Cisco C9550 Series Smart Switches

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Overview

Cisco® C9550 Series Smart Switches deliver high-throughput Ethernet switching and integrated security for enterprise core and aggregation networks.

Built on Cisco Silicon One™ Application-Specific Integrated Circuits (ASICs), the Cisco C9550 Series Smart Switches provide high-density Small Form-Factor Pluggable (SFP) downlink ports up to 50 Gigabit Ethernet (50G) and Quad SFP (QSFP) uplink ports up to 400G, or consistent QSFP ports up to 100G. By combining hardware switching and routing into a single platform, you can reduce infrastructure complexity and cost. Integrated security capabilities include continuous zero-trust security, inline threat protection with Cisco Live Protect, and hardware support for Post-Quantum Cryptography (PQC) algorithms and encryption to address emerging decryption risks. These capabilities enable organizations to safeguard against future attacks using quantum computers and offer protection against zero-day attacks on software vulnerabilities.

Cisco C9550 Series Smart Switches simplify IT operations by unifying hardware, software, and support, regardless of how you choose to manage your network.

- Unified hardware: Common hardware designed to support any management mode
- Unified licensing: Common licensing that unlocks advanced features and capabilities across platforms
- Unified support: Consistent and reliable product support for both hardware and software included with the unified licenses

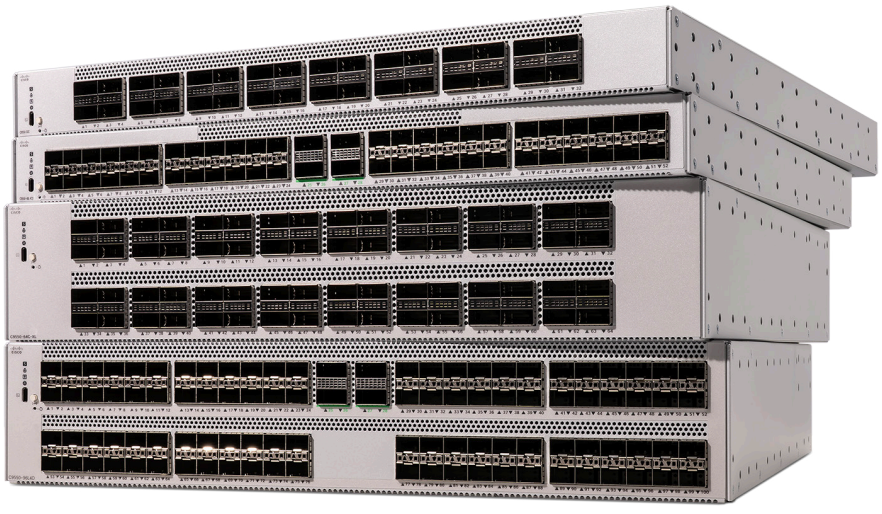


Figure 1. Cisco C9550 Series Smart Switch models

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Series highlights

The Cisco C9550 Series Smart Switches provide fixed enterprise core and aggregation switching for enterprise networks that span campuses, branch, and cloud environments. They support secure connectivity for distributed users, diverse device types, and applications deployed across on-premises and cloud infrastructure.

Table 1. C9550 Series key features and benefits

Unified experience	Cisco C9550 Series Smart Switches use a single hardware platform, licensing model, and support framework across cloud, on-premises, and hybrid deployments. This simplifies deployment, reduces configuration errors, and enables consistent operations across environments.
Performance and scalability	This platform delivers up to 6.4 Tbps of switching bandwidth and supports dense port configurations, including: • Up to 96 SFP56 ports (50/25/10/1G) • Up to 4 QSFP-DD ports (400/100/40G) • Up to 64 QSFP28 ports (100/40G) Redundant, Titanium-rated power supplies and field-replaceable fan options support continuous operation in high-demand environments.
Security and cryptography	The platform enforces security at scale with: • Hardware Access Control Lists (ACLs) • Segmentation using VXLAN and Cisco TrustSec® • Up to 100G IPsec[1] and line-rate MACsec encryption • Advanced Encryption Standard AES-GCM-256 encryption It supports inline threat detection and response, including zero-day attack mitigation and increased OS resiliency with Cisco Live Protect[1] and hardware PQC[1] against emerging quantum-based attacks.

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Application and endpoint visibility	Built-in telemetry and monitoring provide visibility into traffic, applications, and devices. These capabilities help identify anomalies, enforce policy, and support incident response: • Flexible NetFlow (FNF) • Packet mirroring with Switched Port Analyzer Network (SPAN) and Encapsulated Remote SPAN (ERSPAN) • Device identification and tracking with IP Device Tracking (IPDT) and Switch-Integrated Security Features (SISF)
High availability and resiliency	The Cisco C9550 Series Smart Switches maintain service continuity and uninterrupted network services. These features reduce downtime during failures and upgrades with: • Redundant hardware components • Cisco StackWise Virtual (SVL) for system-level redundancy • Stateful Switchover (SSO) with StackWise Virtual • In-Service Software Upgrades (ISSU) and Software Maintenance Upgrades (SMU)
Application hosting	Application hosting enables container-based applications to run directly on the switch, reducing the need for external infrastructure, with integrated compute resources that support on-box application deployment: • Enhanced X86-based multicore CPUs and DDR5 memory • Two 10G application ports • Local Solid-State Drive (SSD) storage for third-party Docker container-based application hosting

[1] C9550 models: Feature is not available at FHS, but it is hardware capable.

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Cisco IOS XE

Cisco IOS® XE is the operating system for the Cisco C9550 Series Smart Switches. It provides model-driven programmability with NETCONF, RESTCONF, and YANG, along with on-box Python scripting, streaming telemetry, and container-based application hosting. It supports in-service patching for critical bug fixes and includes built-in protection against runtime attacks.

IOS XE enables consistent operations across management models. It supports on-premises, cloud-based, and hybrid management out of the box, allowing teams to use one operating system across deployment environments.

