

Cisco XR 12000 Series and Cisco 12000 Series Routers with Cooling, Fabric, and Power Enhancements

The Cisco® XR 12000 Series and Cisco 12000 Series routers compose a portfolio of intelligent routing solutions that scale from 2.5- to n x10 Gbps capacity per slot, enabling carrier-class IP/Multiprotocol Label Switching (MPLS) networks and accelerating the evolution to IP Next-Generation Networks. Built upon a foundation of investment protection, this portfolio delivers up to 1.28-terabits-per-second of switching capacity with wire-speed feature performance, scalability, and graceful hardware and software upgrade paths. These chassis have been enhanced with new cooling, fabric, and power components to support an increased number of modular interfaces for even greater service density and flexibility.

Cisco XR 12000 and 12000 Series Product Portfolio Overview

This portfolio of routers delivers capacity and services with its fully distributed forwarding architecture and high-efficiency crossbar switch fabric. The combination of a centralized scheduler and unique virtual-output-queuing (VOQ) technology is aimed at maximizing the use of the switch fabric bandwidth, minimizing latency, and providing non-blocking performance. Cisco uses the latest in high-performance application-specific integrated circuit (ASIC) technology to provide line-rate forwarding with an extensive feature set, while maintaining the strict control of jitter and latency required for real-time services. Offering a comprehensive set of quality-of-service (QoS), IP/MPLS, and high-availability features, the Cisco XR 12000 Series and 12000 Series routers can help ensure maximum bandwidth usage and traffic differentiation while meeting even the strictest customer service-level agreements (SLAs).

The Cisco XR 12000 Series and 12000 Series routers use Cisco IOS® XR Software and Cisco IOS Software, respectively, to deliver numerous service possibilities for network operators. With the addition of the Cisco XR 12000 Series to its high-end routing product lines, Cisco gives providers a graceful upgrade path for their installed base of Cisco 12000 Series routers as they transition toward a converged Cisco IP Next-Generation Network infrastructure. For a detailed list of feature support, software capabilities, compatibility, and release notes for Cisco IOS XR Software and Cisco IOS Software on these routers, visit: <http://www.cisco.com/go/12000>.

A detailed list of enhancements for the new routers is outlined in Table 1:

Table 1. Product Enhancements

Chassis Enhancements	Description	Benefits
New power supplies	New power entry modules (PEMs), power distribution units (PDUs), and power shelves for 16-, 10-, and 6-slot chassis	Increased chassis power budget to allow 100-percent slot fill of modular engines with non-redundant power configuration
New cooling systems	New fan trays for 16-, 10-, and 6-slot chassis	Increased cooling for modular engines when operating under Network Equipment Building Standards (NEBS)/ETSI extended temperature range
New chassis product IDs with new cosmetics	New exterior bezels for 16-, 10-, 6-, and 4-slot chassis; chassis also includes new power supplies and cooling system	Modernized chassis appearance

Chassis Enhancements	Description	Benefits
New fabric cards	Enhanced fabric for 2.5, 10, and 40 Gbps per slot (all chassis form factors)	Building Integrated Timing Supply (BITS) and Single-Router Automatic Protection Switching (SR APS) enabled

Note: The 4-slot chassis does not require new power supplies or cooling systems.

Table 2 gives details of product specifications for the Cisco XR 12000 Series and 12000 Series routers.

Figure 1. Cisco XR 12000 and 12000 Series Routing Portfolio with Cooling, Fabric, and Power Enhancements



Table 2. Product Specifications

Product Specification	Cisco XR 12000 Series and 12000 Series 16-Slot Chassis	Cisco XR 12000 Series and 12000 Series 10-Slot Chassis	Cisco XR 12000 Series and 12000 Series 6-Slot Chassis	Cisco XR 12000 Series and 12000 Series 4-Slot Chassis
Slot capacity	16 slots	10 slots	6 slots	4 slots
Aggregate switching capacity	Cisco 12016: 80 Gbps Cisco 12416: 320 Gbps Cisco 12816: 1280 Gbps	Cisco 12010: 50 Gbps Cisco 12410: 200 Gbps Cisco 12810: 800 Gbps	Cisco 12006: 30 Gbps Cisco 12406: 120 Gbps	Cisco 12004: 20 Gbps Cisco 12404: 80 Gbps
Full-duplex throughput per slot	Cisco 12016: 2.5 Gbps/slot Cisco 12416: 10 Gbps/slot Cisco 12816: 40 Gbps/slot	Cisco 12010: 2.5 Gbps/slot Cisco 12410: 10 Gbps/slot Cisco 12810: 40 Gbps/slot	Cisco 12006: 2.5 Gbps/slot Cisco 12406: 10 Gbps/slot	Cisco 12004: 2.5 Gbps/slot Cisco 12404: 10 Gbps/slot

