

# Enterasys Matrix™

DFE-Diamond Series

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## Hardware Installation Guide

**7KR4297-02**

**7KR4297-04**





**Electrical Hazard:** Only qualified personnel should perform installation procedures.

**Riesgo Electrico:** Solamente personal calificado debe realizar procedimientos de instalacion.

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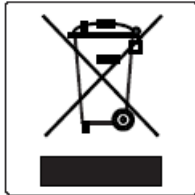
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部件名称 (Parts)	有毒有害物质或元素 (Hazardous Substance)					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr <sup>6+</sup> )	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
金属部件 (Metal Parts)	×	○	○	×	○	○
电路模块 (Circuit Modules)	×	○	○	×	○	○
电缆及电缆组件 (Cables & Cable Assemblies)	×	○	○	×	○	○
塑料和聚合物部件 (Plastic and Polymeric parts)	○	○	○	○	○	×
电路开关 (Circuit Breakers)	○	○	×	×	○	○

○： 表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T 11363-2006 标准规定的限量要求以下。  
Indicates that the concentration of the hazardous substance in all homogeneous materials in the parts is below the relevant threshold of the SJ/T 11363-2006 standard.

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This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

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## Safety Information Class 1 Laser Transceivers

**The single mode interface modules use Class 1 laser transceivers.  
Read the following safety information before installing or operating these modules.**

The Class 1 laser transceivers use an optical feedback loop to maintain Class 1 operation limits. This control loop eliminates the need for maintenance checks or adjustments. The output is factory set, and does not allow any user adjustment. Class 1 Laser transceivers comply with the following safety standards:

- 21 CFR 1040.10 and 1040.11 U.S. Department of Health and Human Services (FDA).
- IEC Publication 825 (International Electrotechnical Commission).
- CENELEC EN 60825 (European Committee for Electrotechnical Standardization).

When operating within their performance limitations, laser transceiver output meets the Class 1 accessible emission limit of all three standards. Class 1 levels of laser radiation are not considered hazardous.

When the connector is in place, all laser radiation remains within the fiber. The maximum amount of radiant power exiting the fiber (under normal conditions) is -12.6 dBm or  $55 \times 10^{-6}$  watts.

Removing the optical connector from the transceiver allows laser radiation to emit directly from the optical port. The maximum radiance from the optical port (under worst case conditions) is  $0.8 \text{ W cm}^{-2}$  or  $8 \times 10^3 \text{ W m}^{-2} \text{ sr}^{-1}$ .

**Do not use optical instruments to view the laser output. The use of optical instruments to view laser output increases eye hazard. When viewing the output optical port, power must be removed from the network adapter.**

## Declaration of Conformity

Application of Council Directive(s): 2004/108/EC  
2006/95/EC

Manufacturer's Name: **Enterasys Networks, Inc.**

Manufacturer's Address: **50 Minuteman Road  
Andover, MA 01810  
USA**

European Representative Address: **Enterasys Networks, Ltd.  
Nexus House, Newbury Business Park  
London Road, Newbury  
Berkshire RG14 2PZ, England**

Conformance to Directive(s)/Product Standards: **EC Directive 2004/108/EC  
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EN 61000-3-2  
EN 61000-3-3  
EN 55024  
EC Directive 2006/95/EC  
EN 60950  
EN 60825**

Equipment Type/Environment: **Networking Equipment, for use in a Commercial  
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# About This Guide

This guide provides an overview, installation and troubleshooting instructions, and specifications for the Enterasys Matrix™ DFE-Diamond 7KR4297-02 and 7KR4297-04 modules and the XFP interface modules.

For information about the CLI (Command Line Interface) set of commands used to configure and manage the DFE-Diamond modules, refer to the *Enterasys Matrix™ DFE-Diamond/Platinum Series Configuration Guide*.



**Note:** In this guide, the following terms are used:

- *DFE* refers to Distributed Forwarding Engine series of modules.
- Unless otherwise noted, DFE module refers to both the 7KR4297-02 and 7KR4297-04 modules.
- *XFP* refers to a 10-Gbps physical interface module inserted into a DFE module NEM slot.
- *PHY* refers to a physical interface.

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## Important Notice

Depending on the firmware version used in the DFE module, some features described in this document may not be supported. Refer to the Release Notes shipped with the DFE module to determine which features are supported.

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## Who Should Use This Guide



**Electrical Hazard:** Only qualified personnel should install or service this unit.

**Riesgo Electrico:** Nada mas personal capacitado debe de instalar o darle servicio a esta unida.

**Elektrischer Gefahrenhinweis:** Installationen oder Servicearbeiten sollten nur durch ausgebildetes und qualifiziertes Personal vorgenommen werden.

This guide is intended for a network administrator responsible for installing and setting up the DFE-Platinum modules.

## How to Use This Guide

This preface provides an overview of this guide and the DFE-Diamond Series manual set, a brief summary of each chapter, and defines the conventions used in this document. To locate information about various subjects in this guide, refer to the following table:

For...	Refer to...
An overview of the DFE module and instructions to obtain technical support from Enterasys Networks	Chapter 1, <a href="#">Introduction</a>
Network requirements that must be met before installing the DFE module	Chapter 2, <a href="#">Network Requirements</a>
Instructions to install the DFE module hardware and optional XFP interface module	Chapter 3, <a href="#">Installation</a>
Troubleshooting installation problems and diagnosing network/operational problems using the LANVIEW LEDs	Chapter 4, <a href="#">Troubleshooting</a>
Specifications, environmental requirements, and physical properties of the DFE module and optional XFP interface module	Appendix A, <a href="#">Specifications</a>
Instructions to set the mode switches when necessary and remove and replace DRAM SIMM and DIMM memory	Appendix B, <a href="#">Mode Switch Bank Settings and Optional Installations</a>

## Related Documents

The manuals listed below can be obtained from the World Wide Web in Adobe Acrobat Portable Document Format (PDF) at the following site:





<http://www.enterasys.com/support/manuals>

- *Enterasys Matrix™ DFE-Diamond/Platinum Series Configuration Guide* provides information on how to use the Command Line Interface to set up and manage the DFE modules.
- *Cabling Guide* provides information on dB loss and cable specifications.

Unlike the *Enterasys Matrix™ DFE-Diamond/Platinum Series Configuration Guide*, the *Cabling Guide* is not listed alphabetically on the web site. Instead, it is listed under the *Overview Guides* link.

## Document Conventions

The following typographical conventions and icons are used in this document.

<a href="#">blue type</a>	Indicates a hypertext link. When reading this document online, click the text in blue to go to the referenced figure, table, or section.
Lowercase x	Indicates the general use of an alphanumeric character (for example, 6x1xx, the x's indicate a combination of numbers or letters).
	<b>Note:</b> Calls the reader's attention to any item of information that may be of special importance.
	<b>Caution:</b> Contains information essential to avoid damage to the equipment. <b>Precaución:</b> Contiene información esencial para prevenir dañar el equipo. <b>Achtung:</b> Verweist auf wichtige Informationen zum Schutz gegen Beschädigungen.
	<b>Warning:</b> Warns against an action that could result in personal injury or death. <b>Advertencia:</b> Advierte contra una acción que pudiera resultar en lesión corporal o la muerte. <b>Warnhinweis:</b> Warnung vor Handlungen, die zu Verletzung von Personen oder gar Todesfällen führen können!
	<b>Electrical Hazard:</b> Warns against an action that could result in personal injury or death. <b>Riesgo Electrico:</b> Advierte contra una acción que pudiera resultar en lesión corporal o la muerte debido a un riesgo eléctrico. <b>Elektrischer Gefahrenhinweis:</b> Warnung vor sämtlichen Handlungen, die zu Verletzung von Personen oder Todesfällen – hervorgerufen durch elektrische Spannung – führen können!

## Commonly Used Acronyms

The following acronyms are used extensively throughout this guide:

- ESD – Electrostatic Discharge
- LED – Light Emitting Diode
- PHY – Physical Interface
- XFP – 10-Gigabit Small Form Factor Pluggable fiber-optic transceiver

## Getting Help

For additional support related to the modules or this document, contact Enterasys Networks using one of the following methods:

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World Wide Web	<a href="http://www.enterasys.com/support/">www.enterasys.com/support/</a>
Phone	1-800-872-8440 (toll-free in U.S. and Canada) or 1-978-684-1000  For the Enterasys Networks Support toll-free number in your country: <a href="http://www.enterasys.com/support/">www.enterasys.com/support/</a>
Internet mail	support@enterasys.com  To expedite your message, please type <b>[SWITCHING]</b> in the subject line.

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To send comments or suggestions concerning this document to the Technical Publications Department:  
[techpubs@enterasys.com](mailto:techpubs@enterasys.com)

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To expedite your message, include the document Part Number in the Email message.

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**Before contacting Enterasys Networks for technical support, have the following data ready:**

- Your Enterasys Networks service contract number
- A description of the failure
- A description of any action(s) already taken to resolve the problem (for example, changing mode switches or rebooting the unit)
- The serial and revision numbers of all involved Enterasys Networks products in the network
- A description of your network environment (such as layout, cable type, other relevant environmental information)
- Network load and frame size at the time of trouble (if known)
- The device history (for example, if you have returned the device before, or if this is a recurring problem)
- Any previous Return Material Authorization (RMA) numbers



## Introduction

This chapter provides an overview of the Matrix DFE-Diamond 7KR4297-02 and 7KR4297-04 modules and optional XFP 10-Gbps physical interface module.



**Note:** Unless otherwise noted the term “DFE module” refers to both the 7KR4297-02 and 7KR4297-04 modules.

For information about...	Refer to page...
<a href="#">Overview of Matrix DFE-Diamond Module Capabilities</a>	1-1
<a href="#">The DFE-Diamond 7KR4297-02 and 7KR4297-04 Modules</a>	1-2
<a href="#">Management</a>	1-3
<a href="#">Secure Networks Policy Support</a>	1-4
<a href="#">Standards Compatibility</a>	1-4
<a href="#">LANVIEW Diagnostic LEDs</a>	1-4

## Overview of Matrix DFE-Diamond Module Capabilities

The Platinum Distributed Forwarding Engine (DFE) is Enterasys Networks’ next generation of enterprise modules for the Matrix N-Series and Matrix E7 switches. These DFE modules deliver high performance and flexibility to ensure comprehensive switching, routing, Quality of Service, security, and traffic containment. Key features include:

- Superior performance and capacity to support more high-bandwidth and latency sensitive applications
- 10/100/1000 Base-TX and 10-Gigabit Ethernet connectivity
- Integrated Services Design that reduces the number/type of modules required, simplifies network design, and lowers entry cost
- Port- and User-Based Policy and Multilayer Packet Classification that provides granular control and security for business-critical applications
- High-availability services with stateful failover for services and management
- Self-learning configuration modules with increased reliability and fault tolerance that reduces configuration time and maximizes uptime
- Network-wide configuration, change, and inventory management that is easier to install, troubleshoot, and maintain
- Reduced support and maintenance costs, and decreased configuration time
- Support for a variety of converged applications including VoIP with Power-over-Ethernet

## The DFE-Diamond 7KR4297-02 and 7KR4297-04 Modules

This section provides an overview of the 7KR4297-02 and 7KR4297-04 DFE-Diamond modules shown in [Figure 1-1](#) and [Figure 1-2](#), as well as the optional XFP physical interfaces (PHYs). For information about the DFE-Diamond module features and how to configure them, refer to the *Enterasys Matrix DFE-Diamond/Platinum Series Configuration Guide*.

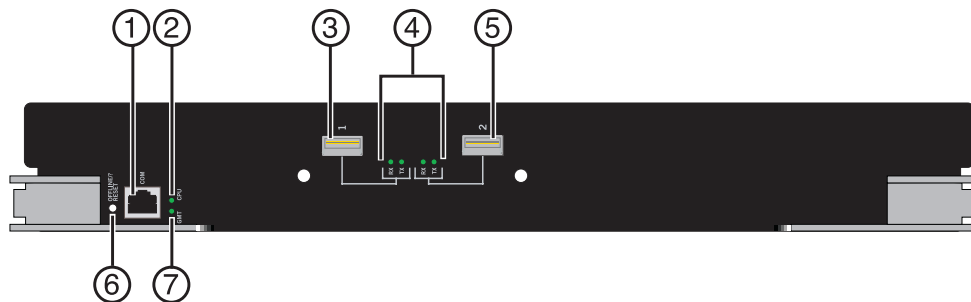
### 7KR4297-02

The 7KR4297-02 DFE module has two 10-Gbps Ethernet port slots on the front panel that can support up to two 10-Gbps XFP PHYs for high speed uplinks from the chassis DFE Ethernet switch system. With two 10-Gbps PHYs installed in the 7KR4297-02, a shared uplink of up to 20 Gbps can be provided from the DFE switching system to two network edge connections from a Matrix E7, Matrix N7, Matrix N5, Matrix N3, or Matrix N1 chassis to a core data center.

