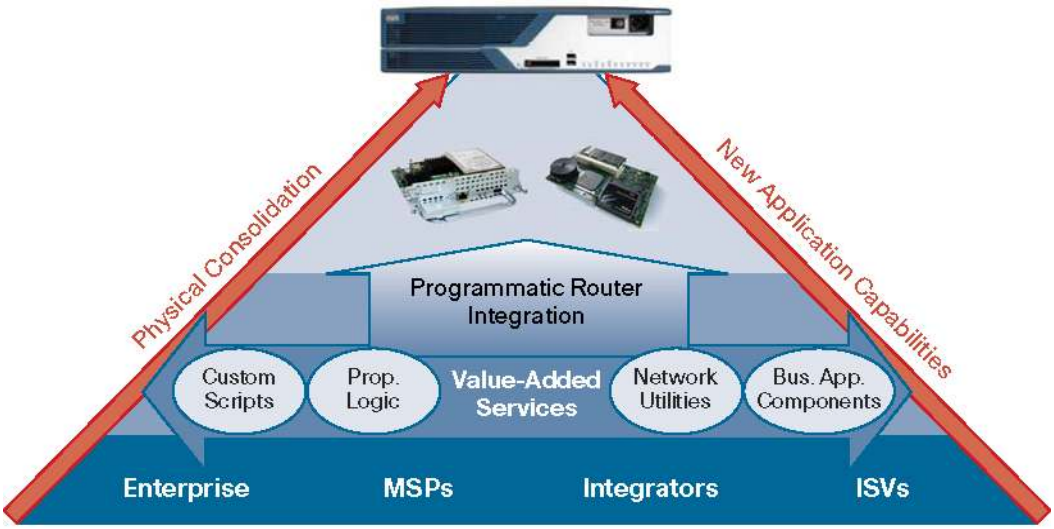
Cisco Application Extension Platform
AXP Data Sheet

Organizations of all sizes share an ongoing goal of increasing employee productivity and reducing costs through technology. Your business can cost-effectively meet your office communications and application integration needs by using Cisco® integrated services router platforms to deliver data, voice, security, wireless LAN, switching, and video services on a single, converged network, customized to meet the needs of your business today and in the future.

As organizations continue with the trend toward centralization and consolidation of their branch-office IT footprint, the Cisco integrated services router has been instrumental in integrating the networking infrastructure together and significantly reducing operational costs. The Cisco Application Extension Platform (AXP) provides a powerful and flexible environment to extend this concept. It enables hosting and integration of custom applications and network services into the Cisco integrated services routers. Using the AXP (Figure 1), the integrated services router becomes a powerful integration platform to build and host complete vertical centric solutions.

Figure 1. Cisco AXP



Cisco AXP can improve your total cost of ownership (TCO) for deployed branch-office applications by enabling complete, unified solutions. Enterprises, managed service providers (MSPs), and integrators can use AXP to:

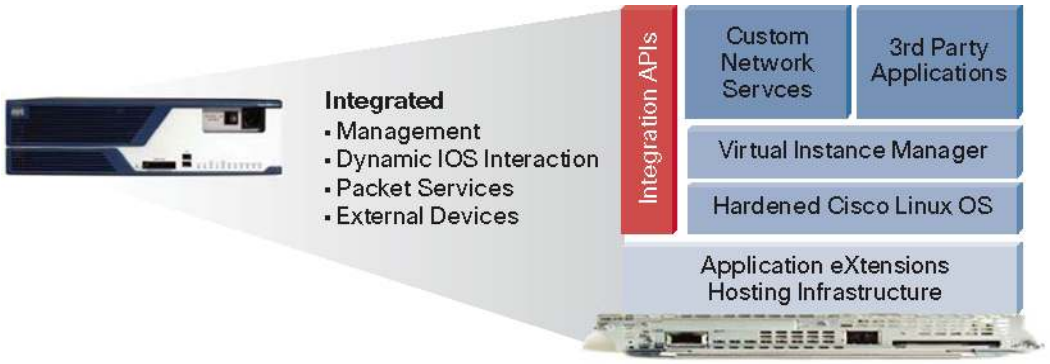
- Integrate custom applications and services into the integrated services routers
- Differentiate themselves from their competitors
- Provide complete end-to-end integrated single-box solutions

For more information about the benefits and deployment models of Cisco AXP, refer to the white paper at the Cisco AXP homepage: http://www.cisco.com/go/axp.

