WAVESYS

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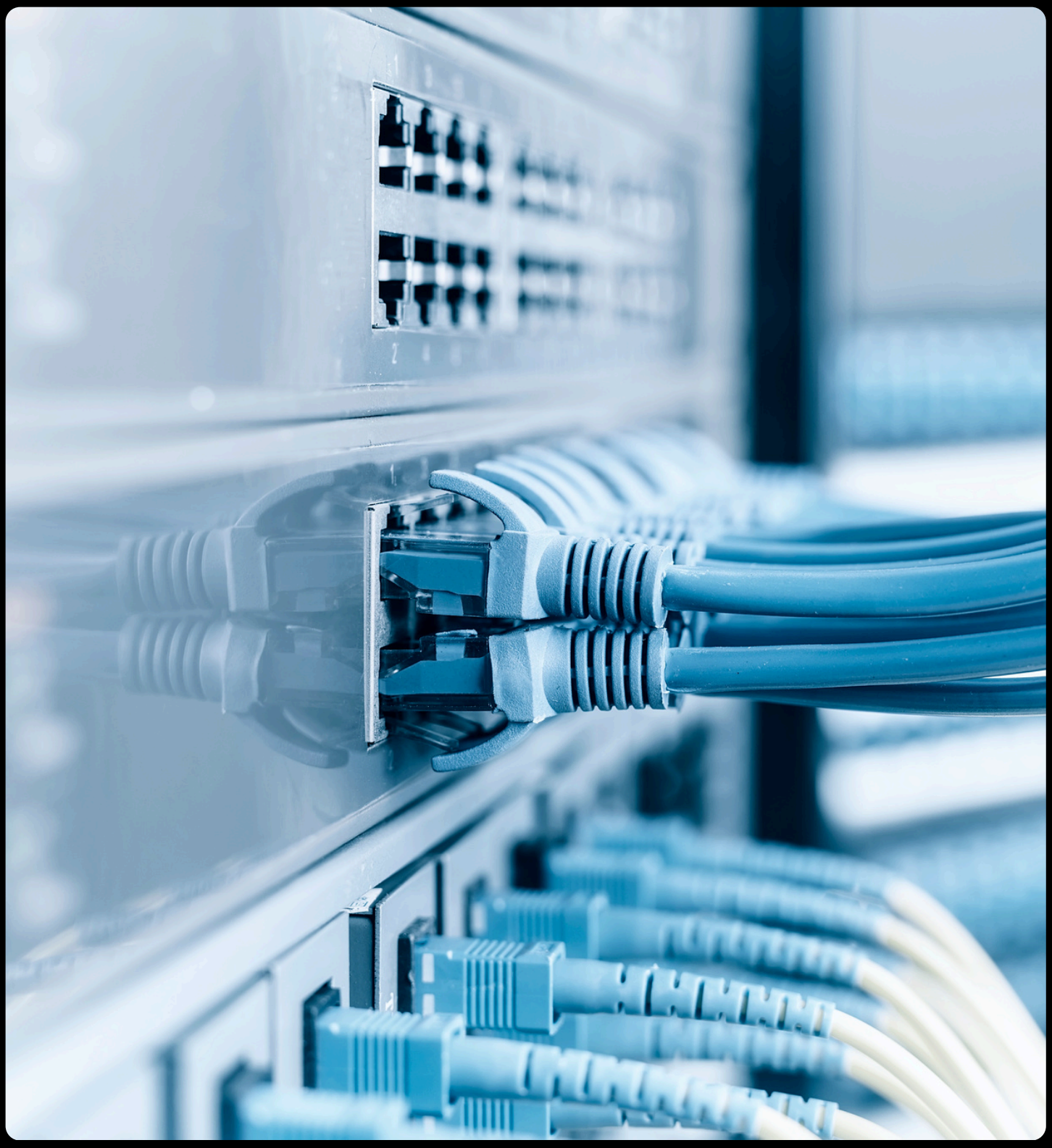

WAVESYS POWERSWITCH

WSC - 5200 SERIES

WAVESYS POWERSWITCH WSC-5200-ON SERIES

High-performance, open networking 25GbE top-of-rack and 100GbE spine/leaf switches.