Table 2. Cisco IOS XE key features and benefits

Simplified campus automation	Automate device discovery and configuration with a guided workflow. Identify network devices in a few steps and view configurations and software status at the port level through a graphical interface.
Automated device provisioning	Deploy switches without manual setup. Use plug-and-play and Preboot Execution Environment (PXE) to install software images and configuration files when switches are first deployed in the network.
API-driven configuration	Automate network operations using open APIs. Cisco IOS XE supports NETCONF and RESTCONF with YANG data models, enabling external tools to provision and manage network resources programmatically.
Granular network visibility	Stream telemetry data from the switch to monitoring systems using model-driven subscriptions. Collect selected data sets at defined intervals and monitor network performance in near real time to detect and resolve issues quickly.
Seamless software upgrades and patching	Maintain availability during updates. ISSU and SMU allow software updates without interrupting network operations. Cisco IOS XE also supports hot patching on the C9550 Series, enabling fixes for critical bugs and security vulnerabilities without requiring a system reboot.
Quantum-safe trust and integrity	Protect system integrity from boot to runtime. Cisco Trust Anchor module (TAm) technologies validate hardware and software authenticity, enforce Secure Boot, and prevent unauthorized modifications, reducing the risk of supply-chain and man-in-the-middle attacks.

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The Cisco C9550 Series Smart Switches come in both 1-Rack-Unit (1RU) and 2RU form factors. A fully assembled C9550 Series Smart Switch includes the fixed chassis, five modular fan units for 1RU and three modular fan units for 2RU, at least one field-replaceable power supply with the option to add a redundant power supply, and associated accessories.

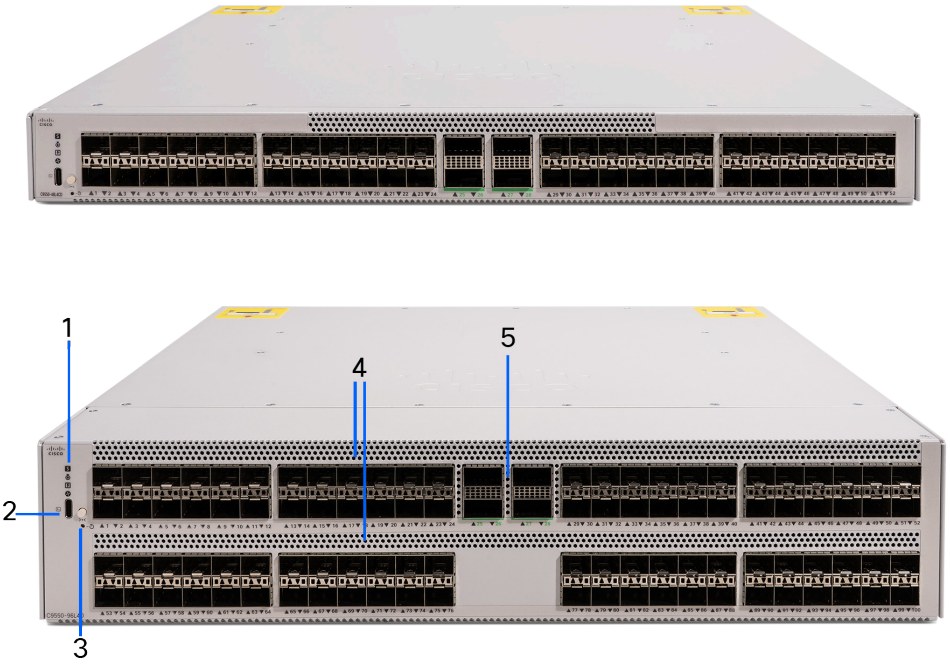


Figure 2. Front view of the Cisco C9550 Series Smart Switches

Table 3. Cisco C9550 front-panel components

Label	Description
1	System and status LEDs
2	USB Type C console port
3	Mode button
4	System air vents
5	4x uplink QSFP-DD ports

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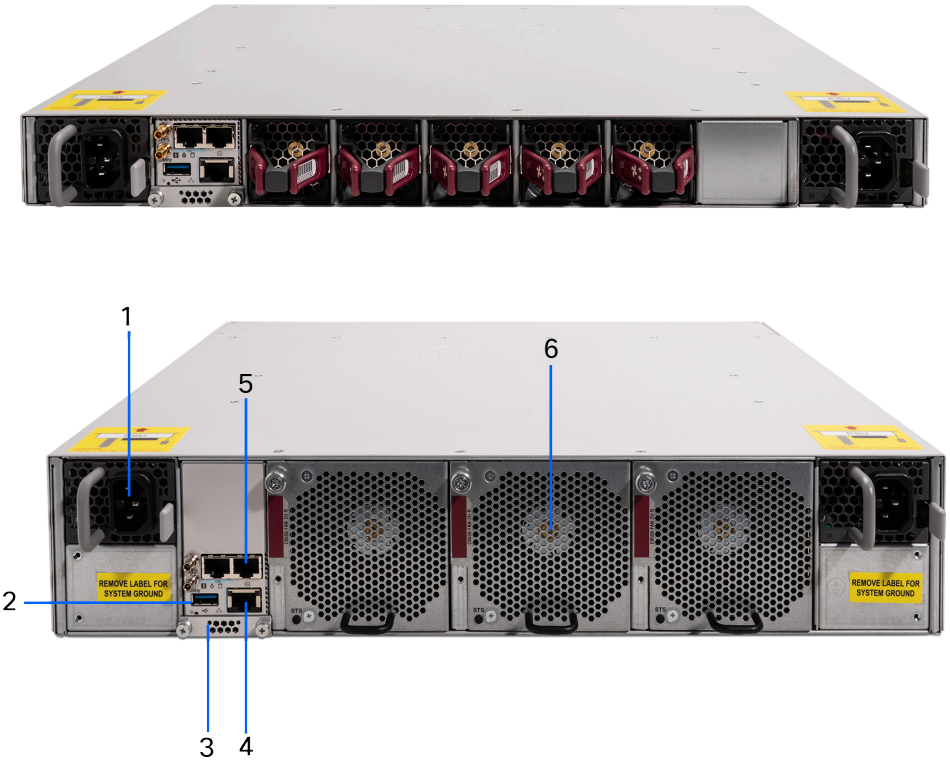


Figure 3. Rear view of the Cisco C9550 Series Smart Switches

Table 4. Cisco C9550 rear-panel components

Label	Description
1	Power supply modules
2	USB host port
3	SSD slot
4	RJ-45 MGMT port
5	RJ-45 CONSOLE port
6	Fan modules

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Chassis

The Cisco C9550 Series Smart Switches are fixed for enterprise core and aggregation deployments that require high port density and high-speed uplinks.

