

Fibre Channel Upper Layer Protocol (ULP) IP Core

Hardware Offload Engine IP Core for FC-AE-RDMA and FC-AV

Applications

Avionics vehicle and mission systems
 Industrial/Machine vision systems
 Network packet capture

Benefits

Increased performance with hardware-based FC-ULP offload
 Hardware-based message processing and host DMA setup
 Leverage proven technology for standard interface implementation
 Mitigate obsolescence

Features

FC-AE-RDMA & FC-AV compliant interface with hardware-based offload
 Hardware DMA engines map sequence data to host memory buffers
 Host processor offloaded from all networking responsibilities
 Supports 1/2/4 Gbs data rates
 Configurable number of ports in a single FPGA
 AXI-MM host interface for embedded or PCIe-based processors
 Frame counter and error statistics

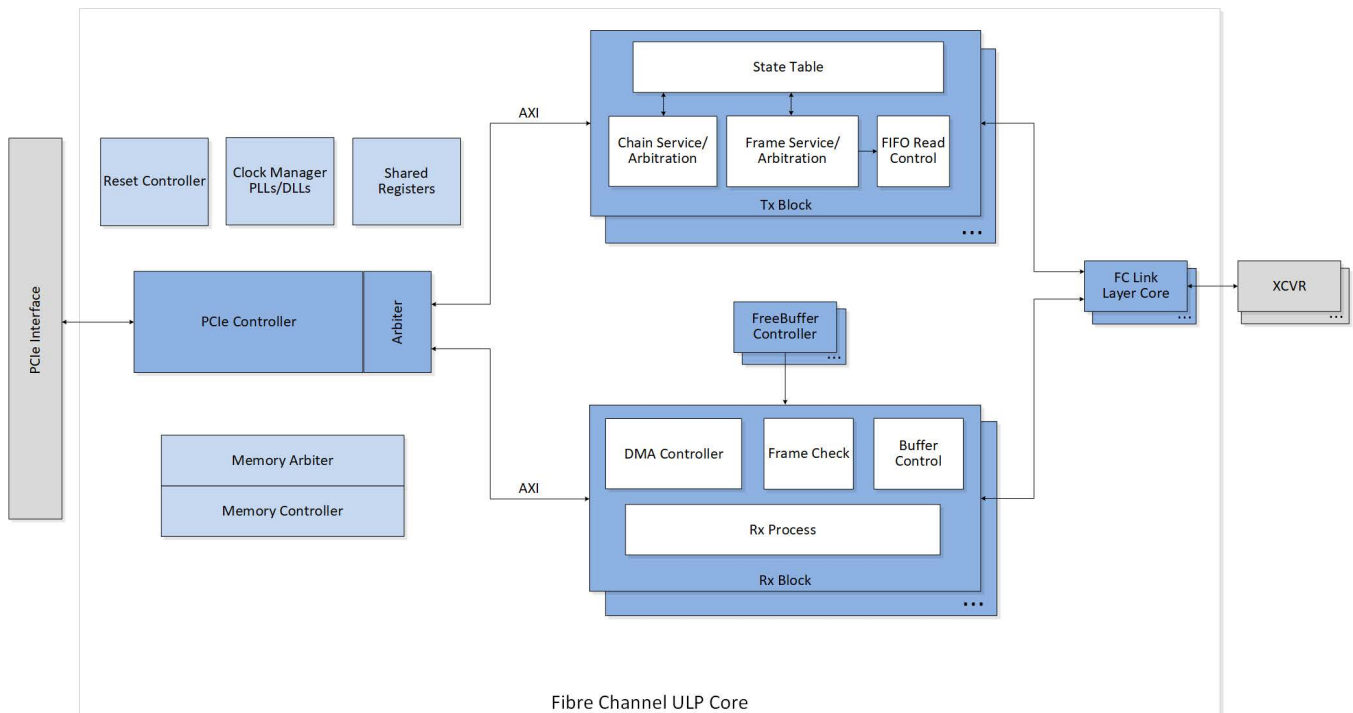
Overview

The New Wave DV Fibre Channel Upper Layer Protocol (FC-ULP) core provides a complete FC-4 layer hardware IP solution for the Fibre Channel Avionics Environment Remote Direct Memory Access (FC-AE-RDMA) and Fibre Channel Audio Video (FC-AV) protocols. FC-AE-RDMA follows the Fibre Channel Protocol for SCSI (FCP) standard.

