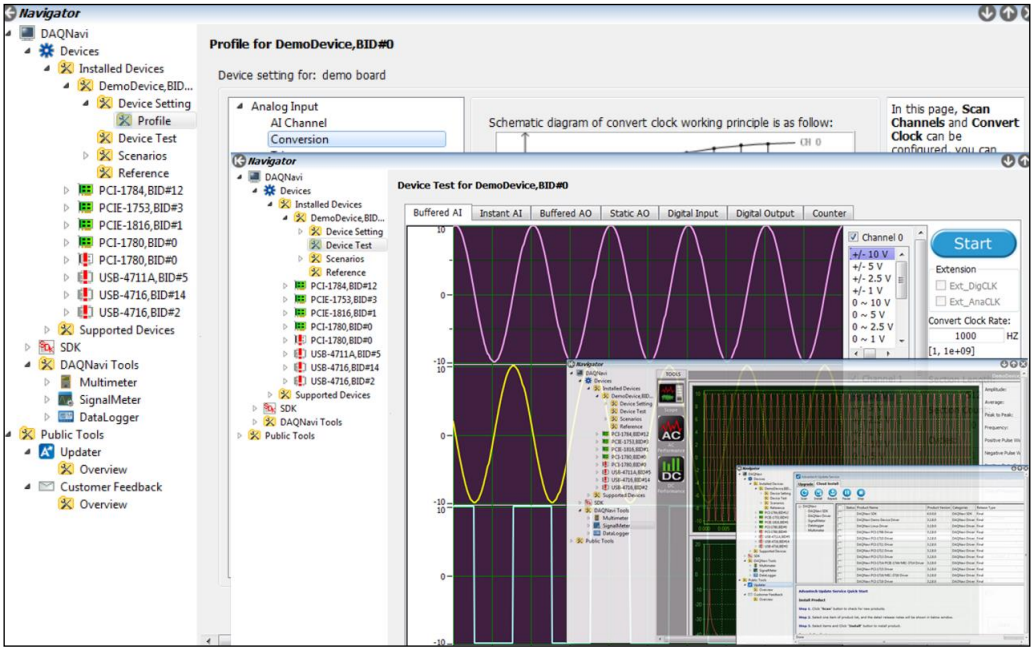
DAQNavi

Component Based DAQ Device Programming Model

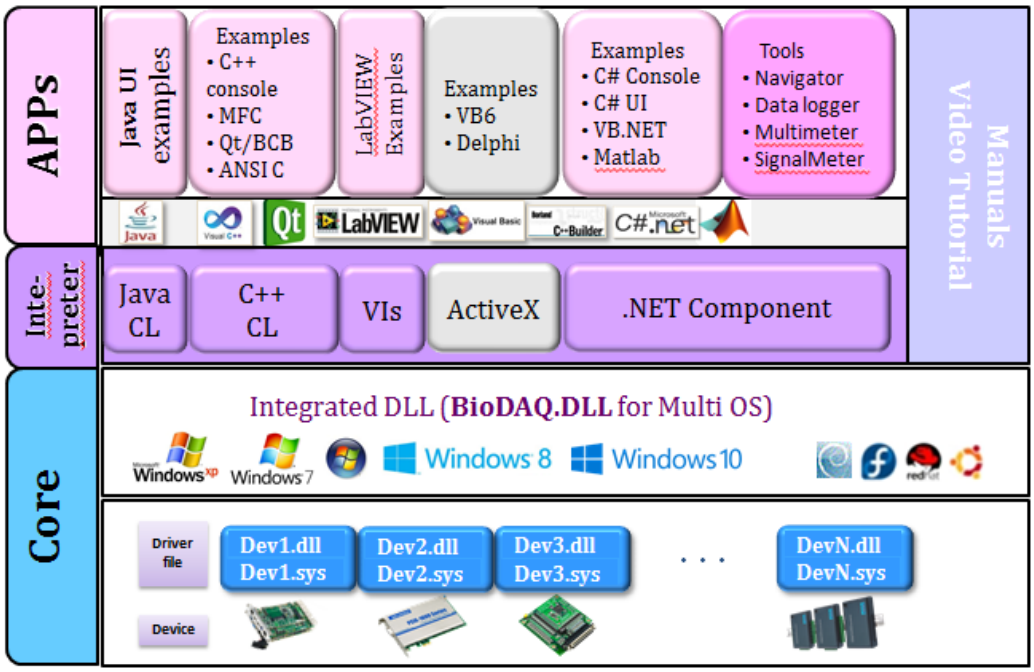


Feature

DAQ device, a device group that can't define the specified targets, is generally classified as "non-classical devices". To computer system, DAQ devices are some interactive devices. They can convert physical quantity of external stimuli to digital data or convert digital data to potential pulse, which is similar to the sense and motor organ of an organism. The varied application changes and conflicting demands make interface definition and programming design more complicated. DAQNavi makes use of the concept of software component to design DAQ device SW development kit and also employs Property, Method and Event of component as the interface to communicate with Applications. DAQNavi introduces the concept of Configure and run and takes into account of both programming simplification and use flexibility. Besides, configuration interface specially customized for some device makes the settings ready after the driver is loaded, so only some settings need to be changed which greatly simplifies the programming process.

