

Cisco Network Convergence System 5700 Series: NCS-57C1 Fixed Chassis

Contents

Product overview	3
Cisco IOS XR software overview	3
Software requirement	3
Product specifications	3
Supported transceivers modules	6
Environment	6
Regulatory standards compliance	7
Ordering Information	8
Product sustainability	10
Warranty	11
Service and support	11
Cisco Capital	11
For more information	11
Document history	12

Product overview

The internet bandwidth usage continues to grow as more people come online for the first time and more devices are connected per user. With this trend, it is no surprise that the demand for high-capacity systems and larger port densities is increasing rapidly. At the same time, we still also have a need for lower port densities to aggregate traffic from multiple channels.

With these requirements in mind, we designed the NCS-57C1-48Q6-SYS. It is a fixed chassis that combines low port densities of 1GE/10GE/25GE with higher port densities of 50GE/100GE/400GE and QSFP-DD optics, deep packet buffering, MACsec, Class C 1588 Precision Time Protocol (PTP), and Synchronous Ethernet (SyncE) in an extremely power-efficient, 1-rack-unit package.



Figure 1.
Cisco NCS-57C1-48Q6-SYS chassis

Cisco IOS XR software overview

The Cisco NCS-57C1 is powered by an industry-leading, carrier-class, 64-bit version of IOS XR7 network operating system, designed on operational efficiency, optimized utilization, and service agility ([evolved programmable network](#)). Cisco IOS XR Software offers rich features such as iPXE boot, auto provisioning, native support for third-party application hosting, machine-to-machine interface, telemetry, and flexible software package delivery.

Software requirement

The Cisco NCS-57C1-48Q6-SYS fixed chassis supports Cisco IOS XR Software Release 7.5.2 and later.

Product specifications

Tables 1 through 3 list key specifications for the Cisco NCS 57C1 Series fixed chassis.

Table 1. Features and benefits of the Cisco NCS 57C1 Series fixed chassis(Cisco IOS XR Software 7.5.2 Release and later)

Feature	NCS-57C1-48Q6-SYS specification
Interface	1/10/25/100/200/400G QSFP DD Gigabit Ethernet support
Management ports	Provide easy access to system console
External USB port	Helps simplify image and file management
Solid-State Drive (SSD)	Memory for storing software image, configuration, logging, and recovery
Redundancy	Redundant fan tray Redundant AC or DC power supply

Feature	NCS-57C1-48Q6-SYS specification
Power consumption	Ultra-low power per Gigabit Ethernet

Table 2. Cisco NCS 57C1 chassis specification

Feature	NCS-57C1-48Q6-SYS specification
Chassis product ID	NCS-57C1-48Q6-SYS - Flexible Consumption Model (FCM) NCS-57C1-48Q6D-S - Perpetual
Port configuration	32xSFP28 (1/10/25G) 16xSFP56 (1/10/25/50G) 4xQSFP-DD (400G/4x100G/2x100G) + 2xQSFP-DD (4x100G/2x100G) 1G auto-negotiation is not supported
Performance	Up to 2.4 Tbps/1 BPPS of system throughput
Route scale	Up to 2M FIB entries
Timing ports	Internal GNSS receiver module with GPS 1PPS in/out, 10 MHz in/out, ToD
Power and cooling features	2 hot-swappable power supplies providing 1+1 redundancy 5 hot-swappable fan trays providing n+1 redundant cooling
Power consumption	Typical: 340W at 25°C (77°F) without optics Maximum: 488W at 40°C (104°F) without optics
Physical specifications	Height: 1RU 1.72 in. (4.30 cm) Width: 17.3 in. (43.9 cm) Depth: 19.7 in. (50.0 cm) Weight: 29.05 lb (13.18 kg) including fans and PSUs

Table 3. Software features supported in Cisco IOS XR Software Release 7.5.2 and later

Feature	Specification
Industry-leading, carrier-class Cisco IOS XR Software Capabilities	<ul style="list-style-type: none"> • Visibility and telemetry • Machine-to-machine interface • Application hosting • Flexible platform and packaging • Modularity • Automation

