



AXI429-8 /16/32

8/16 OR 32 CHANNEL ARINC429 TEST AND SIMULATION MODULE FOR VXI BUS

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data sheet

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FOR VXI BUS

GENERAL FEATURES

The AXI429-8/16/32 is part of a new family of VXIbus cards offering full function Test, Simulation, Monitoring and databus analyser functions for ARINC429 applications. 8/16/32 ARINC429 channels are available on the C-sized AXI429-8/16/32 VXI module. Each channel can be programmed by software for Receive or Transmit mode. The use of powerful RISC processors means all channels can operate concurrently at ARINC429 high or low bit rates with the intelligence to process data in real time.

An on-board IRIG-B time decoder and generator allows users to accurately synchronise single or multiple AXI429-8/16/32 modules to a common time source.

The use of an Application Support Processor (ASP) executing the Driver Software allows user specific test routines to be processed on-board, significantly off-loading the host processor. This new concept allows users to implement system level functionality on a single interface card.

To provide I/O and processing expansion capabilities a PMC slot is available on the AXI429-8/16 module.

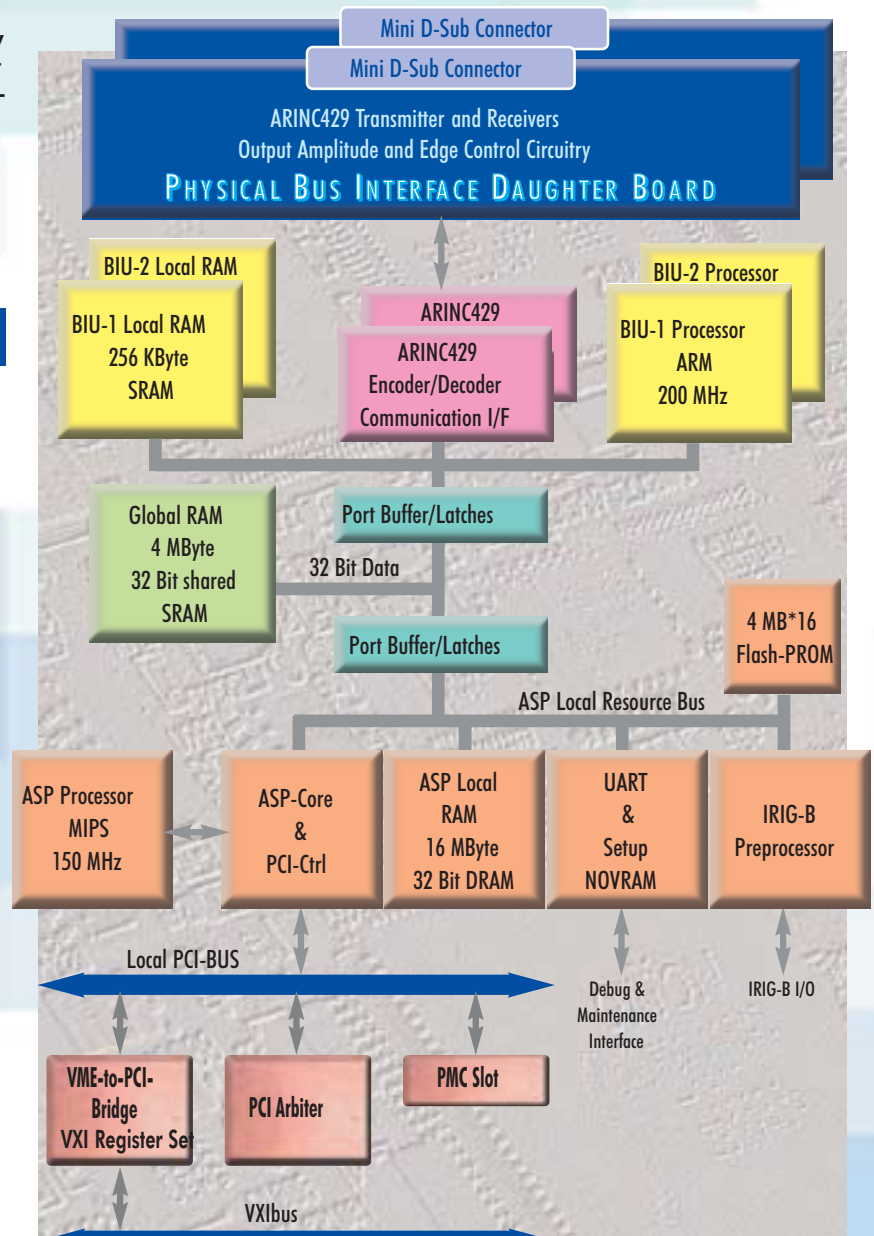
The AXI429-8/16/32 uses a 'Common Core' hardware design utilising multiple RISC processors. A Physical Bus Interface (PBI) daughter board provides line receivers and transmitters for each ARINC429 channel.

The AXI429-8/16/32 module is a "register based Device" and can be easily integrated into VXI Systems as an off-the-shelf module supported by a VXI „plug&play “ driver software package. Furthermore the AXI429-8/16/32 operates with the optional PAA-429/ParaView Databus Analyser Software for Windows 98/ME/2000/XP/NT.

TRANSMIT CHANNEL OPERATION

The AXI429-8/16/32 provides real time simulation of up to 32 ARINC429 Transmitter Channels concurrently controlled by an on-board RISC Processor via instruction lists. Transmission rates are selectable for each channel at 12.5 kbits/sec or 100 kbits/sec. Both the Output Amplitude and Rise/Fall Times are software programmable.

