Preface

This preface describes the objectives and organization of this document and explains how to find additional information on related products and services. This preface contains the following sections:

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Audience

The audience for this publication should be familiar with Cisco router hardware and cabling along with electronic circuitry and wiring practices. Experience as an electronic or electromechanical technician is recommended.

Warnings

Warning To prevent the system from overheating, do not operate it in an area that exceeds the maximum recommended ambient temperature of: 24˚C (75˚F).

Warning Only trained and qualified personnel should be allowed to install, replace, or service this equipment.

⚠ **Warning**   **IMPORTANT SAFETY INSTRUCTIONS**

This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. To see translations of the warnings that appear in this publication, refer to the translated safety warnings that accompanied this device.

Note: SAVE THESE INSTRUCTIONS

Note: This documentation is to be used in conjunction with the specific product installation guide that shipped with the product. Please refer to the Installation Guide, Configuration Guide, or other enclosed additional documentation for further details.

Objectives

This document contains instructions and procedures for installing and configuring the VPN Acceleration Module 2+ (VAM2+), a single-width acceleration module supported on the Cisco 7204VXR and Cisco 7206VXR routers with the NPE-225, NPE-400, or NPE-G1 processors, and the Cisco 7301.

The part number for the VAM2+ is SA-VAM2+(=).

✎ **Note**   To ensure compliance with U.S. export laws and regulations, and to prevent future problems, see the "Compliance with U.S. Export Laws and Regulations Regarding Encryption" section on page 2-4 for specific, important information.

Organization

This document contains the following chapters:

Chapter	Title	Description
1	Overview	Describes the VAM2+ and VAM2+ LED displays.
2	Preparing for Installation	Describes safety considerations, tools required, and procedures you should perform before the actual installation.
3	Removing and Installing the VAM2+	Describes the procedures for installing and removing the SA-VAM2+ from the supported platform.
4	Configuring the VAM2+	Describes procedures needed to configure the VAM2+ in the Cisco 7301 and Cisco 7200VXR series routers.

Related Documentation

This section lists documentation related to your router and its functionality. The documentation mentioned is available online, or on the Documentation CD-ROM.

- For hardware installation and maintenance information for the Cisco 7200VXR series routers, refer to the following documents:

    - For a complete list of Cisco series router hardware documentation, refer to the *Cisco 7200, Cisco 7300, Cisco 7400, Cisco 7500 and Cisco 7200uBR Series Routers Documentation* flyer http://www.cisco.com/en/US/products/hw/routers/ps341/products_product_index09186a0080 0d9d8a.html

    - *Cisco 7200VXR Installation and Configuration Guide*—DOC-785469= http://www.cisco.com/en/US/products/hw/routers/ps341/products_installation_guide_book09 186a008007daa6.html

    - *Cisco 7200VXR Quick Start Guide*—DOC-7812769= http://www.cisco.com/en/US/products/hw/routers/ps341/prod_quick_installation_guide09186 a00800a93b6.html

    - *Cisco 7206 Installation and Configuration Guide*—DOC-783229= http://www.cisco.com/en/US/products/hw/routers/ps341/products_installation_guide_book09 186a008007db27.html

    - *Cisco 7206 Quick Start Guide*—DOC-7812771= http://www.cisco.com/en/US/products/hw/routers/ps341/prod_quick_installation_guide09186 a00800a85fe.html

    - *Quick Reference for the Cisco 7206 Installation*—DOC-783230= http://www.cisco.com/en/US/products/hw/routers/ps341/prod_quick_installation_guide09186 a00800defba.html

    - *Cisco 7200 Regulatory Compliance and Safety Information*—DOC-783419= http://www.cisco.com/en/US/products/hw/routers/ps341/products_regulatory_approvals_and_ compliance09186a00800a94d7.html

    - *Cisco 7200 Rack Density System (RDS) Installation Instructions*—DOC-7811310= http://www.cisco.com/en/US/products/hw/routers/ps341/products_installation_guide_chapter 09186a008007cbe4.html

    - *Rack-Mount and Cable-Management Kit Installation Instructions*—DOC-783421= http://www.cisco.com/en/US/products/hw/routers/ps341/prod_installation_guide09186a00800 f267a.html

    - For Cisco 7200 series router troubleshooting information: http://www.cisco.com/en/US/products/hw/routers/ps341/prod_troubleshooting_guides_list.ht ml

