



LITEMAX AD9800DHP

AD Board

(1 Edition 7/3/2024)

All information is subject to change without notice.

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Revision record

Version and date	Page	Old description	New description	Remark
V1				

Feature

AD9800 is a good performance AD board for Litemax 4K resolution display product. Input interface supports DVI , HDMI, DP. Output supports V-by-1 and eDP panel. Max resolution up to 3840x2160.

For high level application, AD9800 supports screen rotation by embedded frame buffer.

General description

- ✧ Max resolution 3840x2160 60Hz
- ✧ One DVI input, supports 1080P. (Optional)
- ✧ One HDMI 2.1, supports 3840x2160 60Hz.
- ✧ One Display port 1.4, supports 3840x2160 60Hz.
- ✧ Support 90, 180, degree rotation.
- ✧ Embedded MCU with ADC port for VR, light sensor application.
- ✧ Support HDCP 2.3.
- ✧ Audio line in and speaker output.
- ✧ Embedded OSD.
- ✧ Support V-by-1, eDP panel.
- ✧ Support up to 64 zones LED local dimming control.

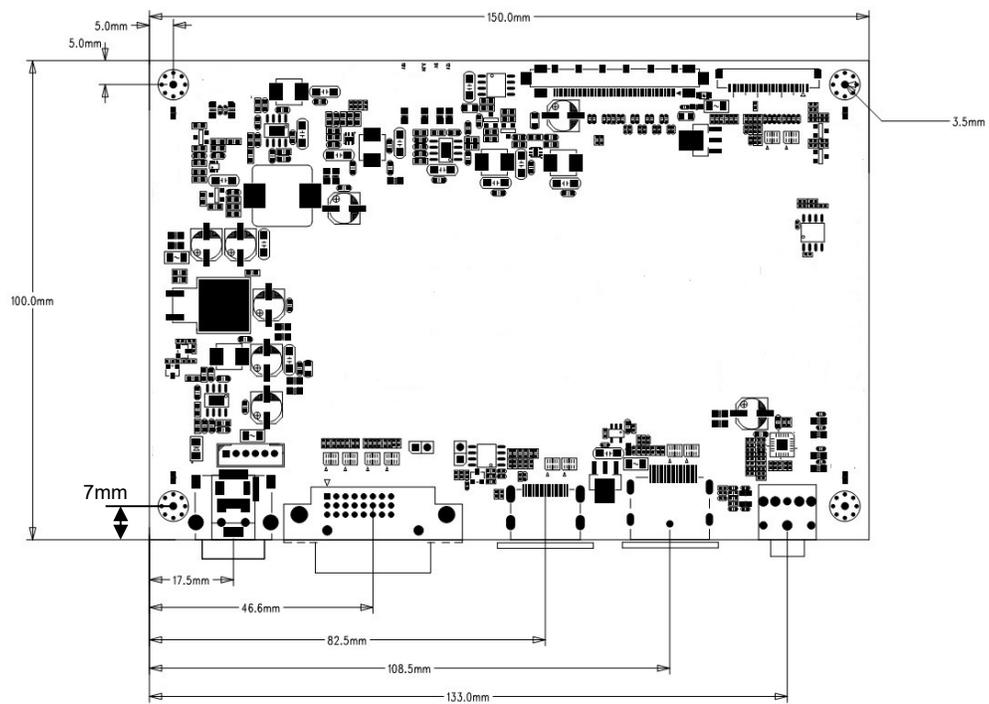
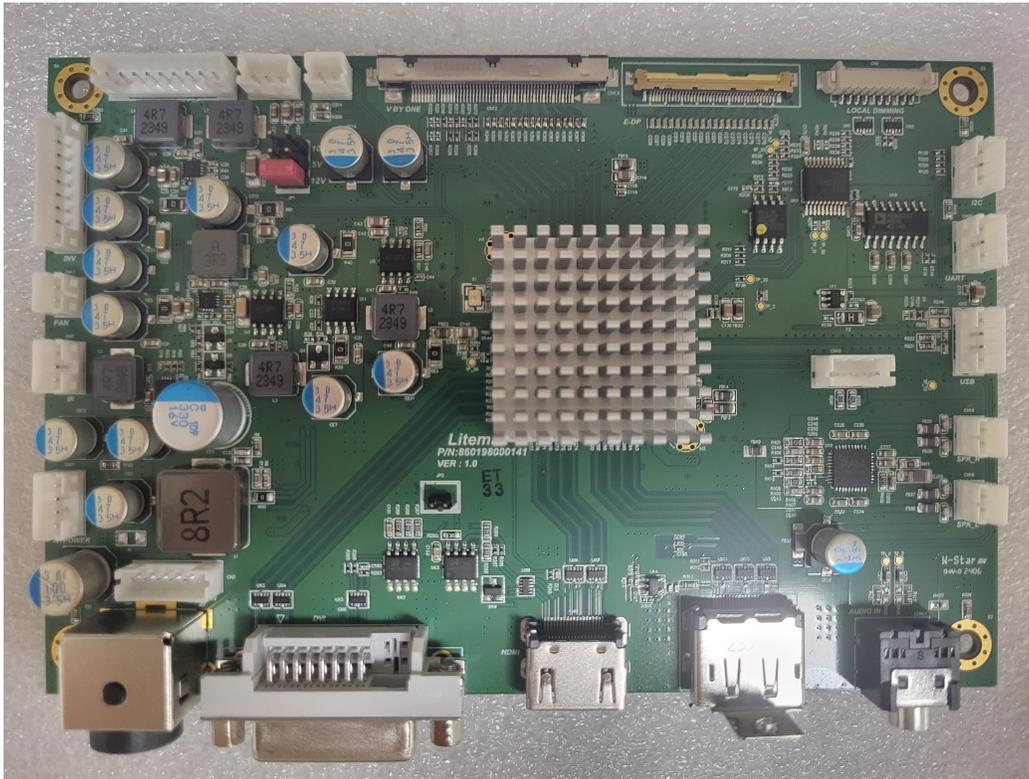
Characteristics

