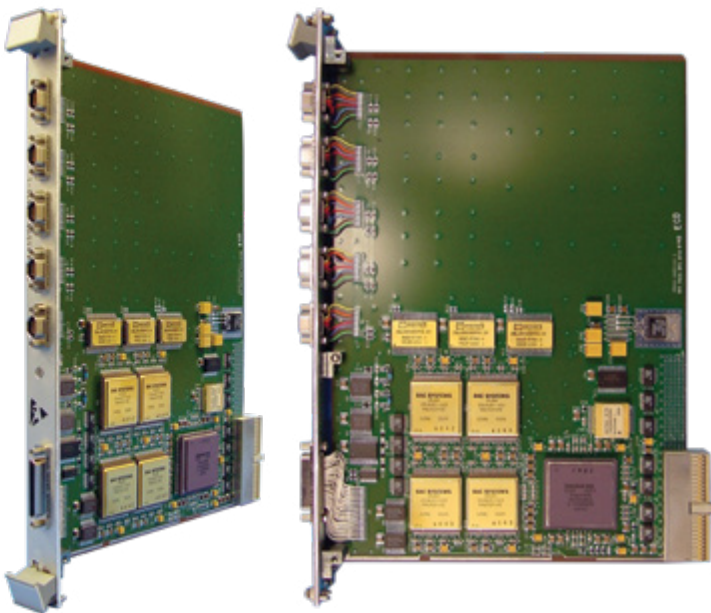


SpaceWire evaluation board



The 6U 160 CompactPCI SpaceWire evaluation board represents our first generation of SpaceWire solutions. This cost-effective prototyping board uses our custom SpaceWire radiation-hardened, ASIC to implement a four-port SpaceWire card with onboard memory. It provides complete router capability among the four ports, along with two user-end-point ports.

The SpaceWire evaluation board can be stand alone or can be integrated with other CompactPCI boards, such as the 3U RAD750® single-board computer. In either case the board-processing function can easily be extended by taking advantage of the onboard embedded microcontroller. C programming tools facilitate embedded micro-controller application development and debugging. A VxWorks device driver also is available for RAD750® applications.

Development was sponsored by NASA's Glenn Research Center and Goddard Space Flight Center, and included joint-ASIC development with NASA Goddard.

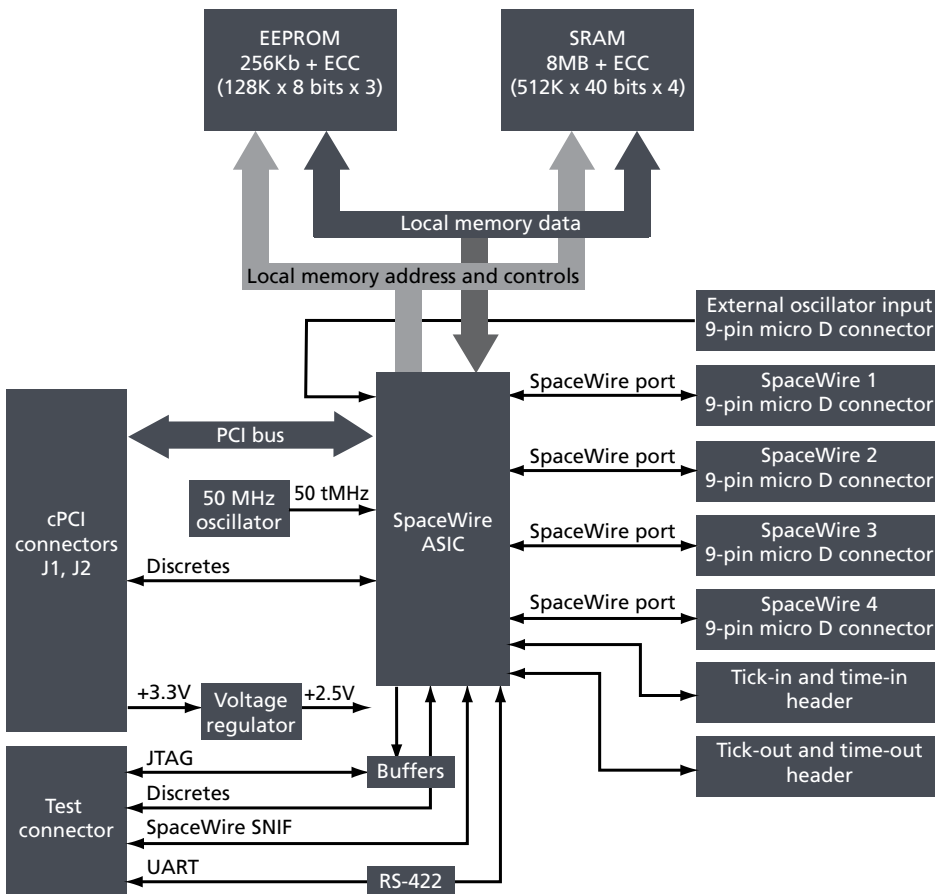
Four-port SpaceWire 6U CPCI evaluation board

Router capabilities

Routing among the four external ports and the two local ports is accomplished with a non-blocking crossbar switch. A "round robin" arbitration algorithm ensures fairness in traffic management. An integrated routing table can be fully configured via the four external ports or locally via the CompactPCI interface.

Not just a router

The SpaceWire evaluation board also provides two user-end-point ports. These are supported by an embedded micro-controller that can be used to manage data movement or support upper-layer protocols. A memory subsystem is also provided for local data storage. A CompactPCI interface provides the means to connect with other system components.



Key features

- Standard product
 - BAE Systems #8421831-1
 - Direct memory access (DMA) controller
 - Embedded microcontroller
 - 50-MHz oscillator
 - External oscillator input
 - 3.3V operation
 - 2.5V regulator on board
- SpaceWire interface
 - 250 MHz
 - Compliant-standard four ports (external)
 - Two DMA-controlled internal ports
 - Path and logical address support
 - Fully configurable router
 - Router and link status
 - Transaction layer support
- Memory interface
 - 256 kB electrically erasable, programmable, read-only memory (EEPROM)
 - 8 MB BAE Systems SRAM
 - Error correction code
 - None
 - Parity
 - Single-error correct, double-error detect
- PCI bus interface
 - 32-bit 33 MHz +3.3V PCI bus peripheral
 - Discretes
- Test interfaces
 - Universal asynchronous receiver transmitter
 - Joint Test Action Group
 - Discretes
- Packaging
 - 6U-160 CompactPCI

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