Cisco Network Convergence System 5500 Series: 55A1 Fixed Chassis

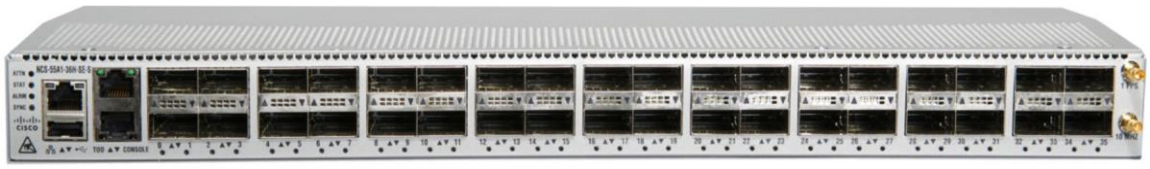
Product Overview

Based on the Cisco Global Cloud Index, digitalization is projected to grow global data center and public/private cloud networks traffic more than 25 percent annually, resulting in a threefold increase by 2019. To help network providers meet these challenges, the Cisco® Network Convergence System 5500 Series is built with features such as high port densities, deep packet buffering, and forwarding hardware optimized for these types of deployments.

The Cisco NCS 55A1 are the second generation of fixed chassis available for the Cisco NCS 5500 Series. That new series offers three fixed configuration chassis, the NCS 55A1-36H-S, NCS 55A1-36H-SE-S and NCS 55A1-24H. These systems provide functionality vital to both the Top of Rack (ToR) and spine or leaf roles common to modern spine-and-leaf architectures. Capabilities such as advanced packet classification, segment routing, ultra-wide ECMP, programmable network management and telemetry are added to the robust and mature features already present in Cisco IOS® XR Software Release 6.0.0.

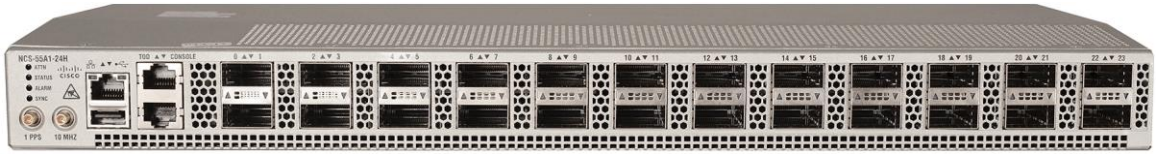
The Cisco NCS 55A1-36H-S and NCS 55A1-36H-S (Figure 1) provide 36 ports of 100 Gigabit Ethernet with full line rate MACsec capability. All the ports can support 100GE and 40GE optics as well as 25GE to 10GE breakout. They use QSFP28/QSFP+ form factor transceivers. They are designed for base and high scale configuration needs and are supported starting with Cisco IOS XR Software Release 6.3.1.

Figure 1. The Cisco NCS 55A1-36H-S and NCS 55A1-36H-SE-S Chassis



The Cisco NCS 55A1-24H (Figure 2) provide 24 ports of 100 Gigabit Ethernet. All the ports can support 100GE and 40GE optics as well as 25G to 10GE breakout. This chassis uses QSFP28/QSFP+ form factor transceivers. This chassis is designed for high scale configuration needs and is supported starting with Cisco IOS XR Software Release 6.3.1.

Figure 2. The Cisco NCS-55A1-24H Chassis



Features and Benefits

MACsec is a Layer 2 IEEE 802.1AE standard for encrypting packets between two MACsec-capable routers. MACsec secures the data on physical media, making it impossible for data to be compromised at higher layers. As a result, MACsec encryption takes priority over any other encryption method for higher layers, such as IPsec and SSL. MACsec provides encryption at Layer 2, which is provided by the Advanced Encryption Standard (AES) algorithm that replaces the DES algorithm. MACsec uses the MACsec Key Agreement protocol (MKA) to exchange session keys, and manage encryption keys.

