4-Slot Layer 3 IPv6/IPv4 Routing Chassis Switch

Overview

The PLANET XGS3-42000R Core-Layer Routing Switch is specially designed for large network applications such as Enterprise, Campus, Community, ISP or Data Center network where **flexible configuration**, **large capacity**, **high-density**, **high-reliability** and **advanced traffic management** are required.

The XGS3-42000R is a High-Density Chassis Ethernet Switch built with 4 module slots and redundant power supply. It provides great porting flexibility for network deployment by offering various and combinable management modules and standard interfaces. For instance, one management module can be collaborated with three standard modules, or two management modules work with two standard modules to perform mutually system backup. Within the 6U height, single chassis, the maximum configuration can be:

- 188-Port 10/100/1000Base-T Copper

- 156-Port 1000Base-SX/LX SFP Fiber Slots

- 13-Port 10G XFP Fiber Slots

Positioned as the Core layer switch, the XGS3-42000R serves ideally for large and medium-sized networks and IP metropolitan networks by supplying advanced intelligent and secure features and giving high performance and flexibility.

Supports 10-Gigabit Ethernet

10-Gigabit Ethernet which adopts full-duplex technology instead of low-speed, half-duplex CSMA/CD protocol, is a big leap in the evolution of Ethernet. 10-Gigabit Ethernet can be deployed in star or ring topologies. With 10-Gigabit Ethernet technology applied, the XGS3-42000R provides broad bandwidth and powerful processing capacity. It is suitable for metropolitan networks and wide area networks. Using the XGS3-42000R, users can simplify network structures and reduce cost of network construction.

Abundant IPv6 Support

The XGS3-42000R Chassis Switch supports IPv6 routing in hardware for maximum performance. As more network devices growing and the need for larger addressing and higher security become critical, the XGS3-42000R Chassis Switch will be a right product to meet the requirement.

Scalable Performance

The XGS3-42000R delivers wire-speed Gigabit and 10-Gigabit Ethernet connectivity in a highly flexible and resilitnt modular platform. With high switching capacity, the XGS3-42000R Chassis Switch supports wire-speed L2/L3 forwarding and high routing performance for IPv4 and IPv6 protocols. The scalable and flexible modular architecture supports up to 376Gps forwarding performance in a single system. The XGS3-42000R is ideal for the core layer of campuses, enterprise networks and the aggregation layer of IP metropolitan networks.

Rich Multi-Layer and Multicast Networking Protocols

The XGS3-42000R supports various Layer 2 and management networking protocols to meet the requirements of complex network constructions. It is compatible with 802.1d/w/s, 802.1Q, 802.1p, 802.3ad, 802.3x, GVRP, DHCP, SNTP and etc.

The Chassis Switch also supports **IPv6 / IPv4** routing protocols including Layer 3 IP Static Routing, RIPv1/v2, OSPF, and VRRP protocols. Built-in with abundant multicast features, the XGS3-42000R supports rich L2 multicast features such as IGMPv1/v2/v3 and snooping and L3 multicast protocols such as **DVMRP**, **PIM-DM**, **PIM-SM** and **PIM-SSM**. Offering the rich application experience, the product supports Multicast VLAN Registration, multicast receive control and illegal multicast source detect functions. The XGS3-42000R Chassis Switch solution performs a cost-effective solution for today with the ability to expand as network demands grow.

Enhanced Security

PLANET XGS3-42000R offers comprehensive Layer 2 to Layer 4 Access Control List (ACL) for enforcing security to the edge. It can be used to restrict network access by denying packets based on source and destination IP address, TCP/UDP ports or defined typical network applications. Its protection mechanism also comprises of 802.1x port-based and MAC-based user and device authentication. With the private VLAN function, communication between edge ports can be prevented to ensure user privacy. The XGS3-42000R Net Security also provides **DHCP Snooping**, **IP Source Guard** and **Dynamic ARP Inspection** functions to prevent IP snooping attack and discard ARP packets with invalid MAC address. The network administrators can now construct highly secured corporate networks with considerably less time and effort than before.

Enhanced Quality of Service

The XGS3-42000R switch fully supports DiffServ Module so users can specify a queue bandwidth on each port. WRR/SP/SWRR scheduling is also provided. The XGS3-42000R supports the port security to enable trusted CoS, DSCP, IP precedence and port priority. Users can modify packets' DSCP and COS values so the traffic can be classified by port, VLAN, DSCP, IP precedence and ACL table. User can also modify packets' DSCP and IP precedence values to specify different bandwidths for voice / data/ video to customize different qualities of service.

