Acer AL1706

Service Guide

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Conventions

The following conventions are used in this manual

Screen Messages	Denotes actual messages that appear on screen.
NOTE	Give bits and pieces of additional information related to the current topic.
WARNING	Alerts you to any damage that might result from doing or not doing specific actions.
CAUTION	Gives precautionary measures to avoid possible hardware or software problems.
IMPORTANT	Reminds you to do specific actions relevant to the accomplishments of procedures.

Preface

Before using this information and the product it supports, please read the following general information.

1. This Service Guide provides you with all technical information relating to the BASIC CONFIGURATION decided for Acer's "global" product offering. To better fit local market requirements and enhance product competitiveness, your regional office MAY have decided to extend the functionality of a machine (e.g. add-on card, modem, or extra memory capability). These LOCALIZED FEATURES will NOT be covered in this generic service guide. In such cased, please contact your regional offices or the responsible personnel/channel to provide you with further technical details.

2. Please not WHEN ORDER FRU PARTS, that you should check the most up-to-date information available on your regional web or channel. If, for whatever reason, a part number change is made, it will not be noted in the printed Service Guide. For ACER-AUTHORIZED SERVICE PROVIEDERS, your Acer office may have a DIFFERENT part number code to those given in the FRU list of this printed Service Guide. You MUST use the list provided by your regional Acer office to order FRU parts for repair and service of customer machines.

WARNING (FOR FCC CERTIFIED MODELS)

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Reorient or relocate the receiving antenna.

2. Increase the separation between the equipment and receiver.

3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

4. Consult the dealer or an experienced radio/TV technician for help.

Notice:

1. The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

2. Shielded interface cables and AC power cord, if any, must be used in order to comply with the emission limits.

3. The manufacturer is not responsible for any radio or TV interference caused by unauthorized modification to this equipment. It is the responsibility of the user to correct such interference. As an ENERGY STAR Partner our company has determined that this product meets the ENERGY STAR guidelines for energy efficiency.

WARNING:

To prevent fire or shock hazard, do not expose the monitor to rain or moisture. Dangerously high voltages are present inside the monitor. Do not open the cabinet. Refer servicing to qualified personnel only

PRECAUTIONS

- Do not use the monitor near water, e.g. near a bathtub, washbowl, kitchen sink, laundry tub, swimming pool or in a wet basement.
- Do not place the monitor on an unstable trolley, stand, or table. If the monitor falls, it can injure a person and cause serious damage to the appliance. User only a trolley or stand recommended by the manufacturer or sold with the monitor. If you mount the monitor on a wall or shelf, use a mounting kit approved by the manufacturer and following the kit instructions.
- Slots and openings in the back and bottom of the cabinet are provide for ventilation. To ensure reliable operation of the monitor and to protect it from overheating, be sure these openings are not blocked or covered. Do not place the monitor on a bed, sofa, rug, or similar surface. Do not place the monitor near or over a radiator or heat register. Do not place the monitor in a bookcase or cabinet unless proper ventilation is provided.
- The monitor should be operated only from the type of power source indicated on the label. If you are not sure of the type of power supplied to your home, consult your dealer or local power company.
- The monitor is equipped with a three-pronged grounded plug, a plug with a third (grounding) pin. This plug will fit only into a grounded power outlet as a safety feature. If your outlet does not accommodate the three-wire plug, have an electrician install the correct outlet, or use an adapter to ground the appliance safely. Do not defeat the safety purpose of the grounded plug.
- Unplug the unit during a lightning storm or when it will not be used for long periods of time. This will protect the monitor from damage due to power surges.
- Do not overload power strips and extension cords. Overloading can result in fire or electric shock.
- Never push any object into the slot on the monitor cabinet. It could short circuit parts causing a fire or electric shock. Never spill liquids on the monitor.
- Do not attempt to service the monitor yourself; opening or removing covers can expose you to dangerous voltages and other hazards. Please refer all servicing to qualified service personnel.
- To ensure satisfactory operation, use the monitor only with UL listed computers which have appropriate configured receptacles marked between 100-240V AC, Min. 3.5A.
- The wall socket shall be installed near the equipment and shall be easily accessible.

SPECIAL NOTES ON LCD MONITORS

The following symptoms are normal with LCD monitor and do not indicated a problem.

NOTES

- Due to the nature of the fluorescent light, the screen may flicker during initial use. Turn off the Power Switch and then turn it on again to make sure the flicker disappears.
- You may find slightly uneven brightness on the screen depending on the desktop pattern you use.
- The LCD screen has effective pixels of 99.99% or more. It may include blemishes of 0.01% or less such as a missing pixel or a pixel lit all of the time.
- Due to the nature of the LCD screen, an afterimage of the previous screen may remain after switching the image, when

the same image is displayed for hours. In this case, the screen is recovered slowly by changing the image or turning off the Power Switch for hours.

Table of Contents

Chapter 1 Monitor Features Monitor Features	10
Factory Preset Timing Table	
Monitor Block Diagram	
Interface Board Diagram	
-	
Software Flow Chart	
Interface Board PCB Layout	
Front Bezel	
Rear Cover	
Chapter 2 Operating Instruction	20
Front Bezel Control	
Adjusting the Monitor	
How to Optimize the DOS-Mode	
Chapter 3 Machine Assembly	27
Chapter 4 Troubleshooting	31
Common Acknowledge	
Interface Board Troubleshooting	
QPI PCBA Troubleshooting	
-	
Chapter 5 Connector Information	40
VGA Connector Pin Assignment	
Chapter 6 FRU (Field Replaceable Unit)	42
Exploded Diagram	
Part List	
	40

Chapter 7 Schematic Diagram

43

Chapter 1

MONITOR FEATURES

MONITOR FEATURES

	Driving System	TFT Color LCD				
LCD Panel	Size	17"				
	Pixel pitch	0.264mm (H) x 0.264mm (V)				
	Viewable angle	140° (H), 140 ° (V)				
	Brightness	270cd/m ₂ (typ.)				
	Contrast Ratio	500:1 (typ.)				
	Response Time	12ms (typ.)				
Signal	Video	RGB Analog Interface (Analog only model)				
	Separate Sync.	H/V TTL				
	H-Frequency	31.5KHz to 60.241KHz				
	V-Frequency	56Hz to 75Hz				
Display Color		6bits+FRC				
Dot Clock		80MHz				
Max. Resolution		1024 x 768 @75Hz				
Plug & Play		VESA DDC 1/2B				
EPA ENGERGY STAR	ON MODE	< 35W				
OFF MODE		<1W				
Input Connector		D-Sub 15pin				
		Three-Pronged Pin				
Input Video Signal		Analog: 0.7Vp-p (Standard), 75 OHM,				
		Positive (Analog-Only Model)				
Maximum Screen Size	Horizontal	338 mm				
	Vertical	270 mm				
Power Source		100~240VAC, 50~60Hz				
Environmental Consideration	15	Operating Temp: 5°C to 40° C				
		Storage Temp: -20° C to 60° C				
		Operating Humidity: 5% to 95%				
Weight (Net)		3.7Kg				
Dimension		343.4 (W) x 351.4 (H) x 159.8 (D) mm				

