

Cisco C1-N5696Q

Datasheet

Product Overview

- Cisco's Nexus 5600 platform, represented by the C1-N5696Q, is engineered for modern data center server access and fabric efficiency.
- It is tailored for enterprise, service provider, and cloud data centers seeking scalable, high-bandwidth 10/40G switching for both physical and virtual environments.
- Key specs include a 1RU form factor, forwarding rate up to 3 Bpps, and up to 96 QSFP+ 40G/100G-capable ports, boosting density and capacity.
- Distinct hardware innovations such as unified ports, large dynamic buffers, and true line-rate Layer 2/3 support set the Nexus 5600 platform apart.
- Cisco's NX-OS operating system ensures network resilience, extensive manageability, and advanced programmability for agile operations.
- This platform empowers high-density cloud, big data, and virtualized deployments with consistent, low latency and reliable connectivity.

Product Highlights

- **Data Center Virtualization Ready:** Optimized for cloud and high-density virtualization deployments, supporting seamless workload scaling in diverse environments.
- **Flexible Port and Cooling Design:** Rear-facing ports and swappable power/fan modules improve serviceability and adapt to hot/cold aisle layouts.
- **Low Latency Performance:** Cut-through switching achieves port-to-port latency as low as 1 microsecond, supporting high-speed applications.
- **Advanced Traffic Monitoring:** Up to 31 SPAN/ERSPAN sessions enable efficient, non-intrusive traffic analysis and robust troubleshooting.

Detailed Features



C1-N5696Q

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Component	Specification
Switching Capacity	7.68 Tbps
Forwarding Rate	3 Bpps
Port Configuration	96 × QSFP+ ports (40G/100G capable)
Power Supplies	6 × hot-swappable (N+1 redundancy)
Layer Support	Layer 2 & Layer 3



High-Density 40G/100G Port Architecture

The C1-N5696Q offers up to 96 QSFP+ ports, each supporting 40G or 100G speeds. This remarkable density facilitates large aggregation deployments or high-performance top-of-rack access, significantly increasing available bandwidth for intensive workloads in modern data centers with space and power constraints.

Integrated Unified Ports and Convergence

Supporting LAN and SAN convergence via unified ports, including full Fibre Channel over Ethernet (FCoE), the Nexus 5600 ensures flexibility for mixed data center requirements. It simplifies network architecture by allowing both storage and data traffic on the same physical infrastructure, supporting seamless migration and reduced cabling complexity.

Advanced VXLAN and Programmability

The switch delivers integrated line-rate VXLAN bridging and routing and is programmable for evolving network needs. This ensures compatibility with virtualized/cloud environments and enables automation-friendly deployments, reducing manual intervention and simplifying network scaling via controller-based workflows.

Superior Buffering and Congestion Management

With a unique flexible packet buffer (25 MB per 3 × 40G ports or 12 × 10G ports; dedicated per 100G port), the device dynamically allocates memory during congestion. This provides lossless operation for bursty cloud and storage workloads, reducing performance drops and ensuring smooth traffic even in oversubscription scenarios.

Low Latency Engineered Switching

Cut-through switching architecture ensures consistent ultra-low latency about 1 microsecond even with Layer 3 features enabled. This is key for high-frequency trading, real-time analytics, and critical applications demanding swift packet delivery and deterministic network performance.

Energy Efficiency and Eco-Conscious Design

Designed for energy-aware operation, the Nexus 5600 maintains up to 90% power efficiency even at just 25% system utilization. Its front-to-back or back-to-front cooling supports standard data center airflow best practices, minimizing energy waste while keeping critical components effectively cooled.

Multicast and Replication Enhancements

The switch features hardware-optimized multicast with support for up to 32,000 routes, IGMP hardware snooping, and efficient fabric replication. Enhanced hashing and protocol support ensure reliable multicast operation for demanding applications like IPTV, financial trading, or real-time distributed analytics across massive server estates.

Comprehensive SPAN/ERSPAN Monitoring

Intelligent, bandwidth-aware SPAN and ERSPAN functions allow up to 31 line-rate mirrored sessions. This enables both localized and remote packet capture for proactive monitoring and troubleshooting, so admins can maintain network health without service disruption even in complex multi-tenant or hybrid cloud scenarios.

Technical Specifications

Product Specifications

Feature	Value
Product Model	Cisco ONE Nexus 5696Q Chassis with 6 power supplies, 4 fans, VxLAN support
Form Factor	1RU
Switching Capacity	7.68 Tbps
Forwarding Rate	3 Bpps
Port Configuration	96 × QSFP+ ports (40G/100G capable)
Power Supplies	6 × hot-swappable (N+1 redundancy)
Fan Modules	4 × hot-swappable (N+1 redundancy)
Power Consumption	450W (typical)
AC Voltage Range	100-240V AC



Feature	Value
Layer Support	Layer 2 & Layer 3
Supported Protocols	VxLAN, OSPF, BGP, VRF
Management Interfaces	CLI, SNMP, Web Interface
Dimensions (H×W×D)	1.71 in × 17.3 in × 21.3 in (4.34 cm × 43.94 cm × 54.1 cm)
Operating Temperature	0°C to 40°C (32°F to 104°F)
Storage Temperature	-40°C to 70°C (-40°F to 158°F)
Humidity	5% to 95% non-condensing
MTBF	>500,000 hours
Certifications	RoHS, CE, UL, FCC

Product Comparison

Feature	C1-N5696Q	C1-N3K-C3264Q	C1-N9KC93108FX-B24
Switching Capacity	7.68 Tbps	12.8 Tbps	8.33 Tbps
Port Configuration	96 × QSFP+ (40G/100G)	64 × QSFP28 (100G/40G/25G/10G)	48 × SFP+/SFP28 (1G/10G/25G) + 6 × QSFP28 (100G)
Form Factor	1RU	2RU	1RU
Power Supply	6 × hot-swappable (N+1)	2 × hot-swappable	2 × hot-swappable
Fan Module	4 × hot-swappable (N+1)	3 × hot-swappable	3 × hot-swappable
Layer 3 Support	Yes (full line-rate L2/L3)	Yes (full line-rate L2/L3)	Yes (full line-rate L2/L3)
Management Interface	CLI, SNMP, Web	CLI, SNMP, Web	CLI, SNMP, Web
Supported Protocols	VxLAN, OSPF, BGP, VRF	VXLAN, OSPF, BGP, VRF	VXLAN, OSPF, BGP, VRF
MTBF	>500,000 hours	>300,000 hours	>500,000 hours
Certifications	RoHS, CE, UL, FCC	RoHS, CE, UL, FCC	RoHS, CE, UL, FCC



Accessories

Category	Accessories
Included Accessories	<ul style="list-style-type: none">- Rack Mount Kit- Power Cables- Quick Start Guide
Optional Accessories	<ul style="list-style-type: none">- QSFP+ Transceivers- Expansion Modules- Replacement Fan Module



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References

[1] Cisco. (2023). Cisco Nexus 5600 Platform Switches Data Sheet. Retrieved from <https://www.cisco.com/c/en/us/products/collateral/switches/nexus-5624q-switch/datasheet-c78-733100.html>