

# Alta<sup>dt</sup>

data technologies

*Innovation,  
Quality & Service*



## **MIL-STD-1553**

Including 16PP194/WMUX and EBR

## **ARINC-429/717**

*Interface Cards & Real-Time Appliances*

[www.altadt.com](http://www.altadt.com)  
1-888-429-1553

# 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**  
**50,000+ Items Shipped**  
**\$150M+ 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

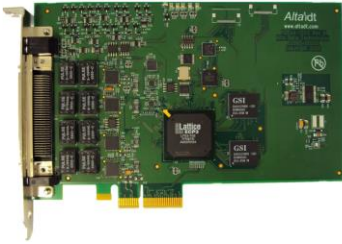


***Guaranteed Compliant - No Risk Avionics Integration***

# 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



PCMCIA/PCCARD/  
ExpressCard54



Mini PCI Express  
COM Express



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



In-Line (NLINE) Ethernet, USB, Thunderbolt



## 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



Only 200 grams  
13.5 x 3.7 x 4 cm



ENETX – Multi Protocol  
Full Rugged – Ready to Deploy!

ENET Models for:

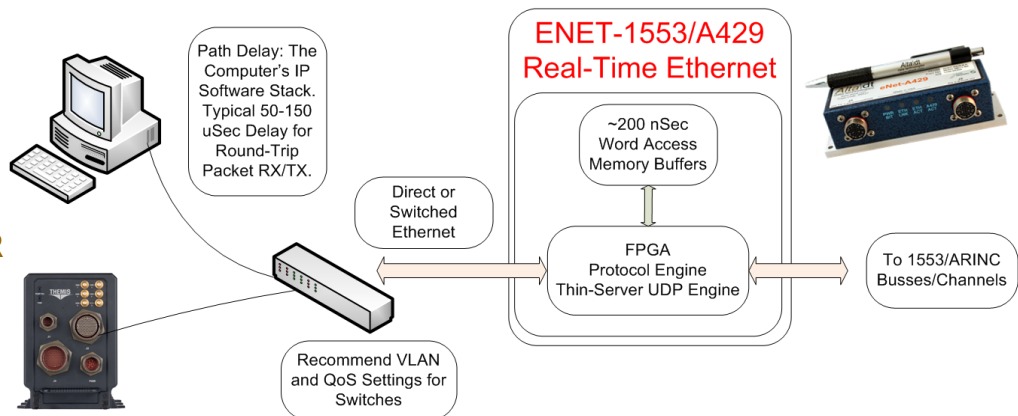
**MIL-STD-1553**

**Enhanced Bit Rate 1553 - EBR**

**ARINC-429/717**

**Multi-Protocol**

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



# AltaAPI – Software Development Kit

## Proper OSI Layered-Abstraction Model

Alta's Hardware is 2<sup>nd</sup> to None, and the **AltaAPI** SDK Simplifies Software Integration and Maintenance



**AltaAPI** Software Architecture  
Layered, Modular, Portable

### Layer 3

Your OOP (.Net, C#) Application

AltaView, AltaRTVal

### Layer 2

Your Application (most applications here)

C, C++, VB, Java, LabVIEW/Windows, DLLs, SOs, etc...  
(.Net, C# OOP Layer)

### Layer 1

API Module (ANSI C)

1553 and ARINC Operations and Device Management

### Layer 0

OS-Specific (ANSI C)

Abstracts Operating System (makes applications portable)

OS-Specific Device Driver (if needed)

Backplane Hardware (PCI, PCIe, Ethernet etc.)

Alta Interface Card/Device

- ✓ No Cost Updates
- ✓ Windows 32 & 64-Bit  
Server 8/12, 7/8/10
- ✓ Linux x86 32 & 64-Bit
- ✓ VxWorks 5.X, 6.X, 7.X
- ✓ NI LabVIEW™, RT,  
LabWindows™ Support
- ✓ Small, Fast Design
- ✓ Layer 1 Source Code
- ✓ Portable to most RTOS
- ✓ 100+ Examples!
- ✓ No Maintenance Fees

