

# X1510 series

# **Gigabit Stackable Smart Managed Switches**



## Highlights

• 10 Gigabit Connectivity

High bandwidth uplinks eliminate network bottleneck and provide low-latency connections for network servers and storage.

• Comprehensive Management

An intuitive web interface, SNMP support, and a powerful Command Line Interface provide a complete set of management features.

• Layer 3 Functions

Wire speed inter-VLAN routing helps reducing the load of routers and backbone networks, improving the overall network efficiency.

The XenOpt X1510 Series is the latest generation of

Managed switches with 10G capability, available

with 16, 24, or 48 10/100/1000 Mbps copper ports plus additional 10Gb optical ports for physical stacking and/or uplinks. The PoE-capable X1510-28P and X1510-28XMP switches are able to power IP phones, wireless access points, or IP cameras using existing network infrastructure. The combination of high bandwidth connections, stacking and PoE support make the X1510 Series ideal for Small-Medium Enterprise (SME) and

Small-Medium Business (SMB) environments.

## 10G SFP+ Stacking/Uplink Ports

The last two SFP+ ports of the X1510 Series switches allow users to create a physical stack of up to 6 units in a fault-tolerant ring or linear topology using Direct Attach Cables (DACs) or any compatible SFP+ transceiver. This creates a cost effective combined switch with total of 288 Gigabit ports, ensuring high bandwidth. The remaining optical uplink ports can be used for other functions, such as connecting to core network. Users can easily configure and manage all of the X1510 Series Smart Managed switches in a single stack with single configuration. With 20 Gbps full-duplex capabilities, the X1510-nnX switches offer additional two SFP+ 10Gb ports (4 total) for fast connectivity to core networks while primary 10Gb ports are being used for stacking.

#### **Features**

#### Advanced Features

- Physical stacking of up to 6 devices via two 10G ports
- Ethernet Ring Protection Switching (ERPS)
- Static Routing
- Auto Surveillance VLAN
- Auto Voice VLAN
- Loopback Detection
- LLDP/LLDP-MED

## Security Features

- Access Control List (ACL)
- Safeguard Engine
- BPDU Attack Protection
- ARP Spoofing Prevention
- IP-MAC-Port Binding
- DoS Attack Prevention
- Clientless MAC/Web Access Control

### Intuitive Management

- Multi-language web-based user interface
- Built-in SNMP MIB for remote network management systems
- Comprehensive industry standard CLI support
- Manageability for both IPv4/IPv6 environments
- Dual image support
- Console interface for out-of-band managemen

#### Green Technology

- IEEE 802.3az Energy Efficient Ethernet (EEE)
- Power-saving features



#### **Layer 3 Traffic Management**

The X1510 Series provides static routing, allowing you to segment your network into workgroups that communicate between VLANs and so improve application performance by minimizing broadcast traffic. With these capabilities, one can reduce the load on your core devices, allowing you to create a scalable and efficient network. This also allows easier management of access control rules.

## **Extensive Layer 2 Features**

The X1510 Series switches are equipped with a complete line-up of Layer 2 features, including IGMP Snooping, Port Mirroring, Spanning Tree, and Link Layer Discovery Protocol (LLDP). The IEEE 802.3x Flow Control function allows servers to directly connect to the switch for fast, reliable data transfer. Network maintenance features Loopback Detection and Cable Diagnostics. Loopback Detection automatically detects and shuts down loops created by a specific port or VLAN. The Cable Diagnostics feature, designed primarily for administrators, can determine cable quality and can quickly discover sections of cabling that need to be replaced.

#### **Traffic Classification & QoS**

The X1510 Series supports Auto Surveillance VLAN (ASV) and Auto Voice VLAN, which are best suited for VoIP and video surveillance deployments. Auto Surveillance VLAN is a new, industry-leading technology built into XenOpt Smart switches. This technology consolidates data and surveillance video transmissions on all ports through a simple configuration on X1510 Series Smart Managed switch, saving businesses the costs of maintaining expensive dedicated hardware and infrastructure. ASV also ensures the quality of real-time video for monitoring and control without compromising the transmission of conventional network data by giving ASV traffic priority over other packets without requiring additional configuration of QoS.

