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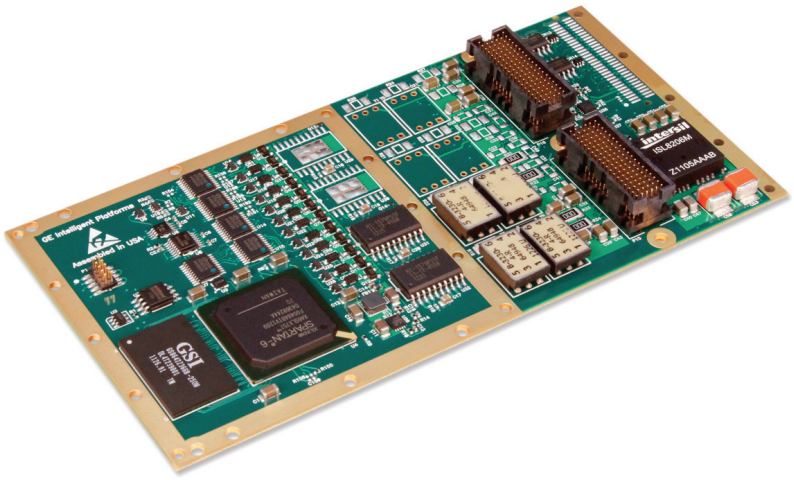
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RAR15-XMC-IT

High Density MIL-STD-1553 and ARINC 429 XMC Embeddable Module

Abaco Systems' embeddable RAR15-XMC-IT is the latest generation of performance and flexibility for MIL-STD-1553A/B Notice II and ARINC 429 on a XMC.0 Mezzanine Card. The RAR15-XMC-IT includes advanced API (Application Programming Interface) software that reduces application development time.

MIL-STD-1553 Features

Standard features include 64-bit, 25 nanosecond receive message time tagging, extensive BC & RT link-list structures, error injection/detection, automatic/manual RT Status Bit and Mode Code responses, along with advanced BC functionality.

With the multi-function configuration, all channels operate independently and are easily configured to operate with a simultaneous Bus Controller, up to 31 Remote Terminals and Bus Monitor functionality. With the Dual-function configuration, the RAR15-XMC-IT interfaces have all the features of the multi-function version, supporting either Bus Monitor and Bus Controller or Bus monitor and 31 Remote terminals.

The RAR15-XMC-IT Bus Monitor provides unparalleled error detection and 100% monitoring of fully loaded buses.

Conductive cooling and conformal coating is standard on the RAR15-XMC-IT.

ARINC 429 Features

Standard features include independent 64-bit, 1 microsecond receive message time tagging as well as common 64-bit, 25 nanosecond receive message time tagging, large transmit and receive message buffers, and a message scheduler providing total flexibility in generating ARINC bus traffic scenarios.

Transmit features include independent software programmable data rates and parity generation with message length and gap error injection. Simultaneous Scheduled and Burst Mode (FIFO) messaging is supported on all ARINC 429 transmit channels.

Receive features include independent, software programmable data rates, parity reporting, and message error detection. Each ARINC 429 receive channel provides simultaneous Dedicated and Buffered Mode storage, along with label/SDI filtering.

Software

Abaco provides our advanced 1553 and ARINC 429 API's in source code along with support for Microsoft® Windows® 7, 8, 8.1, 10, Server 2008 and Server 2012 R1/R2 (32 and 64 bit), Linux®, Integrity and VxWorks®. Contact your local sales person for additional operating system support.

FEATURES:

- 2 or 4 dual-redundant MIL-STD-1553A/B Notice II channels
- 10 ARINC 429 Receive channels
- 4 or 8 ARINC 429 Transmit channels
- Bi-directional Avionics level discretes individually configurable as 1553 output or input triggers.
- XMC.3 (PCIe) host interface
- Simultaneous Bus Controller, up to 31 Remote Terminals and Bus Monitor
- Multi-function or Dual-function (BC and BM or RT and BM) 1553 operation
- High-level API for Microsoft® Windows® 7, 8, 8.1, 10, Server 2008 and Server 2012 R1/R2 (32 and 64 bit), Linux®, Integrity, and VxWorks® included. Contact your local sales person for additional operating system support.
- MIL-STD-1760 level compatible
- Flexible Hardware Remote Terminal Addressing
- Complete message programmability
- Error injection/detection
- Flexible message status/interrupt generation

Timing

- IRIG receiver
- External differential time-tag reset and clock inputs
- 64-bit, 25 nanosecond message time-tagging

Environmental

- Standard conductively cooled, conformal coated
- RoHS compliant to EU directive 2002-95-EC
- P16 or P14 Rear I/O

abaco SYSTEMS

RAR15-XMC-IT *High Density MIL-STD-1553 and ARINC 429 XMC Embeddable Module*

Specifications

Physical
- XMC Mezzanine Card (74mm x 143.75 mm without bezel)
- Rear I/O interface

Environmental
- Standard conduction cooled rear I/O operating temperature range: -40°C to +85°C (at the XMC rail)
- Relative humidity: Up to 95% (non-condensing)

Software Support
- API – High-level libraries with source code included for Microsoft Windows 7, 8, 8.1, 10, Server 2008 and Server 2012 R1/R2 (32 and 64 bit), Linux, Integrity and VxWorks. Contact your local sales person for supported software.

