Service Manual

ViewSonic VE902m

Model No. VS10552

19” Color TFT LCD Display

(VE902m_SM_940 Rev. 1a Dec. 2004)

ViewSonic® 381 Brea Canyon Road, Walnut, California 91789 USA - (800) 888-8583

Revision History

Revision	SM Editing Date	Documents Number		Description of Changes	Editor
		DCN Number	ECR Number		
1a	12/06/04	4867		Initial Release	A. Lu

TABLE OF CONTENTS

1. Precautions and Safety Notices

1. Appropriate Operation

(1) Turn off the product before cleaning.
(2) Use only a dry soft cloth when cleaning the LCD panel surface.
(3) Use a soft cloth soaked with mild detergent to clean the display housing.
(4) Use only high quality and safety approved AC/DC power cord.
(5) Disconnect the power plug from AC outlet if the product is not used for a long period of time.
(6) If smoke, abnormal noise, or strange odor is present, immediately switch the LCD display off.
(7) Do not touch the LCD panel surface with sharp or hard objects.
(8) Do not place heavy objects on the LCD display, video cable, or power cord.
(9) Do not use abrasive cleaners, waxes or solvents for your cleaning.
(10) Do not operate the product under the following conditions:
- Extremely hot, cold or humid environment.
- Areas susceptible to excessive dust and dirt.
- Near any appliance generating a strong magnetic field.
- Place in direct sunlight.

2. Caution

No modification of any circuit should be attempted. Service work should only be performed after you are thoroughly familiar with all of the following safety checks and servicing guidelines.

3. Safety Check

Care should be taken while servicing this LCD display. Because of the high voltage used in the inverter circuit, the voltage is exposed in such areas as the associated transformer circuits.

4. LCD Module Handling Precautions

4.1 Handling Precautions

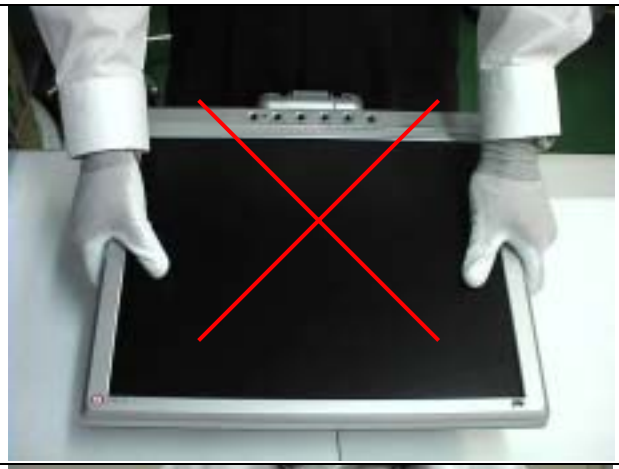
(1) Since front polarizer is easily damaged, pay attention not to scratch it.
(2) Be sure to turn off power supply when inserting or disconnecting from input connector.
(3) Wipe off water drop immediately. Long contact with water may cause discoloration or spots.
(4) When the panel surface is soiled, wipe it with absorbent cotton or other soft cloth.
(5) Since the panel is made of glass, it may break or crack if dropped or bumped on hard surface.
(6) Since CMOS LSI is used in this module, take care of static electricity and insure human earth when handling.
(7) Do not open nor modify the Module Assembly.
(8) Do not press the reflector sheet at the back of the module to any directions.
(9) In case if a Module has to be put back into the packing container slot after once it was taken out from the container, do not press the center of the CCFL Reflector edge. Instead, press at the far ends of the CFL Reflector edge softly. Otherwise the TFT Module may be damaged.
(10) At the insertion or removal of the Signal Interface Connector, be sure not to rotate nor tilt the Interface Connector of the TFT Module.

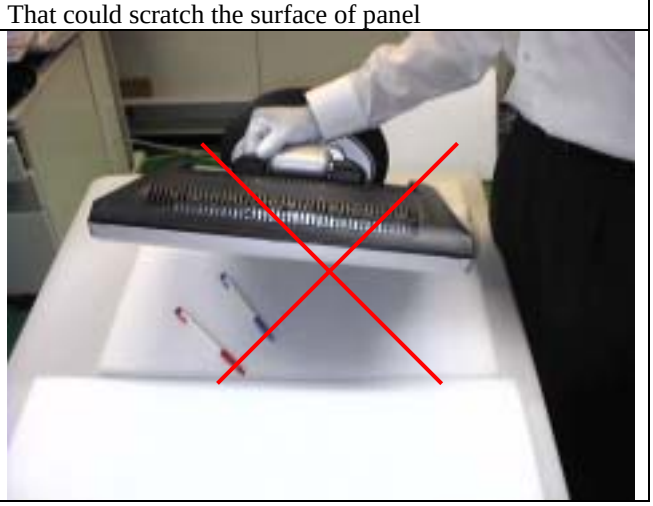
(11) After installation of the TFT Module into an enclosure (LCD monitor housing, for example), do not twist nor bend the TFT Module even momentary. At designing the enclosure, it should be taken into consideration that no bending/twisting forces are applied to the TFT Module from outside. Otherwise the TFT Module may be damaged.

(12) Cold cathode fluorescent lamp in LCD contains a small amount of mercury. Please follow local ordinances or regulations for disposal.

(13) Small amount of materials having no flammability grade is used in the LCD module. The LCD module should be supplied by power complied with requirements of Limited Power Source (IEC60950 or UL1950), or be applied exemption.

(14) The LCD module is designed so that the CFL in it is supplied by Limited Current Circuit (IEC60950 or UL1950). Do not connect the CFL in Hazardous Voltage Circuit.

Correct methods :	Incorrect Methods :
Only touch the metal-frame of the panel or the front cover of the monitor. Do not touch the surface of the polarize .	Surface of the panel is pressed by fingers & this may cause “ MURA “
	
	
Take out the monitor with cushion	Take out the monitor by grasping the LCD panel. That may cause “ MURA“.
	

Correct Methods :	Incorrect Methods :
Place the monitor on a clean & soft foam pad .	Place the monitor on foreign objects . That could scratch the surface of panel
	

2. Specification

2-1 General Specifications

Item		Specification	Unit
LCD panel	Active Area	376.32 (H) x 301.056 (V) (19.0” diagonal)	mm
	Driver Element	a-si TFT Active Matrix	-
	Pixel Number	1280 x R.G.B. x 1024	pixel
	Pixel Pitch	0.294 (H) x 0.294 (V)	mm
	Pixel Arrangement	RGB Vertical Stripe	-
	Display Color	16.2M	color
	Tran missive Mode	Normally Black	-
	Viewing Angle (H / V)	Typical 170 / 170	degree
	Brightness	Typical 300	cd/m^2
	Contrast Ratio	Typical 800	-
	LC Response Time (Tr+Tf)	23 (Tr: 14 + Tf: 9)	msec
Graphic	Separate Sync.	TTL Level	-
	Horizontal Sync.	Positive / Negative	-
	Vertical Sync.	Positive / Negative	-
	Input Connector	D-Sub mini 15 pins, DVI-D 24 pins	-
Performance	Auto Adjust	Clock, Phase, H Position & V Position	-
	Screen Scaling	VGA/SVGA/XGA/SXGA Full Screen Display	-
	Power Management	VESA DPMS, DVI DMPM, ENERGY STAR® Compliance	-
	Color Adjustment	User, 6500K, 7500K & 9300K	-
	OSD Language	English, French, German, Spanish, Italian, Japanese, Traditional Chinese, Simplified Chinese, Russian	-
Power source	Power Input	AC100~240 (Worldwide)	V
	Power Output	$19V_{DC}$	-
Power consumption	Operation Mode	65	W
	Power Saving Mode	3	W
Tilt angle	Upward / Downward	30 / -5	degree
Physical	Dimension, weight	417.95(W) x 431.85(H) x 232(D), 4.6	mm, kg
DCC	Plug & Play	DDC 2B Compliance	-
Function	Front key	6keys	-
	Speaker & Audio (Optional)	2.5W*2 & 1W*2	-

2-2 Electrical Specifications

Item		Description
Video Signal	nput System	RGB Separate
	Signal Level	Analog RGB ($0.7V_{P-P}$) / Digital (DVI 1.0)
	Input Impedance	75Ω
Synchronization Signal Input System	Signal Level	Separate Sync: TTL
Compliant Timing		See Appendix 1.
Input Connector		15 pins mini D-Sub, DVI-D 24 pins
Video Frequency Bandwidth		135 MHz dot clock
Audio		d=3.5mm stereo mini jack, 2.5W/ch
Synchronization Frequency	Horizontal Sync.	30~ 82 kHz
	Vertical Sync.	56 ~ 76 Hz
Power Supply	Input Voltage	AC 100~240V (Worldwide)
	Frequency	50 / 60Hz
	Power Consumption	65 W (max)
	Power Management	3W (max)
Backlight	Lamp Type	Cold Cathode Fluorescent Lamp
	Lamp Quantity	6 pcs
	Lamp Life Time	40,000 Hrs (min)
Plug & Play		VESA DDC 2B Compliance
Power Management		VESA DPMS, DVI DMPM, ENERGY STAR® Compliance

Power Management Status	Power Consumption	Screen Recovery Time
Stand-by Suspend Active-off	3W or less	Within 3 sec

2-3 Optical Characteristics

Item	Condition
Temperature	Normal room temperature (25±2°C)
Humidity	50±10%
AC input voltage	100V±2V, 120±2V, 60Hz / 240±2V, 50Hz
Brightness	Maximum with OSD setting
Contrast	Middle with OSD setting
Resolution setting	1280 x 1024 @60HZ
Color temperature	With OSD setting
Measuring instrument	Minolta CS-1000T Spectrometer and Photometer CA-210 or equivalent
Others	Before measuring, “Auto Adjust” & “Auto Balance” must be done in advance

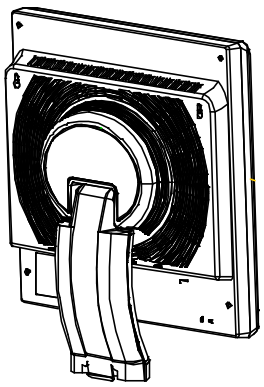
2-4 Accessories

- Power Cable: 1.8m
  Rating: 10A, 250V
- Signal Cable: D-sub mini 15pin, 1.8m
  DVI-D 24 pins, 1.8m
- Audio Cable: 1.8m
  Jacket: OD 3.0mm
  Insulation resistance: 10MΩ/Min. 300V_{DC}
- AC-DC Adapter:

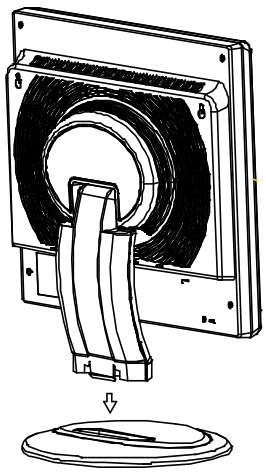
Item	Description	Description
Supplier (Model No.)	POTRANS / UP06511190	DELTA / ADP-65MB
Input Voltage	100 ~ 240V_{AC}	100 ~ 240V_{AC}
Input frequency	50Hz / 60Hz	50Hz / 60Hz
Input Current	1800mA (max)	1800mA (max)
Output Voltage	19V_{DC} ±5%	19V_{DC} ±5%
Output Current	3420mA	3420Ma
Output Power	65 W (19V / 3.42A)	65 W (19V / 3.42A)
Efficiency	AC input 100V_{AC} 80% (min)	AC input 100V_{AC} 80% (min)
Inrush Current (Cold Start at 25℃, Full Load)	120A Max./ 240V_{AC} / 50Hz	120A Max./ 240V_{AC} / 50Hz

- Quick start guide: Paper: 100% Recycle Paper
- User Manual CD-ROM: 10 languages (Arabic, English, French, German, Spanish, Italian, Traditional Chinese, Simplified Chinese, Russian, Korean)

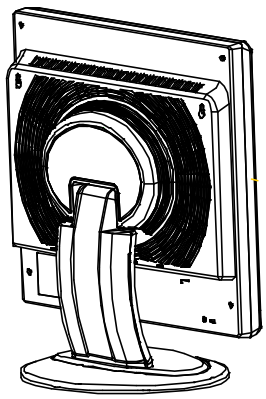
Seat to be set by user:



SETP-1

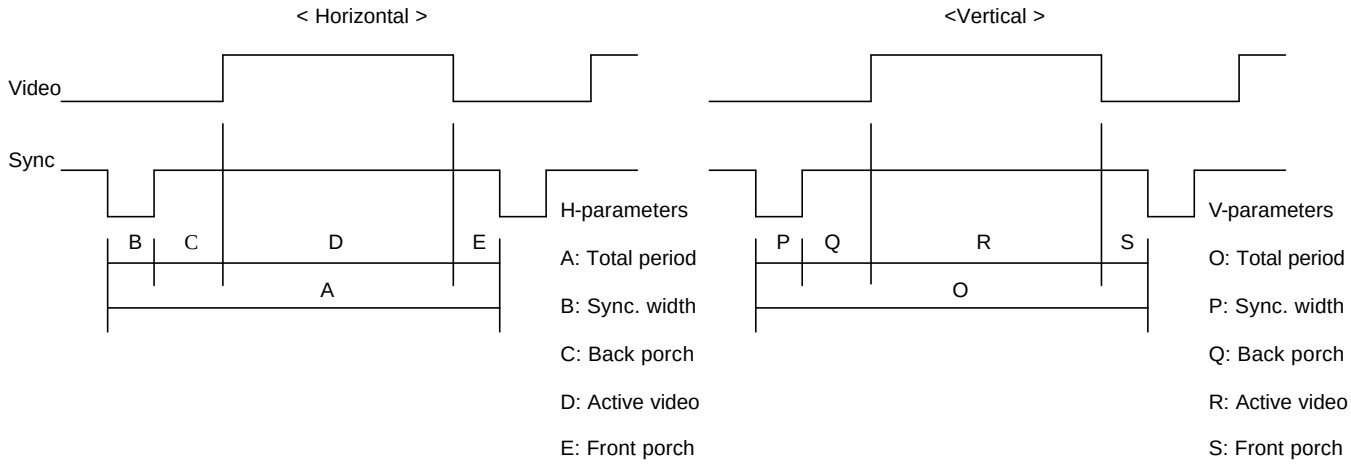


SETP-2



SETP-3

2-5 Compliant Timing



Item	Video Mode		fH (kHz)	fV (Hz)	Dot clock (MHz)	Sync polarity		Horizontal (dot)					Vertical (line)					Analog	Digital (Optional)
						H	V	A	B	C	D	E	O	P	Q	R	S		
1	VESA	VGA 640x480	31.469	59.940	25.175	N	N	800	96	48	640	16	526	2	33	480	11	O	O
2			37.861	72.809	31.500	N	N	832	40	128	640	24	520	3	28	480	9	O	O
3			37.500	75.000	31.500	N	N	840	64	120	640	16	500	3	16	480	1	O	O
4		SVGA 800x600	35.156	56.250	36.000	P	P	1024	72	128	800	24	625	2	22	600	1	O	-
5			37.879	60.317	40.000	P	P	1056	128	88	800	40	628	4	23	600	1	O	O
6			48.077	72.188	50.000	P	P	1040	120	64	800	56	666	6	23	600	37	O	O
7			46.875	75.000	49.500	P	P	1056	80	160	800	16	625	3	21	600	1	O	O
8		XGA 1024x768	48.363	60.004	65.000	N	N	1344	136	160	1024	24	806	6	29	768	3	O	O
9			56.476	70.069	75.000	N	N	1328	136	144	1024	24	806	6	29	768	3	O	O
10			60.023	75.029	78.750	P	P	1312	96	176	1024	16	800	3	28	768	1	O	O
11		SXGA 1152x864	67.500	75.000	108.000	P	P	1600	128	256	1152	64	900	3	32	864	1	O	O
12		SXGA 1280x1024	63.981	60.020	108.000	P	P	1688	112	248	1280	48	1066	3	38	1024	1	O	O
13			79.976	75.025	135.000	P	P	1688	144	248	1280	16	1066	3	38	1024	1	O	-
14	VGA TEXT	720x400	31.469	70.087	28.322	N	P	900	108	45	720	27	449	2	35	400	12	O	O
15	Macintosh	640x480	35.000	66.667	30.240	N	N	864	64	96	640	64	525	3	39	480	3	O	-
16		832x624	49.725	74.500	57.283	N	N	1152	64	224	832	32	667	3	39	624	1	O	-
17		1024x768	60.150	74.720	80.000	N	N	1330	96	168	1024	42	805	3	31	768	3	O	-

3. Front Panel Function Control Description

Auto Adjust

Though your computer system can identify the new LCD monitor system, the Auto Adjust function can be as to enhance the display. To enter adjust mode, please refer to “OSD Control”.

- Turn the computer and LCD monitor on.
- Press ‘Auto’ button to start Auto Adjust.
- The LCD monitor will start the Auto Adjust process automatically for 10 consecutive seconds, where you will notice the image change as the Auto Adjust is working.

Self Test Function Check (STFC):

- Your LCD monitor provides a STFC function, through which you can check whether the LCD monitor functions are working properly.
- If your LCD monitor is properly connected, but there is no image showing and the indicator light keeps orange, please follow the steps below to start STFC.
  - Shutdown computer and LCD monitor.
  - Unplug the signal connector from the back of computer.
  - Turn the LCD monitor on.

If the image connector is disconnected or damaged, the image shown on following figure will also appear during normal operation.

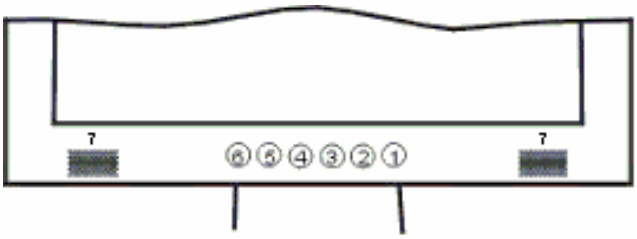
  - Turn off the LCD monitor and reconnect signal cable, and then turn the computer and LCD monitor on.

- If the LED of the LCD monitor is an orange color after completing the steps above, please check your VGA card and computer system. Your monitor should be operating properly.

OSD Control

Keypad Button Definition

Thanks to the user-friendly design of OSD (On Screen Display), you can adjust your monitor by the keypads in the front of the monitor.

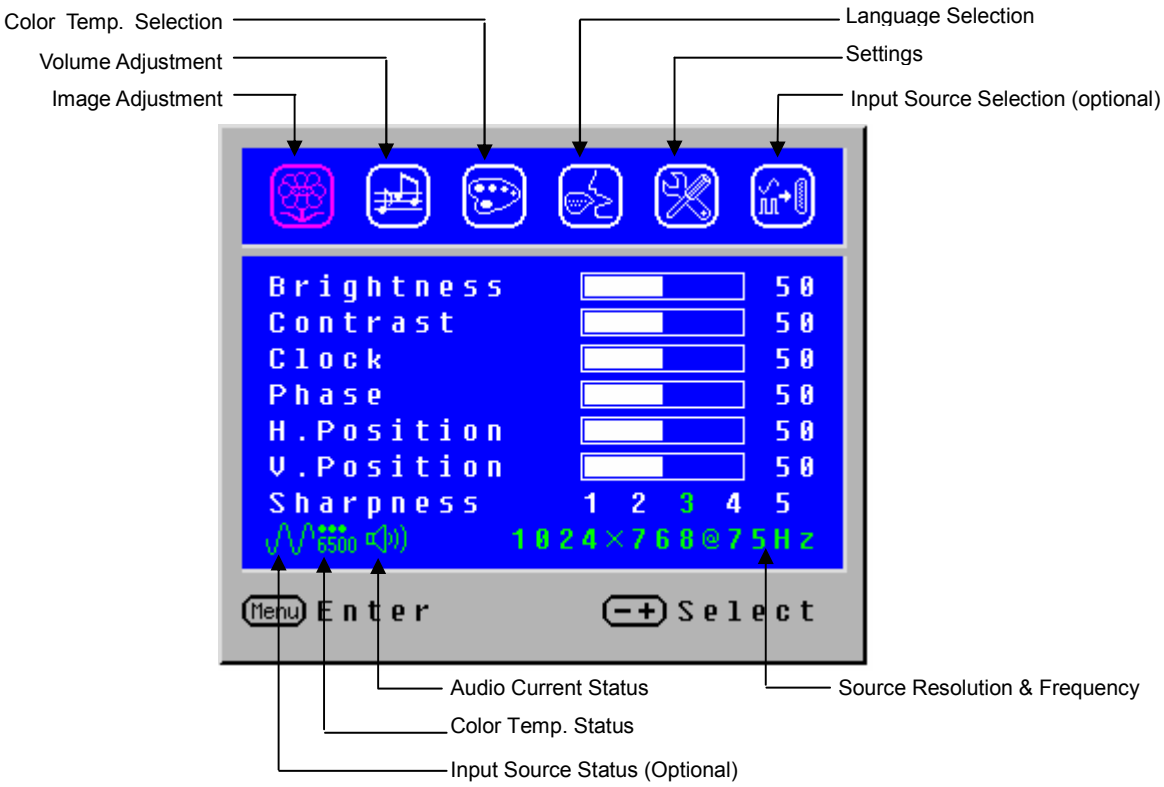


1	Power Switch	Power On/Off
	LED	Power Indicator Green: Normal Orange: Power Saving Off: Power Off
2	Auto / Exit	Automatically optimize positions, phase & clock when OSD is not shown Exit the OSD menu when OSD is shown
3	Turbo	Quick brightness switching
4	+/ ☼	Selection or adjustment when OSD is shown Quick brightness adjustment
5	—/ ◑	Adjustment when OSD is shown Quick contrast adjustment
6	Menu	Enter OSD Access sub-menu & selection
7	Speaker	

Operate Explanation

Your LCD has been adjusted to its optimal status before shipment. You can also adjust the image in accordance with the following illustrations and steps.

- Press the “Menu” button to start the OSD feature.
- Click the “+” or “-“ button to select the function to be adjusted.
- Click the “Menu” button to access into the function to be adjusted.
- Click the “+” or “-“ button to change the current setting of the function.
- To exit the OSD menu or go back to the previous action by clicking the “Auto/Exit” button. It will save the change automatically.
- To repeat above steps for changing the setting of other functions.

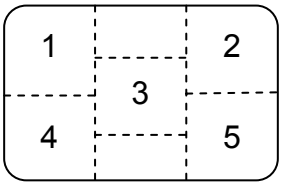


Notes

- The OSD disappears several seconds after you stop pressing the buttons while performing an adjustment.
- Any changes are automatically saved in the memory when the OSD disappears. Turning off the power should be avoided while using the menu.
- Adjustments for clock, phase and positions are saved for each signal timing. Except for these adjustments, all other adjustments have only one setting which applies to all signal timings.
- The color will change from white to pink while the function is selected.

Adjustment of Screen

Function Definition

Primary Directory	Secondary Directory	Description
Image	**Brightness**	Adjust the brightness of the screen.
	Contrast	Adjust the contrast of the image.
	Clock	Adjust the clock pulse of the image.
	Phase	Adjust the focus of the image.
	H. Position	Move the image left and right on the screen.
	V. Position	Move the image up and down on the screen.
	Sharpness	Adjust the picture sharpness of lower resolutions.
Audio	**Volume**	Adjust the volume of the audio.
	Mute	Set up the audio to be mute on or off.
Color	**9300K**	Set up the color temp. to be 9300K white color.
	7500K	Set up the color temp. to be 7500K white color.
	6500K	Set up the color temp. to be 6500K white color.
	User/Red	Adjust red/green/blue gain.
	User/Green	
	User/Blue	
Language	**English**	Select the language you want.
	Français	
	Italiano	
	Deutsch	
	Español	
	日本語	
	简体中文	
	繁體中文	
Settings	**OSD Timeout**	Adjust OSD display time setting.
	OSD Position	Move OSD display position to any one of the following 5 positions within the overall screen. 
	Auto Setting	Set up to adjust clock, phase and positions automatically.
	Recall	Restore to factory settings
Input Source	**Analog**	Select Analog input source: 
(Optional)	**Digital**	Select Digital input source: 

Direct

You can skip the Menu pages and display an adjustment scale directly by using the following button operations:

- Brightness: Press the Brightness Button when the Menu is not displayed.
- Contrast: Press the Contrast Button when the Menu is not displayed.
- Auto Setting: Press the Auto Button when the Menu is not displayed.
- Turbo: Press the Input Button when the Menu is not displayed.
  - Pct: Picture Mode (High brightness)
  - Text: Text Mode (Normal)
  - Eco Economy (Brightness of back-light is reduced)
  - Changing to a lower brightness mode can lessen eye fatigue.
  - Change from Picture Mode to Text Mode when working with text.
  - Change from Text Mode to Economy Modes when viewing the screen for long periods.

