The single PMC UltraCompression-2 Encoder advances Ericsson’s market leadership in the IPTV space. It supports multi-format MPEG-4 AVC SD and HD encoding and use Ericsson’s next-generation AVC platform to deliver either MPEG-4 AVC SD or HD services with simultaneous PiP.

Up to six UltraCompression-2 encoders are supported in a 1RU iPlex™ Video Processing Platform by Ericsson, giving the iPlex market leading density and power consumption per channel.

Ericsson’s MPEG-4 AVC UltraCompression-2 video encoding sub-module for the iPlex™ delivers the best compression performance in the IPTV industry. It is based on Ericsson’s next-generation Intelligent Compression Engine providing operators with a bit-rate savings of up to 18% over previous generations of UltraCompression modules. The sub-module is targeted at service providers with a need for extraordinary compression performance and is recommended for high-complexity content such as sports or nature programming. It is also recommended for use in bandwidth-constrained environments, such as ADSL1/2 networks.

In addition to many other innovative video processing features, the MPEG-4 AVC UltraCompression-2 sub-modules feature Clarus™ pre-processing options, which use Ericsson’s patented advanced pre-processing technology. Clarus can significantly improve compression performance when only poor quality source content is available. Clarus noise reduction and Clarus input de-blocking filter (which removes blocking artifacts from the input video) allow the MPEG-4 AVC compression process in the UltraCompression-2 encoder to achieve the same compression performance with noisy sources, that conventional technologies can only achieve with “clean” sources.

The Single PMC MPEG-4 AVC SD and HD UltraCompression-2 sub-modules are part of the iPlex™ video processing solution. iPlex also supports MPEG-2 SD encoding, MPEG-2 to MPEG-4 UltraCompression-2 transcoding and provides simultaneous PiP.

**KEY BENEFITS**

**High Picture Quality at Low Bit-rates**
- Ericsson’s Encoder has been optimized for extraordinary picture quality at low bit-rates.
- The solution outperforms software based designs.

**CAPEX Savings**
- With six main video streams and six PiP streams per RU, Ericsson offers the densest encoding solution available.
- The compact design reduces equipment costs, eliminates cabling, minimizes rack space, reduces power costs and improves overall system reliability and MTBF.

**Advance Audio features**
- Feature rich onboard audio processing provides operators with a simple and flexible audio solution. Software only licensing minimizes future expansion costs and expansion risk.

**Advanced Pre-processing Technology**
- Clarus™ noise reduction and input de-blocking filter are effective tools to improve the quality of video source material. Clarus allows the encoder to achieve the same compression performance with traditionally problematic sources that conventional technologies can only achieve with “clean” sources.
BASE UNIT FEATURES

MPEG-4 AVC HD UltraCompression-2 Encoder Sub-module [N012055]
- User selectable MPEG-4 AVC SD or HD output
- Video Processing powered by Ericsson next-generation MPEG-4 AVC UltraCompression-2 Encoding technology
  - Advanced Multi-Pass Encode
  - CBR and VBR rate control
  - Supports all commonly required video resolutions
- Advanced VBI and Ancillary Data Service handling, Closed captioning, WSS-AFD, Teletext
- Advance AAC audio features
- Gain Control (Audio levelling) +/-12dB
- Single PMC design

MPEG-4 AVC SD UltraCompression-2 Encoder Sub-module [N012054] - SDI input
- MPEG-4 AVC SD output
- Video Processing powered by Ericsson next-generation MPEG-4 AVC UltraCompression-2 Encoding technology
  - Advanced Multi-Pass Encode
  - CBR and VBR rate control
  - Supports all commonly required video resolutions
- Advanced VBI and Ancillary Data Service handling, Closed captioning, WSS-AFD, Teletext
- Advance AAC audio features
- Gain Control (Audio levelling) +/-12dB
- HD upgradeable by software license key
- Single PMC design