Efficient and Secure Management

For efficient management, the XGS3-42000R Chassis Switch is equipped with console, WEB and SNMP management interfaces. With the built-in Web-Based management interface, the XGS3-42000R offers an easy-to-use, platform-independent management and configuration facility. The XGS3-42000R supports standard Simple Network Management Protocol (SNMP) and can be managed via any standard-based management software. For text-based management, the XGS3-42000R can be accessed via Telnet and the console port. Moreover, the XGS3-42000R offers secure remote management by supporting SSH, SSL and SNMPv3 connection which encrypt the packet content at each session.

Key Features

HARDWARE AND PERFORMANCE

- 4 open module slots design
  - 2 Management Modules with 2 Standard Modules
  - 1 Management Module with 3 Standard Modules
- Up to 188-Port Gigabit copper / 156-Port Gigabit SFP / 13-Port 10G XFP
- Hot-Swappable switching modules
- Non-Blocking wire-speed Layer 2 and Layer 3 switching
- 1 RJ-45 serial console interface on Management Module for Switch basic management and setup

REDUNDANT POWER SYSTEM

- 100~240V AC Dual power redundant
  - 1 default AC power supply
  - 1 additional open slot for optional power supply
- Active-active redundant power failure protection
- Backup of catastrophic power failure on one supply

IP STACKING

- IP stacking technology, connect with stack member via any Gigabit or 10G interface
- Single IP address management, supports up to 24 units stacking together

IP ROUTING FEATURES

- IP Routing protocol supports RIP v1/v2, OSPF v2, BGP4
- Routing interface provides VLAN routing mode
- Policy based Routing(PBR) for IPv4 and IPv6
- VRRP protocol for redundant routing deploy
- Supports route redistribution

MULTICAST ROUTING FEATURES

- Supports Multicast Routing Protocols:
  - PIM-DM (Protocol Independent Multicast - Dense Mode)
  - PIM-SM (Protocol Independent Multicast - Sparse Mode)
  - PIM-SSM (Protocol Independent Multicast - Source-Specific multicast Mode)
  - DVMRP (Distance Vector Multicast Routing Protocol)
- Supports IGMP v1/v2/v3

LAYER 2 FEATURES

- Supports Auto-Negotiation, Auto-MDI/MDI-x and Half-Duplex / Full-Duplex modes for all 1000Base-T ports.
- Prevents packet loss with back pressure (Half-Duplex) and IEEE 802.3x PAUSE frame flow control (Full-Duplex)
- Supports VLAN
  - IEEE 802.1Q Tagged VLAN
  - Up to 4K VLANs groups, out of 4041 VLAN IDs
  - Provider Bridging (VLAN Q-in-Q) support (IEEE 802.1ad)
  - GVRP protocol for VLAN Management
  - Private VLAN Edge (PVE)
- Supports Spanning Tree Protocol
  - STP, IEEE 802.1d (Spanning Tree Protocol)
  - RSTP, IEEE 802.1w (Rapid Spanning Tree Protocol)
  - MSTP, IEEE 802.1s (Multiple Spanning Tree Protocol, spanning tree by VLAN)
- Supports Link Aggregation
  - 802.3ad Link Aggregation Control Protocol (LACP)
  - Cisco ether-channel (Static Trunk)
  - Maximum 128 trunk groups per module, up to 8 ports per trunk group
  - Up to 16Gbps bandwidth (Duplex Mode)
- Provide Port Mirror (many-to-1)
- Port Mirroring to monitor the incoming or outgoing traffic on a particular port

QUALITY OF SERVICE

- 8 priority queues on all switch ports
- Supports for strict priority and Weighted Round Robin (WRR) CoS policies
- Ingress Shaper and Egress Rate Limit per port bandwidth control
- Traffic-policing policies based on application

MULTICAST

- Supports IGMP Snooping v1, v2 and v3
- Querier mode support

SECURITY

- IEEE 802.1x Port-Based network access authentication
- MAC-Based network access authentication
- IP-Based Access Control List (ACL)
- MAC-Based Access Control List
- Static MAC