Wavesys Global proudly introduces the WSC-5200-ON series, its latest advancement in disaggregated hardware and software data center networking solutions. This innovative family of switches delivers state-of-the-art, high-density 25/100GbE ports along with a comprehensive range of functionalities to address the ever-growing demands of today's data center environment.

The WSC-5200-ON series represents a new generation of open networking switches, built to provide optimal flexibility and cost-effectiveness for web 2.0, enterprise, and cloud service providers grappling with demanding compute and storage traffic environments.

The WSC-5200-ON encompasses a complete switch portfolio, catering to diverse deployment needs. This includes 12-port, 24-port, and 48-port 25GbE/100GbE ToR switches, a high-density 96-port 25GbE/100GbE switch suitable for Middle-of-Row (MoR) or End-of-Row (EoR) placements, and a powerful 32-port 100GbE Multi-Rate Spine/Leaf switch.

From the compact, half-rack width WSC-5212F-ON, offering an ideal form factor for modern hyper-converged deployments, to the high-density WSC-5296F-ON designed for efficient MoR installations, the WSC-5200-ON series delivers exceptional performance and flexibility to accommodate a variety of network architectures.

The WSC-5232F-ON switch extends its versatility beyond traditional 100GbE Spine/Leaf deployments. By leveraging breakout cables, this model can be transformed into a high-density solution, providing up to 128 individual 10GbE or 128 25GbE ports.

Wavesys prioritizes data center optimization within the WSC-5200-ON series. These switches incorporate industry-leading hardware along with multiple architectural features designed to maximize network flexibility, efficiency, and availability. This includes features like user-selectable IO panel to PSU or PSU to IO panel airflow for hot/cold aisle environments, redundant and hot-swappable power supplies and fans, and unwavering non-blocking performance – a critical factor for workloads sensitive to packet loss.

Furthermore, the WSC-5200-ON family is ideally suited for Data Center Bridging (DCB) environments, incorporating Priority-Based Flow Control (PFC), Data Center Bridge Exchange (DCBX), and Enhanced Transmission Selection (ETS) for optimized performance.

Wavesys champions open networking principles. The WSC-5200-ON series fully supports the Open Network Install Environment (ONIE), enabling zero-touch installation of a variety of operating systems. This includes Wavesys Global's own SmartFabric OS10 and Enterprise SONiC Distribution, offering users the freedom to choose the solution that best aligns with their specific needs.

KEY APPLICATIONS

The Wavesys WSC-5200-ON series caters to a wide range of data center applications, including:

Software-Defined Data Center (SDDC) Adoption: Organizations transitioning to an SDDC environment benefit from the WSC-5200-ON's flexibility and support for various networking technologies.

High-Performance Data Centers:

- High-Density Server Aggregation (10/25GbE ToR): The WSC-5248F-ON and WSC-5296F-ON deliver high-density aggregation at desired fabric speeds for demanding server environments.
- Lower-Density Server/Storage Aggregation (10/25GbE): The WSC-5212F-ON and WSC-5224F-ON are suitable for lower-density server and storage aggregation.

Small-Scale Fabric Deployments:
The WSC-5232F-ON can be used as a leaf or spine switch in conjunction with WSC-5248F-ON ToR switches for cost-effective 10/25/40/50/100GbE uplink aggregation in small-scale fabrics.

High-Performance Computing (HPC) Clusters and Business-Critical Workloads:
The WSC-5200-ON series offers multi-functional 10/25/40/50/100GbE switching for HPC clusters and bandwidth-intensive applications.

Additional Use Cases:

- iSCSI Deployments (DCB): The switches support DCB converged lossless transactions for iSCSI storage.
- Single-Pass VXLAN Routing: The WSC-5200-ON series facilitates single-pass VXLAN routing.
- High-Density ToR Options: 1 or 2RU ToR switches are available with up to 48 or 96 ports of 25GbE or 32 ports of 100GbE.