Feature	Specification
Layer 2	<ul style="list-style-type: none"> • Layer 2 switch ports • IEEE 802.1Q VLAN encapsulation/Q-in-Q encapsulation • IEEE 802.1ad • Cisco Bundle Ethernet technology (up to 64 ports per Ethernet Bundle) • Link Aggregation Control Protocol (LACP): IEEE 802.3ad • Jumbo frames on all ports (up to 9216 bytes) • L2 ingress Access Control List (ACL) • L2 AC-AC cross-connect • Ethernet Flow Point (EFP) and VLAN trunks • Virtual Router Redundancy Protocol (VRRP) • Carrier Ethernet Services
Layer 3	<ul style="list-style-type: none"> • IPv4 and IPv6 unicast • Layer 3 interfaces: physical and subinterfaces • Routing protocols: static, Open Shortest Path First (OSPFv2), OSPFv3, Intermediate System to Intermediate System (ISIS), ISISv6, and Border Gateway Protocol (BGP) • 64-way Equal-Cost Multipath (ECMP) • L3 ingress and egress IPv4 ACL and IPv6 ACL • Bidirectional Forwarding Detection (BFD) • Cisco Bundle Ethernet technology (up to 64 ports per Ethernet Bundle) • Link Aggregation Control Protocol (LACP): IEEE 802.3ad • Jumbo frame support (up to 9216 bytes) • Virtual Router Redundancy Protocol (VRRP) • Layer 3 Virtual Private Network (L3VPN)
Multiprotocol Label Switching (MPLS)	<ul style="list-style-type: none"> • Label switching • Label Distribution Protocol (LDP) • MPLS Traffic Engineering • Ethernet over MPLS (EoMPLS)
Segment Routing (SR)	<ul style="list-style-type: none"> • Segment routing-based transport • ISIS extensions to segment routing • OSPF extensions to segment routing • BGP egress peering engineering • Segment Routing Traffic Engineering (SR-TE) • Segment Routing Topology Independent Loop-Free Alternatives (TI-LFA)
Multicast	<ul style="list-style-type: none"> • IPv4, IPv6 • PIM-SM, PIM-SSM • IGMPv3, MLDv2 • PIM-ECMP • mLDP • P2MP-TE • Tree-SID

Feature	Specification
Quality of Service (QoS)	<ul style="list-style-type: none"> • Hierarchical QoS • Ingress classification based on Class of Service (L2), IP differentiated service code point (DSCP) (L3), IP ACL (L3/L4), IP precedence (type of service) (L3) • DSCP marking • 8 queues for user traffic • Support for priority queuing
Timing	<ul style="list-style-type: none"> • SyncE • G.8265.1, G.8275.1, G.8275.2 G.8273.2 Class C support on all ports except in 1G mode • G.8273.2 Class B support on all ports
Automation	<ul style="list-style-type: none"> • Zero-Touch Provisioning (ZTP), iPXE • Configuration management • Network Configuration Protocol (NETCONF/YANG model)
Security	<ul style="list-style-type: none"> • Provides comprehensive network security features, including ACLs; control-plane protection; management plane protection; routing authentications; Authentication, Authorization, and Accounting (AAA) and Terminal Access Controller Access-Control System Plus (TACACS+); Secure Shell (SSH) Protocol; Simple Network Management Protocol (SNMP) v3; and Route Policy Language (RPL) support • Layer 2 ingress ACLs • Layer 3 ingress ACLs
MACsec encryption	<ul style="list-style-type: none"> • IEEE 802.1AE standards-based Layer 2 hop-by-hop encryption that provides data confidentiality and integrity for media access independent protocols • Supported on 3 out of 6 QSFP DD ports (on fixed ports 0, 2,4)
Management	<ul style="list-style-type: none"> • MIB, XML, JSON, GPB, and SNMP • MPLS Operations, Administration, and Maintenance (OAM) (Label Switched Path [LSP] ping, LSP traceroute) • Ethernet OAM

Supported transceivers modules

Check the Cisco NCS 5500/5700 Series supported transceivers module matrix: <https://tmqmatrix.cisco.com>.

Environment

Table 4. Environmental properties

Property	Specifications
Normal operating temperature (at 1800 m)	0–40° C
Non-operating (storage) temperature	–40 to 158° F (–40 to 70° C)
Operating humidity	Normal: 5% RH to 85% RH Short term: 5% to 95% RH Should not exceed 0.026 kg water/kg of dry air
Storage (relative) humidity	5% to 95% at 40C per NEBS GR-63–Core

Property	Specifications
Altitude	0 to 9842 ft (0 to 3000 m)
Power inputs	Worldwide ranging AC: 90-264V; 50-60 Hz Worldwide ranging DC: -40V to -72V; Power ON at 40C
Air flow	Front to back

