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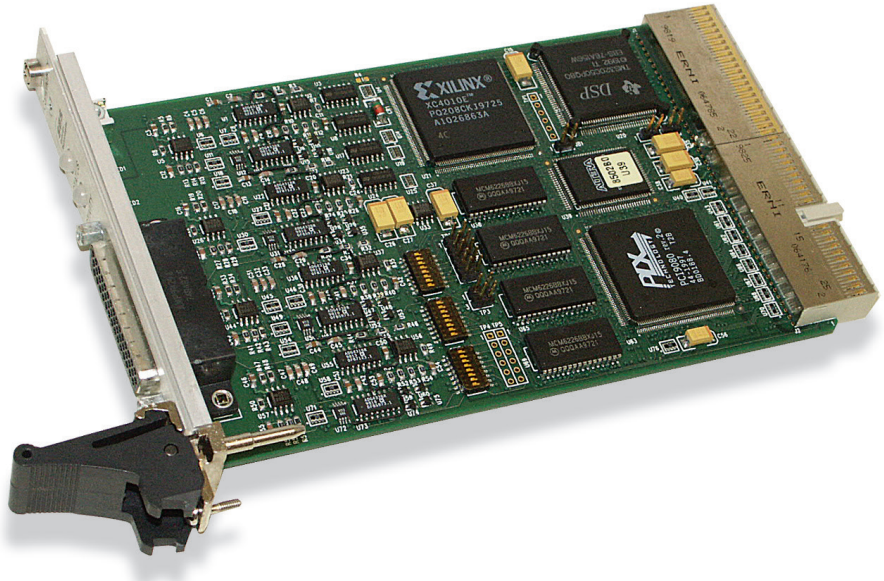
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A429-cPCI

ARINC Interface

A429-cPCI interface provides 8 highly programmable ARINC channels over the cPCI backplane. Each channel is software configurable for transmit or receive, high or low speed (100 k or 12.5 k bits per second) and ARINC 429 or 575 protocol requirements. Any channel may transmit source lists. The current value table, local monitor and/or global monitor buffers may filter and receive sink data. Either the Label or Label/SDI identify and sort the ARINC data. The on-board DSP controls the flexible data structures, triggers, interrupts, time stamping and data communications on the 429 bus. You can use external triggers for synchronization. The advanced interrupt technology allows real-time event handling by the host processor.

As it receives each 32-bit ARINC 429 data, a 48-bit, 1 µsec time tag time stamps the data word. When placing the receive channel in the monitor mode, a 16-bit status word accompanies the time stamped data. This provides error information regarding each received word.

When a channel is setup as a transmitter, you can send any number of label sequences on each channel. All transmit channels may also be synchronized for simultaneous transmission. Each transmitted ARINC word has an accompanying control word. The control word implements various error injection capabilities. You can transmit the words in scheduled and/or asynchronous priority methods.

Hardware Overview

Abaco bases the A429 interfaces upon high-speed DSP, programmable logic and dual port RAM. This advanced design delivers a highly reliable hardware platform that is feature rich and user friendly. The 256 kB of dual port RAM allows the host system to access setup, receive, monitor, transmit and change data structures, at any time. Definable transmission and receive structures include link list and buffer length sizes. This allows the user to design the data structure optimal for the specific application while maintaining an easy to use environment.

FEATURES:

- 8 highly configurable channels with concurrent and independent operation. Each channel selectable for:
  - Transmit or Receive
  - High or Low Speed
  - Receive and/or Bus Monitoring
- Transmitter
  - Advanced bus scheduling
  - Transmission list synchronization
  - Word level error injection
- Receiver
  - Label/SDI current value table
  - 48-bit 1 µsec time stamp
  - Error detection
- Bus Monitor
  - Filterable sequential buffer
  - Link-list buffer chains
  - 48-bit 1 µsec time stamp
  - Error detection
  - External trigger initiation
- Architecture
  - Host off-loading dsp
  - Large, flexible memory
  - Label and SDI operations
  - System event interrupts
- Software Support
  - Complimentary drivers for most operating systems
  - Integrated Avionics Library, including source code

abaco SYSTEMS

A429-cPCI *ARINC Interface*

Specifications

A429 Functionality: Transmitter Function

- Independent channel operations
- Major/Minor frame scheduling
- Priority asynchronous message insertion
- Transmission link buffers
- Synchronous word transmission
- On-the-fly transmission list
- Error injection
- Programmable interword gap
- 100 kHz or 12.5 kHz transmission speed

Receiver Function

- Current buffer value
- Time stamped received labels
- SDI and Label differentiation
- Label filter functions
- 48-bit, 1 µsec time stamp
- Multiple triggers and interrupts
- Error detection

Monitor

- Channel sequential monitor
- Global sequential monitor
- Buffer swap notification
- Variable length buffers
- Count detection triggers

Self Test

- Power-up test with status register report
- BIT-DSP and encoder/decoder test
- Run-time health status register
- Loop back Unit Test application

Inputs/Outputs

- External triggers

cPCI Functionality

- cPCI bus is 2.0-D2.13 compliant
- 50 MB per second maximum transfer rate
- 16-bit and 32-bit transfer modes
- Memory mapped
- Port addressing
- I/O mapped to cPCI J2

Interface Connections

- DB25F connector
- DB25M loop back connector

Interface Card Specifications

- Maximum power consumption with 400 ohm transmit loads:
  - 5 V @ 0.65 A, +12 V @ .33 A, -12 V @ .28 A
- Standard commercial operating temperature:
  - 0°C to +60°C; ≤ 95% rH non-condensing
- Mechanical - single channel: Size: Eurocard 3U
  - 5.3” x 3.94” (160mm x 100mm) Height 0.65”

Software and Documentation Support

- Low-level drivers for most operating systems
- Integrated Avionics Library with source code
- Borland and Microsoft® C Compiler compatible
- Hardware and Integrated Avionics Library documentation included on CD. Hard copies of the documentation are available upon request.

Customer Support

- Two-year warranty
- Extended warranties available
- Driver and library upgrades

Ordering information

Model Number	Configuration
A429-cPCI3U-8	Eight Channel ARINC 429 to cPCI interface

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