CatCast

## HP8224H — Multi-Channel HEVC/H.264 HD Encoder

NEW

Product Outline

HP8224H is Catcast's new generation of HEVC/H.265 & MPEG 4 AVC/H.264 encoder which is developed based on EHP200 platform. It supports up to 3*H.265/H.264 encoding modules with 4 HDMI or SDI interfaces on each module. With B frame (IBBP) GOP structure and advanced compressing algorithm, this device enhances picture quality and provides ultra low bitrate to save 75% bandwidth compared with H.264/AVC and it supports up to 1080P 60Hz resolution.

It also has 1 data port (1000M/100M) for IP output (1 MPTS and max 4 SPTS per module) over UDP/RTP/RTSP protocol and 1 Network Management port to manage the 3 modules individually through 3 different IP addresses.

In conclusion, its high performance and cost-effective design make this device widely used in CATV digital head-end, business application, IPTV/OTT system, etc.

Principle Chart of Per Module
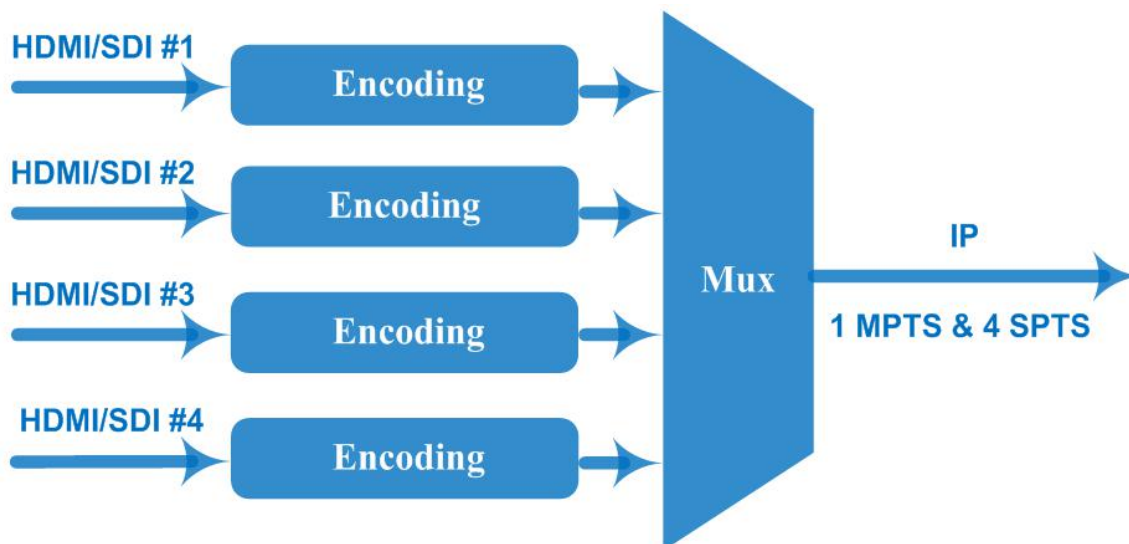
◆ **Video Encoding:** HEVC/H.265 & MPEG 4 AVC/H.264

◆ **Audio Encoding:** MPEG-1 Layer 2, LC-AAC, HE-AAC, HE-AAC V2, AC3 Passthrough

◆ **Ultra Low Bit Rate:** Save 75% Bandwidth

◆ **Enhance Picture Quality:** Advanced Compressing Algorithm

◆ **Advanced Pretreatment:** De-interlacing, Noise Reduction, Sharpening

◆ **OSD (Logo, QR Code)** insertion—Optional as per order

News Channel/Movies
1Mbps Full HD

Sports Channel
2Mbps Full HD

HEVC H.265 - HIGH EFFICIENCY VIDEO CODING — B frame(IBBP) GOP Structure

HDMI HIGH-DEFINITION MULTIMEDIA INTERFACE — HDMI 1.4

FullHD 1920×1080P — Full HD 1080P

HDCP HIGH-BANDWIDTH DIGITAL CONTENT PROTECTION — HDCP 1.4

Decoder/STB — STB Available with Ensurity CAS
Decoding Chipset: Montage CS8051
NationalChip GX3201H