Product Specification	Cisco XR 12000 Series and 12000 Series 16-Slot Chassis	Cisco XR 12000 Series and 12000 Series 10-Slot Chassis	Cisco XR 12000 Series and 12000 Series 6-Slot Chassis	Cisco XR 12000 Series and 12000 Series 4-Slot Chassis
Physical	Chassis height <ul style="list-style-type: none"> • 71.68 in. (182.1 cm)¹ • 77.56 in. (197.0 cm)² Chassis width <ul style="list-style-type: none"> • 17.25 in. (43.8 cm) • 19 in. (48.24 cm)³ Chassis depth <ul style="list-style-type: none"> • 22.0 in. (55.9 cm) • 26.25 in. (66.7 cm)⁴ Weight <ul style="list-style-type: none"> • 140 lb (64 kg)⁵ • 412 lb (188.3 kg)⁶ • 160 lb (73 kg)⁷ • 440 lb (188.3 kg)⁸ 	Chassis height <ul style="list-style-type: none"> • 37.5 in. (95.25 cm) Chassis width <ul style="list-style-type: none"> • 17.25 in. (43.8 cm) • 19 in. (48.24 cm)³ Chassis depth <ul style="list-style-type: none"> • 22.0 in. (55.9 cm) • 26.5 in. (67.3 cm)⁴ Weight <ul style="list-style-type: none"> • 125 lb (57 kg)⁵ • 287 lb (130.9 kg)⁶ 	Chassis height <ul style="list-style-type: none"> • 18.5 in. (47.0 cm) Chassis width <ul style="list-style-type: none"> • 17.3 in. (43.9 cm) • 19 in. (48.24 cm)³ Chassis depth <ul style="list-style-type: none"> • 28.0 in. (71.1 cm) • 30.75 in. (78.1 cm)⁴ Weight <ul style="list-style-type: none"> • 140 lb (64 kg)⁵ • 213 lb (97.4 kg)⁶ 	Chassis height <ul style="list-style-type: none"> • 8.75 in. (22.23 cm) Chassis width <ul style="list-style-type: none"> • 17.38 in. (44.15 cm) • 19 in. (48.24 cm)³ Chassis depth <ul style="list-style-type: none"> • 27.5 in. (69.85 cm) • 30.75 in. (78.1 cm)⁴ Weight <ul style="list-style-type: none"> • 73 lb (33.18 kg)⁵ • 107.5 lb (48.86 kg)⁶
Chassis per rack	One	Two	Four	Eight
Electrical Specifications for the AC Input Power				
Total AC input power	5700 VA	3180 VA	2230 VA	1310 VA
Rated input voltage ⁹	200–240 VAC nominal (range: 170–264 VAC)	200–240 VAC nominal (range: 170–264 VAC)	200–240 VAC nominal (range: 170–264 VAC)	100–120 VAC or 200–240 VAC nominal (range: 85–264 VAC)
Rated input line frequency ⁹	50–60 Hz nominal (range: 47–63 Hz)	50–60 Hz nominal (range: 47–63 Hz)	50–60 Hz nominal (range: 47–63 Hz)	50–60 Hz nominal (range: 47–63 Hz)
Input current rating ⁹	13 A @ 200-240 VRMS per line cord (max)	15 A @ 200-240 VRMS per line cord (max), (UK only: 13 A @ 220-240 VRMS)	13 A @ 200-240 VRMS per line cord (max)	12 A @ 100-240 VRMS per line cord (max)
Source AC service requirement ⁹	20A North America; 16A international	20A North America; 16A international	20A North America; 16A international	15A North America; 10A international
Electrical Specifications for DC Input Power				
Total DC input power	5580 W	3260 W	2290 W	1290 W
Rated input voltage ⁹	–48 VDC nominal in North America –60 VDC nominal in the European community (range: –40.5 to –72 VDC)	–48 VDC nominal in North America –60 VDC nominal in the European community (range: –40.5 to –72 VDC)	–48 VDC nominal in North America –60 VDC nominal in the European community (range: –40.5 to –72 VDC)	–48 VDC nominal in North America –60 VDC nominal in the European community (range: –40.5 to –72 VDC)
Input current rating ⁹	60 A per feed (max) @ 48 VDC	40 A per feed (max) ¹⁰ @ 40.5 VDC	60 A per feed (max) @ 40.5 VDC	35 A per feed (max) @ 40.5 VDC
Source DC requirement ⁹	Sufficient to supply the rated input current. Local codes apply.			
Environmental Conditions				
Temperature	Operating: 32 to 104°F (0 to 40°C) Nonoperating: –4 to 149°F (–20 to 65°C)	Operating: 32 to 104°F (0 to 40°C) Nonoperating: –4 to 149°F (–20 to 65°C)	Operating: 32 to 104°F (0 to 40°C) Nonoperating: –4 to 149°F (–20 to 65°C)	Operating: 32 to 104°F (0 to 40°C) Nonoperating: –40 to 158°F (–40 to 70°C)
Humidity	Operating: 10–90% noncondensing Nonoperating: 5–95% noncondensing	Operating: 10–90% noncondensing Nonoperating: 5–95% noncondensing	Operating: 10–90% noncondensing Nonoperating: 5–95% noncondensing	Operating: 5–90% noncondensing Nonoperating: 5–95% noncondensing
Altitude	Operating: 0–10,000 ft. (0–3000m) ¹⁴ Nonoperating: 0–15,000 ft. (0–4570m)	Operating: 0–10,000 ft. (0–3000m) ¹⁴ Nonoperating: 0–15,000 ft. (0–4570m)	Operating: 0–10,000 ft. (0–3000m) ¹⁴ Nonoperating: 0–15,000 ft. (0–4570m)	Operating: 0–10,000 ft. (0–3000m) ¹⁴ Nonoperating: 0–15,000 ft. (0–4570m)

