H.264 Video Codecs

PureVu™ CNW35XX
Multi-Stream Video Codec

Product Brief

OVERVIEW

The CNW35XX is a multi-stream H.264 video codec, specifically optimized for video surveillance applications, such as DVRs, video servers and multi-stream IP camera head-ends. The deployment of H.264 results in 80% more efficiency over MJPEG and in 30% more efficiency over MPEG-4.

The 8 bi-directional video ports support spatially and temporally multiplexed video streams, allowing the CNW35XX to process a total of 32 CIF or 8 D1 streams at 30 frames/sec simultaneously. Video input ports can dynamically transrate and transsize the input video streams. The large number of ports allows very cost-effective DVR or multi-stream IP camera head-end implementations without the need for expensive video multiplexers.

Through Super Low Latency Technology™ (SLL Technology™) the CNW35XX achieves sub 40ms encode-decode latency for multi-stream D1 processing. These latency numbers are the lowest in the industry and key requirement for real-time PTZ camera control and for securing premises instantly upon security breaches. The CNW35XX provides the ability to selectively blank/block video areas to hide sensitive information, such as customers' ATM pin codes. Moreover, the CNW35XX provides motion vector and SAD information to the external host for motion detection and other analytics purposes.
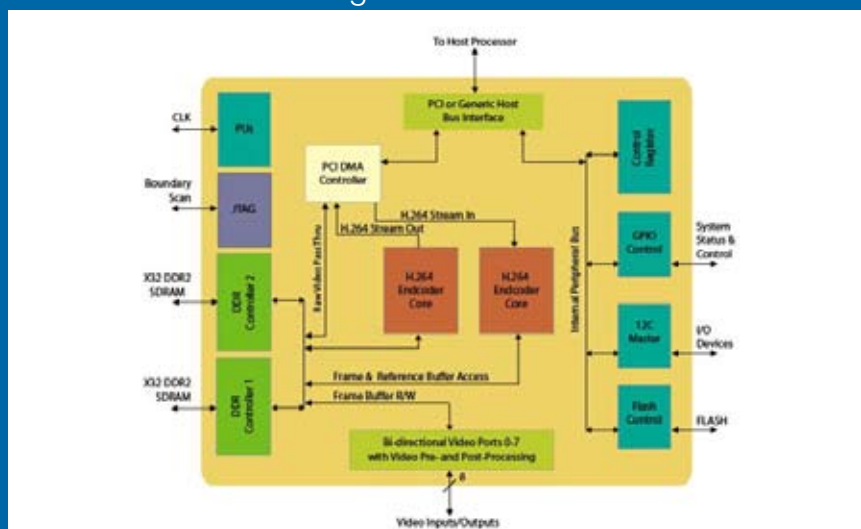
KEY FEATURES

- H.264 / MPEG-4 AVC (Part 10) video encode/decode
- D1 and CIF support
- 8 Bi-directional BT.656 video ports
- 32 Streams encode or decode
- 16 Streams simultaneous encode and decode
- Super Low Latency Technology™ for sub 40ms multi-stream encode-decode latency
- Transsizing, transrating and stream duplication support
- Content-adaptive noise reduction
- Error resiliency & concealment
- VBR & CBR bit rate control
- On-chip 266 MHz DDR2 DRAM controllers
- On-chip PCI DMA
- PCI and generic host interfaces

APPLICATIONS

- Video surveillance DVRs
- Video surveillance video servers
- Multi-stream IP cameras

CNW35XX - Block Diagram

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FEATURES

Video Compression
- H.264 Baseline & Main Profile up to L3

Resolutions
- 480i60, 480p24/30/60
- 576i50, 576p25/50
- CIF, QCIF, VGA, QVGA, SIF, others

Noise Reduction
- In-loop, low-delay filtering
- CA-MCTF

Error Resiliency & Concealment
- Intra-frame forcing
- Intra-refresh
- Variable GOP size
- Variable slice size
- Skip-frame
- Skip-macro block
- Decoder tolerant of missing or corrupt NAL units

Rate Control
- Single pass, low-delay bit rate control
- Constant bit rate control
- Variable bit rate control
- Fixed QP

Network Support
- Encoder NAL bit stream formatting
- Decoder NAL bit stream parsing

Video Input and Output Ports
- 8 bi-directional video ports
- Embedded sync support for multiplexed streams
- ITU-R BT.656

Motion Detection
- Motion vector & SAD information

Super Low Latency Technology™
- Sub 40ms multi-stream encode-decode latency

Multi-stream Support
- 960 CIF frames/sec encode capacity
- 8x D1 encode or decode
- 32x CIF encode or decode
- 4x D1simultaneous encode and decode
- 16x CIF simultaneous encode and decode

Pre & Post- Processing
- Transsizing & transrating
- YUV 4:2:2 <-> YUV 4:2:0 sample conversion
- Blanking/Blocking input video regions
- Stream duplication
- OSD

Host Bus Interface
- 32/16-bit, 133 MHz sync/async host bus
- 32-bit, 33/66 MHz PCI 2.2 compatible bus
- 67 virtual PCI DMA channels
- Raw video transport

Configuration Support Per Stream
- Frame rate
- Statistics
- GOP size
- Error resiliency & concealment
- Noise filtering
- Resolution
- CBR/VBR control

Memory Interfaces
- 2x DDR2 -266 MHz interfaces
- SPI Serial FLASH interface

Miscellaneous Interfaces
- JTAG
- GPIO
- Two-Wire serial bus

Operational Characteristics
- Core clock frequency 233 MHz
- Power dissipation 2.5W typical
- -40° – +85° C ambient temperature
- 0-90% RH

Package
- 676 pin BGA
- 27mm x 27mm

ORDERING INFORMATION

Device	Part Number	Streams	Video Ports		Host I/F	Memory	Package	RoHS
			No	Interface				
CNW3508	CNW3508-233BG676-Option Code	8x D1 32x CIF	8	BT.656	PCI 32-bit, 33/66 MHz or 32-bit synchronous/asynchronous generic host I/F	2x 32-bit wide memory bus I/F DDR2 266 MHz	676 PBGA	Pb-free RoHS-6