DADiSP / GPIBLab

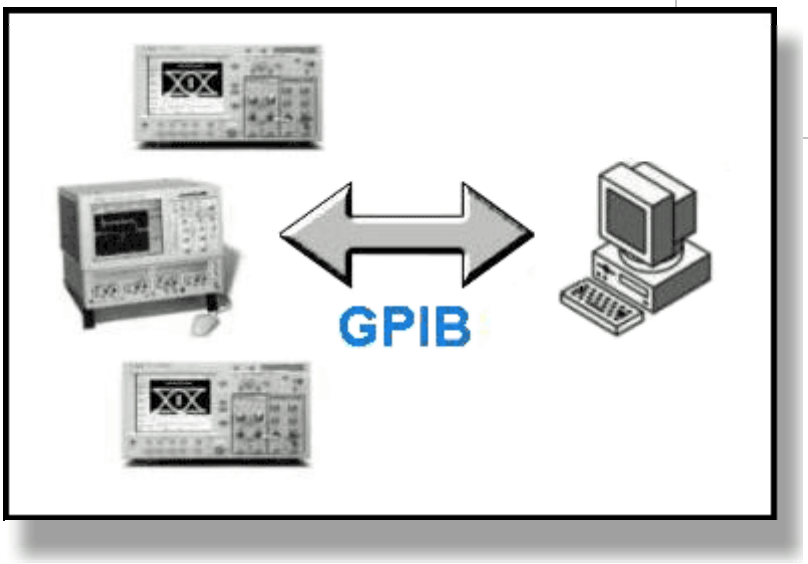
IEEE-488 Instrument Control Module

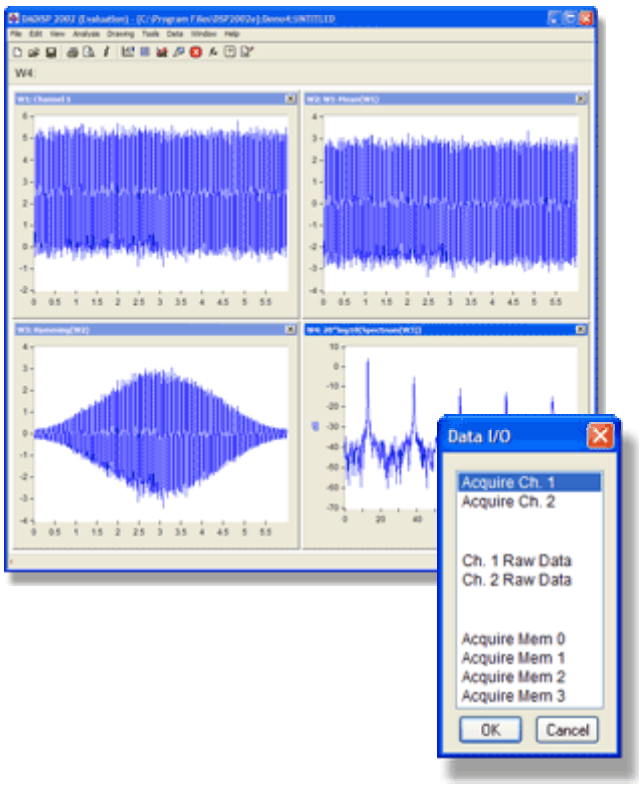
GPIBLab is a menu-driven software module for DADiSP that collects data from IEEE-488 instruments. GPIBLab requires no programming or messy configuration. GPIBLab and DADiSP provide a full range of instrument control and data collection options through the easy-to-understand menus.

