# ESTUARY 2U






## MAIN FEATRUES

| | |
|---|---|
| FPGA video processing | ESTUARY uses CALICO core (patented video processing) |
| Set up and control Software | CURRENT (free download and free to use. From green-hippo.com) Control and set-up software includes full off-line configuration editor |
| Included inputs and outputs | 8x Inputs, 4x outputs (4K60 HDMI 2.0, HDCP 2.2 + 12GSDI) |
| Optional expansion modules (Increase the number and/or type of I/O connections, and add new features and functionality) | 3x slots (1x high bandwidth Quad input slot - 60Gb, 1 standard Quad input slot - 8Gb, 1x high bandwidth Quad output slot - 60Gb). Can be fitted as a future upgrade. Installable from the rear of the unit |
| Video windows | Up to 256 per system (no canvas restrictions) |
| Four design canvases (over 16 Gigapixels of design space) | 4.1 gigapixels per canvas. Canvases are massive real world design spaces. Place displays and contents freely and accurately |
| Field upgradable | Firmware updates using CURRENT |
| Output mapper | 32 maps per output (used for DVLED mapping and for monitoring to create virtual outputs) |
| Input mapper | 32 maps per input (create virtual / cropped sources from a single input) |
| HDR (High Dynamic Range) | HDR10 and HLG (Hybrid Log Gamma) - convert any input to any output |
| Custom resolution engine | Available for inputs and outputs (with restrictions) |
| Window source cropping | Any input, max 256 crops / dependent on system bandwidth (live crops from any input source) |
| Canvas watch | Used for monitoring, multiviewing. Any output including mapped outputs. Any and/or all available outputs can be set to canvas watchers |
| Labelling | Max 222 labels, source, text and images (upload images via CURRENT for backgrounds, keys, graphics and labels). Labels can be linked to video windows, crops, and outputs |
| Presets | Up to 500 with effects and transitions |
| Any output any canvas | Any output including mapped outputs on any canvas in any position and orientation |
| Internal storage | 3GB (images, EDID's, fonts and labels) |
| Syncronisation | BNC ref input and loop, Framelock to any input video source, synclock using internal clock |
| Audio | One stereo pair per canvas. Input (44.1kHz and 48kHz) Output (48kHz) |
| Display agnostic | Designed for DVLED controllers / displays / projectors |
| 1U compact size | Rack mount or desktop (removable rack ears and feet are included) |
| EDID manager | Up to 20 custom EDID's can be uploaded and applied to inputs in addition to the provided system EDID's. Single resolution EDID's can be created for a specific input |
| Secure access | User login with 3 levels of access available (Admin / Power-user / User) |
| Secure connection | HTTPS |
| Low power consumption | Typically around 250W |
| OLED display | IP address, device name and status messages (customizable using CURRENT, content, brightness and ON/OFF) |
| Integrated carry handles | Easy rack installation and transport |
| Rugged all metal cabinet and chassis | Aluminum and steel front panel and powder coated steel cabinet |
| Front panel illumination | Fully controllable via CURRENT (brightness level and ON/OFF) |
| Designed for continuous use | 24/7, 365 days a year operation, with 2-year limited warranty |
| Smart cooling system | Automatic fan control with option to fix a fan profile |
| Stainless steel fan filter included | For dusty operating environments. Only requires cleaning periodically, no need to replace, removable from the rear without de-installation |

# ESTUARY 2U



## VIDEO PROCESSING

| | |
|---|---|
| ESTUARY uses CALICO video processing | CALICO FPGA core (10-bit) |
| Parallel processing architecture | Yes |
| Video / graphics layers | 256 (max including video windows, keys, graphics, labels, background images) |
| Video latency (input to output) | 1 frame, max 2 frames regardless of I/O |
| Up/down/cross conversion | Yes (all inputs and outputs) |
| Number of canvasses | 4 |
| Canvas size | (64,000 x 64,000) pixels per canvas |
| Keying | Luminance Keying (any layer to layer below / keys cannot be overlapped). Adjustable key-range and focus adjustment |
| Fading | Fade to Black / Fade to Transparent / Crossfade |
| Display size compensation | Yes, different physical sizes in video walls (Physical Mode) |
| Output rotation | Yes for any outputs, windows and labels (360o rotation 0.1o increments) |
| Output mapper | Yes - up to 32 maps per output (All outputs) |
| Projector edge blending | Yes (all outputs) |
| HDCP key handling | Yes, HDCP 2.2 |

## VIDEO INPUTS (8X)

| | |
|---|---|
| HDMI 2.0 | 6x 2160p (4096x2160) 60Hz |
| HDCP | 2.2 / 1.4 |
| 12GSDI | 2x 2160p (3840x2160) 60Hz |
| Chroma sub-sampling (10-bit) | 4:2:2 |
| Chroma sub-sampling (8-bit) | 4:4:4 |
| Color space | SDR YUV (L) BT.601, BT.709, SDR RGB (L) BT.709, RGB (F) BT.709, HLG YUV (L) BT.2020, HDR10 YUV (L) BT.2020 and auto detect |

## SUPPORTED INPUT RESOLUTIONS (6X HDMI 2.0)

| | |
|---|---|
| 720p (1280x720) | 50, 59.94, 60Hz |
| 1080p (1920x1080) | 23.98, 24, 25, 29.97, 30, 50, 59.94, 60, 100, 119.88, 120Hz |
| 2160p (3840x2160) | 23.98, 24, 25, 29.97, 30, 50, 59.94, 60Hz |
| 2160p (4096x2160) | 23.98, 24, 25, 29.97, 30, 50, 59.94, 60Hz |

