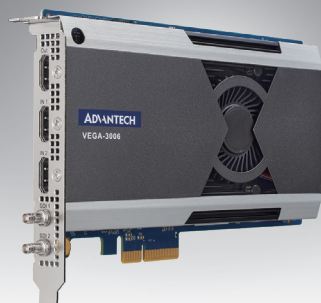


# VEGA-3006

## Multi-channels UHD video PCIe card

Preliminary



### Features

- 2x 3G/12G-SDI(HD-BNC) input/output
- 2x HDMI 2.0 video input & 1x HDMI video output (Playback)
- Up to 2ch UHD video RAW input
- Up to 2ch UHD HEVC/AVC encoding
- Multi-channel Realtime video codec

### Introduction

VEGA-3006 delivers high-performance real-time UHD video capture and encoding capabilities. Featuring 2x 3G/12G-SDI (HD-BNC) input/output or 2x HDMI 2.0 video input along with 1x HDMI video output for playback, it supports up to 2-channel UHD RAW input or 2-channel UHD HEVC/AVC encoding.

Designed for next-generation media workflows, VEGA-3006 enables multi-channel real-time video codec processing, making it ideal for broadcast, live production, and post-production environments. The card is engineered for professional-grade performance and offers developers a straightforward integration path with a simplified API and example code optimized for FFmpeg multimedia frameworks. Whether for UHD acquisition, processing, or delivery, VEGA-3006 is a powerful and flexible solution to meet modern video demands.

### Specifications

Acquisition (12G-SDI)	Feature List	SMPTE ST 259 SMPTE RP 165 SMPTE ST 292 SMPTE ST 372 SMPTE ST 424 SMPTE ST 2081-1 SMPTE ST 2082-1 SMPTE ST 352	
	Video input	Resolution	(DCI 4K) 4096 x 2160p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60 (UHD) 3840 x 2160p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60 (FHD) 1920 x 1080p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60 (FHD) 1920 x 1080p 50, 59.94, 60 (level B) (FHD) 1920 x 1080i 50, 59.94, 60 (HD) 1280 x 720p 50, 59.94, 60 (SD) 576i 50 & 480i 59.94, 60
		Pixel Format	NV12 / NV16 / YUY2 / P010 / P210
		Sampling	422/420
		Bit Depth	8 /10 bits
		HDR	Supported
	Audio input	Sample Frequency	48KHz
		Sample Depth	24 bits
		Channel Layouts	PCM 16 channels
	Video output (Playback)	Resolution	(UHD) 3840 x 2160p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60 (FHD) 1920 x 1080p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60 (FHD) 1920 x 1080p 50, 59.94, 60 (level B) (Option) (FHD) 1920 x 1080i 50, 59.94, 60 (HD) 1280 x 720p 50, 59.94, 60 (SD) 576i 50 & 480i 59.94, 60 (Option)
		Pixel Format	NV12 / NV16 / YUY2 / P010 / P210
		Sampling	422/420
Bit Depth		8 /10 bits	
HDR		Supported	
Audio output	Sample Frequency	48KHz	
	Sample Depth	24 bits	
	Channel Layouts	PCM 16 channels	
Ancillary Data		Supported	
Acquisition (HDMI 2.0)	Video input	Resolution	(DCI 4K) 4096 x 2160p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60 (YUV 444/422, 8/10bits) (DCI 4K) 4096 x 2160p 50, 59.94, 60 (YUV420, 8bits) (UHD) 3840 x 2160p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60 (YUV 444/422, 8/10bits) (UHD) 3840 x 2160p 50, 59.94, 60 (YUV420, 8bits) (FHD) 1920 x 1080p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60 (YUV 444/422, 8/10bits) (FHD) 1920 x 1080i 50, 59.94, 60 (YUV 444/422, 8/10bits) (HD) 1280 x 720p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60 (YUV 444/422, 8/10bits) (SD) 576p 50 (YUV 444/422, 8/10bits) (SD) 576i 50 (YUV 444/422, 8/10bits) (SD) 480p 59.94, 60 (YUV 444/422, 8/10bits) (SD) 480i 59.94, 60 (YUV 444/422, 8/10bits)
		Pixel Format	NV12 / NV16 / YUY2 / P010 / P210 / RGB
		Sampling	444/422/420
		Bit Depth	8 /10 bits
		HDR	Supported

