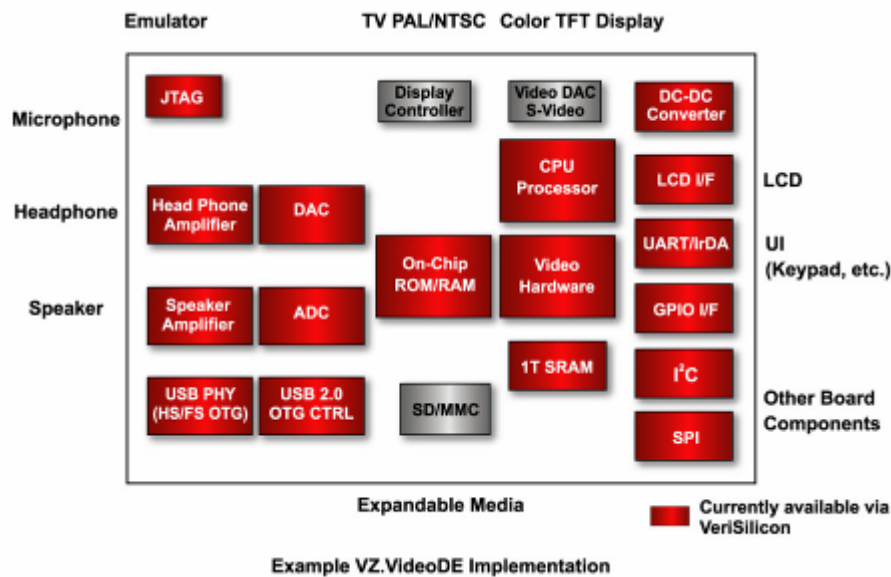


VZ.VideoDE

A Complete Video Decode Application Platform

Portable Video Market Trends

Portable multimedia devices and mobile handsets are quickly moving towards supporting higher and higher levels of multimedia capabilities. This includes not only imaging capabilities, such as JPEG, but multi-standard video capabilities including new standards such as H.264 and VC-1. According to iSuppli, with Mobile Handset Display Shipments in 2006 amounting to 1.2 Billion Units, one can easily see the large opportunity that portable video devices can represent. Video and audio for these types of devices share similar requirements, lowest possible power and small silicon footprint, end-product requirements often dictates the most suitable form of solution. For video, most portable devices need to support a fixed number of standards with resolutions up to D1 on potentially both decode and encode functions. For these applications, hardware centric solutions often offer a better solution, in terms of power and silicon area, than a programmable processor. VeriSilicon is the silicon solutions company with the products, solutions and services that enable our customers to overcome design challenges, accelerate development cycles and deliver market proven silicon products at lower cost.



VZ.VideoDE

The VZ.VideoDE (Decode only) provides an ultra-efficient video SoC platform to tackle the most challenging portable use cases. Different hardware video bundles are available ranging from H.264 baseline profile only to H.264, VC-1, MPEG-2, MPEG-4. In addition to supporting multi-standards, each bundle is also able to support simultaneous multi-standard playback. While implemented in hardware, each video bundle retains flexibility at a features and a systems level. At the features level, bundles are controlled by an internal programmable processor for those items that require high flexibility and low performance, such as error resilience and flexible macroblock ordering. At the systems level, each video bundle is controlled by the CPU processor where the processor performs other systems tasks as well audio decode. All components are licensable from VeriSilicon for use in a customer's silicon product and also available as part of VeriSilicon's complete ASIC turnkey service.



Target Applications

- Mobile handsets
- Auto Infotainment
- DVB-H, DMB

Platform Features

- Multi-standard video hardware for resolutions up to D1
- Full range of commonly required video technologies: H.264, VC-1, MP4, MPEG-2, etc.
- Full-duplex, half-duplex multi-standard modes
- State-of-the-art, programmable error resilience and bit processing

Platform Benefits

- Ultra low-power, silicon efficient design
- Software programmability for after-market production
- One-stop-shop minimizing design time and system risk



VZ.VideoDE

A Complete Video Decode Application Platform

VZ.VideoDE Semiconductor IP

- Video Hardware
- Resolution support up to D1, 30 fps
- CPU Processor
 - ZSPneo, ZSP210, ZSP410 (See VZ.Audio)
 - ARM7, ARM926, ARM922T
- V.B lox Library IP
 - Digital: I2C, SPI, USB 2.0, 1.1 controller, LCD I/F, etc.
 - Analog: Audio ADC/CODEC, DC-DC converter, USB 1.1, 2.0 PHY, etc..

VZ.VideoDE Currently Supported Standards

Video

- H.263
- MPEG-4 Simple Profile
- MPEG-4 Advanced Simple Profile
- H.264 Baseline and Main Profile
- VC-1 Simple and Main Profile
- MJPEG
- MPEG-2

Example Configurations

- BodaDx3: H.263, MPEG-4, H.264 Decode
- BodaDx4: H.263, MPEG-4, H.264, VC-1 Decode

Audio

- MPEG L1, L2, L3 (MP3)
- MPEG-4 AAC LC
- MPEG-4 Bit Sliced Arithmetic Coding
- High Efficiency (aacPlus)
- SBC
- GSM AMR-NB
- GSM AMR-WB
- WMA9
- Ogg Vorbis
- FLAC
- ATRAC

VZ.VideoDE System Performance Example

Standards Compliance

- ISO/IEC 14496-10 AVC BP@L3
- ISO/IEC 14496-4 MPEG-4 SP@L5
- ITU-T H.263 P3
- SMPTE VC-1 SP/MP@ML

Performance

- CIF 30 fps decoding @ 20 MHz
- VGA 30 fps decoding @ 60 MHz
- D1 30 fps decoding @ 66 MHz

- Required host processor resource to run: less than 1 MIPS

VZ.VideoDE System Power

VZ.VideoDE System Power	
Case 1. AAC LC Stereo MPEG-4 SP QVGA 15 fps Transport System Demux & Synch	5.1 mW
Case 2. aacPlus H.264 BP D1 30 fps Transport System Demux & Synch	23.5 mW

Note: Power includes video logic and internal memory for a 90 nm process & ZSP as host

About VeriSilicon

VeriSilicon Holdings Co., Ltd ("VeriSilicon") is a fast growing silicon solutions company providing products and services that enable customers to meet their chip design objectives, accelerate development programs and deliver market proven silicon products - on time and at lower cost. VeriSilicon specializes in providing expert design services, market leading ZSP® licensable cores and platforms, industry standard semiconductor IP and scalable ASIC turnkey services across a broad range of application markets, including multimedia, voice and wireless communications. VeriSilicon has design, operation and sales and support offices in Santa Clara, California, Dallas, Texas, Shanghai and Beijing, China, Taipei, Taiwan, Tokyo, Japan, Nice, France and Seoul, Korea. For more information, visit www.verisilicon.com.

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