

Specification of Control Board

(VGA, DVI, HDMI, Displayport & Audio supportable)

Model Name : Jupiter

Part No. : JPT-xxx....xxx



April 2016

Revision History

No.	Description	Page	Date
1	Initial sample for approval		July 2011
2	First update		Nov 2011
3	Update of DPMS Spec		Dec 2011
4	Update of the support of 120 Hz LCD models		Jan 2012
5	Update of 1920x1200 resolution		Dec 2015
6	Addition of power cables and input details -. Barrel jack (24V DC) - CN18 & CN19 Option 1 -. SMPS (single Voltage 24V) - CN19 Option 2 -. SMPS (5V, 12V, 24V) - CN19 Option 3	18 ~ 19	April 2016

Data Sheet

1. General Description

- **2560 x 1440, 2560 x 1600, 1920x1080_120Hz resolution display format.**
- Up scaling can do VGA, SVGA, XGA, SXGA, SXGA to UXGA VESA Standard Mode.
- Provides 24-bit color and 4Ch LVDS, 4Lane DP interface.
- Uses legacy 15Pin VGA connector, DVI-D connector, HDMI connector, DP connector
- Option: Component connector (Sub Board)

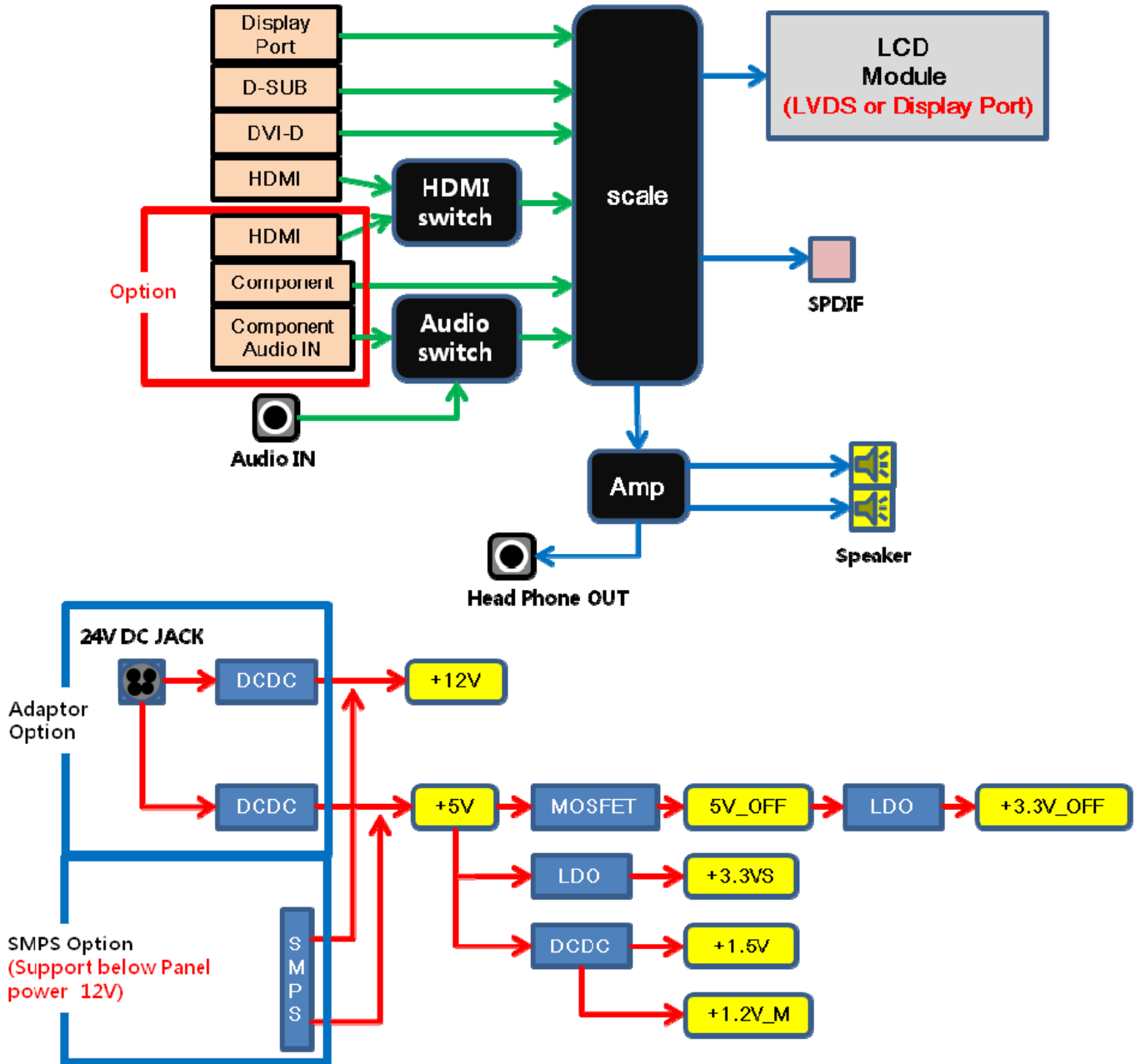
Item		Description		Remarks
Target Panel		Type	27" WQHD, 30"WQXGA LVDS/DP, 32/42/47/50 FHD_120Hz	
Input Frequency		H : 31 ~ 90KHz		
		V : 56 ~ 75Hz		
Control	OSD	Power, Source, Menu, Up, Down, Left, Right, LED(2Color)		7 KEY, 1 LED
	P&P	DDC2B		
	IR	NO		
Sync. Type		Separate Sync		
DC Jack		Type	24V-DC, SMPS (or LIPS)	
Signal Input		Analog	15Pin D-SUB Female Connector	
			RCA Jack(Green, Blue, Red)	
		Digital	29Pin DVI-D Connector	
			19Pin HDMI Connector	
20Pin Display Port Connector				
Audio		Input	PC,DVI	Stereo Jack
			Component	RCA Jack
			HDMI, DP	HDMI Jack, Display Port Jack
		Output	Head Phone	Stereo Jack
			SPDIF	Optical Jack
			Speaker	4Pin