Hot Keys for Function Controls

[Power on/off]	Main Menu
[Auto/Exit]	Input toggle (Analog or Digital) or Auto Image Adjust.
[+] or [-]	To immediately activate Contrast menu. It should be change to Brightness OSD by push button [2]
[+] + [-]	Recall both of Contrast and Brightness to default
[Power on/off] + [Auto/Exit]	Toggle 720x400 and 640x400 mode when input 720x400 or 640x400 mode
[Power on/off] + [+] + [-]	White Balance. (Not shown on user's guide)
[Power on/off] + [-]	Power Lock
[Power on/off] + [+]	OSD Lock
1.Turn off [Power on/off] button 2. [+] + [-] + [Power on/off] at same time 3. Press [Menu]	All Mode Reset. It will erase all end users' setting and restore the factory defaults.
1.Turn off [Power on/off] button 2. [+] + [-] + [Power on/off] at same time 3. Press [Menu]	Burn in Mode. After entering Burn in Mode, press Power on/off button, you will find the information about this BIOS
Remark: All the short cuts function are only available while OSD off	

Hot Keys for Factory Control

1. Turn off [Power on/off] button.
2. Press [+] + [-] + [Power on/off] at same time
3. Press [Menu]

Then you will see the BIOS update picture show in the screen as below.

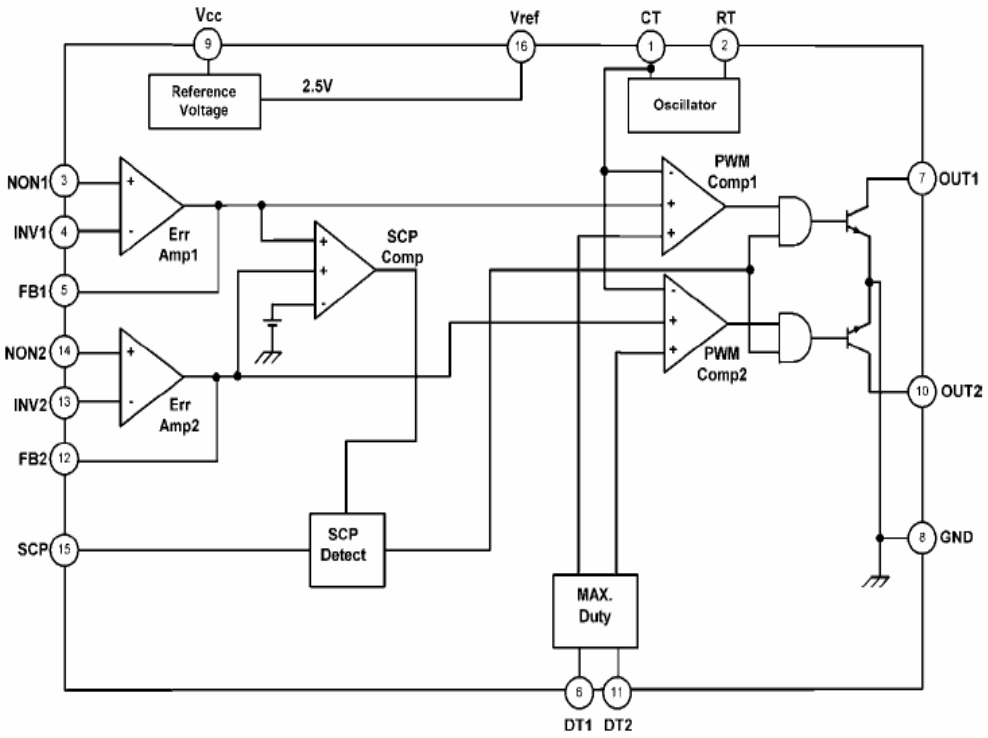
4. Circuit Description

Circuit Description

1. Power supply (DC/DC Converter)

The AT1741 is 2-channel PWM switching regulator controllers that contains an on-chip 2.5V reference, two error amplifier, an adjustable oscillator, two dead-time comparators, under voltage lockout circuitry and 2 common-emitter output. It is idea for step-up, step-down, and inverting converter.

Block Diagram

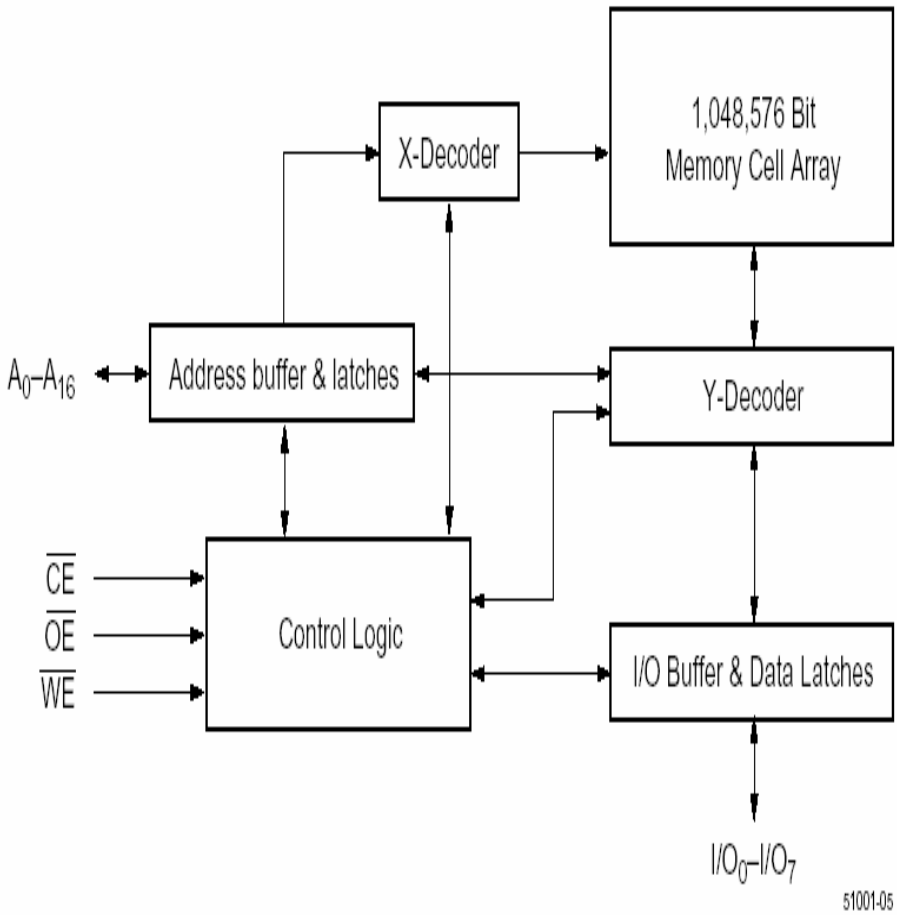


2. Flash Memory

The F29C51001T/F29C51001B is a 1 Megabit, 5.0 Volt-only Flash Memory organized as 131,072 bytes of 8 bits each. This device is designed to use a 4.7 Volt to 5.3 Volt power supply to perform in-system programming.
The 1 Megabit memory array is divided into thirty-two uniform blocks of 4 Kbytes each for data and/or code storage.

The block architecture allows users to flexibly make chip erase or block erase operation. The block erase feature allows a particular block to be erased and reprogrammed without affecting the data in other blocks. After the device performs chip erase or block erase operation, it can be reprogrammed on a byte-by-byte basis.

Functional Block Diagram



3. GM5120

The gm5116/26 is a graphic processing IC for Liquid Crystal Display (LCD) monitors at XGA/SXGA resolution. It provides all key IC functions required for the highest quality LCD monitors. On-chip functions include a high-speed triple-ADC and PLL, Ultra-Reliable DVI ™ receiver, a high quality zoom and shrink scaling engine, an on-screen display (OSD) controller, digital color controls and an on-chip microcontroller (OCM). With this level of integration, the gm5116/26 devices simplify and reduce the cost of LCD monitors while maintaining a high-degree of flexibility and quality.

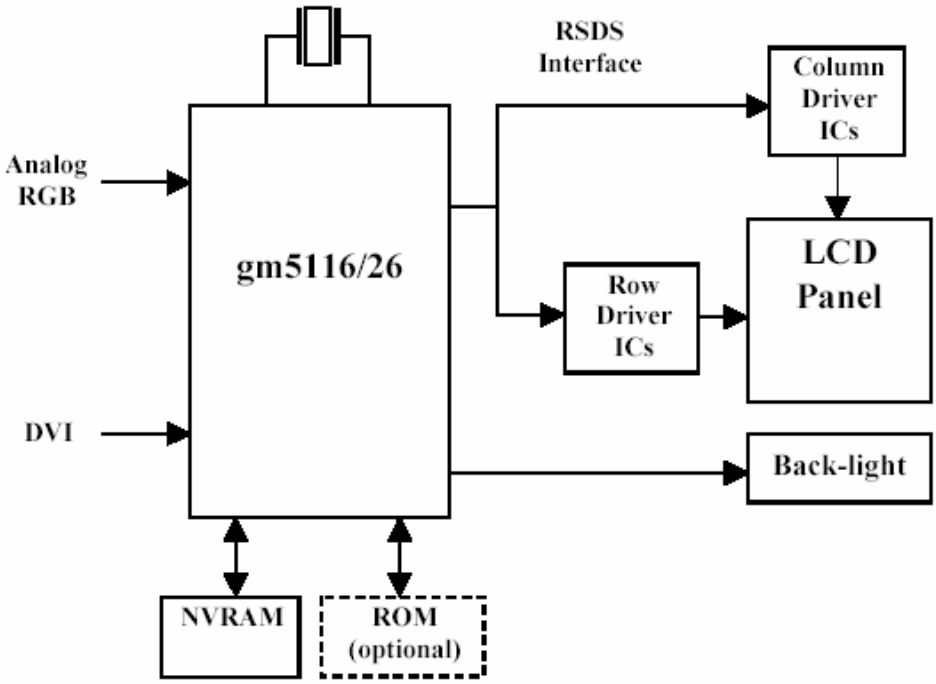


Figure 1. gm5116/26 System Design Example

4. LVDS (THC63LVDM83A)

The THC63LVDM83A transmitter converts 28 bits of CMOS/TTL data into LVDS (Low Voltage Differential Signaling) data stream. A phase-locked transmit clock is transmitted in parallel with the data streams over a fifth LVDS link. The HC63LVDM83A can be programmed for rising edge or falling edge clocks through a dedicated pin. The THC63LVDF84A receiver converts the LVDS data streams back into 28 bits of CMOS/TTL data with falling edge clock. At a transmit clock frequency of 85MHz, 24 bits of RGB data and 4 bits of LCD timing and control data (HSYNC, VSYNC, CNTL1, CNTL2) are transmitted at a rate of 595 Mbps per LVDS data channel.

5. Adjusting Procedure

A. Function Test and Alignment Procedure

1. All Modes Reset

You should do "All Model Reset" (Refer to Chap 3. Hot Keys for Function Controls) first. This action will allow you to erase all end-user's settings and restore the factory defaults.

2. Auto Image Adjust

The Auto Adjust is aimed to offer a best screen quality by built-in ASIC. For optimum screen quality, the user has to adjust each function manually.

A.Turn the computer and LCD monitor on.

B. Press the '**Auto**' button on monitor keypad to Auto Adjust.

C. The LCD monitor will start the Auto Adjust process automatically and run for 10 consecutive seconds, during which time you will notice the image change.

3. Firmware

Test Patten : Burn in Model (Refer to Chap3. Hot Keys for Function Control)

-Make sure the F/W is the latest version.

4. DCC

Test Patten: EDID program

-Make sure it can pass test program.

5. Window Shut Down

Test Signal: 1280*1024@60Hz

Test Pattern: (Refer to Page 22, Figure 5,6)

Checkered Pattern Every One Pixel (50%Green & 50%Blue)

Inspection Item: Flicker, Mura

6. Window BG

Test Signal: 1280*1024@60Hz

Test Pattern:

Window standard pattern

Inspection Item: Line Defect, Function Defect & Mura

7. 25 Gray

Test Signal: 1280*1024@60Hz

Test Pattern:

Full Screen 25% White (Gray)

Inspection Item: Particle, Line Defect & Mura

8. 50 Gray

Test Signal: 1280*1024@60Hz

Test Pattern:

Full Screen 50% White (Gray)

Inspection Item: Bright Dot, Particle, Line Defect & Mura

9. White Box

Test Signal: 1280*1024@60Hz

Test Pattern: (Refer to Page 22, Figure 7)

Window standard pattern

Inspection Item: Particle, Line Defect, Power, Image Remain & Mura

10. Black Box

Test Signal: 1280*1024@60Hz

Test Pattern: (Refer to Page 21, Figure 3)

Window standard pattern

Inspection Item: Bright Dot, Line Defect & Power

11. RED

Test Signal: 1280*1024@60Hz

Test Pattern: (Refer to Page 21, Figure 4)

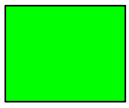
Full Screen Red

Inspection Item: Bright Dot, Partial & Line Defect

12. Green

Test Signal: 1280*1024@60Hz

Test Pattern:



Full Screen Green

Inspection Item: Bright Dot, Partial & Line Defect

13. Blue

Test Signal: 1280*1024@60Hz

Test Pattern: (Refer to Page 22, Figure 6)

Full Screen Green

Inspection Item: Bright Dot, Partial & Line Defect

14. Gray_Scale_0-100_V256

Test Signal: 1280*1024@60Hz

Test Pattern: (Refer to Page 21, Figure 1)

Vertical 64 (256) Gray Scale (Right → Left, From 0 to 100% White)

Inspection Item: Line Defect & Function Defect

15. Gray_Scale_0-100_H256

Test Signal: 1280*1024@60Hz

Test Pattern: (Refer to Page 21, Figure 2)

Horizontal 64(256) Gray Scale (Up → Down, From 0 to 100% White)

Inspection Item: Line Defect & Function Defect

16. Block Window

Test Signal: 1280*1024@60Hz

Test Pattern:

Black block at the center

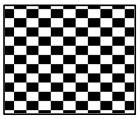
Inspection Item: Cross Talk & Optical Character

17. Black_Tile

Test Signal: 1280*1024@60Hz

Test Pattern: (Refer to Page 22, Figure 8)

Black tile under white background



Inspection Item: Function Defect & Image Remain

18. Function Test Display pattern

Item	Pattern	Description	Remark
1	Gray_Scale_0-100_V	Vertical 64 (256) Gray Scale	Figure 1
2	Gray_Scale_0-100_H	Horizontal 64 (256) Gray Scale	Figure 2
3	Black	Full Screen Black	Figure 3
4	Red	Full Screen 50% Red	Figure 4
5	Green	Full Screen 50% Green	Figure 5
6	Blue	Full Screen 50% Blue	Figure6
7	White	Full Screen White	Figure7
8	Black_Tile	Black Tile Under White Background	Figure 8

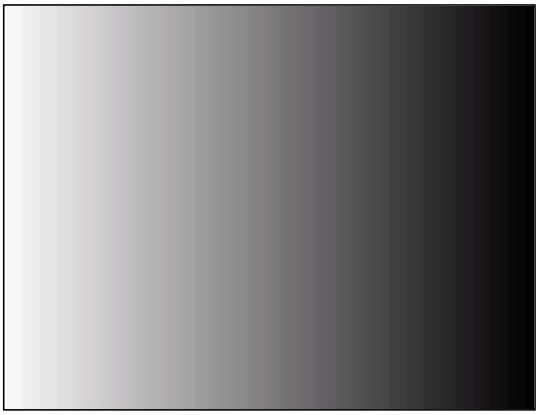


Figure 1

Figure 2

Figure 3

Figure 4

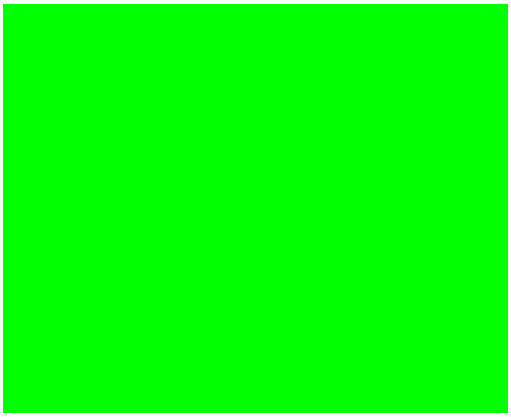


Figure 5

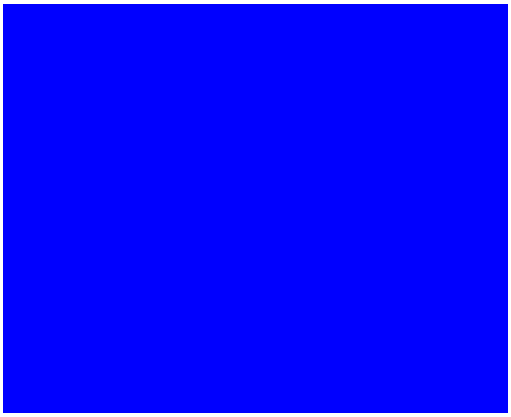


Figure 6

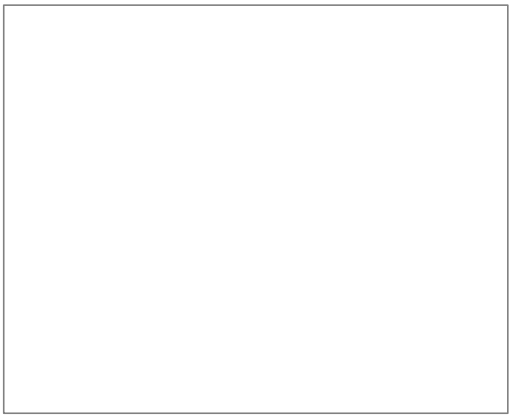


Figure 7

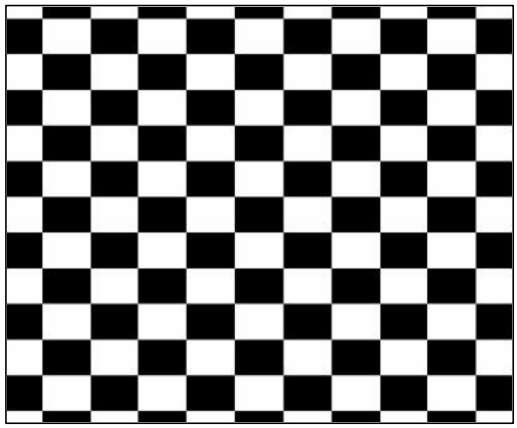


Figure 8

B. BIOS update procedure

BIOS Update User Guide

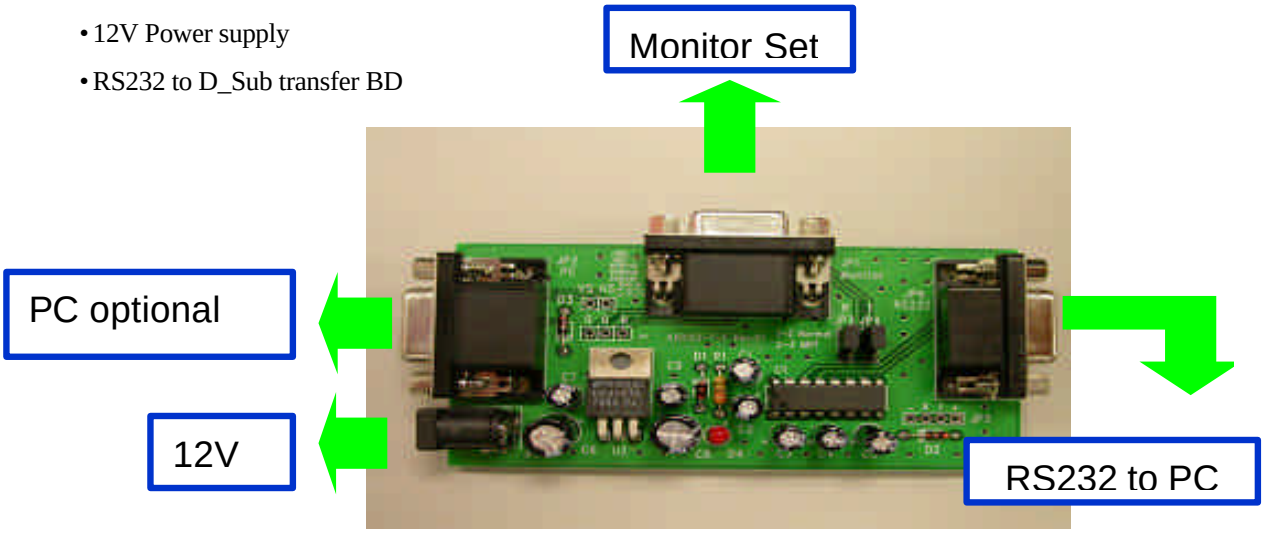
For ViewSonic

BIOS Update Flow for Genesis

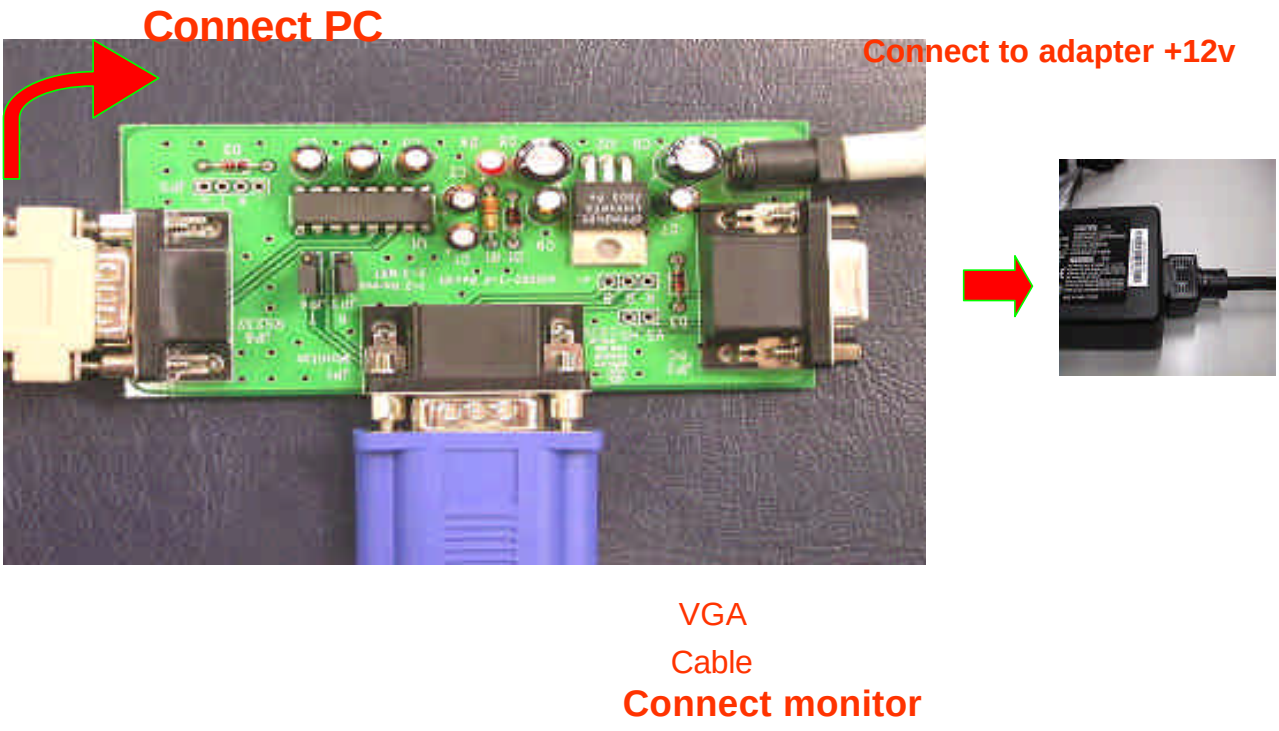
1. Program：

1.1 Hardware Installation

- RS232 cable（9 Pin）
- D_Sub cable（15Pin）
- 12V Power supply
- RS232 to D_Sub transfer BD



1.2 Join R232, monitor cable, and adapter. Detail, see the example picture as below.



1.3 Software

A. Please download the file "Genesis" from CMO E-Sir system. There are ISP & BIOS two files, kindly see as below.

a) ISPACK.EXE: Main program


GProbe4.2.0.3.exe

b) Ancillary .ISPACK.EXE ：Description program


GProbe4.2.0.3_gm5126.exe

1.4 Installation：

A. Please install the programs respectively as below.


GProbe4.2.0.3.exe


GProbe4.2.0.3_gm5126.exe

Before Setup produce GProbe 4 file . Please set at ISP & BIOS software file.