Product Overview

The Cisco AXP provides a standards-based Linux hosting environment within the integrated services router, allowing third parties to integrate applications with the router. Tightly integrated, the AXP environment is configured and managed through the router. Harnessing this integration, an AXP application can appear to the end user as an extension of the router (refer to Figure 2).

Figure 2.



The Cisco AXP solution consists of:

- Application runtime network module that provides dedicated resources to host applications
- Cisco AXP hosting environment, which provides the infrastructure to securely host, install, upgrade, and manage third-party applications and services
- Cisco IOS® Software integration application programming interfaces (APIs), which allow the application to integrate and use the features of the router
- Software developer kit (SDK) that allows certified customers and partners to develop applications and services
- Cisco AXP Partner Program, which provides the collateral, extended technical support, and online resources to help partners develop, deploy, and market their Cisco AXP-based solutions

AXP on Service Ready Engines (SRE) for ISR G2

Service Ready Engine (SRE) is a family of high-performance hardware modules for the next generation of Cisco Integrated Services Routers (ISR G2) that provides the capability to host Cisco, 3rd party, and custom applications. The modules have their own processors, hard disks, network interfaces, and memory that operate independently of the host router resources, helping to ensure maximum concurrent routing and application performance while reducing physical footprint, lowering power consumption, and consolidating management. Applications can be provisioned on the module upfront or remotely at a later time. This solution enables organizations of various sizes to reduce cost of rolling out branch services, future-proof their network, and quickly deploy new branch office applications.

Figure 3.

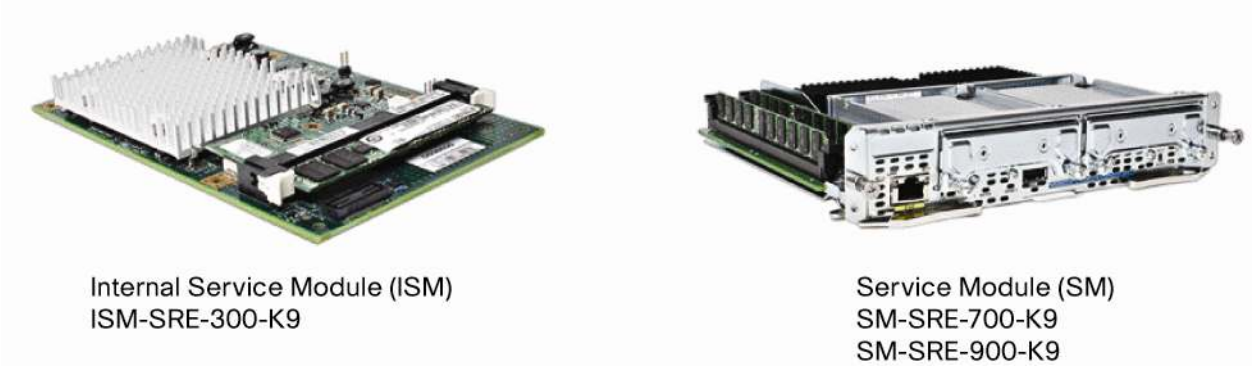


Table 1. Service Ready Engine (SRE)

Part Number	Resources	Positioning
ISM-SRE-300-K9	• ISM form factor • 1.066 GHz Intel processor • 512 MB RAM • 2 GB eUSB	Cisco AXP ISM platform is suitable for smaller footprint and / or embedded applications supported on ISR G2 platform.
SM-SRE-700-K9	• SM form factor • 1.86-GHz Intel Core 2 Duo processor (Single Core) • 2 GB RAM • 500 GB hard disk	Cisco AXP SM platform is designed for high input/output (I/O) inline packet services and advanced applications supported on ISR G2 platform.
SM-SRE-900-K9	• SM form factor • 1.86-GHz Intel Core 2 Duo processor (Dual Core) • 4 GB RAM • 1 TB hard disk • RAID 1 support • Embedded hardware based cryptography acceleration	Cisco AXP SM is designed for application which require extensive processing capability and additional memory and require high availability supported on ISR G2 platform.