The DFE module ports can be configured to control traffic by limiting the rate of traffic accepted into the module and prioritizing traffic to expedite the flow of higher priority traffic through the module.

The 7KR4297-02 module can be installed in a Matrix E7, Matrix N7, Matrix N5, Matrix N3, or Matrix N1 chassis, but only supports FTM2 data backplane interconnections in the Matrix E7 chassis.

**Figure 1-1 7KR4297-02 DFE-Diamond Module**



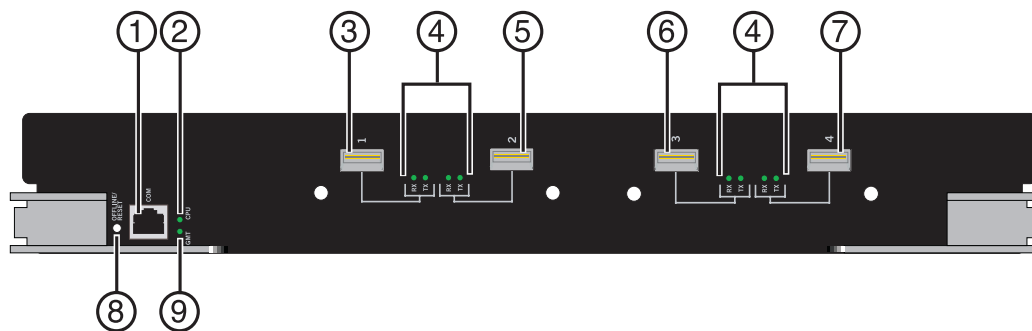
- |   |                        |
|---|------------------------|
| 1 RJ45 COM (also known as Console Port) | 5 XFP option slot 2    |
| 2 CPU LED                               | 6 OFFLINE/RESET switch |
| 3 XFP option slot 1                     | 7 MGMT LED             |
| 4 TX (transmit) & RX (receive) LEDs     |                        |

### 7KR4297-04

The 7KR4297-04 DFE-module has four 10-Gbps Ethernet port slots on the front panel that can support up to four 10-Gbps XFP PHYs for high speed uplinks from the chassis DFE Ethernet switch system. With four 10-Gbps PHYs installed in the 7KR4297-04, a shared uplink of up to 40 Gbps can be provided from the DFE switching system to two network edge connections from a Matrix E7, Matrix N7, Matrix N5, Matrix N3, or Matrix N1 chassis to a core data center.

The DFE module ports can be configured to control traffic by limiting the rate of traffic accepted into the module and prioritizing traffic to expedite the flow of higher priority traffic through the module.

The 7KR4297-04 DFE module can be installed in a Matrix E7, Matrix N7, Matrix N5, Matrix N3, or Matrix N1 chassis, but only supports FTM2 data backplane interconnections in the Matrix E7 chassis.

**Figure 1-2 7KR4297-04 DFE-Diamond Module**

- |   |                        |
|---|------------------------|
| 1 RJ45 COM (also known as Console Port) | 6 XFP option slot 3    |
| 2 CPU LED                               | 7 XFP option slot 4    |
| 3 XFP option slot 1                     | 8 OFFLINE/RESET switch |
| 4 TX (transmit) & RX (receive) LEDs     | 9 MGMT LED             |
| 5 XFP option slot 2                     |                        |

## XFP 10GBASE-LR, -ER, -LX4, and -SR PHYs

The LAN XFP PHYs (physical interfaces) provide inexpensive, high-speed Ethernet connectivity. These PHYs provide network managers the ability to use 10-Gigabit Ethernet technologies to provide high-speed, local backbone interconnections between large capacity switches. As demand for bandwidth increases, network administrators can deploy 10-Gigabit Ethernet throughout the entire network to improve server farm, backbone, and campus-wide connectivity.

## Management

Management of the module can be either in-band or out-of-band. In-band remote management is possible using Telnet, Enterasys Networks' NetSight<sup>®</sup> management application, or WebView<sup>™</sup> application. Out-of-band management is provided through the RJ45 COM (Communication) port on the front panel using a VT100 terminal or a VT100 terminal emulator.

### Switch Configuration Using WebView

Enterasys Networks' HTTP-based Web management application (WebView) is an intuitive web tool for simple management tasks.

### Switch Configuration Using CLI Commands

The CLI commands enable you to perform more complete switch configuration management tasks.

For CLI command set information and how to configure the module, refer to the *Enterasys Matrix DFE-Diamond/Platinum Series Configuration Guide*.

## Secure Networks Policy Support

Policy Enabled Networking manages the allocation of networking infrastructure resources in a secure and effective manner. Using Secure Networks Policy, an IT Administrator can predictably assign appropriate resources to the Users, Applications, and Services that use the network; while blocking or containing access for inappropriate or potentially dangerous network traffic. Using this technology it is possible, for the first time, to align IT services with the needs of specific users and applications, and to leverage the network as a key component of the organization's security strategy.

The Secure Networks Policy Architecture consists of 3 components: Classification Rules, Network Services, and Behavioral Profiles. These are defined as follows:

- Classification Rules determine how specific traffic flows (identified by Layer 2, Layer 3, and Layer 4 information in the data packet) are treated by each Switch or Router. In general, Classification Rules are applied to the networking infrastructure at the network edge/ingress point.
- Network Services are logical groups of Classification Rules that identify specific networked applications or services. Users may be permitted or denied access to these services based on their role within the organization. Priority and bandwidth rate limiting may also be controlled using Network Services.
- Behavioral Profiles (or roles) are used to assign Network Services to groups of users who share common needs—for example Executive Managers, Human Resources Personnel, or Guest Users. Access, resources, and security restrictions are applied as appropriate to each Behavioral Profile. A variety of authentication methods including 802.1X, EAP-TLS, EAP-TTLS, and PEAP may be used to classify and authorize each individual user; and the IT Administrator may also define a Behavioral Profile to apply in the absence of an authentication framework.

## Standards Compatibility

The DFE-Diamond modules are fully compliant with the IEEE 802.3-2002, 802.3ae-2002, 802.1D-1998, and 802.1Q-1998 standards. The DFE-Diamond module provides IEEE 802.1D-1998 Spanning Tree Algorithm (STA) support to enhance the overall reliability of the network and protect against "loop" conditions.

## LANVIEW Diagnostic LEDs

LANVIEW diagnostic LEDs serve as an important troubleshooting aid by providing an easy way to observe the status of individual ports and overall network operations.

## Network Requirements

Before installing the module, review the requirements and specifications referred to in this chapter concerning the following:

For information about...	Refer to page...
<a href="#">XFP 10-Gigabit Ethernet</a>	2-1
<a href="#">Module Placement in a Matrix E7 Chassis</a>	2-2

The network installation must meet the requirements to ensure satisfactory performance of this equipment. Failure to do so will produce poor network performance.



**Note:** The *Enterasys Matrix DFE-Diamond/Platinum Series Configuration Guide*, referred to in the following sections, can be found on the Enterasys Networks World Wide Web site: <http://www.enterasys.com/support/manuals>

### XFP 10-Gigabit Ethernet

There are two optional 10-Gigabit interface port slots on the 7KR4297-02 and four optional 10-Gigabit interface port slots on the 7KR4297-04 that can support various optional XFP 10-Gigabit Ethernet (10 Gbps) standard type fiber-optic modules. As of the printing of this guide, the 10GBASE-LR-XFP, -ER-XFP, -ZR-XFP, and -SR-XFP are available.

Table 2-1 provides the cable type, maximum length, and connector type according to each version of XFP. For complete specifications, refer to “10-Gigabit Ethernet Transceiver Specifications (XFP)” on page A-2.

**Table 2-1 Recommended Cable Types and Specifications**

Item	Type	Max. Reach	Min. Reach <sup>1</sup>	Connector
10GBASE-LR-XFP	SMF (Single Mode Fiber)	10 km (6.21 mi)	2 m (6.6 ft)	LC
10GBASE-ER-XFP	SMF (Single Mode Fiber)	40 km (24.85 mi) <sup>2</sup>	2 m (6.6 ft) with minimum of 5 dB attenuation	LC
10GBASE-ZR-XFP	SMF (Single Mode Fiber)	80 km (49.7 mi)	2 m (6.6 ft) with minimum of 11 dB attenuation	LC
10GBASE-SR-XFP	MMF (Multimode Fiber)	300 m (984 ft)	2 m (6.6 ft)	LC

1. The limiting factor is saturation of the receiver by the transmitter. When presented with a signal at a strength above the saturation point, the receiver cannot distinguish between pulses, though no hardware damage occurs.
2. Links longer than 30 km for the same link power budget are considered engineered links. Attenuation for such links needs to be less than the minimum.

The uplinks have one fiber-optic interface with an LC connector. Depending on the XFP and fiber-optic cable used, the signal can be driven to a maximum distance of 33 m (108 ft) to 40 kilometers (24.85 miles).

The device at the other end of the fiber optic connection must be a standards-compliant product with a matching XFP interface.

## Module Placement in a Matrix E7 Chassis

If you want to mix 6x1xxx, 6x2xxx, 6x3xxx, and 7x4xxx series modules in the same Matrix E7chassis, it is necessary to have a DFE-Diamond bridging module installed, and follow the module placement rules described in [“Backplane Connections and Installation Rules”](#) on page 3-3 to successfully bridge data traffic to some or all modules in the chassis.

## Installation



**Electrical Hazard:** Only qualified personnel should perform installation procedures.

**Riesgo Electrico:** Solamente personal calificado debe realizar procedimientos de instalacion.

**Elektrischer Gefahrenhinweis:** Installationen sollten nur durch ausgebildetes und qualifiziertes Personal vorgenommen werden.

---

### Important Notice

Read the Release Notes associated with the DFE-Diamond module to check for any exceptions to the supported features and operation documented in this guide.

---

This chapter provides the instructions to install the DFE-Diamond module and optional XFP interface modules.



**Note:** Unless otherwise noted, the installation instructions for the DFE-Diamond modules apply to both the 7KR4297-02 and 7KR4297-04 DFE-Diamond modules.

A Phillips screwdriver is required to install an optional interface module into the DFE-Diamond module. Follow the order of the sections listed below to correctly install the DFE-Diamond module.

For information about...	Refer to page...
<a href="#">Unpacking the DFE-Diamond Module</a>	<a href="#">3-2</a>
<a href="#">Installing an Optional XFP Module</a>	<a href="#">3-2</a>
<a href="#">Backplane Connections and Installation Rules</a>	<a href="#">3-3</a>
<a href="#">Installing Module into Matrix E7 or Matrix N7 Chassis</a>	<a href="#">3-6</a>
<a href="#">Installing Module into Matrix N3 Chassis</a>	<a href="#">3-9</a>
<a href="#">Connecting to the Network</a>	<a href="#">3-10</a>
<a href="#">Connecting to COM Port for Local Management</a>	<a href="#">3-11</a>
<a href="#">Completing the Installation</a>	<a href="#">3-16</a>

## Unpacking the DFE-Diamond Module

Unpack the DFE-Diamond module as follows:

1. Open the box and remove the packing material protecting the DFE-Diamond module.
2. Verify the contents of the carton as listed in [Table 3-1](#).

**Table 3-1 Carton Contents**

Item	Quantity
7KR4297-02 or 7KR4297-04 DFE-Diamond module	1
Customer Release Notes	1

3. Remove the tape seal on the non-conductive bag to remove the DFE-Diamond module.
4. Perform a visual inspection of the DFE-Diamond module for any signs of physical damage. Contact Enterasys Networks if there are any signs of damage. Refer to “[Getting Help](#)” on page xiv for details.

## Installing an Optional XFP Module

This section describes how to install an XFP module. For the XFP specifications, refer to [Appendix A](#).



**Caution:** Carefully follow the instructions in this manual to avoid damaging the XFP module and DFE module.

The XFP module and DFE module are sensitive to static discharges. Use an antistatic wrist strap and observe all static precautions during this procedure. Failure to do so could result in damage to the XFP module and DFE module. Always leave the XFP module in the antistatic bag or an equivalent antistatic container when not installed.

