DigiBird Edge Blender Controller

EBC2 H4 Series

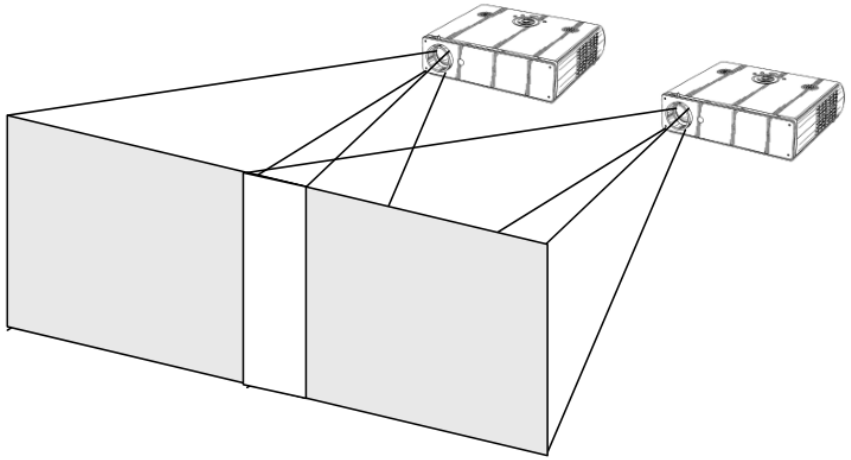
DIGIBIRD

Video & Image Processing

V1_Oct. 28, 2016_ by Alex

1. What is the Edge Blending?

Edge-blending is a method whereby two or more video/data projectors are used together with part of their images overlapping, thereby creating a wider (or taller) display more suitable for showing wide-screen video images. The term edge blending relates to the fact that the overlap needs to be carefully handled to prevent the overlap causing image brightness problems.



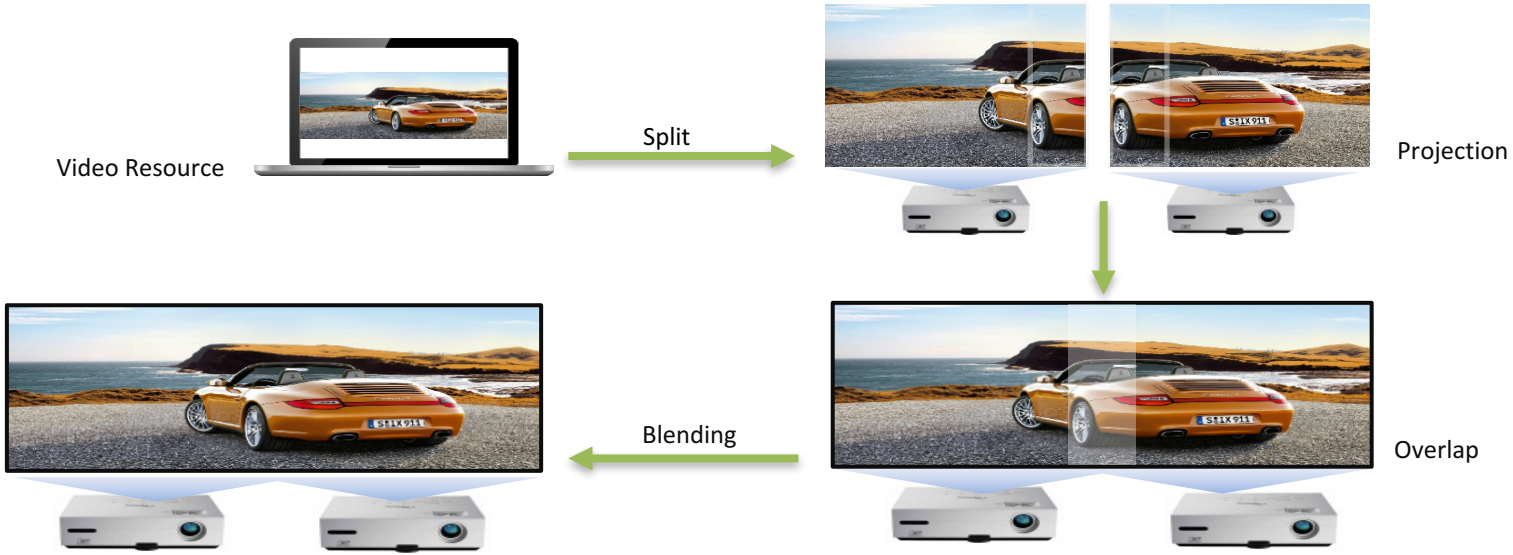
2. Why use the Edge Blending?

- Seamless image
- Unified image
- Brighter display
- UHD display area
- Flat, curved, tube display

3. Where use the Edge Blending?

- Boardrooms
- Classrooms
- Digital Signage Solution
- Worship
- Presentation environment
- Control Room
- Command Center
- Stage Event
- Show and Exhibition
- Simulation

4. How to make the Edge Blending?



4. How to make the Edge Blending?

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- PC/ DVI/ Media Player
- Camera
- Game Console

- DigiBird Edge Blender

- LCD Projector
- LED Projector
- DLP Projector

- Soft display
- Hard display
- Front projection
- Rear projection

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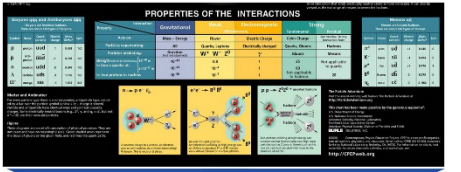

