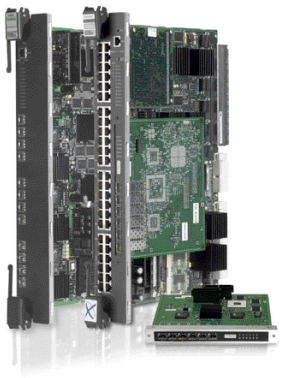

# Matrix™ N-Series/E-Series Platinum Distributed Forwarding Engines (DFEs)

- Designed for Matrix N3/N5/N7 and Matrix E7 chassis
- Integrated Services Design lowers entry and maintenance costs
- Superior performance and capacity for longer lifespan and lower lifetime cost
- Optimized for high-availability services for maximum network uptime
- High-density 10/100, 10/100/1000, 10-Gigabit Ethernet and Power-over-Ethernet modules

Data Sheet

- **Superior performance, capacity**
  - — Supports more high-bandwidth and latency-sensitive applications
  - — For longer lifespan; lower lifetime cost
- **Integrated Services Design**
  - — Reduces the number/type of modules required; simplifies network design
  - — Lowers entry cost; lowers maintenance/sparing costs
- **Port- and User-Based Policy and Multilayer Packet Classification**
  - — Enables business-critical applications transport, security and user personalization
  - — Tunes the network to business drivers; makes the network more efficient
- **High-availability services**
  - — Services and management stateful failover; modules self-learn configurations
  - — Increases reliability and fault tolerance; reduces configuration time; maximizes uptime
- **Network-wide configuration, change, and inventory management**
  - — Easier to install, troubleshoot, maintain; wizard-based upgrades
  - — Reduces support and maintenance costs, configuration time
- **Support for converged applications**
  - — 802.3af Power over Ethernet

## Next-Generation Matrix Modules

The Platinum Distributed Forwarding Engine (DFE) is Enterasys' next generation of enterprise modules for the Matrix N-Series and Matrix E7 switches.

Within either the Matrix N-Series or E7, Platinum DFEs are ideal for high-density network edge, collapsed backbone, distribution, and server aggregation applications.

Designed to leverage Enterasys' nTERA™ ASICs, these DFEs deliver high performance and flexibility to ensure comprehensive switching, routing, Quality of Service, security and traffic containment unmatched by competitive solutions.

## Integrated Services Design

The industry's first Integrated Services Design enables every Platinum DFE to deliver:

- Switching/VLAN Services
- IP Routing
- Advanced Multilayer Packet Classification (including Port-Based and User-Based)
- Security (User, Host, Network)
- Management, Control and Analysis

The Integrated Services Design eliminates the need to purchase separate management modules or supervisor engines for a lower entry cost. All DFE modules provide a high port density, which reduces maintenance costs because fewer types of spares are required.

## Module Configurations

Platinum DFEs provide a variety of port density and technology options:

### Edge Deployment

- 24 10/100Base-TX RJ45 ports with one expansion slot
- 48 10/100Base-TX RJ45 ports with one expansion slot
- 48 10/100Base-TX RJ-21 (Telco) ports with one expansion slot
- 72 10/100Base-TX RJ45 ports
- 72 10/100Base-TX RJ21 (Telco) ports
- 40 10/100/1000Base-TX RJ45 ports with one expansion slot
- 60 10/100/1000Base-TX RJ45 ports
- 48 100Base-FX MT-RJ ports with one expansion slot

### Edge Deployment with Power over Ethernet

- 48 10/100Base-TX RJ45 ports with PoE and one expansion slot

### Distribution Deployment

- 10 or 12 1000Base-X Mini-GBIC ports
- 2 10GE (Xenpak) 10GBase Optics slot
- 30 10/100/1000Base-TX RJ45 ports

### Server Aggregation Deployment

- 30 10/100/1000Base-TX RJ45 ports

enterasys™
Networks that Know

The overall density with the Matrix N-Series chassis is:

| | Matrix N3 | Matrix N5 | Matrix N7 |
|---|---|---|---|
| 10/100 ports | 216 | 360 | 504 |
| 10/100 ports (with uplink option) | 192 | 336 | 480 |
| 10/100/1000 ports | 180 | 300 | 420 |
| 10/100/1000 ports (with uplink option) | 160 | 280 | 400 |
| 100FX ports | 144 | 240 | 336 |
| 100FX ports (with uplink option) | 144 | 240 | 336 |
| 10-Gigabit Ethernet | 6 | 10 | 14 |

Platinum DFEs can be installed in any slot in the Matrix E7, Matrix N3, Matrix N5 and Matrix N7. The Matrix N-Series extends Enterasys commitment to providing maximum investment protection through the seamless migration of existing and new technologies—like 10-Gigabit Ethernet—without the need to replace any modules in the current chassis.

