

LCD/PDP TV

MODEL: LS0D CHASSIS

SERVICE MANUAL

(18.5 inches LED TV as an example, General version)

Please read this manual carefully before service.

CATALOG

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Chapter 1: Safety and notes

1.1 Installation notes

- (1) Please don't beat or rub, scratch the surface of the LCD screen heavily, don't touch it with hand casually.
- (2) When the screen is dirty, please clean it with absorbent cotton or cotton cloths lightly.
- (3) Please clean the screen timely when water or other viscosity pollution falls on it, which may make the LCD face or color changes.
- (4) Please don't make the LCD screen shocked by a strong external force.

1.2 Points of operation and using for attention

- (1) Please unplug the power cable before moving LCD screen.
- (2) Please don't change the mainboard's original setting; otherwise brightness, white balance etc. may not meet the specification.
- (3) The amount of radiation of long time use at room temperature is larger than that at low temperature.
- (4) Please note that the long displaying image may remain at the top when shutdown the machine.
- (5) Please avoid the impact from mobile phone to protect your TV.

1.3 Storage notes

- (1) When store for a long time, please keep the temperature between 0°C to 40°C, don't expose the TV to the sun, the humidity should be less than 85%RH.
- (2) Please don't put your TV under high humidity and high temperature circumstance, e.g. temperature: 60°C, humidity: 85%RH.
- (3) Please don't put your TV under low temperature circumstance, e.g. temperature lower than 25°C.

1.4 Dismantling notes

- (1) As LCD screen can be damaged easily when dismantle, please pay attention to protect it.
- (2) Please pay attention to the position of each screw when dismantle in case of beating the wrong position when install which may lead to crack or slide of the face frame.
- (3) If you need to dismantle the power board or the main board, please attention the position and direction of each line, especially the direction of the screen line, in case of causing accident when install. Before dismantle, we can take some photos of the line routes for the comparison of installing.
- (4) After check and maintenance, please assure that there is no foreign body in the machine when install.

1.5 High-voltage warning

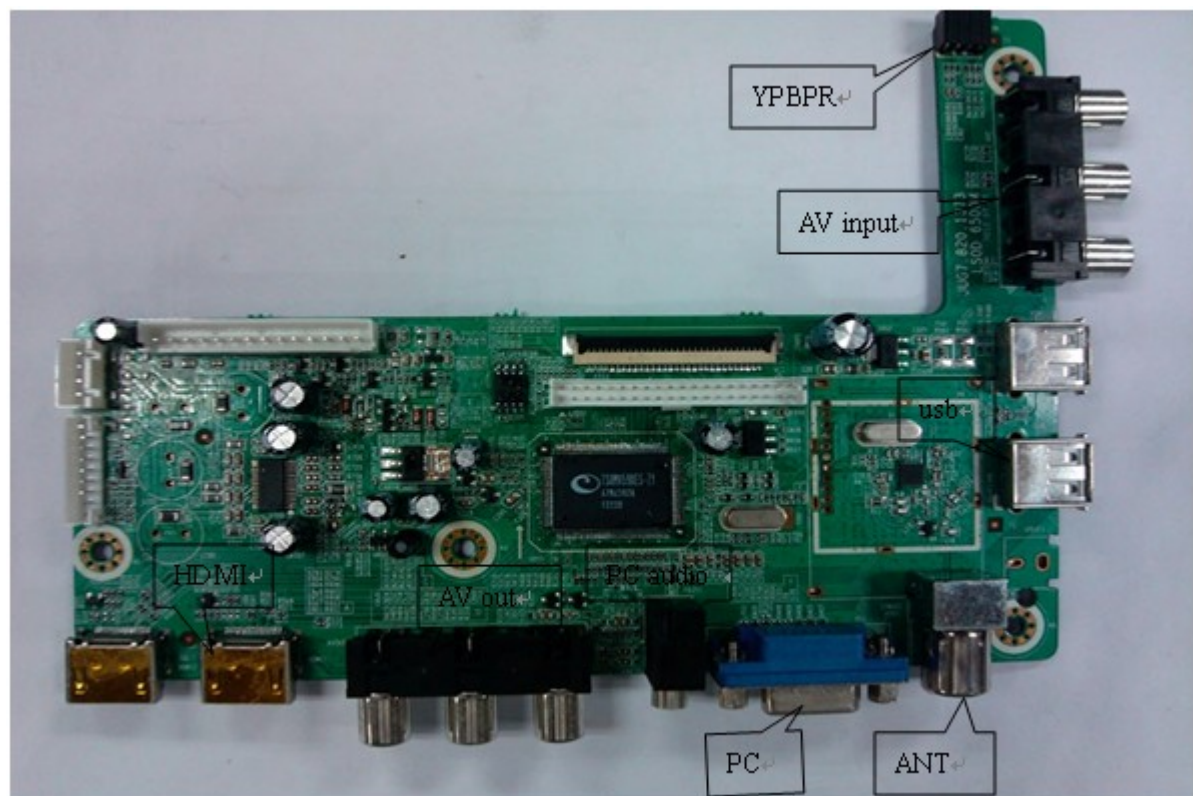
The high-voltage of the LCD screen is generated by the power supply step-up board, without attention to exposure to high voltage; one may meet a serious electric shock.

Chapter2: Whole machine standard and terminal functions

2.1 Basic standard

item		standard		
LCD Panel	visual area	TBD		the parameters are for reference only, the specification should accord to the standard of the panel of the batch orders
	aspect ratio	16:9		
	resolving ratio	TBD		
	visual area H x V	TBD		
	display color	TBD		
	contrast	TBD		
	brightness	TBD		
	visual angle	TBD		
	response time	TBD		
	backlight life	TBD		
TV function	sound system	B/G、D/K、I、M		
	color system	PAL / SECAM / NTSC		
audio and video signal input	AV	RCA x 1/2/3	Audio L/R x 1/2/3	
	COMPONENT	YPbPr x 1	support to1080P , Audio L/R x 1,	
	HDMI	HDMI x1/2/3	support to1080P	
	PC input	plug and use		USB2.0
		input frequency		H: 31.5K -106KHz V: 60Hz to 85Hz V: (recommend 60HZ)
		recommend		1024x768(60HZ)
Video output		Output CVBS signal	Output TV and AV signal ,Audio L/R	
Audio		Audio output L / R	8W two built-in speaker.	
Power	power supply		AC100V~240V, 50/60Hz	
	power consumption		TBD	
Panel rotation		Front/back/rotation	- 10° / + 10° / ± 35°	
USB		plug and use	2.0	
requirement for circumstance		operation temperature storage temperature operation humidity	+ 0° ~ + 40° , - 25 ° ~ + 60° 10% ~ 85%	
appearance size		W x H x D	Pls. refer to the TV specification	
net weight		no accessory	Pls. refer to the TV specification	

