

H.264 Video Codecs

PureVu™ CNW31XX Super Low Latency Multi-Stream Full-HD Video Codec

Product Brief



OVERVIEW

The CNW31XX is a full-HD, multi-stream H.264 video codec, specifically optimized for real-time, multi-stream video applications. Examples include but are not limited to group HD video conferencing, HD telepresence, HD video surveillance and home media servers.

The 8 bi-directional video ports support spatially and temporally multiplexed video streams, allowing the CNW31XX to process a total of 32 streams simultaneously. The CNW31XX can encode or decode a single 1080p60, two 720p60, four 720p30, 8 D1@30fps or 32 CIF@30fps streams. It can also simultaneously encode and decode multiple HD, SD and CIF streams.

Through Super Low Latency Technology™ (SLL Technology™) the CNW31XX achieves sub 1ms 1080p60 encode-decode latency and sub frame rate encode-decode latency for multi-stream processing. These latency numbers are the lowest in the industry and key requirement for real-time video applications. Moreover, the CNW31XX supports transizing, transrating and stream duplication, as well as advanced error resiliency and concealment features that guarantee distortion-free and highest fidelity pictures under the most adverse channel conditions.

KEY FEATURES

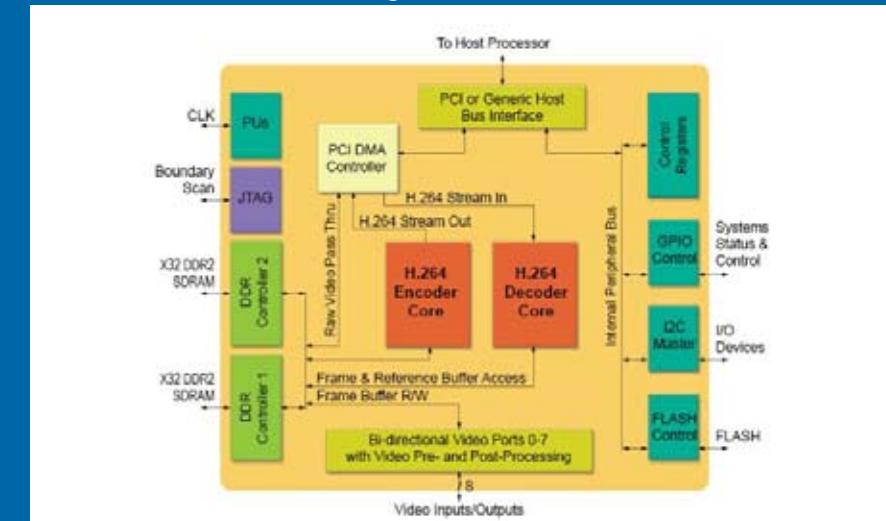
- H.264 / MPEG-4 AVC (Part 10) video encode/decode
- 1080p60, 720p60, D1 and CIF support
- 8 Bi-directional BT.1120 video ports
- 32 Streams encode or decode
- 16 Streams simultaneous encode and decode
- Super Low Latency Technology™ for sub 1ms latency
- Transizing, transrating and stream duplication support
- Content-adaptive noise reduction
- Error resiliency & concealment
- Channel adaptive bit rate control
- On-chip 266 MHz DDR2 DRAM controllers
- On-chip PCI DMA
- PCI and generic host interfaces

APPLICATIONS

- Group video conferencing
- Telepresence
- Wireless media hubs



CNW31XX - Block Diagram



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FEATURES

Video Compression

- H.264 Baseline & Main Profile up to L4.2

Resolutions

- 1080p24/25/30/50/60, 1080i50/60
- 720p24/25/30/50/60
- 480i60, 480p24/30/60
- 576i50, 576p25/5
- 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.1120 & BT.656

Motion Detection

- Motion vector extraction information

Super Low Latency Technology™

- Sub 1ms 1080p60 encode-decode latency
 - Sub 40ms multi-stream encode-decode latency

Multi-stream Support

- 1200 CIF frames/sec encode/decode capacity
- 1x 1080p60 encode or decode
- 2x 1080p30 encode or decode
- 2x 720p60 encode or decode
- 4x 720p30 encode or decode
- 8x 480p30 encode or decode
- 32x CIFp30 encode or decode
- 1x 1080p30 simultaneous encode and decode
- 1x 720p60 simultaneous encode and decode
- 2x 720p30 simultaneous encode and decode
- 4x 480p30 simultaneous encode and decode
- 16x CIFp30 encode and decode

Pre & Post- Processing

- Transsizing & transrating
- Scaling down resolution and frame rate
- YUV 4:2:2 <-> YUV 4:2:0 sample conversion
- Blanking/Blocking input video regions
- Stream duplication
- OSD

Miscellaneous Features

- Motion vector & SAD data

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
- 0° – +85° C ambient temperature
- 0-90% RH

Operational Characteristics

- 676 pin BGA
- 27mm x 27mm

ORDERING INFORMATION

Device	Part Number	Streams		Video Ports		Host I/F	Memory	Package	RoHS
		HD	SD	No	Interface				
CNW3108	CNW3108-233BG676-Option Code	1x 1080p60 2x 1080p30 2x 1080i60 2x 720p60 4x 720p30	8x D1 32x CIF	8	BT.1120 /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