

# STM32F4DISCOVERY LCD Interface Expansion Board (EB-STM32F4DISCOVERY-LCD) User Guide

## 1 EB-STM32F4DISCOVERY-LCD Overview

The EB-STM32F4DISCOVERY-LCD is an extension board for the STM32F4DISCOVERY Development Board.



Figure 1. LCD connector expansion board for STM32F4VLDISCOVERY

The expansion board has built in LED backlight driver circuit and 60pin FPC connector for the Kentec LCDs (3.5 inch: K350QVG-V2-F; 4.3 inch: K430WQC-V3-FF; 5.0 inch: K50DWN2-V1-FF; 7.0 inch: K70DWN2-V1-FF; 9.0 inch: K90DWN2-V1-FF). And also have a micro SD card slot can be interface to STM32F4 by SD interface.

## 2 EB-STM32F4DISCOVERY-LCD Dimensions

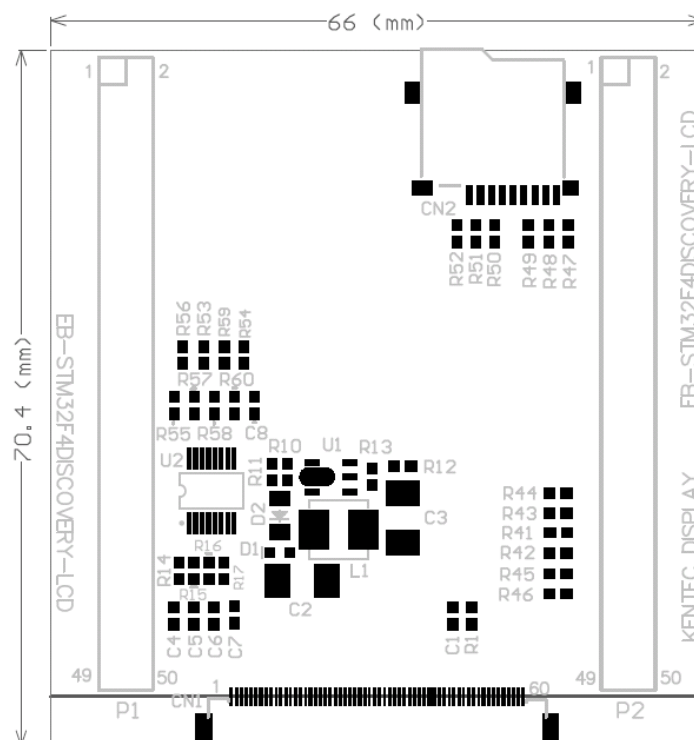


Figure 2. Outline Dimensions

### 3 EB-STM32F4DISCOVERY-LCD interface

Table 1-1. Main Interface Signal P1 (50pin socket connect to STM32F4DISCOVERY MCU board P1)

Pin	STM32F4DISCOVERY P1 PIN Symbol	EB-STM32F4DISCOVERY-LCD P1 Symbol	Description
1-2	GND	GND	Ground (0V)
3-4	3V3	3V3	Power supply (+3.3V)
5	GND	GND	Ground (0V)
6	NRST	LCD_RST	LCD reset signal
7	PC1	NC	No connection
8	PC0	NC	No connection
9	PC3	NC	No connection
10	PC2	NC	No connection
11	PA1	NC	No connection
12	PA0	NC	No connection
13	PA3	NC	No connection
14	PA2	NC	No connection
15	PA5	TOUCH_SCK	Reserved for touch controller serial clock input
16	PA4	NC	No connection
17	PA7	TOUCH_SDIN	Reserved for touch controller serial data input
18	PA6	TOUCH_SDO	Reserved for touch controller serial data output
19	PC5	NC	No connection
20	PC4	TOUCH_BUSY	Reserved for touch controller busy signal output
21	PB1	NC	No connection
22	PB0	NC	No connection
23	NC	NC	No connection
24	PB2	NC	No connection
25	PE7	LCD_D4	LCD parallel data bus bit 4
26	PE8	LCD_D5	LCD parallel data bus bit 5
27	PE9	LCD_D6	LCD parallel data bus bit 6
28	PE10	LCD_D7	LCD parallel data bus bit 7
29	PE11	LCD_D8	LCD parallel data bus bit 8
30	PE12	LCD_D9	LCD parallel data bus bit 9
31	PE13	LCD_D10	LCD parallel data bus bit 10
32	PE14	LCD_D11	LCD parallel data bus bit 11
33	PE15	LCD_D12	LCD parallel data bus bit 12
34	PB10	NC	No connection
35	PB11	NC	No connection
36	PB12	NC	No connection
37	PB13	NC	No connection
38	PB14	TOUCH_CS	Reserved for touch controller chip select signal
39	PB15	NC	No connection
40	PD8	LCD_D13	LCD parallel data bus bit 13
41	PD9	LCD_D14	LCD parallel data bus bit 14