## 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

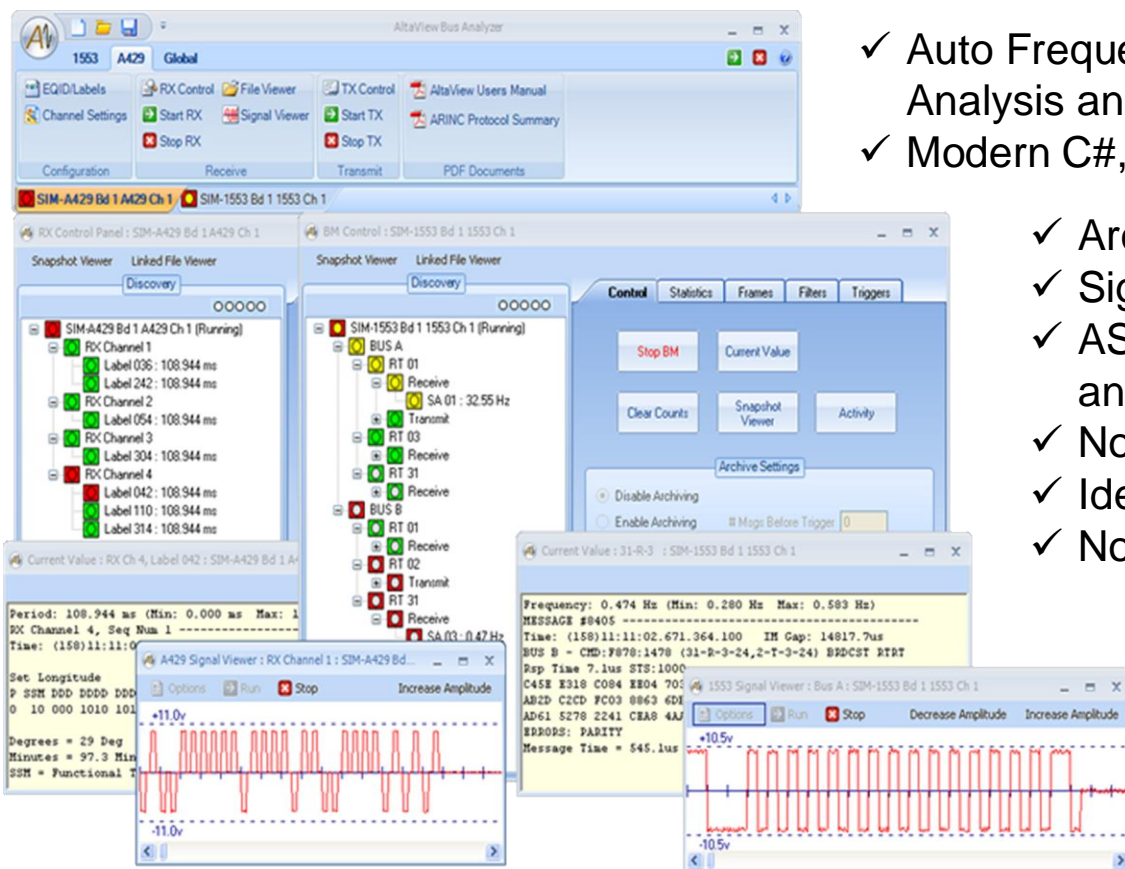
**Significant Reduction in Development Time and Future Maintenance**

**/\* 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



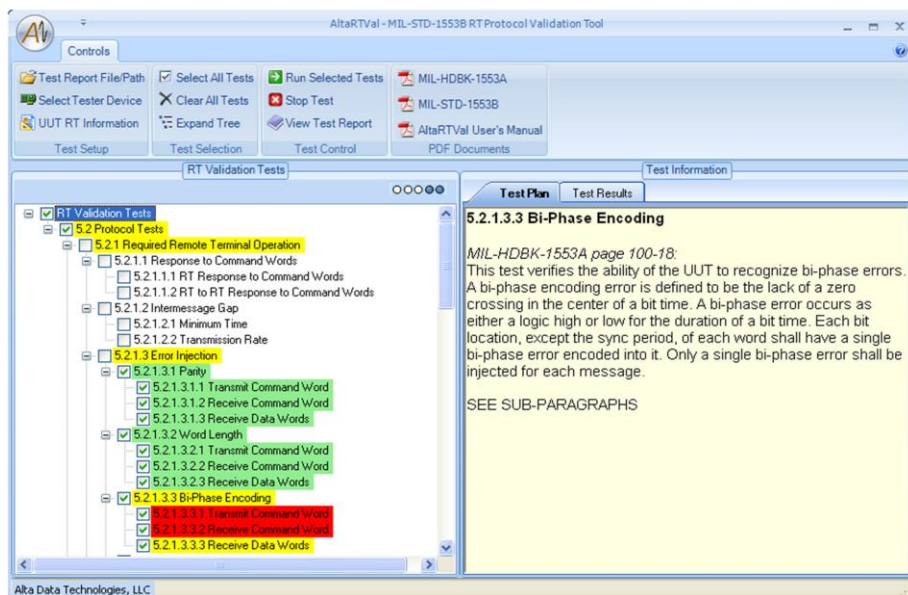
- ✓ Auto Frequency, Loading, Activity Analysis and Data Displays
- ✓ Modern C#, XML Interface
- ✓ Archiving and Playback
- ✓ Signal Capture/Test
- ✓ ASCII & CSV Conversion and EU Processing!
- ✓ No Seat/Node License
- ✓ Ideal for Cyber Testing
- ✓ No Annual License Fees

