

Cisco Catalyst C8300-2N2S-4T2X

High-Density Cloud Edge SD-WAN Router (2RU Modular Platform)

Executive Summary: The Cisco Catalyst C8300-2N2S-4T2X is a 2RU flagship edge router optimized for medium-to-large branch offices and regional hubs. Designed with double slot modularity (2 NIM + 2 SM slots), it offers high-density LAN switching, voice gateway services, integrated hardware crypto acceleration, and native SASE cloud security.

19.7 Gbps

MAX CEF THROUGHPUT

18.8 Gbps

IPSEC SD-WAN PERF.

4,000

MAX OVERLAY TUNNELS

2N + 2S

DUAL NIM + DUAL SM

1. PRIMARY PLATFORM SPECIFICATIONS

PARAMETER	TECHNICAL SPECIFICATION
Model Architecture	Cisco Catalyst C8300-2N2S-4T2X Edge Router
Form Factor	2 Rack Units (2RU), Modular High-Density Chassis
Integrated Fixed WAN Ports	4x 1G RJ-45 Copper + 2x 10G SFP+ Optical/Copper Uplinks
Modular Expansion Slots	2x Network Interface Modules (NIM) + 2x Service Modules (SM)
Onboard System Memory	16 GB Default DDR4 (Upgradable to 32 GB or 64 GB)
Flash Storage & NVMe	16 GB eMMC onboard; 1x M.2 NVMe SSD slot (Supports up to 480GB)
Crypto Acceleration Engine	Hardware-based High-Performance Crypto Engine (IPsec, MACsec)

2. INTERFACE & HIGH-DENSITY SLOT BREAKDOWN

Fixed Integrated Ports:

- 1G Ports** 4x 1GbE Ethernet (RJ-45) auto-sensing ports.
- 10G Ports** 2x 10GbE SFP+ high-speed optical WAN uplinks.
- Console** 1x RJ-45 & 1x Micro-USB console ports.
- USB** 1x USB 3.0 Type-A high-speed storage port.

2RU Modular Capabilities:

- 2x NIM Slots:** Supports high-speed WAN, T1/E1, Voice, Serial, or 4G/5G modules.
- 2x SM Slots:** Supports full-width/single-width high-density PoE+ Ethernet switches or compute blades.
- Internal Services:** Dedicated service container environment for microservices.

3. SCALABILITY & PERFORMANCE METRICS

FEATURE / METRIC	DEFAULT MEMORY (16 GB)	UPGRADED MEMORY (32/64 GB)
Cisco Express Forwarding (CEF)	Up to 19.7 Gbps aggregate	Up to 19.7 Gbps aggregate
IPsec VPN Performance (SD-WAN)	Up to 18.8 Gbps aggregate	Up to 18.8 Gbps aggregate
Maximum Concurrent Overlay Tunnels	2,500 Tunnels	4,000 Tunnels
IPv4 Route Table Capacity	800,000 Routes	1,600,000 Routes
IPv6 Route Table Capacity	800,000 Routes	1,600,000 Routes
Access Control Lists (ACLs)	50,000 Entries	100,000 Entries

4. ENTERPRISE SOFTWARE & SASE SECURITY

Cisco IOS XE SD-WAN Architecture:

- Unified binary image supporting autonomous routing or SD-WAN.
- Application-Aware Routing (AAR) for optimal SaaS path selection.
- Zero Touch Provisioning (ZTP) for rapid branch deployment.
- Centralized management via Cisco Catalyst SD-WAN Manager.

Integrated Security Suite:

- Enterprise Zone-Based Firewall (ZBFW) with AVC.
- Snort IPS (Intrusion Prevention System) & URL Filtering.
- Cisco Advanced Malware Protection (AMP) & Threat Grid.
- Hardware-level MACsec encryption for high-speed link protection.

5. PHYSICAL, POWER & ENVIRONMENTAL SPECIFICATIONS

ATTRIBUTE	SPECIFICATION DETAILS
Physical Dimensions (H x W x D)	3.45 in x 17.5 in x 18.25 in (8.76 cm x 44.5 cm x 46.4 cm)
Rack Space	2RU (Standard 19-inch rack mounting kit included)
Power Supply Configuration	Dual Redundant, Hot-Swappable Power Supplies (AC, DC, or PoE options)
Input Power Voltage	100 to 240 VAC auto-ranging (50-60 Hz) / -48 to -60 VDC
Thermal & Fan Architecture	Redundant field-replaceable variable-speed fan tray assembly
Operating Temperature	32°F to 104°F (0°C to 40°C) at sea level
Operating Humidity	10% to 90% relative humidity (non-condensing)
Safety & Compliance	UL 60950-1, CAN/CSA C22.2 No. 60950-1, EN 60950-1, FCC Class A