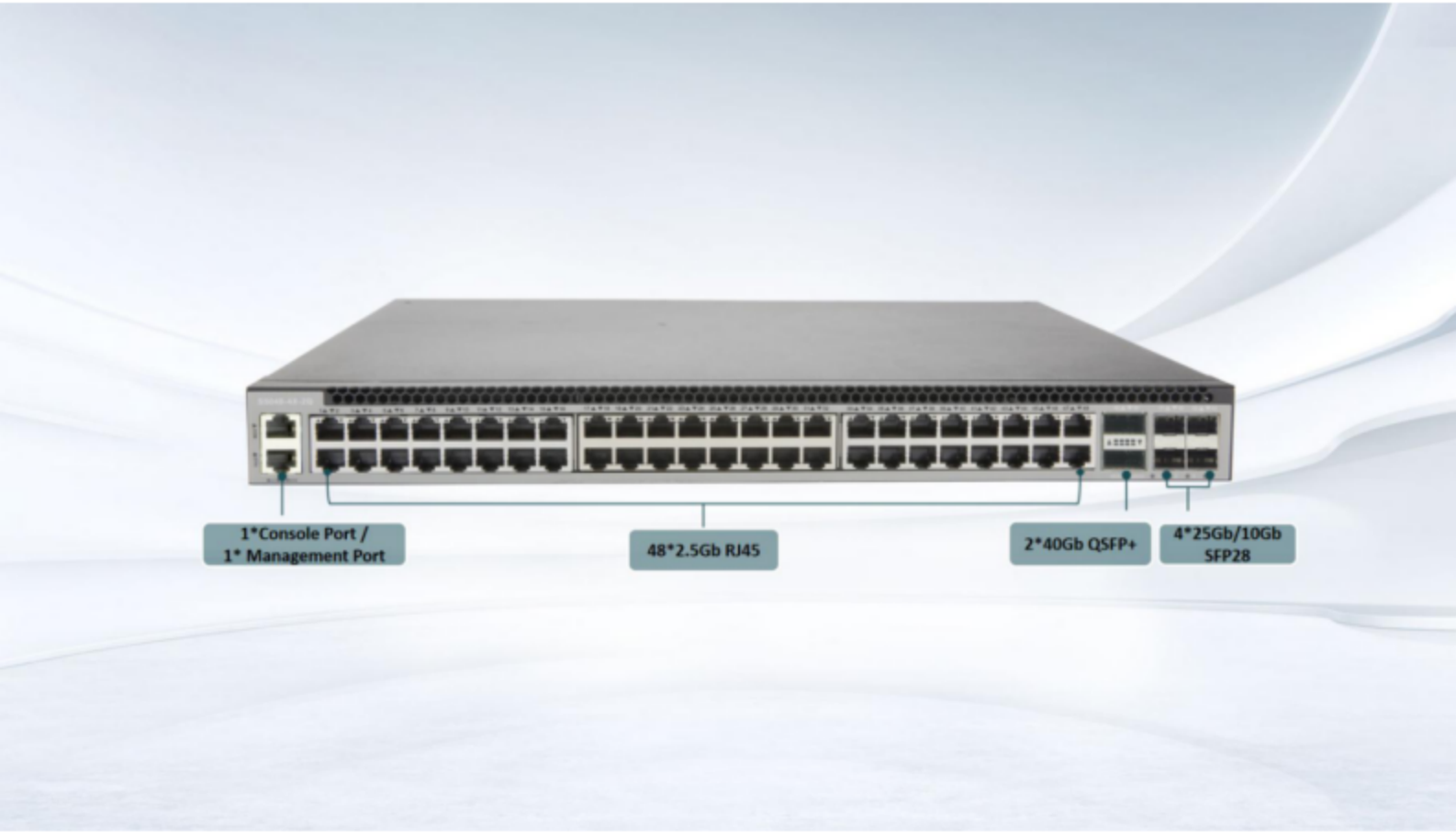
S5048-4X2Q Series Switches

48 Port 2.5GBase-T L3 Managed Ethernet Switch with 2*40Gb QSFP+ And 4*25G/10G uplinks



OVERVIEW

Based on Carrier Grade High performance chip

S5048 Series series routing switches are designed based on Carrier Grade high-performance chips which help the S5048 Series to meet the requirement of Metro/Enterprise/Data Center/HCI networks.

