



X5650-xxxM

10 GE Routing Switch Series
with Advanced Security Features



X5650 is a Series of Routing Switches with Advanced Security Features

Switches in X5650 Series have various combinations of electrical UTP, PoE and optical 1Gb client interfaces and optional 2x 10 GE uplinks or stacking interfaces. Extensive set of security functions provides safe connection of clients also in cases when these are managed externally.

Switches support high-performance IPv4 and ipv6 routing with set of standard routing protocols that include OSPF and BGP4 and complete set of multicast routing protocols. Redundant power supplies, stacking capability, L2 link aggregation and support of fast converging ring topologies provide additional options to implement reliable redundant and safe networks.

Applications include ISP aggregation and access networks, MAN networks, enterprise and industrial applications and advanced OOB management networks within modern datacenters.

X5650-28TM



Features

- Backplane capacity 128 Gbps
- 12*10/100/1000Base-T and 12*GE Combo – 10/100/1000Base-T with SFP (10/100/1000Base-X)
- 2*10GE slot for uplink & stacking
- Supports stacking
- Fully loaded – dissipates less than 40 W
- Physical dimensions:
1U rack mountable
440 mm*380 mm*44 mm

X5650-28SM**Features**

- Backplane capacity 128 Gbps
- 12*10/100/1000Base-X and 12*GE Combo - SFP 10/100/1000Base-X with 10/100/1000Base-T
- 2*10GE slot for uplink & stacking
- Supports stacking
- Fully loaded dissipates less than 50 W
- Physical dimensions:
1U rack mountable
440 mm*380 mm*44 mm

X5650-28PM**Features**

- Backplane capacity 128 Gbps
- 20*10/100/1000Base-T and 4*GE Combo with 10/100/1000Base-T with SFP 10/100/1000Base-T
- 2*10GE slot for uplink & stacking
- Supports stacking
- Fully loaded dissipates less than 40 W
- Physical dimensions:
1U rack mountable
440 mm*380 mm*44 mm

X5650-52TM**Features**

- Backplane capacity 256 Gbps
- 44*10/100/1000Base-T and 4*GE Combo SFP 10/100/1000Base-X with 10/100/1000Base-T
- 2*10GE slot for uplink & stacking
- Supports stacking
- Fully loaded dissipates less than 60 W
- Physical dimensions:
1U rack mountable
440 mm*380 mm*44 mm

X5650-52SM**Features**

- Backplane capacity 256 Gbps
- 44*10/100/1000Base-X and 4*GE Combo - 10/100/1000Base-T with SFP (10/100/1000Base-X)
- 2*10GE XFP slot for uplink & stacking
- Supports stacking
- Fully loaded dissipates less than 70 W
- Physical dimensions:
1U rack mountable
440 mm*380 mm*44 mm

Product Specification

Attributes	X5650-28TM AC/DC	X5650-52TM AC/DC	X5650-28SM AC/DC	X5650-52SM AC/DC	X5650-28PM
Backplane capacity	128 Gbps	128 Gbps	256 Gbps	256 Gbps	128 Gbps
Switching capacity	128 Gbps	128 Gbps	256 Gbps	256 Gbps	128 Gbps
Throughput (IPv4/IPv 6)	95.2 Mpps	95.2 Mpps	130.9 Mpps	130.9 Mpps	95.2 Mpps
Memory and storage	256 MB DDR2 SDRAM Memory and 8 MB Flash Memory				
Redundancy design	1+1 hot-swap redundant power				
Power supply	AC: Input 90~260 V, 50~60 Hz; DC: Input -36 V~-72 V				
Power consumption	Full-load ≤40W Idle ≤15 W	Full-load ≤50W Idle ≤15 W	Full-load ≤60W Idle ≤ 30W	Full-load ≤70W Idle ≤30 W	Full-load ≤40W Idle ≤15W
POE power supply	-	-	-	-	Single power can supply 360 W
Outline dimensions (mm) (W*D*H)	440mm×380mm×44mm				
Weight (in maximum configuration)	≤6kg	≤6.5kg	≤6kg	≤6.5kg	≤6kg
Environmental requirements	Working temperature: -15°C~55°C Storage temperature: -40°C~70°C Relative humidity: 10%~90%, no condensing				

Common Features

Attributes		X5650 Series
L2 features	MAC	16K MAC address MAC Black Hole Port MAC Limit
	VLAN	4K VLAN entries Port-based/MAC-based/IP subnet-based VLAN Port-based QinQ and Selective QinQ (StackVLAN) VLAN Swap and VLAN Remark PVLAN to realize port isolation and saving public-vlan resources GVRP
	Spanning tree protocol	IEEE 802.1D Spanning Tree Protocol (STP) IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) IEEE 802.1s Multiple Spanning Tree Protocol instances (MSTP) Remote loop detecting
	Port	Bi-directional bandwidth control Static link aggregation and LACP(Link Aggregation Control Protocol) Port mirroring and traffic mirroring
Security features	User's security	Anti-ARP-spoofing Anti-ARP-flooding IP Source Guard create IP+VLAN+MAC+Port binding Port Isolation MAC address binds to port and port MAC address filtration IEEE 802.1x and AAA/Radius authentication
	Device security	Anti-DOS attack(such as ARP, Synflood, Smurf, ICMP attack), ARP detection, worm and Msblaster worm attack SSHv2 Secure Shell SNMP v3 encrypted management Security IP login through Telnet Hierarchical management and password protection of users
	Network security	User-based MAC and ARP traffic examination Restrict ARP traffic of each user and force-out user with abnormal ARP traffic Dynamic ARP table-based binding IP+VLAN+MAC+Port binding L2 to L7 ACL flow filtration mechanism on the 80 bytes of the head of user defined packet Port-based broadcast/multicast suppression and auto-shutdown risk port URPF to prevent IP address counterfeit and attack DHCP Option82 and PPPoE+ upload user's physical location Plaintext authentication of OSPF、RIPv2 and BGPv4 packets and MD5 cryptograph authentication
IP routing	IPv4	ARP Proxy DHCP Relay DHCP Server Static route RIPv1/v2 OSPFv2