DVI

DVI

DVI

HDMI

HDMI

HDMI

Dual-Link DVI

VGA

DVI

HDMI

CAT 5/6

DVD

5. Hardware spec

Chassis					
Size	2U	4U	6U	14U	19U
Inputs	8	32	56	108	148
Outputs	4	6	10	20	40
CMC	1	1	1	1	1
PSU	1	2	2	4	4
Inputs					
DVI(Single Link)			DVI-I	Up to1920x1200/60Hz	
DVI(Dual Link)			DL-DVI-D	Up to 4088x4088/30Hz	
VGA			RGBHV	Up to 1920x1200/60Hz	
HDMI			HDMI1.3	Up to 1920x1200@60Hz	
4K HDMI			HDMI1.4	Up to 3840x2160/30Hz	
SDI			SD/HD/3G SDI	Up to 1920x1080/60Hz	
CVBS			NTSC/PAL	Up to 720x480/720x576	
YPbPr			YPbPr	Up to 1920x1080/60Hz	
Outputs					
DVI(Single Link)			DVI-I	Up to 1920x1200/60Hz	
HDMI			HDMI1.3	Up to 1920x1200/60Hz	
HDBaseT			RJ45	Up to 1920x1200/60Hz	
PV			RJ45	Preview	

- Hardware based only, without Windows system vulnerability, virus risk, blue screen and breakdown risk, etc.
- Modular design, much flexible, configurable and expandable.
- Hot-swappable supported
- Independent input/ output bandwidth, without gen Bus limitation.
- **Note:** 2U EBC dose NOT support redundant PSU, redundant control card and scrolling text.

- Feature: Passive 3D
- Description: High end conference application, adopting passive 3D technology.

- Feature: Corner display
- Description: High end exhibition application, featured with corner and curved visual impact.

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- Feature: Wave curved
- Description: Company show room application, featured with wave curved displaying with high technology sense.

- Feature: Water projection
- Description: Creative city show application, featured with projection on water fall.

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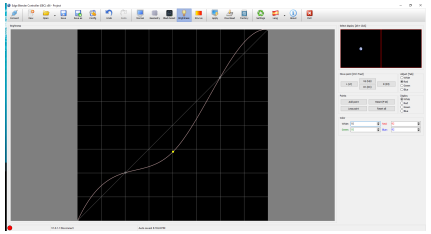

- Feature: color and brightness adjustment
- Description: By adjustment of the color and brightness of each output signal, to eliminate the discrepancy of different projectors.

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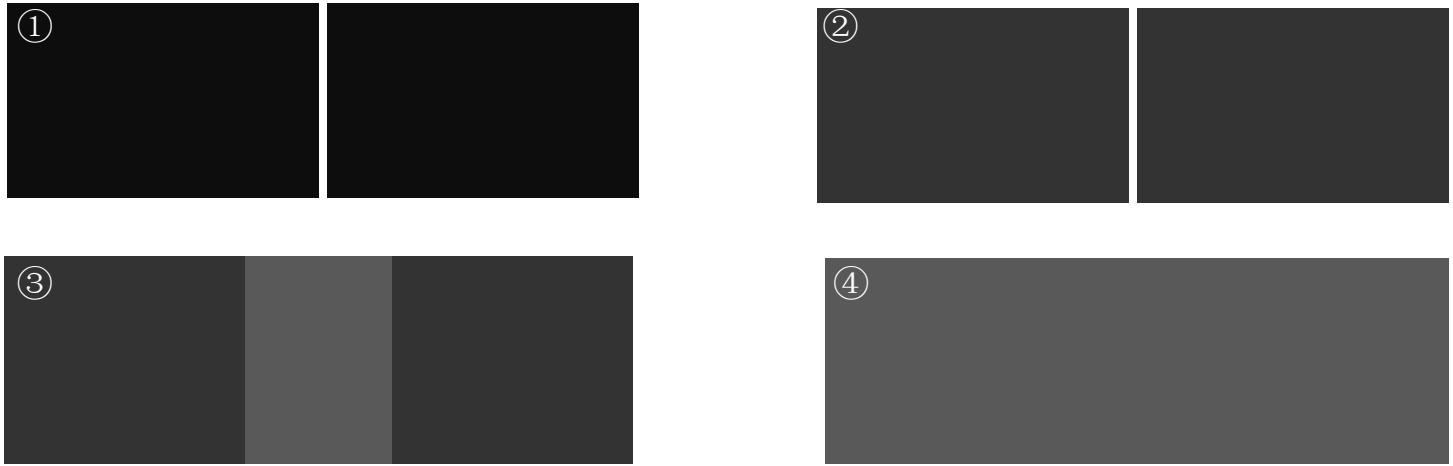

- Fig 1: Ideal black image
- Fig 2: **Light leaking:** The compensation is needed because most projectors cannot output pure black –there's always some light 'leaking' to the projection screen.
- Fig 3: **Brighter overlapped:** when you're trying to output black, there will be a 'hot area' where the two projectors are now overlapping, of twice the projector's 'black level' output.
- Fig 4: **Black boost** (or black level uplift): By this function, the EBC will increase the brightness of the non-overlap area to make sure the resulting display is seamless and avoid dips, dots, or bright spots.