**Precaución:** Siga las instrucciones del manual para no dañar el XFP ni el módulo, puesto que son muy sensible a las descargas de electricidad estática. Utilice la pulsera antiestática y tome todas las precauciones necesarias durante este procedimiento. Si no lo hace, podría dañar el XFP ni el módulo. Mientras no esté instalado, mantenga el XFP en su bolsa antiestática o en cualquier otro recipiente antiestático.

To prepare and install an XFP module, proceed as follows:

### Preparation

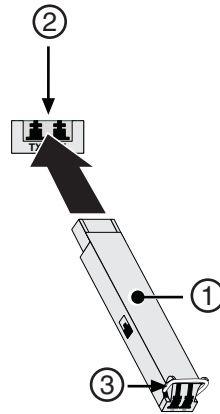
1. Before removing an XFP from the anti-static packaging, it is recommended that you use an antistatic wrist strap (not supplied) to prevent damage from static discharge. To use the wrist strap, refer to the instructions provided with your antistatic wrist strap.
2. Remove the XFP from its packaging.

### Installation

To install an XFP module, refer to [Figure 3-1](#) and proceed as follows:

1. Hold the XFP so that the connector will seat properly.
2. Carefully align the XFP with the module port slot.
3. Push the XFP into the 7KR4297-02 or 7KR4297-04 port slot until the back of the XFP module faceplate is flush against the 7KR4297-02 or 7KR4297-04 front panel.
4. Close the release handle.



**Figure 3-1 Installing an XFP**

1 XFP module

2 Port slot

3 Release handle

## Removing an XFP Module

To remove an XFP from the module port, refer back to [Figure 3-1](#) and proceed as follows:



**Caution:** The XFP module and DFE module are sensitive to static discharges. Use an antistatic wrist strap and observe all static precautions during this procedure. Failure to do so can result in damage to the XFP module and DFE module. Always leave the XFP module in the antistatic bag or an equivalent antistatic container when not installed.

**Precaución:** Utilice la pulsera antiestática y tome todas las precauciones necesarias durante este procedimiento. Si no lo hace, podría dañar el XFP ni el módulo. Mientras no esté instalado, mantenga el XFP en su bolsa antiestática o en cualquier otro recipiente antiestático.

1. Attach the antistatic wrist strap before removing the XFP module.
2. Remove any network cable attached to the connector on the XFP module. To remove a connector from the XFP port, grasp the handle and carefully pull the connector out of the port. It may need to be loosened by gently moving it from side to side to release the latching keys.
3. Before storing or shipping the XFP module, place it into a static-free container.

## Backplane Connections and Installation Rules



**Note:** A lowercase x indicates the general use of an alphanumeric character (for example, 6x1xx, the x's indicate a combination of numbers or letters).

The following sections describe the FTM1 and FTM2 backplane connections, and the hardware configuration rules when installing first (6x1xx), second (6x2xx), third (6x3xx), and fourth (7xxxxx) generation modules into the same Matrix E7 chassis.

### FTM1 and FTM2 Connectivity

The Matrix E7 (6C107) chassis has backplanes referred to as FTM1 and FTM2. The 7xxxxx DFE-Diamond modules use FTM2 for high speed communication to each other and operate as one switching unit with a single IP address. The traffic through these modules does not connect to FTM1 except through an FTM bridging module such as the 7H4382-25, 7H4382-49, or 7H4383-49 DFE module.

The DFE FTM bridging modules have a connection to both FTM1 and FTM2 backplanes, which enables them to switch frames between the two backplanes and all modules in the 6C107 chassis. However, the older first (6x1xx), second (6x2xx), and third (6x3xx) generation modules are still managed using their own Local Management and are not subject to management by the DFE-Diamond module management entity.

The Matrix N3 (7C103) and Matrix N7 (7C107) chassis have only FTM2 connections and support only DFE-Diamond modules.

## Module Placement and Rules

The DFE series modules can be installed in a Matrix E7, Matrix N1, Matrix N3, Matrix N5, or Matrix N7 chassis. When installing the modules into one of these chassis, make sure to consider the following placement rules for the appropriate chassis and module mix.

### Matrix N3 Chassis, Module Placement

The Matrix N3 chassis slots 1 through 3 will support only DFE-Diamond modules.

**Rule:** There are no particular rules for installing DFE-Diamond modules into a Matrix N3 chassis.

### Matrix N7 Chassis, Module Placement

The Matrix N7 chassis slots 1 through 7 will support only DFE-Diamond modules.

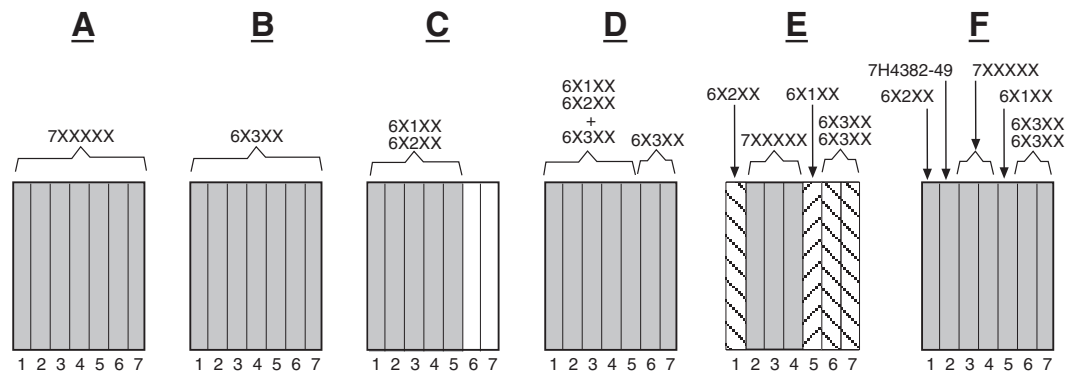
**Rule:** There are no particular rules for installing DFE-Diamond modules into a Matrix N7 chassis.

### Matrix E7 Chassis

Depending on the modules being installed in the Matrix E7 chassis and to help ensure proper operation, consider the following examples and rules for module placement in the chassis.

Figure 3-1 shows six examples of chassis module placement. These examples are described below along with the applicable module placement rule.

Figure 3-1 Examples, Module Placement in Matrix E7 Chassis



#### Example 1 (Figure 3-1, A)

Shows the chassis fully populated with DFE-Diamond modules (7xxxxx). These modules communicate with each other via the FTM2 chassis backplane and act as a single switching entity with one IP address. The DFE-Diamond modules are configured using a Command Line Interface set of commands.

**Rule:** DFE-Diamond modules can be installed in any available chassis slot in the Matrix E7 chassis.

**Example 2 (Figure 3-1, B)**

Shows the chassis fully populated with third generation modules (6x3xx). These modules can also be installed in any available chassis slot in the Matrix E7 chassis, but operate as individual modules with separate IP addresses. Each module is configured using Local Management.

**Rule:** The 6x3xx modules can be installed in any available chassis slot in the Matrix E7 chassis.

**Example 3 (Figure 3-1, C)**

Shows chassis slots 1 through 5 populated with first and second generation modules (6x1xx and 6x2xx). If a 6x1xx or 6x2xx series module is installed in slot 6 or 7, it will operate in standalone mode (no backplane connectivity). Like the 6x3xx modules, the 6x1xx and 6x2xx modules operate as individual modules with separate IP addresses, and each one is configured using Local Management.

**Rule:** The 6x1xx and 6x2xx modules can communicate with each other when they are installed in chassis slots 1 through 5 in the Matrix E7 chassis. If installed in slot 6 or 7, they operate in standalone mode.

**Example 4 (Figure 3-1, D)**

Shows chassis slots 1 through 5 populated with a mix of 6x1xx, 6x2xx, and 6x3xx modules and only third generation modules in slots 6 and 7.

In this module arrangement, the 6x3xx module provides a proxy bridge, which enables the 6x1xx and 6x2xx modules to communicate with 6x3xx modules in slot 6 or 7. If more than one 6x3xx module is installed in slots 1 to 5, the module in the lowest numbered slot performs the proxy function for slots 6 and 7. Therefore, if a 6x3xx module is already performing the proxy function, and another 6x3xx module is inserted into a lower numbered slot, connectivity will be temporarily interrupted, as the new board takes over the proxy function. When a 6x3xx module in a lower numbered slot is removed, and there is a 6x3xx module in a higher numbered slot, communication is not interrupted.

For Local Management, plugging the Local Management connection into the 6x3xx modules will allow management connections to all 6x1xx, 6x2xx, and 6x3xx modules. If the Local Management connection is to a 6x1xx or 6x2xx board, only the modules in the first five slots will be recognized by the management client.

**Rule:** There must be at least one 6x3xx module in slots 1 through 5 to enable communications between the 6x1xx, 6x2xx, and 6x3xx modules.

**Example 5 (Figure 3-1, E)**

Shows chassis slots 1 and 5 populated with 6x1xx and 6x2xx modules, respectively; slots 2 through 4 with DFE-Diamond modules, but not a DFE-Diamond bridging module; and slots 6 and 7 with 6x3xx modules.

In this module arrangement, the 6x1xx and 6x2xx modules in slots 1 and 5 can only communicate with each other, because there is no 6x3xx module in one of the first five slots to serve as the proxy bridge to communicate with the 6x3xx modules in slots 6 and 7. The 7x4xxx DFE-Diamond modules in slots 2, 3, and 4 will operate under one IP address. Since there is no bridging module, the DFE-Diamond modules will not communicate with any other modules in the chassis.

**Rule:** In this example, there must be at least one 6x3xx series module and a DFE-Diamond bridging module in slots 1 through 5 to enable communications between all generations of modules in the chassis.

### Example 6 (Figure 3-1, F)

The module arrangement in this example is similar to the one shown in [Figure 3-1, E](#) and described in Example 5. The only difference is that a DFE-Diamond bridging module is installed in slot 2, enabling all modules to communicate with each other.

**Rule:** In this example, the 7H4382-49 DFE-Diamond bridging module serves as both the FTM1-to-FTM2 bridge and the five-to-seven slot proxy bridge. The 6x3xx does not serve as a proxy bridge in this configuration because the 7H4382-49 is in a slot with a lower number.

## Installing Module into Matrix E7 or Matrix N7 Chassis



**Caution:** Failure to observe static safety precautions could cause damage to the module. Follow static safety handling rules and wear the antistatic wrist strap.

Do not cut the non-conductive bag to remove the module. Sharp objects contacting the board or components can cause damage.

**Precaución:** Si no toma las medidas de seguridad necesarias para evitar descargas de electricidad estática, es posible que el módulo se dañe. Siga los consejos de seguridad para la manipulación del producto y no olvide utilizar la pulsera antiestática.

No corte la bolsa antiestática para sacar el módulo. Tenga en cuenta que si algún objeto cortante entra en contacto con la placa o con los componentes, éstos podrían dañarse.

To install module into the Matrix E7 chassis, refer to “[Backplane Connections and Installation Rules](#)” (page 3-3) to familiarize yourself with the FTM1 and FTM2 backplane connections and the module hardware installation rules. Then proceed to “[Preparation](#)” (page 3-6) to start the installation process.

To install a DFE-Diamond module into a Matrix N7 chassis, proceed directly to “[Preparation](#)” (page 3-6) to start the installation process.

### Preparation

1. Remove the blank panel covering the slot in which the module will be installed. All other slots must remain covered to ensure proper airflow for cooling. (Save the blank plate in the event you need to remove the module.)
2. Remove the module from the shipping box. (Save the box and packing materials in the event the module needs to be reshipped.)
3. Locate the antistatic wrist strap shipped with the chassis. Attach the antistatic wrist strap to your wrist and plug the cable from the antistatic wrist strap into the ESD grounding receptacle at the upper right corner of the chassis.
4. Remove the module from the plastic bag. (Save the bag in the event the module must be reshipped.) Observe all precautions to prevent damage from Electrostatic Discharge (ESD).
5. Examine the module for damage. If any damage exists, DO NOT install the module. Immediately contact Enterasys Networks. Refer to “[Getting Help](#)” on page xiv.

## Installation

To install the module, refer to [Figure 3-2](#) and proceed as follows:



**Caution:** To prevent damaging the backplane connectors in the following step, take care that the module slides in straight and properly engages the backplane connectors.

Ensure that the top lever lines up with the desired slot number located on the front panel of the chassis. Refer to [Figure 3-2](#).