Advantages of Using MACsec Encryption:

- **Client-oriented mode:** MACsec is used in setups where two routers that are peering with each other can alternate as a key server or a key client prior to exchanging keys. The key server generates and maintains the CAK between the two peers.
- **Data integrity check:** MACsec uses MKA to generate an Integrity Check Value (ICV) for the frame arriving on the port. If the generated ICV is the same as the ICV in the frame, then the frame is accepted; otherwise, it is dropped.
- **Data encryption:** MACsec provides port-level encryption on the line card of the router. This means that the frames sent out of the configured port are encrypted, and frames received on the port are decrypted. MACsec also provides a mechanism with which you can configure whether only encrypted frames or all frames (encrypted and plain) are accepted on the interface.
- **Replay protection:** When frames are transmitted through the network, there is a possibility of frames getting out of the ordered sequence. MACsec provides a configurable window that accepts a specified number of out-of-sequence frames.
- **Support for clear traffic:** If configured accordingly, data that is not encrypted is allowed to transit through the port.

Cisco IOS XR Software Overview

The Cisco NCS 55A1 Series fixed chassis is powered by industry leading carrier-class 64-bit version of Cisco IOS XR Software 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.

For a complete list of supported features, refer to Cisco Feature Navigator.

Software Requirements

The Cisco NCS 55A1 Series fixed chassis support Cisco IOS XR Software Release 6.3.1 and later.

Specifications

Tables 1 through 11 list key specifications for the Cisco NCS 55A1 Series fixed chassis.

Table 1. Features and Benefits of Cisco NCS 55A1 Series Fixed Chassis (Cisco IOS XR Software 6.3.1 Release or Beyond)

Feature	Specification
Integrated Interface	10GE/25GE (breakout using certain transceivers) 40GE/100 Gigabit Ethernet support
MACsec encryption NCS-55A1-36H-S / NCS-55A1-36H-SE-S	IEEE 802.1AE standards-based Layer 2 hop-by-hop encryption that provides data confidentiality and integrity for media access independent protocols
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	Provides easy access to system console
External USB port	Helps simplify image and file management
Embedded USB (eUSB) storage	Flash memory devices for storing software image, configuration, logging, and recovery
Power consumption	Ultra-low power per Gigabit Ethernet
Redundancy	Redundant fan tray Redundant AC or DC power supply

Table 2. Cisco NCS 55A1 Fixed Chassis Specification

Feature	Specification	
Chassis PID	NCS-55A1-36H-S NCS-55A1-36H-SE-S NCS-55A1-24H	
Interfaces	NCS-55A1-36H-S / NCS-55A1-36H-SE-S	144 ports of 10GE/25GE (breakout using certain transceivers) 36 ports of 40GE/100GE
	NCS-55A1-24H	96 ports of 10GE/25GE (breakout using certain transceivers) 24 ports of 40GE/100GE
Integrated Route Processor	IOS-XR 64-bit software running on a 8 cores x86 CPU @ 1.6Ghz	
System Memory	32GB	
Solid-State Disk (SSD) drive	NCS-55A1-36H-S / NCS-55A1-36H-SE-S: 128GB NCS-55A1-24H: 128GB	
Management Ports	2x RJ45, one for console and one for management LAN ports	
Timing Ports	TOD ports: UART1 with RS422 and RS232 support Pin 1: RS-232 Output Pin 5: GND Pin 2: RS-232 Input Pin 6: 1PPS+ Input.Output Pin 3: 1PPS- Input/Output Pin 7: RS-422- Input/Output Pin 4: GND Pin 8: RS-422+ Input/Output 10Mhz and 1PPS I/O connector	
Flexible Forwarding Ports	100 Gigabit Ethernet or 25GE (breakout using certain transceivers) with QSFP28 optics QSFP+ optics to support 40GE and 4x 10GE breakout options available	
Performance	NCS-55A1-36H-S / NCS-55A1-36H-SE-S: Up to 3.6 Tbps of system throughput Full line rate MACsec encryption on all 36 x 100G ports NCS-55A1-24H: Up to 1.8 Tbps of system throughput	
Route Scale	NCS-55A01-36H-S: Up to 1M FIB entries NCS-55A01-36H-SE-S: Up to 5M FIB entries NCS-55A1-24H: Up to 2M FIB entries	

