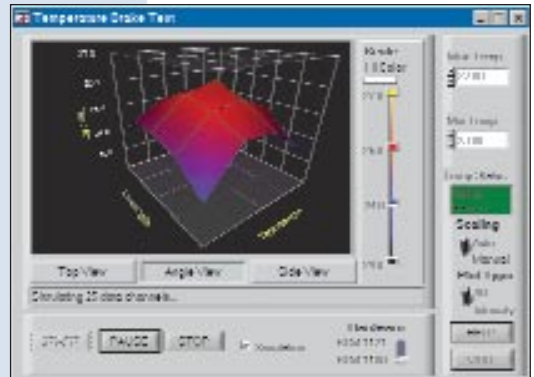


LabWindows/CVI – Development Tools for ANSI C

NI LabWindows/CVI

- Fully integrated workspace
 - Integrated ANSI C development environment
 - Built-in measurement libraries for I/O, analysis, and presentation
 - Interactive user interface, instrument drivers, and code creation
 - Advanced ActiveX and multithreaded capabilities
- Open system architecture
 - Innovative task creation and code generation
 - Vision development
 - Signal processing
 - Comprehensive debugging tools

Operating Systems
Windows 2000/NT(SP6)/XP



LabWindows/CVI

A History of Innovation

August 2003	Fully Integrated Workspace/Enhanced Hardware Support • Version 7.0
August 2001	ActiveX/Improved Presentation • Version 6.0
February 2000	Multithreaded Libraries/Debugging • Version 5.5
March 1998	VXIplug&play and IVI Compatibility • Version 5.0
May 1996	External C/C++ Compiler Compatibility • Version 4.0
July 1995	Automatic Program Generation • Version 3.1
March 1994	Multiplatform for Windows and Sun • Version 3.0 for DOS
April 1991	GUI Tools and Memory Extender • Version 2.0 for DOS
January 1989	Introduction • LabWindows 1.0 for DOS

Figure 1. LabWindows/CVI began a history of innovation in 1987 and has grown from DOS to Microsoft Windows XP. During this evolution, NI continues to maintain easy migration and backward compatibility.

Overview

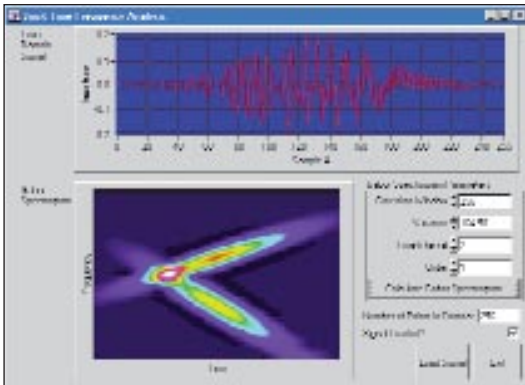
National Instruments LabWindows/CVI is a proven test and measurement ANSI C development environment that increases the productivity of engineers and scientists. NI LabWindows/CVI streamlines development with robust debugging, DAQ Assistant, Instrument I/O Assistant, built-in libraries to simplify multithreading, and interactive execution to run functions at design time. By integrating ActiveX controls and standard ANSI C modules into LabWindows/CVI applications, you can reuse components for advanced development. The flexibility and customization of LabWindows/CVI optimizes test and measurement applications through acquisition, analysis, and presentation.

A variety of industries use LabWindows/CVI, including military and defense, manufacturing, telecommunications, and aerospace. Whether you are measuring network transmitter signal strength or developing a telecom manufacturing test system, NI virtual instrumentation and LabWindows/CVI can help you achieve your goals – faster, better, and under budget.

Features

LabWindows/CVI is a fully integrated development environment for building measurement systems based on DAQ, GPIB, PXI, VXI, serial, and Ethernet-based devices. LabWindows/CVI combines an interactive development approach with the programming power and flexibility of compiled ANSI C code. The interactive development tools and libraries are specifically designed for developers of automated test systems, benchtop experiments, DAQ monitoring projects, verification tests, and control systems.

LabWindows/CVI Modules and Add-On Tools



Signal Processing Toolset

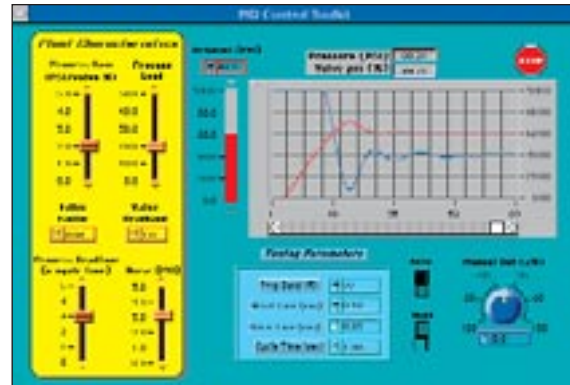
With the LabWindows/CVI Signal Processing Toolset, you can build software to analyze and process signals that include transient (short duration) components. Functions packaged as 32-bit DLLs are available through standard LabWindows/CVI function panels. With these functions, you can design and use wavelet-based filter banks, model-based (super-resolution) spectral analysis, joint time-frequency analysis (JTFA), and digital filters.

