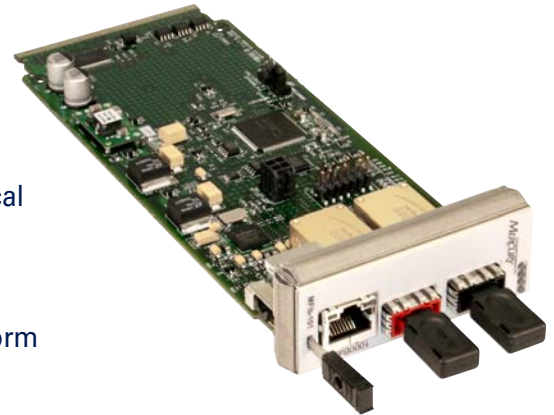


# Ensemble MFib-101 ATCA Fiber AMC I/O Module

## Flexible Serial Communications and Data Streaming

- Provides protocol-agnostic I/O with support for eight 3.125 Gb/s optical links and one copper Gigabit Ethernet connection on the front panel
- Interconnects multiple Ensemble chassis
- Robust module for standards-based, scalable ATCA application platform



The Ensemble™ MFib-101 ATCA Fiber AMC I/O module from Mercury Computer Systems allows serial communications and Gigabit Ethernet to stream into the Ensemble system through its front-panel fiber-optic links, enabling multiple Ensemble chassis to interconnect. It also allows external data devices using a variety of serial protocols or Ethernet connections to stream data into the Ensemble system through the MFib-101 module. The MFib-101 is protocol agnostic, supporting all 2X, 4X, and 8X AMC fabric protocols.

The MFib-101 is a full-height, single-width AMC, designed to function with an AMC carrier card, such as the Ensemble BCC-101 Serial RapidIO® Quad AMC Carrier Blade.

### Flexible I/O Connectivity

The MFib-101 supports one 8X, two 4X, four 1X, or any combination of 4X or 1X serial fabric ports. Fabric signals, moving from the system backplane to the AMC via the carrier card, are converted to optical data through the front-panel fiber-optic receiver and transmitter. Protocols supported include PCI-X, IEEE 1394b, serial ATA, SAS, Fibre Channel, Gigabit Ethernet, InfiniBand®, XAUI, and serial RapidIO.

The module also supports a Gigabit Ethernet connection, converting from 1000BX on the AMC connector to 1000Base-T on the front panel.

### MFib-101 Topology

The two 4X fiber-optic connections transmit and receive a variety of serial protocols. These serial communications travel through the P1 pins of the AMC connector from the carrier module. Ethernet data from the P1 pins is converted from protocol-independent, 1 Gb SERDES (serial/de-serial) to electrical signaling by way of a copper connector on the front panel.

### AMC Reliability and Configurability

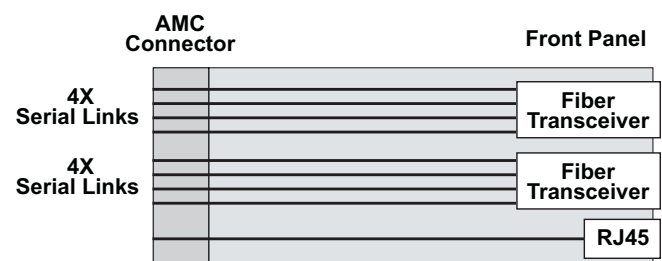
As required by the AMC specification, an onboard IPMI controller monitors all power supply voltages and currents, reporting any irregularities to an IMPI peripheral manager on the carrier card. This automatic monitoring of system health contributes to overall system reliability. The IMPI software is responsible for controlling the front-panel LED indicators.

The MFib-101 can be replaced without a system shutdown (hot-swapped) for maximum system configurability.

### Configurable with the Ensemble Application Platform

The Ensemble Application Platform is a standards-based system for developing, prototyping, and deploying applications. Built around the power, functionality, and scalability of AdvancedTCA® (ATCA), and AdvancedMC™ (AMC), the platform supports a variety of I/O sources and heterogeneous processing, thereby reducing integration costs, improving efficiency, and minimizing risks in design and deployment of next-generation applications.

The Ensemble Platform scales up to 14- or 16-slot configurations, supports hot-swappable AMC modules, and delivers 10 Gbps of serial communications capacity to every processing component in the heterogeneous platform. This critical functionality facilitates application-level evaluations in the lab and deployments in the field.



Ensemble MFib-101 functional block diagram

## Front-Panel LED Indicators

Two sets of LED status indicators are visible on the front of the MFib-101: two on the Ethernet connector and four on the front panel itself.

## Ethernet Connector Indicators

LED Position	Meaning	Color
Left	Ethernet activity in progress	Green
Right	User-definable (IPMI controlled)	Green/Yellow

## Front-Panel Indicators

LED Label/ Position	Meaning	Color
UD2	User-definable (IPMI controlled)	Green/Amber
UD1	User-definable (IPMI controlled)	Green
SYSFLT	System fault	Red
HS	Live replacement (hot-swap) of the module in progress	Blue

## Specifications

### Mechanical

Full-height, single-width AMC	
Width	28.96 mm
Depth	208.53 mm
Height	73.81 mm
Supports AMC B+ bays	

### Electrical

Input voltage (Vdc $\pm$ 5%)	12V and 3.3V
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### Power Consumption

6W maximum, 5W typical at 12V (payload)
0.5W maximum, 0.25W typical at 3.3V (management)

### Environmental

Temperature	
Operating	0°C to 55°C
Storage	-40°C to +70°C
Humidity	
Operating	5-90% non-condensing
Vibration	
0.003g <sup>2</sup> /Hz, 20-2000 Hz, 1 hr/axis	
Shock	x/y axes: 32g; z axis: 20g; 11 ms, half-sine
Air flow	Chassis dependent – consult with factory

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