LCD Monitor Service Manual

Model: PA246Q

V 1.0

RESTRICTIONS ON USE OF MATERIALS:

Important Safety Notice

Proper service and repair is important to the safe, reliable operation of all ASUS equipment. The service procedures recommended by ASUS and described in this service manual are effective methods of performing service operations. Some of these service operations require the use of tools specially designed for the purpose. The special tools should be used when and as recommended.

It is important to note that this manual contains various CAUTIONS and NOTICES which should be carefully read in order to minimize the risk of personal injury to service personnel. The possibility exists that improper service methods may damage the equipment. It is also important to understand that these CAUTIONS and NOTICES ARE NOT EXHAUSTIVE. ASUS could not possibly know, evaluate and advise the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each way. Consequently, ASUS has not undertaken any such broad evaluation. Accordingly, who uses a service procedure or tool which is not recommended by ASUS must first satisfy himself thoroughly that neither his safety nor the safe operation of the equipment will be jeopardized by the service method selected.

FOR PRODUCTS CONTAINING LASER:
DANGER- Invisible laser radiation when open.
AVOID DIRECT EXPOSURE TO BEAM.
CAUTION- Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
CAUTION- The use of optical instruments with this product will increase eye hazard.

TO ENSURE THE CONTINUED RELIABILITY OF THIS PRODUCT, USE ONLY ORIGINAL MANUFACTURER'S REPLACEMENT PARTS, WHICH ARE LISTED WITH THEIR PART NUMBERS IN THE PARTS LIST SECTION OF THIS SERVICE MANUAL

Take care during handling the LCD module with backlight unit
- Must mount the module using mounting holes arranged in four corners.
- Do not press on the panel, edge of the frame strongly or electric shock as this will result in damage to the screen.
- Do not scratch or press on the panel with any sharp objects, such as pencil or pen as this may result in damage to the panel.
- Protect the module from the ESD as it may damage the electronic circuit (C-MOS).
- Make certain that treatment body is grounded through wrist band.
- Do not leave the module in high temperature and in areas of high humidity for a long time.
- Avoid contact with water as it may as hort circuit within the module.
- If the surface of panel became dirty, please wipe it off with a soft material. (Cleaning with a dirty or rough cloth may damage the panel.)

1 Monitor Specifications

1.1 Introduction

This specification describes ASUS PA246Q, a 24" Wide multi-interface (Analog +DVI +HDMI +DisplayPort) color TFT LCD monitor. The display supports up to 1920*1200/60 Hz resolution & refresh rate and 1.07 billion colors (HDMI & DP).The features summary is shown below,

Feature items	Specifications	Remark
Panel supplier & Panel type of supplier	LGD LM240WU4-SLB3	Transmissive mode, normally black
Actual Size Diagonal display	24" Wide (16:10)	Panel display size
Actual Resolution display	(1920x1200/60Hz)	Panel display resolution
Viewing Angle (at Contrast Ratio ≧ 10)	178 degrees Horizontal (typ.) 178 degrees Vertical (typ.)	Panel spec
Color Gamut	102%	
Analog interface with Scaling supported	Yes	With 15 pin D-sub connector
DVI interface with Scaling supported	Yes	With 24 pin DVI-D connector
HDCP supported	Yes	
HDMI supported	Yes	With 19 pin HDMI connector
DisplayPort supported	Yes	With 20 pin DisplayPort connector
Video interface with Scaling supported	No	N.A.
Max resolution mode supported	1920x1200@60Hz	
Number of Display Colors supported	1.07 billion colors	8-bit + A-FRC,
Contrast Ratio	1000:1 (typ.)	
Dynamic Contrast Ratio	50000:1	The monitor would increase the backlight when display a dark image. Scenery Mode : under 7 gray scale Theater Mode : under 17 gray scale
Luminance	1.) LCD panel luminance spec: 400 cd/m2 (typ.) 320 cd/m2 (min.) 2.) Monitor's factory default luminance spec: 270 cd/m2 (typ.) 370 cd/m2 (max.)	1.) Panel luminance spec is measured at saturated R/G/B and CCFL=6~7mA (typ.) condition. 2.) Monitor's factory default luminance spec is measured at User Mode default color temperature (6500K).
AC power input	Yes	100-240Volts, 50/60 Hz.
DC power input (with AC power adapter)	No	
DPMS supported	< 1 Watt	
LED indicator for power status showed	Yes	White/Orange/Non
OSD for control & information supported	Yes	
Multi-language supported for OSD	Yes	10 languages
Buttons control supported	Yes	7 buttons including 1 monitor power on/off control button
Flywheel control supported	No	
Scaling function supported	Yes	ST STDP8028(Mars)

Auto adjustment function supported	Yes	Press and hold “Splendid-key” for 2 ~ 4 seconds
DDC function supported (EDID ver.1.3)	Yes	DDC2B
DDC-CI support version 1.1 or later	Yes	DDC-CI
Audio speakers supported	No	
Audio Jack (input connector) supported	No	
Earphone Jack (output connector) supported	Yes	
Microphone function supported	No	N.A.
USB 2.0 hub supported	Yes	2 USB ports
Card reader supported	Yes	**Supported Media Types** : Memory Stick (MS), High Speed Memory Stick (HSMS), Memory Stick PRO (MSPRO), Memory Stick Duo(w Adapter), MS Duo Secure Digital (Mini-SD), Secure Digital Card, Mini Secure Digital(w Adaptor), TransFlash(SD, including SDHC), MultiMediaCard(MMC), Reduced Size MultiMediaCard(RS-MMC), NAND Flash, xD **Card Slots :** Lower Slot (built-in Push Ejection Mechanism): SD / MS / MMC/xD – direct insertion MS Duo / Mini-SD / TransFlash Card / RS-MMC – with adapter
Mechanical Tilt base design	Yes	
VESA wall mounting design	Yes	
Mechanical Rotate design	Yes	
Mechanical Lift base design	Yes	

1.2 Dimension

Item	Condition	Spec	OK	N.A	Remark
Bezel opening		520.4 x 326 mm	√		
Monitor without Stand	L x W x D mm	558.4*380.8*79 mm	√		
Monitor with Stand	L x W x D mm	558.4*380.8*235 mm	√		
Carton Box (outside)	L x W x H mm	683*457*298 mm	√		
Tilt, Swivel and Lift range		Tilt: -5/+20 degree Swivel: ±60 degree Lift: 100mm	√		

1.3 Weight

Item	Condition	Spec	OK	N.A	Remark
Monitor (Net)	7.3 kg	+/- 4%	√		
Monitor with packing (Gross)	10 kg	+ 5%	√		

1.4 Plastic

Item	Condition	Spec	OK	N.A	Remark
Flammability	UL	94 HB	√		
Heat deflection To	ABS	75 ℃	√		
UV stability	ABS	Delta E < 3.0	√		
Resin	ABS/HB	GPPC D350 BASF GP-35 CHEIL SD0150 CHIMEI PA757 LG HF380 KINGFA HP-126	√		
Texture		MT-11000 MT-11010 MT-11020	√		
Color		DB39A	√		

1.5 Carton

Item	Condition	Spec	OK	N.A	Remark
Color		Color box	√		
Material		BC Flute	√		
Compression strength		400 KGF			
Burst Strength		18 KGF/cm2			
Stacked quantity		7 layers	√		

2 Operation Instructions

2.1 Video performance

Item	Condition	Spec	OK	N.A	Remark
Resolution	Any input resolution modes which are under 1920x1200	1920 x1200@60Hz	√		
Contrast ratio		1000:1(typ.)	√		
Brightness	At R、G、B saturated condition	270 cd/m^2 (typ.) 370 cd/m^2 (max)	√		
Response time	Rise Time Decay Time Gray to Gray	6 ms (typ.) 7 ms (typ.) 6 ms (typ.)	√		
Viewing angle		R/L 178(Typ.) U/D 178(Typ.)	√		
CIE coordinate of White		(0.313, 0.329) +/- (0.03, 0.03)	√		
Display colors		1.07 Billion colors	√		Only HDMI & DP

2.2 Brightness Adjustable Range

Item	Condition	Spec	OK	N.A	Remark
Brightness adjustable range	At Max. Contrast level & Full-white color pattern	(Max. brightness value – Min. brightness value) ≧ 100 cd/㎡	√		

2.3 Acoustical Noise

Item	Condition	Spec	OK	N.A	Remark
Acoustical Noise	Front side distance : 30cm Back side distance : 4cm	Front side < 23 dB Back side < 28 dB	√		

2.4 Environment

Item	Condition	Spec	OK	N.A	Remark
Temperature	Operating	0 ~ 40 ℃	√		
	Non-operating	-20 ~ +60 ℃	√		
Humidity	Operating	10 ~ 90%	√		Non-condensing
	Non-operating	5 ~ 90%	√		Non-condensing
Altitude	Operating	0~3,657m (12,000ft)	√		Without packing
	Non-operating	0~12,192m (40,000ft)	√		With packing

2.5 Transportation

Item	Condition	Spec	OK	N.A	Remark
Vibration	Unpacked, Non-Operating	20 Hz, 0.0185 g^2/Hz 200 Hz, 0.0185 g^2/Hz (Duration: 5 min Per AXIS)	√		
Package Test (1)Random Vibration	Package, Non-Operating	1Hz, 0.0001 g^2/Hz 4 ~100 Hz, 0.0001 g^2/Hz 200 Hz, 0.001 g^2/Hz (Equivalent to 1.15 Grms) (Duration: 30 min Per surface on Z Axis)	√ √		
(2)Drop	Package, Non-Operating	91 cm Height (2 corners, 2 edges, 6 faces)	√		

2.6 Electrostatic Discharge Requirements

Item	Condition	Spec	OK	N.A	Remark
Electrostatic Discharge	IEC801-2 standard	Contact: 8KV Air: 15KV	√		

2.7 Reliability

Item	Condition	Spec	OK	N.A	Remark
MTBF Prediction	Refer to Telcordia (Bellcore)	≧ 80,000 Hours (goal)	√		Excluding the LCD, CCFL
CCFL Life time	at 25 ℃ ﹒2℃	≧ 40,000 Hours (SA)	√		See Note

Note: The lifetime of LED is defined as the time when LED packages continue to operate under the conditions at Ta = 25 ±2 and I= (20)mA (per chip) until the brightness becomes _ 50% of its original value.

2.8 User's hardware control definition:

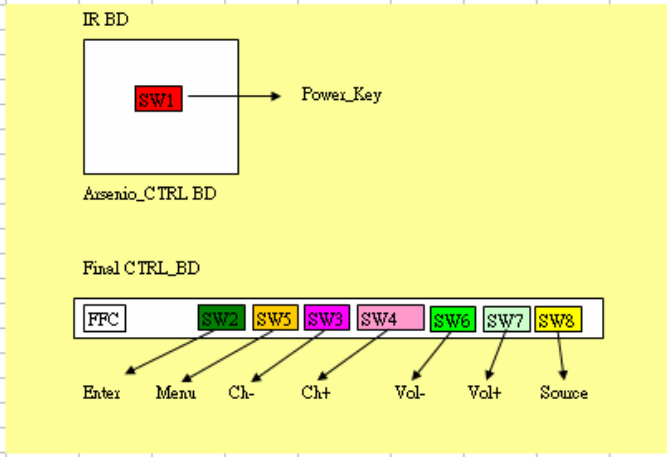
New

If(Factory&&Rootmenu) DoADCCalibration()

KEY PAD	Key 1 S / A / ↵	Key 2 MENU	Key 3 ◀	Key 4 ▶	Key 5 ▼	Key 6 ▲	Key 7 ⏻
Primary Function	Splendid	Menu	Previous Programme	Next Programme	Volume Down	Volume Up	Source
OSD MENU ACTIVE	Enter	Return	Left	Right	Down	Up	Exit
SPLENDID MODE SELECTION	Next Mode	OSD Menu	Previous Mode	Next Mode	Previous Mode	Next Mode	Exit
SOURCE SELECTION	Enter	Exit	Previous Source	Next Source	Previous Source	Next Source	Next source
Long Pressing	VGA Auto Adjust						
On Booting			1/2 Window Demo	1/4 Box Demo			

Original

KEY PAD	Key 1 MENU / S	Key 2 ☼ / ↵ / A	Key 3 ◀	Key 4 ▶	Key 5 ▼	Key 6 ▲	Key 7 ⏻
Primary Function	Menu	Brightness	Previous Programme	Next Programme	Volume Down	Volume Up	Source
OSD MENU ACTIVE	Return	Enter	Left	Right	Down	Up	Exit
BRIGHTNESS	OSD Menu	Exit	Brightness -	Brightness +	Brightness -	Brightness +	Exit
SOURCE SELECTION	Exit	Enter	Previous Source	Next Source	Previous Source	Next Source	Next source
Long Pressing	Splendid	VGA Auto Adjust					
SPLENDID MODE SELECTION	Next Mode	Enter	Previous Mode	Next Mode	Previous Mode	Next Mode	Exit
On Booting			1/2 Window Demo	1/4 Box Demo			



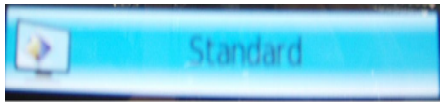
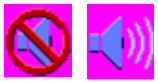
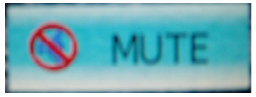
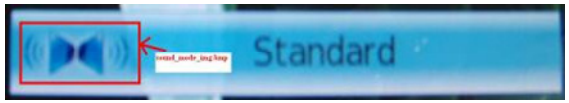
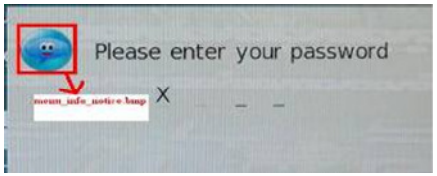
正面看

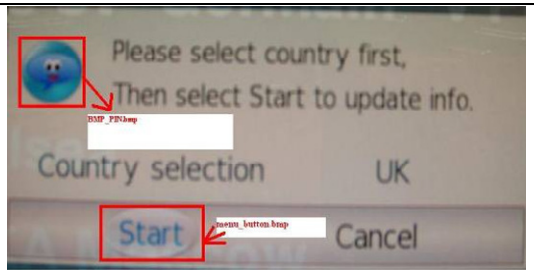
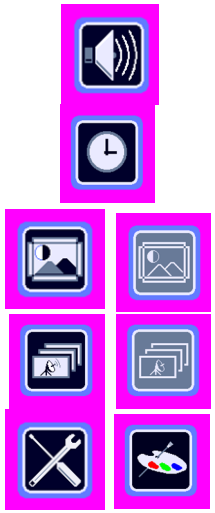
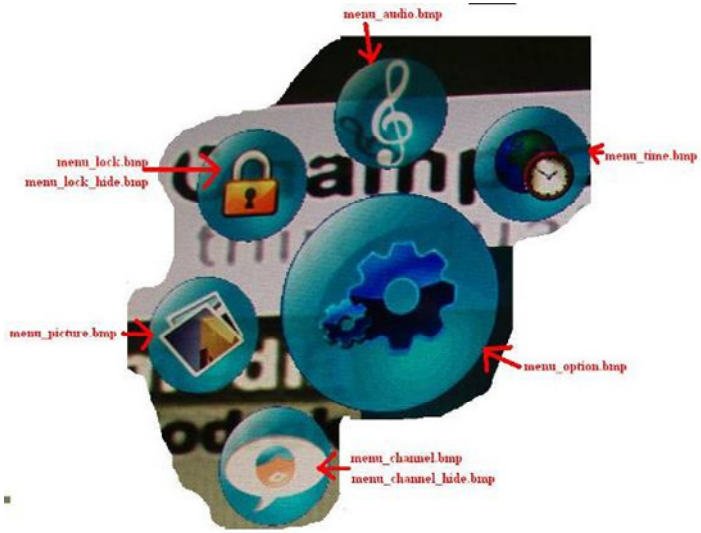
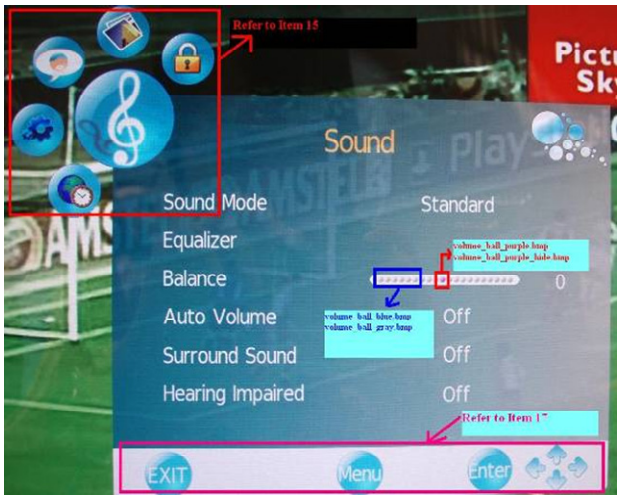
		3.32		
GND		6 bit register	Tolerance	
SAR2	0.86	17	+/-6	Auto(reserve)
	1.54	30	+/-6	Menu
	2.34	45	+/-8	Source
SAR1	0.86	17	+/-6	Vol-
	1.54	30	+/-6	Vol+
	2.34	45	+/-8	Enter
SAR0	0.86	17	+/-6	Ch-
	1.54	30	+/-6	Ch+
	2.34	45	+/-8	Power

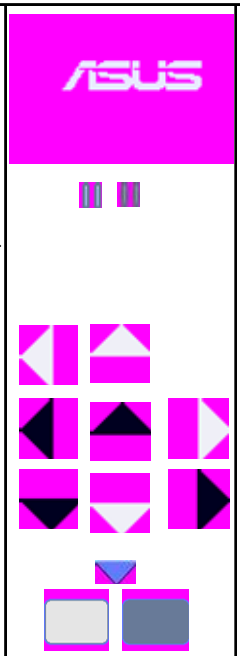
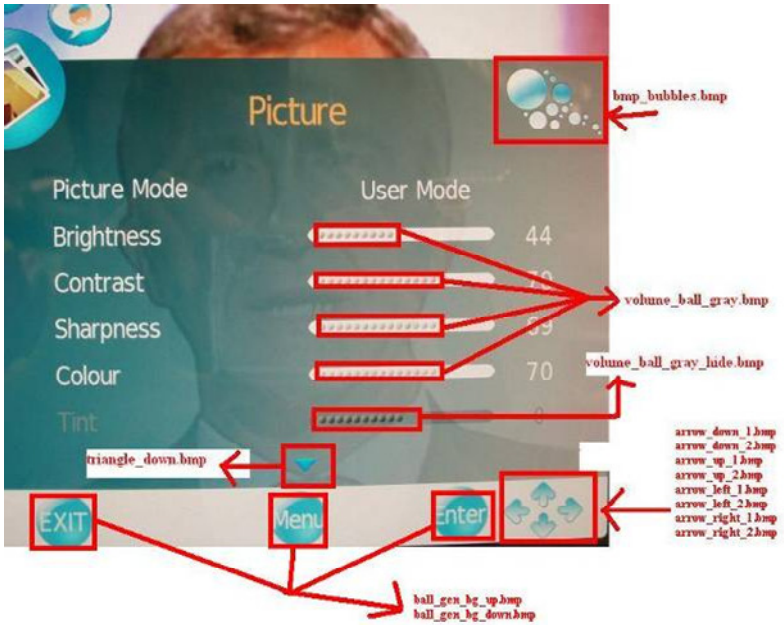
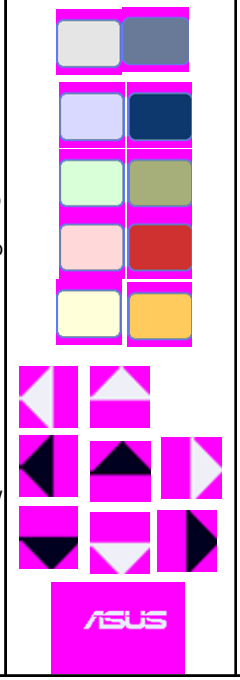
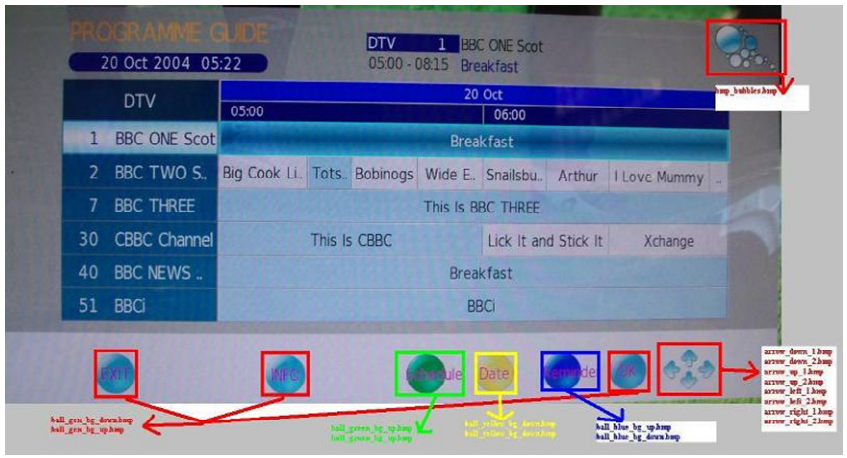
組合Key

