National Semiconductor

ADVANCE INFORMATION
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AVC5000
Integrated Dual 3D Video Format Converter

General Description

The highly integrated AVC5000 dual 3D adaptive video converter accepts standard-and high-definition baseband analog and digital video inputs and processes them for display in single or multiple windows on the television screen. Standard video formats up to 1080p resolution with a 60 Hz frame rate are supported. The converter is comprised of two main blocks-a universal front-end and a dual-channel display processor. The universal front-end accepts standard- and high-definition video formats, PC graphics formats and DVI signals, and decodes the signals into component video or RGB. Any two outputs from the universal front-end can be selected for the dual-channel display processor. The dual 3D architecture features two 3D decoders, two 3D noise reducers, two 3D deinterlacers, two high-order scalers for size and aspect ratio scaling, luma and chroma enhancement, frame-rate-conversion, adaptive contrast enhancement, multi-picture functions (PIP/PAP/POP) including side-by-side display of two full-quality images on a wide screen, intelligent color remapping and overlay of a bit mapped on-screen-display (OSD). The output signal formats include analog RGB or YPbPr for CRT displays and TTL or LVDS for flat panel or microdisplay.

Features

Inputs

- Five CVBS
- Three Y/C
- One standard- or high-definition component
- One high-definition component
- One VGA/HD
- One SCART (RGB) with fast blank/HD component
- One DVI-HDCP
- Two 24-bit digital flexiport ports, each configurable as RGB, Y/C or ITU-R BT656

Outputs

- Supports standard video formats up to 1080p resolution with a 60 Hz frame rate
- One 24-bit TTL configurable as ° 24-bit RGB ° 20-bit Y/C
- Dual channel LVDS, configurable for 6-, 8- or 10-bit panels, including interlaced (AliS) PDP
- Triple 10-bit DACs rated at 250 MHz
- One ITU-R BT656 for MPEG or video encoders
- One analog CVBS Monitor Out (pass through)

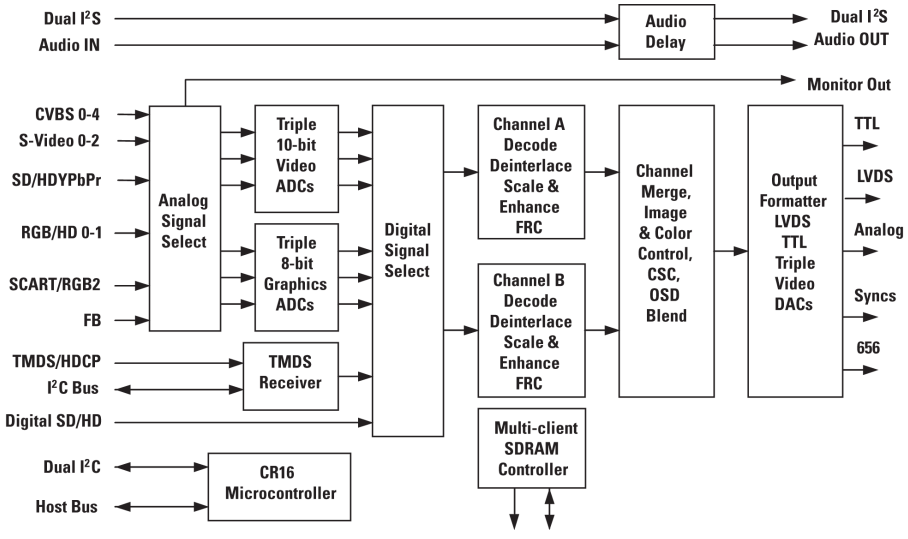
Packaging

- 544-ball PBGA (35 mm, 1 mm ball pitch)

Applications

- Digital televisions
- Integrated HDTV televisions
- Audio video receivers

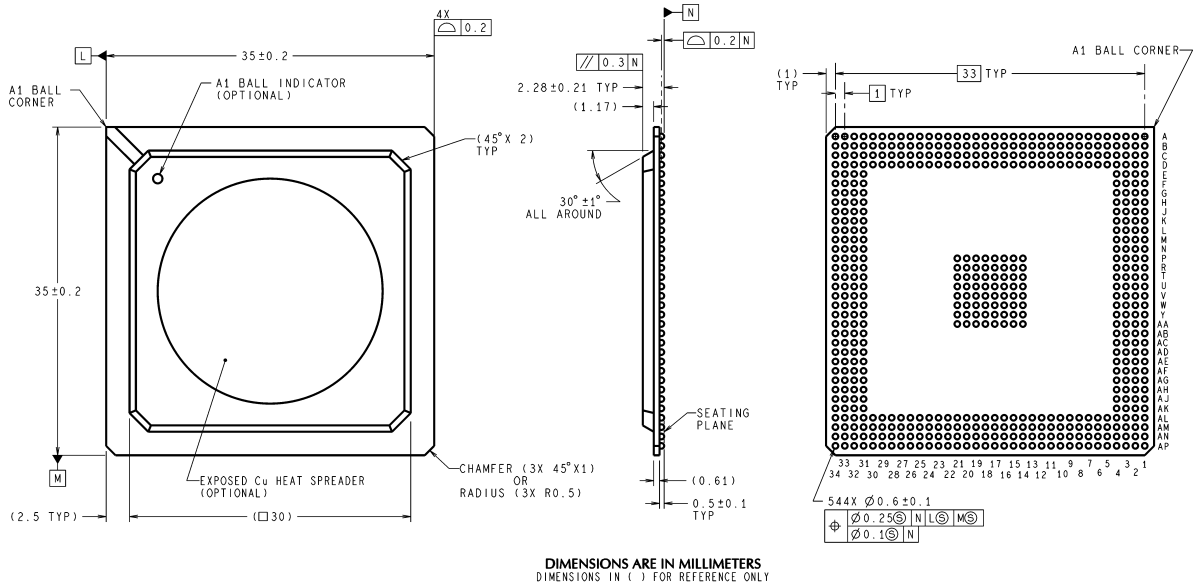
Simplified Block Diagram



Functions

- Three A/D converters for graphics, SCART and standard- or high-definition component video
- Three A/D converters for NTSC/PAL/ SECAM CVBS, S-Video and standard definition component video
- Max input video resolution up to 1920x1080 @ 60p
- Max input graphics resolution up to UXGA - 1600x1200 @ 60Hz (165 MHz)
- WUXGA graphics (1920x1200) can be supported using external 205 MHz A/D converters
- Dual NTSC/PAL/SECAM decoders with 3D Y/C separation (NTSC and PAL) with auto-format detection and VBI slicing and decoding
- Dual 3D spatio-temporal noise reduction for standard- and high-definition video
- Dual 3D deinterlacing for standard- and high-definition video
- Two scalers for full PIP/POP/PAP with video or graphics inputs
- Up to 16 tiled freeze-frame PIP images in channel-scan mode
- 2D luma and horizontal chroma edge enhancement
- Advanced frame-rate-conversion
- Interlaced (field) or progressive (frame) output options
- Maximum output resolution of 1920x1080 @ 60p (148.5 MHz) or 1920x1200 @ 60p (191 MHz)
- Multi-plane OSD functions: 2D bit mapped OSD engine, character OSD, HW sprite
- Support for external OSD: analog SD via SCART interface or digital at output resolution via digital input interface
- Dual channel PCM audio delay compensation
- Adaptive contrast enhancement
- Intelligent color remapping
- PWM backlight control for LCD panels
- Embedded RISC processor

Physical Dimensions inches (millimeters) unless otherwise noted



UFJ544A (Rev A)

544 pin PBGA Package

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