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Shuttle Bus VME

The Shuttle Bus VME 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 VME platform, with Simplex & Half-Duplex modes provided. Specific operational modes provided include 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 RemoteTerminal

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

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

Power

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

Physical Characteristics

Dimensions	6U VME Format
Weight	550 grams

Environmental

Operating Temp.	0 – 50^{o}C
Storage Temp.	-20 – 70^{o}C
Humidity	5% – 95% Noncondensing
MTBF (MIL 217F)	126,645 hrs at 25^{o}C (GB).

Order Codes

1U10950G01	SBIIB-VME

Contact Information

Technical & Sales queries: support@western-av.com
Phone: 353-61-472233
Fax: 353-61-471675
Web-site: http://www.western-av.com

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