User Guide Standards

Luvia with 25.3″ Gallery^{TM} Plus Display (AC253TT1) —【Glass】

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ePaper Display Update SOP

1   Introduction

Luvia with 25.3" Gallery Plus display (AC253TT1) demo kit allows E Ink clients to access the hardware and software of E Ink's 25.3" Gallery Plus display module for evaluation. This kit demonstrates as a turnkey solution for those who are interested in designing with E Ink displays. Hardware and software design support is available from E Ink directly.

25.3" Gallery Plus display is suitable for various applications, e.g. Artwork, Signage, Retail, etc…

(1)   PACKAGE CONTENTS

- 25.3" E Ink Gallery Plus display (EPD)
- Luvia - TCON Board
- Adapter 12V/5A (Tcon)
- Adapter 5V/3A (Pi)
- USB Cable
- SD Card

(2) 25.3" E Ink Gallery Plus display SPECIFICATION

| EPD	25.3" Gallery Plus display
Resolution	3200(H) x 1800(V)
Active Area(mm)	560.0(H) × 315.0(V)
Outline Dimension(mm)	576.5(W) × 333.0(H) × 0.97(D)
Surface Treatment	AG
Operating Temperature	15~35 degree

(3) TCON BOARD SPECIFICATION

TCON	E ink Gallery Plus T1000
RAM	Embedded 64MB
Flash Memory	External 16MB
Display Interface	mini-LVDS/FFC Connector
Debug Interface	UART J8
Host Interface	USB Port (Micro USB)
Power Adapter	DC +12V/5A
Dimension	Tcon board: 160mm x150mm TS board: 27mmx14.4mm FFC: 10cm
Operating Temperature	0~40 degree

∗ Note: All hardware specifications are for the demonstration of this evaluation kit only.

2   Hardware Guide

This section describes the hardware setup of the 25.3" Gallery Plus display demo kit.

(1)   Hardware Requirements
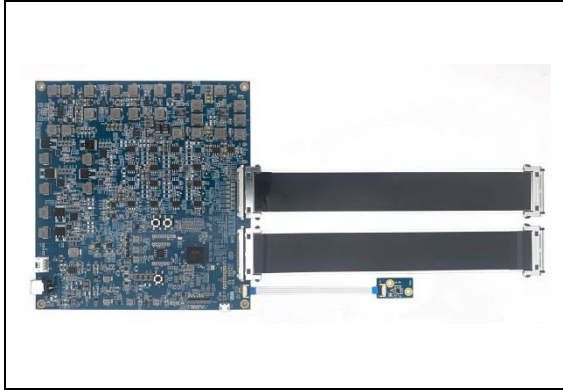
Luvia w/ FFC - TCON Board

