

IEEE 488

APPLICATION BULLETIN

CONTROLLING GPIB DEVICES WITH DELPHI CODE Using ICS's GPIB Controllers and 488.2V3 or 488.2V4 Driver

INTRODUCTION

Several users have asked for information on using ICS's GPIB Controllers with Borland (now Embarcadero) Delphi. This brief Application Note describes an example Delphi program provided by Jan Kuypers from the University of California at Berkeley.

THE EXAMPLE PROGRAM

The example Delphi program, which is called `measure_GPIB`, mimics the opening window in ICS's Explorer program which displays all GPIB Controllers and devices in a treeview. Figure 1 shows the `measure_GPIB` program window with two GPIB Controllers. The first controller, GPIB0, is connected to an ICS 4803 board with two primary addresses, 1 and 2. The second GPIB controller, GPIB1, is connected to an ICS 4863 GPIB to Parallel Interface at primary address 3. When you highlight the Device Name, the program fills in the right hand window with the Device Name, the Device's GPIB address and its IDN string. The program automatically sends the '*IDN?' query to the Device when you highlight the Device Name in the treeview.

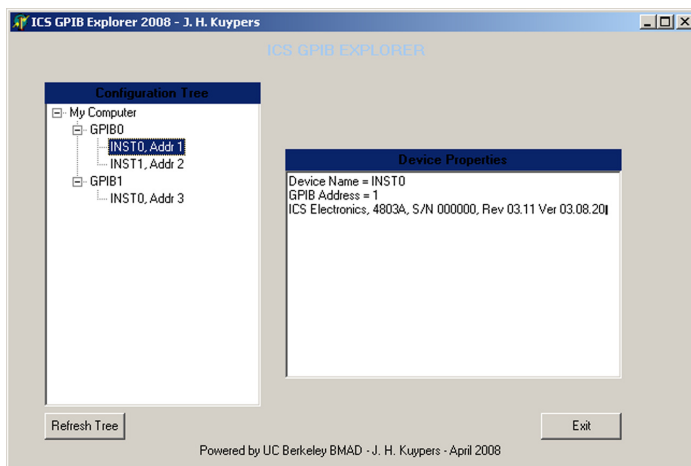


Figure 1 Example Program Window

The example program shows how to construct a Delphi program, to initialize the GPIB Controller and how to send commands to a device and to read data back from a device.

THE DEMO PACKAGE

The Delphi program package consists of thirteen files:

- GPIB.dcu (Compiled unit file of GPIB.pas)
- GPIB.pas (GPIB library unit source file)
- measure_GPIB.dcu (Compiled unit file of measure_GPIB.pas)
- measure_GPIB.ddp (Diagram portfolio file for measure_GPIB.pas)
- measure_GPIB.dfm (Win32 Form file of GUI and used objects)
- measure_GPIB.pas (Program unit source file)
- Project1.cfg (Project configuration file)
- Project1.dof (Projects option file)
- Project1.dpr (Project file; All Delphi versions)
- Project1.dproj.local (Project file; Delphi 2007 and newer)
- Project1.indentcache (Temporary cache file; improves performance)
- Project1.res (Resource file)
- ICS Explorer Delphi.exe (Compiled executable)

2012 CHANGES

For Delphi 2009 and later compilers, the default string type has been changed to be equivalent to *Unicodestring*. In addition the default Char type is *WideChar* and the default PChar type is *PWideChar*. This means that for newer Delphi compilers, the GPIB data types must be specified as 8-bits *ansiChar* and *ansiString* else GPIB data will appear as gibberish.

The type definitions in the GPIB.pas file have been corrected and the updated file is included in the attached Delphi_GPIB_Explorer_v12.zip file. The original ICS Explorer Delphi.exe was not recompiled since it was compiled in an earlier version of Delphi and works correctly.

SUMMARY

This application note has provided an example Delphi program that uses the GPIB.pas file to link to ICS's GPIB driver and control GPIB instruments. In this example, the physical controllers were USB-to-GPIB Controller modules but they could have been PCI GPIB cards.

All of the files used in this example are included in the Delphi_GPIB_Explorer_v12.zip file which can be downloaded from ICS's website at <http://www.icselect.com/>.

CREDITS

We wish to thank Jan Kuypers at the Berkeley Sensor and Actuator Center for developing the example program.

Thanks also to Daniel Krüger at Sensoror in Norway for his work in updating the GPIB.pas file for correct operation with later Delphi compilers.

DELPHI HISTORY (extracted from Wikipedia)

Delphi was originally developed by Borland as a rapid application development tool for Windows, and as the successor of Borland Pascal. Delphi and its C++ counterpart, C++Builder, shared many core components, notably the IDE and VCL, but remained separate until the release of RAD Studio 2007. RAD Studio is a shared host for Delphi, C++Builder, and others.

In 2006, Borland's developer tools section were transferred to a wholly owned subsidiary known as CodeGear, which was sold to Embarcadero Technologies in 2008.