



# EL7301

## DATA SHEET

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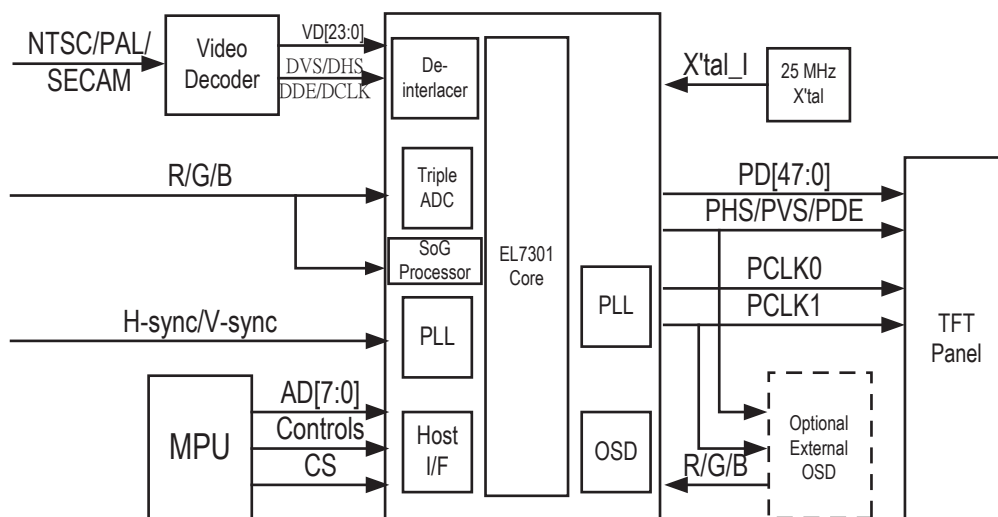
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## Introduction

Etron's EL7301 is the key graphics processing IC that enable liquid Crystal Display (LCD) monitor at SVGA, XGA and SXGA TFT-LCD resolution. This single chip solution included a triple-channel ADC, two PLL circuits, one internal On Screen Display (OSD), sophisticated filter and the most advanced scaling engine. The digital or video input can also be supported via analog/digital input ports that implemented in EL7301.

The EL7301 captures input RGB graphics signals directly through the use of the internal PLLs. Such signals will then be converted to 8-bit digital data per channel. The output frequencies range is up to the resolution of SXGA with very small jitter (typically equal to 800ps). Such advantage surely provides high degree of flexibility and display quality for users while setting different level of resolution

**Figure : EL7301 system block diagram application in dual interface**



## Features & Applications

### Analog RGB input:

- Integrated three channel 8-bit resolution ADCs and pre-amplifiers for analog-RGB up to SXGA 1280 \*1024 @ 75Hz
- On-chip high performance PLLs
- Sync on Green (SoG)

### Digital RGB inputs

- Additional data port support digital or video data input
- DVI digital input single 24-bit RGB pixel up to 135 MHz
- Video display through digital input port
- De-interlace function for video signal
- 5V-tolerance input pads

### Auto detection / Auto adjustment

- Support for H/V sync interrupt and timing measurement function for mode detection
- Auto-adjustment functions for frequencies, phases, positions and white-balance

### Engine

- Advanced scaling algorithm for excellent image quality
- Programmable independent horizontal/vertical expansion zooming engine for scaling up and scaling down
- Support for Fidelity mode without frame buffers required.
- Specialized adaptive filters for crisp images
- On-chip digital brightness, contrast and per color 10-bit gamma table adjustment
- Two-dimension dithering function
- Support for dithering function for 6-bit panels
- Provide 16 build-in test pattern for system burn-in testing purpose

## OSD engine

- 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

## Micro-controller interface

- Support for 8-bit parallel (8051 compatible)/serial host interface
- PWM outputs for simplified inverter brightness control

## Programmable RGB output

- Resolution up to 1280x1024 (SXGA).
- Available for SVGA , XGA & SXGA TFT-LCD panels
- Single/dual-pixel digital RGB output
- Staggered data output
- Pixel clocks inverse and delay adjustment
- Driving current programmable to simplify EMI design
- Spread spectrum to disturb clock period for panel's EMI solution
- Both support 8/6-bit resolution panels
- Support for single/dual-pixel/clock panel interfaces

## Technology / Package

- 0.25 $\mu$ m CMOS technology
- 160-pin PQFP packaging

## Applications

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

## Ordering information

Part number	Speed	Package
EL7301Q-110	110MHz	PQFP-160
EL7301Q-140	140MHz	PQFP-160
EL7301Q-160	160MHz	PQFP-160