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# PXI-C429

## Advanced Four, Eight, 16, or 32 Channel ARINC429 Test & Simulation Module for PCIbus

The PXI-C429 module is a member of AIT's family of ARINC 429 test and simulation modules. This module is a 3U PXI Hybrid Slot compatible instrument that is designed to enable monitoring, analysis, simulation, and testing of ARINC 429 data channels. The PXI-C429 module supports up to 32 fully programmable (as inputs or outputs) ARINC 429 channels. The PXIC429 provides full error injection and detection capabilities.



### PXI FEATURES

The PXI-C429 is 3U PXI Hybrid Slot compatible module which supports synchronization of its onboard time tagging clock to either the PXI 10MHz system clock or an IRIG-B input signal. When using the PXI system clock, the time-tagging clock can be reset via the PXI star trigger. Addtionally, the module supports input and output of triggers to and from the PXI trigger bus. PXI triggers can be generated by the module based on detected ARINC 429 bus events and PXI triggers can be used as input to intiate the start of ARINC 429 data simulation operations, data captures, and many other operations.

### RECEIVER CHANNEL OPERATION

The PXI-C429 provides real-time simulation of up to 32 ARINC429 Receiver (Rx) Channels concurrently.

- Label/SDI selective receive, sequential receive modes
- Multi-buffering with real-time data buffer updates
- Triggering and filtering:
- Upper and lower limit check
- Trigger on specific or any error
- Label content and sequential dependent trigger
- Filter for label and label data contents
- Interrupt for selected labels and label data contents

### TRANSMITTER CHANNEL OPERATION

The PXI-C429 provides real-time simulation of up to 32 ARINC429 Transmitter (Tx) Channels concurrently. Bit transmission rates and duty cycles are selectable for each channel and the 12.5 kbits/sec and 100 kbits/sec transmit modes are supported. Associated rise and fall

### Key Features

- Four, Eight, 16, or 32 Software Programmable Tx/Rx Channels
- Programmable High/Low Speed Operation
- Concurrent operation of all Tx/Rx Channels at High Speed rates
- PXI Interrupts, Star Trigger, and PXI Clock
- Full Error Injection and Detection
- Rate-oriented Label Transmission
- Label Selective Trigger for Capture/Filtering
- IRIG-B Time Code Encoder/Decoder
- Real-Time Recording and Post Analysis of Multiple Channels
- Application Interface supporting C++, C#, and .net Development
- Device Driver Support: Windows, Linux, VxWorks and other operating systems

COMPATIBLE WITH
NATIONAL INSTRUMENTS LabVIEW™

PXI

times are in accordance with the ARINC 429 electrical specification.

- Rate Oriented, Block, and Acyclic Label Transmission modes support all simulation needs
- Error injection for each Label Transfer: short gap, parity, bit count, coding
- Programmable gaps between Labels

## ARINC 429 TRANSCEIVER INTERFACE

PXI-C429 card has integrated ARINC 429 line transmitter/receivers programmable by software for Rx or Tx mode and selectable transmission rate for each channel independently. All ARINC 429 channels and controls are available at the front panel output connector.

## REMOTE OBJECT SERVICES

AIT's Remote Object Services (ROS) makes PXI-C429 hardware available to network clients running in other processes or on other hosts in the network. It runs on its host as either a Window's service or as a Linux daemon. This client/server application and a user library allows for the easy creation of distributed multi-process and distributed applications.

## SOFTWARE SUPPORT

The PXI-C429 is delivered with AIT's ARINC 429 Software Development Kit (SDK) which includes software driver support for Windows, Linux, and LabVIEW RT. The SDK provides multiple application interfaces including support for C/C++, C#, and VB.NET. High-level LabVIEW Virtual Instruments (VI) are provided with each module in support of intuitive application development. A simple soft front panel Graphical User Interface (GUI) application is also delivered with each module. The ARINC 429 SDK optionally includes AIT's Flight Simulyzer analyzer software.

## Technical Data

| | |
|---|---|
| **Form Factor** | 3U Hybrid Slot Compatible PXI module |
| **System Interface** | 32-bit / 33 MHz PCI plus PXI Trigger Bus, PXI System Clock, and PXI Star Trigger |
| **Connectors** | J1 and XJ4 PXI backplane connectors; 68-pin VHDCI front panel connector holding bus signals, IRIG-B input/output, and trigger lines |
| **Memory** | 128 MByte DDR2 SDRAM |
| **Operating Temp. Range** | 0° C...+45° C |
| **Storage Temp. Range** | -40° C...+85° C |
| **Humidity** | 0 to 95% non-condensing |


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