Varied Port Types

Support 2.5G/10G/25G/40G ports to meet different network requirements.

System Design for Green and Energy Saving

Intelligent FAN adjustment and real-time power consumption monitoring technology are provided for the cost of maintenance redundancy and help to build a green and energy saving data center.

Customized Profile for Different Deployment Scenarios

The Flexible Table Management (FTM) technology offers multiple table size configuration profiles as optimized choices for different network scenarios. Support up to 96K MAC address tables. Support up to 56K IP routing tables.

Intelligent ethernet OAM: completed network fault management and performance guaranty

With the IEEE802.1ag and ITU-T Y.1731 end-to-end OAM, Ethernet service providers can monitor the services, survey the end-to end performance and ensure the service quality match the agreement.
The fault management technique includes CCM, LTM and LBM. Performance targets include measure for latency and jitter.
S5048 Series Support remote management,network monitoring,network fault indication,remote loopback and MIB parameter retrieval according to the standard 802.3ah EFM.

Data Center Features

S5048 Series support leading edge Data Center features: Priority Flow Control (PFC),explicit Congestion Notification (ECN) and Data Center TCP, etc.
Support MLAG (Multi-Chassis Link Aggregation) to aggregate links across different devices. MLAG can build an Active-Active system to improve the reliability of the network links from single board grade to device grade. MLAG use a peer link between to devices to aggregate two devices and make them as one device logically. Ports of two different devices join the aggregate ports together and all port can transmit the data traffic. MLAG need to management the device respectively, but the configurations are easier than stacking, reboot is NOT required after MLAG is configured. Forwarding and configuring are processing on local device, in normal condition the traffic do NOT transmit trough the peer link, the bandwidth of peer link is not the bottleneck of the network and the latency is low.
Support overlay technology (include NVGRE/VXLAN/GENEVE etc.). Overlay can make layer2 packets across the layer3 networks by using NVGRE/VXLAN/GENEVE header to encapsulate the entire ethernet packets. Overlay resolves the problem of MAC table size limitation in traditional layer2 networks, resolves the problem of VLAN id count limitation, and resolves the problem network dynamic adjustment which cannot achieve by VLAN/VPN. Use VXLAN for example, 24 bits VNI identifier can support at most 16777215 logic networks, layer2 networks built by VXLAN can keep the same IP/MAC etc. when move the virtue machine.
MLAG and overlay features are also good candidates for switches in data center network.
S5048 Series supports RPC-API for SDN(Software Defined Network). SDN is a new architecture of network which can substantially simplify the management and maintenance by separating the control plane and data plane of the network.

High Reliability

S5048 Series are powered by Hot-swappable power modules which supports AC/DC 1+1 redundancy; Fans support 1+1 redundancy; Support Real-time environment monitoring technology to detect the chipset temperature, status of fan and power, etc.
Support LACP / ECMP / VRRP / VARP / STP/RSTP/MSTP / Smart Link / BFD / ERPS / G.8031 / G.8032 / Load-Balancing, etc. to protect the network traffic all-around effectively.
Patented technology "Sysmon" for CPU status monitoring can take action when system is error.

Outstanding QoS Control

S5048 Series provides 13 hardware queues per-port (8 unicast queues, 4 multicast queues, and 1 monitor queue).Support multi-stage scheduling technology such as WDRR (Weighted Deficit Round Robin) / SP (Strict Priority) and TD (Tail Drop) / WRED (Weighted Random Early Detection) to prevent congestion. Support flexible queue scheduling mechanism to do the shaping for queue or port traffic.
Ingress and egress policer provide intelligent bandwidth monitoring, which support to adjust the granularity according to the port speed. Both srTCM (Single Rate Three Color Marker) and trTCM (Two Rate Three Color Marker) can be supported.

