

ZiVA™-5 DVD System Processor



SUPER INTEGRATION FOR DVD

Building on LSI Logic's feature-rich and mature ZiVA™ decoder technology, the ZiVA-5 DVD system processor enables powerful new features and integrates multiple DVD system components onto a single chip. ZiVA-5 provides full compatibility with DVD-Video, DVD-Audio, DVD-VR, Chaoji-VCD (CVD), SuperVCD, VCD, CD-DA, and CD-ROM formats like MP3.

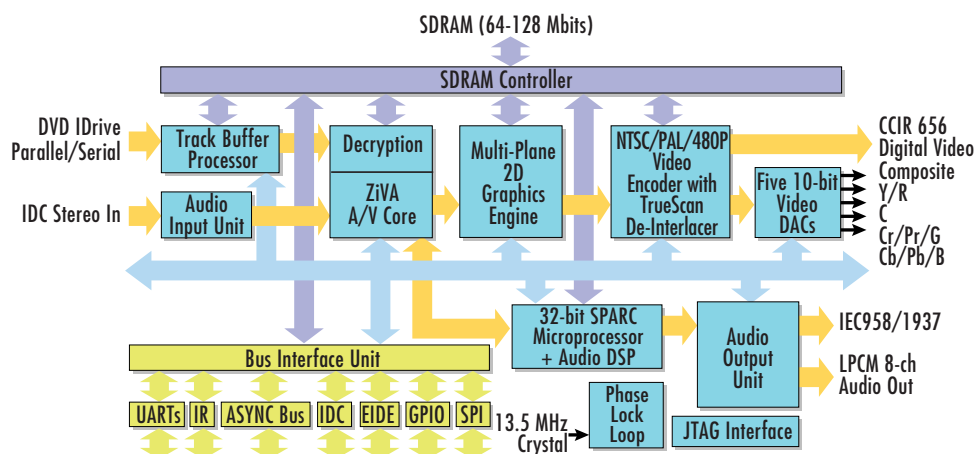
ZiVA-5 incorporates an enhanced video encoder with five, 54 MHz high-precision video DACs. The video encoder supports PAL, NTSC, and 480P signaling and is fully programmable for color saturation, contrast, brightness, and sharpness. The video outputs are compliant with both Macrovision 7.1.L1 for interlaced video (NTSC, PAL) and Macrovision AGC 1.03 for Progressive Scan (480P).

A track-buffer processor is integrated on-chip to parse, frame, and perform error processing on all DVD and CD sector types.

HIGH PERFORMANCE

ZiVA-5 incorporates a high-performance 32-bit SPARC CPU with DSP extensions for audio processing and special features. The SPARC CPU incorporates dual execution units, each operating at 150 MHz, making it a superior platform for applications development. The SPARC CPU is designed to act as the DVD system host processor, thus eliminating the requirements for an external host CPU and its associated memory.

ZiVA-5 includes a high-performance 32-bit 2D graphics processor for rendering ergonomic, next-generation graphical user interfaces and graphics-based applications such as Internet browsers, games, and still-picture browsers.



ZiVA™-5 Block Diagram



FEATURES

- 150 MHz 32-bit SPARC processor with DSP extensions
- Dual audio DSP architecture
- Proven ZiVA A/V decoder core
- Embedded track buffer processor
- High-performance 2D graphics engine
- Direct connection to multiple DVD drive types
- Full DVD-audio support including MLP decode, CPPM, and audio watermark detection
- Video encoder with five 10-bit, 54 MHz DACs for NTSC, PAL, and 480P signaling
- TrueScan™ field-adaptive de-interlacer for high-quality progressive scan
- MP3 audio codec
- Multiple GPIO



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FLEXIBILITY

The DVD drive input of ZiVA-5 is highly configurable and can support most serial-stream and parallel-stream type drives, as well as IDE (ATAPI) drives.

ZiVA-5 is the first DVD system processor with the ability to encode digital audio streams into MP3 files. Consumers can now create their own MP3 files without a PC.

In addition to CSS for DVD-Video, ZiVA-5 provides Copy Protection for Pre-recorded Media (CPPM) and audio watermark detection for DVD-Audio.

LOWER TOTAL SYSTEM COST

ZiVA-5's Unified Memory Architecture (UMA) ensures the lowest possible system memory cost by eliminating costly memory sub-systems scattered throughout the system. The SPARC CPU, track buffer processor, graphics engine, and Audio/Video decoders operate from a single memory sub-system.

ZiVA-5 provides a platform for applications development based on LSI Logic's C-Ware™. C-Ware is a modular, component-based architecture that enables re-use of applications on LSI Logic's SPARC-based products, thereby reducing customer design efforts.

Video	Decoding Standards	MPEG-1, MPEG-2
	Compressed Resolutions	720 x 480 @ 30 Hz, 720 x 576 @ 25 Hz 480 x 576 @ 25 Hz 352 x 480 @ 30 Hz, 352 x 576 @ 25 Hz 352 x 240 @ 30 Hz, 352 x 288 @ 25 Hz
	Formats	NTSC, PAL, 480P, CCIR 601/656
	Compatibility	DVD, DVD-VR, Chaoji VCD, VideoCD, S-VCD
	Content Protection	CSS
Audio	Graphics Processor	Multiple planes/color modes, mixing, cursor, scaling
	Decoding Standards	MPEG-1 and 2, Layers I, II, and III (MP3), MPEG2 5.1, Dolby Digital Class A, MLP, DTS, Dolby Prologic, and HDCD
	Encoding Standards	MPEG-1 Layer III (MP3)
	Compatibility	DVD-Audio, CD-DA, HDCD, CD-ROM (MP3)
	Input Channel	IDS, IEC958
	Output Channels	2- to 8-channel PCM output and IEC-1937/958
	Content Protection	Watermark detection and CPPM for DVD-Audio
	Sample Rates	MPEG-1, MPEG-2, Dolby Digital, DTS, and DVD-Audio up to 192 KHz
System	Compressed Data Input	8-bit DVD, serial DVD, serial CD w/ subcode, 16-bit host, and ATAPI
	Peripheral Interfaces	Two 16550 UARTs, SPI, IR, IDC, IEC 958 inputs, GPIO, Asynchronous bus interfaces
	DVD Drive	ATAPI, UDE, VSTEM, and other proprietary parallel/serial interfaces
Physical	Memory	64 - 128 Mbits SDRAM
	Operating Voltage	3.3V I/O (5V tolerant), 1.8V core
	Clock Frequencies	Input Frequency = 13.5 MHz Operating up to 150 MHz
	Packaging	208-pin PQFP

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