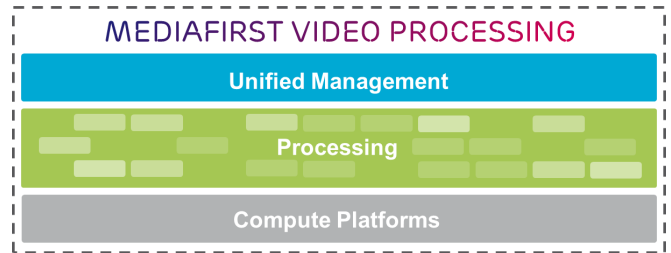# MEDIAFIRST VIDEO PROCESSING
ULTRA HD

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 color range with the new BT 2020 standard 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 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.

PRODUCT HIGHLIGHTS

Higher Resolution and Color Depth:

- Encode Ultra HD up to 4Kp60 using HEVC
- HDR support: HDR 10, HGL 10 and Dolby Vision™

High Performance:

- SMPTE BT.709 or BT.2020
- Deployed on Ericsson appliance, with latest generation Intel Xeon Hasswell 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)
- Higher frame rate for increased smoothness

Ingest/Output:

- Ingest any content through Quad 3G-SDI link
- Output to any Ultra HD capable device

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 (12.1), 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.
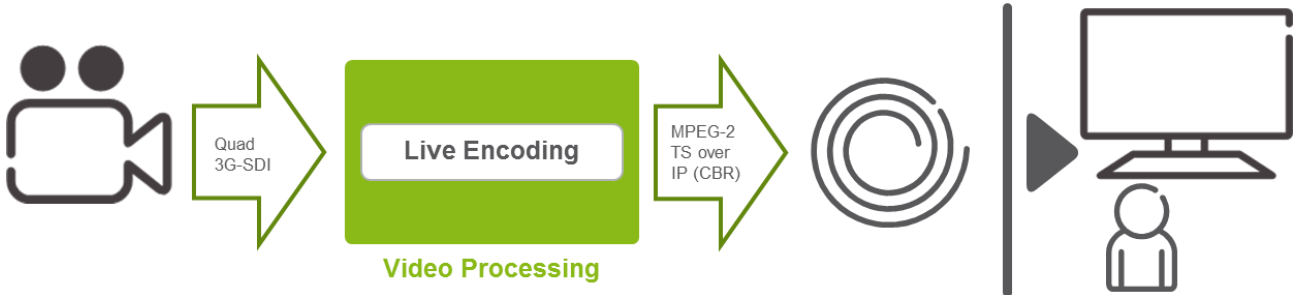
Premium Hardware

Processing Ultra HD resolutions using HEVC compression requires powerful hardware and high data transfer capabilities. These two requirements are met using our Ericsson G6 2072 platform. The G6 2072 is a 2RU server with a single motherboard that provides the power needed to encode Ultra HD resolutions.

The high-performance Ericsson G6 2072 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.

Ultra HD workflow

MediaFirst Video Processing Ultra HD ingests 4K live video signals through its quad HD-SDI 3G card. 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.

Ericsson MediaFirst Video Processing Ultra HD Specifications

Input

Baseband Input
Quad 3G/HD-SDI input

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

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+

Monitoring and Control

Control Interface
Up to 2 IP ports, monitoring and control ports (primary and spare)

Control and System protocols
SOAP, HTTP, NTP, FTP, IGMP v2/v3, SNMP v2

Scalability
Automated node redundancy with Ericsson MediaFirst Video Processing Management

Output

Output Type
Redundant IP outputs

Output Format
MPEG-2 TS, SDT generation

Ericsson G6 2072 Platform Specifications

Monitoring and Control

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

Interfaces for Software

Baseband Input
Quad 3G-SDI input

4K ingest compatible with SMPTE ST 425-1 Level A or Level B Standard

IP Input / Output
4x1 Gb + 2x10 Gb Ethernet port

Physical and Power

Form Factor
2RU

Dimensions (chassis) (W x H x D)
17.2 x 3.5 x 27.9 in. (437 x 89 x 709   mm)

Full Chassis Dimensions (W x H x D)
3.46" (87.9 mm) x 17.24" (438 mm) x 31.69'' (805 mm), including bezel and power supply latches

Chassis Weight
66.5 lbs. (30.2 kg)

Power
Input: 90-240 VAC auto-ranging

Consumption: 1240 W

Heat dissipation: 1058 Btu/hr per node (4231 Btu/hr total)

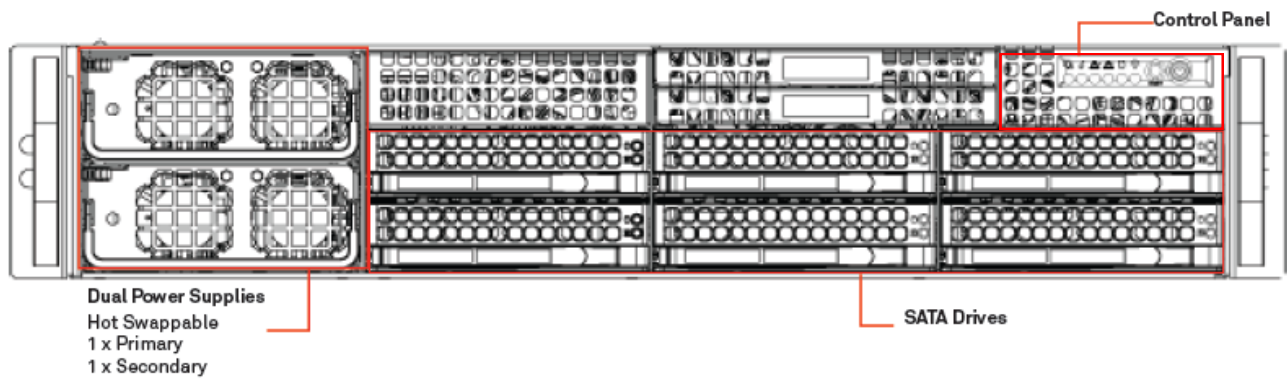Power supplies: dual load-balancing hot-swappable power supplies

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: 5 to 90% non-condensing

Agency Certifications
Electromagnetic Emissions: FCC Class A, EN 55022 Class A, EN 61000-3-2/-3-3, CISPR 22 Class A

Electromagnetic Immunity: EN 55024/CISPR 24, (EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN   61000-4-6, EN, 61000-4-8, EN 61000-4-11)

Safety: CSA/EN/IEC/UL 60950-1 Compliant, UL or CSA Listed (USA and Canada), CE Marking (Europe)

Front View

Control Panel

Dual Power Supplies
Hot Swappable
1 x Primary
1 x Secondary

SATA Drives

Rear View

USB Port   IPMI LAN   Eth #1   Eth #7

COM1 Port   VGA Port   USB Ports   Eth #0   Eth #2 - Eth #5 (from bottom to top)   Eth #6

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