DAQNavi includes DAQ Devices driver, DAQ DLL, DAQ assembly, Advantech Navigator, Examples and Manuals. OS, such as Windows XP 32/64 bits, Win7 32/64 bits, Win8 32/64 bits, Win10 32/64 bits,Linux, development tools, such as VC/C++, C#, VB.NET, VB, LabVIEW, BCB and Delphi are all supported. DAQ devices with most Advantech PCI, USB, PCI104 interfaces are included. In our continuous efforts, the support to more OS, development tools, devices, examples and application cases will be provided.

Architecture



DAQ Device Drivers

With emphasis on infrastructure of software project, DAQ creates new drivers with features of thread safety, real time response and multi-resources protection, which makes the device to perform its best in multi-task and multi-core operating environment. We provide a series of drivers for Windows, Linux, WinCE and LabVIEW. Similarly to windows driver, DAQNavi Linux Driver provides device drivers, class library, examples for the most popular Linux distributions (Ubuntu, Fedora, Mint, RedHat, and SUSE). The supported Linux kernel version is 2.6 or later. The executable binary package and the source code package are provided both for these distributions except for SUSE. For SUSE, only the source code package is provided.

VIs

Once DAQNavi LabVIEW Driver has been installed, it is very easy to operate Advantech DAQ device in LabVIEW. At present, DAQNavi LabVIEW Drivers are divided into two categories.
One category is an Express VI named DAQNavi Assistant in LabVIEW. When user drags a DAQNavi Assistant Express VI from LabVIEW's Functions Palette, DAQNavi Assistant will be displayed. It will guide you to create various tasks.
The other category is DAQNavi Polymorphic VI, which includes DAQNavi Create Channel, DAQNavi Read, DAQNavi Write, DAQNavi Timing, DAQNavi Trigger, DAQNavi Start Task, DAQNavi Stop Task, DAQNavi Clear Task, DAQNavi Is Task Done, DAQNavi Wait Until Done, DAQNavi Get Property, DAQNavi Set Property and DAQNavi Property.

When creating a new application, you can choose to use DAQNavi Assistant or DAQNavi Polymorphic VI. Please refer to the following advantages.
Advantages of using DAQ Assistant:

1. It requires no programming. You can configure channels, timing and trigger interactively.
2. It shortens development time. You can create a complete application in a matter of minutes.

Advantages of using DAQNavi Polymorphic VI:

1. It contains advanced features not exposed by DAQNavi Assistant.
2. It provides additional flexibility, allowing you to customize your application to suit your needs.
3. It gives you tighter control over the performance of your application.

Integrated DLL

The BioDAQ.DLL integrates difference DAQ devices' diverse features to unify APIs. It is useful of making a hardware independent application.

CSCL

Component Style Class Library uses the concept of Component to construct Class Libraries and Controls. These Class Libraries and controls have similar interface and same calling flow for different IDEs. The usage of making an application is same in differed IDEs, so that it is easy to migration the development between different OS and IDEs.

.NET Component

.NET Component based on operation definition of .NET Class library is a series of components that will assist users to use Advantech DAS cards more efficiently and easily.

ActiveX

CSCL ActiveX based on operation definition of CSCL is a series of ActiveX controls that will assist users to use Advantech DAS cards more efficiently and easily with the programming languages which doesn't support .NET, such as Visual Basic 6, Delphi 6 and Delphi XE2. Generally, ActiveX share the same interfaces as Device .NET Control. But still, changes have to be made in order to be compatible with the restrictions of ActiveX programming, for example, the use of struct types in methods and events. Please check the VB6 examples for details.

Advantech Navigator

The diversity of DAQ device has always haunted users. As guidance, Advantech Navigator allows the user to quickly find out the appropriate device from search device, feature description, feature setting and function test, and then test it.

Examples

Examples for various development platforms are necessary. With the increasing changes of operation environment and based on years' Advantech support experience, applications have been classified as Scenarios and examples for frequently-used development tools, such as Visual Studio, Qt, MFC, Delphi, and BCB have been supported by CSCL or controls.