N3K-C3172PQ-Z8 Datasheet

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Overview

The Cisco Nexus 3172PQ-XL (N3K-C3172PQ-XL) is a 1 rack unit (RU) switch with 8GB of RAM and dual-core 2.5GHz x86 CPUs and 10-Gigabit enhanced small form-factor pluggable (SFP+) ports with 48 SFP+ ports and 6 Quad SFP+ (QSFP+) ports. Each SFP+ port can operate in 100-Mbps, 1-Gbps, or 10-Gbps mode, and each QSFP+ port can operate in native 40-Gbps or 4 x 10-Gbps mode. The Cisco Nexus 3172PQ-XL is a minor hardware revision of the Cisco Nexus 3172PQ respectively. Enhancements include an additional 4 GB of memory (for a total of 8 GB). The additional memory allows users to perform object-model programming.

The Accessories

Table 2 shows recommended accessories.

Models	Description
L-N3K-LAN1K9=	Nexus 3000 LAN Enterprise License, eDelivery
GLC-SX-MMD	Cisco GLC-SX-MMD 1000BASE-SX SFP transceiver module, MMF, 850nm, DOM
GLC-LH-SMD	Cisco GLC-LH-SMD 1000BASE-LX/LH SFP transceiver module, MMF/SMF, 1310nm, DOM
SFP-10G-SR	10GBASE-SR SFP Module
SFP-H10GB-CU1M	Cisco Direct-Attach Twinax Copper Cable Assembly with SFP+ Connectors SFP-H10GB-CU1M
SFP-H10GB-CU5M	SFP-H10GB-CU5M,5M Passive Copper Twinax Cable F, Nexus,24AWG cable assembly
QSFP-H40G-CU5M	Cisco QSFP to QSFP copper direct-attach 40GBASE-CR4 cable QSFP-H40G-CU5M
QSFP-40G-LR4	40GBase-LR4 Optical Transceiver,QSFP+,40GE,Single-mode Module(1310nm,10km,LC)

Compare to Similar Items

Table 3 shows the comparison of similar items.

Product Code	N3K-C3172PQ-Z8	N3K-C3172TQ-XL
Enclosure Type	1 RU	1 RU
Switching Capacity	1.4-Tbps	1.4-Tbps
Forwarding Rate	Up to 1 bpps	Up to 1 bpps
Configurable Maximum Transmission Units (MTUs)	Up to 9216 bytes (jumbo frames)	Up to 9216 bytes (jumbo frames)
Ports	48 x SFP+ ports and 6 x Quad SFP+ (QSFP+) ports	48 x 10GBase-T RJ-45 and 6 x QSFP+ ports
Dimensions (H x W x D)	4.4 x 43.9 x 43.2 cm	4.4 x 43.9 x 50.5 cm

N3K-C3172PQ-Z8 Specifications		
Physical	· 1RU fixed form factor · 72 x 10 Gigabit Ethernet ports (48 SFP+ and 6 QSFP+) ◦ 48 SFP ports support 1 and 10 Gigabit Ethernet ◦ 6 QSFP ports support 4 x 10 Gigabit Ethernet or 40 Gigabit Ethernet each ● Redundant fans (3+1) ● 2 redundant power supplies ● Management, console, and USB flash-memory ports	
Performance	● 1.4-Tbps switching capacity ● Forwarding rate of up to 1 bpps ● Line-rate traffic throughput (both Layer 2 and 3) on all ports ● Configurable maximum transmission units (MTUs) of up to 9216 bytes (jumbo frames)	
Hardware tables and	Number of MAC addresses	288,000

scalability	Number of VLANS	4096
	Number of spanning-tree instances	● RSTP: 512 ● MSTP: 64
	Number of ACL entries	● 4000 ingress ● 1000 egress
	Routing table	● 16,000 prefixes and 16,000 host entries* ● 8000 multicast routes*
	Number of EtherChannels	64 (with vPC)
	Number of ports per EtherChannel	32
	System memory	8 GB
	Buffer size	12 MB shared
	Boot flash	16 GB
Power	Number of power supplies	2
	Power supply types	● AC (forward and reversed airflow) ◦ - N2200-PAC-400W and N2200-PAC-400W-B (PQ models) ◦ - NXA-PAC-500W and NX-PAC-500W-B (TQ models) ● DC (forward and reversed airflow) ◦ - N2200-PDC-400W and N3K-PDC-350W-B (PQ models) ◦ - NXA-PDC-500W and NX-PDC-500W-B (TQ models)
	Typical operating power	143 W
	Maximum power	293W
	AC PSUs ● Input voltage ● Frequency ● Efficiency	● 100 to 240 VAC ● 50 to 60 Hz ● 89 to 91% at 220V
	DC PSUs ● Input voltage ● Maximum current (PSU output – System input) ● Efficiency	● -40 to -72 VDC ● 33A (400W unit), 42A (500W unit) ● 85 to 88%
	Typical heat dissipation	488 BTU/hr