## Embedded Services

### Multilayer Packet Processing

Multi-stage Packet Classification
IP TOS Re-write
VLAN/Priority Tag Re-Write

### Switching/VLAN Services

Generic VLAN Registration Protocol (GVRP)
802.1Q VLANs
802.1D MAC Bridges
802.1w Rapid-reconvergence of Spanning Tree
802.1s Multiple Spanning Tree
802.3ad Link Aggregation
Broadcast Suppression
802.3ae Gigabit Ethernet
802.3x Flow Control
SMON Port Redirect
SMON VLAN Redirect
IDS Redirect
IP Multicast (IGMP support v1, v2, querier)
Jumbo Packet with MTU Discovery Support for Gigabit Ethernet ports
Flow Set-Up Throtting
VLAN-to-policy mapping
Automatic port disabling
Span Guard

### IP Routing

**Basic IP Routing Package**: Part of Enterasys Operating System (EOS) and included in all base DFEs.
Static Routes
RIPv1/v2
RIP Equal Cost Multipath (ECMP)
IGMPv1/IGMPv2
ICMP
Virtual Router Redundancy Protocol (VRRP)
ACL Basic
DHCP Server/Relay

**Extended IP Routing Package**: A software upgrade (N-EOS-L3) sold on a per-chassis basis.
OSPF with Multipath Support
DVMRP
Extended ACLs
PIM-SM
LS-NAT policy-based routing
Only one license is required per Matrix N3, Matrix N5, or Matrix N7 chassis

### Security (User, Network and Host)

Telnet (Inbound/Outbound)
Secured Shell (SSHv2) (switch interface only)
Syslog
802.1X Port-Based Network Access Control (Single User)
Web-based authentication
MAC-based authentication
Multiple authentication types (802.1X, MAC address, web) per port
Multi-user authentication

## Embedded Services Continued

### Management, Control and Analysis

SNMP v1/v2c/v3
Web Support
CLI Support
Single IP
Multi-image Support
Multiconfiguration File Support
Editable Configuration File
Configuration Upload/Download
DHCP Client
FTP Client
RADIUS Client Support with PAP and CHAP
Entity MIB
COM Port Boot Prom Download via ZMODEM
RMON (rfc2819) Stats, History, Alarms, Events
High-Capacity RMON (64-bit counters)
SMON (rfc2613) VLAN and Priority Stats
Simple Network Time Protocol (SNTP)
Trace Route
Dynamic Egress
Inbound Rate Policing
Inbound Rate Policing
Outbound Rate Shaping
Node and Alias Table
Cabletron Discovery Protocol (CDP)
Port-Based MAC Locking
Access Control Lists

### Network Management

NetSight™ Atlas Console
NetSight Atlas Policy Manager
NetSight Atlas Inventory Manager
NetSight Atlas Automated Security Manager

## Performance/Capacity

### Address Table Size
64k MAC Addresses

### Throughput Capacity
13.5 Mpps (measured in 64-byte packets)

### Switching Fabric Bandwidth Capacity
18.0 Gbps per DFE

### Layer 2 and Layer 3 Throughput
13.5 Mpps (measured in 64-byte packets)

### VLANs Supported
4,094

### 10/100 Priority Queues
4

### GbE Priority Queues
8

### Classification Rules
64k

## Specifications

### Physical Specifications

#### Dimensions

46.43 cm (18.28") H x 6.05 cm (2.38") W x 29.51 cm (11.62") D

#### Weight

5.54 kg (12 lbs), gross shipping; 4.10 kg (9 lbs), net

#### Memory

Main Memory: 128 Mb expandable to 256 Mb

Buffer Memory: varies per board

Flash Memory: 32 Mb expandable to 64 Mb

### Environmental Specifications

#### Operating Temperature

+5° C to +40° C (41° F to 104° F)

#### Non-Operating Temperature

-30° C to +73° C (-22° F to 164° F)

#### Operating Humidity

5% to 90% RH, non-condensing

#### Power Consumption

100 to 125 VAC or 200 to 250 VAC; 50 to 60 Hz

### Agency and Standards Specifications

#### Safety

UL 60950, CSA 60950, EN 60950, EN 60825 and IEC 60950

#### Electromagnetic Compatibility

47 CFR Parts 2 and 15, CSA C108.8, EN 55022, EN 55024, EN 61000-3-2, EN 61000-3-3, AS/NZS CISPR 22, and VCCI V-3

#### IEEE Standards

IEEE 802.3
IEEE 802.1D
IEEE 802.1p
IEEE 802.1Q
IEEE 802.1w
IEEE 802.1s
IEEE 802.1X
IEEE 802.3ae
IEEE 802.3ad

#### Power over Ethernet

IEEE 802.3af
Total PoE Power: 4,800 watts per chassis
Supports Class 1 (4w), Class 2 (7.5w) and Class 3 (15.4w) PoE devices
Fully loaded chassis will power Class 2 devices (7.5w) on all ports simultaneously
Automated or manual PoE power distribution
Per-port enable/disable
Per-port power level
Per-port priority safety
Per-port overload and short-circuit protection
System power monitor

## Ordering Information

### Platinum Distributed Forwarding Engines (DFEs)

**7H4202-72**
Platinum DFE with 72 10/100Base-TX ports via RJ45 connectors

**7H4203-72**
Platinum DFE with 72 10/100Base-TX ports via RJ21 (Telco) connectors

**7H4382-25**
Platinum DFE with 24 10/100Base-TX ports via RJ45 connectors and one expansion module slot (with Matrix E6/E7 backplane connectivity)

