

G-700 multiple Channel 4K Curve Edge Blending Processor



G-700 is a curved screen edge blending processor with the ability to provide multiple processing modules to control from 1 to 4 projectors based on user's requirements. G-701 can provide single processing module for one projector, G-702 for 2 projectors, G-703 for 3 projectors and G-704 for 4 projectors. It was designed for sophisticated edge blending as well as image warping, stacking, projection mapping, irregular video wall and passive 3D...etc. One G-704 can execute 4 projector edge blending without any additional equipment or splitter. Two G-704 can control up to 8 projectors.

Each processing module has 3 input ports (1x HDMI, 1x DP, 1x DVI-I) to support 5 input formats (HDMI, DP, VGA, DVI-D, YPbPr) and one HDMI output port. One 4K HDMI loop out port is for raw signal daisy chain connection. Input ports support up to 3840x1080 @60Hz and 4k UHD @30Hz resolution with 4:4:4 full color sampling. It is integrated with 10-bit high end processor, motion adaptive de-interlace and 3:2/2:2 pull-down.

PIP (picture in picture) and POP (side by side) are standard functions in each processing module. In one G-704, user can display up to 8 different input contents on the screen. If user requires PIP or POP image across entire screen, user can use the first module as PIP/POP processor and connect the output to other processing module input port to get PIP/POP image across entire screen. If user uses two modules for PIP/POP processing, then user can get 3-4 different contents across complete edge blending screen.

Advanced warp technology is embedded in G-700. User can use front panel keypad, IR controller or PC to perform edge blending and sophisticated geometry alignment up to 17x17 grids through user friendly operation interface. Geometry adjustment range is big enough for most of the applications. By remote controller, user can adjust corner position up to H=+_600 pixels and V=+_400 pixels in full HD output resolution. If PC tool is used, geometry alignment range will be double. User can also apply serial connection among processing modules to increase geometry adjustment range for some special applications.

It can perform color and white balance adjustment in individual projector. Edge blending region gamma correction and non-edge blending area black level uplift are also standard function in G-700.

HDMI loop out supports daisy chain connection up to 3840x1080 @60Hz or 4k/2k @30Hz and allows large display with multiple G-700 cascaded without video distributor. Video wall function in G-700 is to crop and

allocate source image for each projector. Complete curved edge blending can be achieved without PC, video distributor and splitter.

G-700 is an ideal solution for simulation. It can connect with inputs from multiple PC and combine them into one seamless image. It also provides flexible displays in edge blending system. For a 3x projector edge blending system, user can configure as 1+1+1 independent display, 1+2 (two edge blends) and all-in-one (three edge blends). User can also execute edge blending with projector at portrait position to increase image height. It is a good fit with laser projector without the limitation in installation angle.

In order to optimize video performance, G-700 is designed to support non-VESA standard input timing and allow user to create any EDID timing in the range between 1024x768 and 3840x2160.

With G-700, users can replace high end projector with low cost projector without lens shift, warp and edge blending. It provides easy configuration, low entry barrier, cost effective, reliable and flexible solution.

Functions and features:

A. Structure

Each G-700 consists of 1-4 processing modules based on the requirement from customers. The system will be simpler and more reliable.

B. Input and output in each processing module

1. Input ports: 1x HDMI, 1x DisplayPort and 1x DVI-I (support HDMI, DVI, VGA, YPbPr input signals) ◦
 - ✓ HDMI & DisplayPort support 4k/2k @30Hz, WQXGA & 3840x1080 @60Hz with 4:4:4 sampling without compression.
 - ✓ DVI-I port: if the input is through HDMI cable, it can support 4k/2k @30Hz. If input from DVI or VGA signal source, it can only support up to 1920x1200 @60Hz.
 - ✓ Connect with all kinds of video sources and support none VESA standard input resolution.
2. Output ports: 1x HDMI. Preset output resolution: 720x480 ◦ XGA ◦ WXGA ◦ 1280x1024 ◦ 1366x768 ◦ 1400x1050 ◦ 1600x1200 ◦ 1920x1080 & 1920*1200 ◦
3. Loop out port: 1x HDMI (supports 3840*2160@30Hz) for daisy chain connection and monitoring.
4. Audio input/output: HDMI embedded audio