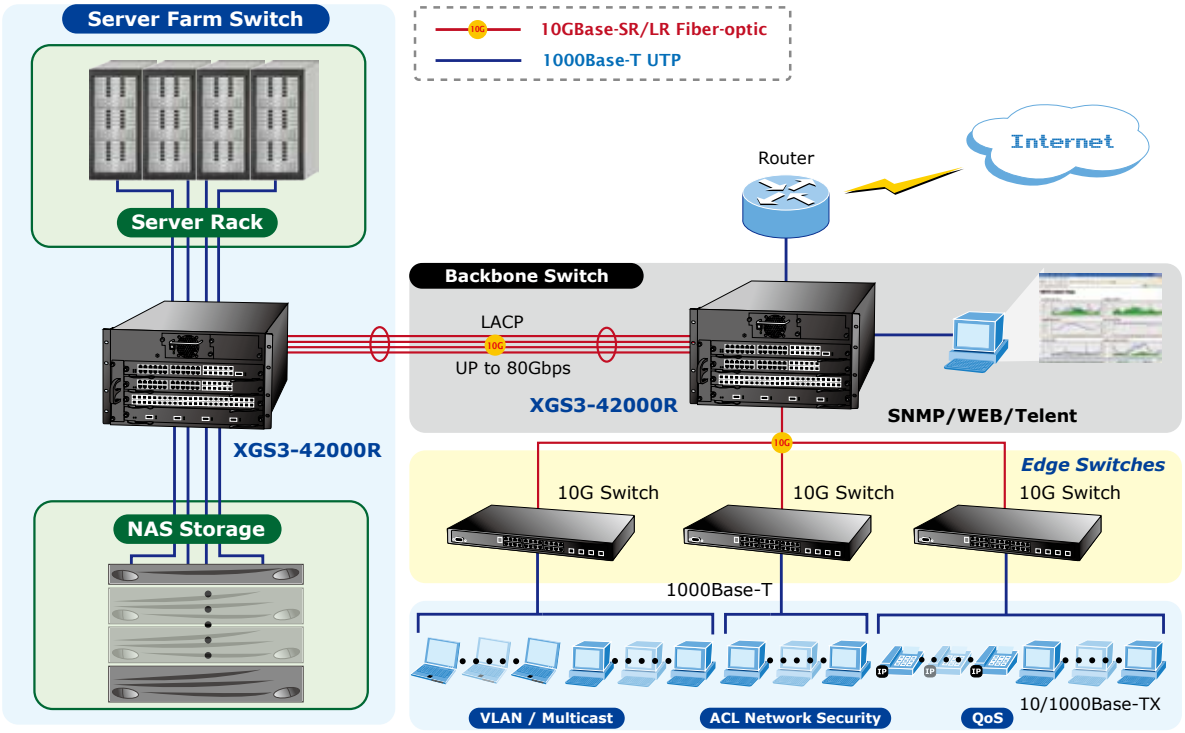
MANAGEMENT

- IPv4 / IPv6 Switch Management Interfaces
  - Console / Telnet Command Line Interface
  - Web switch management
  - SNMP v1, v2c, and v3 switch management
  - SSH (Secure Shell) / SSL secure access
- Four RMON groups (history, statistics, alarms, and events)
- IPv6 IP Address / NTP / DNS management
- Built-in Trivial File Transfer Protocol (TFTP) client
- BOOTP and DHCP for IP address assignment
- DHCP / BootP relay and Relay Option 82
- DHCP Server
- DNS-Proxy
- Firmware upload/download via FTP / TFTP
- SNTP (Simple Network Time Protocol)
- LLDP (Link Layer Discovery Protocol)
- User Privilege levels control

Applications

High Performance, High-Density, High Reliable Enterprise Backbone Switch

10-Gigabit Ethernet supported equipment has become the fundamental unit of Enterprises and Network servers. The PLANET XGS3-42000R Chassis Switch can easily provide the cost-effective, high-density and high-bandwidth required from now on. Dedicated Chassis architecture features built into the XGS3-42000R makes all modules in the platform operate together as a one much larger switch providing multiple high performance 10-Gigabit Ethernet network for backbone of enterprise, campus or Telecoms. The redundant management modules and dual power supplies provide the XGS3-42000R nonstop network service ability. Moreover, all modules are hot swappable. They can be added or exchanged without interrupting the whole system operation. The XGS3-42000R Chassis Switch is ideal to be used as a server farm switch connecting servers and perfectly suited to networking environments requiring constant access to critical business applications.