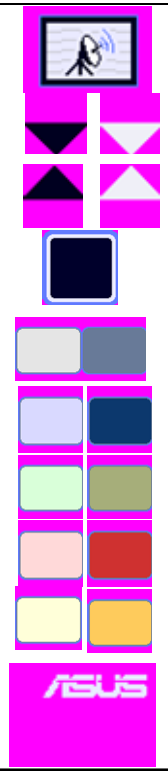
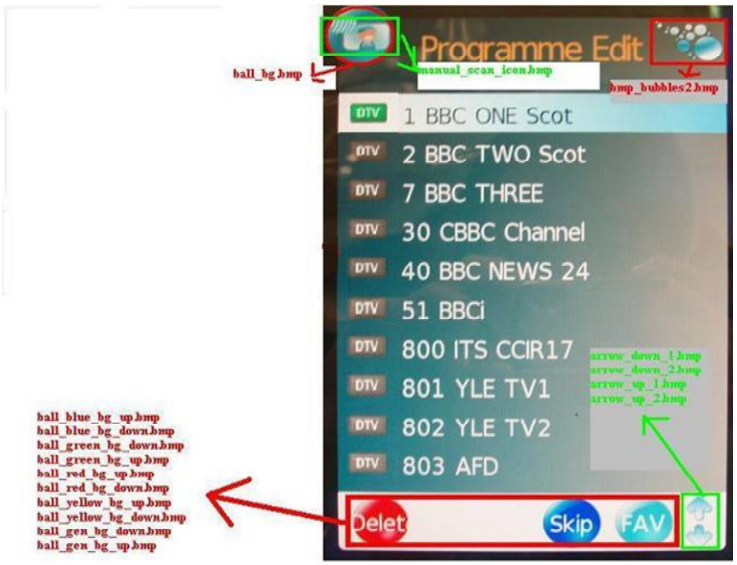
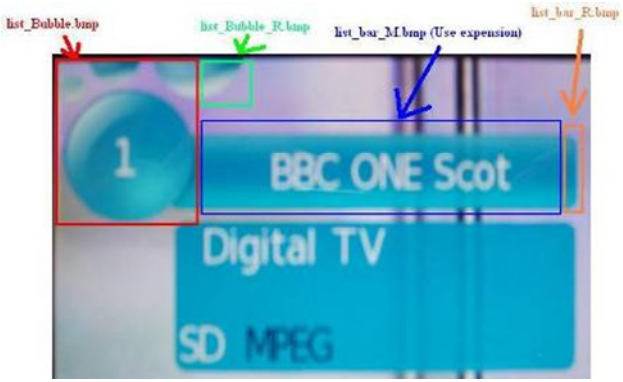
		SAR2	SAR1	SAR0
Factory	Menu+Enter+Power	30	45	45
Service	Enter+Power	64	45	45
Buin off/Remote lock off	Menu+Ch-	30	64	17

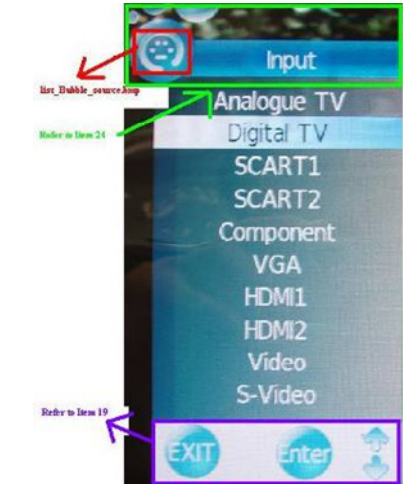
2.9 OSD control function definition

Item	File Name	Graphic	Related OSD	Comment
1	ButtonTypeC_F_L.png			This will be used in those OSD for CI module. (Suggest : Do not change)
2	ButtonTypeC_F_M.png			This will be used in those OSD for CI module(Suggest : Do not change)
3	ButtonTypeC_F_R.png			This will be used in those OSD for CI module(Suggest : Do not change)
4	ButtonTypeC_N_L.png			This will be used in those OSD for CI module(Suggest : Do not change)
5	ButtonTypeC_N_M.png			This will be used in those OSD for CI module(Suggest : Do not change)
6	ButtonTypeC_N_R.png			This will be used in those OSD for CI module(Suggest : Do not change)
7	grybar_cursor_b_m.png			This will be used in those OSD for CI module(Suggest : Do not change)
8	grybar_cursor_f_m.png			This will be used in those OSD for CI module(Suggest : Do not change)
9	grybar_cursor_n_m.png			This will be used in those OSD for CI module(Suggest : Do not change)
10	shop_mode_img.bmp			
11	volume_MUTE.bmp volume_on.bmp			
12	sound_mode_img.bmp			
13	menu_info_notice.bmp			

14	menu_info_notice.bmp menu_button.bmp			
15	menu_lock.bmp menu_lock_hide.bmp menu_time.bmp menu_channel.bmp menu_channel_hide.bmp menu_option.bmp menu_picture.bmp menu_audio.bmp			
16	volume_ball_blue.bmp volume_ball_gray.bmp volume_ball_purple.bmp volume_ball_purple_hide.bmp			

17	bmp_bubbles.bmp volume_ball_gray.bmp volume_ball_gray_hide.bmp triangle_down.bmp arrow_down_1.bmp arrow_down_2.bmp arrow_up_1.bmp arrow_up_2.bmp arrow_left_1.bmp arrow_left_2.bmp arrow_right_1.bmp arrow_right_2.bmp			
18	ball_yellow_down.bmp ball_yellow_bg_up.bmp ball_gen_bg_up.bmp ball_gen_bg_down.bmp ball_green_bg_up.bmp ball_green_bg_down.bmp ball_blue_bg_up.bmp ball_blue_bg_down.bmp arrow_down_1.bmp arrow_down_2.bmp arrow_up_1.bmp arrow_up_2.bmp arrow_left_1.bmp arrow			

19	ball_bg.bmp manual_scan_icon.bmp bmp_bubbles2.bmp ball_blue_bg_up.bmp ball_blue_bg_down.bmp ball_green_bg_down.bmp ball_green_bg_up.bmp ball_red_bg_up.bmp ball_red_bg_down.bmp ball_yellow_bg_up.bmp ball_yellow_bg_down.bmp ball_gen_bg_down.bmp ball_gen_bg_			Red (207, 49, 48) Yellow (254, 203, 92) Green (166, 174, 122) Blue(213, 89, 43)
20	list_Bubble.bmp list_Bubble_R.bmp list_bar_M.bmp list_bar_R.bmp			

21	list_Bubble_source.bmp			1. Please refer to Item24 for the title bar on the up. 2. Please refer to Item 19 for the bottom of the OSD
22	list_Bubble_info.bmp			1. Please refer to Item24 for the title bar on the up. 2. Please refer to Item 19 for the bottom of the OSD

* The detailed firmware functions' specification, please refer to C212 S/W spec. document.

3 Input/Output Specification

3.1 Power supply

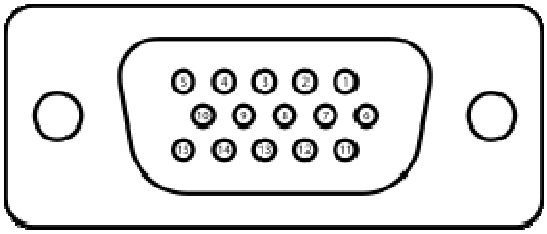
Item	Condition	Spec	OK	N.A	Remark
Input Voltage range	Universal input full range	100-240V, 50/60 Hz	√		
Input Current range	100 ~ 240VAC	< 2 Arms	√		
Power Consumption	Normal “On” operation	< 130 Watts	√		LED: White
	DPMS “Sleep” state	≤ 1 W	√		LED: Orange
	DPMS “Off” state	≤ 1 W	√		LED: Off
	AC Power Switch Off	0 W	√		LED: Off
Inrush Current	110 VAC 220 VAC	< 30 A (peak) < 60 A (peak)	√		Cold-start
Earth Leakage Current	264 VAC/50Hz	< 3.5 mA	√		
Hi-Pot	1. 1500VAC, 3 sec 2. Ground test: 30A, 3sec	Without damage < 0.1 ohm	√		(on-line test) (in-lab test)
Power Line Transient	IEC1000-4-4	1KV	√		
	IEC1000-4-5 (Surge)	Common: 2KV, Differential: 1KV	√		
CCFL operation range	90 ~ 264VAC	6mA ~ 7mA (With 100% Duty)	√		Panel spec.
CCFL Frequency	90 ~ 264VAC	54KHz ~ 58KHz (With 100% Duty)	√		Panel spec.
Power cord		Color: Black Length: 1800mm +/- 50mm	√		

3.2 Signal interface

Item	Condition	Spec	OK	N.A	Remark
Signal Cable	D-Sub	Color: Black Length: 1800 mm	√		with blue connector
	DVI-D	Color: Black Length: 1800 mm	√		with white connector
	HDMI	Color: Black Length: 1800 mm		√	
	Displayport (DP)	Color: Black Length: 2000 +/- 50mm	√		DP 1.1 protocol
	USB 2.0 cable	Color: Black Length: 1800 +/- 30mm	√		
	Audio	Color: Black Length: 1800 mm		√	with green Jack
Pin assignment	15 pin D-sub connector	See Note 1	√		For 15 pin D-sub
	24-pin DVI-D connector	See Note 2	√		For 24-pin DVI-D
	19-pin HDMI connector	See Note 3	√		For 19-pin HDMI
	20-pin DisplayPort connector	See Note 4	√		For 20-pin DisplayPort
Analog	Signal type	Separate analog R、G、B	√		For 15 pin D-sub
	Level	700 mV +/- 5% (peak to peak)	√		
	Impedance	75 Ohms +/- 2% Ohms	√		
Sync	Signal type	Separate H/V-sync (Positive/Negative)	√		For 15 pin D-sub

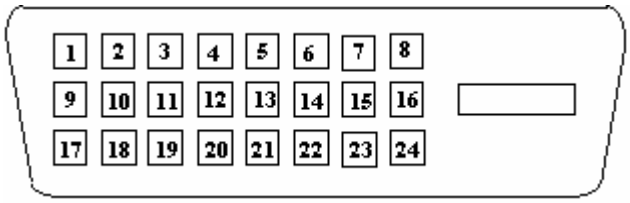
	Level	Logic High: 2.0V ~ 5.5V Logic Low: 0V ~ 0.8V (TTL level)	√		Refer to VESA VSIS Standard V1R1
	Impedance	Minimum 2.2KΩ(pull down)	√		2.2KΩ for application
Digital input	Level	600mV for each differential line	√		
	Impedance	100 Ohm TDR Scan needed for DVI cable and interface board	√		
HDMI input	Level	600mV for each differential line	√		
	Impedance	100 Ohm differential TDR Scan needed for HDMI cable and interface board	√		
DisplayPort input	Level	600mV for each differential line	√		
	Impedance	100 Ohm differential TDR Scan needed for DisplayPort cable and interface board	√		

Note 1: The pin assignment of D-sub , DVI , HDMI , DisplayPort connectors are as below:
15 pins D-sub connector (Female):



Pin	Signal Assignment	Pin	Signal Assignment
1	Red video	9	PC5V (+5 volt power)
2	Green video	10	Sync Ground
3	Blue video	11	Ground
4	Ground	12	SDA
5	Cable-Detect	13	H-Sync (or H+V)
6	Red Ground	14	V-sync
7	Green Ground	15	SCL
8	Blue Ground		

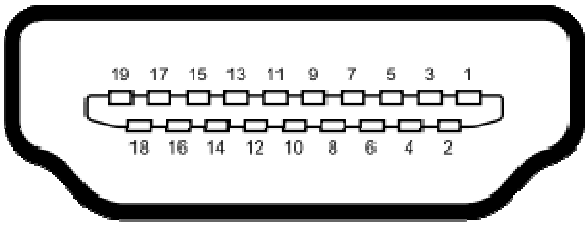
Note 2: The pin assignment of 24-pin DVI-D connector (Female) is as below,



Pin	Signal Assignment	Pin	Signal Assignment
1	TMDS RX2-	13	TMDS RX3+
2	TMDS RX2+	14	+5V Power
3	TMDS Ground	15	Self-test (Cable detect)
4	TMDS RX4-	16	Hot Plug Detect
5	TMDS RX4+	17	TMDS RX0-
6	**DDC Clock**	18	**TMDS RX0+**

7	**DDC Data**	19	**TMDS Ground**
8	**Floating**	20	**TMDS RX5-**
9	**TMDS RX1-**	21	**TMDS RX5+**
10	**TMDS RX1+**	22	**TMDS Ground**
11	**TMDS Ground**	23	**TMDS Clock+**
12	**TMDS RX3-**	24	**TMDS Clock-**

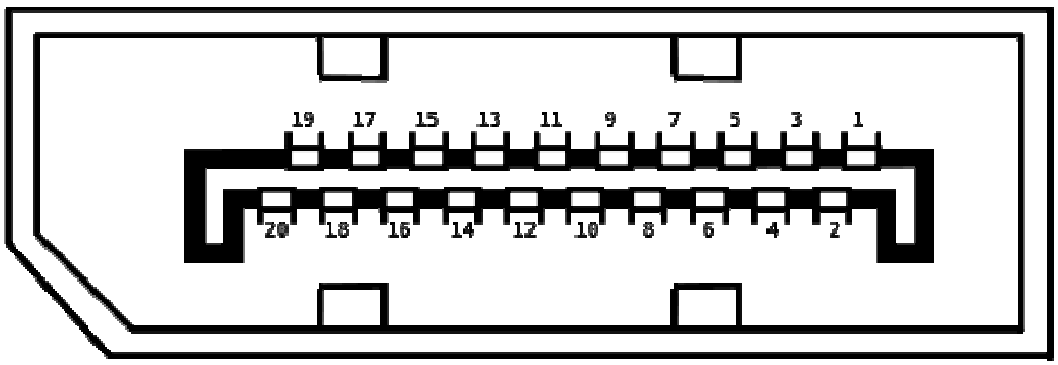
Note 3: Type A (Receptacle) HDMI



HDMI Digital connector pin assignments

PIN	MNEMONIC	SIGNAL
1	TX 2 +	TMDS Data 2 +
2	SHLD 2	TMDS Data 2 Shield
3	TX 2 -	TMDS Data 2 -
4	TX 1 +	TMDS Data 1 +
5	SHLD 1	TMDS Data 1 Shield
6	TX 1 -	TMDS Data 1 -
7	TX 0 +	TMDS Data 0 +
8	SHLD 0	TMDS Data 0 Shield
9	TX 0 -	TMDS Data 0 -
10	TX CLK +	TMDS Clock +
11	TX CLK SHLD	TMDS Clock Shield
12	TX CLK -	TMDS Clock -
13	CEC	Consumer Electronic Control
14	NC	No Connect
15	DDC Clk	DDC Clock
16	DDC Data	DDC Data
17	GND	CED and DDC Ground
18	+5V	+5V Power (from the media box)
19	HPD	Hot Plug Detect

Note 4: The pin assignment of 20-pin DisplayPort connector is as below,



20-pins DisplayPort female

Pin	Signal Assignment	Pin	Signal Assignment
1	Lane0 P	11	**Ground**
2	Ground	12	**Lane3 N**
3	Lane0 N	13	Ground
4	Lane1 P	14	EDID WP
5	Ground	15	AUX_CH P
6	Lane1 N	16	Ground
7	Lane2 P	17	AUX_CH N
8	Ground	18	**Hot Plug Detect**
9	Lane2 N	19	**Return**
10	**Lane3 P**	20	**DP_PWR**

3.3 Input Video Signal Performance Requirement

Item	Condition	Spec	OK	N.A	Remark
Max. support Pixel rate		193.25 MHz	√		DVI only 165 MHz
Max. Resolution		1920 x 1200@60Hz	√		
Rise time + Fall time (for D-sub input)		< 2.509 ns (50% of minimum pixel clock period)	√		1920x1200 @ 60Hz (max. support timing)
Settling Time after overshoot /undershoot		< 5% final full-scale value	√		Refer to VESA VSIS Standard V1R1
Overshoot/Undershoot		< 12% of step function voltage level over the full voltage range	√		Refer to VESA VSIS Standard V1R1

3.4 Scan range

Item	Condition	Spec	OK	N.A	Remark
Horizontal		31 ~ 83 KHz	√		
Vertical		50 ~ 76 Hz	√		Without Frame buffer

3.5 Plug & Play DDC2B Support

Item	Condition	Spec	OK	N.A	Remark
DDC channel type		DDC2B / DDC-CI	√		Refer to Q212 S/W spec document to see the detailed DDC-CI command list.
EDID		Version 1.3	√		Refer to Rebel Q212 S/W spec document to see the detailed EDID data definition.

3.6 Support Timings

VGA+DVI+HDMI (PC)

Input Timing Resolution	Horizontal Frequency (KHz)	Vertical Frequency (Hz)	Dot Clock Frequency (MHz)	Actual display Resolution	OK	N.A	Remark
640x480	31.47(N)	59.94(N)	25.18	1920x1200	√		VGA
640x480	35.00(N)	66.66(N)	30.24	1920x1200	√		Macintosh
640x480	37.87(N)	72.82(N)	31.5	1920x1200	√		VESA
640x480	37.5(N)	75.00(N)	31.5	1920x1200	√		VGA
720x400	31.47(N)	70.08(P)	28.32	1920x1200	√		VGA
800x600	35.16(P)	56.25(P)	36.00	1920x1200	√		SVGA
800x600	37.88(P)	60.32(P)	40.00	1920x1200	√		VESA
800x600	48.08(P)	72.12(P)	50.00	1920x1200	√		SVGA
800x600	46.86(P)	75.00(P)	49.50	1920x1200	√		VESA
832X624	49.72(P/N)	74.55(P/N)	57.28	1920x1200	√		APPLE
1024x768	48.36(N)	60.00(N)	65.00	1920x1200	√		VESA
1024x768	56.476(N)	70.069(N)	75.00	1920x1200	√		UVGA
1024x768	60.02(N)	75.00(N)	78.75	1920x1200	√		VESA
1152x864	67.5(P/N)	75.00(P/N)	108.00	1920x1200	√		VESA
1280x960	60.00(P)	60.00(N)	108.00	1920x1200	√		VESA
1280x1024	63.98(P)	60.02(P)	108.00	1920x1200	√		VESA
1280x1024	79.98(P)	75.02(P)	135.00	1920x1200	√		VESA
1366x768	47.712(P)	59.79(P)	85.50	1920x1200	√		VESA
1440x900	55.94(N)	59.89(P)	106.50	1920x1200	√		CVT 1.30MA
1600x1200	75.00(P)	60.00(P)	162.00	1920x1200	√		VESA
1680x1050	65.29(N)	60.00(P)	146.25	1920x1200	√		CVT 1.76MA
1920x1080	67.5(P)	60.00(P)	148.5	1920x1200	√		VESA
1920x1200 (Reduced Blanking)	74.038(P)	59.95(N)	154	1920x1200	√		VESA
1920x1200	74.556(N)	59.885(P)	193.25	1920x1200	√		VESA

Note: “P”, “N” stands for “Positive”, “Negative” polarity of incoming H-sync/V-sync (input timing)

Timing mode:
When the monitor is operating in the video mode (ie, not displaying data) using the HDMI connector, the following high definition modes shall be supported in addition to standard definition video.

Preset	Timing Name	Pixel Format	Horz Freq (kHz)	Vert Freq (kHz)	Pixel Rate (MHz)	OSD Display
1	480p	720x480	31.469	60	27	480p-60Hz
2	720p60	1280x720	45	60	74.25	720p-60Hz
3	576p	720X576	31.25	50	27	576p-50Hz
4	720p50	1280X720	37.5	50	74.25	720p-50Hz
5	1080p60	1920x1080	67.5	60	148.5	1080p-60Hz
6	1080p50	1920x1080	56.25	50	148.5	1080p-50Hz

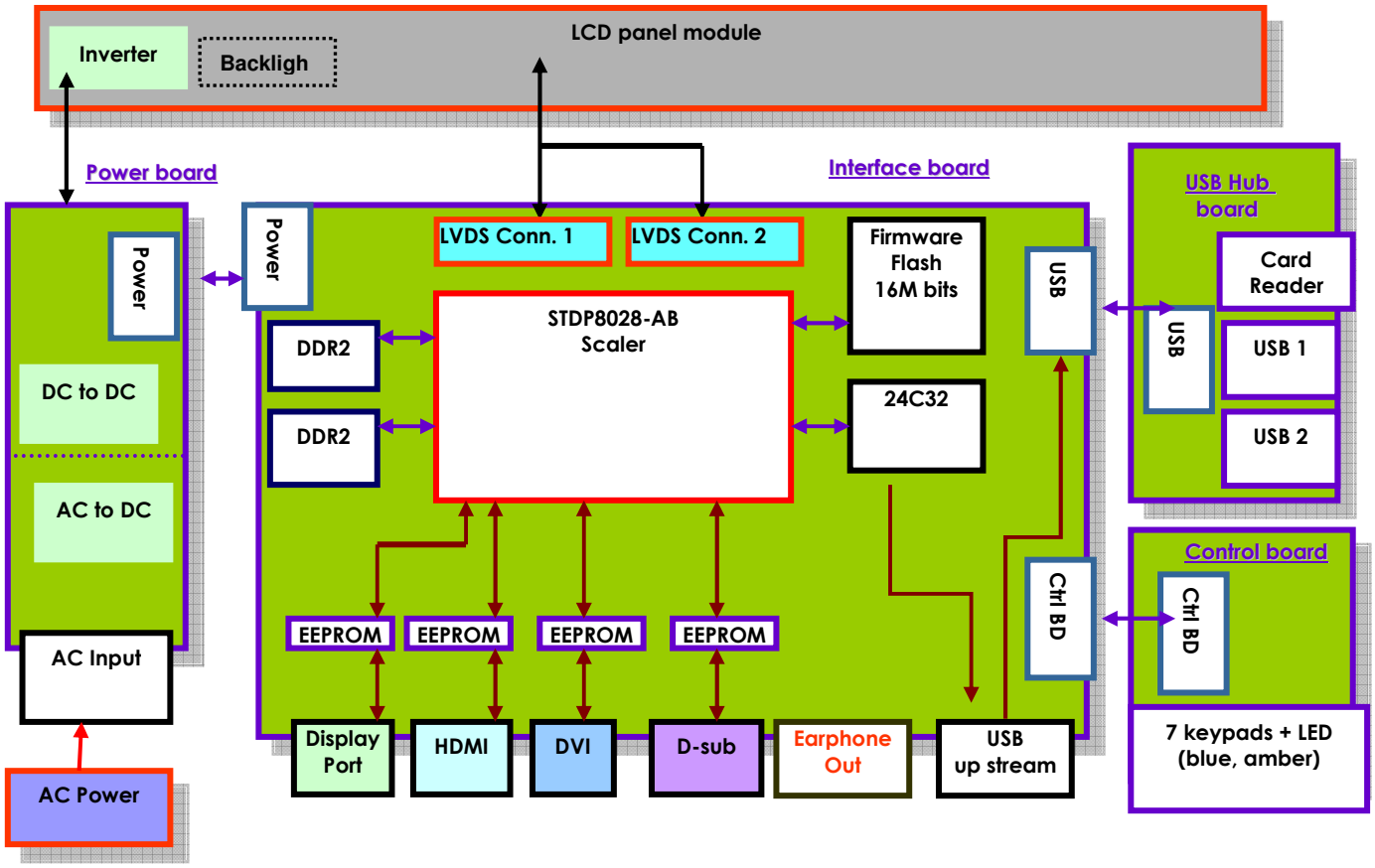
4 Block Diagram

4.1 Function block

PA246Q is a 24" WUXGA (1920x1200) resolution TFT LCD monitor. The monitor shall support VGA, DVI, Displayport and HDMI with HDCP inputs. Moreover, PA246Q equips headphone out to enhance its features and one USB upstream, two USB inputs and card reader. It's compliant with VESA specification to offer a smart power management and power saving function. It also offers OSD menu for users to control the adjustable items and get some information about this monitor, and hotkey function is to offer users an easy method to set some common functions by pressing several hotkeys which also include some auto adjust functions.PA246Q also offer DDC/CI function to meet VESA standard.

