MIL-STD-1553
Including 16PP194/WMUX and EBR
ARINC-429/717
Interface Cards & Real-Time Appliances
Alta Data Technologies – Company Overview

MIL-STD-1553 & ARINC
COTS Interface Cards & Real-Time Appliances

- PCI, PCI Express, PMC, XMC, CPCI/PXI, CPCIE/PXle, PC104+, Express, Mini PCI Express, etc...
- Real-Time Ethernet (ENET)
- Thunderbolt and USB 3 Appliances
- In-Line (NLINE) Cable Devices
- Test, Simulation, Rugged Deployed

Founded in 2007
Alta is the Market Leader in Innovation and Quality

- 100+ Years Combined Experience
- 60,000+ Items Shipped
- $175M+ Sales Across 100s of Aerospace and MIL Programs

Quality at Every Phase of Alta Operations

✓ 5 Year Limited Warranty – Industry Leading!
✓ ISO 9001:2015 Certified
✓ ANSI ESD S.20.20 Certified
✓ IPC-A-610 Class 3 & J-STD-001
✓ Advanced JTAG Boundary Scan
✓ Only Tier One/OEM Parts Suppliers
✓ FPGA Based Designs to Reduce Parts Obsolescence Risks
✓ US Owned and Operated – NIST/CMMC Compliant

Guaranteed Compliant - No Risk Avionics Integration
Alta 1553 and ARINC COTS Products
Interface Cards & Real-Time Appliances

For Test, Simulation or Rugged Embedded Applications, Alta Has an Interface Device for Your System

PCI, PCI Express (PCIe)
One Lane & Four Lane

PMC, XMC, VPX
cPCI, PXI/PXIe

PC104 PCI and
PC104 PCI Express

Mini PCI Express, Ethernet & COM Express

Industry Firsts!
USB 3.0 & Thunderbolt 3 (USB-C)
1553 and ARINC Appliances

Real-Time Ethernet Converters (ENETs & NLINEs)
for 1553 and ARINC Systems – Another Alta First!

Commercial, Lab and Deployed Appliances
MIL-810G/461F/704F/DO-160 Test Reports

Very Small, No Processor or OS IP Stacks – Real-Time Interface with Almost Any Client System – UDP Sockets

ENETX – Multi Protocol
Full Rugged – Ready to Deploy!

ENET Models for:
MIL-STD-1553
Enhanced Bit Rate 1553 - EBR
ARINC-429/717
Multi-Protocol

Path Delay: The Computer’s IP Software Stack. Typical 50-150 uSec Delay for Round-Trip Packet RX/TX.

ENET-1553/A429
Real-Time Ethernet

Direct or Switched Ethernet

FPGA Protocol Engine
Thin-Server UDP Engine

Recommend VLAN and QoS Settings for Switches

To 1553/ARINC Busses/Channels
Alta’s Hardware is 2nd to None, and the AltaAPI SDK Simplifies Software Integration and Maintenance

What Makes AltaAPI Different Than All Other 1553 and ARINC SDKs?

The OSI Layered Model Provides Maximum Portability

The same executable program can run on any alike Alta channel or device

The Layer 0 and Layer 1 Simplify and Protect Memory Objects

AltaAPI abstracts low-level hardware pointers and registers for safer code

AltaAPI provides memory management and object boundary protection

Excellent Documentation and Example Program Templates

Significant Reduction in Development Time and Future Maintenance

/* Single Function Call for 1553 Bus Monitor or ARINC RX! */

status = ADT_L1_1553_BM_ReadNewMsgs(DEVID, 1000, &numMsgs, bmMessages);
AltaView – The Industry’s Most Advanced Windows Analyzer Software for 1553 and ARINC

✓ Auto Frequency, Loading, Activity Analysis and Data Displays
✓ Modern C#, XML Interface
✓ Archiving and Playback
✓ Signal Capture/Test
✓ ASCII & CSV Conversion and EU Processing!
✓ No Seat/Node License
✓ Ideal for Cyber Testing
✓ No Annual License Fees

AltaRTVal Software Provides Automated MIL-STD-1553 Protocol Validation for Remote Terminals Per the SAE AS4111/4112 Standard

✓ Test RTs to Industry Standard Protocol Tests
✓ Generates Test Records
✓ Detailed Failure Analysis
✓ Online Reference to MIL-HDBK-1553A
✓ Easy to Setup & Execute Nearly 100% Automatic
✓ Requires Two Channel Full Function 1553 Card