	Maximum heat dissipation	1000 BTU/hr
Cooling	● Forward and reversed airflow schemes: ◦ Forward airflow: Port-side exhaust (air enters through fan-tray and power supplies and exits through ports) ◦ Reversed airflow: Port-side intake (air enters through ports and exits through fan-tray and power supplies) ● Redundant fans ● Hot swappable (must swap within 1 minute)	
Sound	Measured sound power (maximum) ● Fan speed: 40% duty cycle ● Fan speed: 70% duty cycle ● Fan speed: 100% duty cycle	● 64.9 dBA ● 69.3 dBA ● 76.7 dBA
Environment	Dimensions (height x width x depth)	1.72 x 17.3 x 17 in. (4.4 x 43.9 x 43.2 cm)
	Weight	18.6 lb (8 4 kg)
	Operating temperature	● 32 to 104°F (0 to 40°C)
	Storage temperature	● -40 to 158°F (-40 to 70°C)
	Operating relative humidity	● 10 to 85% noncondensing ● Up to 5 days at maximum (85%) humidity ● Recommend ASHRAE data center environment
	Storage relative humidity	● 5 to 95% noncondensing
	Altitude	● 0 to 10,000 ft (0 to 3000m)
Safety and EMC		
Regulatory compliance	● Products should comply with CE Markings per directives 2004/108/EC and 2006/95/EC.	
Safety	● UL 60950-1 Second Edition ● CAN/CSA-C22.2 No. 60950-1 Second Edition ● EN 60950-1 Second Edition ● IEC 60950-1 Second Edition ● AS/NZS 60950-1 ● GB4943	
EMC: Emissions	● 47CFR Part 15 (CFR 47) Class A ● AS/NZS CISPR22 Class A ● CISPR22 Class A ● EN55022 Class A ● ICES003 Class A ● VCCI Class A ● EN61000-3-2 ● EN61000-3-3 ● KN22 Class A ● CNS13438 Class A	
EMC: Immunity	● EN55024 ● CISPR24 ● EN300386 ● KN24	
RoHS	● RoHS 5 compliant except for lead press-fit connectors	
Management and Standards Support		

MIB Support	Generic MIBs ● SNMPv2-SMI ● CISCO-SMI ● SNMPv2-TM ● SNMPv2-TC ● IANA-ADDRESS-FAMILY-NUMBERS-MIB ● IANAifType-MIB ● IANAiprouteprotocol-MIB ● HCNUM-TC ● CISCO-TC ● SNMPv2-MIB ● SNMP-COMMUNITY-MIB ● SNMP-FRAMEWORK-MIB ● SNMP-NOTIFICATION-MIB ● SNMP-TARGET-MIB ● SNMP-USER-BASED-SM-MIB ● SNMP-VIEW-BASED-ACM-MIB ● CISCO-SNMP-VACM-EXT-MIB ● MAU-MIB ● CISCO-SWITCH-QOS-MIB ● CISCO-CLASS-BASED-QOS-MIB Ethernet MIBs ● CISCO-VLAN-MEMBERSHIP-MIB ● LLDP-MIB ● IP-MULTICAST-MIB Configuration MIBs ● ENTITY-MIB ● IF-MIB ● CISCO-ENTITY-EXT-MIB ● CISCO-ENTITY-FRU-CONTROL-MIB ● CISCO-ENTITY-SENSOR-MIB ● CISCO-SYSTEM-MIB ● CISCO-SYSTEM-EXT-MIB ● CISCO-IP-IF-MIB ● CISCO-IF-EXTENSION-MIB ● CISCO-NTP-MIB ● CISCO-VTP-MIB ● CISCO-IMAGE-MIB ● CISCO-IMAGE-UPGRADE-MIB	Monitoring MIBs ● NOTIFICATION-LOG-MIB ● CISCO-SYSLOG-EXT-MIB ● CISCO-PROCESS-MIB ● RMON-MIB ● CISCO-RMON-CONFIG-MIB ● CISCO-HC-ALARM-MIB Security MIBs ● CISCO-AAA-SERVER-MIB ● CISCO-AAA-SERVER-EXT-MIB ● CISCO-COMMON-ROLES-MIB ● CISCO-COMMON-MGMT-MIB ● CISCO-SECURE-SHELL-MIB Miscellaneous MIBs ● CISCO-LICENSE-MGR-MIB ● CISCO-FEATURE-CONTROL-MIB ● CISCO-CDP-MIB ● CISCO-RF-MIB Layer 3 and Routing MIBs ● UDP-MIB ● TCP-MIB ● OSPF-MIB ● BGP4-MIB ● CISCO-HSRP-MIB
Standards	● IEEE 802.1D: Spanning Tree Protocol ● IEEE 802.1p: CoS Prioritization ● IEEE 802.1Q: VLAN Tagging ● IEEE 802.1s: Multiple VLAN Instances of Spanning Tree Protocol ● IEEE 802.1w: Rapid Reconfiguration of Spanning Tree Protocol ● IEEE 802.3z: Gigabit Ethernet ● IEEE 802.3ad: Link Aggregation Control Protocol (LACP) ● IEEE 802.3ae: 10 Gigabit Ethernet (Cisco Nexus 3064-X) ● IEEE 802.3ba: 40 Gigabit Ethernet ● IEEE 802.3an:10GBASE-T (Cisco Nexus 3064-T) ● IEEE 802.1ab: LLDP ● IEEE 1588-2008: Precision Time Protocol (Boundary Clock)	

