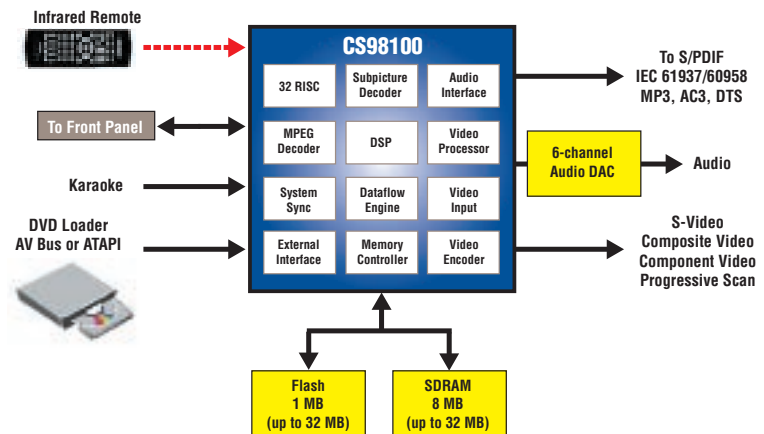


New Highly-Integrated Processor Enables Progressive Scan in Mass-Market DVD Players

CS98100 Features

- 32-Bit RISC Processor, supported by RTOS, C/C++ compilers, and source level debuggers
- 32-Bit DSP capable of AC-3, MPEG, DTS, MP3 and WMA audio decode algorithms
- MPEG decoder supports VCD, VCD 3.0, SVCD, DVD video standards
- Supports interlaced (PAL/NTSC) or progressive (480p) output, with Macrovision™ encoding and 3:2 pulldown support
- High quality integrated video encoder with triple 10-Bit Video DAC
- Flexible interface connects ATAPI or AV Bus DVD loaders without additional logic
- DSP reserve bandwidth can handle 5.1 downmix, karaoke echo mix and pitch shift
- Advanced subtitle unit handles DVD and SVCD, and PAL / NTSC scaling
- Super on-chip integration for low cost and low count bill of materials
- 208-Pin QFP package, .18 μ technology
- Low power ~ .5 watts



The CS98100 is a single-chip solution that provides all of the audio and video-processing functions needed for mass-market DVD players—including MP3 decoding, Dolby Digital, DTS output support, virtual 3-D, and on-screen display with vertical flicker filter. It supports all CD formats, DVD navigation, disk control, video decoding and up to eight channels of output. An extension of the Cirrus CS98000 DVD product line, the CS98100 integrates three 10-bit video digital-to-analog converters (DACs) and TV encoding with progressive scan functionality. Progressive scan video provides high resolution and eliminates the “flickering” effect present in traditional video playback. The highly integrated chip also includes a high quality video encoder with a triple 10-bit video DAC, which reduces total system cost. Other features enabled by this integrated chip include DTS decoding, HDCD, MP3/WMA decoding, karaoke functionality and video special effects. Its extended feature set and economical price make it ideal for both low-end and high-end system manufacturers.

The CS98100 is a Cirrus Total Entertainment (Total-E™) IC solution specifically designed for consumer entertainment electronics.

System Characteristics

- 32-Bit RISC processor
- 32-Bit DSP processor
- 208-Pin PQFP package or 128-Pin PQFP package
- All I/O pins are 3 V with 5 V tolerance
- Advanced 0.18 μ CMOS technology
- Supports low power modes and clock shutoff
- 91 MHz

Memory Controller

- Supports SDRAM, and SGRAM, from 2 MB to 32 MB
- Supports multiple banks of FLASH and ROM up to 32 MB
- 32-Bit data bus for DRAM, 8-Bit or 16-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

- Supports DVD, VCD, VCD 3.0, and SVCD
- Special anti-tearing logic controls picture decode and presentation
- Advanced error concealment hardware

Audio Interface

- Supports 8 channels PCM output, I²S at up to 24-Bits and 96 kHz output rate
- 4 channel PCM input
- IEC 60958/61937 capabilities

External Interface

- Serial master/slave ports for controlling DVD device
- Programmable bidirectional I/O pins
- All pins not used for other function can be reassigned as general purpose I/O pins
- Hardware assisted support for infrared remote devices, such as remote control, infrared key-board, mouse, printer, and more
- Programmable parallel host master interface supports formats including ATAPI, ISA, and more
- I/O channel interface supports all DVD loader protocols

Video Processor

- On screen display module supports 2-Bit, 4-Bit, or 8-Bit pixel modes. It supports 3 separate regions and 16 transparency overlay levels
- High quality scaling using 16 tap polyphase programmable vertical and horizontal filters, to support any size image up to 768 x 576
- Five tap programmable anti-flicker filter

Video Encoder

- Three 10-Bit video DAC's, drives 37.5 Ω load directly
- Progressive or interlaced mode output
- 3:2 pulldown support
- Supports PAL (B,D,G,H,I,N) and NTSC
- Component (RGB or YUV) or Composite + S-Video output
- Macrovision™ 7.1 support (interlaced) and Macrovision™ 1.03 support (progressive)
- Wide-screen signaling support (interlaced and progressive) and CGMS support
- Closed captioning support

Cirrus Logic, Inc. Corporate Headquarters

4210 S. Industrial Drive
Austin, TX 78744
USA
T (512) 445-7222
T (800) 888-5016
F (512) 912-3977
www.cirrus.com

WORLDWIDE DISTRIBUTION

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**Japan
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5-6 Niban-cho, Chiyoda-ku
Tokyo, Japan
T 81-3-5226-7390
F 81-3-5226-7677

**Asia
Cirrus Logic Intl. Ltd.**
20F., Ocean Building
80 Shanghai Street
Kowloon, Hong Kong, China
T 852-2376-0801
T 852-2314-9920
F 852-2375-1202

**Europe
Cirrus Logic UK**
4-5 Anglers Court
33-44 Spittal Street
Marlow, Bucks SL71DB
England
T 44-0-1628-472-211
F 44-0-1628-486-114

For more information, visit us at www.cirrus.com