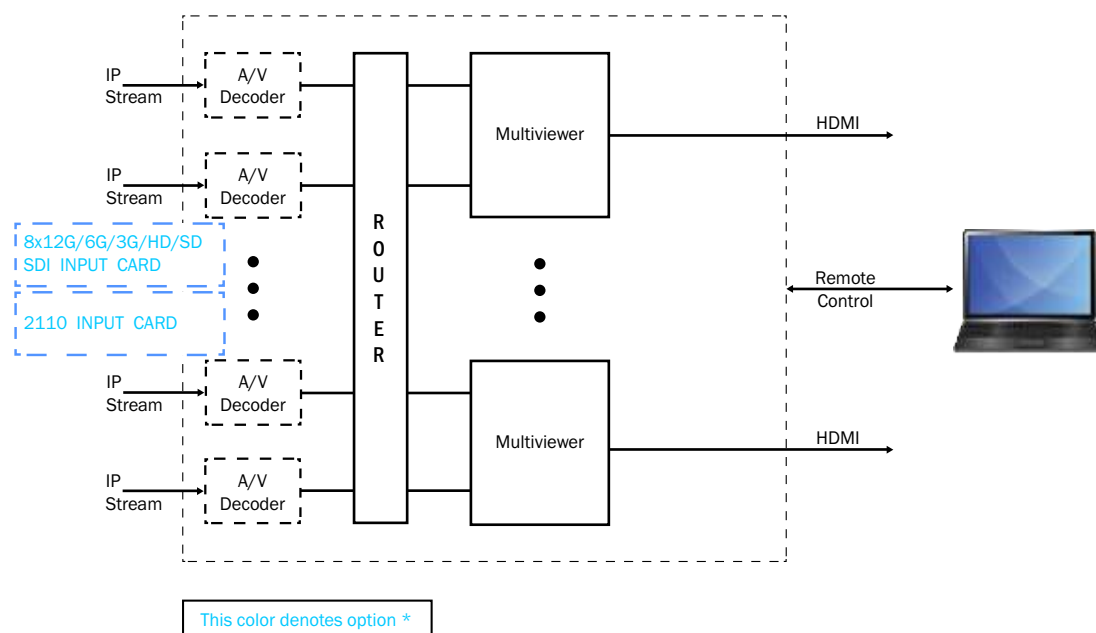# UltraBlue IP-MV ● Software Based Multiviewer

The COBALT® **UltraBlue IP-MV** is a multiviewer software solution with the following features:

- Support for receiving audio/video content over IP over a variety of protocols and formats
- Support for multiple screens (heads) with arbitrary sizes and orientations
- Flexible support for graphical overlays, as well as UMDs and IDs
- Support for the most common types of ancillary data, including various types of Closed-Captioning
- Flexible audio support, including audio bars and audio output monitoring
- Support for tally
- Configurable alarms
- HDMI outputs
- Support for baseband ST 2110 audio/video/ancillary data streams, with full NMOS support (requires Mellanox ConnectX6 cards)
- Support for baseband SDI inputs (requires Dektec DTA-2178 cards)

The general architecture is depicted in the block diagram below

This color denotes option *

UltraBlue IP-MV is provided as an x86-64 installer ISO image, which can be run in standard off-the-shelf hardware (COTS). By using NVIDIA Vulkan 1.3 capable GPUs the **UltraBlue IP-MV** achieves highly efficient video processing. When available the **UltraBlue IP-MV** uses GPU acceleration for video decoding offloading to the CPU only when necessary. The number of inputs, streams, and heads is a function of the available CPU/GPU. Typically one CPU hyperthread is required per input.

There is a separate user interface to configure the **UltraBlue IP-MV**. This user interface can be accessed remotely over a network. It supports multiple user logins, and per-user access privileges.