External Controls	Switch	Power Switch Menu		
		>		
		< Auto		
	Function	Contrast/Brightness Phase/Clock H. Position/ V. Position		
		Color (Warm, Cool, User) Language OSD (H. Position, V.		
		Position, Timeout) Auto Config Information		
		Reset		
		Exit		
Regulatory Compliance		UL, CSA, TUS+GS, CG, PSB, B-MARK, PSE, Ergo, FCC, BSMI,		
		VCCI, C-Tick, TCO99, CCC, WHQL		

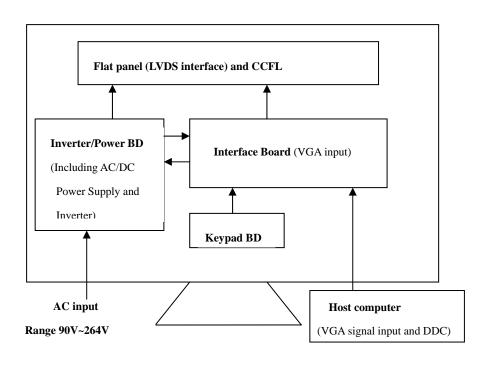
FACTORY PRESET TIMING TABLE

Standard	Resolution	Horizontal Frequency (KHz)	Vertical Frequency (Hz)
VGA	640 x 480	31.469	60.000
	640 x 480	37.861	72.809
	640 x 480	37.500	75.000
SVGA	800 x 600	35.156	56.250
	800 x 600	37.879	60.317
	800 x 600	48.077	72.188
	800 x 600	46.875	75.000
XGA	1024 x 768	48.363	60.004
	1024 x 768	56.476	70.069
	1024 x 768	60.023	75.029
SXGA	1280 x 1024	63.981	60.020
	1280 x 1024	79.976	75.025
IBM	640 x 350	31.469	70.087
	720 x 400	31.470	70.080
MAC	832 x 624	49.725	74.551
	1024 x 768	48.780	60.001
	1024 x 768	60.241	74.927

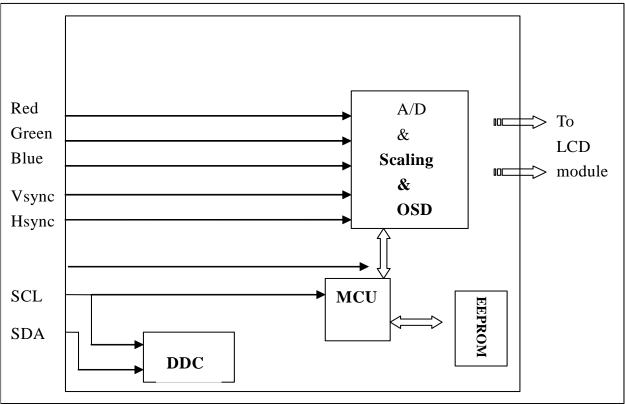
Monitor Block Diagram

The LCD monitor contains 4 parts:

- 1. interface board: Deal with VGA input signal and output the signal to panel.
- 2. Power/inverter board: Provide power to interface board and panel
- 3. Keypad board: For user to control the LCD monitor.
- 4. Flat panel:



MAIN BOARD DIAGRAM

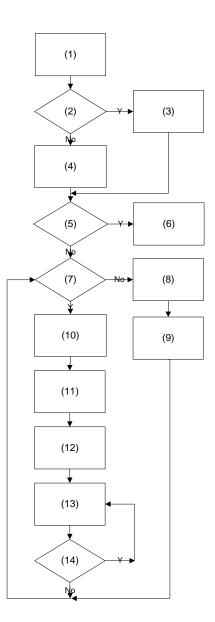


Interface Board

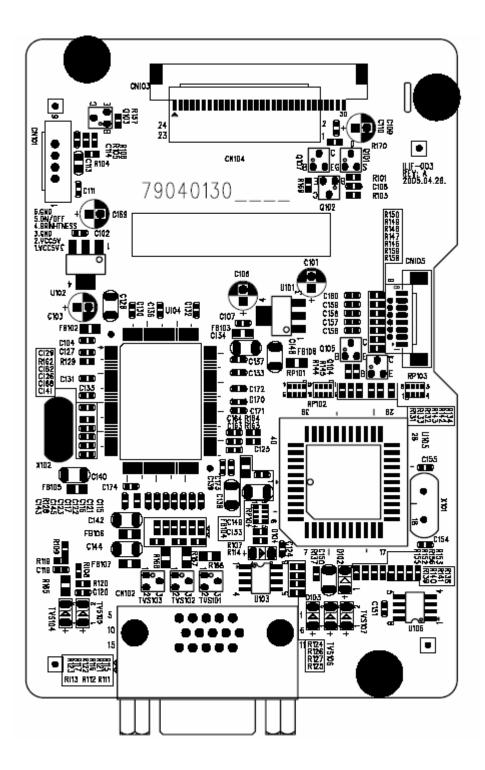
Software Flow Chart

ACER 17" flow chart item description:

- 1. MCU initialize.
- 2. Is the EEProm blank?
- 3. Program the EEProm by default values.
- 4. Get the user value and mode setting from EEProm.
- 5. Are the factory key pressed?
- 6. Enter factory mode.
- 7. Check the analog port, are there any signal coming?
- 8. Display "No Signal" message.
- 9. Enter sleep mode.
- 10. Wake up the scalar.
- 11. Program the scalar to be able to show the coming mode.
- 12. Turn on the LED and set it to green color.
- 13. Process the OSD display
- 14. Read the keyboard. Is any key pressed?