2.2 Introduction of terminals (practicality photos)

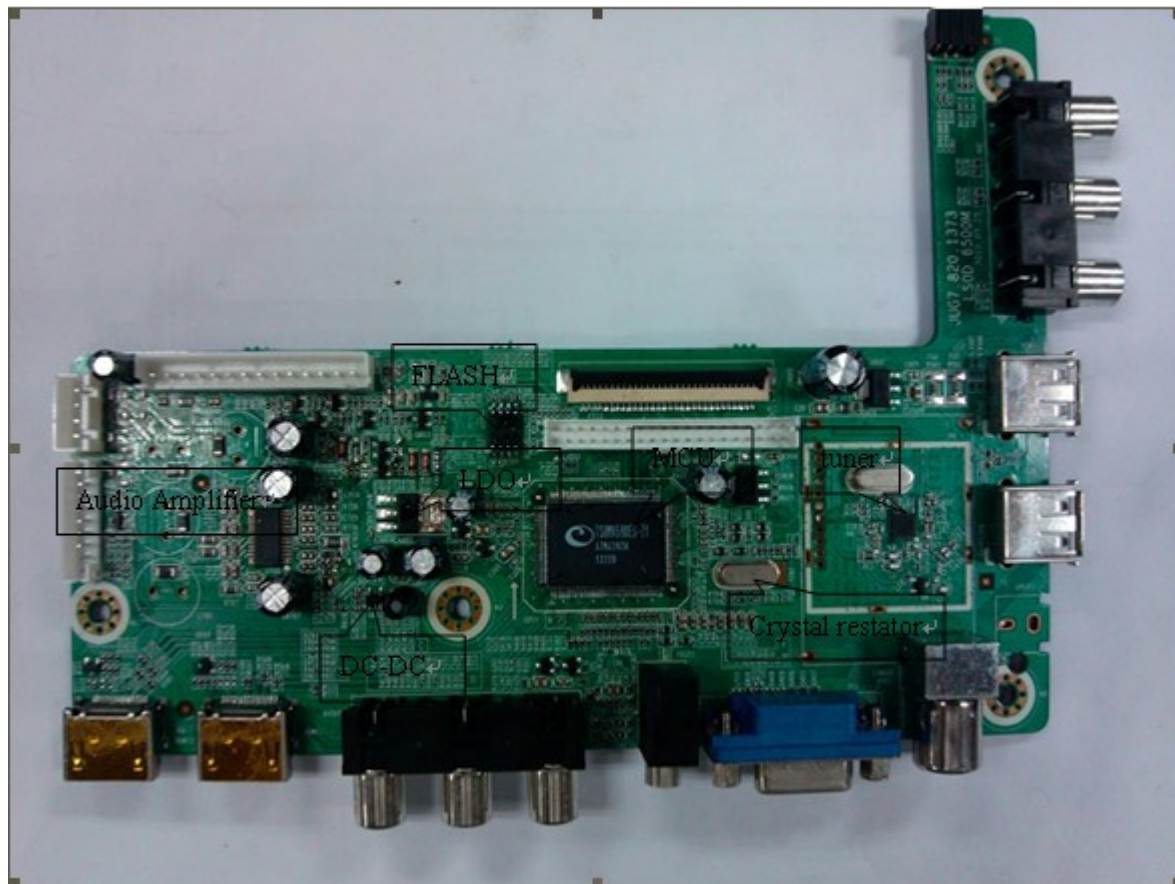


ATTENTION:

1. HDMI and YPbPr support to 1080P (max. resolution).
2. The recommendation resolution of PC input is 1024X768.
3. AV output supports TV input /AV output, AV input /AV output.

Chapter3: Main chip functions and brief introductions of power supply

3.1 Main IC and functions of LS0B



No.	Item no.	Model	Main Function
1	U201	TSUMV59XES-Z1	Processor with Video Decoder, MCU,HDMI decoder,LVDS transmitter etc.
2	U1	R620D	Tuner processor
3	U205	EN25Q32B-104HIP	Flash memory, Place the main control program
4	U802	SY8008B	DC-DC, DC voltage converter
5	U804、U002	LR1117/A-3.3\$AZ1117H-3.3TR	LDO (three terminal regulator)
6	U807	LR1117/A-1.8\$AZ1117H-1.8TRE1	LDO (three terminal regulator)
7	U700	TPA3110D2	Audio Amplifier
8	Y201	JA18AS-24MHZ	Crystal resonator
9	X1	JA18AS-16MHZ(16PF)	Crystal resonator

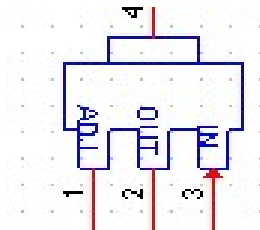
3.2.3:Pin function of EN25Q32A flash memory

No.	Terminal name	Description
1	CS#	Chip Enable
2	DO (DQ1)	Serial Data Output(Data Input output1)
3	WP#(DQ2)	Write Protect(Data Input output2)
4	VSS	Ground
5	DI (DQ0)	Serial Data Input(Data Input output0)
6	CLK	Serial Clock Input
7	NC (DQ3)	No Connect(Data Input output3)
8	VCC	Supply Voltage(2.7-3.6V)

3.2.4: Pin function of SY8008B (DC-DC converter):

No.	Terminal name	Description
1	IN	Input
2	SW	Output
3	GND	Ground
4	FB	Output voltage feedback
5	EN	Enable switch

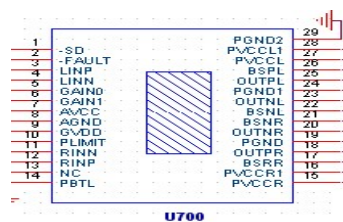
3.2.5 :Pin function of 1117/A-3.3 and LR1117/A-1.8:



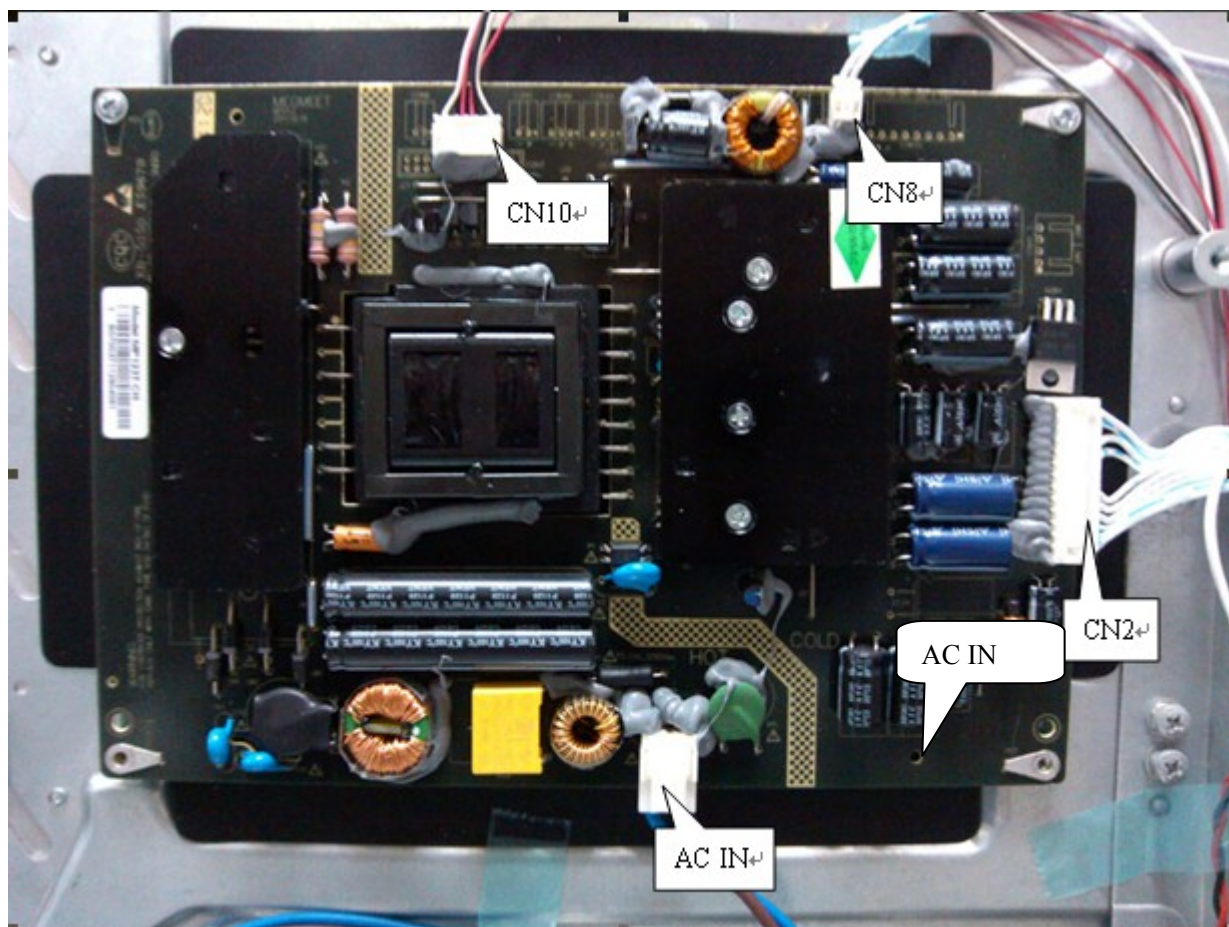
3.2.6: Pin function of AO3401 (Dual-channel enhanced MOSFET) :

