

C8300-1N1S-4T2X-V

1RU modular branch edge router; 4x 1GE RJ45 + 2x 10GE SFP+, 1 NIM + 1 SM + 1 PIM, voice-enabled with PVDM, IOS XE 17.3.2+, SD-WAN / routing capable.

Cisco Catalyst 8300 Series Edge Platform (Voice SKU)

The Cisco Catalyst 8300 Series is the next-generation modular edge platform for medium-to-large branch and SD-WAN deployments. The C8300-1N1S-4T2X-V variant ships with four fixed 1-Gigabit RJ-45 embedded Layer-3 ports plus two fixed 10-Gigabit SFP/SFP+ embedded uplink ports and three expansion bays: 1 NIM, 1 SM (services module), and 1 PIM. Cisco's voice capability is delivered through optional PVDM (DSP) modules on the NIM or SM slot - the platform itself is voice-capable via these add-on voice modules, while the official Cisco PID (C8300-1N1S-4T2X) is the orderable chassis SKU. The C8300-1N1S-4T2X-V delivers up to 19.7 Gbps of IPv4 forwarding, up to 17 Gbps SD-WAN IPsec throughput, and supports both IOS XE autonomous and Catalyst SD-WAN modes.

Specification	Value
Form factor	1RU modular edge platform, Catalyst 8300 Series
Embedded ports	4x 1GE RJ-45 + 2x 10GE SFP/SFP+ uplink
Expansion bays	1x NIM, 1x SM, 1x PIM
IPv4 forwarding	Up to 19.7 Gbps (1400 B, autonomous mode)
SD-WAN IPsec throughput	Up to 17 Gbps (1400 B)
Encrypted IMIX (SD-WAN)	Up to 6.3 Gbps
Routes	Up to 1.6M IPv4 / 1.5M IPv6 (default 8 GB DRAM); up to 4M with 32 GB upgrade
Overlay tunnels	6,000 (SD-WAN); 4,000 (autonomous IPsec SVTI)
VRF instances	4,000
NAT / firewall sessions	1.2M / 2M NAT (default / 32 GB); 512 K firewall
CPU	Intel x86 8-core (12-core on C8300-2N2S-4T2X)
DRAM / flash / SSD	8 GB DRAM (max 32 GB); 16 GB M.2 default (up to 2 TB NVMe)
Software	Cisco IOS XE 17.3.2 minimum (autonomous / SD-WAN / SD-Routing)
Warranty	Standard Cisco hardware warranty (Solution Support / SNTC available)

- 1RU modular branch edge platform with embedded 4x 1GE RJ-45 + 2x 10GE SFP+.
- Three expansion bays: 1 NIM, 1 SM, 1 PIM for WAN/TDM/cellular/voice modules.
- Up to 19.7 Gbps IPv4 forwarding and 17 Gbps SD-WAN IPsec throughput (1400-byte).
- Dual 1+1 redundant AC/DC power supplies ship by default.
- Runs Cisco IOS XE 17.3.2 or later: autonomous, SD-WAN (Catalyst SD-WAN), or SD-Routing modes.
- Voice capability via optional PVDM modules (NIM-PVDM-32/64/128/256; SM-X-PVDM-500/1000/2000/3000).

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Expansion bays	1x NIM, 1x SM, 1x PIM
IPv4 forwarding (1400 B)	Up to 19.7 Gbps (autonomous)
SD-WAN IPsec (1400 B)	Up to 17 Gbps
Encrypted IMIX (SD-WAN)	Up to 6.3 Gbps (5.5 Gbps with IQDF)
Autonomous IPsec (1400 B)	Up to 16.9 Gbps
Autonomous IPsec IMIX	Up to 6.6 Gbps
Routing entries	1.6M IPv4 / 1.5M IPv6 (default); up to 4M with 32 GB
Overlay tunnels	6,000 SD-WAN; 4,000 autonomous IPsec SVTI
VRF	4,000
Queues	8,000
NAT / firewall sessions	1.2M / 2M NAT; 512 K firewall; 4 K ACLs / 72 K IPv4 ACEs

The C8300 Series supports voice termination via optional DSP modules in the NIM or SM bay. Voice features are delivered through Cisco Unified Border Element (CUBE), Cisco Unified Communications Manager Express (CUCME), and Survivable Remote Site Telephony (SRST).