AXP on Previous Generation ISR Network Modules

Enabled on an Integrated Services Router, the application runtime environment network module (APPRE) provides dedicated hardware resources, preventing the application from affecting the performance of the router. The APPREs are built using standard x86-based processors, providing an ideal environment for solutions developed for standard Linux hardware.

Figure 4.

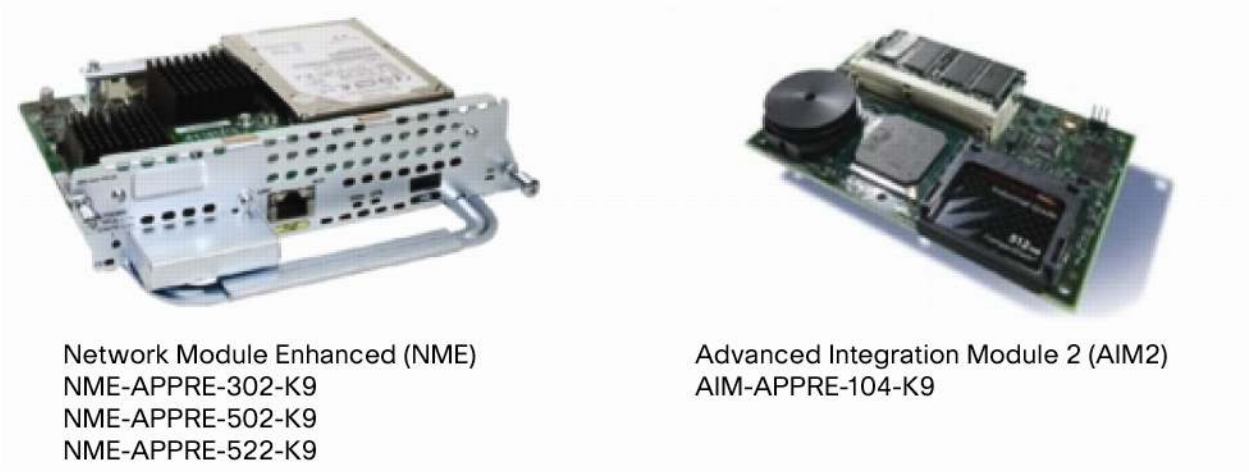


Table 2. Application Runtime Environment (APPRE)

Part Number	Resources	Positioning
AIM2-APPRE-104-K9	• AIM form factor • 600 MHz Intel Tolapai processor • 512 MB RAM • 2-GB Compact Flash	The Cisco AXP AIM2 is ideal for smaller-footprint and / or embedded applications.
NME-APPRE-302-K9	• NME form factor • 1.0 GHz Intel Celeron processor • 512 MB RAM • 80 GB hard disk	The general-purpose integrated-services-router NME is powerful enough to host a variety of business applications and packet services.
NME-APPRE-502-K9	• NME form factor • 1.0 GHz Intel Celeron M processor • 1 GB RAM • 120 GB hard disk	This NME is designed for inline packet services and advanced applications.
NME-APPRE-522-K9	• NME form factor • 1.4-GHz Intel Pentium M processor • 2-GB RAM • 160-GB hard disk	This NME is designed for high input/output (I/O) inline packet services and advanced applications; the Cisco AXP NME-522 is supported on the Cisco 3800 Series Integrated Services Router for high-powered applications and services.

Virtual Development Environment

Cisco AXP developers can fully develop and test their applications using the Cisco AXP Virtual Development Blade. Running on VMWare, the virtual blade fully emulates an AXP blade allowing application developers to build AXP applications from a standard PC running VMWare Player.

