Fibre Channel

FCA2740 XMC

The FCA2740 XMC is the eigth generation of Fibre Channel interfaces from Critical I/O. Critical I/O's Fibre Channel interfaces allow system designers to easily integrate Fibre Channel into storage and networking I/O (processor to processor) applications. Critical I/O Fibre Channel products employ a Silicon Stack architecture which completely offloads all protocol processing into dedicated silicon, unlike FPGA-based Fibre Channel products which push the upper layer protocol processing (e.g. FC-SCSI) back onto the host ("software stack"). With industry-leading software capability, a Silicon Stack architecture, and support for industry standard protocols, Critical I/O Fibre Channel solutions enable high sustained throughput, ultra-low host processor overhead and very low latency.
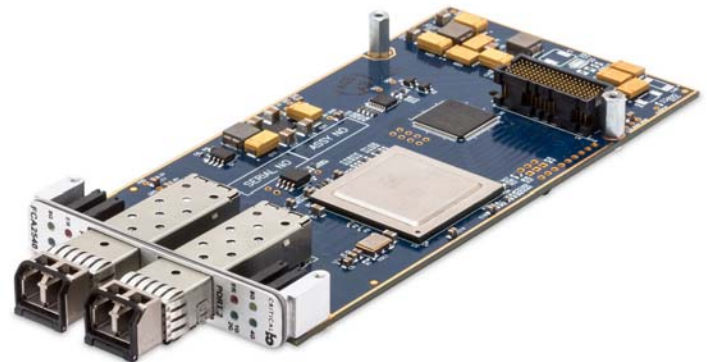

FCA2740-XMC-FF-G Features:

- 16/8/4 Gbps dual channel (auto negotiation)
- XMC with 8-lane PCIe host interface
- Up to 3,200 MB/s (full-duplex) max rate per port
- Latency as low as 10 us
- Hardware BIT (Built in Test)
- Low power consumption
- Optical front panel connectors (SFP+ transceivers)
- Comprehensive software library & driver support
- Commercial and rugged versions available

Fibre Channel Protocol Support:

- SCSI-FCP
- FC-AE-FCLP (FXLP)

Fibre Channel Topology Support:

- Point to Point (P2PN2N)
- Switched Fabric
- FC-AL supported at up to 8 Gbps
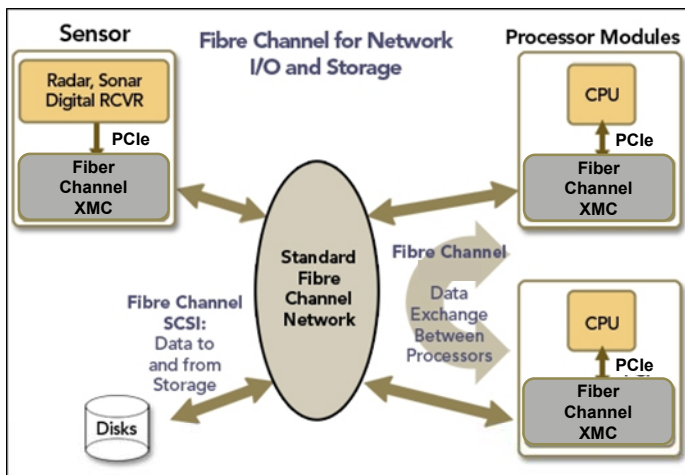
Fibre Channel for Storage & Networking Applications

High Performance / Low Host Overhead

Transfer data at up to 6,400 MB/s over a Fibre Channel network with minimal host CPU loading and ultra-low latency with the FCA2740 Fibre Channel XMC. This XMC offers two independent channels of 16/8/4 Gbps Fibre Channel with an 8-lane PCIe host interface. Each channel is capable of 3,200 MB/s with an overall sustained transfer rate of 6,400 MB/s. Critical I/O's Fibre Channel products support various Fibre Channel protocols for both networking & storage applications.

Extensive Software Support & Capability

Critical I/O supplies the hardware, drivers, libraries, and protocol support you'll need for rapid system development without wasting time debugging drivers. The FCA2740 hardware is accompanied by an extensive offering of software library and driver software products with support for real-time OS platforms (as well as mainstream OS platforms) running on a variety of embedded processors (PowerPC, Intel, DSP, etc.).