Triple-play Service Support with Bandwidth Guaranty for High Quality Application

S5048 Series offers high bandwidth for Triple-Play services such as IPTV, video monitoring. The built-in QoS capabilities and flexible queuing technologies guarantee high quality of services.
Rich multicast protocol set (IGMP Snooping, IGMP v1/v2, PIM-SM) support up to 2K multicast groups and 4K logical replications per group. With system software, IPTV service and multicast latency control are fully supported.

Comprehensive Network Security Policy

S5048 Series supports subscriber-class / switch-class / network-class security control.
IPv4 / IPv6 / MAC ACL can filter IPv4 / IPv6 / Non-IP packet respectively. Besides that, extended IPv4/IPv6 ACL which can match Layer2 / layer3 / layer4 information in one rule is available. The ACLs can apply to physical ports / vlan / port group / vlan group. The members of port group or vlan group share a set of ACLs and save the TCAM resource.
ARP Inspection and IP Source Guard features prevent network from malicious ARP attack. Support CPU Traffic Protection, Storm Control and CPU load optimization features. Support centralized 802.1x authentication feature to forbidden illegal user accessing network.

Convenient Management features

Support varied management interfaces, include console port / inband network ports / outband network port . Support SNMP v1/v2/v3, Support CLI (Command Line Interface), web management, Telnet and FTP connection. Support OAM to make management more convenient, and support SSH2.0, SSL, etc. to ensure security of management.

CHARACTERISTICS

Product Name	S5048-4X2Q-EI	S5048-4X2Q-SI
Ethernet Ports	48*2.5Gb RJ45 4*25Gb/10Gb SFP28 2*40Gb QSFP+	48*2.5Gb RJ45 4*25Gb/10Gb SFP28 2*40Gb QSFP+
Management Ports	1*Console Port (RJ45) 1* Ethernet Management Port（RJ45）	1*Console Port (RJ45) 1* Ethernet Management Port（RJ45）
Power Supplies	2*250W (1+1 Redundancy) Hot-swappable Power Supplies	1*200W Non pluggable Power Supply
Fans	2*Hot-swappable Fan Module （2 Fans Per Module）	4*Non Pluggable Fans
Airflow	Front-to-Back	Front-to-Back
Flash Memory	8GB EMMC （OS） 4MB SPI Flash（Boot）	8GB EMMC （OS） 4MB SPI Flash (Boot)
DRAM	2GB	2GB
Switching Capacity	600Gbps	600Gbps
MAC address	98304	98304
Size	442mm*379mm*43.6mm	442mm*290mm*43.6mm

SOFTWARE FEATURE LIST

Tips ： ● Support o Unsupport

Type	Feature	Description	license		
			EB	MS	MA
Ethernet	interface	Ethernet interface operating modes(full duplex, half duplex, and auto-negotiation)	●	●	●
		Ethernet interface operating rates	●	●	●
		Jumbo Frame	●	●	●

Type	Feature	Description	license		
			EB	MS	MA
		port-xconnect	●	●	●
	Flow-control	Flow-control tx/rx	●	●	●
	storm-control	Port based storm-control	●	●	●
	Port-block	Port-block(know-unicast/unknow-unicast/know-multicast/unknow-multicast/broadcast)	●	●	●
	Port-isolate	L2/L3/All Port-isolate	●	●	●
		Uni-direction isolate	●	●	●
	L2 Protocol Tunnel	L2 Protocol Tunnel(support CDP/CFM/DOT1X/LLDP/SLOW-PROTO/STP/VTP	●	●	●
	Forward mode	Store-and-forward	●	●	●
		Cut-through	●	●	●
VLAN	VLAN Access mode	Access/Trunk	●	●	●
		Default VLAN	●	●	●
	VLAN Classification	VLAN Classification(port based/mac based/ip based/protocal based)	●	●	●
	QinQ	Basic QinQ	●	●	●
		Selective QinQ	●	●	●
		VLAN Mapping（1:1 VLAN Translation）	●	●	●
	VLAN Statistics	VLAN Statistics	●	●	●
	Private VLAN	Private VLAN	●	●	●
	Voice VLAN	Voice VLAN	●	●	●
	Guest VLAN	Guest VLAN	●	●	●
MAC	MAC Address Table	Automatic learning and aging of MAC addresses	●	●	●
		Hardware Learning	●	●	●