The platform provides:

- High-density 50/25/10/1G downlinks ports for access and aggregation
- 400/100/40G uplink ports for campus connectivity
- High density 100/40G ports for high-speed campus connectivity

The C9550 Series uses Cisco Silicon One K100, E100 and E104 ASICs and delivers up to 6.4 Tbps of throughput and up to 3.9 Billion packets per second (Bpps). The switches support:

- Up to 2M IPv4 routes
- Up to 128,000 MAC addresses
- Up to 256,000 hashable ternary content-addressable memory (HCAM) entries for scalable ACLs and NetFlow

These specifications enable large-scale segmentation, traffic analysis, and policy enforcement in enterprise networks.

For additional details on the Cisco Silicon One ASICs used in the C9550 Series, refer to the Cisco Silicon One Product Family White Paper.

Table 5. Chassis features

Feature	C9550 2RU chassis	C9550 1RU chassis
Maximum chassis bandwidth	6.4 Tbps (full duplex)	3.2 Tbps (full duplex)
Number of power supply bays	2	2
Minimum number of power supplies	1	1
Number of fan-tray bays	3	5

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Table 6. Chassis specifications

Description	Specifications				
SKU	C9550-24L4CD	C9550-48L4CD	C9550-32C	C9550-96L4D	C9550-64C-XL
Dimensions (H x W x D)	H = 1.73 in. (4.39 cm) W = 17.5 in. (44.45 cm) D = 18.15 in. (46.1 cm) including fan/ tray handles	H = 1.73 in. (4.39 cm) W = 17.5 in. (44.45 cm) D = 18.15 in. (46.1 cm) including fan/ tray handles	H = 1.73 in. (4.39 cm) W = 17.5 in. (44.45 cm) D = 20.03 in. (50.87 cm) including fan/tray handles	H = 3.47 in. (8.81 cm) W = 17.5 in. (44.45 cm) D = 17.85 in. (45.32 cm) including fan/tray handles	H = 3.47 in. (8.81 cm) W = 17.5 in. (44.45 cm) D = 17.85 in. (45.32 cm) including fan/tray handles
Rack units (RU)	1RU	1RU	1RU	2RU	2RU
Weight (chassis with 2 power supplies and built-in fan)	20.13 lb (9.15 kg) Weights separated: Chassis = 15.29 lb (6.95 kg) Each fan tray = 0.26 lb (0.12 kg) AC PSU = 1.76 lb (0.8 kg) DC PSU = 1.98 lb (0.9 kg)	20.79 lb (9.45 kg) Weights separated: Chassis = 15.95 lb (7.25 kg) Each fan tray = 0.26 lb (0.12 kg) AC PSU = 1.76 lb (0.8 kg) DC PSU = 1.98 lb (0.9 kg)	23.48 lb (10.65 kg) Weights separated: Chassis = 18.59lb (8.45 kg) Each fan tray = 0.26 lb (0.12 kg) AC PSU = 1.76 lb (0.8 kg) DC PSU = 1.98 lb (0.9 kg)	33.55 lb (15.25 kg) Weights separated: Chassis = 24.75 lb (11.25 kg) Each fan tray = 1.76 lb (0.8 kg) AC PSU = 1.76 lb (0.8 kg) DC PSU = 1.98 lb (0.9 kg)	35.42 lb (16.1 kg) Weights separated: Chassis = 26.62 lb (12.1 kg) Each fan tray = 1.76 lb (0.8 kg) AC PSU = 1.76 lb (0.8 kg) DC PSU = 1.98 lb (0.9 kg)
Input voltage	See Table 8	See Table 8	See Table 8	See Table 8	See Table 8
Operating temperature	-5° to +45°C (23° to 113°F) at sea level when using the C9550-FAN-1U-R -5° to +35°C (23° to 95°F) at sea level when using the C9550-FAN-1U-F	-5° to +45°C (23° to 113°F) at sea level when using the C9550-FAN-1U-R -5° to +35°C (23° to 95°F) at sea level when using the C9550-FAN-1U-F	-5° to +45°C (23° to 113°F) at sea level when using the C9550-FAN-1U-R -5° to +35°C (23° to 95°F) at sea level when using the C9550-FAN-1U-F	-5° to +45°C (23° to 113°F) at sea level when using the C9550-FAN-2U-R -5° to +35°C (23° to 95°F) at sea level when using the C9550-FAN-2U-F	-5° to +45°C (23° to 113°F) at sea level when using the C9550-FAN-2U-R -5° to +35°C (23° to 95°F) at sea level when using the C9550-FAN-2U-F

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Description	Specifications				
Altitude	If system is configured with a C9550-FAN-1U-R fan: -5° to +40°C (23° to 104°F) up to 6,000 feet (1800 m) -5° to +35°C (23° to 95°F) up to 10,000 feet (3000 m) If system is configured with a C9550-FAN-1U-F fan: -5° to +30°C (23° to 86°F) up to 6,000 feet (1800 m) -5° to +25°C (23° to 77°F) up to 10,000 feet (3000 m)	If system is configured with a C9550-FAN-1U-R fan: -5° to +40°C (23° to 104°F) up to 6,000 feet (1800 m) -5° to +35°C (23° to 95°F) up to 10,000 feet (3000 m) If system is configured with a C9550-FAN-1U-F fan: -5° to +30°C (23° to 86°F) up to 6,000 feet (1800 m) -5° to +25°C (23° to 77°F) up to 10,000 feet (3000 m)	If system is configured with a C9550-FAN-1U-R fan: -5° to +40°C (23° to 104°F) up to 6,000 feet (1800 m) -5° to +35°C (23° to 95°F) up to 10,000 feet (3000 m) If system is configured with a C9550-FAN-1U-F fan: -5° to +30°C (23° to 86°F) up to 6,000 feet (1800 m) -5° to +25°C (23° to 77°F) up to 10,000 feet (3000 m)	If system is configured with a C9550-FAN-2U-R fan: -5° to +40°C (23° to 104°F) up to 6,000 feet (1800 m) -5° to +35°C (23° to 95°F) up to 10,000 feet (3000 m) If system is configured with a C9550-FAN-2U-F fan: -5° to +30°C (23° to 86°F) up to 6,000 feet (1800 m) -5° to +25°C (23° to 77°F) up to 10,000 feet (3000 m)	If system is configured with a C9550-FAN-2U-R fan: -5° to +40°C (23° to 104°F) up to 6,000 feet (1800 m) -5° to +35°C (23° to 95°F) up to 10,000 feet (3000 m) If system is configured with a C9550-FAN-2U-F fan: -5° to +30°C (23° to 86°F) up to 6,000 feet (1800 m) -5° to +25°C (23° to 77°F) up to 10,000 feet (3000 m)
Storage temperature	-40° to 70°C (-40° to 158°F)	-40° to 70°C (-40° to 158°F)	-40° to 70°C (-40° to 158°F)	-40° to 70°C (-40° to 158°F)	-40° to 70°C (-40° to 158°F)
Relative humidity operating and nonoperating (noncondensing)	Relative humidity operating: 10% to 85% (noncondensing) Relative humidity nonoperating: 0% to 95% (noncondensing)	Relative humidity operating: 10% to 85% (noncondensing) Relative humidity nonoperating: 0% to 95% (noncondensing)	Relative humidity operating: 10% to 85% (noncondensing) Relative humidity nonoperating: 0% to 95% (noncondensing)	Relative humidity operating: 10% to 85% (noncondensing) Relative humidity nonoperating: 0% to 95% (noncondensing)	Relative humidity operating: 10% to 85% (noncondensing) Relative humidity nonoperating: 0% to 95% (noncondensing)
Mean Time Between Failures (MTBF)	339,040 hours	325,840 hours	292,620 hours	250,800 hours	211,880 hours

