The absolute opposite of ordinary

G901 3D Format Converter Datasheet

Input: up to 4096*2160 @60Hz, 7680*2160 @30Hz in HDMI, 7680*4320@30Hz in DisplayPort, 4:4:4 chroma sampling

Programmable Output: up to 4096*2267/60, 7680*1234/60, RGB 4:4:4

Support Side by Side, discrete RH/LH, Top/Bottom, Frame packed, Line interleaved and Frame sequential 3D input

Convert 3D input signals into RH/LH output format for passive 3D display

Convert 3D input signals into Side by Side, Top/Bottom or Frame sequential output format

Support medical devices Line interleaved 3D format conversion

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Table of Contents

Introduction

The G901 is a multi-purpose video processor designed for seamless switching, format conversion, scaling up and down, image flipping/rotation/cropping, video walls, PIP/POP, 3D format conversion, and multi-viewer functions. It supports inputs from PCs, Blu-ray DVDs, game consoles, and medical endoscopes.

The G901 supports various 3D input signals, including Side-by-Side, Top/Bottom, Frame Packed, Line Interleaved, and Frame Sequential formats. It can decode 3D input signals into RH/LH output formats for passive 3D displays and convert 3D input signals into Side-by-Side, Top/Bottom, RH/LH Line Alternative or Frame Sequential output formats for various 3D display devices. Additionally, dual camera discrete RH/LH 3D signals can be converted into Side-by-Side or Top/Bottom 3D formats through the G901's POP and Top/Bottom functions, making it an ideal solution for medical endoscope display issues.

The programmable output supports resolutions up to 4096x2267 @60Hz or 7680x1234 @60Hz. The output range spans from 640 to 7680 pixels horizontally (with 8 pixels/step under 230 MHz and 16 pixels/step above 230 MHz) and from 480 to 3840 pixels vertically (with 1 pixel/step). The maximum resolution is limited to a 600 MHz pixel clock, and the output refresh rate can be selected from 24/30/50/60/100/120Hz.

Users can change the output resolution to adjust the image aspect ratio. For example, when applying two FHD dual camera images as the signal source and converting them into a Side-by-Side 3D format, setting the output resolution to 3840x1080 or 3840x2160 will result in different aspect ratios for the final 3D image. Users can select the right output resolution to match the aspect ratio between the signal source and the display device, a unique function of GeoBox in 3D applications.

PIP (picture in picture) and POP (side-by-side or top/bottom) are standard functions in the G901. The device also features embedded 3-split view and 4-split view MultiViewer functions. The POP or Top/Bottom functions are used to combine discrete RH/LH 3D signals into Side-by-Side or Top/Bottom 3D formats for 3D displays.

Users can operate and set up the G901 using an IR controller, USB, Web GUI, or Ethernet. Designed for 24/7 operation, the G901 offers easy configuration, low entry barriers, cost-effectiveness, reliability, and flexibility.

Specifications

- ✧ Input ports: 3x HDMI 2.0b, 2x DP1.4
- ✧ Max. input: 4096*2160 @60fps or 7680*2160 @30fps in HDMI and 7680*4320 @30Hz (true 8k/4k @30Hz) in DisplayPort input.
- ✧ Supports interleaved and progressive input signals with 4:4:4 10-bit color
- ✧ Programmable Output: 1x HDMI 2.0b up to 4096*2267@60fps or 7680*1234 @60fps
- ✧ The output range is from 640-7680 in horizontal (8 pixel/step under 230Mhz, 16 pixel/step above 230Mhz) and 480-3840 in vertical (1 pixel/step) (maximum resolution is 600MHz).
- ✧ Output signal: SDR, progressive full color RGB 4:4:4 10-bits.
- ✧ Preset 17 output timing modes with 8-bit/10-bit color and 24/30/50/60/100/120Hz refresh rate selection.
- ✧ HDCP: V2.2/V1.4 in HDMI & V2.2 in DP ports.
- ✧ One frame latency: 16.7ms (V=60Hz)
- ✧ PIP/POP function with PIP image size from 320*180 up to 1920*1200 resolution with flexible position, rotation/flip and selectable aspect ratio.
- ✧ POP image can be at side by side or Top/Bottom. Main and sub-image can be rotated / flipped with flexible aspect ratio adjustment.
- ✧ 5x1 seamless switching with continuous output signal. Projector needn't re-search input source.
- ✧ One G901 can display 4 types of 3 split views on landscape or portrait UHD monitor. 2 types of 4 split views can be displayed in landscape monitor. All inputs can be up to 4k/2k 60Hz.
- ✧ 3x SBS split view with the center image size from 1/6 to 5/6 adjustable.
- ✧ Individual color adjustment in main and sub-images.
- ✧ 10-bit processor, 3:2/2:2 cadence, low angle smooth algorithm
- ✧ High quality scaling engine for image scaling up and down in the range from XGA to UHD.
- ✧ 3D motion adaptive de-interlace for interleaved input.
- ✧ Individual 90/180/270 rotation, flip, cropping, scaling & color adjustment up to 4k/60 input.
- ✧ Decode 3D signal for passive 3D display.
- ✧ Convert Side by Side, discrete RH/LH, Top/Bottom, Frame packed, Line interleaved and Frame sequential 3D formats into side by side, Top/Bottom, RH/LH Line Alternative or frame sequential output.
- ✧ Image freeze by click keypad on remote controller.
- ✧ ESD Protection: ±15kV (Air-gap discharge), ±8kV (Contact discharge)
- ✧ DC power supply: DC adapter: 12V 2A (100V-240V), max. Power consumption: 0.6A (7.2w)
- ✧ Working environment: 45 degree C, 10-90% RH
- ✧ Control: IR, RS232, USB, Ethernet
- ✧ 10 system settings can be stored and backup.
- ✧ Dimensions (Body only): 220mm*161mm*41mm (without protruding parts).
- ✧ Weight: 0.87 kg (body only)
- ✧ CE/FCC/RoHS Certified
- ✧ 2 Year Warranty, extension package is available up to 5 years.

