CORIO®**master** micro

4K modular multi-window video processor

OVERVIEW

C3-503 CORIO**master** is a powerful, efficient approach to building 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 CORIO**master**. 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 2 separate video canvasses with up to 14 windows depending upon the source resolution, frame rate and size of windows. **CORIO**grapher v2, the control software for the CORIO**master** 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 **CORIO**grapher or by simple commands executed by third party control systems. 50 presets can be saved permanently in the system.

NEW FEATURES

- ◆ Secure command interface
- ◆ REST API
- ◆ Real-time status feedback through events
- ◆ H.265 4K/30 Streaming Media & 4K Playback Input Module
- ◆ IP decoding Low latency mode (<300 ms) using the Magenta-100 Encoder
- ◆ Audio support
- ◆ Audio module

KEY FEATURES

- ◆ Patented CORIO®3 videowall processing technology
- ◆ Manage up to 2 videowalls
- ◆ Uses **CORIO**grapher v2; simple powerful software interface
- ◆ Live dashboard to switch presets and window sources
- ◆ 4K input & output modules
- ◆ Create custom output resolutions[*1]
- ◆ Automatically discover devices on the network
- ◆ Outputs rotated in 1º increments
- ◆ Combination of different size and resolution of displays can be used[*2]
- ◆ Customizable bezel compensation
- ◆ Multi-Edge blending of projectors
- ◆ Versatile DVI Inputs: (HDMI/DVI/CV/YC/RGB/YPbPr)
- ◆ DVI-I Outputs: (HDMI/DVI/RGB/YPbPr)

- ◆ 4K HDBaseT inputs
- ◆ HDBaseT outputs
- ◆ SDI inputs and outputs: SD/HD-SDI/3G-SDI to 1080p60
- ◆ High resolution analog inputs/outputs
- ◆ DVI/HDMI: PC to 1920x1200, HDTV to 1080p/60 w/ EDID
- ◆ HDMI input & output with HDCP handling
- ◆ Up-down-cross conversion
- ◆ Custom resolution editor with resolutions automatically detected on inputs & selectable on the outputs
- ◆ Simple serial control protocol
- ◆ Command Line Interface – Third party control
- ◆ AMX & Crestron modules available
- ◆ 1/2RU frame size
- ◆ Modularity provides flexible I/O

[*1] some modules support this feature
[*2] can degrade image quality if monitors with a different pixel pitch are used

OPTIONS

- ◆ Universal DVI adapters
- ◆ Onsite system commissioning (US Only)

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Part Numbers

C3-510	1/2RU CORIOmaster with 3 slots available for video I/O modules. Interfaces for R2-232 & IP. Single external power supply, SPDIF audio output
CM-HDMI-4K-2IN	Dual 4K30 or Single 4K60 HDMI input module
CM-AVIP-IN-1USB-1ETH	4K Streaming & Media input module (Dual channel HD streaming, 8K still image support, USB 3.0 for File Playback, 16GB Internal SSD storage for Content)
CM-AVIP-IN-1USB-1ETH-128	4K Streaming & Media input module (Dual channel HD streaming, 8K still image support, USB 3.0 for File Playback, 128GB Internal SSD storage for Content)
CM-DVIU-2IN	Dual DVI-U input module (Custom DVI-I adapters provide connections for: composite, S-Video, component, VGA, RGBHV and HDMI (DVI-D connects directly).
CM-3GSDI-2IN	3G-SDI input module
CM-HDSDI-4IN	HD-SDI input module
CM-HDBT-2IN-1ETH	Dual HDBaseT Input with Single Ethernet
CM-HDMI-4K-SC-1OUT	4K HDMI scaled output module
CM-HDBT-SC-2OUT	Dual HDBaseT output module with Single Ethernet
CM-DVI-I-SC-2OUT	Dual DVI Scaled output module