AC253TT1 - EPD

Adapter(Tcon)
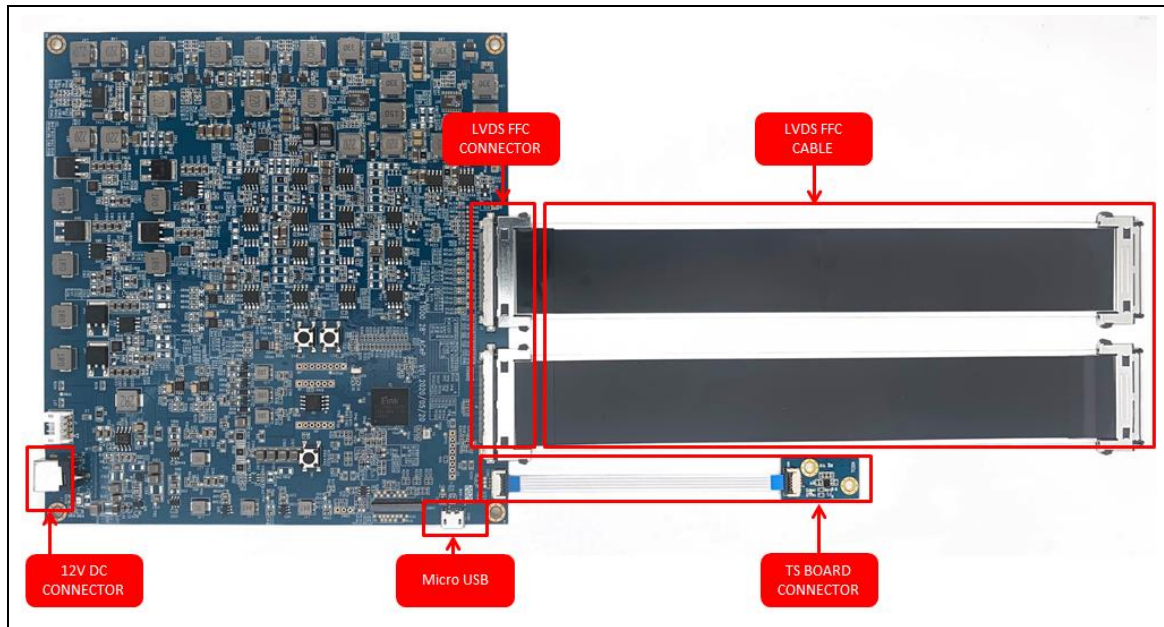

Adapter(Pi)

USB Cable

SD Card

(2) Demo Kit Hardware Description

The TCON board and E Ink panel are connected via two 51pin LVDS cables.

The micro USB port on the EVK work as interface can be used for control the TCON board such as update image on panel.

Luvia - TCON Board

Module Name	Description
LVDS FFC CONNECTOR	Connector for 25.3" Gallery Plus
TS BOARD CONNECTOR	Connect to TS (thermal sensor) board via 10cm FFC
Micro USB	Micro USB, for Host connection
12V DC CONNECTOR	DC 12V/5A

Connector pin assignment

PIN NUMBER	FFC_J5 SIGNAL	FFC_J6 SIGNAL	DC_12V_J1 SIGNAL	UART_J8 SIGNAL
1	VSS	MODE	+5V	VCCIO
2	LV0P_D0	XON	+5V	UART0_TX
3	LV0N_D1	STBYB	GND	UART0_RX
4	VSS	NC	GND	UART0_CTS#
5	LV1P_D2	NC		UART0_RTS#
6	LV1N_D3	NC		GND
7	VSS	NC		
8	LV2P_D4	VGL		
9	LV2N_D5	VGL		
10	VSS	NC		
11	LV3P_D6	VN3		
12	LV3N_D7	VN3		
13	VSS	VN3		
14	LV4P_D8	NC		
15	LV4N_D9	VN2		
16	VSS	VN2		
17	LV5P_D10	VN2		
18	LV5N_D11	NC		
19	VSS	VN1		
20	CLKP_CKH	VN1		
21	CLKN_GLOSTL	VN1		
22	VSS	NC		
23	LV6P_D12	VSS		
24	LV6N_D13	VSS		
25	VSS	NC		
26	LV7P_D14	VDD		
27	LV7N_D15	VDD		
28	VSS	NC		
29	LV8P	VP1		
30	LV8N	VP1		
31	VSS	VP1		
32	LV9P	NC		
33	LV9N	VP2		
34	VSS	VP2		
35	LV10P	VP2		
36	LV10N	NC		

37	VSS	VP3
38	LV11P	VP3
39	LV11N	VP3
40	VSS	NC
41	CKV	VGH
42	VSS	VGH
43	SPH1	NC
44	SPH2	NC
45	SPV1	NC
46	SPV2	TFT_VCOM
47	SHR	TFT_VCOM
48	UD	NC
49	OEH	FPL_VCOM
50	LEH	FPL_VCOM
51	DSEL	FPL_VCOM

3   25.3" Gallery Plus Operation Manual

(1)   How to connect TCON board to AC253TT1

● Connect the TCON board to the EPD via the LVDS FFC cable.

Note: Make sure the TS board is close to the EPD.

● Connect Micro USB to the HOST, we use Raspberry Pi as the HOST.

● TCON board 12V/5A power supply plug in.

● Raspberry Pi 5V/3A power supply plug in.

Note: Before you remove EPD, please make sure EPD is not updating image and then start to power off Raspberry Pi and TCON board.

(2)   Example of using Raspberry Pi as the HOST

● **Please prepare 1 set of Raspberry Pi before EVK operation.**

● **Never modify, or format the SD card by yourself.**

● After power on, needed waiting about 50s, the display will start to show image with E Ink logo. It means system is running successfully.

