

Haier

SERVICE MANUAL

LCD TV

**Model No. L32F1120
L32D1120**



ZR39745 Chassis



WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

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Haier Group

Chapter 1: General Information

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1-2. General Guidelines

When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.

After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed.

After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.

- 1) Leakage Current Cold Check
- 2) Leakage Current Hot Check
- 3) Prevention of Electro Static Discharge (ESD) to Electrostatically Sensitive

1-3. Important Notice

1-3-1. Follow the regulations and warnings

Most important thing is to list up the potential hazard or risk for the service personnel to open the units and disassemble the units. For example, we need to describe properly how to avoid the possibility to get electrical shock from the live power supply or charged electrical parts (even the power is off).

This symbol indicates that high voltage is present inside. It is dangerous to make any kind of contact with any inside part of this product.

This symbol indicates that there are important operating and maintenance instructions in the literature accompanying the appliance.

1-3-2. Be careful to the electrical shock

To prevent damage which might result in electric shock or fire, do not expose this TV set to rain or excessive moisture. This TV must not be exposed to dripping or splashing water, and objects filled with liquid, such as vases, must not be placed on top of or above the TV.

1-3-3. Electro static discharge (ESD)

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. The following techniques should be used to help reduce the incidence of component damage caused by electrostatic discharge (ESD).

1-3-4. About lead free solder (PbF)

This product is manufactured using lead-free solder as a part of a movement within the consumer products industry at large to be environmentally responsible. Lead-free solder must be used in the servicing and repairing of this product.

1-3-5. Use the genuing parts (specified parts)

Special parts which have purposes of fire retardant (resistors), high-quality sound (capacitors), low noise (resistors), etc. are used.

When replacing any of components, be sure to use only manufacture's specified parts shown in the parts list.

Safety Component

- Components identified by mark have special characteristics important for safety.

1-3-6 Safety Check after Repairment

Confirm that the screws, parts and wiring which were removed in order to service are put in the original positions, or whether there are the positions which are deteriorated around the serviced places serviced or not. Check the insulation between the antenna terminal or external metal and the AC cord plug blades. And be sure the safety of that.

General Servicing Precautions

1. Always unplug the receiver AC power cord from the AC power source before;
 - a. Removing or reinstalling any component, circuit board module or any other receiver assembly.
 - b. Disconnecting or reconnecting any receiver electrical plug or other electrical connection.
 - c. Connecting a test substitute in parallel with an electrolytic capacitor in the receiver.

CAUTION: A wrong part substitution or incorrect polarity installation of electrolytic capacitors may result in an explosion hazard.

2. Test high voltage only by measuring it with an appropriate high voltage meter or other voltage measuring device (DVM, FETVOM, etc) equipped with a suitable high voltage probe.

Do not test high voltage by "drawing an arc".

3. Do not spray chemicals on or near this receiver or any of its assemblies.
4. Unless specified otherwise in this service manual, clean electrical contacts only by applying the following mixture to the contacts with a pipe cleaner, cotton-tipped stick or comparable non-abrasive applicator; 10% (by volume) Acetone and 90% (by volume) isopropyl alcohol (90%-99% strength).

CAUTION: This is a flammable mixture.

Unless specified otherwise in this service manual, lubrication of contacts is not required. Capacitors may result in an explosion hazard.

5. Do not defeat any plug/socket B+ voltage interlocks with which receivers covered by this service manual might be equipped.
6. Do not apply AC power to this instrument and/or any of its electrical assemblies unless all solid-state device heat sinks are correctly installed.
7. Always connect the test receiver ground lead to the receiver chassis ground before connecting the test receiver positive lead.

Always remove the test receiver ground lead last. Capacitors may result in an explosion hazard.

8. Use with this receiver only the test fixtures specified in this service manual.

CAUTION: Do not connect the test fixture ground strap to any heat sink in this receiver.

9. Remove the antenna terminal on TV and turn on the TV.
10. Insulation resistance between the cord plug terminals and the external exposure metal should be more than Mohm by using the 500V insulation resistance meter.
11. If the insulation resistance is less than M ohm, the inspection repair should be required. If you have not the 500V insulation resistance meter, use a Tester. External exposure metal: Antenna terminal Headphone jack

Electrostatically Sensitive (ES) Devices

Some semiconductor (solid-state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by static by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed to prevent potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static type solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it.
(Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

CAUTION: Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device.)

1-3-7. Ordering Spare Parts

Please include the following informations when you order parts. (Particularly the Version letter)

1. Model number, Serial number and Software Version
The model number and Serial number can be found on the back of each product and the Software Version can be found at the Spare Parts List.
2. Spare Part No. and Description
You can find them in the Spare Parts List

1-3-8. Photo used in this manual

The illustration and photos used in this Manual may not base on the final design of products, which may differ from your products in some way.

1-4. How to Read this Service Manual

Using Icons:

Icons are used to attract the attention of the reader to specific information. The meaning of each icon is described in the table below:

Note:

A “note” provides information that is not indispensable, but may nevertheless be valuable to the reader, such as tips and tricks.

Caution:

A “caution” is used when there is danger that the reader, through incorrect manipulation, may damage equipment, loose data, get an unexpected result or has to restart(part of) a procedure.

Warning:

A “warning” is used when there is danger of personal injury.

Reference:

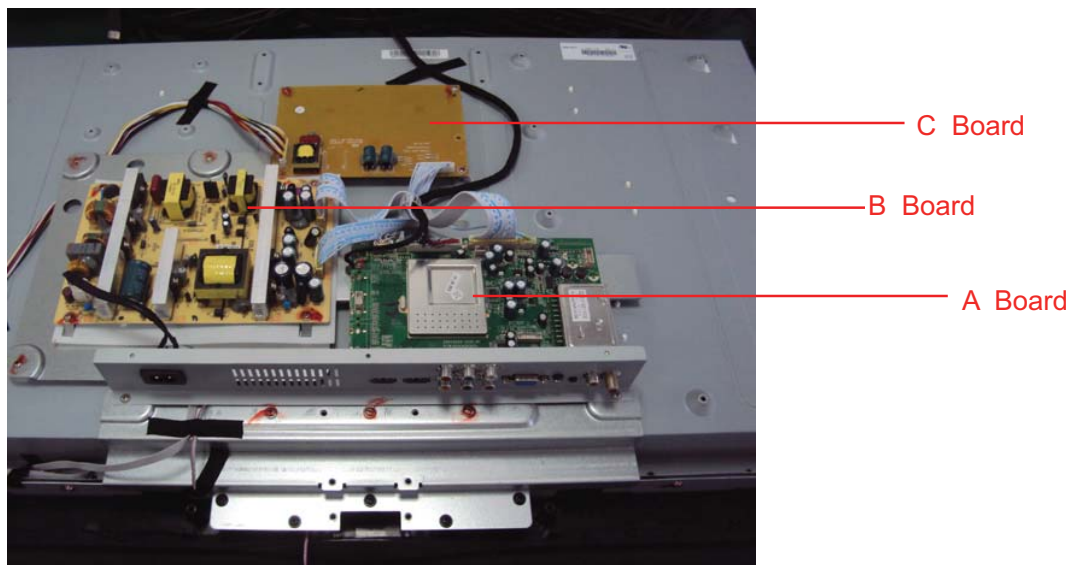
A “reference” guides the reader to other places in this binder or in this manual, where he/she will find additional information on a specific topic.

2. Specifications

Model	L32F1120/L32D1120
Screen Size	32 inch
Aspect Ratio	16:9
Resolution	1366x768
Response Time (ms)	6.5 (GRAY TO GRAY)
Angel of View	+88/-88(H), +88/-88(V) Typ.
Color Display	16.7M
No. of Preset Channels	Cable :1-135/ Air: 2-69(ATV&DTV)
OSD Language	English
Color System	NTSC
Audio System	M
Audio Output Power (Built-in) (W)	8W×2
Audio Output Power (outer) (W)	No
Total Power Input (W)	135W
Voltage Range (V)	AC100V-240V
Power Frequency (Hz)	50~60Hz
Net Weight (KG)	9.5
Gross Weight (KG)	12.2
Net Dimension (MM)	793*113*511
Packaged Dimension (MM)	980*205*626

3. Location of Controls and Components

3-1 Board Location



No.	Description	L32F1120	L32D1120
A Board	Main Board	TB300713000M	TB300713100M
B Board	Power Board	514C3206M03	514C3206M03
C Board	Power drive(Backlight driver board)	514C3208M01	514C3208M01

3-2 Main Board



3-2-1 Function Description:

Main Board

Process signal which incept from exterior equipment then translate into signal that panel can display.

3-2-2 Connector definition

Main board connector

Power connectors (J15, J16)

J16		J15	
Pin number	Signal name	Pin number	Signal name
1	+5V	1	GND
2	BL ON/OFF	2	GND
3	BL ADJST	3	+5V
4	high voltage	4	+5V
5	GND	5	POWER ON/OFF
		6	+5VSTB
		7	+5V
		8	+5V
		9	GND
		10	GND
		11	GND
		12	+12V
		13	+12V

Notes:

J16-Pin 2: Backlight on/off:

The system can turn on or turn off the backlight of TFT LCD Panel through the power supply unit path.

J15-Pin 5: System power on / standby

System board will use this pin to control system power.

J16-Pin 3: Control the luminance of backlight

The system can generate the PWM signal to control the strength of TFT LCD Panel's backlight through this connector

remote connector (J6)

Pin number	Signal name	Description
1	LED_R	LAMP RED
2	LED_G	LAMP GREEN
3		
4	IR	REMOTE CONTROL
5	GND	GND
6	5V	POWER FOR REMOTE

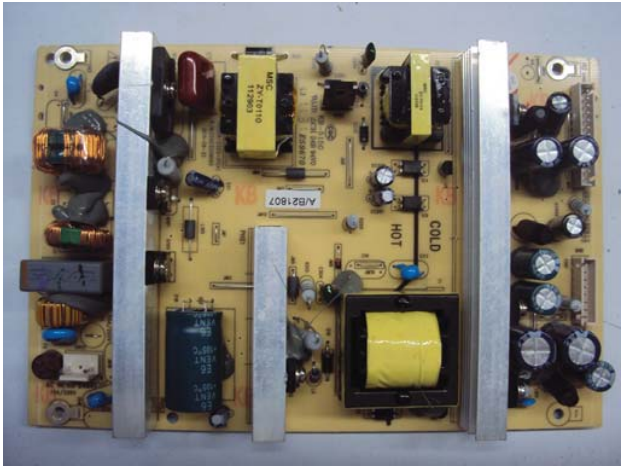
Keypad and connector (J7)

Pin number	Signal name	Description
1	KEY1	
2	KEY0	
3	GND	

Speaker connector J11

Pin number	Signal name	Description
1	RSPK+	RSPK+
2	RSPK-	RSPK-
3	LSPK-	LSPK-
4	LSPK+	LSPK+

3-3. Power Board



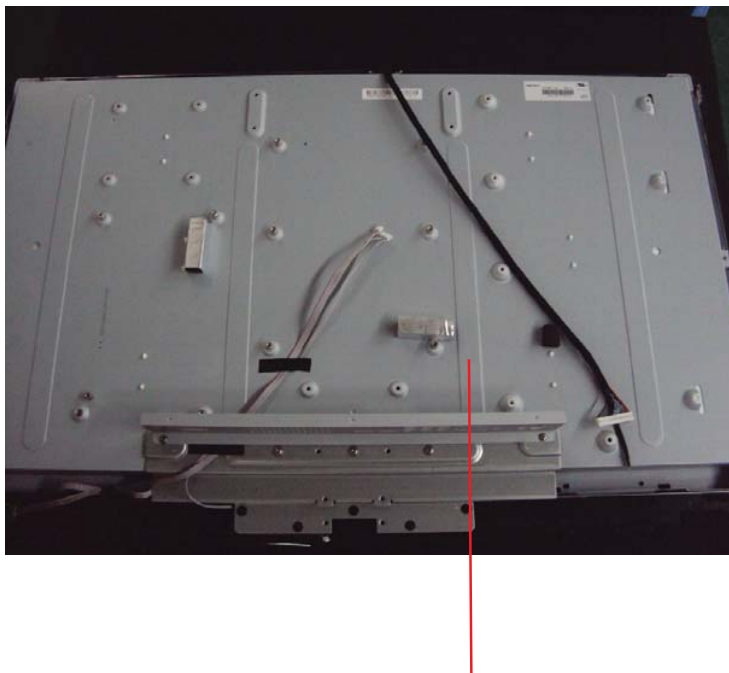
3-3-1 Function Description:

Supply power for Main board, Panel.

3-3-2 Connector definition

CN3		CN2	
Pin number	Signal name	Pin number	Signal name
1	+24	1	+12V
2	+24	2	+12V
3	+24	3	GND
4	+24	4	GND
5	GND	5	GND
6	GND	6	+5V
7	GND	7	+5V
8	GND	8	+5VSTB
		9	POWER ON/OFF
		10	+5V
		11	+5V
		12	+5V
		13	GND

3-4. LCD Panel



V315B6-L04

3-4-1 Function Description: Display the signal.

3-4-2 Connector definition.

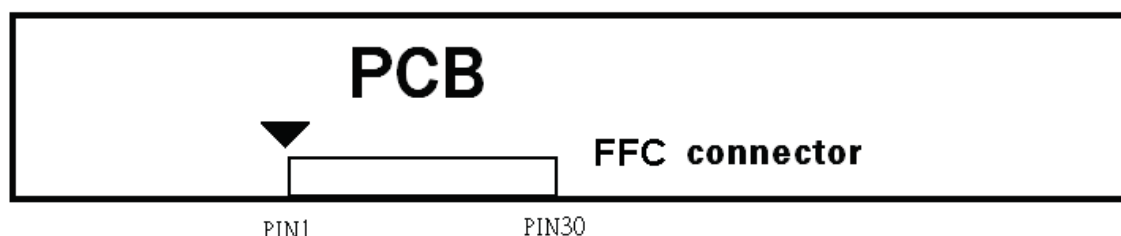
CNF1 Connector Pin Assignment

Pin	Name	Description	Note
1	N.C.	No Connection	(3)
2	SCL	EEPROM Serial Clock	
3	SDA	EEPROM Serial Data	
4	GND	Ground	
5	RX0-	Negative transmission data of pixel 0	
6	RX0+	Positive transmission data of pixel 0	
7	GND	Ground	
8	RX1-	Negative transmission data of pixel 1	
9	RX1+	Positive transmission data of pixel 1	
10	GND	Ground	
11	RX2-	Negative transmission data of pixel 2	
12	RX2+	Positive transmission data of pixel 2	
13	GND	Ground	
14	RXCLK-	Negative of clock	
15	RXCLK+	Positive of clock	

16	GND	Ground	
17	RX3-	Negative transmission data of pixel 3	
18	RX3+	Positive transmission data of pixel 3	
19	GND	Ground	
20	PANEL_SEL	No Connection	(3)
21	SELLVDS	Select LVDS data format	(2)(4)
22	WP	EEPROM Write Protect	
23	GND	Ground	
24	GND	Ground	
25	N.C.	No Connection	(3)
26	VCC	Power supply: +12V	
27	VCC	Power supply: +12V	
28	VCC	Power supply: +12V	
29	VCC	Power supply: +12V	
30	VCC	Power supply: +12V	

Note (1) Connector type: STARCONN 106H30-011100-A2-R or compatible

LVDS connector pin order defined as follows

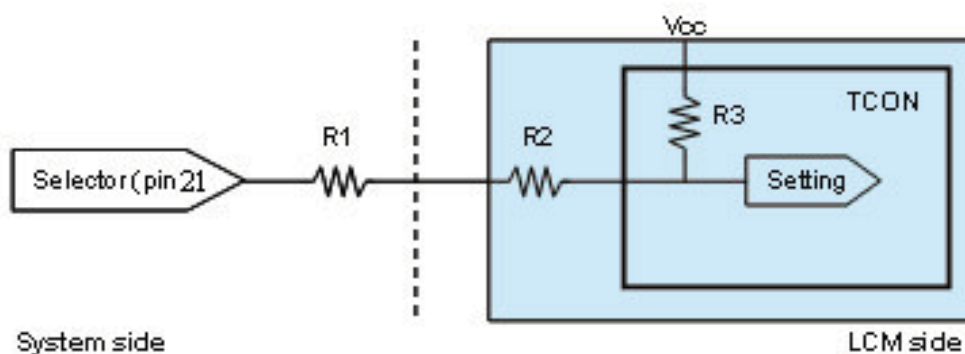


Note (2) High = Connect to +3.3V or Open: VESA Format, Low = connect to GND: JEIDA Format.

Please refer to 5.5 LVDS INTERFACE

Note (3) Reserved for internal use. Left it open.

Note (4) LVDS signal pin connected to the LCM side has the following diagram. R1 in the system side should be less than 1K Ohm. ($R1 < 1K \text{ Ohm}$)



4. Disassemble and assemble

4-1 Remove the Pedestal



4-3. Remove the adhesive tape

(The location of the adhesive tape as follows)



Remove the adhesive tape indicated on the figure above

Lay down the unit so that rear cover faces upward

Remove the four screw from the rear cover indicated with ○

Then remove the pedestal

4-2 Remove the Back Cover



Remove the these screw indicated on figure above by ○

Then remove the back cover from the unit.

