S730

Radiation Tolerant SpaceWire PMC

- **Designed to operate and host on the S950 Single Board Computer (SBC)**
- **Three SpaceWire full duplex ports – all three ports are brought out of the front panel in the 100-series engineering model**
- **All SpaceWire ports are ESA ECSS-E-50-12C compliant**
- **DMA engine for data transfer to and from the SBC via the local PCI bus**
- **Each SpaceWire port can be enabled or disabled independently**
- **Each SpaceWire port can independently receive and transmit packets to the SBC**
- **Each SpaceWire can be configured with selectable clock frequencies of up to 100 MHz**
- **Timecode can be responded to or generated by each SpaceWire port**
- **Rear I/O via the SBC to the cPCI backplane for the conduction-cooled configuration**
- **32-bit PCI 2.2 compliant PCI Master/Slave interface at 33.333 MHz**
- **Nominal power consumption is estimated at less than 5 Watts (for SpaceWire only)**
- **Designed to operate with a minimum TID of over 100 krad (Si) in the flight model**

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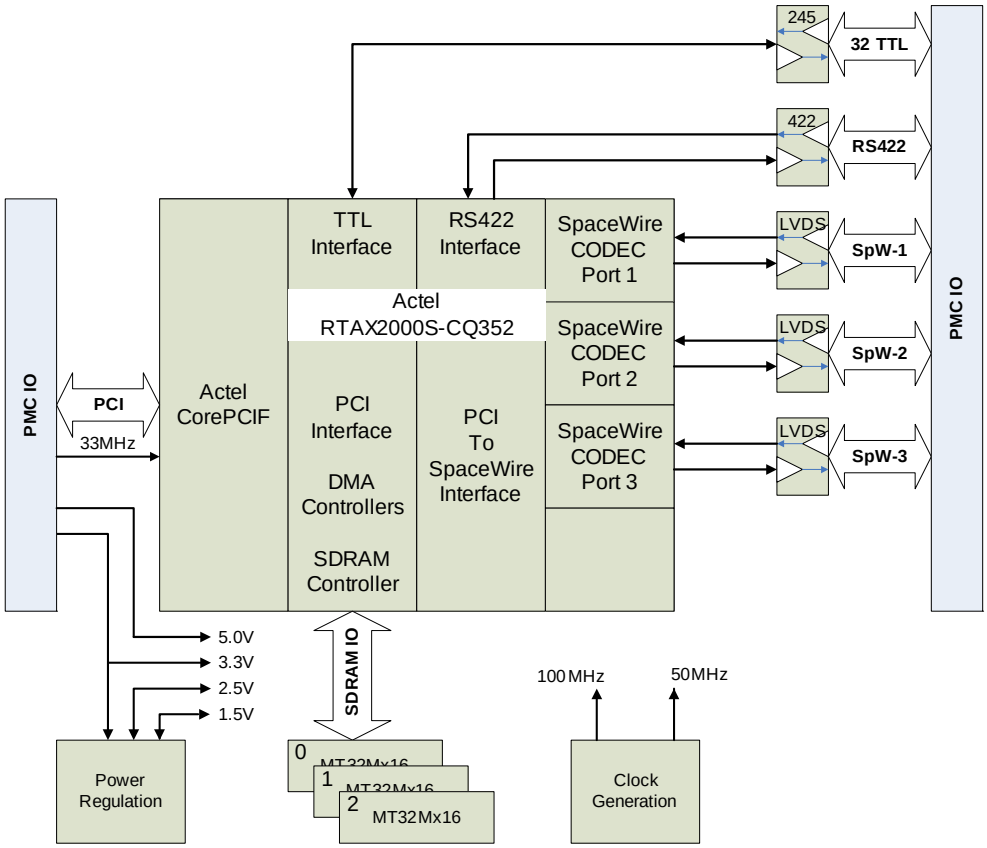


S730 Radiation Tolerant SpaceWire PMC

The S730 SpaceWire PMC Card offers three SpaceWire ports with a 32-bit PCI initiator and target capability. It also has provisions to add on two RS422 serial interfaces and 32 GPIOs for system communication. It uses BAR0 for configuration and status registers, controlling a variety of I/O functions via registers in its assigned PCI memory space, BAR1 to access the DMA Controller registers, and BAR2 to access the on-board 128MBytes volatile memory. The S730 PMC does not use PCI I/O space. The PCI bus and control functions are implemented in an anti-fuse FPGA device.