KEY FEATURES

- **Multi-Rate 100GbE Ports:** Support for 10/25/40/50/100GbE speeds.
- **Scalable L2/L3 Switching:** Scalable L2 and L3 Ethernet switching with QoS and comprehensive IPv4/IPv6 features.
- **High Performance:** Line-rate performance via non-blocking switch fabrics.
- **L2 Multipath Support:** Supports L2 multipathing with Virtual Link Trunking (VLT) and Routed VLT.
- **VXLAN Gateway Functionality:** Enables line-rate bridging and routing between virtual and non-virtualized networks.
- **Operating System Support:** Supports Enterprise SONiC Distribution, SmartFabric OS10, and open source ONIE for flexible OS choices.
- **Converged Network Support:** Supports DCB with priority flow control, ETS, DCBx, and iSCSI TLV.
- **Routable RoCE:** Enables converged compute and storage on Leaf/Spine fabrics.
- **Flexible Airflow Options:** Supports IO panel to PSU or PSU to IO panel airflow for hot/cold aisle deployments.
- **Redundancy and Serviceability:** Redundant, hot-swappable power supplies and fans on most models.
- **Easy Installation:** Supports ONIE for zero-touch installation of alternate network operating systems.
- **Rapid Deployment:** Tool-less mounting kits for faster switch installation.
- **Power Efficiency:** Power-efficient operation and Fresh Air 2.0 compliance up to 45°C reduces cooling costs.

Key features with SmartFabric OS10

Wavesys SmartFabric OS10 empowers network engineers and DevOps teams to streamline operations and accelerate application deployments through a range of innovative features.

Unified Management:

- Consistent DevOps Framework: SmartFabric OS10 fosters a consistent DevOps approach across compute, storage, and networking, simplifying infrastructure management.
- Standard Network Integration: Leverage standard networking features, interfaces, and scripting functions to seamlessly integrate with existing network operations tools.

Openness and Flexibility:

- Switch Abstraction Interface (SAI): Standardized hardware abstraction via SAI ensures compatibility with diverse switching hardware.
- Control Plane Services (CPS): The unrestricted developer environment of CPS empowers customization and automation tailored to specific needs.

Advanced Functionality:

- Layer 2/3 Switching and Routing: SmartFabric OS10 delivers comprehensive layer 2 and 3 switching and routing protocols, along with integrated IP services, quality of service (QoS), manageability, and automation features.
- Precision Time Protocol (PTP) Support: OS10 ensures accurate time synchronization across network devices with PTP (IEEE 1588v2) support.
- Enhanced Network Mobility: Stretch L2 VLANs within or across data centers using unique VLT capabilities, simplifying virtual machine (VM) migration.
- Scalability and Standards: Scalable L2 and L3 Ethernet switching with QoS, Access Control Lists (ACLs), and a full suite of IPv4 and IPv6 features, including OSPF, BGP, and Policy-Based Routing (PBR).
- Advanced Mirroring: Perform comprehensive network traffic analysis with local mirroring, Remote Port Mirroring (RPM), and Encapsulated Remote Port Mirroring (ERPM) capabilities.

Converged Network Support:

- Data Center Bridging (DCB): SmartFabric OS10 offers converged network support for DCB, including priority flow control (802.1Qbb), ETS (802.1Qaz), DCBx, and iSCSI TLV.

Next-Gen Fabrics:

- BGP EVPN with IRB: Enable controller-less Network Virtualization Overlay (NVO) through BGP EVPN with Integrated Routing and Bridging (IRB) in both Asymmetric and Symmetric modes.

By combining openness, automation, and robust functionality, SmartFabric OS10 empowers organizations to build agile, scalable, and future-proof data center networks.