4-3 Remove the Terminal Bracket



Remove the two screw indicated on the figure above by ○

Then put the terminal bracket to the side



Remove the two screw indicated on the figure above by ○

Disconnected the coupler J17
CN513 J6 J7 J9 J15 J16 J11
Remove the Main board

4-4 Remove the power module

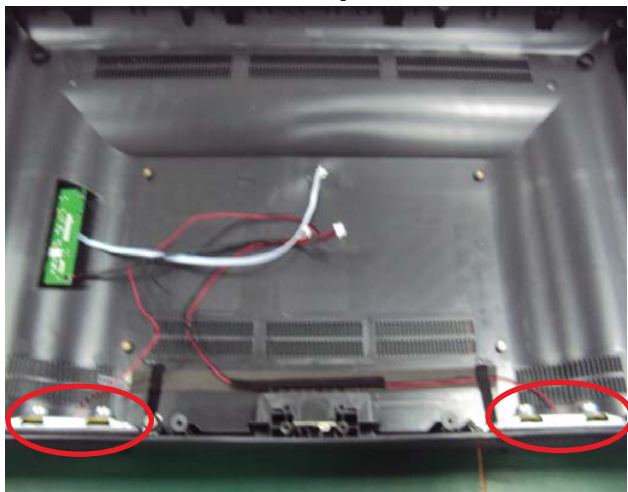


Remove the four screw indicated on the figure above by ○

Then remove the power module

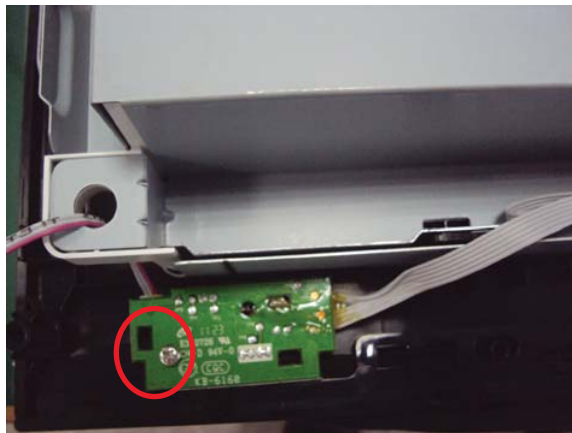
4-5 Remove the Main board

4-6 Remove the speaker



Take out the speaker

4-7 Remove the remote control



Remove the screw, take out the remote control board

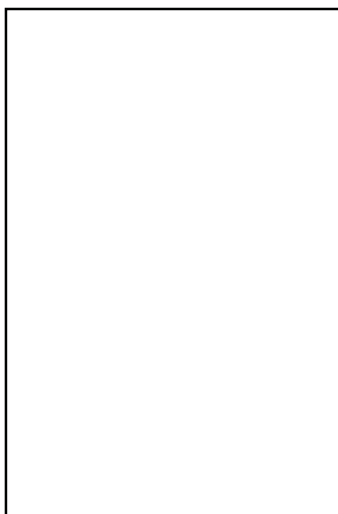
5. Installation Instructions

5-1 External Equipment Connections

Accessories



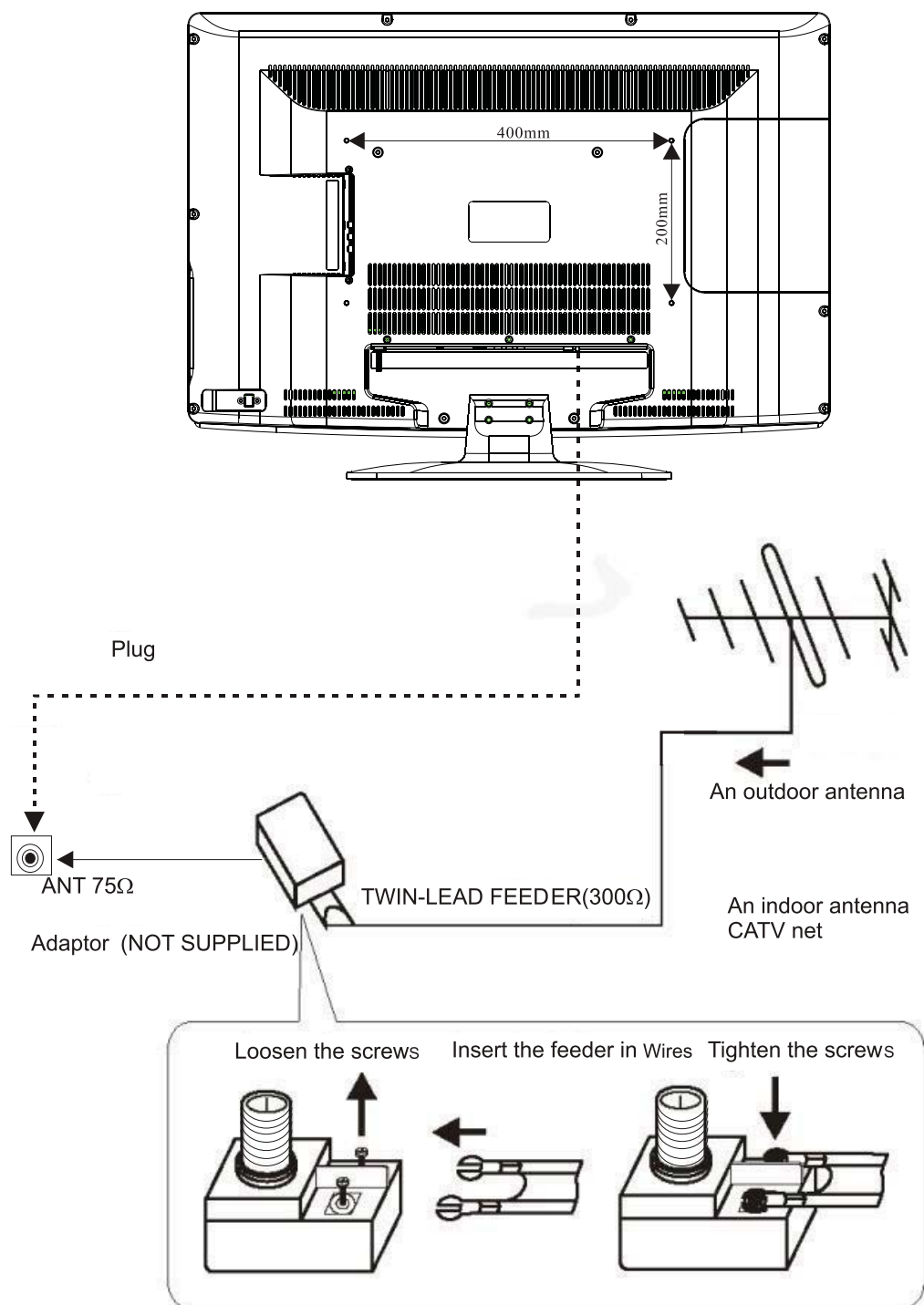
Remote Control



User GUIDE



Battery



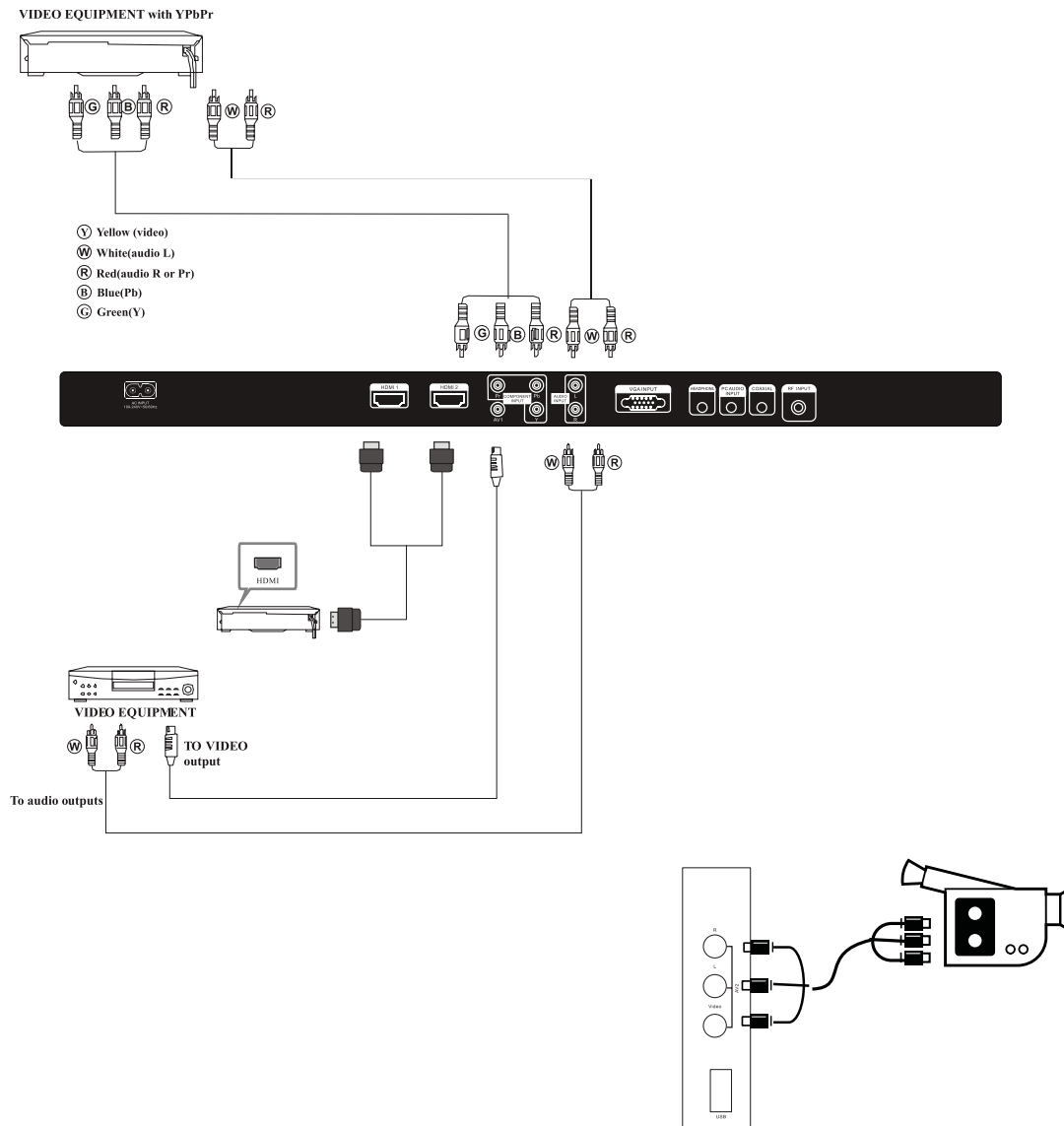
Note:
 Aerial connections: IEC (female).
 Input impedance: 75 Ω unbalanced.

AV EQUIPMENT

There are two HDMI ports located on the back of your TV. You can connect a Blu-ray player, DVD player, or other video equipment through these ports.

There is one component (Y, Pb, Pr) and one composite (AV) video input located on the back of your TV. You can connect a VCR, cable box, or other video equipment to these jacks.

Please see the diagram below. You may also need to refer to the owner's manual of the device that you are trying to connect.



It can be connected to the following appliances: VCR, multi disc player, DVD, camcorder, video game or stereo system, etc.....

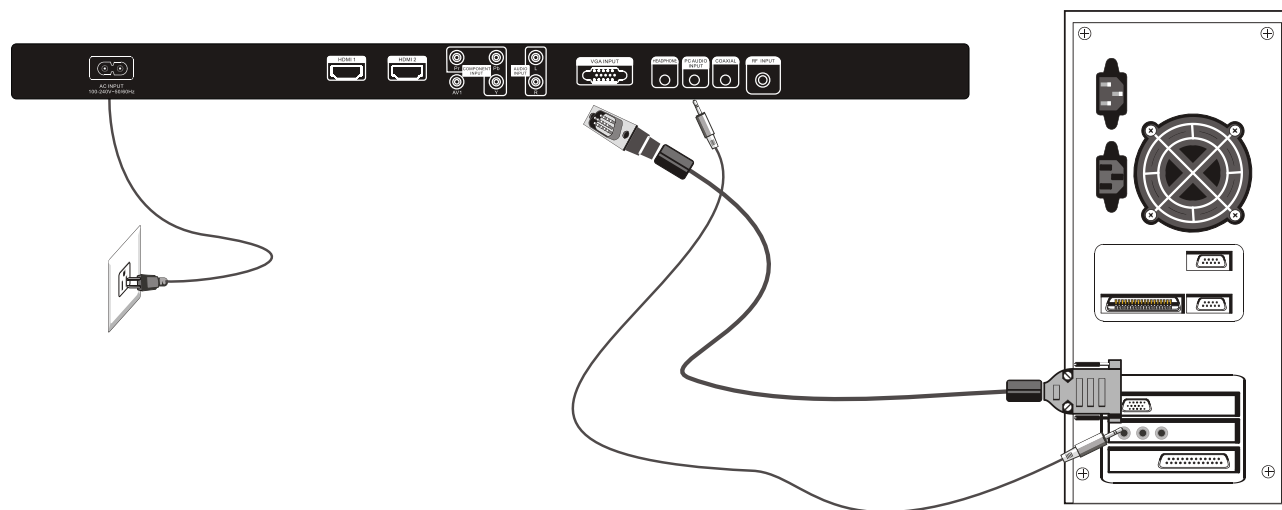
There is a composite (AV) video input and a USB port located on the side of the TV. You can use this AV input to conveniently connect devices that you may frequently connect and disconnect, such as a camcorder.

PC

STEPS:

Be sure both the TV and computer are powered off.

1. Connect a VGA and audio cable.
2. Connect the power cord.
3. Turn on the TV and switch to VGA mode.
4. Turn on the PC.



PRESET MODE

	RESOLUTION	V.Freq.(Hz)	H.Freq.(KHz)
1	640*480	60	31.47
2	800*600	60	37.88
3	1024*768	60	48.36
4	1280*1024	60	63.98

5-2 HDMI Connections

When the source device(DVD player or Set Top Box) supports HDMI How To Connect

1. Connect the source device to HDMI port of this TV with an HDMI cable(not supplied with this product).
2. No separated audio connection is necessary.

How To Use

If the source device supports Auto HDMI function, the output resolution of the source device will be automatically set to 1280x720p.

If the source device does not support Auto HDMI, you need to set the output resolution appropriately.

To get the best picture quality, adjust the output resolution of the source device to 1280x720p.

Select HDMI input source in input source option of Select Main source menu.

When the source device(DVD player or Set Top Box) supports DVI How To Connect

1. Connect the source device to HDMI port of this TV with a HDMI-to-DVI cable(not supplied with this product).
2. A separated audio connection is necessary.
3. If the source device has an analog audio output connector, connect the source device audio output to DVI Audio In port located on the PC port.

How To Use

If the source device supports Auto DVI function, the output resolution of the source device will be automatically set to 1280x720p.

If the source device does not support Auto DVI, you need to set the output resolution appropriately.

To get the best picture quality, adjust the output resolution of the source device to 1280x720p.

Press the INPUT button to select HDMI input source in input source option of Select Main source menu.

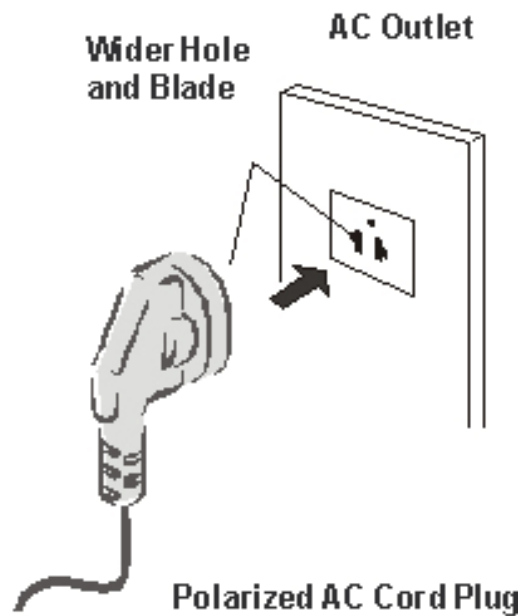
Installation

Cable sample

	HDMI Cable (not supplied with the product)
	HDMI to DVI Cable (not supplied with the product)
	Analog Audio Cable (Stereo to RCA type) (not supplied with the product)

Connecting Headphones

You can connect a set of headphones to your set if you wish to watch a TV programmer without disturbing the other people in the room.



Power source

TO USE AC POWER SOURCE

Use the AC polarized line cord provided for operation on AC.
Insert the AC cord plug into a standard polarized AC outlet.

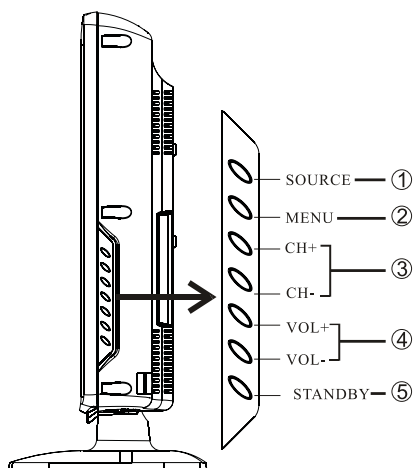
NOTES:

- Never connect the AC line cord plug to other than the specified voltage.
Use the attached power cord only.
- If the polarized AC cord does not fit into a non-polarized AC outlet, do not attempt to file or cut the blade. It is the user's responsibility to have an electrician replace the obsolete outlet.
- If you cause a static discharge when touching the unit and the unit fails to function, simply unplug the unit from the AC outlet and plug it back in. The unit should return to normal operation.

