

# Cisco 8800 Series Third-Generation Service Edge Line Cards

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## Cisco 8000 Series overview

The Cisco® 8000 Series Routers combine the revolutionary Cisco Silicon One™ processor, Cisco IOS® XR software, and a set of clean-sheet chassis designs to deliver a breakthrough in high-performance routers. In particular, the Cisco 8800 Series distributed systems portfolio provides the benefits of a flexible deployment size and can be tailored to multiple use cases including high-speed performance IP core, aggregation, and edge services. The performance of the Cisco 8800 distributed systems goes hand in hand with the evolution of the line cards.

This data sheet introduces the new Silicon One K100 network processing unit (NPU)-based line cards and capabilities. These line cards deliver industry leading Service Edge capabilities for distributed 8800 systems.

The line cards support a choice of flexible interfaces ranging from 1 to 400 Gigabit Ethernet (GbE) ports at line rate in any line card slot of a Cisco 8800 Series distributed system.

The latest third-generation K100 processor pushes the performance to 6.4 Tbps in 7-nm technology and delivers high-scale routing with deep buffering. K100 processor innovation helps the Cisco 8000 Series to expand the addressable use cases for aggregation and edge deployments and for consolidating traffic and services ranging from 1 to 400 GbE network edge services.

## Key benefits of Cisco 8800 Series distributed systems powered by the Cisco Silicon One K100

### Architectural innovation

The Cisco Silicon One K100 is a high-performance, flexible, power-efficient routing silicon processor for aggregation and edge deployments with flexibility in port speed configuration, enabling edge Service-Level Agreement (SLA)-compliant, enhanced hierarchical quality of service, and multicarrier edge services. Using Silicon One groundbreaking technology, the K100 leads all other routing silicon in the market, with a focus on high scale for service termination, port density, best-in-class timing, programmability, telemetry and analytics, and security provisions with its built support for MACsec.

### Business agility

A pay-as-you-grow flexible consumption model helps customers prepare their deployments for the future by right-sizing the network, adding capacity over time to better align to business outcomes. For customers who prefer the traditional business model, paying up front without recurring renewals, a perpetual licensing model is also available. Please visit the [Cisco IOS XR Software Flexible Consumption Model 2.0 Data Sheet](#) and the [Cisco IOS XR Software Perpetual Licensing Model Data Sheet](#).

### Operational simplicity

With the latest enhancements in Cisco Crosswork® Network Automation, along with advanced visualization dashboards, services monitoring with actionable insights, and closed-loop network optimization, customers can enjoy consistent quality of experience in their services.

## Features and benefits

Table 1. Features and benefits

Feature	Details
<b>Industry-leading, carrier-class Cisco IOS XR Software</b>	Modular, patchable, scalable, highly available, carrier-class proven operating system
<b>Cisco pluggable interface</b>	Compatible with a diverse range of optical modules for optimal performance and flexibility: SFP, SFP+, SFP28, QSFP+, QSFP28, QSFP28-DD, QSFP56, and QSFP56-DD
<b>Integrated interfaces</b>	Flexible port rate configuration: 400, 100, 40, 25, 10, and 1 GbE  Routed optical network architecture ready, supporting 400 GbE DCO optics
<b>Software</b>	<ul style="list-style-type: none"> <li>• Cisco IOS XR Minimum Software Release: <ul style="list-style-type: none"> <li>- 88-LC1-48Y8H-EM supports Release 26.2.1 and beyond</li> </ul> </li> </ul> Enhanced automation for onboarding, service provisioning, monitoring, and closed-loop network optimization. Programmable infrastructure with Segment Routing (SR, SRv6) and EVPN.
<b>Encryption support</b>	Line rate MACsec encryption across all ports.

## Line card types

### 88-LC1-48Y8H-EM

The Cisco 88-LC1-48Y8H-EM is a K100-based MACsec-capable line card (Figure 1). The line card provides 48 ports of SFP28, 8 ports of QSFP28, and 8 ports of QSFP56-DD, providing an aggregate bandwidth of 4.8 Tbps.