Cisco AXP Features

The Cisco AXP provides a Linux-based integration environment to host custom applications and services. The features of the platform include:

- **Robust packaging, installation, and upgrade facilities**: The complexity of managing software for multiple devices is provided as part of the core platform offering. Cisco AXP provides appliance functions, allowing the application developer to focus on the application and not worry about the underlying infrastructure.
- **Multiple application support**: Using the virtual instance manager, Cisco AXP supports the ability to host multiple applications or components. These components can be independently installed, upgraded, or removed. The instance manager provides the ability to segment and guarantee resources (CPU, memory, and disk) consumed by each component. In addition to resource controls, the virtual instance manager provides a segmented Linux OS instance on the AXP that is fully controlled by the developer, allowing the developer to use custom libraries and binaries built for different Linux distributions. Developers can utilize standard packages built for a variety of different Linux Distributions.
- **Extensible command-line interface (CLI)**: Cisco AXP allows you to extend the interface of the Cisco module by adding custom CLI commands to administer and monitor an application. By extending the supported Cisco interface, the end user has a consistent and integrated experience.
- **Prepackaged value-added components and programming environments**: Cisco AXP allows you to use all programming technologies supported by Linux. To ease integration, Cisco provides prepackaged and certified libraries to implement C, Python, Perl, and Java applications.
- **Secure hosting infrastructure**: The Cisco AXP protects against rogue software by enforcing authorization of all software. Only partners and developers can build applications that run on AXP, helping ensure that all AXP-based solutions are of the highest quality and reliability. The AXP infrastructure also provides a layer of protection between Cisco IOS Software and the AXP application, helping ensure a misbehaving application cannot compromise the security and performance of Cisco IOS Software.

Cisco IOS Software Integration Application Programming Interfaces

Beyond providing a hosting platform within the router, Cisco AXP provides a robust set of APIs, allowing the application to integrate into the network:

- **Packet monitoring API**: Applications can monitor selected packets flowing through the network for monitoring and analysis purposes. With Cisco AXP, the need for a dedicated span port and complex wiring is no longer necessary.
- **Cisco IOS Software information API**: Using this API, an application can programmatically query the router to retrieve current configuration, statistics, routing information, and so on. All information available to the Cisco IOS Software CLI and Simple Network Management Protocol (SNMP) agents are accessible though this interface.
- **Event-trigger API**: The event-trigger API allows the application to react to changes or events that occur within the router. An application event can be triggered on events such as a router interface failing over, packet loss exceeding a certain threshold, changes to routing-table state, and so on.

- **Cisco IOS Software configuration API**: The configuration API allows the application to dynamically change the configuration of the router. Used in conjunction with the monitoring, information, and event-trigger APIs, an application can dynamically change the behavior of the router in real time.
- **Serial-device API**: Cisco AXP provides an application to communicate directly with serial ports of the router, offering the ability for the integrated services router to support connectivity to traditional and nonstandard devices.

SDK

The Cisco AXP SDK provides all the tools necessary to package, host, and integrate applications into the router. SDK features include:

- Packaging tools allow the third party to build an installation package. All the complexity of installation, upgrades, dependency management, and recovery is provided as part of the Cisco AXP packaging toolkit:
  - The Bundling tool allows developers to create a single image composed of their application, add-on components, and the entire AXP infrastructure. You can install or upgrade to the latest version of the software by downloading a single image.
  - Linux software RPM package conversion tools allow the application developer to easily port standard Linux components onto Cisco AXP.
  - The Dependency tool helps developers identify missing libraries and executables required by their application.
- A CLI extension API provides all the tools necessary to extend the AXP CLI with custom application commands.
- Header files and source code for the Cisco IOS Software packet, information, event, configuration, and serial APIs offer multiple programming language support, including C/C++, Java, Perl, and shell scripts.
- Example source code illustrates the usage of the APIs.

