

LCD Controller Board

Model name:TS2K

CUSTOMER: _____

PART NO.: _____

DATE: _____

Revision: V 0.1		
DOC :		
COPY :	1	
PAGE :		
Contact		

Approval by :	Review by :	Design by :

.SCOPE

The TS2K is high end monitor Driving board which can support max resolution up to 2560x1600

PRODUCT FEATURES

VIDEO

- Horizontal Synchronization 30 KHz to 83 KHz.
- Vertical Synchronization 45 Hz to 75 Hz.. (custom version can support 25Hz in Vertical)
- Support HDMI 1.4
Support VGA Dsub
- Support Display Port 1.2
- Output data type : LVDS 18bit,24bit,36Bit,48bit.

AUDIO (optional)

- HDMI(Digital) and External Analog Audio input source selection
- Digital Volume Control
- Support 2W+2W audio amplifier.

POWER

- DC Power In 12V or 24V
(please make sure the Backlight of LCD can support 24V when 24V DC)
- Jack 5.5×2.1Φ
(a) Wafer 4P 2.0mm
- Output for LCD panel : 3.3V / 5V / 12V.
- VESA DPMS compliant.
- Power consumption :TBD



ELICTRICAL PERFORMANCE

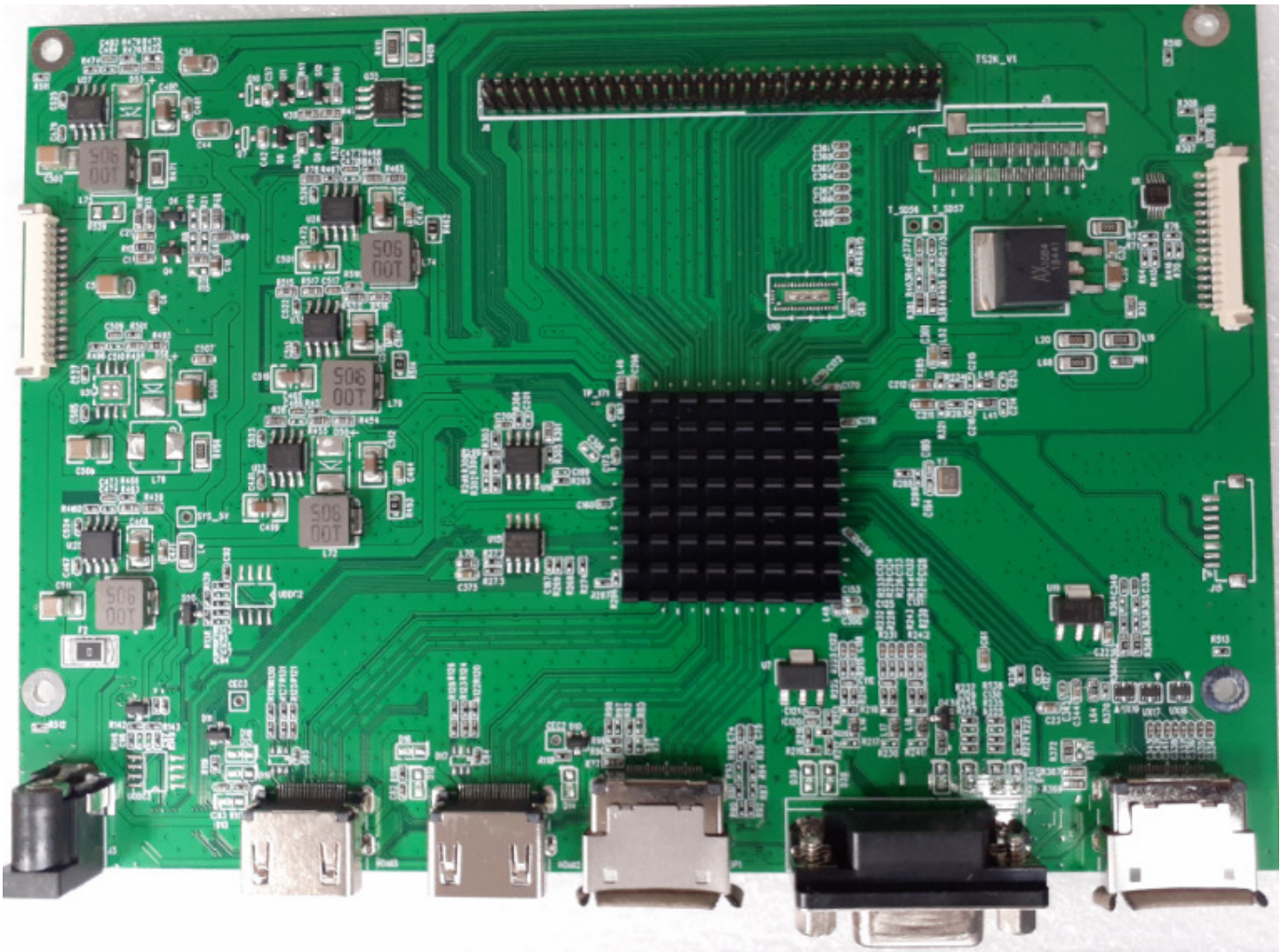
OPERTION TEMPERATURE

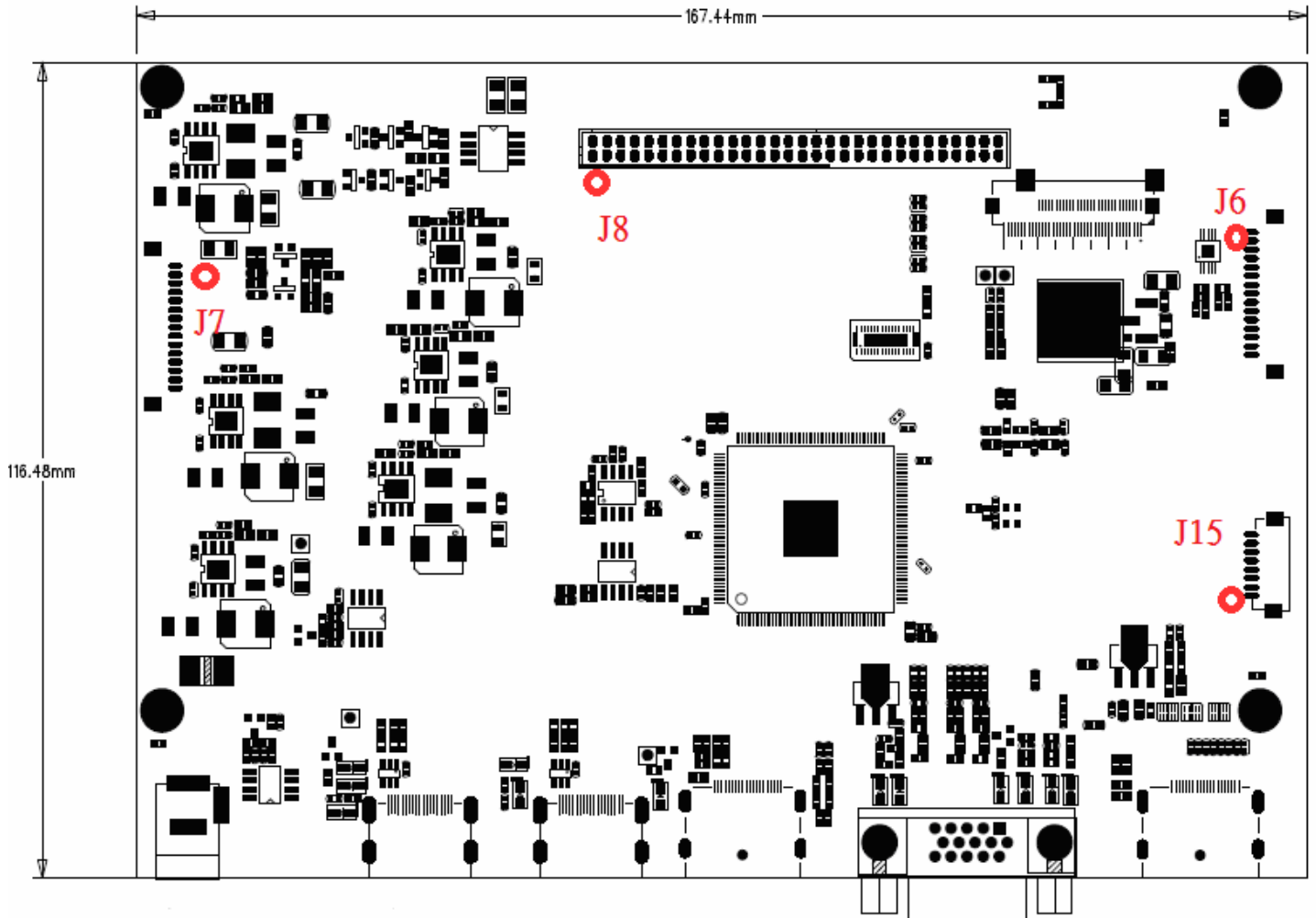
- Warm up time : ≥ 30 min.
- Operation Temperature : $-20^{\circ}\text{C} \sim 70^{\circ}\text{C}$
- Storage Temperature : $-30^{\circ}\text{C} \sim 80^{\circ}\text{C}$
- Operation Humidity : 10% \sim 80%
- Storage T Humidity : 5% \sim 90%