CM-3GSDI-SC-2OUT	Dual 3G-SDI output module
CM-AUD-2IN-4OUT	S/PDIF and Analog Audio module (C3-540/C3-510 only)
CM-C3-540-CPUHTTPS	Secure communications CPU module
ZDH2050	Composite video adaptor DVI-I
ZDB2048	YC (S-Video) adapter DVI-I male to 2-BNC female
ZDS2046	YC (S-Video) adapter DVI-I male to 4-Pin mini-din female
ZDH2040	Analog PC adapter DVI-I male to HD-15 female
ZDB2038	1.5' (0.5m) analog RGBHV adapter Cable DVI-I male to 5-BNC female
ZDB2044	1.5' (0.5m) YPbPr/YUV adapter cable DVI-I male to 3-BNC female
ZDB2042	YPbPr/YUV adapter DVI-I male to 3-RCA female
CMD1941	HDMI adapter DVI-I male to HDMI female
Magenta Encoder-100	Single channel IP encoder
FE-1	Onsite system commissioning (US Only)

Modular Flexibility

CORIO**master** can accommodate numerous I/O configurations in the 3 universal video slots available; when inserted, the modules are automatically recognized & configured. This flexibility allows end user confi gurations to be based on their own needs.

DVI-I Output with scaling

3G/HD/SD-SDI Input

DVI-U Input

HDBaseT Output with Scaling

3G/HD/SD-SDI Output

4K Streaming Media

HDBaseT Input

4K Output with Scaling

HD/SD-SDI Input

4K Input

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NEW FEATURES

Secure Command Interface

Secure Communication mode – The latest CORIO**master** release provides a mode to encrypt all networked based communication through AES128 encryption to provide private communication in mission critical applications where network security and authentication is essential. REST API / WebSocket - Based on industry standard schema, CORIO**master** supports REST API providing multi-user communication to device. Integrators can now subscribe to a growing range of events to provide real time feedback from CORIO**master** (such as: HDMI handshake, lost source, USB stick removed, etc). These events can be used by a control system to automatically monitor the performance and events of the videowall and respond accordingly.

Control

Multiple control points - Using our REST API up to four users can now control a single CORIO**master** chassis simultaneously making programming, control and fault finding a dream. In addition to control via **CORIO**grapher, simultaneous control is possible using the CORIO**master** app (IOS and Android) and by a third-party control system using our real-time API interface. **CORIO**grapher login profiles – System administrators can set different levels of control for up to four user profiles for Power User and User access control. Emergency cut/mute features – Cut individual canvasses to black and mute audio or cut all outputs to black and mute.

Audio management

Audio can be passed through the system from source to display. Alternatively, audio can be de-embedded and outputted and re-embedded on another source for each of your four canvasses. Input and output volume control together with audio mute gives full control.

Streaming Media & 4K Playback Module

Higher bandwidth support – A doubling of the module bandwidth to 100mbs means you can de-encode two network streams up to 4k 30 @ 50mbs in to just 1 slot (2nd Stream scaled to 1080P). Increased bandwidth is also available for media playback up to 80mbs on a single channel for increased quality content and interoperability. H.265 Support – H.265 streams offer higher quality with file sizes of around half that of a H.264 stream. Low Latency Mode - Low latency mode delivers less than 300ms (source to output) video latency for most demanding applications in conjunction with the Magenta Encoder-100.

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SPECIFICATIONS

Video Processing Power	
Parallel Processing Architecture	Yes
CORIO3 Video Processing	Yes
Up/Down/Cross Conversion	Yes
Number of Canvasses	2
Display Size Compensation	Yes, different sizes in video walls (using different sized monitors in the same wall can degrade picture quality)
Output Rotation	Yes for any outputs and windows
Projector Edge Blending	Yes
HDCP Key Handling	Yes

Computer Input	
Digital DVI	Up to 4 via Universal DVI (HDMI & HDCP compatible)
Analog	Up to 4 via Universal DVI
Analog Format	RGBHV, RGBS, RGsB, YPbPr
Analog Sync	TTL Level, 10KΩ, Pos or Neg
RGB Level Range	0.5-2.0 Vp-p
Scan Rate Detection	Automatic
Analog Signals	PC to 1920x1080, HD to 1080p60
DVI Signals	PC to 1920x1200, HD to 1080p60
Max Horizontal Scan Rate	150 kHz