Data Sheet

2. Technical Specification

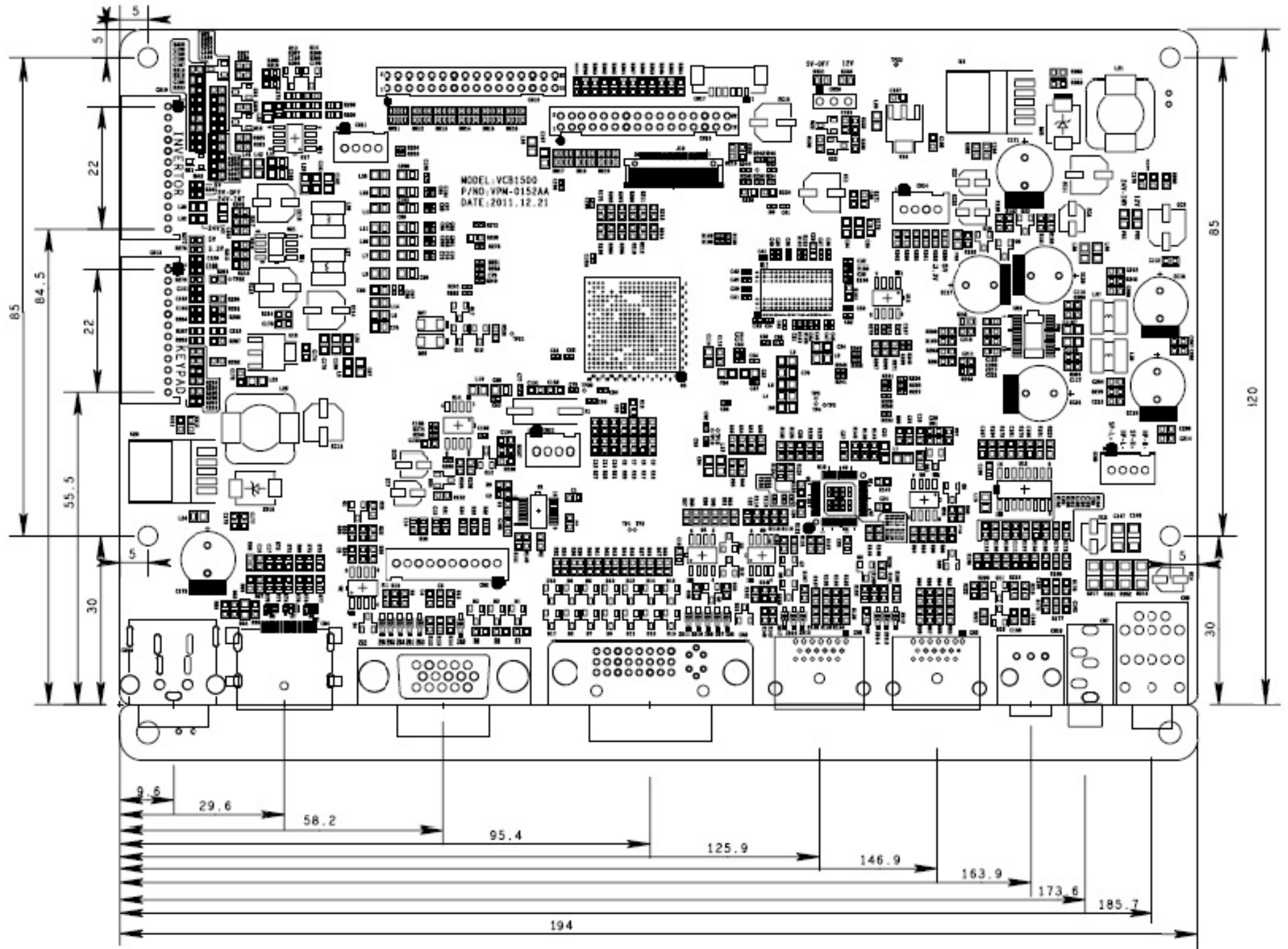
Item		Description			Remark
Input Power		Min	Typical	Max	
Power In(24V)		22.8	24.0	25.2	Volt
DPMS		SYNC(V/H)	Video	power consumption(W)	LED color
Stand By, Sleep & Suspend Mode		Off / On On / Off	Off	Analog: ≤ 1W DVI/DP: ≤ 1W	Amber blink
Power Off		-	-	≤ 0.5W	off
Audio AMP	Power	Typical	27":4.5Wrms + 4.5Wrms (± 10%), 8Ω 30":5.5Wrms + 5.5Wrms (± 10%), 8Ω		Volume :Adjust
		Max	27":5Wrms + 5Wrms (± 10%), 8Ω 30":6Wrms + 6Wrms (± 10%), 8Ω		Volume : Max
	Response Frequency		100Hz ~ 10KHz		
	T.H.D		10% Under		
	Input		0.500Vrms		
	S/N		40dB Above		
Speaker	Type		External		
	Impedance		8Ω		7W x 2CH

