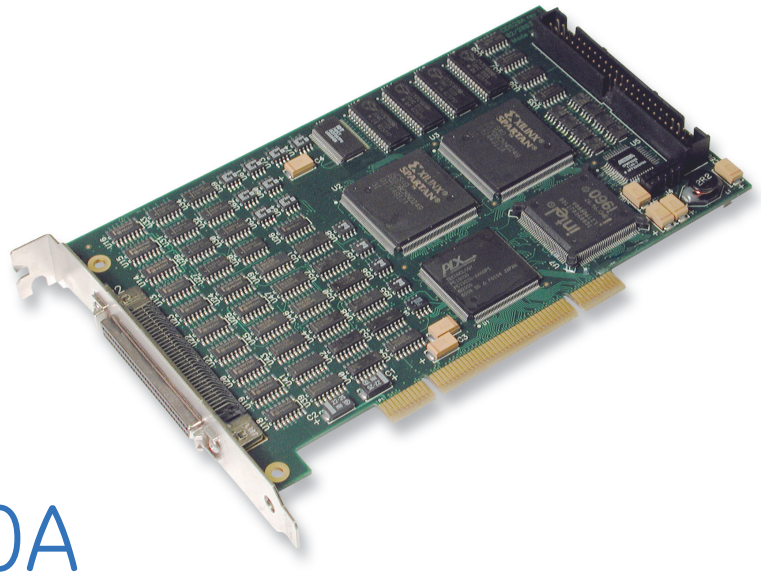
GE Fanuc
Embedded Systems



CEI-520/CEI-520A

ARINC Interface for PCI

Features

- Up to 16 Rx and 16 Tx ARINC 429 channels
- Intelligent interface with large buffers
- Easy-to-use *BusTools*/ARINC Windows-based GUI Bus Analyzer available
- Advanced, high-level software API included for Windows XP, 2000, Me, NT, 98, 95, Linux Kernel (2.4 and 2.6), VxWorks, Visual Basic and LabWindows/CVI
- Supports maximum data throughput on all channels simultaneously
- Programmable receive thresholds and variable transmit output voltages available
- Up to 16 input and 16 output discretes that handle avionics–level voltages
- Fully independent channel operation
- Error injection/detection
- High performance processor
- Support for 2-wire ARINC 573, 575, 717, CSDB, +

Hardware

Available in a range of configurations to match your needs, the intelligent CEI-520 and CEI-520A provide complete, integrated databus functionality for ARINC 429 and related avionics protocols. The CEI-520/ 520A supports maximum data throughput on all channels while providing on-board message scheduling, label filtering, multiple buffering options, time-tagging, error injection/detection and avionics-level I/O discretes. Programmable receive level thresholds, adjustable transmit output voltages and ruggedized configurations with extended operating temperatures are optional. Support for other 2-wire avionics protocols including ARINC 419, 561, 571, 573, 575, 582, 717, and CSDB is available.

Software

GE Fanuc Embedded Systems software tools and solutions significantly reduce the time required to integrate ARINC 429 and other avionics protocols into your application. Included is our flexible, high-level, API (Application Programming Interface) support for Windows XP, 2000, Me, NT, 98, 95, Linux Kernel (2.4 and 2.6), LabWindows/CVI, VxWorks and Visual Basic. This powerful API supports multiple cards, and is compatible with Condor API support on PC/AT, PC/104, CompactPCI and PCMCIA platforms. Optional software includes Solaris drivers, LabVIEW support and *BusTools*/ARINC, GE Fanuc Embedded Systems' easy-to-use, Windows-based GUI solution for ARINC 429 analysis, simulation and data logging.

Architecture

The interfaces feature independent selection of data rate and parity, error injection/detection and automatic transmit channel slew rate adjustment. The parametric option adds programmable input thresholds on receive channels and adjustable output voltage on transmit channels. Input discretes support TTL to avionics voltage levels, while output discretes can switch up to 0.5 ampere.

CEI-520A

The CEI-520A is functionally compatible with the CEI-520. The CEI-520A includes a component upgrade to support PCI universal voltage signaling (3.3V or 5V). The CEI-520 supports 5V only. Version 3.80 of the CEI-x20 API includes support for the CEI-520A and CEI-520. More information related to the transition from CEI-520 to CEI-520A is available on our web site.

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.

Tools - API Support

Flexible, high-level utility libraries for Windows XP, 2000, Me, NT, 98, 95, Linux, LabWindows/CVI, VxWorks and Visual Basic are included with the CEI-520 and CEI-520A. Our easy-to-use API (Application Programming Interface) speeds application development by providing simplified access to all configuration, initialization, transmit and receive functionality. Contact GE Fanuc Embedded Systems for a copy of the API User Manual to see how this robust and flexible C programming interface can reduce development, integration and life cycle maintenance efforts. Solaris and LabVIEW VI support are also available.