C. Image warp, geometry alignment and edge blending

1. With full functions for quick 4 corner alignment, vertical and horizontal keystone correction, Pincushion & Barrel adjustment, image warp and image rotation and flip.
2. Each unit controls up to 4 projectors and can be expanded with multiple G-700 to support unlimited number of projectors.
3. Integrated with full function front panel keypads and IR remote controller. Manual geometry alignment up to 9*5 grid pattern. The geometry adjustment range is up to +_600 pixels in horizontal direction and +_400 pixels in vertical direction at each corner in FHD output.
4. PC software tool is available for warp and geometry alignment up to 17x17 grid pattern. After finishing geometry alignment, the parameters can be stored in G-700 and no more PC is needed. The geometry adjustment range will be double if compared with remote controller adjustment, i.e. H=+_1200 pixels and

V=+_800 pixels in full HD output resolution.

5. Through applying serial connection with multiple processing modules, user can expand geometry alignment range. It is convenient for special application required extreme big geometry adjustment range.
6. Execute 4 directions edge blending. No limitation in the number of the projectors.
7. Provide complete functions for edge blending fine-tune and color correction.
8. Precise black level uplift at selectable area to compensate light leakage in the projector.
9. White balance and individual color correction for each projector.
10. One PC tool can control up to 4l processing channels simultaneously.
11. Able to perform flat & curved screen seamless edge blending, including irregular curved screen and 360 degrees curved screen.

D. Edge Mask:

Able to do edge mask with black background in each edge up to 500 pixels.

E. Passive and active 3D

1. Auto decode 3D signals for passive 3D display, including signal source from Blue Ray, STB, game console, media player and PC.
2. Auto decode Stereoscopic Player/ Nvidia 3D Vision 1080p @120Hz 3D format and Blue Ray 1080p 24Hz 3D signal into 720p/XGA/WXGA 120Hz signal for active 3D display.
3. Support standard HDMI 1.4a 3D format, including 1080p/24Hz full HD, Side by Side, Top-Bottom, frame sequential & Line interleaved (Line by Line).
4. Support 3840x1080 Full HD Side by side 3D format and SONY 1080i/60Hz frame packed 3D..
5. Zero latency in RH/LH eye image to get the most comfortable 3D.
6. 3D display can be on flat and curved screen. It can be expanded by more projector image stacking or edge blending.

F. High end 10-bit video processor

1. Designed with 10-bit high end processor with 3D motion adaptive de-interlace, low angle smooth algorithm and 3:2/2:2 film mode detect and recovery function.
2. Complete colour adjustment function, including brightness, contrast, hue, saturation, preset colour mode and independent RGB color adjustment.

G. Video wall function

1. Image split and assign location for each projector.
2. Overlap pixel adjustments up to 900 pixels for image position shift, bezel compensation and creating overlap region for edge blending.
3. Connect with 4k/2k input signal and split the image for display devices without additional PC, image splitter or other devices.
4. Serve as video wall controller for irregular video wall display up to 15x15 matrix display from single signal input source.

H. PIP/POP function

1. PIP (picture in picture): with flexible PIP size (max. up to 1024x768), location and aspect ratio.

2. POP (Picture outside picture): side by side images with full screen or maintain original aspect ratio.
3. If set one processing module at the front end, the PIP/POP function can be across entire display system.
4. Two landscape contents can be displayed on one portrait LCD with two contents at top/bottom position.

I. Image rotation and flip

1. Image 90/180/270 degrees rotation.
2. Image flip in Front/Rear, Left/Right and Top/Bottom directions.
3. POP image can be rotated at 90/270 degrees to display dual landscape contents on one portrait display with two contents at top/bottom position.