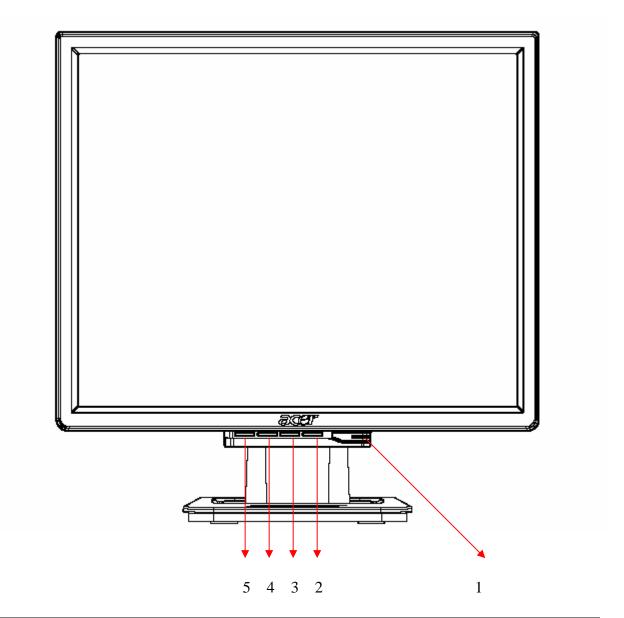


MONITOR INTERFACE BOARD PCB LAYOUT



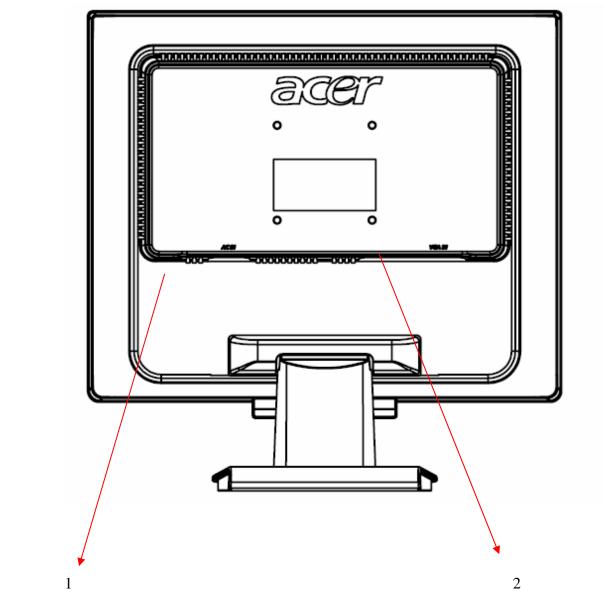
Symbol:	Component:		
CN103	LVDS connector		
CN101	Connector to power BD		
U102	5V to 1.8V regulator		
X102	Crystal to scaler		
U104	Scaler "TSU16AK"		
U105	MCU "Winbond"		
CN102	D-sub connector		
U103	DDC		
U106	EEPROM		
X101	Crystal to MCU		
CN105	Connector to control BD		
U101	5V to 3.3V regulator		

FRONT BEZEL



ITEM	DESCRIPTION	
1	Power Tack Switch	
2	Menu/Enter	
3	>(Up)	
4	<(Down)	
5	Auto/Exit	

REAR BEZEL



ITEM	DESCRIPTION		
1	Three-pronged power cord		
2	VGA Cable with blue connector compliance with PC99		

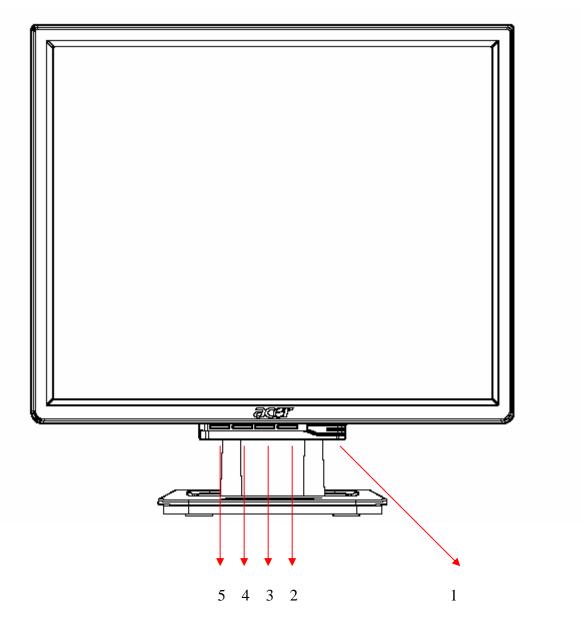
Chapter 2

OPERATION INSTRUCTIONS

Press the power button to turn the monitor on or off. The other control buttons are located on the front of the monitor. By changing these settings, the picture can be adjusted to your personal preferences.

- The power cord should be connected.
- Connect the video cable from the monitor to the VGA Card.
- Press the power button to turn on the monitor, the power indicator will light up.

Front Panel Control



No	Symbol	Function					
1	Power key/LED	Press this button to turn the monitor on or off					
		LED Green – Power On mode					
		LED Orange – Off mode					
2	Menu/Enter	Activate OSD menu when OSD is off or activate/de-activate adjustment function when					
		OSD is ON or Exit OSD menu when in Volume Adjust OSD status.					
3	>	1. Activates the volume control when the OSD is OFF.					
5	-	2. Navigate through adjustments icons when OSD is ON.					
		3. Adjust a function when function is activated.					
4	<	1. Activates the volume control when the OSD is OFF.					
		2. Navigate through adjustments icons when OSD is ON.					
		3. Adjust a function when function is activated.					
5	Auto/Exit	1. When OSD menu is in active status, this button will act as EXIT (exit OSD menu)					
		2. When OSD menu is in off status, press this button for 2seconds to activate the "Auto					
		Adjustment" which is used to set the H.Pos., V Pos., Clock and Phase.					

NOTES

- Do not install the monitor in a location near heat sources such as radiators or air ducts, or in a place subject to direct sunlight, or excessive dust or mechanical vibration or shock.
- Save the original shipping carton and packing materials, as they will come in handy if you ever have to ship your monitor.
- For maximum protection, repackage your monitor as it was originally packed in the factory.
- To keep the monitor looking new, periodically clean it with a soft cloth. Stubborn stains may be removed with a cloth lightly dampened with a mild detergent solution. Never use strong solvents such as thinner, benzene, or abrasive cleaners, since these will damage the cabinet. As a safety precaution, always unplug the monitor before cleaning it.

ADJUSTING THE MONITOR

1.) Main OSD Menu

a. Outline



b. Description for OSD

Main Menu Icon	Sub Menu Item	Sub Menu Icon	Description	Adjustment Range	Reset Value
X	Contrast	•	Contrast from digital register	0-100	50
	Brightness	¥	Backlight Adjustment	0-100	100
	Phase		Adjust picture phase to reduce horizontal line noise	0-100	Do auto config
	Clock	E	Adjust picture clock to reduce vertical line noise	0-100	Do Auto Config
•	H. Position		Adjust picture horizontal position	0-100	Do Auto Config

	V. Position		Adjust picture vertical position	0-100	Do Auto Config
	Warm	N/A	Recall warm color temp. from EEPROM	N/A	N/A
	Cool	N/A	Recall cool color temp. from EEPROM	N/A	N/A
	User/Red	R	Red gain from digital register	0-100	The value which we get after executing Auto color balance
	User/Green	G	Green gain from digital register	0-100	
	User/Blue	B	Blue gain from digital register	0-100	
	English	N/A	Set OSD language to English	N/A	English
	繁體中文	N/A	Set OSD language to Traditional Chinese	N/A	
	Deutsch	N/A	Set OSD language to German	N/A	
6)	Francais	N/A	Set OSD language to French	N/A	
	Espanol	N/A	Set OSD language to Spain	N/A	
	Italiano	N/A	Set OSD language to Italian	N/A	
	簡體中文	N/A	Set OSD Language to Simplified	N/A	-
			Chinese		
	日本語	N/A	Set OSD language to Japanese	N/A	
	H. Position	+=+	Adjust OSD horizontal position	0-100	50
<u>osd</u>	V. Position	ţ	Adjust OSD vertical position	0-100	50
	OSD		Adjust the OSD timeout	0-100	40
	Timeout				
AUTO	Auto Config	N/A	Auto adjust the picture's H/V position, clock and phase	N/A	N/A
ĺ	Information	N/A	Show the current input timing mode's resolution, H/V frequency	N/A	N/A
RÐ	Reset	N/A	Memory Recall	N/A	N/A

Exit	N/A	Exit OSD	N/A	N/A

2) OSD MESSAGE

a. Outline

NO SIGNAL

b. OSD Message Description

Item	Description
No Signal	When LCD Monitor power on, but video cable is not connected, will show this
	message, then enter power saving.

