LCD

Overview

LCD controller and DMA driver for the LT24 LCD display.

Memory Map & Register Usage

Signal	Description
lcd_on	Turns display on/off
reset_n	Resets the display
csx	Active low chip select
data	data bus
rdx	read
wrx	write
dcx	data when '1', command when '0'

Theory

The LCD will be properly initialized automatically on boot. The rest of the signals are also managed automatically by the controller. Commands and Data are sent to the LCD throught the controller and the DMA component.

Framebuffers are used to handle writing pixel data to the screen. So, framebuffers must be initialized prior to drawing to the screen.

The display itself uses 16-bit color (565). The software driver accepts 24-bit color (888) and will convert it to 16-bit.

Hardware Connections

All signals are mapped to the appropiate **GPIO** pins

Usage

```c
#include "lcd.h"

// Initialize the framebuffers in memory
lcd_init();

// Draw a 100x100 purple square
draw_rectangle(0, 0, 100, 100, 0xFF00FF);

// Render the framebuffer to the LCD
lcd_present();

// Free framebuffers when done
lcd_free();
```