9. Warp image adjustment (Geometry)

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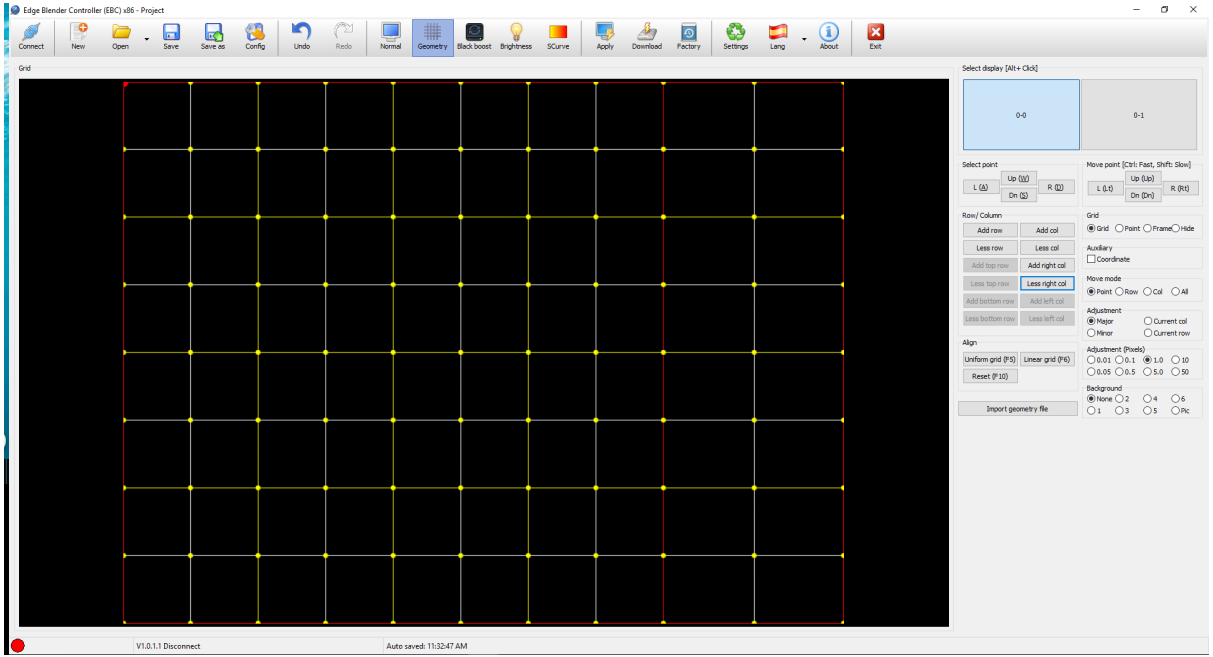

- The images from both processors/projectors must be geometrically corrected to fit the screen and the overlapped regions must be set to align accurately. This is achieved by warping (changing the shape) the image.

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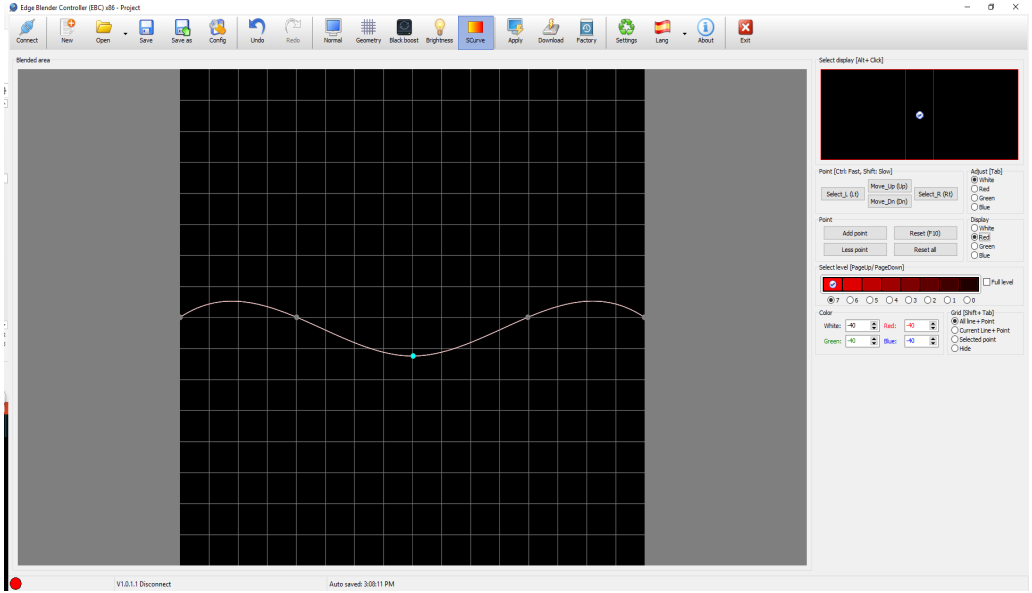
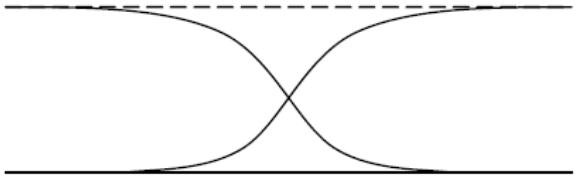


S-curves for two projectors, with edge blended.



S-curves together to result in full brightness when properly overlapping.

The ‘blend’ is basically an S-shaped curve that is applied to gradually reduce the brightness of the image at the edge.

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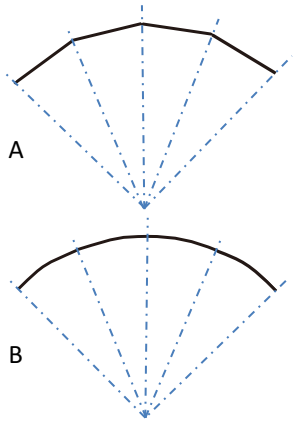
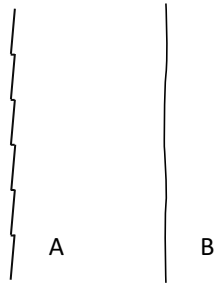
- **Edge feather:** With the EBC pixel level color adjustment (White, Red, Green and Blue), the user is able to nudge the overlapped edge to make resulting seamless and unify image.