**Precaución:** Para evitar que se dañen los conectores del panel posterior en el siguiente paso, intente deslizar el módulo en forma recta y verifique que se enganche correctamente en los conectores de panel posterior.

Asegúrese de que la palanca superior esté alineada con respecto al número de ranura correspondiente ubicado en el panel frontal del chasis. Consulte en [Figure 3-2](#).

1. Locate the chassis card guides that line up with the slot number in which the module will be installed. Make sure the module locking levers are in the open position (top and bottom).
2. Slide the module into the chassis card guides, taking care that the module slides in straight. See Caution below.



**Caution:** Due to the amount of force needed to properly seat the module connectors into the backplane connectors, it is best to apply force to the end of the levers to insert (or eject) the module. Otherwise, damage could result to the module and chassis.

**Precaución:** Para colocar los conectores del módulo en los conectores del panel posterior correctamente es necesario hacer bastante fuerza, por ello, para insertar o quitar el módulo, se recomienda concentrar la fuerza en el extremo de las palancas. Si no lo hace, podría dañar el módulo y el chasis.

3. Slide the module into the slot until you can engage the top and bottom locking levers with the chassis as shown in [Figure 3-2](#).

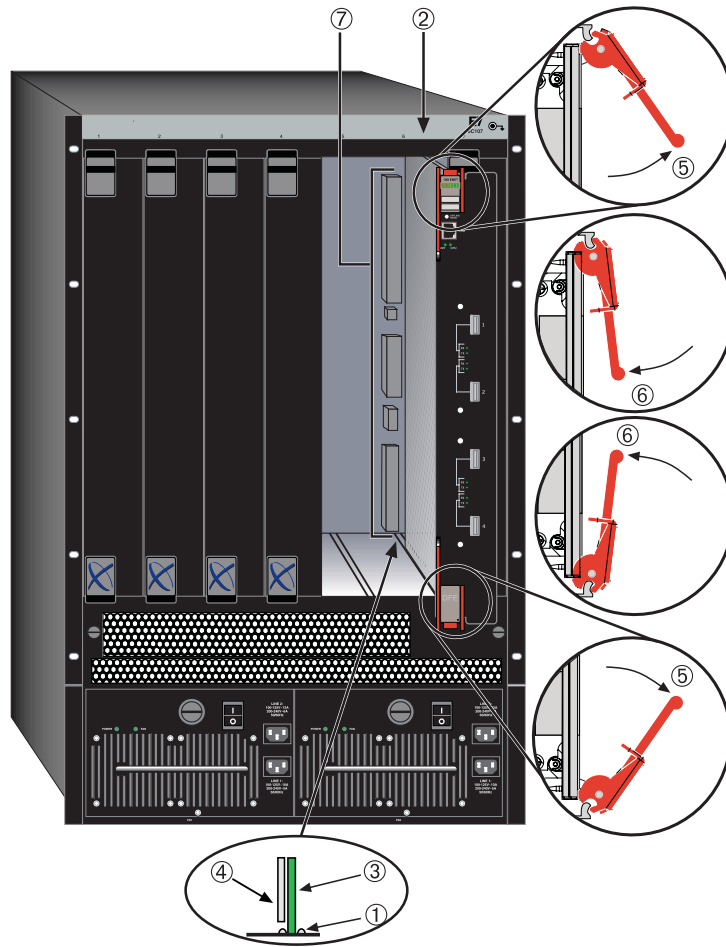


**Caution:** In step 4, do not force the locking levers to the point that they touch the face of the front panel. Forcing the locking levers to this point could damage the module and chassis.

**Precaución:** En el paso 4, tenga cuidado de no llevar las palancas de cierre a un punto en donde estén en contacto con el panel frontal. Si lo hace, podría dañar el módulo o el chasis.

4. Refer to the Caution note above, then rotate the two levers into the closed position.
5. If the chassis in which the module is installed was powered down for the installation, turn the power supplies on. Check to see that the module CPU LED settles at solid green after a few minutes. If the LED does not turn solid green, refer to [Chapter 4](#) for troubleshooting details.

**Figure 3-2** Installing Module into Matrix E7 or Matrix N7 Chassis



- 1 Card guides
- 2 Slot number 6 (left-most slot is 1)
- 3 Module
- 4 Metal back panel
- 5 Upper/lower locking tabs (in proper open position)
- 6 Upper/lower locking tab (in closed position)
- 7 Backplane connectors
  - Top two connectors (power and FTM2)
  - Bottom two connectors (power and FTM1)
  - (no bottom connectors in Matrix N7 chassis)

## Installing Module into Matrix N3 Chassis



**Caution:** Failure to observe static safety precautions could cause damage to the DFE-Diamond module. Follow static safety handling rules and wear the antistatic wrist strap.

Do not cut the non-conductive bag to remove the DFE-Diamond module. Sharp objects contacting the board or components can cause damage.

**Precaución:** Si no toma las medidas de seguridad necesarias para evitar descargas de electricidad estática, es posible que el módulo se dañe. Siga los consejos de seguridad para la manipulación del producto y no olvide utilizar la pulsera antiestática.

No corte la bolsa antiestática para sacar el módulo. Tenga en cuenta que si algún objeto cortante entra en contacto con la placa o con los componentes, éstos podrían dañarse.

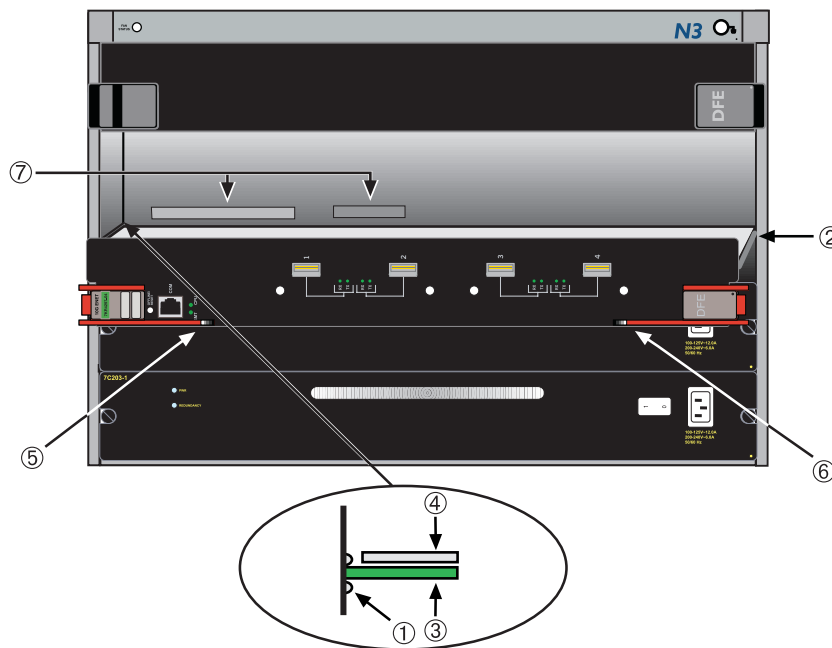
A DFE-Diamond module can be installed in any available chassis slot (1 through 3). To install a DFE-Diamond module into the Matrix N3 chassis, refer to [Figure 3-3](#) and follow the installation procedure described in “[Installing Module into Matrix E7 or Matrix N7 Chassis](#)” (page 3-6).



**Caution:** When setting the locking levers to the closed position, do not try to force the locking levers to the point that they touch the face of the front panel. Forcing the locking levers to this point could damage the module and chassis.

**Precaución:** Al mover las palancas a la posición de cerrado, tenga cuidado de no llevarlas a un punto en donde estén en contacto con el panel frontal. Si lo hace, podría dañar el módulo o el chasis.

**Figure 3-3** Installing Module into Matrix N3 Chassis



- |                               |   |
|-------------------------------|---|
| 1 Card guides                 | 5 Module upper locking lever (in closed position) |
| 2 Slot 1 (top slot is slot 3) | 6 Module lower locking lever (in closed position) |
| 3 Module                      | 7 FTM2 backplane connectors                       |
| 4 Metal back panel            |   |

## Connecting to the Network



**Note:** If the DFE-Diamond module is being installed in a network using Link Aggregation, there are rules concerning the network cable and port configurations that must be followed for Link Aggregation to operate properly. Before connecting the cables, refer to the *Enterasys Matrix DFE-Diamond/Platinum Series Configuration Guide* for the configuration information. For details on how to obtain manuals, refer to “[Related Documents](#)” on page xii.

### Network Connection Using Fiber-Optic Cable

To connect the module to the network, refer to [Figure 3-4](#) and perform the following steps:

1. Remove any protective covers from the fiber-optic ports and from the ends of the connectors.



**Warning:** The 10 Gigabit interface module uses Class 1 lasers. Do not use optical instruments to view the laser output. The use of optical instruments to view laser output increases eye hazard. When viewing the output optical port, power must be removed from the network adapter.

**Advertencia:** El Modulo de Interfase de 10 Gigabit usa láseres de clase 1. No se debe usar instrumentos opticos para ver la potencia laser. El uso de los instrumentos opticos para ver la potencia laser incrementa el riesgo a los ojos. Cuando vean el puerto de la potencia optica, la corriente debe ser removida del adaptador de la red.

**Warnhinweis:** 10 Gigabit Interface Module verwenden Lasertechnologie der Klasse 1. Benutzen sie keinesfalls optische Hilfsmittel, um die Funktion des Lasers zu überprüfen. Solche Hilfsmittel erhöhen die Gefahr von Sehschäden. Wenn sie den optischen Port überprüfen möchten stellen Sie sicher, dass die Komponente von der Spannungsversorgung getrennt ist.



**Note:** To prevent contaminating the end of strands in the connectors or ports, leave the protective covers in place when the connectors or ports are not in use.

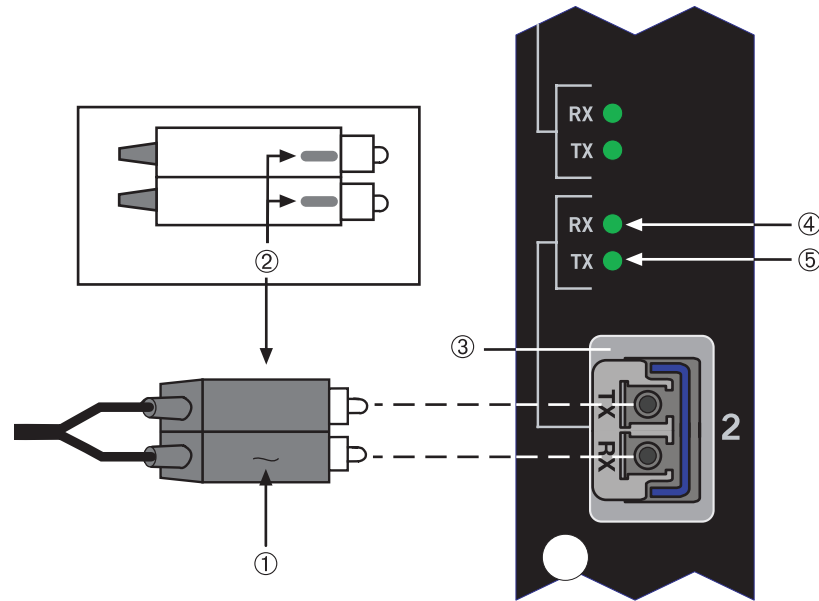


**Caution:** Do not touch the ends of the fiber-optic strands, and do not let the ends come in contact with dust, dirt, or other contaminants. Contamination of cable ends causes problems in data transmissions. If the ends of the fiber-optic strands become contaminated, use a canned duster to blow the surfaces clean. A cleaning swab saturated with optical-grade isopropyl alcohol may also be used to clean the ends.

**Precaución:** No toque los extremos de los cables de fibra óptica y evite su contacto con el polvo, la suciedad o con cualquier otro contaminante. Si los extremos de los cables se ensucian, es posible que la transmisión de datos se vea afectada. Si nota que los extremos de los cables de fibra óptica se ensucian, utilice aire comprimido para limpiarlos. También puede limpiarlos con un estropajo embebido en alcohol isopropílico.

2. Insert one end of the SC cable connector, key side down, into the SC port interface connector. Ensure that the appropriate cable is used for the application of the SC port connection. Refer to [Appendix A](#) for the appropriate fiber-optic cable to be used in the installation.