A246Q consists of a head and a stand (base). The head consists of a LCD module with lamps, a power board, a control board, a USB hub board and an interface BD.

The block diagram is shown as below.



A. Interface Board

A basic operation theory for this interface board is to convert analog signals of Red, Green and Blue to digital signals of Red, Green and Blue, and to provide DVI port equipped with HDCP key, for receiving DVI signal to generate high quality image. In addition, it provides HDMI and Displayport input ports, equipped with HDCP key, for receiving HDMI and Displayport signals to generate high quality image and audio. The scaling IC has internal A/D converter, internal OSD and auto detect input timing

functions. A/D converter converts analog signal to digital data. OSD is offering adjustable functions to end-user. Detect timing is for detect change mode. Scalar generates the pixel clock to the T-CON. Finally output the digital RGB data, the Hsync, Vsync and pixel clock to LCD panel driver IC.MCU offers H/W DDC2BI function & controls system processing. EEPROM is stored DDC data, OSD common data and user mode data. A headphone audio circuit is also provided by interface board to add the headphone output features.

(a) IC introduction

1. ST STDP8028 is an all-in-one LCD monitor controller supporting WUXGA, and integrates ST high performance ADC, TMDS Rx with HDCP, scaling engine, OSD engine, LVDS Tx, and so on.
2. EEPROM: We use 24C32 to store all the adjustable data and user settings. The HDCP KEY is stored in it.
3. Serial Flash: It controls all the functions of this interface board, just like the OSD display setting, the adjustable items, adjusted data storage, the external IIC communication, support DDC2BI.
4. SMSC USB2649 IC: The 2-port USB HUB is fully compliant with USB 2.0 specification and will attach to an upstream port as a Full-/High- Speed HUB.

B. Power Board Diagram

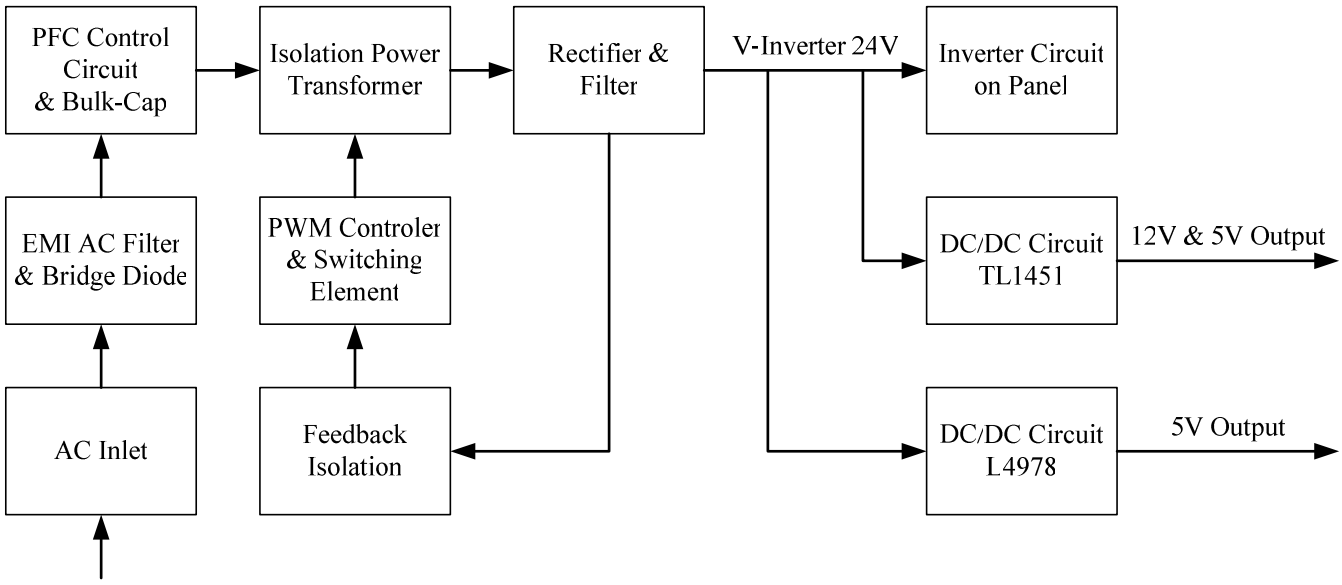


Fig.1

#1 EMI Filter

This circuit is designed to inhibit electrical and magnetic interference for meeting FCC, VDE, VCCI standard requirements.

#2 **Converter Circuit – L4978**

The L4978 is a step down monolithic power switching regulator delivering 2A at a voltage between 3.3V and 50V (selected by a simple external divider). Realized in BCD mixed technology, the device uses an internal power D-MOS transistor (with a typical $R_{DS(on)}$ of 0.25Ω) to obtain very high efficiency and high switching speed.

A switching frequency up to 300 kHz is achievable (the maximum power dissipation of the packages must be observed). A wide input voltage range between 8V to 55V and output voltages regulated from 3.3V to 50V cover the majority of today's applications.

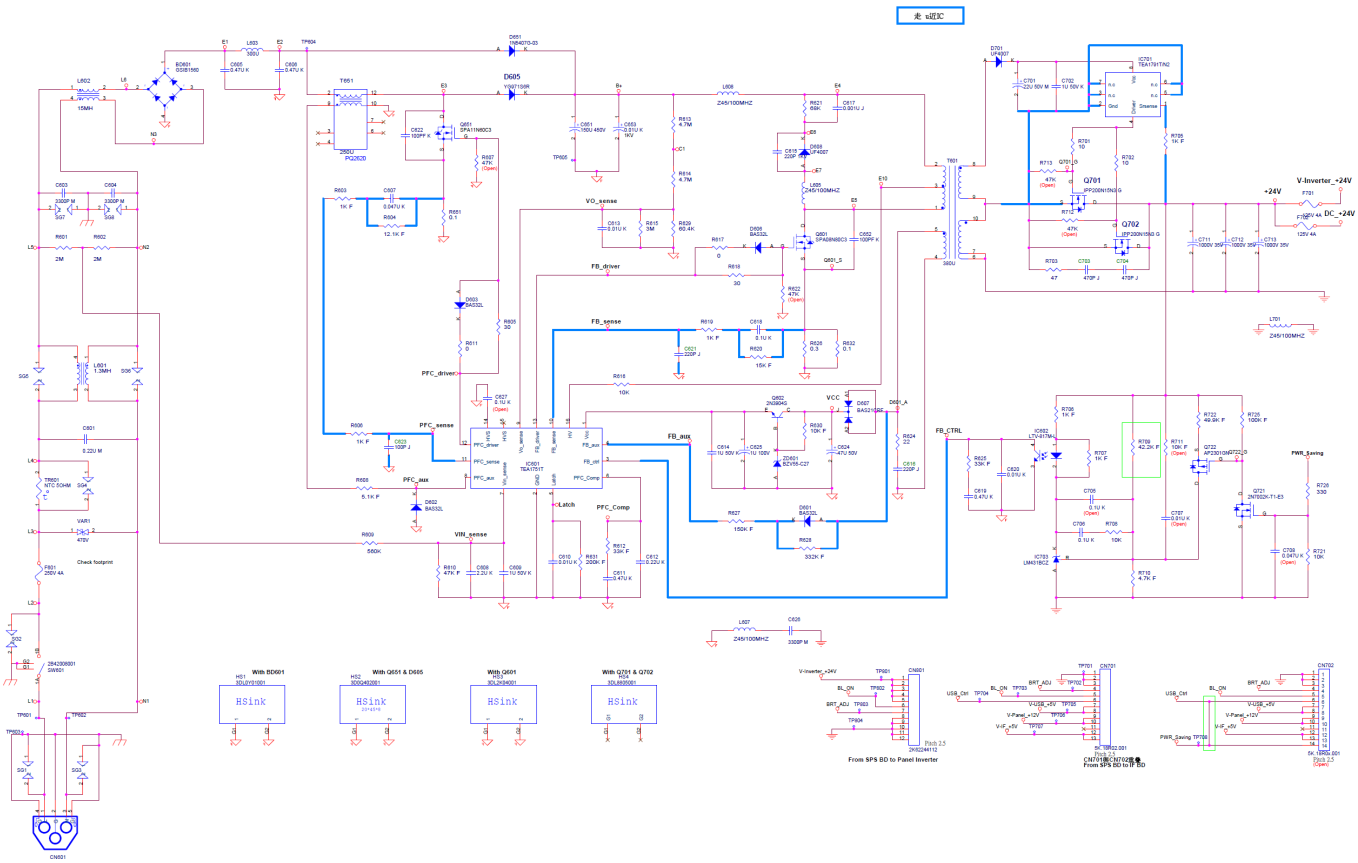
Features of this new generation of DC/DC converter include pulse-by-pulse current limit, hiccup mode for short circuit protection, voltage feed-forward regulation, soft-start, protection against feedback loop disconnection, inhibit for zero current consumption and thermal shutdown.

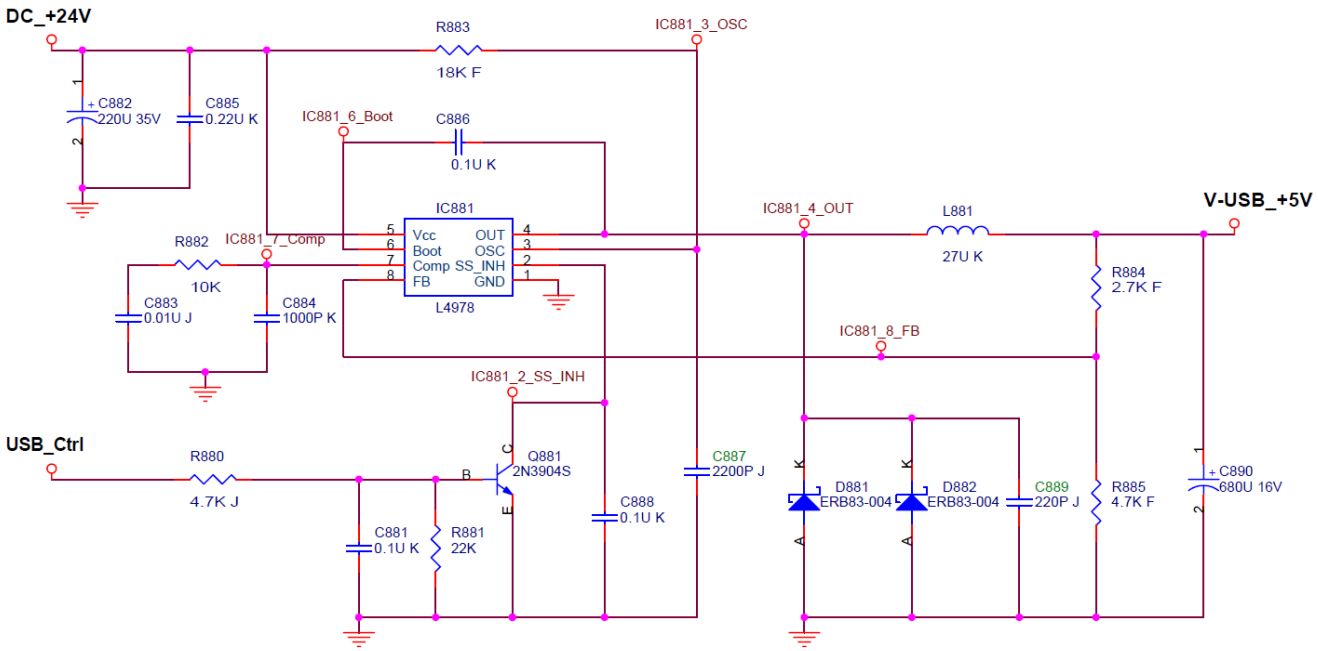
Pin Assignment of L4978

Pin No.	Names	Function
1	GND	Ground
2	SS_INH	A logic signal (active low) disables the device (sleep mode operation). A capacitor connected between this pin and ground determines the soft start time. When this pin is grounded disables the device (driven by open collector/drain).
3	OSC	An external resistor connected between the unregulated input voltage and this pin and a capacitor connected from this pin to ground fix the switching frequency. (Line feed forward is automatically obtained)
4	OUT	Step-down regulator output
5	V_{CC}	Unregulated DC input voltage
6	BOOT	A capacitor connected between this pin and OUT allows to drive the internal DMOS Transistors
7	COMP	E/A output to be used for frequency compensation
8	FB	Step-down feedback input. Connecting directly to this pin results in an output voltage of 3.3V. An external resistive divider is required for higher output voltages.