3. Block Diagram

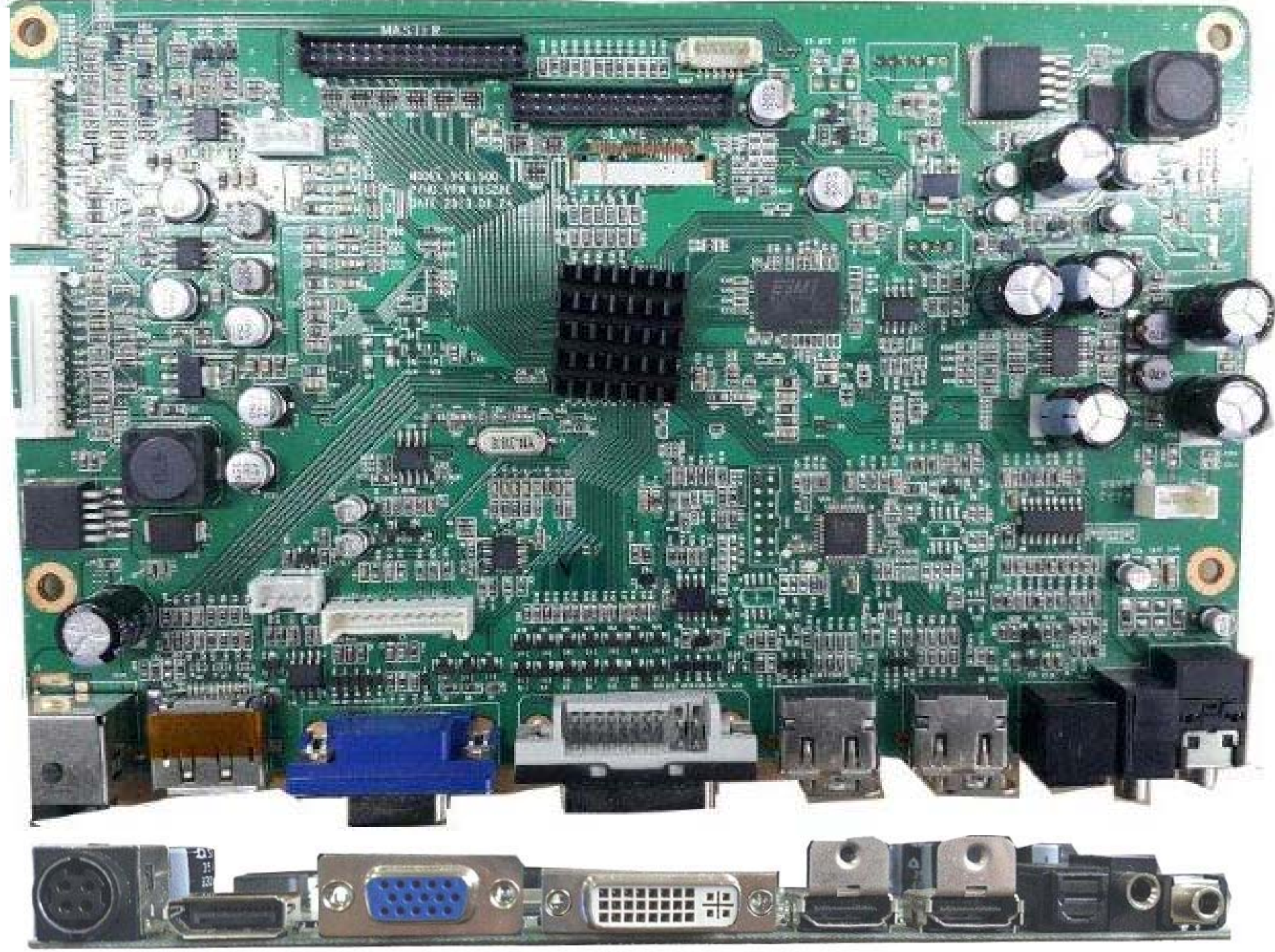


4. Board Dimension

4.1 Main Board

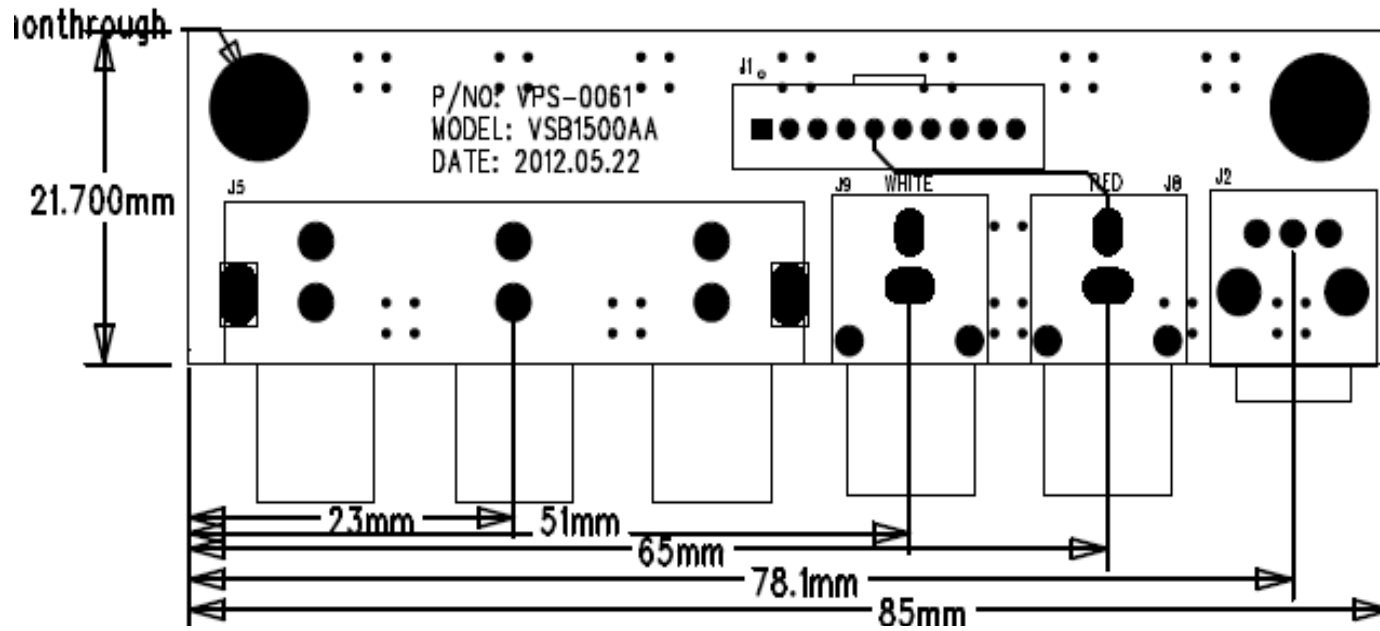


4.2 Main Board Picture



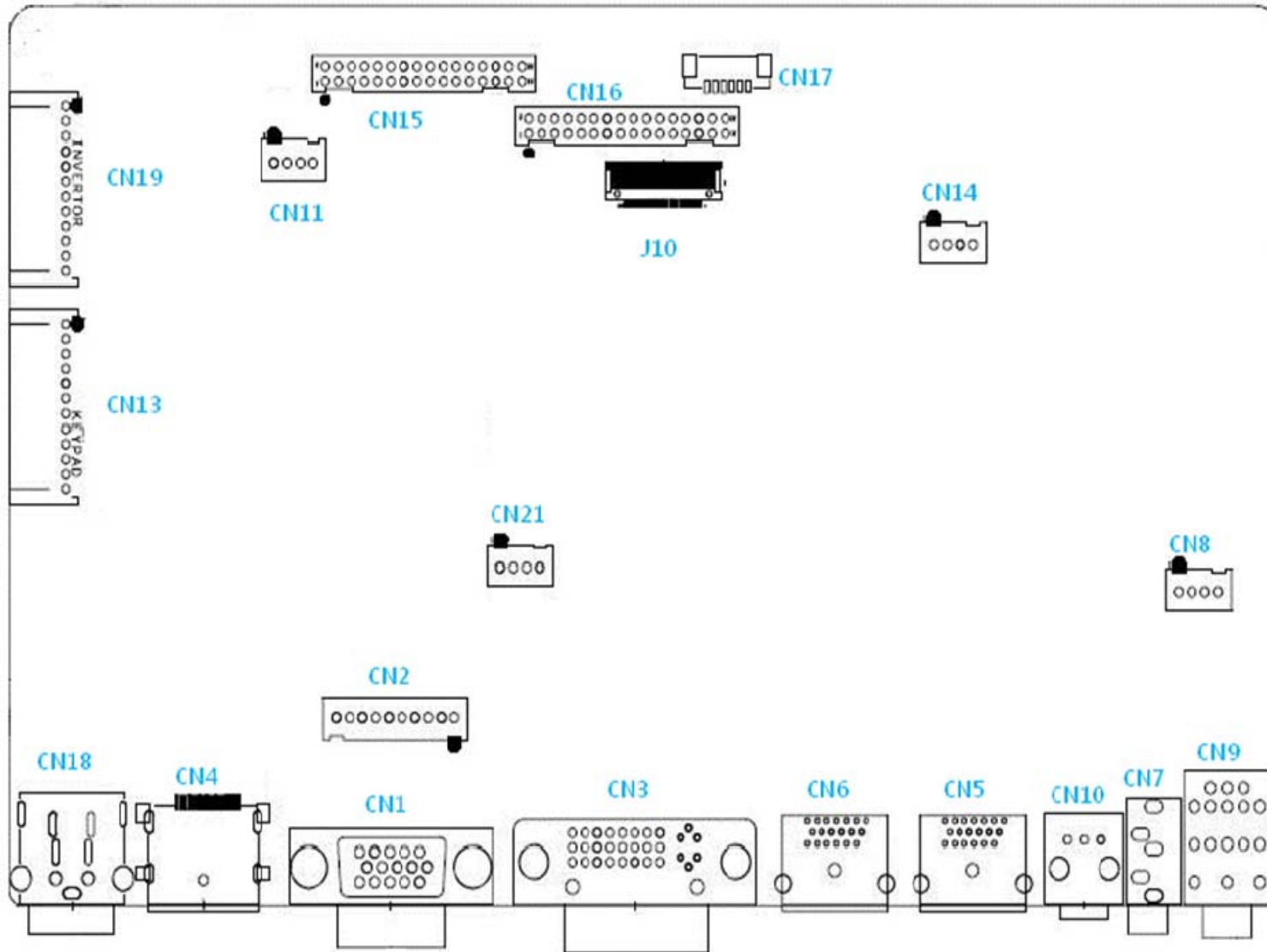
Data Sheet

4.3 Component Board



Data Sheet

5. interface Connectors and Input I/O Jack



Data Sheet

5.1 Connector Summary

Reference	Item	Description	Type	Manufacture
CN1	RGB Jack	PC Input	DSH03A-15F-BU	E CHANG ELEC
CN2	Wafer	Component	SMW200-10	YEONHO or equivalent
CN3	DVI Jack	DVI Input	DVI-I 29P_RA	YEONHO or equivalent
CN4	DP Jack	DP Input	DPCON_SINK	MOLEX or equivalent
CN5	HDMI Jack	HDMI Input	51L019S-36DN-A	FREEMPORT or equivalent
CN6	HDMI Jack	HDMI Input	51L019S-36DN-A	FREEMPORT or equivalent
CN7	Phone Jack	Audio Input	SJ3501-5	CHANG CHUN
CN8	Wafer	Speaker	SMW200-04	YEONHO or equivalent
CN9	Phone Jack	Headphone Output	PJ-306B	SANJI
CN10	Optical Jack	SPDIF Output	DLT11A0A	EDISON
CN11	Wafer	Option	20010WS-04	YEONHO or equivalent
CN13	Wafer	OSD Control key	SMAW200-12	YEONHO or equivalent
CN14	Wafer	Option	SMW200-04	YEONHO or equivalent
CN15	Wafer	LVDS Output	YDW200-32	YEONHO or equivalent
CN16	Wafer	LVDS/ DP Output	YDW200-32	YEONHO or equivalent
CN17	Wafer	DP Power	12505WS-06	YEONHO or equivalent
CN18	DC Power Jack	24V DC Power	KPJ-4S-S_4P	CHANG CHUN
CN19	Wafer	Inverter/PSU	SMAW200-12	YEONHO or equivalent
CN21	Wafer	Debug	SMW200-04	YEONHO or equivalent
J10	Wafer	DP Output	IPEX20347_30	IPEX

5.2 Pin Assignment & Description

1) CN1 : For PC Input, RGB Jack

Pin No.	Symbol	Description	Remarks
1	RED	RED ANALOG INPUT	0.7Vpp
2	GREEN	GREEN ANALOG INPUT	0.7Vpp
3	BLUE	BLUE ANALOG INPUT	0.7Vpp
4	NC	NO CONNECTION	
5	VGA DET		
6,7,8	GND	GROUND	
9	RGB DDC 5V	RGB DDC 5V	
10, 11	GND	GROUND	
12	SDAA	DDC-SDA	VESA DDC Protocol
13	HSYNC1	HORIZONTAL SYNC	5V TTL
14	VSYNC1	VERTICAL SYNC	5V TTL
15	SCLA	DDC-SCL	VESA DDC Protocol

Data Sheet

2) CN2: For Component, Wafer

Pin No.	Symbol	Description	Remarks
1	COMP_PB	COMPONENT PB INPUT	Signal
3	COMP_Y	COMPONENT Y INPUT	Signal
5	COMP_PR	COMPONENT PR INPUT	Signal
7	COMP_L	COMPONENT LEFT INPUT	Sound
9	COMP_R	COMPONENT RIGHT INPUT	Sound
2, 4, 6, 8,10	GND	GROUND	

