AVERLOGIC

AL300B-EVB-A0

Evaluation Board

User Manual

Version 0.2

Document Number: 1-M-PAE330-0001

# Contents

1 Function Description

AL300 is an LCD controller that supports Dual or single Port output. It accepts ITU-R 601 – 16-bit digital video and 24-bit digital RGB input. The OSD function provides an easy access to system control. The embedded high-quality scaling engine and numerous functions facilitate AL300 to be used in various video conversion and processing applications. These functions are programmable through a 2-wire serial bus interface. This user's manual is the operating guide to demonstrate the AL300's competence for customer evaluation.

2 Features

- Support analog RGB and CVBS/ S-Video/YCbCr input.
- Frame Rate Conversion (FRC) from 50Hz to 120Hz
- Independent Up-Scale in both Horizontal and Vertical direction
- Built-in LUT for Gamma Correction and Color Adjustment
- Dithering logic for Color Depth Enhancement
- 2-Wire Serial Bus Interface
- Built-in 2K Bytes OSD RAM and support External OSD Font ROM
- Frame Capture Mirroring support in Horizontal or Vertical direction
- Auto-detect NTSC/PAL video input.
- Support Debug Mode for easy registers access

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3 Getting Start

3.1 EVB Board Top View
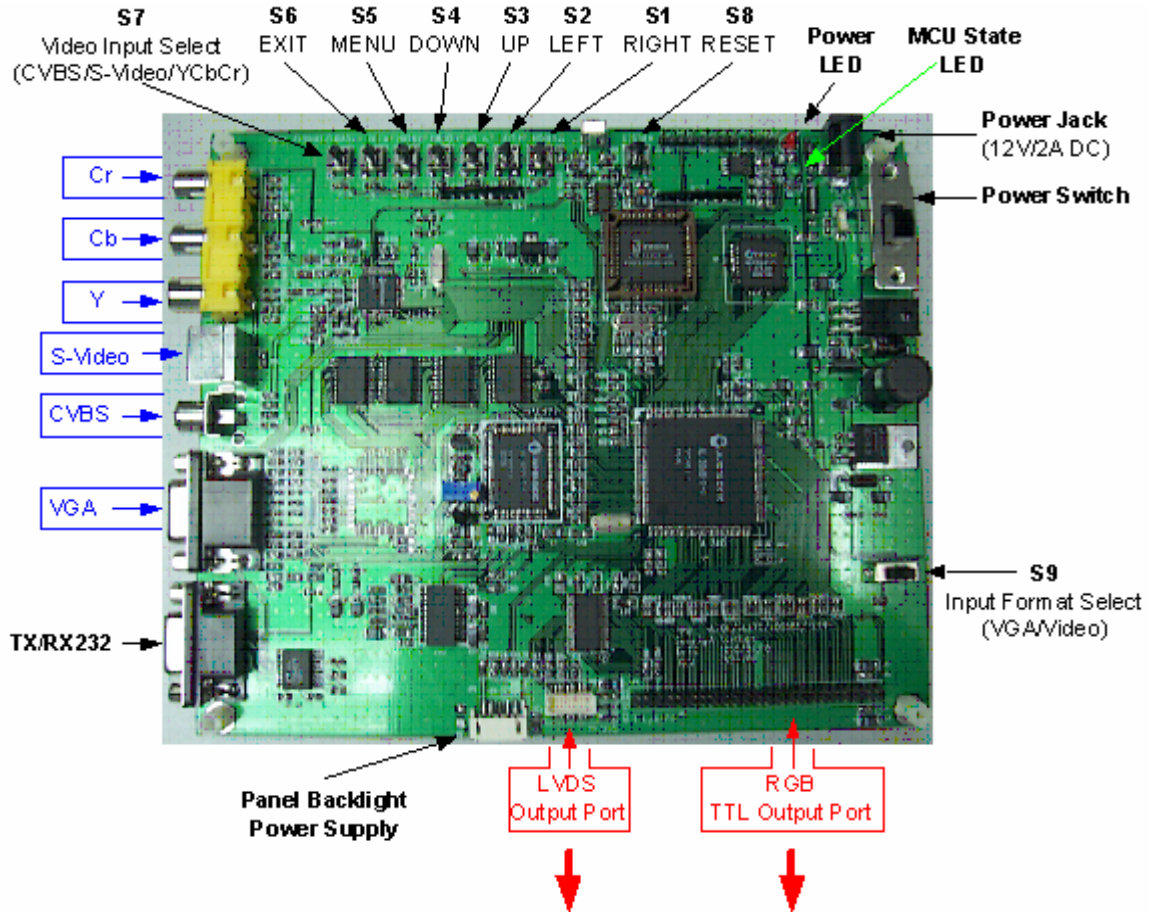
AL300EVB Top View & Connection Diagram

3.2 Hardware Installation

➢ For Video display demonstration:
  Connect Composite, S-Video or Component video source to CVBS, S-Video or YCbCr
  connector respectively with right cable
➢ For PC display demonstration:
  Connect PC graphic source to VGA (15-pin D-sub) connector
➢ Connect TTL or LVDS output signal to a LCD panel with matching interface
➢ Connect a **12V/1A** power adaptor to **Power Jack**
➢ Turn on the **Power Switch** (**SW1**)
  Power LED (red): indicate power on/off state
  MCU State LED (green): indicate MCU running right state

