



# PRODUCT LINE-UP

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**GeoBox** Multi-display Controller

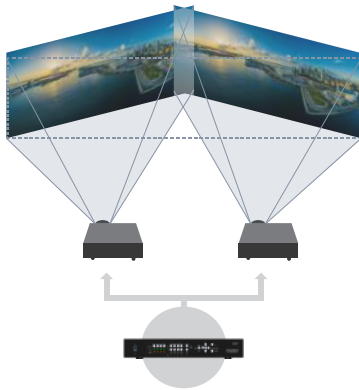
2022 Spring





## Projector edge blending, warping and stacking controller

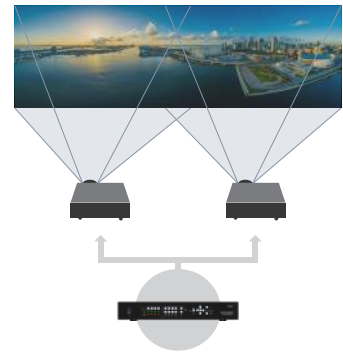
### Application



1.Geometry adjustment



2.Image crop overlap pixel creation



3.Edge Blend

<https://www.youtube.com/watch?v=yPGxlqzHDL4&t=16s>

## Functions and features

### Input and output resolution

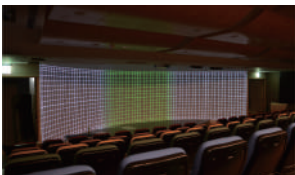
- Support input up to 8K2K@30hz or 4K2K@60hz, RGB4:4:4. Non-VESA standard resolution.
  - Output up to 4K2K@60hz.
- \* Please refer to P.4 for max. resolution support of each model.

### PC-free, pure hardware design

- With complete functions control and setup via IR remote, Ethernet, RS232, USB PC tool.(\*)
  - Utilizing any digital input from any device.
- \*Please refer to P.4 for USB PC tool support of each series.

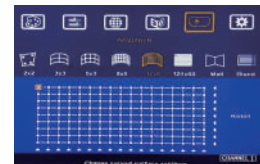
### Built-in Edge Blending

- Edge blending on flat & curved surface up to H=1920 Px, V=1200 Px.
- Discrete RGB gamma correction.



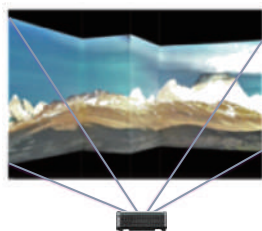
### Advanced warp and Geometry alignment technology

- Sophisticated geometry alignment.
- Real time geometry alignment for up to 120x68 control points,through IR remote, USB or Web Gui to get optimized result.
- Flexible grid patterns.



## Corner wall Alignment

- Geometry alignment at corner wall in both horizontal and vertical direction at any location.



## Image rotation, flip

- Individual 90/180/270 rotation, flip, cropping, scaling & color adjustment in each channel.



## Selectable Frame-Sync

- User can select Frame Lock, Phase Lock or Free Run based on system requirements.
- 50Hz in / 50Hz out.
- Perfect synchronization can be achieved.

## Programmable EDID

- Selectable output resolution and programmable EDID to optimize video quality.

## Super low latency

- 2 frames system latency: <33ms (@V=60Hz).

## High end 10-bit video processing

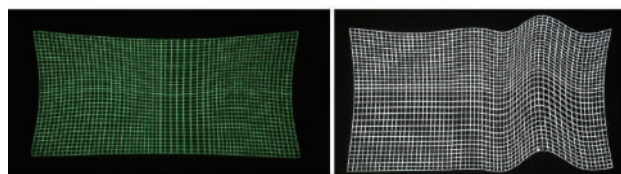
- 3D motion adaptive de-interlace, low angle smooth algorithm and 3:2/2:2 film mode detect and recovery function.

## Multi-unit cascade

- HDMI2.0 loop-out port for multiple units cascade

## Linear grid line adjustment to get perfect image

- To compensate different scaling factors when projecting on surface wall with edge blending or warping alignment.



## RGB gamma adjustment

- Independent RGB gamma correction to get optimized image quality.



## 9-region Black level uplift

- Nine region precise Black Level Uplift to compensate light leakage from projectors.



## Profile saving

- All customized settings can be saved into profile.
- Up to 5 or 10 profiles can be saved and recalled by remote controller, RS232, USB or Ethernet.

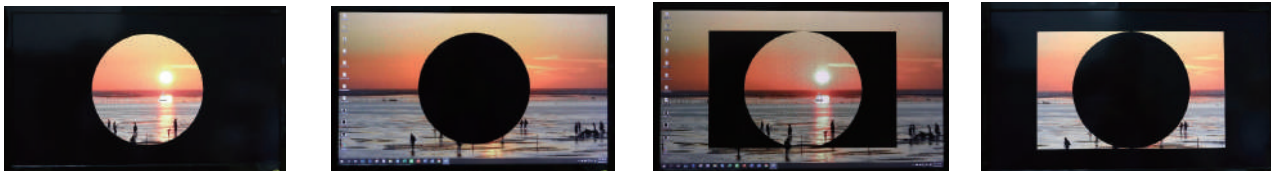


## Digital mapping (projection mapping)

- 10 patterns (images) can be input into M800Ex in each channel for projection mapping.