Function and features:

A. Input and output

- Input: 3x HDMI 2.0b, 2x DisplayPort V1.4。
  - HDMI 2.0b: Up to 4096*2160 @60Hz, 7680*2160 @30Hz, maximum pixel clock 600MHz.
  - DisplayPort 1.4: up to 7680*4320 @30fps (true 8k/4k)
  - Interleaved or progressive signal, 4:4:4 chroma sampling without compression
  - Connect with various video sources and support none VESA standard input up to 120Hz.
  - Seamless input source switching. Projector needn't re-search input source.
- 1x HDMI 2.0b Output port with programmable output resolution and refresh rate: The range is from 640-7680 (8 Pixels/step under 230Mhz, 16 Pixels/step above 230Mhz) in horizontal and 480-3840 (1 Pixel/step) in vertical directions (maximum pixel clock 600 MHz). Maximum output: 4096*2267/60 HZ, 7680*1234/60 Hz, 3120*3120/60 HZ. Selectable output refresh rate: 24/30/50/60/100/120 Hz.
- Preset output resolutions: 1024*768, 1280*720, 1280*800, 1280*1024, 1360*768, 1400*1050, 1600*1200, 1920*1080 (50/60Hz), 1920*1200 (30/60Hz), 2560*1440, 3200*1800, 3840*2160 (50/60Hz), 3840*1080@60.
- All outputs are RGB 4:4:4 progressive signals.
- Support xvYCC 8/10/12-bit wide color gamut input signal processing.
- Support selectable 8-bit/10-bit Deep Color output mode, even the input is 8-bit.
- Auto-detect HDR BT. 2020 input signal and processing with full color SDR RGB 4:4:4 output.

B. High end 10-bit scaling up and scaling down

- High end 10-bit scaling engine for image scaling up and down in the range from XGA to 8K/4K.
- Processor with 3D motion adaptive de-interlace, low angle smooth algorithm and 3:2/2:2 film mode detect and recovery function.
- Complete color adjustment function, including brightness, contrast, hue, saturation, preset color mode, and independent RGB gain adjustment.

C. PIP/POP and MultiViewer function

- [PIP]: Picture in Picture display with any two inputs.
- [SBS]: Horizontal Side by Side display.
- [Top/Bottom]: Top/Bottom display.
- [SBS 2/1]: 2/3:1/3 side by side display. Can be swapped to 1/3:2/3 side by side display by image rotation and change the monitor installation direction (top/down direction).

- [POP3]: One image at LH side and top/bottom two images at RH side. Can be swapped to one image at RH side and top/bottom two images at LH side by image rotation and change the monitor installation direction (top/down direction).
- [POP4]: One image at Top and two images at bottom. Can be swapped to two images at Top and one images at Bottom by image rotation and change the monitor installation direction (top/down direction).
- [3X SBS]: Three split views at landscape. The center image size is adjustable from 1/6 to 5/6 screen width through [Size] under [PIP Setting]. Minimum image size in both side windows is 1/12 screen width. Each window can be rotated to be displayed on monitor with portrait position.
- [3X T/B]: Three split views at portrait direction.
- [4x Split]: Four equal size split views (Monitor at landscape only).
- [4x T/B]: Display 4 split views with one image at the top and 3 images at the bottom. Below 3 windows keep 16:9 aspect ratio.
- PIP (picture in picture): with flexible PIP size (320*180 to 1920*1200), location and aspect ratio.
- Except [4x split] and [4x T/B] functions, all the other multiple window functions can support monitor at portrait and landscape position. Both main image and the sub-window support 90/180/270 degrees rotation and flip and keep [Full Screen] or [Original AR] aspect ratio.
- Cropping function (Overlap setting function) is available in Main image and all sub-windows for further location, size and aspect ratio adjustment as well as creating image borders.
- Individual color adjustment in main and sub-windows.
- All the inputs for main and sub-windows can be up to 4k/2k 60Hz 4:4:4 signals.

