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 5-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

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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
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
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
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

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

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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
Eight 2K60 HDMI output module 1080p (1920x1080) 60Hz 4:4:4	HPMC-HDMI-2K8OUT
Quad 12GSDI output module 2160p (3840x2160) 60Hz 4:2:2	HPMC-12GSDI-4OUT
Hot swappable, dual-redundant power supply	HPMC-400RPS