MPEG-4 AVC SD UltraCompression-2 Encoder Sub-module [N012053] - Composite or SDI input
- MPEG-4 AVC SD output
- Video Processing powered by Ericsson next-generation MPEG-4 AVC UltraCompression-2 Encoding technology
  - Advanced Multi-Pass Encode
  - CBR and VBR rate control
  - Supports all commonly required video resolutions
- Advanced VBI and Ancillary Data Service handling, Closed captioning, WSS-AFD, Teletext
- Advance AAC audio features
- Gain Control (Audio levelling) +/-12dB
- Single PMC design

COMMON SOFTWARE OPTIONS

Dolby Digital® (AC-3) Audio Encoding [N011040]
- Each license enables 1 stereo channel of Dolby Digital® (AC-3) audio encoding.
- Maximum 8 licenses per sub-module.
- For every three stereo channels enabled, the user may configure the encoder to generate a Dolby Digital (AC-3) 5.1 surround sound encoded audio channel

AAC Audio Encoding [N012050]
- Each license enables 1 stereo channel of Low Complexity Advanced Audio Coding (AAC-LC) or High Efficiency Audio encoding (HE-AAC).
- Maximum 8 licenses per sub-module.
- Each audio channel may be configured as either Stereo or Mono
- For every three stereo channels enabled, the user may configure the encoder to generate a AAC 5.1 surround sound encoded audio channel
- Bit-rates: AAC-LC mono 32 - 160 Kbps; stereo 56 - 320 Kbps
- Bit-rates: HE-AACv1 mono 16 - 64 Kbps; HE-AACv1 stereo 16 - 128 Kbps; HE-AACv2 stereo 16 - 56 Kbps
- MPEG-2 (ADTS) and MPEG-4 (LATM/LOAS) audio encapsulation supported

Clarus™ Advanced Noise Reduction [N012024]
- Pre-processing technology for noise sources
- Allows the encoder to achieve the same compression performance with noisy sources that conventional technologies can only achieve with “clean” sources
- Can be coupled with Clarus™ Input de-blocking filter

Clarus™ Input De-blocking Filter [N012044]
- Pre-processing technology for input de-blocking
- Allows the encoder to achieve the same compression performance with sources displaying blocking artifacts that conventional technologies can only achieve with “clean” sources
- Can be coupled with Clarus™ noise reduction filter

Picture-in-Picture (PiP) [N012017]
- License enables the generation of a simultaneous lower resolution version of the main video service for picture-in-picture type applications
- MPEG-4 AVC MP@L3 encoding
- Resolutions: 96x96 to 352x240/288
- Bit-rates: 100 Kbps - 2 Mbps

Picture-in-Picture Plus (PiP Plus) [N012025]
- License enables the generation of a simultaneous full resolution version of the main video service for picture-in-picture type applications (HD enabled device only)
- MPEG-4 AVC MP@L3
- Resolutions: 96x96 to Full SD
- Bit-rates: 100 Kbps - 10 Mbps

Stand alone VBR [N012051]
- License enables stand alone automatic variable bit-rate generation based on user configurable target quality and bit-rate settings.
COMMON SPECIFICATIONS

**HD/SD Encoder Input Formats**
- HD-SDI serial digital video (SMPTE 292M) 75Ω
- SD-SDI serial digital video (SMPTE 259M) 75Ω
- SDI component 625 and 525 line standard supported
- Composite video (PAL B,D,G,H,I, M) (NTSC-M) with or without Pedestal

**Audio Inputs**
- Two stereo pairs of analog balanced or unbalanced audio 600Ω/20kΩ
- Up to eight channels (four stereo pairs) can be de-embedded from SD-SDI and up to sixteen channels (eight stereo pairs) from HD-SDI
- Configurable D/H settings

**Ancillary Data**
- Closed captioning (CEA 608B)
- Teletext (WST System B)
- WSS
- DVB Subtitles

**Outputs**
- Output via any iPlex output interface available on the unit

**System Management**
- nCompass Control by Ericsson
- Web based control / GUI

**Physical and Power**
- Dimensions of card (LxWxH) : 5.866” x 2.913” x 0.509”; 149.0 x 74.0 x 12.9 mm
- Maximum power draw: 33 Watts per card
- Average power draw: 25 Watts