(3) Image File Type and Information

- JPG(.jpg), JPEG(.jpeg), BMP(.bmp), PNG(.png), TIFF(.tiff) are supported image file types.

- The image recommended resolution is 3200 (W) x 1800 (H). And we also can use any image resolution, we will resize and rotate the image automatically.

4 Raspberry Pi Operation

(1) Wireless network setting

We use cell phone as portable hotspots. See the following steps for Wireless network setting.

Step1: Open your Tethering and Portable hotspots.

Step2: Enter Tethering and Portable hotspots setting.

Step3: Configure hotspots default setting as following: (See Figure 4.1)

Network name (SSID): image_host

Security: WPA PSK

Password: imagekey

Step4: Record IP address of Raspberry Pi from connected devices to link Raspberry Pi in the chapter "How to upload / download image files". (See Figure 4.2)
For example: IP address of Raspberry Pi is 192.168.43.240 in the Figure 4.2

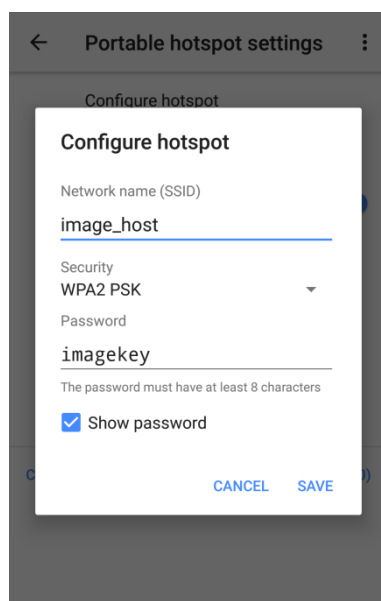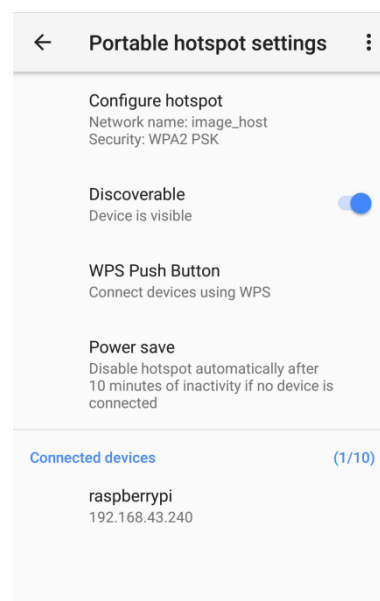<div style="display:flex;justify-content:space-around">

Figure 4.1

Figure 4.2

</div>

(2) Display Gallery Plus panel preceding operation

● Display config setting

In the Gallery Plus_linux_usb folder, user can modify config.txt to change the directory of the image source path, dwell time and display initial mode.

<image_source> Image source path must be under '/home/pi/Desktop'.

<dwell_time>: Present the time interval between each display time, must be over 15 seconds.

```
1 # image_source: image source path must be under '/home/pi/Desktop'
2 # dwell_time: Present the time interval between each display time, must be over 15 seconds.
3
4 [path]
5 image_source=image_library
6
7 [dwell]
8 dwell_time=15
```

● Image file placed folder
According the above figure, **put image files in the image_source folder. All of these images in the folder will be displayed repeatedly.**