3) FACTORY MENU

a. How to call out "Factory Menu"

At VGA in, Push "AUTO" & "MENU", and plug AC Power cord in sync..

b. Outline



HOW TO OPTIMIZE THE DOS-MODE

PLUG AND PLAY

Plug & Play DDC1/2B Feature

This monitor is equipped with VESA DDC1/2B capabilities according to the VESA DDC STANDARD. It allows the monitor to inform the host system its identity and, depending on the level of DDC used, communicate additional information about its display capabilities. The communication channel is defined in two levels, DDC1 and DDC2B.

The DDC1 is a unidirectional data channel from the display to the host that continuously transmits EDID information. The DDC2B is a bidirectional data channel based on the I^2C protocol. The host can request EDID information over the DDC2B channel.

THIS MONITO WILL APPEAR TO BE NON-FUNCTIONAL IF THERE IS NO VIDEO INPUT SIGNAL. IN ORDER FOR THIS MONITOR OT OPERATE PROPERLY, THERE MUST BE A VIDEO INPUT SIGNAL.

This monitor meets the Green monitor standards as set by the Video Electronics Standards Association (VESA) and/or the United States Environmental Protection Agency (EPA) and the Swedish Confederation Employees (NUTEK). This feature is designed to conserve electrical energy by reducing power consumption when there is no video-input signal present. When there is no video input signal this monitor, following a time-out period, will automatically switch to an OFF mode. This reduces the monitor's internal power supply consumption. After the video input signal is restored, full power is restored and the display is automatically redrawn. The appearance is similar to a "Screen Saver" feature except the display is completely off. The display is restored by pressing a key on the keyboard, or clicking the mouse.

USING RIGHT POWER CORD

The accessory power cord for the Northern American region is the wallet plug with NEMA 5*15 style and is UL listed and CSA labeled. The voltage rating for the power cord shall be 125 volts AC.

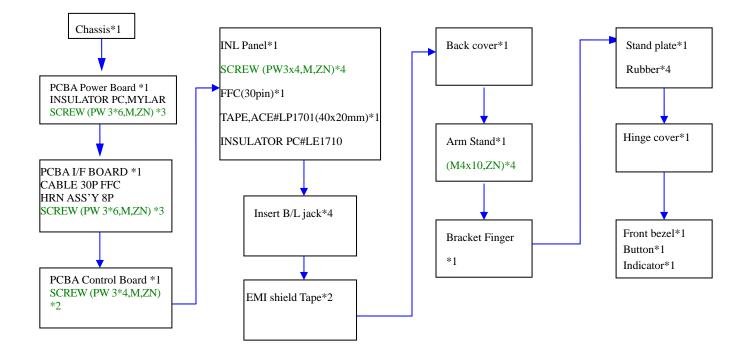
MACHINE ASSEMBLY

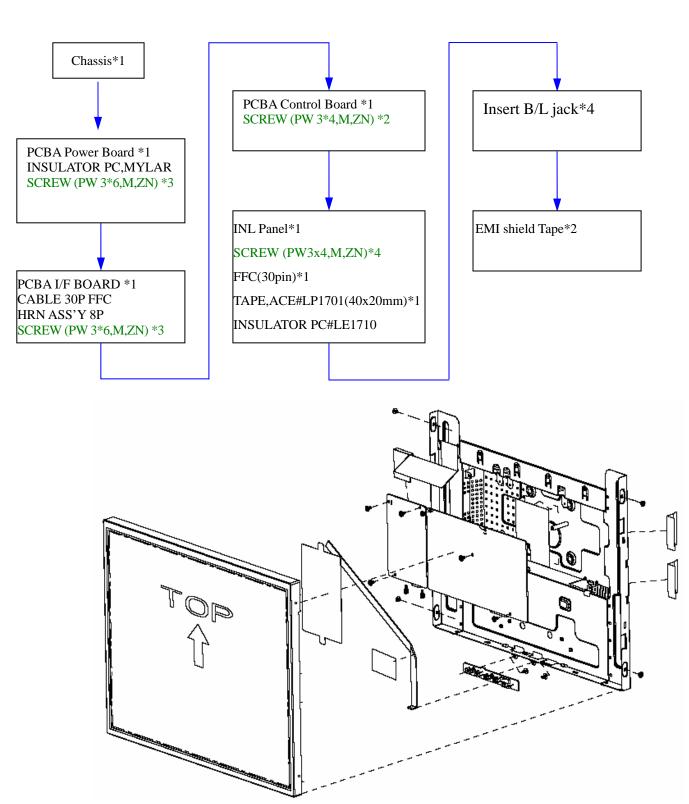
Chapter 3

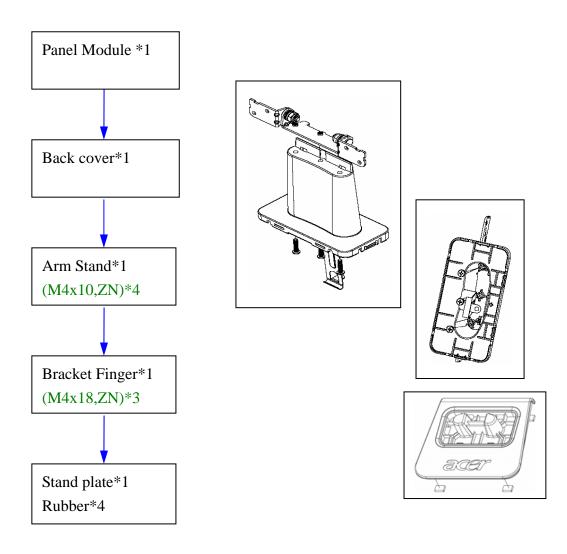
This chapter contains step-by-step procedures on how to assemble the monitor for maintenance and troubleshooting.

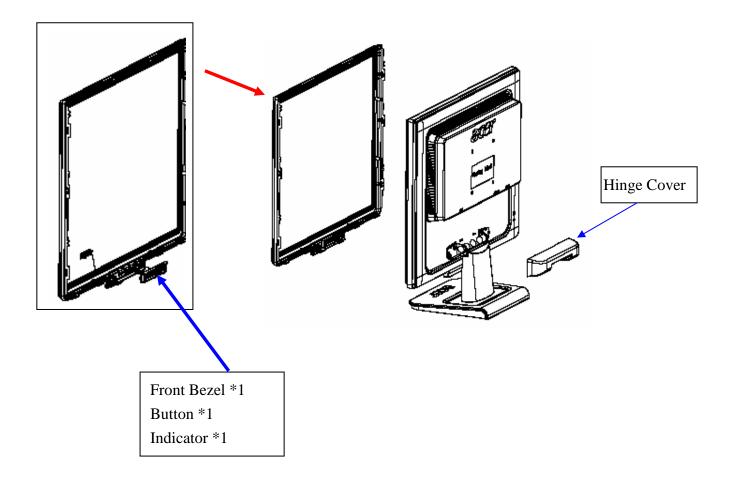
NOTE:

- 1. The screws for the different components vary in size. During the disassembly process, collect the screws with the corresponding components to avoid mismatch when putting back the components.
- 2. The monitor surface is susceptible to scratching! Therefore, lay the monitor on a soft surface when mounting or removing the base.
- 3. Wear gloves









TROUBLESHOOTING

Chapter 4

1. Common Acknowledge

If you change the M/B, Please re-do "DDC" programmed & "Auto Color balance" $% \mathcal{M}^{(1)}$

If Replace "Power & Inverter board" only, please re-do "Auto color balance".