6. Operation Instructions

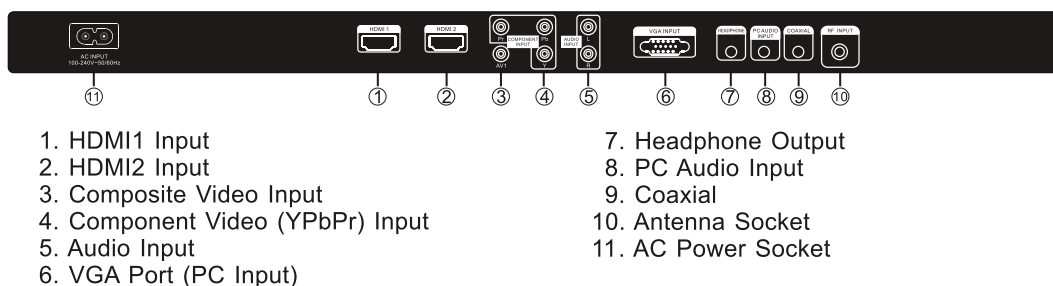
Basal information

6-1 Front panel controls



1. **SOURCE:** Display the input source menu.
2. **MENU:** Display main MENU.
3. **CH+/CH-:** In TV mode, press "CH+" or "CH-" to change the channel up and down. In MENU mode, press "CH+" or "CH-" to select items in standby mode, press "CH+" or "CH-" to turn on the TV.
4. **VOL+/VOL-:** Adjust sound level. In MENU mode, press "VOL+ " or "VOL- " to adjust the item that you selected.
5. **STANDBY:** Press this button to turn the unit ON from STANDBY mode. Press it again to turn the set back to STANDBY.

6.2 Back panel controls

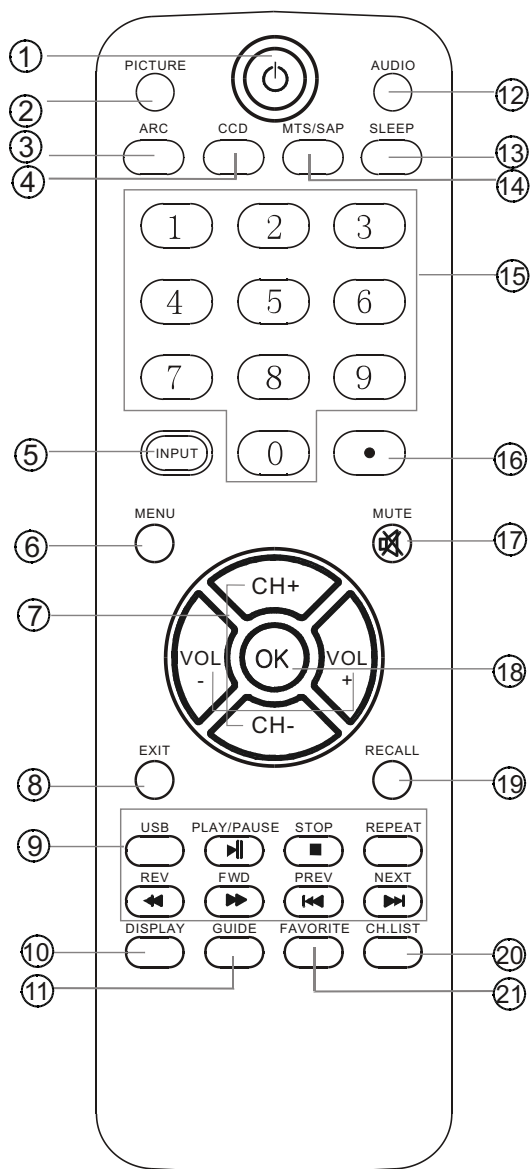


- Note:
1. Composite video input and component video input share the audio input.
 2. When HDMI1 has an input signal coming from a DVI source then the audio input signal must be connected to the PC audio input.
 3. When HDMI2 has an input signal coming from a DVI source then the audio input signal must be connected to the YPbPr/AV audio input.

6-3 Setting Up Your Remote Control

The remote control cannot be operated unless the batteries are properly loaded inserted.
When using the remote control, aim it at the remote control sensor on the TV.

Function introduction



1. Press to turn on and off the TV.
2. Press repeatedly to cycle through the available picture modes.
3. Press to change the aspect ratio.
4. Select a closed caption option.
5. Show the input source menu.
6. Press to open the on-screen menu.
7. Press CH+ or CH- to go to the next or previous channel in the channel list. Press VOL+ or VOL- to increase or decrease the volume.
8. Exit On Screen Display.
9. USB: Press to launch the USB multimedia mode
◀◀/▶▶ Previous / Next ◀◀/▶▶
No Function. ■ Stop ▶▶ Play / Pause **REPEAT**.
10. Press to display the TV status information on the top of the TV screen.
11. Press to display the guide when you are watching analog or digital channels.
12. Press to cycle through the different sound settings.
13. Press to display the sleep timer option.
14. Select MONO, STEREO, SAP in NTSC system.
(Analog) TV.
15. Press to change a channel.
16. Press to select the digital sub-channels. For example, to enter "54-3", press "54", "•". And "3".
17. Switches the TV sound on or off.
18. Press to confirm selections in an on-screen menu or to open a submenu.
19. Press to go to the last viewed channel.
20. Open the channel list in TV mode.
21. Open the favorite channel list in TV mode.

[illegible]

7-1. Circuit Diagram

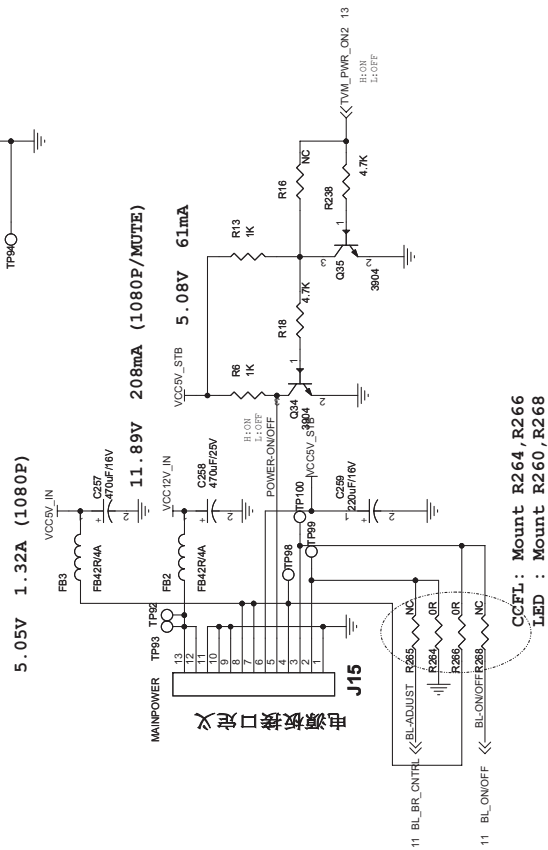
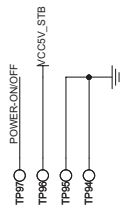
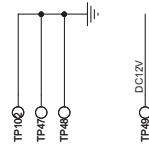
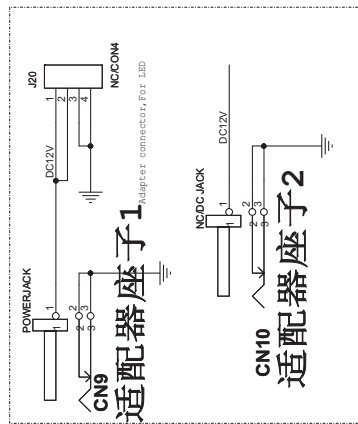
GPIO Pin Table				
Signal	ZR39745 GPIO #	Function	Note	
VGA_HSYNC	GPIO_TVP13	VGA wake-up control detection		
AUD_AMP_MUTE	GPIO_TVP23	AMP mute control	Active high	
AMP_STB	GPIO_TVP24	AMP standby control	Active high	
TVM_PWR_ON2	POWER_CTL1	System power control	Active high	
TVM_PWR_ON1	POWER_CTL2	System power control	Active high	
DVD_AUTO_SW	GPIO_TVP0			
DVD_STB	GPIO_TVP1			
FP_LED1	GPIO_TVP2			
FP_LED2	GPIO_TVP3			
PWR_SW_DVD	GPIO_TVP4			
VGA_UART_ON/OFF	GPIO_P2			
PWR_SW_USB	GPIO_P3	USB power on/off	Active low	
COMP_SW1	GPIO_P4	Select component and DVD	0: Component 1: DVD	
SPI_WEN	GPIO_P6	SPI flash protection control	Active low	
LCD_POWER_ON	GPIO_P11	Panel power on/off control	Active low	
LCD_ON	GPIO_P14	BL on/off	Active high	

GPIOs Table

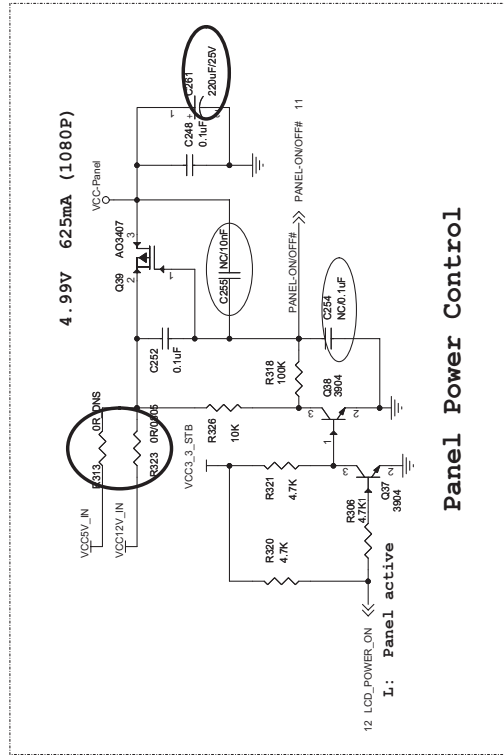


ZORAN Confidential

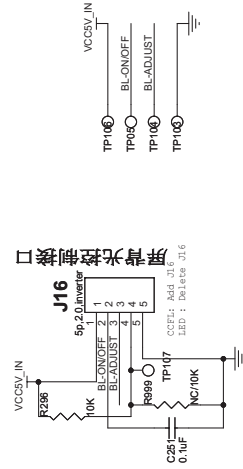
Zoran/HD7X5 Ref. Platform Rev 1.0		
Size	Document Number	Rev
	GPIO_Table	A1
Date	Friday, August 12, 2011	Sheet 18 of 18