- A: traditional technology is linear and the edge of the projection will be serrated.
- B: DigiBird EBC adopts the NURBS technology to make sure the edge transition of the projection much more straight/ smooth.

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A: 1080P/30 fps

B: 1080P/60 fps

- A: Traditional technology is processing the signal on 1080P/30 fps and result in signal loss.
- B: DigiBird EBC supports 1080P/60 fps processing without signal loss and free of scratch when playing fast move video.

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- 4K UHD capture with single input port.
- Supports custom resolution
- Able to capture more than 4K by multi inputs
- Pixel to Pixel display

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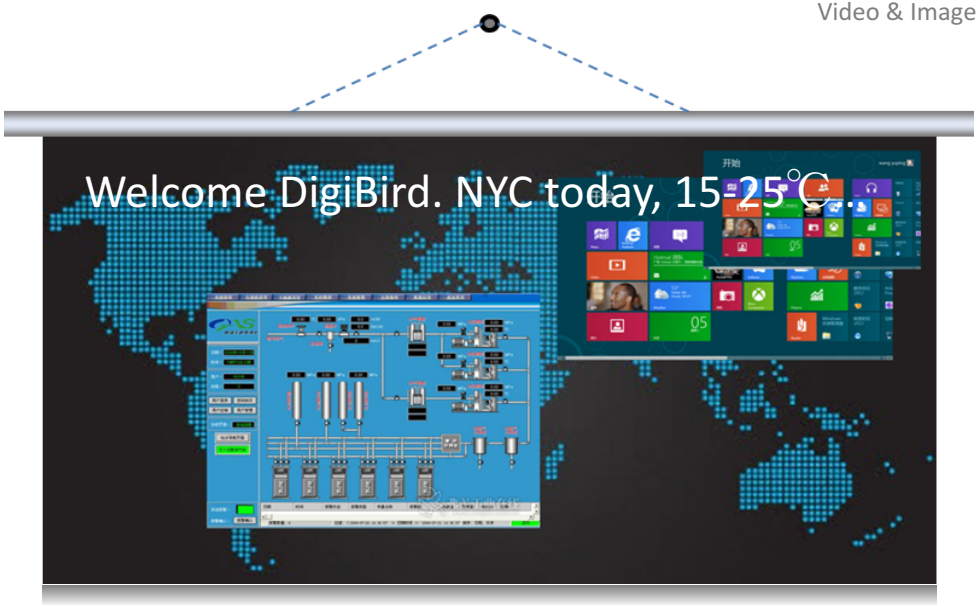
- Up to 4x video windows per output
- Zoom in and/or out
- PIP and/or POP
- Multi-viewer
- Video overlap
- **Scrolling Text:** user defined font, color, background and scrolling speed.
- **Note:** 2U EBC dose NOT support scrolling text.



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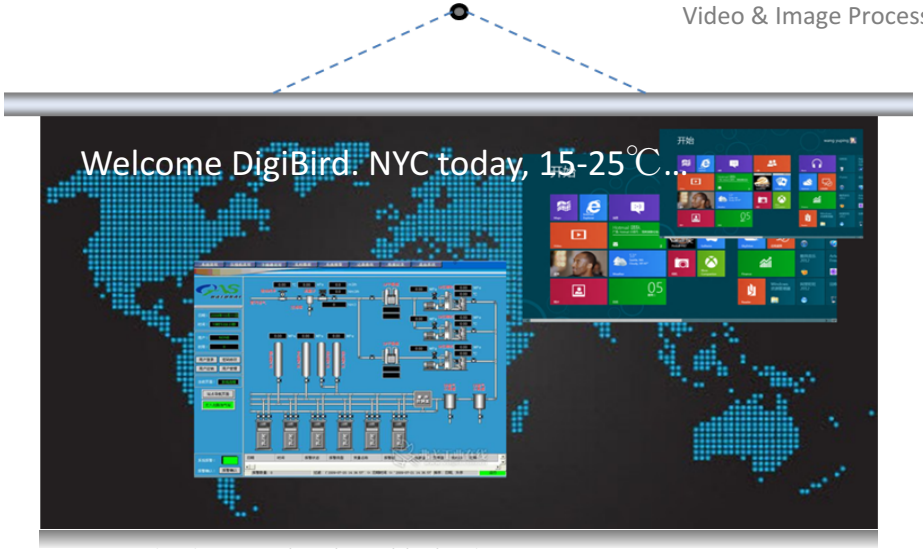
A. Original video resource with black edges



B. Cropped video signal without black edges

- User editable crop the signal
- Pixel level cropping
- Cut off the black edge
- Emphasize details and zoom in

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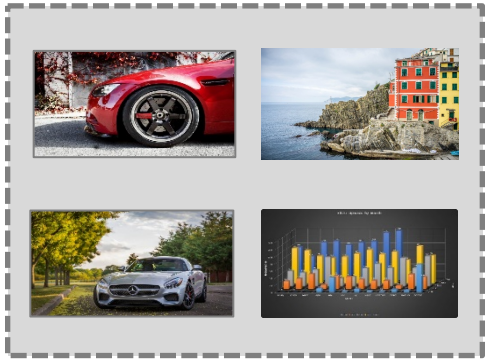

