# 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.

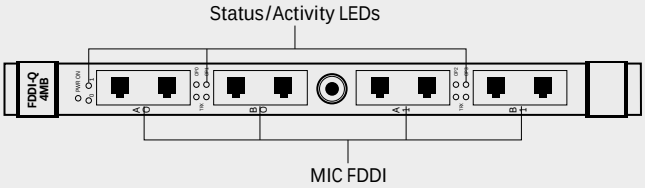
### Independent, hot-swappable architecture increases uptime

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.

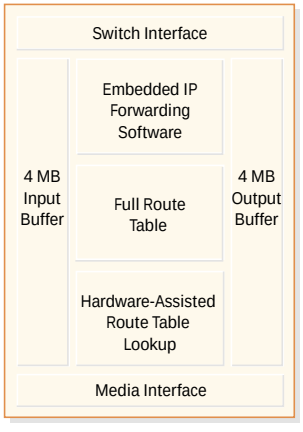
Since each card functions independently, the system continues to operate if a FDDI card problem occurs. Network administrators can reset the card or place it on hold until the situation has been corrected. Or they can replace the card while the system continues to operate, and the new card is configured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

## 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:<br>• Two dual-attach interfaces<br>• One dual-attach interface and two single-attach interfaces<br>• 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]<br>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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