Silicom Connectivity Solutions

fb4CGg3@VU series FPGA Card

Quad Port QSFP28 100 Gigabit Xilinx® Virtex Ultrascale

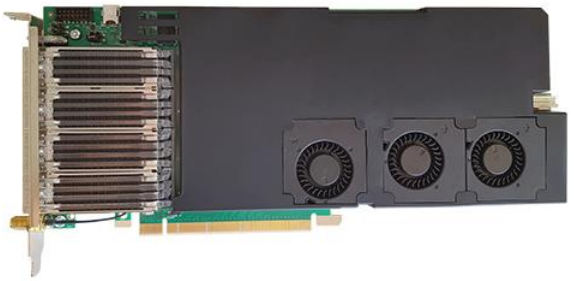
Product Description

The fb4CGg3@VU/VU+ series is a high performance OEM hardware platform intended for 10/40/25/50/100 Gigabit Ethernet via its quad QSFP28 slots.

The standard configuration is based on the Xilinx® Virtex UltraScale+ VU9P FPGA, to provide ample capacity for the quad QSFP28 interface. The card is also offered with a variety of different FPGAs to provide flexibility for the intended application - this includes both Virtex Ultrascale and the Virtex Ultrascale+ series from Xilinx.

The card is mounted with 2 x 64-bit DDR4 2400MT/s 4GB for a total of 8 GB. In addition to this it features 2 SODIMM sockets for use with DDR4 or QDRII+ modules for low latency applications.

Key Features



- Xilinx® Virtex UltraScale+ VU9P FPGA (standard configuration)
- 4 x QSFP28 ports
- 2 x 64-bit DDR4@2400MT/s
- 2 x Optional SODIMM
- Configuration flash RAM for boot images
- PCIe form-factor: 3/4 length, standard height PCIe
- On-board power and temperature sensors
- FPGA controlled link and status LEDs
- Passive cooling (optional)

Technical Specifications

IEEE standard:	IEEE 802.3 10GE, 40GE, 25GE, 100GE
Interfaces:	• Physical interface: 4 x QSFP28 slots • 2 port variant available • 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 • Data rate: 16×10, 4×40, 16×25, 4×100 Gbps
Host Interface	
PCI bus:	• 16 lanes PCIe Gen1/Gen2/Gen3 • PCIe compliant
General Technical Specifications	
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 FGPA bit file (optional)
On-board Memory:	• 2 x 64-bit DDR4@2400MT/s 4 GB • 2 x Optional SODIMM • 64-bit DDR4 @2400MT/s 4 GB • 36-bit QDRII+ @1266MT/s 288 Mb • 8 MB user configurable space in flash RAM for permanent storage • 256 MB Configuration flash RAM for boot images
On-board Clock:	• PCIe clock: 100 MHz • 200 MHz clock • 50 MHz clock • 161.13 MHz clock
FPGA Details:	• FPGA Xilinx® Virtex UltraScale+
Environment:	• Physical dimensions: 3/4 length, standard height PCIe • Power consumption: <10W with uninitialized FPGA • Operating temperature: 0 – 55°C, 30 – 130°F • Operating humidity: 20 – 80% • Hardware compliance: RoHS, CE • Active cooling (heat sink with fan) • Passive cooling (optional)
Additional Board Support:	• On-board power and temperature sensors • Board status LEDs • User configurable dual color LED • FPGA controlled Link and Activity LED for each port • PPS clock synchronization connector • PCIe AUX power connector and cable
Additional Intellectual Property Modules:	• Flash configuration I/F • 2×8 lane PCIe • DDR4 Memory controller • I2C controller • SmartNIC framework (optional) • Ultra low latency 10GE MAC (optional) • TCP-offload engine (optional)
Ordering Example:	fb4CGg3@VU09P-3-SS-1A 4-port card with the following configuration: • VU09P Virtex UltraScale+ FPGA • Speedgrade -3 (fastest available) • 288 Mb x36 SQIVe RAM mounted in SoDimm slot A • 288 Mb x36 SQIVe RAM mounted in SoDimm slot B • SMA connector for PPS signal on front panel • Heat sink with integrated UL/CE approved fan

Order Information

P/N	Description
fb4CGg3@VU080-2-00-1A	Virtex UltraScale VU80-2, No SODIMMs
fb4CGg3@VU080-2-DD-1A	Virtex UltraScale VU80-2, 2x4GB DDR4 SODIMMs
fb4CGg3@VU125-2-00-1A	Virtex UltraScale VU125-2, No SODIMMs
fb4CGg3@VU125-2-DD-1A	Virtex UltraScale VU125-2, 2x4GB DDR4 SODIMMs
fb4CGg3@VU190-2-00-1A	Virtex UltraScale VU190-2, No SODIMMs
fb4CGg3@VU190-2-DD-1A	Virtex UltraScale VU190-2, 2x4GB DDR4 SODIMMs
fb4CGg3@VU07P-2-00-1A	Virtex UltraScale+ VU7P-2, No SODIMMs
fb4CGg3@VU07P-2-DD-1A	Virtex UltraScale+ VU7P-2, 2x4GB DDR4 SODIMMs
fb4CGg3@VU09P-2-00-1A	Virtex UltraScale+ VU9P-2, No SODIMMs
fb4CGg3@VU09P-2-DD-1A	Virtex UltraScale+ VU9P-2, 2x4GB DDR4 SODIMMs
fb4CGg3@VU09P-2-RR-1A	Virtex UltraScale+ VU9P-2, 2xQDRII RAM (x36, 288Mb)
fb4CGg3@VU09P-3-00-1A	Virtex UltraScale+ VU9P-3, No SODIMMs
fb4CGg3@VU09P-3-DD-1A	Virtex UltraScale+ VU9P-3, 2x4GB DDR4 SODIMMs
fb4CGg3@VU09P-3-RR-1A	Virtex UltraScale+ VU9P-3, 2xQDRII RAM (x36, 288Mb)

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