# Cisco Catalyst Express 520 Series Switches

A cost-effective, secure, and high-performance network switching foundation for small and medium-sized businesses (SMBs)

Today's innovative technologies have helped SMBs become more competitive than ever before. However, modern business technologies also can present significant challenges. As business networks become more essential to business success and the number of network-supported applications and devices grows, networks have become more complex and difficult to manage, especially for small organizations without a dedicated networking staff. SMBs also need secure, high-performing, and highly reliable networking solutions to help ensure that their essential business processes are always operating and available. In addition, they need all of these capabilities delivered in affordable, easy-to-use network solutions.

Cisco® Catalyst® Express 520 Series Switches provide a secure, high-performance foundation for your essential business applications that is both affordable and easy to deploy and use. A component of the Cisco Smart Business Communications System—a complete system of advanced voice, data, video, and wireless networking products designed specifically for SMBs—the Cisco Catalyst Express 520 Series supports your business' voice, security, and wireless networking services with a single, comprehensive platform.

## Cisco Catalyst Express 520 Series Switches

Cisco Catalyst Express 520 Series Switches are a family of fixed-configuration, Layer 2 managed Ethernet switches that provide the reliability, scalability, and rich feature set your business needs in a cost-effective, easy-to-manage platform. Designed specifically for organizations with fewer than 250 employees, the solutions provide:

- Wire-speed Fast Ethernet and Gigabit Ethernet connectivity
- Power over Ethernet (PoE) to provide 15.4 Watts simultaneously on all PoE ports
- Quality-of-service (QoS) intelligence to prioritize delay-sensitive traffic
- Robust integrated security to protect management traffic
- Simple deployment, centralized management, and troubleshooting
- Scalability to continually incorporate new applications and services over time
- Easy integration with established architectures without requiring major upgrades to the network infrastructure
- Limited Lifetime Warranty and free Cisco IOS® Software updates

For businesses that have been using basic, unmanaged network switches but now need higher performance, increased reliability, and a more advanced feature set, the Cisco Catalyst Express 520 Series offers an ideal solution.

## Configurations

Table 1 highlights the various configurations available in the Cisco Catalyst Express 520 Series.

**Table 1.** Cisco Catalyst Express 520 Series Configurations

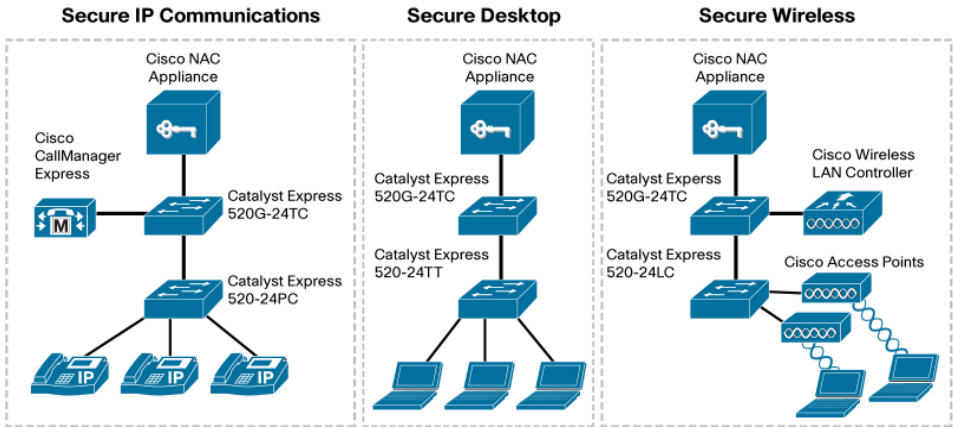| Product Name | Description |
|---|---|
| **Cisco Catalyst Express 520-8PC Switch** | • 8 10/100 access ports with PoE<br>• 1 10/100/1000BASE-T or Small Form-Factor Pluggable (SFP) uplink |
| **Cisco Catalyst Express 520-24TT Switch** | • 24 10/100 access ports for desktop connectivity<br>• 2 10/100/1000BASE-T ports for uplink or server connectivity |
| **Cisco Catalyst Express 520-24LC Switch** | • 20 10/100 access ports for desktop connectivity<br>• 4 10/100 access ports with PoE for desktop, wireless access point, IP telephony, or closed-circuit TV camera connectivity<br>• 2 10/100/1000BASE-T or SFP ports for flexible uplink or server connectivity |
| **Cisco Catalyst Express 520-24PC Switch** | • 24 10/100 access ports with PoE for desktop, wireless, IP telephony, or closed-circuit TV camera connectivity<br>• 2 10/100/1000BASE-T or SFP ports for flexible uplink or server connectivity |
| **Cisco Catalyst Express 520G-24TC Switch** | • 24 10/100/1000BASE-T ports for uplink or server connectivity<br>• 2 10/100/1000BASE-T or SFP ports for flexible uplink or server connectivity |

