SIU32S Rugged COTS Systems

3U OpenVPX Sensor Interface Unit

MOSA/SOSA™-aligned Multiprocessing, Video, I/O and Communication System

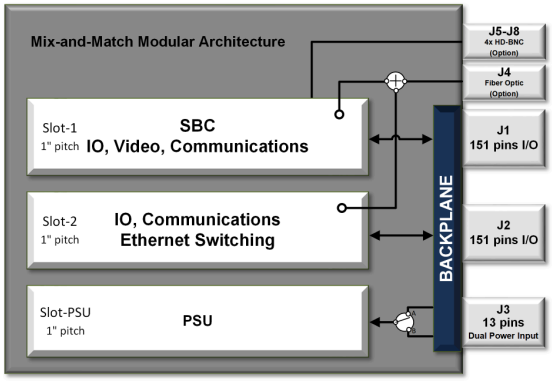
The SIU32S is a configurable Modular Open Systems Approach (MOSA) rugged system ideally suited to support a wide range of Mil-Aero applications that require processing, video, high-density I/O, communications and Ethernet switching. The SIU32S leverages NAI's Configurable Open Systems Architecture™ (COSA®) 3U OpenVPX SOSA™-aligned boards, XMC's and smart function modules 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: Mission Computing, Vehicle Management System (VMS), Actuator Interface Unit (AIU), IO Adapter (IOA), Data Acquisition (DAQ), Fire Control & Targeting System (FCTS), Remote Data Concentrator (RDC), Data Concentrator Unit (DCU), Remote Interface Unit (RIU), Health and Usage Monitoring System (HUMS), Aircraft Interface Unit (AIU).

Conduction-Cooled SIU32S

Air/Convection-Cooled SIU32S



Features

- **2x 3U SOSA™ OpenVPX™ Card Slots**
  - Supports up to 6 Video, I/O and/or communication smart function modules
  - 100+ modules to choose from
  - Frame Grabber XMC (VS2)
- **Local or External SBC Host I/F capable**
  - Processor Options: Freescale PowerPC™ QorIQ® T2080, Intel® Core™ i7 or Intel® Xeon® W (Tiger Lake), ARM® Cortex®-A53 or -A72
  - SBC-less remote interface supported via Ethernet connection to your mission computer
- **Configurable I/O Communications and Processing Capabilities**
- **COTS/NDI Sense & Response system**
- **COSA® Architecture**
  - Supports MOSA, SOSA™ and the FACE® technical standards
- **Third Party Board Support (contact factory)**
  - E.g. WOLF NVIDA RTX™ GPU
- **Reduced SWaP Footprint**
  - **Conduction-Cooled (CC)**
    - 6.0" (W) x 4.6" (H) x 9.5" (D)
    - ~6.6 lbs.
  - **Air/Convection-Cooled (AC)**
    - 6.2" (W) x 4.8" (H) x 9.5" (D)
    - ~6.9 lbs.
    - Contact factory for application review & availability
  - **3U VPX CCA Weight**
    - 2.2 lbs. for PSU
    - 1.35 lbs. SBC or IO CCA
- **Dedicated HD38999 I/O Connectors**
- **1" Pitch Slots For All 3U Modules (Cards)**
- **Dual 28 VDC input (nominal) PSU**
  (Power dissipation is configuration dependent)
  - Dual power input within single connector
  - 50 W typ. (up to 90 W capable)
    - Depending on environment
  - 50 ms (min.) PSU hold-up option
- **Supports Multiple Operating Systems (SBC dependent)**
  - Wind River® Helix™ Virtualization Platform, Wind River® Linux, VxWorks®, VxWorks® Cert Edition, DDC-I Deos™ OS, Lynx MOSA.ic, Xilinx PetaLinux, Ubutntu Linux®
- **Enhanced Capabilities Support (options)**
  - 4x HD-BNC connectors for SDI video input/output (VS2)
  - Dedicated Fiber Optic connector (for Ethernet Switch, TSN, etc.)
- **Continuous Background Built-In-Test (BIT)**
  - Supported by SBC & MFIO/smart modules
- **Environmental and EMI/EMC Specifications**
  - Operating temp: -40°C to +71°C at baseplate, conduction-cooled
  - Air/convection-cooled version option
  - MIL-STD-461*
  - MIL-STD-810
  - MIL-STD-1275
  - MIL-STD-704

