

Cisco Network Convergence System 5500 Series: NCS-55A1-24Q6H-S and NCS- 55A1-24Q6H-SS Fixed Chassis

Contents

Product overview	3
Cisco IOS XR Software overview	3
Software requirement	4
Specifications	4
Regulatory standards compliance	8
Supported transceiver modules	8
Ordering information	9
Warranty	11
Service and support	11
Cisco Capital	12
For more information	12
Document history	13

Product overview

Building on the success of the Cisco® Network Convergence System 5501 (NCS-5501), the Cisco Network Convergence System 55A1-24Q6H-S (NCS-55A1-24Q6H-S) and 55A1-24Q6H-SS (NCS-55A1-24Q6H-SS) offer improvements designed to meet the challenges of the zettabyte era. The NCS-55A1-24Q6H-S and NCS-55A1-24Q6H-SS provide dense 1G/10G/25G/40G/100G functionality in a 1-rack-unit package with line-rate MACsec at 10G/25G/40G/100G speeds and Precision Time Protocol (PTP) Synchronous Ethernet (SyncE)/1588 Class B timing. With ultralow per-bit power consumption, deep packet buffering, and optimized forwarding architecture, the NCS-55A1-24Q6H-S and NCS-55A1-24Q6H-SS have the flexibility to be deployed across various network roles, including 5G Mobile Backhaul, Top of Rack (ToR), spine-and-leaf, and Converged Interconnect Network (CIN). Built to take full advantage of the advanced capabilities you have come to expect from Cisco IOS® XR, the NCS-55A1 fixed-chassis models boast advanced packet classification, segment routing, ultrawide Equal-Cost Multipathing (ECMP), programmable network management, and telemetry to make your network smarter, faster, and more agile.



Figure 1.

Cisco NCS-55A1-24Q6H-S chassis - MACsec on some ports (6X100G and 16 of the 24X25G ports) at 10G/25G/40G/100G speeds



Figure 2.

Cisco NCS-55A1-24Q6H-SS chassis - MACsec on all ports (6X100G, 24X25G, and 24X10G) at 10G/25G/40G/100G speeds

Cisco IOS XR Software overview

The Cisco NCS 5500 Series fixed-chassis models are powered by the industry-leading, carrier-class, 64-bit version of Cisco IOS XR Software, designed for operational efficiency, optimized utilization, and service agility (as part of the Cisco 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-55A1-24Q6H-S fixed chassis supports Cisco IOS XR Software Release 6.6.25 and later.

The Cisco NCS-55A1-24Q6H-SS fixed chassis supports Cisco IOS XR Software Release 7.2.1 and later.

Specifications

Tables 1 through 4 list key specifications for the Cisco NCS-55A1-24Q6H-S and NCS-55A1-24Q6H-SS fixed chassis.

Table 1. Features and benefits

Feature	NCS-55A1-24Q6H-S specification	NCS-55A1-24Q6H-SS specification
Integrated interface	1, 10, 25, 40, and 100 Gigabit Ethernet support	1, 10, 25, 40, and 100 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	Visibility and telemetry Machine-to-machine interface Application hosting Flexible platform and packaging Modularity Automation
Management ports	Provide easy access to system console	Provide easy access to system console
External USB port	Helps simplify image and file management	Helps simplify image and file management
Solid-State Drive (SSD)	Memory for storing software image, configuration, logging, and recovery	Memory for storing software image, configuration, logging, and recovery
Power consumption	Ultralow .37W per gigabit	Ultralow .37W per gigabit
Redundancy	Redundant fan tray Redundant AC or DC power supply	Redundant fan tray Redundant AC or DC power supply

