Smart solutions for smart networks

Version 1.0

SWM-5900 Series

New generation high-performance data center full Gigabit TOR switch

Product Overview

CXR **SWM-5900** series is a new generation high-performance data center full Gigabit TOR switch orientedfor cloud computing, data centers and high-end campusnetworks. **SWM-5900** series adopts an advanced hardware architecture design, providing the cutting-edge switching performance and rich data center service features. **SWM-5900** series provides high-density 10G/25G/100G data center access capabilities. To meet the requirements for resource pooling in cloud computing data center networks, the **SWM-5900** series supports a rich set of Layer 2 data center features such as VxLAN, Evpn, and others.

Ups to 32-ports 100G QSF28

Spine-Leaf architecture

6.4T switch Capacity

Comprehensive Data-center Functionnalities

SWM-5900 Series is equipped with the CXROS 6th generation operating system with CXR's Ups to 32-Port 100G QSFP28 Spine-Leaf Architecture 6.4T Switch Capacity Comprehensive Data-center Functionalities independent intellectual property rights. While providing high-performance L2/L3/L4 line-speed switching services, **SWM-5900** further integrates various network services such as IPv6, MPLS VPN, network security, traffic analysis, and virtualization. Combined with a variety of data center high-reliability technologies such as uninterrupted upgrade, uninterrupted forwarding, graceful restart, redundancy protection, **SWM-5900** series ensures the longest uninterrupted network communication. **SWM-5900** series inherits advanced "GreenTouch" concept and the cutting-edge "Smart@CHIP" energy -saving technology, which is low-carbon and environmentally friendly, effectively reducing the operating cost of the data center, and providing the green and sustainable development of the network. CXR **SWM-5900** series consists of ***SWM-5900-48SFPP10-8QSFP28***, ***SWM-5900-48SFPP25-8QSFP28*** and ***SWM-5900-32QSFP28***, which can meet the port density and performance requirements of different scale networks.

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Product Characteristics

Advanced Hardware Architecture Design & Leading Processing Capacity

Adopts the advanced hardware architecture, high-density data center access design, 1U device supports up to 48-port 25G SFP28 + 8-port 100G QSFP28 or a single machine can support 32-port 100G QSFP28 access. Equipped with high-performance ASIC switching chips and multi-core processors, supports up to 6.4Tbps switching capacity, meeting the high-performance, high-capacity, high-density and expandable requirements of data centers. Standard front-to-back or back-to-front airflow design, supports flexible selection of airflow direction.

Rich Data Center Business Features

Supports VxLAN, EVPN, M-LAG data center features. Satisfies the data center Overlay network construction and large-scale layer-2 network deployment inside the data center. End-to-end OAM based on IEEE802.1ag and ITU-T Y.1731 protocols enables Ethernet service providers to proactively monitor services and measure end-to-end performance. Supports Telemetry, which can finely monitor device and business operation status.

Data Center High Reliability

Based on the HPS (Hitless Protection System), the key power supply system adopts a redundant design, modularized and hot-swappable, and supports seamless switching in case of failure without interrupting business. Supports redundancy protection mechanism such as STP/RSTP/MSTP protocol, VRRP protocol, ring network protection, dual uplink active/standby link protection and LACP link aggregation. Supports ISSU (In-Service Software Upgrade) and GR (Graceful Restart), guaranteeing the user data non-stop forwarding when the system is upgrading. Supports ultra-high-precision BFD and realizes fault detection and service recovery in seconds through linking with layer-2 or layer-3 protocol. Provides perfect Ethernet OAM, and supports 802.3ah, 802.1ag and ITU-Y.1731, which can real-time monitor the network operating state and rapidly locate the malfunction. High Reliability (99.999%): MTTR is 50ms, meeting the requirement of the carrier-level service.