D. Image Cropping and Video wall function

- Input source can be cropped at H&V directions with any size through video wall function.
- Serve as video wall controller for irregular video wall with LCD at landscape or portrait position. One box can only control one monitor. Multiple boxes are required for multi-LCD video wall.
- Split the image up to 15x15 sections from single signal source in H&V directions. Assign the location of each split image for the output. The output can be further adjustment with +_ 1800 pixels in H&V for image position shift, aspect ratio adjustment, bezel compensation and creating overlap region for projector edge blending.
- Flexible image aspect ratio and position adjustment.

E. Various color adjustment

- Independent R.G.B color gain adjustment.
- Preset color temperature: Standard, Reddish, Bluish
- Brightness, contrast, Hue, saturation and sharpness adjustment.
- Brightness, contrast and RGB gain adjustment can be applied to both main and sub-windows.

F. Image rotation and flip

- Image 90/180/270 degrees rotation up to 4k/60Hz input resolution.
- Image flip in Front/Rear, Left/Right and Top/Bottom directions.
- PIP/POP/3 split view main and each sub-window can be rotated independently.

G. 3D function

- Support Side by Side, Top/Bottom, Line interleaved, Frame sequential, frame packed and dual camera 3D signals decoding and format conversion.
- Convert 3D signal into separate RH/LH eye frame, Side by Side, Top/Bottom, RH/LH Line Alternative or frame sequential output formats.
- Decode 3D formats into RH/LH for passive 3D display or frame sequential for active 3D display.

H. Quick PIP ON/OFF and two input seamless swap

- User can use remote controller [CH A/B] hotkey to turn ON/OFF PIP image seamlessly.
- If the output resolution is set to FHD or 1920x1200, user can assign one input signal to main and another signal to PIP channel and execute quick input seamless swap through [CH A/B] keypad on the remote controller.

I. Image freeze

- [Image Freeze] function in integrated in [Shift] shortcut key on the remote controller.
- When user click [Shift] key, the video will be frozen. To click [Shift] again, it will be released and turn to normal display.
- This function is good for image editing or user wants to see specific clip of the video..

J. System control and other features

- Full function system setup through remote controller, USB, WebGui or Ethernet (Including through WiFi by PC, Mobile or iPad).
- PC tool can control multiple processors simultaneously through USB or Ethernet.
- RS232 & Ethernet system control compatible with most of control system.
- Programmable EDID in the range at H=1024~4080, V=720~3840.
- BOX ID and programmable IP address for convenient multiple unit control at the same time.
- User can save up to 10 settings and can be recalled by remote controller, RS232, USB or network.
- System settings can be backup in PC and copied to another unit.
- Automatic power ON/OFF through input signal control.

Feature illustration

A. PIP/POP and MultiViewer functions

- [PIP]: Picture in Picture display with any two inputs.
- [SBS]: Horizontal Side by Side display.
- [Top/Bottom]: Top/Bottom display.
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- [POP3]: One image at LH side and top/bottom two images at RH side. Can be swapped to one image at RH side and top/bottom two images at LH side by image rotation and change the monitor installation direction (top/down direction).
- [POP4]: One image at Top and two images at bottom. Can be swapped to two images at Top and one images at Bottom by image rotation and change the monitor installation direction (top/down direction).
- [3X SBS]: Three split views at landscape. The center image size is adjustable from 1/6 to 5/6 screen width through [Size] under [PIP Setting]. Minimum image size in both side windows is 1/12 screen width. Each window can be rotated to be displayed on monitor with portrait position.
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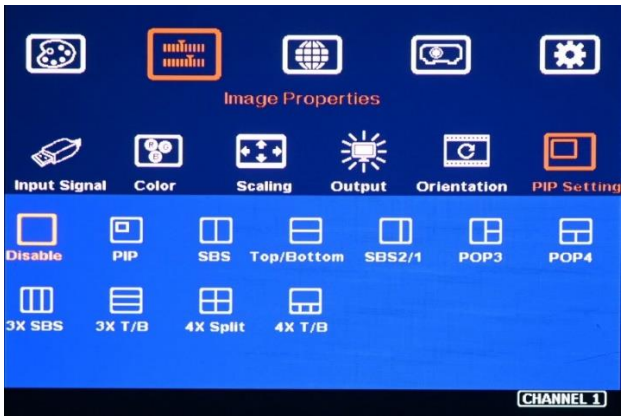
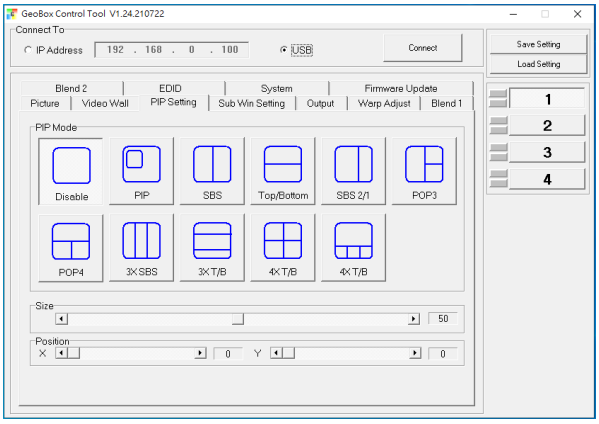
- [4x T/B]: Display 4 split views with one image at the top and 3 images at the bottom. Below 3 windows keep 16:9 aspect ratio.

