



SW 2000 L3-lite Series



Supports Maximum 48 GE TX Ports and 6 10GE SFP+ Uplink Ports



Advanced Hardware Architecture and Industry-leading Port Density



Carrier-Level High Reliability Layer-3 Routing Functions



Varied Service Characteristics Versatile IPv6 Solution Complete Security Mechanism

Product Overview

SW2000 L3-lite Series is a next-generation aggregation 10GE switch introduced by SAGE. It is targeted at the IP MAN (metropolitan area network), government and enterprise networks, Internet café and diskless working environment. It is developed on the basis of high performance hardware and

SRS software platform with SAGE on independent intellectual property rights. It supports functions such as powerful ACL, flexible QinQ, 1:1 or N:1 VLAN switching, Ethernet OAM, carrier-level QoS and industry-level 10GE Ether-ring, ensuring this switch series meets application requirements in all kinds of complicated sites. It also supports layer-3 routing protocol.

SAGE SW2000 L3-lite Series has 5 models: SW2924T4X, SW2924S8C4X, SW2924P4X, SW2948T6X and SW2948P6X.

Product Characteristics

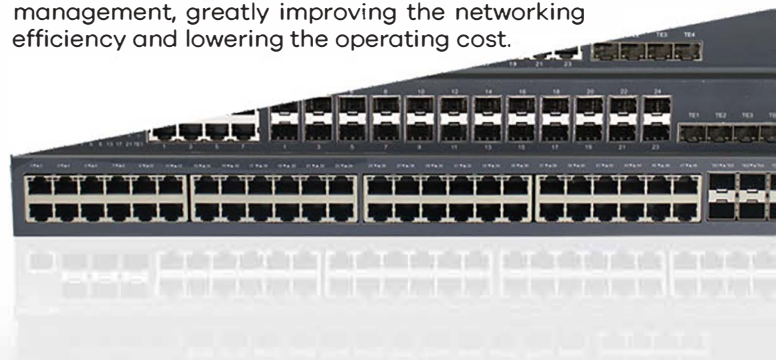
Innovative Virtual Cluster Switching Technique

Innovative SVSS (SAGE Virtual Switch System): SW2000 L3-lite Series virtualizes multiple physical devices into one. The performance, reliability and management of the virtual system are superior to the physical ones.

Improved Performance: BVSS makes full use of each link in the physical devices, which avoids STP blocking the link and protects the original link to the maximum extent.

High Reliability: Based on the advanced distribution mechanism and efficient cross-physical link aggregation link function, the logic control plane, service control plane and service data plane are separated. Thus, SW29XX L3-lite Series can support continuous layer-3 routing forwarding, avoiding service interruption as a result of a single point of failure.

Easy Management : SVSS realizes single IP management, greatly improving the networking efficiency and lowering the operating cost.



Product Characteristics

Industrial Ethernet Ring with Zero Delay and Zero Packet Loss

Supports industry-level EAPS and their protection shift time is less than 50ms. Their high reliability is represented by the null packet loss, which has been proved by many years of application in the Grid, rail transportation and defense systems.

Telecom-Level Ethernet Switch

Supports the telecom-level Ethernet-ring protection protocol with a protection shift time of less than 50ms, STP/RSTP/MSTP, backup of active and standby uplinks and LACP link aggregation to cater to the requirements of high reliability of carriers.

Support Ethernet standard 802.3u, 802.3x, 802.3ad, 802.1d, 802.1p, 802.1q, 802.1w, 802.1ad.

Support system status LED, port dynamic LED

Provides the perfect Ethernet OAM mechanism to monitor the network running status in real time for rapid trouble locating and detection.

Supports powerful ACL functions to access and control L2-L7 data based on physical port, VLAN, MAC, IP and protocol port ID, and providing carriers flexible and various policy control methods.

Supports In-Service Software Upgrade (ISSU) to ensure the unremitting data forwarding during system upgrade.

Supports various L2 multicast functions, including IGMP-Snooping, fast-leave and trans-vlan

Flexible and Convenient Management and Maintenance

Supports management modes such as the console port, Telnet, SSH, etc.

