

## 3-/6 Slot Layer 3 IPv6/IPv4 Routing Chassis Switch

CS-6303R Chassis Switch



CS-6306R Chassis Switch



### Outstanding Flexibility and High Performance

PLANET CS-63XX Series Core Layer Routing chassis switch is specially designed for large network applications such as enterprises, campuses, communities, ISPs and data center networks where **flexible configuration, large capacity, high density, high reliability** and **advanced traffic management** are required.

The CS-63XX Series is a high-density chassis switch built with 3 or 6 module slots and a redundant power supply. They provide great porting flexibility for network deployment by offering various combinable management and switch modules. For instance, one management module can collaborate with four switch modules, or two management modules can work together to mutually perform system backup. The available modules for the CS-6303R and CS-6306R chassis switches are shown below:

	CS-6303R	CS-6306R
Total Module Slots	3	6
Management Slots	2 (slot 2 and 3)	2 (slot 5 and 6)
Switch Slots	2 (slots 1 and 2)	4 (slots 1 to 4)
Power Supply Slots	3	3
<b>Total Port Capacity</b>		
Max. 10/100/1000BASE-T	120	192
Max. 1000BASE-X SFP Ports	120	192
Max. 10G SFP+ Ports	40	64
Max. 40G QSFP+ Ports	8	16
Max. GPON Ports	48	96

Positioned as the core layer switch, the CS-63XX Series serves ideally for large-sized networks and IP metropolitan networks by supplying advanced intelligent and secure features and giving high performance and flexibility.

### CS-6303R Hardware and Performance

- 3 open module slots:
  - Up to 2 Management Modules (Slot 2 and Slot 3)
  - Up to 2 Switch Modules (Slot 1 and Slot 2)
- Hot-swappable switching modules
- 1 RJ45 serial console interface on Management Module for switch basic management and setup
- MGMT port on Management Module for HTTP access

### CS-6306R Hardware and Performance

- 6 open module slots:
  - Up to 2 Management Modules (Slot 5 and Slot 6)
  - Up to 4 Switch Modules (Slot 1 to Slot 4)
- Hot-swappable switching modules
- 1 RJ45 serial console interface on Management Module for switch basic management and setup
- MGMT port on Management Module for HTTP access

### Redundant Power System

- 3 power slots
- 100~240V AC and 36-72V DC power redundancy
- Active-active redundant power failure protection
- Backup of catastrophic power failure on one supply

### IP Routing Features

- IPv4 Routing protocol supports RIP v1/v2, OSPFv2 and BGP4
- IPv6 Routing protocol supports RIPng, OSPFv3 and BGP4+
- Routing interface provides VLAN routing mode
- Policy-based Routing (PBR) for IPv4
- VRRP protocol for redundant routing deployment
- 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)
- Supports IGMP v1/v2/v3

### Layer 2 Features

- Supports **VLAN**



### Scalable 10-Gigabit and 40-Gigabit Performance

The CS-63XX Series delivers Gigabit, **10-Gigabit** and **40-Gigabit** Ethernet connectivity in a highly-flexible and resilient modular platform. With high switching capacity, they support wire-speed L2/L3 forwarding and high routing performance for IPv4 and IPv6 protocols. The scalable and flexible modular architecture supports up to **2.56Tbps** forwarding performance in a single system. They are ideal for the core layer of campuses, enterprise networks and the aggregation layer of IP metropolitan networks, and wide area networks.

### Rich Multi-Layer Networking Protocols

The CS-63XX Series comes with the complete Layer 3 managed function with comprehensive protocols and applications to facilitate the rapid service deployment and management for both the traditional L2 and L3 networks. They support advanced routing protocols, including **RIP**, **RIPng**, **OSPFv2** and **OSPFv3**.

### Strong Multicast

The CS-63XX Series supports abundant multicast features. In Layer 2, they feature IPv4 IGMPv1/v2/v3 snooping and IPv6 MLD v1/v2 snooping. With Multicast VLAN Register (MVR), multicast receiver/sender control and illegal multicast source detect functions. In Layer 3, they feature **PIM-DM**, **PIM-SM** and **PIM-SSM** which make them great for any robust networking.

### Full IPv6 Support

The CS-63XX Series supports **IPv4-to-IPv6 technologies including IPv4 manual/automatic tunnel**, IPv6-to-IPv4 tunnel, and Intra-Site Automatic Tunnel Addressing Protocol (**ISATAP**) tunnel. They comprehensively support IPv6 Neighbor Discovery, DHCPv6, Path MTU Discovery, IPv6-based Telnet, SSH and ACL, meeting the need of IPv6 network device management and service control.

### High Reliability

The key components of the CS-63XX Series are the management module, power system, fan system, and redundant power design. All system modules support hot-swapping and seamless switching without manual intervention.

They support In-Service Software Upgrade (**ISSU**) and Graceful Restart (**GR**) for OSPF and BGP routing protocols, ensuring non-stop user data forwarding during system upgrades. They also support Bidirectional Forwarding Detection (**BFD**), enabling fault detection and service recovery within seconds by integrating with Layer 2 or Layer 3 protocols.

