

# Shuttle Bus PCI

The Shuttle Bus PCI is an intelligent interface card providing all Launch Data Bus, Ground Data Bus, and Multiplex De-Multiplex Multiple Remote Terminal capability to the Shuttle Bus, as required by NASA specification 84K01203 (Hardware Specification, Launch Data Bus (LDB) and Ground Data Bus (GDB) Interface Board). In summary, this card provides all features and functions required to meet the above specification, in a PCI platform, with Simplex & Half-Duplex modes provided. Specific operational modes provided include for LDB\_BCT, LDB\_MRT, GDB\_BCT, GDB\_MRT, BUS\_MON, MDM\_MRT, Primitive and Calibration modes.

## SPECIFICATIONS

### General Specifications

- ➔ Meets requirements of NASA spec. **84K02903**.
- ➔ LDB\_BCT Mode and LDB\_MRT Mode
- ➔ GDB\_BCT Mode and GDB\_MRT Mode
- ➔ Bus Monitor Mode
- ➔ MDM\_MRT Mode
- ➔ BIT and diagnostics
- ➔ IRIG-B timing 64 bit
- ➔ Programmable TX amplitude
- ➔ Full error injection and detection

### Launch Data Bus, Bus Controller Terminal

Programmable message structure  
Programmable IRQ Control register  
Programmable Command word  
Programmable TX error word & word number  
Programmable data buffers  
Programmable data word-count and direction  
Message event register  
Bit pattern register  
Bit mask register  
Programmable gap time  
Time stamping, 64 bit, resolution 0.5 usec  
Messages and data changeable in real time

### Launch Data Bus, Multiple Remote Terminal

Full simulation/monitoring of single RT  
If disabled, actual Shuttle Bus RT activity captured  
Comprehensive RT simulation table provided, includes:  
RT Mode, RT state machine register, IRQ control,  
TX/RX data buffers, Primary/Secondary last command  
time/value and state machine update, Go-Ahead,  
Interrogate with no GPC data, Interrogate with GPC  
data available, Status request, and FRC TX error  
injection definition

### Ground Data Bus, Bus Controller Mode

Measurement Poll tables, with addressing information  
Command Queues  
Uplink/Downlink queue  
Passive/Active Monitor Mode, selectable by mode word  
Passive/Active mode selectable dynamically

### Ground Data Bus, Multiple Remote Terminal

Simulation/monitoring of all 256 RT's  
Global definition for each RT  
Defined in MRT Simulation table  
40 bit mode intermediate look-up-table  
Channel look-up-table, supporting Command,  
Discrete, Measurement and Analog modes.  
Command receive queue.

### Bus Monitor Mode

Provides full capture and storage of all Shuttle-bus  
activity, in both LDB and GDB modes.  
Programmable triggers, includes Bus Definition, Bit  
pattern, Bit mask, and error event,  
Programmable post-trigger count, & stack start/end.

### MDM-MRT Mode

Simulation of all 32 Remote Terminals  
Enhanced MDM capability.  
Local and Actual PROM support  
Full error injection  
HI/LO priority message queues

### Host Interface

PCI: Slave, 32 Bit data  
Memory Space: 2 Mbytes

### Power

+5v +/- 5% 900 mAmps  
+12V +/- 5% 50 mAmps

### Physical Characteristics

Dimensions 175mm x 107mm  
Weight 550 grams

### Environmental

Operating Temp. 0 – 50°C  
Storage Temp. -20 – 70°C  
Humidity 5% – 95% Noncondensing  
MTBF (MIL 217F) 113,865 hrs at 25°C (GB).

### Order Codes

1U10953G01 IIB-SB-PCI

## Contact Information

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