

Multichannel & Multiformat Coding Platform



LAGUNA MEDIA PROCESSOR (LMP) is a Universal Multimedia Platform developed for video contribution & distribution on Professional Broadcast & Telecom environments.

LMP has the capacity of processing multiple channels, different standards (HEVC/H.264/MPEG-2) and different signal formats (UHD/FHD/HD/SD), makes it a flexible, versatile & compact solution able to continuously adapt to the requirements of new projects with a simple software reconfiguration



The Platform: 4 Different models: (SINGLE / DUAL / DUAL-4 / QUAD / QUAD-8 / OCTAL) Each one with different internal processing capacities and number of I/O interfaces. In terms of SW, LAGUNA has been designed as a Software Defined Platform to provide a high degree of flexibility. This allows Broadcasters to make the right choice for each project, resulting in both **OPEX and CAPEX savings**.

The Engines: Each platform model counts with a different number of Engines. Engines are the internal processing units where LAGUNA allocates and runs the different installed APPs.

The APPs: Software Virtual Functionalities (SVF) that perform different functions (encoding, decoding, multiplexing...). Each channel APP can be independently configured, having the possibility of having different profiles and/or a mix of encoders and decoders in the same rack unit. LMP also allows upgrading with new APPs (more channels, format upgrade...) providing flexibility both technologically and economically (**Pay as you Grow Scalability**).

The Layouts: LMP can store **multiple Layouts** (different internal architecture pre-sets) defined by the number of Engines of the selected Platform and the installed APPs. Changing from one Layout to another is as simple as selecting the new Layout on the WEB GUI of the unit (locally or remotely).

FEATURES

- UHD HEVC Decoder
- SCTE104 ↔ SCTE35 (Bidirectional)
- Internal MPTS generator: MPTS or SPTS
- Intuitive WEB GUI. Thumbnails.
- Hot swappable Power Supply Unit (AC/DC)

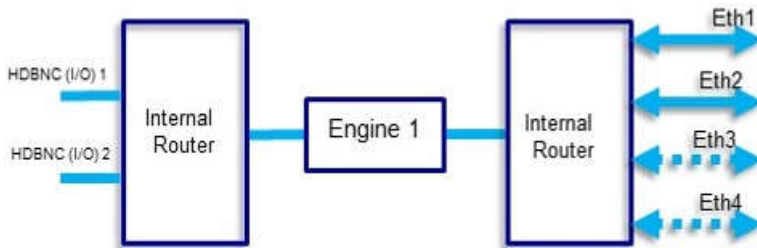
APPLICATIONS

- DTT distribution (Compact headend)
- Primary Distribution
- Multichannel Contribution
- Bidirectional Applications
- Transport over Public IP (SRT)

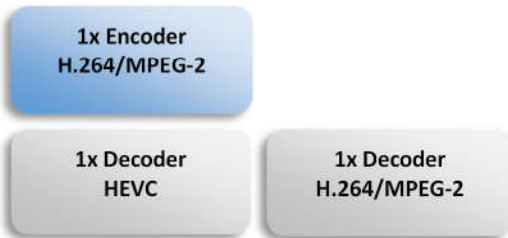


Laguna Media Processor

Multichannel & Multiformat Coding Platform



Layout Examples with LAGUNA SINGLE:



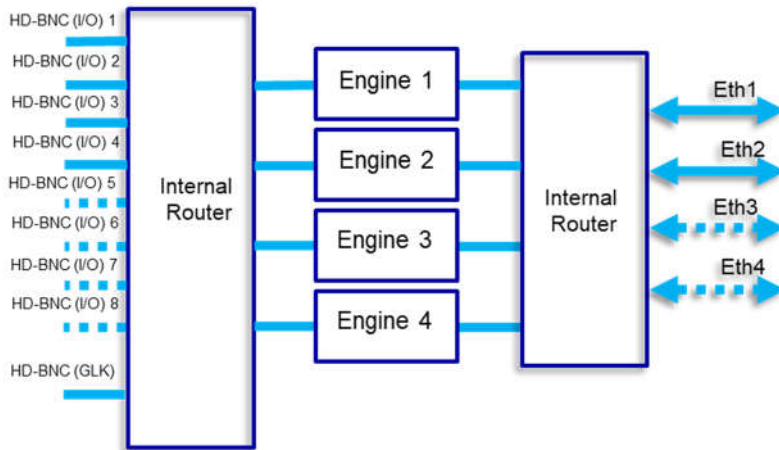
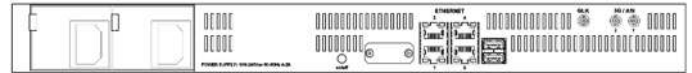
LAGUNA SINGLE

LAGUNA **SINGLE** is the ideal solution for single channel where high reliability but also, simplicity and cost are important factors. This makes it the ideal Solution for 1 channel contributions.

