



# PCCARD-D1553

## Dual Channel PCMCIA Interface

### Features

- 1, or 2 Independent MIL-STD-1553 Dual Redundant Channels
- Multi-function or Single-function Configurations
- Bus Controller – BC
  - BC->RT, RT->BC, RT->RT
  - Mode Codes, Broadcast and single-shot messaging
  - Programmable time delays
  - Major/Minor frames
  - Real-time conditional branching
  - Two aperiodic messaging methods
- Remote Terminal – RT
  - RT data wrapping
  - Multiple RT buffers
  - Automatic Mode Code and status bit responses
  - Programmable response time
- Bus Monitor – BM
  - Full error detection
  - Multiple monitoring methods
  - 45-bit time-tagging
  - Adv. interrupts and triggers
- Architecture
  - IRIG-B Rec (AM or DC/TTL), Gen (DC/TTL) standard
  - Two bi-directional discretes
  - BC & RT error injection/detection
  - BC & RT link list structures
  - 1 Mbyte RAM per channel
  - Transformer coupling
  - Input/Output Triggering
  - Environmental options
- Software Support
  - Advanced, high-level API for 32-bit Windows and Red Hat Linux
  - Source code included
  - BusTools Analyzer supported

The PCCARD-D1553 provides the highest level of performance and density for MIL-STD-1553A/B in a Type II PCMCIA (PC Card) form factor. The PCCARD-D1553 provides 1 or 2 channels integrated with powerful API software that provides instant access to all 1553 databus functionality and data. Standard features include IRIG-B Receiver (AM or DC/TTL), Generator (DC/TTL), real-time bus playback (with ability to edit out RTs), aperiodic message insertion, error injection/detection, conditional BC branching, 45-bit timetags and “Oneshot” BC operation. The Bus Monitor mode provides 100% bus monitoring of a fully loaded 1553 bus.

### Multi-function Interface

One or two multi-function 1553 interfaces operate simultaneously as a BC, up to 31 RTs and as a BM. Each can completely emulate a dual-redundant 1553 channel internally.

### Single-function Interface

One or two single-function 1553 interfaces are available with all the features and functionality of the multi-function version, but with only one major operational mode enabled at a time. Each interface functions as either a Bus Controller or 31 Remote Terminals or as a Bus Monitor.

### Software

Included with the PCCARD-D1553 is GE Fanuc Embedded Systems’ easy-to-use, flexible, high-level API. Source code and Windows XP, 2000, Me, NT, 98, 95 and Red Hat Linux support is provided. LabVIEW drivers and BusTools/1553, Embedded Systems’ GUI bus analysis and simulation solution for 1553, are optionally available. Embedded Systems’ high performance and intuitive software solutions provide complete and simplified access to MIL-STD-1553 functionality for development, integration, test, embedded and maintenance applications.



# PCCARD-D1553 Dual Channel PCMCIA Interface

## Specifications

### Physical

- Type II PC Card (PCMCIA 2.1 compatible)

### Environmental

- Operating temperature range: 0 to +55° C
- Extended temperature range components available

### Software

- API – Includes high-level API libraries for Windows XP, 2000, Me, NT, 98, 95 and Linux
  - Red Hat Linux Tested on TI 1225 PCMCIA/PCCARD controller only
  - Source code API library provided
  - Hardware interrupts are not supported
- GUI – Optional BusTools/1553 GUI bus analysis, simulation and data logging software
- LV-1553 – LabVIEW support for MIL-STD-1553

### Connections

- Transition cabling provided
- Input and output triggers
- Two bi-directional Avionics discretes
- Transformer coupling
- IRIG-B Rec (AM or DC/TTL), Gen (DC/TTL) standard
- Fixed output voltage

### Multi-function Operational Modes

- Simultaneous BC, 31 RTs and BM

### Single-function Operational Modes

- BC or 31 RTs or BM

### Power (2 channels at 75% duty cycle)

- +5 VDC @ 640 mA (typical)
- 2 W power dissipated on board

### Power (1 channel at 75% duty cycle)

- +5 VDC @ 320 mA (typical)

### On-board dual-port RAM

- 1 Mbyte per channel

## Description

### Bus Controller

- Programmable control over:
  - Major and minor frame content and timing
  - Intermessage 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
- "Oneshot" mode for simplified BC operation
- Conditional message sequencing based on real-time message data or status
- Selectable interrupt generation and status messages
  - Full range of system conditions
  - All detected errors
- Full error detection
  - Invalid word
  - Bit count error
  - High word
  - Low word
  - Inverted sync
  - Manchester
  - Late response
  - Early response
  - No response
  - Incorrect RT address
  - Parity error
- Extensive programmable error injections (on a per word basis)
- Synchronize BC operation to external time source

### Remote Terminal

- Multiple RT simulation (up to 31 RTs)
- Programmable message content (linked message buffers)
- Modify data, status words or setup while card is running
- Programmable error injection (on a per word basis)
- Interrupts can be generated on a per message basis upon End of Message and error conditions

### Bus Monitor

- Capture 100% fully loaded bus traffic with:
  - Time-tagging
  - Error status
  - Word status
  - Message status
  - RT response time
- 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
- 45-bit, microsecond resolution timetagging

## Ordering Information

**PCCARD-D1553-2MW:** MIL-STD-1553 multi-function, two dual-redundant channels, PCMCIA card with IRIG

**PCCARD-D1553-2SW:** MIL-STD-1553 single-function, two dual-redundant channels, PCMCIA card with IRIG

**PCCARD-D1553-1MW:** MIL-STD-1553 multi-function, single dual-redundant channel, PCMCIA card with IRIG

**PCCARD-D1553-1SW:** MIL-STD-1553 single-function, single dual-redundant channel, PCMCIA card with IRIG

### 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 Fanuc Embedded Systems

GE Fanuc Embedded Systems is a leading global provider of embedded computing solutions for a wide range of industries and applications. Our comprehensive product offering includes many types of I/O, single board computers, high performance signal processors, fully integrated, rugged systems including flat panel displays, plus high speed networking and communications products. The company is headquartered in the U.S. and has design, manufacturing and support offices throughout the world. Whether you're looking for one of our standard products or a fully custom solution, GE Fanuc Embedded Systems has the breadth, experience and 24/7 support to deliver what you need. For more information, visit [www.gefanucembedded.com](http://www.gefanucembedded.com).

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### Additional Resources

For more information, please visit the GE Fanuc Embedded Systems web site at:

[www.gefanucembedded.com](http://www.gefanucembedded.com)

