LITEMAX AD9701HP

AD Board

(1 Edition 02/03/2025)

All information is subject to change without notice.

Approved by	Checked by	Prepared by
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Contents

Revision record

Version and date	Page	Old description	New description	Remark
V1				

Feature

AD9701HP is a good performance AD board for Litemax FHD resolution display product. Input interface supports DP, HDMI. Output supports eDP, LVDS panel. Max resolution up to 1920x1080.

General description

- ✧ Max resolution 1920x1080 100Hz
- ✧ One DP 1.4, supports 1920x1080 100Hz.
- ✧ One HDMI 2.1, supports1920x1080 100Hz.
- ✧ Embedded MCU with ADC port for VR, light sensor application.
- ✧ Embedded OSD.
- ✧ Support eDP panel.
- ✧ Support Dual/Single LVDS
- ✧ Size 100mm*72mm
- ✧ Support output voltage 12V(1A) or 5V(1A)

Characteristics

Power Input	12V/24V (Note1)
Power Consumption	15W Max. (Note2)
Input interface	HDMI 2.1, DP 1.4
Output interface	eDP 2 lanes. Dual/Single LVDS
Resolution	Max 1920x1080.
Support panel voltage	3.3 / 5 / 12 V
Speaker	2.8W speaker x 2 (4Ω)
Backlight control	EN and PWM or DC dimming for backlight
Operation Temperature	-30 ~ 85 degree C
Storage Temperature	-30 ~ 85 degree C

Note1: 12V or 24V are two different PCBA version, selection should be noted.

Note2: 15W means AD board own consumption, not include LCD and T-con.

