

JDI Screen + LB551 Debugging Guide

Overview

Hardware used in this document:

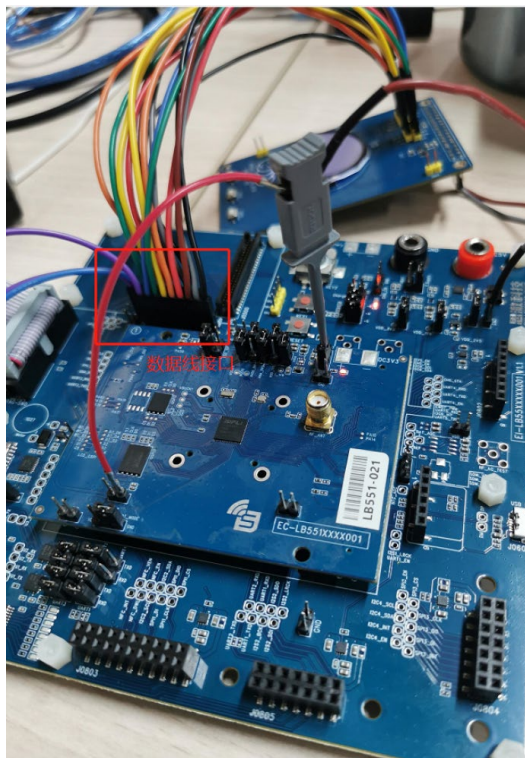
- SiFli LB551 core board + EI_LB55XXXXXX001_V1.1 base board + JDI screen (JDI387A)
- Jlink debugger

Software used:

- SiFli SDK V1.0.4 version and related development environment

Hardware

Data Cable Connections



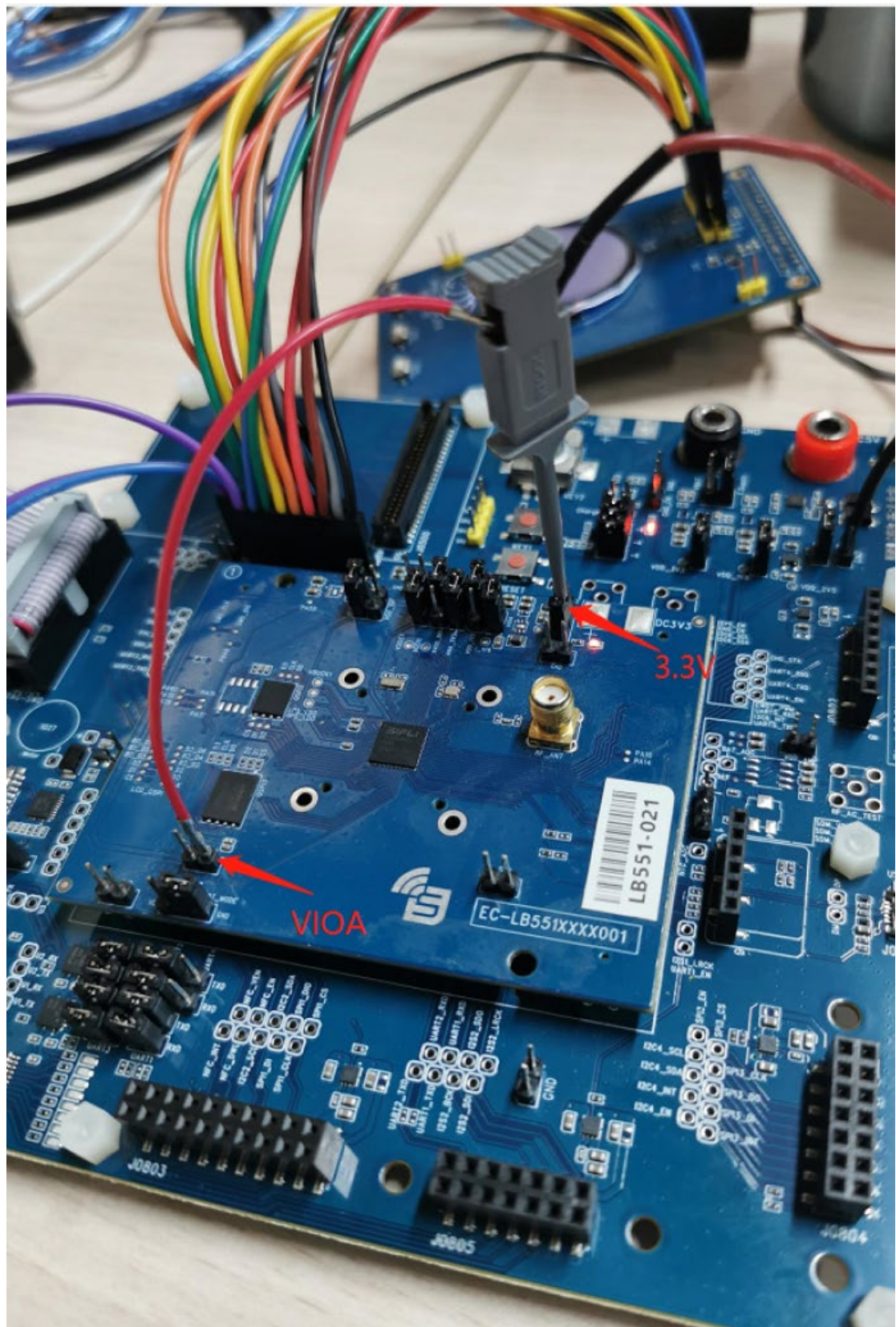
“数据线接口”：Data cable interface

Function 0	V1.1 Base Board Pin Silk Screen	JDI
GPIO_A51	D6	R2
GPIO_A47	D4	VCOM
GPIO_A44	D2	FRP
GPIO_A38	QD2	HST
GPIO_A20	CLK	VCK
GPIO_A34	QD0	XRST
GPIO_A77	TE	G2
GPIO_A79	EN	B2

