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Find the *AIM API429-16* at our website: ***Click HERE***

API429-8/16

Advanced 8 or 16 Channel ARINC429 Test, Simulation, Monitor & Analyser Modules for PCI

General Features

The API429-8/16 module is a new family of PCIbus cards offering full function test, simulation, monitoring and databus analyser capabilities for ARINC429 applications. Each channel can be programmed by software for Receive (Rx) or Transmit (Tx) mode. 16 channels are available on the API429-16 module and 8 channels on the API429-8 module. The use of an advanced 200MHz RISC processor as interface controller 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 API429-8/16 modules to a common time source.

The use of an additional 64 Bit RISC CPU as Application Support Processor (ASP) allows to run the driver software and even application specific functions on the module, significantly off-loading the host PC processor. This advanced concept allows users to implement system level functionality on a single interface card.

The API429-8/16 module uses a 'Common Core' hardware design utilising multiple RISC processors and provided with up to 1 MBytes of Global RAM and 16 MBytes of ASP RAM.

A Physical Bus Interface (PBI) daughter board provides line receivers/ transmitters for each ARINC429 channel.

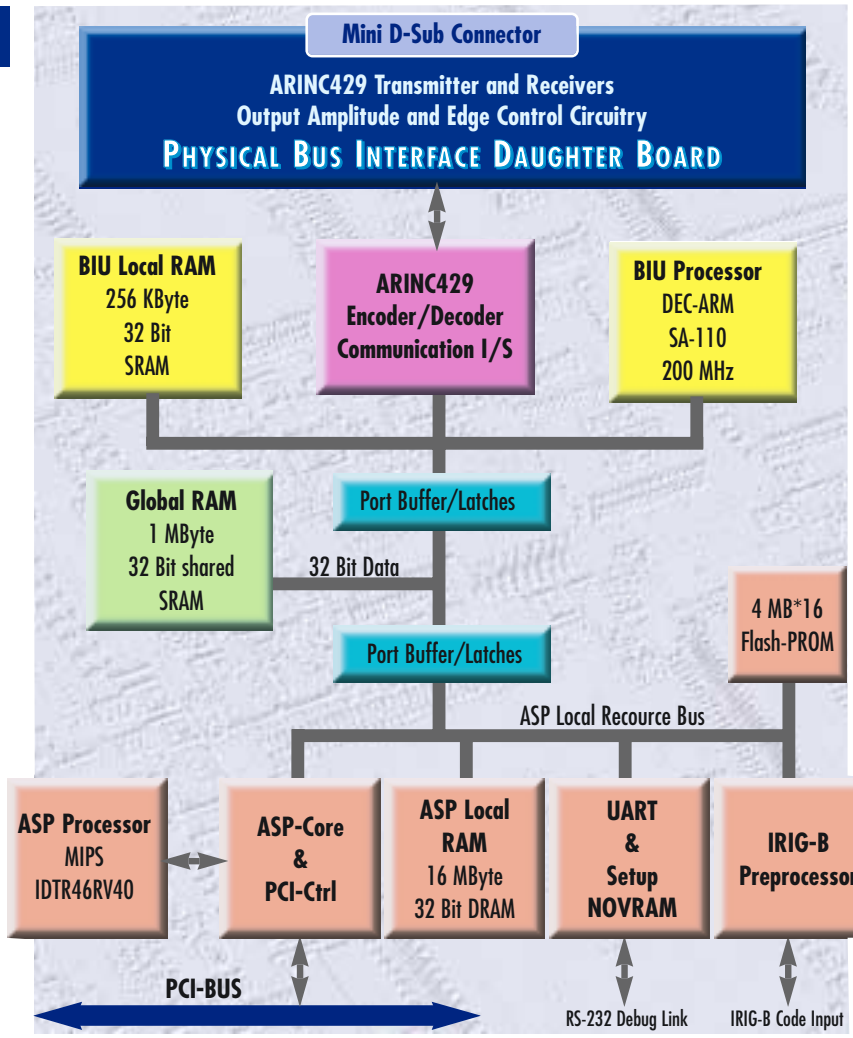
The API429-8/16 modules operate with the optional 'PAA-429', ARINC429 Databus Analyser Software Package for Windows 3.11/ 95/ 98/ NT.

Transmit Channel Operation

The API429-8/16 module provides real time simulation of up to 16 ARINC429 Transmitter Channels concurrently controlled by the 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 the Rise/ Fall Times are software programmable.