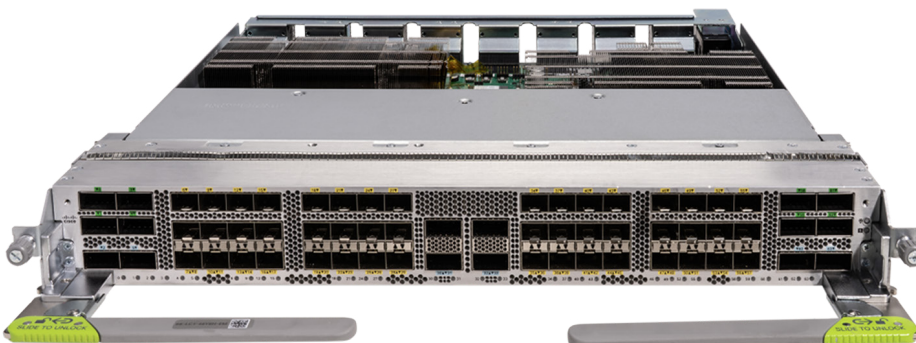


Figure 1. The 88-LC1-48Y8H-EM K100-based line card, with 48x SFP28, 8x QSFP28, and 8x QSFP56-DD

## Product specifications

Table 2. Key specifications for the 88-LC1-48Y8H-EM

Feature	Specifications
Product ID (PID)	88-LC1-48Y8H-EM
Specifications	<ul style="list-style-type: none"><li>• 8 ports of QSFP56-DD</li><li>• 8 ports of QSFP28</li><li>• 48 ports of SFP28</li><li>• 4.8 Tbps capacity</li><li>• 8-core x86-64 CPU, 64-GB DRAM, 480-GB SSD</li><li>• Supports Precision Time Protocol (PTP) timing with Class C performance</li><li>• Routed optical network architecture ready, supporting 400 GbE digital coherent optics (DCO)</li><li>• Requires 8800-RP2 and 8808-FC1 or 8804-FC1</li><li>• MACsec capability on all ports</li></ul>
Physical specifications	<ul style="list-style-type: none"><li>• Height: 5.33 cm/2.10 in.</li><li>• Width: 45.97 cm/18.10 in.</li><li>• Length: 45.24 cm/17.81 in.</li><li>• Weight: 10.70 kg/23.56 lb</li></ul>

## Compatibility

All K100 line cards require a new generation of route processors (8800-RP2) and third-generation (112 GbE SerDes) fabric cards (8808-FC1 and 8804-FC1) to operate in 8808 and 8804 distributed systems. The 88-LC1-48Y8H-EM line card cannot coexist in the same system with Q200-based line cards.

Table 3. System requirements

Hardware PID	Product description
<b>8808-SYS</b>	Cisco 8808 8-slot System
<b>8804-SYS</b>	Cisco 8808 4-slot System
<b>8800-RP2</b>	Cisco 8800 Route Processor 2
<b>8808-FC1</b>	Cisco 8808 3 <sup>rd</sup> Gen Fabric Card for 8808
<b>8804-FC1</b>	Cisco 8000 3 <sup>rd</sup> Gen Fabric Cards for 8804

See the [System Management Configuration Guide for Cisco 8000 Series Routers](#)

## Environmental properties

Table 4. Environmental properties

Property	Specification
<b>Operating temperature</b>	0° to 40°C (32° to 104°F)
<b>Nonoperating (storage) temperature</b>	-40° to 70°C (-40° to 158°F)
<b>Operating humidity</b>	5% to 95% +- 2%
<b>Storage (relative) humidity</b>	5% to 95% +- 2%
<b>Altitude</b>	0 to 3000 m