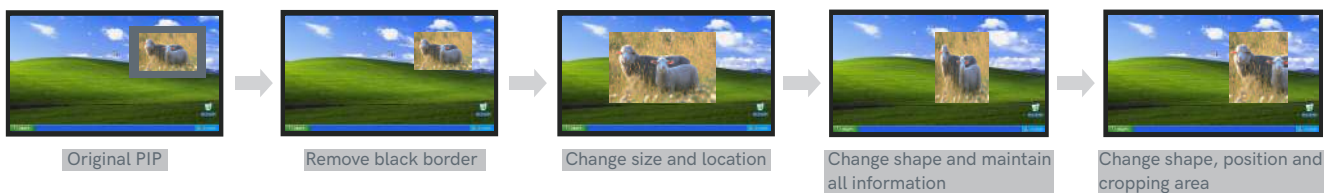
- User can use any signal source and select up to 4 display styles in each pattern without pre-mask at input source.



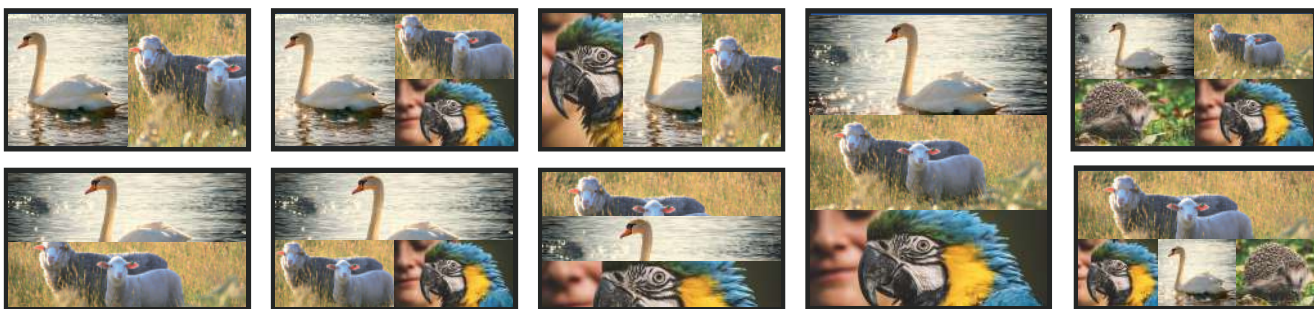
- \* Only available in some models. Please refer to P.4 Key specification comparison for models with digital mapping feature.

## PIP/POP, Multi-viewer

- Flexible position and adjustable aspect ratio.



- 2/3/4 split view POP is available in each channel.



- \* Only available in some models. Please refer to P.4 Key specification comparison for models with PIP/POP and Multi-viewer feature.

## 3D format conversion

### • Passive 3D:

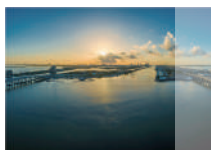
Decode Line interleaved, side by side, Top/Bottom, frame sequential and frame packed 3D into RH/LH eye frames.

### • Active 3D:

Convert Line interleaved or frame packed 3D from into Side by Side, Top/Bottom or Frame Sequential 3D format output signal for 3D display devices.

## Split image with overlap in multi-projector application

- Work with projectors with built-in edge blending and warping functions.
- Built-in functions for image rotation, cropping, scaling and color adjustment for each projector.



Use GeoBox to crop and assign images to projectors

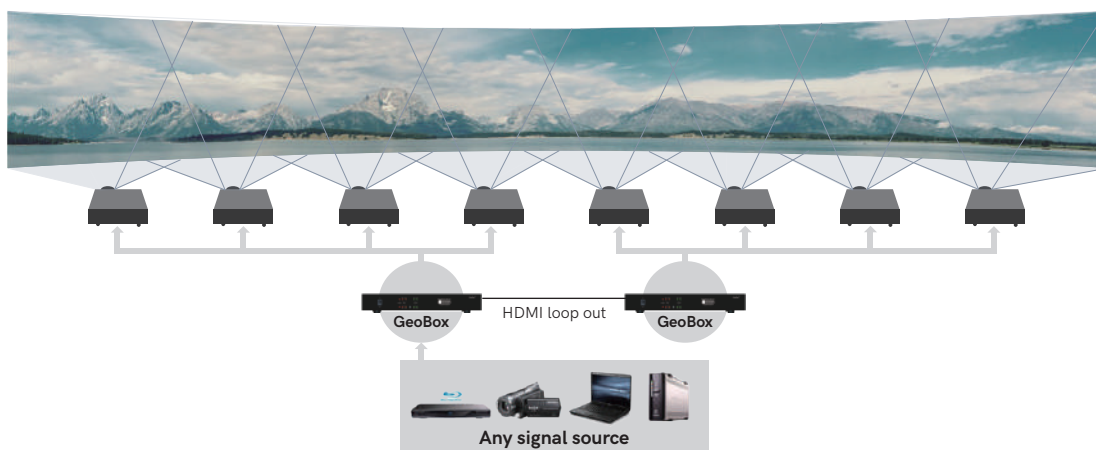


Use GeoBox to set up overlap



Use projector edge blending function to get seamlessly combined image.

