LCD Display Kits
AD Board
Engineer Specification V5

Mode Name	AD-0088		
Edited by	Tony Chiu	Release Date	2017/7/25
Checked by		Release Version	Ver. 5
Approved by			

Taiwan Screen Optronics Co., Ltd.
4F., No.97, Lide St., Jhong-he Dist., New Taipei City 23556, Taiwan
TEL: +886-2-8227-5490
FAX: +886-2-3234-7264

1. General Funtion

A. TFT-LCD module drive board
B. Resolution up to 1920 x 1080 @ 60 Hz
C. HDMI 1.4a or DVI input
D. VGA input
E. 1/2 Lane eDP interface output to panel
F. OSD (On Screen Display) control menu
G. Supporting HDCP protocol (optional)
H. Supporting DDC/CI protocol

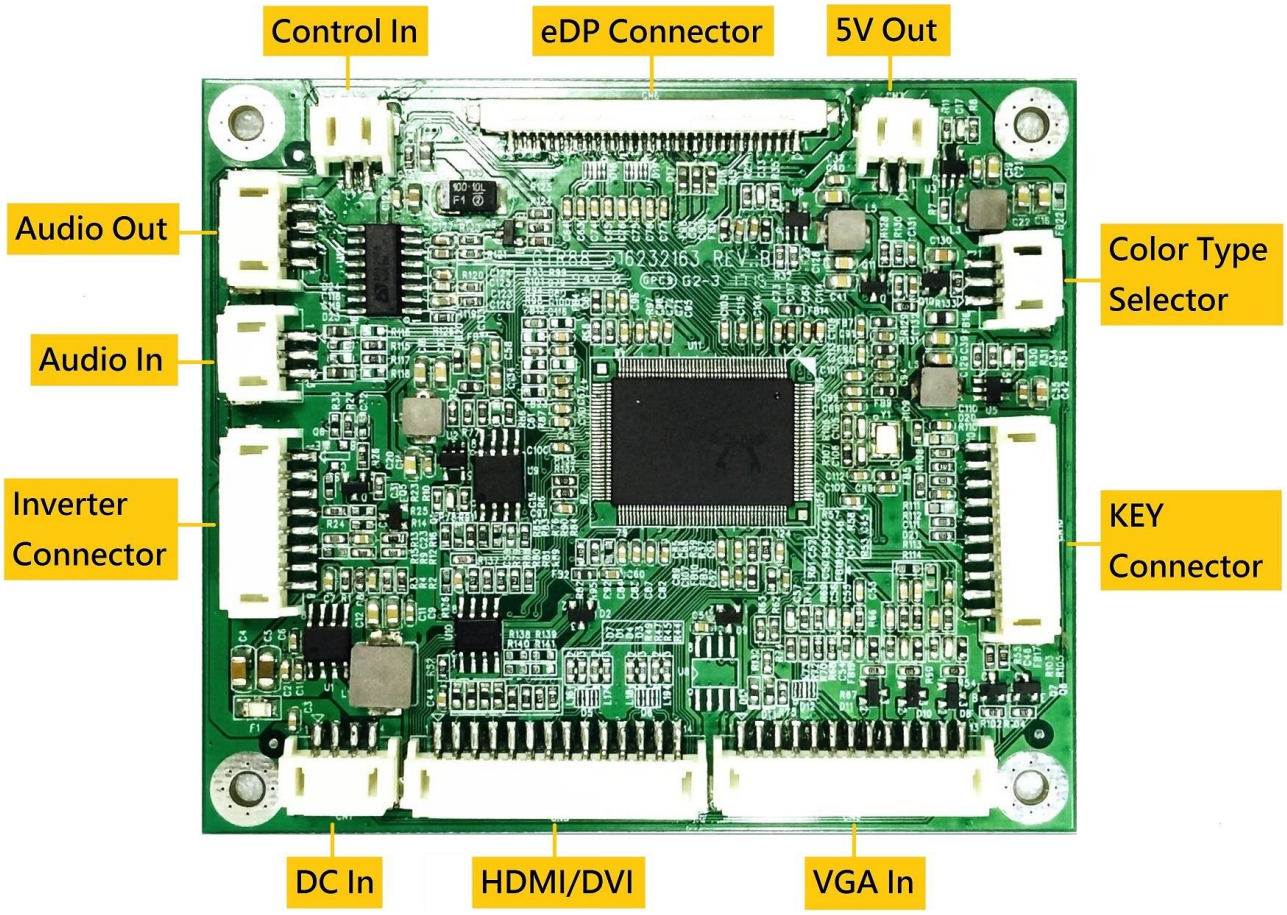
2. Specification

Model	AD-0088
Panel interface	1/2 Lane eDP
Maximum Resolution	Up to WUXGA 1920x1080 8 bits per color, total 16.7M Colors
Vertical Refresh Rate	WUXGA up to 60HZ
Input Source	HDMI or DVI, VGA
Dot Clock Maximum (pixel clock)	165 MHz
Key Function	Power Menu Adjust - Adjust + Exit / Auto
Board Dimension	95 mm x82mm
Voltage for LCD Panel	3.3V DC
Storage Temperature Limits	Temperature –40C~70C
Operation Temperature Limits	Temperature 0C~40C Humidity：Less than 85%

