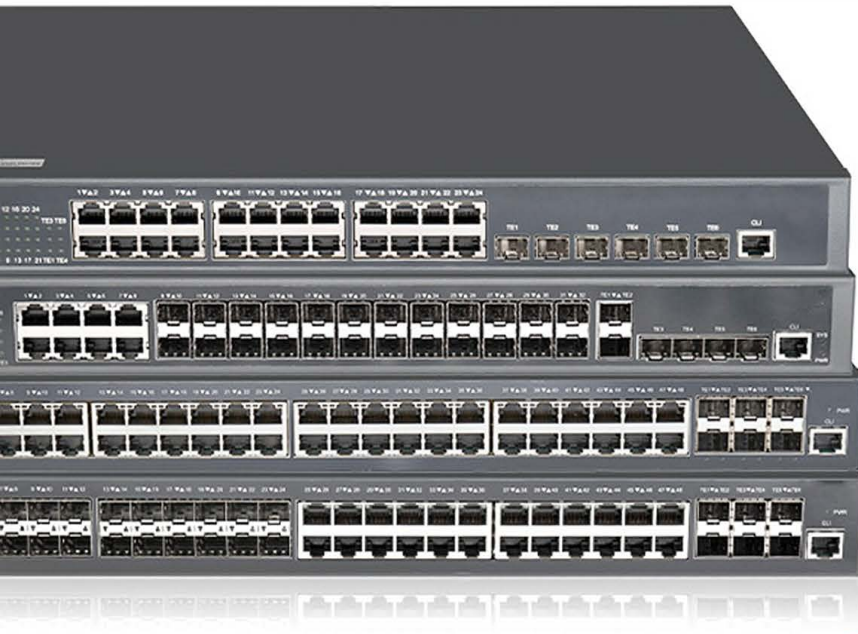




# SW 3000 SERIES



Varied Service Characteristics  
Versatile IPv6 Solution  
Complete Security Mechanism



Carrier-Level High Reliability  
Full Layer-3 Functions



Advanced Hardware Architecture and Industry-leading Port Density



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

## Product Overview

SAGE SW3000 Series is a new generation of aggregation 10G switches introduced by SAGE Ict. It is targeted at the IP MAN (metropolitan areanetwork), campus networks and enterprise networks. It is developed on the basis of highperformance hardware and SDROS software platform with SAGE own independent intellectual property rights. It supports multiple services like IPv6, VPN and network security based on L2/L3/L4 wire-speed switchingservice. It also supports non stop upgrade,continuous forwarding, graceful restarting and redundancy protection.

SAGE SW3000 Series has 5 models: SW3924-T6X, SW3924-S8T6X, SW3948-T6X, SW39486X and SW3948-P6X. It supports up to 48 gigabit ports and 6 10GE ports.

## Innovative Virtual Cluster Switching Technique

SVSS (SAGE Virtual Switch System):

SVSS 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.

Improved Performance:

virtualize multiple physical devices into one. The performance, reliability and management of the virtual system are superior to the physical ones.

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, the device 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.

## 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 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.

## Varied Service Characteristics

Supports layer-2 and layer-3 multicast routing protocol, which enable the device can access to IPTV, HD video surveillance and HD video conference. Supports layer-3 routing protocol and super-large routing table capacity, which enables the device is available in large campus networks, enterprise networks and industry networks.

## Versatile IPv6 Solution

Supports the IPv6 protocol suite, IPv6 neighbor discovery, ICMPv6, path MTU discovery, DHCPv6, etc. Supports Ping, Traceroute, Telnet, SSH, ACL. Supports MLD, MLD Snooping, IPv6 static routing, RIPng, OSPFv3 and BGP4+, etc. Supports IPv6 tunnel: manual tunnel, automatic tunnel, GRE tunnel, 6to4, ISATAP. Supports IPv4 transits to IPv6: IPv6 manual tunnel, automatic tunnel, 6 to 4 tunnel, ISATAP tunnel.

## Industrial Ethernet Ring with Zero Delay and Zero Packet Loss

Supports industry-level EAPS and ERPS, and their protection recovery 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.

## Intelligent PoE+

SW3948-48P6X supports IEEE 802.3af/at PoE standard, and power mapping scales up to a maximum of 760W of PoE+ power; SW3948-48P6X supports PoE non-stop power supply. The PoE+ power is maintained during a switch reload; SW3948-48P6X supports manual and dynamic PoE power allocation; SW3948-48P6X supports up to 6KV thunder-proof of the PoE port and power supply;

## Complete Security Mechanism

**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. **Security Authentication Mechanism:** IEEE 802.1x, Radius and BDTacacs+Enhanced Service Security Mechanism: supports the plaintext or MD5 authentication of relevant routing protocol, URPF, deep inspection of hardware packet, control packet and data packet and filtering technology.