Comprehensive Service

Comprehensive Layer 2 and Layer 3 multicast routing protocols meet the access requirements of IPTV, multi-terminal high-definition video surveillance, and high-definition video conferencing; Equipped with a full range of Layer 3 routing protocols and an extremely large routing table capacity, it can meet the interconnection needs of various types of networks, and can build super-large data center networks, campus networks, enterprise networks, and industry-specific private networks. Fully supports Layer 2 and Layer 3 MPLS VPNs, can establish a large-scale MPLS VPN core network, and meets the access needs of industry-specific VPN users and corporate VPN users.

Comprehensive IPv6 Solutions

Fully supports the IPv6 protocol family, including features such as IPv6 Neighbor Discovery, ICMPv6, Path MTU Discovery, and DHCPv6.

Supports IPv6-based Ping, Traceroute, Telnet, SSH, ACL, etc., satisfying the needs for device management and business control in a pure IPv6 network. Supports IPv6 multicast features such as MLD and MLD Snooping, and supports IPv6 layer-3 routing protocols such as IPv6 static routing, RIPng, OSPFv3, BGP4+, etc., offering users comprehensive layer-2 and layer-3 IPv6 solutions. Supports a variety of IPv4 to IPv6 transition technologies, including manual IPv6 tunnels, automatic tunnels, 6to4 tunnels, ISATAP tunnels, etc., ensuring a smooth transition from IPv4 networks to IPv6 networks.

Robust Security Mechanisms

Device-level security protection :
With its advanced hardware architecture design, the device offers graded scheduling and protection for messages at the hardware level. It helps prevent attacks on the device such as DoS, TCP SYN Flood, UDP Flood, broadcast storms, and large traffic flows. Command-line level protection is also supported, with users of different levels having different management permissions.

Complete security authentication mechanism :
Supports IEEE 802.1x, Radius, BDTacacs+, etc., providing users with a complete security authentication mechanism. Enhanced business

security mechanism :
Supports plaintext or MD5 authentication for related routing protocols and uRPF reverse route lookup technology, which can effectively control illegal businesses. The hardware-level message depth detection and filtering technology supports deep detection of control messages and data messages, thereby effectively isolating illegal data messages and improving the security of the network system.

Innovative Green Environmental Design

Inherits CXR advanced "GreenTouch" concept, energy saving and environmental. Intelligent Power Management System: adopts advanced power system architecture design which can realize the function of efficient power switching, private power monitoring, soft start, real-time monitoring, intelligent adjustment and energy-saving. Intelligent Fan Management System : SWM-5900 is designed with the intelligent fan and supports switching between front-back and back-front mode and fan automatic speed regulation. Supports Efficient Ethernet and complies with International standard IEEE802.3az.

Product Specifications

	SWM-5900-48SFPP10-8QSFP28	SWM-5900-48SFPP25-8QSFP	SWM-5900-32QSFP28
Switching capacity	6.4Tbps	6.4Tbps	6.4Tbps
Forwarding	1920Mpps	3000Mpps	4800Mpps
Power slot	2	2	2
Fan slot	4	4	4
Ports	48-port 10G SFP+ 8-port 100G QSFP28	48-port 25G SFP28 8-port 100G QSFP28	32-port 100G QSFP28
Dimensions (W*D*H)mm	440×420×44		
Power supply	AC: 100V-240V, 50/60Hz DC: -36V~-72V		

- 48-Port 10G/GE SFP+
- 8-Port 100G/40G QSFP28

- 48-Port 25G/10G SFP+
- 8-Port 100G/40G QSFP28

- 32-Port 100G/40G QSFP28

Features

VLAN

- 4K VLAN IDs
- GVRP
- 1:1 and N:1 VLAN Mapping
- QinQ and selective QinQ
- Private VLAN

Vxlan

- Manually configuring VxLAN tunnel
- VxLAN distributed gateway
- VxLAN dual-active link access
- VxLAN interconnection across data centers
- VxLAN pass-through of L2 Protocol packets
- Supports modification of VxLAN outer header DSCP
- BGP EVPN
- Supports overlay split horizon, and separate control on different VNIs