## **Keep Your Network Secure**

Innovative Safeguard Engine protects the X1510 Series against traffic flooding caused by malicious attacks. The X1510 Series supports both MAC and web-based access control. This gives network administrators multiple authentication options, reducing deployment times and removing the need for client software. The X1510 Series supports IEEE 802.1X port-based authentication, allowing network users to be authenticated through external RADIUS servers. The Address Resolution Protocol (ARP) Spoofing Prevention feature helps to prevent attacks that may allow an intruder to intercept users' traffic while the DHCP Server Screening feature (DHCP relay) screens rogue DHCP server packets from





user ports to prevent unauthorized IP assignment.

## **IPv6 Ready**

The X1510 Series is IPv6 ready and supports various IPv6 functions such as MLD Snooping, IPv6 security features, and IPv6 Quality of Service (QoS), ensuring seamless integration with next generation networks. The X1510 Series also supports IPv4/v6 dual stack functionality, which allows the switches to act as a bridge between IPv4 and IPv6 networks.

#### **Versatile Management**

The X1510 Series supports virtual stacking via Single IP Management (SIM), allowing up to 32 devices to be managed through a single IP address. This simplifies management of small workgroups or wiring closets while significantly reducing the number of IP addresses needed to manage your network. The X1510 Series provides a web-based management interface that enables administrators to easily set up and remotely manage their networks, greatly reducing switch deployment time. The X1510 Series also features an extensive industry standard Command Line Interface (CLI) and SNMP support, allowing centralized management of a large number of devices. Out-of-band management of the switches is also available via a designated console port. This provides access to devices in the event that there is a loss of connectivity or that the switch is overloaded with bulk or malicious traffic. Switches allow also ssh management authorized with public/private ssh key file pairs.

#### **Energy Efficient**

All of the X1510 Series switches are capable of conserving power without sacrificing operational performance or functionality. Using the IEEE 802.3az Energy Efficient Ethernet (EEE) standard, the network will automatically decrease power usage when traffic is low and when connections are short. For environments that do not fully support this standard, these switches offer advanced power-saving settings including port shut-off, LED shut-off, and system hibernation based on custom profiles. These profiles can also be applied to the PoE switches so that there is no unnecessary power consumption during off-hours.



## **Technical Specifications**

General	X1510-20	X1510-28	X1510-52
Port Standards & Functions	IEEE 802.3 10BASE-T Ethernet, IEEE 802.3u 100BASE-TX Fast Ethernet, IEEE 802.3ab 1000BASE-T Gigabit Ethernet, 802.3ae 10 GbE, IEEE 802.3x Flow Control for Full-Duplex Mode, Auto-negotiation		
Number of Ports	16 x 10/100/1000 Mbps, 2 x Gigabit SFP, 2 x 10G SFP+	24 x 10/100/1000 Mbps, 2 x Gigabit SFP, 2 x 10G SFP+	48 x 10/100/1000 Mbps, 2 x Gigabit SFP, 2 x 10G SFP+
Network Cables	UTP Cat. 5, Cat. 5e (100 m max.) EIA/TIA-568 100-ohm STP (100 m max.)		
Full/Half Duplex	Full/half-duplex for 10	0/100 Mbps and full-duplex for 1	.000 Mbps speed
Media Interface Exchange	Auto or configurable MDI/MDIX		
Performance			
Switching Capacity	76 Gbps	92 Gbps	140 Gbps
Transmission Method	Store-and-forward		
MAC Address Table	Up to 16,384 entries per device		
MAC Address Update	Up to 512 static MAC entries Enable/disable auto-learning of MAC addresses		
Maximum 64 bytes Packet Forwarding Rate	56.54 Mpps	68.45 Mpps	104.16 Mpps
Packet Buffer Memory	1.5 MB per device		3 MB per device
MTBF	882,152 hours	516,593 hours	433,434 hours
Physical & Environment			
AC Input	100 to 240 VAC 50/60 Hz internal universal power supply		
Maximum Power Consumption	20.3 W	24 W	38.4 W
Standby Power Consumption	12.2 W	15.2 W	27.6 W
Smart Fan Quantity	1 x smart fan	1 x smart fan	2 x smart fans
Acoustics	43.8 dB(A)	43.8 dB(A)	44.2 dB(A)
Heat Dissipation	41.602 BTU/hr	72.292 BTU/hr	130.944 BTU/hr
Operation Temperature	-5 to 50 °C (23 to 122 °F)		
Storage Temperature	-20 to 70°C (-4 to 158 °F)		
Operation Humidity	0% to 95% non-condensing		
Storage Humidity	0% to 95% non-condensing		
Dimensions	280 x 180 x 44 mm (11 x 7.09 x 1.73 inches) 19" standard rack mounting, 1U	440 x 210 x 44 mm (17.36 x 8.26 x 1.73 inches) 19" standard rack mounting, 1U	440 x 250 x 44 mm (17.36 x 9.84 x 1.73 inches) 19" standard rack mounting 1U
Weight	1.24 kg	2.00 kg	2.40 kg
Diagnostic LEDs	Power/Stacking ID/Fan (per device), Link/Activity/Speed (per 10/100/1000 Mbps port), Link/Activity/Speed (per Gigabit SFP port), Link/Activity/Speed (per 10G SFP+ port)		
Certifications	CE, FCC, C-Tick, VCCI, BSMI, CCC		
Safety	cUL, CB		



