

## UAPC-2700 LCD Controller

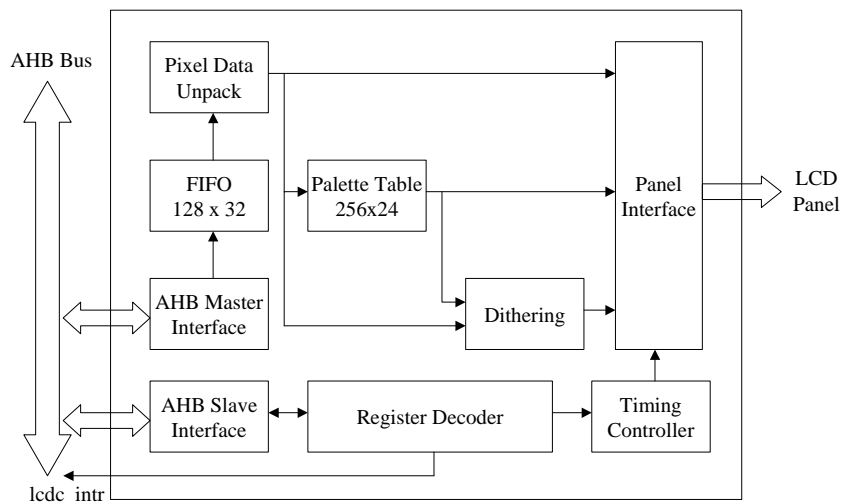
### Features

- ◆ Compliance with the AMBA™ Spec. 2.0
- ◆ Support input image format, YCbCr 422
- ◆ Support input image format, RGB 1/2/4/8/16/24 bpp (bit per pixel)
- ◆ Built-in YUV to RGB color space converter
- ◆ Support single panel mono/color STN display with 4/8-bit interface
- ◆ Support color TFT display with 12/18/24-bit interface
- ◆ Resolution programmable up to 1024 x 768
- ◆ 256 entry, 24 bit user-defined palette table
- ◆ Dither algorithm to enhance color resolution
- ◆ Programmable polarity for panel control signals
- ◆ Synthesizable in Verilog HDL

### Overview

The LCD controller is an Advanced Microcontroller Bus Architecture (AMBA) master-slave module that connects to the Advanced High-performance Bus (AHB). The module is a reusable soft-IP block, and provides all the necessary control signals to interface directly to a variety of color and monochrome LCD panels. The main purpose of this module is for the portable market that includes personal digital assistant (PDA), smart-phone, hand-held, and portable color games terminal.

### Block Diagram



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## **Description**

The UAPC-2700 LCD Controller accepts graphics image through AHB bus and transforms the image to STN/TFT panel to display.

The input image could be YUV or RGB format. When the image format is 16-bit YUV422, the UAPC-2700 performs built-in YUV to RGB converter. The RGB image format could be 1, 2, 4, 8, 16 or 24 bpp (Bit Per Pixel). For RGB 1/2/4/8 bpp format, the UAPC-2700 transforms to 24-bit RGB by a 256 entry, 24-bit palette defined by user.

A 128-deep 32-bit FIFO is used to be the temporary storage between the AHB bus and panel control circuit.

The gray scale logic is designed to enhance the image color.

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