



LY1R

A powerful Top-of-Rack Switch
for Cloud Datacenters



Overview

The Xenopt LY1R is a high performance and ultra low latency layer 2/3/4 Ethernet switch with 64 1/10GbE SFP+ ports in a compact rack unit size. For HPC, financial services, and IaaS datacenters, the Xenopt LY1R offers fast, easy and scalable installation but still keeps low CAPEX and OPEX advantages with high performance.

Simplicity

The Xenopt LY1R can be managed through industry standard command-line interface (CLI) which reduces the training and operating costs. A user friendly Web GUI is provided via a standard Web browser to manage. The Xenopt LY1R also supports Simple Network Management Protocol (SNMP) both from standard MIB and private MIB for network administrator to easily configure, monitor, and manage remotely. The Auto-Installation feature implemented in the Xenopt LY1R helps centralized management to simplify deployment of a truly plug-and-play experience. With the evolution from IPv4 to IPv6, the Xenopt LY1R is a IPv6 integrated management device.

High Availability

The Xenopt LY1R is designed for high availability from both hardware and software perspective. The key features include:

- 1+1 hot-swappable power supplies
- 2+1 hot-swappable fans
- Out-of-band management supported
- 802.1D, 802.1w, and 802.1s supported
- Up to 32 ports per group (LACP) and up to 64 groups
- Multi-chassis LAG for preventing the risks of single point failure
- Up to 32 paths ECMP routing for load balancing and redundancy
- Virtual Router Redundancy Protocol supported

High-Performance L2/L3 access deployments

With the compact 1U form factor, high density 64 1/10G SFP+ ports in the front panel, front to back or back to front airflow design, the Xenopt LY1R is ideal for top-of-rack deployments in high-performance, highly demanding datacenters. The 1.28 terabits per second switching capacity and 960Mpps forwarding rate with low power consumption make the Xenopt LY1R a powerful solution to aggregate high-performance servers in the datacenter.

Advanced IPv4 and IPv6 routing

The Xenopt LY1R is a full layer 2 and layer 3 routing switch that supports advanced IPv4 and IPv6 routing features such as RIP v1/v2, OSPF/ECMP, RIPng and OSPFv3. The multicast routing features for IGMP v1/v2/v3, DVMRP, PIM-DM/SM, MLD v1/v2 and PIM-DM6/SM6 are all supported in the Xenopt LY1R.

Datacenter application

The Xenopt LY1R is an IEEE DCB-based switch delivering a high-performance solution to integrate server edge access. The key features include:

- Congestion Notification (CN, 802.1Qau)
- Enhanced Transmission Selection (ETS, 802.1Qaz)
- Priority-based Flow Control (PFC, 802.1Qbb)
- Datacenter Bridging Extension (DCBX, 802. Qaz)
- FCoE Initiation Protocol (FIP) snooping

Features

Performance

- 64 1/10GbE SFP+ in 1RU
- 1.28 terabits per second
- 960 million packets per second

Robust hardware

- Redundant and hot-swappable power supply & fan
- Out-of-band management port

Management

- sFlow
- Auto-Installation

Layer 3 features

- PIM-DM/SM
- Policy-based route

IPv6 support

- RIPng
- OSPFv3
- MLD v1/v2
- PIM-DM6/SM6

Datacenter application

- Multi-Chassis LAG (MLAG)
- VMTracer

LY1R specifications

Physical ports

- 64 1/10GbE SFP+ ports
- 1 RJ-45 out-of-band management port (10/100/1000)
- 1 RJ-45 console port
- 1 USB 2.0 port

Performance

- Switching capacity: 1.28 Tbps
- Forwarding rate: 960Mpps
- Latency: 1 microseconds
- Memory: 2GB
- Flash: 64MB
- MAC: 128K
- Packet buffer: 9MB
- Jumbo frame: 12K

