

### Product Description

The IP00C706 is an advanced image processor that performs de-interlacing, scaling and other image processing functions in full 12-bit/color resolution. The IP00C706 features a motion-adaptive de-interlacer in the YUV444/RGB format together with a spatial filter for scaling to produce superior image quality. The IP00C706 also features i-Chips's proprietary 3D LUT, allowing full color management for reproducing exact colors. 3D LUT's are preferred for accurate color control, as they provide for full volumetric color space control. In addition, the IP00C706 supports state-of-the-art per-pixel uniformity correction for OLED displays. The IP00C706 is an ideal solution for applications requiring the highest degree of image quality at a lower price than other comparable solutions.

### Features

#### Input

- 1-ch selectable from 2 input ports  
LVCMOS @ 166 MHz: 36bit RGB/YUV444 or 24bit YUV422 or 12bit YUV422

#### Output

- 1-ch  
LVCMOS @ 166 MHz: 36bit RGB/YUV444 or 24bit YUV422 or 12bit YUV422  
Dual-LVDS @ 83MHz: 30bit RGB/YUV444 or 20bit YUV422 or 10bit YUV422

#### Horizontal Active Pixels

- Up to 2176 pixels

#### Scaling

- Zoom: Spatial poly-phase filter,  
Shrink: Poly-phase filter  
12bit/pixel,  
ROM-embedded coefficients (64 sets) or user programmed

#### De-interlacer

- YUV444/RGB, all major cadences supported, Motion adaptive filter based on Y, U, V

#### Image Quality Control

- 1) 3D LUT
- 2) Color management
- 3) Uniformity correction (area-based or per-pixel)
- 4) Bias/Gain/Gamma
- 5) H/V edge enhancement (9symbol)
- 6) Dithering for 12, 10 or 8bit output

