

Cisco
C1-N5K-C5648-B-36Q
Datasheet



Product Overview

- The Cisco Nexus 5600 Series delivers high-density server connectivity for modern data centers, built on Cisco's trusted platform.
- This switch is ideal for virtualization, cloud deployments, and enterprise data centers seeking consistent network performance.
- It features 36 ports of 40 Gbps (QSFP+), non-blocking 1.44 Tbps switching fabric, and integrated line-rate Layer 2/3 capabilities.
- Advanced features include support for LAN/SAN convergence, FCoE, and programmable fabric innovations like VXLAN and NVGRE.
- Cisco NX-OS offers comprehensive, resilient, and managed operations for demanding environments with robust automation support.
- By combining scalability, low latency, and energy efficiency, the Cisco Nexus 5600 helps enterprises handle mixed workloads and future growth with confidence.

Product Highlights

- **Optimized for Virtualization and Cloud:** Supports high-density server environments and adapts to changing virtualized workloads for scalable performance.
- **Energy Efficient and Resilient:** Hot-swappable power supplies and fans, high efficiency at 90%, and flexible cooling, ensuring low power use and reliable uptime.
- **Low Latency Networking:** Delivers approximately 1 microsecond port-to-port latency, enabling real-time data traffic even under high loads.
- **Advanced Traffic Monitoring:** Intelligent SPAN/ERSPAN support allows robust visibility and monitoring, improving network troubleshooting and service quality.

Detailed Features



C1-N5K-C5648-B-36Q

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Component	Specification
Total Ports	36
Port Speed	40 Gbps (QSFP+), supporting 40GbE & FCoE
Chassis Type	Cisco ONE Nexus
Form Factor	1RU, Rack-mountable



Virtualization and Cloud Readiness

The Cisco Nexus 5600 switch platform is optimized for high-performance, virtualized, and cloud-based data centers. With integrated support for NVGRE and VXLAN, it ensures efficient resource utilization and meets bandwidth demands, allowing fast deployment of servers and services in rapidly evolving IT environments.

High Density and Serviceability

36 QSFP+ 40GbE ports provide dense connectivity for rackmount servers with minimum cabling complexity. The rear placement of ports and power ensures efficient layout, while hot-swappable power and fan modules make servicing quick and reduce downtime, supporting mission-critical operations.

LAN and SAN Convergence

Unified connectivity is delivered through support of Fibre Channel over Ethernet (FCoE) and classic LAN protocols. This enables both server and storage access using a single, converged infrastructure driving down equipment and operational costs and simplifying data center architecture.

Scalable Line-Rate Layer 2 & 3

Hardware-accelerated switching and full routing protocols (OSPF, BGP, EIGRP) ensure predictable wire-speed performance for any traffic size or pattern. The platform is built for both traditional and highly virtualized workloads, handling large east-west and north-south data flows efficiently.

Flexible Buffer Management

Dynamic 25MB buffer allocation per port group allows adaptive response to congestion events. This ensures smooth handling of traffic bursts, reduces packet loss, and improves the experience for time-sensitive applications and storage traffic.

Robust Traffic Monitoring

Up to 31 SPAN/ERSPAN sessions are supported at line rate, enabling comprehensive, nondisruptive traffic analysis for troubleshooting and network health monitoring. Enhanced bandwidth allocation features ensure analysis activities never impact data-plane performance.

Advanced Multicast Support

Line-rate multicast forwarding at both Layer 2 and 3 supports up to 32,000 multicast routes, efficient replication, IGMP snooping, and advanced protocols like Bidir-PIM. This underpins reliable delivery of video, storage, and control traffic in multi-tenant and media-rich environments.

Enterprise Class Reliability

With >200,000-hour MTBF, redundant power (1+1) and fan (N+1) design, and front-to-back airflow, the Nexus 5600 meets high uptime and energy efficiency requirements. Modular Cisco NX-OS allows secure, programmable, and automated control to further boost operational resilience.

Technical Specifications

Product Specifications

Feature	Value
Chassis Type	Cisco ONE Nexus
Form Factor	1RU, Rack-mountable
Total Ports	36
Port Speed	40 Gbps (QSFP+), supporting 40GbE & FCoE
Uplink Flexibility	Supports breakout cables (4x10G per QSFP+); Native 40G only, no fixed 10G/25G ports
Switch Fabric Capacity	1.44 Tbps (non-blocking)
Forwarding Rate	1.44 Bpps (billion packets per second)
Layer Support	L2/L3 (Full routing protocols: OSPF, BGP, EIGRP)
Buffer Memory	Shared dynamic allocation (varies per traffic profile)
Power Supplies	2 (hot-swappable, 1+1 redundancy)
Fans	3 (hot-swappable, N+1 redundancy)



Feature	Value
Cooling	Front-to-back airflow
MTBF	>200,000 hours (~22.8 years)
DRAM	8 GB (for routing tables & TCAM)
Flash Memory	2 GB (OS & boot images)
Operating System	Cisco NX-OS (modular, feature-rich)
Management Options	CLI (SSH/Telnet), SNMPv3, Cisco DCNM (Data Center Network Manager)
QoS	Hardware-accelerated (8 queues per port, DSCP/CoS marking)
Dimensions (H x W x D)	1.72 in (4.37 cm) x 17.3 in (43.9 cm) x 27.0 in (68.6 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)

Product Comparison

Feature	C1-N5K-C5648-B-36Q	C1-N5696-B-24Q	C1-N3K-C3172TQ
Total Ports	36 x 40GbE (QSFP+)	24 x 40GbE (QSFP+)	48 x 10GbE (RJ-45/SFP+), 6 x 40GbE (QSFP+)
Switch Fabric Capacity	1.44 Tbps (non-blocking)	1.92 Tbps	1.4 Tbps
Forwarding Rate	1.44 Bpps	1.44 Bpps	1 Bpps
Layer Support	L2/L3, OSPF, BGP, EIGRP	L2/L3	L2/L3
Redundant Power	2 (hot-swappable, 1+1)	2 (hot-swappable)	2 (hot-swappable)
Hot-swappable Fans	3 (N+1)	4 (N+1)	4 (N+1)
Management Options	CLI (SSH/Telnet), SNMPv3, DCNM	CLI, SNMP	CLI, SNMP
Port Speed	40 Gbps (QSFP+) only	40 Gbps (QSFP+)	10 Gbps / 40 Gbps mixed



Accessories

Category	Accessories
Included Accessories	<ul style="list-style-type: none">- Power Supplies (2x hot-swappable)- Rack Mount Kit- Basic QSFP+ Dust Covers
Optional Accessories	<ul style="list-style-type: none">- QSFP+ 40G Transceiver Module- QSFP+ Breakout Cable- Spare Hot-Swap Fan Module



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References

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[2] Cisco. (2023). Cisco Nexus 5000 Series Switches Product Bulletin. Retrieved from <https://www.cisco.com/c/en/us/products/collateral/switches/nexus-5000-series-switches/bulletin-c25-735319.html>