Cisco Catalyst 4500-X Series Fixed 10 Gigabit Ethernet Aggregation Switch Data Sheet

Router-Switch.com
Leading Network Hardware Supplier

CONTENT

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OVERVIEW

Cisco® 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. It meets business growth objectives with unprecedented scalability, simplifies network virtualization with support for one-to-many (Cisco Easy Virtual Networks [EVN]) and many-to-one (Virtual Switching System [VSS]) virtual networks, and enables emerging applications by integrating many network services.

APPEARANCE

Figure 1. Cisco Catalyst 4500-X Series Switches

KEY FEATURES AND BENEFITS

- **Performance and scalability**
  ◦ 800-Gbps switching capacity with up to 250 Mpps of throughput
  ◦ External USB and SD card support for flexible storage options
  ◦ 10/100/1000 RJ-45 console and management port
  ◦ IPv6 support in hardware, providing wired-network-rate forwarding for IPv6 networks and support for dual stack with innovative resource utilization
  ◦ Dynamic hardware forwarding-table allocations for ease of IPv4-to-IPv6 migration

- Scalable routing (IPv4, IPv6, and multicast) tables, Layer 2 tables, and ACL and quality of service (QoS) entries to make use of eight queues per port and comprehensive security policies per port

- **Infrastructure services**

- Cisco IOS XE Software, the modular open application platform for virtualized borderless services

- Maximum resiliency with redundant components, Nonstop Forwarding/Stateful Switchover (NSF/SSO), and In-Service Software Upgrade (ISSU) support in a VSS enabled system

- Network virtualization through Multi-VRF technology for Layer 3 segmentation

- Automation through Embedded Event Manager (EEM), Cisco Smart Call Home, AutoQoS, and Auto SmartPorts for fast provisioning, diagnosis, and reporting

- **Cisco Borderless Networks services**

- Optimized application performance through deep visibility with Flexible NetFlow supporting rich Layer 2/3/4 information (MAC, VLAN, TCP flags) and synthetic traffic monitoring with IP service-level agreement (SLA)

- Medianet capabilities to simplify video quality of service, monitoring, and security. In addition, multicast features such as Protocol Independent Multicast (PIM) and Source-Specific Multicast (SSM) provide enterprise customers with the additional scalability to support multimedia applications

- **Investment protection and reduced TCO**

Cisco Catalyst 4500-X Series eliminates the need for standalone solutions by integrating many network services. Customers can lower the total cost of ownership while streamlining management and accelerating deployment time. Integrated network services available on Cisco Catalyst 4500-X Series include:

- Application visibility and control (Flexible NetFlow, Cisco IOS Embedded Event Manager)

- Security with Cisco TrustSec

- Troubleshooting video or any User Datagram Protocol-based flows (Mediatrace)

- Video network readiness assessment (built-in traffic simulator with IP SLA Video Operation)

- Ability to run third-party applications (Wireshark)

PRODUCT SPECIFICATIONS OF CISCO CATALYST 4500-X SERIES SWITCH

Cisco Catalyst 4500-X Switch Series Performance and Scalability Features	
Product Number	Description
System	
Base System	Front to Back Airflow: ● 32x10 GE SFP+/SFP - WS-C4500X-32SFP+ ● 16x10 GE SFP+/SFP - WS-C4500X-16SFP+ Back to Front Airflow: ● 32x10 GE SFP+/SFP - WS-C4500X-F-32SFP+ ● 16x10 GE SFP+/SFP - WS-C4500X-F-16SFP+
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
Forwarding Entries	32x10 GE Port Base SKU: IPv4: 256K, IPv6: 128K 16x10 GE Port Base SKU: IPv4: 64K, IPv6: 32K
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
Multicast routes	32x10 GE Port Base SKU: IPv4: 32K, IPv6: 32K 16x10 GE Port Base SKU: IPv4: 24K, IPv6: 12K
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
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
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
Simplified Operations	
Smart Install	Smart Install Director2

