



### fb2CGhh@KU15P FPGA Card

#### Half Height, Dual Port QSFP28 100 Gigabit FPGA Card

#### Product Description

The fb2CGhh@KU15P is a low-profile high performance OEM hardware platform intended for 10/40/25/50/100 Gigabit Ethernet via its dual QSFP28 slots.

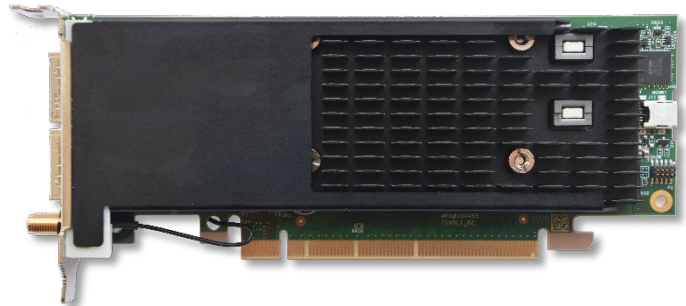
The standard configuration is based on the Xilinx® Kintex UltraScale+ KU15P FPGA, to provide ample capacity for the dual QSFP28 interface. The card features the KU15P to keep the solution as cost effective as high performance computing allows.

The card is mounted with 2 x 72-bit DDR4 ECC RAM, 4GB for a total of 8 GB.



#### Key Features

- Xilinx® Kintex UltraScale+ XCKU15P FPGA
- 2 x QSFP28 ports
- 2 x 72-bit DDR4@2666MT/s (4 GB per bank with ECC)
- Configuration flash RAM for boot images
- PCIe form-factor: Half height, half length (68.9 x 167.65 mm with bracket)
- On-board power and temperature sensors
- FPGA controlled link and status LEDs
- Passive cooling solution



#### Technical Specifications

Network Interface	
IEEE standard	IEEE 802.3 10GE, 40GE, 25GE, 100GE
Interfaces	<ul style="list-style-type: none"> <li>▪ Physical interface: 2 x QSFP28 slots</li> <li>▪ Supports QSFP+/QSFP28 modules: including fan-out modules for 4x10G/4x25GE per slot, Multimode SR4 (850nm), singlemode LR4 (1310nm), singlemode PSM4 (1310nm), multimode LRM4 (1310 nm), or Direct Attached Copper (Twinax) and others</li> <li>▪ Data rate: 8x10, 2x40, 8x25, 2x100 Gbps</li> <li>▪ Support for SyncE</li> </ul>
Host Interface	
PCI bus	<ul style="list-style-type: none"> <li>▪ 16 lanes PCIe Gen3</li> <li>▪ PCIe compliant</li> <li>▪ Support for SMBUS</li> </ul>

General Technical Specifications		
<b>Configuration</b>	<ul style="list-style-type: none"> <li>▪ Quad SPI fast parallel programming interface from supporting preprogrammed controller</li> <li>▪ Configuration flash supports two boot images with automatic fallback to fail safe image if first image fails</li> <li>▪ Upload of FPGA configuration to flash via PCIe or directly from Xilinx Vivado via the onboard JTAG dongle</li> <li>▪ Direct FPGA configuration from Xilinx via the onboard JTAG dongle</li> <li>▪ Supports Tandem PROM boot</li> </ul>	
<b>On-board Memory</b>	<ul style="list-style-type: none"> <li>▪ 2 x 72-bit DDR4@2666MT/s (4 GB per bank with ECC)</li> <li>▪ User configurable space in flash RAM for permanent storage</li> <li>▪ Configuration flash RAM for boot images</li> </ul>	
<b>On-board Clock</b>	<ul style="list-style-type: none"> <li>▪ PCIe clock: 100 MHz</li> <li>▪ 2 x differential 161.13 MHz SerDes clock for Ethernet</li> <li>▪ 2 x differential 266.67 MHz clock for Memory</li> <li>▪ 50 MHz clock</li> </ul>	
<b>FPGA Details</b>	<ul style="list-style-type: none"> <li>▪ FPGA Xilinx® Kintex UltraScale+ XCKU15P</li> </ul>	
<b>Environment</b>	<ul style="list-style-type: none"> <li>▪ ½ height, ½ length 68.90 x 167.65 mm with bracket</li> <li>▪ Storage temperature: -30 - 70°C , -22 – 158°F</li> <li>▪ Operating temperature: 0 – 55°C, 30 – 130°F</li> <li>▪ Operating humidity: 20 – 80%</li> <li>▪ Hardware compliance: RoHS, CE</li> </ul>	
<b>Additional Board Support</b>	<ul style="list-style-type: none"> <li>▪ On-board power and temperature sensors</li> <li>▪ FPGA controlled Link and Activity LED for each port. 4 for each QSFP</li> <li>▪ Board status LEDs</li> <li>▪ Failsafe button on bracket</li> <li>▪ PPS clock synchronization connector (optional)</li> </ul>	
<b>Power</b>	<ul style="list-style-type: none"> <li>▪ Max 75W</li> <li>▪ Passive cooling solution</li> <li>▪ Power, temperature and FAN tacho sensor reading</li> </ul>	
<b>On-board Microcontroller</b>	<ul style="list-style-type: none"> <li>▪ Board management Microcontroller for various internal control tasks as well as external communication</li> <li>▪ SMBus/I2c</li> <li>▪ Possible to readout telemetry parameters</li> </ul>	
<b>Ordering Information</b>	fb2CGhh@KU15P-2	Half height mounted, full height spare
	fb2CGhh@KU15P-2-0-H	Half height bracket mounted, full height spare
	fb2CGhh@KU15P-2-0-F	Full height bracket mounted, half height spare

v1.3

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