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**LuxSonor
Semiconductors**
multimedia innovations

The LuxSonor LS528
A Low-Cost Solution for the DVD Market!

The LuxSonor LS528 DVD decoder is the most competitive solution for the DVD set top market. The high level of on-chip integration reduces total system cost and allows for a clean solution for high-performance decoding. The LS528, a DVD loader, memory and a few mixed signal components are all that is required to build a powerful low to mid-end solution.

Small Size and Powerful Features

The LS528's small 128 pin package allows system manufacturers to decrease system cost—but don't let the small size fool you! Superior system-on-chip integration is the key to system cost-down—without any loss in features or performance. In addition to the internal MPEG decoder that supports DVD, VCD and SVCD video standards, the LS528 also supports CD-DA and MP3.
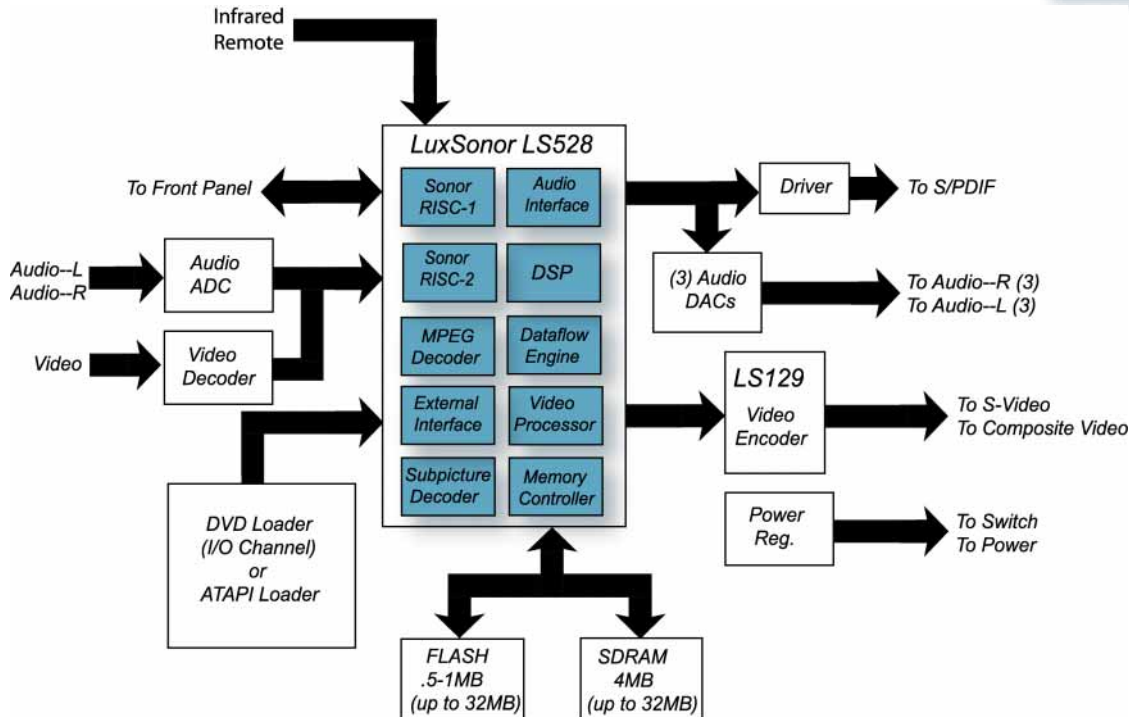
Equipped with an intuitive On-Screen-Display (OSD) and Graphic User Interface (GUI), the LS528 provides a high level of functionality in DVD menu control and interaction. The LS528's optional software customization allows each of our customers to differentiate their product in one of the fastest growing and competitive markets today.

The LS528 is a highly-integrated System-on-Chip solution that provides powerful processing and significant system cost reduction for set top DVD players

Key Features

- **32-Bit RISC Processor Design for Extra Performance**
- **Internal DSP supports AC-3, MPEG, and MP3 audio standards**
- **DSP reserve bandwidth handles 5.1 down-mix and karaoke echo mix & pitch shift**
- **MPEG decoder supports VCD, VCD 3.0, SVCD, and DVD video standards**
- **Flexible interface connects ATAPI, local bus or u-less DVD loaders without external logic**
- **Powerful Graphic Engine with Advanced Vertical Flicker Filter**
- **Advanced sub-picture unit handles DVD and SVCD, and PAL<->NTSC scaling**
- **8-bit multi-region OSD**
- **2 Channel audio input from ADC for karaoke or IEC-958 receiver**
- **Super On-Chip Integration for Low Cost and Low Count Bill of Materials**

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LS528 Device Details:

System Characteristics

- Powerful 32-bit RISC processor
- Sub-picture Processor
- System time clock (STC) for audio/video synchronization
- 128-pin PQFP package.
- All I/O pins are 3V with 5V tolerance.
- Advanced 0.25 micron CMOS technology.
- Chip runs at 81 MHz
- Supports Low power modes and clock shutoff.

MPEG Video Decoder

- Supports VCD, VCD 3.0, SVCD, DVD video standards .
- Supports trick features, including smooth 2x play and reverse play.
- Special anti-tearing logic controls picture decode and presentation.

- Advanced error concealment hardware.

Video Processor

- Supports 24 bit 4:2:0 and 4:2:2 YUV video modes, and 16 bit RGB true color graphics modes.
- On screen display module supports 2-bit, 4-bit, or 8-bit pixel modes. It supports 3 separate regions and 16 transparency overlay levels.
- Picture-in-picture module includes horizontal and vertical down-scaling. Supports programmable output sizes, positions, and borders.
- 5 taps programmable adaptive anti-flicker filtering for Graphics source.

Memory Controller

- Supports SDRAM, and SGRAM,

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

External Interface

- Serial I²C master and slave port.
- Hardware assisted support for infrared remote devices, such as remote control, infrared keyboard, mouse, printer, and more.
- Programmable parallel host master interface supports many formats including ATAPI, ISA, and more.
- IO channel interface supports standard DVD loader protocols

Audio Interface

- 8 output channels, 2 input channels.

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