

Product Description

The IP00C789 is an advanced warping and edge-blending chip that supports 120Hz input and output images up to 2K (2048x1200) pixels. By using its dual-output capability, the IP00C789 can process 3D images for products such as head mount displays (HMD). Thanks to its embedded warp table generator, the IP00C789 supports frame-by-frame pin-cushion correction as well as keystone correction. This device features an advanced edge-blending function that utilizes a white-peaking algorithm for improved picture quality. Using only one DDR3 memory, the IP00C789 allows for a compact design without compromising on performance. The IP00C789 is ideal for various kinds of 2K/WUXGA projectors from pico to high-end models.

Features

Input (2-port)

30-bit RGB/YUV4:4:4, 20-bit YUV4:2:2, 10-bit YUV4:2:2 (BT656)
@155MHz High speed LVDS x 2, 155MHz LV-CMOS DDR

Output (2-port)

30-bit RGB/YUV4:4:4, 20-bit YUV4:2:2, 10-bit YUV4:2:2 (BT656)
@155MHz High speed LVDS x 2

Image Size

Horizontal sync signal 16384 pixels (max), image active area
2048x1200 (max)

External/Internal Sync

Output sync signal is compatible only with internal signal

External Memory

DDR3-SDRAM 16bit PC1600 (4G/2G/1G bit x 16) x 1

Serial Flash Interface

2G-bit x1 (max)

Distortion Correction Mode

RGB common distortion correction mode

Distortion Correction Method

- Coordinate correction look up table (grid 32x32, 16x16<default>, 8x8, 4x4, 2x2, 1x1<only 1x1 mode supporting horizontal up to 1280 in resolution>)
- Embedded warp table generator (keystone correction and pin cushion correction)
- Load from external CPU or external serial flash memory

Distortion Correction Amount

- Up to 45 degrees (horizontal/vertical)
- Vertical shrink ratio is about x 0.6 (x 0.3 in case 60Hz is used)
- Mirror/flip image
- 90 degree rotation/any angle rotation (only available in case 60Hz is used)

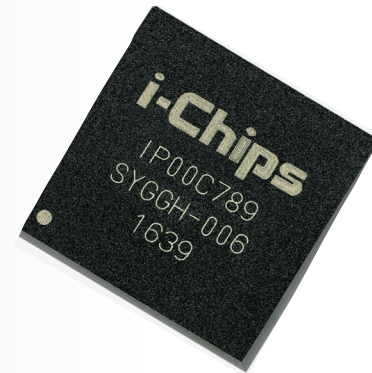


Image Correction

- Edge-blending (white peaking supported, by region and per pixel correction)
- Uniformity correction (by region and per pixel correction)

Image Quality Control

- 16-bit color gamma correction tables (3LUT available)
- Error diffusion, brightness and contrast adjustment

3D Function

- Input: A frame sequential or side-by-side
- Output: A frame sequential or dual simultaneous

Interpolation Filter

- Horizontal/vertical 6-symbol programmable FIR filter (10bit/pixel)

Bit Map OSD

- 256 color OSD
- Embedded font engine (65536 words)
- Blinking and semi-transparent (4 colors) OSD
- 90-degree rotation, OSD scroll
- Serial flash to bitmap