Carrier Class Backbone Switch for the Campus and Community

For small area network communication such as in campus and community, the PLANET XGS3-42000R Chassis Switch enables an affordable and scalable network deployment. It offers a high capacity chassis platform with high quality and reliability in 10/100/1000Base-T, 1000Base-SX/LX and 10GBase-SR/LR scalable solutions that integrate easily into any large network. The XGS3-42000R provides up to 188 high-density Gigabit Ethernet ports, in which up to 156 mini-GBIC / SFP ports are available for remote uplink connectivity in a single system and provide the uplink to the edge network through 1000Base-SX/LX SFP modules. The XGS3-42000R offers a comprehensive set of modules for complex network and gives network manager the flexibility to expand large area network when needed.

SPECIFICATION

Product	4-Slot Layer 3 IPv6/IPv4 Routing Chassis Switch (with one AC power supply)
Model	XGS3-42000R
Chassis Slots	
Total Number of Slots	4 (2 Management Modules + 2 Standard Modules or 1 Managed module + 3 Standard modules)
Max. Management Module	2 (Slot 1, Slot 2)
Max. Standard Module	3 (Slot 2,3,4)
Management Module Redundancy	Yes
Number of Power Supply Bays	2
Number of FAN Trays	1, hot-pluggable
Total Port Capacity	
Max. 10G XFP Slot	13
Max. 10/100/1000Base-T	188
Max. 1000Base-SX/LX SFP Slot	156
Modules	
XGS3-M24GX	Management module / 24 10/100/1000Base-T with 12 Shared SFP Slots + 1 10G XFP Slot
XGS3-M44G	Management module / 44 10/100/1000Base-T
XGS3-S24G	Standard module / 24 10/100/1000Base-T with 12 Shared SFP slots
XGS3-S48G	Standard module / 48 10/100/1000Base-T
XGS3-S48GF	Standard module/ 48 1000Base-SX/SL SFP slots
XGS3-S4XG	Standard module / 4 10GBase-SR/LR XFP slots
Performance	
Switch Processing Scheme	Store-and-Forward
Backplane Bandwidth	1.2Tbps
Switching Capacity	376Gbps
Full-Mesh Switching Capacity	160Gbps
Forwarding Rate	282Mpps@64Bytes, Line speed
MAC Table	64K
VLAN Table	4K
ACL Table	16K max.
Routing Table	IPv4 Protocol: 128K max. IPv6 Protocol: 64K max.
Layer 3 Interface	500 max.
Port Queues	8
Flow Control	IEEE 802.3x Pause Frame for Full-Duplex Back pressure for Half-Duplex
Jumbo Frame	9Kbytes
Hardware Specification	
Dimension (W x D x H)	445 x 421 x 266 mm
Relative Humidity	10~90%, non-condensing
Operating Temperature	0 ~ 50 Degree C
Power Input	AC: Input 200~240V, 50~60 Hz
Power Consumption	≤400W
IPv4 Layer 3 functions	
IP Routing Protocol	Static Route, RIPv1/v2, OSPFv2, BGP4 Policy-Based Routing (PBR) LPM Routing (MD5 authentication)
Multicast Routing Protocol	IGMP v1 / 2 / 3, DVMRP, PIM-DM/SM, PIM-SSM
IPv4 Layer 3 Protocol	VRRP, ARP, ARP Proxy
Routing Interface	Per VLAN
IPv6 Layer 3 functions	
IP Routing Protocol	RIPng, OSPFv3, BGP4+
Multicast Routing Protocol	PIM-SM/DM for IPv6 MLD for IPv6 MLDv1/v2 MLD Snooping, 6 to 4 Tunnels Multicast receive control Illegal multicast source detect
IPv6 Layer 3 Protocol	Configured Tunnels , ISATAP, CIDR

