# PCI-1553-MIL-STD

PCI Module

Single or Dual UTMC LXE/DXE 1553 Controller

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
- Long or short stub support
- Low power consumption
- Front I/O panel
- On-chip transceivers
- PCIMG compliant
- Single +5 VDC supply
- Simultaneous RT/M mode
- Remote terminal address input
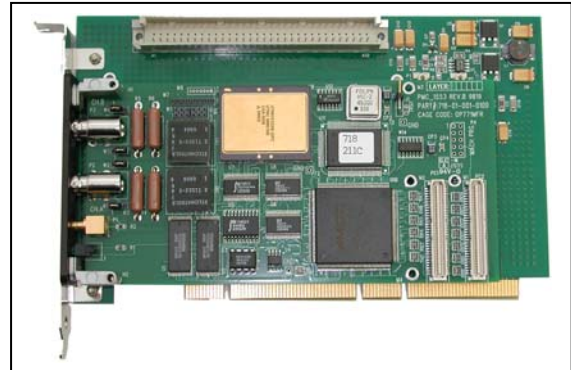
Block Diagram Overview

The PCI-1553-UTMC-1,2 uses UTMC's Sμmmit LXE/DXE version, UT69151DXE-GPC 1553 communication device as its 1553 bus controller, or remote terminal, or monitor terminal. A single controller has two redundant channels and built in transceivers. The 1553 board can have 1 or 2 communication channels. The controller accesses 64Kx16 word of external memory and has internal transceivers for both channel A and B. The 3U CPCI board has on-board transformers for both channels and both controllers. The board format is a compact PCI board layout.
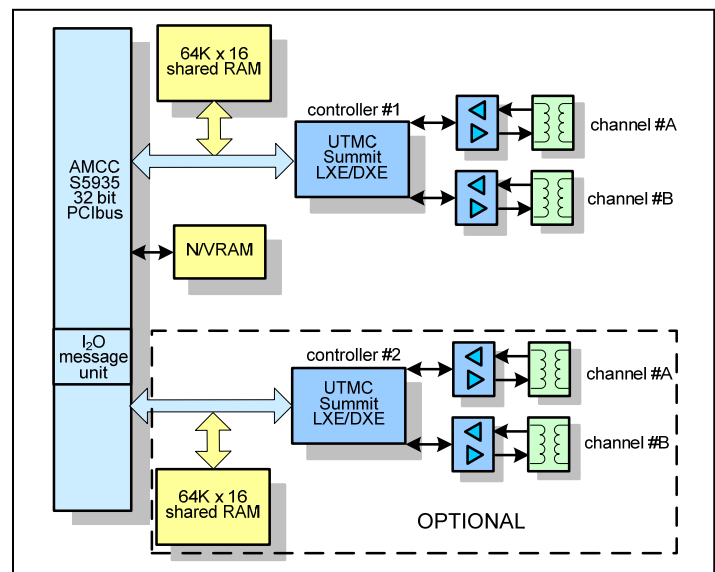
Available Software Drivers:
- C library dll's
- Linux drivers
- Window XP drivers
- VxWorks drivers

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

UTMC/Summit/LXE/DXE Features:

- The UT69151DXE-GPC has integrated transceivers
- RT mode internal command illegalization
- 16-bit read/write time-tag with user-defined resolution
- Sub-address data buffering
- Simultaneous RT/MT mode of operation
- BC architecture designed with:
  - Minor frame timing
  - Efficient command block flow statements
  - Status word polling
  - Programmable retries
- Programmable interrupt architecture
- Autonomous operation in all three modes
- Supports IEEE Standard 1149.1 (JTAG)

PCI Bus Controller Features:

- Uses the AMCC S5935 PCI controller
- PCI 2.1 compliant master/slave
- 132 Mbytes/sec transfer rate
- Supports Windows NT service pack 2 & 3
- PCI bus operation DC to 33 MHz
- Four definable pass-through data channels
- Two 32 byte internal FIFOs with DMA
- Four mail box registers with byte level status and data strobe/interrupts
- Direct PCI and add-on interrupt pins
- Serial nvRAM interface or byte-wide non-volatile memory interface

Operating Environment:

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

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 – 4 ouncesS
- 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, I-I
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, I-I
2. 10%-90%
3. peak, I-I
4. rms, I-I

Ordering Information:

PCI-1553 -1   MIL-1553, BC/RT/M, UTMC Summit; PMC module
PCI-1553 -2   MIL-1553, BC/RT/M, UTMC Summit; PMC module; 2 controllers

option **I**   same as above with -20°C to +85°C temperature rating

Optional Accessories
EngKit-1553   2 T's, 2 Terminators, 2-1 meter cables
CBL-1553-1   Standard-standard 2 meter 1553 cable
CPL-1553-2   Standard-mini 2 meter 1553 cable
CBL-1553-3   Mini-mini 2 meter 1553 cable