JMB312 USB2.0 UVC WebCam Controller

Overview

JMB312 is a USB 2.0 High-Speed (HS) and Full-Speed (FS) compatible PC Camera controller. It is fully compliant with USB Video class 1.1. It can support most of available CMOS sensors with resolution range from UXGA to QQVGA.

A high performance motion JPEG compression engine is built in JMB312 to support 15 fps@UXGA (1600X1200), 20fps@SXGA (1280X1024) and 30 fps@VGA (640X480).

JMB312 also supports MJPEG header generation function to receive MJPEG data from CMOS sensor and bypass it to USB controller

Overall

- Compliant with USB Video Class 1.1 standard.
- Built-in 8051 micro-controller
- Support Video Data Format including Bayer Pattern (Raw8), YUV4:2:2, MJPEG YUV4:2:2 Format, MJPEG YUV4:0:0 Format
- Support generic sensor parallel interface.
- Built in 3.3V to 1.8V Regulators.
- Package: 46 pins LQFN (4.5mm x 6.5mm)
- Support Flash with SPI interface for external memory to store ROM code, sensor parameter and etc.

Sensor Interface

- Support YUY2 (8 bit), RGB (565) and RGB Bayer patter (8 bit)
- Down-sampling frames for flow control
- Output maximum 60MHz sensor clock

USB

- USB 2.0 interface
- USB Video Class 1.1 compliant
- Remote wake-up
- Support 3 Endpoints: Control x 1, Isochronous x 1 and Interrupt x 1

UVC

- Built-in UVC Camera Terminal Control
  - Auto-Exposure mode control

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- Auto-Exposure priority control
- Exposure control
- Privacy control
- Pan and Tilt control

- Built-in UVC Color Processing Control
  - Backlight compensation control
  - Brightness control
  - Contrast control
  - Gain control
  - Power Line Control
  - Hue Control
  - Gamma Control
  - White Balance Control

Motion JPEG Compression

- Support USB Video Class MJPEG payload.
- Support Sensor Input Format of YUV 4:2:2 and YUV 4:0:0
- JPEG Operation Frequency Up to 72 MHZ
- Fully compliant baseline ISO/IEC 10918-1 JPEG standard.
- Support Enable/Disable JPEG Header Generation in MJPEG by-pass mode.
- Support Up to Two Q-tables (Y and C) for providing programming compression ratio.
- Support programmable Huffman tables (two AC and two DC)
- Support Functionality to enable/disable header processing
- Support MJPEG data bandwidth Calculation to avoid discontinue image show.
- Support enable/disable APP0/APP1 Header Format generation.
- Auto-adjust the Q-table to optimize the Image quality using
- CBR (Constant Bit Rate) algorithm (JMicron's Patent)

Debug Interface

- Built-in JTAG interface in 100-pin LQFP
- UART debug interface to access sensor registers
- Easy download program with Xmodem protocol
- Support Atmel(AT25F512A), MXIC(MX25L512), pFlash(PM25LV512A) & SST(SST25VF512A) serial flash

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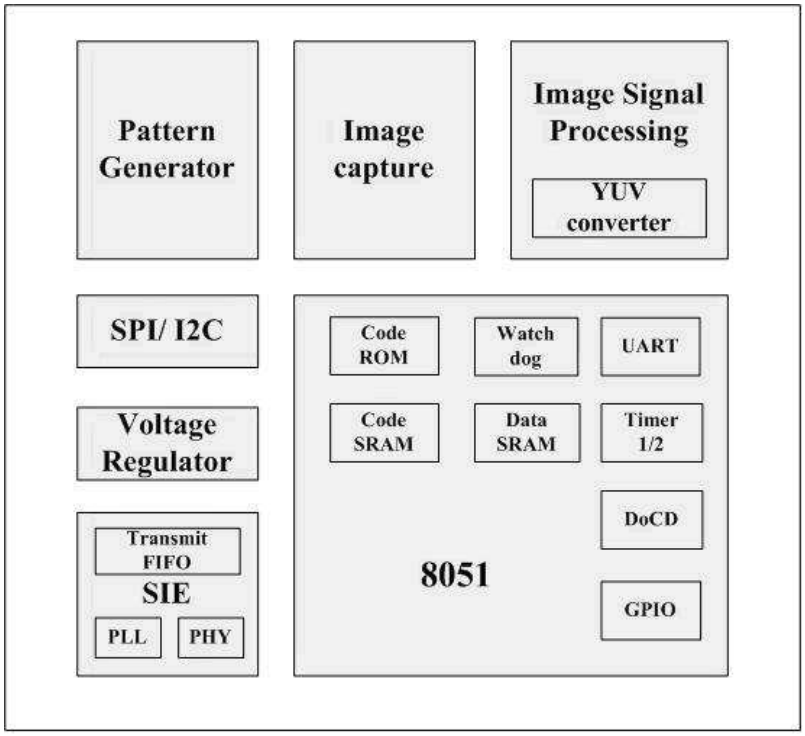
Block Diagram



Supporting Document

1	Product Brief
2	Data Sheet
3	Hardware Design Guide
4	Application Schematic

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