3.3 Hardware Configuration Using Keypad

➢ Input Format Select ----- **S9** (RGB: PC Input; YUV: Video Input)
➢ Video Input Select ----- **S7** (CVBS/S-Video/YCbCr)
➢ System Reset ----- **S8**
➢ Enter Debug Mode ----- **S1+S4** (press simultaneously)
   *Entering debug mode allows registers access (slave address = 70h)
➢ Exit Debug Mode ----- **S6**

4 Operating Menu

4.1 Assigned Key Function

Key Number	Function Descriptions
S6:	Exit
S5:	Enter
S4:	Down
S3:	Up
S2:	Left / (+)
S1:	Right / (-)

4.2 Main Menu

During normal operating mode, press "**S5**" will enter the Main Menu, which includes eight sub-menus.
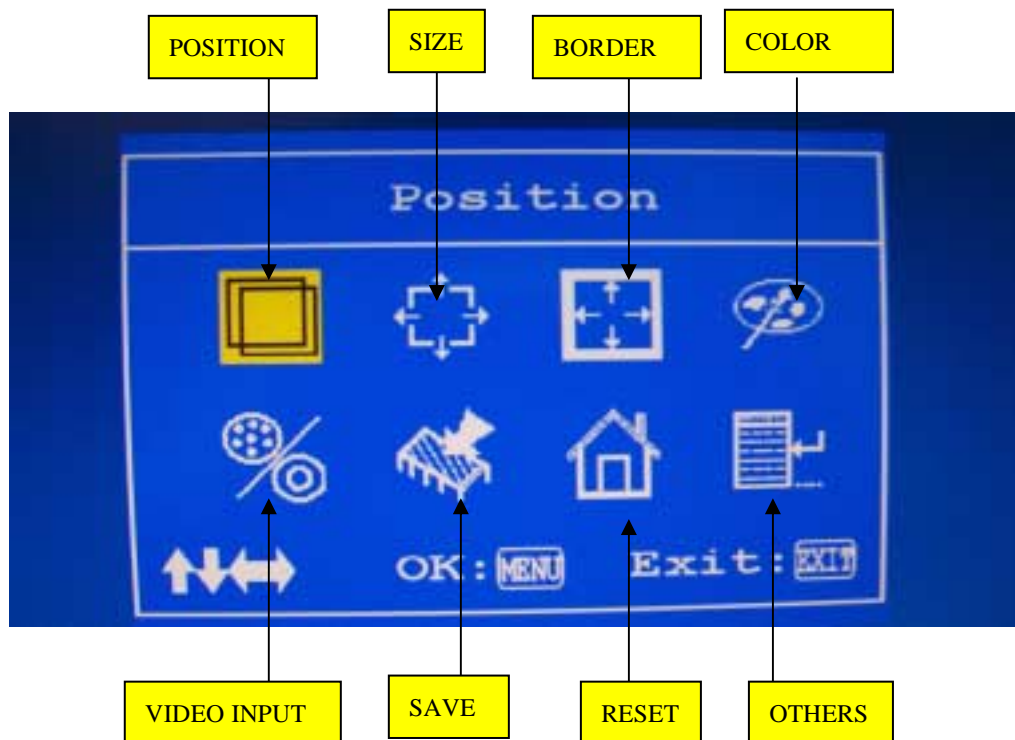
Note: during PC input demonstration, "VIDEO INPUT" appears as "PHASE"

4.2.1 POSITION

Enter this sub-menu allows user to change the PC or Video display window position through 2 items as:

Horizontal Position	**10**
Vertical Position	**10**

4.2.1 SIZE

Enter this sub-menu allows user to change the PC or Video display window size through 4 items as:

Active width	**640**
Active height	**480**
Horizontal total	**800**
Vertical total	**500**

4.2.2 BORDER

Enter this sub-menu allows user to create border around the PC or Video display window through 2 items as:

Horizontal border	**0**
Vertical border	**0**

4.2.3 VIDEO INPUT / PHASE

➢ In Video Display

Enter this sub-menu allows user to select video source among 3 video inputs as:

Video Input	**0**

*0: CVBS

*1: S-Video

*2: YCbCr

➢ In PC Display

Enter this sub-menu allows user to change clock phase through 2 items as:

Hsync phase	**0**
Clock delay	**0**

4.2.4 SAVE

Enter this sub-menu allows user to save the changes made in each sub-menu, the window appears as:

Yes	**No**

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4.2.5 RESET

Enter this sub-menu allows user to reset the system with default value, the window appears as:

Yes	No

4.2.6 OTHERS

Enter this sub-menu allows user to access 8 additional functions:

Auto positioning
Auto phasing
Sharpness
OSD Time Out
OSD Background
OSD Position
System Info
MAIMENU

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