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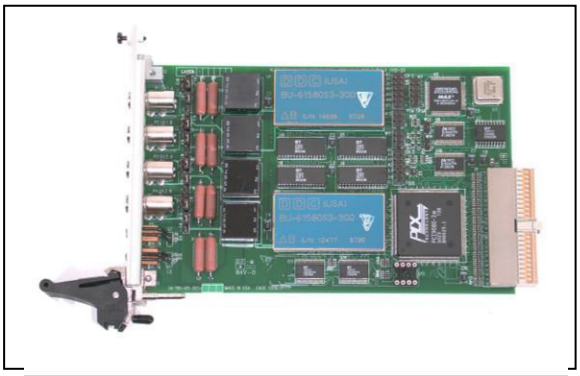
CPCI-1553-DDC-1,2

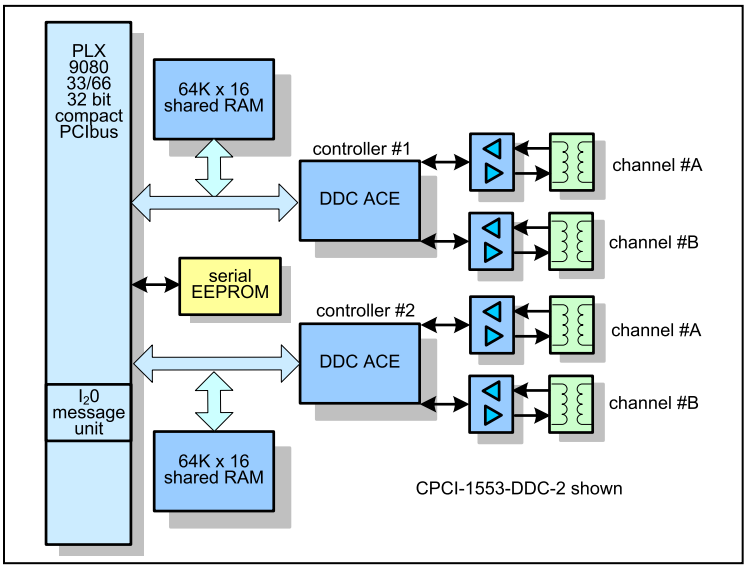
CPCI Module

Single or Dual DDC ACE 1553 Controller, BC/RT/MT



Features

- 1 or 2 controllers of dual redundant (A/B channel) 1553 communications
- Programmable bus controller, remote terminal, or monitor terminal modes
- MIL-STD-1553 A and B compliant, Notice 2 RT
- STANAG 3838, McAir A3818, and General Dynamics 16PP303 compatible
- BC/RT/MT mode
- 64K words internal RAM with parity
- Long or short stub support
- Front panel I/O
- On-chip transceivers, trapezoidal or McAir compatible
- On-board transformers
- Low power consumption
- Single +5 VDC supply



Block Diagram Overview

The CPCI-1553-DDC uses Data Device Corporation's ACE, DDC BU-61865G4-290 communication device as its 1553 bus controller, or remote terminal, or monitor terminal. A single controller has two redundant channels. This controller has 64Kx16 word of internal memory + parity bit and internal transceivers for both channel A and B. The 3U compact PCI board has on-board transformers for both channels and both controllers. This compact board has a PCI compliant interface.

Available Software Drivers:

- C library dll's
- Linux drivers
- Window XP drivers
- VxWorks drivers

Applications:

This is a perfect solution for a wide array of 1553 communication applications such as:

- Test equipment supporting evaluation, simulation, monitoring, and analysis,
- Operational equipment such as avionics, space satellite systems, aircraft onboard systems, commercial systems, etc.
- Applications that require dual functionality of the terminal for monitoring and remote operation at the same time

1553 Compliance/Characteristics:

- Data Rate – 1 MHz
- Word Length – 20 bits
- Data Bits/Word – 16 bits
- Message Length – maximum of 32 data words
- Transmission Technique – half-duplex
- Operation – asynchronous
- Transmission encoding – Manchester II, bi-phase
- Protocol – command/response
- Bus Control – single or multiple
- Fault tolerance – typically dual redundant, second bus in "hot backup" status
- Message formats – controller to terminal, terminal to controller, terminal to terminal, broadcast, system control
- Number of remote terminals – maximum 31
- Terminal Types – remote terminal, bus controller, bus monitor
- Transmission Media – twisted shielded pair
- Coupling – transformer and direct