Figure 1 shows Cisco Catalyst Express 520 Series Switches.

**Figure 1.** Cisco Catalyst Express 520 Series Switches



Figure 2 shows typical Cisco Catalyst Express 520 Series Switch deployment scenarios.

**Figure 2.** Typical Cisco Catalyst Express 520 Series Switch Deployment Scenarios



## Features and Benefits

The Cisco Catalyst 520 Series provides:

- **High performance:** With nonblocking, wire-speed switching on all ports, the Cisco Catalyst Express 520 Series offers the performance you need to support all of your essential

business services, both today and in the future. Each switch provides as many as 24 10/100-Mbps ports for desktop, wireless access point, printer, and IP phone connectivity, as well as available 10/100/1000BASE-T Gigabit Ethernet and SFP optical connectivity options. All switches in the Cisco Catalyst Express 520 Series also feature head-of-line blocking prevention to help ensure that a heavily congested port will not affect performance on other ports on the switch. Ultimately, you can more effectively manage and prioritize your high-bandwidth traffic to keep employees productive and continually connected to business applications.

- **PoE:** Cisco Catalyst Express 520 Series Switches are available with as many as 24 PoE ports, allowing you to power network attached devices such as IP phones, wireless access points, video cameras, and other devices directly over the Ethernet connection, without an external power supply, simplifying deployment and eliminating the need and cost of installing separate power supplies for connected endpoints.

- **QoS:** Cisco Catalyst Express 520 Series Switches feature QoS intelligence to prioritize networking traffic such as voice, video, and data to help ensure consistent network performance and to support delay-sensitive data such as real-time voice. The switches also allow you to optimize QoS prioritization by using Cisco Smartports technology in Cisco Configuration Assistant.

- **Simplified deployment and centralized management:** You can easily deploy and centrally manage Cisco Catalyst Express 520 Series Switches with Cisco Configuration Assistant. This intuitive GUI-based application dynamically configures all products that are part of the Cisco Smart Business Communications System, allowing you to quickly deploy and centrally manage your entire office network. After the network is deployed, Cisco Configuration Assistant can generate status reports, synchronize passwords, and upgrade software across all of your Cisco network devices, reducing the time your staff must devote to network deployment and configuration and allowing them to focus on your business priorities. Cisco Configuration Assistant is available for download free of charge at http://www.cisco.com/go/configassist.

- **Robust security:** Cisco Catalyst Express 520 Series Switches provide several layers of security to protect your business. The switches provide embedded encryption capabilities to help ensure that all management traffic to and from the device is protected with Secure Sockets Layer (SSL) encryption. The Cisco Catalyst 520 Series also provides built-in support for advanced security services. It includes IEEE 802.1x port security which helps ensure that only authorized users and applications can access your wired and wireless LAN and Cisco Network Admission Control (NAC) services, which verify that all devices entering your network meet baseline security requirements. In addition, you can configure network security options with the Cisco Configuration Assistant deployment interface, which allows you to choose from three preset levels of security using a simple security slider control.

- **Simple monitoring and troubleshooting:** Cisco Configuration Assistant makes troubleshooting easy with Cisco Troubleshooting Advisor, which identifies cabling problems, common configuration errors, and other potential problems in your network and recommends corrective action. Graphical trend charts and an alert LED help you identify problems before they cause network outages.

