



TECHWELL
DISPLAY



Automotive Display ICs

TW8832

Cost-effective, highly integrated LCD controller for digital LCD panels

The TW8832 is a highly integrated cost-effective LCD controller supporting digital LCD panels. TW8832 integrates a high quality NTSC/PAL/SECAM 2D comb video decoder, 2D de-interlacer, and an improved H/V scaling engine. Additional features include a robust font-based OSD engine, independent mirroring functionality for the scaler and OSD, serial RGB output, and an LED backlight controller.

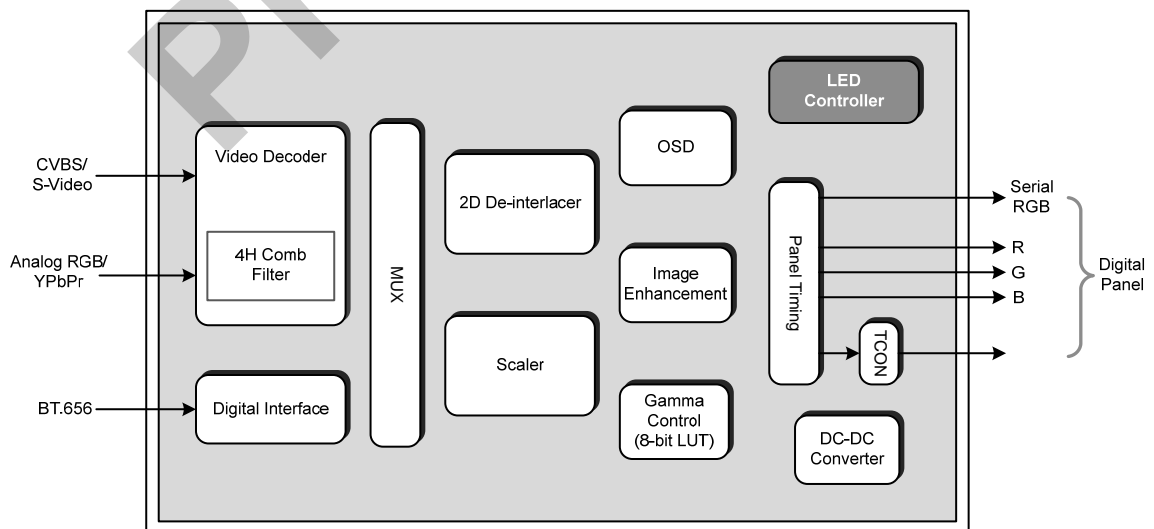
Target Applications

- Navigation + DVD + TV
- Back up Camera
- Rear Seat Entertainment
- Car TV
- Portable DVD
- PMP / PND / Portable TV
- Door Phone
- Photo Frame
- DMB TV
- Baby Monitor
- Home Automation
- In Flight Entertainment

Key Features

- Supports analog inputs including CVBS, S-Video, and Analog RGB/YPbPr (480p)
- Digital input interface supporting BT.656
- Drives digital panel up to SVGA resolution
 - Digital RGB with TCON or serial digital RGB
- Built-in font-based OSD with 256 programmable fonts and a 384 character display RAM
- Integrated LED backlight controller (single string)
- Supports VCOM-DC, VCOM-AC and spread spectrum clock
- Independent mirror function for the scaler and the OSD
- Embedded Image Enhancement
 - Programmable CTI, hue, brightness, saturation, contrast & sharpness control
 - Black/White Stretch
 - Programmable Gamma Correction table

TW8832 Functional Block Diagram



Analog Video Decoder

- NTSC (M, 4.34), PAL (B, D, G, H, I, M, N combination)
PAL (60), SECAM with automatic format detection
- Digital BT.656 input interface port
- Two 10-bit ADCs and analog clamping circuit
- Built-in analog anti-aliasing filter
- Fully programmable static gain or automatic gain control for the Y or CVBS channel
- Programmable white peak control for the Y or CVBS channel
- Software selectable analog inputs allows any of the following combinations:
 - 2 composite video
 - 1 S-Video
 - Analog RGB/YPbPr (480p)
- 4-H adaptive comb filter Y/C separation
- PAL delay line for color phase error correction
- Digital PLL for both color and horizontal locking
- 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

TFT Panel Support

- Supports a wide variety of digital single pixel active matrix TFT panels
- Supports digital TTL panels up to SVGA
- Supports 3, 4, and 6 bits per pixel format
- Supports serial RGB output

Font OSD

- Built-in Font OSD with 256 programmable fonts and 384 character display RAM. Supports Multi-color fonts by combining 3 single color fonts
- Multi-window OSD support with color pallet
- Support OSD overlay with alpha blending

Image Processing & Enhancement

- Built-in 2D de-interlacing engine
- Improved high quality H/V scaler engine
- Mirror function (scaler and OSD independently)
- Programmable hue, brightness, saturation, contrast
- Sharpness control with vertical peaking
- Programmable color transient improvement control
- Panorama / Water-glass scaling
- Programmable Gamma correction tables
- Black/White Stretch

LED Controller

- Boost-up
- DC and PWM Dimming Control
- Built-in Open LED Protection

Timing Controller (TCON)

- Support programmable interface signals for control
- Column (source) driver / row (gate) driver

Miscellaneous

- Supports 2-wire serial bus interface
- Spread spectrum clock support
- VCOM-DC, VCOM-AC, DC-DC converter
- Programmable panel VCOM offset control
- 5V tolerant I/O
- Power-down mode
- Single 27MHz crystal
- 1.8 / 3.3V operation
- Temperature rating: -40 C to +85 C
- 80-pin LQFP package

About Techwell

Techwell is a fabless semiconductor company that designs, markets and sells mixed signal integrated circuits in the security surveillance, automotive infotainment, and consumer markets. Founded in 1997, we currently have over 200 employees and are headquartered in San Jose, California, with additional R&D and sales activities in South Korea, Japan, Taiwan, and China. NASDAQ: TWLL