LCD driver board specification

Model: **RUHD9** Date: March 2017

No.	Title
1	COVER
2	Catalog
3	Product Overview
4	Main characteristics
5	Function Brief
6	Product appearance interface and definition
7	Input source index requirements
8	Structure Dimension
9	OSD specification
10	Installation and Debugging
11	Transportation and storage

1. Product Overview

RUHD9 is a liquid crystal MONITOR driver board that supports UHD.

Product support VGA, SVGA,XGA,SXGA,UXGA, QHD and UHD resolution TFT LCD

screen, such as: LG, Philips, SAMSUNG, AUO and other UHD brands LCD panel.

2. Product characteristics

2.1 HDMI1 Interface support HDMI2.0 protocol, Supports hard 4K@60HZ signaling.

2.2 The DP interface supports the DP1.1 and DP1.2 protocols, DP1.2 supports 4K@60HZ

signals, Also supports the DP loop back feature (loop back feature that supports 4K@30Hz

following signal input)

- 2.3 The screen supports rotation of 180 degrees
- 2.4 The screen display menu is easy to use and can control all the supporting functions:

Automatically adapts to screen picture control, brightness and contrast control

Color balance and color temperature control,

OSD menu localization and support in Chinese and English language,

2.5 5 button OSD control button, support remote control function

3. Brief Function

Screen	eDP HRB、	eDP I	IRB2、VByOne
interface type			
Appearance	148 x 96mm	l	
size			
LCD	Max to 3840)x216()
resolution			
Signal	VGA, HDN	/II、I	DPIN、DPOUT、3.5 headphone input、3.5 headphone output
interface			
	Power	DC1	2V 4A , 5V 3A , 5VSB 1.5A / single, 12V power
	input	supp	ly
	Power	Norr	nal operation mode, lower consumption mode
power	operation		
	Power	Stan	dby power \leq 1W, Accord with national green standard
	manageme		
	nt		
OSD	Image	and	Brightness / contrast / saturation / toning / position
Menu	position		adjustment etc.
	adjustment		
OSD language	Chinese sim	plified	l English (added)
	Button	GPIC)
	type		
Button board	Number of	5 keg	ys and 7 keys are optional
Button board	keys		
	Button	Pow	er VOL- VOL+ CH- CH+ Menu Input
	description		
Audio output	$2 \times 10W (8\Omega)$		
power			
Color	Warm color	/ cool	color / standard / user mode

temperat	ure			
mode				

4. Product appearance and interface definition

In this section, the main interfaces and their functions are described in detail with examples

of the product



No.	Function	No.	Function
VGA	VGA	JP8	Power amplifier
			interface
HDMI1	HDMI1	CN4	4Lane HRB2 eDP
HDMI2	HDMI2	JN5	8Lane HRB eDP
DP1	DP input	CNF1	VByOne port
DP2	DP output	CN12	3.5 headphone output
JP1	Large power interface	CN13	3.5 headphone input
JP2	backlight control	JP18	12V power input
JP7	12V power input		

Socket definition diagram

Backlig	Backlight control interface JP2 (6PIN/2.0)			
No.	Name	Desc.		
1	12V	12V power		
2	12V	12V power		
3	B10	Switch control, 1: ON, 0: OFF		
4	ADJ	Brightness adjustment, 0-5V adjustable		
5	GND	Ground		
6	GND	Ground		

Button inte	Button interface JP3 (14PIN/2.0)			
No.	Name	Desc.		
1	+5V	5V power		
2	IR	Remote receive		
3	GND	Ground		
4	КО	КО		
5	R_LED	Red indicator light		
6	L_LED	Green indicator light		
7	GND	Ground		
8	K1	K1		
9	K2	K2		
10	K3	КЗ		
11	K4	K4		
12	K5	K5		
13	K6	Кб		
14	K7	K7		

Screen in	nterface definitio	n JN5 (8Lane eDP)
1	LCD-VDD	PowerforPane1
2	LCD-VDD	PowerforPane1
3	LCD-VDD	PowerforPane1
4	GND	Ground
5	GND	Ground
6	LCD-VCC	3. 3V/5V
7	SDA	SDA
8	SCL	SCL
9	GND	Ground
10	GND	Ground
11	AOP	DPTX_OA+
12	AON	DPTX_OA-
13	GND	Ground
14	GND	Ground
15	A1P	DPTX_1A+
16	A1N	DPTX_14A-
17	GND	Ground
18	GND	Ground
19	A2P	DPTX_2A+
20	A2N	DPTX_2A-
21	GND	Ground
22	GND	Ground
23	A3P	DPTX_3A+
24	A3N	DPTX_3A-
25	GND	Ground
26	GND	Ground
27	AUXP	DPTX_AUXP+
28	AUXN	DPTX_ AUXN-
29	HDP	DPTX_HotPlug
30	GND	Ground

