Haier

SERVICE MANUAL

LCD TV

Model No. HL40XP1

Service No. HL40XP1a

Chassis ZORAN785

⚠ 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

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Chapter 1: General Information

1-1. Document 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 king of contact with any inside part of this product.

This symbol indicates that there are important operating and maintenance instructions in the literture 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 electros static discharge (ESD).

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 ncidence 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.

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 genewing 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 eternal 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.

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 cover of each product. Software version can be found in the Spare Parts List.

2. Spare part No. and description
Spare part No. and description can be found in the Spare Parts List.

1-3-8. Photo used in this manual

The illustration and photos used in this Service 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

1-4-1. 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.

Chapter 2: Specification

2-1. Specification list

Model	**HL40XP1**		
Screen Size	40 inch		
Aspect Ratio	16:9		
Resolution	1920x1080		
Response Time (ms)	6.5 (GRAY TO GRAY)		
Angel of View	176o		
Color Display	16777216		
No. of Preset Channels	181		
OSD Language	English/French/Spanish		
Color System	NTSC		
Audio System	M, BG, I, L, L'		
Audio Output Power (Built-in) (W)	10W×2		
Audio Output Power (outer) (W)	No		
Total Power Input (W)	210W		
Voltage Range (V)	AC100V~240V		
Power Frequency (Hz)	50~60Hz		
Time of Sleep Timer (MINS)	240Min		
Net Weight (KG)	21.5		
Gross Weight (KG)	26		
Net Dimension (MM)	972x290x696		
Packaged Dimension (MM)	1058x330x780		

2-2 External pictures (four faces)

Front Side

Left Side

Right Side

Back Side

Chapter 3. Disassemble and

3-1 Remove the Stand

1. Lay down the unit so that back cover faces upward

2. Remove the six screws from the back cover which are indicated with the circles in the picture above.

3. Remove the stand

3-2. Remove the Back Cover

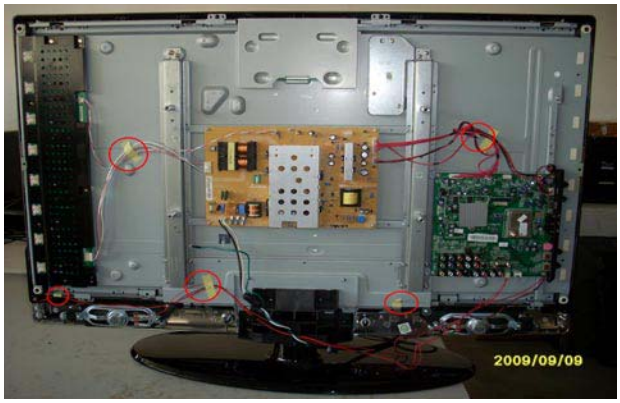
1. Remove the ten screws indicated (See picture right.)

2. Then remove the back cover from the unit.

3-3. Remove the Adhesive Tape

The location of the adhesive tape is shown below.

Remove the adhesive tape.



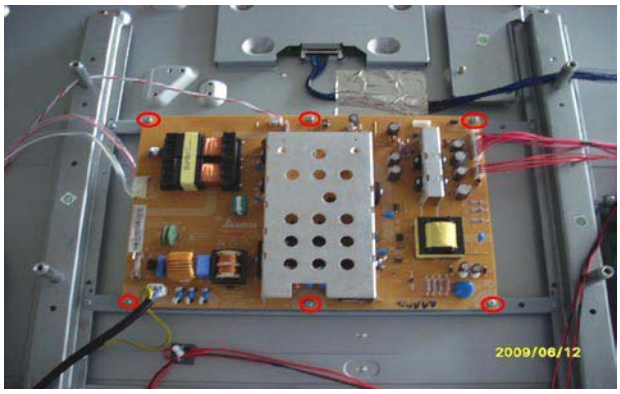
3-4 Remove the Terminal Bracket

Remove the four screws indicated by the red circles in the picture. (See next page.)

Then put the terminal bracket to the side.

3-5. Remove the Power Supply Module

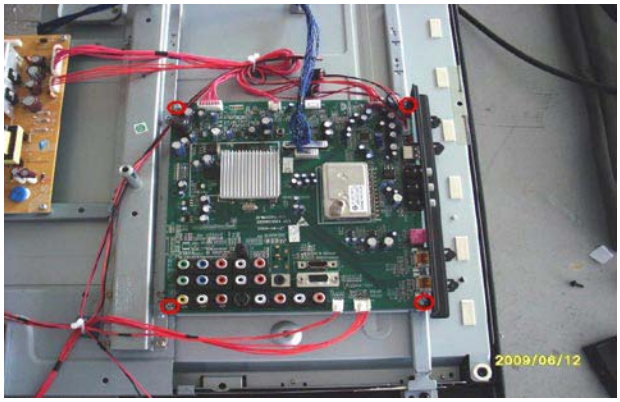
Remove the four screws indicated by the red circles in below picture.



Then remove the power supply module.

