ALPHA DATA

ADM-PA101

Datasheet Revision: 0.3
16th September 2020

AD01398-???

Applications

- High performance data capture and processing
- CPU offload acceleration
- Low latency networking and analytics
- AI Inference for Data Center or Edge applications
- Performance Computing
- Industrial vision and control
- Lab-based system prototyping
- Rack level deployments

Board Features

- FMC+ Interface
- GigE Interface
- 1x Firefly (x4) Interface
- System Monitor
- Heatsink with optional fan

Summary

The **ADM-PA101** is an adaptable PCIe form factor Versal ACAP acceleration platform suitable for early development and rapid deployment of solutions based on Xilinx Versal ACAP devices.

The powerful VC1802 ACAP device provides a flexible device including 2 ARM Cortex A72 Application class CPU cores and 2 ARM Cortex R5 real-time CPU cores, coupled with 300 Adaptable Intelligent Engine VLIW processor cores capable of 100 INT8 TOPs in Machine Learning or DSP applications. These processors are complemented by a large area of 7nm Programmable Logic containing 725k LUTs, almost 1600 DSP tiles and 119Mb of very high bandwidth SRAM suitable for attaching extremely high performance and high efficiency offload acceleration to the ARM and AIE array processors. The device provides, and the board allows, access to a large number of configurable IO pins and Gigabit Transceiver ports which can connect to built-in hard-IP cores for 100G Multi-rate Ethernet, PCIe and DDR4, or can be controlled by custom IO logic in the programmable fabric supporting an incredibly wide range of custom standards and applications. The FMC+ interface on the board allows off-chip support of these interfaces through the wide range of Alpha Data and 3rd Party FMC IO adapters available.

The PCIe form factor is suitable for desktop, lab, rack mount and data center deployments in commercial temperature ranges. This allows the board to be used from development to deployment.
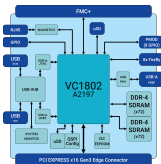
Target Device

Xilinx Versal ACAP
VM1802-2MS (A2197)

LUTs = 725k DSPs = 1586
BRAM = 28Mb URAM = 91Mb
AI Engines = 300

2x ARM® Cortex™-A72 MPCore™ - 1.5GHz
2x ARM® Cortex™-R5 MPCore™ - 600MHz

Application Data Memory

2x 16 x 72 (8GiB) DDR4-3200

Configuration Memory

x8 QSPI 2Gb storage (2x MT25QU01GBBB8E12-0SIT) Flash Memory

Configuration Modes

From onboard Flash or uSD Card
Through USB board management (built-in JTAG)
MCAP Interface for Staged Configuration and Dynamic Function eXchange

Deliverables

ADM-PA101 Board
One Year Warranty
One Year Technical Support
Xilinx Vivado board file

Host Interface

PCI Express Gen3 x16

Communications Interfaces

1x Firefly 4x28Gbps - 10/25/40/100G Ethernet, PCIe, Fiber Channel, Infiniband, Aurora

Input/Output Interfaces

FMC+ Interface

24 High-Speed differential Serial Links (up to 28Gbps) and 80 diff pairs (or 160 single ended)
GPIO

Other Interfaces

Gigabit Ethernet Interface (RJ45)

USB-A for Application use

Dual USB Configuration Sockets (front and back)

GPIO Interface (8 GPIO)

PMOD Interface (8 GPIO)

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Support

Reference Design Package available separately

Board Format

PCIe 3/4 Length, full height, Single Slot, includes front panel
WxHxD = 267.2mm x 126.3mm x 19.6mm
Weight = PCB assembly - 210g: with fans heatsink and covers - 730g

Environmental Specification

Cooling Option	Operating Temperatures		Storage Temperatures	
	Min	Max	Min	Max
AC0	0°C	55°C	-40°C	85°C

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

EMC Standards

FCC 47CFR Part 2
EN55022:2010 Equipment ClassB
EN55024:2010
EN60950-1:2006 (+A12:2011)

Ordering Information

Order Code: ADM-PA101

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