

NTSC/PAL/SECAM Adaptive 3D Comb Filter Video Decoder

CVD2 Product Brief

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Description

Zoran's CVD2 Video Decoder is a silicon efficient, cost effective, high video quality Intellectual Property Core for IC designs requiring video input. The CVD2 decodes NTSC/PAL/SECAM composite video or S-video and converts it into YUV 4:2:2, 16-bit digital video. Employing adaptive 3D comb filter technology, the CVD2 is able to provide the highest quality Y/C separation while maintaining excellent frequency response. Color transient enhancement provides for fast transitions on color boundaries. The result is sharp, high detail video that eliminates unwanted dot crawl and false color effects. A fully digital design, the CVD2 requires the addition of only an A/D (two for S-Video support), a DC restore circuit and frame buffers for implementation.

CVD2 is based on Zoran's extensive experience delivering high quality, high volume video ICs to major OEMs worldwide. Proven in silicon, the CVD2 Video Decoder greatly reduces the risk and time involved when integrating the video decoding function into an IC.

Deliverables

- RTL (Verilog) source code
- Bit accurate C++ model
- Synopsis synthesis scripts
- Test input files
- Documentation
- FPGA evaluation board available

Features

- Decodes NTSC, PAL or SECAM composite video or S-Video into the YUV 4:2:2 format
- Component video inputs supported
- Decodes all variations of the NTSC standard
- Decodes all variations of PAL standard
 - (I, B, G, H, D, N, M, combination N)
- Excellent quality Y/C separation
 - minimizes cross luma and cross color effects
- Superior frequency response preserves fine detail
- VBI decoding supported
- Accepts up to 11-bit inputs from A/D converter
- Digital automatic gain control (AGC) supported
- Silicon efficient design of approximately 130k gates
- Adaptive 3D Comb Filter for highest video quality
- Robust motion detection
- Adaptive 2D Comb Filter used where motion is detected:
 - 3-line 2D Comb Filter for NTSC & PAL
 - 5-line 2D Comb Filter for PAL (optional)
- Color transient enhancement
 - provides apparent color bandwidth to 3 MHz
- Auto-detects video standard (NTSC, PAL or SECAM)
- Auto-detects and locks to VCR trick modes
- Decodes weak and noisy off-air signals
- Auto-detects and decodes Macrovision copy protection
- Requires only a single clock input ranging from 20 to 30 MHz
- Process technology independent, fully synchronous design

Applications

- LCD controllers
- Digital TV decoders
- Game processors
- PC video capture devices
- Set top box decoders
- Any IC requiring video input

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Figure 1. Block Diagram of the CVD2 Intellectual Property Core

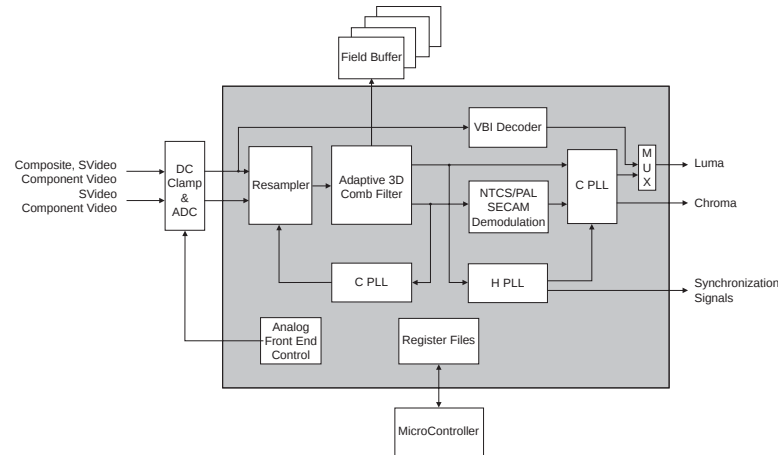
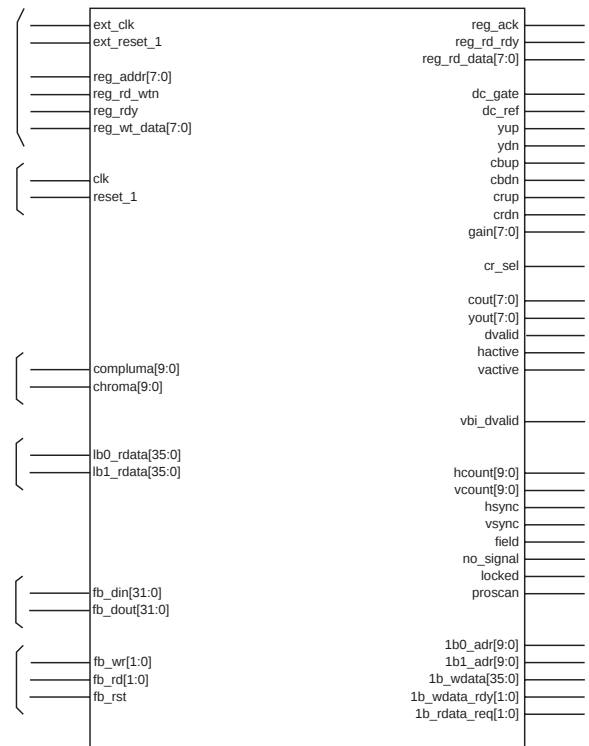


Figure 2. CVD2 Logical Pinout



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