WS-C4500X-40X-ES
Datasheet

Overview

WS-C4500X-40X-ES is one of the Catalyst 4500-X series switches. The Catalyst 4500-X series switch is a fixed aggregation switch that delivers best-in-class scalability, simplified network virtualization, and integrated network services for space-constrained environments in campus networks.

Quick Specs

**Figure 1 shows the appearance of WS-C4500X-40X-ES.**

Table 1 shows the Quick Specs.

Product Code	WS-C4500X-40X-ES
Product Type	Layer 3 Switch
Number of Total Expansion Slots	40
Expansion Slot Type	SFP+
Shared SFP Slot	No
PoE (RJ-45) Port	No
Expansion Module (Optional)	8x10 GE SFP+/SFP - C4KX-NM-8SFP+
Management Port	10/100/1000 Base-T
USB Port	Type A (storage and boot) up-to 4 GB
Dual Power Supply	Yes
Field Replaceable Fans	Yes (5 fans)
Fan Redundancy	No performance impact with single fan failure
System Throughput	Up to 800 Gbps
Forwarding Entries	16x10 GE Port Base SKU: IPv4: 64K, IPv6: 32K
Flexible Netflow Entries	128K

Onboard Memory (SRAM DDR-II)	4 GB
Port Buffers	32-MB Shared Memory
CPU	Dual Core 1.5 GHz
NVRAM	2 GB
Optional External Memory (SD Card)	2 GB
System Power Consumption	330W nominal/400W max ·Power supplies, either AC-input or DC-input, are not included in the basic configuration; they are ordered separately
Airflow	Back-to-front airflow (fan assemblies and the power supplies are color coded blue)
Mean time between failures (MTBF)	199,720 h
Chassis dimensions	1.75 x 17.25 x 21 in. (4.4 x 43.8 x 53.3 cm) (H x W x D)
Chassis weight	·20 lb (9.07 kg) (without power supplies) ·22 lb (9.98 kg) (with one power supply installed) ·24 lb (10.89 kg) (with two power supplies installed)

Product Details

Figure 2 shows the front panel of WS-C4500X-40X-ES.
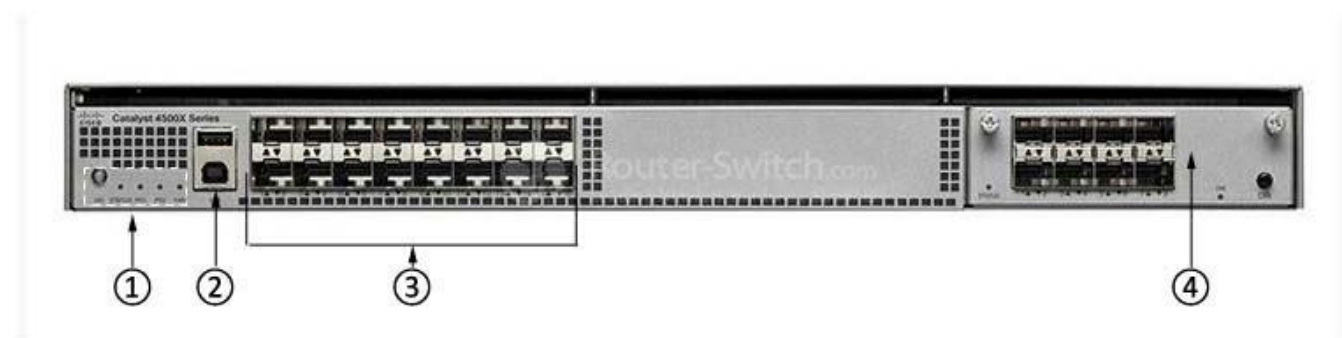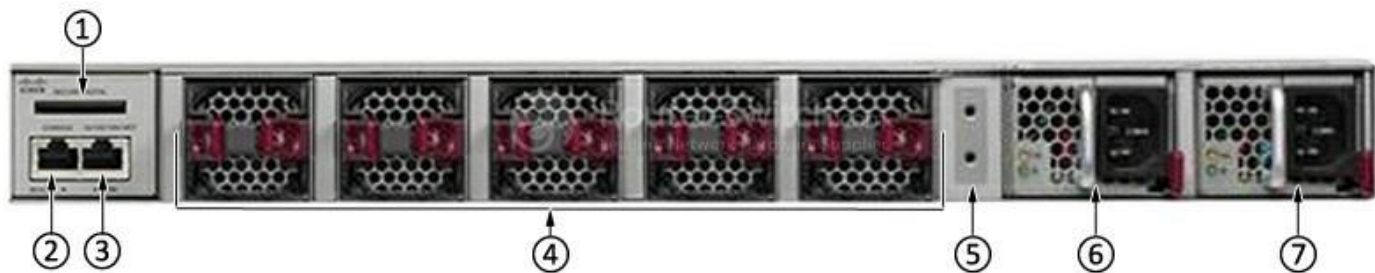