- **Easy integration with the Cisco Smart Business Communications System:** The Cisco Catalyst Express 520 Series was designed to integrate a complete system of advanced voice, data, video, and wireless networking products designed specifically for SMBs. You

can quickly deploy and configure all components in the Cisco Smart Business Communications System, including the Cisco Catalyst Express 520 Series using Cisco Configuration Assistant.

- **Ease of use:** The Cisco Catalyst Express 520 Series was designed for ease of use by SMBs without dedicated networking resources. You can deploy the switches in minutes using Cisco Configuration Assistant's intuitive GUI without ever having to learn command-line interfaces or complex administrative terminals. Cisco Configuration Assistant can dynamically configure your switches or suggest recommended settings for all ports and let you choose from preset options with Cisco Smartports Advisor. In addition, all ports support autonegotiation of port speed, data rate, and duplex mode. The Cisco Catalyst Express 520 Series includes automatic medium-dependent interface crossover (Auto-MDIX) detection support, which determines the wire pair to use for transmitting and receiving data and avoids the use of incorrect cable types.

- **Limited Lifetime Warranty:** All Cisco Catalyst switches are protected for the life of the product by the Cisco Limited Lifetime Hardware Warranty and include free Cisco IOS Software updates. For more information about the Cisco Limited Lifetime Warranty, visit http://www.cisco.com/en/US/docs/general/warranty/English/LH2DEN__.html.

## Product Specifications

Table 2 gives specifications for Cisco Catalyst Express 520 Series Switches.

**Table 2.** Cisco Catalyst Express 520 Series Specifications

| Feature | Description |
|---|---|
| **Performance** | |
| **DRAM/flash memory** | • 64 MB DRAM<br>• 16 MB flash memory |
| **Switching capacity** | • 3.6 Gbps for Cisco Catalyst Express 520-8PC<br>• 8.8 Gbps for Cisco Catalyst Express 520-24TT, Cisco Catalyst Express 520-24LC, and Cisco Catalyst Express 520-24PC<br>• 24 Gbps for Cisco Catalyst Express 520G-24TC |
| **Forwarding rate** | • 2.7-Mpps for Cisco Catalyst Express 520-8PC<br>• 6.6-Mpps wire-speed performance for Cisco Catalyst Express 520-24TT, Cisco Catalyst Express 520-24LC, and Cisco Catalyst Express 520-24PC<br>• 18-Mpps wire-speed performance for Cisco Catalyst Express 520G-24TC |
| **Layer 2 Switching** | |
| **Spanning Tree Protocol** | • Fast convergence using 802.1w, enabled by default<br>• Portfast: supported on "Desktop," "Phone + Desktop," "Printer," and "Server" Smartports roles |
| **MAC addresses** | 8000 MAC addresses |
| **Virtual LANs (VLANs)** | Up to 32 VLANs (1000 range) and support for 802.1Q trunking using Cisco Smartports |
| **Number and type of queues** | • 4 queues per port<br>• Shaped Round Robin (SRR) queuing<br>• Support for differentiated services code point (DSCP) and class of service (CoS) using Cisco Smartports |
| **Port grouping** | • Support for Cisco EtherChannel® and IEEE 802.3ad<br>• Up to 6 groups<br>• Up to 8 ports per group |
| **Smartports (Preset Cisco Recommended Network Enhancements, QoS, and Security)** | |
| **Desktop** | • Optimized for desktop connectivity<br>• Configurable VLAN setting<br>• Port security enabled to limit unauthorized access to the network |

