MEDIAKIND

CE1

Contribution Encoder

The MediaKind CE1 Contribution Encoder is part of the Cygnus Contribution solution, which enables live events to be captured reliably, cost effectively, in the highest quality and with low transmission latency.

The CE1 is the latest generation of contribution encoder from MediaKind, and complements the well established AVP 2000 Contribution Encoder. It provides the same high performance, low latency video compression capability, but with the additional benefits of support for the latest IP standards such as SMPTE ST 2110 and SRT, as well as BISS CA encryption to prevent unauthorized access to valuable, high quality contribution feeds.

The CE1 provides a highly flexible contribution encoding platform that can provide basic 4:2:0 8 bit HD video

encoding all the way up to high quality, low latency 4:2:2 10 bit UHD, High Dynamic Range, Wide Color Gamut video encoding.

You can buy a basic CE1 today and easily upgrade it when required by the addition of software licenses, or hardware option cards.

In this world of rapidly changing standards and technology it is important to invest in equipment that will not quickly become obsolete.

The CE1 is based on a ruggedized X86 server platform, with four PCIE option card slots, which gives it great potential to support new standards and protocols as they are developed and adopted.

Product Overview

Multi-Channel Contribution Encoder

The CE1 is a compact, flexible, multi-channel contribution encoder capable of addressing a wide range of use cases. It can be configured to meet your exact needs today through the range of hardware and software options, and can be easily upgraded in the future as your needs change.

Encoding flexibility

4:2:0 8 bit MPEG-4 AVC or HEVC encoding can be provided using just the CE1 base unit processing power, but for UHD and 4:2:2 10 bit support with low and ultra-low latency modes the additional processing power required is provided by an video encoding option card.

All IP Workflow

The CE1 can support the latest IP standards such as SMPTE ST 2110 for inputs, and SRT for IP outputs. An optional 25G Ethernet NIC is available to enable SMPTE ST 2110 input up to UHD resolution.

Secure Delivery of High Value Content

With the value of content, particularly high quality, high value content such as UHD sports content increasing, it remains important to prevent unauthorized access to it. The CE1 supports BISS CA, the latest 128 bit, rotating key, content protection standard, as well as the long established BISS 1/E encryption

Contribution to public cloud

As content production and playout in public or private cloud instances begins to be adopted, the ability to push content in to the cloud, even over unmanaged and error prone networks becomes important. The CE1 can provide support for SRT (Secure Reliable Transport) to ensure error free contribution to the cloud.

Unit Features

The CE1 base unit is a compact 1 'RU' unit that is only 560 mm deep, and therefore fits in standard racks and flight cases.

It features front panel controls and a display plus a video confidence monitor.

It has dual hot swappable power supplies to help provide the reliability required when covering premium events.

It also has four option card slots which enables a wide range of options to be supported so that the unit can not only be customized to meet your needs today, but can easily have its capabilities expanded in the future if required.

The option cards available include:

- SDI Input (4 x HD SDI or 4 x 3G SDI or 1 x 12G SDI inputs)
- Dual 25GbE NIC with SMPTE ST 2110 acceleration
- Dual 10GbE NIC with SFP+
- Quad 1GbE NIC with RJ-45 connectors
- 4 x HD or 1 x UHD Encoder Accelerator card, *providing 4:2:0 8 bit or 4:2:2 10 bit encoding and a range of low and ultra low latency modes*

The CE1 feature licenses include:

- HD and UHD encode licenses (basic, standard and advanced) Asvanced enables 4:2:2 10 bit.
- Advanced Stream Processing that includes SRT support
- Content Protection that enables BISS CA encryption *(BISS 1/E encryption is included as standard)*

Sample Configuration

Specifications

I/O Connectivity

SDI Input	**SDI option card:**
	Provides 4 x HD SDI or 4 x 3G SDI or 1 x 12G SDI inputs
	HD SDI: SMPTE 292M
	3G SDI: SMPTE 424M
	12G SDI SMPTE 2082
	Embedded Audio: SMPTE 299M (HD)
	SDR/HDR Signalling: SMPTE ST 425-5
IP I/0	**Base unit**
	2 x 100/1000BaseT Ethernet ports via RJ45 connector
	Dual 10GbE NIC option card:
	Dual SFP+ cages
	10GBASE optical transceivers or 10Gbe SFP DAC
	Dual 25GbE NIC option card:
	Dual SFP28 cages
	Can support 1GbE, 10GbE or 25GbE
	Can provide hardware acceleration for SMPTE ST 2110 input
	Note: SMPTE ST 2110 input requires the dual 25GbE NIC option card.

Control and Monitoring

Front Panel	Limited control and monitoring is available through the front panel keypad and display.
IP	Full control and status monitoring is provided via:
	• Web browser user interface
	• REST API
	• SNMP for health / alarm monitoring
	Note: If control and monitoring is required via an option card network port contact your MediaKind representative for availability.

Video and Audio Processing

Video and Audio Input	**SDI** (requires SDI option card)
	4 x 1080i or 720P inputs or 4 x 1080P inputs or 1 UHD input
	UHD SDI input can be either 4 x 3G SDI or 1 x 12G SDI
	SMPTE ST 2110 (requires Dual 25GbE NIC option card)
	SMPTE ST 2110 support:
	-20 (video) support for UHD, 1080p, 1080i and 720p at 4:2:2 10 bit formats.
	-30, -31 (audio) support for up to 6 channels (for 5.1) and 1ms audio packets
	-40 (data) support for AFD, timecode and CC
	SDT available per essence through public API (AMWA NMOS supported in later release).
Video Encoding	**UHD***
	4:2:2 10 bit or 4:2:0 8 bit HEVC encoding
	P50 or P59.94 frame rates
	CBR output with low and ultra low latency modes
	HD
	4:2:2 10 bit* or 4:2:0 8 bit MPEG-4 AVC or HEVC encoding
	1080i25/29.97 or 720P50/59.94 or 1080P50/59.94
	CBR output
	Low and ultra low latency modes*
	* Requires Encoder Accelerator option card
Audio Encoding	MPEG-1 Layer-II audio
	Dolby Digital, Dolby Digital +
Audio Pass-through	Dolby E®
	Linear PCM

Output Stream Processing

Transport Stream Output	Single or mult-service MPEG Transport Stream(s)
	UDP or RTP encapsulated
Encryption	BISS v1 Mode 1 and E
	BISS v2 Fixed Key and CA Mode
	SRT Encryption modes (fixed key 128/256 AES)
SRT (Secure Reliable Transport)	Optional SRT output generation.

All processing functions need the appropriate software licenses to have been purchased

Physical and Power

Dimensions (W x D x H)	440 x 560 x 44mm (17.2 x 22 x 1.75" approx.)
Input Voltage	110 VAC / 240 VAC
Power Consumption	550 Watt max
Cooling	Integrated fans

Environmental Condition

Operating Temperature	0°C to 50°C (32° to 122°F)
Storage Temperature	-20°C to 65°C (4° to 150°F)
Relative Humidity	5% to 95% (Non-condensing)

Compliance

Compliance	CE Marked in accordance with all applicable EU Directives, UL Compliant
EMC Compliance	EN55032, EN55024 and FCC CFR47 Part 15B Class A
Safety Compliance	EN60950-1 and IEC60950-1