J. System control

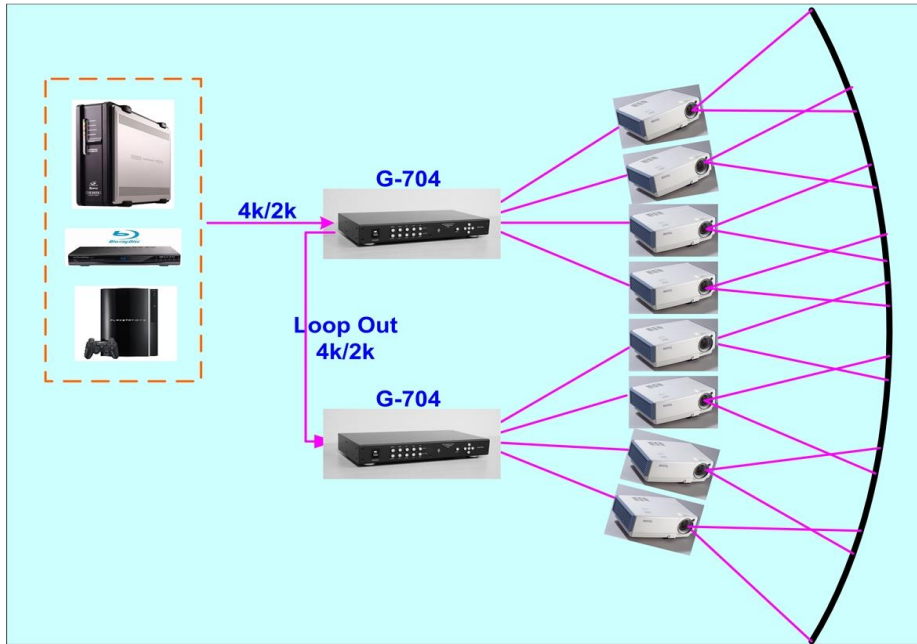
1. 1.5U housing for easy rack installation. Professional design and reliable.
2. Replace high price projector with low cost projector and achieve the same functionality.
3. Full function front panel keypads, IR remote controller, USB, RS232 and Ethernet control.
4. USB interface for code update and PC tool operation.
5. Internal grid pattern for easy geometry alignment.
6. Programmable EDID for user to create any EDID with timing between 1024x768 and 3840x2160.
7. BOX ID for convenient multiple units control at the same time.
8. Five preset Profiles to save user settings and can be recalled at any time.
9. Automatic power ON/OFF through input signal control. While no input signal is detected, it will shut down output so that user can power ON/OFF complete system through the control in signal source.
10. Gwarp PC tool for sophisticated geometry alignment up to 17x17 grids.
11. Dimension and weight: 440x189x60mm, 2.4kg (Body only)

Application

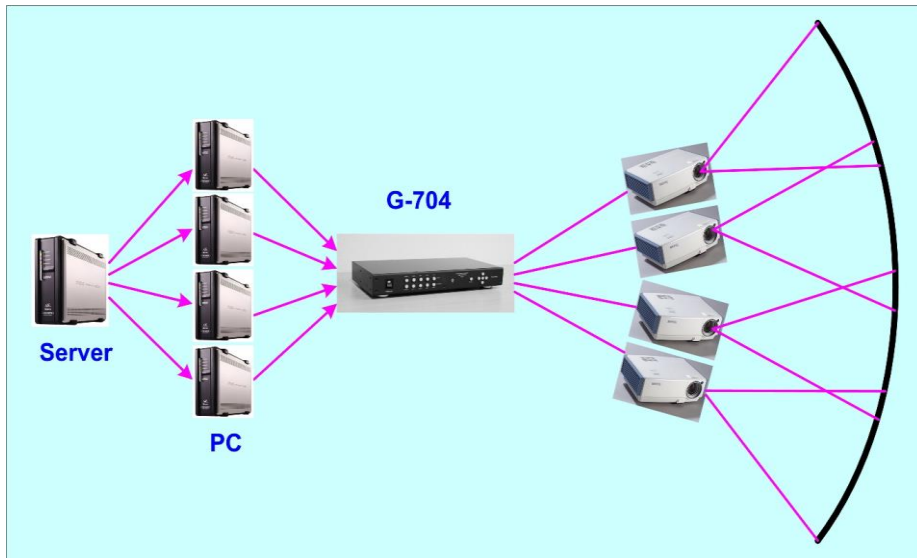
1. Simulation with multiple inputs from multiple PC.
2. Edge blending with projector at portrait position.
3. Flexible display in edge blending system. For a 3x projector edge blending system, user can configure as 1+1+1 independent display, 1+2 (two edge blended) and all-in-one (three edge blended).
4. Pro-AV installation
5. Immersive 3D theater
6. Hospital 3D training room
7. Advertising displays
8. Staging and special events
9. Houses of worship
10. Conference room
11. Lecture halls
12. Trade show display

