CONEXANT

# PCI Express Video and Broadcast Audio Decoder with 3D Comb Filter

CX23888

**Conexant's portfolio includes a comprehensive suite of semiconductor solutions for communications and consumer applications.**

The CX23888 brings Conexant's long heritage of audio and video capture solutions to systems that enable PCI Express bus architectures. The device integrates all functions required to perform television and external A/V capture on personal computers or consumer electronic devices.

The integrated worldwide video decoder and audio decoder can be used for a high performance, cost effective, basic analog television capture, or can be used as the base for more complex multiple tuner configurations. The devices can capture a single analog stream, two simultaneous digital transport streams, or a combination of analog and digital programming. In addition, analog, hybrid and combo configurations may be used in conjunction with hardware MPEG encoders.

### Highly Integrated

The CX23888 integrates an anti-aliasing, noise rejection filters, and automatic gain control (AGC) and also includes an integrated analog IF demodulator compatible with high or low IF tuners. Furthermore, the CX23888's advanced IR features, such as remote learning, remote system wake, and STB blasting, are supported in Windows Vista operating systems. Quality video is accomplished by using 10-bit video ADCs, a full 10-bit video data path, and an adaptive 3D comb filter. The device also includes horizontal and 5-tap vertical scaling, hue, brightness, saturation, and contrast controls.

For high-quality audio, we have analog to digital converters for stereo audio capture and a minimum of 16-bit audio resolution through the entire audio data path. This ensures high fidelity audio, whether it comes from the integrated broadcast audio decoder or external serial audio sources. The audio path includes an automatic volume control function and two assignable stereo processing units for control of volume, three-band equalization, and balance. The level of audio and video integration provided by the CX23888 removes the need for additional broadcast audio decoding and processing chips or external sound demodulation chips. It also reduces the overall bill of materials (BOM) for the system developer, without compromising audio and video performance.

## Distinguishing Features

- PCI Express 1.0a Compliant Bus
- Adaptive 3D comb filtering via host memory
- Integrated analog IF demodulator for low or high IF tuners
- Worldwide Audio and Video Decoding
- Automatic Video and Broadcast Audio Standard Detection and Configuration
- Flexible Video Input MUX supporting Composite, S-Video, and Component Inputs with Integrated Anti-alias Filtering
- Integrated Sigma-Delta Stereo Audio ADCs with 4:2 MUX
- Audio Sample-rate-converters on all Inputs and Outputs
- Two MPEG Transport Stream Ports – Serial or Parallel Interfaces

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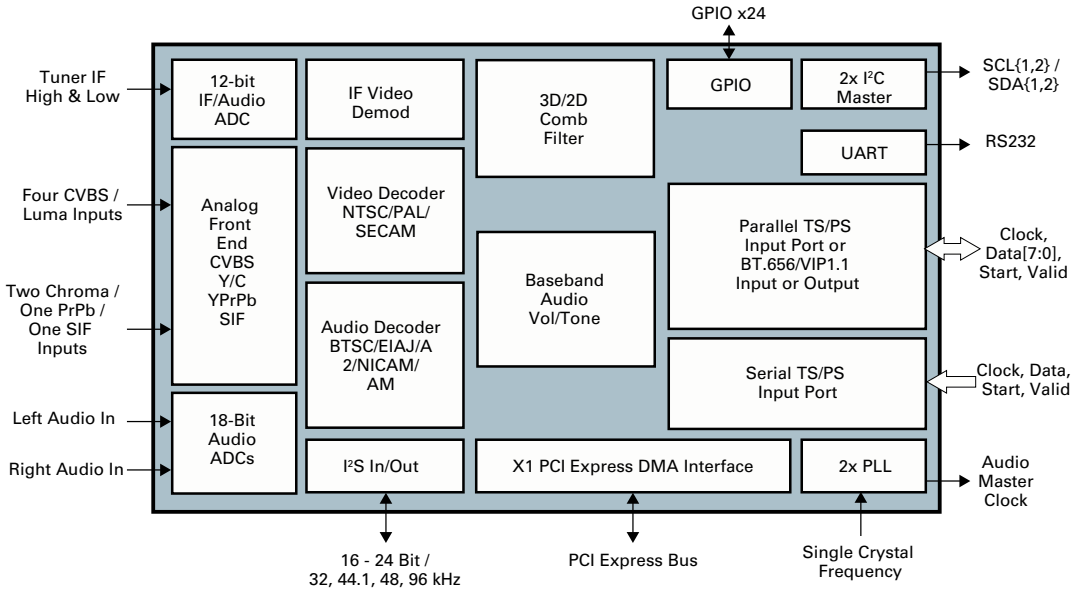
|---|---|
| **Part Number** | CX23888 |
| **Description** | PCI Express Video and Broadcast Audio Decoder with 3D Comb Filter |

## Features

- Support for the following audio formats – Stereo, Mono, Dual Language (Mono), Tri Language (Trivox)
- Two $I^2C$ master ports (Two ports are provided for a two tuner design to isolate $I^2C$ transactions to reduce noise.)
- Macrovision 1.0 Detection Compliant
- Support for the following video formats – Composite, S-Video, 480i YPrPb, RGB Packed, YCrCb Packed, 10-bit Packed, and YCrCb/YUY2 Format
- Avanced Consumer IR functionality enables systems to learn, receive and blast IR signals
- High-quality multi-tap horizontal and vertical image scaler for decoded video or 4:2:2 sources
- $I^2s$ in/out
- Auxiliary Phase Locked Loop (PLL) clock for general use
- Integrated analog IF demodulator for low or high IF tuners
- Adaptive 3D comb filtering via host memory
- PCI Express 1.0a compliant bus
- Worldwide audio and video decoding
- Automatic video and broadcast audio standards detection and configuration
- Flexible video input MUX supporting composite, S-Video, and component inputs with integrated anti-alias filtering
- Integrated sigma-delta stereo audio ADCs with 4:2 MUX
- Audio sample rate converters on all inputs and outputs
- Two MPEG transport stream ports: Parallel and Serial
- Two program stream inputs accommodating Serial or Parallel interfaces
- Programmable VBI data slicer for data services such as closed caption, WSS, and program guides such as Gemstar 1x & 2x
- ITU-R BT.656 Input Port and ITU-R BT.656 Output Port




**CX23888 Block Diagram**

### Conexant Product Portfolio

Conexant's comprehensive product portfolio includes solutions for imaging, audio, and video applications, and analog modems that enable cost-effective Internet access. The company's broadband access products include end-to-end solutions for xDSL networks, and PON solutions for fiber optic applications.

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Doc# PBR-200974

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