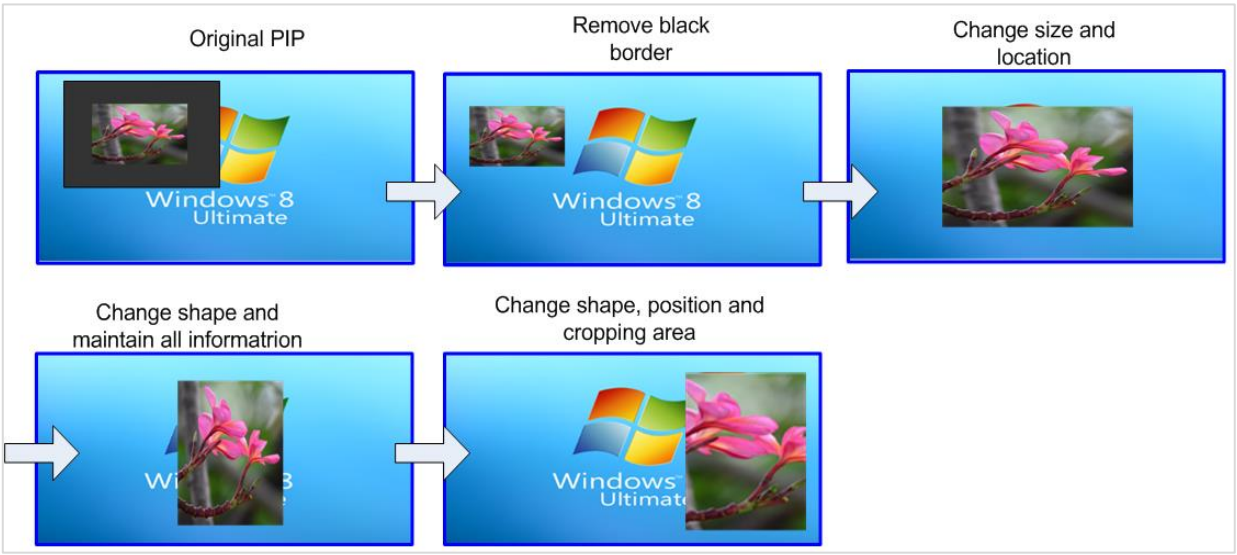
OSD menu



GCT PC Tool

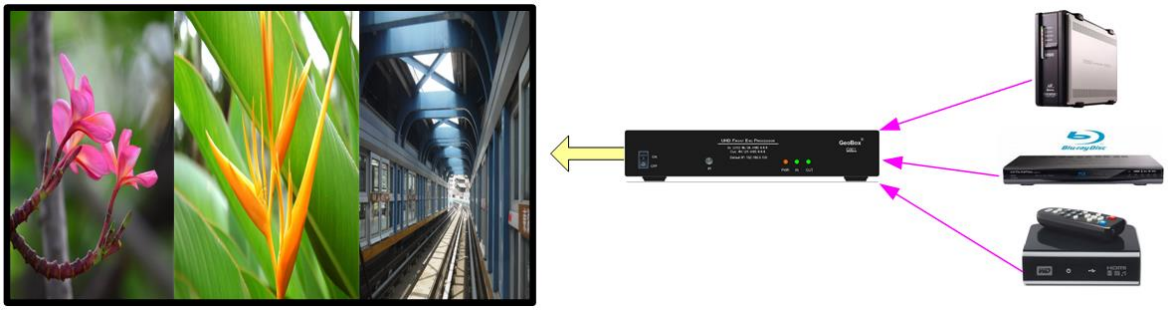



4k/2k
4k/2k
PIP
SBS
SBS
POP3
POP4
T/B
T/B
3X SBS
3X T/B
3X SBS +
Rotation
SBS 2/1 +
Rotation
SBS 2/1
PIP + aspect adjust

