



## 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-2 (H2892)

## FPGA Specification

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
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## 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 4 x 512MBit 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

PCI Express Gen3 x16 / 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 - User Configurable, includes 10/25/40/100G Ethernet
- 2x Ultraport SlimSAS 8x25Gbps - OpenCAPI
- 8x Firefly Interfaces 4x28Gbps - PCIe, Fibre Channel, Infiniband, Ethernet, Aurora

## 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.



**Design Frameworks Supported**

Under Development

**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**

Address: 4 West Silvermills Lane  
Edinburgh, EH3 5BD, UK  
Telephone: +44 131 558 2600  
Fax: +44 131 558 2700  
email: [sales@alpha-data.com](mailto: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](mailto:sales@alpha-data.com)  
website: <http://www.alpha-data.com>