Cisco Switch Guide

Scalable, intelligent LAN switching for campus, branch, and data center networks of all sizes

Cisco® Nexus 7000, Catalyst® 6500 and Catalyst 4500 Series Modular Switches

Cisco Nexus 5000, Nexus 3000, Catalyst 4900, Catalyst 3750-X, Catalyst 3750-E, Catalyst 3750, Catalyst 3560-E, Catalyst 3560-X, Catalyst 3560, Catalyst 2960-S, Catalyst 2960, and Catalyst Express Series Fixed-Configuration Switches, Cisco Nexus 2000 Fabric Extender, Nexus 4000 Blade Switches, Nexus 1000V Virtual Switches, and Optics

Summer 2011 V.7

Cisco's Portfolio of LAN Switches

Scalable, intelligent LAN switching for Campus, Branch, and Data Center networks of all sizes.

This is your guide to Cisco's portfolio of switches, the industry's most advanced and versatile portfolio of modular, fixed-configuration, blade, and virtual LAN switches for your campus, branch, or data center.

Individually, these switches offer the performance and features required for nearly any deployment, from traditional small workgroups, wiring closets, and network cores, to highly virtualized and converged corporate data centers. Working together, they are the building blocks of an integrated network that delivers scalable and intelligent services protecting, optimizing, and growing your network as your business needs evolve.

The network is the platform delivering business agility and efficiency. However, the proliferation of connected devices coupled with new requirements around secure application delivery, bandwidth-intense rich media applications, energy efficiency, as well as the need to deliver access to these applications anywhere, anytime, has left networks, and network managers, looking for holistic and simple solutions to their business challenges.

Cisco, the worldwide leader in networking systems for organizations of every size, offers an architectural approach to networking that makes it easy for organizations to adapt and grow within and across geographic boundaries. Through a secure and intelligent infrastructure that delivers non-stop application availability and performance coupled with seamless scalability, supporting a growing number of connected devices, rich media applications, as well as physical and virtual resources in a converged infrastructures is made simple.

Cisco Switches

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Series Overview

Intelligent Switching for the Integrated Network

From edge to core, Cisco switches provide a complete range of services for all levels of application intelligence, unified network services, integrated security, virtualization, non-stop communications and operational manageability.

Modular Switches

Cisco Nexus 7000 Series

Cisco Nexus 7000 Series Switches are Cisco's Flagship modular switching platform for data center Unified Fabric deployments and for highly scalable campus core deployments. They are designed for exceptional 10 GE, 40 GE and 100 GE scalability with the industry's highest resiliency features and unmatched deployment flexibility for the data center core, aggregation, access and campus core. It's industry leading NX-OS innovations and robust feature set enable you to build the next generation network fabrics for both data centers and campus.

System Scalability:
Designed for up to 15Tbps of switching capacity and high density 10 GE, 40 GE and 100 GE, the modular 10- or 18-slot chassis scales up to 768 1 GE ports or 512 10 GE ports. Paired with the Nexus 2000 Series, the Nexus 7000 can scale to 32 fabric extenders, supporting up to 1536 Gigabit Ethernet servers per Cisco Nexus 7000 chassis.

Network Scalability:
Beyond the system scalability, the Nexus 7000 offers several features to scale the network itself. Cisco FabricPath enables customers to massively scale Layer 2 networks up to 160+ Tbps without the use of spanning-tree. For IP network scalability, Location/ID Seperation Protocol (LISP), enables IP portability and dynamic IP route look-up significantly increasing the scalability of layer 3 IP networks.

Operational Continuity:
Designed from the ground up with the goal of delivering continuous operations, the Nexus 7000 and NX-OS deliver a predictable and highly resilient switching platform for the most demanding network environments. With granular process modularity, automatic fault isolation and containment, the industry's only true hitless In Service Software Uprade (ISSU) capability and tightly integrated hardware resiliency features, the Nexus 7000 running NX-OS delivers the industry's most reliable operating system for operational continuity.

Network Consolidation and Segmentation:
The Nexus 7000 offer numerous industry leading innovations for converging and segmenting the network infrastructure, LANs and WANs, significantly lowering TCO. Virtual Device Contexts (VDC), virtualize a single physical switch into multiple secure (PCI certified) logical switches for infrastructure consolidation. FCoE enables LAN and SAN network consolidation from server to storage, reducing network sprawl while increasing network agility. Other key features that enable WAN and LAN segmentation and convergence include MPLS, OTV, and VRF.

Virtualization and Cloud Enablement:
The Nexus 7000 and NX-OS innovations enable highly scalable virtualization deployments for both intra and inter data center deployments, essentially allowing any workload, any location at any scale. FabricPath enables a highly scalable fabric for large virtualized server deployments, enabling workload mobility across the data center. OTV and LISP allow seamless workload mobility between geographically separated data centers and also for bursting workloads to cloud providers. These and other features on the Nexus 7000 establish the foundation for large scale virtualization and cloud enablement.

Cisco Catalyst 6500 Series

The Catalyst switching platform delivers the highest levels of services for every place in the network. Industry-leading scalability (32 Gbps to 1.4 Tbps) and the broadest offering of interfaces provide excellent solutions for the Wiring Closet, Distribution, Core, Data Center, Wide-Area Network routing, and Metro-Ethernet.

Integrated Security:
H/W accelerated Flexible Packet Matching, H/W-based Control Plane Policing; Integrated H/W NetFlow; 802.1x enhancements; firewall, intrusion prevention and anomaly detection modules.

Virtualization:
Scalability up to 1.4 Tbps with the Virtual Switching System 1440, service modules support up to 256 virtual instances, network virtualization with MPLS, VRF-Lite and GRE-Tunnels, multicast VPN.

Application Intelligence:
H/W accelerated network based application recognition (NBAR), URL Filtering, NetFlow for IPv6 and multicast.

Operational Manageability:
Smart Call Home, Adaptive Control Technology, In-Service Software Upgrades; Encapsulated Remote SPAN; Embedded Event Manager; Network Analysis Module.

Unified Network Services:
Highest PoE port density; enhanced PoE support for more than 15.4W per port; wireless controller module, advanced quality-of-service.

Non-Stop Communications:
Sub-200 ms link recovery, Cisco IOS Software Modularity, In-Service Software Upgrades.

WAN Aggregation:
Extensive choice of WAN interfaces from DSO to OC-192, FE, GBE and 10 GBE; MPLS; VPLS; H-VPLS.

Flexible Options:
Modular 3-, 4-, 6-, 9-, and 13-slot chassis all support redundant supervisors; wide range of AC and DC power supplies (950W to 8700W).

Highest Port Densities:
Up to 1,152 10/100 ports, 770 10/100/1000 ports, 820 SFP Gigabit Ethernet ports, or 260 10 Gigabit Ethernet (10 GBE) and 10G Base T ports.

Flexible NetFlow:
First Catalyst to support Flexible NetFlow with visibility into Layer 2, 3, and 4 applications up to 128K flows. Flexible NetFlow facilitates capacity planning, anomaly and malware detection and prevention, and troubleshooting.

Series Overview (continued)

Intelligent Switching for the Integrated Network

Modular Switches (continued)

Cisco Catalyst 4500 Series

Cisco Catalyst 4500-E Series modular switches enable a high performance, mobile, and secure user experience. The Catalyst 4500-E Series is Cisco's lead access and collapsed access/aggregation platform for Borderless Networks. Offering up to 848 Gbps in switching capacity and 250 Mpps in throughput, Catalyst 4500 E-series switches are optimized for unified communication with high density POE and POE+, embedded security with Cisco TrustSec and enable maximum uptime for voice, video and critical applications with services like Stateful Switchover, non-stop Forwarding, and In-service software upgrades.

Unified Communications:
Cisco pre-standard and IEEE 802.3af PoE Support. 20w PoE support for 802.11n access points. Up to 30 watts per port with E-Series line cards. Extensive QoS features with up to 8 user configurable queues per port.

Non-stop Communications:
Redundant supervisor engines with In Service Software Upgrade (ISSU), non-stop Forwarding/ Stateful Switchover (NSF/SSO) offering 50 ms failover; redundant power supplies with power circuit redundancy; hot-swappable fan trays with redundant fans.

Simplified Operations:
Minimize network operational time with ISSU, EEM, AutoQoS, Smartports RSPAN; TDR, OIR, Flexible NetFlow for application visibility, CiscoWorks, and CNA.

Comprehensive Security:
Integrated Network Admission Control (NAC) and Comprehensive security with Cisco TrustSec and 802.1x, H/W-based Control Plane Policing (CoPP); integrated man-in-the-middle and DoS attack mitigation; NetFlow; access control lists for IPv4 and IPv6 at wire rate and SSH.

Flexible Options:
3,6,7 and 10-slot chassis supporting numerous connectivity configurations with up to 48 Gbps per slot capacity, 10/100, 10/100/1000 (PoE or non-PoE), GE SFP Fiber and 10 GE line cards. Mix and match classic line cards with high performance E-Series line cards for maximum flexibility.

High Port Density:
Up to 384 Fast Ethernet or Gigabit Ethernet Ports (PoE or non PoE) and up to 100 10 Gigabit Ethernet (10 GBE) ports.

Investment Protection:
Evolutionary centralized modular Architecture, media flexibility, and scalability of the Catalyst 4500 Series delivers maximum investment protection with backward and forward compatibility across several generations dating back to 1999.

Series Overview (continued)

Fixed-configuration Switches

Cisco Nexus 5000 Series

The Cisco Nexus 5000 Series Switches help you transform the data center with innovative, standards-based, multilayer, multiprotocol, and multipurpose Ethernet-based fabric. Now with the Unified Ports functionality you can help enable any transport over Ethernet, including Layer 2 and Layer 3 traffic, and storage traffic, all on one common data center-class platform.

- Based on the Cisco® NX-OS operating system, that is resilient, efficient, virtualized and extensible
- High performance, low latency system with up to 1.92 Tbps switching fabric and 1428 Mpps forwarding rate
- Front-to-back cooling supports efficient data center hot- and cold-aisle designs
- Unified ports provides flexibility in choosing SAN and LAN port options consistent with the virtualized data center and offer a migration path to FCoE
- LAN and SAN Convergence ready through FCoE-based unified fabric and Fibre Channel support in a lossless Ethernet service platform. Energy efficiency achieved with the convergence of the networks
- Virtualization-aware networking through virtualization optimized services and mobility by mapping virtual machines to network profiles
- Supports the extension of the fabric extender technology into the servers and virtual machines via Adapter FEX and VM-FEX technologies. Nexus 5000 Series Switches acts as the single point of network management for these servers and virtual machines
- Pair with Nexus 5000 for up to 24 fabric extenders per Cisco Nexus 5548P switch

Cisco Nexus 3000 Series

Cisco Nexus 3064 Switch is a high performance, high density, sub-micro-second latency ethernet switch, which is part of the brand new Cisco Nexus 3000 Series Switches. This compact 1RU form factor 10GbE switch provides wire-rate L2 and L3 switching and future-proofs networks with 40GbE standards-based technologies while also being backward compatible with 1GbE. Cisco Nexus 3064 is ideal for financial co-location deployments requiring support for advanced unicast and multicast routing protocol features at ultra-low latency.

Cisco Nexus 3000 Series Switches extends the comprehensive proven innovations of Cisco Data Center Business Advantage into the HFT market too. The switch does so by delivering functionalities such as ultra-low latency and wire-rate L2/L3 switching on data center class NX-OS operating system.

The key challenges addressed by the Cisco Nexus 3000 series include:

- Increased application sensitivity to network latency
- Increasing bandwidth requirements due to increasing application workloads
- Need for supporting advanced routing protocols with resiliency
- Need to measure network latency between servers

Key highlights of Cisco Nexus 3000 Series Switches:

- Ultra Low Latency
  - Cisco Nexus 3000 Series Switches delivers ultra-low latency that translates to faster data transactions thereby resulting in increased revenue for the financial companies.
- Wire-rate 10 Gigabit Ethernet Switching on all 64 10GbE ports
  - Layer 2/3 switching up to 1.2Tbps, over 950Mpps (Million Packets per second) in a compact 1RU form factor switch.
  - Future-proof with 40GbE standards-based support
- Purpose-built on NX-OS operating system with comprehensive, proven innovations
  - Modular OS built from the ground up for resiliency
  - Full L3 routing protocol suites including BGP, OSPF, EIGRP, RIPv2
  - Integration with Cisco DCNM and XML management tools
  - Support for Precision Time Protocol (IEEE-1588) to synchronize system clocks with nanosecond accuracy

Cisco Catalyst 4900 Series

Fixed-configuration switches offering high-performance and highest availability in 1–2RU configuration, optimized for data center top of rack server aggregation and for space constrained branch collapsed core/distribution LAN aggregation.

- Standalone fixed-configuration for low-latency and wire-speed switching
- Wire-rate performance with 96-320 Gbps non-blocking switching fabric
- Layer 2–4 switching and intelligent services with dynamic IP routing and IPv6
- Configurations from 48 10/100/1000 ports to 24 10 GBE ports
- TwinGig converter module for migrating from 1 Gigabit Ethernet (SFP) to 10 GBE (X2) on 4900M
- Dual, hot-swappable internal AC or DC power supplies
- Hot-swappable fan trays

Cisco Catalyst 3750-X Series

Enterprise-class stackable switches with innovative features such as Cisco StackPower, Power over Ethernet Plus (PoE+), and MAC security. for enterprise branch offices and mid-market organizations.

- 24 and 48 10/100/1000 PoE+ and non-PoE models with optional four 1 GB Ethernet SFP or two 10 GB Ethernet SFP+ uplink network modules
- PoE+ with 30W power on all ports in 1 rack unit (RU)
- Cisco StackPower: Innovative, industry-first feature for sharing power among stack members
- Cisco StackWise Plus for ease of use and resiliency with 64 Gbps throughput
- Backward compatibility with Catalyst 3750 Series
- Enhanced limited lifetime warranty
- MAC security hardware-based encryption
- Multicast routing, IPv6 routing, and access control list in hardware
- Support LAN Base, IP Base and IP Services configurations

Cisco Catalyst 3750-E Series

Stackable switches offering multilayer switching and the enhanced Cisco StackWise™ Plus technology for enterprise branch offices and mid-market organizations.

- Stackable fixed-configuration switches featuring Cisco StackWise Plus technology, a 64 Gbps interconnect for a unified, resilient system of up to nine switches (including Cisco Catalyst 3750 Series switches)
- Layer 2–4 switching and intelligent services with dynamic IP routing and IPv6
- Gigabit Ethernet and upgradeable Gigabit Ethernet to 10 GBE connectivity
- Up to 48 10/100/1000 ports plus two 10 GBE X2 ports per stackable switch or four GBE ports
- Enhanced PoE support; the capability to power beyond 15.4W per port
- AC power supply failure protection with external power system

Cisco Catalyst 3750 Series

Stackable switches offering multilayer switching and Cisco StackWise™ technology for enterprise branch offices and mid-market organizations.

- Stackable fixed-configuration switches featuring Cisco StackWise technology, a 32 Gbps interconnect for a unified, resilient system of up to nine switches
- Layer 2–4 switching and intelligent services with dynamic IP routing and IPv6
- Fast Ethernet, Gigabit Ethernet and 10 GBE connectivity
- Up to 48 10/100/1000 ports plus four SFP ports per stackable switch
- Integrated PoE (Cisco pre-standard and IEEE 802.3af); up to 24 ports with 15.4 watts or 48 ports with 7.3 watts
- AC power supply failure protection with external power supply

Series Overview (continued)

Fixed-configuration Switches

Cisco Catalyst 3560-E Series

Fixed-configuration switches combining Gigabit Ethernet connectivity and PoE for enterprise LAN access and branch offices.

- Standalone fixed-configuration switches
- Layer 2–4 switching and intelligent services with dynamic IP routing and IPv6
- Gigabit Ethernet and upgradable Gigabit Ethernet to 10 GBE uplinks
- Up to 48 10/100/1000 ports plus two 10 GBE X2 ports per stackable switch or 4 Gigabit Ethernet ports
- Enhanced PoE support; the capability to power beyond 15.4W per port
- AC power supply failure protection with external power system

Cisco Catalyst 3560-X Series

Fixed configuration switches with PoE+, optional 10 GE uplinks and MAC security for enterprise LAN and branch access.

- 24 and 48 10/100/1000 PoE+ and non-PoE models with optional four 1 GE SFP or two 10 GE SFP+ uplink network modules
- PoE+ with 30W power on all ports in 1 rack unit (RU) form factor
- Dual redundant, modular power supplies and fans
- Enhanced limited lifetime warranty
- MAC security hardware-based encryption
- Multicast routing, IPv6 routing, and access control list in hardware
- Support LAN Base, IP Base and IP Services configurations

Cisco Catalyst 3560 Series

Fixed-configuration switches combining Gigabit Ethernet connectivity and PoE for enterprise LAN access and branch offices.

- Standalone fixed-configuration switches
- Layer 2–4 switching and intelligent services with dynamic IP routing and IPv6
- Fast Ethernet and Gigabit Ethernet connectivity
- Up to 48 10/100/1000 ports plus four SFP ports
- Integrated PoE (Cisco pre-standard and IEEE 802.3af); up to 24 ports with 15.4 watts or 48 ports with 7.3 watts
- AC power supply failure protection with external power supply
- Compact Fast Ethernet PoE with no fan

Cisco Catalyst 2960-S Series

The Cisco Catalyst 2960-S Series are fixed-configuration access switches designed to provide a lower total cost of ownership for enterprise, midmarket and branch office networks.

- 24 or 48 ports of Gigabit Ethernet desktop connectivity with optional four 1 Gigabit Ethernet SFP or two 10 Gigabit Ethernet SFP+ Uplinks
- Industry first PoE+ with up to 30W per port
- Cisco FlexStack stacking module with 40 Gbps of throughput, allowing ease of operation with single configuration and simplified switch upgrade
- Catalyst Smart Operations allows for zero touch deployment
- Cisco Smart Install to have the switch immediately active after installation
- Cisco Auto Smartports enables automatic configuration by connected device type
- Superior Layer 2 threat defense capabilities
- Enhanced Cisco EnergyWise to measure, report and reduce energy usage across the entire organization
- Pay for functions and services only as needed
- Enhanced Limited Lifetime Warranty

Cisco Catalyst 2960 Series

Fixed-configuration switches offering Fast Ethernet and Gigabit Ethernet connectivity with enhanced LAN services for mid-market and branch office networks.

- Standalone fixed-configuration switches
- Layer 2 switching with intelligent Layer 2–4 services
- Fast Ethernet and Gigabit Ethernet connectivity
- Up to 48 10/100 ports or 10/100/1000 ports
- Power over Ethernet: 24 full PoE port and 24-port (PoE supported on 8 ports) configurations
- AC power supply failure protection with external power supply
- Compact Fast Ethernet and Gigabit Ethernet switches with no fan

Fixed-configuration LAN Lite switches offering Fast Ethernet connectivity with Basic LAN services for mid-market and branch office networks.

- Standalone fixed-configuration switches
- Layer 2 switching with Basic Layer 2–4 services
- Fast Ethernet connectivity
- Up to 48 10/100 ports
- Compact Fast Ethernet model with no fan

Cisco Catalyst Express Series

Cisco-class switches that simplify advanced services and IP Communications for businesses with 20–250 employees.

- Standalone fixed-configuration Layer 2 switches
- Fast Ethernet and Gigabit Ethernet connectivity
- Up to 24 10/100 ports with optional PoE
- Up to 24 10/100/100 ports plus 2 SFP ports
- Simple GUI based management

Series Overview (continued)

Fabric Extender

Cisco Nexus 2000 Series

The Cisco Nexus® 2000 Series Fabric Extenders (FEX) behave as remote line cards for a parent Cisco Nexus 5000 Series or 7000 Series switch, simplifying data center access operations and architecture by combining the management simplicity of end-of-row platforms with the flexible physical layout of top-of-rack platforms.

- Up to 48 100/1000 BASE-T ports plus 4 10 GE uplinks, 32 1/10 GE/FCoE with 8 10 GE uplinks and 32 1/10GBASE-T with 8 10 GE uplinks configurations
- Up to 24 Fabric Extenders per Cisco Nexus 5000 parent switch (Homogeneous policies across 1152 1G ports and 768 10G/FCoE ports)
- Up to 32 Fabric Extenders per Cisco Nexus 7000 parent switch (Homogeneous policies across 1536 1G ports and 1024 10G ports)
- Rich Layer 2-4 switching features and intelligent services inherited from parent switch
- Ideal to support today's traditional Gigabit Ethernet while allowing transparent migration to 10 Gigabit Ethernet, virtual machine-aware, unified fabric technologies
- Operational simplicity at scale for datacenter point of delivery (POD) access level design
- Front-to-back cooling compatible with data center hot-aisle and cold-aisle design, forward and reversed airflow options, AC/DC power supply options

Series Overview (continued)

Blade Switches

Cisco Nexus 4000 Series

The Cisco Nexus™ 4001I Switch Module for IBM BladeCenter is a blade switch solution for IBM BladeCenter H and HT chassis, providing the server I/O solution required for high-performance, scale-out, virtualized and non-virtualized x86 computing architectures.

- Line-rate, extremely low-latency, nonblocking, Layer 2, 10 Gigabit Ethernet blade switch
- Fully compliant with the INCITS Fibre Channel over Ethernet (FCoE) and IEEE 802.1 Data Center Bridging (DCB) standards
- Unified Fabric architecture provides a significant reduction in the number of switches, network interface cards, cabling, and power requirements.
- Supports 14 fixed 1 or 10 Gigabit Ethernet server-facing downlinks and 6 fixed 1 or 10 Gigabit Ethernet uplinks

Series Overview (continued)

Virtual Switches

Cisco Nexus 1000V Series

Cisco Nexus 1000V Series Switches are virtual software switches that ensure secure network connectivity for all the VMs in the datacenter. The solution is based on the standard IEEE 802.1Q and is integrated with VMware vSphere. Cisco Nexus 1000V Series Switches deliver highly secure multitenant services by adding virtualization intelligence to the data center network. Nexus 1000V comprises two components:

- Virtual Ethernet Module (VEM), a software-based switch embedded in the VMware hypervisor
- Virtual Supervisor Module (VSM), which manages networking policies and quality of service for virtual machines in concert with the VEM

Nexus 1000V can optimize the use of layer 4–7 services in a virtual machine environment through Cisco vPath architecture services.

- Cisco vPath technology is aware of all L4–7 policies associated with individual virtual machines. Once the data packets of a specific virtual machine have been identified and policies applied, the remaining data packets flow directly to the virtual machines.
- Cisco Virtual Security Gateway (VSG), integrated with the Nexus 1000V Switch provides trusted multitenant access with granular zone-based security policies for virtual machines. VSG delivers security policies across multiple servers, supporting virtual machine mobility across physical servers for workload balancing, availability, or scale for business growth in cloud computing.
- Cisco vWAAS, a WAN optimization solution, integrated with Nexus 1000V Switch, delivers application performance acceleration to IT users connected to enterprise data centers and enterprise private clouds.
- Developed in close collaboration with VMware, the Cisco Nexus 1000V Series is certified by VMware to be compatible with VMware vSphere, vCenter, ESX, and ESXi, and with many other vSphere features.

Cisco Campus Feature Comparison

Intelligent Switching for the Evolving Network

Modular Switches				Fixed-Configuration Switches			
Model/Series	Nexus 7000	Catalyst 6500	Catalyst 4500	Catalyst 4900	Catalyst 3750-X	Catalyst 3750-E	Catalyst 3750
LAN Switching Features							
Connectivity and Filtering							
EtherChannel®/802.3ad	·	·	·	·	·	·	·
Jumbo Frames—GBE on Copper	·	·	*	·	·	L2 Only	·
Jumbo Frames—GBE on Fiber	·	·	*	·	·	L2 Only	·
Broadcast Suppression	·	·	·	·	·	·	·
Multicast Suppression	·	·	·	·	·	·	·
Unicast Flood Suppression	·	·	·	·			
Flexible Packet Matching		·					
Layer 2							
ISL/802.1Q	·	·	·	·	·	·	·
Private VLAN Edge	·	·	·	·	·	·	·
Private VLAN	·	·	·	·	·	·	·
Voice VLAN		·	·	·	·	·	·
VLAN Trunking Protocol (VTP)	·	·	·	·	·	·	·
GVRP		·					
GARP		·					
URT/VMPS		·	·	·	·	·	·
VTP v3		·	·	·	·	·	·
VTP Bomb Protection		·	·	·			
VMPS Server		·	·	·			
Number of Active VLANs	4096 per VDC	4096	4096	4096	1005	1005	1005
Number of VLAN IDs	4096 per VDC	4096	4096	4096	4096	4096	4096
Layer 3							
H/W-based MPLS/EoMPLS	·	·					
EIGRP	·	·	·	·	IP Services	IP Services	IP Services
EIGRP Stub	·	·	·	·	IP Base	IP Base	IP Base
VPLS/H-VPLS		·					
MPLS L3 VPNs	·	·					
MPLS Traffic Engineering (TE)	·	·					
OSPF	·	·	·	·	IP Services	IP Services	IP Services

Cisco Campus Feature Comparison (continued)

Modular Switches				Fixed-Configuration Switches			
Model/Series	Nexus 7000	Catalyst 6500	Catalyst 4500	Catalyst 4900	Catalyst 3750-X	Catalyst 3750-E	Catalyst 3750
LAN Switching Features (continued)							
Layer 3 (continued)							
BGP	·	·	·	·	IP Services	IP Services	IP Services
Equal Cost Load Balancing	·	·	·	·	·	·	·
RIP, RIPv2	·	·	·	·	·	·	·
Static Routes	·	·	·	·	·	·	·
IS-IS	·	·	·	·			
H/W-based IPv6 Routing	·	·	·	·	·	·	·
H/W-based Policy Routing IPv4	·	·	·	·	·	·	·
H/W-based Policy Routing IPv6	·	·			·	·	·
Multiprotocol Routing (IPX, AppleTalk)		·	·	·			
Cisco Express Forwarding (CEF)		·	·	·	·	·	·
H/W FIB Entries	Up to 1,000,000	Up to 1,000,000	Up to 256,000	Up to 200,000	Up to 20,000	Up to 20,000	Up to 20,000
VRF Lite	Base	IP Services	Enhanced Layer 3	IP Services	IP Services	IP Services	IP Services
Integrated Security							
Access Control Lists							
Reflexive ACL		·					
Port ACL	·	·	·	·	·	·	·
Time-based ACL	·	·	·	·	·	·	·
Router ACL	·	·	·	·	·	·	·
VLAN ACL	·	·	·	·	·	·	·
VACL with Redirect/Capture/Logging of Denied Traffic	·	·	·	·*	Capture and Logging	Capture and Logging	Capture and Logging
Context-based Access Control	·	·					
H/W-based Access Control Entry	·						
(ACE) Counters	·	·	·				
Order-dependent ACL Merge	·	·					
Dedicated Hardware Resources for Security ACLs	·	·	·	·			
ACL Scalability (ACE Entries)	64,000	32,000	128,000	32,000	2000	2000	2000
Attack Mitigation							
Flexible Packet Matching		·					
Control Plane Policing (Multiple CPU Rate Limiters)	·						
Rate Limiters	·	·	·	·			
IP Source Guard	·	·	·	·	·	·	·

Cisco Campus Feature Comparison (continued)

Modular Switches				Fixed-Configuration Switches			
Model/Series	Nexus 7000	Catalyst 6500	Catalyst 4500	Catalyst 4900	Catalyst 3750-X	Catalyst 3750-E	Catalyst 3750
Integrated Security (continued)							
Attack Mitigation (continued)							
DHCP Snooping/Option 82	•	•	•	•	•	•	•
Dynamic ARP Inspection	•	•	•	•	•	•	•
MAC Address Notification	•	•	•	•	•	•	•
Port Security	•	•	•	•	•	•	•
H/W-based uRFP Check	•	•	•		•	•	
H/W-based MAC Learning	•	•					
H/W-assisted MAC Aging	•	•			•	•	
Routing Protocol Pass Through		•					
ARP Policing	•	•	•				
H/W-based Directed Broadcast		•					
Trust and Identity Management							
802.1x Identity-based				•	•	•	•
Networking Port Authentication		•	•	•	•	•	•
802.1x with VLAN Assignment		•	•	•	•	•	•
802.1x with Guest VLAN		•	•	•	•	•	•
802.1x with Aux. VLAN Support		•	•	•			
802.1x Port Description		•	•	•	•	•	•
TACACS+/RADIUS	•	•	•	•	•	•	•
Web Authentication Proxy		•	•	•	•	•	•
MAC Authentication		•	•	•			
Unidirectional Control Port		•	•	•	•	•	•
Inaccessible Authentication		•	•				
Secure Connectivity							
Media Access Control Security (MACsec)	•						
H/W-based NAT/PAT		•		•	•	•	•
MD5 Route Authentication	•	•	•	•	•	•	•
Multilevel Account Privilege	•	•	•				

Cisco Campus Feature Comparison (continued)

Modular Switches				Fixed-Configuration Switches			
Model/Series	Nexus 7000	Catalyst 6500	Catalyst 4500	Catalyst 4900	Catalyst 3750-X	Catalyst 3750-E	Catalyst 3750
Availability and Resiliency							
Switch Redundancy							
Virtual Switching System (VSS)		•					
Virtual Port Channel (vPC)	•						
Software Modularity	•	•					
Non-stop Forwarding/Stateful Switchover (NSF/SSO)	•	•	•		•	•	•
NSF-aware	•	•	•	•	•	•	•
Redundant Power Supplies	•	•	•	•	External Only	External Only	External Only
Redundant Fans	•	•	•	•			
Redundant Fan Trays	•	•	•				
Redundant Supervisors	•	•	•				
Generic Online Diagnostics (GOLD)	•	•	•	•	•	•	•
Basic Support for GOLD Services	•	•	•	•	•	•	•
Power Supply Failure Redundancy	•	•	•	•	•	•	•
Power Circuit Failure Redundancy	•	•	•	•			
StackWise Plus					•	•	•
StackPower					•		
Network Protocols							
Unidirectional Link Detection (UDLD)	•	•	•	•	•	•	•
Gateway Load Balancing Protocol (GLBP)	•	•	•	•			
Hot Standby Routing Protocol (HSRP)	•	•	•	•	•	•	•
Virtual Router Redundancy Protocol (VRRP)	•	•	•	•			
UplinkFast		•	•	•	•	•	•
Backbone Fast		•	•	•	•	•	•
RSTP (802.1w)	•	•	•	•	•	•	•
PortFast	•	•	•	•	•	•	•
Per VLAN STP (PVSTP)	•	•	•	•	•	•	•
Per VLAN RSTP (PVRSTP)	•	•	•	•	•	•	•
Multiple Instance STP (MISTP)	•	•	•	•	•	•	•
MSTP (802.1s)	•	•	•	•	•	•	•
STP Root Guard	•	•	•	•	•	•	•
BDPU Guard	•	•	•	•	•	•	•
Loop Guard	•	•	•	•	•	•	•

Cisco Campus Feature Comparison (continued)

Modular Switches				Fixed-Configuration Switches			
Model/Series	Nexus 7000	Catalyst 6500	Catalyst 4500	Catalyst 4900	Catalyst 3750-X	Catalyst 3750-E	Catalyst 3750
Availability and Resiliency (continued)							
Network Protocols (continued)							
IP Event Dampening		·	*	·			
Bidirectional Forwarding Detection	·	·					
Digital Optical Monitoring	·	·	·	·			
Flex Link		·	·				
Link State Tracking	·		*	·	·	·	·
Delivery Optimization							
Stateful Application Intelligence							
Network-based Application Recognition		·					
Quality of Service							
Number of Queues per Port	Up to 8	Up to 8	Up to 8	Up to 8	Up to 8	Up to 8	Up to 8
Congestion Avoidance	·	·	·	·	WTD	WTD	WTD
L2–L3 Rewrite/Mapping	·	·	·	·	·	·	·
Ingress Queuing	·	·		N/A	·	·	·
Ingress Strict Priority	·	·		N/A	·	·	·
Egress Queuing	·	·	·	·	·	·	·
Egress Strict Priority	·	·	·	·	·	·	·
Traffic Classification	·	·	·	·	·	·	·
IP Service Level Agreement		·	·	·	·	·	·
Policers							
H/W-based Policing	·	·	·	·			
Per-port Policers	·	·	·	·	·	·	·
Per-VLAN Policers	·	·	·	·	·	·	·
H/W-based Aggregate Policers	·	·	·	·	·	·	·
Hierarchical Policers		·	·				
User-based (Source IP) Rate Limiting	·	·	·				
Shaped Round Robin	·	·			·	·	·
Multicast							
H/W-based IPv6 Multicast	·	·	·	*	No PIM	No PIM	No PIM
H/W-based IPv4 Multicast	·	·	·	·	·	·	·
H/W-based Bidirectional PIM	·	·	·	·			
Multicast Routing Manager		·					

Cisco Campus Feature Comparison (continued)

Modular Switches				Fixed-Configuration Switches			
Model/Series	Nexus 7000	Catalyst 6500	Catalyst 4500	Catalyst 4900	Catalyst 3750-X	Catalyst 3750-E	Catalyst 3750
Delivery Optimization (continued)							
Multicast (continued)							
Source Specific Multicast (SSM)	·	·	·	·	·	·	·
Multicast NSF/SSO	·	·					
PIM Sparse	·	·	·	·	·	·	·
PIM Dense		·	·	·	·	·	·
PIM Sparse/Dense		·	·	·	·	·	·
PIM Snooping	·	·					
PIM Accept Register—Rogue Multicast Server Protection	·	·	·	·	·	·	·
IGMP v1/v2	·	·	·	·	·	·	·
IGMP v3	·	·	·	·	·	·	·
CGMP		·	·	·	·	·	·
RGMP		·					
DVMRP Interoperability		·	·	·	·	·	·
Number of Multicast Routes	32,000	32,000	32,000	28,000	1000	1000	1000
IGMP Snooping	·	·	·	·	·	·	·
IGMP Querier	·	·	·	·	·	·	·
SSM Mapping	·	·	·	·			
H/W-based Multicast Tunneling		·					
mVRF Lite	·	·	·	·			
Multicast VPN (mVPN)	·	·					
Tunneling Protocols							
H/W-based GRE	·	·	In Software	In Software			
H/W-based Multipoint GRE		·	·	·			
H/W-based IPv4 in IPv6		·	In Software	In Software			
H/W-based IP in IP		·	In Software	In Software			
Enhanced Manageability							
Link Layer Discovery Protocol (LLDP)	·	·	·	·	·	·	·
Time Domain Reflectometry (TDR)	·	·	·	·	·	·	·
Time Domain Reflectometry (TDR) Interface 10/100/1000	·	·	·	·	·	·	·
Cisco Network Assistant (CNA)	· (DCNM)	·	·	·	·	·	·
Auto Smartports			·	·	·	·	·
Smart Install					·	·	·

Cisco Campus Feature Comparison (continued)

Modular Switches				Fixed-Configuration Switches			
Model/Series	Nexus 7000	Catalyst 6500	Catalyst 4500	Catalyst 4900	Catalyst 3750-X	Catalyst 3750-E	Catalyst 3750
Enhanced Manageability (continued)							
Smartports		•	•	•	•	•	•
NetFlow	•	•	•				
NetFlow Data Export	•	•	•				
Syslog	•	•	•	•	•	•	•
Switch TopN		•					
SNMP	•	•	•	•	•	•	•
RMON		•	•	•	•	•	•
SPAN	•	•	•	•	•	•	•
RSPAN	•	•	•	•	•	•	•
ERSPAN	•	•					
L2-Traceroute		•	•	•	•	•	•
SSH v2	•	•	•	•	•	•	•
AutoQoS		•	•	•	•	•	•
E-911 MIB Support		•	•	•	•	•	•
Out of Band Management (Serial)—RJ-45	•	•	•	•	•	•	•
Out of Band Management (Serial)—USB		•	•				
USB Drive Support	•		•*		•		
Remote Power Cycle and Shutdown	•	•	•				
Compact Flash	•	•	•	•			
Configuration Rollback	•	•	•	•	•	•	•
Call Home	•	•	•	•			
Digital Optical Monitoring	•	•	•	•			
NetFlow							
Integrated H/W-based NetFlow	•	•	•				
NetFlow Top Talkers		•	•				
Sampled NetFlow	•	•					
NetFlow v9	•	•	•				
Multicast NetFlow	•	•					
Per Interface NetFlow Data Export	•	•	•				
Bridged IP Flows	•	•	•				
NetFlow v5	•	•	•				
NetFlow v8	•	•	•				
Microflow Policing		•	•				

*6000W AC power supply allows to remotely shut down the switch.

Cisco Campus Feature Comparison (continued)

Modular Switches				Fixed-Configuration Switches			
Model/Series	Nexus 7000	Catalyst 6500	Catalyst 4500	Catalyst 4900	Catalyst 3750-X	Catalyst 3750-E	Catalyst 3750
NetFlow (continued)							
Flexible NetFlow	•		•				
Flexible NetFlow for L2 Ports	•		•				
Flexible NetFlow with Embedded Event Manager Integration			•				
Flexible NetFlow with TCP Flags as Non-key Fields	•						
Flexible NetFlow for IPv4	•		•				
Flexible NetFlow for IPv6	•		•				
Software Modularity							
Subsystem In Service Software Upgrade (ISSU)	•	•					
Fault Containment	•	•					
Memory Protection	•	•					
Process Restartability	•	•					
Application, Security, and Management Modules							
Virtualized Firewall Module		•					
Intrusion Detection and Prevention Module		•					
VPN: IPsec, SSL Module		•					
Anomaly Detection and Guard Module		•					
Network Analysis Module		•					
Communication Media Module		•					
Wireless LAN Service Module		•					
Content Switching and SSL Module		•					
Application-oriented Network Module		•					
IPT Solution							
802.1at 30W PoE+			•		•		•
802.3af—15W on 48 Ports in a Modular/ Fixed Switch		•	•		•	•	•
802.3af—7W on 48 Ports in a Modular/ Fixed Switch		•	•		•	•	•
802.3af—15W on 24 Ports in a Modular/ Fixed Switch		•	•		•		
802.3af Modular PoE Daughter Card		•					
Subsystem In Service Software Upgrade (ISSU)	•	•					

Cisco Campus Feature Comparison (continued)

Modular Switches				Fixed-Configuration Switches			
Model/Series	Nexus 7000	Catalyst 6500	Catalyst 4500	Catalyst 4900	Catalyst 3750-X	Catalyst 3750-E	Catalyst 3750
IPT Solution (continued)							
Fast Link Failure Detection (Bidirectional Forwarding Detection)	·	·					
Redundant Supervisors with Stateful Switchover	·	·	·				
Redundant Power Supply	·	·	·	·	·	·	·
Redundant Power Circuit	·	·	·	·			
Communication Media Module		·					·
AutoQoS		·	·	·	·	·	·
Cisco Discovery Protocol (CDP)	·	·	·	·	·	·	·
Link Layer Discovery Protocol (LLDP)	·	·	·		·	·	·
Encapsulated RSPAN	·	·					
IP Service Level Agreement		·	·	·	·	·	·
VoIP Quality Monitoring with Network Analysis Module		·					
System Scalability							
Switching Fabric (Gbps)	4.1 Tbps–7.4 Tbps	32–720	136–848	96–320	64	64	32
Packets per Second (Mpps)	960–7680	15–400	48–250	72–250	6.5–39	6.5–39	6.5–39
Modular Memory Upgrade	·	·	·				

Cisco Campus Family Feature Comparison

Fixed-Configuration Switches

Model/Series	Catalyst 3650-X	Catalyst 3650-E	Catalyst 3560	Catalyst 2960	Catalyst 2960-S	Catalyst Express
LAN Switching Features						
Connectivity and Filtering						
FlexStack Stacking					·	
10 Gig SFP+ Support					·	
EtherChannel®/802.3ad	·	·	·	·	·	·
Jumbo Frames—GBE on Copper	·	·	L2 Only	L2 Only	L2 Only	
Jumbo Frames—GBE on Fiber	·	·	L2 Only	L2 Only	L2 Only	
Broadcast Suppression	·	·	·	·	·	·
Multicast Suppression	·	·	·	·	·	
Unicast Flood Suppression						
Flexible Packet Matching						
Layer 2						
ISL/802.1Q	·	·	·	802.1Q Only	802.1Q Only	802.1Q Only
Private VLAN Edge	·	·	·	·	·	
Private VLAN	·	·	·			
Voice VLAN	·	·	·	·	·	·
VLAN Trunking Protocol (VTP)	·	·	·	·	·	Transparent Mode Only
GVRP						
GARP						
URT/VMPS	·	·	·	·	·	
VTP v3	·	·	·	·	·	
VTP Bomb Protection						
VMPS Server						
Number of Active VLANs	1005	1005	1005	255	255	32
Number of VLAN IDs	4096	4096	4096	4096	4096	1005
Layer 3						
H/W-based MPLS/EoMPLS						
EIGRP	IP Services	IP Services	IP Services			
EIGRP Stub	IP Base	IP Base	IP Base			
VPLS/H-VPLS						
MPLS L3 VPNs						
MPLS Traffic Engineering (TE)						
OSPF	IP Services	IP Services	IP Services			

Cisco Campus Family Feature Comparison (continued)

Fixed-Configuration Switches						
Model/Series	Catalyst 3650-X	Catalyst 3650-E	Catalyst 3560	Catalyst 2960	Catalyst 2960-S	Catalyst Express
LAN Switching Features (continued)						
Layer 3 (continued)						
BGP	IP Services	IP Services	IP Services			
Equal Cost Load Balancing	·	·	·			
RIP, RIPv2	·	·	·			
Static Routes	·	·	·	· (Summer 10)	· (Summer 10)	
IS-IS						
H/W-based IPv6 Routing	·	·	·			
H/W-based Policy Routing IPv4	·	·	·			
H/W-based Policy Routing IPv6	·	·	·			
Multiprotocol Routing (IPX, AppleTalk)						
Cisco Express Forwarding (CEF)	·	·	·			
H/W FIB Entries	Up to 11,000	Up to 11,000	Up to 11,000			
VRF Lite	IP Services	IP Services	IP Services			
Integrated Security						
Access Control Lists						
Reflexive ACL						
Port ACL	·	·	·	·	·	
Time-based ACL	·	·	·	·	·	
Router ACL	·	·	·			
VLAN ACL	·	·	·			
VACL with Redirect/Capture/Logging of Denied Traffic	Capture and Logging	Capture and Logging	Capture and Logging			
Context-based Access Control						
H/W-based Access Control Entry (ACE) Counters						
Order-dependent ACL Merge						
Dedicated Hardware Resources for Security ACLs						
ACL Scalability (ACE Entries)	2000	2000	2000	512	512	
Attack Mitigation						
Flexible Packet Matching						
Control Plane Policing (Multiple CPU Rate Limiters)						
IP Source Guard	·	·	·	·	·	

Cisco Campus Family Feature Comparison (continued)

Fixed-Configuration Switches						
Model/Series	Catalyst 3650-X	Catalyst 3650-E	Catalyst 3560	Catalyst 2960	Catalyst 2960-S	Catalyst Express
Integrated Security (continued)						
Attack Mitigation (continued)						
DHCP Snooping/Option 82	·	·	·	·	·	
Dynamic ARP Inspection	·	·	·	·	·	
MAC Address Notification	·	·	·	·	·	·
Port Security	·	·	·	·	·	·
H/W-based uRFP Check	·	·				
H/W-based MAC Learning						
H/W-assisted MAC Aging	·	·				
PIM Accept Register—Rogue Multicast Server Protection	·	·				
Routing Protocol Pass Through						
ARP Policing						
H/W-based Directed Broadcast						
Trust and Identity Management						
802.1x Identity-based Networking Port Authentication	·	·	·	·	·	·
802.1x with VLAN Assignment	·	·	·	·	·	
802.1x with Guest VLAN	·	·	·	·	·	
802.1x with Aux. VLAN Support	·	·	·	·	·	
802.1x Port Description						
TACACS+/RADIUS	·	·	·	·	·	RADIUS Only
Web Authentication Proxy	·	·	·	·	·	
MAC Authentication	·	·	·	·	·	
Unidirectional Control Port						
Inaccessible Authentication	·	·	·	·	·	
Secure Connectivity						
Media Access Control Security (MACsec)	·					
H/W-based NAT/PAT			·			
MD5 Route Authentication	·	·				
Multilevel Account Privilege	·	·	·			

Cisco Campus Family Feature Comparison (continued)

Fixed-Configuration Switches

Model/Series	Catalyst 3650-X	Catalyst 3650-E	Catalyst 3560	Catalyst 2960	Catalyst 2960-S	Catalyst Express
Availability and Resiliency						
Switch Redundancy						
IOS Software Modularity						
Non-stop Forwarding/Stateful Switchover (NSF/SSO)						
NSF-aware	·	·	·			
Redundant Power Supplies	External Only	External Only	External Only	External Only	External Only	External
Redundant Fans						
Redundant Fan Trays						
Redundant Supervisors						
Generic Online Diagnostics (GOLD)	·	·	·		·	
Basic Support for GOLD Services	·	·	·		·	
Power Supply Failure Redundancy	·	·	·	·	·	24, PC Only
Power Circuit Failure Redundancy						
StackWise Plus						
StackPower						
Network Protocols						
Unidirectional Link Detection (UDLD)	·	·	·	·	·	·
Gateway Load Balancing Protocol (GLBP)						
Hot Standby Routing Protocol (HSRP)	·	·	·			
Virtual Router Redundancy Protocol (VRRP)						
UplinkFast	·	·	·	·	·	·
Backbone Fast	·	·	·	·	·	·
RSTP (802.1w)	·	·	·	·	·	·
PortFast	·	·	·	·	·	·
Per VLAN STP (PVSTP)	·	·	·	·	·	·
Per VLAN RSTP (PVRSTP)	·	·	·	·	·	·
Multiple Instance STP (MISTP)	·	·	·	·	·	·
MSTP (802.1s)	·	·	·	·	·	
STP Root Guard	·	·	·	·	·	·
BDPU Guard	·	·	·	·	·	·
Loop Guard	·	·	·	·	·	·
IP Event Dampening						
Bidirectional Forwarding Detection						

Cisco Campus Family Feature Comparison (continued)

Fixed-Configuration Switches						
Model/Series	Catalyst 3650-X	Catalyst 3650-E	Catalyst 3560	Catalyst 2960	Catalyst 2960-S	Catalyst Express
Availability and Resiliency (continued)						
Network Protocols (continued)						
Digital Optical Monitoring						
Flex Link	·	·	·	·	·	
Link State Tracking	·	·	·	·	·	
Delivery Optimization						
Stateful Application Intelligence						
Network-based Application Recognition						
Quality of Service						
Number of Queues per Port	4	Up to 8	Up to 8	4	4	4
Congestion Avoidance	WTD	WTD	WTD	WTD	WTD	WTD
L2–L3 Rewrite/Mapping	·	·	·	·	·	
Ingress Queuing	·	·	·	·	·	
Ingress Strict Priority	·	·	·	·	·	
Egress Queuing	·	·	·	·	·	·
Egress Strict Priority	·	·	·	·	·	·
Traffic Classification	·	·	·	·	·	·
IP Service Level Agreement	·	·	·	Responder	Responder	
Policers						
H/W-based Policing						
Per-port Policers	·	·	·	·	·	
Per-VLAN Policers	·	·	·			
H/W-based Aggregate Policers	·	·	·			
Hierarchical Policers						
User-based (Source IP) Rate Limiting						
Shaped Round Robin	·	·	·	·	·	
Multicast						
H/W-based IPv6 Multicast	No PIM	No PIM	No PIM			
H/W-based IPv4 Multicast	·	·	·	·	·	·
H/W-based Bidirectional PIM						
Multicast Routing Manager						
Source Specific Multicast (SSM)	·	·	·			
Multicast NSF/SSO						

Cisco Campus Family Feature Comparison (continued)

Fixed-Configuration Switches						
Model/Series	Catalyst 3650-X	Catalyst 3650-E	Catalyst 3560	Catalyst 2960	Catalyst 2960-S	Catalyst Express
Delivery Optimization (continued)						
Multicast (continued)						
PIM Sparse	·	·	·			
PIM Dense	·	·	·			
PIM Sparse/Dense	·	·	·			
PIM Snooping						
PIM Accept Register—Rogue Multicast Server Protection	·	·	·			
IGMP v1/v2	·	·	·	·	·	·
IGMP v3	·	·	·	·	·	·
CGMP	·	·	·			
RGMP						
DVMRP Interoperability	·	·	·			
Number of Multicast Routes	1000	1000	1000			
IGMP Snooping	·	·	·	·	·	·
IGMP Querier	·	·	·	·	·	
SSM Mapping						
H/W-based Multicast Tunneling						
mVRF Lite						
Multicast VPN (mVPN)						
Tunneling Protocols						
H/W-based GRE						
H/W-based Multipoint GRE						
H/W-based IPv4 in IPv6						
H/W-based IP in IP						
Enhanced Manageability						
Link Layer Discovery Protocol (LLDP)	·	·	·	·	·	
Time Domain Reflectometry (TDR)	·	·	·	·	·	·
Time Domain Reflectometry (TDR) Interface 10/100/1000	·	·	·	·	·	·
Cisco Network Assistant (CNA)	·	·	·	·	·	·
Auto Smartports	·	·	·	·	·	
Smart Install	·	·	·	·	·	
Smartports	·	·	·	·	·	·

