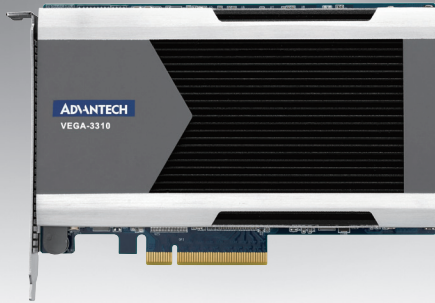


VEGA-3310

4K HRVC & AVC Broadcast Video Encoding/Decoding/Transcoding Card

Preliminary



Features

- 2-ch 4Kp60 or 8-ch real-time 4:2:2 10bit HEVC, AVC & MPEG-2 encode, decode & transcode
- 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	Channel	2 (up to 4Kp60, 8bit/10bit, YUV) 8 (up to 1080p60, 8bit/10bit, YUV)	
			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/ Capped VBR	
			GOP length	One Picture (I only) / 0.5sec / 1 sec	
			GOP structure	I picture only/IPPP/IBB /Closed GOP/Open GOP/ Adaptive GOP (Scene change)	
			CPB delay control	3s, 1s, 0.5s	
			Filter	De-blocking filter/ Fixed strength	
			Low latency	5, 6 frame (GOP=IBBB)	
			Ultra low-latency	< 1 frame	
			HDR	supported	
				Channel	2 (up to 4Kp60, 8bit/10bit, YUV) 8 (up to 1080p60, 8bit/10bit, YUV)
				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/ Capped VBR	
			GOP structure	I picture only/IPPP/IBB /Closed GOP/Open GOP/ Adaptive GOP (Scene change)	
			CPB delay control	1s, 0.5s	
			Filter	De-blocking filter / Fixed strength	
			Low latency	5,6 frame (with IPPP)	

Specifications (Cont.)

File Based Video Input (PCI Express)	Video Decoding	H.265/HEVC	Channel	2 (up to 4Kp60, 8bit/10bit, YUV) 4 (up to 1080p60, 8bit/10bit, YUV)
			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	Channel
	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	60p/59.94p/50p/30p/29.97p/25p/24p/59.94i/50i	
		Bit depth	8 bits	
Audio Encoding	Control	Single ch	Supported	
Audio Decoding	Control	Single ch	Supported	
Video Transcoding (PCIe in / PCIe out)	N:N	HEVC to HEVC	Supported	
		HEVC to AVC	Supported	
		AVC to HEVC	Supported	
		AVC to AVC	Supported	
	N:M	HEVC to HEVC	Supported	
		HEVC to AVC	Supported	
Feature	Operating System	Windows Server 2012 & 2012 R2 (64-bit), Windows Server 2008 R2 (64-bit) / Linux Kernel 3.13.0 (64-bit)		
	Streaming Protocol (input)	RTMP/RTP/TS over IP(UDP)/HTTP		
	Streaming Protocol (output)	description: RTMP/RTP/TS over IP(UDP)/HTTP		
	Development Kits	FFmpeg 3.4.1, 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-3310-A0	4K HEVC & AVC Broadcast Video Encoding/Decoding/Transcoding Card