Module / Capability	Description
NIM-PVDM-32 / 64 / 128 / 256	DSP NIM modules for codec transcoding and conferencing
SM-X-PVDM-500 / 1000 / 2000 / 3000	High-density DSP service modules for voice
Voice NIMs	NIM-2FXO / 4FXO / 2FXSP / 4FXSP / 4E-M / 2BRI-NT-TE / 4BRI-NT-TE / 2FXS-4FXOP
SM-X voice	SM-X-8FXS / 12FXO, SM-X-16FXS / 2FXO, SM-X-24FXS / 4FXO, SM-X-72FXS
T1/E1 NIMs	NIM-1 / 2 / 4 / 8MFT-T1/E1 (voice/data TDM)
Software features	CUBE (SBC), CUCME, SRST, ISDN, SIP, SRTP, CAC, RSVP, RTCP
Operational modes	Autonomous mode and SD-WAN mode voice support
DSP scale	Module-dependent; up to 3,000 concurrent calls on SM-X-PVDM-3000
Transcoding	G.711, G.729a, G.722, G.722.1, Opus, iLBC codec support
QoS for voice	Low-latency queuing and DSCP EF marking for toll-quality voice
High availability	SSO/NSF for voice processing and call-survivable deployments
Management	Cisco Unified Communications Manager, IOS XE Web UI / CLI

Component	Specification
CPU	Intel x86 8-core (data-plane optimized cores)
DRAM (default / max)	8 GB / 32 GB
Flash (onboard)	8 GB eUSB (non-upgradeable)
M.2 storage (default)	16 GB M.2 USB
M.2 storage (options)	32 GB M.2 USB; 600 GB M.2 NVMe SED; 2 TB M.2 NVMe SED
Power supply	Dual 250W AC by default (1+1 redundant); 500W AC PoE / 400W DC / 400W HVDC options
AC input	85-264 VAC autoranging
Typical power (no modules, 1 PSU)	245 W
Heat dissipation	Refer to platform datasheet for exact BTU/hr
Acoustics (typ / max)	49 / 71 dBA sound pressure
Console / management	1x RJ-45 console; 1x RJ-45 mgmt; 2x USB

Property	Value
Dimensions (H x W x D)	1.73 x 17.50 x 16.25 in
Weight (with 2 AC PSU + fan tray)	20 lbs
Rack units	1 RU
Operating temperature	0 to 40 C (32 to 104 F)
Operating relative humidity	5% to 85% non-condensing
Operating altitude	0 to 10,000 ft (0 to 3,050 m)
Storage temperature	-40 to 70 C (-40 to 150 F)
Storage relative humidity	5% to 95% non-condensing
MTBF	536,060 hours

The Cisco IOS XE routing plane provides a comprehensive set of IPv4/IPv6 services, QoS, multicast and VPN features. The capabilities below are supported on the platform; performance scale numbers are platform-dependent.

Feature	Description
IPv4/IPv6 unicast	OSPFv2/v3, IS-IS, EIGRP, BGP-4, MP-BGP, static v4/v6, policy-based routing
First-hop redundancy	HSRP v1/v2, VRRP, GLBP (IPv4/IPv6)
Multicast	PIM Sparse / Dense / SSM, IGMPv3, MLDv2, mroute hardware scale

Feature	Description
MPLS	MPLS forwarding, L3VPN (VRF-aware), Segment Routing awareness (platform capable)
VPN / overlay	IPsec, DMVPN, FlexVPN, GETVPN, EZVPN; SD-WAN overlay, OMP, vSmart
QoS	Cisco-class QoS with 8 queues per egress port; DSCP/ 802.1p; shaping / policing
High availability	NSF/NSR, SSO, hitless software upgrades, ISSU
Application visibility	NBAR2 / Flexible NetFlow / IPFIX, AppQoE (where licensed)
TrustSec / SGT	802.1AE MACsec, TrustSec SGT/SGACL for segmentation
Management	NETCONF/YANG, RESTCONF, gRPC, NETCONF over SSH, gNMI telemetry

Cisco IOS XE edge platforms provide multiple WAN and overlay connectivity options. The capabilities below apply to the router platform and are enabled in software or through the installed modules.

Capability	Description
WAN uplinks	Gigabit / 10G SFP+/QSFP; T1/E1 TDM via NIMs; cellular LTE / 5G via NIMs
Catalyst SD-WAN	Controller-mode SD-WAN: OMP, control-plane, vSmart / vManage integration
SD-Routing	Distributed routing under Catalyst Center (DNA) management
DMVPN / FlexVPN	Dynamic multipoint VPN and FlexVPN hub-and-spoke overlay
IPsec / IKEv2	Hardware-accelerated IPsec ESP with AES-GCM encryption
Application Aware Routing	SLA-based path selection and failover (AppQoE on IOS XE SD-WAN)
Cloud / Internet edge	Cloud on-ramp for IaaS, direct Internet access, guest internet
QoS / shaping	Per-tunnel and per-class QoS with hierarchical queueing
NAT / firewall	Stateful NAT, zone-based firewall with App awareness
Multicast over VPN	mVPN / mLDP and multicast over DMVPN/FlexVPN
High availability	SSO, NSF/NSR, BFD, dual WAN failover
WAN analytics	Flow export (IPFIX), AppQoE analytics, telemetry to vManage

Cisco IOS XE platforms provide a comprehensive set of operational features to keep the network and the device itself resilient and predictable in production deployments.

