4-Channel Audio/Video Decoder with Integrated PCIe Interface
CX25854

High Quality Audio and Video Decoders for Surveillance Applications

The CX25854 4-Channel Audio/Video Decoder with Integrated PCIe Interface was designed for surveillance applications. The CX25854 contains four high quality NTSC/PAL video decoders with 10-bit A/Ds and 5-line comb filtering, to generate the highest quality digital video output with the lowest possible noise. This creates not only the best image quality for viewing, but enables lower bitrates for compression devices using the output of the CX25854.

The video decoders within the CX25854 are optimized to lock to inputs with low signal levels as well as line-locked cameras, both of which are common in surveillance systems. Each video decoder may be scaled independently and the CX25854 supports BT.656 as well as a variety of other interleaved digital video output formats.

The CX25854 also contains four high-quality mono audio A/Ds with I^2S outputs.

PCIe Bridging

The CX25854 contains a PCIe 1.1 compliant x1 interface. It is ideal for "capture card" applications in systems where four channels of high-quality, uncompressed video must be digitized and transmitted via PCIe for viewing, compression, and/or analytics. The CX25854 can downscale digital video from 4:2:2 format to 4:1:1, reducing bandwidth requirements from 16 bits per pixel to 12.

Additionally, the CX25854 supports the bridging of up to four channels of digital video and audio from PCIe, and can output these streams over pins in BT.656 or I^2S-style interfaces, respectively.

Direct-Connection to Multi-Channel H.264 CODECs

The CX25854 supports byte, line, or frame-interleaved digital video outputs at 27, 54, or 108 MHz. Byte and line interleaved outputs are supported entirely within the CX25854. Frame-interleaved outputs require that the CX25854 interface with external DDR2 memory. The CX25854 supports I^2S and multiplexed I^2S audio outputs.

The CX25854 contains an interface for Maxim H.264 CODECs that permit the CX25854 to bridge compressed data from Maxim devices to the PCIe bus. This simplifies the Bill of Materials (BOM) and reduces costs in PCIe systems.

Distinguishing Features

- ◆ Four High-Quality NTSC/PAL video decoders:
  - – Anti-alias filters
  - – 10-bit A/Ds
  - – 5-line comb filtering
  - – Independent scaling
- ◆ Four Mono audio A/Ds
  - – Variable sample rates
  - – I^2S outputs
- ◆ Flexible digital video output formats at 27, 54, and 108 MHz
  - – Byte-interleaved
  - – Line-interleaved
  - – Frame-interleaved (requires external DDR2 memory)
- ◆ PCIe 1.1 x1 interface
- ◆ Interface to Maxim CODECs for bridging of compressed data to PCIe
- ◆ Tiling and cascading functions (requires external DDR2 memory)
- ◆ Programmable Motion Detection
- ◆ 48 GPIO pins

Part Number CX25854

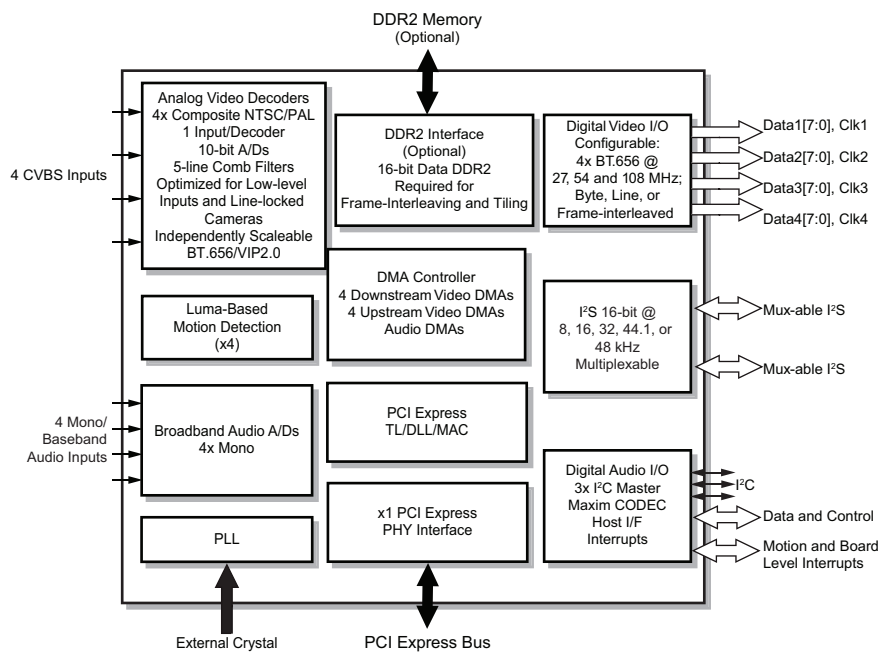**Description** CX25854 4-Channel Video/Audio Decoder with Integrated PCIe Interface

Additional Features

There are two variants of the CX25854 offered - one with the external DDR2 interface, and one without the interface. When equipped with DDR2, the CX25854 supports frame-interleaved video outputs, as well as a 2x2 CIF tiling mode, in which four CIF images are tiled into a single D1 stream.

The CX25854 includes programmable motion detection logic, which can trigger flags or PCIe interrupts when motion is detected on incoming analog video streams.

The CX25854 contains 48 GPIO pins, which maximize flexibility and allow customization to a variety of applications and designs. I^2C interfaces and the Maxim interface are supported via GPIOs.

CX25854 Block Diagram

The CX25854-1x (contains DDR2 interface) is offered in a 23mm x 23mm, 288 pin fpBGA package.

The CX25854-2x (no DDR2 interface) is offered in a 14mm X 14mm, 233 pin fpBGA package.

Conexant Product Portfolio

Conexant's comprehensive product portfolio includes solutions for imaging, audio, video, and embedded-modem applications.

Distributor/Representative Information