**Figure 3-4 SC Fiber-Optic Cable Connection**

- |                                       |                     |
|---------------------------------------|---------------------|
| 1 SC cable connector                  | 4 Receive LED (RX)  |
| 2 Latch keys (bottom of SC connector) | 5 Transmit LED (TX) |
| 3 SC port interface connector         |                     |

3. At the other end of the fiber-optic cable, attach the SC connector to the other device.
4. Verify that a link exists by checking that the port **RX** LED is on (flashing amber, blinking green, or solid green). If the **RX** LED is off, there is no link. Perform the following steps until it is on:
  - a. Check that the device at the other end of the link has power turned on and is compatible.
  - b. Verify proper crossover of fiber strands between the port on the module and the fiber-optic device at the other end of the fiber-optic link segment.
  - c. Verify that the fiber-optic cable meets the specifications outlined in [Appendix A](#) for the installed Ethernet expansion module.

To remove the SC cable connector from the interface port, carefully pull the connector out of the port. It may need to be loosened by gently moving from side to side to release the latching keys.

If a link has not been established, refer to [Chapter 4](#) for LED troubleshooting details. Refer to [“Getting Help”](#) on page xiv for details on contacting Enterasys Networks for support.

## Connecting to COM Port for Local Management

This section describes how to install a UTP straight-cable with RJ45 connectors and optional adapters to connect a PC, a VT series terminal, or a modem to an Enterasys Networks module to access Local Management. This section also provides the pinout assignments of the adapters.

### What Is Needed

The following is a list of the user-supplied parts that may be needed depending on the connection:

- RJ45-to-DB9 female adapter
- UTP straight-cable with RJ45 connectors

- RJ45-to-DB25 female adapter
- RJ45-to-DB25 male adapter

With a UTP straight-cable with RJ45 connectors and RJ45-to-DB9 adapter, you can connect products equipped with an RJ45 COM port to an IBM or compatible PC running a VT series emulation software package.

With a UTP straight-cable and an optional RJ45-to-DB25 female adapter, you can connect products equipped with an RJ45 COM port to a VT series terminal or VT type terminals running emulation programs for the VT series.

With a UTP straight-cable and an optional RJ45-to-DB25 male adapter, you can connect products equipped with an RJ45 COM port to a Hayes compatible modem that supports 9600 baud.

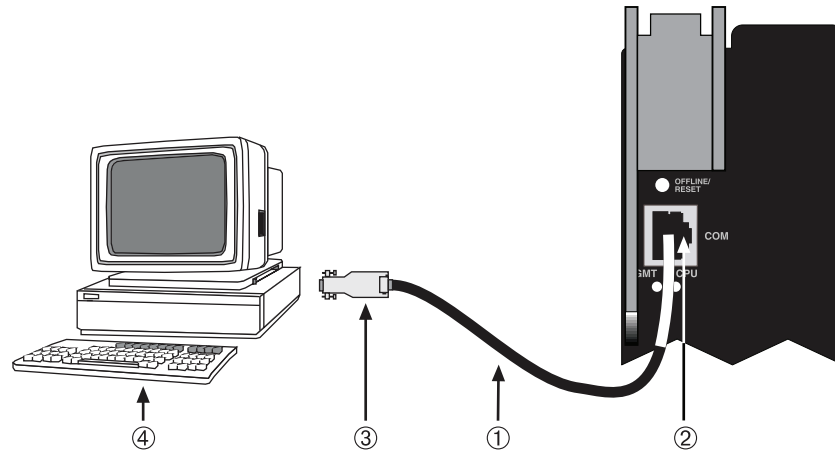
## Connecting to an IBM PC or Compatible Device

To connect an IBM PC or compatible device, running the VT terminal emulation, to an Enterasys Networks module COM port (Figure 3-5), proceed as follows:

1. Connect the RJ45 connector at one end of the UTP straight-cable to the communications COM port on the Enterasys Networks module. (The COM port is also known as a Console port.)
2. Plug the RJ45 connector at the other end of the UTP straight-cable into an **optional** RJ45-to-DB9 female adapter.
3. Connect the RJ45-to-DB9 adapter to the communications port on the IBM PC or compatible device.
4. Turn on the PC and configure your VT emulation package with the following parameters:

Parameter	Setting
Mode	7 Bit Control
Transmit	Transmit=9600
Bits Parity	8 Bits, No Parity
Stop Bit	1 Stop Bit

5. When these parameters are set, the Local Management password screen will display. Refer to the appropriate *Enterasys Matrix DFE-Diamond/Platinum Series Configuration Guide* for further information.

**Figure 3-5 Connecting an IBM PC or Compatible Device**

- |   |                               |
|---|-------------------------------|
| 1 UTP straight-cable with RJ45 connectors | 3 RJ45-to-DB9 PC adapter      |
| 2 RJ45 COM port                           | 4 IBM PC or compatible device |

## Connecting to a VT Series Terminal

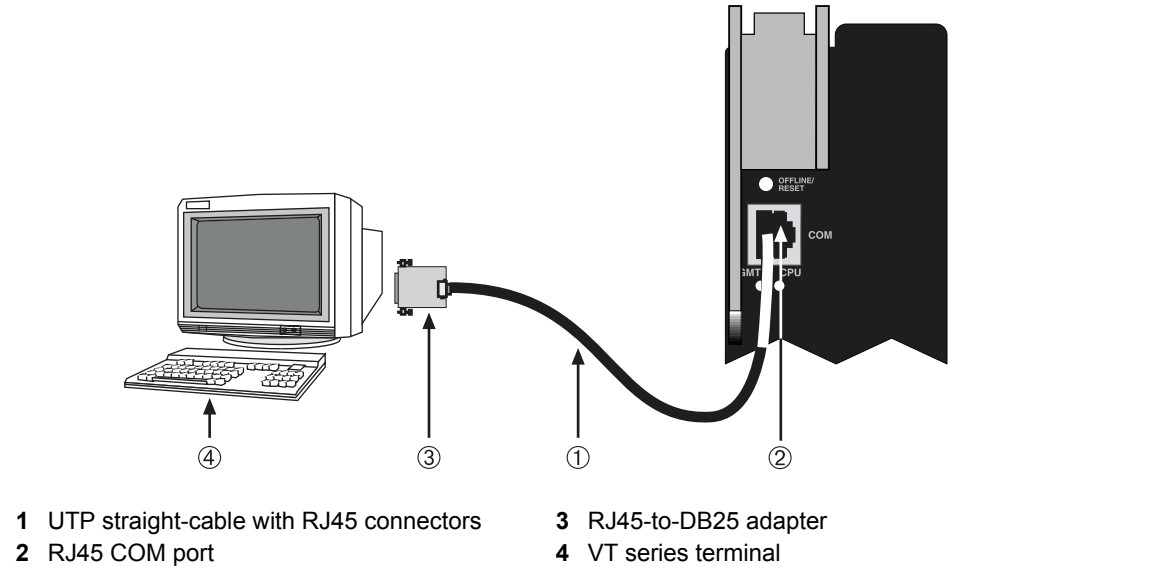
To connect a VT Series terminal to an Enterasys Networks DFE-Diamond module COM port (Figure 3-6), use a UTP straight-cable with RJ45 connectors and an **optional** RJ45-to-DB25 female adapter, and proceed as follows:

1. Connect the RJ45 connector at one end of the UTP straight-cable to the COM port on the Enterasys Networks module.
2. Plug the RJ45 connector at the other end of the UTP straight-cable into the RJ45-to-DB25 female adapter.
3. Connect the RJ45-to-DB25 adapter to the port labeled COM on the VT terminal.
4. Turn on the terminal and access the Setup Directory. Set the following parameters on your terminal:

Parameter	Setting
Mode	7 Bit Control
Transmit	Transmit=9600
Bits Parity	8 Bits, No Parity
Stop Bit	1 Stop Bit

When these parameters are set, the Local Management password screen will display. Refer to the *Enterasys Matrix DFE-Diamond/Platinum Series Configuration Guide* for further information.

**Figure 3-6 Connecting a VT Series Terminal**



### Connecting to a Modem

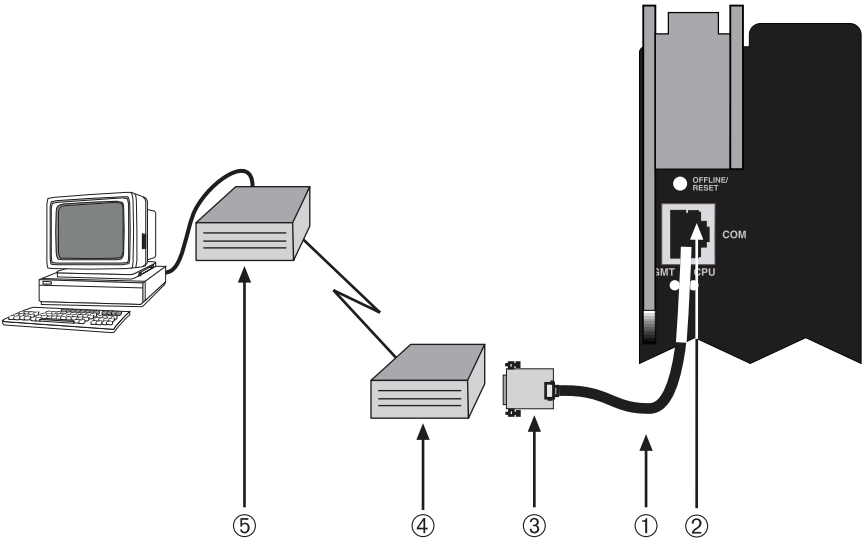
To connect a modem to an Enterasys Networks DFE-Diamond module COM port (Figure 3-7), use a UTP straight-cable with RJ45 connectors and an **optional** RJ45-to-DB25 male adapter, and proceed as follows:

1. Connect the RJ45 connector at one end of the UTP straight-cable to the COM port of the DFE module.
2. Plug the RJ45 connector at the other end of the UTP straight-cable into the RJ45-to-DB25 male adapter.
3. Connect the RJ45-to-DB25 male adapter to the communications port on the local modem.
4. Turn on the local modem.
5. With a PC connected to a remote modem, you can configure the switch remotely. To accomplish this, you must configure your PC VT emulation package with the following parameters:

Parameter	Setting
Mode	7 Bit Control
Transmit	Transmit=9600
Bits Parity	8 Bits, No Parity
Stop Bit	1 Stop Bit

6. When these parameters are set, the Local Management password screen will display. Refer to the *Enterasys Matrix DFE-Diamond/Platinum Series Configuration Guide* for further information.

Figure 3-7 Connecting to a Modem



- 1 UTP straight-cable with RJ45 connectors
- 2 RJ45 COM port
- 3 RJ45-to-DB25 male adapter
- 4 Local modem
- 5 Remote modem

### Adapter Wiring and Signal Assignments

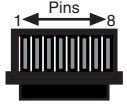
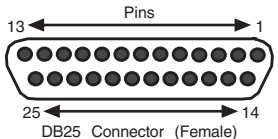
COM Port Adapter Wiring and Signal Diagram			
RJ45		DB9	
Pin	Conductor	Pin	Signal
1	Blue	2	Receive (RX)
4	Red	3	Transmit (TX)
5	Green	5	Ground (GRD)
2	Orange	7	Request to Send (RTS)
6	Yellow	8	Clear to Send (CTS)

<p>RJ45 Connector (Female)</p>	<p>DB9 Connector (Female)</p>
--------------------------------	-------------------------------

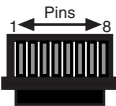
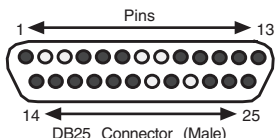
VT Series Port Adapter Wiring and Signal Diagram			
RJ45		DB25	
Pin	Conductor	Pin	Signal
4	Red	2	Transmit (TX)
1	Blue	3	Receive (RX)
6	Yellow	5	Clear to Send (CTS)
5	Green	7	Ground (GRD)
2	Orange	20	Data Terminal Ready

 <p>RJ45 Connector (Female)</p>	 <p>DB25 Connector (Female)</p>
--	---

Modem Port Adapter Wiring and Signal Diagram			
RJ45		DB25	
Pin	Conductor	Pin	Signal
1	Blue	2	Transmit (TX)
2	Orange	8	Data Carrier Detect (DCD)
4	Red	3	Receive
5	Green	7	Ground (GRD)
6	Yellow	20	Data Terminal Ready (DTR)
8	Gray	22	Ring Indicator

 <p>RJ45 Connector (Female)</p>	 <p>DB25 Connector (Male)</p>
--	--

## Completing the Installation

Completing the DFE-Diamond module installation depends on if the module is being installed in:

- a new DFE-Diamond module system (refer to “[Completing the Installation of a New System](#)” on page 3-17), or
- an established, operating DFE-Diamond module system (refer to “[Completing Installation of DFE-Diamond Module in an Existing System](#)” on page 3-18).

