i-Chips

IMAGE PROCESSORS

IP00C786

Warping/2K1K

PRODUCT BRIEF

Product Description

IThe IP00C786 is a powerful warping device featuring full 10-bit internal processing. With its high-speed input and output ports at 166 MHz, it can handle images up to 2048 x 1200 in resolution, with only two DDR2 external memory devices.

The IP00C786 can correct for image distortion in multiple ways.

First, it can correct for geometry distortion based on a user-programmable "warp table" loaded in an external CPU or Flash memory. This geometry correction can be applied to the entire image with a resolution as small as 16x16 pixels. It supports image rotation up to +/- 35 degrees, as well as 90-degree rotation and mirror image. It also supports independent geometry correction within each color plane (R, G and B). This special feature is required in some applications to compensate for geometry defects in the LCD panel or camera which can cause the colors to shift slightly.

Second, the IP00C786 can correct for color distortion in the image. This is accomplished by a powerful brightness and contrast adjustment system that is independently programmable for each 64x64 pixels region in the image.

The IP00C786 also features a state-of-the-art edge blending function to allow for the seamless tiling of multiple images.

Applications

The IP00C786 is an ideal solution for camera systems where the input image contains optical distortion, and for projectors to be able to produce high-quality images on non-flat surfaces.

Actual Size

Image Warping

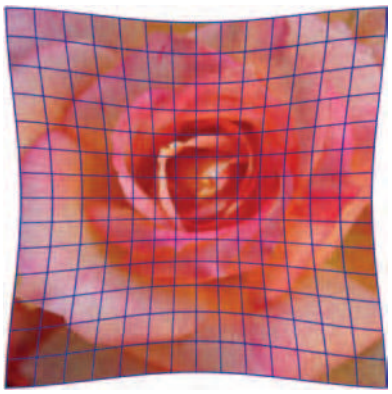
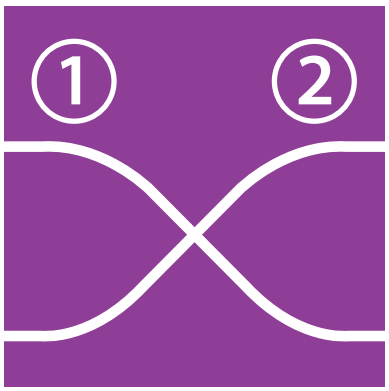


Image Rotation

Edge Blending



IP00C786 FEATURES

INPUT
- RGB 36-bit/YUV4:4:4 36-bit/YUV4:2:2 24-bit @ 166MHz

OUTPUT
- RGB 36-bit/YUV4:4:4 36-bit/YUV4:2:2 24-bit @ 166MHz
- RGB 60-bit/YUV4:4:4 60-bit/YUV4:2:2 40-bit @ 83MHz
- FPD Link/LVCMOS compatible
- Dual output when using FPD Link (83MHz/ch)

IMAGE SIZE
- Horizontal sync signal: 4096 pixels (max)
- Input image active area: 1920 x 1200 (max)
- Output image active area: 2048 x 1200 (max)

EXTERNAL/INTERNAL SYNC
- Output sync signal is compatible with internal/external signal

DISTORTION CORRECTION MODE
- RGB common distortion correction mode
- RGB independent distortion correction mode

IMAGE WARP
- Coordinate correction look up table
- Load from external CPU or external serial flash
- Horizontal/Vertical 6-symbol programmable FIR Filter
- Up to 35 degree (Horizontal/Vertical)
- Up to 35 degree rotating angle
- Vertical shrink ratio is about x0.3

IMAGE CORRECTION
- Edge-blending
- Uniformity correction
- Mirror image function
- 90-degree rotation
- Cursor display function

IMAGE QUALITY ADJUSTMENTS
- 16-bit color gamma correction tables (7LUT available)
- Error diffusion
- Brightness and contrast adjustments
- Color management

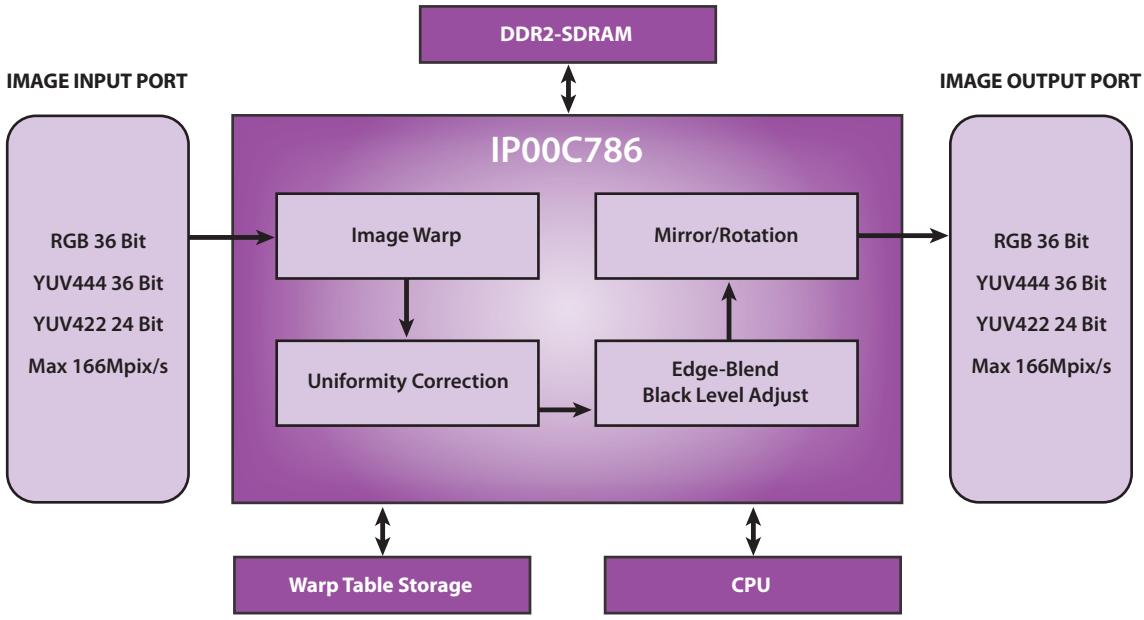
EXTERNAL MEMORY
DDR2-SDRAM 667Mbps 32-bit bus
- 16-bit bus can be used up to SXGA output resolution
- 512Mbit x 16-bit x 2 (qty), 512Mbit x 32-bit x 1 (qty), 256Mbit x 16-bit x 2 (qty)
- CAS Latency = 5

CPU INTERFACE
- 8-bit parallel, 4-line serial, I2C, UART

SERIAL FLASH INTERFACE
- 4-line SPI mode 3, 128Mbit x 2 (max)

POWER SUPPLY
- 3.3V, 1.8V and 1.2V

PACKAGE
- 324-pin plastic BGA; mold: 27 mm (1.27 mm pitch)



IP00C786 Block Diagram

For more information please visit **www.i-chips.com**

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