L2 features

- Auto-negotiation for port speed and duplex
- Flow control: IEEE 802.3x & back-pressure
- Switching mode: store-and-forward
- Spanning Tree Protocol:
 - 802.1D, 802.1w, & 802.1s
 - Spanning Tree Fast Forwarding
 - Edge port
 - Loop guard
 - BPDU filter/guard
 - Auto Edge
 - TCN guard
 - Root guard
- VLANs
 - IEEE 802.1Q tagged based
 - Port-based (up to 4094 VLANs)
 - Private VLAN
 - GARP/GVRP/GMRP
 - 802.1v protocol VLAN
 - Voice VLAN
 - MAC-based VLAN
 - IP-subnet VLAN
 - QinQ
- VTP v1/v2
- Storm control
 - Broadcast
 - Unknown multicast
 - Unknown unicast
- IGMP snooping
 - IGMP snooping v1/v2/v3
 - IGMP v1/v2 querier
 - IGMP immediate leave
- Link Aggregation
 - 802.3ad with LACP
 - Cisco EtherChannel Like
 - Unicast/Multicast traffic balance over trunking port (dst-ip, dst-mac, src-dst-ip, src-dst-mac, src-ip, src-mac)
- Multi-chassis LAG (MLAG)
- Link state
- Port backup

QoS

- Priority queues: 8 queues
- Scheduling for priority queue: WRR, Strict and hybrid (WRR+Strict)
- COS: 802.1p, IP Precedence, & DSCP
- DiffServ
- Port rate limit
- Auto VoIP
- iSCSI optimization

Security

- Static and dynamic port security (MAC-based)
- 802.1x: port-based, MAC-based, auto VLAN assignment, QoS assignment, guest VLAN, unauthenticated VLAN
- ACL: L2/L3/L4
- IPv6 ACL: L3/L4
- RADIUS: authentication and accounting (up to 32 servers)
- TACACS+: authentication (up to 5 servers)
- HTTPS and SSL (AES 128-cbc, 3ES-cbc, Blowfish-cbc)
- SSH 1.5/v2.0 (AES 128-cbc, 3ES-cbc, Blowfish-cbc)
- User name and password: local authentication and remote authentication via RADIUS/TACACS+
- Denial of Service control
- Management IP filtering (SNMP/Web/Telnet/SSH)
- MAC filtering
- IP Source Guard
- Dynamic ARP inspection (DAI)
- DHCP snooping

Management

- Industrial command-line interface
- CLI filtering
- Telnet/SSH
- Software download/upload: TFTP/Xmodem/FTP
- Configuration download/upload: TFTP/Xmodem/FTP
- Dual image supported
- SNMP v1/v2c/v3
- RMON 1, 2, 3 & 9
- BOOTP: client/relay
- DHCP: client/relay/option 82
- Auto-Installation
- Event/error log: local flash and remote server via system log (RFC3164)
- DNS: client/relay
- NTP/SNTP
- LLDP (802.1ab, Link Layer Discovery Protocol)
- CDP (Cisco Discovery Protocol) version 2
- Port mirroring: one to one & many to one
- sFlow (RFC 3176)
- IPv6 management:
 - IPv4/IPv6 Dual Stack
 - ICMPv6, ICMPv6 redirect
 - IPv6 Path MTU Discovery
 - IPv6 Neighbor Discovery
 - stateless auto-configuration
 - manual configuration
 - DHCPv6 (client)
 - SNMP/HTTP/SSH/Telnet over IPv6
 - IPv6 DNS resolver
 - IPv6 RADIUS/TACA CS+ support
 - IPv6 Syslog support
 - IPv6 SNTP & NTP
 - IPv6 TFTP
 - IPv6 Ping

Layer 3 features

- IP Multinetting/CIDR
- /31 subnets

- ARP (static: 128 & dynamic 3968)
- Proxy ARP
- Local proxy ARP
- IRDP
- Static route
- Unicast Routing: RIP v1/v2, OSPF
- ECMP
- Multicast Routing: IGMP v1/v2/v3, DVMRP, PIM-DM/-SM
- VRRP
- Source IP Configuration
- Policy-based routing

IPv6 Layer 3 features

- Static route
- Unicast Routing: RIPng & OSPFv3
- Multicast Routing: MLD v1/v2, PIM-DM6/-
- DHCPv6: relay