Type	Feature	Description	license		
			EB	MS	MA
		Static and dynamic MAC address entries	●	●	●
		blackhole MAC	●	●	●
	MAC Flapping detect	MAC Flapping detect	●	●	●
	Port Bridge	Port Bridge	●	●	●
LAG	Link aggregation	Static-LAG & LACP	●	●	●
		LAG load balance（SLB）	●	●	●
		LAG load balance（DLB）	●	●	●
		LAG load balance（RR）	●	●	●
		LAG Self-healing	●	●	●
xSTP	STP	Spanning-Tree Protocol	●	●	●
	RSTP	Rapid Spanning-Tree Protocol	●	●	●
	MSTP	Multi-instance Spanning-Tree Protocol	●	●	●
	Spanning-Tree Protocol Protection	BPDU Filter/Guard	●	●	●
		Root Guard	●	●	●
		Loop Guard	●	●	●
		Anti TC-BPDU attack	●	●	●
ERPS	ERPS	Single ERPS ring	●	●	●
		tangent ERPS rings	●	●	●
		intersecting ERPS rings	●	●	●
		compatible with RRPP	●	●	●
G.8031	G.8031	G.8031（Ethernet Linear Network Protection）	●	●	●
G.8032	G.8032	G.8032 V1 & V2	●	●	●
		Single Ring	●	●	●
		Sub Ring	●	●	●

Type	Feature	Description	license		
			EB	MS	MA
Loopback Detect	Loopback Detect	Loopback-detection	●	●	●
Layer2 Multicast	IGMP Snooping	IGMPv1/v2/v3 Snooping	●	●	●
		Fast leave	●	●	●
		Static IGMP snooping group	●	●	●
	MVR	MVR（Multicast VLAN Registration）	●	●	●
ARP	ARP	Static and dynamic ARP entries	●	●	●
		Aging of ARP entries	●	●	●
		Gratuitous ARP	●	●	●
	ARP proxy	basic ARP-Proxy	●	●	●
		local ARP-Proxy	●	●	●
IPv4 Unicast Routing	IPv4 Static Routes	IPv4 Static Routes	●	●	●
		blackhole Routes	●	●	●
		co-work with IP SLA	●	●	●
		VRF（Virtual Routing and Forwarding）	●	●	●
		uRPF check	●	●	●
	RIP	RIPv1/v2	●	●	●
	OSPFv2	OSPFv2	o	●	●
	IS-IS	IS-IS	o	●	●
	BGP	IBGP	o	●	●
		EBGP	o	●	●
	Route policy	Route-map	●	●	●
		IPv4 prefix-list	●	●	●
	PBR	PBR（Policy-based Routing）	●	●	●
	ICMP	ICMP redirect	●	●	●
		ICMP unreachables	●	●	●
	ECMP	ECMP(SLB)	●	●	●

Type	Feature	Description	license		
			EB	MS	MA
		ECMP(DLB)	●	●	●
		ECMP(RR)	●	●	●
		ECMP Self-healing	●	●	●
IPv4 Multicast Routing	IGMP	IGMPv1/v2/v3	●	●	●
		IGMP-Proxy	●	●	●
		IGMP SSM Mapping	●	●	●
	PIM	PIM-SM	o	●	●
		PIM-SSM	o	●	●
		PIM-DM	o	●	●
IPv6 Basic Protocol	ICMPv6	ICMPv6	o	●	●
	NDP	NDP	o	●	●
	PMTU	PMTU	o	●	●
IPv6 Unicast Routing	IPv6 Static Routes	IPv6 Static Routes	o	●	●
	RIPng	RIPng	o	●	●
	OSPFv3	OSPFv3	o	●	●
IPv6 Multicast Routing	MLD v1/v2	MLD v1/v2	o	●	●
	MLD v1/v2 Snooping	MLD v1/v2 Snooping	o	●	●
	MVR6	MVR6	o	●	●
	PIM-SM v6	PIM-SM v6	o	●	●
IP Tunnel	IPv6 over IPv4 Tunnel	IPv6 over IPv4 Tunnel	o	●	●
	6to4 Tunnel	6to4 Tunnel	o	●	●
	ISATAP Tunnel	ISATAP Tunnel	o	●	●
IPv6 Service	DHCPv6	DHCPv6 Relay	o	●	●
		DHCPv6 Snooping	o	●	●

