N5K-C5596UP-FA Datasheet

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Overview

N5K-C5596UP-FA is the Cisco Nexus 5596UP Switch, including 48 fixed unified ports, Front-to-Back Airflow, 2 1100W AC Power Supplies, Fan Trays, 3 Expansion Slots.

Quick Specs

**Figure 1 shows the appearance of Cisco Nexus 5596UP Switch. N5K-C5596UP-FA is its chassis.**

Table 1 shows the Quick Specs.

| Product Code	N5K-C5596UP-FA
Performance	Layer 2 hardware forwarding at 1920 Gbps or 1428 mpps; Layer 3 performance of up to 160 Gbps or 240 mpps
Form Factor	2RU
Fixed Ports	48 fixed unified ports
Power Supplies	2 1100W AC Power Supplies
Fan Modules	4
Expansion Slots	3
Airflow	Front-to-Back
Physical (height x width x depth)	3.47 x 17.3 x 29.5 in. (8.8 x 43.9 x 74.9 cm)
Weight with two 1100W power supplies, 3 unified port expansion modules, and 4 fan modules	47.5 lb (21.55 kg)

Product Details

Figure 2 shows the front panel of Cisco Nexus 5596UP Switch. N5K-C5596UP-FA is its chassis.
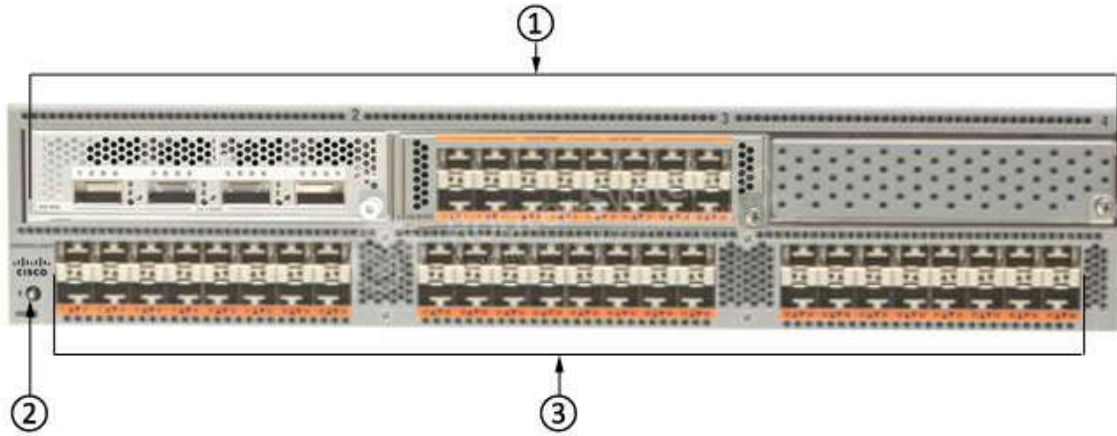
Note:

(1)	Expansion modules, shown here with three 16-port Universal GEM2 modules (can also have Layer 3 GEM2 modules)
(2)	Identifier LED
(3)	48 fixed 1- and 10-Gigabit Ethernet ports

Figure 3 shows the back panel of Cisco Nexus 5596UP Switch. N5K-C5596UP-FA is its chassis.
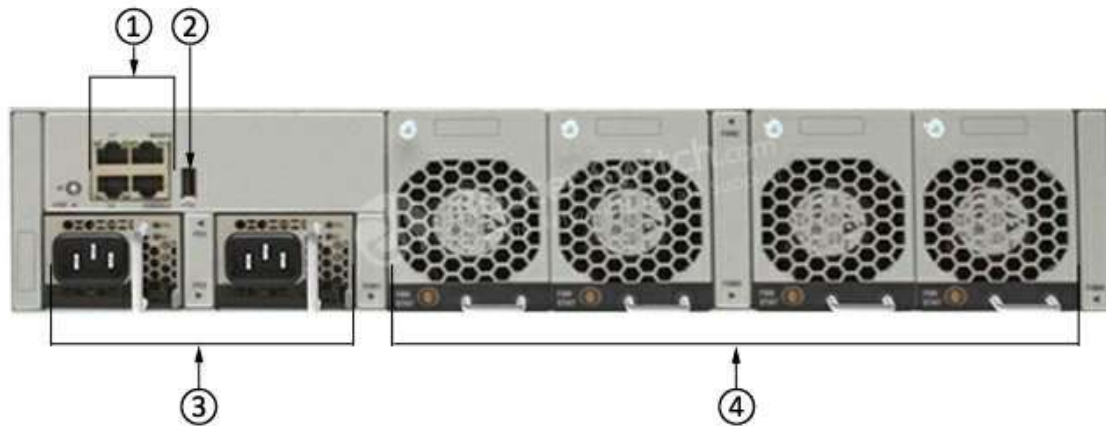
Note:

(1)	Management and console ports (two RJ-45 Ethernet connector ports on the left, a RJ-45 network management connector on the upper right, and a console connector on the lower right)
(2)	USB port
(3)	Two power supplies
(4)	Four fan modules

The Accessories

Table 2 shows the recommended elements for the N5K-C5596UP-FA.

