NIU2A – Nano Interface Unit

Multifunction I/O Interface with optional ARM1 Processor

Made in the USA
Certified Small Business

The NIU2A is a small, rugged, low-power, self-contained, multifunction I/O system. It is powered by an integrated MIL-STD-704A (designed to meet) power supply. The NIU2A can be fitted with up to two smart NAI Configurable Open Systems Architecture™ (COSA®) function modules. The NIU2A is configured to operate as a standalone Ethernet connected Remote Interface Unit (RIU) or optionally configured with access to the ARM Cortex-A9 processors operating as an integrated SBC, fully managing the I/O and a user software application. The NIU2A is configured with standard 10/100/1000Base-T (GbE) Ethernet ports or two optional 1 Gb 850 nm fiber-optic ports. Additionally, there is an RS-232 port for maintenance / diagnostic or configuration interface. Ideally suited for rugged Mil-Aero applications, the NIU2A delivers off-the-shelf solutions that accelerate deployment of SWaP-optimized systems in air, land and sea applications.

(Photo shown with Fiber-Optic (F) connector option)

The NIU2A rugged multifunction I/O platform provides scalable Ethernet or other communications interface linked I/O enabling networks including on-board vehicle, marine and aircraft platforms to field and expand digital network architectures for network-centric operations. With dual function module capability, the NIU2A has the capability of being programmed as an I/O and communications protocol converter. The NIU2A integrates seamlessly within NAI’s COSA® family providing the most modular, agile and rugged COTS portfolio of embedded smart modules, I/O boards, Single Board Computers, Power Supplies and Ruggedized Systems.

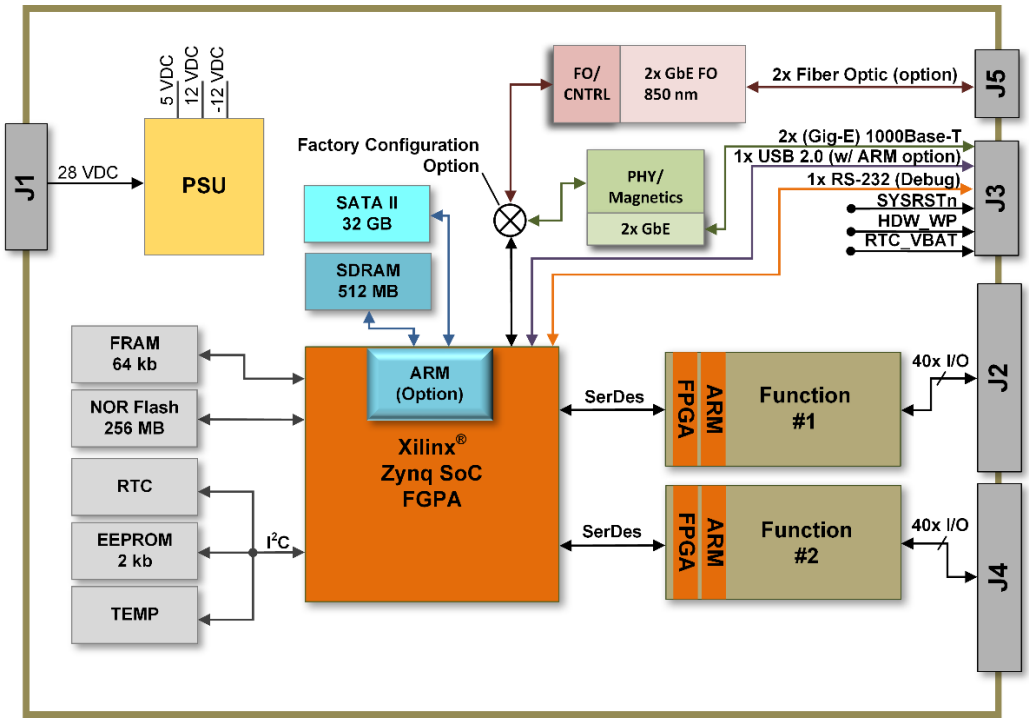
Features

- **Supports two NAI smart I/O function modules**
  - 70+ modules to choose from
  - Customer-configurable
  - COSA® architecture
- **Minimized SWaP Footprint**
  - ~ 7.0” x 3.0” x 2.5” (incl. connectors)
  - ~2.75 lbs (1.25 kg)
  - 28 VDC input @ ~0.18 A
  - + Module Power
  - (5-25 W typ. operating, depending on configuration & application)
- **Optional ARM processing**
  - ARM® Cortex®-A9 Dual Core Processor
  - 800MHz
  - 512 MB DDR3L SDRAM
  - 32 GB SATA II NAND Flash
  - Xilinx® PetaLinux OS support
  - Wind River® VxWorks® (option)
  - Other OS (contact factory)
- **Ethernet Connectivity**
  - 2x 10/100/1000Base-T (GbE)
  - 2x 1 Gb Fiber Optic (option) 850 nm
- **Continuous Background BIT** (module dependent)
- **VICTORY Interface Services** (contact factory)
- **Rugged applications***
  - MIL-STD-810G
  - MIL-STD-461F
  - MIL-STD-704A
  - Operating temp: -40°C to +71°C
  - Conduction-cooled and Convection/Air-cooled options (contact factory)

*Designed to meet. Characterizations pending. EMI/EMC requires shielded cables and proper grounding practices. Specifications subject to change.

110 Wilbur Place, Bohemia, NY 11716 Tel: 631.567.1100 www.naii.com

System Block Diagram



Select up to 2 independent functions for your application

I/O		Measurement & Simulation	
A/D	±1.25 VDC to ±100 VDC or 0-25 mA; 16 or 24-Bit; 12 or 16 Ch	Synchro/Resolver-Digital	16-Bit; ±1Arc-Min accuracy; 4 Ch
D/A	±1.25 VDC to ±80 VDC or ±25 mA to 100 mA; 16-Bit, 4-16 Ch	LVDT/RVDT-Digital	16-Bit resolution; 4 Ch
Discrete	0 to 60 VDC; Sink, source or push/pull; up to 24 Ch	Digital-Synchro/Resolver	16-Bit; Up to 3 VA; 1-3 Ch
Isolated Discrete	0 to ±80 VAC or VDC; 16 Ch	Digital-LVDT/RVDT	16-Bit; Up to 3 VA; 1-3 Ch
Relay	SPDT; 4 Ch	AC Reference	2 to 115 V_{RMS}; Up to 6 VA; 1 Ch
TTL	0 to 5.5 VDC; 24 Ch	RTD	16-Bit; 2, 3 or 4-wire; 8 Ch
Differential Transceiver	Up to ±12V; 422/485 Pulse Gen/Meas; 16 Ch	Thermocouple	J, K, T, E, R, S, B, N; 4 Ch
Communications		Strain Gage	16-Bit; 4 Ch
MIL-STD-1553	Quad Ch Dual Redundant; Transformer or Direct		
RS-232/422/423/485	4 Ch		
ARINC 429/575	12 Ch		
CANBus	8 Ch		

Architected for Versatility

NAI's Configurable Open System Architecture™ (COSA®) offers a choice of over 70 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.

110 Wilbur Place, Bohemia, NY 11716 Tel: 631.567.1100 www.naii.com