

Product Overview

Cisco® Catalyst® 2960-X and 2960-XR Series Switches are fixed-configuration, stackable Gigabit Ethernet switches that provide enterprise-class access for campus and branch applications (Figure 1). They operate on Cisco IOS® Software and support simple device management as well as network management. The Cisco Catalyst 2960-X and 2960-XR Series provide easy device onboarding, configuration, monitoring, and troubleshooting. These fully managed switches can provide advanced Layer 2 and Layer 3 features as well as optional Power over Ethernet Plus (PoE+) power. Designed for operational simplicity to lower total cost of ownership, they enable scalable, secure, and energy-efficient business operations with intelligent services. The switches deliver enhanced application visibility, network reliability, and network resiliency.



Figure 1.
Cisco Catalyst 2960-X Series Switches

Product Highlights

Cisco Catalyst 2960-X and 2960-XR Series Switches feature:

- 24 or 48 Gigabit Ethernet ports with line-rate forwarding performance
- 4 fixed 1 Gigabit Ethernet Small Form-Factor Pluggable (SFP) uplinks or 2 fixed 10 Gigabit Ethernet SFP+ uplinks
- PoE+ support with a power budget of up to 740W and Perpetual PoE
- Cisco IOS LAN Base¹ or LAN Lite¹ and Cisco IOS IP Lite²
- Device management with web UI, over-the-air access via Bluetooth, Command-Line Interface (CLI), Simple Network Management Protocol (SNMP), and RJ-45 or USB console access
- Network management with Cisco Prime®, Cisco Network Plug and Play, and Cisco DNA Center
- Stacking with FlexStack-Plus and FlexStack-Extended
- Layer 3 features with routed access (Open Shortest Path First [OSPF]), static routing, and Routing Information Protocol (RIP)
- Visibility with Domain Name System as an Authoritative Source (DNS-AS) and Full (Flexible) NetFlow
- Security with 802.1X, Serial Port Analyzer (SPAN) and Bridge Protocol Data Unit (BPDU) Guard
- Reliability with higher Mean Time Between Failures (MTBF) and Enhanced Limited Lifetime Warranty (E-LLW)
- Resiliency with optional dual field-replaceable power supplies²

¹ 2960-X Series only.

² 2960-XR Series only.

Model	Maximum number of PoE+ (IEEE 802.3at) ports*	Maximum number of PoE (IEEE 802.3af) ports*	Available PoE power (single PS source)
Cisco Catalyst 2960X-48FPS-L	24 ports up to 30W	48 ports up to 15.4W	740W
Cisco Catalyst 2960X-48LPS-L	12 ports up to 30W	24 ports up to 15.4W	370W
Cisco Catalyst 2960X-24PS-L	12 ports up to 30W	24 ports up to 15.4W	370W
Cisco Catalyst 2960X-24PSQ-L	3 ports up to 30W	7 ports up to 15.4W	110W
Cisco Catalyst 2960XR-48FPD-I	24 ports up to 30W	48 ports up to 15.4W	740W
Cisco Catalyst 2960XR-48LPD-I	12 ports up to 30W	24 ports up to 15.4W	370W
Cisco Catalyst 2960XR-24PD-I	12 ports up to 30W	24 ports up to 15.4W	370W
Cisco Catalyst 2960XR-48FPS-I	24 ports up to 30W	48 ports up to 15.4W	740W
Cisco Catalyst 2960XR-48LPS-I	12 ports up to 30W	24 ports up to 15.4W	370W
Cisco Catalyst 2960XR-24PS-I	12 ports up to 30W	24 ports up to 15.4W	370W

* Intelligent power management allows flexible power allocation across all ports.

Table 3. Cisco Catalyst 2960-XR Series available PoE and switch power capabilities with different combinations of power supplies

Primary power supply	Secondary power supply	Available power for PoE+	Switch power redundancy	Available PoE power when one PS fails
PWR-C2-250WAC	–	–	No	–
PWR-C2-250WAC	PWR-C2-250WAC	–	Yes	–
PWR-C2-640WAC	–	370W	No	–
PWR-C2-640WAC	PWR-C2-640WAC	370W	Yes	370W
PWR-C2-1025WAC	–	740W	No	–
PWR-C2-1025WAC	PWR-C2-1025WAC	740W	Yes	740W

Switch Models and Configurations

Cisco Catalyst 2960-X Series Switches include a single, fixed power supply and are available with either the Cisco IOS LAN Base or LAN Lite feature set. Cisco Catalyst 2960-XR Series Switches include a field-replaceable modular power supply and can accommodate a second power supply. The 2960-XR Series is available only with the Cisco IOS IP Lite feature set. Tables 4 and 5 list the configurations of the 2960-X and 2960-XR Series, respectively.

