

# ULTIMA 4ch™ H.265/IP: 4:2:2

Real time 4 channel H.265/HEVC FPGA based mezzanine encoder with 4:2:2 and 4:2:0 support for cost effective multichannel content delivery of 1080i or 1080p over IP. Inputs are 3G or 1G SDI and can accommodate 720p, 1080i, or 1080p inputs. All four outputs can be multiplexed. Supports AAC audio with one audio pair available for each input. Designed to pay for itself in less than a year. This unit also supports 4K via 4 each 3G inputs.



ATSC 3.0

H.265  
HEVC

ip.tv

4K

## Features

- Real-time high bit rate encoding of four HD inputs
- ATSC 3.0 or MPEG TS multiplex
- Very low encoding latency
- Robust 24/7 continuous operation with guaranteed 50,000 MTBF
- HEVC Main/Main10 encoder
- 4:2:2 10-bit encoding at 50/59.94 fps
- Supports immersive 3D audio encoder
- Choice of quad 3G-SDI/3G-SDI/HD-SDI inputs
- MPEG TS output via DVB-ASI and IP
- 1 RU 19 inch rack mountable system
- Redundant Power Supply
- Works as a 4K Encoder

## Applications

- News, satellite, and sports contribution
- Event streaming via ISPs or CDNs
- Cost effective content distribution over expensive circuits
- Saving money on HD content delivery
- Encoder for multi camera "shoots" at sporting events or concerts

## Overview

H.265 or HEVC is the latest encoding algorithm that is now available to transport video. It is the technological evolution of MPEG -2 and H.264. Economic studies show that utilizing it will often pay for itself in less than one year. Due to lack of content, 4K content distribution has not been widely adopted yet, but H.265 makes perfect sense, particularly across content delivery backbones.

The ULTIMA is a hardware based encoder that is designed for high end contribution quality encoding. It is targeted at both telcos and broadcasters.

The ULTIMA works well as a 4K H.265 4:2:2 encoder. But its highest and best use is as a four channel HD HEVC encoder. If you need to deliver multiple 1K mezzanine quality content across considerable distances via H.265 then you should consider this.

**DVEO**  
Digital Video ExtraOrdinaire™

Computer Modules, Inc.

11409 West Bernardo Court

San Diego, CA 92127

Tel: 858-613-1818 Fax: 858-613-1815

[www.dveo.com](http://www.dveo.com)

## Specifications

### Uncompressed Input

Physical Layer:	4x 75 Ω BNC 12G-SDI: SMPTE ST-2082 Quad 3G-SDI: SMPTE 425-5 Level A 3G-SDI: SMPTE 424M HD-SDI: SMPTE 292M
Supported formats:	<ul style="list-style-type: none"> <li>3840 x 2160p @ 60 Hz, 59.94 Hz, 50 Hz, 60 Hz, 29.97 Hz, 25 Hz, 24 Hz, 23.976 Hz</li> <li>1920 x 1080p @ 60 Hz, 59.94 Hz, 50 Hz, 30 Hz, 29.97 Hz, 25 Hz, 24 Hz, 23.976 Hz</li> <li>1920 x 1080i @ 59.94 Hz, 50 Hz</li> <li>1280 x 720p @ 60 Hz, 59.94 Hz, 50 Hz</li> <li>4:2:2 8/10 bit uncompressed input</li> </ul>

### Compressed Output

Compressed Output	MPEG-2 TS
Physical Layers:	DVB-ASI (EN50083-9), 2x 75 Ω BNC Ethernet
Bit Rates:	.0 to 60 mbps

### Video Encoding

Codec:	H.265/HEVC Main/Main 10 @ Level 5.1
Resolution:	3840 x 2160p (one channel) 1920 x 1080p / 1920 x 1080i / 1280 x 720p (more than 2 channels)
Pixel Format:	4:2:0 8/10 bit, 4:2:2 10 bit
Rate Control:	CBR
Latency:	1.5 seconds

### Audio Encoding

Input:	SMPTE 299M Embedded Audio
Codecs:	AAC audio (AAC LC, HE-AAC v1, and HE-AAC v2)
Multichannel Encoding:	Supports up to 8 channels (stereo and 5.1/7.1 surround)
Sampling Rate:	48 KHz
Bit Depths:	16/24 bit

### Rear Inputs/Outputs

Network:	Two RJ45 1 Gigabit Ethernet LAN ports Two RJ45 10 Gigabit Ethernet LAN ports One RJ45 dedicated IPMI LAN port
USB:	Two USB 3.0 ports
Video Output:	One VGA port

### Front Inputs/Outputs

Display:	20 x 4 character LCD panel
Key Buttons:	Six push buttons with LED

### System Management

System Management:	Via RJ45 Ethernet LAN port
Monitoring System Health Status:	Via IPMI LAN port

## Ordering Information

ULTIMA 4ch H.265/IP: 4:2:2

## Specifications – Continued

### Power Supply

Power Supply:	Hot-swappable 400W+400W Redundant power supply
Input Voltage Range:	90-264 VAC
Input Frequency Range:	47-63 Hz
Power Consumption:	Up to 120W
Safety (Power Supply only):	UL 1950 and cUL c22.2 No.950 EN 60950

### Operating Environment

Active Cooling:	Three temperature-controlled fans
Operating Temperature:	0°C to 40°C (32°F to 104°F)
Storage Temperature:	-40°C to 70°C (-40°F to 158°F)
Operating Humidity:	10% to 90% non-condensing
Electromagnetic Compliance:	FCC Part 15 Class A CE Mark (EN 55022 / CISPR 22 Class A and EN 55024 / CISPR 24 Class A)

### Physical

Dimensions – 1 RU:	17.24 x 15.87 x 1.73 inches (without ears) 438 x 403 x 44 mm
Weight:	17.6 lbs. (8 kg)

## Inputs/Outputs

