



HIGHNESSTM

LCD - AD-CONTROLLER BOARD
Model No. AB4096LV-4110AOE



Release Date
11th Jun 2020

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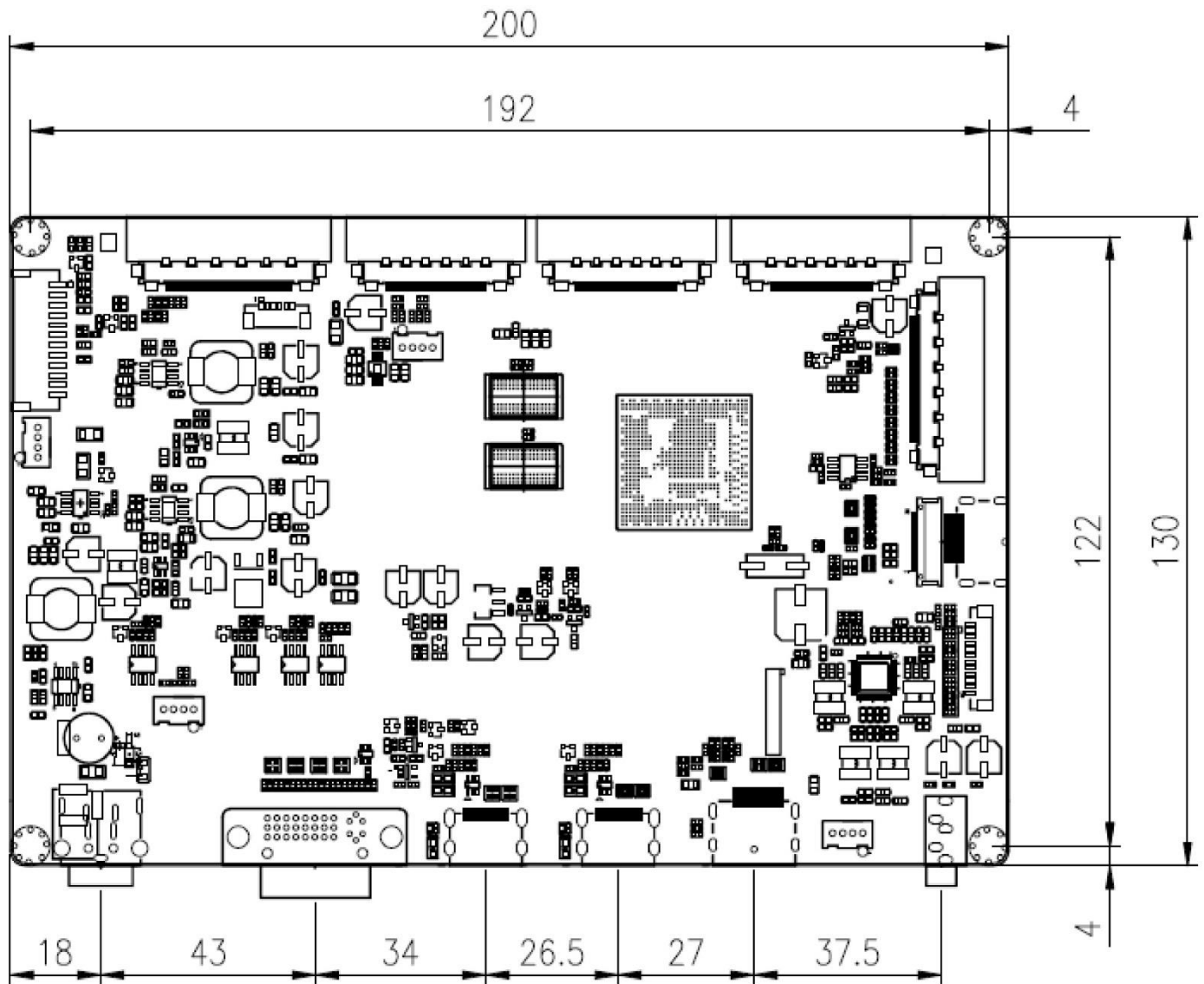
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1. Specification.