B. I S & BIOS software file to be about to produce the next. (If the file existence already, needn't to repeat.) This system is applied to Win 95/98/NT/2000

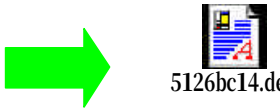

ISP.GProbe

1.5 ISP Execution


Gprobe.exe ：ISP exe. Main program

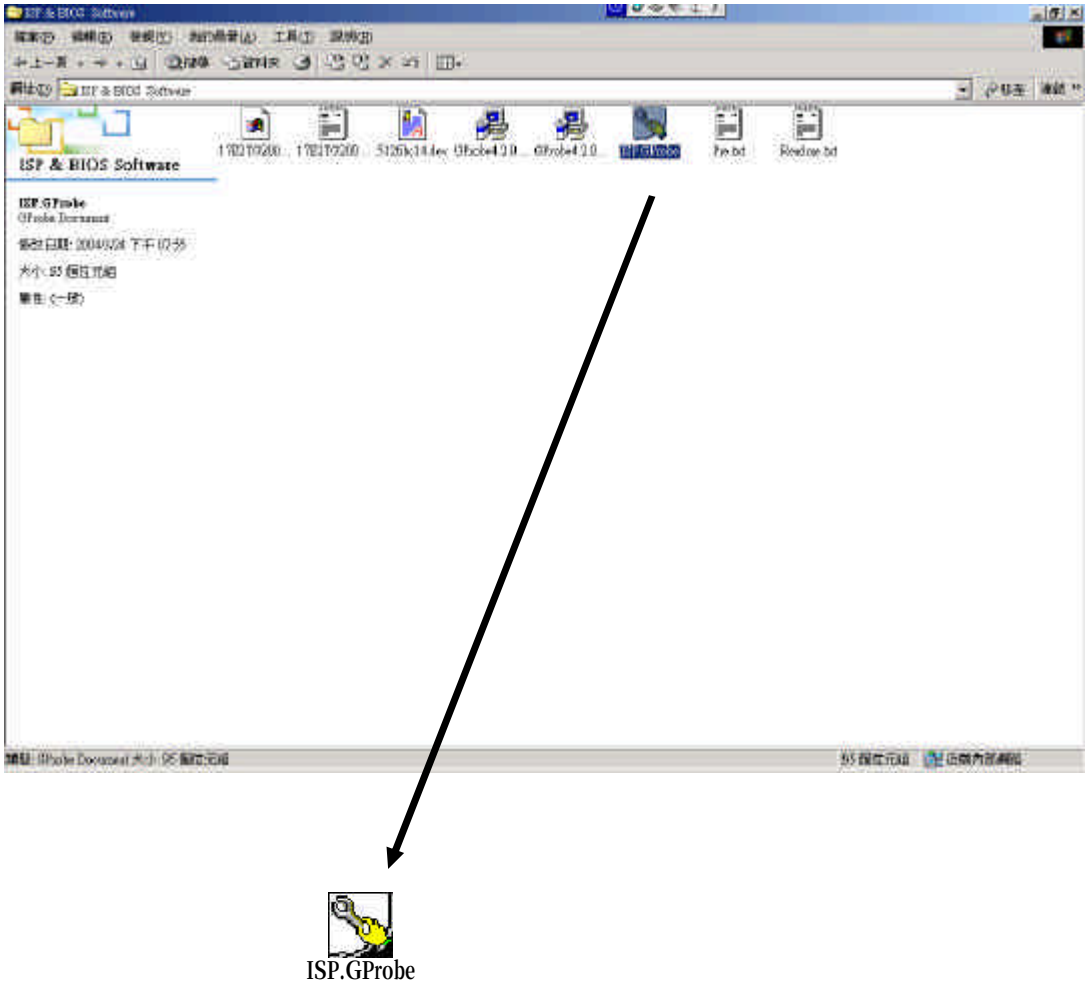

Pre.txt ：Drive write file.


Readme.txt ：Drive read file.

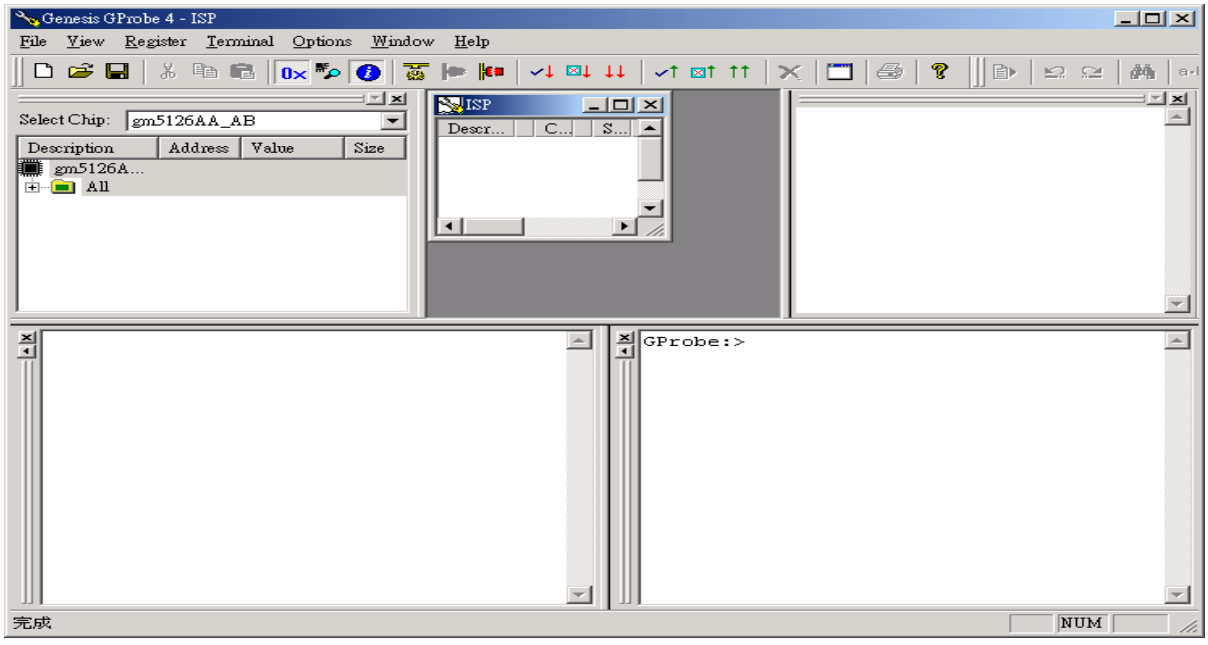

5126bc14.dev : Ancillary file.

Please copy all the files above to the same directory

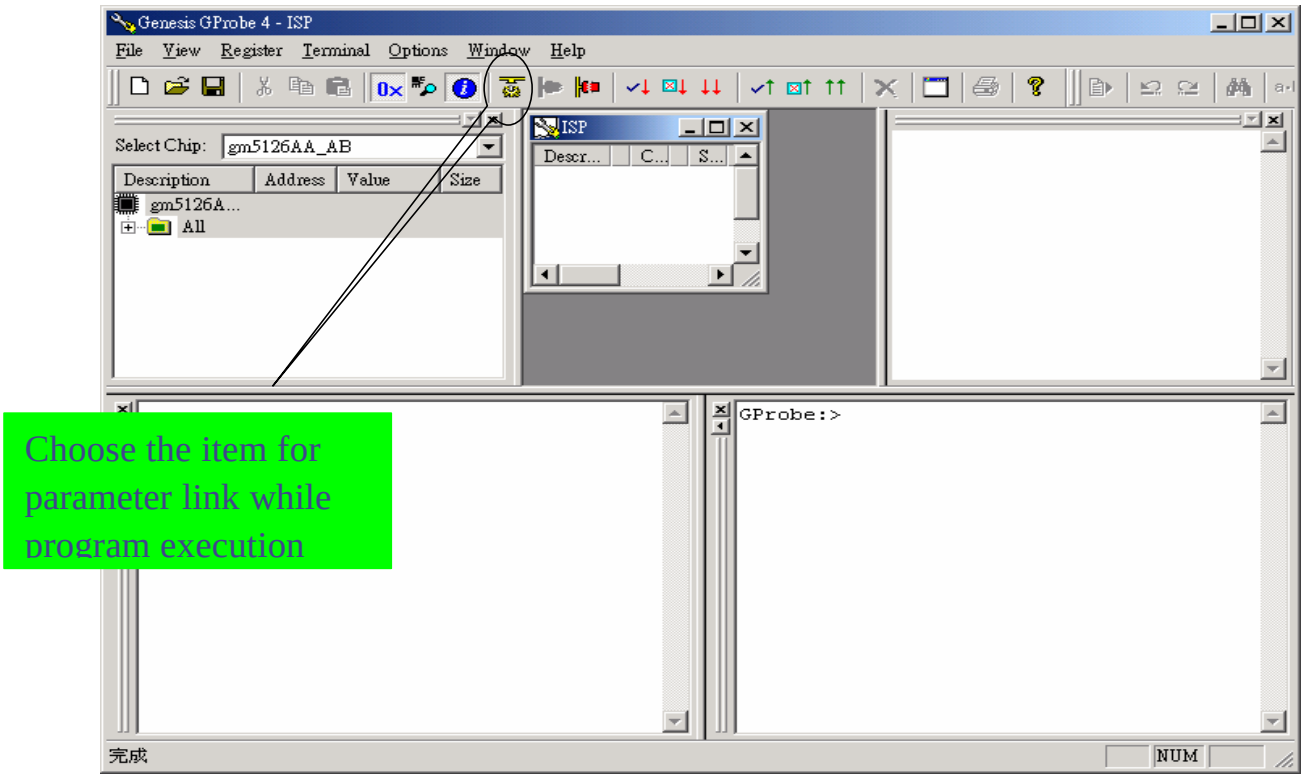
1.6. Open ISP.Gprobe while parameters set up have been completed.



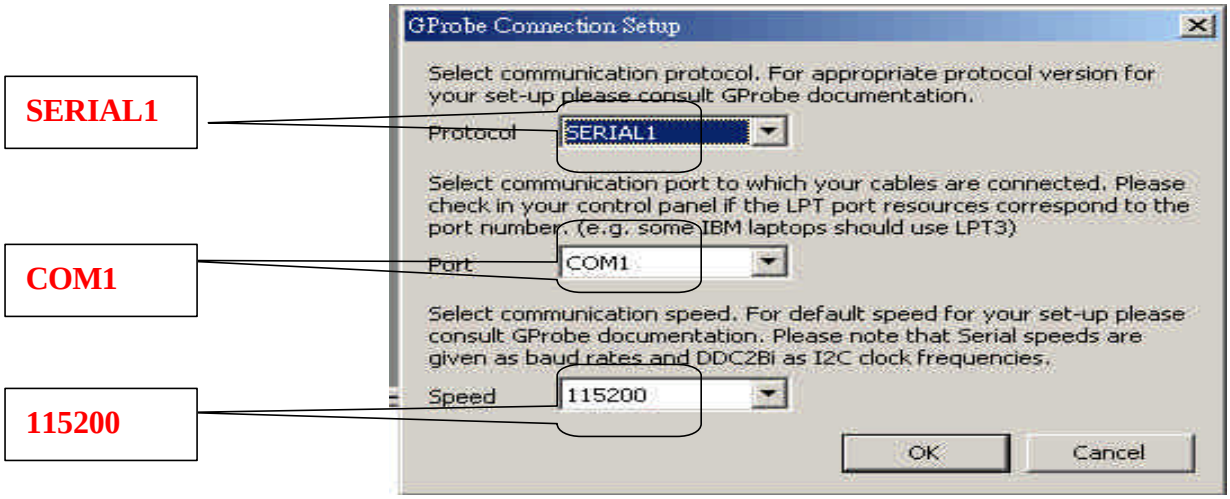
1.7. You will see the picture as below.



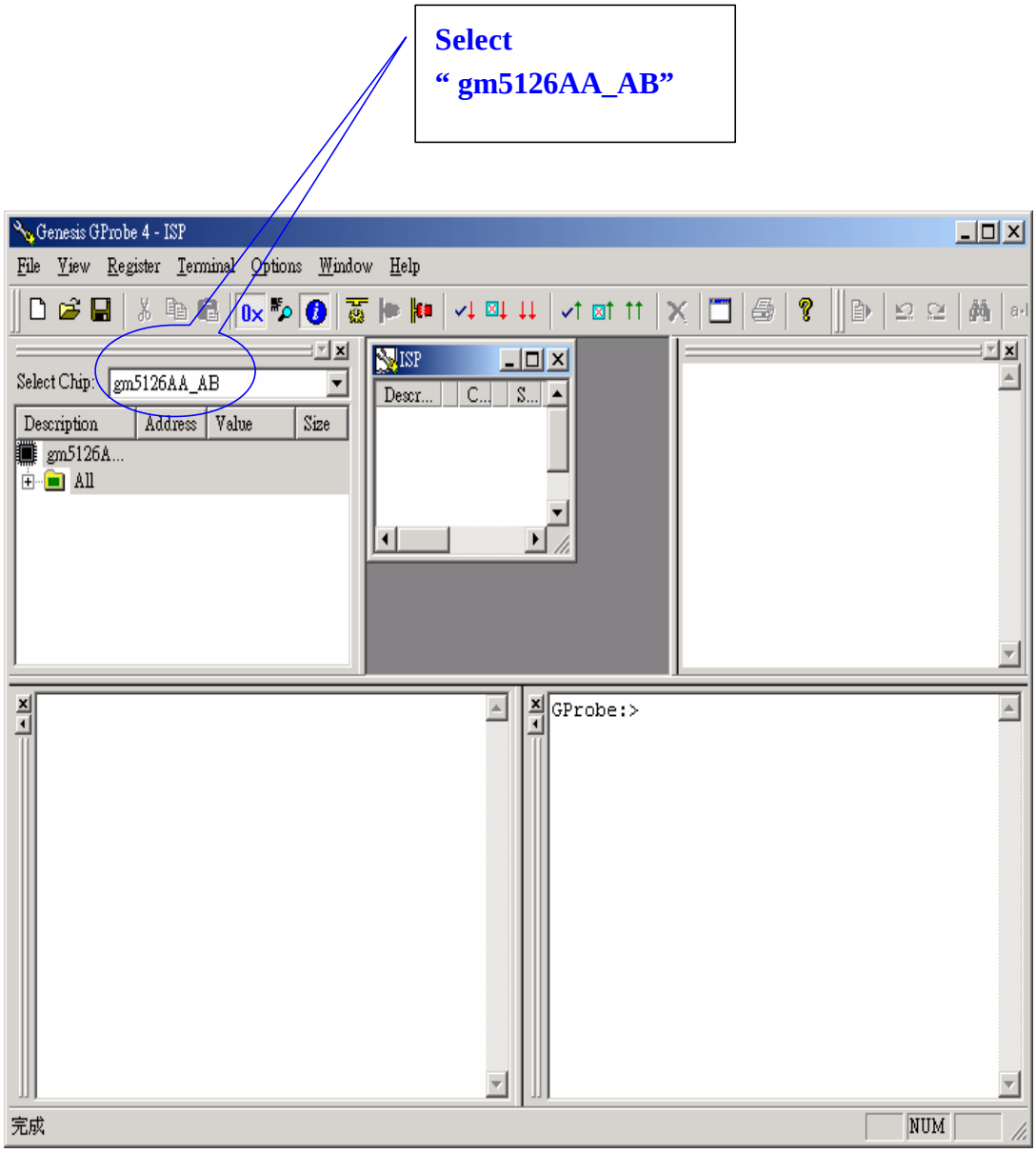
1.8. Execute the main program (Grope).



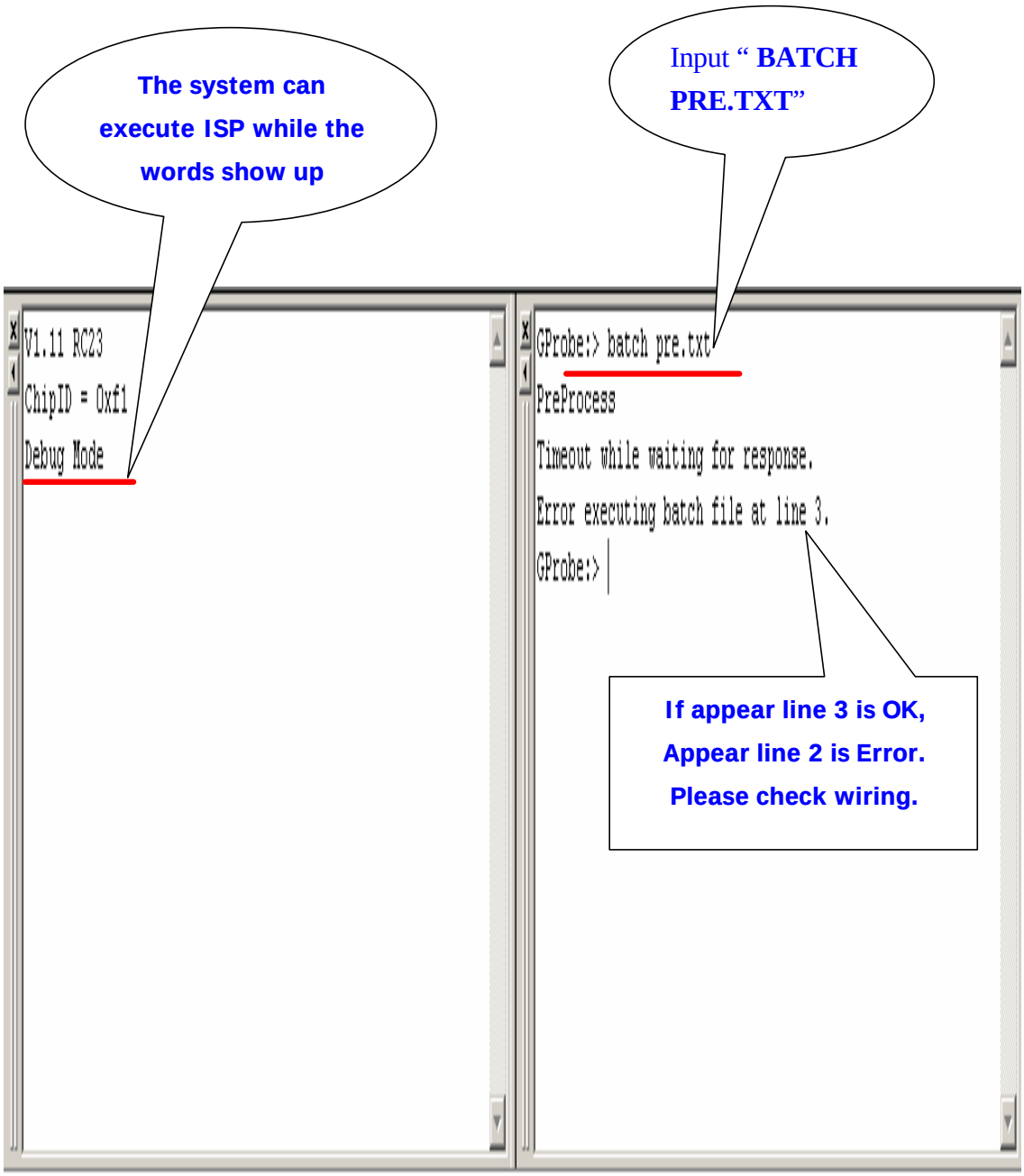
1.9 Please follow up the parameter set up shown as below ：



1.10 Select “gm5126AA_AB”

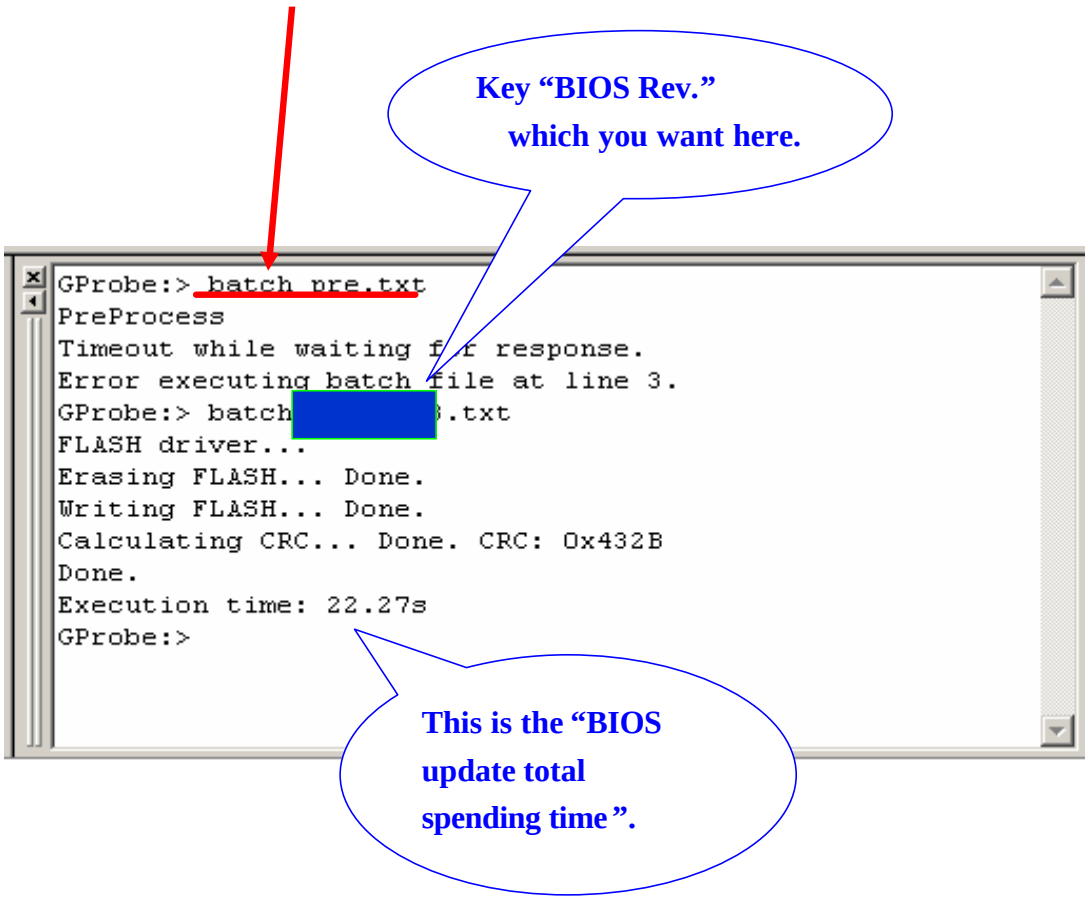


1.11 Execute Pre.txt：Input **BATCH PRE.TXT**



1.12 Please check the entity connection and execute Gprobe 4 again once Debug Mode did not show up

ISP Program execution：Input **BATCH (update of BIOS Rev) .TXT**



※ If failed, Please don’t turn off power. Repeat do it again, from step 6 to step 7.

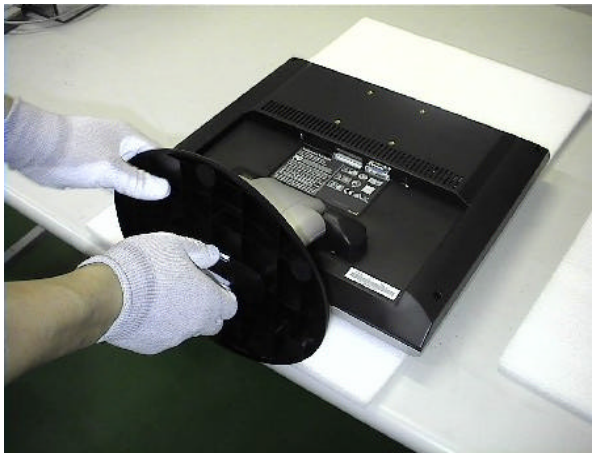
1.13 When everything is done. Please turn off the power and restart it again.

