DP-cPCI-4296

3U cPCI 8 Channel ARINC 429 Module

KEY FEATURES AND BENEFITS
- 8 ARINC429 Tx Channel
- 8 ARINC429 Rx Channel
- Relays for enabling/disabling the transmitters
- 3U cPCI single slot
- PICMG 2.1, CompactPCI® Hot Swap Specification, Revision 1.0® Hot Swap Ready compliant
- Windows 2000 drivers provided
- RT Linux drivers provided

APPLICATIONS
- Automatic test equipment
- Rugged military system
- Avionics communications
- Simulators

DESCRIPTION
DP-cPCI-4296 board features cPCI based eight channels ARINC429 protocol interface. As part of the cPCI family, the DP-cPCI-4296 board is fully compliant with compactPCI® specification 2.0 R3.0, and CompactPCI® Hot Swap Specification 2.1 R1.0.

BACKPLANE INTERFACE
DP-cPCI-4296 Compact Peripheral Component Interconnect (CompactPCI) bus board is a non-intelligent slave board. DP-cPCI-4296 uses PCI controller and a hot swap controller to ensure safety and error free operation as a result of live insertion and extraction. PCI controller has the features of PCI Local Bus Specification v2.2-compliant 32-bit, 33 MHz bus target interface device enabling PCI Burst Transfers up to 132 MB/sec with PCI power management features for adapters and embedded systems and PCI Hot Plug and CompactPCI Hot Swap compliant and also 3.3/5V tolerant PCI and Local signaling supports Universal PCI Adapter designs. Hot swap controller ensures proper supply of required voltages to the board.

ARINC429 PROTOCOL LOGIC INTERFACE
ARINC429 (Aeronautical Radio Incorporated) is a specification, which defines how avionics equipment and system should communicate with each other. ARINC429 employs an unidirectional data bus standard known as Mark 33 Digital Information Transfer System (DITS). Messages are transmitted and received at a bit rate of either 12.5 kHz or 100 kHz. DP-cPCI-4296 supports eight receivers and eight transmitters.

The ARINC429 data input from the User I/O Interface, is given to the line receiver section. Here the line receiver acts as voltage level translator. It converts the ARINC429 10 Volt differential line voltage into 5 Volt internal logic level. The line receiver has the special functions such that the receiver inputs are lightning protected, meets all requirements of ARINC429 Digital Information Transfer Standard. In ARINC429 word, the first 8 bits are labeled. Maximum of 256 label can be label matched with the received data. In DP-cPCI-4296, label matching is provided. Each bit in each label decides whether the receiver is enabled for that particular label. If the receiver is enabled for a particular label, the corresponding data for that particular label is written into the receiving memory.

The ARINC429 word to be transmitted is loaded into the transmitter FIFO input register and the ARINC429 protocol transmitter data word format has been done in the FPGA and transmitted serially to ARINC429 transmitter. Eight ARINC429 line drivers are used to translate differential TTL/CMOS pairs to ARINC standard amplitude levels. Two ARINC429 Quad Line receivers are used to convert ARINC 429 standard signals to Differential TTL/CMOS pairs.

RELAY INTERFACE
Eight relays are provided for enabling or disabling the eight transmitter channels. Normally all the relays are in the closed position. The eight receiver channels are always enabled, and transmitters are disabled during power ON. 25 Pin connector provides the field interface.

SOFTWARE SUPPORT
The module is supplied complete with device drivers in Windows 2000 and RT Linux. Please contact factory for support in any other operating system such as VxWorks, QNX, INTime, Lynx etc.
## SPECIFICATIONS

### RECEIVER
- **Number of channels**: 8
- **Configuration Options**: 1, 2, 3, 4, 5, 6, 7, or 8 standard receive channels
- **Data Rates**: 12.5kHz or 100kHz (software selectable)
- **Word Length Selection**: 25 bit or 32 bit (software selectable)
- **Standard Input Levels**: ±6.5 to ±13VDC
- **Label Mode Selection**: 1 to 256 labels
- **Buffering**: 8KB for all labels per receiver channel

### TRANSMITTER
- **Number of channels**: 8
- **Configuration Options**: 1, 2, 3, 4, 5, 6, 7, or 8 standard receive channels
- **Data Rates**: 12.5kHz or 100kHz (software selectable)
- **Word Length Selection**: 25 bit or 32 bit (software selectable)
- **Standard Output Levels**: 10V ± 1V tolerance (A to B)
- **Parity**: Odd or even
- **Slew Rate Adjustment**: Automatic
- **Buffering**: 8KB per transmitter channel

### CONNECTOR
- **Backplane Interface**: cPCI interface
- **Field Interface**: 25 Pin connector

### RELAY INTERFACE
- **8 Relays to enable/disable Tx**

### POWER
- **5V @ 0.5A, 3.3V @ 1A, ±12V @ 0.8A**

### SIZE
- **3U single slot (100mm x 160mm)**

### ENVIRONMENT
- **Commercial and Rugged versions**

### ORDERING INFORMATION
- **DP-cPCI-4296 3 0 0**
  - Factory options specified based on applications
  - 3 - Commercial version
  - 6 - Rugged version

## BLOCK DIAGRAM OF DP-cPCI-4296