3. Support PC Timing

NO.	Description	H-Freq. (KHz)	V-Freq. (Hz)
1.	VESA 800×600	35.156	56.25
2.	VESA 800×600	37.9	60
3.	VESA 1024×768	48.363	60
4.	VESA 1280x720	45	60
5.	VESA 1280×768	47.8	60
6.	VESA 1280x960	60	60
7.	VESA 1280×1024	63.981	60
8.	VESA 1366x768	47.7	60
9.	VESA 1440x900	59.9	60
10.	VESA 1600x1200	75	60
11.	VESA 1680x1050	65.3	60
12.	VESA 1920x1080	56.25	50
13.	VESA 1920x1080	67.5	60

4. Signal Input Connections



4-1 VGA Signal Input

Location CN9 –13 PIN wafer pitch 2.0mm 90D

Pin Assign and Definition

Pin No.	SYMBOL	Pin No.	SYMBOL	Pin No.	SYMBOL
1	DET_VGA	6	V. SYNC	11	GREEN
2	VGA_5V	7	H. SYNC	12	GND
3	DDC-SCL	8	GND	13	RED
4	DDC-SDA	9	BLUE	---	------
5	GND	10	GND	---	------

4-2 HDMI or DVI Input

Location CN5 –14 PIN wafer pitch 2.0mm 90D

HDMI or DVI Input Pin Assign and Definition

Pin No.	SYMBOL	Pin No.	SYMBOL	Pin No.	SYMBOL
1	HDMI (DVI)_HPD	6	GND	11	DATA 0+
2	HDMI (DVI)_DET	7	DATA 2+	12	DATA 0-
3	DDC2-SCL	8	DATA 2-	13	DATA CLK+
4	DDC2-SDA	9	DATA 1+	14	DATA CLK-
5	HDMI (DVI)_5V	10	DATA 1-	---	------

4-3 Power Input

Location – CN1 : 4 Pin wafer pitch 2.0mm 90D

Pin assign and definition

Pin No.	SYMBOL
1	+12V
2	+12V
3	GND
4	GND

4-4 Color Type selector (CN12)

Pin2, Pin3 short select color mode (2.0mm Jumper)

Pin1 --- empty

4-5 eDP Output

Location – CN6 : WF13-423-3033

Pin Assign and Definition

Pin No.	SYMBOL	Pin No.	SYMBOL	Pin No.	SYMBOL
1	+12V	11	NC	21	LANE 1-
2	+12V	12	HPD	22	LANE 1+
3	+12V	13	AUX-	23	LANE 0-
4	+12V	14	AUX+	24	LANE 0+
5	Dimming Control	15	NC	25	GND
6	Back Light Enable	16	NC	26	GND
7	GND	17	GND	27	NC
8	GND	18	GND	28	VLCD for Panel
9	GND	19	NC	29	VLCD for Panel
10	GND	20	NC	30	VLCD For Panel

4-6 Key Output Connector

Location – CN10: 10PIN wafer pitch 2.0mm 90D

All Key Active Low Level, All LED Active HI Level, Output Current 10mA MAX

Pin assign and definition

Pin No.	SYMBOL	Pin No.	SYMBOL	Pin No.	SYMBOL
1	LED-G	5	LEFT KEY	9	GND
2	NC	6	MENU KEY	10	POWER KEY
3	LED-R	7	RIGHT KEY	---	----------
4	NC	8	EXIT KEY	---	----------

4-7 Inverter Connector

Location – CN2: 8 PIN wafer pitch 2.0mm 90D

Pin assign and definition

Pin No.	SYMBOL	Pin No.	SYMBOL
1	+12V	5	GND
2	+12V	6	Back Light Enable
3	GND	7	GND
4	Dimming control	8	+12V

4-7A. Dimming: IF CCFL panel Range 0 (Inverter Current Max)
to 5V (Inverter Current Min)
IF LED panel PWM Ratio 100%(LED Current Max)
to PWM Ratio 20%(LED Current Min)