Model No.		AB4096LV-4110AOE
Chipset		GPADR3.0
Supported Resolution	PC-RGB	Up to 4096 x 2160 Horizontal Frequency 31 ~ 130KHz 56 ~ 75Hz field frequency
	DVI, HDMI, DISPLAY PORT	Horizontal Freq: 31—130KHz Vertical Freq: 56—75Hz
Power Supply	Power Requirement	Input Power 24V / 12V DC
	To Supply	5V, 12V, 24V
	Manage	Low Power Consumable mode: Standby <1W
Key Functions		Power, Source, Up, Down, Right, Left, Menu.
Audio Output		2 x 20 W
Terminal Input	DVI	1D-SUB 24 Pin Terminal White color
	HDMI	2D-SUB 19 Pin Terminal Metallic
	DP PORT	1D-SUB 20 Pin Terminal Metallic
Terminal Output	DP PORT	1D-SUB 20 Pin Terminal Metallic
Technical 's Output	To Panel	4 LVDS, 1 V-by-1
Other Function		PIP/ PBP(L/R, Top/Bottom)/4P(4Windows) Function
Operating Temperature		0 ~ 70°C
Storage Temperature		-55 ~ 110°C
Humidity		≤95% (Non-Condensing)
Size		200 x 130 mm

2. Dimension.

Ad-Board:



3. Ad-Board Picture.

Top View:



4. Connector & Pin assignment.

4.1 (I) Output Connection :(V-by-1 Connector 51Pin) CNF1

Pin	Function	Pin	Function	Pin	Function	Pin	Function
1	GND	14	VB1_TX3P	27	VB1_HPDP	40	GND
2	VB1_TX7P	15	VB1_TX3N	28	N.C.	41	GND
3	VB1_TX7N	16	GND	29	AUX_CH_P1	42	GND
4	GND	17	VB1_TX2P	30	AUX_CH_N1	43	N.C.
5	VB1_TX6P	18	VB1_TX2N	31	N.C.	44	LCD_VDD
6	VB1_TX6N	19	GND	32	VB1_SDA	45	LCD_VDD
7	GND	20	VB1_TX1P	33	VB1_SCL	46	LCD_VDD
8	VB1_TX5P	21	VB1_TX1N	34	N.C.	47	LCD_VDD
9	VB1_TX5N	22	GND	35	TP	48	LCD_VDD
10	GND	23	VB1_TX0P	36	AUX_CH_P2	49	LCD_VDD
11	VB1_TX4P	24	VB1_TX0N	37	AUX_CH_N2	50	LCD_VDD
12	VB1_TX4N	25	GND	38	N.C	51	LCD_VDD
13	GND	26	VB1_PLL_LOCK	39	TP		

(II) Output Connection :(LVDS Connector 51Pin) CNF2

Pin	Function	Pin	Function	Pin	Function	Pin	Function
1	LCD_VDD	14	TXB 3-	27	TXA 4+	40	TXA 0-
2	LCD_VDD	15	GND	28	TXA 4-	41	GND
3	LCD_VDD	16	TXB C+	29	TXA 3+	42	NC
4	LCD_VDD	17	TXB C-	30	TXA 3-	43	NC
5	NC	18	GND	31	GND	44	NC
6	GND	19	TXB 2+	32	TXA C+	45	OPT3
7	GND	20	TXB 2-	33	TXA C-	46	NC
8	GND	21	TXB 1+	34	GND	47	OPT2
9	NC	22	TXB 1-	35	TXA 2+	48	OPT1
10	NC	23	TXB 0+	36	TXA 2-	49	NC
11	TXB 4+	24	TXB 0-	37	TXA 1+	50	NC
12	TXB 4-	25	NC	38	TXA 1-	51	NC
13	TXB 3+	26	NC	39	TXA 0+		

(III) Output Connection :(LVDS Connector 41Pin) CNF3,4,5

Pin	Function	Pin	Function	Pin	Function	Pin	Function
1	GND	12	TX D/F/H 2-	23	GND	34	NC
2	GND	13	TX D/F/H 1+	24	TX C/E/G C+	35	NC
3	TX D/F/H 4+	14	TX D/F/H 1-	25	TX C/E/G C-	36	NC
4	TX D/F/H 4-	15	TX D/F/H 0+	26	GND	37	NC
5	TX D/F/H 3+	16	TX D/F/H 0-	27	TX C/E/G 2+	38	NC
6	TX D/F/H 3-	17	GND	28	TX C/E/G 2-	39	NC
7	GND	18	GND	29	TX C/E/G 1+	40	NC
8	TX D/F/H C+	19	TX C/E/G 4+	30	TX C/E/G 1-	41	NC
9	TX D/F/H C-	20	TX C/E/G 4-	31	TX C/E/G 0+		
10	GND	21	TX C/E/G 3+	32	TX C/E/G 0-		
11	TX D/F/H 2+	22	TX C/E/G 3-	33	GND		

(IV) DP Connection (20 pin DP Output Connector): DP1

Pin	Function	Pin	Function	Pin	Function
1	LANE0+	8	GND	15	AUX CH+
2	LANE0-	9	LANE2-	16	GND
3	GND	10	LANE3+	17	AUX CH-
4	LANE1+	11	GND	18	HPD
5	GND	12	LANE3-	19	RETURN
6	LANE1-	13	CONFIG1	20	PWR OUT
7	LANE2+	14	CONFIG2		