- For Cisco 7301 router documentation, refer to the following URL: http://www.cisco.com/en/US/products/hw/routers/ps352/prod_technical_documentation.html

- Port Adapter Installation and Configuration guides, available online at: http://www.cisco.com/en/US/products/hw/modules/ps2033/prod_module_installation_guides_list. html
and
http://www.cisco.com/en/US/products/hw/modules/ps2033/products_module_installation_guides_ books_list.html

- For configuration information and support, refer to the modular configuration and modular command reference publications in the Cisco IOS software configuration documentation set that corresponds to the software release installed on your Cisco hardware. Access these documents at: http://www.cisco.com/en/US/products/sw/iosswrel/index.html

> **Note** Select translated documentation is available at http://www.cisco.com/ by selecting the topic 'Select a Location / Language' at the top of the page.

  - To determine the minimum Cisco IOS software requirements for your router, Cisco maintains the Software Advisor tool on Cisco.com. This tool does not verify whether modules within a system are compatible, but it does provide the minimum IOS requirements for individual hardware modules or components. Registered Cisco Direct users can access the Software Advisor at: http://www.cisco.com/cgi-bin/Support/CompNav/Index.pl
- For IP security and encryption:
  - *Cisco IOS Security Configuration Guide, Release 12.2* http://www.cisco.com/en/US/partner/products/sw/iosswrel/ps1835/products_configuration_guide_book09186a0080087df1.html
  - *Cisco IOS Security Command Reference, Release 12.2* http://www.cisco.com/en/US/partner/products/sw/iosswrel/ps1835/products_command_references_books_list.html
  - *Cisco IOS Security Configuration Guide, Release 12.1* http://www.cisco.com/en/US/partner/products/sw/iosswrel/ps1831/products_configuration_guide_book09186a0080088254.html
  - *Cisco IOS Security Command Reference, Release 12.1* http://www.cisco.com/en/US/partner/products/sw/iosswrel/ps1831/products_command_references_books_list.html
  - *Cisco IOS Software Release 12.0 Security Configuration Guide* http://www.cisco.com/en/US/partner/products/sw/iosswrel/ps1828/products_configuration_guides_books_list.html
  - *Cisco IOS Software Release 12.0 Security Command Reference* http://www.cisco.com/en/US/partner/products/sw/iosswrel/ps1828/products_command_references_books_list.html
  - For FIPS 140 Security documents: http://www.cisco.com/en/US/partner/products/hw/routers/ps341/products_regulatory_approvals_and_compliance09186a00800f009e.html
  - For the VPN Device Manager documents: http://www.cisco.com/en/US/partner/products/sw/cscowork/ps2322/products_release_and_installation_notes_list.html
- If you are a registered Cisco Direct Customer, you can access the following tools:
  - Tools, Maintenance, and Troubleshooting Tips for Cisco IOS Software for Cisco IOS Release 12.0 http://www.cisco.com/en/US/products/sw/iosswrel/ps1828/prod_troubleshooting_technique09186a008010929b.html
  - Tools, Maintenance, and Troubleshooting Tips for Cisco IOS Software for Cisco IOS Release 12.1 http://www.cisco.com/en/US/products/sw/iosswrel/ps1831/prod_troubleshooting_technique09186a0080107cc7.html

- Tools, Maintenance, and Troubleshooting Tips for Cisco IOS Software for Cisco IOS Release 12.2
  http://www.cisco.com/en/US/products/sw/iosswrel/ps1835/prod_troubleshooting_technique09186a00800f9050.html

  - Bug Toolkit:
    http://www.cisco.com/en/US/partner/products/hw/routers/ps341/prod_bug_toolkit.html

  - Bug Navigator:
    http://www.cisco.com/cgi-bin/Support/Bugtool/launch_bugtool.pl

  - Feature Navigator:
    http://www.cisco.com/en/US/partner/products/prod_feature_navigator_for_cisco_IOS_tool_launch.html

  - Output Interpreter:
    https://www.cisco.com/cgi-bin/Support/OutputInterpreter/home.pl

  - Cisco IOS Error Message Decoder:
    http://www.cisco.com/cgi-bin/Support/Errordecoder/home.pl

  - Cisco Dynamic Configuration Tool:
    http://www.cisco.com/en/US/ordering/or13/or8/ordering_ordering_help_dynamic_configuration_tool_launch.html

  - MIB Locator:
    http://tools.cisco.com/ITDIT/MIBS/servlet/index

- Additional tools include:

  - Tools Index:
    http://www.cisco.com/en/US/partner/products/prod_tools_index.html

  - Cisco IOS Software Selector Tool:
    http://tools.cisco.com/ITDIT/ISTMAIN/servlet/index

Note We no longer ship the entire router documentation set automatically with each system. You must specifically order the documentation as part of the sales order. If you ordered documentation and did not receive it, we will ship the documents to you within 24 hours. To order documents, contact a customer service representative.