Multicast

- IGMP v1/v2c/v3
- IGMP Snooping
- IGMP Fast Leave
- Multicast group policy and multicast number limit
- MVR
- PIM-SM, PIM-DM

IPv4

- Static routing, RIP v1/v2, OSPF, BGP, IS-IS, BEIGRP
- Policy Based Routing(PBR)
- ECMP
- BFD for OSPF, BGP

IPv6

- ICMPv6, DHCPv6, ACLv6 and IPv6 Telnet
- IPv6 neighbor discovery
- Path MTU discovery
- MLD v1/v2
- MLD snooping
- IPv6 Static Routing, RIPng, OSPFv3, BGP4+
- Manual tunnel, ISATAP tunnel, 6-to-4 tunnel

MPLS VPN

- MPLS Forwarding
- MCE
- MPLS OAM
- MPLS Stats
- L2VPN
- L3VPN

QoS

- Traffic classification based on fields in L2/L3/L4 protocol headers
- Committed Access Rate (CAR) traffic restriction
- Re-marking of 802.1P/DSCP priority
- Multiple queuing algorithms such as SP, WRR or SP+WRR
- Congestion avoidance mechanisms like Tail-Drop and WRED
- Traffic supervision and traffic shaping
- Ingress and Egress ACL, supports matching L2, L3, L4 and IP quintuples, and performs replication, forwarding and discarding
- Hash-based load balancing algorithm to ensure session integrity

Security features

- L2~L4 ACL flow identification and filtering security mechanism
- DDoS attack prevention, TCP-SYN/UDP Flood attack prevention
- Suppression of multicast, broadcast, and unknown unicast packets
- Port isolation
  Port Security, IP+MAC+port binding
- DHCP Snooping, DHCP Option 82
- IEEE 802.1x authentication
- Radius, BDTacacs+
- URPF
- Command line hierarchical protection

Reliability

- Power 1+1 backup
- Static/LACP link aggregation
- EAPS, ERPS
- HSRP, VRRP
- GR for OSPF and BGP
- BFD for OSPF and BGP
- ISSU

Management

- Console, Telnet, SSH 2.0
- Zero Touch Provisioning (ZTP)
- Web-GUI
- SNMP v1/v2c/v3
- Upload and download of FTP/ TFTP/SFTP files
- RMON event history
- Traffic statistical analysis such as sFLOW

Energy saving

- IEEE 802.3az

MLAG

- MLAG basic functions
- MLAG one-arm functions

MAC switching

- Static configuration and dynamic MAC learning
- MAC browsing and removal
- Configurable aging time of the MAC address
- Limited number of learnable MAC addresses
- MAC filtration
- Black-hole MAC list
- IEEE 802.1AE MacSec

STP

- 802.1d STP, 802.1w RSTP, 802.1s MSTP
- BPDU protection, root protection and ring protection

Environment

- Operating temperature/humidity: -10°C-50°C; 10%-90%non-condensing
- Storage temperature/humidity: -20°C -70°C; 5%-95% non-condensing

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Ordering Informations

Reference	Industrial Managed Switch
SWM-5900-48SFPP10-8QSFP28	48-Port 10G SFP+ 8-Port 40/100G QSFP28 L3 Stackable Managed Switch (2 power slots with dual AC220V power supplies); 1U, 19-inch rack-mounted installation
SWM-5900-48SFPP25-8QSFP28	48-Port 25G SFP28 + 8-Port 40/100G QSFP28 L3 Stackable Managed Switch (2 power slots with dual AC220V power supplies); 1U, 19-inch rack-mounted installation
SWM-5900-32QSFP28	32-Port 40/100G QSFP28 L3 Stackable Managed Switch (2 power slots with dual AC220V power supplies); built-in fans with left and right air ducts, 1U, 19-inch rack-mounted installation

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