Cisco 10000 Series 8-Port Fast Ethernet Half-Height Line Card

In order to continue to meet customers' needs for Fast Ethernet aggregation as well as increased modularity, the Cisco 10000 Series introduces a new 8-port Fast Ethernet line card. Benefits of the new line card include:

- Provides eight Fast Ethernet ports, ideal for service provider Ethernet aggregation
- Provides maximum modularity for flexible deployment options
- Saves rack space by utilizing only half of a slot on the Cisco 10000 Series
- Supports standards-based Fast Ethernet implementation for compatibility and interoperability

Figure 1
Cisco 10000 Series 8-Port Fast Ethernet Half-Height Line Card

Table 1 gives the features and benefits of the Cisco 10000 Series 8-Port Fast Ethernet Half-Height Line Card.

Table 1

Features and Benefits of Cisco 10000 Series 8-Port Fast Ethernet Half-Height Line Card

Features	Benefits
Provides eight Fast Ethernet ports, ideal for service provider Ethernet aggregation	With 8 ports in a half-height form factor, the Cisco 10000 Series enters the Ethernet aggregation market with maximum flexibility for a variety of densities and aggregation topologies.
Provides maximum modularity for flexible deployment options	With the implementation of a half-height line card, the Cisco 10000 Series doubles its modularity as well as its density for LAN interfaces.
Saves rack space by utilizing only half of a slot on the Cisco 10000 Series	With a half-height form factor, the line card provides the Cisco 10000 Series with Fast Ethernet densities of up to 128 Fast Ethernet ports per chassis.
Supports standards-based Fast Ethernet implementation for compatibility and interoperability	The Cisco 10000 Series 8-Port Fast Ethernet Half-Height Line Card is based on the industry standard-ensuring interoperability and compatibility with other standards-based Fast Ethernet products in the customer's network.

Product Components

Hardware Features

- Eight ports of Fast Ethernet
- Support for jumbo frames (up to 9180 bytes in size)
- Each port configurable for either full- or half-duplex operation
- 512 content-addressable memory (CAM) addresses per port
- 16-MB receive packet memory
- Support for online insertion and removal (OIR)
- Functional in any Cisco 10000 Series interface card slot with a Cisco 10000 Series Carrier Card
- Error-Correction Code (ECC) protection for the processor local memory and packet memory

Ethernet Features

- Media Access Control (MAC) with full-duplex operation
- Hardware address filtering on received frames of up to 4096 address entries
- 802.3x flow control
- Ethernet encapsulation formats:
  - Ethernet V2
  - 802.2 Service Advertising Protocol (SAP)
  - 802.2 Subnetwork Access Protocol (SNAP)

Software Features

- Autonegotiation
- 64-bit counters
- 802.1Q virtual LANs (VLANs) (up to 4096 VLAN IDs per line card and 1000 per system)
- Hot Standby Router Protocol (HSRP)

Environmental Conditions

- Storage temperature: -38 to 150 F (-40 to 70 C)
- Operating temperature, nominal: 41 to 104 F (5 to 40 C)
- Operating temperature, short term: 23 to 131 F (-5 to 55 C)
- Storage relative humidity: 5 to 95% relative humidity (RH)
- Operating humidity, nominal: 5 to 85% RH
- Operating humidity, short term: 5 to 90% RH
- Operating altitude: -60 to 4000m

Physical Specifications

- Height: 7.8 in. (19.8 cm)
- Width: 1.3 in. (3.3 cm)
- Depth: 11 in. (27.9 cm)
- Weight: 2 lb (0.9 kg)

LEDs

Two LEDs per port:

- Link status (green)
- Transmit and receive activity (green); fail (yellow)

Network Management

- Network management via
  - Telnet (command-line interface [CLI])
  - Console port (CLI)
  - Simple Network Management Protocol (SNMP)
- RFC 2665

Half-Height Line Card Power Budget

- Unit power: 15.98W

Connector Specifications

- Copper RJ-45

– Two pairs Category 5 unshielded twisted-pair (UTP)

Product Regulatory Approvals

- UL60950/CAN/CSA-C22.2 No. 60950-00, third edition, dated December 1, 2000, with no deviation considered to be less stringent than IEC 60950
- EN60950 with Amendments 1-4, for CE Marking to the LVD directive
- IEC 60950 third edition with Amendments 1-4, including all national/group deviations
- AS/NZS 60950:2000
- AS/NZS 3260-1993 with Amendments 1-4
- ACA TS001-1997

Product Regulatory Compliance

Electromagnetic Emissions Certification

- AS/NZ 3548:1995 [including Amd I + II] Class B
- EN55022:1998 Class B
- CISPR 22:1997
- EN55022:1994 [including Amd I+ II]
- 47 CFR Part 15:2000 (FCC) Class B
- VCCI V-3/01.4 Class 2
- CNS-13438:1997 class B
- GR1089:1997 [including Rev1: 1999]

Immunity

- EN300386:2000—TNE EMC requirements; product family standard; high priority of service; central office and non-central office locations
- EN50082-1:1992/1997
- EN50082-2:1995—Generic Immunity Standard, Heavy Industrial
- CISPR24:1997
- EN55024:1998—Generic ITE Immunity Standard
- EN61000-4-2:1995+AMD I + II—ESD, Level 4, 8-kV contact,15-kV air
- IEC-1000-4-3:1995+AMD 1—Radiated Immunity, 10 V/m
- IEC-1000-4-4:1995—Electrical Fast Transients, Level 4, 4 kV/B
- IEC-1000-4-5:1995+AMD 1—DC Surge Class 3; AC surge Class 4
- EN61000-4-6:1996+AMD 1—RF conducted immunity, 10V rms
- EN61000-4-11:1995—Voltage Dips and Sags
- ETS300 132-2:1996+corregendum, Dec. 1996
- GR1089:1997 [including Rev1: 1999]

