



## AFDX Solutions

### ***One Architecture. Many Products. Multiple Protocols.***

Absolute Analysis Investigator™ features the most flexible, scalable and versatile instrument for protocol test and verification. The architecture is extensible to support multiple protocols and multiple test applications to meet the expanding requirements of various network topologies.

## Avionics Full Duplex Switch Ethernet (AFDX) Protocol Analyzer

### **Powerful. Efficient. Flexible.**

Investigator™ AFDX Protocol Analyzer provides the most powerful and granular triggers and filters ever developed. Investigator's efficient pre-filter memory management permits data capture over lengthy periods of time, while intuitive application software presents data in easily understood graphical and tabular display formats.

### **Trace Viewer and Statistics**

Documented trace files can be shared, filtered and studied with ease using our freely distributable Trace Viewer software. A real time statistics module provides bookmarks, search, and tabular or graphical displays of link captures to further enhance Investigator's reputation for unrivalled flexibility, power and ease of use in high-speed data capture, decode and analysis.

### **Interface, Analysis & Test Support**

Investigator™ AFDX Protocol Analyzer supports network interfaces capable of full-line rate, multi-channel and multiple protocol testing. Investigator™ hardware supports analysis, traffic generation, statistics, impairment test, and BERT for both copper and optical interface connections.

### **Expand and Customize**

State-of-the-art FPGA technology is leveraged to facilitate flexibility and protect capital investments, while providing continued capabilities for development and support. User extendable Trace Buffer memory enables the Investigator™ system to be expanded to meet individual requirements.

### **Compatible Configuration**

All Investigator™ features are fully unified under one architecture, making it easy to expand to meet future needs, whatever they may be. Multi-channel configurations support up to 32 independent ports of testing, with mixed protocol configurations also supported. Protocol analyzers feature time correlated views with cross-card triggering for channel synchronization, with each port able to sustain full-line rate data transfers of all supported protocols and devices.

### **Protocol Analyzer Features**

- ◆ Supporting standard AFDX speeds such as 10/100/1000/10000, but also non-standard such as 2.5 Gbps AFDX
- ◆ Simple intuitive GUI — capture and display data in just two mouse clicks
- ◆ Concurrent 100% true line rate traffic generation and capture
- ◆ Share, filter and study trace files using standalone viewer software (freely distributable)
- ◆ Isolate problems quickly using automatic decodes of iSCSI, IP, TCP, UDP, and proprietary protocol frames
- ◆ Capture only key events using multi-level, multi-channel triggers and filters
- ◆ Real time display of statistical data in customizable tabular and chart formats
- ◆ Time correlated analysis on up to 32 simultaneous ports of any supported protocol
- ◆ 1GB Trace Memory per port
- ◆ Multi-protocol capable hardware
- ◆ Copper and optical interface support
- ◆ External triggering input and output

# Investigator™ AFDX Protocol Analyzer

## Data Capture

Capture 100% of data at full line rate and in raw 10-bit format, and stop with “buffer full” or “buffer wrap” options. Captured traces can be viewed on any Windows PC using a standalone viewer. The hardware compression algorithm makes efficient use of trace memory resources. Network topology can be displayed through analysis of captured traces.

## Triggering

- ◆ Multi-level triggering
- ◆ Trigger on multiple consecutive events on, or across, all channels
- ◆ Select from a list of predefined trigger events
- ◆ State machine “loop sequence” triggering
- ◆ Re-arm trigger if condition is not met
- ◆ Independent channel triggers

## Upper Layer Protocol (ULP) Support

- ◆ iSCSI, IP, TCP, and UDP protocol suites provided as standard
- ◆ Supports sequential and direct access devices
- ◆ Automatic decodes for iSCSI, IP, TCP, and UDP and many other upper layer protocols
- ◆ Add new and proprietary protocols using Protocol Editor option

## Alarm Feature

- ◆ User definable alarms for link utilization, frames and bytes
- ◆ Ability to set high and low limits
- ◆ Ability to set alarms on all statistical data

## Test Configuration: Library

Build and save away custom trigger, filter and capture configurations to server.