Free Updates  
Server 8/12, 7/8/10  
Vmware with ENETs.

Runs on Any  
Enabled Alta Product

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

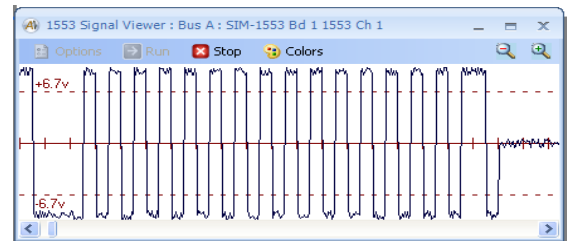
- ✓ Test RTs to Industry Standard Protocol Tests
- ✓ Generates Test Records
- ✓ Detailed Failure Analysis
- ✓ Online Reference to MIL-HDBK-1553A
- ✓ Easy to Setup & Execute Nearly 100% Automatic
- ✓ Requires Two Channel Full Function 1553 Card



# MIL-STD-1553 Products

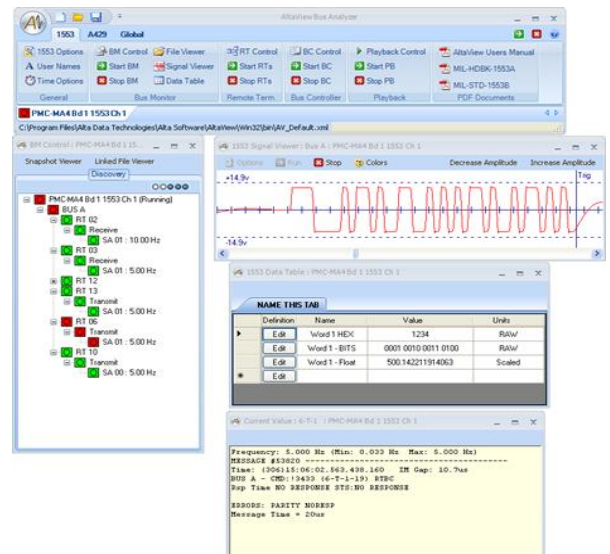
## Alta 1553 Advantages

- ✓ Wide Selection of COTS Interface Cards and Real-Time Appliances
- ✓ Packetizing Engine – 3<sup>rd</sup> 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



# MIL-STD-1553 Products

## 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



ENET  
 ENET2  
 ENET-MA4  
 ENETX-MA4  
 ENETX-1553  
 ENET-1553-EBR

### In-Line (NLINE) Interfaces

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



### Interface Cards

Type	Channels
PCI Express 1x and 4x Lanes	1-10
XMC	1-10
PMC (WMUX)	1-5
cPCI/PXI/PXle	1-5
PCI	1-5
PC/104-Plus	1-4
PC/104E	1-2
Mini PCI Exp	1-2
PCMCIA/ PCCARD	1-2
Express Card	1-2