**7H4382-49**
Platinum DFE with 48 10/100Base-TX ports via RJ45 connectors with one expansion module slot (with Matrix E7 backplane connectivity)

**7H4383-49**
Platinum DFE with 48 10/100Base-TX ports via RJ21connectors with one expansion module slot (with Matrix E7 backplane connectivity)

## Ordering Information (continued)

7H4284-49
Platinum DFE with 48 100Base-FX ports via MTRJ connectors

7G4202-30
Platinum DFE with 30 10/100/1000Base-TX ports via RJ45 connectors

7G4202-60
Platinum DFE with 60 10/100/1000Base-TX ports via RJ45 connectors

7G4282-41
Platinum DFE with 40 10/100/1000Base-TX ports via RJ45 with one expansion module slot

7G4270-12
Platinum DFE with 12 1000Base-X mini-GBIC slots

7G4270-10
Platinum DFE with 10 1000Base-X mini-GBIC slots

7K4290-02
Platinum DFE with 2 10-Gigabit Ethernet 10GBase XenPak optics slot

7H4385-49
Platinum DFE with 48 10/100Base-TX ports via RJ45 connectors with Power over Ethernet (PoE) and one expansion module slot

### Network Expansion Module (NEM)

7G-6MGBIC-A
Network Expansion Module (NEM) with 6 1000Base-X ports via Mini-GBIC connectors

### Mini-GBIC Modules

MGBIC-LC01
Mini-GBIC with 1000Base-SX port via LC connector

MGBIC-LC03
Mini-GBIC with 1000Base-LX/LH (long-haul 2 km) over multimode fiber via LC connector

MGBIC-LC09
Mini-GBIC with 1000Base-LX port via LC connector

MGBIC-MT01
Mini-GBIC with 1000Base-SX port via MTRJ connector

MGBIC-02
Mini-GBIC with 1000Base-TX port via RJ45 connector

MGBIC-08
Mini-GBIC with 1000Base-LX/LH (long haul 70 km) SMF port via LC connector

### Software

N-EOS-L3
Enterasys Operating System (EOS) Layer 3 routing upgrade for Matrix N-Series

All Platinum DFEs ship with Enterasys' Operating System (EOS), which includes the features described in this data sheet. The only exception is the advanced routing features that are provided through a software license (Part No. N-EOS-L3)

## Ordering Information (continued)

### 10-Gigabit Ethernet XenPaks

**10GBase-ER**
10-Gigabit interface, 1550 nm, 9 micron single-mode fiber (40 km) via SC connector

**10GBase-LR**
10-Gigabit interface, 1310 nm, serial optic single-mode fiber (2-10 km) via SC connector

**10GBase-LX4**
10-Gigabit interface, 1310 nm, 62.5 and 50 micron multimode fiber (300 micron and 240 micron) or single-mode fiber (10km) via SC connector

**10GBase-SR**
10-Gigabit interface, 850 nm, 62.5 and 50 micron multimode fiber (33 meter and 66 meter) via SC connector

### Other Options

**DFE-256MB-UGK**
256 MB Dimm memory module

*Notes:*
1. *Platinum Distributed Forwarding Engines (DFEs) can be installed in any slot in the Matrix N3, N5, N7 or E7 chassis.*
2. *The Matrix N7 and E7 can support up to seven DFE modules with the 1600W AC power supply (part number 6C207-3).*
3. *The Matrix N5 can support up to five DFE modules with the 1200W AC Power Supply (part number 7C205-1).*
4. *The Matrix N3 can support up to three DFE modules with the 863W AC Power Supply (part number 7C203-1).*
5. *DFE part number 7H4382-49 can be used either to bridge the FTM1 and FTM2 backplanes in the Matrix E7 chassis or to support the DFE Network Expansion Module (NEM).*
6. *DFE part number 7H4382-49 supports only the DFE NEM. It does not support Enterasys VHSIM or HSIM.*
7. *The 256 MB memory upgrade (DFE-256MB-UGK) is required for PIM-SM and LS-NAT.*

### Warranty

As a customer-centric company, Enterasys is committed to providing the best possible workmanship and design in our product set. In the event that one of our products fails due to a defect in one of these factors, we have developed a comprehensive warranty that protects you and provides a simple way to get your products repaired as soon as possible.

### Service and Support

Enterasys understands that superior service and support is a critical component of ***Networks that Know.***™ The Enterasys **SupportNet Portfolio**—a suite of innovative and flexible service and support offerings—completes the Enterasys solution. SupportNet offers all the post-implementation support services you need—online, onsite or over the phone—to maintain your network availability and performance.

### Additional Information

For additional information on the Matrix, visit **enterasys.com/products/switching**

### Contact Information

Contact Enterasys Sales at **877-801-7082** or **enterasys.com/corporate/contact/contact-sales.html**

Enterasys Networks
Corporate Headquarters
50 Minuteman Road
Andover, MA 01810
U.S.A



Lit. #9013186-4 9/04



enterasys™
Networks that Know