## Completing the Installation of a New System

In a new system of DFE-Diamond modules, one of the installed DFE-Diamond modules will become the management module on chassis power up, and all DFE-Diamond modules will automatically be set to the factory default values. A complete list of the factory default values are provided in Chapter 3 of the *Enterasys Matrix DFE-Diamond/Platinum Series Configuration Guide*.

After installing all DFE-Diamond modules into the host chassis and making the connections to the network, proceed to the following “[First-Time Log-In Using a Console Port Connection](#)” procedure to access the module management startup screen from your PC, terminal, or modem connection.

### First-Time Log-In Using a Console Port Connection



**Note:** This procedure applies only to initial log-in, and to logging in to a device not yet configured with administratively-supplied user and password settings.

By default, the Matrix DFE Series device is configured with three user login accounts: **ro** for Read-Only access; **rw** for Read-Write access; and **admin** for super-user access to all modifiable parameters. The default password is set to blank (press ENTER). For information on changing these default passwords, refer to Chapter 3 in the *Enterasys Matrix DFE-Diamond/Platinum Series Configuration Guide*.

Start the Command Line Interface (CLI) from the module’s local console port as follows:

1. Connect a terminal to the local console port as described in “[Connecting to COM Port for Local Management](#)” on page 3-11. The startup screen, [Figure 3-8](#), displays.
2. At the login prompt, enter one of the following default user names:
  - **ro** for Read-Only access,
  - **rw** for Read-Write access, or
  - **admin** for Super User access. (This access level allows Read-Write access to all modifiable parameters, including user accounts.)
3. Press ENTER.
4. The Password prompt displays. Leave this string blank and press ENTER. The module information and Matrix prompt displays as shown in [Figure 3-8](#).

The DFE-Diamond module is now ready to be configured. For information about setting the IP address and configuring Telnet settings for remote access to DFE management, refer to Chapter 3 in the *Enterasys Matrix DFE-Diamond/Platinum Series Configuration Guide*. The CLI commands enable you to initially set up and perform more involved management configurations.

The *Enterasys Matrix DFE-Diamond/Platinum Series Configuration Guide* is available online at:

<http://www.enterasys.com/support/manuals>

If you require assistance, contact Enterasys Networks using one of the methods described in “[Getting Help](#)” on page xiv.

**Figure 3-8 Matrix DFE Startup Screen Example (N7 Chassis)**

```

login: admin
Password:

M A T R I X N7
Command Line Interface

Enterasys Networks, Inc.
50 Minuteman Rd.
Andover, MA 01810-1008 U.S.A.

Phone: +1 978 684 1000
E-mail: support@enterasys.com
WWW: http://www.enterasys.com

(c) Copyright Enterasys Networks, Inc. 2003

Chassis Serial Number:      xxxxxxxxxxxxxxxx
Chassis Firmware Revision: xx.xx.xx

Matrix N7(su)->

```

## Completing Installation of DFE-Diamond Module in an Existing System

In an established DFE-Diamond module system,

- a DFE-Diamond module is already established as the management module,
- the passwords have already been set for various users,
- the system IP address is set, and
- other system parameters have been set.

When you install a new DFE-Diamond module into a system with an existing configured user account, the current system settings in that account are already recognized by the new DFE-Diamond module and it will operate accordingly.

If you need to change any settings, you can connect a terminal to the local console port as described in [“Connecting to COM Port for Local Management”](#) on page 3-11 to access system management, or use a Telnet connection to access the DFE-Diamond module system management as described in Chapter 3 of the *Enterasys Matrix DFE-Diamond/Platinum Series Configuration Guide*.

### Logging in with an Administratively-Configured User Account

If the device’s default user account settings have been changed, proceed as follows:

1. At the login prompt, enter your administratively-assigned user name, press ENTER.
2. At the Password prompt, enter your password, press ENTER.

The notice of authorization and the Matrix prompt displays as shown back in [Figure 3-8](#).



**Note:** Users with Read-Write (rw) and Read-Only access can use the **set password** command to change their own passwords. Administrators with Super User (su) access can use the **set system login** command to create and change user accounts, and the **set password** command to change any local account password. For information on the set password and set system login commands, refer to Chapter 3 in the *Enterasys Matrix DFE-Diamond/Platinum Series Configuration Guide*.



The DFE-Diamond module is now ready to be configured. For information about setting the IP address and configuring Telnet settings for remote access to DFE management, refer to Chapter 3 in the *Enterasys Matrix DFE-Diamond/Platinum Series Configuration Guide*. The CLI commands enable you to initially set up and perform more involved management configurations.

The *Enterasys Matrix DFE-Diamond/Platinum Series Configuration Guide* is available online at:

<http://www.enterasys.com/support/manuals>

If you require assistance, contact Enterasys Networks using one of the methods described in “[Getting Help](#)” on page xiv.



## Troubleshooting

This chapter provides information concerning the following:

For information about...	Refer to page...
<a href="#">Using LANVIEW</a>	4-1
<a href="#">Troubleshooting Checklist</a>	4-4
<a href="#">Overview of DFE-Diamond Module Shutdown Procedure</a>	4-5
<a href="#">Recommended Shutdown Procedure Using OFFLINE/RESET Switch</a>	4-6
<a href="#">Last Resort Shutdown Procedure Using OFFLINE/RESET Switch</a>	4-7

Unless otherwise noted, the following information applies to all DFE-Diamond modules.

### Using LANVIEW

The modules use a built-in visual diagnostic and status monitoring system called LANVIEW. The LANVIEW LEDs ([Figure 4-1](#)) allow quick observation of the network status to aid in diagnosing network problems.

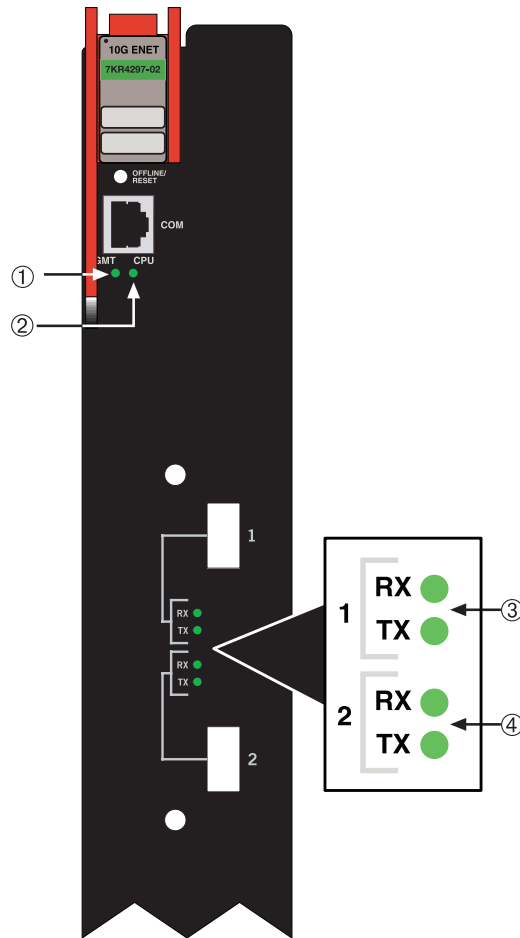
#### About the Management (MGMT) LED

The MGMT LED (shown in [Figure 4-1](#)) indicates when the module is serving as the Management Module to control the management functions for all DFE-Diamond modules in the chassis. The Management Module handles all IP requests to the chassis IP address, such as PING, Telnet, SNMP, HTTP, etc. The Management Module also handles the CLI configuration sessions via the console port. So, when you plug into a DFE-Diamond module COM port to configure a DFE-Diamond module in the chassis, it is handled by the Management Module regardless of the DFE-Diamond module COM port that you use.

#### CPU, Receive, and Transmit Activity LEDs

The CPU LED indicates when the module has power, is booting, running properly, being reset, or shutting down. There is also a set of RX and TX LEDs for each 10 Gbps port. These LEDs indicate if the port is receiving/transmitting, linked, and passing traffic.

Figure 4-1 LANVIEW LEDs



- 1 MGMT LED
- 2 CPU LED
- 3 Port 1, RX and TX LEDs
- 4 Port 2, RX and TX LEDs

Table 4-1 describes the LED indications and provides recommended actions as appropriate.



**Note:** The terms **flashing**, **blinking**, and **solid** used in Table 4-1 indicate the following:

**Flashing** indicates an LED is flashing randomly.

**Blinking** indicates an LED is flashing at a steady rate (approximately 50% on, 50% off).

**Solid** indicates a steady LED light. No pulsing.

**Alternately** indicates an LED is flashing in a steady rate other than 50% on, 50% off.

Table 4-1 LANVIEW LEDs

LED	Color	State	Recommended Action
MGMT	None	<b>Off.</b> This module is NOT the Management Module.	None.
	Green	<b>Solid.</b> This module is the designated Management Module.	None.

Table 4-1 LANVIEW LEDs (Continued)

LED	Color	State	Recommended Action
CPU	None	Power off.	Ensure chassis has adequate power.
	Amber	<b>Blinking.</b> Module in process of booting.	None.
		<b>Solid.</b> Testing.	If the LED remains amber for several minutes, contact Enterasys Networks for technical support.
	Green	<b>Blinking.</b> Image starts running.	None.
		<b>Solid.</b> Functional.	None.
	Red	<b>Solid.</b> Processor in reset.	None.
	Green and Amber	<b>Blinking.</b> Indicates that the DFE-Diamond module is in the process of shutting down.	None. This state is activated when the OFFLINE/RESET switch is pressed for less than 1 second to start the process of an orderly shutdown.  While in this state, do not remove any DFE-Diamond module.
Amber and off	<b>Alternate (67% on, 33% off).</b> Indicates that a shutdown process has completed. This indication will remain for 60 seconds before automatically restarting.	While in this state, you have 60 seconds to safely remove the DFE-Diamond module from the chassis.	
RX (Receive)	None	<b>No link.</b> No activity. Port enabled or disabled.	None.
	Green	<b>Solid.</b> Link present, port enabled, no traffic is being received by the interface.	None.
	Amber	<b>Flashing.</b> Link present, port enabled, traffic is being received by the interface.	None.
TX (Transmit)	None	Port enabled, but no activity.	If it is known that the port should be transmitting and is not, contact Enterasys Networks for technical support.
	Green	<b>Flashing.</b> Indicates data transmission activity. Rate of flashing indicates the data rate.	None.

# Troubleshooting Checklist

If the module is not working properly, refer to [Table 4-2](#) for a checklist of problems, possible causes, and recommended actions to resolve the problem.

**Table 4-2 Troubleshooting Checklist**

Problem	Possible Cause	Recommended Action
All LEDs are OFF.	Loss of power.	Ensure that the module was installed properly according to the installation instructions in <a href="#">Chapter 3</a> , and that the host chassis is providing power.
No Local Management Password screen.	Incorrect terminal setup.	Refer to the <i>Enterasys Matrix DFE-Diamond/Platinum Series Configuration Guide</i> for proper setup procedures.
	Improper console cable pinouts.	Refer to <a href="#">Appendix A</a> for proper COM port pinouts.
	Corrupt firmware image, or hardware fault.	If possible, attempt to download the image to the module again. Refer to “ <a href="#">Setting the Mode Switches</a> ” on page B-1 for instructions to clear NVRAM.
Cannot navigate beyond Password screen.	Improper username/password combination entered.	If the username/password combination has been forgotten, refer to “ <a href="#">Setting the Mode Switches</a> ” on page B-1 for instructions on how to set the mode switch to reset the username/password combination to the default values.
Cannot contact the module through in-band management.	IP address not assigned.	Refer to the <i>Enterasys Matrix DFE-Diamond/Platinum Series Configuration Guide</i> for the IP address assignment procedure.
	Port is disabled.	Enable port. Refer to the <i>Enterasys Matrix DFE-Diamond/Platinum Series Configuration Guide</i> for instructions to enable/disable ports.
	Host Port policy and/or management VLAN is incorrectly configured, or not configured.	Verify that a management VLAN exists and that it is associated with the Host Port. Refer to the <i>Enterasys Matrix DFE-Diamond/Platinum Series Configuration Guide</i> for information about Host Port and management VLAN configuration.
	No link to device.	Verify that all network connections between the network management station and the module are valid and operating. If the problem continues, contact Enterasys Networks for technical support.
Port(s) goes into standby for no apparent reason.	Loop condition detected.	Verify that Spanning Tree is enabled. Refer to the <i>Enterasys Matrix DFE-Diamond/Platinum Series Configuration Guide</i> for the instructions to set the type of STA. Review the network design and delete unnecessary loops. If the problem continues, contact Enterasys Networks for technical support.

