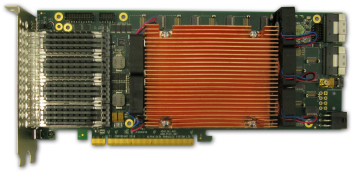
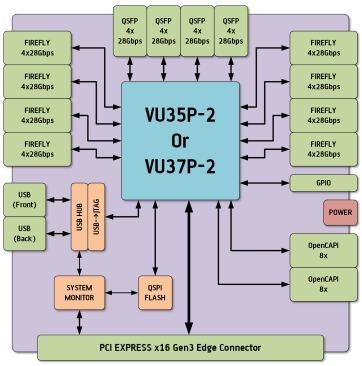
ADM-PCIE-9H7

9th April 2019 **Datasheet Revision: 2.1**





Applications

- High-Speed Communications Hub
- Data Center
- Network Accelerator
- High Performance Computing (HPC)
- Data Processing
- System Modeling
- Market Analysis

Board Features

- 2x OpenCAPI Interfaces
- 4x QSFP28 Cages
- 8x Firefly Interfaces
- Shrouded heatsink with passive and fan cooling options

FPGA Features

- 2x 4GB HBM Gen2 memory (32 AXI Ports provide 460GB/s Access Bandwidth)
- 8x 100G Ethernet MACs (including KR4 RS-FEC)
- 4x 150G Interlaken cores
- 6x PCI Express x16 Gen3 / x8 Gen 4 cores (CCIX Capable)

Summary

The ADM-PCIE-9H7 is a high-performance FPGA processing card intended for data center applications using Virtex UltraScale+ High Bandwidth Memory FPGAs from Xilinx.

The ADM-PCIE-9H7 utilizes the Xilinx Virtex UltraScale Plus FPGA family that includes on substrate High Bandwidth Memory (HBM Gen2). This provides exceptional memory Read/Write performance while reducing the overall power consumption of the board by negating the need for external SDRAM devices. There are also a large number of high speed interface options available including 100G Ethernet MACs, 150G Interlaken cores and multiple PCI Express cores. To make the most of these interfaces the ADM-PCIE-9H7 is fitted with 4 QSFP28 Cages, up to 8 Firefly interfaces (each 4x 28Gbps) and two OpenCAPI interfaces for ultra low latency communications.

Target Device

Xilinx Virtex UltraScale Plus: XCVU37P-2E (FSVH2892)

LUTs = 1304k
FFs = 2607k
DSPs = 9024
BRAM = 70.9Mb
URAM = 270.0Mb

2x 4GB HBM Gen2 memory (32 AXI Ports provide 460GB/s Access Bandwidth)
8x 100G Ethernet MACs (including KR4 RS-FEC)
4x 150G Interlaken cores
6x PCI Express x16 Gen3 / x8 Gen 4 cores (CCIX Capable)

Application Data Memory

2x on FPGA Substrate 4GB High Bandwidth Memory (HBM) - up to 460GB/s (over 32 AXI Interfaces)

Other User Memory

2kb I2C EEPROM - Non-volatile data storage for the user design (i.e. storing MAC addresses)

FPGA Configuration Memory

QSPI 2GBit Flash Memory
Configured as 2 x 1GBit zones

FPGA Configuration Modes

From onboard Flash
Through USB board management (built-in JTAG)
Through IPMI System Monitoring and Configuration interface
Partial Reconfiguration over PCI Express

Deliverables

ADM-PCIE-9H7 Board
One Year Warranty
One Year Technical Support

Host Interface

1x PCI Express Gen3 x16 or 1x/2x* PCI Express Gen4 x8 (CCIX Capable) or OpenCAPI

Board Format

3/4 Length Double Slot Width full profile x16 PCIe form Factor
WxHxD = 267.2mm x 125.2mm x 41.9mm
Weight = 1300g

Communications Interfaces

4x QSFP28 4x28Gbps - 10/25/40/100G Ethernet, PCIe, Fiber Channel, Infiniband, Aurora

2x Ultraport SlimSAS 8x25/28Gbps - OpenCAPI, 10/25/40/100G Ethernet, PCIe, Fiber Channel, Infiniband, Aurora

8*x Firefly Interfaces 4x28Gbps - 10/25/40/100G Ethernet, PCIe, Fiber Channel, Infiniband, Aurora

Input/Output Interfaces

Other Interfaces

Micro USB for JTAG support (FPGA programming and debug) and system monitor

Customizable GPIO

Board Management

The ADM-PCIE-9H7 houses a system monitoring chip which is able to provide real-time temperature, voltage and current readings of the system, as well as reconfigure programmable clocks and much more. The system monitor can be accessed directly through the USB interface via the front panel, the UART connection to the target FPGA or through the SMBus interface on the card's PCI Express edge connector. When enabled**, IPMI can also be used to communicate with the system monitor, allowing for remote communication and management with the ADM-PCIE-9H7.
** IPMI is disabled by default and should only be enabled when the board is installed in an IPMI compliant system. Please contact the factory for details on enabling IPMI on the ADM-PCIE-9H7.

Support

In development an optional integrated Board Support Package (BSP) including FPGA example designs, plug and play drivers and API.

Environmental Specification

Temperature Ranges

Operating Temperature Range : 0°C to +55°C

Storage Temperature Range : -40°C to +85°C

Operating Humidity : Up to 95% (non-condensing)

EMC Standards

FCC 47CFR Part 2
EN55022 Equipment ClassB

RoHS Directive 2011/65/EU
50581: 2012

Ordering Information		
Order Code: ADM-PCIE-9H7(S)		
Option	Code	Description of Options
FPGA Speed	S	blank = XCVU37P-2E Fitted, /3E = XCVU37P-3E Fitted

Address: Suite L4A, 160 Dundee Street, Edinburgh, EH11 1DQ, UK
Telephone: +44 131 558 2600
Fax: +44 131 558 2700
email: sales@alpha-data.com
website: http://www.alpha-data.com

Address: 611 Corporate Circle, Suite H Golden, CO 80401
Telephone: (303) 954 8768
Fax: (866) 820 9956 - toll free
email: sales@alpha-data.com
website: http://www.alpha-data.com