● Place render data files
In the render_tool folder, user can place whole folder of render data. These files should be matched with Gallery Plus EPD and waveform version.
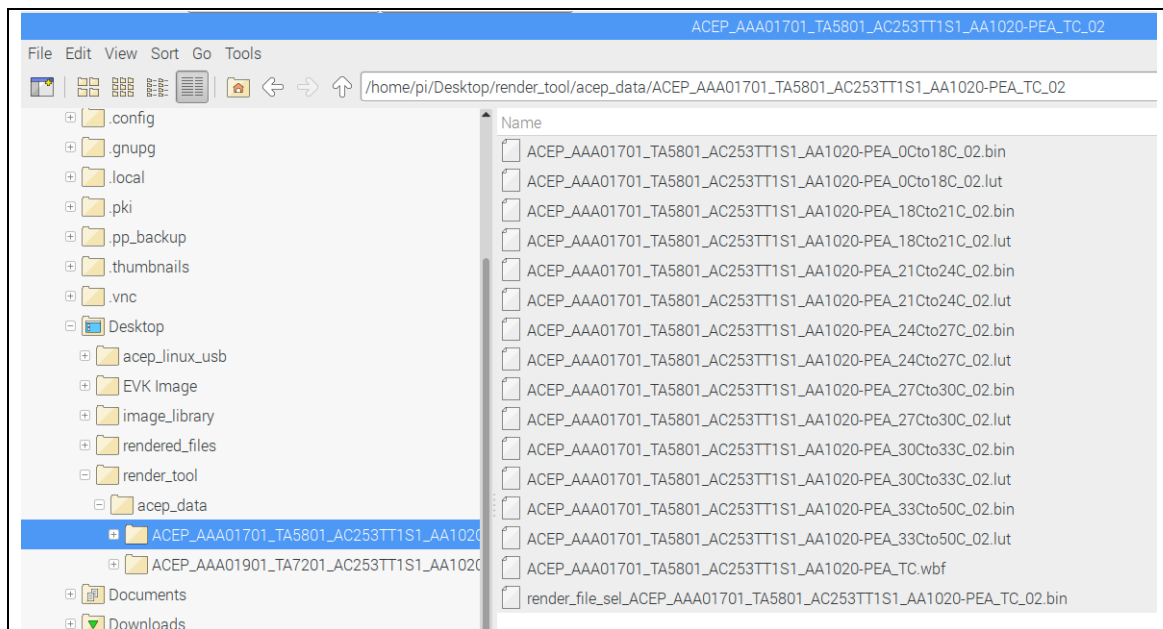
- User defined networks

  If we want to define multiple networks please see the following steps:

  Step1: Create a new file named "wpa_supplicant.conf".

    Don't use "Notepad" to save the file, please use other Linux-supported editors like Sublime Text / EmiEditor / Notepad++.
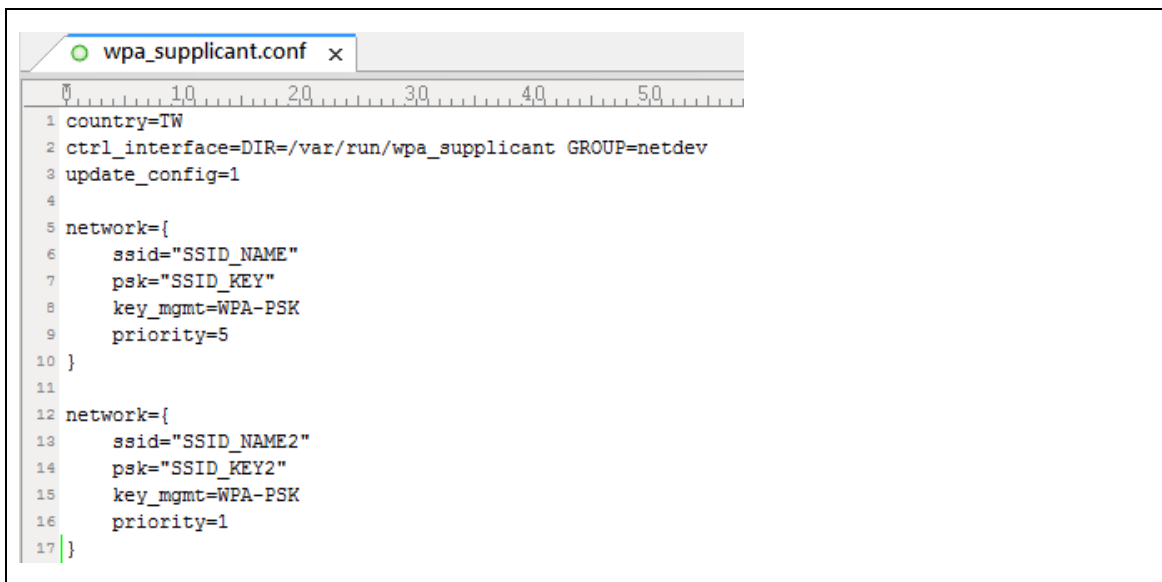
  Step2: Type following commands to define networks.