**Table 4-2 Troubleshooting Checklist (Continued)**

Problem	Possible Cause	Recommended Action
User parameters (IP address, device and module name, etc.) were lost when the module power was cycled, the front panel OFFLINE/RESET switch was pressed.	<p>Position of Mode switch (7), Persistent Data Reset, was changed sometime before either cycling power or pressing the OFFLINE/RESET switch, causing the user-entered parameters to reset to factory default settings.</p> <p>Clear Persistent Data that was set through Local Management.</p> <p>The module was moved either from slot-to-slot or from chassis-to-chassis.</p>	<p>Reenter the lost parameters as necessary. Refer to the <i>Enterasys Matrix DFE-Diamond/Platinum Series Configuration Guide</i> for the instructions to configure the device.</p> <p>If the problem continues, contact Enterasys Networks for technical support.</p>

## Overview of DFE-Diamond Module Shutdown Procedure



**Caution:** Do not remove a DFE-Diamond module from an operating chassis system before reading the following information and instructions.

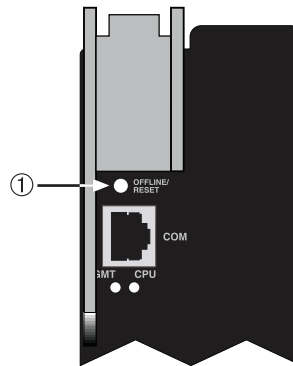
**Precaución:** Antes de retirar los módulos DFE-Platinum del chasis en funcionamiento, lea las siguientes instrucciones y la información suministrada.

The DFE-Diamond modules installed in a Matrix E7, Matrix N3, or Matrix N7 chassis are interdependent and operate under a single IP address as a single, distributed switch system (hardware, databases, and persistent storage). In this operating environment, the DFE-Diamond module must shut down in an orderly fashion to ensure that the other modules in the system and other devices on the network are notified of the impending change. The device(s) can then make intelligent decisions and stabilize the network before the change is made; thereby increasing network availability.

You can shut down a DFE-Diamond module in an operating system using the OFFLINE/RESET switch shown in [Figure 4-2](#). There are two shut down procedures.

- Recommended shutdown procedure (“[Recommended Shutdown Procedure Using OFFLINE/RESET Switch](#)” on page 4-6)
- Last resort shutdown procedure (not recommended) (“[Last Resort Shutdown Procedure Using OFFLINE/RESET Switch](#)” on page 4-7)

**Figure 4-2 OFFLINE/RESET Switch**



---

1 OFFLINE/RESET switch

---

## Recommended Shutdown Procedure Using OFFLINE/RESET Switch



**Caution:** Do not pull any DFE-Diamond module out of an operating chassis before it has completed its shutdown routine.

**Precaución:** No retire los módulos DFE-Platinum del chasis en funcionamiento hasta que no se haya terminado con la rutina de apagado.

Before pulling a DFE-Diamond module out of a chassis,

**press or tap** on its OFFLINE/RESET switch for less than 1 second.

Its CPU LED changes from solid green to blinking between green and amber, indicating that the DFE-Diamond module is shutting down. At the end of the shutdown routine, the CPU LED changes to a 67%/33% sequence of amber/off, respectively, indicating that the module is in a halt state. At this time it is safe to restart or remove the DFE-Diamond module from the chassis.

When a controlled shutdown is initiated from the OFFLINE/RESET switch, you have 60 seconds from the time the CPU starts flashing amber/off until the time the device is automatically restarted.



**Note:** The only safe time to pull a DFE-Diamond module out of the chassis is when the CPU LED is blinking amber. Otherwise, system operation will be interrupted.



## Last Resort Shutdown Procedure Using OFFLINE/RESET Switch



**Caution:** This method of shutting down a DFE-Diamond module is not recommended except as a last resort, because all processes currently running on the module will be interrupted resulting in loss of frames.

**Precaución:** No se recomienda utilizar este método para apagar los módulos DFE-Platinum. Recorra a él sólo como último recurso, puesto que interrumpe todos los procesos del módulo en funcionamiento, lo que podría resultar pérdidas de frames.

To reset a DFE-Diamond module without it performing an orderly shutdown routine,

**press and hold** the OFFLINE/RESET switch for approximately 6 seconds.

Pulling any DFE-Diamond module out of the chassis before it has been shut down is not recommended. The only safe time to pull a module out of the chassis is after the completion of a shutdown and the management LED is flashing amber/off.





## Specifications

This appendix provides information about the following:

For information about...	Refer to page...
<a href="#">DFE-Diamond Module Specifications</a>	<a href="#">A-1</a>
<a href="#">10-Gigabit Ethernet Transceiver Specifications (XFP)</a>	<a href="#">A-2</a>
<a href="#">COM Port Pinout Assignments</a>	<a href="#">A-3</a>
<a href="#">Regulatory Compliance</a>	<a href="#">A-4</a>

Enterasys Networks reserves the right to change the specifications at any time without notice.

### DFE-Diamond Module Specifications

[Table A-1](#) provides the I/O ports, processors and memory, physical, and environmental module specifications for the DFE modules.

**Table A-1 Specifications**

Item	Specification
<b>7KR4297-02 Ports</b>	
Ports 1 and 2	Port interface option slots that support 10GBASE XFP PHYs. Each port can support a full 10 Gbps throughput with a maximum of 20 Gbps, when both ports are active at the same time.
<b>7K4297-04 Ports</b>	
Ports 1 through 4	Port interface option slots that support 10GBASE XFP PHYs. Each port can support a full 10 Gbps throughput with a maximum of 40 Gbps, when all ports are active at the same time.
<b>Processors/Memory</b>	
Processor	MPC750CX, 400 MHz processor
Dynamic Random Access Memory (DRAM)	256 MB
FLASH Memory	32 MB

**Table A-1 Specifications (Continued)**

Item	Specification
<b>Physical</b>	
Dimensions	46.43 H x 6.05 W x 29.51 D (cm) 18.28 H x 2.38 W x 11.62 D (in.)
Approximate Weight	Gross: 5.54 kg (12.0 lb) (shipping carton containing one module) Net: 4.10 kg (9.0 lb) (one module without packaging)
Predicted hours for Mean Time Between Failures (MTBF)	For the MTBF hours for these products, refer to the MTBF web site at <a href="http://www.enterasys.com/support/mtbf/">http://www.enterasys.com/support/mtbf/</a>
<b>Environmental</b>	
Operating Temperature	5°C to 40°C (41°F to 104°F)
Storage Temperature	-30°C to 73°C (-22°F to 164°F)
Operating Relative Humidity	5% to 90% (non-condensing)

## 10-Gigabit Ethernet Transceiver Specifications (XFP)

The 10-Gigabit XFP (10-Gigabit Small Form Factor Pluggable) interface port slots on DFE-Platinum modules can support various optional 10-Gigabit Ethernet (10-Gbps) standard type fiber-optic modules. As of the printing of this guide, 10GBASE-LR-XFP, -ER-XFP, -ZR-XFP, and -SR-XFP types are available.

[Table A-2](#) through [Table A-4](#) provide specifications for each module.

**Table A-2 XFP Port, Physical, and Environmental Specifications**

Item	Specification
2-port 10 GigaBASE	Two slots support a full 10 Gbps using LR, ER, ZR, and SR compliant XFPs.
Physical Dimensions	8.5 H x 18.35 W x 78.0 L (mm) 0.34 H x 0.72 W x 3.07 L (in.)
Approximate Weight	Net: 0.34 gm (1.2 oz)
Operating Temperature	5° to 40° C (41° to 104° F)
Storage Temperature	-30° to 73° C (-22° to 164° F)
Operating Relative Humidity	5% to 90% (non-condensing)

Table A-3 provides the input/output specifications for each XFP version as specified in the IEEE 802.3ae-2002 standard.

**Table A-3 XFP Fiber-Optic Specifications**

Module	Wavelength	Tx Power Min/Max (avg.)	Rx Sensitivity Min/Max (avg.)	Link Power Budget	MTBF (hours)
10GBASE-LR-XFP	1310 nm DFB	-8.2 / 0.5 dBm	-14.4 / 0.5 dBm	9.4 dB	2,631,579
10GBASE-ER-XFP	1550 nm EML	-4.7 / 4.0 dBm	-15.8 / -1.0 dBm	15 dB	2,000,000
10GBASE-ZR-XFP	1550 nm EML	0 / 4.0 dBm	-25 / -7.0 dBm	18 dB	1,164,047
10GBASE-SR-XFP	850 nm VCSEL	-7.3 / -1.0 dBm	-9.9 / -1.0 dBm	7.3 dB	4,081,633

The following XFP specifications in Table A-4 meet or exceed the IEEE 802.3ae-2002 standard.

**Table A-4 Recommended Cable Types and Specifications**

Item	Type	Max. Reach	Min. Reach <sup>1</sup>	Connector
10GBASE-LR-XFP	SMF (Single Mode Fiber)	10 km (6.21 mi)	2 m (6.6 ft)	LC
10GBASE-ER-XFP	SMF (Single Mode Fiber)	40 km (24.85 mi) <sup>2</sup>	2 m (6.6 ft) with minimum of 5 dB attenuation	LC
10GBASE-ZR-XFP	SMF (Single Mode Fiber)	80 km (49.7 mi)	2 m (6.6 ft) with minimum of 11 dB attenuation	LC
10GBASE-SR-XFP	MMF (Multimode Fiber)	300 m (984 ft)	2 m (6.6 ft)	LC

1. The limiting factor is saturation of the receiver by the transmitter. When presented with a signal at a strength above the saturation point, the receiver cannot distinguish between pulses, though no hardware damage occurs.
2. Links longer than 30 km for the same link power budget are considered engineered links. Attenuation for such links needs to be less than the minimum.

## COM Port Pinout Assignments

The COM port is a serial communications port for local access to Local Management. Refer to Table A-5 for the COM port pin assignments.

**Table A-5 COM Port Pin Assignments**

Pin	Signal Name	Input/Output
1	Transmit Data (XMT)	Output
2	Clear to Send (CTS)	Input
3	Data Set Ready (DSR)	Input
4	Receive Data (RCV)	Input
5	Signal Ground (GND)	NA
6	Request to Send (RTS)	Output
7	Data Terminal Ready (DTR)	Output
8	Data Carrier Detect (DCD)	Input

## Regulatory Compliance

The 7KR4297-02 and 7KR4297-04 modules meet the safety and electromagnetic compatibility (EMC) requirements listed in [Table A-6](#):

**Table A-6 Compliance Standards**

Regulatory Compliance	Standards
Safety	UL 60950, CSA C22.2 No. 60950, 2006/95/EC, EN 60950, IEC 60950, EN 60825, 21 CFR 1040.10
Electromagnetic Compatibility (EMC)	47 CFR Parts 2 and 15, CSA C108.8, 2004/108/EC, EN 55022, EN 61000-3-2, EN 61000-3-3, EN 55024, AS/NZS CISPR 22, VCCI V-3

## Mode Switch Bank Settings and Optional Installations

This appendix covers the following items:

For information about...	Refer to page...
<a href="#">Required Tools</a>	B-1
<a href="#">Setting the Mode Switch</a>	B-1
<a href="#">Memory Locations and Replacement Procedures</a>	B-2

### Required Tools

Use the following tools to perform the procedures provided in this appendix:

- Antistatic wrist strap
- Phillips screwdriver



**Caution:** An antistatic wrist strap is required to perform the procedures in this appendix. Use the antistatic wrist strap when performing any of the procedures in this appendix to minimize ESD damage to the devices involved.

**Precaución:** Para minimizar los efectos de las descargas de electricidad estática, deberá utilizar una pulsera antiestática al realizar los siguiente procedimientos.

### Setting the Mode Switches



**Caution:** Read the appropriate sections to be fully aware of the consequences when changing switch settings.

Only qualified personnel should change switch settings.