<u>Key features of the API429-8/16 simulation capabilities include:</u>

- Cyclic/Acyclic Label Transmission Mode & support for File Transfer Protocols
- Error Injection for each Label Transfer: Short Gap, Parity, Bit Count, Coding
- Programmable Gap between Labels : 0 to 255 Bits
- Transmit Operation Controlled by Instruction Lists
- Comprehensive Instruction Set: JUMP, CALL, COND-JUMP, TRANSFER ...



Receiver Channel Operation

Key features of the API429-8/16 receiver capabilities include:

- Label/SDI Selective Receive, Sequential Receive Modes
- Triggering and Filtering:
- Upper & Lower Limit Check
- Trigger on Specific or on any Error
- Label Content & Sequential Dependant Trigger
- Label selective & Label Data Contents Dependant Interrupt
- Label selective & Label Data Contents Dependant Filter
- Multi-Buffering with Real Time Data Buffer Updates

Physical Bus Replay

The API429-8/16 module is able to electrically reconstruct previously recorded ARINC429 data traffic physically to the bus with excellent timing accuracy. Recorded data files can be selected for physical bus replay to perform systems integration and test with the ability to disable any or all ARINC429 labels from the recorded File.

IRIG-B Time Code Decoder

An on-board 'IRIG-B' time decoder and generator allows synchronization of ARINC429 channels using single or multiple API429-8/16 modules. Multiple API429-8/16 modules can be daisy chained using one common IRIG-B time source or the on-board time code generator of one API429-8/16 module can be used 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 module processing functions typically provided by host PC processing systems.

Operational features include:

- Driver Software Execution on the board
- Control of RS232C debug Port for Firmware Updates
- Dynamic Data Generation
- Automatic Test Sequence Generation
- On-board VxWorks operating system to ease programming of the ASP by the user.

ARINC429 Physical Bus Interface

A Physical Bus Interface daughter board (PBI) provides for each channel an ARINC429 transmitter and a receiver. The transmitters have programmable rise/fall time as well as programmable output amplitude. All ARINC429 bus connections, the time code input and the trigger I/O are available on a Mini D-Sub connector at the PCI Card Bracket.

Driver Software Support

Since the Driver Software resides on the API429-8/16 module, a High Level Application Interface is provided which is compatible with Windows 3.11 (16 bit), Windows 95/ 98 (32 bit) and Windows NT (32 bit). Host applications can be written in MS Visual C, Visual Basic, Delphi, Borland C++, LabWindows/CVI etc. A LabVIEW application interface is also provided.

RIGHT ON TARGET

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Technical Data

Sub-System Interface
PCIbus Master & Slave (Revision 2.1, June, 1995)

Processors
One StrongARM SA-110 200MHz Processor
One MIPS IDT-79RV4640 150MHz Processor

Memory
1 MByte Global RAM
16 MByte ASP RAM

Encoder/Decoder
A total of 16 Encoders/ Decoders
With error injection and detection

Time Tagging
46 Bit absolute IRIG-B Time with 1µsec resolution

ARINC429 Physical Bus Interface (PBI):
Up to 16 ARINC429 Transmitter with Variable Output Amplitude and programmable rise/ fall time and up to 16 Line Receivers

Connectors
PCIbus standart connector
80 pin Mini D-Sub for ARINC429 connections,
Trigger I/O and IRIG-B I/O

Dimensions
PCI Standard 'Short Card' 174.63 mm x 106.68 mm

Power Consumption
API429-8 11,5 Watts typical @ 5 VDC
1,5 Watts typical @ 12 VDC

API429-16 13,0 Watts typical @ 5 VDC
3,0 Watts typical @ 12 VDC

Operating Temperature Range (ambient)
0°C to +45°C Standard Operating Temp.
-15°C to +60°C Extended Operating Temp.

Storage Temperature Range:
- 40°C to +85°C

Humidity
0 to 95% non-condensing

Ordering Information

API429-8
8 Channel PCIbus to ARINC429 Interface: Software Programmable Receiver/ Transmitter Channels with Variable Output Amplitude and IRIG-B Timecode Decoder. 1 MByte Global RAM, 16 MByte ASP RAM

API429-16
16 Channel PCIbus to ARINC429 Interface: Software Programmable Receiver/ Transmitter Channels with Variable Output Amplitude and IRIG-B Timecode Decoder. 1 MByte Global RAM, 16 MByte ASP RAM

ACP-429
Ready Made Adapter Cable (2.5 metres),
80 pin Mini D-Sub converted to
2 x D-Sub37 (female) and 1 x D-Sub15 (female)

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