Continued Table 1-1, Main interface signal P1 (50pin socket connect to STM32F4DISCOVERY MCU board P1)

42	PD10	LCD_D15	LCD parallel data bus bit 15
43	PD11	LCD_RS	LCD register/data select signal
44	PD12	NC	No connection
45	PD13	NC	No connection
46	PD14	LCD_D0	LCD parallel data bus bit 0
47	PD15	LCD_D1	LCD parallel data bus bit 1
48	NC	NC	No connection
49-50	GND	GND	Ground (0V)

Table 1-2. Main Interface Signal P2 (50pin socket connect to STM32F4DISCOVERY MCU board P2)

Pin	STM32F4DISCOVERY P1 PIN Symbol	EB-STM32F4DISCOVERY-LCD P1 PIN Symbol	Description
1-2	GND	GND	Ground (0V)
3-4	5V	5V	Power supply for LED driver circuit
5-6	3V	NC	No connection
7	PH0	NC	No connection
8	PH1	NC	No connection
9	PC14	NC	No connection
10	PC15	NC	No connection
11	PE6	NC	No connection
12	PC13	Card detect	No connection
13	PE4	NC	No connection
14	PE5	NC	No connection
15	PE2	NC	No connection
16	PE3	NC	No connection
17	PE0	NC	No connection
18	PE1	NC	No connection
19	PB8	NC	No connection
20	PB9	NC	No connection
21	BOOT0	NC	No connection
22	GND	NC	No connection
23	PB6	NC	No connection
24	PB7	NC	No connection
25	PB4	NC	No connection
26	PB5	LCD_BL	Reserved for LCD backlight ON/OFF control
27	PD7	LCD_CS	LCD chip select signal
28	PB3	NC	No connection
29	PD5	LCD_WR	LCD write control signal
30	PD6	TOUCH_INT	Reserved for touch controller interrupt signal
31	PD3	NC	No connection
32	PD4	LCD_RD	LCD read control signal
33	PD1	LCD_D3	LCD parallel data bus bit 3

Continued Table 1-2, Main interface signal P2 (50pin socket connect to STM32F4DISCOVERY MCU board P2)

34	PD2	SDIO_CMD	SD card command signal
35	PC12	SDIO_CK	SD card clock signal
36	PD0	LCD_D2	LCD parallel data bus bit 2
37	PC10	SDIO_D2	SD card DAT2 signal
38	PC11	SDIO_D3	SD card DAT3 signal
39	PA14	NC	No connection
40	PA15	NC	No connection
41	PA10	NC	No connection
42	PA13	NC	No connection
43	PA8	NC	No connection
44	PA9	NC	No connection
45	PC8	SDIO_D0	SD card DAT0 signal
46	PC9	SDIO_D1	SD card DAT1 signal
47	PC6	NC	No connection
48	PC7	NC	No connection
49-50	GND	GND	Ground (0V)

Table 2. LCD Interface Signal (CN1 60pin ZIF connector to LCD module)