Supports the WEB management mode, which is easy and efficient so that it makes installation and debugging convenient.

Supports TFTP-patterned file upload/download management.

Supports ISSU (In-Service Software Upgrade).

Supports SNMP and SAGE NMS smart network management platform to realize automatic equipment discovery, network topology management, equipment configuration management, performance data statistics and analysis and trouble management

Carrier-Level QoS Policies

Supports priority retagging and complicated flow classification based on VLAN, MAC, source address, destination address, IP or priority to better streamline carrier's services.

Supports provides flexible bandwidth control policies and supports port-/flow-based flow limit, and ensuring the line speed forwarding of each port to make sure the high quality of video, audio and data services.

Supports 8 priority queues by each port.

Supports multiple queue schedule algorithms such as SP, WRR, and SP+WRR".

Versatile IPv6 Solutions

Supports the IPv6 protocol suite, IPv6 neighbor discovery, ICMPv6, path MTU discovery, etc.

Supports Ping, Traceroute, Telnet, SSH, ACL and so like on the basis of IPv6, meeting IPv6 networks' equipment management requirements and service control requirements.

Perfect Security Mechanisms

Equipment-level security: The advanced hardware infrastructure design realizes the level-based packet schedule and packet protection, prevents DoS-/TCP-related SYN flood, UDP flood, broadcast storm or large traffic attacks, and supports level-based command line protection, endowing different levels of users with different management permissions.

Supports perfect security authentication mechanisms: IEEE 802.1x, Radius and BDTacacs+.Supports storm/multicast/unicast limit to ensure the normal running of equipment in harsh network conditions.

Supports a perfect ring detection mechanism to ensure the long-term stable running of network.Supports port isolation within the same VLAN, DHCP-Snooping, and IP plus MAC plus Port binding for ensuring user data security;

Intelligent PoE+

S2924-P4X and S2948-P6X support IEEE 802.3af/ at PoE standard,and power mapping scales up to a maximum of 740W of PoE+ power; S2924-P4X and S2948-P6X support PoE non-stop power supply. The PoE+ power is maintained during a switch reload. S2924-P4X and S2948-P6X support manual and dynamic PoE power allocation;S2924-P4X and S2948-P6X support up to 6KV thunder-proof of the PoE port and power supply.

