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AL320C-EVB-A0

LCD Controller Evaluation Board

User Manual

Version 1.0

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Amendments

2007.05.14   version 1.0

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1. Introduction

1.1. Introduction

AL320C is an Analog LCD Display Controller which is a combination of a multi-channel analog preprocessing circuit including source selection, anti-aliasing filter and ADC, ACC (Auto-Clamp Control) and AGC (Auto-Gain Control), CGC (Clock Generation Circuit), digital multi-standard decoder containing chrominance and luminance separation by an adaptive 2D comb filter, a brightness, contrast, hue and saturation control circuit, programmable horizontal and vertical scalar, image and sharpness enhancement processing, On-Screen-Display, programmable Tcon and 3-Channel DAC outputs, etc.

1.2. Product Overview

◆ **Analog Input:**

1. Support multiple analog video inputs
2. Support Composite Video, S-Video & YPbPr inputs
3. Built-in 10bit ADC, AGC & ACC
4. Support Auto Multi-Standard NTSC/PAL/SECAM mode detection
5. Adaptive 2D Comb-Filter video decoding for Y/C separation

◆ **Digital Input:**

6. Support ITU-R BT-656 Digital Input

◆ **Video Processing & Scalar:**

7. Closed Caption/V-Chip/WSS/WSS-J VBI decoding
8. Macrovision copy protection detection
9. Contrast/Brightness/Hue/Saturation adjustment
10. Sharpness adjustment for Edge Enhancement
11. YCbCr to RGB Color Space Conversion
12. Programmable H/V Up & Down Scaling
13. 4:3 to/from 16:9 conversion
14. Programmable 3-Channel Gamma Correction

◆ **OSD**

15. Built-in internal OSD 4K bytes RAM for programmable OSD function
16. Support up to 8 OSD colors
17. Support OSD Blinking & Blending

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18. Support Programmable OSD window Position

19. Support Programmable OSD window Size

20. Support OSD X/Y mirror

◆ **Analog Output & Tcon**

21. Support Analog LCD panels: 960x234, 1200x234, 1440x234, 1920x234, etc.

22. Low Power 3-CH DACs for Analog RGB Output

23. Programmable TCON for various Analog LCD panels

24. Support Image Mirror and Flip functions

◆ **Digital Output**

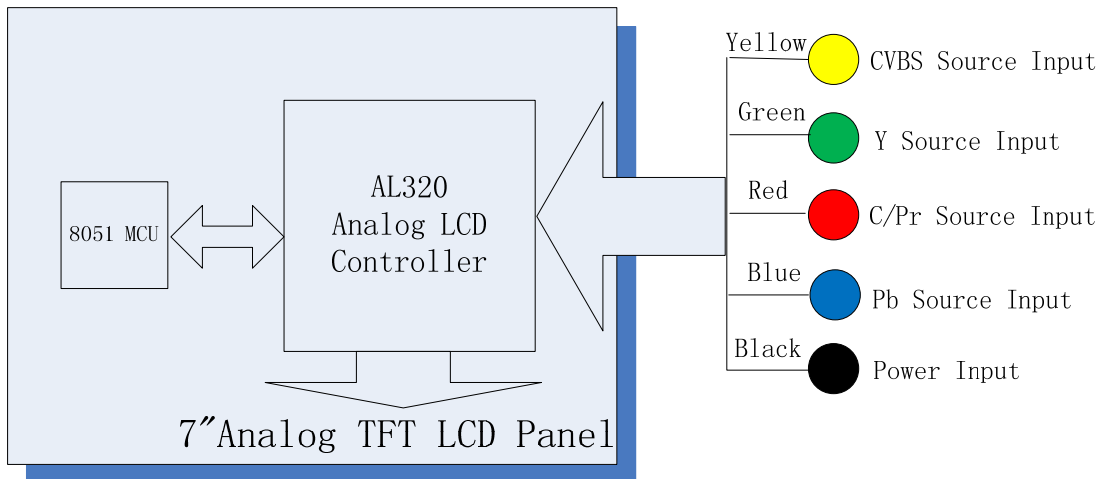**25.** Support Digital Serial RGB LCD panels(AUO,Toppoly etc.)

◆ **Miscellaneous**

26. Support three PWM generators for general purpose control

27. Support interrupt output pin for hardware mode detection

28. Built-in Test Pattern Generator (Color Bar, Grey Scale, etc.)

29. Low power design

30. Small footprint package, 80pin LQFP 10x10mm.

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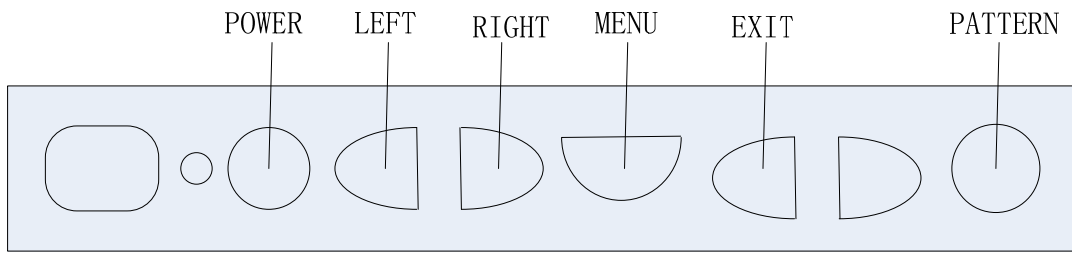## 2. Hardware Section

2.1 I/O Port Descriptions

- POWER: +12V DC power input port (recommended typical current   more than 1.0A, ＋ －).

