



STAR-Dundee

SpaceWire and SpaceFibre Expertise

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 NI-VISA and PXI, cPCI, PCI or PCIe, 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, PXI Mk2, 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.

Key VIs

General

Select Device.vi
Open.vi
Close.vi
Reset.vi
Wait on SpaceWire Interrupt.vi
Wait on Interrupt Event.vi

Creating Traffic

Create Data Chunk.vi
Create Error.vi
Create Time-code.vi
Encode Traffic.vi

Decoding Traffic

Decode Traffic.vi
Traffic Reference to Data Chunk.vi
Traffic Reference to Link Speed.vi
Traffic Reference to Link State.vi
Traffic Reference to Time-code.vi

DMA

Check IN Buffer Status.vi
Check OUT Buffer Status.vi
Configure DMA Operation.vi
DMA Read Interrupt.vi
DMA Write Interrupt.vi

Device Configuration

Traffic Enable

Enable Link Speed Change Event Rx.vi
Enable Link State Change Event Rx.vi
Enable Time-code Rx.vi

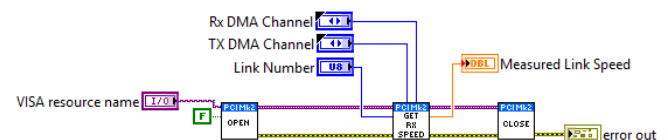
Link Configuration

Get/Set Link Configuration.vi
Get/Set Link State.vi
Get/Set Transmit Clock.vi
Get/Clear Link Errors.vi
Get Tri-State.vi
Set Tri-State Enable.vi
Set Tri-State Disable.vi
Get Measured Link Speed.vi

Specifications

Part Number	137
Software	<ul style="list-style-type: none">• Designed for LabVIEW 2014 and later.• Compatible with, but does not require, LabVIEW Real Time Module.
Supported Devices	<ul style="list-style-type: none">• SpaceWire PXI• SpaceWire PXI Mk2• SpaceWire PCIe• SpaceWire PCI Mk2• SpaceWire cPCI Mk2

Several example VIs demonstrating typical use cases for the API are provided.



Obtaining the measured receive speed of a SpaceWire link.

Routing Tables

Get/Set Port Routing Table Entry.vi

Time-codes

Is Tx Time-code Enabled.vi
Set Tx Time-code Enable/Disable.vi
Get/Set Tx Time-code Period.vi
Get/Set Tx Time-code Ports.vi
Get Rx Time-code Port State.vi

Time-codes

Get Interface Mode.vi
Set Interface Mode Enable/Disable.vi

Error Injection

Inject Link Error.vi

All information provided is believed to be accurate at time of publication. Please contact STAR-Dundee for the most recent details. © 2025 STAR-Dundee Ltd.



STAR-Dundee

STAR-Dundee Ltd.
STAR House
166 Nethergate
Dundee
DD1 4EE
Scotland, UK

Tel: +44 1382 201755
Fax: +44 1382 388838
E-mail: enquiries@star-dundee.com
Web: www.star-dundee.com
Twitter: @STAR_Dundee
LinkedIn: STAR-Dundee