AVP 2000 Contribution Encoder

MediaKind
everyone. everywhere.

The AVP 2000 Contribution Encoder has been designed specifically to address the demands of today's broad range of Contribution and Primary Distribution (C&D) applications delivering the most flexible solution in the market. Based on a compact 1RU form factor chassis with up to six hot swappable option slots with a single power supply unit (PSU), making it an ideal solution for the whole spectrum of high resilience to high density requirements. For applications demanding higher service resiliency then there is an option to have dual power supplies ensuring the unit delivers maximum performance, flexibility and reliability.

A comprehensive range of processing options are available in the AVP 2000 Encoder including MPEG-2, MPEG-4 AVC, JPEG-2000 and HEVC which depending on the modules deployed enable operators to encode multiple formats as ASI and/or IP outputs. Standard definition, high definition and ultra high definition in 4:2:0 and 4:2:2 modes are supported and for highest quality feeds the unit supports both 10-bit precision and p50/59.94 frame rates.

A key aspect of the AVP 2000 is usability and the Encoder features an ergonomic front panel with integral monitor, giving instant user feedback, meeting the demands of the contribution environment, including ease of operations, quick menu access and effective monitoring. In addition for those configuring the unit by PC a new simplified user interface is available with all the commonly used controls on a single page. Overall the AVP 2000 offers broadcasters and network operators the most advanced video and audio compression technology available today and is key part of MediaKind's C&D portfolio which also include receivers, and control and management software for scheduling.

Product Overview

High Flexibility, Reliability and Serviceability

The AVP 2000 Contribution Encoder is the basis for the most efficient video compression engines available to the broadcast market.

The platform itself is designed to address both the need for density with up to six option slots and the need for high resilience by making all the option slots hot swappable and the addition of a dual PSU version of the chassis. A standard IP interface and a wide range of separate I/O options provide interfacing to multiple hybrid networks concurrently. The AVP 2000 allows in-field serviceability, portability and system reconfiguration to address the widest range of C&D applications.

Leading High Quality Compression

The AVP 2000 Contribution Encoder supports MediaKind's range of encoder modules.

The CE-HEVC encoder module provides support for HEVC and MPEG-4 AVC video compression. Each module can encode a single UHD (4k) video service or up to 4 HD video services. It supports 4:2:2 or 4:2:0, 8 or 10-bit video, and can provide low and super low end to end latency encoding modes.

The CE-xA/A encoder module provide high quality MPEG-4 AVC or MPEG-2 video compression for standard definition and high definition video.

The CE-aJ2K encoder modules provide JPEG-2000 video compression capability.

So the AVP 2000 Contribution Encoder pushes encoding efficiency, serviceability and upgradeability to new levels of excellence.

Front Panel Operations

A new front panel provides complete unit control in mobile environments. Its unique ergonomic new design is the result of development based on industry feedback and includes:

- Rotary control for fast selection and key-pad for easy value insertion
- High-resolution display for video confidence monitoring
- Quick access menus specifically designed for mobile operations with customizable shortcuts and ample configuration storage
- Audio metering

Base Unit Features

- Six slot single PSU AVP2000/BAS/1AC/A
- Four slot dual PSU AVP2000/BAS/2AC/A
- Six slot dual PSU with Flying Leads AVP2000/BAS/2ACFL/A

Base Chassis Functionality

- Control via 2x electrical Ethernet (100/1000BaseT)
- Data I/O via 4x electrical Ethernet (100/1000BaseT)
- License keys stored with option cards for maximum portability
- Multiplexing and MPEG-2 Transport Stream generation
- SMPTE 2022-1/-2 (Pro-MPEG) FEC on a single SPTS/MPTS
- Encryption of output MPEG-2 Transport Stream using Basic Interoperable Scrambling System (BISS) for secure contribution links Supports BISS modes 0,1and E
- BISS 2 Fixed key encryption (Requires AVP/SWO/VP/BISS2)
- SI table generation
- Service level Remux (Requires AVP/HWO/ASI/IO/A)

Platform Processing Capacities

- Up to two, CE-xA/A modules
- Up to four CE-HEVC modules
- Up to six CE-aJ2K/A modules
- Multiple concurrent I/O options

