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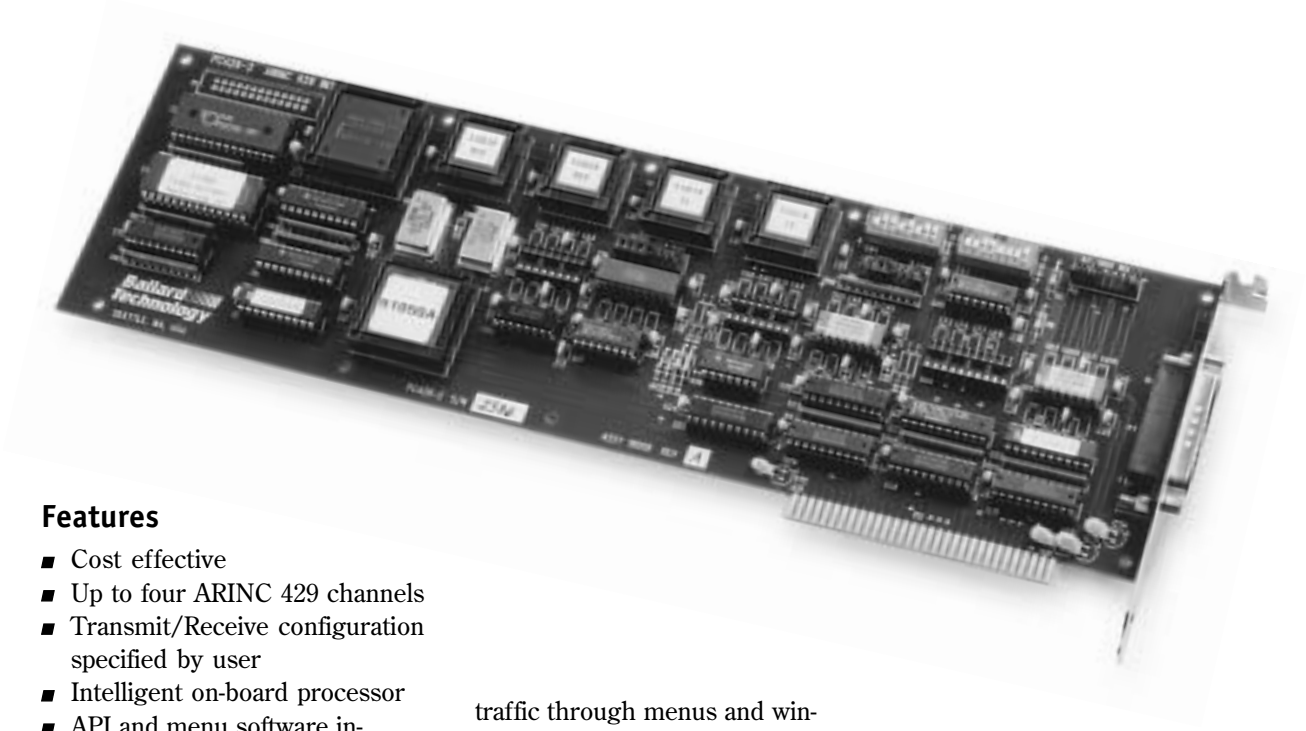
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Find the *Astronics / Ballard Technology PC429-2/2R2T* at our website: *Click HERE*

PC429-2

ARINC 429

ARINC 429 Interface for ISA Computers



Features

- Cost effective
- Up to four ARINC 429 channels
- Transmit/Receive configuration specified by user
- Intelligent on-board processor
- API and menu software included
- CoPilot 429 and CoPilot 429 Plus graphical software available
- Sequential recording with filters and time-tag

Description

The PC429-2 is a low-cost ARINC 429 interface board for ISA computers. It is available in two standard versions: with one transmit and one receive channel or two transmit and two receive channels. The PC429-2 is also available with up to four channels in a customer-specified combination of receive and transmit channels. Each channel operates independently at either high or low speed under the control of an on-board processor. Software included with the PC429-2 allows the user to create, transmit, receive, and display 429 bus traffic through menus and windows. Alternatively, with the aid of the driver library, the user can operate the PC429-2 board through a variety of programming languages.

