ARCHITECTURAL SPECIFICATIONS
CORIOmaster2 Video Processor

CORIOmaster2 (CM2-547) is a powerful, efficient approach to building large 4K/8K video display systems. Multiple video windows can be positioned on LED, display based videowalls or projector edge blends, displaying any of the sources connected to CORIOmaster2. Windows can be visually "transitioned" into position, resized or rotated to any proportion allowing designers to achieve striking visual effects. Each system can support up to three separate 4.1 Gigapixel video canvasses with up to sixty four windows per canvas depending upon the source resolution, frame rate and size of windows. CORIOgrapher, the control software for the CORIOmaster2 series of processors, is a simple, easy to use design interface that enables window and source positioning and transition effects. This dynamic feature is easily managed through presets in CORIOgrapher or by simple commands executed by third party control systems. Fifty presets can be saved permanently in the system

DESIGN

1. Video processor shall include a 5-year warranty with system support for 5 years after discontinuance of the product.
2. Video processor must support cross conversion of the following signals: DVI, HDMI, VGA, Component, Composite, YC, SD-HDI, HD-SDI, 3G-SDI, HDBaseT. Video processors that do not support cross conversion of DVI, HDMI, VGA, Component, Composite, YC, SD-HDI, HD-SDI, 3G-SDI, HDBaseT shall not be accepted.
3. Video processor must support up/down conversion of the following signals: DVI, HDMI, VGA, Component, Composite, YC, SD-HDI, HD-SDI, 3G-SDI, HDBaseT. Video processors that do not support up/down conversion of DVI, HDMI, VGA, Component, Composite, YC, SD-HDI, HD-SDI, 3G-SDI, HDBaseT shall not be accepted.
4. Video processor must support control via RS-232. Video processors that so not support Rs-232 shall not be accepted.
5. Video processor must support control via RJ45. Video processors that do not support RJ45 control shall not be supported.
6. Video processor must support scaling on all outputs. Video processors that do not support scaling on all outputs shall not be accepted.
7. Video processor must allow less than 2 frames of delay. Video processors that allow more than 2 frames of delay in Video shall not be accepted.
8. Video processor must be a modular based system allowing for multiple configurations of Video in and output cards. Video processors that do not allow for modular configurations of I/O ports shall not be accepted.
9. Video processor shall provide 17 slots for modular configuration where 8 shall have dedicated use as an input and 6 shall have dedicated use as an output with one additional slot being used as an input or an output. One of the slots is dedicated for auxiliary use and one is dedicated for a CPU. Video processors that do not allow for 17 slots which are 8 dedicated inputs, 6 dedicated outputs, 1 input or output, 1 auxiliary and 1 CPU shall not be accepted.
10. Video Processor shall provide 4 x 8Gb bandwidth video input slots, 4 x 60Gb bandwidth video input slots and 1 x 120Gb bandwidth video input slot. Video processors that do not allow for 4 x 8Gb bandwidth video input slots, 4 x 60Gb

bandwidth video input slots and 1 x 120Gb bandwidth video input slot shall not be accepted.

11. Video processor must be able to manage 3 independent, simultaneous, canvases each of 64,000 x 64,000 pixels with one chassis. Video processors that do not manage 3 canvases simultaneously shall not be accepted.

12. Video processor must support 64, simultaneous, video channels per canvas. Video processors that do not support 64, simultaneous, video channels on each canvas shall not be accepted

13. Video processor must support 1-360º rotation on each video source. Video processors that do not support 1-360º rotation on all video sources shall not be accepted.

14. Video processor must support 1-360º rotation on each Output. Video processors that do not support 1-360º rotation on all outputs shall not be accepted.

15. Video processor must be FPGA based, allowing for FW upgrades to new functionality and features. Video processors that are not FPGA based shall not be accepted.

16. Video processor must support different size and resolutions of displays within each videowall. Video processors that do not support different size and resolution displays within each video wall shall not be accepted.

17. Video processor must support Projector edge-blending. Video processors that do not support projector edge-blending shall not be accepted.

18. Video processor must be HDCP compliant. Video processors that are not HDCP compliant shall not be accepted.

19. Video processor must have at least 50 presets per system. Video processors that do not have at least 50 presets per system shall not be accepted.

20. Video processor must provide Preset driven transitions. Video processors that do not support preset driven transitions shall not be accepted.

21. Video processor must support 4K60 Video sources. Video processors that do not support 4K60 shall not be accepted.

22. Video processor must support 4K60 outputs. Video processors that do not support 4K60 shall not be accepted.

23. Video processor must support Streaming video using RSTP over TCP/UDP and MPEG- TS, Video processors that do not support streaming video shall not be accepted

24. Video processor must support dual simultaneous streaming video up to 4K @ 30fps, video processors that do not support dual streams via a single RJ45 shall not be accepted.

