PCIEC4L-MA4
Multi-Channel, Multi-Protocol 1553 & ARINC
Avionics Interface for PCI Express Systems

Alta Data Technologies’ PCIEC4L-MA4 interface module is a multi-channel, multi-protocol 1553 and ARINC ½ size PCI Express 4 Lane interface card (PMC on 4 Lane PCI Express Carrier) is supported by the latest software technologies. The PCIEC4L card is based on the industry’s most advanced 32-bit FPGA protocol engine, AltaCore™, and by a feature-rich application programming interface, AltaAPI™, which is a multi-layer ANSI C and Windows .NET (MSVS 2005/08/10 C++, C#, VB.NET) architecture. This hardware and software package provides increased system performance and reduces integration time.

AltaCore-1553 is guaranteed 1553B Notice II & IV compliant and all cards are manufactured to the highest IPC-Level 3 standards and ISO 9001:2008 processes. Cards are available in dual-function (BC/Mon or multi-RT/Monitor) or full-function (BC, mRT and Mon) configurations. Playback and Signal Generation are part of BC operations. Alta is committed to a risk free integration and will be glad to help with any level of your system development.

Key Features:
- One to Five Independent, Dual Redundant MIL-STD-1553 Channels
- Dual Function 1553 (BC/Mon or mRT/Mon) or Full Function (BC/mRT/Mon)
- 512 Kbyte RAM per 1553 Channel
- ARINC – 8 Channels Total:
  - 4 Shared TX/RX & 4 Dedicated RX
  - 512 Kbyte of RAM for all Channels
- **Capture 1553 & ARINC Waveforms**
  - First 1553 Channel & First Two ARINC RX Channels
  - 8-bit, 50 nSec for 1553 – 1 uSec for ARINC A/D for Voltage Measurements
- Channels May be Factory Configured to fix ARINC RX/TX or Monitor Only 1553.
- Commercial, Industrial (Extended) Temperature and Conduction Cooled
- Front or Rear Panel (P4) Configurations
- Advanced BC & ARINC TX Frequency Controls: 1553 Framing/Subframing;
  - RT/ARINC RX Full Buffering with 64-bit 20 nsec Time Tags
- Advanced, Multi-layer AltaAPI Provided at No Cost with Source Code
- Windows, Linux, RTOS, LabVIEW & RT
  - .NET Managed DLLs
  - Contact Factory for Latest RTOS Support
- True HW Playback (BC or TX)
- Industry First: 20/1000 ns Signal Generation
  - Bit Construction
  - Supports RT or ARINC Validation Testing
- IRIG-B RX PAM or RX/TX PPS Ext Clock
- Avionics/ RS-485 Discretes
- Advanced BIT Features and Dual Temperature Sensors
- Full HW Interrupt Features
- PCI 32 Bit, 33/66MHz & PCI-X Compatible
Multi-Channel, Multi-Protocol Avionics
PCIEC4L-MA4 Specifications

General

• ½ Size, 4 Lane PCI Express
• PCI Express 1.1
• 1-5 MIL-STD-1553B Notice II & IV Channels
• 4 Shared RX/TX & 4 RX ARINC Channels
• Dual and Full Function 1553 Channels
• Weight: 6oz/180grams
• Power (Estimated @ Max Bandwidth) 8-10W
• Parts Temp (C) : -55 to +120 Storage, 0 to +70 Commercial, -40 to + 85 Extended
• 6 Avionics and 1 RS-485 Discretes
• Loop-Back & User BIT, Dual Temp Sensors
• IRIG-B RX PAM and RX/TX PPS Time Sync
• IPC Class 3 and ISO 9001:2008 Processes

BC & ARINC TX Features

• Variable Framing and Subframing
• Schedule Message Timing in Frames or Intermessage/Label Gap Spacing
• Low and High Priority Aperiodic Scheduling
• ARINC TX Has Complete Frequency Control Per Channel – No Framing/SubFraming
• Infinite Linked Data Buffers
• Interrupts, No-Ops, Ext Trigger
• 1553 Legal and Reserved Mode Codes
• 1553A and 1553B Support
• 64-Bit, 20 ns Time Tags
• Full Error Injection/Detection

1553 RT Features

• Infinite Linked Data Buffers
• Legal and Reserved Mode Codes
• 1553A and 1553B Support
• Full Buffering of All Mode Codes
• 64-Bit, 20 ns Time Tags
• Full Error Injection/Detection

ARINC RX Features – 3 RX Modes

• Channel Level Label/Word Tables
• Multi Channel Data Tables for All Channels
• Channel Level Current Value Tables
• ARINC 717 Frame Support
• 64-Bit, 20 nsec Time Tags
• Full Error Detection

Playback/Signal Vector (BC or TX)

• Real Hardware Playback from Archive Files.
• Signal Vector Generation at 20/1000 (1553/ARINC)
• nsecs **INDUSTRY FIRST**
• 20 nsec 1553 Vectors and 1 uSec ARINC Vectors

1553 Monitor

• Sequential and RT Mapped Monitoring with Infinite Linked CDP Data Buffers
• Available with All Card Models
• 64-Bit, 20 ns Time Tags, Interrupts, Triggers
• Full Error Detection
• 8-bit, 50 nSec 1553 and 1 uSec A/D Waveform Signal Capture. 1st Channel 1553 and First 2 RX of ARINC

Software: AltaAPI, AltaView, AltaRTVal

• Multi-Layer AltaAPI Architecture to Support Windows, .NET and ANSI C Source, VxWorks, Integrity, etc…
• Contact Factory For RTOS Platforms
• LabVIEW & RT Support
• Optional AltaView is Based on the Latest Windows MS Office User Interface Style with Ribbon-Bar
• Full Analyzer Integration Tool
• Multi Language Support
• Optional AltaRTVal provides full AS4111/4112 5.2 RT Validation GUI and Reports

Part Numbers

Add Suffix #D or #F for 1553 Dual or Full Function Channel Count (#). Further add “8” for ARINC.

Example: PCIEC4L-MA4-4D6-T

Contact Factory for Desired Channel Configuration.

Options: -E for Ext Temp Parts (-40 to +85C), -C for Ext Temp, Conduction Cooled/Conformal Coated/Rear Panel, -R for Rear Panel P4 Commercial, -A for AltaView and -B for AltaRTVal

Options: -E for Ext Temp Parts (-40 to +85C)

5 Year Limited Warranty!

EU and China RoHS Compliant

Contact Alta for Special Lead Build Configurations

AltaAPI Software with ANSI C Source, .Net Managed DLLs and LabVIEW & LabVIEW-RT Provided at No Cost.

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