IP Network Camera Design Platform

Benefits

- Differentiate product with state-of-the-art video encoding for high quality at any given bit rate
- Adapt and customize products to meet emerging standards/codecs and specific requirements with flexible design
- Reduce system cost with low price-per-channel
- Speed time-to-market with complete integrated, turnkey system solution including hardware design files, video encoding software, control software and support package

YMagic Technologies

Target Applications

- **Network camera**
- **Wireless network camera**

Solutions for video/imaging products based on TI DSPs provide developers the flexibility to design a wide range of products. By leveraging the DSP programmability, processing performance, video specific peripherals and support for all major multimedia codecs, developers can design differentiated products with customized features to meet changing market needs.

Digital video transmission is fast becoming the standard requirement for security and surveillance systems. Both wired and wireless links are of interest for security and surveillance architects.

For developers of IP network cameras, YMagic has developed a TI DSP-based solution to reduce time to market and minimize risk with its video encoder board. This solution includes a DSP platform based around TI's TMS320C6205 DSP, encoding and communications software and a board support package. The complete suite also contains a stand-alone video encoding camera design.

Targeted for low-cost implementation of high-quality network video cameras, it enables the realization of a complete video channel IP camera over Ethernet or Wireless LAN. The video encoder is based on the YMagic video encoder board, and includes complete hardware design files, video encoding software, control software and support package.

System Example: Ethernet LAN/802.11B Network C
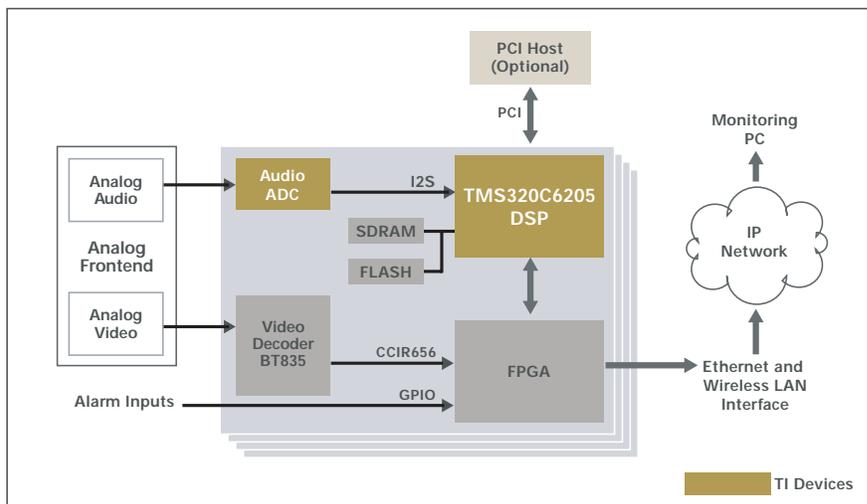
IP Network Camera Design Platform

Functional Description

Hardware
• Texas Instruments TMS320C6205 DSP Processor, running at 196MHz
• 8MByte SDRAM (2MB x 32bit)
• On-board FLASH
• 64kByte program memory and 64kByte data memory on-chip
• JTAG connector
• Altera AceX1K30 FPGA(Programmable via DSP)
• TVP5150A Ultra low Power NTSC/PAL/SECAM Video Decoder w/Robust Sync Detector
• Video encoder: Any BT-656-capable video encoder may be used, requiring some integration effort.
• Ethernet MAC/PHY controller
• HDD controller, enabling local storage of encoded media on either ATA or SCSI hard disks. (Optional)
• CDROM controller, enabling back-up of encoded media on non-erasable medium immediately after encoding. (Optional)
• Time Shifting Generator, enabling concurrent recording and play-back of encoded media, thus enabling monitoring of previously recorded media without interrupting the recording currently taking place. (Optional)

Software
MPEG-4 Advanced Simple Profile video encoder
• Delivers 25 or 30 frames/sec at CIF resolution
• 1- 2- or 4- channels per card
• One or two audio channels per video channel
Network
• Compact TCP/IP stack
• Media is transmitted either over 10Mbit/sec or 100Mbit/sec Ethernet or over 802.11B wireless LAN link. Transmitted media may be optionally scrambled for data immunity.
• Wireless LAN (802.11B) controller
• Video is monitored and recorded on remote PC Optional local PC interface.
• Complete Control and Board Support Package (BSP) suite

Component Selection

- **TI TMS320C6205 DSP Processor**
- **TVP5150A Ultra-low-Power NTSC/PAL/SECAM Video Decoder w/Robust Sync Detector**
- **Video encoder:** BT-656-capable video encoder may be used, requiring some integration effort.
- **FPGA:** The system is developed for Altera ACEX1K30. Migration to Xilinx components is straightforward. Migration to ASIC is possible, depending on quantities.

Getting Started – Development Tools

Tools

- Video Encoder Card
- Board Schematics
- Design Layout Files

Documentation

All technical documentation available from Ymagic.

Contact Information for Questions/Support

To purchase this solution or for more information: info@ymagic.com

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