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LC1553-3 A, B, and C

MIL-STD-1553 Interface for CompactPCI Computers



Features

- Single / multiple terminals
- For use in rugged, industrial applications
- Concurrent Bus Controller, Remote Terminal, and Monitor
- Extensive monitoring capability
- Error injection
- Programmable 32-bit time-stamp
- API and driver software included
- CoPilot 1553 and CoPilot 1553 Plus graphical software available
- Easy plug-and-play CompactPCI interface

A Family of Products

- Choose functionality suited to immediate needs
- Upgrade later as requirements change
- Ongoing release of features and products
- Select from several standard configurations and a variety of options
- Can be customized for special needs
- Exceptional value

Description

The LC1553-3x is a family of dual-redundant MIL-STD-1553 interface boards for CompactPCI® computers. This family of products provides a range of capabilities from basic, single-terminal emulation to multi-terminal simulation and error injection. Models can be upgraded in the future to meet changing requirements. The powerful features and upgrade paths make the LC1553-3 an ideal solution for hardware and system development, testing, and simulation.

Hardware

All models provide Bus Controller, Remote Terminal, and Monitor operation and support all 1553 message types. Advanced models can simultaneously operate as the Bus Controller, Monitor, any number of Remote Terminals, and selectively inject protocol errors.

The powerful DSP core of the LC1553-3 offloads 1553 protocol processing from the host PC. The large, on-board memory and flexible message buffering schemes ensure data integrity. Polling and interrupt generation are simplified through a generous set of user options.

Software

The easiest way to use the LP1553-3 is with Ballard's CoPilot 1553 graphical software (available with board or separately). Using the automation and detection tools in CoPilot, users can create and run BC schedules, simulate RTs,

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and monitor the bus with just a few clicks of the mouse. Users can view and edit data in engineering units through specialized displays. In addition, CoPilot 1553 Plus provides virtual instruments, strip charts, and moving map displays, as well as scripting routines and software playback.

Alternatively, software developers can use the bundled Application Program Interface (API) that enables quick and easy development of custom applications. The LC1553-3 can be configured for simple terminal emulation using default memory mapping and buffering options with only a few API calls. Although most users will accomplish their tasks with a small number of API functions, the omprehensive library includes a broad range of tools for specialized needs.

Driver software is included for Windows® 95/98/NT/Me/2000/XP and LabVIEW®. Linux and VxWorks® drivers are available separately.

Ordering Information

LC1553-3x: MIL-STD-1553 Interface Card (where x is A, B4, B32 or C; see table below). Includes board, API library, and manual.

Cy-LC13x: CoPilot 1553 System (y is S for CoPilot standard and P for CoPilot Plus). Includes the LC1553-3 card as described above and CoPilot 1553 software.

LC1553-3 Product Highlights

Features	Models			
	A	B4	B32	C
Number of simultaneous terminals	1	4	32	32
Monitor	✓	✓	✓	✓
Filtering for terminal address	✓	✓	✓	✓
Filtering for subaddress		✓	✓	✓
Concurrent with terminal simulation				✓
Error injection				✓
On-board RAM	256K	256K	256K	1MB

Technical Specifications: LC1553-3

Modes
- Bus Controller
  - On-board message frame timing
  - Transmission retries
  - Exception processing
- Remote Terminal
  - Illegalize subaddress/mode codes
  - Interrupt on message or terminal access
- Monitor
  - Snapshot or sequential
  - Filtering on terminal and/or SA
  - Independent or concurrent with BC/RT

Handles all 1553A/B message types
- Notice 2–selectable features

Message Buffering
- single
- ping-pong
- circular list (transmit only)
- FIFO list

Multi-terminal simulation (B, C models)

Error generation (C model only)
- Types:
  - Sync
  - Parity
  - Manchester
  - Bit count
  - Word count
- Inject into specific bits/words/messages

DSP core

Memory
- 256K standard
- 1MB optional (standard on C model)
- High-performance interface

Interrupts
- Software-configurable interrupt log list
- Generated on user-specified conditions
  - Schedule
  - Errors
  - Specific messages

Time-tag
- Automatic in all modes
- 32-bit, selectable range/resolution

CompactPCI Interface
- 32 bits at 33 MHz
- 3U x 4HP card (100 x 160 mm)
- Plug-and-play
- For 5 Volt cPCI backplane

Connectors
- Twinax BJ77 mates with PL75

Other signals
- External Trigger
- Sync Output
- Digital I/O

Temperature Grades
- commercial (std)
- extended temperature available

Software
- Easy-to-learn API
- Incluided drivers: Windows 95/98/NT/Me/2000/XP and LabVIEW
- Available drivers: Linux and VxWorks
- Customized firmware available
- Optional CoPilot 1553 and CoPilot 1553 Plus software

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