General	X1510-28X	X1510-52X
Port Standards & Functions	IEEE 802.3 10BASE-T Ethernet, IEEE 802.3u 100BASE-T	( Fast Ethernet, IEEE 802.3ab 1000BASE-T
Number of Ports	24 x 10/100/1000Mbps, 4 x 10G SFP+	48 x 10/100/1000Mbps, 4 x 10G SFP+
Network Cables	UTP Cat. 5, Cat. 5e (100 m max.); EIA/TIA-568 100-ohm STP (100 m max.)	
Full/Half Duplex	Full/half-duplex for 10/100 Mbps and full-duplex for 1000 Mbps speed	
Media Interface Exchange	Auto or configurable MDI/MDIX	
Performance		
Switching Capacity	128Gbps	176Gbps
Transmission Method	Store-and-forw	ard
MAC Address Table	Up to 16,384 entries p	er device
MAC Address Update	Up to 512 static MAC entries, Enable/disable auto-learning of MAC addresses	
Maximum 64 bytes Packet	95.24Mpps	130.95Mpps
Packet Buffer Memory	1.5 MB per device	3MB per device
MTBF	516,593 hours	416,789 hours
Physical & Environment		
AC Input	100 to 240 VAC 50/60 Hz internal universal power supply	
Maximum Power Consumption	22.3 Watts	44.2 Watts
Standby Power Consumption	15.2 W	28.9 W
Smart Fan Quantity	1 x smart fan	2 x smart fans
Acoustics	42.7 dB(A)	45.8 dB(A)
Heat Dissipation	76.043 BTU/hr	138.787 BTU/hr
Operation Temperature	-5 to 50 °C (23 to 122 °F)	
Storage Temperature	-20 to 70°C (-4 to 158 °F)	
Operation Humidity	0% to 95% non-condensing	
Storage Humidity	0% to 95% non-condensing	
Dimensions	440mm x 210mm x 44mm	440mm x 250mm x 44mm
Weight	2.00 kg	2.40 kg
Diagnostic LEDs	Power/Stacking ID/Fan (per device), Link/Activity/Speed (per 10/100/1000 Mbps port),	
Certifications	CE, FCC, C-Tick, VCCI, BSMI, CCC	
Safety	cUL, CB	