Regulatory standards compliance

Table 5. Regulatory standards compliance: Safety and EMC

Specification	Description		
Regulatory compliance	Products should comply with CE Markings according to directives 2014/30/EU and 2014/35/EU.		
Network Equipment Building Standards (NEBS)	Designed to meet: <ul style="list-style-type: none"> • GR-63-CORE • GR-1089-CORE 		
Safety	<ul style="list-style-type: none"> UL 62368-1 Third Edition CAN/CSA-C22.2 No. 62368-1, Third Edition EN 60950-1 Second Edition IEC 60950-1 Second Edition IEC 62368-1: 2018, Third Edition EN 62368-1: 2020, Third Edition AS/NZS 62368.1 		
EMC standards	<table border="0"> <tr> <td> <ul style="list-style-type: none"> FCC 47CFR15 AS/NZS CISPR 32 EN55032/EN55022 CISPR 32/CISPR 22 ICES-003 VCCI KN32 CNS-13438 </td> <td> <ul style="list-style-type: none"> EN61000-3-2 Power Line Harmonics EN61000-3-3 Voltage Changes, Fluctuations, and Flicker </td> </tr> </table>	<ul style="list-style-type: none"> FCC 47CFR15 AS/NZS CISPR 32 EN55032/EN55022 CISPR 32/CISPR 22 ICES-003 VCCI KN32 CNS-13438 	<ul style="list-style-type: none"> EN61000-3-2 Power Line Harmonics EN61000-3-3 Voltage Changes, Fluctuations, and Flicker
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Specification	Description	
EMC immunity	IEC/EN61000-4-2	EN 300 386 C-4
	IEC/EN61000-4-3	EN55022
	IEC/EN61000-4-4	EN55035/CISPR 35
	IEC/EN61000-4-5	EN61000-6-1
	IEC/EN61000-4-6	KN35
	IEC/EN61000-4-8	
	IEC/EN61000-4-11	
RoHS	The product meets the applicable material restrictions of Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) and all its amendments.	

Ordering Information

Table 6. Ordering information – Flexible Consumption Model

Part#	Product description
NCS-57C1-48Q6-SYS	NCS57C1 Fixed HW Flexible Consumption Need Smart Lic
NCS-57C1-48Q6-TRK	57C1-48Q6D Hardware Tracking PID
NCS-1100W-ACFW	NCS 5500 AC 1100W Power Supply Port-S Intake/Front-to-back
NCS-950W-DCFW	NCS 5500 DC 1100W Power Supply Port-S Intake/Front-to-back
FAN-1RU-PI-V2	1RU Fan with Port-side Air Intake Ver 2
NC57-1RU-ACC-KIT1	NCS 5700 Accessory Kit for 1RU Chassis 4 Post, 19 inch
NC57-1RU-ACC-KIT2	NCS 5700 Accessory Kit for 1RU Chassis 2 Post, 19 inch
NC57-1RU-ACC-KIT3	NCS 5700 Accessory Kit for 1RU Chassis 4 Post, 23 inch
NC57-1RU-ACC-KIT4	NCS 5700 Accessory Kit for 1RU Chassis 2 Post, 23 inch

Table 7. Ordering information – Flexible Consumption Model Software Licenses

Part number	Product description
ESS-100G-RTU-2	NCS 5500 Core and Aggregation Essentials SW RTU v2.0 100G
ADN-100G-RTU-2	NCS 5500 Core and Aggregation Advantage w/ Essentials SW RTU v2.0 100G
ESS2-100G-SIA-3	NCS 5700 Core and Aggregation Essentials SIA per 100G 3-5 Year Subscription
ADN2-100G-SIA-3	NCS 5700 Core and Aggregation Advantage w/ Essentials SIA per 100G 3-5 Year Subscription
ESS2-100G-SIA-5	NCS 5700 Core and Aggregation Essentials SIA per 100G 5-10 Year Subscription

Part number	Product description
ADN2-100G-SIA-5	NCS 5700 Core and Aggregation Advantage w/ Essentials SIA per 100G 5-10 Year Subscription
DCO-100G-RTU	100G Digital Coherent Optic RTU for 5500, 8K and 9K

Table 8. Ordering information – Perpetual

Part #	Product description
NCS-57C1-48Q6D-S	NCS57C1 Fixed 32X1/10/25G, 16X1/10/25/50G, and 6x400G chassis
NCS-1100W-ACFW	NCS 5500 AC 1100W Power Supply Port-S Intake/Front-to-back
NCS-950W-DCFW	NCS 5500 DC 1100W Power Supply Port-S Intake/Front-to-back
FAN-1RU-PI-V2	1RU Fan with Port-side Air Intake Ver 2
NC57-1RU-ACC-KIT1	NCS 5700 Accessory Kit for 1RU Chassis 4 Post, 19 inch
NC57-1RU-ACC-KIT2	NCS 5700 Accessory Kit for 1RU Chassis 2 Post, 19 inch
NC57-1RU-ACC-KIT3	NCS 5700 Accessory Kit for 1RU Chassis 4 Post, 23 inch
NC57-1RU-ACC-KIT4	NCS 5700 Accessory Kit for 1RU Chassis 2 Post, 23 inch
XR-NC57-PK9-07.05	Cisco NCS 5700 IOS XR 7.5 Image
XR-NC57-P-07.05	Cisco NCS 5700 IOS XR 7.5 Image