3) CN3: For DVI Input, DVI Jack

Pin No.	Symbol	Description
1	TMDS DATA2-	TMDS DATA2 Differential Negative Signal
2	TMDS DATA2+	TMDS DATA2 Differential Positive Signal
3	TMDS DATA2/4 Shield	Shield for TMDS Channel #2/#4
4,	TMDS DATA4-	TMDS DATA4 Differential Negative Signal
5	TMDS DATA4+	TMDS DATA4 Differential Positive Signal
6	DDC Clock	The Data Line for the DDC Interface
7	DDC Data	The Clock Line for the DDC Interface
8	NC	No Connection
9	TMDS DATA1-	TMDS DATA1 Differential Negative Signal
10	TMDS DATA1+	TMDS DATA1 Differential Positive Signal
11	TMDS DATA1/3 Shield	Shield for TMDS Channel #1/#3
12	TMDS DATA3-	TMDS DATA3 Differential Negative Signal
13	TMDS DATA3+	TMDS DATA3 Differential Positive Signal
14	+5V Power	+5 Volt signal for EDID (Un-powered Monitor)
15	GND(for +5V)	Ground for +5 Volt Power pin, Sync return
16	HPD	Identify the presence of a monitor
17	TMDS DATA0-	TMDS DATA0 Differential Negative Signal
18	TMDS DATA0+	TMDS DATA0 Differential Positive Signal
19	TMDS DATA0/5 Shield	Shield for TMDS Channel #0/#5
20	TMDS DATA5-	TMDS DATA5 Differential Negative Signal
21	TMDS DATA5+	TMDS DATA5 Differential Positive Signal
22	TMDS CLOCK Shield	Shield for TMDS CLOCK Channel
23	TMDS CLOCK+	TMDS DATA0 Differential Positive Signal
24	TMDS CLOCK-	TMDS DATA0 Differential Negative Signal

Data Sheet

4) CN4: For DP Input, DP Jack

Pin No.	Symbol	Description	Remarks
1	LANE3-	Component Signal for Main Link 3	
3	LANE3+	True Signal for Main Link 3	
4	LANE2-	Component Signal for Main Link 2	
6	LANE2+	True Signal for Main Link 2	
7	LANE1-	Component Signal for Main Link 1	
9	LANE1+	True Signal for Main Link 1	
10	LANE0-	Component Signal for Main Link 0	
12	LANE0+	True Signal for Main Link 0	
13	CA DET		
14	DP DET		
15	AUX CH+	True Signal for Auxiliary Channel	
17	AUX CH-	Component Signal for Auxiliary Channel	
18	HPD	Identify the presence of a monitor	
19	RETURN		
20	PWR OUT		
2, 5, 8, 11, 16	GND	GROUND	

5) CN5: For HDMI Input, HDMI Jack

Pin No.	Symbol	Description	Remarks
1	RX2+	HDMI DATA2 Differential Positive Signal	
2	GND	GROUND	
3	RX2-	HDMI DATA2 Differential Negative Signal	
4	RX1+	HDMI DATA1 Differential Positive Signal	
5	GND	GROUND	
6	RX1-	HDMI DATA1 Differential Negative Signal	
7	RX0+	HDMI DATA0 Differential Positive Signal	
8	GND	GROUND	
9	RX0-	HDMI DATA0 Differential Negative Signal	
10	RXC+	HDMI CLOCK Differential Positive Signal	
11	GND	GROUND	
12	RXC-	HDMI CLOCK Differential Negative Signal	
13,14	NC	NO CONNECTION	
15	HDMI_SCL	HDMI Clock Line	
16	HDMI_SDA	HDMI Data Line	
17	HDMI_CHK	HDMI Check	
18	HDMI_DDC5V	5V Power Supply	
19	HDMI_HOT_PLUG	HDMI Hot Plug	
20,21	GND	GROUND	

Data Sheet

6) CN6: For HDMI Input, HDMI Jack

Pin No.	Symbol	Description	Remarks
1	RX2+	HDMI DATA2 Differential Positive Signal	
2	GND	GROUND	
3	RX2-	HDMI DATA2 Differential Negative Signal	
4	RX1+	HDMI DATA1 Differential Positive Signal	
5	GND	GROUND	
6	RX1-	HDMI DATA1 Differential Negative Signal	
7	RX0+	HDMI DATA0 Differential Positive Signal	
8	GND	GROUND	
9	RX0-	HDMI DATA0 Differential Negative Signal	
10	RXC+	HDMI CLOCK Differential Positive Signal	
11	GND	GROUND	
12	RXC-	HDMI CLOCK Differential Negative Signal	
13,14	NC	NO CONNECTION	
15	HDMI_SCL	HDMI Clock Line	
16	HDMI_SDA	HDMI Data Line	
17	HDMI_CHK	HDMI Check	
18	HDMI_DDC5V	5V Power Supply	
19	HDMI_HOT_PLUG	HDMI Hot Plug	
20,21	GND	GROUND	

7) CN7 : For Audio Input, Phone Jack

Pin No.	Symbol	Description	Remarks
1	GND	GROUND	
2,5	L	Audio Left Input Signal	400~500Vrms
3,4	R	Audio Right Input Signal	400~500Vrms

8) CN8 : For Speaker, wafer

Pin No.	Symbol	Description	Remarks
1	SP_L+	Audio Left Speaker Output Signal	
2	GND	GROUND	
3	SP_R+	Audio Right Speaker Output Signal	
4	GND	GROUND	

9) CN9 : For Headphone Output, Phone Jack

Pin No	Symbol	Description	Remarks
1	GND	GROUND	
2,10	HP-L Out	Head Phone Left Output	
3,11	HP-R Out	Head Phone Left Output	
4	SP_L+ Out	Audio Switching Speaker Left Output	Switch Output
5	HP_L+ In	Audio Switching Left Input	Switch Input
6	HP_L+ Input	Audio Switching Head Phone Left Output	Switch Output
7	SP_R+	Audio Switching Speaker Right Output	Switch Output
8	HP_R+ In	Audio Switching Right Input	Switch Input
9	HP_R+ Input	Audio Switching Head Phone Right Output	Switch Output

Data Sheet

10) CN10 : For SPDIF Output, Optical Jack

Pin No.	Symbol	Description	Remarks
1	GND	GROUND	
2	VCC	5V	
3	SPDIF	Audio Output Signal	

11) CN11 : For RS232 Option, Wafer

Pin No.	Symbol	Description	Remarks
1	GND	GROUND	
2	TxD	TxD(For UART)	
3	RxD	RxD(For UART)	
4	5V	5V	

12) CN13: For OSD Control Key, Wafer

Pin No.	Symbol	Description	Remarks
1	3.3V or 5V	3.3V or 5.0V Power for IR Receiver or Touchpad	Reserved
2	IR	IR Receiver	Reserved
3	LED-RED	LED drive for RED Color	Normal RED
4	LED-GRN	LED drive for GREEN Color	Normal GREEN
5	GND	GROUND	
6	AD2 / Key Enter	ADC2 or ENTER key	
7	AD1 / Key Source	ADC1 or SOURCE key	
8	KEY_MENU	MENU key	
9	KEY_UP (+)	UP (+) key	
10	KEY_DOWN (-)	DOWN (-) key	
11	KEY_AUTO	AUTO key	
12	KEY_POWER	POWER key	

13) CN14 : For Option, Wafer

Pin No.	Symbol	Description	Remarks
1	SDA	SDA(for External I2C)	
2	SCL	SCL(for External I2C)	
3	GND	GROUND	
4	5V	5V	