CISCO CATALYST 4500-X SERIES SWITCH ORDERING INFORMATION

Product Number	Product Description
WS-C4500X-16SFP+	Catalyst 4500-X 16 Port 10GE IP Base, Front-to-Back Cooling, No P/S
WS-C4500X-24X-IPB	Catalyst 4500-X 24 Port 10GE IP Base, Front-to-Back Cooling, No P/S
WS-C4500X-24X-ES	Catalyst 4500-X 24 Port 10GE Enterprise Services, Front-to-Back Cooling, No P/S
WS-C4500X-32SFP+	Catalyst 4500-X 32 Port 10GE IP Base, Front-to-Back Cooling, No P/S

WS-C4500X-40X-ES	Catalyst 4500-X 40 Port 10GE Enterprise Services, Front-to-Back Cooling, No P/S
C4KX-NM-8SFP+	Catalyst 4500-X 8 Port 10GE Network Module
WS-C4500X-F-16SFP+	Catalyst 4500-X 16 Port 10GE IP Base, Back-to-Front Cooling, No P/S
WS-C4500X-F-32SFP+	Catalyst 4500-X 32 Port 10GE IP Base, Back-to-Front Cooling, No P/S
C4KX-FAN-F	Catalyst 4500-X Back-to-Front Cooling Fan
C4KX-FAN-R=	Catalyst 4500-X Front-to-Back Cooling Fan
C4KX-PWR-750AC-F	Catalyst 4500-X 750W AC Back-to-Front Cooling Power Supply
C4KX-PWR-750AC-R	Catalyst 4500-X 750W AC Front-to-Back Cooling Power Supply
C4KX-PWR-750DC-F	Catalyst 4500-X 750W DC Back-to-Front Cooling Power Supply
C4KX-PWR-750DC-R	Catalyst 4500-X 750W DC Front-to-Back Cooling Power Supply
CAB-CON-C4K-RJ45	Console Cable 6ft with RJ-45-to-RJ-45
SD-X45-2GB-E	Cisco Catalyst 4500 2-GB SD card
USB-X45-4GB-E	Cisco Catalyst 4500 4-GB USB device
S45XU-33-1511SG	Cisco IOS Software XE Release 3.3.0 SG non-crypto universal image for Cisco Catalyst 4500-X 32-port and 40-port models
S45XUK9-33-1511SG	Cisco IOS Software XE Release 3.3.0 SG crypto universal image for Cisco Catalyst 4500-X 32-port and 40-port models
S45XU-331-1511SG	Cisco IOS Software XE Release 3.3.1 SG non-crypto universal image for Cisco Catalyst 4500-X 16-port and 24-port models

S45XUK9-331-1511SG	Cisco IOS Software XE Release 3.3.1 SG crypto universal image for Cisco Catalyst 4500-X 16-port and 24-port models
S45XU-34-1512SG	Cisco IOS Software XE Release 3.4.0 SG non-crypto universal image for all Cisco Catalyst 4500-X models
S45XUK9-34-1512SG	Cisco IOS Software XE Release 3.4.0 SG crypto universal image for all Cisco Catalyst 4500-X models
C4500X-LIC=	Base product ID for software upgrade licenses on Catalyst 4500-X (paper delivery)
C4500X-IPB	Catalyst 4500-X IP BASE software license (paper delivery)
C4500X-16P-IP-ES	Catalyst 4500-X IP BASE to Enterprise Services upgrade license (paper delivery) for 16-port and 24-port models
C4500X-IP-ES	Catalyst 4500-X IP BASE to Enterprise Services upgrade license (paper delivery) for 32-port and 40-port models
L-C4500X-LIC=	Catalyst 4500-X Base product ID for software upgrade licenses (electronic delivery)
L-C4500X-IPB	Catalyst 4500-X IP BASE software license (electronic delivery)
L-C4500X-16P-IP-ES=	Catalyst 4500-X IP BASE to Enterprise Services upgrade license (electronic delivery) for 16-port and 24-port models
L-C4500X-IP-ES=	Catalyst 4500-X IP BASE to Enterprise Services upgrade license (electronic delivery) for 32-port and 40-port models

SOURCES

https://www.cisco.com/c/en/us/products/collateral/switches/catalyst-4500-x-series-switches/data_sheet_c78-696791.html