Cisco AXP Partner Program

The Cisco AXP provides a platform for developing applications that are integrated with Cisco integrated services routers. The Cisco Developer Network (CDN) Program provides the engagement framework for customers, systems integrators, service providers, and independent software vendors (ISVs) interested in developing software on Cisco AXP. The CDN program is comprised of multiple tiers that represent a gradation of engagement services and support from Cisco, including joint marketing and technical support. This creates a tighter linkage between Cisco and its AXP developers.

- AXP developers have the option of evaluating the AXP platform before committing resources through the CDN program. See details here: http://www.cisco.com/go/axp
- CDN provides partners and customers technical enablement for developing new AXP applications through technical documentation, SDKs, developer community support, training, and technical support.
- Strategic ISVs can obtain additional support in their business planning and go-to-market efforts regarding Cisco AXP-based solutions. This level of partnership is evaluated on a case by case basis by the AXP business unit.

For more information about the Cisco Developer Network Program, please visit the official CDN web site here: http://developer.cisco.com.

Hardware Specifications of Modules Supporting AXP

Table 3. Hardware Specifications of Service Ready Engines (SRE) for ISR G2 Platform

	ISM-SRE-300-K9	SM-SRE-700-K9	SM-SRE-900-K9
Form factor	Internal Service Module (ISM)	Service Module (SM)	Service Module (SM)
DRAM	512 MB	2 GB	4 GB
Compact flash memory	4-GB internal USB flash module	512 MB internal USB flash module	2-GB internal USB flash module
Hard disk	None	1 x 500 GB	2 x 500 GB (1TB in non RAID mode)
HDD Hot Swappable	None	None	Yes
RAID support	None	None	RAID 0,1
Internal Network interfaces	Gigabit Ethernet connectivity to router backplane	Gigabit Ethernet connectivity to router backplane	Gigabit Ethernet connectivity to router backplane
External network interfaces	None	• 1 x USB Connector • 1 x RJ-45 GE Connector	• 1 x USB Connector • 1 x RJ-45 GE Connector
Router platforms	1941, 2901, 2911, 2921, 2951, 3925, 3945	2911, 2921, 2951, 3925, 3945	2911, 2921, 2951, 3925, 3945
Cisco IOS® Software (on Router)	IOS release 15.0(1)M	IOS release 15.0(1)M	IOS release 15.0(1)M
Embedded hardware-based crypto acceleration (IPSec + SSL)	No	No	Yes
Power specifications			
Power consumption (max)	20W	50W	50W
Physical specifications			
Dimensions (H x W x D)	0.85 x 4 x 6.1 inches	1.58 x 7.44 x 7.5 inches	1.58 x 7.44 x 7.5
Shipping dimensions (with packaging)		9.5 x 7.5 x 2.5 inches	9.5 x 7.5 x 2.5 inches
Maximum weight	206 grams	2.5 lbs	2.5 lbs
Environmental specifications			
Operating condition			
Operating temperature	Per operating requirements of deployable platform	• 0 - 40℃ Normal • (-5℃) to +55℃ Short Term	• 0 - 40℃ Normal • (-5℃) to +55℃ Short Term
Humidity	Per operating requirements of deployable platform	10 - 85% Operating	10 - 85% Operating
Altitude (operating)	Per operating requirements of deployable platform	• 40℃ at sea level • 40℃ at 6,000 ft (1,800m) • 30℃ at 13,000 ft (4,000m) • 27.2℃ at 15,000 ft (4,600m) **Note**: De-rate 1.4℃ per 1,000 ft above 6,000 ft	
Transportation/Storage Condition			
Temperature	(-25℃) to +70℃	(-20℃) to +65℃	(-20° C) to +65℃
Humidity	5 - 95% RH	5 - 95% RH	5 - 95% RH
Altitude	15,000 feet	15,000 feet	15,000 feet
Regulatory Compliance			
Safety	• Per safety requirements of deployable platform	• UL 60950-1, First Edition, Standard for safety for information technology equipment (US) • CAN/CSA-C22.2 No. 60950-1-03, Safety of information technology equipment including electrical business equipment (Canada) • IEC 60950-1:2001, Safety of information technology equipment / Second Edition -2005) (World-Wide)- 2nd Ed. 2005 (is optional and will roll in by Dec. 1, 2010) • EN 60950 -1:2001, Safety of information technology equipment (CENELEC; includes EU and EFTA) • GB4943-2001, Safety of information technology equipment (PRC)	