Outline Dimensions

16mm
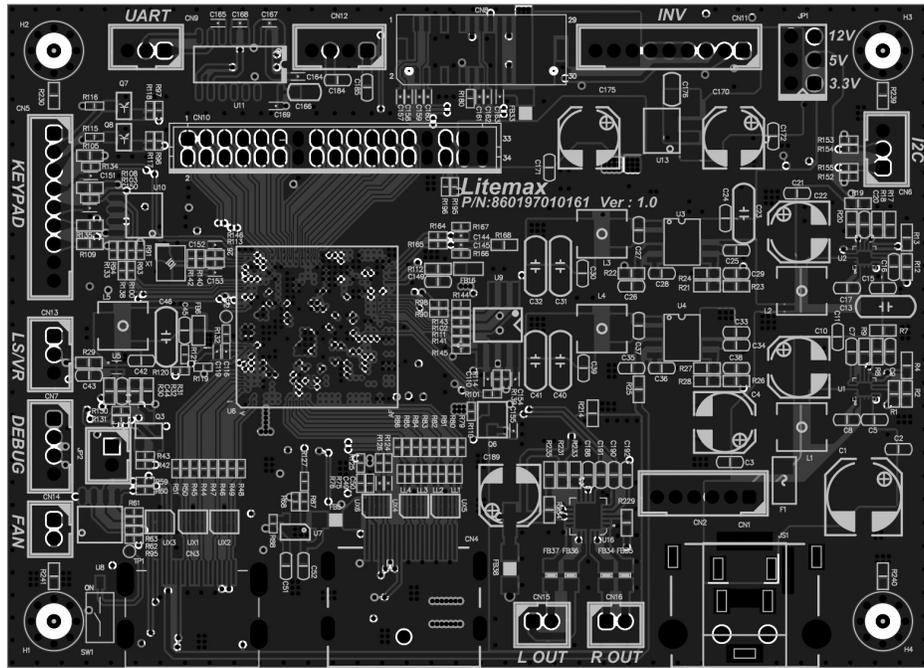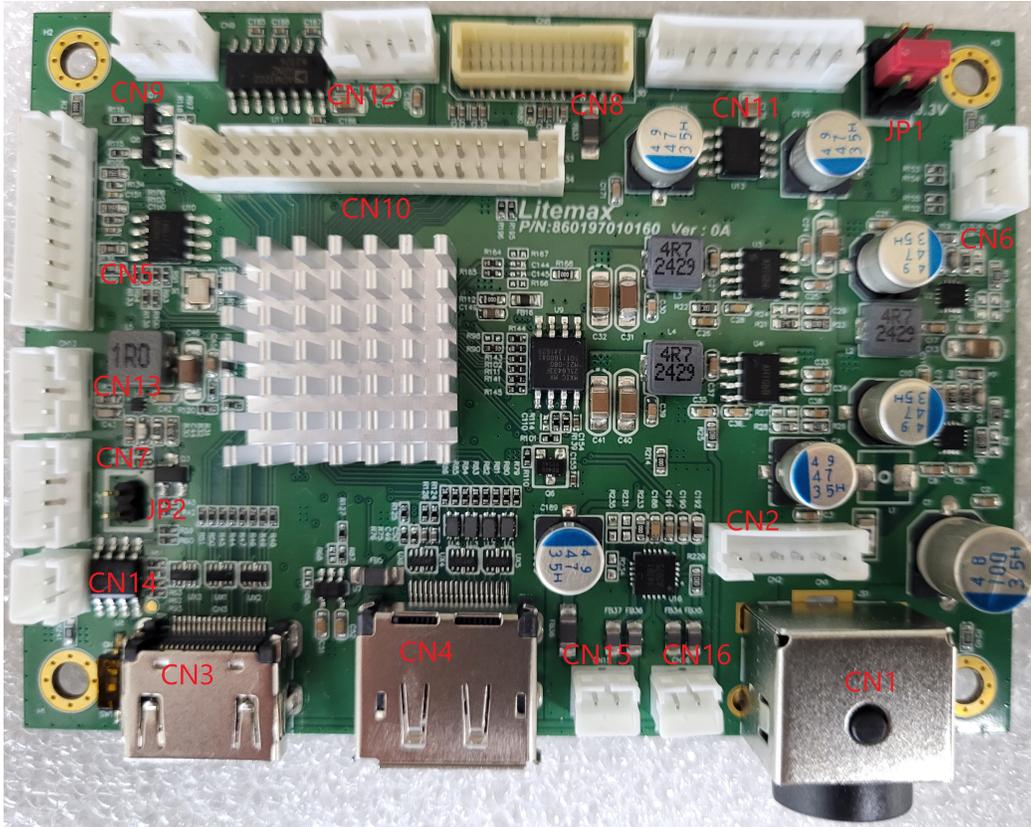
Connector pin define

➢ CN8: eDP output(Wafer 1.0mm, 15*2P)

Pin	Function	Pin	Function
1	TX0P	16	TXAUX-
2	TX0N	17	TX_HPD
3	TX1P	18	GND
4	TX1N	19	VLCD
5	GND	20	VLCD
6	GND	21	DIM_EDP
7	NC	22	ON/OFF_EDP
8	NC	23	INVGND
9	GND	24	INVGND
10	GND	25	INVGND
11	NC	26	INVGND
12	NC	27	12INV
13	GND	28	12INV
14	GND	29	12INV
15	TXAUX+	30	12INV

➢ CN10: LVDS output(Wafer 2.0mm,17x2P)

Pin	Function	Pin	Function
1	RXO0-	18	RXE1+
2	RXO0+	19	RXE2-
3	RXO1-	20	RXE2+
4	RXO1+	21	RXEC-
5	RXO2-	22	RXEC+
6	RXO2+	23	RXE3-
7	RXOC-	24	RXE3+
8	RXOC+	25	RXE4-
9	RXO3-	26	RXE4+
10	RXO3+	27	GND
11	RXO4-	28	GND
12	RXO4+	29	+3.3V
13	GND	30	GND
14	GND	31	VCC
15	RXE0-	32	VCC
16	RXE0+	33	VCC
17	RXE1-	34	VCC

