

# PCI595

## PCIe FPGA Carrier for FMC, Virtex UltraScale™

### Key Features

- PCIe FPGA carrier for FMC per VITA 57
- Xilinx UltraScale™ XCVU440 FPGA
- Ideal for ASIC prototyping/emulation and 100 G 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 DDR-4

### 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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# PCI595

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

The FPGA 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 PCI595 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.

## Reference Design

VadaTech provides a reference design implementation for our FPGAs, complete with VHDL source code and configuration binaries. The reference design 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 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

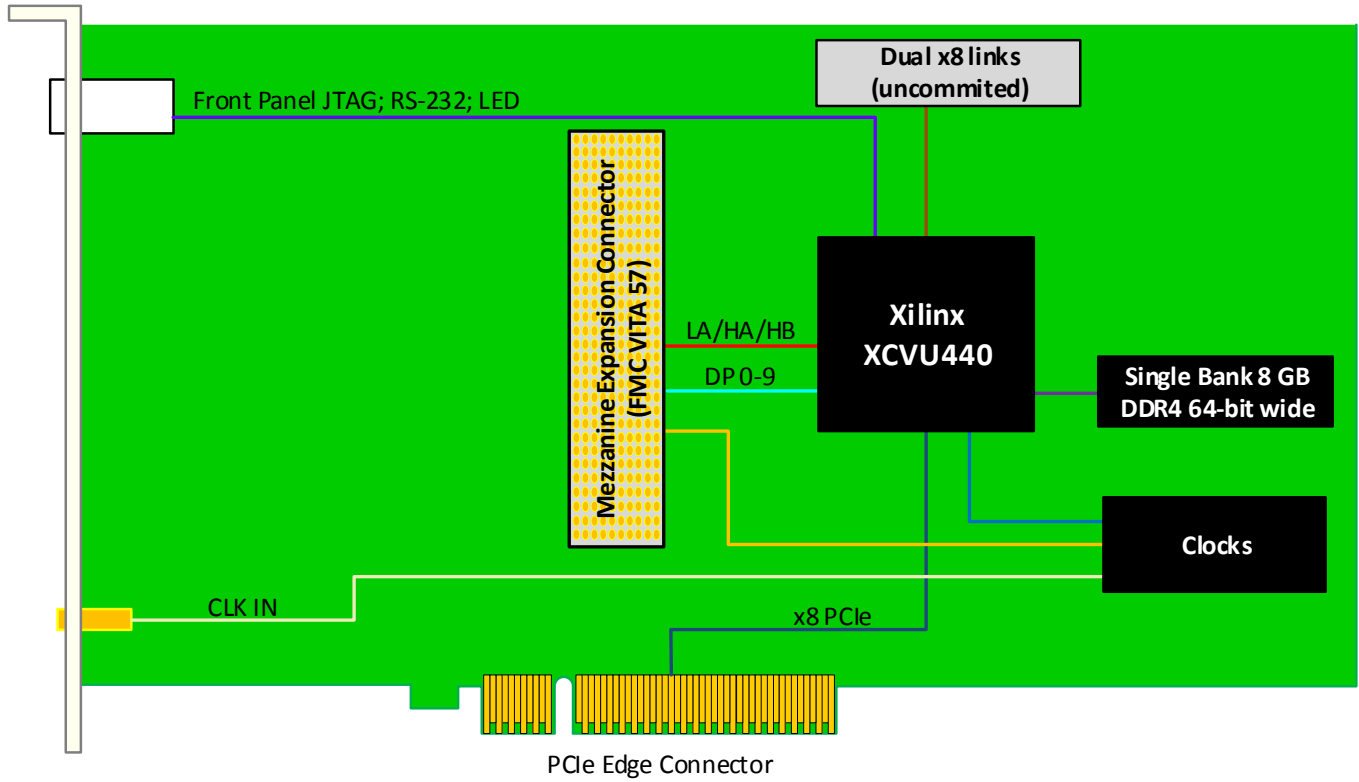


Figure 2: PCI595 Functional Block Diagram

# Specifications

Architecture		
<b>Physical</b>	<b>Dimensions</b>	Single Module
		Width: 4.36" (110.74 mm)
		Depth: 12.28" (311.98 mm)
<b>Type</b>	<b>PCI Carrier</b>	PCI FPGA Carrier for FMC
Standards		
<b>PCIe</b>	<b>Lanes</b>	X8
Configuration		
<b>Power</b>	<b>PCI595</b>	TBD W
<b>Environmental</b>	<b>Temperature</b>	See ordering options and <a href="#">environmental spec sheet</a>
		Storage Temperature: -40° to +85°C
	<b>Vibration</b>	Operating 9.8 m/s <sup>2</sup> (1 G), 5 to 500 Hz
	<b>Shock</b>	30 Gs on each axis
<b>Front Panel</b>	<b>Relative Humidity</b>	5 to 95% non-condensing
	<b>Interface Connectors</b>	Front Panel FMC
		FPGA JTAG via Micro HDMI
		FPGA RS-232 via Micro USB
		CLK IN from SSMC
<b>LEDs</b>	Four Status and Four User defined	
<b>Software Support</b>	<b>Operating System</b>	N/A
Other		
<b>MTBF</b>	MIL Hand book 217-F@ TBD hrs	
<b>Certifications</b>	Designed to meet FCC, CE and UL certifications, where applicable	
<b>Standards</b>	VadaTech is certified to both the ISO9001:2000 and AS9100B:2004 standards	
<b>Warranty</b>	Two (2) years	

## 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

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

## Related Products

AMC595



- Xilinx Ultra Scale XCVU440 w/ QorIQ PPC2040
- 8 GB of DDR-4 (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

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