| IP Phone + Desktop | • Optimized QoS for IP phone + desktop configurations<br>• Voice traffic is placed on "Cisco-Voice" VLAN<br>• Configurable data VLAN<br>• QoS level assures voice-over-IP (VoIP) traffic takes precedence<br>• Port security enabled to limit unauthorized access to the network |
|---|---|
| Router | Configured for optimal connection to a router or firewall for WAN connectivity |
| Switch | • Configured as an uplink port to a backbone switch for fast convergence<br>• Enables 802.1Q trunking |
| Access Point | • Configured for optimal connection to a wireless access point<br>• Configurable VLAN |
| Server | Can be classified as trusted, critical, business, or standard server:<br>• Trusted: for use with Cisco CallManager Express, same QoS setting as voice (VoIP traffic is prioritized)<br>• Critical: for critical servers with QoS set higher than default<br>• Business: default setting; QoS higher than desktop Internet traffic<br>• Standard: for servers set to same level as regular desktop Internet traffic Configurable VLAN port security enabled to limit unauthorized access to the network |
| Printer | • QoS settings for "Printer" are the same as "Desktop," "Access Point," and "Standard Server"<br>• Configurable VLAN<br>• Port security enabled to limit unauthorized access to the network |
| Guest | • Guests are allowed access to the Internet, but not to the company network<br>• All guest ports are placed on the "Cisco-Guest" VLAN<br>• Port security enabled to limit unauthorized access to the network |
| Other | • "Other" Smartports role allows for flexible connectivity of nonspecified devices<br>• Configurable VLAN<br>• No security<br>• No QoS policy |
| Diagnostic | Customers can connect diagnostics devices to monitor traffic on other switches (configurable using Cisco Configuration Assistant only) |
| **Security** | |
| SSL | SSL support: encrypts all HTTP traffic, allowing secure access to the browser-based management GUI in the switch |
| Security policy slider | Three security levels: low, medium, and high (configurable using Cisco Configuration Assistant only):<br>• Low: for business environments where there is limited guest access; limited number of devices are allowed per port<br>• Medium: for business environments where security is important; only authorized devices (by MAC address) are allowed on the company network<br>• High: for business environments where security is critical; only authorized devices (by MAC address) and authenticated users (using IEEE 802.1x) are allowed on the company network |
| Multicast | • High-bandwidth video traffic is optimized so that it does not affect other applications on the network.<br>• Internet Group Management Protocol (IGMP) (v1, v2, and v3) snooping: IGMP snooping constrains multicast traffic at Layer 2 by configuring Layer 2 LAN ports dynamically to forward multicast traffic only to those ports that want to receive it. |
| **Product Specifications** | |
| Inline power (PoE) | • All 24 PoE ports on the Cisco Catalyst Express 520-24PC can supply up to 15.4W (IEEE 802.3af standard maximum) of power over Category 5 cable, for a total of 370W of inline power.<br>• All 8 PoE ports on the Cisco Catalyst Express 520-8PC can supply up to 15.4W (IEEE 802.3af standard maximum) of power over Category 5 cable, for a total of 124W of inline power.<br>• All 4 PoE ports on Cisco Catalyst Express 520-24LC switches can supply up to 15.4W of power over Category 5 cable, for a total of 62W of inline power.<br>• Both the IEEE 802.3af PoE standard and Cisco prestandard inline power are supported. |

| Supported SFPs | • 100BASE-BX-10D<br>• 100BASE-BX-10U<br>• 100BASE-FX-FE<br>• 100BASE-FX-GE<br>• 100BASE-LX<br>• 1000BASE-LX/LH<br>• 1000BASE-SX |
|---|---|
| Standards and Cisco features supported | • Broadcast suppression<br>• Cisco Discovery Protocol Version 2<br>• IEEE 802.1d Spanning Tree Protocol<br>• IEEE 802.1p CoS classification<br>• IEEE 802.1q VLAN<br>• IEEE 802.1w Rapid Convergence Spanning Tree Protocol<br>• IEEE 802.1x Port Access Authentication<br>• IEEE 802.3ad Link Aggregation Control Protocol (LACP)<br>• IEEE 802.3af PoE<br>• IEEE 802.3x full duplex on 10BASE-T, 100BASE-TX, and 1000BASE-T ports<br>• IEEE 802.3 10BASE-T<br>• IEEE 802.3u 100BASE-T/TX<br>• IEEE 802.3ab 1000BASE-T<br>• IEEE 802.3z 1000BASE-X<br>• IGMP (v1, v2, and v3) snooping<br>• Per VLAN Spanning Tree<br>• Per VLAN Spanning Tree Plus<br>• Per VLAN Rapid Spanning Tree Plus<br>• PortFast<br>• RADIUS<br>• SSL<br>• SNMPv3<br>• UDLD<br>• VLAN Trunking Protocol (VTP)* (transparent mode only) |
| Management | • RFC1213-MIB (MIB II)<br>• RMON-MIB (statistics, history, alarms, and events groups only)<br>• CISCO-PRODUCTS-MIB<br>• CISCO-SYSLOG-MIB<br>• CISCO-ENVMON-MIB<br>• BRIDGE-MIB<br>• ENTITY-MIB<br>• ETHERNET-MIB<br>• E-911 MIB support<br>• IF-MIB<br>Device Manager: Device-level GUI<br>• Embedded GUI<br>• Available in localized languages: Chinese, French, German, Italian, Japanese, and Spanish<br>Cisco Configuration Assistant: Network management tool<br>• Free download at www.cisco.com/go/configassist<br>• Available in localized languages: Chinese, French, German, Italian, Japanese, Russian and Spanish |
| Connectors and cabling | • 10/100BASE-TX ports: RJ-45 connectors; 2-pair Category 5 unshielded twisted pair (UTP) cabling<br>• 10/100/1000BASE-T ports: RJ-45 connectors; 4-pair Category 5 UTP cabling<br>• 1000BASE-SX, 1000BASE-LX/LH, 100BASE-FX, 100BASE-LX, and 100BASE-BX-based ports: LC fiber connectors (single-mode or multimode fiber) |