## System configuration



## Key specification comparison

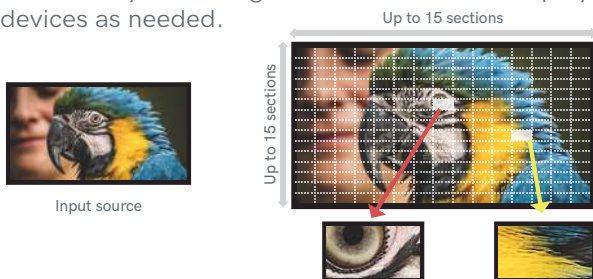
Category		Edge Blending Controller														Warping Box						
		UHD				WUXGA						Projection mapping				Mini	UHD	WUGXA	Mini			
Model name		UD101	UD102	UD103	UD104	G802	G804	M801	M802	M803	M804	M801Ex	M802Ex	M803Ex	M804Ex	G112	UD101L	G116	G111			
Video input	HDMI 2.0b	3	6	9	12	2	4	2	4	6	8	2	4	6	8	HDMI 1.4x1	1	1	HDMI 1.4x1			
	DisplayPort	DP 1.4 x1	DP 1.4 x2	DP 1.4 x3	DP 1.4 x4	DP 1.2 x1	DP 1.2 x2	DP 1.2 x1	DP 1.2 x2	DP 1.2 x3	DP 1.2 x4	DP 1.2 x1	DP 1.2 x2	DP 1.2 x3	DP 1.2 x4		DP 1.4 x1	DP 1.2 x1				
	VGA					1	2	1	2	3	4	1	2	3	4			1				
Video output	HDMI	1	2	3	4	2	4	1	2	3	4	1	2	3	4	1	1	1	1			
	HDMI Loop Out	1	2	3	4	1	2	1	2	3	4	1	2	3	4		1	1				
Max. input resolution RGB 4:4:4		HDMI: 4096x2160@60Hz or 7680x2160@30Hz DP:7680x 4320@30Hz				4096x2160@60Hz or 7680x1200@30Hz		4096x2160@60Hz or 7680x2160@30Hz				4096x2160@60Hz or 7680x2160@30Hz				3840x2160 @30Hz	4096x2160@60Hz or 7680x2160@30Hz		3840x2160 @30Hz			
Max. output resolution		4096x2160@60Hz				WUXGA or 2048x1080@60Hz														4096x2160 @60Hz	WUXGA or 2048x1080@60Hz	
Front panel button			●	●	●			●	●	●	●	●	●	●	●	●		●				
Latency		<32ms																				
HDCP 2.2		●	●	●	●	●	●	●	●	●	●	●	●	●	●	HDCP 1.4	●	●	HDCP 1.4			
Main function	Image split	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
	Geometry alignment	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
	Edge Blending	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●						
	Rotation and flip	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
	PIP / POP	●	●	●	●			●	●	●	●	●	●	●	●	●	●	●				
	Projection mapping												●	●	●	●						
	MultiViewer	●	●	●	●												●					
	3D processing		●			●																
PC Tool	Gwarp3					●	●					●	●	●	●			●				
	GCT	●	●	●	●			●	●	●							●					
	Galigh																					
	UHD Wall Manager																					
Warranty period		Standard 2 years. Optional up to 5 years																				



## Main functions

### Image Zoom and Pan

- Split image into max. 15 sections (vertically and horizontally) and assign the sections to the display devices as needed.

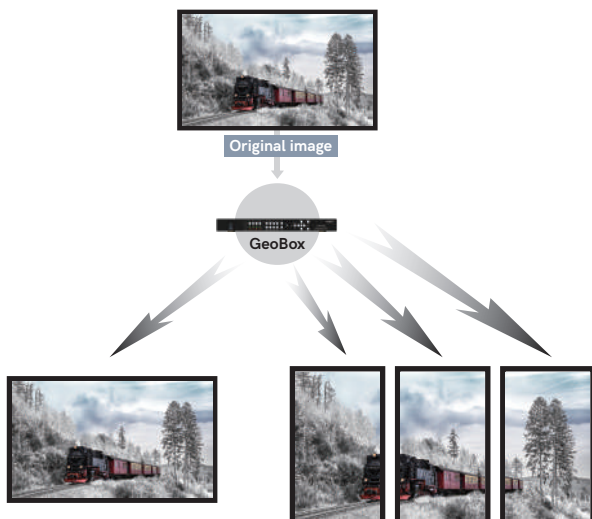


### Image orientation adjustment

- Image orientation of each channel can be adjusted individually.



- Image orientation of each channel can be adjusted individually.