Product Specification	Cisco XR 12000 Series and 12000 Series 16-Slot Chassis	Cisco XR 12000 Series and 12000 Series 10-Slot Chassis	Cisco XR 12000 Series and 12000 Series 6-Slot Chassis	Cisco XR 12000 Series and 12000 Series 4-Slot Chassis
Heat dissipation	AC (max): 5700W @ 19448 Btu/hr DC (max): 5580W @ 19039 Btu/hr	AC (max): 3180W @ 10850 Btu/hr DC (max): 3260W @ 11123 Btu/hr	AC (max): 2230W @ 7609 Btu/hr DC (max): 2290W @ 7813 Btu/hr	AC (max): 1310W @ 4470 Btu/hr DC (max): 1290W @ 4401 Btu/hr
Acoustic noise	70 dBa maximum ¹¹ @ 77°F (25°C)	70 dBa maximum @ 77°F (25°C)	70 dBa maximum ¹⁵ @ 77°F (25°C)	70 dBa maximum @ 77°F (25°C)
Shock ¹²	Operating (halfsine): 21 in./sec (0.53m/sec) Nonoperating (trapezoidal pulse): 20g, 52 in./sec (1.32 m/sec)	Operating (halfsine): 21 in./sec (0.53m/sec) Nonoperating (trapezoidal pulse): 20g, 52 in./sec (1.32 m/sec)	Operating (halfsine): 21 in./sec (0.53m/sec) Nonoperating (trapezoidal pulse): 20g, 52 in./sec (1.32 m/sec)	Operating (halfsine): 5g (11 m/sec) Nonoperating (trapezoidal pulse): 15g (11 m/sec)
Vibration ¹³	Operating: 0.35 grms from 3 to 500 Hz Nonoperating: 1.0 grms from 3 to 500 Hz	Operating: 0.35 grms from 3 to 500 Hz Nonoperating: 1.0 grms from 3 to 500 Hz	Operating: 0.35 grms from 3 to 500 Hz Nonoperating: 1.0 grms from 3 to 500 Hz	Operating (sinusoidal): 3–500 Hz @ 0.15 gpk (random): 2.5–200 Hz @ 0.33 grms Storage (sinusoidal): 10–500 Hz @ 0.8 gpk (random): 2.5–200 Hz @ 1.05 grms
Hardware components (per base system)	<ul style="list-style-type: none"> 4 DC power supplies, or 3 AC supplies, or 4 AC power supplies 1 performance router processor 16 line-card slots with 15 line cards and 1 route processor or 14 line cards and 2 route processors (1:1 redundant) 3 switch fabric cards (SFCs) 2 clock scheduler cards (CSCs) 2 alarm cards Air filters 2 blower assemblies 2 cable-management trays Country-specific power cords 	<ul style="list-style-type: none"> 2 DC power supplies or 2 AC supplies 1 performance router processor 10 line-card slots with 9 line cards and 1 route processor or 8 line cards and 2 route processors (1:1 redundant) 5 SFCs 2 CSCs 2 alarm cards Air filter 1 blower assembly 1 cable-management tray Country-specific power cords 	<ul style="list-style-type: none"> 2 DC power supplies or 2 AC supplies 1 performance router processor 6 line-card slots with 5 line cards and 1 route processor or 4 line cards and 2 route processors (1:1 redundant) 3 SFCs 2 CSCs 2 alarm cards Air filter 1 blower assembly 1 cable-management tray Country-specific power cords 	<ul style="list-style-type: none"> 2 DC power supplies or 2 AC supplies 1 performance router processor 4 line-card slots with 3 line cards and 1 route processor or 2 line cards and 2 route processors (1:1 redundant) 1 consolidated switch fabric, clock scheduler, and alarm card Air filter 1 blower assembly 1 cable-management tray Country-specific power cords
Software components (per base system)	<ul style="list-style-type: none"> Cisco IOS XR or Cisco IOS Software Operating System Cisco Express Forwarding for distributed packet forwarding 	<ul style="list-style-type: none"> Cisco IOS XR or Cisco IOS Software Operating System Cisco Express Forwarding for distributed packet forwarding 	<ul style="list-style-type: none"> Cisco IOS XR or Cisco IOS Software Operating System Cisco Express Forwarding for distributed packet forwarding 	<ul style="list-style-type: none"> Cisco IOS XR or Cisco IOS Software Operating System Cisco Express Forwarding for distributed packet forwarding
Compatibility	Cisco 12800: Line cards that support 2.5-, 10-, or 20-Gbps capability Cisco 12400: Line cards that support 2.5- or 10-Gbps capability Cisco 12000: Line cards that support 2.5-Gbps capability			
Protocols	IPv4, MPLS, Border Gateway Protocol Version 4 (BGPv4), Intermediate System-to-Intermediate System (IS-IS), Open Shortest Path First Version 2.0 (OSPFv2.0), Routing Information Protocol Version 2 (RIPv2), Internet Group Management Protocol (IGMP), Distance Vector Multicast Routing Protocol (DVMRP), and Protocol Independent Multicast dense mode/sparse mode (PIM DX/SX)			
Connectivity	Packet over SONET/SDH (POS), Ethernet, ATM, copper (DS-3/E3), Channelized (CT3, ChOC-3/CHSTM1, ChOC-12/CHSTM4, ChOC-48/CHSTM16); see Cisco IOS XR Software release notes for specific connectivity support on the Cisco XR 12000 Series			