Input

Blending Wall

- Display input signal name on each output
- Easy to identify and manage the input source
- User editable OSD

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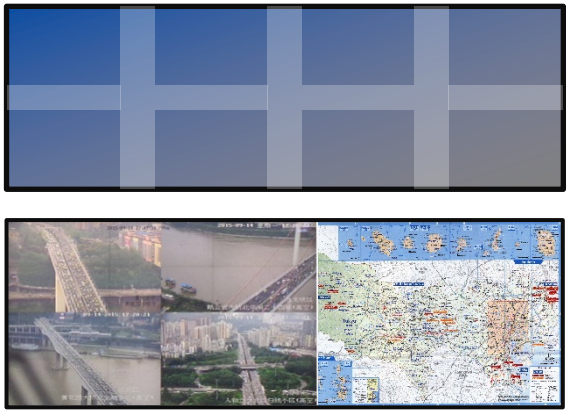
Mx 1 mode

- Landscape stack projectors
- Professional conference
- Concert and event
- Exhibition
- Military

1x N mode

- Portrait stack projectors
- Digital Signage
- Advertisement
- Concert and event



Mx N mode

- Landscape and Portrait stack projectors
- Control Room
- Command Center
- CCTV monitor center

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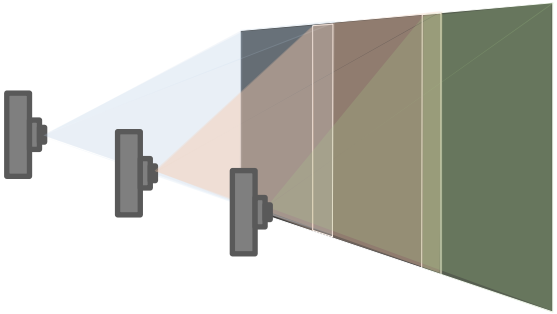
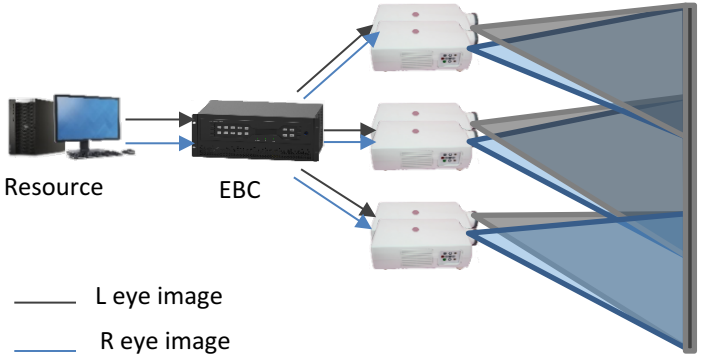


- Supports 90° portrait projection and overlap. (Clockwise)



- Supports passive 3D display.

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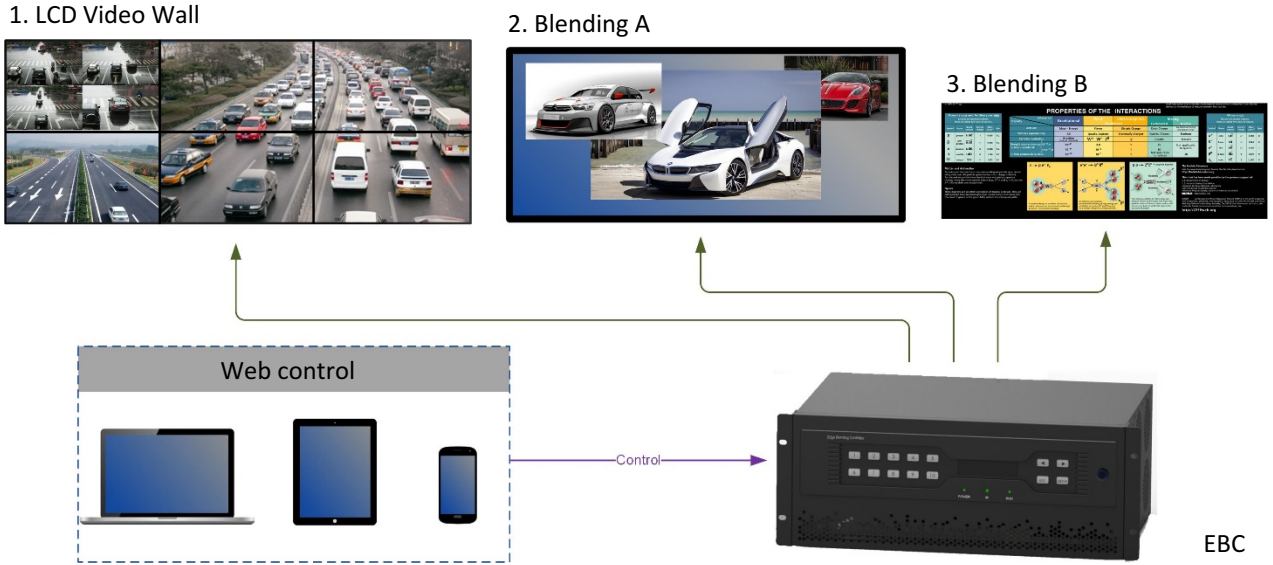

- Supports Video Wall function
- Centralized control multi-groups of video wall can blending wall

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- TCP/IP control
- Web based control
- No need software installed
- Compatible with any PC, Tablet and Smart phone
- **Note:** Google Chrome browser supported now only.