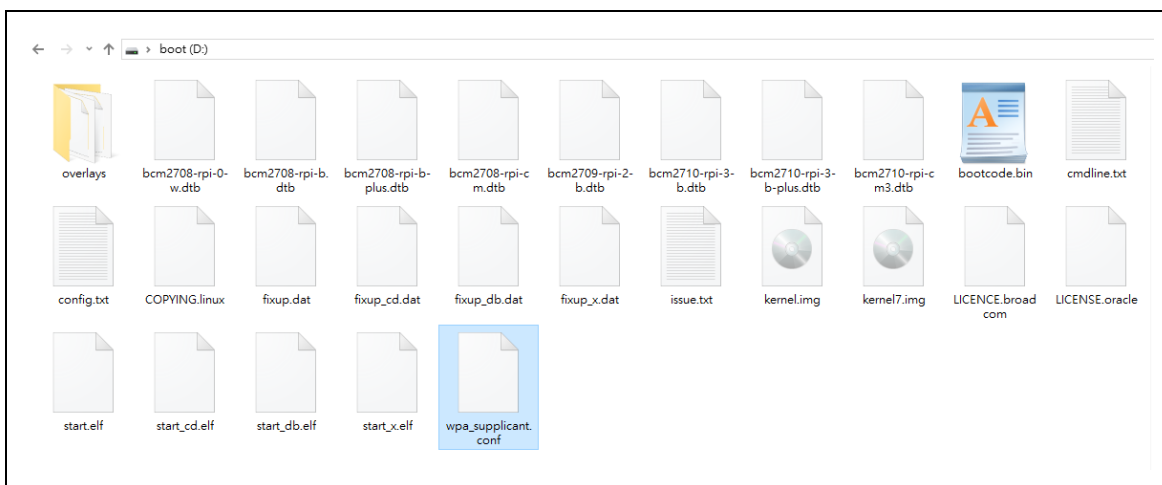   ssid: Name of network hotspots

    psk: Password of network hotspots

    key_mgmt: Key management protocols.

    Priority: Priority of network. (Higher number with higher priority)

  Step3: Insert SD card to PC, place the "wpa_supplicant.conf" under the "boot" directory.

  Step4: The file "wpa_supplicant.conf" will be copied when Raspberry Pi reboot.

(3) How to upload / download image files

We can use software which supports FTP like FileZilla / File Manager + / AndFTP to upload / download image files. We use File Manager + as an example, please see the following steps:

Step1: Open File Manager + application and click the "Remote" icon. (See Figure 4.3)

Step2: Add a remote location and choose "FTP". (See Figure 4.4)

Step3: Type IP address of Raspberry Pi which is mentioned in the chapter "Wireless network setting", username and password before "OK" button is clicked. (See Figure 4.4)