| Physical specifications | Dimensions (H x W x D):<br>• 1.73 x 10.6 x 9.1 in. (4.4 x 27 x 23 cm) for Cisco Catalyst Express 520-8PC<br>• 1.73 x 17.5 x 9.9 in. (4.39 x 44.45 x 25.15 cm) for Cisco Catalyst Express 520-24TT, Cisco Catalyst Express 520-24LC, and Cisco Catalyst Express 520G-24TC<br>• 1.73 x 17.5 x 14.4 in. (4.39 x 44.45 x 36.58 cm) for Cisco Catalyst Express 520-24PC<br>Weight:<br>• 5 lb (2.3 kg) for Cisco Catalyst Express 520-8PC<br>• 8 lb (3.7 kg) for Cisco Catalyst Express 520-24TT, Cisco Catalyst Express 520-24LC, and Cisco Catalyst Express 520G-24TC<br>• 12 lb (5.5 kg) for Cisco Catalyst Express 520-24PC | | |
|---|---|---|---|

| Power requirements | Switch Model<br>• Cisco Catalyst Express 520-8PC<br>• Cisco Catalyst Express 520-24TT<br>• Cisco Catalyst Express 520-24LC<br>• Cisco Catalyst Express 520-24PC<br>• Cisco Catalyst Express 520G-24TC | Power consumption (maximum):<br>• 204W or 273 Btu<br>• 30W or 102 Btu per hour<br>• 110W or 375 Btu per hour<br>• 460W or 1570 Btu per hour<br>• 45W or 154 Btu per hour | Power dissipation:<br>• 80W<br>• 30W<br>• 45W<br>• 90W<br>• 45W |
|---|---|---|---|
| | Input voltage:<br>• AC input voltage/frequency: 100-240VAC, 1.3-0.8A, 50-60Hz<br>• DC input voltages for Cisco RPS 675 Redundant Power System (supported by Cisco Catalyst Express 520-24PC only): 12V at 14A, -48V at 7.8A | | |

| Environmental requirements | • Operating temperature: 32 to 113ºF (0 to 45ºC)<br>• Storage temperature: -13 to 158ºF (-25 to 70ºC)<br>• Operating relative humidity: 10 to 85% (noncondensing)<br>• Operating altitude: up to 10,000 ft (3000m)<br>• Storage altitude: up to 15,000 ft (4500m) |
|---|---|

| Predicted mean time between failure (MTBF) | • 353,184 hours or 40 years for Cisco Catalyst Express 520-8PC<br>• 308,482 hours or 35 years for Cisco Catalyst Express 520-24TT<br>• 282,705 hours or 32 years for Cisco Catalyst Express 520-24LC<br>• 211,167 hours or 24 years for Cisco Catalyst Express 520-24PC<br>• 289,193 hours or 33 years for Cisco Catalyst Express 520G-24TC |
|---|---|