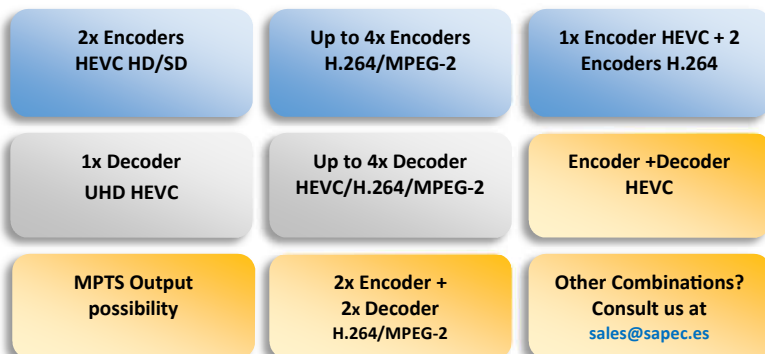
LAGUNA SINGLE can be configured as encoder or decoder, by changing the Layout on the product web.

This model is supplied with 2x configurable HDBNC (SDI/ASI) and 2x IP interfaces by default. Upgradable to 4x IP (I/O).

LAGUNA SINGLE is an **H.264/MPEG-2** solution for HD/SD and 4:2:2/4:2:0. In addition, it can also be configured as **HEVC decoder**.



Layout Examples with LAGUNA QUAD:



LAGUNA QUAD

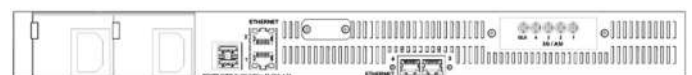
LAGUNA **QUAD** is probably the most versatile of the models due to the 3G interfaces & density options.

With the 4 Engines of this solution, we can configure multiple Layouts, as for example 4 encoders & Multiplexer in 1U, or a Bidirectional HEVC solution (encoder + decoder) .

Laguna Quad: 4x HDBNC interfaces

Laguna Quad -8: 8x HDBNC interfaces

LAGUNA **QUAD** is an **HEVC/H.264/MPEG-2** solution for 12G/3G/HD/SD and 4:2:2/4:2:0. (consult max capacities on 3G) .



LAGUNA DUAL

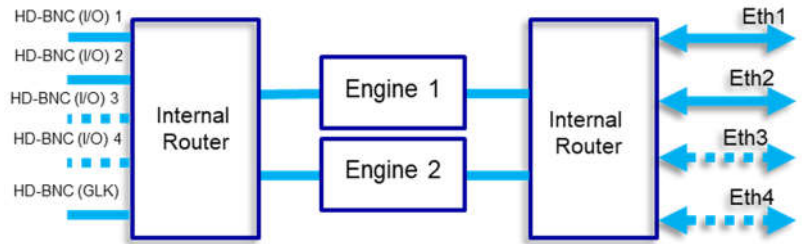
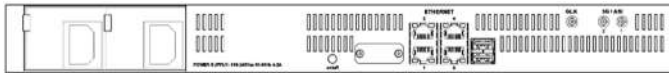
LAGUNA **DUAL** is the ideal Solution for 1 channel **HEVC** contributions or 2-channel on **H.264/MPEG2**,

This model has 2 Engines and it is supplied with 2xIP interfaces by default. Upgradable to 4xIP. The encoder output can be SPTS or MPTS.

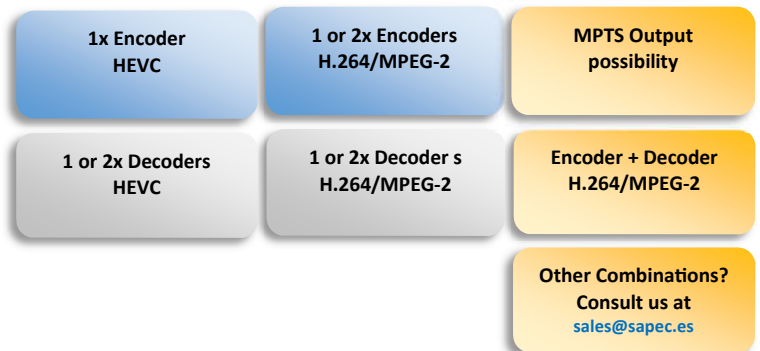
Laguna Dual: 2 HDBNC interfaces .

Laguna Dual-4: 4 HDBNC interfaces .

LAGUNA DUAL supports both 4:2:2 & 4:2:0 for HD/SD (3G also on H.264/MPEG-2). The different layouts can be selected on the webpage by the simple click of a button.