- IEEE 802.1Q tag-based VLAN
- Provider Bridging (VLAN Q-in-Q, IEEE 802.1ad) supported
- GVRP for dynamic VLAN management
- Private VLAN
- Supports **Link Aggregation**
  - 802.3ad Link Aggregation Control Protocol (LACP)
  - Cisco ether-channel (static trunk)
- Supports **Spanning Tree Protocol**
  - STP, IEEE 802.1D (Classic Spanning Tree Protocol)
  - RSTP, IEEE 802.1w (Rapid Spanning Tree Protocol)
  - MSTP, IEEE 802.1s (Multiple Spanning Tree Protocol, spanning tree by VLAN)
- Port mirroring to monitor the incoming or outgoing traffic on a particular port (many to 1)
- Loop protection to avoid broadcast loops
- Link Layer Discovery Protocol (LLDP)
- Ethernet OAM 802.3ah/802.1ag/ITU-Y.1731

### Quality of Service

- Ingress shaper and egress rate limit per port bandwidth control
- 8 priority queues on all switch ports
  - IEEE 802.1p CoS/DSCP/Precedence
  - VLAN ID
  - Policy-based ingress and egress QoS

### Multicast

- Supports IPv4 IGMP snooping v1, v2 and v3
- Supports IPv6 MLD snooping v1 and v2
- Querier mode support
- MVR (Multicast VLAN Registration)

### Security

- Authentication
  - IEEE 802.1x port-based network access authentication
  - Built-in RADIUS client to cooperate with the RADIUS servers
  - RADIUS/TACACS+ users access authentication
- Access Control List
  - IP-based Access Control List (ACL)
  - MAC-based Access Control List (ACL)
  - Time-based ACL
- DHCP Snooping to filter distrusted DHCP messages

### Redundant Ring, Fast Recovery for Critical Network Applications

The CS-63XX Series supports redundancy protection mechanism and feature strong, rapid self-recovery capability to prevent interruptions and external intrusions. They incorporate Layer 3 Virtual Router Redundancy Protocol (**VRRP**) protocol and Layer 2 Spanning Tree Protocol **IEEE 802.1s MSTP** (Multiple Spanning Tree Protocol) technology into customer's network to enhance system reliability and uptime. In a simple ring network, the recovery time could be less than 50ms to quickly bring the network back to normal operation.

### Centralized Hardware Stacking Management

The CS-6303R and CS-6306R can be used to build a virtually logical facility, providing enterprises, service providers, and telecoms with flexible control over port density, uplinks, and switch stack performance. The chassis switches can be connected in a ring for redundancy, ensuring data integrity even if one switch in the stack fails. You can even hot-swap switches without disrupting the network, greatly simplifying the process of upgrading the LAN to meet increasing bandwidth demands.

### Powerful Security from Layer 2 to Layer 4

The CS-63XX Series offers comprehensive Layer 2 to Layer 4 Access Control List (ACL) for enforcing security to the edge. They 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. Their protection mechanism also comprises 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.

### Advanced IP Network Protection

The CS-63XX Series also provides **DHCP Snooping**, **IP Source Guard**, and **Dynamic ARP Inspection** functions to prevent IP snooping attacks and discard ARP packets with invalid MAC addresses. Network administrators can now construct highly-secure corporate networks with considerably less time and effort than before.

### Enhanced Quality of Service

The CS-63XX Series fully supports the DiffServ module, allowing users to specify queue bandwidth on each port. WRR, SP, and SWRR scheduling are also provided. The chassis switches support port security to enable trusted CoS, DSCP, IP precedence, and port priority. Users can modify packets' DSCP and CoS values so that traffic can be classified by port, VLAN, DSCP, IP precedence, and ACL table. Users can also modify packets' DSCP and IP precedence values to allocate different bandwidths for voice, data, and video, customizing different levels of service quality.

- Dynamic ARP Inspection discards ARP packets with invalid MAC address to IP address binding
- IP Source Guard prevents IP spoofing attacks

### Management

- IPv4 and IPv6 dual stack management
- Switch Management Interfaces
  - Console and Telnet Command Line Interface
  - HTTP web switch management
  - SNMP v1 v2 V3 switch management
  - SSHv2, SSLv3, TLSv1.2 and SNMP v3 secure access
- SNMP Management
  - Four RMON groups (history, statistics, alarms, and events)
  - SNMP trap for interface Link Up and Link Down notification
- Built-in Trivial File Transfer Protocol (TFTP) client
- BOOTP and DHCP for IP address assignment
- System Maintenance
  - Firmware upload/download via HTTP
  - Reset button for system reboot
  - Dual images
- DHCP Functions:
  - DHCP Relay
  - DHCP Option 82
  - DHCP Server
- User Privilege levels control
- Network Time Protocol (NTP) and SNTP
- Network Diagnostic
  - SFP-DDM (Digital Diagnostic Monitor)
  - ICMP remote IP ping
- Syslog remote alarm
- System Log

### Stacking Management

- Virtualized multiple CS-63XX Series switches integrated into one logical device
- Single IP address stack management, supporting up to 2 hardware units stacked together
- Stacking architecture supports redundancy Ring mode

### Efficient and Secure Management

For efficient management, the CS-63XX Series is equipped with console, Web and SNMP management interfaces.

- With the built-in **Web-based** management interface, the chassis switches offer an easy-to-use, platform-independent management and configuration facility.
- For **text-based** management, it can be accessed via Telnet and the console port. For reducing product learning time, the chassis switches offer Cisco-like command via Telnet or console port and customer doesn't need to learn new command from these switches.
- For standard-based monitor and management software, it offers SNMPv3 connection which encrypts the packet content at each session for secure remote management.