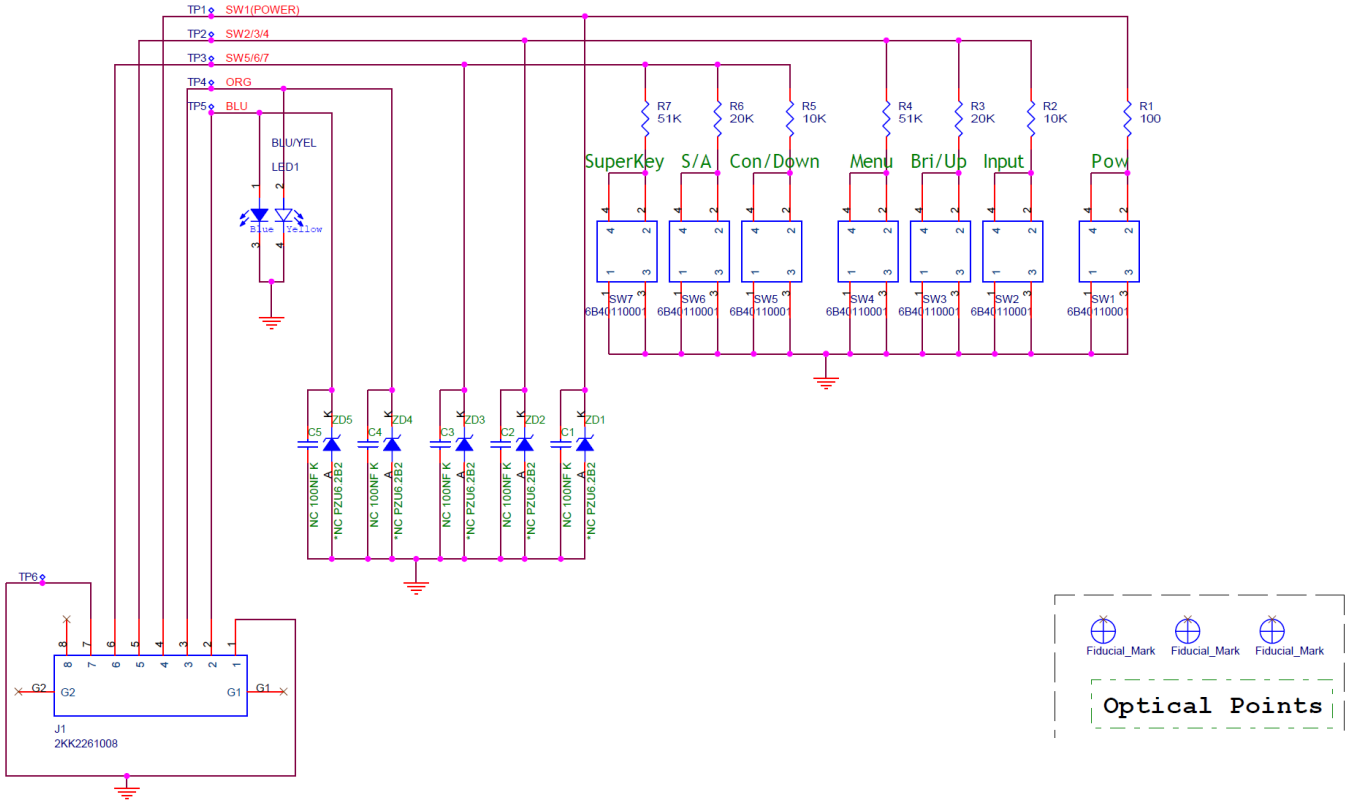
5 Schematic Diagram

5.1 Power Board

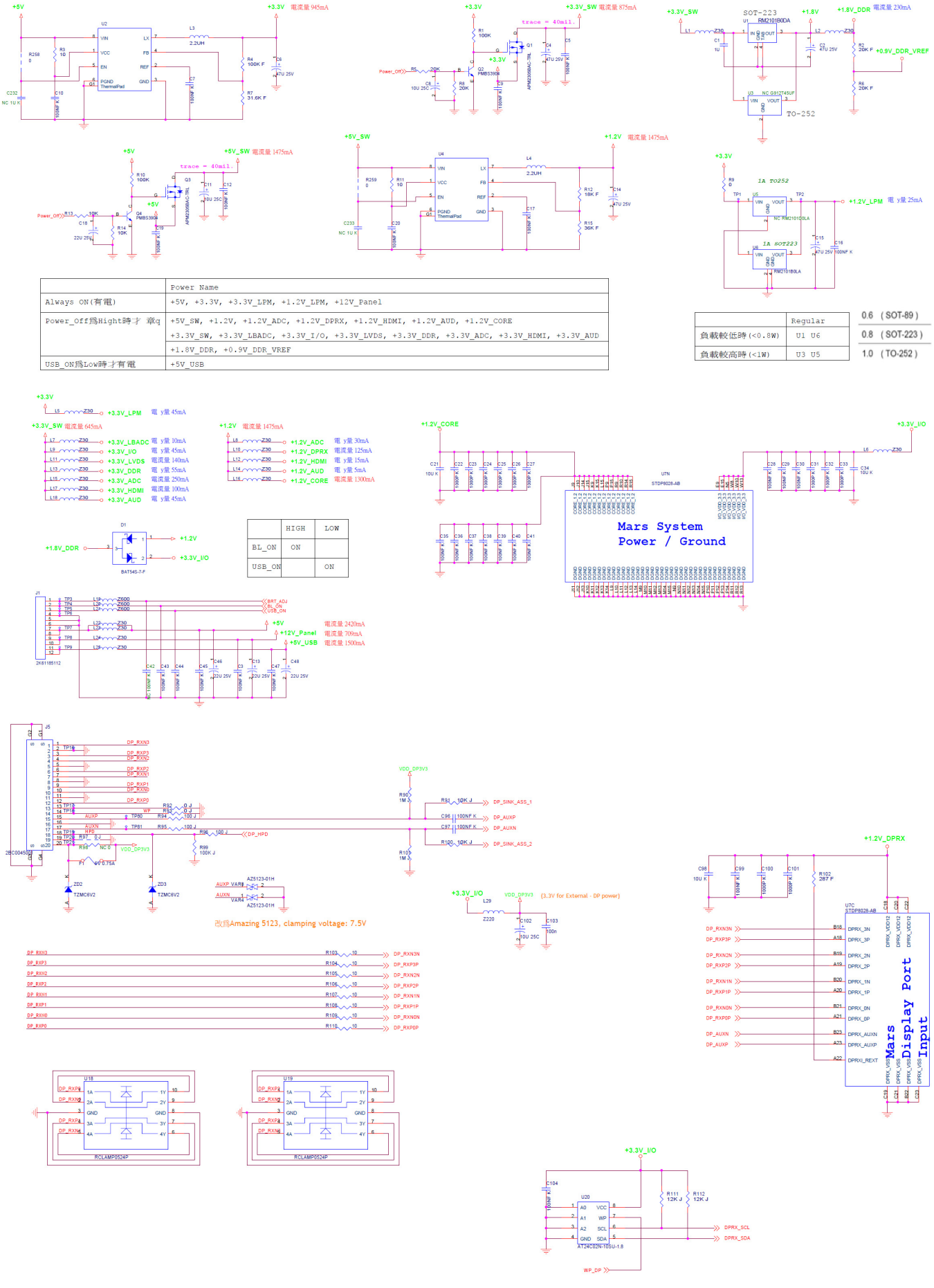


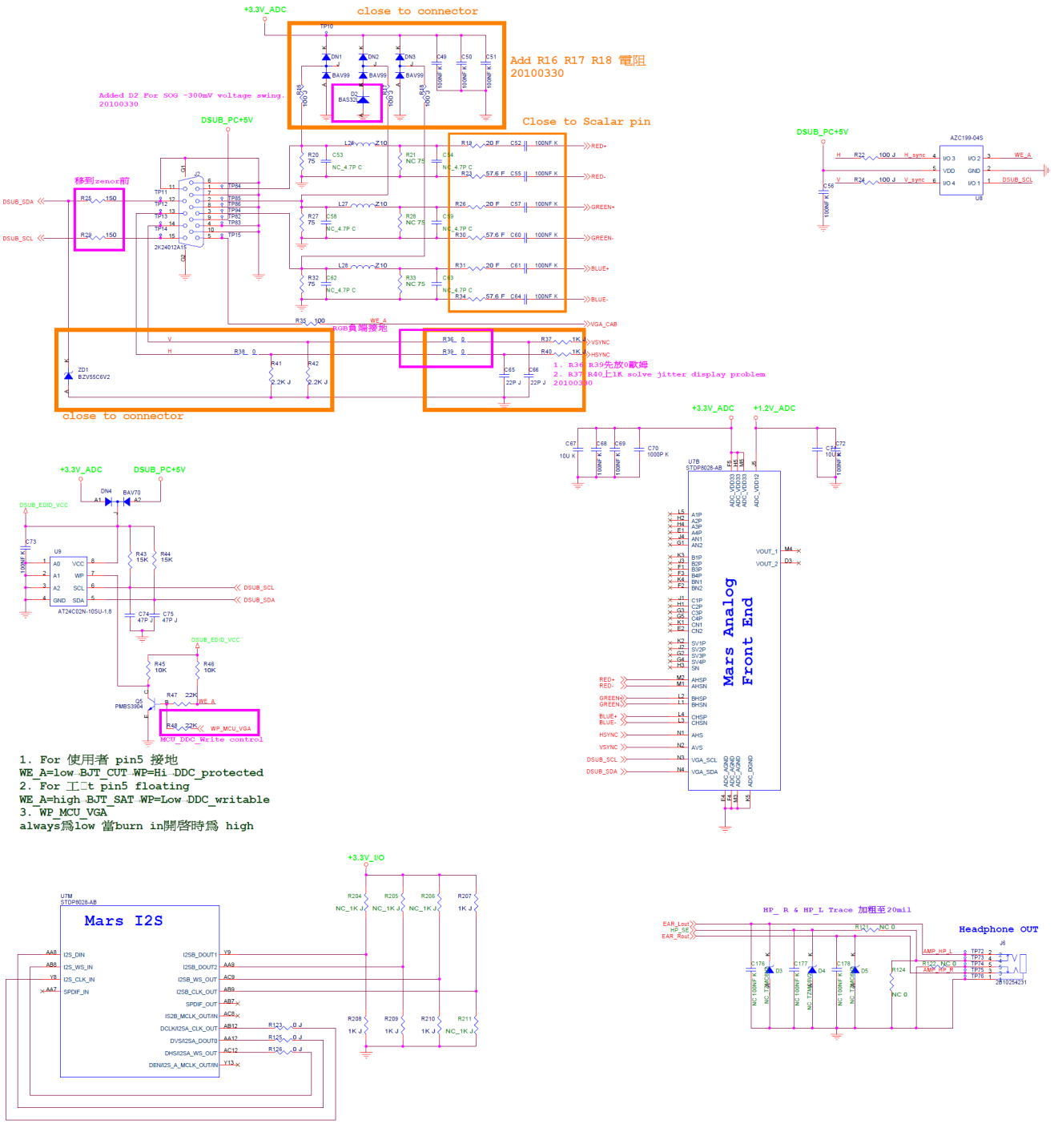


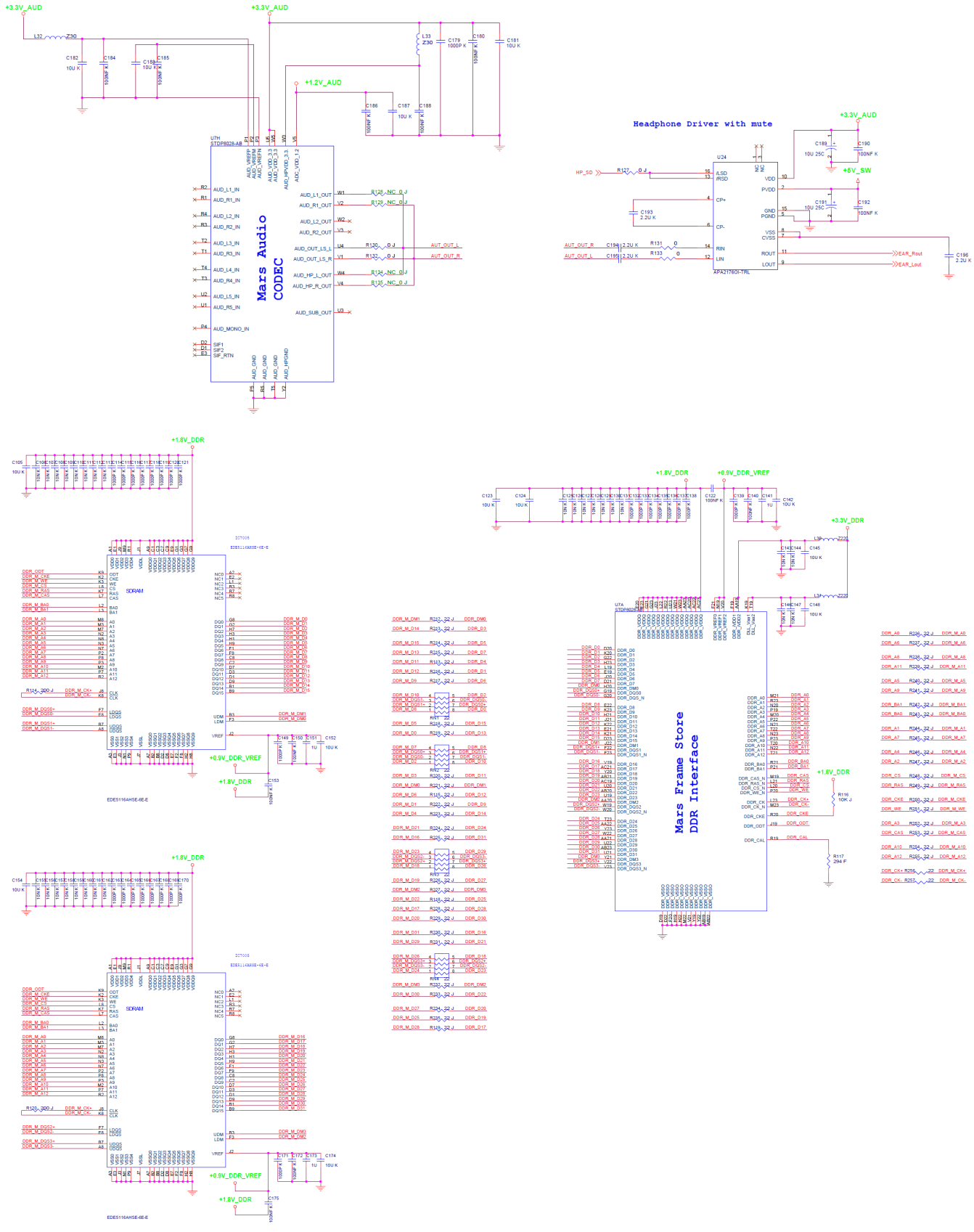
5.2 Control Board

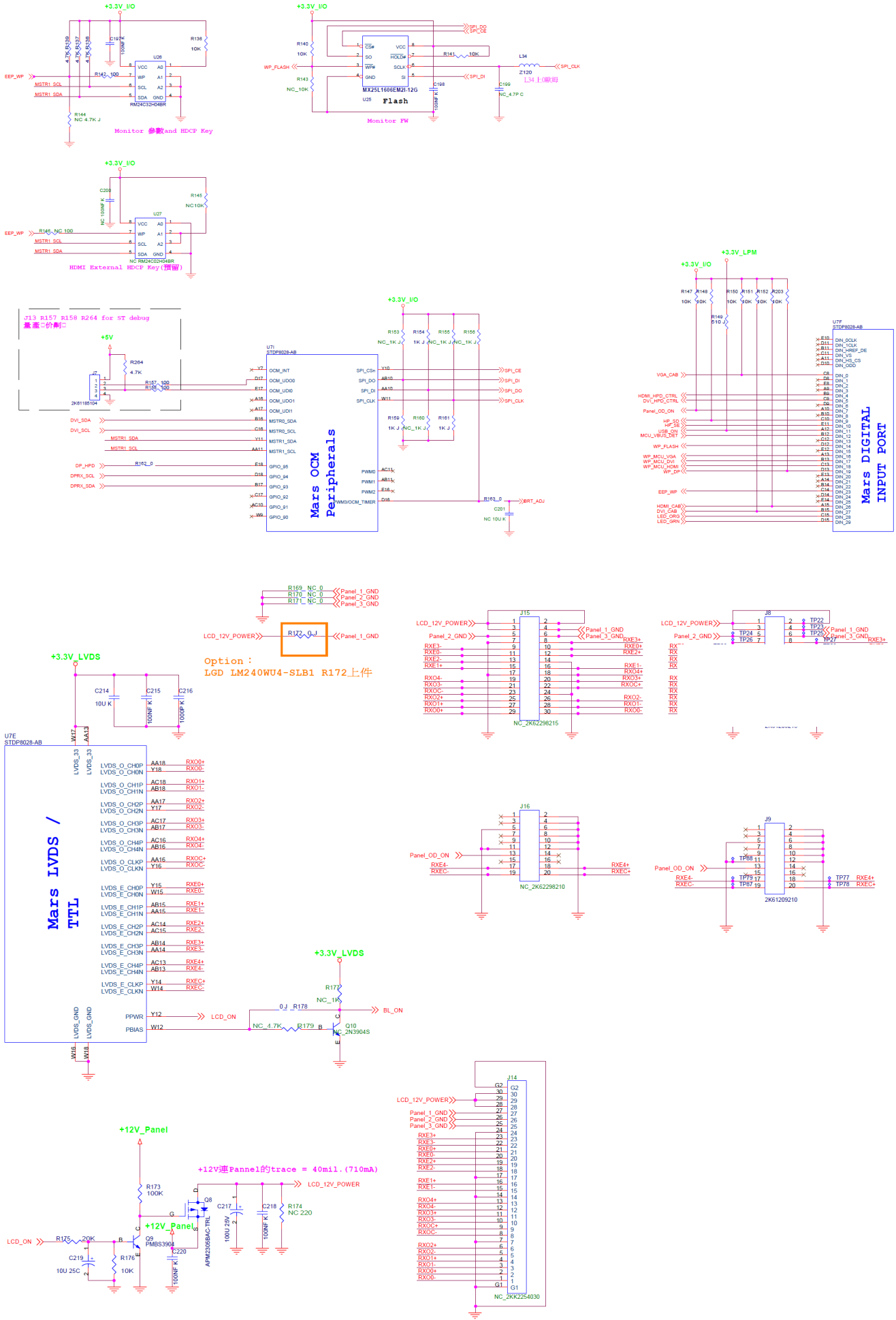


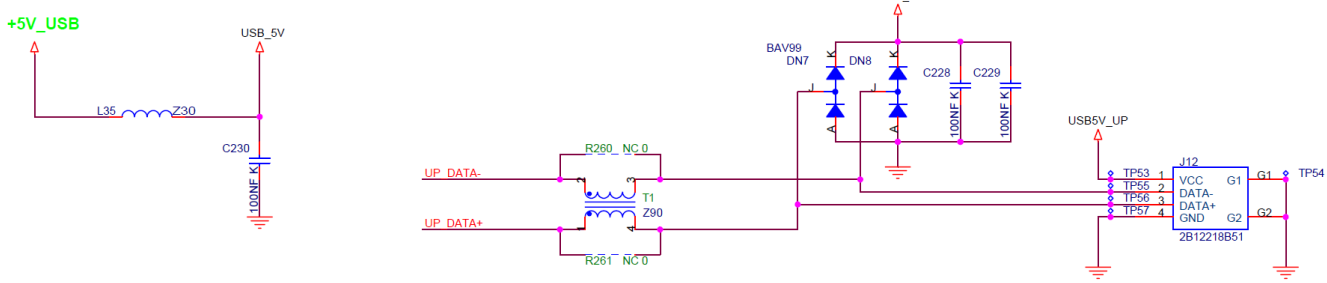
5.3 Interface Board

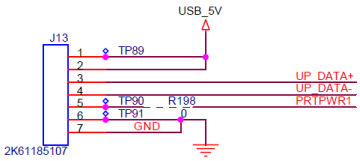


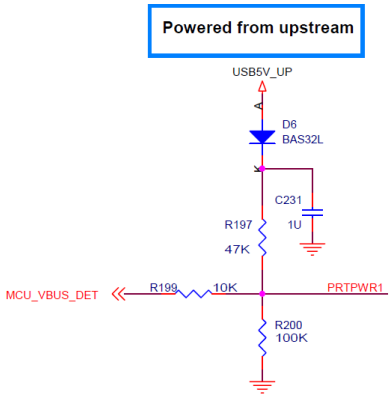

+3.3V_ADC
close to connector
Add R16 R17 R18 電阻
20100330
Added D2 For SOG -300mV voltage swing.
20100330
DSUB_PC+5V
Close to Scalar pin
移到zenor前
DSUB_SDA
DSUB_SCL
RED+
RED-
GREEN+
GREEN-
BLUE+
BLUE-
VGA_CAB
VSYNC
HSYNC
RGB負端接地
1. R36 R39先放0歐姆
2. R37 R40上1K solve jitter display problem
20100330
close to connector
AZC199-04S
WE_A
DSUB_SCL
+3.3V_ADC
+1.2V_ADC
DSUB_PC+5V
DSUB_EDID_VCC
Mars Analog
Front End
1. For 使用者 pin5 接地
WE_A=low BJT_CUT WP=Hi DDC_protected
2. For 工□t pin5 floating
WE_A=high BJT_SAT WP=Low DDC_writable
3. WP_MCU_VGA
always爲low 當burn in開啓時爲 high
MCU_DDC_Write control
+3.3V_I/O
Mars I2S
HP_ R & HP_L Trace 加粗至20mil
Headphone OUT

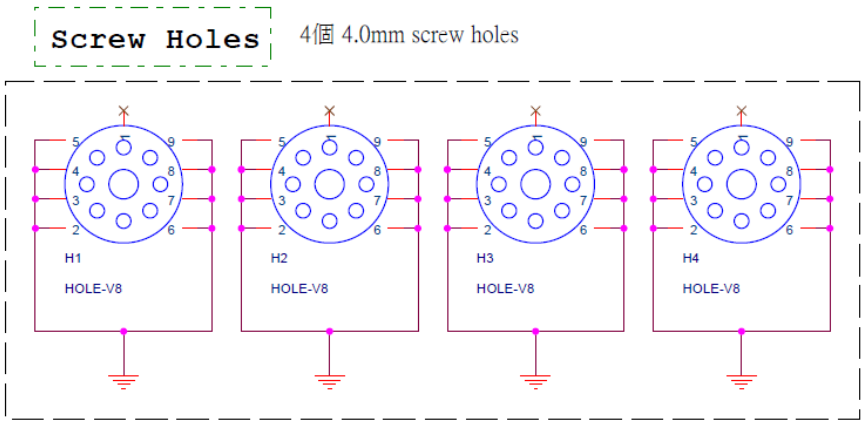

Mars Audio CODEC
Headphone Driver with mute
Mars Frame Store DDR Interface
SDRAM
EDE5116AHSE-6E-E

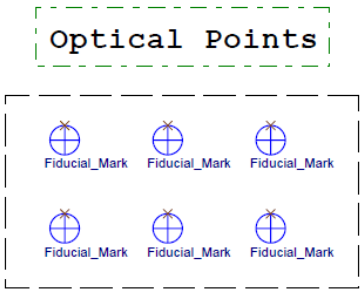

Monitor 參數and HDCP Key
Monitor FW
HDMI External HDCP Key(預留)
Mars OCM Peripherals
Mars DIGITAL INPUT PORT
Mars LVDS / TTL
Option :
LGD LM240WU4-SLB1 R172上件
+12V連Pannel的trace = 40mil.(710mA)

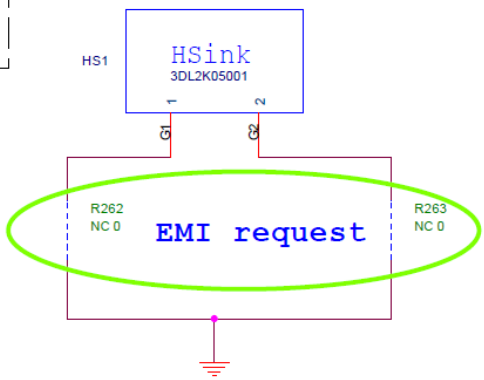

+5V_USB
USB_5V
L35
Z30
C230
100NF K
USB_5V
BAV99
DN7
DN8
C228
C229
100NF K
100NF K
USB5V_UP
R260 NC 0
UP_DATA-
UP_DATA+
T1
Z90
R261 NC 0
TP53
TP55
TP56
TP57
J12
VCC
DATA-
DATA+
GND
G1
G2
TP54
2B12218B51

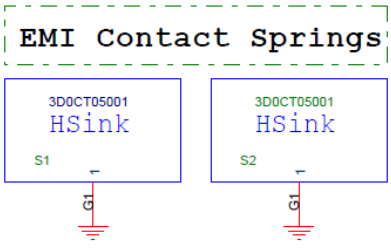

USB_5V
J13
TP89
UP_DATA+
UP_DATA-
PRTPWR1
TP90
R198
TP91
0
GND
2K61185107

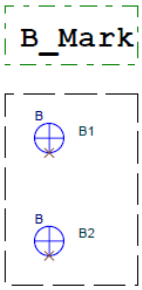

Powered from upstream
USB5V_UP
D6
BAS32L
C231
1U
R197
47K
MCU_VBUS_DET
R199
10K
PRTPWR1
R200
100K


Screw Holes
4個 4.0mm screw holes
H1
HOLE-V8
H2
HOLE-V8
H3
HOLE-V8
H4
HOLE-V8


Optical Points
Fiducial_Mark
Fiducial_Mark
Fiducial_Mark
Fiducial_Mark
Fiducial_Mark
Fiducial_Mark

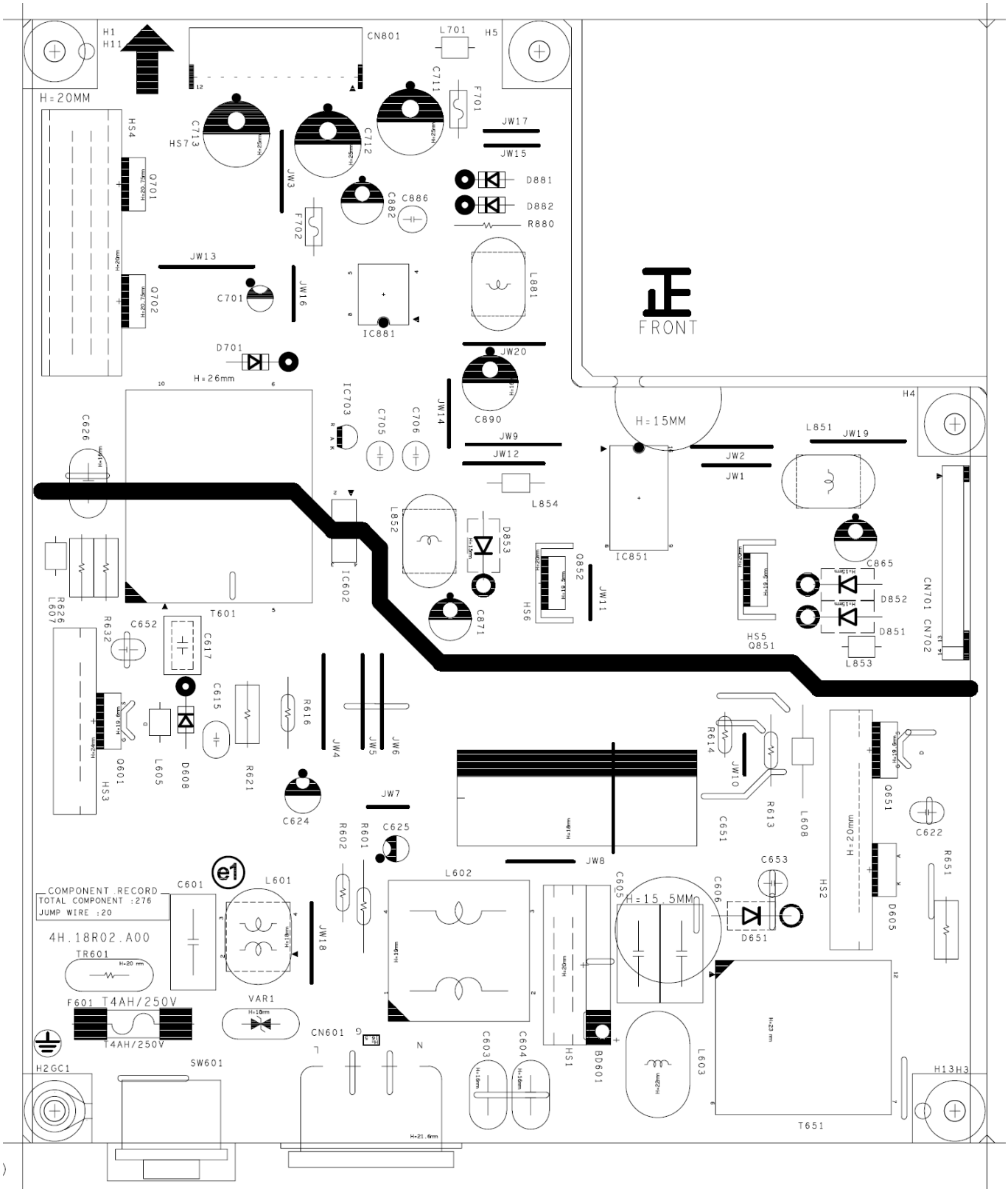

HS1
HSink
3DL2K05001
G1
G2
R262
NC 0
EMI request
R263
NC 0


EMI Contact Springs
3D0CT05001
HSink
S1
G1
3D0CT05001
HSink
S2
G1

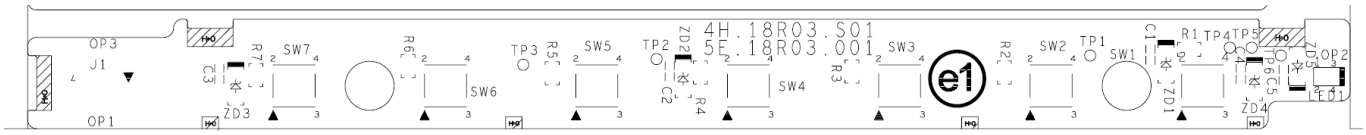

B_Mark
B
B1
B
B2

6 PCB layout

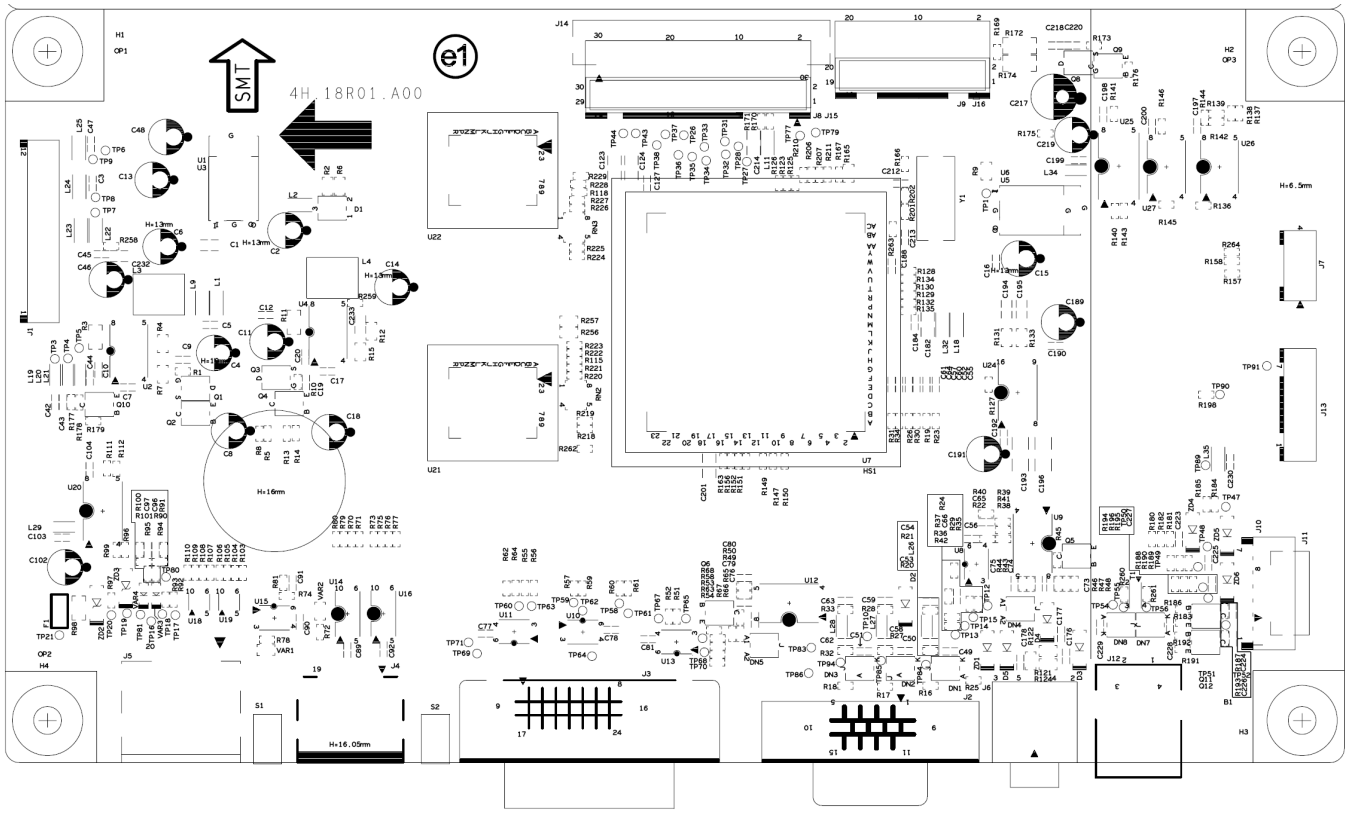
6.1 Power Board



6.2 Control Board



6.3 Interface Board



10 Color/White balance Adjustment

Alignment procedure (for function adjustment)

A list of necessary alignments for the LCD monitor:

Items	Description	Remark
1	Timing adjustment	Preset timing
2	Auto color balance adjustment	Timing 114 VGA 480 640x480@60Hz or Timing 118 800x600@60Hz Pattern 42(5-Mosaic)
3	Color temperature adjustment	Cool (9300K), Normal (6500K), Warm (5000K)
4	Writing EDID file	Analog, Digital, HDMI, Displayport

Preparation:

1. Setup input timing to any preset modes or patterns.
2. Enter factory mode (Press menu key and up key then press power key, hold on about 2 sec will enter the factory mode.).
3. Move cursor into “BURN IN” tag then press menu key to select “ON” enable burn-in mode.
4. Power off the monitor, remove the input source and then power on again.
5. Setup unit and keep it warm up for at least 30 minutes.

