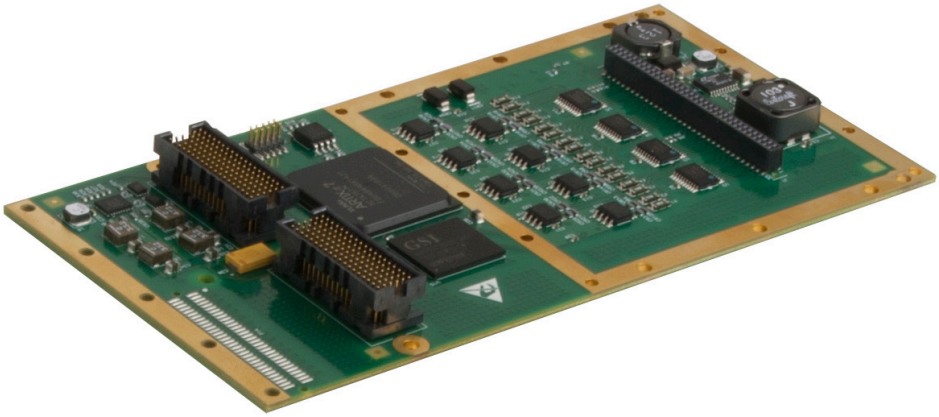

RAR-XMC

ARINC High Density XMC Interface

Hardware

Available in a range of configurations to match your needs, RAR-XMC provides complete, integrated databus functionality for ARINC 429 protocols. The RAR-XMC supports maximum data throughput on all channels while providing onboard message scheduling, label filtering, multiple buffering options, receive message time-tagging and error detection, and IRIG-B Receiver (AM or DC/TTL) and Generator (DC/TTL). Configurations with support for ARINC 717 support are optional. Dual-Mode functionality supports either ARINC 717 HBP (Harvard Bi-Phase) or BPRZ (Bi-Polar Return to Zero) across a range of Bit Rate/ Sub-frame combinations.

Software

Abaco Systems' software tools and solutions significantly reduce the time required to integrate ARINC 429 and other avionics protocols into your application. Included with the RAR-XMC is our flexible, high-level, API (Application Programming Interface) support for Microsoft Windows 7, 8, 8.1, 10, Server 2012 R1/R2, Vista (32 and 64bit), XP, VxWorks and Linux Kernel Versions 2.6 and 3.x. This powerful API sup-ports multiple cards, and is compatible with Abaco Systems x30 API support on PCI, PCI Express, PC/104-Plus, Express Card, AMC, Compact PCI and PMC platforms. Optional software includes LabVIEW support.

Architecture

RAR-XMC features include independent, software programmable data rates and parity, error detection and programmable transmit channel slew rate. 1 MBytes of on-board RAM provide large transmit and receive data buffers. All channels operate independently.

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 sup-ported 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 label values.

FEATURES:

- Up to 16 Rx and 16 Tx/Rx fully compliant ARINC 429 channels
- XMC.3 (PCIe 4 lane) host interface
- Front I/O, or P14 or P16 rear I/O
- Standard Industrial operating temperature of -40°C to +85°C at the XMC rail
- Anti-sulfuration resistors used throughout to enhance reliability in harsh environments
- 64-bit message time-tagging
- 1 microsecond timing resolution
- High performance, high density interface with large buffers
- Advanced, high-level software API included for Microsoft® Windows® 7, 8, 8.1, 10, Server 2012 R1/R2, Vista® (32 and 64bit), XP, VxWorks®, and Linux® Kernel Versions 2.6.x and 3.x
- Supports maximum data throughput on all channels simultaneously
- Independent, software-programmable bit rates for all channels
- Support for 2-wire ARINC 573, 575, and 717
- RoHS compliant to EU directive 2011-95-EC

abaco SYSTEMS

RAR-XMC *ARINC High Density XMC Interface*

Specifications

ARINC 429 Receive Channels

- Number of channels: up to 16 (dedicated) plus 16 (programmable or dedicated)
- Data rates: 12.5 KHz, 100 KHz or 5 KHz to 200 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 and invalid bit count

ARINC 429 Transmit Channels

- Number of channels: up to 16 (programmable or dedicated)
- Data rates: 12.5 KHz, 100 KHz or 5 KHz to 200 KHz programmable
- Programmable slew rate
- Output level: ±10 VDC typical (A to B)
- Parity: odd, even or none
- Error injection option: parity, gap, high or low bit count
- Output protection

Time Support

- IRIG-B Receiver (AM or DC/TTL) and Generator (DC-TTL)
- 64-bit one-microsecond resolution internal timer

