

APX-GNET-2/4

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Key Features

- The APX-GNET provides real time Traffic Generation and Traffic Reception on all ports concurrently.
- The 1200MHz Application Support Processor (ASP) provides unique on-module processing functions typically provided by host PC processing systems.
- An on-board IRIG-B time encoder/decoder allows synchronization of multiple AFDX ports using multiple APX-GNET modules.
- The APX-GNET provides either 2 or 4 ports with either an electrical IEEE Std. 802.3ab or an IEEE Std. 802.3z front end.
- The APX-GNET is supplied with an Application Programming Interface (API) and Drivers compatible with Windows and Linux.

General Features

The APX-GNET is AIM's new ultra high performance intelligent PCI-X Bus module offering two or four Ports with full function test, simulation, monitoring and analyzer functions for Gigabit AFDX (Avionics Full Duplex Switched Ethernet/ ARINC664) and Ethernet networks. A new, low power, dual core processor with 2x 1200MHz clock frequency and an internal bandwidth of 12GB/s provides onboard processing capabilities for even the most demanding AFDX and Ethernet applications. For high data throughput up to 4GB DDR2 RAM is accessible for the processors via a 64-bit databus running at 533MHz.

The latest high performance FPGA implementing the customized AFDX/ Ethernet MAC's enables the board to analyze incoming and modify outgoing data in real time. The APX-GNET-2 module provides two Gigabit AFDX/ ARINC664/ Ethernet ports configurable as two single ports or one dual redundant (AFDX/ ARINC664) channel each implementing either an optical (IEEE Std 802.3z/ 1000 Base-SX) or an electrical (IEEE Std 802.3ab/ 1000 Base-T, Twisted Pair/ RJ45) full duplex Ethernet Interface.

The APX-GNET-4 module provides four Gigabit AFDX/ ARINC664/ Ethernet ports configurable as four single ports or two dual redundant channels each implementing either an optical (IEEE Std 802.3z/ 1000 Base-SX) or an electrical (IEEE Std 802.3ab/ 1000 Base-T, Twisted Pair/ RJ45) full duplex Ethernet Interface.

Ports can operate concurrently in Traffic Simulator or Receiver/ Monitor modes with support for AFDX/ ARINC664 port related Frame Statistics. Virtual Link (VL) packetcapturing and monitoring features are complimented with powerful triggering and filtering capabilities.

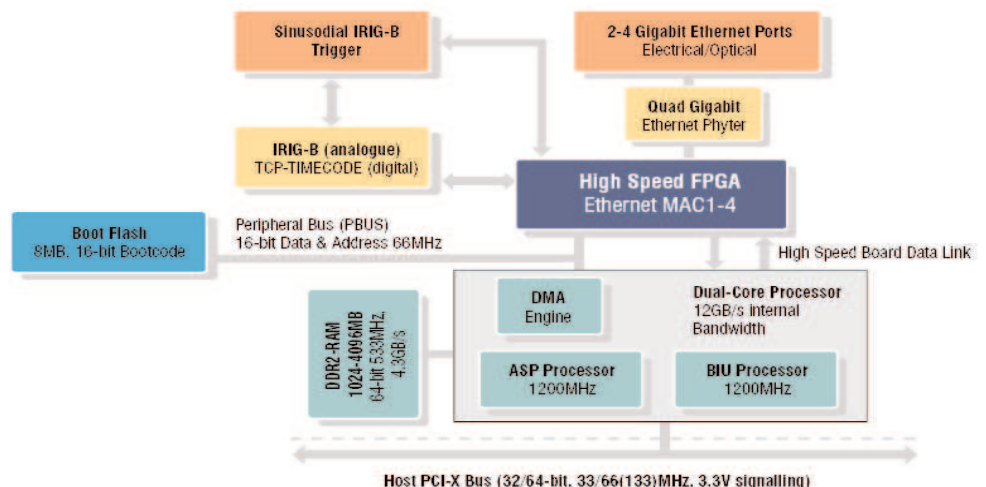
The APX-GNET module uses a new dual core processor design for highest performance. Up to 4GB DDR2 RAM is provided to implement large receive buffers and complex transmit scenarios onboard.

The APX-GNET module is available with following optional software:

- PBA.pro™, the most scalable and flexible application framework focusing on Test, Simulation and Integration under Windows and Linux offering AFDX/ ARINC664 or Standard Ethernet analyzer functionality including decoding of Payload Data
- fdXplorer, the AFDX/ ARINC664 Network analyzer Software for Windows
- ParaView, the Parameter Visualizer Software for Windows
- EasyLOAD-615A, the AFDX/ ARINC664/ Ethernet Dataloader for Windows



APX-GNET Diagram



APX-GNET-2/4



Technical Data

Sub-System Interface:

PCI-X (133) bus 1.0b with up to 1066MB/s of bandwidth. (PCI compatible) 3.3V only

Processors:

Dualcore, 2x 1200MHz RISC Processors

Memory:

up to 4GB DDR2 RAM running at 533MHz

Encoder/Decoder:

Two/ Four Gigabit AFDX specific Ethernet MAC's

Time Tagging:

IRIG-B Time with 100ns resolution

Physical Bus Interface (PBI):

APX-GNET-2 Two full duplex AFDX/ Ethernet ports configurable to one dual-redundant AFDX/ Ethernet channel

APX-GNET-4 Four full duplex AFDX/ Ethernet ports configurable to two dual-redundant AFDX/ Ethernet channels

Connectors:

- PCI-X back plane connector

APX-GNET-2 electrical:

- 2x RJ-45 connector in SFP Module
- 1x 15-way D-SUB connector (female) for Time Code and Trigger I/O
- 1x 16-way board to board connector for Time Code and Trigger I/O (no front connector)

APX-GNET-2 optical:

- 2x Duplex LC connector in SFP Module
- 1x 15-way D-SUB connector (female) for Time Code and Trigger I/O
- 1x 16-way board to board connector for Time Code and Trigger I/O (no front connector)

APX-GNET-4 electrical:

- 4x RJ-45 connector in SFP Module
- 1x 16-way board to board connector for Time Code and Trigger I/O (no front connector)

APX-GNET-4 optical:

- 4x Duplex LC connector in SFP Module
- 1x 16-way board to board connector for Time Code and Trigger I/O (no front connector)

Dimensions:

175mm x 107mm 'short length' Standard PCI Format

Power Consumption:

Appr. 12W (*APX-GNET-2/* operating)

Operating Temp. Range:

Standard: 0°C...+55°C ambient

Storage Temp.

-40°C ... +85°C ambient

Humidity:

0 to 95% non-condensing



Ordering Information

APX-GNET-2-p-m

Two Port PCI-X to Gigabit AFDX/ Ethernet Interface: Traffic Simulator, Receiver and Chronological Monitor; Including IRIG-B Time Encoder/ Decoder

Ordering options:

-**p**: physical front end (**e** = electrical interface or **o** = optical interface)

-**m**: onboard memory option (1GB, 2GB or 4GB)

APX-GNET-4-p-m

Four Port PCI-X to Gigabit AFDX/ Ethernet Interface: Traffic Simulator, Receiver and Chronological Monitor; Including IRIG-B Time Encoder/ Decoder

Ordering options:

-**p**: physical front end (**e** = electrical interface or **o** = optical interface)

-**m**: onboard memory option (2GB or 4GB)
Please contact AIM for further types of optical front end SFP modules.

Electrical SFP



Optical SFP



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APX-GNET-2/4