FCA2740-XMC-FF-G Technical Specifications

Controller Architecture	Highly integrated, low power, single chip, dual port Fibre Channel controller.
Fibre Channel Bit Rates	16/8/4 Gbps
Data Transfer Rate	Up to 3,200 MB/s (per port, full-duplex)
Supported Topologies	FC-AL, FC-AL2, point to point, switched fabric (FL_Port and F_Port) (FC-AL and FC-AL2 supported at bit rates of up to 8 Gbps)
Protocol Support	SCSI-FCP, FC-AE-FCLP (FXLP)
Host Bus Interface	PCIe x8 (x4, x2, x1 supported), PCIe 3.0 (2.0 and 1.1 compatible), 8GT/s, 5GT/s or 2.5GT/s (NOTE: 8GT/s XMC operation requires a very well designed VITA61 baseboard. 5GT/s XMC operation requires a well-designed baseboard. Users should carefully verify PCIe operation)
Ports	Dual Optical Front Panel
Connectors	SFP optical transceivers (LC connectors)
Form Factor	Air Cooled XMC, VITA 42.0, VITA 42.3 (VITA 61 XMC2 connectors available)
Power Requirements	+5VDC at 2.2A (max) or +12VDC at 1A (max)
Power Consumption	7.5 Watts (typical)
Operating Temperature	At 300 LFM, Std: 0C to +55C, ET1: -40C to +71C
Storage Temperature	-40C to +85C
Operating Humidity	Std: 10-90% non-condensing, ET1: 0-95% non-condensing
Storage Humidity	Std: 5-95% non-condensing, ET1: 0-100% condensing
Supported Host Processors	Intel, PowerPC, DSPs, others
Vibration (random)	VITA 47 Class V2: 0.04g2/Hz (14.1 grms) 100-1000 Hz
Shock	VITA 47 Class OS1 20g Peak sawtooth (11ms duration)
Software Support	Drivers: VxWorks, Linux, limited support for Windows, Integrity
Base Model Numbers	FCA2740-XMC-FF-G (VITA 42 connectors) FCA2740-XMC6-FF-G (VITA 61 connectors)
Model Description	Dual Port Fibre Channel XMC, 16/8/4 Gb/s, dual optical SFP+ (LC connector), commercial temperature range air-cooled hardware, RoHS Lead Free
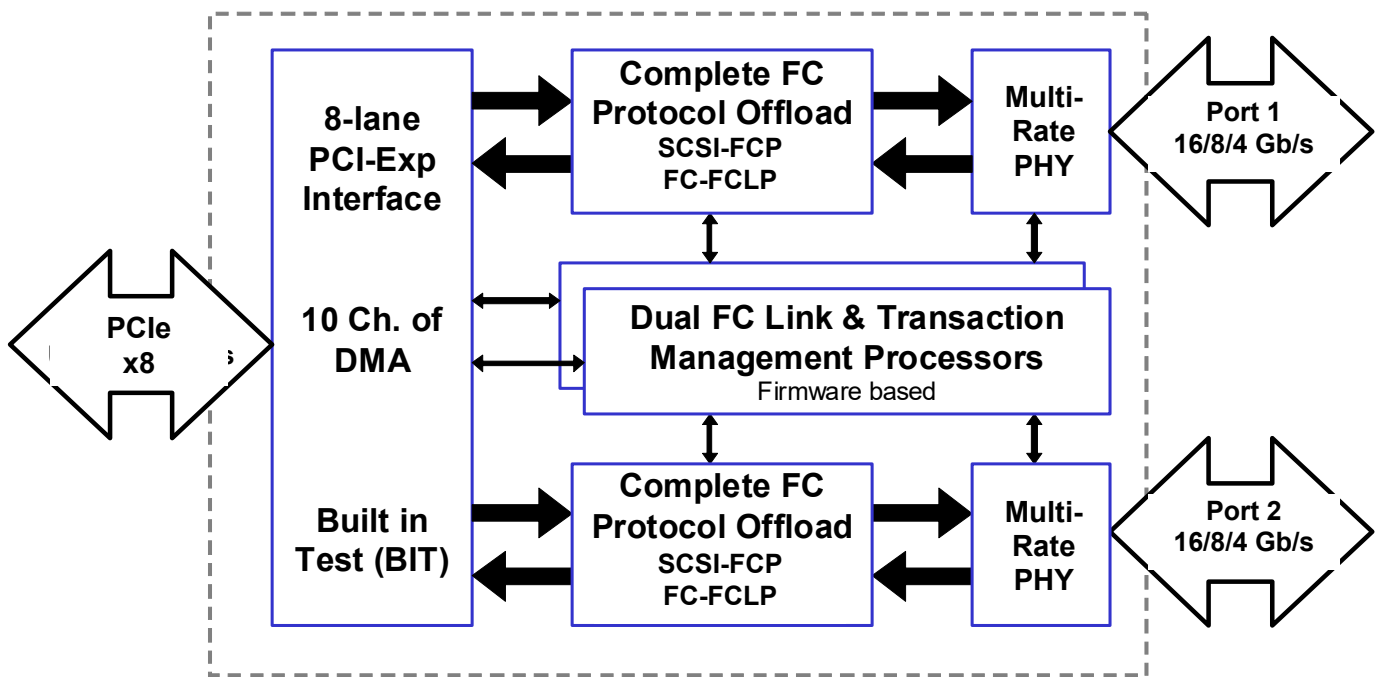
Block Diagram: The FCA2740 XMC provides two independent 16/8/4 Fibre Channel ports in an XMC form factor, with an 8-lane PCIe host interface. Each channel employs a full silicon stack offload of the complete protocol stack delivering up to 3,200 MB/s per port and up to 6,400 MB/s combined susta ined throughput with minimal host overhead and ultra-low latencey.