i-Chips

IMAGE PROCESSORS

PRODUCT BRIEF

IP00C733

Quad Input/Output Scaler for 4K

Product Description

The IP00C733 has 4 independent image processing channels with 4 input ports and 4 output ports at 166 MHz each. The IP00C733 can drive a Full-HD/WUXGA format with a single output or a UHDTV/WQXGA format or 4K2K@60Hz with multiple outputs. The IP00C733 also features i-Chips's latest technology for picture quality control such as extended-range gamma correction and color uniformity correction, in order to meet the requirements for higher image quality.

The IP00C733 is an ideal solution for applications such as video wall, multi-viewers, converters and digital signage, thanks to its advanced and versatile overlay function that supports any combination of its 4 input channels with PiP/PoP, mirror/flip/90-degree rotation. Dot by dot uniformity correction required for an OLED/LED display is also implemented in this device.

Features

Input/Output

- (4-channel) 30-bit RGB/YUV4:4:4, 20-bit YUV4:2:2 @ 166MHz LV-CMOS
- Dual type Input/Output, DDR Input
- Up to 16384 pixels/line with 2176 pixels of active video

Scaling

- 6 symbol filter with FIR filter

De-interlacer

- Field merger, line doubler with 4-outputs

Image Quality Control

- Gamma correction
- Uniformity correction (dot by dot correction also available)
- 3x3 color conversion matrix
- Bias

Image Manipulation

- 4-channel overlay
- Alpha blending
- Color key blending
- Mirror/flip/90° image rotation

CPU Interface

- 8-bit parallel/4-wire serial

External Memory

- DDR2-SDRAM 64bit PC667 (512M bit x 16) x 4

Input/Output Sync

- Frame rate conversion
- Tearing protection
- External force synchronization
- Genlock (external VCXO)

Bit Map OSD

- 256 colors
- Font data development function (65536 characters)
- Support for blinking and semi-transparent (4-color) OSD