Application case study

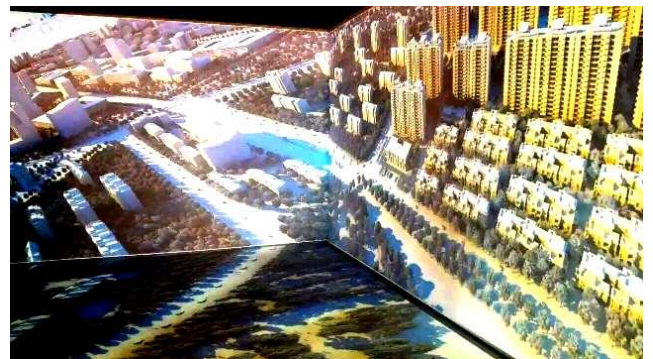
A. 4K daisy chain connection



B. Multiple PC input simulation system



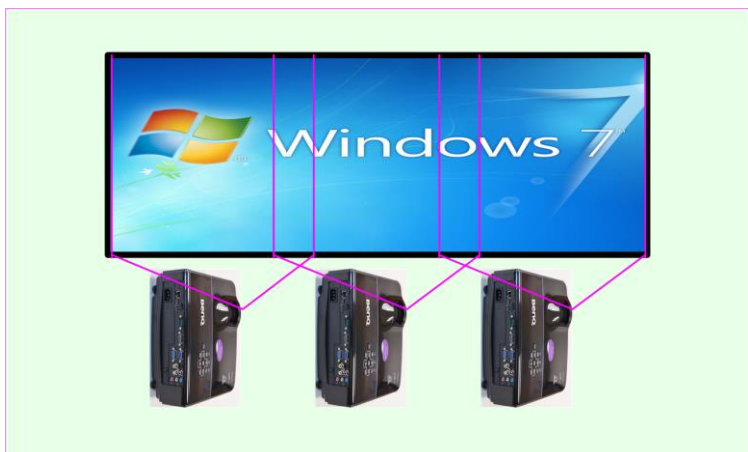
C. Corner wall display



D. Conventional curve screen edge blending

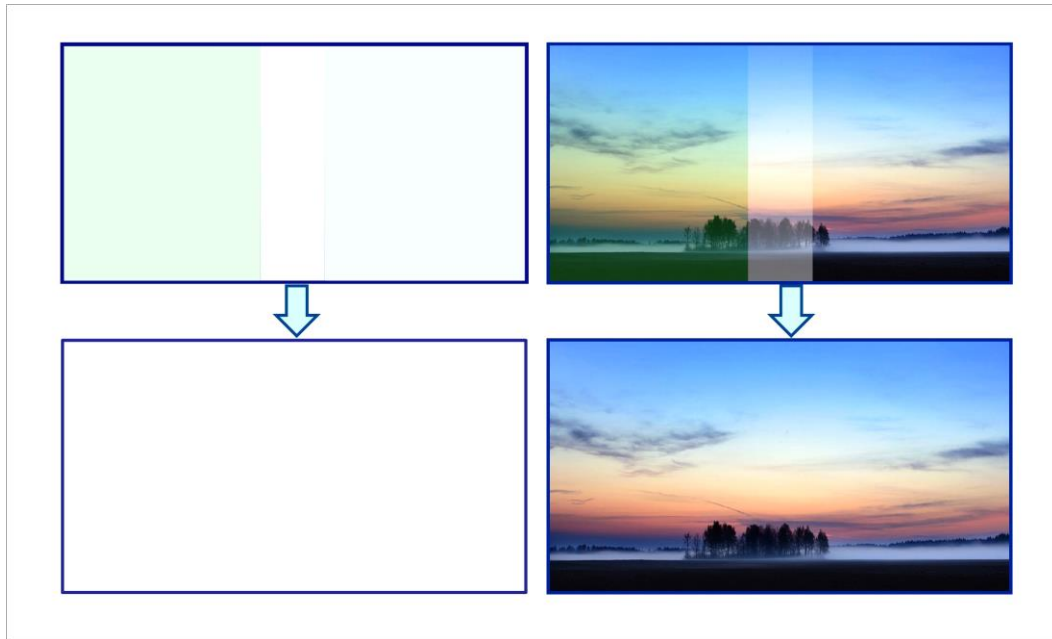


E. Edge Blending with projector at portrait position



- ✓ Able to execute edge blending with projector at portrait position to increase image height.
- ✓ G-106Ex can rotate the content and implement edge blending.
- ✓ It is not necessary to rotate the content in advance.