Layer 2 function	
Port configuration	Port disable/enable Auto-Negotiation 10/100/1000Mbps full and half duplex mode selection Bandwidth control on each port Port Loopback detect
VLAN	802.1Q Tagged Based VLAN ,up to 4K VLAN groups Q-in-Q GVRP Private VLAN
Spanning Tree Protocol	STP, IEEE 802.1d (Spanning Tree Protocol) RSTP, IEEE 802.1w (Rapid Spanning Tree Protocol) MSTP, IEEE 802.1s (Multiple Spanning Tree Protocol, spanning tree by VLAN) Root Guard BPDU Guard
Link Aggregation	Static Trunk IEEE 802.3ad LACP 128 groups of 8-Port trunk support
QoS	Traffic classification based, Strict priority and WRR 8-level priority for switching - Port Number - 802.1p priority - DSCP/TOS field in IP Packet Policy-Based DiffServ
Multicast	IGMP v1 / v2 / v3 Snooping IGMP Proxy IGMP Querier mode support MLDv1 / v2, MLD v1/v2 Snooping
Access Control List	Supports Standard and Expanded ACL IP-Based ACL / MAC-Based ACL Time-Based ACL ACL Pool can be used for QoS classification Up to 1K entries
Security	Supports MAC+ port binding IPv4 / IPv6 + MAC+ port binding IPv4 / IPv6 + port binding Supports MAC filter ARP Spoofing Prevention ARP Scanning Prevention IP Source Guard
Authentication	IEEE 802.1x Port-Based network access control AAA Authentication: IPv4 / IPv6 over RADIUS
SNMP MIBs	RFC-1213 MIB-II IF-MIB RFC-1493 Bridge MIB RFC-1643 Ethernet MIB RFC-2863 Interface MIB RFC-2665 Ether-Like MIB RFC-2674 Extended Bridge MIB RFC-2819 RMON MIB (Group 1, 2, 3 and 9) RFC-2737 Entity MIB RFC-2618 RADIUS Client MIB RFC-2933 IGMP-STD-MIB RFC3411 SNMP-Frameworks-MIB IEEE802.1X PAE LLDP MAU-MIB

Management Function	
System Configuration	Console, Telnet, SSH, Web Browser, SSL, SNMPv1, v2c and v3
Management Interface	IPv4 / IPv6 HTTP, SSL, SNMP, FTP/TFTP, NTP, SSH Telnet, CLI RADIUS, TACACS+ RMOM 1,2,3,9 for group SNMP MTB and trap
Standards Conformance	
Regulation Compliance	FCC Part 15 Class A, CE
Standards Compliance	IEEE 802.3 10Base-T IEEE 802.3u 100Base-TX IEEE 802.3z 1000Base-SX/LX IEEE 802.3ab Gigabit 1000T IEEE 802.3ae 10 Gigabit Ethernet IEEE 802.3x Flow Control and Back pressure IEEE 802.3ad Port trunk with LACP IEEE 802.1d Spanning tree protocol IEEE 802.1w Rapid spanning tree protocol IEEE 802.1s Multiple spanning tree protocol IEEE 802.1p Class of service IEEE 802.1Q VLAN Tagging IEEE 802.1x Port Authentication Network Control IEEE 802.1ab LLDP
Environment	
Operating	Temperature: 0 ~ 50 Degree C Relative Humidity: 10 ~ 90% (non-condensing)
Storage	Temperature: -10 ~ 70 Degree C Relative Humidity: 5 ~ 90% (non-condensing)

Ordering Information

XGS3-42000R	4-Slot Layer 3 IPv6/IPv4 Routing Chassis Switch (with one AC power supply)

Available Management / Standard / Power Modules

XGS3-M24GX	Management Module for XGS3-42000R with 24-Port Gigabit (12-Port Combo) + 1-Port 10G XFP
XGS3-M44G	Management Module for XGS3-42000R with 44-Port Gigabit copper
XGS3-S24G	Standard Module for XGS3-42000R with 24-Port Gigabit (12-Port Combo)
XGS3-S48G	Standard Module for XGS3-42000R with 48-Port Gigabit copper
XGS3-S48G F	Standard Module for XGS3-42000R with 48-Port Gigabit SFP
XGS3-S4XG	Standard Module for XGS3-42000R with 4-Port 10G XFP
XGS3-P W R-A C	400watt AC power supply for XGS3-42000R

Available Transceiver Modules for XGS3-42000R

MTB-XSR	XFP Port 10GBase-SR Fiber Optic Module (Multi-mode / 850nm / max. 300m)
MTB-XLR	XFP Port 10GBase-LR Fiber Optic Module (Single mode / 1310nm / max. 10km)
MGB-G T	SFP-Port 1000Base-T Module
MGB-SX	SFP-Port 1000Base-SX mini-GBIC module
MGB-LX	SFP-Port 1000Base-LX mini-GBIC module
MGB-L30	SFP-Port 1000Base-LX mini-GBIC module-30km
MGB-L50	SFP-Port 1000Base-LX mini-GBIC module-50km