**Precaución:** Si desea modificar la configuración del interruptor, lea las secciones correspondientes para saber cuál será el resultado de hacerlo.

Estas modificaciones a la configuración sólo debe realizarlas personal calificado.

Figure B-1 shows the location of the mode switches and the switch settings for normal operation. These switches are set at the factory and rarely need to be changed.

Switch definitions and positions are as follows:

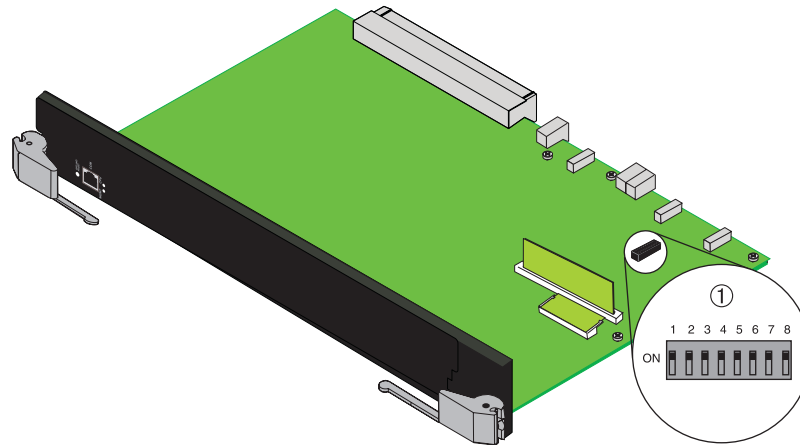
- Switches 1 through 6 – For Enterasys Networks use only.

- Switch 7 – Clear Persistent Data. Changing the position of this switch clears Persistent Data on the next power-up of the module. All user-entered parameters, such as the IP address, module names, etc., are reset to the factory default settings. Once the module resets, you can either use the factory default settings or reenter your own parameters.
- Switch 8 – Clear Admin Password. Changing the position of this switch clears the admin password, and restores the factory default password on the next power-up of the module. Once the module resets, you can either use the factory default settings or reenter your own password.



**Note:** Do not change the position of Switch 8 unless it is necessary to reset the admin password to its factory default setting.

**Figure B-1 Mode Switch Location**



1 Mode switch bank

---

## Memory Locations and Replacement Procedures

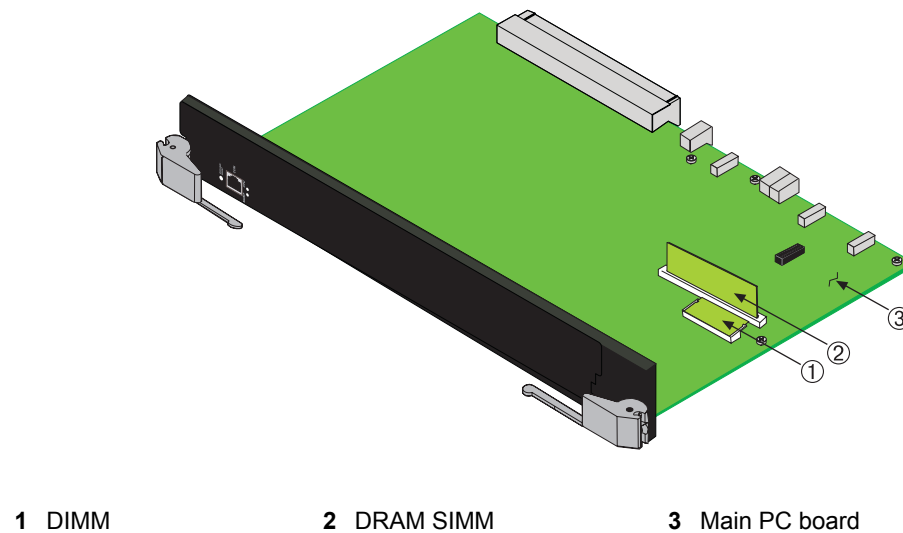
In the event that the DIMM (Dual In-line Memory Module) or DRAM SIMM (DRAM Single In-line Memory Module) (FLASH memory) needs to be replaced, the following sections describe how to access, locate and replace these memory modules. If you have questions concerning the replacement of either memory module, refer to “[Getting Help](#)” on page xiv for details on how to contact Enterasys Networks.



## Location of DIMM and DRAM SIMM Memory Modules

Figure B-2 shows the locations of the DIMM and DRAM SIMM on the main board.

Figure B-2 DIMM and DRAM SIMM Locations



## DRAM SIMM Replacement Procedure

To remove and replace the DRAM SIMM on the 7KR4297-xx, refer to [Figure B-3](#) and [Figure B-4](#) respectively, and proceed as follows:

### Removing the DRAM SIMM



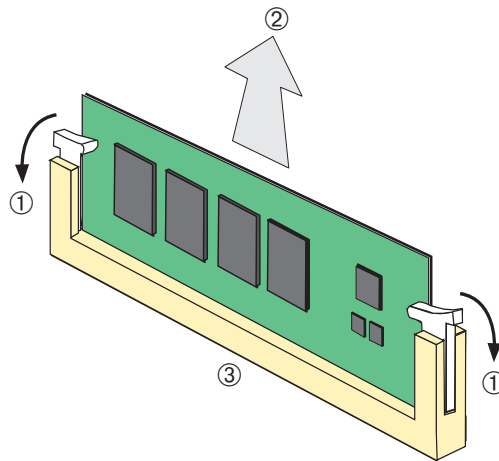
**Caution:** Observe all antistatic precautions when handling sensitive electronic equipment.

**Precaución:** Al trabajar con equipos electrónicos sensibles, tome todas las precauciones de seguridad para evitar descargas de electricidad estática.

To remove the existing DRAM SIMM, proceed as follows:

1. Locate the DRAM SIMM connector on the main PC board. Refer back to [Figure B-2](#).
2. Push the connector arms away from the DRAM SIMM, as shown in [Figure B-3](#), enough to release the DRAM SIMM from the connector fingers.

**Figure B-3 Removing the Existing DRAM SIMM**



- 
- |                  |             |                     |
|------------------|-------------|---------------------|
| 1 Connector arms | 2 DRAM SIMM | 3 Connector fingers |
|------------------|-------------|---------------------|
- 

3. Pull the DRAM SIMM straight up and remove it from the connector fingers.

### Installing the DRAM SIMM

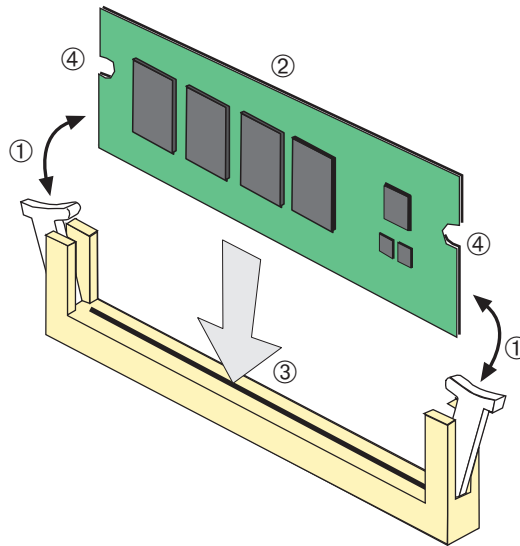


**Caution:** Observe all Electrostatic Discharge (ESD) precautions when handling sensitive electronic equipment.

**Precaución:** Al trabajar con equipos electrónicos sensibles, tome todas las precauciones de seguridad para evitar descargas de electricidad estática.

To install a DRAM SIMM, refer to [Figure B-4](#) and proceed as follows:

1. Push the connector arms away from the DRAM SIMM enough to insert the DRAM SIMM into the connector fingers.
2. Insert the DRAM SIMM straight down between the connector fingers enough for the tabs on the connector arms to align with the two DRAM SIMM alignment notches.
3. Push the DRAM SIMM down into the connector fingers. Then rotate the two connector arms toward the DRAM SIMM to lock it into place.

**Figure B-4 Installing the DRAM SIMM**

- |                            |                                   |
|----------------------------|-----------------------------------|
| 1 DRAM SIMM Connector arms | 3 Connector fingers               |
| 2 DRAM SIMM                | 4 DRAM SIMM alignment notches (2) |

## DIMM Replacement Procedure

In the event that the DIMM needs to be replaced, the following sections explain how to remove and install the DIMM. If you have questions concerning the replacement of the DIMM, refer to “[Getting Help](#)” on page xiv for details on how to contact Enterasys Networks.

### Removing the DIMM



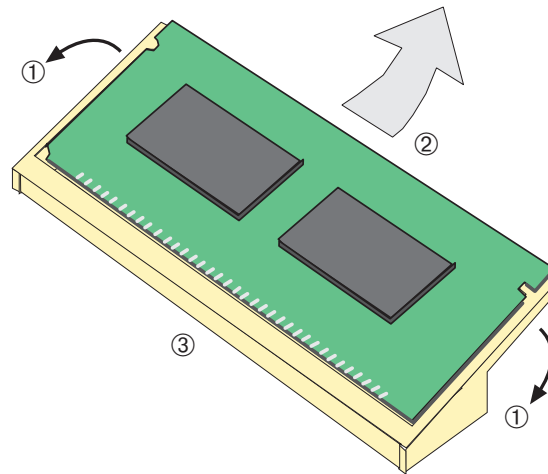
**Caution:** Observe all Electrostatic Discharge (ESD) precautions when handling sensitive electronic equipment.

**Precaución:** Al trabajar con equipos electrónicos sensibles, tome todas las precauciones de seguridad para evitar descargas de electricidad estática.

To remove the existing DIMM, refer to [Figure B-5](#) and proceed as follows:

1. Locate the DIMM connector on the main PC board. (Refer back to [Figure B-2](#) for the DIMM location on the 7KR4297-02.)
2. Push the connector arms away from the DIMM, as shown in [Figure B-5](#), and simultaneously lift the DIMM enough to release it from the connector fingers.

**Figure B-5 Removing the Existing DIMM**



---

1 Connector arms                      2 DIMM                      3 Connector fingers

---

3. Rotate the DIMM upwards, then remove it from the connector fingers.

### Installing the DIMM



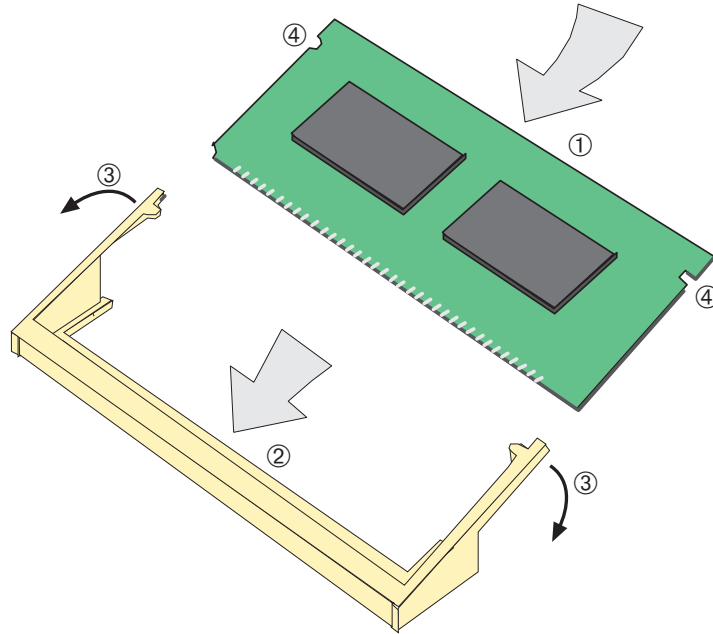
**Caution:** Observe all Electrostatic Discharge (ESD) precautions when handling sensitive electronic equipment.

**Precaución:** Al trabajar con equipos electrónicos sensibles, tome todas las precauciones de seguridad para evitar descargas de electricidad estática.

To install a DIMM, refer to [Figure B-6](#) and proceed as follows:

1. Insert the DIMM down between the connector fingers.
2. Pivot the DIMM downward so the tabs on the connector arms align with the two DIMM alignment notches. With the two connector arms spread outward, push the DIMM down between the connector arms. Then release the two connector arms to lock the DIMM into place.

**Figure B-6** Installing the DIMM



- |                            |                                     |
|----------------------------|-------------------------------------|
| <b>1</b> DIMM              | <b>3</b> Connector arms             |
| <b>2</b> Connector fingers | <b>4</b> DIMM alignment notches (2) |



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