	ISM-SRE-300-K9	SM-SRE-700-K9	SM-SRE-900-K9
		• AS/NZS 60950-1, Safety of information technology equipment including electrical business equipment (Australia) • NOM-019, Safety of data processing equipment (Mexico)	
EMC	• AS/NZS 3548: 1995 incorporating Amendments 1 and 2; Class A (Australia) • CISPR 22: 1997; Class A (International) • Code of Federal Regulations, Title 47, Part 15, Sub-part B: 2000; Class A (United States — FCC) • CNS-13438 (Taiwan) • EN55022: 1998, EN61000-3-2: 1995, EN61000-3-3: 1995, EN55024: 1998, EN50082-1: 1997 (European Union & Eastern Block) • EN300386: 2000; Class A (European Union — licensed telecommunications network equipment operators) • ICES-003 Issue 3, 1998 (Canada) • VCCI V-3/ 00.04 (Japan)	Emission: • 47 CFR Part 15 Class A • CISPR22 Class A • EN300386 Class A • EN55022 Class A • EN61000-3-2 • EN61000-3-3 • SD/EMI (India) • KN22 (Korea) • VCCI Class I • AS/NZS CISPR 22 Class A Immunity: • CISPR24 • EN300386 • EN50082-1 • EN55024 • SD/EMI (India) • KN22 (Korea) • ● EN61000-6-1	

Table 4. Hardware Specifications of Network Modules and Interface Cards supporting AXP on ISR Platform

	Cisco AIM2-APPRE-104-K9	Cisco NME-APPRE-302-K9	Cisco NME-APPRE-502-K9	Cisco NME-APPRE-522-K9
Form factor	AIM2	NME	NME	NME
CPU	600 MHz Intel Tolapai processor	1.0 GHz Intel Celeron processor	1.0 GHz Intel Celeron M processor	1.4 GHz Intel Pentium M processor
Memory (RAM)	512 MB	512 MB	1 GB	2 GB
Storage	2-GB Compact Flash	80-GB hard disk	120-GB hard disk	160-GB hard disk
Supported integrated services router platforms	Cisco 89x, 1841, Cisco 2800 and 3800 Series	Cisco 2800, Cisco 3800, Cisco 2900* and Cisco 3900* Series	Cisco 2800, Cisco 3800, Cisco 2900* and Cisco 3900* Series	Cisco 2951*, Cisco 3800 and Cisco 3900* Series
Internal network interfaces	10/100/1000 Gigabit Ethernet connectivity to router backplane	10/100/1000 Gigabit Ethernet connectivity to router backplane	10/100/1000 Gigabit Ethernet connectivity to router backplane	10/100/1000 Gigabit Ethernet connectivity to router backplane
External network interfaces	-	10/100/100 Gigabit Ethernet	10/100/100 Gigabit Ethernet	10/100/100 Gigabit Ethernet
USB interfaces	-	USB 2.0	USB 2.0	USB 2.0
Cisco IOS Software (on router)*	Cisco IOS Software Release 15.0 (1)M	Cisco IOS Software Release 12.4.15(T3) on ISR and 15.0(1) on ISR G2	Cisco IOS Software Release 12.4.15(T3) on ISR and 15.0(1) M on ISR G2	Cisco IOS Software Release 12.4.15(T3) on ISR and 15.0(1) on ISR G2
Physical characteristics	• Dimensions (H x W x D): 0.787 x 3.25 x 5.25in. • Weight: 0.28 lb (0.128 kg) maximum	• Dimensions (H x W x D): 1.55 x 7.10 x 7.2 in. (3.9 x 18.0 x18.3 cm) • Weight: 1.5 lb (0.7 kg) maximum	• Dimensions (H x W x D): 1.55 x 7.10 x 7.2 in. (3.9 x 18.0 x18.3 cm) • Weight: 1.5 lb (0.7 kg) maximum	• Dimensions (H x W x D): 7.10 x 7.2 in. (3.9 x18.0 x 18.3 cm) • Weight: 1.5 lb (0.7 kg) maximum
Operating environment	• Operating temperature: Nonoperating and storage temperature: -25°C to 70°C • Operating humidity: Per operating requirements of deployable platform • Operating altitude: Per operating requirements of deployable platform	• Operating temperature: 41 to 104℉ (5 to 40℃) • Nonoperating and storage temperature: -40 to 158℉ (-40 to 70℃) • Operating humidity: 5 to 85% (noncondensing) • Operating altitude: -197 to 6000 ft (-60 to 1800m)	• Operating temperature: 41 to 104℉ (5 to 40℃) • Nonoperating and storage temperature: -40 to 158℉ (-40 to 70℃) • Operating humidity: 5 to 85% (noncondensing) • Operating altitude: -197 to 6000 ft (-60 to 1800m)	• Operating temperature: 41 to 104℉ (5 to 40℃) • Nonoperating and storage temperature: -40 to 158℉ (-40 to 70℃) • Operating humidity: 5 to 85% (noncondensing) • Operating altitude: -197 to 6000 ft (-60 to 1800m)
Safety	UL 60950, IEC 950, and	UL 60950-1, Safety of	UL 60950-1, Safety of	UL 60950-1, Safety of