Data Sheet

14) CN15 : For LVDS Output, Wafer

Pin No.	Symbol	Description	Remarks
1	TX1 0-	LVDS First 0 Channel Negative	350mVpp \pm 5%
2	TX1 0+	LVDS First 0 Channel Positive	350mVpp \pm 5%
3	TX1 1-	LVDS First 1 Channel Negative	350mVpp \pm 5%
4	TX1 1+	LVDS First 1 Channel Positive	350mVpp \pm 5%
5	TX1 2-	LVDS First 2 Channel Negative	350mVpp \pm 5%
6	TX1 2+	LVDS First 2 Channel Positive	350mVpp \pm 5%
7	TX1 C-	LVDS First Clock Channel Negative	350mVpp \pm 5%
8	TX1 C+	LVDS First Clock Channel Positive	350mVpp \pm 5%
9	TX1 3-	LVDS First 3 Channel Negative	350mVpp \pm 5%
10	TX1 3+	LVDS First 3 Channel Positive	350mVpp \pm 5%
11	TX1 4-	LVDS First 4 Channel Negative	350mVpp \pm 5%
12	TX1 4+	LVDS First 4 Channel Positive	350mVpp \pm 5%
13	GND	GROUND	
14	GND	GROUND	
15	TX2 0-	LVDS Second 0 Channel Negative	350mVpp \pm 5%
16	TX2 0+	LVDS Second 0 Channel Positive	350mVpp \pm 5%
17	TX2 1-	LVDS Second 1 Channel Negative	350mVpp \pm 5%
18	TX2 1+	LVDS Second 1 Channel Positive	350mVpp \pm 5%
19	TX2 2-	LVDS Second 2 Channel Negative	350mVpp \pm 5%
20	TX2 2+	LVDS Second 2 Channel Positive	350mVpp \pm 5%
21	TX2 C-	LVDS Second Clock Channel Negative	350mVpp \pm 5%
22	TX2 C+	LVDS Second Clock Channel Positive	350mVpp \pm 5%
23	TX2 3-	LVDS Second 3 Channel Negative	350mVpp \pm 5%
24	TX2 3+	LVDS Second 3 Channel Positive	350mVpp \pm 5%
25	TX2 4-	LVDS Second 4 Channel Negative	350mVpp \pm 5%
26	TX2 4+	LVDS Second 4 Channel Positive	350mVpp \pm 5%
27	GND	GROUND	
28	GND	GROUND	
29	OPTION	3.3V or GROUND	
30	OPTION	3.3V or GROUND	
31	LCD_VDD	VDD For LCD Module	
32	LCD_VDD	VDD For LCD Module	

Data Sheet

15) CN16 : For LVDS/ DP Output, Wafer For LVDS

Pin No.	Symbol	Description	Remarks
1	TX3 0-	LVDS Third 0 Channel Negative	350mVpp \pm 5%
2	TX3 0+	LVDS Third 0 Channel Positive	350mVpp \pm 5%
3	TX3 1-	LVDS Third 1 Channel Negative	350mVpp \pm 5%
4	TX3 1+	LVDS Third 1 Channel Positive	350mVpp \pm 5%
5	TX3 2-	LVDS Third 2 Channel Negative	350mVpp \pm 5%
6	TX3 2+	LVDS Third 2 Channel Positive	350mVpp \pm 5%
7	TX3 C-	LVDS Third Clock Channel Negative	350mVpp \pm 5%
8	TX3 C+	LVDS Third Clock Channel Positive	350mVpp \pm 5%
9	TX3 3-	LVDS Third 3 Channel Negative	350mVpp \pm 5%
10	TX3 3+	LVDS Third 3 Channel Positive	350mVpp \pm 5%
11	TX3 4-	LVDS Third 4 Channel Negative	350mVpp \pm 5%
12	TX3 4+	LVDS Third 4 Channel Positive	350mVpp \pm 5%
13	GND	GROUND	
14	GND	GROUND	
15	TX4 0-	LVDS Fourth 0 Channel Negative	350mVpp \pm 5%
16	TX4 0+	LVDS Fourth 0 Channel Positive	350mVpp \pm 5%
17	TX4 1-	LVDS Fourth 1 Channel Negative	350mVpp \pm 5%
18	TX4 1+	LVDS Fourth 1 Channel Positive	350mVpp \pm 5%
19	TX4 2-	LVDS Fourth 2 Channel Negative	350mVpp \pm 5%
20	TX4 2+	LVDS Fourth 2 Channel Positive	350mVpp \pm 5%
21	TX4 C-	LVDS Fourth Clock Channel Negative	350mVpp \pm 5%
22	TX4 C+	LVDS Fourth Clock Channel Positive	350mVpp \pm 5%
23	TX4 3-	LVDS Fourth 3 Channel Negative	350mVpp \pm 5%
24	TX4 3+	LVDS Fourth 3 Channel Positive	350mVpp \pm 5%
25	TX4 4-	LVDS Fourth 4 Channel Negative	350mVpp \pm 5%
26	TX4 4+	LVDS Fourth 4 Channel Positive	350mVpp \pm 5%
27	GND	GROUND	
28	GND	GROUND	
29	OPTION	3.3V or GROUND	
30	OPTION	3.3V or GROUND	
31	LCD_VDD	VDD For LCD Module	
32	LCD_VDD	VDD For LCD Module	

Data Sheet

For DP

Pin No.	Symbol	Description
1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 15, 16	NC	NO CONNECTION
13, 14	GND	GROUND
17	LANE0-	Component Signal for Main Link 0
18	LANE0+	True Signal for Main Link 0
19	LANE1-	Component Signal for Main Link 1
20	LANE1+	True Signal for Main Link 1
21	LANE2-	Component Signal for Main Link 2
22	LANE2+	True Signal for Main Link 2
23	LANE3-	Component Signal for Main Link 3
24	LANE3+	True Signal for Main Link 3
25	AUX CH-	Component Signal for Auxiliary Channel
26	AUX CH+	True Signal for Auxiliary Channel
27	GND	GROUND
28	GND	GROUND
29	OPTION	3.3V or GROUND
30	OPTION	3.3V or GROUND
31	LCD_VDD	VDD For LCD Module
32	LCD_VDD	VDD For LCD Module

16) CN17 : For DP Power, Wafer

Pin No.	Symbol	Description	Remarks
1, 2, 3	GND	GROUND	
4, 5, 6	LCD_VDD	VDD For LCD Module	

17). DC Power Connection : there are 3 kinds of power options on this AD board,

- Option 1 : by the ordinary barrel jack type 24V adapter [refer to the 17-1) CN19 & 17-2) CN18
- Option 2 : by the 24V single source SMPS [refer to the 17-3) CN19]
- Option 3 : by the external Multi-voltage source SMPS [refer to the 17-4) CN19]

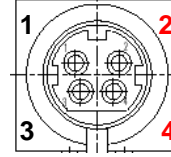
17 - 1) CN19 - Option 1 : in case of single voltage type - barrel jack type 24V adapter

Pin No.	Symbol	Description	Remarks
1	DIM-ADJ	Diming Adjustment	Analog DIM
2	INVON	Inverter Power On & Off	0V (Off), 3.3V(On)
3	PWM	PWM type Dimming Control	PWM DIM
4,5	GND	GROUND	
6	PWR_CTRL	No use.	
7	5VS	No use	
8	5V	No use	
9,10,11, 12	24V	24V Out (Inverter)	24V ± 5%

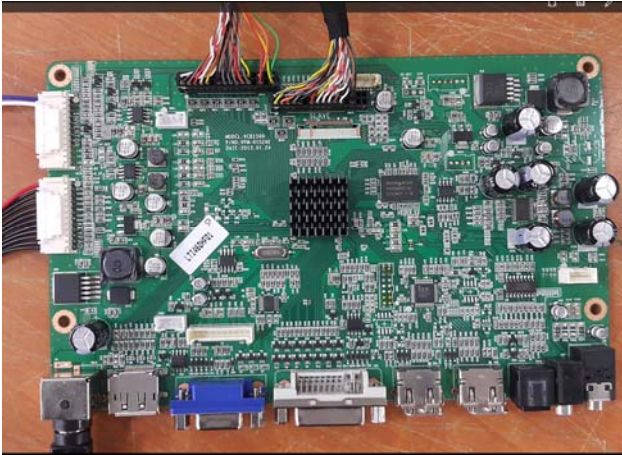
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17 - 2) CN18: For 24V DC Power, DC Power Jack

Pin No.	Symbol	Description
1,3	GND	GROUND
2,4	24V	24V Power Input



<Sample picture of option 1>



17 - 3) CN19 - Option 2 : in case of single voltage type SMPS (just DC 24V)

Pin No.	Symbol	Description	Remarks
1	DIM-ADJ	Diming Adjustment	Analog DIM
2	INVON	Inverter Power On & Off	0V (Off), 3.3V(On)
3	PWM	PWM type Dimming Control	PWM DIM
4,5	GND	GROUND	
6	PWR_CTRL	No use.	
7	5VS	No use	
8	5V	No use	
9,10,11, 12	24V	24V Out (Inverter) and 24V In(adapter)	24V ± 5%

17 - 4) CN19 - Option 3 : in case of Multi Voltage supportable SMPS (5V, 12V& 24V)