If you adjust clock and phase, please do it at condition of Windows shut down pattern.

If you confirm the R.G.B. color is normal or not, please do it under 16-grey scalar pattern.

This LCM is analog interface. So if the entire screen is an abnormal color that means the problem happen in the analog circuit part, if only some scale appears abnormal color that stand the problem happen in the digital circuit part.

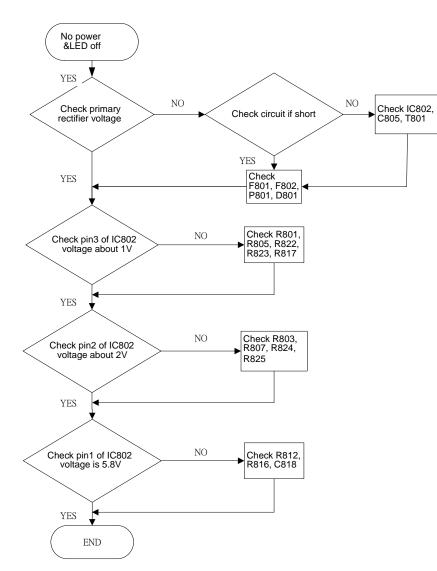
If you check the H/V position, please use the crosshatch pattern.

This LCM support 20 timing modes, if the input timing mode is out of specification, the picture appears abnormally.

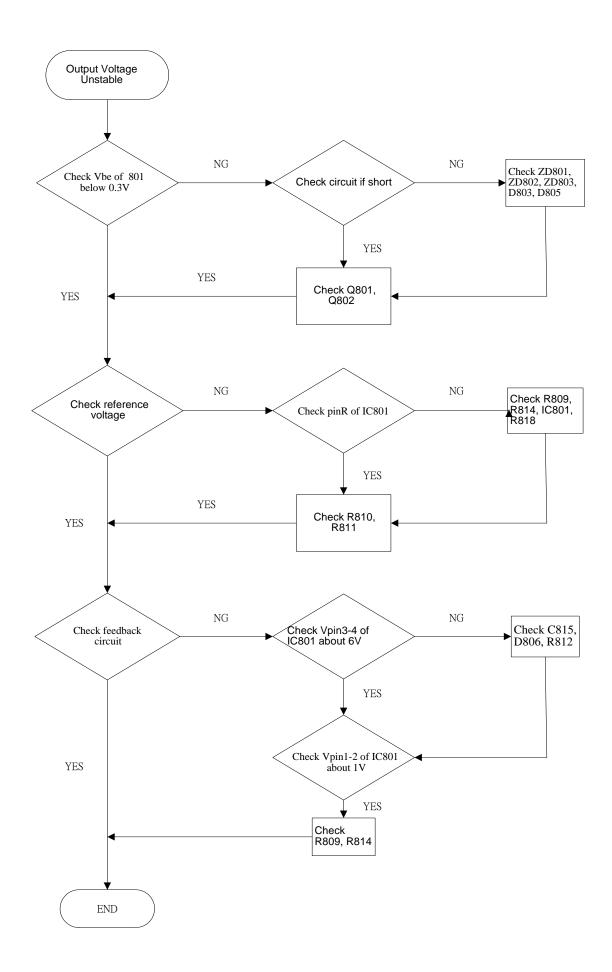
"Auto Color Balance"- Press ">" and "<" together and plug in AC power cord at the same time at VGA cable in.