3-6. Remove the Mainboard

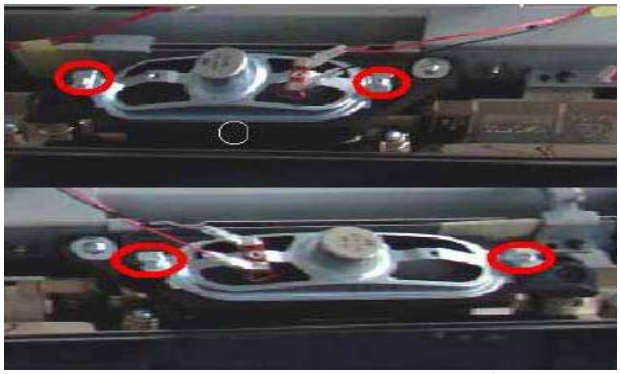
Remove the eight screws indicated by the rred circles in below picture.



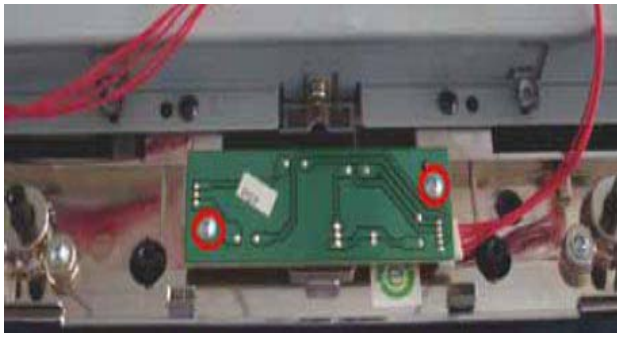
Disconnected the coupler CN1 CN2 CN3 CN4 CN5 CN7 J25.
Remove the Mainboard.

3-7. Remove the Keypad Board

3-8. Remove the Speaker

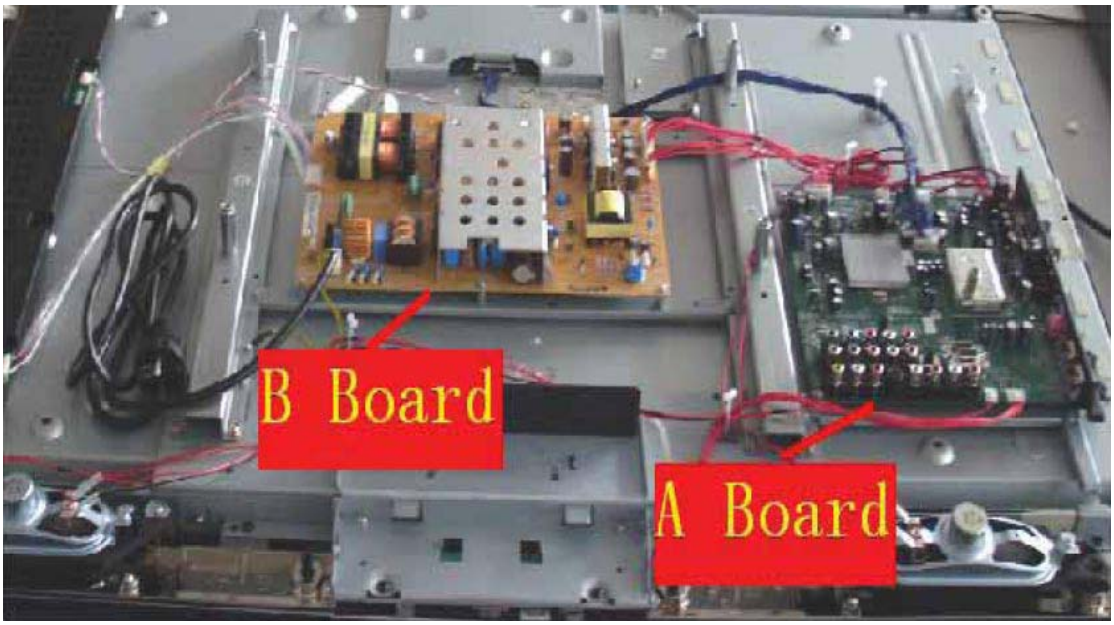


3-9. Remove the Remote Control



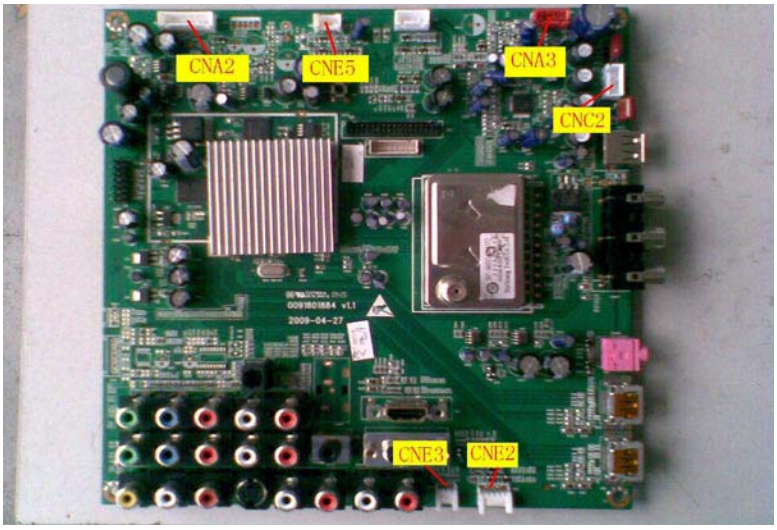
Chapter 4. Location of Controls and Components

4-1.



