

fdXTap™

Network Tap for AFDX/ARINC664



Tap into AFDX/ARINC664 Aircraft Networks with AIM's Small and Portable - Mobile Network Monitor

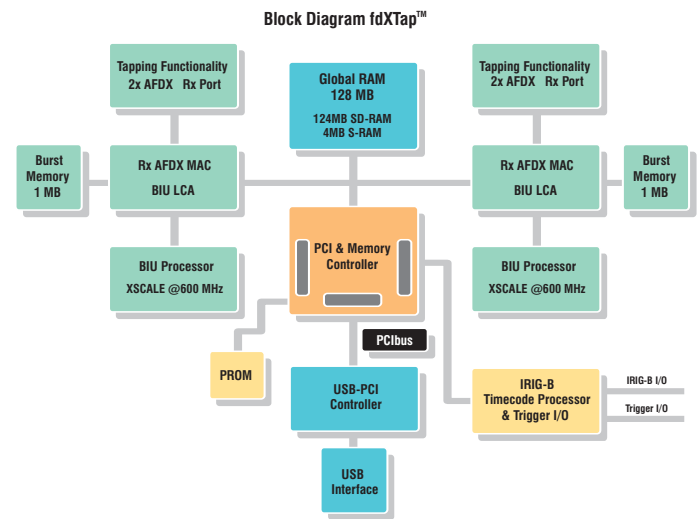
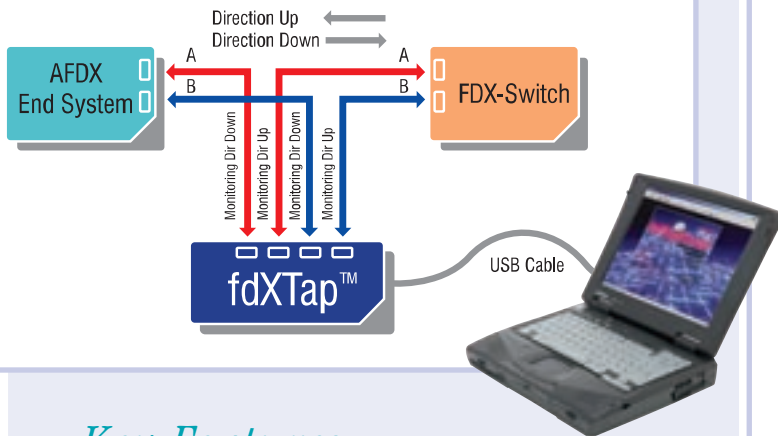
General Features

The new fdXTap™ from AIM is a small easy to use box which connects to a PC via a USB 2.0 high speed interface. The fdXTap™ provides 'Taps' into AFDX or ARINC664 networks to monitor traffic between 'End Systems' and 'Switches'.

The fdXTap™ contains all electronics and connections for the traffic processing, monitoring and filtering data at full wire speeds on up to two full-duplex AFDX / ARINC664 links combined with four receive ports. All this is contained in one small lightweight box which simplifies external cabling and routing.

At the core of the fdXTap™ there are two Bus Interface Units (BIU's) with 600Mhz Xscale Processors and 128MB Global memory. In addition the fdXTap™ incorporates a high precision 'free wheeling' IRIG-B Time Generator /Decoder which outputs a standard amplitude modulated IRIG-B signal.

The fdXTap™ operates in conjunction with the optional fdXplorer, AFDX / ARINC664 Network Analyzer and ParaView, Parameter Visualizer Software for Windows running on a host PC of the user's choice.



Avionics Interface Modules



product guide

Key Features

- Four AFDX / ARINC664 Receiver Ports in One Small Box
- Advanced Trigger and Filtering for Receiver Ports
- AFDX Redundancy Management
- Twin 600MHz Processors
- 128Mbytes of Capture Memory
- IRIG-B Time Code Generator /Decoder
- Fast USB 2.0 Interface to host PC
- Compatible with fdXplorer Network Analyzer Software and ParaView Visualizer



Ethernet MAC

A decoder in each Ethernet MAC receives, analyzes and stores data with a rate up to 100Mbit/sec with the gap between two frames measured to 40ns. Each received frame is time stamped and processed for:

- MAC Header Errors
- IP Header Errors
- Errors on the Physical Layer
- CRC Errors
- Unaligned Byte Errors
- Invalid Symbol Errors
- Size Errors
- IFG Violation

Chronological Monitor

The fdXTap™ provides a Chronological Receive Monitor to sequentially receive frames and store them in a circular buffer. The payload data can be discarded to optimize the use of the buffer for frame capture and analysis. Powerful Filtering, Triggering, Complex Triggering and Capture Modes allow users to select only the frames, data and errors of interest. Monitor Mode also provides activity monitoring and statistics for each VL recorded by the fdXTap™. In addition, it reports the number of frames received and the number of errors detected globally and in VL orientated format.

- VL Orientated Receive and Filtering
- Second level filtering on Generic Frame Parameters
- Chronological Monitor with Time Stamping to 1µs
- Massive on-board Monitor Buffer
- Inter-frame Gap time measurements with 40 nsec resolution
- Comprehensive Triggering / Filtering / Capturing
- Programmable Data Capture Modes - Trace after Trigger & Recording
- Physical Error Detection - CRC, Gap, Size and Alignment
- AFDX Specific Error Detection

UDP/ VL Receive Mode

The fdXTap™ can be configured to work in UDP / VL oriented receive mode. In this mode each UDP port has a separate buffer queue. Received frames are stored with frame headers containing time tag and status information. Frame header information can be stored and payload data optionally discarded for the testing of Switches and the complete network. With the Traffic shaping verification enabled, any violations are reported as errors in related frame headers.

- VL oriented Filtering
- Second Level Filtering on Generic Frame Parameter
- Time Stamping of Received Packets with extended IRIG-B time code (1µs)
- Physical Error detection, Frame Level - CRC, Gap, Size and Alignment
- AFDX Specific Error Detection
- Traffic Shaping Verification
- Verification of MAC, IP and UDP Headers
- VL oriented Integrity Checking

IRIG-B Time Code Generator/ Decoder

A free wheeling IRIG-B Time Code Generator / Decoder with an IRIG-B compatible amplitude modulated sinusoidal output, is included in the fdXTap™ to support 'Multi-Channel' time synchronization on the system level.

- Embedded IRIG-B synchronizes single or multiple fdXTap™ boxes
- Synchronize to an external IRIG-B source

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Technical Data

USB Interface: USB Specification Version 2.0 Compliant (High & Full speed)

Memory: 128MB Global RAM, 2MB Burst Memory

Processor: Two 600 MHz RISC Processors

Decoder: Two AFDX/ ARINC664 Decoders with Error detection:

- CRC Error
- AFDX/ ARINC664 MAC Header Errors
- AFDX/ ARINC664 IP Header Errors
- Physical Bus Errors (Invalid Symbol)
- Unaligned Byte
- Size Errors
- IFG violation

Time Tagging: 46 bit absolute IRIG-B Time with 1µsec resolution, implementing a free wheeling IRIG-B decoder and standard amplitude modulated IRIG-B Encoder.

Connectors:

- 4 x RJ45 standard Ethernet connectors
- 1 x 15 way D-Sub (female) for IRIG-B Time Code and Trigger
- DC Power Input with miniature power jack connector
- DC Power Input via standard PS-2 connector

Dimensions: 30mm (H) x 100mm (W) X 140mm (D)

Power Supply: Requires external power from:

- 5-9 VDC Input (external power adaptor provided - 220/240VAC, 50Hz)
- Or
- 5 VDC Input from a PC via the PS-2 connector (cable provided)

Operating

Temp Range:

- Standard 0 to +55 C
- Extended -15 to +60 C

Storage Temp: -40 to +85 C

Humidity: 0 to 95% (non condensing)

Weight: Approx. 300g (fdXTap™ box only)

Ordering Information

fdXTap™ Four Port AFDX/ ARINC664 Mobile Network Monitoring Box (includes external AC to DC power adaptor and cross cables)

fdXplorer-M4: AFDX/ARINC664, Monitoring Only Analyzer Package for four ports: Executable Code for Windows 98/NT/2000/XP