Cortina 4K 3G HD-SDI: ATSC 3.0™

Real time 4K Ultra HD 4:2:2 or 4:2:0 Live multichannel H.265/HEVC encoder/streamer with ATSC 3.0 compatible MMT IP or TS output. Features four 3G-SDI inputs or one optional 12G-SDI input. Output is ATSC 3.0 MMT over IP, TS over IP, MPEG-DASH, or optional DVB-ASI. Audio support includes Dolby® Digital® AC-4, MPEG-H 3D, and AAC. Supports MMT, ROUTE, and DASH. Cost effective multipurpose UHD/H.265 encoder.

ip:tv

4K H.265 HEVC
Real 4K = H.265 x 3840 x 2160

ATSC 3.0

HDR

Features

- 60 fps 4k Ultra HD 3840 x 2160 H.265/HEVC real time encoder
- Inputs:
  - Four 3G SDI inputs (SMPTE 424M/ 425M), or
  - One optional 12G HD-SDI input
- Outputs:
  - ATSC 3.0 IP (MMT/ROUTE)
  - MPEG-DASH
  - MMT over IP (UDP/RTP) or optional DVB-ASI output
- HDR10 (PQ10), HLG
- Single 4K (3840 x 2160p) encoding or four statistically multiplexed simultaneous 1080p/720p encodings
- Video encoding:
  - HEVC (H.265) Main/Main10@L5.1
  - CBR, Capped VBR, StatMuxed VBR
  - Chroma formats: 4:2:0/4:2:2 8/10 bits
- Audio encoding:
  - MPEG-H 3D audio low complexity profile level 3
  - Dolby® Digital® AC-4
  - AAC
- Clock synchronization: PTP, NTP
- Supports VBR or CBR
- Control and monitoring:
  - Web browser, XML-RPC
  - SNMP
- Redundant power supply

Overview

ATSC 3.0 is on the home stretch as it becomes deployed in the U.S.A. and Korea. ATSC 3.0 architecture is radically different from ATSC 1.0. It relies on the very latest codecs and architectures that bring together IP, audio, and RF infrastructures (including MMT) that offer more flexibility for users who are used to IP standards like DASH, and offers more choices about content when watching TV at home or in the field. At the same time, ATSC 3.0 provides emergency alerts (AWARN) so that we can be informed about impending natural disasters in the making.

ATSC 3.0 adopted HEVC (H.265) as its underlying codec since it offers nearly four times the compression of MPEG-2 and thus there is more capacity for more programs. This makes broadcasters happy. A new audio compression standard is also available that offers numerous audio options from immersive audio to special commentary.

Even though the Cortina was specifically designed for ATSC 3.0 applications, it is also suitable for most traditional HEVC compression tasks since it outputs traditional TS as well as MMT. It creates amazing 4K or multiple 1K HDR content.

The Cortina is a hybrid HEVC encoder designed to be compliant with A/300 System, A/331 Signaling-Delivery-Sync-FEC, A/341 Video-HEVC, and A/342 Audio standards which are all in Candidate, Proposed, or Finalized Standards stage. It has been validated in ATSC 3.0 signal chains in Korea and the U.S.A.

Applications

- ATSC 3.0 standard compatible broadcasting
- 4K news, satellite, and sports contribution
- 4K event streaming via ISPs or CDNs
- Save satellite truck operator bandwidth charges by utilizing public internet to provide a backup stream