No.	Parts number	Description
A Board	Main Board	
B Board	Power Board	

4-2. Main Board & AV Board



4-2-1 Function Description:

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

4-2-2 Connector definition

Main board connector
Power connectors (CN3, CN5)

CNA2		CNE5	
Pin number	**Signal name**	**Pin number**	**Signal name**
1	SW	1	DIMMING
2	GND	2	ON/OFF
3	+5VSB	3	GND
4	GND	4	SELECT
5	GND		
6	+12V		
7	+12V		

Notes:
CNE5-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.
CNA2-Pin 1: System power on / standby
System board will use this pin to control system power.
CNE5-Pin 1: Control the luminance of backlight
The system can generate the PWN signal to control the strength of TFT LCD Panel's backlight through this connector

Keypad and remote connector (CNE1,CNE2)

CNE2		CNE3	
Pin number	Signal name	Pin number	Signal name
1	SB5V	1	GND
2	IR	2	AD1
3	LED_R	3	AD2
4	LED_G		
5	GND		

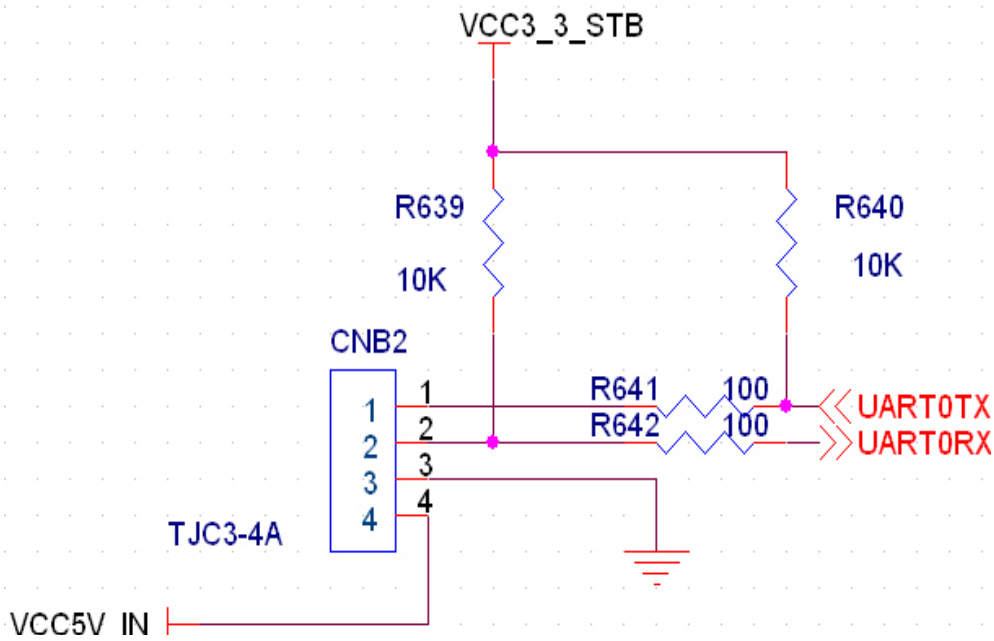
Speaker power connector (CNA3)

Pin number	Signal name	
1	24V	
2	24V	
3	GND	
4	GND	

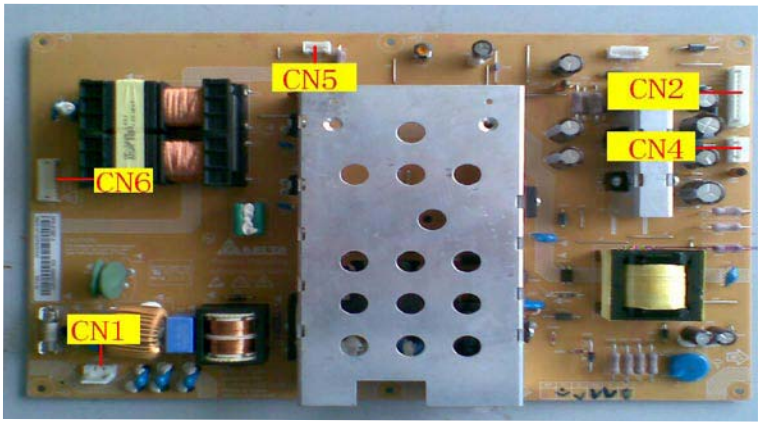
Speaker Connector (CNC2)

Pin number	Signal name	
1	L+	
2	L-	
3	R-	
4	R+	

Other connectors:
CNB2 to Upgrade the program of ZORAN785 (U1) AND FLASH (U7)



4-3. Power Supply Board



4-3-1. Function description:

To supply power for Mainboard, Panel.

