

# Cisco

# C1-N3K-C3048TP

## Datasheet



## Product Overview

- Cisco's C1-N3K-C3048TP is part of the Nexus 3000 Series, offering high-density 1RU switching for mission-critical network environments.
- Tailored for data centers, enterprise networks, and service provider infrastructures, it is ideal for integrators and end users needing robust Layer 2/3 performance.
- The switch comes equipped with 48 × 10/100/1000BASE-T (RJ45) ports and 4 × 1/10G SFP+ uplinks, 176 Gbps switching capacity, and 132 Mpps forwarding rate.
- Advanced protocol support, including BGP, OSPF, VRF-lite, plus 4096 VLANs and up to 128,000 MAC addresses distinguish this device from competitors.
- Centralized management via CLI, SNMP, NETCONF, accompanied by hot-swappable power supplies and redundant fans, ensures stable, simple operations.
- Perfect for modernization, the C1-N3K-C3048TP streamlines deployment, boosts network reliability, and delivers high-speed connectivity for evolving business needs.

## Product Highlights

- **High Port Density:** 48 × 10/100/1000BASE-T plus 4 × 1/10G SFP+ provide versatile connectivity for dense aggregation or access layer roles.
- **Redundant Power and Cooling:** Features dual hot-swappable power supplies and redundant fan trays, ensuring continuous, resilient operation.
- **Advanced L2/L3 Support:** Supports protocols such as VLANs, MSTP, BGP, OSPF, and VRF-lite for scalable enterprise deployments.
- **Comprehensive Security:** Access control, DHCP snooping, ARP inspection, and CoPP provide strong protection for sensitive business environments.

## Detailed Features



### C1-N3K-C3048TP

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Component	Specification
Switching Ports	48 × 10/100/1000BASE-T (RJ45)
Uplink Ports	4 × 1/10G SFP+
Switching Capacity	176 Gbps
Forwarding Rate	132 Mpps
Redundancy	Dual hot-swappable power supplies, redundant fan tray



## High-Density 1RU Configuration

C1-N3K-C3048TP delivers 48 × 10/100/1000BASE-T and 4 × 1/10G SFP+ ports within 1RU, maximizing port availability in limited rack space. This compact form matches high-density data center access and enterprise aggregation needs, reducing overall hardware footprint and increasing deployment flexibility while maintaining high throughput.

## Robust Redundancy

With dual hot-swappable power supplies and redundant fan trays, the switch ensures high availability. Redundant components protect essential network operations from hardware faults and power module failures. These features help minimize downtime and allow maintenance during operation, which is crucial for enterprise and service provider reliability.

## Advanced L2/L3 Capabilities

Comprehensive features include VLAN, PVST+, Rapid PVST+, MSTP, vPC, LACP, and extensive Layer 3 support with BGP, OSPF, EIGRP, and VRF-lite. These protocols facilitate scalable, resilient network architectures and enable seamless integration into hybrid and multi-tenant environments, essential in dynamic business settings.

## High Performance and Scalability

With a non-blocking 176 Gbps switching capacity and low latency (<1 μs for 64-byte packets), the switch supports bandwidth-intensive tasks. It offers 132 Mpps forwarding, up to 9216-byte jumbo frames, and 128,000 MAC addresses, making it suitable for fast-growing environments with heavy east-west traffic and virtualization.

## Enhanced Security Framework

Security is bolstered by Layer 2-4 ACLs, DHCP snooping, Dynamic ARP Inspection, and strict control-plane policing (CoPP). These mechanisms defend against common network attacks, unauthorized access, and address spoofing, safeguarding core switching infrastructure and protecting enterprise assets.

## Efficient Operations & Management

Supports CLI, SNMP (v1/v2/v3), SSH, Telnet, and NETCONF, simplifying setup and monitoring across large deployments. Features like RMON, SPAN, and ERSPAN enhance traffic analysis and troubleshooting. Both console and dedicated management ports ensure flexible access for administrators.