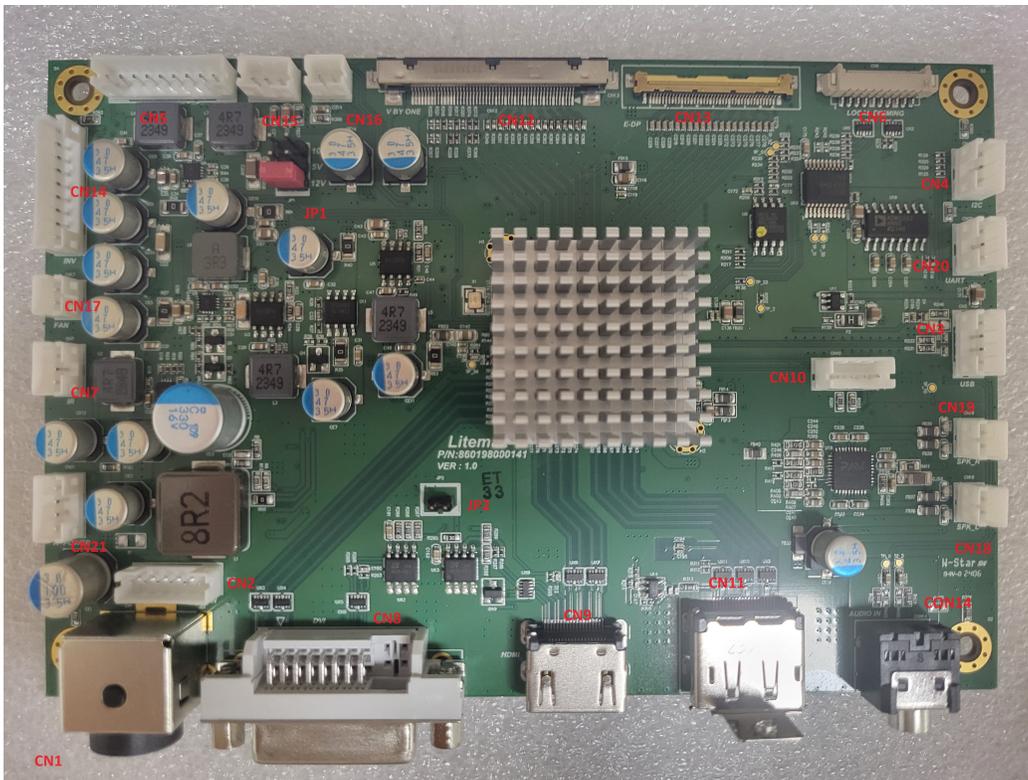
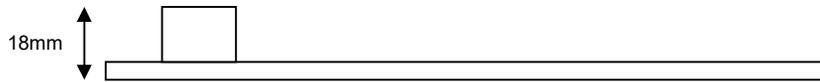
Power Input	12V/24V (Note1)
Power Consumption	15W Max. (Note2)
Input interface	HDMI 2.1, DP 1.4, DVI (Optional)
Output interface	V-by-1 8 lanes, eDP 8 lanes.
Resolution	Max 3840x2160. (DVI only 1080P)
Support panel voltage	5 / 10 / 12 V
Speaker	5W speaker x 2(8Ω)
Backlight control	EN and PWM or DC dimming for backlight
Operation Temperature	-20 ~ 70 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





Connector pin define

➤ CN12: V-by-one output

Pin	Function	Pin	Function
1	GND	27	HPD
2	X7P	28	8b/10b SEL
3	X7N	29	NC
4	GND	30	LD_EN_U
5	X6P	31	NC
6	X6N	32	NC
7	GND	33	SCL
8	X5P	34	SDA
9	X5N	35	3D_EN_U
10	GND	36	NC
11	X4P	37	NC
12	X4N	38	GND