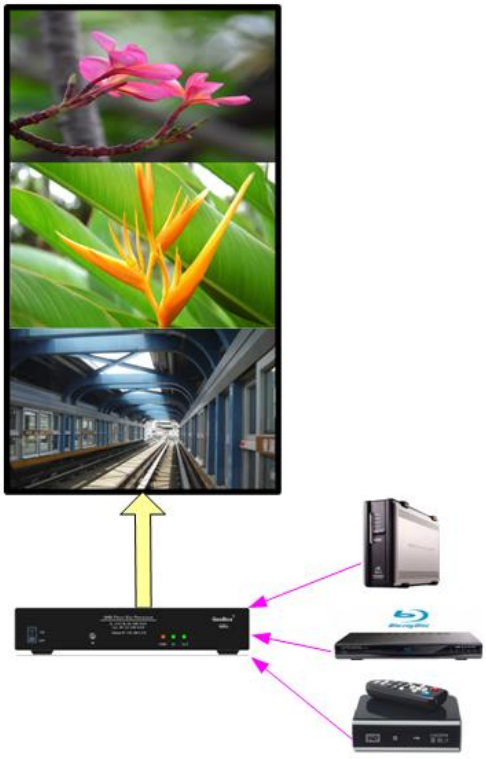

Original PIP
Remove black
border
Change size and
location
Change shape and
maintain all informatrion
Change shape, position and
cropping area

B. MultiViewer examples

Landscape 3 split views (3x SBS)

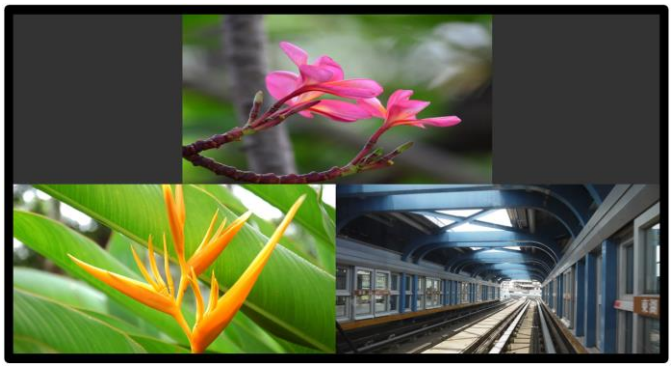


portrait 3 split views (3x SBS with rotation)

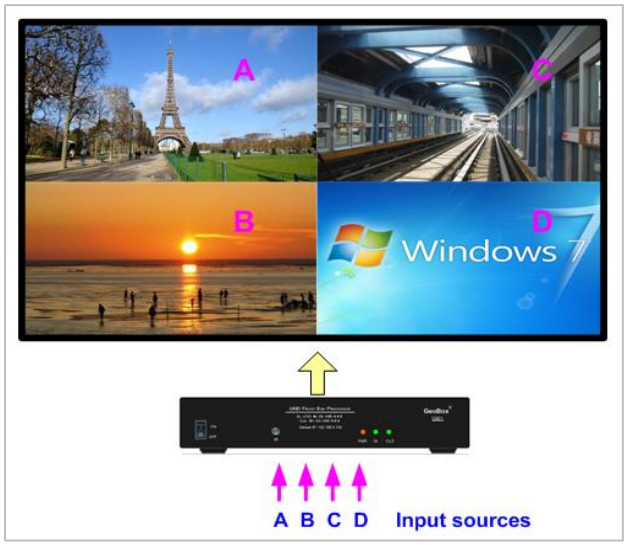


3 Split Views (POP3)

3 split views (POP4)