Product Specification	Cisco XR 12000 Series and 12000 Series 16-Slot Chassis	Cisco XR 12000 Series and 12000 Series 10-Slot Chassis	Cisco XR 12000 Series and 12000 Series 6-Slot Chassis	Cisco XR 12000 Series and 12000 Series 4-Slot Chassis
Reliability	System redundancy: <ul style="list-style-type: none"> • Fabric card redundancy 4:1 • CSC redundancy 1:1 • Power supply redundancy (1:1 for DC; AC is load balancing) • Blower redundancy 1:1 • Route processor redundancy 1:1 • Alarm card redundancy 1:1 • Dual homing through line cards • Supports automatic protection switching (APS) ASICs 			
Management interfaces	Cisco XR 12000 and Cisco 12000 Series Performance Route Processor (PRP) supports two serial ports (console and auxiliary) and one 10/100 Ethernet port			
Indicators and Interfaces	Visual alarms for critical, major, and minor states on CSCs, SFCs, and on or error condition for system alarm boards			
Compliance	Safety certification: <ul style="list-style-type: none"> • UL/CSA/IEC/EN 60950-1 or UL/CSA/IEC/EN 60950 • AS/NZS 60950.1 or AS/NZS 60950 • EN60825/IEC60825 laser safety • FDA-Code of Federal Regulations (USA) laser safety Electromagnetic interference standards (emissions): <ul style="list-style-type: none"> • FCC Class A • CISPR 22 Class A • ICES-003 Class A • EN55022 Class A • VCCI Class A • AS/NZS Class A • BSMI Class A • IEC/EN61000-3-2 Power Line Harmonics • IEC/EN61000-3-3 Voltage Fluctuations and Flicker Immunity: <ul style="list-style-type: none"> • IEC/EN61000-4-2, Electro Static Discharge (8kV contact, 15kV air) • IEC/EN61000-4-3, Radiated Immunity (10V/m) • IEC/EN61000-4-4, Electrical Fast Transient Immunity (2kV power port, 1kV signal port) • IEC/EN61000-4-5, Surge AC Port (4kV CM, 2kV DM) • IEC/EN61000-4-5, Surge Signal Port (1kV indoor, 2kV outdoor) • IEC/EN61000-4-5, Surge DC Port (1kV) • IEC/EN61000-4-6, Immunity to Conducted Disturbances (10Vrms) • IEC/EN61000-4-11, Voltage Dips, Short Interruptions, and Voltage Variations Network Equipment Building Standards (NEBS) This product is designed to meet the following requirements (Qualification complete or in progress): <ul style="list-style-type: none"> • GR-1089-CORE NEBS EMC and Safety • GR-63-CORE NEBS Physical Protection • SR-3580 NEBS Criteria Levels (Level 3) ETSI and EN <ul style="list-style-type: none"> • EN300386 Telecommunications Network Equipment (EMC) • EN55022 Information Technology Equipment (Emissions) • EN55024 Information Technology Equipment (Immunity) • EN50082-1/EN61000-6-1 Generic Immunity Standard • EN300132-2 Environment Engineering Part 2: Operated by direct current (dc) 			