Features	WSC-5212F-ON	WSC-5224F-ON	WSC-5248F-ON	WSC-5296F-ON	WSC-5232F-ON
Ports	12xSFP28 3xQSFP28	24xSFP28 4xQSFP28	48xSFP28 2xQSFP28-DD 4xQSFP28	96xSFP28 8xQSFP28	32xQSFP28 2xSFP+
Max 10GbE density	12 (SFP28) 12 (QSFP28 Breakout)	24 (SFP28) 16 (QSFP28 breakout)	48 (SFP28) 16 (QSFP28-DD breakout) 16 (QSFP28 breakout)	96 (SFP28) 32 (QSFP28 breakout)	124 (QSFP28 breakout) 2 (SFP+)
Max 25GbE density	12 (SFP28) 12 (QSFP28 Breakout)	24 (SFP28) 16 (QSFP28 breakout)	48 (SFP28) 16 (QSFP28-DD breakout) 16 (QSFP28 breakout)	96 (SFP28) 32 (QSFP28 breakout)	124 (QSFP28 breakout)
Max 40GbE density	3 (QSFP28)	4 (QSFP28)	6 (QSFP28) 4 (QSFP28-DD breakout)	8 (QSFP28)	32 (QSFP28)
Max 50GbE density	6 (QSFP28 breakout)	8 (QSFP28 breakout)	16 (QSFP28 breakout)	16 (QSFP28 breakout)	64 (QSFP28 breakout)
Max 100GbE density	3 (QSFP28)	4 (QSFP28)	4 (QSFP28) 4 (QSFP28-DD breakout)	8 (QSFP28)	32 (QSFP28)
Switching capacity	1.08 Tbps (2.16 Tbps full duplex)	1.08 Tbps (2.16 Tbps full duplex)	2.0 Tbps (4.0 Tbps full duplex)	3.2 Tbps (6.4 Tbps full duplex)	3.2 Tbps (6.4 Tbps full duplex)
Throughput	440 Mpps (880 Mpps full duplex)	720 Mpps (1.42 Bpps full duplex)	1.5 Bpps (3.0 Bpps full duplex)	2.4 Bpps (4.8 Bpps full duplex)	2.4 Bpps (4.8 Bpps full duplex)
Latency (nano sec)	906	881	847	850	877
1588v2 PTP timing (hardware)		●	●	●	●
CPU Memory	8GB	8GB	16GB	16GB	16GB
SSD	16GB	32GB	64GB	64GB	64GB
Packet Buffer	32MB	32MB	32MB	32MB	32MB
Maximum power	304W	455W	647W	893W	635W
Typical Power	140W	200W	310W	457W	360W
Maximum current	2.8A@110VAC / 1.4A@220VAC	4.2A@110VAC / 2.1A@220VAC	5.8A@110VAC / 2.9A@220VAC	8.2A@110VAC / 4.1A@220VAC	5.8A@110VAC / 2.9A@220VAC
Fan modules	Fixed	4	4	4	4
Form Factor	1RU (half-width)	1RU	1RU	2RU	1RU
Dimensions	8.2"Wx19.3"D x1.6"H 20.9Wx49.0D x4.1H (cm)	17.1"Wx18.1"D x1.7"H 43.4Wx46.0D x4.4H (cm)	17.1"Wx18.1"D x1.7"H 43.4Wx46.0D x4.4H (cm)	17.4"Wx20.1"D x3.4"H 44.2Wx51.1D x8.7H (cm)	17.1"Wx18.1"D x1.7"H 43.4Wx46.0D x4.4H (cm)
Weight	4.5kg (10.05lbs)	9.7kg (21.4lbs)	9.7kg (21.4lbs)	15.1kg (33.2lbs)	9.8kg (21.6lbs)
Max thermal output	1037 BTU/h	1552 BTU/h	2208 BTU/h	3047 BTU/h	2167 BTU/h

