Edge-only provisioning model delivers significant advances in how the network interacts with VM mobility. Layer 2 VLANs can be easily and seamlessly extended throughout the Data Center whether that is a

single site or multi-site, and traffic flows are automatically load-balanced across all available links.

System Compatibility

From a software perspective, the VSP 8284XSQ is introduced with the launch of the VSP 8000 Series and the initial VOSS 4.0 software version; this will therefore be the minimum level of software available to operate the Switch. The VOSS 4.2 release delivers the following major enhancements:

- 40 Gigabit Channelization
- IP Security (IPsec) data encryption for Control Plane traffic
- Various security enhancements

Features & Capabilities

- 80 ports of 10 Gigabit Ethernet and 4 ports of 40 Gigabit Ethernet
- 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, Link Aggregation, Spanning Tree technologies
- Routed IPv4 & IPv6 includes support for Static, RIP, OSPF, ECMP, VRRP, PIM-SM, and VRF
- IPv6-optimized Hardware
- Avaya Switch Cluster technology supports Triangle & Square configurations, with both Layer 2 and Layer 3 functionality

- Avaya Fabric Connect technology supports Layer 2 Virtual Service Networks, Layer 3 Virtual Service Networks, Inter-VSN Routing, and IP Shortcut Routing
- MACsec and Enhanced Security Mode options

High Availability Power & Cooling

- Up to 2 field-replaceable, hot-swappable AC or DC internal Power Supplies
- 4 field-replaceable Fan Modules

Warranty

- Lifetime Next Business Day shipment of replacement hardware
- Lifetime Basic Technical Support
- 90-Day Advanced Technical Support
- A complete range of support options are also available, either directly from Avaya or indirectly from our Authorized Business Partner network

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 and - where local regulations permit - MACsec.

Country of Origin

- China (PRC)

VSP 8284XSQ Specifications

General

- Physical Connectivity:
 - 80 x 10GBASE-SFP+ Ports
 - 4 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)
- MACsec support for 10 Gigabit ports

Layer 2

- MAC Address: 224,000
- Port-based VLANs: 4,059
- Private VLANs/E-Tree: 4,059
- MSTP Instances: 12
- MLT/LACP Groups: 84, and up to 96 when all 40 Gigabit ports are Channelized
- MLT Links per Group: 8
- LACP Links per Group: 8 Active & 8 Standby
- Avaya VLACP Instances: 84, and up to 96 when all 40 Gigabit ports are Channelized
- Avaya SLPP Instances: 128

Layer 3 IPv4 Routing Services

- ARP Entries: 32,000
- Static ARP Entries: 2000 per VRF, 10,000 System-wide
- IP Interfaces: 506
- CLIP Interfaces: 256
- IP Routes: 16,000
- IP Static Routes: 1,000 per VRF, 5000 System-wide
- RIP Interfaces: 200
- RIP Routes: 16,000
- OSPF Interfaces: 500
- OSPF Routes: 16,000
- OSPF Areas: 12 per VRF, 80 System-wide
- BGP Peers: 12
- BGP Routes: 16,000
- ECMP Groups: 1,000
- ECMP Paths per Group: 8
- ECMP Routes: 16,000
- NLB Interfaces: 256
- VRRP Interfaces: 252
- RSMLT Interfaces: 252
- IP Route Policies: 500 per VRF, 5,000 System-wide
- VRF Instances: 24

Layer 3 IPv6 Routing Services

- Neighbors: 8,000
- Static Neighbors: 256
- IP Interfaces: 506
- CLIP Interfaces: 1
- IP Configured Tunnels: 506
- IP Routes: up to 8,000
- IP Static Routes: 1,000
- OSPFv3 Interfaces: 500
- OSPFv3 Routes: up to 8,000
- OSPFv3 Areas: 12 per VRF, 80 System-wide
- ECMP Groups: 1,000
- ECMP Paths per Group: 8
- ECMP Routes: 16,000
- VRRP Interfaces: 252
- RSMLT Interfaces: 252

Multicast

- IGMP Interfaces: 4,059
- PIM Active Interfaces: 128
- PIM Passive Interface: 256
- PIM-SSM Static Channels: 4,000
- IP Multicast Streams: 6,000

Fabric Connect

- 802.1aq/RFC 6329 Shortest Path Bridging with Avaya extensions
- MAC Address: 112,000
- IS-IS Adjacencies: 84, and up to 96 when all 40 Gigabit ports are Channelized
- BEB Nodes per VSN: 512
- BCB/BEB Nodes per Region: 2,000
- L2 Virtual Service Networks: 4,059
- L3 Virtual Service Networks: 24
- IP Shortcut Routes: IPv4 16,000, and IPv6 8,000
- L2 Multicast Virtual Service Networks: 2,000
- L3 Multicast Virtual Service Networks: 24

QoS & Filtering

- ACL: 256 Ingress and 126 Egress
- IPv4 ACE: 766 Ingress and 252 Egress
- IPv4 ACE: 252 Ingress and 252 Egress
- L2-L4 Ingress Port Rate Limiters: 84, and up to 96 when all 40 Gigabit ports are Channelized
- Egress Port Shaper Granularity: 1Mbps to 40Gbps per Port