PRESET TIMING CHART

VESA MODES			
Mode	Resolution	Horizontal Frequency	Vertical Frequency
1	640 × 480@60Hz	31.469 KHz	59.940 Hz
2	640 × 480@72Hz	37.861 KHz	72.809 Hz
3	640 × 480@75Hz	37.500 KHz	75.00 Hz
4	800 × 600@56Hz	35.156 KHz	56.250 Hz
5	800 × 600@60Hz	37.879 KHz	60.317 Hz
6	800 × 600@72Hz	48.077 KHz	72.188 Hz
7	800 × 600@75Hz	46.875 KHz	75.000 Hz
8	1024 × 768@60Hz	48.363 KHz	60.004 Hz
9	1024 × 768@70Hz	56.476 KHz	70.609 Hz
10	1024 × 768@75Hz	60.023 KHz	75.029 Hz
11	1280 × 1024@60Hz	63.981 KHz	60.020 Hz
12	1280 × 1024@75Hz	79.976 KHz	75.025 Hz
13	1360 × 768@60Hz	47.712 KHz	60.015 Hz
14	1440 × 900@60Hz	55.935 KHz	59.887 Hz

15	1440 × 900@75Hz	70.635 KHz	74.984 Hz
16	1680 × 1050@60Hz	65.290 KHz	59.954 Hz
17	1680 × 1050@75Hz	82.306 KHz	74.892 Hz
18	1920 × 1080@60Hz	67.158 KHz	59.963 Hz





CONNECTOR

POWER CONNECTOR (P1) 5.5×2.1 Φ

PIN	Symbol	Description
1	+12V	POWER SUPPLY +12V
3	GND	POWER SUPPLY GROUND

VGA INPUT CONNECTOR —D-Sub 15P

PIN	Symbol	Description	PIN	Symbol	Description
1	VGA IN R	Red analog signal	9	DDC_VDD	DDC power supply
2	VGA IN G	Green analog signal	10	GND	Digital ground
3	VGA IN B	Blue analog signal	11	N.C	N.C
4	N.C	N.C	12	DDC SDA	DDC Serial Data
5	GND	Digital ground	13	Hor. SYNC	Horizontal synchronous
6	GND-R	Analog ground of Red	14	Ver. SYNC	Vertical synchronous
7	GND-G	Analog ground of Green	15	DDC SCL	DDC Serial Clock
8	GND-B	Analog ground of Blue			

D2 /D3 HDMI CONNECTOR —D-19P

PIN	Symbol	Description	PIN	Symbol	Description
1	HDMI_0+	HDMI_0+	11	GND	Ground
2	GND	Ground	12	HDMI_CLK-	HDMI_CLK-
3	HDMI_0-	HDMI_0-	13	CEC	CEC
4	HDMI_1+	HDMI_1+	14	N.C	NO Connection
5	GND	Ground	15	HDMI_SCL	HDMI_SCL
6	HDMI_1-	HDMI_1-	16	HDMI_SDA	HDMI_SDA
7	HDMI_2+	HDMI_2+	17	GND	Ground
8	GND	Ground	18	HD_5V	+5V input
9	HDMI_2-	HDMI_2-	19	HDMI_PLGDET1	HDMI_PLGDET
10	HDMI_CLK+	HDMI_CLK+			