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Fan units

The Cisco C9550 Series Smart Switches are equipped with five 14,000 rpm fan modules on the 1RU models and three 34,000 rpm fan modules on the 2RU models. These fan tray units support N+1 redundancy and are field-replaceable, with the added flexibility to choose the direction of airflow (either front to back or back to front). Front-to-back fans are designated by a burgundy color, and back-to-front by a blue color.

Note: All C9550 fan units must be of the same type. Mix and match of fan trays are not supported.



Figure 4. Field-replaceable fan units for 1RU models



Figure 5. Field-replaceable fan units for 2RU model

Table 7. Fan modules

Model	Description
C9550-FAN-1U-R	C9550 1RU front to back cooling fan (maximum 5 per switch)
C9550-FAN-1U-F	C9550 1RU back to front cooling fan (maximum 5 per switch)
C9550-FAN-2U-R	C9550 2RU front to back cooling fan (maximum 3 per switch)
C9550-FAN-2U-F	C9550 2RU back to front cooling fan (maximum 3 per switch)

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Power supplies

The Cisco C9550 Series Smart Switches support dual power supplies with 1+1 redundancy. The switches ship with one power supply by default, and a second power supply can be purchased when the switch is ordered or at a later time. The 1RU models are powered by the 750W AC PSU, and the 2RU model is powered by the 1100W AC PSU.



Figure 6. 750W AC and 1100W AC power supplies

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Table 8. Power supply specifications

Power supply feature	C9K-PWR-750WAC	C9K-PWR-1100WAC
Power max rating	750W	1100W
Input voltage range and frequency	90 to 264VAC 47-63Hz	90 to 264VAC 47-63Hz
Power supply efficiency	94% (115VAC 50% load) 96% (230VAC 50% load)	94% (115VAC 50% load) 96% (230VAC 50% load)
Input current	9A (max) at VAC 100V 3.8A (max) at VAC 240V	12.8A (max) at VAC 100V 5.2A (max) at VAC 240V
Output ratings	Main output: 12V 62.5A Standby output: 3.3V 5A	Main output: 12V 92A Standby output: 3.3V 5A
Output holdup time	20 ms	20 ms
Power-supply input receptacles	AC IEC 60320 C16	AC IEC 60320 C16
Power cord rating	AC 10A	AC 15A
MTBF	7,937,420 hours	7,937,420 hours

Table 9. Total output in BTU for C9550 switches with AC PSU (Note: 1000 BTU/hr = 293W)

Model/Power supply	C9K-PWR-750WAC	C9K-PWR-1100WAC
C9550-24L4CD	1880 BTU	-
C9550-48L4CD	2000 BTU	-
C9550-32C	2200 BTU	-
C9550-96L4D	-	3200 BTU
C9550-64C-XL	-	3754 BTU

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Cisco C9550 Series models

The Cisco C9550 Series Smart Switches are fixed core and distribution switches designed for enterprise networks that require high port density and high-speed uplinks. The platforms support:

- Up to 96 ports of 50/25/10/1G access connectivity
- Up to 4 uplink ports of 400/100/40G
- Up to 64 100/40G ports for high-speed campus connectivity

Built on Cisco Silicon One K100, E100 and E104 ASICs, the switches provide predictable performance and support advanced features such as advanced programmability, telemetry, and on-box application hosting. An x86-based control plane enables automation and container-based services directly on the switch, reducing the need for external compute resources.

Cisco C9550-24L4CD



Figure 7. The Cisco C9550-24L4CD

C9550-24L4CD use cases

- The Cisco C9550-24L4CD is designed primarily for the core and distribution layers of small to medium-sized enterprise campus networks. It can also be used as a fabric border for small to medium-sized fabric networks.
- The C9550-24L4CD serves as a consolidation point for multiple 50/25/10/1G SFP access switches, aggregating traffic into a 400/100/40G QSFP high-bandwidth backbone.

C9550-24L4CD highlights

- The Cisco C9550-24L4CD control plane uses an AMD up to 3.8-GHz x86 CPU with four cores and 16 GB of DDR5 memory.
- Up to 960 GB of SATA SSD local storage for container-based application hosting.
- The C9550-24L4CD data plane is powered by a single Silicon One E104 ASIC, delivering up to 3.2 Tbps full duplex of throughput.
- Each E104 ASIC offers speeds up to 6.4 Tbps (3.2 Tbps full duplex) with up to 2.6 Bpps of forwarding performance.
- 64 MB of dedicated low-latency shared-memory system (SMS) buffer.
- ASIC tables for switching scale up to 64,000 MAC addresses and IP routing scale up to 512,000 routes.

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- IPv6 support in hardware provides wire-rate forwarding for IPv6 networks.
- Flexible routing (IPv4, IPv6, and multicast) tables, Layer 2 tables, ACL tables, and NetFlow tables.
- The C9550-24L4CD supports 24 ports of 50/25/10/1G as downlinks and four 100/40G or two 400G ports as fixed uplinks.
- Next-generation Cisco Smart Stacking with StackWise Virtual front-side stacking on all ports.

Cisco C9550-48L4CD



Figure 8. The Cisco C9550-48L4CD

C9550-48L4CD use cases

- The Cisco C9550-48L4CD is designed primarily for the core and distribution layers of medium-sized to large enterprise campus networks. It can also be used as a fabric border or aggregation for medium-sized to large fabric networks.
- The C9550-48L4CD serves as a consolidation point for multiple 50/25/10/1G SFP access switches, aggregating traffic into a 400/100/40G QSFP high-bandwidth backbone.