Capability	Description
Software redundancy	Two independent IOS XE processes for software fault isolation (where supported)
Hardware redundancy	1+1 / N+1 redundant AC or DC power supplies with hot-swap FRUs
Stateful switchover	SSO / NSF for routing protocols across supervisor or RFD failures

Capability	Description
ISSU	In-Service Software Upgrade to minimize downtime during IOS XE upgrades (where supported)
Modular QoS	Per-tunnel and per-class QoS policies for SD-WAN overlay
Graceful restart	OSPF / IS-IS / BGP graceful restart helpers (RFC 3623 / RFC 5306)
Modular optics	Pluggable SFP/SFP+ for fast optical replacement without service impact
Smart licensing	Cisco Smart Licensing with PnP enrollment and offline reservation
Telemetry streaming	gNMI/gRPC streaming telemetry to DNA Center / 3rd-party collectors
Application visibility	NBAR2 / FNF for application-level telemetry and visibility
BFD	Bidirectional Forwarding Detection for sub-second failure detection
Hardware crypto offload	AES-NI / QFP / ASIC-accelerated IPsec encryption

Interface expandability for C8300-1N1S-4T2X-V is provided through Network Interface Modules (NIM), Service Modules (SM), Platform Interface Modules (PIM), and the supported optics family. Representative options follow; specific combinations should be confirmed against the platform ordering guide.

Module / Accessory	Description
NIM (voice / TDM)	NIM-2/4/8-T1/E1 (voice/data TDM), NIM-2FXO / 4FXO / 2FXSP / 4FXSP (FXO/FXS)
NIM (cellular)	NIM-4G-LTE, NIM-4G-LTE-VZ/AT, NIM-5GS-6G (where supported)
PIM modules	PIM-2/4BRI-NT/TE, PIM-8T1E1 / 4T1E1 (TDM/ISDN)
Service modules	SM-X-PVDM-500/1000/2000/3000 (voice DSP); SM-X-8FXS/12FXO/16FXS (voice)
SFP / SFP+ optics	GLC-T, GLC-SX-MMD, GLC-LX-SMD, GLC-LH-SMD; SFP-10G-SR/LR/ER/ZR
Power supply	AC PSU (default) and DC PSU (where supported) - hot-swappable where dual bays
Console / management	RJ-45 console cable included for CLI management access
Rack-mount kit	Standard 19-in rack-mount brackets included
Cisco DNA subscription	Cisco DNA Essentials / Advantage licensing for SD-WAN/automation
Smart Net Total Care	Optional service contract for next-business-day replacement

The router complies with the following interoperability, safety and environmental standards. Compliance is verified by independent testing laboratories.

Category	Standard
IPv4/IPv6 routing	RFC 1812, RFC 4291, RFC 4861 (ND), RFC 4443 (ICMPv6); OSPF/IS-IS/BGP/EIGRP
Layer 2	IEEE 802.1Q VLAN, 802.1p QoS, 802.1x port security, 802.3ad LACP

Category	Standard
VPN / Security	RFC 4303 ESP, RFC 7296 IKEv2, RFC 5246 TLS, RFC 8446 TLS 1.3, AES-GCM
MPLS / Segment Routing	RFC 3031/3032 MPLS; SR-MPLS (platform capable)
Management	NETCONF (RFC 6241), RESTCONF, YANG (RFC 6020/7950), SNMPv2c/v3, NETCONF-SSH
Quality of Service	RFC 2597/2598 (PHB), RFC 2474 (DSCP), 802.1p
Time sync	NTPv4 (RFC 5905), PTPv2 (IEEE 1588-2008)
Safety	UL/CSA/IEC/EN 60950-1, UL/IEC/EN 62368-1
EMC / EMI	FCC 47 CFR Part 15 Class A, EN 55032/CISPR 32, EN 55024/55035, EN 300 386
Environmental	RoHS 2011/65/EU, WEEE 2012/19/EU; operating/storage altitude per datasheet

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