



R15-MPCIE

MIL-STD-1553 Mini PCI Express card

Abaco Systems' R15-MPCIE is the latest generation of performance and flexibility for MIL-STD-1553A/B Notice II on a Mini PCI Express® module. The rugged MIL-STD-1553 Mini PCI Express® card is ideal for harsh environments and is available in -40°C up to +85°C temperatures with one or two dual-redundant channels. The R15-MPCIE includes advanced API (Application Programming Interface) software that reduces application development time.

The R15-MPCIE is very small in size (30mm x 50.95mm x 4.7mm) and is lightweight for applications deployed in highly-constrained environments where platforms require SWaP solutions.

Standard features include IRIG-B signal Receiver/Generator with GPS synchronization, transformer coupling, 1-lane PCI Express support, 1 Mbyte of RAM per channel, 64-bit, 25 nanosecond message time-tagging, triggers, extensive BC and RT link-list structures, error injection/detection, avionics level discretes, external

RT addressing, automatic/manual RT Status Bit and Mode Code responses, along with advanced BC functionality. The R15-MPCIE Bus Monitors provide unparalleled error detection and 100% monitoring of fully loaded buses.

Multi-function Interfaces

R15-MPCIE multi-function interfaces are easily configured to operate with simultaneous Bus Controller, 31 Remote Terminals and Bus Monitor functionality.

Dual-function Interfaces

Dual-function R15-MPCIE interfaces have all the features and functionality of the multifunction versions, with either Bus Monitor and Bus Controller, or Bus Monitor and up to 31 Remote Terminals.

Software

Abaco Systems provides our advanced 1553 API in source code, along with support for Windows® 7, 8, 8.1, 10, XP, Vista (32- and 64-bit), Server 2012 R1/R2, VxWorks®, Linux® and other operating systems.

FEATURES:

- 1 or 2 dual-redundant MIL-STD-1553A/B Notice II channels
- Native 1-lane PCI Express interface (no bridge)
- Simultaneous Bus Controller, 31 Remote Terminals and Bus Monitor
- Multi-function and dual-function versions
- Standard with IRIG-B Receiver/Generator
- 64-bit, 25ns message time tagging (virtually unlimited time stamping)
- Two bi-directional avionics discretes
- Complete message programmability
- Flexible message status/interrupt generation
- I/O triggering and error injection/detection
- Rugged high retention connector optional
- Transition cabling to 1553 cable jacks optional
- Optional conformal coating
- Supportable throughout program lifetime with Product Lifetime Management (PLM) program

RT15-MPCIE MIL-STD-1553 Mini PCI Express card

Specifications

Physical

- Mini PCI Express interface card (30mm x 50.95 mm x 4.7mm)
- Weight: 14.4 grams

Environmental

- Standard operating temperature range: -40°C up to +85°C
- Relative humidity: 5 to 95% (non-condensing)
- Optional conformal coating configurations

Software support

- API - High-level libraries with source code included for Windows 7, 8, 8.1, 10, XP, Vista (32 and 64bit), Server 2012 R1/ R2, VxWorks 6.X and Linux
- IRIG-B Receiver (AM or DC/TTL) and Generator (DC/TTL)

Connections

- Transformer coupled 1553
- Two bidirectional avionics I/O discretes or user programmable as triggers
- One RS-485/422 transceiver for general I/O use and software selectable to be used and bi-directional differential discrete or triggering
- External RT addressing, modifiable in Flash
- Two open-drain 1553 activity-led outputs, can also be avionics outputs
- Transition cabling to 1553 cable jacks and I/O optional

Multi-function Operational Modes

- Simultaneous BC, 31 RTs and BM

Dual-function Operational Modes

- BM and BC or BM and 32RTs

Power (2 channels at 75% duty cycle)

- +3.3 VDC @ 1.05 A (typ.)
- 2.0 W power dissipated on board

On board Shared RAM

- 1 Mbyte (per dual-redundant channel)

Optional Configurations

- 1 or 2 dual-redundant channels
- 1 or 2 dual or multi-function channels
- Optional conformal coating
- Optional rugged high retention I/O connector
- Optional transition cabling

Description

Bus Controller

- Programmable control over
 - Major and minor frame content and timing
 - inter-message gap times
 - Response time-out and late response
- Modify messages, data or setup while card is running
- Insert aperiodic messages into a running BC list
- "One-shot" mode for simplified BC operation
- 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
- Full error detection
 - Invalid word
 - Late response
 - Bit count error
 - Early response
 - High word
 - No response
 - Low word
 - Incorrect RT address
 - Inverted sync
 - Parity error
 - Manchester
- Extensive programmable error injection (on a per word basis)

Remote Terminal

- Multiple RT simulation (up to 31 RTs)
- Programmable error injection (on a per word basis)
- Modify data, status words or setup while card is running
- Programmable message content (linked message buffers)
- Selectable interrupts upon multiple conditions
- RT Map Monitoring