C9550-48L4CD highlights

- The Cisco C9550-48L4CD control plane uses an AMD up to 3.8-GHz x86 CPU with four cores and 16 GB of DDR5 memory.
- Up to 960 GB of SATA SSD local storage for container-based application hosting.
- The C9550-48L4CD data plane is powered by a single Silicon One E104 ASIC, delivering up to 3.2 Tbps full duplex of throughput.
- Each E104 ASIC offers speeds up to 6.4 Tbps (3.2 Tbps full duplex) with up to 2.6 Bpps of forwarding performance.
- 64 MB of dedicated low-latency SMS buffer.
- ASIC tables for switching scale up to 64,000 MAC addresses and IP routing scale up to 512,000 routes.
- IPv6 support in hardware provides wire-rate forwarding for IPv6 networks.
- Flexible routing (IPv4, IPv6, and multicast) tables, Layer 2 tables, ACL tables, and NetFlow tables.
- The C9550-48L4CD supports 48 ports of 50/25/10/1G as downlinks and four 100/40G or two 400G ports as fixed uplinks.
- Next-generation Cisco Smart Stacking with StackWise Virtual front-side stacking on all ports.

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Cisco C9550-32C



Figure 9. The Cisco C9550-32C

C9550-32C use cases

- The Cisco C9550-32C is designed primarily for the core and distribution layers of medium-sized to large enterprise campus networks. It can also be used as a fabric border or aggregation for medium-sized to large fabric networks.
- The C9550-32C serves as a consolidation point for multiple 100/40G QSFP access switches, aggregating traffic into a 100/40G QSFP high-bandwidth backbone.

C9550-32C highlights

- The Cisco C9550-32C control plane uses an AMD up to 3.8-GHz x86 CPU with four cores and 16 GB of DDR5 memory.
- Up to 960 GB of SATA SSD local storage for container-based application hosting.
- The C9550-32C data plane is powered by a single Silicon One E104 ASIC, delivering up to 3.2 Tbps full duplex of throughput.
- Each E104 ASIC offers speeds up to 6.4 Tbps (3.2 Tbps full duplex) with up to 2.6 Bpps of forwarding performance.
- 64 MB of dedicated low-latency SMS buffer.
- ASIC tables for switching scale up to 64,000 MAC addresses and IP routing scale up to 512,000 routes.
- IPv6 support in hardware provides wire-rate forwarding for IPv6 networks.
- Flexible routing (IPv4, IPv6, and multicast) tables, Layer 2 tables, ACL tables, and NetFlow tables.
- The C9550-32C supports 32 ports of 100/40G.
- Next-generation Cisco Smart Stacking with StackWise Virtual front-side stacking on all ports.

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Cisco C9550-96L4D

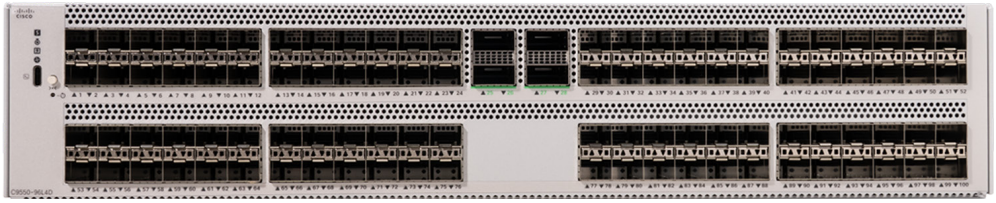


Figure 10. The Cisco C9550-96L4D

C9550-96L4D use cases

- The Cisco C9550-96L4D is designed primarily for the edge, core, and distribution layers of very large enterprise campus networks. It can also be used as a fabric border or aggregation for large fabric networks, or for campus edge or gateway (internet) deployments that require high IPv4 or IPv6 route scale.
- The C9550-96L4D serves as a double-size consolidation point for multiple 50/25/10/1G SFP access switches, aggregating traffic into a 400/100/40G QSFP high-bandwidth backbone.

C9550-96L4D highlights

- The Cisco C9550-96L4D control plane uses an AMD 3.3-GHz x86 CPU with eight cores and 32 GB of DDR5 memory.
- Up to 960 GB of SATA SSD local storage for container-based application hosting.
- The C9550-96L4D data plane is powered by a single Silicon One E100 ASIC, delivering up to 6.4 Tbps full duplex of throughput.
- Each E100 ASIC offers speeds up to 12.8 Tbps (6.4 Tbps full duplex) with up to 3.9 Bpps of forwarding performance.
- 64 MB of dedicated low-latency SMS buffer.
- ASIC tables for switching scale up to 128,000 MAC addresses and IP routing scale up to 1M routes.
- IPv6 support in hardware provides wire-rate forwarding for IPv6 networks.
- Flexible routing (IPv4, IPv6, and multicast) tables, Layer 2 tables, ACL tables, and NetFlow tables.
- The C9550-96L4D supports 96 ports of 50/25/10/1G as downlinks and four ports of 400/100/40G as fixed uplinks.
- Next-generation Cisco Smart Stacking with StackWise Virtual front-side stacking on all ports.

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Cisco C9550-64C-XL



Figure 11. The Cisco C9550-64C-XL

C9550-64C-XL use cases

- The Cisco C9550-64C-XL is designed primarily for the edge, core, and distribution layers of very large enterprise campus networks. It can also be used as a fabric border or aggregation for large fabric networks, or for campus edge or gateway (internet) deployments that require high IPv4 or IPv6 route scale.
- The C9550-64C-XL serves as a double-size consolidation point for multiple 100/40G QSFP access switches, aggregating traffic into a 100/40G QSFP high-bandwidth backbone.

C9550-64C-XL highlights

- The Cisco C9550-64C-XL control plane uses an AMD 3.3-GHz x86 CPU with eight cores and 32 GB of DDR5 memory.
- Up to 960 GB of SATA SSD local storage for container-based application hosting.
- The C9550-64C-XL data plane is powered by a single Silicon One K100 ASIC, delivering up to 6.4 Tbps full duplex of throughput.
- Each K100 ASIC offers speeds up to 12.8 Tbps (6.4 Tbps full duplex) with up to 3.9 Bpps of forwarding performance.
- 64MB of dedicated low-latency buffer with up to 8GB of HBM buffer per K100 ASIC.
- ASIC tables for switching scale up to 128,000 MAC addresses and IP routing scale up to 2M routes.
- IPv6 support in hardware provides wire-rate forwarding for IPv6 networks.
- Flexible routing (IPv4, IPv6, and multicast) tables, Layer 2 tables, ACL tables, and NetFlow tables.
- The C9550-64C-XL supports 64 ports of 100/40G.
- Next-generation Cisco Smart Stacking with StackWise Virtual front-side stacking on all ports.

