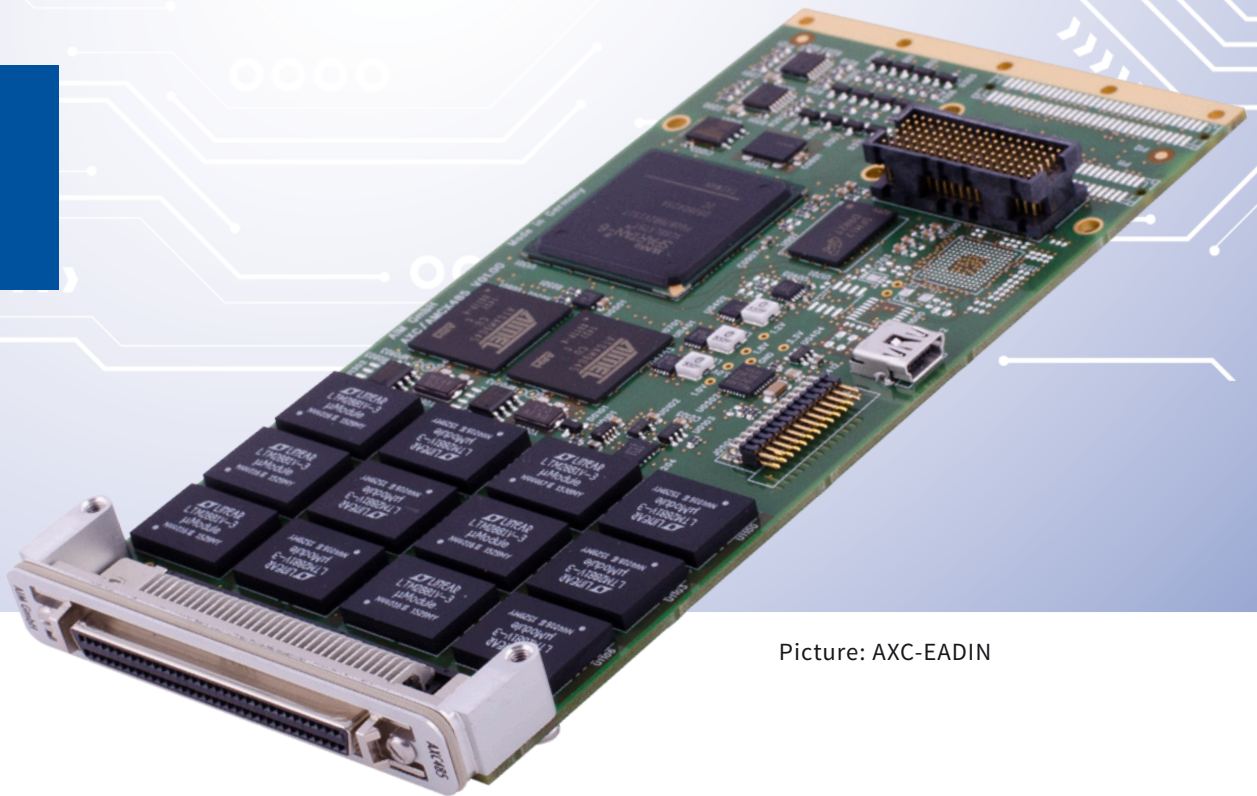# AXC-EADIN

12 Channels
EADIN PCI Express
Mezzanine Card Module for XMC

**Data
Sheet**

Picture: AXC-EADIN

AXC-EADIN

EADIN Test & Simulation

AIM's new family of EADIN XMC and PCIe boards for analysis, test, simulation, verification, and monitoring of EADIN data busses utilize the latest AIM Common Core Hardware for advanced functionality and performance. Combined with optional PBA. pro graphical analysis, simulation, and visualization software and turnkey integrated system level solutions the EADIN series offers the best in class support for standard EADIN data bus test and simulation.

Key Features

- DECWG™ EADIN Draft (03/25/2014) Compliant
- XMC or PCIe cards
- Systems: Small form factor, 1U Rack mount, Rugged Laptop, << other configurations available
- 68-pin D-SUB Female Connector
- 12 Transmit and 12 Receive EADIN Channels
- Galvanic Isolation
- 120Ω Differential Termination, Software controllable
- Individual Channel Configuration for
–Speed
  0.9375, 1.875, 3.75, 7.5, or 10Mbits/sec
–Start/Stop
–Master, Slave, or Monitor
–Half Duplex Mode (via single Tx/Rx pair)
- High performance RISC processors on board
–Host CPU offload for Low CPU utilization
–Real Time Precision and Timing
- DMA Engine for optimized bus transfers and low PCIe bus utilization
- 128MB Global RAM onboard for message data scheduling and buffering
- Flexible and Upgradeable Firmware Design Provides Full control of Obsolescence and Configuration Management
- IRIG-B Input & Output