Cisco Campus Family Feature Comparison (continued)

Fixed-Configuration Switches

Model/Series	Catalyst 3650-X	Catalyst 3650-E	Catalyst 3560	Catalyst 2960	Catalyst 2960-S	Catalyst Express
Enhanced Manageability (continued)						
NetFlow						
NetFlow Data Export						
Syslog	·	·	·	·	·	
Switch TopN						
SNMP	·	·	·	·	·	·
RMON	·	·	·	·	·	·
SPAN	·	·	·	·	·	·
RSPAN	·	·	·	·	·	
ERSPAN						
L2-Traceroute	·	·	·	·	·	
SSH v2	·	·	·	·	·	
AutoQoS	·	·	·	·	·	
E-911 MIB Support	·	·	·	·	·	·
Out of Band Management (Serial)—RJ-45	·	·	·	·	·	
Out of Band Management (Serial)—USB					·	
USB Drive Support					·	
Remote Power Cycle and Shutdown						
Compact Flash						
Configuration Rollback	·	·	·	·	·	
Call Home						
Digital Optical Monitoring						
NetFlow						
Integrated H/W-based NetFlow						
NetFlow Top Talkers						
Sampled NetFlow						
NetFlow v9						
Multicast NetFlow						
Per Interface NetFlow Data Export						
Bridged IP Flows						
NetFlow v5						
NetFlow v8						
Microflow Policing						

Cisco Campus Family Feature Comparison (continued)

Fixed-Configuration Switches

Model/Series	Catalyst 3650-X	Catalyst 3650-E	Catalyst 3560	Catalyst 2960	Catalyst 2960-S	Catalyst Express
Software Modularity						
Subsystem In Service Software Upgrade (ISSU)						
Fault Containment						
Memory Protection						
Process Restartability						
Application, Security, and Management Modules						
Virtualized Firewall Module						
Intrusion Detection and Prevention Module						
VPN: IPsec, SSL Module						
Anomaly Detection and Guard Module						
Network Analysis Module						
Communication Media Module						
Wireless LAN Service Module						
Content Switching and SSL Module						
Application-oriented Network Module						
IPT Solution						
802.1at 30W PoE+					·	
802.3af—15W on 48 Ports in a Modular/ Fixed Switch	·					
802.3af—7W on 48 Ports in a Modular/ Fixed Switch	·	·	·			
802.3af—15W on 24 Ports in a Modular/ Fixed Switch	·	·	·			·
802.3af Modular PoE Daughter Card						
Subsystem In Service Software Upgrade (ISSU)						
Fast Link Failure Detection (Bidirectional Forwarding Detection)						
Redundant Supervisors with Stateful Switchover						
Redundant Power Supply	·	·	·	· (with RPS)	· (with RPS)	
Redundant Power Circuit						
Communication Media Module						
AutoQoS	·	·	·	·		
Cisco Discovery Protocol (CDP)	·	·	·	·		·

Cisco Campus Family Feature Comparison (continued)

Fixed-Configuration Switches						
Model/Series	Catalyst 3650-X	Catalyst 3650-E	Catalyst 3560	Catalyst 2960	Catalyst 2960-S	Catalyst Express
IPT Solution (continued)						
Link Layer Discovery Protocol (LLDP)	·	·	·		3.6	8.8–24
Encapsulated RSPAN					2.7	6.5–17.9
IP Service Level Agreement	·	·				
VoIP Quality Monitoring with Network Analysis Module						
System Scalability						
Switching Fabric (Gbps)	32	64	32–720	64–320	88–176	8.8–24
Packets per Second (Mpps)	6.5–39	6.5–39	15–400	48–250	42–101	6.5–17.9
Modular Memory Upgrade			·	·		

For more product information on Cisco Catalyst Switches, go to: http://www.cisco.com/en/us/products/hw/switches/index.html

Cisco Data Center Switching Solutions

Intelligent Switching for the Evolving Network

Modular Switches		
Model/Series	Nexus 7000 Series	Catalyst 6500 Series
System Scalability		
Switching Fabric (Gbps)	4.1 Tbps-7.4 Tbps	32 Gbps–720 Gbps
Packets per Second (Mpps)	960-7680	15–400
Modular Memory Upgrade	·	·
LAN Switching Features		
Connectivity and Filtering		
EtherChannel®/802.3ad	·	·
LACP Fast Rate	·	·
Jumbo Frames—GbE on Copper	·	·
Jumbo Frames—GbE on Fibre	·	·
Broadcast Suppression	·	·
Multicast Suppression	·	·
Unicast Flood Suppression	·	·
Number of Member Links in Port Channel	Up to 16	Up to 8
Layer 2		
ISL/802.1Q	·	·
Private VLAN Edge	·	·
Private VLAN	·	·
VLAN Trunking Protocol (VTP)	·	·
VTP Transperant VTP Transperant	·	·
VTP Client /Server	·	·
VLAN Trunking Protocol Pruning	·	·
Number of Active VLANs	4096 per VDC	4096
Number of VLAN IDs	4096 per VDC	4096
MAC Entries	128,000	96,000
Layer 3		
Static Routes	·	·
RIP, RIPv2	·	·
EIGRP	·	·
EIGRP Stub	·	·
OSPF v2	·	·
BGP	·	·

Fixed-Configuration Switches		
Nexus 5000 Series	Nexus 3000 Series	Catalyst 4948E/4900M
520 Gbps-1.92 Tbps	1.28 Tbps	176-320 Gbps
384-1428 Mpps	950 Mpps	131-250 Mpps
·	·	·
·	·	
·	·	·
·	·	·
·	·	·
·	·	·
·	·	·
Up to 16	Up to 16	Up to 8
·	·	·
		·
·	·	·
·	·	·
·	·	·
·	·	·
		·
4013	4013	4096
4096	4096	4096
32,000	128,000	55,000
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Cisco Data Center Switching Solutions (continued)

Modular Switches			Fixed-Configuration Switches		
Model/Series	Nexus 7000 Series	Catalyst 6500 Series	Nexus 5000 Series	Nexus 3000 Series	Catalyst 4948E/4900M
LAN Switching Features (continued)					
Layer 3 (continued)					
IS-IS	·	·			·
Equal Cost Load Balancing	·	·	·	·	·
VRF Lite	·	·	·	·	IP Services
DHCP Relay	·	·	·	·	·
Hot Standby Routing Protocol (HSRP)	·	·	·	·	·
Virtual Router Redundancy Protocol (VRRP)	·	·	·	·	·
Gateway Load Balancing Protocol (GLBP)	·	·			·
Hot Standby Routing Protocol v6 (HSRPv6)	·	·			·
Bidirectional Forwarding Detection	·	·			
EIGRP v6	·	·			·
OSPF v3	·	·			·
BGP v6	·	·			·
H/W-based IPv6 Routing	·	·			·
H/W-based Policy Routing IPv4	·	·			·
H/W-based Policy Routing IPv6	·	·			
MPLS L3 VPNs	·	·			
MPLS Traffic Engineering (TE)	·	·			
MPLS PE/CE Routing	·	·			
6PE	·	·			
6VPE	·	·			
H/W FIB Entries	Up to 1,000,000	Up to 1,000,000	8000	Up to 16,000	Up to 200,000
ARP Entries/Adjacency	350,000	50,000	8000	Up to 16,000	
Multicast					
H/W-based IPv4 Multicast	·	·	·	·	·
H/W-based IPv6 Multicast	·	·			·
mVRF Lite	·	·	·	·	·
IGMP v1/v2	·	·	·	·	·
IGMP v3	·	·	·	·	·
IGMP Snooping	·	·	·	·	·
IGMP Querier	·	·	·	·	·
CGMP		·			·
RGMP		·			
PIM Accept Register—Rogue Multicast Server Protection	·	·	·	·	·

Cisco Data Center Switching Solutions (continued)

Modular Switches			Fixed-Configuration Switches		
Model/Series	Nexus 7000 Series	Catalyst 6500 Series	Nexus 5000 Series	Nexus 3000 Series	Catalyst 4948E/4900M
Multicast (continued)					
PIM Sparse	·	·	·	·	·
Source Specific Multicast (SSM)	·	·	·	·	·
SSM Mapping	·	·	·	·	·
PIM Dense		·			·
PIM Sparse/Dense		·			·
H/W-based Bidirectional PIM	·	·			·
Multicast Routing Monitor		·			·
Multicast NSF/SSO	·	·			
DVMRP Interoperability		·			·
H/W-based Multicast Tunneling		·			
Multicast VPN (mVPN)	·	·			
Multicast Service Reflection in Hardware		·			
Number of Multicast Routes	32,000	32,000	2000	Up to 4000	28,000
Tunneling Protocols					
H/W-based GRE	·	·			In Software
H/W-based Multipoint GRE		·			
H/W-based IPv4 in IPv6		·			
H/W-based IP in IP		·			
HW-based Multicast over GRE	·	·			
LAN and SAN Convergence					
FibreChannel			·		
FibreChannel over Ethernet	·		·		
iSCSI	·	·	·	·	·
NAS	·	·	·	·	·
Unified (SAN/LAN) Ports			·		
Virtualization					
Virtual Device Context					
VDC Support	·				
Number of VDCs	4				
Storage VDC	·				
Overlay Transport Virtualization					
Overlay Transport Virtualization	·				
OTV Unicast Transport Support	·				
OTV Site IPv6 Traffic	·				

Cisco Data Center Switching Solutions (continued)

Modular Switches		
Model/Series	Nexus 7000 Series	Catalyst 6500 Series
Locator-ID Separation Protocol (LISP)		
LISP VM-Mobility	·	
LISP Map Server/Resolver	·	
LISP xTR and PxTR	·	
Fabric Extender		
Nexus 2000	·	
Supported Number	32	
Host vPC with Nexus 2000	·	
FEX Routed Port Support	·	
Port Channel on Nexus 2000	·	
Nexus 2000 vPC to Parent Switch		
FCoE on FEX Ports		
FabricPath		
Layer 2 - 16 Way ECMP	·	
Conversational MAC Address Learning	·	
Multiple Topology Support for Multicast	·	
vPC+	·	
Availability and Resiliency		
In-Service Software Upgrade (ISSU)		
ISSU Support (Minimal Packet Loss)	· (Hitless)	·
Hitless ISSU (Zero Packet Loss) for Layer 2 Protocols	·	
Hitless ISSU (Zero Packet Loss) for Layer 3 Protocols	·	
Hitless ISSU for Storage Traffic (FC/FCoE)	·	
Switch Redundancy		
Virtual PortChannel (vPC)	·	
Virtual Switching System (VSS)		·
Preemptive CPU Scheduler	·	
Stateful Process Restart	·	
NSF-aware	·	·
Non-stop Forwarding/Stateful Switchover (NSF/SSO)	·	·
Multicast HA	·	·
Redundant Power Supplies	·	·
Redundant Fans	·	·
Generic Online Diagnostics (GOLD)	·	·

Fixed-Configuration Switches		
Nexus 5000 Series	Nexus 3000 Series	Catalyst 4948E/4900M
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Edge Switch Only		
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Cisco Data Center Switching Solutions (continued)

Modular Switches		
Model/Series	**Nexus 7000 Series**	**Catalyst 6500 Series**
Power Supply Failure Redundancy	•	•
Power Circuit Failure Redundancy	•	•
Redundant Fan Trays	•	•
Redundant Supervisors	•	•
Hot-Swappable Redundant Fabric Modules	•	
Network Protocols		
Unidirectional Link Detection (UDLD)	•	•
Aggressive UDLD	•	•
UplinkFast		•
Backbone Fast		•
RSTP (802.1w)	•	•
PortFast	•	•
Per VLAN STP (PVSTP)		•
Per VLAN RSTP (PVRSTP)	•	•
Multiple Instance STP (MISTP)	•	•
MSTP (802.1s)	•	•
STP Root Guard	•	•
BPDU Guard	•	•
Loop Guard	•	•
Bridge Assurance	•	•
Dispute Mechanism	•	
Flexlink		•
Link State Tracking	•	
IP Event Dampening		•
Software Modularity		
Subsystem in Service Software Upgrade (ISSU)	•	•
Software Modularity	•	•
Granular Feature Modularity	•	
Conditional Services	•	
Fault Containment	•	•
Memory Protection	•	•
Process Restartability	•	•

Fixed-Configuration Switches		
Nexus 5000 Series	**Nexus 3000 Series**	**Catalyst 4948E/4900M**
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Cisco Data Center Switching Solutions (continued)

Modular Switches			Fixed-Configuration Switches		
Model/Series	Nexus 7000 Series	Catalyst 6500 Series	Nexus 5000 Series	Nexus 3000 Series	Catalyst 4948E/4900M
Integrated Security					
Access Control Lists					
H/W-based Access Control Entry	·	·	·	·	·
Dedicated Hardware Resources for Security ACLs	·	·	·	·	·
(ACE) Counters	·	·	·	·	·
Router ACL	·	·	·	·	·
VLAN ACL	·	·	·	·	·
Port ACL	·	·	·	·	·
Port ACL (for IPv6)	·	·			·
Role Based ACL	·				
Reflexive ACL		·			
Time-based ACL	·	·			·
VACL with Redirect/Capture/Logging of Denied Traffic	·	·			·
Context-based Access Control	·	·			
Order-dependent ACL Merge	·	·			·
ACL Scalability (ACE Entries)	128,000	32,000	4000	2000	128,000
IPv6 RA Guard		·			·
IPv6 URPF	·	·			·
Attack Mitigation					
Control Plane Policing (Multiple CPU Rate Limiters)	·	·	·	·	·
IP Source Guard	·	·	·	·	·
DHCP Snooping/Option 82	·	·	·	·	·
Dynamic ARP Inspection	·	·	·	·	·
MAC Address Notification	·	·	·	·	·
Port Security	·	·			·
H/W-based uRFP Check	·	·	·	·	·
H/W-based MAC Learning	·	·	·	·	
H/W-assisted MAC Aging	·	·	·	·	
Routing Protocol Pass Through		·			
ARP Policing	·	·	·	·	·
H/W-based Directed Broadcast	·	·	·	·	
ACL Dry Run and Atomic Commit	·				

Cisco Data Center Switching Solutions (continued)

Modular Switches			Fixed-Configuration Switches		
Model/Series	Nexus 7000 Series	Catalyst 6500 Series	Nexus 5000 Series	Nexus 3000 Series	Catalyst 4948E/4900M
Secure Connectivity					
TACACS+/RADIUS	•	•	•	•	•
TACACS+ for IPv6	•	•	•	•	
MD5 Route Authentication	•	•	•	•	•
Multilevel Account Privilege	•	•	•	•	
Security Group Tags (SGT)	•				
Media Access Control Security (MACsec)	•				
H/W-based NAT/PAT		•			
Delivery Optimization					
Quality of Service					
Number of Queues per Port	Up to 8	Up to 8	8	8	Up to 8
Packet Buffer	Up to 172 MB Per Port		640 Kb Per Port	9 MB Shared	17.5 MB Shared Across Switch
Dynamic Queue Resizing			•		•
Congestion Avoidance	•	•		•	•
L2–L3 Rewrite/Mapping	•	•	•	•	•
Traffic Classification	•	•	•	•	•
Egress Queuing	•	• •	•	•	•
Egress Strict Priority	•	•	•	•	•
Ingress Queuing	•	•	•		
Ingress Strict Priority	•	•	•		
IP Service Level Agreement		•			•
DCBX Capabilities	•		•		
Priority Flow Control(PFC)	•		•		
Policers					
H/W-based Policing	•	•			•
Per-port Policers	•	•			•
Per-VLAN Policers	•	•			•
Per-Port-per-VLAN Policing					•
H/W-based Aggregate Policers	•	•			
Hierarchical Policers		•			
User-based (Source IP) Rate Limiting	•	•			
Shaped Round Robin	•	•			

Cisco Data Center Switching Solutions (continued)

Modular Switches			Fixed-Configuration Switches		
Model/Series	Nexus 7000 Series	Catalyst 6500 Series	Nexus 5000 Series	Nexus 3000 Series	Catalyst 4948E/4900M
Enhanced Manageability					
Onboard Failure Logging (OBFL)	·	·	·	·	·
Link Layer Discovery Protocol (LLDP)	·	·	·	·	·
Syslog	·	·	·	·	·
SNMP	·	·	·	·	·
NETCONF/XML	·		·	·	·
RMON		·	·	·	·
Mini Protocol Analyzer/WireShark	·	·	·	·	
SSH v2	·	·	·	·	·
Configuration Rollback	·	·	·	·	·
Call Home	·	·	·	·	·
Digital Optical Monitoring	·	·	·	·	·
Network Port Profiles	·		·	·	
USB Drive Support	·		·	·	
Out of Band Management (Serial)—USB	·	·	·	·	·
Out of Band Management (Serial)—RJ-45		·			
Connectivity Management Processor	·				
EEM 3.0	·	·			·
Hardware Rate Limiters (HWRL)	·	·			
Time Domain Reflectometry (TDR)	·	·			·
Time Domain Reflectometry (TDR) Interface 10/100/1000	·	·			·
NetFlow	·	·			·
NetFlow Data Export	·	·			·
Switch TopN		·			
L2-Traceroute	·	·			·
AutoQoS		·			·
Remote Power Cycle and Shutdown	·				
Compact Flash	·	·			·
IEEE 1588 Time-stamps	·				
NTPv4 for IPv6	·	·			
Switched Port Analyzer (SPAN)					
SPAN	·	·	·	·	·
RSPAN	·	·			·
ERSPAN	·	·			
SPAN/RSPAN Sessions	2	2	4	4	8 Bi-directional

Cisco Data Center Switching Solutions (continued)

Modular Switches

Model/Series	Nexus 7000 Series	Catalyst 6500 Series
NetFlow		
Integrated H/W-based NetFlow	·	·
NetFlow Top Talkers		·
Sampled NetFlow	·	·
NetFlow v9	·	·
Multicast NetFlow	·	·
Per Interface NetFlow Data Export	·	·
Bridged IP Flows	·	·
NetFlow v5	·	·
NetFlow v8	·	·
Microflow Policing		·
Flexible NetFlow	·	
Flexible NetFlow for L2 Ports	·	
Flexible NetFlow with Embedded Event Manager Integration		
Flexible NetFlow with TCP Flags as	·	
Non-key Fields	·	
Flexible NetFlow for IPv4	·	
Flexible NetFlow for IPv6	·	
Application, Security, and Management Modules		
Virtualized Firewall Module		·
Intrusion Detection and Prevention Module		·
VPN: IPsec, SSL Module		·
Anomaly Detection and Guard Module		·
Network Analysis Module		·
Wireless LAN Service Module		·
Content Switching and SSL Module		·
Application-oriented Network Module		·

Fixed-Configuration Switches

Nexus 5000 Series	Nexus 3000 Series	Catalyst 4948E/4900M
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Cisco Switching Transition Guide

Intelligent Switching for the Evolving Network

For customers seeking to extend their investment in existing Catalyst switching architecture, this migration guide identifies the optimal transition for in-family product upgrades. For details on migration guidance to Cisco Nexus Series Switches for next generation Unified Fabric or high performance campus core solutions, please contact your local Cisco account manager or partner.

www.cisco.com/go/nexus

Current Product	Recommended Product
Modular Switches: Cisco Catalyst 6500 Series Switches	
Chassis	
WS-C6503	WS-C6503-E
	WS-C6504-E
WS-C6506	WS-C6506-E
WS-C6509-NEB	WS-C6509-V-E
WS-C6509-NEB-FAN	WS-C6509-V-E-FAN
WS-6509-NEB-UPGRD=	WS-C6509-V-E
WS-C6006	WS-C6506-E
WS-C6006-1000AC=	WS-C6506-E + WS-CAC-3000W
WS-C6006-1300AC=	WS-C6506-E + WS-CAC-3000W
WS-C6009	WS-C6509-E
WS-C6009-1300AC=	WS-C6509-E + WS-CAC-3000W
WS-C6009-2500AC=	WS-C6509-E + WS-CAC-3000W
Power Supplies	
WS-CAC-4000W-US	WS-CAC-6000W
WS-CAC-4000W-INT	WS-CAC-6000W
WS-CAC-2500W	WS-CAC-3000W
	WS-CAC-6000W
	WS-CAC-8700W-E
WS-CAC-1300W	WS-CAC-2500W
	WS-CAC-3000W
	WS-CAC-6000W
	WS-CAC-8700W-E
WS-CAC-1000W	WS-CAC-3000W

Current Product	Recommended Product
Modular Switches: Cisco Catalyst 6500 Series Switches (continued)	
Fan Trays	
PWR-950-AC	PWR-1400-AC
	PWR-1400-AC (for WS-C6503-E)
	PWR-2700-AC/4 (for WS-C6504-E)
PEM-15A-AC	PEM-20A-AC+
FAN-MOD-3	WS-C6503-E-FAN (for WS-C6503-E Chassis)
	WS-C6503-E-FAN (for WS-C6503-E Chassis)
	FAN-MOD-4HS (for WS-C6504-E Chassis)
FAN-MOD-3HS	WS-C6503-E-FAN (for WS-C6503-E Chassis)
	FAN-MOD-4HS (for WS-C6504-E Chassis)
WS-C6K-6SLOT-FAN	WS-C6506-E-FAN (for WS-C6506-E Chassis)
WS-C6K-9SLOT-FAN	WS-C6509-E-FAN (for WS-C6509-E Chassis)
WS-C6K-13SLOT-FAN	WS-C6K-13SLT-FAN2
WS-C6K-6SLOT-FAN2	WS-C6506-E-FAN (for WS-C6506-E Chassis)
WS-C6K-9SLOT-FAN2	WS-C6509-E-FAN (for WS-C6509-E Chassis)
Service Modules	
WS-SVC-WLAN-1-K9	WS-SVC-WISM-1-K9
WS-X6502-FULL-CVR	No Replacement
Optical Modules	
WS-G6488	No Replacement
WS-G6483	No Replacement
Supervisors	
WS-F6K-GE48-AF=	WS-F6K-48-AF=
WS-F6K-VPWR-GE=	WS-F6K-48-AF=
	WS-X6148A-45AF
	WS-X6148A-GE-45AF
WS-X6148X2-45AF	WS-X6196-21AF
WS-X6148X2-RJ-45	WS-X6196-RJ-21
WS-X6516-GE-TX	WS-X6748-GE-TX

Cisco Catalyst Switching Transition Guide (continued)

Current Product	Recommended Product
Modular Switches: Cisco Catalyst 6500 Series Switches (continued)	
Supervisors (continued)	
WS-X6K-S2U-MSFC2	WS-SUP32-10GE-3B
	WS-SUP32-GE-3B
	VS-S720-10G-3C
	VS-S720-10G-3CXL
WS-X6K-S2-MSFC2	WS-SUP32-10GE-3B
	WS-SUP32-GE-3B
	VS-S720-10G-3C
	VS-S720-10G-3CXL
WS-X6K-S2-PFC2	WS-SUP32-10GE-3B
	WS-SUP32-GE-3B
	VS-S720-10G-3C
	VS-S720-10G-3CXL
WS-X6K-S1A-MSFC2	VS-S720-10G-3CXL
	VS-S720-10G-3C
WS-X6K-SUP1A-MSFC	VS-S720-10G-3CXL
	VS-S720-10G-3C
WS-X6K-SUP1A-PFC	VS-S720-10G-3CXL
	VS-S720-10G-3C
WS-X6K-SUP1A-2GE	VS-S720-10G-3CXL
	VS-S720-10G-3C
WS-X6K-SUP1-2GE	VS-S720-10G-3CXL
	VS-S720-10G-3C
Line Cards and Daughter Cards	
WS-F6K-GE48-AF=	WS-F6K-48-AF=
WS-F6K-VPWR-GE=	WS-F6K-48-AF=
WS-F6K-VPWR=	WS-X6148-21AF
	WS-X6148A-45AF
	WS-X6148A-GE-45AF
WS-X6148X2-45AF	WS-X6196-21AF
WS-X6148X2-RJ-45	WS-X6196-RJ-21
WS-X6516-GE-TX	WS-X6748-GE-TX
WS-X6548-RJ-21	WS-X6148-RJ-21
WS-X6548-RJ-45	WS-X6748-GE-TX

Current Product	Recommended Product
Modular Switches: Cisco Catalyst 6500 Series Switches (continued)	
Line Cards and Daughter Cards (continued)	
WS-X6548V-GE-TX	WS-X6548-GE-45AF
WS-X6816-GBIC	WS-X6724-SFP
	WS-X6748-SFP
	N7K-M148GS-11
	N7K-M148GS-11L
WS-X6248A-TEL	WS-X6148-21AF
WS-X6316-GE-TX	WS-X6748-GE-TX
	WS-X6548-GE-TX
	WS-X6148-GE-TX
	WS-X6516-GE-TX
WS-X6348-RJ21V	WS-X6148-21AF
	WS-X6196-21AF
WS-X6348-RJ-45	WS-X6148A-RJ-45
	WS-X6148A-GE-TX
	WS-X6548-GE-TX
WS-X6348-RJ45V	WS-X6148A-45AF
	WS-X6148A-GE-45AF
WS-X6148-RJ45V	WS-X6148A-45AF
	WS-X6148A-GE-45AF
WS-X6416-GBIC	WS-X6516A-GBIC
	WS-X6724-SFP (Requires Catalyst 6500 Series Supervisor Engine 720)
WS-X6148-RJ-45	WS-X6148A-RJ-45
	WS-X6148A-GE-TX
WS-X6148-45AF	WS-X6148A-45AF
	WS-X6148A-GE-45AF
WS-X6148-GE-TX	WS-X6148A-GE-TX
WS-X6148V-GE-TX	WS-X6148A-GE-45AF
WS-X6148-GE-45AF	WS-X6148A-GE-45AF
WS-X6516-GBIC	WS-X6516A-GBIC
	N7K-M148GS-11
	N7K-M148GS-11L
WS-X6148A-RJ-45	WS-X6148A-GE-TX
WS-X6148A-45AF	WS-X6148A-GE-45AF
WS-X6548-RJ-45	WS-X6148A-GE-45AF

Cisco Catalyst Switching Transition Guide (continued)

Current Product	Recommended Product
Modular Switches: Cisco Catalyst 6500 Series Switches (continued)	
Line Cards and Daughter Cards (continued)	
WS-C6500-SFM	VS-S720-10G-3CXL
	VS-S720-10G-3C
WS-X6500-SFM2	VS-S720-10G-3CXL
	VS-S720-10G-3C
WS-F6K-MSFC2=	VS-S720-10G-3CXL
	VS-S720-10G-3C
WS-X6502-10GE	WS-X6704-10GE
Modular Switches: Cisco Catalyst 4500 Series Switches	
Chassis	
WS-C4003	WS-C4503-E
WS-C4006	WS-C4506-E
	WS-X4507R+E
	WS-C4510R+E
Supervisors	
WS-X4012 (SUP I)	WS-X45-SUP6-E
	WS-X45-SUP6L-E
	WS-X45-SUP7-E
	WS-X4516-10GE
WS-X4013 (SUP II)	WS-X45-SUP6L-E (SUP6L-E)
WS-X4013+	WS-C4503E-S6L-48V+
	WS-X45-SUP6L-E
WS-X4013+/2	WS-C4503E-S6L-48V+
	WS-X45-SUP6L-E
WS-X4013+10GE	WS-X45-SUP6L-E
WS-X4013+10GE/2	WS-X45-SUP6L-E
WS-X4013+10GE=	WS-X45-SUP6L-E
WS-X4013+=	WS-C4503E-S6L-48V+
	WS-X45-SUP6L-E
WS-X4013+TS	WS-C4503E-S6L-48V+
	WS-X45-SUP6L-E

Current Product	Recommended Product
Modular Switches: Cisco Catalyst 4500 Series Switches (continued)	
Supervisors (continued)	
WS-X4013+TS=	WS-C4503E-S6L-48V+
	WS-X45-SUP6L-E
WS-X4014 (SUP III)	WS-X4516-10GE (SUP V-10GE)
	WS-X45-SUP6-E (SUP6-E)
	WS-X45-SUP6L-E
	WS-X45-SUP7-E
WS-X4032-L3	WS-X4516-10GE (SUP V-10GE)
	WS-X45-SUP6-E (SUP6-E)
	WS-X45-SUP6L-E
	WS-X45-SUP7-E
WS-X4515	WS-X45-SUP6-E
	WS-X45-SUP6L-E
	WS-X4516-10GE
	WS-X45-SUP7-E
WS-X4515/2	WS-X45-SUP6-E
	WS-X45-SUP6L-E
	WS-X4516-10GE
	WS-X45-SUP7-E
WS-X4515=	WS-X45-SUP6-E
	WS-X45-SUP6L-E
	WS-X4516-10GE
	WS-X45-SUP7-E
WS-X4516	WS-X45-SUP6-E
	WS-X45-SUP6L-E
	WS-X4516-10GE
	WS-X45-SUP7-E
WS-X4516/2	WS-X45-SUP6-E
	WS-X45-SUP6L-E
	WS-X4516-10GE
	WS-X45-SUP7-E
WS-X4516=	WS-X45-SUP6-E
	WS-X45-SUP6L-E
	WS-X4516-10GE
	WS-X45-SUP7-E

Cisco Catalyst Switching Transition Guide (continued)

Current Product	Recommended Product
Modular Switches: Cisco Catalyst 4500 Series Switches (continued)	
Line Cards and Daughter Cards	
WS-U4504-FX-MT	WS-X4232-GB-RJ
WS-U4504-FX-MT=	WS-X4232-GB-RJ=
WS-X4124-FX-MT	WS-X4148-FX-MT
WS-X4124-FX-MT=	WS-X4148-FX-MT=
WS-X4124-RJ45	WS-X4148-RJ
WS-X4124-RJ45=	WS-X4148-RJ=
WS-X4148-RJ21	WS-X4148-RJ
WS-X4148-RJ21=	WS-X4148-RJ=
WS-X4224-RJ45V	WS-X4248-RJ45V
WS-X4224-RJ45V=	WS-X4248-RJ45V=
WS-X4232-GB-RJ	WS-X4148-RJ
WS-X4232-GB-RJ=	WS-X4148-RJ=
WS-X4232-RJ-XX	WS-X4232-GB-RJ WS-X4648-RJ45V-E WS-X4648-RJ45V+E WS-X4606-X2-E
WS-X4232-RJ-XX=	WS-X4232-GB-RJ= WS-X4648-RJ45V-E WS-X4648-RJ45V+E WS-X4606-X2-E
WS-X4248-RJ21V	WS-X4248-RJ45V
WS-X4248-RJ21V=	WS-X4248-RJ45V=
WS-X4302-GB	WS-X4306-GB
WS-X4302-GB=	WS-X4306-GB=
WS-X4424-GB-RJ45	WS-X4548-GB-RJ45 WS-X4648-GB-RJ45
WS-X4424-GB-RJ45=	WS-X4548-GB-RJ45= WS-X4648-GB-RJ45
WS-X4524-GB-RJ45V	WS-X4548-RJ45V+ WS-X4648-RJ45V+E WS-X4748-RJ45V+E
WS-X4524-GB-RJ45V=	WS-X4548-RJ45V+= WS-X4648-RJ45V+E= WS-X4748-RJ45V+E

Current Product	Recommended Product
Modular Switches: Cisco Catalyst 4500 Non-E-Series Switches	
Chassis	
C4K-SLOT-CVR	There is currently no replacement product available for this product
C4K-SLOT-CVR=	There is currently no replacement product available for this product
C4K-UPLINK-CVR	There is currently no replacement product available for this product
C4K-UPLINK-CVR=	There is currently no replacement product available for this product
WS-C4503	WS-C4503-E
WS-C4503-E-S2+48	WS-C4503E-S6L-48V+
WS-C4503-E-S2+48V	WS-C4503E-S6L-48V+
WS-C4503-S2+48	WS-C4503E-S6L-48V+
WS-C4506	WS-C4506-E
WS-C4506-S2+96	WS-C4506E-S6L-96V+
WS-C4506-S4-AP25	There is currently no replacement product available for this product
WS-C4506-S4-AP50	There is currently no replacement product available for this product
WS-C4506E-GE-96V	WS-C4506E-S6L-96V+
WS-C4507R	WS-C4507R+E
WS-C4507R-E-S2+96	There is currently no replacement product available for this product
WS-C4507R-E-S2+96V	WS-C4507RES6L-96V
WS-C4510R	WS-C4510R+E
WS-X4503-23CNTR=	There is currently no replacement product available for this product
WS-X4506-23CNTR=	There is currently no replacement product available for this product
WS-X4507-23CNTR=	There is currently no replacement product available for this product
WS-X4510-23CNTR=	There is currently no replacement product available for this product
WS-X4581=	There is currently no replacement product available for this product
WS-X4582=	There is currently no replacement product available for this product
WS-X4583=	There is currently no replacement product available for this product
WS-X4584=	There is currently no replacement product available for this product
WS-X4585=	There is currently no replacement product available for this product
WS-X4586=	There is currently no replacement product available for this product
WS-X4587=	There is currently no replacement product available for this product
WS-X4588=	There is currently no replacement product available for this product
WS-X4590=	There is currently no replacement product available for this product

Cisco Catalyst Switching Transition Guide (continued)

Current Product	Recommended Product
Modular Switches: Cisco Catalyst 4500 Non-E-Series Switches (continued)	
Chassis (continued)	
WS-X4593=	There is currently no replacement product available for this product
WS-X4596=	There is currently no replacement product available for this product
WS-X4597=	There is currently no replacement product available for this product
WS-X4598=	There is currently no replacement product available for this product
Supervisors	
WS-X4013+	WS-C4503E-S6L-48V+
	WS-X45-SUP6L-E
WS-X4013+/2	WS-C4503E-S6L-48V+
	WS-X45-SUP6L-E
WS-X4013+10GE	WS-X45-SUP6L-E
WS-X4013+10GE/2	WS-X45-SUP6L-E
WS-X4013+10GE=	WS-X45-SUP6L-E
WS-X4013+=	WS-C4503E-S6L-48V+
	WS-X45-SUP6L-E
WS-X4013+TS	WS-C4503E-S6L-48V+
	WS-X45-SUP6L-E
WS-X4013+TS=	WS-C4503E-S6L-48V+
	WS-X45-SUP6L-E
WS-X4515	WS-X45-SUP6-E
	WS-X45-SUP6L-E
	WS-X4516-10GE
	WS-X45-SUP7-E
WS-X4515/2	WS-X45-SUP6-E
	WS-X45-SUP6L-E
	WS-X4516-10GE
	WS-X45-SUP7-E
WS-X4515=	WS-X45-SUP6-E
	WS-X45-SUP6L-E
	WS-X4516-10GE
	WS-X45-SUP7-E
WS-X4516	WS-X45-SUP6-E
	WS-X45-SUP6L-E
	WS-X4516-10GE
	WS-X45-SUP7-E

Current Product	Recommended Product
Modular Switches: Cisco Catalyst 4500 Non-E-Series Switches (continued)	
Supervisors (continued)	
WS-X4516/2	WS-X45-SUP6-E
	WS-X45-SUP6L-E
	WS-X4516-10GE
	WS-X45-SUP7-E
WS-X4516=	WS-X45-SUP6-E
	WS-X45-SUP6L-E
	WS-X4516-10GE
	WS-X45-SUP7-E
Line Cards and Daughter Cards	
WS-X4148-RJ21	WS-X4148-RJ
WS-X4148-RJ21=	WS-X4148-RJ=
WS-X4224-RJ45V	WS-X4248-RJ45V
WS-X4224-RJ45V=	WS-X4248-RJ45V=
WS-X4232-GB-RJ	WS-X4148-RJ
WS-X4232-GB-RJ=	WS-X4148-RJ=
WS-X4248-RJ21V	WS-X4248-RJ45V
WS-X4248-RJ21V=	WS-X4248-RJ45V=
WS-X4302-GB	WS-X4306-GB
WS-X4302-GB=	WS-X4306-GB=
WS-X4424-GB-RJ45	WS-X4548-GB-RJ45
	WS-X4648-GB-RJ45
WS-X4424-GB-RJ45=	WS-X4548-GB-RJ45=
	WS-X4648-GB-RJ45
WS-X4524-GB-RJ45V	WS-X4548-RJ45V+
	WS-X4648-RJ45V+E
	WS-X47W8-RJ45V+E
WS-X4524-GB-RJ45V=	WS-X4548-RJ45V+=
	WS-X4648-RJ45V+E=
	WS-X47W8-RJ45V+E

Cisco Catalyst Switching Transition Guide (continued)

Current Product	Recommended Product
Fixed-Configuration Switches: Cisco Catalyst 3750, 3500, 3500XL, and 2950 Series Switches	
WS-C3750G-24TS-S	WS-C3750G-24-TS-S1U
	WS-C3750E-24TD-S
	WS-C3750X-24T-S
WS-C3750G-24TS-E	WS-C3750G-24-TS-E1U
	WS-C3750E-24TD-E
	WS-C3750X-24T-S with IP Services Upgrade
WS-C3750G-16TD-E	WS-C3750E-24TD-E
	WS-C3750X-24T-S with 10G Uplink and IP Services Upgrade
WS-C3750G-16TD-S	WS-C3750E-24TD-S
	WS-C3750X-24T-S with 10G Uplink
WS-C3550-12G	WS-C3750G-12S-S
	WS-C3750G-12S-E
WS-C3550-12T	WS-C3560G-24TS-S
	WS-C3560G-24TS-E
	WS-C3560E-24TD-S
	WS-C3560E-24TD-E
	WS-C3750G-24T-S
	WS-C3750G-24T-E
	WS-C3750G-24TS-S1U
	WS-C3750G-24TS-E1U
	WS-C3750E-24TD-S
	WS-C3750E-24TD-E
	WS-C3750X-24T-S
WS-C3550-24-SMI	WS-C3560V2-24TS-S
	WS-C37502-24TS-S
	WS-C3560E-24TD-S
	WS-C3750E-24TD-S
	WS-C3750X-24T-S

Current Product	Recommended Product
Fixed-Configuration Switches: Cisco Catalyst 3750, 3500, 3500XL, and 2950 Series Switches (continued)	
WS-C3550-24-EMI	WS-C3560V2-24TS-E
	WS-C3750V2-24TS-E
	WS-C3560E-24TD-E
	WS-C3750E-24TD-E
	WS-C3750X-24T-S with IP Services Upgrade
WS-C3550-24-FX-SMI	WS-C3750-24FS-S
WS-C3550-48-SMI	WS-C3560V2-48TS-S
	WS-C3750V2-48TS-S
	WS-C3560E-48TD-S
	WS-C3750E-48TD-S
	WS-C3750X-24T-S with GE Uplinks
WS-C3550-48-EMI	WS-C3560V2-48TS-E
	WS-C3750V2-48TS-E
	WS-C3560E-48TD-E
	WS-C3750E-48TD-E
	WS-C3750X-48T-S with GE Uplinks and IP Services Upgrade
WS-C3550-24PWR-SMI	WS-C3560V2-24PS-S
	WS-C3560V2-48PS-S
	WS-C3750V2-24PS-S
	WS-C3750V2-48PS-S
	WS-C3560E-24PD-S
	WS-C3560E-48PD-S
	WS-C3750E-24PD-S
	WS-C3750E-48PD-S
	WS-C3750X-24P-S with GE Uplinks

Cisco Catalyst Switching Transition Guide (continued)

Current Product	Recommended Product
Fixed-Configuration Switches: Cisco Catalyst 3750, 3500, 3500XL, and 2950 Series Switches (continued)	
WS-C3550-24PWR-EMI	WS-C3560V2-24PS-E
	WS-C3560V2-48PS-E
	WS-C3750V2-24PS-E
	WS-C3750V2-48PS-E
	WS-C3560E-24PD-E
	WS-C3560E-48PD-E
	WS-C3750E-24PD-E
	WS-C3750E-48PD-E
	WS-C3750X-24P-S with GE Uplinks and IP Services Upgrade
WS-3500XL-48	WS-C3750V2-48TS-S
WS-C3524-XL-EN	WS-C3560V2-24PS-S
	WS-C3750G-24T-E
	WS-C3750G-24TS-E
	WS-C3560E-24PD-S
	WS-C3750E-24TD-E
	WS-C3750X-24T-S with GE Uplinks
WS-C3548-XL-EN	WS-C3750V2-48PS-S
	WS-C3750E-48PD-S
	WS-C3750X-48T-S with GE Uplinks
	WS-C3750X-48P-S with GE Uplinks
WS-C2950G-48-EI	WS-C3560V2-48PS-S
	WS-C3560V2-48TS-S
	WS-C2960-48TC-L
WS-C2950G-24-EI	WS-C3560V2-24PS-S
	WS-C3560V2-24TS-S
	WS-C2960-24TC-L
WS-C2950G-12-EI	WS-C3560V2-24PS-S
	WS-C3560V2-24TS-S
	WS-C2960-24TC-L
WS-C2950T-24	WS-C2960-24TT-L
WS-C2950T-48-SI	WS-C2960-48TT-L

Current Product	Recommended Product
Fixed-Configuration Switches: Cisco Catalyst 3750, 3500, 3500XL, and 2950 Series Switches (continued)	
WS-C2950-12	WS-C2960-24TT-L
	WS-C2960-24-S
WS-C2950-24	WS-C2960-24TT-L
	WS-C2960-24-S
WS-C2950C-24	WS-C2960-24TC-L
	WS-C2960-24TC-S
WS-C2950SX-24	WS-C2960-24TC-L
	WS-C2960-24TC-S
WS-C2950SX-48-SI	WS-C2960-48TC-L
	WS-C2960-48TC-S
Based on EOL6608	
WS-C2940-8TF-S	WS-C2960-8TC-S
WS-C2940-8TT-S	WS-C2960-8TC-S
Based on EOL6926	
WS-C2950G-24-EI-DC	WS-C3560V2-24TS-SD
WS-C3550-24-DC-SMI	WS-C3560V2-24TS-SD
WS-C3560-24PS-E	WS-C3560V2-24PS-E
WS-C3560-24PS-S	WS-C3560V2-24PS-S
WS-C3560-24TS-E	WS-C3560V2-24TS-E
WS-C3560-24TS-S	WS-C3560V2-24TS-S
WS-C3560-48PS-E	WS-C3560V2-48PS-E
WS-C3560-48PS-S	WS-C3560V2-48PS-S
WS-C3560-48TS-E	WS-C3560V2-48TS-E
WS-C3560-48TS-S	WS-C3560V2-48TS-S
WS-C3750-24PS-E	WS-C3750V2-24PS-E
WS-C3750-24PS-S	WS-C3750V2-24PS-S
WS-C3750-24TS-E	WS-C3750V2-24TS-E
WS-C3750-24TS-S	WS-C3750V2-24TS-S
WS-C3750-48PS-E	WS-C3750V2-48PS-E
WS-C3750-48PS-S	WS-C3750V2-48PS-S
WS-C3750-48TS-E	WS-C3750V2-48TS-E
WS-C3750-48TS-S	WS-C3750V2-48TS-S

Notes

Cisco Modular Switches

The Nexus 7000 and Cisco Catalyst 6500 and Catalyst 4500 Series modular switches provide customers with an intelligent platform for deploying numerous, concurrent intelligent services without degrading the overall performance of the switch. With a broad selection of line cards and power supplies and their highly versatile architecture, modular switches deliver the highest levels of port density and flexibility to meet the requirements of campus and data center networks.

These extensive product portfolios allow customers to build an infrastructure that can be scaled cost-effectively and that helps increase energy, budget, and resource efficiency. Customers can simplify the transition to 10, 40, and 100 Gigabit Ethernet, handle architectural changes such as virtualization, Web 2.0 applications, and cloud computing as well as support converged applications in a secure architecture.

To minimize costly user downtime, modular switches are optimized for operational continuity in order to create an environment where system availability is assumed and maintenance downtime windows are rare or nonexistent. Critical redundant hardware and software features deliver the highest resiliency for all places in the network. Modular switches also provide the highest levels of investment protection. New features, innovations and functionality can be easily added with cost effective incremental upgrades to supervisors, linecards and fabric modules (Nexus 7000). This approach not only protects a majority of the initial investment but enhances the investment with new functionality while mitigating the need for disruptive fork-lift upgrades.

Notes

Cisco Nexus 7000 Series

Cisco's flagship modular data center-class product line: Designed to meet the requirements of the most mission-critical networks, the Cisco Nexus™ 7000 Series delivers continuous system operation and virtualized pervasive services. The Cisco Nexus 7000 Series is based on the highly resilient NX-OS operating system, with enhanced features to deliver real-time system upgrades with exceptional manageability and serviceability. Its innovative design is purpose-built to support end-to-end data center unified fabrics for consolidating LAN and SAN traffic over a single network and for high-performance campus core deployments.

The Cisco Nexus 7000 Series is designed for highly scalable 1GE and 10 Gigabit Ethernet networks today, with the ability to scale beyond 15 terabits per second (Tbps) coupled with future support for 40-Gbps and 100-Gbps Ethernet.

Powered by Cisco NX-OS, the Nexus 7000 Series offers a self-healing, robust and rich feature set with a variety of Cisco innovations. Cisco's NX-OS provides customers with an intelligent and scalable network operating system that offers numerous industry-leading innovations such as OTV, FabricPath, VDCs, LISP, and hitless ISSU for continuous availability, setting the standard for mission-critical environments. NX-OS delivers exceptional operational flexibility through a single operating system that is leveraged across all Nexus platforms, the Cisco MDS 9000 family of storage switches and the Cisco UCS 6100 Series of Fabric Interconnects of the Cisco Unified Computing System. This provides for consistent operations across physical, virtualized, and converged environments allowing you to implement a single operating system across network, storage, and compute infrastructures, simplifying data center operations and resulting in a positive effect on operational costs.

IP routing and multicast: Supports state-of-the-art implementations of IPv4 and IPv6 services, routing protocols, and IP multicast features to optimize and enhance network scalability and performance, reducing capital expenditures (CapEx) and operating expenses (OpEx).