POWER INPUT

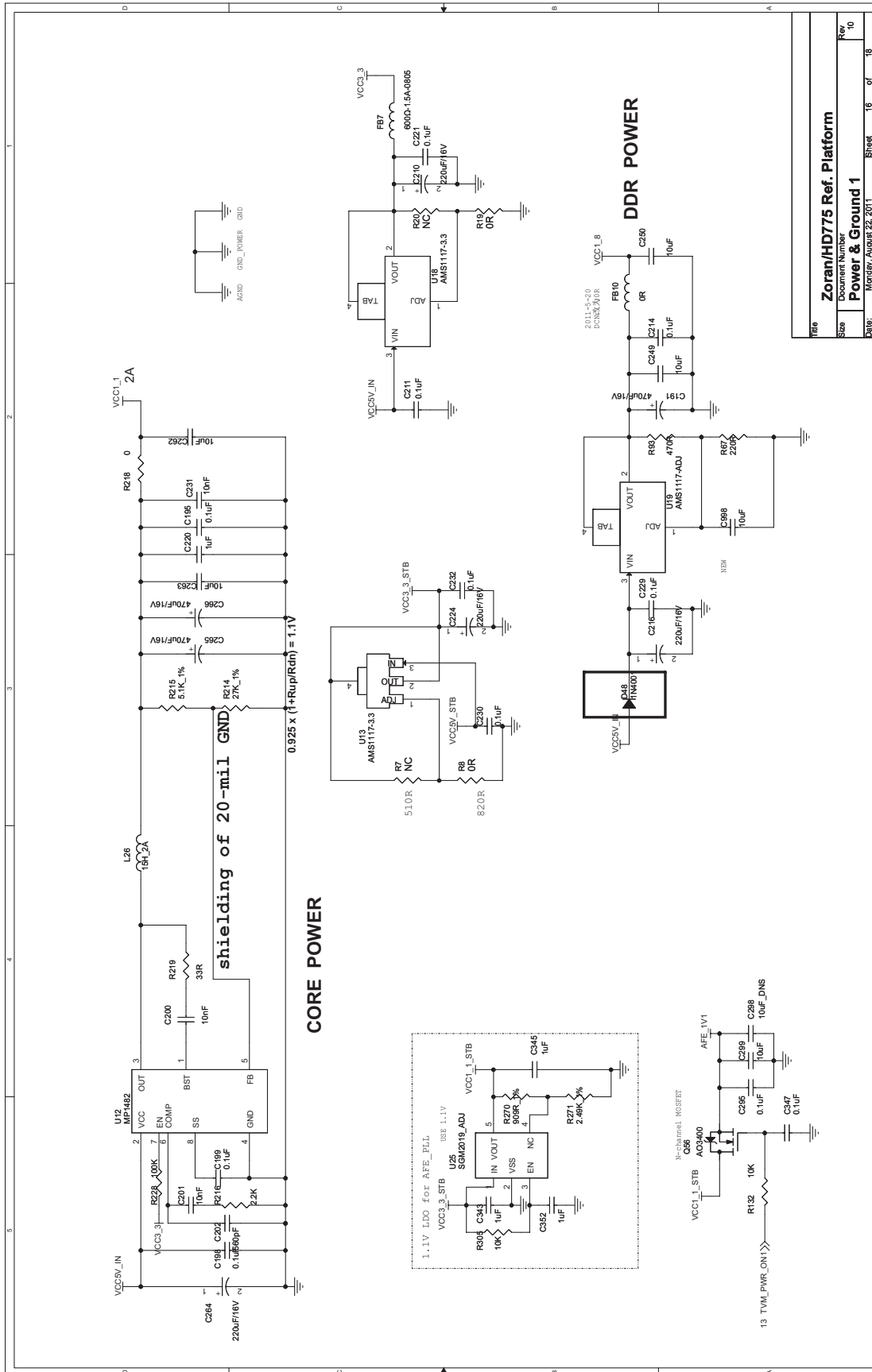


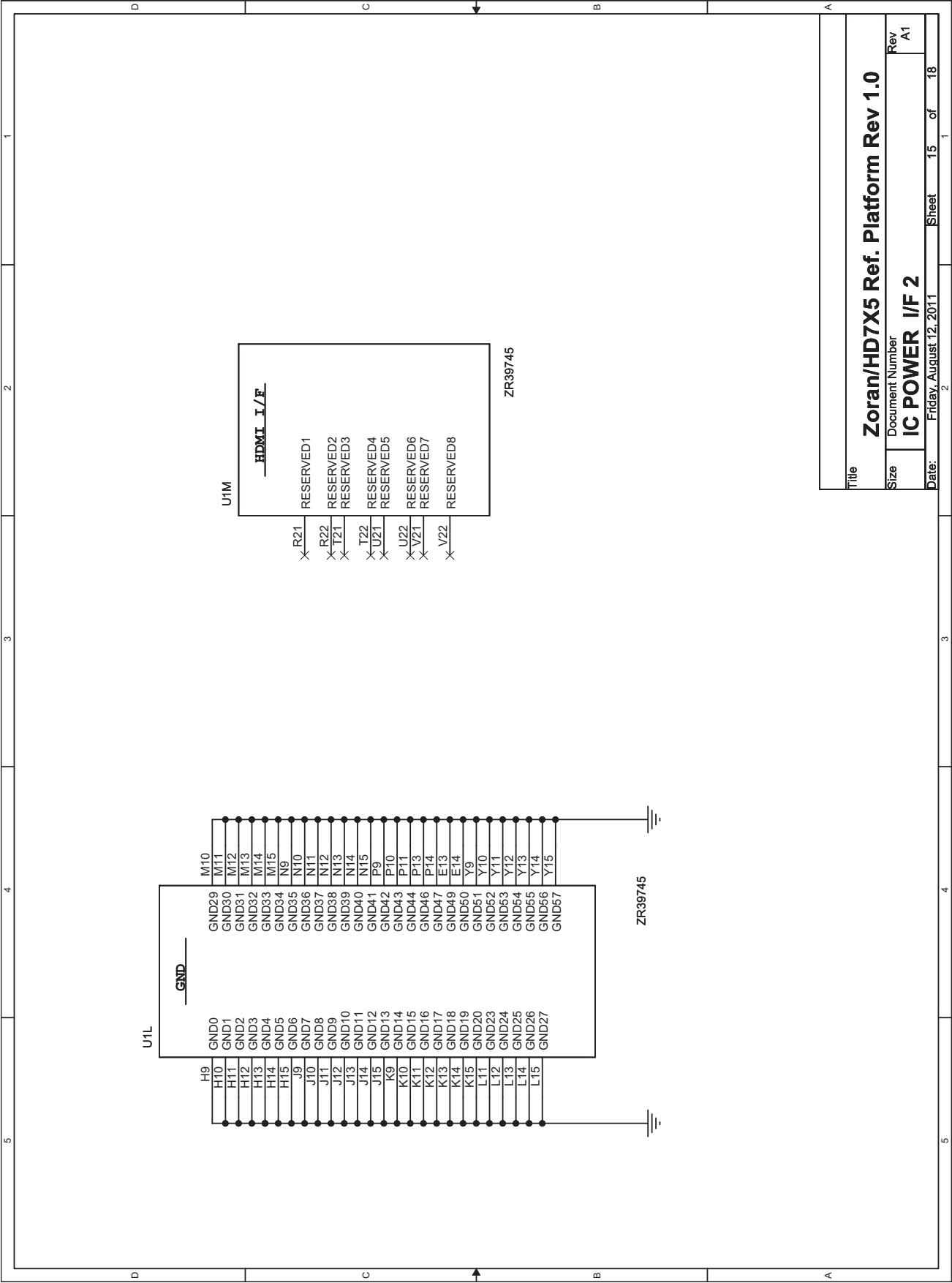
Panel Power Control



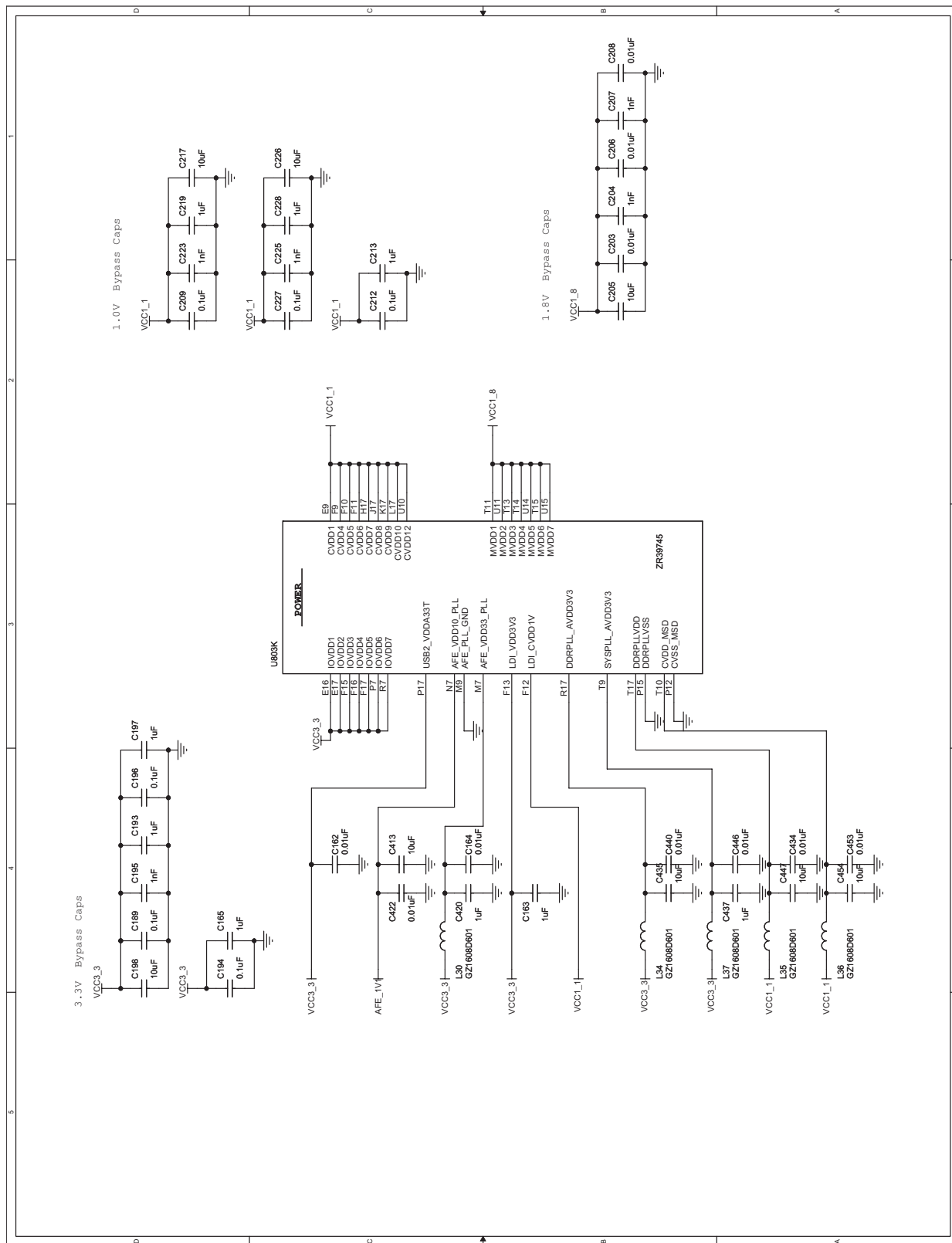
CCFL: Mount R264, R266
LED: Mount R260, R268

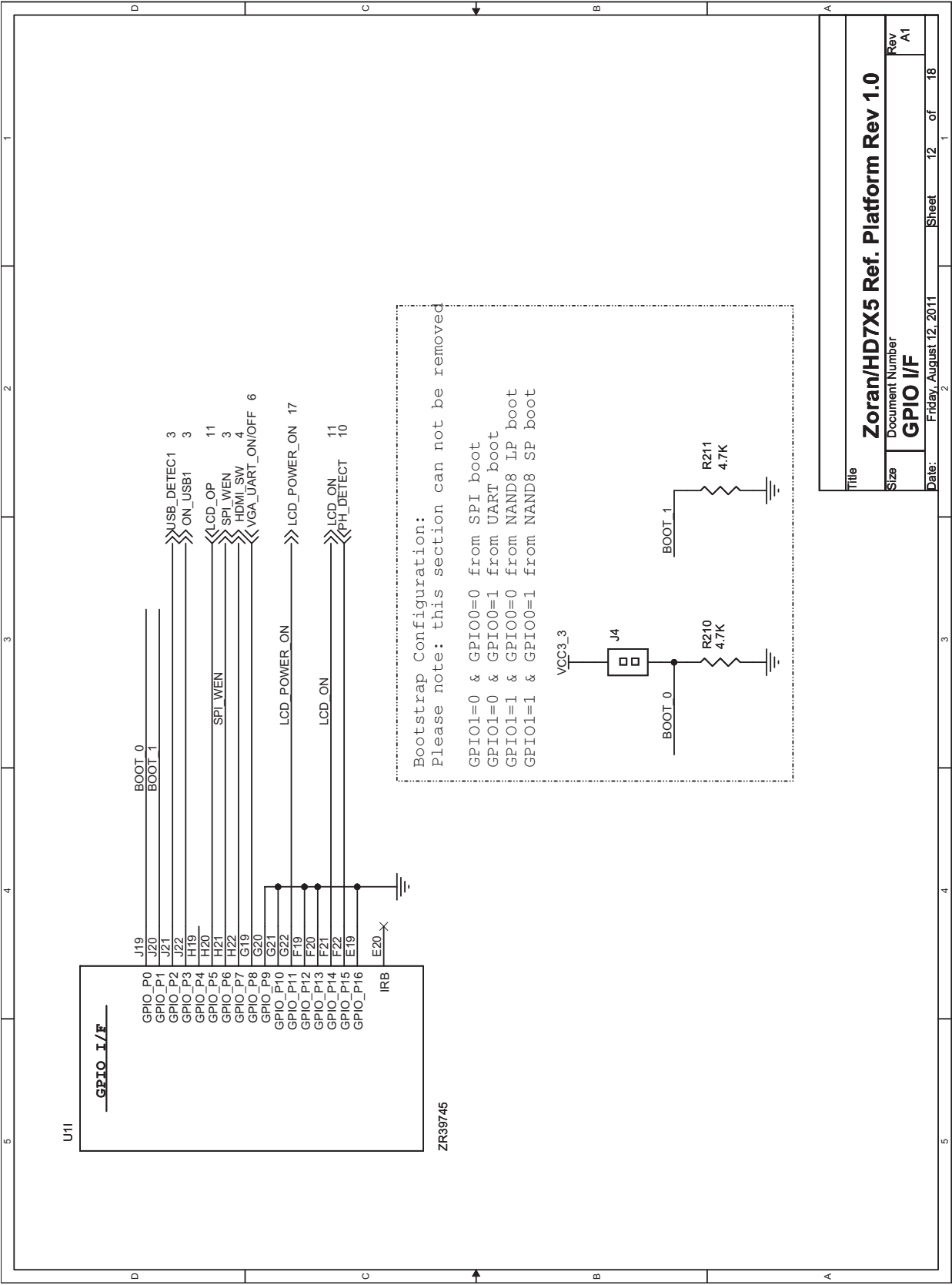
File	Zoran/HD775 Ref. Platform
Size	Document Number
Date	Power & Ground 2
Sheet	17 of 18
Rev	10



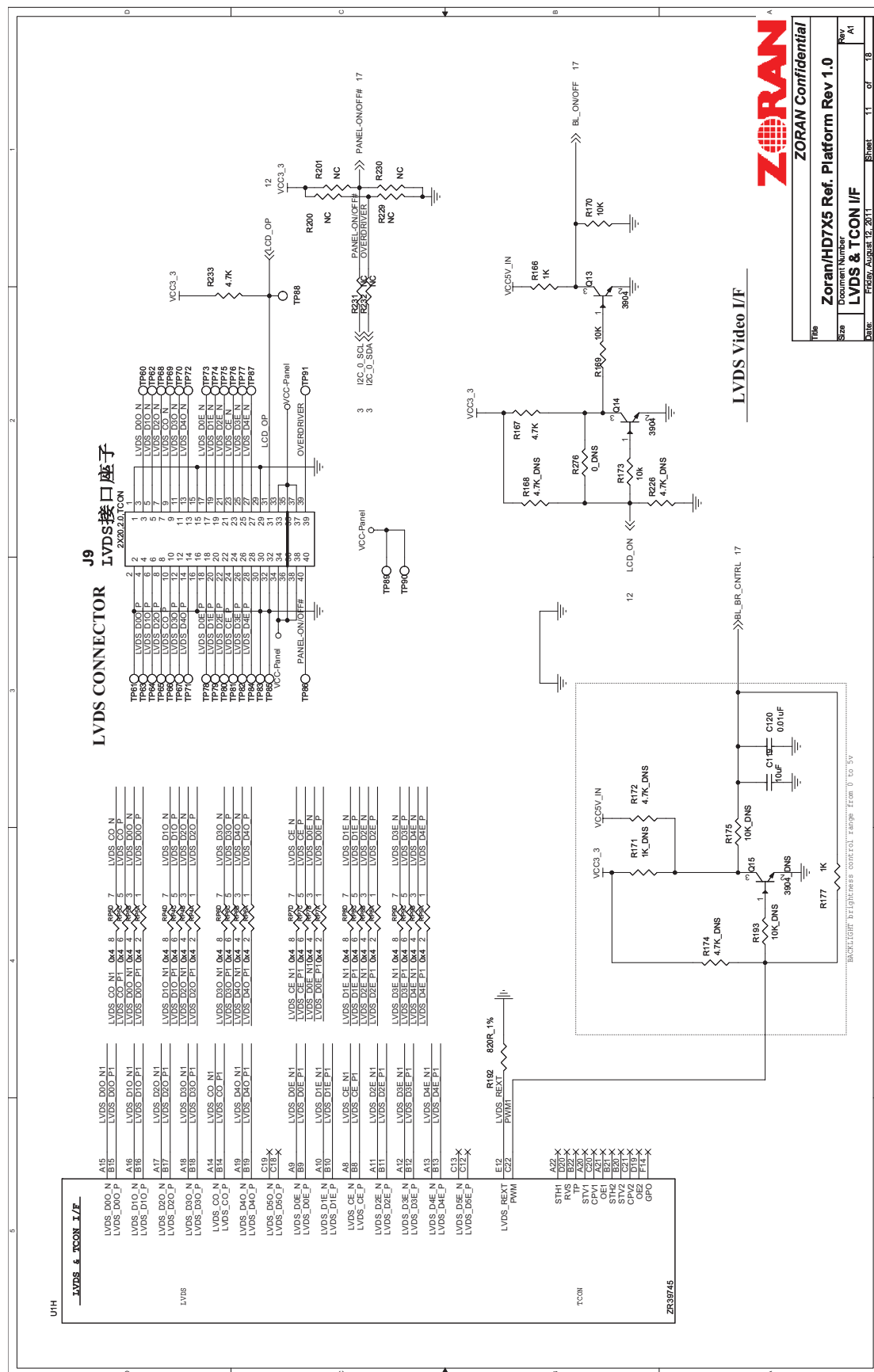


Title			
Zoran/HD7X5 Ref. Platform Rev 1.0			
Size	Document Number		Rev
	IC POWER I/F 2		A1
Date:	Friday, August 12, 2011	Sheet 15	of 18

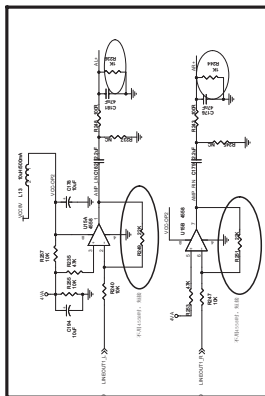




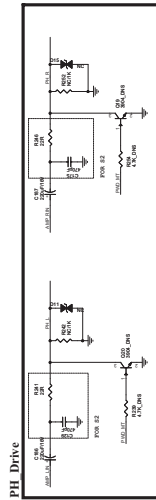
Title	
Zoran/HD7X5 Ref. Platform Rev 1.0	
Size	Document Number
Rev	A1
Date:	Friday, August 12, 2011
Sheet	12 of 18



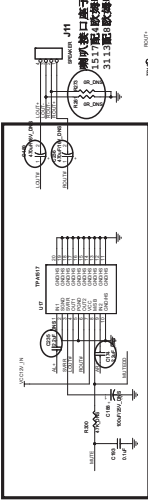
AUDIO Pre AMP



PH Drive



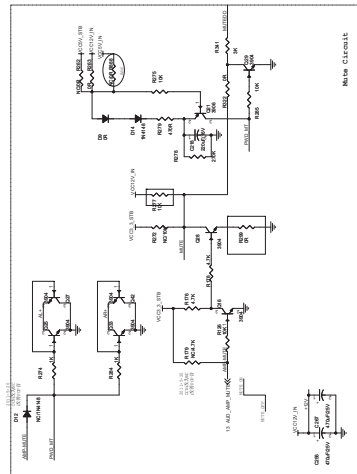
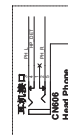
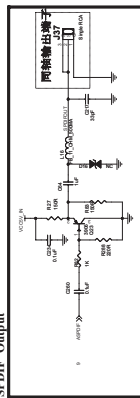
TDA1517



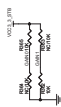
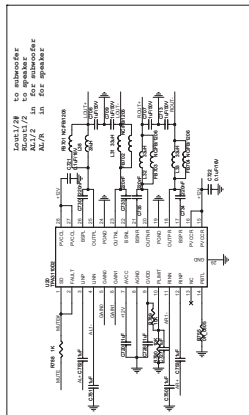
1517 驱动电路, 26寸以下 (含26寸) 3113 驱动电路, 26寸以上 (含26寸)

