



Alta^{dt}

data technologies



*Innovation,
Quality & Service*

MIL-STD-1553

Including 16PP194/WMUX and EBR

ARINC-429/717

Interface Cards & Real-Time Appliances

Ethernet Converters, USB, Thunderbolt™

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/NLINE)

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**

65,000+ Items Shipped

**\$200M+ 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 – RoHS 2/ REACH

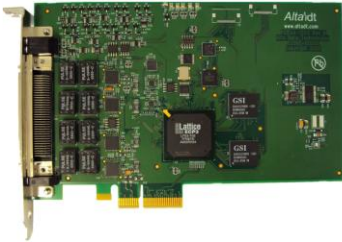


Guaranteed Compliant - No Risk Avionics Integration

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, MOSA



New! Async Serial, Too!

PC104 PCI and
PC104 PCI Express



cPCI/cPCIe



Mini PCI Express,
Ethernet &
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



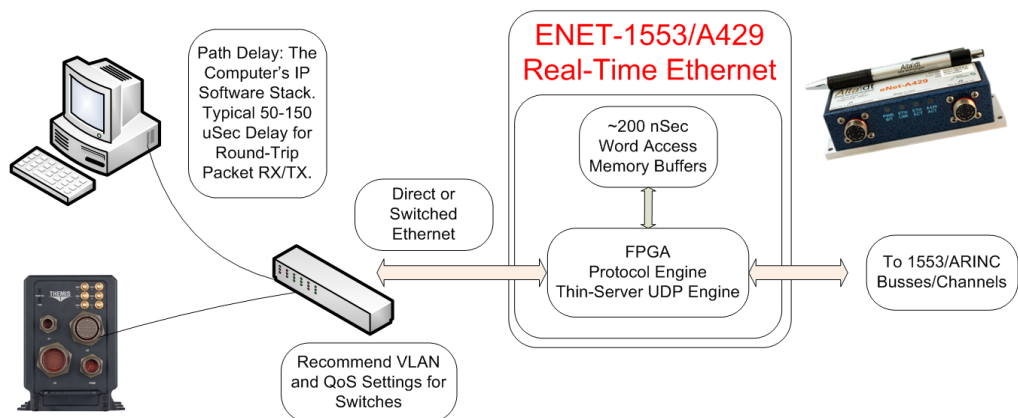
Only 200 grams
13.5 x 3.7 x 4 cm



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



AltaAPI – Software Development Kit

Proper OSI Layered-Abstraction Model

Alta's Hardware is 2nd 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 & 7/8/10/11
- ✓ 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

