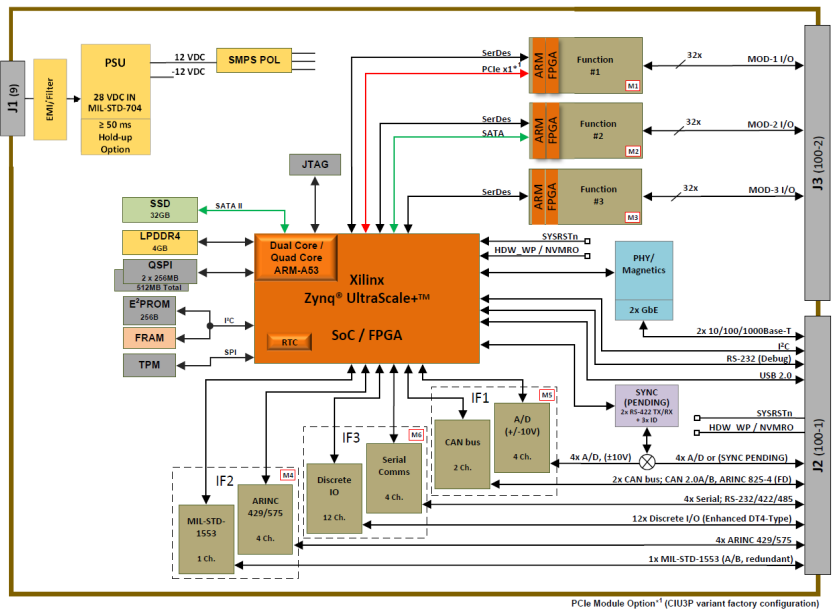
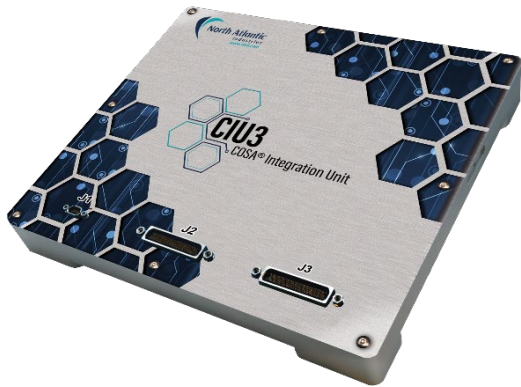




# CIU3 – COSA Integration Unit

## Embedded Multifunction I/O System with 3 Expansion COSA® Module Slots

The CIU3 is a versatile, compact, low-power, self-contained multifunction I/O system, preconfigured with four serial RS-232/422/485 communications channels, a four-channel A/D converter, twelve-channel programmable discrete I/O, four-channel ARINC 429/575, two-channel CANBus, and one-channel MIL-STD-1553 functionality. The CIU3 can also be configured with up to three smart Configurable Open Systems Architecture™ (COSA®) function modules. It features a dual-core (quad-core optional) ARM® Cortex®-A53 processor for customer applications, as well as I/O and communications management. The CIU3 is equipped with two 10/100/1000BASE-T (GbE) Ethernet ports and an RS-232 serial debug port for maintenance, diagnostics, or configuration. Ideally suited for rugged applications and development, the CIU3 delivers off-the-shelf solutions that accelerate the deployment of SWaP-optimized systems across air, land, and sea platforms. This scalable platform empowers your development process, reduces risk, and accelerates product deployment.



### Features

- **Preconfigured Inboard Functions**
  - 12-CH Discrete I/O (Enhanced DT4-Type)
  - 4-CH ARINC 429/575
  - 2-CH CAN bus; CAN A/B 2.0, CAN FD, ARINC 825-4
  - 1-CH MIL-STD-1553 (A/B redundant)
  - 4-CH ±10V A/D Converter
  - 4-CH RS-232/422/485 Serial Comms
- **Supports three NAI smart I/O function modules**
  - 100+ modules to choose from
  - PCIe only interface modules for Slot 1 (M1) available through CIU3P variant
  - Programmable and configurable
  - COSA® architecture
- **Minimized SWaP Footprint**
  - Dimensions: 9.5" x 8.25" x 1.125" (est.) (incl. connectors)
  - Weight: 4.5 lbs (est.)
  - Power: 28 VDC, ~0.6 A (est.) + Module Power (5-25 W typ. operating, depending on configuration & application)
- **AMD/Xilinx Zynq® UltraScale+™ SoC with Dual Core (Quad Core Optional) ARM A53 @ 1.2 GHz (max)**
  - 4 GB LPDDR4 RAM
  - 32 GB SATA SSD
- **Connectivity**
  - 2x 10/100/1000BASE-T (GbE)
  - RS-232 debug port
  - I²C
  - USB 2.0
- **Power Supply Hold-up (Optional)**
  - 50+ milliseconds of Holdup time
- **SYNC Capability (Pending)**
  - RS-422 Hardware Interface
  - Up to 3x System Connectivity and Frame Synchronization
- **Deployed System Connector Key Option**
  - J2 & J3 Micro-D connectors keyed
- **Continuous Background BIT**
  - Applicable to supported functions
- **Operating System Support**
  - Xilinx PetaLinux (2023.x)
  - Wind River VxWorks 7.x
  - DDC-I Deos
- **Environmental & EMI/Power Compliance\***
  - MIL-STD-810
  - MIL-STD-461
  - MIL-STD-704 / MIL-STD-1275 (tailored)
  - Operating temp: -40°C to 71°C
- **Conduction-cooled**
- **Applications**
  - Mission Processor Unit (MPU)
  - Vehicle Management Unit (VMU)
  - Data Concentrator Unit (DCU)
  - Remote Interface Unit (RIU)
  - Health & Usage Monitoring System (HUMS)