Feature	Specification	
Power & cooling features	2 hot-swappable power supplies providing 1+1 redundancy Reversible airflow available (power supply PID determines airflow direction) NCS-55A1-36H-S / NCS-55A1-36H-SE-S: 3 hot-swappable fan trays provide redundant system cooling NCS-55A1-24H: 3 hot-swappable fan trays provide redundant system cooling	
Power Consumption Output power. For input power, divide by 0.91, which represents average supply efficiency	NCS-55A1-36H-S	Typical: 1100W at 27 degrees Celsius Maximum: 1450W at 55 degrees Celsius
	NCS-55A1-36H-SE-S	Typical: 1300W at 27 degrees Celsius Maximum: 1700W at 55 degrees Celsius
	NCS-55A1-24H	Typical: 600W at 27 degrees Celsius Maximum: 800W at 55 degrees Celsius
Physical Specification	NCS-55A1-36H-S / NCS-55A1-36H-SE-S Height: 1RU 1.72 in. (4.36 cm) Width: 17.3 in. (43.94 cm) Depth: 30.0 in. (76.20 cm) NCS-55A1-36H-S Weight: 33 lbs (14.97 kgs) NCS-55A1-36H-SE-S Weight: 33 lbs (14.97 kgs)	NCS-55A1-24H Height: 1RU 1.72 in. (4.36 cm) Width: 17.3 in. (43.94 cm) Depth: 21.7 in. (55.12 cm) Weight: 24 lbs (10.89 kgs)

Table 3. Software Feature Support on NCS 55A1 Fixed Chassis in Cisco IOS XR Software 6.3.1 Release or Beyond

Description	Specification
Layer 2	• Layer 2 switch ports • IEEE 802.1Q VLAN encapsulation/Q-in-Q encapsulation • IEEE 802.1ad • Cisco Bundle Ethernet technology (up to 32 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)
Layer 3	• IPv4 and IPv6 unicast • Layer 3 interfaces: physical and sub-interfaces • Routing protocols: static, Open Shortest Path First (OSPFv2), OSPFv3, Intermediate System to Intermediate System (ISIS), ISISv6, and Border Gateway Protocol (BGP) • 32-way equal-cost multipath (ECMP) • L3 ingress and egress IPv4 ACL and IPv6 ACL • Bidirectional Forwarding Detection (BFD) • Cisco Bundle Ethernet technology (up to 32 ports per Ethernet Bundle) • Link Aggregation Control Protocol (LACP): IEEE 802.3ad • Jumbo frame support (up to 9216 bytes) • Hot Standby Router Protocol (HSRP)/Virtual Router Redundancy Protocol (VRRP) • Layer 3 Virtual Private Network (L3VPN)
MPLS	• Label switching • LDP • MPLS Traffic Engineering • Ethernet over MPLS (EoMPLS)
Segment Routing (SR)	• 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)

Description	Specification
Quality of Service (QoS)	• Hierarchical QoS • Ingress classification based on Class of Service (L2), IP differentiated service code point (L3), IP ACL (L3/L4), IP precedence (type of service) (L3) • DSCP marking • 8 number of queues for user traffic • Support for priority queuing
Automation	• Zero-Touch Provisioning (ZTP), iPXE • Configuration management • Network Configuration Protocol (NETCONG/YANG model)
Security	• 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; SNMPv3; and RPL support • Layer 2 ingress ACLs • Layer 3 ingress ACLs
Management	• MIB, XML, JSON, GPB, and SNMP • MPLS OAM (label switched path [LSP] ping, LSP traceroute) • Ethernet OAM

Supported Transceivers Modules

Check the data sheet for Cisco NCS 5500 Series supported transceivers module.

Environment

Table 4. Environmental Properties for NCS 55A1 Fixed systems

Property	Cisco NCS 5500 Series
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)
Non-operating (storage) Temperature	–40 to 158°F (–40 to 70°C)
Operating Humidity	5% to 95% (noncondensing) **Note:** Not to exceed 0.024 kg water or dry air
Storage (relative) Humidity	5% to 95% at 40C per NEBS GR-63-Core **Note:** Not to exceed 0.024 kg water or dry air
Altitude	0 to 9,842 ft (0 to 3000m)
Power Inputs	Worldwide ranging AC (90-265V; 50-60 Hz) Worldwide ranging DC (-40V to -72V)
Air Flow	Front to back (port-side intake) Back to front (port-side exhaust)

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
Network Equipment Building Standards (NEBS)	Designed to meet GR-63-CORE and GR-1089-CORE
Safety	• UL 60950-1 Second Edition • CAN/CSA-C22.2 No. 60950-1 Second Edition • EN 60950-1 Second Edition • IEC 60950-1 Second Edition • AS/NZS 60950-1 • GB4943

Specification	Description
EMC Standards	• 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	• 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.