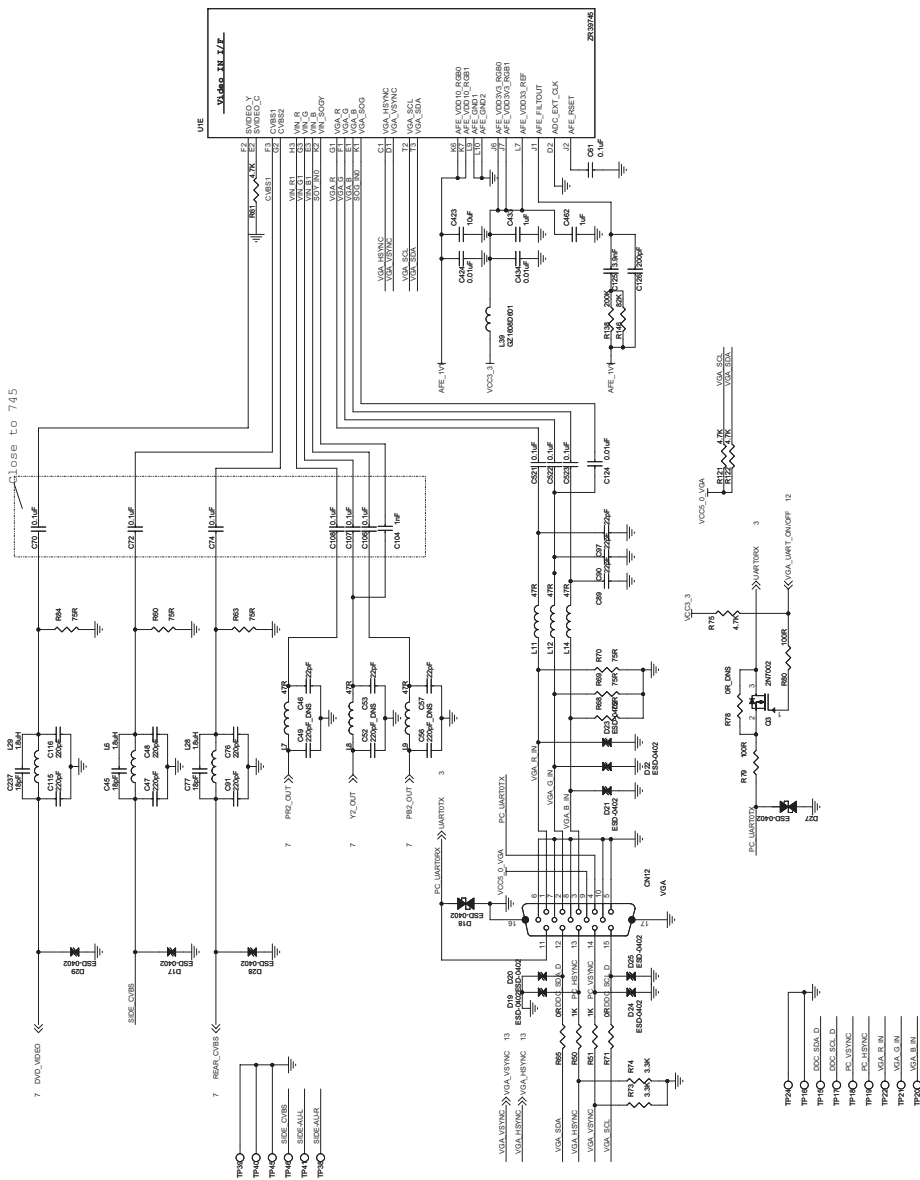


SPDIF Output

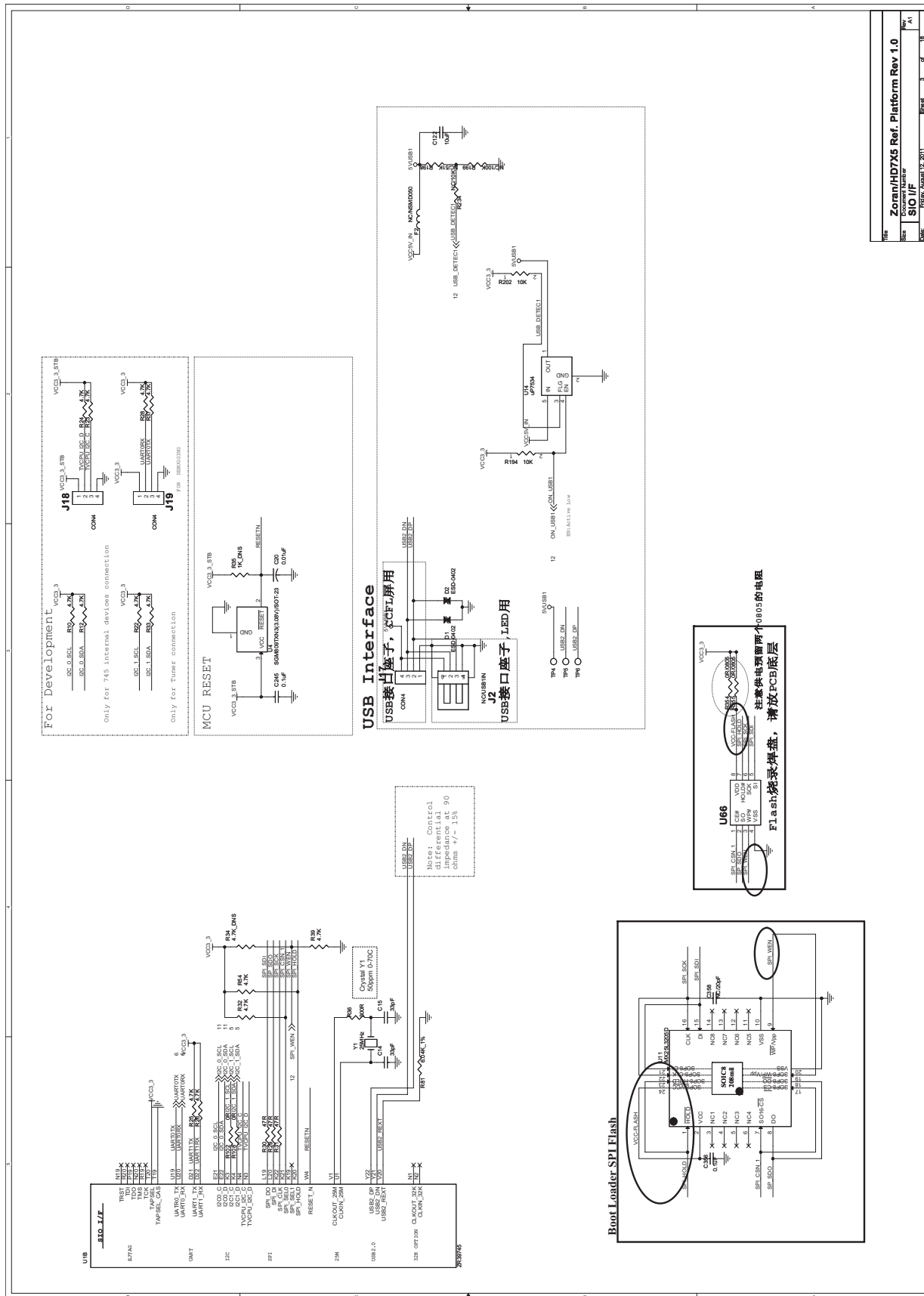


New Circuit

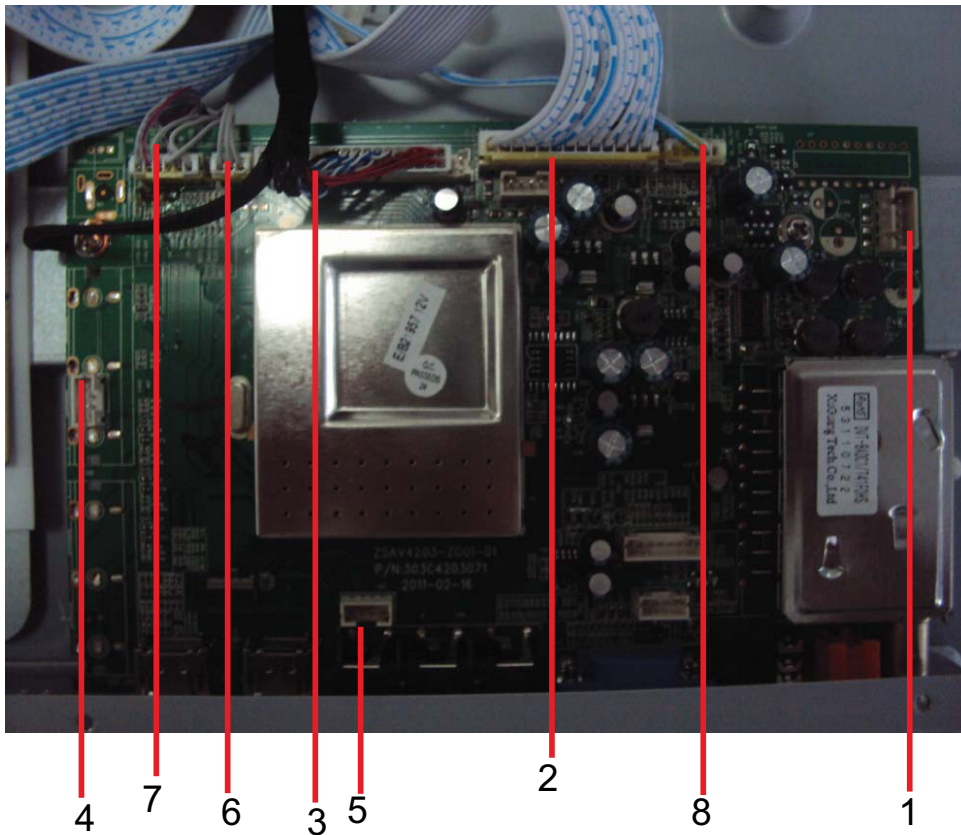




Zenon/HD7X5 Ref. Platform Rev 1.0			
Rev	1.0	Doc Name	Power Supply
Rev	1.0	Doc Name	Analog Video Inputs
Rev	1.0	Doc Name	Power Supply



7-2 .Wiring Connection Diagram



NO.	Name
1	Connection Wire(For Speaker)
2	Connection Wire(Power For Mainboard)
3	LVDS Wire
4	Connection Wire(For SIDE AV INPUT)
5	Connection Wire(Control for USB INPUT)
6	Connection Wire(For Keyboard)
7	Connection Wire(For Remote)
8	Connection Wire(Control for Backlight on/off)

8. TV Operation

Operation

In the manual, the OSD (on screen display) may be different from your TV's, because it is just an example to help you with the TV operation.

There are several options you might need to set up in order for your TV to work properly. Read the instructions that follow.

Switching On/Off the TV set

- 1** First, connect the power cord correctly.
- 2** Select the viewing source by using the **INPUT** button on the remote control.
- 3** When finished using the TV, press the **POWER** button on the remote control. The TV reverts to standby mode.
- 4** If you intend to be away for an extended period of time, such as on vacation, disconnect the power plug from the wall outlet.

Note

- ☐ If the TV is on, the screen will show information related to the type of input signal, and then the information will disappear. If there is no signal, "No Signal" will be displayed on the screen.

Choose the Menu Language

When you start using your set for the first time, you must select the language which will be used for displaying menus.

- 1** Choose **TV** Input and then press the **MENU** button.
- 2** Press the **VOL-/+** buttons to select the **SETTINGS** menu.
- 3** Press the **CH-/ENTER** button and then use the **CH+,-** buttons to select the **Menu setting**.
- 4** Press the **ENTER** button and then use the **CH+,-** buttons to select **language**.
- 5** Press the **VOL+/ENTER** button and then use the **CH+,-** buttons to select language.
(**English, Français or Español**)

Choose the Input source

Change the input source so you can watch your TV, VCR, DVD, Cable Box, or any other devices that are connected to your TV.

- 1** Press the **INPUT** button to display the Input Source menu and then use the **CH+,-** buttons to select the desired source (TV, Composite, Component, VGA, HDMI1, HDMI2).

Input Source
TV
Composite
Component
VGA
HDMI1
HDMI2

- 2** Press the **ENTER** button to confirm .

Picture Menu Options

Note

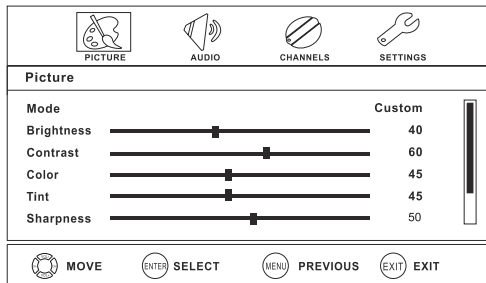
- ☐ Depending on the Current source mode (TV, HDMI, etc.), some options may not be available.

How to Select the Picture Mode

The picture mode provides the pre-defined image settings: Vivid, Standard, Energy Savings, Theater, Sports and Custom.

- 1** Press the **MENU** button to select the **Picture** menu.
- 2** Press the **CH-/ENTER** button and then use the **CH+,-** buttons to select **Mode**.
- 3** Press the **VOL+/ENTER** button to select the option: Vivid, Standard, Energy Savings, Theater, Sports and Custom.

You can also press the **PICTURE** button on the remote control to select the picture mode: Vivid, Standard, Energy Savings, Theater, Sports or Custom.



How to Setup the Custom Picture Mode

- 1 Press the **MENU** button to select the **Picture** menu.
- 2 Press the **CH-/ENTER** button and then use the **CH+,-** buttons to select the desired item.
- 3 Press the **VOL+/ENTER** button and then use the **VOL-,-** buttons to adjust the setting.

❖ Mode

Select the picture mode : Vivid, Standard, Energy Savings, Theater, Sports or Custom.

❖ Brightness

This will adjust the light output of the complete picture, which will mainly affect the darker areas of the picture.

❖ Contrast

This will adjust the intensity of bright parts in the picture but keep the dark parts unchanged.

❖ Color

This will adjust the saturation level of the colors.

❖ Tint

Allows you to select the color mix (tint) of the picture.

❖ Sharpness

This will adjust the sharpness of fine details in the picture.

📌 Note

- ❑ The picture options can only be adjusted in the CUSTOM mode. The other picture modes are preset.

❖ Advanced Video

The Advanced Video menu contains the following options: Aspect Ratio, Overscan, Color Temperature, Backlight, Noise Reduction, Adaptive Contrast.

• Aspect Ratio

Select Normal, Zoom, Wide, or Cinema.

• Overscan

Turn this on to adjust the picture's reproduction rate when receiving DVI signals in VIDEO format. Available when the signal uses EIA timing(480i/480p/720p/1080i/1080p).

• Color Temperature

Select Warm (increased red), Normal, or Cool (increased blue).

• Backlight

Adjusts the overall brightness of the screen.

• Noise Reduction

Adjust the reduction of the appearance of digitizing errors produced by compression: Off, Low, Middle, High.

• Adaptive Contrast

Turn this on to optimize the picture display for a more vivid image.

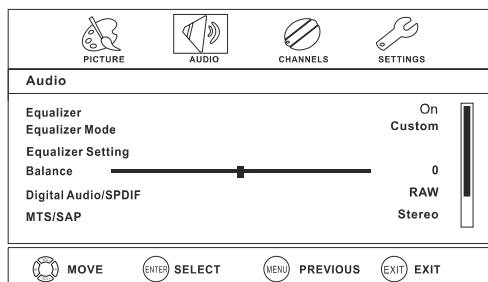
❖ Reset Picture Settings

Reset all Picture Settings to the factory default .

Audio menu

How to Select the Audio Mode

- 1 Press the **MENU** button and then use the **VOL-,-** buttons to select the **Audio** menu.
- 2 Press the **CH-/ENTER** button and then use the **CH+,-** buttons to select the **Equalizer Mode**.



- 3 Press the **VOL+/ENTER** button to select:
Standard, Theater, Music, News or Custom.
 - You can also press the **AUDIO** button on the remote control to select the Audio Mode:
Standard, Theater, Music, News or Custom.

How to Setup the Custom Audio Mode

- 1 Press the **MENU** button and then use the **VOL-/+** buttons to select the **Audio** menu.
- 2 Press the **CH-/ENTER** button and then use the **CH+,-** buttons to select the desired item.
- 3 Press the **VOL+ /ENTER** button and then use the **CH+,-** buttons to adjust the setting.

❖ **Equalizer Mode:** Select the audio mode: Standard, Theater, Music, News or Custom.

❖ **Equalizer Setting:** Adjust the five band equalizer.

❖ **Balance:** Adjust to emphasize left or right speaker balance.

❖ **Digital Audio/SPDIF:** Select the SPDIF output: RAW and PCM.

❖ **MTS/SAP:** Select Mono, Stereo, or SAP (secondary audio program). When SAP is enabled, the TV will use the secondary audio program if the program is broadcasting in SAP. This function is only available for NTSC (analog) TV programs.

❖ Audio Language

Change the audio language setting for ATSC (digital) TV programs. The number of the supported audio languages depends on the ATSC TV programs. (English/ Spanish / French)

❖ Auto Volume

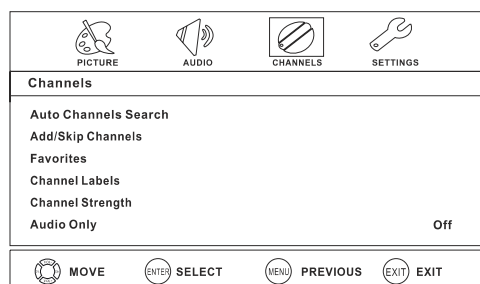
Equalizes the overall volume level for all channels.

❖ Reset Audio Settings

Resets all audio settings to for all channels and programs.

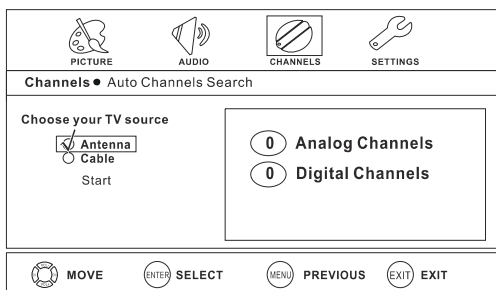
Channel menu

- 1 Press the **MENU** button and then use the **VOL-/+** buttons to select the **CHANNELS** menu.
- 2 Press the **CH-/ENTER** button to enter the menu and then use the **CH+,-** buttons to select the desired option.



Auto Channels Search

- 1 Press the **MENU** button and then use the **VOL-/+** buttons to select the **CHANNELS** menu.
- 2 Press the **CH-/ENTER** button and then use the **CH+,-** buttons to select **Auto Channels Search**, then press the **VOL+/ENTER** button to open the menu.



- 3 Use the **CH+,-** buttons to select Antenna or Cable, and then press the **ENTER** button to confirm. A check mark will be displayed in the circle.
- 4 Use the **CH+,-** buttons to select Start, press the **VOL+/ENTER** button to start the scan. Press the **MENU** button to return to the previous menu. Press the **EXIT** button to exit the menu screen.

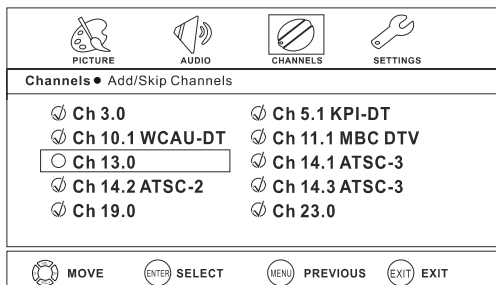
After the search has finished, the first saved channel will be displayed on the screen. This search automatically adds only the active channels in your area to the TV's memory.

Note

- ☐ Channels on which there is no broadcast or a poor signal are not saved.
- ☐ The channels found are automatically saved.

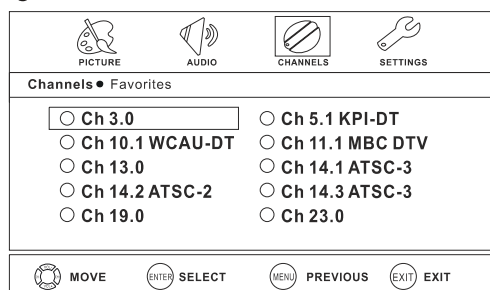
Add/Skip Channels

- 1 Press the **VOL+/ENTER** button to enter the submenu.
- 2 Use the **CH+,-** buttons to select the channel number (eg. Ch 3.0) and then press the **ENTER** button to confirm. The check mark in the circle will be cleared, and this channel will be skipped the next time you press the **CH+,-** buttons, but you can use the number buttons to directly select the channel. If you want to add the channel, select the channel and press the **ENTER** button.



Favorites

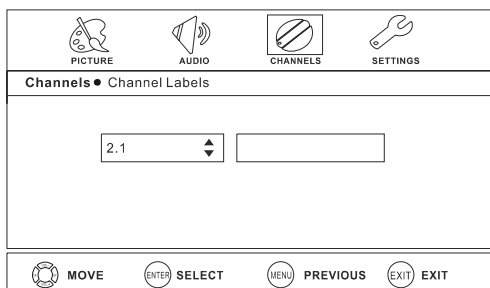
- 1 Press the **VOL+/ENTER** button to enter the submenu.
- 2 Use the **CH+,-** buttons to select a channel number (eg. Ch 3.0) and then press the **ENTER** button to confirm. A check mark will be displayed in the circle. This channel will appear in the favorites list. If you want to remove the channel from the favorites list, press the **ENTER** button again to clear the check mark.



Channel Labels

You can add a label to a channel to make it easier to find.

- 1 Press the **VOL+/ENTER** button to enter the submenu.



