



# S950

## 3U cPCI Radiation Tolerant PowerPC SBC

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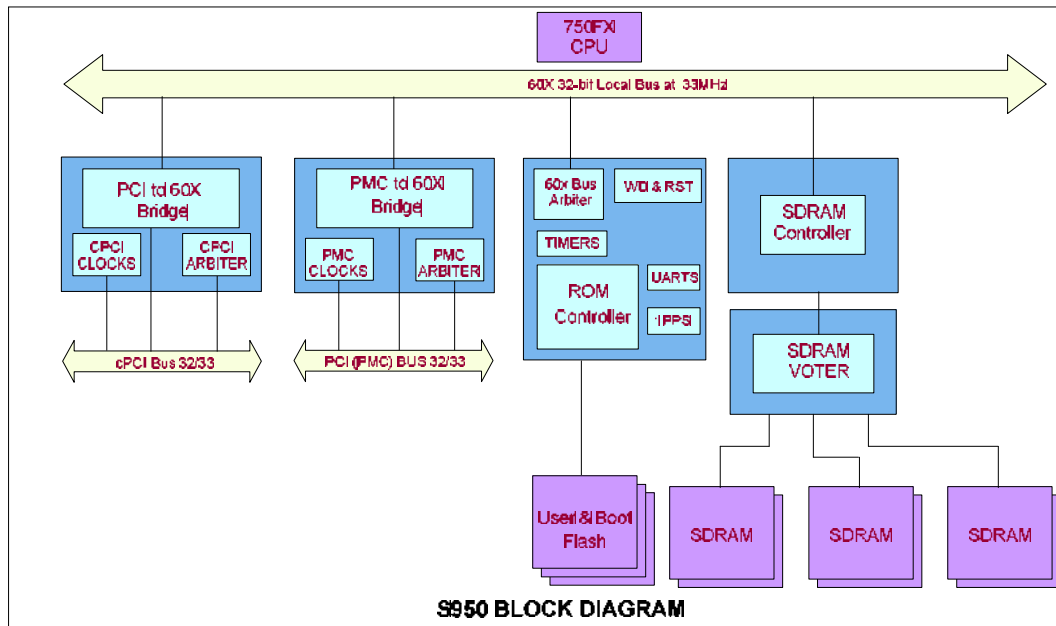
- **Single-Slot Conduction-Cooled 3U CompactPCI (cPCI) Single Board Computer (SBC) for C&DH applications.**
- **Designed for Long Term LEO or Lunar/Mars Terrestrial environments**
- **High Performance 733 MHz PowerPC® 750FX Processor  
Optional 1 GHz PowerPC® 750GX Processor**
- **128 MB of SDRAM in three independent banks for true Triple Mode Redundant SDRAM Architecture (3 Bits per Cell)**
- **CPU Internal L1 Cache (32 kB) with Parity Check for both Tags and Data**
- **CPU Internal L2 Cache (512 kB for 750FX or 1 MB for optional 750GX) with Parity Check on Tags and ECC Check on Data**
- **Anti-Fuse FPGA implementation for high radiation tolerance**
- **1 MB Dual-Redundant Boot Flash Memory**
- **64 MB ECC-Protected User Flash Memory**
- **Two Serial Ports and One 1PPS Input RS422 Interface Ports**
- **One Conduction-Cooled PCI Mezzanine Card (PMC) Site**
- **Off-Board Ethernet Interface (10/100 Mbps) for Software Development**
- **Level-2 Components per NASA GSFC-INST-001 specification are available**
- ***cPCI Bus Slot 1 (System Slot) or Slot N Capable***

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### **Aitech Defense Systems Inc.**

A member of the Aitech Rugged Group  
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### Satellite Heritage Applications

- C&DH Computer
- Flight guidance and navigation computer
- Solid state recorder
- Controller for a mission video recorder
- Robotic arm manipulator controller
- Mission computer with redundancy

### Performance

- 733 MHz IBM750FX CPU with over 1600 DMIPS
- Power PC Local Bus running at 66.666 MHz
- Independent cPCI and PMC Bus (Local PCI) Interfaces
- cPCI Bus – 32 Bit at 33.333 MHz.
- PMC Bus (Local PCI) – 32 Bit at 33.333MHz

### S/W Support

- Validated VxWorks 5.5.1, VxWorks 6.3.1, VxWorks 6.7 or VxWorks-AE653 BSP for use in Tornado 2.2.1 or Workbench development tools
- Flash File System Driver available.
- Ethernet based S/W Development Kit

### Additional Features –

- Programmable Watchdog Timer – S/W settable from 1.6 seconds to 6.8 minutes
- Automatic Hardware control to select redundant Boot Flash
- Four general purpose 32 Bit Timer/Counters
- Flexible Reset Features (both internal and external system reset functions)
- Slot-1 or Slot-N cPCI Capable