Hardware Features

	N7K-C7010	N7K-C7018
Slots	10	18
1 Gigabit Ethernet Density	384	768
10/100/1000 (RJ45) Density	384	768
10 GBE Port Density	256	512
Performance	3.84 Bpps (IPv4)	7.68 Bpps (IPv4)
Mean Time Between Failure (MTBFs)	264,552 (hours)	206,038 (hours)
AC Internal (Redundant Mode)	Yes	Yes
DC Internal (Redundant Mode)	Yes	Yes
Dimension (H x W x D) Inches	36.5 x 17.3 x 33.1	43.5 x 17.3 x 33.1
Dimension (H x W x D) Centimeters	92.7 x 43.9 x 84.1	110.5 x 43.9 x 84.1
Rack Unit (RU)	21	25
Unit Weight	· Chassis only: 200 lb (90 kg) · Fully configured: 516 lb (235 kg)	· Chassis only: 187 lb (85 kg) · Fully configured: 696 lb (316 kg)

Cisco Nexus 7000 Series: Supervisor Engine

Hardware Features	N7K-SUP1
Chassis Supported	All
Memory	· DRAM: Up to 8 GB, Flash Memory: 2 GB · NVRAM: 2 MB battery backup
Interfaces	· Supervisor management port: 10/100/1000-Mbps Ethernet port, support for inline encryption through MAC security (IEEE 802.1AE) · CMP management port: 10/100/1000-Mbps Ethernet port · Console serial port: RJ45 connector · Auxiliary serial port: RJ45 connector · 3 USB ports: 2 host and 1 device port for peripheral devices

Features

Nexus 7000 Series Supervisor Module

- Designed to deliver scalable control plane and management functions for the Nexus 7000 Series chassis
- Delivers continuous system operation
  - –Active and standby supervisor with hitless failover
  - –Segmented and redundant out-of-band provisioning and management paths
  - –Virtualization of the management plane
  - –Integrated diagnostics and protocol decoding with an embedded control plane packet analyzer
- Upgradeable architecture
  - –Fully decoupled control plane and data plane with no software forwarding via the supervisor
  - –Distributed forwarding architecture, allowing independent upgrades of the supervisor and fabric
- Superior operational efficiency
  - –Dedicated out-of-band management processor for lights out management

Nexus 7000 Series 8-port 10 Gigabit Ethernet Module with XL Option

- Full support for Layer 2 and Layer 3 IPv4/IPv6 protocols, Netflow, and MPLS
- XL mode enables larger forwarding table (up to 1M routes) for increased scalability
- Wire speed on all ports, 120 Mpps L2/L3, 80 Gps
- Flexibility to run in non-XL or XL without requiring a hardware change or upgrade
- Powerful security capabilities through hardware integrated support for Cisco TrustSec

Nexus 7000 Series 32-port 1 and 10 Gigabit F-Series Ethernet Module

- Powered by the F1 Forwarding Engine, delivers Layer 2 forwarding rate of 480 Mpps and up to 320 Gbps of data throughput
- Up to 256/512 10 Gigabit Ethernet ports per Nexus 7000 10-slot/18-slot switches respectively
- Interface flexibility through support for Gigabit and 10 Gigabit Ethernet on a per-port basis in both SFP and SFP+ media options
- Support for Fibre Channel over Ethernet and the IEEE's Data Center Bridging technologies
- Highly scalable 100+ Tbps Layer 2 networks with Cisco FabricPath

Nexus 7000 Series 32-port 10 Gigabit Ethernet Module with XL Options

- Full support for Layer 2 and Layer 3 IPv4/IPv6 protocols, Netflow, and MPLS
- XL mode enables larger forwarding table (up to 1M routes) for increased scalability
- Flexibility to run in non-XL or XL without requiring a hardware change or upgrade
- Downstream connection to Cisco Nexus 2224TP, 2248TP, 2232PP Fabric Extender, offering a cost-effective, scalable server connectivity solution
- Powerful security capabilities through hardware integrated support for Cisco TrustSec

Nexus 7000 Series 48-port Gigabit Ethernet Modules

- Full support for Layer 2 and Layer 3 IPv4/IPv6 protocols, Netflow, and MPLS
- Ideal for access layer connectivity delivering a high density, high performance, and continuous operation solution
- Interface flexibility through support for 10/100/1000 RJ45 connectivity or fiber (SFP) connectivity
- Highly scalable solution with up to 768 ports of Gigabit Ethernet on the Nexus 7018 and 384 on the Nexus 7010 Chassis
- 60 Mpps of Layer 2 and Layer 3 IPv4 of Unicast forwarding

Cisco Nexus 7000 Series Spotlight

Scalable Architectural Design

- End-to-end solution for data center core, aggregation, and high-density end-of-row and top-of-rack server connectivity in a single platform, and for high performance campus core developments.
- Designed for 10 GE, 40 GE and 100 GE scalability to more than 15 Tbps for ongoing investment protection.
- Multicore, multi-threaded, highly modular OS to optimize CPU resources and offload tasks to processors distributed across the modules.
- Virtual Device Context (VDC) Virtualizes a single physical Nexus 7000 switch into multiple logical switches for infrastructure consolidation and segmentation (PCI certified).
- Nexus 7000 in conjunction with the Nexus 2000 scales up to 1,500 ports per Nexus 7000 with a single point of management, significantly simplifying management.

Operational Continuity

- Based on NX-OS with highly granular process modularity with automatic fault isolation and containment integrated with hardware resiliency features.
- Zero-service downtime with industry's only hitless ISSU for non-disruptive upgrades.
- Highest resiliency with no single point of failure in the system hardware and a modular operating system.

Industry leading Innovations

- **Overlay Transport Virtualization (OTV)—** Extend Layer 2 networks across geographically distributed data centers over any network enabling Layer 2 adjacencies for distributed clustering and transparent workload mobility.
- **Cisco FabricPath—**enables a highly scalable, high-bandwidth (up to 100+ Tbps fabric) and resilient Layer 2 multipath network without a spanning tree for large virtualization deployments.
- **Virtual Device Context (VDC)—**Virtualizes a single physical Nexus 7000 switch into multiple logical switches for infrastructure consolidation and segmentation (PCI certified).
- **Fibre Channel of Ethernet (FCoE)—**Allows consolidation for LAN and SAN traffic over a single converged network minimizing network sprawl and maximizing network agility.
- **Location/ID Separation Protocol (LISP)—** Provides global IP address portability significantly increasing routing scalability and enabling scalable virtualization, multi-tenancy, cloud enablement, and IPv6 transition.
- **In Service Software Upgrade (ISSU)—**Industry's only truly hitless ISSU, eliminating maintenance network outages.
- **Virtual Port Channel (vPC)—**Enables deployment of active/active uplinks for high availability and double network bandwidth.

Product Overview

Product Number	Product Description
N7K-C7010	Cisco Nexus 7000 Series 10-slot Chassis Including Fan Trays, no Power Supply
N7K-C7010=	Cisco Nexus 7000 Series 10-slot Chassis Including Fan Trays, no Power Supply
N7K-C7010-FAN-S=	Cisco Nexus 7000 Series 10-slot System Fan Tray Spare
N7K-C7010-FAN-F=	Cisco Nexus 7000 Series 10-slot Fabric Fan Tray Spare
N7K-C7018	Cisco Nexus 7000 Series 18-slot Chassis Including Fan Trays, no Power Supply
N7K-C7018=	Cisco Nexus 7000 Series 18-slot Chassis no Fan Trays, no Power Supply
N7K-C7018-FAN=	Cisco Nexus 7000 Series 18-slot Fan Tray Spare
N7K-C7010-BUN	Nexus 7010 Bundle (Chassis, SUP1, (3)FAB1, (2)AC-6KW PSU)
N7K-C7010-BUN-R	Nexus 7010 Bundle—Chassis, (2)SUP1, (3)FAB1, (3)AC-6KW PSU)
N7K-C7010-AFLT=	Cisco Nexus 7010—Air Filter
N7K-RMK=	Cisco Nexus 7000—Rack Mount Kit
N7K-C7010-EMI-SC=	Cisco Nexus 7010—EMI Inlet Screen Kit
N7K-C7010-FD-TOP=	Cisco Nexus 7010 Front Door Top Section—Including Cable Management Kit
N7K-C7010-FD-MB=	Cisco Nexus 7010 Front Door—Kit
N7K-BSK=	Cisco Nexus 7000 Bottom Support Kit
N7K-FAB-BLANK=	Cisco Nexus 7010 Fabric Module Blank
N7K-C7018-RMK=	Cisco Nexus 7018 Rack Mount Kit
N7K-C7018-CAB-TOP=	Cisco Nexus 7018 Front Top Section and Cable Management Kit
N7K-C7018-FD-MB	Cisco Nexus 7018 Front Door Kit
N7K-C7018-BSK	Cisco Nexus 7018 Bottom Support Kit
N7K-C7018-F-BLANK=	Cisco Nexus 7018 Fabric Module Blank
N7K-SUP-BLANK=	Cisco Nexus 7000 Series Supervisor Blank Slot Cover
N7K-MODULE-BLANK=	Cisco Nexus 7000 Series Module Blank Slot Cover
N7K-PS-BLANK=	Cisco Nexus 7010 Chassis Power Supply Blank Slot Cover
N7K-PS-BLANK-H=	Cisco Nexus 7018 Chassis Power Supply Blank Slot Cover with Handle
N7K-CLK-BLANK=	Cisco Nexus 7000 Series Network Clock Card Blank
N7K-SUP1	Cisco Nexus 7000 Series Supervisor Module, Includes External 8 GB Flash
N7K-SUP1=	Cisco Nexus 7000 Series Supervisor Module, Includes External 8 GB Flash Spare
N7K-CPF-2GB	Cisco Nexus 7000—Compact Flash Memory—2 GB (Expansion Flash)
N7K-CPF-2GB=	Cisco Nexus 7000—Compact Flash Memory—2 GB (Expansion Flash) Spare
N7K-CPF-8GB=	Cisco Nexus 7000—Compact Flash Memory—8 GB (Log Flash) Spare

Product Overview (continued)

Product Number	Product Description
Cisco Nexus 7000 Series Fabric Module	
N7K-C7010-FAB-1	Cisco Nexus 7000 10-slot Chassis 46 Gbps/Slot Fabric Module (and Spare)
N7K-C7010-FAB-1=	
N7K-C7018-FAB-1	Cisco Nexus 7000 18-slot Chassis 46 Gbps/Slot Fabric Module (and Spare)
N7K-C7018-FAB-1=	
Cisco Nexus 7000 Series 8-Port 10 Gigabit Ethernet Module with XL Option	
N7K-M108X2-12L	Cisco Nexus 7000 Series 8-port 10 Gigabit Ethernet Module with XL Option (Requires X2)
X2-10GB-SR=*	10GBASE-SR X2 Module
X2-10GB-LR=*	10GBASE-LR X2 Module
X2-10GB-LRM=*	10GBASE-LRM X2 Module
X2-10GB-ER=*	10GBASE-ER X2 Module
X2-10GB-ZR=*	10GBASE-ZR X2 Module
X2-10GB-LX4=*	10GBASE-LX4 X2 Module
X2-10GB-CX4=*	10GBASE-CX4 X2 Module
DWDM-X2-60.61=**	Dense Wavelength-Division Multiplexing (DWDM) X2 Module

* See the X2 modules data sheet for additional information: http://cisco.com/en/US/prod/collateral/modules/ps5455/ps6574/product_data_sheet0900aecd801f92aa.html.

** Also offered in other wavelengths. See the DWDM X2 modules data sheet for additional product number and information: http://cisco.com/en/US/prod/collateral/modules/ps5455/ps6576/data_sheet_c78_489725.html.

Product Number	Product Description
Cisco Nexus 7000 Series 32-Port 1 and 10 Gigabit Ethernet Module	
N7K-F132XP-15	Nexus 7000—32 Port 1G/10G Ethernet Module, SFP/SFP+ (and Spare)
N7K-F132XP-15=	
Cisco Nexus 7000 Series 32-Port 10 GB Ethernet Module, 80 GB Fabric	
N7K-M108X2-12L	Cisco Nexus 7000 Series 32-port 10 GB Ethernet Module with 80 Gbps Fabric (Requires SFP+ Optic Module)
Cisco Nexus 7000 Series 48-Port Gigabit Ethernet Modules	
N7K-M148GT-11	Cisco Nexus 7000 Series 48-port 10/100/1000 Ethernet Module
N7K-M148GS-11	Cisco Nexus 7000 Series 48-port Gigabit Ethernet Module (SFP)
SFP-GE-S	1000Base-SX SFP (DOM)
SFP-GE-L	1000Base-LX/LH SFP (DOM)
SFP-GE-Z	1000Base-ZX Gigabit Ethernet SFP (DOM)

Product Number	Product Description
Cisco Nexus 7000 Series 48-Port Gigabit Ethernet Modules (continued)	
SFP-GE-T	1000Base-T Gigabit Ethernet SFP (DOM)
GLC-SX-MM	GE SFP, LC Connector SX Transceiver
GLC-LH-SM	GE SFP, LC Connector LX/LH Transceiver
GLC-ZX-SM	GE SFP, LC Connector ZX Transceiver
GLC-T	GE SFP, Copper Twisted Pair
CWDM-SFP-1470=*	Coarse Wavelength-Division Multiplexing (CWDM) SFP
DWDM-SFP-3033=**	Dense Wavelength-Division Multiplexing (DWDM) SFP

* Also offered in other wavelengths. See CWDM SFP datasheet for additional product number and information.

** Also offered in other wavelengths. See DWDM SFP datasheet for additional product number and information.

Product Number	Product Description
Cisco Nexus 7000 Series 48-Port Gigabit Ethernet Modules with XL Option	
N7K-M148GS-11L	Cisco Nexus 7000 Series 48-port Gigabit Ethernet Module with XL Option (SFP Optics)
N7K-M148GT-11L	Cisco Nexus 7000 Series 48-port 10/100/1000 Ethernet Module with XL Option (RJ45)
SFP-GE-S*	1000BASE-SX SFP (DOM)
SFP-GE-L*	1000BASE-LX/LH SFP (DOM)
SFP-GE-Z*	1000BASE-ZX Gigabit Ethernet SFP (DOM)
SFP-GE-T*	1000BASE-T SFP (NEBS 3 ESD)
GLC-SX-MM*	GE SFP, LC Connector SX Transceiver
GLC-LH-SM*	GE SFP, LC Connector LX/LH Transceiver
GLC-ZX-SM*	1000BASE-ZX SFP
GLC-T*	1000BASE-T SFP
CWDM-SFP-1470=**	Coarse Wavelength-Division Multiplexing (CWDM) SFP
DWDM-SFP-3033=***	Dense Wavelength-Division Multiplexing (DWDM) SFP

* See the SFP optics data sheet for additional information: http://cisco.com/en/US/prod/collateral/modules/ps5455/ps6577/product_data_sheet0900aecd8033f885.html.

** Also offered in other wavelengths. See the CWDM SFP optics data sheet for additional product numbers and information: http://cisco.com/en/US/prod/collateral/modules/ps5455/ps6575/product_data_sheet09186a00801a557c.html.

*** Also offered in other wavelengths. See the DWDM SFP optics data sheet for additional product numbers and information: http://cisco.com/en/US/prod/collateral/modules/ps5455/ps6576/product_data_sheet0900aecd80582763.html.

Product Overview (continued)

Product Number	Product Description
Cisco Nexus 7000 Series 32-Port 10 Gigabit Ethernet Module with XL Option	
N7K-M132XP-12L	Cisco Nexus 7000—32-port 10 GBE with XL Option, 80 G Fabric (Requires SFP+ Optics Module)
SFP-10G-SR=*	10GBASE-SR SFP Module
SFP-10G-LRM=*	10GBASE-LRM SFP Module
SFP-10G-LR=*	10GBASE-LR SFP Module
SFP-10G-ER=*	10GBASE-ER SFP Module
SFP-H10GB-CU1M=*	10GBASE-CU SFP+ Cable 1 Meter
SFP-H10GB-CU3M=*	10GBASE-CU SFP+ Cable 3 Meter
SFP-H10GB-CU5M=*	10GBASE-CU SFP+ Cable 5 Meter
SFP-H10GB-ACU7M=*	Active Twinax Cable Assembly, 7m
SFP-H10GB-ACU10M=*	Active Twinax Cable Assembly, 10m
N7K-C7010-XL	Nexus 7010 Scalable Feature License
N7K-C7018-XL	Nexus 7018 Scalable Feature License
Cisco Nexus 7000 Series Power Supply Modules	
N7K-AC-6.0KW	Cisco Nexus 7000 6.0kW AC Power Supply Module
N7K-AC-7.5KW-INT	Cisco Nexus 7000 7.5kW AC Power Supply Module International (Cable Included)
N7K-AC-7.5KW-US	Cisco Nexus 7000 7.5kW AC Power Supply Module US (Cable Included)
CAB-AC-16A-AUS	Power Cord, 250 VAC, 16A, Australia C19
CAB-AC16A-CH	16A AC Power Cord For China
CAB-AC-2500W-EU	Power Cord, 250 VAC, 16A, Europe
CAB-AC-2500W-INT	Power Cord, 250 VAC, 16A, International
CAB-AC-2500W-ISRL	Power Cord, 250 VAC, 16A, Israel
CAB-AC-C6K-TWLK	Power Cord, 250 VAC, 16A, Twist Lock NEMA L6-20 Plug, United States
CAB-AC-2500W-US1	Power Cord, 250 VAC, 16A, Straight Blade NEMA 6-20 Plug, United States
CAB-7513AC	AC Power Cord, North America (110V)
CAB-C19-CBN	Cabinet Jumper Power Cord, 250 VAC 16A, C20-C19 Connectors
CAB-ACS-16	AC Power Cord (Swiss) 16A
N7K-AC-7.5KW-US	Cisco Nexus 7000 7.5kW AC Power Supply Module US (Cable Included)
CAB-AC-16A-AUS	Power Cord, 250 VAC, 16A, Australia C19

Product Number	Product Description
Cisco Nexus 7000 6.0kW DC Power Supply Module	
N7K-DC-6.0KW	Nexus 7000—6.0kW DC Power Supply Module (Cable and Spare Included)
N7K-DC-6.0KW=	
N7K-DC-PIU	Nexus 7000—DC Power Interface Unit (and Spare)
N7K-DC-PIU=	
N7K-DC-CAB=	Nexus 7000—DC 48V-48V Cable (Spare)
Cisco NX-OS for Nexus 7000	
N7K-LAN1K9	Cisco NX-OS Enterprise LAN License
N7K-ADV1K9	Cisco NX-OS Advanced LAN License
N7K-EL21K9	Cisco NX-OS Enhanced Layer 2 License
N7K-TRS1K9	Cisco NX-OS Transport Services License
N7K-C7010-XL	Cisco Nexus 7010 Scalable Feature License
N7K-C7018-XL	Cisco Nexus 7018 Scalable Feature License
N7KS1K9-401A1.1	Cisco NX-OS Release 4.0 Software for the Cisco Nexus 7000 Supervisor 1
N7KS1K9-41	Cisco NX-OS Release 4.1 Software for the Cisco Nexus 7000 Supervisor 1
N7KS1K9-42	Cisco NX-OS Release 4.2 Software for the Cisco Nexus 7000 Supervisor 1
N7KS1K9-50	Cisco NX-OS Release 5.0 Software for the Cisco Nexus 7000 Supervisor 1
N7KS1NPEK9-50	Cisco NX-OS 5.0 no Payload Encryption Software (no CTS)
N7KS1K9-51	Cisco NX-OS Release 5.1 Software for the Cisco Nexus 7000 Supervisor 1
N7KS1NPEK9-51	Cisco NX-OS 5.1 no Payload Encryption Software (no CTS)
Cisco Data Center Network Manager Release 4.1	
DCNM-N7K-K9	DCNM LAN Enterprise License for One Nexus 7000 Chassis
DCNM-N7K-PAK=	DCNM LAN Enterprise License for a Pack of Nexus 7000 Chassis

Notes

Cisco Catalyst 6500 Series

The flagship Catalyst switching platform offers the highest levels of application intelligence, unified network services, integrated security, non-stop communications, operational manageability, and virtualization for enterprises, medium-sized businesses, and service providers.

The Cisco Catalyst 6500 Series continues to be the industry's most innovative switching platform, delivering the highest levels of service. The feature-richness, density and scalability of this product line sets the standard for converged data, voice, and video networks. In addition, its flexibility enables deployments in wiring closet, campus distribution, core, data center, Internet access and WAN service aggregation, environments, and enables maximum operational efficiency and investment protection through hardware and software consistency.

The Cisco Catalyst 6500 Series offers integrated service modules that provide high-speed advanced services such as integrated wireless, firewalling, intrusion detection, application control, SSL termination, and network analysis services. With a choice of 3-, 4-, 6-, 9-, and 13-slot chassis, the Cisco Catalyst 6500 Series scales to support the highest port densities for Power over Ethernet (PoE) and Enhanced Power over Ethernet (ePoE), 10/100 Fast Ethernet, 10/100/1000 Gigabit Ethernet, 10 Gigabit Ethernet (10 GBE) 10GBase-T and DS0 to OC-192 WAN interfaces. The Cisco Catalyst 6500 Series switch also offers the investment protection of backwards compatibility, enabling new services and functions on older line cards by simply upgrading a supervisor to the latest generation.

Hardware Features	WS-C6503-E	WS-C6504-E	WS-C6506-E	WS-C6509-E	WS-C6509-V-E	WS-C6513-E
Slots	3	4	6	9	9	13
Gigabit Ethernet GBIC/SFP Density	32/98	48/144	80/242	128/386	128/384	240/528
Two Chassis configured as a Virtual Switching System (SFP Only)	196	288	484	772	768	1056
10 GBE XENPAK/X2 Port Density	11170	17136	20/82	32/130	32/130	48/84
Two Chassis configured as a Virtual Switching System	68	100	164	260	260	164
10/100/1000 Density	97	145	241	385	385	577
Two Chassis configured as a Virtual Switching System	194	290	482	770	770	482
10/100 Density	192	288	480	768	768	1152
100BASE-FX Density	96	144	240	384	384	576
10 Gigabit Ethernet RJ-45 port density	32	48	80	128	128	80
Maximum Watt Power Consumption (Redundant Mode)						
AC Internal (Redundant Mode)	1400	2700	8700	8700	8700	6000
DC Internal (Redundant Mode)	950	2700	4000	4000	4000	4000
Maximum Number of Class 3 Devices (15.4W) Maximum Power Supplies						
AC Internal (Redundant Mode)	48	110	284	288	215	281
DC Internal (Redundant Mode)	31	110	173	184	206	176
Dimension (H x W x D) Inches	7 x 17.37 x 21.75	8.75 x 17.5 x 21.75	19.2 x 17.5 x 18.2	24.5 x 17.5 x 18.2	33.3 x 17.2 x 18.1	33.3 x 17.3 x 18.1
Dimension (H x W x D) Centimeters	17.8 x 44.1 x 55.2	22.2 x 44.5 x 55.2	48.8 x 44.5 x 46.0	62.2 x 44.5 x 46.0	84.6 x 43.7 x 46.0	84.6 x 43.7 x 46.0
Rack Unit (RU)	4	5	12	15	21	20
Unit Weight Pounds (Kilograms) (Chassis Only)	33 (15.0)	40 (18.1)	50 (22.7)	60 (27.3)	55 (24.9)	98 (45.0)

Supervisor Engines Hardware Features

	Virtual Switching Supervisor 720-10G VS-S720-10G-3CXL VS-S720-10G-3C	SUP 720 WS-SUP720-3BXL WS-SUP720-3B	SUP 32 WS-SUP32-10GE-3B WS-SUP32-GE-3B	SUP 32-PISA WS-SUP32-10GE-PISA WS-SUP32-GE-PISA
Chassis Supported	All	All	All	All
Bandwidth per Slot (Gbps)	40	40	32 Gbps Shared	32 Gbps Shared
Total Bandwidth (Gbps)	720	720		
Packets per Second (Mpps)	450	400	15	15
MAC Addresses Supported	96K	64K	64K	64K
Routes Supported	1,000,000 (3CXL) 256,000 (3C)	1,000,000 (3BXL) 256,000 (3B)	256,000	256,000
Onboard Memory (DRAM)	1 GB (SP), 1 GB (RP)	Up to 1 GB (SP), 1 GB (RP)	Up to GB	Up to GB
Uplinks	2 x 10 GBE, 3 x GBE (2 SFP, 1 10/100/1000)	2 x GBE (SFP) or 1 x GBE (SFP) + 1 x GBE (10/100/1000)	(-10 GE) : 2 x 10 GBE + 1 x 10/100/1000 (-GE) : 8 x 1 GBE (SFP) + 1 x 10/100/1000	(-10 GE) : 2 x 10 GBE + 1 x 10/100/1000 (-GE) : 8 x 1 GBE (SFP) + 1 x 10/100/1000

Features

Catalyst 6500 Supervisor Common Features

- Supports next generation performance of 10Gigabit, Gigabit, Power over Ethernet and Enhanced Power over Ethernet interfaces
- Compatible with all three generations of Catalyst 6500 series interfaces and service modules
- Advanced automation with Smart CallHome and Embedded Event Manager
- User-based rate limiting enforcing up to 64 policy rates
- High performance features in hardware
- IPv4 and IPv6 forwarding
- Layer 2 and Layer 3 MPLS and EoMPLS
- Virtual Route Forwarding Lite (VRF-Lite)
- Generic Route Encapsulation (GRE)
- Advanced security features
- Trustsec 802.1x and NAC features
- Access Control Lists (ACLs)
- Virtual LANs (VLANs)
- Port Security
- CPU rate limiting
- Multi-path uRFP
- Services Advertisement Framework (SAF)

Features

Virtual Switching Supervisor 720-10G

- Scales to 1.4 Terabits with **Virtual Switching System** 1440
- Integrated 720 Gbps switch fabric
- Two 10 Gigabit and two Gigabit Ethernet uplinks
- 3CXL Policy Feature Card expands routing, MPLS, and NetFlow capacity

Catalyst Supervisor Engine 720

- Optimized for maximum services scalability
- Integrated 720 Gbps switch fabric
- 3BXL Policy Feature Card expands routing, MPLS, and NetFlow capacity

Supervisor Engine 32-PISA[1]

- Integrated Programmable Intelligent Services Accelerator
- Multi-gigabit deep packet inspection
- Optimized for the access layer—common services with Supervisor Engine 720
- Available with two 10 Gigabit or eight Gigabit uplinks
- Shared 32 Gbps bus

Supervisor Engine 32

- Optimized for the access layer—common services with Supervisor Engine 720
- Available with two 10 Gigabit or eight Gigabit uplinks
- Shared 32 Gbps bus

[1]Per EOS announcement, last day to order is September 8, 2010

Cisco Catalyst 6500 Series Spotlight

Virtual Switching System 1440[1]

The key enabler of a VSS 1440 is the Virtual Switching Supervisor 720-10G. Any two Cisco Catalyst 6500 Series Switches with this supervisor engine can be pooled together into a VSS 1440*. The two switches are connected with 10 GBE links called Virtual Switch Links (VSLs). Once a VSS 1440 is created it acts as a single virtual Cisco Catalyst 6500 switch delivering the following benefits:

Operational Manageability:
Two Catalyst 6500s shares a single point of management, single gateway IP address, and single routing instance—eliminating the dependence on First Hop Redundancy Protocols (FHRP) and Spanning Tree Protocol.

Non-Stop Communications:
Delivers deterministic, sub-200 millisecond Layer 2 link recovery through inter-chassis stateful failovers and the predictable resilience of Etherchannel.

Scales to 1.4 Tbps:
Scales system bandwidth capacity to 1.4 Tbps by activating all available bandwidth across redundant Catalyst 6500 switches and delivers up to 260 ports of 10 GBE per system.

Programmable Intelligent Services Accelerator (PISA)[2]

The Cisco Catalyst 6500 Supervisor Engine 32 Programmable Intelligent Services Accelerator (PISA) embeds multi-gigabit deep packet inspection capability into the Catalyst 6500 Series platform. This enables hardware acceleration of services and offers new levels of application intelligence, integrated security, and operational manageability for enterprise campus access and WAN routing.

Cisco IOS Software Modularity[3]

The Cisco Catalyst 6500 Series with Cisco IOS Software Modularity boosts operational efficiency and minimizes downtime through evolutionary software infrastructure advancements. By enabling modular Cisco IOS subsystems to run as independent, self-healing processes, this innovation minimizes unplanned downtime through fault containment and stateful process restarts, simplifies software changes through subsystem In-Service Software Upgrades (ISSU), and enables process-level, automated policy control by integrating the Embedded Event Manager (EEM).

Maximum PoE Scalability

The Cisco Catalyst 6500 Series provides industry leading levels of power scalability (up to 420 Class 3 devices) needed to support high-density PoE deployments. It also offers Enhanced Power over Ethernet (ePoE) for devices that require more than 15.4 Watts per port. The enhanced 6- and 9-slot chassis (WS-C6506-E and WS-C6509-E models) are designed to scale beyond the current 8700W power supplies. Continuing this product line's tradition of unmatched investment protection, all existing supervisors, line cards, switch fabrics, and software releases are supported in the E series chassis.

Metro Ethernet 6500

The ME 6500 offers high services in a fixed 1.5RU form factor. It is optimized for space-constrained branch collapsed core/distribution GE LAN aggregation.

The Cisco ME 6524 Ethernet Switch delivers advanced Catalyst 6500 features and services such as IOS modularity, MPLS, QoS, Multicast, and IPv6 features in a small fixed form factor enabling service-rich Gigabit Ethernet LAN aggregation in branch deployments.

[1]See Virtual Switching System 1440 on the Catalyst 6500 Series White Paper for complete requirements.
[2]Per EOS announcement, last day to order is September 8, 2010.
[3]Subsystem ISSU aka Patching has been deprecated starting 12.2(33)SXI3.

Product Overview

Product Number	Product Description
Catalyst 6500 Chassis: Top Sellers	
WS-C6503-E	6500 Enhanced 3-slot Chassis, 4RU, no Power Supply, no Fan Tray
WS-C6504-E	6500 Enhanced 4-slot Chassis, 5RU, no Power Supply, no Fan Tray
WS-C6506-E	6500 Enhanced 6-slot Chassis, 12RU, no Power Supply, no Fan Tray
WS-C6509-E	6500 Enhanced 9-slot Chassis, 15RU, no Power Supply, no Fan Tray
WS-C6509-V-E	6500 Enhanced 9-slot Chassis, 21RU, no Power Supply, no Fan Tray
WS-C6513-E	6500 13-slot Chassis, 20RU, no Power Supply, with Fan Tray
Catalyst 6500 Sup32 PISA-GBE bundles: Top Sellers	
WS-C6503E-PISA-GE	6503E Chassis, WS-S32-PISA-GE-3B, Fan Tray (Requires Power Supply)
WS-C6504E-PISA-GE	6504E Chassis, WS-S32-PISA-GE-3B, Fan Tray, (Requires Power Supply)
WS-C6506E-PISA-GE	6506E Chassis, WS-S32-PISA-GE-3B, Fan Tray (Requires Power Supply)
WS-C6509E-PISA-GE	6509E Chassis, WS-S32-PISA-GE-3B, Fan Tray (Requires Power Supply)
WS-C6513-PISA-GE	6513 Chassis, WS-S32-PISA-GE-3B, Fan Tray (Requires Power Supply)
Catalyst 6500 Sup32-GBE Bundles: Top Sellers	
WS-C6503E-S32-GE	6503E Chassis, WS-SUP32-GE-3B, Fan Tray (Requires Power Supply)
WS-C6504E-S32-GE	6504E Chassis, WS-SUP32-GE-3B, Fan Tray, (Requires Power Supply)
WS-C6506E-S32-GE	6506E Chassis, WS-SUP32-GE-3B, Fan Tray (Requires Power Supply)
WS-C6509E-S32-GE	6509E Chassis, WS-SUP32-GE-3B, Fan Tray (Requires Power Supply)
WS-C6513-S32-GE	6513 Chassis, WS-SUP32-GE-3B, Fan Tray (Requires Power Supply)
WS-C6506E-IPS10GK9	6506E Chassis, 4 x IDSM2, WS-SUP32-GE-3B, 2 10 GBE XENPAKs, Power Supply
WS-C6506E-IPSF-K9	6506 Chassis, 4 x IDSM2, WS-SUP32-GE-3B, 8 Fiber SFP, Power Supply
Catalyst 6500 Sup32-10 GBE Bundles: Top Sellers	
WS-C6503E-S32-10GE	6503E Chassis, WS-SUP32-10GE-3B, Fan Tray (Requires Power Supply)
WS-C6504E-S32-10GE	6504E Chassis, WS-SUP32-10GE-3B, Fan Tray (Requires Power Supply)
WS-C6506E-S32-10GE	6506E Chassis, WS-SUP32-10GE-3B, Fan Tray (Requires Power Supply)
WS-C6509E-S32-10GE	6509E Chassis, WS-SUP32-10GE-3B, Fan Tray (Requires Power Supply)
WS-C6513-S32-10GE	6513 Chassis, WS-SUP32-10GE-3B, Fan Tray (Requires Power Supply)

Product Overview (continued)

Product Number	Product Description
Catalyst 6500 Advanced Technology Bundles: Top Sellers	
WS-C6504-E-VPN+-K9	6504E IPsec VPN SPA Security System
WS-C6506-E-VPN+-K9	6506E IPsec VPN SPA Security System
WS-C6509-E-VPN+-K9	6509E IPsec VPN SPA Security System
WS-C6513-VPN+-K9	6513 IPsec VPN SPA Security System
WS-C6503-E-FWM-K9	6503E Firewall Security System
WS-C6506-E-FWM-K9	6506E Firewall Security System
WS-C6509-E-FWM-K9	6509E Firewall Security System
WS-C6513-FWM-K9	6513 Firewall Security System
WS-C6504-E-ACE-K9	ACE 4G 6504 Bundle
WS-C6509-E-ACE-K9	ACE 8G 6509 Bundle
WS-C6504-E-WISM	6504-E WiSM Bundle (SUP720-3B, WiSM, Fan Tray, Two Power Supplies)
WS-C6509-E-WISM	6509-E WiSM Bundle (SUP720-3B, WiSM, Fan Tray, no Power Supply)
WS-C6503E-CSM	CSM, 6503, SUP720 Bundle
WS-C6503E-CSMS-K9	CSM-S, 6503, SUP720 Bundle
WS-C6509E-CSM	CSM, 6509, SUP720 Bundle
WS-C6509E-CSMS-K9	CSM-S, 6509, SUP720 Bundle
WS-C6513-CSM	CSM, 6513, SUP720 Bundle
WS-C6513-CSMS-K9	CSM-S, 6513, SUP720 Bundle
WS-SVC-SSL-CSM-K9=	6500 SSL and CSM Bundle
Catalyst 6500 Service Module Bundles: Top Sellers	
DSN09E-VS720-AC-K9	Cisco Catalyst 6509E Data Center Services Bundle (6509-E Chassis, Dual AC Power, Sup720-10G, 3x FWSM, 1x ACE, 6704)
DSN09E-VS720-DC-K9	Cisco Catalyst 6509E Data Center Services Bundle (6509-E Chassis, Dual AC Power, Sup720-10G, 3x FWSM, 1x ACE, 6704)
DSN06E-VS720-AC-K9	Cisco Catalyst 6506E Data Center Services Bundle (6506-E Chassis, Dual AC Power, Sup720-10G, 3x FWSM, 1x ACE, 6704)
DSN06E-VS720-DC-K9	Cisco Catalyst 6506E Data Center Services Bundle (6506-E Chassis, Dual DC Power, Sup720-10G, 3x FWSM, 1x ACE, 6704)
DSN9VE-VS720-AC-K9	Cisco Catalyst 6509VE Data Center Services Bundle (6509-VE Chassis, Dual AC Power, Sup720-10G, 3x FWSM, 1x ACE, 6704)
DSN9VE-VS720-DC-K9	Cisco Catalyst 6509VE Data Center Services Bundle (6509-VE Chassis, Dual DC Power, Sup720-10G, 3x FWSM, 1x ACE, 6704)
BSN09E-VS720-10G	Cisco Catalyst 6509E Borderless Services Node (VS Sup720, 2 PS, 1 FT, 1 WiSM, 2 FWSM, 2 20VC licenses, 16p 10G)
BSN09E-VS720-1G	Cisco Catalyst 6509E Borderless Services Node (VS Sup720, 2 PS, 1 FT, 1 WiSM, 2 FWSM, 2 20VC licenses, 1 24p SFP)

Product Number	Product Description
Catalyst 6500 AC Power Supplies: Top Sellers	
PWR-1400-AC	1400W AC Power Supply for 7603 and WS-C6503 Chassis
PEM-20A-AC+	Power Entry Module Use with 1400W AC Power Supply for 7603/6503
PWR-2700-AC/4	2700W AC Power Supply for 7604/6504-E
WS-CAC-3000W	6500 3000W AC Power Supply
WS-CAC-6000W	6500 6000W AC Power Supply
Catalyst 6500 DC Power Supplies: Top Sellers	
PWR-950-DC	950W DC Power Supply for 7603/6503
PEM-DC/3	DC Power Entry Module for 7603/6503
PWR-2700-DC/4	2700W DC Power Supply for 7604/6504-E
WS-CDC-2500W	6000 2500W DC Power Supply
PWR-4000-DC	4000W DC PS for 7609-S/7609/13, 6509/13
Catalyst 6500 Supervisor Engines: Top Sellers	
WS-SUP32-10GE-3B	6500 SUP32 with 2 Ports 10 GBE and PFC3B
WS-SUP32-GE-3B	6500 SUP32 with 8 GBE Uplinks and PFC3B
VS-SUP720-10G-3CXL	6500 Virtually Switching Supervisor 720 with 10 GE Uplinks, MSFC3, PFC3CXL
VS-SUP720-10G-3CXL	6500 Virtually Switching Supervisor 720 with 10 GE Uplinks, MSFC3, PFC3C
WS-SUP720-3BXL	6500/7600 SUP720 Fabric MSFC3 PFC3BXL
WS-SUP720-3B	6500/7600 SUP720 Fabric MSFC3 PFC3B
Catalyst 6500 10 Gigabit Ethernet: Top Sellers	
WS-X6716-10G-3CXL	16-port 10 Gigabit Ethernet Module with DFC3CXL (Requires X2)
WS-X6716-10G-3C	16-port 10 Gigabit Ethernet Module with DFC3C (Requires X2)
WS-X6708-10G-3CXL	8-port 10 Gigabit Ethernet Module with DFC3CXL (Requires X2)
WS-X6708-10G-3C	8-port 10 Gigabit Ethernet Module with DFC3C (Requires X2)
WS-X6704-10GE	4-port 10 Gigabit Ethernet Module (Requires XENPAKs)
WS-X6716-10G-T -3C	6-port 10 Gigabit Ethernet Copper Module with DFC3C
WS-X6716-10GT-3CXL	16-port 10 Gigabit Ethernet Copper Module with DFC3CXL
Catalyst 6500 Gigabit Ethernet: Top Sellers	
WS-X6408A-GBIC	6000 8-port Gigabit Ethernet Module, Enhanced QoS (Requires GBICs)
WS-X6516A-GBIC	6500 16-port Gigabit Ethernet Module, Fabric-enabled (Requires GBICs)
WS-X6724-SFP	6500 24-port Gigabit Ethernet Module, Fabric-enabled (Requires SFPs)
WS-X6748-SFP	6500 48-port Gigabit Ethernet Module, Fabric-enabled (Requires SFPs)

Product Overview (continued)

Product Number	Product Description
Catalyst 6500 10/100/1000: Top Sellers	
WS-X6148A-GE-TX	6500 48-port 10/100/1000, Jumbo Frame, RJ-45
WS-X6148A-GE-45AF	6500 48-port PoE 802.3af 10/100/1000, Jumbo Frame
WS-X6548-GE-TX	6500 48-port Fabric-enabled 10/100/1000 Module
WS-X6548-GE-45AF	6500 48-port PoE 802.3af 10/100/1000 (RJ-45) CEF256 Card
WS-X6748-GE-TX	6500 48-port 10/100/1000 GBE Module, Fabric-enabled, RJ-45
WS-X6148E-GE-TX	6500 48-port 10/100/1000 Base-T
WS-X6148E-GE-45AT	6500 48-port PoE+ 802.3at 10/100/1000 Base-T Ethernet Card with TDR
Catalyst 6500 10/100: Top Sellers	
WS-X6148A-RJ-45	6500 48-port 10/100 with TDR, Upgradable - PoE 802.3af
WS-X6148A-45AF	6500 48-port PoE 802.3af 10/100 Line Card with TDR
WS-X6148-RJ-21	6500 48-port 10/100 Upgradable to Voice, RJ-21
WS-X6148-21AF	6500 48-port PoE 802.3af 10/100, (RJ-21) Line Card
WS-X6196-RJ-21	6500 96-port 10/100 Upgradable - PoE 802.3af
WS-X6196-21AF	6500 96-port, PoE 802.3af 10/100 - RJ-21
WS-F6700-DFC3BXL	6500 Dist Fwd Card-3BXL for WS-X67xx
WS-F6700-DFC3B	6500 Dist Fwd Card, 256K Routes for WS-X67xx
WS-F6K-DFC3BXL	6500 Dist Fwd Card-3BXL for 65xx, 6816 Modules
WS-F6K-DFC3B	6500 Dist Fwd Card-3B for 65xx, 6816 Modules
WS-F6K-PFC3BXL	SUP720 PFC-3BXL Plus 2x1 Gigabit Memory
WS-F6K-PFC3B	SUP720 Policy Feature Card-3B
Catalyst 6500 Service Modules: Top Sellers	
ACE10-6500-K9	Application Control Engine Service Module
WS-SVC-FWM-1-K9	Firewall Blade for 7600/6500, VFW License Separate
WS-SVC-IDS2-BUN-K9	600M IDSM-2 Module
7600-SSC-400	7600/6500 Services SPA Carrier Card
SPA-IPSEC-2G	7600/6500 IPsec VPN SPA - DES/3DES/AES
SPA-IPSEC-SSC400-1	7600/6500 IPsec VPN SPA Bundle 1 (System Only)
SPA-IPSEC-SSC400-2	7600/6500 IPsec VPN SPA Bundle 2 (System Only)
WS-SVC-ADM-1-K9	6500 Anomaly Detection Module
WS-SVC-AGM-1-K9	6500 Anomaly Guard Module

Product Number	Product Description
Catalyst 6500 Service Modules: Top Sellers (continued)	
WS-X6066-SLB-S-K9	Content Switching Module with SSL Daughter Card
WS-X6066-SLB-APC	6000 Content Switching Module
WS-SVC-NAM-1	6500 Network Analysis Module-1
WS-SVC-NAM-2	6500 Network Analysis Module-2
Catalyst 6500 802.3af Upgrades: Top Sellers	
WS-F6K-48-AF=	C6500 802.3af PoE Daughter Card - 6 x 48 x-GBE-TX , 6148A-RJ-45
WS-F6K-FE48X2-AF=	6500 PoE 802.3af Voice Card (WS-X6148X2-RJ-45 and -RJ-21)
WS-X6148-45AF-UG=	6500 802.3af Upgrade for 6148-RJ-45 (Trade-in Order Only)
WS-X6148-21AF-UG=	6500 - PoE 802.3af Upgrade, 6148-RJ-21
WS-F6K-48-AT	6500 802.3at PoE Daughter Card
Catalyst 6500 FlexWAN/OSM: Top Sellers	
WS-X6582-2PA	7600/6500 Enhanced FlexWAN, Fabric-enabled
7600-SIP-200	7600 Series SPA Interface Processor-200
7600-SIP-400	7600 Series SPA Interface Processor-400
WS-C6503-E-FAN	6503-E Chassis Fan Tray
WS-C6506-E-FAN	6506-E Chassis Fan Tray
WS-C6509-E-FAN	6509-E Chassis Fan Tray
WS-C6509-V-E-FAN	Catalyst 6509-V-E Fan Tray
WS-C6K-13SLT-FAN2	High-speed Fan Tray for 6513/7613
FAN-C6524	Fan Tray for ME6524 Switch
FAN-MOD-4HS	High-speed Fan Module for 7604/6504-E
Catalyst 6500 Optics: Top Sellers	
GLC-FE-100LX	100BASE-LX SFP for FE Port
GLC-FE-100BX-U	100BASE-BX10-U SFP
GLC-FE-100BX-D	100BASE-BX10-D SFP
GLC-FE-100EX	100BASE-EX SFP (40 km)
GLC-FE-100ZX	100BASE-ZX SFP (80 km)
GLC-LH-SM	GBE SFP, LC Connector LX/LH Transceiver
GLC-SX-MM	GBE SFP, LC Connector SX Transceiver
GLC-ZX-SM	1000BASE-ZX SFP
GLC-T	1000BASE-T SFP

Product Overview (continued)

Product Number	Product Description
Catalyst 6500 Optics: Top Sellers (continued)	
GLC-T24	24 GLC-T SFP
WS-G5484	1000BASE-SX Short Wavelength GBIC (Multimode Only)
WS-G5486	1000BASE-LX/LH Long-haul GBIC (Single-mode or Multimode)
WS-G5487	1000BASE-ZX Extended-reach GBIC (Single-mode)
XENPAK-10GB-CX4	10GBASE-CX4 XENPAK Module
XENPAK-10GB-ER+	10GBASE-ER XENPAK Module with DOM Support
XENPAK-10GB-LR	10GBASE-LR XENPAK Module
XENPAK-10GB-LX4	10GBASE-LX4 XENPAK Module
XENPAK-10GB-SR	10GBASE-SR XENPAK Module
XENPAK-10GB-ZR	10GBASE-ZR XENPAK Module
XENPAK-10GB-LW	10GBASE-LW XENPAK Module
X2-10GB-SR	10GBASE-SR X2 Module
X2-10GB-LR	10GBASE-LR X2 Module
X2-10GB-ER	10GBASE-ER X2 Module
X2-10GB-LX4	10GBASE-LX4 X2 Module
X2-10GB-CX4	10GBASE-CX4 X2 Module
SFP-10G-LRM	10GBASE-LRM SFP
CVR-X2-SFP10G	OneX Converter Module
Cable supported with OneX Converter	SFP-H10GB-CU1M=Cisco 10GBASE-CU SFP+ Cable, 1 Meter (Version -02) SFP-H10GB-CU3M=Cisco 10GBASE-CU SFP+ Cable, 3 Meter (Version -02) SFP-H10GB-CU5M=Cisco 10GBASE-CU SFP+ Cable, 5 Meter (Version -02) SFP-10G-SR=Cisco 10GBASE-SR SFP+ Module for MMF
Catalyst 6500 Rack-mount Kits: Top Sellers	
KIT-MNTG-CG-3=	Mounting Kit and Cable Guide For 7603/6503 Chassis
KIT-MNTG-CG-4=	Mounting Kit and Cable Guide For 7604/6504-E
WS-C6X06-RACK=	6x06 Rack-mount Kit and Cable Organizer, Spare
WS-C6X09-RACK=	6x09 Rack-mount Kit and Cable Organizer, Spare
WS-C6509-E-RACK=	6509-E Rack-mount Kit
WS-C6513-RACK=	6513 Rack-mount Kit and Cable Organizer, Spare
WS-C6597=	6506/9 (E and Non-E) 23in Center Rack-mount Kit

Product Number	Product Description
Catalyst 6500 Rack-mount Kits: Top Sellers (continued)	
WS-6513-RACK-MNT=	23-inch Rack-mount Kit for 6513
KIT-MNTG-09=	Mounting Kit For 7609/6509-NEB-A Chassis
CABLETRAY-09=	Cable Tray Assembly for 7609/6509-NEB-A
Catalyst 6500 Accessories: Top Sellers	
WS-F6K-48X2-SPLTR=	Spare Y-Type Splitter Bar for WS-X6148X2-RJ-45
Catalyst 6500 Removable Storage: Top Sellers	
MEM-C6K-CPTFL128M	SUP720/SUP32 Compact Flash Memory 128MB
MEM-C6K-CPTFL256M	SUP720/SUP32 Compact Flash Memory 256MB
MEM-C6K-CPTFL512M	SUP720/SUP32 Compact Flash Memory 512MB
Catalyst 6500 FlexWAN: Top Sellers	
WS-X6582-2PA	7600/6500 Enhanced FlexWAN, Fabric-enabled

Cisco Service Modules

The modular design of the Cisco Catalyst 6500 Series allows organizations to scale their networks and adapt to changing needs, without having to redesign the network or add additional devices. Cisco integrated services modules enable network administrators to quickly and easily deploy the industry's most advanced, high-performance network services.

Wireless Services Module (WiSM)

This module enables scalable wireless LAN network deployments without requiring special client devices or changes to the underlying wireline infrastructure, providing an ideal solution for enterprises, mid-market businesses, universities, and service providers.

- Delivers centralized security policies, IPS, RF management, QoS, and Layer 3 fast secure roaming for WLAN deployments of all sizes.
- Provides automated recovery from failures of Cisco Aironet® lightweight access points, Cisco WiSMs, and Cisco Catalyst 6500 Series Supervisor Engine 720, maximizing the availability of the wireless network.
- Creates an intelligent RF control plane for self-configuration, self-healing, and self-optimization.
- Deploys without manually configuring access points or modifying existing network infrastructures.
- Adapts to changing corporate security needs with flexible policies and features, including integrated wireless intrusion protection to ensure the integrity of sensitive data.
- Allows user to roam between access points and across bridged and routed subnets without requiring changes to the underlying infrastructure.
- Enables better visibility and control of the air space, reducing operational costs.

Communication Media Module (CMM)

This module provides high-performance and high-density voice over IP (VoIP) gateways and media services, allowing organizations to connect their existing time-division multiplexing (TDM) network to their IP communications network, provide connectivity to the public switched telephone network (PSTN), and enable conferencing, transcoding, and media termination services for their IP Communication networks.

- Supports four port adapters in a single line card, including 6-port T1, 6-port E1, 24-port Foreign Exchange Station (FXS), and 128-port conferencing and transcoding.
- Integration of VoIP gateways, analog, and digital, and conferencing and transcoding in a single module saves space and allows for remote management along with the other Catalyst 6500 modules.
- Field-upgradable components allow customers to easily add, replace, or change interface port adapters without upgrading or replacing the entire module.
- Hot-swappable design allows hardware maintenance with little or no service interruption, since only the calls on the card being removed or replaced are affected.
- Cisco AVVID design lends itself to the robust, fault-tolerant architecture of clustered Cisco CallManagers.

Applications Control Engine Module

This module is Cisco's next-generation application delivery solution, providing the industry's highest throughput (up to 16 Gigabits per second), rich multilayer security, and unique virtual partitioning capabilities. The ACE multiservice module offers many new capabilities, including hundreds of virtual partitions, per-partition resource allocation, role-based access control, and an XML management API.

- Partitions network for up to 250 logical devices that can be managed and operated separately. Role-based access control capabilities enable IT to delegate management tasks to distributed IT teams, guarantee resource levels for each logical partition, and apply desired functions to each partition separately.
- Allows IT to control the infrastructure centrally while delegating application administration to separate operational teams. Also simplifies application infrastructures, shortens the workflow necessary to bring applications and business services online, and shortens time-to-deployment of applications.
- Also consolidates functionality such as server load balancing and off-load, application acceleration, and application-layer security.
- Supports 4, 8, or 16 Gbps of data throughput and up to 345,000 sustained connection setups per second. Several ACE modules can be deployed in a Catalyst 6500 chassis for even higher throughput.

