

## ZR36506

### Product Brief

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### The One Chip Solution for Multi-Mode Digital Cameras

The USBvision III (ZR36506) is a revolutionary, multi-mode, digital camera chip offering integrated live digital video and audio capture functionality. Powered by an integrated microprocessor, the chip's high level of versatility facilitates the design and implementation of multi-function digital cameras. The USBvision III supports on-line operation (over USB, wireless, or other non-USB connections) for such applications as live audio/video streaming and

surveillance, as well as standalone applications, such as digital still cameras with audio recording capabilities.

The USBvision III chip is provided with a complete reference design kit, including software drivers and an API reference that allows for easy customization for OEM applications.

### Features and Benefits

#### On-Line (USB, Serial, Wireless) Mode

**Applications:** video conferencing, live video capture and editing, video gaming, surveillance, and monitoring

- **Full-motion, full-color video**

- Up to 30 frames per second (at 352 x 288 CIF resolution) or 15 frames per second at VGA (640 x 480) resolution
- Live video may be streamed over serial connections (either wireless or wired) at up to 1 Mbyte/sec.
- Software controlled digital pan and zoom
- Support for raw and compressed video at variable compression ratios (over USB or non-USB connections)

- **Simultaneous video and stereo audio capture**

Full compatibility with Microsoft DirectShow WDM streaming also supports popular video conferencing and video editing software applications.

- **VGA (640 x 480) resolution TWAIN compatible still image capture**

TWAIN compatibility for live still image capture and for control over digital camera flash memory: preview, transfer, or erase pictures

- **Easy Plug-and-Play operation**

- Video camera configuration is stored in external EPROM
- Powered by USB port, with adjustable USB bandwidth utilization (0.5 – 7.5 Mb/sec.)

#### Off-Line (Standalone) Mode

**Applications:** digital still image and audio capture for DSC

- **Easy digital image and audio clip capture anywhere**

Pictures and audio clips are stored on the camera's flash memory and may be transferred to a computer or PDA via USB. An audio clip may be recorded for each picture via an integrated microphone.

- **Large storage capacity**

Up to 4 Megabytes of flash memory accommodates up to 120 pictures at 320 x 240 QVGA, or up to 30 images at high quality, VGA resolution.

- **Built-in hardware interfaces and support for still digital camera applications**

- Built-in support for camera Capture and Function buttons
- Support for two 7-segment LCD displays to indicate camera mode or status, and the number of stored images. Low power consumption and an Auto Power Off feature extend battery life.

- **Easy firmware upgradeability**

Microprocessor code updates and expansions may easily be performed via the USBvision III's integrated EPROM.

### Full Support for OEM Customizations

A full reference design kit is supplied, including WDM streaming class driver compatible with Microsoft DirectShow, digital camera TWAIN drivers, and software API support for all USBvision III features: image and audio clip capture, transfer, and management (preview, deletion, photo album creation). The API reference kit

contains header and library files, as well as sample programs demonstrating their use. Device drivers may easily be renamed (OEM USB vendor and product IDs may be programmed via a .INF file) to reflect different OEM branding schemes.

## The USBvision Family

Zoran® offers highly integrated silicon solutions that enable video capture and compression in digital video products for Internet and consumer electronics applications. Based on Nigatech's™ USBvision video compression technology, these ICs enable consumer electronics vendors to deliver computer-based video products.

The USBvision family of chips is revolutionary in that, among other capabilities, it compresses video data into the narrow USB channel, offering high-quality video in a plug-and-play environment for PCs, iMACs, and personal digital assistants (PDAs).

USBvision chips power many video products manufactured by large consumer electronics companies who require technology for high-speed compression of video and audio data. These products include: TV tuners, handheld computers, camcorders, digital video cameras, video capture devices, cable modems, cable set-top boxes, and cellular phones. Zoran has leveraged its core technologies to deliver integrated circuits for all these devices, with various types of functionality, at cost and performance levels that facilitate widespread deployment of video enhanced applications.

## Technical Requirements and Specifications

### Minimum PC System Requirements

- PC with a 233 MHz Pentium processor with MMX support
- 32 Mbytes of RAM
- 32 Mbytes of available hard disk space
- USB port
- Microsoft Windows 98 SE, Windows ME, or Windows 2000
- 16-bit VGA display adapter
- Sound card and speakers for audio preview and playback

### Technical Specifications

#### Video Capture

- Image formats: RGB 16, 24 bits, YUV422 ('YUV2'), YUV12 ('I420')
- Image resolutions: 352 x 288 (CIF), 320 x 240, 240 x 180, 176 x 144 (QCIF), 160 x 120

#### Still Image Capture

- Image resolution: 24-bit RGB at 640 x 480 or 320 x 240

#### Audio

- Up to Stereo, 16 kHz, 16 bits

#### Software Drivers

- WDM streaming class driver compatible with Microsoft DirectShow and Video for Windows
- TWAIN driver for on-line (USB-connected) still image capture
- TWAIN driver for transfer of pictures and audio clips stored on the camera's flash memory, as well as control over the camera flash memory
- Audio driver supports audio preview and playback through sound card

#### USB Interface

- USB standard compliant
- Bandwidth adjustable from 0.5 to 7.5 Mb/sec. in 0.5 Mb/sec increments
- Powered by the USB port when connected

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