- **EIGRPv3 Stub and PIMv6 Stub are supported as a part of the IPv6 routing suite.**
- **Equal-cost routing** facilitates Layer 3 load balancing and redundancy across the stack.
- **Hot Standby Routing Protocol (HSRP) and Virtual Router Redundancy Protocol (VRRP)** provide dynamic load balancing and failover for routed links.

Intelligent PoE+

IEEE 802.3af PoE and IEEE 802.3at PoE+ (up to 30W per port) are both supported on Cisco Catalyst 2960-X and 2960-XR Series Switches to lower the total cost of ownership for deployments that incorporate Cisco IP phones, Cisco Aironet® wireless access points, or other standards-compliant PoE and PoE+ end devices. PoE removes the need to supply wall power to PoE-enabled devices and eliminates the cost of adding electrical cabling and circuits that would otherwise be necessary in IP phone and WLAN deployments. The Cisco Catalyst 2960-X and 2960-XR Series PoE power allocation is dynamic, and power mapping scales up to a maximum of 740W of PoE+ power.

Perpetual PoE is supported on the Cisco Catalyst 2960-X and 2960-XR Series. With Perpetual PoE, the PoE+ power is maintained during a switch reload. This is important for critical endpoints such as medical devices and for Internet of Things (IoT) endpoints such as PoE-powered lights, so that there is no disruption during a switch reboot.

Features and Benefits

Network Security

Cisco Catalyst 2960-X and 2960-XR Series Switches provide a range of security features to limit access to the network and mitigate threats, including:

- **MAC-based VLAN assignment**, enabling different users to authenticate on different VLANs. This feature enables each user to have a different data VLAN on the same interface.
- **Cisco TrustSec®**, which uses Security Group Exchange Protocol (SXP) to simplify security and policy enforcement throughout the network. For more information about Cisco TrustSec security solutions, visit <https://www.cisco.com/c/en/us/solutions/enterprise-networks/trustsec/index.html>.
- **Comprehensive 802.1X** features to control access to the network, including Flexible Authentication, 802.1X monitor mode, and RADIUS Change of Authorization.
- **IPv6 First-Hop Security** enhances Layer 2 and Layer 3 network access for proliferating IPv6 devices, especially BYOD devices. It protects against rogue router advertisements, address spoofing, fake Dynamic Host Configuration Protocol (DHCP) replies, and other risks introduced by IPv6 technology.
- **Device sensor and device classifier**, enabling seamless versatile device profiles, including BYOD devices. They also enable the Cisco Identity Services Engine (ISE) to provision identity-based security policies. This feature is available on both the 2960-X and 2960-XR Series switches.
- **Cisco Trust Anchor Technology**, enabling easy distribution of a single universal image for all models of the 2960-X and 2960-XR Series by verifying the authenticity of Cisco IOS Software images. This technology allows the switch to perform Cisco IOS integrity checks at boot-up by verifying the signature, verifying the trusted asset under management, and authenticating the license.
- **Cisco Threat Defense** features, including Port Security, Dynamic ARP Inspection (DAI), and IP Source Guard.
- **Private VLANs** that restrict traffic between hosts in a common segment by segregating traffic at Layer 2, turning a broadcast segment into a nonbroadcast multiaccess-like segment. This feature is supported on both 2960-X and 2960-XR Series and is available in both LAN Base and IP Lite feature sets.
 - **Private VLAN Edge** to provide security and isolation between switch ports, which helps ensure that users cannot snoop on other users' traffic.

