

# Fibre Channel Link Layer IP Core

## FC-1 & FC-2 Layer IP Core for Fibre Channel

### Applications

- Avionics and defense networks
- Enterprise networking/storage
- Network packet capture
- Industrial/Machine vision systems

### Benefits

- Accelerates FPGA application development time-to-market
- Leverage proven technology for standard interface implementation
- Lower development costs

### Features

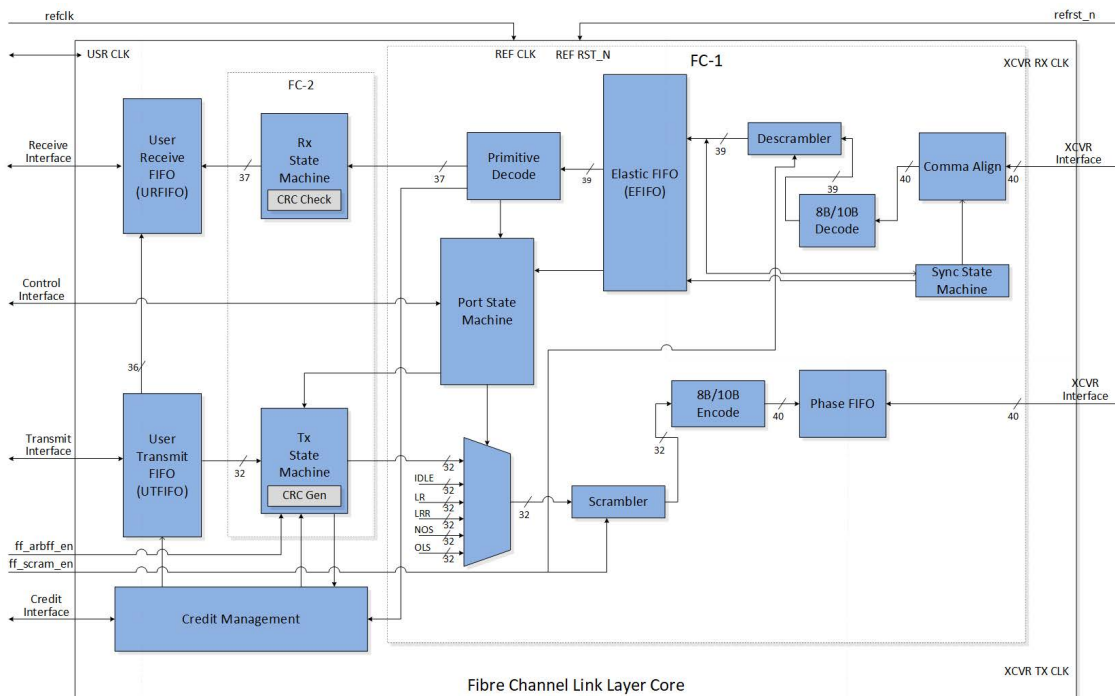
- Supports 1/2/4/8/16 Gbs Fibre Channel Class 3 (Class 2 optional)
- Complete FC-1 & FC-2 functionality (Switched Fabric or Point-to-Point)
- Operate in RX only, TX only, or normal RX/TX modes
- Error-injection into TX datastream to test error-detection logic
- Statistics reporting
- Real-time clock timestamping of received frames
- Stripped Mode with removal of headers and delimiters
- CRC generation and checking, 8B/10B encoding/decoding, running disparity calculation, credit management, port state machine, and FC framing

### Overview

The New Wave Design and Verification Fibre Channel (FC) Link Layer core provides a complete IP solution for FC-1 and FC-2 layers. The core includes all functionality needed to meet the framing and signaling specification of Fibre Channel including: comma alignment, 8b/10b encode/decode, primitive decode, scrambling, port state machine, credit manager, CRC generation/checking, elastic FIFO, and phase FIFO.

At the physical layer, the core is built for connecting to ASIC/FPGA embedded SERDES or discrete SERDES parts. The user interface of the core provides an intuitive streaming interface for application designers. The user interface within the core also includes cross clocking logic making integration into the larger design extremely simple.

This core has been used on a diverse set of applications, from enterprise storage to aerospace electronics, and on a wide range of parts at varying operating rates. The core comes with test-benches and example code, making design integration a straightforward task.



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### Complete Product Support Program

Our customers can attest to our exceptional support. New Wave DV provides an 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 a positive customer experience.

### 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 Link Layer Cards

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

### Technical Specifications

Core is delivered in netlist format including constraint files

#### SUPPORTED FPGA DEVICES

Xilinx: Virtex, Kintex, Artix  
Intel: Stratix, Arria, Cyclone  
Microsemi: SmartFusion2, Igloo2

#### SUPPORTED RATES

1.0625 Gbs  
2.125 Gbs  
4.25 Gbs  
8.5 Gbs  
14.025 Gbs

#### OPERATING FREQUENCIES

1G: 26.5625 Mhz  
2G: 53.125 Mhz  
4G: 106.25 Mhz  
8G: 212.5 Mhz  
16G: 212.5 Mhz (double data width)

### Ordering Information

700-FC100-10-00-00 Fibre Channel Link Layer IP Core, full duplex, 1/2/4Gb support, per port license

700-FC100-20-00-00 Fibre Channel Link Layer IP Core, full duplex, 1/2/4/8Gb support, per port license

**Other product configurations are available. Please contact us.**

#### FOR MORE INFORMATION

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