Additional information related to NCS5500 regulatory compliance and safety standards.

Ordering Information

Table 6. Ordering Information for NCS 55A1-36H-SE-S

Category	Part Number	Description
Bundle Chassis	**NCS-55A1-36H-B**	**NCS55A1 Fixed 36x100G Base chassis bundle**
RTU	NC55-A1-36HB-RTU	NCS 55A1 36x100G Base Right To Use License
Chassis	**NCS-55A1-36H-S**	NCS55A1 Fixed 36x100G Base chassis
SW	XR-NC55-P-06.02	Cisco NCS 5500 IOS XR 6.2 Image
	XR-NC55-PK9-06.02	Cisco NCS 5500 IOS XR 6.2 PK9 Image
Fan Option	NC55-A1-FAN-FW	NCS 5500 Fan Tray 1RU Chassis Port-S Intake / Front-to-back Port-Side intake
	NC55-A1-FAN-RV	NCS 5500 Fan Tray 1RU Chassis Port-S Exhaust / Back-to-Front Port-side exhaust
Power Option	NC55-2KW-ACFW	NCS 5500 AC 2KW Power Supply Port-S Intake / Front-to-back
	NC55-2KW-ACRV	NCS 5500 AC 2KW Power Supply Port-S Exhaust / Back-to-Front
	NC55-2KW-DCFW	NCS 5500 DC 2KW Power Supply Port-S Intake / Front-to-back
	NC55-2KW-DCRV	NCS5500 DC 2KW Power Supply Port-S Exhaust/Back-to-Front
Accessories Option	NC55-A1-ACC-KIT	NCS 5500 Accessory Kit for 1RU Chassis
	NC55-A1-NEBS-KIT	NCS 5500 NEBS Kit for 1RU Chassis

Table 7. Ordering Information for NCS 55A1-36H-SE-S

Category	Part Number	Description
Bundle Chassis	**NCS-55A1-36H-SE-B**	**NCS55A1 Fixed 36x100G Scale chassis bundle**
RTU	NC55-A1-36HSEB-RTU	NCS 55A1 36x100G Scale Right To Use License
Chassis	**NCS-55A1-36H-SE-S**	NCS55A1 Fixed 36x100G Scale chassis
SW	XR-NC55-P-06.03	Cisco NCS 5500 IOS XR 6.3 Image
	XR-NC55-PK9-06.03	Cisco NCS 5500 IOS XR 6.3 PK9 Image
Fan Option	NC55-A1-FAN-FW	NCS 5500 Fan Tray 1RU Chassis Port-S Intake / Front-to-back Port-Side intake
	NC55-A1-FAN-RV	NCS 5500 Fan Tray 1RU Chassis Port-S Exhaust / Back-to-Front Port-side exhaust

Category	Part Number	Description
Power Option	NC55-2KW-ACFW	NCS 5500 AC 2KW Power Supply Port-S Intake / Front-to-back
	NC55-2KW-ACRV	NCS 5500 AC 2KW Power Supply Port-S Exhaust / Back-to-Front
	NC55-2KW-DCFW	NCS 5500 DC 2KW Power Supply Port-S Intake / Front-to-back
	NC55-2KW-DCRV	NCS5500 DC 2KW Power Supply Port-S Exhaust/Back-to-Front
Accessories Option	NC55-A1-ACC-KIT	NCS 5500 Accessory Kit for 1RU Chassis
	NC55-A1-NEBS-KIT	NCS 5500 NEBS Kit for 1RU Chassis

Table 8. Ordering Information for NCS 55A1-24H

Category	Part Number	Description
Bundle Chassis	**NCS-55A1-24H-B**	**NCS55A1 Fixed 24x100G chassis bundle**
RTU	NC55-A1-24HB-RTU	NCS 55A1 24x100G Right To Use License
Chassis	**NCS-55A1-24H**	NCS55A1 Fixed 24x100G chassis
SW	XR-NC55-P-06.03	Cisco NCS 5500 IOS XR 6.3 Image
	XR-NC55-PK9-06.03	Cisco NCS 5500 IOS XR 6.3 PK9 Image
Fan Option	NC55-A1-FAN-FW	NCS 5500 Fan Tray 1RU Chassis Port-S Intake / Front-to-back Port-Side intake
	NC55-A1-FAN-RV	NCS 5500 Fan Tray 1RU Chassis Port-S Exhaust / Back-to-Front Port-side exhaust
Power Option	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
Accessories Option	NC55-A1-ACC-KIT	NCS 5500 Accessory Kit for 1RU Chassis
	NC55-A1-NEBS-xxx	Xxx

