ZORAN

ZR36215

PRODUCT BRIEF
SupraAV ™ SVCD DECODER

Key Features:

- Single Chip Decoder Solution for Digital Video and Audio Players.
- Support for SuperVCD standard
- Supports Video CD 1.1/2.0
- Supports CD-DA
- MPEG2 Video Decoding
- MPEG audio layer 2 Decoding
- Integrated On Screen Display (OSD) Processor
- Embedded 40 MIPS DSP
- Integrated Overlay Graphics and Text (OGT) Processor

- Embedded Karaoke
- Digest support for VCD playback
- Multi-language support
- 44.1khz and 48khz audio support
- Single 16-Mbit SDRAM for Full Operation
- 8-bit microcontroller interface
- 160 pin TQFP Package
- VBR Video Decoding

General Description

The   ZR36215 decoder is targeted for the new generation of Digital Video products in Asia. The highly integrated ZR36215 is ideal for developing a SuperVCD player design.   The product is based on Zoran's strong history in the Digital Video marketplace. The ZR36215 provides key features such as MPEG-1 & 2 Video decoding, MPEG audio decoding, integrated OSD and OGT, VideoCD 2.0 compatibility and embedded Karaoke functions.

The ZR36215 handles all aspects of SuperVCD decoding. The single chip device performs demux and parsing of the bit stream, MPEG-2 or MPEG-1 video decoding, MPEG audio decoding and audio/video synchronization. It includes an OGT Processor for overlayed graphics and text, and an OSD mechanism to support overlay of user generated text and graphics. The ZR36215 performs vertical/horizontal filtering & scaling of the output video to ensure high quality displayed video.

The ZR36215 has an integrated 40MIPS DSP to provide the flexibility for enhanced features of the SuperVCD standard specification. This embedded DSP supports programmable algorithms such as stereo enhancement , 3D audio generated from a multi-channel audio stream, and full Karaoke. The 160 pin package is compact and saves additional board space. In addition, a single 16-Mbit SDRAM can be used for all the operations of the ZR36215, thus saving additional cost and board space.

ZR36215 Block Diagram
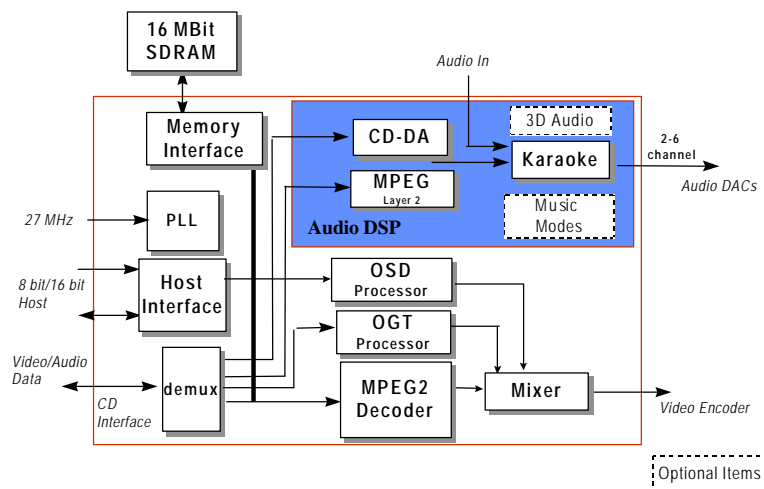
Key Feature Description

SuperVCD support
The ZR36215 provides full support for all the requirements of the SuperVCD specification. This include MPEG2 video decoding for 2/3 D1 content, MPEG audio decoding, OGT, etc. In addition to the SuperVCD support, the ZR36215 supports the VCD1.1 and VCD2.0 specification, thus enabling the development of a SuperVCD system with full back compatibility with the existing VCD standards.

Karaoke
Karaoke is a popular feature for the Asia market. Karaoke features are possible in the ZR36215, thus eliminating the need for an external karaoke processor. Basic features of Karaoke are Voice Cancellation, Echo, and Key Control. Voice Canceling is a feature to eliminate the singers voice on a CD by filtering out the vocal content, allowing you to sing along. The echo function provides the effect of singing in a large auditorium and slightly modifies the singer's voice to enhance the sound. Key Control adjusts the pitch of the music by quarter tones to allow the pitch of the music to be shifted to match the pitch of the singer.

MPEG Video Decoding
High quality video is accomplished using MPEG-2 video encoding in comparison to the VCD standard of MPEG-1 encoding. SuperVCD encodes the video in MPEG-2 to achieve the higher quality in comparison to VideoCD. The ZR36215 supports both MPEG-1 and MPEG-2 decoding, thus supporting SuperVCD and VideoCD requirements. Additionally, the ZR36215 support the decoding of Variable Bit Rate (VBR) encoded content. VBR is an effective method of increasing the video encoding efficiency of MPEG-2. The more complex the video content, the more bits are allocated. For simple video content, much less bits are allocated. VBR maximizes the video capability for SuperVCD and thus achieves a higher quality motion picture.

MPEG Audio Decoding
For higher storage capacity of audio data, MPEG audio encoding is performed. For high quality audio, sampling rate of 44.1 or 48 khz are used. MPEG-2 provides multi-channel capability in addition to backwards compatibility to MPEG-1. MPEG-1, currently used for VideoCD, provides mono or stereo audio outputs. The ZR36215 supports both MPEG-1 and MPEG-2 audio decoding with 44.1khz or 48khz sampled data.

Programmable DSP
The ZR36215 has an embedded 40 MIPS DSP which can perform a variety of post-processing audio algorithms. Music mode algorithms enhance the existing stereo or multi-channel audio source and provides various listening environments by affecting the delay, echo and other key characteristics of the audio signal. 3D audio can provide the effect of a multi-channel system in a two speaker environment.   The ZR36215 can perform these operations in addition to the Video and Audio decoding.

Multi-language support
The   ZR36215 can support up to four languages as required by the SVCD specification. Multi-language capability provides the ability to view content in various languages as supported by the SVCD disk.

SuperVCD Player Application
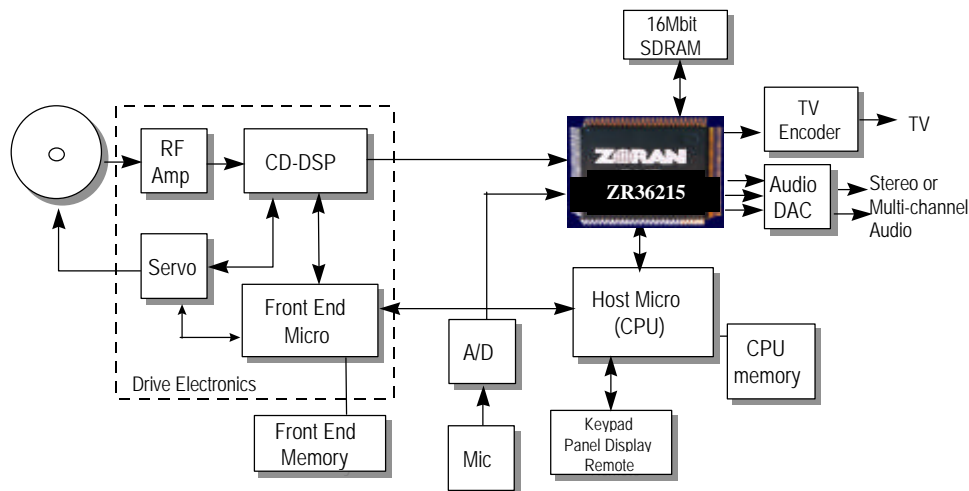
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