MS1820

Multi-Functions Video Processor

Product Brief

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General Description

The MS1820 is a multi-functions video processor chip. It consists of 10-bit triple-ADC module, TV encoder module, 10-bit triple-DAC module and embedded OSD function. It can receive interlaced or progressive video input and graphic input. It is capable of advanced de-interlacing, video enhancement, 3D noise reduction, Y/C cross talk suppression and frame rate conversion.

Features

Analog Input

- 10-bit triple-ADC
- Maximum analog sampling rate up to 165MSPS
- Supports analog input range: 0.45V ~ 1.1V (P-P)
- Up to three analog input channels
- 3 to 1 input mux
- Supports RGBHV/RGBS/YCbCr/YPbPr input
- Auto offset/phase adjustment
- Supports Sync-on-Green(SOG) and Composite-sync
- Supports input resolution up to 1080P
- Supports macrovision input

Flexible Digital Video Input

- Supports 24-bit RGB/YUV digital input
- Supports 16-bit YUV 4:2:2 input
- Supports 8-bit BT656, 601 input
- Supports 8-bit BT1120 input
- Supports interlace and progressive SD input
- Supports 720P, 1080I, 1080P HD input
- Supports VGA input up to UXGA

Auto-mode Detection

Auto Position (Blank) Detection

Frame Rate Conversion

- Independent horizontal and vertical scaling
- Frame rate conversion

External Memory Controller

- Supports 2/8MByte memory size
- 16/32-bit data access
- Memory bus speed up to 162MHz

De-interlacing

- Supports HD1080I to1080P conversion
- Supports SD NTSC/PAL to 480P/576P conversion
- Edge correction de-interlacing
- 4-field motion adaptive de-interlacing for SD and 3-field for HD
- Global noise reduction
- 3:2/2:2 pull-down detection

Video Enhancement

- Black/white level expansion
- Color transition improvement
- Dynamic peaking
- Dynamic range expansion
- Brightness, saturation, contrast and hue adjustable
- 2 sets primary color enhancement
- Blue stretch

Embedded OSD

- Supports 1/2/4-bit DRCS character mode
- Shadowing, transparency and blinking
- Block double width and height
- Zoom out
- One OSD window with alpha-blending

Output Formatter

- 10-bit triple-DAC for component video output
- Analog VGA or YPbPr output
- Video encoder
- 50~75Hz scan rate conversion
- 15~75KHz horizontal frequency
- 16-bit YUV 4:2:2 digital output with sync
- 24-bit YUV/RGB 4:4:4 digital output with LCD panel compatible sync
- VGA output resolution up to UXGA
- Video outputs: 480I, 480P, 576I, 576P, 720P, 1080I, 1080P

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2-wire I2C Slave Interface

Package

- LQFP-176 plastic (20mm×20mm)
- PB-free and RoHS compliant

Applications

- LCD Controller
- Video Converter/ Set-Top-Box
- Car Infotainment Device
- Portable/ Desktop Visualizer
- Industrial Camera

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Function Block Diagram

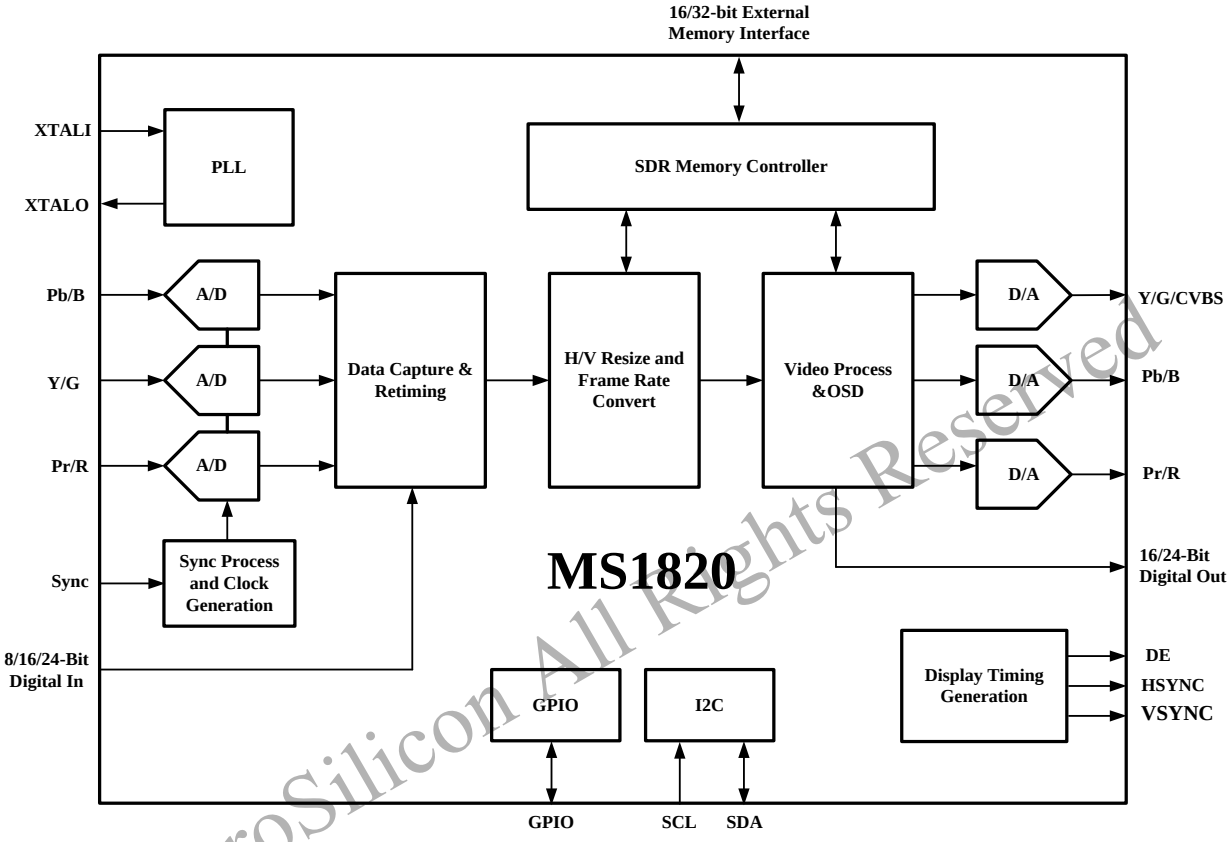

Figure 1. Function Block

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