Datacenter features

- Congestion Notification
- Enhanced Transmission Selection
- Priority-based Flow Control
- Datacenter Bridging Extension
- FIP snooping

VM Tracer features

- VMware vSphere support
- VM Auto Discovery
- VM Adaptive Segmentation
- VM host view

Ethernet Virtual Bridge

- Ethernet Virtual Bridging (EVB, IEEE 802.1

Mechanical

- Dimension (HxWxD): 44x435x393.7mm/1.732x17.12x15.5in
- Weight: 8.07kg/18.08lbs (NET)

Environmental specifications

- Operating temperature: 0~45°C
- Operating humidity: 90% maximum relative humidity

Electrical

- Power requirement: 100~240VAC, 50/60
- Power consumption: 179W (full loading)

Safety

- UL 60950-1 (2nd Ed.)
- CSA C22.2 60950-1-07 (2nd Ed.)

EMC

- FCC 47CFR, Part 15 Class A
- ICES-003 Class A
- EN 55022 Class A
- CISPR 22 Class A
- EN 55022
- EN 61000-3-2
- EN 61000-3-3
- EN 300 386
- CCC

Environmental

- Reduction of Hazardous Substances (RoH)

Order information

- LY1R (Front to Back)
- LY1R (Back to Front)

Ordering information¹

| PN | Description |
|--------------------|---|
| Switches | |
| X1LY3BZZ0ST2 | Switch, 1U, 40x10G Base-T+8x10G SFP+, (standard L2/L3 FW), dual PSU, Air Flow Direction Front to Back |
| X1LY3BZZ0ST3 | Switch, 1U, 40x10G Base-T+8x10G SFP+, (standard L2/L3 FW), dual PSU, Air Flow Direction Back to Front |
| Cables 10 G | |
| XCD-SFSFNgg | Cable, 10GbE, Direct attach, Copper, SFP+ to SFP+, length: gg = {01 - 1m; 02 - 2m; 03 - 3m; 04 - 4m; 05 - 5m} |
| XCE-SFSFNgg | Cable, 10GbE, Direct attach, Optic, SFP+ to SFP+, length: gg = {01 - 1m; 02 - 2m; 03 - 3m; 04 - 4m; 05 - 5m; 06 - 6m; 07 - 7m; 10 - 10m; 20 - 20m; 50 - 50m; C1 - 100m} |
| Cables 40 G | |
| XCD-QSQSNgg | Cable, 40GbE, Direct attach, Copper, QSFP+ to QSFP+, length: gg = {01 - 1m; 03 - 3m; 05 - 5m} |
| XCE-QS4SNgg | Cable, 40GbE, Direct attach, Optic, QSFP+ to 4 x SFP+, length: gg = {01 - 1m; 02 - 2m; 03 - 3m; 04 - 4m; 05 - 5m; 06 - 6m; 07 - 7m; 10 - 10m; 20 - 20m; 50 - 50m; C1 - 100m} |
| XCE-QSQSNgg | Cable, 40GbE, Direct attach, Optic, QSFP+ to QSFP+, length: gg = {01 - 1m; 02 - 2m; 03 - 3m; 04 - 4m; 05 - 5m; 06 - 6m; 07 - 7m; 10 - 10m; 20 - 20m; 50 - 50m; C1 - 100m} |
| Pluggables | |
| XSM311-02LY | SFP, multimode, 1310nm, 1Gbps, 2km, LC, with DDMI (0 ± 70OC) |
| XSM851-M5LY | SFP, multimode, 850nm, 1Gbps, 500m, LC, with DDMI (0 ± 70OC) |
| XSSdd1-ffLh | SFP, singlemode, dd = {31 - 1310nm; 55 - 1550nm}, 1Gbps, ff = {20 - 20km; 40 - 40km; 80 - 80km; C0 - 120km; G0 - 160km; I0 - 180km; K0 - 200km}, LC, h = {N - no DDMI; Y - DDMI (0 ± 70OC)} |
| XSBdd1-ffgh | SFP, bidirectional, dd = {27 - 1270nm; 29 - 1290nm; ... ; 61 - 1610nm}, 1Gbps, ff = {20 - 20km; 40 - 40km; 80 - 80km; C0 - 120km}, g = {L - LC, S - SC}, h = {N - no DDMI; Y - DDMI (0 ± 70OC)} |
| XSCdd1-ffLh | SFP, CWDM, 1Gbps, dd = {lower WL: 27 - 1270nm; ... 45 - 1450nm / upper WL: 47 - 1470nm; ... ; 61 - 1610nm}, ff = {40 - 40km; 80 - 80km; C0 - 120km; G0 - 160km; I0 - 180km; K0 - 200km}, LC, h = {N - no DDMI; Y - DDMI (0 ± 70OC)} |
| XSDdd1-ffLY | SFP, DWDM C-BAND, dd = {17 - 61 ITU grid channel}, 1Gbps, ff = {80 - 80km; C0 - 120km}, LC, with DDMI (0 ± 70OC) |
| XTM85A-M3LY | SFP+, multimode, 850nm, 10Gbps, 300m (OM3), LC, with DDMI (0 ± 70OC) |
| XTS31A-ffLY | SFP+, singlemode, 1310nm, 10Gbps, ff = {02 - 2km; 10 - 10km; 20 - 20km; 40 - 40km}, LC, with DDMI (0 ± 70OC) |
| XTS55A-ffLY | SFP+, singlemode, 1550nm, 10Gbps, ff = {40 - 40km; 80 - 80km; A0 - 100km}, LC, with DDMI (0 ± 70OC) |
| XTBddA-ffLY | SFP+, bidirectional, dd = {27 - 1270nm; 32 - 1330nm; }, 10Gbps, ff = {10 - 10km; 20 - 20km; 40 - 40km; 60 - 60km}, LC, with DDMI (0 ± 70OC) |
| XTCddA-ffLY | SFP+, CWDM, dd = {27 - 1270nm; 29 - 1290nm; ... ; 61 - 1610nm}, 10Gbps, ff = {10 - 10km; 40 - 40km; 80 - 70/80km}, LC, with DDMI (0 ± 70OC) |