RFC	BGP ● RFC 1997: BGP Communities Attribute ● RFC 2385: Protection of BGP Sessions with the TCP MD5 Signature Option ● RFC 2439: BGP Route Flap Damping ● RFC 2519: Framework for Interdomain Route Aggregation ● RFC 2545: Use of BGPv4 Multiprotocol Extensions ● RFC 2858: Multiprotocol Extensions for BGPv4 ● RFC 3065: Autonomous System Confederations for BGP ● RFC 3392: Capabilities Advertisement with BGPv4 ● RFC 4271: BGPv4 ● RFC 4273: BGPv4 MIB: Definitions of Managed Objects for BGPv4 ● RFC 4456: BGP Route Reflection ● RFC 4486: Subcodes for BGP Cease Notification Message ● RFC 4724: Graceful Restart Mechanism for BGP ● RFC 4893: BGP Support for 4-Octet AS Number Space OSPF ● RFC 2328: OSPF Version 2 ● 8431RFC 3101: OSPF Not-So-Stubby-Area (NSSA) Option ● RFC 3137: OSPF Stub Router Advertisement ● RFC 3509: Alternative Implementations of OSPF Area Border Routers ● RFC 3623: Graceful OSPF Restart ● RFC 4750: OSPF Version 2 MIB RIP ● RFC 1724: RIPv2 MIB Extension ● RFC 2082: RIPv2 MD5 Authentication ● RFC 2453: RIP Version 2 IP Services ● RFC 768: UDP ● RFC 783: Trivial File Transfer Protocol (TFTP) ● RFC 791: IP ● RFC 792: ICMP ● RFC 793: TCP ● RFC 826: ARP ● RFC 854: Telnet ● RFC 959: FTP ● RFC 1027: Proxy ARP ● RFC 1305: Network Time Protocol (NTP) Version 3 ● RFC 1519: Classless Interdomain Routing (CIDR) ● RFC 1542: BootP Relay ● RFC 1591: Domain Name System (DNS) Client ● RFC 1812: IPv4 Routers ● RFC 2131: DHCP Helper ● RFC 2338: VRRP IP Multicast ● RFC 2236: IGMPv2 ● RFC 3376: IGMPv3 ● RFC 3446: Anycast Rendezvous Point Mechanism Using PIM and MSDP ● RFC 3569: Overview of SSM ● RFC 3618: MSDP ● RFC 4601: PIM-SM: Protocol Specification (Revised) ● RFC 4607: SSM for IP ● RFC 4610: Anycast-RP using PIM ● RFC 5132: IP Multicast MIB
Software Features	
Layer 2	● Layer 2 switch ports and VLAN trunks ● IEEE 802.1Q VLAN encapsulation ● Support for up to 4096 VLANs ● Rapid Per-VLAN Spanning Tree Plus (PVRST+) (IEEE 802.1w compatible) ● MSTP (IEEE 802.1s): 64 instances ● Spanning Tree PortFast ● Spanning Tree Root Guard ● Spanning Tree Bridge Assurance ● Cisco EtherChannel technology (up to 32 ports per EtherChannel) ● LACP: IEEE 802.3ad ● Advanced port-channel hashing based on Layer 2, 3, and 4 information ● vPC ● Jumbo frames on all ports (up to 9216 bytes) ● Storm control (unicast, multicast, and broadcast) ● Private VLANs ● NvGRE entropy ● Resilient hashing