No.	Terminal name	Description
1	D	Drain
2	G	Gate
3	S	Source

3.2.7: Pin function of SA7454/TDA1517P(audio amplifier):



3.3 Brief introduction of power board



Power input and output parameters are as follows:

- 1、Input rate voltage: 100/240Vac
- 2、Input voltage range: From 90Vac to 264Vac
- 3、Enter the rated frequency: 50/60Hz
- 4、Input frequency range: 50/60 +/-5Hz
- 5、Maximum input current: 2A max
- 6、Inrush current: 60Ap-p max : 100Ap-p max/220VAC
- 7、efficiency:80% min
- 8、No Load Power Consumption: 0. 5Wmax

Power output parameters are as follows:

- 1、Output voltage

Channel	Parameter	Min(V)	Nom(V)	Max (V)
DC Output	+12V	+10.8V	+12.0V	+13.2V
	+5V	+4.75V	+5.0V	+5.25V
	+5Vstb	+4.75V	+5.0V	+5.25V

2、Output Current and ripple & noise

Channel	Parameter	Min(A)	Nom(A)	Max (A)	Ripple&noise(mV)
DC Output	+12V	0A	1.8A	3.2A	120mV
	+5V	0A	1.5A	2.5A	60mV
	+5Vstb	0.02A	0.3A	0.5A	60mV

Pin function description of socket

1、Pin function of CN10

NO.	Pin Connection	Function
①	LED1	LED1 RETURN
②	LED2	LED2 RETURN
③④	LED+	LED CURRENT OUTPUT
⑤	LED3	LED3 RETURN
⑥	LED4	LED4 RETURN

2、Pin function of CN8

NO.	Pin Connection	Function
①	BK	BACK LIGHT ON/OFF CONTROL
②	ADJ	PWM SIGNAL INPUT

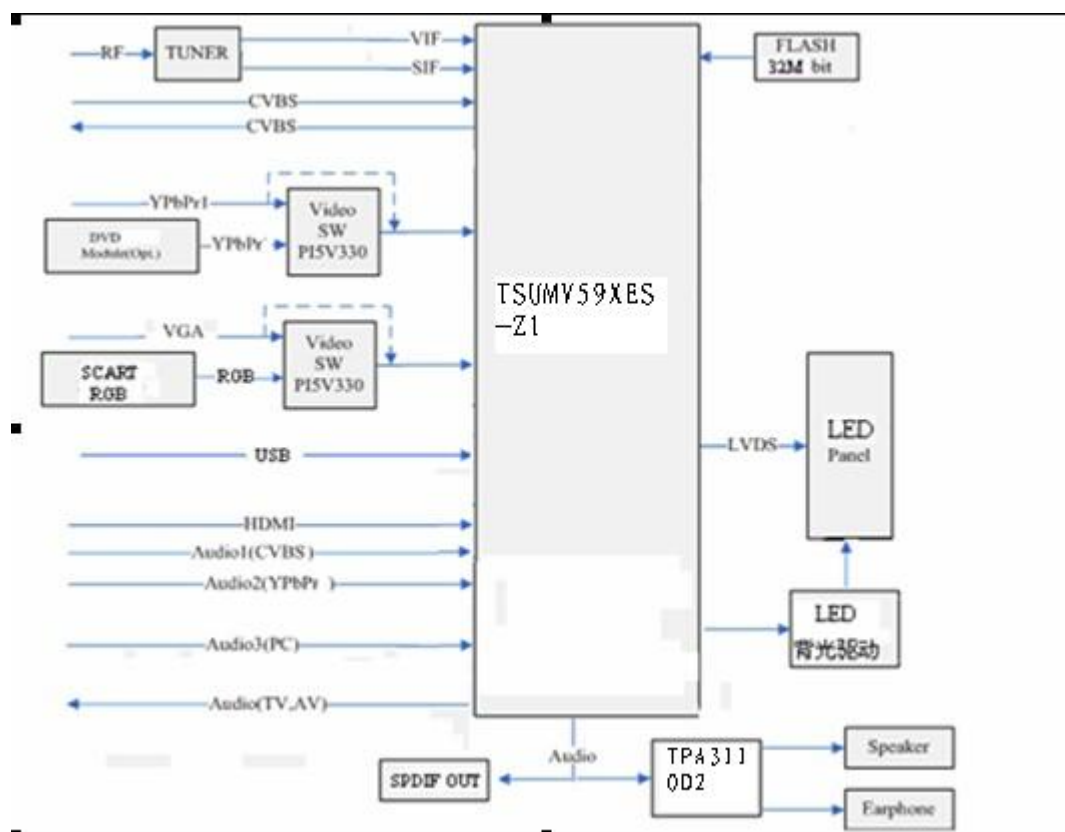
3、Pin function of CN2

NO.	Pin Connection	Function
①②	GND	+5.2VSB +12VDC RETURN
③④	+5V	+5VDC OUTPUT
⑤	PSON	SMPS ON/OFF CONTROL(ON = HIGH)
⑥	+5VSB	STANDBY(+5.0VDC) OUTPUT
⑦⑧	+5V	+5VDC OUTPUT
⑨⑩⑪	GND	+5.2VSB +12VDC RETURN
⑫⑬	+12V	+12VDC OUTPUT

Chapter4: The chassis frame diagram, mainboard power supply systems, mainboard interface definition and the waveform of key points

This chapter mainly introduces the chassis frame diagram, power supply system, interface definition and each key point's wave shape.

