

Cisco Catalyst C8500L-8S4X

High-Performance Enterprise WAN Aggregation & SD-WAN Edge Platform (1RU Fixed Architecture)

Executive Summary: The Cisco Catalyst C8500L-8S4X is a high-density, fixed-configuration 1RU aggregation router designed for enterprise WAN aggregation, cloud edge, and high-capacity SD-WAN hub deployments. Featuring integrated 1GE and 10GE optical ports, deep packet inspection engines, and native hardware crypto acceleration, it delivers up to 20 Gbps of IPv4 forwarding and high-scale SASE multi-cloud security.

20 Gbps

IPv4 Forwarding

19 Gbps

IPsec SD-WAN Perf.

8,000

Max SD-WAN Tunnels

8x 1G + 4x 10G

Fixed Optical Uplinks

1. Primary System Architecture & Specifications

System Parameter	Technical Specification Details
Model Architecture	Cisco Catalyst C8500L-8S4X Aggregation Edge Router
Form Factor & Chassis	1 Rack Unit (1RU), Fixed High-Density Compact Chassis
Fixed Optical / Ethernet Ports	8x 1GE SFP + 4x 1GE/10GE SFP+ fixed optical/copper interfaces
System Memory (DRAM)	16 GB Default DDR4 (Upgradable to 32 GB or 64 GB via DIMMs)
Boot Flash & Storage	32 GB Internal Bootflash; 1x Dedicated M.2 Slot (Supports NVMe/USB up to 2TB)
Hardware Acceleration	Built-in Hardware Crypto Engine & Quantum Flow Processor (QFP) ASIC technology
Management Interfaces	1x 10/100/1000M RJ-45 Mgmt, 1x RJ-45 Console, 1x Micro-USB Console, 2x USB 3.0

2. Interface Architecture & Density Breakdown

High-Density Fixed Uplinks:

- 4x 10G SFP+** High-speed 1G/10G dual-rate SFP+ WAN aggregation ports.
- 8x 1G SFP** Small Form-Factor Pluggable (SFP) Gigabit optical/copper ports.
- Dual USB 3.0** External storage, logs, and rapid image loading.

Management & Storage Architecture:

- Out-of-Band Mgmt:** Dedicated Gigabit Ethernet out-of-band management interface.
- M.2 NVMe SSD Support:** High-capacity local logging, packet capture, and container app hosting.
- Console Options:** Dual RJ-45 and Micro-USB serial ports.

3. PERFORMANCE & SCALABILITY METRICS

PERFORMANCE METRIC	DEFAULT DRAM (16 GB)	UPGRADED DRAM (32 GB / 64 GB)
IPv4 Forwarding Throughput (1400B)	Up to 20 Gbps aggregate	Up to 20 Gbps aggregate
SD-WAN IPsec Throughput (1400B)	Up to 19 Gbps aggregate	Up to 19 Gbps aggregate
SD-WAN IPsec Throughput (IMIX)	Up to 8.6 Gbps aggregate	Up to 8.6 Gbps aggregate
Maximum Overlay SD-WAN Tunnels	4,000 Tunnels	8,000 Tunnels
IPsec SVTI Tunnels	2,000 Tunnels	4,000 Tunnels
IPv4 Route Table Scale	1,600,000 Routes	3,500,000 Routes
IPv6 Route Table Scale	1,500,000 Routes	2,200,000 Routes
Stateful Sessions (Firewall / NAT)	1,000,000 Sessions	2,000,000 Sessions

4. INTEGRATED SECURITY & SASE SERVICES

Cisco IOS XE SD-WAN Architecture:

- Unified binary supporting Cisco IOS XE routing and SD-WAN mode.
- Application-Aware Routing (AAR) for optimal SaaS path selection.
- Zero Touch Provisioning (ZTP) for automated head-end onboarding.
- Centralized orchestrations via vManage, vSmart, and vBond.

Integrated Security & Encryption:

- Enterprise Zone-Based Firewall (ZBFW) with AVC capabilities.
- Snort IPS (Intrusion Prevention System) & URL Filtering.
- Hardware MACsec link-layer encryption on 10GE interfaces.
- Cisco Umbrella SASE cloud-delivered security integration.

5. PHYSICAL, POWER & ENVIRONMENTAL SPECIFICATIONS

ATTRIBUTE	SPECIFICATION DETAILS
Physical Dimensions (H x W x D)	1.73 in x 17.5 in x 16.25 in (4.4 cm x 44.5 cm x 41.3 cm)
Form Factor & Weight	1RU (Standard 19-inch rack mount included); Weight: ~15.8 lbs (7.16 kg)
Power Supply Configuration	Dual Redundant, Hot-Swappable 400W Power Supplies (AC, DC, HVAC options)
Input Power Voltage	AC: 100 to 240 VAC auto-ranging (50–60 Hz) / DC: -40 to -72 VDC
System Thermal Architecture	Front-to-back airflow with variable speed field-replaceable fan tray
Operating Temperature & Altitude	32°F to 104°F (0°C to 40°C) at sea level up to 10,000 ft

6. ORDERING INFORMATION & KEY PART NUMBERS

PRODUCT IDENTIFIER	DESCRIPTION
C8500L-8S4X	Cisco Catalyst 8500L 1RU Edge Router with 8x 1G SFP & 4x 10G SFP+
PWR-CC1-400WAC	Cisco Catalyst 8500L 400W AC Power Supply Unit
MEM-C8500L-32GB	32 GB Memory Upgrade Kit for Cisco Catalyst 8500L