Network Equipment Building Systems

- Level 3 compliant
- Bellcore SR-3580 Criteria Levels, issued 11/95
- GR1089-Core: Electromagnetic Compatibility & Electrical Safety, issued Dec. 1997
- GR63-Core: Physical protection requirements, issued Oct. 1995
- SBC equipment requirements: TP76200 MP and TP76400 MP
- Verizon equipment requirements: SIT.NEBS.TE.NPI.2000.004 Rev. 1

Product System Requirements and Compatibility

Hardware Requirements

- *Chassis*—The Cisco 10000 Series 8-Port Fast Ethernet Half-Height Line Card is supported in the Cisco 10008 and Cisco 10005 chassis.
- *Performance routing engines (PREs)*—The line card is supported with all PREs available on the Cisco 10000 Series.
- *Line cards*—The line card is supported with all line cards available on the Cisco 10000 Series as of October 1, 2002.
- *Carrier*—The line card requires a carrier (part number ESR HH CARRIER) for compatibility with the Cisco 10008 and Cisco 10005 chassis. For more information about this carrier, refer to

Software Requirements

- *Initial Cisco IOS® Releases*—The Cisco 10000 Series 8-Port Fast Ethernet Half-Height Line Card is supported in 12.0(23)S and later Cisco IOS releases. For the latest Cisco IOS release information, refer to

Ordering Information

Visit http://www.cisco.com/public/ordering_info.shtml to place an order.

Table 2 gives product part numbers for the Cisco 10000 Series 8-Port Fast Ethernet Half-Height Line Card.

Table 2

Part Numbers for Cisco 10000 Series 8-Port Fast Ethernet Half-Height Line Card

Product Number	Product Description
ESR-HH-8FE-TX	8-port Fast Ethernet half-slot line card for Cisco 10000 Series
ESR-HH-8FE-TX	8-port Fast Ethernet half-slot line card for Cisco 10000 Series, spare
ESR-HH-CARRIER	Full-length base carrier for half-slot line card

Part Numbers for Cisco 10000 Series 8-Port Fast Ethernet Half-Height Line Card

Product Number	Product Description
ESR-HH-CARRIER=	Full-length base carrier for half-slot line card, spare
ESR-HH-COVER	Blank filler for half-slot line card
ESR-HH-COVER=	Blank filler for half-slot line card, spare

All Cisco 10000 Series half-height line cards require a carrier card (product number ESR-HH-CARRIER). Because each carrier card holds two half-height line cards, a blank (part number ESR-HH-COVER) is shipped with carrier cards with open half-height line card slots.

Cisco recommends that customers who order spare carrier cards or half-height line cards also order enough blanks to ensure that the configured system has no empty slots.

Migration Program

A Cisco Technology Migration Plan (TMP) has been established for this product.

The Cisco TMP is a sales program that allows customers to trade in Cisco products to receive a trade-in credit toward the purchase of any new Cisco product. The program underscores Cisco's commitment to the customer in terms of end-to-end product solutions as well as emphasizing to the customer Cisco's commitment to provide effective migration options in the face of ever-changing network requirements.

More specifics about this program can be found at http://www.cisco.com/go/tradein.

Service and Support

Cisco Systems offers a wide range of service and support options for its customers. More information on Cisco service and support programs and benefits can be found at http://www.cisco.com/public/Support_root.shtml.

Corporate Headquarters
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
www.cisco.com
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 526-4100

European Headquarters
Cisco Systems Europe
11, Rue Camille Desmoulins
92782 Issy-les-Moulineaux
Cedex 9
France
www-europe.cisco.com
Tel: 33 1 58 04 60 00
Fax: 33 1 58 04 61 00

Americas Headquarters
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
www.cisco.com
Tel: 408 526-7660
Fax: 408 527-0883

Asia Pacific Headquarters
Cisco Systems, Inc.
Capital Tower
168 Robinson Road
#22-01 to #29-01
Singapore 068912
www.cisco.com
Tel: 65 317 7777
Fax: 65 317 7799

Cisco Systems has more than 200 offices in the following countries and regions. Addresses, phone numbers, and fax numbers are listed on the
Cisco Web site at www.cisco.com/go/offices

Argentina • Australia • Austria • Belgium • Brazil • Bulgaria • Canada • Chile • China PRC • Colombia • Costa Rica • Croatia Czech Republic • Denmark • Dubai, UAE • Finland • France • Germany • Greece • Hong Kong SAR • Hungary • India • Indonesia • Ireland Israel • Italy • Japan • Korea • Luxembourg • Malaysia • Mexico • The Netherlands • New Zealand • Norway • Peru • Philippines • Poland Portugal • Puerto Rico • Romania • Russia • Saudi Arabia • Scotland • Singapore • Slovakia • Slovenia • South Africa • Spain • Sweden Switzerland • Taiwan • Thailand • Turkey • Ukraine • United Kingdom • United States • Venezuela • Vietnam • Zimbabwe

LS/JSI/10.02