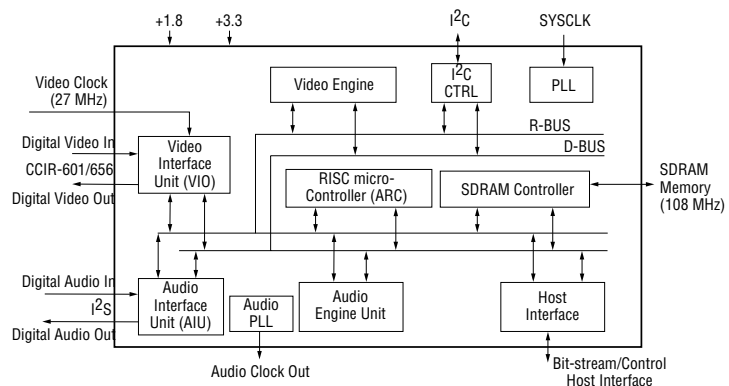


MPEG-2 Audio/Video CODEC

CS92288 Features

- Single Chip, real time MPEG-2 Audio/Video CODEC with system Mux/Demux and OSD
- Supports Real Time MPEG-1, MPEG-2 MP@ML, SP@ML, and MP@LL encoding and decoding
- Support for constant and one-pass variable bit rate
 - IPB-pictures, CBR or VBR to 15 Mbps
 - I-pictures only to 30 Mbps
- Supports Transport, Program, and Elementary streams
- Support for real time encoding and decoding of two-channel digital audio in either Dolby Digital or MPEG audio (Layer I, II, and III - MP3)
- Programmable system mux/demux supports VCD, SVCD and DVD encoding and decoding
- 8-bit OSD support (2-b text, 2-b to 8-b graphics)
- Supports multiple resolutions and scan rates
- Low external memory, e.g., NTSC:
 - 8 Mbytes for full D1 (720) NTSC/PAL pictures
- Intel/Motorola 16-bit host interface
- Generic 8-bit interface for glue-less to multiple devices such as the Philips 7146 PCI Bridge, Philips TriMedia, and USB controllers
- Integrated programmable video pre & post processors
- Integrated I²C and I²S Interfaces
- 1.00 watts at 108 MHz average power consumption
- 272 BGA package



The CS92288 is a single chip, real time MPEG-2 audio/video encoder/decoder (codec) with an integrated system multiplexor/demultiplexor and on-screen display (OSD) feature. The CS92288 codec encodes and decodes both ISO/IEC 13818 Main Level @ Main Profile (ML@MP), Simple Profile @ Main Level (SP@ML), Main Profile @ Low Level (MP@LL), and ISO/IEC 11172 (MPEG-1) video bitstreams as well as MPEG audio, and Dolby Digital (AC-3).

In encode mode, the CS92288 produces MPEG-compliant audio and video elementary bit streams, program bit streams, as well as transport streams for broadcast and set-top box applications. For additional flexibility, the CS92288 accepts video in either the ITU-R BT.656 (CCIR-656) or ITU-R BT.601 (CCIR-601) format. Audio is input in the Linear PCM format. In decode mode, the CS92288 can accept MPEG transport streams, program bit streams, as well as audio and video elementary streams. Video can be output in either the CCIR-656 or 601 CCIR-601 format. Audio is output in the Linear PCM format.

For applications requiring on screen displays, the CS92288 OSD feature supports both text and graphics.

Technical Overview

The CS92288 combines a programmable RISC core, programmable DSP core, and dedicated processing units organized as a process pipeline. The RISC core supports system mux and demux requirements for a variety of system applications, including VCD, SVCD, and DVD. The DSP supports dual-channel Dolby Digital encoding and MPEG (all Layers) audio encoding and decoding. It is powerful enough to support additional audio formats, such as DTS or Dolby Pro Logic. Integrated I²S support allows for a glue-less interface to A/D and D/A converters.

Key Feature Description

Format Support

The CS92288 supports all the requirements of the VCD and Super VCD specifications. This includes MPEG-1 and MPEG-2 encoding and decoding at 1/2 (VCD), 2/3 (SVCD), or full D1 (DVD) resolutions, MPEG audio encoding and decoding, and an OSD. In addition, the CS92288 supports audio/video encoding and decoding at full D1 resolution using either the Dolby Digital (AC-3) or MPEG audio specifications.

MPEG Video

The CS92288 provides application program control over a large number of encoding parameters such as I, P, B-picture cadence, GOP structure and decoder buffer sizes.

For communications applications, the CS92288 allows the host controller to make on-the-fly bit-rate changes without interrupting the audio/video stream flow. This allows for better bandwidth utilization.

Internal rate control provides a high degree of flexibility in relation to the output bit rate, including the ability to generate variable bitrate compressed video stream in one pass. This makes it suitable for storage sensitive applications such as digital camcorders and removable storage media.

Pre- and post-processing support includes pre- and post-filtering, temporal filtering, telecine (3:2 pulldown), inverse telecine, up and down chroma conversions.

Audio

The CS92288 supports MPEG-1 and MPEG-2 (all layers), Dolby Digital, and MP3; however, additional audio compression and decompression algorithms can be supported via firmware upgrades.

Input/Output

The CS92288 can input or output MPEG-compliant program streams or audio and video elementary streams. Transport stream generation and decoding is also available via optional firmware upgrade.

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