Obtaining Documentation

Cisco documentation and additional literature are available on Cisco.com. Cisco also provides several ways to obtain technical assistance and other technical resources. These sections explain how to obtain technical information from Cisco Systems.

Cisco.com

You can access the most current Cisco documentation at this URL:

http://www.cisco.com/univercd/home/home.htm

You can access the Cisco website at this URL:

http://www.cisco.com

You can access international Cisco websites at this URL:

http://www.cisco.com/public/countries_languages.shtml

Documentation DVD

Cisco documentation and additional literature are available in a Documentation DVD package, which may have shipped with your product. The Documentation DVD is updated regularly and may be more current than printed documentation. The Documentation DVD package is available as a single unit.

Registered Cisco.com users (Cisco direct customers) can order a Cisco Documentation DVD (product number DOC-DOCDVD=) from the Ordering tool or Cisco Marketplace.

Cisco Ordering tool:

http://www.cisco.com/en/US/partner/ordering/

Cisco Marketplace:

http://www.cisco.com/go/marketplace/

Ordering Documentation

You can find instructions for ordering documentation at this URL:

http://www.cisco.com/univercd/cc/td/doc/es_inpck/pdi.htm

You can order Cisco documentation in these ways:

- Registered Cisco.com users (Cisco direct customers) can order Cisco product documentation from the Ordering tool:

  http://www.cisco.com/en/US/partner/ordering/

- Nonregistered Cisco.com users can order documentation through a local account representative by calling Cisco Systems Corporate Headquarters (California, USA) at 408 526-7208 or, elsewhere in North America, by calling 1 800 553-NETS (6387).

Documentation Feedback

You can send comments about technical documentation to bug-doc@cisco.com.

You can submit comments by using the response card (if present) behind the front cover of your document or by writing to the following address:

Cisco Systems
Attn: Customer Document Ordering
170 West Tasman Drive
San Jose, CA 95134-9883

We appreciate your comments.

Cisco Product Security Overview

Cisco provides a free online Security Vulnerability Policy portal at this URL:

http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html

From this site, you can perform these tasks:

- Report security vulnerabilities in Cisco products.
- Obtain assistance with security incidents that involve Cisco products.
- Register to receive security information from Cisco.

A current list of security advisories and notices for Cisco products is available at this URL:

http://www.cisco.com/go/psirt

If you prefer to see advisories and notices as they are updated in real time, you can access a Product Security Incident Response Team Really Simple Syndication (PSIRT RSS) feed from this URL:

http://www.cisco.com/en/US/products/products_psirt_rss_feed.html

Reporting Security Problems in Cisco Products

Cisco is committed to delivering secure products. We test our products internally before we release them, and we strive to correct all vulnerabilities quickly. If you think that you might have identified a vulnerability in a Cisco product, contact PSIRT:

- Emergencies — security-alert@cisco.com
- Nonemergencies — psirt@cisco.com

Tip We encourage you to use Pretty Good Privacy (PGP) or a compatible product to encrypt any sensitive information that you send to Cisco. PSIRT can work from encrypted information that is compatible with PGP versions 2.*x* through 8.*x*.

Never use a revoked or an expired encryption key. The correct public key to use in your correspondence with PSIRT is the one that has the most recent creation date in this public key server list:

http://pgp.mit.edu:11371/pks/lookup?search=psirt%40cisco.com&op=index&exact=on

In an emergency, you can also reach PSIRT by telephone:

- 1 877 228-7302
- 1 408 525-6532

Obtaining Technical Assistance

For all customers, partners, resellers, and distributors who hold valid Cisco service contracts, Cisco Technical Support provides 24-hour-a-day, award-winning technical assistance. The Cisco Technical Support Website on Cisco.com features extensive online support resources. In addition, Cisco Technical Assistance Center (TAC) engineers provide telephone support. If you do not hold a valid Cisco service contract, contact your reseller.