Note:

(1) LEDs Area

(2) USB ports (2 ports) Top port is a Type A connector; bottom port is a Type B connector

(3) 16 × Ethernet ports

(4) 8-port uplink module slot (Purchased alone)

Figure 3 shows the back panel of WS-C4500X-40X-ES.

Note:

(1) SECURE DIGITAL port

(2) CONSOLE port

(3) 10/100/1000 MGT port

(4) Fan assemblies (5 assemblies)

(5) Chassis ground pad

(6) Power supply bay (AC-input power supply shown installed)

(7) Power supply bay (AC-input power supply shown installed)

The Accessories

Table 2 shows the recommended elements for the WS-C4500X-40X-ES.

Category	Model	Description
AC Power Supplies	C4KX-PWR-750AC-R/2	Catalyst 4500X 750W AC front to back cooling 2nd PWR supply
	C4KX-PWR-750AC-R	Catalyst 4500X 750W AC front to back cooling power supply
CARD	C4KX-NM-8SFP+	Catalyst 4500X 8 Port 10G Network Module
CONSOLE CABLES	CAB-CONSOLE-RJ45	Console Cable 6ft with RJ45 and DB9F
1G SFP	GLC-SX-MMD	1000BASE-SX SFP transceiver module, MMF, 850nm, DOM
	GLC-BX-U	1000BASE-BX SFP, 1310NM
10G SFP	SFP-10G-SR	10GBASE-SR SFP Module
	SFP-H10GB-CU1M	10GBASE-CU SFP+ Cable 1 Meter

Compare to Similar Items

Table 3 shows the comparison of WS-C4500X-40X-ES and WS-C4500X-16SFP+.

Model	WS-C4500X-40X-ES	WS-C4500X-16SFP+
Base System	Back to Front Airflow	Front to Back Airflow
MTBF Information	199,720 h	209,330 h
Fan assemblies	5 assemblies (fan assemblies and the power supplies are color coded blue)	5 assemblies (fan assemblies and the power supplies are color coded burgundy)

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Specification

WS-C4500X-40X-ES Specification	
System	
Expansion Module (Optional)	8x10 GE SFP+/SFP - C4KX-NM-8SFP+
Management Port	10/100/1000 Base-T
USB Port	Type A (storage and boot) up-to 4 GB
Dual Power Supply	Yes
Field Replaceable Fans	Yes (5 fans)
Fan Redundancy	No performance impact with single fan failure
Scalability	
System Throughput	Up to 800 Gbps
IPv4 Routing in Hardware	Up to 250 Mpps
IPv6 Routing in Hardware	Up to 125 Mpps
L2 Bridging in Hardware	Up to 250 Mpps
Media Access Control (MAC) Entries	55K
Flexible Netflow Entries	128K
Switched Port Analyzer (SPAN), Remote Switched Port Analyzer (RSPAN)	8 line rate bidirectional sessions (ingress and egress)
Total VLANs	4094
Total Switched Virtual Interfaces (SVIs)	4094
IGMP groups	32K
Dynamic Host Configuration Protocol (DHCP) Snooping Entries	12K (DHCP snooping bindings)
ARP Entries	47K
Spanning Tree Protocol Instances	10K
Jumbo Frame Support for Bridged and Routed Packets	Up to 9216 bytes
High Availability and Resiliency	
High Availability Solution	Virtual Switching System (VSS)
Number of stackable switches in VSS	Up to 2
VSS Throughput	Up to 1.6 Tbps
Virtual Switch Link	1GE or 10GE
Max number of Virtual Switch Links	8
In-Service Software Upgrade	Across the switches