## SUPPORTED INPUT RESOLUTIONS (2X 12GSDI)

| | |
|---|---|
| 480i | 59.94Hz |
| 576i | 50Hz |
| 720p (1280x720) | 25, 29.97, 30, 50, 59.94, 60Hz |
| 1080p (1920x1080) | 23.98, 24, 25, 29.97, 30, 50, 59.94, 60Hz |
| 2160p (3840x2160) | 23.98, 24, 25, 29.97, 30, 50, 59.94, 60Hz |

## VIDEO OUTPUTS (4X)

| | |
|---|---|
| HDMI 2.0 | 2x 2160p (3840x2160) 60Hz |
| HDCP | 2.2 / 1.4 |
| 12GSDI | 2x 2160p (3840x2160) 60Hz |
| Chroma sub-sampling (10-bit) | 4:2:2 |
| Chroma sub-sampling (8-bit) | 4:4:4 |
| Color space | SDR YUV (L) BT.601, BT.709, SDR RGB (L) BT.709, RGB (F) BT.709, HLG YUV (L) BT.2020, HDR10 YUV (L) BT.2020 |

## SUPPORTED OUTPUT RESOLUTIONS (2X HDMI 2.0)

| | |
|---|---|
| 720p (1280x720) | 50, 59.94, 60Hz |
| 1080i (1920x1080) | 50, 59.94, 60Hz |
| 1080p (1920x1080) | 23.98, 24, 25, 29.97, 30, 50, 59.94, 60, 100, 119.88, 120Hz |
| 2160p (3840x2160) | 23.98, 24, 25, 29.97, 30, 50, 59.94, 60Hz |

## SUPPORTED OUTPUT RESOLUTIONS (2X 12GSDI)

| | |
|---|---|
| 720p (1280x720) | 25, 29.97, 30, 50, 59.94, 60Hz |
| 1080i (1920x1080) | 50, 59.94, 60Hz |
| 1080p (1920x1080) | 23.98, 24, 25, 29.97, 30, 50, 59.94, 60Hz |
| 2160p (3840x2160) | 23.98, 24, 25, 29.97, 30, 50, 59.94, 60Hz |



# ESTUARY 2U



## IMAGES (BACKGROUNDS / LABELS)

| | |
|---|---|
| Still Image formats supported (internal image store) | BMP, PNG,JPG,JPEG, TIF, TIFF, PPM, PGM, PBM, HDR |
| Interfaces | CURRENT, File transfer supported (FTP). USB-3 on rear of unit |

## CONTROL METHODS

| | |
|---|---|
| Network interface | RJ45 - Gigabit Ethernet |
| Network standard | IPv4 |
| Monitoring | SNMP and SYSLOG |
| API protocols | REST using HTTP or HTTPS, CLI using TCP/IP |
| API specification | Available from https://api.tvone.com/ |
| Lighting Desk | DMX - sACN |
| Control Software | CURRENT |
| Contol App | CURRENT Mobile (Android / IOS) |
| Plug-in's | Q-SYS, Crestron, Streamdeck (via Companion APP plug-in) |

## WARRANTY

| | |
|---|---|
| Limited warranty | 2 years parts and labor |

## REGULATORY COMPLIANCE

| | |
|---|---|
| System | FCC, CE, RoHS, UL, UKCA |

## MECHANICAL

| | |
|---|---|
| Height | 88mm (3.46") |
| Width | 435mm (17") / including rack ears 482mm (19") |
| Depth | 364mm (14.33") |
| Weight | 8Kg (17.64 lbs.) |

## ENVIRONMENTAL

| | |
|---|---|
| Operating temperature | 32° to 104°F (0° to +40°C) |
| Operating humidity | 10% to 85%, Non-condensing |
| Storage temperature | 14° to +158°F (-10° to +70°C) |
| Storage humidity | 10% to 85%, Non-condensing |
| Fan noise | Nominal <45dBA - max 57dBA (@0.5m) |

## POWER

| | |
|---|---|
| Dual-redundant hot-swappable PSU | 400w load balancing (One supplied - additional PSU optional) |
| Power consumption | 250w nominal with all expansion modules fitted |
| Input voltage | 100 to 240v (+/- 10%) AC auto detecting 50/60Hz 6-3A |

## AVAILABLE ACCESSORIES (FIELD UPGRADABLE / REPLACEABLE)

| | |
|---|---|
| Quad 4K60 HDMI input module 2160p (4096x2160) 60Hz 4:4:4 | HPMC-HDMI-4K4IN |
| Dual 4K30 HDMI input module 2160p (4096x2160) 30Hz dual, or single 60Hz 4:2:0 | HPMC-HDMI-4K2IN |
| Quad 2K60 HDMI input module 1080p (1920x1080) 60Hz 4:4:4 | HPMC-HDMI-2K4IN |
| Quad 12GSDI input module 2160p (3840x2160) 60Hz 4:2:2 | HPMC-12GSDI-4IN |
| Quad 3GSDI input module 1080p (1920x1080) 60Hz 4:2:2 | HPMC-3GSDI-4IN |
| Audio external input and output module | HPMC-AUD-2IN-4OUT |
| Quad 4K60 HDMI output module 2160p (3840x2160) 60Hz 4:4:4 | HPMC-HDMI-4K4OUT |
| Quad 12GSDI output module 2160p (3840x2160) 60Hz 4:2:2 | HPMC-12GSDI-4OUT |
| Hot swappable, dual-redundant power supply | HPMC-400RPS |