D1 DISPLAYPORT CONNECTOR — 20 Pins

PIN	Symbol	Description	PIN	Symbol	Description
1	Lane3N	Lane3N	11	GND	Ground
2	GND	Ground	12	Lane0P	Lane0P
3	Lane3P	Lane3P	13	GND	GND
4	Lane2N	Lane2N	14	GND	GND
5	GND	Ground	15	AUX_Channel_P	Aux_channel_P
6	Lane2P	Lane2P	16	GND	Gnd
7	Lane1N	Lane1N	17	AUX_Channel_N	Aux_Channel_N
8	GND	Ground	18	Hot Plug	Hot Plug
9	Lane1P	Lane1P	19	Retuen	Return
10	Lane1N	Lane0N	20	DP_Power	DP 5V power

J6 Keypad /LED Connector . Molex 53261-1571 ,pitch=1.25mm

1	GND	GND
2	RXD	RXD for UART (reserved function)
3	TXD	TXD for UART (reserved function)
4	DDC_SCL	DDCCI Port /Programming pin
5	DDC_SDA	DDCCI Port /programming pin
6	NC	
7	Exit Key	OSD Key
8	Left/Down Key	OSD key
9	Right/Up Key	OSD Key
10	GND	GND
11	Menu Key	OSD Key
12	Power Key	OSD Key
13	LED_Green	LED
14	LED_Red	LED
15	Power 3.3V	3.3V Power

J7 Backlight Power Connector . Molex 53261-1571 ,pitch=1.25mm

1	Backlight POWER	12V or 24V. the power is decided by DC Input
2	Backlight POWER	12V or 24V. the power is decided by DC Input
3	Backlight POWER	12V or 24V. the power is decided by DC Input
4	Backlight POWER	12V or 24V. the power is decided by DC Input
5	GND	
6	GND	
7	GND	
8	GND	
9	BackLight_PWM	Backlight PWM
10	BackLight_enable	On/Off Control. High is turn on
11		
12		
13		
14		
15		

J8-----LVDS 4PORT 30X2 connector ,pitch=2.0mm

PIN 2



PIN 1

Pin	Pin Name	Pin	Pin Name
1	BLK_PWR	2	Panel_VCC
3	BLK_PWR	4	Panel_VCC
5	TXA0N	6	TXA0P
7	TXA1N	8	TXA1P
9	TXA2N	10	TXA2P
11	TXACN	12	TXACP
13	TXA3N	14	TXA3P
15	TXA4N	16	TXA4P
17	GND	18	GND
19	TXB0N	20	TXB0P
21	TXB1N	22	TXB1P
23	TXB2N	24	TXB2P
25	TXBCN	26	TXBCP
27	TXB3N	28	TXB3P
29	TXB4N	30	TXB4P
31	GND	32	GND
33	TXC0N	34	TXC0P
35	TXC1N	36	TXC1P
37	TXC2N	38	TXC2P
39	TXCCN	40	TXCCP
41	TXC3N	42	TXC3P
43	TXC4N	44	TXC4P
45	GND	46	GND
47	TXD0N	48	TXD0P
49	TXD1N	50	TXD1P
51	TXD2N	52	TXD2P
53	TXDCN	54	TXDCP
55	TXD3N	56	TXD3P
57	TXD4N	58	TXD4P
59	PWM	60	BLK_Enable

J15 Audio Input/ouput Connector . Molex 53261-0871 ,pitch=1.25mm

Pin	Pin Name	
1	External_Audio_Rin	External_Audio R input
2	External_Audio_Lin	External_Audio L Input
3	GND	GND
4	Audio_Rout	Audio Rout (option)
5	Audio_Lout	Audio_Lout (option)
6		
7		
8		

Appendix :

Panel Power Power

