PCI595

PCIe FPGA Carrier for FMC, Virtex UltraScale™

PCI595

Key Features

- PCIe FPGA carrier for FMC per VITA 57
- Xilinx UltraScale™ XCVU440 FPGA
- Ideal for ASIC prototyping/emulation and 100G transponder/muxponder
- Active cooling for FPGA, FMC
- Dual x8 lanes for direct connection to neighbouring FPGA card(s)
- Single bank of 64-bit wide 8 GB DDR4

Benefits

- Based on the widely-used VadaTech AMC595
- Strong BSP support and example code to support system bring-up
- Wide range of compatible FMCs, including ADC, DAC and networking
- Electrical, mechanical, software, and system-level expertise in house
- Full system supply from industry leader
- AS9100 and ISO9001 certified company

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The PCI595 is based on the Xilinx XCVU440 Virtex UltraScale FPGA, which provides 2,880 DSP slices, 88.6 Mb RAM and 5,541,000 logic cells. The FPGA interfaces directly to the FMC DP 0-9 and all FMC LA/HA/HB pairs, making it compatible with a wide range of industry standard VITA 57 modules. It also has interface to one DDR4, 64-bit wide, with 8 GB total memory. This allows for large buffer sizes to be stored during processing as well as for queuing the data to the host.

The unit has x8 PCIe edge connector routed to the FPGA PCIe Gen3 hard IP block. In addition, 16 uncommitted connection pairs are routed to a dual x8 expansion connector, providing direct connectivity to a neighbouring FPGA (e.g. via Aurora, 10G/40G, SRIO, PCIe) without the need to go through the host.

PCI595 provides active cooling of the FPGA and FMC, making it appropriate for power-hungry applications or those requiring temperature stability for good performance.

Reference Design

VadaTech provides a reference design implementation for our FPGAs, complete with VHDL source code and configuration binaries. It focuses on the I/O ring of the FPGA to demonstrate low-level operation of the interconnections between the FPGA and other circuits on the board and/or backplane. It is intended to prove out the hardware for engineering/factory diagnostics and also customer acceptance of the hardware, and can be used as a starting point for developing an end application.

FMC

VadaTech offers VITA 57 compatible FMCs providing ADC, DAC, RF transceivers and network interfaces. These FMCs are widely deployed in commercial and mil/aero form factors. Please contact VadaTech Sales for more information.

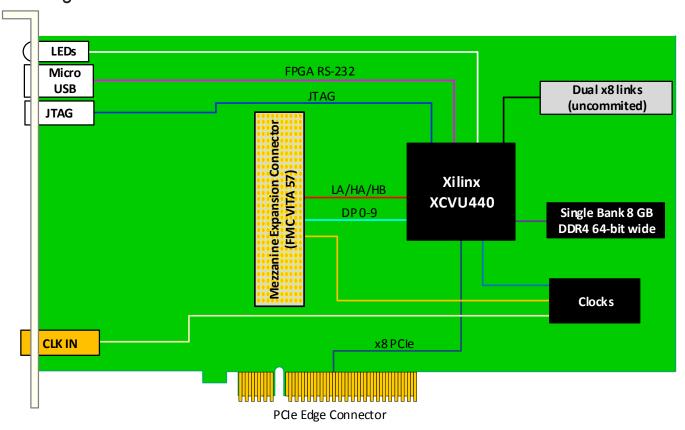*Figure 1: PCI595*

Block Diagram

Figure 2: PCI595 Functional Block Diagram

PCI595 – PCIe FPGA Carrier for FMC, Virtex UltraScale™   info@vadatech.com | www.vadatech.com

Specifications

Architecture		
Physical	Dimensions	Single Module
		Width: 4.36" (110.74 mm)
		Depth: 12.28" (311.98 mm)
Type	PCI Carrier	PCI FPGA Carrier for FMC
Standards		
PCIe	Lanes	x8
Configuration		
Power	PCI595	TBD W
Environmental	Temperature	See Ordering Options
		Storage Temperature: –40° to +85°C
	Vibration	Operating 9.8 m/s^2 (1G), 5 to 500 Hz
	Shock	30Gs on each axis
	Relative Humidity	5 to 95% non-condensing
Front Panel	Interface Connectors	Front Panel FMC
		FPGA JTAG via Micro HDMI
		FPGA RS-232 via Micro USB
		CLK IN from SSMC
	LEDs	Four Status and Four User defined
Software Support	Operating System	N/A
Other		
MTBF		MIL Hand book 217-F@ TBD hrs
Certifications		Designed to meet FCC, CE and UL certifications, where applicable
Standards		VadaTech is certified to both the ISO9001:2000 and AS9100B:2004 standards
Warranty		Two (2) years, see VadaTech Terms and Conditions

INTEGRATION SERVICES AND APPLICATION-READY PLATFORMS

VadaTech has a full ecosystem of OpenVPX, ATCA and MTCA products including chassis platforms, shelf managers, AMC modules, Switch and Payload Boards, Rear Transition Modules (RTMs), Power Modules, and more. The company also offers integration services as well as pre-configured Application-Ready Platforms. Please contact VadaTech Sales for more information.

Ordering Options

PCI595 – 000-0E0-GHJ

		G = Clock Holdover Stability
		0 = Standard (XO) 1 = Stratum-3 (TCXO)
	E = FPGA Speed	**H = Temperature Range**
	1 = Reserved 2 = High 3 = Highest	0 = Commercial (–5° to +50°C) 1 = Industrial (–20° to +65°C)
		J = Conformal Coating
		0 = No coating 1 = Humiseal 1A33 Polyurethane 2 = Humiseal 1B31 Acrylic

For operational reasons VadaTech reserves the right to supply a higher speed FPGA device than specified on any particular order/delivery at no additional cost, unless the customer has entered into a Revision Lock agreement with respect to this product

Related Products

AMC595

- Xilinx Ultra Scale XCVU440 w/ QorIQ PPC2040
- 8 GB of DDR4 (single bank of 64-bits)
- Ideal for ASIC prototyping/emulation and 100G transponder/muxponder

FMC223

- FPGA Mezzanine Card (FMC) per VITA 57
- Single module AD9739 DAC 14-bit at 2.5 GSPS
- 2 Vpp differential Analog output swing

FMC227

- FMC per VITA 57
- Excellent dynamic performance
- Front panel interface includes CLK In, Trig In and Trig Out

Contact

VadaTech Corporate Office

198 N. Gibson Road, Henderson, NV 89014

Phone: +1 702 896-3337 | Fax: +1 702 896-0332

Asia Pacific Sales Office

7 Floor, No. 2, Wenhu Street, Neihu District, Taipei 114, Taiwan

Phone: +886-2-2627-7655 | Fax: +886-2-2627-7792

VadaTech European Sales Office

VadaTech House, Bulls Copse Road, Southampton, SO40 9LR

Phone: +44 2380 016403

info@vadatech.com | www.vadatech.com

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