New Product!

AVIONICS INTERFACE TECHNOLOGIES
A Teradyne Company

UXI-FC4

Dual-Port Fibre Channel Simulator/Analyzer Test Instrument for USB & Ethernet

OVERVIEW

The UXI-FC4 is a two port, multi-function, high peformance intelligent Fibre Channel test instrument offering both data generation/simulation and monitor/analyzer functions supporting simlation, test verification, and data aquistion applications for avionics fibre channel networks. The UXI-FC4 supports multiple avionics protocols inlcuding ASM, RDMA, ARINC 818, and FC-AE-1553/HS-1760.

AIT's UXI-FC4 is the most flexible and high performance instrument of it's class in the avionics test and simulation industry. It provides support for both USB 3 and Ethernet (10/100/1000) connectivity to the host system and can also be powered from either it's USB or Ethernet (POE) interface.

UXI-FC4 Instrument

DUAL-PORT CHRONOLOGICAL MONITOR/ ANALYZER

- Monitor functions allow for data to be captured and archived to host PC storage mediums, and provide statistics for receive stream status
- Analyzer functionality builds on the monitor function by providing powerful triggers and filters to capture pertinent data before and after defined events
- Precision time stamping of captured data with 10ns resolution
- Live capture and current value monitoring
- Allows simultaneous capture of two receive data streams on separate ports, which may also be archived to Host PC storage mediums
- Analyzer allows multiple triggers (including external triggers) to define when capture is to begin, and filters to define what data is to be captured or replayed

DUAL-PORT DATA GENERATOR/SIMULATOR

- Data Generator provides creation of Fibre Channel transmit primitives/frames using data generation algorithms to saturate Fibre Channel line rates
- Error injection on any frame header or payload parameter
- Hardware Replay of recorded data with precision timing or corrected protocol timing
- Provides data generation at full line rates on any Fibre Channel architectural level (FC-1, FC-2, FC-4)
- Allows complete control of the transmit side of a Fibre Channel link including: frame content (header and payload), timing, sequence, frame gaps, fill words and other legal primitives, as well as illegal 40-bit codes
- Data generator functions include random, incrementing, decrementing, or custom-defined data
- Four generator output queues available for transmission, each with a pre-emptive degree of priority
- User-defined simulation can be triggered by any receive stream characteristic including: frame content, timing, sequence, and/or frame gaps

KEY FEATURES

- Multi-topology support including point-to-point, fabric switched, and arbitrated loop
- Supports standard 1.0625, 2.125, and/or 4.25 Gigabaud transfer rates
- Supports non-standard clock frequencies ranging from 1.0625 up to 4.25 Gigabaud
- Independent port speed settings
- Time Synchronization to IRIG-B and IEEE 1588
- Full line rate Data Capture plus Streaming Archive
- Hardware Replay from Data Capture file
- In-line port configuration provides the capability to monitor the receive data stream and reroute to the other port without "disturbing" the data stream
- Windows, Linux, and LabView device drivers
- fcXplorer & Cipher Windows-based FC Simulator and Analyzer Test Software

UXI-FC4 Operated from Laptop PC

Preliminary Datasheet

Advanced Features & Functionality to Support the Most Demanding Avionics Fibre Channel Test & Simulation Applications

TRIGGERS AND FILTERS

- Trigger modules provide mechanism for trigger/filter, including:
  - Ordered set or Frame delimiter
  - Frame Header or Payload (up to an entire frame on which to trigger)
  - FC1/FC2 errors
  - External triggers or triggers from another port
  - Expiration of a timer trigger module
  - Counting events from other trigger modules (listed above)
- Internal sequencers allow the user complete flexibility to define the events and the sequence of events that must occur to trigger the start of capture
- Output triggers are available for trigger signal output via the external connector (multiple modules may share these triggers between ports)

LIVE CAPTURE AND CURRENT VALUE MONITORING

Access captured data in real-time —

- Immediate access to captured data buffers (prior to monitor buffer full event) allows the user's application to access "Live" capture data for use in a real-time display of captured data in a chronological format.
- The internal sequencer FIFO allows the application to be provided with monitor buffer offsets for immediate access to individual locations within a receive frame. This feature allows the user to easily generate "Current Value Tables" for critical parameters in the receive data stream.

FIBRE CHANNEL UPPER LAYER PROTOCOL SUPPORT

- FC-AE-ASM
- FC-AE-RDMA
- FC-AE 1553
- FC-AV
- ARINC-818
- MIL-STD-1760E (HS1760)
- SAE Profiles —AS5653, AS5725, AS5726

COMPREHENSIVE SOFTWARE SUPPORT

The UXI-FC4 can be used in combination with AIT's fcXplorer Fibre Channel Simulator & Analyzer Test Software and also with Cipher, AIT's Network Protocol Analyzer application. Additionally, users can control the instrument from their own applications software by utilizing the AIT Fibre Channel SDK which provides a C/C++ API.

UXI-FC4-4GB

Dual Port Fibre Channel Simulyzer (Simulator AND Monitor) instrument with 4GB RAM. USB 3 & 10/100/1000 Ethernet LAN Host Interface. IRIG-B & IEEE-1588.

UXI-FC4SF-4GB

Dual Port Fibre Channel Single Function (Simulator OR Monitor) instrument with 4GB RAM. USB 3 & 10/100/1000 Ethernet LAN Host Interface. IRIG-B & IEEE-1588.

UXI-FC4-4GB-NIC

Dual Port Fibre Channel ASM Network Interface Module with 4GB RAM. USB 3 & 10/100/1000 Ethernet LAN Host Interface. IRIG-B & IEEE-1588.

TECHNICAL SPECIFICATIONS

System Interface	USB2.0/USB3.0/USB3.1 Gen 1/USB3.2 Gen 1x1 (USB-C Connector) 10/100/1000 BASE-T Ethernet LAN
Memory/Storage	4GB RAM (For On Board Processing System) 8GB Non-Volatile Storage
Fibre Channel Interface	From 1.0625 Gbps to 4.24 Gbps (custom, non-Fibre Channel based speeds allowed)
Time Tagging	Clock synchronization to IRIG-B or IEEE 1588, 10ns resolution on capture data timestamps.
Connectors	USB-C, Ethernet RJ45 Socket (2) SFP sockets accepting either copper or fibre optic transceivers Micro DB15 connector for Triggers and IRIG.
Dimensions	15.5cm X 8.5cm X 2.5cm 6.1in X 3.35in X 0.98in
Power Input	PoE+ or USB-PD
Power Consumption	TBD
Operating Temp.	-40° C...+85° C ambient
Storage Temperature	-40° C...+85° C ambient
Humidity	0 to 95% noncondensing

UXI-FC4 Rear Panel

Preliminary Datasheet

Avionics Interface Technologies | 14769 California Street, Omaha, NE 68154 | +1.402.763.9644 | sales@aviftech.com | aviftech.com