The core provides full FC-AE-RDMA and FC-AV compliance. The host interface to the core is AXI-MM. This allows the core to be connected to an external host processor over PCIe or to an embedded SoC processor. The core is built for dropping into an FPGA and providing the complete design from processor interface to FC-ULP network interface.

This core is targeted towards applications in military/aerospace and has been used on a wide range of parts at varying operating rates. The core comes with test benches, constraints and an example design, making design integration a straightforward task.

Evaluation versions of the FC-ULP IP core are available and New Wave DV has a set of standard form factor boards featuring FPGAs, Fibre Channel optics, and off-the-shelf reference designs for quick evaluation of the IP core.



Fibre Channel Upper Layer Protocol (ULP) IP Core

Hardware Offload Engine IP Core for FC-AE-RDMA and FC-AV

Complete Product Support Program

New Wave DV prides itself on its excellent customer support, a fact that is echoed by our customers. New Wave DV provides industry standard warranty on its products, but it is the human factor that makes our support so valuable to our customers. Our team takes the time and effort to ensure that the customer experience with our products is a positive one.

Our Commitment

New Wave DV is committed to providing the latest innovations in technology, architectures, and techniques to keep our customers one step ahead of the rest. Our products, complete with the Development Framework, are intended to offer our customers an entirely unique out-of-the-box experience.

New Wave DV FC ULP Cards

In addition to the FC-ULP core, New Wave DV provides standard form factor FC-ULP interface cards that incorporate the FC-ULP interface core along with high performance DMA engines and software drivers. Available in XMC/VPX/PCIe/PXle form factors, New Wave DV FC-ULP cards provide up to 16 ports in a single card. Reach us at info@newwavedv.com to ask about our FC-ULP solutions.

IP is available off-the-shelf and pre-loaded on the V1151 and V1153 in optical and electrical port configurations for test and embedded applications.

Technical Specifications

Core is delivered in netlist format including constraint files

SUPPORTED DEVICES

AMD (Xilinx): 7-Series, UltraScale, UltraScale+, Versal
Intel (Altera): Stratix, Arria, Cyclone FGPAs
Microchip (Microsemi): SmartFusion2, Igloo2, PolarFire FPGAs

SUPPORTED RATES

1.0625 / 2.125 / 4.25 Gbs

OPERATING FREQUENCIES

1G: 26.5625 MHz
2G: 53.125 MHz
4G: 106.25 MHz

FC-AE-RDMA/HSDN Mode:

Delivers hardware-based LUN mapping and complete offload of RDMA frame handling including: FCP Data IU offload, hardware Command IU Response, DMA controller, frame building/checking, and CRC generation/checking.

FC-AV/HSVN Mode:

Delivers hardware-based FC-AV container processing, and offload of FC frame handling including: FC-AV Container offload, hardware-based AV Object processing, DMA controller, frame building/checking, and CRC generation/checking.

Ordering Information

700-FC200-00-00-00: Fibre Channel Upper Layer Protocol (RDMA, AV, HSVN, HSDN) IP Core, includes Link Layer core, 1/2/4 Gbs support

Refer to the following hardware datasheets to assemble an off-the-shelf, pre-loaded hardware solution:

- V1151: 2 & 4 Optical Front Panel Ports
- V1153: 2, 4, 8, or 12 Optical Ports
- V1153: 2, 4, or 8 Electrical Ports

Other product configurations are available. Please contact us.

FOR MORE INFORMATION

www.newwavedv.com
info@newwavedv.com
Phone +1 952-224-9201

New Wave DV
10260 Viking Drive, Ste 250
Eden Prairie, MN 55344 USA

