Etron 鈺創科技

Etron Technology, Inc.

EL7300

DATA SHEET

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Introduction

An LCD monitor is designed for users to get higher image quality and in the mean-time less power consumption than CRT monitor. Usually, an LCD monitor system is composed of a conversion board and a display panel. The conversion board is for input signal processing and for output format display, and the display panel performs different resolution according to input signal resolution set by the user.

The conversion board is composed of several functional components, and it can process the RGB signals from a PC VGA card or processes the digital (or video) signal from other sources and then output the processed data to the display panel in various data formats. The major components of the conversion board are ADC, PLL, SCALAR, OSD, and output formatter (specially designed to include a DSP). The digital image market has long been looking for a solution which can have a RGB input processing capability and here comes the EL7300.

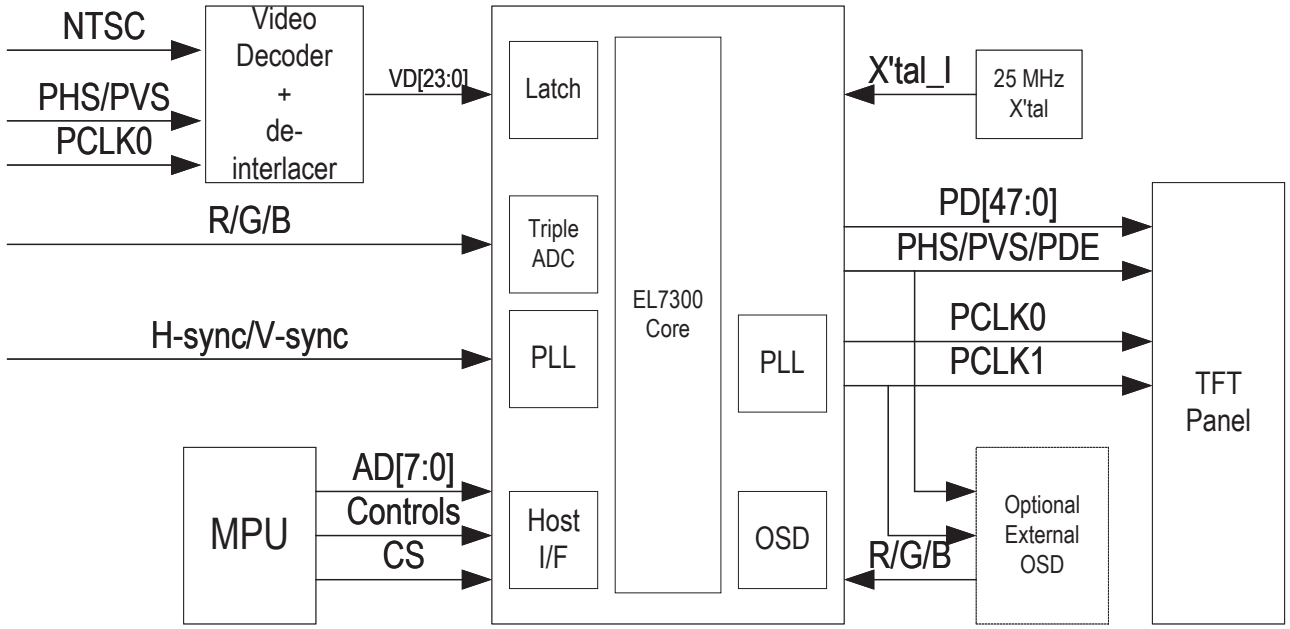
The EL7300 is a highly integrated single chip solution for the Flat Panel Display applications. A triple-channel ADC, two PLL circuits, one internal OSD, the most advanced scaling engine, and the sophisticated filters are all built in EL7300. An analog input port has been implemented to EL7300 in addition to the digital port, which supports the digital or video input.

The EL7300 contains three high resolution and high quality ADCs with low power consumption. It can directly capture RGB graphics signal from PCs and/or workstations, and through the use of the internal PLL such signals will then be converted to 8-bit digital data per channel. (EL7300 is designed to have two independent sets of PLL circuits, the internal PLLs provide for ADC's sampling clock and the panel clock.) The output frequencies range up to the resolution of SXGA with very small jitter (typically equal to 800ps).

A 128K-bit SRAM for OSD bitmap memory has been built in EL7300. The maximum resolution is up to 32K pixels in 16 colors or 64K pixels in 4 colors. Theoretically, the user can create any type of shapes, fonts, or logos for OSD windows.

To ensure the highest image quality can always be seen on the LCD, the EL7300 performs advanced interpolation algorithm and programmable filters by offering sets of parameters for different images. The digital input port can connect with a video decoder or with a TMDS receiver, and the image can be shown in a full screen image.

Figure: El7300 System block diagram Application in dual interface



Applications

- Digital/ Analog LCD Monitors
- Digital/ Analog LCD Projectors
- Other Flat Panel Display screens
- LCD TVs

Features

- Integrated three 8-bit resolution ADCs and pre-amplifiers
- Support for Fidelity mode without any frame buffers
- Programmable independent horizontal/vertical zooming (scaling up and down)
- Advanced scaling algorithm for excellent image quality
- Specialized adaptive filters for crisp images
- Additional data port support digital or video data input
- Support for video function with a video decoder and a de-interlacer
- On-chip OSD engine with a 128K-bit fully programmable bit-map memory, resolution up to 32K pixels/16-color format
- Support for optional external OSD
- Support for auto adjustment function for frequencies, phases, positions and white-balance
- Support for H/V sync interrupt and timing measurement function for mode detection
- On-chip PLLs
- On-chip Brightness, Contrast and Gamma-correction
- Support for 8-bit parallel (8051 compatible)/serial host interface
- Support for dithering function for 6-bit panels
- Support for single-/dual-pixel/clock panel interfaces
- Support for VESA DPMS
- 0.25μgm CMOS technology with 5V-tolerance input pads
- 160-pin PQFP packaging

Input Format

- Analog-RGB up to SXGA 1280*1024
- Support for digital inputs
- Support for video function with a video decoder and a de-interlacer through the digital input port
- 5V-tolerance input pads

Output Format

- Single-/dual-pixel digital RGB output
- Staggered output data bus and programmable driving current to simplify EMI design
- Support for 8/6-bit panels
- High quality dithering function
- Resolution up to 1280x1024 (SXGA)
- Support for 800*600, 1024*768 and 1280*1024 TFT-LCD panel
- Support for inverse and delay adjustment for panel pixel clocks
- Programmable Gamma table representing 10-bit output per color
- Fully programmable bit-mapped on-chip OSD with 128K-bit display memory; also supports optional external OSD
- A On-chip pattern generator to provide 16 built-in pattern run in system burn-in test

Others

- Support for power down mode
- Support for PWM outputs for inverter brightness control, and simplified system design

Ordering information

Part number	Speed	Package
EL7300Q-110	110MHz	PQFP-160
EL7300Q-140	140MHz	PQFP-160
EL7300Q-160	160MHz	PQFP-160