WS-C4500X-40X-ES Specification

Nonstop Forwarding with Stateful Switchover	Across the switches

CPU and Memory

Onboard Memory (SRAM DDR-II)	4 GB
Port Buffers	32-MB Shared Memory
CPU	Dual Core 1.5 GHz
NVRAM	2 GB
Optional External Memory (SD Card)	2 GB

QoS Features

Port Queues	8 Queues/Port
CPU Queues	64
QoS Entries	128K (64K ingress and 64K in egress) Shared with ACL
Aggregate Rate-Limiting	Ingress port or VLAN and egress VLAN or Layer 3 port
Rate-Limiting Level Types	Committed Information Rate (CIR), Peak Information Rate (PIR)
Aggregate Traffic Rate-Limiting Policers (1K=1024)	16K
Flow-Based Rate-Limiting Method; Number of Rates	Supported using flow-records in the classification criteria and policing action
Qos Policy Enforcement	Per Port or Per Vlan or Per Port, Per VLAN Granularity
Class of Service (CoS)	Yes
Differentiated Services Code Point (DSCP)	Yes

Security Features

Port Security	Yes
IEEE 802.1x and 802.1x Extensions	Yes
VLAN, Router, and Port ACLs	Yes
Security ACL Entries (1K=1024)	128K (64K ingress and 64K in egress) Shared with QoS
Unicast Reverse Path Forwarding (uRPF) Check in Hardware	Yes
CPU Rate Limiters (DoS Protection) Includes Control Plane Policing	Yes
Private VLANs	Yes
Micro Flow Policer	Yes. Supported using flow records in the class-map
CPU HW Rate Limiters by Packet Per Second (pps) and Bit Rate Policers (bps)	Supported in hardware control-plane policing (CoPP)
Control Plane Policing (CoPP) for Multicast	Yes
ACL Labels	Yes

WS-C4500X-40X-ES Specification

Port ACL	Yes
Traffic Storm Control (formally known as Broadcast/Multicast Suppression)	Yes
Virtualization Features	
VRF-Lite Scalability	64
Easy Virtual Network (EVN) Scalability	32
Environmental Conditions	
Operating Temperature	0°C to 40°C (RH to 90%)
Storage Temperature	-40°C to 70°C (RH 93%)
Operating Altitude	60m below sea level to 3000m above sea level
Relative Humidity	Nonoperating Humidity: 95% RH
Acoustic Noise Measured per ISO 7779 and Declared per ISO 9296 Bystander Positions Operating to an Ambient Temperature of 25°C	Industrial Product: 65 dBA maximum
RoHS	Reduction of Hazardous Substances (ROHS) 5
Power Supply	
AC Power Max Rating	750W
System Power Consumption	330W nominal/400W max
Input-Voltage Range and Frequency	AC 100 to 240 VAC 50-60 Hz/DC -72 VDC to -40 VDC
DC Power Max Rating	750W
AC to DC failover and vice versa	Yes
Total Output BTU (Note: 1000 BTU/hr = 293W)	1122 BTU/hr (330 W) nominal/1365 BTU/hr (400 W) max
Input Current	AC 11A @ 110VAC, 6 A @ 200VAC/DC 25A Max
Output Ratings	12V @ 62A & 3.3V @ 3A
Output Holdup Time	AC = 16 ms; DC = 4 ms @ maximum load
Power-Supply Input Receptacles	AC IEC 60320 C15/DC Custom detachable screw terminal (supplied)
Power Cord Rating	AC 15A/DC 25A
MTBF Information	
WS-C4500X-24X-ES	209,330
WS-C4500X-40X-ES	199,720
WS-C4500X-F-16SFP+	209,330
WS-C4500X-F-32SFP+	199,720
C4KX-FAN-R	L10 Life 60,000 at 40C
Regulatory Standards Compliance	
Regulatory Compliance	CE marking

WS-C4500X-40X-ES Specification	
EMI and EMC Compliance	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 EN55024 CISPR24 EN300386 KN24
Safety Certifications	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
Industry EMC, Safety, and Environmental Standards	GR-63-Core Network Equipment Building Systems (NEBS) Level 3 GR-1089-Core Level 3

Download Resource

Selection Decision

📄 **Cisco's New Switch Selection Decision 2018**

Support and Resources

📄 **Cisco Catalyst 4500-x Series Fixed 10 Gigabit Ethernet Aggregation Switch Data Sheet**

Transition Guide

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