4-3-2. Connector definition:

INPUT CONNECTOR (CN2)

CN2	Signal name
1	24V
2	24V
3	SGND1
4	SGND1
5	5VSB
6	SGND1

CN6	Signal name
7	ON/OFF
8	NC
9	I-PWM
10	BL-ON/OFF
11	E-PWM

CN4	Signal name
1	+24V
2	+24V
3	GND
4	GND

4-4. LCD Panel

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

PIN #	Signal Name	Description
1	V_{DD}	12V power supply
2	V_{DD}	12V power supply
3	V_{DD}	12V power supply
4	V_{DD}	12V power supply
5	V_{DD}	12V power supply
6	GND	Ground
7	GND	Ground
8	GND	Ground
9	GND	Ground
10	RO_0-	Negative(-) LVDS differential data input
11	RO_0+	Positive(+) LVDS differential data input
12	RO_1-	Negative(-) LVDS differential data input
13	RO_1+	Positive(+) LVDS differential data input
14	RO_2-	Negative(-) LVDS differential data input
15	RO_2+	Positive(+) LVDS differential data input
16	GND	Ground
17	RO_CLK-	Clock Signal(-)
18	RO_CLK+	Clock Signal(+)
19	GND	Ground
20	RO_3-	Negative(-) LVDS differential data input
21	RO_3+	Positive(+) LVDS differential data input
22	NC	No connection
23	NC	No connection
24	GND	Ground
25	RE_0-	Negative(-) LVDS differential data input
26	RE_0+	Positive(+) LVDS differential data input

27	RE_1-	Negative(-) LVDS differential data input
28	RE_1+	Positive(+) LVDS differential data input
29	RE_2-	Negative(-) LVDS differential data input
30	RE_2+	Positive(+) LVDS differential data input
31	GND	Ground
32	RE_CLK-	Clock Signal(-)
33	RE_CLK+	Clock Signal(+)
34	GND	Ground
35	RE_3-	Negative(-) LVDS differential data input
36	RE_3+	Positive(+) LVDS differential data input
37	NC	No connection
38	NC	No connection
39	GND	Ground
40	SCL	EEPROM Serial Clock
41	SDA	EEPROM Serial Data
42	NC	No connection
43	WP	EEPROM Write Protection
44	NC	No connection
45	LVDS	Select LVDS data order (NS: High/Open, JEIDA: Low)
46	NC	No connection
47	NC	No connection
48	AGING	No Connect (AUO Aging Only)
49	NC (reserved)	No connection (AUO internal use)
50	NC (reserved)	No connection (AUO internal use)
51	NC (reserved)	No connection (AUO internal use)

Chapter 5. Installation Instructions

5-1 External Equipment Connections

Accessories

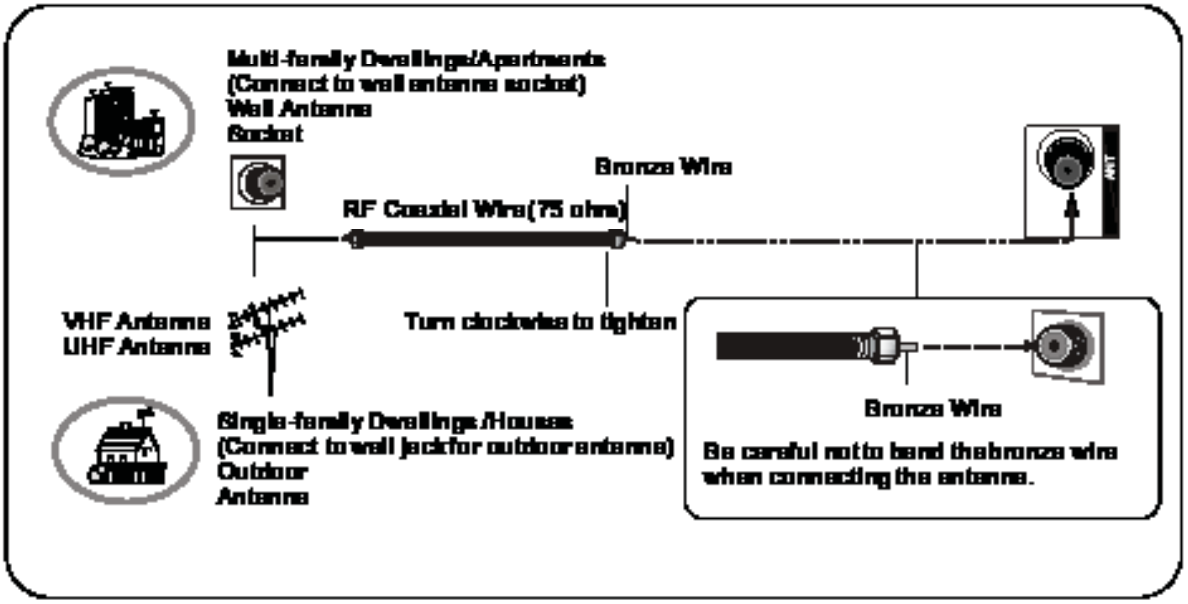
Remote control

Owner's manual

Alkaline battery(AAA)×2

External Equipment Connections
Antenna Connection

Generally speaking, to enjoy a clearer picture, we recommend that you use a CATV system or an outdoor antenna. Over-the-air TV reception quality will depend on your antenna type, antenna location and antenna positioning.