Model lists

SW2924-T4X



- 24 GE TX ports
- 4 10GE/GE SFP+ ports

SW2924-S8C4X



- 16 GE SFP ports,
- 8 GE SFP/TX combo ports
- 4 10GE/GE SFP+ ports

SW2924-P4X



- 24 GE POE ports
- 4 10GE/GE SFP+ ports

SW2948-T6X



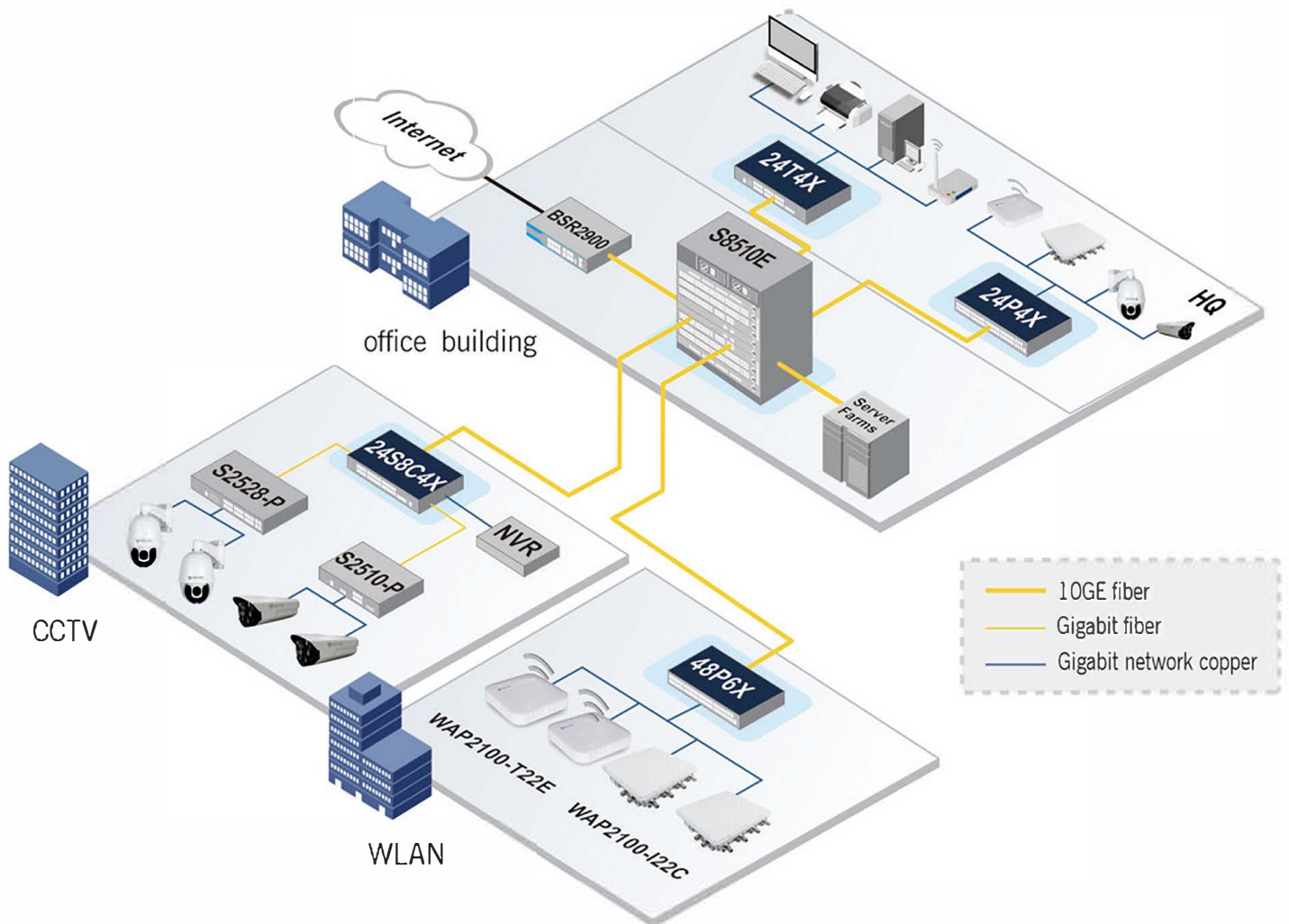
- 48 GE TX ports
- 6 10GE/GE SFP+ ports

SW2948-P6X



- 48 GE POE ports
- 6 10GE/GE SFP+ ports

Application Diagram



Product Specifications

Item	SW2924-T4X	SW2924-S8C4X	SW2924-P4X	SW2948-T6X	SW2948-P6X	
Interface	24 GE TX 4 10GE/GE SFP+	16 100/1000M SFP 8 GE SFP/TX combo 4 10GE/GE SFP+	24 GE POE 4 10GE/GE SFP+	48 GE TX 6 10GE/GE SFP+	48 GE TX 6 10GE/GE SFP+	
Console(RJ45)	1	1	1	1	1	
Backplane(Gbps)	128	128	128	216	216	
Forwarding rate (Mpps with 64 bytes)	96	96	96	162	162	
Chassis	Dimensions (WxDxH)(mm)	440x180x44	440x280x44	440x210x44	440x280x44	440x300x44
	Weight(KG)(empty)	2.6	4	3	4.3	5.2
Package	Dimensions (WxDxH)(mm)	500x320x80	576x448x94	555x295x88	576x448x94	576x448x94
	Weight(KG)	3.9	5.2	4.1	5.5	6.1
Power consumption	no-load	< 22W	< 18W	< 25W	< 25W	< 25W
	full-load	35W	< 38W	<408W	<48W	<48W(without POE)
Power supply	AC: 100-240V DC: 36-72V	45W	45W	410W	50W	450W AC and 800W DC
POE power budget	/	/	370W	/	370W AC or 740W DC	
Total output BTU (1000BTU/H=293W)	153.58	153.58	1392.49	163.82	1535.84@AC, 2730.38@DC	
Fan number	/	2	2	2	2	
Noise@25°C(dBA)	0	45	37.5	45	45	
MTBF(H)	> 200,000	> 200,000	> 200,000	> 200,000	> 200,000	
Forwarding mode	Store-forward	Store-forward	Store-forward	Store-forward	Store-forward	
Flash (MB)	16	16	16	16	16	
DRAM (MB)	256	256	256	512	512	
MAC	16K	16K	16K	16K	16K	
Buffer size(MB)	1.5	1.5	1.5	1.5	1.5	
Interface vlan	64	64	64	64	64	
Routing table	512	512	512	512	512	
Jumbo frame	9K	9K	9K	9K	9K	