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Software features

Cisco IOS XE, running on the Cisco C9550 Series Smart Switches, delivers a robust, scalable, and secure platform tailored for the modern hybrid workplace. The C9550 Series supports advanced Layer 2 and Layer 3 forwarding capabilities, increased forwarding and access control scale, and hardware-based encryption, delivering high performance and security for the modern enterprise campus.

Table 10. IOS XE feature highlights for the Cisco C9550 Series Smart Switches

Feature	C9550
Cisco StackWise Virtual	✓
Stateful switchover (SSO) with StackWise Virtual	✓
In-service software upgrades (ISSU)	✓
Enterprise security	✓
Enterprise quality of service	✓
Layer 2 switching	✓
IP routing	✓
IP multicast routing	✓
IPv6 routing	✓
IPv6 multicast routing	✓
Software-Defined Access (SD-Access)	✓
Border Gateway Protocol (BGP) Ethernet VPN (EVPN)	✓
Flexible NetFlow (FNF)	✓
Programmability	✓
Out-of-band management	✓
Minimum software requirement	IOS XE Release 26.2.1

For a detailed list of the latest software features available on the Cisco C9550 Series Smart Switches per Cisco IOS XE release, please refer to the Cisco Feature Navigator tool.

For a detailed list of the software features available in each license, please refer to the Unified Licensing section below, or visit the Cisco Switching Licensing Feature Matrix.

Get more from your Cisco C9550 Series Smart Switch with the Cisco Identity Services Engine (ISE).

Compare platforms, determine common features between products, and identify unique product features. Access Cisco Feature Navigator.

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Performance and scalability

The Cisco C9550 Series Smart Switches powered by the Silicon One K100, E100 and E104 ASICs, deliver up to 6.4 Tbps throughput, offering scalable performance and high-density connectivity.

Table 11. Performance and scalability features

Feature	Cisco C9550 K100 model	Cisco C9550 E100 model	Cisco C9550 E104 models
Model	C9550-64C-XL	C9550-96L4D	C9550-48L4CD, C9550-32C, C9550-24L4CD
ASICs	1x K100	1x E100	1x E104
System switching	Up to 6.4 Tbps	Up to 6.4 Tbps	Up to 3.2 Tbps
ASIC switching capacity	6.4 Tbps	6.4 Tbps	3.2 Tbps
Forwarding rate	Up to 3.9 Bpps	Up to 3.9 Bpps	Up to 2.6 Bpps
CPU	AMD X86 3.3 GHz 8-core	AMD X86 3.3 GHz 8-core	AMD X86 up to 3.8 GHz 4-core
DRAM	32 GB	32 GB	16 GB
Flash	18 GB	18 GB	18 GB
SSD capacity	Up to 960 GB	Up to 960 GB	Up to 960 GB
App-hosting DRAM allocation	Up to 8 GB	Up to 8 GB	Up to 4 GB
App-hosting CPU allocation	Up to 4 vCPUs	Up to 4 vCPUs	Up to 2 vCPUs
App hosting AppGig ports	2x 10G	2x 10G	2x 10G
VLAN IDs	4094	4094	4094
Active VLANs	4094	4094	4094
Per-VLAN Spanning Tree (PVST) instances	4094	4094	4094
Spanning Tree Protocol (STP) virtual ports (Port*VLANs) for PVST	32,000	32,000	32,000

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Feature	Cisco C9550 K100 model	Cisco C9550 E100 model	Cisco C9550 E104 models
STP virtual ports (Port*VLANs) for Multiple Spanning Tree (MST)	100,000	100,000	100,000
Switched virtual interfaces (SVIs)	4000	4000	4000
Jumbo frames	9216	9216	9216
Total number of MAC addresses	128,000	128,000	64,000
Total number of IPv4 routes	2,000,000	1,000,000	512,000
Total number of IPv6 routes	1,000,000	500,000	256,000
Address Resolution Protocol (ARP) entries	128,000	128,000	64,000
Neighbor Discovery Protocol (NDP) entries	128,000	128,000	64,000
Internet Group Management Protocol (IGMP)/ Multicast Listener Discovery (MLD) snooping entries	8,000	8,000	8,000
Multicast routes	32,000	16,000	16,000
QoS ACL scale (IPv4/ IPv6)	8,000	5,000	5,000
Security ACL scale (IPv4/IPv6)	36,000 ingress and 36,000 egress	21,000 ingress and 21,000 egress	21,000 ingress and 21,000 egress
NetFlow entries (IPv4/IPv6)	64,000 ingress and 64,000 egress	32,000 ingress and 32,000 egress	32,000 ingress and 32,000 egress
Packet buffer	8GB (HBM) + 64MB (SMS)	64 MB	64 MB

[1] Multiple security ACL types are supported. Only the first type can use the expanded scale.

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Table 12. Bandwidth specifications

SKU	ASIC	System bandwidth (Tbps)	Forwarding rate (Bpps)
C9550-24L4CD	E104	Up to 2.4	Up to 2.6
C9550-48L4CD	E104	Up to 3.2	Up to 2.6
C9550-32C	E104	Up to 3.2	Up to 2.6
C9550-96L4D	E100	Up to 6.4	Up to 3.9
C9550-64C-XL	K100	Up to 6.4	Up to 3.9

Switch Device Manager (SDM) templates

Cisco C9550 Series Smart Switches use flexible SDM ASIC templates to enable universal deployments by leveraging the ASIC's ability to flexibly allocate resources to optimize table sizes for different places in the network.

Based on how the switch is used in the network, an appropriate standard ASIC SDM template may be configured for specific features. The Cisco C9550 Series Smart Switches support the following ASIC SDM templates:

- Standard SDM templates: These are predefined (static) templates based on the primary requirements for specific places in the network.
  - This includes the "default" SDM template, which is available without configuration. The default SDM template for the Cisco C9550 Series is the "core" template.

Default ASIC SDM template

The following table describes the default ASIC SDM (core) template for the C9550 Series Smart Switches.