- 2 Use the **CH+,-** buttons to select a channel, then press the **VOL+** button to change the label.
- 3 Use the **CH+,-** buttons to select a letter, number or symbol.
- 4 Press the **VOL+** button to go to the next character. You can enter up to ten characters.
- 5 Repeat steps 3 and step 4 to enter additional characters.
- 6 When you finish the label, press the **ENTER** button to confirm. If you need to change a character you have already entered, press the **VOL-** button to go back to that character.
- 7 Repeat Step 2 through Step 6 to label additional channels.

- 8 Press the **EXIT** button to close the menu and return to normal viewing.

Channel Strength: Display the signal strength of the selected digital channel.

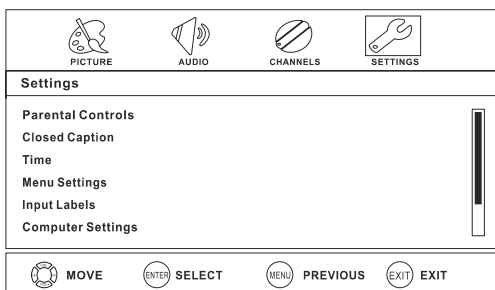
Audio only: You can disable the video by turning audio only On or Off.

Note: After the TV is turned off and then turned back on, the "audio only" mode will be OFF.

Settings Menu

Parental Control can be used to block specific channels based on ratings.

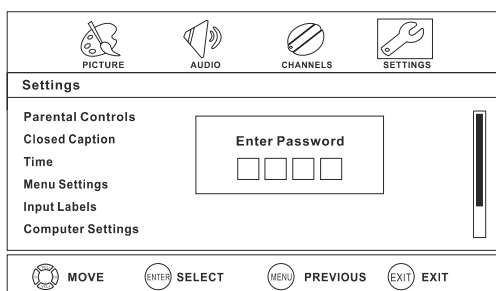
- 1 Press the **MENU** button and then use the **VOL-/+** buttons until the following menu appears on the screen.



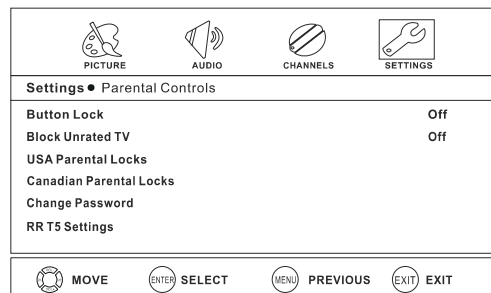
- 2 Press the **CH- /ENTER** button to enter the Settings menu and then use the **CH+,-** buttons to select the desired option.

Parental Controls

- 1 Press the **MENU** button and then use the **VOL-/+** buttons to select the **SETTINGS** menu.
- 2 Use the **CH+,-** buttons and then press the **VOL+ /ENTER** button. The following menu will appear on the screen.



- 3 Use the number buttons to input the password (the initial password is 0000). The following menu will be displayed.

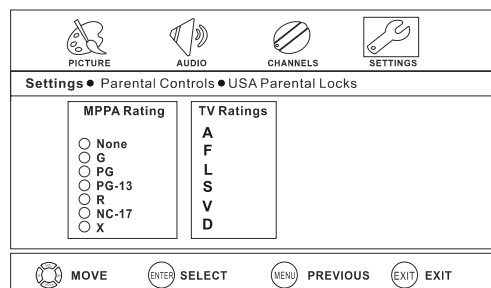


Button Lock: Lock or unlock the control buttons on the side of the TV.

Block Unrated TV : Block TV programs that do not have a rating.

USA Parental Locks.

- 1 Press the **VOL+ /ENTER** button to enter the submenu shown below:



- 2 Use the **CH+,-** buttons to select the item you want to block. Then press the **ENTER** button to confirm (block) . Press again to unblock it.

Ratings for Television programs:

You can use the U.S. or Canadian Movies and TV Programs Guide rating system to block certain types of TV programs and movies.

To clearly understand the TV program rating codes, read the following information.

U. S. TV Program Ratings:

TV-Y	(All children)
TV-Y7	(Children 7 years old and above)
TV-G	(General audience)
TV-PG	(Parental guidance suggested)
TV-14	(Parents strongly cautioned)
TV-MA	(Mature audience only)
TV-None	Not rated

MPAA Rating:

None	Not rated
G	(General audience)
PG	(Parental guidance suggested)
PG-13	(Parents strongly cautioned)
R	(Restricted)
NC-17	(No one 17 and under admitted)
X	(Adult only)

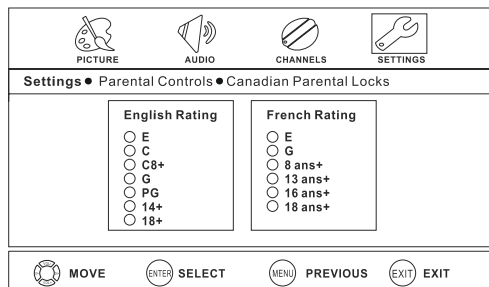
If you set PG-13 : G and PG movies will be available, PG-13, R, NC-17 and X will be blocked.

TV Rating:

A (Age)	(Blocks all available sub_ratings.)
D (Dialogue - sexual dialogue)	(applies to TV-PG, TV-14)
L (Language - adult language)	(applies to TV-PG, TV-14, TV-MA)
S (Sex - sexual situations)	(applies to TV-PG, TV-14, TV-MA)
V (Violence)	(applies to TV-PG, TV-14, TV-MA)
FV (Fantasy Violence)	(applies to TV-Y7)

Canadian Parental Locks:

- 1 Press the **VOL+/ENTER** button to enter the submenu shown below.
- 2 Use the **CH+,-** buttons to select the item you want to block. Then press the **ENTER** button to confirm (block) and press again to unblock it.



To clearly understand Canadian program rating codes, read the following list:

CA Eng Rating:

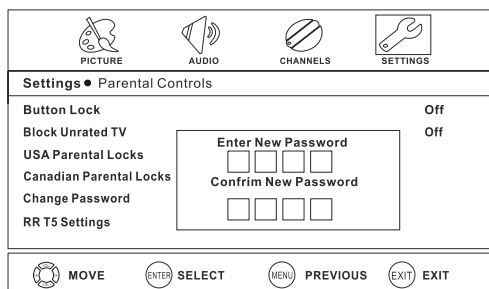
C	Children
C8+	Children eight years and older
G	General Programming, suitable for all audiences
PG	Parental Guidance
14+	Viewers 14 years and older
18+	Adult Programming

CA Fren Rating:

G	General
8 ans+	Not recommended for young children
13 ans+	Programming may not be suitable for children under the age of 13
16 ans+	Programming is not suitable for children under the age of 16
18 ans+	Programming restricted to adults

Change Password:

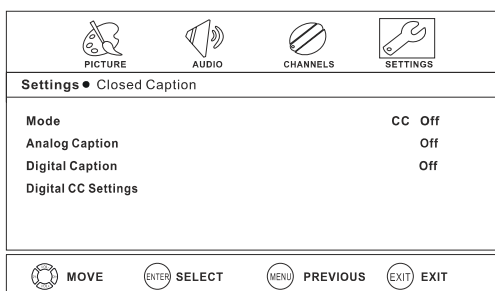
Press the **VOL+/ENTER** button to enter the submenu. Use the number buttons to input the New Password and re-enter it to confirm.



RRT5 Setting: Display an advanced parental controls ratings table for digital channels. This function may be unavailable.

Closed Caption

- 1 Press the **MENU** button and then use the **VOL-/+** buttons to select the **SETTINGS** menu.
- 2 Press the **CH-/ENTER** button and then use the **CH+,-** buttons to select **Closed Caption**.
- 3 Press the **VOL+/ENTER** button to open the menu.



Mode: You can select: CC Off, CC On and CC On Mute.

Analog Caption: Use the **CH+,-** buttons to select the Closed Caption options. It helps the hearing impaired with the broadcast program, as well as helping children learn how to read. A built in decoder displays the audio portion of a program as text on the screen when this option is selected.

CC1: When CC1 is displayed, it means the CC mode is turned on.

CC2 to CC4: For other modes of video related broadcast information.

Text1: For program guide and other information displayed by broadcasters. (This blocks a large portion of the picture on your screen).

Text2 to Text4: For other modes of information displayed by broadcasters. (This blocks a large portion of the picture on your screen).

IMPORTANT: Closed captioning availability entirely depends on broadcasters supplying the signal. Therefore, closed captioning might not always be available and language availability will differ by broadcast.

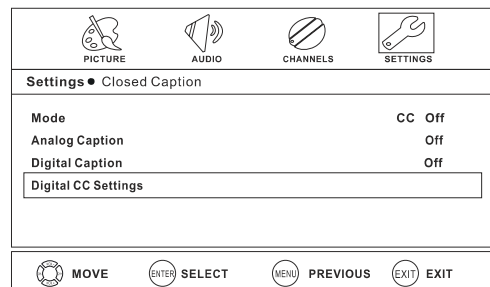
Note:

- ❑ Select CC1 for full translation of the primary language such as English in your area. Select CC2 for secondary language translation such as French, Spanish, or any other language that may be broadcast in your area.

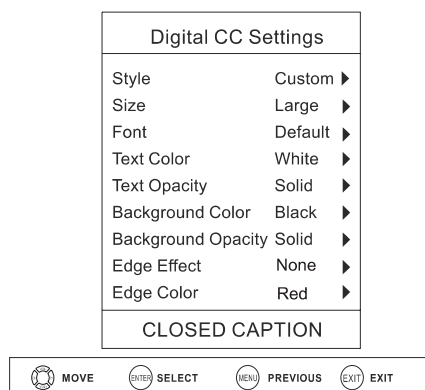
Digital Caption: Press the **VOL+/ENTER** button to display the digital caption menu. Use the **CH+,-** buttons to select Off/CS1/CS2/CS3/CS4/CS5/CS6.

Digital CC Settings:

- 1 Press the **VOL+/ENTER** button to enter the submenu.



- 2 Use the **CH+,-** buttons to select the Digital CC Settings menu, and then press the **VOL+/ENTER** button to enter the menu shown below.



Style: Select this option to change the font style of the caption display.

Press the **VOL-/+** button to select **Automatic** or **Custom**.

Size: Select this option to change the size of the caption display.

Press the **VOL-/+** button to select **Small**, **Normal** or **Large**.

Font: Use the **VOL-/+** buttons to select Default, Font1, Font2, Font3, Font4, Font5, Font6 or Font7.

Text color: Select this option to change the text color.

Text Opacity: Specify the opacity for the text.

Background Color: Select a background color.

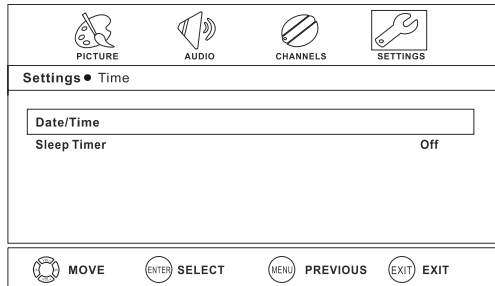
Background Opacity: Select the opacity for the background color.

Edge Effect: Select the edge effect.

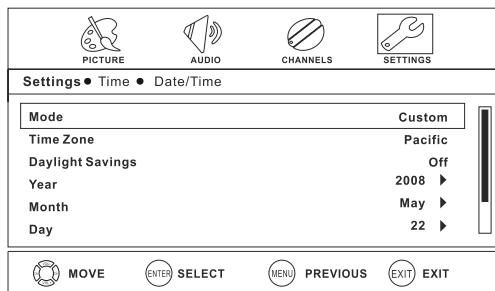
Edge Color: Select the edge color.

Time

- 1 Press the **VOL+/ENTER** button to enter the **Time** menu.



- 2 Press the **VOL+/ENTER** buttons to enter the submenu.



Mode: Press the **CH+,-** button to select Custom or Auto. When Auto mode is selected, the time cannot be adjusted. Select **Custom** to set the time manually.

Time Zone: Press the **VOL+/ENTER** buttons to enter the menu, then use the **CH+,-** buttons to select your Time Zone: Newfoundland, Atlantic, Eastern, Central, Mountain, Pacific, Alaska and Hawaii.

Daylight Savings: Set the daylight saving time for your area: On or Off.

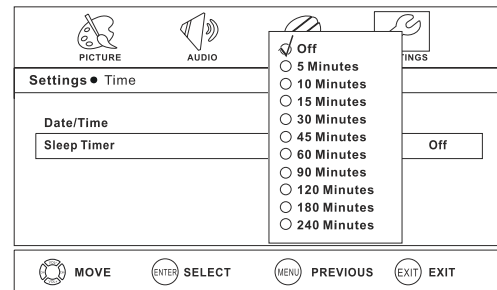
Year: Use the **VOL-,-** buttons to select the correct year.

Month: Use the **VOL-,-** buttons to select the correct month.

Day: Use the **VOL-,-** buttons to select the correct day.

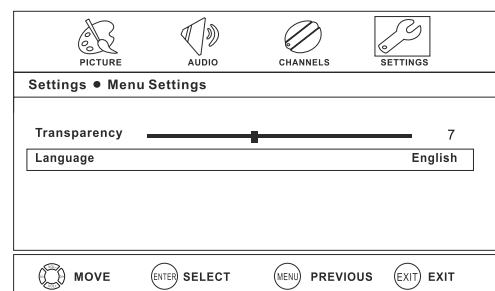
Hour: Use the **VOL-,-** buttons to select the hour, minute and AM/PM options, and then use the **CH+,-** buttons to set.

Sleep Timer: Set a time for the TV to turn off automatically. You can select: Off, 5 Minutes, 10 Minutes, 15 Minutes, 30 Minutes, 45 Minutes, 60 Minutes, 90 Minutes, 120 Minutes, 180 Minutes and 240 Minutes.



Menu Settings

Press the **►/ENTER** button to enter the submenu.



Transparency: Adjust how transparent the TV menu appears.

Language: Set the menu language, you can select: English, French or Spanish.

Input Labels

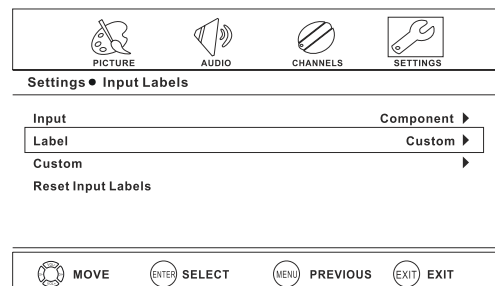
Create labels for the devices connected to your TV.

Input: Use the **VOL-,-** buttons to select: Composite, Component, VGA, HDMI1, HDMI2, HDMI3, HDMI4.

Label: Use the **VOL-,-** buttons to select the label.

Custom: Input your own label.

- 1 Press the **VOL+/ENTER** button to enter the submenu.



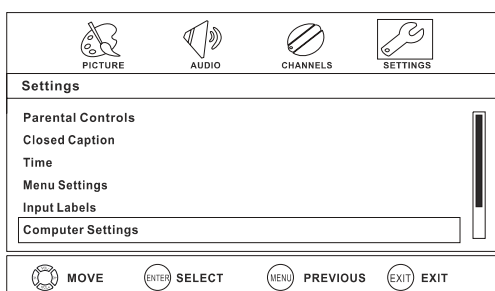
- 2 Use the **VOL-/+** buttons to select the custom mode.
- 3 Use the **VOL-/+** buttons to select the Custom option, then press the **VOL+/ENTER** button to enter the option.
- 4 Use the **CH+/-** buttons select a letter number , or a symbol.
You can enter up to ten characters.
- 5 Press the **VOL+** button to go to the next character.
- 6 Repeat step 4 and step 5 to enter additional characters.
- 7 When you finish, press the **ENTER** button to confirm and then select Yes.

PC Setup

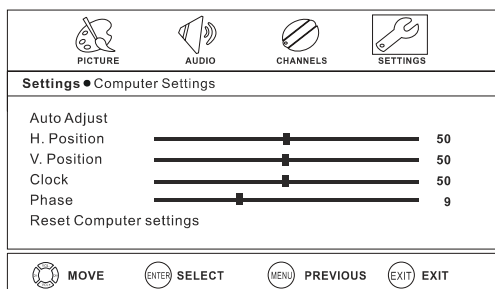
When you have a computer connected and VGA mode is selected, this option becomes available .

There are adjustments for screen Position, Clock, and Phase.

- 1 Press the **MENU** button and then use the **VOL-/+** buttons to select the **Settings** menu.
- 2 Press the **CH-/ENTER** button and then use the **CH+/-** buttons to select the Computer Settings.



- 3 Press the **VOL+/ENTER** button to open the menu.



Auto Adjust: Automatically adjust the display of the picture (Only available in PC source).

Note

- ❑ If this function can not adjust the display of the picture very well, please use the manual adjustment.

Position : Adjust the screen position.

Phase : Adjust the phase of the pixel clock.

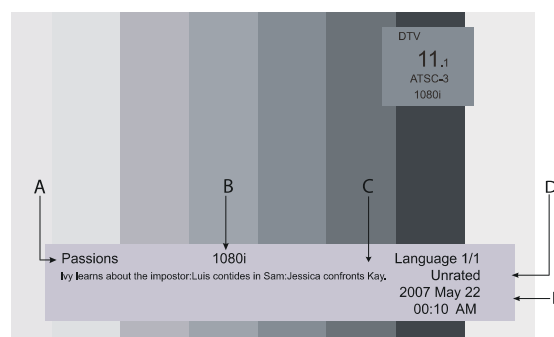
Reset Computer Settings : Resets the computer settings to the factory default.

Other Functions

Brief Info

Brief Info shows the present screen information.

- Press the **DISPLAY** button to show the Brief Info on the screen.
- Press the **DISPLAY** or **EXIT** button to exit.