Moreover, the chassis switches offer secure remote management by supporting SSHv2, TLSv1.2 and SSLv3 connection which encrypts the packet content at each session.



### Extractive Power Supply Design for Enhanced Flexibility

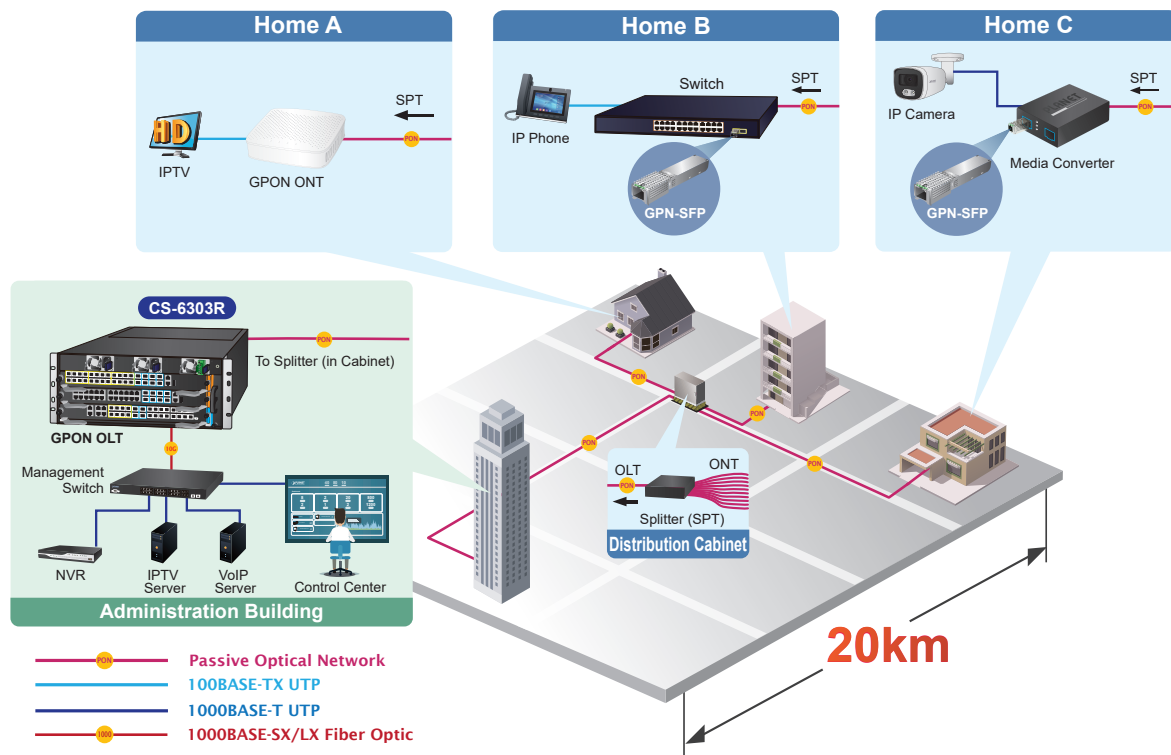
The CS-63XX Series is equipped with an extractable 100–240V AC power supply unit, making it easy for users to replace the power module. Additionally, the chassis switches reserve two extra backup power slots on the front panel, allowing users to install a second AC or DC power supply for redundancy. The AC and DC power options are interchangeable. The redundant power system is specifically designed to meet the demands of high-tech facilities requiring maximum power integrity.



### Scalable High-performance GPON for FTTx Applications

PLANET CS6-16PON4C4S4X GPON Optical Line Terminal (OLT) module consists of **16 GPON** ports, four Gigabit TP/SFP combo ports, four Gigabit SFP ports, four 10G SFP+ ports, and one management port. It complies with ITU-T G.984/G.988 and meets the technical requirements for GPON OLTs in network access. It is easy to install and maintain a GPON deployment with up to **1024 ONU** and HGU devices, providing highly effective GPON solutions and convenient management for fiber optic broadband networks. It offers a high bandwidth of up to **2.5Gbps downstream** and **1.25Gbps upstream**, long-distance coverage of up to 20km between equipment nodes, and flexibility for network deployment. This is a cost-effective access technology that provides a reliable and scalable network for triple-play service applications, such as HDTV, IPTV, voice-over-IP (VoIP), and multimedia.

