



### fb8XG@V7 FPGA Card

#### Dual QSFP+ Port 10/40 Gigabit Ethernet PCI Express FPGA Card

##### Product Description

The fb8XG@V7690 is a high performance OEM hardware platform intended for 40G and 10G Ethernet with dual port QSFP+ network interface.

The standard configuration is based on Xilinx Virtex7 VX FPGA. The card is also offered with a variety of different FPGAs and memory configurations to provide flexibility for the intended application.

As an optional feature, the card can be fitted with two SATA connectors which can provide connectivity to a wide range of standard storage devices directly to the FPGA card.



##### Key Features

###### Host Interface:

- Physical bus connector: 8-lane PCIe
- PCIe bus type: 1-8 lane PCIe Gen1/Gen2/Gen3

###### Network Interface:

- EE standard: IEEE 802.3 10 Gbit/s Ethernet
- Physical interface: 2 x QSFP+ ports
- Supported QSFP+ modules: Including fan-out modules for 4 x 10 G, Multimode SR (850 nm), singlemode LR (1310 nm), multimode LRM (1310 nm), or Direct Attached Copper (Twinax)
- Data rate: 2 x 40 Gbit/s or 8 x 10 Gbit/s
- Ethernet PHY directly embedded in FPGA

###### Configuration:

- 16 bit fast parallel programming interface from supporting preprogrammed controller
- Configuration flash supports two boot images with automatic fallback to fail safe image if first image fails
- Upload of FPGA configuration to flash via PCIe
- Support for encrypted FPGA bit file (optional)

## Technical Specifications

General Technical Specifications	
<b>On Board Memory:</b>	<p>2 x 64 bit DDR3@1600MT/s 4GB (total 8GB memory)</p> <p>1 x 36 bit QDRI I+@2200MT/s 144 Mb / 288 Mb / 576 Mb(optional)</p> <p>1 x 36 bit RLD3@1600MT/s 1152 Mb</p> <p>1 MB user configurable space in flash for permanent storage</p>
<b>On Board Clock:</b>	<p>PCIe clock: 100MHz</p> <p>125 MHz oscillator</p> <p>156.25 MHz oscillator</p> <p>150 MHz oscillator for SATA (optional)</p>
<b>FPGA &amp; Memory Options:</b>	<p>fb8XG@V7690 Xilinx Virtex7 XC7VX690T-2 and 144Mb of QDRII+</p> <p>fb8XG@V7691 Xilinx Virtex7 XC7VX690T-3 and 288Mb of QDRII+</p> <p>fb8XG@V7692 Xilinx Virtex7 XC7VX690T-3 and 0Mb QDRII+ and 0Mb RLD3</p> <p>fb8XG@V7693 Xilinx Virtex7 XC7VX690T-3 and 144Mb of QDRII+</p> <p>fb8XG@V7695 Xilinx Virtex7 XC7VX690T-3 and 288Mb of QDRII+</p> <p>Xilinx Virtex7 XC7VX415T (optional)</p> <p>Xilinx Virtex7 XC7VX330T (optional)</p> <p>Other speedgrades available on request</p>
Environment:	
<b>Physical dimensions:</b>	Half length, standard height PCIe
<b>Power consumption:</b>	Less than 7W with uninitialized FPGA
<b>Operating temperature:</b>	0 – 55°C, 30 – 130°F
<b>Operating humidity:</b>	20 – 80%
<b>Hardware compliance:</b>	RoHS, CE
<b>Passive cooling:</b>	no on-board fan required
<b>Active cooling:</b>	optional
<b>Additional Board Support:</b>	<p>On board temperature sensor</p> <p>Board status LED</p> <p>FPGA controlled Link and Activity LED for each port</p> <p>PPS clock synchronization connector</p> <p>2 x SATA connector (optional)</p>
<b>Additional Intellectual Property</b>	Flash configuration I/F

<b>Support:</b>	8 lane PCIe DDR3 Memory controller QDR11+ Memory controller Fast Ethernet MAC (optional) MDIO controller (optional) I2C controller (optional) SPI master I/F (optional) TCP-offload engine (optional)
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### Order Information

P/N	Description	Notes
<b>fb8XG@V7</b>	Dual QSFP+ port card supporting 8x10GE/2x40GE, PCIe Gen 3 x8 lanes	RoHS Compliant

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