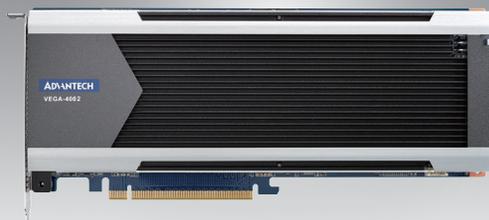


VEGA-4002

Dual Xilinx Ultrascale+ FPGA Accelerator for OTT Transcoding and Video Processing

Preliminary



Features

- Dual Xilinx Ultrascale+ FPGA (XCVU9P)
- 16GB DDR4-2400 memory per FPGA in 4-ch ECC configuration
- On-board PCIe switch supporting FPGA peer to peer data link
- Additional Aurora Link (GTy2) interconnect
- PCIe Gen-3 x16 host interface
- Full height, GPU length (10.5"/267mm) form factor
- Up to 150W power consumption
- Single-slot passive or double-slot active heatsink options
- Fully supported by Xilinx SDAccel and Vivado toolchain.

Introduction

VEGA-4002 is a FPGA-based full height GPU length single deck PCI Express card which is ideal for live video processing applications both in appliances and in scale-out data center servers.

Reconfigurable FPGA-based video processing addresses OTT infrastructure users needs for evolving multi-codec encoding and transcoding as the demand for online streamed video content grows. On top of the established video codec standards like AVC(H.264) and HEVC(H.265), OTT service providers would also consider additional use cases for other codecs like VP9 and even AV1 in the near future, so the need of processing acceleration and flexibility is crucial. The latest generation of Field Programmable Gate Arrays (FPGAs) from Xilinx offers this acceleration while retaining future-proof reconfigurable capability; and Advantech's new VEGA-4002, a dual Xilinx XCVU9P configuration, can provide access to this technology. Due to their implementation architectures, the majority of video processing applications do not make full use of the power envelope of an FPGA, so the VEGA-4002 board infrastructure is optimized for lower power operation. Consequently, the VEGA-4002 offers a higher density, more power efficient implementation for encoding and transcoding applications. For servers with efficient airflow, the VEGA-4002 can be supplied with a single slot heatsink configuration, potentially quadrupling the processing density compared to other general-purpose single chip double-width implementations. The VEGA-4002 is fully supported by the Xilinx SDAccel development environment with FFmpeg integration.

Advantech can also provide custom development support services for VEGA-4002 including FPGA IP provision and system integration, and the board can be delivered already pre-integrated in a range of server platforms. Please contact your Advantech representative for more details.

Specifications

Feature	Operating System	Linux Drivers Support Planned
	Development Kits	SDAccel Support FFmpeg, 3rd party Intellectual Property Blocks
Physical Characteristic	Interface	PCI Express Gen3 x16
	Power Consumption	Up to 150W
	Dimensions	PCI Express 10.5" Length Full Height, single-deck 266.7 x 111.15 mm
Environmental	Operating Temperature	0 to 50 degrees Celsius
	Non-operating Temperature	-40 to 85 degrees Celsius
	Operating Humidity	50 to 95% (non-condensing)
	Non-operating Humidity	50 to 95% (non-condensing)

Applications

- Video Encoding
- Video Transcoding
- Social Media Video Analytics
- Autonomous Driving
- Cloud-based Surveillance Analytics

Ordering Information

Part Number	Description
VEGA4002X0A0-ES	GPU size Video Intelligence PCIe Card