4 split views **(At least one signal shall come from DisplayPort)**

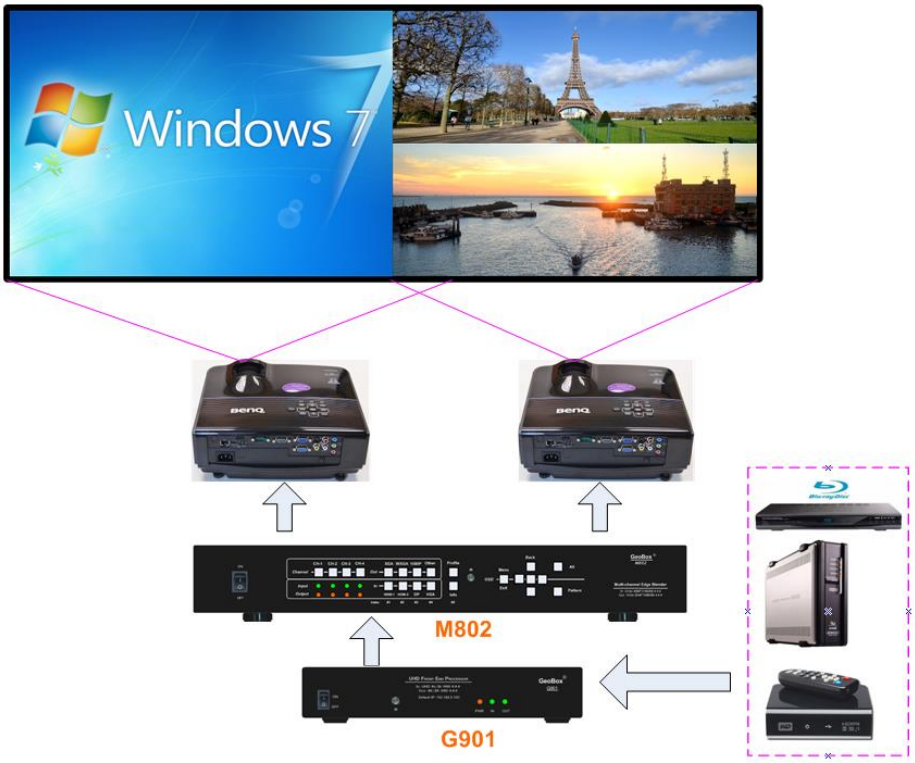


C. Front end processor

G901 as PIP process

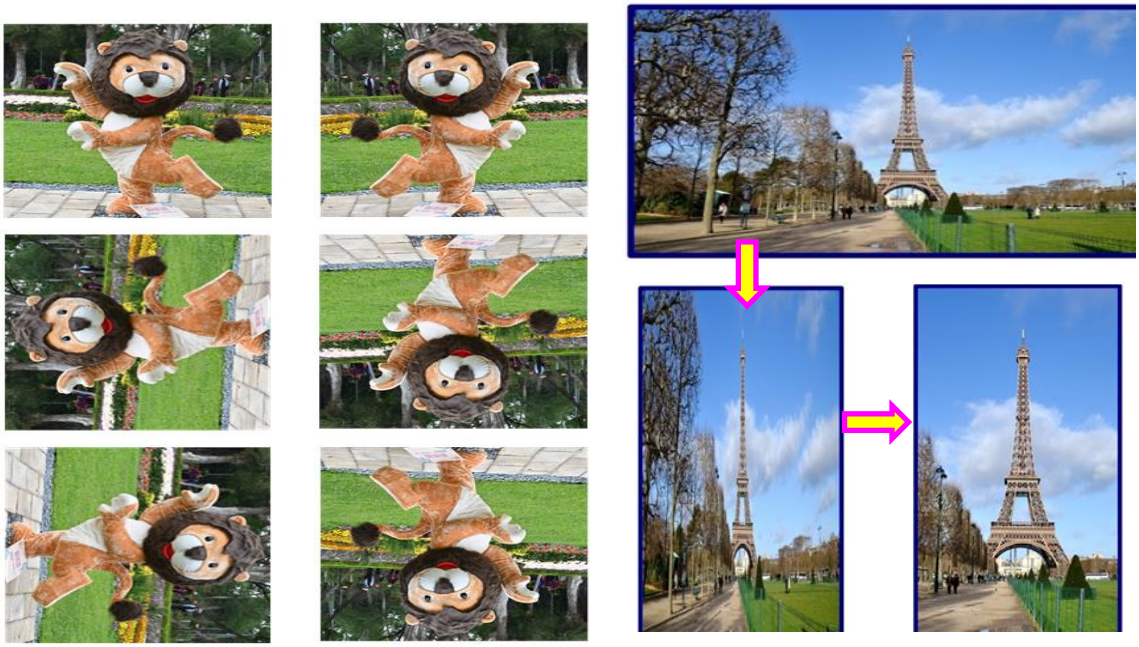
G901 for PIP & aspect ratio adjustment

G901 as front-end processor for 3 or 4 split view edge blending system

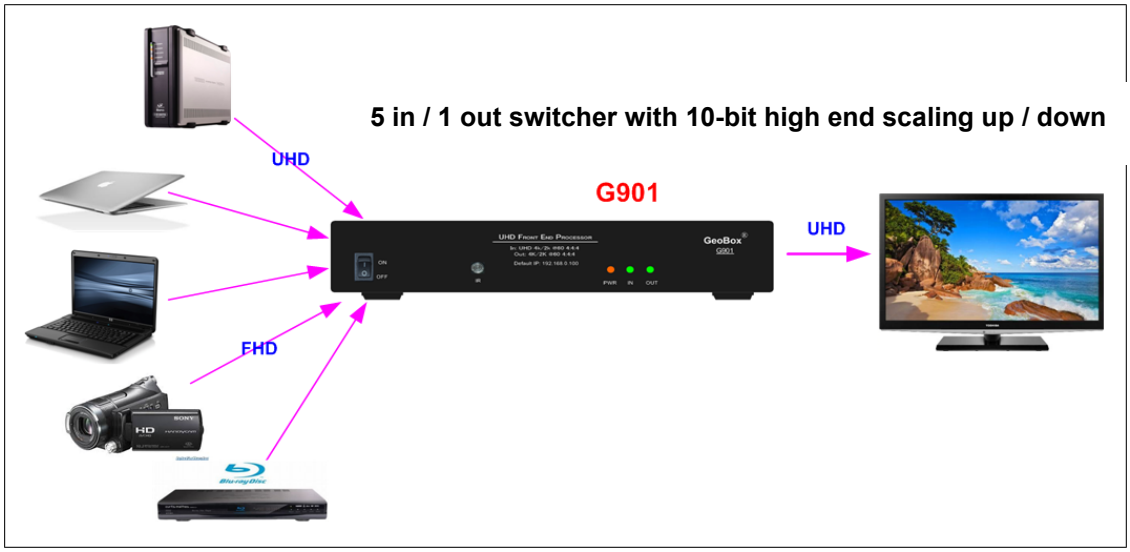


D. Image Flip & Rotation

Image 90/270 degrees rotation and flip up to 4k/60Hz resolution. After image rotation or flip, user can also adjust the aspect ratio and cropping area.

