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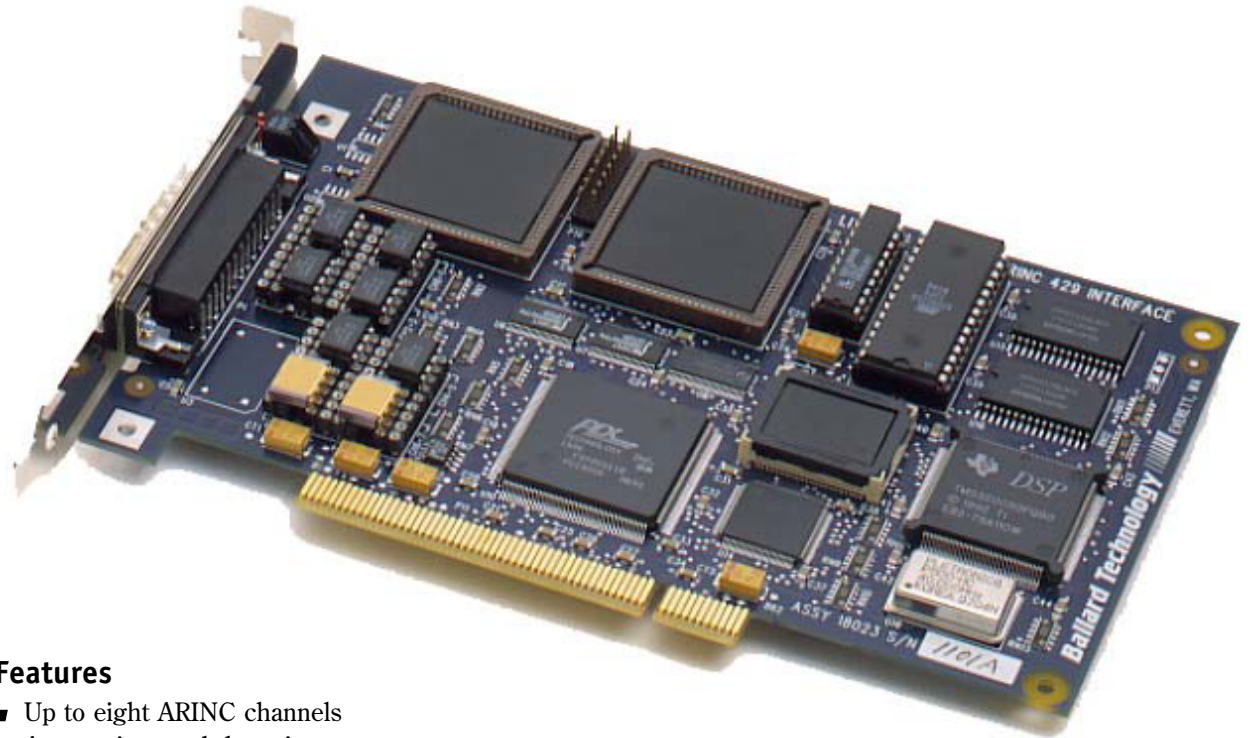
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# ARINC 429 Interface for PCI Computers



## Features

- Up to eight ARINC channels
- Automatic speed detection on receive channels
- Error injection and detection
- Extensive monitoring capability
- CoPilot 429 and CoPilot 429 Plus graphical software available
- Easy plug-and-play PCI interface
- Upgrade later as requirements change
- Exceptional value

## Description

The LP429-3 is a flexible, powerful, ARINC 429 avionics databus interface board for the development and maintenance of commercial avionics. Installed in a PCI computer, users can transmit and receive messages on up to eight databuses. Several mixes of transmit and receive channels are available and units can be upgraded at

any time to meet changing requirements. The advanced features, ease-of-use, and upgrade paths make the LP429-3 an ideal solution for ARINC 429 hardware and system development, testing, and simulation.