Most Available with ARINC

### USB 3 and Thunderbolt Appliances

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

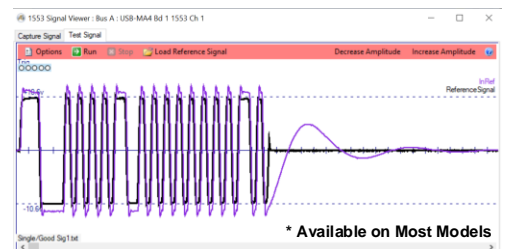


### Common Features

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

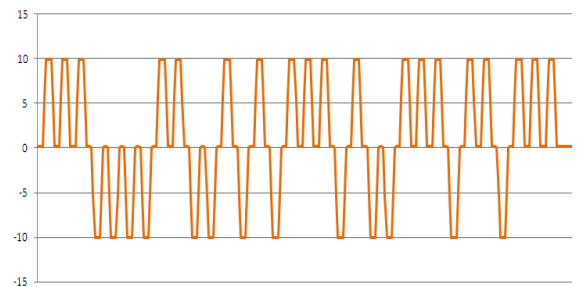
**Full Function** = BC, mRT & BM



# ARINC Products

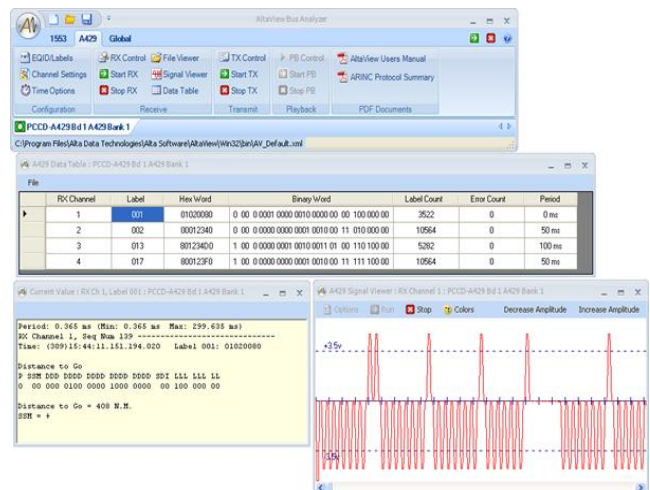
## Alta ARINC Advantages

- ✓ 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 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





## Ideal Products for Test, Simulation and Deployment

### 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



ENET-A429  
 ENET-A429P  
 ENET-MA4  
 ENETX-MA4

### In-Line (NLINE) Interfaces

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



ARINC NLINE Release Q2 2021

### Interface Cards

#### Type Channels

PCI Express	4-48 1x and 4x Lanes
XMC	4-30
PMC	4-48
PCI	4-30
CPCI/PXI/PXIe	4-48
PC/104-Plus	4-24
PC/104E	8
Mini PCI Exp	6
PCMCIA/ PCCARD	8
Express Card	8