Layout Examples with LAGUNA DUAL:



LAGUNA OCTAL

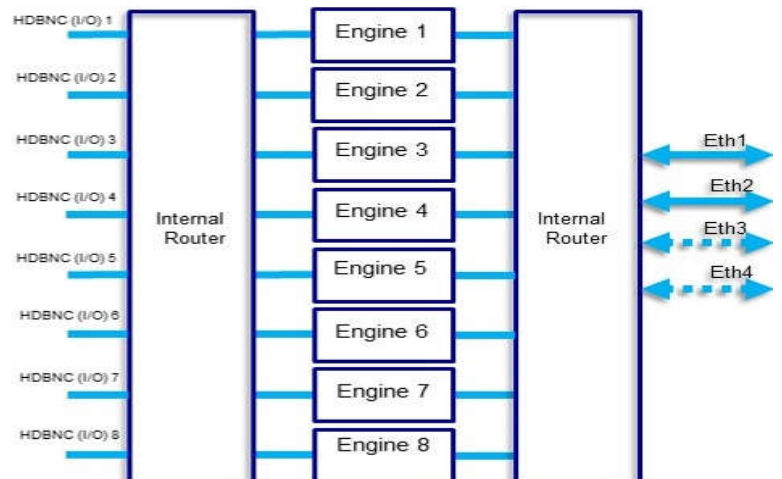
LAGUNA **OCTAL** is called to be the most versatile contribution solution, in terms of density, in the market.

LAGUNA OCTAL is an **HEVC/H.264/MPEG-2** solution for 12G/3G/HD/SD and 4:2:2/4:2:0.

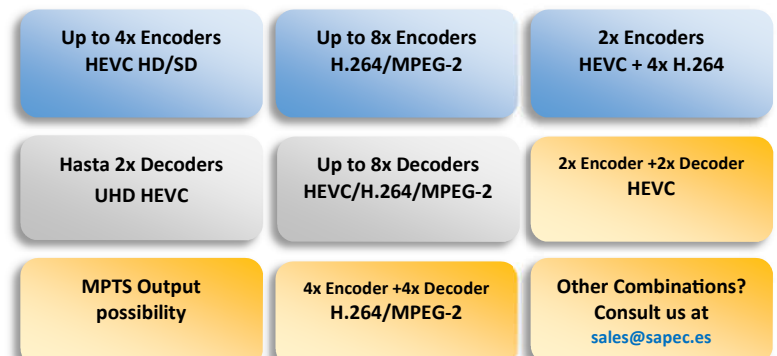
This is the platform with higher processing capacity. With 8 Engines ,the OCTAL allows multiple Layouts.

This model is supplied with 8x HDBNC interfaces (SDI/ASI) and 2x IP interfaces. Upgradable to 4xIP.

This model also allows MPTS output on the encoders and support of 3G interface. (Consult max. capacities on 3G).



Layout Examples with LAGUNA OCTAL:



GENERAL SPECIFICATIONS

PLATFORM	Engines & Interfaces	Density
SINGLE: LMP1000	Number of Engines: 1 Number of Interfaces: 2x HDBNC (SDI/ASI) & 2x IP	Encoding Density: 1x channel H.264/MPEG-2 Decoding Density: 1x channel HEVC/H.264/MPEG-2
DUAL: LMP2000	Number of Engines: 2 Number of Interfaces: 2x HDBNC (SDI/ASI) & 2x IP	Encoding Density: Up to 2x channels H.264/MPEG-2 or 1x channel HEVC Decoding Density: Up to 2x channels HEVC/H.264/MPEG-2
DUAL-4: LMP2004	Number of Engines: 2 Number of Interfaces: 4x HDBNC (SDI/ASI) & 2x IP	Encoding Density: Up to 2x channels H.264/MPEG-2 or 1x channel HEVC Decoding Density: Up to 2x channels HEVC/H.264/MPEG-2
QUAD: LMP4000	Number of Engines: 4 Number of Interfaces: 4x HDBNC (SDI/ASI) & 2x IP	Encoding Density: Up to 4x channels H.264/MPEG-2 or 2x channel HEVC Decoding Density: Up to 4x channels HEVC/H.264/MPEG-2
QUAD-4: LMP4008	Number of Engines: 4 Number of Interfaces: 8x HDBNC (SDI/ASI) & 2x IP	Encoding Density: Up to 4x channels H.264/MPEG-2 or 2x channel HEVC Decoding Density: Up to 4x channels HEVC/H.264/MPEG-2
OCTAL: LMP8000	Number of Engines: 8 Number of Interfaces: 8x HDBNC (SDI/ASI) & 2x IP	Encoding Density: Up to 8x channels H.264/MPEG-2 or 4x channel HEVC Decoding Density: Up to 8x channels HEVC/H.264/MPEG-2

