Cisco 8600 Series Secure Routers

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Overview

The Cisco® 8600 Series Secure Routers deliver a robust and streamlined foundation for modern enterprise networking, supporting high-capacity VPN aggregation and high-density connectivity for large-scale, data-intensive operations and AI workloads. Powered by the third-generation Cisco QuantumFlow Processor® Application-Specific Integrated Circuit (ASIC) for high throughput and scale, the routers have security embedded directly into the hardware, providing seamless, high-performance protection that keeps businesses ahead of evolving threats. With the Cisco 8600 Series, enterprises can confidently scale their infrastructure and stay agile in an ever-changing digital landscape.

Platform highlights

Purpose-built for data center and colocation environments, the Cisco 8600 Series Secure Routers offer massive scalability and granular traffic optimization. With support for high-throughput workloads, physical guardrails, and advanced automation, the 8600 Series helps ensure that your data center infrastructure remains fast, secure, and future ready for exponential growth and evolving demands.

Use cases

- Large-scale VPN aggregation for 100 Gigabit Ethernet (GE) deployments
- Multi-100GE internet peering
- Secure interconnects between data centers and clouds

Key features and benefits

Hardware-accelerated security and networking:

- Four dedicated QuantumFlow Processor ASICs for fast cryptography and deep packet inspection
- Hardware acceleration helps ensure high throughput and scale

Secure networking with Post-Quantum Cryptography (PQC) readiness:

- Future-ready security with advanced quantum-resistant encryption

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Models and specifications

- The Cisco 8600 Series Secure Routers are built for high-scale data center and colocation deployments. The Cisco 8650-G2 provides 20x 10GE ports and 6x 100GE ports.

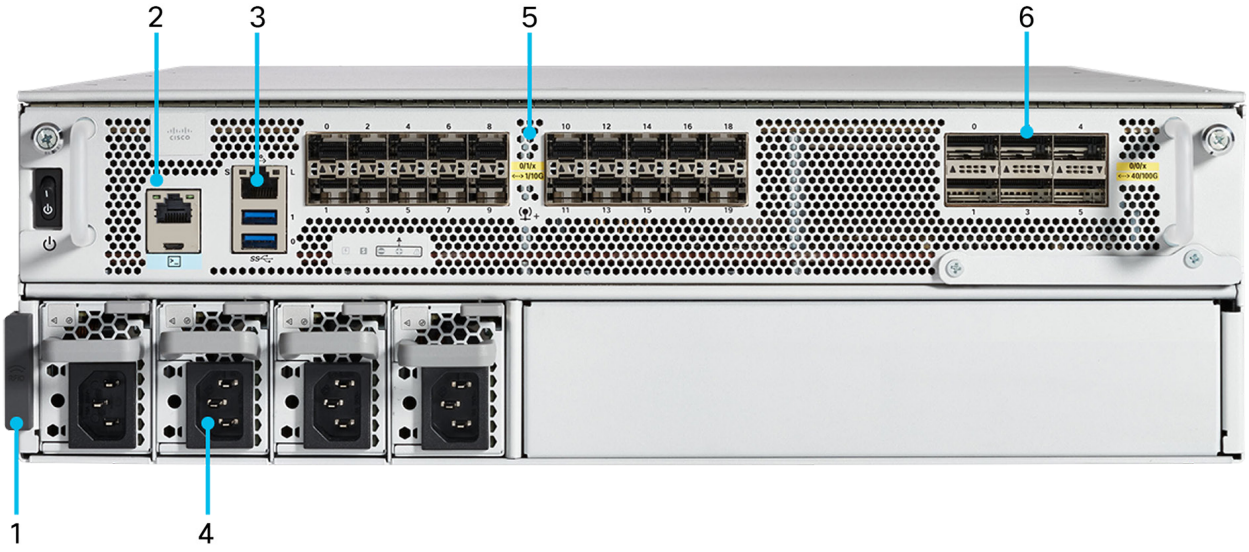


Figure 1. Front view of a Cisco 8650-G2 Secure Router

Table 1. Descriptions of front panel of Cisco 8650-G2 Secure Router

Label	Description
1	RFID
2	Console RJ-45/Micro-USB port
3	Management RJ-45 port and USB 3.0 interfaces
4	AC or DC power supplies (N+2 redundancy)
5	20x 1/10GE SFP+ ports
6	6x 40/100GE QSFP28 ports

