

Cisco Network Convergence System 5700 Series: NCS-57D2-18DD Fixed Chassis

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Product overview

With global data center and public/private cloud network traffic growing at more than 25 percent annually, network providers and hyperscalers alike are rapidly adopting 400GE as the basis for their mass-scale core and aggregation networks. The Cisco® Network Convergence System 5700 Series builds on the success of previous Cisco NCS 5500 fixed systems by combining the latest in forwarding ASIC design with the advanced innovation of Cisco IOS® XR7.

The NCS-57D2-18DD-SYS breaks new ground by combining 7.2 Terabits of 400GE/100GE optimized forwarding capacity, high power efficiency, QSFP-DD optics, deep packet buffering, full line-rate MACsec*, IPsec*, Class C 1588 Precision Time Protocol (PTP), and Synchronous Ethernet (SyncE) in an extremely power-efficient, 2-rack-unit package. The industry-leading Cisco IOS XR7 pushes the scalability of the hardware even further through the use of flexible database profiles that allow ASIC and TCAM resources to be reconfigured by network role. Next-generation security, automation, telemetry, segment routing, EVPN, and Equal-Cost Multipathing (ECMP) capabilities make XR7 the perfect complement to the NCS-57D2 series.

*Enabled post FCS



Figure 1.
Cisco NCS-57D2-18DD-SYS chassis

Cisco IOS XR Software overview

The Cisco NCS-57D2 Series is powered by an industry-leading, carrier-class 64-bit version of IOS XR7 (XR7) NOS designed on operational efficiency, optimized utilization, and service agility ([evolved programmable network](#)). Cisco IOS XR Software offers rich features such as iPXE boot, autoprovisioning, and native support for third-party application hosting, machine-to-machine interface, telemetry, and flexible software package delivery.

Software requirement

The Cisco NCS-57D2-18DD-SYS fixed chassis supports Cisco IOS XR Software Release 7.8.1 and later.

Specifications

Tables 1 through 4 list key specifications for the Cisco NCS-57D2-18DD-SYS fixed chassis.

Table 1. Features and benefits

Feature	NCS-57D2-18DD-SYS specification
Integrated interface	40, 100, and 400 Gigabit Ethernet support
Industry-leading, carrier-class Cisco IOS XR Software	Visibility and telemetry Machine-to-machine interface Application hosting Flexible platform and packaging Modularity Automation
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

Table 2. Specifications

Feature	NCS-57D2-18DD-SYS specification
Chassis product ID	NCS-57D2-18DD-SYS - Flexible Consumption Model (FCM) NCS-57D2-18DD-S - Perpetual
Interfaces	18 ports of 400G / 66 ports of 100G
Integrated route processor	Cisco IOS XR 64-bit software running on 6-core x86 CPU at 2.2 GHz
Management ports	RJ-45 ports for console and management

Feature	NCS-57D2-18DD-SYS specification
Flexible forwarding ports	18x 400G ports with Quad Small Form-Factor Pluggable Double Density (QSFP-DD) 66x 100G ports with Quad Small Form-Factor Pluggable Double Density (QSFP-DD) All ports support QSFP-28 and QSFP+ Breakout options supported for 10G, 25G, and 100G
System memory	32 GB
SSD drive	240 GB
Timing ports	1 Pulse Per Second (PPS) in/out, 10 MHz in/out, Time of Day (ToD) Internal Global Navigation Satellite System (GNSS) with antenna port
Performance	Up to 7.2 Tbps of system throughput Full line-rate MACsec and IPSec encryption capable on all ports*
Route scale	Up to 2.3M Forwarding Information Base (FIB) entries *
Power and cooling features	2 hot-swappable power supplies providing 1+1 redundancy *AC low line power supply redundancy limited above 1000W 4 hot-swappable fan trays providing n+1 redundant cooling
Power consumption	Typical: 500W without optics* Power handling of each quart = 43W
Physical specifications	Height: 2RU 3.45" in. (8.76 cm) Width: 17.60 in. (43.94 cm) Depth: 23.62 in. (59.99 cm) Weight: 53 lb (24 kg) including fans and PSUs

*Software support to follow post 7.8.1 FCS

Table 3. Software features supported in Cisco IOS XR Software Release 7.8.1 and later

Feature	Specifications
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) • Layer 2 ingress Access Control List (ACL) • Layer 2 AC-AC cross-connect • Ethernet Flow Point (EFP) and VLAN trunks • Virtual Router Redundancy Protocol (VRRP)
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 (IS-IS), IS-ISv6, and Border Gateway Protocol (BGP) • 64-way Equal-Cost Multipath (ECMP) • Layer 3 ingress and egress IPv4 ACL and IPv6 ACL • Bidirectional Forwarding Detection (BFD) • Cisco Ethernet bundle technology (up to 64 ports per Ethernet bundle) • LACP: IEEE 802.3ad • Jumbo frame support (up to 9216 bytes) • VRRP • Layer 3 VPN
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 • IS-IS 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)
Quality of Service (QoS)	<ul style="list-style-type: none"> • Hierarchical QoS • Ingress classification based on Class of Service (Layer 2), IP Differentiated Service Code Point (DSCP) (Layer 3), IP ACL (Layer 3/4), IP precedence (type of service) (Layer 3) • DSCP marking • 8 queues for user traffic • Support for priority queuing

Feature	Specifications
Automation	<ul style="list-style-type: none"> • Zero-Touch Provisioning (ZTP), iPXE, SecureZTP • 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 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
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