**VERSION SPECIFICATIONS**

**HD Video Encoder**
- Applies to N012055, MPEG-4 AVC HD, main and high profile at Level 4 compression
- CBR and VBR rate control
- User selectable bit-rate: 2 - 20 Mbps
- Advanced Multi-Pass Encode
- Single slice encoding
- Scene-cut and fade/dissolves detection
- GOP management (adaptive I/B-frame placement)

**Supports Video Resolutions (HD):**
- 1080i x 1920 / 1440 / 1280 / 960 25 fps
- 1080i x 1920 / 1440 / 1280 / 960 29.97 fps
- 1080i x 1920 / 1440 / 1280 / 960 30 fps
- 720p x 1280 / 960 / 640 50 fps
- 720p x 1280 / 960 / 640 59.94 fps
- 720p x 1280 / 960 / 640 60 fps

**SD Video Encoder**
- Applies to N012053 & N01204, MPEG-4 AVC SD, main and high profile at Level 3 compression
- Advanced Dual Pass Encode with look ahead
- CBR and VBR rate control
- User selectable bit-rate: 0.25 - 10 Mbps
- Interlace & progressive encoding support
- Single slice encoding
- Scene-cut and fade/dissolves detection
- GOP management (adaptive I/B-frame placement)

**Supports Video Resolutions (SD):**
- 576i x 720/ 704/ 704/ 640/ 544/ 528/ 480/ 352 29.97 fps
- 576i x 720/ 704/ 704/ 640/ 544/ 528/ 480/ 352 25 fps
- 480i x 720/ 704/ 704/ 544/ 528/ 480/ 352 29.97 fps
- 480i x 720/ 704/ 704/ 544/ 528/ 480/ 352 25 fps

**Audio Encoding**
- Two channels MPEG-1 Layer II as standard
- Selectable mono, stereo and joint stereo modes
- Bit-rates: mono 32 - 192 Kbps; stereo 64 - 384 Kbps
- Adjustable lip sync: ~500ms to 2000ms

**OPTIONS SPECIFICATIONS**

**Dolby Digital® (AC-3) Stereo Audio Encoding [N011040]**
- Enables 1 stereo/mono channels of Dolby Digital® (AC-3) audio encoding. Maximum 8 licenses per sub-module.
- Bit-rates: mono 56 - 640 Kbps; stereo 96-640 Kbps
- For every three stereo channels enabled, the user may configure the encoder to generate a Dolby Digital® (AC-3) 5.1 surround sound encoded audio channel. Bit-rates: 96 - 640 Kbps

**AAC Audio Encoding [N012050]**
- Each license enables 1 stereo/mono channel of Low Complexity Advanced Audio Coding (AAC-LC) or High Efficiency Advanced Audio Coding (HE-AAC V1 or V2). Maximum 8 licenses per sub-module.
- Bit-rates: AAC LC mono, 32 to 160 Kbps; AAC LC stereo, 56-320 Kbps
- Bit-rates: HE-AACV1 mono 16 to 64 Kbps; HE-AACV1 stereo 16 to 128 Kbps; HE-AACV2 stereo 16 to 56 Kbps
- MPEG-2 (ADTS) and MPEG-4 (LATM/LOAS) audio encapsulation supported
- For every three stereo channels enabled, the user may configure the encoder to generate a AAC-LC 5.1 or HE AAC 5.1 surround sound encoded audio channel. Bit-rates: AAC-LC, 160 to 640 Kbps; HE AAC V1 or V2, 64 to 160 Kbps

**Picture-in-Picture (PiP) [N012017]**
- License enables the generation of a simultaneous lower resolution version of the main video service for picture-in-picture type applications
- MPEG-4 AVC MP@L3 encoding
- Resolutions: 96x96, 128x128, 192x192, 192x192 and 352x240/288
- Bit-rates: 100 Kbps - 2 Mbps

**Picture-in-Picture Plus (PiP Plus) [N012025]**
- License enables the generation of a simultaneous full resolution version of the main HD video service for picture-in-picture type applications
- MPEG-4 AVC MP@L3 encoding
- Resolutions: 352x480/576, 480x480/576, 528x480/576, 544x480/576, 640x480/576, 704x480/576 and 720x480/576
- Bit-rates: 100 Kbps to 10 Mbps

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