Category	Model	Description
Nexus 5500 Expansion Slot	N55-M16UP	Nexus 5500 Unified Ports Module 16p, Spare
	N55-D160L3-V2	Nexus 5596 Layer 3 Expansion Module, Version 2
N5K Transceiver and Cable	SFP-H10GB-CU1M	10GBASE-CU SFP+ Cable 1 Meter

	SFP-H10GB-ACU7M	Cisco Direct-Attach Active Optical Cables with SFP+ Connectors, SFP-H10GB-ACU7M
License	N55-48P-SSK9	Nexus 5500 Storage License, 48 Ports

Compare to Similar Items

Table 3 shows the comparison of N5K-C5596UP-FA, N5K-C5596T-FA and N5K-C5548UP-FA.

Product Code	N5K-C5596UP-FA	N5K-C5596T-FA	N5K-C5548UP-FA
Form Factor	2RU	2RU	1RU
Fixed Ports	48 fixed unified ports	32x10GT/16xSFP+ Fixed Ports	32 fixed unified ports
Power Supplies	2 1100W AC Power Supplies	2 1100W AC Power Supplies	2 750W AC Power Supplies
Fan Modules	4	4	2
Expansion Slots	3	3	1
Airflow	Front-to-Back	Back-to-Front	Front-to-Back

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Specification

N5K-C5596UP-FA Specifications	
Performance	● Layer 2 hardware forwarding at 1920 Gbps or 1428 mpps; Layer 3 performance of up to 160 Gbps or 240 mpps ● MAC address table entries: 32,000 ● Low-latency cut-through design that provides predictable, consistent traffic latency regardless of packet size, traffic pattern, or enabled features on 10 Gigabit Ethernet interfaces ● Line-rate traffic throughput on all ports
Interfaces	● 48 fixed ports configurable as 1 and 10 Gigabit Ethernet and FCoE or 8/4/2/1-Gbps native Fibre Channel; additional interfaces through up to three expansion modules ● Expansion modules ● 16-port 1 and 10 Gigabit Ethernet and FCoE module ● 8-port 8/4/2/1-Gbps Fibre Channel plus 8-port 1 and 10 Gigabit Ethernet and FCoE module ● Unified port module consisting of 16 ports configurable as 8/4/2/1-Gbps Fibre Channel or 1 and 10 Gigabit Ethernet and FCoE ● 4-port QSFP expansion module ● 12-port 10G BASE-T module (Cisco Nexus 5596T only) ● Layer 3 module (Cisco Nexus 5596UP and 5596T only; one per system) ● Layer 3 daughter card (Cisco Nexus 5548P and 5548UP only; one per system) ● Extension through the Cisco Nexus 2000 Series