| Acoustic noise | • ISO 7770, bystander position: operating to an ambient temperature of 30ºC<br>• Cisco Catalyst Express 520-8PC: 0 dBa (no fan)<br>• Cisco Catalyst Express 520-24TT, Cisco Catalyst Express 520-24LC, Cisco Catalyst Express 520G-24TC: 40dBa, Cisco Catalyst Express 520-24PC: 48dBa |
|---|---|

| **Regulatory Agency Approvals** | |
|---|---|
| Safety certifications | • UL to UL 60950-1<br>• CUL to CAN/CSA C22.2 No. 60950-1<br>• TUV/GS to EN 60950-1<br>• CB to IEC 60950-1 with all country deviations<br>• NOM to NOM-019-SCFI<br>• CE marking<br>• AS/NZS 60950-1, First Edition |
| Electromagnetic compatibility certifications | • FCC Part 15 Class A<br>• EN 55022 Class A (CISPR22)<br>• EN 55024 (CISPR24)<br>• VCCI Class A<br>• AS/NZS CISPR22 Class A<br>• MIC<br>• China EMC requirements<br>• GOST |

## Ordering Information

Table 3 gives ordering information for Cisco Catalyst Express 520 Series switches.

**Table 3.** Ordering Information for Cisco Catalyst Express 520 Series Switches

| Part Number (SKU) | Description |
|---|---|
| WS-CE520-8PC-K9 | 8 10/100 PoE ports and 1 10/100/1000BASE-T or Small Form-Factor Pluggable (SFP) uplink |
| WS-CE520-24TT-K9 | 24 10/100 ports and 2 10/100/1000BASE-T uplinks |
| WS-CE520-24LC-K9 | 20 10/100 ports and 4 10/100 PoE ports and 2 10/100/1000BASE-T or SFP uplinks |
| WS-CE520-24PC-K9 | 24 10/100 PoE ports and 2 10/100/1000BASE-T or SFP uplinks |
| WS-CE520G-24TC-K9 | 24 10/100/1000BASE-T ports and 2 10/100/1000BASE-T or SFP uplinks |
| RCKMNT-19-CMPCT | Compact Rack Mount Kit for Catalyst Express 520-8PC |
| RCKMNT-CATEXP= | Spare Rack Mount Kit for Catalyst Express 520 |

## Service and Support

Cisco Services offer a flexible suite of support services designed to help maintain high-quality network performance while controlling operational costs. With a Cisco technical services contract, you can gain access to Cisco technical experts, as well as industry-leading Cisco tools and resources to help you increase your operational efficiency, control costs, and maintain optimal network performance and reliability.

To support your Cisco Catalyst Express 520 Series Switch, you can choose from the following support options:

- **Cisco SMARTnet® Service:** Cisco SMARTnet Service is an award-winning technical support service that provides direct, anytime access to Cisco engineers, as well as extensive technical resources. The service provides rapid issue resolution, flexible device-by-device coverage, and premium service options to help you improve your operational efficiency and get the most from your Cisco investment.

- **Cisco Smart Foundation Service:** Designed specifically for SMBs, the Cisco Smart Foundation Service provides the easy, cost-effective network support you need to improve operational reliability, contain costs, and protect your investment in Cisco networking solutions. The technical service offering provides access to Cisco technical engineers who are specially trained to assist small businesses that do not have a dedicated networking staff. The service also includes advance hardware replacement, operating system software maintenance, and access to the Cisco Smart Foundation Service client and Web portal.

## A Comprehensive Foundation for Your Business Network

As you strive to better support your customers and enhance your profitability, you can expect to continue relying on network applications and communications tools as your business grows. With so much depending on your network, you need to make sure that your network foundation delivers the security, performance, and uptime that your essential business applications demand. The Cisco Catalyst Express 520 Series provides a robust foundation for your network that combines optimal performance, strong security, and support for advanced wireless and IP communications solutions in an affordable, easy-to-use solution.

## For More Information

For more information about the Cisco Catalyst Express 520 Series, visit
http://www.cisco.com/go/catalystexpress520

For more information about the Cisco Configuration Assistant and free download, visit
http://www.cisco.com/go/configassist