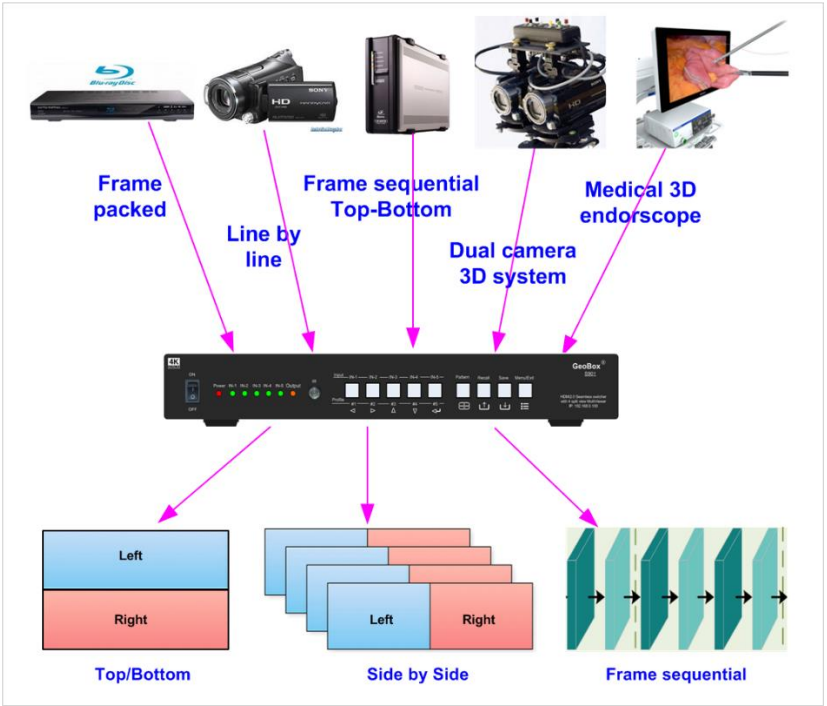


E. 5x1 4K Seamless Scaler Switcher

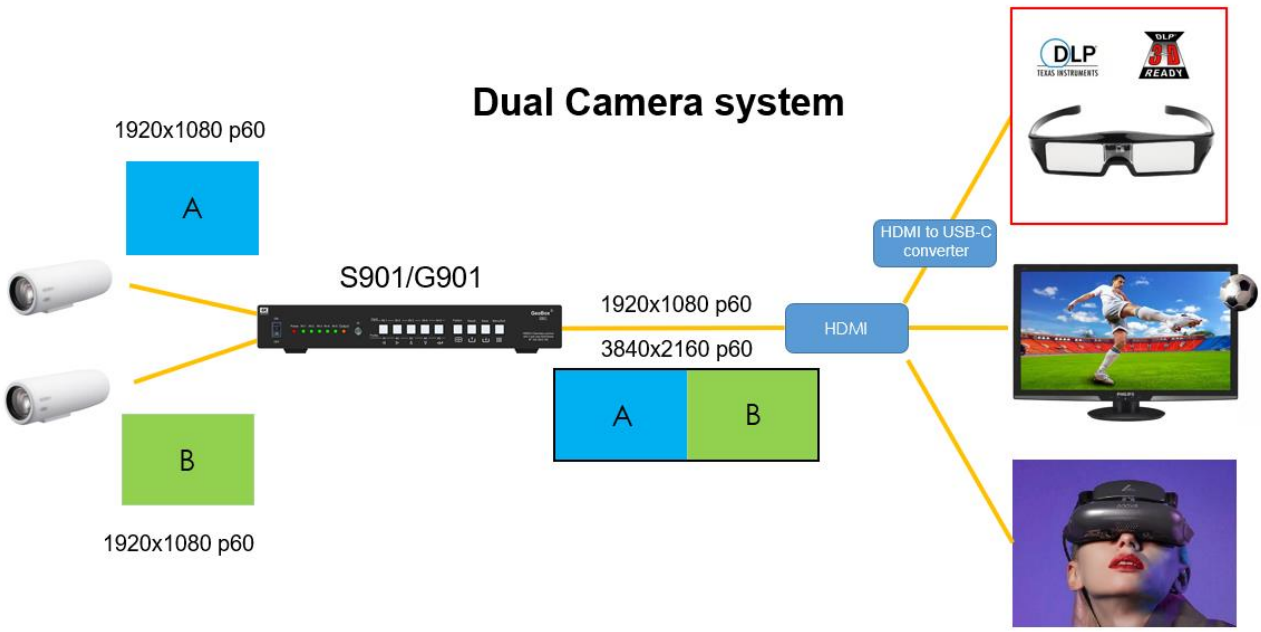


F. 3D format conversion

G901 can convert side by side, top/bottom, frame packed, line alternative and dual camera 3D formats with Side by Side, Top/Bottom, RH/LH Line Alternative or frame sequential outputs.

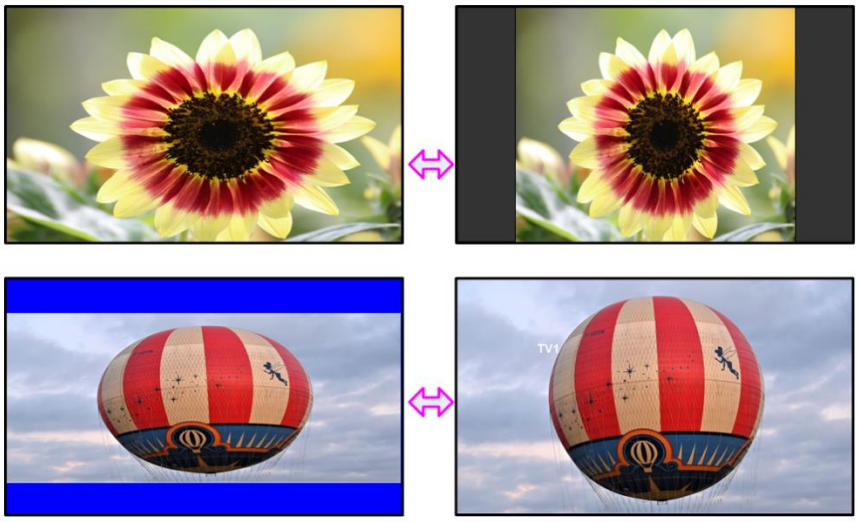


User can apply dual camera FHD 3D signal to G901. G901 can be set at POP mode and output 4k/2k side by side image for 3D display.