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Table 2. Technical specifications

	Cisco 8650-G2 Secure Router
WAN ports	20x 1/10GE (SFP+) 6x 40/100GE (QSFP28)
WAN/LAN MACsec	Supported on all built-in ports
Management port	1x RJ-45 Out-Of-Band (OOB) management 1x RJ-45/1x Micro-USB Console
DRAM	64 GB (default)
Storage	480 GB (default)
Power supply	1100W AC 950W DC

Table 3. Throughput and scale

	Cisco 8650-G2 Secure Router
Throughput	
Forwarding (512B)	Up to 540 Gbps
IPsec (512B)	Up to 225 Gbps
SD-WAN* (512B)	Up to 80 Gbps
Scale	
IPv4/IPv6 routes	16M
SD-WAN IPsec tunnels	12,000
IPv4 Access Control Lists (ACLs)	4000
IPv4 Access Control Entries (ACEs)	380,000
Network Address Translation (NAT) sessions	32M
Virtual Route Forwarding (VRF) instances	8000

* SD-WAN feature combination: IPsec + Quality of Service (QoS) + Deep Packet Inspection + Flexible NetFlow

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Table 4. Physical specifications

	Cisco 8650-G2 Secure Router
Dimensions (H x W x D)	5.22 x 17.25 x 26.85 in. (13.26 x 43.81 x 68.20 cm)
Rack Units (RU)	3 RU
Chassis weight with power supplies	77.5 lb (35.15 kg) (4x AC) 75 lb (34.02 k) (3x AC)
Operating temperature	32° to 104°F (0° to 40°C)
Storage temperature	-40° to 150°F (-40° to 65.5°C)
Relative humidity	Operating: 10% to 85% Nonoperating and storage: 5% to 95%
NEBS criteria levels	GR-1089 and GR-63
Altitude	-500 to 10,000 feet (-152 to 3048 meters)

Software management

Software

The minimum Cisco IOS® XE release versions for the Cisco 8600 Series Secure Routers are listed in the table below.

Table 5. Minimum software releases

	Device OS	Cisco Catalyst™ SD-WAN Manager
Cisco C8650-G2	IOS XE Release 26.1.2 and later	SD-WAN Release 26.1.2 and later

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Ordering information

For a detailed overview of the ordering process, please visit the Cisco 8000 Series Secure Routers Ordering Guide.

Warranty

Cisco 8600 Series Secure Routers come standard with a Cisco Limited 2-Year Return to Factory Hardware Warranty. For more information, refer to: https://www.cisco.com/c/en/us/products/warranties/warr-2yr-ltd-hw.html.

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's Environmental, Social, and Governance (ESG) initiatives and performance is available in Cisco's Purpose Reporting Hub.

Table 6. Sustainability references

Sustainability topic		Description
Energy management	Energy Management dashboard	The Energy Management dashboard on the Cisco Catalyst SD-WAN Manager offers comprehensive energy management capabilities, allowing users to monitor energy usage, energy mix, costs, and greenhouse gas emissions in real time. Energy Management
	Environmental monitoring configuration	The environmental monitoring chapter in the System Management Configuration Guide provides guidelines for configuring monitoring of environmental conditions of chassis components.
Ecolabels	80 PLUS Platinum Certified power Supply Units (PSUs)	Cisco 8600 Series Secure Routers support high-efficiency power supply units. 80 PLUS Platinum Certified PSUs offer up to 94% efficiency at 50% load.