- A:** Program name **D:** Program rating categories
B: Video resolution **E:** Program show time
C: Channel description

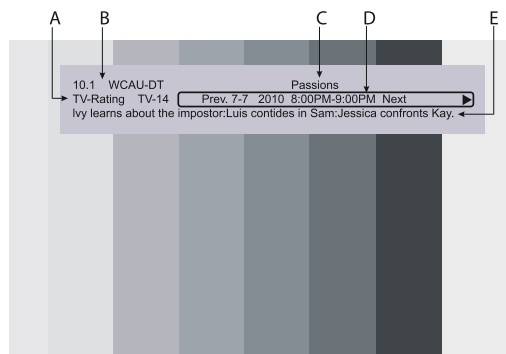
Using the Guide

The guide allows you to select the channels from a channel list.

The guide provides information about the current program being shown on each channel (if information is available from the station).

Note

- ❑ Program information in the guide is provided by the broadcasters. As a result, it may sometimes include only the channel number, without a program title or description.



- A:** Program rating categories
B: Program title
C: Program name
D: Program show time
E: Program details

Quick program view

Press to jump back and forth between two channels. The TV alternates between the current channel and the last channel that was selected.

If you want to return to the previously viewed channel, you can simply press the **RECALL** button.

USB Input

- Supported media and file formats: Digital pictures (.JPG/.JPEG) and digital music (.MP3(8~320kbps)). Due to differences in the file code and file mode, it is possible that some files cannot be read.
- Before starting operation, verify that the USB storage device is using the FAT/FAT32 file system format. At present, this television does not support NTFS and the file systems of other formats.
- Supports USB/Memory Card Plug & Play
 USB Hard-drive support - only supports the class of USB Hard-drive HD that follows the USB power consumption specification.
- The television operation may be halted due to excessive rate of information code errors. In such cases, restart the system. Please note -that there are many nonstandard USB devices in the market. If a nonstandard device is used then an

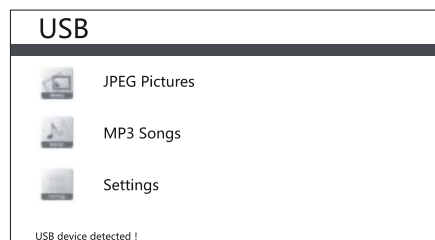
identification problem may occur.

USB Media Menu operation

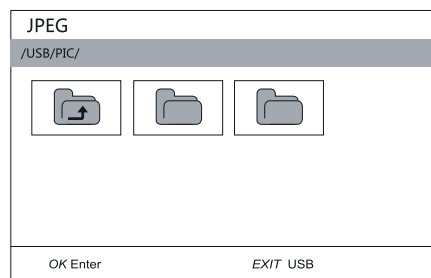
- Plug-in an external storage device into the USB port.
- Press the **USB** button on the remote control to enter the USB multimedia mode.
- Press the **ENTER** button on the remote control to display the sub page.
- Press the **EXIT** button on the remote to return to the previous menu.

To display pictures

- Press the **USB** button on the remote control to enter the USB media system. The system start up may take a few seconds to initialize .
 - Ensure that the USB drive is inserted in the USB input.

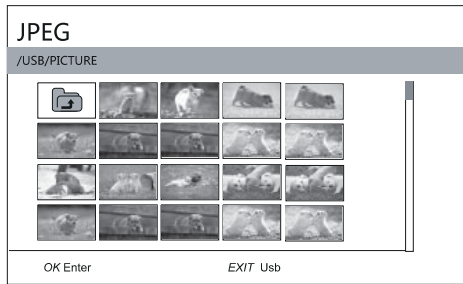


- Use the **CH+,-** buttons to select JPEG Pictures. Press the **ENTER** button to enter.

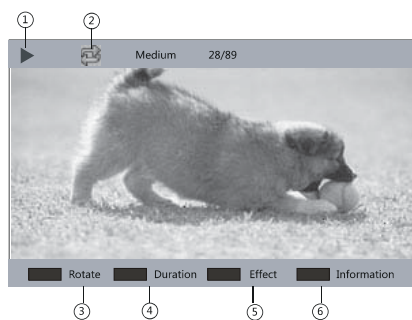


- Use the **CH+,- / VOL-,+** buttons to select a folder, and then press the ENTER button to display the thumbnails. Use the **CH+,- / VOL-,+** buttons to select a thumbnail, and then press the ENTER button to display the picture.

the picture.



- 4 Press the **MENU** button to display the options list.



1.	Play/Pause	4.	Duration
2.	Repeat	5.	Effect
3.	Rotate	6.	Information

- 5 Press the button on the remote control that is listed next to the option to activate that option.

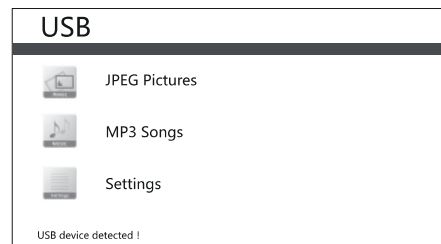
Press the **USB** button to exit the USB mode.

Note

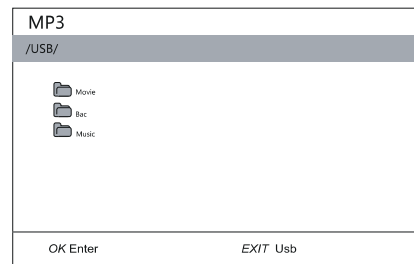
- The maximum picture resolution which the USB device can support is 5780x3850.

To play music

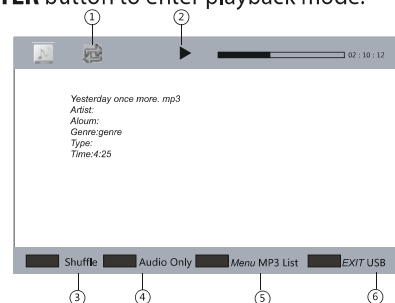
- 1 Press the **USB** button on the remote control to enter the USB media mode.



- 2 Use the **CH+,-** buttons to select MP3.Song, Press the **ENTER** button to enter.

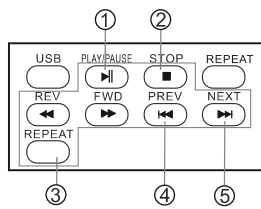


- 3 Use the **CH+,- / VOL-,+** buttons to select a folder or file, and then press the **ENTER** button to enter playback mode.



1.	Repeat	4.	Audio Only
2.	Play/Pause	5.	MP3 list
3.	Shuffle On or Off	6.	USB Home

- 4 Press the button on the remote control that is listed next to the option to activate that option.



1.	Play or pause
2.	Stop
3.	Repeat
4.	Play previous music
5.	Play next music

- 5 Press the **EXIT** button to return to the previous menu. Press the **USB** button to exit the USB mode.

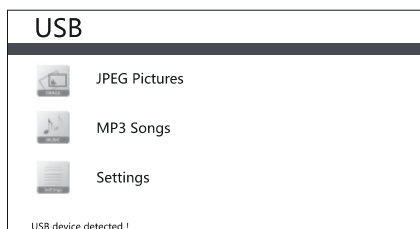
To play pictures and music together

Insert a USB device with music and pictures into the to USB input. Some files may be read while the music is being played, so the speed of the picture operation might be affected.

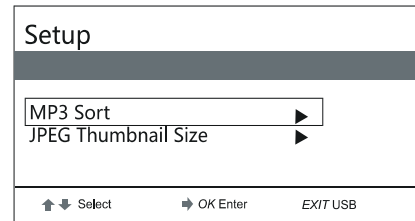
- 1 Follow the steps above to play the music first.
- 2 Press the **EXIT** button to go back to the main USB menu, and then use the **CH+,-** buttons to select JPEG Pictures. Press the **ENTER** button to enter the photo mode.
- 3 Use the **CH+,- / VOL+,-** buttons to select the desired picture, and then use the **ENTER** button to display the picture.

To set up the USB

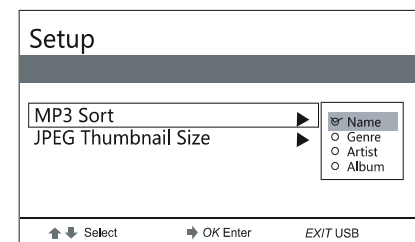
- 1 Press the **USB** button on the remote control to enter the USB media mode.



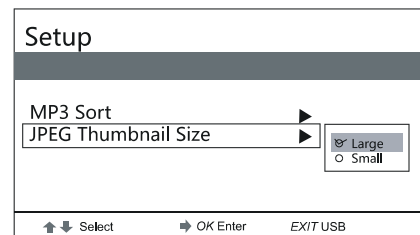
- 2 Press the **MENU** button, and then use the **CH+,-** buttons to select Settings. Press the **ENTER** button to enter.



- 3 Use the **CH+,-** buttons to select MP3 Sort, and then press the **VOL+** button to enter. Use the **CH+,-** button to select the way to sort the MP3 songs. Press the **ENTER** button to confirm the selection.



- 4 Use the **CH+,-** buttons to select JPEG Thumbnail Size, and then press the **VOL+** button to enter. Use the **CH+,-** buttons to select desired thumbnail size for JPEG Pictures. Press the **ENTER** button to confirm the selection.

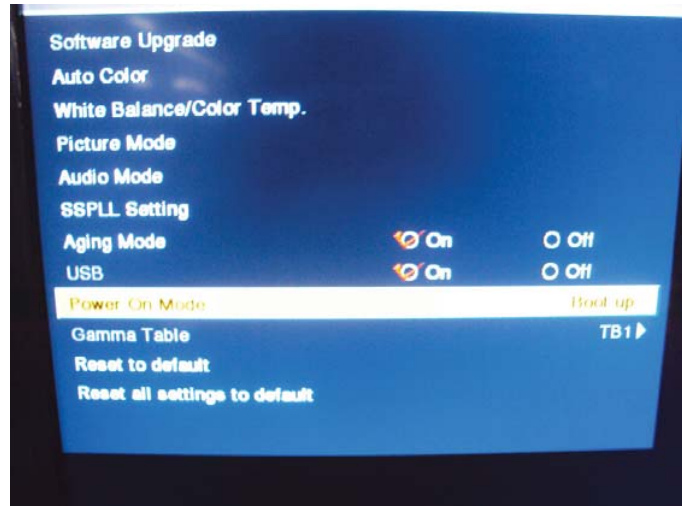


Note

- Do not remove the USB device from the TV until you have exited the USB mode otherwise you may damage the USB device.

8.1 How to enter into the factory model

- 1.You can voice menu mode, press "8-8-9-3" to enter the factory menu.
Presse the key "MENU" to shut the factory setting.



Content:

- 1: Software Upgrade
- 2:Auto Color
- 3:White Balance/Color Temp
- 4:Picture Mode
- 5:SSPLL Seting
- 6:Aging Mode
- 7:USB
- 8:Power On Mode
- 9:Gamma Table
- 10:Reset to default
- 11:Reset all asttings to default

The first line is SW Ver.No

8.2 How to update software

Haier ZR93745 F/W upgrade with USB SOP

Step 1: Ready for F/W Upgrade

1.1 Prepare a USB memory .

1.2 Copy the software file (merge) from your computer to the USB memory, and remove it from computer's USB port!

Step 2: F/W Upgrade

2.1 AC ON



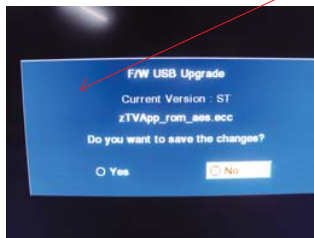
2.2, Press POWER.

2.3: Enter the factory menu, select the "Aging Mode" option to "ON" state.

Save the factory menu-based system, insert the USB after reboot



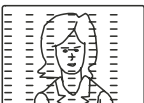
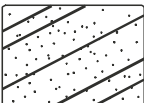
2.4, Now you should choose "Yes" and then press "ENTER" TV begin to update. You should remove the USB memory and reset TV after update.



Note: When Upgrade on the process, please don't Power-Off!

9. Trouble shooting

9-1. Simple check

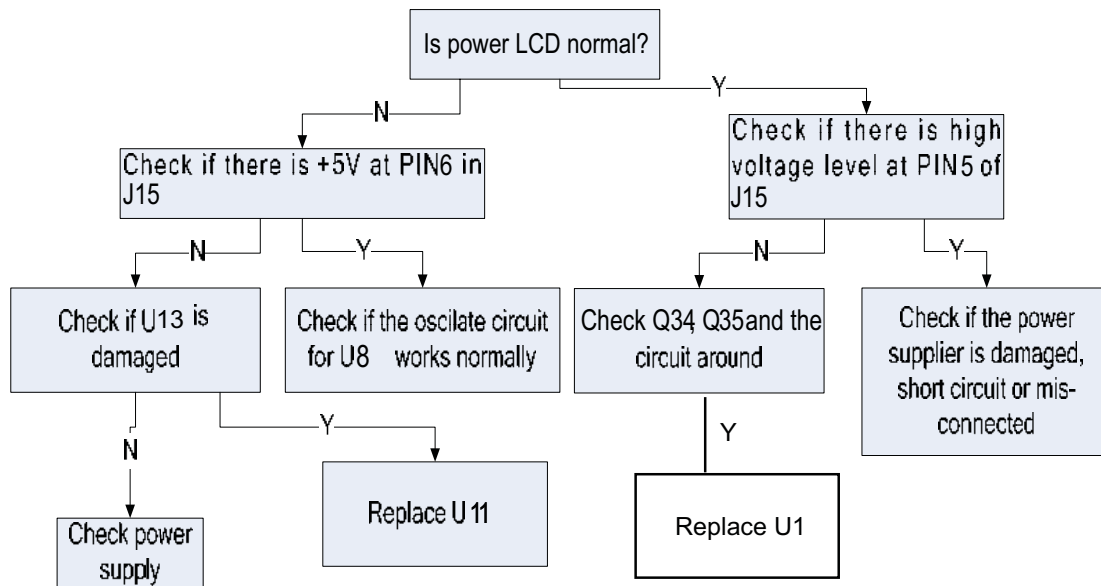
Trouble phenomenon		Inspection
Picture	Audio	
 Snow	 Noise	antenna position, direction or connection
 Ghost	 Normal audio	antenna position, direction or connection
 Interfere	 Noise	electronic equipment, car/ motorcycle, fluorescent light
 Normal Picture	 Mute	Volume(inspect wether the mute function on the remote control are started , or audio system are correct or not)
 No picture	 Mute	Power cord is not inserted Power switch is not opened Contrast and brightness/volume setup Press standby key on the remote control for inspecting
 No color	 Normal audio	color control
 Scramble	 Normal audio or weak	retune channel
 No color	 Noise	Audio system

Special Explanation: The accessories such as remote control is not belongs to the guarantee.

