

# Techwell

Mixed Signal Semiconductor Solutions



TECHWELL  
TV CAPTURE  
CARD

## Multistandard Decoders with PCI for Multimedia PC Applications



### Features

## TW6800

PCI Interface Single-Chip Video Decoder

### Target Applications

- PC TV Tuner Card
- PC TV Capture Card
- PC-based Security

**The TW6800 contains all the components required to convert standard NTSC/PAL/SECAM analog TV input signals to digital form for output on a PCI bus. A digital GPIO input allows direct connection to digital video streams from MPEG decoders and other components.**

### PCI I/O and GPIO

- PCI Rev. 2.2 compliant
- ACPI support
- Integrated DMA controller
- Supports Windows scatter and gather
- Large 256x32bit PCI video FIFO
- Programmable field or frame modes
- Flexible 24-bit wide GPIO port supports ITU-R or ITU-R 656 compatible format YCbCr (4:2:2) input or output
- Programmable RGB and YCbCr color space conversion
- Closed caption decoding accessed via PCI bus
- VBI data pass through to PCI
- Supports 2-wire serial bus master via PCI bus

The TW6800 uses the mixed-signal 3.3V CMOS technology to provide a low-cost and low-power integrated solution. Minimum external components are required due to its integrated analog front-end containing AGC, clamping, and three 8-bit high speed ADCs.

For composite inputs, an adaptive comb filter and luma/chroma processing produce exceptionally high quality pictures using proprietary techniques.

A high quality internal scaling engine offers arbitrarily filtered down scaling of the output picture.

A built-in Closed-Caption decoder and VBI data pass-through support data applications such as Teletext and Closed-Captioning.

### Analog-Input Digital Video Decoder

- NTSC (M, 4.43) and PAL (B, D, G, H, I, M, N, N combination), PAL (60), SECAM with automatic format detection
- Advanced synchronization processing for VCR fast forward, backward, and pause mode
- Software selectable analog inputs allows any of the following combinations:
  - Up to four composite video inputs
  - Three composite and one S-video inputs
  - Two 8-bit ADCs and analog clamping circuit.
- Fully programmable static gain or automatic gain control for the Y or CVBS channel
- Programmable white peak control for the Y or CVBS channel

### Video Processing

- Switchable notch filter or 2H comb filter
- PAL delay line for color phase error correction
- Image enhancement with programmable peaking
- Digital sub-carrier PLL for accurate color decoding
- Digital Horizontal PLL and advanced synchronization processing for non-standard video signals
- Programmable hue, brightness, saturation, and contrast
- Automatic color control and color killer
- High quality horizontal and vertical filtered scaling with arbitrary scale down ratio



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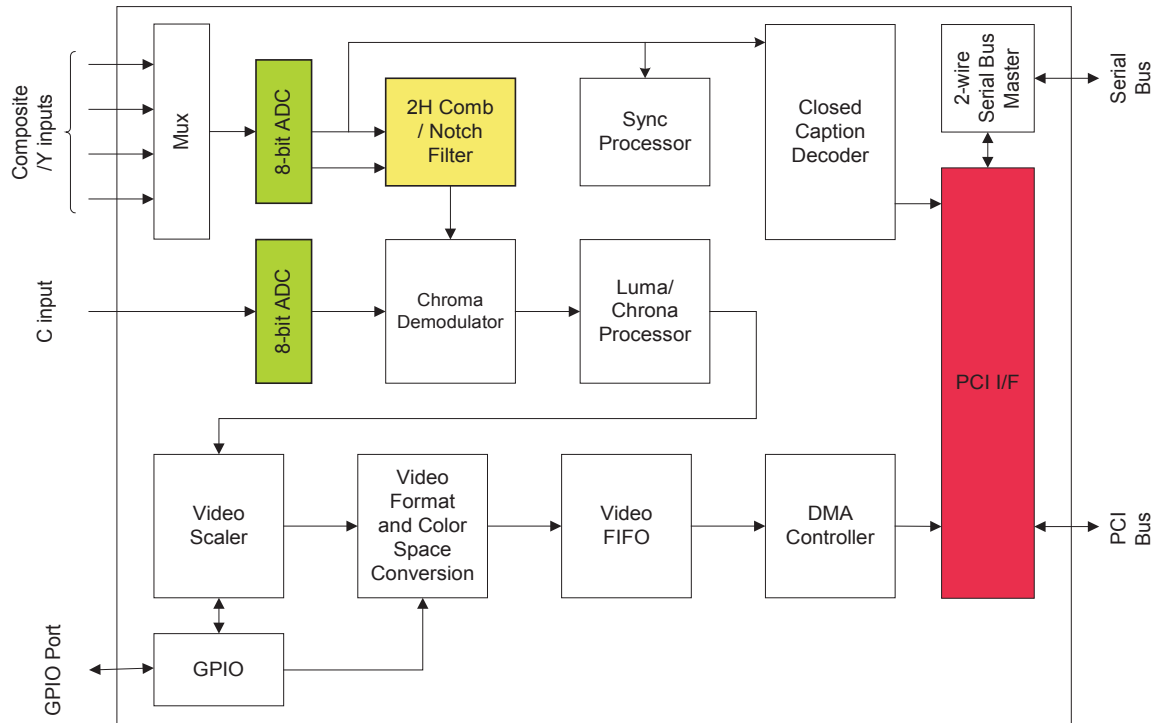
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## TW6800 Block Diagram



## Miscellaneous

- Power-down mode
- Microsoft WHQL Certified Software Drivers
- Single 27MHz crystal for all standards
- Supports 24.54MHz and 29.5MHz crystal for high resolution square pixel format
- 5V tolerant I/O
- 3.3V power supply
- VBI data pass through to PCI
- Supports 2-wire serial bus master via PCI bus
- 128-pin PQFP package

## About Techwell

Techwell designs and sells mixed signal semiconductor solutions for digital video applications. The company's products enable the conversion of analog video sources to digital form and facilitate the display, storage and transport of digital video, HDTV, and personal computer display information. Headquartered in San Jose, CA, Techwell currently has over 50 employees in the U.S., Korea, and Taiwan.

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