Operations & Management

- Mirrored Ports: 83, and up to 95 when all 40 Gigabit ports are Channelized

Support Transceivers		
40 Gigabit Ethernet		
<ul style="list-style-type: none"> 40GBASE-SR4/4x10GBASE-SR QSFP+ up to 150m over MMF (MPO connector) 40GBASE-LR4 QSFP+, up to 10km over SMF (Duplex LC) 	<ul style="list-style-type: none"> 40GBASE-QSFP+ Direct Attach Cable, 1m 40GBASE-QSFP+ Direct Attach Cable, 3m 40GBASE-QSFP+ Direct Attach Cable, 5m 	<ul style="list-style-type: none"> 40GBASE-QSFP+/4x10GBASE-SFP+ Break-Out Cable, 1m 40GBASE-QSFP+/4x10GBASE-SFP+ Break-Out Cable, 3m 40GBASE-QSFP+/4x10GBASE-SFP+ Break-Out Cable, 5m
10 Gigabit Ethernet		
<ul style="list-style-type: none"> 10GBASE-SR, up to 300m reach over MMF (Duplex LC) 10GBASE-LRM, up to 220m over FDDI-grade MMF (Duplex LC) 10GBASE-LR/LW, up to 10km reach over SMF (Duplex LC) 	<ul style="list-style-type: none"> 10GBASE-ER/EW, up to 40km reach over SMF (Duplex LC) 10GBASE-CDWM, up to 40 km reach on SMF (Duplex LC) 10GBASE-CDWM, up to 70 km reach on SMF (Duplex LC) 	<ul style="list-style-type: none"> 10GBASE-ZR/ZW, up to 80km reach on SMF (Duplex LC) 10GBASE-SFP+ Direct Attach Cable, 3m 10GBASE-SFP+ Direct Attach Cable, 5m 10GBASE-SFP+ Direct Attach Cable, 10m

Note: SFP+ sockets are also capable of supporting a wide range of 1 Gigabit Ethernet Transceivers; please refer to the product documentation for complete details.

For a complete listing of all specifications and compliance please refer to the product documentation.

Ordering Information

Ordering Information	
Part Code	Description
EC8200*01-E6	Virtual Services Platform 8284XSQ 84-port Ethernet Switch, supporting 80 x 10GBASE-SFP+ & 4 x 40GBASE-QSFP+ ports. Includes a single 800W 100-240V AC Power Supply (no Power Cord), four Fan Trays, and Base Software License. Slide Rack Mount Kit sold separately.
EC8200001-E6	Virtual Services Platform 8284XSQ 84-port Ethernet Switch, supporting 80 x 10GBASE-SFP+ & 4 x 40GBASE-QSFP+ ports. Includes a single 800W DC Power Supply, four Fan Trays, and Base Software License. Slide Rack Mount Kit sold separately.
EC8005*01-E6	800W 100-240V AC Power Supply, for use with the VSP 7200/8000 Series.
EC8005001-E6	800W DC Power Supply, for use with the VSP 7200/8000 Series.
380176	VSP 8000 Series Premier Software License: enables L3 VSN.
380177	VSP 8000 Series Premier Software License: enables L3 VSN and MACsec.
EC8011002-E6	VSP 8000 Slide Rack Mount Kit (300-900mm).
EC8011003-E6	VSP 8000 Chassis Power Supply Filler Panel.
EC8011004-E6	VSP 8000 Chassis Spare Fan Module.
AL2011020-E6	Avaya DB-9 Female to RJ-45 Console Connector (RED).
AL2011021-E6	Avaya DB-9 Male to RJ-45 Console Connector (BLUE).
AL2011022-E6	Avaya RJ-45/DB-9 Integrate Console Cable.
Where applicable the seventh character (*) of the Product Code is replaced to indicate the required product nationalization:	
A	No Power Cord option.
B	Includes European "Schuko" Power Cord option, common in Austria, Belgium, Finland, France, Germany, Netherlands, Norway and Sweden.
C	Includes Power Cord used in UK and Ireland.
D	Includes Power Cord used in Japan.
E	Includes Power Cord used in North America.
F	Includes Power Cord used in Australia, New Zealand and People's Republic of China.

Notes of product ordering and hardware installation considerations:

- Customers should choose the model number that corresponds with their regional power cord requirements.
- Avaya recommends that Customers purchase a second power supply unit, in order to provide highly available power.
- Avaya 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.

Additional Information

For further information about the Avaya Virtual Services Platform 8000 Series please visit www.avaya.com/products, and for the complete Avaya Networking portfolio, www.avaya.com/networking.

About Avaya

Avaya is a leading, global provider of customer and team engagement solutions and services available in a variety of flexible on-premise and cloud deployment options. Avaya's fabric-based networking solutions help simplify and accelerate the deployment of business critical applications and services. For more information, please visit www.avaya.com.

