



Preface

This preface explains the objectives, intended audience, and organization of this *Cisco CRS Carrier Routing System 16-Slot Line Card Chassis Enhanced Router System Description*, commonly referred to as the “system description” in this document, and presents the conventions that convey additional information.

Objective

This system description describes the Cisco CRS 16-Slot Line Card Chassis (LCC) Enhanced router from a high level. It provides background information and basic theory of operation for anyone wanting to understand the routing system. It describes the major assemblies that comprise the routing system. It can be read as a supplement to the site planning guide, installation documents, and software documents. This system description focuses on the hardware elements of the routing system.

Audience

This guide is intended for general audiences who want an overview of the Cisco CRS Series Carrier Routing System and its major components.

Document Organization

This system description contains the following chapters and appendixes:

- [Chapter 1, “Cisco CRS Carrier Routing System 16-Slot Line Card Chassis Enhanced Router Overview,”](#) provides an overview of the routing system.
- [Chapter 2, “Power Systems,”](#) provides a detailed physical description of the chassis DC and AC power systems.
- [Chapter 3, “Cooling System,”](#) provides an overview of the chassis cooling system.
- [Chapter 4, “Switch Fabric,”](#) provides an overview of the switch fabric. It also describes the switch fabric cards used in the single-chassis system and the multishelf system.
- [Chapter 5, “Line Cards and Physical Layer Interface Modules,”](#) provides an overview of the MSC (line card) and its associated PLIMs.

- [Chapter 6, “Route Processor,”](#) provides an overview of the route processor (RP), performance route processor (PRP), distributed route processor (DRP), and DRP physical layer interface module (PLIM).
- [Chapter 7, “Single-Chassis System Summary,”](#) provides a summary of the single-chassis system and includes brief introduction of the routing system cabling requirements. This chapter also describes the Building Integrated Timing System (BITS).
- [Chapter 8, “Control Plane,”](#) provides an overview of the routing system control plane, logical routers, and system diagnostics.
- [Appendix A, “Cisco CRS Carrier Routing System 16-Slot Enhanced Line Card Chassis Specifications,”](#) provides tables of specifications for the LCC and its components.
- [Appendix B, “Product IDs,”](#) provides information about the product structure and product IDs for components of the Cisco CRS Carrier Routing System 16-Slot Enhanced Chassis Line Card Chassis.

Document Conventions

This guide uses the following conventions:



Note

Means *reader take note*. Notes contain helpful suggestions or references to materials not contained in this manual.



Caution

Means *reader be careful*. You are capable of doing something that might result in equipment damage or loss of data.

Warning Definition



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. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device. Statement 1071

SAVE THESE INSTRUCTIONS

See [Cisco CRS Carrier Routing System Regulatory Compliance and Safety Information](#) for translations of warnings and information about the compliance and safety standards with which the Cisco CRS conforms.

Related Cisco CRS Series Documentation

For complete planning, installation, and configuration information, refer to the following documents:

Hardware Documents

- [Cisco CRS Carrier Routing System 16-Slot Line Card Chassis Enhanced Router Site Planning Guide](#)
- [Cisco CRS Carrier Routing System 16-Slot Line Card Chassis Enhanced Router Installation Guide](#)
- [Cisco CRS Carrier Routing System 16-Slot Line Card Chassis Enhanced Router Unpacking, Moving, and Securing Guide](#)
- [Cisco CRS Carrier Routing System SIP and SPA Hardware Installation Guide](#)
- [Cisco CRS Carrier Routing System 16-Slot Line Card Chassis Hardware Operations and Troubleshooting Guide](#)
- [Cisco CRS Carrier Routing System Ethernet Physical Layer Interface Module Installation Note](#)
- [Cisco CRS Carrier Routing System Packet-over-SONET/SDH Physical Layer Interface Module Installation Note](#)
- [Cisco CRS-1 Carrier Routing System to Cisco CRS-3 Carrier Routing System Migration Guide](#)
- [Cisco CRS Carrier Routing System Regulatory Compliance and Safety Information](#)

Software Documents

For a complete list of software documentation available for the Cisco CRS Carrier Routing System, see *About Cisco IOS-XR Software Documentation*, available online at <http://www.cisco.com>.

See the “[Obtaining Documentation and Submitting a Service Request](#)” section on page viii for more information.

Changes to This Document

[Table 1](#) lists the technical changes made to this document since it was first published.

Table 1 Document Change History

Revision	Date	Change Summary
OL-25578-04	July 2014	Added updates to support the Cisco CRS-X 400G back-to-back and multishelf systems, which include new CRS-16-FC400/M switch fabric card.
OL-25578-03	January 2014	Added updates to support the Cisco CRS-X, which includes new line cards, switch fabric cards, and PLIMs.

Table 1 Document Change History (continued)

Revision	Date	Change Summary
OL-25578-02	May 2012	Minor updates to Route Processor dimensions and product specifications.
OL-25578-01	October 2011	<p>Initial release of this document.</p> <p>This document introduces the Cisco CRS 16-Slot Line Card Chassis Enhanced router. The Cisco CRS 16-Slot Line Card Chassis Enhanced router includes the following new features:</p> <ul style="list-style-type: none"> • The midplane on the Cisco CRS 16-Slot Line Card Chassis Enhanced router is redesigned to support 400G per slot. • A new reduced height Power Shelf has been introduced for the Cisco CRS 16-Slot Line Card Chassis Enhanced router, which results in larger space for air intake (at the bottom of the chassis). This increases the overall cooling efficiency of the chassis. • A new Alarm Card has been introduced for the Cisco CRS 16-Slot Line Card Chassis Enhanced router that is designed to fit in the new reduced height Power Shelf. • The Cisco CRS 16-Slot Line Card Chassis Enhanced router Fan Controller monitors and controls nine cooling fans per fan tray using Pulse Width Modulation (PWM). This new Pulse Width Modulation (PWM) controlled Fan Tray gets power directly from the midplane. The Cisco CRS 16-Slot Line Card Chassis router used Voltage Controlled Fan Trays. • The Cisco CRS 16-Slot Line Card Chassis Enhanced router removes the zone circuit breaker and power-zoning requirement.

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>

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