english
stub

Display Test & Trouble Shooting

Note: If not noted otherwise: All texts in this page relate to 3.5 inch display.

Display or Firmware Problem?

In case the display doesn't work (white screen) the following is suggested to find out if it is a SW or HW problem:

- Plug 3.2„ Display into OVI40 UI (if available) and load firmware. In case this display works: switch of UI board, unplug 3.2“ display and insert 3.5„ display board into UI. Now power up UI again. If LCD screen shows expected UHSDR display in upper left corner then it is not a HW problem. on the LCD board.

In case of a suspected HW problem: check all connections for potential short-cuts e.g. to ground, or possible interruptions. Also check the flexible cable (flexible PCB) of the LCD. This may be damaged and defective.

Possible reasons for "white screen"

1. bad soldering points or shurtcuts on the LCD's FPC connector
2. bad soldering points or short cuts at IC103
3. forgot to insert jumper at R10

The soldering points on the FPC connector or the connector itself may be damaged by excessive soldering time or heat. To check contact problems on FPC connector: pull flatband cable out of connector sufficiently so that a measurement tip can just about touch the copper contact noses, then check for short cuts and continuity. Especially check for short-circuits to the next contact left or right of the one you actually check with the tip.

There are exactly 3 places where it is correct to have short circuits (please also refer to schematics):

- the parallel LED connections (LED1 LED2 LED3 - see display interface description on this page)
- next to that there are two parallel ground connections next to each other
- the two coding lines IM0 and IM1 are also connected in parallel

Any other short-cuts need to be repaired and removed.

Firmware now adapts dynamically to LCD size and type

Starting with firmware 2.7.74 the FW contains drivers both for ILI932x LCDs (old 2.8“ LCD, 3.2„ LCD) @320×240 as well as ILI9486 (for new 3.5“ LCDs) @480×320. The firmware now automatically

detects which controller is present and auto-configures respectivelly. The 480×320 LCDs will give a much sharper display - important for waterfall and spectrum display - over the whole display area.

Test if U103 is OK

- unsolder U 103
- short-circuit Pin 3 and Pin 4 on PCB (where U103 was previously)

This can be used to exclude a defective U103 (or one that has been soldered in in wrong orientation).