## Fiber To The Home (FTTH) Application



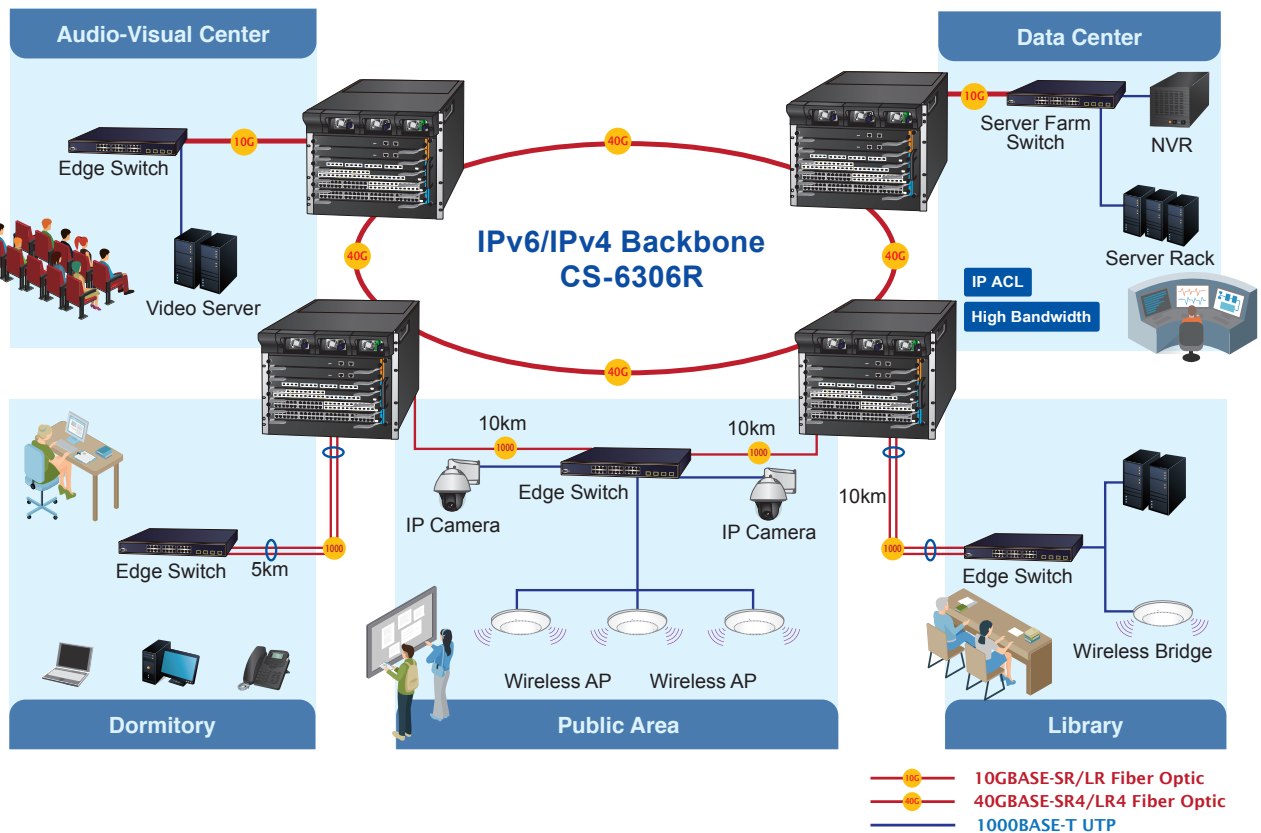


## Applications

### Carrier-class Backbone Switch for Campuses and Communities

Designed for large-scale network communications in enterprises, campuses, and communities, PLANET CS-63XX Series is the ideal choice for an affordable and scalable network deployment. They offer a high-capacity chassis platform with exceptional quality and reliability, supporting 10/100/1000BASE-T, 1000BASE-SX/LX, 10GBASE-SR/LR, and 40GBASE-SR4/LR4 scalable solutions that integrate seamlessly into any large network.

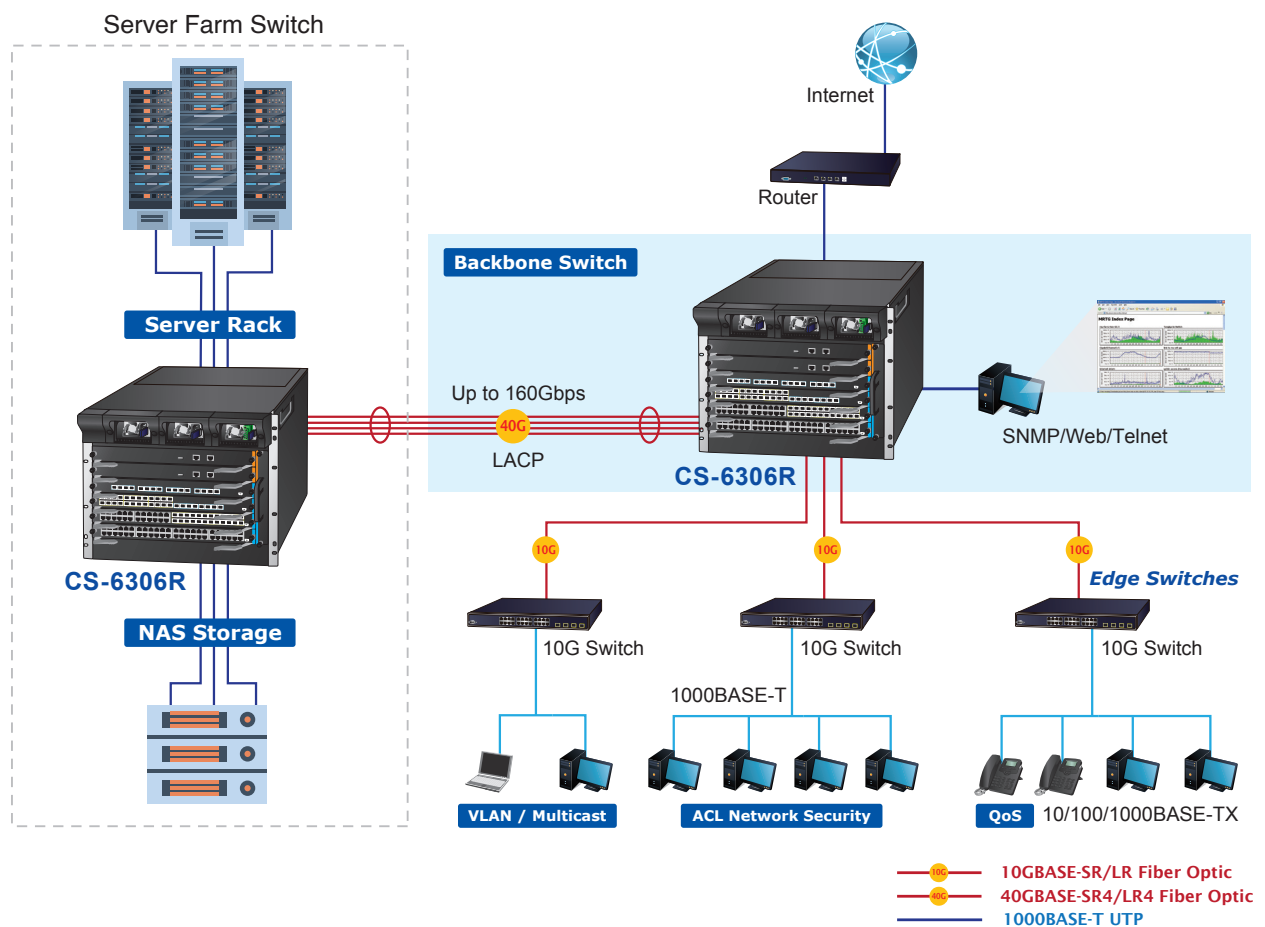
The chassis switches can provide up to 192 high-density Gigabit Ethernet ports, **192** SFP ports, **64** 10G SFP+ ports, **16** 40G QSFP+ ports, or **96** GPON OLT SFP ports, enabling remote uplink connectivity within a single system. They support uplinks to the edge network through 1Gbps to 40Gbps optical transceiver modules. Additionally, the chassis switches offer a comprehensive set of modules for complex networks, giving network managers the flexibility to expand large-scale networks as needed.



