Digital Receiver Technology, Inc.
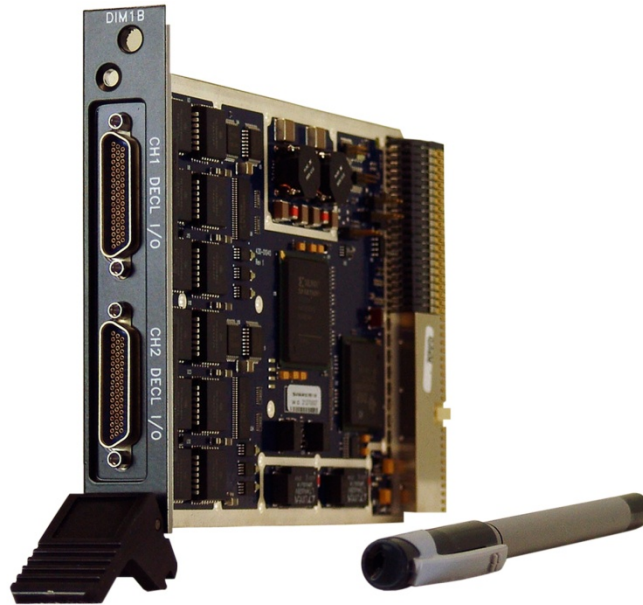
DIM1B
Digital Interface Module (B)

DESCRIPTION

The Digital Interface Module (DIM1B) is a single slot 3U Compact-PCI module designed for use with other DRT 3rd generation modules (compatible with DRT1000C System Chassis only). The DIM1B allows a DRT system to output two channels of Digital Wideband IF and metadata to an External Digital Recorder and allows the DRT system to accept two channels of Digital Wideband IF data and metadata. The recorder input and output electrical interface is Differential 100K ECL with each channel having bidirectional data flow capability. This allows two Differential ECL inputs, two Differential ECL outputs, or one of each. The direction of the data flow is programmable via a PCI message.

Features

- Single-board, single-slot 3U Compact-PCI form factor

- 33 MHz 32-bit initiator/target operation for all control/status communications

- Subsystem Vendor ID, Module ID, and Serial Number provided through PCI interface

- Operates from standard CPCI voltages +5V/+3.3V drawing a maximum of 20 watts

- Supports +3.3V VIO Operation Only (compatible with DRT1000C System Chassis only)

- Onboard TMS320C6412 control processor running at 480 MHz (PCI/FPGA Control Interface)

- Supports 96 MHz wideband DIF Data

- Onboard XC3S5000 DIF/Recorder interface controller

- Supports booting and downloading of all program code through PCI interface

- Supports in-circuit programming of its EPROM and FPGA

- Supports three Recorder Interface Modes per channel (Off, Record, Playback)

- Built-in Test Patterns can be inserted in the Input/Output streams for interface verification

- Three onboard Temperature Sensors can be read through the PCI interface

- Supports JTAG/Boundary Scan Testing (TMS320C6412 and XC3S5000)

- Metadata supports precision timestamping and the storage of related system info such as tuner frequency, tuner composite gain, and GPS Lat and Long.

Specifications

Inputs/Outputs

- 32-bit, 33 MHz PCI bus (standard J1 Compact-PCI)

- Four Independent Bidirectional 16-bit Wideband Digital IF Buses (J2 Compact-PCI Connector)

- Supports Clock Speed of 96 MHz

- Two Independent Bidirectional 16-bit Differential 100K ECL Interfaces (J3/J4 Front Panel High Density Amp/Microdot Connectors)

- Synchronization control (J2 Compact-PCI Connector)

- JTAG Test/Emulator Port

Physical/Environmental

- **Operating Temperature Range**   -20°C to +60°C (-4°F to +140°F) inlet air temperature
of any DRT system in which the module is installed

- **Size**   Single-slot 3U CompactPCI: 3.9 in. x 6.2 in.
(100 mm x 160 mm)

- **Weight**   ~200g (~7 oz)

- **Power Consumption**   3 watts (Both Recorder Interfaces - Off)
20 watts (Both Recorder Interfaces - Record)
17 watts (Both Recorder Interfaces - Playback)

Recorder Interface

The two Recorder Interfaces (Channel-1 and Channel-2) are 100K Differential ECL bidirectional ports, providing 16-bits of Data and (1) Clock. A separate Reference Output Clock is provided for each channel for Playback Operations. An onboard DC Termination biased at -2V is provided for Record Operations, while an AC Termination is provided for Playback Operations. Each Recorder Interface channel is independent allowing two 100K Differential ECL Input Channels, two 100K Differential ECL Output Channels, or one of each.

DIM1B Front Panel Recorder Interface Pinouts (J3/J4)

The DIM1B uses an AMP/Microdot MCK-N1-P-51SRT1 connector for its recorder interface at J3 and J4 located on the DIM1's front panel. The pinouts for J3 and J4 are shown below (Note: Pin 51 is **Not Connected/Not Used**):

Signal Name	Pos. Signal #	Neg. Signal #	Shield GND #
Clock A	35	33	34
Data0	21	19	1
Data1	4	2	3
Data 2	25	23	5
Data 3	8	6	7
Data 4	37	36	20
Data 5	24	22	38
Data 6	40	39	26
Data 7	43	41	9
Data 8	11	27	10
Data 9	12	46	10
Data 10	44	42	45
Data 11	28	47	45
Data 12	15	13	14
Data 13	31	29	14
Data 14	30	48	49
Data 15	50	32	49
Clock B	18	16	17

- Clock A   **Bidirectional** 100K Differential ECL Record/Playback Clock
- Data[15:0]   **Bidirectional** 100K Differential ECL Record/Playback Data
- Clock B   **Output Only** 100K Differential ECL Reference Clock

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