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
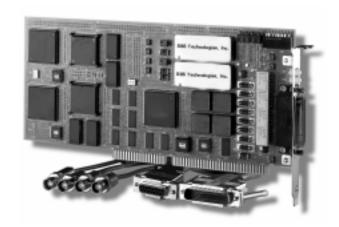 48 bit 1 µSec Time Stamp
  Error Detection

- **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 & SDI Operations
  System Event Interrupts

- **Software Support**
  No Cost Drivers & Libraries
  Including Source Code

The A429-PCI interface provides the user with 8 highly programmable ARINC channels over the PCI 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-µsec 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 - PCI
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
- 100k or 12.5k Transmission Speed

Receiver Function
- Current Buffer Value
- Time Stamped Received Labels
- SDI & Label Differentiation
- Label Filter Functions
- 48 bit, 1 μsec 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

PCI Functionality:
- PCI Bus is 2.1 Compliant
- 50 Mbyte per Second Max. Transfer Rate
- 16 Bit & 32 Bit Transfer Modes
- Memory Mapped
- Port Addressing

Interface Connections:
- DB25$_F$ Connector
- DB25$_M$ 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:
  - Approximately 1/2 Length PCI Bus Card
  - Dimensions: 5.9" x 3.875" (175mm x 98mm)

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-PCI-8**   8 Channel ARINC 429 to PCI Interface

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