Content Switching Module

This module adds advanced, high-performance Layer 4–7 content switching and load balancing to existing Layer 2 and 3 features of the Catalyst 6500 switches, reducing application response times, optimizing service delivery, increasing application time, and increasing service scalability for servers, firewalls, VPN devices, SSL termination devices, and caches.

- Supports a wide range of common IP protocols, including TCP, User Datagram Protocol (UDP), and higher-level protocols, including Hypertext Transfer Protocol (HTTP), File Transfer Protocol (FTP), Telnet, Domain Name System (DNS), Real-Time Streaming Protocol (RTSP), and Simple Mail Transfer Protocol (SMTP).
- Reduces the cost and complexity of deploying content switching services by allowing for integration into existing infrastructure.
- Fault-tolerant configurations to provide improved application uptime, utilizing both connection and sticky state redundancy for seamless failover.
- Ability to integrate content switching services into an existing infrastructure minimizes the time and resources required for deployment.
- High-density, scalable platform with proven reliability offers unparalleled investment protection.

Content Switching Module with SSL

This module combines advanced Layer 4–7 content switching capabilities with Secure Sockets Layer acceleration, freeing backend servers from the CPU-intensive task of processing SSL transactions.

- High-speed content switching provides load balancing, increases performance, ensures connection persistence, and helps maximize uptime for application and Web servers, caches, firewalls, and other devices.
- End-to-end encryption with intelligent load balancing ensures information on the network never appears as clear text.
- Reduces the number of SSL devices needed and reduces the number of certificates that a site requires to purchase and manage, lowering both capital and operating expenses.
- Combines content switching and SSL acceleration in a single chassis slot, freeing up space for other integrated services.

Cisco Security Service Modules

Cisco Catalyst 6500 Series switches support a variety of high-performance security modules that protect networks from the full range of threats, while also simplifying management and reducing overhead by consolidating security services into the switching chassis.

Traffic Anomaly Detector Services Module

This module helps large organizations protect against distributed denial-of-service (DDoS) or other cyber attacks, enabling users to quickly initiate mitigation services and block the attack before business is adversely affected. It utilizes the latest behavioral analysis and attack recognition technology to proactively detect and identify all types of cyber assaults.

- Monitors and processes attack traffic at full Gigabit line rates, delivering a high-performance solution that detects DDoS attacks without consuming valuable switch or router resources.
- Identifies and blocks all types and sizes of assaults, including those launched by hundreds of thousands of distributed zombie hosts, providing complete protection against the widest range of attacks.
- Scales through clustering in a single chassis to support multi-gigabit performance, providing maximum protection for the largest enterprise and service provider environments or for individual vulnerable zones.
- Automatic learning builds baseline profiles of normal operating conditions, enabling rapid identification of anomalous or unusual activity that indicates an attack.
- Supports real-time monitoring of individual devices and protected zones with a web-based graphical manager, as well as historical attack-level reports showing specific attack types seen and associated statistics.

Anomaly Guard Services Module

This module mitigates DDoS and other cyber attacks. It effectively stops the DDoS attack while allowing legitimate traffic to continue to its destination, thereby maintaining continuous business operations.

- Monitors and processes attack traffic at full Gigabit line rates, delivering a high-performance solution that detects DDoS attacks without consuming valuable switch or router resources.
- Multi-verification process (MVP) architecture utilizes advanced anomaly recognition, source verification, and anti-spoofing technologies to identify and block individual attack flows without affecting legitimate transactions.
- Dynamic diversion redirects and cleans only traffic destined for targeted devices, allowing unaffected traffic to flow freely and ensuring business continuity.
- Automatic learning builds baseline profiles of normal operating conditions, enabling rapid identification of anomalous or unusual activity that indicates an attack.
- Identifies and blocks all types and sizes of assaults, including those launched by hundreds of thousands of distributed zombie hosts, providing complete protection against the widest range of attacks.

Intrusion Detection Services Module (IDSM-2)

This module helps detect, classify, and stop threats including worms, spyware/adware, network viruses, and application abuse. The Cisco IDSM-2 combines inline prevention services with innovative technologies that improve accuracy, allowing you to stop more threats without dropping legitimate network traffic.

- Accurate inline prevention technologies offer intelligent, automated, contextual analysis of your data and help ensure you are getting the most out of your intrusion prevention solution.
- Offers 600 Mbps performance per module, providing the high bandwidth detection capabilities required for larger networks.
- Multivector threat identification protects your network from policy violations, vulnerability exploitations, and anomalous activity through detailed inspection of traffic in Layers 2–7.
- Unique network collaboration enhances scalability and resiliency through network collaboration, including efficient traffic capture techniques, load-balancing capabilities, and visibility into encrypted traffic.

IPsec VPN Shared Port Adapter

This module delivers scalable and cost-effective VPN performance with Data Encryption Standard (DES), Triple Data Encryption Standard (3DES), plus next-generation Advanced Encryption Standard (AES) technology, including all key sizes (128-, 192-, and 256-bit keys) for ultimate in IPsec VPN security and interoperability.

- Provides up to 2.5 Gbps of AES and 3DES IPsec throughput with large packets and 1.6 Gbps with Internet mix (IMIX) traffic.
- Up to 10 Cisco IPsec VPN SPAs can be installed in a system, scaling to 25 Gbps of total throughput for wire-speed security transport for native 10 Gigabit Ethernet (10 GBE) interfaces.
- Using the Cisco Services SPA Carrier-400, each slot of the Cisco Catalyst 6500 supports up to two IPsec VPN SPAs, increasing total performance per slot.

Network Analysis Module

This module provides traffic monitoring services for visibility into network and application usage, helping network managers troubleshoot delivery issues, improve the utilization of network resources, and ease the deployment of new network services. The NAM is available in two hardware versions, NAM-1 and NAM-2, to meet diverse network analysis needs in scalable switching environments.

- Includes an embedded, web-accessible Traffic Analyzer interface that presents both configuration menus and real-time and historical reports.
- Provides visibility into what applications are running on the network and how they're performing, tracking response times and identifying whether issues are server- or network-related.
- Offers web-based captures and decodes for anytime, anywhere troubleshooting.
- Analyzes the performance of IP-based services, including VoIP, video, and QoS.

SSL Services Module

This module offloads processor-intensive tasks related to securing traffic with Secure Sockets Layer (SSL), increases the number of secure connections supported by a website, and reduces the operational complexity of high performance web server farms.

- Ensures high availability when installed in a redundant Cisco Catalyst 6500 configuration, maintaining SSL sessions if hardware failures occur.
- Simplifies security management while encrypting user data to the web servers, providing privacy, confidentiality, and authentication using a wide range of certificates, including Netscape and VeriSign.
- An integrated Content Switching Module or external load-balancing appliance can load balance secure HTTPS content requests to multiple Cisco SSL services modules, maximizing SSL termination performance and providing SSL scalability.
- Provides the best price/performance ratio of any SSL accelerator on the market. Cost of maintenance is included in the maintenance contract of the Cisco Catalyst chassis, providing cost savings on annual service contracts. And by offloading the processing-intensive SSL termination burden from the web servers, the SSL Service Module eliminates the need to purchase additional servers.

Firewall Services Module

This module delivers the fastest firewall data rates in the industry: 5 Gbps throughput, 100,000 CPS, and one million concurrent connections. Up to four modules can be installed in a single chassis, offering scalability to 20 Gbps per chassis. Based on Cisco PIX® Firewall technology, it provides large enterprises and service providers with unmatched security, reliability, and performance.

- Allows any port on Cisco Catalyst 6500 to operate as a firewall port and integrates firewall security inside the network infrastructure.
- Provides unsurpassed performance to meet future requirements, scaling to up to 20 Gbps per chassis without requiring a system overhaul.
- Offers the best price/performance ratio of any firewall, utilizing the familiar, time-tested Cisco PIX Operating System to reduce the cost of training, and integrating firewall services into the chassis to reduce management requirements.
- An intuitive graphical user interface (GUI) simplifies management and configuration, and it's supported by the Cisco management framework and by Cisco AVVID partners for configuration and monitoring.
- Virtualized FWSM delivers multiple firewalls on one physical hardware platform, allowing network administrators to configure, deploy, and manage functions as if they were separate devices, while reducing the cost and complexity of managing network infrastructure.

Notes

Notes

Cisco Catalyst 4500 Series

The leading high performance modular switches for unified communications designed for unparalleled resiliency and simplified operations while enabling virtualization for Enterprise access layer and price-performance campus aggregation.

The Cisco Catalyst 4500 Series is a high-density modular switch delivering robust intelligent services that enable high performance and security for both the mobile and desktop user. The Catalyst 4500 Series optimizes application performance through deep visibility with Flexible NetFlow and pervasive security with Cisco TrustSec while the centralized forwarding architecture enables collaboration, virtualization, and operational manageability. The simple centralized architecture, media flexibility, and scalability of the Catalyst 4500 Series delivers maximum investment protection with backward and forward compatibility across several generations dating back to 1999, maximizing return on investment while minimizing recurring operational expenses.

The Catalyst 4500 Series extends intelligence, resiliency and operational simplicity to the network edge (wiring closet) with intelligent network services, including sophisticated quality of service (QoS), predictable performance, advanced security, up to 30 watts of PoE plus with IEEE 802.3at and comprehensive management features. The Catalyst 4500 series delivers the highest levels of integrated resiliency in both hardware and software minimizing costly downtime for both planned and unplanned network outages helping maximizing workforce productivity.

The Catalyst 4500 Series includes four chassis: the Catalyst 4510R+E (10 slots), the Catalyst 4507R+E (7 slots), Catalyst 4506-E (6 slots), and Catalyst 4503-E (3 slots). A broad selection of supervisor engines meet the needs of networks of all sizes while delivering up to 848 Gbps of Layer 2–4 switching. The series supports an extensive set of line cards, providing up to 384 10/100 or 10/100/1000 ports with integrated Power over Ethernet Plus (PoEP). The Catalyst 4500 Series switches also support 1 GE and 10 GE fiber line cards for price-performance campus aggregation.

Features

Supervisor 7-E

- Highest performance Layer 2/3/4 Supervisor
- 848 Gbps switching capacity
- 384 10/100/1000 copper port density
- Supports 48 Gbps per slot capacity
- IPv6 in hardware
- Four wire-rate 10 GE/ 1 GE uplinks (SFP/SFP+)
- Flexible NetFlow
- Maximum investment protection
- High-performance, high density access layer
- Price-performance distribution

Supervisor 6-E

- High performance Layer 2/3/4 Supervisor
- 320 Gbps switching capacity
- 384 10/100/1000 copper port density
- Supports 24 Gbps per slot capacity
- IPv6 in hardware
- Two wire rate 10 GE or four 1 GE uplinks (via Cisco TwinGig Module)
- Maximum investment protection
- High-performance, high density access layer
- Price-performance distribution

Supervisor 6L-E

- High performance Layer 2/3/4 Supervisor
- 280 Gbps switching capacity
- 240 10/100/1000 copper port density
- Supports 24 Gbps per slot capacity
- IPv6 in hardware
- Two wire rate 10 GE or four GE uplinks (via TwinGig Module)
- Maximum investment protection
- High-performance, high density access layer

Supervisor V-10 GE

- High performance Layer 2/3/4 switching
- 136 Gbps switching capacity
- 384 10/100/1000 port density
- Supports 6 Gbps per slot capacity
- Two wire-rate 10 GE and four 1 GE uplinks
- Built-in NetFlow capabilities for application visibility
- High-performance, high density access layer
- Small distribution

Cisco Catalyst 4500 Series Spotlight

Borderless Services

- Security through Cisco TrustSec.
- Mobility services through converged wired and wireless location.
- 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 SLA.
- Medianet capabilities to simplify video quality of service, monitoring, and security.
- Energy efficient design with Cisco EnergyWise technology to manage network, PoE end points, and PC/server/laptop power.

Infrastructure Services

- Maximum resiliency with redundant components, non-stop Forwarding/Stateful Switchover (NSF/SSO) and In Service Software Upgrade (ISSU) support.
- 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.
- IOS XE Modular Operating System that has the capability to run 3rd Party Services.

Performance/Scalability

- Non-blocking 48 Gbps slot and total system bandwidth of 848 Gbps with the new Supervisor Engine 7-E, ready with four 1 G/10 G uplinks.
- Power over Ethernet scalability for the next generation workspace with non-blocking 48-port 10/100/1000 PoEP line card and highly efficient 6000W power supply with real current monitoring and remote power cycle capability.
- High densities of up to 384 ports of 10/100/1000, 192 line rate ports of Gbps SFP, or 96 ports of 10 Gbps SFP+.
- Scalable routing (IPv4, IPv6, and multicast) tables, Layer 2 tables, and ACL and QoS entries to ensure 8 queues per port and comprehensive security policies per port.

Investment Protection and Reduced TCO

- Full backward compatibility for Supervisor Engine 7-E with 6 Gbps, 24 Gbps, and 48 Gbps per slot line card support.
- LAN Base, IP Base, and Enterprise Services software options for base, standard, and advanced borderless services deployments and pay as you grow licensing model.
- Limited Lifetime Warranty with free software update policy on LAN Base and IP Base.
- Full set of Cisco and partner support options.

Hardware Features				
	WS-C4503-E	WS-C4506-E	WS-C4507R+E	WS-C4510R+E
Slots	3	6	7	10
Redundant Supervisor Option	No	No	Yes	Yes
Gigabit Ethernet GBIC/SFP Density	100	244	244	388
10 GE X2 Port Density	28	64	64	100
10/100/1000 Density	96	240	240	384
10/100 Density	96	240	240	384
100BASE-FX, LX-10, BX-D Density	96	240	240	384
Backplane Capacity (Gbps)	136	280	280	320
Maximum Watt Power Consumption (Redundant Mode)				
AC Internal (Redundant Mode)	6000	6000	6000	6000
AC External Power Shelf (N+1)	7500	7500	7500	7500
DC Internal (Redundant Mode)	7500	7500	7500	7500
Maximum Number of Class 3 Devices (15.4W) Maximum Power Supplies				
AC Internal (Redundant Mode)	108	240	240	270
AC External Power Shelf (N+1)	108	240	240	384
DC Internal (Redundant Mode)	108	240	240	384
Dimension (H x W x D) Inches	12.25 x 17.31 x 12.50	17.38 x 17.31 x 12.50	19.19 x 17.31 x 12.50	24.35 x 17.31 x 12.50
Dimension (H x W x D) Centimeters	31.12 x 43.97 x 31.70	44.13 x 43.97 x 31.70	48.74 x 43.97 x 31.70	61.84 x 43.97 x 31.70
Rack Unit (RU)	7	10	11	14
Unit Weight Pounds (Kilograms) (Chassis Only)	32.25 (14.63)	40.5 (18.37)	44.50 (20.19)	54.50 (24.73)

Cisco Catalyst 4500 Series: Supervisor Engines

Hardware Features	SUP 7-E WS-X45-SUP7-E	SUP 6-E WS-X45-SUP6-E	SUP V-10GE WS-X4516-10GE	SUP 6L-E WS-X45-SUP6L-E
Chassis Supported	All	All	All	3-, 6- and 7-slot Chassis
Enhanced Layer 3 Option	Yes	Yes	Yes	Yes
Total Bandwidth (Gbps)	848	320	136	280
Packets per Second (Mpps)	250	250	102	225
Uplinks	4 10 GE/1 GE	2x10 GE or 4 GE (TwinGig)	2 x 10 GE + 4 GE	2x10 GE or 4 GE (TwinGig)
Line Card Support (E-Series/Classic)	E-Series/Classic	E-Series/Classic	Classic	E-Series/Classic
CPU MHz	1500	1300	800	1000
NetFlow	Yes	No	Yes	No
Flexible NetFlow	Yes	No	No	No
Onboard Memory (DRAM)	2 GB	512 MB	512 MB	512 MB

Notes

Product Overview

Product Number	Product Description
Catalyst 4500 E-Series Chassis	
WS-C4503-E	Catalyst 4500 E-Series 3-slot Chassis, Fan, no Power Supply
WS-C4506-E	Catalyst 4500 E-Series 6-slot Chassis, Fan, no Power Supply
WS-C4507R+E	Catalyst 4500 E-Series 7-slot Chassis, Fan, no Power Supply, Redundant Power Supply Capable
WS-C4510R+E	Catalyst 4500 E-Series 10-slot Chassis, Fan, no Power Supply, Redundant Power Supply Capable
WS-C4503E-S6L-48V+	Catalyst 4500 E-Series POE+ Bundle, 1x3-slot Chassis, 1 x Sup6L-E, 1X WS-X4648-RJ45V+E
WS-C4506E-S6L-96V+	Catalyst 4500 E-Series POE+ Bundle, 1x6-slot Chassis, 1 x Sup6L-E, 2 X WS-X4648-RJ45V+E
WS-C4507RES6L+96V+	Catalyst 4500 E-Series POE+ Bundle, 1x7-slot Chassis, 1 x Sup6L-E, 2 X WS-X4648-RJ45V+E
WS-C4510RE-S6-96V+	Catalyst 4500 E-Series POE+ Bundle, 1x10-slot Chassis, 1 x Sup6-E, 2 X WS-X4648-RJ45V+E
BN-CF2-SBA-K9	Borderless Network Smart Business Arch Core 1 X AIR-CT5508-50-K9, 1x7-slot Chassis, 1 X SUP6L-E, 1 X WS-X4624-SFP-E
Catalyst 4500 PoE Enabled Power Supplies	
PWR-C45-6000ACV	4500 6000W AC Dual Input Power Supply (Data and PoE)
PWR-C45-6000ACV/2	4500 6000W AC Dual Input Power Supply (Data and PoE)
PWR-C45-6000ACV=	4500 6000W AC Dual Input Power Supply (Data and PoE)
PWR-C45-4200ACV	4500 4200W AC Dual Input Power Supply (Data and PoE)
PWR-C45-4200ACV/2	4500 4200W AC Dual Input Power Supply (Data and PoE)
PWR-C45-4200ACV=	4500 4200W AC Dual Input Power Supply (Data and PoE)
PWR-C45-2800ACV	4500 2800W AC Power Supply (Data and PoE)
PWR-C45-2800ACV=	4500 2800W AC Power Supply (Data and PoE)
PWR-C45-2800ACV/2	4500 2800W AC Power Supply (Data and PoE)
PWR-C45-1300ACV	4500 1300W AC Power Supply (Data and PoE)
PWR-C45-1300ACV/2	4500 1300W AC Power Supply (Data and PoE)
PWR-C45-1300ACV=	4500 1300W AC Power Supply (Data and PoE)
PWR-C45-1400DC-P	4500 1400W DC Power Supply with Int PEM
PWR-C45-1400DC-P=	4500 1400W DC Power Supply with Int PEM (Spare)
PWR-C45-1400DC-P/2	4500 1400W DC Power Supply Redundant with Int PEM

Product Number	Product Description
Catalyst 4500 Non-PoE Power Supplies	
PWR-C45-1400AC	4500 1400W AC Power Supply (Data Only)
PWR-C45-1400AC/2	4500 1400W AC Power Supply Redundant (Data Only)
PWR-C45-1400AC=	4500 1400W AC Power Supply (Data Only) Spare
PWR-C45-1000AC	4500 1000W AC Power Supply (Data Only)
PWR-C45-1000AC=	4500 1000W AC Power Supply (Data Only) Spare
PWR-C45-1000AC/2	4500 1000W AC Power Supply Redundant (Data Only)
PWR-C45-1400DC	4500 1400W DC Triple Input SP Power Supply (Data Only)
PWR-C45-1400DC=	4500 1400W DC Triple Input SP Power Supply (Data Only)
PWR-C45-1400DC/2	4500 1400W DC Triple Input SP Power Supply (Data Only)
Catalyst 4500 E-Series Supervisor Engines	
WS-X45-SUP7-E	Catalyst 4500 E-Series Supervisor 7-E, 4x10 GE (SFP/SFP+)
WS-X45-SUP7-E/2	Catalyst 4500R E-Series Supervisor 7-E, 4x10 GE (SFP/SFP+)
WS-X45-SUP7-E=	Catalyst 4500 E-Series Supervisor 7-E, 4x10 GE (SFP/SFP+)
WS-X45-SUP6-E	Catalyst 4500 E-Series Supervisor 6-E, 2x10 GE (X2) with TwinGig
WS-X45-SUP6-E/2	Catalyst 4500R E-Series Supervisor 6-E, 2x10 GE (X2) with TwinGig
WS-X45-SUP6-E=	Catalyst 4500 E-Series Supervisor 6-E, 2x10 GE (X2) with TwinGig
WS-X45-SUP6L-E	Catalyst 4500 E-Series Supervisor 6L-E, 2x10 GE (X2) with TwinGig
WS-X45-SUP6L-E/2	Catalyst 4500 E-Series Supervisor 6L-E, 2x10 GE (X2) with TwinGig
WS-X45-SUP6L-E=	Catalyst 4500 E-Series Supervisor 6L-E, 2x10 GE (X2) with TwinGig
Catalyst 4500 Supervisor Engines	
WS-X4516-10GE	4500 Supervisor V-10 GE, 2x10 GE (X2) and 4 x 1 GE (SFP)
WS-X4516-10GE=	4500 Supervisor V-10 GE, 2x10 GE (X2) and 4 x 1 GE (SFP)
WS-X4516-10GE/2	4500R Supervisor V-10 GE, 2x10 GE (X2) and 4 x 1 GE (SFP)
Catalyst 4500 10/100 Line Cards	
WS-X4148-RJ	4500 10/100 Auto Module, 48-port (RJ-45)
WS-X4148-RJ=	4500 10/100 Auto Module, 48-port (RJ-45) (Spare)
WS-X4248-RJ45V	4500 PoE 802.3af 10/100, 48-port (RJ-45)
WS-X4248-RJ45V=	4500 PoE 802.3af 10/100, 48-port (RJ-45)

Product Overview (continued)

Product Number	Product Description
Catalyst 4500 10/100/1000 Line Cards	
WS-X4748-RJ45V+E	Catalyst 4500 E-Series 48-port Premium POE 10/100/1000 (RJ-45)
WS-X4748-RJ45V+E=	Catalyst 4500 E-Series 48-port Premium POE 10/100/1000 (RJ-45)
WS-X4648-RJ45V-E	Catalyst 4500 E-Series 48-port PoE 802.3af 10/100/1000 (RJ-45)
WS-X4648-RJ45V+E	Catalyst 4500 E-Series 48-port Premium PoE 10/100/1000
WS-X4648-RJ45V+E=	Catalyst 4500 E-Series 48-port Premium PoE 10/100/1000
WS-X4648-RJ45-E	Catalyst 4500 E-Series 48-port 10/100/1000 (RJ-45)
WS-X4648-RJ45V-E=	Catalyst 4500 E-Series 48-port PoE 802.3af 10/100/1000 (RJ-45)
WS-X4548-GB-RJ45V+	Catalyst 4500 48-port Premium PoE 10/100/1000
WS-X4548-GB-RJ45V+=	Catalyst 4500 48-port Premium PoE 10/100/1000
WS-X4548-GB-RJ45	4500 Enhanced 48-port 10/100/1000 Base-T (RJ-45)
WS-X4548-GB-RJ45=	4500 Enhanced 48-port 10/100/1000 Base-T (RJ-45)
WS-X4506-GB-T	4500 6-port 10/100/1000 PoE or SFP (Optional)
WS-X4506-GB-T=	4500 6-port 10/100/1000 PoE or SFP (Optional)
WS-X4506-GB-T=	
WS-X4248-FE-SFP	4500 48-port 100BASE-X (SFPs Optional)
WS-X4248-FE-SFP=	4500 48-port 100BASE-X (SFPs Optional)
WS-X4148-FX-MT	4500 FE Switching Module, 48-100FX MMF (MTRJ)
WS-X4148-FX-MT=	4500 FE Switching Module, 48-100FX MMF (MTRJ) (Spare)
Catalyst 4500 1000 Base-X GE and 10 GE Line Cards	
WS-X4712-SFP-E	4500 E-Series 10 Gigabit Ethernet Module, 12-port
WS-X4712-SFP-E=	4500 E-Series 10 Gigabit Ethernet Module, 12-port
WS-X4624-SFP-E	4500 E-Series Gigabit Ethernet Module, 24-port
WS-X4624-SFP-E=	4500 E-Series Gigabit Ethernet Module, 24-port
WS-X4612-SFP-E	4500 E-Series Gigabit Ethernet Module, 12-port
WS-X4612-SFP-E=	4500 E-Series Gigabit Ethernet Module, 12-port
WS-X4306-GB	4500 Gigabit Ethernet Module, 6-port (GBIC)
WS-X4306-GB=	4500 Gigabit Ethernet Module, 6-port (GBIC) (Spare)
WS-X4506-GB-T	4500 6-port 10/100/1000 PoE or SFP (Optional)
WS-X4506-GB-T=	4500 6-port 10/100/1000 PoE or SFP (Optional)
WS-X4418-GB	4500 GBE Module, Server Switching 18-port (GBIC)
WS-X4418-GB=	4500 GBE Module, Server Switching 18-port (GBIC)
WS-X4448-GB-SFP	4500 48-port 1000Base-X (SFPs Optional)
WS-X4448-GB-SFP=	4500 48-port 1000Base-X (SFPs Optional)

Product Number	Product Description
Catalyst 4500 Fan Trays	
WS-X4593-E=	Catalyst 4503-E Fan Tray (Spare)
WS-X4596-E=	Catalyst 4506-E Fan Tray (Spare)
WS-X4597+E=	Catalyst 4507R+E Fan Tray (Spare)
WS-X4582+E=	Catalyst 4510R+E Fan Tray (Spare)
Catalyst 4500 Tranceiver Modules	
WS-G5483=	1000BASE-T GBIC
WS-G5484	1000BASE-SX Short Wavelength GBIC (Multimode Only)
WS-G5486	1000BASE-LX/LH Long-haul GBIC (Single-mode or Multimode)
WS-G5487	1000Base-ZX Extended-reach GBIC (Single-mode)
GLC-T	1000BASE-T SFP
GLC-SX-MM	GBE SFP, LC Connector SX Transceiver
GLC-LH-SM	GBE SFP, LC Connector LX/LH Transceiver
GLC-FE-100BX-D48	48 Units of GLC-FE-100BX-D
GLC-FE-100BX-D	100BASE-BX10-D SFP
GLC-FE-100BX-U	100BASE-BX10-U SFP
GLC-FE-100FX	100BASE-FX SFP for FE Port
GLC-BX-D	1000BASE-BX SFP, 1490 nm
GLC-BX-U	1000BASE-BX SFP, 1310 nm
GLC-ZX-SM=	1000BASE-ZX SFP
X2-10GB-CX4	10GBASE-CX4 X2 Module
X2-10GB-SR	10GBASE-SR X2 Module
X2-10GB-ER=	10GBASE-ER X2 Module
X2-10GB-LX4	10GBASE-LX4 X2 Module
X2-10GB-LR	10GBASE-LR X2 Module
SFP-10G-SR	10GBASE-SR, SFP+ Module
SFP-H10GB-CU1M	10GBASE-Copper, SFP+ Module 1M
SFP-H10GB-CU3M	10GBASE-Copper, SFP+ Module 3M
SFP-H10GB-CU5M	10GBASE-Copper, SFP+ Module 5M
SFP-H10GB-CU7M	10GBASE-Copper, SFP+ Module 7M
SFP-10G-LR	10GBASE-LR, SFP+ Module
SFP-10G-LRM	10GBASE-LRM, SFP+ Module

Product Overview (continued)

Product Number	Product Description
Catalyst 4500 Compact Flash	
USB-X45-4GB-E	4 GB USB Key for Supervisor 7-E
MEM-X45-2GB-E	2 GB Secure Digital Memory Card for Supervisor 7-E
MEM-C4K-FLD64M	4500 IOS-based Supervisor, Compact Flash, 64MB Option
MEM-C4K-FLD64M=	4500 IOS-based Supervisor, Compact Flash, 64MB Spare
MEM-C4K-FLD128M	4500 IOS-based Supervisor, Compact Flash, 128MB Option
MEM-C4K-FLD128M=	4500 IOS-based Supervisor, Compact Flash, 128MB Spare
MEMC4K-512D-SDRAM=	512 DIMM DRAM for Supervisor V-10 GBE
Catalyst 4500 Accessories	
WS-X4593=	4503 Fan Tray (Spare)
WS-X4596=	4506 Fan Tray (Spare)
WS-X4597=	4507R Fan Tray (Spare)
WS-X4598=	4510R 23-inch Rack-mount
WS-X4581=	4510R 19-inch Rack-mount
WS-X4582=	4510R Fan Tray (Spare)
WS-X4583=	4503 19-inch Rack-mount
WS-X4584=	4503 23-inch Rack-mount
WS-X4585=	4506 19-inch Rack-mount
WS-X4586=	4506 23-inch Rack-mount
WS-X4587=	4507R 19-inch Rack-mount
WS-X4588=	4507R 23-inch Rack-mount
WS-X4K-CLOCK=	4507R/4510R Clock Module (Spare)
WS-X4590=	4507R/4510R Fabric Redundancy Module
WS-X4503-23CNTR=	4503 Center Mount 23-inch Rack Kit L/R
WS-X4503-FILTER=	4503 Center Mount 23-inch Filter (1 Set)
WS-X4506-23CNTR=	4506 Center Mount 23-inch Rack Kit L/R
WS-X4506-FILTER=	4506 Center Mount 23-inch Filter (1 Set)
WS-X4507-23CNTR=	4507R Center Mount 23-inch Rack Kit L/R
WS-X4507-FILTER=	4507R Center Mount 23-inch Filter (1 Set)
WS-X4510-23CNTR=	4510R Center Mount 23-inch Rack Kit L/R
WS-X4510-FILTER=	4510R Center Mount 23-inch Filter (1 Set)
C4K-SLOT-CVR=	4000 Family Slot Cover (Spare)
C4K-UPLINK-CVR	4000 Uplink Cover

Product Number	Product Description
Catalyst 4500 Accessories (continued)	
C4K-UPLINK-CVR=	4000 Uplink Cover (Spare)
CAB-AC-2800W-EU	Europe Power Cord
CAB-AC-2800W-EU=	Europe Power Cord
CAB-AC-2800W-INT	International Power Cord
CAB-AC-2800W-INT=	International Power Cord
CAB-AC-2800W-TWLK	U.S. Power Cord, Twist Lock, NEMA 6-20 Plug
CAB-AC-2800W-TWLK=	U.S. Power Cord, Twist Lock, NEMA 6-20 Plug
CAB-AC-2800W-6-20	Non-locking NEMA Cord for the 2800WAC Power Supply
CAB-AC-2800W-6-20=	Non-locking NEMA Cord for the 2800WAC Power Supply
CAB-US515P-C19-US	NEMA 5-15 to IEC-C19 13-foot US
CAB-US515P-C19-US=	NEMA 5-15 to IEC-C19 13-foot US
CAB-L520P-C19-US	NEMA L5-20 to IEC-C19 6-foot US
CAB-L520P-C19-US=	NEMA L5-20 to IEC-C19 6-foot US
CAB-L620P-C19-US	NEMA L6-20 to IEC-C19 14-foot US
CAB-L620P-C19-US=	NEMA L6-20 to IEC-C19 14-foot US
CAB-US620P-C19-US	NEMA 6-20 to IEC-C19 13-foot US
CAB-US620P-C19-US=	NEMA 6-20 to IEC-C19 13-foot US
CAB-CEE77-C19-EU	CEE 7/7 to IEC-C19 13-foot Europe
CAB-CEE77-C19-EU=	CEE 7/7 to IEC-C19 13-foot Europe
CAB-I309-C19-INT	IEC-309 to IEC-C19 13-foot International
CAB-I309-C19-INT=	IEC-309 to IEC-C19 13-foot International
CAB-A3112-C19-AUS	AS-3112 to IEC-C19 14-foot Australia
CAB-A3112-C19-AUS=	AS-3112 to IEC-C19 14-foot Australia
CAB-C2316-C19-IT=	CEI 23-16 to IEC-C19 14-foot Italy
CAB-C2316-C19-IT	CEI 23-16 to IEC-C19 14-foot Italy
CAB-BS1363-C19-UK	BS-1363 to IEC-C19 14-foot UK
CAB-BS1363-C19-UK=	BS-1363 to IEC-C19 14-foot UK

Product Overview (continued)

Product Number	Product Description
Catalyst 4500 Accessories (continued)	
CAB-4502AC-EU	AC Power Cord for PWR-4502 (Europe)
CAB-4502AC-EU=	AC Power Cord for PWR-4502 (Europe)
CAB-4502AC-UK=	AC Power Cord for PWR-4502 (UK)
CAB-4502AC-US	L6-20 AC Power Cord for PWR-4502 (North America)
CAB-4502AC-US=	AC Power Cord for PWR-4502 (North America)
WS-X4571=	4500 Connection Strap for Auxiliary Power Shelf
CAB-ACS-10	AC Power Cord (Swiss) 10A
CAB-ACS-10=	AC Power Cord (Swiss) 10A
CAB-ACS-16	AC Power Cord (Swiss) 16A
CAB-ACS-16=	AC Power Cord (Swiss) 16A
CAB-S132-C19-ISRL	S132 to IEC-C19 14-foot (Israel)
CAB-S132-C19-ISRL=	S132 to IEC-C19 14-foot (Israel)
CAB-SABS-C15-IND	SABS 164-1 to IEC-C15 (India)
CAB-SABS-C15-IND=	SABS 164-1 to IEC-C15 (India)
CAB-SABS-C19-IND	SABS 164-1 to IEC-C19 (India)
CAB-SABS-C19-IND=	SABS 164-1 to IEC-C19 (India)
WS-X4500-PS01=	Plastic Cover for 4500 Power Shelf (WS-P4502-1)
WS-X4K-CLOCK-E=	Catalyst 4507R-E/4510R-E Clock Module (Spare)
WS-X4590-E=	Catalyst 4507R-E/4510R-E Fabric Redundancy Module
C4K-SLOT-CVR-E	Catalyst 4500 E-Series Family Slot Cover
C4K-SLOT-CVR-E=	Catalyst 4500 E-Series Family Slot Cover (Spare)
WS-X4503E-23CNTR=	C4503 E Center Mount 23-inch Rack Kit L/R C
WS-X4506E-23CNTR=	C4506 E Center Mount 23-inch Rack Kit L/R C
WS-X4507E-23CNTR=	C4507R E Center Mount 23-inch Rack Kit L/R C
WS-X4510E-23CNTR=	C4510R E Center Mount 23-inch Rack Kit L/R C

Product Number	Product Description
CWDM GBIC Solution for Catalyst 4500	
CWDM-GBIC-1470=	1000BASE-CWDM 1470 nm GBIC (Single-mode Only)
CWDM-GBIC-1490=	1000BASE-CWDM 1490 nm GBIC (Single-mode Only)
CWDM-GBIC-1510=	1000BASE-CWDM 1510 nm GBIC (Single-mode Only)
CWDM-GBIC-1530=	1000BASE-CWDM 1530 nm GBIC (Single-mode Only)
CWDM-GBIC-1550=	1000BASE-CWDM 1550 nm GBIC (Single-mode Only)
CWDM-GBIC-1570=	1000BASE-CWDM 1570 nm GBIC (Single-mode Only)
CWDM-GBIC-1590=	1000BASE-CWDM 1590 nm GBIC (Single-mode Only)
CWDM-MUX8A=	8-channel CWDM Multiplexer/Demultiplexer Module
CWDM-OADM1-1470=	Dual Single-channel OADM Module (1470 nm)
CWDM-OADM1-1490=	Dual Single-channel OADM Module (1490 nm)
CWDM-OADM1-1510=	Dual Single-channel OADM Module (1510 nm)
CWDM-OADM1-1530=	Dual Single-channel OADM Module (1530 nm)
CWDM-OADM1-1550=	Dual Single-channel OADM Module (1550 nm)
CWDM-OADM1-1570=	Dual Single-channel OADM Module (1570 nm)
CWDM-OADM1-1590=	Dual Single-channel OADM Module (1590 nm)
CWDM-OADM1-1610=	Dual Single-channel OADM Module (1610 nm)
CWDM-OADM4-1=	4-channel CWDM OADM Module (1470, 1490, 1510, 1530)
CWDM-OADM4-2=	4-channel CWDM OADM Module (1550, 1570, 1590, 16100)
WDM-1300-1550-S=	1300 nm/1550 nm WDM Splitter Cable
WDM-1300-1550-S=	1300 nm/1550 nm WDM Splitter Cable
CWDM-CHASSIS-2=	2-slot Chassis for CWDM Multiplexer Plug-in Modules
WDM-SFP-2CH-CONV=	2-channel WDM SFP-based Transponder
CWDM-MUX-4-SF1=	Single Fiber 4-channel Multiplexer/Demultiplexer
CWDM-MUX-4-SF2=	Single Fiber 4-channel Multiplexer/Demultiplexer
EWDM-MUX8=	8-channel EWDM MUX/DEMUX Module
EWDM-OADM4=	4-channel EWDM OADM Module
EWDM-OADM2=	2-channel EWDM OADM Module
EWDM-OA=	EWDM Optical Amplifier

Notes

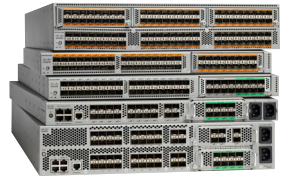
Cisco Fixed-Configuration Switches

The Cisco fixed configuration portfolio of switches includes the industry's widest and most versatile selection of fixed-configuration switches, making it easy for customers to find the ideal platform for any deployment.

Yet unlike point solutions, these switches share the feature-rich functionality of Cisco IOS and NX-OS software, providing a firm foundation for converged data, voice, and video services as well as for a seamless migration towards convergence, virtualization and cloud computing solutions.

The Nexus 5000 and 3000 Series and Cisco Catalyst 4900, 3750-E, 3750, 3560-E, 3560, 2960, 2940, and Catalyst Express 500 Series switches offer an array of connectivity options, from Fast Ethernet to 10 GBE. They range from small, standalone switches to stackable models as well as top-of-rack or end-of-row solutions for the Data Center network. And many models are available with a choice of software images, allowing customers to dictate the level of intelligent network services based on individual needs.

Notes



Nexus 5000 Series Switches

As a part of the Unified Fabric pillar of the Cisco Data Center Business Advantage architectural framework, the Cisco Nexus® 5000 Series Switches deliver an innovative architecture to simplify data center transformation by enabling a high-performance, standards-based, Ethernet fabric. The platform consolidates separate LAN, SAN, and server cluster network environments into a single Ethernet fabric. Backed by a broad system of industry-leading technology partners, the Cisco Nexus 5000 Series is designed to meet the challenges of next-generation data centers, including dense multi-socket, multi-core, virtual machine–optimized services, in which infrastructure sprawl and increasingly demanding workloads are commonplace.

The Cisco Nexus 5000 Series features a high-performance, low-latency 10 Gigabit Ethernet cut-through switching architecture for 10 Gigabit Ethernet server access in next-generation data centers. With connectivity options ranging from Ethernet, Fibre Channel, and Fibre Channel over Ethernet (FCoE), this platform delivers flexible connectivity as your data center evolves while creating a lossless Ethernet service with no-drop flow control.

Nexus 5000 Series Switch Spotlight

Total Cost Reduction with Unified Fabric

The Cisco Nexus 5000 Series provides a unified fabric over 10 Gigabit Ethernet for LAN, SAN, and cluster traffic. This unification enables consolidation and greater utilization of previously separate infrastructure and cabling, reducing by up to 50 percent the adapters and cables required and eliminating redundant switches. This infrastructure displacement also lowers power and cooling costs significantly, especially for rack-optimized servers similar to blade servers.

Investment Protection and Operational Best Practices

The Cisco Nexus 5000 Series lets customers take advantage of the cost and functional benefits of a unified fabric while protecting their investments in existing network, storage, and server assets. The Cisco Nexus 5000 Series can be easily inserted into an existing data center network to provide immediate benefits without causing disruption or reworking of existing design and operational best practices.

Scalability with Simplified Management

The Cisco Nexus 5000 Series in conjunction with the Cisco Nexus 2000 Series Fabric Extenders delivers a unified fabric solution that scales server and storage connectivity while maintaining simplified management traffic. Convergence at the server access layer provides cost benefits through infrastructure reduction (CapEx savings) and infrastructure simplification (OpEx savings).

Virtual Machine–Optimized Services

Cisco Nexus 5000 Series Switches are designed to support virtualization and virtual machine mobility by mapping virtual machines to network profiles, allowing network services allocation at per-virtual machine granularity centrally from the unified fabric. This capability to move virtual machines and network profiles together eases manageability, improves network isolation, and enables consistent network and security policies.

Product Overview

Product Number	Product Description
Chassis	
N5K-C5548P-FA	Chassis includes 32 fixed ports, Front-to-Back Airflow, 2 750W AC Power Supplies, Fan Trays, 1 Expansion Slot
N5K-C5548UP-FA	Chassis includes 32 fixed unified ports, Front-to-Back Airflow, 2 750W AC Power Supplies, Fan Trays, 1 Expansion Slot
N5K-C5596UP-FA	Chassis includes 48 fixed unified ports, Front-to-Back Airflow, 2 1100W AC Power Supplies, Fan Trays, 3 Expansion Slots
Fan Modules	
N5548P-FAN=	Cisco Nexus 5548P/5548UP Fan Module, Front-to-Back Airflow, Spare
N5596UP-FAN=	Cisco Nexus 5596UP Fan Module, Front-to-Back Airflow, Spare
Power Supplies	
N55-PAC-750W(=)	Cisco Nexus 5548P/5548UP PSU Front-to-Back Airflow Module Spare, A/C, 100-240V, 750W
N55-PAC-1100W(=)	Cisco Nexus 5596UP PSU Front-to-Back Airflow Module Spare, A/C, 100-240V, 1100W

Product Overview (continued)

Product Number	Product Description
Miscellaneous	
N55-M-BLNK(=)	Cisco Nexus 5500 Blank Module Cover
Software	
N5KUK9-502N1.1(=)	Cisco Nexus 5000 Base OS Software Release 5.0(2)N1(1)
N5KUK9-503N1.1(=)	Cisco Nexus 5000 Base OS Software Release 5.0(3)N1(1)
N55-8P-SSK9(=)	Cisco Nexus 5500 8-Port Storage Protocol Services License
N5000FMS1K9(=)	Cisco Nexus 5000 Series Fabric Manager Server License
N55-LAN1K9(=)	Cisco Nexus 5500 Layer 3 Enterprise Software License
N55-BAS1K9(=)	Cisco Nexus 5500 Layer 3 Base Software License
Expansion Modules and Daughter Card	
N55-M16P(=)	16-port 1/10 GE Ethernet/FCoE Module (Requires SFP+ for 8 Gbps or SFP for 4 Gbps Operation)
N55-M8P8FP(=)	8-port FC (8/4/2/1G) + 8-port Eth/FCoE Module
N55-M16UP(=)	16-port Unified Port Expansion Module
N55-D160L3(=)	Nexus 5548 Layer 3 Daughter Card
N55-M160L3(=)	Nexus 5596 Layer 3 Expansion Module
Cables and Optics	
SFP-10G-SR(=)	10GBASE-SR SFP+ Module
SFP-10G-LR(=)	10GBASE-LR SFP+ Module
SFP-H10GB-CU1M(=)	10GBASE-CU SFP+ Cable 1 Meter
SFP-H10GB-CU3M(=)	10GBASE-CU SFP+ Cable 3 Meter
SFP-H10GB-CU5M(=)	10GBASE-CU SFP+ Cable 5 Meter
SFP-H10GB-ACU7M(=)	Active Twinax cable assembly, 7m
SFP-H10GB-ACU10M(=)	Active Twinax cable assembly, 10m
GLC-T(=)	1000BASE-T SFP
GLC-SX-MM(=)	GE SFP, LC Connector SX Transceiver
GLC-LH-SM(=)	GE SFP, LC Connector LX/LH Transceiver
SFP-GE-T(=)	1000BASE-T SFP, Extended Temperature Range
SFP-GE-S(=)	GE SFP, LC Connector SX Transceiver, with Digital Optical Monitoring (DOM) and Extended Temperature Range
SFP-GE-L(=)	GE SFP, LC connector LX/LH Transceiver, with Digital Optical Monitoring (DOM) and Extended Temperature Range
DS-SFP-FC4G-SW(=)	4 Gbps Fibre Channel-SW SFP, LC
DS-SFP-FC4G-LW(=)	4 Gbps Fibre Channel-LW SFP, LC
CVR-X2-SFP10G	OneX Converter Module

Hardware Features

	N5K-C5548P-FA	N5K-C5548UP-FA	N5K-C5596UP-FA	N5K-C5010P-BF	N5K-C5020P-BF
Switching Fabric	960 Gbps	960 Gbps	1.92 Tbps	520 Gbps	1.04 Tbps
Packets per Second (Mpps)	714.2	714.2	1428	386.9	773.8
Expansion Slots	1	1	3	1	2
MAC Addresses Supported	32,000	32,000	32,000	16,000	16,000
Unicast Routes**	8000	8000	8000	N/A	N/A
Multicast Routes**	2000	2000	2000	N/A	N/A
Buffer Per Port	640 Kb	640 Kb	640 Kb	480 Kb	480 Kb
ACL Entries	4000	4000	4000	2000	2000
Latency (microseconds)	~2	~1.8	~1.8	~3.2	~3.2
Maximum Transfer Unit (bytes)	Up to 9216	Up to 9216	Up to 9216	Up to 9216	Up to 9216
Number of Configurable VLANs	4096	4096	4096	507	507
Virtual SANs	32	32	32	32	32
Onboard Memory	8GB	8GB	8GB	2GB	2GB
Flash Memory	2GB	2GB	2GB	2GB	2GB
Hardware Queues Per Port	8	8	8	8	8
1 or 10 GBE Server-facing Ports (with FEX)	1152/768	1152/768	1152/768	576/384	576/384
Form Factor	1RU	1RU	2RU	1RU	2RU
Fiber Channel Ports	16	48	96	8	16
Fiber Channel over Ethernet Ports	48	48	96	26	52
10/100/1000 Management Ports	1	1	1	1	1
Nexus 2000 Fabric Extender System (FEX)	Yes—Up to 24	Yes—Up to 24	Yes—Up to 24	Yes—Up to 12	Yes—Up to 12
Typical Operating Power	390W	390W	660W	350W	480W
Maximum Power (Layer 2)	600W (without Layer 3 Daughter Card)	600W (without Layer 3 Daughter Card)	882W (without Layer 3 Daughter Card)	450W	750W
Maximum Power (Layer 3)	730W (with Layer 3 Daughter Card)	730W (with Layer 3 Daughter Card)	972W (with 3x Layer 3 Expansion Module)	N/A	N/A
AC/DC Support	AC Only	AC Only	AC Only	AC Only	AC Only
Redundant Power Supply Support	Yes	Yes	Yes	Yes	Yes
Dimensions (H x W x D)	1.72 x 17.3 x 29.5 in. (4.4 x 43.9 x 74.9 cm)	1.72 x 17.3 x 29.5 in. (4.4 x 43.9 x 74.9 cm)	3.47 x 17.3 x 29.5 in. (8.8 x 43.9 x 74.9 cm)	1.72 x 17.3 x 30.0 in. (4.4 x 43.9 x 76.2 cm)	3.47 x 17.3 x 30.0 in. (8.8 x 43.9 x 76.2 cm)
Unit Weight*	35 lb (15.88 kg)	35 lb (15.88 kg)	47.5 lb (21.55 kg)	35 lb (15.88 kg)—includes 2 power supplies, 1 expansion module, and 2 fan modules	50 lb (22.68 kg)—includes 2 power supplies, 2 expansion modules, and 5 fan modules
Predicted Mean Time Between Failures (MTBF)	98,335 Hours	98,335 Hours	80,100 Hours	87,180 Hours	58,457 Hours

*With power supplies, expansion modules and fan modules
**With L3 Module

Notes

Nexus 3000 Series

Cisco Nexus® 3064 Switch is a high-performance, high-density, ultra-low-latency Ethernet switch that is part of the new Cisco Nexus 3000 Series Switches. This compact one-rack-unit (1RU) form factor 1 and 10 Gigabit Ethernet switch provides line-rate Layer 2 and 3 switching. The switch runs the industry-leading Cisco® NX-OS operating system, providing customers with robust features and functionality that are widely deployed globally. The Cisco Nexus 3064 is well suited for financial co-location deployments that require support for robust unicast and multicast routing protocol features at ultra-low latencies.

Nexus 3000 Series Switch Spotlight

The Cisco Nexus 3064 provides the following main benefits:

Ultra-low latency

The Cisco Nexus 3064 delivers ultra-low nominal latency that enables customers to implement high-performance infrastructures for high-frequency trading workloads.