Check *Factory Mode and make sure it already be updated.*

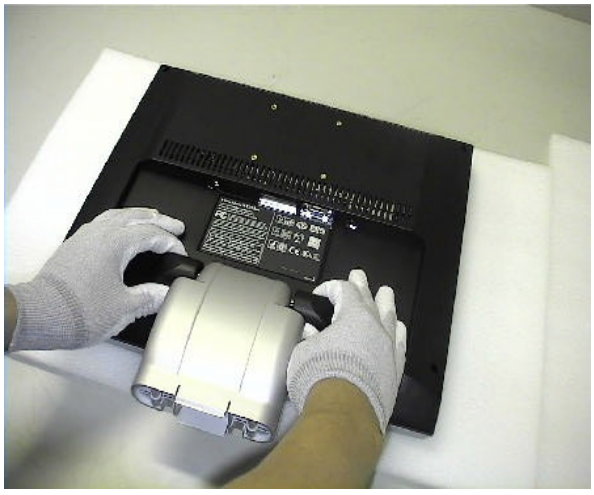
C. Monitor Assembly and Disassembly

1. Separate Stand Assy

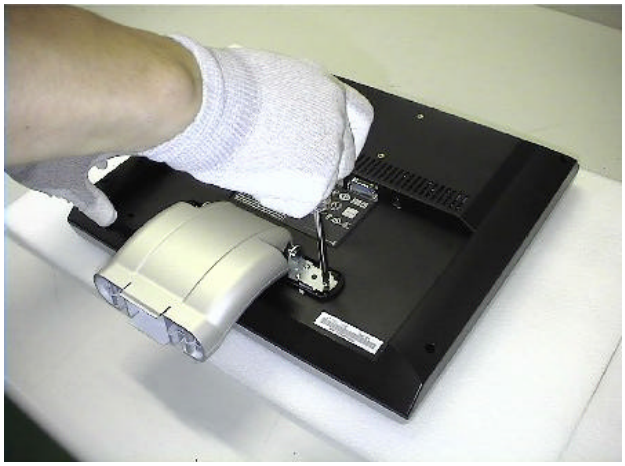
Remove Stand Cover



Step 1 : Take out Sand Assy



Step 2 : Remove 2 Cover Hinges



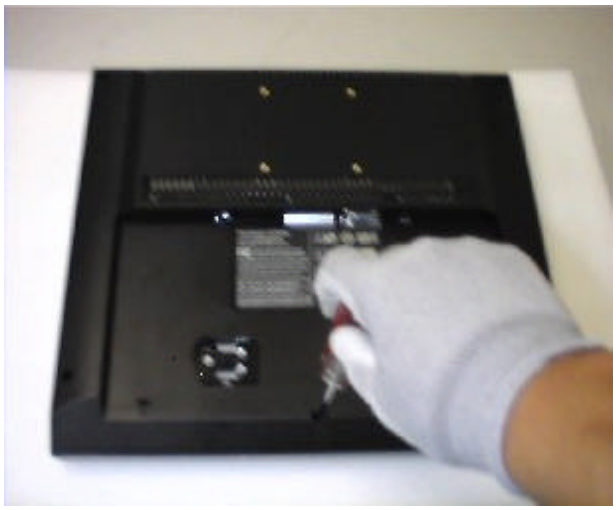
Step 3 : Loose and Remove 6 screws

Step 4: Remove Stand Assy

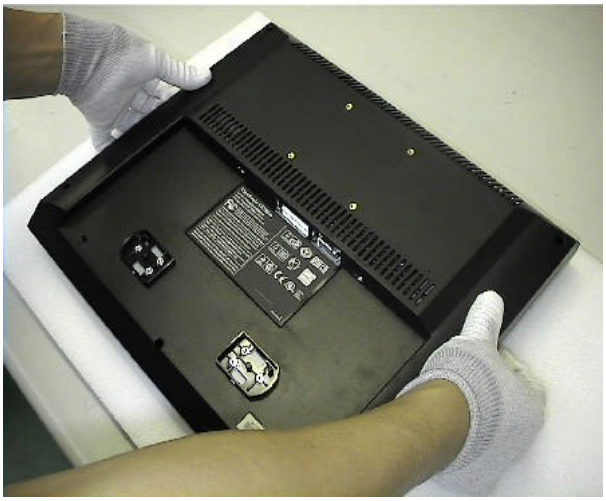
2. Separate Rear Cover (Rear Case Assy)

Loosen and remove 5 screws.

Separate Bezel hooks to take Bezel and Rear Cover apart



Step 1： Loose and remove 5 screws.



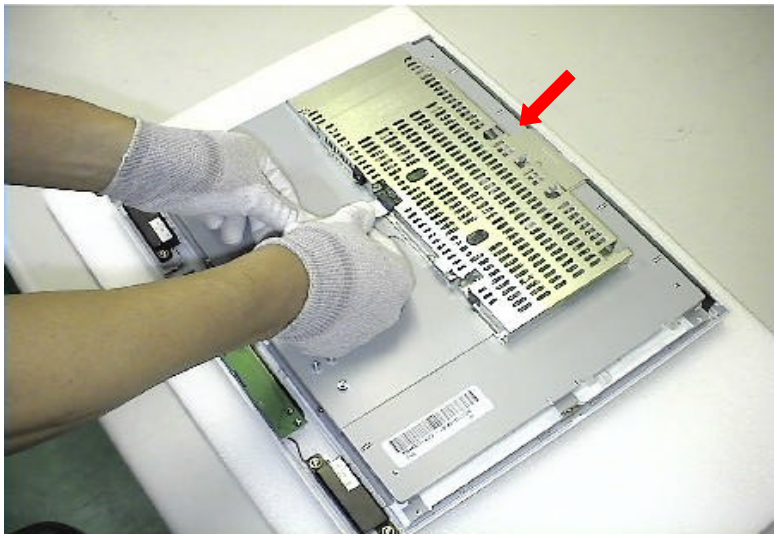
Step 2： Separate Bezel hooks to take Bezel and Rear Cover apart.

