



## fb2CG@KU15P FPGA Card

Dual QSFP28 port card supporting 2x100GE, PCIe Gen3 x16, Xilinx® Kintex UltraScale+

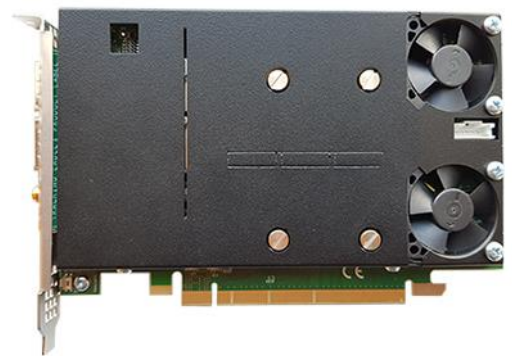
### Product Description

The Silicom fb2CG@KU15P FPGA Card offers network connectivity and capture to host memory with zero packet loss and with hardware packet processing. The 2xQSFP28 slots allow link speed support for 2x100GE/40GE/25GE, 8x10GE and 8x25GE. The fb2CG@KU15P FPGA Card is based on cutting edge Xilinx FPGA technology in the Kintex UltraScale+ series, providing packet filtering, advanced processing, traffic management, load balancing and host offloading mechanisms.

This high performance hardware platform connects to the network using QSFP28/QSFP+/SFP28 modules and performs packet processing, while delivering a sustained throughput to host memory of up to 107 Gbps, using the standard PCIe connector with full support for standard gen3 x16. The fb2CG@KU15P FPGA Card uses a single-slot x16 lane PCIe solution. The card is prepared for inter-card connection and for second-slot connectivity for double PCIe bandwidth to the host system. NUMA specific memory allocation allows for effective traffic management and load balancing in NUMA environments.

### Key Features

- 2 x 100GE/40GE/25GE, 8 x 10GE and 8 x 25GE
- PCIe form-factor: Full height, half length (111.15 x 167.65 mm)
- 16 GB 72-bit Error-correcting code (ECC) DDR4 RAM
- 107 Gbps sustained capture to host
- 16-lane PCIe Gen3
- Precision timestamping
- 3.2 nano second resolution
- Microsecond latency
- fbCAPTURE API
- Hardware filtering and traffic distribution
- Application acceleration and scalability



### Technical Specifications

General Technical Specifications	
IEEE standard	IEEE 802.3 10GE, 40GE, 25GE, 100GE
Interfaces	<ul style="list-style-type: none"> <li>• Support Forward Error Correction (FEC) on 100GE</li> <li>• Physical interface: 2 x QSFP28 slots</li> </ul>

	<ul style="list-style-type: none"> <li>• 10GE supported through break-out cable assemblies</li> <li>• 2 x 25 SFP28 through QSA28 adaptor</li> <li>• Supported QSFP28 modules (25GE/100GE):</li> <li>• SR4, LR4, PSM4, CWDM4/CLR4, CR4 (DAC), ER4</li> <li>• Appropriate 4 x 25GE break-out modules</li> <li>• Supported QSFP+ modules (10GE/40GE):</li> <li>• SR4, LR4, LM4, PSM4/IR4, CDWM4, ER4, ZR4, BiDi, CR4</li> <li>• Appropriate 4 x 10GE break-out modules</li> <li>• Ethernet PHY directly embedded in FPGA</li> </ul>
<b>PCI bus</b>	<ul style="list-style-type: none"> <li>• 16 lanes PCIe Gen3</li> <li>• PCIe compliant</li> </ul>
<b>Host interface</b>	<ul style="list-style-type: none"> <li>• 64 logical channels that can be connected to DMA or egressed to physical output ports</li> </ul>
<b>On Board Memory</b>	<ul style="list-style-type: none"> <li>• On board buffering for application robustness</li> <li>• 16 GB 72-bit Error-correcting code (ECC) DDR4 RAM</li> </ul>
<b>Capture rate</b>	<ul style="list-style-type: none"> <li>• Capture rate (bursts): Line rate (200 Gbps)</li> <li>• Capture rate (sustained): 107 Gbps to host memory</li> </ul>
<b>Latency</b>	<ul style="list-style-type: none"> <li>• Less than 3.2 <math>\mu</math>s to host memory</li> <li>• Less than 3.2 <math>\mu</math>s from host memory to Tx</li> <li>• Non-blocking sending, allowing user applications to operate independently</li> </ul>
<b>Time Stamping and Sync</b>	<ul style="list-style-type: none"> <li>• Resolution = 3.2 ns</li> <li>• Accuracy down to 20 ns</li> <li>• Daisy chain PPS between multiple cards supported</li> <li>• Via COAX or Card interconnect adapter</li> <li>• Strict Host based sync available in driver</li> <li>• PPS synchronization via SMA connector</li> </ul>
<b>Configuration</b>	<ul style="list-style-type: none"> <li>• Dual boot images with automatic fallback to fail-safe image</li> <li>• Full configuration and firmware upgrades via supplied tools or fbCAPTURE API</li> </ul>
<b>Environment</b>	<ul style="list-style-type: none"> <li>• Full height, ½ length. 111.15 x 167.65 mm with bracket</li> <li>• Weight: 485 g</li> </ul>

	<ul style="list-style-type: none"> <li>• Operating temperature: 0 – 55°C, 30 – 130°F</li> <li>• Operating humidity: 20 – 80%</li> <li>• Hardware compliance: RoHS, CE</li> <li>• Active cooling, with fan sensor</li> <li>• Passive cooling (option)</li> </ul>
<b>Additional Board Support</b>	<ul style="list-style-type: none"> <li>• fbCAPTURE API</li> <li>• PF_RING and nTop suite support</li> <li>• DPDK support</li> <li>• libPCAP support</li> <li>• On-board temperature sensors</li> <li>• On-board multi-color status, Link and Activity LED for ports</li> <li>• HW prepared for direct Card to Card interconnect and second PCIe slot connection</li> </ul>

**Order Information**

<b>P/N</b>	<b>Description</b>
<b>fb2CG@KU15P</b>	Xilinx® Kintex UltraScale+ XCKU15P FPGA