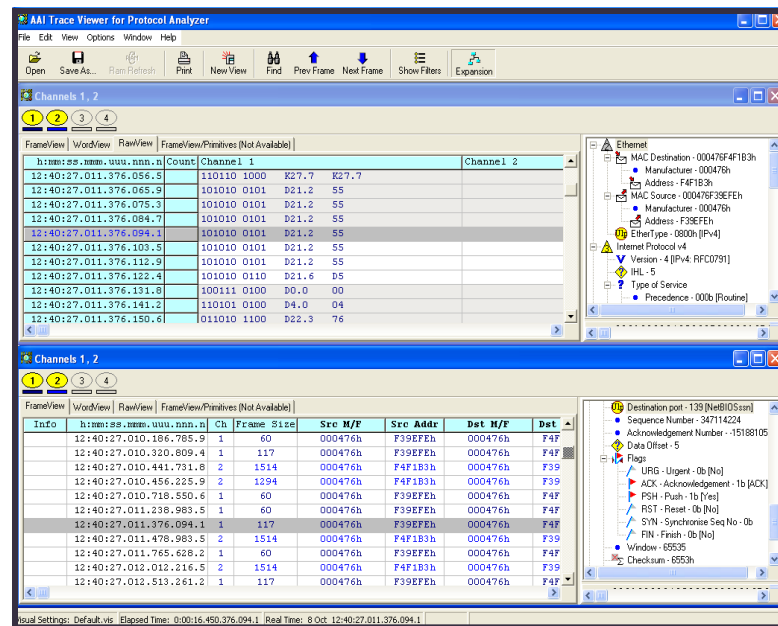
## Search Facilities

- ◆ Find next and previous frames
- ◆ Go to and create bookmarks
- ◆ Search for source or destination address
- ◆ Search for any data within a frame
- ◆ Library of predefined search items
- ◆ Find trigger events

## Data Display Formats

- ◆ Raw, 8B/10B, hexadecimal, and frame modes
- ◆ Detailed decode of each frame down to individual bit level
- ◆ Highly configurable trace display with color coded channel data
- ◆ Independent or merged channel views

### Filter. View. Identify.



Bookmark  
Disseminate  
Share  
Identify  
Resolve

### Trigger. Decode. Test.



Link status and utilization  
Frames transmitted  
Bytes transmitted  
Frames transmitted by size

# Additional Investigator™ AFDX Solutions

## Traffic Generator

The AFDX Traffic Generator allows the user to generate AFDX traffic into a Device Under Test (DUT) with complete control over the timing and content of the data. Valid and invalid traffic streams can be defined to test device error recovery. The traffic generator's ability to maintain full-line rate traffic, even across multiple links, allows device performance to be measured and operation under stress to be characterized.

## Impairment Tester

The AFDX Impairment tester simulates the delay caused by long cable runs without the inconvenience and cost of testing using multiple lengths of actual cable. Using the Impairment Tester allows the effects of latency on application performance and flow control to be measured.

## Bit Error Rate Tester

The AFDX Bit Error Rate Tester (BERT) allows the user to send both framed and unframed bit error rate test patterns through a AFDX link to test its ability to reliably transport data between the transmitter and the receiver. Several standard test patterns are available and user-defined test patterns are supported.

## API Library

The AFDX Library API is a 'C' API that provides the user with programmatic control over all the Investigator™ tools. Using the API Library, the user can write custom applications that function over the platform or create code for test automation.

## Network Connections

The AFDX physical layer has multiple physical layer options. The Investigator™ platform supports Small Form Factor Pluggable modules (SFP's) to allow the user to easily switch between various optical and copper physical layers. Passive optical taps are also available where the circumstances dictate that the insertion of the test tool cannot disrupt the network traffic. (Protocol Analysis only.)

## Platforms and Configurations

Absolute Analysis Investigator™ AFDX Analyzers are available in several platforms ranging from highly portable notebooks to high port count rack mounts.

