HSSI



Ascend HSSI IP Forwarding Media Card – C Series

The High-Speed Serial Interface (HSSI) C Series IP Forwarding Media Card is an intelligent, self-contained IP forwarding engine that provides high-performance HSSI support for the GRF®. The HSSI IP Forwarding Media Card leverages the GRF switch to deliver packets at full line speeds. Two 52 Mbps, full-duplex HSSI data channels 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 HSSI card features two processors, a large route table and memory resources to deliver the performance and capacity for demanding networks such as the Internet.

- Aggregate throughput of up to 70,000 packets per second (pps)
- Up to 150,000 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 HSSI 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 HSSI card is designed to utilize every square inch of the system, users have a high-density solution at the lowest price per port available.

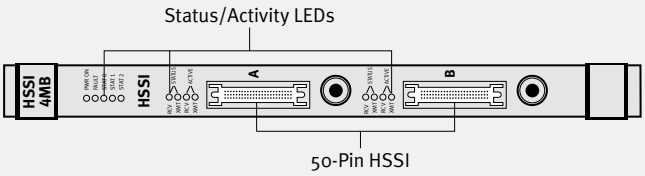
Independent, hot-swappable architecture increases uptime

To ensure maximum network uptime, the HSSI IP Forwarding Media Card was designed so that the GRF system operates continuously. The card is easy to install and maintain, and it automatically configures itself after initial installation.

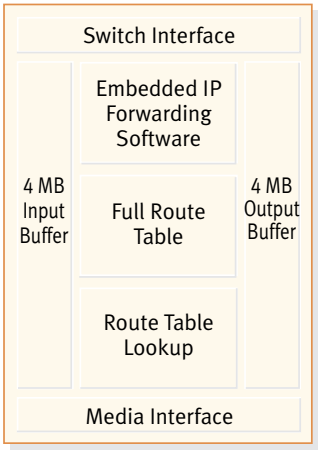
Since each card functions independently, the system continues to operate if a HSSI card problem occurs. Network administrators can reset the card or place it on hold until the situation has been corrected. Or they can replace the card while the system continues to operate, and the new card is configured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

- Auto-configure
- Hot-swap capability
- Maintenance of each card while system is online

HSSI backpanel



HSSI Architecture



The software on the HSSI card supports:

- Full IP
- Frame Relay UNI and NNI
- Inverse ARP
- PPP
- HDLC

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Features

Standard IP Routing	Performs IP datagram forwarding, header validation and processing and ICMP processing
Support for Multiple Framing Protocols	Frame Relay Point-to-Point Protocol (PPP) High-level Data Link Control (HDLC)
Frame Relay	Performs IP encapsulation per RFC 1490 Automatically adds PVCs via LMI (configurable) Supports Annex A, Annex D and LMI-Disabled Supports Inverse ARP Provides 256 configurable logical interfaces per card [independently configurable as point-to-point (single PVC) or multi-access (multiple PVCs)] Supports entire set of 906 unreserved PVCs per physical interface (1,812 per card)
PPP	UNI and NNI signaling Complies with IETF RFCs 1661 and 1662 Supports Link Quality Monitoring LCP and IPCP options: • Maximum receive unit • Quality protocol • Magic number • IP address
HDLC	Full-duplex, synchronous transfer mode Cisco-compatible
SNMP Monitoring	Traffic on the card is monitored by the SNMP agent (RFC 1157), which can in turn be monitored by any SNMP manager MIBs include: MIB-II (RFC 1213), PPP MIB (RFCs 1471 and 1473) and the GRF enterprise MIB
Hot Swap Capability	Yes

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 1195	Use of OSI IS-IS for Routing in TCP/IP and Dual Environments
RFC 1213	TCP/IP Management Information Base
RFC 1293	Inverse Address Resolution Protocol
RFC 1332	The PPP Internet Protocol Control Protocol (IPCP)
RFC 1333	PPP Link Quality Monitoring
RFC 1471	Managed Objects for the Link Control Protocol of the Point-to-Point Protocol
RFC 1473	Managed Objects for the IP Network Protocol of the Point-to-Point Protocol
RFC 1490	Multiprotocol Interconnect over Frame Relay
RFC 1661	The Point-to-Point Protocol (PPP)
RFC 1662	PPP in HDLC-like Framing

Specifications

Transfer Rate	52 Mbps (OC-1), 45 Mbps (DS3), 34 Mbps (E3)
Transmission Distance	WAN: T1, T3 distances HSSI cable: to CSU/DSU 50 ft [15 m]
MAX Transmission Unit	Frame Relay – 4,352 bytes PPP – 1,496 bytes HDLC – 4,352 bytes
Interfaces Per Card	2 full-duplex
Card Dimensions	9 in x 16 in [22.9 cm x 40.6 cm]
Card Weight	~2 lbs [0.9 kg]
Operating Requirements	Temperature: 32-104˚F [0-40˚C] Relative Humidity: 10-90% (noncondensing)
Card Connectors	2-row, 50-pin shielded tab connectors
Cables Per Card	Two, 25 twisted-pair shielded coax cables
Cable Receptacles	2-row, 50-pin receptacle heads

Ascend Communications, Inc.

Worldwide and North American Headquarters
One Ascend Plaza
1701 Harbor Bay Parkway
Alameda, CA 94502, United States
Tel: 510.769.6001
Fax: 510.747.2300
E-mail: info@ascend.com
Toll Free: 800.621.9578
Fax Server: 415.688.4343
Web Site: http://www.ascend.com

European Headquarters
Rudolf-Diesel-Strasse 16
D-64331 Weiterstadt
Germany
Tel: +49.6150.1094.10
Fax: +49.6150.1094.98

Japan Headquarters
Level 19 Shinjuku Daiichi-Seimei Bldg.
2-7-1 Nishi-Shinjuku
Shinjuku-ku, Tokyo 163-07, Japan
Tel: +81.3.5325.7397
Fax: +81.3.5325.7399
Web Site: http://www.ascend.co.jp

Asia-Pacific Headquarters
Suite 1908, Bank of America Tower
12 Harcourt Road
Hong Kong
Tel: +852.2844.7600
Fax: +852.2810.0298

Latin, South America and the Caribbean Headquarters
One Ascend Plaza
1701 Harbor Bay Parkway
Alameda, CA 94502, United States
Tel: 510.769.6001
Fax: 510.747.2669

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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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