ARINC 429 Receive Channels
- 10 receive channels
- 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 detection

ARINC 429 Transmit Channels
- 8 Transmit channels
- Data rates: 12.5 KHz, 100 KHz or 5 KHz to 150 KHz programmable
- Transmit Output level: ±10 VDC (A to B)
- Parity: Odd, even or none
- Transmit error injection option: message gap, high or low bit count

Power (4 channels at 75% duty cycle into transformer coupled bus)
- VPWR (+5 or +12)
- Quiescent = 240 mA @12V
- Power 25% channel transmit rate = 500mA@12V
- Power 75% channel transmit rate = 900mA@12V

On-board Shared RAM
- 8 Mbyte

Timing
- Independent 64-bit, 25ns message time-tagging per channel
- Time can be programmed via the host or by a 1553 trigger
- All timers can be synchronized to 0 via the host
- Timers can independently use IRIG time
- IRIG-B single ended
- Selectable External time-tag clock input provided
- Selectable External time tag reset input provided

Descriptions

Multi-function Operational Modes
- Simultaneous BC, 31 RTs and BM

Dual-function Operational Modes
- BC and BM or 31 RTs and BM

Bus Controller
- Programmable control over major and minor frame content and timing – Inter-message gap times
- Programmable control over response time-out and late response
- Modify messages, data or setup on the fly
- Insert aperiodic messages into a running BC list
- Conditional message sequencing based on real-time message data or status
- Selectable interrupt generation and status messages on full range of system conditions or all detected errors
- Programmable error injection (on a per word basis) See Full error detection/injection table below
- Synchronize BC operation to external time source or trigger
- Multiple BC data buffers

Full error detection/injection
- Invalid word – Late response
- Bit count error – Early response
- High word – No response
- Low word – Incorrect RT address
- Inverted sync – Parity error
- Manchester – Invalid command

Remote Terminal
- Multiple RT simulation (up to 31 RTs)
- Programmable error injection (on a per word basis) See Full error detection/injection table previous
- Modify data, status words or setup while card is running
- Programmable message content
- Selectable interrupts
- RT Map Monitoring

Bus Monitor
- Capture 100% fully loaded bus traffic with:
  - Time-tagging – Error status
  - Word status – Message status
- Interrupts can be selected by RT / SA / WC
- Extensive filtering and triggering options
  - By individual RT/subaddress
  - Transmit, receive or broadcast mode codes
  - Internal or external triggering
  - Trigger output on user specified data
- Real-time bus playback with RT edit mode
- IRIG/GPS synchronization

Optional Configurations
- P14 or P16 rear I/O
- Dual or Multi-function
- Contact factory for custom requirements

Ordering information

RAR15-XMC-IT-1042DC1	MIL-STD-1553 and ARINC 429 XMC Interface card with 10RX, 4TX, ARINC 429 channels; 2 Ch Dual-Function 1553, P16 Rear I/O, -40°C to +85°C Operating temp, Fixed volt, XFMR Coupled, Conformal coated, Conductive cooled, 12 Avionics discretes
RAR15-XMC-IT-1042MC1	MIL-STD-1553 and ARINC 429 XMC Interface card with 10RX, 4TX, ARINC 429 channels; 2 Ch Multi-Function 1553, P16 Rear I/O, -40°C to +85°C Operating temp, Fixed volt, XFMR Coupled, Conformal coated, Conductive cooled, 12 Avionics discretes
RAR15-XMC-IT-1042DC3	MIL-STD-1553 and ARINC 429 XMC Interface card with 10RX, 4TX, ARINC 429 channels; 2 Ch Dual-Function 1553, P14 Rear I/O, -40°C to +85°C Operating temp, Fixed volt, XFMR Coupled, Conformal coated, Conductive cooled, 6 Avionics discretes
RAR15-XMC-IT-1042MC3	MIL-STD-1553 and ARINC 429 XMC Interface card with 10RX, 4TX, ARINC 429 channels; 2 Ch Multi-Function 1553, P14 Rear I/O, -40°C to +85°C Operating temp, Fixed volt, XFMR Coupled, Conformal coated, Conductive cooled, 6 Avionics discretes
RAR15-XMC-IT-1084DC1	MIL-STD-1553 and ARINC 429 XMC Interface card with 10RX, 8TX, ARINC 429 channels; 4 Ch Dual-Function 1553, P16 Rear I/O, -40°C to +85°C Operating temp, Fixed volt, XFMR Coupled, Conformal coated, Conductive cooled, 6 Avionics discretes
RAR15-XMC-IT-1084MC1	MIL-STD-1553 and ARINC 429 XMC Interface card with 10RX, 8TX, ARINC 429 channels; 4 Ch Multi-Function 1553, P16 Rear I/O, -40°C to +85°C Operating temp, Fixed volt, XFMR Coupled, Conformal coated, Conductive cooled, 6 Avionics discretes
RAR15-XMC-IT-1084DC3	MIL-STD-1553 and ARINC 429 XMC Interface card with 10RX, 8TX, ARINC 429 channels; 4 Ch Dual-Function 1553, P14 Rear I/O, -40°C to +85°C Operating temp, Fixed volt, XFMR Coupled, Conformal coated, Conductive cooled, No Avionics discretes
RAR15-XMC-IT-1084MC3	MIL-STD-1553 and ARINC 429 XMC Interface card with 10RX, 8TX, ARINC 429 channels; 4 Ch Multi-Function 1553, P14 Rear I/O, -40°C to +85°C Operating temp, Fixed volt, XFMR Coupled, Conformal coated, Conductive cooled, No Avionics discretes

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09/17 A-DS-1942

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