Timing adjustment: **(Analog only, it is not required for DVI-D、HDMI、DP input source)**

1. Enter factory mode (Press menu key and up key then press power key, hold on about 2 sec will enter the factory mode.).
2. Select timing mode from table 1 and input full screen display pattern to monitor.
3. Press “Splendid button -Key” and hold for 2 seconds to run “AUTO adjustment” function for geometry adjustment.
4. Clear user area in EEPROM.
5. Check if the position, phase and clock of the image are ok or acceptable to make sure function and performance are ok.
6. Turn off the monitor power.
7. Turn on the monitor power again to check if monitor’s image settings are ok and with following settings.

   CONTRAST = 80

   BRIGHTNESS = 50

   COLOR = 6500K (default setting)

Auto color balance adjustment: **(Analog only, it is not required for DVI-D、HDMI、DP input source)**

1. Setup input timing VGA480 (640x480@60Hz) or Timing 118 (800x600@60Hz),pattern 42(5-Mosaic pattern with white color frame) with Analog signals from Chroma video pattern generator.
2. Enter factory mode (Press menu key and up key then press power key, hold on about 2 sec will enter the factory mode.).
3. Move black cursor into “BURN IN MODE” tag and select “ON” to enable burn-in mode.
4. Move black cursor into “Auto Color” tag and.Press “ Menu Key ” to do white balance for auto color balance adjustment (will get optimal gain / offset values).

Color adjustment: (Analog only)

1. Setup input timing to any preset modes, pattern 41(full white color pattern) with Analog signals from Chroma video pattern generator.
2. Enter factory mode (Press menu key and up key then press power key, hold on about 2 sec will enter the factory mode.).
3. Confirm auto color balance adjustment had already been done.
4. Measure each color temperature (C1, C2 & C3) by Minolta CA-110 (or equivalent equipment).
5. Two methods can be used to adjust RED, GREEN, BLUE value of each color temperature, C1, C2 & C3 to meet following spec requirement, the 1st method is by using external PC and IIC alignment protocol to do automatic adjustment, and the 2nd method is by manually and must be in factory mode.

Color temperature (9300K set on OSD)	x+-	0.283+(-) 0.015
	y+-	0.297+(-) 0.015
	Y	200
Color temperature (6500K set on OSD)	x+-	0.313+(-) 0.015
	y+-	0.329+(-) 0.015
	Y	270
Color temperature (5000K set on OSD)	x+-	0.346+(-) 0.015
	y+-	0.359+(-) 0.015
	Y	230

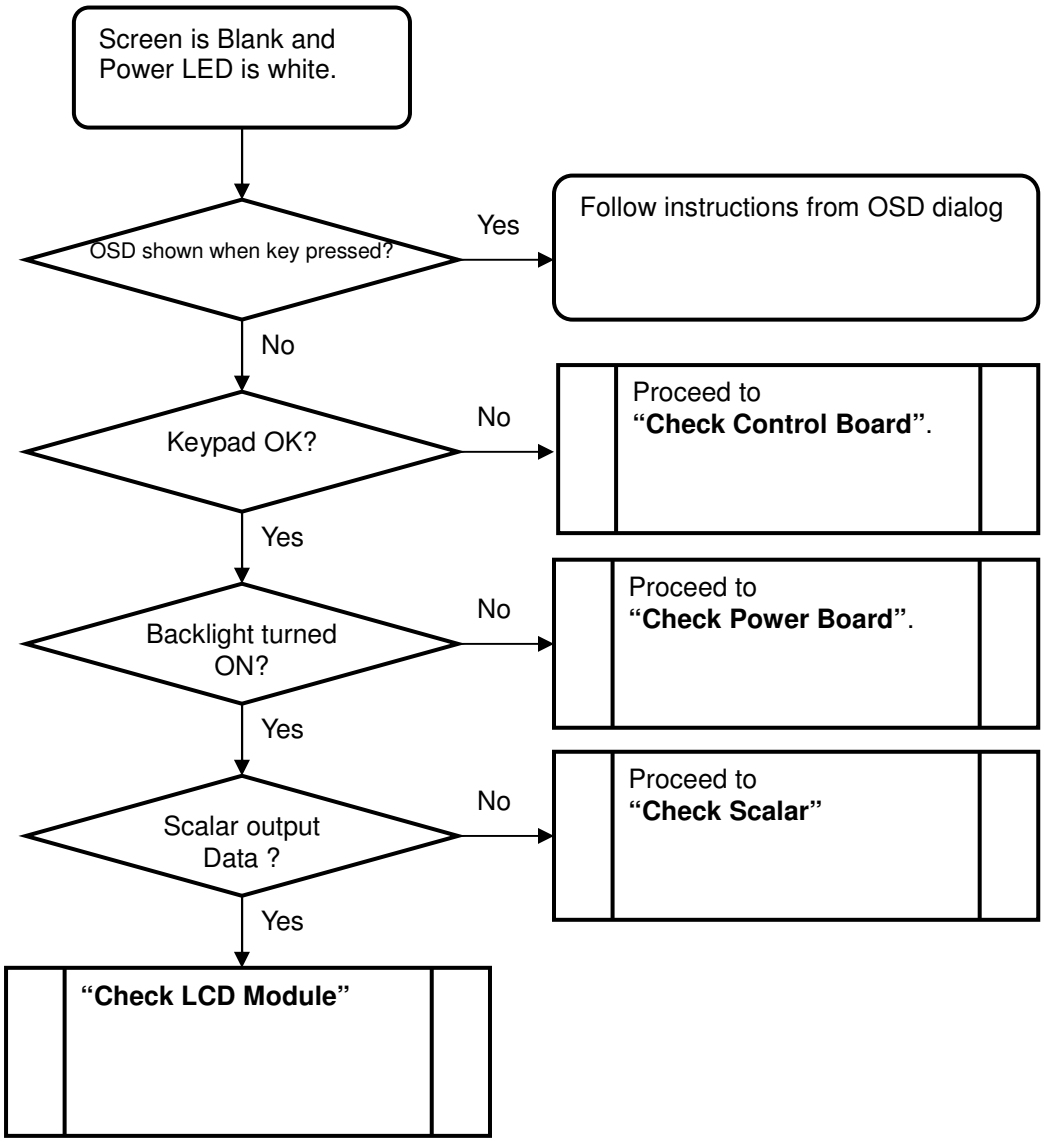
6. Turns off the monitor power.

Writing EDID file: (Analog, DVI-D, HDMI, and DP)

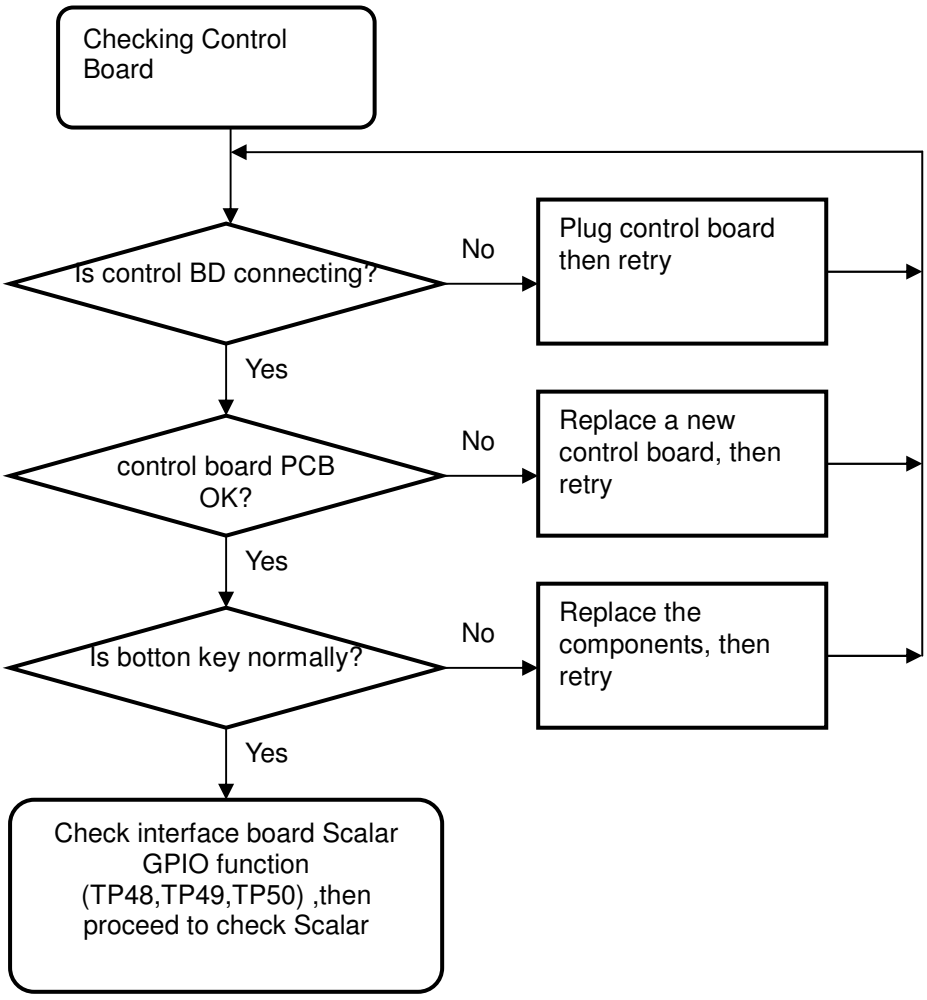
1. Setup a PC with DDC card.
2. Connect PC to monitor with a D-sub signal cable.
3. Provided the AC power to monitor.
4. Please refer to the C212 for the correct EDID file.
5. Runs the writing program to write the EDID file into EEPROM for Analog input.
6. Read EEPROM data and confirm if it's matched with the definition.
7. Write digital EDID data into EEPROM for DVI-D/HDMI and DP input.
8. If adopting non EDID copy method then repeat Step 2-5 with designated digital video input and cable.
9. If adopting EDID copy method, please refer to attached file.
10. Read both EEPROM data and confirm if it's matched with the C212 definition.

11 Trouble Shooting

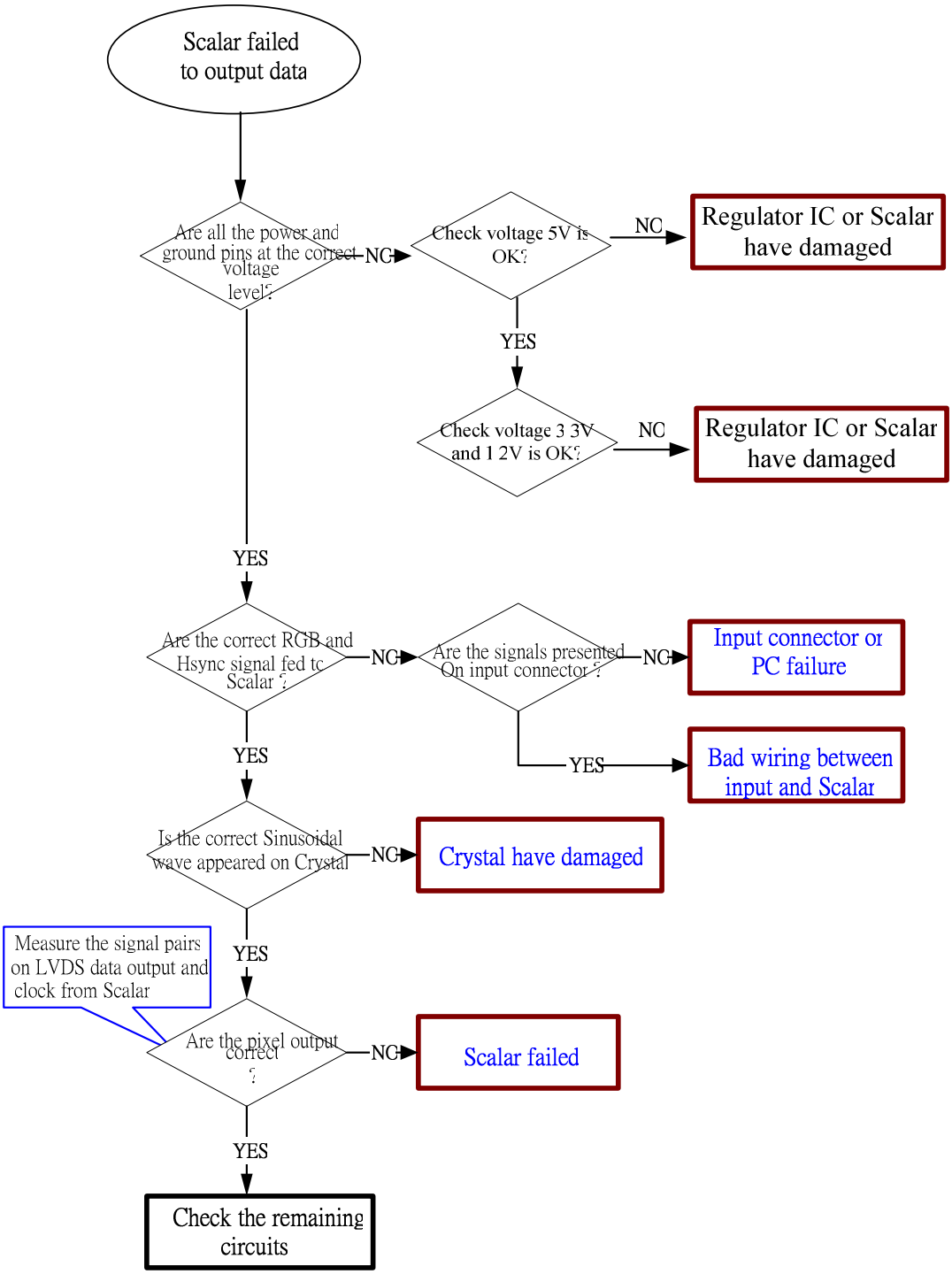
11.1 No Display or display is unstable (Interface Board):



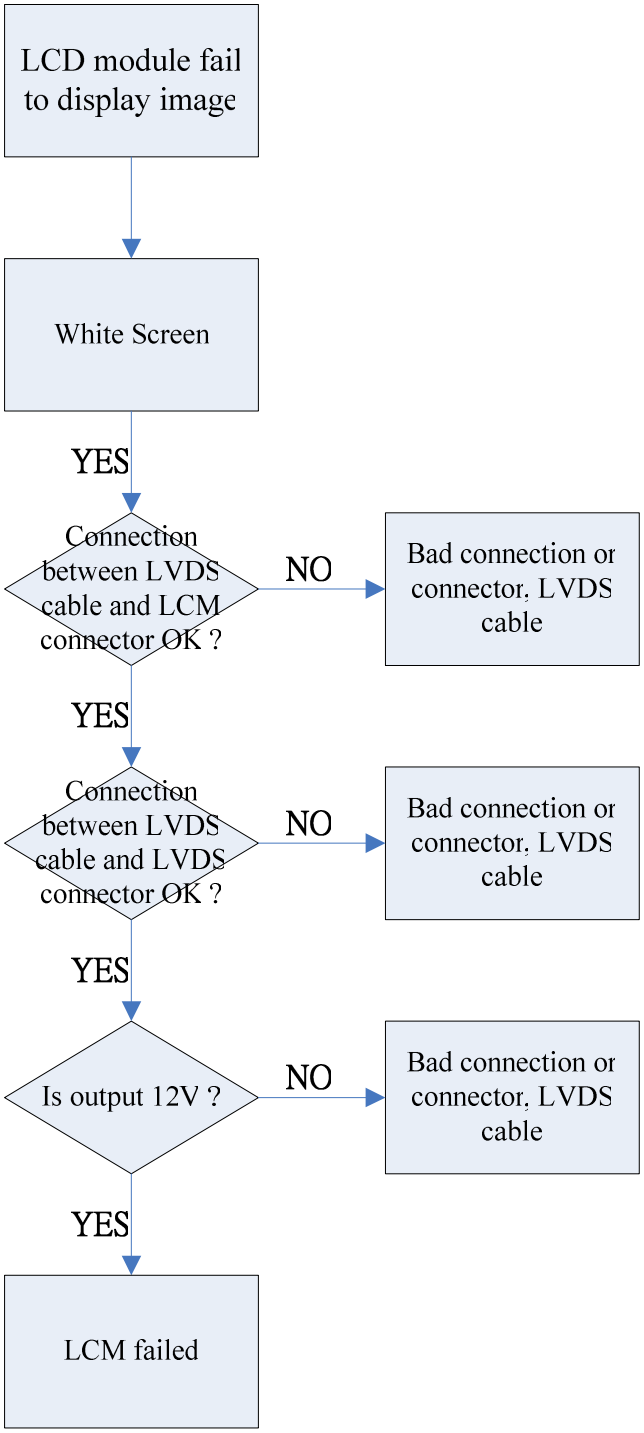
11.2 Check Control Board



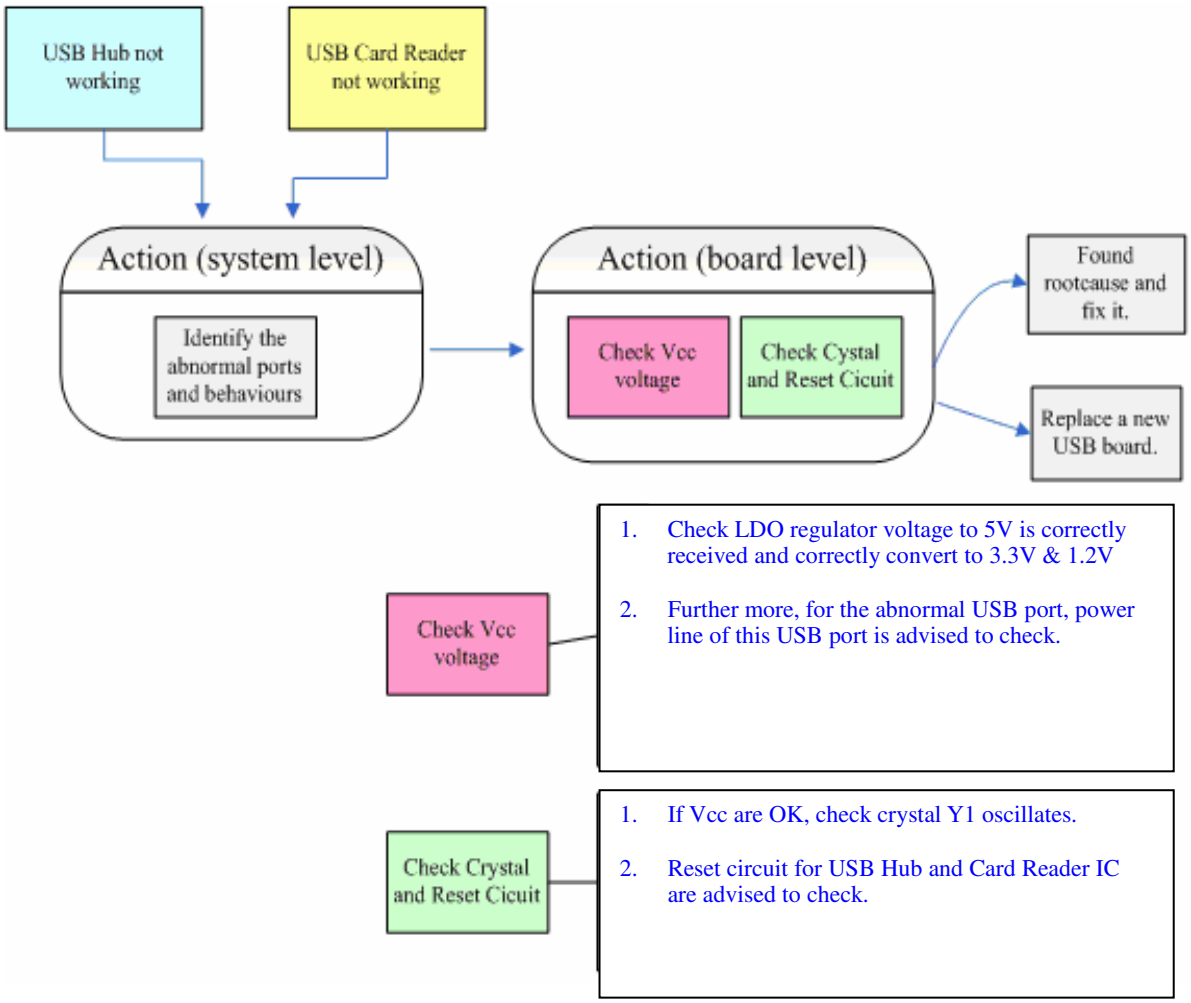
11.3 Check Scalar:



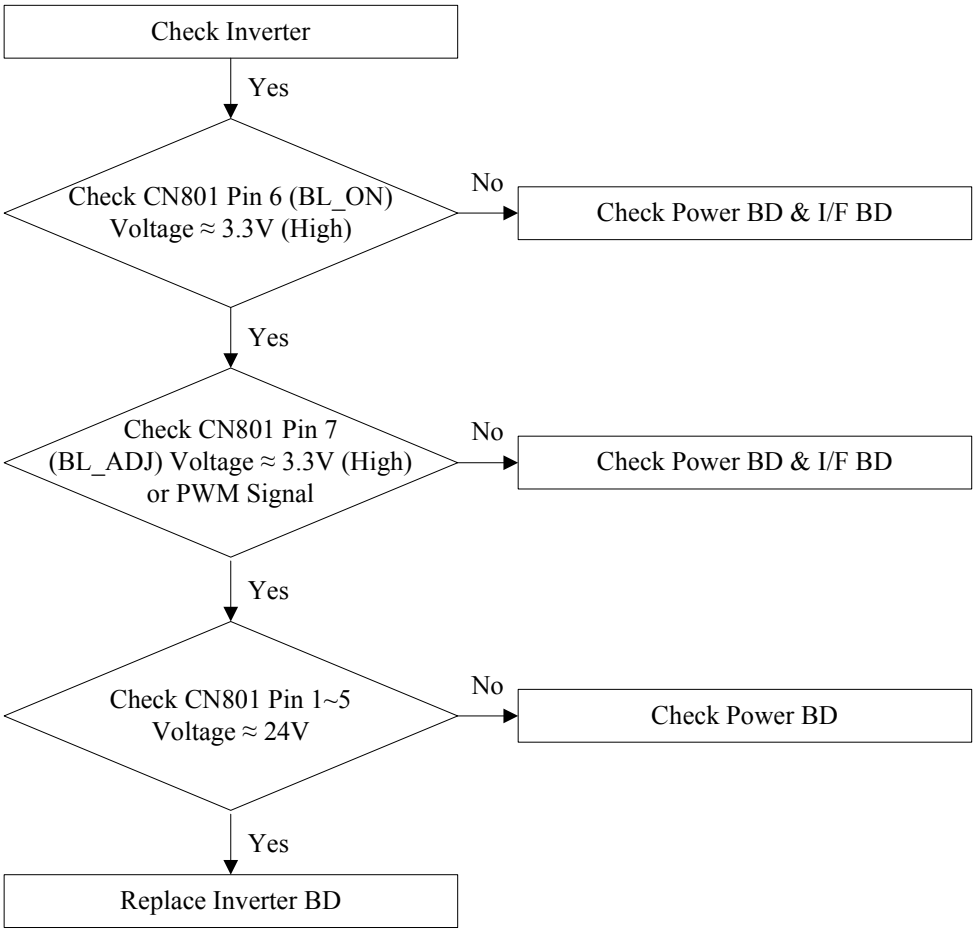
11.4 Check LCD Module:



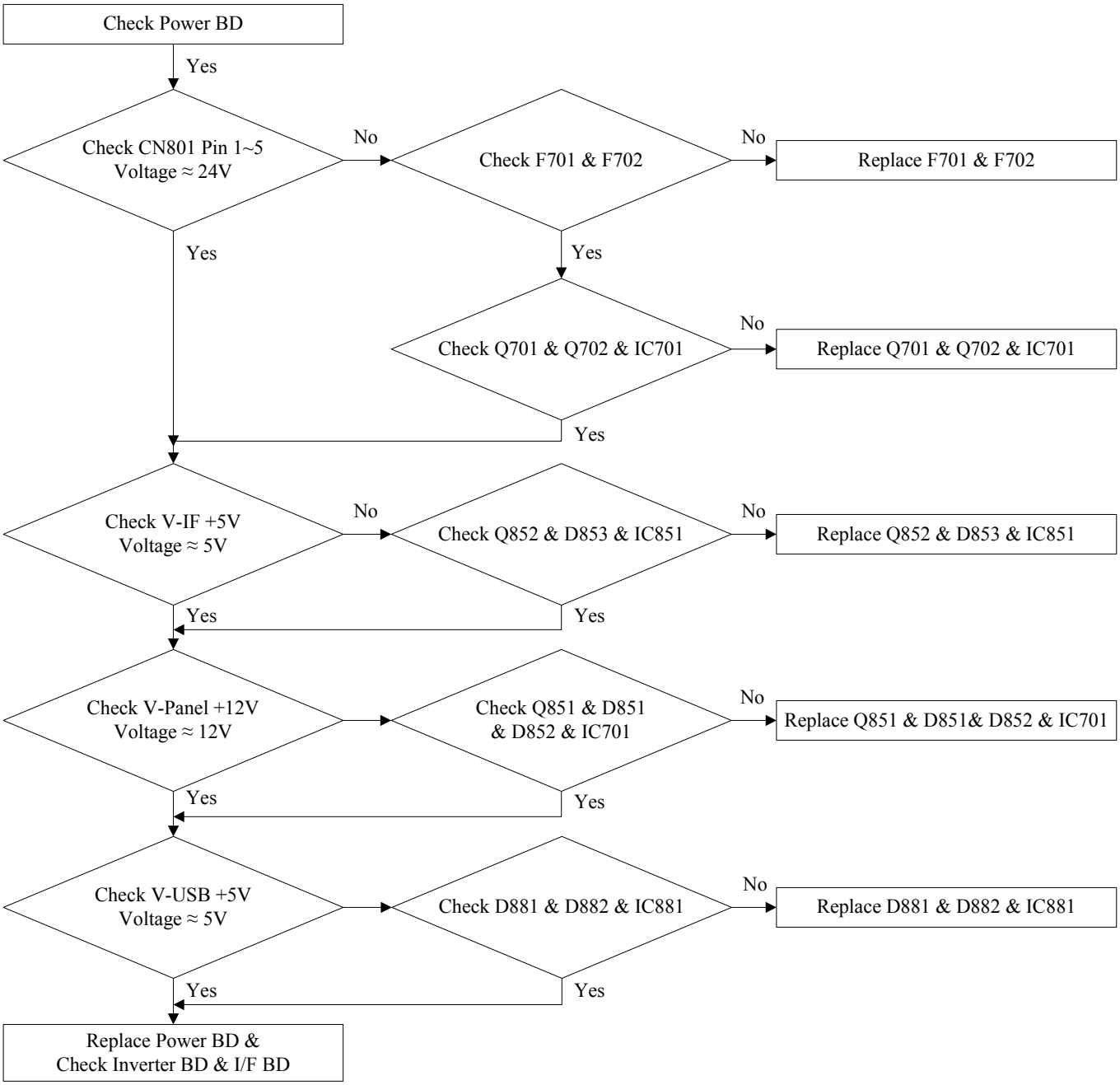
11.5 USB Hub (Upstream/Downstream Port) / Card reader does not work:



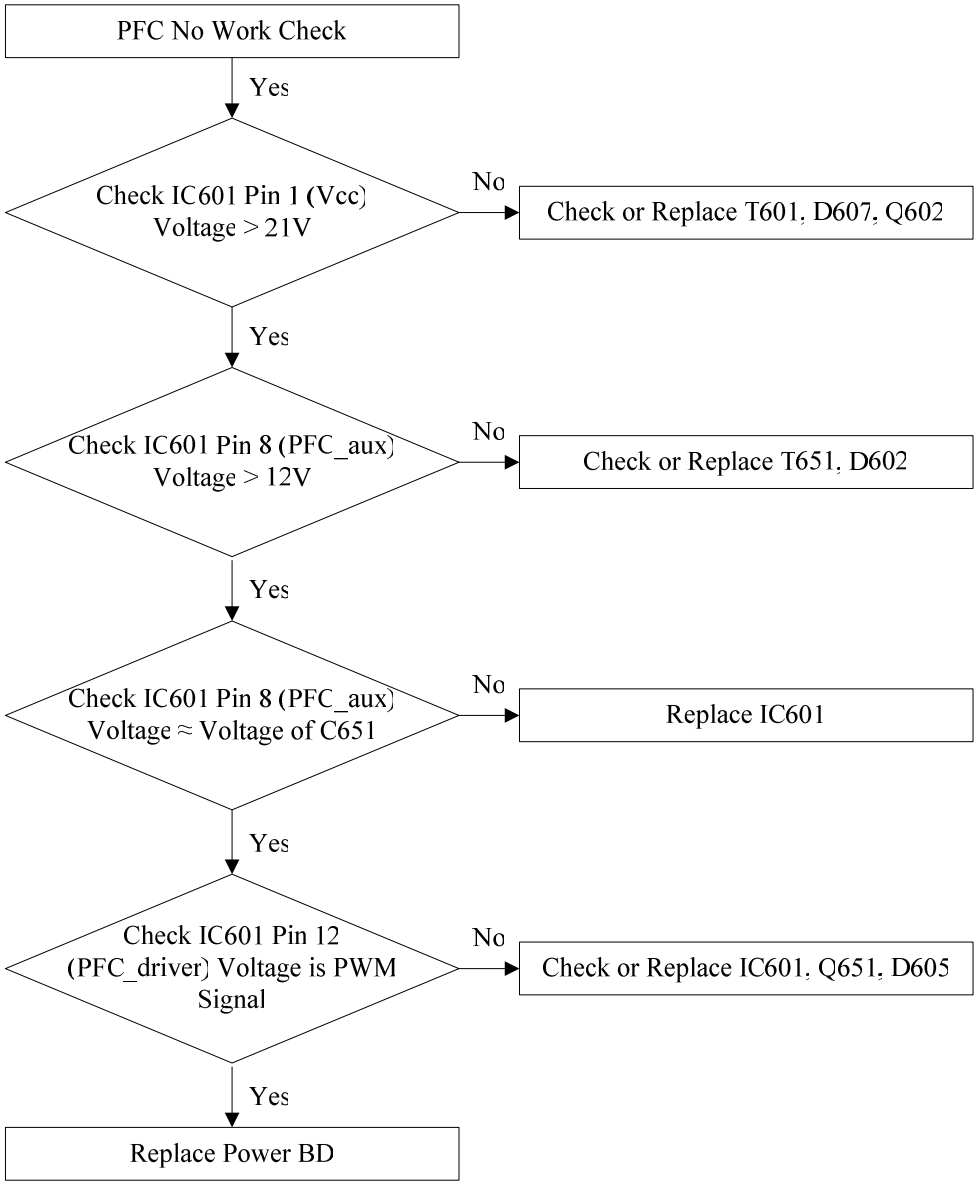
11.6 Check Inverter BD:



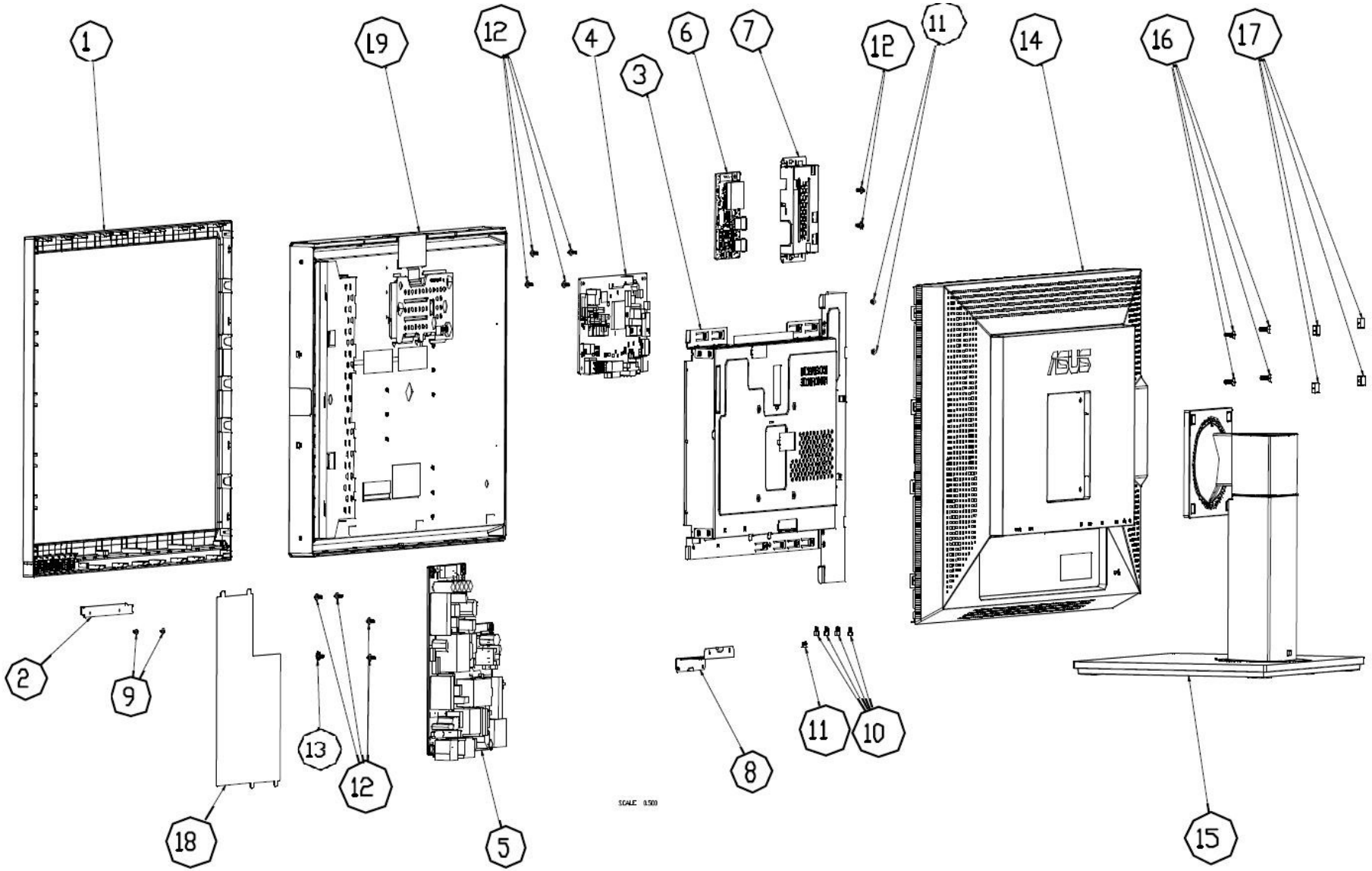
11.7 Check Power BD:



11.8 Check PFC Function:



12 Exploded View



ITEM	PART NO.	DESCRIPTION	TYPE	QTY
19		PNL LGD LM240 WU4	PART	1
18	4K.18R02.001	MYLAR BTM	PART	1
17	4G.18R01.001	RUBBER VESA-SCRW	PART	4
16	8F.8A356.100	SCRW MACH FPH M4*10L B-ZN NYL	PART	4
15	6E.18R01.001	ASSY STAND HAB FULFIL	ASSEMBLY	1
14	6K.18R12.001	ASSY RC	ASSEMBLY	1
13	8F.VZ524.6R0	SCRW TAP FLAT+EXT M3*6L C-ZN	PART	1
12	8F.VG434.6R0	SCRW TAP PH W/F M3*6 TP-S ZN SC	PART	10
11	8F.5A224.6R0	SCRW MACH FLATM3*0.5P*6L ZN	PART	3
10	8F.205B4.019	SCRW MACH STEEL HEX #4-40 NI	PART	4
9	8F.00551.3R0	SCRW M FPH M2*3L (6/1.4) NI	PART	2
8	3K.18R01.001	BKT AC	PART	1
7	3D.18R02.001	SHD USB	PART	1
6	5E.	USB-PCBA	ASSEMBLY	1
5	5E.18R02.XXX	PWR-PCBA	ASSEMBLY	1
4	5E.18R01.XXX	I/F-PCBA	ASSEMBLY	1
3	6K.18R13.001	ASSY SHD	ASSEMBLY	1
2	5E.18R03.XXX	CTRL-PCBA	ASSEMBLY	1
1	6K.18R11.001	ASSY BZL	ASSEMBLY	1

13 Recommended Parts List

RECOMMENDED SPARE PARTS LIST (RSPL)

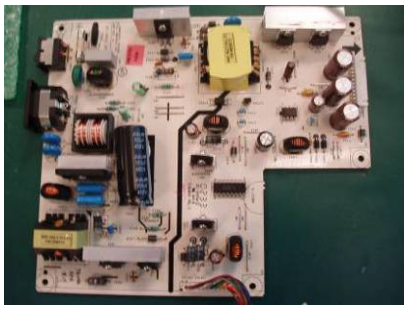
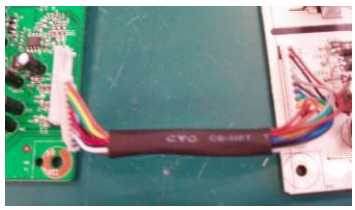
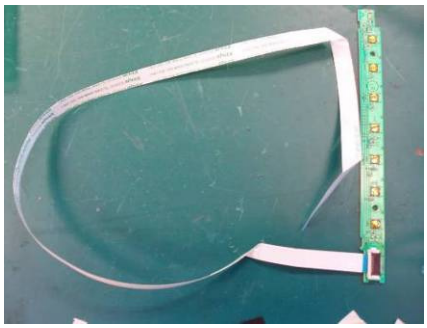
Asus Model : **PA246**

Vendor Model: **9J.18R72.QL1/9J.18R72.QL2/9J.18R72.QL3/9J.18R72.QL5/9J.18R72.QLJ**

Type	Subset	Vendor P/N	Vendor Description	Usage	MOQ
DISPLAY	PANEL(LGD)	5F.LLDUP.011	LCDM24W LM240WU4-SLB3 LGD P	1	1
ELECTRICAL	MAIN BOARD(LGD)	5E.18R01.001	PCBA IF BD MI PA246	1	10
ELECTRICAL	POWER BOARD	5E.18R02.001	PCBA SPS BD MI PA246	1	10
ELECTRICAL	KEY BOARD	5E.18R03.001	PCBA CTRL BD MI PA246	1	10
ELECTRICAL	USB BOARD	5E.18R08.001	PCBA USB BD MI PA246	1	10
MECHANICAL	BEZEL ASSY	6K.18R11.001	ASSY BZL PA246	1	10
MECHANICAL	BACK COVER	3J.18R02.011	RC ABS DB39A PA246	1	10
MECHANICAL	STAND ASSY	6E.18R01.001	ASSY STAND HAB FULFIL PA246	1	10
TRIVIAL	LVDS Cable	5K.18R04.001	WIRE LVDS 51/20/30P #28 PA246	1	50
TRIVIAL	KEY BOARD wire	5K.18R03.001	WIRE FFC 8P CTRL BD PA246	1	50
TRIVIAL	POWER BOARD wire_to Panel	5K.18R01.001	WIRE 14/12P 1061 #24 PWR PA246	1	50
TRIVIAL	POWER BOARD wire	5K.18R02.001	WIRE 12/13P 1571 #24 PWR PA246	1	50
TRIVIAL	USB BOARD wire	5K.18R05.001	WIRE 7/11P #28 PA246	1	50
TRIVIAL	Tape	3H.04054.071	TAPE ADHESIVE 35*25 BLK 7651F	1	100
TRIVIAL	Label_SPEC	4E.0VU01.041	LBL SPEC 88*28 PA246 WW	1	100
TRIVIAL	Label_Prevent	4E.L4603.051	LBL PREVENT 30*15 ASUS VH226H	1	100
TRIVIAL	Label	4E.0KM04.001	LBL BLANK 43*14 WHITE	1	100
TRIVIAL	Screw	8F.00551.3R0	SCRW M FPH M2*3L (6/1.4) NI	2	200
TRIVIAL	Screw	8F.205B4.019	#SCRW MACH STEEL HEX #4-40 NI	4	200
TRIVIAL	Screw	8F.5A224.6R0	#SCRW MACH FLAT M3*0.5P*6L ZN	2	200
TRIVIAL	Screw	8F.HA334.8R0	SCRW TAP-S FPH M3*8(5/1.2) BZN	2	200
TRIVIAL	Screw	8F.VG434.6R0	#SCRW TAP PH W/F M3*6TP-S ZN	11	200
TRIVIAL	Screw	8F.VZ524.6R0	SCRW TAP FLAT+EXT M3*6L C-ZN	1	200
ACCESSORY	Power Cord_EU	2G.00921.001	CORD H05VV-F 10A250V EUR 1.8M	1	50
ACCESSORY	Power Cord_US	2G.01111.011	CORD SVT125V WO/SH1.8M US	1	50

ACCESSORY	Power Cord_AUS	2G.01343.001	CORD 3ASL/75DU-IN 250V1.8M AUS	1	50
ACCESSORY	Power Cord_UK	2G.03149.021	CORD H05VV-F 13A 1.8M UK	1	50
ACCESSORY	Power Cord_CNS TW	2G.04811.001	CORD VCTF 7A125V 1.8M CNS-TW	1	50
ACCESSORY	Power Cord_JAN	2G.03515.021	CORD VCTF7A125V 1.8M JAN DELL	1	50
ACCESSORY	Warranty Card_EU	4J.17Y03.001	WARRANTY ASUS EU NONZBD LCD	1	20
ACCESSORY	Warranty Card_AP	4J.17Y02.001	WARRANTY ASUS AP NON ZBD LCDED	1	20
ACCESSORY	Warranty Card_TW	4J.17Y05.001	WARRANTY ASUS TW NONZBD LCDLED	1	20
ACCESSORY	Warranty Card_NA	4J.17Y04.001	WARRANTY ASUS NA NONZBD LCD	1	20
ACCESSORY	User's Guide	4J.18R01.001	GUIDE QS 31L ASUS PA246	1	20
ACCESSORY	DVI Cable	5K.05407.511	CABLE DVI-D/DVI-D 1.8M IS_8	1	50
ACCESSORY	USB Cable	5K.L1E04.501	CABLE USB 2.0A/B 1.8M OD3.8	1	50
ACCESSORY	D-SUB Cable	5K.L2H06.511	CABLE SIGNAL/C H+V OD_5.5 1.8M	1	50
ACCESSORY	DP Cable	5K.0GY11.501	CABLE DP/DP 20P 2M W/O CORE	1	50
ACCESSORY	PE bag	4B.18R04.011	BAG EPE+HDPE 600*700	1	100
PACKING	Carton	4D.18R01.001	CTN BC 683*457*298 COLOR PA246	1	100
PACKING	Cushion_Front	4G.18R02.001	CUSHON FRONT PA246	1	100
PACKING	Cushion_Back	4G.18R03.001	CUSHION BACK PA246	1	100