Technical Specification

Input	4/8/12×HD-SDI or HDMI(1.4) input for option, HDCP 1.4			
Video Encoding	Encoding Format	HEVC/ H.265, MPEG 4 AVC/H.264		

Resolution (HP8224HV)

Input	Output	
	HEVC/H.265	**MPEG-4 AVC/H.264**
4*1080P-50	4*1080P-50	4*1080P-25 2*1080P-50
4*1080P-60/59.94	4*1080P-60, 4*1080P-59.94	4*1080P-30 4*1080P-29.97 2*1080P-60 2*1080P-59.94
4*1080I-50	4*1080P-50, 4*1080P-25	4*1080I-50 4*1080P-25 2*1080P-50
4*1080I-60/59.94	4*1080P-60, 4*1080P-30	4*1080I-60 4*1080P-30 2*1080P-60
4*720P-50	4*720P-50	4*720P-50
4*720P-60/59.94	4*720P-60, 4*720P-59.94	4*720P-60 4*720P-59.94

Resolution (HP8224H)

Input	Output	
	HEVC/H.265	**MPEG-4 AVC/H.264**
4*1080P-50	4*1080P-50	4*1080P-50
4*1080P-60/59.94	4*1080P-60, 4*1080P-59.94	4*1080P-60 4*1080P-59.94
4*1080I-50	4*1080P-50, 4*1080P-25	4*1080P-25 4*1080P-50 4*1080I-50
4*1080I-60/59.94	4*1080P-60, 4*1080P-30	4*1080P-30 4*1080P-60 4*1080I-60
4*720P-50	4*720P-50	4*720P-50
4*720P-60/59.94	4*720P-60, 4*720P-59.94	4*720P-60 4*720P-59.94

Chroma	4:2:0	
Bitrate (per channel)	0.5Mbps~20Mbps (HEVC/ H.265) 4 Mbps~20Mbps (MPEG 4 AVC/H.264)	
Rate Control	CBR/VBR	
GOP Structure	IBBP, IPPP	
Advanced Pretreatment	De-interlacing, Noise Reduction, Sharpening	

Audio Encoding	Encoding Format	MPEG-1 Layer 2, LC-AAC, HE-AAC, HE-AAC V2, AC3 Passthrough
	Sampling rate	48KHz
	Bit-rate (each channel)	48Kbps~384Kbps (MPEG-1 Layer 2 & LC-AAC) 24 Kbps~128 Kbps (HE-AAC) 18 Kbps~56 Kbps (HE-AAC V2)
	Audio Gain	0~255
Stream output	1 MPTS and 4 SPTS output over UDP/RTP/RTSP per module, Base-T Ethernet interface (1000M/100M self-adaption) (unicast/ multicast) IP null packet filterd	
System	Web based management	
	Chinese-English control interface	
	Ethernet software upgrade	
Miscellaneous	Dimension (W× L× H)	482mm×328mm×44mm
	Approx weight	5kg
	Temperature	0~45℃(work), -20~80℃（Storage）
	Power	AC 100V-220V±10%, 50/60Hz

HEVC/H.265 encoder's advantages

1. Providing smooth TS for modulators

Catcast HEVC/H.265 encoder adopts Fujitsu chip which offers stable bitrate with lower fluctuation compared with other encoding chips, so it provides smooth TS for modulators. It is widely used in variety of digital distribution systems such as CATV digital head-end, satellite and terrestrial digital TV, etc.

2. Encoding with highest compression format—B frame (IBBP)

What is B Frame?

There are 3 major picture types used in the different video algorithms, they are I, P and
B. They are different in the following characteristics:

I‑frames are the least compressible but don't require other video frames to decode.

P‑frames can use data from previous frames to decompress and are more compressible than I‑frames.

B‑frames can use both previous and forward frames for data reference to get the highest amount of data compression.

Frame Type	Byte of data/KB	Compression Ratio
I	18	7:1
P	6	20:1
B	2.5	50:1