Features

VLAN

- 4K Active VLAN, QinQ & Selective QinQ, GVRP, Private VLAN, Voice-VLAN

Spanning Tree

- 802.1D (STP), 802.1W (RSTP) and 802.1S (MSTP)
- BPDU guard, root guard and loopback guard

Multicast

- IGMP v1/v2/v3, IGMP Snooping, IGMP Fast Leave, MVR, IGMP filter

IP

- Static route, RIP, OSPF
- IPv4/v6 dual stack

IPv6

- ICMPv6, DHCPv6, ACLv6 and Ipv6 Telnet
- IPv6 neighbor discovery, Path MTU discovery
- MLD V1, MLD snooping
- IPv6 Static Routing, RIPng, OSPFv3
- Manual tunnel, ISATAP tunnel, 6 to 4 tunnel

Certification

- CE, FCC, ROHS

QoS

- CAR, HQoS, MAC/IP/TCP/UDP/ VLAN/ COS/ DSCP/ TOS based QoS, 802.1P/ DSCP priority re-labeling, SP, WRR, and "SP+WRR", Tail-Drop, WRED, flow monitoring and traffic shaping

Security

- Port isolation, Port security, and "IP+MAC+port" binding, MAC sticky, DAI & IP source guard, PPPoE+,
- IEEE 802.1x, AAA, Radius and BDTacacs+
- L2/L3/L4 ACL flow identification and filtration Anti-attack from DDoS, TCP's SYN Flood, UDP Flood, etc.
- Broadcast/multicast/unknown unicast storm-control
- MD5, SHA-256, RSA-1024, AES256, etc.

DHCP

- DHCP server/relay/client
- DHCP snooping/option82

Reliability

- Static/LACP link aggregation, Interface backup
- EAPS and ERPS
- ISSU uninterrupted system upgrade
- BVSS, ups to 16-units per stack
- VRRP
- UDLD

Management

- Console, Telnet, SSH v1/2, HTTP, HTTPS, SNMP v1/v2/v3, RMON
- TFTP, FTP, SFTP
- NTP
- ZTP

- SPAN, RSPAN

Environment

- Dying gasp*
- Operating temperature/humidity: 0°C -50°C, 10%-90% non-condensing
- Storage temperature/humidity: -20°C -70°C, 5%-95% non-condensing

Accessories

- Power cord, rackmount kits, console cable

Ordering Information

Item	Description
SW2924-T4X	Ethernet Layer-3 lite switch with 24 GE and 4 10GE ports (1 Console port, 24GE TX ports, 4 10GE/GE SFP+ ports; 100 to 240 VAC input, 60 HZ , fanless, 1U, standard 19-inch rack-mounted installation)
SW2924-S8C4X	Ethernet Layer-3 lite switch with 24 GE and 4 10GE ports (1 Console port, 16 100M/1000M SFP ports, 8 GE SFP/TX combo ports, 4 10GE/GE SFP+ ports; 100 to 240 VAC input, 60 HZ, the cooling fan, 1U, standard 19 inch rack-mounted installation)
SW2924-P4X	Ethernet Layer-3 lite POE switch with 24 GE ports and 4 10GE ports (1 console port, 24 GE POE TX ports, 4 10GE/GE SFP ports; standard AC220V power supply, 370W POE power, the cooling fan; 1U; standard 19-inch rack-mounted installation)
SW2948-T6X	Ethernet Layer-3 lite switch with 48 GE and 6 10GE/GE SFP+ ports (1 Console port, 48 GE TX ports, 6 10GE/GE SFP+ ports; 100 to 240 VAC input, 60 HZ, the cooling fan, 1U, standard 19 inch rack-mounted installation)
SW2948-P6X	Ethernet Layer-3 lite POE switch with 48 GE ports and 6 10GE/GE ports (1 console port, 48 GE POE TX ports, 6 10GE/GE SFP+ ports; standard AC220V power supply, 370W AC POE power, 740W DC POE power, the cooling fan; 1U; standard 19-inch rack-mounted installation)