Bus Monitor

- Capture 100% fully loaded bus traffic with
 - Time-tagging
 - Word status
 - Error status
 - Message status
- Interrupts can be selected by RT / SA / WC
- Extensive filtering and triggering options
 - By individual RT/sub-address
 - 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



R15-MPCIE MIL-STD-1553 Mini PCI Express card

Ordering information

R15-MPCIE1D	MIL-STD-1553 DUAL-FUNCTION, MINI PCI EXPRESS INTERFACE, SINGLE DUAL-REDUNDANT CHANNEL, 32BIT FW, 2 AND 1 DIFFERENTIAL DISCRETES, XFMR COUPLED, FIXED VOLTAGE, IRIG-B, ROHS COMPLIANT, NO CABLE
R15-MPCIE1M	MIL-STD-1553 MULTI-FUNCTION, MINI PCI EXPRESS INTERFACE, SINGLE DUAL-REDUNDANT CHANNEL, 32BIT FW, 2 AND 1 DIFFERENTIAL DISCRETES, XFMR COUPLED, FIXED VOLTAGE, IRIG-B, ROHS COMPLIANT, NO CABLE
R15-MPCIE2D	MIL-STD-1553 DUAL-FUNCTION, MINI PCI EXPRESS INTERFACE, TWO DUAL-REDUNDANT CHANNEL, 32BIT FW, 2 AND 1 DIFFERENTIAL DISCRETES, XFMR COUPLED, FIXED VOLTAGE, IRIG-B, ROHS COMPLIANT, NO CABLE
R15-MPCIE2M	MIL-STD-1553 MULTI-FUNCTION, MINI PCI EXPRESS INTERFACE, TWO DUAL-REDUNDANT CHANNEL, 32BIT FW, 2 AND 1 DIFFERENTIAL DISCRETES, XFMR COUPLED, FIXED VOLTAGE, IRIG-B, ROHS COMPLIANT, NO CABLE
RCONR15MPCIE	10" CABLE WITH 50 POSITION SLIM STACK CONNECTOR TO A SCSI-50 FEMALE PC PANEL MOUNT CONNECTOR, ROHS COMPLIANT
RCONR15MPCIER	10" CABLE WITH RUGGED 37 POSITION CONNECTOR TO A SCSI-50 FEMALE PC PANEL MOUNT CONNECTOR, ROHS COMPLIANT
RCONR15MPCIER-1	10" CABLE WITH RUGGED 37 POSITION CONNECTOR TO A SCSI-50 FEMALE PC PANEL MOUNT CONNECTOR AND 9-14" CABLE SCSI-50 PIN (MALE) TO TWO CJ70 TWINAX, 3 LUG, 1553 CABLE JACK ENDS AND ONE DB37 (FEMALE), ROHS COMPLIANT
RCONR15MPCIER-2	10" CABLE WITH RUGGED 37 POSITION CONNECTOR TO A SCSI-50 FEMALE PC PANEL MOUNT CONNECTOR AND 9-14" CABLE SCSI-50 PIN (MALE) TO FOUR CJ70 TWINAX, 3 LUG, 1553 CABLE JACK ENDS AND ONE DB37 (FEMALE), ROHS COMPLIANT
RCONR15MPCIE-1	10" CABLE WITH 50 POSITION SLIM STACK CONNECTOR TO A 50-PIN SCSI FEMALE PC PANEL MOUNT CONNECTOR, AND 9-14" CABLE SCSI-50 PIN (MALE) TO TWO CJ70 TWINAX, 3 LUG, 1553 CABLE JACK ENDS AND ONE DB37 (FEMALE), ROHS COMPLIANT
RCONR15MPCIE-2	10" CABLE WITH 50 POSITION SLIM STACK CONNECTOR TO A 50-PIN SCSI FEMALE PC PANEL MOUNT CONNECTOR, AND 9-14" CABLE SCSI-50 PIN (MALE) TO FOUR CJ70 TWINAX, 3 LUG, 1553 CABLE JACK ENDS AND ONE DB37 (FEMALE), ROHS COMPLIANT
RCONMPCIER	RUGGED 37 POSITION CONNECTOR WITH 18" FLYING LEADS

Optional Hardware

K suffix	Acrylic conformal coated
R suffix	Rugged high retention I/O connector
L suffix	Standard transition cable included
V suffix	Rugged high retention transition cable
S suffix	Acrylic conformal coated and standard transition cable
X suffix	Acrylic conformal coated and high retention transition cable
1155-035-8	PCI Express 1 Lane carrier card with 4 Mini PCI Express slots

For detailed information including systems options contact Abaco Systems

WE INNOVATE. WE DELIVER. YOU SUCCEED.

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