Cisco NCS 6000 Route Processor

The Cisco Network Convergence System 6000 (NCS-6000) enables unmatched network agility, packet optical convergence, and petabits/second system scale. The NCS 6000 also facilitates the build-out of the Next Generation Core in order to support elastic capacity at the lowest total cost-of-ownership and to deliver high-bandwidth mobile, video, and cloud services.

Leveraging the industry-leading IOS-XR operating system running in Cisco's innovative, industry-leadership virtualized IOS-XR operating environment, the NCS-6000 advances the concept of distributed routing and virtualization. With Virtualized IOS-XR, the NCS 6000 brings new levels of programmability and virtualization to increase application service offerings, speed up provisioning velocity, and optimize network economics.

The Cisco NCS- 6000 is powered by Cisco nPower Network Processor Units (NPUs), which is a state of the art programmable forwarding ASICs. nPower is designed to deliver the industry's first ZPL/ZTL (Zero Packet Loss/Zero Topology Loss) In-Service Software Upgrade (ISSU) upgrade capability.

The NCS-6000 is engineered for environmental efficiency using an adaptable power consumption model for both ASIC and CMOS photonics technology. These technologies enable the NCS 6000 to offer the lowest carbon footprint in the Service Provider (SP) routing space.

Figure 1. NCS-6000 Route Processor

Features and Benefits

The Cisco Network Convergence System Route Processor is the most advanced route processor in the industry and was specially developed for the Cisco NCS-6000 system platform scale and performance. The NCS-6000 Route Processor features high-end performance of the Intel Sandy Bridge 8-Core processor. With 48 GB of fast double data rate 3 (DDR3) error correcting code (ECC) memory, the NCS-6000 Route Processor provides extremely fast routing performance at exceptional scale for the largest core, peering and other applications. The Route Processor includes a pair of Solid State Drives (SSDs) for fast software installation and bootup.

The NCS-6000 Route Processor runs the award-winning Virtualized Cisco IOS® XR. IOS-XR is a mature, fully modular, fully distributed internetwork operating system that includes a highly-scalable IP and MPLS control-plane implementations. The multicore design and speed allows achieving high levels scale for Virtualized IOS-XR applications such as Border Gateway Protocol (BGP) and Interior Gateway Protocols (IGP), Multiprotocol Label Switch Traffic Engineering (MPLS-TE), NetFlow, Lawful Intercept, SNMP or XML monitoring and others without adversely affecting routing performance.

For more information about the Cisco NCS Family visit: http://www.cisco.com/go/ncs6000.

Features and Benefits

This NCS-6000 Route Processor offers many advantages:

- Powered by Cisco Virtualized IOS-XR Software, the Route Processor is designed for always-on operation while growing the system capacity from single chassis to multi chassis scale
- High-performance 8-Core Intel Sandy Bridge CPU for fast multithreaded software processing allows for high-speed convergence and processing
- Fast SSD storage system are used for the high-speed logging and operating system storage capabilities
- High scale control-plane technology including IP/Multiprotocol Label Switching (IP/MPLS) routing, IP over Dense Wavelength-Division Multiplexing (IPoDWDM), network virtualization with Secure Domain Routers (SDRs), NetFlow accounting to provide outstanding quality of experience (QoE) at the lowest possible total cost of ownership (TCO)
- Wide range of synchronization services for supporting Synchronous Ethernet and accurate hardware-assisted time stamping support for OAM & SLA protocols such as IEEE 1588v2
- As for all other NCS-6000 subsystems, the Route Processors achieve industry-leading performance in terms of efficiency at lower power and weight profile

Product Specifications

Table 1 provides specifications for the Cisco NCS-6000 Route Processor.

Table 1. Product Specifications

Description	Specification
Software compatibility	Cisco Virtualized IOS-XR - Software Release 5.0.0 or later
Connectivity	• Console Ports (EIA232 serial) • Management Ethernet ports (10/100/1000/1000M and 1/10GE) • Interface Shelf Ethernet ports (10GE SFP+) • Control Ethernet Expansion ports (10GE SFP+) • BITs frequency reference port (input and output) • J.211(DTI) time reference input or output • GPS time reference port • Cisco Time-Reference Input/Output • Dedicated 10/100M copper Ethernet for IEEE1588 time/clock synchronization • USB 2.0 port for external storage of a boot image • Alarm port for relay contacts
Memory	• 48GB of ECC protected DDR3 route memory (not upgradable) • 32GB SSD (internal) • 200GB SSD (internal)
Options	Third-party external USB flash drive

Description	Specification
Performance	Intel Sandy Bridge 8-Core Processor running at 1.8GHz
Reliability and availability	Hardware: • 1:1 route processor redundancy • ECC protected route memory Software: • ISSU ZPL/ZTL • Cisco Nonstop Forwarding (NSF) • Hot Standby Router Protocol (HSRP) and Virtual Router Redundancy Protocol (VRRP) • Online insertion and removal (OIR) • MPLS Fast Reroute (FRR)
Network Management	• Cisco IOS XR Software command-line interface (CLI) • SNMP • XML • Cisco Prime Network
Programmatic Interfaces	XML schema support
Environmental conditions	• Compliant to GR-63-CORE requirements • Storage temperature: -40 to 70℃ (-40 to 158℉) • Operating temperature: • Normal: 5 to 40℃ (41 to 104℉) • Short-term: -5 to 50℃ (23 to 122℉) (see note) • Relative humidity: • Normal: 5 to 85%

System Requirements

Table 2 lists the system requirements for the route processor.

Table 2. System Requirements

Description	Specification
Hardware	Cisco NCS-6000 Single Chassis or Multi-chassis or Back-to-Back System Configurations
Software	Cisco IOS XR Software 5.0, or later

Warranty Information

Find warranty information on Cisco.com at the Product Warranties page.

Ordering Information

Table 3 provides ordering information. To place an order, visit the Cisco Ordering Home Page. To download software, visit the Cisco Software Center.

Table 3. Ordering Information

Product Name	Part Number
Cisco NCS-6000 Route Processor (48 GB)	NC6-RP
Cisco 10Gigabit Interface Small Form-Factor Pluggable Short Reach	SFP-10G-SR-X
Cisco 10Gigabit Interface Small Form-Factor Pluggable Long Reach	SFP-10G-LR-X

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For More Information

For more information about the NCS 6000, contact your local Cisco representative or visit: http://www.cisco.com/go/ncs6000.

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