## Video wall controller

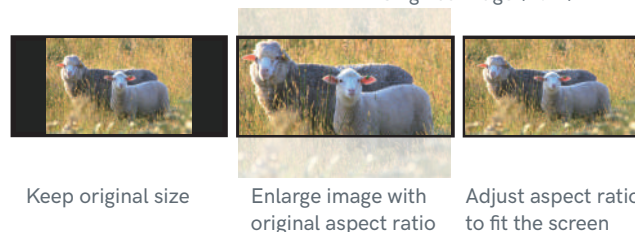
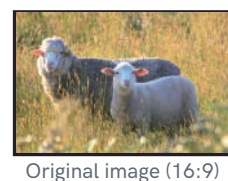
### Bezel compensation

- Pixel base image location alignment for precise bezel compensation at any direction.



### Flexible aspect ratio adjustment

- User can adjust image in all directions up to 1800 pixels to compensate the aspect ratio difference between video wall and the content.



### Matrix switcher function

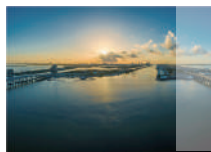
- Matrix switcher function to allow multiple window display. A/ B/ C/ D independent contents on four LCD video wall.
- \* Only available in G406.





## Split image with overlap in multi-projector application

- Work with projectors with built-in edge blending and warping functions.
- Built-in functions for image rotation, cropping, scaling and color adjustment for each projector.



Use GeoBox to crop and assign images to projectors



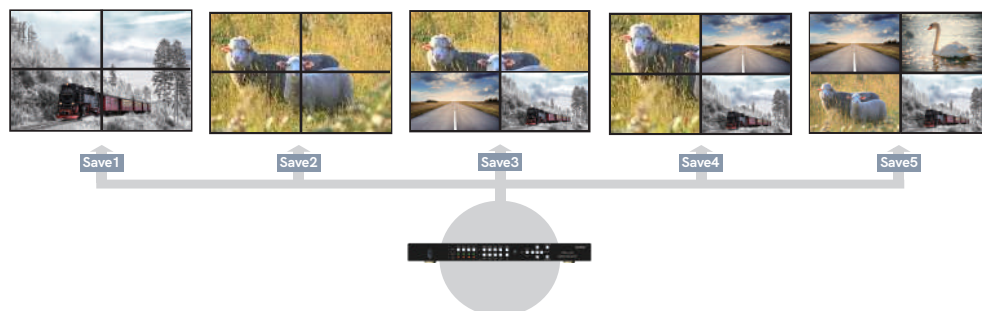
Use GeoBox to set up overlap



Use projector edge blending function to get seamlessly combined image.

## Profile saving

- All customized settings can be saved into profile.
- Up to 5 profiles can be saved and recalled by remote controller, RS232, USB or Ethernet.



## Multi-unit cascade

- HDMI2.0 loop-out port for multiple units cascade

## EDID

- Selectable output resolution and programmable EDID to optimize video quality.

## Super low latency

- 1 frame system latency: 16ms (@V=60Hz)

## 10 bits high quality processor

- 3D motion adaptive de-interlace.
- 3:2/2:2 film mode detecting and recovery.
- Low angle smooth algorithm (similar to DCDi).
- Support non-VESA standard input.
- Programmable EDID

## Multiple synchronization modes

- Frame Lock/Phase Lock/Free-run sync modes.
- Selectable output frame rate to avoid frame repeat or frame loss.

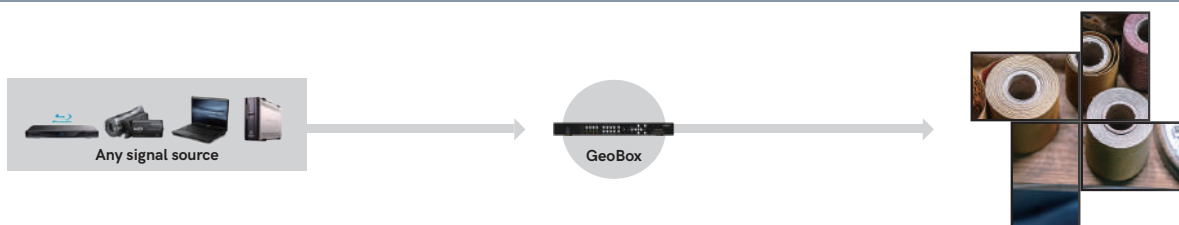
## True 4K/60Hz

- Support up to 4096\*2160/60Hz and 7680\*1080/30Hz with 4:4:4 full color sampling
- Support sRGB, xvYCC 8/10/12 bit deep color.
- HDMI 2.0, HDCP 2.2, HDR ready.

## PC-free, pure hardware design

- With complete functions control and setup via IR remote, Ethernet, RS232, USB PC tool.
- Utilizing any digital input from any device.