FEATURES	DESCRIPTION
WSC-5200-ON	WSC-5212F, 12x 25GbE SFP28 + 3x 100GbE QSFP28, 2x AC PSU, I/O Panel to PSU Airflow, SmartFabric OS10
	WSC-5212F, 12x 25GbE SFP28 + 3x 100GbE QSFP28, 2x AC PSU, PSU to I/O Panel Airflow, SmartFabric OS10
	WSC-5212F, 12x 25GbE SFP28 + 3x 100GbE QSFP28, 2x DC PSU, I/O Panel to PSU Airflow, SmartFabric OS10
	WSC-5212F, 12x 25GbE SFP28 + 3x 100GbE QSFP28, 2x DC PSU, PSU to I/O Panel Airflow, SmartFabric OS10
	WSC-5212F, 12x 25GbE SFP28 + 3x 100GbE QSFP28, 2x AC PSU, I/O Panel to PSU Airflow, NO-OS
	WSC-5212F, 12x 25GbE SFP28 + 3x 100GbE QSFP28, 2x AC PSU, PSU to I/O Panel Airflow, NO-OS
	WSC-5212F, 12x 25GbE SFP28 + 3x 100GbE QSFP28, 2x AC PSU, I/O Panel to PSU Airflow, SmartFabric OS10, TAA
	WSC-5212F, 12x 25GbE SFP28 + 3x 100GbE QSFP28, 2x AC PSU, PSU to I/O Panel Airflow, SmartFabric OS10, TAA
	WSC-5224F, 24x 25GbE SFP28 + 4x 100GbE QSFP28, 2x AC PSU, Fan modules, I/O Panel to PSU Airflow, SmartFabric OS10
	WSC-5224F, 24x 25GbE SFP28 + 4x 100GbE QSFP28, 2x AC PSU, Fan modules, PSU to I/O Panel Airflow, SmartFabric OS10
	WSC-5224F, 24x 25GbE SFP28 + 4x 100GbE QSFP28, 2x AC PSU, Fan modules, I/O Panel to PSU Airflow, NO-OS
	WSC-5224F, 24x 25GbE SFP28 + 4x 100GbE QSFP28, 2x AC PSU, Fan modules, PSU to I/O Panel Airflow, NO-OS
	WSC-5224F, 24x 25GbE SFP28 + 4x 100GbE QSFP28, 2x AC PSU, Fan modules, I/O Panel to PSU Airflow, SmartFabric OS10, TAA
	WSC-5224F, 24x 25GbE SFP28 + 4x 100GbE QSFP28, 2x AC PSU, Fan modules, PSU to I/O Panel Airflow, SmartFabric OS10, TAA
	WSC-5248F, 48x 25GbE SFP28 + 2x 200GbE QSFP28-DD + 4x 100GbE QSFP28, 2x AC PSU, Fan modules, I/O Panel to PSU Airflow, SmartFabric OS10
	WSC-5248F, 48x 25GbE SFP28 + 2x 200GbE QSFP28-DD + 4x 100GbE QSFP28, 2x AC PSU, Fan modules, PSU to I/O Panel Airflow, SmartFabric OS10
	WSC-5248F, 48x 25GbE SFP28 + 2x 200GbE QSFP28-DD + 4x 100GbE QSFP28, 2x AC PSU, Fan modules, I/O Panel to PSU Airflow, NO-OS
	WSC-5248F, 48x 25GbE SFP28 + 2x 200GbE QSFP28-DD + 4x 100GbE QSFP28, 2x AC PSU, Fan modules, PSU to I/O Panel Airflow, NO-OS
	WSC-5248F, 48x 25GbE SFP28 + 2x 200GbE QSFP28-DD + 4x 100GbE QSFP28, 2x AC PSU, Fan modules, I/O Panel to PSU Airflow, SmartFabric OS10, TAA
	WSC-5248F, 48x 25GbE SFP28 + 2x 200GbE QSFP28-DD + 4x 100GbE QSFP28, 2x AC PSU, Fan modules, PSU to I/O Panel Airflow, SmartFabric OS10, TAA
	WSC-5296F, 96x 25GbE SFP28 + 8x 100GbE QSFP28, 2x AC PSU, Fan modules, I/O Panel to PSU Airflow, SmartFabric OS10
	WSC-5296F, 96x 25GbE SFP28 + 8x 100GbE QSFP28, 2x AC PSU, Fan modules, PSU to I/O Panel Airflow, SmartFabric OS10
	WSC-5296F, 96x 25GbE SFP28 + 8x 100GbE QSFP28, 2x AC PSU, Fan modules, I/O Panel to PSU Airflow, NO-OS
	WSC-5296F, 96x 25GbE SFP28 + 8x 100GbE QSFP28, 2x AC PSU, Fan modules, PSU to I/O Panel Airflow, NO-OS
	WSC-5296F, 96x 25GbE SFP28 + 8x 100GbE QSFP28, 2x AC PSU, Fan modules, I/O Panel to PSU Airflow, SmartFabric OS10, TAA
	WSC-5296F, 96x 25GbE SFP28 + 8x 100GbE QSFP28, 2x AC PSU, Fan modules, PSU to I/O Panel Airflow, SmartFabric OS10, TAA