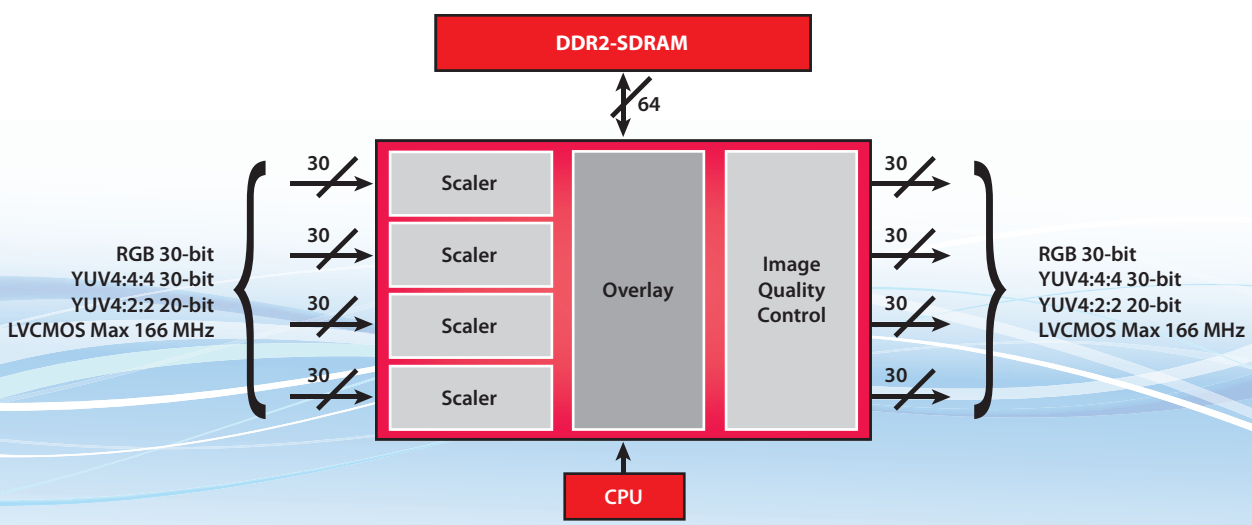
Power Supply

- 3.3V/1.8V/1.2V

Package

- 544-pin BGA (1mm pitch), 27mmx27mm

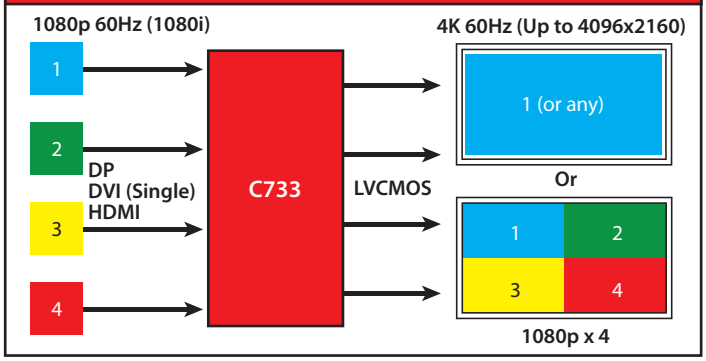
IP00C733 Block Diagram



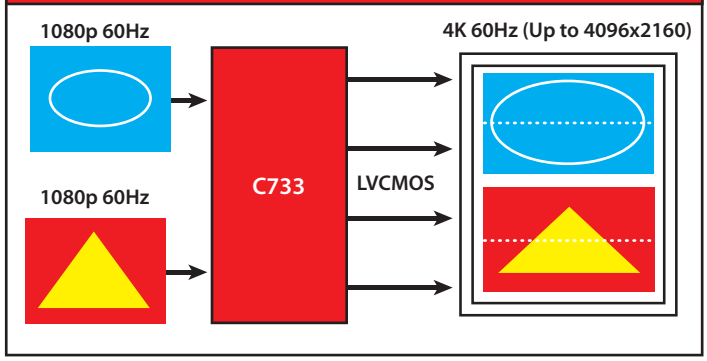
IP00C733 Quad Input/Output Scaler for 4K

Application Diagrams

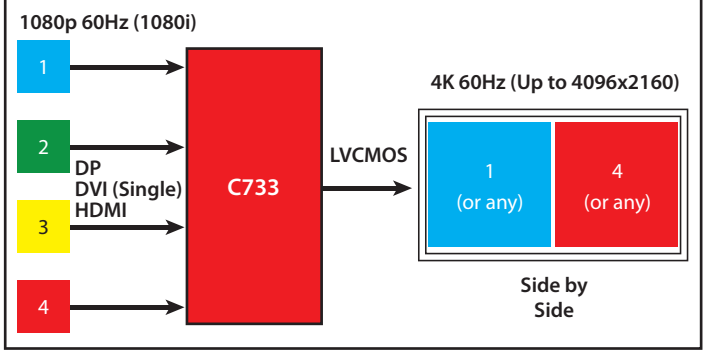
4K60 Multi-viewer



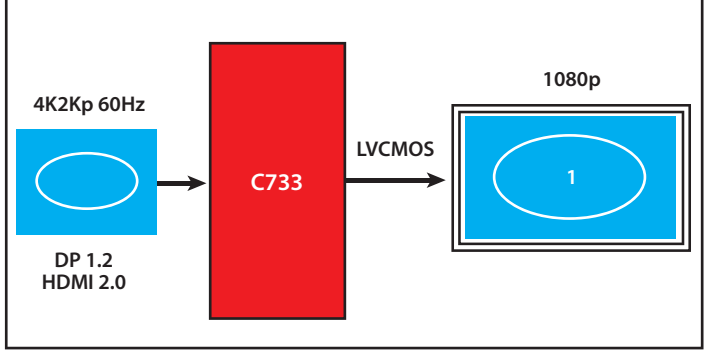
Dual Window 4K60 in Portrait Mode



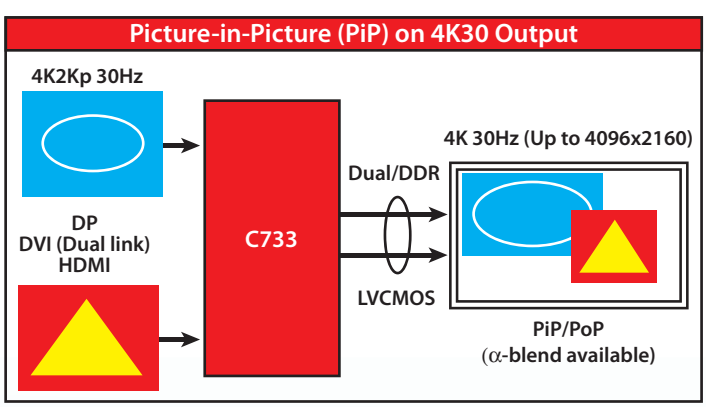
Picture-by-Picture (PbP) on 4K60 Output



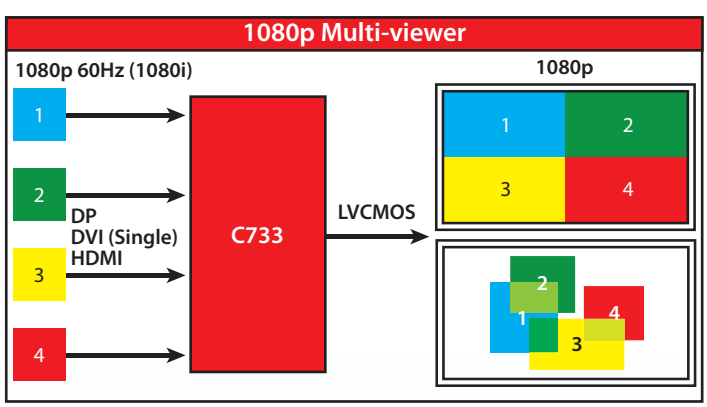
4K60-to-1080p Downscaling



Picture-in-Picture (PiP) on 4K30 Output



1080p Multi-viewer



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