F. Black level uplift, White balance & Color correction



Each projector color and white balance can be adjusted independently.

G. Black Level Uplift (to compensate projector light leakage)



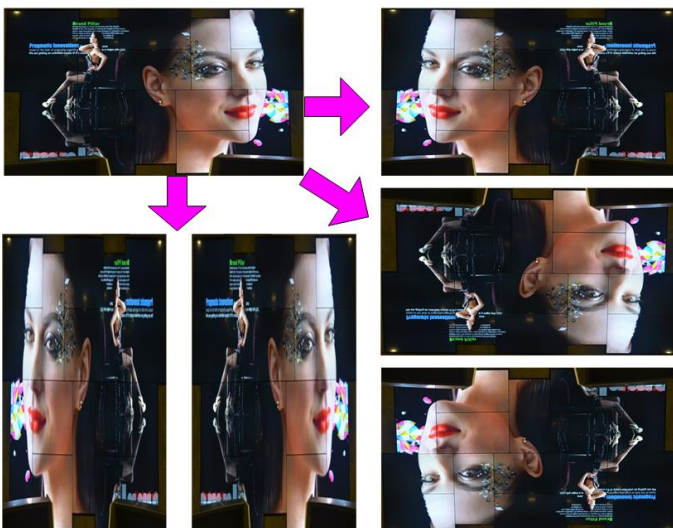
H. Flexible display



Left display modes can be configured in 3 projector edge blending system:

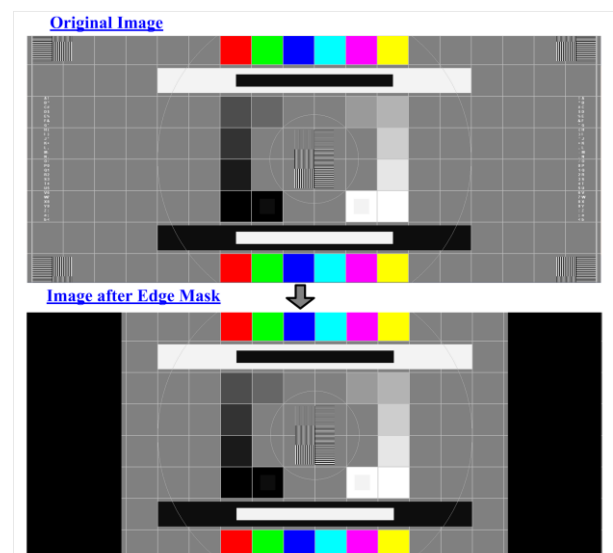
- ✓ 1+1+1: Each projector can display independent content.
- ✓ 1+2: two projectors shows one content and another one show standalone content.
- ✓ All in one
- ✓ User can save all the settings in PROFILE and recall at any time by RS232 or remote controller.