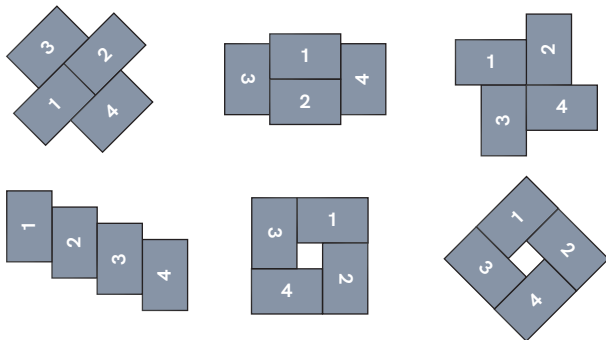
## System Configuration



## G413 features highlight

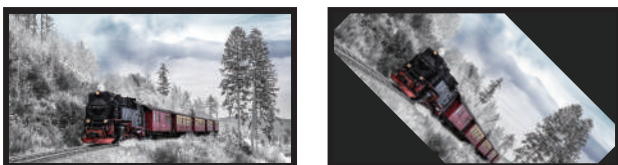
### Predefined display modes

- More than 27 pre-defined creative display modes that can be selected by OSD.
- User can modify from preset mode to get the required configuration with ease.



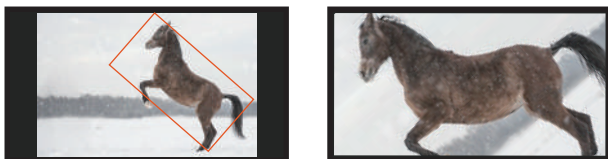
### Image rotation at any angle

- 360° image rotation with 1 degree interval.



### Crop image at any location

- Cropping image from any location.
- Save up to 10 cropped images.
- Seamless looping playback for cropped image.



### Customize your own irregular video wall

- Manually create display modes for irregular shape video wall with monitors in different sizes, resolutions and bezel width at any angle and position.



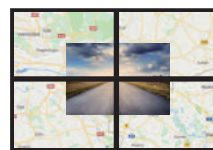
### Auto looping playback

- User can set up to 10 display modes from the same display content and looping playback with selectable time interval.

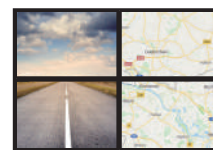
<https://www.youtube.com/watch?v=hEVL3RkL4LM>

### PIP/POP

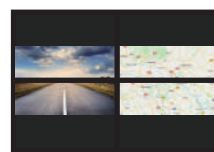
- PIP/POP can be implemented across 4 outputs with different PIP size and location.



PIP with 2 TV at top/ down flip



POP full screen display

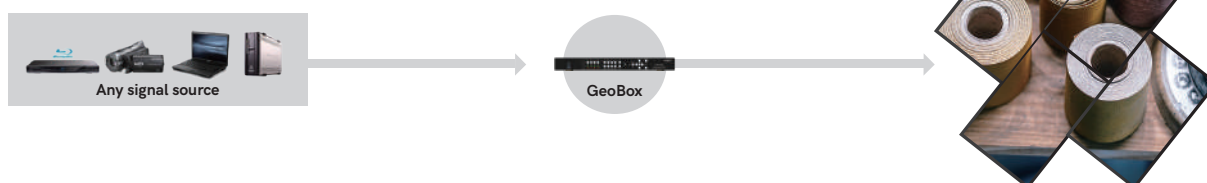


POP with original aspect ratio



Creative TV wall with PIP

### System Configuration





## S901/G901/G902/G904 features highlight

### Support up to 8K input

- Support input up to 8K2K@30hz or 4K2K@60hz, RGB4:4:4.
- Non-VESA standard resolution.

### HDR support

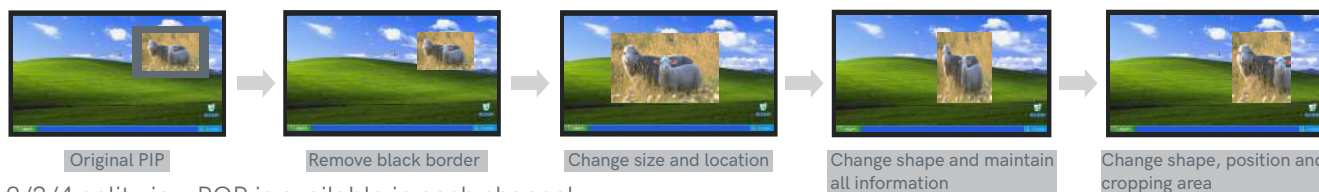
- Support BT.2020 HDR 10 input.
- True 10-bit deep color output for smooth gradient color.