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

SIU32S Accessories

Part Number	Description
SIU32S-CONN-KIT	Mating Connector Kit (connector and associated pins only). Includes a set of HD38999 151-pin I/O Connectors (for J1-J2) and Power Connector (for J3).
250-130	Mating Fiber Optic OM3 Cable Assembly (NIUX, SIU3XS), 48 inches long. MT 38999 11-01 chassis connector to industry standard MPO/MTP®-12 male (option for J4).
07-0148	Mating Cable Assembly, BNC Plug to HD-BNC Plug, 75 Ohm, Belden 4855R, 78.7 inches. Suitable for SDI video (option for J5, J6, J7, or J8).
SIU32S-XXXXXX-CBL-KIT	Mating Cable Kit; unique and defined for a specific SIU32S part number configuration (contact factory: -XXXXXX is TBD). Used with 44PIN-DEVELOPMENT-BD.
44PIN-DEVELOPMENT-BD	Development I/O Module Break-out/Connector Board Used with SIU32S-XXXXXX-CBL-KIT assembled with NAI Harwin 44-pin receptacles – one Break-out/Connector Board is required for each function module.

Select up to 6 independent functions for your application with up to 2 card slots

I/O Boards and Single Board Computers

Type	Model	Description
Single Board Computers	68ARM1	3U OpenVPX ARM® Cortex®-A9 Single Board Computer
	68ARM2	3U OpenVPX, Single Board Computer, Xilinx Zynq® UltraScale+™
	68ARM4	3U OpenVPX SOSA™-Aligned Single Board Computer NXP Layerscape LX2 Processor Family (8, 12 or 16 Cortex®-A72 Cores)
	68INT4	3U OpenVPX, Single Board Computer, Intel Xeon Quad-core E3-1505LV6 @ 2.2 GHz
	68INT5	3U OpenVPX, Single Board Computer, Intel Xeon six-core E-2276ME @ 2.8 GHz
	68INT6	3U OpenVPX™ SOSA™-Aligned SBC with Intel® Core™ i7-118xGRE Certifiable Processor (Tiger Lake)
	68INT6H	3U OpenVPX™ SOSA™-Aligned Single Board Computer Intel® Xeon® Octal Core W-11865MRE Processor (Tiger Lake)
	68PPC2	3U OpenVPX, Single Board Computer, NXP® QorIQ® T2080 Quad-Core e6500 @1.5 GHz

Type	Model	Description
Single Board Computers	68PPC3	3U OpenVPX, Single Board Computer, Power PC Processor
High Density I/O Boards	68CB6	3U VPX Combination I/O & Communications Board
	68DT1	3U OpenVPX Multi-channel Discrete I/O Board
Multifunction I/O Boards	68G5	3U OpenVPX I/O and Communications Board
	68G5E	3U OpenVPX Ethernet Switch and Multifunction I/O Board
	68G5P	3U OpenVPX Multifunction I/O Board with External PCIe & SATA II I/F
	68G6	3U OpenVPX, MFIO End Point with local Xilinx Zynq UltraScale+ processing capability
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
Combination Modules	A-to-D & D-to-A
	MIL-STD-1553B & ARINC-429/575
	MIL-STD-1553B & Prog. Discrete IO
Measurement & Simulation Modules	AC Reference
	IRIG Timecode Receiver and Generator
	LVDT RVDT Measurement and Simulation
	Pulse Timer Receiver and Generator
	Strain Gauge Measurement
	Synchro Resolver Measurement and Simulation
	Thermocouple and RTD Measurement
Communication Modules	ARINC Communications
	CANBus Communications
	Ethernet NIC Interface
	Ethernet Switch
	IEEE 1394 (FireWire)

Type	Module Category
Communication Modules	MIL-STD-1553B
	MIL-STD-1760
	Serial Communications
	Time-Triggered Ethernet
I/O Modules	Analog-to-Digital
	Chip Detector and Fuzz Burn
	Digital IO - Differential Transceiver
	Digital IO - TTL/CMOS
	Digital-to-Analog
	Discrete IO - Multichannel, Programmable
	Relay
	Variable Reluctance
Chassis Management (ChM)	Chassis Management
Storage	SATA Solid State Drive (SSD)

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.

Made in the USA
Certified Small Business