	WSC-5232F, 32x 100 GbE QSFB28 + 2x 10GbE SFP+, 2x AC PSU, Fan modules, I/O Panel to PSU Airflow, SmartFabric OS10 WSC-5232F, 32x 100 GbE QSFB28 + 2x 10GbE SFP+, 2x AC PSU, Fan modules, PSU to I/O Panel Airflow, SmartFabric OS10 WSC-5232F, 32x 100 GbE QSFB28 + 2x 10GbE SFP+, 2x AC PSU, Fan modules, I/O Panel to PSU Airflow, NO-OS WSC-5232F, 32x 100 GbE QSFB28 + 2x 10GbE SFP+, 2x AC PSU, Fan modules, PSU to I/O Panel Airflow, NO-OS WSC-5232F, 32x 100 GbE QSFB28 + 2x 10GbE SFP+, 2x AC PSU, Fan modules, I/O Panel to PSU Airflow, SmartFabric OS10, TAA WSC-5232F, 32x 100 GbE QSFB28 + 2x 10GbE SFP+, 2x AC PSU, Fan modules, PSU to I/O Panel Airflow, SmartFabric OS10, TAA
Redundant power supplies	AC Power Supply, IO Panel to PSU Airflow AC Power Supply, PSU to IO Panel Airflow DC Power Supply, IO Panel to PSU Airflow (available as custom kit) DC Power Supply, PSU to IO Panel Airflow (available as custom kit)
Fans	Fan module, IO Panel to PSU Airflow Fan module, PSU to IO Panel Airflow
Optics	Transceiver, 2x100GbE, 2xSR4, QSFP28-DD Transceiver, 2x100GbE, 2xPSM4-IR, QSFP28-DD Transceiver, 2x100GbE, 2xCWDM4, QSFP28-DD Transceiver, 100GbE, SR4 QSFP28 Transceiver, 100GbE, PSM4 (500m) QSFP28 Transceiver, 100GbE, CWDM4 (2Km) QSFP28 Transceiver, 100GbE, LR4 QSFP28 Transceiver, 40GbE, SR4 optic QSFP+ Transceiver, 40GbE, BIDI optic QSFP+ (Duplex) Transceiver, 40GbE, SM4 optic QSFP+ (Duplex) Transceiver, 40GbE, LM4 optic QSFP+ (Duplex) Transceiver, 40GbE, PSM4 10Km, QSFP+ Transceiver, 40GbE, LR4 optic QSFP+ Transceiver, 40GbE, ER4 optics QSFP+ Transceiver, 25GbE, SR, NOF SFP28 Transceiver, 25GbE, LR, SFP28 Transceiver, 10GbE, SR SFP+, short reach Transceiver, 10GbE, LR SFP+, long reach Transceiver, 10GbE, ER SFP+, extended reach Transceiver, 10GbE, ZR SFP+ extra extended reach 10G, Transceiver, 10GBASE-T use with QSA in QSFP+ port, 30m reach on CAT6a/7 Transceiver, 1GbE, SX SFP Transceiver, 1GbE, LX SFP Transceiver, 1GbE, ZX SFP Transceiver, 1GbE, 10km, BiDi SFP Transceiver, 1GbE, 40km, BiDi SFP Transceiver, 1GbE, 80km, BiDi SFP Transceiver, 1GbE, 1000BASE-T, Gen2, SFP