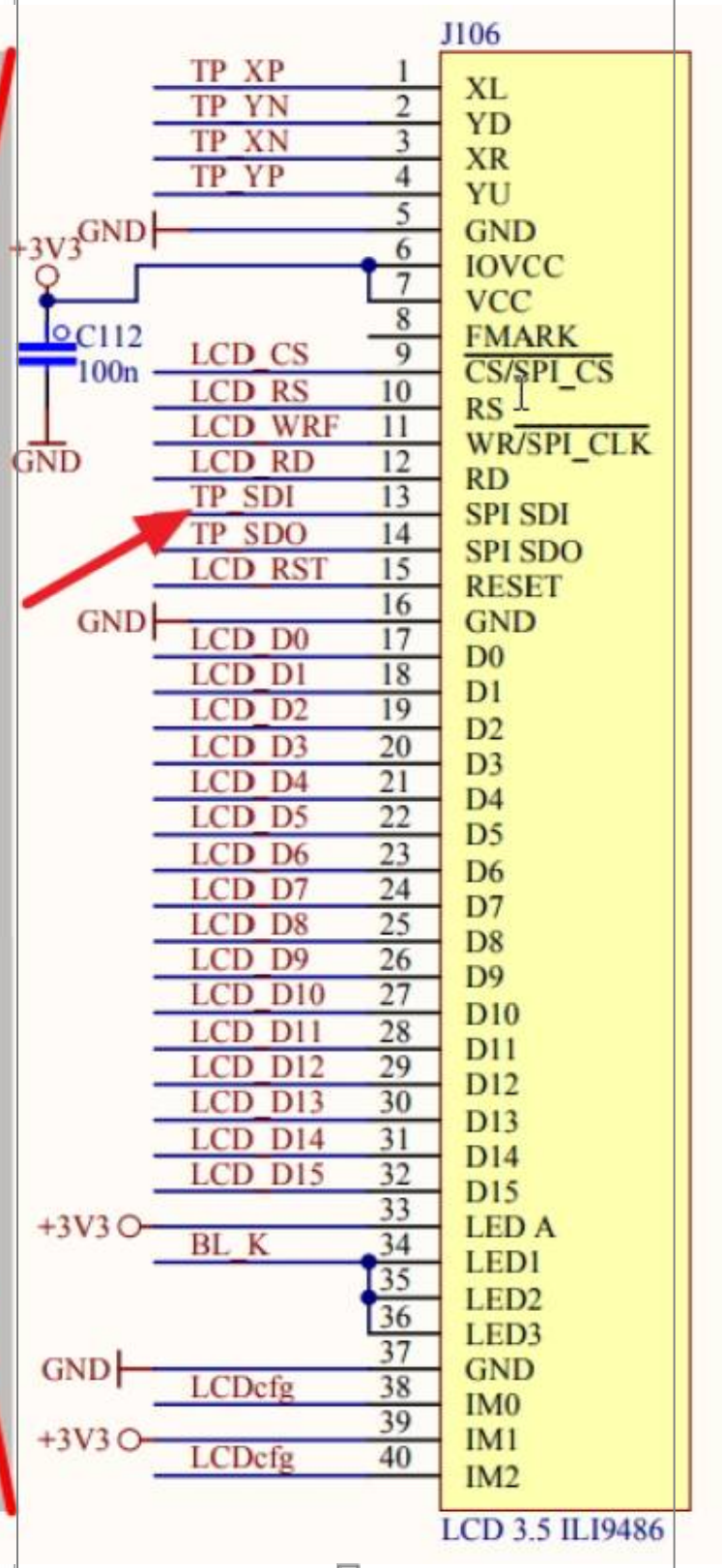
LCD interface and display controller

For information and trouble shooting:

PIN No.	Symbol	Description
1	X(L)	Touch panel control pin (触摸屏控制脚)
2	Y(U)	Touch panel control pin (触摸屏控制脚)
3	X(R)	Touch panel control pin (触摸屏控制脚)
4	Y(D)	Touch panel control pin (触摸屏控制脚)
5	GND	Ground (接地脚)
6	IOVCC	Power supply for LCM (2.8V-3.3V) (屏供电脚)
7	VCI	Power supply for LCM (2.8V-3.3V) (屏供电脚)
8	FMARK	Tearing effect output pin to synchronize MPU to frame writing. activated by S/W command. When this pin is not activated, this pin is l If not used, open this pin. (帧同信号, 不用时悬空)
9	CS/SPI CS	Chip select pin ("Low" enable) (屏驱动芯片片选脚, 低电平有效)
10	RS/ A0(4 线)	This pin is used to select "Data or Command" in the parallel interface o data interface. (用于并口或者串口) When RS= '1', data is selected.(选择数据) When RS= '0', command is selected.(选择寄存器) If not used, this pin should be connected to IOVCC or GND. (不用时接 IOVCC 或者接地)
11	WR/ SPI SCL/SCK	- 8080 system (WRX): Serves as a write signal and writes data at the rising edge. - 3/4-line serial interface (SCL): The pin used as serial clock pin. *Fix to IOVCC or GND level when not in use.* (并口的写控制脚或者 3 线, 4 线串口的时钟信号, 不用时接 IOVCC 或
12	RD	Serves as a read signal and MCU read data at the rising edge. *Fix to IOVCC or GND level when not in use.* (并口的读控制脚, 不用时接 IOVCC 或者地)
13	SPI SDI/SDA	Serial input signal. The data is applied on the rising edge of the SCL signal. If not used, fix this pin at IOVCC or GND (串口数据输入信号, 不用时接 IOVCC 或者接地)
14	SPI SDO	Serial output signal. If not used, open this pin (串口数据输出信号, 不用时悬空) In Register B0H, SDA_EN = "0", DIN and DOUT pins are used for 3/4 wire serial interfac SDA_EN = "1", DIN/SDA pin is used for 3/4 wire serial interface and D pin is not used. 在接口控制寄存器B0H中, SDA_EN设为0,在3线,4线串口中,DIN,DOUT才有效 SDA_EN设为1,在3线,4线串口中,DIN/SDA有效,作为串口数据输入/输出 用脚,DOUT无效. NOTE: 详见 ILI9486L 数据手册第 140 页.
15	RESET	LCM Reset pin Signal is active low. (屏复位脚, 低电平复位)
16	GND	Ground (接地脚)
17-24	DB0-DB7	Data bus *Fix to GND level when not in use* (低 8 位数据线, 不用时接地)
25-32	DB8-DB15	Data bus *Fix to GND level when not in use* (高 8 位数据线, 不用时接地)
33	A	Anode of Backlight (3.0V-3.4V Typical:3.2V) (背光正极供电脚, 电压范围:3.0-3.4V, 典型值:3.2V)
34-36	K	Cathode of Backlight (背光负极供电脚)
37	GND	Ground (接地脚)
38	IM0	Select the MCU interface mode (接口选择)
39	IM1	
40	IM2	

IM2	IM1	IM0	Interface	Data Pin in Us
0	0	0	8080 18-bit bus interface	DB[17:0]
0	0	1	8080 9-bit bus interface	DB[8:0]
0	1	0	8080 16-bit bus interface	DB[15:0]
0	1	1	8080 8-bit bus interface	DB[7:0]
1	0	0	Prohibited	-
1	0	1	3-line SPI	SDA
1	1	0	Prohibited	-
1	1	1	4-line SPI	SDA

LCD interface usage (DF8OE)



LCD controller assignement (DL8EBD)

Note: ToDo move jpgs into correct name space