

## 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 $\mu$ Sec Time Stamp  
Error Detection

- **Bus Monitor**

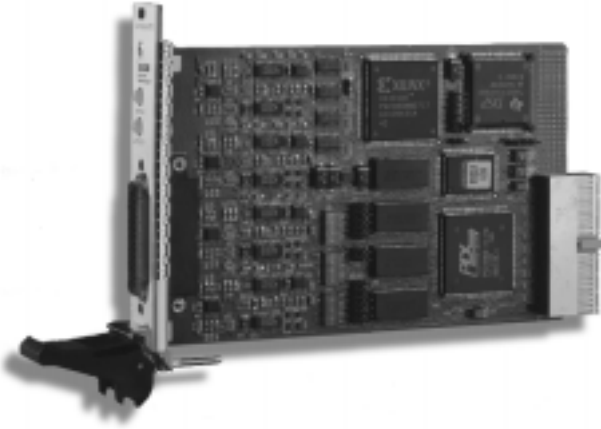
Filterable Sequential Buffer  
Link List Buffer Chains  
48 bit 1 $\mu$ Sec Time Stamp  
Error Detection  
External Trigger Initiation

- **Architecture**

Host Off-loading DSP  
Large, Flexible Memory  
Label & SDI Operations  
System Event Interrupts

- **Software Support**

No Cost Drivers & Libraries  
Including Source Code



*The A429-cPCI* interface provides the user with 8 highly programmable ARINC channels over the compactPCI backplane. Each channel is software configurable for transmit or receive, high or low speed (12.5k or 100k bits per second) and ARINC 429 or 575 protocol requirements. Source lists may be transmitted by any channel. Sink data may be filtered and received in a current value table, local monitor and/or global monitor buffers. The ARINC data word may be identified and sorted by either Label or Label/SDI. The onboard DSP controls the flexible data structures, triggers, interrupts, time stamping and data communications on the 429 bus. External triggers may be used for synchronization while the advanced interrupt technology allows realtime event handling by the host processor.

As each 32 bit ARINC 429 data word is received, it is time stamped with a 48 bit, 1 $\mu$ sec time tag. When the receive channel is placed in the monitor mode, the time stamped data is accompanied with a 16 bit status word which provides error information regarding each received word. When a channel setup as a transmitter, any number of label sequences may be sent on each channel and all transmit channels may be synchronized for simultaneous transmission. Each ARINC word to be transmitted has an accompanying control word used to implement various error injection capability. Words may be transmitted in scheduled and/or asynchronous priority methods.

### *Hardware Overview*

SBS A429 interfaces are based 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 256k 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, including link list and buffer length sizes, allows the user to design the data structure optimal for the specific application while maintaining an easy to use environment.

# A429 - cPCI Interface Specifications

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## **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
- 100k or 12.5k Transmission Speed

### **Receiver Function**

- Current Buffer Value
- Time Stamped Received Labels
- SDI & Label Differentiation
- Label Filter Functions
- 48 bit, 1µsec Time Stamp
- Multiple Triggers & 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"

## **Inputs/Outputs:**

- External Triggers

## **cPCI Functionality:**

- cPCI Bus is 2.0-D2.13 Compliant
- 50 Mbyte per Second Max. Transfer Rate
- 16 Bit & 32 Bit Transfer Modes
- Memory Mapped
- Port Addressing
- I/O Mapped to cPCI J2

## **Interface Connections:**

- DB25<sub>F</sub> Connector
- DB25<sub>M</sub> Loop Back Connector

## **Interface Card Specifications:**

- Maximum Power Consumption with 400 ohm transmit loads:
  - 5V @ 0.65 Amps
  - +12V @ .33 Amps
  - 12V @ .28 Amps
- Standard Commercial Operating Temperature:
  - 0° C to +60° C
  - ≤ 95% rH non-condensing
- Mechanical - Single Channel:
  - Size: Eurocard 3U
  - Dimensions: 5.3" x 3.94" (160mm x 100mm)
  - Height 0.65"

## **Software & Documentation Support:**

- Low Level Drivers & C Library Sets with Source Code
- Borland and Microsoft C Compiler Compatible
- Hardware and Library Manual Set

## **Customer Support:**

- Full One Year Warranty
- Extended Warranties Available
- Driver and Library Upgrades

## **Interface Model Numbers:**

- **A429-cPCI3U-8** Eight Channel ARINC 429 to cPCI Interface

*SBS guarantees a successful integration which includes no-cost phone, e-mail and ftp support, with on-site customer visits as necessary.*



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