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 Microsoft® 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 Differential discretes
- 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 Microsoft 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 Differential discretes
- 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 (2 channels at 75% duty cycle)
- +12 VDC @ 430mA (typ.)
- +3.3 VDC @ 230A (typ.)
- 4.5 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
  - Word status
  - Error 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

R15-LPCIE-1D	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.
R15-LPCIE-1M	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
R15-LPCIE-2D	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
R15-LPCIE-2M	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

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

Optional Software

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

About GE Intelligent Platforms

GE Intelligent Platforms is a division of GE that offers software, control systems, services, and expertise in automation and embedded computing. We offer a unique foundation of agile and reliable technology providing customers a sustainable competitive advantage in the industries they serve, including energy, water, consumer packaged goods, oil and gas, government and defense, and telecommunications. GE Intelligent Platforms is headquartered in Charlottesville, VA. For more information, visit www.ge-ip.com.

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