Type	Feature	Description	license		
			EB	MS	MA
	IPv6 Prefix List	IPv6 Prefix-list	o	●	●
BFD	BFD	BFD for Static route	o	●	●
		BFD for OSPFv2	o	●	●
		BFD for VRRP/Track	o	●	●
		BFD for PBR	o	●	●
VRRP	VRRP	VRRP	●	●	●
		Track for VRRP	●	●	●
Smart Link	Smart Link	multi-instance	●	●	●
		load balance	●	●	●
		Multi-Link	●	●	●
		Monitor-link	●	●	●
MLAG	MLAG	MLAG basic	●	●	●
		MLAG orphan Port	●	●	●
EFM	EFM (802.3ah)	Auto detection	o	●	●
		Network fault detetion	o	●	●
		Network fault handle	o	●	●
		remote loopback	o	●	●
CFM	CFM (802.1ag)	Hardware CCM detect	o	●	●
		MAC Ping	o	●	●
		MAC Trace	o	●	●
Y.1731	Y.1731	Latency and jitter measure	o	●	●
QoS	Traffic classification	Traffic classification based on COS/DSCP (simple classification)	●	●	●
		Traffic classification based on ACL (complex classification)	●	●	●
		Traffic classification based on inner header of the tunnel packets	●	●	●

Type	Feature	Description	license		
			EB	MS	MA
	Traffic behaviors	Queue scheduling	●	●	●
		Remark the priority fields(COS/DSCP) of the packet based on ACL	●	●	●
		Remark the priority fields(COS/DSCP) of the packet based on Table Map	●	●	●
		Flow redirection	●	●	●
		Flow mirror	●	●	●
	Traffic policing	Traffic policing based on direction(in/out) of Port	●	●	●
		Traffic policing based on direction(in/out) of VLAN	●	●	●
		Traffic policing based on direction(in/out) of flow	●	●	●
		Traffic policing based on direction(in/out) of aggregated flow	●	●	●
	Traffic shaping	Queue based traffic shaping	●	●	●
		Port based traffic shaping	●	●	●
	Congestion management	SP（Strict Priority）scheduling	●	●	●
		WDRR（Weighted Deficit Round Robin）scheduling	●	●	●
		SP + WDRR mixed scheduling	●	●	●
	Congestion avoidance	TD（Tail Drop）	●	●	●
		WRED（Weighted Random Early Detection）	●	●	●
	Traffic statistics	Packet counts and bytes statistics based on traffic classification	●	●	●
		Packet counts and bytes statistics based	●	●	●

Type	Feature	Description	license		
			EB	MS	MA
		on the color after traffic policing			
		Forwarded and discarded packet counts and bytes statistics	●	●	●
	ECN (Explicit congestion notification)	ECN tags based on Tail Drop	●	●	●
		ECN tags based on WRED	●	●	●
VARP	Virtual gateway	VARP（Virtual-ARP）	●	●	●
		VARP subnet	●	●	●
Tunnel	VxLAN	Manual configure VxLAN tunnel	●	●	●
		VxLAN distributed gateway	●	●	●
		VxLAN active-active access	●	●	●
		Interconnect across Datacenters based on VxLAN	●	●	●
		L2 Protocol packet passthrough	●	●	●
		Edit DSCP in VxLan outer header	●	●	●
		BGP EVPN	o	o	●
		Support to enable/disable overlay split horizon per-VNI	●	●	●
	GRE Tunnel	GRE Tunnel	●	●	●
	NVGRE Tunnel	NVGRE Tunnel	●	●	●
	GENEVE Tunnel	GENEVE Tunnel	●	●	●
DCB	DCBX	LLDP support DCBX TLV	●	●	●
	PFC	PFC	●	●	●
IPRAN	LDP	LDP	o	o	●
	MPLS Forwarding	MPLS Forwarding	o	o	●
	VPWS	VPWS	o	o	●

