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Find the *Aitech Defense Systems S940* at our website: ***Click HERE***

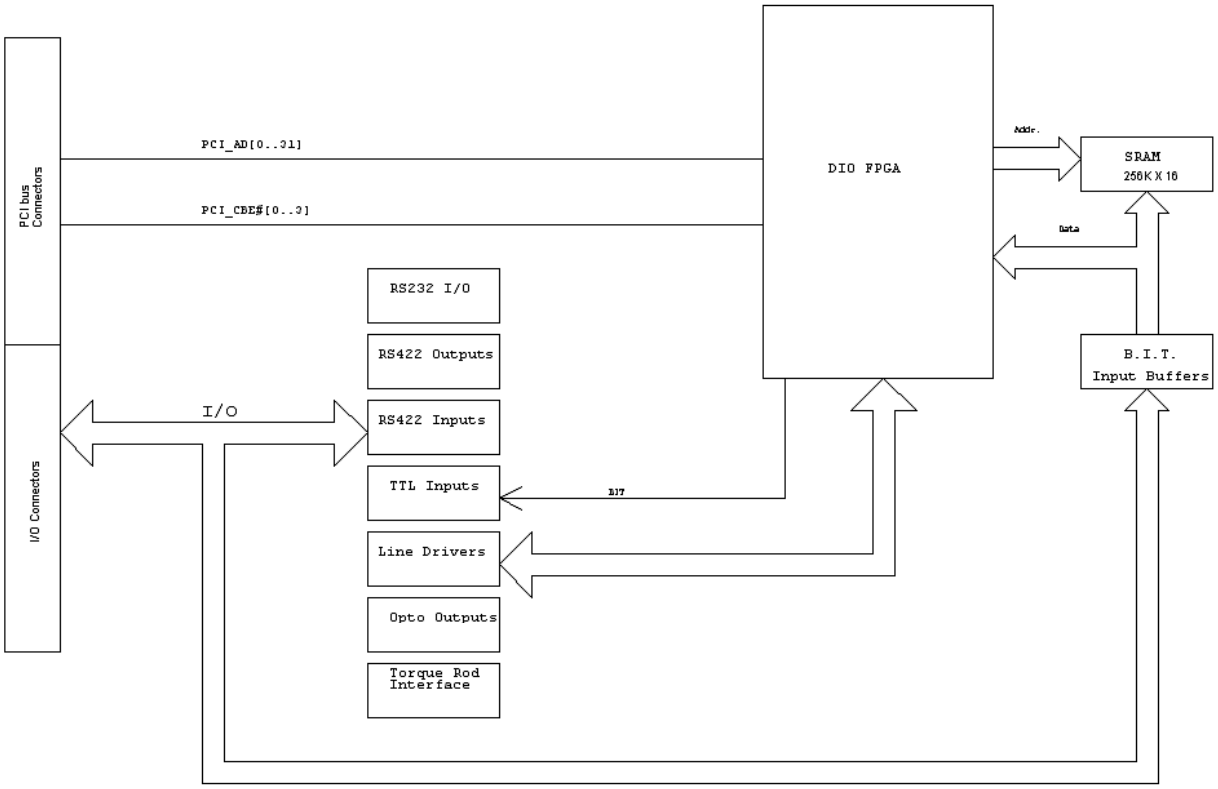
S940

3U cPCI Radiation Tolerant Digital I/O Card



- **Designed for LEO, Mars Terrestrial with an Option for GEO Environments**
- **Single-Slot Conduction-Cooled 3U CompactPCI (cPCI) card**
- **Twelve RS422 Outputs and Four RS422 Inputs:**
  - **Space Integrated GPS/INS (SIGI) Interface: Sync Timer and Telemetry Serial Input**
  - **Star Tracker: Telemetry Serial Input and Command Serial Output**
- **Reaction Wheel Tachometer Interface**
- **Separation Switch Closure Interface**
- **Three 2A Rated H-Bridge: Torque Rod Interface**
- **Logic Discrete Output Drivers: SADE Pulse Generator and Registered Output**
- **Two Opto-Isolated Discrete Output Drivers**
- **Triple-Voted Buffer Memory for Serial interface**
- **32-bit PCI 2.1 compliant cPCI interface at 33.333 MHz**
- **S940 nominal power consumption is less than 14 Watts**
- **Level-2 Components per NASA GSFC 311-INST-001A specification are available**

Aitech Defense Systems Inc.
A member of the Ai-Rugged Group
9301 Oakdale Ave, Chatsworth, Ca 91311
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S940 3U cPCI Radiation Tolerant Digital I/O Card

Aitech's S940 Digital I/O card design is based on a variety of discrete TTL, RS422 and opto-isolated. The S940 is designed with a PCI bridge implemented by an anti-fuse FPGA allowing a processor module like S950 to access the Digital I/Os from the cPCI bus.