### Programmable output resolution

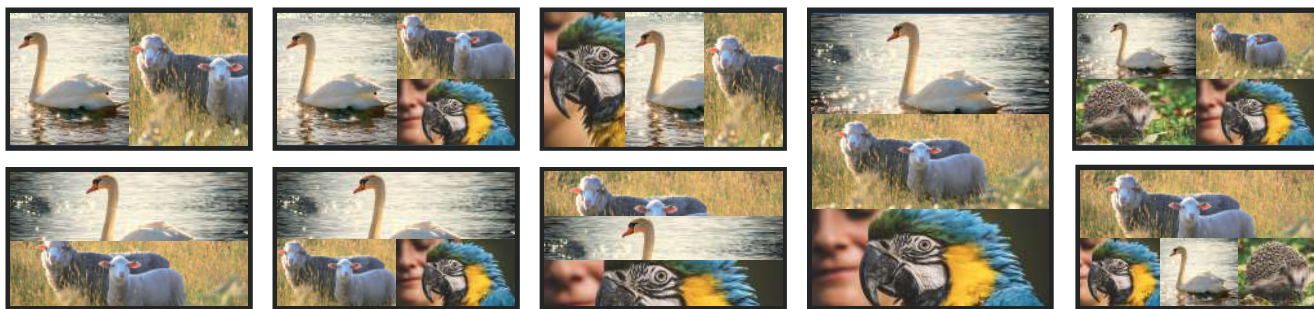
- Programmable output up to 4096x2400 or 3120x3120 @60Hz.
- Output range: 800-4096 in horizontal (16 pixels/step) and 600-3840 in vertical (1 pixel/step).

### PIP/POP, Multi-viewer

- Flexible position and adjustable aspect ratio.



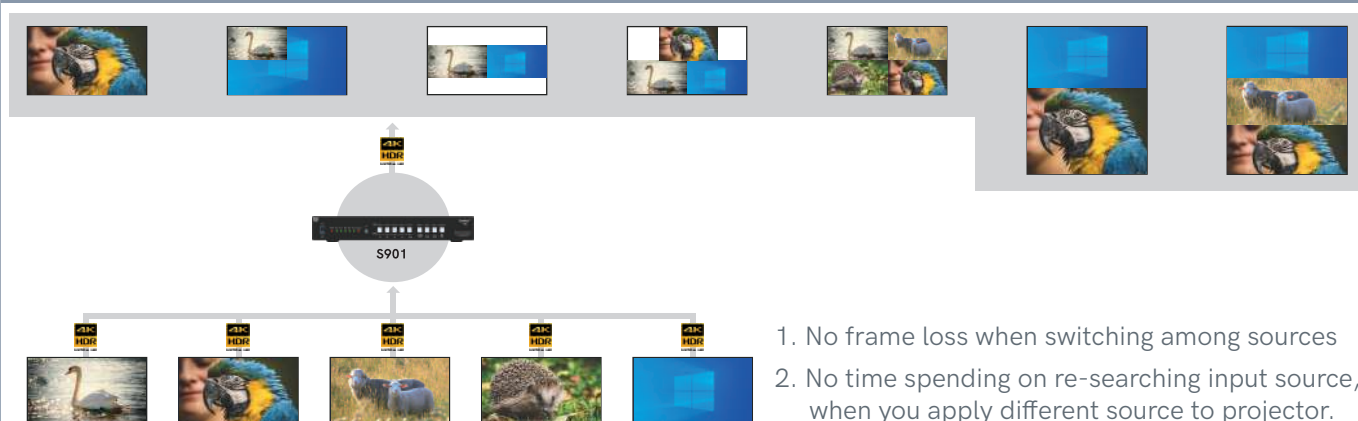
- 2/3/4 split view POP is available in each channel.



### 3D format conversion

- **Passive 3D:** decode Line interleaved, side by side, Top/Bottom, frame sequential and frame packed 3D into RH/LH eye frames.
- **Active 3D:** convert Line interleaved or frame packed 3D from into Side by Side, Top/Bottom or Frame Sequential 3D format output signal for 3D display devices.

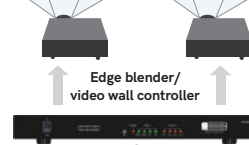
### 5-to-1 UHD Seamless Switcher / Multi-viewer



## Front-end processor

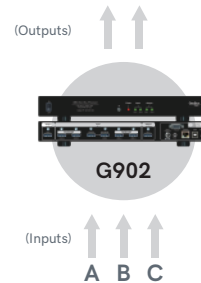
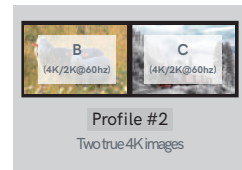
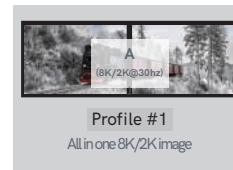
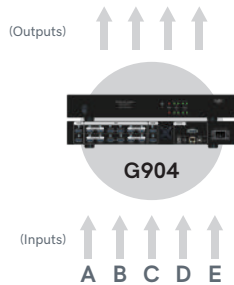
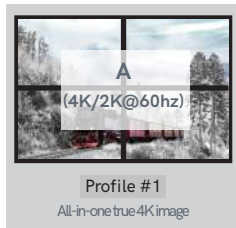


- Use in front of any video wall controller to show PIP/POP across entire video wall.