Screen interface definition CN4 (4Lane eDP)		
1	NC	NC

2	VLED	LED backlight voltage
3	VLED	LED backlight voltage
4	VLED	LED backlight voltage
5	VLED	LED backlight voltage
6	NC	NC
7	NC	NC
8	BL_PWM	Backlight PWM regulation
9	BL_EN	Backlight switch
10	GND	Ground
11	GND	Ground
12	GND	Ground
13	GND	Ground
14	HPD	HPD signal
15	GND	Ground
16	GND	Ground
17	GND	Ground
18	GND	Ground
19	NC	NC
20	VCC	Screen voltage
21	VCC	Screen voltage
22	VCC	Screen voltage
23	VCC	Screen voltage
24	GND	Ground
25	AUX_N	AUX signal negative pole
26	AUX_P	Positive pole of AUX signal
27	GND	Ground
28	Lane0_P	Positive pole of LaneO signal
29	Lane0_N	LaneO signal negative pole
30	Ground	Ground
31	Lane1_P	Positive pole of Lanel signal
32	Lane1_N	Lane1 signal negative pole
33	GND	Ground
34	Lane2_P	Positive pole of Lane2 signal
35	Lane2_N	Lane2 signal negative pole
36	GND	Ground
37	Lane3_P	Positive pole of Lane3 signal
38	Lane3_N	Lane3 signal negative pole
39	GND	Ground
40	NC	NC

Power amplifier interface definition JP4 (4P/2.54)

1	Γ+	LINE_OUT_L
2	L-	LINE_OUT_LN
3	R+	LINE_OUT_R
4	R-	LINE_OUT_RN

Power interface JP1(10PIN/2.54)			
No.	Name	Description	
1	12V	12V power	
2	12V	12V power	
3	GND	Ground	
4	GND	Ground	
5	5V	5V power	
6	5V	5V power	
7	SB5V	Standby 5V	
8	GND	Ground	
9	GND	Ground	
10	ON/OFF	Power switch	

Screen inte	Screen interface definition CNF1(V-by-One)			
1	VCC	VCC		
2	VCC	VCC		
3	VCC	VCC		
4	GND	Ground		
5	GND	Ground		
6	GND	Ground		
7	GPIO	GPIO		
8	HPD2	HPD2		
9	GPIO	GPIO		
10	GND	Ground		
11	CHN2	CHN2		
12	CHP2	CHP2		
13	ON/ON2	ON/ON2		
14	0P/0P2	0P/0P2		
15	1N/1N2	1N/1N2		
16	1P/1P2	1P/1P2		
17	2N/2N2	2N/2N2		
18	2P/2P2	2P/2P2		
19	3N/3N2	3N/3N2		
20	3P/3P2	3P/3P2		

21	HPD1	HPD1
22	GND	Ground
23	CHN1	CHN1
24	CHP1	CHP1
25	4N/0N1	4N/0N1
26	4P/0P1	4P/0P1
27	5N/1N1	5N/1N1
28	5P/1P1	5P/1P1
29	6N/2N1	6N/2N1
30	6P/2P1	6P/2P1
31	7N/3N1	7N/3N1
32	7P/3P1	7P/3P1

5.Dimension Drawing



6. Installation and Debugging

5.1 Installation During the installation process, the circuit board can not be knocked, distorted, and other destructive behavior. The position of the setting device should be as convenient as possible, the connection line is not winding, and the shortest is convenient for heat dissipation. After assembly, the circuit board and surface components can not be contacted and extruded. Do not arbitrarily use electric iron and other tools to change any device on the board.

5.2 Simple elimination of common faults, carefully check the main board, power supply (panel) and the power supply of each part of the screen before turning on the power.

A. The LED light does not turn on after power on

a. Check whether the input power connection and voltage are correct;

b. Check to see if the panel is properly connected.

B. LED light, remote control not boot

a. Check that the remote control battery is in good condition. It is better to replace the battery;

b. Using multimeter to measure the output voltage is correct, respectively 3.3V and 1.8V, the error is not more than 0.2V;

c. Watch the remote control with an oscilloscope. Is there a waveform input on the IR

PIN on the panel interface?.

C. Boot green light, the screen does not show or show abnormal or no signal (white screen, flower screen, not full screen, etc.)

a. Verify that the screen application is correct;

b. Confirm that the screen power is correct and check whether the signal line of the screen is connected with the main board correctly.

Notice:

1. Reset the settings for the first time using the motherboard;

2. Please switch off the power supply immediately when excessive heat and abnormal smoke appear on the first circuit;

3. Non - related personnel of the company shall not remove, remove or remove any device on the circuit board, otherwise the consequences are self - contained.

7 .Service

The program can provide customers with complete software services, including custom boot LOGO and OSD language, can adapt to different regions of the market.

8、Transportation and storage

Packaging boxes of this product can be transported by any means of transport, but should avoid rain exposure, extrusion, collision and drop.

Do not suffer from heavy pressure and bending deformation

Antistatic and water					
relative humidity: $\leq 80\%$					
Storage temperature:	$-10 \sim +60 ^{\circ}\mathrm{C}$				
Service temperature:	$0 \sim +40^\circ \mathrm{C}$				