



## OVERVIEW

The ES3209 Video CD Companion Chip (CC), an enhanced version of and pin compatible with the ES3207, provides an optimal system design for a Video CD player when used with an ES3210 Video CD Processor Chip (PC). The ES3209 integrates most of the required analog discrete components into a simple, cost-effective solution and interfaces directly to an ES3210. No glue logic or external microcontroller is required.

The ES3209 features include a high quality NTSC/PAL Digital Video Encoder (DVE), echo, echo reverb, echo cancellation, 3DSound, surround sound, SmartPitch, support for games and interactive software, video and audio DAC'S, and a PLL clock synthesizer. There are three 9-bit video DACs (one for composite video output and two for S-Video outputs) and two 16-bit sigma-delta audio DACs for interfacing with current sound systems.

The DVE generates composite and S-Video analog signals. Color Space Conversions (CSC) are provided to match the input data to the required output format, then the data is filtered to meet the selected video standards. In addition, the ES3209 is equipped with a remote control interface for power on/off, microphone ports, auxiliary ports, and an interface for accessing internal registers.

Figure 1 shows a block diagram of a typical stand-alone system using an ES3210 Video CD Processor Chip and an ES3209 Video CD Companion Chip.

## FEATURES

- Games and interactive software support
  - Graphics and audio API
- Multi-standard TV encoder:
  - CCIR601 non-square operation
  - NTSC/PAL formats
  - Master video mode
  - 8-bit interface for YCrCb (4:2:2) input format
  - Simultaneous composite and S-video output
  - Interlaced operation
- Audio DACs:
  - Two 16-bit sigma-delta DACs
  - Accepts I<sup>2</sup>S format data
  - Programmable functions
- 3DSound and surround sound
- Remote control interface for power on/off
- Digitally controlled echo with up to 168ms delay
- Vocal reverb for theater acoustical effects
- Echo cancellation to remove acoustic reflections
- Dual microphone inputs
- SmartPitch: adjusts the pitch of the singer
- Clock synthesizer (PLL):
  - Based on 27 MHz crystal input
  - Generates required clocks for video encoder, audio DAC, echo and surround sound, and video processor
- DSC port for command issued/register access
- Power management
- 100 PQFP
- Single 5V power supply

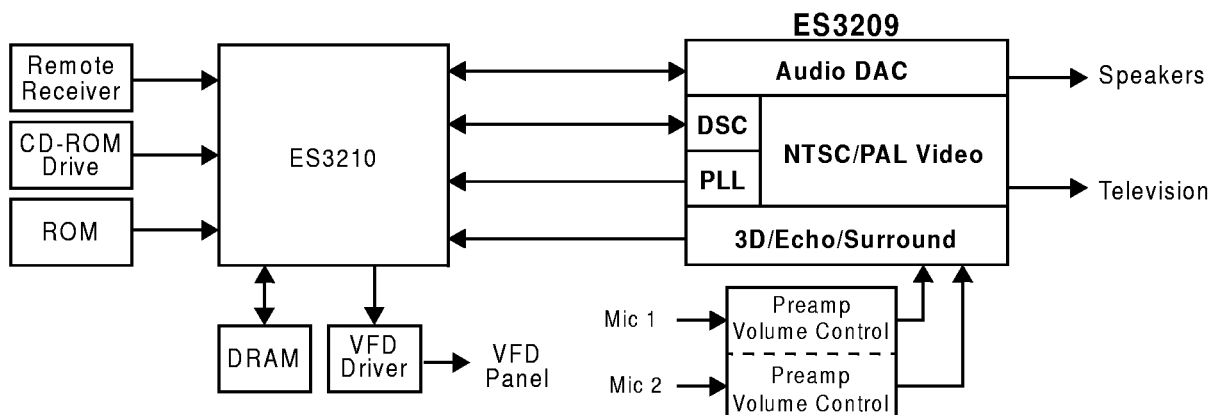


Figure 1 ES3209 Video CD Companion Chip System Block Diagram