Media Excel’s 4K Ultra HD HEVC Encoder opens the next level of video experiences for customers of premium broadcast, cable and satellite, mobile and OTT/TVE services. The HERO 4K Encoder meets and exceeds the rigorous demands required for UHD/HEVC elevated processing power, using reduced bandwidth transport capacity while providing superior 4K video quality and 60fps motion fluency. HERO 4K provides production-ready 4K HEVC that is fully standards-compliant and field-proven. Increasingly more operators worldwide trust their most valuable Live content to Media Excel’s HERO 4K Encoder for pristine video quality without compromises. The combined result of 4K pixel density, 60fps motion fluency, 10-bit color depth with HDR and WCG at below 350msec of latency delivers an unmatched viewing experience.

**RELATED PRODUCTS**

- **HERO 8400.E 4K ENCODER/TRANSCODER**
  4K HEVC Encoder/Transcoder.

- **HERO 8400.D 4K DECODER**
  4K HEVC Decoder.

- **HERO 5000C CLOUD TRANSCODER**
  HERO virtualized software for Live & VoD cloud transcoding.

- **HERO MANAGEMENT**
  Centralized network management solution.

**KEY FEATURES**

- Pristine video quality and motion fluency
- Unmatched compression/bandwidth efficiency
- 60fps 4K Ultra HD encoding
- HEVC/H.265 Main, Main-10 and Main 4:2:2 10 profiles
- AVC/H.264 BL, MP & HP up to level 5.2
- High Dynamic Range HDR-10, HLG with BT.2020 WCG
- Encoding/Transcoding For Live workflows
- Mezzanine, broadcast and adaptive output formats
- ATSC 3.0 ready
- Input, service and platform level failover
- Interopability with Azure, Amazon, Akamai, USP etc.

**HERO 4K ENCODER**

HERO 4K Encoder is ideal for live contribution and distribution applications. It supports Main, Main-10 and Main 4:2:2 10 profiles. Ingest is through Quad 3G-SDI or GigE and output is through DVB-ASI or GigE. HERO 4K Encoder also enables real-time downscaling and transcoding of Ultra HD content to HD in order to ease the migration overhead for the operators. This efficient, yet flexible, configuration enhances the use cases and overall effectiveness of the product.

HERO 4K Encoder features a fully redundant chassis and Media Excel’s state-of-the-art video processing technologies to deliver highly available services for mission-critical applications.

The system supports both Satellite and IP delivery networks and ensures redundancy across multiple delivery paths. Also, ATSC 3.0 MMTP/MPU and ROUTE/DASH broadcasting is fully supported by the HERO 4K Encoder.

HERO 4K Encoder delivers a proven, reliable, scalable solution that substantially enhances Quality of Experience for the most demanding yet most profitable audience segments, improving the operator’s bottom line and market position.
HERO 4K ENCODER TECHNICAL SPECIFICATIONS

INPUT

PORTS
- Quad 3G-SDI (Level A, B, 2SI)
- Single link 12G-SDI
- Gigabit ethernet (up to 4 ports)
- Fibre channel interface

FORMATS
- Uncompressed digital audio/video
- MPEG-2 TS DVB-ASI or RTP/UDP
- ProMPEG FEC (SMpte 2022)
- Virtual playout/playlist
- MPEG-2 TS
- MP4

OUTPUT

CODECS
- H.265/HEVC
- H.264/AVC
- MPEG-2 (4:2:2, 4:2:0)
- PCM
- MPEG-1 Audio Layers I, II & III
- AAC/AAC-HE (MPEG-2, MPEG-4)
- AC-3 (DD), E-AC-3 (DD+)

CONTAINERS & STREAMS
- MPEG-2 TS Unicast/Multicast
- Apple HTTP Adaptive (HLS)
- Adobe RTMP
- Microsoft Smooth Streaming
- TS, MP4 segmentation, recording
- MPEG-DASH
- IP input/output

FORMATS & FRAME RATES
- 2160p, 1080i, 720p
- 576i PAL, 480i NTSC
- 23.98, 24, 25, 50 Hz
- 29.97, 30, 59.94, 60 Hz