➢ CN4: DP input

Pin	Function	Pin	Function
1	ML_Lane3(n)	11	GND
2	GND	12	ML_Lane0(p)
3	ML_Lane3(p)	13	CONFIG1(SCL)
4	ML_Lane2(n)	14	CONFIG2(SDA)
5	GND	15	AUX_CH(p)
6	ML_Lane2(p)	16	GND
7	ML_Lane1(n)	17	AUX_CH(n)
8	GND	18	Hot_Plug
9	ML_Lane1(p)	19	Return
10	ML_Lane0(n)	20	DP_PWR

Note: Those pin13, pin14 are update FW

➢ CN3: HDMI input

Pin	Function	Pin	Function	Pin	Function
1	RX2+	9	RX0-	17	GND
2	GND	10	TMDS Clock+	18	HDMI +5V
3	RX2-	11	HDMI DET	19	HPD
4	RX1+	12	TMDS Clock-		
5	GND	13	CEC		
6	RX1-	14	NC		
7	RX0+	15	HDMI_SCL		
8	GND	16	HDMI_SDA		

➢ CN2: Power input (Wafer 2.0mm pitch 6 pin)

Pin	Function	Pin	Function
1	Power Input	4	GND
2	Power Input	5	GND
3	Power Input	6	GND

➢ CN1: Power input (Power Din 4 pin)

Pin	Function	Pin	Function
1	Power Input	3	GND
2	Power Input	4	GND

➢ CN1: Power input (Power Jack 3 pin)

Pin	Function	Pin	Function
1	Power Input	3	GND
2	GND		

➢ CN12: Power output (Wafer 2.0mm pitch4 pin)

Pin	Function	Pin	Function
1	+5V(1A)	3	+12V(1A)
2	GND	4	GND

➢ CN11: Backlight Power and Control (Wafer 2.0mm pitch 9 pin)

Pin	Function	Pin	Function
1	DC/PWM SEL	6	GND
2	Enable	7	12V (Note3)

3	Dimming	8	12V (Note3)
4	GND	9	12V (Note3)
5	GND		

Note3: Pin 7,8,9 are for 12V version only. If you choose 24V version, these 3 pin are NC.

- CN5: Keypad (Wafer 2.0mm pitch 9 pin)

Pin	Function	Pin	Function
1	POWER KEY	6	MENU KEY
2	GREEN LED	7	NC
3	RED LED	8	GND
4	DOWN KEY	9	GND
5	UP KEY		

- CN13: Light sensor/VR (Wafer 2.0mm pitch 2 pin)

Pin	Function	Pin	Function
1	3.3V	3.	GND
2	Sensor Out		

- JP1: Panel power selection (2.54mm pitch 2x3 jump)

Pin	Function	Pin	Function
1-2 close	3.3V	5-6 close	12V
3-4 close	5V		

- CN9: UART (Wafer 2.0mm pitch 3 pin)

Pin	Function	Pin	Function
1	TX	3	GND
2	RX		

- CN6: I2C (Wafer 2.0mm pitch 3 pin)

Pin	Function	Pin	Function
1	SDA	3	GND
2	SCL		

- CN16: Audio out R (Wafer 2.0mm pitch 2 pin)(2.8W 4 Ω Load)

Pin	Function	Pin	Function
1	ROUTP	2	ROUTN

➢ CN15: Audio out L (Wafer 2.0mm pitch 2 pin) (2.8W 4ΩLoad)

Pin	Function	Pin	Function
1	LOUTP	2	LOUTN

➢ CN7: DEBUG

Pin	Function	Pin	Function
1	3.3V	3	SDA(DDC)
2	SCL(DDC)	4	GND

➢ JP2: DEBUG EN

Pin	Function	Pin	Function
1	PULL HI(3.3V)	2	GND

When J2 short , CN7 will be debug function.

➢ CN14: FAN out (Wafer 2.0mm pitch 2 pin)

Pin	Function	Pin	Function
1	FAN OUT(12V)	2	GND