Table 2. Specifications

Feature	NCS-55A1-24Q6H-S specification	NCS-55A1-24Q6H-SS specification
Chassis product ID	NCS-55A1-24Q6H	NCS-55A1-24Q6H-SS
Interfaces	24 ports of 1G/10G 24 ports of 1G/10G/25G 6 ports of 40G/100G	24 ports of 1G/10G 24 ports of 1G/10G/25G 6 ports of 40G/100G
Integrated route processor	Cisco IOS XR 64-bit software running on 6-core x86 CPU at 1.9 GHz	Cisco IOS XR 64-bit software running on 6-core x86 CPU at 1.9 GHz
Management ports	2x RJ-45 ports for console and management	2x RJ-45 ports for console and management
Flexible forwarding ports	6x 100G with Quad Small Form-Factor Pluggable (QSFP) 28 optics QSFP+ optics to support 40G; 4x 10G/25G breakout options available 24x 25G with SFP28 optics 24x 10G with SFP28 optics SFP+ or SFP optics can be supported on SFP28 ports (refer to the optics supported matrix for details)	6x 100G with Quad Small Form-Factor Pluggable (QSFP) 28 optics QSFP+ optics to support 40G; 4x 10G/25G breakout options available 24x 25G with SFP28 optics 24x 10G with SFP28 optics SFP+ or SFP optics can be supported on SFP28 ports (refer to the optics supported matrix for details)
System memory	32 GB	32 GB
SSD drive	128 GB	128 GB
Timing ports	1 Pulse Per Second (PPS) in/out, 10 MHz in/out, Time of Day (ToD) Internal Global Navigation Satellite System (GNSS)* *hardware capable, please check release notes for software support	1 Pulse Per Second (PPS) in/out, 10 MHz in/out, Time of Day (ToD) Internal Global Navigation Satellite System (GNSS)* *hardware capable, please check release notes for software support
Performance	Up to 900 Gbps of system throughput Full line-rate MACsec encryption on 6x 100G ports and 16x 25G ports at 10G/25G/40G/100G speeds	Up to 900 Gbps of system throughput Full line-rate MACsec encryption on all 6x 100G ports, 24x 10G ports, and 24x 25G ports at 10G/25G/40G/100G speeds
Route scale	Up to 1.1M Forwarding Information Base (FIB) entries	Up to 2M Forwarding Information Base (FIB) entries
Power and cooling features	2 hot-swappable power supplies providing 1+1 redundancy 2 hot-swappable fan trays providing redundant system cooling	2 hot-swappable power supplies providing 1+1 redundancy 2 hot-swappable fan trays providing redundant system cooling

Feature	NCS-55A1-24Q6H-S specification	NCS-55A1-24Q6H-SS specification
Power consumption	Typical: 330W at 25° Celsius (77°F) Maximum: 450W at 55° Celsius (131°F)	Typical: 400W at 25° Celsius (77°F) Maximum: 550W at 55° Celsius (131°F)
Physical specifications	Height: 1RU 1.73 in (4.40 cm) Width: 17.4 in (44.20 cm) Depth: 21.7 in (55.19 cm) Weight: 23.8 lb (10.8 kg)	Height: 1RU 1.73 in (4.40 cm) Width: 17.4 in (44.20 cm) Depth: 21.7 in (55.19 cm) Weight: 24.7 lb (11.2kg)

Table 3. Software features supported in Cisco IOS XR Software Release 6.6.25 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)

Feature	Specifications
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
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 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	Port-S intake supply: 32° to 104° F (0° to 40° C); Port-S exhaust supply: 32° to 95° F (0° to 35° C) (NCS-55A1-24Q6H-S only)
Nonoperating (storage) temperature	-40° to 158° F (-40° to 70° C)
Operating humidity	5% to 95% (noncondensing)
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 265V, 50 to 60 Hz) Worldwide ranging DC (-40V to -72V)
Airflow	Front to back Back to front (NCS-55A1-24Q6H-S only)

Regulatory standards compliance

Table 5. Regulatory standards compliance: Safety and EMC

Specification	Description
Regulatory compliance	Products complies with CE Markings according to directives 2014/30/EU and 2014/35/EU
Safety	<ul style="list-style-type: none">• UL 60950-1 Second Edition• CAN/CSA-C22.2 No. 60950-1 Second Edition• EN 60950-1 Second Edition• IEC 60950-1 Second Edition• GB4943
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.

Supported transceiver modules

Refer to the Cisco NCS 5500 Series supported transceivers module matrix:

www.cisco.com/c/en/us/support/interfaces-modules/transceiver-modules/products-device-support-tables-list.html

Please note, 1G Auto Negotiation is not supported on 24 ports of 1G/10G/25G.

