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PMC-642A1

Fibre Channel Network Interface Card

Features

- *PowerPC™ and Pentium®-based processors boards integrated with Fibre Channel NIC*
- *Full speed (1.0625 Gbit/sec) ANSI Standard Fibre Channel*
- *First implementation of Virtual Interface Architecture with an RTOS*
- *Support for multiple simultaneous protocols including Virtual Interface Architecture (FC-VI), SCSI, and IP with VxWorks®*
- *Class 3 Fibre Channel Services*
- *Arbitrated Loop (FC-AL2), Switched Fabric, and Point-to-Point topologies*
- *Protocol-independent Management Interface*
- *Designed for harsh environment applications*
- *64-bit/33 MHz PCI (Standard 2.1)*
- *Transformer coupled electrical interface*



Integrated with the SVME-179 PowerPC™-based single board computer (SBC), the SVME/DMV-192 Pentium® II-based SBC and the CHAMP family of digital signal processors, the PMC-642A1 Gigabit/second Fibre Channel Network Interface Card (NIC) provides a unique high-speed network solution for mission-critical systems.

PMC-642A1 provides the first implementation of the industry standard, lightweight, high performance Virtual Interface Architecture (VI) with the VxWorks® real-time operating system. It also provides the first board-level solution for rugged Fibre Channel networking for harsh environment based computing. This combination of high-speed networking, lightweight protocol and rugged hardware makes PMC-642A1 the ideal mission-critical network solution.

PMC-642A1 Fibre Channel NIC

The PMC-642A1 Network Interface Card (NIC) is the first product in the Channel 1™ System Area Network family. It is a unique high-speed network solution for mission-critical systems offering features not available with alternative commercial Fibre Channel cards based on chips designed for SCSI storage. Using a dedicated RISC processing engine it optimally supports multiple network protocols while placing low processing demand on the host CPU. Using the “wired once” approach multiple protocols can coexist on the media simultaneously. This means applications designers can take advantage of a user-level protocol that best suits the unique characteristics of their system. For example, choose:

- IP for traditional networking solutions
- SCSI for storage
- Virtual Interface Architecture for performance.

The PMC-642A1 supports a range of network topologies including point-to-point for dedicated connections, Fibre Channel arbitrated loop for shared network media, and the more flexible switched fabric capability providing for higher aggregate bandwidth and more flexible redundancy options.

The NIC is compatible with 64 bit, 33 MHz PCI (Rev. 2.1) interfaces and supports PCI bus master or slave operation.

Channel 1™ Architecture

Channel 1™ leverages high performance commercial software and hardware technologies, including Fibre Channel and the Virtual Interface Architecture, to provide a networking architecture for harsh environment avionics and vetronics applications. The Channel 1 System Area Network (SAN) brings together remote compute and I/O elements, including host computers, dedicated compute nodes, graphics nodes, and I/O signal processing engines. It is based on the philosophy of a wired once, unified interconnect that allows the systems integrator to replace a mixture of incompatible connections found in current platforms with a single interconnect technology.

Channel 1 hardware includes Network Interface Cards including the PMC-642A1 NIC, fabric switches, and Fibre Channel chips for interfaces to sensors and custom I/O devices.

Optimized for VI Architecture Support

PMC-642A1 provides the first implementation of the industry standard Virtual Interface (VI) Architecture with the VxWorks real-time operating system.

VI is a standard, high performance network interface that eliminates many inefficiencies common to operating systems and network stacks and allows application designers to code to a lightweight messaging standard. VI bypasses much of the overhead in traditional protocol stacks and provides more direct access to the network interface hardware. VI provides a concise set of operations for moving data between network connections with latency characteristics that are closer to memory movement than to network operations. It eliminates most of the copying inherent in the movement of data between an

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