

SIU33 Rugged COTS Systems 3U cPCI Sensor Interface Unit

Configure with up to nine I/O and communication function modules-

Over 100 different modules to choose from

NAI's SIU33 is a highly configurable Rugged COTS System or subsystem ideally suited for rugged military, industrial, and commercial applications that require high-density I/O, communications, Ethernet switching, and processing. The SIU33 uses up three NAI field-proven, 3U cPCI boards to deliver off-the-shelf, SWaP-optimized COTS solutions that Accelerate Your-Time-to-Mission™.



Mix-and-Match Modular Architecture



Features

- COSA® Architecture
- 3x 3U cPCI Card Slot
 - Supports up to 9 I/O and/or Communication smart functions
 - 100+ modules to choose from
- SBC-less stand-alone operation supported via Ethernet connection to your mission computer
- Processor Options: Freescale PowerPC™ QorlQ® P2041, Intel® Core™ i7 or ARM® Cortex®-A9
- COTS/NDI Sense & Response system

- Fast Boot Capability
- Customer Configurable I/O, Communications and Processing
- Reduced SWaP Footprint
 - Conduction-Cooled (CC):
 4.7" (W) x 4.8" (H) x 8.7" (D)
 ~5.5 lbs. (unpopulated)
 - 3U cPCI CA Weight
 - 1.4 lbs for PSU
 - 1.25 lbs. SBC or I/O CCA
 - 28 VDC input

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

- Wind River® Linux, VxWorks®, Xilinx® PetaLinux and Windows® Embedded Standard 7 OS support
- Continuous Background Built-In-Test (BIT)
- Specifications
 - Operating temp: -40°C to +71°C @ thermal interface, conduction cooled
 - Environmental/EMI
 - MIL-STD-461*
 - MIL-STD-810
 - MIL-STD-1275
 MIL OTD 704
 - MIL-STD-704