With its highly flexible GPU processing the **UltraBlue IP-MV** can drive multiple HDMI displays in any orientation (landscape or portrait, selectable per-display)

UltraBlue IP-MV ● Software Based Multiviewer

FEATURES

Input Protocol Support

UltraBlue IP-MV supports the following network protocols:
- TS over UDP
- TS over RTP, compliant with SMPTE ST 2022-2
- TS over RTP with FEC, compliant with SMPTE ST 2022-1
- RIST Simple Profile, compliant with VSF TR-06-1
- RIST Main Profile Baseline Level, compliant with VSF TR-06-2
- SMPTE ST 2110-20 (uncompressed video) up to 3840x2160p60
- RTMP Client (allowing IPMV to "pull" content from servers)

The following protocols are planned for later releases:
- SRT
- RTSP Client
- RTMP Server (allowing RTMP Clients to connect to IPMV)
- HLS client (allowing IPMV to "pull" an HLS feed)
- DASH client (allowing IPMV to "pull" a DASH feed)
- WebRTC client (allowing IPMV to "pull" a WebRTC feed)

Video Input Support

UltraBlue IP-MV supports the following formats, including support for 8-bit/10-bit and 4:2:0/4:2:2:
- H.262 (MPEG-2), up to 1920x1080p60
- H.264 (AVC), up to 3840x2160p60
- H.265 (HEVC), up to 3840x2160p60
- SMPTE ST 2110-20 (uncompressed video) up to 3840x2160p60
- SD-SDI, HD-SDI, 3G-SDI, 12G-SDI

The following formats are planned for later releases:
- SMPTE ST 2110-22 (JPEG-XS) up to 3840x2160p60
- JPEG-2K up to 3840x2160p60
- NDI up to 3840x2160p60

Support for ST 2110-20 requires a suitable CPU platform with Cobalt-specified 25Gb and 100Gb Ethernet interfaces, depending on video resolution. *NOTE: See OPTIONS below.

Support for baseband SDI requires a suitable CPU platform with Cobalt-specified capture cards. *NOTE: See OPTIONS below.

Audio Input Support

UltraBlue IP-MV supports the following audio formats:
- MPEG-1 Layer I, II and III (stereo)
- AAC-LC (stereo and 5.1)
- HE-AAC v1 (stereo and 5.1)
- HE-AAC v2 (stereo)
- Dolby AC-3/EAC-3 (stereo and 5.1)
- SMPTE ST 2110-30 uncompressed audio

The following formats are planned for later releases:
- Dolby AC-4 (stereo and 5.1)
- Dolby E (full support up to 8 channels)
- SMPTE ST 302-M LPCM

Multiviewer Functionality

UltraBlue IP-MV has the following functionality:
- Support for multiple users with different levels of access.
- Support for saving and recalling presets.
- Arbitrary PIP sizing, positioning, and rotation.
- Arbitrary image and text overlay.
- Support for audio bars.
- Support for on-screen EIA-608/708 Closed Captions from:
    - Compressed content: encapsulated in the video elementary stream as per A/53.
    - ST 2110 content: ST 334M CDPs in ST 2110-40.
    - SDI content: ST 334M CDPs in ancillary data.
- Basic stream presence/absence alarms.
- Tally support.

The following features are planned for later releases:
- Other ancillary data support (including SMPTE ST 2038)
- Support for OP-47 Closed Captions.

Output Support

UltraBlue IP-MV has the following output support:
- Multiple HDMI heads, with arbitrary routing.
- Arbitrary audio routing to HDMI outputs.
- Display Port support.

The following features are planned for later releases:
- WebRTC low-latency output (for streaming) with arbitrary audio routing.
- HLS server output with arbitrary audio routing.
- SMPTE ST 2110
- SDI

OPTIONS

* UltraBlue IP-MV Options - Dektec DTA-21788x12GSDI adds 8 HD-BNC SDI inputs per PCIe card. Supports 12G/6G/3G/HD/SD SDI and ASI.

- 100G 2110 Mellanox/NVIDIA ConnectX-6 PCIe card.

- QC Quality Check for video, audio and ancillary data monitoring.