Type	Feature	Description	license		
			EB	MS	MA
	VPLS	VPLS	o	o	●
	MPLS OAM	MPLS OAM	o	o	●
	MPLS Stats	MPLS Stats	o	o	●
	L3VPN	L3VPN	o	o	●
	ACL	MPLS ACL	o	o	●
	QoS	MPLS QoS	o	o	●
System Security	SSH	SSHv1/v2	●	●	●
		RSA Key generation	●	●	●
	RADIUS	RADIUS	●	●	●
	TACAS+	TACAS+	●	●	●
	AAA	Authentication	●	●	●
		Authorization	●	●	●
		Accounting	●	●	●
	Dot1x	Port based dot1x	●	●	●
		MAC based dot1x	●	●	●
		Guest VLAN	●	●	●
	ACL	MAC/IP ACL	●	●	●
		Basic Mode ACL	●	●	●
		Port-group ACL	●	●	●
		VLAN-group ACL	●	●	●
		IPv6 ACL	●	●	●
		ACL UDF	●	●	●
		Time Range	●	●	●
	ARP Inspection	ARP Inspection	●	●	●
	IP Source Guard	IP Source Guard	●	●	●
	Port Security	Limitation on MAC address learning on interface	●	●	●

Type	Feature	Description	license		
			EB	MS	MA
	VLAN Security	Limitation on MAC address learning on VLAN	●	●	●
	Control Plane Policy (COPP)	Black list/wihte list	●	●	●
		Rate limit	●	●	●
	CPU Traffic Limit	CPU Traffic Limit	●	●	●
	Prevent DDOS attack	Prevent DDOS attack (ICMP Flood/Smurf/Fraggle/LAND/SYN Flood)	●	●	●
	Login filter	Telnet/SSH ACL filtering	●	●	●
		Telnet/SSH IPv6 ACL filtering	●	●	●
	MAC Security	MacSec(802.1AE)	●	●	●
	Link-Flapping detection	Link-Flapping detection	●	●	●
Network Management	DHCP	DHCP Server	●	●	●
		DHCP Relay	●	●	●
		DHCP Snooping	●	●	●
		DHCP Client	●	●	●
		DHCP Option82	●	●	●
		DHCP Option252	●	●	●
	RMON	RMON	●	●	●
	sFlow	sFlow v4/v5	●	●	●
	IP SLA	IP SLA	●	●	●
	Latency/Buffer Monitor	Latency Monitor	●	●	●
		Buffer Monitor	●	●	●
	EFD	Elephant Flow Detection	●	●	●
	NTP	NTP（Network Time Protocol）	●	●	●
	Errdisable	Errdisable detection and recovery	●	●	●
	DNS	Static DNS Client	●	●	●

Type	Feature	Description	license		
			EB	MS	MA
	LLDP	LLDP	●	●	●
Terminal Services	Command Line Interface	Configurations through CLI (Command Line Interface)	●	●	●
	Help information	Banner configuration	●	●	●
		Help information in English	●	●	●
	Terminal service	Vty Terminal service	●	●	●
		Console Terminal service	●	●	●
Configuration Management	Management interface	Inband management interface and configuration	●	●	●
		Outband management interface and configuration	●	●	●
	User privilege management	privileged user proirity and privileged commands	●	●	●
	SNMP	Network management based on SNMPv1/v2c/v3	●	●	●
		Public and private MIB	●	●	●
		Public and private Trap	●	●	●
	WEB	Configuration and management based on WEB UI	●	●	●
	RPC-API	Configuration and management based on RPC-API	●	●	●
	SmartConfig	SmartConfig（Automatically configuration when system start）	●	●	●
	OVSDB	Configuration and management based on OVSDB	●	●	●
	system profile configuration	change the system specifications by choose different STM Profiles	●	●	●