CPU Interface

4-wire serial

Power Supply

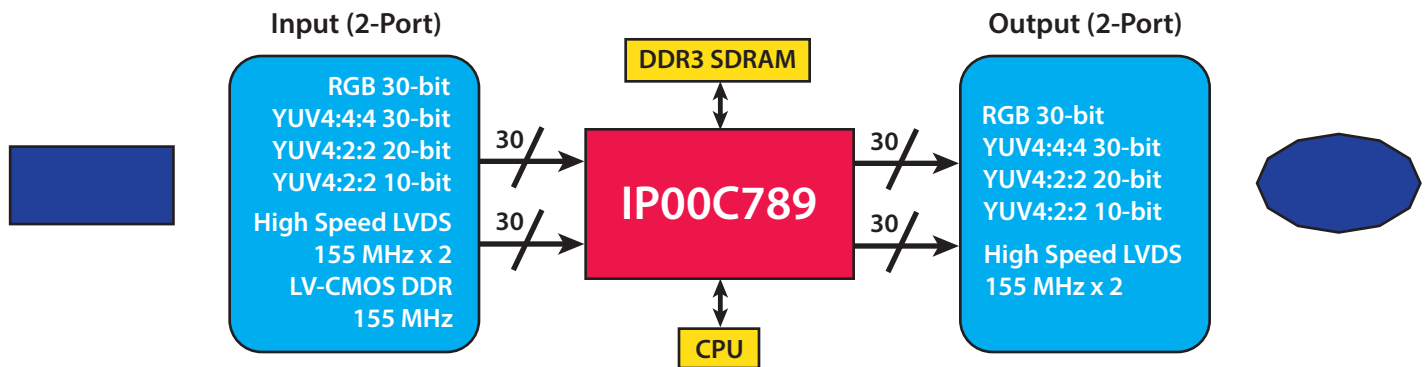
3.3V/2.5V/1.5V/1.0V

Package

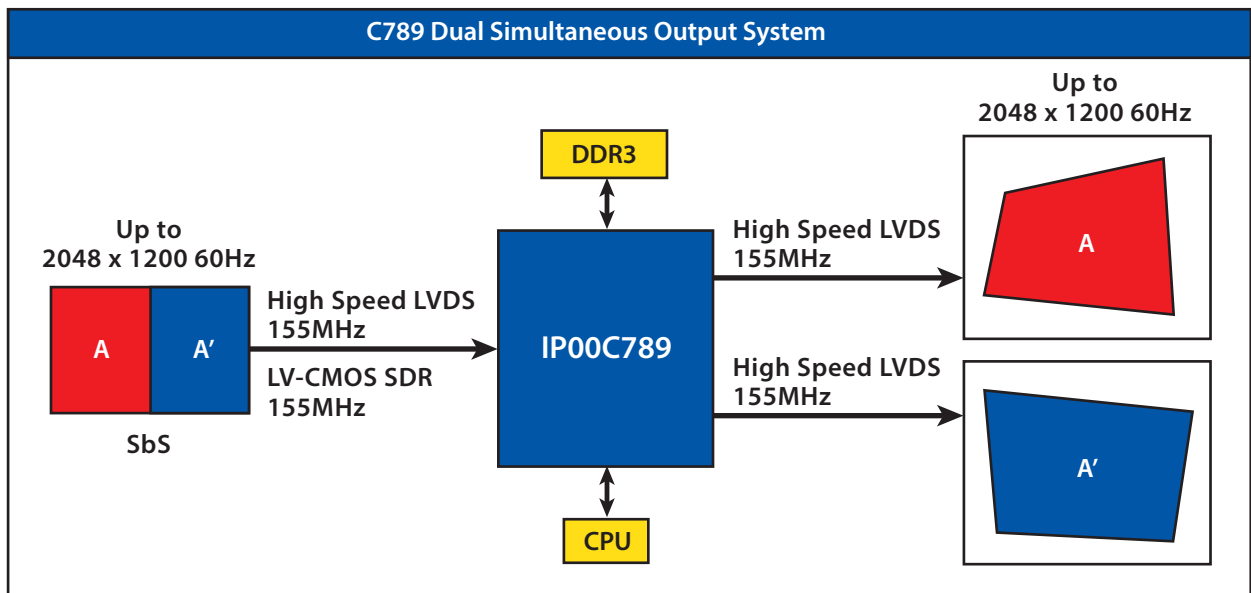
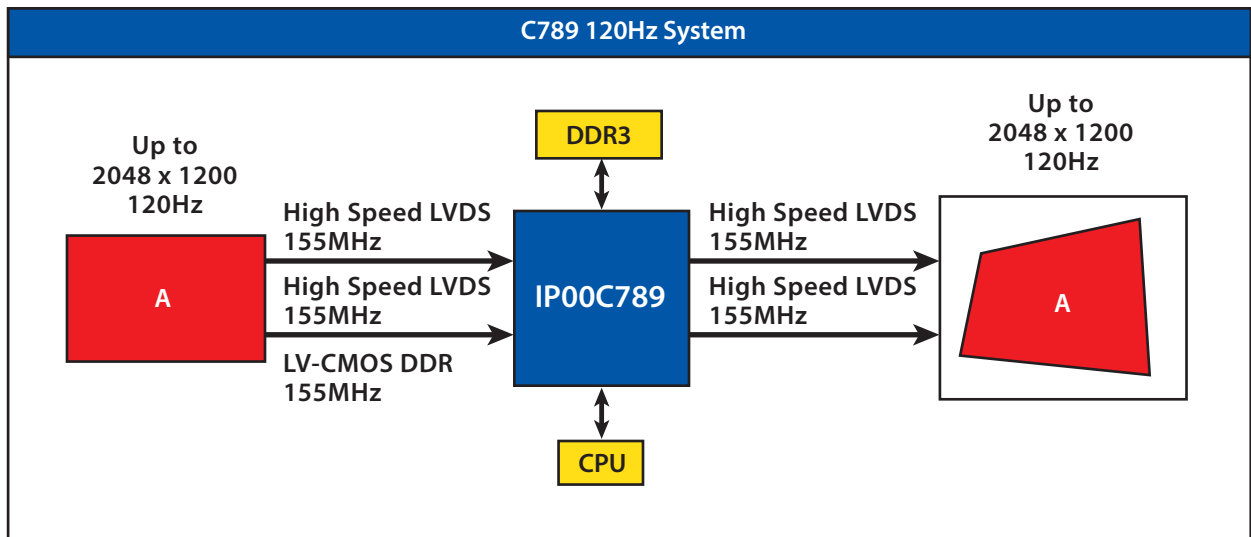
300-pin BGA (0.8mm pitch), 17mm x 17mm

IP00C789 2K 120Hz/3D Support Warping/Edge-blending LSI

IP00C789 Block Diagram



Application Diagrams



For more information please visit: www.i-chips.com or info@i-chips.co.jp

i-Chips Technology, Inc.

i-Chips Technology, Inc. • 1-2-6, Shioe Amagasaki Hyogo, 661-0976 Japan • Tel: 81-6-6492-7277 • Fax: 81-6-6492-7388