VEGA-3314

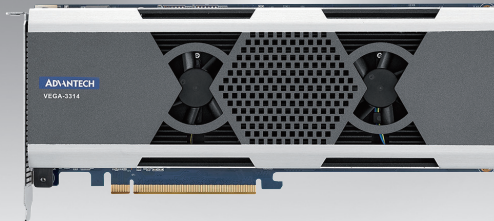## 4-ch 4K HEVC/AVC/MPEG2 Broadcast Video Encoding/Decoding / Transcoding Card

Preliminary

Features

- 4-ch 4Kp60 or 16-ch 1080p60 real-time 4:2:2 10bit HEVC, AVC & MPEG-2 encode & decode
- Ultra-low latency support
- Less than 35W power consumption
- Simple-to-use API and example code for FFmpeg and GStreamer multimedia frameworks

Introduction

VEGA-3314 is the world's first commercial-off-the-shelf video processing accelerator able to perform professional-grade real-time transcoding of four 4K resolution video streams in an ultra-low-power and easy-to-integrate PCI Express format. It integrates eight SoCs supporting UHD, HD and SD formats and HEVC, AVC and MPEG-2 codecs including 10-bit profiles and 4:2:2 chroma subsampling.

The VEGA-3314 unrivalled performance can be leveraged by a wide range of cloud applications. It supports both encoding and transcoding workflows while the bit rate can be configured from 3Mbps to more than 600Mbps per 4Kp60 HEVC encoded stream to serve a great variety of video delivery scenarios. Its double height board profile is compatible with professional GPU-ready slots. The VEGA-3314 also features an on-board video sharing capability which, coupled with scaling features, allow multiple OTT target profiles to be generated from a single encoded 4K video input stream.

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	Channels	4 (up to 4Kp60, 8bit/10bit, YUV) / 16 (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	3s, 1s, 0.5s
			Filter	De-blocking filter / Fixed strength
			Low latency	5,6 frame (GOP = IBBB)
			Ultra low-latency	< 1 frame
			HDR	Supported
		H.264/AVC	Channels	4 (up to 4Kp60, 8bit/10bit, YUV) / 16 (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/IBBB / 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 (GOP = IPPP)

Last updated: 21-May-2018

Specifications (Cont.)

File Based Video Input (PCI Express)	Video Decoding	H.265/HEVC	Channels	4 (up to 4Kp60, 8bit/10bit, YUV) / 8 (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	Channels	4 (up to 4Kp60, 8bit/10bit, YUV) / 8 (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
		MPEG-2	Channels	8 (up to 1080i60, 8bit/10bit, YUV)
			Resolution (x1ch)	1920x1080 / 1280x720 /720x480
			Frame rate/Scan mode	60p/59.94p/50p(up to 720p), 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
	Video Transcoding (PCIe in / PCIe out)	N:N	HEVC to HEVC	Supported
			HEVC to AVC	Supported
			AVC to HEVC	Supported
			AVC to AVC	Supported
			MPEG2 to HEVC	Supported
			MPEG2 to AVC	Supported
		N:M	HEVC to HEVC	Supported
			HEVC to AVC	Supported
			AVC to HEVC	Supported
			AVC to AVC	Supported
			MPEG2 to HEVC	Supported
			MPEG2 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)
			Development Kits	Ffmpeg 3.4.1, Microsoft DirectShow
			Streaming Protocol (input)	RTSP/RTMP/RTP/TS over IP (UDP)/HTTP
			Streaming Protocol (output)	RTSP/RTMP/RTP/TS over IP (UDP)/HTTP
			System Application	WEB GUI
Physical Characteristic			Video Input/Output Interfaces	PCI express Gen3 x16
			Power Consumption	<35W
			Dimensions	PCI Express 105" Length Full Height, single-deck / 266.7 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-3314-A0T0	4-ch 4K HEVC/AVC Real-time Encoding & Decoding Card