Type	Feature	Description	license		
			EB	MS	MA
	License control	Feature configuration based on License	●	●	●
	Restore factory default configuration	Restore factory default configuration	●	●	●
File System	File system	File system(support directory and file management)	●	●	●
	Upload and download	Upload and download files through FTP or TFTP	●	●	●
		Upload and download files through Xmodem	●	●	●
Debugging And Maintenance	Debug	per-module Debug features	●	●	●
		ICMP Debug	●	●	●
	BHM	Software process monitor: BHM（Beat Heart Monitor）	●	●	●
		Hardware Watch Dog	●	●	●
	Log & alarm	CPU usage display and alarm	●	●	●
		Memory usage display and alarm	●	●	●
		Device temperature、PSU、FAN、status display and alarm	●	●	●
		User operation logs	●	●	●
		Management of logs, alarms, and debugging information	●	●	●
	VCT	VCT（Virtual Cable Test）	●	●	●
	system diagnostics	Detailed Diagnostic-information collection	●	●	●
	Reboot	Manual reboot	●	●	●
		Schedule Reboot	●	●	●

Type	Feature	Description	license		
			EB	MS	MA
		Reboot Information logging	●	●	●
	network diagnostics	Ping	●	●	●
		IPv6 Ping	●	●	●
		Traceroute	●	●	●
	mirror	Port mirror	●	●	●
		Flow mirror	●	●	●
		Remote mirror	●	●	●
		Multi-destination mirror（m:n）	●	●	●
		Use CPU as mirror source	●	●	●
		Use CPU as mirror destination and analyze packet	●	●	●
		ERSPAN	●	●	●
	CPU statistics	To CPU/From CPU packets statistics	●	●	●
	L2 Ping	layer2 network connectivity detection - L2Ping (MAC Ping/Trace)	●	●	●
	UDLD	UDLD（Unidirectional Link Detection）	●	●	●
	unidirectional	unidirectional forwarding of the fiber	●	●	●
	Loopback	port loopback	●	●	●
		hardware loopback（internal/external）	●	●	●
	System time	Time configuration	●	●	●
		Timezone	●	●	●
Version Upgrade	system soft ware upgrade	upgrade with the local image file	●	●	●
		upgrade with the remote TFTP server	●	●	●
	Uboot upgrade	Online upgrade Uboot	●	●	●

ACCESSORIES

Product Name	Quantity
Console Cable	1PCS
Power Cords	2PCS
Rack Mount Brackets	2PCS
Bracket Screws	10PCS
Rubber Pads	4PCS
Cat5e Cable	1PCS
Grounding Cable	1PCS
Tieline Buckle	2PCS
User Manual	1PCS
SFP 28 Dust Plug	4PCS
QSFP+ Dust Plug	2PCS

ORDER INFORMATION

Product Name	Description
S5048-4X2Q-EI	48 Port 2.5GBase-T L3 Managed Ethernet Switch with 2*40Gb QSFP+ And 4*25G/10G Uplinks 2*250W (1+1 Redundancy) Hot-swappable Power Supplies 2*Hot-swappable Fan Module
S5048-4X2Q-SI	48 Port 2.5GBase-T L3 Managed Ethernet Switch with 2*40Gb QSFP+ And 4*25G/10G Uplinks 1*200W Non pluggable Power Supply 4*Non Pluggable Fans
Power supply module(AC)	AC/DC CRPS 250W/12V 185*73.5*40mm Input Voltage 100-240Vac,50/60Hz G1251 AC+HVDC Full Digital
Power supply module(DC)	DC/DC CRPS 250W/12V 185*73.5*40mm Input Voltage -36 -72Vdc G1251 AC+HVDC Full Digital
Software Linsence	HOS-EB, basic Layer3 software features,Pre installed
Software Linsence	HOS-MS, Full layer3 software license key
Software Linsence	HOS-MA, Metro features software license key