I. Image flip at Up/Down, RH/LH, Top/Bottom, Front/Rear

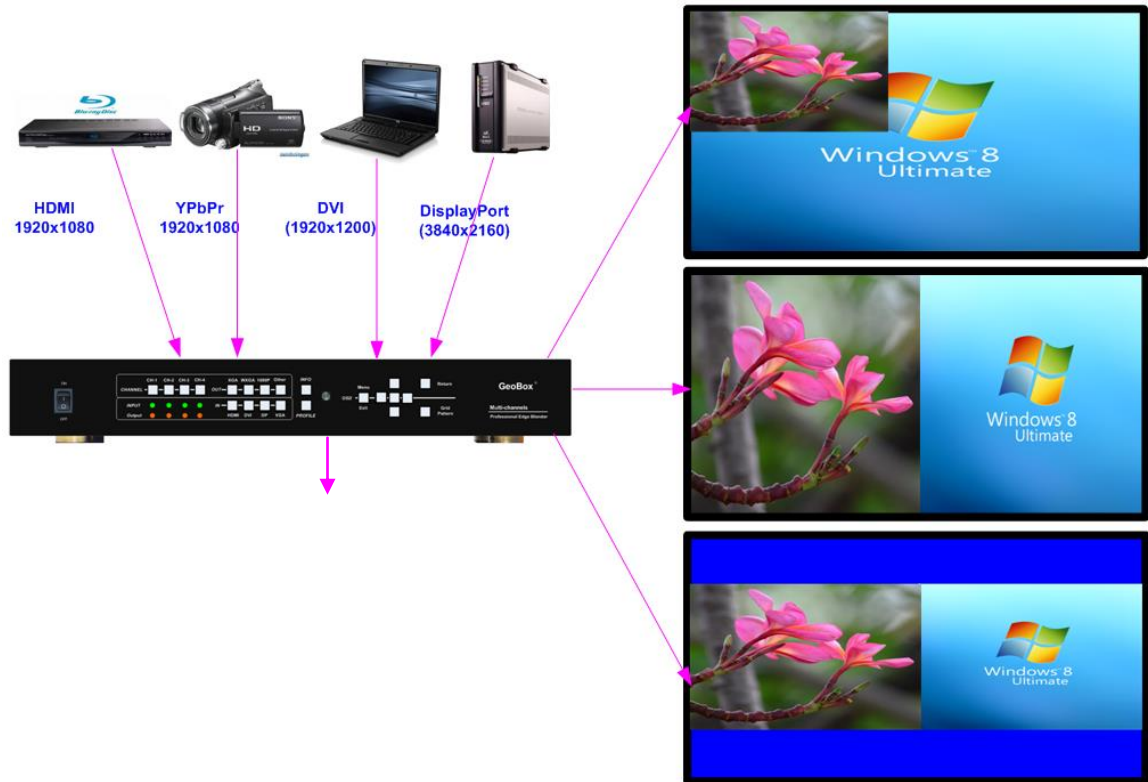


J. Edge Mask

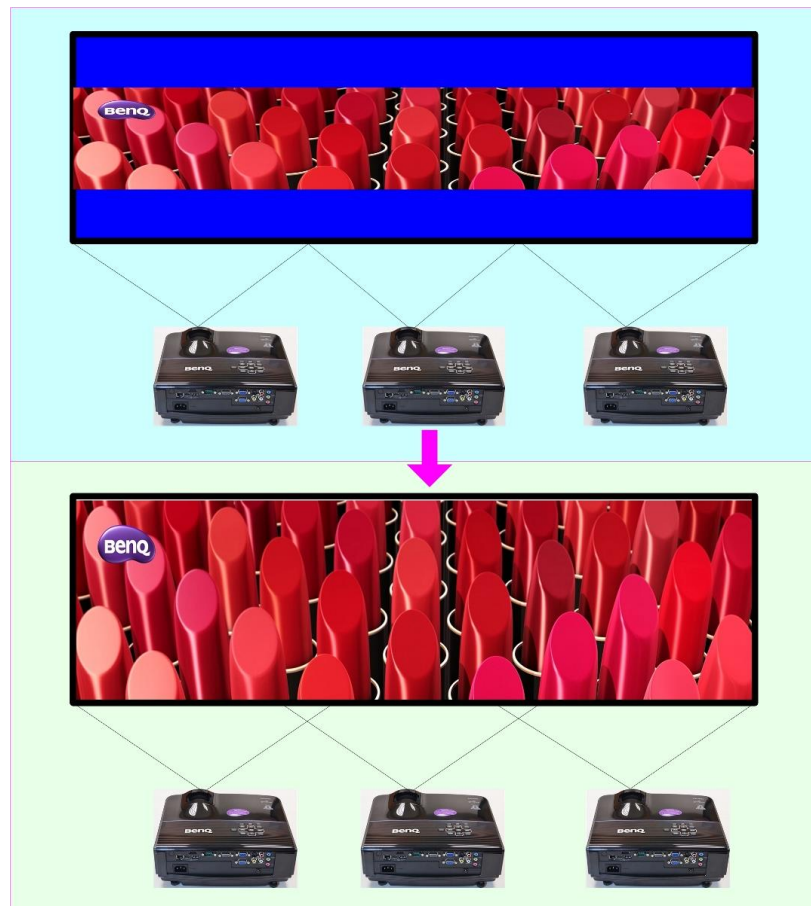