APPS	Description	Engines Required
Encoding	Video Encoding H264/MPEG2 HD/SD.Profile 420 or Profile. 422/420 Includes: 4 Audio PIDs (Stereo), Vertical Interval, SMPTE2022 with FEC and audio/video pattern generator	1
Encoding	Video Encoding HEVC/H264/MPEG2 HD/SD.Profile 420 or Profile 422/420 Includes: 4 Audio PIDs (Stereo), Vertical Interval, SMPTE2022 with FEC and audio/video pattern generator	2
Encoding	Internal Multiplexer (MPTS) // BISS 1/E Encryption // SCTE 104 ->SCTE35 // +4 Audio PID // DD/DD+ // SRT	0
Decoding	Video Decoding H264/MPEG2 HD/SD.Profile 420 or Profile. 422/420 Includes: 4 Audio PIDs (Stereo), Vertical Interval, SMPTE2022 with FEC and audio/video pattern generator	1
Decoding	Video Decoding HEVC/H264/MPEG2 HD/SD.Profile 420 or Profile 422/420 Includes: 4 Audio PIDs (Stereo), Vertical Interval, SMPTE2022 with FEC and audio/video pattern generator	1
Decoding	Genlock // BISS 1/E decryption // SCTE 35 ->SCTE104 // +4 Audio PID // DD/DD+ // SRT	0

VIDEO

Formats:

12G-SDI (SMPTE 2082): 2160p50/59.94/60
3G-SDI (SMPTE 424M): 1080p50/60/59.94 (option)
HD-SDI (SMPTE 292M): 1080 i25/i29.94/ i30, 720p50/60/59.94
SDI (SMPTE 259M): 625i25, 525i29.97

Internal pattern generator: colour bars, moving bars, etc...

Thumbnails

Compression Standards & Profiles

HEVC Main@L3	H.264 HP@L3	MPEG-2 MP@ML
HEVC Main10@L3	H.264 MP@L4	MPEG-2 MP@HL
HEVC Main 10 422@L3	H.264 HP@L4	MPEG-2 422P@ML
HEVC Main@L4	H.264 Hi422@L3	MPEG-2 422P@HL
HEVC Main10@L4	H.264 Hi422@L4	
HEVC Main 422@L4		
HEVC Main10/8@L6 & Main 422@L6		

Type of Bitrate CBR (HEVC, H.264, MPEG-2), VBR (H.264)

Resolutions

2160p (UHD decoder): 3840 x 2160
1080i/p: 1920 x 1080, 1440 x 1080, 960 x 1080
720 x 576, 704 x 576 (50i Input),
720 x 480, 704 x 480 (59.94i Input)
720p: 1280 x 720, 960 x 720, 640 x 720
525i: 720 x 480, 704 x 480, 352x 480
625i: 720 x 576, 704 x 576, 352 x 576

One-Seg (ISDB-Tb): From 352x288 to 160x90 p29.97/30 (*)

AUDIO

I/O interfaces (embedded): Up to 8 pairs (stereo) per video input.

Sampling Rate 48 KHz

Standards

MPEG-1 Layer II (ISO/IEC 11172-3), AAC (LC/HE v1, HE v2), Pass-through PCM
SMPTE 302M 16/20/24 bits, Dolby PT, Dolby Digital (AC3) & Dolby Digital Plus (EAC3)
MPEG-H

Video over IP

Interfaces

2 x RJ-45 10/100/1000 BT Eth RJ45
(Possibility of +2 additional IP interfaces. See HW options)

Encapsulation:

TS over IP: UDP, RTP with FEC (Multicast/Unicast)
SMPTE 2022-1 /2/7 (Encoder and Decoder)
SRT (Optional)

ANCILLARY DATA & VBI

Teletext SD (ETS 300706), HD (OP47), ST2031
Closed Caption (CEA608, CEA708, OP47)
Signalling and aspect ratio: 4:3, 16:9, AFD, WSS
HbbTV Signalling
Conversion SCTE104 -> SCTE35 (Encoder)
Conversion SCTE35 -> SCTE104 (Decoder)

System Management

Via Front Panel (LCD), WEB GUI, RESTFUL API configuration and SNMP (v2) traps

Power Supply

Voltage range: AC 100 - 240 V, 50/60Hz
DC 40 - 60 V

Max. Consumption:

SINGLE	DUAL	QUAD	OCTAL
<100W	<205W	<190	<340W

Weight & dimensions

19" x 1RU x 322 mm // <5kg (SINGLE/DUAL)
19" x 1RU x 500 mm // <8kg (QUAD/OCTAL)

HARDWARE OPTIONS

2xIP additional interfaces (RJ-45 10/100/1000 BT)

TSolP: UDP, RTP, FEC (Multicast/Unicast), SMPTE 2022-1 /2/7

Redundant Hot swappable PSU

AC 100 - 240 VAC, 50/60Hz or DC 40 - 60 VDC (*) Check availability/Capacity