\*Designed to meet. Characterizations pending. EMI/EMC requires shielded cables and proper grounding practices. Specifications are subject to change without notice. All product and company names are trademarks or registered trademarks of their respective holders.

## CIU3 – Accessories

### CIU3-DEV-KIT

Item	Production PN	Qty	P/N Description
1	250-220-1	1	P1 – CIU3 Barrell Power Adapter Cable Assembly Board, 3 Ft Long for CIU Breakout Board
2	CIU-BREAKOUT-A-B003	1	CIU3 Breakout Board
3	90-1934R & 90-1934L	1	CIU3 Breakout Board Leg, Right & Left
4	CIU-BREAKOUT-LBS	1	Set of Breakout Board Labels for Breakout Board Available IO terminals
5	81-0060	1	20-Pack Multi Color Jumper Cables
6	IT-01-USBSER-0060	1	USB to DB9 Serial RS232 Adapter Cable; 2M for Debug Console

### CIU3-CBL-KIT

Item	Production PN	Qty	P/N Description
1	250-213-1	1	P1 – CIU3 Power Cable Assembly, 3 Ft Long
2	250-214-1	1	P2 – CIU3 Proc Cable Assembly, 3 Ft Long
3	250-215-1	1	P3 – CIU3 MOD I/O Cable Assembly, 3 Ft Long
4	44PIN-DEVELOPMENT-BD	5	44-Pin Development Board

### CIU3-CONN-KIT

Item	Production PN	QTY	P/N Description
1	05-0740	1	P1 – CIU3 Power Cable Connector – D-SUB MIL SPEC CONN MICRO SERIES, Size 9
2	05-0738	1	P2 – CIU3 Proc Cable Connector – D-SUB MIL SPEC CONN MICRO SERIES, Size 100
3	05-0738	1	P3 – CIU3 MOD I/O Cable Connector – D-SUB MIL SPEC CONN MICRO SERIES, Size 100

## Select up to 3 functions for your application

For a full listing of 100+ available smart functions and detailed specifications please visit <https://www.naii.com/functions>

<b>I/O Modules</b>
Digital IO Including Differential, Discrete, Relay, TTL/CMOS, Variable Reluctance
<b>Measurement Modules</b>
LVDT / RVDT Measurement, IRIG Timecode Receiver and Generator, Thermocouple and RTD Measurement, Synchro / Resolver Measurement, Strain Gauge Meas.
<b>Communication Modules</b>
ARINC 429/575, CAN bus, Ethernet NIC, MIL-STD-1553, MIL-STD-1760, IEEE- 1394b (FireWire), Serial RS232/422/485
<b>Combination Modules</b>
Multiple Choices of Combinations of I/O and Communications
<b>SSD Expansion Memory</b>
Multiple Choices of High-Capacity SATA SSD Expansion Memory
<b>High-Speed PCIe Interface Modules*</b>
Multiple Choices of High-Speed PCIe Interface Functions (*CIU3P only)

### Architected for Versatility

NAI's Configurable Open Systems Architecture™ (COSA®) offers a choice of over 100 smart I/O and communications options. Preexisting, fully-tested functions can be selected to quickly and easily meet system requirements. Individually dedicated I/O and communications processors allow mission computers to manage, monitor and control via single or dual Ethernet.

### Product Lifecycle Management

From design-in to production, and beyond, NAI's product lifecycle management strategy ensures the long-term availability of COTS products through technology refresh, configuration management and obsolescence component purchase and storage.



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