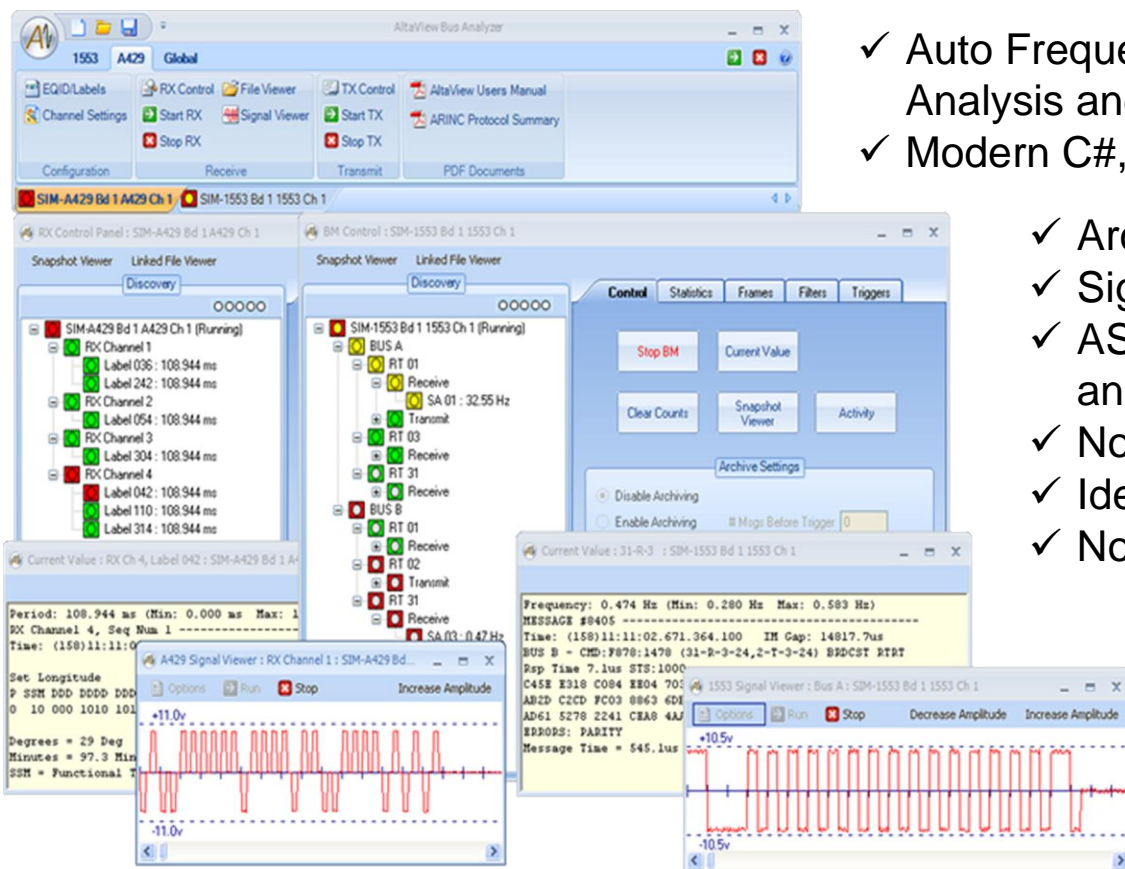
Excellent Documentation and Example Program Templates

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



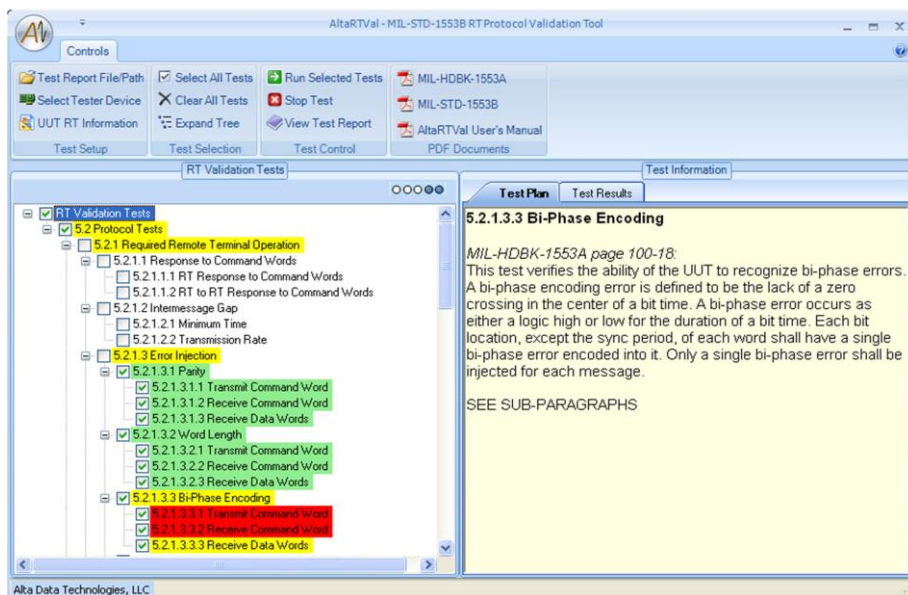
- ✓ Auto Frequency, Loading, Activity Analysis and Data Displays
- ✓ Modern C#, XML Interface
- ✓ Archiving and Playback
- ✓ Signal Capture/Test
- ✓ ASCII & CSV Conversion and EU Processing!
- ✓ No Seat/Node License
- ✓ Ideal for Cyber Testing
- ✓ No Annual License Fees