## Comprehensive QoS Capabilities

Eight queues per port, granular DSCP/CoS marking, and advanced queuing controls (WRED/WRR) allow precise traffic classification and prioritization. This optimizes bandwidth allocation, enhances latency-sensitive application performance, and supports QoS requirements in converged network environments.

## Enterprise-Ready Compliance & Reliability

Supports IEEE 802.1D/p/Q/s/w, 802.3ad/z/ae standards for interoperability. Complies with UL/EN/IEC 60950 and NEBS Level 3 for safety, and includes robust multicast support (PIM, IGMPv2/v3, MSDP). The switch is built to meet demanding data center and enterprise core/aggregation layer standards.

# Technical Specifications

## Product Specifications

Feature	Value
Form Factor	1RU fixed-configuration switch
Port Configuration	48 × 10/100/1000BASE-T (RJ45) ports
Port Configuration	4 × 1/10G SFP+ uplink ports
Power Supplies	2 (redundant, hot-swappable)
Cooling	Single fan tray with redundant fans
Switching Capacity	176 Gbps
Forwarding Rate	132 Mpps
Jumbo Frames	Up to 9216 bytes
Latency	<1 μsec (64-byte packets)
MAC Addresses	128,000



Feature	Value
VLANs Supported	4096
Spanning Tree Instances (RSTP)	512
Spanning Tree Instances (MSTP)	64
ACL Entries Ingress	2000
ACL Entries Egress	1000
Routing Table Prefixes	16,000
Routing Table Host Entries	16,000
EtherChannels	52 (max 16 ports per channel)
Shared Buffer	9 MB
Boot Flash	2 GB
Onboard Memory	4 GB
Power Input (AC)	100-240V, 50-60Hz (89-91% efficiency)
Power Input (DC)	-40 to -72V (85-88% efficiency)
Power Consumption Typical	120W
Power Consumption Maximum	124W
Heat Dissipation Typical	409 BTU/hr
Heat Dissipation Maximum	423 BTU/hr
Operating Temperature Min	0°C (32°F)
Operating Temperature Max	40°C (104°F)
Humidity	10-85% non-condensing
Layer 2 Features	IEEE 802.1Q VLANs, PVST+, Rapid PVST+, MSTP (802.1w/s), vPC, LACP (802.3ad), Storm control
Layer 3 Features	Static, RIP, OSPF, EIGRP, BGP, VRF-lite, HSRP, VRRP, uRPF (strict/loose), Multicast: PIM-SM/SSM, IGMPv2/v3, MSDP
QoS	8 queues per port, DSCP/CoS marking, WRED/WRR
Security	ACLs (L2-L4), DHCP snooping, Dynamic ARP inspection, CoPP
Management Interfaces	1 × RJ45 console, 1 × 10/100/1000 management
Management Protocols	SNMPv1/v2/v3, SSH, Telnet, NETCONF
Monitoring	SPAN, ERSPAN, RMON
Time Synchronization	NTP, PTP (IEEE 1588)



Feature	Value
Physical Dimensions	1.72 × 17.3 × 19.7 in (4.4 × 43.9 × 50.5 cm)
Compliance Standards	IEEE 802.1D/p/Q/s/w, 802.3ad/z/ae; Safety: UL/EN/IEC 60950, NEBS Level 3
MIBs Support	Full SNMP/RMON support
Licensing	Base License: Layer 2+, Optional: Layer 3 (Enterprise Services)

## Product Comparison

Feature	C1-N3K-C3048TP	C1-N3K-C3172PQ-XL	C1-N3K-C3172TQ-XL
Fixed Ports	48 × 10/100/1000BASE-T (RJ45) + 4 × 1/10G SFP+	48 × SFP+ + 4 × QSFP+	48 × 10GBASE-T + 6 × QSFP+
Switching Capacity	176 Gbps	1.4 Tbps	1.4 Tbps
Forwarding Rate	132 Mpps	1 Bpps	1 Bpps
Redundant Power	Supported	Supported	Supported
Hot-Swappable Fans	Yes	Yes	Yes
Layer 3 Routing	Static, OSPF, BGP, VRF-lite, etc.	OSPF, BGP, VRF-lite	OSPF, BGP, VRF-lite
Management Interfaces	RJ45 Console, 1G Mgmt	RJ45 Console, 1G Mgmt	RJ45 Console, 1G Mgmt
Stacking	Not Supported	Supported (Up to 6)	Supported (Up to 6)
Port Media	Copper & Fiber	Full Fiber & High Speed	Full Copper & High Speed