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Blending display

PC control

Tablet/ Smart phone control

- Real time previewing of all input signals
- Drag and drop operation
- Intuitive operation
- **Note:** need install the PV card (Preview output card), which taking one output slot.

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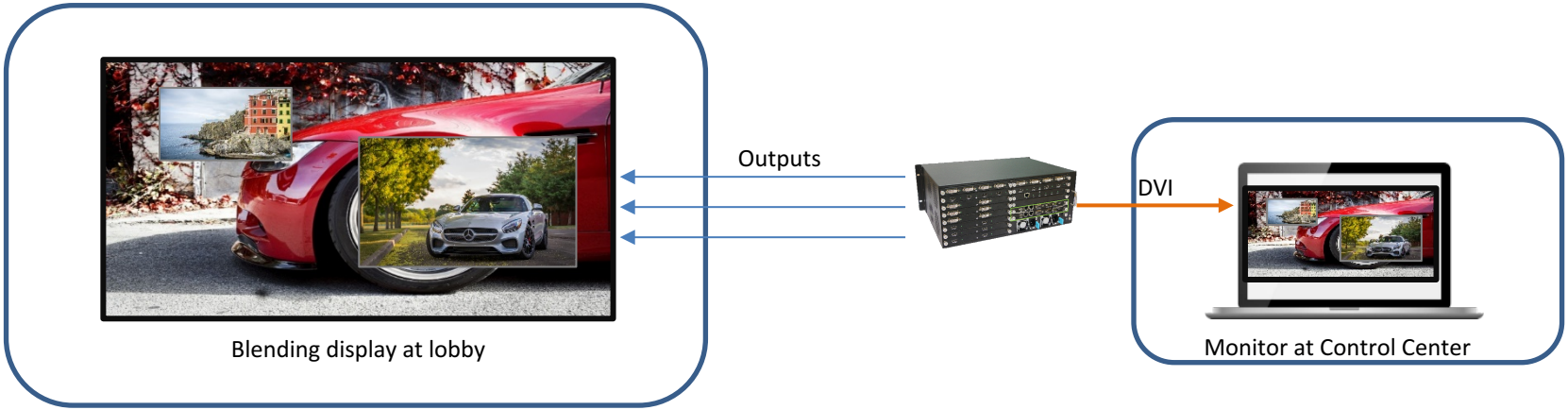

- Real time monitoring of the whole blending display
- Keep the original aspect ratio of the whole blending
- **Note:** need configured with CMC card (Confidence Monitoring Card, inserted in function slot). The confidence monitoring function will be ready in Q4, 2016.

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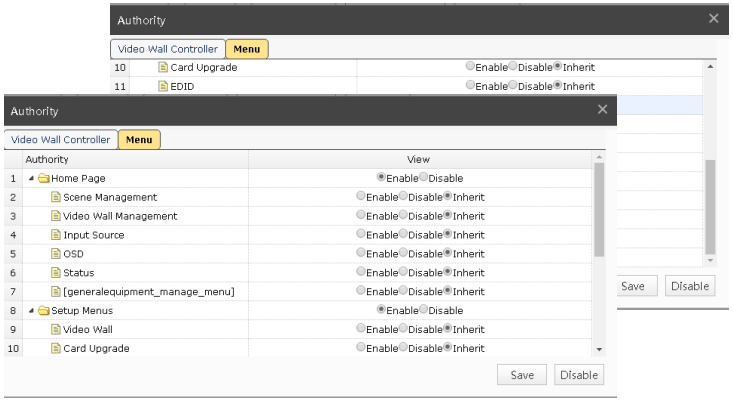

- Different user levels
- Custom and flexible access authorization of display area and video resources
- Multi-users concurrently

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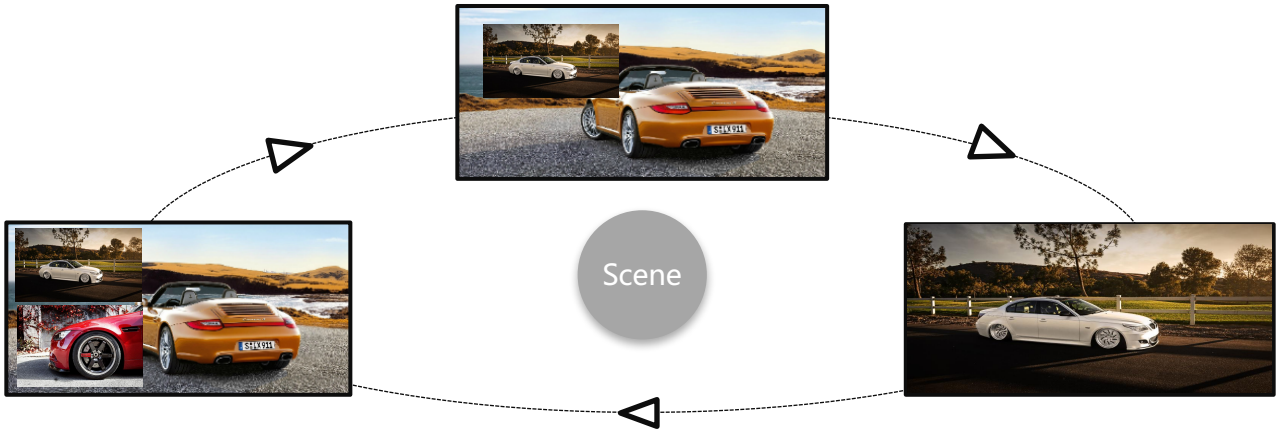

- User defined scenario
- Auto switching of scenarios with user defined intervals