Cisco Technical Support Website

The Cisco Technical Support Website provides online documents and tools for troubleshooting and resolving technical issues with Cisco products and technologies. The website is available 24 hours a day, 365 days a year, at this URL:

http://www.cisco.com/techsupport

Access to all tools on the Cisco Technical Support Website requires a Cisco.com user ID and password. If you have a valid service contract but do not have a user ID or password, you can register at this URL:

http://tools.cisco.com/RPF/register/register.do

Note Use the Cisco Product Identification (CPI) tool to locate your product serial number before submitting a web or phone request for service. You can access the CPI tool from the Cisco Technical Support Website by clicking the **Tools & Resources** link under Documentation & Tools. Choose **Cisco Product Identification Tool** from the Alphabetical Index drop-down list, or click the **Cisco Product Identification Tool** link under Alerts & RMAs. The CPI tool offers three search options: by product ID or model name; by tree view; or for certain products, by copying and pasting **show** command output. Search results show an illustration of your product with the serial number label location highlighted. Locate the serial number label on your product and record the information before placing a service call.

Submitting a Service Request

Using the online TAC Service Request Tool is the fastest way to open S3 and S4 service requests. (S3 and S4 service requests are those in which your network is minimally impaired or for which you require product information.) After you describe your situation, the TAC Service Request Tool provides recommended solutions. If your issue is not resolved using the recommended resources, your service request is assigned to a Cisco TAC engineer. The TAC Service Request Tool is located at this URL:

http://www.cisco.com/techsupport/servicerequest

For S1 or S2 service requests or if you do not have Internet access, contact the Cisco TAC by telephone. (S1 or S2 service requests are those in which your production network is down or severely degraded.) Cisco TAC engineers are assigned immediately to S1 and S2 service requests to help keep your business operations running smoothly.

To open a service request by telephone, use one of the following numbers:

Asia-Pacific: +61 2 8446 7411 (Australia: 1 800 805 227)
EMEA: +32 2 704 55 55
USA: 1 800 553-2447

For a complete list of Cisco TAC contacts, go to this URL:

http://www.cisco.com/techsupport/contacts

Definitions of Service Request Severity

To ensure that all service requests are reported in a standard format, Cisco has established severity definitions.

Severity 1 (S1)—Your network is "down," or there is a critical impact to your business operations. You and Cisco will commit all necessary resources around the clock to resolve the situation.

Severity 2 (S2)—Operation of an existing network is severely degraded, or significant aspects of your business operation are negatively affected by inadequate performance of Cisco products. You and Cisco will commit full-time resources during normal business hours to resolve the situation.

Severity 3 (S3)—Operational performance of your network is impaired, but most business operations remain functional. You and Cisco will commit resources during normal business hours to restore service to satisfactory levels.

Severity 4 (S4)—You require information or assistance with Cisco product capabilities, installation, or configuration. There is little or no effect on your business operations.

Obtaining Additional Publications and Information

Information about Cisco products, technologies, and network solutions is available from various online and printed sources.

- Cisco Marketplace provides a variety of Cisco books, reference guides, and logo merchandise. Visit Cisco Marketplace, the company store, at this URL:

  http://www.cisco.com/go/marketplace/

- *Cisco Press* publishes a wide range of general networking, training and certification titles. Both new and experienced users will benefit from these publications. For current Cisco Press titles and other information, go to Cisco Press at this URL:

  http://www.ciscopress.com

- *Packet* magazine is the Cisco Systems technical user magazine for maximizing Internet and networking investments. Each quarter, Packet delivers coverage of the latest industry trends, technology breakthroughs, and Cisco products and solutions, as well as network deployment and troubleshooting tips, configuration examples, customer case studies, certification and training information, and links to scores of in-depth online resources. You can access Packet magazine at this URL:

  http://www.cisco.com/packet

- *iQ Magazine* is the quarterly publication from Cisco Systems designed to help growing companies learn how they can use technology to increase revenue, streamline their business, and expand services. The publication identifies the challenges facing these companies and the technologies to help solve them, using real-world case studies and business strategies to help readers make sound technology investment decisions. You can access iQ Magazine at this URL:

  http://www.cisco.com/go/iqmagazine

- *Internet Protocol Journal* is a quarterly journal published by Cisco Systems for engineering professionals involved in designing, developing, and operating public and private internets and intranets. You can access the Internet Protocol Journal at this URL:

  http://www.cisco.com/ipj

- World-class networking training is available from Cisco. You can view current offerings at this URL:

  http://www.cisco.com/en/US/learning/index.html