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VMFC-2100

Fibre Channel Adapters for PMC, PCI & CompactPCI

[See Specs](#) [Ordering Info](#)



VMFC-2100-PCI-PMC-cPCI.jpg (15241 bytes)

Product Overview

The VMFC-2100 line of Fibre Channel adapters from VMETRO are capable of achieving a sustained transfer rate of 102.7 MBytes/sec (99.7% of the theoretical maximum). The hardware and associated software drivers are specifically designed to maximize throughput while minimizing transfer latency and host processor overhead. A novel "Integrated Hub" feature provides additional flexibility and allows the interface to be applied to applications not traditionally associated with Fibre Channel.

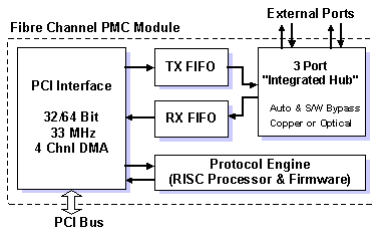
In addition to mainstream Fibre Channel applications such as disk storage, this interface is particularly well suited to applications where low latency communications and high sustained throughput are essential. This includes areas such as multi-processor communications (telecom & radar signal processing), sensor I/O (radar, sonar & image processing), and ultra-high performance computer networks (digital broadcasting & subsystem to subsystem data links). The VMFC-2100 adapters support 1 Gbit/sec rates over copper and fiber optic interfaces and are available in PMC, PCI and CompactPCI formats.

Features

- 102.7 MBytes/sec sustained transfer rate (Memory to memory via 32 bit 33 MHz PCI)
- Onboard programmable protocol engine minimizes host intervention
- Supports Arbitrated Loop and Point-to-Point Topologies
- Dual-port Copper, Dual-port Fiber Optic or Copper and Fiber Optic "Combo" configurations
- Integrated Two-port Hub simplifies system configuration and allows redundancy
- Bus mastering 32/64 bit PCI with DMA
- 30 m cable length with copper, 10 km possible with optical interface
- VxWorks® driver for MIDAS and PowerPC SBCs
- MC/OS™ API for RACEway computers (MIDAS RX)
- Windows NT and Solaris drivers
- PMC, PCI or CompactPCI versions

Host Software Support

An external host processor is used to provide high level management of the Fibre Channel data transfers. VMETRO provides an optimized 'C' callable API to allow the software engineer to easily integrate the Fibre Channel adapters with the target host (VxWorks® or MC/OS™). In addition, drivers for Windows NT and Solaris are available to provide connectivity between workstations and VMETRO's MIDAS, MDR and RX products.

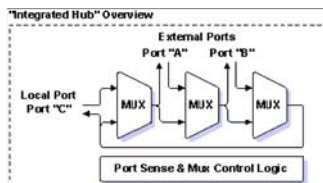


Multiple Protocol Support

The QLogic ISP-2100 with an integrated RISC Processor and associated firmware are used to perform the majority of the interface management tasks. The firmware is downloaded by the host processor and can be changed to provide field upgrades as well as to support different interface protocols. VMETRO currently provides an SCSI FC-AL protocol supporting multiple initiators and targets, which is intended for storage and net applications. Later, an optimized low latency protocol intended for inter-processor communications and data acquisition will be available. Implementation of other protocols is also possible.

Integrated Hub

Typically, Fibre Channel ports operating in an Arbitrated Loop topology require separate simplex connectors for both transmit and receive channels or the use of duplex connectors and an external Hub (so as to interconnect the devices on the loop). However, the VMFC-2100 incorporates integrated standard Hub features to create a simple and automatic method for supporting point-to-point, daisy-chained, and remote hub interconnects common duplex connectors and cables.



An integral part of the Fibre Channel hub is the port sense and control logic. This circuitry controls the state of the 1 Gbit/sec mux devices. The manner in which it operates is controlled through software. Typically, the external ports operate in an "Auto Enable" mode. In this mode each mux is automatically configured to admit the external port to the Fibre Channel loop whenever that port is active (valid clock & data). The hub can also operate in manual mode. In this mode, ports can be individually bypassed or selected under software control without regard to the state of the external port.



The Integrated Hub offers "Linear" Daisy Chains. The end-to-end length is only limited by the internode length and the number of nodes. Hence, there is no need for ring connections and the loop is automatically extended end to end.

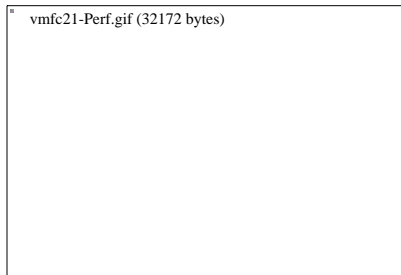
Copper or Fiber Optic Ports

The VMFC-2100 Fibre Channel adapters can be configured with two HSSDC copper connectors, two SC Duplex fiber optic transceivers, or with one copper and one fiber optic port.. See the [ordering information](#) for details on the models available.

Performance

A Fibre Channel link operates at 1.0625 Gbits/sec. After coding and packet overhead is accounted for, the effective theoretical maximum transfer rate is 103 MBytes/sec. Due to hardware architecture issues, Fibre Channel interfaces typically achieve only 25% to 40% of the maximum on a sustained basis. A sustained transfer rate of 102.7 Mbytes/sec (99.7%) over a 32 bit / 33 MHz PCI interface has been demonstrated with the VMFC-2100.

The effective transfer rate of the VMFC-2100 Fibre Channel adapter is dependent upon several factors. The most important factors are data block size and protocol. The graph shows the relationship between sustained transfer rate and data transfer block size.



- [Application Examples](#)
- [Specs & Ordering Info](#)



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