¹ Total height for the 4xDC and 3xAC systems without the top lip and bottom feet. Add 0.37 inches for the top lip of the power shelf and add 0.23 inches for bottom feet.

² Total height for the 4xAC system without the top lip and bottom feet. Add 0.37 inches for the top lip of the power shelf and add 0.23 inches for bottom feet.

³ Including chassis rack-mount flanges and front door width

⁴ Including cable-management system and front door

⁵ Chassis only (includes power shelf for 16-slot chassis)

⁶ Chassis fully configured, using all card slots, AC or DC power supplies (and power shelf for 16-slot chassis), and doors and hinges

⁷ 16-slot Chassis only for the 4xAC system (includes power shelf)

⁸ 16-slot Chassis fully configured for the 4xAC system, using all card slots, AC power supplies and power shelf, doors and hinges

⁹ For each of the power supply modules

¹⁰ 10-slot chassis DC power supply module includes two feeds; all other chassis DC power module include one feed

¹¹ With adaptive fan speed control

¹² g is a value of acceleration, where 1g equals 32.17 ft/sec² (9.81 m/sec²)

¹³ grms is root mean square value of acceleration; gpk is peak acceleration

¹⁴ Chassis compliant with GR-63 issue 3 (section 4.1.3): equipment functional at elevations up to 6,000 ft above sea level at aisle-ambient temperature of 50°C; equipment functional at elevations up to 10,000 ft above sea level at aisle-ambient temperature of 30°C

¹⁵ NEBS qualification in progress and acoustic noise value subject to change

Availability and Ordering

Ordering Information

Table 3 gives ordering information for the Cisco XR 12000 Series and 12000 Series routers with cooling, fabric, and power enhancements, which are currently available. All hardware listed below is fully forward compatible with IOS XR software.

Table 3. Table 3: Ordering Information for Cisco XR 12000 Series and Cisco 12000 Series

