General Description

The MAX64380 is a powerful H.264 CODEC that supports encoding of video up to High Definition (HD 1080p) resolution. The device incorporates an ISP, HD H.264 encoder, JPEG codec, video preprocessors, and a number of peripheral and serial device interfaces. Two real-time programmable RISC processors manage the data flow in the system, while the firmware running on the RISC processors implements audio and video algorithms.

Combining high-quality video encoding with advanced video processing, the MAX64380 is an ideal, cost-effective solution for Smart TVs, IP Cameras, and HD cameras connected to the Internet. The MAX64380 enables high-quality compression at low bit rates for sending video wired or wirelessly over the internet. The video and audio processing is optimized for compressed HD USB camera applications that require video compression, image signal processing, audio echo cancellation, audio beam forming, audio noise suppression, and audio compression and decompression.

The MAX64380 features high-performance Image Signal Processing (ISP) with support for High Dynamic Range (HDR) video processing, high-quality 1080p video encoding, and on-chip audio processing. The HDR ISP provides excellent high-quality video even in challenging lighting conditions such as bright sunshine through windows in a home or office. Video input from an image sensor is passed through an image signal processing pipeline and then compressed using the H.264 encoding standard for transmission over the internet. The audio processing algorithms implemented on the programmable RISC processors improve audio quality and eliminate the need for external audio processing components. Audio input is processed using beam forming, noise suppression, echo cancellation algorithms and then compressed with an audio codec.

The MAX64380 interfaces to the video input through two input ports and can simultaneously compress 1080p30 and 720p30 video. The resulting data streams are sent out through the USB high-speed link to a host device or directly to the cloud through WiFi or 3G/4G wireless signals.
Features

Video Processing
- Two 8-bit video ports or one 16-bit video port
- 8-, 10-, and 12-bit Bayer RGB or 8-/16-bit YUV 4:2:2 video input
- Integrated Image Signal Processing (ISP) module capable of processing Bayer RGB up to five megapixels
- High Dynamic Range (HDR) processing block in the ISP
- Dedicated RISC processor for video processing
- Spatial and Temporal noise filtering
- Horizontal and Vertical Scalars using 8-tap polyphase filters
- Auto White Balance, Auto Exposure, Auto Focus

Video Codecs
- High Definition (HD) or Standard Definition (SD) H.264 encoders
- High, Main, and Baseline profiles support for resolutions up to 1920 x 1080 at 30fps
- Multi-stream encoding
- H.264 encoder up to level 3.14.1
- Programmable resolutions and frame rates
- Video bit rates: 25Kbps to 62.5Mbps
- JPEG codec
- HD JPEG encoder and decoder

Audio Processing
- Two I²S audio input ports
- Sampling rates from 8kHz to 48kHz
- Dedicated RISC processor for audio processing
- Two- or four-microphone array beam forming support
- Audio noise reduction
- Advanced Audio Coding-Low Complexity (AAC-LC) encoder support

Memory Interface
- DDR2 SDRAM memory up to 400MHz
- 8- or 16-bit memory interface

Peripheral Interfaces
- USB 2.0 Hi-speed including PHY interface
- Two SPI ports
- Two I²C ports
- Two UARTs
- Three PWMs
- Up to 27 GPIO pins

Power and Voltage
- Core voltage: 0.9V ±5%
- DDR2 SDRAM voltage: 1.8V ±0.1V
- I/O voltages: 1.8V ±5%, 3.3V ±5%
- On-chip audio video Phase Lock Loops (PLLs) driven from a single crystal
- Typical power consumption is 470mW or less

Packaging
- 233-pin CTBGA, 10mm x 8mm x 1.1mm, 0.5mm pitch, RoHS compliant

Applications
- H.264 USB compression camera
- Wireless Home Monitoring camera
- Wearable camera

Ordering Information

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