FDDI

Ascend FDDI IP Forwarding Media Card

The FDDI IP Forwarding Media Card is an intelligent, self-contained IP forwarding engine that provides high-performance FDDI support for the GRF™. The FDDI IP Forwarding Media Card leverages the GRF switch to deliver packets at full line speeds. Four 100 Mbps FDDI ports can be configured as two dual-attach or four single-attach interfaces to provide exceptional configuration flexibility and port density.

Integrated Layer-3 switching capabilities optimize network performance

Within the GRF distributed architecture, each intelligent IP Forwarding Media Card makes Layer-3 decisions. The FDDI card features two processors, a large route table and memory resources to deliver the performance and capacity for demanding networks such as the Internet. The FDDI card is capable of performing hardware-assisted lookups of a full route table 100 times faster than conventional software approaches.

- Aggregate throughput of up to 136,000 packets per second (pps)
- Up to 250,000 route table entries
- 8 MB buffer memory (matches speed between dissimilar media and accommodates cross-country bandwidth-delay products)

Scalable design maximizes port density and enables full system functionality

The GRF dedicates 1 Gb/s of internal bandwidth to each IP Forwarding Media Card, maximizing the use of every port on the FDDI card and every slot on the GRF without performance degradation. In fact, the GRF scales linearly with every additional IP Forwarding Media Card. Because the FDDI card is designed to utilize every square inch of the system, users have a high-density solution at the lowest price per port available.

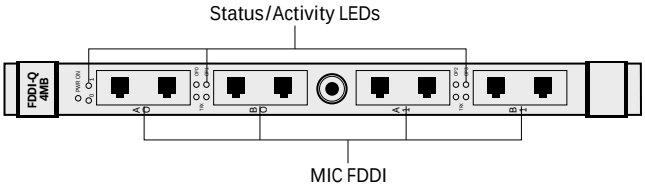
Independent, hot-swappable architecture increases uptime

Because downtime is not an option for a network, the FDDI IP Forwarding Media Card has been designed so that the GRF system operates continuously. The card is easy to install and maintain, and it automatically configures itself after initial installation.

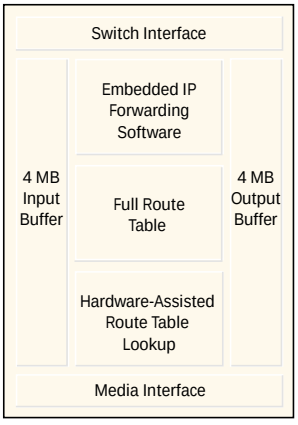
Since each card functions independently, the system continues to operate if a FDDI card problem occurs. Network administrators can reset the card or place it on hold until the situation has been corrected. Or they can replace the card while the system continues to operate, and the new card is configured automatically.

- Auto-configure
- Hot-swap capability
- Maintenance of each card occurs while system is on-line

FDDI backpanel



FDDI Architecture



The software on the FDDI card supports:

- Full IP
- Full Multicast
- SMT 7.3

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Features

Standard IP Routing	Performs IP datagram forwarding and encapsulation of IP datagrams per RFC 1390
Flexible Attachment Options	The four ports on an individual card can be configured as: • Two dual-attach interfaces • One dual-attach interface and two single-attach interfaces • Four single-attach interfaces (each interface has unique IP and MAC addresses)
Full FDDI Multicast	Supports multicast messages between nodes, and routes and forwards multicast datagrams
	Uses mrouted 3.8
ARP on FDDI	ARP table and implementation per RFC 826 and RFC 1390
	Supports Proxy ARP
SMT	Station Management Protocol (V7.3), ANSI X3.229
SNMP Monitoring	Traffic on the card monitored by the SNMP agent (RFC 1157) which can be monitored by any SNMP manager
	MIBs include: MIB-II (RFC 1213), the FDDI MIB (RFC 1512) and the GRF enterprise MIB

Internet Standards

RFC 791	Internet Protocol
RFC 792	Internet Control Message Protocol
RFC 1112	Host Extensions for IP Multicasting
RFC 1157	A Simple Network Management Protocol
RFC 1191	Path MTU Discovery
RFC 1213	TCP/IP Management Information Base
RFC 1390	Transmission of IP and ARP over FDDI Networks
RFC 1512	FDDI Management Information Base

Specifications

Transfer Rate	100 Mbps per interface
Interfaces Per Card	4 fiber optic (see Flexible Attachment Options)
Card Dimensions	9 in x 16 in [22.0 cm x 40.6 cm]
Card Weight	~2 lbs [0.9 kg]
DC Power Supplies	+5.0 V=9 amps maximum, total watts=45
Hot-swap Capability	Yes
Operating Requirements	Temperature: 32-104˚F [0-40˚C] Relative Humidity: 10-90% (noncondensing)
Cable Support	Single-mode cables: 9/125 micron optical fiber
	Multimode cables: 62.5/125 micron optical fiber
Physical Connectors	MIC transceivers
Transceiver Requirements	Must meet ANSI X3.166 standards
Optic Components	Internally-produced 1,300 nm surface-emitting LEDs and photodiodes
Optical Output	-19 dBm minimum, -14 dBm maximum (ave 62.5/125 um)
Optical Input Sensitivity	-33.5 dBm minimum, -14 dBm maximum
Optical Wavelength	1,270 nm minimum, 1,330 nm typical, 1,380 nm maximum
Spectral Width	130 nm maximum

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Ascend Communications, Inc. develops, manufactures and sells wide area networking solutions for telecommunications carriers, Internet service providers, and corporate customers worldwide. For more information about Ascend and its products, please visit the Ascend web site at http://www.ascend.com, or e-mail info@ascend.com.

Ascend markets the B-STDX, CBX, GRF, IP, MAX, Multiband, MultiDSL, Navis, Pipeline, SA, SecureConnect and STDX families of products. Ascend products are available in more than 40 countries worldwide.

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