Solutions on a Chip

ZR36504
Product Brief

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ZORAN

USBvision

Zoran® offers a family of highly integrated silicon solutions, called USBvision. Based on Nogatech™ technology, these ICs enable video compression and capture in USB computer products. USBvision chips are integrated into many video devices manufactured by companies requiring high-speed compression of video and audio data. USBvision chipsets enhance PC audio/video and provide USB integration in the following computer products:

- PC-TVs
- Video capture devices
- Handheld computers
- Cable modems
- Camcorders
- PC set-top boxes
- PC digital video cameras
- LCD monitors

The Products

- Integrated circuits (or chipsets) that compress video images and process video, audio, and data simultaneously through the USB narrow bandwidth channels, into personal computers, iMacs, and "personal digital assistants" (PDAs)

- Software drivers for the majority of popular operating systems including Microsoft Windows 98, Windows 2000, Windows CE, MAC, and Linux
- USBvision comprehensive reference designs that enable our customers to enter the market quickly

Benefits Overview

Nogatech's second-generation chipset, the USBvision II, includes video, audio, and data, all streaming simultaneously via the USB bus. High-resolution stills may also be captured while streaming video.

- High-quality video, audio, and data performance
- Low system costs
- Cross platform compatibility for various operating systems
- Simplification of customers' manufacturing process
- USB standard compliant hardware
- DirectShow standard compliant software drivers

Product Support

For rapid time-to-market development, Nogatech's reference design kits feature the USBvision II chip, drivers, schematics, training, gerber files, and optional test boards.

We maintain an ongoing design program for new products to enable our customers to meet and exceed the tough requirements that manufacturers face in this era of digital video, digital cameras, and the Internet.

Features

- Interface with CCD or CMOS sensors
  - CIF size up to 30 fps
  - VGA size up to 15 fps
  - High-resolution still capture (640x480)

- Digital Stereo Audio input (8K/16K sample/sec, 8-bit u-Law/16-bit linear)
- Auxiliary simultaneous external serial bulk-data input (0 to 2Mbit/sec)
- Low power consumption (190mW @ 3.3V) – can use USB power source

- WDM DirectShow driver supports Win98, Win2000, WinMe
- Drivers for Mac, WinCE and Linux
- Built-in programmable scaler (Down Scale – horizontal and vertical)
- Selectable USB bandwidth (0.5Mbps-7.5Mbps)
- Selectable Raw/Compressed video out
- Simultaneous support for Audio/Video and Data (A/V isochrones mode, data bulk mode up to 2Mbps)
- Support for camera control and image enhancement
- Selectable Data/Clock serial protocols such as I^2C
- 100-pin LQFP package

Reference Designs

● **USB camera with CCD sensor**
The USBvision II chip enhances digital video cameras for PCs by offering an integrated solution that is compact for CCD, PC powered, on-the-fly, high-resolution still capture, easy to install, and suitable for desktop, notebook, and PDA applications.

● **USB camera with CMOS sensor**
The USBvision II is also suitable for CMOS cameras, offering features such as quality video at 30 frames per second at CIF resolution.

● **USB Video Capture Adapter**
The USBvision II is an excellent solution for video capture adapters, offering connectivity for any video device via USB to a computer. PC video capture devices maximize the utility and convergence of ana-log video cameras, digital still cameras, digital video cameras, VCRs, DVDs, and televisions.

● **USB TV**
USBvision II simplifies and improves PC-TV by allowing quick exter-nal connectivity of the USB TV tuner to a computer via the USB port for viewing cable or broadcast programs, and radio features. Nogatech was awarded the "Best of Comdex Award" at Comdex 1999 for its advanced USB PC-TV product design.

Software Drivers and Complimentary Data Decoder IC

USBvision II Optional Data Decoder (ZR36505) - VBI data and Remote Control interface for USB TV applications
The USBvision Data Decoder is a complimentary chip for the USBvision II in USB TV applications. Combined with certain video decoders, it adds a Vertical Blank Interval (VBI) data pipe to the system, which utilizes the general purpose bulk channel of the USBvision II chipset.

VBI is used by TV broadcast providers to send digital data hidden in the analog video signal. One or more video lines, taken from lines 1-21 of each video field are used for carrying this information - each line providing about 9600-bits/sec data rate.

ZR36505 uses a 1Kbyte SRAM buffer to grab processed data from the video decoder during the Blank Interval time slot, and sends this data to the USB through the ZR36504 bulk pipe during the time left prior to beginning of the next Blank Interval. For the Remote Control interface, the input pin is sampled and the sampled bits are moved to host computer via the ZR36504 for S/W process.

USBvision II Data Decoder (ZR36505) Features

● Enables Teletext, SAP, EPG and Close-Caption
● Supports WST625, WST525, CC625, CC525, US NABTS, MOJI (Japanese), and JFS formats
● Provides remote control interface with IR receiver (sampled at 4K sample/sec.)

● Low cost, low power, 3.3v operated
● 24-pin SOIC package

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