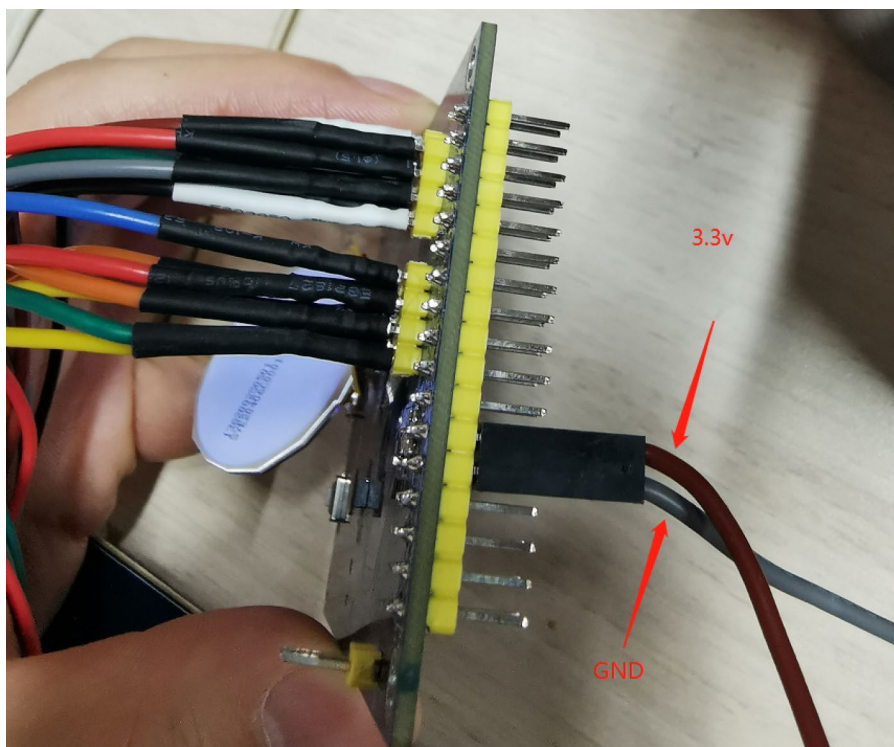
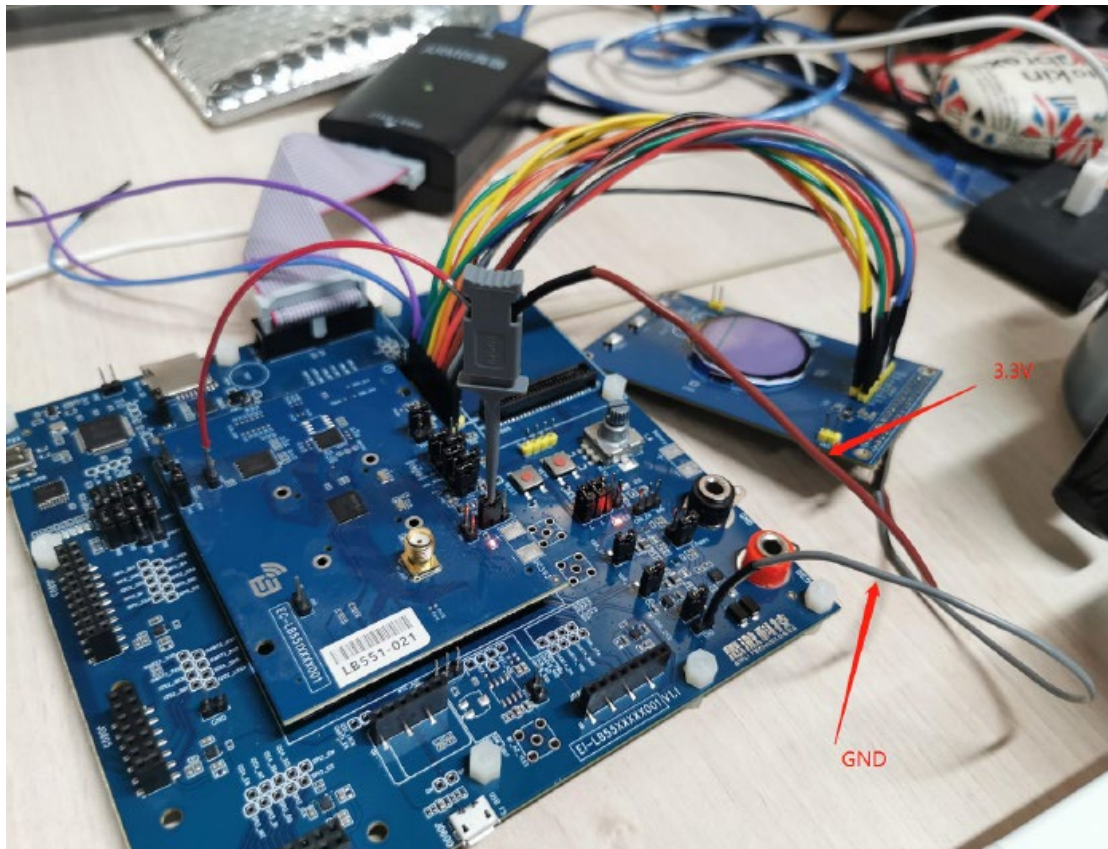
Function 0	V1.1 Base Board Pin Silk Screen	JDI
GPIO_A55	D7	G1
GPIO_A49	D5	R1
GPIO_A45	D3	XFRP
GPIO_A42	QD3	ENB
GPIO_A31	CS	VST
GPIO_A36	QD1	HCK
GPIO_A78	RST	B1

Power Supply

Set the development board's VIOA voltage level to **3.3V** (Because the JDI interface used here is 3.3V).



Screen Power Supply



The screen requires external 3.3V power supply and GND connection.

Software

There are 2 projects available for debugging:

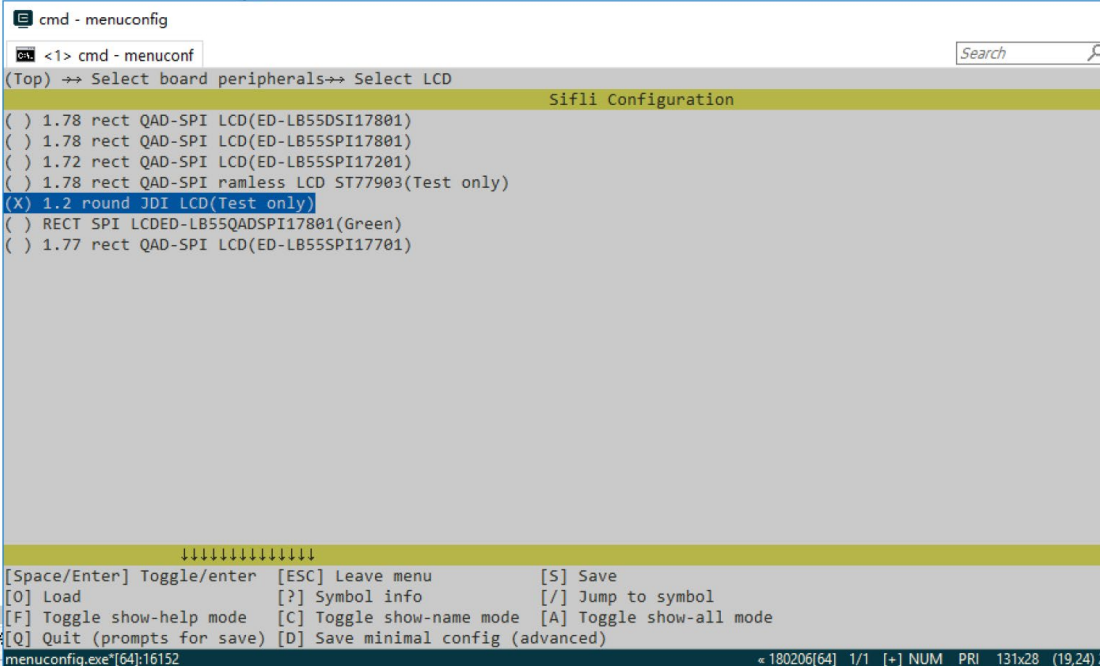
- **rt_driver project** - A simple project for debugging screen touch functionality
- **watch_demo project** - This project is a sample project for watch solutions, more complex

Running rt_driver Project

Project Path:

SiFli_Release_V1.0.4\example\rt_driver\project\ec-lb551

menuconfig Configuration:



```
cmd - menuconfig
<1> cmd - menuconf
Search
(Top) -> Select board peripherals-> Select LCD
Sifli Configuration
( ) 1.78 rect QAD-SPI LCD(ED-LB55DSI17801)
( ) 1.78 rect QAD-SPI LCD(ED-LB55SPI17801)
( ) 1.72 rect QAD-SPI LCD(ED-LB55SPI17201)
( ) 1.78 rect QAD-SPI ramless LCD ST77903(Test only)
(X) 1.2 round JDI LCD(Test only)
( ) RECT SPI LCD(ED-LB55QADSPI17801(Green)
( ) 1.77 rect QAD-SPI LCD(ED-LB55SPI17701)

↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓
[Space/Enter] Toggle/enter [ESC] Leave menu [S] Save
[O] Load [?] Symbol info [/] Jump to symbol
[F] Toggle show-help mode [C] Toggle show-name mode [A] Toggle show-all mode
{Q} Quit (prompts for save) [D] Save minimal config (advanced)
menuconfig.exe*[64]:16152 < 180206[64] 1/1 [+] NUM PRI 131x28 (19,24)
```

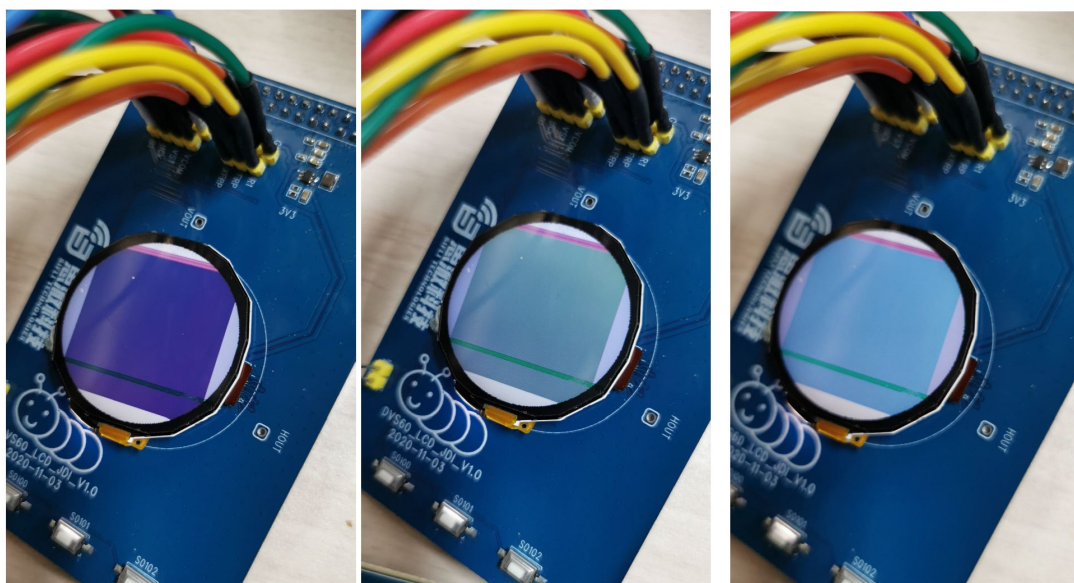
In the menuconfig interface, select:

- Board peripherals → Select LCD
- Choose: 1.72 round JDI LCD(Test only)

The configuration shows options for different LCD types including:

- 1.78 rect QAD-SPI LCD(ED-LB55D5117801)
- 1.78 rect QAD-SPI LCD(ED-LB55P117801)
- 1.72 rect QAD-SPI LCD(ED-LB55P117701)
- 1.78 rect QAD-SPI ramless LCD ST77903(Test only)
- 1.72 round JDI LCD(Test only) ← Select this option
- RECT SPI LCD(ED-LB55QADSP117801)(Green)
- 1.77 rect QAD-SPI LCD(ED-LB55P117701)

Effect Images:



The rt_driver project demonstrates basic display functionality with

simple graphics and color patterns on the circular JDI screen.

Running watch_demo Project

Project Path:

SiFli_Release_V1.0.4\example\watch_demo\project\ec-lb551

menuconfig Configuration:

```
cmd - menuconfig
<1> cmd - menuconf
(Top) -> Select board peripherals-> Select LCD

Sifli Configuration
( ) 1.78 rect QAD-SPI LCD(ED-LB55DSI17801)
( ) 1.78 rect QAD-SPI LCD(ED-LB55SPI17801)
( ) 1.72 rect QAD-SPI LCD(ED-LB55SPI17201)
( ) 1.78 rect QAD-SPI ramless LCD ST77903(Test only)
(X) 1.2 round JDI LCD(Test only)
( ) RECT SPI LCDED-LB55QADSPI17801(Green)
( ) 1.77 rect QAD-SPI LCD(ED-LB55SPI17701)

↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓
[Space/Enter] Toggle/enter [ESC] Leave menu [S] Save
[O] Load [?] Symbol info [/] Jump to symbol
[F] Toggle show-help mode [C] Toggle show-name mode [A] Toggle show-all mode
{[Q] Quit (prompts for save) [D] Save minimal config (advanced)

menuconfig.exe*[64]:16152 < 180206[64] 1/1 [+] NUM PRI 131x28 (19,24)
```

```
cmd - menuconfig
<1> cmd - menuconf <2> cmd
.config - Sifli Configuration
+ Third party packages + LittlevGL2RTT: The LittlevGL gui lib adapter RT-Thread + LittlevGL2RTT Options

LittlevGL2RTT Options
Arrow keys navigate the menu. <Enter> selects submenus ---> (or empty submenus ----). Highlighted letters are hotkeys. Pressing
<V> includes, <N> excludes, <M> modularizes features. Press <Esc><Esc> to exit, <?> for Help, </> for Search. Legend: [*] built-in
[ ] excluded <M> module <> module capable

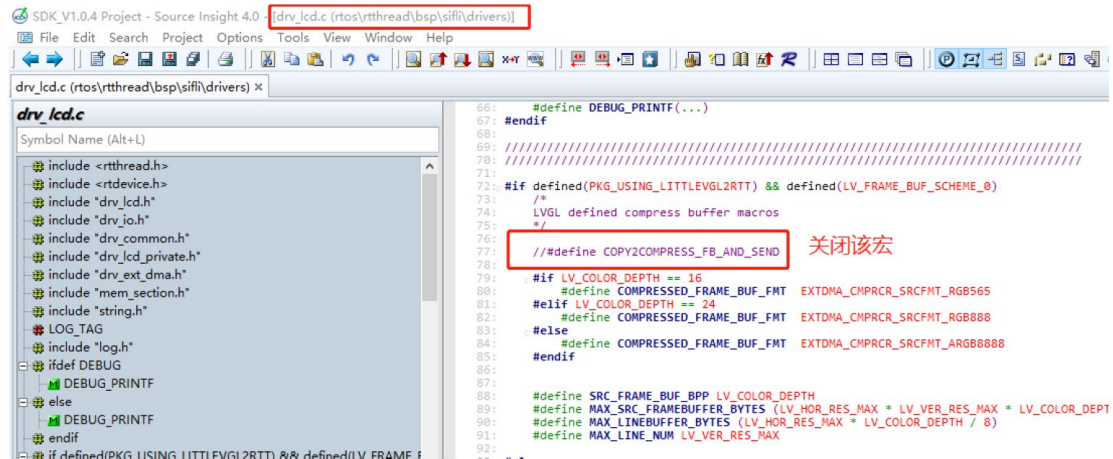
Memory management mode (dynamic) --->
color depth (16bit) --->
(240) horizontal pixels
(240) vertical pixels
(150) DPI(dot per inch)
(0) 16bit color swap
[*] 740 Frame Buffer Line Number
GPU Configuration (enable GPU) --->
Frame Buffer Scheme (Scheme 0, one screen sized buffer + compressed frame buffer for LCD) --->
[*] Use on-the-fly ezip decoder

<Select> <Exit> <Help> <Save> <Load>

kconfig-mconf.exe*[32]:16192 < 180206[64] 1/2 [+] NUM PRI 143x28 (38,15) 50V 16480 100%
```