	Cisco AIM2-APPRE-104-K9	Cisco NME-APPRE-302-K9	Cisco NME-APPRE-502-K9	Cisco NME-APPRE-522-K9
	EN60950	Information Technology Equipment-Safety-Part 1: • General Requirements (USA); plastic materials that are exposed to the end user shall meet the requirements of fire enclosure (UL94V-1) as defined in UL 60950	Information Technology Equipment-Safety-Part 1: • General Requirements (USA); plastic materials that are exposed to the end user shall meet the requirements of fire enclosure (UL94V-1) as defined in UL 60950	Information Technology Equipment-Safety-Part 1: • General Requirements (USA); plastic materials that are exposed to the end user shall meet the requirements of fire enclosure (UL94V-1) as defined in UL 60950
EMC	Emission: • 47 CFR Part 15 Class A • CISPR22 Class A • EN300386 Class A • EN55022 Class A • EN61000-3-2 • EN61000-3-3 • SD/EMI (India) • KN22 (Korea) • VCCI Class I • AS/NZS CISPR 22 Class A Immunity: • CISPR24 • EN300386 • EN50082-1 • EN55024 • SD/EMI (India) • KN22 (Korea) • EN61000-6-1	Emission: • 47 CFR Part 15 Class A • CISPR22 Class A • EN300386 Class A • EN55022 Class A • EN61000-3-2 • EN61000-3-3 • SD/EMI (India) • KN22 (Korea) • VCCI Class I • AS/NZS CISPR 22 Class A Immunity: • CISPR24 • EN300386 • EN50082-1 • EN55024 • SD/EMI (India) • KN22 (Korea) • EN61000-6-1	Emission: • 47 CFR Part 15 Class A • CISPR22 Class A • EN300386 Class A • EN55022 Class A • EN61000-3-2 • EN61000-3-3 • SD/EMI (India) • KN22 (Korea) • VCCI Class I • AS/NZS CISPR 22 Class A Immunity: • CISPR24 • EN300386 • EN50082-1 • EN55024 • SD/EMI (India) • KN22 (Korea) • EN61000-6-1	Emission: • 47 CFR Part 15 Class A • CISPR22 Class A • EN300386 Class A • EN55022 Class A • EN61000-3-2 • EN61000-3-3 • SD/EMI (India) • KN22 (Korea) • VCCI Class I • AS/NZS CISPR 22 • Class A Immunity: • CISPR24 • EN300386 • EN50082-1 • EN55024 • SD/EMI (India) • KN22 (Korea) • EN61000-6-1

Note: Asterik (*) means a NM adapter card is required for this module to work within this router. SKU information for this adapter card is as follows: SM-NM-ADPTR

Ordering Information

Service Ready Engine (SRE) or Application Runtime Engine (APPRE) hardware is generally available as an integrated-services-router option or as a spare. Table 3 shows ordering information.