AUDIO/VIDEO CODECS
- H.265/HEVC
- H.264/AVC
- MPEG-2 (4:2:2, 4:2:0)
- PCM
- MPEG-1 Audio Layers I, II & III
- AAC/AAC-HE (MPEG-2, MPEG-4)
- AC-3 (DD), E-AC-3 (DD+)

SYSTEM CONFIGURATION TABLE

<table>
<thead>
<tr>
<th>CONFIGURATION</th>
<th>FEATURES</th>
</tr>
</thead>
<tbody>
<tr>
<td>MODELS</td>
<td></td>
</tr>
</tbody>
</table>
| HERO.8400.E.AVC | 4K/UHD up to 60 fps  
AVC BL, MP and HP  
4:2:0 8-bit  
IP input/output |
| HERO.8400.E.HEVC.HD | HD up to 60 fps  
HEVC Main and Main-10  
4:2:0 8/10-bit, WCG, HDR  
IP input/output |
| HERO.8400.E.HEVC.UHD | 4K/UHD up to 60 fps  
HEVC Main and Main-10  
4:2:0 8/10-bit, WCG, HDR  
IP input/output |

ADD-ONS
- .ASI DVB-ASI input/output
- .4SDI Quad 3G-SDI input
- .12G 12G SDI input
- .DD AC-3 (DD) and E-AC-3 (DD+) enc.
- .422 Main 4:2:2 10 encoding

ENCODING & TRANSCODING FEATURES

PRE & POST PROCESSING
- Automatic & manual Program selection
- Contrast/Brightness/Gamma control
- De-blocking & noise reduction filters
- Content adaptive de-interlacing
- High quality frame rate conversion
- Frame scaling with anti-aliasing options
- Smoothness/Sharpness control
- Frame Cropping
- Graphic overlay (4 layers with alpha color)
- EIA 608/708, OP-47, DVB-Sub burn-in or transcode
- ID3 metadata injection
- SCTE-35, SCTE-104 ad signaling conditioning & native ad insertion
- DRM integration (Playready, Widevine, CENC, Venmetrix, etc)
- WebDAV/FTP/HTTP support
- Timecode burn-in
- Virtual playout/playlist support
- Scrolling text support

AUDIO & VIDEO ENCODING
- Rate control: CBR, ABR
- Low latency mode (~350msec)
- High Dynamic Range support: HDR-10, HLG with BT.2020 WCG
- Progressive and interleaved encoding
- Re-sampling, down-mix processing
- Up to 32 audio tracks
- Dynamic audio normalization & loudness management

MANAGEMENT

MANAGEMENT & CONTROL
- Central & remote management
- Web-based management console and SOAP/XML & REST APIs
- LDAP-based multi-tier user authentication
- Batch, secure & remote firmware upgrade
- Configurable audio/visual alarms and SNMP v.2 traps/alarms
- N+M, N+1, 1:1 with service and platform level failover options
- Integration with SDI/ASI routers
- NMS/CMS integration hooks
- NIC bonding/teaming & VLAN support

CHASSIS

FORM FACTOR
- 1U 19" wide (rack mount)
- 17.5" (44.5cm) deep

POWER SUPPLY
- Auto-switch AC 90-264V, 47-63Hz
- Up to 800w

DISPLAY & INTERFACE
- 32-character LCD display
- 6-button control panel

POWER SUPPLY UNITS
- Dual hot-swappable power supply

MANAGEMENT
- 2x GigE (primary/secondary)

MODULE 1
- 4x 3G-SDI input or 1x 12G-SDI input

REPLACEMENTS
- Redundant SSD
- Dual hot-swappable power supply
- Up to 4 GigE ports with bonding

CERTIFICATIONS
- FCC Class A
- CE/RoHS 5-compliant
- WEEE-compliant
- EN61000-6-2 EN55022/24
- EN60950-2000
- U.S. 19"/336/EEE, UE 73/23/EEE
- UE 89/336/EEC

* Option available in specific models only.
- Specifications subject to change without notice.