## Regulatory and safety compliance

Table 5. Regulatory and safety compliance

Regulatory compliance	Regulatory compliance statement: Products comply with CE Markings according to directives 2014/30/EU and 2014/35/EU
<b>Safety</b>	AS/NZS 62368-1, 3 <sup>rd</sup> edition CAN/CSA C22.2 No. 62368-1, 3 <sup>rd</sup> edition EN 62368-1, 3 <sup>rd</sup> edition GB 4943-2022 (IEC 62368-1, 3 <sup>rd</sup> edition) EC 62368-1, 3 <sup>rd</sup> edition with all country deviations UL 62368-1, 3 <sup>rd</sup> edition UL 60950-1, 2 <sup>nd</sup> Edition (NRTL only)
<b>EMC standards (emissions)</b>	FCC 47CFR15, Class A AS/NZS CISPR 32, Class A EN55032, Class A CISPR 32, Class A ICES-003, Class A VCCI-CISPR 32, Class A KS C 9832, Class A CNS-15936, Class A EN/IEC 61000-3-3/3-11 EN/IEC 61000-3-2/3-12
<b>EMC standards (immunity)</b>	IEC/EN61000-4-2 Electrostatic Discharge Immunity IEC/EN61000-4-3 Radiated Immunity IEC/EN61000-4-4 EFT-B Immunity IEC/EN61000-4-5 Surge IEC/EN61000-4-6 Immunity to Conducted Disturbances IEC/EN61000-4-11 Voltage Dips, Short Interruptions, and Voltage Variations KS C 9835

Regulatory compliance	Regulatory compliance statement: Products comply with CE Markings according to directives 2014/30/EU and 2014/35/EU
<b>EN standards (EMC)</b>	EN 300 386 Telecommunications Network Equipment (EMC) EN55032 Multimedia Equipment (Emissions) EN55035/CISPR 35 Multimedia Equipment (Immunity) EN61000-6-1 Generic Immunity Standard (Residential, Commercial, Light-Industrial) EN61000-6-2 Generic Immunity Standard (Industrial)
<b>Restriction of Hazardous Substances (ROHS)</b>	The product is RoHS 6 compliant with exceptions for leaded Ball Grid Array (BGA) balls and lead press fit connectors.
<b>Network Equipment Buildings Standards (NEBS)</b>	Designed to meet GR-63-CORE and GR-1089-CORE

## Line card ordering information

Table 6. 88-LC1-48Y8H-EM Flexible Consumption Model 2.0 ordering information

PID	Product description
88-LC1-48Y8H-EM	Cisco 8800 48xSFP28, 8xQSFP28, 8xQSFP56-DD 4.8Tbps line card
8KSW-B-SIA-3	8000 Type B Device SIA for 3 to 5 year term FCM 2.0
8KSW-B-SIA-5	8000 Type B Device SIA for 5 to 7 year term FCM 2.0
ESS-8KE-100G-RTU	Essential Right-to-Use 100G for Cisco 8000 Series
ADN-8KE-100G-RTU	Advantage Right-to-Use 100G for Cisco 8000 Series
PRM-8KE-100G-RTU	Premium Right-to-Use 100G for Cisco 8000 Series
ESS-8KE-400G-RTU	Essential Right-to-Use 400G for Cisco 8000 Series
ADN-8KE-400G-RTU	Advantage Right-to-Use 400G for Cisco 8000 Series
PRM-8KE-400G-RTU	Premium Right-to-Use 400G for Cisco 8000 Series
ESS-ADN-8KSW-100G	Essential to Advantage Right-to-Use 100G Cisco 8000 Series

PID	Product description
ADN-PRM-8KSW-100G	Advantage to Premium Right-to-Use 100G Cisco 8000 Series
ESS-ADN-8KSW-400G	Essential to Advantage Right-to-Use 400G Cisco 8000 Series
ADN-PRM-8KSW-400G	Advantage to Premium Right-to-Use 400G Cisco 8000 Series