Software

- API – Includes high-level API for Microsoft Windows 7, 8, 8.1, 10, Server 2012 R1/ R2, Vista (32 and 64bit), XP, VxWorks and Linux (CEI-x30-SW Distribution)
- LabVIEW - Optional LabVIEW support

Physical

- XMC Mezzanine Card (74mm x 143.75 mm without bezel)
- Rear I/O: PMC P14 or XMC P16 interface
- Front I/O: 68 pin SCSI-3

Environmental

- Operation Temperature range -40°C to +85°C
- Relative humidity: 5 up to 95% (non-condensing)
- Storage Temperature range -55°C to +105°C
- Optional AR conformal coating

Optional Configurations

- A wide range of Rx/Tx or programmable combinations
- ARINC 717 Bi-Polar RZ and Harvard Bi-Phase
- For front-I/O configurations, four independent discrete I/O inputs and outputs, two for rear-I/O
- Conductive cooled on rear I/O only
- Mounted on PCI express carrier card (front I/O only)
- Transition cable for front I/O

Electrical

- VPWR (+5 or + 12)
- Typical operating current:
  - 4W@VPWR = 5V
  - 4.3W@VPWR = 12V

Ordering information

RAR-XMC-22-C1	ARINC 429 XMC 4 lane card with 2RX, 2TX Channels, P16 rear I/O, IRIG, Conductive cooled, AR conformal coated, Ruggedized, -40°C to +85°C operating temp, ROHS Compliant
RAR-XMC-22-C3	ARINC 429 XMC 4 lane card with 2RX, 2TX Channels, P14 rear I/O, IRIG, Conductive cooled, AR conformal coated, Ruggedized, -40°C to +85°C operating temp, ROHS Compliant
RAR-XMC-22-4	ARINC 429 XMC 4 lane card with 2RX, 2TX Channels, Front I/O, IRIG, -40°C to +85°C operating temp, ROHS Compliant, Mating conn only
RAR-XMC-44-C1	ARINC 429 XMC 4 lane card with 4RX, 4TX Channels, P16 rear I/O, IRIG, Conductive cooled, AR conformal coated, Ruggedized, -40°C to +85°C operating temp, ROHS Compliant
RAR-XMC-44-C3	ARINC 429 XMC 4 lane card with 4RX, 4TX Channels, P14 rear I/O, IRIG, Conductive cooled, AR conformal coated, Ruggedized, -40°C to +85°C operating temp, ROHS Compliant
RAR-XMC-44-4	ARINC 429 XMC 4 lane card with 4RX, 4TX Channels, Front I/O, IRIG, -40°C to +85°C operating temp, ROHS Compliant, Mating conn only
RAR-XMC-88-C1	ARINC 429 XMC 4 lane card with 8RX, 8TX Channels, P16 rear I/O, IRIG, Conductive cooled, AR conformal coated, Ruggedized, -40°C to +85°C operating temp, ROHS Compliant
RAR-XMC-88-C3	ARINC 429 XMC 4 lane card with 8RX, 8TX Channels, P14 rear I/O, IRIG, Conductive cooled, AR conformal coated, Ruggedized, -40°C to +85°C operating temp, ROHS Compliant
RAR-XMC-88-4	ARINC 429 XMC 4 lane card with 8RX, 8TX Channels, Front I/O, IRIG, -40°C to +85°C operating temp, ROHS Compliant, Mating conn only
RAR-XMC-1515-C1	ARINC 429 XMC 4 lane card with 15RX, 15TX Channels, P16 rear I/O, IRIG, Conductive cooled, AR conformal coated, Ruggedized, -40°C to +85°C operating temp, ROHS Compliant
RAR-XMC-1515-C3	ARINC 429 XMC 4 lane card with 15RX, 15TX Channels, P14 rear I/O, IRIG, Conductive cooled, AR conformal coated, Ruggedized, -40°C to +85°C operating temp, ROHS Compliant
RAR-XMC-1616-4	ARINC 429 XMC 4 lane card with 16RX, 16TX Channels, Front I/O, IRIG, -40°C to +85°C operating temp, ROHS Compliant, Mating conn only
RAR-XMC-16P16-4	ARINC 429 XMC 4 lane card with 16RX, 16 Programmable RX or TX channels, Front I/O, IRIG, -40°C to +85°C operating temp, ROHS Compliant, Mating conn only
-J suffix	1 RX, 1TX ARINC 717 channels (13 RX, 13 TX max ARINC 429 channel)
-N suffix	4 in and 4 out on front I/O or 2 in and 2 out on P14 or P16 rear I/O
-K suffix	AR conformal coating
-CBL suffix	Includes front transition cable for front I/O only
-PCIE suffix	Mounted on a PCI express carrier card for front I/O only

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