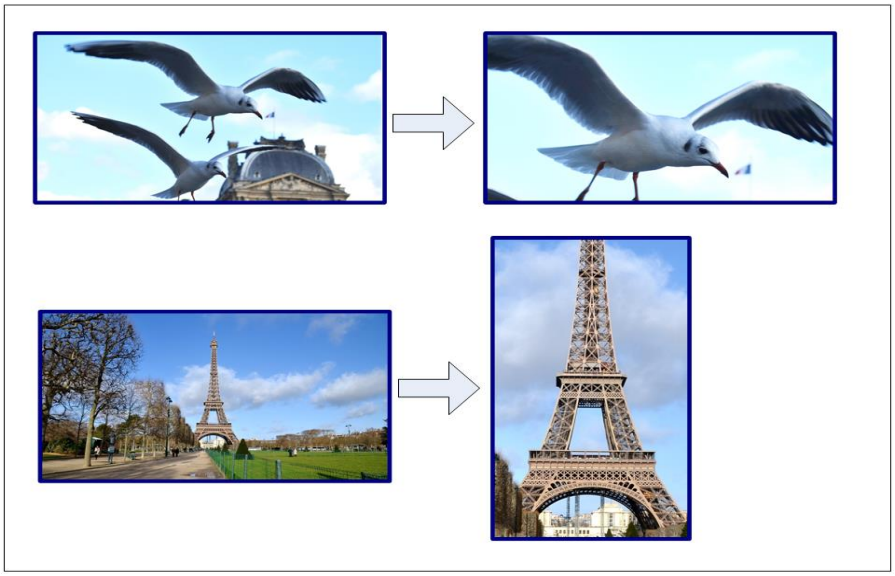


G. Stretch image and change aspect ratio

Video wall Overlap function can change image size, shift image position or change aspect ratio. The adjusting range is up to +_1800 pixels in each edge based on signal source. Standard 16:9 vs 2.35:1 movie aspect ratio can be converted through this function.



H. Image Cropping & Rotation



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