



# R15-LPCIE

## High density low profile PCI Express Module

### 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
- High-level API for Windows® 7 (32 and 64bit), Windows Vista®, Windows XP, Windows 2000, Windows NT, VxWorks®, Linux®, Integrity, LynxOS, QNX and Solaris included
- Multi-function and Dual-function versions
- Standard IRIG-B receiver/generator
- 45-bit, microsecond time-tagging
- Complete message programmability
- Flexible message status/interrupt generation
- I/O triggering and error injection/detection
- 12 Bi-directional Avionics discretes
- 2 RS-485/422 channels
- Dedicated input and output Triggers for each 1553 channel
- Host readable on board temperature sensor
- Transition cabling to 1553 cable jacks optional
- Optional conformal coating
- RoHS compliant to EU directive 2002/95/EC

GE Intelligent Platforms' R15-LPCIE is the latest generation of performance and flexibility for MIL-STD-1553A/B Notice II on a low profile PCI Express module. Available in -40 to +70 temperatures with one or two dual-redundant channels, the R15-LPCIE includes advanced API (Application Programming Interface) software that reduces application development time.

Standard features include: IRIG-B signal Receiver/Generator with GPS synchronization, software selectable transformer or direct coupling, variable voltage output, 66 MHz, PCI bus support, 1 Mbyte of RAM per channel, 45-bit message timetagging, dedicated input and output triggers for each 1553 channel, extensive BC & RT link-list structures, error injection/detection, 12 bi-directional avionics level discretes, automatic/manual RT Status Bit and Mode Code responses, along with advanced BC functionality.

The R15-LPCIE Bus Monitors provide unparalleled error detection and 100% monitoring of fully loaded buses.

### Multi-function Interfaces

R15-LPCIE 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-LPCIE interfaces have all the features and functionality of the multi-function versions, with either Bus Monitor and Bus Controller or Bus monitor and 31 Remote terminals.

### Software

GE provides our advanced 1553 API in source code, along with support for Windows 7 (32 and 64bit), Windows Vista, Windows XP, Windows 2000, Windows NT, VxWorks, Linux, Integrity, LynxOS, QNX and other operating systems. To access 1553 functionality without software development, BusTools/1553, GE's MIL-STD-1553 bus analysis, simulation and data logging/monitoring solution is available.



# R15-LPCIE – High density low profile PCI Express Module

## Specifications

### Physical

- PCI Express Low Profile Interface Card (2.535 x 4.000 inches)

### Environmental

- Standard operating temperature range: -40° C to +70° C in Free Air and -40° C to +75° C with 600 ft. /min airflow
- Relative humidity: 5 to 95% (non-condensing)
- Optional conformal coating configurations

### Software Support

- API - High-level libraries with source code included for Windows 7 (32 and 64bit), XP, Windows 2000, Windows Me, Windows NT, Windows 98, Windows 95, VxWorks, Linux, Integrity, LynxOS and Solaris
- GUI - Optional BusTools/1553 GUI Bus Analysis, Simulation & Data Logging software
- IRIG-B Receiver (AM or DC/TTL) and Generator (DC/TTL)

### Connections

- Software selectable transformer or direct coupling via relays
- 2 RS-485/422 channels
- Dedicated input and output Triggers for each 1553 channel
- Transition cabling to 1553 cable jacks optional

### Multi-function Operational Modes

- Simultaneous BC, 31 RTs and BM

### Dual-function Operational Modes

- BC and 31 RTs or BC and BM

### Power (4 channels at 75% duty cycle)

- +12 VDC @ 200mA (typ.)
- +3.3 VDC @ 2A (typ.)
- 5.9 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 Transformer or Direct coupling
- Optional full height face plate
- Contact factory for Custom requirements

## Descriptions

### Bus Controller

- Programmable control over:
  - Major and minor frame content and timing
  - Intermissive gap times
  - 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
- Synchronize BC operation to external time source

### 45-bit micro second resolution time tagging on BC, RT and BM

- Over a full year of time stamping

### Programmable full error detection/injection available on BC and RT and full detection available on BM (on a per word basis)

- Invalid word
- Bit count error
- High word
- Low word
- Inverted sync
- Manchester
- Late response
- Early response
- No response
- Incorrect RT address
- Parity error

### Remote Terminal

- Multiple RT simulation (up to 31 RTs)
- 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
  - 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

## Ordering Information

<b>R15-LPCIE-1D</b>	MIL-STD-1553 dual-function, single dual-redundant channel, low profile pci express interface board, 12 bi-directional discretes, relay coupled, variable voltage with irig-b rec/gen.
<b>R15-LPCIE-1M</b>	MIL-STD-1553 multi-function, single dual-redundant channel, low profile pci express interface board, 12 bi-directional discretes, relay coupled, variable voltage with irig-b rec/gen
<b>R15-LPCIE-2D</b>	MIL-STD-1553 dual-function, two dual-redundant channel, low profile pci express interface board, 12 bi-directional discretes, relay coupled, variable voltage with irig-b rec/gen
<b>R15-LPCIE-2M</b>	MIL-STD-1553 multi-function, two dual-redundant channel, low profile pci express interface board, 12 bi-directional discretes, relay coupled, variable voltage with irig-b rec/gen

## Optional Software

<b>-K suffix</b>	Conformal coating
<b>-F suffix</b>	Full height face plate
<b>-T suffix</b>	Hardwired for transformer coupling only
<b>-CBL suffix</b>	Includes transition cable

## Optional Software

<b>BusTools/1553</b>	MIL-STD-1553 Bus Analysis, Simulation & Data Logging software for Windows (multi-function boards only)
<b>LV-1553</b>	LabVIEW support for MIL-STD-1553

## GE Intelligent Platforms Contact Information

Americas: **1 877 429 1553** Global regional phone numbers are listed by location on our web site at [defense.ge-ip.com/avionics-contacts](http://defense.ge-ip.com/avionics-contacts)

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