



## Applications

- High-Performance Data Processing
- Video Processing
- Machine Learning
- High Performance Computing (HPC)
- Network Acceleration

## Summary

The ADM-PCIE-8K5 is a half-length, low profile, PCI Express Add-In Card featuring the powerful and efficient Xilinx Kintex UltraScale KU115-2 FPGA.

The ADM-PCIE-8K5 features two independent channels of DDR4 memory capable of 2400MT/s (fitted with two 8GB ECC banks as standard 16GB - optional 32GB available), dual SFP+ cages providing 2x 10GbE/16G Fiber Channel (Gen 5) capability. Dual Firefly connectors for up to 4x16Gbps per connector. Voltage/temperature/current control and monitoring. The board is supplied with an air-cooled heat sink and optional fan for development systems without sufficient airflow over the PCIe slots. For deployment in rack-mount server systems the fan is not required (passive cooling).

IBM Power8 and CAPI compliant

## Target Device

Xilinx Kintex UltraScale: XCKU115-2 (FLVA1517E)

## FPGA Specification

LUTs = 663k  
FFs = 1326k  
DSPs = 5520  
BRAM = 75.9Mb

6x PCI Express Gen3 x8 cores

## Application Data Memory

2x FBGA-SDRAM 1G x 72 (8GiB) DDR4-2400

## Other User Memory

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

## FPGA Configuration Memory

BPI 1GiB Flash Memory  
Configured as 2 x 512MBIT zones

## FPGA Configuration Modes

From onboard Flash  
Over USB/JTAG

## Deliverables

ADM-PCIE-8K5 Board  
One Year Warranty  
One Year Technical Support  
Xilinx Vivado HDF  
Xilinx SDAccel DSA

## Board Features

- 2x SFP+ Cages
- 2x Firefly Interfaces
- Heatsink with passive and fan cooling options

## FPGA Features

- 6x PCI Express Gen3 x8 cores

## Host Interface

PCI Express Gen3 x8

## Board Format

1/2 Length Low profile x8 PCIe form Factor  
WxHxD = 173mm x 68.9mm x 17.5mm  
Weight = 200g

## Communications Interfaces

2x SFP+ 1x16Gbps - User Configurable, includes 10G Ethernet

2x Firefly Connector 4x16Gbps - PCIe, Fiber Channel, Infiniband, Ethernet, Aurora

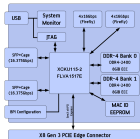
## Other Interfaces

USB board management (built-in JTAG).

## Board Management

The board management logic has the ability to monitor temperature, voltage, and current of the system to check on the operation of the board. The monitoring is implemented using a microcontroller providing a host USB interface. The information can also be accessed directly from the microcontroller over the USB interface on the front panel. When enabled\*\*, IPMI can also be used to communicate with the system monitor, allowing for remote communication and management with the ADM-PCIE-8K5.

\*\* 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-8K5



**Design Frameworks Supported**

CAP1 1.0 compliant - For Power8 systems

OpenPOWER Ready Criteria V1.0

CAP1 Snap support package available

Xilinx SDAccel support package available - Dynamic Device Support  
Archive (DSA) v5.0 developed for Xilinx Vivado 2018.1

Xilinx Hardware Definition file (HDF) available - developed for Xilinx Vivado 2018.1

**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**
**EMC Directive 2014/30/EU**

55022:2010

55032:2015

55024: 2010 + A1:2015

55035: 2017

EN 61000-3-3:2014

EN 61000-3-3:2013

**Additional Declarations:**

FCC/CFR 47: Part 15: 2016 Radiated Emissions (to 40GHz) Conducted Emissions ANSI C63.4:2014, Class A

**Other Certifications:**

KN32 Class A

KN35

VCCI (V-3/2014.04)

ICES-003:Issue 6

AS/NZS CISPR 22: 2009 + A1:2010

CISPR 22:2008

CISPR 32:2015, Class A

**Ordering Information**
**Order Code: ADM-PCIE-8K5(m)(o)(f)(g)(j)(NF)**

Option	Code	Description of Options
Memory	m	blank = 16GB (DDR4-2400) onboard memory, /32GB = 32GB (DDR4-1866) onboard memory
SFP+ Cages and Optical Modules	o	blank = SFP+ Cages only, Optionally fitted Modules /D10 = 2x 10 Gigabit SFP+ optical modules, /D14 = 2x 14 Gigabit SFP+ optical modules
FireFly® Optical Modules	f	blank = not fitted, /F = 2x 14 Gigabit FireFly® optical module - MPO Front Panel (full height bracket required)
GPIO (RS232/485)	g	blank = RS232/485 NOT available, /G = RS232/485 available
Si5328 Jitter Attenuator	j	blank = Si5328 NOT fitted, /J = Si5328 Si5328 fitted
No fan option	NF	blank = optional cooling fan installed, /NF = no fan

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