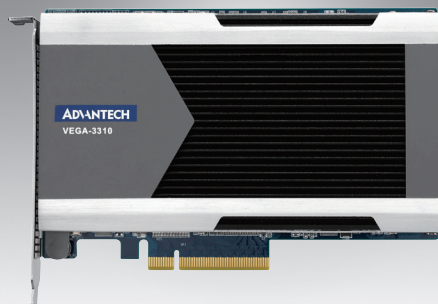


# VEGA-3310

## 4K HEVC Broadcast Video Encoding/Decoding / Transcoding Card

Preliminary



### Features

- 1-ch 4Kp120 or 2-ch 4Kp60 or 8-ch 1080p60 real-time 4:2:2 10bit HEVC, AVC & MPEG-2 encode & decode
- 1-ch 4Kp60 or 4-ch 1080p60 real-time HEVC, AVC & MPEG-2 transcode
- HFR (High Frame Rate, 4Kp120)
- Ultra-low latency support
- Less than 35W power consumption
- Simple-to-use API and example code for FFmpeg and GStreamer multimedia frameworks

### Introduction

VEGA-3310 is a high performance video processing accelerator card supporting professional grade 4K/UHD encoding, decoding and transcoding at a very low power consumption. It allows these features to be added to systems that support a standard PCI Express architecture such as PC/IT server based video applications.

The technology underlying VEGA-3310 is the latest encoding/decoding SoC. Each device supports HEVC, AVC, and MPEG2 real-time encoding, decoding, and transcoding at up to 4Kp60 with 10 bit colour depth and 4:2:2 chroma sampling. HEVC compression is particularly relevant for 4K UltraHD transmission which requires a much higher stream capacity. These bandwidth reduction improvements are achieved at the penalty of much higher computation complexity, with two general purpose server class processors required to perform a 4K 60fps software-based broadcast quality HEVC encoding in real time. The technology behind VEGA-3310 can do the same task in under 35W, and VEGA-3310 can also support up to 4Kp120 high frame rate for next generation sports broadcasts and 360 degree VR applications..

This card feature a simple-to-use API and example code for FFmpeg and GStreamer multimedia frameworks to streamline product development and integration into existing applications.

### Specification

File Based Video Input (PCI Express)	Video Encoding	H.265/HEVC	Resolution (x1ch)	3840x2160 /1920x1080 / 1280x720 /720x480			
			Resolution (Multi-channel more than x2ch)	1920x1080 /1280x720 /720x480			
			Frame rate/Scan mode	60p/59.94p/50p/30p/29.97p/25p/24p / 59.94i/50i			
			Bit depth	8, 10 bits			
			8-bit encoding from 10-bit raw data	Supported			
			Chroma Sampling	4:2:0 / 4:2:2			
			Rate control	CBR / VBR / Capped VBR			
			GOP length	One Picture (I only) / 0.5sec / 1 sec			
			GOP structure	I picture only / IPPP /IBB/IBBB/IBBBBBBB (Hierarchical GOP:supported) / Closed GOP/ Open GOP / Temporal ID on/off for hierarchical GOP / Scene change / Adaptive GOP			
			CPB delay control	3s, 1s, 0.5s			
			Filter	Fixed strength			
			Low latency	5,6 frame (with IPPPP)			
			Ultra low-latency	< 1 frame			
					H.264/AVC	Resolution (x1ch)	3840x2160 /1920x1080 / 1280x720 /720x480
						Resolution (Multi-channel more than x2ch)	1920x1080 /1280x720 /720x480
Frame rate/Scan mode	60p/59.94p/50p/30p/29.97p/25p/24p / 59.94i/50i						
Bit depth	8, 10 bits						
8-bit encoding from 10-bit raw data	Supported						
Chroma Sampling	4:2:0 / 4:2:2						
Rate control	CBR / VBR / Capped VBR						
GOP length	One Picture (I only) / 0.5sec / 1 sec						
GOP structure	I picture only / IPPP /IBB/IBBB / Closed GOP/ Open GOP / Scene change / Adaptive GOP						
CPB delay control	1s, 0.5s						
Filter	De-blocking filter / Fixed strength						
Low latency	5,6 frame (with IPPPP)						

## Specifications (Cont.)

File Based Video Input (PCI Express)	Video Encoding	MPEG-2	Resolution (x1ch)	1920x1080 / 1280x720 /720x480	
			Resolution (Multi-channel more than x2ch)	1920x1080 /1280x720 /720x480	
			Frame rate/Scan mode	30p/29.97p/25p/24p / 59.94i/50i	
			Bit depth	8 bits	
			Chroma Sampling	4:2:0	
			Rate control	CBR	
			GOP length	One Picture (I only) / 0.5sec / 1 sec	
			GOP structure	I picture only / IPPP / IBB / Closed GOP/Open GOP / Scene change / Adaptive GOP	
	Video Decoding	H.265/HEVC	Resolution (x1ch)	3840x2160 /1920x1080 / 1280x720 /720x480	
			Frame rate/Scan mode	60p/59.94p/50p/30p/29.97p/25p/24p / 59.94i/50i	
			Bit depth	8, 10 bits	
			Chroma Sampling	4:2:0 / 4:2:2	
			H.264/AVC	Resolution (x1ch)	3840x2160 /1920x1080 / 1280x720 /720x480
				Frame rate/Scan mode	60p/59.94p/50p/30p/29.97p/25p/24p / 59.94i/50i
		Bit depth		8, 10 bits	
Chroma Sampling		4:2:0 / 4:2:2			
MPEG-2		Resolution (x1ch)		1920x1080 / 1280x720 /720x480	
		Frame rate/Scan mode		30p/29.97p/25p/24p / 59.94i/50i	
		Bit depth	8 bits		
		Chroma Sampling	4:2:0		
	Audio Encoding	Control	Single ch	Supported	
	Audio Decoding	Control	Single ch	Supported	
Feature	Operating System	Windows Server 2012 & 2012 R2 (64-bit), Windows Server 2008 R2 (64-bit) / Linux Kernel 3.13.0 (32-bit, 64-bit)			
	Development Kits	FFmpeg, Microsoft DirectShow			
Physical Characteristic	Video Input/Output Interfaces	PCI express Gen3 x8			
	Power Consumption	<35W			
	Dimensions	PCI Express Half Length Full Height / 167.65 x 111.15 mm			
Environmental	Operating Temperature	-10 to 70 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)			

## Ordering Information

Part number	Description
VEGA-3310E	4Kp120 HEVC Broadcast Video Encoding / Decoding Card (M30)