To request the full datasheet, please visit www.intersil.com/products/tw9920

Analog Video Decoder/Encoder

TW9920

The TW9920 is a multistandard video decoder and encoder chip that is designed for multimedia applications. This low power, integrated solution has a 4H comb filter based NTSC/PAL/SECAM video decoder that converts analog CVBS or S-Video signals into digital YCbCr output. The integrated analog video encoder converts digital YCbCr inputs into analog CVBS or S-Video output.

Features

Video Decoder

- NTSC (M, 4.43) and PAL (B, D, G, H, I, M, N, N combination), PAL (60), SECAM support with automatic format detection
- Software selectable analog inputs allow any of the following combinations, e.g., 4 CVBS or (3 CVBS and 1 Y/C)
- Two 9-bit ADCs and analog clamping circuit
- Fully programmable static gain or automatic gain control for the Y channel
- Programmable white peak control for the Y or CVBS channel
- 4-H adaptive comb filter Y/C separation
- PAL delay line for color phase error correction
- Image enhancement with 2D peaking and CTI
- Digital subcarrier PLL for accurate color decoding
- Digital horizontal PLL for synchronization processing and pixel sampling
- Advanced synchronization processing and sync detection for handling nonstandard and weak signal
- Programmable hue, brightness, saturation, contrast, sharpness, Gamma control, and noise suppression
- Automatic color control and color killer
- Detection of level of copy protection according to Macrovision standard
- Programmable output cropping
- ITU-R 601 or ITU-R 656 compatible YCbCr(4:2:2) output format
- VBI slicer supporting industrial standard data services
- VBI data pass through, raw ADC data for Intercast™

Video Scaler

- High quality horizontal filtered scaling with arbitrary scale down ratio
- Phase accuracy better than 1/32 pixel
- Selectable antialias filter
- Vertical down scaling by line dropping

Video Encoder

- Support NTSC/PAL and its substandard format output
- ITU-R 656 compatible video interface
- Luminance and chrominance filter
- Stable 27MHz crystal clock for subcarrier generation
- Five 10-bit digital-to-analog converters at 27MHz sample rate for generating CVBS or Y/C and YCbCr simultaneously

Miscellaneous

- Two-wire MPU serial bus interface
- Power-down mode
- Field locked audio clock generation
- Typical power consumption 0.62W
- Single 27MHz crystal for all standards
- Supports 24.54MHz and 29.5MHz crystal for high resolution square pixel format decoding
- 3V tolerant I/O
- 2.5/3.3V power supply
- VFBGA package

Block Diagram

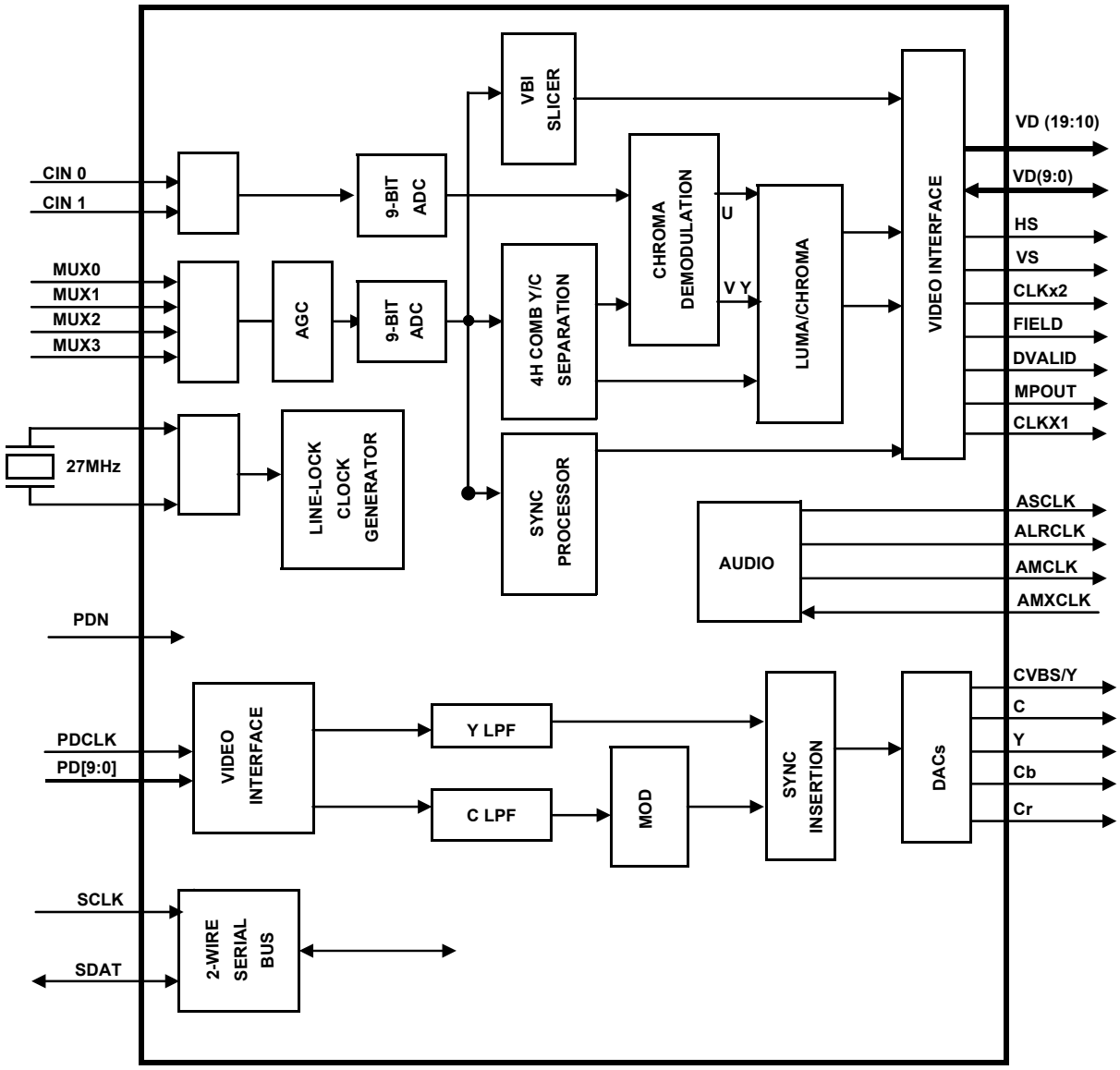

FIGURE 1. BLOCK DIAGRAM