Wire-rate Layer 2 and 3 switching on all 64 10 Gigabit Ethernet ports

Layer 2 and 3 switching of up to 1.2 terabits per second (Tbps) and more than 950 million packets per second (Mpps) in a compact 1RU form-factor switch.

Purpose-built on Cisco NX-OS operating system with comprehensive, proven innovations

OS built for resiliency. The switch supports full Layer 3 routing protocol suites, including Border Gateway Protocol (BGP), Open Shortest path First (OSPF), Enhanced Interior Gateway Routing Protocol (EIGRP), and Routing Information Protocol Version 2 (RIPv2). Nexus 3064 is integrated with Cisco Data Center Network Manager (DCNM) and XML management tools.

Product Overview

Product Number	Product Description
Chassis	
N3K-C3064PQ	Nexus 3064PQ 1RU Fixed Chassis, no Power Supply, no Fan-Tray
N3K-C3064-FAN	Nexus 3064PQ Fan Module, Front-to-Back Airflow
N2200-PAC-400W	Cisco Nexus 2200 Power Supply, Front-to-Back Airflow
Software Licenses	
N3K-BAS1K9	Nexus 3000 Base License
N3K-LAN1K9	Nexus 3000 LAN Enterprise License
Spares	
N3K-C3064-FAN=	Cisco Nexus 5548P/5548UP PSU Front-to-Back Airflow Module Spare, A/C, 100-240V, 750W
N2000-PAC-400W=	Cisco Nexus 2000 Power Supply
N3K-C3064-ACC-KIT=	Nexus 3064PQ Accessory Kit
Cables and Optics	
QSFP-40G-SR4	40GBASE-SR4 QSFP Transceiver Module with MPO Connector
QSFP-H40G-CU1M	40GBASE-CR4 Passive Copper Cable, 1m
QSFP-H40G-CU3M	40GBASE-CR4 Passive Copper Cable, 3m
QSFP-H40G-CU5M	40GBASE-CR4 Passive Copper Cable, 5m
QSFP-4SFP10G-CU1M	QSFP to 4xSFP10G Passive Copper Splitter Cable, 1m
QSFP-4SFP10G-CU3M	QSFP to 4xSFP10G Passive Copper Splitter Cable, 3m
QSFP-4SFP10G-CU5M	QSFP to 4xSFP10G Passive Copper Splitter Cable, 5m
SFP-10G-SR(=)	10GBASE-SR SFP+ Module
SFP-10G-LR(=)	10GBASE-LR SFP+ Module
SFP-H10GB-CU1M(=)	10GBASE-CU SFP+ Cable 1 Meter
SFP-H10GB-CU3M(=)	10GBASE-CU SFP+ Cable 3 Meter
SFP-H10GB-CU5M(=)	10GBASE-CU SFP+ Cable 5 Meter
SFP-H10GB-ACU7M	Active Twinax Cable Assembly, 7m
SFP-H10GB-ACU10M	Active Twinax Cable Assembly, 10m
GLC-T(=)	1000BASE-T SFP
GLC-SX-MM(=)	GE SFP, LC Connector SX Transceiver
GLC-LH-SM(=)	GE SFP, LC Connector LX/LH Transceiver

Hardware Features

Physical	
· 1RU fixed form-factor switch · 64 10 Gigabit Ethernet ports (48 SFP+ and 4 QSFP+) – 48 SFP ports support 1 and 10 Gigabit Ethernet – 4 QSFP ports support 4 x 10 Gigabit Ethernet each · 2 redundant power supplies · 1 fan tray with redundant fans · 1 I/O module with management, console, and USB flash memory ports	
Performance	
· 1.28-Tbps switching capacity · Forwarding rate of 950 Mpps · 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 Scalability	
MAC Addresses	128,000
Number of VLANS	4096
Spanning-tree Instances	Rapid Spanning Tree Protocol (RSTP): 512 Multiple Spanning Tree (MST) Protocol: 64
Access Control List (ACL) Entries	2000 ingress 1000 egress
Routing Table	16,000 routes and 16,000 host entries 4000 multicast routes
Number of EtherChannels	32
Number of ports per EtherChannel	16
Buffers	9 MB shared
Boot Flash Memory	2 GB
Power	
Number of power supplies	2 (redundant)
Typical operating power	286 Watts (W)
Maximum power	400 watts (W)
Input voltage	100 to 240 VAC
Frequency	50 to 60 Hz
Efficiency	95 to 98%

Hardware Features

Cooling		
	• Front to back airflow • Front/Cold-aisle: Power Supply/Fan Tray side • Back/Hot-aisle: Port side • Single fan tray with redundant fans • Hot swappable (must swap within 1 min)	
Environment		
	Dimensions (height x width x depth)	1.72 x 17.3 x 19.75 in. (4.4 x 43.9 x 50.5 cm)
	Weight	20.5 lbs (9.3 kgs)
	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
	Storage Relative Humidity	5 to 95% Noncondensing
	Altitude	0 to 10,000 ft (0 to 3000m)

Cisco Catalyst 4900 Series

High-performance small form-factor switching for datacenter top of rack applications and space constrained LAN aggregation in branch deployments.

The Catalyst 4900 Series are a compact form factor (1-2RU) family of switches providing wire speed GE and 10 GBE connectivity and services for top of rack server aggregation in the datacenter and for space constrained branch collapsed core/distribution LAN aggregation. The Catalyst 4900 Series includes six Layer 2 & 3 fixed-configuration switches.

The Catalyst 4948E switch offers 48 ports of wire-speed 10/100/1000BASE-T with four 1 Gbps/10 Gigabit Ethernet (10 GBE) uplinks via optional SFP/SFP+ optics in addition to offering true front-to-back airflow.

The Catalyst 4948E-F switch offers 48 ports of wire-speed 10/100/1000BASE-T with four 1 Gbps/10 Gigabit Ethernet (10 GBE) uplinks via optional SFP/SFP+ optics in addition to offering true back-to-front airflow.

The Cisco Catalyst 4900M is a 320 Gbps, two-rack-unit (2RU) semi-fixed configuration switch with 8 fixed wire-speed 10 GBE ports on the base unit and 2 optional half-card slots for deployment flexibility. Four half-card modules provide additional 10 GBE density or 10/100/1000 copper ports. The 8-port half card supports 1 GE SFPs via the TwinGig adapter.

The Catalyst 4948 switch offers 48 ports of wire-speed 10/100/1000BASE-T with four alternative wired ports that can accommodate optional 1000BASE-X Small Form-factor Pluggable (SFP) optics.

The Catalyst 4948 10 GBE switch offers 48 ports of wire-speed 10/100/1000BASE-T with two wire-speed 10 Gigabit Ethernet (10 GBE) uplinks via optional 10 GBE (X2) optics.

The Catalyst 4928 10 GBE switch offers 28 wire-speed Small Form-Factor Pluggable (SFP) ports with two wire-speed 10 Gigabit Ethernet (10 GBE) uplinks via optional 10 GBE (X2) optics.

All models provide exceptional reliability and serviceability, supporting optional internal AC or DC 1 + 1 hot-swappable power supplies and a hot-swappable fan tray with redundant fans.

These switches are available with either the LAN Base Software image or IP Base Software image or the Enterprise Services Software image. The Enterprise Services Software additionally supports Shortest Path First (OSPF), Intermediate System-to-Intermediate System (IS-IS), Enhanced Interior Gateway Routing Protocol (EIGRP), and Border Gateway Protocol (BGP).

Fixed Switches: Cisco Catalyst 4900 Series

Hardware Features

	WS-C4948	WS-C4948-10GE	WS-C4928-10GE	WS-4900M	WS-C4948-E/WS-C4948E-F
Environmental					
Height	1RU	1RU	1RU	2RU	1RU
Dimension (H x W x D) Inches (cm)	1.71(4.3) x 17.3(43.9) x 16.1(40.9)	1.71 (4.3) x 17.3 (43.9) x 16.1 (40.9)	1.71 (4.3) x 17.3 (43.9) x 16.1 (40.9)	3.5 (8.9) x 17.2 (43.7) x 17.9 (45.5)	1.75 (4.4) x 17.5 (44.4) x 19.4 (49.3)
Power Redundancy	1+1 AC or DC	1+1 AC or DC	1+1 AC or DC	1+1 AC or DC	1+1 AC or DC
Unit Weight Pounds (Kilograms)	16.5 (7.48)	16.5 (7.48)	16.5 (7.48)	34.0 lbs (15.4)	19 lbs (8.62)
Hot Swappable Fan	Yes	Yes	Yes	Yes	Yes
Avg/Max Power Consumption	176/300 Watts	212/300 Watts	300 Watts	300/446 Watts	230/275 Watts
Airflow	Side to Back	Side to back	Side to back	Side to Back	Front to Back (4948E)
Rack Mounting Options	Front and Rear Mount	Front and Rear Mount High Perf Rear Mount	Front and Rear Mount	Four Post Rack Side rail Mount High Performance Mount	Front and Rear Mount High Perf Rear Mount
Uplink Optic Types	4 SFP Optics	Two X2 (10 Gigabit Ethernet) optics	Two X2 (10 Gigabit Ethernet) Optics	Eight X2 (10 Gigabit Ethernet) Optics	SFP/SFP+
Cisco TwinGig Converter Module Support	No	No	Yes	Yes (WS-X4908-10 GE only)	No
Cisco OneX Converter Module Support (X2 to SFP+)*	No	No	Yes	Yes	No
Optics	LH, SX, ZX, CWDM	LR, CX4, LX4, SR, ER, LRM, ZR, DWDM	LR, CX4, LX4, SR, ER, LRM	X2: LR, CX4, LX4, SR, ER, LRM, ZR, DWDM	32
Modular Half-Card Slots	SFP+: SR	CWDM, DWDM, SR, LR, LRM, CX4	0	0	0
Ports					
Maximum 10/100/1000 Ports	48	48	0	40	48

Hardware Features (continued)

	WS-C4948	WS-C4948-10GE	WS-C4928-10GE	WS-4900M	WS-C4948-E/WS-C4948E-F
Ports (continued)					
Maximum Gigabit Ethernet (Fiber) Ports	4	0	28	32 (Cisco TwinGig Converter Module)	4
Maximum 10 Gigabit Ethernet (10GBase-T) Ports	0	0	0	16	0
Maximum 10 Gigabit Ethernet (fiber) Ports	0	2 (X2)	2 (X2)[1]	24 (X2)[1]	4 (SFP+)
Performance/Scalability					
Switching Capacity	96 Gbps	136 Gbps	96 Gbps	320 Gbps	176 Gbps
Throughput	72 Mpps	102 Mpps	72 Mpps	250 Mpps for IPv4 125 Mpps for IPv6	131 Mpps for IPv4 110 Mpps for IPv6
Routes Supported	32K	32K	32K	256K	57K
MAC Addresses	32K	55K	55K	55K	55K
Per VLAN Spanning Tree (PVST) Protocol and VLAN IDs	4094	4094	4094	4094	4094
Switched Virtual Interfaces (SVIs)	2000	2000	2000	4094	4094
Active VLANs	4094	4094	2048	4094	4094
Multicast Routes	28K	28K	28K	28K	28K
Security and Quality-of-Service (QoS) Hardware Entries	32K	32K	32K	128K	32K
Switched Port Analyzer (SPAN)	2 Ingress and 4 Egress	2 Ingress and 4 Egress	2 Ingress and 4 Egress	8 Ingress and 8 Egress	8 Ingress and 8 Egress
Shared Buffer	16 MB	16 MB	16 MB	17.5 MB	17.5 MB
CPU	266 MHz	666 MHz	666 MHz	1.3 GHz	1 GHz
Synchronous Dynamic RAM (SDRAM)	256 MB	256 MB	256 MB	512 MB	1 GB
IPv6 Support	Software Switched	Software Switched	Software Switched	Hardware Switched	Hardware Switched
USB Port	No	No	No	Yes	No
Compact Flash Memory Support	No	No	No	Yes	No
System Reset Button	No	No	Yes	Yes	Yes
PoE: Max. 802.3af Class 3 Devices (15.4W)	0	0	0	0	0
PoE: Max. 802.3af Class 2 Devices (7.3W)	0	0	0	0	0

* X2 can be converted to SFP+ using OneX Converter Module.

Cisco Catalyst 4900 Series Spotlight

Wire-speed Performance

The Cisco Catalyst 4900 Series delivers wire-speed throughput on all ports from 96 Gbps to 320 Gbps with low-latency for data-intensive applications. Switching performance is guaranteed regardless of the number of route entries or Layer 3 and 4 services enabled. The hardware-based Cisco Express Forwarding (CEF) routing architecture allows for increased scalability and performance.

Exceptional Reliability

The Cisco Catalyst 4900 Series offers redundant hot-swappable internal AC or DC power supplies for non-stop operation. The 1+1 power supply design provides A-to-B failover when power supplies are connected to different circuits. AC and DC power supplies can be mixed in the same unit for maximum deployment flexibility. The Cisco Catalyst 4900 Series also features a hot-swappable fan tray with four redundant fans for additional serviceability and availability.

Product Overview

Product Number	Product Description
Catalyst 4900 Switches	
WS-C4948E	4948E, LB S/W, 48-port 10/100/1000+4*1/10 GE (SFP/SFP+) Ports, no Power Supply, Front-to-back Airflow
WS-C4948E-S	4948E, IPB S/W, 48-port 10/100/1000+4*1/10 GE (SFP/SFP+) Ports, AC Power Supply, Front-to-back Airflow
WS-C4948E-E	4948E, ES Image, 48-port 10/100/1000+4*1/10 GE (SFP/SFP+) Ports, AC Power Supply, Front-to-back Airflow
WS-C4948E-F	4948E-F, LB S/W, 48-port 10/100/1000+4*1/10 GE (SFP/SFP+) Ports, no Power Supply, Back-to-front Airflow
WS-C4948E-F-S	Base System with 8-port (X2) and 2 Half Slots
WS-C4948E-F-E	4 Port Wire Speed 10 GBE Card for 4900M
WS-C4900M	8 Port 2:1 10 GBE Card for 4900M
WS-X4904-10GE	20 Port 10/100/1000 RJ-45 Card for 4900M
WS-X4908-10GE	8-port 2:1 10GBASE-T Card for 4900M
WS-X4920-GB-RJ45	4948, Optional S/W, 48-port 10/100/1000+2*10 GBE (X2), no Power Supply
WS-X4908-10G-RJ45	4948, Optional S/W, 48-port 10/100/1000+2*10 GBE (X2), no Power Supply
WS-C4948-10GE	4948, IPB S/W, 48-port 10/100/1000+2*10 GBE (X2), 1 AC Power Supply
WS-C4948-10GE-S	4948, ES Image, 48-port 10/100/1000+2*10 GBE (X2), 1 AC Power Supply
WS-C4948-10GE-E	4948, ES Image, 48-port 10/100/1000+2*10 GBE (X2), 1 AC Power Supply
WS-C4928-10GE	4928, Optional S/S, 28-port 1000Base-X (SFP) +2*10 GBE (X2), no Power Supply
WS-C4948-S	4948, IPB S/W, 48-port 10/100/1000+4 SFP, 1 AC Power Supply
WS-C4948-E	4948, ES S/W 48-port 10/100/1000+4 SFP, 1 AC Power Supply
WS-C4948	4948, Optional S/W, 48-port 10/100/1000+4 SFP, no Power Supply

Product Overview (continued)

Product Number	Product Description
Catalyst 4900 Transceiver Modules	
GLC-T	1000BASE-T SFP
GLC-SX-MM	GBE SFP, LC Connector SX Transceiver
GLC-LH-SM	GBE SFP, LC Connector LX/LH Transceiver
GLC-BX-D	1000BASE-BX SFP, 1490 nm
GLC-BX-U	1000BASE-BX SFP, 1310 nm
GLC-ZX-SM	1000BASE-ZX SFP
CWDM-SFP-1470=	CWDM 1470 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1490=	CWDM 1490 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1510=	CWDM 1510 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1530=	CWDM 1530 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1550=	CWDM 1550 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1570=	CWDM 1570 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1590=	CWDM 1590 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1610=	CWDM 1610 NM SFP Gigabit Ethernet and 1G/2G FC
X2-10GB-CX4	10GBASE-CX4 X2 Module
X2-10GB-ER	10GBASE-ER X2 Module
X2-10GB-ER=	10GBASE-ER X2 Module
X2-10GB-SR	10GBASE-SR X2 Module
X2-10GB-LX4	10GBASE-LX4 X2 Module
X2-10GB-LR	10GBASE-LR X2 Module
SFP-10G-SR	10GBASE-SR SFP+ Module
SFP-10G-LR	10GBASE-LR SFP+ Module
SFP-10G-ER	10GBASE-ER SFP+ Module
SFP-10G-LRM	10GBASE-LRM SFP+ Module
SFP-H10GB-CU1M	10GBASE-CU SFP+ Cable 1 Meter, Passive SFP+ Module
SFP-H10GB-CU3M	10GBASE-CU SFP+ Cable 3 Meter, Passive SFP+ Module
SFP-H10GB-CU5M	10GBASE-CU SFP+ Cable 5 Meter, Passive CX1 SFP+ Module
SFP-H10GB-ACU7M	10GBASE-CU SFP+ Cable 7 Meter, Active SFP+ Module
SFP-H10GB-ACU10M	10GBASE-CU SFP+ Cable 10 Meter, Active SFP+ Module
CVR-X2-SFP	TwinGig Converter Module
CVR-X2-SFP10G	OneX Converter Module

Product Overview (continued)

Product Number	Product Description
Catalyst 4900 Accessories	
PWR-C49E-300AC-R	4948E 300-Watt AC Power Supply
PWR-C49E-300AC-F	4948E-F 300-Watt AC Power Supply
PWR-C49-300DC-F	4948E-F 300-Watt DC Power Supply
PWR-C49M-1000AC	4900M AC Power Supply, 1000W
PWR-C49M-1000AC=	4900M AC Power Supply, 1000W
PWR-C49M-1000AC/2	Redundant AC Power Supply for 4900M
PWR-C49M-1000DC	4900M DC Power Supply
PWR-C49M-1000DC/2	4900M DC Power Supply Redundant
PWR-C49-300AC	4948 300-Watt AC Power Supply
PWR-C49-300AC=	4948 300-Watt AC Power Supply (Spare)
PWR-C49-300AC/2	4948 300-Watt AC Power Supply Redundant
PWR-C49-300DC	4900 300-Watt DC Power Supply
PWR-C49-300DC=	4900 300-Watt DC Power Supply (Spare)
PWR-C49-300DC/2	4900 300-Watt DC Power Supply Redundant
WS-X4993-F	4900E-F Fan Tray
WS-X4992=	4900M Fan Tray (Spare)
WS-X4991=	4948 Fan Tray (Spare)
C4948-ACC-KIT=	4900 Spare Accessory Kit
C4948-BKT-KIT=	4900 Front and Rear Mount Brackets

Cisco Catalyst 3750-X Series

The Cisco Catalyst 3750-X Series Switches are an enterprise-class lines of stackable switches. These switches provide high availability, scalability, security, energy efficiency, and ease of operation with innovative features such as Cisco StackPower, IEEE 802.3at Power over Ethernet Plus (PoE+) configurations, optional network modules, redundant power supplies, and Media Access Control Security (MACsec) features. The Cisco Catalyst 3750-X Series with StackWise® Plus technology provides scalability, ease of management and investment protection for the evolving business needs. The Cisco Catalyst 3750-X enhances productivity by enabling applications such as IP telephony, wireless, and video for borderless network experience.

Key Features

- 24 and 48 10/100/1000 PoE+ and non-PoE models
- Optional four Gigabit Ethernet (GBE) SFP or two 10 GBE SFP+ uplink network modules
- Industry first PoE+ with 30W power on all ports in 1 rack unit (RU) form factor
- Dual redundant, modular power supplies and fans
- Media Access Control Security (MACsec) hardware-based encryption
- IPv4 and IPv6 routing, Multicast routing, advanced quality of service (QoS), and security features in hardware
- Enhanced limited lifetime warranty (LLW) with next business day (NBD) advance hardware replacement and 90 day access to Cisco Technical Assistance Center (TAC) support
- Enhanced Cisco EnergyWise for operational cost optimization by measuring actual power consumption of the PoE devices, reporting, and reducing energy consumption across the network
- USB Type-A and Type-B ports for storage and console respectively and an out-of-band Ethernet management port
- Cisco StackPower™ technology: An innovative feature and industry first for sharing power among stack members
- Cisco StackWise Plus technology for ease of use and resiliency with 64 Gbps of throughput
- Investment protection with backward compatibility with all other models of Cisco Catalyst 3750 Series Switches

Hardware Features

	WS-C3750X-24T	WS-C3750X-48T	WS-C3750X-24P	WS-C3750X-48P	WS-C3750X-48PF
Switching Fabric (Gbps)	160	160	160	160	160
Maximum Stack Members	9	9	9	9	9
Clustering	Yes, 16 Switches/Cluster	Yes, 16 Switches/Cluster	Yes, 16 Switches/Cluster	Yes, 16 Switches/Cluster	Yes, 16 Switches/Cluster
Total Bandwidth of Stack (Gbps)	64	64	64	64	64
Packets per Second per Box (Mpps)	65.5	101.2	65.5	101.2	101.2
MAC Addresses Supported	12,000	12,000	12,000	12,000	12,000
Routes Supported	11,000	11,000	11,000	11,000	11,000
Onboard Memory (DRAM MB)	256	256	256	256	256
10 GBE Density	2	2	2	2	2
Gigabit Ethernet GBIC/SFP Density	4	4	4	4	4
10 GBE XENPAK/X2Port Density	0	0	0	0	0
10/100/1000 Density	24	48	24	48	48
10/100 Density	0	0	0	0	0
100BASE-FX Density	0	0	0	0	0
Maximum Watt Power Consumption (100% Forwarding without PoE Load)	93.5	120	99.3	133.9	137.2
PoE+: Maximum 802.3at devices (30W)	0	0	24	48	48
PoE: Maximum 802.3af Class 3 Devices (15.4W)	0	0	24	48	48
PoE: Maximum 802.3af Class 2 Devices (7.3W)	0	0	24	48	48
AC/DC Support	AC and DC Available	AC and DC Available	AC and DC Available	AC and DC Available	AC and DC Available
Redundant Power Supply Support	Yes	Yes	Yes	Yes	Yes
Dimensions (H x W x D) Inches	1.75 x 17.5 x 18.0	1.75 x 17.5 x 18.0	1.75 x 17.5 x 18.0	1.75 x 17.5 x 18.0	1.75 x 17.5 x 19.5
Dimensions (H x W x D) Centimeters	4.45 x 44.5 x 46.0	4.45 x 44.5 x 46.0	4.45 x 44.5 x 46.0	4.45 x 44.5 x 46.0	4.45 x 44.5 x 49.5
Unit Weight Pounds (Kilograms)	15.6 (7.1)	16.3 (7.4)	15.8 (7.2)	16.5 (7.5)	16.7 (7.6)

For further information on the Cisco Catalyst 3750 Metro Ethernet Series, go to:
http://www.cisco.com/en/US/partner/products/hw/switches/ps5532/index.html

Cisco Catalyst 3750-X Spotlight

Cisco StackPower Technology

The Cisco Catalyst 3750-X Series introduces Cisco StackPower technology, an innovative power interconnect system that allows the power supplies in a stack to be shared as a common resource among all the switches. Cisco StackPower unifies the individual power supplies installed in the switches and creates a pool of power, directing that power where it is needed. Up to four switches can be configured in a StackPower stack with the special connector at the back of the switch using the StackPower cable. StackPower can be deployed in either power sharing mode or redundancy mode. In power sharing mode, the power of all the power supplies in the stack is aggregated and distributed among the switches in the stack. In redundant mode, when the total power budget of the stack is calculated, the wattage of the largest power supply is not included. That power is held in reserve and used to maintain power to switches and attached devices when one power supply fails, enabling the network to operate without interruption. StackPower eliminates the need for an external redundant power system or installation of dual power supplies in all the stack members.

MACsec

The Cisco Catalyst 3750-X and 3560-X Series Switches offer exceptional security with integrated hardware support for MACsec defined in IEEE 802.1AE. MACsec provides MAC layer encryption over wired networks using out-of-band methods for encryption keying. The MACsec Key Agreement (MKA) protocol provides the required session keys and manages the keys required for encryption when configured. MKA and MACsec are implemented following successful authentication using 802.1x Extensible Authentication Protocol (EAP) framework. In Cisco Catalyst 3750-X and 3560-X Series Switches only the user/down-link ports (links between the switch and endpoint devices such as a PC or IP phone) can be secured using MACsec.

Software Features

Cisco Catalyst 3750-X Series is orderable with three feature sets:

- The LAN Base feature set offers enhanced intelligent services that include comprehensive Layer 2 features.
- The IP Base feature set provides baseline enterprise services, including the support for routed access, StackPower, and MACsec.
- The IP Services feature set provides full enterprise services that include advanced Layer 3 features such as Enhanced Interior Gateway Routing Protocol (EIGRP), Open Shortest Path First (OSPF), Border Gateway Protocol (BGP), Protocol Independent Multicast (PIM), and IPv6 routing such as OSPFv3 and EIGRPv6.

Product Overview

Product Number	Product Description
Catalyst 3750-X Series	
WS-C3750X-24T-L	Stackable 24 10/100/1000 Ethernet Ports, with 350W AC Power Supply 1RU, LAN Base Feature Set
WS-C3750X-48T-L	Stackable 48 10/100/1000 Ethernet Ports, with 350W AC Power Supply 1RU, LAN Base Feature Set
WS-C3750X-24P-L	Stackable 24 10/100/1000 Ethernet PoE+ Ports, with 715W AC Power Supply 1RU, LAN Base Feature Set
WS-C3750X-48P-L	Stackable 48 10/100/1000 Ethernet PoE+ Ports, with 715W AC Power Supply 1RU, LAN Base Feature Set
WS-C3750X-48PF-L	Stackable 48 10/100/1000 Ethernet PoE+ Ports, with 1100W AC Power Supply 1RU, LAN Base Feature Set
WS-C3750X-24T-S	Stackable 24 10/100/1000 Ethernet Ports, with 350W AC Power Supply 1RU, IP Base Feature Set
WS-C3750X-48T-S	Stackable 48 10/100/1000 Ethernet Ports, with 350W AC Power Supply 1RU, IP Base Feature Set
WS-C3750X-24P-S	Stackable 24 10/100/1000 Ethernet PoE+ ports, with 715W AC power supply 1RU, IP Base Feature Set
WS-C3750X-48P-S	Stackable 48 10/100/1000 Ethernet PoE+ Ports, with 715W AC Power Supply 1RU, IP Base Feature Set
WS-C3750X-48PF-S	Stackable 48 10/100/1000 Ethernet PoE+ Ports, with 1100W AC Power Supply 1RU, LAN Base Feature Set
Network Modules for the Catalyst 3750-X Series	
C3KX-NM-1G=	1G Network Module Spare
C3KX-NM-10G=	10G Network Module Spare
C3KX-NM-BLANK=	Network Module Blank Spare
Power Supplies and Fan for the Catalyst 3750-X Series	
C3KX-PWR-350WAC=	350W AC Power Supply
C3KX-PWR-715WAC=	715W AC Power Supply
C3KX-PWR-1100WAC=	1100W AC Power Supply
C3KX-PWR-440WDC=	440W DC Power Supply
C3KX-PWR-BLANK=	Power Supply Blank Spare
C3KX-FAN-23CFM=	Fan Module Spare
eXpandable Power System (XPS) for the Catalyst 3750-X Series	
XPS-2200	eXpandable Power System 2200
CAB-XPS-58CM=	XPS Cable 58 cm Spare
CAB-XPS-150CM=	XPS Cable 150 cm Spare
XPS-2200-FAN=	XPS 2200 Fan Module Spare

Product Overview (continued)

Product Number	Product Description
StackWise and StackPower Cables	
CAB-STACK-50CM=	Cisco StackWise 50 cm Stacking Cable
CAB-STACK-1M=	Cisco StackWise 1 m Stacking Cable
CAB-STACK-3M=	Cisco StackWise 3 m Stacking Cable
CAB-STACK-50CM-NH=	Cisco StackWise 50 cm Non-halogen Lead-free Stacking Cable
CAB-STACK-1M-NH=	Cisco StackWise 1 m Non-halogen Lead-free Stacking Cable
CAB-STACK-3M-NH=	Cisco StackWise 3 m Non-halogen Lead-free Stacking Cable
CAB-SPWR-30CM=	Catalyst 3750-X StackPower Cable 30 cm Spare
CAB-SPWR-150CM=	Catalyst 3750-X StackPower Cable 150 cm Spare
SFP+ Transceivers for Catalyst 3750-X Series	
SFP-10G-LR=	10GBASE-LR SFP+ Module
SFP-10G-SR=	10GBASE-SR SFP+ Module
SFP-10G-LRM=	10GBASE-LRM SFP+ Module
SFP-10G-CX1=	10GBASE-CX1 SFP Module
SFP-10G-CX3=	10GBASE-CX3 SFP Module
SFP-10G-CX5=	10GBASE-CX5 SFP Module
SFP Transceivers for Catalyst 3750-X Series	
GLC-GE-100FX=	100BASE-FX SFP on Gigabit Ethernet SFP Ports
GLC-LH-SM=	Gigabit Ethernet SFP, LC Connector LX/LH Transceiver
GLC-SX-MM=	Gigabit Ethernet SFP, LC Connector SX Transceiver
GLC-T=	1000BASE-T SFP
GLC-ZX-SM=	1000BASE-ZX SFP
GLC-BX-D=	1000BASE-BX SFP, 1490 nm
GLC-BX-U=	1000BASE-BX SFP, 1310 nm
CWDM-SFP-1470=	Coarse Wavelength-division Multiplexing (CWDM) 1470 nm SFP Gigabit Ethernet and 1G/2G Fibre Channel (FC)
CWDM-SFP-1490=	CWDM 1490 nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1510=	CWDM 1510 nm SFP Gigabit Ethernet and 1G/2G FC
GLC-GE-100FX=	100BASE-FX SFP on Gigabit Ethernet SFP Ports
GLC-LH-SM=	Gigabit Ethernet SFP, LC Connector LX/LH Transceiver
GLC-SX-MM=	Gigabit Ethernet SFP, LC Connector SX Transceiver
GLC-T=	1000BASE-T SFP
GLC-ZX-SM=	1000BASE-ZX SFP

Product Number	Product Description
SFP Transceivers for Catalyst 3750-X Series (continued)	
GLC-BX-D=	1000BASE-BX SFP, 1490 nm
GLC-BX-U=	1000BASE-BX SFP, 1310 nm
CWDM-SFP-1470=	Coarse Wavelength-division Multiplexing (CWDM) 1470 nm SFP Gigabit Ethernet and 1G/2G Fibre Channel (FC)
CWDM-SFP-1490=	CWDM 1490 nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1510=	CWDM 1510 nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1530=	CWDM 1530 nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1550=	CWDM 1550 nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1570=	CWDM 1570 nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1590=	CWDM 1590 nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1610=	CWDM 1610 nm SFP Gigabit Ethernet and 1G/2G FC
DWDM-SFP-3033=	Dense Wavelength-division Multiplexing (DWDM) SFP 1530.33 nm SFP (100 GHz ITU Grid)
DWDM-SFP-3112=	DWDM SFP 1531.12 nm SFP (100 GHz ITU Grid)
DWDM-SFP-3190=	DWDM SFP 1531.90 nm SFP (100 GHz ITU Grid)
DWDM-SFP-3268=	DWDM SFP 1532.68 nm SFP (100 GHz ITU Grid)
DWDM-SFP-3425=	DWDM SFP 1534.25 nm SFP (100 GHz ITU Grid)
DWDM-SFP-3504=	DWDM SFP 1535.04 nm SFP (100 GHz ITU Grid)
DWDM-SFP-3582=	DWDM SFP 1535.82 nm SFP (100 GHz ITU Grid)
DWDM-SFP-3661=	DWDM SFP 1536.61 nm SFP (100 GHz ITU Grid)
DWDM-SFP-3819=	DWDM SFP 1538.19 nm SFP (100 GHz ITU Grid)
DWDM-SFP-3898=	DWDM SFP 1538.98 nm SFP (100 GHz ITU Grid)
DWDM-SFP-3977=	DWDM SFP 1539.77 nm SFP (100 GHz ITU Grid)
DWDM-SFP-4056=	DWDM SFP 1540.56 nm SFP (100 GHz ITU Grid)
DWDM-SFP-4214=	DWDM SFP 1542.14 nm SFP (100 GHz ITU Grid)
DWDM-SFP-4294=	DWDM SFP 1542.94 nm SFP (100 GHz ITU Grid)
DWDM-SFP-4373=	DWDM SFP 1543.73 nm SFP (100 GHz ITU Grid)
DWDM-SFP-4453=	DWDM SFP 1544.53 nm SFP (100 GHz ITU Grid)
DWDM-SFP-4612=	DWDM SFP 1546.12 nm SFP (100 GHz ITU Grid)
DWDM-SFP-4692=	DWDM SFP 1546.92 nm SFP (100 GHz ITU Grid)
DWDM-SFP-4772=	DWDM SFP 1547.72 nm SFP (100 GHz ITU Grid)
DWDM-SFP-4851=	DWDM SFP 1548.51 nm SFP (100 GHz ITU Grid)
DWDM-SFP-5012=	DWDM SFP 1550.12 nm SFP (100 GHz ITU Grid)

Product Overview (continued)

Product Number	Product Description
SFP Transceivers for Catalyst 3750-X Series (continued)	
DWDM-SFP-5092=	DWDM SFP 1550.92 nm SFP (100 GHz ITU Grid)
DWDM-SFP-5172=	DWDM SFP 1551.72 nm SFP (100 GHz ITU Grid)
DWDM-SFP-5252=	DWDM SFP 1552.52 nm SFP (100 GHz ITU Grid)
DWDM-SFP-5413=	DWDM SFP 1554.13 nm SFP (100 GHz ITU Grid)
DWDM-SFP-5494=	DWDM SFP 1554.94 nm SFP (100 GHz ITU Grid)
DWDM-SFP-5575=	DWDM SFP 1555.75 nm SFP (100 GHz ITU Grid)
DWDM-SFP-5655=	DWDM SFP 1556.55 nm SFP (100 GHz ITU Grid)
DWDM-SFP-5817=	DWDM SFP 1558.17 nm SFP (100 GHz ITU Grid)
DWDM-SFP-5898=	DWDM SFP 1558.98 nm SFP (100 GHz ITU Grid)
DWDM-SFP-5979=	DWDM SFP 1559.79 nm SFP (100 GHz ITU Grid)
DWDM-SFP-6061=	DWDM SFP 1560.61 nm SFP (100 GHz ITU Grid)
Catalyst 3750-X Series Product Activation Keys	
C3750X-LIC=	Product Activation Keys for 3750-X Series
3750-X LAN Base to IP Base Upgrade License	
C3750X-24-L-S=	C3750X-24 LAN Base to IP Base Paper License
C3750X-48-L-S=	C3750X-48 LAN Base to IP Base Paper License
L-C3750X-24-L-S=	C3750X-24 LAN Base to IP Base E-License
L-C3750X-48-L-S=	C3750X-48 LAN Base to IP Base E-License
LL-C3750X-24-L-S=	C3750X-24 LAN Base to IP Base E-License for Used Switch
LL-C3750X-48-L-S=	C3750X-48 LAN Base to IP Base E-License for Used Switch
3750-X IP Base to IP Services Upgrade	
C3750X-24-IOS-S-E	C3750X-24 IP Base to IP Services Factory IOS Upgrade
C3750X-48-IOS-S-E	C3750X-48 IP Base to IP Services Factory IOS Upgrade
C3750X-24-S-E=	C3750X-24 IP Base to IP Services Paper License
C3750X-48-S-E=	C3750X-48 IP Base to IP Services Paper License
L-C3750X-24-S-E=	C3750X-24 IP Base to IP Services E-License
L-C3750X-48-S-E=	C3750X-48 IP Base to IP Services E-License
LL-C3750X-24-S-E=	C3750X-24 IP Base to IP Services E-License for Used Switch
LL-C3750X-48-S-E=	C3750X-48 IP Base to IP Services E-License for Used Switch

Product Number	Product Description
3750-X LAN Base to IP Services Upgrade	
C3750X-24-IOS-S-E	C3750X-24 IP Base to IP Services Factory IOS Upgrade
C3750X-48-IOS-S-E	C3750X-48 IP Base to IP Services Factory IOS Upgrade
C3750X-24-S-E=	C3750X-24 IP Base to IP Services Paper License
C3750X-48-S-E=	C3750X-48 IP Base to IP Services Paper License
L-C3750X-24-S-E=	C3750X-24 IP Base to IP Services E-License
L-C3750X-48-S-E=	C3750X-48 IP Base to IP Services E-License
LL-C3750X-24-S-E=	C3750X-24 IP Base to IP Services E-License for Used Switch
Spare Power Cords for the Catalyst 3750-X Series	
CAB-3KX-AC=	AC Power Cord for Catalyst 3K-X (North America)
CAB-3KX-AC-AP=	AC Power Cord for Catalyst 3K-X (Australia)
CAB-3KX-AC-AR=	AC Power Cord for Catalyst 3K-X (Argentina)
CAB-3KX-AC-SW=	AC Power Cord for Catalyst 3K-X (Switzerland)
CAB-3KX-AC-UK=	AC Power Cord for Catalyst 3K-X (United Kingdom)
CAB-3KX-AC-JP=	AC Power Cord for Catalyst 3K-X (Japan)
CAB-3KX-AC-EU=	AC Power Cord for Catalyst 3K-X (Europe)
CAB-3KX-AC-IT=	AC Power Cord for Catalyst 3K-X (Italy)
CAB-3KX-AC-IN=	AC Power Cord for Catalyst 3K-X (India)
CAB-3KX-AC-CN=	AC Power Cord for Catalyst 3K-X (China)
CAB-3KX-AC-DN=	AC Power Cord for Catalyst 3K-X (Denmark)
CAB-3KX-AC-IS=	AC Power Cord for Catalyst 3K-X (Israel)
Spare Accessory and Rack-mount Kits for the Catalyst 3750-X Series	
C3KX-ACC-KIT=	Accessory Kit for Catalyst 3750-X and 3560-X Series
C3KX-RACK-KIT=	Rack-mount Kit for Catalyst 3750-X and 3560-X Series

Notes

Cisco Catalyst 3750-E Series

Fixed-configuration switches offering multilayer switching and Cisco StackWise™ Plus technology for enterprise branch offices and mid-market organizations.

The Cisco Catalyst 3750-E Series with StackWise Plus is an enterprise-class line of stackable wiring closet switches. Combining 10/100/1000 and Power over Ethernet (PoE) configurations with upgradable 1 Gigabit Ethernet to 10 Gigabit Ethernet (10 GBE) uplinks, Catalyst 3750-E Series help enhance worker productivity by enabling applications such as IP telephony, wireless, and video.

Key Features

- TwinGig converter module for migrating uplinks from 1 Gigabit Ethernet (SFP) to 10 GBE (X2).
- Enhanced PoE support with configurations beyond 15.4 watts of support for all ports.
- Industry first portfolio to scale beyond 15.4W per port delivering maximum solution simplicity for 802.11n access point deployments.
- StackWise Plus for ease of use and resiliency with 64 Gbps stacking.
- Field-replaceable and upgradable power supplies and fan tray.
- Wire-rate performance with 68 Gbps non-blocking switching fabric.
- Multicast routing, IPv6 routing, and access control list in hardware.
- Out-of-band Ethernet management port along with RS-232 console port.
- Full backward compatibility with the Catalyst 3750 Series.

Hardware Features

	WS-C3750E-24TD	WS-C3750E-48TD	WS-C3750E-24PD	WS-C3750E-48PD	WS-C3750E-48PD-F
Switching Fabric (Gbps)	64	64	64	64	64
Maximum Stack Members	9	9	9	9	9
Clustering	Yes, 16 Switches/Cluster	Yes, 16 Switches/Cluster	Yes, 16 Switches/Cluster	Yes, 16 Switches/Cluster	Yes, 16 Switches/Cluster
Total Bandwidth of Stack (Gbps)	64	64	64	64	64
Packets per Second per Box (Mpps)	65.5	101.2	65.5	101.2	101.2
MAC Addresses Supported	12,000	12,000	12,000	12,000	12,000
Routes Supported	11,000	11,000	11,000	11,000	11,000
Onboard Memory (DRAM MB)	128	128	128	128	128
10 GBE Density	2	2	2	2	2
Gigabit Ethernet GBIC/SFP Density	4	4	4	4	4
10 GBE XENPAK/X2 Port Density	2	2	2	2	2
10/100/1000 Density	24	48	24	48	48
10/100 Density	0	0	0	0	0
100BASE-FX Density	0	0	0	0	0
Maximum Watt Power Consumption					
265W AC	331	331	331	331	331
265W DC	379	379	379	379	379
750W AC	882	882	882	882	882
1150W AC	1386	1386	1386	1386	1386
PoE: Maximum 802.3af Class 3 Devices (15.4W)	0	0	24	24	48
PoE: Maximum 802.3af Class 2 Devices (7.3W)	0	0	24	48	48
AC/DC Support	AC and DC Available	AC and DC Available	AC and DC Available	AC and DC Available	AC and DC Available
Redundant Power Supply Support	Yes	Yes	Yes	Yes	Yes
Dimensions (H x W x D) Inches	1.73 x 17.5 x 11.8	1.73 x 17.5 x 11.9	1.73 x 17.5 x 11.1	1.73 x 17.5 x 11.11	1.75 x 17.5 x 21.7
Dimensions (H x W x D) Centimeters	4.4 x 44.5 x 30.1	4.4 x 44.5 x 30.2	4.4 x 44.5 x 30.3	4.4 x 44.5 x 30.4	4.45 x 44.5 x 55.2
Unit Weight Pounds (Kilograms)	17.9 (8.1)	18.8 (8.6)	18.3 (8.3)	19.2 (8.75)	20.9 (9.5)

For further information on the Cisco Catalyst 3750 Metro Ethernet Series, go to:
http://www.cisco.com/en/US/partner/products/hw/switches/ps5532/index.html

Cisco Catalyst 3750-E Series Spotlight

Cisco StackWise Plus Technology

A unique stacking architecture optimized for Gigabit and 10 GBE, this technology is designed to respond to additions, deletions, and redeployment while maintaining constant performance. It unites up to nine individual Cisco Catalyst 3750-E switches into a single logical unit, using special interconnect cables and stacking software. Cisco Catalyst 3750-E switches can also be stacked with existing Catalyst 3750 switches. The stack is managed as a single switching unit controlled by a master switch elected from one of the member switches. The master switch automatically creates and updates all the switching and routing tables. A working stack can accept new members or delete old members without service interruption.

Addition of IP Communications

Cisco Catalyst 3750-E Series PoE models support Cisco IP phones and Cisco Aironet® wireless LAN (WLAN) access points, as well as any IEEE 802.3af–compliant end device. The Catalyst 3750-E 24-port models can support 24 simultaneous full-powered PoE ports at 15.4 W for maximum powered device support. The 48-port versions can deliver the necessary power to support all 48 ports at 15.4W.

Software Features

Cisco Catalyst 3750-E Series is orderable with two feature sets:

- The IP Base feature set includes advanced QoS, security, and basic routing functionality.
- The IP Services feature set provides a richer set of enterprise-class features, including advanced hardware-based IP unicast and multicast routing as well as Virtual Route Forwarding (VRF), and policy-based routing (PBR).

Upgrades

- The IP Advanced Services software license can be purchased separately to enable IPv6 routing.

Simplified Management

Available for the Catalyst 3750-E Series, Cisco Network Assistant is a centralized management application that simplifies the administration task of Cisco switches, routers, and wireless access points. Free of charge, Cisco Network Assistant provides configuration wizards that greatly simplify the implementation of converged networks and intelligent network services.