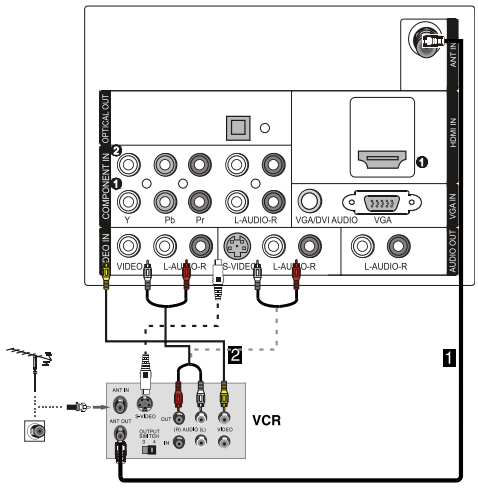
■ To improve the picture quality in a poor signal area, please purchase a signal amplifier and install properly.
■ If the antenna needs to be split for two TV's, install a "2-Way Signal Splitter" in the connections.
■ To install the antenna properly please contact a professional in your area.

Choose Your Connection

There are several ways to connect your television, depending on the components you want to connect and the quality of the signal you want to achieve. The following are examples of some different ways to connect your TV with different input sources.

Connecting a VCR

To avoid picture noise (interference), leave an adequate distance between the VCR and TV.



Connection Option 1

Set VCR output switch to channel 3 or 4 and then tune the TV to the same channel number.

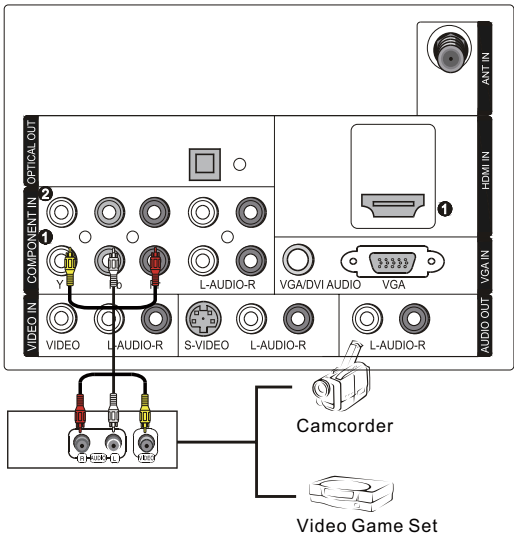
Connection Option 2

1. Connect the audio and video cables from the VCR's output jacks to the TV input jacks, as shown in the figure. When connecting the TV to VCR, match the jack colors (Video = yellow, Audio Left = white, and Audio Right = red). If you connect a S-VIDEO output from VCR to the S-VIDEO input, the picture quality is improved; compared to connecting a regular VCR to the Video input.
2. Insert a video tape into the VCR and press **PLAY** on the VCR. (Refer to the VCR owner's manual.)
3. Select the input source with using the **INPUT** button on the remote control, and then press ▲ / ▼ button to select the source, press **ENTER** button to confirm.

External A/V Source Setup

How to connect

- Connect the audio and video cables from the external equipment's output jacks to the TV input jacks, as shown in the figure.
- When connecting the TV to external equipment, match the jack colors (Video = yellow, Audio Left = white, and Audio Right = red).



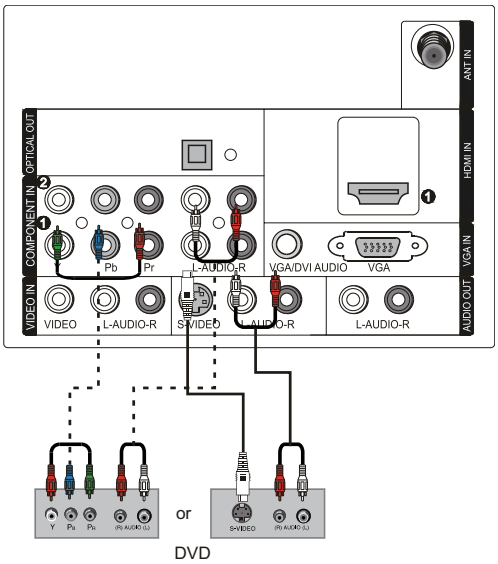
How to use

1. Select the input source with using the **INPUT** button on the remote control.
2. Press **CH+/-** button to select the desired source.
3. Press **ENTER** button to confirm.
4. Operate the corresponding external equipment.

Connecting a DVD player

How to connect

1. Connect the DVD video outputs (COMPONENT) to the Y Pb Pr jacks on the TV and connect the DVD audio outputs to the YPbPr Audio IN jacks on the TV, as shown in the figure.
2. If your DVD only has an S-VIDEO output jack, connect this to the S-VIDEO input on the TV, as shown in the figure.



Note

- ❏ If your DVD player does not have component video output, use S-Video.

How to use

1. Turn on the DVD player, insert a DVD disc.
2. Use **INPUT** button on the remote control to select component mode.
3. Press **PLAY** button on external equipment for program play.
4. Refer to the DVD player's manual for operating instructions.

■ Component Input ports

To get better picture quality, connect a DVD player to the component input ports as shown below.