| Type Model Description Type Model Description Single Board Computers Type CP LARK Contex-AB based Single Board Computer Type CP LARK Contex-AB based Single Board Computer Computer Type CP LARK Contex-AB based Single Board Computer Computer Type CP LARK Contex-AB based Single Board Computer Computer Type CP LARK Contex-AB based Single Board Computer Computer Com | I/O Boards and Single Board Computers | | | | | | | |
|--|---------------------------------------|---|----------------------------------|-----|-------------------------------|-------------------------|---|--|
| Single Board Computer Board Computer Multifunction I/O Boards 22/422/423/483) and Discrete I/O P Single Board Computer 3U dPCI Isel if Board Single Board Computer 7200 3U dPCI MFIO Board 7200 3U dPCI MFIO Board 728/T2 3U dPCI SDC with NAI-COSA Module 7200 3U dPCI MFIO Board 7200 3U dPCI MFIO Board 728/T2 3U dPCI PPC 2041 Based Single Board Computer 7200 2502.1 dPCI-3U Digital-to-3Vnchro@Resolver Simulation Motherboard 728/T2 3U dPCI PPC 2041 Based Single Board Computer 7200 7202.1 dPCI-3U Digital-to-3Vnchro@Resolver Simulation Motherboard 728/T2 3U dPCI - 3U Multifunction I/O Board Rugged Power Supples 7262.4 dPCI-3U Digital-to-Synchro@Resolver.IL VDT Simulation Motherboard 7262 dPCI-3U Multifunction I/O Board Rugged Power Supples 7262.4 dPCI-3U Digital-to-Synchro@Resolver.IL VDT Simulation Motherboard 7262 dPCI-3U Multifunction I/O Board Rugged Power Supples 7269.4 Power Supply Unit, 3U dPCI 7268 Module Category Multifunction Modules 7269.4 Multifunction Module 7269 Modue Category Multis TD-15538 & ARIN | Туре | Model | Description | | Туре | Model | Description | |
| Single Board Computers ZiNT2 | Single Board Computers | <u>75ARM1</u> | | • • | Multifunction I/O Boards | <u>75D4</u> | | |
| Image: Simulation Module Single Function I/O Boards ZSDL CPCI-3U Digital-to-LVDT Simulation Motherboard Multifunction I/O Boards ZSD2 cPCI-3U Multifunction I/O Board ZSD2 cPCI-3U Digital-to-Synchro/Resolver/LVDT Simulation Motherboard Multifunction I/O Boards ZSD2 cPCI-3U Multifunction I/O Board Rugged Power Supple ZSD2 cPCI-3U Digital-to-Synchro/Resolver/LVDT Simulation Motherboard Multifunction I/O Boards ZSD2 cPCI-3U Digital-to-Synchro/Resolver/LVDT Simulation Motherboard Type Mugged Power Supple ZSD2 POWer Supply Unit, 3U cPCI Type Multifunction I/O Board Pype Module Category Multifunction Modules Multifunction I/O Board Pype Multifunction Simulation Type Multifunction I/O Board Multifunction I/O Board Multifunction I/O Board Multifunction Modules Multifunction I/O Board Pype Module Category Type Multifunction I/O Board Multifunction I/O Board Multifunction I/O Board Since State Communications & Digital I/O - Offerential Transceler Multifunction I/O Board Time Since Communications Measurement & Simulation Modules <td< td=""><td><u>75INT2</u></td><td></td><td><u>75G5</u></td><td>3U cPCI MFIO Board</td></td<> | | <u>75INT2</u> | | | | <u>75G5</u> | 3U cPCI MFIO Board | |
| Line Line Computer Deards Deards <td><u>75INT6</u></td> <td>3U cPCI SBC with NAI-COSA Module</td> <td></td> <td>75DL1</td> <td>cPCI-3U Digital-to-LVDT Simulation Motherboard</td> | | <u>75INT6</u> | 3U cPCI SBC with NAI-COSA Module | | | 75DL1 | cPCI-3U Digital-to-LVDT Simulation Motherboard | |
| Multifunction I/O Boards Image: Contraination of Contrainant of Contrai | | 75PPC1 | | | Single Function I/O Boards | 75DS1 | cPCI-3U Digital-to-Synchro/Resolver Simulation Motherboard | |
| Image: State Simulation Module Rugged Power Supplies Z5P34 Power Supply Unit, 3U dPCI Supply Unit, 3U dPCI Type Module Cate State St | Multifunction I/O Boards | <u>75C3</u> | cPCI-3U Multifunction I/O Board | | | <u>75DS2</u> | cPCI-3U Digital-to-Synchro/Resolver/LVDT Simulation Motherboard | |
| Type Module Category Type Module Category Atto-D & D-to-A MiL-STD-1553B & ARINC-429/575 MiL-STD-1553B & ARINC-429/575 MiL-STD-1553B & ARINC-429/575 MiL-STD-1553B & ARINC-429/575 MiL-STD-1553B & ARINC-429/575 Mil-STD-1760 Serial Communications & Digital I/O - Differential Transceiver Mil-STD-1760 Acc Reference Time Sensitive Networking. IRIG Timecode Receiver and Generator Time-Triggered Ethernet LVDT RVDT Measurement and Simulation Pulse Timer Receiver and Generator Strain Gauge Measurement Modules Strain Gauge Measurement Strain Gauge Measurement Strain Gauge Measurement Modules Strain Gauge Measurement (CANBus Communications ARINC Communications Digital IO - TILCMOS Digital IO - Multichannel, Programmable Relay. CANBus Communications Palse There Receiver and Simulation Thermocouple and RTD Measurement Modules Chassis Management CANBus Communications Chassis Management | | <u>75C5</u> | cPCI-3U Multifunction I/O Board | | Rugged Power Supplies | <u>75PS4</u> | Power Supply Unit, 3U cPCI | |
| AtoD & DroA MLSTD-1553B & ARINC-429/575 MLSTD-1553B & ARINC-429/575 MLSTD-1553B & ARINC-429/575 MLSTD-1553B & ARINC-429/575 MLSTD-1760 MILSTD-1553B & ARINC-429/575 Serial Communications Serial Communications MILSTD-1553B & ARINC-429/575 Times Center Serial Communications MILSTD-1553B & ARINC-429/575 MILSTD-1563B MILSTD-1563B MILSTD-1553B & ARINC-429/575 Communication Modules Serial Communications Strain Communications & Digital I/O - Differential Transceiver Time-Triggered Ethemet Time-Triggered Ethemet IVDT RVDT Measurement and Simulation Pulse Timer Receiver and Generator Digital IO - Differential Transceiver Voldees Strain Gauge Measurement Digital IO - TIL/CMOS Digital IO - TIL/CMOS Synchro Resolver Measurement Voldees Digital IO - Multichannel, Programmable Relay, Communications CANBus Communications Chassis Management Chassis Management Chassis Management | Smart Function Module | | | | | | | |