General	X1510-28P	X1510-28XMP
Port Standards &	·	E-TX Fast Ethernet, IEEE 802.3ab 1000BASE-T Gigabit
Functions		ontrol for Full-Duplex Mode, Auto-negotiation
Number of Ports	24 x 10/100/1000 Mbps PoE capable, 2 x Gigabit SFP, 2 x 10G SFP+	24 x 10/100/1000 Mbps PoE capable, 4 x 10G SFP+
Network Cables	UTP Cat. 5, Cat. 5e (100 m max.); EIA	/TIA-568 100-ohm STP (100 m max.)
Full/Half Duplex	Full/half-duplex for 10/100 Mbps a	nd full-duplex for 1000 Mbps speed
Media Interface Exchange	Auto or configurable MDI/MDIX	
Performance		
Switching Capacity	92 Gbps	128 Gbps
Transmission Method	Store-and	d-forward
MAC Address Table	Up to 16,384 entries per device	
MAC Address Update	Up to 512 static MAC entries, Enable/disable auto-learning of MAC addresses	
Maximum 64 bytes Packet Forwarding Rate	68.45 Mpps	95.24 Mpps
Packet Buffer Memory	1.5 MB per device	
MTBF	275,428 hours	274,796 hours
PoE		
PoE Standard	IEEE 802.3af, 802.3at	
PoE Capable Ports	Ports 1 to 24: Up to 30 W	
PoE Power Budget	Max. 193 W	Max. 370 W
Physical & Environment		
AC Input	100 to 240 VAC 50/60 Hz internal universal power supply	
Maximum Power Consumption	238.7 W (PoE on), 29 W (PoE off)	436.3 W (PoE on), 38.4 W (PoE off)
Standby Power Consumption	21 W	28.3 W
Smart Fan Quantity	2 x smart fans	
Acoustics	46.4 dB(A)	56.9 dB(A)
Heat Dissipation	813.967 BTU/hr	1487.78 BTU/hr
Operation Temperature	-5 to 50 °C (23 to 122 °F)	
Storage Temperature	-20 to 70°C (-4 to 158 °F)	
Operation Humidity	0% to 95% non-condensing	
Storage Humidity	0% to 95% non-condensing	
Dimensions	440 x 210 x 44 mm (17.36 x 8.26 x 1.73 inches) 19" standard rack mounting width, 1U height	440 x 308 x 44 mm (17.36 x 12.12 x 1.73 inche 19" standard rack mounting width, 1U heigh
Weight	2.54 kg	4.25 kg
Diagnostic LEDs	Power/Stacking ID/Fan Error/PoE Push Button (per device), Link/Activity/Speed/PoE Mode (per 10/100/1000 Mbps port), Link/Activity/Speed (per SFP port), Link/Activity/Speed (per 10G SFP+ port)	
Certifications	CE, FCC, C-Tick, VCCI, BSMI, CCC	CE, FCC, C-Tick, VCCI, BSMI, CCC, IPv6 Ready Logo Pha
Safety	cUL, CB	cUL, CB