The LP429-3 can be easily configured to automatically transmit and receive labels (ARINC 429 words) while saving a sequential record of messages. The host computer can read or write data, alter transmit labels, or read receive labels at any time without interfering with the operation of the LP429-3. Transmissions are automatically maintained at the specified transmit intervals and may include concurrent aperiodic labels for file data transfer protocols. Re-

ceived data is filtered by label and SDI (source/destination identifier) and saved according to user specifications.

The sequential record is a time-tagged history of databus activity that can be saved for later analysis. The user specifies which labels go in the sequential record and what other performance information is to be recorded.

## Hardware

Once configured, the LP429-3 hardware can transmit, receive, and build the sequential record without requiring any processing by the host computer. The on-board, high-speed DSP, large

memory, and custom gate arrays provide power and flexibility for the multitude of LP429-3 features and user options.

## Software

The easiest way to use the LP429-3 is with Ballard's CoPilot 429 graphical software (available with board or separately). Using the ARINC 429 database of equipment IDs and label definitions, users can quickly build transmit schedules and display data in meaningful engineering units. The powerful Sequential Monitor captures data and saves time-tagged messages to a host file for subsequent processing and analysis. In addition, CoPilot 429 Plus provides virtual instruments, strip charts, and moving map displays, as well as scripting routines and hardware and software playback.

The LP429-3 comes bundled with an Application Program Interface (API) that enables quick and easy development of applications. The LP429-3 can be configured for simple applications with only a few API calls using default options. Al-

though most users will accomplish their tasks with a small number of API functions, the comprehensive library includes a broad range of tools for specialized needs. Also provided are many example programs with source code.

Driver software is included for Windows® 95/98/NT/Me/2000/XP and LabVIEW®. Linux and VxWorks® drivers are available.

## Ordering Information

**LP429-3/xRyT:** ARINC 429 Interface Card (where x is the number of receive channels and y is the number of transmit channels). The nine standard combinations are as follows:

Total Channels	xRyT Combinations
2	1R1T
4	4R0T 2R2T 0R4T
8	8R0T 6R2T 4R4T 2R6T 0R8T

Includes circuit board, API library, and manual.

**Cz-LP43/xRyT:** CoPilot 429 System (z is S for CoPilot standard and P for CoPilot Plus). Includes the LP429-3 card (options specified as above) and CoPilot 429 software.

**Ballard** // // // // //  
**Technology**

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Specializing in avionics databuses  
**MIL-STD-1553**  
**ARINC 429/629/708/717**  
**SPACE SHUTTLE**  
**Custom Products**

## Technical Specifications: LP429-3

### Number of Channels

2, 4, or 8 in nine standard configurations

### Transmit Channels

Speed  
Low (12.5 Kbps)  
High (100 Kbps)  
Software-established schedule  
Periodic and/or file transfer  
Continuous cycle or single word  
Internal or external trigger  
Error generation  
Parity  
Word gap (0 to 3 bit times)

### Receive Channels

Speed  
Auto-detect or fixed  
Low (12.5 Kbps)  
High (100 Kbps)  
Filters  
Words mapped by filter value  
Up to 1024 label/SDIs per channel  
Error detection  
Minimum gap, bit count, bit encoding, parity  
Time-tag  
32-bit, selectable range/resolution

### Sequential Record

Time-tagged recording of user-selected messages  
Interval and Delta modes for sampling and record compression

### DSP Core

80 MHz Digital Signal Processor  
Memory  
1 MB SRAM  
32 KB true dual-port RAM  
User configurable list buffers (FIFO mode)

### Interrupts

Software-configurable interrupt log list  
Generated on user-specified conditions  
Schedule  
Errors  
Specific messages

### PCI Interface

32 bits at 33 MHz  
Short card (175 x 107 mm)  
Plug-and-play

### Connector

25-pin male D-sub

### Other signals

External trigger  
Sync output  
Discrete I/O (4)

### Temperature grades

commercial (std)  
extended temperature available

### Software

Easy-to-use API  
Included drivers: Windows 95/98/NT/Me/2000/XP and LabVIEW  
Available drivers: Linux and VxWorks  
Optional CoPilot 429 and CoPilot 429 Plus software

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