Layer 2 Features	● 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) ● Multiple Spanning Tree Protocol (MSTP) (IEEE 802.1s): 64 instances ● Spanning Tree PortFast ● Spanning Tree root guard ● Spanning Tree Bridge Assurance ● Cisco EtherChannel technology (up to 16 ports per EtherChannel) ● Cisco vPC technology ● Enhanced vPC enable vPC between Cisco Nexus 5000 and 2000 Series as well as between Cisco Nexus 3000 Series and end host ● vPC configuration synchronization ● Link Aggregation Control Protocol (LACP): IEEE 802.3ad ● Advanced port channel hashing based on Layer 2, 3, and 4 information ● Jumbo frames on all ports (up to 9216 bytes) ● Pause frames (IEEE 802.3x) ● Storm control (unicast, multicast, and broadcast) ● Private VLANs ● Private VLAN over trunks (isolated and promiscuous) ● Private VLANs over vPC and EtherChannels ● VLAN Remapping ● Cisco FabricPath ● EvPC and vPC+ with FabricPath ● Cisco Adapter FEX ● Cisco Data Center VM FEX ● Support for up to 24 fabric extenders on each Cisco Nexus 5500 platform
Layer 3 Features	● Layer 3 interfaces: Routed ports on Cisco Nexus 5500 platform interfaces, switch virtual interface (SVI), port channels, subinterfaces, and port channel subinterfaces for a total of 4096 entries ● Support for up to 8000 prefixes and up to 16000 IPv4 and 8000 IPv6 host entries ● Support for up to 8000 multicast routes ● Support for up to 8000 IGMP groups ● Support for 1000 VRF entries ● Support for up to 4096 VLANs ● 16-way equal-cost multipathing (ECMP) ● 1664 ingress and 2048 egress access control list (ACL) entries ● Routing protocols: Static, Routing Information Protocol Version2 (RIPv2), Enhanced Interior Gateway Routing Protocol (EIGRP), Open Shortest Path First Version 2 (OSPFv2), and Border Gateway Protocol (BGP) ● IPv6 Routing Protocols: Static, Open Shortest Path First Version 3 (OPFv3), Border Gateway Protocol (BGPv6), Enhanced Interior Gateway Routing Protocol (EIGRPv6) ● IPv6 VRF Lite ● Hot-Standby Router Protocol (HSRP) and Virtual Router Redundancy Protocol (VRRP) ● ACL: Routed ACL with Layer 3 and 4 options to match ingress and egress ACL ● Multicast: Protocol Independent Multicast Version 2 (PIMv2) sparse mode, Source Specific Multicast (SSM), Multicast Source Discovery Protocol (MSDP), Internet Group Management Protocol Versions 2, and 3 (IGMP v2, and v3), and Multicast VLAN Registration (MVR) ● Virtual Route Forwarding (VRF): VRF-lite (IP VPN); VRF-aware unicast; and BGP-, OSPF-, RIP-, and VRF-aware multicast ● Unicast Reverse Path Forwarding (uRFP) with ACL; strict and loose modes ● Jumbo frame support (up to 9216 bytes) ● Support for up to 16 fabric extender on each Nexus 5500 with L3 modules ● RFC 896
QoS	● Layer 2 IEEE 802.1p (CoS) ● 8 hardware queues per port ● Per-port QoS configuration ● CoS trust ● Port-based CoS assignment ● Modular QoS CLI (MQC) compliance - IPv4 and IPv6 ● ACL-based QoS classification (Layers 2, 3, and 4) ● MQC CoS marking ● Per-port virtual output queuing ● CoS-based egress queuing ● Egress strict-priority queuing ● Egress port-based scheduling: Weighted Round-Robin (WRR) ● Control Plan Policing (CoPP) - IPv4 and IPv6

Security	● Ingress ACLs (standard and extended) on Ethernet and virtual Ethernet ports
	● Standard and extended Layer 2 ACLs: MAC addresses, protocol type, etc.
	● Standard and extended Layer 3 to 4 ACLs: IPv4 and IPv6, Internet Control Message Protocol (ICMP and ICMPv6), TCP, User Datagram Protocol (UDP), etc.
	● VLAN-based ACLs (VACLs)
	● Port-based ACLs (PACLs)
	● Named ACLs
	● Optimized ACL distribution
	● ACLs on virtual terminals (VTYs)
	● ACL logging on management interface
	● Dynamic Host Configuration Protocol (DHCP) snooping with Option 82
	● Dynamic Address Resolution Protocol (ARP) Inspection
	● IP source guard
	● DHCP relay
	● Cisco CTS (Authentication and Policy download from ACS)
	● Ethernet Port Security
	● IPv6 RACL
	● IPv6 PACL
	● IPv6 VACL

High-Availability Features	● In-Service Software Upgrade (ISSU) for Layer 2
	● Hot-swappable field-replaceable power supplies, fan modules, and expansion modules
	● 1:1 power redundancy
	● N:1 fan module redundancy

Management	● 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 on Cisco Nexus 2000 Series
	● Port-based locator and beacon LEDs
	● Configuration synchronization
	● Module preprovisioning
	● Configuration rollback
	● Secure Shell Version 2 (SSHv2)
	● Telnet
	● AAA
	● AAA with RBAC
	● RADIUS
	● TACACS+
	● Syslog (8 servers)
	● Embedded packet analyzer
	● SNMPv1, v2, and v3 (IPv4 & IPv6)
	● 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
	● Switched Port Analyzer (SPAN) on physical, port channel, VLAN, and Fibre Channel interfaces
	● Encapsulated Remote SPAN (ERSPAN)
	● Ingress and egress packet counters per interface
	● Network Time Protocol (NTP)
	● Cisco GOLD
	● Comprehensive bootup diagnostic tests
	● Call Home
	● Smart Call Home
	● Cisco Fabric Manager
	● Cisco DCNM
	● CiscoWorks LAN Management Solution (LMS)