- CVBS :   YELLOW source input port
- S-VDIEO: GREEN source input is Y signal; RED source input: C signal;.
- YPbPr: GREEN source input is Y signal; RED source input: Pr; BLUE source input: Pb
- Front Keypad: Manual operation.
- Remote Controller: Remote key operation

2.2 Block Diagram

	Yellow	CVBS Source Input
8051 MCU ⟷ AL320 Analog LCD Controller	Green	Y Source Input
	Red	C/Pr Source Input
7″Analog TFT LCD Panel	Blue	Pb Source Input
	Black	Power Input

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2.3 Key Setting

POWER   LEFT   RIGHT   MENU   EXIT   PATTERN

KEY	DESCRIPTIONS
POWER	Hold this key for 2 seconds to turn on or turn off the machine.
LEFT	Move main menu's icons anticlockwise or decrease the values when in submenu.
RIGHT	Move main menu's icons clockwise or increase the values when in submenu.
MENU	Use this key to enter the main menu mode.
EXIT	Exit the menu to the upper level , or exit OSD/Menu from the main menu.
PATTERN	To generate the color bar pattern from AL320.

2.4 Menu Display Descriptions
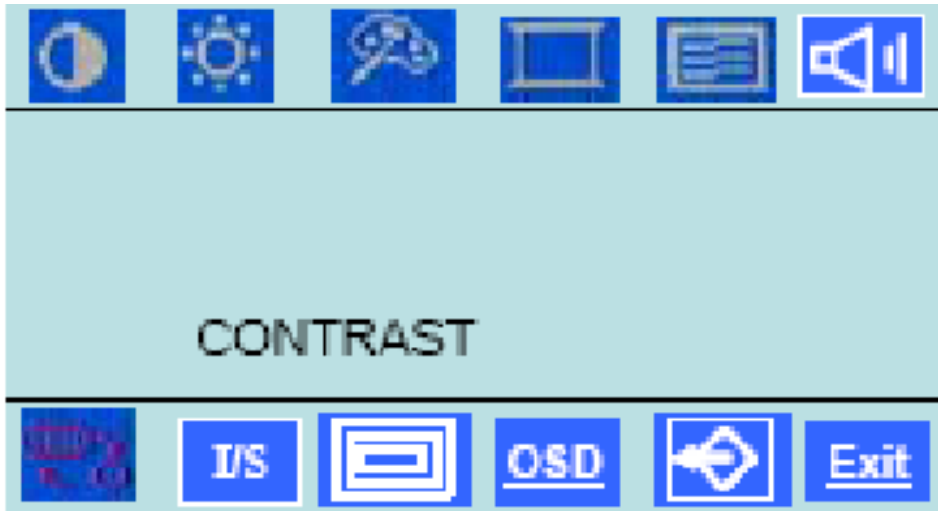
(1)   Use "MENU" key to enter the main menu display mode.

(2)   Use "LEFT" / "RIGHT" key to move to the icon to be selected.

(3)   Also use "MENU" key to enter the submenu which is defined by icons.

(4)   When in submenu, use "LEFT" / "RIGHT" key to adjust the values.

(5)   Use "EXIT" key to return to the upper level.

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2.5   Remote Controller Setting
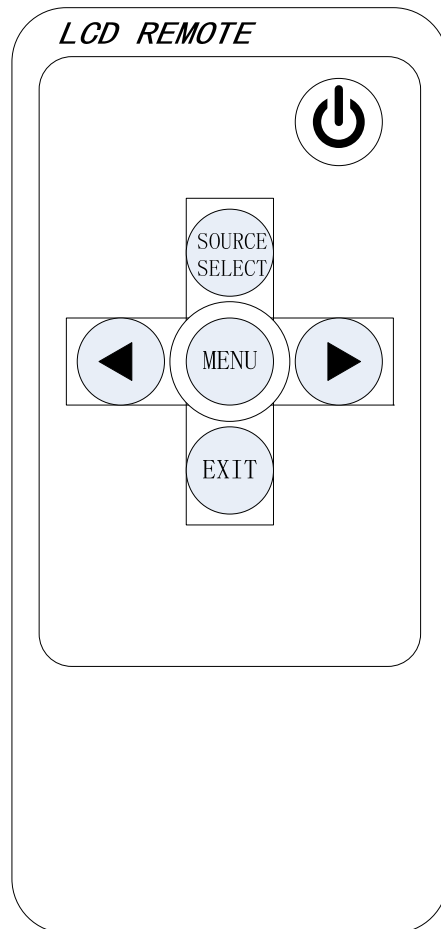
Here the Remote keys' definitions are the same as the Front-Keypad's definitions.
"SOURCE SELECT" could select video source directly from among CVBS、S-Video and
YPbPr.

CONTACT INFORMATION

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