Component ports on the TV	Y	Pb	Pr
Video output ports on DVD player	Y Y Y Y	Pb B-Y Cb P_B	Pr R-Y Cr P_R

Connecting a DTV (digital TV)

This TV can receive Digital Over-the-air/Cable signals without an external digital set-top box. However, if you do receive Digital signals from a digital set-top box or other digital external device, refer to the figure as shown below. This TV supports HDCP (High-bandwidth Digital Contents Protection) protocol for Digital Contents (480p,720p,1080i).

How to connect

- Use the TV's COMPONENT, VGA or HDMI jack for video connections, depending on your set-top box connector. Then, make the corresponding audio connections.

How to use

1. Turn on the digital set-top box. (Refer to the owner's manual for the digital set-top box.)
2. Use INPUT on the remote control to select COMPONENT, VGA or HDMI source.

Signal	COMPONENT	HDMI
480i	Yes	Yes
480p	Yes	Yes
720p	Yes	Yes
1080i	Yes	Yes
1080p	Yes	Yes

Connecting a digital audio output

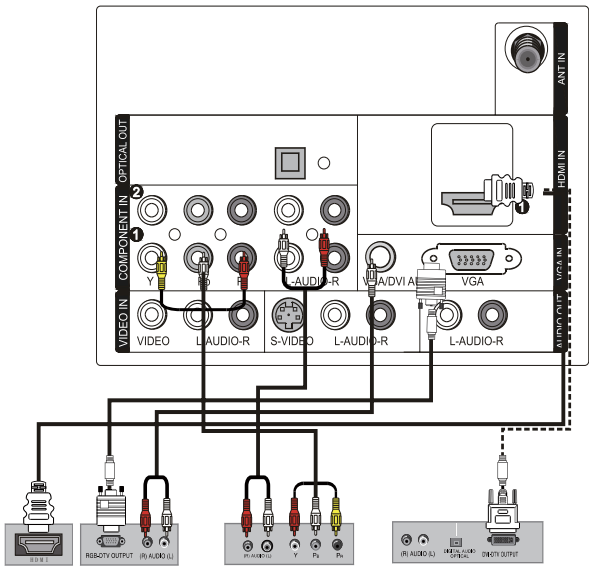
Send the TV's audio to external audio equipment (stereo system) via the Digital Audio Output (Optical) port.

How to connect

1. Connect one end of an optical cable to the TV Digital

Audio (Optical) Output port.

2 Connect the other end of the optical cable to the digital audio (optical) input on the audio equipment.
See the external audio equipment instruction manual for operation.



Digital Set-top Box

Note

❑ When connecting with external audio equipments, such as amplifers or speakers, please turn the TV speakers off.

⚠ Caution:

- Do not look into the optical output port. Looking at the laser beam may damage your vision.

Connecting a computer

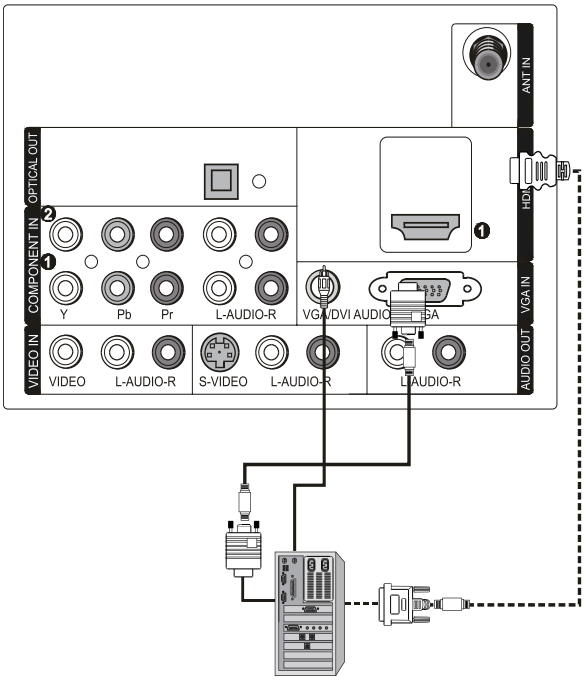
How to connect

1 To get the best picture quality, adjust the VGA graphics card to 1024×768.

2 Use the TV's VGA or DVI (Digital Visual Interface) Audio IN port for audio connections, depending on your computer connector.

- If the graphic card on the computer does not output analog and digital RGB simultaneously, connect only one of either VGA IN or HDMI IN to display the VGA on the TV.
- If the graphic card on the computer does output analog and digital RGB simultaneously, set the TV to either VGA or HDMI; (the other mode is set to Plug and Play automatically by the TV.)

3 Then, make the corresponding audio connection. If using a sound card, adjust the VGA sound as required.



How to use

1 Turn on the computer and the TV.

2 Use INPUT on the remote control to select VGA or HDMI source.

3 Check the image on your TV. There may be noise associated with the resolution, vertical pattern, contrast or brightness in VGA mode. If noise is present, change the VGA mode to another resolution, change the refresh rate to another rate or adjust the brightness and contrast on the menu until the picture is clear. If the refresh rate of the VGA graphic card can not be changed, change the VGA graphic card or consult the manufacturer of the VGA graphic card.