AltaView and AltaRTVal Software 888-429-1553

Free Updates
Server 8/12, 7/8/10
Vmware with ENETs.
Runs on Any Enabled Alta Product
Alta 1553 Advantages
✓ Wide Selection of COTS Interface Cards and Real-Time Appliances
✓ Packetizing Engine – 3rd Gen Design Common Data Packet (CDP) Architecture
✓ Portable FPGA AltaCore Design – Reduced Parts Obsolescence Risk
✓ Independent Channels – Separate Application Threads Per Channel
✓ Full SAE RT Protocol Validation – No Risk
✓ Most Advanced Error Injection and Detection Available
✓ Layered, Modular and Portable AltaAPI – Simplified Integration
✓ Lab, Rugged and Conduction Cooled Configurations
✓ Highly Accurate/Flexible BC Controls
✓ IRIG/PPS, External Clock Controls
✓ Signal Capture and Generator Standard

Advanced Software
The Alta Difference
✓ AltaAPI – SDK for all Products Drivers, 100+ Example Templates NI LabVIEW/TestBench/Windows™
✓ AltaView Windows Bus Analyzer Many Free Features for All Customers
✓ AltaRTVal – RT Protocol Validation
**Largest Selection of Interface Cards, Converters and Appliances**

### Real-Time Ethernet Converters (ENET)

**Small, Rugged, Any OS**
- 1-4 Channels + ARINC
- Various Models for POE, MIL-810G/461F/704F Power
- Auto BM to UDP Bridging
- No Programming
- 8 EBR Channels

### In-Line (NLINE) Interfaces

- 1-2 Channels
- Ethernet, Thunderbolt, USB
- Ideal for Rugged, Deployed MIL-810G/461F/60K ft

### Interface Cards

<table>
<thead>
<tr>
<th>Type</th>
<th>Channels</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCI Express</td>
<td>1-10</td>
</tr>
<tr>
<td>XMC</td>
<td>1-10</td>
</tr>
<tr>
<td>PMC (WMUX)</td>
<td>1-5</td>
</tr>
<tr>
<td>cPCI/PXI/PXlE</td>
<td>1-5</td>
</tr>
<tr>
<td>PCI</td>
<td>1-5</td>
</tr>
<tr>
<td>PC/104-Plus</td>
<td>1-4</td>
</tr>
<tr>
<td>PC/104E</td>
<td>1-2</td>
</tr>
<tr>
<td>Mini PCI Exp</td>
<td>1-2</td>
</tr>
<tr>
<td>MEZ-E1553</td>
<td>1-2</td>
</tr>
<tr>
<td>ExpressCard/</td>
<td></td>
</tr>
<tr>
<td>PCCARD</td>
<td>1-2</td>
</tr>
</tbody>
</table>

*Most Available with ARINC*

### USB 3 and Thunderbolt Appliances

- 1-2 1553 Channels + 8 ARINC
- Ideal for Test, Notebooks
- Industry’s Only USB 3

### Common Features

- 28V Avionics and Digital Discretes (MIL-1760)
- IRIG-B RX, PPS, Triggers
- Optional Cables.

**Only with Alta!**

- Signal Capture and Testing: O-Scope
- Signal Generator – Cyber Testing
- No-Cost Training, Tech Support
- Free Software Updates

### 1553 Configurations

**Channel = Dual Redundant A/B Bus Pair**

- Bus Controller (BC), Multi-RT (mRT), Bus Monitor (BM)

**Dual Function** = BC & BM or mRT & BM

**Full Function** = BC, mRT & BM

---

*Available on Most Models*
Alta ARINC Advantages

✓ Wide Selection of COTS Interface Cards and Real-Time Appliances
✓ 4-48 Shared and Dedicated, Independent RX/TX Channels
✓ Portable FPGA AltaCore Design – Reduced Parts Obsolescence Risk
✓ Most Advanced Error Detection and Injection Available Parametrics Variable Voltage on ENET-A429P
✓ Layered, Modular and Portable AltaAPI – Simplified Integration
✓ Lab, Rugged and Conduction Cooled Configurations
✓ Highly Accurate TX Scheduling
✓ 3 Simultaneous RX Options per Channel!
✓ IRIG/PPS, External Clock Controls
✓ Signal Capture & Generator Standard!