### Reliable, High-performance, and High-density Enterprise Backbone Switch

The 10/40-Gigabit Ethernet-supported equipment has become an essential component of enterprise and network infrastructures. The CS-63XX Series are cost-effective, high-density, and high-bandwidth solutions designed to meet modern market demands. Their dedicated chassis architecture allows all modules within the platform to function as a single, high-capacity switch, delivering multiple high-performance 10/40-Gigabit Ethernet connections for enterprise, campus, or telecom backbone network.

The redundant management modules and three power supplies provide the chassis switches with uninterrupted network service. Moreover, all modules are hot-swappable, allowing for expansion or replacement without disrupting system operation. The chassis switches are ideal as server farm switches for connecting to servers and are perfectly suited for network environments that require continuous access to critical business applications.



## Specifications

Product		CS-6303R		CS-6306R	
Hardware Specifications					
Total Number of Slots	3			6	
Max. Management Module	2 (slots 2 and 3) Supports dual master control redundancy and automatic recovery			2 (slots 5 and 6) Supports dual master control redundancy and automatic recovery	
Max. Switch Module	2 (slots 1 to 2)			4 (slots 1 to 4)	
Number of Power Supply Bays	3			3	
Number of Fan Trays	1, hot-pluggable (2 axial fans)			1, hot-pluggable (4 axial fans)	
Dimensions (W x D x H)	482.6 x 376.2 x 178.2 mm (with rack-mount kit) 4U high			443.5 x 370 x 397 mm 482 x 370 x 397 mm (with rack-mount kit) 9U high	
Weight	11kg (empty) 14.4kg (Chassis with 1 AC power module and 1 management module)			21.6kg (empty) 24.8kg (Chassis with 1 AC power module and 1 management module)	
Power Requirement	AC: Input 100-240V~, 5A Max 50~60 Hz DC: Input 36-72V , 12.7A Max			AC: Input 100-240V~, 7A Max 50~60 Hz DC: Input 36-72V , 20A Max	
Power Consumption	<350W			<550W	
Available Management Module					
Module Name	CS6-M24S8X		CS6-M24T8X		CS6-MCU
Management Port	One 10/100/1000BASE-TX RJ45 port				One 10/100/1000BASE-TX RJ45 port
Console	One RJ45-to-RS232 serial port (9600, 8, N, 1)				One RJ45-to-RS232 serial port (9600, 8, N, 1)
USB	1 x USB2.0 Type A for USB Storage device use.				1 x USB2.0 Type A for USB Storage device use.
Button	Reset button: System reboot only				Reset button: System reboot only Hot-swap button: Force swap master and slave management modules Host LED lit up to show the host swap procedure is completed
10/100/1000 RJ45 Ports	--	24		--	
100/1000BASE-X SFP Ports	24	--		--	
10G SFP+ Ports	8	8		--	
Available Switch Modules					
CS6-S24S8X	24-Port 1000BASE-X SFP + 8-Port 10GBASE-X SFP+ Backward compatible with 100BASE-FX SFP transceivers				
CS6-S24T8X	24-Port 10/100/1000BASE-T + 8-Port 10GBASE-X SFP+ SFP+ slot is backward compatible with 1000BASE-X SFP transceivers				
CS6-S48T	48-Port 10/100/1000BASE-T				
CS6-S48S	48-Port 1000BASE-X SFP Backward compatible with 100BASE-FX SFP transceivers				
CS6-S24T24S	24-Port 10/100/1000BASE-T + 24-Port 1000BASE-X SFP				
CS6-S16X	16-Port 10GBASE-X SFP+ Backward compatible with 1000BASE-X SFP transceivers				
CS6-S4Q	4-Port 40GBASE-X QSFP+ Supports 40GBASE-SR4/LR4 QSFP+ transceivers and 40G QSFP+ to 4x10G SFP+ breakout cable				
CS6-16PON4C4S4X	16-Port xPON + 4-Port Gigabit TP/SFP + 4-Port 1000BASE-X SFP + 4-Port 10GBASE-X SFP+ SFP+ slot is backward compatible with 1000BASE-X SFP transceivers				
Total Port Capacity					
Max. 10/100/1000BASE-T	120			192	
Max. 1000BASE-X SFP Ports	120			192	
Max. 10G SFP+ Ports	40			64	
Max. 40G QSFP+ Ports	8			16	
Max. GPON Ports	48			96	
Switching Performance					
Switch Processing Scheme	Store-and-Forward			Store-and-Forward	
Switch Capacity	736Gbps/1.47Tbps			1.28/2.56Tbps	
Switch Throughput	552/1104 Mpps			810/1920 Mpps	
ACL Table	Ingress Filter: 2816 Egress Filter: 512			Ingress Filter: 2560 Egress Filter: 1024	
Routing Table	IPv4 Protocol: 16K IPv6 Protocol: 16K			IPv4 Protocol: 16K IPv6 Protocol: 8K	
MAC Address Table	32K				
ARP Table	IPv4 16K \ IPv6 8K				