    Host: IP address of Raspberry Pi

    Port: 21

    Username: pi
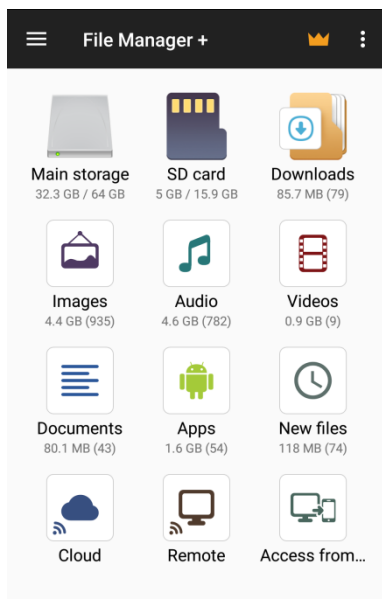
    Password: raspberry

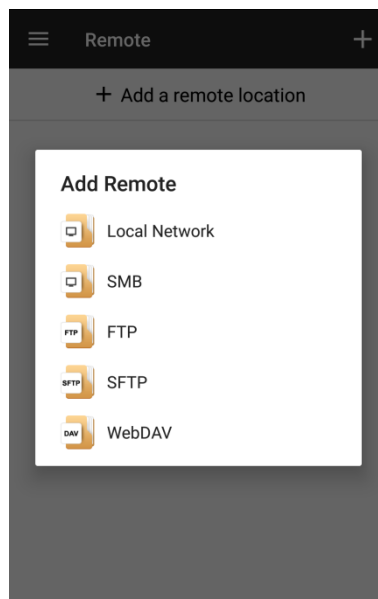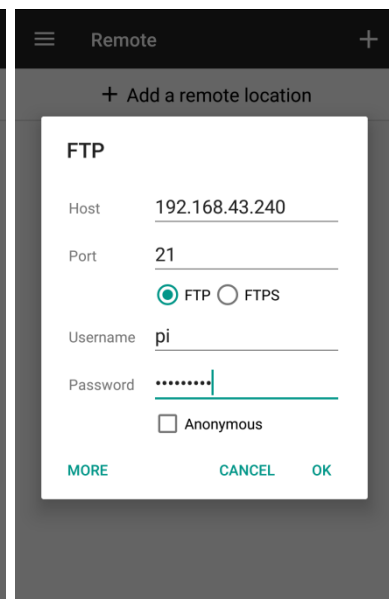| Figure 4.3	Figure 4.4	Figure 4.5

Step4: Copy / move image files from other image folders. (See Figure 4.6)

Step5: Paste image files to image_source directory of Raspberry Pi. (See Figure 4.7)

We can also delete image file from image_source directory. (See Figure 4.8)
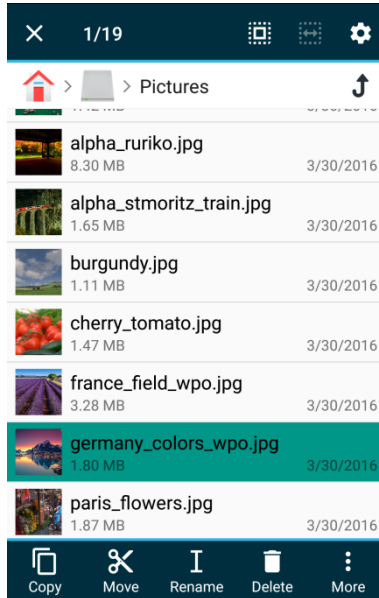
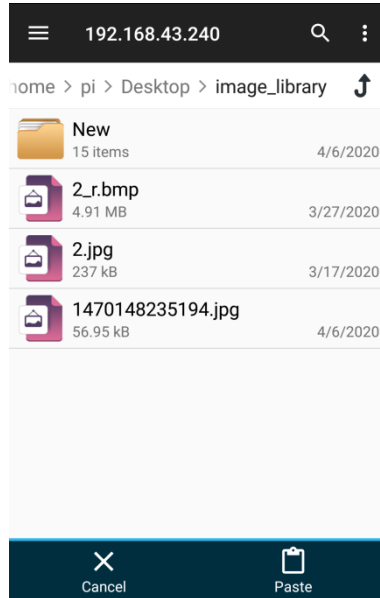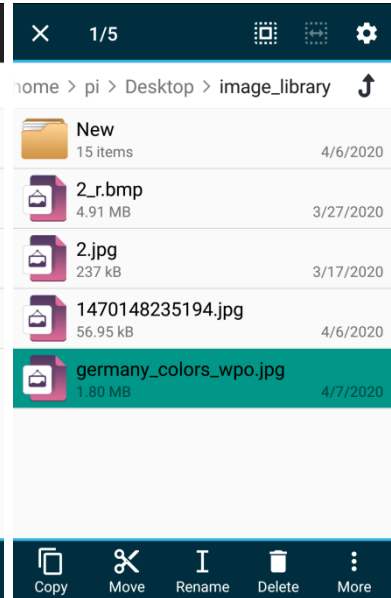Figure 4.6   Figure 4.7   Figure 4.8

Ownership of Software:

This software belongs to E Ink Proprietary & Confidential Information

5   Appendix

6   Contact Information

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http://www.eink.com

For sales office addresses, please visit

http://www.eink.com/contact_sales.html

7   Legal Information

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● Revision History

Version	Date	Pag	Description	Author
1.0	2022/07/05		Initial	Stewark