Product Descriptions	Part Number
Note: a complete system must include the selection of one slot-capacity option, one power supply option, one switch fabric option and one route processor option	
Cisco XR 12000 and 12000 router slot-capacity options	
Cisco XR 12000 16-slot Chassis (configured with IOS XR software)	XR-12000/16
Cisco XR 12000 10-slot Chassis (configured with IOS XR software)	XR-12000/10
Cisco XR 12000 6-slot Chassis (configured with IOS XR software)	XR-12000/6
Cisco XR 12000 4-slot Chassis (configured with IOS XR software)	XR-12000/4
Cisco 12000 16-slot Chassis (configured with IOS software)	12000/16
Cisco 12000 10-slot Chassis (configured with IOS software)	12000/10
Cisco 12000 6-slot Chassis (configured with IOS software)	12000/6
Cisco 12000 4-slot Chassis (configured with IOS software)	12000/4
Cisco XR 12000 and 12000 router power supply options	
Cisco 12000 16-slot Chassis with 4 Enhanced AC Power Supplies, 2 Enhanced Blowers, and 2 Alarms	12000/16-AC4
Cisco 12000 16-slot Chassis with 3 Enhanced AC Power Supplies, 2 Enhanced Blowers, and 2 Alarms	12000/16-AC3
Cisco 12000 16-slot Chassis with 4 Enhanced DC Power Supplies, 2 Enhanced Blowers, and 2 Alarms	12000/16-DC
Cisco 12000 10-slot Chassis with 2 Enhanced AC Power Supplies, 1 Enhanced Blower, and 2 Alarms	12000/10-AC
Cisco 12000 10-slot Chassis with 2 Enhanced DC Power Supplies, 1 Enhanced Blower, and 2 Alarms	12000/10-DC
Cisco 12000 6-slot Chassis with 2 Enhanced AC Power Supplies, 1 Enhanced Blower, and 2 Alarms	12000/6-AC
Cisco 12000 6-slot Chassis with 2 Enhanced DC Power Supplies, 1 Enhanced Blower, and 2 Alarms	12000/6-DC
Cisco 12000 4-slot Chassis with 2 AC Power Supplies, and 1 Blower	12000/4-AC
Cisco 12000 4-slot Chassis with 2 DC Power Supplies, and 1 Blower	12000/4-DC
Cisco XR 12000 and 12000 router switch fabric options	
80-Gbps Fabric with 2 CSC and 3 SFC Cards for Cisco 12000 16-slot Chassis	12016/80
80-Gbps Enhanced Fabric with 2 CSC and 3 SFC Cards for Cisco 12000 16-slot Chassis	12016E/80
320-Gbps Fabric with 2 CSC and 3 SFC Cards for Cisco 12000 16-slot Chassis	12416/320
320-Gbps Enhanced Fabric with 2 CSC and 3 SFC Cards for Cisco 12000 16-slot Chassis	12416E/320
1280-Gbps Enhanced Fabric with 2 CSC and 3 SFC Cards for Cisco 12000 16-slot Chassis	12816E/1280
50-Gbps Fabric with 2 CSC and 5 SFC Cards for Cisco 12000 10-slot Chassis	12010/50
50-Gbps Enhanced Fabric with 2 CSC and 5 SFC Cards for Cisco 12000 10-slot Chassis	12010E/50

Product Descriptions	Part Number
200-Gbps Fabric with 2 CSC and 5 SFC Cards for Cisco 12000 10-slot Chassis	12410/200
200-Gbps Enhanced Fabric with 2 CSC and 5 SFC Cards for Cisco 12000 10-slot Chassis	12410E/200
800-Gbps Enhanced Fabric with 2 CSC and 5 SFC Cards for Cisco 12000 10-slot Chassis	12810E/800
30-Gbps Fabric with 2 CSC and 3 SFC Cards for Cisco 12000 6-slot Chassis	12006/30
30-Gbps Enhanced Fabric with 2 CSC and 3 SFC Cards for Cisco 12000 6-slot Chassis	12006E/30
120-Gbps Fabric with 2 CSC and 3 SFC Cards for Cisco 12000 6-slot Chassis	12406/120
120-Gbps Enhanced Fabric with 2 CSC and 3 SFC Cards for Cisco 12000 6-slot Chassis	12406E/120
20-Gbps Enhanced Fabric with 2 CSC and 3 SFC Cards for Cisco 12000 4-slot Chassis	12004E/20
80-Gbps Fabric with 2 CSC and 3 SFC Cards for Cisco 12000 4-slot Chassis	12404/80
80-Gbps Enhanced Fabric with 2 CSC and 3 SFC Cards for Cisco 12000 4-slot Chassis	12404E/80
Cisco XR 12000 and 12000 router route processor options	
Cisco 12000 Performance Route Processor 1	PRP-1
Cisco 12000 Performance Route Processor 2	PRP-2
Cisco 12000 Redundant Performance Route Processor 1	PRP-1/R
Cisco 12000 Redundant Performance Route Processor 2	PRP-2/R
Cisco XR 12000 Performance Route Processor 2	XR-PRP-2
Cisco XR 12000 Redundant Performance Route Processor 2	XR-PRP-2/R

Service and Support

Cisco has earned high customer satisfaction ratings for its wide range of support offerings for service providers. Whether the goal is speed to market, maximizing network availability, or enhancing customer satisfaction and retention, Cisco is committed to the success of service providers.

For More Information

For more information about Cisco service and support programs and benefits, visit:

http://www.cisco.com/public/Support_root.shtml.

For more information about the Cisco XR 12000 Series and Cisco 12000 Series routers, visit:

<http://www.cisco.com>.



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