VLAN Table	4K VLAN entries
Shared Data Buffer	32MB
Multicast Table	Layer3 2K Layer2 2K
Flow Control	IEEE 802.3x pause frame for full-duplex Back pressure for half-duplex
Jumbo Frame	9216Bytes
FLASH	64Mbytes
RAM	1Gbytes
IPv4 Layer 3 Functions	
IP Routing Protocol	RIP v1/v2 OSPFv2 BGP (Border Gateway Protocol) Static routing
Multicast Routing Protocol	PIM-DM and PIM-SM PIM-SSM
Routing Interface	256
Routing Functions	VRRP Policy routing Load balance through equal-cost routing GR (Graceful Restart) of OSPF and BGP BFD (Bidirectional Forwarding Detection) for OSPF and BGP IS-IS, Intermediate system to intermediate system
IPv6 Layer 3 Functions	
IP Routing Protocol	RIPng OSPFv3 BGP4+
Multicast Routing Protocol	PIM-DM and PIM-SM PIM-SSM
Routing Features	Manual tunnel ISATAP tunnel 6-to-4 tunnel
IPv6 Functions	ICMPv6, DHCPv6, ACLv6, IPv6 Telnet IPv6 Neighbor Discovery Path MTU Discovery
Layer 2 Functions	
Port Configuration	Port disable/enable Auto-negotiation 10/100/1000Mbps full and half duplex mode selection Flow control disable/enable Bandwidth control on each port Port loopback detect
Port Mirroring	TX/RX/Both Many to 1
Link Aggregation	Supports link aggregation cross switch module
VLAN	IEEE 802.1Q tag-based VLAN, IEEE 802.1ad Q-in-Q VLAN stacking/tunneling GVRP for VLAN management Private VLAN Up to 4K VLAN groups
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 (MSTP) BPDU protection, root protection
IPv4 IGMP Snooping	IPv4 IGMP v1/v2/v3 snooping IPv4 Querier mode support IGMP Filtering and IGMP Throttling IGMP Proxy reportin IGMP mmulticast forwarding Up to 8K multicast groups
IPv6 MLD Snooping	IPv6 MLD v1/v2 snooping Multicast VLAN Register (MVR) Up to 8K multicast groups

QoS	<p>8 priority queues on all switch ports</p> <p>Scheduling for priority queues</p> <ul style="list-style-type: none"> <li>- Weighted Round Robin (WRR)</li> <li>- Strict priority (SP)</li> <li>- SP+WRR</li> </ul> <p>Traffic classification:</p> <ul style="list-style-type: none"> <li>- IEEE 802.1p CoS</li> <li>- DSCP</li> <li>- DiffServ</li> <li>- Precedence</li> <li>- TOS</li> <li>- VLAN ID</li> <li>- IP ACL</li> <li>- MAC ACL</li> </ul> <p>Policy-based ingress and egress QoS</p> <p>802.1p and DSCP priority remark</p>
Storm Control	Suppression of broadcast, multicast and unknown unicast packet
Bandwidth Control	<p>Ingress and Egress</p> <p>At least 64Kbps stream</p>
Ring	MSTP, IEEE 802.1s Multiple Spanning Tree Protocol
<b>Security Functions</b>	
Access Control List	<p>Supports Standard and Expanded ACL</p> <ul style="list-style-type: none"> <li>- IP-based ACL</li> <li>- MAC-based ACL</li> <li>- Time-based ACL</li> </ul> <p>ACL based on:</p> <ul style="list-style-type: none"> <li>- MAC Address</li> <li>- IPv4/IPv6 IP Address</li> <li>- Protocol-number</li> <li>- sport/dport</li> <li>- ToS/Precedence</li> </ul> <p>Ingress Filter: 2560 entries</p> <p>Egress Filter: 1024 entries</p>
Security	<p>MAC address limitation and MAC address filtering</p> <p>MAC sticky (IP + MAC + Port binding)</p> <p>Port isolation</p> <p>DHCP snooping, DHCP option 82</p> <p>Dynamic ARP inspection</p> <p>IP source guard</p> <p>Defined against DoS or TCP attacks</p>
AAA	TACACS+ and IPv4/IPv6 over RADIUS
Network Access Control	IEEE 802.1x port-based network access control
<b>Management Functions</b>	
System Configuration	<p>Console, Telnet and SSH</p> <p>Web browser</p> <p>SNMP v1/v2/v3</p>
Secure Management Interfaces	<p>SSHv2, SSLv3</p> <p>Maximum 8 sessions for SSH and Telnet connection</p>
Management Interface	CLI/MGMT/Telnet/SSH
System Management	<p>IPv4 and IPv6 dual stack management</p> <p>SNMP MIB and TRAP</p> <p>SNMP RMON 1, 2, 3, 9 four groups</p> <p>Firmware upgrade by TFTP protocol through Ethernet network</p> <p>Configuration upload/download through TFTP protocol</p> <p>Supports IEEE 802.1ab LLDP protocol</p> <p>NTP and SNTP client</p> <p>RADIUS authentication for IPv4/IPv6 login user name and password</p> <p>Statistics analysis of sFlow and Netflow</p>
Event Management	<p>Remote syslog</p> <p>System log</p>

