Cisco

C1-N3K-C3132Q-XL

Datasheet

Product Overview

- The Cisco C1-N3K-C3132Q-XL is part of the Nexus 3100 series, offering a high-performance, fixed 1RU switch tailored for modern data center and enterprise aggregation needs.

- This switch is ideal for cloud computing, enterprise LAN aggregation, and high-performance computing environments demanding low latency and flexible wiring.

- Key specs include 32 × QSFP+ ports supporting up to 40G each, switching capacity of 2.56 Tbps, and forwarding rates up to 1.85 Bpps.

- Flexible port design allows breakout from 40G to 4×10G per port and sub-microsecond latency, enhancing adaptability for dense, high-speed environments.

- Advanced hardware delivers rich Layer 2 and Layer 3 capabilities with easy management via CLI, SNMPv3, NETCONF, and REST API for simplified daily operations.

- Ideal for future-ready data centers, the C1-N3K-C3132Q-XL brings scalable bandwidth, efficient cooling, and reliable uptime for digital infrastructure expansion.

Product Highlights

- **High Port Density:** 32 × QSFP+ ports (40G, breakout to 4×10G) provide massive connectivity for server and aggregation layers.

- **Ultra-Low Latency:** Sub-1μsec latency ensures an optimal solution for trading floors, HPC, and latency-sensitive applications.

- **Robust System Performance:** 2.56 Tbps switching capacity and 1.85 Bpps forwarding rate meet high-throughput demands.

- **Resilient Hardware Design:** Hot-swappable dual power supplies and N+1 redundant fans ensure continuous network operation.

Detailed Features

C1-N3K-C3132Q-XL

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Component	Specification
Port Type	32 × QSFP+ (40G, breakout to 4×10G)
Switching Capacity	2.56 Tbps
Forwarding Rate	1.85 Bpps
Form Factor	Fixed 1RU chassis
Power Supply	Dual 650W AC/DC (hot-swappable)

High Port Capacity

The C1-N3K-C3132Q-XL features 32 QSFP+ ports supporting native 40G speeds and flexible breakout to 4×10G per port. This dense connectivity enables seamless integration with high-performance servers and storage, supporting spine-leaf, ToR, and aggregation designs in cloud or enterprise data centers.

Sub-Microsecond Latency

Engineered for speed, this switch delivers under 1µsec latency for 64-byte packets, making it suitable for latency-sensitive applications such as real-time trading, high-performance database replication, and scientific research clusters where timing is critical.

Powerful Throughput

A non-blocking switching capacity of 2.56 Tbps paired with a forwarding rate of 1.85 billion packets per second ensures congestion-free, high-bandwidth data flows. This is crucial for virtual machine migration, big data workloads, and multi-tenant environments.

Redundant Power & Cooling

The design features dual hot-swappable 650W AC/DC power supplies and N+1 redundant fan trays. This guarantees high system availability, supports continuous operation, and enables hassle-free maintenance without service interruptions in demanding enterprise and cloud settings.

Advanced Management Options

Supporting CLI, SNMPv3, NETCONF, and REST API, the switch integrates easily with network orchestration solutions. Admins benefit from both granular control and automation, which streamlines deployment, monitoring, and maintenance, reducing operational costs.

Flexible Deployment & Scalability

The ability to breakout QSFP+ ports into 4×10G connections allows flexible adoption of varying server and uplink speeds. Enterprises can scale network bandwidth incrementally, optimizing investments as requirements change and evolve.

Rich Layer 2/3 Capabilities

Comprehensive support for advanced Layer 2 and Layer 3 features empowers IT teams to build robust, segmented networks. Protocol support includes VLANs, dynamic routing, and seamless IPv4/IPv6 dual-stack operation for futureproof deployments.

Certifications and Reliability

The switch meets NEBS Level 3, FCC, CE, and UL 60950-1 certifications, offering 330,000 hours MTBF. This ensures compliance with global standards and maximum uptime for mission-critical business applications.

Technical Specifications

Product Specifications

Feature	Value
Chassis	Fixed-configuration 1RU switch
Port Configuration	32 × QSFP+ ports (40G capable, breakout to 4×10G)
Switching Capacity	2.56 Tbps
Forwarding Rate	1.85 Bpps
Latency	<1 µsec (64-byte packets)
Buffer Memory	16MB shared
CPU	Quad-core 1.7 GHz
DRAM	16GB
Flash	8GB
Power Supplies	Dual 650W AC/DC (hot-swappable)
Cooling	N+1 redundant fan trays
Dimensions (H × W × D)	1.73 in (4.4 cm) × 17.3 in (44 cm) × 24 in (61 cm)

Feature	Value
Operating Temperature	32°F to 104°F (0°C to 40°C)
Humidity	5% to 95% non-condensing
Altitude	-200m to 6,500m
Management	CLI, SNMPv3, NETCONF, REST API
Minimum NX-OS Version	7.0(3)I2(1)
Certifications	NEBS Level 3, FCC, CE, UL 60950-1
MTBF	330,000 hours
Min Operating Temperature	0°C (32°F)
Max Operating Temperature	40°C (104°F)

Product Comparison

Feature	C1-N3K-C3132Q-XL	C1-N5696-B-24Q	C1-N9K-C93108-B18Q
Fixed Ports	32 × QSFP+ (40G, breakout to 4×10G)	24 × QSFP+ (40G)	18 × 100G QSFP28 + 8 × 40G QSFP+
Switching Capacity	2.56 Tbps	3.84 Tbps	3.6 Tbps
Forwarding Rate	1.85 Bpps	2.86 Bpps	2.6 Bpps
Form Factor	1RU fixed	2RU fixed	1RU fixed
Power Supply	Dual 650W AC/DC	Dual hot-swappable	Dual/Redundant hot-swappable
Management	CLI, SNMPv3, NETCONF, REST API	CLI, SNMPv3	CLI, SNMPv3, REST API
Latency	<1 µsec (64-byte packets)	<1.2µsec	<1µsec
Fan Redundancy	N+1 redundant fans	N+1 redundant fans	Redundant, hot-swappable
Application Scenario	Dense 40G/10G aggregation/data center	Enterprise core or high-speed aggregation	High-density 100G/40G data center/core switching

Accessories

Category	Accessories
Included Accessories	- Dual Power Supply Modules - Rack Mount Kit - Console Cable
Optional Accessories	- QSFP+ Transceivers - SFP+ Breakout Cables - Additional Fan Trays

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References

[1] Cisco Systems. (2023). Cisco Nexus 3132Q, 40Gb Switch - Data Sheet. Retrieved from https://www.cisco.com/c/en/us/products/collateral/switches/nexus-3132q-switch/datasheet-c78-729482.html