Pin	Symbol	Description
1, 2	LED_K	LED power supply (-)
3, 4	LED_A	LED power supply (+)
5	GND	Ground (0V)
6	XR	4-wire resistor touch screen terminal
7	YD	
8	XL	
9	YU	
10	GND	Ground (0V)
11~13	NC	No Connection
14	Reset	Reset input signal for LCD
15	CS	Chip select for LCD
16~19	NC	No Connection
20	D0	Data bit 0, default connected to GND on MCU board
21~25	D1~D5	Data bit 1 ~ bit 5
26, 27	NC	No Connection
28~30	D6~D8	Data bit 6 ~ bit 8
31	D9	Data bit 9, default connected to GND on MCU board
32, 33	D10, D11	Data bit 10 ~ bit 11
34, 35	NC	No Connection
36~41	D12~D17	Data bit 12 ~ bit 17
42~44	GND	Ground (0V)
45, 46	AVDD	Power supply (3.3V)

Continued Table 2, LCD interface signal (CN1 60pin ZIF connect to LCD)

47, 48	VCC	Power supply (3.3V)
49	RS	Command/Data select signal for LCD
50	RD	Read control signal for LCD
51	WR	Write control signal for LCD
52	PS0	LCD interface select pin for K350QVG-V2-F, default set to i8080 16-bit parallel.
53	PS1	
54	PS2	
55	PS3	
56, 57	NC	No connection
58~60	GND	Ground (0V)