Data collected from your instruments via the General Purpose Interface Bus (GPIB) is displayed automatically in DADiSP's multi-window graphical analysis Worksheet. Because GPIBLab operates within DADiSP's graphical Worksheet environment, all of the DADiSP analysis and graphics functionality is available to display, reduce, analyze, and output your data

KEY FEATURES

- Specify Data Collection Parameters through Simple Dialogs
- Query and Control Hundreds of IEEE-488 Instruments
- Direct, High Speed Data Collection
- Easily Automate Instrument Procedures
- Standard Drop-In Macro Template for New Instruments
- Customize the GPIBLab User Interface





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Originally developed by Hewlett-Packard, the General Purpose Interface Bus, GPIB, is a digital interface standard for connecting electronic test and measurement equipment to "controllers" such as personal computers. The bus was standardized by the Institute of Electrical and Electronics Engineers as the IEEE Standard Digital Interface for Programmable Instrumentation, IEEE-488.1.

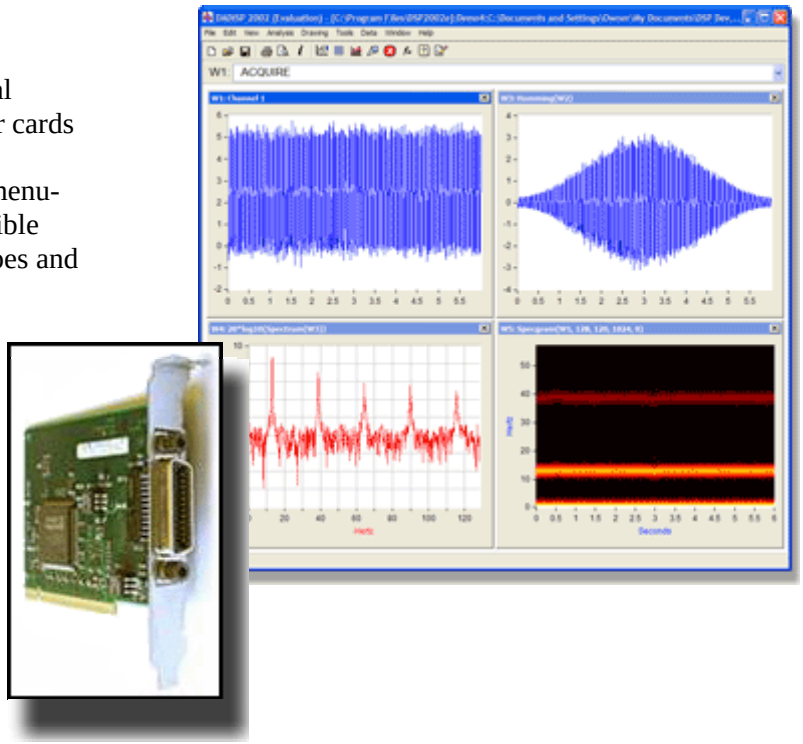
A typical GPIB setup requires a computer, a GPIB control card, driver software for the card, a GPIB cable and instrument. GPIBLab makes it easy to control and transfer data from these instruments without requiring in depth knowledge of the IEEE-488 protocol or the GPIB card driver software.

Fully Integrated

Data collected from your instruments via GPIB is displayed automatically in DADiSP's multi-window graphical analysis Worksheet. Because GPIBLab operates within DADiSP's graphical Worksheet environment, all of the DADiSP analysis and graphics functionality is available to reduce, analyze and output your data.

Standard Instrument Drivers

GPIBLab is available for Windows 9X/2000/NT/XP. It supports IOtech, National Instruments and compatible device controller cards that adhere to the IEEE-488 standard. The GPIBLab product includes a wide range of menu-driven drivers for popular IEEE-488 compatible laboratory instruments, including oscilloscopes and spectrum analyzers.



Let Your Instrument Do The Talking

Users can customize the DSP-supplied ASCII menu drivers to their particular applications, adding additional instrument query, control, and collection functions to the instrument menus. Because GPIBLab menus and command scripts can include standard GPIB functions, GPIBLab eliminates programming in low level languages. All acquisition and analysis operations are accomplished interactively via easy-to-follow menus or through automated DADiSP sessions.