Free Updates
Win Server, 7/8/10/11
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

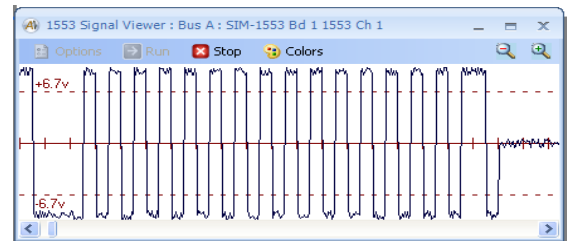
- ✓ Test RTs to Industry Standard Protocol Tests
- ✓ Generates Test Records
- ✓ Detailed Failure Analysis
- ✓ Online Reference to MIL-HDBK-1553A
- ✓ Easy to Setup & Execute Nearly 100% Automatic
- ✓ Requires Two Channel Full Function 1553 Card



MIL-STD-1553 Products

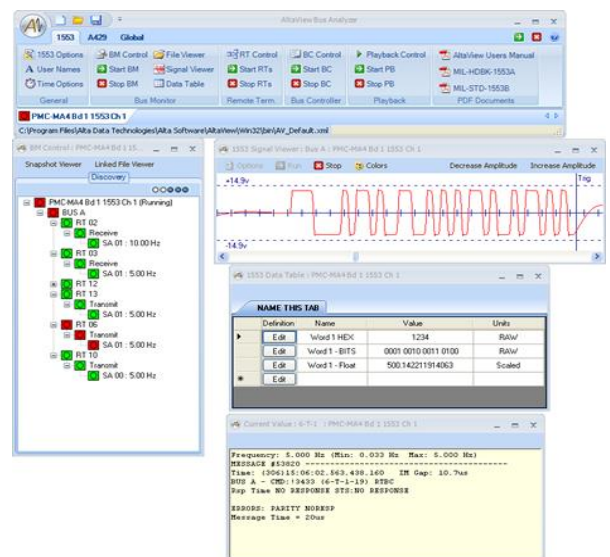
Alta 1553 Advantages

- ✓ Wide Selection of COTS Interface Cards and Real-Time Appliances
- ✓ Packetizing Engine – 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



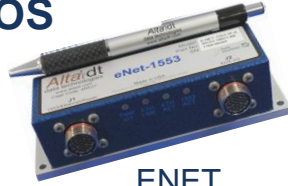
MIL-STD-1553, EBR & WMUX Products

Largest Selection of Interface Cards, Converters and Appliances

Real-Time Ethernet Converters (ENET)

Small, Rugged, Any OS

1-4 Channels + ARINC
 Various Models with
 MIL-810G/461F/704F POE
 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	1-10 1x and 4x Lanes
XMC+WMUX/Async Serial	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
MEZ-E1553+WMUX	1-2
MEZ-EBR	8
ExpressCard/ PCCARD	1-2



Most Available with ARINC

USB 3 and Thunderbolt Appliances

1-2 1553 Channels + 8 ARINC
 Ideal for Test, Notebooks
 (Windows and Linux x86)