2. QPI PCBA Troubleshooting

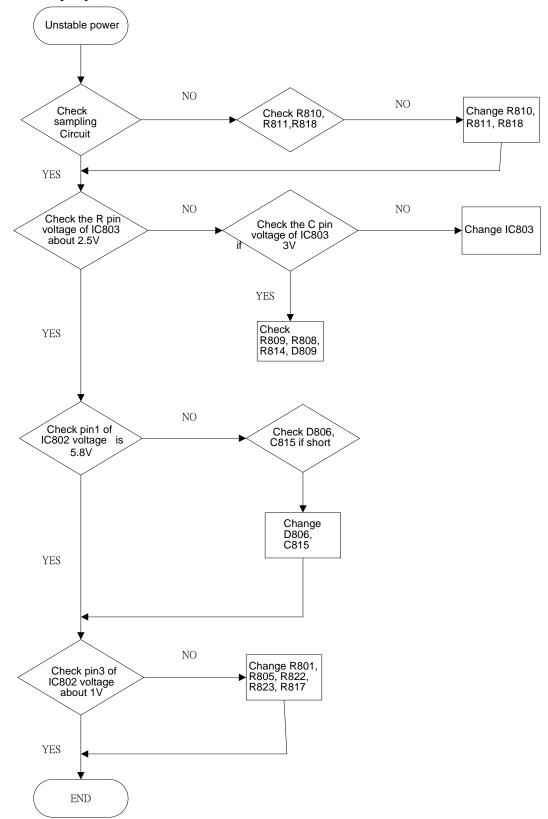
2.1 No Power & Power LED Off



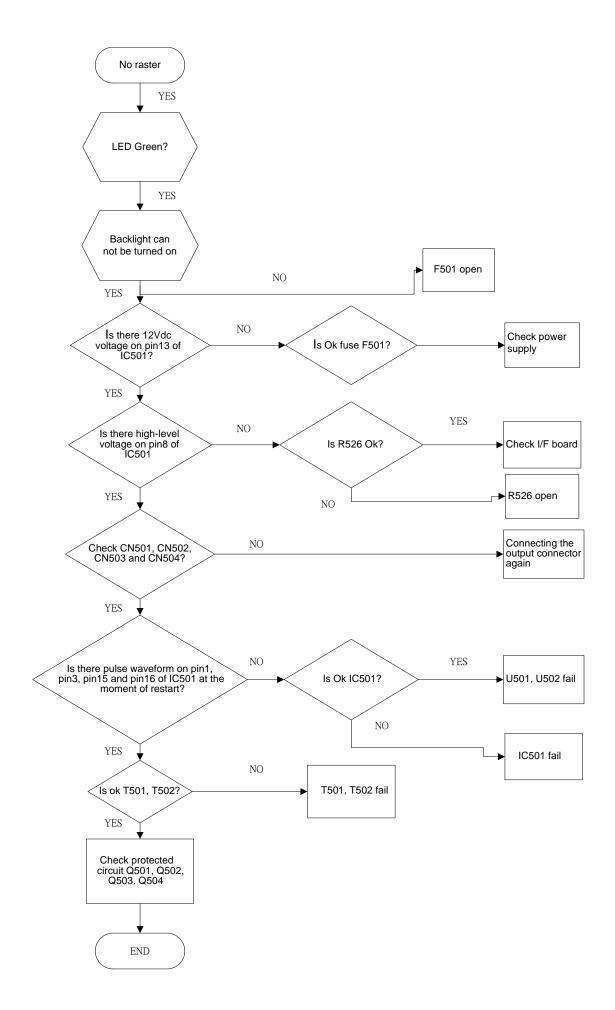
2.2 DC output voltage is unstable



2.3 Output power is unstable

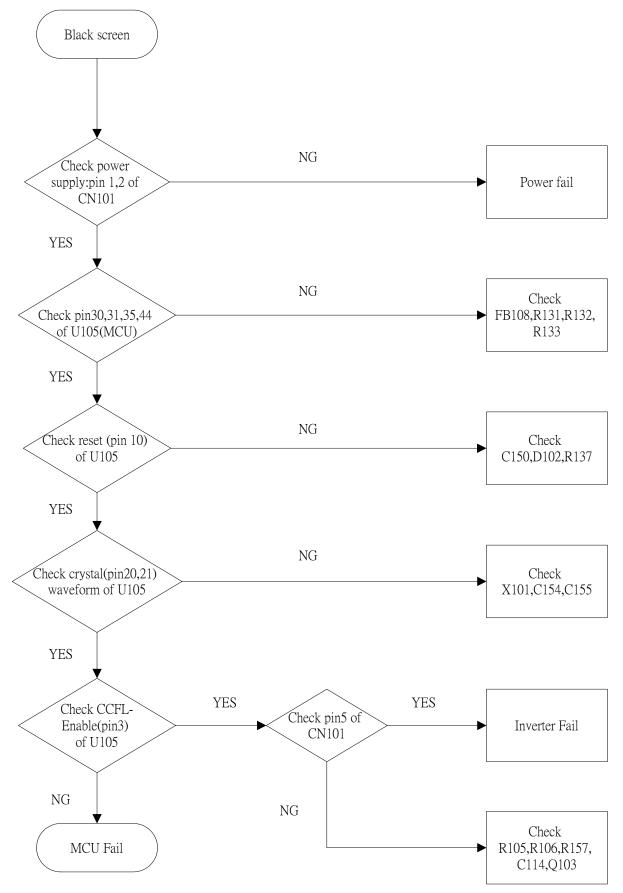


2.4 Backlight can't be turned on

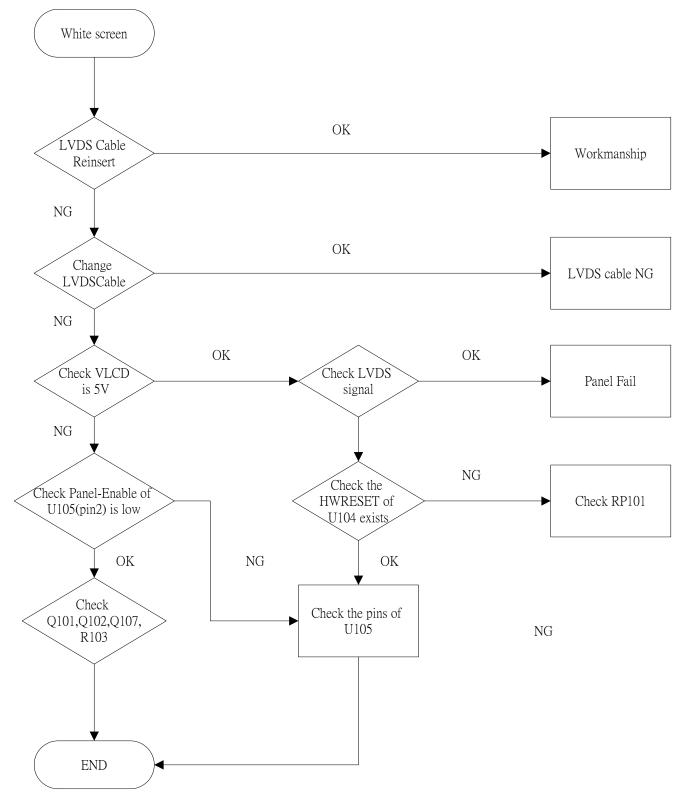


3.Interface Board Troubleshooting

3.1 Black Screen and backlight turn on

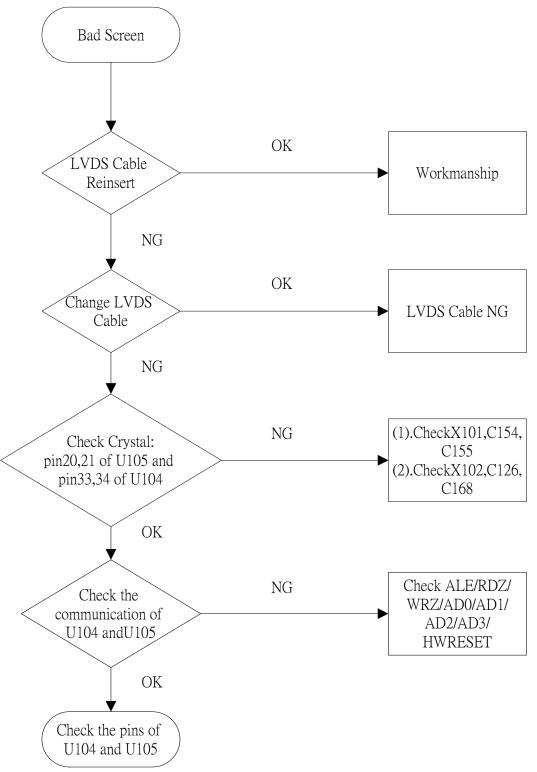


3.2 White Screen



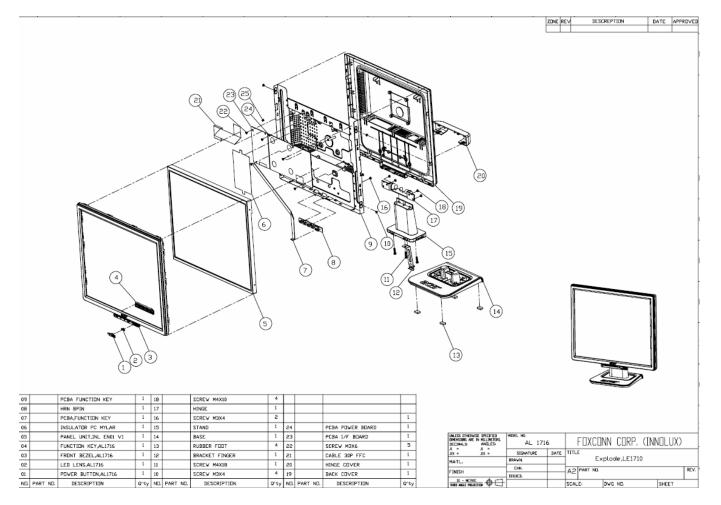
36

3.3 Bad Screen

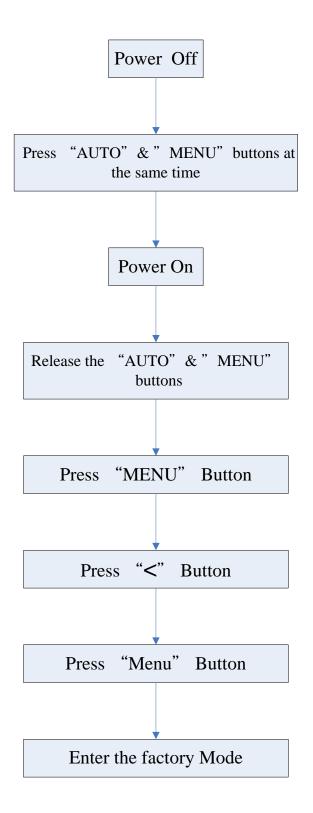


- 3.4 If brightness uniform, change Inverter or Panel.
- 3.5 If you find the vertical line on the screen, please change panel.

Exploded Diagram



Process To Access Factory Mode

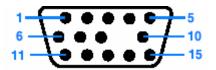




ONNECTOR INFORMATION

Chapter 5

VGA Connector (D-Sub 15pin) Pin Assignments



Pin	Symbol	Pin	Symbol	Pin	Symbol
1	Red	6	Red_GND	11	N.C.
2	Green	7	Green_GND	12	DDC_SDA
3	Blue	8	Blue_GND	13	HSYNC
4	N.C.	9	PC+5V	14	VSYNC
5	GND	10	N.C.	15	DDC_SCL

FRU (Field Replaceable Unit) LIST

This chapter gives you the FRU (Field Replaceable Unit) listing in global configuration of AL1513. Refer to this chapter whenever ordering for parts to repair or for RMA (Return Merchandise Authorization).

NOTE: Please not WHEN ORDER FRU PARTS, that you should check the most up-to-date information available on your regional web or channel (<u>http://aicsl.acer.com.tw/spl/</u>). For whatever reasons a part number change is made, it will not be noted in the printed Service Guide. You MUST use the local FRU list provided by your regional Acer office ot order FRU parts for repair and service of customer machines.