## **Software Features**

	Virtual Stacking Support	<ul> <li>Physical Stacking</li> </ul>
Stackability	<ul> <li>Single IP Management</li> </ul>	<ul> <li>Supports Duplex Chain/Ring topology</li> </ul>
	<ul> <li>Up to 32 devices per virtual stack full</li> </ul>	<ul> <li>Up to 40G stacking bandwidth duplex</li> </ul>
	Up to 20G stacking bandwidth	<ul> <li>Up to 6 units per stack</li> </ul>
	• MAC Address Table: Up to 16,384	Spanning Tree Protocol
	• Flow Control	• 802.1D STP
	802.3x Flow Control     HOL Blacking Researching	• 802.1w RSTP
	HOL Blocking Prevention     North Street Co. 246 Purple	• 802.1s MSTP
	Jumbo Frame up to 9,216 Bytes     JCAAD Societies	Loopback Detection v4.072     Coad Addition Address actions
	• IGMP Snooping	802.3ad Link Aggregation
	• IGMP v1/v2 Snooping	Max. 32 groups per device
	• IGMP v3 awareness	/8 ports per group
	Supports 512 IGMP groups	Port Mirroring
	• Supports 128 static multicast addresses	<ul> <li>Support 4 mirroring groups</li> </ul>
L2 Features	IGMP per VLAN	<ul> <li>One-to-One, Many-to-One</li> </ul>
	<ul> <li>Supports IGMP Snooping Querier</li> </ul>	<ul> <li>Supports Mirroring for Tx/Rx/Both</li> </ul>
	<ul> <li>Host-based IGMP Snooping Fast Leave</li> </ul>	
	<ul> <li>MVR multicast VLAN registration</li> </ul>	<ul> <li>Multicast Filtering</li> </ul>
	<ul> <li>MLD Snooping</li> </ul>	<ul> <li>Forwards all unregistered groups</li> </ul>
	<ul> <li>Supports MLD v1/v2 awareness</li> </ul>	<ul> <li>Filters all unregistered groups</li> </ul>
	<ul> <li>Supports 512 groups</li> </ul>	• Ethernet Ring Protection Switching (ERPS)
	<ul> <li>Supports 128 Static Multicast Addresses</li> </ul>	
	<ul> <li>Per VLAN MLD Snooping</li> </ul>	
	Host-based MLD Fast Leave	
	MLD Snooping Querier	
	• 802.1Q Tagged VLAN	
	4K VLAN Groups	Auto Surveillance VLAN 2.02
VLAN	• Configurable VID: 0~4094	MAC-based VLAN
V 27 (14	• GVRP	Protocol-based VLAN
	Asymmetric VLAN	- Hotocol based VEAN
	<ul> <li>CoS based on</li> </ul>	<ul> <li>802.1p Quality of Service</li> </ul>
	802.1p priority	<ul> <li>Queue Handling</li> </ul>
	• VLAN	<ul> <li>Strict Priority Queue (SPQ</li> </ul>
Quality of Comica	<ul> <li>MAC address</li> </ul>	<ul> <li>Weighted Round Robin (WRR)</li> </ul>
	• Ether type	<ul> <li>Deficit Round Robin (DRR)</li> </ul>
Quality of Service	IP address	• SPQ + WRR
(QoS)	• DSCP	<ul> <li>8 queues per port</li> </ul>
	<ul> <li>Protocol type</li> </ul>	Bandwidth Control
	TCP/UDP port number	<ul> <li>Port-based (Ingress/Egress, min.</li> </ul>
	DSCP of IPv6 Traffic Class	granularity for 10/100/1000 BASE-T ports
	IPv6 flow label	is 64 Kb/s l
	• ARP	Default Routing
L3 Features	• 256 Static ARP	<del>-</del>
		Static Routing     GALDMA Static Route Entries
	Supports Gratuitous ARP     IDuc Naighbour Discourage (ND)	64 IPv4 Static Route Entries     32 IPv6 Static Route Entries
	IPv6 Neighbour Discovery (ND)	• 32 IPv6 Static Route Entries
	• 16 IP interfaces	UDP helper2



	ACL based on	ACL Actions	
		• Permit	
	802.1p priority		
	• VLAN	• Deny	
	MAC address	Max. 256 access list	
Access Control List	• Ether type	• Max. 768 rules	
(ACL)	IP address	<ul> <li>Single or multiple ports (each rule)</li> </ul>	
(7102)	• DSCP	Time-based ACL	
	Protocol type	ACL Statistics	
	<ul> <li>TCP/UDP port number</li> </ul>		
	DSCP of IPv6 Traffic Class		
	IPv6 flow label		
	Port Security	• SSL	
	<ul> <li>Supports up to 128 MAC addresses per port</li> </ul>	• Supports v1/v2/v3	
	• Broadcast/Multicast/Unicast Storm Control	Supports IPv4/IPv6	
	Dynamic ARP Inspection	Traffic Segmentation	
	Safeguard Engine	IP-MAC-Port Binding	
	DHCP Server Screening	DHCP snooping	
Security	ARP Spoofing Prevention	IP Source Guard	
Security	Max. 64 entries	Dynamic ARP Inspection	
	• SSH	IPv6 DHCP Guard	
	• Supports v2	• IPv6 RA Guard	
	• Supports IPv4/IPv6	• IPv6 Snooping	
	BPDU Attack Protection	IPv6 Source Guard	
	<ul> <li>DoS Attack Prevention</li> </ul>	• IPv6 ND Inspection	
	Compound Authentication	MAC-based Access Control (MAC)	
	• 802.1X Port and MAC-based Authentication	Port-based Access Control	
	Supports RADIUS and Local Server	Host-based Access Control	
	• Supports EAP, OTP, TLS, TTLS, PEAP	Dynamic VLAN Assignment	
	Web-based Access Control (WAC)	Japan Web-based Access Control (JWAC)	
AAA	Port-based Access Control	Port-based Access Control	
AAA			
	Host-based Access Control     Description All Assistance and	Host-based Access Control     Description	
	Dynamic VLAN Assignment	Dynamic VLAN Assignment	
	Guest VLAN		
	RADIUS and TACACS+ authentication for switch access		
	RADIUS and TACACS+ accounting		
	Cable Diagnostics	• Factory Reset	
OAM	• sFlow	- ractory neset	
Management	Command Line Interface (CLI)	DHCP Client	
	• Telnet Server	Telnet client (supports CLI only)	
	• TFTP Client	• SNTP	
	IPv6 Neighbor Discovery	• ICMPv6	
	1		
	Configurable MDI/MDIX     CANAD	IPv4/v6 Dual Stack     DUGD Auto Configuration	
	• SNMP	DHCP Auto Configuration	
	• Supports v1, v2c, v3	• RMON v1	
	SNMP Trap	• LLDP, LLDP-MED	
	System Log	• DHCP relay	
	<ul> <li>Max. 10,000 log entries</li> </ul>	Web-based GUI	
	Debug command	TFTP Client	
	Dual images	• NTP	
	• Surveillance mode <sup>2</sup>		