## Innovative Energy-Saving Design

**Intelligent power management:** The power system of SW3000 series supports real-time monitoring the device and the slow-start. It is also power-saving. **Intelligent fan management system:** The fan system of SW3000 Series supports automatic speed regulation, which efficiently slow the fan speed and mitigate the noise. Complies with the international standard IEEE 802.3a

## 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.

# Model lists

## SW3924-T6X



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

## SW3924-S8T6X



- 24 GE SFP ports
- 8 GE TX ports
- 6 10GE/GE SFP+ ports

## SW3948-T6X/48P6X



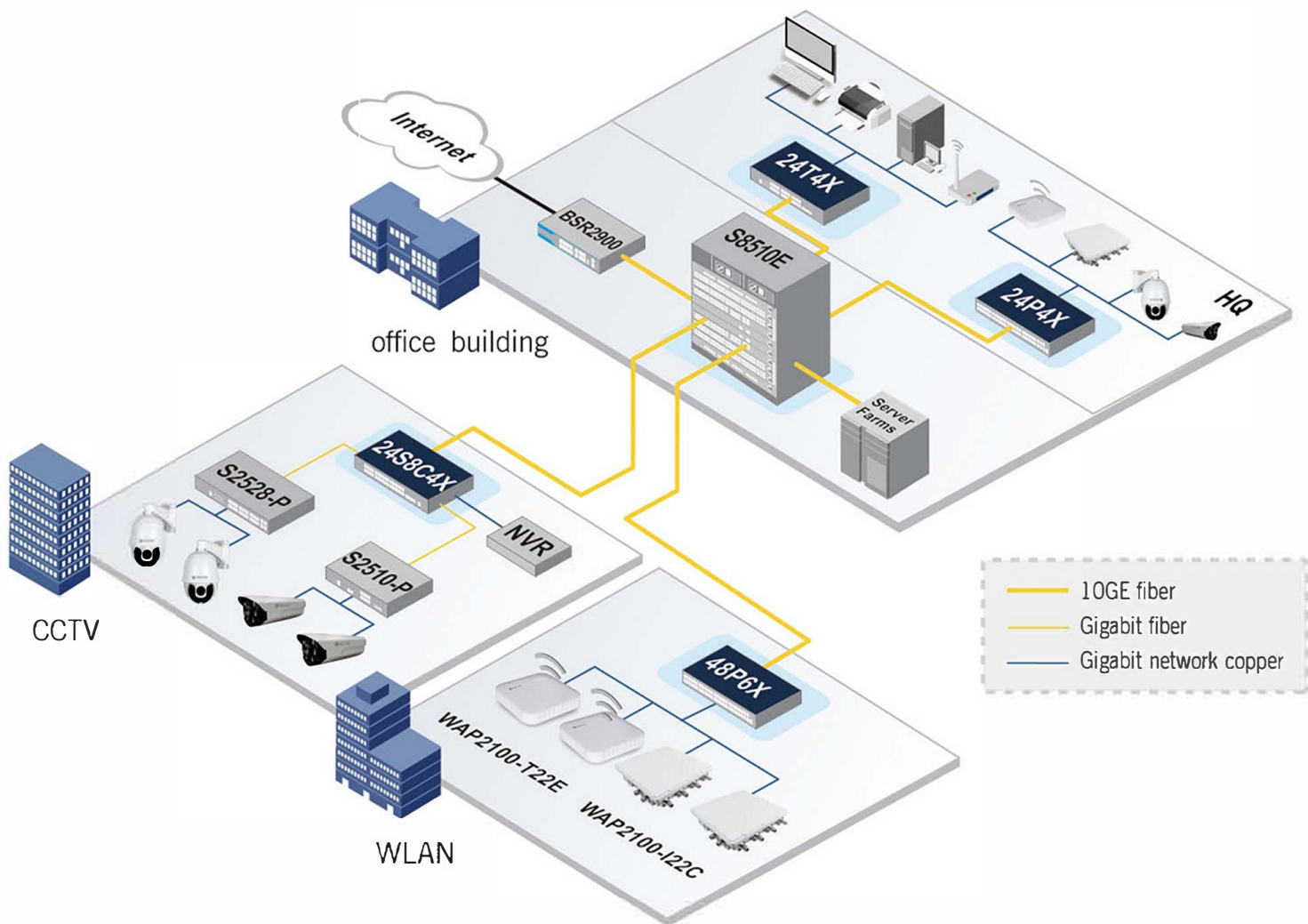
- 48 GE TX ports(48T6X)
- 48 GE POE ports(48P6X)
- 6 10GE/GE SFP+ ports