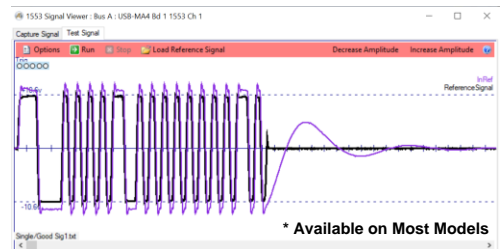


Common Features

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

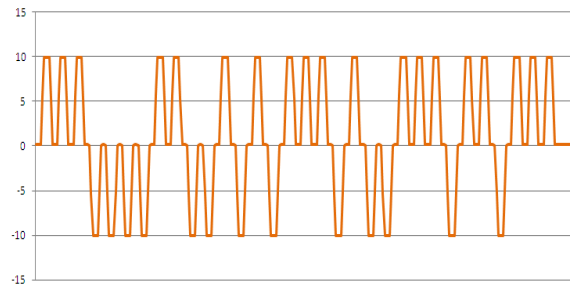
Channel = Dual Redundant A/B Bus Pair
 Bus Controller (BC), Multi-RT (mRT), Bus Monitor (BM)

Dual Function = BC & BM or mRT & BM

Full Function = BC, mRT & BM

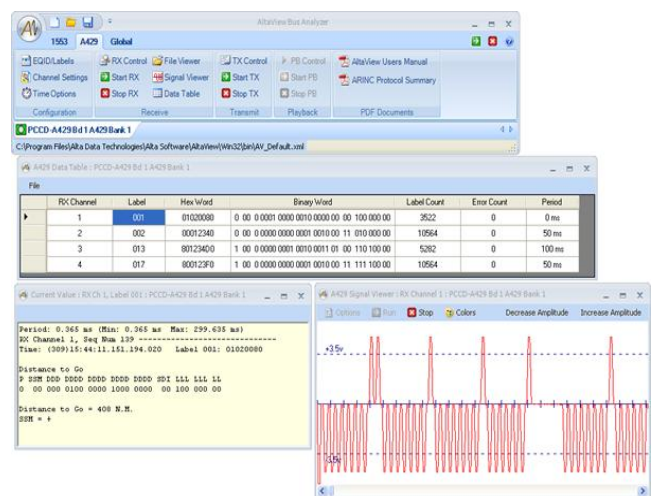
Alta ARINC Advantages

- ✓ Wide Selection of COTS Interface Cards and Real-Time Appliance
- ✓ 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



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
 MIL-810G/461F/704F POE
 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 & USB
 Ideal for Rugged, Deployed Applications
 MIL-810G/461F



Interface Cards

Type	Channels
PCI Express	4-48
1x and 4x Lanes	
XMC +Async Serial	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
MEZ-EA429	8
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**