25. Video processor must support dual file playback via USB 3.0 as a .mp4, mpeg 4, mov, and AVI, video processors that do not support these files playback via USB 3.0 shall not be accepted.

26. Video processor must support dual file playback via internal solid-state memory as a

27. .mp4, mpeg 4, mov, and AVI, video processors that do not support these files playback via solid state internal memory shall not be accepted.

28. Video processor must support still image store up to 7680x4320, video processors that do not support 8k still images shall not be accepted.

29. Video processor must have built in true redundant and hot-swappable power supplies. Video processor that do not have built in true redundant and hot-

swappable power supplies shall not be accepted.

30. Video processor must support control via 3rd party controller. Video processors that do not support 3rd party control shall not be accepted.

31. Video processor must require no more than 500 watts of power. Video processors that require more than 500 watts shall not be accepted.

32. Video processor must have support to encrypt all networked based communication through AES128 encryption to provide private communication. Video processors that cannot support AES128 encryption to provide private communication shall not be accepted.

33. Video processor must support REST API providing multi-user communication to device. Video processors that cannot support REST API providing multi-user communication to device shall not be accepted.

34. Video processor must support subscribe to events to provide real time feedback to automatically monitor the performance and events of the videowall and respond accordingly. Video processors that cannot support subscribe to events to provide real time feedback to automatically monitor the performance and events of the videowall and respond accordingly shall not be accepted.

35. Video processor must support embedded audio through the system from source to display. Video processors that cannot support embedded audio through the system from source to display shall not be accepted.

36. Video processor must support the de-embedding of audio, cross-converted and re-embedded on another source. Must support Input and output volume control together with audio mute. Video processors that cannot support the de-embedding of audio, cross-converted and re-embedded on another source and cannot support Input and output volume control together with audio mute shall not be accepted.

37. Video processor must support up to 56 discrete HD displays with ability to place these displays in any orientation. Video processors that cannot support up to 56 discrete HD displays will not be accepted.

38. Video processor must support up to 28 discrete 4K60 displays with the ability to place these displays in any orientation. Video processors that cannot support up to 28 discrete 4K60 displays with the ability to place these displays in any orientation will not be accepted.

39. Video processor must support a dual redundant power supply with load balancing feature. Video processors that do not support a dual redundant power supply with load balancing feature will not be accepted.

CORIOmaster2 Chassis and Modules:

CM2-547	4RU CORIOmaster2 chassis
CM2-3GSDI-4IN	3G-SDI input 4x
CM2-AVIP-IN-1USB-1ETH-128	4K Media Streaming Input 128GB SSD
CM2-DVIU-2IN	DVI-U input 2x (DVI, RGB/YUV, CV, YC via DVI-I)
CM2-HDMI-4IN	HDMI 1080P input 4x
CM2-HDMI-4K-2IN	HDMI 4K input 2x
CM2-HDBT-2IN-1ETH	HDBT input 2x (and single ethernet)
CM2-AUD-2IN-4OUT	Audio I/O module - analog (1xIN, 1xOUT), SPDIF (1xIN, 4xOUT)
via terminal block	

CM2-HDMI-4K-4OUT HDMI	4K output 4x
CM2-HDMI-HD-8OUT	HDMI 1080P output 8x
CM2-BONDING	Bonding Module
CM2-4RPS	Optional dual redundant, hot swappable power supply

TECHNICAL SPECIFICATIONS

Video Processing Power

Parallel Processing Architecture	Yes
CORIO Video Processing	Yes
Up/Down/Cross Conversion	Yes
Number of Canvasses	3
Display Size Compensation	Yes, different sizes in video walls
Output Rotation	Yes for any outputs and windows
Projector Edge Blending	Yes
HDCP Key Handling	Yes

Video Inputs

Analog	Up to 16x via Universal DVI, Format RGBHV, RGBS, RGsB, YPbPr
	Composite Video - Up to 16x via DVI-U
	YC (S-Video) - Up to 16x via DVI-U
	YUV /YPbPr - Up to 16x via DVI-U
	Television Standards - NTSC, PAL
Digital DVI	Up to 16x via Universal DVI (HDMI &HDCP compatible)
HDMI	Up to 32x (HDCP compatible)
4K HDMI	Up to 16x 4K30 or 8x 4K60
HDBaseT + Ethernet	Up to 16x 4K30 plus 8x ethernet via RJ45
3GSDi	Up to 32x 1080P/60 via BNC
IP	Up to 16x 1080P/30 or 8x 4K30 (IP Stream)