Note: To scrap or to return the defective parts. You should follow the local government ordinance or regulations on how best to dispose it, or follow the rules set by your regional Acer office on how to return it.

CATEGORY	PARTNAME	DESCRIPTION
CASE/COVER/BRACKET	HRN ASS'Y 8P 280mm	HRN ASS'Y 8P 280mm
ASSEMBLY	UL2651#28FW08E23-0F-D	UL2651#28FW08E23-0F-D
Cable	LVDS FFC 30P cable	HRN LVDS FFC 30P 240mm
		CABLE,D-SUB 15P MALE 6FT
Cable	VGA cable black	BLACKSZ4120955B
Cable	Euro power cord black	PWR CORD 6A/250V BLK 6FT VDE
Cable	UK power cord black	PWRCORD 6A/250V BLK 6FT UK
Cable	Swiss power cord black	PWRCORD 6A/250V BLK 6FT SWISS
CASE/COVER/BRACKET		
ASSEMBLY	COVER,HINGE	COVER,HINGE, LE1710
CASE/COVER/BRACKET		
ASSEMBLY	COVER,BACK	COVER,BACK, LE1710
CASE/COVER/BRACKET		
ASSEMBLY	BASE	BASE, LE1710
CASE/COVER/BRACKET		
ASSEMBLY	STAND, LE1710	STAND, LE1710
CASE/COVER/BRACKET		
ASSEMBLY	BRACKET,FINGER	BRACKET,FINGER, LE1710
CASE/COVER/BRACKET		
ASSEMBLY	HINGE, LE1710	HINGE, LE1710
CASE/COVER/BRACKET		
ASSEMBLY	CHASSIS (main metal part)	CHASSIS, LE1710

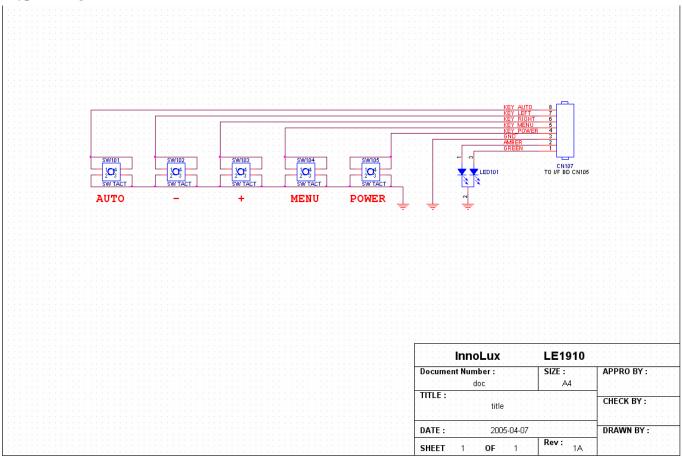
PART LIST

	BOLT,#4-40x11.8,NiFOR D-SUB/DVI	BOLT,#4-40x11.8,NiFOR D-SUB/DVI
screw	CONN.	CONN.
screw	SCREW,P,CROSS,M4*10,Zn,NL(NYLOK)	SCREW,P,CROSS,M4*10,Zn,NL(NYLOK)
screw	SCREW,P,CROSS,M4*18,Zn	SCREW,P,CROSS,M4*18,Zn
screw	SCREW,P,CROSS W/WAS,M3*4,Zn	SCREW,P,CROSS W/WAS,M3*4,Zn
screw	SCREW,P,CROSS W/WAS,M3*6,Zn	SCREW,P,CROSS W/WAS,M3*6,Zn
	FOIL,AL.,DOUBLE COND.,45x35x0.04mm,	FOIL,AL.,DOUBLE COND.,45x35x0.04mm,
screw	LE17	LE17
Board	main board	PCBA,IF BOARD, LE1710-6A0
Board	power + invertor board	PCBA,PWR&INV./B, LE1710-6A0
	LCD PANEL 17"	LCD PANEL 17"
PANEL	MT170EN01-V1-G3AM170000512	MT170EN01-V1-G3AM170000512
Board	Key pad	PCBA,KEYPAD BOARD+ Bezel

