



## PCU-085/115

UltraScale FPGA Carrier Board with FMC+ Site,  
x16 PCIe, and FireFly Option

### **BENEFITS**

- ADC or DAC FMC Module Flexibility
- High-speed Data Recording
- Compatible with Standard VITA 57.1 and VITA 57.4 FMC Modules
- Extensive DSP Capability

### **FEATURES**

- PCIe Standard Length Form Factor (241.3 mm)
- X16 Lanes of PCIe Gen3
- Kintex UltraScale: XCKU085 or 115 Options
- Vita 57.4 FMC+ Site
- Samtec FireFly Available

### **PERFORMANCE**

- Two Banks of 8 GB DDR4 SDRAM (ECC)
  - 64-bits(data) @ 2400 MB/s DDR each bank
  - 19 GB/s Memory Bandwidth (Per Bank)
- Transfer Rates
  - \* x16 PCIe Minimum of 10 GBytes/sec
  - \* X8 PCIe Minimum of 5 GBytes/sec
- FireFly 14 Gbps x8 = 224 Gbps Bidirectional

The PCU continues DEG's commitment to delivering high performance processing solutions for mission critical applications requiring the latest in Xilinx Kintex UltraScale FPGA computing power. The PCU is a PCI Express, standard form factor, FPGA processor board, designed to meet the needs of challenging, embedded high-performance digital signal processing applications at a competitive price point.

Xilinx Kintex UltraScale XCKU085/115 delivers impressive processing capabilities and supports operations such as: FFTs, FIR filters, fixed-point and repetitive processing tasks. The PCU FPGA node processes input from the FMC+ (Vita 57.4) site, enabling maximum application configurability and performance when coupled with DEG's market leading ADC and DAC FMC modules (250MSPS to 5.0GSPS).

In addition to the PCU's powerful FPGA processing capability, the incorporation of the Samtec FireFly enables board-to-board, on-board and system-to-system connectivity at data rates up to 14 Gbps. Optical interconnects are available through the MTP/MPO connector. The FireFly interface is optically compatible with QSFP+. A copper Firefly variant is also available.

Delphi also offers a PCU FPGA Design kit which allows customers to leverage and modify DEG source code, develop within an open architecture, and rapidly integrate user FPGA HDL with DEG's operational and validated source code. The DEG FPGA Design kit includes PCU Source code and a simulation test bench. Linux and Windows software drivers are available.

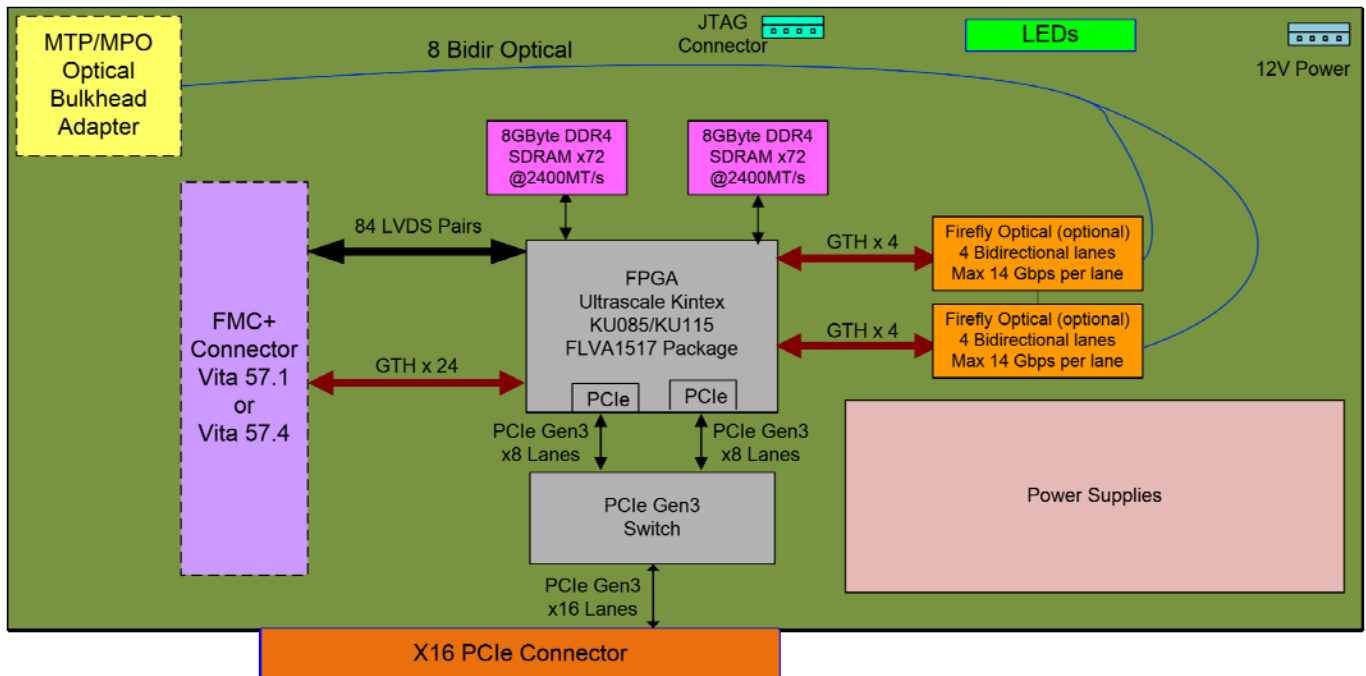
When incorporated into Delphi's industry leading DAQStream family of data recorder and playback systems, the PCU enables next-generation, high bandwidth data recording to RAID or network storage.

Delphi has been a leader in high performance digital receiver solutions for nearly 20 years. The PCU carries on this tradition.

## DEG ADC and DAC (VITA 57.1) PCU Compatible FMC Modules

ADF-D2000/1800/1600	2.0/1.8/1.6 Gs/s, 12 Bit , Dual Channel ADC Module
ADF-3000	3.0 Gs/s, 10 Bit, Single Channel ADC Module
ADF-Q1214	1.25 Gs/s, 14 Bit, Quad Channel ADC Module
ADF-Q40/Q55	400 Ms/s, 14 Bit and 550 Ms/s, 12 Bit, Quad Channel ADC Modules
ADF-Q25	250 Ms/s, 16 Bit, Quad Channel ADC Module
DAC-D2514	2.5 Gs/s, 14 Bit, Dual Channel, DAC Module
ADF-D2525	2.5 Gs/s, 14 Bit, Dual Ch. ADC & 2.5 Gs/s, 16 Bit Dual Ch. DAC
ADF-D3014	3.0 Gs/s, 12 Bit Dual Ch. ADC or 2.5 Gs/s, 14 Bit, Dual Ch. ADC
DAC-D2516/DAC-D10G16	2.5 Gs/s, 16 Bit Dual Channel DAC or 10 Gs/s 16 Bit Dual Ch. DAC

### PCU Block Diagram



### About DEG

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