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CEI-520/CEI-520A ARINC Interface for PCI

Specifications

ARINC 429 Receive Channels
- Number of channels: up to 16
- Data rates: 12.5 KHz or 100 KHz
- Standard input levels: ± 6.5 to ±13 VDC (A to B)
- Parametric threshold levels: ± 0.1 to ± 13.5 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
- Data rates: 12.5 KHz or 100 KHz
- Automatic slew rate adjustment
- Standard output level: ±10 VDC (A to B)
- Parametric output voltages: 0 to ±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 Windows XP, 2000, Me, NT, 98, 95, Linux, LabWindows/CVI, VxWorks and Visual Basic
- GUI - Optional *BusTools*/ARINC GUI bus analyzer
- Solaris - Support optional

Architecture
- Processor: 100 MHz Intel 80960
- RAM: 512 KB shared memory

Physical/Environmental
- PCI short card (6.8 in. x 4.2 in.)
- Operating temperature range: 0 to +70° C
- Extended operating temperature range available

Discrete Inputs
- Number of inputs: 0, 8 or 16
- Supports avionics-level (open/gnd or high/low) and TTL/CMOS

Discrete Outputs
- Number of outputs: 0, 8 or 16
- Low side switches, each capable of sinking 0.5 ampere

Optional Configurations
- A wide range of Rx/Tx combinations
- Parametric voltages
- ARINC 573/717 Bi-Polar RZ and Harvard Bi-Phase
- CSDB

Power (typical)
- +5 VDC: 780 mA
- +12 VDC: 100 mA
- -12 VDC: 100 mA

PCI Signaling Voltage Compatibility
- 5V Signaling (CEI-520)
- Universal signaling (3.3V or 5V) (CEI-520A)
- CEI-520A is compatible with PCI-X 1.0 and PCI slots

Ordering Information

CEI-520A-22:	ARINC 429 Intelligent PCI card with 2 Rx, 2 Tx channels, no discretes
CEI-520A-44:	ARINC 429 Intelligent PCI card with 4 Rx, 4 Tx channels, 8 In/8 Out discretes
CEI-520A-88:	ARINC 429 Intelligent PCI card with 8 Rx, 8 Tx channels, 8 In/8 Out discretes
CEI-520A-88-P:	ARINC 429 Intelligent PCI card with 8 Rx, 8 Tx channels, parametrics, 8 In/8 Out discretes
CEI-520A-1608:	ARINC 429 Intelligent PCI card with 16 Rx, 8 Tx channels, 16 In/16 Out discretes
CEI-520A-0816:	ARINC 429 Intelligent PCI card with 8 Rx, 16 Tx channels, 16 In/16 Out discretes
CEI-520A-1616:	ARINC 429 Intelligent PCI card with 16 Rx, 16 Tx channels, 16 In/16 Out discretes
CEI-520A-1616-P:	ARINC 429 Intelligent PCI card with 16 Rx, 16 Tx channels, parametrics, 16 In/16 Out discretes
CEI-520A-1508-J:	Intelligent PCI card with 15 Rx, 8 Tx ARINC 429 channels; parametrics, 1 Rx and 1 Tx Dual Mode ARINC 717 channels; 16 In/16 Out discretes
CEI-520A-1514-J:	Intelligent PCI card with 15 Rx, 14 Tx ARINC 429 channels; parametrics, 1 Rx and 1 Tx Dual Mode ARINC 717 channels; 16 In/16 Out discretes
CEI-520A-1208-C:	Intelligent PCI card with 12 Rx, 8 Tx ARINC 429 channels; parametrics, 4 Rx and 4 Tx CSDB channels; 16 In/16 Out discretes

About GE Fanuc Embedded Systems

GE Fanuc Embedded Systems is a leading global provider of embedded computing solutions for a wide range of industries and applications. Our comprehensive product offering includes many types of I/O, single board computers, high performance signal processors, fully integrated, rugged systems including flat panel displays, plus high speed networking and communications products. The company is headquartered in the U.S. and has design, manufacturing and support offices throughout the world. Whether you're looking for one of our standard products or a fully custom solution, GE Fanuc Embedded Systems has the breadth, experience and 24/7 support to deliver what you need. For more information, visit www.gefanucembedded.com.

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Additional Resources

For more information, please visit the GE Fanuc Embedded Systems web site at:

www.gefanucembedded.com

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