Product Overview

Product Number	Product Description
Catalyst 3750-E Series 10/100/1000 GBE, 10 GBE Workgroup Switch	
WS-C3750E-24TD-S	Catalyst 3750E 24 10/100/1000 + 2* 10 GE (X2), 265W, IPB S/W
WS-C3750E-24TD-E	Catalyst 3750E 24 10/100/1000 + 2* 10 GE (X2), 265W, IPS S/W
WS-C3750E-24TD-SD	Catalyst 3750E 24 10/100/1000 + 2* 10 GE (X2), 265W DC, IPB S/W
WS-C3750E-48TD-S	Catalyst 3750E 48 10/100/1000 + 2* 10 GE (X2), 265W, IPB S/W
WS-C3750E-48TD-E	Catalyst 3750E 48 10/100/1000 + 2* 10 GE (X2), 265W, IPS S/W
WS-C3750E-24PD-S	Catalyst 3750E 24 10/100/1000 PoE + 2* 10 GE (X2), 750W, IPB S/W
WS-C3750E-24PD-E	Catalyst 3750E 24 10/100/1000 PoE + 2*10 GE (X2), 750W, IPS S/W
WS-C3750E-48PD-S	Catalyst 3750E 48 10/100/1000 PoE + 2* 10 GE (X2), 750W, IPB S/W
WS-C3750E-48PD-E	Catalyst 3750E 48 10/100/1000 PoE + 2* 10 GE (X2), 750W, IPS S/W
WS-C3750E-48PD-SF	Catalyst 3750E 48 10/100/1000 PoE + 2* 10 GE (X2), 1150W, IPB S/W
WS-C3750E-48PD-EF	Catalyst 3750E 48 10/100/1000 PoE + 2* 10 GE (X2), 1150W, IPS S/W
WS-C3750E-48TD-SD	Catalyst 3750E 48 10/100/1000 + 2* 10 GE (X2), 265W DC, IPB S/W
Catalyst 3750-E Series Product Activation Keys	
3750E-AISK9LCBQTY	Advanced IP Services for 3750-E, 24 Ports, Upgrade from Base
3750E-AISK9LCSQTY	Advanced IP Services for 3750-E, 24 Ports, Upgrade from IPS
3750E48-AISK9LCBQ	Advanced IP Services for 3750-E, 48 Ports, Upgrade from Base
3750E48-AISK9LCSQ	Advanced IP Services for 3750-E, 48 Ports, Upgrade from IPS
3750E48-IPSLCB-QTY	IP Services for 3750-E, 48 Ports, Upgrade from IP Base
3750E-IPB-LIC-QTY	IP Base for 3750-E (Default License)
3750E-IPSLCB-QTY	IP Services for 3750-E, 24 Ports, Upgrade from IP Base
Power Supplies for the Catalyst 3750-E Series	
C3K-BLWR-60CFM=	Fan Module for the 3750-E and 3560-E
C3K-PWR-265WAC=	3750-E/3560-E 265W AC Power Supply (Spare)
C3K-PWR-265WDC=	3750-E/3560-E 265W DC Power Supply (Spare)
C3K-PWR-750WAC=	3750-E/3560-E/RPS 2300 750W AC Power Supply (Spare)
C3K-PWR-1150WAC=	3750-E/3560-E/RPS 2300 1150W AC Power Supply (Spare)
TwinGig Converter Module for the Catalyst 3750-E Series	
CVR-X2-SFP	Cisco TwinGig Converter Module
CVR-X2-SFP=	Cisco TwinGig Converter Module
SFPs for the Catalyst 3750-E Series	
GLC-BX-D=	1000BASE-BX SFP, 1490 nm
GLC-BX-U=	1000BASE-BX SFP, 1310 nm

Product Overview (continued)

Product Number	Product Description
SFPs for the Catalyst 3750-E Series (continued)	
GLC-GE-100FX=	100FX SFP on GBE SFP Ports for DSBU Switches
GLC-BX-D=	1000BASE-BX SFP, 1490 nm
GLC-BX-U=	1000BASE-BX SFP, 1310 nm
GLC-GE-100FX=	100BASE-FX SFP for GE SFP Port on 3750, 3560, 2970, 2960
GLC-LH-SM=	GE SFP, LC Connector LX/LH Transceiver
GLC-SX-MM=	GE SFP, LC Connector SX Transceiver
GLC-T=	1000BASE-T SFP
GLC-ZX-SM=	1000BASE-ZX SFP
CWDM-SFP-1470=	CWDM 1470 nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1490=	CWDM 1490 nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1510=	CWDM 1510 nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1530=	CWDM 1530 nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1550=	CWDM 1550 nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1570=	CWDM 1570 nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1590=	CWDM 1590 nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1610=	CWDM 1610 nm SFP Gigabit Ethernet and 1G/2G FC
DWDM-SFP-3033=	DWDM SFP 1530.33 nm SFP (100 GHz ITU Grid)
DWDM-SFP-3112=	DWDM SFP 1531.12 nm SFP (100 GHz ITU Grid)
DWDM-SFP-3190=	DWDM SFP 1531.90 nm SFP (100 GHz ITU Grid)
DWDM-SFP-3268=	DWDM SFP 1532.68 nm SFP (100 GHz ITU Grid)
DWDM-SFP-3425=	DWDM SFP 1534.25 nm SFP (100 GHz ITU Grid)
DWDM-SFP-3504=	DWDM SFP 1535.04 nm SFP (100 GHz ITU Grid)
DWDM-SFP-3582=	DWDM SFP 1535.82 nm SFP (100 GHz ITU Grid)
DWDM-SFP-3661=	DWDM SFP 1536.61 nm SFP (100 GHz ITU Grid)
DWDM-SFP-3819=	DWDM SFP 1538.19 nm SFP (100 GHz ITU Grid)
DWDM-SFP-3898=	DWDM SFP 1538.98 nm SFP (100 GHz ITU Grid)
DWDM-SFP-3977=	DWDM SFP 1539.77 nm SFP (100 GHz ITU Grid)
DWDM-SFP-4056=	DWDM SFP 1540.56 nm SFP (100 GHz ITU Grid)
DWDM-SFP-4214=	DWDM SFP 1542.14 nm SFP (100 GHz ITU Grid)
DWDM-SFP-4294=	DWDM SFP 1542.94 nm SFP (100 GHz ITU Grid)
DWDM-SFP-4373=	DWDM SFP 1543.73 nm SFP (100 GHz ITU Grid)
DWDM-SFP-4453=	DWDM SFP 1544.53 nm SFP (100 GHz ITU Grid)

Product Number	Product Description
X2 for Catalyst 3750-E	
X2-10GB-ER=	10GBASE-ER X2 Module
X2-10GB-LR=	10GBASE-LR X2 Module
X2-10GB-LRM=	10GBASE-LRM X2 Module
X2-10GB-SR=	10GBASE-SR X2 Module
X2-10GB-LX4=	10GBASE-LX4 X2 Module
X2-10GB-CX4=	10GBASE-CX4 X2 Module
10GBASE-CX4 X2 Module	
CSS5-CABLX-LCSC=	CSS11500 10-meter Fiber Single-mode LX LC-to-SC Connectors
CSS5-CABSX-LC=	CSS11500 10-meter Fiber Multimode SX LC Connectors
CSS5-CABSX-LCSC=	CSS11500 10-meter Fiber Multimode SX LC-to-SC Connectors
Power Cords for the Catalyst 3750-E Series	
CAB-AC	Power Cord, US
CAB-AC=	Power Cord, US
CAB-16AWG-AC	Power Cord, 16 AWG
CAB-16AWG-AC=	Power Cord, 16 AWG
CAB-ACA	Power Cord, Australia
CAB-ACA=	Power Cord, Australia
CAB-ACR	Power Cord, Argentina
CAB-ACR=	Power Cord, Argentina
CAB-ACS	Power Cord, Switzerland
CAB-ACS=	Power cord, Switzerland
CAB-ACU	Power Cord, UK
CAB-ACU=	Power Cord, UK
CAB-JPN=	Power Cord, Japan
CAB-IND=	Power Cord, India
CAB-ACE	Power Cord, Europe
CAB-ACE=	Power Cord, Europe
CAB-ACI	Power Cord, Italy
CAB-ACI=	Power Cord, Italy
CAB-JPN	Power Cord, Japan
CAB-IND	Power Cord, India

Product Overview (continued)

Product Number	Product Description
Power Cords for the Catalyst 3750-E Series (continued)	
CAB-ACI	Power Cord, Italy
CAB-ACI=	Power Cord, Italy
CAB-JPN	Power Cord, Japan
CAB-IND	Power Cord, India
CAB-L620P-C13-JPN	Power Cord, 250V AC, 15A, NEMA L6-20 to C13, Japan
CAB-L620P-C13-JPN=	Power Cord, 250V AC, 15A, NEMA L6-20 to C13, Japan
CAB-L620P-C13-US	Power Cord, 250V AC, 15A, NEMA L6-20 to C13, US
CAB-L620P-C13-US=	Power Cord, 250V AC, 15A, NEMA L6-20 to C13, US
Spare Rack-mount Kits for the 3750-E Series	
RCKMNT-E-1RU=	Rack-mount Kit 1RU 19 in. for Catalyst 3750-E and 3560-E Series
RCKMNT-E-MISC=	Rack-mount 1RU 23 in. 24 in. ETSI Wall-mount for Catalyst 3750-E and 3560-E
Catalyst 3750-E Relicensing for Used Equipment	
3750E-LIC=	Product Activation Key for 3750 E
RPS 2300 for the Catalyst 3750 Series	
PWR-RPS2300	Cisco Redundant Power System 2300 and Blower, no Power Supply
ACC-RPS2300=	Spare Accessory Kit for Cisco Redundant Power System 2300
BLNK-RPS2300	Bay Insert for Cisco Redundant Power System 2300
BLNK-RPS2300=	Spare Bay Insert for Cisco Redundant Power System 2300
CAB-RPS2300	RPS 2300 Cable for Devices other than E-Series Switches
CAB-RPS2300=	Spare RPS2300 Cable for Devices other than E-Series Switches
CAB-RPS2300-E	RPS2300 Cable for 3750E/3560E Switches
CAB-RPS2300-E=	Spare RPS2300 Cable for 3750E/3560E Switches
PWR-RPS2300=	Spare Cisco RPS 2300 with Blower, PS Blank, no Power Supply
BLWR-RPS2300=	Spare 45CFM Blower for Cisco Redundant Power System 2300
C3K-PWR-750WAC=	3750-E/3560-E/RPS 2300 750WAC Power Supply (Spare)
C3K-PWR-1150WAC=	3750-E/3560-E/RPS 2300 1150WAC Power Supply (Spare)

Product Number	Product Description
Cisco StackWise Cables for the Catalyst 3750-E Series	
CAB-STACK-50CM=	Cisco StackWise 50 cm Stacking Cable
CAB-STACK-1M	Cisco StackWise 1M Stacking Cable
CAB-STACK-1M=	Cisco StackWise 1M Stacking Cable
CAB-STACK-3M	Cisco StackWise 3M Stacking Cable
CAB-STACK-3M=	Cisco StackWise 3M Stacking Cable
CAB-STACK-50CM-NH	Cisco StackWise 50 cm Non-Halogen Lead-free Stacking Cable
CAB-STACK-50CM-NH=	Cisco StackWise 50 cm Non-Halogen Lead-free Stacking Cable
CAB-STACK-1M-NH	Cisco StackWise 1M Non-Halogen Lead-free Stacking Cable
CAB-STACK-1M-NH=	Cisco StackWise 1M Non-Halogen Lead-free Stacking Cable
CAB-STACK-3M-NH	Cisco StackWise 3M Non-Halogen Lead-free Stacking Cable
CAB-STACK-3M-NH=	Cisco StackWise 3M Non-Halogen Lead-free Stacking Cable
X2-10GB-CX4=	10GBASE-CX4 X2 Module

Notes

Cisco Catalyst 3750 Series

Fixed-configuration switches offering multilayer switching and Cisco StackWise™ technology for enterprise branch offices and mid-market organizations.

The Cisco Catalyst 3750 Series is an innovative line of multilayer Fast Ethernet and Gigabit Ethernet switches featuring Cisco StackWise technology, a 32 Gbps stack interconnect that allows customers to build a unified, highly resilient switching system—one switch at a time.

Up to nine Catalyst 3750 Series switches can be stacked in any combination, enabling organizations to mix and match to meet specific requirements. Additional 10/100, 10/100/100, 10 Gigabit Ethernet (10 GBE), and Power over Ethernet (PoE) connectivity can be deployed as necessary, offering a simple and cost-effective pay-as-you-go approach to network upgrades.

The Catalyst 3750 Series can be purchased with the IP Base (formerly called SMI) or IP Services (formerly called EMI) licenses, and can be upgraded in the field to Advanced IP Services licenses. The IP Base license offers advanced QoS, rate-limiting, ACLs, and basic routing functionality. The IP Services license provides a richer set of enterprise-class features, including advanced hardware-based IP Unicast and IP Multicast routing as well as Policy-based Routing (PBR). The Advanced IP Services license adds IPv6 routing and advanced IP services.

Cisco Catalyst 3750 Series Spotlight

Cisco StackWise Technology

A unique stacking architecture optimized for Gigabit Ethernet, this technology is designed to respond to additions, deletions, and redeployment while maintaining constant performance. It unites up to nine individual Catalyst 3750 switches into a single logical unit, using special interconnect cables and stacking software. The stack is managed as a single switching unit controlled by a master switch elected from one of the member switches. The master switch automatically creates and updates all the switching and routing tables. A working stack can accept new members or delete old members without service interruption.

Addition of IP Communications

Cisco Catalyst 3750 Series PoE models support Cisco IP phones and Cisco Aironet® wireless LAN (WLAN) access points, as well as any IEEE 802.3af–compliant end device. The Catalyst 3750 24-port models can support 24 simultaneous full-powered PoE ports at 15.4W for maximum powered device support. The 48-port versions can deliver the necessary power to support 24 ports at 15.4W, 48 ports at 7.3W, or any combination in between.

Hardware Features

	WS-C3750V2-24TS	WS-C3750V2-48TS	WS-C3750V2-24PS	WS-C3750V2-48PS	WS-C3750G-24WS
Switching Fabric (Gbps)	32	32	32	32	32
Maximum Stack Members	9	9	9	9	4
Clustering	Yes, 16 Switches/Cluster	Yes, 16 Switches/Cluster	Yes, 16 Switches/Cluster	Yes, 16 Switches/Cluster	Yes, 16 Switches/Cluster
Total Bandwidth of Stack (Gbps)	32	32	32	32	32
Packets per Second per Box (Mpps)	6.5	13.1	6.5	13.1	38.7
MAC Addresses Supported	12,000	12,000	12,000	12,000	12,000
Routes Supported	11,000	11,000	11,000	11,000	11,000
Onboard Memory (DRAM MB)	128	128	128	128	128
10 GBE Density	0	0	0	0	1
Gigabit Ethernet GBIC/SFP Density	2	4	2	4	0
10 GBE XENPAK/X2 Port Density	0	0	0	0	1
10/100/1000 Density	0	0	0	0	16
10/100 Density	24	48	24	48	0
100BASE-FX Density	0	0	0	0	0
Maximum Watt Power Consumption	39	57	444	458	255
PoE: Maximum 802.3af Class 3 Devices (15.4W)	0	0	24	24	24
PoE: Maximum 802.3af Class 2 Devices (7.3W)	0	0	24	48	24
AC/DC Support	AC Only	AC Only	AC Only	AC Only	AC Only
Redundant Power Supply Support	Yes	Yes	Yes	Yes	Yes
Dimensions (H x W x D) Inches	1.73 x 17.46 x 11.62	1.73 x 17.46 x 11.62	1.73 x 17.46 x 11.62	1.73 x 17.46 x 11.62	3.5 x 17.5 x 14.5
Dimensions (H x W x D) Centimeters	4.4 x 44.3 x 29.5	4.4 x 44.3 x 29.5	4.4 x 44.3 x 29.5	4.4 x 44.3 x 29.5	8.9 x 44.5 x 38.6
Unit Weight Pounds (Kilograms)	8.2 (3.7)	9.2 (4.2)	10 (4.6)	11 (5)	21 (9.5)

Product Overview

Product Number	Product Description
Catalyst 3750 Series 10/100/1000, GBE, 10 GBE Workgroup Switch	
WS-C3750G-24T-S	3750 24-port 10/100/1000T Standard Multilayer Image
WS-C3750G-24T-E	3750 24-port 10/100/1000T Enhanced Multilayer Image
WS-C3750G-24TS-S	3750 24-port 10/100/1000 + 4 SFP Standard Multilayer; 1.5RU
WS-C3750G-24TS-E	3750 24-port 10/100/1000 + 4 SFP Enhanced Multilayer; 1.5RU
WS-C3750G-24TS-S1U	3750 24-port 10/100/1000 + 4 SFP Standard Multilayer; 1RU
WS-C3750G-24TS-E1U	3750 24-port 10/100/1000 + 4 SFP Enhanced Multilayer; 1RU
WS-C3750G-24PS-S	3750 24-port 10/100/1000T PoE + 4 SFP Standard Image
WS-C3750G-24PS-E	3750 24-port 10/100/1000T PoE + 4 SFP Enhanced Image
SWLC3750-25-K9	IP Base without Crypto with Web-based Device Manager
WS-C3750G-24WS-S25	3750G Integrated Wireless LAN Controller
WS-C3750G-24WS-S50	3750G Integrated Wireless LAN Controller
WS-C3750G-48TS-S	3750 48-port 10/100/1000T + 4 SFP Standard Multilayer
WS-C3750G-48TS-E	3750 48-port 10/100/1000T + 4 SFP Enhanced Multilayer
WS-C3750G-48PS-S	3750 48-port 10/100/1000T PoE + 4 SFP Standard Image
WS-C3750G-48PS-E	3750 48-port 10/100/1000T PoE + 4 SFP Enhanced Image
WS-C3750G-12S-S	3750 12-port SFP Standard Multilayer Image
WS-C3750G-12S-SD	3750 12-port SFP DC Powered Standard Multilayer Image
WS-C3750G-12S-E	3750 12-port SFP Enhanced Multilayer Image
WS-C3750-24FS-S	3750 24-port 100BaseFX + 2 SFP Standard Multilayer Image
SWLC526K9-42	Wireless LAN Controller Software for WLC526 Express
SWLC3750-50-K9	IP Base without Crypto with Web-based Device Manager
Catalyst 3750v2 Series 10/100 Workgroup Switches	
WS-C3750V2-24FS-S	3750v2 24-port 100BaseFX + 2 SFP Standard Multilayer Image
WS-C3750V2-24PS-S	3750v2 24-port 10/100 PoE + 2 SFP Standard Image
WS-C3750V2-24PS-E	3750v2 24-port 10/100 PoE + 2 SFP Enhanced Image
WS-C3750V2-24TS-S	3750v2 24-port 10/100 + 2 SFP Standard Multilayer Image
WS-C3750V2-24TS-E	3750v2 24-port 10/100 + 2 SFP Enhanced Multilayer Image
WS-C3750V2-48PS-S	3750v2 48-port 10/100 PoE + 4 SFP Standard Image
WS-C3750V2-48PS-E	3750v2 48-port 10/100 PoE + 4 SFP Enhanced Image
WS-C3750V2-48TS-S	3750v2 48-port 10/100 + 4 SFP Standard Multilayer Image
WS-C3750V2-48TS-E	3750v2 48-port 10/100 + 4 SFP Enhanced Multilayer Image

Product Number	Product Description
Catalyst 3750 Series OADM Modules	
CWDM-CHASSIS-2=	2-slot Chassis for CWDM Multiplexer Plug-in Modules
CWDM-MUX8A=	8-channel CWDM Multiplexer/Demultiplexer Module
CWDM-MUX-4-SF1=	Single Fiber 4-channel Multiplexer/Demultiplexer
CWDM-MUX-4-SF2=	Single Fiber 4-channel Multiplexer/Demultiplexer
CWDM-OADM1-1470=	Dual Single Channel OADM Module (1470 nm)
CWDM-OADM1-1490=	Dual Single Channel OADM Module (1490 nm)
CWDM-OADM1-1510=	Dual Single Channel OADM Module (1510 nm)
CWDM-OADM1-1530=	Dual Single Channel OADM Module (1530 nm)
CWDM-OADM1-1550=	Dual Single Channel OADM Module (1550 nm)
CWDM-OADM1-1570=	Dual Single Channel OADM Module (1570 nm)
CWDM-OADM1-1590=	Dual Single Channel OADM Module (1590 nm)
CWDM-OADM1-1610=	Dual Single Channel OADM Module (1610 nm)
CWDM-OADM4-1=	4-channel CWDM OADM Module (1470, 1490, 1510, 1530)
CWDM-OADM4-2=	4-channel CWDM OADM Module (1550, 1570, 1590, 16,100)
WDM-SFP-2CH-CONV=	2-channel WDM SFP-based Transponder
WDM-1300-1550-S=	1300 nm/1550 nm WDM Splitter Cable
EWDM-MUX8=	8-channel EWDM Multiplexer/Demultiplexer Module
EWDM-OADM4=	4-channel EWDM OADM Module
EWDM-OADM2=	2-channel EWDM OADM Module
EWDM-OA=	EWDM Optical Amplifier
IOS Upgrades for the Catalyst 3750v2	
CD-3750-EMI=	IP Services Upgrade for the Cisco Catalyst 3750 v2 Series Switches
CD-3750G-EMI=	Enhanced Multilayer Image Upgrade for 24-port 3750 GE Models
CD-3750G-48EMI=	Enhanced Multilayer Image Upgrade for 48-port 3750 GE Models

Product Overview (continued)

Product Number	Product Description
Cisco StackWise Cables for the Catalyst 3750	
CAB-STACK-50CM=	Cisco StackWise 50 cm Stacking Cable
CAB-STACK-1M	Cisco StackWise 1M Stacking Cable
CAB-STACK-1M=	Cisco StackWise 1M Stacking Cable
CAB-STACK-3M	Cisco StackWise 3M Stacking Cable
CAB-STACK-3M=	Cisco StackWise 3M Stacking Cable
CAB-STACK-50CM-NH	Cisco StackWise 50 cm Non-Halogen Lead-free Stacking Cable
CAB-STACK-50CM-NH=	Cisco StackWise 50 cm Non-Halogen Lead-free Stacking Cable
CAB-STACK-1M-NH	Cisco StackWise 1M Non-Halogen Lead-free Stacking Cable
CAB-STACK-1M-NH=	Cisco StackWise 1M Non-Halogen Lead-free Stacking Cable
CAB-STACK-3M-NH	Cisco StackWise 3M Non-Halogen Lead-free Stacking Cable
CAB-STACK-3M-NH=	Cisco StackWise 3M Non-Halogen Lead-free Stacking Cable
SFPs for the Catalyst 3750	
GLC-GE-100FX=	100BASE-FX SFP for GE SFP port on 3750v2, 3560v2, 2970, 2960
GLC-LH-SM=	GE SFP, LC Connector LX/LH Transceiver
GLC-SX-MM=	GE SFP, LC Connector SX Transceiver
GLC-T=	1000BASE-T SFP
GLC-ZX-SM=	1000BASE-ZX SFP
CWDM-SFP-1470=	CWDM 1470 nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1490=	CWDM 1490 nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1510=	CWDM 1510 nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1530=	CWDM 1530 nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1550=	CWDM 1550 nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1570=	CWDM 1570 nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1590=	CWDM 1590 nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1610=	CWDM 1610 nm SFP Gigabit Ethernet and 1G/2G FC
DWDM-SFP-3033=	DWDM SFP 1530.33 nm SFP (100 GHz ITU Grid)
DWDM-SFP-3112=	DWDM SFP 1531.12 nm SFP (100 GHz ITU Grid)
DWDM-SFP-3190=	DWDM SFP 1531.90 nm SFP (100 GHz ITU Grid)
DWDM-SFP-3268=	DWDM SFP 1532.68 nm SFP (100 GHz ITU Grid)
DWDM-SFP-3425=	DWDM SFP 1534.25 nm SFP (100 GHz ITU Grid)
DWDM-SFP-3504=	DWDM SFP 1535.04 nm SFP (100 GHz ITU Grid)
DWDM-SFP-3582=	DWDM SFP 1535.82 nm SFP (100 GHz ITU Grid)
DWDM-SFP-3661=	DWDM SFP 1536.61 nm SFP (100 GHz ITU Grid)

Product Number	Product Description
SFPs for the Catalyst 3750 (continued)	
DWDM-SFP-3819=	DWDM SFP 1538.19 nm SFP (100 GHz ITU Grid)
DWDM-SFP-3898=	DWDM SFP 1538.98 nm SFP (100 GHz ITU Grid)
DWDM-SFP-3977=	DWDM SFP 1539.77 nm SFP (100 GHz ITU Grid)
DWDM-SFP-4056=	DWDM SFP 1540.56 nm SFP (100 GHz ITU Grid)
DWDM-SFP-4214=	DWDM SFP 1542.14 nm SFP (100 GHz ITU Grid)
DWDM-SFP-4294=	DWDM SFP 1542.94 nm SFP (100 GHz ITU Grid)
DWDM-SFP-4373=	DWDM SFP 1543.73 nm SFP (100 GHz ITU Grid)
DWDM-SFP-4453=	DWDM SFP 1544.53 AWG SFP (100 GHz ITU Grid)
XENPAKs for the Catalyst 3750	
C3-XENPAK10GB-LR=	10GBASE-LR XENPAK Module
LC to SC Cables for the Catalyst 3750	
CSS5-CABLX-LCSC=	CSS11500 10-meter Fiber Single-mode LX LC-to-SC Connectors
CSS5-CABSX-LC=	CSS11500 10-meter Fiber Multimode SX LC Connectors
CSS5-CABSX-LCSC=	CSS11500 10-meter Fiber Multimode SX LC-to-SC Connectors
Right Angle Power Cords for the Catalyst 3750	
CAB-AC-RA=	Power Cord, Right Angle
CAB-AC-RA	Power Cord, 110V, Right Angle
CAB-ACA-RA=	Power Cord, Australia, Right Angle
CAB-ACC-RA=	Power Cord, China, Right Angle
CAB-ACE-RA=	Power Cord, Europe, Right Angle
CAB-ACI-RA=	Power Cord, Italy, Right Angle
CAB-ACR-RA=	Power Cord, Argentina, Right Angle
CAB-ACS-RA=	Power Cord, Switzerland, Right Angle
CAB-ACU-RA=	Power Cord, UK, Right Angle
CAB-JPN-RA=	Power Cord, Japan, Right Angle
CAB-JPN-RA	Power Cord, Japan, Right Angle
RPS for the Catalyst 3750	
PWR-RPS2300	Cisco RPS 2300 with One Connector Cable
CAB-RPS2300-E=	Spare RPS 2300 Cable for Cisco Catalyst 3560v2, 3750v2, 3560-E, 3750-E, and 2960 PoE Series Switches
C3K-PWR-750WAC=	Spare 750WAC Power Supply for the RPS 2300 and Cisco Catalyst 3560-E/3750-E Series Switches
C3K-PWR-1150WAC=	Spare 1150WAC Power Supply for the RPS 2300 and Cisco Catalyst 3560-E/3750-E Series Switches

Product Overview (continued)

Product Number	Product Description
Spare Rack-mount Kits for the Catalyst 3750	
RCKMNT-1RU=	1RU Rack-mount Kit for 3750v2, 3560v2, 3550, 2900-LRE-XL
RCKMNT-REC-1RU=	Recessed 1RU Rack-mount for 3550, 3560, 3750
LC to SC Cables for the Catalyst 3750 Metro	
CSS5-CABLX-LCSC=	CSS11500 10-meter Fiber Single-mode LX LC-to-SC Connectors
CSS5-CABSX-LC=	CSS11500 10-meter Fiber Multimode SX LC Connectors
CSS5-CABSX-LCSC=	CSS11500 10-meter Fiber Multimode SX LC-to-SC Connectors
Spare Rack-mount Kits for the Catalyst 3750 Metro	
19INCH-BRKT-1RU=	19-inch Brackets for Mounting 1RU Catalyst Switches
RCKMNT-1RU=	1RU Rack-mount Kit for 3750, 3560, 3550, 2900-LRE-XL
RCKMNT-REC-1RU=	Recessed 1RU Rack-mount For 3550, 3560, 3750

Notes

Notes

Cisco Catalyst 3560-X Series

The Cisco Catalyst 3560-X Series Switches are an enterprise-class lines of standalone switches. These switches provide high availability, scalability, security, energy efficiency, and ease of operation with innovative features such as IEEE 802.3at Power over Ethernet Plus (PoE+) configurations, optional network modules, redundant power supplies, and Media Access Control Security (MACsec) features. The Cisco Catalyst 3560-X Series provides ease of management and investment protection for the evolving business needs. The Cisco Catalyst 3560-X enhances productivity by enabling applications such as IP telephony, wireless, and video for borderless network experience.

Key Features

- 24 and 48 10/100/1000 PoE+ and non-PoE models.
- Optional four Gigabit Ethernet (GBE) SFP or two 10 GBE SFP+ uplink network modules.
- Industry first PoE+ with 30W power on all ports in 1 rack unit (RU) form factor.
- Dual redundant, modular power supplies and fans.
- Media Access Control Security (MACsec) hardware-based encryption.
- IPv4 and IPv6 routing, Multicast routing, advanced quality of service (QoS), and security features in hardware.
- Enhanced limited lifetime warranty (LLW) with next business day (NBD) advance hardware replacement and 90 day access to Cisco Technical Assistance Center (TAC) support.
- Enhanced Cisco EnergyWise for operational cost optimization by measuring actual power consumption of the PoE devices, reporting, and reducing energy consumption across the network.
- USB Type-A and Type-B ports for storage and console respectively and an out-of-band Ethernet management port.

Hardware Features

	WS-C3560X-24T	WS-C3560X-48T	WS-C3560X-24P	WS-C3560X-48P	WS-C3560X-48PF
Switching Fabric (Gbps)	160	160	160	160	160
Maximum Stack Members	0	0	0	0	0
Clustering	Yes, 16 Switches/Cluster	Yes, 16 Switches/Cluster	Yes, 16 Switches/Cluster	Yes, 16 Switches/Cluster	Yes, 16 Switches/Cluster
Total Bandwidth of Stack (Gbps)	0	0	0	0	0
Packets per Second per Box (Mpps)	65.5	101.2	65.5	101.2	101.2
MAC Addresses Supported	12,000	12,000	12,000	12,000	12,000
Routes Supported	11,000	11,000	11,000	11,000	11,000
Onboard Memory (DRAM MB)	256	256	256	256	256
10 GBE Density	2	2	2	2	2
Gigabit Ethernet GBIC/SFP Density	4	4	4	4	4
10 GBE XENPAK/X2 Port Density	0	0	0	0	0
10/100/1000 Density	24	48	24	48	48
10/100 Density	0	0	0	0	0
100BASE-FX Density	0	0	0	0	0
Maximum Watt Power Consumption (100% Forwarding without PoE Load)	93.5	120.4	99.3	133.9	137.2
PoE+: Maximum 802.3at Devices (30W)	0	0	24	48	48
PoE: Maximum 802.3af Class 3 Devices (15.4W)	0	0	24	48	48
PoE: Maximum 802.3af Class 2 Devices (7.3W)	0	0	24	48	48
AC/DC Support	AC and DC Available	AC and DC Available	AC and DC Available	AC and DC Available	AC and DC Available
Redundant Power Supply Support	Yes	Yes	Yes	Yes	Yes
Dimensions (H x W x D) Inches	1.75 x 17.5 x 18.0	1.75 x 17.5 x 18.0	1.75 x 17.5 x 18.0	1.75 x 17.5 x 18.0	1.75 x 17.5 x 19.5
Dimensions (H x W x D) Centimeters	4.45 x 44.5 x 46.0	4.45 x 44.5 x 46.0	4.45 x 44.5 x 46.0	4.45 x 44.5 x 46.0	4.45 x 44.5 x 49.5
Unit Weight Pounds (Kilograms)	15.4 (7.0)	16.1 (7.3)	15.7 (7.1)	16.4 (7.4)	16.6 (7.5)

For further information on the Cisco Catalyst 3750 Metro Ethernet Series, go to:
http://www.cisco.com/en/US/partner/products/hw/switches/ps5532/index.html

Cisco Catalyst 3560-X Spotlight

MACsec

The Cisco Catalyst 3560-X Series Switches offer exceptional security with integrated hardware support for MACsec defined in IEEE 802.1AE. MACsec provides MAC layer encryption over wired networks using out-of-band methods for encryption keying. The MACsec Key Agreement (MKA) protocol provides the required session keys and manages the keys required for encryption when configured. MKA and MACsec are implemented following successful authentication using 802.1x Extensible Authentication Protocol (EAP) framework. In Cisco Catalyst 3750-X and 3560-X Series Switches only the user/down-link ports (links between the switch and endpoint devices such as a PC or IP phone) can be secured using MACsec.

Power over Ethernet Plus (PoE+)

In addition to PoE 802.3af, the Cisco Catalyst 3560-X Series Switches support PoE+ (IEEE 802.3at standard), which provides up to 30W of power per port. The Cisco Catalyst 3560-X Series Switches can provide a lower total cost of ownership for deployments that incorporate Cisco IP phones, Cisco Aironet® wireless LAN (WLAN) access points, or any IEEE 802.3af-compliant end device. PoE removes the need for wall power to each PoE-enabled device and eliminates the cost for additional electrical cabling and circuits that would otherwise be necessary in IP phone and WLAN deployments.

Software Features

Cisco Catalyst 3650-X Series is orderable with three feature sets:

- The LAN Base feature set offers enhanced intelligent services that include comprehensive Layer 2 features.
- The IP Base feature set provides baseline enterprise services, including the support for routed access and MACsec.
- The IP Services feature set provides full enterprise services that include advanced Layer 3 features such as Enhanced Interior Gateway Routing Protocol (EIGRP), Open Shortest Path First (OSPF), Border Gateway Protocol (BGP), Protocol Independent Multicast (PIM), and IPv6 routing such as OSPFv3 and EIGRPv6.

Product Overview

Product Number	Product Description
Catalyst 3560-X Series	
WS-C3560X-24T-L	Standalone 24 10/100/1000 Ethernet Ports, with 350W AC Power Supply 1RU, LAN Base Feature Set
WS-C3560X-48T-L	Standalone 48 10/100/1000 Ethernet Ports, with 350W AC Power Supply 1RU, LAN Base Feature Set
WS-C3560X-24P-L	Standalone 24 10/100/1000 Ethernet PoE+ Ports, with 715W AC Power Supply 1RU, LAN Base Feature Set
WS-C3560X-48P-L	Standalone 48 10/100/1000 Ethernet PoE+ Ports, with 715W AC Power Supply 1RU, LAN Base Feature Set
WS-C3560X-48P-L	Standalone 48 10/100/1000 Ethernet PoE+ Ports, with 715W AC Power Supply 1RU, LAN Base Feature Set
WS-C3560X-48PF-L	Standalone 48 10/100/1000 Ethernet PoE+ Ports, with 1100W AC Power Supply 1RU, LAN Base Feature Set
WS-C3560X-24T-S	Standalone 24 10/100/1000 Ethernet Ports, with 350W AC Power Supply 1RU, IP Base Feature Set
WS-C3560X-48T-S	Standalone 48 10/100/1000 Ethernet Ports, with 350W AC Power Supply 1RU, IP Base Feature Set
WS-C3560X-24P-S	Standalone 24 10/100/1000 Ethernet PoE+ Ports, with 715W AC Power Supply 1RU, IP Base Feature Set
WS-C3560X-48P-S	Standalone 48 10/100/1000 Ethernet PoE+ Ports, with 715W AC Power Supply 1RU, IP Base Feature Set
WS-C3560X-48PF-S	Standalone 48 10/100/1000 Ethernet PoE+ Ports, with 1100W AC Power Supply 1RU, IP Base Feature Set
Network Modules for the Catalyst 3560-X Series	
C3KX-NM-1G=	1G Network Module Spare
C3KX-NM-10G=	10G Network Module Spare
C3KX-NM-BLANK=	Network Module Blank Spare

Product Overview (continued)

Product Number	Product Description
Power Supplies and Fan for the Catalyst 3560-X Series	
C3KX-NM-1G=	1G Network Module Spare
C3KX-NM-10G=	10G Network Module Spare
C3KX-NM-BLANK=	Network Module Blank Spare
Power Supplies and Fan for the Catalyst 3560-X Series	
C3KX-PWR-350WAC=	350W AC Power Supply
C3KX-PWR-715WAC=	715W AC Power Supply
C3KX-PWR-1100WAC=	1100W AC Power Supply
C3KX-PWR-440WDC=	440W DC Power Supply
C3KX-PS-BLANK=	Power Supply Blank Spare
C3KX-FAN-23CFM=	Fan Module Spare
eXpandable Power System (XPS) for the Catalyst 3560-X Series	
XPS-2200	eXpandable Power System 2200
CAB-XPS-58CM=	XPS Cable 58 cm Spare
CAB-XPS-150CM=	XPS Cable 150 cm Spare
XPS-2200-FAN=	XPS 2200 Fan Module Spare
SFP+ Transceivers for Catalyst 3560-X Series	
SFP-10G-LR=	10GBASE-LR SFP+ Module
SFP-10G-SR=	10GBASE-SR SFP+ Module
SFP-10G-LRM=	10GBASE-LRM SFP+ Module
SFP-H10GB-CU1M=	10GBASE-CX1 SFP Module
SFP-H10GB-CU3M=	10GBASE-CX3 SFP Module
SFP-H10GB-CU5M=	10GBASE-CX5 SFP Module
SFP Transceivers for Catalyst 3560-X Series	
GLC-GE-100FX=	100BASE-FX SFP on Gigabit Ethernet SFP Ports
GLC-LH-SM=	Gigabit Ethernet SFP, LC Connector LX/LH Transceiver
GLC-SX-MM=	Gigabit Ethernet SFP, LC Connector SX Transceiver
GLC-T=	1000BASE-T SFP
GLC-ZX-SM=	1000BASE-ZX SFP
GLC-BX-D=	1000BASE-BX SFP, 1490 nm
GLC-BX-U=	1000BASE-BX SFP, 1310 nm
CWDM-SFP-1470=	Coarse Wavelength-division Multiplexing (CWDM) 1470 nm SFP Gigabit Ethernet and 1G/2G Fibre Channel (FC)

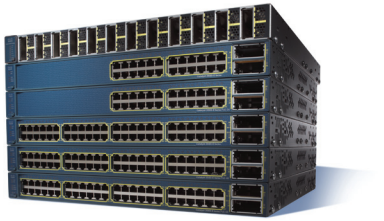
Product Number	Product Description
SFP Transceivers for Catalyst 3560-X Series (continued)	
CWDM-SFP-1490=	CWDM 1490 nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1510=	CWDM 1510 nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1530=	CWDM 1530 nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1550=	CWDM 1550 nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1570=	CWDM 1570 nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1590=	CWDM 1590 nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1610=	CWDM 1610 nm SFP Gigabit Ethernet and 1G/2G FC
DWDM-SFP-3033=	Dense Wavelength-division Multiplexing (DWDM) SFP 1530.33 nm SFP (100 GHz ITU Grid)
DWDM-SFP-3112=	DWDM SFP 1531.12 nm SFP (100 GHz ITU Grid)
DWDM-SFP-3190=	DWDM SFP 1531.90 nm SFP (100 GHz ITU Grid)
DWDM-SFP-3268=	DWDM SFP 1532.68 nm SFP (100 GHz ITU Grid)
DWDM-SFP-3425=	DWDM SFP 1534.25 nm SFP (100 GHz ITU Grid)
DWDM-SFP-3504=	DWDM SFP 1535.04 nm SFP (100 GHz ITU Grid)
DWDM-SFP-3582=	DWDM SFP 1535.82 nm SFP (100 GHz ITU Grid)
DWDM-SFP-3661=	DWDM SFP 1536.61 nm SFP (100 GHz ITU Grid)
DWDM-SFP-3819=	DWDM SFP 1538.19 nm SFP (100 GHz ITU Grid)
DWDM-SFP-3898=	DWDM SFP 1538.98 nm SFP (100 GHz ITU Grid)
DWDM-SFP-3977=	DWDM SFP 1539.77 nm SFP (100 GHz ITU Grid)
DWDM-SFP-4056=	DWDM SFP 1540.56 nm SFP (100 GHz ITU Grid)
DWDM-SFP-4214=	DWDM SFP 1542.14 nm SFP (100 GHz ITU Grid)
DWDM-SFP-4294=	DWDM SFP 1542.94 nm SFP (100 GHz ITU Grid)
DWDM-SFP-4373=	DWDM SFP 1543.73 nm SFP (100 GHz ITU Grid)
DWDM-SFP-4453=	DWDM SFP 1544.53 nm SFP (100 GHz ITU Grid)
DWDM-SFP-4612=	DWDM SFP 1546.12 nm SFP (100 GHz ITU Grid)
DWDM-SFP-4692=	DWDM SFP 1546.92 nm SFP (100 GHz ITU Grid)
DWDM-SFP-4772=	DWDM SFP 1547.72 nm SFP (100 GHz ITU Grid)
DWDM-SFP-4851=	DWDM FP 1548.51 nm SFP (100 GHz ITU Grid)
DWDM-SFP-5012=	DWDM SFP 1550.12 nm SFP (100 GHz ITU Grid)
DWDM-SFP-5092=	DWDM SFP 1550.92 nm SFP (100 GHz ITU Grid)
DWDM-SFP-5172=	DWDM SFP 1551.72 nm SFP (100 GHz ITU Grid)
DWDM-SFP-5252=	DWDM SFP 1552.52 nm SFP (100 GHz ITU Grid)

Product Overview (continued)

Product Number	Product Description
SFP Transceivers for Catalyst 3560-X Series (continued)	
DWDM-SFP-5413=	DWDM SFP 1554.13 nm SFP (100 GHz ITU Grid)
DWDM-SFP-5494=	DWDM SFP 1554.94 nm SFP (100 GHz ITU Grid)
DWDM-SFP-5575=	DWDM SFP 1555.75 nm SFP (100 GHz ITU Grid)
DWDM-SFP-5655=	DWDM SFP 1556.55 nm SFP (100 GHz ITU Grid)
DWDM-SFP-5817=	DWDM SFP 1558.17 nm SFP (100 GHz ITU Grid)
DWDM-SFP-5898=	DWDM SFP 1558.98 nm SFP (100 GHz ITU Grid)
DWDM-SFP-5979=	DWDM SFP 1559.79 nm SFP (100 GHz ITU Grid)
DWDM-SFP-6061=	DWDM SFP 1560.61 nm SFP (100 GHz ITU Grid)
Catalyst 3560-X Series Product Activation Keys	
C3560X-LIC=	Product Activation Keys for 3560-X Series
3560-X LAN Base to IP Base Upgrade License	
C3560X-24-L-S=	C3560X-24 LAN Base to IP Base Paper License
C3560X-48-L-S=	C3560X-48 LAN Base to IP Base Paper License
L-C3560X-24-L-S=	C3560X-24 LAN Base to IP Base E-License
L-C3560X-48-L-S=	C3560X-48 LAN Base to IP Base E-License
LL-C3560X-24-L-S=	C3560X-24 LAN Base to IP Base E-License for Used Switch
LL-C3560X-48-L-S=	C3560X-48 LAN Base to IP Base E-License for Used Switch
3560-X IP Base to IP Services Upgrade	
C3560X-24-IOS-S-E	C3560X-24 IP Base to IP Services Factory IOS Upgrade
C3560X-48-IOS-S-E	C3560X-48 IP Base to IP Services Factory IOS Upgrade
C3560X-24-S-E=	C3560X-24 IP Base to IP Services Paper License
C3560X-48-S-E=	C3560X-48 IP Base to IP Services Paper License
L-C3560X-24-S-E=	C3560X-24 IP Base to IP Services E-License
L-C3560X-48-S-E=	C3560X-48 IP Base to IP Services E-License
LL-C3560X-24-S-E=	C3560X-24 IP Base to IP Services E-License for Used Switch
LL-C3560X-48-S-E=	C3560X-48 IP Base to IP Services E-License for Used Switch

Product Number	Product Description
3560-X LAN Base to IP Services Upgrade	
C3560X-24-L-E=	C3560X-24 LAN Base to IP Services Paper License
C3560X-48-L-E=	C3560X-48 LAN Base to IP Services Paper License
L-C3560X-24-L-E=	C3560X-24 LAN Base to IP Services E-License
L-C3560X-48-L-E=	C3560X-48 LAN Base to IP Services E-License
LL-C3560X-24-L-E=	C3560X-24 LAN Base to IP Services E-License for Used Switch
LL-C3560X-48-L-E=	C3560X-48 LAN Base to IP Services E-License for Used Switch
Spare Power Cords for the Catalyst 3560-X Series	
CAB-3KX-AC=	AC Power Cord for Catalyst 3K-X (North America)
CAB-3KX-AC-AP=	AC Power Cord for Catalyst 3K-X (Australia)
CAB-3KX-AC-AR=	AC Power Cord for Catalyst 3K-X (Argentina)
CAB-3KX-AC-SW=	AC Power Cord for Catalyst 3K-X (Switzerland)
CAB-3KX-AC-UK=	AC Power Cord for Catalyst 3K-X (United Kingdom)
CAB-3KX-AC-JP=	AC Power Cord for Catalyst 3K-X (Japan)
CAB-3KX-AC-EU=	AC Power Cord for Catalyst 3K-X (Europe)
CAB-3KX-AC-IT=	AC Power Cord for Catalyst 3K-X (Italy)
CAB-3KX-AC-IN=	AC Power Cord for Catalyst 3K-X (India)
CAB-3KX-AC-CN=	AC Power Cord for Catalyst 3K-X (China)
CAB-3KX-AC-DN=	AC Power Cord for Catalyst 3K-X (Denmark)
CAB-3KX-AC-IS=	AC Power Cord for Catalyst 3K-X (Israel)
Spare Accessory and Rack-mount Kits for the Catalyst 3560-X Series	
C3KX-ACC-KIT=	Accessory Kit for Catalyst 3750-X and 3560-X Series
C3KX-RACK-KIT=	Rack-mount Kit for Catalyst 3750-X and 3560-X Series

Notes



Cisco Catalyst 3560-E Series

Fixed-configuration switches combining Gigabit Ethernet connectivity and full PoE for small enterprise LAN access and branch office deployments.

The Cisco Catalyst 3560-E Series is an enterprise-class line of standalone wiring closet switches that ease the deployment of secure converged applications. Combining 10/100/1000 and Power over Ethernet (PoE) configurations with uplinks that easily upgrade from Gigabit Ethernet to 10 Gigabit Ethernet (10 GBE), these switches enhance worker productivity by enabling applications such as IP telephony, wireless, and video. Cisco Catalyst 3560-E Series aggregation switches deliver secure non-stop unified network services and versatile connectivity in a one rack-unit (1RU) form factor for space and power constrained environments, enabling businesses to reduce total cost of ownership while maximizing investment protection.

Key Features

- Cisco TwinGig converter module for migrating uplinks from Gigabit Ethernet to 10 Gigabit Ethernet.
- Enhanced PoE support with configurations beyond 15.4 watts of support for all ports.
- Industry first portfolio to scale beyond 15.4W per port delivering maximum solution simplicity for 802.11n access point deployments.
- Access switch models have modular fan and power supply with externally available backup.
- Dual redundant modular power supplies and fans for Cisco Catalyst 3560E-12D and Catalyst 3560E-12SD aggregation switches for non-stop operation.
- Multicast routing, IPv6 routing, and access control list (ACL) in hardware.
- Out-of-band Ethernet management port along with RS-232 console port.

Hardware Features

	WS-C3560E-24TD	WS-3560E-48TD	WS-3560E-24PD	WS-3560E-24PD	WS-3560E-48PD	WS-3560E-48PD-F	WS-3560E-12D	WS-3560E-12SD
Switching Fabric (Gbps)	64	64	64	64	64	64	128	128
Maximum Stack Members	0	0	0	0	0	0	0	0
Clustering							Yes, 16 Switches/ Cluster	Yes, 16 Switches/ Cluster
Total Bandwidth of Stack (Gbps)	0	0	0	0	0	0	0	0
Packets per Second per Box (Mpps)	65.5	65.5	101.2	101.2	101.2	101.2	90	47.6
MAC Addresses Supported	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000
Routes Supported	11,000	11,000	11,000	11,000	11,000	11,000	20,000	11,000
Onboard Memory (DRAM MB)	128	128	128	128	128	128	256	128
10 GBE Density	2	2	2	2	2	2	12	2
Gigabit Ethernet GBIC/SFP Density	4	4	4	4	4	4	24	4
10 GBE XENPAK/X2 Port Density	2	2	2	2	2	2	12	2
10/100/1000 Density	24	48	24	24	48	48	0	0
10/100 Density	0	0	0	0	0	0	0	0
100BASE-FX Density	0	0	0	0	0	0	0	0
Maximum Watt Power Consumption								
265W AC	331	331	331	331	331	331		
265W DC	379	379	379	379	379	379		
750W AC	882	882	882	882	882	882		
1150W AC	1386	1386	1386	1386	1386	1386		
300W AC							367	367
300W DC							370	370
PoE: Max. 802.3af Class 3 Devices (15.4W)	24	48	24	24	48	48	0	0
PoE: Max. 802.3af Class 2 Devices (7.3W)	24	48	24	24	48	48	0	0
AC/DC Support	AC and DC Available	AC and DC Available	AC and DC Available	AC and DC Available	AC and DC Available	AC and DC Available		
Dimensions (H x W x D) Inches	1.73 x 17.5 x 11.8	1.73 x 17.5 x 11.9	1.73 x 17.5 x 11.1	1.73 x 17.5 x 11.11	1.73 x 17.5 x 21.7	1.75 x 17.5 x 19.5	1.75 x 17.5 x 15	
Dimensions (H x W x D) Centimeters	4.4 x 44.5 x 55.2	4.4 x 44.5 x 47	4.4 x 44.5 x 48	4.4 x 44.5 x 48	4.4 x 44.5 x 49	4.4 x 44.5 x 50	4.45 x 44.5 x 49.5	4.45 x 44.5 x 38.1
Unit Weight Pounds (Kilograms)	17.9 (8.1)	18.3 (8.3)	18.8 (8.6)	18.8 (8.6)	19.2 (8.75)	20.9 (9.5)	23.5 (10.7)	15.5 (7)

Cisco Catalyst 3560-E Series Spotlight

Addition of IP Communications

Cisco Catalyst 3560-E Series PoE models support Cisco IP phones and Cisco Aironet wireless LAN (WLAN) access points, as well as any IEEE 802.3af-compliant end device. The Catalyst 3560-E 24-port and 48-port models can support simultaneous full-powered PoE ports at 15.4 watts (W) for maximum powered device support.

Converged Services

The Catalyst 3560-E Series includes switches that deliver Gigabit Ethernet speed with integrated PoE, supporting both Cisco pre-standard and IEEE 802.3af PoE devices. At speeds of 1000 Mbps, Gigabit Ethernet provides the bandwidth to meet new and evolving network demands, alleviate bottlenecks, and boost performance, while increasing the return on existing infrastructure investments. PoE removes the cost of extending wall power to each IP phone, wireless access point, or other PoE devices.

Integrated Security

With a wide range of security features, businesses can protect important information, keep unauthorized people off the network, prevent malicious viruses and worms from infecting the network, guard privacy, and maintain uninterrupted operation. Cisco Network Admission Control (NAC) helps implement network-wide security policies by validating the security posture of hosts seeking to connect to the network. Cisco Identity-based Network Services (IBNS) prevents unauthorized access and helps ensure that users get only their designated privileges. And features like DHCP Snooping, Dynamic ARP Inspection, and IP Source Guard help prevent against man-in-the-middle attacks.

Software Features

The Cisco Catalyst 3560-E Series is orderable with these feature sets:

- The IP Base feature set includes advanced QoS, security, and basic routing functionality.
- The IP Services feature set provides more enterprise-class features, including advanced hardware-based IP unicast and multicast routing, Virtual Route Forwarding (VRF), and policy-based routing (PBR).

Upgrades

- The IP Advanced Services software license can be purchased separately to enable IPv6 routing.

Simplified Management

Available for the Catalyst 3560-E Series, Cisco Network Assistant is a centralized management application that simplifies the administration task of Cisco switches, routers, and wireless access points. Free of charge, Cisco Network Assistant provides configuration wizards that greatly simplify the implementation of converged networks and intelligent network services.