The board level components consist of the following:

- FPGA for logical functions which includes a PCI Target/Initiator, three SpaceWire CODECs, Time Code Manager, Memory Controller, DMA Controller and Manager as well as Control and Status registers
- Power Supply, Clock Oscillator and Low-skew Clock Driver (to supply clocks)
- 128MBytes of memory for packet buffering
- LVDS Driver and Receiver for SpaceWire protocol
- Provisional RS422 Driver and Receiver (not included in standard version)
- Provisional 32-bit 5V Tolerant Transceivers for GPIO (not included in standard version)

Mechanical Features

The S730 is available in a conduction cooled form factor per ANSI/VITA20-2001 for installation on top of the S950 or CM950.

Dimensions

All versions are offered in a conduction-cooled form factor per ANSI/VITA 20-2001 standard.

Radiation Performance

- Radiation Tolerant with a minimum unshielded Total Ionization Dose (TID) of greater than 100 krad (Si).
- Latch-up Immune with a minimum effective LET of 37 MeV•cm^2/mg
- Low SEU Rate – to be characterized

Power Requirements

The S730 draws most of its power from +3.3Vdc.

S730 typical power consumption is less than 5 Watts. +5V input is only used for provisional features if added to the base configuration (Spacewire ports only require +3.3V):

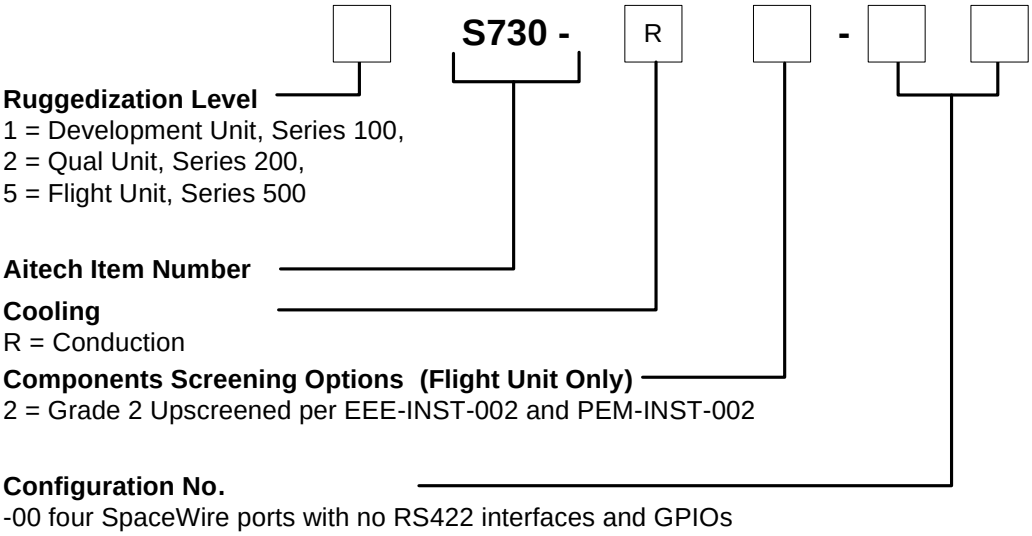
+3.3V	(±5%)	1.5 A (typical)
+5V	(±5%)	0 A (typical)

Environmental Features

Please refer to Aitech's Ruggedization Datasheet:

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

Ordering Information



Available Configurations are: 1S730-R-00, 2S730-R-00, 5S730-R2-00

For more information about the S730 or any Aitech product, please contact Aitech Defense Systems sales department at (888) AITECH-8 (888-248-3248).

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