Pin No.	Symbol	Description	Remarks
1	DIM-ADJ	Diming Adjustment	Analog DIM
2	INVON	Inverter Power On & Off	0V (Off), 3.3V(On)
3	PWM	PWM type Dimming Control	PWM DIM
4,5	GND	GROUND	
6	PWR_CTRL	Power Control OUT (SMPS)	0V (Off), 3.3V(On)
7	5VS	5VS IN (SMPS)	5V ± 1%
8	5V	5V IN (SMPS)	5V ± 1%
9,10,11, 12	12V	12V In (SMPS-for the logic power of LCD Module)	12V ± 5%

Data Sheet

18) CN21: For Debug, Wafer

Pin No.	Symbol	Description	Remarks
1	GND	GROUND	
2	SDA	SDA(for ISP)	
3	SCL	SCL(for ISP)	
4	NC	NO CONNECTION	

19) J10 For DP Output, Wafer

Pin No.	Symbol	Description
1	GND	GROUND
2, 3, 4	NC	NO CONNECTION
5	GND	GROUND
6	LANE3-	Component Signal for Main Link 3
7	LANE3+	True Signal for Main Link 3
8	GND	GROUND
9	LANE2-	Component Signal for Main Link 2
10	LANE2+	True Signal for Main Link 2
11	GND	GROUND
12	LANE1-	Component Signal for Main Link 1
13	LANE1+	True Signal for Main Link 1
14	GND	GROUND
15	LANE0-	Component Signal for Main Link 0
16	LANE0+	True Signal for Main Link 0
17	GND	GROUND
18	AUX CH+	True Signal for Auxiliary Channel
19	AUX CH-	Component Signal for Auxiliary Channel
20	GND	GROUND
21	HPD	HOT PLUG DETECTION
24, 27, 30	GND	GROUND
22, 23, 25, 26, 28, 29	NC	NO CONNECTION

Data Sheet

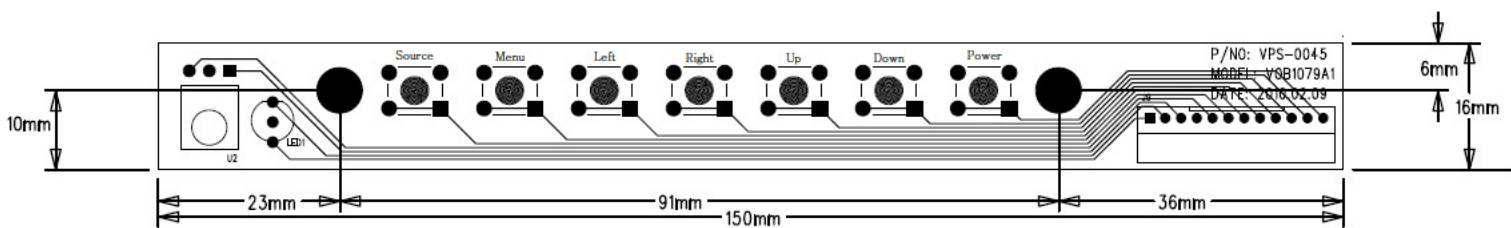
6. Applicable Graphic Mode

The microprocessor measures the H-sync, V-sync and V-sync/H-sync polarity for RGB inputs, and uses this timing information to control all of the display operation to get the proper image on a screen. This board can detect all VESA standard and MAC Graphic modes shown on the table below and provide more clear and stable image on a screen.

Mode \ Spec	Pixel	Horizontal Timing				Vertical Timing			
	Freq.	Sync	Freq.	Total	Active	Sync	Freq.	Total	Active
	MHz	Polar	KHz	Pixel	Pixel	Polar	Hz	Line	Line
640*480@60Hz	28.175	N	31.469	800	640	N	59.940	525	480
640*480@72Hz	31.500	N	37.861	832	640	N	72.809	520	480
640*480@75Hz	31.500	N	37.500	840	640	N	75.000	500	480
800*600@56 Hz	36.000	P	35.156	1024	800	P	56.250	625	600
800*600@60Hz	40.000	P	37.879	1056	800	P	60.317	628	600
800*600@72Hz	50.000	P	48.077	1040	800	P	72.188	666	600
800*600@75Hz	49.500	P	46.875	1056	800	P	75.000	625	600
1024*768@60Hz	65.000	N	48.363	1344	1024	N	60.005	806	768
1024*768@75Hz	78.750	P	60.023	1312	1024	P	75.030	800	768
1280*720@60Hz	74.375	N	44.697	1664	1280	P	59.915	746	720
1280*1024@60Hz	108.000	P	63.981	1688	1280	P	60.020	1066	1024
1280*1024@75Hz	135.000	P	79.976	1688	1280	P	75.035	1066	1024
1600*1200@60Hz	160.875	N	74.479	2160	1600	P	59.967	1242	1200
1920*1080@60Hz (Reduced Blanking)	138.625	P	66.647	2080	1920	N	59.988	1111	1080
1920*1200@60Hz (Reduced Blanking)	154.125	P	74.099	2080	1920	N	59.999	1235	1200
2560*1440@60Hz (Reduced Blanking)	241.625	P	88.833	2720	2560	N	59.982	1481	1440
2560*1600@60Hz (Reduced Blanking)	268.500	P	98.714	2720	2560	N	59.972	1646	1600

7. OSD

7.1 7 keys OSD Board : (150 x 16 mm) Source / Menu / Left / Right / Up / Down / Power



Data Sheet

7.2 OSD Menu Tree

Main Menu : **Picture** / **Color** / **Screen** / **OSD** / **Setup**

PICTURE

PICTURE

- Contrast 80
- DCR OFF
- Brightness 100

COLOR

COLOR

- Color Status Management Normal
- Red 49
- Green 51
- Blue 51
- Auto Color To Start

SCREEN

SCREEN

- Auto Configure To Start
- H Position 50
- V Position 50
- Clock 50
- Phase 68

OSD

OSD

- Language English
- H Position 50
- V Position 50
- Transparency 42
- OSD Time 10

SETUP

SETUP

- Source RGB
- Aspect 16 : 10
- Factory reset To Start

2560x1600 60Hz

Data Sheet

- Sub Menu for **Picture**

	PICTURE		
	Contrast		80
	DCR	▶ OFF	
	Brightness		100

◀▶
0~100

	PICTURE		
	Contrast		80
	DCR	▶ OFF	
	Brightness		100

OFF
ON

	PICTURE		
	Contrast		80
	DCR	▶ OFF	
	Brightness		100

◀▶
0~100

- Sub Menu for **Color**

	COLOR
	Color Status Management
	▶ Normal
	Red <input type="text" value="49"/>
	Green <input type="text" value="51"/>
	Blue <input type="text" value="51"/>
	Auto Color ▶ To Start

◀ ▶

Normal
Warm
Cool
User

	COLOR
	Color Status Management
	▶ User
	Red <input type="text" value="49"/>
	Green <input type="text" value="51"/>
	Blue <input type="text" value="51"/>
	Auto Color ▶ To Start

◀ ▶

0~100

	COLOR
	Color Status Management
	▶ User
	Red <input type="text" value="49"/>
	Green <input type="text" value="51"/>
	Blue <input type="text" value="51"/>
	Auto Color ▶ To Start

◀ ▶

0~100

Data Sheet

	COLOR
	Color Status Management
	▶ User
	Red <input type="text" value="49"/>
	Green <input type="text" value="51"/>
	Blue <input type="text" value="51"/>
	Auto Color
	▶ To Start

◀ ▶
0~100

	COLOR
	Color Status Management
	▶ Normal
	Red <input type="text" value="49"/>
	Green <input type="text" value="51"/>
	Blue <input type="text" value="51"/>
	Auto Color
	▶ To Start