Computer Outputs	
DVI Signals	Up to 4 via DVI-I (HDMI & HDCP compatible)
Analog	Up to 4 via DVI-I
Analog format	RGBHV, RGBS, RGsB, YPbPr
R-G-B Level	0.7 Vp-p
DVI Signals w/EDID	PC to 1920x1200, HD to 1080p60
Analog Signals	PC to 1920x1080, HD to 1080p60
Vertical Refresh Rate	Any to 250Hz
Size and Position	User Adjustable
Settings Memory	Non-Volatile
Conversion Technology	Proprietary – CORIO®3
Color	RGB/DVI/HDMI/YPbPr 24-bit 4:4:4, SDI 20-bit 4:2:2
Max. Sampling Rate	162MHz
Firmware Memory	Flash, Upgradeable via download
Video Comb Filter	Adaptive
Video Adjustments	Contrast, Brightness, RGB Gamma

HD Video Resolutions supported (HDMI, DVI, YPbPr, SDI, & HDBaseT)	
720p (1280x720) *	23.98, 24, 25, 29.97, 30, 50, 59.94, 60Hz
1035i (1920x1035	59.94, 60Hz
1080i (1920x1080)	50, 59.94, 60Hz
1080p (1920x1080)	23.98, 24, 25, 29.97, 30Hz, 50, 59.94, 60Hz

4K Video Input Resolutions supported (via HDMI & HDBaseT)	
3840x2160: 4:4:4	23.98/24/25/29.97/30Hz 8-bit
3840x2160: 4:2:0	50/59.94/60Hz 8-bit
4096x2160: 4:2:0	50/59.94/60Hz 8-bit

4K Video Output Resolutions supported (via HDMI)	
3840x2160: 4:4:4	23.98/24/25/29.97/30Hz 8-bit

Video Inputs	
Television Standards	NTSC, PAL
Composite Video	Up to 4 via DVI
YC (S-Video)	Up to 4 via DVI
YUV /YPbPr	Up to 4 via DVI
SD/HD-SDI	Up to 8 via BNC
SD/HD/3G-SDI	Up to 4 via BNC
4K/30	Up to 4 via HDMI & HDBaseT
4K/60	Up to 2 via HDMI & HDbaseT
HDBaseT	Up to 4 via RJ45

AV over IP (up to 4 module cards)	
Interface	Up to 2x USB3.0, Internal Storage, Network
IP Video Decoding	H.264 (CBP, Main, High), H.265/HEVC[1] (Main)
IP Bit Rates	Up to 4x streams up to 25Mbs per stream
Colour Depth	4:2:0, 4:2:2
Supported IP Resolutions	Configurable to 1920x1080p60
Unicast Streams	RTSP, RTMP, HTTP, MPEG-TS
Multicast Streams	RTSP, MPEG-TS

Media/Images	
Interfaces	Up to 2x USB3.0, Internal Storage, Network
Video Codecs	H.264 (CBP, Main, High), H.265/HEVC[1] (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 2
Up to 1080p60@60fps	Up to 4
Up to 7680 x 4320	Still images[2]

Media Handling	
External	Up to 2x 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[3]

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SPECIFICATIONS

Video Outputs	
YUV /YPbPr	Up to 4 via DVI
SD/HD/3G-SDI	Up to 4 via BNC
HDBaseT	Up to 4 via RJ45
HD (720P, 1035i, 1080i, 1080P)	Up to 2 via HDMI
4K	Up to 2 via HDMI
3G/HD-SD/SDI	
SMPTE259M-C	270Mbps < 0.1UI jitter
(SD-SDI Video)	525/625Line
SMPTE292M	1.485/1.4835Gbps < 0.2 UI jitter
(HD-SDI Video)	720p, 1035i, 1080i, 1080p
SMPTE424M	2.97/2.967Gbps < 0.3 UI jitter
(3G-SDI Video)	1080p 60/59.94
Control Methods	
RS-232	via D9 Female Connector
IP Interface	RJ45 Connector for both HTTP(s)
Warranty	
Limited Warranty	5 Years Parts and Labor

Regulatory Compliance	
Main unit	FCC, CE, RoHS, ULc
Mechanical	
Size (H x W x D)	1.73" x 8.58" x 9.69" (44 x 218 x 246mm)
Weight (Net)	2.87lb to 3.75lb (1.3kg to 1.7kg) depending upon modules fitted
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
MTBF	Approximately 50,000 hours
BTU	205 BTU/hr
Power	
Internal Power Supply	110v to 240v auto-detecting

Specifications subject to change [2]Images will be rendered to 4K [3]Future release – not fully visible, * DVI Input module only supports 720p frame rates 50,59.94, & 60Hz

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