Table 4. Environmental properties

Property	Specifications
Normal operating temperature	PortSE intake supply: 32° to 104° F (0° to 40° C) at sea level Port-S Exhaust supply: 32° to 101° F (0° to 38° C) at sea level
Nonoperating (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 40° C per NEBS GR-63-Core
Altitude	0 to 9842 ft (0 to 3000 m)
Power inputs	Worldwide ranging AC (90 to 264V, 50 to 60 Hz) Worldwide ranging DC (-40 to -72V)
Airflow	Front to back (PSI) and Back to Front (PSE)

Regulatory standards compliance

Table 5. Regulatory standards compliance: Safety and EMC

Specification	Description
Regulatory compliance	Products should comply with CE Markings according to directives 2004/108/EC and 2006/95/EC.
Safety	<ul style="list-style-type: none"> • UL 60950-1 Second Edition • CAN/CSA-C22.2 No. 60950-1 Third Edition • EN 60950-1 Second Edition • IEC 60950-1 Second Edition • EN 62368-1 Third Edition • IEC 62368-1 Third Edition • UL 62368-1 Third Edition
EMC: Emissions	<ul style="list-style-type: none"> • 47CFR Part 15 (CFR 47) Class A • AS/NZS CISPR22 Class A • CISPR22 Class A • EN55022 Class A • ICES003 Class A • VCCI Class A • EN61000-3-2 • EN61000-3-3 • KN22 Class A • CNS13438 Class A
EMC: Immunity	<ul style="list-style-type: none"> • EN55024 • CISPR24 • EN300386 • KN 61000-4 series
RoHS	The product is RoHS-6 compliant with exceptions for leaded-Ball Grid-Array (BGA) balls and lead press-fit connectors.
NEBS	Designed for compliance to GR-1089-CORE and GR-63-CORE.*

*Qualification in progress

Supported transceiver modules

Refer to the Cisco NCS 5500 Series supported transceivers module matrix: <https://tmgmatrix.cisco.com/>

Ordering information

Table 6. Ordering information – Flexible Consumption Model

Part number	Product description
NCS-57D2-18DD-SYS	NCS57B1 Fixed Base HW Flexible Consumption Need Smart Lic
NCS-57D2-18DD-TRK	57D2-18DD Base Hardware Tracking PID
PSU2KW-ACPI	2000W AC Power Module with Port-side Air Intake
PSU2KW-DCPI	2000W 48V DC Power Module with Port-side Air Intake
NC57-D2-FAN-FW	NCS 5700 Fan Tray 1RU Chassis Port-S Intake/Front-to-back
NC57-D2-FAN-RV	NCS 5700 Fan Tray 1RU Chassis Port-S Intake/Back-to-front
NC57-2RU-ACC-KIT	Accessory Kit
NC57-2RU-ACC-KIT2	Accessory Kit
NC57-2RU-ACC-KIT3	Accessory Kit
NC57-2RU-ACC-KIT4	Accessory Kit
NC55-QSFP-DCAP	Dust cover for QSFP/ZQSFP

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
ESS-100G-SIA-3	NCS 5500 Core and Aggregation Essentials SIA per 100G 3-5 Year Subscription
ADN-100G-SIA-3	NCS 5500 Core and Aggregation Advantage w/ Essentials SIA per 100G 3-5 Year Subscription
ESS-100G-SIA-5	NCS 5500 Core and Aggregation Essentials SIA per 100G 5-10 Year Subscription
ADN-100G-SIA-5	NCS 5500 Core and Aggregation Advantage w/ Essentials SIA per 100G 5-10 Year Subscription

Table 8. Ordering information – Perpetual

Part number	Product description
NCS-57D2-18DD-S	NCS57D2 Fixed Base HW 18x400, 64x100 all QSFP-DD chassis
PSU2KW-ACPI	2000W AC Power Module with Port-side Air Intake
PSU2KW-DCPI	2000W 48V DC Power Module with Port-side Air Intake
NC57-D2-FAN-FW	NCS 5700 Fan Tray 1RU Chassis Port-S Intake/Front-to-back
NC57-D2-FAN-RV	NCS 5700 Fan Tray 1RU Chassis Port-S Intake/Back-to-front
XR-NC57-P-07.08	Cisco IOS XR IP/MPLS Core Software
XR-NC57-PK9-07.08	Cisco IOS XR IP/MPLS Core Software 3DES
NC57-2RU-ACC-KIT	Accessory Kit
NC57-2RU-ACC-KIT2	Accessory Kit
NC57-2RU-ACC-KIT3	Accessory Kit
NC57-2RU-ACC-KIT4	Accessory Kit
NC55-QSFP-DCAP	Dust cover for QSFP/QZSFP

Table 9. Ordering information – Perpetual Software Licenses

Part number	Product description
NC55P-BDL-100T	NCS 5500 SW 4 x License Bundle for NCS 5500 Base Per 100G BW
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
NC55P-CRAGR-100T	NCS 5500 Core and Aggr Lic for NCS 5500 Base Per 100G BW
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 BW
NC55P-MSEC-100T	NCS 5500 MACsec Lic for NCS 5500 Base Per 100G Bandwidth
NC55P-TIMING-F	NCS 5500 Timing and Mobility Lic for Fixed Chassis

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 Compliance
	Predicted MTBF	NCS-57D2-18DD-SYS - 134,580 hours
Power	Power (Including pluggable)	Table 2: Specifications
Material	Product packaging weight and materials	Packaging weight: 8.58 lb Eight units per pallet Contact: environment@cisco.com
	Weight	Table 2: Specifications

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.

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For more information

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

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