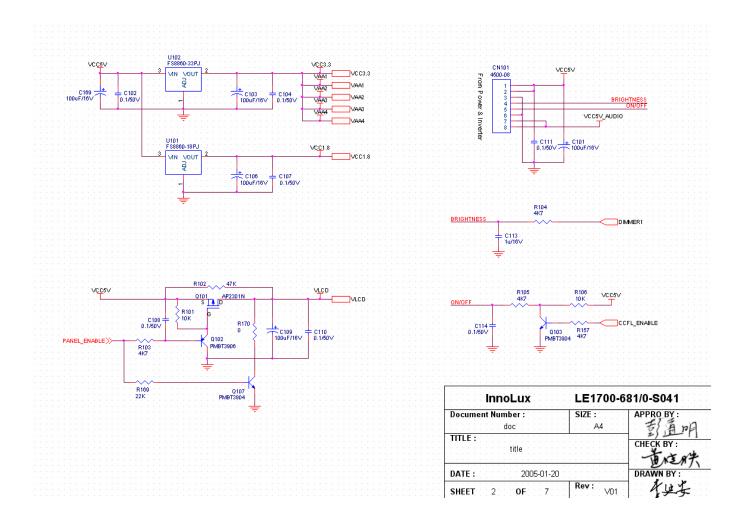
SHEMATIC DIAGRAM

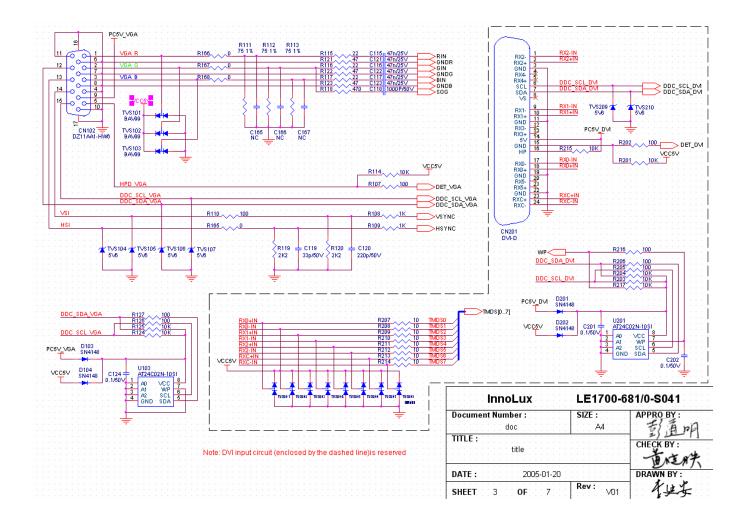
Chapter 7

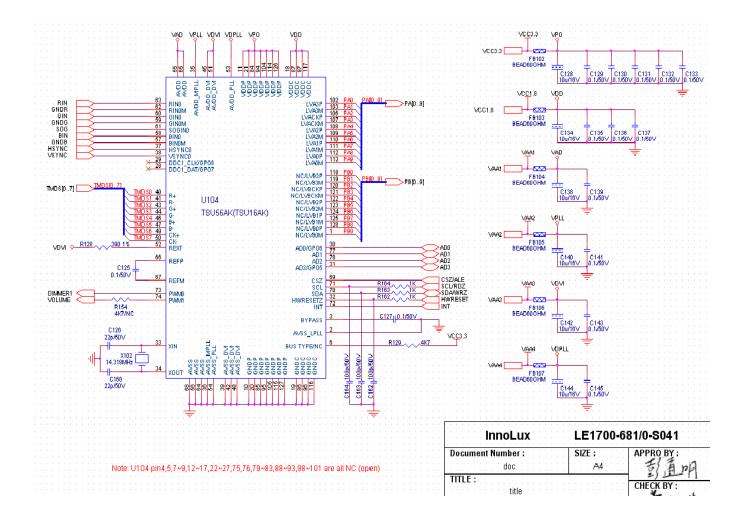
Keypad Diagram

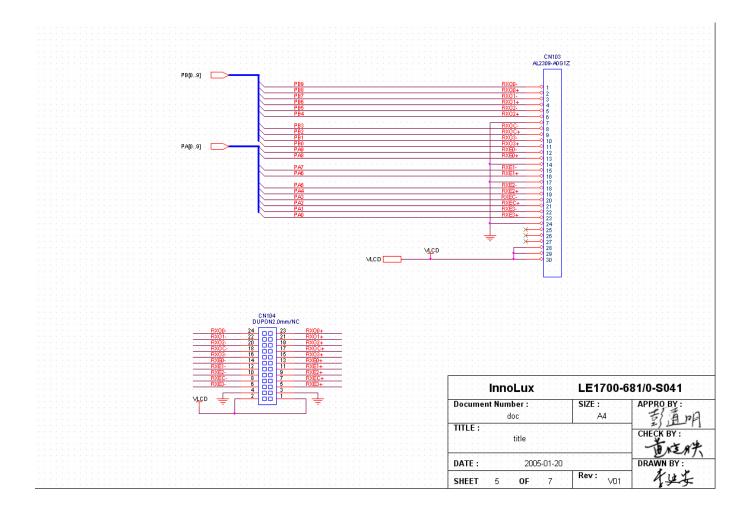


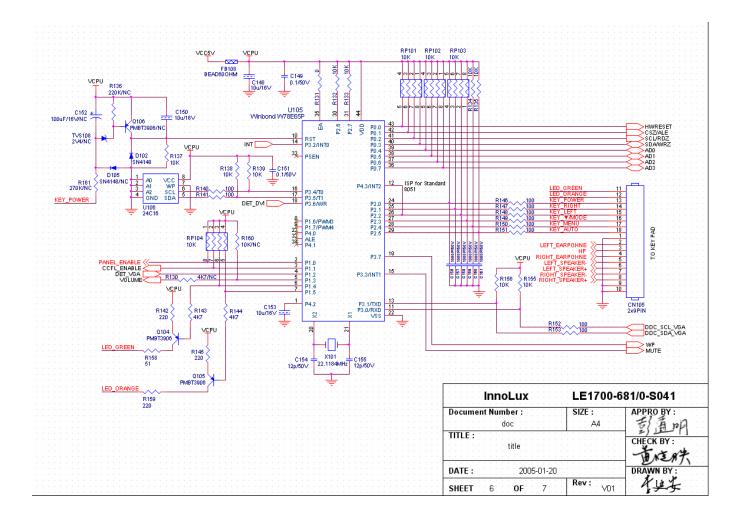
Interface Board Schematic

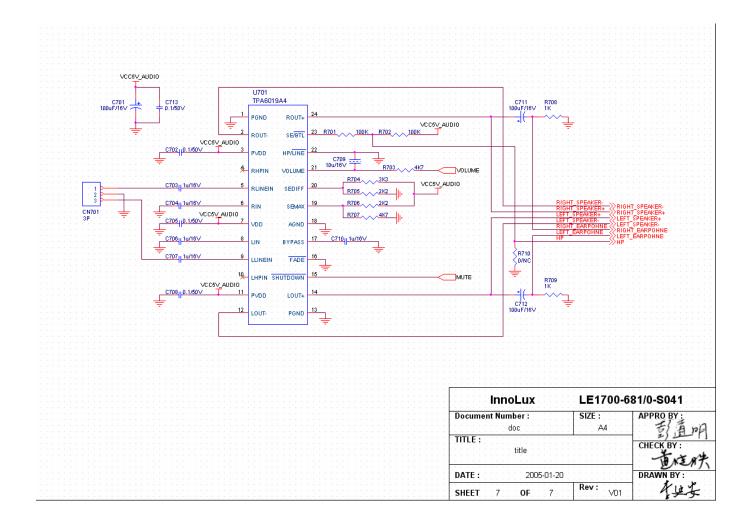












POW/INV Board Schematic