Table 13. ASIC SDM template descriptions

Features	C9550-64C-XL	C9550-96L4D	C9550-48L4CD, C9550-32C, C9550-24L4CD
MAC addresses	128,000	128,000	64,000
IP host routes[1]	128,000	128,000	80,000
IP LPM routes[1]	2,000,000	1,000,000	512,000
IP multicast routes[1]	32,000	16,000	16,000

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Features	C9550-64C-XL	C9550-96L4D	C9550-48L4CD, C9550-32C, C9550-24L4CD
IGMP/MLD snooping[1]	16,000	8,000	8,000
MPLS VPN labels[2]	64,000	64,000	64,000
Security/object groups	24,000	24,000	24,000
NetFlow entries[1]	64,000 ingress, 64,000 egress	32,000 ingress, 32,000 egress	32,000 ingress, 32,000 egress
Security ACLs[1]	36,000 ingress,	21,000 ingress,	21,000 ingress,
	36,000 egress	21,000 egress	21,000 egress
QoS ACLs[1]	8000 ingress, 8000 egress	5000 ingress, 5000 egress	5000 ingress, 5000 egress
Policy-based routing (PBR)[1]	8000	8000	8000
Generic Routing Encapsulation (GRE) tunnels	1000	1000	1000

[1] IPv4 and IPv6 entries coexist in the same tables, but IPv6 entries require two entries.

[2] Feature is not available at FHS but will be available in future software releases.

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Management

The ability to manage these devices from the cloud brings enhanced scalability, flexibility, and efficiency through central configuration management, monitoring, and troubleshooting. Users opting to leverage the cloud-native capabilities of IOS XE retain advanced control from the cloud through the implementation of Cloud CLI to access read and write commands based on their selected operating mode.

Unified experience

The Cisco C9550 Series Smart Switches deliver a seamless onboarding experience to the management mode of your choice, allowing you to select the management options that best match your operational needs.

Cloud management via the Meraki dashboard

The Cisco Meraki™ dashboard is a cloud-native network management platform that streamlines the provisioning, configuration, and monitoring of your Cisco C9550 Series Smart Switches while reducing IT overhead. Through the guided onboarding workflow, you can choose the operating mode that fits your needs.

1. **Configuration source: Cloud:** Full cloud-managed provisioning and monitoring plus read-only Cloud CLI terminal for advanced troubleshooting via the Meraki dashboard. For details on cloud management with the cloud configuration, see Configuration: Cloud in the Cloud Management with IOS XE Overview.
2. **Configuration source: Device:** Configuration through console, Secure Shell (SSH), or Command-Line Interface (CLI), complemented by centralized monitoring and the read/write Cloud CLI terminal via the Meraki dashboard. For details on cloud management with the device configuration, see Configuration: Device in the Cloud Management with IOS XE Overview.

The Cisco Meraki dashboard also supports inventory and license management for the Cisco C9550 Series Smart Switches without fully onboarding them for cloud or device configuration.

On-premises management[1]

Cisco Catalyst™ Center, formerly Cisco DNA Center, is a powerful on-premises network controller and management dashboard that empowers you to take charge of your network, optimize your Cisco investment, and lower your IT spending. Catalyst Center provides a single dashboard for every fundamental management task to simplify running your network. With this platform, IT can respond to changes and challenges faster and more intelligently.

Catalyst Center provides coverage for Cisco enterprise switching, routing, and mobility products.
For a complete list of Cisco products supported, please see our compatibility matrix, which is updated regularly.

For more information on Catalyst Center support, see the webpage.

[1] Available in a future release.

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Licensing

Unified licensing

Unified licensing in a Cisco Networking Subscription or an Enterprise Agreement is available for the Cisco C9550 Series Smart Switches.

To learn more about the Cisco Networking Subscription, go to the data sheet.

Cisco Smart Accounts

Licenses are managed on-premises through Cisco Smart Accounts. For a more detailed overview on licensing, go to the Cisco Licensing Hub.

Creating Smart Accounts using the Cisco Smart Software Manager (SSM) enables you to order devices and licensing packages and manage your software licenses from a centralized website. You can set up Cisco SSM to receive daily email alerts and to be notified of expiring add-on licenses.

Cisco Smart Licensing is a flexible licensing model that provides you with an easier, faster, and more consistent way to purchase and manage software across the Cisco portfolio and across your organization. And it is secure—you control what users can access.

Cisco Enterprise Agreements

The Cisco Enterprise Agreement (EA) is a flexible licensing solution that simplifies the purchase, management, and deployment of Cisco technologies.

By combining multiple Cisco software products and services into one agreement, the EA provides easy access to a wide range of products, including networking, security, collaboration, and data center solutions.

This approach reduces administrative tasks, offers predictable costs, and allows for scalability and adaptability. With the flexibility of the Cisco EA, organizations can drive digital transformation and innovation while maintaining control over their IT investments. For more information, go to the Cisco Enterprise Agreement webpage.

Migration essentials

Customer stories

Read, hear, and watch what our customers have to say about how Cisco technology is pushing the limits to bring better, more secure outcomes for them and those they serve.

See what customers are saying

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Trials and offers

To connect with a Cisco sales expert, build your own estimate, or find a partner, visit our How to Buy hub.

Ordering information

The following section lists the ordering information for switches and accessories that are commonly used with the Cisco C9550 Series Smart Switches.

For a detailed overview of the ordering process, please visit the Cisco C9550 Series Smart Switches Ordering Guide.

We recommend working with a Cisco partner to purchase.

- Contact sales
- Find a partner
- Create an estimate

Warranty

The following table provides information about the Cisco C9550 Series product warranty.

Table 14. Limited Lifetime Warranty (LLW) details

Description	Cisco LLW
Devices covered	Applies to Cisco C9550 Series Smart Switches.
Warranty duration	As long as the original customer owns the product.
End-of-life policy	In the event of discontinuance of product manufacture, Cisco warranty support is limited to five (5) years from the announcement of discontinuance.
Hardware replacement	Cisco or its service center will use commercially reasonable efforts to ship a replacement part to the customer's address of record on the next business day after issuance of a valid RMA request. Actual delivery times may vary depending on customer location. Taxes and duties may apply and will be borne by the recipient of the replacement part.
Effective date	The hardware warranty commences from the date of shipment to customer (and in case of resale by a Cisco reseller, not more than 90 days after original shipment by Cisco).
Cisco.com access	Warranty allows guest access only to Cisco.com.

