

## PMC MIL-STD-1553A/B Bus MONITOR/SIMULATOR

### SMZ540



The PMC MIL-STD-1553A/B Bus Monitor/Simulator (SMZ540) provides powerful SBA-like bus monitoring and simulation functions in a flexible, space-saving PCI Mezzanine Card (PMC) form factor. The 1553 Bus Monitor/Simulator connects to the 1553 bus and provides complete bus monitoring, data capture, and error detection capabilities, plus bus controller simulation and remote terminal simulation functions.

#### KEY FEATURES

- Complies with MIL-STD-1553A/B standards for bus monitoring and simulation
- Displays and generates 1553 bus traffic in real time
- Parameterizes 1553 words to uniquely identify Command, Status, Response, and Data Words
- Provides MUXbus II output for optimized real-time tape/disk archiving
- Allows all 1553 bus traffic to be archived and used in real time and during post-analysis

The SMZ540 provides a quick look into current bus activity with the system's Bus Activity display, which shows current active terminals and current error status. It also provides triggered snapshots of current bus traffic for protocol analysis during avionics development and integration testing. MUXbus II Stack output functions facilitate archiving of all data for post-analysis, while at the same time, selected messages or portions of messages can be output to the MUXbus to be processed in real time by FPP algorithms to decode 1553 data and to display parameters in real time or for post-analysis.

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## PMC MIL-STD-1553A/B Bus MONITOR/SIMULATOR

### SMZ540 SPECIFICATIONS

#### Inputs

MIL-STD-1553A/B Bus .....Raw MIL-STD-1553A/B bus traffic  
Inputs .....Primary Bus and Secondary Bus  
Bus Connector Type .....Triax  
Interface Coupling .....Transformer or isolated

#### Outputs

MUXbus II .....Parameter tag and data (16-bit tag and 32-bit data  
with zero or status in the upper 16 bits)

#### Monitor Functions

##### Monitoring:

- Redundant bus
- 100% bus loading
- Parameterizes gap time, response times, errors, data, command, and status

##### Stack:

- Stack size of 256K words
- Collect intermessage gap and response times, errors, data, commands, and status
- Provides a triggered snapshot of all traffic in chronological order allowing analysis of data in context with other messages

##### Bus Activity Monitor Page:

- Tracks 64K unique command words
- Scrolls through display via scroll bar or one line at a time
- Provides 32-bit error counter for all errors in each message
- Provides 32-bit counters for normal and RT-RT commands
- Percent of error for each command

##### Performs the Following Statistics for All Commands:

- Number of normal commands
- Number of normal RT-RT commands
- Number of errors for all commands
- Percent of errors for all commands

##### Error Detection Types:

- Manchester encode high error
- Manchester encode low error
- High bit count
- Low bit count
- Parity error
- Sync pattern error
- Inverted sync
- Early response
- No response error
- Two bus error

##### Supports:

- Mode codes
- Broadcast commands

#### Simulator Functions

##### Bus Controller Simulation

- Number of BC pages: More than 1,200
- Message Types: BC to RT, RT to BC, RT to RT, Broadcast, Mode Codes
- Transmit for specific count or forever
- Programmable major and minor frames
- Error injection

##### Remote Terminal Simulation:

- Number of RT pages: 2,048
- Programmable response time
- Error injection
- Limited support for mode code simulation
- Unique status word for every BC command word
- Dynamic data output using MUXbus II

#### Parameterization Variables

##### Data Words:

- Command Word of associated message, Primary or Secondary Bus, Bus Number, Word Position

##### Command and Status Response Words:

- Command, Primary or Secondary Bus, Bus Number

##### Response Time and Error Words:

- RT Address, Primary or Secondary Bus, Bus Number

##### Gap Time:

- Bus Number

#### MUXbus II Stack

- Allows efficient spooling and recording of all messages
- Uses a single parameter per bus; each MUXbus II word contains a 1553 word plus errors and word type
- Merges traffic from up to 32 1553 buses for bus correlation and display of 1553A/B bus traffic

#### Program Setup and Control

Keyboard and Mouse .....Fill-in-the-blank displays with list-pick selections  
API .....Application Programming Interface for remote setup (optional)

#### General Requirements

System Chassis .....1 PMC slot on a VME or PCI carrier  
Rear Panel .....1 slot: primary and secondary bus (2 triax)  
Maximum per Chassis .....32 (550) / 16 (Avalon)  
Power .....+5V @ 0.2A, +3.3V @ 1.5A (max.)  
Power Dissipation .....2.6W (typical)  
Operating Temperature .....0° to 50° C  
Environment .....See  
Model 550 Base System Chassis (PRO550A),  
Avalon System Chassis (AVALON-R),  
VME Mezzanine Carrier (ZCM596),  
VME Mezzanine Carrier with Arbiter (ZCA596),  
and PCI Mezzanine Carrier (ZCM796) data sheets  
Dimensions .....74mm x 149mm (PMC standard)  
Status Display .....10 LEDs

#### Compatibility

VME Mezzanine Carrier (ZCM596)  
VME Mezzanine Carrier with Arbiter (ZCA596)  
PCI Mezzanine Carrier (ZCM796-PCI)  
VISTA Software

#### Ordering Information

SMZ540 .....MIL-STD-1553A/B Bus Monitor / Simulator, PMC

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