

PRODUCT BRIEF

IP00C789

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



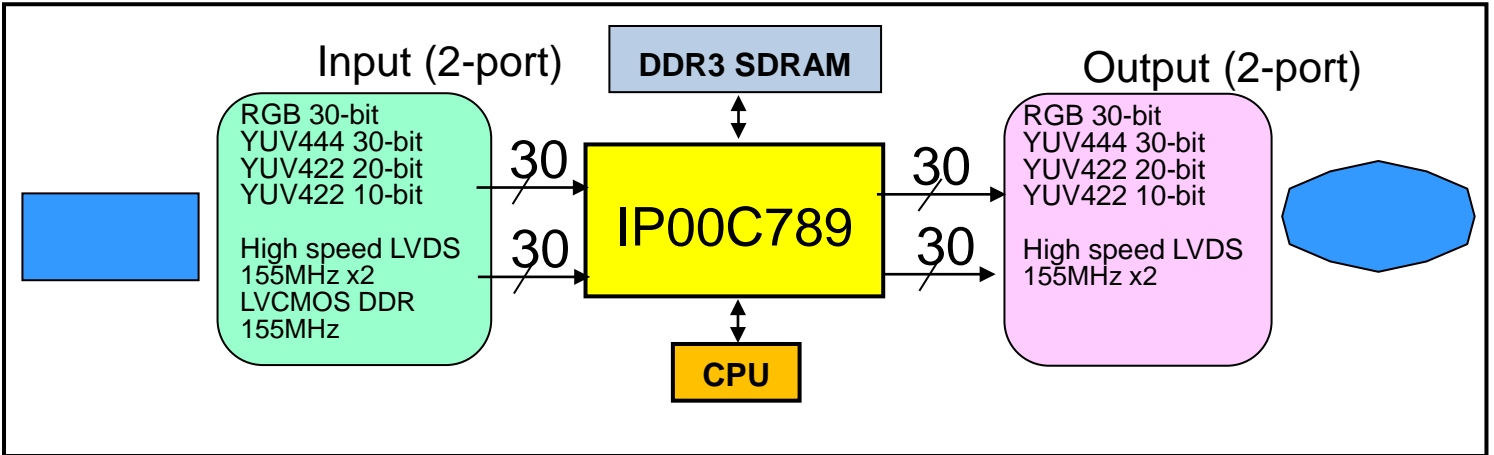
Product Description

The IP00C789 is an advanced warping and edge-blending chip that supports 120Hz input & 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. The edge blending function has been greatly improved on this device by making use of a white-peaking algorithm for improved picture quality. Using only 1 pc of 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 x2, 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 x2
- 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 x16) x1
- 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 x0.6 (x0.3 in case of 60Hz in use)
Mirror / flip image
90 degrees rotation / any angle rotation (only available in case of 60Hz in use)
- 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: 1) Frame sequential 2) Side-by-side
Output: 1) Frame sequential 2) Dual simultaneous outputs
- 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), 17mmx17mm

IP00C789 Block Diagram



IP00C789 application example