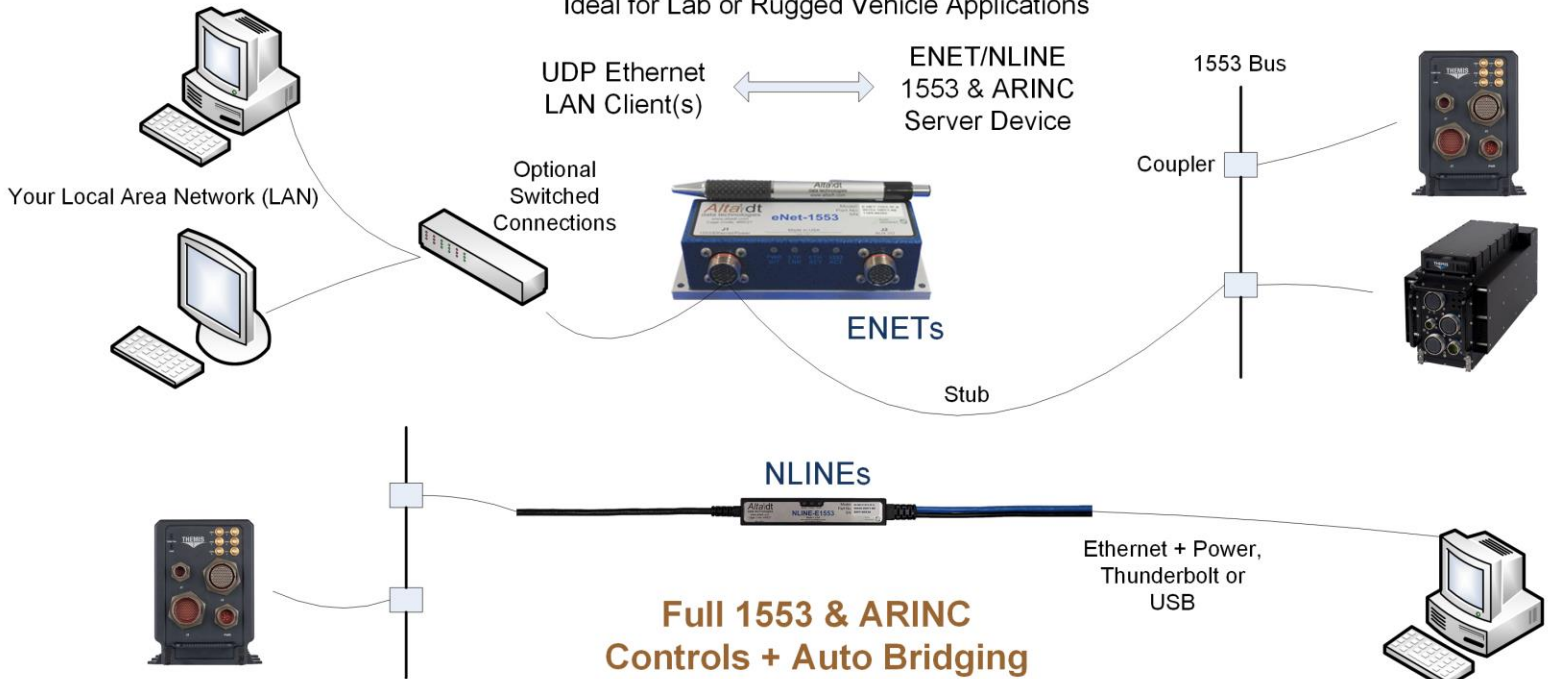
Or Integrate with your OS,
 LabVIEW, LabWindows,
 Veristand

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

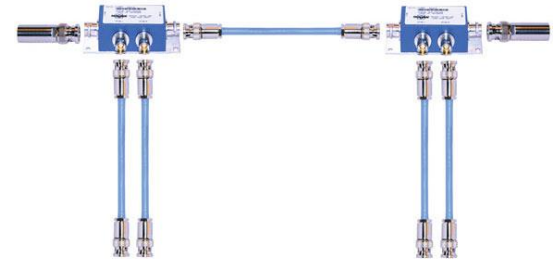
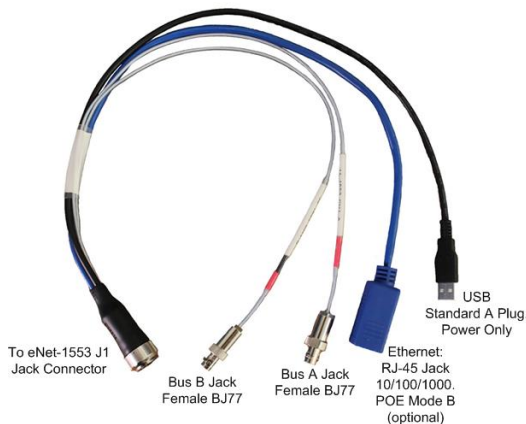
- ✓ Widest Selection of COTS 1553 and ARINC Interface Cards, USB, Thunderbolt and Real-Time Ethernet Converters
- ✓ Packetizing Engine – Only 3rd Gen Design Common Data Packet (CDP) Architecture
- ✓ Portable FPGA AltaCore Design – Reduced Parts Obsolescence Risk
- ✓ Independent Channels – Alta Unique!
- ✓ 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

- ✓ Free Lifetime Software Updates & Support
- ✓ 5-Year Limited Warranty

**Sales & Support Offices:
New York, Florida, Texas,
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