Table 9. Ordering Information for Optics Supported on NCS 55A1 Chassis

Type	Part Number	Description
40G	QSFP-40G-SR4	40GBASE-SR4 QSFP+ transceiver module for MMF, 4-lanes, 850-nm wavelength, 12-fiber MPO/MTP connector
	QSFP-40G-SR4-S	40GBASE-SR4 (IEEE 802.3ba Spec.) QSFP+ transceiver module for MMF, 4-lanes, 850-nm wavelength, 12-fiber MPO/MTP connector
	QSFP-40G-CSR4	40GBASE-CSR4 QSFP+ transceiver module for MMF, 4-lanes, 850-nm wavelength, MPO-12 connector, 300 m reach with OM3 fiber
	QSFP-40G-SR-BD	40G QSFP Bi-Directional transceiver module, Duplex Multi-mode Fiber, LC Duplex connector, 100m reach with OM3 fiber
	QSFP-40G-LR4	40GBASE-LR4 QSFP40G transceiver module for SMF, 4 CWDM lanes in 1310nm window Mixed inside module, Duplex LC connector, 10km, Multi-rate Support (40G Ethernet and OTU3)
	QSFP-40G-LR4-S	40GBASE-LR4 QSFP40G transceiver module for SMF, 4 CWDM lanes in 1310nm window Mixed inside module, Duplex LC connector, 10km
	WSP-Q40GLR4L	40GBASE-LR4 QSFP40G transceiver module for SMF, 4 CWDM lanes in 1310nm window Mixed inside module, Duplex LC connector, 2km
	QSFP-4x10G-LR-S (40G-PSM4)	4x10GBASE-LR/40G PSM4 transceiver
	QSFP-40G-ER4	40GBASE-LR4 QSFP40G transceiver module for Single Mode Fiber, 4 CWDM lanes in 1310nm window Mixed inside module, Duplex LC connector, 40km

Type	Part Number	Description
100G	QSFP-100G-SR4-S	100GBASE SR4 QSFP Transceiver, MPO, 100m over OM4 MMF
	QSFP-100G-LR4-S	100GBASE LR4 QSFP Transceiver, LC, 10km over SMF
	QSFP-100G-CWDM4-S	100GBASE CWDM4 QSFP Transceiver, LC, 2km over SMF
	QSFP-100G-PSM4-S	100GBASE PSM4 QSFP Transceiver, MPO, 500m over SMF
	QSFP-100G-AOC1M	100GBASE QSFP Active Optical Cables 1 meter
	QSFP-100G-AOC2M	100GBASE QSFP Active Optical Cables 2 meter
	QSFP-100G-AOC3M	100GBASE QSFP Active Optical Cables 3 meter
	QSFP-100G-AOC5M	100GBASE QSFP Active Optical Cables 5 meter
	QSFP-100G-AOC7M	100GBASE QSFP Active Optical Cables 7 meter
	QSFP-100G-AOC10M	100GBASE QSFP Active Optical Cables 10 meter
	QSFP-100G-AOC15M	100GBASE QSFP Active Optical Cables 15 meter
	QSFP-100G-AOC20M	100GBASE QSFP Active Optical Cables 20 meter
	QSFP-100G-AOC25M	100GBASE QSFP Active Optical Cables 25 meter
	QSFP-100G-AOC30M	100GBASE QSFP Active Optical Cables 30 meter