4-7B. Back light enable: 5V (ON) or 0V (OFF)

4-8 Speaker Output

Location – CN8, 4 PIN wafer pitch 2.0mm 90D

Audio Output 1.6W + 1.6W at 8 Ohm

Pin assign and definition

Pin No.	Signal
1	L+
2	L-
3	R-
4	R+

4-9 Audio Input

Location – CN7: 3 PIN wafer pitch 2.0mm 90D

Pin assign and definition

Pin No.	SYMBOL
1	Audio R- In
2	GND
3	Audio L- In

4-10 Micro SW Connector

Location – CN11: 2 PIN wafer pitch 2.0mm 90D

Pin assign and definition

Pin No.	SYMBOL
1	Control
2	GND

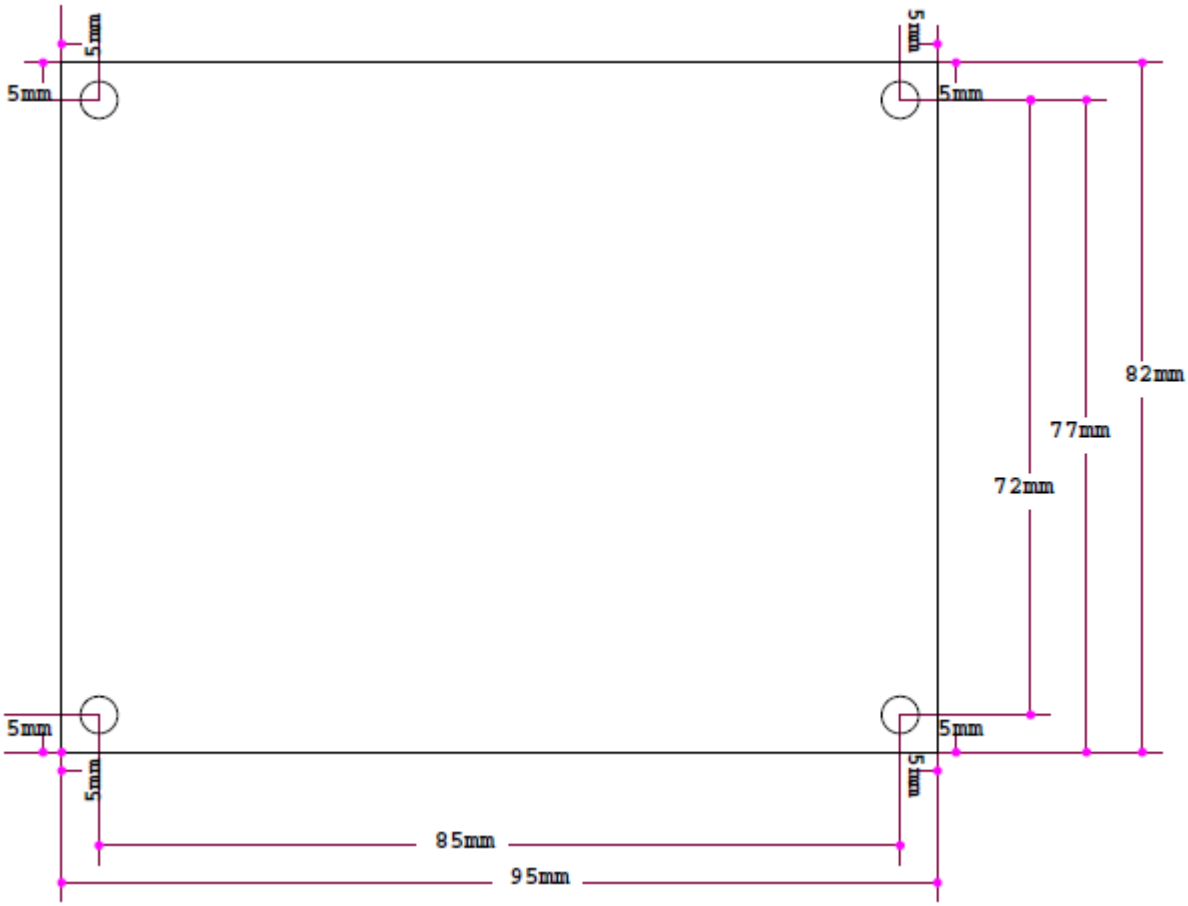
4-11 5V Output

Location – CN3: 2PIN wafer pitch 2.0mm 90D

Pin assign and definition

Pin No.	SYMBOL
1	GND
2	+5V

5. PCB Dimension



6. AD-0088 Demo Machine