Product Overview

Product Number	Product Description
Catalyst 3560-E Series 10/100/1000 GBE, 10 GBE Workgroup Switch	
WS-C3560E-24TD-S	3560-E 24-port 10/100/1000 + 2 10 GBE (X2), 265W, IPB S/W
WS-C3560E-24TD-E	3560-E 24-port 10/100/1000 + 2 10 GBE (X2), 265W, IPS S/W
WS-C3560E-48TD-S	3560-E 48-port 10/100/1000 + 2 10 GBE (X2), 265W, IPB S/W
WS-C3560E-48TD-E	3560-E 48-port 10/100/1000 + 2 10 GBE (X2), 265W, IPS S/W
WS-C3560E-24PD-S	3560-E 24-port 10/100/1000 PoE + 2 10 GBE (X2), 750W, IPB S/W
WS-C3560E-24PD-E	3560-E 24 10/100/1000 PoE + 2 10 GBE (X2), 750W, IPS S/W
WS-C3560E-48PD-S	3560-E 48 10/100/1000 PoE + 2 10 GBE (X2), 750W, IPB S/W
WS-C3560E-48PD-E	3560-E 48 10/100/1000 PoE + 2 10 GBE (X2), 750W, IPS S/W
WS-C3560E-48PD-SF	3560-E 48 10/100/1000 PoE + 2 10 GBE (X2), 1150W, IPB S/W
WS-C3560E-48PD-EF	3560-E 48 10/100/1000 PoE + 2 10 GBE (X2), 1150W, IPS S/W
GLC-GE-100FX=	100FX SFP on GBE SFP Ports for DSBU Switches
GLC-FE-100FX	100BASE-FX SFP for FE Port
GLC-LH-SM=	GBE SFP, LC Connector LX/LH Transceiver
GLC-SX-MM=	GBE SFP, LC Connector SX Transceiver
GLC-FE-100LX	100BASE-LX SFP for FE Port
Catalyst 3560-E Series Product Activation Keys	
3560E-AISK9LCBQTY	Advanced IP Services for 3560 E, Upgrade from IP Base
3560E-AISK9LCSQTY	Advanced IP Services for 3560 E, Upgrade from IP Services
3560E-LIC=	Product Activation Key for 3560 E
3560E-IPB-LIC-QTY	IP Base for 3560 E (Default License)
3560E-IPSLCB-QTY	IP Services for 3560 E, Upgrade from the IP Base Feature Set
Power Supplies and Fan Module for the Catalyst 3560-E Series	
C3K-BLWR-60CFM=	Fan Module for the 3750-E and 3560-E Series
C3K-PWR-265WAC=	3750- /3560-E 265W AC Power Supply (Spare)
C3K-PWR-265WDC=	3750-E/3560-E 265W DC Power Supply (Spare)
C3K-PWR-750WAC=	3750-E/3560-E/RPS 2300 750W AC Power Supply (Spare)
C3K-PWR-1150WAC=	3750-E/3560-E/RPS 2300 1150W AC Power Supply (Spare)
RPS 2300	
PWR-RPS2300	Cisco Redundant Power System 2300 and Blower, no Power Supply
ACC-RPS2300=	Spare Accessory Kit for Cisco Redundant Power System 2300
BLNK-RPS2300	Bay Insert for Cisco Redundant Power System 2300
BLNK-RPS2300=	Spare Bay Insert for Cisco Redundant Power System 2300
CAB-RPS2300	RPS 2300 Cable for Devices Other than E-Series Switches
CAB-RPS2300=	Spare RPS2300 Cable for Devices Other than E-Series Switches

Product Overview (continued)

Product Number	Product Description
RPS 2300 (continued)	
CAB-RPS2300-E	RPS2300 Cable for 3750-E/3560-E Switches
CAB-RPS2300-E=	Spare RPS2300 Cable for 3750-E/3560-E Switches
BLWR-RPS2300=	Spare 45CFM Blower for Cisco Redundant Power System 2300
C3K-PWR-750WAC=	3750-E/3560-E/RPS 2300 750WAC Power Supply (Spare)
C3K-PWR-1150WAC=	3750-E/3560-E/RPS 2300 1150WAC Power Supply (Spare)
TwinGig Converter Module for the Catalyst 3560-E Series	
CVR-X2-SFP	Cisco TwinGig Converter Module
CVR-X2-SFP=	Cisco TwinGig Converter Module
SFPs for the Catalyst 3560-E Series	
GLC-BX-D=	1000BASE-BX SFP, 1490 nm
GLC-BX-U=	1000BASE-BX SFP, 1310 nm
GLC-GE-100FX=	100FX SFP on GBE SFP Ports for DSBU Switches
GLC-LH-SM=	GBE SFP, LC Connector LX/LH Transceiver
GLC-SX-MM=	GBE SFP, LC Connector SX Transceiver
GLC-T=	1000BASE-T SFP
GLC-ZX-SM=	1000BASE-ZX SFP
CWDM-SFP-1470=	CWDM 1470 nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1490=	CWDM 1490 nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1510=	CWDM 1510 nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1530=	CWDM 1530 nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1550=	CWDM 1550 nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1570=	CWDM 1570 nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1590=	CWDM 1590 nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1610=	CWDM 1610 nm SFP Gigabit Ethernet and 1G/2G FC
CAB-SFP-50CM=	3560 SFP Interconnect Cable, 50 cm
X2 for Catalyst 3560-E Series	
X2-10GB-ER=	10GBASE-ER X2 Module
X2-10GB-LR=	10GBASE-LR X2 Module
X2-10GB-SR=	10GBASE-SR X2 Module
X2-10GB-CX4=	10GBASE-CX4 X2 Module
LC to SC Cables for the Catalyst 3560-E Series	
CSS5-CABLX-LCSC=	CSS11500 10-meter Fiber Single-mode LX LC-to-SC Connectors
CSS5-CABSX-LC=	CSS11500 10-meter Fiber Multimode SX LC Connectors
CSS5-CABSX-LCSC=	CSS11500 10-meter Fiber Multimode SX LC-to-SC Connectors

Product Number	Product Description
Power Cords for the Catalyst 3560-E Series	
CAB-AC	Power Cord, US
CAB-AC=	Power Cord, US
CAB-16AWG-AC	Power Cord, 16 AWG
CAB-16AWG-AC=	Power Cord, 16 AWG
CAB-ACA	Power Cord, Australia
CAB-ACA=	Power Cord, Australia
CAB-ACR	Power Cord, Argentina
CAB-ACR=	Power Cord, Argentina
CAB-ACS	Power Cord, Switzerland
CAB-ACS=	Power Cord, Switzerland
CAB-ACU	Power Cord, UK
CAB-ACU=	Power Cord, UK
CAB-JPN=	Power Cord, Japan
CAB-IND=	Power Cord, India
CAB-ACE	Power Cord, Europe
CAB-ACE=	Power Cord, Europe
CAB-ACI	Power Cord, Italy
CAB-ACI=	Power Cord, Italy
CAB-JPN	Power Cord, Japan
CAB-IND	Power Cord, India

Notes

Cisco Catalyst 3560 Series

Fixed-configuration switches combining Gigabit Ethernet connectivity and PoE for small enterprise LAN access and branch office deployments.

The Cisco Catalyst 3560 Series combines multilayer Fast Ethernet and Gigabit Ethernet switching with integrated Power over Ethernet (PoE), simplifying the deployment of converged IP telephony, wireless access, video surveillance, and other new applications. The Catalyst 3560 Series is also available in a compact silent PoE model ideal for deployments in office workspaces, classrooms, and other space-constrained environments and enable intelligent services using enterprise-class features outside of the wiring closet.

These standalone, fixed-configuration switches offer up to 48 10/100/1000 ports and support network-wide intelligent services such as advanced quality of service (QoS), rate limiting, access control lists (ACLs), multicast management, and high-performance IP routing.

The Catalyst 3560 Series can be purchased with the IP Base (formerly called SMI) or IP Services (formerly called EMI) licenses, and can be upgraded in the field to Advanced IP Services licenses. The IP Base license offers advanced QoS, rate-limiting, ACLs, and basic routing functionality. The IP Services license provides a richer set of enterprise-class features, including advanced hardware-based IP Unicast and IP Multicast routing as well as Policy-based Routing (PBR). The Advanced IP Services license adds IPv6 routing.

Cisco Catalyst 3560 Series Spotlight

Converged Services

Cisco Catalyst 3560 Series include switches that deliver Gigabit Ethernet speed with integrated PoE, supporting both Cisco pre-standard and IEEE 802.3af PoE devices. At speeds of 1000 Mbps, Gigabit Ethernet provides the bandwidth to meet new and evolving network demands, alleviate bottlenecks, and boost performance, while increasing the return on existing infrastructure investments. PoE removes the cost of extending wall power to each IP phone, wireless access point, or other PoE devices.

Integrated Security

With a wide range of security features, businesses can protect important information, keep unauthorized people off the network, prevent malicious viruses and worms from infecting the network, guard privacy, and maintain uninterrupted operation. Cisco Network Admission Control (NAC) helps implement network-wide security policies by validating the security posture of hosts seeking to connect to the network. Cisco Identity-based Network Services (IBNS) prevents unauthorized access and helps ensure that users get only their designated privileges. And features like DHCP Snooping, Dynamic ARP Inspection, and IP Source Guard help prevent against man-in-the-middle attacks.

Hardware Features

	WS-C3560V2-24TS	WS-C3560V2-48TS	WS-C3560V2-24PS	WS-C3560V2-48PS	WS-3560V2-24TS-SD	WS-C3560G-24TS	WS-C3560G-48TS	WS-C3560G-24PS	WS-C3560G-48PS	WS-C3560-8PC-S
Switching Fabric (Gbps)	32	32	32	32	32	32	32	32	32	32
Maximum Stack Members	0	0	0	0	0	0	0	0	0	0
Clustering	Yes, 16 Switches/ Cluster	Yes, 16 Switches/ Cluster	Yes, 16 Switches/ Cluster	Yes, 16 Switches/ Cluster	Yes, 16 Switches/ Cluster	Yes, 16 Switches/ Cluster	Yes, 16 Switches/ Cluster	Yes, 16 Switches/ Cluster	Yes, 16 Switches/ Cluster	Yes, 16 Switches/ Cluster
Total Bandwidth of Stack (Gbps)	0	0	0	0	0	0	0	0	0	0
Packets per Second per Box (Mpps)	6.5	13.1	6.5	13.1	6.5	38.7	38.7	38.7	38.7	2.7
MAC Addresses Supported	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000
Routes Supported	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000
Onboard Memory (DRAM MB)	128	128	128	128	128	128	128	128	128	128
10 GBE Density	0	0	0	0	0	0	0	0	0	0
Gigabit Ethernet GBIC/SFP Density	2	4	2	4	2	4	4	4	4	1
10 GBE XENPAK/X2 Port Density	0	0	0	0	0	0	0	0	0	0
10/100/1000 Density	0	0	0	0	0	24	48	24	48	1
10/100 Density	24	48	24	48	24	0	0	0	0	8
100BASE-FX Density	0	0	0	0	0	0	0	0	0	0
Maximum Watt Power Consumption	24	41	435	452	24	100	160	540	590	204
PoE: Maximum 802.3af Class 3 Devices (15.4W)	0	0	24	24	0	0	0	24	24	8
PoE: Maximum 802.3af Class 2 Devices (7.3W)	0	0	24	48	0	0	0	24	48	8
AC/DC Support	AC Only	AC Only	AC Only	AC Only	DC Only	AC Only	AC Only	AC Only	AC Only	AC Only
Redundant Power Supply Support	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Dimensions (H x W x D) Inches	1.73 x 17.46 x 11.62	1.73 x 17.46 x 11.62	1.73 x 17.46 x 11.62	1.73 x 17.46 x 14.62	1.73 x 17.46 x 11.62	1.73 x 17.5 x 14.9	1.73 x 17.5 x 16.1	1.73 x 17.5 x 14.9	1.73 x 17.5 x 16.1	1.73 x 10.6 x 9.1
Dimensions (H x W x D) Centimeters	4.4 x 44.3 x 29.5	4.4 x 44.3 x 29.5	4.4 x 44.3 x 29.5	4.4 x 44.3 x 29.5	4.4 x 44.3 x 29.5	4.4 x 44.5 x 37.8	4.4 x 44.5 x 40.9	4.4 x 44.5 x 37.8	4.4 x 44.5 x 40.9	4.4 x 27 x 23
Unit Weight Pounds (Kilograms)	8.2 (3.7)	9 (4)	10 (4.6)	11 (5)	8 (3.7)	12 (5.4)	13.5 (6.1)	14 (6.4)	15.5 (7.0)	5 (2.3)

Product Overview

Product Number	Product Description
Catalyst 3560 Series 10/100/1000 Workgroup Switches	
WS-C3560G-48PS-S	3560 48-port 10/100/1000T PoE + 4 SFP, Standard Image
WS-C3560G-48PS-E	3560 48-port 10/100/1000T PoE + 4 SFP, Enhanced Image
WS-C3560G-24PS-S	3560 24-port 10/100/1000T PoE + 4 SFP, Standard Image
WS-C3560G-24PS-E	3560 24-port 10/100/1000T PoE + 4 SFP, Enhanced Image
WS-C3560G-48TS-S	3560 48-port 10/100/1000T + 4 SFP, Standard Image
WS-C3560G-48TS-E	3560 48-port 10/100/1000T + 4 SFP, Enhanced Image
WS-C3560G-24TS-S	3560 24-port 10/100/1000T + 4 SFP, Standard Image
WS-C3560G-24TS-E	3560 24-port 10/100/1000T + 4 SFP, Enhanced Image
Catalyst 3560v2 Series 10/100 Workgroup Switches	
WS-C3560-8PC-S	3560 8 10/100 PoE + 1 T/SFP, Standard Image
WS-C3560V2-48PS-S	3560v2 48-port 10/100 PoE + 4 SFP, Standard Image
WS-C3560V2-48PS-E	3560v2 48-port 10/100 PoE + 4 SFP, Enhanced Image
WS-C3560V2-24PS-S	3560v2 24-port 10/100 PoE + 2 SFP, Standard Image
WS-C3560V2-24PS-E	3560v2 24-port 10/100 PoE + 2 SFP, Enhanced Image
WS-C3560V2-48TS-S	3560v2 48-port 10/100 + 4 SFP, Standard Image
WS-C3560V2-48TS-E	3560v2 48-port 10/100 + 4 SFP, Enhanced Image
WS-C3560V2-24TS-S	3560v2 24-port 10/100 + 2 SFP, Standard Image
WS-C3560V2-24TS-SD	3560v2 24-port 10/100 + 2 SFP, Standard Image, DC Power Supply
WS-C3560V2-24TS-E	3560v2 24-port 10/100 + 2 SFP, Enhanced Image
IOS Upgrades for the Catalyst 3560	
CD-3560-EMI=	Enhanced Multilayer Image Upgrade for 3560 10/100 Models
CD-3560G-EMI=	Enhanced Multilayer Image Upgrade for 3560 GE Models
SFPs for the Catalyst 3560	
GLC-GE-100FX=	100FX SFP on GBE SFP Ports for DSBU Switches
GLC-LH-SM=	GBE SFP, LC Connector LX/LH Transceiver
GLC-SX-MM=	GBE SFP, LC Connector SX Transceiver
GLC-T=	1000BASE-T SFP
GLC-ZX-SM=	1000BASE-ZX SFP
CWDM-SFP-1470=	CWDM 1470 nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1490=	CWDM 1490 nm SFP Gigabit Ethernet and 1G/2G FC

Product Number	Product Description
SFPs for the Catalyst 3560 (continued)	
CWDM-SFP-1510=	CWDM 1510 nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1530=	CWDM 1530 nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1550=	CWDM 1550 nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1570=	CWDM 1570 nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1590=	CWDM 1590 nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1610=	CWDM 1610 nm SFP Gigabit Ethernet and 1G/2G FC
CAB-SFP-50CM=	3560 SFP Interconnect Cable, 50 cm
DWDM-SFP-3033=	DWDM SFP 1530.33 nm SFP (100 GHz ITU Grid)
DWDM-SFP-3112=	DWDM SFP 1531.12 nm SFP (100 GHz ITU Grid)
DWDM-SFP-3190=	DWDM SFP 1531.90 nm SFP (100 GHz ITU Grid)
DWDM-SFP-3268=	DWDM SFP 1532.68 nm SFP (100 GHz ITU Grid)
DWDM-SFP-3425=	DWDM SFP 1534.25 nm SFP (100 GHz ITU Grid)
DWDM-SFP-3504=	DWDM SFP 1535.04 nm SFP (100 GHz ITU Grid)
DWDM-SFP-3582=	DWDM SFP 1535.82 nm SFP (100 GHz ITU Grid)
DWDM-SFP-3661=	DWDM SFP 1536.61 nm SFP (100 GHz ITU Grid)
DWDM-SFP-3819=	DWDM SFP 1538.19 nm SFP (100 GHz ITU Grid)
DWDM-SFP-3898=	DWDM SFP 1538.98 nm SFP (100 GHz ITU Grid)
DWDM-SFP-3977=	DWDM SFP 1539.77 nm SFP (100 GHz ITU Grid)
DWDM-SFP-4056=	DWDM SFP 1540.56 nm SFP (100 GHz ITU Grid)
DWDM-SFP-4214=	DWDM SFP 1542.14 nm SFP (100 GHz ITU Grid)
DWDM-SFP-4294=	DWDM SFP 1542.94 nm SFP (100 GHz ITU Grid)
DWDM-SFP-4373=	DWDM SFP 1543.73 nm SFP (100 GHz ITU Grid)
DWDM-SFP-4453=	DWDM SFP 1544.53 nm SFP (100 GHz ITU Grid)
LC to SC Cables for the Catalyst 3560	
CSS5-CABLX-LCSC=	CSS11500 10-meter Fiber Single-mode LX LC-to-SC Connectors
CSS5-CABSX-LC=	CSS11500 10-meter Fiber Multimode SX LC Connectors
CSS5-CABSX-LCSC=	CSS11500 10-meter Fiber Multimode SX LC-to-SC Connectors
Right Angle Power Cords for the Catalyst 3560	
CAB-AC-RA=	Power Cord, 110V, Right Angle
CAB-AC-RA	Power Cord, 110V, Right Angle
CAB-ACA-RA=	Power Cord, Australia, Right Angle
CAB-ACC-RA=	Power Cord, China, Right Angle
CAB-ACE-RA=	Power Cord, Europe, Right Angle
CAB-ACI-RA=	Power Cord, Italy, Right Angle

Product Overview (continued)

Product Number	Product Description
Right Angle Power Cords for the Catalyst 3560 (continued)	
CAB-ACR-RA=	Power Cord, Argentina, Right Angle
CAB-ACS-RA=	Power Cord, Switzerland, Right Angle
CAB-ACU-RA=	Power Cord, UK, Right Angle
CAB-JPN-RA=	Power Cord, Japan, Right Angle
CAB-JPN-RA	Power Cord, Japan, Right Angle
RPS for the Catalyst 3560	
PWR-RPS2300	Cisco RPS 2300 with One Connector Cable
CAB-RPS2300-E=	Spare RPS 2300 Cable for Cisco Catalyst 3560v2, 3750v2, 3560-E, 3750-E, and 2960 PoE Series Switches
C3K-PWR-750WAC=	Spare 750WAC Power Supply for the RPS 2300 and Cisco Catalyst 3560-E/3750-E Series Switches
C3K-PWR-1150WAC=	Spare 1150WAC Power Supply for the RPS 2300 and Cisco Catalyst 3560-E/3750-E Series Switches
Spare Rack-mount Kits for the Catalyst 3560	
RCKMNT-1RU=	1RU Rack-mount Kit for 3750, 3560, 3550, 2900-LRE-XL
RCKMNT-REC-1RU=	Recessed 1RU Rack-mount for 3550, 3560, 3750
RCKMNT-19-CMPCT=	19-inch Rack-mount for 3560, 2960, ME-3400 Compact Switch
Cable Guard for the Catalyst 3560 Compact Switch	
CBLGRD-C3560-8PC=	Cable Guard for the Catalyst 3560-8PC Compact Switch

Notes

Notes

Cisco Catalyst 2960-S Series

The Cisco Catalyst 2960-S Series Switches are the leading Layer 2 edge platform, providing improved ease of use, highly secure business operations, improved sustainability, and a borderless network experience. The Cisco Catalyst 2960-S Series Switches include new Cisco FlexStack switch stacking capability with 1 and 10 Gigabit connectivity, and Power over Ethernet Plus (PoE+). The Cisco Catalyst 2960-S Series are fixed-configuration access switches designed for enterprise, midmarket, and branch office networks to provide lower total cost of ownership.

Key Features:

- 10 and 1 Gigabit Ethernet uplink flexibility with Small Form-Factor Pluggable Plus (SFP+), providing business continuity and fast transition to 10 Gigabit Ethernet.
- 24 or 48 ports of Gigabit Ethernet desktop connectivity.
- Cisco FlexStack stacking module with 40 Gbps of throughput, allowing ease of operation and management with single configuration and simplified switch upgrade.
- PoE+ with up to 30W per port that allows support of the latest PoE+ capable devices.
- 740W or 370W fixed power supplies options for PoE+ switches are available.
- USB storage for file backup, distribution, and simplified operations.
- A wide range of software features to provide ease of operation, highly secure business operations, sustainability, and a borderless network experience.
- Limited lifetime hardware warranty, including next-business-day replacement with 90-day service and support.

Hardware Features

	WS-C2960S-48FPD-L	WS-C2960S-48LPD-L	WS-C2960S-24PD-L	WS-C2960S-48TD-L	WS-C2960S-24TD-L
Switching Fabric (Gbps)	88	88	88	88	88
Maximum Stack Members	4	4	4	4	4
Total Bandwidth of Stack (Gbps)	40	40	40	40	40
Packets per Second per Box (Mpps)	101.2	101.2	65.5	101.2	65.5
MAC Addresses Supported	8000	8000	8000	8000	8000
Routes Supported	16	16	16	16	16
Onboard Memory (DRAM MB)	128	128	128	128	128
10 GBE Density (SFP+)	2	2	2	2	2
Gigabit Ethernet GBIC/SFP Density	2	2	2	2	2
10 GBE XENPAK/X2 Port Density	0	0	0	0	0
10/100/1000BaseT Density	48	48	24	48	24
Maximum Watt Power Consumption (100% Forwarding without PoE Load)	81W	71W	55W	55W	39W
PoE+: Maximum 802.3at devices (30W)	24	12	12	0	0
PoE: Maximum 802.3af Class 3 Devices (15.4W)	48	24	24	0	0
PoE: Maximum 802.3af Class 2 Devices (7.3W)	48	48	24	0	0
AC/DC Support	AC Only	AC Only	AC Only	AC Only	AC Only
Redundant Power Supply Support	Yes with RPS	Yes with RPS	Yes with RPS	Yes with RPS	Yes with RPS
Dimensions (H x W x D) Inches	1.75 x 17.5 x 15.2	1.75 x 17.5 x 15.2	1.75 x 17.5 x 15.2	1.75 x 17.5 x 11.8	1.75 x 17.5 x 11.8
Dimensions (H x W x D) Centimeters	4.5 x 44.5 x 38.6	4.5 x 44.5 x 38.6	4.5 x 44.5 x 38.6	4.5 x 44.5 x 29.9	4.5 x 44.5 x 29.9
Unit Weight Pounds (Kilograms)	13 (5.9)	12.5 (5.7)	12.5 (5.7)	9.5 (4.3)	9.5 (4.3)
Dimensions (H x W x D) Centimeters	4.5 x 44.5 x 38.6	4.5 x 44.5 x 38.6	4.5 x 44.5 x 38.6	4.5 x 44.5 x 29.9	4.5 x 44.5 x 29.9
Unit Weight Pounds (Kilograms)	13 (5.9)	12.5 (5.7)	12.5 (5.7)	9.5 (4.3)	9.5 (4.3)

Hardware Features (continued)

	WS-C2960S-48FPS-L	WS-C2960S-48LPS-L	WS-C2960S-24PS-L	WS-C2960S-48TS-L	WS-C2960S-24TS-L
Switching Fabric (Gbps)	88	88	88	88	88
Maximum Stack Members	4	4	4	4	4
Total Bandwidth of Stack (Gbps)	40	40	40	40	40
Packets per Second per Box (Mpps)	77.4	77.4	41.7	77.4	41.7
MAC Addresses Supported	8000	8000	8000	8000	8000
Routes Supported	16	16	16	16	16
Onboard Memory (DRAM MB)	128	128	128	128	128
10 GBE Density	0	0	0	0	0
Gigabit Ethernet GBIC/SFP Density	4	4	4	4	4
10/100/1000BaseT Density	48	48	24	48	24
Maximum Watt Power Consumption (100% Forewarding without PoE Load)	79W	71W	55W	52W	40W
PoE+: Maximum 802.3at devices (30W)	24	12	12	0	0
PoE: Maximum 802.3af Class 3 Devices (15.4W)	48	24	24	0	0
PoE: Maximum 802.3af Class 2 Devices (7.3W)	48	48	24	0	0
AC/DC Support	AC Only	AC Only	AC Only	AC Only	AC Only
Redundant Power Supply Support	Yes with RPS	Yes with RPS	Yes with RPS	Yes with RPS	Yes with RPS
Dimensions (H x W x D) Inches	1.75 x 17.5 x 15.2	1.75 x 17.5 x 15.2	1.75 x 17.5 x 15.2	1.75 x 17.5 x 11.8	1.75 x 17.5 x 11.8
Dimensions (H x W x D) Centimeters	4.5 x 44.5 x 38.6	4.5 x 44.5 x 38.6	4.5 x 44.5 x 38.6	4.5 x 44.5 x 29.9	4.5 x 44.5 x 29.9
Unit Weight Pounds (Kilograms)	13 (5.9)	12.5 (5.7)	12.5 (5.7)	10.5 (4.8)	10 (4.5)
Dimensions (H x W x D) Inches	1.75 x 17.5 x 15.2	1.75 x 17.5 x 15.2	1.75 x 17.5 x 15.2	1.75 x 17.5 x 11.8	1.75 x 17.5 x 11.8
Dimensions (H x W x D) Centimeters	4.5 x 44.5 x 38.6	4.5 x 44.5 x 38.6	4.5 x 44.5 x 38.6	4.5 x 44.5 x 29.9	4.5 x 44.5 x 29.9
Unit Weight Pounds (Kilograms)	13 (5.9)	12.5 (5.7)	12.5 (5.7)	10.5 (4.8)	10 (4.5)

Hardware Features (continued)

	WS-2960S-48TS-S	WS-C2960S-24TS-S
Switching Fabric (Gbps)	50	50
Maximum Stack Members	0	0
Clustering	Yes, 16 Switches/Cluster	Yes, 16 Switches/Cluster
Total Bandwidth of Stack (Gbps)	N/A	N/A
Packets per Second per Box (Mpps)	74.4	38.7
MAC Addresses Supported	8000	8000
Routes Supported	N/A	N/A
Onboard Memory (DRAM MB)	128	128
10 GBE Density	0	0
Gigabit Ethernet GBIC/SFP Density	2	2
10/100/1000BaseT Density	48	24
Maximum Watt Power Consumption (100% Forwarding)	53W	36W
PoE+: Maximum 802.3at devices (30W)	0	0
PoE: Maximum 802.3af Class 3 Devices (15.4W)	0	0
PoE: Maximum 802.3af Class 2 Devices (7.3W)	0	0
AC/DC Support	AC Only	AC Only
Redundant Power Supply Support	N/A	N/A
Dimensions (H x W x D) Inches	1.75 x 17.5 x 11.8	1.75 x 17.5 x 11.8
Dimensions (H x W x D) Centimeters	4.5 x 44.5 x 29.9	4.5 x 44.5 x 29.9
Unit Weight Pounds (Kilograms)	10.5 (4.8)	10 (4.5)

Cisco Catalyst 2960-S Spotlight

Cisco FlexStack Stacking

Cisco FlexStack stacking with the hot-swappable stack module and Cisco IOS® Software provides true stacking as all switches in a stack act as a single switch unit. The Cisco FlexStack provides a unified data plane, unified configuration, and single IP address management for a group of switches. The advantages of true stacking are lower total cost of ownership through simplified management and higher availability. Cisco FlexStack supports cross-stack features including EtherChannel, SPAN and FlexLink technology. A stack module can be added to any Cisco Catalyst 2960-S switch with LAN Base software to quickly upgrade the switch to make it stack capable. Once a new switch is added to a stack the switch will automatically upgrade to the correct Cisco IOS® Software version and transparently become a stack member.

Power over Ethernet Plus

In addition to PoE 802.3af, the Cisco Catalyst 2960-S Series Switches support Power over Ethernet Plus (PoE+) (IEEE 802.3at standard), which provides up to 30W of power per port. The Cisco Catalyst 2960-S Series Switches can provide a lower total cost of ownership for deployments that incorporate Cisco IP phones, Cisco Aironet® wireless LAN (WLAN) access points, or any IEEE 802.3af-compliant end device. PoE removes the need for wall power to each PoE-enabled device and eliminates the cost for additional electrical cabling and circuits that would otherwise be necessary in IP phone and WLAN deployments.

Software Features

- All Cisco Catalyst 2960-S Series Switches ship with the LAN Base image, with the exceptions of WS-2960S-48TS-S and WS-C2960S-24TS-S.
- WS-2960S-48TS-S and WS-C2960S-24TS-S ship with the LAN Lite image and are not upgradeable to LAN Base software.
- Some advanced features, like Cisco FlexStack, PoE+ and SFP+, require a the LAN Base image.

Product Overview

Part Numbers	Description
10 Gigabit Uplinks with 10/100/1000 Ethernet Connectivity	
WS-C2960S-48FPD-L	· 48 Ethernet 10/100/1000 PoE+ Ports · 740W PoE Capacity · Two 10 Gigabit Ethernet or Two 1 Gigabit Ethernet SFP+ Uplink Ports · Optional Cisco FlexStack stacking Support · LAN Base Image
WS-C2960S-24PD-L	· 24 Ethernet 10/100/1000 PoE+ Ports · 370W PoE Capacity · Two 10 Gigabit Ethernet or Two 1 Gigabit Ethernet SFP+ Uplink Ports · Optional Cisco FlexStack Stacking Support · LAN Base Image
WS-C2960S-48TD-L	· 48 Ethernet 10/100/1000 Ports · Two 10 Gigabit Ethernet or Two 1 Gigabit Ethernet SFP+ Uplink Ports · Optional Cisco FlexStack Stacking Support · LAN Base Image
WS-C2960S-24TD-L	· 24 Ethernet 10/100/1000 Ports · Two 10 Gigabit Ethernet or Two 1 Gigabit Ethernet SFP+ Uplink Ports · Optional Cisco FlexStack Stacking Support · LAN Base Image
1 Gigabit Uplinks with 10/100/1000 Ethernet Connectivity	
WS-C2960S-48FPS-L	· 48 Ethernet 10/100/1000 PoE+ Ports · 740W PoE Capacity · Four 1 Gigabit Ethernet SFP Uplink Ports · Optional Cisco FlexStack Stacking Support · LAN Base Image
WS-C2960S-48LPS-L	· 48 Ethernet 10/100/1000 PoE+ Ports · 370W PoE Capacity · Four 1 Gigabit Ethernet SFP Uplink Ports · Optional Cisco FlexStack Stacking Support · LAN Base Image
WS-C2960S-48TS-L	· 48 Ethernet 10/100/1000 Ports · Four 1 Gigabit Ethernet SFP Uplink Ports · Optional Cisco FlexStack Stacking Support · LAN Base Image

Product Number	Product Description
1 Gigabit Uplinks with 10/100/1000 Ethernet Connectivity (continued)	
WS-C2960S-24TS-L	· 24 Ethernet 10/100/1000 Ports · Four 1 Gigabit Ethernet SFP Uplink Ports · Optional Cisco FlexStack Stacking Support · LAN Base Image
1 Gigabit Uplinks with 10/100/1000 Ethernet Connectivity (LAN Lite software)	
WS-2960S-48TS-S	· 48 Ethernet 10/100/1000 · Two 1 Gigabit Ethernet SFP Uplink Ports · LAN Lite Software
WS-C2960S-24TS-S	· 24 Ethernet 10/100/1000 · Two 1 Gigabit Ethernet SFP Uplink Ports · LAN Lite Software
Cisco Catalyst 2960-S Series Switches Accessories	
CAB-STK-E-0.5M	FlexStack Stacking Cable with a 0.5 m Length
CAB-STK-E-1M	FlexStack Stacking Cable with a 1.0 m Length
CAB-STK-E-3M	FlexStack Stacking Cable with a 3.0 m Length
CAB-CONSOLE-RJ45	Console Cable 6 ft. with RJ-45
CAB-CONSOLE-USB	Console Cable 6 ft. with USB Type A and Mini-B Connectors
CAB-16AWG-AC	AC Power Cord, 16AWG
CAB-ACE	AC Power Cord (Europe), C13, CEE 7, 1.5M
CAB-L620P-C13-US	Power Cord, 250VAC, 15A, NEMA L6-20 to C13, US
CAB-ACI	AC Power Cord (Italy), C13, CEI 23-16, 2.5m
CAB-ACU	AC Power Cord (UK), C13, BS 1363, 2.5m
CAB-ACA	AC Power Cord (China/Australia), C13, AS 3112, 2.5m
CAB-ACS	AC Power Cord (Switzerland), C13, IEC 60884-1, 2.5m
CAB-ACR	AC Power Cord (Argentina), C13, EL 219 (IRAM 2073), 2.5m
CAB-ACC	Power Cord (China) 10A, IEC 320, C13 (APN=CS-PWR-CH)
CAB-JPN-12A	CABASY,POWER CORD, JAPAN 2P, PSE, 12A @ 125VAC
CAB-L620P-C13-JPN	Power Cord (Japan) 250VAC, 15A, NEMA L6-20 to C13, JAPAN
CAB-IND	Power Cord (India)
PWR-RPS2300	Cisco Redundant Power System 2300 and Blower, no Power Supply
BLNK-RPS2300=	Spare Bay Insert for Cisco Redundant Power System 2300 for Cisco Catalyst 2960 and Cisco Catalyst 2960-S Switches
CAB-RPS2300-E=	Spare RPS2300 Cable for Cisco Catalyst 2960-48PST-L, 2960-24PC-L and 2960-24LT-L Switches and Cisco Catalyst 2960-S Switches

Product Overview (continued)

Product Number	Product Description
Cisco Catalyst 2960-S Series Switches Accessories (continued)	
BLWR-RPS2300=	Spare 45 CFM Blower for Cisco Redundant Power System 2300
C3K-PWR-750WAC=	Cisco Catalyst 2960 and Cisco Catalyst 2960-S RPS 2300 750W AC Power Supply Spare
PWR-A=	Power Adapter for Cisco Catalyst 2960PD-8TT-L Compact Switch
CBLGRD-C2960-8TC=	Cable Guard for Cisco Catalyst 2960-8TC Compact Switch
CBLGRD-C2960G-8TC=	Cable Guard for Cisco Catalyst 2960G-8TC Compact Switch
RCKMNT-19-CMPCT=	Rack-mount for Cisco Catalyst 2960-8TC and Cisco Catalyst 2960G-8TC Compact Switches
RCKMNT-1RU=	Spare Rack-mount Kit for Cisco Catalyst 2960 and 2960-S Series for 19- and 24-inch Racks
RCKMNT-REC-1RU=	1RU Recessed rack-mount Kit for Cisco Catalyst 2960 and 2960-S Series
GLC-LH-SM=	1000BASE-LX/LH SFP Transceiver Module for MMF and SMF, 1300-nm Wavelength
GLC-SX-MM=	1000BASE-SX SFP Transceiver Module for MMF, 850-nm Wavelength
GLC-ZX-SM=	1000BASE-ZX SFP Transceiver Module for SMF, 1550-nm Wavelength
GLC-T=	1000BASE-T SFP Transceiver Module for Category 5 Copper Wire Not Supported on the Cisco Catalyst 2960-8TC and Cisco Catalyst 2960G-8TC Compact Switches and Cisco Catalyst 2960-S SFP+ Module
GLC-BX-D=	1000BASE-BX10 SFP Transceiver Module for Single-strand SMF, 1490-nm TX/1310-nm RX Wavelength
GLC-BX-U=	1000BASE-BX10 SFP Transceiver Module for Single-strand SMF, 1310-nm TX/1490-nm RX Wavelength
GLC-GE-100FX=	100BASE-FX SFP Module for Gigabit Ethernet Ports, 1310-nm Wavelength, 2 km over MMF Not Supported on the Cisco Catalyst 2960-8TC and Cisco Catalyst 2960G-8TC Compact Switches
GLC-FE-100FX=	100BASE-FX SFP Module for 100-Mb Ports, 1310-nm Wavelength, 2 km over MMF
GLC-FE-100LX=	100BASE-LX10 SFP Module for 100-Mb Ports, 1310-nm Wavelength, 10 km over SMF
GLC-FE-100BX-D=	100BASE-BX10-D SFP Module for 100-Mb Ports, 1550-nm TX /1310-nm RX Wavelength, 10 km over Single-strand SMF
GLC-FE-100BX-U=	100BASE-BX10-U SFP Module for 100-Mb Ports, 1310-nm TX/1550-nm RX Wavelength, 10 km over Single-strand SMF
CWDM-SFP-1470=	Cisco CWDM SFP 1470 nm; Gigabit Ethernet and 1G/2G Fibre Channel (FC) (Gray)
CWDM-SFP-1490=	Cisco CWDM SFP, 1490 nm; Gigabit Ethernet and 1G/2G FC (Violet)
CWDM-SFP-1510=	Cisco CWDM SFP, 1510 nm; Gigabit Ethernet and 1G/2G FC (Blue)
CWDM-SFP-1530=	Cisco CWDM SFP, 1530 nm; Gigabit Ethernet and 1G/2G FC (Green)
CWDM-SFP-1550=	Cisco CWDM SFP, 1550 nm; Gigabit Ethernet and 1G/2G FC (Yellow)

Product Number	Product Description
Cisco Catalyst 2960-S Series Switches Accessories (continued)	
CWDM-SFP-1570=	Cisco CWDM SFP, 1570 nm; Gigabit Ethernet and 1G/2G FC (Orange)
CWDM-SFP-1590=	Cisco CWDM SFP, 1590 nm; Gigabit Ethernet and 1G/2G FC (Red)
CWDM-SFP-1610=	Cisco CWDM SFP, 1610 nm; Gigabit Ethernet and 1G/2G FC (Brown)
CAB-SM-LCSC-1M	1m Fiber Single-mode LC-to-SC Connectors
CAB-SM-LCSC-5M	5m Fiber Single-mode LC-to-SC Connectors
SFP-10G-LR=	10GBASE-LR SFP+ Module
SFP-10G-SR=	10GBASE-SR SFP+ Module
SFP-10G-LRM=	10GBASE-LRM SFP+ Module
SFP-H10GB-CU1M=	0GBASE-CU SFP+ Cable 1 Meter
SFP-H10GB-CU3M=	0GBASE-CU SFP+ Cable 3 Meter
SFP-H10GB-CU5M=	0GBASE-CU SFP+ Cable 5 Meter

Notes

Cisco Catalyst 2960 Series

Fixed-configuration switches offering Fast Ethernet and Gigabit Ethernet connectivity with enhanced LAN services for mid-market and branch office networks. The Catalyst 2960 Series compact switches are fanless models that are ideal for deployments in office workspaces, classrooms, and other space-constrained environments and enable intelligent services using enterprise-class features outside of the wiring closet.

Cisco Catalyst 2960 Series Intelligent Ethernet switches are offered in two categories:
- Cisco Catalyst 2960 Series with LAN Base Software
- Cisco Catalyst 2960 Series with LAN Lite Software

Cisco Catalyst 2960 Series Switches with LAN Base software are a family of fixed-configuration, standalone intelligent Ethernet devices with Power Over Ethernet (PoE) or non-PoE configurations that provide desktop Fast Ethernet and Gigabit Ethernet connectivity, enabling enhanced LAN services for entry-level enterprise, mid-market, and branch office networks (See Figure 1). The Cisco Catalyst 2960 LAN Base Series offers integrated security, including Network Admission Control (NAC), advanced quality of service (QoS), and resiliency to deliver intelligent services for the network edge.

Cisco Catalyst 2960 Series Switches with LAN Lite software are fixed-configuration, standalone switches that provide desktop Fast Ethernet connectivity for entry-level wiring closet and small branch office networks. The Cisco Catalyst 2960 LAN Lite Series Switches simplify the migration from non-intelligent hubs and unmanaged switches to a fully scalable managed network. The LAN Lite Cisco IOS® Software provides entry-level security, quality of service (QoS), and availability capabilities while lowering the network total cost of ownership.

The Catalyst 2960 Series includes four configurations featuring dual-purpose (alternative wired) uplinks for Gigabit Ethernet, allowing the network manager to use either a copper or a fiber uplink. Each dual-purpose uplink offers one 10/100/1000 port and one SFP-based port, with one active at a time. The series includes 24-port and 48-port Gigabit Ethernet switches which drive cost-effective Gigabit to the Desktop (GTTD) across the network.

Cisco Catalyst 2960 Series Spotlight

Gigabit Ethernet

At speeds of 1000 Mbps, Gigabit Ethernet provides the bandwidth to meet new and evolving network demands, alleviate bottlenecks, and boost performance while increasing the return on existing infrastructure investments. Today's workers are placing higher demands on networks by running multiple, concurrent applications. The Catalyst 2960 Series provides a means to intelligently scale the network beyond 100 Mbps over existing Category 5 copper cabling.

Enhanced Security

Security is delivered through a wide range of authentication methods, data encryption technologies, and Network Admission Control (NAC) based on users, ports, and MAC addresses. Through these features, the Catalyst 2960 Series offers security to protect users and devices from attack.

Ease of Management and Configuration

Cisco Network Assistant simplifies configuration, Cisco IOS Software updates, and Troubleshooting. Smartports enable fast and easy configuration of Cisco Catalyst intelligent capabilities; Express setup is quick and easy using the Webpage interface. Enhanced troubleshooting for link connectivity issues and cable diagnostics.

Hardware Features

	WS-C2960G-8TC-L	WS-C2960G-24TC-L	WS-C2960G-48TC-L
LAN Base: Gigabit Ethernet			
LAN Base: Gigabit Ethernet			
Switching Fabric (Gbps)	32	32	32
Maximum Stack Members	0	0	0
Clustering	Yes,		
16 Switches/Cluster	Yes,		
Total Bandwidth of Stack (Gbps)	N/A	N/A	N/A
Packets per Second per Box (Mpps)	11.9	35.7	39
MAC Addresses Supported	8000	8000	8000
Routes Supported	16	16	16
Onboard Memory (DRAM MB)	64	64	64
10 GBE Density	N/A	N/A	N/A
Gigabit Ethernet GBIC/SFP Density	1*	4*	4*
10 GBE XENPAK/X2 Port Density	N/A	N/A	N/A
10/100/1000 Density	8	24	48
Maximum Watt Power Consumption	30	75	140
PoE: Maximum 802.3af Class 3 Devices (15.4W)	N/A	N/A	N/A
PoE: Maximum 802.3af Class 2 Devices (7.3W)	N/A	N/A	N/A
AC/DC Support	AC Only	AC Only	AC Only
Redundant Power Supply Support	No	Yes	Yes
Dimensions (H x W x D) Inches	1.73 x 10.6 x 8.1	1.73 x 17.5 x 12.9	1.73 x 17.5 x 12.9
Dimensions (H x W x D) Centimeters	4.4 x 27 x 20.5	4.4 x 44.5 x 32.8	4.4 x 44.5 x 32.8
Unit Weight Pounds (Kilograms)	3 (1.4)	10 (4.5)	12 (5.4)

*Dual purpose uplinks, only one SFP port or one 10/100/1000 BT port is active at any one time.

Hardware Features (continued)

	WS-C2960PD-8TT-L	WS-C2960-8TC-L	WS-C2960-24TT-L	WS-C2960-24LT-L	WS-C2960-24TC-L	WS-C2960-24PC-L	WS-C2960-48TT-L	WS-C2960-48TC-L
LAN Base: Fast Ethernet								
Switching Fabric (Gbps)	16	16	16	16	16	16	16	16
Maximum Stack Members	0	0	0	0	0	0	0	0
Clustering	Yes, 16 Switches/ Cluster	Yes, 16 Switches/ Cluster	Yes, 16 Switches/ Cluster	Yes, 16 Switches/ Cluster	Yes, 16 Switches/ Cluster	Yes, 16 Switches/ Cluster	Yes, 16 Switches/ Cluster	Yes, 16 Switches/ Cluster
Total Bandwidth of Stack (Gbps)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Packets per Second per Box (Mpps)	2.7	2.7	6.5	6.5	6.5	6.5	10.1	10.1
MAC Addresses Supported	8000	8000	8000	8000	8000	8000	8000	8000
Routes Supported	16	16	16	16	16	16	16	16
Onboard Memory (DRAM MB)	64	64	64	64	64	64	64	64
10 GBE Density	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gigabit Ethernet GBIC/SFP Density	0	1*	0	0	2*	2*	0	2*
10 GBE XENPAK/X2 Port Density	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/100/1000BaseT Density	1	1	2	2	2	2	2	2
10/100BaseT Density	8	8	24	24	24	24	48	48
Maximum Watt Power Consumption	11	20	30	175	30	470	45	45
PoE: Maximum 802.3af Class 3 Devices (15.4W)	N/A	N/A	N/A	8	N/A	24	N/A	N/A
PoE: Maximum 802.3af Class 3 Devices (15.4W)	N/A	N/A	N/A	8	N/A	24	N/A	N/A
PoE: Maximum 802.3af Class 2 Devices (7.3W)	N/A	N/A	N/A	8	N/A	24	N/A	N/A
AC/DC Support	PoE Input or AC Adapter	AC Only	AC Only	AC Only	AC Only	AC Only	AC Only	AC Only
Redundant Power Supply Support	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Dimensions (H x W x D) Inches	1.73 x 10.6 x 6.2	1.73 x 10.6 x 6.4	1.73 x 17.5 x 9.3	1.73 x 17.5 x 13	1.73 x 17.5 x 9.3	1.73 x 17.5 x 13	1.73 x 17.5 x 9.3	1.73 x 17.5 x 9.3
Dimensions (H x W x D) Centimeters	4.4 x 27 x 15.7	4.4 x 27 x 16.3	4.4 x 44.5 x 23.6	4.4 x 44.5 x 33.2	4.4 x 44.5 x 23.6	4.4 x 44.5 x 33.2	4.4 x 44.5 x 23.6	4.4 x 44.5 x 23.6
Unit Weight Pounds (Kilograms)	3 (1.4)	3 (1.4)	8 (3.6)	10 (4.5)	8 (3.6)	12 (5.4)	8 (3.6)	8 (3.6)

*Dual purpose uplinks, only one SFP port or one 10/100/1000 BT port is active at any one time.