- ❑ Cyclic/ Acyclic Label Transmission Mode and support for File Transfer Protocols
- ❑ Error Injection for each Label Transfer: Short Gap, Parity, Bit Count, Coding
- ❑ Programmable Gap between Labels 0.5 ... 8 bits
- ❑ Transmit Operation Controlled by Instruction Lists
- ❑ Comprehensive Instruction Set: JUMP, CALL, COND-JUMP, OPERATE



RECEIVER CHANNEL OPERATION

The AXI429-8/16/32 provides real time simulation of up to 32 ARINC429 Receiver Channels concurrently controlled by an on-board RISC Processor.

☒ Label/SDI Selective Receive, Sequential Receive Modes

☒ Triggering and Filtering:

- Upper & Lower Limit Check
- Trigger on Specific or any Error
- Label Contents & Sequential Dependant Trigger
- Label selective & Label Data contents dependant Filter
- Label selective & Label Data contents dependant Interrupts

☒ Multi-Buffering with Real Time Data Buffer Updates

IRIG-B TIME CODE DECODER

An on-board IRIG-B time code decoder and generator allows synchronization of AXI429-8/16/32 modules to a common time source. Multiple AXI429-8/16/32 modules can be synchronised using one common IRIG-B time source or the on-board Time Code Generator of one AXI429-16/32 module as the reference for accurate correlation of data across all ARINC429 channels.

APPLICATION SUPPORT PROCESSOR

The 150 MHz Application Support Processor ASP provides unique on-board processing functions typically provided by host processing systems.

☒ Driver Software Execution on-board

☒ Control of RS232C debug Port for Firmware Updates

☒ Dynamic Data Generation

☒ Automatic Test Sequence Generation

☒ User Application processing on-board

ARINC429 PHYSICAL BUS INTERFACE

Each Physical Bus Interface Daughter board (PBI) provides 8/16 ARINC429 channels. Each channel is individually programmable by software for Receive or Transmit mode. For each channel a transmit output and a receive input is provided at the front panel Mini-D-Sub connector. For the ease of adaptation a ready made cable with a male Mini-D-Sub connector on one side and two female standard D-Sub37 connectors as well as a female D-Sub15 connector on the other side is optionally available.

DRIVER SOFTWARE SUPPORT

With the AXI429-8/16/32 module a VISA compatible VXI „ plug&play driver software package is included. Soft Front Panels and Function Panels processed under LabWindows/CVI are also provided.

TECHNICAL DATA

SUB-SYSTEM INTERFACE :

VMEbus Slave, Options D8, D16, D17, D32, A32 or A24
1 interrupt level used "Interrupt Release on Acknowledge"
Register based VXI device

PROCESSORS:

One or two 32 Bit ARM 200MHz Processors
One 64 Bit MIPS 150MHz Processor

MEMORY:

AXI429-8/16	AXI429-32
2 MByte Global RAM	4 MByte Global RAM
16 MByte ASP RAM	16 MByte ASP RAM

ENCODER/DECODER:

Up to 16 Encoder and Decoder per BIU
with Error Injection and Detection

TIME TAGGING:

46 Bit absolute IRIG-B Time with 1 μ sec resolution

PHYSICAL BUS INTERFACE :

Up to 32 ARINC429 Transmitter
with Variable Output Amplitude and
up to 32 Line Receivers

CONNECTORS:

- 2 x 96 way VMEbus backplane connector
- 1 or 2 x 80 way Mini-D-Sub Connectors for ARINC429 interconnection
- 9 way D-Sub Connector for Trigger and Time Code I/O

DIMENSIONS:

C-sized VXI Module
340 mm x 233 mm x 30 mm

POWER CONSUMPTION:

- **AXI429-8/16** 13 Watts typical @ 5VDC
3 Watts typical @ 12VDC
- **AXI429-32** 15 Watts typical @ 5VDC
4,5 Watts typical @ 12VDC

OPERATING TEMP. RANGE:

Standard: 0°C ... +45°C ambient
Extended: -15°C ... +60°C ambient

STORAGE TEMP. RANGE:

-40°C ... +85°C

HUMIDITY:

0 to 95% non-condensing

ORDERING INFORMATION

AXI429-8

8 Channel VXIbus to ARINC429 Interface.
Software Programmable Receiver/ Transmitter Channels
with Variable Output Amplitude incl. IRIG-B Time Decoder.
2 Mbyte Global RAM, 16 Mbyte ASP RAM

AXI429-16

16 Channel VXIbus to ARINC429 Interface.
Software Programmable Receiver/ Transmitter Channels
with Variable Output Amplitude incl. IRIG-B Time Decoder.
2 Mbyte Global RAM, 16 Mbyte ASP RAM

AXI429-32

32 Channel VXIbus to ARINC429 Interface.
Software Programmable Receiver/ Transmitter Channels
with Variable Output Amplitude incl. IRIG-B Time Decoder.
4 Mbyte Global RAM, 16 Mbyte ASP RAM

ACB429-PCI-8

Ready Made Adapter Cable (2.5 m) for AXI429-8 modules
80 pin Mini-D-Sub converted to
1 x D-Sub37 (female) and 1 x D-Sub15 (female)

ACB429-PCI-16

Ready Made Adapter Cable (2.5 m) for AXI429-16 modules
80 pin Mini-D-Sub converted to

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