#### Noise Reduction

- 3D (H, V, Temporal)/Mosquito/Block NR, chroma error filter

#### Edge Peaking Function

- Automatic display of strongest edges to aid in camera focus adjustment

#### 4K Support

- Embedded phase and clock synchronization for easy multi-chip design

#### Image Manipulation

- Vertical keystone, mirror/flip/90° image rotation

#### xvYCC

- Fully supported

#### CPU

- 8-bit parallel/4-wire serial/I2C

#### External Memory

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

#### Bitmap OSD

- 256 and 64K color

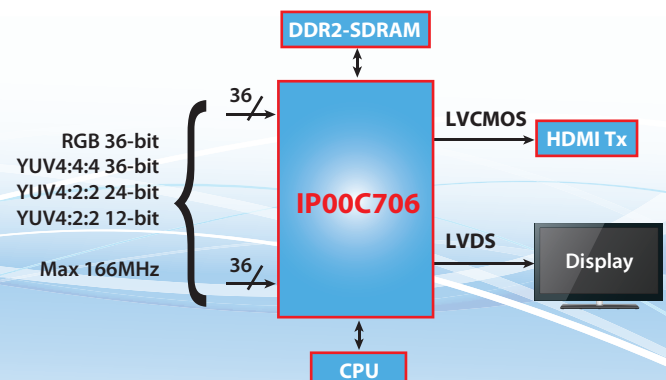
#### Power Supply

- 3.3V/1.8V/1.2V

#### Package

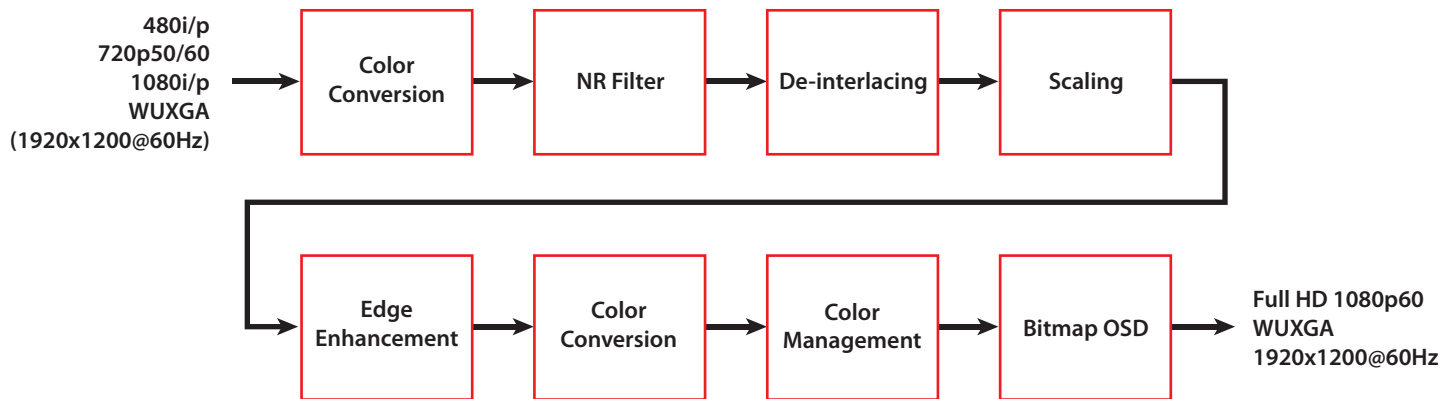
- 484-pin BGA (1mm pitch), 27mmx27mm

### Input/Output Connections



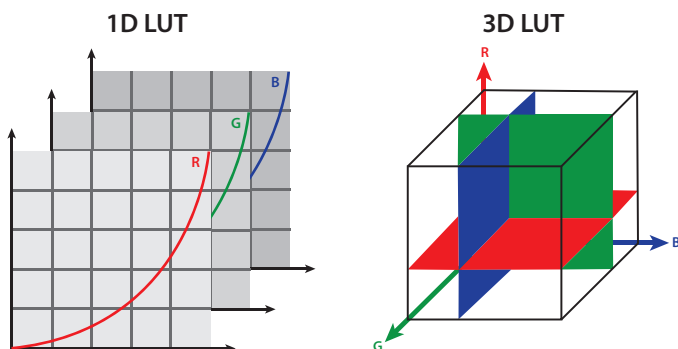
# IP00C706 12-Bit De-interlacer/Scaler

## Internal Block Diagram

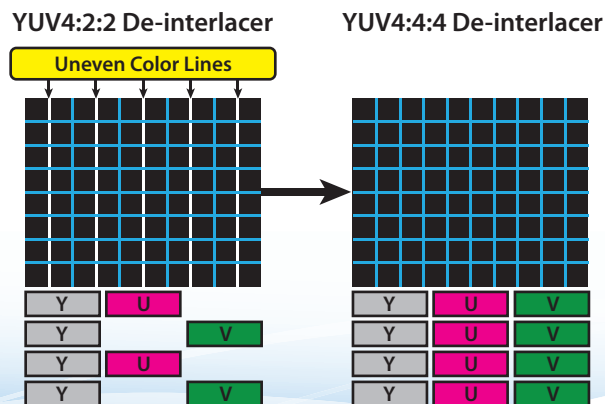


## Advanced Color Management

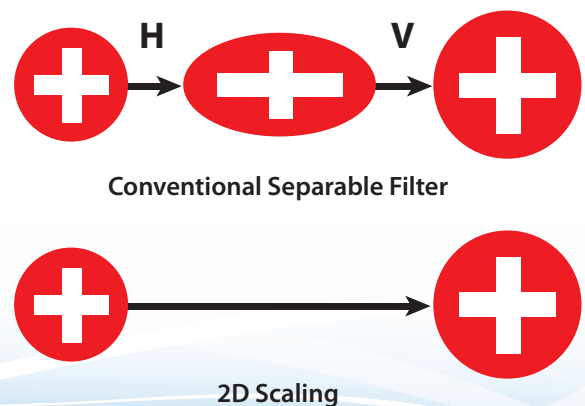
The i-Chips proprietary color management system is based on a 3D LUT color cube with programmable coefficients. Calibration software is also provided.



## RGB/YUV4:4:4 De-interlacer



## 2D Scaling Filter



For more information please visit:  
[www.i-chips.com](http://www.i-chips.com) or [info@i-chips.com](mailto:info@i-chips.com)

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