

# OmniBus® II PXle Interfaces sold by NI

## Available Interfaces

MIL-STD-1553  
ARINC 429/575  
TTL Level Discrete I/O  
Open/GND avionics discrete I/O

## Multi-Protocol Avionics Databus Interface

The OmniBus® II PXI Express (PXle) card is designed for use in multi-slot PXle and CompactPCI Express test systems. It enables these systems to interface with multiple avionics databuses for testing, validating and simulating commercial and military avionics equipment and systems. The card is highly configurable and includes two internal Cores that can be populated with a variety of databus protocols and discrete I/O modules.

The OmniBus II PXle is the next-generation of Ballard's popular OmniBus product with faster I/O and processing capabilities. With the newest advanced set of MIL-STD-1553 and ARINC 429 modules, users can verify wave form compatibilities, test functions of bus shorts and opens, and perform lab, production and flight test verification and simulation. Readily available as Commercial Off-The-Shelf (COTS) products, the PXle interface is perfect for challenging simulation, test, interface, and data recording applications.

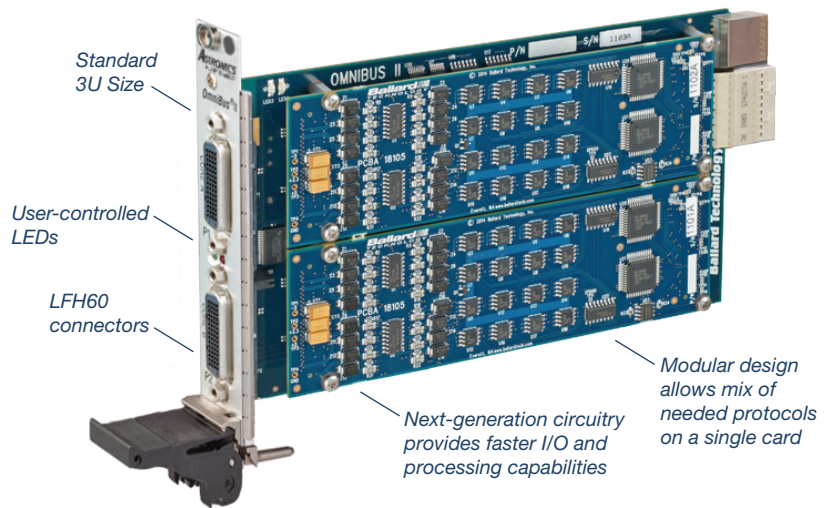
## Hardware

OmniBus II modules used on this card feature the latest 6th generation protocol engines and bus mastering to yield high performance. Power is obtained from the backplane bus—no supplemental power is needed. All cards are standard 3U size and include sixteen TTL level input/output discretes and IRIG time synchronization/generation. User software can indicate status by controlling the two LEDs.

## Software

The OmniBus II PXle product has been certified by National Instruments as "Compatible with LabVIEW™." Included with all OmniBus II models sold by NI is the LabVIEW Avionics Instrument Driver—the best way to operate the PXle product with LabVIEW Software.

Users can also develop their own software applications with the included BTIDriver™ API. With only a few function calls, a program can operate the interface card and process messages to and from the avionics databuses. Functions include routines for transmitting, receiving, scheduling, recording, time-tagging, and manipulating data. The interface card can use applications developed for other Ballard devices. Code migrates seamlessly from BTIDriver compatible devices.



## Features

- Supports multiple protocols in one card
- Up to 4 MIL-STD-1553 databuses
- Up to 32 ARINC 429 databuses
- 16 bidirectional TTL level discrete I/O
- PXI triggers/syncs/clocks
- Advanced timing: IRIG, 10 MHz, and PPS
- Built-in test: PBIT, IBIT and CBIT
- CompactPCI Express (cPCIe) compatible

## Software

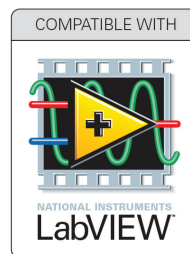
- Certified Compatible with LabVIEW™ Instrument Driver
- Universal BTIDriver™ API compatible
- Efficient DMA monitoring
- Compatible with other Ballard hardware