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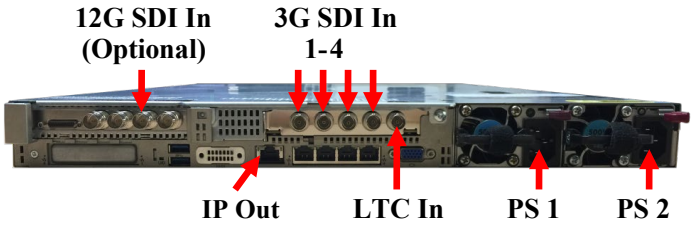
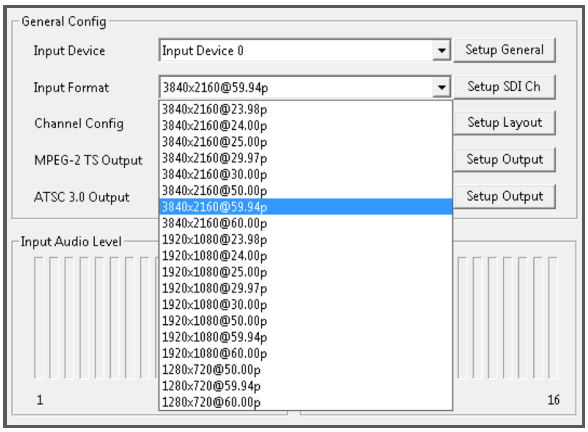
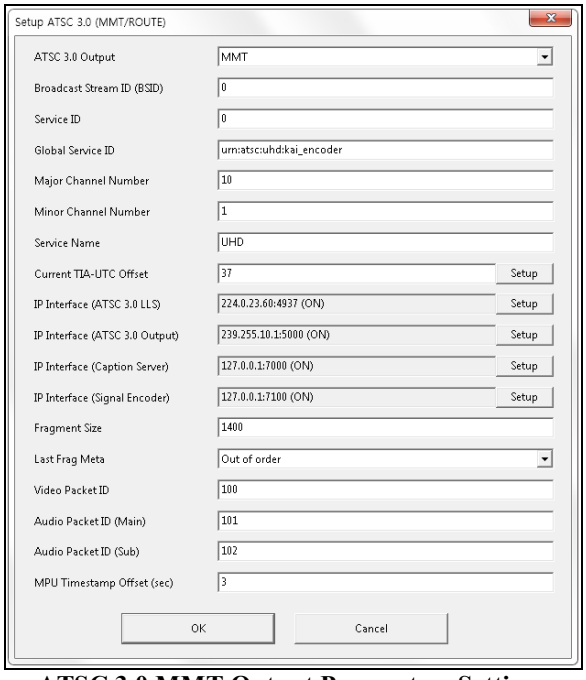
Rear Connectors



Sample of GUIs



Input Format Settings



ATSC 3.0 MMT Output Parameters Settings

Specifications

Video Inputs

Video:	One Optional 12G-SDI input Quad 3G-SDI input (Level A/B, Quadrant/2SI) or Four 3G-SD inputs (SMPTE 424M/ 425M)

Video Encoding

Color Space:	ITU BT.601, ITU BT.709, ITU BT.2020
HDR:	HDR10/PQ10, HLG
Video Codec:	HEVC Main/Main10 @ Level 5.1 (ISO/IEC 23008-2 HEVC), Dedicated hardware encoding
Resolutions:	3840x2160p, 1920x1080p, 1280x720p
Frame Rates:	23.98p, 24p, 25p, 29.97p, 30p, 50p, 59.94p, 60p
Pixel Formats:	4:2:0/4:2:2 8/10 bits
Output Bit Rates:	3 ~ 100 Mbps, CBR, Capped/StatMuxed VBR

Audio Encoding

Audio Input:	SMPTE 299M Embedded audio
Audio Codecs:	AC-4 MPEG-H 3D audio LC L3 (ISO/IEC 23008-3) AAC (HE-AAC v1/v2, ISO/IEC 14496-3)
Audio Channels:	AC-4 : Mono, Stereo, 5.1 AAC: Stereo MPEG-H : Master Mode (1.0/2.0/2.0+2.0/5.1/5.1+2.0/ 5.1+4H/7.1/7.1+4H/10.2), Passive Mode (Max. 15ch)
Sampling Rate:	48 KHz
Bit Depth:	16/24 bits
Output Bit Rates:	8 ~ 128 kbps per channel (The range depends on audio codec)

IP Output

IP Types:	MMT, ROUTE, MPEG-DASH, MPEG-2 TS
Output Interface:	Ethernet, Optional DVB-ASI
Output Bit Rates:	3 ~ 100 Mbps
Clock Reference:	12G-SDI or 3G-SDI input signal

System Sync

Protocol:	PTP Synchronization (IEEE 1588-2008) NTP Synchronization (RFC 5905)

Administration

Parameter Setup & Monitoring:	Web GUI, Direct GUI, Alarm XML-RPC
SNMP:	Encoder status, Resource usage

CPU and Operating System

CPU:	Intel® CPU
OS:	Windows® Server operating system

Physical & Power

Dimensions (WxDxH):	17.32x19.6x1.73 inches (500x440x44 mm)
Weight:	22 lbs. (10 kg)
Power:	100~240VAC, 50~60Hz, Single/Dual
Power Consumption:	< 250W

Ordering Information

Cortina 4K 3G HD-SDI: ATSC 3.0
Cortina 4K 3G HD-SDI: ATSC 3.0 with optional 12G-SDI input
Cortina 4K 3G HD-SDI: ATSC 3.0 with optional DVB-ASI output
Cortina 4K 3G HD-SDI: ATSC 3.0 with optional 12G-SDI input and DVB-ASI output

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