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Sustainability profile

Cisco is embedding sustainability into the product lifecycle, from manufacturing to end of use. Designed with consideration for Cisco Circular Design Principles, our products feature both individual and portfolio-wide programs and innovations, including those that address efficient architecture design, power consumption, energy management, packaging sustainability, and takeback. These elements are pivotal in reducing operational costs and advancing net-zero Greenhouse Gas (GHG) emissions targets and other sustainability-related ambitions.

Information about Cisco Environmental, Social, and Governance (ESG) initiatives and performance is available in the Cisco Purpose Reporting Hub. Information regarding Cisco's compliance with applicable environmental laws and regulations is available in the Environmental Standards and Compliance section.

Table 15. Sustainability references

Sustainability topic	Description	
Energy management	Catalyst Center dashboard	The Catalyst Center dashboard offers comprehensive energy management capabilities, allowing users to monitor energy usage, energy mix, costs, and greenhouse gas emissions in real time. Available beginning with Release 3.1.3. Catalyst Center release notes
Ecolabels	80 PLUS Platinum/ Titanium certified Power Supply Units (PSUs)	Cisco C9550 Series Smart Switches support high-efficiency power supply units. 80 PLUS Platinum certified PSUs offer up to 94% efficiency at 50% load, and Titanium PSUs reach up to 96% efficiency at 50% load at 230V input. Power supply units
Materials, modularity, and reuse	Hardware standardization and modularity	Cisco C9550 Series Smart Switches use standard subassemblies and common modular components across products to streamline production and enhance reusability, repairability, and upgradability.
	Simplified architecture	Cisco C9550 Series Smart Switches offer a simplified architecture by consolidating multiple discrete ASIC/NPU components into a central System-on-Chip (SoC) architecture, providing multiple functions in a more integrated design.

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Sustainability topic	Description	
	Recycled content	Cisco C9550 Series Smart Switches contain up to 75% post-consumer recycled content in Cisco designed plastic components.
	Powder-coat finish	Cisco C9550 Series Smart Switches use a powder-coating finish. In comparison to wet paints, a powder-coating finish reduces the amount of harmful solvents used and the amount of Volatile Organic Compounds (VOCs) emitted during the painting process.
	Bezel-free design	Cisco C9550 Series Smart Switches use a bezel-free design, reducing plastic usage.
	Cisco Takeback and Reuse Program	This program allows customers to return used equipment for responsible reuse and recycling. Takeback and Reuse Program
	Cisco Refresh	This program offers certified remanufactured and refurbished products, providing cost-effective alternatives to new equipment. Cisco Refresh
Packaging	Reduction of single-use plastic bags	The Cisco C9550 Series Smart Switches Accessory Kit (C9550ACC-KIT) is packaged with fiber-based materials (except for components prone to rusting), reducing the number of single-use plastic bags.
	Foam reduction	Expanded foam end caps used in packaging hardware are now replaced with recycled HDPE thermoform cushioning end caps (made of at least 50% post-consumer recycled content) or fiber-based cushions (product ID dependent). Circular economy and packaging sustainability
	Accessory opt-out	Accessory opt-out helps reduce materials use and waste by allowing customers to select whether to include the accessory kit. A 19-inch rack mount is the only mandatory accessory.

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Sustainability topic	Description	
General	Environmental impact reports	The Cisco environmental impact reports page provides detailed lifecycle assessments, information about product carbon footprints, and other data to help users understand the environmental impact of Cisco hardware. Environmental Impact Reports
	Sustainability inquiries	Contact this alias for questions and information related to Cisco's general and product-specific sustainability initiatives. csr_inquiries@cisco.com
	Cisco policies, positions, and guides	Links to select Cisco environmental sustainability policies, positions, and guides are provided in the "Policies, positions, and guides" section of the Cisco Purpose Reporting Hub. Policies, positions, and guides
	Cisco Green Pay	This page provides an overview of Cisco Green Pay, a financing program aimed at promoting more sustainable technology adoption by providing flexible payment options. Green Pay

The information presented in this data sheet is based on the most accurate and reliable information available at the time of publication. This information should not be interpreted as a definitive, exhaustive, or permanent representation of product performance or features. This information may be subject to future updates as new data becomes available.

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Safety and compliance

Chassis

The table below lists the safety and compliance information for the Cisco C9550 Series Smart Switch chassis.

Table 16. Chassis safety and compliance information

Specification	Description
Regulatory compliance	Products comply with CE Markings according to directives 2014/30/EU and 2014/35/EU
Safety	AS/NZS 62368.1 ANSI/ UL 60950-1 CAN/ CSA-C22.2 No. 60950-1 CAN/ CSA-C22.2 No. 62368-1 ANSI/ UL 62368-1 EN/ IEC 62368-1 CNS 15598
EMC: Emissions	CISPR32 EN 55032 EN 61000-3-3 EN IEC 61000-3-2 EN 300 386 V2.1.23 47 CFR FCC Part 15 ICES-003 Issue 7 KS C 9832 VCCI-CISPR 32 CNS 15936 TEC 11016:2016_TEC/SD/DD/EMC-221/05/OCT-16

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Specification	Description
EMC: Immunity	CISPR35 EN 55035 EN IEC 61000-6-1 EN IEC 61000-6-2 EN 300 386 V2.1.23 KS C 9835 TEC 11016:2016_TEC/SD/DD/EMC-221/05/OCT-16
RoHS	The product is RoHS 6 compliant with exceptions for leaded Ball Grid Array (BGA) balls and lead press fit connectors.

Document History

New or revised topic	Described in	Date
Document created	Data sheet	June 2, 2026
Revision	Data sheet	August 17, 2026

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Time to switch it up

Cisco Capital	Cisco Capital® flexible payment solutions offer choices so you get the tech you need and the business outcomes you want.
Explore Cisco Capital	https://www.cisco.com/site/us/en/buy/payment-solutions/index.html
Find a partner	Solve your business challenges by finding a Cisco partner authorized to design, sell, and support custom solutions.
Meet our partners	https://www.cisco.com/site/us/en/partners/connect-with-a-partner/index.html
Community	The Cisco Community is an active and collaborative place to learn more about our products and ask questions of peers and Cisco experts.
Join the community	https://community.cisco.com/
Cisco Services	Transform with more ease and less risk while making sure your technology delivers tangible business value.
Browse Cisco Services	https://www.cisco.com/site/us/en/services/index.html

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