4.2 Input Interface Details:

(I) DVI-D Connection (24 pin DVI Connector): CN9

Pin	Function	Pin	Function	Pin	Function	Pin	Function
1	TX2-	9	TX1-	17	TX0-	25	GND
2	TX2+	10	TX1+	18	TX0+	26	GND
3	GND	11	GND	19	GND	C1	NC
4	TX4-	12	TX3-	20	TX5-	C2	NC
5	TX4+	13	TX3+	21	TX5+	C3	NC
6	DDCC	14	VDDC	22	GND	C4	GND
7	DDCD	15	DVI-DET	23	TXC+	C5	GND
8	NC	16	HPD	24	TXC-	C5A	GND

(II) DP Connection (20 pin DP Input Connector): DP1

Pin	Function	Pin	Function	Pin	Function
1	LANE3-	8	GND	15	AUX CH+
2	GND	9	LANE1+	16	GND
3	LANE3+	10	LANE0+	17	AUX CH-
4	LANE2-	11	GND	18	HPD
5	GND	12	LANE0-	19	RETURN
6	LANE2+	13	CA DET	20	PWR OUT
7	LANE1-	14	DP DET		

(III) HDMI Connection (21 pin HDMI Input Connector): HDMI1,2

Pin	Function	Pin	Function	Pin	Function
1	RX2+	8	GND	15	HDMI_SCL
2	GND	9	RX0-	16	HDMI_SDA
3	RX2-	10	RXC+	17	HDMI_CHK
4	RX1+	11	GND	18	HDMI_DDC5V
5	GND	12	RXC-	19	HDMI_HOT_PLUG
6	RX1-	13	NC	20	GND
7	RX0+	14	NC	21	GND

(IV) Audio Output Connection (5 pin Connector): CN7

Pin	Function	Pin	Function	Pin	Function
1	GND	3	RIGHT	5	LEFT
2	DET	4	DET		

(V) Speaker Interface: CN8

Pin	Function	Pin	Function	Pin	Function	Pin	Function
1	SP_L+	2	SP_L-	3	SP_R+	4	SP_R-

(VI) 24V DC Power (Connector 14pin):CN9

Pin	Function	Pin	Function	Pin	Function	Pin	Function
1	24V	2	24V	3	GND	4	GND

(VII) RS-232 Output (Connector 14pin):CN9

Pin	Function	Pin	Function	Pin	Function	Pin	Function
1	GND	2	TXD	3	RXD	4	VCC

(VIII) I2C Output (Connector 14pin):CN9

Pin	Function	Pin	Function	Pin	Function	Pin	Function
1	GND	2	I2C	3	I2C	4	VCC

(IX) OSD Connection (12 pin Connector): CN15

Pin	Function	Pin	Function	Pin	Function
1	LED-GRN	5	VCC	9	DOWN
2	LED-RED	6	POWER	10	RIGHT
3	IR	7	SOURCE	11	LEFT
4	GND	8	UP	12	MENU

5. Inverter Interface Details.

(I) Backlight Panel Port Details (Connector 12pin): CN12

Pin	Function	Pin	Function
1	DIM-ADJ	7	5V
2	INVON	8	5V
3	PWM	9	24V
4	GND	10	24V
5	GND	11	24V
6	PWR_CTRL	12	24V

6. Frequency Details:

Resolution	Vertical Frequency (Hz)
640 x 350	85.080
640 x 400	59.940
640 x 400	85.080
640 x 480	59.940
640 x 480	60.000
640 x 480	72.809
640 x 480	75.000
640 x 480	85.008
720 x 400	70.087
720 x 400	85.039
800 x 600	56.250
800 x 600	60.317
800 x 600	72.188
800 x 600	75.000
800 x 600	85.061
1024 x 768	60.000
1024 x 768	70.069
1024 x 768	75.029
1024 x 768	84.997
1152 x 864	70.012
1152 x 864	75.000
1280 x 720	59.856
1280 x 768	59.870
1280 x 960	60.000
1280 x 960	85.002
1360 x 768	59.960
1360 x 768	74.892
1280 x 1024	60.020
1280 x 1024	75.025
1280 x 1024	85.024
1680 x 1050	59.954
1600 x 1200	60.000
1920 x 1080	59.934
1920 x 1080	60.000
1920 x 1080	59.940
1920 x 1200	59.999
2560 x 1440	59.982
2560 x 1600	60.000
3840 x 2160	60.000
4096 x 2160	60.000