

Catalyst LS 1010/8510MSR Multiport Inverse Multiplexing over ATM

TWO NEW EIGHT-PORT INVERSE MULTIPLEXING OVER ATM (IMA) MODULES ARE NOW AVAILABLE FOR THE CATALYST® 8510 MULTISERVICE SWITCH ROUTER AND THE LIGHTSTREAM® 1010 ATM SWITCH.

Figure 1 8-Port IMA Module



Introduction

These new multiport Asynchronous Transfer Mode (ATM) modules allow service providers and enterprise customers to cost-effectively increase bandwidth and extend multiservice networking to remote branch-office locations. These new ATM modules complement the existing OC-3/STM-1C, OC12/STM-4C, OC48/STM-16C, and 25-Mbps, T1/E1 and DS3/E3 ATM network modules available for the Catalyst 8510MSR and LightStream 1010.

The high cost and limited availability of broadband ATM services have prevented many organizations from deploying ATM quality-of-service (QoS) features to remote locations and branch-offices. These locations typically require bandwidth that ranges from a few T1 or E1 circuits to eight T1/E1 circuits. The eight-port IMA module on the Catalyst 8510 and LightStream 1010 provides a low cost solution when T3/E3 services are either cost-prohibitive or unavailable. All eight ports on the IMA module supports all ATM Forum adaptation layers (AAL) and

ATM QoS categories universal broadband router (UBR), real-time variable bit rate (VBR-rt), non-real-time variable bit rate (VBR-nrt), and available bit rate (ABR).

Integrating ATM forum standards-compliant IMA into large, small, and medium-size networking platforms, Cisco now provides enterprise users and service providers a complete family of solutions for LAN-to-WAN, branch-office, campus and ATM edge applications, combining data, voice, and video with ATM guaranteed QoS features. This module requires the FC-PFQ on the LightStream 1010 and MRSP on the Catalyst 8510MSR.

Features at a Glance

- Supported on Catalyst 8510, and LightStream 1010
- Supports eight T1/E1 ATM ports as part of an IMA group and up to four active IMA groups
- Support for ATM Forum IMA Version 1.0
- UBR, VBR-rt, VBR-nrt, and ABR ATM classes of service (CoS)
- Integrated channel service unit/data service unit (CSU/DSU) on T1 versions
- Integrated DSU for E1 versions
- ATM Forum UNI 3.0, UNI 3.1, and UNI 4.0 signaling
- Permanent virtual circuits (PVCs) and switched virtual circuits (SVCs)
- Maximum differential delay tolerance of up to 192 ms for T1 and 250 ms for E1
- Support for up to 4 T1/E1 independent ATM ports not part of an IMA group
- F4 (virtual path) and F5 (virtual connection) operations and management (OAM) cell support

Orderability, Availability, Compatibility, Requirements

Table 1 Eight-Port T1/E1 IMA Module

Product Number	Description
CT8500-8T1-IMA (=)	Eight-port T1 ATM network module with inverse multiplexing over ATM (IMA)
CT8500-8E1-IMA (=)	Eight-port E1 ATM network module with inverse multiplexing over ATM (IMA)

Table 2 Eight-Port T1/E1 IMA Module: Cisco IOS Release 12.0 (4a) W5 (11a)—8510

Availability	
Product	FCS Date
12.0 (6a) W5 (11a)—8510	Q3 FY99

Table 3 Cisco ATM Forum IMA Version 1.0 Products Compatibility Matrix

Cisco Product	Description	Cisco IOS Release Supported
Catalyst 8510	8-port T1/E1 ATM network modules	12.0 (6a) W5 (11a)—8510
Cisco 7200/7500	8-port T1/E1 ATM port adapters	12.0(5)XE, 12.1(1)T
MGX 8220 AXIS Shelf	8-port IMA (AUSM/AUSM-B)	Release 5.x
MGX 8850	8-port IMA (AUSM/B)	Release 1.1

Specifications

The following ATM alarm signals are supported:

- Loss of signal (LoS)
- Loss of frame (LoF)
- Loss of signaling multiframe
- Reception of remote alarm signal
- Remote multiframe alarm signal
- Alarm indication signal (AIS)
- Timeslot 16 AIS for E1

Diagnostics and Loopback Modes

Multiple loopback modes are supported for diagnostics, fault isolation, and network compliance. The IMA module supports several loopback modes. Each port can loopback the incoming signal through the front connector and the LIU in several ways.

Table 4 Hardware

Environmental Conditions	<ul style="list-style-type: none"> • Operating temperature 32 to 104 F (0 to 40 C) • Non-operating temperature -13 to 158 F (-25 to 70 C)
Relative Humidity	5 to 95%

Supported management information bases (MIBs)

This feature supports the following MIBs:

- IMA MIB (ATM Forum, AF-PHY-0086.000)
- DS1/E1 MIB (as defined in RFC 1406)

ATM Forum Specifications

- AF-PHY-0086.000—IMA 1.0 specification
- AF-PHY-0016—DS1/ESF and B8ZS specification
- AF-PHY-0064—E1/G.704 framing specification
- ITU.I432—UNI physical layer specification
- ITU.I432.3—Physical layer specifications for T1/E1
- ITU.I431
- ATM Forum UNI 3.0, 3.1, and 4.0 signaling for point-to-point and point-to-multipoint SVCs
- ATM forum interim local management interface (ILMI) for address prefix acquisition and ATM service address registration with user-network interface (UNI)-compliant switches throughout the ATM network
- ATM network service access point (NSAP) E.164 address support
- F4 and F5 OAM cell segment and end-to-end flows, remote deflect identification (RDI), and alarm indication signal (AIS)

Regulatory Approvals

- UL 1950
- CSA-C22.2 No. 950
- EN 60950
- IEC 950
- TS 001
- AS/N25 3260
- FCC Part 15 Class A
- CISPR22 Class A
- EN 55022 Class A
- AS/N213548 Class A
- VCCI Class A with UTP cables
- EN5502 Class B
- CISPR 22 Class B
- AS/N2535 Class B
- VCCI Class B with FTP cables
- TI-FCC Part 68
- C503
- Green Book
- E1-T5016
- CTR13



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