



ABT1030 Video Processor

High Performance Video Format Converter Chip

The ABT1030 is a high performance video format conversion IC designed for standard definition up converting applications in A/V Receivers, Blu-ray® players/recorders, docking stations, HDMI® adapters and set-top-boxes.

Applications

- ◆ A/V Receivers
- ◆ Blu-ray Players
- ◆ Docking Stations / Adapters
- ◆ Up converting Set-top-boxes

Key Features

- ◆ PReP™ – Progressive Re-Processing
- ◆ Standard Definition Precision Deinterlacing
- ◆ Precision Video Scaling for up-conversion to 1080p
- ◆ Pass-through mode for all formats
- ◆ CEA-861D compliant timing
- ◆ HDMI 1.3 Deep Color and xvYCC colorimetry

PReP™

- ◆ Industry's first technology to recover the original interlace signal from a poorly deinterlaced source

The ABT1030 features Video Reference Series™ (VRS™) technologies, including Silicon Image's proprietary Precision Deinterlacing™, which provides arbitrary cadence detection as well as five-field motion and edge-adaptive deinterlacing for standard definition formats. The Precision Video Scaling™ engine independently scales an image horizontally and vertically to achieve outstanding picture quality. The ABT1030 also includes Progressive Re-Processing™ (PReP™) technology; a unique processing method that recovers the original interlace signal from a low quality progressive video signal for processing by the Precision Deinterlacing engine.

The ABT1030 supports Deep Color with 12-bit input and output resolutions.

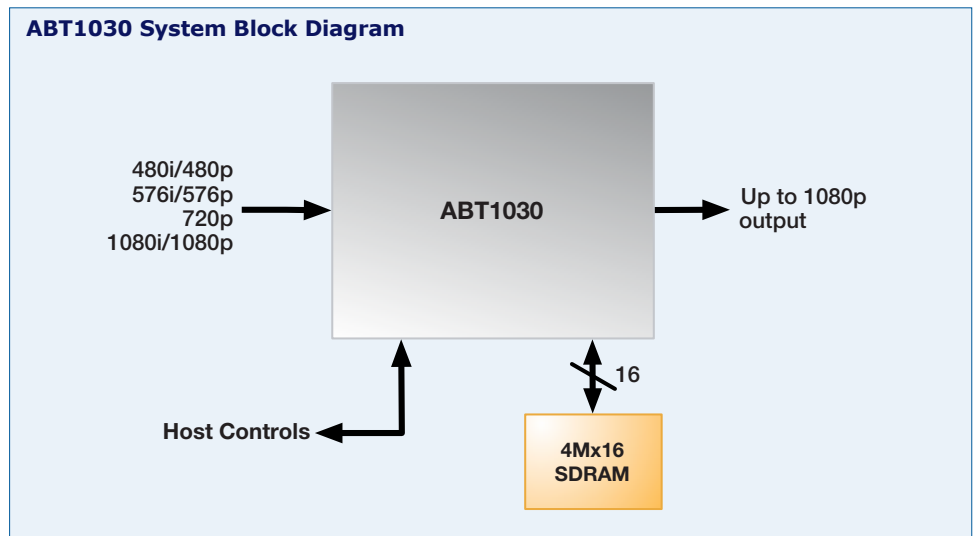
Precision Deinterlacing

- ◆ Award-winning deinterlacer supporting Standard Definition (480i, 576i) inputs
- ◆ Arbitrary cadence detection (any-to-any) to detect 2:2, 3:3, and non-standard cadences
- ◆ Five-field motion and edge-adaptive deinterlacing
- ◆ Three-frame video processing with low-latency gaming modes
- ◆ Bad edit detection to minimize artifacts caused by sequence breaks in film content
- ◆ Detection of multiple source types within a frame – for example, video titles over film
- ◆ Detection of transitions between different progressive source types

Precision Video Scaling

- ◆ Award-winning vertical and horizontal up and down scaling engine supporting a wide range of PC and video formats
- ◆ Panoramic stretch and Pillar-box mode to support 4:3 content on a 16:9 display

ABT1030 System Block Diagram



ABT1030 Video Processor

High Performance Video Format Converter Chip

Picture Controls

- ◆ Brightness, contrast, saturation, sharpness, sub-pixel YC delay
- ◆ Output black level controls
- ◆ Dynamic Range Expansion and Compression

Input

- ◆ 24/30/36-bit RGB/YCbCr 4:4:4
- ◆ 16/20/24-bit YCbCr 4:2:2
- ◆ 8/10/12-bit YCbCr 4:2:2 (ITU-R BT.656)
- ◆ Supports a wide range of video formats including 1080p
- ◆ Separate and embedded syncs, DE generation, BT.656 support
- ◆ Other resolutions are supported but may require an external PLL
- ◆ 165MHz maximum input clock

Output

- ◆ 24/30/36-bit RGB/YCbCr 4:4:4
- ◆ 16/20/24-bit YCbCr 4:2:2
- ◆ 8/10/12-bit YCbCr 4:2:2 (ITU-R BT.656)
- ◆ Supports a wide range of video formats including 1080p
- ◆ Other resolutions are supported but may require an external PLL
- ◆ 165MHz maximum output clock

Test Pattern Generator

- ◆ Flexible test pattern generator under software control to provide reference test patterns for display calibration.

Pass Through Mode

- ◆ All formats including 1080p and 3D

Controls and Clocks

- ◆ I²C-compatible serial interface
- ◆ Integrated PLLs
- ◆ 27MHz crystal with oscillator input option

Memory

- ◆ One 4Mx16 166MHz single data-rate SDRAM
- ◆ No memory option for low cost implementation

Package

- ◆ 176-pin LQFP

Voltage

- ◆ 1.8V Core
- ◆ 3.3V I/O

Power

- ◆ <2.2 W

Enhancing the connected HD experience

1060 E. Arques Ave., Sunnyvale, CA 94085

T 408.616.4000

F 408.830.9530

www.siliconimage.com

© 2011 Silicon Image, Inc. All rights reserved. Silicon Image, the Silicon Image logo, Precision Video Scaling, are trademarks or registered trademarks of Silicon Image, Inc. in the United States and/or other countries. HDMI, the HDMI logo, and High-Definition Multimedia Interface, are trademarks or registered trademarks in the United States and/or other countries and are used under license from HDMI Licensing, LLC. MHL, the MHL logo, Mobile High-Definition Link, are trademarks or registered trademarks in the United States and/or other countries and are used under license from MHL, LLC. All other trademarks are the property of their respective owner in the United States and/or other countries. Product specifications are subject to change without notice. Printed in USA 04/11 Sil PB-1088