The use of proprietary gate arrays has given the PC429-2 a level of functionality for test applications that goes beyond that possible with off-the-shelf 429 components developed for flight applications. Our approach maximizes performance and reliability while minimizing the component count and the price. Gate arrays are used for the encoders, decoders, and for a unique powerful interface to the host PC. The on-board processor allows the PC429-2 to run without intervention by the host PC. In normal operation, the PC429-2 automatically transmits words on transmit channels and continuously receives words on receive channels. The host PC can access specific transmitted or received words by writing to or reading from the appropriate memory location on the PC429-2. Self-test is available through a software enabled wraparound between encoders and decoders.

A special feature of the PC429-2 is its ability to selectively record bus activity along with a time-tag. This forms a sequential record that can be analyzed later by the user.

Transmit Channels

To satisfy the transmit interval requirements, the host computer schedules the transmission of ARINC words as a cycle of words and gaps. In normal operation the cycle is repeatedly transmitted without further host intervention. The external trigger provides the user with enhanced test capability.

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Receive Channels

The host computer initializes a PC429-2 receive channel by setting up Label/SDI filter combinations. When ARINC 429 words are received from the bus, they are stored in the dual port memory along with time-tags according to the filter configuration.

Sequential Record

A history of received and transmitted data can be selectively recorded in a sequential record, from which bus activity can be reconstructed for analysis. Since the sequential record can be streamed into a disk file and the data can be compressed by the Delta and Interval functions, the recording of test results (bus traffic) can continue over an extended period of time. The Delta function causes data to be saved only when the value of a word has changed from its last occurrence. The Interval function permits periodic sampling of data. The Interval and Delta functions preserve desired information but simplify analysis and reduce the size of the sequential record through sampling and the elimination of redundant data.

Software

The easiest way to use the PC429-2 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.

Alternately, an easy-to-use DOS utility is supplied with the PC429-2 that allows the user to interactively create, transmit, receive, and display ARINC 429 words through menus and windows. In this way the computer and the PC429-2 implement a simple, stand-alone 429 tester for which no programming is required.

Software developers can use the included Application Program Interface (API) library that simplifies control of the card and manipulation of 429 message data. This API library, which can be used with most standard languages, allows ARINC 429 communications to be integrated into other processes such as test procedures.

Driver software is included for Windows® 95/98/NT/Me/2000/XP and LabVIEW®.

Ordering Information

PC429-2/1R1T: ARINC 429 Interface Card. One transmit and one receive channel.

PC429-2/2R2T: ARINC 429 Interface Card. Two transmit and two receive channels.

PC429-2/xRyT: ARINC 429 Interface Card. User specifies x number of receive channels and y number of transmit channels, up to four total.

Cz-P42/xRyT: CoPilot 429 System (z is S for CoPilot standard and P for CoPilot Plus). Includes the PC429-2 (x and y specified as above) and CoPilot 429 software.

All PC429-2 interface cards include DOS menu utility, API library, and manual.

Technical Specifications: PC429-2

Number of Channels
- 1, 2, 3, or 4

Transmit Channels
- Speed:
  - Low (12.5 Kbps)
  - High (100 Kbps)
- Software-established schedule:
  - Continuous cycle or single word
  - Internal control or external trigger
- Up to 512 word records
- Error generation:
  - Parity
  - Word gap (0 to 3 bit times)
- Sync output: selected by word

Receive Channels
- Speed:
  - Low (12.5 Kbps)
  - High (100 Kbps)
- Filters:
  - Words mapped by filter value
  - Up to 1024 Label/SDI values
- Error detection:
  - minimum gap
  - bit count
  - bit encoding
  - parity
- Time-tag:
  - 24 bit
  - Selectable range/resolution

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

Processor & Memory
- Coprocessor, 32 KB RAM, 32 KB ROM

Address Map
- Memory segment: 4 KB movable host window
- Port: 8-byte window

Connector
- 25-pin male D-subminiature

Software
- Easy-to-use DOS menu utility
- Drivers: Windows 95/98/NT/Me/2000/XP and LabVIEW
- Comprehensive API library
- Optional CoPilot 429 and CoPilot 429 Plus software

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