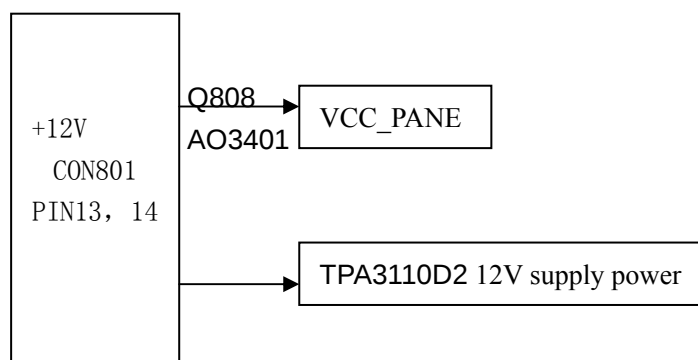
4.1 The chassis frame diagram

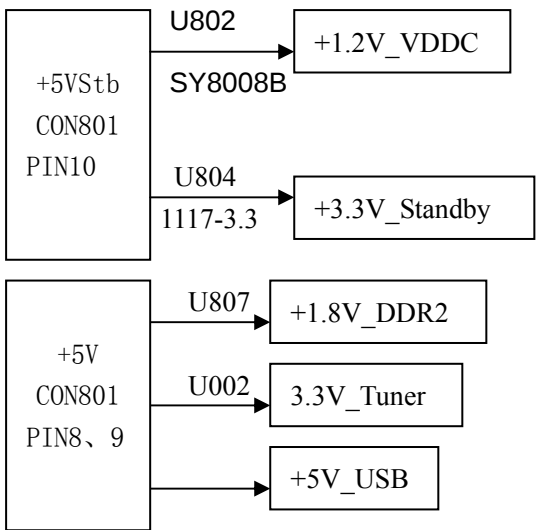


4.2 Power supply system

Power board has two kinds of output voltage: +12V、+5V and +5Vstb

4.2.1 the logic relation diagram of main board power

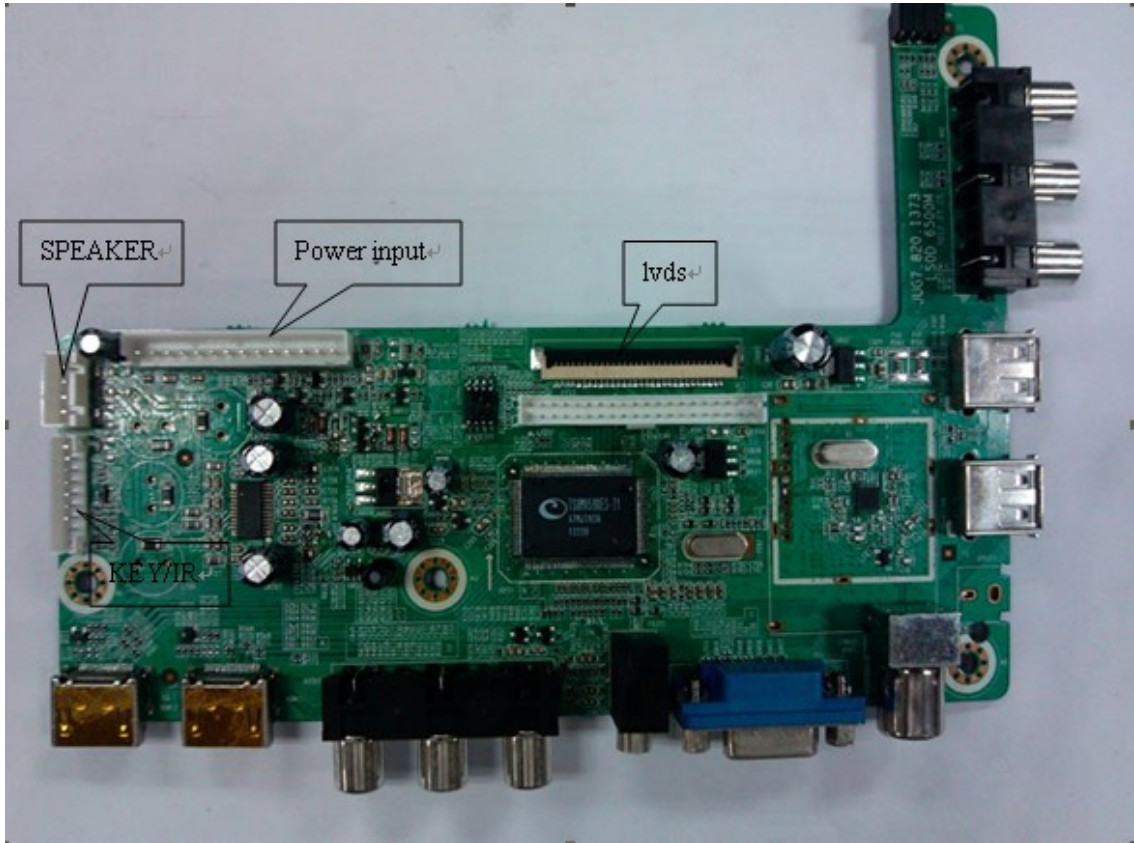




4.2.2 Pin voltage of the voltage adjustor on the mainboard

Item	U802	U804	U807	U002
Input voltage	+5VStb	+5VStb	5V	5V
Output voltage	1.2V	3.3V	1.8V	3.3V

4.2.3Interface definition

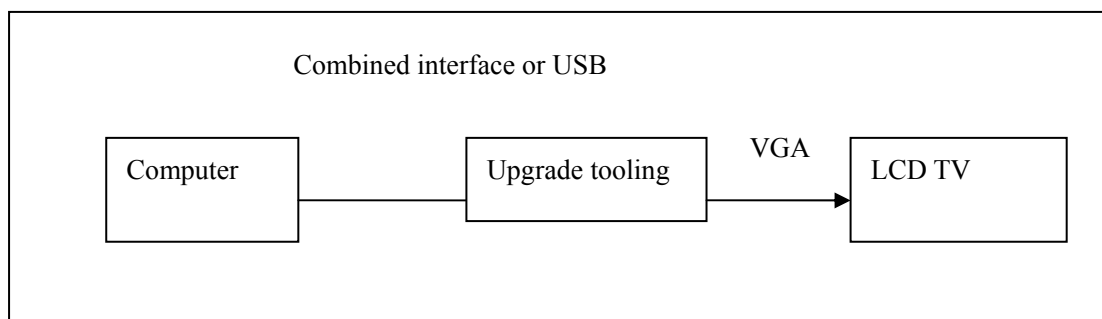


Chapter5: Software upgrade tooling , software upgrade instructions , software initialization , parameter setting , software version and screen matching instructions

5.1 Software upgrade tooling

There are three kinds of using upgrade tooling:

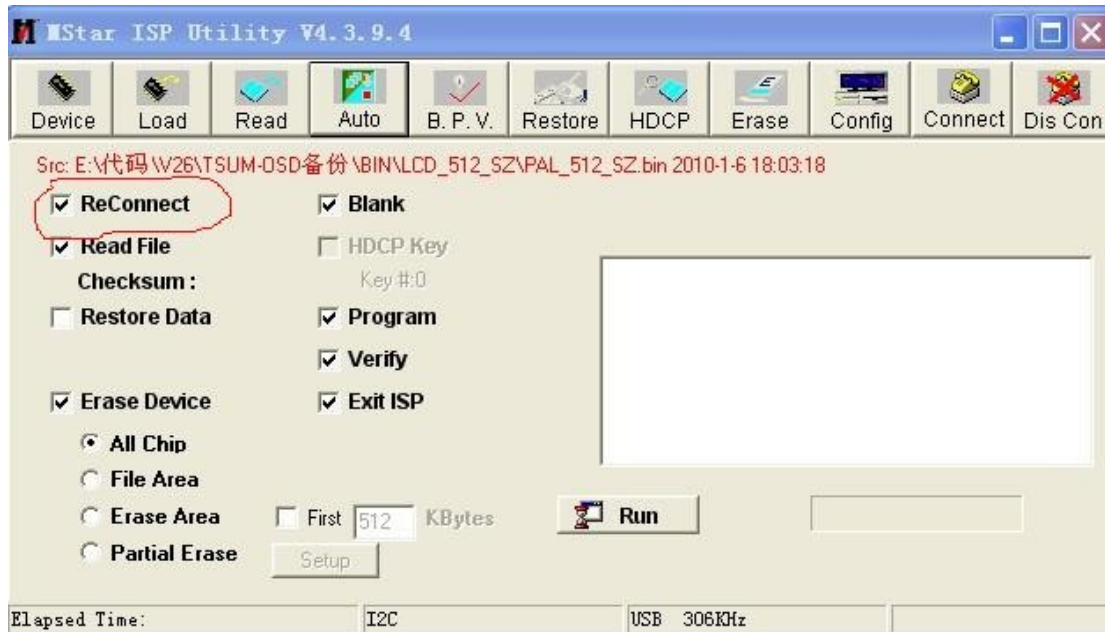
1. Use the combined interface(the parallel port) upgrade tooling :use the upgrade program: ISP_Tool V4.0.5.exe (and higher versions)
2. Use USB interface upgrade tooling , use the upgrade program : versions higher than ISP Tool V4.3
3. Use the USB upgrade



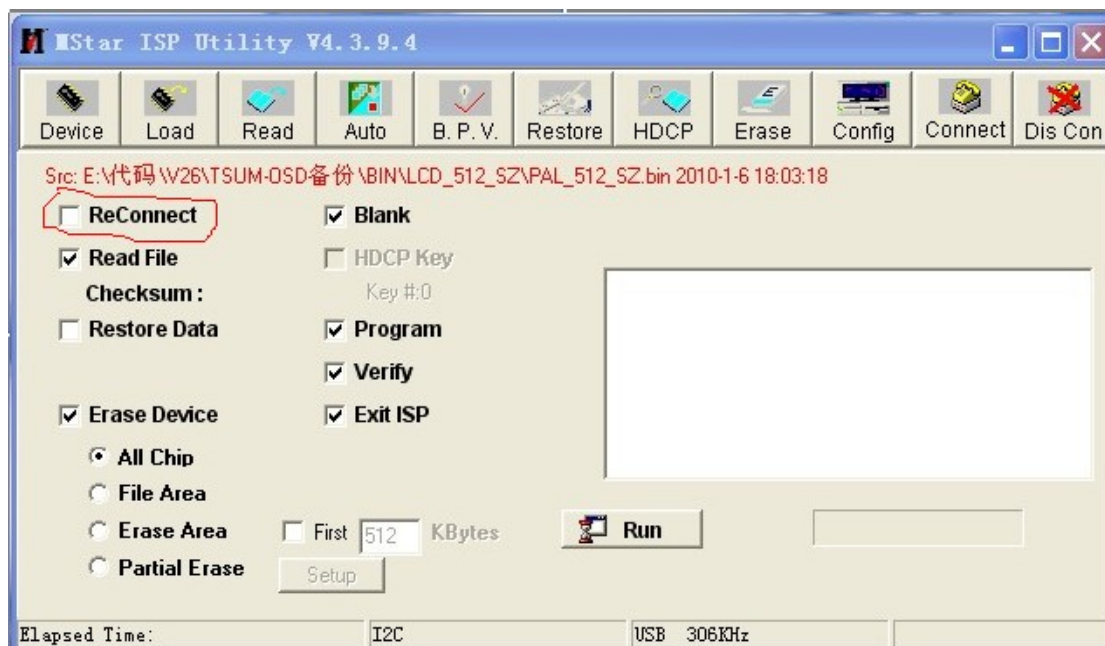
5.2 Software upgrade instructions

5.2.1 Tooling upgrade

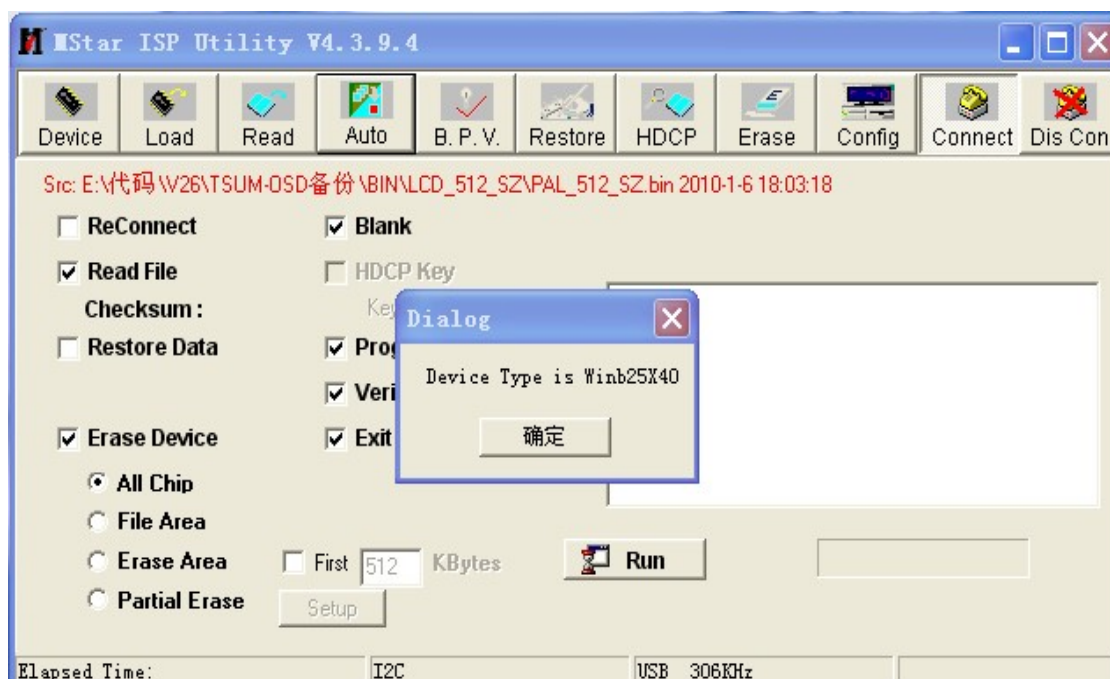
1. Driver Installation: Upgrade tooling connected to the computer via USB, the first connection will be prompted to find the hardware, follow the prompts to install the driver, Driver file from the attachment "usb-update TOOL-DRIVER" folder inner tube MSTAR name of the subfolder word where you can, you are prompted three times, three times to be installed.
2. After installing the driver tooling, tooling and TV connected (switched on), open the upgrade tool "ISP_Tool V4.3.9.4.exe" (Note: The following chart version of the tool used for the interception chart, the upgrade is still using V4 .3.9.4 version), run the upgrade program



