

NI LabVIEW Execution Trace Toolkit

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- Create trace sessions of applications running on LabVIEW Real-Time targets
- Programmatically send sessions to host system or save to file
- Visualize detailed thread and VI execution
- Precisely measure VI execution times with nanosecond accuracy
- Identify memory allocation, sleep spans, and resource contention
- Create custom event flags for application-specific analysis
- Print trace sessions for documentation and code reviews

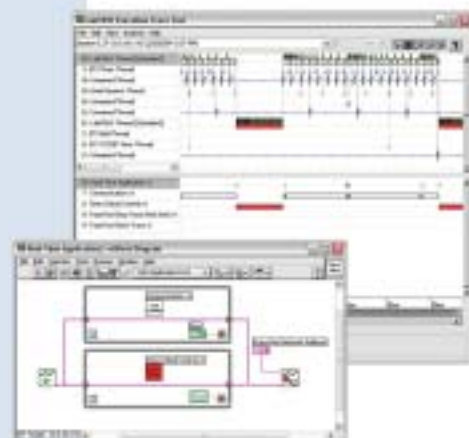
LabVIEW Real-Time Target Compatibility:

- PXI
- Desktop PC running ETS
- Compact FieldPoint
- FieldPoint
- Compact Vision System
- PCI-7041/6040E

(Host) Machine Operating Systems

- Windows 2000/NT/XP

NEW



Overview

The National Instruments LabVIEW Execution Trace Toolkit offers low-level visibility into applications running on LabVIEW Real-Time targets, including NI PXI controllers, NI Real-Time PCI Plug-in board, NI Compact FieldPoint controllers, NI Compact Vision Systems, and certified desktop PCs. Using this toolkit, engineers view and analyze the execution trace of real-time tasks including VI and operating system threads. This functionality is critical for optimizing and debugging real-time applications because you can easily identify sources of jitter such as memory allocations, priority inversions, or race conditions.

Interactive Trace Analysis

Once a trace session is captured, you can use interactive tools for zooming into and out of the trace to view the precise microsecond characteristics of the execution of your application. You can also use cursors to measure execution times of VIs and threads. By making these measurements, you can better measure jitter and understand how consistently your application is executing. Additionally, the LabVIEW Execution Trace Toolkit makes it easy to identify thread priority because each VI and thread priority is denoted by a unique color.

Programmatically Control Trace Sessions

To use the LabVIEW Execution Trace Toolkit, simply add a Start Trace VI and Stop Trace and Send VI to your application. Once the Start Trace VI is called, every VI and thread event is logged until the Stop Trace and Send VI is called. Once the application is finished executing the session is sent to a host machine where the session is viewed by the LabVIEW Execution Trace Tool.

Low-Level Analysis and Event Monitoring

The Execution Trace Toolkit has built-in tools for analyzing and



VI and thread events are sent to the host for viewing

monitoring events on your real-time target. You can use flags to denote a variety of low level execution behaviors including:

- Sleeping of high priority threads so that lower level tasks can execute
- Waiting on execution of other tasks to execute which can expose jitter sources such as resource contention
- Threads accessing the memory manager
- User-defined events for monitoring system execution

Instant Documentation of Application Execution

Each trace created with the LabVIEW Execution Trace Toolkit is printable for easy documentation of application execution. By documenting your code execution, you can certify your code and include execution specs in reports and code reviews. Additionally, you can save the trace to view at a later time or with another PC.

Ordering Information

NI LabVIEW Execution Trace Toolkit*778915-03

*Requires use of a LabVIEW Real-Time Target and a LabVIEW development system for Windows

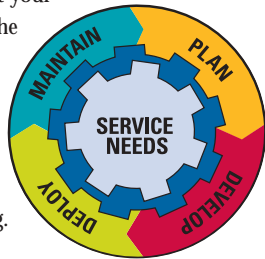
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