Optical modules

10GE optical modules

SFP+TX	10GE SFP+-to-RJ45 module
SFP+SX	10GE SFP+ multi-mode (300m, 850nm, LC)
SFP+LX-10	10GE SFP+ single-mode (10Km, 1310nm, LC, DDM)
SFP+LX-20	10GE SFP+ single-mode (20Km, 1310nm, LC, DDM)
SFP+LX-40	10GE SFP+ single-mode (40Km, 1310nm, LC, DDM)
SFP+LX-80	10GE SFP+ single-mode (80Km, 1550nm, LC, DDM)
SFP+LX-SM-1270-10	10GE SFP+ single-mode, single-fiber (10Km, TX1270/RX1330, LC, DDM)
SFP+LX-SM-1330-10	10GE SFP+ single-mode, single-fiber (10Km, TX1330/RX1270, LC, DDM)
SFP+LX-SM-1270-20	10GE SFP+ single-mode, single-fiber (20Km, TX1270/RX1330, LC, DDM)
SFP+LX-SM-1330-20	10GE SFP+ single-mode, single-fiber (20Km, TX1330/RX1270, LC, DDM)
SFP+LX-SM-1270-40	10GE SFP+ single-mode, single-fiber (40Km, TX1270/RX1330, LC, DDM)
SFP+LX-SM-1330-40	10GE SFP+ single-mode, single-fiber (40Km, TX1330/RX1270, LC, DDM)

GE Optical Modules

GSFP-TX-B	GE SFP-to-RJ45 module
GSFP-SX-D	GE SFP multi-mode (500m, 850nm, LC, DDM)
GSFP-LX-10-D	GE SFP single-mode (10Km, 1310nm, LC, DDM)
GSFP-LX-20-D	GE SFP single-mode (40Km, 1310nm, LC, DDM)
GSFP-LX-40-D	GE SFP single-mode (40Km, 1310nm, LC, DDM)
GSFP-ZX-80-D	GE SFP single-mode (80Km, 1550nm, LC, DDM)
GSFP-ZX-120-D	GE SFP single-mode (120Km, 1550nm, LC, DDM)
GSFP-LX-SM1310-10-BIDI	GE SFP single-mode, single fiber (10Km, TX1310/RX1550, LC, DDM)
GSFP-LX-SM1550-10-BIDI	GE SFP single-mode, single fiber (10Km, TX1550/RX1310, LC, DDM)
GSFP-LX-SM1310-20-BIDI	GE SFP single-mode, single fiber (20Km, TX1310/RX1550, LC, DDM)
GSFP-LX-SM1550-20-BIDI	GE SFP single-mode, single fiber (20Km, TX1550/RX1310, LC, DDM)
GSFP-LX-SM1310-40-BIDI	GE SFP single-mode, single fiber (40Km, TX1310/RX1550, LC, DDM)
GSFP-LX-SM1550-40-BIDI	GE SFP single-mode, single fiber (40Km, TX1550/RX1310, LC, DDM)
GSFP-LX-SM1490-80-BIDI	GE SFP single-mode, single fiber (80Km, TX1490/RX1550, LC, DDM)
GSFP-LX-SM1550-80-BIDI	GE SFP single-mode, single fiber (80Km, TX1550/RX1490, LC, DDM)
GSFP-LX-SM1490-120	GE SFP single-mode, single fiber (120Km, TX1490/RX1550, LC, DDM)
GSFP-LX-SM1550-120	GE SFP single-mode, single fiber (120Km, TX1550/RX1490, LC, DDM)

* No logical restriction for operation with third party SFPs