

# **A429-PMC-PCIe**

## **Multichannel/High-Performance ARINC 429 PCI Express Card**



- Highly integrated, multichannel – up to 16 Tx / 16 Rx channels
- High-Performance FPGA-only design – no firmware
- Low host CPU load through FIFOs
- Optional bidirectional discrete I/O and IRIG-B
- Optional galvanic isolation for the ARINC 429 and discrete I/O user interface
- Sophisticated error injection & detection features, programmable bus load
- Driver & API support for Windows 2k/XP/Vista and Linux





techSAT  
mastering  
realtime  
complexity

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## Multichannel/High-Performance ARINC 429 PCI Express Card

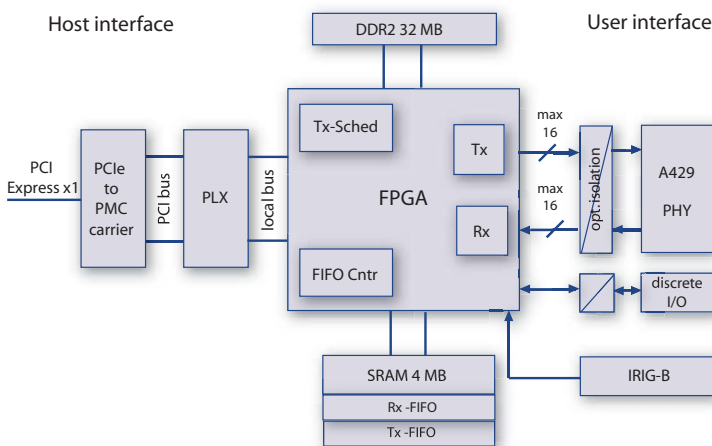
### Overview

The TechSAT **A429-PMC-PCIe** is a powerful, multichannel ARINC 429 interface implemented on a PMC (PCI Mezzanine Card) form factor module form factor module mounted on a standard PMC-to-PCI Express carrier. It has been specially designed to comply with high-performance test- and simulation requirements where the ARINC 429 bus is used.

The **A429-PMC-PCIe** features a fully parallel hardware design with strictly independent Tx-/Rx-channel state-machines. The dual global FIFO host interface allows for extremely simplified and accelerated board access. The fully autonomous hardware implemented Tx-scheduler and the Rx-FIFO handler relieve any host platform from realtime tasks. Receive time stamping and error detection are also implemented in hardware.

The **A429-PMC-PCIe** is equipped with comprehensive test features such as error injection/detection. Galvanic isolation, bidirectional discrete I/O lines, IRIG-B input and conformal coating are available as an option.

**A429-PMC-PCIe** is supported by TechSAT's ADS2 (Avionics Development System - 2nd Generation) which is used as a software platform in numerous test- and integration environments. In addition the **A429-PMC-PCIe** is based on the unified TechSAT Software Environment Interface architecture that can be found on various other TechSAT interface products. The **A429-PMC-PCIe** comes with driver and interface library for Microsoft Windows 2k/XP/Vista and Linux.



### Technical Data

#### ARINC 429 Interface and Features

- Up to 16 Tx and 16Rx channels (per PCI-Slot)
- High speed and low speed selectable per channel
- Tx-schedule resolution: 100  $\mu$ s
- Rx-timestamp resolution: 1  $\mu$ s
- Error injection / detection:
  - word-gaps: 0-15 bit-times
  - short word (31 bit) or long word (33 bit)
  - parity
- 32K Rx-FIFO entries (A429 word + channel + timestamp + error information)
- 16K Tx-FIFO entries (A429 word + channel + port + error injection)
- Rx-speed auto-detect
- On-board temp. sensor for overheat detection
- Optional bidirectional discrete I/O-lines (GND/open)
- 4 MB dual-bank SRAM, 32 MB DDR2 RAM

#### Host Interface

- PCIe 1.0 x1 link
- 4 pin Molex Power Connector required

#### Software

- TechSAT unified API compatible with ADS2
- DLL and driver for MS Windows 2000, XP and Vista
- Drivers for Linux and VxWorks

#### Physical Dimensions

- single slot, full height, short length 172 x 96 mm

#### Operating Environment

- Operating Temp. range: 0 to +60  $^{\circ}$ C (optional -20 to +75  $^{\circ}$ C)
- Storage Temp. range: -10 to +85  $^{\circ}$ C

#### Power Consumption

- Power dissipation: max. 12 W

#### Order Information

- A429-PMC-PCIe-4T8RGI3DIO – 4Tx/8Rx, galvanically isolated, 3 discrete I/O
- A429-PMC-PCIe-15T16RNI3DIO – 15Tx/16Rx, non isolated, 3 discrete I/O
- A429-PMC-PCIe-2T2R – 2Tx/2Rx, non isolated
- A429-PMC-PCIe-4T4R
- A429-PMC-PCIe-8T8R
- A429-PMC-PCIe-16T16RNI – 16Tx/16Rx, non isolated
- variable Rx/Tx partitioning on request
- IRIG-B-time-synchronisation (optional)
- Conformal Coating (optional)

### Distributor