LP429-3/717
PCI Interface to ARINC 429 and ARINC 717

Features
- Simultaneous operation of ARINC 429 and 717
- Two ARINC 717 bi-phase channels, configurable for transmit/receive
- One each ARINC 717 bi-polar transmit and receive channel
- Eight ARINC 717 speeds, from 64 to 8192 words/sec
- Two transmit and two receive ARINC 429 channels standard
- Other ARINC 429 channel configurations available
- Easy-to-use graphical software included for ARINC 717
- Powerful CoPilot 429 and CoPilot 429 Plus graphical software available for ARINC 429

Description
The LP429-3/717 is a PCI card with receivers and transmitters for both ARINC 429 and ARINC 717. Installed in a PCI computer, it allows the user to communicate over ARINC 429 databuses while simultaneously transmitting and receiving ARINC 717 data. It is ideal for troubleshooting Flight Data Recorders, for testing equipment on an ARINC 429 databus, and for testing avionics systems that involve the interaction of ARINC 429 and ARINC 717.

ARINC 717
The ARINC 717 specification describes the protocol for communication between the Digital Flight Data Acquisition Unit (DFDAU) and the Digital Flight Data Recorder (DFDR). A one-second sequence of 12-bit words is known as a subframe. ARINC 717 data is organized by words, subframes, frames, and in some cases superframes. Each subframe is marked by a unique sync word.

A graphical program called 717 Monitor is included for viewing ARINC 717 data, and the powerful graphical program CoPilot 429 is available for transmitting, receiving, and interpreting ARINC 429 messages. The on-board high-speed DSP, large memory, and custom gate arrays provide power and flexibility for the multitude of features and user options.
simulating or receiving data from the Quick Access Recorder (QAR) port. All four ARINC 717 channels can operate at 64 to 8192 words per second.

The 717 Monitor program is provided for viewing ARINC 717 data. This easy-to-use program allows the user to configure the hardware (set speed, sync words, superframe specifications, etc.) and select a given word for viewing. The word is displayed in binary and octal form, and an indication of sync word is displayed in binary and octal form. (Standard ARINC 429 configuration: 2R/2T. Custom configurations available). The four ARINC 429 channels can be easily configured to automatically transmit and receive labels (ARINC 429 words) while saving a sequential record of the activity of interest. The host computer can read or write data at any time without interfering with the operation of the LP429-3/717. Transmissions are automatically maintained at the specified transmit intervals and may include concurrent aperiodic labels for file data transfer protocols. Received data are filtered by label/SDI and saved according to user specifications. The sequential record is a time-tagged history of data bus activity that can be saved for later analysis. The user specifies which labels go the sequential record and what other performance information is recorded.

ARINC 429

The LP429-3/717 is equivalent to a Ballard LP429-3/2R2T with added 717 functionality. The four ARINC 429 channels can be easily configured to automatically transmit and receive labels (ARINC 429 words) while saving a sequential record of the activity of interest. The host computer can read or write data at any time without interfering with the operation of the LP429-3/717. Transmissions are automatically maintained at the specified transmit intervals and may include concurrent aperiodic labels for file data transfer protocols. Received data are filtered by label/SDI and saved according to user specifications. The sequential record is a time-tagged history of data bus activity that can be saved for later analysis. The user specifies which labels go the sequential record and what other performance information is recorded.

Software

Besides the 717 Monitor program, the LP429-3/717 comes bundled with an Application Program Interface (API) which enables quick and easy development of applications for both ARINC 717 and 429. The LP429-3/717 can be configured for simple applications with only a few API calls using default options. Although 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. Many example programs with source code are included, which illustrate the use of the 717 and 429 API libraries.

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

For ARINC 429, Ballard’s CoPilot 429 graphical software is 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.

Ordering Information


Cz-LP43/717: CoPilot 429 System (z is S for CoPilot standard and P for CoPilot Plus). Includes LP429-3/717 card (as described above) and CoPilot 429 software.