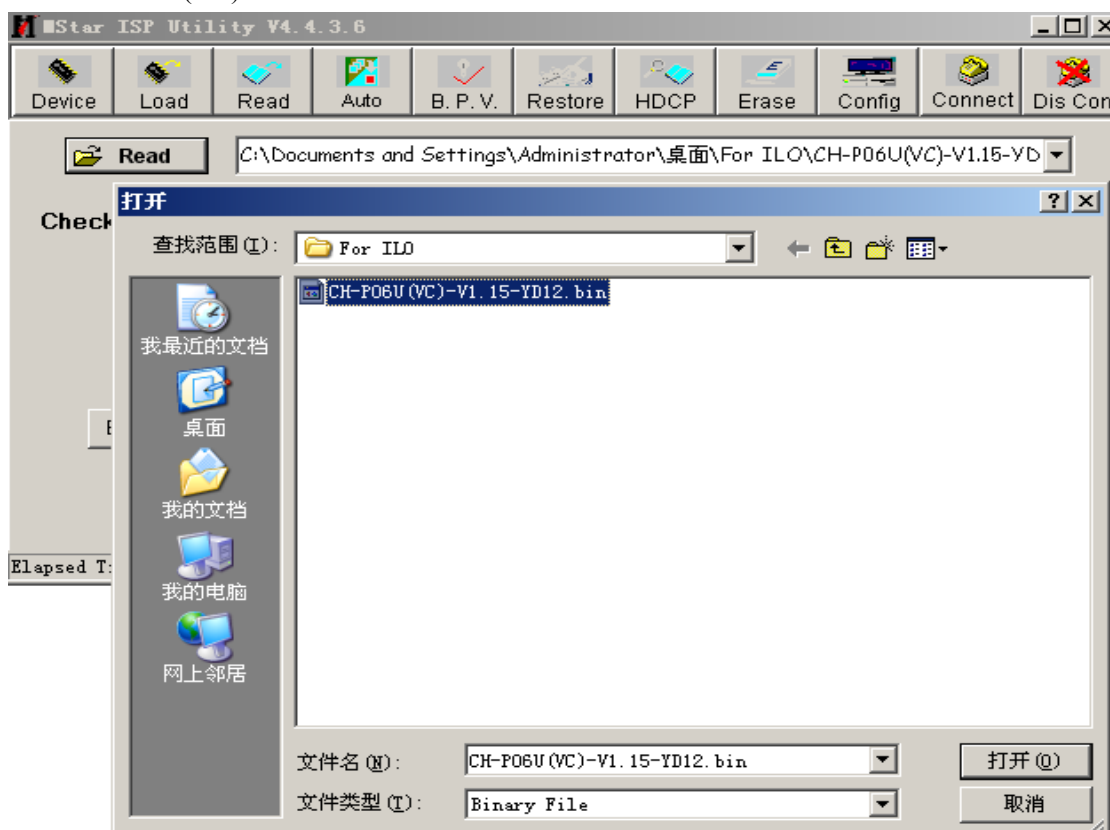
Cancel the selection in the red line frame of the above picture, result showed as follows:



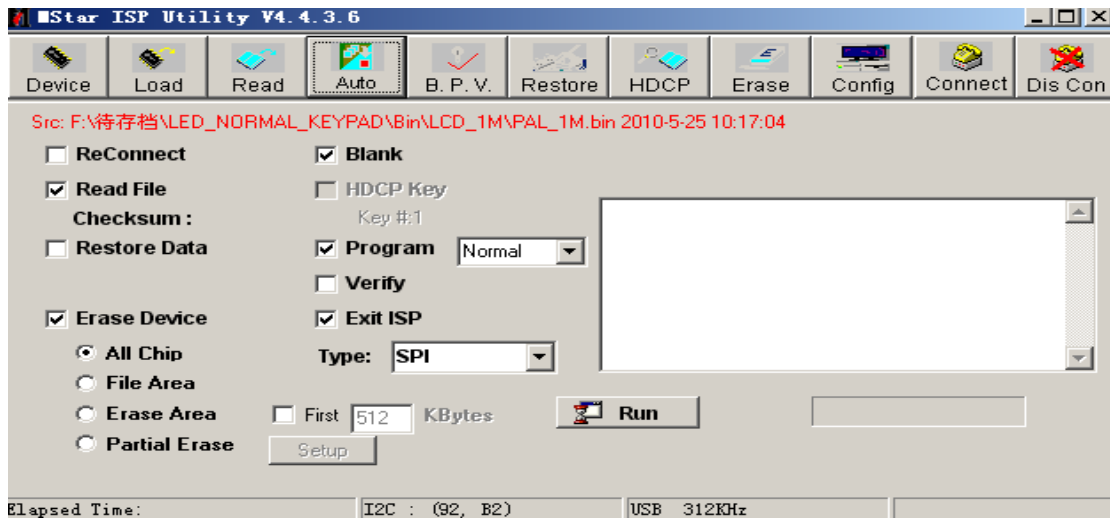
3. Click the button connect on the toolbar first, if normal, system will feedback a dialog box shows the flash style of the machine chassis As follows.



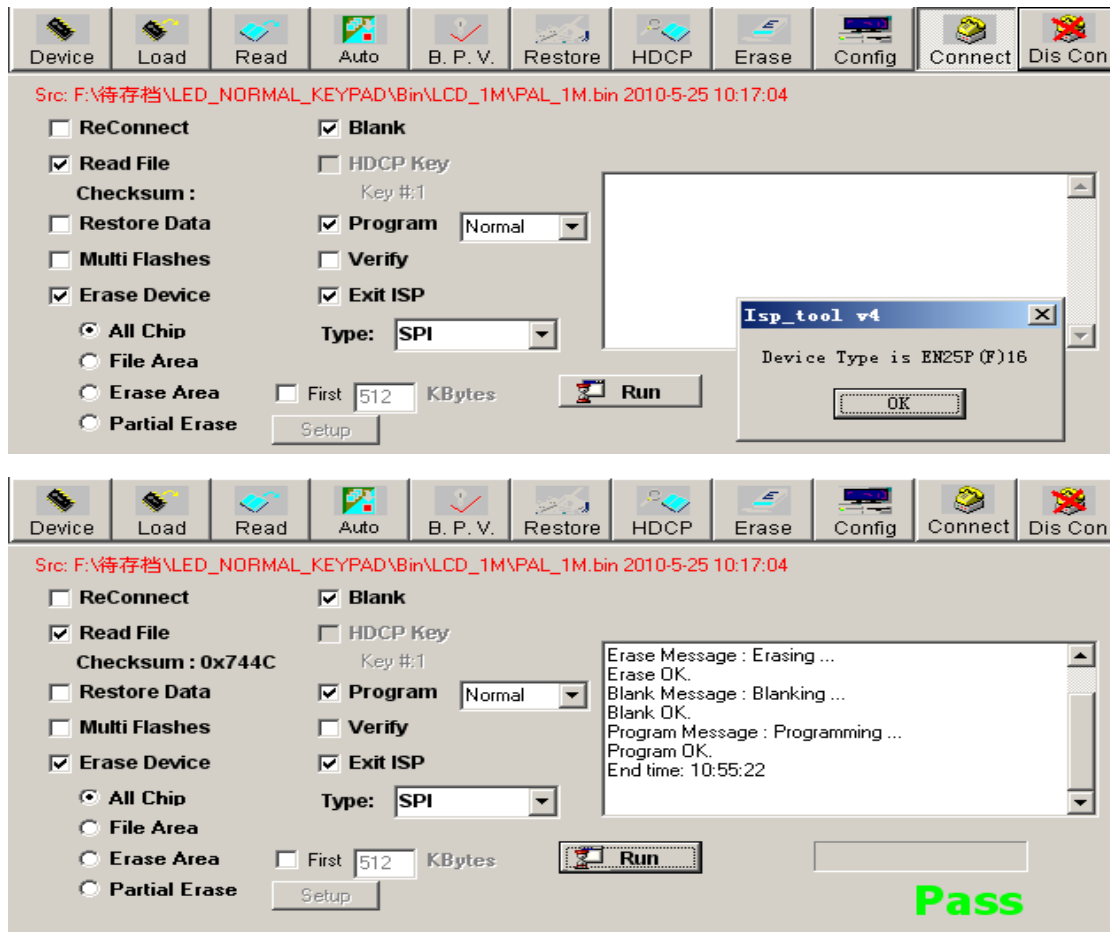
4. Click the button Read on the toolbar, a button read appears , click it and then select the upgrade file "CH-P06U (VC)-V1.15-YD12.bin"



5. Click the button Auto, and check the options according to the following picture.



6. Click the button connect on the toolbar, if has been connected successfully, there will popup a dialog box prompts the Device Type, click OK and then click RUN. When the upgrade process finished, a green prompt "PASS" will appear in the progress bar below.