Up to 500 pixels at each edge



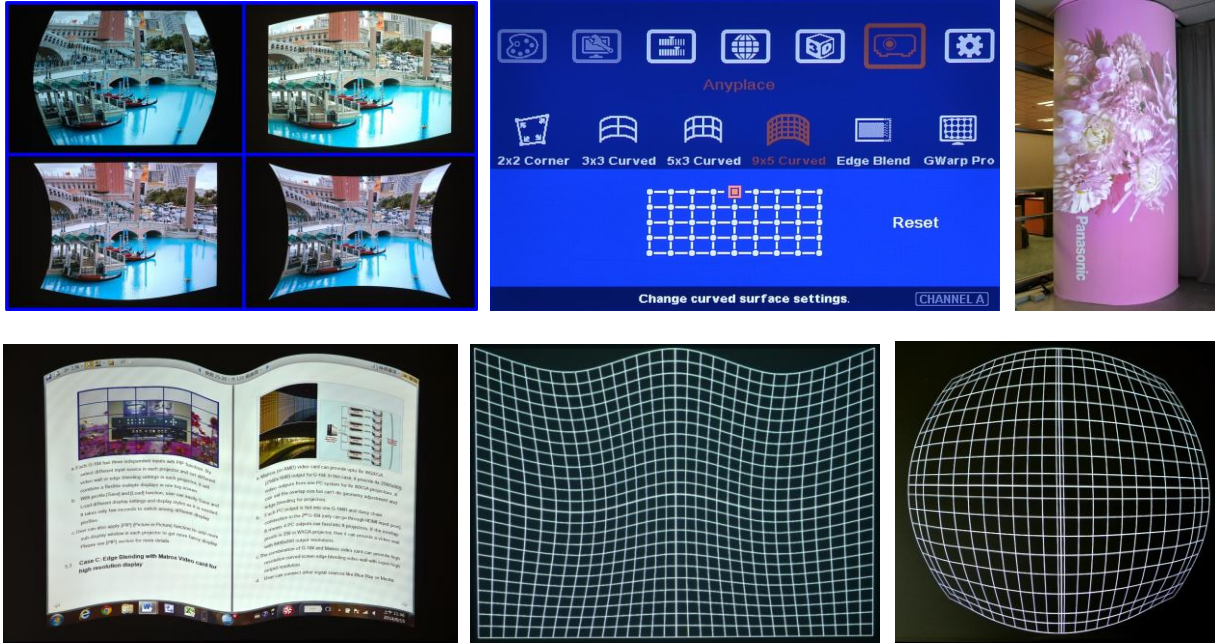
K. Image PIP/POP with flexible PIP size, location and aspect ratio



