

VC0326 USB 2.0 High-Speed PC Camera Processor with Built-in JPEG Encoder and Stereo ADC

General Description

VC0326 is Vimicro's latest platform for high quality PC camera products, which is fully compliant with the increased bandwidth of USB 2.0 High-Speed (HS) protocol and USB audio class. VC0326 also integrates sensor interface, 10-bit imaging signal processor, built-in JPEG/MPEG2 encode engine, and AC97 interface. It also provides a high quality audio sampling function as sound recording by the built-in 16bit sigma-delta ADC. VC0326 is designed as a cost-effective device replacing the complex and costly chip sets used in current PC Cam/webcam designs.

VC0326 comes with 64-pin **LQFP package** at 10mm x 10mm foot print, which is valuable choice for high end PC Camera and network camera.

Sensor Support	Off-the-shelf CMOS sensors up to 1.3M pixel resolution and CCD Sensor to VGA
JPEG Encoder	Built-in
Video Output Format	1.3M,VGA, SIF, QSIF
Still Image Output format	1.3M, VGA, SIF
USB Protocol	USB 2.0 HS and FS
Max Frames/sec.	30 @ VGA,60 @ SIF
OS	Windows, MAC, Linux, Vxworks, WinCE
64 bit OS	Windows
External ADC Interface	AC97
ADC	Embedded
Special Effects	Relief, Negative.....
User-defined frame	Supported
USB Video Class	Supported
Digital Zoom	Supported
Echo Cancellation	Supported
Automatic exposure	Supported
Auto Defect pixel detection and cancellation	Supported
Auto White Balance	Supported
Face tracking	Supported














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Chip Features

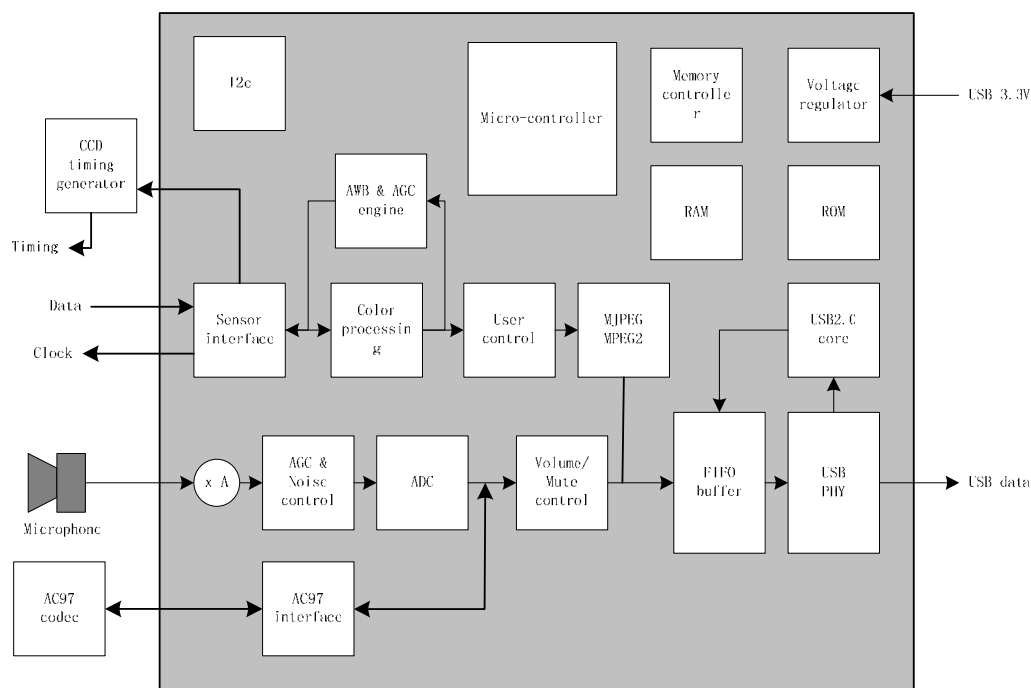
- ✚ Imaging Applications
 - ✧ Still image capture(one frame at a time)
 - ✧ Video streaming up to 30fps at VGA resolution and 15fps@1.3M
- ✚ Built-in 8-bit MCU
 - ✧ High performance MCU core with rich supporting peripherals
 - ✧ On-chip SRAM for high performance
- ✚ GPIOs for Typical Camera Control Support
 - ✧ Snapshot button
 - ✧ Privacy shutter switch
 - ✧ LED indicator
- ✚ Image Processing
 - ✧ 10-bit wide accuracy in color processing
 - ✧ Auto Exposure (AE)
 - ✧ Auto White Balance (AWB)
 - ✧ Auto Gain Control (AGC)
 - ✧ Auto defect pixel detection and cancellation
 - ✧ Auto motion detection
 - ✧ Auto flicker detection and cancellation
 - ✧ Auto lens shading compensation
 - ✧ Configurable image noise reduction
 - ✧ Configurable image sharpness enhancement
 - ✧ Configurable gamma and color correction
 - ✧ Configurable brightness, color saturation, and hue
 - ✧ Edge-adaptive CFA interpolation
 - ✧ Back light compensation
 - ✧ Support for black and white sensor natively
 - ✧ Support for Echo Cancellation
 - ✧ Up to 16 windows for statistical collection, exposure and backlight correction
 - ✧ Embedded line buffers to capture, process and compress (MJPEG) 30fps VGA in YUV422 @ < 22:1 compression ratio over a USB 2.0 FS connection (< 62% bandwidth usage)
 - ✧ Embedded line buffers to capture, process and compress (MJPEG) 15fps 1.3M in YUV422 @ < 6:1 compression ratio over a USB 2.0 HS connection(< 41% bandwidth usage)
 - ✧ Histogram data (64 bins)
- ✚ Audio pipe
 - ✧ Programmable 2.7V, 2.0V, or 1.5V microphone bias voltage output
 - ✧ 16-bit ADC (Sigma-Delta)

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- ✧ Digital AGC
- ✧ Volume/mute control
- ✧ Sample rate conversion mechanism
- ✧ AC97 interface
-  Output Video Format
 - ✧ Bayer (raw 8 or 10 bits/pixel)
 - ✧ YUY2 (16 bits/pixel)
 - ✧ JPEG/MJPEG
-  Output Audio Format
 - ✧ PCM (8bits or 16 bits)
-  Support for off-shelf VGA/1.3M CMOS sensor and VGA CCD sensor
-  Support for USB 2.0 interface for data transfer
 - ✧ Support for USB Video Class
 - ✧ Support for various OS including 64-bit windows, windows, MAC, Linux.....
-  Support for various Special Effects via hardware
 - ✧ Monochrome
 - ✧ Sepia
 - ✧ Special color
 - ✧ Negative
 - ✧ Relief
 - ✧ Sketch
 - ✧
-  Support for User-defined frame
-  Support for Face tracking
-  64-pin LQFP Package
-  Compliance
 - ✧ USB Specification Rev.2.0 Compliance
 - ✧ Microsoft WHQL compliance
-  Power Management
 - ✧ 1.8V Core and 3.3V I/O
 - ✧ Multiple Power Modes
-  Operating Temperature
 - ✧ Extended -40 to +125

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VC0326 Block Diagram



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