Mediaprint Video Processing
Ultra HD

High-Performance Ultra HD 4K Processing
The new Ericsson MediaFirst Video Processing Ultra HD is a high-quality video encoding/transcoding solution that offers a new TV experience for end-users desiring to watch ultra-high quality live programming on Ultra HD (UHD) compatible devices. It can encode up to 4K video resolution (4 times HD resolution) in up to 60 frames per second, offers a larger luminance and color range with the new BT 2020 and HDR (High Dynamic Range) standards and can be encoded in 8 or 10 bits. Ultra HD resolution offers significant value to operators looking to deliver premium video services, such as high-profile sports events, in the best possible quality.

Providing an unrivalled user experience, MediaFirst Video Processing Ultra HD is integrated with the latest audio/video technologies, Ultra HD resolutions, HDR standards and supports HEVC (H.265) compression.

HEVC provides the compression efficiency required to distribute 4K TV to the home using existing bandwidth, a key requirement for service providers. Ericsson’s unique software-based architecture enables operators to continuously enhance their Ultra HD services, with frequent updates to further improve density and video quality.

Premium Quality, Enhanced Experience
Ultra HD creates new immersive experiences with higher resolutions and frame rates as well as a wider color range.

Leveraging the HEVC compression standard, MediaFirst Video Processing Ultra HD is optimized to support 4K using existing bandwidth and distribution bitrates. HEVC promises up to 50% bandwidth or quality gain compared to H.264.

The HEVC codec developed by Ericsson is tailored to provide the highest video quality on any screen. Ericsson’s HEVC implementation is based on the latest HEVC standard, facilitating compatibility with multiple decoders.

The Ultra HD encoder leverages Ericsson’s experience in developing previous codec standards including MPEG-4 AVC (H.264) and MPEG-2.

Premium Hardware
Processing Ultra HD resolutions using HEVC compression requires powerful hardware and high data transfer capabilities. These two requirements are met using our Ericsson G8 1074 platform. The G8 1074 is a 1RU server with a single motherboard that provides the power needed to encode Ultra HD resolutions.

The high-performance Ericsson G8 1074 platform is designed to support HEVC tools and enable high quality, low bitrate encoding, for Ultra HD resolutions with up to 60 frames per seconds and a 10 bit color range.

Platform Highlights

- **Higher Resolution, Luminance Range and Color Depth:**
  - Encode Ultra HD up to 4Kp60 using HEVC
  - HDR support: HDR 10, HGL 10, PQ10

- **High Performance:**
  - SMPTE BT.709 or BT.2020
  - Deployed on Ericsson appliance, with latest generation Intel Xeon Skylake processors

- **Software Updates:**
  - Regular updates increase performance of the UHD system

- **Technology Enhancements:**
  - Address a bigger color space using 10 bit color coding: wide color gammut (rec. 2020)
  - HDR conversions, tone mapping, Inverse tone mapping
  - Higher frame rate for increased smoothness

- **Ingest/Output:**
  - Ingest any content through Quad 3G-SDI link
  - Ingest any compressed content in MPEG-2 TS through IP
  - Output to any Ultra HD capable device
**Ultra HD workflow**

MediaFirst Video Processing Ultra HD ingests 4K live video signals through its quad HD-SDI 3G card or through IP input. After the encoding phase, the stream is output using an MPEG-2 TS to a 4K HEVC set-top box that will decode it. The stream is then sent through HDMI v2.0 to a 4K TV set for display.

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**Video Encoding**

- **Video Codec**
  - HEVC Main & Main-10 profiles, HDR and WCG support
- **Rate Control**
  - Constant bit rate
- **Data Rate**
  - From 5 Mbps to 100 Mbps
- **Resolutions**
  - 2160p / 1080p x 25/30/50/60 fps

**Audio Encoding**

- **Audio Channels per Service**
  - Up to 4 stereo pairs
- **Audio Encoding**
  - MPEG-4/MPEG-2 AAC, HE-AAC v1 and v2, Transcode to Dolby Digital Plus (DD+)
- **Pass-Through**
  - Dolby Digital (AC-3), Dolby Digital Plus (E-AC3) 5.1-ch or stereo, AC4, DTS
- **Data Rate**
  - From 64 to 1024 kbps for DD+

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**Input**

- **Baseband Input**
  - Quad 3G/HD-SDI input
- **IP Input**
  - Dual GB Base-T

**Pre-Processing**

- **Metadata and VBI**
  - IA 608/708 Closed Caption
- **Enhancement Filters**
  - Audio: Automatic loudness control (A/85), Audio gain adjustment, Mute
- **Image Overlay**
  - Scheduled image insertion; Image insertion on input loss; Logo insertion; Black-out management

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**Monitoring and Control**

- **Control Interface**
  - 2 IP ports, monitoring and control ports (primary and spare)
- **Control and System protocols**
  - SOAP, HTTPS, NTP, FTP, IGMP v2/v3, SNMP v2
- **Scalability**
  - Automated node redundancy with Ericsson MediaFirst Video Processing Management

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**Output**

- **Output Type**
  - Redundant IP outputs
- **Output Format**
  - MPEG-2 TS, SDT generation
Physical and Power

**Form Factor**
1 RU

**Dimensions (chassis) (W x H x D)**
17.25 x 1.7 x 26 in. (439 x 43.2 x 712 mm)

**Full Chassis Dimensions (W x H x D)**
19 x 1.7 x 31.25’ in. (482.6 x 43.2 x 793.8 mm) including bezel and power supply latches

**Chassis Weight**
66.5 lbs. (30.2 kg)

**Power**
Input: 90 V to 132 V and 180 V to 264 V
Frequency: 47 Hz to 63 Hz
Consumption: To be updated
Heat dissipation: To be updated
Power supplies: dual load-balancing hot-swappable power supplies

Environmental

Operating temperature: 50 to 95° F (10 to 35° C)
Storage temperature: -40 to 158° F (-40 to 70° C)
Non-operating Relative Humidity: 50 to 90% non-condensing with a maximum wet bulb of 28 °C (at temperatures from 25 °C to 35 °C)

Agency Certifications

Electromagnetic Immunity: CISPR 24, EN 55024 Safety compliance: CSA/EN/IECUL 60950-1 Compliant, CE Marking (Europe), CB Certificate & Report, IEC60950-1

Monitoring and Control

**Control Interface**
Dual Gb Ethernet, monitoring and control ports (primary and spare)

Interfaces for Software

**Baseband Input**
Quad 3G-SDI input (optional)
4K ingest compatible with SMPTE ST 425-1 Level A or Level B Standard

**IP Input**
Dual GB Base-T

**IP Output**
Dual 10G Base-T

**Control panel**

G8 1074 Front Panel

G8 1074 Back Panel (IP only)

3G SDI option