Step 3： Remove Rear Cover

3. Remove Power Board

1. Remove the Tinfoil

2. Remove FFC



4. Remove Metal Cover

Step 1 : Loose and remove 2 screws

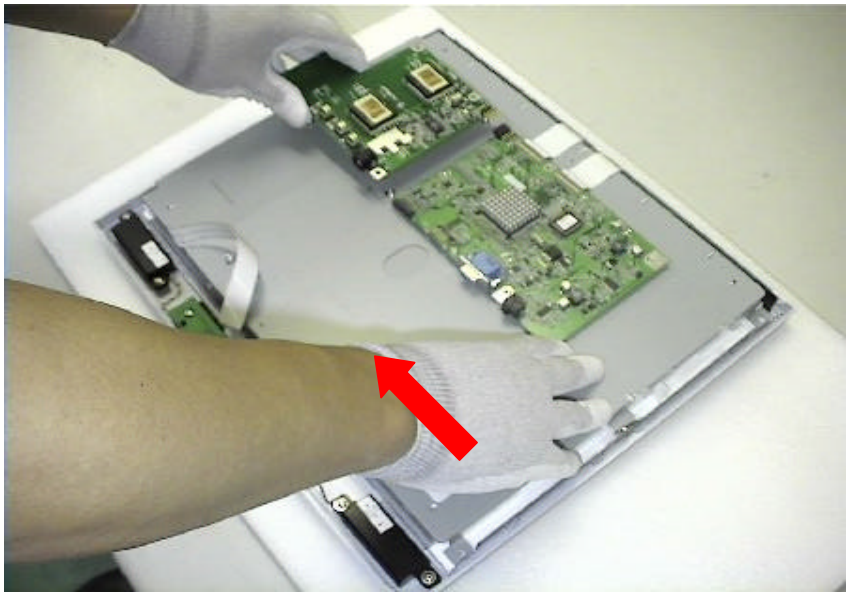
Step 2 : Loose and remove 6 screws

Step 3 : Remove the Cover of X-PCB

5. Remove Power PCBA

Step 1 : Loose and remove 3 screws

Step 2 : Remove Power PCBA



6. Change New Power Board

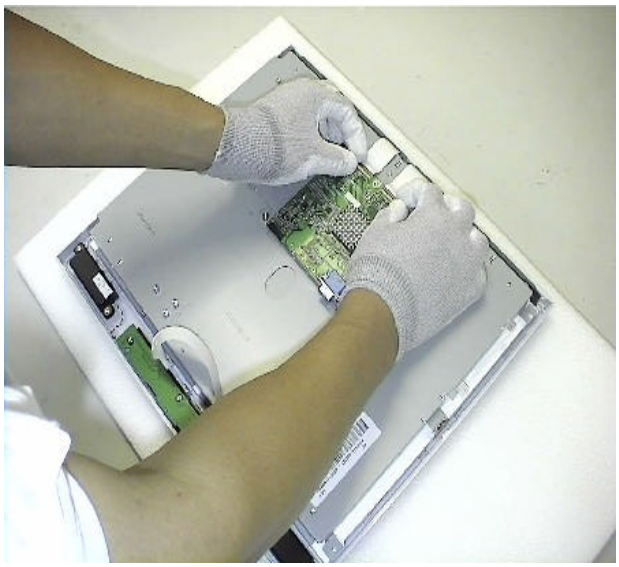
Step 1 : Insert New Power PCBA

Step 2 : Fasten 3 fixed screws of Power PCBA

7. Remove AD PCBA

Remove FFC

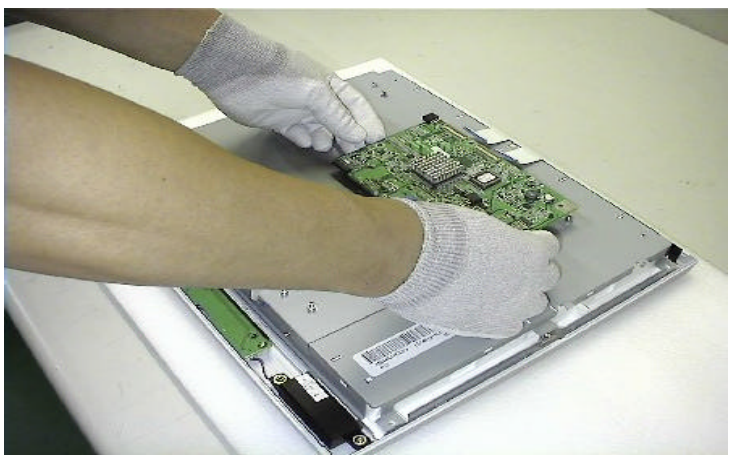
Step 1： Remove 2 FFC from AD PCBA



Remove AD PCBA

Step 1： Loose and remove 1 screw

Step 2： Remove AD PCBA

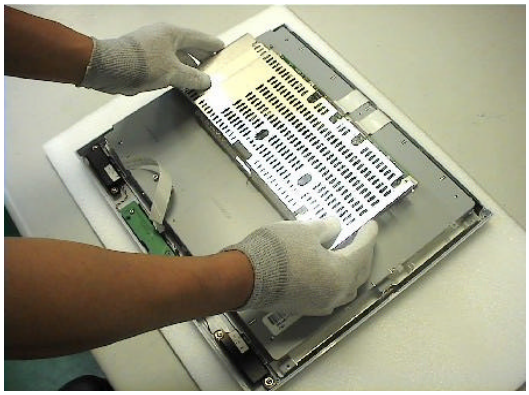


8. Change New AD PCBA

Step 1： Place New AD PCBA

Step 2： Insert 2 FFC

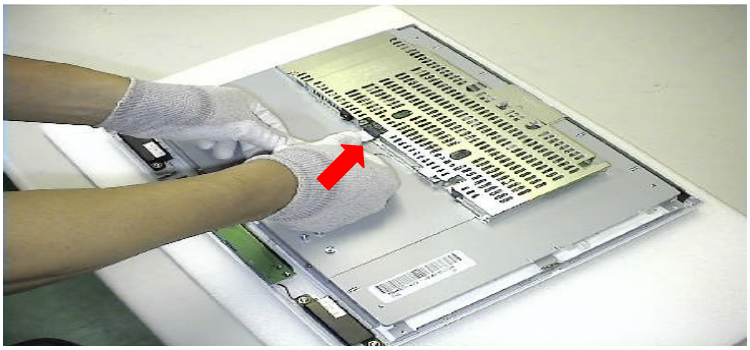
9. Metal Cover Assembly



Step 1： Join the cover hooks of X-PCB

Step 2： Fasten the 6 screws

Step 3：Fasten 2 screws



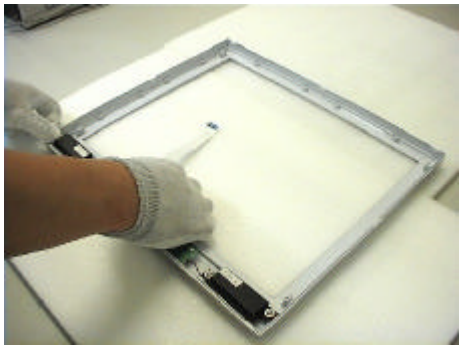
Step 4：Insert FFC

Step 5：Attach the Tinfoil

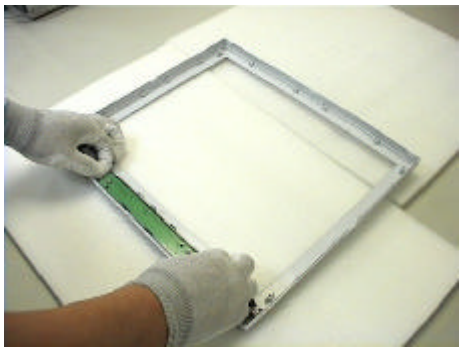
10. Separate Bezel Assy

Step 1： Lift up LCD module and remove Bezel

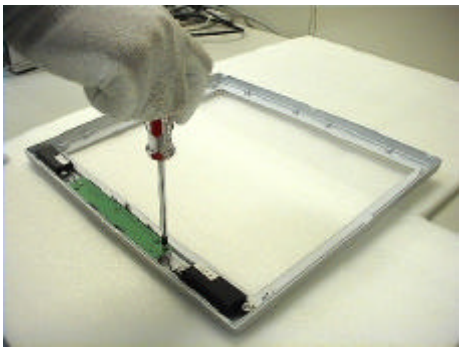
11. Remove OSD PCBA



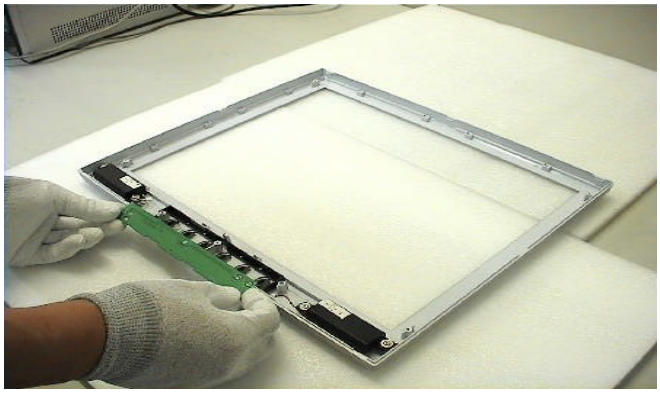
Step 1： Remove FFC



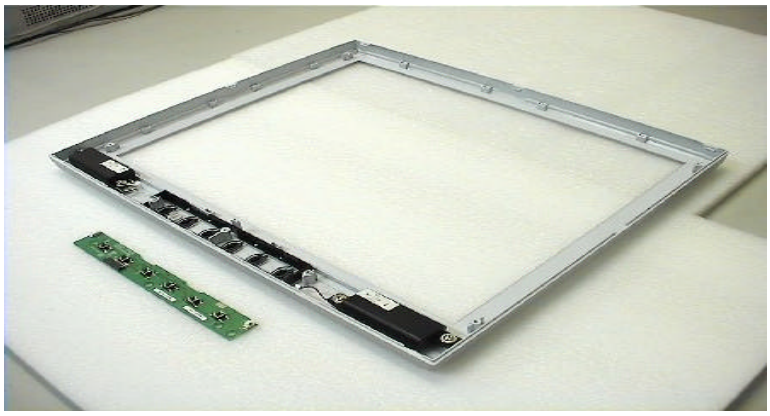
Step 2： Separate both Audio Cable



Step 3： Loose and remove 2 screws

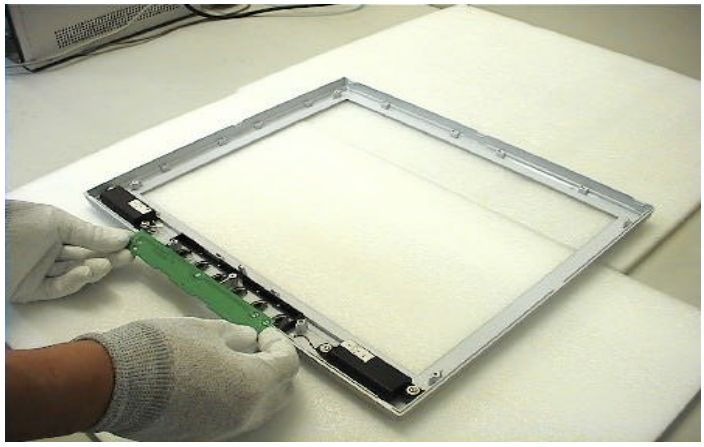


Step 4： Take OSD PCBA apart Completed

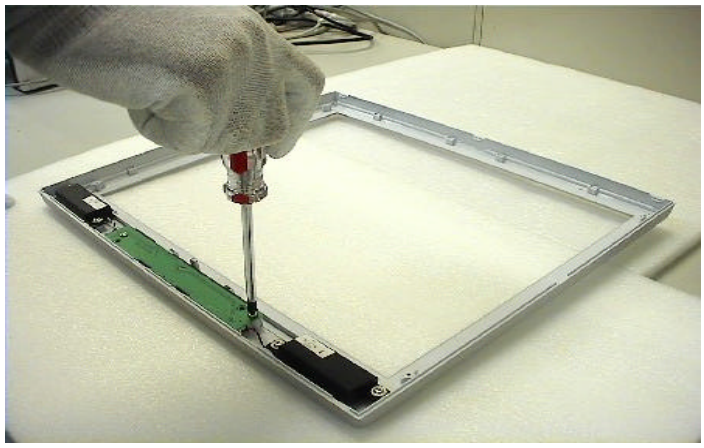


Step 5： Completed

12. Change New OSD PCBA



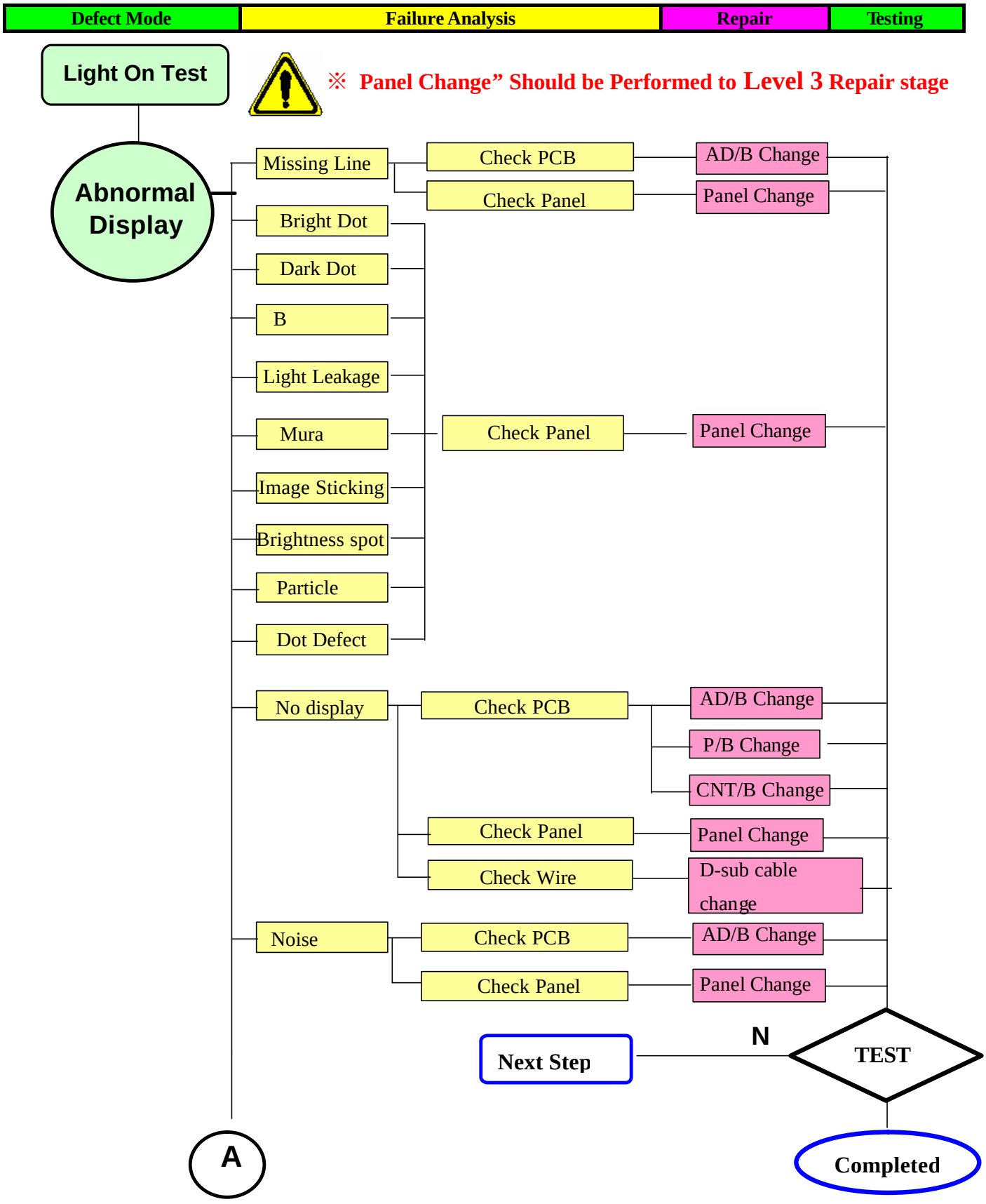
Step 1： Place New OSD PCBA

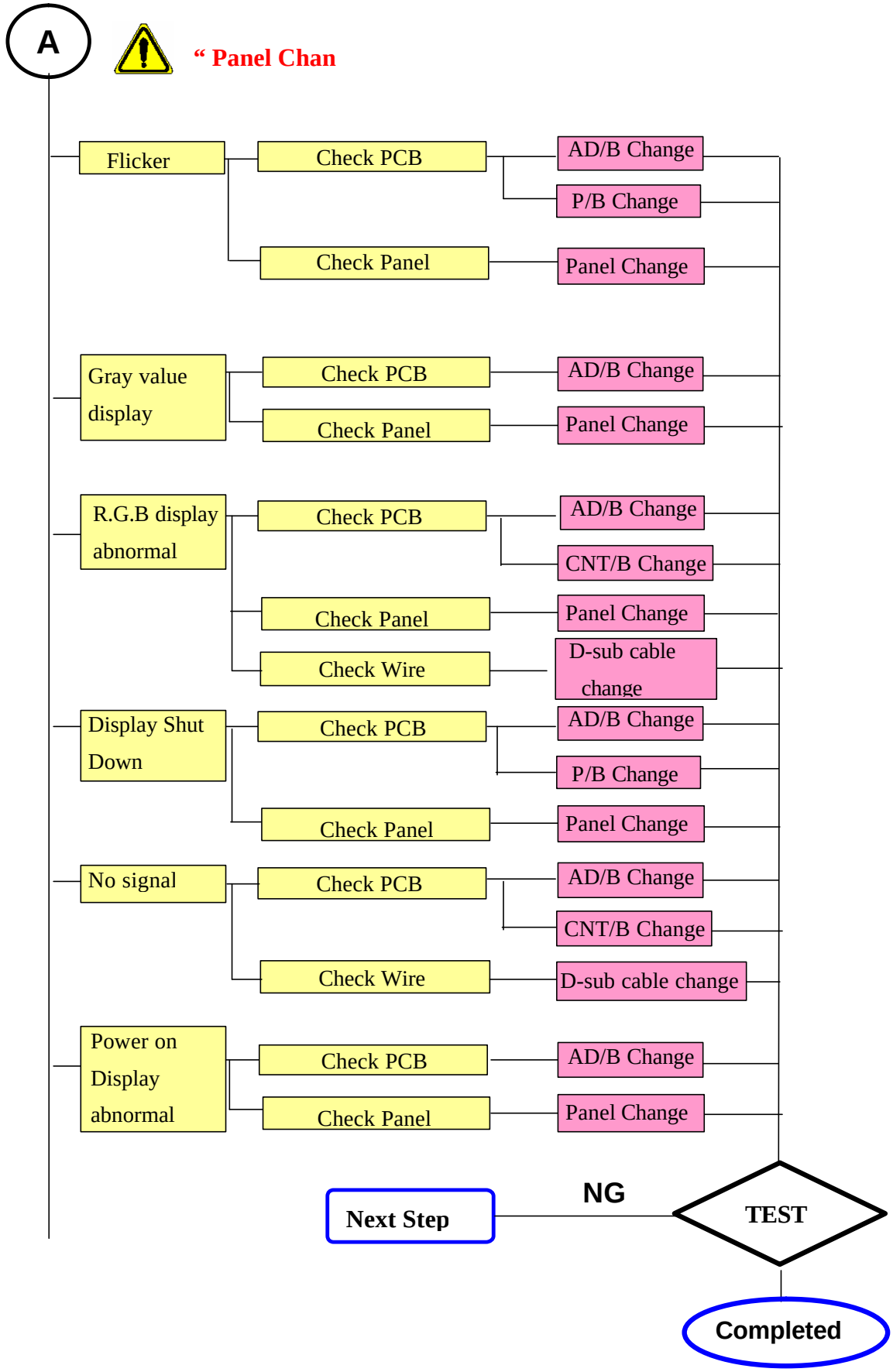


Step 2： Fasten 2 screws

Step 3 : Insert Audit Cable to connectors of OSD PCBA

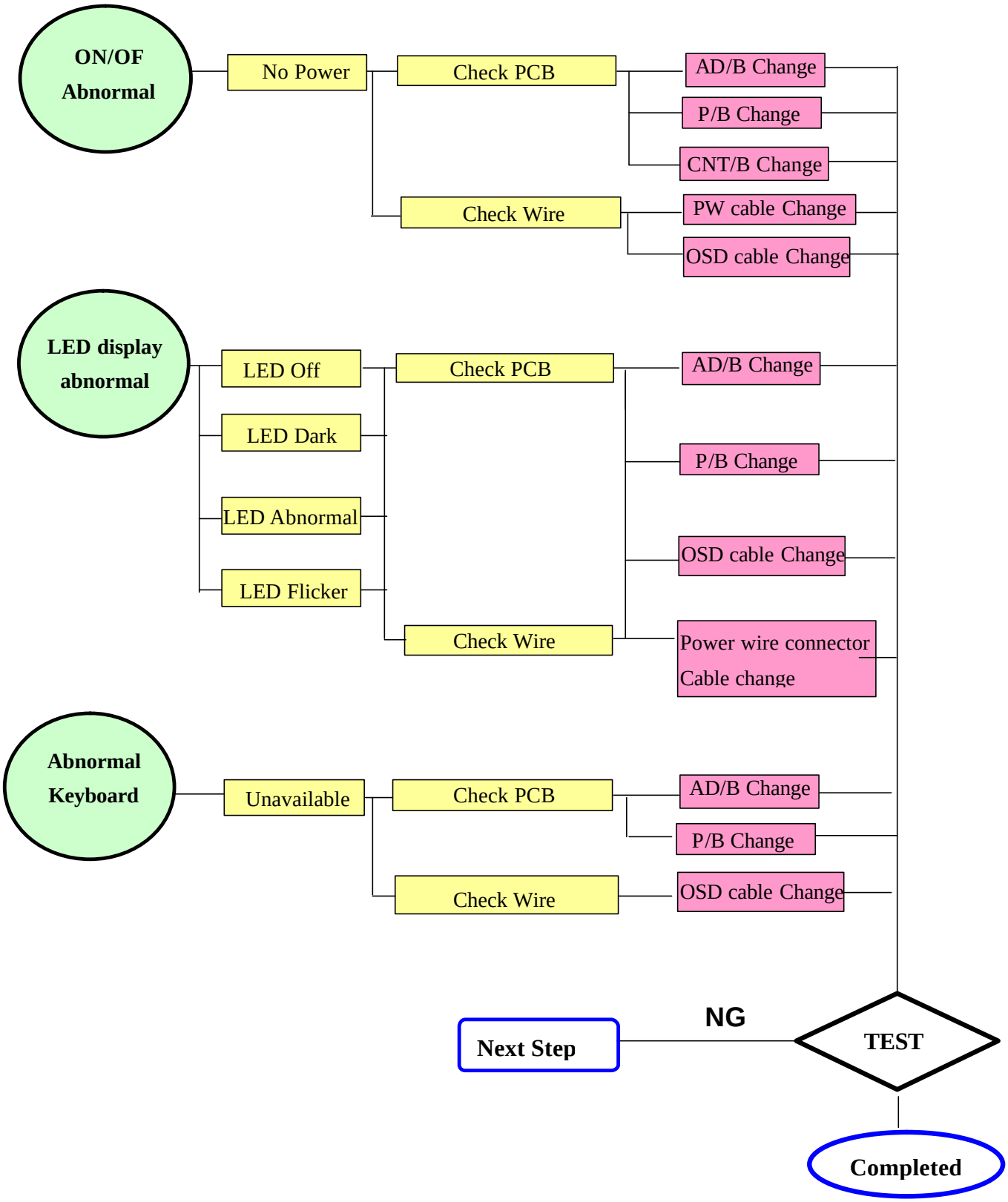
6. Trouble Shooting Flow Chart




A
“ Panel Chan
Flicker
Check PCB
AD/B Change
P/B Change
Check Panel
Panel Change
Gray value display
Check PCB
AD/B Change
Check Panel
Panel Change
R.G.B display abnormal
Check PCB
AD/B Change
CNT/B Change
Check Panel
Panel Change
Check Wire
D-sub cable change
Display Shut Down
Check PCB
AD/B Change
P/B Change
Check Panel
Panel Change
No signal
Check PCB
AD/B Change
CNT/B Change
Check Wire
D-sub cable change
Power on Display abnormal
Check PCB
AD/B Change
Check Panel
Panel Change
NG
Next Step
TEST
Completed

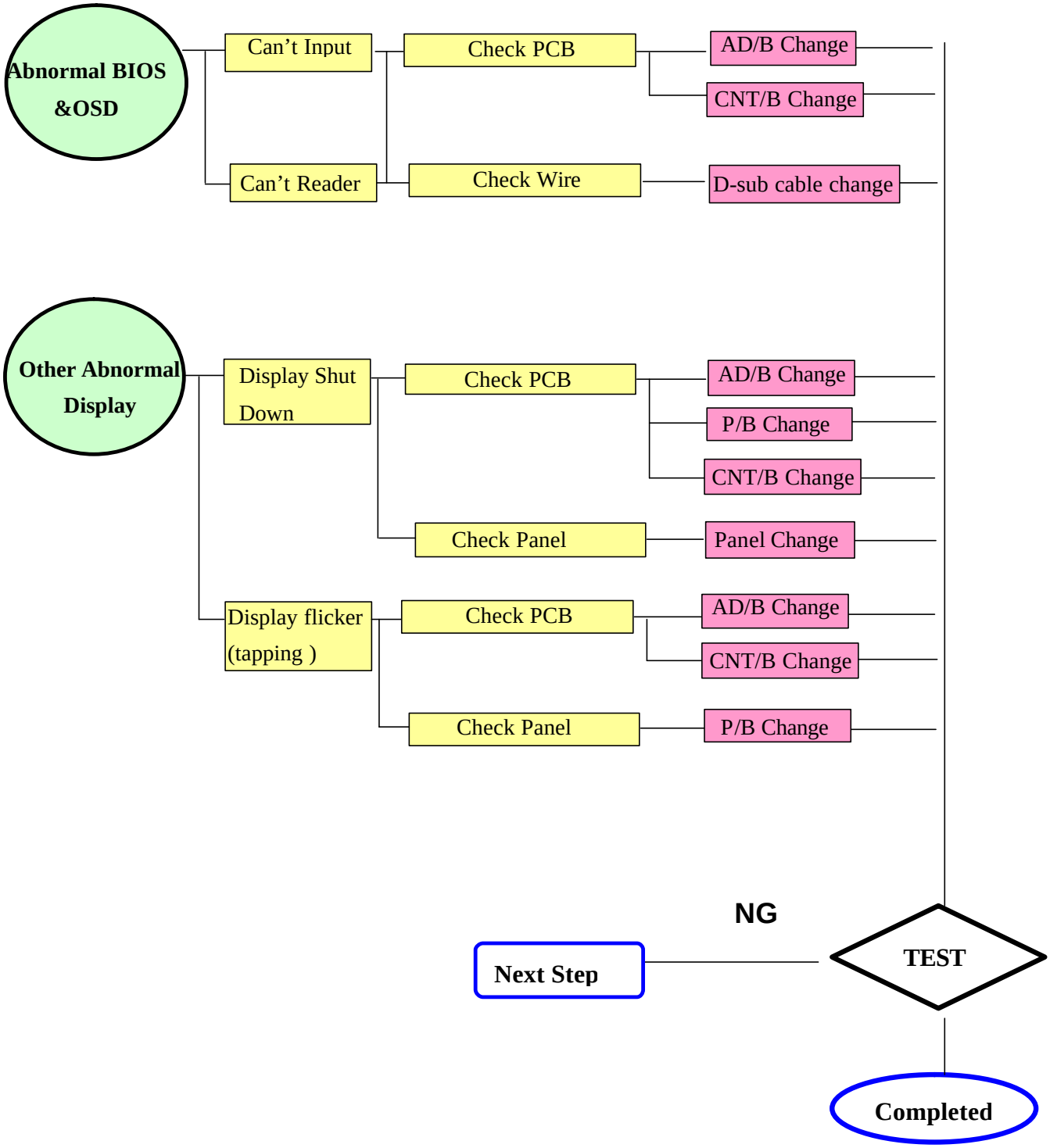
Defect Mode	Failure Analysis	Repair	Testing

※ “ Panel Change” Should be Performed to Level 3 Repair stage



Defect Mode	Failure Analysis	Repair	Testing

※ “ Panel Change” Should be Performed to Level 3 Repair stage



◆ Trouble Shooting Analysis

Check the information in this section to see if the problems can be solved before requesting repair.

Note：The consumers are only allowed to solve the problems described as below. Any unauthorized product modification, or failure to follow instructions supplied with the product will end the warranty immediately.

- **No image**
  - ◆ Make sure power button is ON.
  - ◆ Check whether the LCD monitor and computer power cords are plugged and whether there is a supply of power.
- **No Signal Input**
  - ◆ Check the signal connection between the computer and LCD monitor.
- **"Out of Range"**
  - ◆ Check the computer image output resolution and frequency and compare the value with the preset values (Please refer to [Appendix-Display Mode]).
- **Fuzzy Image**
  - ◆ Adjust Phase.
- **Image too bright**
  - ◆ Adjust brightness and contrast by OSD.
- **Image too dark**
  - ◆ Adjust brightness and contrast by OSD.
- **Irregular image**
  - ◆ Check the signal connection between the computer and LCD monitor.
  - ◆ Perform Auto Adjust.
- **Distorted image**
  - ◆ Reset the LCD monitor
  - ◆ Take off extra accessories (such as signal extension cord).
- **Image is not centered**
  - ◆ Use OSD Image Menu to adjust H Position and V Position.
  - ◆ Check image size setting.
  - ◆ Perform Auto Adjust.
- **Size is not appropriate**
  - ◆ Use OSD Image Menu to adjust H Position and V Position.
  - ◆ Check image size setting.
  - ◆ Perform Auto Adjust.
- **Uneven color**
  - ◆ Use OSD Color Menu to adjust color setting.
- **Color too dark**
  - ◆ Use OSD Color Menu to adjust color setting.
- **Dark area distorted**
  - ◆ Use OSD Color Menu to adjust color setting.
- **White color is not white**
  - ◆ Use OSD Color Menu to adjust color setting.

7. Recommended Spare Parts List

RECOMMENDED SPARE PARTS LIST (VE902m-1)

ViewSonic Model Number: VS10552
Rev: 1a

Item	Description		ViewSonic P/N	Reference P/N	Q'ty
1	**Accessories:**	Adaptor(AC/DC),65W,19V,3.42A,UP06511190-02B,POTRANS(black)	A-00000570	2719065193	1
2		Power Code,CEE,H05W-F,0.75mm2,3C,LP-33+LS-60,L=1830+/-50mm,Black,Linetek,18AWG,No Bag	A-00000571	32E1818016	1
3		Power Cord,UL,SP-305+IS-14,SVT,18AWGX3C,75 degreeCT-12,L=1800+/-50mm,I-SHENG,18AWG,18AWG,Black,No Bag	A-00000572	32E1818019	1
4	**PC Board Assembly:**	DC/AC Inverter,TWS-444-983,2900V/4.8mA,Sumida	B-00000573	2714000022	1
5		PCBA For A190E2-T,A190E2-H-S,Rev 02,Rigid,203-01	B-00000574	35A19S0203	1
6		PCBA For A190E2-T,A190E2-H-K,Rev.02,Rigid,203-01,(ODM)	B-00000575	35A19K0202	1
7	**Cabinets:**	Back Cover-Rear Assembly,A190E2-H01,Black	C-00000576	40A1929203	1
8		Base Assembly-STAND ASSY,A190E2-H03,877C(Silver)	C-00000577	40A1999924	1
9		Cover AD(W/O DVI-D Hole),A190E2,SECC,t=0.6mm	C-00000578	41A1999107	1
10		Cover Hinge,A190E2-H01,ABS,BLACK	C-00000579	40A1992203	1
11		Front Panel-BEZEL ASSY,A190E2-H03,Analog,For ViewSonic (Silver)	C-00000580	40A1929928	1
12		SEAT ASSY,A190E2-H03,877C(Silver)/black	C-00000581	40A1999207	1
13	**Cables:**	Audio Cable,A150X2,18AWG,180cm,Black,JCE	CB-00000544	32F2818004	1
14		FFC_X, A190E2,45PIN,60x23mm,PITCH=0.5mm	CB-00000582	3241902003	1
15		FFC-OSD,A190E2-H01,15Pin,90mm*14mm,Pitch=1.0mm	CB-00000583	3241900003	1
16		Monitor Cable,A150X2,30AWG,180cm,Black,JCE	CB-00000547	32F3018003	1
17	**Documentation :**	Label,Bar-Code Labe,55*13mm	DC-00000548	7741519181	1
18		Label,Bar-Code Label,50*25,A190E2-H03,VSC	DC-00000584	77419191A3	1
19		Label,Carton Label,76.2*76.2, A190E2-H03,VSC	DC-00000585	7741929144	1
20		Label,Pallet Barcode Label,75x40,A190E2-H03,VSC	DC-00000586	7741999141	1
21		Label,Safety Label, 89*49,A190E2-H03,VSC	DC-00000587	77419191A2	1
22		Menu(Quick Start Guide), A190E2-H03,VSC	DC-00000588	7641900321	1
23	**Hardware:**	Screw,M3*P0.5*4,f 5.5*2,Steel	HW-00000553	42A9930008	2000
24		Screw,M3xP0.5x8,f 5.5x2,Steel,+W	HW-00000589	42A9930029	2000
25		Screw,M4*P0.7*15,f 7*2.6,Steel,+SW+W	HW-00000590	42A9930013	2000
26		Screw,f 3*P1.27*8,f 5.5*2,Steel	HW-00000557	42A9930017	2000
27		Stand-Off 4 #-40*11.8	M-00000559	42A9940007	2000
28		f 3*P1.27*12,f 5.5*2,Steel	HW-00000556	42A9990005	2000
29	**Miscellaneous:**	Metal Frame_Front Assy,A190E2	M-00000591	41A1969107	1
30		Separator, (AA), 1130x955x11,A190E1-H01	M-00000592	7841995111	1
31		Tape,Security Tape,OPP,L900xW50x0.045mm,VSC	M-00000560	7345511002	1
32	**Packing Material:**	Carton,475*188*470,A190E2-H03,VSC	P-00000593	7841925230	1
33		Inner Box, 456x290x38mm, A190E1-H01	P-00000594	7841935111	1
34		PE Foam Bag,Protector,570*600*0.13,A190E1-H01,white	P-00000595	7841919921	1
35		PE FOAM(Bottom),EPE, 456*146*50mm,A190E2-H03	P-00000596	7841949915	1
36		PE FOAM(Top),EPE,456*146*50mm,A190E2-H03	P-00000597	7841949914	1

BOM LIST (VE902m-1)

ViewSonic Model Number: VS10552
Rev: 1a

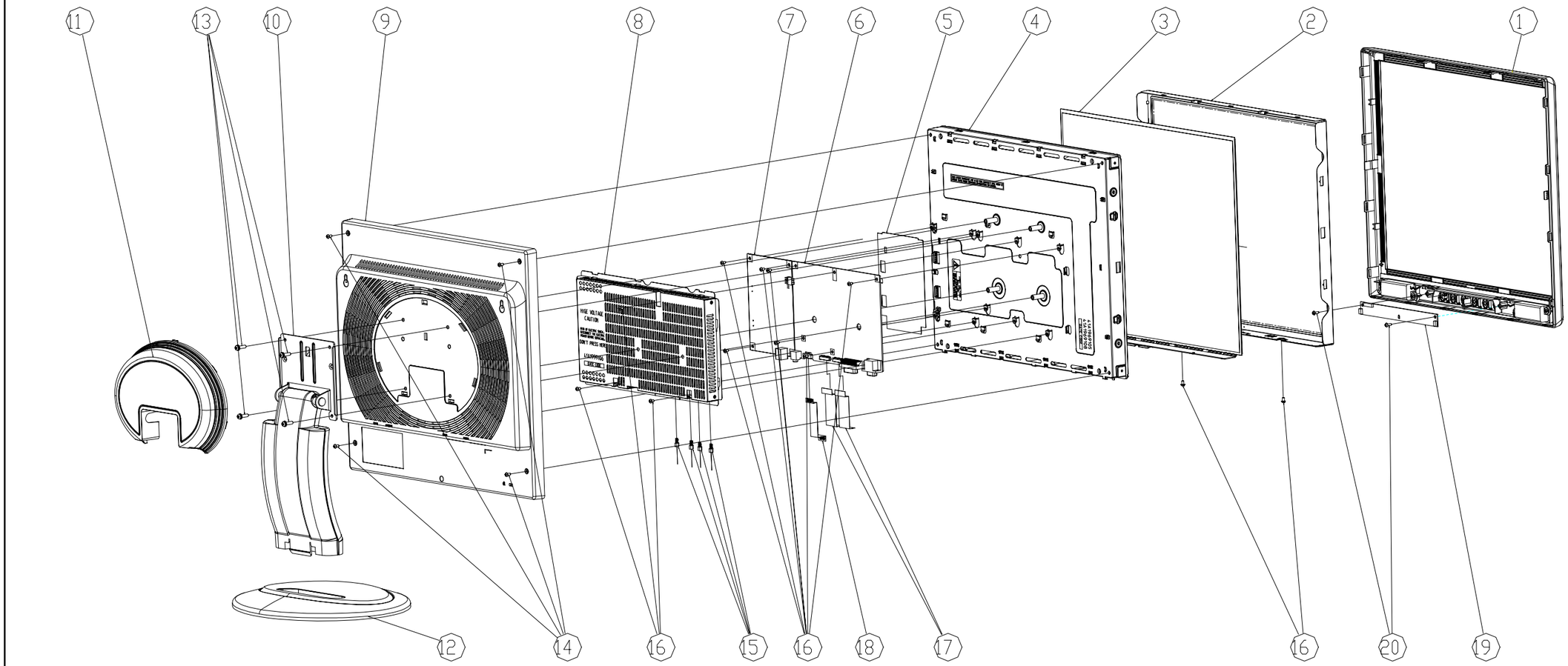
Item	ViewSonic P/N	PartNo	Description	Location	Q'ty
1	#N/A	MJ0E301K01	19" common BOM,19E3 cell,COF,normal A/C grade		1
2	E-00000588	L3J003XXXX	LCD Panel , For 19.0" LCM, SXGA		1
3	#N/A	36X8607401	COG,Scan,Himax:HX8607APD400,256/263Ch	SIC	4
4	#N/A	7344191016	COG ACF,AC-8405Z-23,1.5mm,50M/RL	SACF	0.00636
5	#N/A	7344191017	ACF,AC-4251FY-16,100M/RL	DACF	0.00398
6	#N/A	36X8002661	COF,Data,Himax:HX8002KCB66,A190E2	Data	10
7	#N/A	7344191011	ACF,AC-9051AR-35,100M/RL	PACF	0.00398
8	#N/A	35A19X0202	PCBA For A190E2-H,A190E2-H-X,X2,Rigid,201-02,(ODM)	PCBA-X	1
9	#N/A	34A19X2X04	PCB For A190E2-H-X,X2,Rigid,(A19026013)		1
10	#N/A	01014F1011	Chip Resistor,SMD,+-1%,0402,1/16W,100 OHM	R12,R13,R14,R15,R16,R17,R18,R19,R20,R23,R26,R27,R28,R29,R30,R31,R32,R33,R34,R35	20
11	#N/A	01054FR002	Chip Resistor,SMD,+-5%,0402,1/16W,0 OHM	R37	1
12	#N/A	050K1062C1	Chip Capacitor,MLCC,X5R,1206,10uF,6.3V,+-10%,RoHS	C26,C27,C28,C29,C30,C31,C32,C33,C49,C50	10
13	#N/A	050Z015442	Chip Capacitor,MLCC,Y5V,0402,100nF,16V,-20~+80%	C2,C3,C4,C7,C8,C9,C13,C14,C15,C18,C19,C20,C45,C46,C47,C48	16
14	#N/A	050Z1064C1	Chip Capacitor,MLCC,Y5V,1206,10uF,16V,-20~+80%	C10,C1	2
15	#N/A	050Z1064D3	Chip Capacitor,MLCC,Y5V,1210,10uF,16V,-20~+80%	C12,C37,C38,C41,C42,C43	6
16	#N/A	250345S452	Connector,B-F,45pin,Hirose,FH12-45S-0.5SH	CN2,CN1	2
17	#N/A	7349951002	Silicone,TORAY/-9187L,330g		0.4
18	#N/A	PJ0EFT0G03	19V2 Function BOM,Analog+Audio,Genesis,COF		1
19	M-00000591	41A1969107	Metal Frame_Front Assy,A190E2	Front	1
20	#N/A	7341991010	Protector Film _Metal-Rear,PC,t=0.254mm,A190E2		1
21	#N/A	3241902003	FFC_X, A190E2,45PIN,60x23mm,PITCH=0.5mm		2
22	M-00000559	42A9940007	Stand-Off 4 #-40*11.8		2
23	HW-00000553	42A9930008	Screw,M3*P0.5*4,f 5.5*2,Steel		12
24	#N/A	2714000022	DC/AC Inverter,TWS-444-983,2900V/4.8mA,Sumida		1
25	#N/A	44A1913004	Backlight Unit,Direct Type,W/ West Lamp,A190E2	B/L	1
26	B-00000574	35A19S0203	PCBA For A190E2-T,A190E2-H-S,Rev 02,Rigid,203-01,(ODM)	PCBA-S	1
27	#N/A	34A19S2201	PCB For A190E2-H-S,Rev 02,Rigid,(A191126035)		1
28	#N/A	01016F0131	Chip Resistor,SMD,+-1%,0603,1/16W,1K OHM	R118	1
29	#N/A	01016F1011	Chip Resistor,SMD,+-1%,0603,1/16W,100 OHM	R40,R42,R44	3
30	#N/A	01016F1031	Chip Resistor,SMD,+-1%,0603,1/16W,10K OHM	RP25,RP26,RP28,RP42,RP44	5
31	#N/A	01016F1331	Chip Resistor,SMD,+-1%,0603,1/16W,13K OHM	RP36	1
32	#N/A	01016F1702	Chip Resistor,SMD,+-1%,0603,1/16W,16.5 OHM	R95	1
33	#N/A	01016F1731	Chip Resistor,SMD,+/-1%,0603,1/16W 16.9K OHM	RP16,RP15	2
34	#N/A	01016F1822	Chip Resistor,SMD,+-1%,0603,1/16W,1.78K OHM	RP21	1
35	#N/A	01016F1831	Chip Resistor,SMD,+-1%,0603,1/16W,18K OHM	RP38	1
36	#N/A	01016F2512	Chip Resistor,SMD,+-1%,0603,1/16W,249 OHM	R58,R57	2
37	#N/A	01016F2531	Chip Resistor,SMD,+-1%,0603,1/16W,24.3K OHM	RP6	1
38	#N/A	01016F3321	Chip Resistor,SMD,+-1%,0603,1/16W,3.3K OHM	R69	1
39	#N/A	01016F3611	Chip Resistor,SMD,+-1%,0603,1/16W,357 OHM	R75	1
40	#N/A	01016F3931	Chip Resistor,SMD,+-1%,0603,1/16W,39K OHM	RP35,RP34	2
41	#N/A	01016F4211	Chip Resistor,SMD,+-1%,0603,1/16W,412 OHM	R66	1
42	#N/A	01016F4312	Chip Resistor,SMD,+-1%,0603,1/16W,422 OHM	R92	1
43	#N/A	01016F4721	Chip Resistor,SMD,+-1%,0603,1/16W,4.7K OHM	RP24	1
44	#N/A	01016F5R61	Chip Resistor,SMD,+-1%,0603,1/16W,5.6 OHM	R65	1
45	#N/A	01016F5621	Chip Resistor,SMD,+-1%,0603,1/16W,5.6K OHM	RP37,RP31	2
46	#N/A	01016F5801	Chip Resistor,SMD,+-1%,0603,1/16W,57.6 OHM	R41,R43,R45	3
47	#N/A	01016F6221	Chip Resistor,SMD,+-1%,0603,1/16W,6.2K OHM	RP39	1
48	#N/A	01016F6501	Chip Resistor,SMD,+-1%,0603,1/16W,64.9 OHM	R81	1
49	#N/A	01016F7501	Chip Resistor,SMD,+-1%,0603,1/16W,75 OHM	R49,R50,R51	3
50	#N/A	01056FR001	Chip Resistor,SMD,+-5%,0603,1/16W,0 OHM	R1,R2,RP8,R78,R105,R111	6
51	#N/A	01056F1821	Chip Resistor,SMD,+-5%,0603,1/16W,1.8K OHM	RP41	1
52	#N/A	01056F1041	Chip Resistor,SMD,+-5%,0603,1/16W,100K OHM	RP2,RP10,RP12,RP20	4
53	#N/A	01056F1011	Chip Resistor,SMD,+-5%,0603,1/16W,100 OHM	RP22,RP29,R46,R47,R115,R135,R137	7
54	#N/A	01056F1031	Chip Resistor,SMD,+-5%,0603,1/16W,10K OHM	R5,RP13,R17,R20,R21,R24,RP30,RP40,R52,R53,R61,R63,R123,R138,R139,R141,R145,R147,R149,R151	20
55	#N/A	01056F1001	Chip Resistor,SMD,+-5%,0603,1/16W,10 OHM	R32	1
56	#N/A	01056F1231	Chip Resistor,SMD,+-5%,0603,1/16W,12K OHM	RP32	1
57	#N/A	01056F1631	Chip Resistor,SMD,+-5%,0603,1/16W,16K OHM	R62	1
58	#N/A	01056F0131	Chip Resistor,SMD,+-5%,0603,1/16W,1K OHM	R13,RP19,RP27,R103,R104	5

