



fbC4CGg3 Capture Card

Quad port unprecedented port density with 16x10GE

Product Description

The Silicom fbC4CGg3 Capture card's quad QSFP28 ports offers an unprecedented 10GE port density for network connectivity and line rate capture with zero packet loss and hardware packet processing. Support for 4x40GE can be customized.

The fbC4CGg3 capture card is based on cutting edge Xilinx FPGA technology, providing packet filtering, advanced processing, traffic management, load balancing and host offloading mechanisms.

This high performance hardware platform connect to the network using QSFP28/QSFP+ modules and performs packet processing, while delivering a sustained throughput to host memory of up to 112 Gbps. The use of QSFP28 cages allows use of QSFP+ to support 16x10GE using breakout cables. For any long or mid-term installation, using breakout cables is simply an alternative installation step.

16x10GE in one PCIe card is ideal for monitoring load balanced or redundant networks, without having to use fully parallel monitoring systems. And this is at the same cost as monitoring only the primary links.

The advantage of having this high port density is that with a single PCI card you can connect to many networks to filter or aggregate the traffic and pass on traffic to host or relay or load balance to other devices via the Tx parts of the optical connectors.

Using the Tx connectors allows the deployment to function as a packet broker while also performing capture and application acceleration on the host system, as well as fully or partially relaying the capture and processed traffic.

In many deployments using a 16x10GE card, can eliminate the dependency on expensive 3rd party packet brokers or aggregator devices. Hereby also reducing the management cost and complications of keeping configuration of shared system deployments in sync

The card uses a single-slot, 16-lane PCIe slot to enable effective traffic management and load balancing, also in NUMA environments.

The card comes with active cooling, a sturdy PCB and a braced FPGA, avoiding the risks associated with PCB vibration and transport.



Key Features

- 16x10 Gbit/s Ethernet, IEEE 802.3
- 107 Gbps sustained capture to host
- 16-lane PCIe Gen3
- Precision timestamping
- 6.4 nano second resolution
- Microsecond latency
- fbCAPTURE API
- Hardware filtering and traffic distribution

Technical Specifications

General Technical Specifications	
IEEE standard	IEEE 802.3 10GE
Interfaces	<ul style="list-style-type: none"> • Physical interface: 2 x QSFP28 port (QSFP+ compatible) • 10GE supported through break-out cable assemblies • Supported QSFP+ modules (10GE/40GE): <ul style="list-style-type: none"> ○ SR4, PSM4/IR4 (LR), CDWM4, ER4, ZR4 ○ Appropriate 4 x 10GE break-out modules • Ethernet PHY directly embedded in FPGA
PCI bus	<ul style="list-style-type: none"> • 16 lanes PCIe Gen3 via 2x8 lanes • PCIe compliant
Host interface	<ul style="list-style-type: none"> • 64 logical channels that can be connected to DMA or egressed to physical output ports
On Board Memory	<ul style="list-style-type: none"> • On board buffering for application robustness • 16 GB 64-bit DDR4
Capture rate	<ul style="list-style-type: none"> • Capture rate (bursts): Line rate (160 Gbps) • Capture rate (sustained): 107 Gbps to host memory
Latency	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Resolution = 6.4 ns • Accuracy down to 20 ns • Daisy chain PPS between multiple cards supported <ul style="list-style-type: none"> ○ Via COAX or Card interconnect adapter • Strict Host based sync available in driver, for indirect PTP/NTP sync • PPS synchronization via SMA connector

Configuration	<ul style="list-style-type: none"> • Dual boot images with automatic fallback to fail-safe image • Full configuration and firmware upgrades via supplied tools or fbCAPTURE API
Environment	<ul style="list-style-type: none"> • Full height, ¾ length, 111 x 254 mm • Weight: 320 g • Operating temperature: 0 – 55°C, 30 – 130°F • Operating humidity: 20 – 80% • Hardware compliance: RoHS, CE • Active cooling, • Passive cooling (option)
Additional Board Support	<ul style="list-style-type: none"> • fbCAPTURE API • PF_RING and nTop suite support • DPDK support • libPCAP support • On-board temperature sensors • On-board multi-color status, Link and Activity LED for ports

Order Information

P/N	Description
fbC4CGg3-16x10G	Quad port unprecedented port density with 16x10GE