

1. Overview

1.1. Description

The ISM2300(S) is a high performance enhanced image processor for hand-held application such as mobile phone, PMP, PND, Game Player, Digital Camcorder and etc. The “Mobile xView™ Engine” in the ISM2300(S) improves the visibility and the quality of the image displayed on TFT LCD/AMOLED. The “Mobile xView™ Engine” makes the invisible, blur and noisy of image into the more visible, sharper, clearer and smarter image for human eye. It also improves the visibility of image displayed at outdoor sunlight.

The ISM2300(S) means two types version, ISM2300S and ISM2300. The ISM2300S is the internally embedded SDRAM version and the ISM2300 is the non-embedded SDRAM version (non memory version).

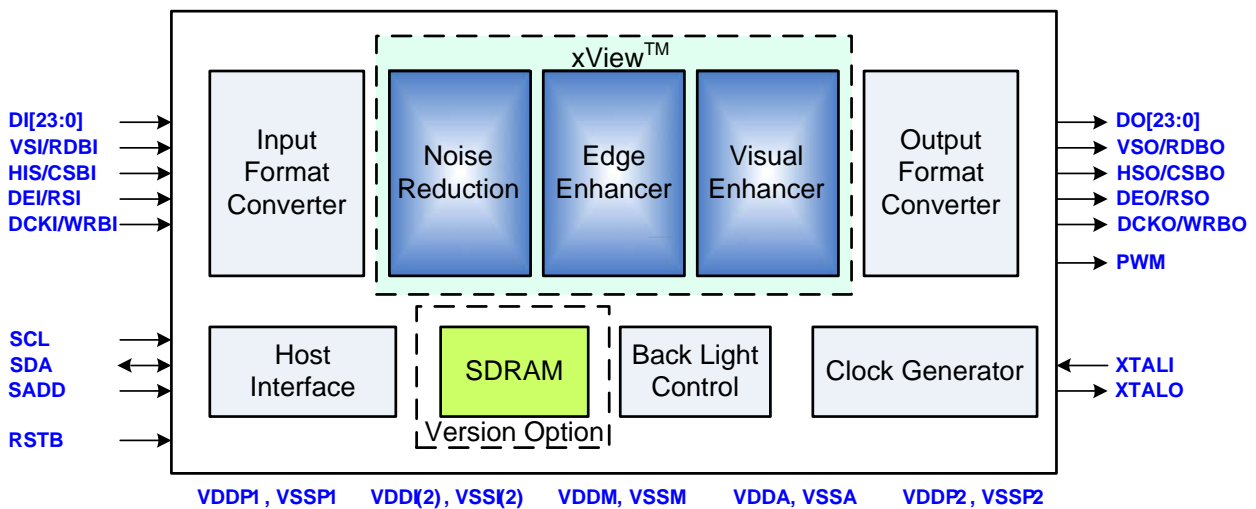


Figure 1 Block Diagram

1.2. Features

1.2.1. Mobile xView™ Engine

- Visibility Enhancement
 - Dynamic Contrast Enhancer
 - Sunlight Readability Enhancer
 - Black Stretch
 - White Stretch and Blue Stretch

- Favorite Color Enhancer
- Flesh Tone Correction & Angle Correction
- Temporal Dithering
- RGB Gain and Offset
- Programmable Gamma Correction
- Programmable Color Mapping
- Noise Reduction
 - Mosquito Noise Reduction
 - Block Artifact Reduction
 - Bit Truncation Noise Reduction
 - White Noise Reduction
 - Digital Signal Processing Noise Reduction
- Edge Enhancement
 - Luminance Transient Improvement (LTI)
 - Chrominance Transient Improvement (CTI)
 - Dynamic Horizontal Peaking
 - Dynamic Vertical Peaking
 - Anti-Artifact Support for Text

1.2.2. Data Interface

- Input Data Interface
 - CPU Interface Type : 8/16/18-Bits. I80/M68-Series Compatible
 - RGB Interface Type : 8/16/18/24-Bits
 - Memory Interface Type : 8/16/18/24-Bits
- Output Data Interface
 - CPU Interface Type : 8/16/18-Bits. I80/M68-Series Compatible
 - RGB Interface Type : 8/16/18/24-Bits
- Interface Converter
 - Convert input CPU I/F to output RGB I/F
 - Convert input Memory I/F to output RGB I/F
- Data Format
 - Input Data Format : RGB565/666/888, YCbCr444/422
 - Output Data Format : RGB565/666/888
 - Image Resolution : Up to WVGA (864 x 480, 480 x 864)

1.2.3. Host Interface

- Serial Interface : I2C Compatible

1.2.4. PWM Function

- PWM Function for TFT LCD Booster Application Control
 - Operation Mode : Adaptive mode, Constant mode

1.2.5. Miscellaneous

- Low Power Consumption : QVGA @30Hz : about 15mW (ISM2300)
- Small Package : 5.0mm x 5.0mm, 76-FBGA
- Internal Core Power : 1.2V, Typical
- Embedded SDRAM Power : 1.8V, Typical
- PLL Analog Power : 1.2V, Typical
- I/O Voltage : 1.8V ~ 3.3V, Typical

1.3. Application Targets

- Mobile Phone
- Game Player
- PMP and Navigator
- Digital Camera and Camcorder
- Hand-held Devices
- Etc