Item	ViewSonic P/N	PartNo	Description	Location	Q'ty
59	#N/A	01056F1051	Chip Resistor,SMD,+-5%,0603,1/16W,1M OHM	RP45,RP43	2
60	#N/A	01056F2221	Chip Resistor,SMD,+-5%,0603,1/16W,2.2K OHM	R101,R102	2
61	#N/A	01056F2721	Chip Resistor,SMD,+-5%,0603,1/16W,2.7K OHM	R114,R113	2
62	#N/A	01056F2031	Chip Resistor,SMD,+-5%,0603,1/16W,20K OHM	R6,R7,R9,R10,R11,R12,R15,R16	8
63	#N/A	01056F3921	Chip Resistor,SMD,+-5%,0603,1/16W,3.9K OHM	RP33,R48	2
64	#N/A	01056F3331	Chip Resistor,SMD,+-5%,0603,1/16W,33K OHM	RP5,RP17,RP18	3
65	#N/A	01056F4721	Chip Resistor,SMD,+-5%,0603,1/16W,4.7K OHM	RP3,R94,R98,R106,R107,R108,R109,R110,R125,R126	10
66	#N/A	01056F4731	Chip Resistor,SMD,+-5%,0603,1/16W,47K OHM	RP4,RP9,R54	3
67	#N/A	01056F4701	Chip Resistor,SMD,+-5%,0603,1/16W,47 OHM	R112,R116,R117,R119,R120,R121,R122,R124,R127	9
68	#N/A	01056F5621	Chip Resistor,SMD,+-5%,0603,1/16W,5.6K OHM	R59	1
69	#N/A	01056F6821	Chip Resistor,SMD,+-5%,0603,1/16W,6.8K OHM	R14,R8	2
70	#N/A	01056F6831	Chip Resistor,SMD,+-5%,0603,1/16W,68K OHM	RP11	1
71	#N/A	01056F8211	Chip Resistor,SMD,+-5%,0603,1/16W,820 OHM	R99,R100	2
72	#N/A	01058FR001	Chip Resistor,SMD,+-5%,0805,1/10W,0 OHM	ZDP1	1
73	#N/A	205410361	Chip Resistor Array,SMD,+-5%,0603*4,1/16W,10K OHM	RP47,RP46	2
74	#N/A	505221761	Chip Capacitor,MLCC,NPO,0603,220pF,50V,+-5%,Pb Free	CP22	1
75	#N/A	505050761	Chip Capacitor,MLCC,NPO,0603,5pF,50V,+-5%	C119,C120	2
76	#N/A	050K4755D2	Chip Capacitor,MLCC,X5R,1210,4.7uF,25V,+-10%,RoHS	CP13,CP19,CP20	3
77	#N/A	050K015561	Chip Capacitor,MLCC,X7R,0603,100nF,25V,+-10%,RoHS	C2,C7~C9,CP8,CP9,CP11,CP14,CP16,C18,CP23,CP26,CP28,C41~C44,C48,C53,C56,C58,C60,C62,C65,C67,C69,C71,C76,C79,C80,C84~C90,C92~C103,C105~C118,C122,C123,C125,C126	67
78	#N/A	050K102762	Chip Capacitor,MLCC,X7R,0603,1nF,50V,+-10%,RoHS	C74	1
79	#N/A	050K103561	Chip Capacitor,MLCC,X7R,0603,10nF,25V,+-10%,RoHS	CP15,CP21,C25,C26,CP27,C27,C28,C29,C30,C124	10
80	#N/A	050K333561	Chip Capacitor,MLCC,X7R,0603,33nF,25V,+-10%	C10,C13	2
81	#N/A	050K472761	Chip Capacitor,MLCC,X7R,0603,4.7nF,50V,+-10%,RoHS	CP29	1
82	#N/A	050K683461	Chip Capacitor,MLCC,X7R,0603,68nF,16V,+-10%	C12,C16	2
83	#N/A	050K0165C1	Chip Capacitor,MLCC,X7R,1206,1uF,25V,+-10%	CP10	1
84	#N/A	050K0167D2	Chip Capacitor,MLCC,X7R,1210,1uF,50V,+-10%,RoHS	CP4,CP6	2
85	#N/A	050Z474561	Chip Capacitor,MLCC,Y5V,0603,470nF,25V,-20~+80%	CP31	1
86	#N/A	050Z015762	Chip Capacitor,MLCC,Y5V,0603,100nF,50V,-20~+80%	CP1,CP2,C46	3
87	#N/A	050Z016361	Chip Capacitor,MLCC,Y5V,0603,1uF,10V,-20~+80%,RoHS	CP7,CP17,CP32	3
88	#N/A	050Z1064C1	Chip Capacitor,MLCC,Y5V,1206,10uF,16V,-20~+80%	C17,C19,CP25,C47,C52,C55,C61,C63,C77,C81,C82	11
89	#N/A	050Z2257C1	Chip Capacitor,MLCC,Y5V,1206,2.2uF,50V, -20~+80%,T=1.25mm(MAX.)	CP3,CP5,CP30	3
90	#N/A	050Z2263C1	Chip Capacitor,MLCC,Y5V,1206,22uF,10V,-20~+80%	C57,C59,C64,C66,C68,C70,C83,C91,C104,C121	10
91	#N/A	050Z1066D1	Chip Capacitor,MLCC,Y5V,1210,10uF,35V,-20~+80%	C45	1
92	#N/A	060M410441	Chip Capacitor Array,MLCC,X7R,0603*4,100nF,16V,+-20%	CP33,CP34	2
93	#N/A	070M547602	Aluminum Electrolytic Capacitor,SMD,47uF,25V,+-20%,LV470M025E055R(6.3*5.5),CAPXON,RoHS	C1,CP18	2
94	#N/A	070M510701	Aluminum Electrolytic Capacitor,SMD,100uF,25V,+-20%,25CV100AX(6.3*7.7)	CP24,CP12	2
95	#N/A	1101M33002	Inductor,SMD,33uH,+-20%,2.1A,SLF10155T330M2R1-TPF,H=5.8mm(MAX),TDK	LP4,LP6	2
96	#N/A	1104600003	Ferrite Bead,SMD,0603,120 OHM,+-25%,0.2A,BK1608LL121,Taiyo Yuden,RoHS	LP1,LP2,L2,LP3,L3,L4,L10,L11	8
97	#N/A	1104600031	Ferrite Bead,SMD,0603,120 OHM,+-25%,0.3A, BK1608HS121,Taiyo Yuden	L5,L6,L7	3
98	#N/A	1104800002	Ferrite Bead,SMD,0805,42 OHM,+-25%,4A,FBMJ2125HS420-T,Taiyo Yuden,RoHS	LP5,L8,L9,L12,L13,L14,L15,L16,L17,L18,L19,L20,L21	13
99	#N/A	1104C00001	Ferrite Bead,SMD,1206,80 OHM,+-25%,4A,FBMJ3216HS800-T,Taiyo Yuden,RoHS	L1	1
100	#N/A	1104C00002	Ferrite Bead Array,SMD,0603*4,120 OHM,+-25%,0.2A,BK32164L121	LP7,LP8,LP9	3
101	#N/A	1400603003	Varistor,SMD,0603,5V,10pF,+-10%,VPORT0603100KV05T(Vc=34V),INPAQ	C31,C32,C33	3
102	#N/A	14012B0511	Diode(Zener),UDZ-12B,TE-17,SOD-323	ZD13	1
103	#N/A	14031QS711	Diode(schottky),EC31QS03L,TE12L,3A/30V,SMA	D13,D14,DP1,DP2	4
104	#N/A	14099W0171	Diode(Dual),BAV99W,SOT-323,Philips,RoHS	D1,D2	2
105	#N/A	1403V6B511	Diode(Zener),BZT52C3V6S,SOD-323,DIODES	ZDP2	1
106	#N/A	1405V1B512	Diode(Zener),BZT52C5V1S,SOD-323,DIODES	ZDP3,ZDP4,ZDP5,ZDP6,ZD12	5

Item	ViewSonic P/N	PartNo	Description	Location	Q'ty
107	#N/A	14052C5512	Diode(Zener),BZT52-C5V6S,SOD-323,Panjit	ZD3,ZD4,ZD8,ZD9,ZD10,ZD11	6
108	#N/A	140BAV7171	Diode(Dual),BAV70W,SOT-323,Panjit	D12	1
109	#N/A	1500084111	Transistor(P-MOS),BSS84,SOT-23,DIODES	Q3,Q5,Q7	3
110	#N/A	1500200161	Transistor(NPN/PNP,Built-in resistors),PUMD2,SOT-363,Philips,RoHS	QP15	1
111	#N/A	1503403111	Transistor(P-MOS),AO3403,SOT-23,AOS	QP6,Q9	2
112	#N/A	1503906115	Transistor(PNP),PMBT3906,SOT-23,Philips,RoHS	QP1,QP2,QP3	3
113	#N/A	1507002161	Transistor(Dual N-MOS),2N7002DW,SOT-363,DIODES	Q8	1
114	#N/A	1507002113	Transistor (N-MOS),2N7002,60V/0.3A,SOT-23,Philips,RoHS	Q1,Q2,QP4,Q4,QP5,Q6,QP8,QP10,Q10,Q12,QP16,QP17,QP18,QP19	14
115	#N/A	1509435232	Transistor(P-MOS),CEM9435A,30V/5.3A,SOP-8,CET	QP13,QP7	2
116	#N/A	1502222112	Transistor(NPN),MMBT2222ALT1,SOT-23,ON	QP9,QP12	2
117	#N/A	1502907113	Transistor(PNP),MMBT2907ALT1,SOT-23,ON	QP11,QP14	2
118	#N/A	19024WC02E	EEPROM,CAT24WC02U-TE13,2K-bits,TSSOP-8,CATALYST	U3	1
119	#N/A	19024C161E	EEPROM,AT24C16AN-10SI-2.7,16K-bits,8S1(SOP-8),ATMEL	U14	1
120	#N/A	2007414000	Logic IC(Hex Schmitt-Trigger Inverters),SN74LV14APWR,TSSOP-14	U4	1
121	#N/A	210172233S	IC(Regulator),AIC1722-33CX,3.3V/0.3A,SOT-89,AIC	U6	1
122	#N/A	210358DR21	IC(OP AMP),LM358DR2,SOP-8,2CH,ON	U10	1
123	#N/A	2105451DR1	IC(PWM),FP5451DR,SOP-16,2CH,Feeling	UP1	1
124	#N/A	210512600P	IC(Scaler),gm5126,PQFP-208,GENESIS	U12	1
125	#N/A	2105VD26AS	IC(Voltage Detector),RN5VD26AA-TR,SOT-23-5,RICOH	U13	1
126	#N/A	19029C511E	Flash Memory,S29C51001T-90J,1 Mbit,PLCC-32,SyncMOS	U15	1
127	#N/A	210108425O	IC(Regulator),AIC1084-25CM,2.5V/5.0A,TO-263,AIC	U9	1
128	#N/A	2101117HAS	IC(Regulator),AZ1117H-ADJ,ADJ/1A,SOT-223,AAC	U11,U7	2
129	#N/A	2101117H3S	IC(Regulator),AZ1117H-3.3,3.3V/1A,SOT-223,AAC	U8	1
130	#N/A	2104838MTF	IC(Audio power Amp),LM4838MTE,MXA28A(TSSOP-P-28),NS	U1	1
131	#N/A	24016330C1	Fuse,SMD,1206,3A,63V,3216FF-3A-TR1,T=1.1mm (MAX.)	FP1	1
132	#N/A	2503066151	Connector,B-C,15Pin,Molex,89263-6772,D-Sub	JP1	1
133	#N/A	250345S452	Connector,B-F,45pin,Hirose,FH12-45S-0.5SH	CN3,CN4	2
134	#N/A	2503710151	Connector,B-F,15Pin,E&T,7101-15	CN2	1
135	#N/A	2501327081	Connector,B-B,8Pin,E&T,3273-008-10	CN1	1
136	#N/A	2600014601	Quartz Crystal,SMD-49,14.31818 MHz,30pF,H=4.5mm (MAX.),H.ELE.	X1	1
137	#N/A	2500100321	Socket,SMD,1002E32CT1R2,PLCC 32 Pin,1A,H=3.85mm (Typ.),AP	U15	1
138	#N/A	41A1793901	Heat Sink,28*28*7.9mm(SEKISUI#5760)	U12	1
139	#N/A	01016F1123	Chip Resistor,SMD,+-1%,0603,1/16W,1.05K OHM	R60	1
140	#N/A	25052SJ033	Connector,Phone Jack,Singatron,2SJ-0523-003,3pin	J1	1
141	C-00000578	41A1999107	Cover AD(W/O DVI-D Hole),A190E2,SECC,t=0.6mm		1
142	#N/A	PJ0EI23208	19" ID BOM,Analog,EU,Silver Black For VSC		1
143	#N/A	3241900003	FFC-OSD,A190E2-H01,15Pin,90mm*14mm,Pitch=1.0mm		1
144	HW-00000557	42A9930017	Screw,f 3*P1.27*8,f 5.5*2,Steel		2
145	C-00000576	40A1929203	REAR ASSY,A190E2-H01,BLACK		1
146	HW-00000556	42A9990005	Screw,M3*P1.27*12,f 5.5*2,Steel		1
147	HW-00000589	42A9930029	Screw,M3xP0.5x8,f 5.5x2,Steel,+W		4
148	#N/A	40A1999924	STAND ASSY,A190E2-H03,877C(Silver)		1
149	C-00000579	40A1992203	Cover Hinge,A190E2-H01,ABS,BLACK		1
150	HW-00000590	42A9930013	Screw,M4*P0.7*15,f 7*2.6,Steel,+SW+W		4
151	B-00000575	35A19K0202	PCBA For A190E2-T,A190E2-H-K,Rev.02,Rigid,203-01,(ODM)		1
152	#N/A	34A19K2301	PCB For A190E2-H-K,Rev.02,Rigid,(A19112607A)		1
153	#N/A	2304112001	LED Lamp(SMD;Orange),19-21UYOC/S530-A2/TR8,?=605nm,H=0.8mm,Everlight,RoHS	D2	1
154	#N/A	2304114001	LED Lamp(SMD;Green),19-21VGC/TR8,?=571nm,H=0.8mm,Everlight,RoHS	D1	1
155	#N/A	2503715151	Connector,B-F,15Pin,E&T,7151-15	CN1	1
156	#N/A	2502532021	CONNECTOR,W-B,A150X2,MOLEX,53261-0290,2Pin	CN3,CN2	2
157	#N/A	2704020004	Switch,Forward,SFKHHMW,4Pin,12V,DC 5mA	SW1,SW2,SW3,SW4,SW5,SW6	6
158	#N/A	10E1900013	Software(EDID),A190E2,Ver.VSC491BA00,ViewSonic,Analog Port,Taiwan,CheckSum(E6)	EDD	1
159	#N/A	10B1900008	Software(BIOS),A190E2,RSDS,Ver.19E2TG0000,CMC,Analog+Audio,CheckSum:ISP(A09B),HiLo(3089)	BIS	1
160	#N/A	40A1929928	BEZEL ASSY,A190E2-H03,Analog,For ViewSonic (Silver)		1
161	#N/A	7341311044	Protector Film-Panel,PET,M190E2		1
162	#N/A	7741519181	Label,Bar-Code Labe,55*13mm		1

Item	ViewSonic P/N	PartNo	Description	Location	Q'ty
163	DC-00000584	77419191A3	Label,Bar-Code Label,50*25,A190E2-H03,VSC		1
164	DC-00000587	77419191A2	Label,Safety Label, 89*49,A190E2-H03,VSC		1
165	C-00000581	40A1999207	SEAT ASSY,A190E2-H03,877C(Silver)/black	SEAT	1
166	#N/A	7841949914	PE FOAM(Top),EPE,456*146*50mm A190E2-H03		1
167	#N/A	7841949915	PE FOAM(Bottom),EPE, 456*146*50mm,A190E2-H03		1
168	#N/A	7641900321	Menu(Quick Start Guide), A190E2-H03,VSC	QUICK-G	1
169	#N/A	7841919921	PE Foam Bag,Protector,570*600*0.13,A190E1-H01,white		1
170	#N/A	7841935111	Inner Box, 456x290x38mm, A190E1-H01		1
171	#N/A	7841599191	Pallet,Wooden,1150*970*135,A150X1-T01,Double wall		0.021
172	#N/A	7841595111	Corner Protector,50*50*1850(mm)		0.084
173	#N/A	7741999141	Label,Pallet Barcode Label,75x40,A190E2-H03,VSC		0.021
174	#N/A	7741929144	Label,Carton Label,76.2*76.2, A190E2-H03,VSC		1
175	#N/A	7841995111	Separator, (AA), 1130x955x11,A190E1-H01		0.021
176	#N/A	7841925230	Carton,475*188*470, A190E2-H03,VSC		1
177	#N/A	7345511002	Tape,Security Tape,OPP,L900xW50x0.045mm,VSC		0.07
178	#N/A	PJ0EAE3000	19" Accessory BOM,D-sub+Audio & Europe 2Pins,Black		1
179	CB-00000547	32F3018003	Monitor Cable,A150X2,30AWG,180cm,Black,JCE	DSUB	1
180	CB-00000544	32F2818004	Audio Cable,A150X2,18AWG,180cm,Black,JCE	AUDIO	1
181	#N/A	2719065193	Adaptor(AC/DC),65W,19V,3.42A,UP06511190-02B,POTRANS(black)	ADAPTOR	1
182	A-00000571	32E1818016	Power Code,CEE,H05W-F,0.75mm2,3C,LP-33+LS-60,L=1830+/-50mm,Black,Linetek,18AWG,No Bag	POWER	1

8. Exploded Diagram And Spare Parts List



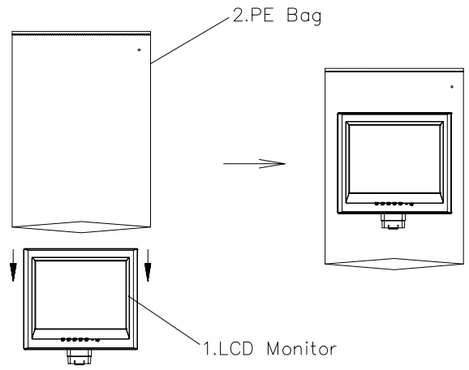
EXPLODED PARTS LIST (VE902m-1)

ViewSonic Model Number: VS10552

Rev: 1a

Item	ViewSonic P/N	Reference P/N	Description
1	C-00000580	40A1929928	BEZEL ASSY,A190E2-H03,Analog,For ViewSonic (Silver)
2	M-00000591	41A1969107	Metal Frame_Front Assy,A190E2
3	E-00000588	L3J003XXXX	LCD Panel , For 19.0" LCM, SXGA
4	M-00000599	44A1913004	Backlight Unit,Direct Type,W/ West Lamp,A190E2
5	N/A	N/A	Mylar
6	B-00000574	35A19S0203	PCBA For A190E2-T,A190E2-H-S,Rev 02,Rigid,203-01
7	B-00000574	35A19S0203	PCBA For A190E2-T,A190E2-H-S,Rev 02,Rigid,203-01
8	M-00000591	41A1969107	Metal Frame_Front Assy,A190E2
9	C-00000580	40A1929928	BEZEL ASSY,A190E2-H03,Analog,For ViewSonic (Silver)
10	C-00000577	40A1999924	STAND ASSY,A190E2-H03,877C(Silver)
11	C-00000579	40A1992203	Cover Hinge,A190E2-H01,ABS,BLACK
12	C-00000581	40A1999207	SEAT ASSY,A190E2-H03,877C(Silver)/black
13	HW-00000556	42A9990005	f 3*P1.27*12,f 5.5*2,Steel
14	HW-00000589	42A9930029	Screw,M3xP0.5x8,f 5.5x2,Steel,+W
15	M-00000559	42A9940007	Stand-Off 4 #-40*11.8
16	HW-00000589	42A9930029	Screw,M3xP0.5x8,f 5.5x2,Steel,+W
17	CB-00000582	3241902003	FFC_X, A190E2,45PIN,60x23mm,PITCH=0.5mm
18	CB-00000583	3241900003	FFC-OSD,A190E2-H01,15Pin,90mm*14mm,Pitch=1.0mm
19	B-00000575	35A19K0202	PCBA For A190E2-T,A190E2-H-K,Rev.02,Rigid,203-01,(ODM)
20	HW-00000590	42A9930013	Screw,M4*P0.7*15,f 7*2.6,Steel,+SW+W

Packing for shipping

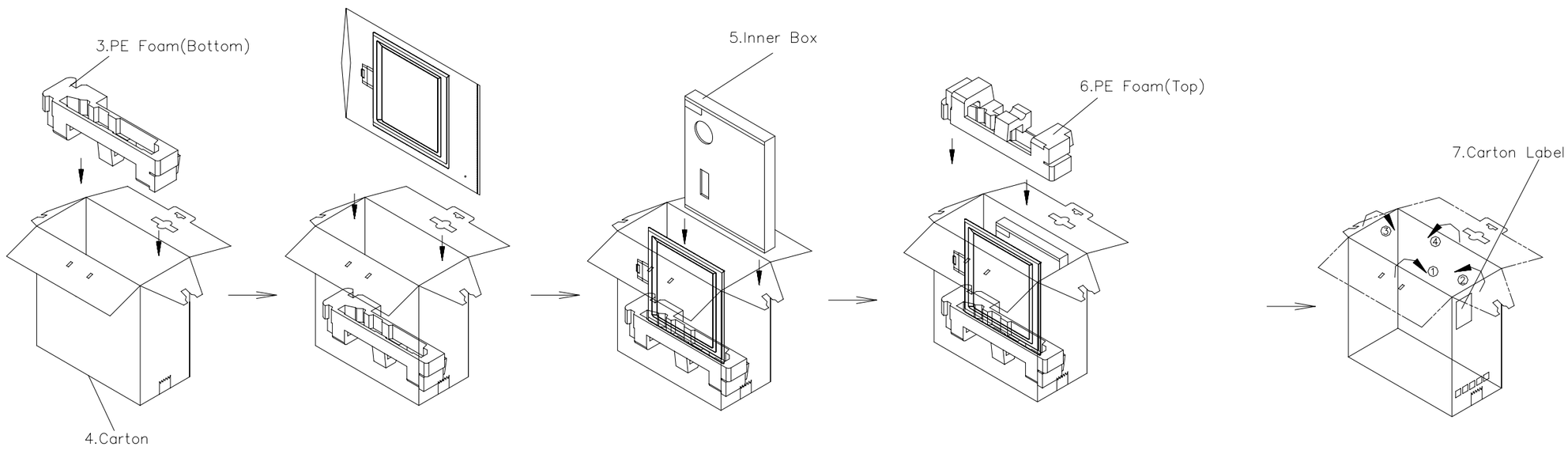


PACKING PARTS LIST (VE902m-1)

