**RCEI-830A**

**ARINC High Density Interface for PMC**

### Features
- Up to 16 Rx and 16 Tx ARINC 429 channels
- High performance, high density interface with large buffers
- Ruggedized, extended temp configurations optional
- Ruggedized, conductively cooled versions available
- Advanced, high-level software API for 32-bit/64-bit Microsoft® Windows® 7, Vista® and XP®, Linux®, VxWorks® and INTEGRITY® operating systems included.
- Supports maximum data throughput on all channels simultaneously
- Independent, software-programmable bit rates for all channels
- 66/33 MHz PCI and PCI-X® bus operation
- Fully independent channel operation
- IRIG-B receiver/generator optional

### Hardware

Available in a range of flexible configurations, the 32-channel RCEI-830A provides complete, integrated databus functionality for ARINC 429, ARINC 575 and selected 2-wire, 32-bit protocols. The RCEI-830A supports maximum data throughput on all channels while providing on-board message scheduling, label filtering, multiple buffering options, time-tagging and error detection with support for either 33 MHz or 66 MHz PCI/PMC interfaces. Configurations with support for ARINC 717, ARINC 573, and IRIG-B receiver (AM or DC/TTL) and generator (DC/TTL) support are optional. IRIG-B DC level signal can be utilized to synchronize time stamps across multiple boards. Ruggedized and conductively cooled configurations with extended operating temperatures are available. Several RCEI-830A configurations offer combinations of ARINC 429 channels along with ARINC 717/573 dual-mode functionality. Dual-mode functionality programmatically supports either HBP (Harvard Bi-Phase) or BPRZ (Bi-Polar Return to Zero) across a very wide range of bit rate/subframe combinations. Contact GE Intelligent Platforms for PCI, CompactPCI® or other platform support of these ARINC protocols.

### Software

GE’s software tools and solutions significantly reduce the time required to integrate ARINC 429 and other avionics protocols into an application. Included with the RCEI-830A is GE’s flexible, high-level, API (Application Programming Interface) support for 32-bit/64-bit Microsoft Windows 7, Vista and XP, Linux, VxWorks and Integrity operating systems. This powerful API supports multiple cards, and is compatible with GE’s API support on PCI, PC/AT, PC/104, PC/104-Plus, CompactPCI and PCMCIA platforms. Optional software includes LabVIEW™ support and BusTools™/ ARINC, GE’s easy-to-use, Windows-based GUI solution for ARINC 429 analysis, simulation and data logging.

### Architecture

The RCEI-830A features include independent, software programmable data rates and parity, error detection and automatic transmit channel slew rate adjustment. 2 MBytes of on-board RAM. All channels operate independently. Standard configuration has both front bezel and P14 mezzanine connector I/O. Configurations with only P14 I/O are available.

### Data Handling

On-board firmware, large data buffers, and a high-level API are integrated to provide total flexibility in monitoring and generating ARINC bus traffic. Simultaneous scheduled and burst mode (FIFO) messaging is supported on all ARINC 429 transmit channels. Each ARINC 429 receive channel provides simultaneous Dedicated and buffered mode storage, along with label/SDI filtering.

Three different methods are provided to buffer received data:
- Buffered mode utilizes a separate circular buffer for each channel.
- Merged mode combines all received data into a single, time-sequenced circular buffer.
- Dedicated mode provides a snapshot of the very latest data.
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Specifications

ARINC 429 Receive Channels
- Number of channels: up to 16 (max. 15 on P14 connector)
- Data rates: 12.5 KHz, 100 KHz or 5 KHz to 150 KHz programmable
- Standard input levels: ± 6.5 to ± 13 VDC (A to B)
- Filtering: label and/or SDI
- Parity: odd, even or none
- Error reporting: parity

ARINC 429 Transmit Channels
- Number of channels: up to 16 (max. 15 on P14 connector)
- Data rates: 12.5 KHz, 100 KHz or 5 KHz to 150 KHz programmable
- Automatic slew rate adjustment
- Output level: ± 10 VDC (A to B)
- Parity: odd, even or none
- Error injection option: parity, gap, high or low bit count

Software
- API
  - Includes high-level API for 32-bit/64-bit Windows 7, Vista and XP, VxWorks, Linux and Integrity O/S.
- Source code API library included
- GUI - Optional BusTools/ARINC GUI bus analyzer
- LabVIEW - Optional CEI-LV support is available

Physical
- PMC mezzanine card (74 mm x 149 mm without bezel)
- Front bezel and P14 mezzanine connector I/O

Environmental
- Standard operating temperature range: 0°C to +70°C
- Relative humidity: 5 to 90% (non-condensing)
- Storage temperature range: -55°C to +105°C
- Optional ruggedized, extended temp and conductively cooled configurations

Option Configurations
- A range of ARINC 429 Rx/Tx combinations
- Optional front bezel or P14 I/O only
- Optional ruggedized, -40°C to +85°C operating temperature range
- Optional ruggedized, VITA compliant conductive cooling (max. +71°C at temp)
- Optional conformal coating
- Optional IRIG-B receiver (AM or DC/TTL) and generator (DC/TTL)
- Available mounted on a PCI, 3U/6U CompactPCI carrier board