Similar to rt_driver, select the JDI LCD option in menuconfig.

Modify Code to Disable PSRAM framebuffer:



```
66: #define DEBUG_PRINTF(...)
67: #endif
68:
69: //////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////
70: //////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////
71: //////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////
72: #if defined(PKG_USING_LITTLEVGL2RTT) && defined(LV_FRAME_BUF_SCHEME_0)
73: /*
74: LVGL defined compress buffer macros
75: */
76: // #define COPY2COMPRESS_FB_AND_SEND 关闭该宏
77:
78:
79: #if LV_COLOR_DEPTH == 16
80: #define COMPRESSED_FRAME_BUF_FMT EXTDMA_CHPRCR_SRCFMT_RGB565
81: #elif LV_COLOR_DEPTH == 24
82: #define COMPRESSED_FRAME_BUF_FMT EXTDMA_CHPRCR_SRCFMT_RGB888
83: #else
84: #define COMPRESSED_FRAME_BUF_FMT EXTDMA_CHPRCR_SRCFMT_ARGB8888
85: #endif
86:
87:
88: #define SRC_FRAME_BUF_BPP LV_COLOR_DEPTH
89: #define MAX_SRC_FRAMEBUFFER_BYTES (LV_HOR_RES_MAX * LV_VER_RES_MAX * LV_COLOR_DEPTH)
90: #define MAX_LINEBUFFER_BYTES (LV_HOR_RES_MAX * LV_COLOR_DEPTH / 8)
91: #define MAX_LINE_NUM LV_VER_RES_MAX
92:
93: ..
```

In the configuration menu, navigate to:

- SiFli Configuration → Memory management mode (dynamic)
- Disable the PSRAM framebuffer options:
 - (240) horizontal pixels
 - (240) vertical pixels
 - (16) RGB565 per inch
 - Use RGB 16bit color format
 - Use configuration template no_buffer

Fix a Bug in the Code:

Move the file:

FROM:

SiFli_Release_V1.0.4\example\watch_demo\resource\images\common\
ezip\kaleidoscope.png

TO:

SiFli_Release_V1.0.4\example\watch_demo\resource\images\common\
no_ezip\kaleidoscope.png

Effect Images:

The watch_demo project displays a complete watch interface with:

- Application grid layout with various app icons
- Circular interface optimized for the round JDI display
- Interactive elements and transitions
- Watch faces and menu systems

The final result shows a functional smartwatch interface running on the JDI circular display, demonstrating both simple graphics rendering (rt_driver) and complex UI functionality (watch_demo).

