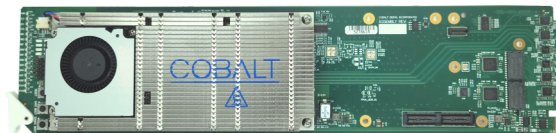# PACIFIC ULL-DEC ● HEVC Upgradeable AVC / MPEG-2 Software Defined Broadcast Decoder

The Cobalt® **PACIFIC ULL-DEC HEVC Upgradeable AVC/MPEG-2 Software Defined Broadcast Decoder** is a professional multi-standard decoder designed to meet the most stringent requirements for today's broadcasters. It supports MPEG-2 and AVC (H.264) (4K support available), as well as offering a full complement of audio decoding capabilities. The PACIFIC ULL-DEC is an industry standard openGear® card and provides an ideal platform for transitioning to state-of-the-art decoding capabilities.

FEATURES

Future-Proof — The PACIFIC ULL-DEC Decoder supports MPEG-2, MPEG-4 AVC (H.264) and (optionally) HEVC (H.265), so it can be deployed today and upgraded as your needs change.

Industry Standard Form-Factor — The PACIFIC ULL-DEC is offered in the industry-standard openGear® format and is compatible with existing deployed openGear® frames.

High Density — The Pacific ULL-DEC supports one input stream up to 1080p60 (two independent streams with +AVC option), or (optionally) a single UHD 4Kp60 input stream. One openGear® frame can support up to 10 cards, for a total of 20 HD or 10 UHD 4K.

Full Audio Support — The PACIFIC ULL-DEC supports decoding of MPEG-1 Layers I/II/III, AAC-LC, HE-AAC, Dolby AC-3/EAC-4/AC-4, SMPTE 302M LPCM, and Dolby-E, as well as Dolby AC-3/EAC-3/AC-4 pass-through.

Ultra Low Latency: Under 5ms of latency for suitable streams.

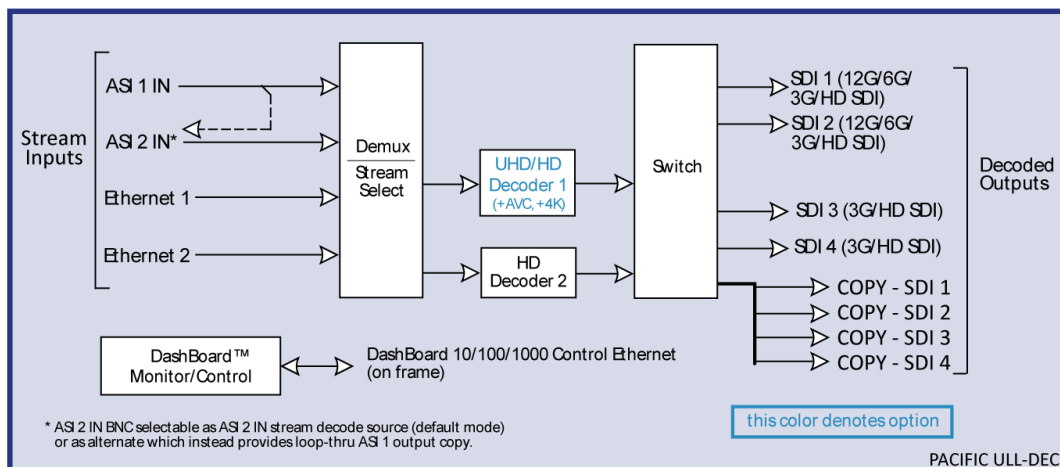| **Base Unit Features —**	
Support for decode up to 1080p60	Support for 4 stereo pairs (8 audio channels) in any combination of channels of MPEG-1 Layer II, AAC-LC, and HE-AAC (v1/v2) modes
Support for MPEG-2 and MPEG-4 AVC (H.264)	
Support for 4:2:0 8-bit/10-bit decoding (*MPEG-2 does not support 10-bit)	Supports all popular formats: 480i, 576i, 720p, 1080i, 1080p
Supports ASI, UDP and RTP. Other protocols available as options.	Remote control/monitoring via Dashboard™ software
Extensive ancillary data support	Hot-swappable
	Five-year warranty

Stream Inputs: ASI 1 IN, ASI 2 IN*, Ethernet 1, Ethernet 2 → Demux / Stream Select → UHD/HD Decoder 1 (+AVC, +4K), HD Decoder 2 → Switch → Decoded Outputs:
- SDI 1 (12G/6G/3G/HD SDI)
- SDI 2 (12G/6G/3G/HD SDI)
- SDI 3 (3G/HD SDI)
- SDI 4 (3G/HD SDI)
- COPY - SDI 1
- COPY - SDI 2
- COPY - SDI 3
- COPY - SDI 4

DashBoard™ Monitor/Control ↔ DashBoard 10/100/1000 Control Ethernet (on frame)

* ASI 2 IN BNC selectable as ASI 2 IN stream decode source (default mode) or as alternate which instead provides loop-thru ASI 1 output copy.

this color denotes option

PACIFIC ULL-DEC

PACIFIC ULL-DEC ● HEVC Upgradeable AVC / MPEG-2 Software Defined Broadcast Decoder

