Fibre Channel Controller

Dual Port 4-Gbps Fibre Channel (FC) to PCI-X 2.0 266-MHz Controller

EP2422

Higher Performance

- 4-Gbps FC increases aggregate throughput rates to 1.6 GBps in full-duplex mode
- 64-bit, PCI-X 2.0 266-MHz dual data rate (DDR) bus for high throughput applications
- 300,000 IOPS delivers high I/O transfer rates for storage applications
- Dual read DMA (DRDMA) accelerates I/O processing
- Intelligent interleaved DMA (iiDMA) ensures maximum utilization of all data links
- Out-of-order frame reassembly (OoOFR) reduces congestion and I/O re-transmissions

Superior Scalability

- Cisco VSAN frame tagging allows physical ports to be part of multiple logical networks
- Multi-ID and N_Port virtualization allows a single port to acquire multiple N_Port IDs

Enhanced Reliability

- Overlapping protection domains for continuous protection on internal data paths
- T10 cyclic redundancy check (CRC) ensures end-to-end data integrity across SANs
- Optional error correcting code (ECC) protection for control structures
- Hardware assisted firmware tracing (HAFT) for real-time firmware debug capabilities
- Supports diagnostic monitoring interface (DMI) for detailed transceiver information
- Management data input output (MDIO) interface to access and modify registers

- 4/2/1 Gbps (auto-negotiation)
- SCSI initiator, target, and initiator/target modes
- Two general purpose input/output (GPIO) pins per port
- Available in standard and RoHS compliant/lead-free packages
- PCI extended capabilities: power management, MSI, VPD, AER
- JTAG boundary scan, full scan, and memory BIST

EP2422 FC Controller. The EP2422 is the industry's first true enterprise class, dual port 4-Gbps to PCI-X 2.0 266-MHz controller. The EP2422 is a highly integrated, single chip design with unprecedented levels of performance, making it an ideal solution for embedded subsystems and other storage networking devices and applications.

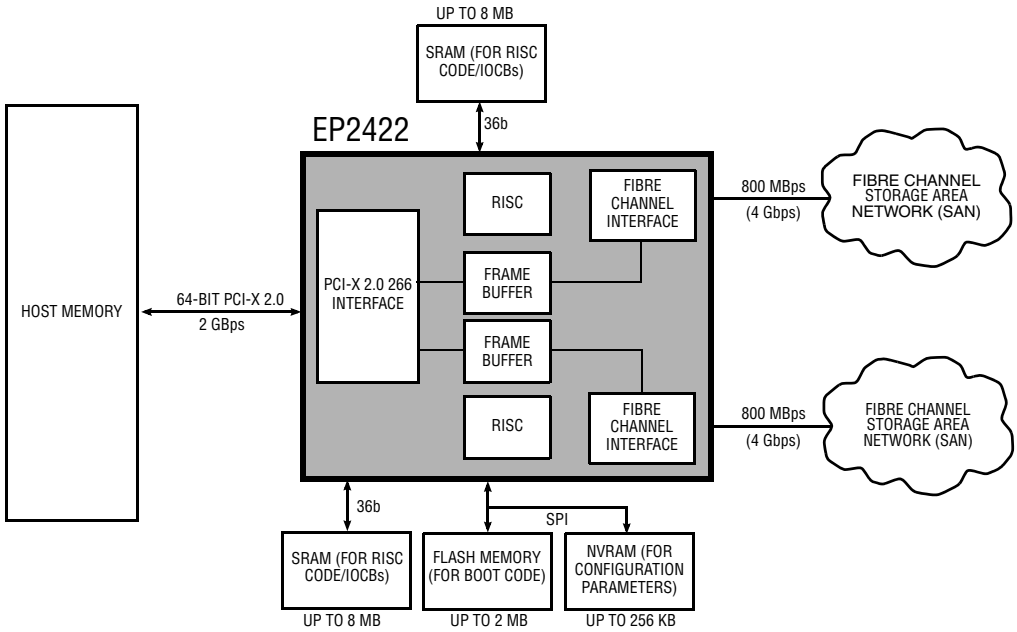
Single-Chip Design. The EP2422 incorporates multiple high-speed RISC processors, FC protocol modules (FPMs), integrated frame buffer memory, a PCI master bus interface, and DMA channels into a single application specific integrated circuit (ASIC) package. Each FC port utilizes its own separate internal resource to provide independent FC services and functions; a configuration that provides a robust architecture, allowing each port to operate concurrently with no performance degradation.