Table 9. Ordering information – Perpetual Software Licenses

Part number	Product description
NC55P-TIMING-F	NCS 5500 Timing and Mobility Lic for Fixed Chassis
NC55P-BASIC-LSR	NCS 5500 Basic MPLS LSR License
NC55P-ADVL3-100S	NCS 5500 L3VPN Lic for NCS 5500 Scale per 100G Bandwidth
NC55P-ADVL2-100S	NCS 5500 L2VPN Lic for NCS 5500 Scale per 100G Bandwidth
NC55P-CRAGR-100S	NCS 5500 Core and Aggr Lic for NCS 5500 Scale per 100G Bandwidth
NC55P-PEER-100S	NCS 5500 Peering Lic for NCS 5500 Scale per 100G Bandwidth
NC55P-ADVDC-100S	NCS 5500 Adv Data Center Lic for NCS 5500 Scale per 100G Bandwidth
NC55P-MSEC-100T	NCS 5500 MACsec Lic for NCS 5500 Base and Scale per 100G Bandwidth
NC55P-ADVL3-100T	NCS 5500 L3VPN Lic for NCS 5500 Base per 100G Bandwidth
NC55P-ADVL2-100T	NCS 5500 L2VPN Lic for NCS 5500 Base per 100G Bandwidth

Part number	Product description
NC55P-CRAGR-100T	NCS 5500 Core and Aggr Lic for NCS 5500 Base per 100G Bandwidth
NC55P-PEER-100T	NCS 5500 Peering Lic for NCS 5500 Base per 100G Bandwidth
NC55P-ADVDC-100T	NCS 5500 Adv Data Center Lic for NCS 5500 Base per 100G Bandwidth
DCO-100G-RTU	100G Digital Coherent Optic RTU for 5500, 8K and 9K

For details on the Cisco Network Convergence System 5500 Series perpetual software licenses, refer to this [data sheet](#), and details on the flexible consumption model for the NCS 5500 Series are available in the [data sheet](#) for the IOS XR Software flexible consumption model.

Product sustainability

Information about Cisco’s environmental, social and governance (ESG) initiatives, and performance is provided in Cisco’s CSR and sustainability [reporting](#).

Table 10. Cisco environmental sustainability information

Sustainability topic		Reference
General	Information on product-material-content laws and regulations	Materials
	Information on electronic waste laws and regulations, including our products, batteries, and packaging	WEEE Compliance
	Information on product takeback and reuse program	Cisco Takeback and Reuse Program
	Sustainability inquiries	Contact: csr_inquiries@cisco.com
	Countries and regions supported	Table 5 . Regulatory standards compliance: Safety and EMC
	Predicted MTBF	195080
Power	Power consumption	Table 2 . Cisco NCS 57C1 chassis specification
Material	Product packaging weight and materials	Contact: environment@cisco.com
	Weight	Table 2 . Cisco NCS 57C1 chassis specification

Warranty

The Cisco NCS 5500 Series has a 1-year limited hardware warranty. The warranty includes hardware replacement with a 10-day turnaround from receipt of a Return Materials Authorization (RMA).

Service and support

Cisco offers a wide range of services to help accelerate your success in deploying and optimizing the Cisco NCS 5500 Series. These innovative Cisco Services offerings are delivered through a unique combination of people, processes, tools, and partners, and they are focused on helping you increase operating efficiency and improve your data center network. Cisco Advanced Services uses an architecture-led approach to help you align your data center infrastructure with your business goals and achieve long-term value. The Cisco Smart Net Total Care Service helps you resolve mission-critical problems with direct access at any time to Cisco network experts and award-winning resources. With this service, you can take advantage of the Cisco Smart Call Home service, which offers proactive diagnostics and real-time alerts on your Cisco NCS 5500 Series. Spanning the entire network lifecycle, Cisco Services offerings help increase investment protection, optimize network operations, support migration operations, and strengthen your IT expertise.

Cisco Capital

Flexible payment solutions to help you achieve your objectives

Cisco Capital makes it easier to get the right technology to achieve your objectives, enable business transformation and help you stay competitive. We can help you reduce the total cost of ownership, conserve capital, and accelerate growth. In more than 100 countries, our flexible payment solutions can help you acquire hardware, software, services and complementary third-party equipment in easy, predictable payments. [Learn more](#).

For more information

- [Learn more](#) about the NCS 5700 Series.
- [Learn more](#) about the NCS 5500 Series.

Document history

New or Revised Topic	Described In	Date
Updated photo	Figure 1	January 6, 2023
Updated ordering information	Table 7	January 6, 2023

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