SNMP MIBs	RFC 1213 MIB-II RFC 1215 Internet Engineering Task Force RFC 1271 RMON RFC 1354 IP-Forwarding MIB RFC 1493 Bridge MIB RFC 1643 Ether-like MIB RFC 1907 SNMPv2 RFC 2011 IP/ICMP MIB RFC 2012 TCP MIB RFC 2013 UDP MIB RFC 2096 IP forward MIB RFC 2233 if MIB RFC 2452 TCP6 MIB RFC 2454 UDP6 MIB RFC 2465 IPv6 MIB RFC 2466 ICMP6 MIB RFC 2573 SNMPv3 notification RFC 2574 SNMPv3 VACM RFC 2674 Bridge MIB Extensions
<b>Standards Conformance</b>	
Regulatory Compliance	FCC Part 15 Class A, CE
Standards Compliance	EEE 802.3 10BASE-T IEEE 802.3u 100BASE-TX IEEE 802.3z 1000BASE-SX/LX IEEE 802.3ab Gigabit 1000T IEEE 802.3ae 10Gigabit Ethernet IEEE 802.3ba 40Gigabit 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 802.1ad Double VLAN tagging (Q-in-Q) IEEE 802.1x Port Authentication Network Control IEEE 802.1ab LLDP IEEE 802.3az Energy Efficient Ethernet RFC 768 UDP RFC 783 TFTP RFC 791 IP RFC 792 ICMP RFC 2068 HTTP RFC 1112 IGMP v1 RFC 2236 IGMP v2 RFC 3376 IGMP v3 RFC 2710 MLD v1 RFC 3810 MLD v2 RFC 2328 OSPF v2 RFC 1058 RIP v1 RFC 2453 RIP v2 RFC 2080 RIPng for IPv6 RFC 2740 OSPFv3 for IPv6
<b>Environment</b>	
Operating	Temperature: 0 ~ 50 degrees C Relative Humidity: 10 ~ 90% (non-condensing)
Storage	Temperature: -10 ~ 70 degrees C Relative Humidity: 5 ~ 90% (non-condensing)

## Ordering Information

CS-6303R	3-Slot Layer 3 IPv6/IPv4 Routing Chassis Switch
CS-6306R	6-Slot Layer 3 IPv6/IPv4 Routing Chassis Switch

## Available Management and Switch Module

### For CS-6303R only:

CS6-M24T8X	24-Port 10/100/1000T + 8-Port 10G SFP+ Management Switch Module for CS-6303R
CS6-M24S8X	24-Port 1000X SFP + 8-Port 10G SFP+ Management Switch Module for CS-6303R

### For CS-6306R only:

CS6-MCU	Multi-layer Management Module for CS-6306R
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### For CS-63XX Series:

CS6-16PON4C4S4X	16-Port xPON + 4-Port Gigabit TP/SFP + 4-Port 1000BASE-X SFP + 4-Port 10GBASE-X SFP+ Management Module for CS-6303R and CS-6306R
CS6-S48T	48-Port 10/100/1000T Switch Module for CS-6306R
CS6-S48S	48-Port 1000X SFP Switch Module for CS-6306R
CS6-S24S8X	24-Port 1000X SFP + 8-Port 10G SFP+ Switch Module for CS-6306R
CS6-S24T8X	24-Port 10/100/1000T + 8-Port 10G SFP+ Switch Module for CS-6306R
CS6-S24T24S	24-Port 10/100/1000T + 24-Port 1000X SFP Switch Module for CS-6306R
CS6-S16X	16-Port 10G SFP+ Switch Module for CS-6306R
CS6-S4Q	4-Port 40G QSFP Switch Module for CS-6306R

## Available Power Modules

### For CS-6303R:

XGS-PWR350-AC	350-watt AC power supply for XGS-6350-48X2Q4C(v2) (100V-240V AC)
XGS-PWR350-DC	350-watt 12VDC power supply for XGS-6350-48X2Q4C(v2) (36V~72V DC)

### For CS-6306R:

CS6-PWR550-AC	550-watt AC Power Supply for CS-6306R, AC 100~240V
CS6-PWR550-DC	550-watt DC Power Supply for CS-6306R, DC 36~72V