### 4 Schematics

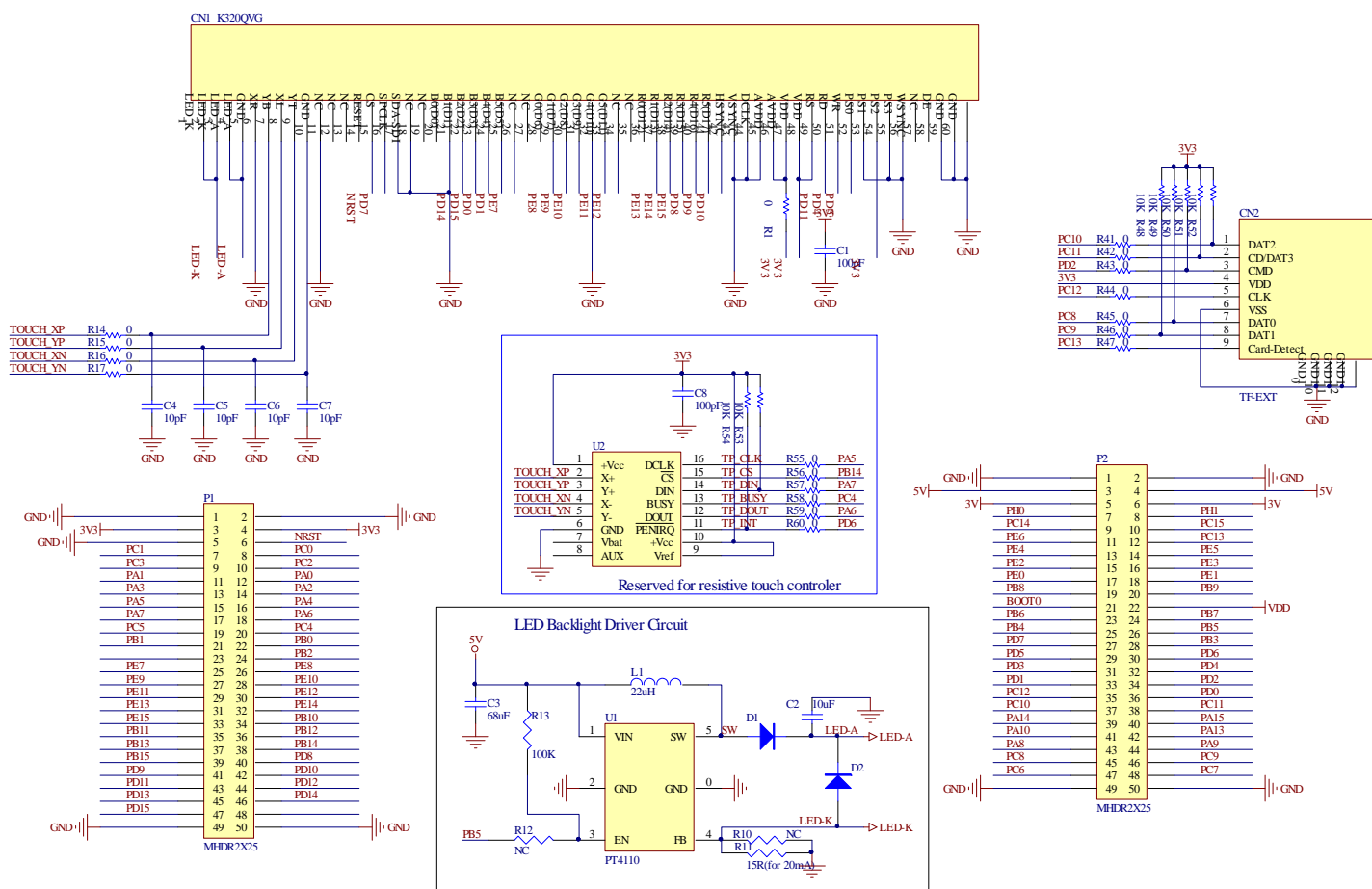


Figure 3. Expansion board schematic

## 4 Components Location

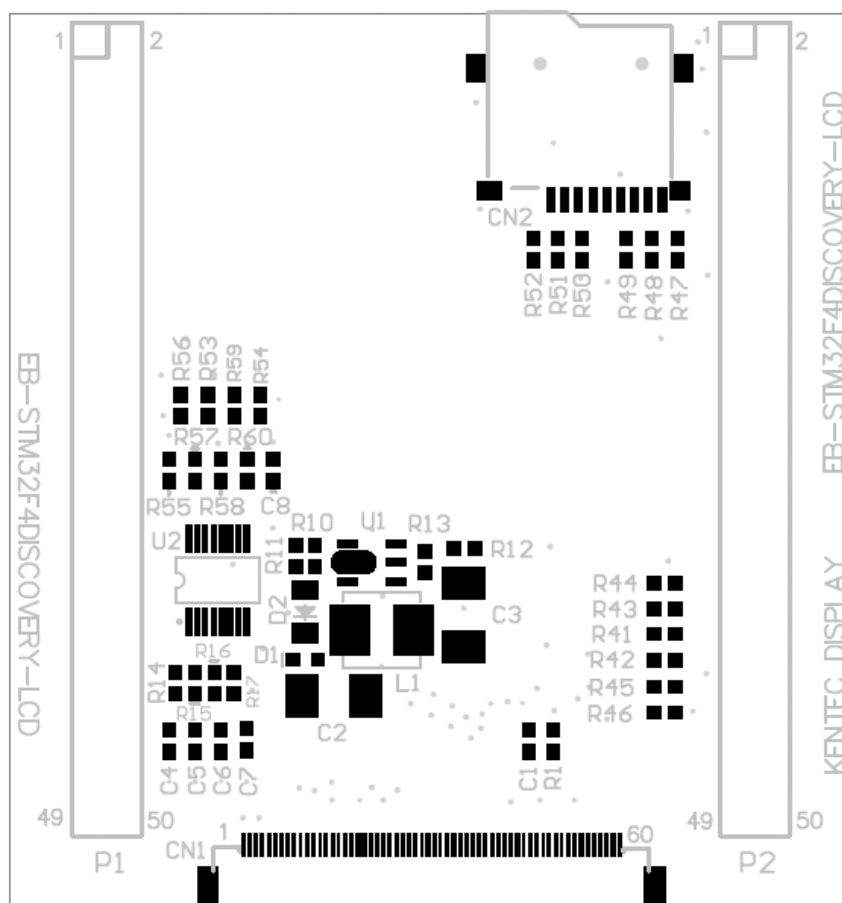


Figure 4. Expansion board components layout

## 5 LCD driver code examples

Bellow attachment is the source code for the K350QVG-V2-F.

NO.	Document	Attachment
1	Source code package	