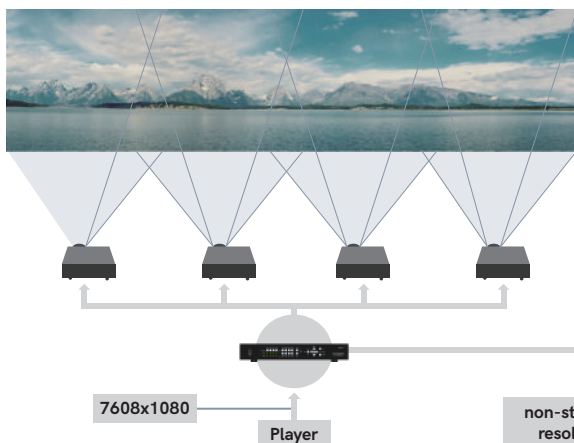
- Use in front of any edge blending controller to show PIP/POP across entire projection image.

## 8K/4K video wall controller with ability to show discrete 4K contents on each monitor



## Non-standard image resolution conversion

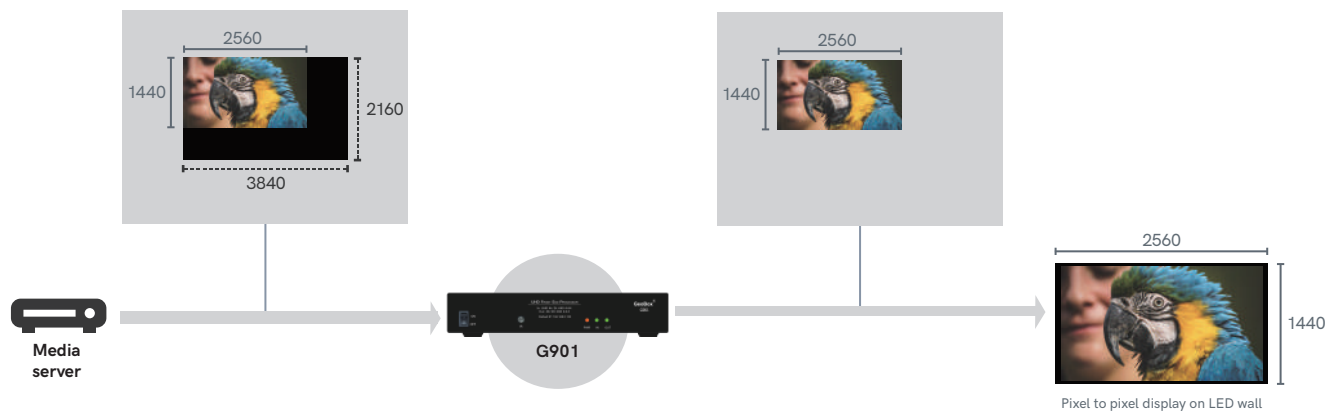
- Convert non-standard resolution input into playable resolution output for monitoring purpose.



Output standard resolution

## Output non-standard resolution for pixel-to-pixel picture quality

- Crop the image and output as the same resolution as the display device (such as LED wall). The whole system can be maintained in pixel-to-pixel display quality without scaling compromise.



Category		Video Wall Controller									HDMI splitter	
		UHD				WUXGA						
Model name		S901	G901	G902	G904	G406S	G406L	G406	G408	G413	S914	
Video input	HDMI 2.0	3	3	5	10	1	1	2	2	2		
	DisplayPort 1.4	2	2					2 (DP 1.2)		1 (DP 1.2a)		
	VGA									1		
Video output	HDMI	1	1	2	4	2	4	4	8	4	4	
	HDMI Loop Out			1	2	1	1	2	2	1		
Max. input resolution RGB 4:4:4		4096x2160@60Hz or 7680x2160@30Hz				4096x2160@60Hz or 7680x1200@30Hz					4096x2160@60Hz or 7680x2160@30Hz	
Max. output resolution		4096x2160@60hz				WUXGA, 2048x1080@60Hz					4096x2160@60Hz	
Front panel button		●						●				
Latency		<16ms								<32ms		<1ms
HDCP 1.4/2/2		●	●	●	●	●	●	●	●	●	●	
Main function	Image split	●	●	●	●	●	●	●	●	●		
	Geometry alignment											
	Edge Blending											
	Rotation and flip	●	●	●	●	●	●	●	●	●		
	PIP / POP	●	●	●	●					●		
	Projection mapping											
	MultiViewer	●	●	●	●							
	3D processing	●	●									
PC Tool	Gwarp3											
	GCT	●	●	●	●							
	Galain									●		
	UHD Wall Manager					●	●	●	●			
Warranty period		Standard 2 years. Optional up to 5 years										



## GEOBOX SUCCESSFUL CASES



Location: The Netherlands

Project: GeoBox M800 series is adopted by WT Interactive to create interactive 'Top 10' table showcasing the latest smartphones for the flagship VodafoneZiggo Experience Store.