## Available for 40Gbps Ports

QSFP-40G-LR4	40GBASE-LR4 QSFP+ Fiber Transceiver (Single mode, LC, 1310nm, DDM) – 10km
QSFP-40G-SR4	40GBASE-SR4 QSFP+ Fiber Transceiver (Multimode, MPO, 850nm, DDM) – 100m

## Available for CS6-16PON4C4S4X Accessories

GPL-GSFP-C+	GPON OLT SFP Transceiver (Class C+, Optical Power: 3dBm~7dBm, Download 2.5G/Upload 1.25G, TX: 1490nm, RX: 1310nm) - 20km
GPL-GSFP-C++	GPON OLT SFP Transceiver (Class C++, Optical Power: 4.5dBm~10dBm, Download 2.5G/Upload 1.25G, TX: 1490nm, RX: 1310nm) - 20km
EPL-SPT-32	GEPON Splitter (1 x 32 PLC Splitter, Wavelength 1230 ~ 1650 nm)
EPL-SPT-64	GEPON Splitter (1 x 64 PLC Splitter, Wavelength 1230 ~ 1650 nm)

## Available 10Gbps Modules

MTB-LA10	1-Port 10GBASE-BX SFP+ Fiber Optic Module - 10km (TX:1270nm RX:1330nm)
MTB-LB10	1-Port 10GBASE-BX SFP+ Fiber Optic Module - 10km (TX:1330nm RX:1270nm)
MTB-LA20	1-Port 10GBASE-BX SFP+ Fiber Optic Module - 20km (TX:1270nm RX:1330nm)
MTB-LB20	1-Port 10GBASE-BX SFP+ Fiber Optic Module - 20km (TX:1330nm RX:1270nm)
MTB-LA40	1-Port 10GBASE-BX SFP+ Fiber Optic Module - 40km (TX:1270nm RX:1330nm)
MTB-LB40	1-Port 10GBASE-BX SFP+ Fiber Optic Module - 40km (TX:1330nm RX:1270nm)
MTB-LA60	1-Port 10GBASE-BX SFP+ Fiber Optic Module - 60km (TX:1270nm RX:1330nm)
MTB-LB60	1-Port 10GBASE-BX SFP+ Fiber Optic Module - 60km (TX:1330nm RX:1270nm)
MTB-RJ	1-Port 10GBASE-T SFP+ Copper Fiber Optic Module - 30m
MTB-SR	1-Port 10GBASE-SR SFP+ Fiber Optic Module - 300m
MTB-SR2	1-Port 10GBASE-LR SFP+ Fiber Optic Module - 2km
MTB-LR	1-Port 10GBASE-LR SFP+ Fiber Optic Module - 10km
MTB-LR20	1-Port 10GBASE-LR SFP+ Fiber Optic Module - 20km
MTB-LR40	1-Port 10GBASE-LR SFP+ Fiber Optic Module - 40km
MTB-LR60	1-Port 10GBASE-LR SFP+ Fiber Optic Module - 60km
MTB-LR80	1-Port 10GBASE-LR SFP+ Fiber Optic Module - 80km

## Available 1000bps Modules

MGB-GT	SFP-Port 1000BASE-T Module
MGB-LX	SFP-Port 1000BASE-LX mini-GBIC module - 20km
MGB-SX	SFP-Port 1000BASE-SX mini-GBIC module - 550m
MGB-SX2	SFP-Port 1000BASE-SX mini-GBIC module - 2km
MGB-L40	SFP-Port 1000BASE-LX mini-GBIC module - 40km
MGB-L80	SFP-Port 1000BASE-LX mini-GBIC module - 80km
MGB-LA10	SFP-Port 1000BASE-BX (WDM, TX:1310nm) mini-GBIC module - 10km
MGB-LB10	SFP-Port 1000BASE-BX (WDM, TX:1550nm) mini-GBIC module - 10km
MGB-LA20	SFP-Port 1000BASE-BX (WDM, TX:1310nm) mini-GBIC module - 20km
MGB-LB20	SFP-Port 1000BASE-BX (WDM, TX:1550nm) mini-GBIC module - 20km
MGB-LA40	SFP-Port 1000BASE-BX (WDM, TX:1310nm) mini-GBIC module - 40km
MGB-LB40	SFP-Port 1000BASE-BX (WDM, TX:1550nm) mini-GBIC module - 40km
MGB-LA80	SFP-Port 1000BASE-BX (WDM, TX:1490nm) mini-GBIC module - 80km
MGB-LB80	SFP-Port 1000BASE-BX (WDM, TX:1550nm) mini-GBIC module - 80km

## Available 100Mbps Modules

MFB-FX	SFP-Port 100BASE-FX Transceiver (1310nm) -2km
MFB-F20	SFP-Port 100BASE-FX Transceiver (1310nm) - 20km
MFB-FA20	SFP-Port 100BASE-BX Transceiver (WDM,TX:1310nm) -20km
MFB-FB20	SFP-Port 100BASE-BX Transceiver (WDM,TX:1550nm) -20km
MFB-F40	SFP-Port 100BASE-FX Transceiver (1310nm) - 40KM
MFB-F60	SFP-Port 100BASE-FX Transceiver (1310nm) - 60KM
MFB-F120	SFP-Port 100BASE -FX Transceiver (1550nm) - 120km

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CS-6303R/CS-6306R