Note

❑ Use a DVI cable.

❑ Avoid keeping a fixed image on the TV's screen for a long period of time. The fixed image may become permanently imprinted on the screen.

❑ The synchronization input form for Horizontal and Vertical frequencies is separate.

❖ **Resolution**

Mode	Resolution	Frame frequency (Hz)
VGA	640×480	60Hz
SVGA	800×600	60Hz
		75Hz
XGA	1024×768	60Hz
		75Hz

HDMI and DVI input

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 1280×720p.
- 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 1280×720p.
- 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

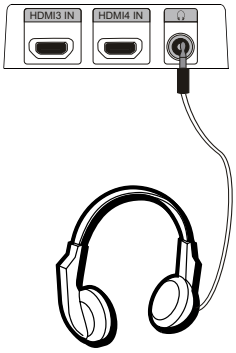
1. Connect the source device to HDMI port of this TV with a HDMI-to-DVI cable (not supplied with this product).
2. A separated audio connection is necessary.
3. If the source device has an analog audio output connector, connect the source device audio output to DVI Audio In port located on the left side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

How To Use

- If the source device supports Auto DVI function, the output resolution of the source device will be automatically set to 1280×720p.
- 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 1280×720p.
- Press the **INPUT** button to select HDMI input source in input source option of Select Main source menu.

Connecting Headphones

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



Plug a set of headphones into the 3.5mm mini-jack socket on the side panel of the set.

Note

❑ Prolonged use of headphones at a high volume may damage your hearing.

❑ You will not receive sound from the speakers when you connect headphones to the system.

Power source

TO USE AC POWER SOURCE

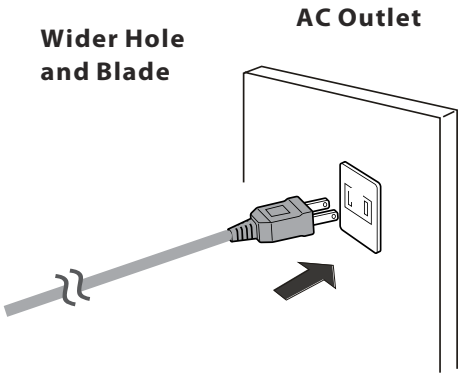
- Use the AC polarized line cord provided for operation on AC. Insert the AC cord plug into a standard polarized AC outlet.

Note

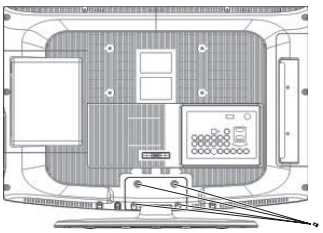
❏ Never connect the AC line cord plug to other than the specified voltage. Use the attached power cord only.

❏ 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.

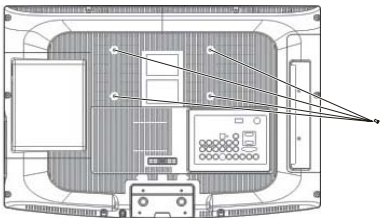
❏ If you cause a static discharge when touching the unit and the unit fails to function, simply unplug the unit from the AC outlet and plug it back in. The unit should return to normal operation.



Removing the table stand and installing a wall mount bracket



Remove 4 × M4 screws securing the stand to the TV, then remove the stand.



Use 4 × M6 screws to secure the wall bracket (not supplied) to the back of your TV.

Chapter 6. Operation Instructions

6-1. Front Panel Controls

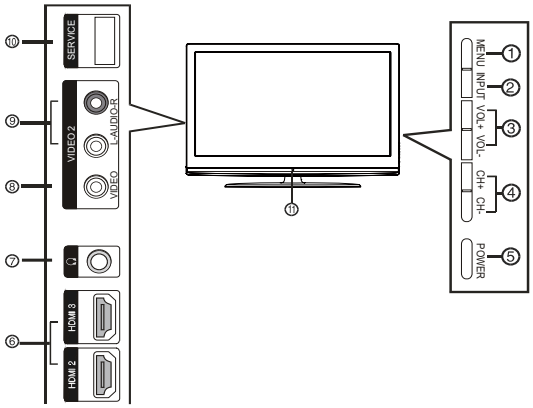
Contents

Introduction

Controls

This is a simplified representation of the TV front panel, side panel control buttons and side inputs.

TV Side panel controls and connections



①	**MENU**	Menu display. Press to access the on-screen menu display.
②	**INPUT**	Press to access the input source mode. Press repeatedly to change the source to the one you want to watch. In the **MENU** screen, the **INPUT** button serves as the **ENTER** button.
③	**VOL +/-**	Press to adjust the volume. In the **MENU** screen, these buttons serve as left/right buttons.
④	**CH +/-**	Press to scan through channels. To scan quickly through channels, press and hold down either +/- . In the **MENU** screen, these buttons serve as up/down buttons.
⑤	**POWER**	Press to turn on and off the TV.

