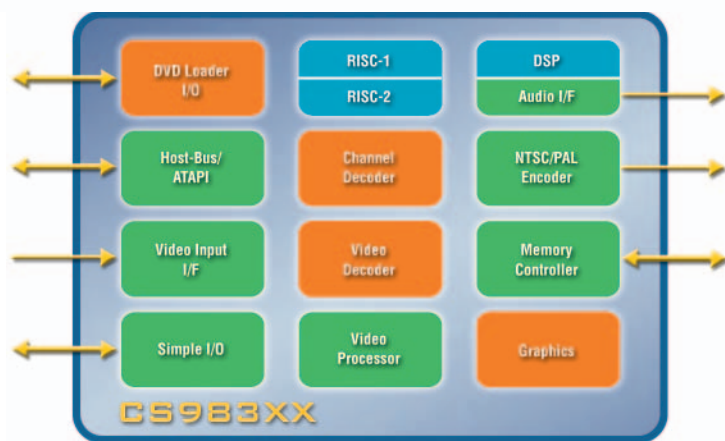# New DVD Processors Feature DivX® Playback Support
Highly Integrated Family is a Superset Design of CS982XX Product Line

CS983XX Features

- Plays/Decodes DivX, DVD-Video, VCD, VCD 2.0, SVCD, CD, and other popular standards

- Supports DivX 3.11, 4.x, and 5.x; Home Theater Certifiable

- Plays DVD-Audio including CPPM and Verance™ watermark protection

- MPEG-1, MPEG-2, and MPEG-4 audio and video decoding

- Kodak® Picture CD playback

- Flexible ATAPI (with PIO and DMA modes) or AV bus DVD loader support with no additional logic

- Dual, MIPS-based, 32-bit RISC processors, supported by RTOS, C/C++ compilers, and source level debuggers

- 32-bit DSP with 7.1-channel audio including AC-3, MPEG, DTS,® MP3, Windows® Media Audio, & AAC audio decoding and post-processing algorithms

- High quality integrated video encoder with six 10-bit, 27 MHz, video D/A converters

- Component (RGB or YUV) or composite and S-Video output

- Interlaced (PAL/NTSC) or progressive (480p/576p) output, with Macrovision™ copy protection

- ITU-R 656 video I/O for video capture, PVR, and DVR type applications, picture-in-picture support, digital video out

- IEC60958 (S/PDIF) with IEC61937 compressed and simultaneous PCM output

- ATAPI/IDE interface for hard disk, audio server, and digital video recorder or networking applications

- AC'97 serial interface

- 208-pin or 240-pin MQFP package

- Pin, feature and software compatible with the CS982XX family

The CS983XX is a family of highly integrated DVD processors that provide all the audio and video processing functions needed for the next generation of feature-rich DVD players, DVD receivers, and Internet-based DVD applications. These processors support the playback of multiple formats, including DivX, DVD Audio, MP3, WMA, MPEG-1, MPEG-2, MPEG-4, AAC, Kodak Picture CD, Dolby® Digital ProLogic® II, Dolby® Digital ProLogic® IIx, DTS-ES,™ Dolby® Digital-EX,™ and DTS Digital Surround® decoding.

The CS983XX chips support most popular CD formats, DVD navigation, disk control, video decoding and up to eight channels of audio output. The family of processors integrates six 10-bit, 27 MHz, video digital-to-analog converters (DACs) into its design and features TV encoding with progressive scan functionality.

The CS983XX family is a superset of the CS982XX family. In addition to all the features of the CS982XX family, the CS983XX support:

- DivX Playback (Home Theater Certifiable)
- ATAPI DMA Transfers
- MPEG-4 Advanced Audio Coding (AAC) Playback

The CS7838 is a special member of the CS983XX family that is designed for set-top box applications. The CS7838 does not support DVD decryption (CSS), but does support all other features, including MPEG and DivX playback.

Reference designs for DVD receivers and DVD recorders are available now. With advanced performance and design flexibility, the CS983XX family provides what you need to get your next product to market fast!

CS983XX

System Characteristics

- Dual, MIPS-based, 32-bit, 150 MHz RISC processors
- 32-bit, 150 MHz DSP processor
- Low power modes and clock shutoff

Memory Controller

- Up to 125 MHz SDRAM from 8 MB to 32 MB
- FLASH data bus isolated from SDRAM bus to allow faster SDRAM access
- 32-bit data bus for DRAM, 8-bit data bus for ROM data flow engine
- Two DMA controllers — local memory based and direct memory-to-memory
- DMA to/from main RAM into local SRAM

MPEG Video Decoder

- DVD, VCD, VCD 2.0, SVCD, and DivX Home Theater
- MPEG-1/MPEG-2 Main Profile at Main Level

Audio Decoder

- MPEG-2 and MP3 audio playback
- Dolby Digital or DTS (up to 8 channels)
- DolbyProLogic II and IIx
- DVD-Audio, including CPPM and Verance Watermark protection
- Two-channel MPEG-4, AAC Audio (5.1 multi-channel capable)

Audio Interface

- 8 channels PCM output at 24-bits/192 kHz output rate
- 2 channels I^2S input at 24-bits/96 kHz
- IEC 60958/61937 capabilities

External Interfaces

- Serial master/slave ports for controlling DVD loaders
- ATAPI/IDE interface can also control hard disk drives for PVR features

- Programmable bidirectional I/O pins
- Hardware-assisted support for infrared remote devices, such as remote control, infrared keyboard, mouse, printer, and more
- I/O channel interface supports all DVD loader protocols

Video Processor

- OSD module with multiple regions and transparencies
- Full screen graphics module, with 16-bit true-color graphics plane or 4-bit transparency with 12-bit color
- High quality video scaling using multi-tap programmable vertical and horizontal filters
- Motion-based deinterlacing and 3-2 pulldown (inverse telecine)

Video Encoder

- Six 10-bit, 27 MHz video DACs, drives 37.5 W load directly
- Progressive (480p/576p) or interlaced PAL (B, D, G, H, I, N, M, 60) and NTSC mode output
- Component (RBG or YUV) or composite and S-Video output
- Macrovision 7.1 support (interlaced) and Macrovision 1.03 support (progressive)

CS983XX Family

Part Number	Package	DVD-Video DVD-Audio	Video Input	Typical Application
CS98300	240MQFP	√	√	DVD Recorder
CS98320	208MQFP	√		DVD Player
CS7838	240MQFP		√	Set-top Box