Supported Input Resolutions (depends on modules fitted)
(640x480P) 60/72/75/85Hz
(720x487i) 59.94Hz
(720x480i) 59.94Hz
(720x480P) 59.94Hz
(720x576i) 50Hz
(800x600P) 56, 60, 72, 75, 85Hz
(980x980P) 75Hz
(1024x768P) 60, 70, 75, 85Hz
(1152x864P) 70, 75Hz
(1280x720P) 23.98, 24, 25, 29.97, 30, 50, 59.94, 60Hz (DVI input module only supports 720p frame rates 50, 59.94 & 60Hz)
(1280x768P) 60, 75, 85Hz (1280x800p) 60, 75, 85Hz
(1280x960P) 60, 85Hz
(1280x1024P) 50, 60, 75, 85Hz
(1360x768P) 60Hz

(1366x768P) 60Hz
(1400x900P) 60Hz
(1400x1050P) 50, 60, 75Hz
(1440x900P) 60, 75, 85Hz
(1600x900P) 60Hz
(1600x1200P) 60Hz
(1680x1050P) 60Hz
(1920x720P) 50, 59.94, 60Hz
(1920x1080i) 47.96, 48, 50, 59.94, 60Hz
(1920x1080P) 23.98, 24, 25, 29.97, 30, 50, 59.94, 60Hz
(1920x1200P) 50, 60Hz
(3840x2160P) 23.98, 24, 25, 29.97, 30, 50, 59.94, 60Hz
(4096x2160P) 23.98, 24, 25, 29.97, 30, 50, 59.94, 60Hz

Video Outputs

HDMI	Up to 56x 1080P/60 HDCP 2.2 compatible
4K HDMI	Up to 28x 4K60, HDCP 2.2 compatible
Size and Position	User Adjustable
Conversion Technology	Proprietary CORIO®
Color	HDMI 24-bit 4:4:4

Supported Output Resolutions (depends on modules fitted)
(1280x720P) 50, 60Hz
(1920x1080i) 50, 60Hz
(1920x1080P) 23.98, 24, 25, 29.97, 30, 50, 60, 119.88, 120Hz
(3840x2160P) 23.98, 24, 25, 29.97, 30, 50, 59.94, 60Hz

AV over IP (up to 8x module cards)

Interface	Up to 8x USB3.0, Internal Storage, Network
IP Video Decoding	H.264 (CBP, Main, High), H.265/HEVC (Main)
IP Bit Rates	Up to 16x streams up to 25Mbs per stream
Color Depth	4:2:0, 4:2:2
Supported IP Resolutions	Configurable to 3840x2160/30
Unicast Streams	RTSP, RTMP, HTTP, MPEG-TS
Multicast Streams	RTSP, MPEG-TS

Media/Images

Interfaces	Up to 8x USB3.0, Internal Storage, Network
Video Codecs	H.264 (CBP, Main, High), H.265/
HEVC (Main)	
Video Formats	mp4, .mov, .mkv, .m4v, .ts, .mts, .m2ts, .mt2
Playback Bit Rates	Single stream to 100Mbs (per module), Dual Streams to 40Mbs (per module)

File Playback Resolutions Supported

Up to 3840x2160@30fps	Up to 8x (1x per module)
Up to 1080p60@60fps	Up to 16x (2x per module)

Up to 8x 7680 x 4320   Still images *(scaled to 4K)

Media Handling

External	Up to 8x USB 3.0 interface
Supported devices	Flash file systems FAT, FAT32, ext3, ext4, NTFS
Internal	High-speed storage up 128GB per module
Remote	File transfer supported

Control Methods

RS-232 via D9 Female Connector
IP Interface RJ45 Connector for both HTTP(s)

CPU Module

Settings Memory   Non-Volatile

Warranty

Limited Warranty 5 Years Parts and Labor

Regulatory Compliance

Main unit FCC, CE, RoHS, ULc

Mechanical

Size (H x W x D)	7.0" x 17" x 12.09", (178mm x 432mm x 307mm), (D) including PSU Handle 12.99" (330mm), (W) including rack ears 19" (483mm)
Weight (Net)	Approx. 22 lbs (10Kg) Chassis Without Modules but included 1x Power supply

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
BTU	1365 BTU
Fan Noise	32 to 64 db

Power

Internal Power Supply	110v to 240v auto-detecting
Redundancy	Optional Internal Hot Swap PSU with load balancing
Consumption	400w