Auto Color

- Sub Menu for **Screen**

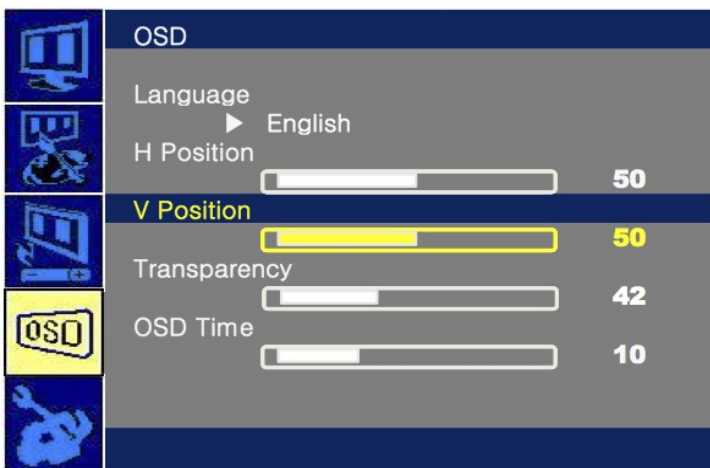
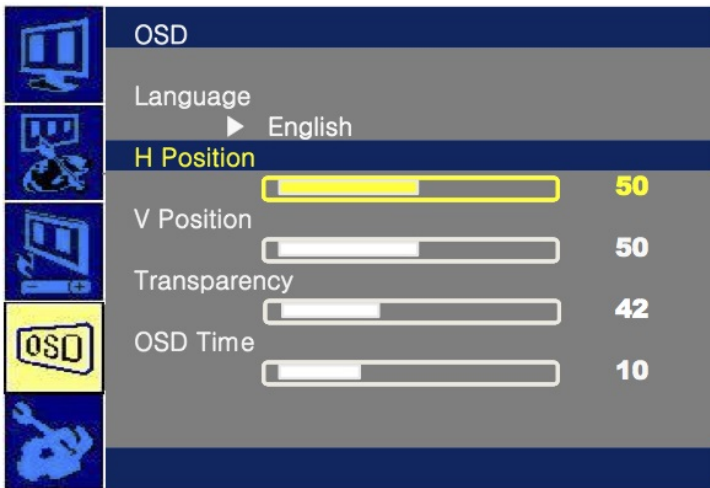
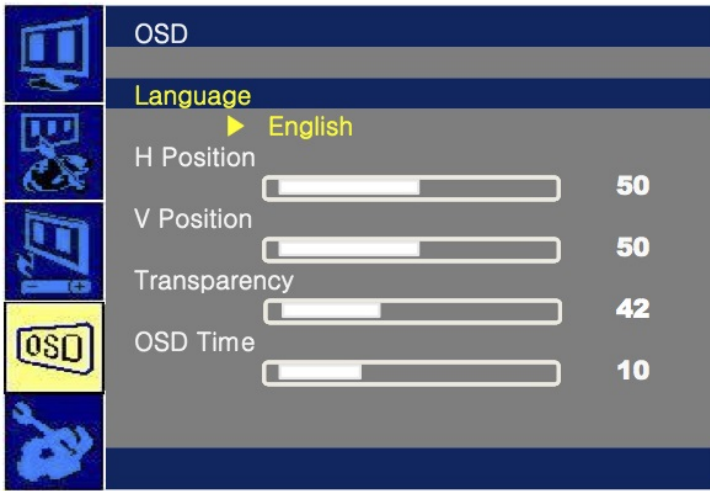
	SCREEN
	Auto Configure
	▶ To Start
	H Position <input type="text" value="50"/>
	V Position <input type="text" value="50"/>
	Clock <input type="text" value="50"/>
	Phase <input type="text" value="68"/>

Auto Configure

Data Sheet

	SCREEN		
	Auto Configure		
	▶ To Start		
	H Position		50
	V Position		50
	Clock		50
	Phase		68
			◀▶ 0~100
	SCREEN		
	Auto Configure		
	▶ To Start		
	H Position		50
	V Position		50
	Clock		50
	Phase		68
			◀▶ 0~100
	SCREEN		
	Auto Configure		
	▶ To Start		
	H Position		50
	V Position		50
	Clock		50
	Phase		68
			◀▶ 0~100
	SCREEN		
	Auto Configure		
	▶ To Start		
	H Position		50
	V Position		50
	Clock		50
	Phase		68
			◀▶ 0~100

- Sub Menu for OSD



Data Sheet

OSD	
Language	▶ English
H Position	<input type="range" value="50"/> 50
V Position	<input type="range" value="50"/> 50
Transparency	
OSD Time	<input type="range" value="42"/> 42
	<input type="range" value="10"/> 10

◀ ▶

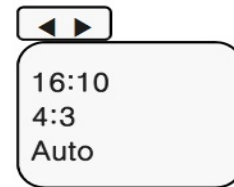
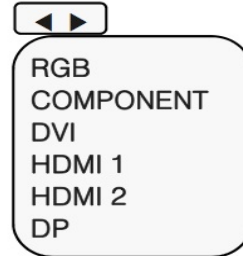
0, 14, 28, 42, 57, 71, 85, 100

OSD	
Language	▶ English
H Position	<input type="range" value="50"/> 50
V Position	<input type="range" value="50"/> 50
Transparency	<input type="range" value="42"/> 42
OSD Time	
	<input type="range" value="10"/> 10

◀ ▶

5~60

- Sub Menu for Setup



Data Sheet

8. Remote Controller

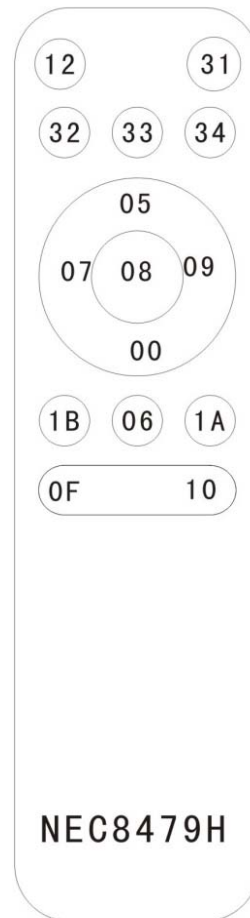
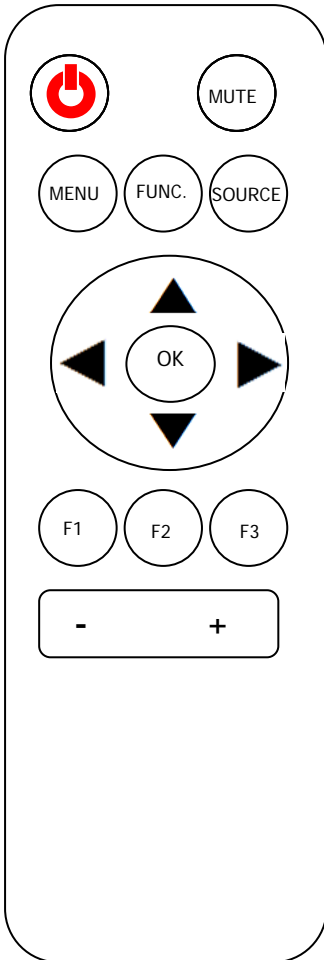
Distance at 7 meters max and 30 degree (left/right) max

Part Number : VRC-1340

-Format : NEC

-Custom code : 8479(Hex)

Data Code (Hex)



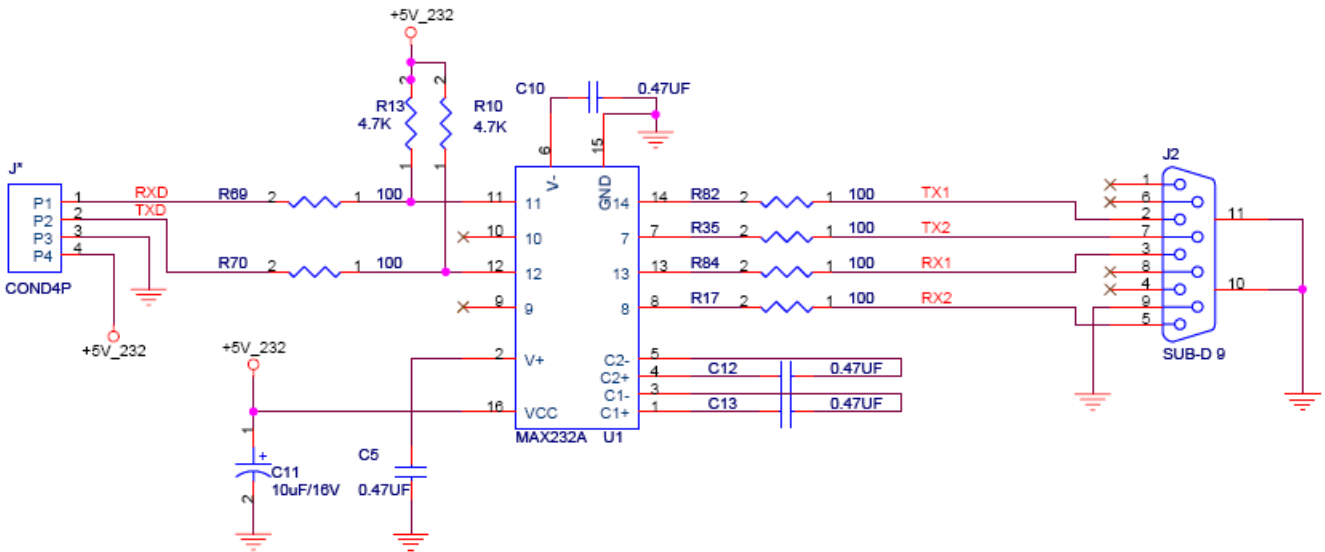
Data Sheet

9. RS232 Communication

9.1 Communication Parameters

- I. Baud rate : 9600 bps
- II. Data length : 8 bits
- III. Parity : None
- IV. Stop bit : 1 bit
- V. Communication : ASCII CODE