### ***Radiation Performance***

- Radiation Tolerant Total Ionization Dose (TID) up to 35 krad (Si)
- All Components Latch-up Immune with a high LET of up to 37 MeV•cm<sup>2</sup>/mg
- Less than 1 SEU per 370 days of operation in LEO with SAA

### ***Power Requirements***

- Typical Power: 14.6 Watts (w/750FX CPU).
- Voltage Requirements:

Primary Power 5 volts		
+3.3V	(±5%)	0.45A (typical)
+5V	(±5%)	2.6A (typical)
+12V	(±10%)	0.15A (typical)
-12V	(±10%)	0A
Primary Power 3.3 volts		
+3.3V	(±5%)	3.90A (typical)
+5V	(±5%)	0.32A (typical)
+12V	(±10%)	0.15A (typical)
-12V	(±10%)	0A

Note: Factory configuration option can provide most of the consumed power from the +5Vdc input or +3.3Vdc input.

### ***Dimensions***

- 3-U Conduction Cooled Compact PCI (VITA 30.1-2002 Standard Thermal Interface).

### ***Thermal Management***

- Conduction cooled configuration for operation in a vacuum environment
- Operating conditions from -40° C to +65° C at the thermal interface, in a vacuum

### ***Memory***

- SDRAM can be factory configured (in hardware) as 128 Mbytes with TMR or 256 Mbytes with ECC
- 64 MByte User Flash Memory protected with Hardware ECC
- 1 MByte Redundant Boot Flash

### ***Serial Ports:***

- Standard RS-422 UART interfaces for console port and additional serial I/O. Baud rates 9600 to 115.2 KBaud

### ***PMC Site Options Available From Aitech***

- Gig-Ethernet Network Interface Card (NIC)/4 Port Switch (S750)
- 3-port SpaceWire Interface (S730)
- Mil-Std-1553 Interface (S703)
- Serial and Parallel I/O (RS-422, TTL, LVDS) (S740/S710)
- Other standard and custom PMC interfaces available.

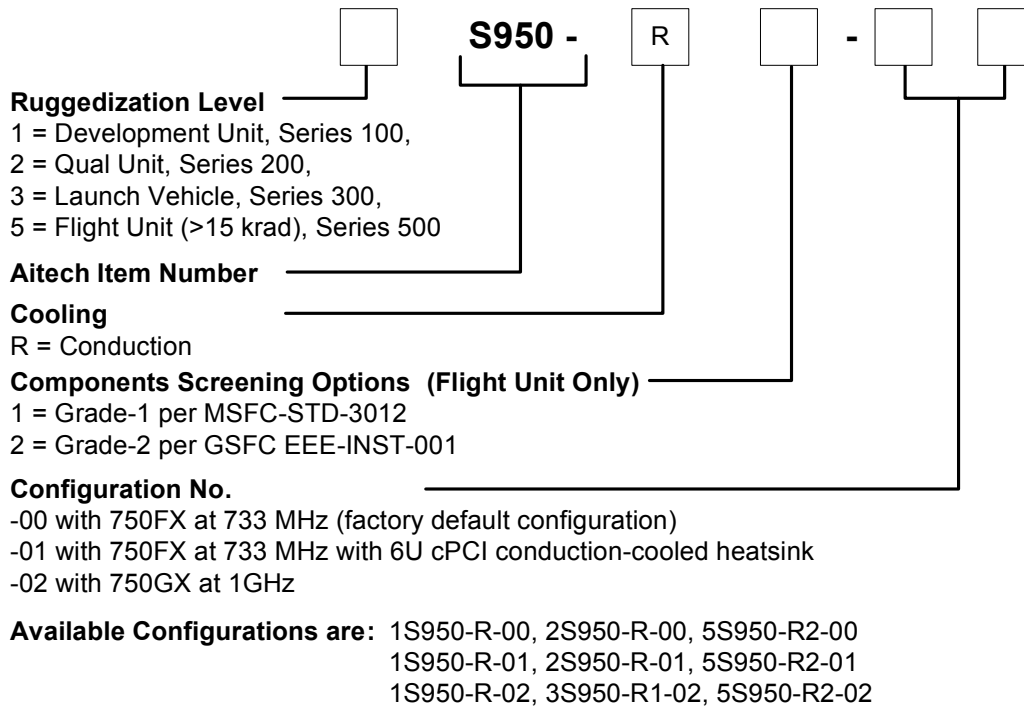
### ***Additional Environmental Features***

Refer to Aitech Ruggedization Datasheet:

<http://www.rugged.com/ruggedization.htm>



## Ordering Information



For more information about the S950 or any Aitech product, please contact Aitech Defense Systems sales department at (888) Aitech-8 (248-3248).

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