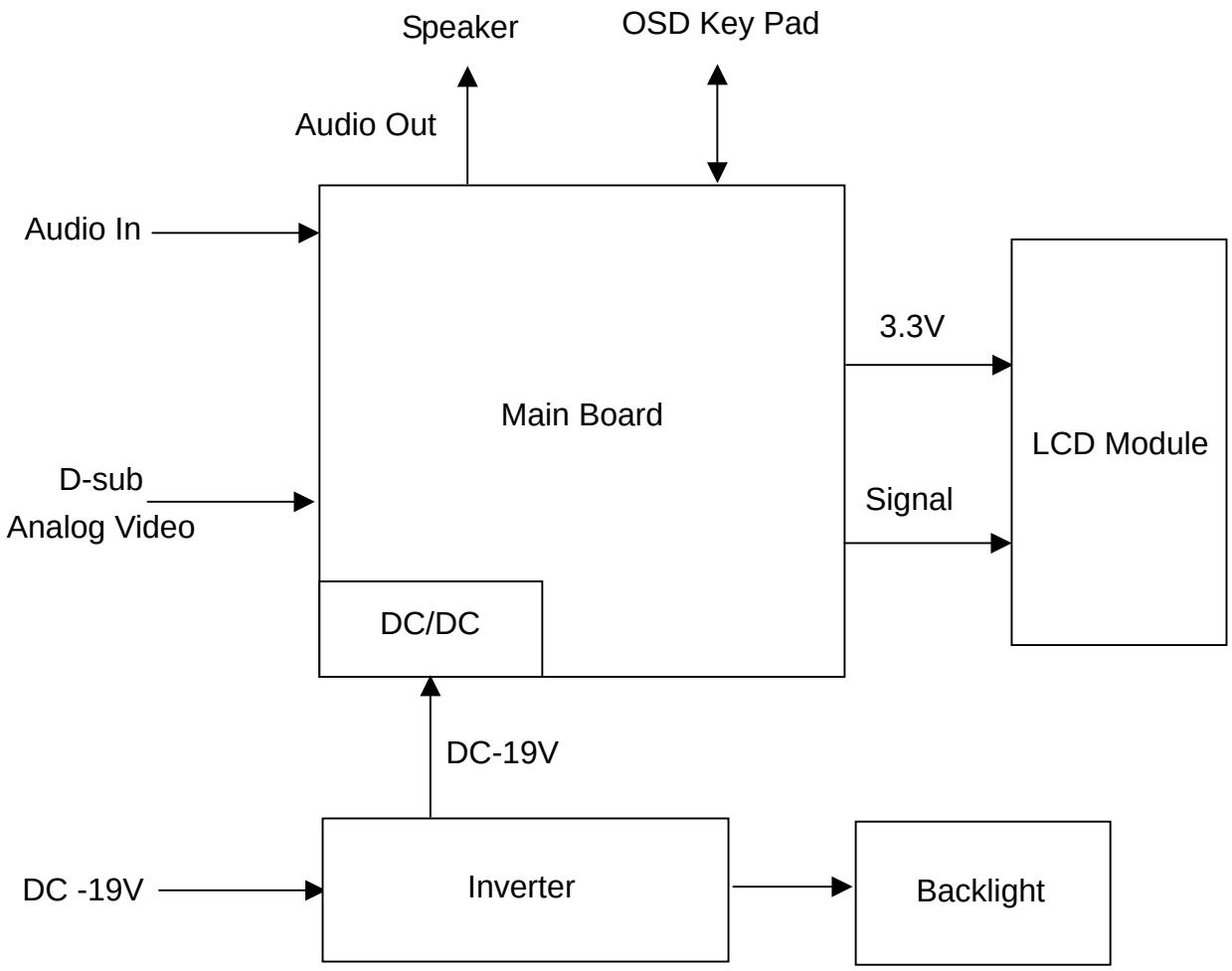
ViewSonic Model Number: '

Rev: 1a

Item	ViewSonic P/N	Reference P/N	Description
1	E-00000598	L3J003XXXX	LCD Panel , For 19.0" LCM, SXGA
2	P-00000595	7841919921	PE Foam Bag,Protector,570*600*0.13,A190E1-H01,white
3	P-00000596	7841949915	PE FOAM(Bottom),EPE, 456*146*50mm,A190E2-H03
4	P-00000593	7841925230	Carton,475*188*470, A190E2-H03,VSC
5	P-00000594	7841935111	Inner Box, 456x290x38mm, A190E1-H01
6	P-00000597	7841949914	PE FOAM(Top),EPE,456*146*50mm,A190E2-H03
7	DC-00000585	7741929144	Label,Carton Label,76.2*76.2, A190E2-H03,VSC

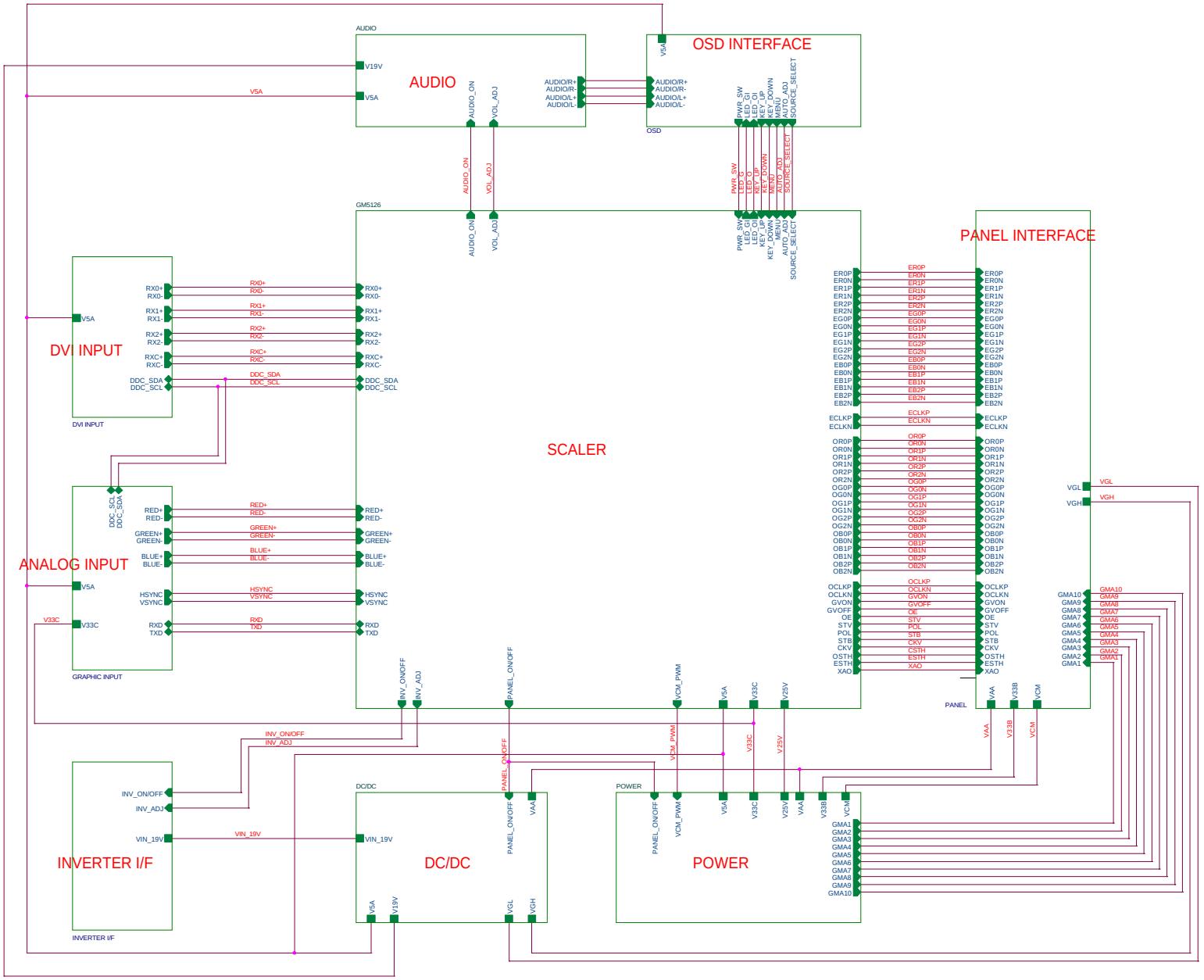


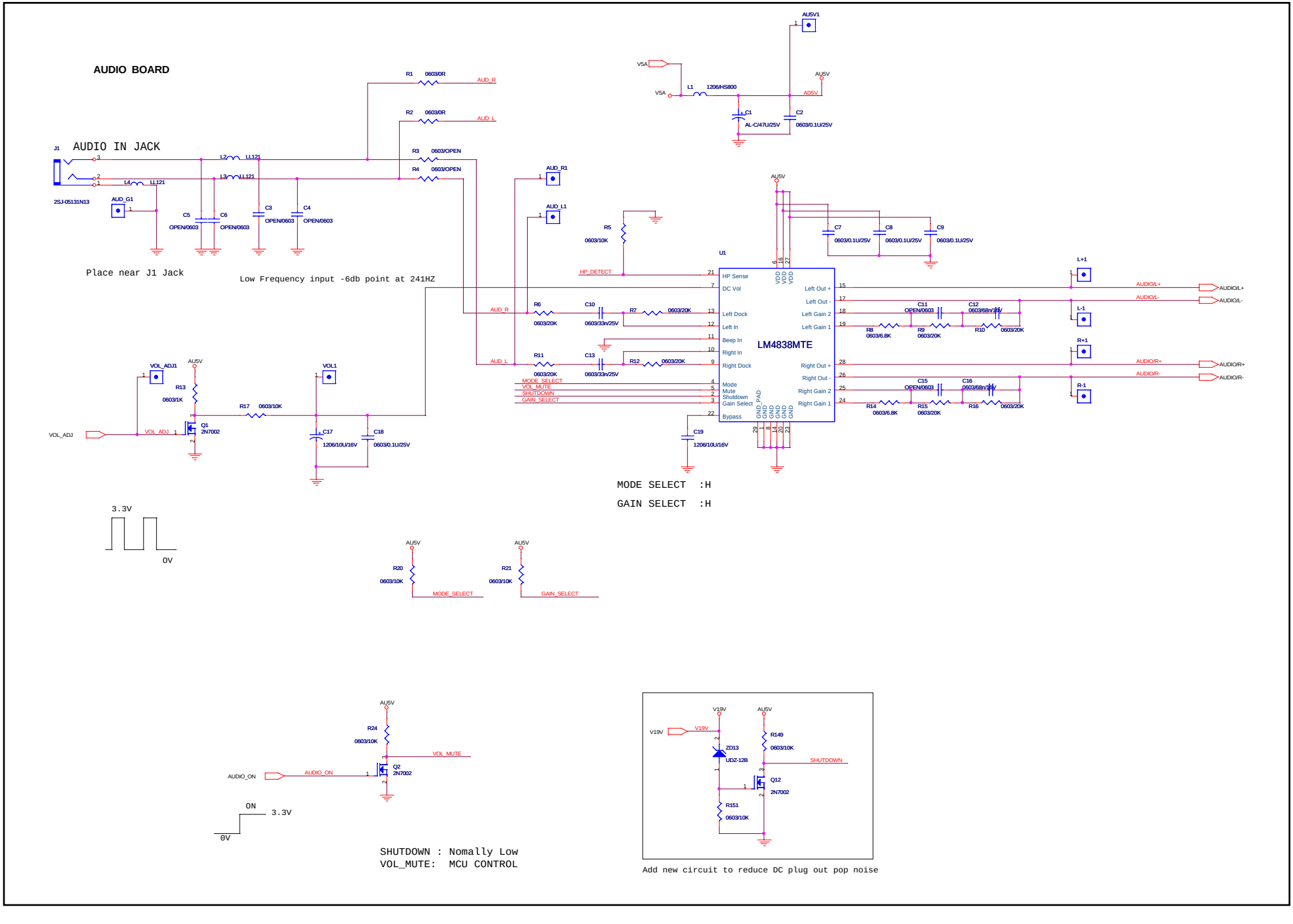
9. Block Diagram



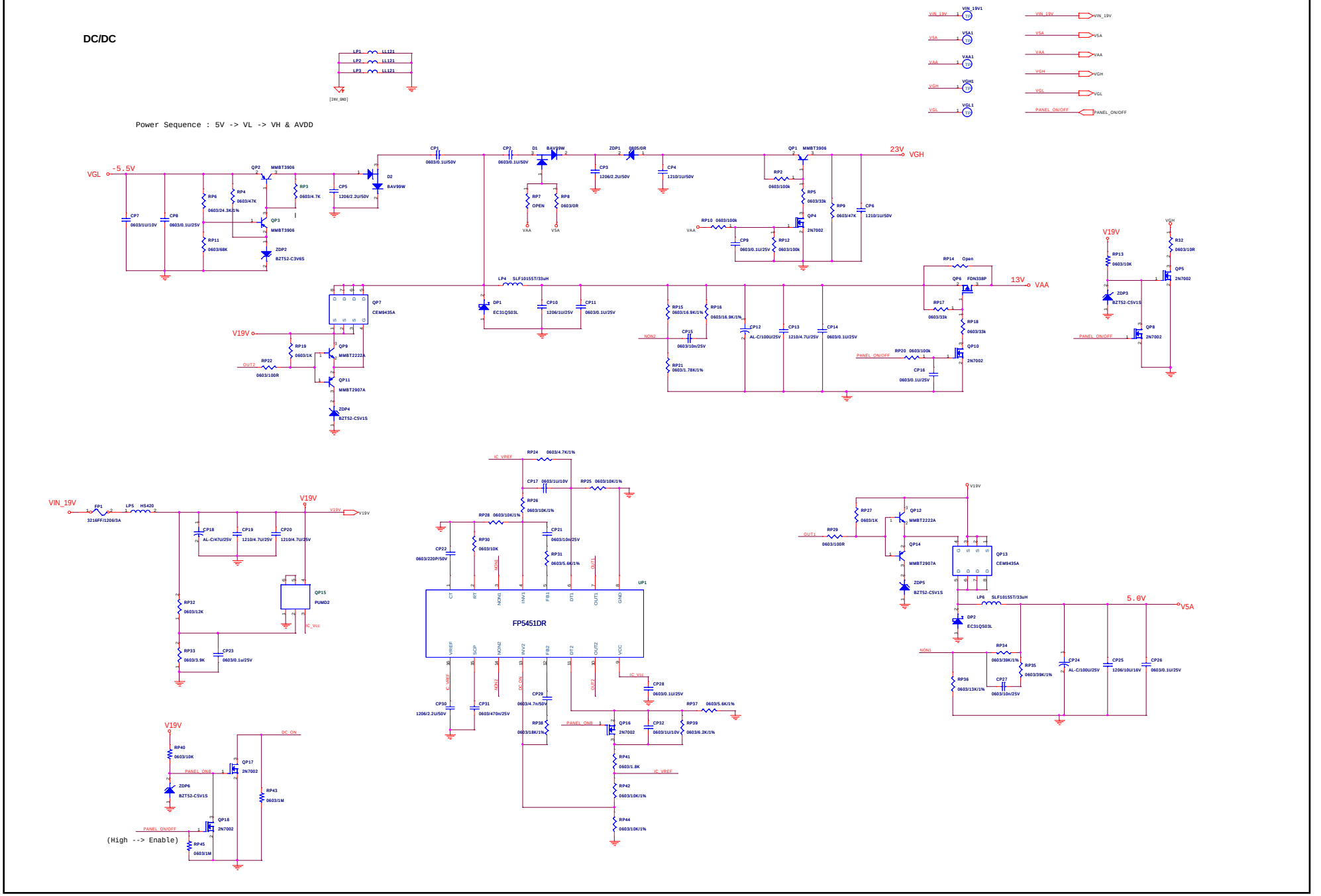
10. Schematic Diagrams

Main Board

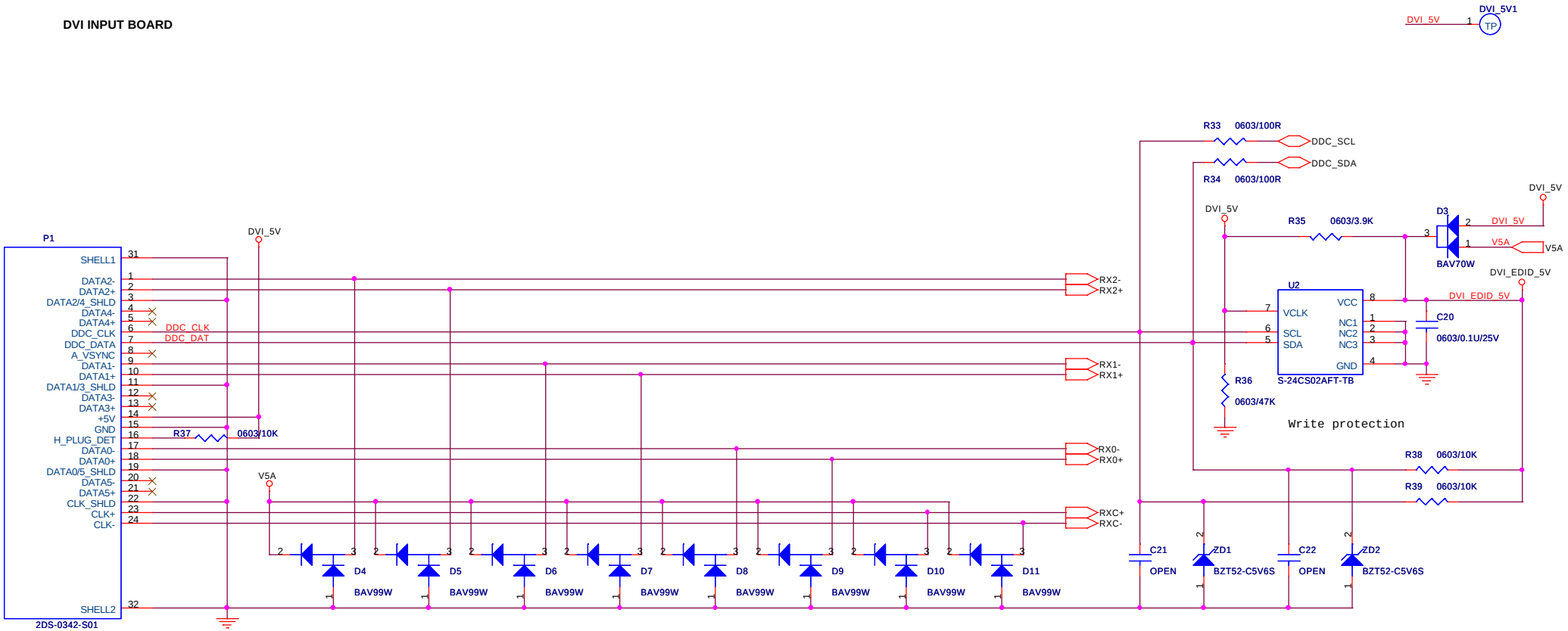



AUDIO BOARD
AUDIO IN JACK
J1
2SJ-05131N13
AUD_G1
R1 0603/0R
R2 0603/0R
R3 0603/OPEN
R4 0603/OPEN
L2 LL121
L3 LL121
L4 LL121
C5 OPEN/0603
C6 OPEN/0603
C3 OPEN/0603
C4 OPEN/0603
AUD_R
AUD_L
AUD_R1
AUD_L1
Place near J1 Jack
Low Frequency input -6db point at 241HZ
AU5V1
V5A
L1 1206/HS800
AU5V
AD5V
C1 AL-C/47U/25V
C2 0603/0.1U/25V
C7 0603/0.1U/25V
C8 0603/0.1U/25V
C9 0603/0.1U/25V
U1
LM4838MTE
HP Sense
DC Vol
Left Dock
Left In
Beep In
Right In
Right Dock
Mode
Mute
Shutdown
Gain Select
Bypass
Left Out +
Left Out -
Left Gain 2
Left Gain 1
Right Out +
Right Out -
Right Gain 2
Right Gain 1
VDD
GND_PAD
GND
HP_DETECT
MODE_SELECT
VOL_MUTE
SHUTDOWN
GAIN_SELECT
R5 0603/10K
R6 0603/20K
R7 0603/20K
R8 0603/6.8K
R9 0603/20K
R10 0603/20K
R11 0603/20K
R12 0603/20K
R14 0603/6.8K
R15 0603/20K
R16 0603/20K
C10 0603/33n/25V
C11 OPEN/0603
C12 0603/68n/16V
C13 0603/33n/25V
C15 OPEN/0603
C16 0603/68n/16V
C19 1206/10U/16V
L+1
L-1
R+1
R-1
AUDIO/L+
AUDIO/L-
AUDIO/R+
AUDIO/R-
VOL_ADJ1
R13 0603/1K
R17 0603/10K
VOL1
Q1 2N7002
VOL_ADJ
C17 1206/10U/16V
C18 0603/0.1U/25V
3.3V
0V
MODE SELECT :H
GAIN SELECT :H
R20 0603/10K
R21 0603/10K
R24 0603/10K
Q2 2N7002
AUDIO_ON
ON
3.3V
0V
SHUTDOWN : Nomally Low
VOL_MUTE: MCU CONTROL
V19V
ZD13 UDZ-12B
R149 0603/10K
Q12 2N7002
R151 0603/10K
Add new circuit to reduce DC plug out pop noise

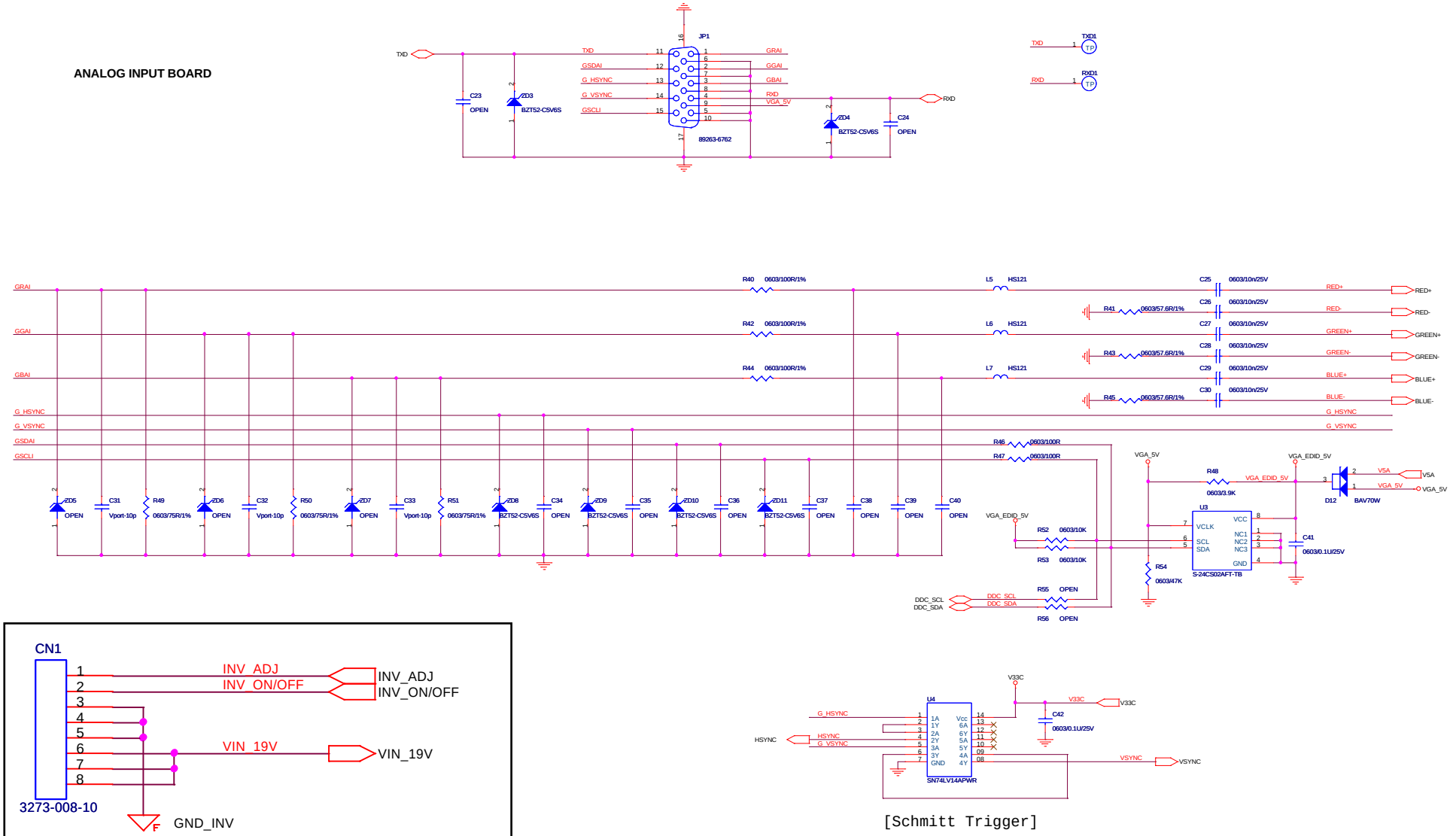
DC/DC

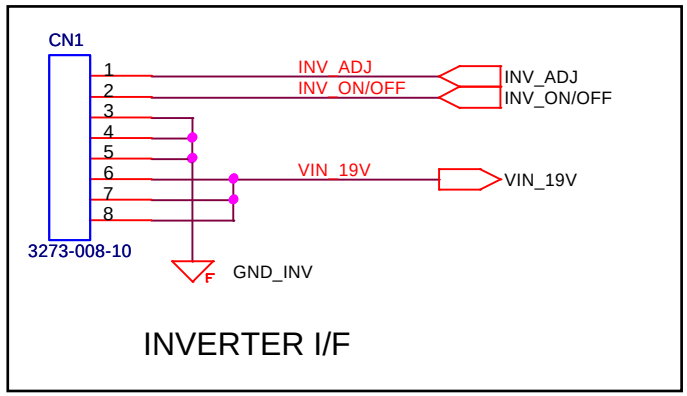

Power Sequence : 5V -> VL -> VH & AVDD
VGL
-5.5V
23V
VGH
13V
VAA
V19V
VIN_19V
5.0V
V5A
FP5451DR
(High --> Enable)

