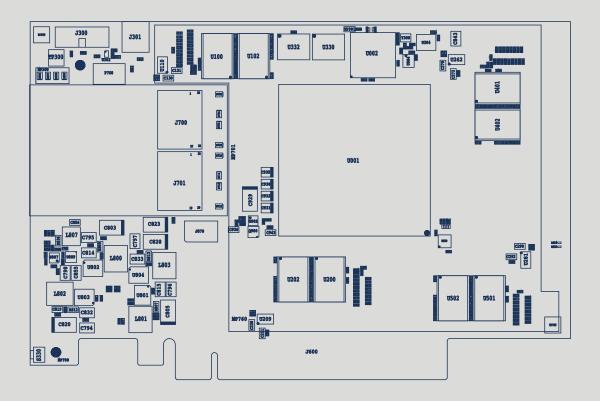# fbC2CGg3hl supporting the fbCapture framework

The Fiberblaze fbC2CGg3hl is a powerful half length accelerator card featuring two QSFP28 slots, providing network connectivity and high speed capture to host memory with zero packet loss and packet processing.

The 2xQSFP28 slots support configurations with data rates of 8x10GE, 2x40GE, 8x25GE or 2x100GE, while supporting a bandwidth to host system of over 200 Gbps. Dedicated firmwares are offered for each link speed.

The fbC2CGg3hl is mounted with the latest Ultrascale Xilinx FPGA technology, providing packet filtering, advanced processing, traffic management, load balancing and host offloading mechanisms, to a wide range of applications. In addition to this, Tx capabilities are also supported for traffic redirection and selective bypass.

The card is a single-slot PCIe solution for a 16-lane PCIe slot, and features an optional 2nd 16-lane PCIe connector for connecting to a 2nd PCIe slot. The 16-lane connections are via 2x8 lanes using bifurcation. With its two PCIe connectors, the card can offer traffic load balancing and application acceleration optimized for NUMA environments, bypassing the QPI bridge.

This card is also available as a cost optimized variant for 10GE and 40GE.

Dedication to Performance

fbC2CGg3hl supporting the fbCapture framework

NETWORK INTERFACE
- IEEE standard: IEEE 802.3 10GE, 40GE, 25GE, 100GE
- Physical interface: 2 x QSFP28 slots
- 10GE and 25GE supported through break-out cable assemblies
- Supported QSFP28 modules (25GE/100GE)
  - SR4, LR4, PSM4 /IR4, CWDM4/CLR4, CR4 (DAC), ER4
  - Appropriate 4x25GE Break-out modules
- Supported QSFP+ modules (10GE/40GE)
  - SR4, LR4, PSM4, CWDM4, ER4, ZR4 BiDi (850 nm) CR4 (DAC)
  - Appropriate 4x10GE Break-out modules
- Ethernet PHY directly embedded in FPGA

HOST INTERFACE
- Physical bus connector: 16 lane PCIe.
- PCIe bus type: 16 lane PCIe Gen3 (2x8 via bifurcation)
- Optional 2nd PCIe cable connector
  - Extra 16 lane PCIe Gen3 to host (2x8 via bifurcation)
  - Card interconnect (release TBD)
  - Cost optimized variant - 2nd connector with 12 lanes 1x8+1x4
- PCIe compliant
- Multiple logical channels for DMA to host or egress to physical output ports

ON BOARD MEMORY
- On-board buffering for application robustness
- 16GB DDR4

PERFORMANCE
- Capture rate (bursts): Line rate
- Capture rate (sustained): Line rate
- Transmission rate (selective bypass): Line rate
- Transmission rate (daisy chain): Line rate

LATENCY
- Less than 3.2 μs to host memory
- Less than 3.2 μs from host memory to Tx
- Non-blocking sending, allowing user applications to operate independently

TIME STAMPING AND SYNC
- Resolution = 3.1 ns
- Accuracy down to 20 n.
- Daisy chain PPS internally between multiple cards
  - Via COAX or Card interconnect adapter
- PPS synchronization via SMA connector
- Optional PTP IEEE 1588-2008 RJ45 via secondary supporting card

CONFIGURATION
- Dual boot images with automatic fallback to fail-safe image
- Full firmware upgrades via supplied tools or fbCAPTURE API

ENVIRONMENT
- Physical dimensions: ½ length, standard height
- PCIe: 111 x 167 mm
- Weight: 270g
- Operating temperature: 0 – 55°C, 30 – 130°F
- Power consumption: est. 48W
- Optional auxiliary power
- Operating humidity: 20 – 80%
- Hardware compliance: RoHS, CE
- Passive cooling available, requires adequate host system airflow
- Active cooling solution available

ADDITIONAL CARD SUPPORT
- fbCAPTURE API
- On-board temperature sensor
- On-board multi-color status LED
- Link and Activity LED for ports

CARD VARIANTS
- All card variants have FPGAs optimized for resource requirements of the varying link types.
  Available models:
  - fbC2CGg3hl for 10/40/25/100GE
  - fbC2CGg3hl-2x40 for 40GE, cost optimized
  - fbC2CGg3hl-8x10 for 10GE, cost optimized
- Mixed speed models can can be customized, eg. 1x100GE + 4x25GE

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