Hardware Features (continued)

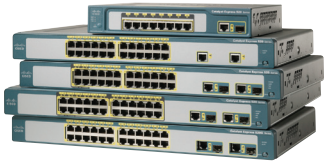
	WS-C2960-8TC-S	WS-C2960-24-S	WS-C2960-24TC-S	WS-C2960-48TT-S	WS-C2960-48TC-S
LAN Lite					
Switching Fabric (Gbps)	16	16	16	16	16
Maximum Stack Members	0	0	0	0	0
Clustering	Yes, 16 Switches/Cluster	Yes, 16 Switches/Cluster	Yes, 16 Switches/Cluster	Yes, 16 Switches/Cluster	Yes, 16 Switches/Cluster
Total Bandwidth of Stack (Gbps)	N/A	N/A	N/A	N/A	N/A
Packets per Second per Box (Mpps)	2.7	3.6	6.5	10.1	10.1
MAC Addresses Supported	8000	8000	8000	8000	8000
Routes Supported	N/A	N/A	N/A	N/A	N/A
Onboard Memory (DRAM MB)	64	64	64	64	64
10 GBE Density	N/A	N/A	N/A	N/A	N/A
Gigabit Ethernet GBIC/SFP Density	1*	0	2*	0	2*
10 GBE XENPAK/X2 Port Density	N/A	N/A	N/A	N/A	N/A
10/100/1000BaseT Density	1	0	2	2	2
10/100BaseT Density	8	24	24	48	48
Maximum Watt Power Consumption	20	30	30	45	45
PoE: Maximum 802.3af Class 3 Devices (15.4W)	N/A	N/A	N/A	N/A	N/A
PoE: Maximum 802.3af Class 2 Devices (7.3W)	N/A	N/A	N/A	N/A	N/A
AC/DC Support	AC Only	AC Only	AC Only	AC Only	AC Only
Redundant Power Supply Support	No	No	No	No	No
Dimensions (H x W x D) Inches	1.73 x 10.6 x 6.4	1.73 x 17.5 x 9.3	1.73 x 17.5 x 9.3	1.73 x 17.5 x 9.3	1.73 x 17.5 x 9.3
Dimensions (H x W x D) Centimeters	4.4 x 27 x 16.3	4.4 x 44.5 x 23.6	4.4 x 44.5 x 23.6	4.4 x 44.5 x 23.6	4.4 x 44.5 x 23.6
Unit Weight Pounds (Kilograms)	3 (1.4)	8 (3.6)	8 (3.6)	8 (3.6)	8 (3.6)

Product Overview

Product Number	Product Description
Catalyst 2960 Workgroup Switches	
WS-C2960G-48TC-L	Catalyst 2960 48 10/100/1000, 4 T/SFP LAN Base Image
WS-C2960-48TC-L	Catalyst 2960 48 10/100 + 2 T/SFP LAN Base Image
WS-C2960-48TT-L	Catalyst 2960 48 10/100 + 2 1000BT LAN Base Image
WS-C2960G-24TC-L	Catalyst 2960 24 10/100/1000, 4 T/SFP LAN Base Image
WS-C2960-24LT-L	Catalyst 2960 24 10/100 (8 PoE) + 2 1000BT LAN Base Image
WS-C2960-24PC-L	Catalyst 2960 24 10/100 PoE + 2 T/SFP LAN Base Image
WS-C2960-24TC-L	Catalyst 2960 24 10/100 + 2 T/SFP LAN Base Image
WS-C2960-24TT-L	Catalyst 2960 24 10/100 + 2 1000BT LAN Base Image
WS-C2960G-8TC-L	Catalyst 2960 7 10/100/1000 + 1 T/SFP LAN Base Image
WS-C2960-8TC-L	Catalyst 2960 8 10/100 + 1 T/SFP LAN Base Image
WS-C2960PD-8TT-L	Catalyst 2960 Powered Device 8 10/100 + 1 1000BT LAN Base Image
Catalyst 2960 LAN Lite Switches	
WS-C2960-24-S	Catalyst 2960 24 10/100 LAN Lite Image
WS-C2960-24TC-S	Catalyst 2960 24 10/100 + 2 T/SFP LAN Lite Image
WS-C2960-48TC-S	Catalyst 2960 48 10/100 + 2 T/SFP LAN Lite Image
RPS 2300 for the Catalyst 2960 Series	
PWR-RPS2300	Cisco Redundant Power System 2300 and Blower, no Power Supply
ACC-RPS2300=	Spare Accessory Kit for Cisco Redundant Power System 2300
BLNK-RPS2300	Bay Insert for Cisco Redundant Power System 2300
BLNK-RPS2300=	Spare Bay Insert for Cisco Redundant Power System 2300
CAB-RPS2300	RPS 2300 Cable for Devices Other than E Series Switches
CAB-RPS2300=	Spare RPS2300 Cable for Devices Other than E Series Switches
CAB-RPS2300-E	RPS2300 Cable for 3750E/3560E/2960 Power Switches
CAB-RPS2300-E=	Spare RPS2300 Cable for 3750E/3560E/2960 Power Switches
BLWR-RPS2300=	Spare 45CFM Blower for Cisco Redundant Power System 2300
C3K-PWR-750WAC=	3750-E/3560-E/RPS 2300 750W AC Power Supply (Spare)
C3K-PWR-1150WAC=	3750-E/3560-E/RPS 2300 1150W AC Power Supply (Spare)
Spare Rack-mount Kits for the Catalyst 2960	
RCKMNT-1RU=	Rack-mount Kit for 1RU for 3750, 3560, 3550, 2900-LRE-XL, 2960
RCKMNT-REC-1RU=	Recessed 1RU Rack-mount for 3550, 3560, 3750, 2960
RCKMNT-19-CMPCT=	19-inch Rack-mount for 3560, 2960, ME-3400 Compact Switch
RCKMNT-HPC=	Rack-mount for HPC for Catalyst 3750, 3560, 2960
Right Angle Power Cords for the Catalyst 2960	
CAB-AC-RA=	Power Cord, USA, Right Angle

Product Number	Product Description
Right Angle Power Cords for the Catalyst 2960 (continued)	
CAB-ACA-RA=	Power Cord, Australia, Right Angle
CAB-ACC-RA=	Power Cord, China, Right Angle
CAB-ACE-RA=	Power Cord, Europe, Right Angle
CAB-ACI-RA=	Power Cord, Italy, Right Angle
CAB-ACR-RA=	Power Cord, Argentina, Right Angle
CAB-ACS-RA=	Power Cord, Switzerland, Right Angle
CAB-ACU-RA=	Power Cord, UK, Right Angle
CAB-JPN-RA=	Power Cord, Japan, Right Angle
SFPs for Catalyst 2960	
GLC-BX-D=	1000BASE-BX SFP, 1490 nm
GLC-BX-U=	1000BASE-BX SFP, 1310 nm
GLC-FE-100BX-D=	100BASE-BX10-D SFP
GLC-FE-100BX-U=	100BASE-BX10-U SFP
GLC-FE-100FX=	100BASE-FX SFP for FE Port
GLC-FE-100LX=	100BASE-LX SFP for FE Port
GLC-GE-100FX=	100BASE-FX SFP for GE SFP Port on 3750, 3560. 2970, 2960
GLC-LH-SM=	GE SFP, LC Connector LX/LH Transceiver
GLC-SX-MM=	GE SFP, LC Connector SX Transceiver
GLC-ZX-SM=	1000BASE-ZX SFP
CWDM-SFP-1470=	CWDM 1470 nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1490=	CWDM 1490 nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1510=	CWDM 1510 nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1530=	CWDM 1530 nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1550=	CWDM 1550 nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1570=	CWDM 1570 nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1590=	CWDM 1590 nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1610=	CWDM 1610 nm SFP Gigabit Ethernet and 1G/2G FC
Cable Guard for the Catalyst 2960 Compact Switches	
CBLGRD-C2960-8TC=	Cable Guard for the 2960-8TC Compact Switch
CBLGRD-C2960G-8TC=	Cable Guard for the 2960G-8TC Compact Switch
Catalyst 2960 Relicensing for Used Equipment	
LL-C2960G=	Software License for 2960 Gigabit Ethernet Switches
LL-C2960=	Software License for 2960 Fast Ethernet Switches
Power Adaptor for the Catalyst 2960PD	
PWR-A=	Power Supply In: 100-240VAC Out: 48VDC 380mA- 2960PD-8TT-

Notes



Cisco Catalyst Express Series

Cisco-class switches that make advanced network services and IP Communications easy to manage for small and medium sized businesses (SMBs) with up to 250 employees.

The Cisco Catalyst Express Series Switches include the 500 and 520 families. They are fixed-configuration, Layer 2 managed Ethernet switches that provide the reliability, security, scalability, and rich feature set that SMBs need in an affordable, easy-to-use platform.

The Catalyst Express Series offer non-blocking, wire-speed performance that provides a secure network foundation optimized for data, wireless, and voice. Built-in advanced security features help ensure that all devices on the network are protected.

The Catalyst Express can be easily deployed and centrally managed with the Cisco Network Assistant (CNA). This PC based GUI simplifies and streamlines setting up, running, and troubleshooting a network. CNA includes Cisco Smartports technology which suggests recommended settings for all ports. This preset options help ensure mission-critical traffic is prioritized, voice conversations are clear, bandwidth-intensive video traffic does not impact other applications on the network, and your wireless network is secure. Integrated intelligence helps detect device and network problems before they impact your business.

The Catalyst Express Series also offer Power over Ethernet (PoE), reducing the cost and complexity of IP Communications and wireless LAN deployments by supplying power and Ethernet connectivity over the same Category 5 cables. This eliminates the need to provide separate power outlets and cables for wireless access points, closed-circuit TV cameras, and IP phones.

Hardware Features: Cisco Catalyst Express 500 Series

	WS-CE500-24TT	WS-CE500-24LC	WS-CE500-24PC	WS-CE500G-12TC
Forwarding Bandwidth per Box (Gbps)	8.8	8.8	8.8	24
Maximum Stack Members	0	0	0	0
Clustering	No	No	No	No
Total Bandwidth of Stack (Gbps)	0	0	0	0
Packets per Second per Box (Mpps)	6.6	6.6	6.6	18
MAC Addresses Supported	8000	8000	8000	8000
Routes Supported	0	0	0	0
Onboard Memory (DRAM MB)	32	32	32	32
10 GBE Density	0	0	0	0
Gigabit Ethernet GBIC/SFP Density	0	2*	2*	4*
10 GBE XENPAK/X2 Port Density	0	0	0	0
10/100/1000 Density	2	2*	2*	12
10/100 Density	24	24	24	0
100BASE-FX Density	0	0	0	0
Maximum Watt Power Consumption	30	110	460	45
PoE: Maximum 802.3af Class 3 Devices (15.4W)	0	4	24	0
PoE: Maximum 802.3af Class 2 Devices (7.3W)	0	4	24	0
AC/DC Support	AC Only	AC Only	AC Only	AC Only
Redundant Power Supply Support	Yes	Yes	Yes	Yes
Dimensions (H x W x D) Inches	1.73 x 17.5 x 9.9	1.73 x 17.5 x 9.9	1.73 x 17.5 x 14.4	1.73 x 17.5 x 9.9
Dimensions (H x W x D) Centimeters	4.39 x 44.45 x 25.15	4.39 x 44.45 x 25.15	4.39 x 44.45 x 36.58	4.39 x 44.45 x 25.15
Unit Weight in Pounds (Kilograms)	8 (3.7)	8 (3.7)	12 (5.5)	8 (3.7)

*Dual purpose uplinks, only one SFP port or one 10/100/1000 BT port is active at any one time.

Hardware Features: Cisco Catalyst Express 520 Series

	WS-CE520-24TT-K9	WS-CE520-24LC-K9	WS-CE520-24PC-K9	WS-CE520G-24TC-K9	WS-CE520-8PC-K9
Forwarding Bandwidth per Box (Gbps)	8.8	8.8	8.8	24	16
Maximum Stack Members	0	0	0	0	0
Total Bandwidth of Stack (Gbps)	0	0	0	0	0
Packets per Second per Box (Mpps)	6.6	6.6	6.6	18	2.7
MAC Addresses Supported	8000	8000	8000	8000	8000
Routes Supported	0	0	0	0	0
Onboard Memory (DRAM MB)	64	64	64	64	64
10 GBE Density	0	0	0	0	0
Gigabit Ethernet GBIC/SFP Density	0	2*	2*	2*	1
10 GBE XENPAK/X2port Density	0	0	0	0	0
10/100/1000 Density	2	2*	2*	24	0
10/100 Density	24	24	24	0	8
100BASE-FX Density	0	0	0	0	0
Maximum Watt Power Consumption	30	110	460	45	204
PoE: Max. 802.3af Class 3 Devices (15.4W)	0	4	24	0	8
PoE: Max. 802.3af Class 2 Devices (7.3W)	0	4	24	0	8
AC/DC Support	AC Only	AC Only	AC Only	AC Only	AC Only
Dimensions (H x W x D) Inches	1.73 x 17.5 x 9.9	1.73 x 17.5 x 9.9	1.73 x 17.5 x 14.4	1.73 x 17.5 x 9.9	1.73 x 10.6 x 9.1
Dimensions (H x W x D) Centimeters	4.39 x 44.45x 25.15	4.39 x 44.45x 25.15	4.39 x 44.45x 36.58	4.39 x 44.45x 25.15	4.4 x 27 x 23
Unit Weight Pounds (Kilograms)	8 (3.7)	8 (3.7)	12 (5.5)	8 (3.7)	5 (2.3)

*Dual purpose uplinks, only one SFP port or one 10/100/1000 BT port is active at any one time.

Cisco Catalyst Express 500 Series Spotlight

Simplified Deployments

The Cisco Catalyst Express Series switches are designed for ease-of-use.

The Catalyst Express Series can be configured with its user-friendly GUI—Cisco Network Assistant. Integrated intelligence optimizes the switch at the system level. Optimal configuration for each port can be applied by choosing from 10 preset Cisco Smartports roles. All ports support autonegotiation of port speed and duplex, and all PoE ports can supply up to the IEEE standard maximum of 15.4W simultaneously.

Integrated Security

The Catalyst Express 500 Series offers several layers of security to protect your network, including a choice of three business-optimized levels. Management traffic to and from the GUI device manager can be encrypted with Secure Sockets Layer (SSL). Tight integration with Cisco wireless access points allows businesses to quickly and easily deploy a secure wireless LAN network. With the Cisco Self-Defending Network strategy and Cisco Clean Access solutions, the Catalyst Express Series raises antivirus and overall security protection to the next level.

Product Overview

Product Number	Product Description
Cisco Catalyst Express Series	
WS-CE500-24TT	24 10/100 Ports and 2 10/100/1000BT Uplinks, GUI S/W
WS-CE500-24LC	24 10/100 Ports (4 PoE) + 2 10/100/1000BT or SFP Uplinks, GUI S/W
WS-CE500-24PC	24 10/100 Ports (24 PoE) + 2 10/100/1000BT or SFP Uplinks, GUI S/W
WS-CE500G-12TC	8 10/100/1000BT + 4 10/100/1000BT or SFP Uplinks, GUI S/W
Cisco Catalyst Express 520 Series	
WS-CE520-8PC-K9	8 10/100 PoE + 1 GBE Combo Port
WS-CE520-24TT-K9	24 10/100 Ports + 2 10/100/1000BASE-T Ports
WS-CE520-24LC-K9	20 10/100 Ports + 4 10/100 Ports with PoE + 2 10/100/1000BASE-T or SFP Ports
WS-CE520-24PC-K9	24 10/100 Ports with PoE + 2 10/100/1000BASE-T or SFP Ports
WS-CE520G-24TC-K9	24 10/100/1000BASE-T Ports + 2 10/100/1000BASE-T or SFP Ports
RPS for Catalyst Express 500 and 520-24PC	
PWR675-AC-RPS-N1=	675W Redundant Power Supply with Connector Cable
CAB-RPS-1614=	RPS 675 Connector Cable 16/14
SFPs for the Catalyst Express Cisco 6506-E Systems	
GLC-GE-100FX=	100FX SFP on GBE SFP Ports for DSBU Switches
GLC-FE-100FX	100BASE-FX SFP for FE Port
GLC-LH-SM=	GBE SFP, LC Connector LX/LH Transceiver
GLC-SX-MM=	GBE SFP, LC Connector SX Transceiver
GLC-FE-100LX	100BASE-LX SFP for FE Port

Product Overview (continued)

Product Number	Product Description
Right Angle Power Cords for the Catalyst Express	
CAB-AC-RA=	Power Cord, 110V, Right Angle
CAB-AC-RA	Power Cord, 110V, Right Angle
CAB-ACA-RA=	Power Cord, Australia, Right Angle
CAB-ACC-RA=	Power Cord, China, Right Angle
CAB-ACE-RA=	Power Cord, Europe, Right Angle
CAB-ACI-RA=	Power Cord, Italy, Right Angle
CAB-ACR-RA=	Power Cord, Argentina, Right Angle
CAB-ACS-RA=	Power Cord, Switzerland, Right Angle
CAB-ACU-RA=	Power Cord, UK, Right Angle
CAB-JPN-RA=	Power Cord, Japan, Right Angle
CAB-JPN-RA	Power Cord, Japan, Right Angle
RPS2300 for the Catalyst Express	
PWR-RPS2300	Cisco Redundant Power System 2300 and Blower, no Power Supply
ACC-RPS2300=	Spare Accessory Kit for Cisco Redundant Power System 2300
BLNK-RPS2300	Bay Insert for Cisco Redundant Power System 2300
BLNK-RPS2300=	Spare Bay Insert for Cisco Redundant Power System 2300
CAB-RPS2300	RPS 2300 Cable for Devices Other han E-Series Switches
CAB-RPS2300=	Spare RPS2300 Cable for Devices Other than E-Series Switches
CAB-RPS2300-E	RPS2300 Cable for 3750E/3560E Switches
CAB-RPS2300-E=	Spare RPS2300 Cable for 3750E/3560E Switches
BLWR-RPS2300=	Spare 45CFM Blower for Cisco Redundant Power System 2300
C3K-PWR-750WAC=	3750-E/3560-E/RPS 2300 750W AC Power Supply (Spare)
C3K-PWR-1150WAC=	3750-E/3560-E/RPS 2300 1150W AC Power Supply (Spare)
Spare Rack-mount Kits for the Catalyst Express	
RCKMNT-CATEXP=	Rack-mount Kit for Catalyst Express

Notes

Cisco Fabric Extender Architecture

Cisco Nexus 2000 Series Fabric Extenders logically behave like a remote line card, and together with the Cisco Nexus parent switch it forms a distributed modular system. The Cisco Nexus 2000 Series Fabric Extenders forwards all traffic to the parent Cisco Nexus 5000 or 7000 Series Switch over 10 Gigabit Ethernet uplinks. Passing all traffic to the parent switch allows traffic to be shaped according to policies established on the parent Cisco Nexus 5000 or 7000 Series Switch with a single point of management.

Notes

Nexus 2000 Series

Cisco Nexus 2000 Series Fabric Extenders logically behave like a remote line card, and together with the Cisco Nexus parent switch it forms a distributed modular system. The Cisco Nexus 2000 Series Fabric Extenders forwards all traffic to the parent Cisco Nexus 5000 or 7000 Series Switch over 10 Gigabit Ethernet uplinks. Passing all traffic to the parent switch allows traffic to be shaped according to policies established on the parent Cisco Nexus 5000 or 7000 Series Switch with a single point of management.

Nexus 2000 Series Fabric Extenders Spotlight

Architectural flexibility

- Provides a comprehensive range of connectivity options—100 Megabit Ethernet, Gigabit Ethernet, and 10 Gigabit Ethernet server connectivity and unified fabric environments—and supports copper and fiber Gigabit Ethernet and 10 Gigabit Ethernet connectivity options with 1GBASE-T, SFP and SFP+, and CX1 over copper and fiber cables.
- Supports various server form factors: rack and blade servers.
- Offers space optimized for both Top of the Rack (ToR) and End of the Row (EoR) topologies with the Cisco Nexus parent switch.
- Provides port-density options: 24p, 32p, and 48p.
- Enables quick expansion of network capacity.

Highly scalable server access

- Allows transparent addition of network capacity as needed, reducing initial capital expenditures (CapEx).
- Enables quick expansion of network capacity by rolling in a prewired rack of servers with a ToR fabric extender and transparent connectivity to an upstream Cisco Nexus parent switch.

Simplified operations

- With Cisco Nexus 5000 or 7000 Series, provides a single point of management and policy enforcement.
- Offers plug-and-play management that includes autoconfiguration.
- Allows smooth transition from Gigabit Ethernet to 10 Gigabit Ethernet.
- Offers innovative approach that reduces data center cabling costs and footprint with optimized inter-rack cabling.

Breakthrough Business Benefits

- Offers 10 Gigabit Ethernet connectivity that provides 10 times the bandwidth for approximately twice the price.
- Reduces cabling by up to 85 percent, power and cooling by up to 30 percent, and CapEx by up to 40 percent.
- Supports virtual machine-aware network services; per-virtual machine awareness helps maintain a consistent policy view for each virtual machine and mobility of virtual machines and workloads within data centers.
- Supports In-Service Software Upgrade (ISSU) and virtual PortChannel (vPC) technology, extending the resiliency of data center deployments for server connectivity.

Hardware Features

	Cisco Nexus 2148T	Cisco Nexus 2248TP	Cisco Nexus 2224TP	Cisco Nexus 2232PP
Fabric Extender Host Interfaces	48	48	24	32
Fabric Extender Host Interfaces Type	1000BASE-T ports: RJ-45 connectors	100BASE-T/1000BASE-T ports: RJ-45 connectors	100BASE-T/1000BASE-T ports: RJ-45 connectors	1/10 Gigabit Ethernet ports SFP/SFP+ (Supported transceiver and cables include Twinax SFP-H10GB-CU1M, SFP-H10GB-CU3M, SFP-H10GB-CU5M, SFP-H10GB-ACU7M, and SFP-H10GB-ACU10M, include SFP+ SFP-10G-SR, SFP-10G-LR, and include SFP GLC-T, GLC-SX-MM, GLC-LH-SM, SFP-GE-T, SFP-GE-S, SFP-GE-L)
Fabric Extender Fabric Interfaces	4	4	2	8
Fabric Extender Fabric Interfaces Type	Fiber: SFP+ optics (SFP-10G-SR and SFP-10G-LR) Copper: 10 Gigabit Ethernet SFP+ passive Twinax copper cables (SFP-H10GB-CU1M, SFP-H10GB-CU3M, and SFP-H10GB-CU5M) and active Twinax copper cables (SFP-H10GB-ACU7M, SFP-H10GB-ACU10M) Distance between Cisco Nexus 2000 Series Fabric Extender and Cisco Nexus 5000 Series Switch: Up to 3 km	Fiber: Cisco Fabric Extender Transceiver (FET-10G) and SFP+ optics (SFP-10G-SR and SFP-10G-LR) Copper: 10 Gigabit Ethernet SFP+ passive Twinax copper cables (SFP-H10GB-CU1M, SFP-H10GB-CU3M, and SFP-H10GB-CU5M) and active Twinax copper cables (SFP-H10GB-ACU7M, SFP-H10GB-ACU10M) Distance between Cisco Nexus 2000 Series Fabric Extender and Cisco Nexus 5000 Series Switch: Up to 3 km Distance between Cisco Nexus 2000 Series Fabric Extender and Cisco Nexus 7000 Series Switch: Up to 10 km	Fiber: Cisco Fabric Extender Transceiver (FET-10G) and SFP+ optics (SFP-10G-SR and SFP-10G-LR) Copper: 10 Gigabit Ethernet SFP+ passive Twinax copper cables (SFP-H10GB-CU1M, SFP-H10GB-CU3M, and SFP-H10GB-CU5M) and active Twinax copper cables (SFP-H10GB-ACU7M, SFP-H10GB-ACU10M) Distance between Cisco Nexus 2000 Series Fabric Extender and Cisco Nexus 5000 Series Switch: Up to 3 km	Fiber: Cisco Fabric Extender Transceiver (FET-10G) and SFP+ optics (SFP-10G-SR and SFP-10G-LR) Copper: 10 Gigabit Ethernet SFP+ passive Twinax copper cables (SFP-H10GB-CU1M, SFP-H10GB-CU3M, and SFP-H10GB-CU5M) and active Twinax copper cables (SFP-H10GB-ACU7M, SFP-H10GB-ACU10M) Distance between Cisco Nexus 2000 Series Fabric Extender and Cisco Nexus 5000 Series Switch: Up to 3 km (300m for FCoE traffic)
Fabric Speed	6.40 Gbps in each direction (80 Gbps full duplex)	40 Gbps in each direction (80 Gbps full duplex)	20 Gbps in each direction (40 Gbps full duplex)	80 Gbps in each direction (160 Gbps full duplex)
Oversubscription	1.2:1	1.2:1	1.2:1	4:1
Performance	Hardware forwarding at 176 Gbps or 131 million packets per second (Mpps)	Hardware forwarding at 176 Gbps or 131 Mpps	Hardware forwarding at 88 Gbps or 65 Mpps	Hardware forwarding at 560 Gbps or 595 Mpps
Cisco Parent Switch	Cisco Nexus 5000 Series	Cisco Nexus 5000 Series Cisco Nexus 7000 Series	Cisco Nexus 5000 Series Cisco Nexus 7000 Series	Cisco Nexus 5000 Series Cisco Nexus 7000 Series
Minimum Software	Cisco NX-OS Release 4.0(1A)N2(1) on the Cisco Nexus 5000 Series	Cisco NX-OS Release 4.2(1)N1(1) on the Cisco Nexus 5000 Series Cisco NX-OS Release 5.1 on the Cisco Nexus 7000 Series	Cisco NX-OS Release 4.2(1)N2(1) on the Cisco Nexus 5000 Series Cisco NX-OS Release 5.2 on the Cisco Nexus 7000 Series	Cisco NX-OS Release 4.2(1)N2(1) on the Cisco Nexus 5000 Series Cisco NX-OS Release 5.2 on the Cisco Nexus 7000 Series

Hardware Features

	Cisco Nexus 2148T	Cisco Nexus 2248TP	Cisco Nexus 2224TP	Cisco Nexus 2232PP
Cisco Nexus 2000 Series Gigabit Ethernet Fabric Extenders Environment				
Dimensions (Height x Width x Depth)	1.72 x 17.3 x 20.0 in. (4.37 x 43.94 x 50.8 cm)	1.72 x 17.3 x 17.7 in. (4.37 x 43.94 x 44.96 cm)	1.72 x 17.3 x 17.7 in. (4.37 x 43.94 x 44.96 cm)	1.72 x 17.3 x 17.7 in. (4.37 x 43.94 x 44.96 cm)
Weight	18 lb (8.2 kg) * Systems are fully loaded with two power supplies and one fan tray.	17.7 lb (8.0 kg) * Systems are fully loaded with two power supplies and one fan tray.	16.6 lb (7.53 kg) * Systems are fully loaded with two power supplies and one fan tray.	18.3 lb (8.3 kg) * Systems are fully loaded with two power supplies and one fan tray.
Indicator and Port Specification	System status: green (operational), amber (fault), flashing amber (POST boot up), off (no power) Locator LED: bright blue locator Port status: green (link established), amber (administratively disabled), flashing amber (fault) Fan status: green (operational), amber (fault) Power status: green (operational), amber (fault)			
Environment	Operating temperature: 32 to 104°F (0 to 40°C) Non-operating temperature: –4 to 158°F (–20 to 70°C) Humidity: 5 to 95 percent (Noncondensing) Altitude: 0 to 10,000 ft (0 to 3000m)			
Power Supply	N2K-PAC-200W	N2K-PAC-400W, N2K-PAC-400W-B, and N2K-PDC-400W	N2K-PAC-400W, N2K-PAC-400W-B, and N2K-PDC-400W	N2K-PAC-400W, N2K-PAC-400W-B, and N2K-PDC-400W
Fan Tray	N2K-C2148-FAN	N2K-C2248-FAN and N2K-C2248-FAN-B	N2K-C2248-FAN and N2K-C2248-FAN-B	N2K-C2232-FAN and N2K-C2232-FAN-B
Typical Input Operating Power	165W	110W	95W	270W
Input Current	1.5A/2.2A (typical/maximum) Note: Input currents listed for 110V; divide by 2 for 220V Supply will surge on AC power-up for a fraction of a second beyond this rating	1.0A/1.2A (typical/maximum) Note: Input currents listed for 110V; divide by 2 for 220V Supply will surge on AC power-up for a fraction of a second beyond this rating	0.75A/0.90A (typical/maximum) Note: Input currents listed for 110V; divide by 2 for 220V Supply will surge on AC power-up for a fraction of a second beyond this rating	2.5A/4.1A (typical/maximum) Note: Input currents listed for 110V; divide by 2 for 220V Supply will surge on AC power-up for a fraction of a second beyond this rating
Output Current	11.5A/16.7A (typical/maximum)	8A/10A (typical/maximum)	5A/7A (typical/maximum)	20A/33A (typical/maximum)
Heat Dissipation	670 BTU/hr	322/403 BTU/hour (typical/maximum)	201/282 BTU/hour (typical/maximum)	806/1330 BTU/hour (typical/maximum)

Product Overview

Product Number	Product Description
Chassis	
N2K-C2148T-1GE	Cisco Nexus 2000 Series 1GE Fabric Extender, 1PS, 1 Fan Module, 48x1GBase-T + 4x10 GE (req SFP+)
N2K-C2224TP-1GE	Cisco Nexus 2000 Series 1GE Fabric Extender, 2PS, 1 Fan Module, 24x100/1000Base-T + 2x10 GE (req SFP+)
N2K-C2224TF-1GE	Cisco Nexus 2000 Series 1GE Fabric Extender, 2PS, 1 Fan Module, 24x100/1000Base-T + 2x10 GE (includes 4 Fabric Extender Transceivers)
N2K-C2248TP-1GE	Cisco Nexus 2000 Series 1GE Fabric Extender, 2PS, 1 Fan Module, 48x100/1000Base-T + 4x10 GE (req SFP+)
N2K-C2248TF-1GE	Cisco Nexus 2000 Series 1GE Fabric Extender, 2PS, 1 Fan Module, 48x100/1000Base-T + 4x10 GE (includes 8 Fabric Extender Transceivers)
N2K-C2232PP-10GE	Cisco Nexus 2000 Series 10 GE Fabric Extender, 2PS, 1 Fan Module, 32x1/10 GE (req SFP/SFP+) + 8x10 GE (req SFP+)
N2K-C2232PF-10GE	Cisco Nexus 2000 Series 10 GE Fabric Extender, 2PS, 1 Fan Module, 32x1/10 GE (req SFP/SFP+) + 8x10 GE (includes 16 Fabric Extender Transceivers)
Fan Modules	
N2K-C2148T-FAN=	Cisco Nexus 2148T FEX Fan Module, Spare
N2K-C2248-FAN=	Cisco Nexus 2224TP and 2248TP FEX Fan Module, Spare
N2K-C2232-FAN=	Cisco Nexus 2232PP FEX Fan Module, Spare
N2K-C2248-FAN-B=	Cisco Nexus 2224TP and 2248TP FEX Fan Module, Back-to-front Airflow, Spare
N2K-C2232-FAN-B=	Cisco Nexus 2232PP FEX Fan Module, Back-to-front Airflow, Spare
Power Supplies	
N2K-PAC-200W(=)	Cisco Nexus 2148T FEX 1GE 200W Power Supply, Spare
N2200-PAC-400W=	Cisco Nexus 2200 AC Power Supply, Spare
N2200-PAC-400W-B=	Cisco Nexus 2200 AC Power supply, Back-to-front Airflow, Spare
N2200-PDC-400W=	Cisco Nexus 2200 DC Power Supply, Spare
N2K-P1-BLNK=	Cisco Nexus 2148T FEX 1GE Power Supply Blank, Spare
N2200-P-BLNK=	Cisco Nexus 2200 Power Supply Blank, Spare
Transceivers and Cables	
SFP-10G-SR(=)	10GBASE-SR SFP+ Module
SFP-10G-LR(=)	10GBASE-LR SFP+ Module
SFP-H10GB-CU1M(=)	10GBASE-CU SFP+ Passive Cable 1 m
SFP-H10GB-CU3M(=)	10GBASE-CU SFP+ Passive Cable 3 m
SFP-H10GB-CU5M(=)	10GBASE-CU SFP+ Passive Cable 5 m
SFP-H10GB-ACU7M(=)	10GBASE-CU SFP+ Active Cable 7 m
SFP-H10GB-ACU10M(=)	10GBASE-CU SFP+ Active Cable 10 m
GLC-T(=)	1000BASE-T SFP

Product Overview (continued)

Product Number	Product Description
Transceivers and Cables (continued)	
GLC-T(=)	1000BASE-T SFP
GLC-SX-MM(=)	GE SFP, LC Connector SX Transceiver
GLC-LH-SM(=)	GE SFP, LC Connector LX/LH Transceiver
SFP-GE-T(=)	1000BASE-T SFP, Extended Temperature Range
SFP-GE-S(=)	GE SFP, LC Connector SX Transceiver, with Digital Optical Monitoring (DOM) and Extended Temperature Range
SFP-GE-L(=)	GE SFP, LC Connector LX/LH Transceiver, with Digital Optical Monitoring (DOM) and Extended Temperature Range
Accessory Kit	
N2K-C2148T-ACC=	Cisco Nexus 2000 FEX 1GE Accessory Kit, Spare
N2200-ACC-KIT=	Cisco Nexus 2200 FEX Accessory Kit, Spare
Power Cords	
CAB-N5K6A-NA(=)	Power Cord, 210/220V 30A North America
CAB-AC-250V/13A(=)	Power Cord for North America, 125VAC/13A
CAB-C13-C14-JMPR(=)	Recessed Receptacle AC Power Cord 27
CAB-C13-C14-2M(=)	Power Cord Jumper, C13-C14 Connectors, 2 m
CAB-C13-C14-AC(=)	Power Cord Jumper, C13-C14 Connectors, 3 m
CAB-C13-CBN(=)	Cabinet Jumper Power Cord, 250 VAC 16A, C14-C13 Connectors
CAB-9K12A-NA(=)	Power Cord, 125VAC 15A NEMA 5-15 Plug, North America
SFS-250V-10A-AR(=)	SFS Power Cord—250V, 10A—Argentina
CAB-9K10A-AU(=)	Power Cord, 250VAC 10A 3112 Plug, Australia
SFS-250V-10A-CN(=)	SFS Power Cord—250V, 10A—PRC
CAB-9K10A-EU(=)	Power Cord, 250VAC 10A CEE 7/7 Plug, EU
SFS-250V-10A-ID(=)	SFS Power Cord—250V, 10A—South Africa, UAE, India
CAB-IND-10A(=)	10A Power Cable for India
SFS-250V-10A-IS(=)	SFS Power Cord—250V, 10A—Israel
CAB-9K10A-IT(=)	Power Cord, 250VAC 10A CEI 23-16/VII Plug, Italy
CAB-9K10A-SW(=)	Power Cord, 250VAC 10A MP232 Plug, Switzerland
CAB-9K10A-UK(=)	Power Cord, 250VAC 13A BS1363 Plug (13 A fuse), UK

Notes

Blade Switches

Cisco Nexus 4000 Series switches are purpose-built to provide the server access foundation required for scale-out virtualized x86 computing architectures built on high density blade servers. The Cisco Nexus 4000 Series is an all 10-Gbps Fibre Channel over Ethernet (FCoE) switch that is fully compliant with the IEEE 802.1 Data Center Bridging specification. Cisco Nexus 4000 Series provides innovative architecture to simplify data center transformation, enabling standards-based, high performance and convergence over 10 Gigabit Ethernet in the blade server environment.

Nexus 4000 Series

Cisco Nexus Blade Switch for IBM

The Cisco Nexus 4001I Switch Module for IBM BladeCenter is a blade switch solution for the IBM BladeCenter H and HT chassis providing the server I/O solution. It is a line-rate, extremely low-latency, non-blocking, Layer 2, 10 Gigabit Ethernet blade switch. At the core of the Cisco Nexus 4001I is the unified switch ASIC, a new purpose-built, high performance, line-rate switch ASIC that delivers extremely low and consistent latency across all packet sizes independent of the configured networking features. The unified switch ASIC supports standard Ethernet as well as Priority Flow Control (PFC) and Enhanced Transmission Selection (ETS), required for lossless Ethernet transmission.

LAN and SAN networking protocols are delivered through Cisco NX-OS, a modular, fault-tolerant, highly available operating system designed specifically to support unified fabric data center networks.

Nexus 4000 Series Switch Spotlight

Lower total cost of operation (TCO):

Deployment of unified fabric with the Cisco Nexus 4001I at the blade server access enables a significant reduction in the number of switches, LAN and SAN network interface cards (NICs), ports, optic modules, and cables. This consolidation of server access network elements significantly reduces the overall capital and operation costs of the data center network through reduction in the number of network elements that need to be purchased, managed, powered, and cooled.

High performance:

The Cisco Nexus 4001I is a line-rate, feature-rich, extremely low-latency switch capable of enabling server access migration from Gigabit Ethernet to 10 Gigabit Ethernet to lossless 10 Gigabit Ethernet, as well as supporting the demanding latency requirements of high-performance computing (HPC) clusters and high-frequency trading applications.

Enhanced server virtualization

Using unified fabric at the server access with Cisco Nexus 4001I provides the uniform interfaces, simplified cabling, and consistent server access design required to gain the advantages of automated virtual machine mobility. The Cisco Nexus 4001I used in conjunction with the Cisco Nexus 1000V Switch delivers an operationally consistent and transparent server access design for virtual machine deployments, substantially reducing the overhead needed to configure, troubleshoot, and repair the server access link between the virtual NIC (vNIC), virtual switch, and the blade switch.

Increased resilience

The Cisco Nexus 4001I extends Cisco NX-OS to the blade server access, providing a fault-tolerant network with single modular operating system across the data center.

Product Overview

Product Number	Product Description
Chassis	
N4K-4001I-XPX	Cisco Nexus 4001I Switch Module for IBM Blade Center
Software Licenses	
N4K-4001I-SSK9	Cisco Nexus 4001I Storage Protocol Services License
Cables and Optics	
SFP-10G-SR(=)	10GBASE-SR SFP+ Module
SFP-10G-LR(=)	10GBASE-LR SFP+ Module
SFP-H10GB-CU1M(=)	10GBASE-CU SFP+ Cable 1 m
SFP-H10GB-CU3M(=)	10GBASE-CU SFP+ Cable 3 m
SFP-H10GB-CU5M(=)	10GBASE-CU SFP+ Cable 5 m
GLC-T(=)	1000BASE-T SFP
GLC-SX-MM(=)	GE SFP, LC Connector SX Transceiver
GLC-LH-SM(=)	GE SFP, LC Connector LX/LH Transceiver

Hardware Features: Nexus 4000 Series

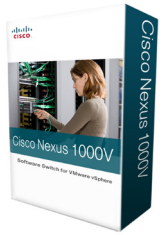
	N4K-4001I-XPX
Switching Fabric (Gbps)	400
Packets per Second (Mpps)	300
MAC Addresses Supported	8192
Latency (microseconds)	1.5
Maximum Transfer Unit (bytes)	9216 (jumbo frames)
Number of Configurable VLANs	512 (configurable range 1 to 4096)
Onboard Memory	2-GB DDR2 DIMM with ECC
Flash Memory	1-GB eUSB
Hardware Queues per Port	8
1 or 10 GBE Server Facing Ports	14
1 or 10 GBE Uplinks	10
10/100/1000 Management Ports	2
Maximum Watt Power Consumption	12V at 5.75A (69W)
AC/DC Support	AC Only
Redundant Power Supply Support	No
Dimensions (L x W x H) Inches	10.27 x 11.57 x 0.79
Dimensions (L x W x H) Millimeters	260.93 x 293.9 x 20
Unit Weight Pounds (Kilograms)	3.94 (1.79)
Predicted Mean Time Between Failures (MTBF)	Approx. 187,265 hours

Notes

Virtual Switches

When server virtualization is deployed in the data center, virtual servers typically are not managed the same way as physical servers. Server virtualization is treated as a special deployment, leading to longer deployment time, with a greater degree of coordination among server, network, storage, and security administrators. With the Cisco Nexus 1000V Series, deployment of your virtualized servers allows you to have a consistent networking feature set and provisioning process all the way from the VM access layer to the core of the data center network infrastructure allowing your virtual servers to leverage the same network configuration, security policies, diagnostic tools, and operations models.

Notes



Cisco Nexus 1000V Series Switches

The Cisco Nexus 1000V is a switching platform designed to provide:

- Advanced virtual machine networking, such as adding server virtualization intelligence into the network
- Cisco vPath architecture that supports a variety of virtualized network services including Virtual Security Gateway, AND
- Cloud deployment optimization, such as extending the range of vMotion between two physical data centers

The Nexus 1000V has two major components, the Virtual Ethernet Module(VEM) and the Virtual Supervisor Module (VSM).

The VEM is the Cisco software switch inside the VMware ESX or ESXi hypervisor and replaces the VMware Virtual Switch functionality. Its advanced switching features include Quality of Service, Link Aggregation, Access Control List, NetFlow, ERSPAN, and many others. Together, these features allow you to optimize the virtual machine network with more robust connectivity. The VEMs are managed by the VSM, which is an instance of NX-OS. In fact, the VSM manages a collection of VEMs as a single network device.

With Nexus 1000V, network administrator is able to define network policies on the VSM. These policies include network configuration information such as VLANs, Access Control List, Quality of Service and others. These policies appear in the VMware vCenter Server as port groups that can be applied to individual VMs. Therefore, with Nexus 1000V, both the network administrators and server virtualization administrators are able to independently configure the virtual machine network using familiar tools, such as NX-OS and VMware vCenter Server.

Once these policies are attached to the VM, they follow the VM throughout its lifecycle, including vMotion. In fact, during vMotion, VMs can continue traffic monitoring activities, such as ERSPAN and Netflow, because Nexus 1000V moves the entire network state of the VM.

In addition to switching functionalities, Nexus 1000V supports a variety of virtualized Layer 4–7 services through an architecture called vPath.

Cisco vPath can optimize the deployment of a virtual firewall, such as Virtual Security Gateway. If there's a VM that requires firewall services for its data traffic, instead of installing a firewall VM on every physical server, Cisco vPath intelligently redirects traffic to another server that hosts the firewall VM, and provides a much more flexible deployment model.

Cisco vPath also provides decision caching. The VEM caches the virtual firewall decision in a flow table. Hence, future packets in this flow no longer need to be redirected to the external server. Because the Intelligent Traffic Steering and Decision Caching are taking place inside the VEM, their performance is accelerated since VEM is in the hypervisor kernel.

The VSM can be deployed as a VM on VMware vSphere. Or the VSM can be deployed on the Cisco Nexus 1010 Virtual Services Appliance for customers who prefer to have dedicated computing platform. In both deployment options, the VEM continues to be used in the hypervisor.

With the Nexus 1010, customers can enjoy additional functionalities, such as Network Analysis Module and additional Virtual Service Blades. For customers who are considering cloud deployments, Nexus 1000V also enables vMotion between physical data centers and also works with VMware vCloud Director.
In summary, Nexus 1000V enables VMs to be treated as a basic building block of the data center that empowers both network and virtualization administrators to manage the VM network with their own familiar tools.

Product Specifications

VMware Product Compatibility

The Cisco Nexus 1000V Series is VMware Ready Certified to be compatible with VMware vSphere as a vNetwork

Distributed Switch with support for VMware ESX and ESXi hypervisors and integration with VMware vCenter Server.

VMware vSphere Feature Compatibility

The Cisco Nexus 1000V Series is supported with the following VMware vSphere features:

- VMware vMotion
- VMware Distributed Resource Scheduler (DRS)
- VMware High Availability (HA)
- VMware Storage vMotion
- VMware Fault Tolerance (FT)
- VMware Update Manager
- VMware vShield Zones

Product Specifications (continued)

Maximum Supported Configurations

- 64 VMware ESX or ESXi hosts per VSM
- 2048 virtual Ethernet ports per VMware vDS, with 216 virtual Ethernet ports per physical host
- 2048 active VLANs
- 2048 Port Profiles
- 32 physical NICs per physical host
- 256 PortChannels per VMware vDS, with 8 PortChannels per physical host

Virtual Machine–Optimized Services

Cisco Nexus 5000 Series Switches are designed to support virtualization and virtual machine mobility by mapping virtual machines to network profiles, allowing network services allocation at per-virtual machine granularity centrally from the unified fabric. This capability to move virtual machines and network profiles together eases manageability, increases isolation, and enables consistent network and security policies.

System Requirements

- Optimized for maximum services scalability

- Cisco Nexus 1000V Series VSM:
- VSM can be deployed as a virtual machine on VMware ESX or ESXi 3.5U2 or higher or ESX or ESXi 4.0
- Hard disk: 3 GB
- RAM: 2 GB
- 1 virtual CPU at 1.5 GHz

- Cisco Nexus 1000V Series VEM
- VMware ESX or ESXi 4.0 or later
- Hard disk space: 6.5 MB
- RAM: 150 MB

- Number of VLANs for Layer 2 connectivity between VSM and VEM: 1

- Server on VMware Hardware Compatibility List (http://www.vmware.com/go/hcl)

- Compatible with any upstream physical switches, including all Cisco Nexus and Cisco Catalyst® switches as well as Ethernet switches from other vendors

Product Overview

Product Number	Product Description
N1K-VSMK9-404S12=	Nexus 1000V VSM on Physical Media
N1K-VLCPU-01=	Nexus 1000V Paper CPU License Qty 1-Pack
N1K-VLCPU-04=	Nexus 1000V Paper CPU License Qty 4-Pack
N1K-VLCPU-16=	Nexus 1000V Paper CPU License Qty 16-Pack
N1K-VLCPU-32=	Nexus 1000V Paper CPU License Qty 32-Pack
L-N1K-VLCPU-01=	Nexus 1000V eDelivery CPU License Qty 1-Pack
L-N1K-VLCPU-04=	Nexus 1000V eDelivery CPU License Qty 4-Pack
L-N1K-VLCPU-16=	Nexus 1000V eDelivery CPU License Qty 16-Pack
L-N1K-VLCPU-32=	Nexus 1000V eDelivery CPU License Qty 32-Pack

The Cisco Nexus 1000V Series has a 90-day limited software warranty. For more information about the Cisco Nexus 1000V Series warranty, see http://www.cisco.com/en/US/docs/general/warranty/English/EU1KEN_.html.

Cisco Optics

Cisco offers a comprehensive portfolio of pluggable transceiver modules across Cisco switching and routing platforms. Cisco pluggable transceivers provide a convenient and cost-effective solution for the adoption of Fast Ethernet, Gigabit Ethernet, and 10 Gigabit Ethernet in data center, campus, metro access, and storage area networks.

As part of the Cisco end-to-end solution, pluggable transceivers are individually tested and qualified across switching and routing platforms and are an integral part of the overall architecture. Sold as spares or configurable options, transceiver modules benefit from the pay-as-you-populate model they enable. Customers can purchase the exact model and quantity required for their cabling infrastructure and for the number of ports they are planning to utilize. Additionally, customers can rest assured their investment in the Cisco equipment is protected as they will have the opportunity to reconfigure their connectivity scheme with our breadth of offerings. Cisco transceiver modules are fully supported by the Cisco Technical Assistance center and warranty contracts purchased for the Cisco platform where they are used are directly applicable to the transceivers at no extra cost.

Cisco 10 Gigabit Modules

Cisco offers a range of XENPAK, X2, XFP, and SFP+ modules for 10 Gigabit Ethernet (10 GBE) deployments. These Cisco transceivers meet Cisco specifications and are compliant with industry standards. Cisco XENPAK, X2, XFP, and SFP+ offer a convenient and cost-effective solution for the adoption of 10 GBE in data center, campus, metropolitan area access, and ring networks.

XENPAK modules are offered for several reaches and transmission media and are supported on the Catalyst 6500, 3750 Series switches, and CRS-1 routers today.

X2 modules are also offered for several reaches and transmission media and are supported on the Catalyst 4500, 4900, 3750-E, 3560-E, and 6500 Series switches, and Nexus 7000 Series switches today.

The Cisco XFP Module offers customers a dual rate interface for 10 GBE and Packet-over-SONET/SDH (POS) connectivity. XFPs are currently supported on Cisco 7600, ASR 1000, ASR 9000, CRS-1 and CRS-3 routers, as well as with Shared Port Adapter (SPA) modules across multiple Cisco platforms.

SFP+ is the smallest 10 GBE form factor enabling lowest power consumption per 10G port and highest port density per line card. It is supported in the latest Catalyst 2960-S, 3560X, 3750X, 4948E and newest 4500 series switches. It is also supported in Nexus 2000, 5000, 7000 series Server Access and Datacenter switches and in ASR 9000 routers. Also SFP+ devices can be supported through the OneX X2 to SFP+ converter modules in the X2 ports of Catalyst 4500, 4900, 3750-E, 3560-E, and 6500 Series switches.

For further compatibility details including minimum software requirements and exact line cards and switch modules support, please refer to the 10-Gigabit compatibility matrix:

http://www.cisco.com/en/US/docs/interfaces_modules/transceiver_modules/compatibility/matrix/OL_6974.pdf

Cisco Gigabit Ethernet GBIC and SFP Modules

Cisco offers a range of GBIC transceivers and Small Form-factor Pluggable (SFP) transceivers for Gigabit Ethernet and Fibre Channel applications. These small, modular optical interface transceivers offer a convenient and cost-effective solution for the adoption of Gigabit Ethernet and Fibre Channel in data center, campus, metropolitan area access and ring networks, and storage area networks.

Gigabit Ethernet SFP modules are supported across all Cisco switching and routing platforms today, whereas GBIC modules are supported with legacy Cisco line cards and switches.

For compatibility details including minimum software requirements and exact line cards and switch modules support, please refer to the Gigabit Ethernet compatibility matrix:

http://www.cisco.com/en/US/docs/interfaces_modules/transceiver_modules/compatibility/matrix/OL_6981.pdf

Cisco Fast Ethernet SFP Modules

Cisco offers a range of Fast Ethernet SFP Interface Transceivers. These small, modular optical interface transceivers offer a convenient and cost-effective solution for the adoption of Fast Ethernet over fiber medium in campus, industrial, and small and medium business access networks.

For compatibility information including minimum software requirements and exact line cards and switch modules support, please refer to the Fast Ethernet compatibility matrix:

http://www.cisco.com/en/US/docs/interfaces_modules/transceiver_modules/compatibility/matrix/OL632702.pdf

Cisco CWDM Solution

Cisco Coarse Wave Division Multiplexing (CWDM) Solution allows scalable and easy-to-deploy Gigabit Ethernet (GBE) and Fibre Channel services. The combination of CWDM GBICs and CWDM SFPs and CWDM Optical Add-Drop Modules (OADMs) and Multiplexers enables the design of a flexible and highly available multiservice network.

The Cisco CWDM Solution offers a convenient and cost-effective solution for the adoption of optical Gigabit Ethernet in campus, data center, and metropolitan-area access networks. Cisco CWDM Solution consists of a set of eight different Cisco CWDM GBICs (one for each of the eight different colors or wavelengths), eight different SFPs, a set of eight single wavelength/dual channel OADMs, two four-channel OADM/Multiplexer and an eight-channel Multiplexer along with a CWDM rack-mountable chassis.

Cisco DWDM Transceiver Modules

The Cisco Dense Wave Division Multiplexing (DWDM) transceiver modules allow users to integrate WDM transport directly with Cisco 1 GBE and 10 GBE switches and routers. Cisco offers GBIC and SFP DWDM modules for 1-Gigabit links, and XENPAK, X2 and XFP DWDM modules for 10-Gigabit links. The DWDM modules and DWDM optical filter and amplifier products (Cisco ONS 15216 and EWDM series) enable the design of a flexible and highly available multiservice network. The DWDM modules support 100GHz ITU grid and can be used for unamplified and amplified designs to transmit up to 320 Gigabits over one pair of fiber.

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Printed in the USA

Lit. No.
LYON 6701 06/11