## SW3948-M6X



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

# Application Diagram



# Specifications

Item		SW3924-T6X	SW3924-S8T6X	SW3948-T6X	SW3948-M6X	SW3948-P6X
GE Interface	TX	24	8	48	24	48
	SFP	/	24	/	24	/
10GE Interface				6 10GE/GE		
Console				1 RJ45 Port		
Backplane				216 Gbps		
Forwarding rate		126 Mpps	138 Mpps	162 Mpps	162 Mpps	162 Mpps
<b>Physical Specifications</b>						
Chassis	Dimensions (WxDxH mm)			440x350x44		
Package	Dimensions (WxDxH mm)			576x448x94		
<b>Power</b>						
Power supply	AC: 100V-240V (hot-swap) 50Hz±10%	75W	75W	75W	75W	≤1000W(POE)
Total output BTU (1000BTU/H=293W)		255.97	255.97	255.97	255.97	3412.96
Noise@25°C(dBA)				45		
MTBF(H)				>200,000		
Forwarding mode				Store-forward		
Flash (MB)				16		
DRAM (MB)				512		
MAC				32K		
Buffer size(MB)				2		
Jumbo frame				9K		
Routing table	IPv4			12K		
	IPv6			6K		
ARP table	IPv4			12K		
	IPv6			2K		
Total SVI				1K		

# Features

## VLAN

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

## Spanning Tree

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

## Multicast

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

## IPv4

- Static routing, RIP v1/v2, OSPF, BGP, PBR, ECMP
- BFD for OSPF, BGP

## DHCP

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

## MPLS

- Multi-VRF

## 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

## 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, 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.

## Reliability

- Static/LACP link aggregation, Interface backup
- BVSS virtual-stacking
- EAPS and ERPS
- URPF, LLDP
- ISSU
- VRRP
- 1+1 power backup

## Management

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

## Accessories

- Power cord, rackmount kits, console cable

## Environment

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

## Certification

- CE, FCC, ROHS

# Ordering Information

<b>SW3924-24T6X</b>	Ethernet routing switch with 24 GE and 6 10GE ports (1 RJ45 console port, 24 GE TX ports, 6 10GE/GE SFP+ ports; 2 power slots with 1 hot-swap AC220V power supply; the cooling fan, 1U, standard 19-inch rack-mounted installation)
<b>SW3924-24S8T6X</b>	Ethernet routing switch with 32 GE and 6 10GE ports (1 RJ45 console port, 24 100M/ 1000M SFP ports, 8 GE TX ports, 6 10GE/GE SFP+ ports; 2 power slots with 1 hot-swap AC220V power supply; the cooling fan, 1U, standard 19-inch rack-mounted installation)
<b>SW3948-48T6X</b>	Ethernet routing switch with 48 GE and 6 10GE ports (1 RJ45 console port, 48 GE TX ports, 6 10GE/GE SFP+ ports; 2 power slots with 1 hot-swap AC220V power supply; the cooling fan, 1U, standard 19-inch rack-mounted installation)
<b>SW3948-48M6X</b>	Ethernet routing switch with 48 GE and 6 10GE ports (1 RJ45 console port, 24 GE TX ports, 24 100M/1000M SFP ports, 6 10GE/GE SFP+ ports; 2 power slots with 1 hot-swap AC220V power supply; the cooling fan, 1U, standard 19-inch rack-mounted installation)
<b>SW3948-48P6X</b>	Ethernet routing switch with 48 GE POE and 6 10GE ports (1 RJ45 console port, 48 GE POE TX ports, 6 10GE/GE SFP+ ports; 2 power slots with 1 hot-swap AC220V power supply; the cooling fan, 1U, standard 19-inch rack-mounted installation)

## SW3000 Series Non-POE Power Modules

**PWR-75-AC** Hot-swap AC Power for SW39XX Series (75W max, AC100~240V input)

**PWR-75-DC** Hot-swap DC Power for SW39XX Series (75W max, DC-36~-72V input)

## SW3000 Series POE Power Modules

**POE-500-AC** Hot-swap power supply of SW39XX POE switch series (500W max power, 380W max POE power, AC100~240V input, the isolated cooling fan)

## Optical modules

### 10GE optical modules

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

### GE optical modules

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

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