Photos of Recommended Parts List

1	2	3
		
4	**5**	**6**
		
7	**8**	**9**
		
10	**11**	**12**
		
13	**14**	**15**
		

14 Different Parts List

RECOMMENDED SPARE PARTS LIST (RSPL)

Asus Model : PA246

Vendor Model: 9J.18R72.QL1/9J.18R72.QL2/9J.18R72.QL3/9J.18R72.QL5/9J.18R72.QLJ

Type	Subset	Vendor P/N	Vendor Description	Usage	MOQ	9J.18R72.QL1	9J.18R72.QL2	9J.18R72.QL3	9J.18R72.QL5	9J.18R72.QLJ
DISPLAY	PANEL(LGD)	5F.LLDUP.011	LCDM24W LM240WU4-SLB3 LGD P	1	1	v	v	v	v	V
ELECTRICAL	MAIN BOARD(LGD)	5E.18R01.001	PCBA IF BD MI PA246	1	10	v	v	v	v	V
ELECTRICAL	POWER BOARD	5E.18R02.001	PCBA SPS BD MI PA246	1	10	v	v	v	v	V
ELECTRICAL	KEY BOARD	5E.18R03.001	PCBA CTRL BD MI PA246	1	10	v	v	v	v	V
ELECTRICAL	USB BOARD	5E.18R08.001	PCBA USB BD MI PA246	1	10	v	v	v	v	V
MECHANICAL	BEZEL ASSY	6K.18R11.001	ASSY BZL PA246	1	10	v	v	v	v	V
MECHANICAL	BACK COVER	3J.18R02.011	RC ABS DB39A PA246	1	10	v	v	v	v	V
MECHANICAL	STAND ASSY	6E.18R01.001	ASSY STAND HAB FULFIL PA246	1	10	v	v	v	v	V
TRIVIAL	LVDS Cable	5K.18R04.001	WIRE LVDS 51/20/30P #28 PA246	1	50	v	v	v	v	V
TRIVIAL	KEY BOARD wire	5K.18R03.001	WIRE FFC 8P CTRL BD PA246	1	50	v	v	v	v	V
TRIVIAL	POWER BOARD wire_to Panel	5K.18R01.001	WIRE 14/12P 1061 #24 PWR PA246	1	50	v	v	v	v	V
TRIVIAL	POWER BOARD wire	5K.18R02.001	WIRE 12/13P 1571 #24 PWR PA246	1	50	v	v	v	v	V
TRIVIAL	USB BOARD wire	5K.18R05.001	WIRE 7/11P #28 PA246	1	50	v	v	v	v	V
TRIVIAL	Tape	3H.04054.071	TAPE ADHESIVE 35*25 BLK 7651F	1	100	v	v	v	v	V
TRIVIAL	Label_SPEC	4E.0VU01.041	LBL SPEC 88*28 PA246 WW	1	100	v	v	v	v	V
TRIVIAL	Label_Prevent	4E.L4603.051	LBL PREVENT 30*15 ASUS VH226H	1	100	v	v	v	v	V
TRIVIAL	Label	4E.0KM04.001	LBL BLANK 43*14 WHITE	1	100	v	v	v	v	V
TRIVIAL	Screw	8F.00551.3R0	SCRW M FPH M2*3L (6/1.4) NI	2	200	v	v	v	v	V
TRIVIAL	Screw	8F.205B4.019	#SCRW MACH STEEL HEX #4-40 NI	4	200	v	v	v	v	V
TRIVIAL	Screw	8F.5A224.6R0	#SCRW MACH FLAT M3*0.5P*6L ZN	2	200	v	v	v	v	V
TRIVIAL	Screw	8F.HA334.8R0	SCRW TAP-S FPH M3*8(5/1.2) BZN	2	200	v	v	v	v	V
TRIVIAL	Screw	8F.VG434.6R0	#SCRW TAP PH W/F M3*6TP-S ZN	11	200	v	v	v	v	V
TRIVIAL	Screw	8F.VZ524.6R0	SCRW TAP FLAT+EXT M3*6L C-ZN	1	200	v	v	v	v	V
ACCESSORY	Power Cord_EU	2G.00921.001	CORD H05VV-F 10A250V EUR 1.8M	1	50	v		v		

ACCESSORY	Power Cord_US	2G.01111.011	CORD SVT125V WO/SH1.8M US	1	50				v	
ACCESSORY	Power Cord_AUS	2G.01343.001	CORD 3ASL/75DU-IN 250V1.8M AUS	1	50			v		
ACCESSORY	Power Cord_UK	2G.03149.021	CORD H05VV-F 13A 1.8M UK	1	50			v		
ACCESSORY	Power Cord_CNS TW	2G.04811.001	CORD VCTF 7A125V 1.8M CNS-TW	1	50		v			
ACCESSORY	Power Cord_JAN	2G.03515.021	CORD VCTF7A125V 1.8M JAN	1	50					V
ACCESSORY	Warranty Card_EU	4J.17Y03.001	WARRANTY ASUS EU NONZBD LCD	1	20	v				
ACCESSORY	Warranty Card_AP	4J.17Y02.001	WARRANTY ASUS AP NON ZBD LCDED	1	20			v		V
ACCESSORY	Warranty Card_TW	4J.17Y05.001	WARRANTY ASUS TW NONZBD LCDLED	1	20		v			
ACCESSORY	Warranty Card_NA	4J.17Y04.001	WARRANTY ASUS NA NONZBD LCD	1	20				v	
ACCESSORY	User's Guide	4J.18R01.001	GUIDE QS 31L ASUS PA246	1	20	v	v	v	v	V
ACCESSORY	DVI Cable	5K.05407.511	CABLE DVI-D/DVI-D 1.8M IS_8	1	50	v	v	v	v	V
ACCESSORY	USB Cable	5K.L1E04.501	CABLE USB 2.0A/B 1.8M OD3.8	1	50	v	v	v	v	V
ACCESSORY	D-SUB Cable	5K.L2H06.511	CABLE SIGNAL/C H+V OD_5.5 1.8M	1	50	v	v	v	v	V
ACCESSORY	DP Cable	5K.0GY11.501	CABLE DP/DP 20P 2M W/O CORE	1	50	v	v	v	v	V
ACCESSORY	PE bag	4B.18R04.011	BAG EPE+HDPE 600*700	1	100	V	V	V	V	V
PACKING	Carton	4D.18R01.001	CTN BC 683*457*298 COLOR PA246	1	100	v	v	v	v	V
PACKING	Cushion_Front	4G.18R02.001	CUSHON FRONT PA246	1	100	v	v	v	v	V
PACKING	Cushion_Back	4G.18R03.001	CUSHION BACK PA246	1	100	v	v	v	v	V

15 Substitution Parts List

NONE

16 BOM List

Level	Component	Description	Qty Per	U/M
. 1	5G.18R72.QL1	5G PA246Q LGDEU 1A1D1H1DP USB	1	PC
..2	5E.18R01.001	PCBA IF BD MI PA246	1	PC
...3	0J.10612.089	# CAP EL 10U 25V M RF2 5*11	6	PC
...3	0J.10712.19B	CAP EL 100U 25V M RF2.5 6.3*7	1	PC
...3	0J.22612.089	#CAP EL 22U 25V M RF2 5*11	4	PC
...3	0J.47612.089	CAP EL 47U 25V M CC2 5*11	5	PC
...3	2B.10254.231	JACK PH 3.5D BLK 5P	1	PC
...3	2B.12218.B51	SKT B USB2.0 RT 4P BLK	1	PC
...3	2K.61185.107	HEAD ML 1R7P ST D2 3S H6	1	PC
...3	2K.61185.112	HEAD ML 1R12P ST D2 3S H6	1	PC
...3	2K.61209.210	HEAD ML 2R20PST D2 4S H6.7/2.7	1	PC
...3	2K.61209.215	HEAD ML 2R30PST D2 4S H6.7/2.7	1	PC
...3	3D.L2K05.001	HEAT-SINK AL 41*41*18 2407WFPB	1	PC
...3	3H.02086.021	#SOLDER BAR SAC300	1.5	G
...3	5E.18R01.M01	PCBA IF BD SMD PA246	1	PC
....4	2B.C0020.061	SKT HDMI 19P HMR4M-AKA210	1	PC
....4	2B.C0080.001	SKT DISPLAY PORT 663-20033SA0H	1	PC
....4	3D.0CT05.001	SPG EMI NI-AU 0.15T 2408WFPB	2	PC
....4	3H.02088.001	#SOLDER PASTE LF310	1.18	G
....4	4E.00091.021	LBL ART 25*4.5 ALL	1	PC
....4	4E.10101.071	LABEL(B)SERIAL ART 12*5 ALL	1	PC
....4	4H.18R01.A00	PCB I/F BD PA246	1	PC
....4	6C.10031.161	CHIP RES 10 J 1/8W 0805	2	PC
....4	6C.10034.1D1	#CHIP RES 10 J 1/16W 0402	16	PC
....4	6C.10134.1D1	#CHIP RES 100 J 1/16W 0402	14	PC
....4	6C.10234.1D1	#CHIP RES 1K J 1/16W 0402	10	PC
....4	6C.10334.1D1	#CHIP RES 10K J 1/16W 0402	24	PC
....4	6C.10434.1D1	#CHIP RES 100K J 1/16W 0402	5	PC
....4	6C.10534.1D1	#CHIP RES 1M J 1/16W 0402	2	PC
....4	6C.12334.1D1	CHIP RES 12K J 1/16W 0402	4	PC
....4	6C.15134.1D1	#CHIP RES 150 J 1/16W 0402	4	PC
....4	6C.15334.1D1	#CHIP RES 15K 1/16W J0402	4	PC
....4	6C.20134.1D1	#CHIP RES 200 J 1/16W 0402	5	PC
....4	6C.20234.1D1	CHIP RES 2K J 1/16W 0402	2	PC
....4	6C.20334.1D1	#CHIP RES 20K J 1/16W 0402	3	PC
....4	6C.22033.151	CHIP RES 22 J 1/10W 0603	2	PC
....4	6C.22034.1D1	CHIP RES 22 J 1/16W 0402	48	PC
....4	6C.22234.1D1	CHIP RES 2.2K J 1/16W 0402	2	PC
....4	6C.22334.1D1	CHIP RES 22K J 1/16W 0402	4	PC
....4	6C.47034.1D1	#CHIP RES 47 J 1/16W 0402	2	PC
....4	6C.47234.1D1	#CHIP RES 4.7K J 1/16W 0402	8	PC
....4	6C.47333.151	CHIP RES 47K J 1/10W 0603	1	PC
....4	6C.51134.1D1	CHIP RES 510 J 1/16W 0402	1	PC

....4	6C.R0032.111	#CHIP RES 0 J 1/4W 1206	1	PC
....4	6C.R0033.151	#CHIP RES 0J 1/10W 0603	6	PC
....4	6C.R0034.1D1	#CHIP RES 0 J 1/16W 0402	31	PC
....4	6D.10035.551	#CHIP RES 100K F 1/10W 0603	1	PC
....4	6D.18025.551	CHIP RES 18K F 1/10W 0603	1	PC
....4	6D.20025.551	CHIP RES 20K F 1/10W 0603	2	PC
....4	6D.20R05.6D1	CHIP RES 20 F 1/16W 0402	3	PC
....4	6D.24905.6D1	CHIP RES 249 F 0402 1/16W	1	PC
....4	6D.28705.6D1	CHIP RES 287 F 1/16W 0402	1	PC
....4	6D.29405.6D1	#CHIP RES 294 F 1/16W 0402	1	PC
....4	6D.30115.551	CHIP RES 3.01K F 1/10W 0603	1	PC
....4	6D.31625.551	CHIP RES 31.6K F 1/10W 0603	1	PC
....4	6D.36025.551	CHIP RES 36K F 1/10W 0603	1	PC
....4	6D.57R65.6D1	#CHIP RES 57.6 F 1/16W 0402	3	PC
....4	6D.75R05.6D1	#CHIP RES 75 F 1/16W 0402	3	PC
....4	6F.22036.080	CHIP NTW 22 J 8P I 3.2*1.6	4	PC
....4	6H.12160.0TQ	CHIP BEAD Z120 0.2A FCM1608KF	1	PC
....4	6H.22160.0T7	#CHIP BEAD Z220 2A PBY160808	3	PC
....4	6H.2R290.202	CHIP COIL 2.2UH 2.62A VLCF5020	2	PC
....4	6H.30060.0N1	#CHIP BEAD Z30 5A HPB2012Z300T	23	PC
....4	6H.6016A.0T1	CHIP BEAD Z600 1A HCB1608KF	3	PC
....4	6H.90000.2N1	CHIP CHOKE Z90 0.3A ACM2012D	1	PC
....4	6J.47500.041	FUSE PTC 0.75A 6V SMD1206P075T	1	PC
....4	6J.80005.011	VARISTOR 24V PGB1010603NR	1	PC
....4	8B.31966.201	XTAL 19.6608M18PF30PPM 11*4.9	1	PC
....4	8C.00032.016	#DIODE SW BAS32L 75V0.2A SOD80	2	PC
....4	8C.00054.C81	DIODE SB BAT54C 30V SOT-23	1	PC
....4	8C.00070.A11	DIODE SW BAV70 75V SOT-23	2	PC
....4	8C.00199.0A1	DIODE ARRAY AZC199-04S SOT23	3	PC
....4	8C.00524.0A0	DIODE ARRAY RCLAMP0524P 10P	2	PC
....4	8C.00998.011	#DIODE SW BAV99/8 SOT23	5	PC
....4	8C.01045.0A0	DIODE ARRAY AZ1045-04QU MSOP10	2	PC
....4	8C.05123.010	#DIODE TVS AZ5123-01H SOD-523	2	PC
....4	8C.6R203.036	DIODE ZEN 6.2V 1/2W TZMC6V2	6	PC
....4	8C.AZ099.0A1	#DIODE ARRAY AZC099-04S SOT23	2	PC
....4	8C.R2003.S81	DIODE SB 0.2A30V BAT54S SOT-23	1	PC
....4	8D.02305.A31	#FET MOS APM2305BAC-TRG PC 3P	2	PC
....4	8D.02309.031	#FETMOS APM2309AC-TRG PC SOT23	1	PC
....4	8D.03904.021	XTOR PMBS3904 SOT-23 NPN	6	PC
....4	8D.03906.011	#XTOR 2N3906S SOT-23 PNP	2	PC
..2	5E.18R02.001	PCBA SPS BD MI PA246	1	PC
...3	0E.00817.012	IC OPTO LTV-817M-L DIP 4P	1	PC
...3	0F.3R080.030	DIODE REC 3A800V 1N5407G-05	1	PC
...3	0F.5R006.112	DIODE SB 5A 60V RK306V3 DO-201	3	PC
...3	0H.33216.354	CAP DISC Y13300P250VFKC10 L3.5	3	PC
...3	0J.10843.09C	CAP1000U35VRC2300CC5 12.5*25	3	PC
...3	0J.1575M.083	CAP 150U 450V RG7.5 18*45 10K	1	PC
...3	0J.22742.09L	CAP 220U25V RC480CC3.5 8*11 7K	2	PC
...3	0J.22773.09L	CAP 220U35VCC3.5 8*16 7K RUBYC	1	PC
...3	0J.6874D.09C	CAP 680U 16V RC1210 CC5 10*16	1	PC
...3	1A.10238.05C	CAP PP 0.001U 630V J FC5	1	PC

...3	1A.2241N.11E	CAP X 0.22U U/V/FI 275V CC15	1	PC
...3	1A.4742U.04E	CAP PS 0.47U 520V K CC15	2	PC
...3	1C.68335.07E	#RES MOFM 68K J 2W AKF15 MINI	1	PC
...3	1C.R1035.07F	RES MOFM 0.1 2W J AF15 MINI	2	PC
...3	1C.R3035.07F	RES MOFM 0.3 J 2W AF15 MINI	1	PC
...3	1G.60061.011	THERM NTC 5 OHM D15 KC7.5 L3.5	1	PC
...3	1J.20289.041	XFORM PWR DS3324 380UH PA246	1	PC
...3	1J.20327.011	XFORM PWR 250UH PQ2620 PA246	1	PC
...3	1J.40245.001	CHOK COIL 300UH T60-26 2405FPW	1	PC
...3	1J.40262.011	CHOKE 27UH CS127125 17*10+PCB	3	PC
...3	1J.42023.051	LINE FILTER 1.4MH T14*9*5	1	PC
...3	1J.42030.031	LINE FILTER 11MH ET24 2007FPB	1	PC
...3	2B.42008.001	SW ROCK ST OR01-12B-BBA-22	1	PC
...3	2B.90011.031	SKT AC I/O 10A 250V ST-01AY-BA	1	PC
...3	2D.50009.021	TVS 10D 470V TVR10471KFC3F7SW	1	PC
...3	2F.14001.932	#FUSE4A250V CERAST20 T/LA RF25	1	PC
...3	2K.62244.112	HEAD ML 1R12P RT D2.5 4S H5.75	1	PC
...3	3H.02086.021	#SOLDER BAR SAC300	4.4	G
...3	5E.18R02.M01	PCBA SPS BD SMD PA246	1	PC
....4	3H.01043.031	GLUE ADHES PD955 PRH	0.03	G
....4	5E.18R02.A01	PCBA SPS BD AI PA246	1	PC
....4	6C.10031.161	CHIP RES 10 J 1/8W 0805	2	PC
....4	6C.10331.161	CHIP RES 10K J 1/8W 0805	2	PC
....4	6C.10333.151	#CHIP RES 10K J 1/10W 0603	1	PC
....4	6C.22031.161	CHIP RES 22 J 1/8W 0805	1	PC
....4	6C.22033.151	CHIP RES 22 J 1/10W 0603	2	PC
....4	6C.22333.151	CHIP RES 22K J 1/10W 0603	3	PC
....4	6C.27232.111	CHIP RES 2.7K J 1/4W 1206	2	PC
....4	6C.30031.161	CHIP RES 30 J 1/8W 0805	2	PC
....4	6C.33132.111	#CHIP RES 330 J 1/4W 1206	1	PC
....4	6C.33133.151	CHIP RES 330 J 1/10W 0603	1	PC
....4	6C.33233.151	CHIP RES 3.3K J 1/10W 0603	2	PC
....4	6C.33433.151	CHIP RES 330K J 1/10W 0603	2	PC
....4	6C.47032.111	CHIP RES 47 J 1/4W 1206	1	PC
....4	6C.47333.151	CHIP RES 47K J 1/10W 0603	2	PC
....4	6C.R0031.161	#CHIP RES 0 J 1/8W 0805	2	PC
....4	6C.R0032.111	#CHIP RES 0 J 1/4W 1206	7	PC
....4	6D.10015.161	#CHIP RES 1K F 1/8W 0805	4	PC
....4	6D.10015.411	CHIP RES 1K F 1/4W 1206	2	PC
....4	6D.10015.551	CHIP RES 1K F 1/10W 0603	2	PC
....4	6D.10025.161	#CHIP RES 10K F 1/8W 0805	1	PC
....4	6D.10025.551	#CHIP RES 10K F 1/10W 0603	5	PC
....4	6D.10035.161	CHIP RES 100K F 1/8W 0805	1	PC
....4	6D.12125.161	#CHIP RES 12.1K F 1/8W 0805	1	PC
....4	6D.15025.161	CHIP RES 15K F 1/8W 0805	1	PC
....4	6D.15035.161	CHIP RES 150K F 1/8W 0805	1	PC
....4	6D.18025.551	CHIP RES 18K F 1/10W 0603	1	PC
....4	6D.20035.551	#CHIP RES 200K F 1/10 0603	1	PC
....4	6D.27015.551	CHIP RES 2.7K F 1/10W 0603	1	PC
....4	6D.30045.161	CHIP RES 3M F 1/8W 0805	1	PC
....4	6D.30115.551	CHIP RES 3.01K F 1/10W 0603	1	PC

....4	6D.33025.161	#CHIP RES 33K F 1/8W 0805	2	PC
....4	6D.33235.411	CHIP RES 332K F 1/4W 1206	1	PC
....4	6D.42225.161	CHIP RES 42.2K F 1/8W 0805	1	PC
....4	6D.47015.161	#CHIP RES 4.7K F 1/8W 0805	1	PC
....4	6D.47015.551	#CHIP RES 4.7K F 1/10W 0603	1	PC
....4	6D.47025.161	CHIP RES 47K F 1/8W 0805	1	PC
....4	6D.49925.161	CHIP RES 49.9K F 1/8W 0805	1	PC
....4	6D.51015.411	CHIP RES 5.1K F 1/4W 1206	1	PC
....4	6D.56035.161	#CHIP RES 560K F 1/8W 0805	1	PC
....4	6D.60425.161	CHIP RES 60.4K F 1/8W 0805	1	PC
....4	6D.86615.551	CHIP RES 8.66K F 1/10W 0603	1	PC
....4	8C.00021.012	DIODE SW BAS21CRF 250V SOT-23	1	PC
....4	8C.00032.016	#DIODE SW BAS32L 75V0.2A SOD80	4	PC
....4	8C.27R03.A36	#DIODE ZEN BZV55C27 500MWSOD80	1	PC
....4	8D.02301.A32	FET MOS AP2301GN PC SOT-23	1	PC
....4	8D.03904.D11	#XTOR 2N3904S SOT-23 NPN	4	PC
....4	8D.03906.011	#XTOR 2N3906S SOT-23 PNP	2	PC
....4	8D.27002.A31	FET MOS 2N7002K-T1-E3 60V NC	1	PC
...3	5K.18R02.001	WIRE 12/13P 1571 #24 PWR PA246	1	PC
...3	6K.18R03.001	ASSY HSINK(0Q402)+YG971+11603	1	PC
....4	0F.11603.020	FET MOS SPA11N60C3 TO-220FP 3P	1	PC
....4	0F.8R060.031	DIODE REC 600V 8A YG971S6R	1	PC
....4	2E.70098.001	CORE Z25/100MHZ D3.5*3.25*D1.5	2	PC
....4	3D.0Q402.001	HSINK AL 20*45*8 1908FP-BLK	1	PC
....4	8F.00003.143	#SCRW TAPTILE PAN #4-40*3/8	2	PC
...3	6K.18R09.001	ASSY ASSY HSINK(L1S02)+AP9575G	2	PC
....4	0F.09575.020	FET MOS PC AP9575GI TO-220CFM	2	PC
....4	3D.L1S02.001	HEATSINK AL 20*7*15 F2105	2	PC
....4	8F.1A524.6R0	SCRW MACH PAN M3*6L NI	2	PC
...3	6K.18R10.001	ASSY HSINK(L2K04)+SPA11N80C3	1	PC
....4	0F.11803.020	#FET MOS SPA11N80C3 NC TO-220F	1	PC
....4	3D.L2K04.001	HSINK AL 35*8*24 2407WFPB	1	PC
....4	8F.00003.143	#SCRW TAPTILE PAN #4-40*3/8	1	PC
...3	6K.18R16.001	ASSY HSINK(L8805)IPP200N15N3*2	1	PC
....4	0F.00200.020	FET MOS IPP200N15N3 G NC TO220	2	PC
....4	3D.L8805.001	#HSNK 20H*15W*50L AL6063 FP726	1	PC
....4	8F.00003.143	#SCRW TAPTILE PAN #4-40*3/8	2	PC
...3	6K.18R18.001	ASSY HSINK(L1E04)+GSIB1560	1	PC
....4	0F.15060.151	DIODE BRI GSIB1560 600V15A DIP	1	PC
....4	3D.L1E04.001	HEATSINK AL 30*26*8 F2105	1	PC
....4	8F.00003.143	#SCRW TAPTILE PAN #4-40*3/8	1	PC
..2	5E.18R03.001	PCBA CTRL BD MI PA246	1	PC
...3	5E.18R03.M01	PCBA CTRL BD SMD PA246	1	PC
....4	3H.02088.001	#SOLDER PASTE LF310	0.11	G
....4	4E.00091.021	LBL ART 25*4.5 ALL	1	PC
....4	4H.18R03.A00	PCB CTRL BD PA246	1	PC
....4	6B.40110.001	SW TACT 12V50MA TSIB-31L	7	PC
....4	6C.10133.151	CHIP RES 100 J 1/10W 0603	1	PC
....4	6C.10333.151	#CHIP RES 10K J 1/10W 0603	2	PC
....4	6C.20333.151	CHIP RES 20K J 1/10W 0603	2	PC
....4	6C.51333.151	CHIP RES 51K J 1/10W 0603	2	PC