## Specifications (Cont.)

Acquisition (HDMI 2.0)	Audio input	Sample Frequency	48KHz		
		Sample Depth	24 bits		
		Channel Layouts	PCM 8 channels		
	Video output (Loopback)	Resolution	(DCI 4K) 4096 x 2160p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60 (YUV 444/422, 8/10bits)		
			(DCI 4K) 4096 x 2160p 50, 59.94, 60 (YUV420, 8bits)		
			(UHD) 3840 x 2160p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60 (YUV 444/422, 8/10bits)		
			(UHD) 3840 x 2160p 50, 59.94, 60 (YUV420, 8bits)		
			(FHD) 1920 x 1080p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60 (YUV 444/422, 8/10bits)		
			(FHD) 1920 x 1080i 50, 59.94, 60 (YUV 444/422, 8/10bits)		
		Sampling	444/422/420		
Bit Depth		8 /10 bits			
HDR		Supported			
Audio output	Sample Frequency	48KHz			
	Sample Depth	24 bits			
	Channel Layouts	PCM 8 channels			
Ancillary Data		Supported			
Encoding (12G-SDI)	Video	Resolution	(DCI 4K) 4096 x 2160p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60		
			(UHD) 3840 x 2160p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60		
			(FHD) 1920 x 1080p 23.98, 24, 25, 29.97, 30,50, 59.94, 60		
			(FHD) 1920 x 1080i 50, 59.94, 60		
			(HD) 1280 x 720p 50, 59.94, 60		
			Pixel Format	NV12 / NV16 / P010 / P210	
			Sampling	422/420	
			Bit Depth	8 /10 bits	
	Encoding format	HEVC/AVC			
	Bitrate	3Mbps – 300Mbps			
Rate Control	CBR /VBR				
HDR	HDR10/HLG/Low latency				
Audio	Encoding format	AAC_LC, HE-AAC-V1, HE-AAC-V2			
	Channel	8 channels			
Encoding (HDMI 2.0)	Video	Resolution	(DCI 4K) 4096 x 2160p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60		
			(UHD) 3840 x 2160p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60		
			(FHD) 1920 x 1080p 23.98, 24, 25, 29.97, 30,50, 59.94, 60		
			(FHD) 1920 x 1080i 50, 59.94, 60		
			(HD) 1280 x 720p 50, 59.94, 60		
			Pixel Format	NV12 / NV16 / P010 / P210	
			Sampling	422/420	
			Bit Depth	8 /10 bits	
	Encoding format	HEVC/AVC			
	Bitrate	3Mbps – 300Mbps			
Rate Control	CBR /VBR				
HDR	HDR10/HLG/Low latency				
Audio	Encoding format	AAC_LC, HE-AAC-V1, HE-AAC-V2			
	Channel	8 channels			
Toolkit	OS	Windows/Linux driver (Linux Kernel 5.15 Above) & SDK			
	Development Kits	Capture / Playback / PCIe card management			
Physical Characteristic	Interface	Input	12G-SDI x 2 Shared (BNC type) 12G-SDI channel: 2ch Audio: SDI embedded audio HDMI 2.0 x 2 input PCIe Gen3 x4 input		
		Output	12G-SDI x 2 Shared (BNC type) 12G-SDI channel: 2ch Audio: SDI embedded audio HDMI 2.0 x 1 output PCIe Gen3 x4 output		
	Power Consumption	< 20W			
	Dimensions	PCI Express Half Length Full Height 167.65 x 111.15 mm			
	Environmental	Operating Temperature	0 to 45 °C		
Non-operating Temperature		-40 to 85 °C			
Operating Humidity		95% RH @ 50°C, non-condensing			
Non-operating Humidity		95% RH @ 50°C, non-condensing			

## Ordering information

Part Number	Description
VEGA-3006-S1A1	Multi-channels UHD video acquisition and encode card