Data Center Bridging	● CEE- and IEEE-compliant PFC (per-priority Pause frame support)
	● PFC link distance support: 3000m
	● CEE-compliant DCBX Protocol
	● CEE- and IEEE-compliant Enhanced Transmission Selection

Fibre Channel and FCoE Features (Requires Storage Services License)	● T11 standards-compliant FCoE (FC-BB-5) ● T11 FCoE Initialization Protocol (FIP) (FC-BB-5) ● Any 10 Gigabit Ethernet port configurable as FCoE ● SAN administration separate from LAN administration ● FCP ● Fibre Channel forwarding (FCF) ● Fibre Channel standard port types: E, F, and NP ● Fibre Channel enhanced port types: VE, TE, and VF ● F-port trunking ● F-port channeling ● Direct attachment of FCoE and Fibre Channel targets ● Up to 240 buffer credits per native Fibre Channel port ● Up to 32 VSANs per switch ● Fibre Channel (SAN) port channel ● Native Interop Mode 1 ● Native Interop Mode 2 ● Native Interop Mode 3 ● Native Interop Mode 4 ● VSAN trunking ● Fabric Device Management Interface (FDMI) ● Fibre Channel ID (FCID) persistence ● Distributed device alias services ● In-order delivery ● Port tracking ● Cisco N-Port Virtualization (NPV) technology ● N-port identifier virtualization (NPIV) ● Fabric services: Name server, registered state change notification (RSCN), login services, and name-server zoning ● Per-VSAN fabric services ● Cisco Fabric Services ● Diffie-Hellman Challenge Handshake Authentication Protocol (DH-CHAP) and Fibre Channel Security Protocol (FC-SP) ● Distributed device alias services ● Host-to-switch and switch-to-switch FC-SP authentication ● Fabric Shortest Path First (FSPF) ● Fabric binding for Fibre Channel ● Standard zoning ● Port security ● Domain and port ● Enhanced zoning ● SAN port channels ● Cisco Fabric Analyzer ● Fibre Channel traceroute ● Fibre Channel ping ● Fibre Channel debugging ● Cisco Fabric Manager support ● Storage Management Initiative Specification (SMI-S) ● Boot from SAN over VPC/EVPC
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
Layer 3 MIBs	● UDP-MIB ● TCP-MIB ● OSPF-MIB ● BGP4-MIB ● CISCO-HSRP-MIB

Fibre Channel MIBs	• CISCO-ST-TC • CISCO-FC-FE-MIB • CISCO-FCSP-MIB • CISCO-PORT-TRACK-MIB • CISCO-PSM-MIB • CISCO-FC-SPAN-MIB • CISCO-PORT-CHANNEL-MIB • CISCO-RSCN-MIB • CISCO-NS-MIB • CISCO-FCS-MIB • CISCO-DM-MIB • FIBRE-CHANNEL-FE-MIB • CISCO-FC-ROUTE-MIB • CISCO-FSPF-MIB • CISCO-ZS-MIB • CISCO-ZS-EXT-MIB • CISCO-VSAN-MIB • CISCO-CFS-MIB • CISCO-FCPING-MIB • CISCO-FCTRACEROUTE-MIB • CISCO-FDMI-MIB • CISCO-FC-DEVICE-ALIAS-MIB • CISCO-WWNMGR-MIB • FCMGMT-MIB • CISCO-VEDM-MIB • CISCO-FCOE-MIB
Ethernet MIBs	• CISCO-VLAN-MEMBERSHIP-MIB • CISCO-Virtual-Interface-MIB
Configuration MIBs	• ENTITY-MIB • IF-MIB • CISCO-ENTITY-EXT-MIB • CISCO-ENTITY-FRU-CONTROL-MIB • CISCO-ENTITY-SENSOR-MIB • CISCO-FLASH-MIB • CISCO-SYSTEM-MIB • CISCO-SYSTEM-EXT-MIB • CISCO-IP-IF-MIB • CISCO-IF-EXTENSION-MIB • CISCO-SERVER-INTERFACE-MIB • CISCO-NTP-MIB • CISCO-IMAGE-MIB • CISCO-IMAGE-CHECK-MIB • CISCO-IMAGE-UPGRADE-MIB • CISCO-CONFIG-COPY-MIB • CISCO-ENTITY-VENDORTYPE-OID-MIB • CISCO-BRIDGE-MIB
Monitoring MIBs	• DIFFSERV-DSCP-TC • NOTIFICATION-LOG-MIB • DIFFSERV-MIB • CISCO-CALLHOME-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-RADIUS-MIB • CISCO-SECURE-SHELL-MIB • TCP/IP MIBs • INET-ADDRESS-MIB • TCP-MIB • CISCO-TCP-MIB • UDP-MIB • IP-MIB • CISCO-IP-PROTOCOL-FILTER-MIB • CISCO-DNS-CLIENT-MIB • CISCO-PORTSECURITY- MIB

