

Ensemble MTI-104 Quad TI DSP AMC Module

TI DSP RapidIO® Application Development and Deployment

- Advanced performance for baseband development applications
- Robust application development infrastructure
- AdvancedTCA® AMC solution



The Ensemble™ MTI-104 Quad TI DSP AMC module from Mercury Computer Systems is a full-height AdvancedTCA® (ATCA) AMC module that is designed for application development on four Texas Instruments (TI) TCI6482 RapidIO® DSPs, each operating at 1 GHz core frequency. Application developers can immediately optimize their application code with the Quad TI DSP AMC module and get to market faster.

Module Features

The MTI-104 AMC is designed for insertion into any of the four AMC carrier sites on the Ensemble BCC-101 carrier board. The AMC module can be used for either RapidIO or Gigabit Ethernet applications. It has a Gigabit Ethernet switch to communicate among the DSPs, and 1x serial RapidIO infrastructure to each of the DSPs to support high-performance application development. The 1x serial RapidIO fabric connects the DSPs locally and off the AMC.

Each DSP has 64 MB of DDRII memory, running at 500 MB/s (250 MHz clock). A Flash interface is connected to one of the DSPs to bring up the module and then boot the other DSPs. The module comes complete with the necessary IPMI software to remotely power and monitor the board, and to interface with the carrier board and the shelf managers in the ATCA chassis.

The front panel has a set of LEDs to indicate the status of the DSPs. Four IPMI LEDs are provided per the AMC specification. The LEDs are user-programmable to indicate DSP status or to test the infrastructure JTAGs that support programming and debugging of the application on the board.



Figure 1. MTI-104 faceplate

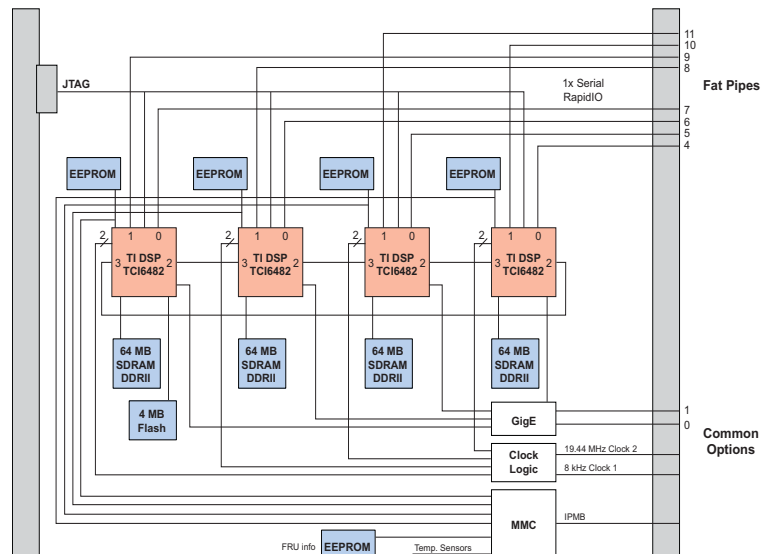


Figure 2. MTI-104 Quad TI AMC Module functional block diagram

Specifications

Four DSP nodes

Texas Instruments TMS320TCI6482 signal processor 1 GHz

Serial RapidIO interfaces

Four 1x serial RapidIO connections
1.25, 2.5, and 3.125 Gbps data rate support

EMIFA – Flash interface (connected on single node only)

4 MB Intel StrataFlash®

DDRII memory support (connected to all four DSPs)

64 MB Infineon® DDRII SDRAM
32 MB ×16-bit
250 MHz clock (1 Gbps data rate)

I²C EEPROM support

Power generation and distribution

12V payload power, 3.3V IPMI power

12V input dc-to-dc modules to supply 1.2V, 1.8V, and 3.3V

Linear regulator for 1.2V and 2.5V

Clock generation and distribution

25 MHz clock input reference for:

TMS320TCI6482 RGMII
TMS320TCI6482 DDRII
BCM5389 Gigabit Ethernet switch
BCM5466R Gigabit Ethernet transceiver

125 MHz clock input reference for TMS320TCI6482 serial RapidIO

50 MHz clock input reference for TMS320TCI6482 core

IPMI peripheral manager

Voltage monitor
Geographical address monitor
Temperature monitors
Power/reset control
DSP EEPROMs
FRU EEPROM
Status LEDs

Test/development

14-pin JTAG/emulator connector

ICT test points

Jumper plugs (configuration changes)

LEDs

Mechanical/dimensions

Compliant to AMC.0, Rev. 1.0

Width 28.96 mm

Depth 28.53 mm

Height 73.81 mm

Supports AMC B+ bays

Full-height AMC
Single-width AMC
B+ edge connector
Supports hot swap

Four front-panel LEDs per AMC.0

Out of service (OOS) LED – red
User LED 2 (LED2) – green
User LED 3 (LED3) – yellow
Hot swap LED (H/S) – blue

Lower ejector handle switch

Hardware address

Software support

DSP/BIOS™
OSEck™ (through third-party)

Environmental

Temperature

Operating 0°C to 55°C at 10,000 ft
Storage -40°C to +85°C

Humidity

Operating 10-90% non-condensing

Vibration

0.003g²/Hz, 20-2000 Hz, 1 hr/axis

Shock

x and y axes: 32g; z axis: 20g; 11 ms, half-sine

Air flow

10 CFM per slot

Power consumption

12V payload power	30W max	20W typical
3.3V management power	0.5W max	0.25W typical

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