Ordering information

Table 6. Ordering information - Perpetual

Part number	Product description
NCS-55A1-24Q6H-S	NCS55A1 Fixed 24X10G, 24X25G, and 6X100G Chassis
NCS-1100W-ACFW	NCS 5500 AC 1100W Power Supply Port-S Intake/Front-to-Back
NCS-1100W-ACRV	NCS 5500 AC 1100W Power Supply Port-S Exhaust/Back-to-Front
NCS-1100W-DCRV	NCS 5500 DC 1100W Power Supply Port-S Exhaust/Back-to-Front
NCS-950W-DCFW	NCS 5500 DC 950W Power Supply Port-S Intake/Front-to-Back
NCS-1RU-ACC-KIT	NCS 5500 Accessory Kit for 1RU Chassis
NC55-A1-FAN-FW	NCS 5500 Fan Tray 1RU Chassis Port-S Intake/Front-to-Back
NC55-A1-FAN-RV	NCS 5500 Fan Tray 1RU Chassis Port-S Exhaust/Back-to-Front
XR-NC55-P-06.06	Cisco IOS XR IP/MPLS Core Software
XR-NC55-PK9-06.06	Cisco IOS XR IP/MPLS Core Software 3DES
NCS-55A1-24Q6H-SS	NCS55A1 Fixed 24X10G, 24X25G, and 6X100G MACsec Chassis
NCS-1100W-ACFW	NCS 5500 AC 1100W Power Supply Port-S Intake/Front-to-Back
NCS-950W-DCFW	NCS 5500 DC 950W Power Supply Port-S Intake/Front-to-Back
NCS-1RU-ACC-KIT	NCS 5500 Accessory Kit for 1RU Chassis
NC55-A1-FAN-FW	NCS 5500 Fan Tray 1RU Chassis Port-S Intake/Front-to-Back
XR-NC55-P-07.02	Cisco IOS XR IP/MPLS Core Software
XR-NC55-PK9-07.02	Cisco IOS XR IP/MPLS Core Software 3DES

Table 7. 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

Table 8. Ordering information – Flexible Consumption Model

Part number	Product description
NCS-55A1-24Q6-SYS	NCS55A1 Fixed 24X10G, 24X25G and 6X100G chassis with Flexible Consumption Model (Requires Smart Licensing)
NCS-55A1-24Q6-TRK	NCS 55A1 Fixed 24X10, 25G and 6X100G chassis HW Tracking PID
NCS-1100W-ACFW	NCS 5500 AC 1100W Power Supply Port-S Intake / Front-to-Back
NCS-1100W-ACRV	NCS 5500 AC 1100W Power Supply Port-S Exhaust/Back-to-Front
NCS-1100W-DCRV	NCS 5500 DC 1100W Power Supply Port-S Exhaust/Back-to-Front
NCS-950W-DCFW	NCS 5500 DC 950W Power Supply Port-S Intake / Front-to-Kack
NCS-1RU-ACC-KIT	NCS 5500 Accessory Kit for 1RU Chassis
NCS-1RU-FAN-FW	NCS 5500 1RU Chassis Fan Tray Port-S Intake / Front-to-Back
NCS-1RU-FAN-RV	NCS 5500 1RU Chassis Fan Tray Port-S Exhaust / Back-to-Front
NCS-55A1-24QX-SYS	NCS55A1 Fixed 24X10G, 24X25G and 6X100G MACsec chassis with Flexible Consumption Model (Requires Smart Licensing)
NCS-55A1-24QX-TRK	NCS 55A1 Fixed 24X10, 25G and 6X100G MACsec chassis HW Tracking PID
NCS-1100W-ACFW	NCS 5500 AC 1100W Power Supply Port-S Intake / Front-to-back
NCS-950W-DCFW	NCS 5500 DC 950W Power Supply Port-S Intake / Front-to-back
NCS-1RU-ACC-KIT	NCS 5500 Accessory Kit for 1RU Chassis
NCS-1RU-FAN-FW	NCS 5500 1RU Chassis Fan Tray Port-S Intake / Front-to-back

Table 9. Ordering information – Flexible Consumption Model Software Licenses

Part number	Product description
ESS-100G-RTU-1	NCS 5500 Core and Aggregation Essentials SW RTU v1.0 100G
ADV-100G-RTU-1	NCS 5500 Core and Aggregation Advantage w/o Essentials SW RTU v1.0 100G
ADN-100G-RTU-1	NCS 5500 Core and Aggregation Advantage w/ Essentials SW RTU v1.0 100G
ESS-100G-SIA-3	NCS 5500 Core and Aggregation Essentials SIA per 100G 3-5 Year Subscription
ADV-100G-SIA-3	NCS 5500 Core and Aggregation Advantage w/o 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
ADV-100G-SIA-5	NCS 5500 Core and Aggregation Advantage w/o 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

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.

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.

Document history

New or Revised Topic	Described In	Date
Minor changes	NCS-55A1-24Q6H-SS datasheet	September 13, 2022

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