	Power Saving by:	System Hibernation mode
Green Technology	<ul><li>Link Status</li><li>LED or Port Shutoff</li></ul>	<ul> <li>Time-based PoE (PoE model only)</li> </ul>

### Notes

<sup>&</sup>lt;sup>1</sup> When stacking in a linear typology, the remaining unused SFP+ ports in the stacking port pair of the top and bottom switches will also be considered occupied by the switch and cannot be used for any other purpose.

<sup>&</sup>lt;sup>2</sup> This feature will be supported by firmware release version 1.40 and later, expected release in Q4 2016.

# Ordering information<sup>1</sup>

PN	Description
Switches	
X1510-20	Switch, 16 x 10/100/1000 Mbps, 2 x Gigabit SFP, 2 x 10G SFP+
X1510-28	Switch, 24 x 10/100/1000 Mbps, 2 x Gigabit SFP, 2 x 10G SFP+
X1510-52	Switch, 48 x 10/100/1000 Mbps, 2 x Gigabit SFP, 2 x 10G SFP+
X1510-28X	Switch, 24 x 10/100/1000Mbps, 4 x 10G SFP+
X1510-52X	Switch, 48 x 10/100/1000Mbps, 4 x 10G SFP+
X1510-28P	Switch, 24 x 10/100/1000 Mbps PoE capable, 2 x Gigabit SFP, 2 x 10G SFP+
X1510-28XMP	Switch, 24 x 10/100/1000 Mbps PoE capable, 4 x 10G SFP+
Cables 10 G <sup>2</sup>	
CP-SPSP-010	10 GbE SFP+ 1 m Direct Attach Cable
CP-SPSP-030	10 GbE SFP+ 3 m Direct Attach Cable
Pluggables <sup>2</sup>	
XSS311-20LY	SFP, 1000BASE-LX, single mode, 20 km
XSM851-M5LY	SFP, 1000BASE-SX, multi mode, 550 m
XSM311-02LY	SFP, 1000BASE-SX, multi mode, 2 km
XTM85A-M3LY	SFP+, 10GBASE-SR Transceiver, 300 m OM3 MMF
XTS31A-10LY	SFP+, 10GBASE-LR Transceiver, 10 km
Services	
Spare Power Sup Unit	ply
SW & FW	

10

## Notes:

To find out more, please contact:

 $\label{lem:contents} \mbox{Contents of this document may change without notice.}$ 

<sup>&</sup>lt;sup>1</sup> For accurate order specification please contact XenOpt reseller before placing an order. Standard MSA compatible pluggable components may not work or some function of these components may not be available in devices that require customized compatible devices.

<sup>&</sup>lt;sup>2</sup> Other cables and pluggables are also available. For more information, please contact your XenOpt reseller.