| Image: Combination Modules Mill_STD-15538 & ARINC-429/575 Mill_STD-15538 & ARINC-429/575 Mill_STD-15538 & Prog. Discrete IQ Serial Communications Serial Communications Serial Communications & Digital I/O - Differential Transceiver Time Sensitive Networking. Time-Triggered Ethernet AC Reference IRIG Timecode Receiver and Generator Ime-Triggered Ethernet Analog-to-Digital LVDT RVDT Measurement and Simulation Pulse Timer Receiver and Generator Analog-to-Digital Chip Detector and Fuzz Bum Synchro Resolver Measurement Digital I/O - Differential Transceiver Digital I/O - Differential Transceiver Synchro Resolver Measurement Synchro Resolver and Generator Digital I/O - Differential Transceiver Mill_STD Resolver Measurement Digital I/O - Differential Transceiver Digital I/O - Differential Transceiver Modules Synchro Resolver Measurement Digital I/O - Differential Transceiver Digital I/O - Multichannel, Programmable Relay. Relay. Variable Reluctance Variable Reluctance | Туре | Module Category | | | Туре | Module Category | | |
| Combination Modules MIL-STD-15538 & Prog. Discrete IO Serial Communications & Digital I/O - Differential Serial Communications Serial Communications Serial Communications & Digital I/O - Differential Transceiver Time-Sensitive Networking. Time-Sensitive Networking. Reference RIG Timecode Receiver and Generator Time-Triggered Ethemet Analog-to-Digital LVDT RVDT Measurement and Simulation Pulse Timer Receiver and Generator Nodules Digital IO - Differential Transceiver Strain Gauge Measurement Strain Gauge Measurement and Simulation Digital IO - Differential Transceiver Digital IO - TIL/CMOS I/O Modules Thermocouple and RTD Measurement I/O Modules Digital-to-Analog. Digital-to-Analog. Relay. Variable Reluctance Chassis Management Chassis Management Chassis Management | Combination Modules | <u>A-to-D & D-to-A</u> | | | Communication Modules | <u>MIL-STD-1553B</u> | | |
| MiLes ID-1938 & Prig. Discrete ID Communication Modules Serial Communications Serial Communications & Digital I/O - Differential Transceiver Time Sensitive Networking. Measurement & Simulation IRIG Timecode Receiver and Generator Time-Triggered Ethernet LVDT RVDT Measurement and Simulation Digital IO - Differential Transceiver Pulse Timer Receiver and Generator Digital IO - Differential Transceiver Strain Gauge Measurement Digital IO - Differential Transceiver Synchro Resolver Measurement and Simulation Digital IO - TTL/CMOS Thermocouple and RTD Measurement Digital-to-Analog, CANBus Communications Discrete IO - Multichannel, Programmable Relay, Variable Reluctance Communications Chassis Management | | MIL-STD-1553B & ARINC-429/575 | | | | MIL-STD-1760 | | |
| Intersent of the series of | | MIL-STD-1553B & Prog. Discrete IO | | | | Serial Communications | | |
| IRIG Timecode Receiver and Generator IRIG Timecode Receiver and Generator LVDT RVDT Measurement and Simulation Chip Detector and Fuzz Bum Pulse Timer Receiver and Generator Digital IO - Differential Transceiver Strain Gauge Measurement Digital IO - Differential Transceiver Synchro Resolver Measurement and Simulation Digital IO - Differential Transceiver Thermocouple and RTD Measurement Digital IO - Multichannel, Programmable Relay, Variable Reluctance Campunications Chassis Management Chassis Management Chossin Management | | | | | | Time Sensit | ive Networking | |
| Measurement & Simulation Measurement & Simulation Pulse Timer Receiver and Generator Strain Gauge Measurement Strain Gauge Measurement Synchro Resolver Measurement and Simulation Thermocouple and RTD Measurement ARINC Communications CANBus Communications Chassis Management Chassis Management Chassis Management | | AC Reference | | | | Time-Triggered Ethernet | | |
| Measurement & Simulation Pulse Timer Receiver and Generator Strain Gauge Measurement Strain Gauge Measurement and Simulation Synchro Resolver Measurement and Simulation Digital IO - Differential Transceiver Thermocouple and RTD Measurement Digital IO - Multichannel, Programmable Relay. Variable Reluctance Communications Chassis Management Communications Chassis Management | | IRIG Timecode Receiver and Generator | | | | Analog-to-Digital | | |
| Modules Pulse Timer Receiver and Generator Strain Gauge Measurement | | LVDT RVDT Measurement and Simulation | | | | Chip Detect | or and Fuzz Bum | |
| Image: Synchro Resolver Measurement and Simulation I/O Modules Thermocouple and RTD Measurement Discrete IO - Multichannel, Programmable ARINC Communications Relay. CANBus Communications Variable Reluctance Ethemet NIC Interface Chassis Management | | Pulse Timer Receiver and Generator | | | | Digital IO - D | Differential Transceiver | |
| Synchro Resolver Measurement and Simulation Digital-to-Analog Thermocouple and RTD Measurement Discrete IO - Multichannel, Programmable ARINC Communications Relay Communications Variable Reluctance Ethornet NIC Interface Chassis Management | | Strain Gauge Measurement | | | I/O Modules | Digital IO - 1 | ITL/CMOS | |
| ARINC communications Relay CANBus Communications Variable Reluctance Communications Chassis Management Chassis Management Chassis Management | | Synchro Resolver Measurement and Simulation | | | | Digital-to-An | nalog | |
| Campunication Medules Ethemet NIC Interface Chassis Management Chassis Management | | Thermocouple and RTD Measurement | | | | Discrete IO | - Multichannel, Programmable | |
| Communication Medules Ethernet NIC Interface Chassis Management Chassis Management | Communication Modules | ARINC Communications | | | | <u>Relay</u> | | |
| | | CANBus Communications | | | | Variable Rel | luctance | |
| | | Ethernet NIC Interface | | | | Chassis Ma | nagement | |
| Ethernet Switch Storage SATA Solid State Drive (SSD). | | Ethernet Switch | | | Storage | SATA Solid | State Drive (SSD) | |
| IEEE 1394 (FireWire) | | <u>IEEE 1394 (</u> | FireWire) | | | | | |

Select up to 9 independent functions for your application with up to 3 card slots

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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