Advanced Software
The Alta Difference

✓ AltaAPI – Most Advanced Development Kit Included Drivers, 100+ Example Templates NI LabVIEW/TestBench/Windows™
✓ AltaView Windows Analyzer TX/RX Controls, Archive, Signal Capture
### Interface Cards

<table>
<thead>
<tr>
<th>Type</th>
<th>Channels</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCI Express</td>
<td>4-48</td>
</tr>
<tr>
<td>1x and 4x Lanes</td>
<td></td>
</tr>
<tr>
<td>XMC</td>
<td>4-30</td>
</tr>
<tr>
<td>PMC</td>
<td>4-48</td>
</tr>
<tr>
<td>PCI</td>
<td>4-30</td>
</tr>
<tr>
<td>CPCI/PXI/PXle</td>
<td>4-48</td>
</tr>
<tr>
<td>PC/104-Plus</td>
<td>4-24</td>
</tr>
<tr>
<td>PC/104E</td>
<td>8</td>
</tr>
<tr>
<td>Mini PCI Exp</td>
<td>6</td>
</tr>
<tr>
<td>PCMCIA/</td>
<td></td>
</tr>
<tr>
<td>PCCARD</td>
<td>8</td>
</tr>
<tr>
<td>Express Card</td>
<td>8</td>
</tr>
</tbody>
</table>

Most Available with 1553

---

### Real-Time Ethernet Converters (ENET)

**Small, Rugged, Any OS**

- 4-8 Channels + 1-2 1553
- Various Models for POE, MIL-810G/461F/704F Power
- Auto RX to UDP Bridging
- No Programming
- DO160 RX & Parametrics Models

#### In-Line (NLINE) Interfaces

- 8 Channels
- Ethernet, Thunderbolt, USB
- Ideal for Rugged, Deployed MIL-810G/461F

[ARINC NLINE Release Q2 2021](#)

---

### USB 3 and Thunderbolt Appliances

- 8 ARINC + 1-2 1553 Channels
- Ideal for Test, Notebooks
- Industry’s Only USB 3

---

### Common Features

- 28V AV and Digital Discretes
- IRIG-B RX, Clock PPS, Triggers, O-Scope Capture
- Signal Bit Testing

---

**Combine Hardware Choices Above with AltaView Analyzer**

Or Integrate with your OS, LabVIEW, LabWindows, Veristand
Alta’s ENETs and NLINEs Provide Ethernet, Thunderbolt & USB Connectivity
Ideal for Lab or Rugged Vehicle Applications

- No Processor or Operating System (OS) IP Stacks!
- Real-Time UDP FPGA Engine: <20 uSec Response
- Control Mode for All Operations AND Auto Bridge 1553/429 » Ethernet Mode
- Nearly 100x Faster Than Polling USB!
- Works with Almost Any OS – Control From Your DO178 Certified OS!

ENET Dedicated and Combo Models for:
- 1-4 Channels 1553
- 4-8 Channels ARINC
- 8 Channels 1553-EBR
ENETX Deployable
MIL-704F/461F/810G/DO160

Alta Real-Time Ethernet Advantages
Alta Advantages

- Widest Selection of COTS 1553 and ARINC Interface Cards, USB, Thunderbolt and Real-Time Ethernet Converters
- Packetizing Engine – Only 3rd Gen Design Common Data Packet (CDP) Architecture
- Portable FPGA AltaCore Design – Reduced Parts Obsolescence Risk
- Independent Channels – Alta Unique!
- Advanced Development Software (SDKs)
- Windows Analyzer and Protocol Validation
- Customer Service 2nd to None – Let us Help You!
- 5 Year Warranty – Best In The Industry

Bus Kits and Cable Accessories Simplify Integration
(Most Alta Cards Includes 1553 Cables or ARINC Flying Lead Cables)

Bus Kits
Cables
Couplers
Terminators
Industry Leader in
MIL-STD-1553 & ARINC
COTS Products

✓ The Industry’s Most Advanced Protocol Engines and Software
✓ 5 Year Limited Warranty
✓ Expert Technical Sales and Support

Sales & Support Offices:
New York, Florida, Texas, Colorado and California

Alta Data Technologies, LLC
4901 Rockaway Blvd., Bld A
Rio Rancho, NM 87124 USA
tel: 505-994-3111 fax: 805-504-8588
888-429-1553 toll free
www.altadt.com

All trademarks reserved by their respective owners. Alta claims no benefit from references. Thunderbolt and the Thunderbolt logo are trademarks of Intel Corporation in the US and/or other countries.