Table 7. 88-LC1-48Y8H-EM Perpetual Model ordering information

PID	Product description
88-LC1-48Y8H-EM	Cisco 8800 48xSFP28, 8xQSFP28, 8xQSFP56-DD 4.8Tbps line card
8KSW-ESS-B-P	Essential Perpetual SW for 8000 Type B Device.
8KSW-ADN-B-P	Advantage Perpetual SW for 8000 Type B Device.
8KSW-PRM-B-P	Premier Perpetual SW for 8000 Type B Device.
8KSW-ESS-ADN-B-P	ESS to ADN Perpetual SW for 8000 Type B Device
8KSW-ADN-PRM-B-P	ADN to PRM Perpetual SW for 8000 Type B Device

## Warranty information

Cisco hardware is backed by a limited warranty. For details, please visit the [Cisco Warranty Finder](#).

## Cisco Licensing

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

In order to retrieve your licenses, you will first need to set up an account on [Cisco Software Central](#).

For a more detailed overview of Cisco Licensing, go to [www.cisco.com/c/en/us/buy/licensing/licensing-guide.html](http://www.cisco.com/c/en/us/buy/licensing/licensing-guide.html).

## Cisco environmental sustainability

Information about Cisco’s environmental sustainability policies and initiatives for our products, solutions, operations, and extended operations or supply chain is provided in the “[Energy and Sustainability](#)” section of Cisco’s FY25 Purpose Report.

Reference links to information about key environmental sustainability topics (mentioned in the “Energy and Sustainability” section of the FY25 Purpose Report) are provided in the following table.

Table 8. Links to environmental sustainability topics.

Sustainability topic	Reference
Information on product material content laws and regulations	<a href="#">Materials</a>
Information on electronic waste laws and regulations, including products, batteries, and packaging	<a href="#">WEEE compliance</a>

## Product sustainability

Information about Cisco’s Environmental, Social, and Governance (ESG) initiatives and performance is provided in Cisco’s CSR and sustainability [reporting](#).

Table 9. Links to product sustainability topics

Sustainability topic	Reference	
<b>General</b>	Information on product-material-content laws and regulations	<a href="#">Materials</a>
	Information on electronic waste laws and regulations, including our products, batteries and packaging	<a href="#">WEEE Compliance</a>
	Information on the product takeback and reuse program	<a href="#">Cisco Takeback and Reuse Program</a>
	Sustainability inquires	Contact: <a href="mailto:csr_inquiries@cisco.com">csr_inquiries@cisco.com</a>
<b>Material</b>	Product packaging weight and materials	Contact: <a href="mailto:environment@cisco.com">environment@cisco.com</a>

## Service and support

Cisco offers a wide range of services to help accelerate your success in deploying and optimizing the Cisco Silicon One K100 line cards. 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 network.

Cisco Advanced Services uses an architecture-led approach to help you align your network infrastructure with your business goals and achieve long-term value.

**Cisco Software Support** offers the Cisco Smart Net Total Care® service to help you resolve mission-critical problems with direct access at any time to Cisco network experts and award-winning technical support coverage and maintenance releases for the Essentials and Advantage software suites, helping to keep your systems and your business running smoothly. Software Support is a required purchase with the Software Innovation Access (SIA) feature upgrade licenses.

**Cisco SP Base** provides device-level support and helps reduce downtime with fast, expert technical support and flexible hardware coverage provided by the Cisco Technical Assistance Center (TAC). With this service, you can take advantage of the Cisco Smart Call Home service, which offers proactive diagnostics and real-time alerts on your hardware.

Spanning the entire network lifecycle, Cisco Services offerings help increase investment protection, optimize network operations, support migration operations, and strengthen your IT expertise.

For information on services for the Cisco 8800 Series Third-Generation Service Edge line cards, contact your Cisco sales representative. For an overview of all offers, visit [Cisco Services for Service Providers](#).

## 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. [Learn more.](#)

## Documentation history

New or revised topic	Described in	Date
<b>Cisco 8800 Series 3rd Generation Service Edge Line Cards Data Sheet</b>	Details regarding the Cisco 8800 Series 3rd Generation Service Edge Line Cards Data Sheet. Initial version.	April 10, 2026