

VEGA-3314

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



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 four 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 features 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)	

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	
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