Adapter Board for 10.85 inch E-Paper Display DESPI-C1085

GooDisplay®

Dalian Good Display Co., Ltd.

Product Specifications

Customer	**Standard**
Description	**E-paper Display Adapter Board**
Model Name	**DESPI-C1085**
Date	**2024/09/25**
Revision	**1.0**

	Design Engineering		
	Approval	**Check**	**Design**
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1.Overview

DESPI-C1085 development kit assists developers inquickly and efficiently developing e-paper display projects. It is specifically designed for SPI interface e-paper displays and supports the boost driving function for three e-paper models: GDEM1085T51, GDEM1085Z51, and GDEM1085F51. This driver board helps users easily and effectively master the use of 10.85-inch e-paper displays, accelerating the progress of their projects.

2. Specification

Parameter	Specification
Model	DESPI-C1085
Platform	STM32, Arduino
Dimension	41mm x 22mm
Power Supply	3.3V
Example Code	Available
Operating Temp.	-20℃~70℃(-4℉~158℉)
Main Function	Provide driving voltage for E-paper display; Provide E-paper display communication interfac e for maincontrol board; Help users learn to use E-paper display
Additional Function	E-paper display power consumption measurement, E-paper working state detection

3. Diagram

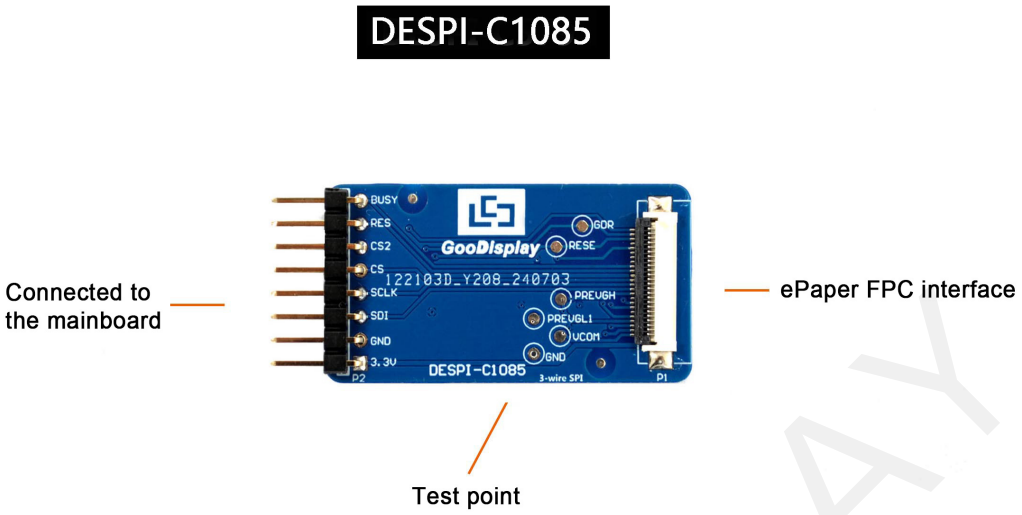

Figure 1 DESPI-C1085

3.1.Pin Definition

1) BUSY: E-paper busy signal. When the e-paper is refreshing, the BUSY pin sends a busy signal to the main MCU, preventing the MCU from reading or writing to the e-paper driver IC. After the e-paper refresh is complete, the BUSY pin sends an idle signal, allowing the MCU to read or write to the e-paper driver IC. The BUSY pin is low during the busy state and high during the idle state.
2) RES: E-paper reset signal, active low.
3) CS2: Slave select, active low.
4) CS: Master select, active low.
5) SCLK: SPI serial communication clock signal line.
6) SDI: SPI serial communication data signal line.
7) GND: Power ground.
8) VDD: Power supply positive.

Note: During the program design process, IO settings typically set BUSY as an input mode and other IOs as output mode.

3.2. Voltage Testing

This adapter has test points for voltage measurement, including PREVGH, PREVGL , VCOM and GND. The functions of each test point are as follows:

1) PREVGH: Positive high voltage of the boost circuit.
2) PREVGL: Negative high voltage of the boost circuit.
3) VCOM: Voltage test point for the common terminal of the e-paper.
4) GND: Power ground (common terminal for test point voltage).

3.3. E-paper display FPC interface

The electronic paper is connected with the adapter plate through this interface. When connecting, insert the electronic paper FPC golden finger downward to the P1 connector of the adapter board in the way shown in Figure2.

Figure 2 : Connection of E-paper display and Adapter

4. FAQ of Drive Circuit of E-paper Display

4.1. Self-made drive board cannot drive e-paper display

First, measure the voltage of PREVGH and PREVGL to see whether the voltage rise is successful. If the voltage boost is unsuccessful, please check whether the voltage boost part of the drive schematic diagram is correct and whether the components meet the requirements (ensure that the voltage withstand of the boost capacitor is sufficient, and if the voltage withstand is not enough, the capacitor will burn out during the voltage boost).

4.2. Selection of diode for e-paper display drive circuit

Schottky diode equivalent to MBR0530 parameters shall be selected, and the switching frequency shall meet the actual requirements.

4.3. Selection of FPC socket for e-paper display drive circuit

Select the FPC socket with 24PIN of upper contact or upper and lower contact, and the pin spacing is 0.5mm.

4.4. High current in e-paper display deep sleep mode

The high current in deep sleep mode may be caused by the large capacitance of the boost part.