		<p>BGPv4</p> <p>ECMP</p> <p>Strategy route</p> <p>Route policy</p>
	IPv6	<p>ICMPv6</p> <p>ICMPv6 redirection</p> <p>DHCPv6</p> <p>ACLv6</p> <p>OSPFv3</p> <p>RIPng</p> <p>BGP4+</p> <p>Configured Tunnel</p>
		<p>ISATAP</p> <p>6to4 tunnel</p> <p>IPv6 and IPv4 Tunnels</p>
Service features	ACL	<p>Standard and extended ACL</p> <p>Time Range ACL</p> <p>Packet filter providing filtering based on source/destination MAC address, source/destination IP address, port, protocol, VLAN, VLAN range, MAC address range, or invalid frame. System supports concurrent identification at most 50 service traffic</p> <p>Packet filtration of L2~L7 even deep to 80 bytes of IP packet head</p>
	QoS	<p>Rate-limit to packet sending/receiving speed of port or self-defined flow and provide general flow monitor and two-speed tri-color monitor of self-defined flow</p> <p>Priority remark to port or self-defined flow and provide 802.1P, DSCP priority and Remark</p> <p>CAR (Committed Access Rate), Traffic Shaping and flow statistics</p> <p>Packet mirror and redirection of interface and self-defined flow</p> <p>Super queue scheduler based on port and self-defined flow. Each port/ flow supports 8 priority queues and scheduler of SP, WRR and SP+WRR. Congestion avoid mechanism, including Tail-Drop and WRED</p>
	Multicast	<p>IGMPv1/v2/v3</p> <p>IGMPv1/v2/v3 Snooping</p> <p>IGMP Filter</p> <p>MVR and cross VLAN multicast copy</p> <p>IGMP Fast leave</p> <p>IGMP Proxy</p> <p>PIM-SM/PIM-DM/PIM-SSM</p> <p>PIM-SMv6, PIM-DMv6, PIM-SSMv6</p> <p>MLDv2/MLDv2 Snooping</p>
Reliability	Loop protection	EAPS and GERP (recover-time <50ms) Loopback-detection
	Link protection	<p>FlexLink (recover-time <50ms)</p> <p>RSTP/MSTP (recover-time <1s)</p> <p>LACP (recover-time <10ms)</p> <p>BFD</p>
	Device protection	<p>VRRP host backup</p> <p>Double fault-tolerant backup of host program and configuration files</p> <p>Board card hot swap</p>

		X5650-24S/48S support 1+1 power hot backup
Maintenance	Network maintenance	Telnet-based statistics RFC3176 sFlow LLDP 802.3ah Ethernet OAM RFC 3164 BSD syslog Protocol Ping and Traceroute
	Device management	Command-line interface (CLI), Console, Telnet and WEB configuration System configuration with SNMPv1/v2/v3 RMON (Remote Monitoring) 1/2/3/9 groups of MIB NTP (Network Time Protocol) NGBNView network management WEB-based network management Ping and Traceroute

Ordering information¹

PN	Description
Switches	
X5650-28TM	12*10/100/1000Base-T, 12 Combo GE, 2*10GE extended slot, 1+1 redundant power supply slot
X5650-28SM	12*10/100/1000Base-X, 12 Combo GE, 2*10GE extended slot, 1+1 redundant power supply slot
X5650-28PM	20*10/100/1000BaseT, 4 Combo GE, 2*10GE extended slot, 1+1 redundant power supply slot, POE power supply
X5650-52TM	44*10/100/1000Base-T, 4*Combo GE (1000BaseX SFP or 10/100/1000BaseT), 2*10GE extended slot
X5650-52SM	44*10/100/1000Base-X, 4*Combo GE (1000BaseX SFP or 10/100/1000BaseT), 2*10GE extended slot
Compatible Pluggable modules	
XTxxxA-xxLx	10GE SFP+ 10Gb transceivers
Expansion module	
XSW2-10GE-2SFP	2*10GE SFP+ (need to use with SFP+ module)
Power Module	
XNG01PWR100AC	X5650-28TM/28SM, 100W 220V AC power module
XNG01PWR180AC	X5650-52TM/52SM, 180W 220V AC power module
XNG01PWR100DC	X5650-28TM/28SM, 100W -48V DC power module
XNG01PWR180DC	X5650-52TM/52SM, 180W -48V DC power module

Notes:

¹ For accurate order specification please contact XenOpt reseller before placing an order. The content of this document is subject to change without notice.

Please specify any host device compatibility requirements at the time of ordering. Standard MSA compatible pluggable components may not work, or some function of these components may not be available in devices that require customized pluggable devices. Pluggable components that are compatible with one type of communications equipment may not work in other type of communications equipment.

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