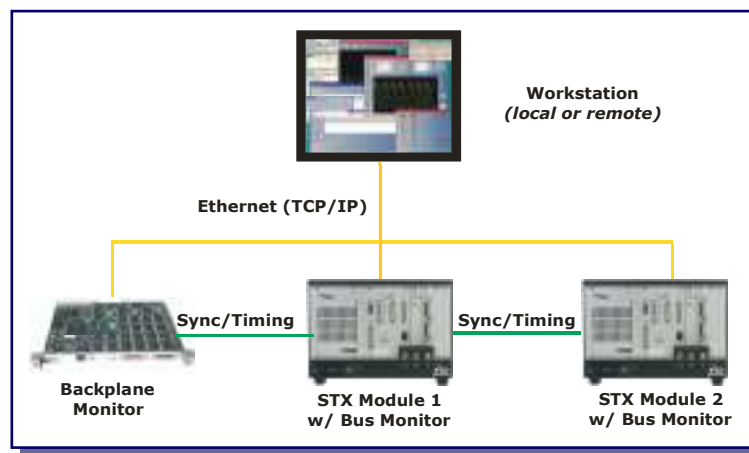


SystemTrace®

Platform Overview

Applications:

- Software Test & Evaluation
- System Integration
- Maintenance
- Performance Monitoring
- Operational Test (Land, Sea, Air)
- Mission Monitoring
- Diagnostics/ Prognostics



SystemTrace Platform Functional Diagram

System Overview

SystemTrace® STX provides a scalable, reconfigurable platform for instrumentation of system data streams. It is based on a network-centric architecture combining unified controls, timing, and trigger features that provide seamless integration of multiple instrumentation modules. SystemTrace uses Real-Time Non-Intrusive (RTNI) data monitoring techniques. The act of monitoring does not affect system operation. Data Collected from key data stream points are Time-Correlated so that dependencies among system elements can be observed.

The SystemTrace STX architecture consists of a PC Workstation, a Communications Network and one or more instrumentation Modules. The SystemTrace workstation is a Windows® PC with the SystemTrace Graphical User Interface (GUI) that provides configuration, control, and data analysis. The communications network provides an Ethernet interface between the instrument modules and the workstation.

Instrumentation modules are the central component of SystemTrace. Multiple modules can be distributed throughout the system under test. Modules consist of all the functional elements necessary to attach to the data stream under test. When multiple data streams are being simultaneously monitored, the modules' Trigger Sync Logic allows precise time-correlation of collected data, as well as triggering across multiple units.

Graphical User Interface (GUI)

The software interface allows users to:

- Select specific Modules for a test
- Define Data Bus Symbols
- Define data collection scenarios
- Define actions to take based on monitored "events"
- Retrieve or discard the collected data
- View selected segments of the data collected during test runs
- Analyze and present data in graphical or table format
- Prepare reports



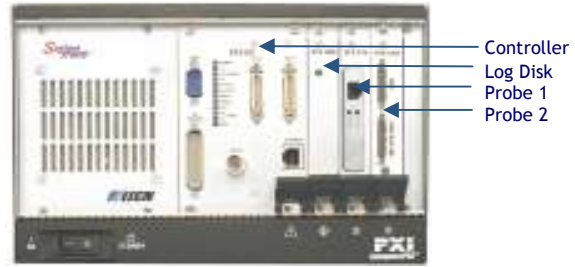
SystemTrace User Interface

Modules

Modules consist of the following components:

- STX Chassis
- STX Embedded Controller
- STX Log Disk
- STX Bus Probe

Each STX Chassis may contain up to two Data Probes.



SystemTrace Chassis and Modules

STX Controller

The STX Controller provides embedded computing, Ethernet communications, Trigger-Sync Logic (TSL), and IRIG time input. The Controller's TSL logic senses the connection of other Modules and automatically arbitrates for Time controller rights. If a Module is connected to an IRIG source, it is automatically the time master.

In addition to time synchronization, TSL logic provides four Event triggers that may be used to trigger other Modules and Probes upon the detection of specified data and monitor states. The TSL bus also carries a unified "start" line that commands the start of data collection to all connected Modules.

Probes

Probes provide a specific physical connection and protocol interpreter for the data stream under test. Each Probe receives time synchronization from the module controller, and then time-tags data before storing it. Probes may store data in one of two methods: to a Trace Buffer that varies in size, or to the STX Log Disk. Some Probes may contain an additional parallel History buffer for capturing unfiltered data. A probe can be programmed to monitor specific data collection scenarios. Each Probe can capture events at real-time speed in the memory buffer, and can maintain a capture rate of 750,000 events per second.

Communication Network

The Communication Network provides data transport between the Workstation and attached SystemTrace® Modules. The Network is 10/100 Base-T using TCP/IP.

Features

- Time-correlated, RTNI heterogeneous data collection
- Simultaneous monitoring of multiple data streams
- Modular, distributed architecture
- Long-term data acquisition storage
- Setup and control via Ethernet TCP/IP
- Common GUI for all data
- Cross-Module triggering
- Run-time data displays
- Bus Health/ Loading statistics
- Complex state machine, triggers and filters
- Programmable data collection scenarios
- Multiple scenarios per session

Benefits

- Improved analysis through system-wide correlation
- Accurate results through RTNI monitoring
- Costs are reduced because SystemTrace supports the entire life-cycle of the embedded system
- Save training time and investment through its common interface for all targets
- Observation time is increased and analysis time is decreased by collecting only "data of interest"
- Scalable architecture can grow or shrink to support changing requirements
- Remote monitoring capability adds convenience, and saves time and money

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591 Congress Park Dr., Dayton OH 45459
800-439-4039, 937-439-9223, sales@itcninc.com

