LABVIEW VISA DRIVER

The STAR-Dundee SpaceWire VISA Driver has been implemented as a native LabVIEW driver, providing support for the STAR-Dundee PCI family of devices. Software written to control these devices may be deployed on any hardware platform that supports PXI, cPCI, PCI, PCIe and NI-VISA, including both Windows based hosts and LabVIEW Real-Time targets, without requiring modifications to source code. The software is provided as LabVIEW source with password protected block diagrams, allowing users to compile for any target.

The driver allows STAR-Dundee SpaceWire PXI, PCIe, PCI Mk2 and cPCI Mk2 cards to be detected with and controlled by National Instruments' MAX (Measurement and automation explorer) tool.

Key Features

- Provides low level DMA access to the SpaceWire channels.
- Transmit and receive time-codes and packets, including packets terminated with EOP, EEP or no end of packet marker.
- Receive link speed change and link state change (errors detected, link running) events.
- Perform link speed configuration operations.
- Inject errors onto a SpaceWire Link, on a given byte within a packet.

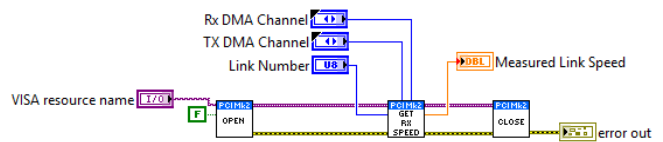A number of example VIs demonstrating typical use cases for the API are provided.

Specifications
Software:
- Designed for LabVIEW 2014 and later.
  (Contact STAR-Dundee regarding support for earlier LabVIEW versions.)
- Compatible with, but does not require, LabVIEW Real Time Module.

Supported Devices:
- SpaceWire PXI
- SpaceWire PCIe
- SpaceWire PCI Mk2
- SpaceWire cPCI Mk2

Obtaining the measured speed of a SpaceWire Rx link

List of provided VIs

General	DMA	Examples
Open	Check IN Buffer Status	Receive Loop
Close	Check OUT Buffer Status	Injecting Errors
Reset	Configure DMA Operation	External Loopback
Wait on SpaceWire Interrupt	DMA Read Interrupt	Open Close Reset
Set Application Name	DMA Write Interrupt	Obtain Measured Link Speed
		Get Device Information
Creating Traffic	**Device Configuration**	Perform Link Configuration Operations
Create Data Chunk	**Traffic Enable**	Get active Link Errors
Create Error	Enable Time-code Rx	
Encode Traffic	Enable Link Speed Change Event Rx	
	Enable Link State Change Event Rx	
Decoding Traffic	**Link Configuration**	
Decode Traffic	Set/Get Link Configuration	
Get Traffic Type	Set/Get Link Divider	
Traffic Reference to Time-code	Set/Get Link Clock Frequency	
Traffic Reference to Data Chunk	Get Measured Link Speed	
Traffic Reference to Link Speed Change	Get Link State (ready/started/run/etc.)	
Traffic Reference to Link State Change	Get/Clear Link Errors	