SPECIFICATIONS

Inputs
(2) DVB-ASI inputs
(2) Gigabit Ethernet ports for IP input, supporting the following protocols:
- UDP unicast/multicast
- RTP unicast/multicast with optional SMPTE-2022 FEC
- RTMP Client
- RTMP Server (requires optional license)
- RTSP Client
- HTTP Live Streaming*
- RIST for contribution over the Internet (requires optional license)
- SRT for legacy contribution over the Internet (requires optional license)
 Optional SMPTE-2110 baseband video over IP turnaround*
 *Future release availability

Outputs
(2) SDI outputs each supporting 12G-SDI, 3G-SDI, HD-SDI and SD-SDI
(2) SDI outputs each supporting 3G-SDI, HD-SDI and SD-SDI
Support for all standard frame rates (interlaced and progressive): 23.98, 24, 25, 29.97, 30, 50, 59.94, 60
Video Post-Processing
Support for up/down/cross conversion of output video (independent of incoming stream)
Conversion between interlaced and progressive
Frame rate conversion
High Dynamic Range (HDR) support

Video Decoding
 Decoding Standards:
- MPEG -2
- MPEG-4 AVC (H.264)
- HEVC (H.265) (Option)
 Support for one 1080p60 decode session (dual 1080p60 decode session support optional)
 Support for UHD decoding (option) in AVC and HEVC modes (Maximum resolution 3840x2160p60)
 Support for 4:2:0 and 4:2:2 (option) color spaces in all modes
 Support for 8-bit / 10-bit decoding in all modes *10-bit not available in MPEG-2
 Ultra Low latency decoding

Audio Decoding
 Decoding Standards:
- MPEG-1 Layers I/II/III
- AAC-LC
- HE-AAC (v1/v2)
- LPCM (SMPTE-302M)
- Dolby AC-3/EAC-3/AC-4 pass-thru support
 (5.1-Surround decoding available for AAC-LC, HE-AAC, Dolby AC-3/EAC-3/AC-4; subject to licensing)
 Maximum number of channels supported (subject to licensing)
- MPEG-1 Layers I/II/III: 16 stereo pairs (32 audio channels)
- Dolby AC-3: 16 stereo pairs or an equivalent number of surround channels
- Dolby EAC-3: 8 stereo pairs (16 channels or an equivalent number of surround channels)
- Dolby AC-4: 16 stereo pairs or an equivalent number of surround channels
- Dolby-E: 16 channels or an equivalent number of surround channels
- AAC-LC: 8 stereo pairs (16 channels or an equivalent number of surround channels)
- HE-AAC (v1/v2) 8 stereo pairs (16 channels or an equivalent number of surround channels)
- Optional support for 5.1 Surround Sound decoding, in AAC and Dolby modes

Ancillary Data Support
Closed-Captioning: SMPTE-334M (EIA-608 and EIA-708 supported), Line 21 (SD signals)
OP-47/SMPTE RDD-08 teletext subtitles
AFD: SMPTE-2016
SCTE-35 to SCTE-104 conversion
SMPTE-2038 generic ancillary data transport (timecode, KLV, etc.)
SMPTE-2108 HDR Metadata

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ORDERING INFORMATION

Note: For Software Options and Upgrades, please see the respective Options sections listed below.

The PACIFIC ULL-DEC Single-channel HEVC Upgradeable AVC / MPEG-2 Software Defined Broadcast Decoder (includes (1) +AVC and (2) +MP1L2-AAC licenses)

SOFTWARE OPTION LICENSES

+HEVC-DEC Enable HEVC decoding on one AVC encode engine (up to 2 licenses max per unit)

+AVC-DEC Additional 1080p60 decoder channel with MPEG-2, MPEG-4 AVC, HEVC (up to one additional channel, for a total of 2 channels per unit)

+4K-DEC Add 4K support. Requires +AVC-DEC and +HEVC-DEC license on card

+422 Add 4:2:2 decoding support (per unit)

+DEC-2.0 Dolby Digital/Dolby Digital Plus stereo audio decoding license

+DEC-5.1 Dolby Digital/Dolby Digital Plus 5.1 Surround Sound audio decoding license

+DEC-E Dolby E audio decoding license

+SRT-DEC SRT Support license

+DEC-RTMP-SVR RTMP Server License Option

+FEC-DEC Add SMPTE-2022 support (per unit)

+IP-OUT Add ASI-to-IP conversion option (If host card has +FEC-DEC license, card will also be able to generate FEC on the output stream)

+TSMON Add transport stream continuous monitoring (per channel)

+GENLOCK Add Genlock support (license is per channel)

+MP1L2-AAC-DEC MPEG-1 Layer II, AAC-LC, and HE-AAC audio decoding per pair

+RIST/ARQ-DEC Add RIST RTP/ARQ support (per unit)

+RIST/ENCRP-DEC Add RIST Encryption/Authentication Support (per unit)
(Requires the +RIST/ARQ-DEC license to also be present on the decoder)

Rear I/O Module: RM20-ULL-DEC-A

20-Slot Frame Rear I/O Module (Standard-Width) (2) ASI Inputs, (2) GigE Ethernet Media Ports, (4) 12G/6G/3G/HD-SD-SDI Coaxial Outputs, (4) Output Copy Coaxial Outputs (All SDI coaxial connectors HD-BNC)

MPN: 1137