Most Available with 1553

### 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

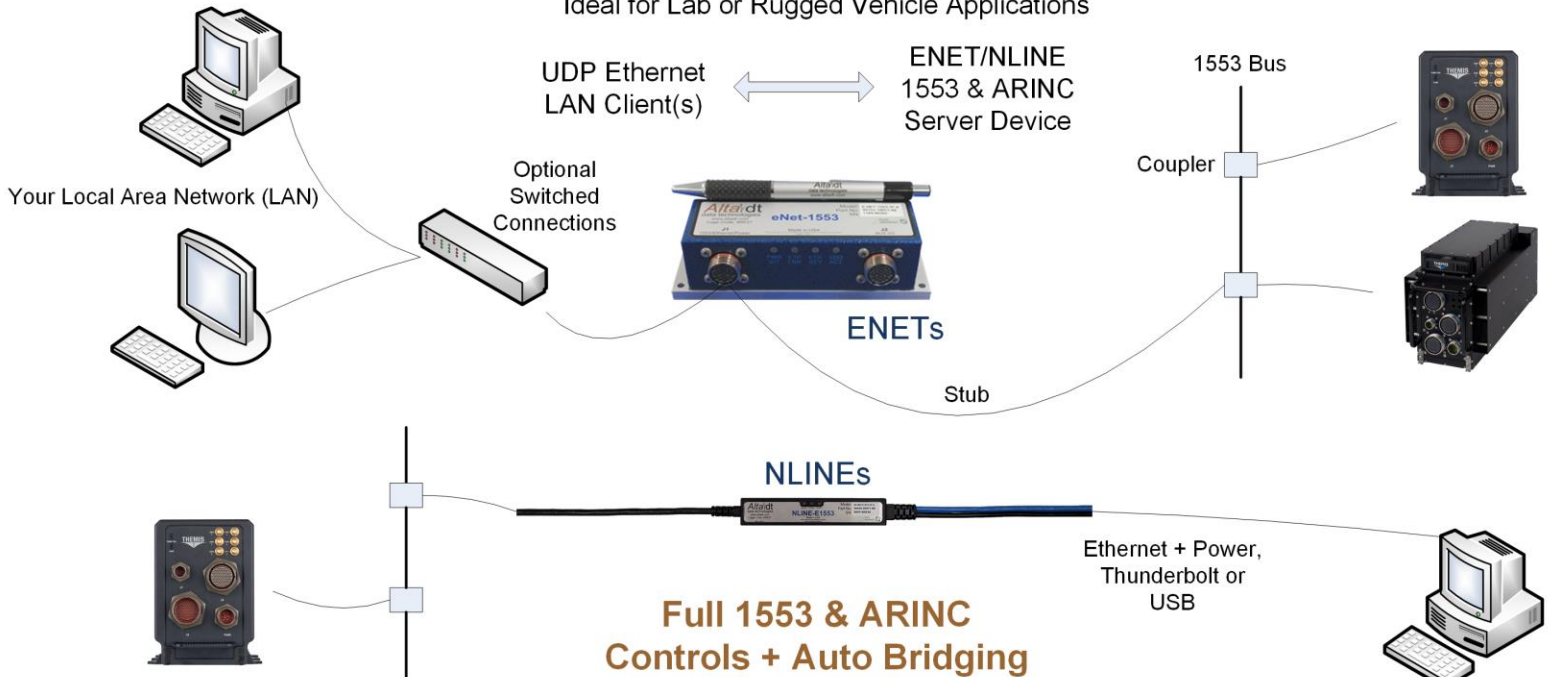
Or Integrate with your OS,  
 LabVIEW, LabWindows,  
 Veristand

# Product Focus

## Real-Time 1553/EBR ARINC-429 Converters

Alta's ENETs and NLINES Provide  
Ethernet, Thunderbolt & USB Connectivity

Ideal for Lab or Rugged Vehicle Applications



**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**



Actual Size  
ENETX Slightly Larger

### Alta Real-Time Ethernet Advantages

- **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!**

# Alta – The Leading Avionics COTS Supplier! Innovation, Quality and Service

**Highest Density Cards on the Market**  
1-10 1553 Channels & 4-48 ARINC Channels

## Alta Advantages



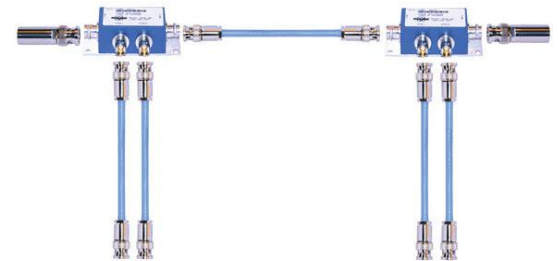
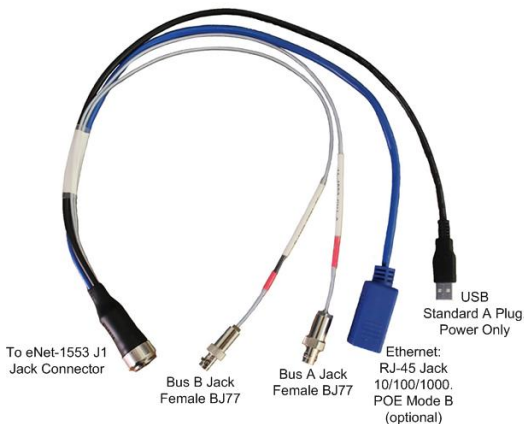
- ✓ Widest Selection of COTS 1553 and ARINC Interface Cards, USB, Thunderbolt and Real-Time Ethernet Converters
- ✓ Packetizing Engine – Only 3<sup>rd</sup> Gen Design Common Data Packet (CDP) Architecture
- ✓ Portable FPGA AltaCore Design – Reduced Parts Obsolescence Risk
- ✓ Independent Channels – Alta Unique!
- ✓ Advanced Development Software (SDKs)
- ✓ Windows Analyzer and Protocol Validation
- ✓ Customer Service 2<sup>nd</sup> 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**<sup>dt</sup>  
data technologies

Headquarters/Factory:

**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](http://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.