Miscellaneous MIBs	• START-MIB • CISCO-LICENSE-MGR-MIB • CISCO-FEATURE-CONTROL-MIB • CISCO-CDP-MIB • CISCO-RF-MIB • CISCO-ETHERNET-FABRIC-EXTENDER-MIB • CISCO-BRIDGE-MIB
Industry Standards	• IEEE 802.1D: Spanning Tree Protocol • IEEE 802.1p: CoS prioritization • IEEE 802.1Q: VLAN tagging • IEEE 802.1Qaz: Enhanced transmission selection • IEEE 802.1Qbb: Per-priority Pause • IEEE 802.1s: Multiple VLAN instances of Spanning Tree Protocol • IEEE 802.1w: Rapid reconfiguration of Spanning Tree Protocol • IEEE 802.3: Ethernet • IEEE 802.3ad: LACP with fast timers • IEEE 802.3ae: 10 Gigabit Ethernet • SFF 8431 SFP+ CX1 support • RMON • IEEE 1588-2008: Precision Time Protocol (Boundary Clock)
Fibre Channel Standards	• FC-PH, Revision 4.3 (ANSI/INCITS 230-1994) • FC-PH, Amendment 1 (ANSI/INCITS 230-1994/AM1 1996) • FC-PH, Amendment 2 (ANSI/INCITS 230-1994/AM2-1999) • FC-PH-2, Revision 7.4 (ANSI/INCITS 297-1997) • FC-PH-3, Revision 9.4 (ANSI/INCITS 303-1998) • FC-PI, Revision 13 (ANSI/INCITS 352-2002) • FC-PI-2, Revision 10 (ANSI/INCITS 404-2006) • FC-PI-4, Revision 7.0 • FC-FS, Revision 1.9 (ANSI/INCITS 373-2003) • FC-FS-2, Revision 0.91 • FC-LS, Revision 1.2 • FC-SW-2, Revision 5.3 (ANSI/INCITS 355-2001) • FC-SW-3, Revision 6.6 (ANSI/INCITS 384-2004) • FC-GS-3, Revision 7.01 (ANSI/INCITS 348-2001) • FC-GS-4, Revision 7.91 (ANSI/INCITS 387-2004) • FC-BB-5, Revision 2.0 for FCoE • FCP, Revision 12 (ANSI/INCITS 269-1996) • FCP-2, Revision 8 (ANSI/INCITS 350-2003) • FCP-3, Revision 4 (ANSI/INCITS 416-2006) • FC-MI, Revision 1.92 (INCITS TR-30-2002, except for FL-ports and Class 2) • FC-MI-2, Revision 2.6 (INCITS TR-39-2005, except for FL-ports and Class 2) • FC-SP, Revision 1.6 • FC-DA, Revision 3.1 (INCITS TR-36-2004, except for FL-ports, SB-ports and Class 2) • Class of Service: Class 3, Class F • Fibre Channel standard port types: E and F • Fibre Channel enhanced port types: SD and TE
Physical Specifications	
SFP+ Optics	Cisco Nexus 5500 platform supports 10 Gigabit Ethernet SFP+ copper Twinax cables for short distances and SFP+ optics (10GBASE-SR, 10GBASE-LR, 10GBASE-ER, GLC-ZX-SM and Cisco Nexus 2000 Series Fabric Extender Transceiver [FET-10G]) for longer distances. SFP+ has several advantages compared to other 10 Gigabit Ethernet connectivity options: • Small 10 Gigabit Ethernet form factor • Optical interoperability with XENPAK, X2, and XFP interface types • Low power consumption • Hot-swappable device • Cisco Nexus 5500 platform products support 8-Gbps Fibre Channel-compatible SFP+ for native Fibre Channel connectivity options; 8-Gbps Fibre Channel-compatible short-reach and 10-km long-reach SFP transceiver modules operate at 8/4/2 Gbps and are supported in the 8‑Gbps-capable native Fibre Channel ports on expansion modules and unified ports
Physical (height x width x depth)	3.47 x 17.3 x 29.5 in. (8.8 x 43.9 x 74.9 cm)
Operating temperature	32 to 104°F (0 to 40°C)
Nonoperating (storage) temperature	-40 to 158°F (-40 to 70°C)
Humidity	5 to 95% (noncondensing)
Altitude	0 to 10,000 ft (0 to 3000m)
Weight	47.5 lb (21.55 kg)

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