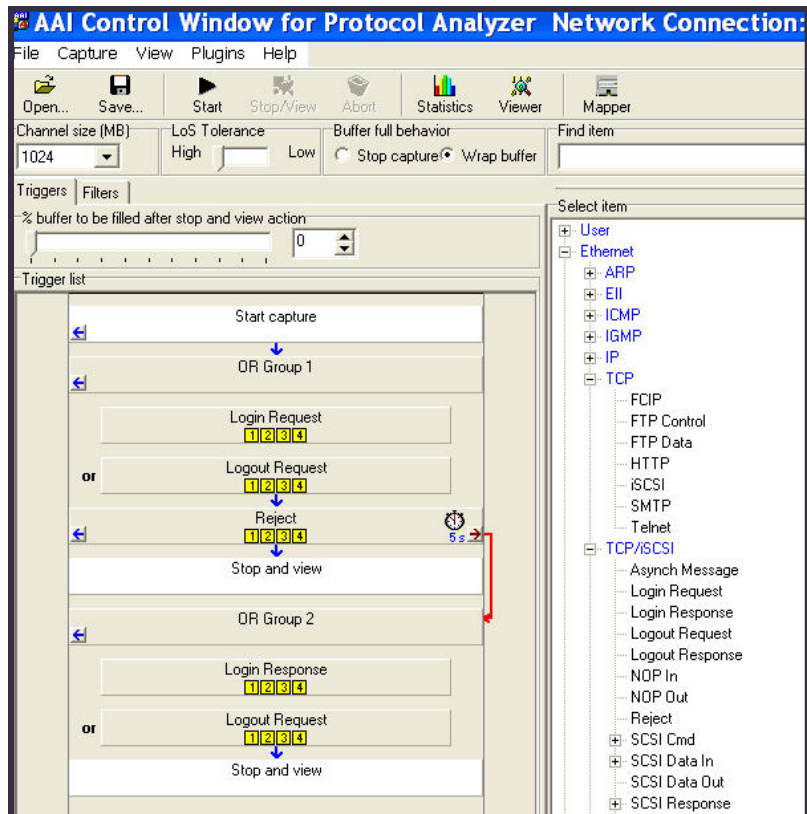
## Training

Absolute Analysis provides comprehensive training courses for products and protocols. Training can be provided at your location or remotely, and can be customized to your requirements.

## Service and Support

Absolute Analysis provides unsurpassed service to all Investigator™ users including remote diagnostics, extended warranties and upgrade paths to current offerings from any Investigator™ system.

### Capture. Control. Analyze.



Filter on source or destination address

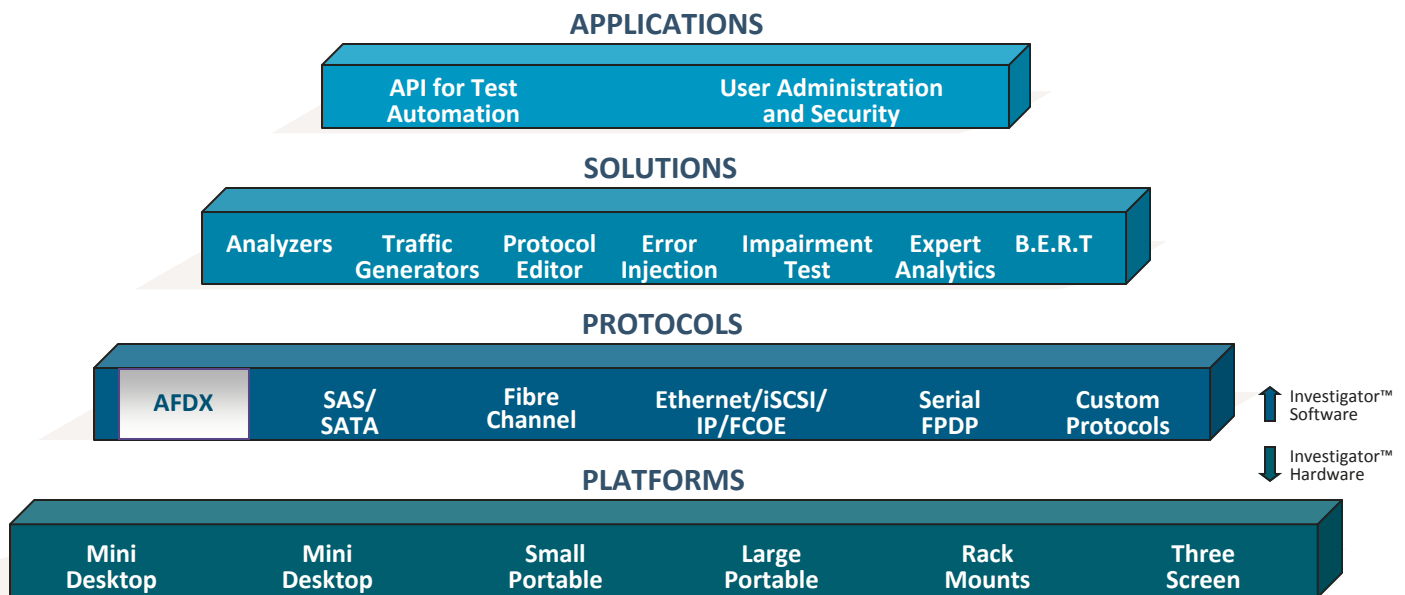
Combine multiple features

Filter on primitives, frame headers or content

# Absolute Analysis Investigator™ Protocol Testing Solutions

Absolute Analysis Investigator™ has been designed from the ground up to be a multi-speed, multi-protocol, multi-function test platform. Investigator™ is used in the development, qualification, manufacturing and support of equipment with external or embedded communications interfaces. These communications interfaces can be based on industry standards or Investigator™ can also be customized to support non-standard interfaces and protocols.

## Absolute Analysis Investigator™ Architecture



### For More Information

Phone	Email	Web	Address
805.376.6048	AASales@absoluteanalysis.com	www.absoluteanalysis.com	2393 Teller Road, Suite 109 Newbury Park, CA 91320



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