- **Voice VLAN** simplifies telephony installations by keeping voice traffic on a separate VLAN for easier administration and troubleshooting.
- **Cisco VLAN Trunking Protocol (VTP)** supports dynamic VLANs and dynamic trunk configuration across all switches.
- **Remote Switch Port Analyzer (RSPAN)** allows administrators to remotely monitor ports in a Layer 2 switch network from any other switch in the same network.
- For enhanced traffic management, monitoring, and analysis, the embedded **Remote Monitoring (RMON)** software agent supports four RMON groups (history, statistics, alarms, and events).
- **Layer 2 trace route** eases troubleshooting by identifying the physical path that a packet takes from source to destination.
- **Trivial File Transfer Protocol (TFTP)** reduces the cost of administering software upgrades by downloading from a centralized location.
- **Network Time Protocol (NTP)** provides an accurate and consistent timestamp to all intranet switches.

Power Management

The Cisco Catalyst 2960-X and 2960-XR Series Switches offer a range of industry-leading features for effective energy efficiency and energy management. They are the greenest switches in the industry.

Switch Hibernation Mode (SHM) is an industry first and available on all 2960-X and 2960-XR Series switches. This feature puts the switch in ultra-low-power mode during periods of nonoperation such as nights or weekends. SHM on the 2960-X and 2960-XR Series switches can be scheduled using Cisco EnergyWise[®] compliant management software.

IEEE 802.3az EEE (Energy Efficient Ethernet) enables ports to dynamically sense idle periods between traffic bursts and quickly switch the interfaces into a low-power idle mode, reducing power consumption.

Cisco EnergyWise policies can be used to control the power consumed by PoE-powered endpoints, desktop and data-center IT equipment, and a wide range of building infrastructure. Cisco EnergyWise technology is included on all Cisco Catalyst 2960-X and 2960-XR Series Switches.

For more information about Cisco EnergyWise, visit cisco.com/go/energywise.

Specifications

Technical Specifications

Table 12. Cisco Catalyst 2960-X and 2960-XR Series hardware

Hardware specifications	
Flash memory	128 MB for LAN Base and IP Lite SKUs, 64 MB for LAN Lite SKUs
DRAM	512 MB for LAN Base and 256 MB for LAN Lite
CPU	APM86392 600 MHz dual core
Console ports	USB (Type B), Ethernet (RJ-45)
Storage interface	USB (Type A) for external flash storage
Network management interface	10/100 Mbps Ethernet (RJ-45)

Table 22. Safety and compliance

Specification	Description
Safety	UL 60950-1 Second Edition CAN/CSA-C22.2 No. 60950-1 Second Edition EN 60950-1 Second Edition IEC 60950-1 Second Edition AS/NZS 60950-1
EMC – emissions	47CFR Part 15 (CFR 47) Class A AS/NZS CISPR22 Class A CISPR22 Class A EN55022 Class A ICES003 Class A VCCI Class A EN61000-3-2 EN61000-3-3 KN22 Class A CNS13438 Class A
EMC – immunity	EN55024 CISPR24 EN300386 KN24
Environmental	Reduction of Hazardous Substances (RoHS) including Directive 2011/65/EU
Telco	Common Language Equipment Identifier (CLEI) code
US government certifications	USGv6 and IPv6 Ready Logo

Warranty

Cisco Enhanced Limited Lifetime Hardware Warranty

Cisco Catalyst 2960-X and 2960-XR Series Switches come with an Enhanced Limited Lifetime Warranty (E-LLW). The E-LLW provides the same terms as Cisco’s standard limited lifetime warranty but adds next-business-day delivery of replacement hardware, where available, and 90 days of 8x5 Cisco Technical Assistance Center (TAC) support.

Your formal warranty statement, including the warranty applicable to Cisco software, appears in the Cisco information packet that accompanies your Cisco product. We encourage you to review carefully the warranty statement shipped with your specific product before use.

Cisco reserves the right to refund the purchase price as its exclusive warranty remedy. For further information about warranty terms, visit <https://www.cisco.com/go/warranty>.

Warranty Terms

Cisco enhanced limited lifetime hardware warranty	
Device covered	Applies to all Cisco Catalyst 2960-X and 2960-XR Series Switches.

Contact Cisco

For more information about Cisco products, contact:

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- [Worldwide Product Support](#)
- Company website: [Cisco.com](https://www.cisco.com)

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