

VXI PnP Drivers in Brief

For Human-Instrument Interaction there are two schools of thought. One is to control the Instrument from the front panel and the other is to control the Instrument through a software command set accessible through a Standard I/O Interface (RS-232, IEEE 488.2 or LAN (Local area Network)). To use the Instrument from the front panel is quiet easy and is well suited for simple measurements. For more complex measurements or automation, software control becomes necessary.

The VXI Systems Alliance is a consortium of VXI instrument manufacturers. One of its accomplishments is the creation of a driver standard that allows a single driver to work with a variety I/O protocols and programming environments. The heart of the VXI PnP driver is the DLL's. Other components of the architecture include the Front Panel definition, VISA I/O Layer and the Soft Panel.

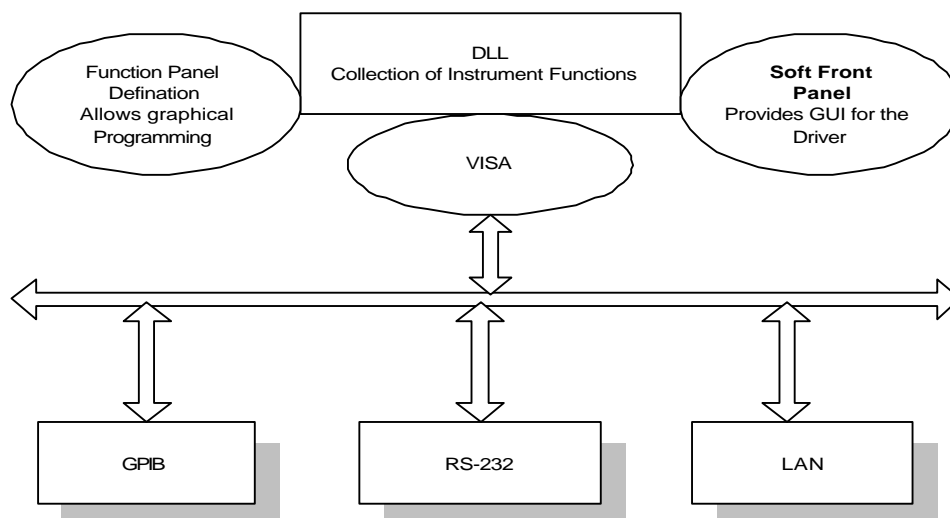


Figure 1

The Figure 1 above shows the architecture for the windows operating system. The driver DLL is a collection of function calls, which allow the programmer to access the instrument. The DLL mainly focuses on the functionality of the Instrument. These DLL's can be called from programming languages such as C/C++ or Visual Basic.

The VISA provides I/O or bus independence. The VISA layer, through the use of passports, allows the function calls of the DLL to be sent over the bus of choice to the instrument. It is no longer necessary to have a version of the program for RS-232 and one for GPIB. Nor is it any longer required to have a version for each brand of GPIB card. The programming language makes bus independent calls into the driver; the VISA layer

and passports will take care of sending this information to the instrument over the selected bus.

Both National Instruments and Agilent have a version of VISA. When LabVIEW or LabWindows/CVI are installed, NI-VISA is typically installed as well. Additionally, VXI PnP or IVI drivers from Keithley will also deploy NI-VISA and any necessary passports for Keithley GPIB hardware (KPC-488.2, KPC-488.2AT, KPCI-488 or KPCMCI-A-GPIB).

The Function Panel part of a VXI PnP driver (*.fp) allows the driver to be used with specific programming environments such as LabWindows/CVI. CVI can interpret this fp file and then graphically provide programming prompts to add in application development. When no VIs are provided in the driver distribution, LabVIEW can also make use of this fp file to build the corresponding VIs for each function call of the DLL.

The Soft Panel is an executable, which allows access to the instrument functionality through a software front panel. This can aid in quick verification of driver and instrument functioning or other diagnostic tasks.