## Accessories

Category	Accessories
Included Accessories	<ul style="list-style-type: none"> <li>- AC Power Supply</li> <li>- Rack Mount Kit</li> <li>- Console Cable</li> </ul>
Optional Accessories	<ul style="list-style-type: none"> <li>- SFP+ Transceiver Module</li> <li>- Redundant Power Supply</li> <li>- DC Power Module</li> </ul>



## Support & Warranty



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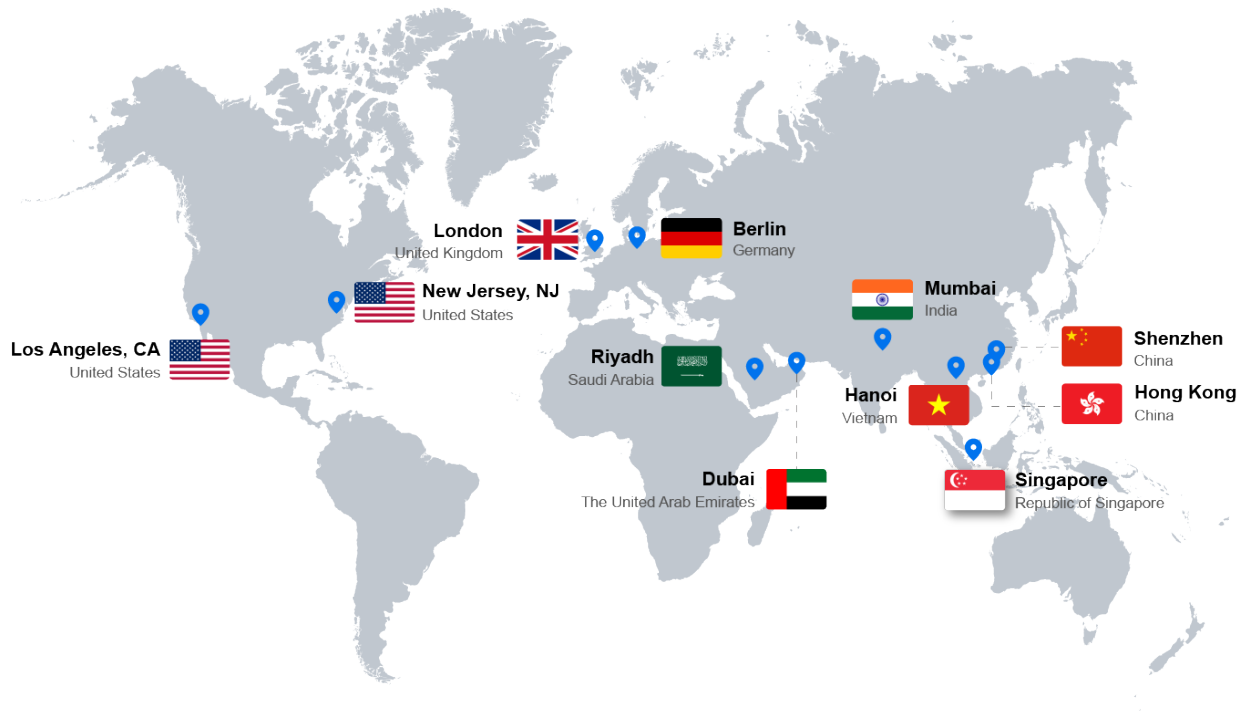
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## References

[1] Cisco. (2023). Nexus 3000 Series Switches Data Sheet. Retrieved from [https://www.cisco.com/c/en/us/products/collateral/switches/nexus-3000-series-switches/data\\_sheet\\_c78-685363.html](https://www.cisco.com/c/en/us/products/collateral/switches/nexus-3000-series-switches/data_sheet_c78-685363.html)