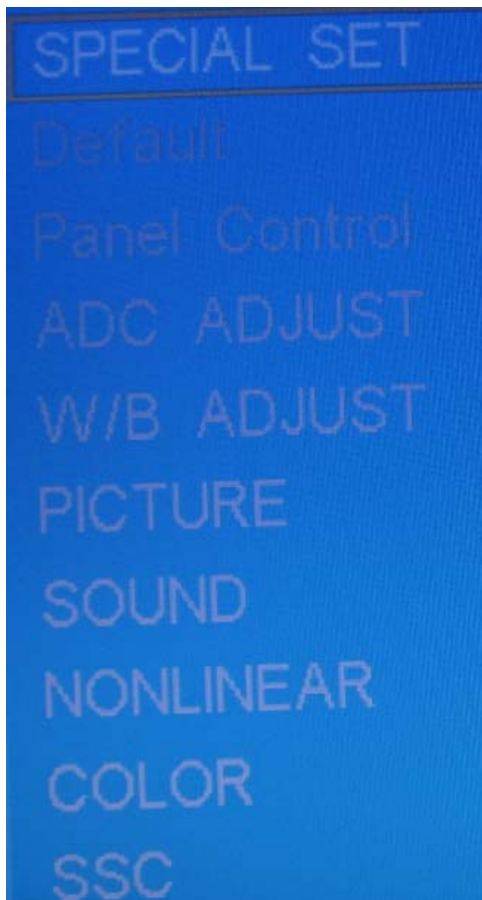
5.2.2 use usb upgrade

Enter the factory menu, select Software Update to finish the upgrade.



5.3 Software initialization

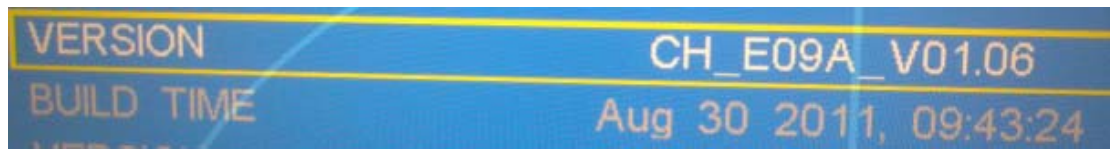
After finishing the software upgrading ,enter into the factory menu ,select Default, clear EEPROM.



The system will automatically boost after clearing EEPROM.

5.4 Software version

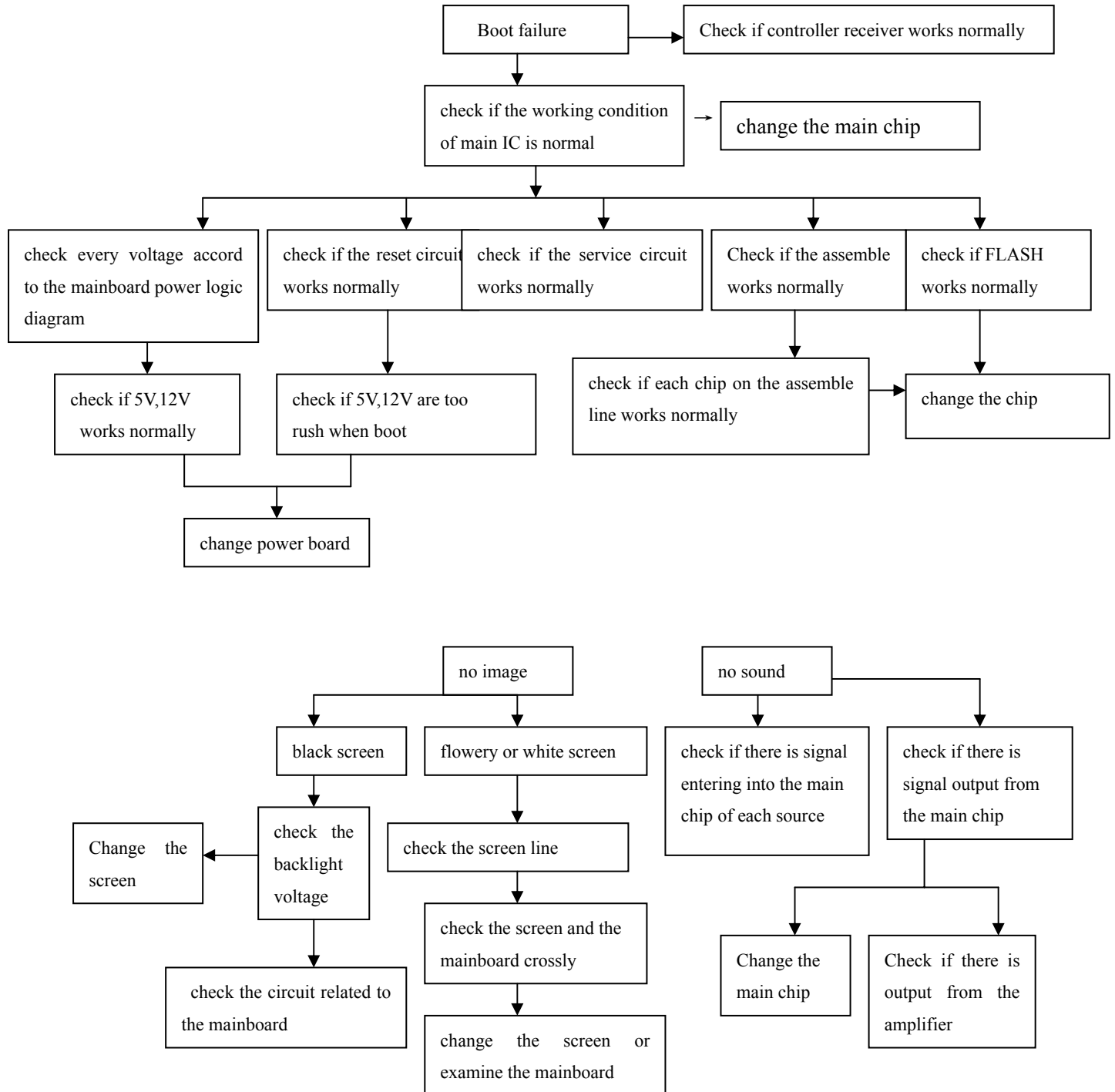
Related program information can be read from the software version, which is useful to professional to know the software's states.

A screenshot of a software version information screen. The background is blue with yellow horizontal lines. The text is in a light blue, monospaced font. The first line shows 'VERSION' on the left and 'CH_E09A_V01.06' on the right. The second line shows 'BUILD TIME' on the left and 'Aug 30 2011, 09:43:24' on the right.