Table 10. Ordering Information for Power Cables Supported on NCS 55A1 Chassis

Part Number	Description
PWR-CORD-ROK-A	Power Cord ROK 1.8m BlackYP-22K To YC-12
CAB-250V-10A-AR	AC Power Cord - 250V, 10A - Argentina
CAB-250V-10A-BR	Power Cord - 250V, 10A - Brazil
CAB-250V-10A-CN	AC Power Cord - 250V, 10A - PRC
CAB-250V-10A-ID	AC Power Cord - 250V, 10A, India
CAB-250V-10A-IS	AC Power Cord - 250V, 10A - Israel
CAB-9K10A-AU	Power Cord, 250VAC 10A 3112 Plug, Australia
CAB-9K10A-EU	Power Cord, 250VAC 10A CEE 7/7 Plug, EU
CAB-9K10A-IT	Power Cord, 250VAC 10A CEI 23-16/VII Plug, Italy
CAB-9K10A-SW	Power Cord, 250VAC 10A MP232 Plug, SWITZ
CAB-9K10A-UK	Power Cord, 250VAC 10A BS1363 Plug (13 A fuse), UK
CAB-9K12A-NA	Power Cord, 125VAC 13A NEMA 5-15 Plug, North America
CAB-AC-L620-C13	AC Power Cord, NEMA L6-20 - C13, 2M/6.5ft
CAB-ACTW	AC Power Cord (Taiwan), C13, EL 302, 2.3M
CAB-C13-C14-2M	Power Cord Jumper, C13-C14 Connectors, 2 Meter Length
CAB-C13-CBN	Cabinet Jumper Power Cord, 250 VAC 10A, C14-C13 Connectors
CAB-IND-10A	10A Power cable for India
CAB-N5K6A-NA	Power Cord, 200/240V 6A North America
CAB-C13-C14-JMPR	Recessed receptacle AC power cord 27in
CAB-3P-JPN	AC Power Cord (Japan), C13, 3 Prong Plug, 2.3M

Table 11. Ordering Information for Software Licenses Available on NCS-55A1-36H-S, NCS-55A1-36H-SE-S, NCS-55A1-24H

Category	Part Number	Description
NCS-55A1-36H-S	NC55P-ADVL3-36HT	NCS 5500 L3VPN Lic for NC55-36X100G & NC55-36X100G-S & NCS-55A1-36H-S
	NC55P-ADVL2-36HT	NCS 5500 L2VPN Lic for NC55-36X100G & NC55-36X100G-S & NCS-55A1-36H-S
	NC55P-CRAGR-36HT	NCS 5500 Core and Aggregation Lic for NC55-36X100G & NC55-36X100G-S & NCS-55A1-36H-S
	NC55P-PEER-36HT	NCS 5500 Peering Lic for NC55-36X100G & NC55-36X100G-S & NCS-55A1-36H-S
	NC55P-ADVDC-36HT	NCS 5500 Advance Data Center Lic for NC55-36X100G & NC55-36X100G-S & NCS-55A1-36H-S
NCS-55A1-36H-SE-S	NC55P-ADVL3-36HS	NCS 5500 L3VPN Lic for NC55-36X100G-A-SE & NCS-55A1-36H-SE-S
	NC55P-ADVL2-36HS	NCS 5500 L2VPN Lic for NC55-36X100G-A-SE & NCS-55A1-36H-SE-S
	NC55P-CRAGR-36HS	NCS 5500 Core and Aggregation Lic for NC55-36X100G-A-SE & NCS-55A1-36H-SE-S
	NC55P-PEER-36HS	NCS 5500 Peering Lic for NC55-36X100G-A-SE & NCS-55A1-36H-SE-S
	NC55P-ADVDC-36HS	NCS 5500 Advance Data Center Lic for NC55-36X100G-A-SE & NCS-55A1-36H-SE-S
	NC55P-MSEC-36HS	NCS 5500 MACsec Lic for NC55-36X100G-A-SE & NCS-55A1-36H-SE-S
NCS-55A1-24H	NC55P-ADVL3-24HT	NCS 5500 L3VPN Lic for NCS-55A1-24H
	NC55P-ADVL2-24HT	NCS 5500 L2VPN Lic for NCS-55A1-24H
	NC55P-CRAGR-24HT	NCS 5500 Core and Aggregation Lic for NCS-55A1-24H
	NC55P-PEER-24HT	NCS 5500 Peering Lic for NCS-55A1-24H
	NC55P-ADVDC-24HT	NCS 5500 Advance Data Center Lic for NCS-55A1-24H

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. Cisco SMARTnet™ 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.

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For More Information

For more information about the Cisco NCS 5500 Series, visit Cisco Network Convergence System 5500 Series.

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