IVI Driver Toolset

Instrument drivers are an integral component in modern automated test systems. They perform the communication and control of the instrument hardware in the system, as well as providing a high-level and easy-to-use programming model that turns complex instrument measurement capabilities into simple software function calls.

Interchangeable Virtual Instruments, or IVI, is a standard for instrument driver software technology. IVI builds on the *VXIplug&play* specifications and incorporates new features that address issues such as system performance, development flexibility, and instrument interchangeability. IVI drivers also take advantage of the power of the VISA I/O library defined by *VXIplug&play* to seamlessly communicate with instruments across different I/O buses such as GPIB, VXI, PXI, Serial, Ethernet, and USB.

- Standard class and instrument-specific drivers
- Advanced debugging capabilities
- Advanced instrument simulation capabilities
- Executable soft front panels
- Interchangeable virtual instruments (IVI)



PID Control Toolkit

The PID Control Toolkit adds sophisticated control algorithms to LabWindows/CVI. With this package, you can quickly build data acquisition and control systems for your own control application. By combining the PID Control Toolkit with the math and logic functions in LabWindows/CVI, you can quickly develop process control applications.

With the PID control tools, you also can add advanced process control algorithms to your application. In addition to implementing the standard PID algorithm, these tools include the Autotuning Wizard to help you optimize the PID parameters for your specific system. You can use PID tools with any kind of physical input and output options, including DAQ devices and PLCs.

LabWindows/CVI Ordering Information

Full Development System

The LabWindows/CVI Full Development System (FDS) provides everything you need to develop powerful measurement applications. The FDS adds report generation capabilities; advanced analysis capabilities such as curve fitting, signal processing, signal generation, and filtering; NI Measurement Studio – add-in components for Microsoft Visual Studio; and the Windows Software Development Kit (SDK) to the LabWindows/CVI Base Package features.

Base Package

The Base Package includes libraries for acquisition, instrumentation, user interface development, and base analysis. The package also has 3D graphing optimized with OpenGL and the simplified network and Web functionality of DataSocket for developing distributed virtual instrumentation systems.

NI Developer Suite

NI Developer Suite is a subscription program that includes the software tools you need to build a complete measurement system. From making measurements to analyzing and presenting results, NI Developer Suite brings you the latest industry-standard software and provides you with regular quarterly updates of NI application and driver software as well as other software resources to keep you up to date with the very latest development tools.

NI TestStand

National Instruments TestStand 3.0 reduces test development time and simplifies maintenance. National Instruments designed TestStand to automate a wide variety of test systems. Out of the box, TestStand is a ready-to-run test executive that organizes, controls, and executes your automated prototype, validation, or production test systems.

LabWindows/CVI Development Packages

	Base Package	Full Development System
User Interface Controls	✓	✓
Instrument Control	✓	✓
Data Acquisition	✓	✓
IVI Driver connectivity	✓	✓
3D Visualization	✓	✓
Networking Tools (DataSocket)	✓	✓
ActiveX capabilities	✓	✓
Statistics	✓	✓
DAQ Assistant	✓	✓
Instrument I/O Assistant	✓	✓
XML capabilities	✓	✓
LabVIEW Real-Time connectivity	✓	✓
NI TestStand Integration	✓	✓
Curve Fitting		✓
Signal Processing		✓
Signal Generation		✓
Report Generation		✓
Filtering		✓
Windowing		✓
Windows Software Development Kit		✓
NI Measurement Studio for Microsoft Visual Studio		✓

Services and Support

As a complement to your LabWindows/CVI product, consider the following options:

LabWindows/CVI Software Subscription Program (SSP) – Software upgrades and priority support for one year – ni.com/ssp

Technical Support – FREE through Applications Engineers worldwide, Web resources, and Premier Support – ni.com/support

LabWindows/CVI Training – Instructor-led courses – ni.com/training

Professional Services – Feasibility, consulting, and integration through our Alliance Program members – ni.com/alliance

For more information about NI services and support, visit ni.com/services

Ordering Information

NI LabWindows/CVI for Windows 2000/NT (SP6)/XP

Development systems	
Full Development System	776800-03
Base Package	776801-03
Vision Development Module	777860-03
Add-on tools	
Enterprise Connectivity Toolset	777875-03
Signal Processing Toolset	777136-01
PID Control Toolkit	776991-01
IVI Driver Toolset	777855-03
SPC Toolkit	777209-01
Software subscription service	930001-02

NI Developer Suite offers many of these products bundled with other NI software tailored for test or control applications. See page 39 for more information.

NI LabWindows/CVI for Sun

Full Development System	776820-03
SPC Toolkit	777209-11

Training

Basics I Course	910019-xx1
Basics II Course	910512-xx1
Instrument Driver Development Course	910556-xx1
VXI Course	910504-xx1

Please refer to Training and Certification (page 758) to complete part number.

BUY ONLINE!

Visit ni.com/info and enter *labwindowscvi*