High Performance Architecture. The EP2422 is the highest performing FC controller in the industry, delivering over 300,000 IOPS, nearly 2-GBps throughput, and supports the PCI-X 2.0 266-MHz DDR bus interface.

Stable, Proven Firmware. The result of more than 15 years of progressive development and testing, the firmware architecture delivers overall reliability and advanced functionality with its single-chip integration, placing QLogic years ahead of its competitors. In combination with the ASIC hardware, the firmware reduces host intervention and interrupt overhead, executes multiple I/O control blocks from host memory, completes several I/O operations per single interrupt, and handles multithreading to fully utilize host bus and FC bandwidths.

Common Software Interface. Supporting a host software and firmware interface similar to existing and newly released products means rapid adoption of new features, capabilities, and technologies across all major operating systems and hardware platforms. Software development time is drastically reduced with common data structures, system calls, and APIs used across the controller software architecture. A common software interface speeds the development of reliable, interoperable storage products, giving application and system developers greater flexibility to meet time-to-market goals.

Investment Protection. For over 15 years, QLogic has been a technological leader by shipping products that address the current needs of customers, yet providing investment protection to support emerging technologies, standards, and protocols. In addition to supporting legacy bus interfaces, QLogic has a long-term commitment to support next generation bus interfaces, including PCI-X 1.0 and PCI-X 2.0. QLogic stands alone in the industry with its product portfolio depth and experience in successfully delivering technological solutions that address the needs of today and tomorrow.



Host Bus Specifications	
Bus interface	64-bit, PCI-X 2.0 266-MHz DDR, compatible with 66/33-MHz PCI and 133/100/66-MHz PCI-X
Signal voltage	3.3V (mode 1), 3.3V/1.5V (mode 2)
Memory	Addressable up to 8-MB SRAM per port, 2-MB flash (SPI), and 256-KB NVRAM (SPI)
Compliance	*PCI Local Bus Specification*, revision 2.3, *PCI-X Protocol Addendum to the PCI Local Bus Specification*, revision 2.0a, *PCI Bus Power Management Interface Specifications*, revision 1.1

Fibre Channel Specifications	
Data rate	4/2/1 Gbps auto-negotiation (4.25/2.125/1.0625 Gbps)
Performance	150,000 IOPS per port
Topology	Point-to-point (N_Port), arbitrated loop (NL_Port), and switched fabric (N_Port)
Class of service	Class 2 and 3
Protocols	FCP (SCSI-FCP), IP (FC-IP), FICON (FC-SB-2), FC-TAPE (FCP-2), FC-VI
Compliance	*SCSI-3 Fibre Channel Protocol (SCSI-FCP), Fibre Channel Physical and Signaling Interface (FC-PH), Fibre Channel 2nd Generation (FC-PH-2), Third Generation Fibre Channel Physical and Signaling Interface (FC-PH-3), Fibre Channel—Arbitrated Loop (FC-AL-2), Fibre Channel Fabric Loop Attachment Technical Report (FC-FLA), Fibre Channel—Private Loop Direct Attach Technical Report (FC-PLDA), Fibre Channel Tape (FC-TAPE) profile, SCSI Fibre Channel Protocol-2 (FCP-2), Second Generation FC Generic Services (FC-GS-3), Third Generation FC Generic Services (FC-GS-3), Fibre Channel Framing and Signaling (FC-FS)*

Physical Specifications	
Ports	Dual 4-Gbps FC
Package	540-pin plastic ball grid array multi-layer thermally enhanced (PBGAMT)
Dimensions	37.5 mm × 37.5 mm
Pin pitch	1.27 mm

Environment and Equipment Specifications	
Temperature	115°C junction temperature
Airflow	Airflow is design dependent; however, it must be compliant with the junction temperature of the EP2422.
Voltage	Core: 1.2V; I/O: 3.3V, 2.5V; analog (SERDES): 1.2V, 1.5V (optional)
Power dissipation	4.7 W maximum

Ordering Information	
EP2422	Ships in a single tray (quantity 21) or block of 10 trays (quantity 210). Available in standard and RoHS-compliant packages.

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