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Sustainability topic		Description
Materials, modularity, and reuse	Hardware standardization and modularity	Cisco 8600 Series Secure Routers use standard subassemblies and common components across products to streamline production and enhance repairability and upgradability.
	Simplified architecture	Cisco 8600 Series Secure Routers offer a simplified architecture by consolidating multiple discrete ASIC/NPU components into a central System-on-Chip (SoC) architecture, providing multiple discrete functions in a more integrated design.
	Powder-coat finish	Cisco 8600 Series Secure Routers use a powder-coating finish instead of oil-based wet paint. This finish reduces the amount of harmful solvents used and Volatile Organic Compounds (VOCs) emitted during the painting process.
	Bezel-free design	Cisco 8600 Series Secure Routers use a bezel-free design, reducing plastic usage.
	Cisco Takeback and Reuse Program	This program allows customers to return used equipment for responsible recycling and reuse. Takeback and Reuse Program
	Cisco Refresh Program	This program offers certified remanufactured products, providing cost-effective alternatives to new equipment. Cisco Refresh Program
	Foam reduction	Cisco 8600 Series Secure Routers are packaged with corrugated and fiber flute materials, containing minimum 25% post-consumer recycled content. Circular economy and packaging sustainability
	Accessory opt-in	Accessory opt-in allows customers to select whether to include the accessory kit. Not including the kit results in using fewer materials and reducing waste. The default is now to omit the accessory kit unless it is required.

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Sustainability topic		Description
Regulatory compliance	Environmental compliance	Information regarding Cisco compliance with applicable environmental laws and regulations is available at the Environmental Compliance section of Cisco's Purpose Reporting Hub. Environmental compliance
	Product Approvals Status (PAS)	Information regarding the certification status for given Cisco products in certain countries is available at Cisco's self-service PAS database. PAS database
	Product-related materials compliance	This page addresses Cisco's position regarding relevant product-related materials legislation, such as Restriction of Hazardous Substances (RoHS) and Registration, Evaluation, Authorization, and Restriction of Chemicals (REACH). RoHS and REACH
	Waste Electrical and Electronic Equipment (WEEE), battery, and packaging compliance	This page discusses Cisco's position regarding relevant product-related legislation on recycling, battery, and packaging. WEEE, battery, and packaging
	Cisco packaging materials and codes	This table provides material identification for packaging used for Cisco products. Packaging materials and codes
General	Sustainability inquiries	For ESG or CSR inquiries, please contact your Cisco account team.
	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 Cisco's 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

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Appendix

Safety and compliance

Chassis

The table below lists the safety and compliance information for the Cisco 8600 Series Secure Routers chassis.

Table 7. Chassis safety and compliance information

Safety and certifications	EMI and EMC compliance
• UL 60950-1 • CAN/CSA-C22.2 No. 60950-1 • EN 60950-1 • IEC 60950-1 • AS/NZS 60950-1 • GB4943	• 47 CFR Part 15 Class A • ICES 003 Class A • AS/NZS CISPR 32 Class A • CISPR 22/CISPR 32 Class A • EN55022/EN55032 Class A • VCCI Class A • KN32 Class A • IEC/EN 61000-3-2: Power Line Harmonics • IEC/EN 61000-3-3: Voltage Fluctuations and Flicker • IEC/EN-61000-4-2: Electrostatic Discharge Immunity • IEC/EN-61000-4-3: Radiated Immunity • IEC/EN-61000-4-4: Electrical Fast Transient Immunity • IEC/EN-61000-4-5: Surge AC, DC, and Signal Ports • IEC/EN-61000-4-6: Immunity to Conducted Disturbances • IEC/EN-61000-4-11: Voltage DIPS, Short Interruptions, and Voltage Variations • KN35 • EN300 386: Telecommunications Network Equipment (EMC) • EN55022: Information Technology Equipment (Emissions) • EN55032: Multimedia Equipment (Emissions) • EN55024: Information Technology Equipment (Immunity) • EN55035: Multimedia Equipment (Immunity) • EN50082-1/EN-61000-6-1: Generic Immunity Standard

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Document history

New or revised topic	Described in	Date
Document created	8600 Series Secure Router data sheet	June 2, 2026

Next steps

Cisco Capital

Cisco Capital® flexible payment solutions offer choices so you get the tech you need and the business outcomes you want.

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Find a partner

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The documentation set for this product strives to use bias-free language. For the purposes of this documentation set, bias-free is defined as language that does not imply discrimination based on age, disability, gender, racial identity, ethnic identity, sexual orientation, socioeconomic status, and intersectionality. Exceptions may be present in the documentation due to language that is hardcoded in the user interfaces of the product software, language used based on RFP documentation, or language that is used by a referenced third-party product. Learn more about how Cisco is using inclusive language.

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