DVI INPUT BOARD

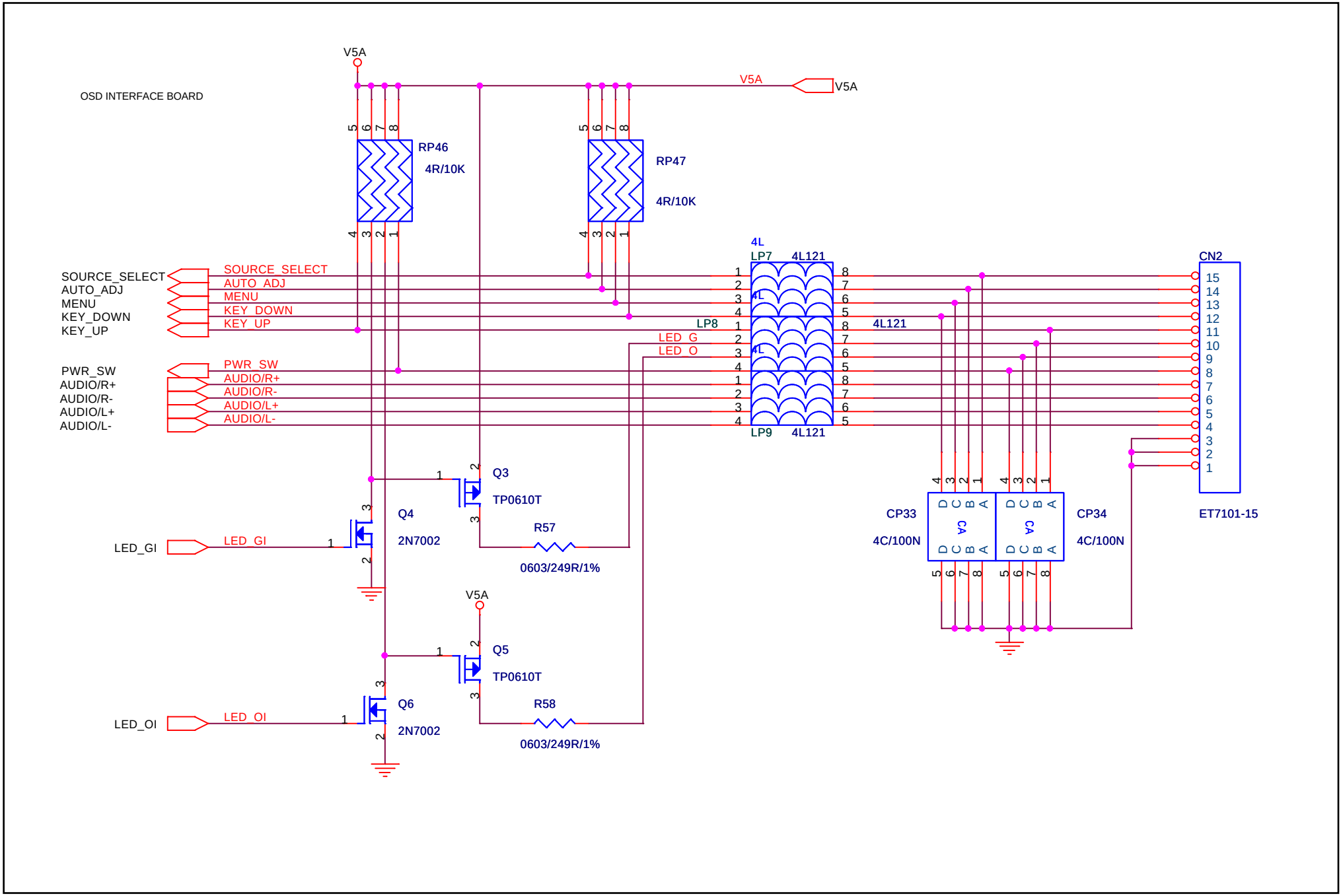


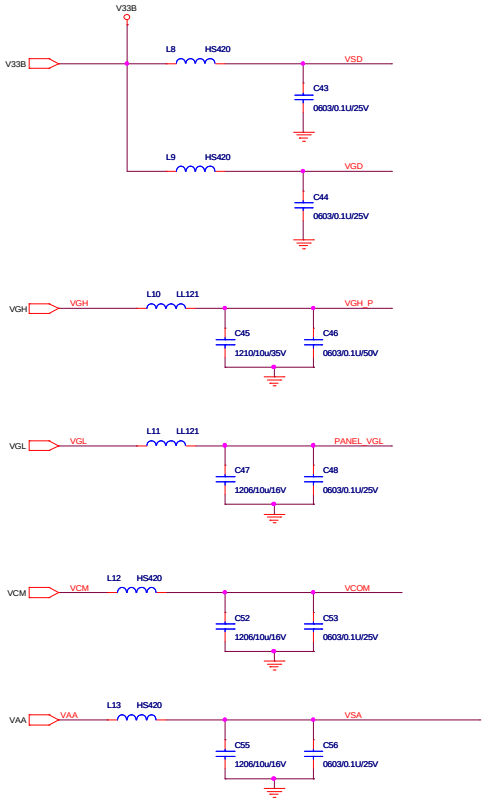
ANALOG INPUT BOARD



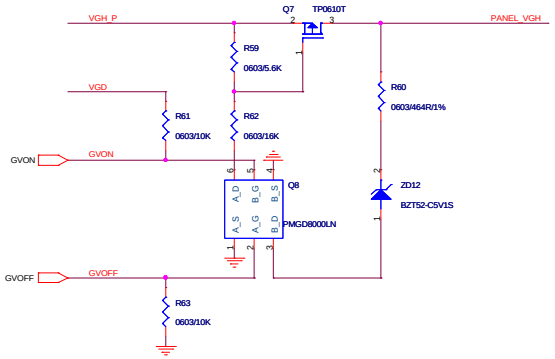


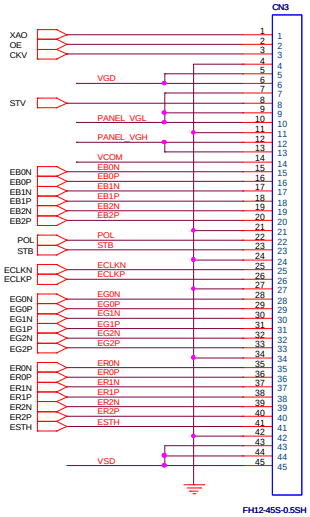
[Schmitt Trigger]

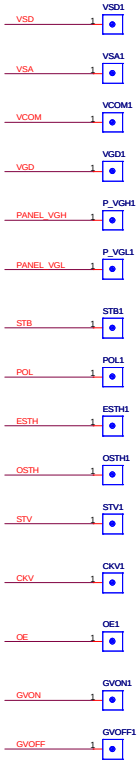

OSD INTERFACE BOARD
V5A
RP46
4R/10K
RP47
4R/10K
SOURCE_SELECT
AUTO_ADJ
MENU
KEY_DOWN
KEY_UP
PWR_SW
AUDIO/R+
AUDIO/R-
AUDIO/L+
AUDIO/L-
LED_G
LED_O
LP7 4L121
LP8 4L121
LP9 4L121
CN2
ET7101-15
CP33 4C/100N
CP34 4C/100N
Q3 TP0610T
Q4 2N7002
Q5 TP0610T
Q6 2N7002
R57 0603/249R/1%
R58 0603/249R/1%
LED_GI
LED_OI

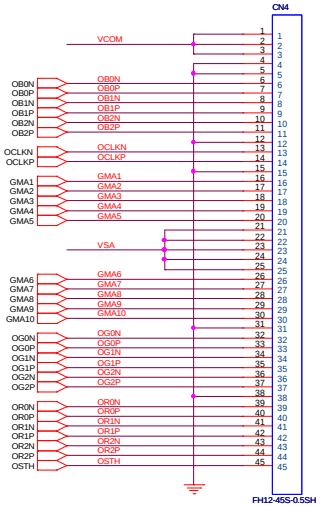

V33B
L8 HS420
VSD
C43
0603/0.1U/25V
L9 HS420
VGD
C44
0603/0.1U/25V
VGH
L10 LL121
VGH_P
C45
1210/10u/35V
C46
0603/0.1U/50V
VGL
L11 LL121
PANEL_VGL
C47
1206/10u/16V
C48
0603/0.1U/25V
VCM
L12 HS420
VCOM
C52
1206/10u/16V
C53
0603/0.1U/25V
VAA
L13 HS420
VSA
C55
1206/10u/16V
C56
0603/0.1U/25V

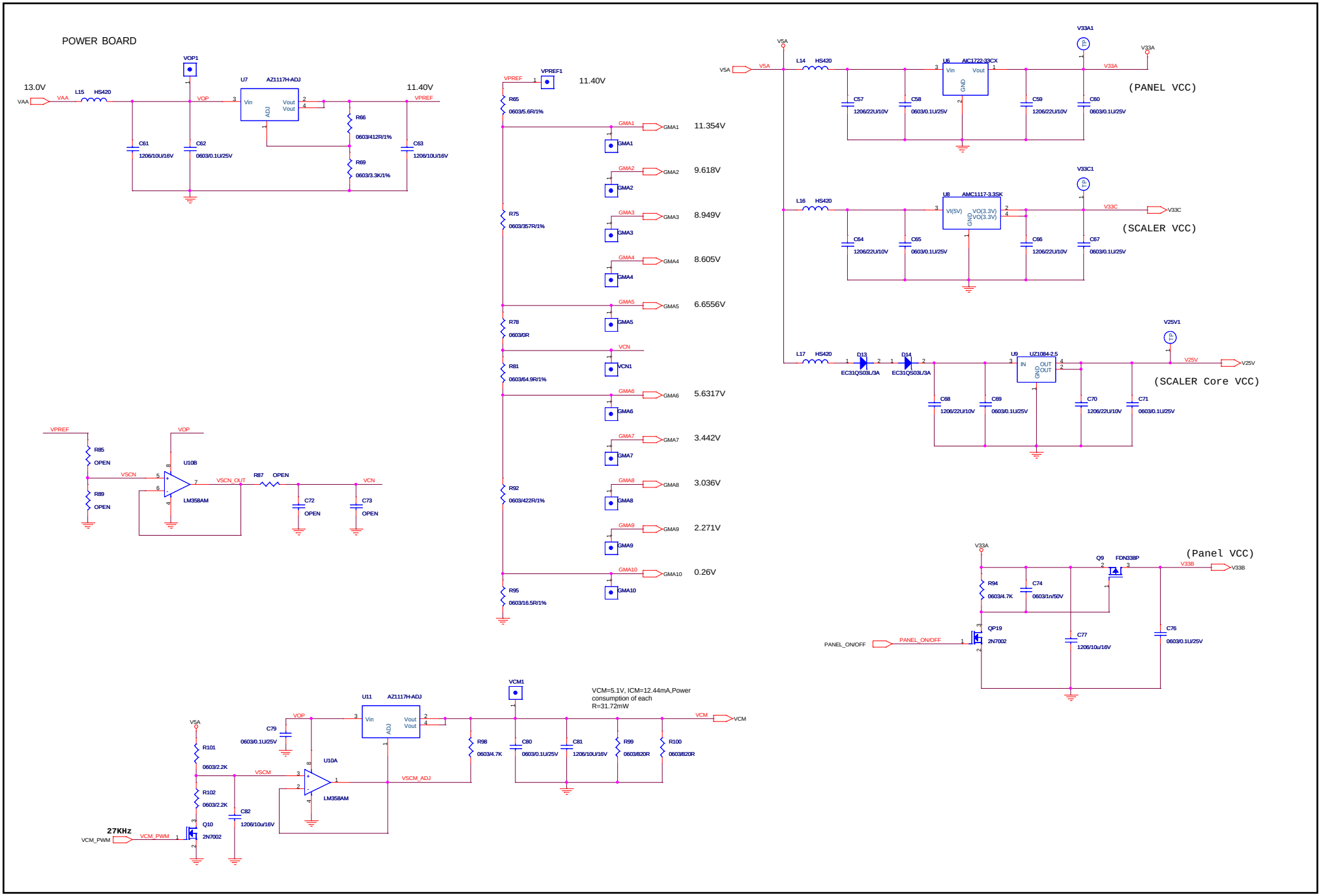
(3-STEP)

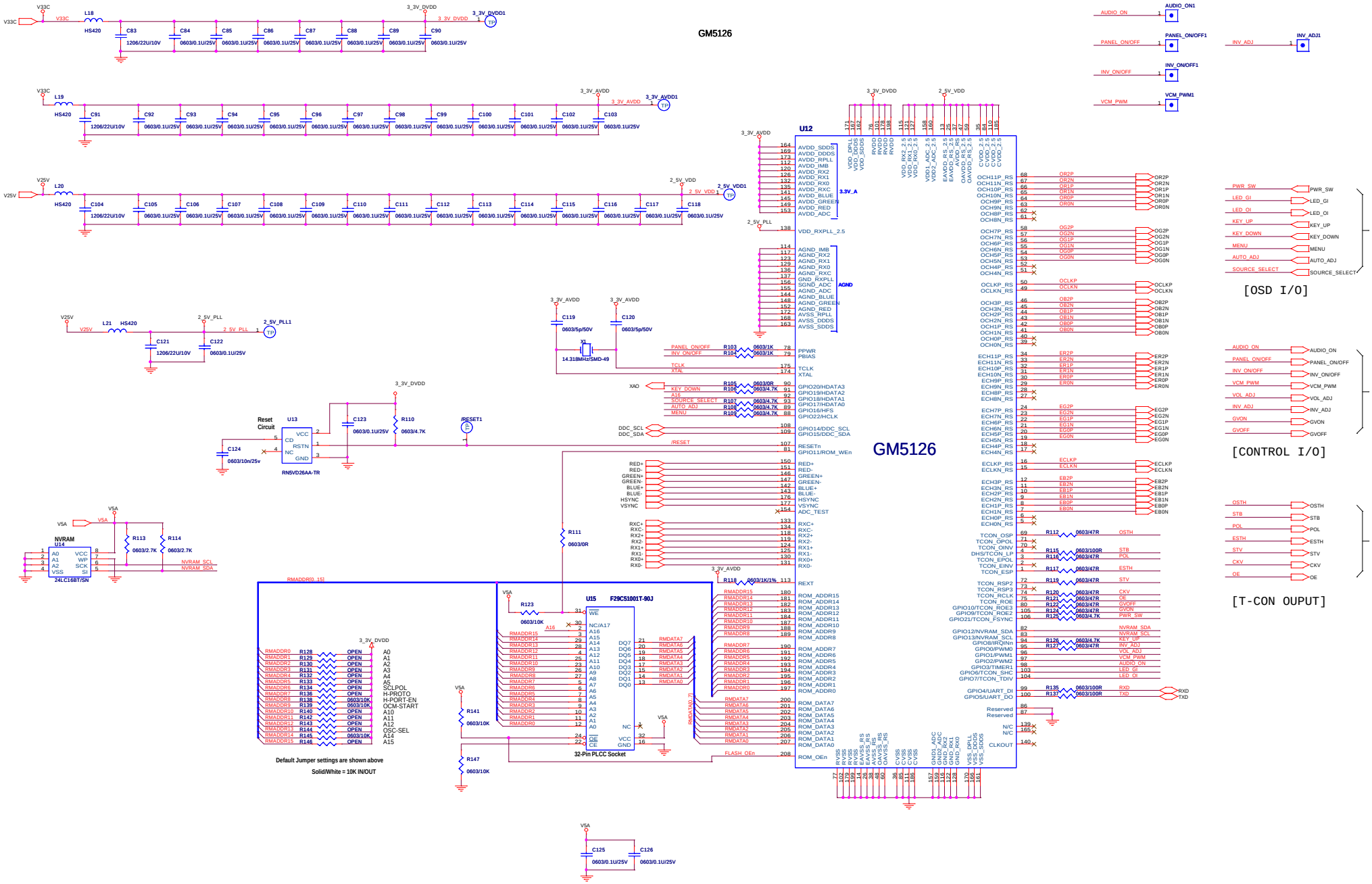

VGH_P
Q7
TP0610T
PANEL_VGH
R59
0603/5.6K
R60
0603/464R/1%
VGD
R61
0603/10K
R62
0603/16K
GVON
Q8
PMGD8000LN
ZD12
BZT52-C5V1S
GVOFF
R63
0603/10K


CN3
XAO
OE
CKV
VGD
STV
PANEL_VGL
PANEL_VGH
VCOM
EB0N
EB0P
EB1N
EB1P
EB2N
EB2P
POL
STB
ECLKN
ECLKP
EG0N
EG0P
EG1N
EG1P
EG2N
EG2P
ER0N
ER0P
ER1N
ER1P
ER2N
ER2P
ESTH
VSD
FH12-45S-0.5SH


VSD1
VSD
VSA1
VSA
VCOM1
VCOM
VGD1
VGD
P_VGH1
PANEL_VGH
P_VGL1
PANEL_VGL
STB1
STB
POL1
POL
ESTH1
ESTH
OSTH1
OSTH
STV1
STV
CKV1
CKV
OE1
OE
GVON1
GVON
GVOFF1
GVOFF

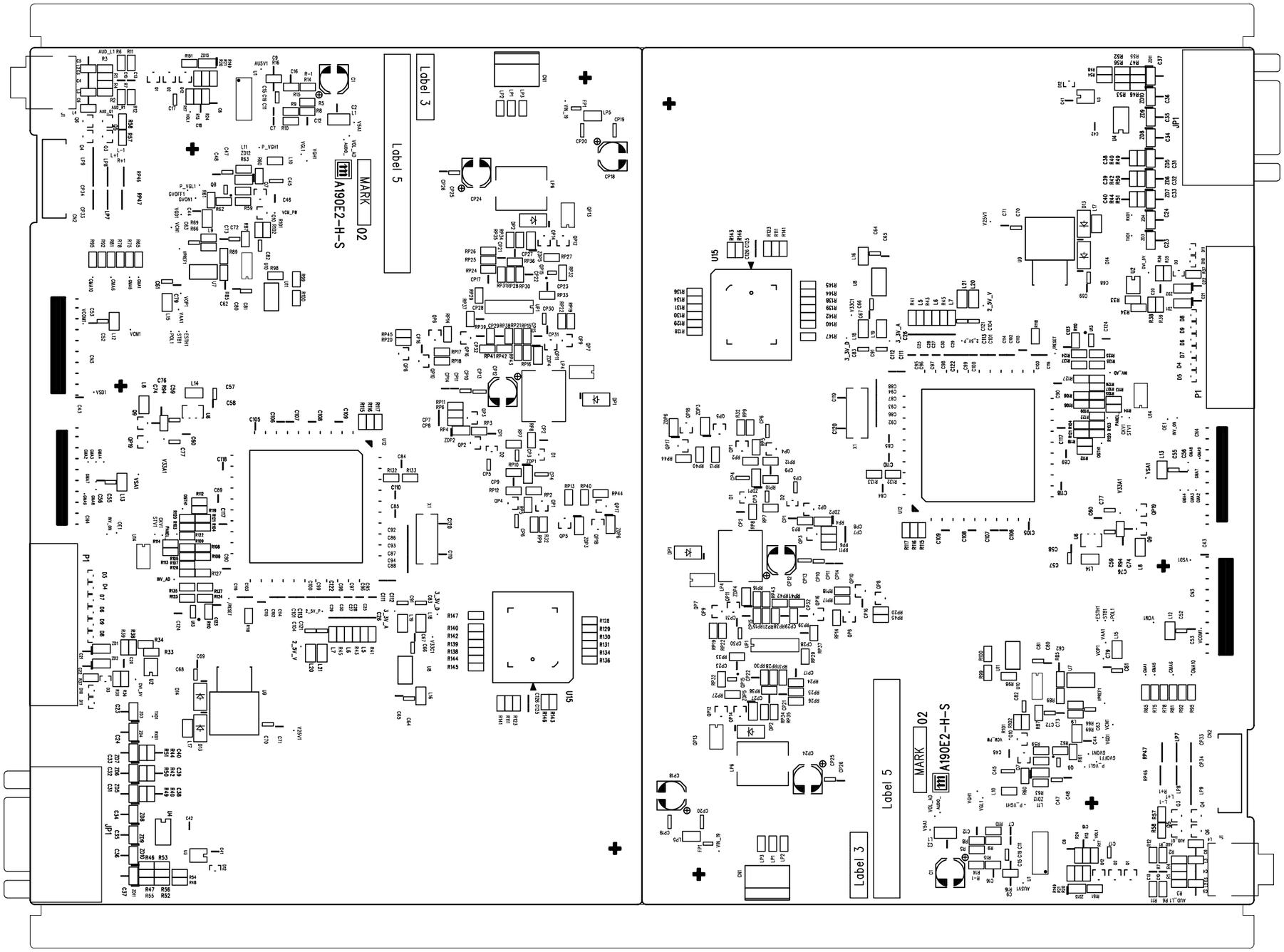

CN4
VCOM
OB0N
OB0P
OB1N
OB1P
OB2N
OB2P
OCLKN
OCLKP
GMA1
GMA2
GMA3
GMA4
GMA5
VSA
GMA6
GMA7
GMA8
GMA9
GMA10
OG0N
OG0P
OG1N
OG1P
OG2N
OG2P
OR0N
OR0P
OR1N
OR1P
OR2N
OR2P
OSTH
FH12-45S-0.5SH


POWER BOARD
13.0V
VAA
L15 HS420
VOP1
U7 AZ1117H-ADJ
Vin
Vout
ADJ
VOP
11.40V
VPREF
C61 1206/10U/16V
C62 0603/0.1U/25V
R66 0603/412R/1%
R69 0603/3.3K/1%
C63 1206/10U/16V
VPREF1
11.40V
R65 0603/5.6R/1%
GMA1 11.354V
GMA2 9.618V
R75 0603/357R/1%
GMA3 8.949V
GMA4 8.605V
GMA5 6.6556V
R78 0603/0R
VCN
R81 0603/64.9R/1%
GMA6 5.6317V
GMA7 3.442V
GMA8 3.036V
R92 0603/422R/1%
GMA9 2.271V
GMA10 0.26V
R95 0603/16.5R/1%
V5A
L14 HS420
U6 AIC1722-33CX
GND
V33A1
V33A
C57 1206/22U/10V
C58 0603/0.1U/25V
C59 1206/22U/10V
C60 0603/0.1U/25V
(PANEL VCC)
L16 HS420
U8 AMC1117-3.3SK
VI(5V)
VO(3.3V)
V33C1
V33C
C64 1206/22U/10V
C65 0603/0.1U/25V
C66 1206/22U/10V
C67 0603/0.1U/25V
(SCALER VCC)
L17 HS420
D13 EC31QS03L/3A
D14 EC31QS03L/3A
U9 UZ1084-2.5
IN
OUT
V25V1
V25V
C68 1206/22U/10V
C69 0603/0.1U/25V
C70 1206/22U/10V
C71 0603/0.1U/25V
(SCALER Core VCC)
VPREF
VOP
R85 OPEN
R89 OPEN
VSCN
U10B
LM358AM
VSCN_OUT
R87 OPEN
VCN
C72 OPEN
C73 OPEN
VCM1
U11 AZ1117H-ADJ
VCM=5.1V, ICM=12.44mA,Power consumption of each R=31.72mW
VCM
C79 0603/0.1U/25V
R98 0603/4.7K
C80 0603/0.1U/25V
C81 1206/10U/16V
R99 0603/820R
R100 0603/820R
R101 0603/2.2K
R102 0603/2.2K
VSCM
U10A
VSCM_ADJ
C82 1206/10u/16V
Q10 2N7002
27KHz
VCM_PWM
V33A
Q9 FDN338P
V33B
R94 0603/4.7K
C74 0603/1n/50V
QP19 2N7002
PANEL_ON/OFF
C77 1206/10u/16V
C76 0603/0.1U/25V
(Panel VCC)


GM5126
U12
GM5126
[OSD I/O]
[CONTROL I/O]
[T-CON OUPUT]
U15 F29C51001T-90J
32-Pin PLCC Socket
U14 NVRAM 24LC16BT/SN
Reset Circuit U13 RN5VD26AA-TR
Default Jumper settings are shown above
Solid/White = 10K IN/OUT
AUDIO_ON1
PANEL_ON/OFF1
INV_ON/OFF1
VCM_PWM1
INV_ADJ1

11. PCB Layout Diagrams

Main board



Reader's Response

Dear Readers:

Thank you in advance for your feedback on our Service Manual,which allows continuous improvement of our products. We would appreciate your completion of the Assessment Matrix below, for return to ViewSonic Corporation.

Assessment

A.What do you think about the content after reading **VE902m** Service Manual?

Unit	*Excellent*	*Good*	*Fair*	*Bad*
1. Precautions And Safety Notices				
2. Specification				
3. Front Panel Function Control Description				
4. Circuit Description				
5. Adjusting Procedure				
6. Trouble Shooting Flow Chart				
7. Recommended Spare Parts List				
8. Exploded Diagram and Spare Parts List				
9. Block Diagram				
10. Schematic Diagrams				
11. PCB Layout Diagrams				

B.Are you satisfied with the **VE902m** service manual?

Item	*Excellent*	*Good*	*Fair*	*Bad*
1. Service Manual Content				
2. Service Manual Layout				
3. The form and listing				

C.Do you have any other opinion or suggestion about this service manual?

Reader's basic data:

Name:		Title:	
Company:			
Add.:			
Tel:		Fax:	
E-mail:			

After completing this form, please return it to ViewSonic Quality Assurance in the USA at facsimile 1-909-839-7943. You may also e-mail any suggestions to the Director, Quality Systems & Processes (marc.maupin@viewsonic.com)