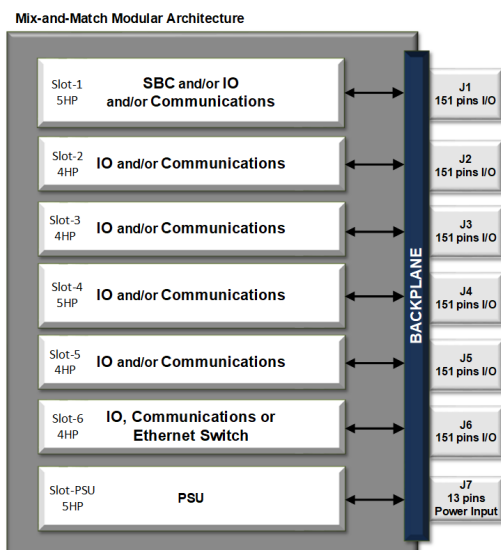# SIU36 Rugged COTS Systems

3U OpenVPX Sensor Interface Unit - SIU36

Configure with up to 18 I/O and Communication Function Modules

The SIU36 is a highly configurable rugged system or subsystem ideally suited to support a multitude of Mil-Aero applications that require high-density I/O, communications, Ethernet switching and processing. The SIU36 leverages NAI's 3U boards to deliver off-the-shelf solutions that accelerate deployment of SWaP-optimized systems in air, land and sea applications.

Versatile & Scalable Rugged Architecture for Demanding Embedded System Applications Including: Data Acquisition (DAQ), Fire Control & Targeting System (FCTS), Remote Data Concentrator (RDC), Vehicle Management System (VMS) Data Concentrator Unit (DCU), Remote Interface Unit (RIU), Health and Usage Monitoring System (HUMS), Aircraft Interface Unit (AIU)

Mix-and-Match Modular Architecture

Slot	Function	Connector
Slot-1 5HP	SBC and/or IO and/or Communications	J1 151 pins I/O
Slot-2 4HP	IO and/or Communications	J2 151 pins I/O
Slot-3 4HP	IO and/or Communications	J3 151 pins I/O
Slot-4 5HP	IO and/or Communications	J4 151 pins I/O
Slot-5 4HP	IO and/or Communications	J5 151 pins I/O
Slot-6 4HP	IO, Communications or Ethernet Switch	J6 151 pins I/O
Slot-PSU 5HP	PSU	J7 13 pins Power Input

Features

- **6x 3U OpenVPX™ Card Slots**
  - Supports up to 18 I/O and/or Communication smart functions
  - 100+ modules to choose from
- **Local or External SBC Host I/F capable**
  - Processor Options: Freescale PowerPC™ QorIQ® T2080, Intel® Core™ i7, ARM® Cortex® -A9 or ARM® Cortex® -A53
  - SBC-less remote interface supported via Ethernet connection to your mission computer
- **Configurable I/O Communications and Processing**
- **COTS/NDI Sense & Response system**

- **COSA® Architecture**
  - Supports MOSA, OSA, SOSA™ and the FACE™ technical standards
- **Reduced SWaP Footprint Conduction (CC) or Convection/Air Cooled (AC) Versions**
  - 9.0" x 5.0" x 9.5" (CC) / 9.0" x 6.4" x 9.5" (AC) (includes bottom mounting flanges but does not include connectors)
  - ~13.2 lbs. (CC) / ~14.4 lbs. (AC) Chassis incl. ~2.2 lbs. for PSU plus ~1.35 lbs. each additional fully populated board
  - 28 VDC input
  - Power is configuration dependent
    - 50 W typ. (up to 150 W capable)
    - 50 ms (min.) PSU hold-up option

- **Wind River VxWorks®, Xilinx PetaLinux, Microsoft Windows® and DDC-I Deos® OS support**
- **Continuous Background Built-In-Test (BIT) (board/function supported as applicable)**
- **Specifications**
  - Operating temp: -40°C to +71°C @ thermal interface, conduction cooled; Air/convection-cooled version
  - Environmental/EMI
    - MIL-STD-461*
    - MIL-STD-810
    - MIL-STD-1275
    - MIL-STD-704

*MIL-STD-461F requires properly shielded cables and system grounding practices.

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Select up to 18 independent functions for your application with up to 6 card slots

I/O Boards and Single Board Computers						
Type	Model	Description		Type	Model	Description
Single Board Computers	68ARM1	3U OpenVPX ARM® Cortex®-A9 Single Board Computer		Multifunction I/O Boards	68G5	3U OpenVPX I/O and Communications Board
	68ARM2	3U OpenVPX, Single Board Computer, Xilinx Zynq UltraScale+			68G5E	3U OpenVPX Ethernet Switch and Multifunction I/O Board
	68INT4	3U OpenVPX, Single Board Computer, Intel Xeon Quad-core E3-1505LV6 @ 2.2 GHz			68G5P	3U OpenVPX Multifunction I/O Board with External PCIe & SATA II I/F
	68INT5	3U OpenVPX, Single Board Computer, Intel Xeon six-core E-2276ME @ 2.8 GHz		High Density I/O Boards	68CB6	3U VPX Combination I/O & Communications Board
	68PPC2	3U OpenVPX, Single Board Computer, NXP® QorIQ® T2080 Quad-Core e6500 @1.5 GHz			68DT1	3U OpenVPX Multi-channel Discrete I/O Board
Multifunction I/O Boards	68C3	3U OpenVPX Multifunction I/O Board		Rugged Power Supplies	VPX68	DC/DC 3U 1.0" Pitch VITA 62 Power Converter meets MIL-STD-704A-F

Smart Function Module				
Type	Module Category		Type	Module Category
Measurement & Simulation Modules	AC Reference		Communication Modules	Serial Communications
	IRIG Timecode Receiver and Generator			Time-Triggered Ethernet
	LVDT RVDT Measurement and Simulation		I/O Modules	Analog-to-Digital
	Pulse Timer Receiver and Generator			Chip Detector and Fuzz Burn
	Strain Gauge Measurement			Digital IO - Differential Transceiver
	Synchro Resolver Measurement and Simulation			Digital IO - TTL,CMOS
	Thermocouple and RTD Measurement			Digital-to-Analog
Communication Modules	ARINC Communications			Discrete IO - Multichannel,Programmable
	CANBus Communications			Relay
	Ethernet NIC Interface			Variable Reluctance
	Ethernet Switch		Combination Modules	MIL-STD-1553B, Discrete IO - Multichannel,Programmable
	IEEE 1394 (FireWire)			MIL-STD-1553B, ARINC Communications
	MIL-STD-1553B		Storage	SATA Solid State Drive (SSD)
	MIL-STD-1760			

Architected for Versatility

NAI's Configurable Open Systems Architecture™ (COSA®) offers a choice of over 100 smart I/O, communications, or Ethernet switch functions, providing the highest packaging density and greatest flexibility of ruggedized embedded product solutions in the industry. Preexisting, fully-tested functions can be combined in an unlimited number of ways quickly and easily.

One-Source Efficiencies

Eliminate man-months of integration with a configured, field-proven system from NAI. Specification to deployment is a seamless experience as all design, state-of-the-art manufacturing, assembly and test are performed - by one trusted source. All facilities are located within the U.S. and optimized for high-mix/low volume production runs and extended lifecycle support.

Product Lifecycle Management

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

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