9.2 Relevant Circuit Diagram



9.3 Protocol and Command

refer to a separate command list

9600, N, 8, 1 (Baud 9600, None parity, Data 8bit, Stop1bit)

Tx Format : [Command1][Command2][Space][0][0][Space][DataH][DataL][CR]
 ; ASCII : [Space]=0x20 , [CR]=0x0D, [0]=0x30, [a]=0x61, [A]=0x41

Rx OK Format : [Command2][Space][0][0][Space][0][K][DataH][DataL][x][CR]
 ; OK

Rx NG1 Format : [Command2][Space][0][0][Space][N][G][0][1][x][CR]
 ; NG01 : illegal command

Rx NG2 Format : [Command2][Space][0][0][Space][N][G][0][2][x][CR]
 ; NG02 : unknown command/data

Command Set	Command	Acknowledgement	Comments
Power (ka)			
Power On	ka 00 01(CR)	a 00 0K01x	01
Power Off	ka 00 00(CR)	a 00 0K00x	00
Power Status	ka 00 ff(CR)	a 00 0K01x (On) a 00 0K00x (Off)	read

Data Sheet

Input select (kb)			
Analog RGB	kb 00 00(CR)	b 00 0K00x	
Component(YPbPr) (Optional)	kb 00 01(CR)	b 00 0K01x	
DVI	kb 00 02(CR)	b 00 0K02x	
HDMI 1	kb 00 03(CR)	b 00 0K03x	
HDMI (Optional) ²	kb 00 04(CR)	b 00 0K04x	
DisplayPort	05	kb 00 05(CR)	b 01 0K05x
Input select Status (ex. DVI)	kb 00 ff(CR)	b 00 0K02x (DVI)	read
Aspect Ratio (kc)			
Aspect Ratio	kc 00 00(CR)	c 01 0K00x	00 : Auto
	kc 00 01(CR)	c 01 0K01x	01 : Overscan
	kc 00 02(CR)	c 01 0K02x	02 : 16:9 (16:10)
	kc 00 03(CR)	c 10 0K03x	03 : 4:3
Status	kc 00 ff(CR)	c 01 0K00x (Auto) c 01 0K01x (Overscan) c 01 0K02x (16:9 16:10) c 01 0K03x (4:3)	read
Screen Mute (kd)			
Screen Mute ON (BackLight off)	kd 00 01(CR)	d 01 0K01x (Mute ON)	01
Screen Mute OFF (BackLight on)	kd 00 00(CR)	d 01 0K00x (Mute OFF)	00
Status	kd 00 ff(CR)	d 01 0K01x (Mute ON) d 01 0K00x (Mute OFF)	read
Audio Mute (ke)			
Audio Mute	ke 00 01(CR)	e 01 0K01x (Mute ON)	01 : Mute ON
	ke 00 00(CR)	e 01 0K00x (Mute OFF)	00 : Mute OFF
Status	ke 00 ff(CR)	e 01 0K01x (Mute ON) e 01 0K00x (Mute OFF)	read
Audio Volume (kf)			
Volume control (0~100%) (Default = 40%) 00h ~ 64h (Default = 28h)	kf 00 00(CR)	f 01 0K00x (Volume = 0, Min.)	00 (Hex , Decimal)
	kf 00 1A(CR)	f 01 0K1Ax (Volume = 26)	1A (1Ah = 26)
	kf 00 32(CR)	f 01 0K32x (Volume = 50)	32 (32h = 50)
	kf 00 64(CR)	f 01 0K64x (Volume = 100, Max.)	64 (64h = 100)
Picture			
DCR (kg)			
DCR On/Off	kg 00 01(CR)	g 01 0K01x (DCR ON)	01 : DCR ON
	kg 00 00(CR)	g 01 0K00x (DCR OFF)	00 : DCR OFF
Status	kg 00 ff(CR)	e 01 0K01x (DCR ON) e 01 0K00x (DCR OFF)	read

Data Sheet

Brightness (kh)			(Backlight)
0 ~ 100% (Default = 80%)	kh 00 50(CR)	h 01 OK50x (Backlight = 80)	00h ~ 64h (Default = 50h)
Status	kh 00 ff(CR)	h 01 OK32x (Backlight = 50)	read
Contrast (ki)			
0 ~ 100% (Default = 70%)	ki 00 46(CR)	i 01 OK46x (Contrast = 70)	00h ~ 64h (Default = 46h)
Status	ki 00 ff(CR)	i 01 OK32x (Contrast = 50)	read
Color			
Color Temperature (km)			
0 ~ 3 (Default = 0 : Normal)	km 00 00(CR) km 00 01(CR) km 00 02(CR) km 00 03(CR)	m 01 OK00x (Temperature = Normal) m 01 OK01x (Temperature = Warm) m 01 OK02x (Temperature = Cool) m 01 OK03x (Temperature = User)	00 : Normal 01 : Warm 02 : Cool 03 : User
Status	km 00 ff(CR)	m 00 OK02x (Temperature = Cool)	read
User Red (kn)			(When Color Temp. = User)
0 ~ 100% (Default = 100%)	kn 00 64(CR)	n 01 OK64x (Red = 100)	00h ~ 64h (Default = 64h)
Status	kn 00 ff(CR)	n 01 OK32x (Red = 50)	read
User Green (ko)			
0 ~ 100% (Default = 100%)	ko 00 64(CR)	o 01 OK64x (Green = 100)	00h ~ 64h (Default = 64h)
Status	ko 00 ff(CR)	o 01 OK32x (Green = 50)	read
User Blue (kp)			
0 ~ 100% (Default = 100%)	kp 00 64(CR)	p 01 OK64x (Blue = 100)	00h ~ 64h (Default = 64h)
Status	kp 00 ff(CR)	p 01 OK32x (Blue = 50)	read
Screen (Only RGB Input)			
RGB H Position (kq)			
0 ~ 100% (Default = 50%)	kq 00 32(CR)	q 01 OK32x (Red = 50)	00h ~ 64h (Default = 32h)
Status	kq 00 ff(CR)	q 01 OK32x (Red = 50)	read

Data Sheet

RGB V Position (kr)			
0 ~ 100% (Default = 50%)	kr 00 32(CR)	r 01 OK32x (Red = 50)	00h ~ 64h (Default = 32h)
Status	kr 00 ff(CR)	r 01 OK32x (Red = 50)	read
RGB Clock (ks)			
0 ~ 100% (Default = 50%)	ks 00 32(CR)	s 01 OK32x (Red = 50)	00h ~ 64h (Default = 32h)
Status	ks 00 ff(CR)	s 01 OK32x (Red = 50)	read
RGB Phase (kt)			
0 ~ 100% (Default = 50%)	kt 00 32(CR)	t 01 OK32x (Red = 50)	00h ~ 64h (Default = 32h)
Status	kt 00 ff(CR)	t 01 OK32x (Red = 50)	read
Local Key (mk)			
POWER KEY	mk 00 A1(CR)	k 01 OKA1x	A1h
MENU KEY (/Exit)	mk 00 A2(CR)	k 01 OKA2x	A2h
LEFT KEY	mk 00 A3(CR)	k 01 OKA3x	A3h
RIGHT KEY (/ Mute / Enter)	mk 00 A4(CR)	k 01 OKA4x	A4h
DOWN KEY (/ RGB_AutoAdjust)	mk 00 A5(CR)	k 01 OKA5x	A5h
UP KEY (/ Aspect)	mk 00 A6(CR)	k 01 OKA6x	A6h
SOURCE KEY (/ Enter)	mk 00 A7(CR)	k 01 OKA7x	A7h