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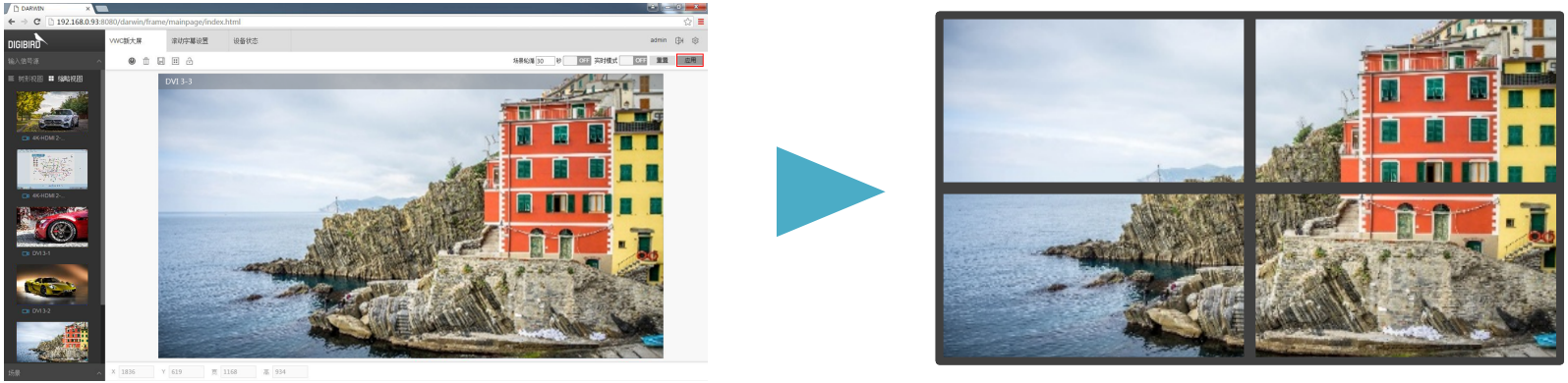

- Pre-editing: the user is able to preset the display layouts without interruption the current displaying on the blending wall.

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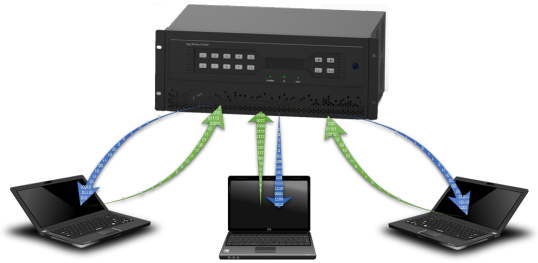

- Dual Control Cards redundant design: much safe and stable
- Cold backup of the configuration
- Configuration import/ export supported
- Device will be keeping operating as last configuration even both the dual control cards taken out
- Redundant PSU optional (**except for 2U EBC**)
- **Note:** 2U EBC dose NOT support redundant PSU.

29. Real time status monitoring

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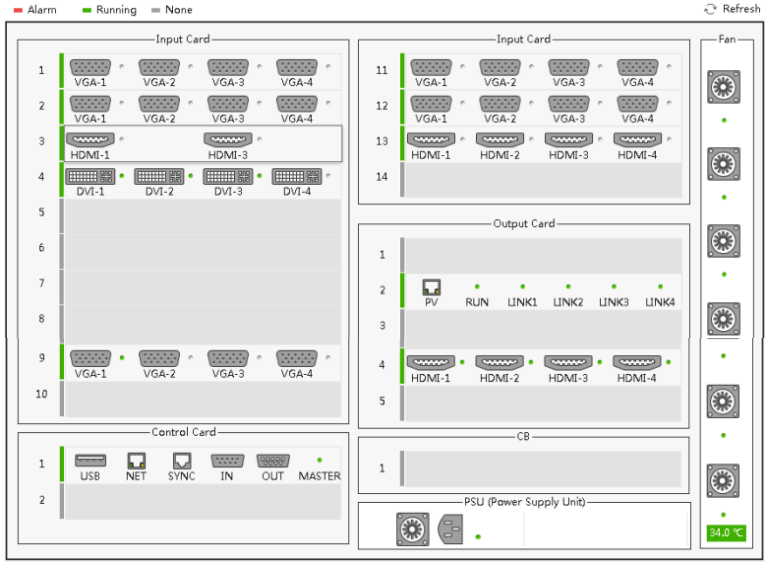

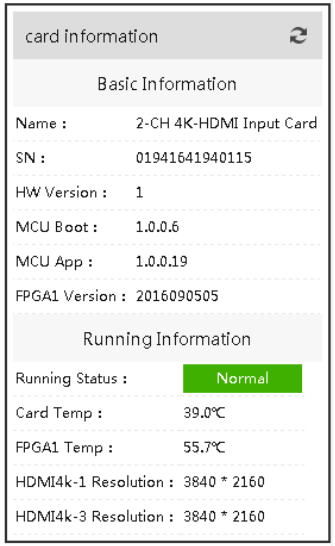

- Real time status monitoring
- Real time temperature monitoring of each component
- Auto adjust of fan speed: much quiet, lower power consumption
- Easy to check the manufacturer information including version, S/N and component type, etc.