Table 5. Ordering Information

Part Number	Resources	Positioning
Integrated Services Router Generation 2 (ISR G2)		
ISM-SRE-300-K9 SRE-AXP FL-AXP-ISM-GP	• 600 MHz, 512 MB RAM, 2 GB eUSB • AXP software infrastructure including evaluation license (required) • AXP Permanent License	1941, 2911, 2921, 2951, 3925, 3945
SM-SRE-700-K9 SRE-AXP FL-AXP-SM-GP	• 1.86 GHz Intel Core™ 2 Duo (Single Core), 2 GB RAM, 500 GB HD • AXP software infrastructure (required) • AXP software infrastructure including evaluation license (required)	2911, 2921, 2951, 3925, 3945
SM-SRE-900-K9 SRE-AXP FL-AXP-SM-GP	• 1.86 GHz Intel Core™ 2 Duo (Dual Core), 4 GB RAM, 1 TB HD • AXP software infrastructure (required) • AXP software infrastructure including evaluation license (required)	2911, 2921, 2951, 3925, 3945
Integrated Services Router Generation 2 (ISR G2)		
AIM2-APPRE-104-K9 SA2-AXP	• 600 MHz, 512 MB RAM, 2 GB Compact Flash • AXP software infrastructure (required)	891, 892, 1841, 2811, 2821, 2851, 3825, 3845
NME-APPRE-302-K9 SN-AXP	• 1.0 GHz Celeron, 512-MB RAM, 80-GB HD • AXP software infrastructure (required)	2811, 2821, 2851, 3825, 3845, 2911*, 2921*, 2951*, 3925* and 3945*
NME-APPRE-502-K9 SN-AXP	• 1.0 GHz Celeron M , 1 GB RAM, 120 GB HD • AXP software infrastructure (required)	2811, 2821, 2851, 3825, 3845, 2911*, 2921*, 2951*, 3925* and 3945*
NME-APPRE-522-K9 SN-AXP	• 1.4 GHz Pentium M, 2 GB RAM, 120 GB HD • AXP software infrastructure (required)	3825, 3845, 2951*, 3925* and 3945*

Note: Asterik (*) means a NM adapter card is required for this module to work (shown below) within this router. SKU information for this adapter card is as follows: SM-NM-ADPTR

Figure 5.

When purchasing Cisco AXP, you must choose both a hardware option (SRE / APPRE) as well as a software option (AXP).

Services and Support

- Hardware and Cisco AXP runtime support is provided as part of the standard Cisco SMARTnet® support contract for integrated services routers. Support contracts for 3rd-party applications are sold through the ISV. Cisco offers a variety of developer support services for the Cisco AXP product line:
  - **Customer engagements**: Cisco offers full life-cycle customer engagements, based on Cisco Advanced Services methodologies and processes.
  - **Solutions**: Design and implementation of custom solutions is provided to fit specific requirements; some solutions are offered jointly with qualified partners in several industries.
  - **Training**: Cisco can train operators and developers either on- or offsite; designed for AXP network engineers or AXP application developers, training includes instructor-led hands-on exercises.
  - **Customizable services**: As needed by the specific customer environment, Cisco Advanced Services can provide AXP-centric mentoring, architecture sessions, and hands-on exercises.
  - **Partners training**: Dedicated Advanced Services team and lab resources can help new partners learn about AXP.
  - **Developer support**: Self-service support is offered through tools, documentation, and technology forums from the Cisco Developer web portal, or live case-based technical expertise to help developers design, code, and troubleshoot Cisco AXP.

For more information, send an email message to: axp-advanced-services@cisco.com

Technical support for development is provided through Developer Services and an annual subscription fee. It requires prior sign-up and approval as a Cisco AXP Development Partner; for more information, visit: http://www.cisco.com/go/axpdev.

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