The S940 provides 12 RS422 outputs and 4 RS422 inputs with state-machines implemented in the FPGA to operate the RS422 channels. The S940 interfaces with typical satellite guidance, navigation and control sensors such as Space Integrated GPS/INS (SIGI), torque rods, solar array drive electronics, separate switches, reaction wheels and payloads with UART interface. The control to these interfaces are accomplished by memory-mapped software registers designed into the FPGA.

In addition to providing solar array drive electronics current drivers, the three H-bridge circuitry can also be used as motor controllers for other applications. All the RS422 channels can be regrouped and tailored to specific needs by means of modifying the VHDL implementation inside the FPGA.

Mechanical Features

The S940 is available in a conduction cooled 3U format per VITA 30.1-2002. A custom metal frame provides excellent rigidity, shock resistance and thermal characteristics.

Dimensions

All versions are offered in a conduction-cooled 3U CompactPCI form factor per VITA 30.1-2002 standard.

Thermal Management

A careful mechanical design including heatsink modules, wedge locks and extractors combined by a metal frame allow for optimal heat dissipation and strength of the board.

Radiation Performance

- Radiation Tolerant with a minimum unshielded Total Ionization Dose (TID) of greater than 10 krad (Si). Higher TID tolerance can be available upon request.
- Latch-up Immune with a high LET of 37 MeV▪cm^2/mg
- Low SEU Rate – less than 1 upset per 25 years of operation at ISS orbit

Power Requirements

The S940 draws its power +5.0V and +3.3V from the standard cPCI backplane. It generates its own specific power on board (+2.5V).

S940 typical power consumption is less than 13.5 Watts. The S940 power consumption is estimated as follows:

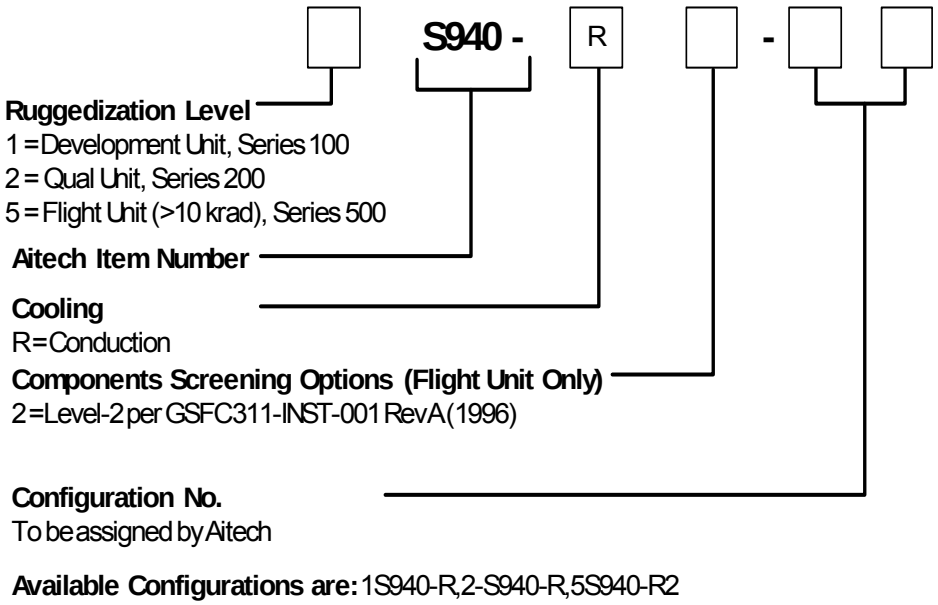
+3.3V	(+-5%)	0.33A (typical)
+5V	(±5%)	1.28A (typical)
+12V	(±10%)	0.5A (typical)

Environmental Features

Please refer to Aitech Ruggedization Datasheet:

http://www.rugged.com/home/rugged.html

Ordering Information



Available Configurations are: 1S940-R, 2-S940-R, 5S940-R2

For more information about the S940 or any Aitech product, please contact Aitech Defense Systems sales department at (888) AITECH-8 (888-248-3248).

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