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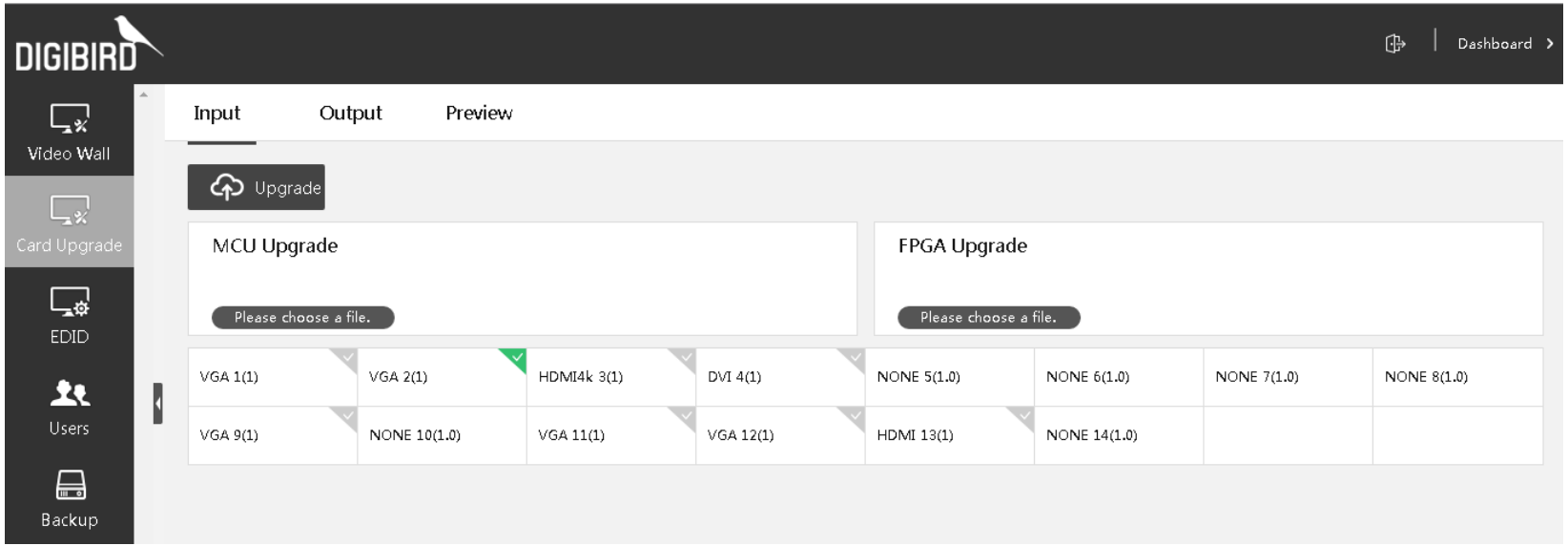

- On site firmware update supported

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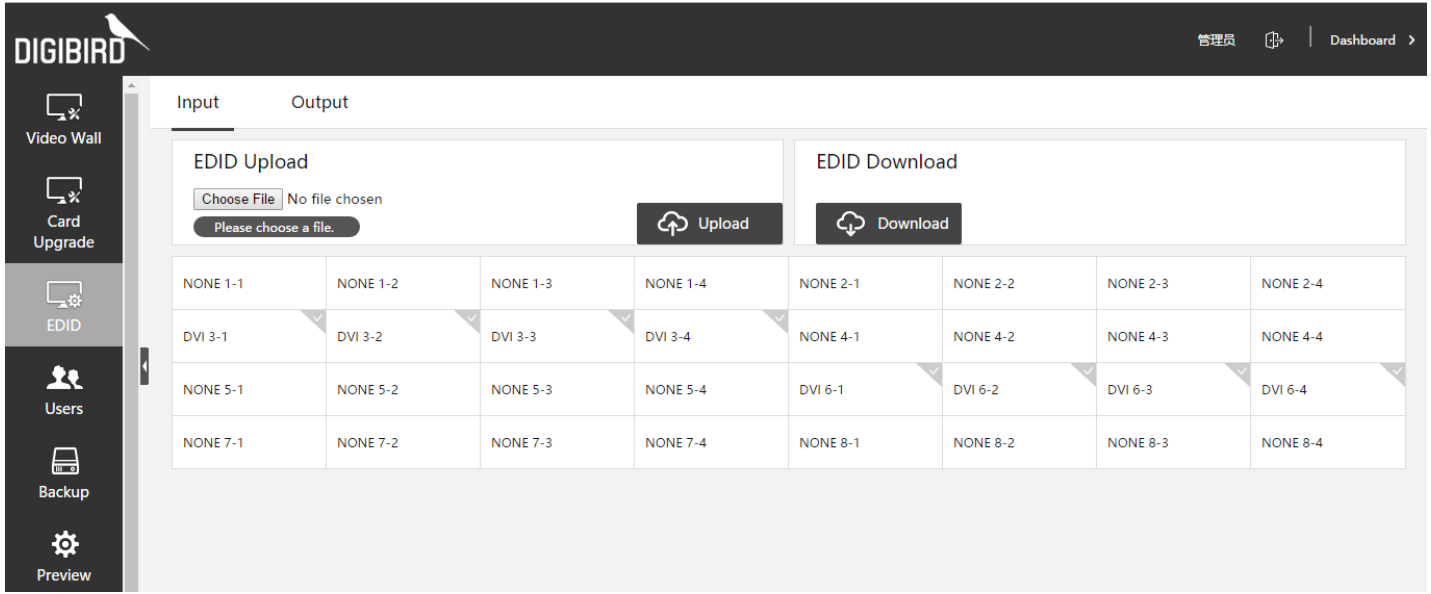

- On site EDID upload/ download supported

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- Web based control interface supports remote standby/ wakeup of the hardware EBC.
- One click operation
- Power saving and lower consumption

Thanks!

http://www.digibirdtech.com/