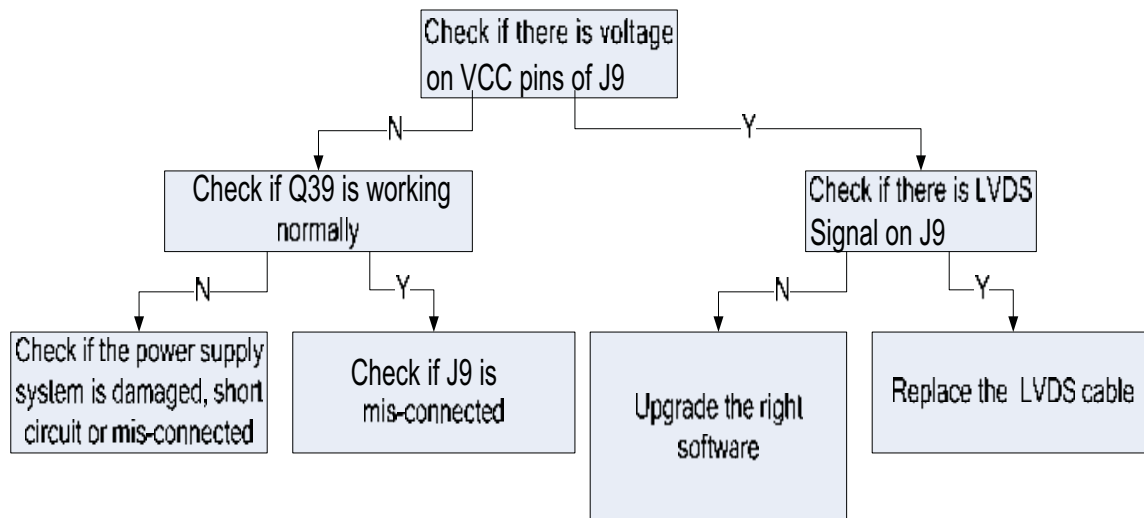
9-2. Main board failure check

Service guide

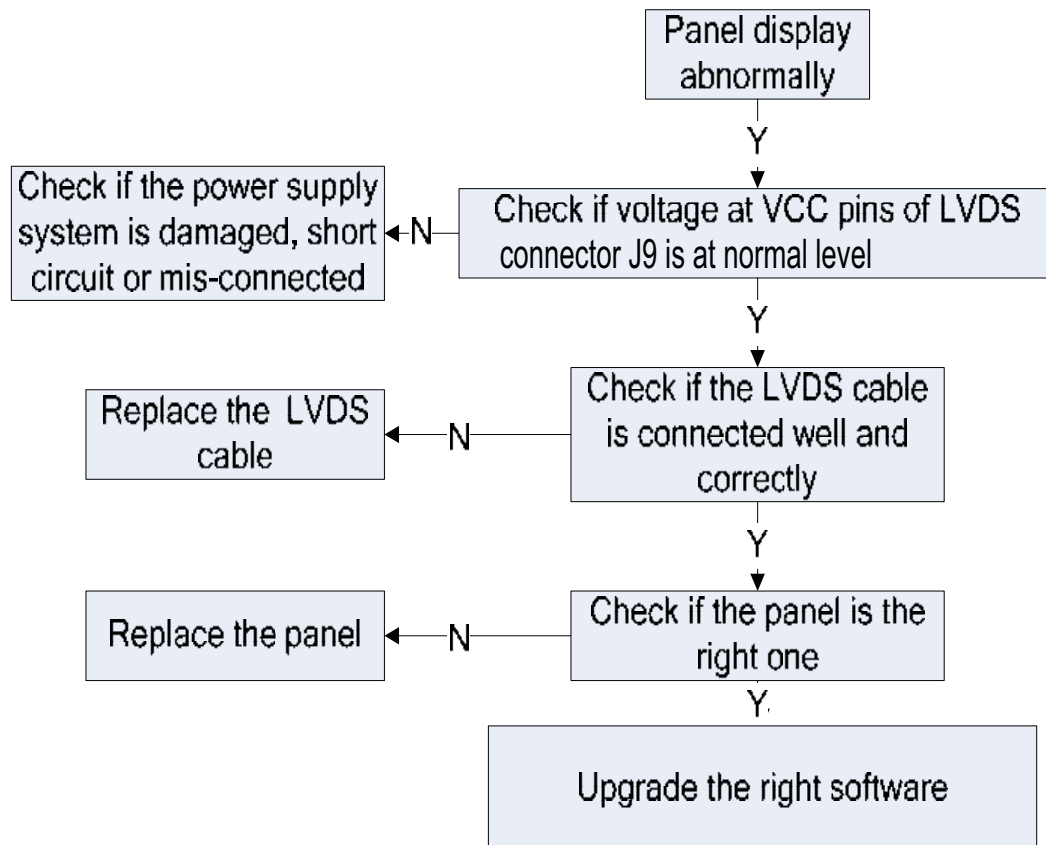
1) Black creen



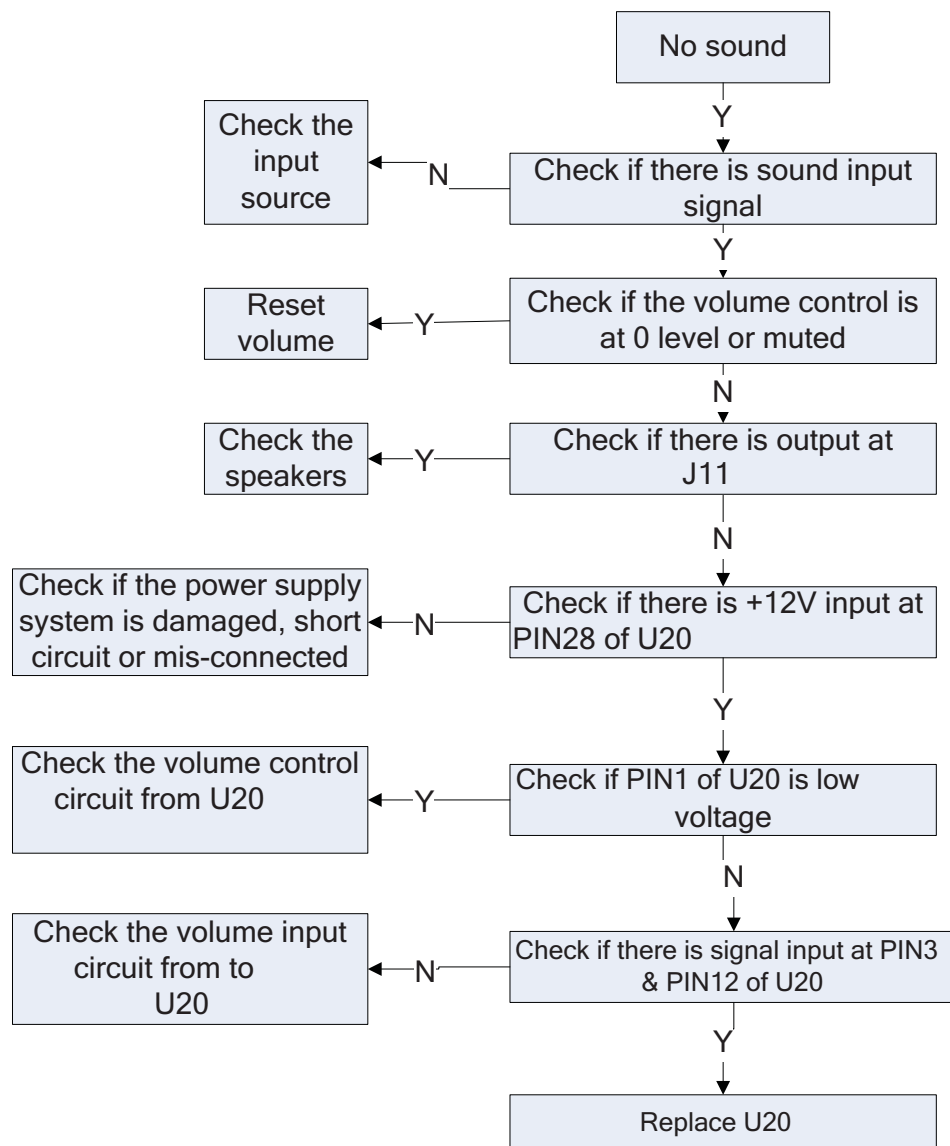
2) White screen



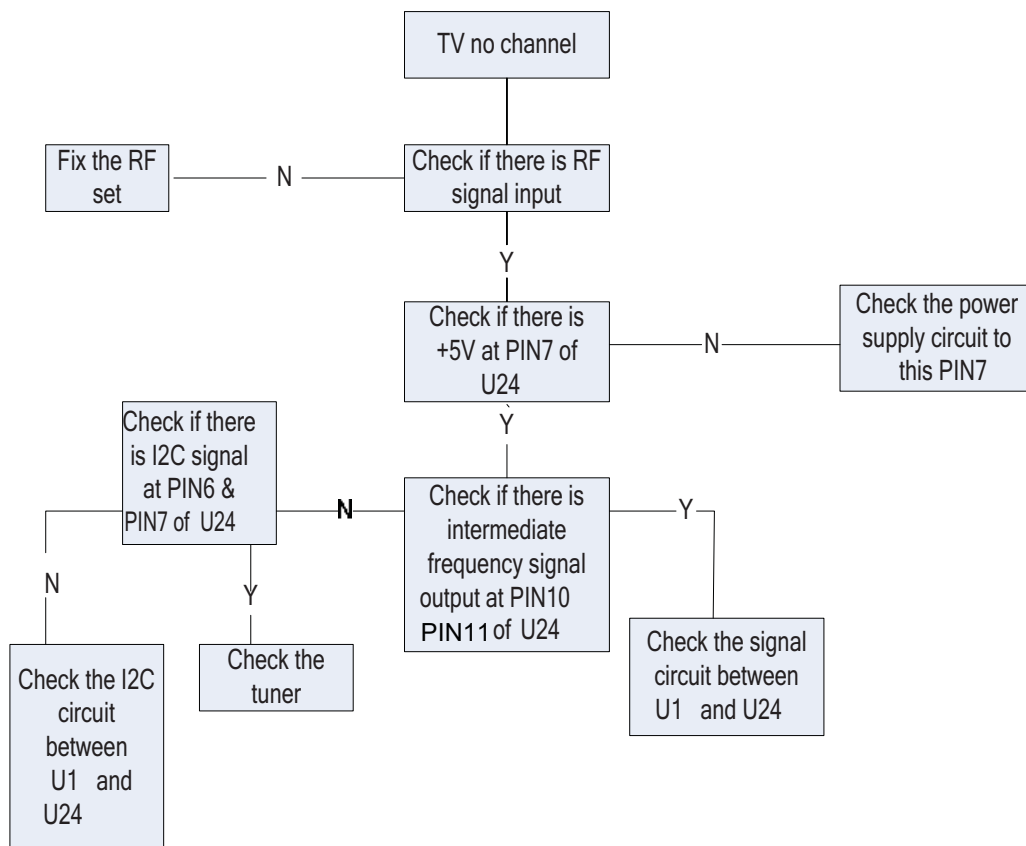
3) Panel display abnormally



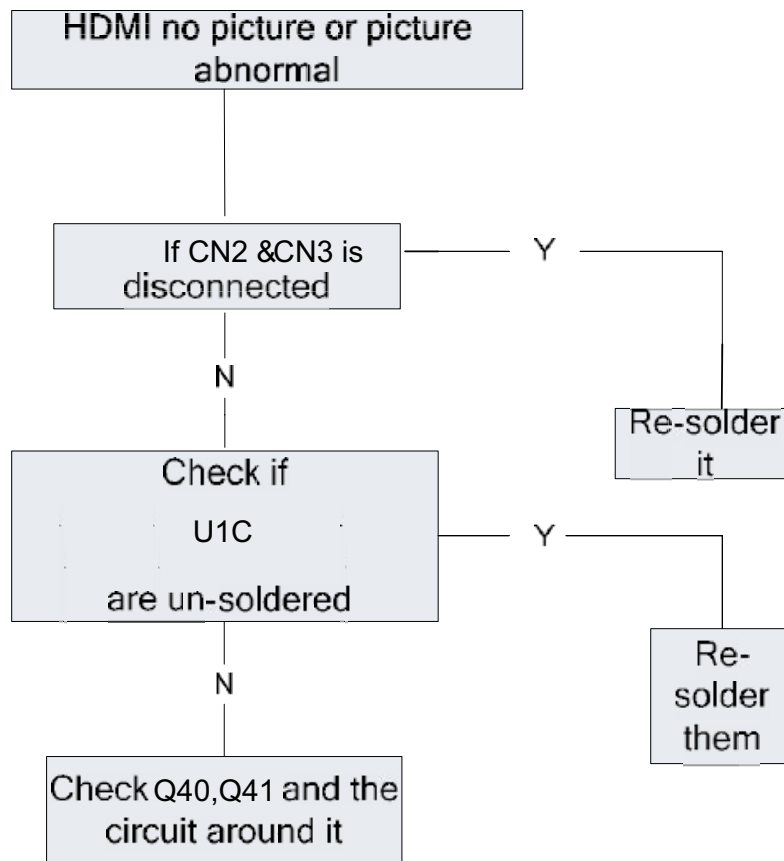
4) No sound



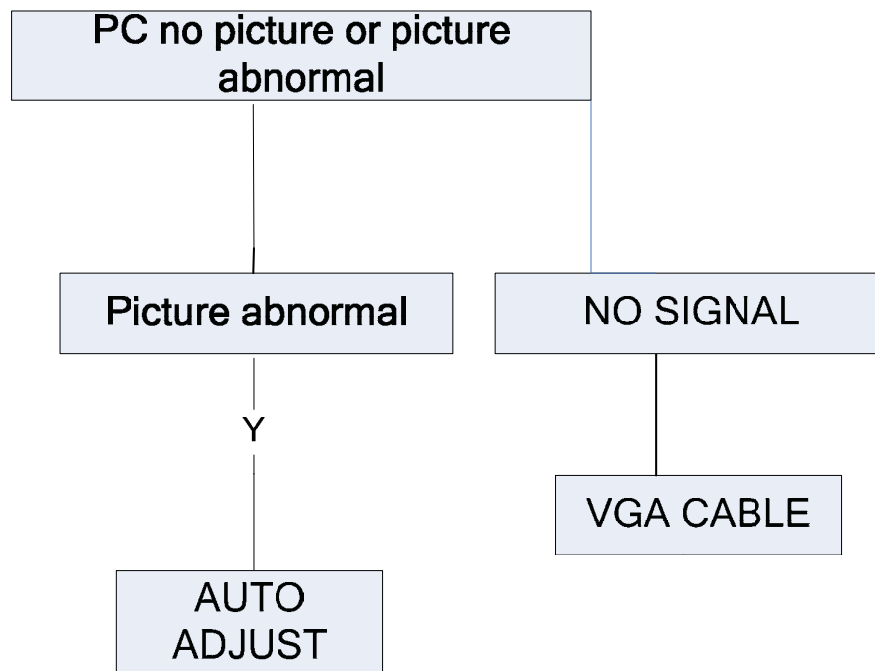
5) TV failure



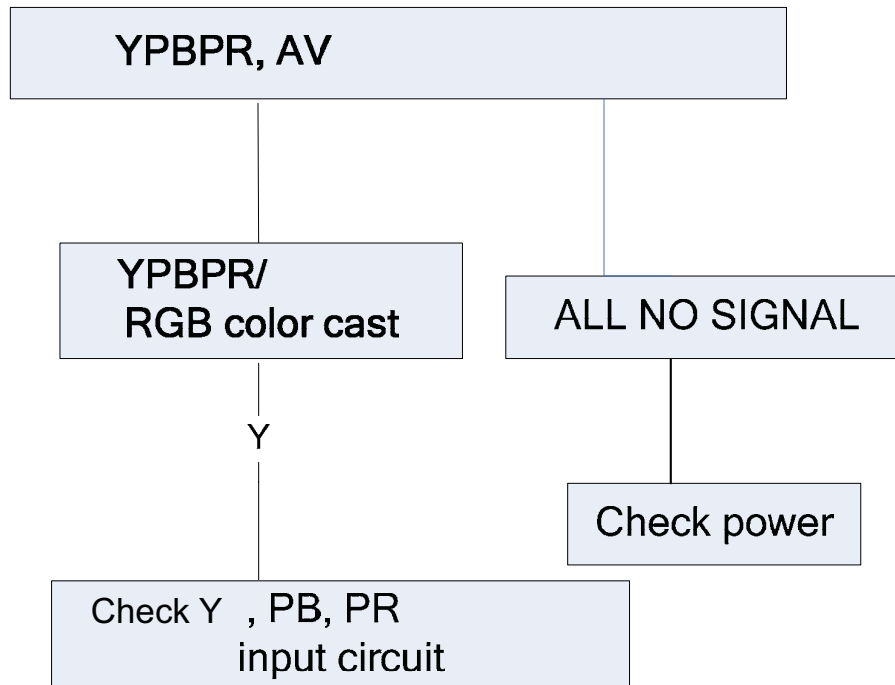
6) HDMI no picture or picture abnormal



7) PC no picture or picture abnormal

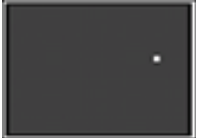
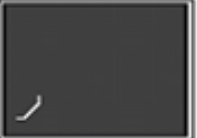


8) YPBPR, AV no picture or picture abnormal



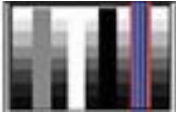
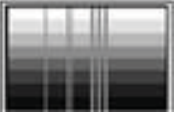
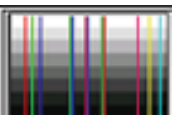
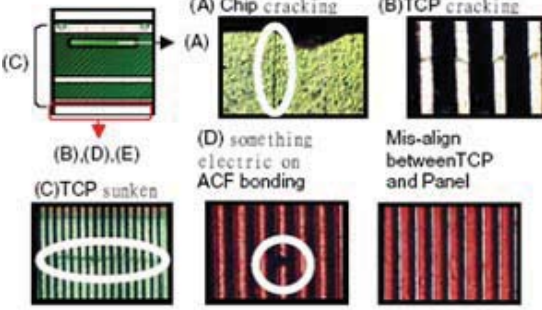
Failure Mode

Part	Name	Description	Phenomena	Failure cause
Circuit	White Screen	B/L normal, only white screen display		Maybe caused by surge current and EDS
	Black Screen	B/L normal, only Black screen display		
	Flicker	Crosstalk		LCD Vcom imbalance
	Abnormal Color	Only color abnormal		Capacitance improper bring crosstalk inside LCD pannel
	Abnormal Color	Only color abnormal		1.Chip lose action 2.IC short or jointion bad 3.Pannel and vsc connect bad

Part	Name	Description	Phenomena	Failure cause
Panel or Polarizer	Dot Defect	Bright dot dark dot in pannel		Incoming Inspection Standard
	Polarizer Bubble	Bladder in Polarizer		Bladder between Polarizer and top glass
	Polarizer Scratch	Polarizer Scratch		Tine or rigidity arose
	F / M inside Polarizer	Eyewinker inside Polarizer		Eyewinker inside Polarizer
Circuit	Abnormal Display	Abnormal Display		1.Chip lose action 2.IC ahort or jointiog bad 3.Pannel and vsc connect bad
	Flashing	Bright and dark display alternately		

9-3. Pannel failure

Failure Mode

Part	Name	Description	Phenomena	Failure cause
TCP	V B/D	Vertical bar		Block Defect :TCP cracking or cracking Dim or L/D :TCP Sunken :TCP lead cracking :ACF bonding short :Awful environment and something electric enter into LCD :Mis-align between TCP and Panel :Panel failure :TCP failure
	V Dim	Vertal gray line		
	V L/D	Vertical color line(light or dark forever)		
	H B/D	Horizontal bar		 (A) Chip cracking (B)TCP cracking (C)TCP sunken (D) something electric on ACF bonding (B),(D),(E) Mis-align betweenTCP and Panel
	H Dim	Horizontal gary line		
	H L/D	Horizontal line(light or dark forever)		

Failure Mode

Part	Name	Description	Phenomena	Failure cause
	Mechanical Noise	When turn panel, appear cacophony		Caused by Mechanical noise of backlight unit
	Ripple	Connectric circle		Caused by between mechanism and pannel
	B/L off	B/L lose action		*Connect badness between wire and electrode
	B/L dark	B/L brightness darker than normal		*Connect badness Short between wire and electrode
	B/L wire damaged	B/L wire damaged		Operation abnormal or systemic noise
	B/L wire open	Without backlight		Operation abnormal or systemic noise
	B/L shut down	B/L shutdown in sometime		Short between lamp housing and wire, Because consume power too much
	F/M	F/M in B/L, white, black Rotundity or wirelike		F/M in B/L unit

Failure Mode

Part	Name	Description	Phenomena	Failure cause
Mechanical or B/L	Light leakage	Brightness at bottom of LCM brighter than normal		B/L unit badness
	Uniformity	B/L brightness asymmetric		Sheet in B/L unit is uneven
	Mount hole	Lack screw or screw damage		*Lack screw Screw damage

Sincere Forever



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