VERSION	CH_E09A_V01.06
BUILD TIME	Aug 30 2011, 09:43:24

Chapter6: typical faults and maintenance procedures

6.1 Can't be booted



6.2 Common problems for your reference:

To speed you to diagnose and solve problems, we offered some common problems' solutions as follows for your reference.

Symptoms	Possible Reason	Solutions
No picture, no sound, and no indicator light on	1.The power cord is not plugged in 2.The power is off	1.Plug in the power cord 2.Turn the power on
normity Picture and sound	1.Contrast, sharpness, and color are set improperly 2.Color system is improperly 3.Sound system is improperly	1.Adjust the numerical value of Contrast, sharpness, and color 2.Set the Color system to the country broadcasting standard 3.Set the Sound system to meet the country's broadcasting standard
Picture is spotted or with snow	Signal source is low-grade or the signal cord is in a lower quality	Use the qualified signal cord
No picture, no sound and indicator light is green	Contrast, brightness, color and volume are all in the minimum value or TV is in mute mode.	Adjust the value of contrast, brightness, color and volume
	The signal cable is not correctly connected.	Connect the signal cable correctly
Blue screen, AV or SVIDEO is displayed	There is no signal input or the video cable is not connected or incorrectly connected	Connect the video cable correctly
Picture is unclear or shaking or with black horizontal strips (in VGA mode)	VGA picture is not correctly adjusted.	Enter "SETUP" menu, select "Auto Tracking" item to perform automatic calibration and adjust "Phase" to solve the problem
VGA picture is not centered		
No sound	There is no audio signal input or audio cable is not connected correctly	Connect the audio cable correctly
VGA picture display with improper color	The color temp is adjusted incorrectly by user	Readjust the color temp, or select the original color setting
HDMI source, with snow pixel of full screen	The signal source is not normal	Plug the HDMI cable again
The remote control does not work	Batteries are improperly installed or exhausted	1. Make sure the positive and the negative polarities are correct. 2.Check if there is a loose contact between the batteries and the springs 3.Replace the batteries

Chapter7: Spare Part Lists

The introduction of spare parts are for reference only, modification of parameters will not be informed any more. For accurate data and related specifications, please consult the newest data of our company.

Number	Name	Model number	The damageable percentage (‰)
1.	Main Board	JUG6.690.1079	1
2.	Remote receiving board	JUG6.695.560-03	0.5
3.	Key board	JUG6.694.605	0.5
4.	Power board	TBD	5
5.	LCD panel	TBD	0.1
6.	Tuner chip	R620D	0.5
7.	Dynamoelectric speaker	TBD	2
8.	Video signal processing chip	TSUMV59XES-Z1	1
9.	Audio amplifier	TPA3110D2	1

Chapter8: Factory mode parameter setting instructions and notes

8-1 Enter into the factory mode

Switch on TV set, and make it works normally:

- ① Press **【SOURCE】** key on the remote control
- ② Press number keys “3”、“1”、“3”、“8” on remote control to enter password. Finish entering the factory mode. If you want to quit the factory mode, Please. press **【Power】** key to switch off the TV.

(1) Factory menu displays as bellow:

(2)

Adjust item	Adjust content	Adjust method	Remark
SPECIAL SET	System setting	【 > 】, 【 < 】 key	
Default	Clear EEPROM	【 > 】, 【 < 】 key	
AGING MODE	Aging switch	【 > 】, 【 < 】 key	
PANEL CONTROL	Panel parameter select	【 > 】, 【 < 】 key	
ADC ADJUST	ADC adjustment	【 > 】, 【 < 】 key	YPBPR、PC available
W/B ADJUST			
PICTURE	Picture mode	【 > 】, 【 < 】 key	Switch the five state “Standard、Soft、User、 Home、Vivid” at each source
SOUND	Sound mode	【 > 】, 【 < 】 key	Switch the five state“ Theater、Music、 Sport、User、Standard” at each source
NON LINEAR			
COLOR	Color temperature	【 > 】, 【 < 】 key	
SSC	Spread spectrum setting	【 > 】, 【 < 】 key	For EMC use
VIF1		【 > 】, 【 < 】 key	Tuner paramete adjustment
SW INFORMATION		【 > 】, 【 < 】 key	Software Information
Software Update		【 > 】, 【 < 】 key	Upgrade

(2) Use the key **【▲】/【▼】** on remote control to select items that need to adjust, use the key **【 > 】** / **【 < 】** to adjust them.

Submenu content:

SPECIAL SET

adjust item	adjust value	remark
INPUT SOURCE		preset AV SOURCE lines
LANGUAGE		OSD language select
WHITE PATTERN	OFF	
POWER	OFF	switch on/off :once mode or twice mode
CHANNEL		
AGING MODE	OFF	

HOTEL MODE	ON	
TUNER TYPE	CTD_3BP4I1_32	select tuner's type
Audio Type		select the output power of speaker
MENU	MENU switch	
USB CLONE		no need of adjustment
UART DEBUG	ON	
OVERSCAN	HK	
LOGO	OFF	LOGO switch

PICTURE

adjust item	adjust value	remark
MODE	standard	select the picture mode to adjust
BRIGHTNESS	50	no need of adjustment
CONTRAST	50	no need of adjustment
COLOR	50	no need of adjustment
SHARPNESS	50	no need of adjustment
TINT	50	no need of adjustment

COLOR

adjust item	adjust value	remark
F_color	0	no need of adjustment
ICC_color	saturation	no need of adjustment
IBC_Bringtness	Bringtness	no need of adjustment
IHC_HUE	tincture	no need of adjustment

SOUND

adjust item	adjust value	remark
MODE	Theater	select the sound mode
BASS	75	no need of adjustment
TREBLE	25	no need of adjustment
120HZ	55	no need of adjustment
500HZ	65	no need of adjustment
1.2KHZ	70	no need of adjustment
7.5KHZ	65	no need of adjustment
12KHZ	60	no need of adjustment
SPDIF MODE	IF output	no need of adjustment
AVL	36(Automatic volume control)	no need of adjustment
PRESALE		no need of adjustment

NON LINEAR

adjust item	adjust value	remark
MODE	TV	display the present signal source
PICTURE MODE	standard	select the picture mode to adjust
BRIGHTNESS CURVE	brightness	no need of adjustment
CONTRAST CURVE	contrast	no need of adjustment
SATURATION CURVE	saturation	no need of adjustment
HUE CURVE	hue	no need of adjustment
SHARPNESS CURVE	sharpness	no need of adjustment
VOLUME CURVE	volume	no need of adjustment
TREBLE	treble	no need of adjustment
BASS	bass	no need of adjustment
BACK LIGHT	Back light	no need of adjustment

8.2 Setting method of factory menu

(1) Select the setting item

Operators can choose setting item with **【P+】** and **【P-】** key, font with background display means the item has been chosen. Press **【V+】** key to enter sub directory. Use **【P+】** and **【P-】** keys on remote control to select up and down, then use **【V+】** and **【V-】** keys to set.

(2) Most of the menu functions are open under factory mode, if needed , item checking and effect test can be done by using menu .

(3) TV signal switching can be done by directly pressing the number keys in factory mode .Press **【MENU】** to back to the parental catalog ,press **【EXIT】** to quit factory mode.

Chapter9: Instructions of simple factory debugging specification

9.1 Clear EEPROM, and set the parameters after upgrading according to the upgrade instructions.

9.2 Check the image and sound of each channel/source are normal (or abnormal).