| | |
|----------------------|--|
| XTDddA--ffLY | SFP+, DWDM C-BAND, dd = {17 - 61 ITU grid channel}, 10Gbps, ff = {40 - 40km; 80 - 80km*}, LC, with DDMI (0 ± 70OC) |
| XTDTCA--ffLY | SFP+, DWDM C-BAND, Tunable, 10Gbps, ff = {40 - 40km; 80 - 80km}, LC, with DDMI (0 ± 70OC) |
| XTLTLA--ffLY | SFP+, DWDM L-BAND, Tunable, 10Gbps, ff = {40 - 40km; 80 - 80km}, LC, with DDMI (0 ± 70OC) |
| XQM853-M1PY | QSFP+, multimode, 850nm, 40Gbps, {100m (OM3); 150m (OM4)}, MPO, with DDMI (0 ± 70OC) |
| XQM853-M3PY | QSFP+, multimode, 850nm, 40Gbps, {300m (OM3); 400m (OM4)}, MPO, with DDMI (0 ± 70OC) |
| XQS313-02PY | QSFP+, singlemode, 1310nm, 40Gbps, 2km, MPO, with DDMI (0 ± 70OC) |
| XQC273-ffLY | QSFP+, CWDM, 1270/1290/1310/1330nm, 40Gbps, ff = {02 - 2km; 10 - 10km; 20 - 20km; 40 - 40km}, LC, with DDMI (0 ± 70OC) |
| Services | Services |
| Spare PS Unit | Spare Power Supply Unit |
| SW&FW | Firmware and software |

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. Xenopt does not guarantee errorless or outdated information.

Important Notice

Performance figures, data and any illustrative material provided in this data sheet are typical and must be specifically confirmed in writing by XenOpt before they become applicable to any particular order or contract. In accordance with the XenOpt policy of continuous improvement specifications may change without notice.

The publication of information in this data sheet does not imply freedom from patent or other protective rights of XenOpt or others. Further details are available from any XenOpt sales representative.

To find out more, please contact:



www.xenopt.com