Layer 3	● Layer 3 interfaces: Routed ports on interfaces, switch virtual interfaces (SVIs), port channels, and subinterfaces (total: 1024) ● 64-way ECMP ● 4000 ingress and 1000 egress ACL entries ● IPv6 routing: Static, OSPFv3, and BGPv6 ● Routing protocols: Static, RIPv2, EIGRP, OSPF, and BGP ● Bidirectional Flow Detection (BFD) for BGP, OSPF, and IPv4 static routes ● HSRP and VRRP ● ACL: Routed ACL with Layer 3 and 4 options to match ingress and egress ACLs ● VRF: VRF-lite (IP VPN), VRF-aware unicast (BGP, OSPF, and RIP), and VRF-aware multicast ● Unicast Reverse-Path Forwarding (uRPF) with ACL; strict and loose modes ● Jumbo frame support (up to 9216 bytes) ● Generic Routing Encapsulation (GRE) tunneling ● Advanced BGP features including BGP add-path for eBGP and iBGP, remove-private-as enhancements and eBGP next hop unchanged ● IP-in-IP Tunnel support
Multicast	● Multicast: PIMv2, PIM-SM, and PIM-SSM ● Bootstrap router (BSR), Auto-RP, and Static RP ● MSDP and Anycast RP ● Internet Group Management Protocol (IGMP) Versions 2 and 3
Quality of Service (QoS)	● Layer 2 IEEE 802.1p (class of service [CoS]) ● 8 hardware queues per port ● Per-port QoS configuration ● CoS trust ● Port-based CoS assignment ● Modular QoS CLI (MQC) compliance ● ACL-based QoS classification (Layers 2, 3, and 4) ● MQC CoS marking ● Differentiated services code point (DSCP) marking ● Weighted Random Early Detection (WRED) ● CoS-based egress queuing ● Egress strict-priority queuing ● Egress port-based scheduling: Weighted Round-Robin (WRR) ● Explicit Congestion Notification (ECN) ● Configurable ECN marking per port ● Priority Flow Control (with 3 no-drop queues and 1 default queue with strict priority scheduling between queues ● Policy Based Routing (PBR)
Security	● Ingress ACLs (standard and extended) on Ethernet ● Standard and extended Layer 3 and 4 ACLs include IPv4, Internet Control Message Protocol (ICMP), TCP, and User Datagram Protocol (UDP) ● VLAN-based ACLs (VACLs) ● Port-based ACLs (PACLs) ● Named ACLs ● ACLs on virtual terminals (vtys) ● DHCP snooping with Option 82 ● Port number in DHCP Option 82 ● DHCP relay ● Dynamic Address Resolution Protocol (ARP) inspection ● Configurable CoPP ● SPAN with ACL filtering
Cisco Nexus Data Broker	● Topology support for TAP and SPAN aggregation ● Support for QinQ to tag input source TAP and SPAN ports ● Configuration of symmetric hashing to load-balance traffic to multiple tools ● Traffic filtering based on Layer 1 through Layer 4 header information ● Traffic replication and forwarding to multiple monitoring tools ● Robust RBAC ● Northbound representational state transfer (REST) API for all programmability support

Management	• POAP • Python scripting • Cisco EEM • Switch management using 10/100/1000-Mbps management or console ports • CLI-based console to provide detailed out-of-band management • In-band switch management • Locator and beacon LEDs • Configuration rollback • SSHv2 • Secure Copy (SCP) server • Telnet • AAA • AAA with RBAC • RADIUS • TACACS+ • Syslog • Syslog generation on system resources (for example, FIB tables) • Embedded packet analyzer • SNMP v1, v2, and v3 • Enhanced SNMP MIB support • XML (NETCONF) support • Remote monitoring (RMON) • Advanced Encryption Standard (AES) for management traffic • Unified username and passwords across CLI and SNMP • Microsoft Challenge Handshake Authentication Protocol (MS-CHAP) • Digital certificates for management between switch and RADIUS server • Cisco Discovery Protocol Versions 1 and 2 • RBAC • SPAN on physical layer, port channel, and VLAN • Tunable buffer allocation for SPAN • Encapsulated Remote SPAN (ERSPAN) • Ingress and egress packet counters per interface • PTP (IEEE 1588) boundary clock • Network Time Protocol (NTP) • Cisco OHMS • Comprehensive bootup diagnostic tests • Cisco Call Home • Cisco DCNM • Advanced buffer utilization monitoring • sFlow

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