Hardware Options

CE-HEVC Series Encoder Modules

(CE/HWO/CE-HEVC/BNC/A)

(CE/HWO/HEVC/SFP/B)

- Up to four modules per chassis depending on configuration
- 4 x 3G/HD/SD-SDI, video input
  /BNC variant co-axial cable inputs
  /SFP variant has SFP slots
- 1 UHD or 4 HD encodes per module[1]
- HEVC and MPEG-4 AVC encoding capabilities[1]
- 4:2:0 and 4:2:2 chroma sampling modes
- 8 or 10-bit precision
- 1 Mb/s to 100 Mb/s video bit-rate[1]
- Multiple low latency modes
- Up to 32 stereo pairs of audio encoding and pass-through[1]
- VANC data extraction and support for generic VANC (SMPTE 2038)

[1] Exact capabilities depend on module and Value Packs; please refer to CE-HEVC Series datasheet for a more detailed description.

CE-xA Encoder Module

(CE/HWO/CE-xA/A)

- Two slots per module. Up to two modules per chassis depending on configuration
- 3G/HD/SD-SDI, video input
- Analogue CVBS input NTSC and PAL (PAL-M not supported)
- MPEG-2 Video and MPEG-4 AVC encoding capabilities[2]
- 4:2:0 and 4:2:2 chroma sampling modes
- Up to 10-bit precision
- 1 Mb/s to 80 Mb/s video bit-rate[2]
- Multiple low latency modes
- Embedded (SDI) and AES-EBU audio input
- Up to eight stereo pairs of audio encoding and pass-through
- VANC data extraction and support for generic VANC (SMPTE 2038)
- Analog/SDI switchable input

[2] *Exact capabilities depend on Value Packs; please refer to CE-xA/A datasheet for a more detailed description.*

CE-aJ2K Encoder Module
(CE/HWO/CE-a/J2k/A)

- Single slot per module. Up to six modules per chassis depending on configuration
- 3G/HD/SD-SDI, video input
- JPEG-2000 SD and HD encoding capabilities
- 4:2:2 10-bit operation

External Synchronisation Module
(CE/HWO/EXTSYNC/A)

- One slot per module. Up to one module per chassis
- Supports synchronisation of all encoders in the chassis to support single PCR operation
- 10 MHz or HSYNC input

ASI I/O Module
(CE/HWO/ASI/IO/A)

- One slot per module
- 2 x ASI MPEG-2 Transport Stream outputs configured as mirrored or independent (230Mbps max shared between 2 outputs, 200Mbps max on any 1 output).
- 2 x ASI inputs for Transport Stream pass-through to SatMod

G703 Module
(CE/HWO/G703/A)

- One slot per module
- Supports E3 and DS3 output connectivity

GPI Module
(CE/HWO/GPI/A)

- One slot per module
- Supports GPO relay triggers for "Alarm" and "Failure" modes
- Supports manual SCTE-35 splice point insertion

Specifications

Transport Stream Interfacing

Input	2x Electrical Ethernet (100/1000BaseT)
Output	2x Electrical Ethernet (100/1000BaseT) Physical port redundancy with active-active and active-standby operation Multicast streaming

Management

Management	2x Electrical Ethernet (100/1000BaseT) SNMP v1/v2/v3, for alarm traps User management via web browser Support for nCompass Control by MediaKind

Physical and Power

Dimensions (W x H x D)	44.20 x 4.45 x 59.69 cm (17.40 x 1.75 x 23.5 inches)
Weight	8.0 kg (17.6 lbs) unpopulated
Input Voltage	100-240 VAC 50/60 Hz
Input Power	50W (chassis only) Up to 350W (depending on option modules fitted)

Environmental Conditions

Operating Temperature	-10°C to +50°C (14°F to 122°F)
Storage Temperature	-40°C to +85°C (-40°F to 185°F)
Relative Operating Humidity	10% to 90% (non-condensing)

Compliance

Compliance	CE marked in accordance with EU Low Voltage and EMC Directives
EMC Compliance	EN55022, EN55024, AS/NZS3548, EN61000-3-2 and FCC CFR47 Part 15B Class A
Safety Compliance	EN60950, IE60950