Alphi Technology Corporation, 6202 South Maple Avenue, Suite 120, Tempe, Arizona, 85283
Telephone: 480.838.2428 Fax: 480.838.4477
Contact Email: engineering@alphitech.com Visit: www.alphitech.com

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1553 Communication Device:

- DDC ACE BU-61865G4-290 BC/RT/MT configured
- 64K-word internal RAM, with RAM parity.
- 5V internal transceiver and logic.
- BC architecture providing functionality for highly autonomous message sequence control, and general purpose queue
- RT global circular buffer, interrupt status queue and auto-boot option
- Reduced maximum hold-off time for shared RAM host interface.
- Increased request-to-grant time for DMA
- host interface.
- Autonomous built-in self-test.

PCI Bus Controller Features:

- The PCI 9080 is PCI Version 2.1 compliant
- Bus Master interface chip for adapters and embedded systems
- Programmable local bus supports non-multiplexed 32-bit address/data, multiplexed 32- or 16-bit, and accesses of 32-, 16-, or 8-bit local bus devices
- I2O compatible messaging unit
- 3.3 or 5 volt PCI signaling, 5 volt core, low-power CMOS in 208-pin PQFP
- Two independent programmable DMA channels for local bus memory to/from PCI host bus data transfers
- Eight programmable FIFOs for zero wait state burst operation
- PCI to/from local data transfers up to 133MB/sec
- Local bus runs asynchronously to the PCI bus
- Eight 32-bit mailbox and two 32-bit doorbell registers
- Performs Big Endian/Little Endian conversion

Operating Environment:

- Operating temperature
  Commercial: 0 to +55 ºC
  Optional: -25 ºC to +80 ºC
- Non-operating: -40 ºC to +85 ºC
- Airflow requirement – 5 CFM
- Humidity – 5 to 90% (non-cond
- Altitude – 0 to 10,000 feet

Mechanical Environment

- Size – 3U CPCI module
  100mm x 160mm
- Power – 1.5 watt
- Front panel I/O
- Vibration – 0.5G, 20-2000 Hz rand
- Shock – 20G, 11 msec, ½ sine
- Weight – tbd
- MTBF – >250,000 hours

Terminal Electrical Input Characteristics:

Requirements	Transformer coupled	Direct Coupled
Input level[1]	0.866-14.0V	1.2-20.0V
No response[1]	0.0-0.2V	0.0-0.28V
Zero crossing stability	+/-150.0 nSec	+/_ 150.0 nSec
Rise/fall times	0 nsec – Sine	0 nsec – Sine
Noise rejection[2]	140 mV WGN	200 mV WGN
Common mode rejection[3]	+/- 10.0V peak	+/- 10.0V peak
IInput impedance[4]	1000 ohms	2000 ohms

Notes on measurement conditions:
1. p-p, l-l
2. BER 1 per 10^7
3. Line-ground DC-2 MHz
4. 75 KHz-1MHz

Terminal Electrical Output Characteristics:

Requirements	Transformer coupled	Direct Coupled
Output level[1]	18.0-27.0V	6.0-9.0V
Zero crossing stability	25.0 nsec	25.0 nsec
Rise/fall[2]	100-300 nsec	100-300 nsec
Max distortion[3]	+/-900.0 mV	+/- 300.0 mV
Max output noise[4]	14.0 mV	5.0 mV
Max residual voltage[3]	+/-250.0 mV	+/-90.0 mV

Notes on measurement conditions:
1. p-p, l-l
2. 10%-90%
3. peak, l-l

Ordering Information:

CPCI-1553-DDC-1	MIL-1553, BC/RT/M, DDC ACE; Single, dual redundant
CPCI-1553-DDC-2	MIL-1553, BC/RT/M, DDC ACE; Dual dual redundant
option I	same as above with -20 to +85 temperature rating
EngKit-1553	2 T's, 2 Terminators, 2-1 meter cables
	Optional Accessories
CBL-1553-1	Standard-standard 2 meter 1553
CBL-1553-2	Standard-mini 2 meter 1553
CBL-1553-3	Mini-mini 2 meter 1553 cable

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