General Features

The card is a member of AIM's family of PCI Express based XMC-Mezzanine (ANSI/ VITA 42.3) modules targeted for test & simulation EADIN applications.
All cards have the capability to handle up to 12 Transmit and 12 Receive EADIN channels or up to 12 half duplex channels via software control on a channel by channel basis. The board also includes 8 Open/ Ground Avionics Level (+35V) Discrete I/O signals (t.b.c.). An onboard IRIG-B analog time encoder/decoder is included with sinusoidal output and 'free-wheeling' mode for time tag synchronization.

Bus Master

- Initiate Bulk-Unicast Write Memory Request
- Initiate Bulk-Unicast Read Memory Request
- Initiate Atomic-Unicast Write Memory Request
- Initiate EADIN Sub Commands
- Programmable Inter Command Spacing for flexible scheduling per Tx channel
- Response Space maximum of 4 bit times
- Handles Data Field lengths up to a maximum of 256 bytes

Slave

- Receive Bulk/Atomic-Unicast Write Memory Requests
- Respond to Bulk-Unicast Read Memory Request
- Handles Data Field lengths up to a maximum of 256 bytes
- Receive and Handle EADIN Sub Commands

Monitor

- Passive Monitoring of all EADIN traffic incl. Time Stamping 1µs resolution
- Slave Response Time Measurement
- Error Detection

Discrete I/O Signals

The boards provide eight Open/Ground Avionics Level (+35V) Discrete I/O signals. The Discrete I/Os are always operating as inputs. The Output mode of the Discrete I/Os can be explicitly enabled/disabled by the user via software control. An open collector circuitry is used for the discrete output with 4V provided by default by a pull up resistor.

IRIG-B Time Encoder/Decoder

The card supports analog inputs for IRIG-B support. The IRIG-B support conforms to IRIG-B 122 with a resolution of 1µs and a width of 46 bits to support 1 year. The onboard IRIG-B time encoder/decoder with sinusoidal output and 'free-wheeling' mode for time tag synchronization allows synchronization of multiple cards to one common IRIG-B time input source or to the onboard time code generator of one card as the reference for correlation of data to a common time tag.

Software

An Application Programming Interface (API) is provided along with low level 32/64-bit operating system specific drivers for Windows 7/8/10. Please contact your local sales representative for other operating systems. Host applications can be written in C, C++, or C#.

PBA.pro™ is AIM's advanced graphical analysis, simulation, and visualization software for use with AIM's family of high performance avionics test and simulation modules running in Windows or Linux operating systems (contact factory for Linux EADIN support). PBA.pro™ is a powerful yet cost effective solution, covering almost all application needs from a standalone databus analyzer or visualizer tool to a complete systems test bench or advanced avionics integration facility integrating multiple hardware interfaces for EADIN along with other data buses into one stand-alone tool.

Technical Data

System Interface
XMC Single Lane, 2.5Gb/s PCI Express V1.1 compliant; Compliance; ANSI/VITA 42.3-2006

Processors
Two 400MHz RISC Processors

Memory
128MB Global RAM (DDR-RAM)

Electrical Bus Specifications
-7V to +12V line driver, LTM2881 RS485 Transceivers

Time Tagging
46-bit absolute IRIG-B Time stamping with 1µs resolution derived from IRIG-B-122 Input or free-wheeling

Dimensions
149mm x 74mm standard XMC format

Operating Temperature Range
Standard 0°C to +70°C ambient

Storage Temperature Range
-40°C to +85°C

Humidity
0 to 95% non-condensing

▶ **AIM Office Contacts:**

AIM GmbH
Sasbacher Str. 2
D-79111 Freiburg / Germany
Phone +49 (0)761 4 52 29-0
Fax   +49 (0)761 4 52 29-33
sales@aim-online.com

AIM GmbH – Munich Sales Office
Terofalstr. 23a
D-80689 München / Germany
Phone +49 (0)89 70 92 92-92
Fax   +49 (0)89 70 92 92-94
salesgermany@aim-online.com

AIM UK Office
Cressex Enterprise Centre, Lincoln Rd.
High Wycombe, Bucks. HP12 3RB / UK
Phone +44 (0)1494-446844
Fax   +44 (0)1494-449324
salesuk@aim-online.com

AIM USA LLC
Seven Neshaminy Interplex
Suite 211 Trevose, PA 19053
Phone 267-982-2600
Fax   215-645-1580
sales@aim-online.us