No Programming Required

GPIBLab requires no programming or messy configuration. GPIBLab and DADiSP provide a full range of instrument control and data collection options through the easy-to-understand menu interface. Once the IEEE-488 driver software is installed, GPIBLab users can begin immediately collecting and analyzing data within the DADiSP Worksheet. The size of the data transfer supported by DADiSP/GPIBLab is limited only by the memory on your instrument.

GPIB Instrument Control, Query and Collection Features

Control

- Set Time Range, Volt Range, Time Delay, Offset
- Measurement, Sampling Rate
- Send ASCII commands or binary data to the device
- Setup Service Requests
- Change instrument display screen
- Set interrupt detection on/off
- Operate bus locally or remotely
- Disable instrument front-panel control

Query

- Query Time Range, Volt Range, Time Delay, Offset, Measurement, Sampling Rate
- Query number of bytes in a buffered transfer
- Query status of bus interface

Data Collection

- Transfer ASCII data directly to a DADiSP window
- Transfer binary data directly to a DADiSP window (Size of data transfers limited only by instrument memory)
- Specify terminators between values & end-of-line
- Set Timeout length for data transfers
- Specify data collection triggers
- Specify optional data header
- Specify ASCII data value size

GPIBLab Functions

AlthAlthough most users access GPIBLab through the dialog based interface, GPIBLab includes over 30 standalone functions. Each function can be incorporated int custom SPL routines or macros to provide specific instrument control capability.

The following table is an alphabetical summary of each function.

GPIBLab Functions

abort488	Regains control of the IEEE-488 bus.
arm488	Allows IEEE-488 device driver interface to detect interrupts from specified sources.
buffered488	Displays the number of bytes sent to a buffer in a buffered transfer.
clear488	Returns specified device to a power-on state.
closeieee488	Closes the IEEE-488 device driver opened by the INIT488 command and places GPIBLab in the unintialized state.
config488	Sets up optional header and terminator bytes to skip for ENTER488 and ENTERB488 commands. Also specifies size of ASCII data values and optional terminator.
disarm488	Disables interrupt handling by the PC.
dma488	Enables/Disables DMA data transfer.
enter488	Enters a buffer of ASCII data from an IEEE-488 instrument to a DADiSP window or displays a text message from an instrument. Addresses the instrument for each data point transferred.
entera488	Enters a buffer of ASCII data from an IEEE-488 instrument to a DADiSP window or displays a text message from an instrument. Addresses the instrument only once for the entire buffer transfer.
enterb488	Enters a buffer of binary data from an IEEE-488 instrument to a DADiSP window.
eol488	Sets the end-of-line terminators for input, output, or both from IEEE-488 device driver.
hello488	Checks communication with the IEEE-488 device driver interface.
init488	Provides DADiSP command control over the IEEE-488 bus.
local488	Returns bus devices to manual operation.
lol488	Inhibits front panel operation of bus devices.
output488	Outputs text commands to IEEE-488 devices.
outputb488	Outputs binary data from a window to IEEE-488 devices.
passcontrol488	Allows IEEE-488 device driver interface to give control to another controller source and enter peripheral mode.
ppc488	Configures a device's service request to a particular data line.
ppd488	Disables the parallel poll response of the specified device.
ppoll488	Requests status information from many bus devices simultaneously in the event of a service request.
ppu488	Disables the parallel poll response of all bus devices.
preamble488	Defines an ASCII preamble string to be sent before the binary data in the OUTPUTB488 command.
remote488	Addresses the specified device to listen, placing it in remote state.
request488	Generates a service request from IEEE-488 device driver when in peripheral mode.

reset488	Provides a warm start of the IEEE bus interface.
resume488	Allows data transfers between two peripheral bus devices.
send488	Allows byte-to-byte control over data transfers and great flexibility in issuing commands.
spoll488	Returns 8-bit device response to a serial poll of a device.
status488	Displays the status of the IEEE-488 bus interface.
timeout488	Specifies length of time allowed for a data byte transfer to be completed.
trigger488	Issues a Group Execute Trigger to specified device.