<https://youtu.be/CoP9MXmExyw>



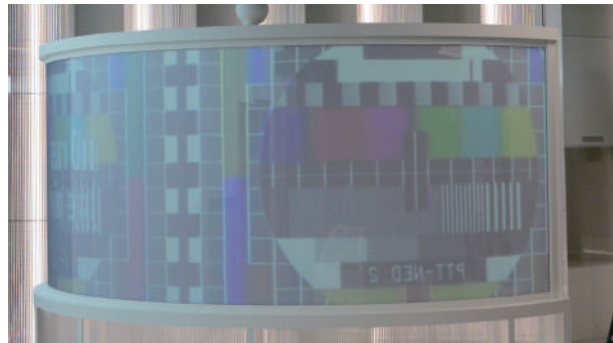
Location: The Netherlands

Project: GeoBox M800 series is adopted by Secta to create immersive room for virtual medical training.

[https://youtu.be/2HYfK\\_4R6ZU](https://youtu.be/2HYfK_4R6ZU)

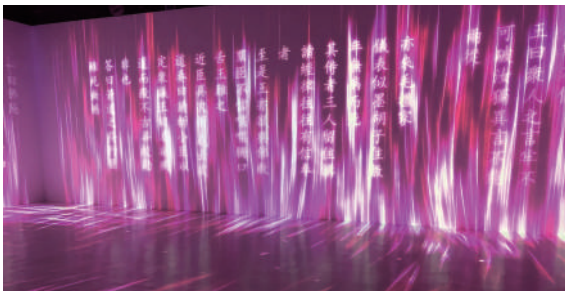


## GEOBOX SUCCESSFUL CASES



Location: The Netherlands

GeoBox edge blending solutions are adopted by BeamSystems for museum project delivered to "Nederlands Instituut voor Beeld & Geluid", which is going to open in the fall of 2022.



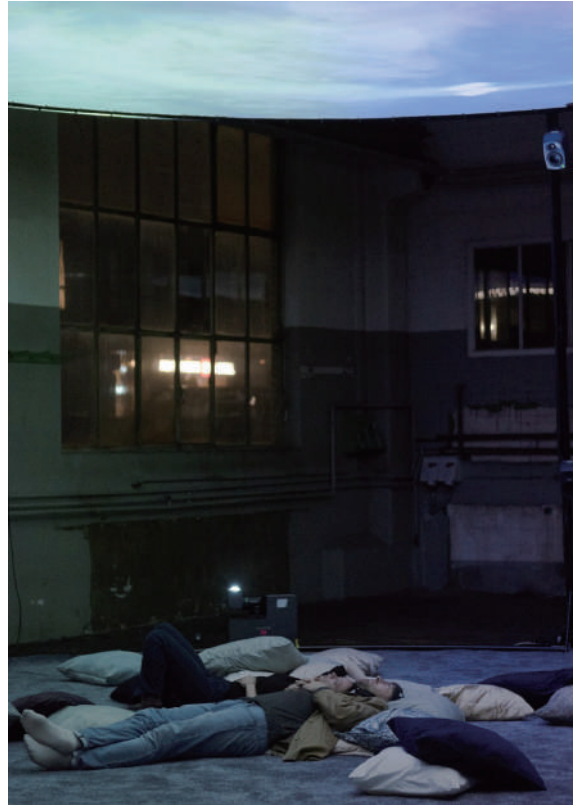
Location: Korea

Project: EASYWITH build three permanent interactive displays using GeoBox edge-blending processors at the 10th annual Korea Gyeongju World Culture Expo.  
<https://youtu.be/XS227KprJd0>



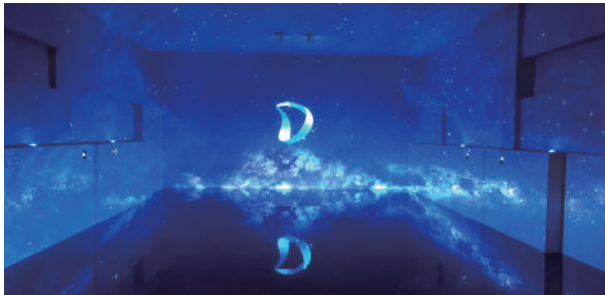


## GEOBOX SUCCESSFUL CASES



Location: Switzerland

Project: Kollektiv Beton adopted GeoBox M800EX to create edge blending projection mapping in an art exhibition.



Location: Korea

Project: GeoBox is adopted to create the "SUMMIT GALLERY" placed in Gangnam Seoul. Through this gallery, the public relations center of DAEWOO E&C deliver new concept of Luxury Apartment.

<https://m.prugiosummit.com/galleryNew/gallery>







VNS Inc. was founded in year 2000, Taipei, Taiwan, engaged in the research, development and manufacturing of video processing products. GeoBox is own brand video processors for professional AV applications.



MATRIX  
WORKS

**MatrixWorks Europe BV**

Add: Westerlohof 6, 5688AW, Oirschot  
The Netherlands

Website: [www.matrix-works.eu](http://www.matrix-works.eu)

KvK: 72826479

VAT: 859250829B01

MatrixWorks Europe BV is exclusive sales and distribution partner of VNS GeoBox in Europe. For more information please visit website: [www.matrix-works.eu](http://www.matrix-works.eu) , or watch videos on YouTube channel: MatrixWorks Europe B.V.