TECHNICAL SPECIFICATIONS:

Physical

- 1 RJ45 console/management port with RS232 signaling
- S5212F-ON: 12x25GbE SFP28 + 3x 100GbE QSFP28
- S5224F-ON: 24x25GbE SFP28 + 4x 100GbE QSFP28
- S5248F-ON: 48x25GbE SFP28 + 4x 100GbE QSFP28 + 2x100GbE QSFP28-DD
- S5296F-ON: 96x25GbE SFP28 + 8x 100GbE QSFP28
- S5232F-ON: 32x100GbE QSFP28 ports + 2xSFP+ 10GbE

Environmental

Power supply: 100–240 VAC 50/60 Hz
Max Operating specifications:
- AC Max. Operating specifications:
- Operating temperature: 32° to 113°F (0° to 45°C)
- Operating humidity: 5 to 90% (RH), non-condensing

Max. Non-operating specifications: Storage
- Temperature: –40° to 158°F (–40° to 70°C)
- Storage humidity: 5 to 90% (RH), non-condensing

Fresh air Compliant to 45°C

Redundancy

- Hot swappable redundant power
- Hot swappable redundant fans (fixed power supply and fans on S5212F-ON)

Performance*

- Packet buffer memory: 32MB
- CPU memory: 16GB
- MAC Addresses: 32K min, 288K max**
- IPv4 Hosts: 16K min, 168K max**
- IPv6 Hosts: 8K min, 100K max**
- IPv4 Routes: 128K**
- IPv6 Routes: 64K**
- Multicast Routes: 16K
- VLANs: 4K
- MSTP instances: 63 instances
- PVST instances: 150 instances
- Total LAG: 128
- Total members per LAG: 16
- LAG load balancing: Based on layer 2, IPv4 or IPv6 headers

Regulatory compliance
Safety

- UL/CSA 60950-1, Second Edition
- EN 60950-1, Second Edition
- IEC 60950-1, Second Edition Including All National Deviations and Group Differences
- EN 60825-1 Safety of Laser Products Part 1: Equipment Classification Requirements and User's Guide
- EN 60825-2 Safety of Laser Products Part 2: Safety of Optical Fibre Communication Systems
- FDA Regulation 21 CFR 1040.10 and 1040.11 Emissions
- Australia/New Zealand: AS/NZS CISPR 22: 2006, Class A
- Canada: ICES-003, Issue-4, Class A
- Europe: EN 55022: 2006+A1:2007 (CISPR 22: 2006), Class A
- Japan: VCCI V3/2009 Class A
- USA: FCC CFR 47 Part 15, Subpart B:2011, Class A

Immunity

EN 300 386 V1.4.1:2008 EMC for Network Equipment

EN 55024:	1998 + A1: 2001 + A2: 2003
EN 61000-3-2:	Harmonic Current Emissions
EN 61000-3-3:	Voltage Fluctuations and Flicker
EN 61000-4-2:	ESD
EN 61000-4-3:	Radiated Immunity
EN 61000-4-4:	EFT
EN 61000-4-5:	Surge
EN 61000-4-6:	Low Frequency Conducted Immunity

RoHS

All S Series components are EU RoHS Compliant.

Certifications

Available with US Trade Agreements Act (TAA) compliance
USGv6 Host and Router Certified on Networking OS 9.5 and greater
IPv6 Ready for both Host and Router
UCR DoD APL (core and distribution ALSAN switch

Warranty

1 Year Return to Depot

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