....4	8C.00195.072	LED WHITE/ORG LTW-C195UCKF-5A	1	PC
..2	5E.18R08.001	PCBA USB BD MI PA246	1	PC
...3	0J.10614.19V	#CAP 10U 50V RC29 RT2.5 5*7 1K	2	PC
...3	0J.10712.19B	CAP EL 100U 25V M RF2.5 6.3*7	2	PC
...3	2B.C0040.011	SKT USB A 4P RT UAR2G-4K5G00	2	PC
...3	3H.02086.021	#SOLDER BAR SAC300	0.4	G
...3	5E.18R08.M01	PCBA USB BD SMD PA246	1	PC
....4	3H.02088.001	#SOLDER PASTE LF310	0.75	G
....4	4E.00091.021	LBL ART 25*4.5 ALL	1	PC
....4	4H.0WA08.A00	PCB USB MI LGD U2710	1	PC
....4	6C.10333.151	#CHIP RES 10K J 1/10W 0603	5	PC
....4	6C.10433.151	#CHIP RES 100K J 1/10W 0603	3	PC
....4	6C.10533.151	#CHIP RES 1M J 1/10W 0603	1	PC
....4	6C.15333.151	CHIP RES 15K J 1/10W 0603	2	PC
....4	6C.22233.151	CHIP RES 2.2K J 1/10W 0603	1	PC
....4	6C.33033.151	CHIP RES 33 J 1/10W 0603	1	PC
....4	6C.33034.1D1	CHIP RES 33 J 1/16W 0402	4	PC
....4	6C.R0031.161	#CHIP RES 0 J 1/8W 0805	3	PC
....4	6C.R0033.151	#CHIP RES 0J 1/10W 0603	1	PC
....4	6D.12025.551	CHIP RES 12K F 1/10W 0603	1	PC
....4	6H.22160.0N2	#CHIP BEAD Z220 3A HCB2012K	5	PC
....4	6H.22160.0T6	CHIP BEAD Z220 2A HCB1608KF	2	PC
....4	6H.90060.0F1	CHIP CHOKE Z90 0.4A WCM2012F2S	3	PC
....4	6J.47500.051	#FUSE PTC 0.75A8V 1206L075THYR	2	PC
....4	8B.30024.302	XTAL 24MH30PF30PPM 12*4.9*4.5	1	PC
....4	8C.00099.E11	DIODE SW.215A75V BAV99 SOT23	4	PC
...3	5K.18R05.001	WIRE 7/11P #28 PA246	1	PC
..2	GC.18R72.QL1	DC PA246Q LGDEU 1A1D1H1DP USB	1	PC
...3	3D.18R02.001	SHD USB PA246	1	PC
...3	3H.04054.071	TAPE ADHESIVE 35*25 BLK 7651F	1	PC
...3	3H.04054.081	TAPE ADHESIVE 60*25*0.2T BLK	1	PC
...3	3J.18R02.011	RC ABS DB39A PA246	1	PC
...3	3K.18R01.001	BKT AC SPTE PA246	1	PC
...3	4E.0VU01.041	LBL SPEC 88*28 PA246 WW	1	PC
...3	4E.L4603.051	LBL PREVENT 30*15 ASUS VH226H	1	PC
...3	4G.0C405.001	FOIL AL+PC 324*40*0.08 G900	1	PC
...3	4G.0F915.001	TAPE AL 105*45*0.08T V2400W	1	PC
...3	4G.18R01.001	RUBBER VESA-SCRW PA246	4	PC
...3	4G.J1B18.001	FABRIC 40*20(MM) MP610	1	PC
...3	4G.M5806.001	FOIL AL110*30*0.08MM 32LB125B5	1	PC
...3	4K.18R02.001	MYLAR BTM PA246	1	PC
...3	5F.LLDUP.011	LCDM24W LM240WU4-SLB3 LGD P	1	PC
...3	5K.18R01.001	WIRE 14/12P 1061 #24 PWR PA246	1	PC
...3	5K.18R03.001	WIRE FFC 8P CTRL BD PA246	1	PC
...3	5K.18R04.001	WIRE LVDS 51/20/30P #28 PA246	1	PC
...3	6E.18R01.001	ASSY STAND HAB FULFIL PA246	1	PC
...3	6K.18R11.001	ASSY BZL PA246	1	PC
....4	3A.18R01.002	LOGO ASUS ELECTFORM 34MM PA246	1	PC
....4	3J.18R01.011	BZL ABS DB39A PA246	1	PC
....4	4B.18R01.011	BTN ABS DB39A PA246	1	PC
....4	4B.18R02.011	LENS PMMA SEMITRANSPARENTPA246	1	PC

....4	4B.18R03.011	DECO-BZL ABS DR12A PA246	1	PC
....4	4E.18R01.001	LBL FEATURE PA246 ASUS	1	PC
....4	4E.18R02.001	LBL TRY ME 80*14 (QUICKFIT)	1	PC
...3	6K.18R13.001	ASSY SHD PA246	1	PC
....4	3D.18R01.001	SHD MAIN PA246	1	PC
....4	3K.18R02.001	BKT VENT-SHD SECC/SGCC PA246	1	PC
....4	4G.05406.001	#GASKET 10L*10W*8H 1908FPB	1	PC
....4	4G.0CT08.001	PAD THERMAL 30*30*6 2408WFPB	1	PC
....4	4G.0F911.001	GASKET 65*4*4T V2400W	1	PC
....4	4G.18R04.001	PAD THERMAL 30*30*3.5 PA246	1	PC
....4	4G.L1C11.001	PAD THERMAL 10*15*6.2H GRAY Q7	1	PC
....4	4G.L1J15.001	PAD THERMAL 50*8*5 Q9T4	1	PC
....4	4K.18R01.001	MYLAR TOP PA246	1	PC
...3	6K.L7204.001	ASSY SCREW M4*10 FP527	4	PC
....4	4B.L7212.001	SPACER TAPER NYLON FP527	1	PC
....4	8F.5A456.100	SCRW MACH FLAT M4*10L C-ZN NYL	1	PC
...3	8F.00551.3R0	SCRW M FPH M2*3L (6/1.4) NI	2	PC
...3	8F.205B4.019	#SCRW MACH STEEL HEX #4-40 NI	4	PC
...3	8F.5A224.6R0	#SCRW MACH FLAT M3*0.5P*6L ZN	2	PC
...3	8F.HA334.8R0	SCRW TAP-S FPH M3*8(5/1.2) BZN	3	PC
...3	8F.VG434.6R0	#SCRW TAP PH W/F M3*6TP-S ZN	11	PC
...3	8F.VZ524.6R0	SCRW TAP FLAT+EXT M3*6L C-ZN	1	PC
. 1	GP.18R72.QL1	DP PA246Q LGDEU 1A1D1H1DP USB	1	PC
..2	2G.00921.001	CORD H05VV-F 10A250V EUR 1.8M	1	PC
..2	3H.04605.482	TAPE 0.055*60*900M 3M373 ASUS	1.7875	M
..2	3H.11001.001	FILM LLDPE 500W*0.0155T ROLL-M	0.0042	KG
..2	3H.19L14.421	PALLET WOOD S/B 914*1366	0.0358	PC
..2	4B.0GT13.002	BAG LDPE 310*220 SELF-GIVEN	0.1429	PC
..2	4B.0GT13.011	BAG LDPE 310*220 ZIPPER W/O TP	1	PC
..2	4B.18R04.011	BAG EPE+HDPE 600*700	1	PC
..2	4B.18R05.001	HOLDER HAND BK 146*40 ASUS	1	PC
..2	4B.L9106.001	BAG LDPE 450*450	1	PC
..2	4D.18R01.001	CTN BC 683*457*298 COLOR PA246	1	PC
..2	4D.L1K01.081	BOARD ANGLE H730*W50*T3	0.1429	PC
..2	4D.L1K01.181	BOARD ANGLE H2150*W50*T3	0.1429	PC
..2	4D.L1K05.081	BOARD B 900*1350 ON PALLET	0.0715	PC
..2	4E.0KM04.001	LBL BLANK 43*14 WHITE	1	PC
..2	4E.76102.031	LBL BLANK ART 76*76	2	PC
..2	4E.L9104.001	LBL AVOID-MISS 50*12 Q5C3	0.0715	PC
..2	4G.18R02.001	CUSHON FRONT PA246	1	PC
..2	4G.18R03.001	CUSHION BACK PA246	1	PC
..2	4J.17Y03.001	WARRANTY ASUS EU NONZBD LCD	1	PC
..2	4J.18R01.001	GUIDE QS 31L ASUS PA246	1	PC
..2	4J.18R02.011	SHEET COLOR CALI REPORT PA246	1	PC
..2	5B.18R01.001	CD UM 11L ASUS PA246	1	PC
..2	5K.05407.511	CABLE DVI-D/DVI-D 1.8M IS_8	1	PC
..2	5K.0GY11.501	CABLE DP/DP 20P 2M W/O CORE	1	PC
..2	5K.L1E04.501	CABLE USB 2.0A/B 1.8M OD3.8	1	PC
..2	5K.L2H06.511	CABLE SIGNAL/C H+V OD_5.5 1.8M	1	PC
..2	TY.4G180.003	CABLE TIE ASUS 15G140300600	1	PC

17 Appendix 1 – Screw List / Torque

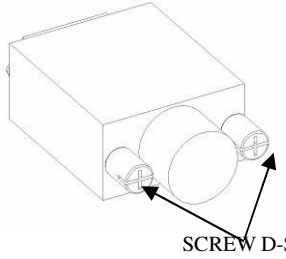
(A) STANDARD SCREW TORQUE SPEC for QCS

ITEM	P/N	DESCRIPTION	MOUNTING MATERIAL	TORQUE (KG-CM)	HOLE SIZE (MM)	Screw Head
1	8F.205B4.019	SCRW MACH HEX #4-40*0.3" N	Metal; D-SUB;DVI Connector	5.0±0.6	5.0±0.6	#4-40
2	8F.5A224.6R0	SCRW MACH FLATM3*0.5P*6L ZN	Metal Metal to metal Plastic to metal	Side mount: 3±0.6 Other: 4±0.6	M3*0.5	#2
3	8F.EA324.6R0	SCRW TAP FH M3*6L ZN	Metal	None tread：8～10 Have tread: 6～8	Φ2.68±0.03	#2
4	8F.5A356.8R0	SCRW MACH FH M4*8L B-ZN NYL	Metal Metal to metal Plastic to metal	9.0±1.0	M4*0.7	#2
5	6K.L8810.001	ASSY SCREW M4*8L FP726A NLK ISU (8F.5A456.8R0+4B.L7212.001)	Metal Metal to metal Plastic to metal	9.0±1.0	M4*0.7	#2
6	8F.00273.6R0	SCRW TAP PH F/10WSH M3*6L C-ZN	Metal Metal to metal Plastic to metal PCB to metal	None tread：8～10 Have tread: 6～8 Aluminum: 4~5	Æ2.68±0.03	#2
7	8F.VZ524.6R0	SCRW TAP FLAT+EXT M3*6L C-ZN	Metal Metal to metal	None tread：8～10 Have tread: 6～8 Aluminum: 4~5	Æ2.68±0.03	#2
8	8F.00518.100	SCRW TAP W/FL M3*10L(S3.8)ZN	Metal Metal to metal Plastic to metal SPEAKER to metal	None tread：8～10 Have tread: 6～8 Aluminum: 4~5	Æ2.68±0.03	#2
9	8F.00003.143	SCRW TAP PAN #4-40*3/8	Aluminum (Heatsink)	3.3±0.3	Φ2.6±0.03	#2
10	8F.VG234.6R0	SCRW TAP PH W/F M3*6 TP-S ZN	Aluminum (Heatsink)	None tread：8～10 Have tread: 6～8 Aluminum: 4~5	Φ2.68±0.03	#2
11	8F.VZ526.6R0	SCRW TAP FLAT+EXT M4*6L ZN-W	Metal Metal to metal	10±1.0	M4*0.7	#2
12	8F.HA334.8R0	SCRW TAP FPHM3*6(6/1)TP-S B-ZN	Metal Metal to metal Plastic to metal	6~8	Φ2.68±0.03	#2
13	8F.5A456.8R0	SCRW MACH FLAT M4*8L C-ZN NYLO	Metal Metal to metal Plastic to metal	9.0±1.0	M4*0.7	#2
14	8F.WA324.6R0	SCRW TAP CAP M3*1.34P*6L B-NI	Metal Metal to metal Plastic to metal	5.0±1.0	Φ2.35±0.05	#2

15	8F.XA324.5R0	SCRW TAP M3*5L B-ZB	Metal Metal to Plastic	6~8	2.85~2.95	#2
16	8F.1A526.5R0	SCRW MACH PAN M4*5L NI	Metal Metal to metal Plastic to metal	8~10	M4*0.7P	#2
17	8F.1B524.3R0	SCRW MACH PAN W/SPG M3*3L NI	Metal Metal to metal Plastic to metal	6~8	M3*0.5P	#2
18	8F.5A524.4R0	SCRW MACH FLAT M3*4L NI(W2407 lift	Metal Metal to metal Plastic to metal	6~8	M3*0.5P	#2
19	8F.00573.5R0	SCRW TAP FPHM3*5 B-ZN	Metal Metal to Plastic	6~8	M3*0.5P	#1
20	8F.5A456.7R0	SCRW MACH FLAT M4*7L B-ZN NYL	Metal Metal to Metal Plastic to Metal	8~10	M4*0.7P	#2
21	8F.XA326.150	SCRW TAP FLAT M4*15L B-ZN	Metal Metal to metal Plastic to metal	8~10	M4*0.7P	#2
22	8F.00608.6R0	SCRW TAP PH F/10WSH M3*6L B-ZN	PLASTIC	4.5±0.5	Φ2.35±0.05	#2
23	8F.XA313.8R0	SCRW TAP FLAT/PT M2.5*8L B-ZN	Plastic Metal to plastic Plastic to plastic PCB to plastic	4.0±0.5	Φ2.0±0.05	#1
24	8F.WA314.8R0	SCRW TAP CAP M3*1.34P*8L B-ZN	Plastic Metal to plastic Plastic to plastic	5.0±1.0	Φ2.35±0.05	#2
25	8F.XA224.6R0	SCRW TAP FH M3*6L ZN	PLASTIC	4.5±0.5	Φ2.35±0.05	#2
26	8F.XA314.8R0	SCRW TAP FLAT M3*1.34P*8L B-ZN	Plastic Metal to plastic Plastic to plastic	4.5±0.5	Φ2.35±0.05	#2
27	8F.00607.8R0	SCRW TAP FPH M3*8L(5/0.8) B-ZN	Plastic Metal to plastic Plastic to plastic PCB to plastic	4.0±0.5	Φ2.68±0.03	#2
28	8F.5A322.2R4	SCRW MACH FLAT-P M2*2.4L B-ZN	Plastic Metal to plastic Plastic to plastic PCB to plastic	2.0±0.5	Φ1.75±0.05	#1
29	8F.00551.3R0	SCRW M FPH M2*3L (6/1.4) NI	Plastic Metal to plastic Plastic to plastic PCB to plastic	2.0±0.5	Φ1.75±0.05	#1

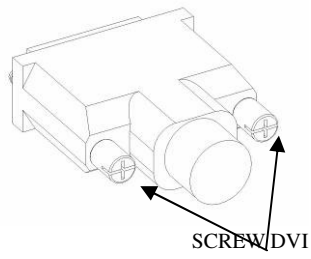
*SCREW QUANTITY AND POSITION REFERRED TO Q328.
*NOTES:
1. (A)STANDARD SCREW TORQUE SPEC.
2. (B)SPECIAL SCREW TORQUE SPEC.
3. T: TAPPING SCREW.
4. M: MACHING SCREW.

D-SUB Connector
SCREW TORQUE SPEC.



SCREW TORQUE: 1.0±0.2 (KG-CM)

DVI Connector
SCREW TORQUE SPEC.



SCREW TORQUE : 1.0±0.2(KG-CM)

(B)STANDARD SCREW TORQUE SPEC for SKD site

	Part NO.	Description	torque	Size	Screw head
1	8F.00524.8R0	SCRW M FH M4*8L(D7.5)B-ZN NYL	**10.5±1.0**	M4	#2
2	8F.5A256.8R0	SCRW MACH FH M4*8L ZN NYL	**10.5±1.0**	M4	#2
3	8F.5A356.100	SCRW MACH FH M4*10L B-ZN NYL	**10.5±1.0**	M4	#2
4	8F.5A356.120	SCRW MACH FH M4X12L B-ZN NYL	**10.5±1.0**	M4	#2
5	8F.5A556.7R0	SCRW M PAN FH M4*7L NI NLY	**10.5±1.0**	M4	#2
6	8F.8A356.100	SCRW MACH FPH M4*10L B-ZN NYL	**10.5±1.0**	M4	#2
7	8F.00558.100	SCRW MACH FH M4*10L ZN NYL	**10.5±1.0**	M4	#2
8	8F.00T76.120	SCRW TR15 M4*12L(8/2.6)B-ZN N	**10.5±1.0**	M4	TR15
9	8F.VG434.6R0	SCRW TAP PH W/F M3*6TP-S ZN SO	**No thread:8.5±1.0 Thread:6.5±1.0**	M3	#2
10	8F.5A356.8R0	SCRW MACH FH M4*8L B-ZN NYL	**8.5±1.0**	M4	#2
11	8F.5A456.5R0	SCRW MACH FLAT M4*5L C-ZN NYL	**8.5±1.0**	M4	#2
12	6K.L8810.001	ASSY SCREW M4*8 FP726A NLK ISU	**8.5±1.0**	M4	#2
13	8F.MA324.5R5	SCRW TAP FPH M3*5.5L B-ZN	**No thread:8.5±1.0 Thread:6.5±1.0 Aluminium:4.5±1.0**	M3	#2
14	8F.MA325.6R0	SCRW TAP FLAT-P M3*6L B-ZN	**No thread:8.5±1.0 Thread:6.5±1.0 Aluminium:4.5±1.0**	M3	#2
15	8F.VG434.4R0	SCRW TAP PAN F/WSH M3*4L C-ZN	**No thread:8.5±1.0 Thread:6.5±1.0 Aluminium:4.5±1.0**	M3	#2
16	8F.EA524.6R0	SCRW TAP FH M3*6L NI	**6.5±1.0**	M3	#2
17	8F.5A556.6R0	SCRW MACH FH M4*6L NI NYL	**6.5±1.0**	M4	#2
18	8F.WA314.8R0	SCRW TAP CAP M3*1.34P*8L B-ZN	**4.5±1.0**	M3	#2
19	8F.MA524.4R0	SCRW TAP FPH M3*4L(6/0.8)	**4.5±1.0**	M3	#2
20	8F.XA313.8R0	SCRW TAP FLAT/PT M2.5*8L B-ZN	**4.5±1.0**	M2.5	#2
21	8F.WA324.6R0	SCRW TAP CAP M3*6L B-ZN	**4.5±1.0**	M3	#2
22	8F.5A526.5R0	SCRW MACH FH M4*5L NI	**Side mount:3.0±0.6 Others:4.5±1.0**	M4	#2
23	8F.5A224.6R0	SCRW MACH FLAT M3*0.5P*6L ZN	**Side mount:3.0±0.6 Others:4.5±1.0**	M3	#2
24	8F.EA324.6R0	SCRW TAP FH M3*6L B-ZN	**None thread: 8.5±1.0 Have thread: 6.5±1.0**	M3	#2
25	8F.WA314.8R0	SCRW TAP CAP M3*1.34P*8L B-ZN	**4.5±1.0**	M3	#2

*SCREW QUANTITY AND POSITION
REFERRED TO Q328.
*NOTES:
1. (A)STANDARD SCREW TORQUE SPEC.
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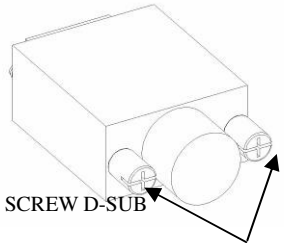
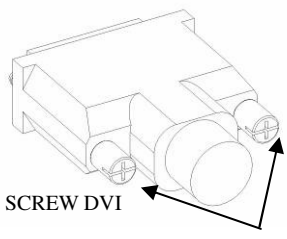
D-SUB Connector
SCREW TORQUE SPEC.



SCREW TORQUE: 1.2±0.5 (KG-CM)

DVI Connector
SCREW TORQUE SPEC.



SCREW TORQUE : 1.2±0.5 (KG-CM)