# VEGA-3304


## Features

- 1-ch 8Kp60, 4-ch 4Kp60 or 16-ch 1080p60 real-time HEVC encoding
- Main or Main 10 HEVC profiles with 8 or 10 bit depth and 4:2:0 or 4:2:2 chroma subsampling
- Video acquisition over built-in 16-ch 3G-SDI inputs or 4-ch 12G-SDI inputs
- Support for High Dynamic Range (HDR) Video
- Linux and Windows SDK including simple-to-use API and example code for FFmpeg and GStreamer multimedia frameworks
- Double width, 3/4 length PCI Express Gen3 x16, compatible with server GPU slots

## Introduction

Advantech's VEGA-3304 is the first 8K video accelerator able to perform real time, professional grade 8Kp60 HEVC encoding in an ultra-low-power PCI Express format. The new VEGA-3304 helps video equipment manufacturers efficiently cope with the processing complexity of UHD and HEVC enabling them with a powerful tool to accelerate their next- generation 4K, 8K, Virtual Reality and 360 degree video solutions. Its impressive quality, density and cost benefits can bring a competitive advantaged to a wide range of media processing applications for the broadcasting, mobile, gaming and medical markets.

Supporting 10 bit colour depth HDR and 4:2:2 chroma subsampling, the VEGA-3304 is a commercial-off-the-shelf add-in accelerator compatible with standard GPU slots that can be easily integrated into IT-based server applications. It features sixteen 3G-SDI inputs or four 12G-SDI inputs to maximize the PCI Express slot usage and can be configured for multi-channel operation. Developers can leverage Advantech's video processing SDK for Linux and Windows that includes an FFmpeg plug-in to reduce in-house development efforts and time to market.

## Specification

| | | | |
|---|---|---|---|
| Video Input | Description | VEGA-3304<br>(Not including 8K SDK, by request) | |
| | Channels | 1 (up to 8Kp60, 8bit/10bit, YUV)<br>4 (up to 4Kp60, 8bit/10bit, YUV)<br>16 (up to 1080p60, 8bit/10bit, YUV) | |
| | Video Formats | 8K, 4K, FHD | |
| | Frame Rate | 8K/7680 x 4320: 60p/59.94p/50p/30p/29.97p/25p/24p<br>4K/3840 x 2160: 60p/59.94p/50p/30p/29.97p/25p/24p<br>1920 x 1080: 60p/59.94p/50p/30p/29.97p/25p/24p<br>1280 x 720: 60p/59.94p/50p/30p/29.97p/25p/24p | |
| | Chroma Sampling Format | 4:2:2 | |
| | Interfaces | PCI express Gen3 x16 / SDI-3G x16<br>PCI express Gen3 x16 / SDI-12G x4 | |
| Video Compression | Compression | H.265 | |
| | HEVC Profile | Main / Main 10 | |
| | HEVC Tier | Main / High | |
| | HEVC Level | 1.0 / 2.0 / 2.1 /3.0 / 3.1 / 4.0 / 4.1 / 5.0 / 5.1 | |
| | Bitrate 4K format | 3 Mbps ~ 300 Mbps | |
| | Bitrate 8K format | 12 Mbps ~ 1.2 Gbps | |
| | Bit Depth | 8 / 10 | |
| | Bit Rate Control | CBR / VBR | |
| | Elementary Stream | Yes | |
| Feature | Frame rate and resolution control | Yes | |
| | Encoding control and manipulation | Yes | |
| | Full-feature API available | Yes | |
| | Dual encoding<br>(4 file from a unique video source) | Yes | |
| | GOP definition | I, IP, IPB, IBBB | |
| | Ancillary data and VBI | Yes | |
| | Operating System | Linux Kernel 3.13.0 (64-bit)/Ubuntu LTS 20.04 | Windows 8 & 8.1 (64-bit), Windows 7 (64-bit) Windows Server 2012 & 2012 R2 (64-bit), Windows Server 2008 R2 (64-bit)<br>Linux Kernel 3.13.0 (64-bit) |
| | Development Kits | FFmpeg, Microsoft DirectShow | |
| Physical Characteristic | Power Consumption | < 70W | |
| | Dimensions | PCI Express 3/4 length Full Heigh<br>234 x 111.15 x 41.19 mm | |

*Output: Auto scale to 4K/3840 x 2160p60

## Ordering Information

| Part Number | Description |
|---|---|
| VEGA-3304-S0E0 | 8Kp60/4-ch 8Kp60 HEVC Encoder Accelerator (3G SDI) |
| VEGA-3304-S0E1 | 8Kp60/4-ch 8Kp60 HEVC Encoder Accelerator (12G SDI) |