## Benefits

- Powerful protocol engines
- Easy installation
- 3-year limited warranty standard
- RoHS compliant

## Applications

- Product development and validation
- Production testing
- Simulation of databus and I/O system traffic
- Data servers
- Data recorders
- System analysis and integration testing
- Performance monitoring and analysis



LabVIEW Compatible hardware and driver available at:  
[www.ni.com](http://www.ni.com)

**ASTRONICS**  
BALLARD TECHNOLOGY

# OmniBus II

## PXIe Interfaces sold by NI

### I/O Details

#### MIL-STD-1553

Up to 2 dual-redundant channels  
BC/RT/MON (Single- or Multi-Function)  
Hardware controlled transmit scheduling  
Sequential monitor and Time Stamping  
CH/TA/SA filtering  
Error injection including MBZC shifting  
Playback with errors  
Amplitude control  
16 Open/GND avionics discrete I/O

#### ARINC 429

Up to 16 Tx/Rx configurable channels  
Periodic and asynchronous messages  
Hardware controlled transmit scheduling  
Hardware playback mode  
Receive message filtering (Label/SDI)  
Sequential monitor and Time Stamping  
Programmable bit rate  
Error detection and injection  
Parity bit inversion  
+/- bit count (8-33 bits)  
Intermessage gap error

### Specifications

OmniBus II PXIe is available in a number of configurations that all share the base model features below:

#### Base Model Features

- 2 Core I/O sites
- 8 bidirectional TTL discrete I/O per core
- 2 user controlled LED indicators per core
- 64 MB memory per core (ECC)
- Temperature monitoring

#### Advanced Timing

64-bit hardware time-tag (1ns resolution)  
IRIG A/B input and output (AM, PWM)  
Generate or synchronize timer  
Synchronize hardware time-tags  
10 MHz and PPS  
Frame synchronization  
Synchronize hardware time-tags

#### Interrupts/Logging

Poll or use interrupts  
Configurable event log  
Programmable event logging/interrupts from messages, tx schedules, and buffers

#### PXI Triggers/Syncs/Clocks

PXI\_STAR, PXI\_TRIG, PXIe\_DSTAR, and PXIe\_CLK100 signals  
Route PXI triggers to BTIDriver triggers & syncs  
3 syncs and 3 triggers per core  
Integration to Advanced Timing functions

#### Specifications

Component Temperature: -40 to 85°C  
Storage Temperature: -55 to 100°C  
I/O Connectors: LFH60  
Size: Standard 3U (100 x 160 mm)  
PCIe bus: x1 lane, bus mastering  
Power: +3.3 and +12 VDC

### Software

LabVIEW Instrument Driver for LabVIEW™ 2010–2016 (32- and 64-bit) on Windows®  
LabVIEW RT Instrument Driver for LabVIEW 2013–2016 on Phar Lap ETS  
Universal BTIDriver API for C/C++, C#, VB, VB.Net, and LabVIEW  
MS Windows and Linux® OS drivers

### Ordering Information

<b>Part No.</b>	<b>Description</b>
784802-01	ARINC429 - 8 Channel
784803-01	ARINC429 - 16 Channel
784804-01	ARINC429 - 32 Channel
784796-01	MIL-STD-1553 - 1 Channel (Single Function)
784797-01	MIL-STD-1553 - 2 Channel (Single Function)
784798-01	MIL-STD-1553 - 4 Channel (Single Function)
784799-01	MIL-STD-1553 - 1 Channel (Multi-Function)
784800-01	MIL-STD-1553 - 2 Channel (Multi-Function)
784801-01	MIL-STD-1553 - 4 Channel (Multi-Function)
784805-01	MIL-STD-1553 - 2 Channel (Single Function), plus ARINC429 - 16 Channel
784806-01	MIL-STD-1553 - 2 Channel (Multi-Function), plus ARINC429 - 16 Channel

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