13	GND	39	GND
14	X3P	40	GND
15	X3N	41	GND
16	GND	42	GND
17	X2P	43	NC
18	X2N	44	Panel power
19	GND	45	Panel power
20	X1P	46	Panel power
21	X1N	47	Panel power
22	GND	48	Panel power
23	X0P	49	Panel power
24	X0N	50	Panel power
25	GND	51	Panel power
26	LOCKN		

➤ CN8: DVI (Optional)

Pin	Function	Pin	Function	Pin	Function
1	TMDS Data2-	9	TMDS Data1-	17	TMDS Data0-
2	TMDS Data2+	10	TMDS Data1+	18	TMDS Data0+
3	Shield	11	Shield	19	Shield
4	NC	12	NC	20	NC
5	NC	13	NC	21	NC
6	DDC Clock	14	+5V Power	22	Shield
7	DDC Data	15	Power ground	23	TMDS Clock+
8	NC	16	Hot Plug Detect	24	TMDS Clock-

➤ CN9: HDMI input

Pin	Function	Pin	Function	Pin	Function
1	TMDS Data2+	9	TMDS Data0-	17	GND
2	Shield	10	TMDS Clock+	18	HDMI +5V
3	TMDS Data2-	11	Shield	19	HPD
4	TMDS Data1+	12	TMDS Clock-		

5	Shield	13	CEC		
6	TMDS Data1-	14	NC		
7	TMDS Data0+	15	HDMI_SCL		
8	Shield	16	HDMI_SDA		

➤ CN11: DisplayPort input

Pin	Function	Pin	Function
1	LAN_C_D3N	11	GND
2	GND	12	ML_LANE0_P
3	LAN_C_D3P	13	GND
4	ML_LANE2_N	14	GND
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 detect
9	ML_LANE1_P	19	GND
10	ML_LANE0_N	20	DP +5V

➤ 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		

➤ 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

➤ CN21: Reserved 12/5V (Wafer 2.0mm pitch 4 pin)

Pin	Function	Pin	Function
1	5V	3	12V
2	GND	4	GND

➤ CN14: 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.

➤ CN17: 12V for Fan power (Wafer 2.0mm pitch 2 pin)

Pin	Function	Pin	Function
1	Fan+ (12V)	2	Fan-

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

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

➤ CN15: VR (Wafer 2.0mm pitch 3 pin)

Pin	Function	Pin	Function
1	3.3V	3	GND
2	VR		

➤ CN16: Light sensor (Wafer 2.0mm pitch 2 pin)

Pin	Function	Pin	Function
1	5V/3.3V	2	Sensor Out

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

Pin	Function	Pin	Function
1-2 close	12V	5-6 close	10V
3-4 close	5V		

➤ CN18,CN19: Speaker output (Wafer 2.0mm pitch 2 pin)

Pin	Function	Pin	Function
1	SPK+	2	SPK-

➤ CN20: UART (Wafer 2.0mm pitch 3 pin)

Pin	Function	Pin	Function
1	TX	3	GND
2	RX		

➤ CN4: I2C (Wafer 2.0mm pitch 3 pin)

Pin	Function	Pin	Function
1	SDA	3	GND
2	SCL		

➤ CN13: eDP output

Pin	Function	Pin	Function
1	GND	21	GND
2	NC	22	EDP-D1-
3	GND	23	EDP-D1+
4	EDP-D7-	24	GND
5	EDP-D7+	25	EDP-D0-
6	GND	26	EDP-D0+
7	EDP-D6-	27	GND
8	EDP-D6+	28	AUXTX_1P
9	GND	29	AUXTX_1N
10	EDP-D5-	30	GND
11	EDP-D5+	31	AUXTX_0P
12	GND	32	AUXTX_0N
13	EDP-D4-	33	GND

14	EDP-D4+	34	eHPD1
15	GND	35	eHPD0
16	EDP-D3-	36	NC
17	EDP-D3+	37	Panel power
18	GND	38	Panel power
19	EDP-D2-	39	Panel power
20	EDP-D2+	40	Panel power

➤ CN3: USB (Wafer 2.0mm pitch 4 pin)

Pin	Function	Pin	Function
1	USB_5V	3	D0+
2	D0-	4	GND

Note: CN3 only for update FW.

➤ CN6: Local Dimming (Wafer 1.25mm pitch 10 pin)

Pin	Function	Pin	Function
1	LDSPiO_SDI_OUT	6	LD_VSYNC_OUT
2	LDSPiO_SDO_OUT	7	LD_HSYNC_OUT
3	LDSPiO_SCL_OUT	8	GND
4	LDSPiO_CS_OUT	9	VBLCTRL
5	GND	10	NC

➤ JP2: EDID Write Protect (Wafer 2.0mm pitch 2 pin)

Pin	Function	Pin	Function
1	3.3V	2	GND

Note: When update EDID , this JP2 must be short.

➤ CON14: Phone Jack(Optional)

Pin	Function	Pin	Function
1	GND	4	GND
2	Audio IN_R	5	GND
3	Audio IN_L		