Power (Typical)
- +3.3 VDC: 0 mA
- +5 VDC: 120 mA
- +12 VDC: 100 mA (no loads)
- -12 VDC: 100 mA (no loads)

PCI Signal Compatibility
- Universal (5V or 3.3V)
- 66/33 MHz PCI bus operation

Ordering Information

RCEI-830-22
- ARINC 429 High Density PMC card with 2 Rx, 2 Tx channels, front and P14 I/O

RCEI-830-22J
- ARINC 429 High Density PMC card with 2 Rx, 2 Tx channels, 1 Rx, 1 Tx ARINC 717 channels, front and P14 I/O

RCEI-830A-44
- ARINC 429 High Density PMC card with 4 Rx, 4 Tx channels, front and P14 I/O

RCEI-830A-44C
- ARINC 429 High Density PMC card with 4 Rx, 4 Tx channels, P14 I/O, ruggedized, ext temp, conductively cooled

RCEI-830A-44J
- ARINC 429 High Density PMC card with 4 Rx, 4 Tx channels, 1 Rx, 1 Tx ARINC 717 channels, front and P14 I/O

RCEI-830A-88
- ARINC 429 High Density PMC card with 8 Rx, 8 Tx channels, front and P14 I/O

RCEI-830A-88C
- ARINC 429 High Density PMC card with 8 Rx, 8 Tx channels, P14 I/O, ruggedized, ext temp, conductively cooled

RCEI-830A-88J
- ARINC 429 High Density PMC card with 8 Rx, 8 Tx channels, 1 Rx, 1 Tx ARINC 717 channels, front and P14 I/O

RCEI-830A-1313J
- ARINC 429 High Density PMC card with 13 Rx, 13 Tx channels, 1 Rx, 1 Tx ARINC 717 channels, front and P14 I/O

RCEI-830A-1616
- ARINC 429 High Density PMC card with 16 Rx, 16 Tx on front I/O or 15 Rx, 15 Tx on P14 I/O

RCEI-830A-1616C
- ARINC 429 High Density PMC card with 16 Rx, 16 Tx on front I/O or 15 Rx, 15 Tx on P14 I/O, conductively cooled

RCEI-830A-1616J
- ARINC 429 High Density PMC card with 16 Rx, 16 Tx channels, front and P14 I/O

RCEI-830A-1313
- ARINC 429 High Density PMC card with 13 Rx, 13 Tx channels, P14 I/O, conductively cooled

RCEI-830A-1616
- ARINC 429 High Density PMC card with 16 Rx, 16 Tx channels, P14 I/O, conductively cooled

RCEI-830A-1616C
- ARINC 429 High Density PMC card with 16 Rx, 16 Tx on front I/O or 15 Rx, 15 Tx on P14 I/O

RCEI-830A-1616J
- ARINC 429 High Density PMC card with 16 Rx, 16 Tx channels, front and P14 I/O

RCEI-830A-1313
- ARINC 429 High Density PMC card with 13 Rx, 13 Tx channels, P14 I/O, conductively cooled

RCEI-830A-1616
- ARINC 429 High Density PMC card with 16 Rx, 16 Tx channels, P14 I/O

RCEI-830A-1616J
- ARINC 429 High Density PMC card with 16 Rx, 16 Tx channels, front and P14 I/O

Optional Hardware
- R suffix
  - Ruggedized, ext temp
- W suffix
  - IRIG-B Receiver IAM or DC/TTL Generator (DC/TTL)
- G suffix
  - P14 I/O only, ruggedized, ext temp
- H suffix
  - No P14 I/O
- N suffix
  - Discretes 4 in / 4 out
- K suffix
  - Conformal coated
- X suffix
  - PCI (mounted on PCI carrier card) is compatible with PCI-X 1.0 and PCI slots
- -J suffix
  - 3U cPCI (mounted on 3U cPCI carrier card)
- -U suffix
  - PCI Express (mounted on PCI Express carrier card)

Optional Software

BT-ARINC
- BusTools ARINC Windows GUI software for ARINC Bus Analysis, Simulation and Data Logging

CEI-DL
- ARINC 615-3 Data Loader GUI

CEI-LV
- LabVIEW support for ARINC 429

About GE Intelligent Platforms

GE Intelligent Platforms is a General Electric (NYSE: GE) company, headquartered in Charlottesville, VA and part of GE Energy Management. The company’s Military/Aerospace business, headquartered in Huntsville, AL, and Towcester, England, provides one of the industry's broadest ranges of high performance, rugged, SWaP-optimized embedded computing platforms. Backed by programs that provide responsive customer support and minimize long term cost of ownership for multi-year programs, GE’s solutions are designed to help customers minimize program risk and cost, and to speed time-to-market. For more information, visit defense.ge-ip.com.

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