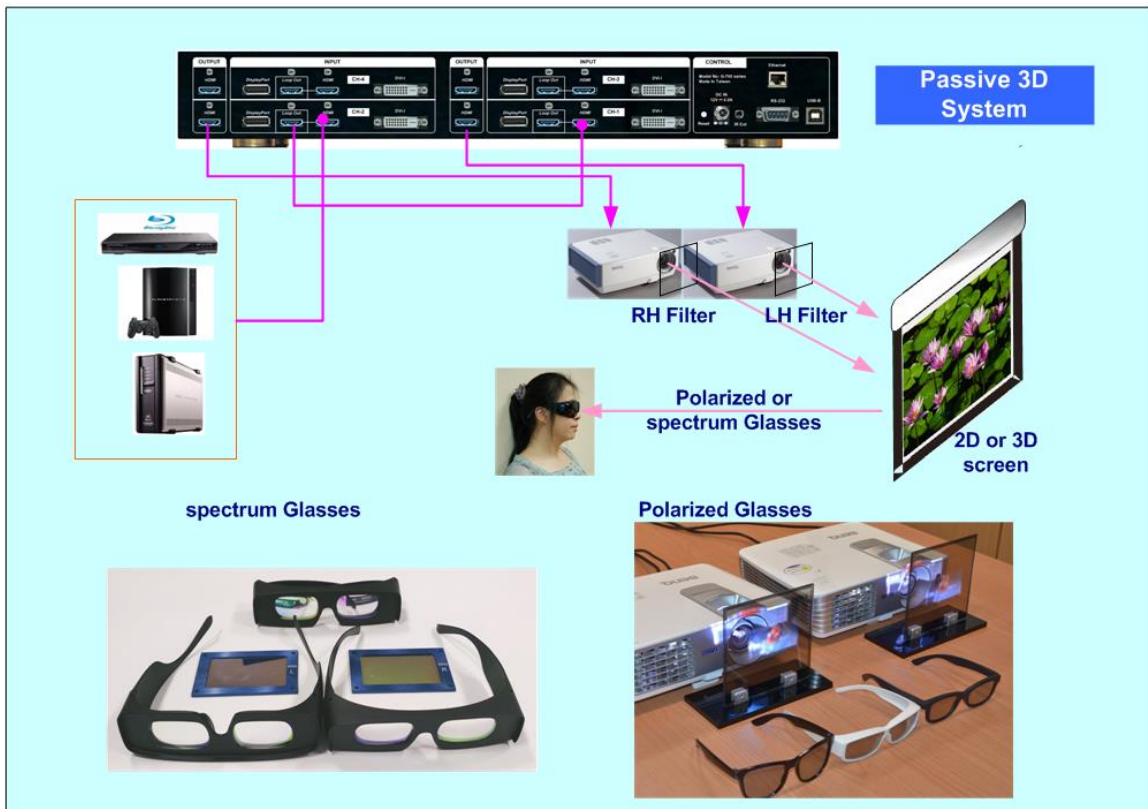
L. Stretch image with full screen



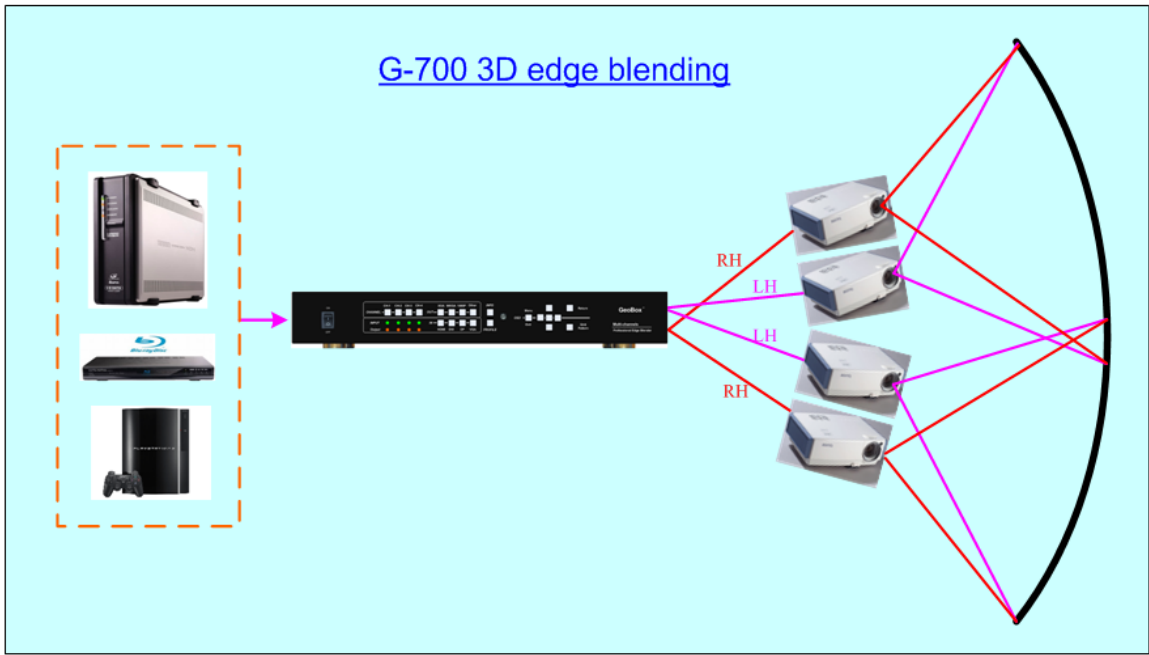
M. Precise geometry alignment with big adjusting range



N. Professional Passive 3D



O. Four projector Passive 3D edge blending



P. Image stacking