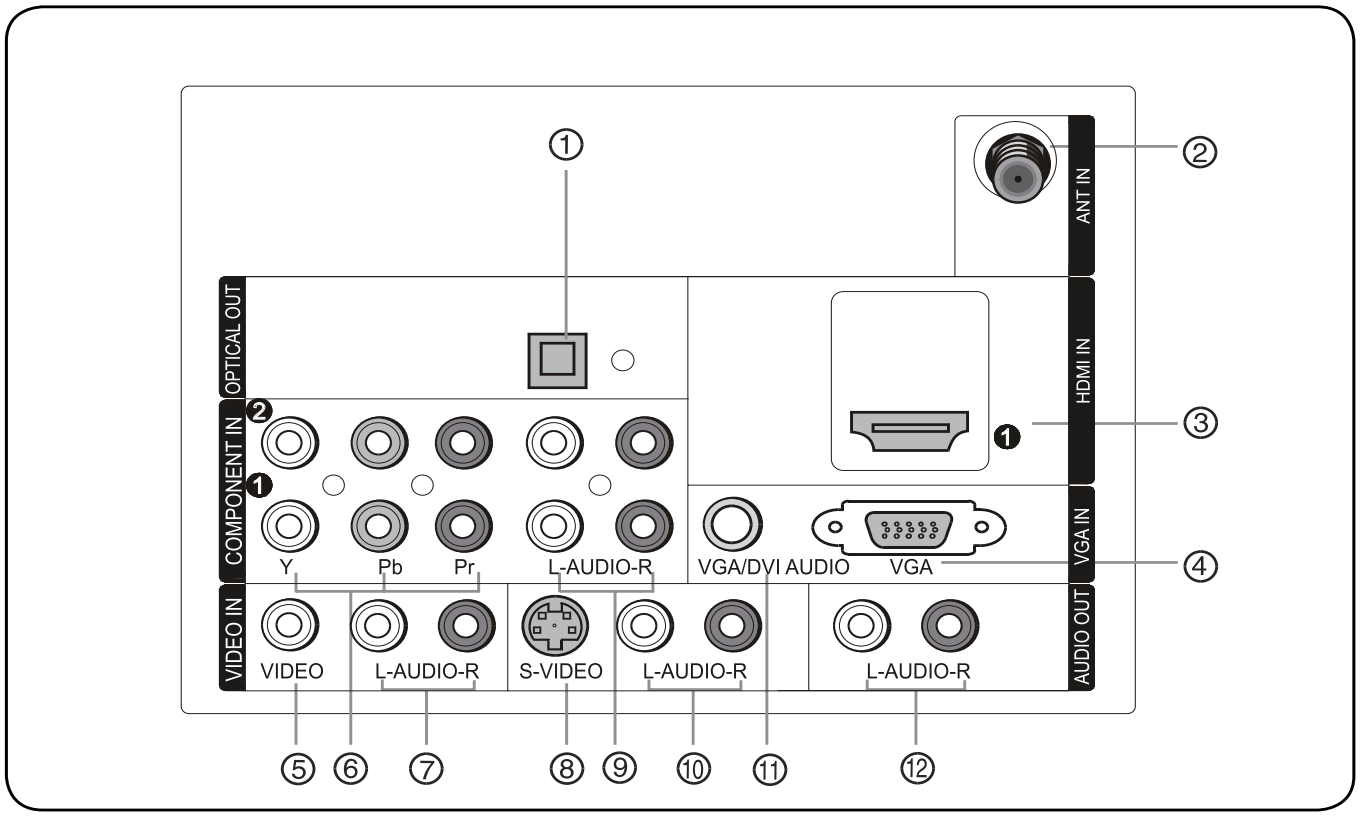
⑥	**HDMI IN**	Connect a HDMI device to receive digital audio and uncompressed digital video signals.
⑦	**Headphone jack**	Headphone audio output terminal.
⑧	**AV2 VIDEO IN**	Connect the composite video cable from an external signal source to this jack.
⑨	**AV2 AUDIO IN**	Connect the audio L/R cables from the video signal source to these jacks.
⑩	**USB**	Service only.
⑪	**Remote Sensor**	Receivers IR signals from the remote control. Do not put anything near the sensor, which may block the remote control signal.

6-2. Back Panel Controls

Introduction

Connection Options

Back panel connections



①	**Digital Audio Output**	Connect various types of digital audio equipment. **Note** ❏ In standby mode, these ports will not work.
②	**Antenna Input**	Connect cable or antenna signals to the TV, either directly or through your cable box.
③	**HDMI In**	Connect a HDMI device to receive digital audio and uncompressed digital video.
④	**VGA Video In**	Connect a video cable from a computer to this jack.
⑤	**VIDEO In**	Connect the video signal from a video device to this jack.
⑥	**Component Video In**	Connect a component video device to these jacks.

⑦	**AUDIO In**	Connect the audio L/R cables from the video signal source to these jacks.
⑧	**S-VIDEO In**	Connect the S-Video cable from an external signal source to this jacks.
⑨	**COMPONENT AUDIO In**	Connect the audio L/R cables from the component video signal source to these jacks.
⑩	**AUDIO In**	Connect the audio L/R cables from the S-Video signal source to these jacks.
⑪	**VGA Audio In**	Connect the audio L/R cables from a computer to this jack.
⑫	**AUDIO Out**	Connect the audio L/R cables to your audio equipment.

6-3 Setting Up Your Remote Control

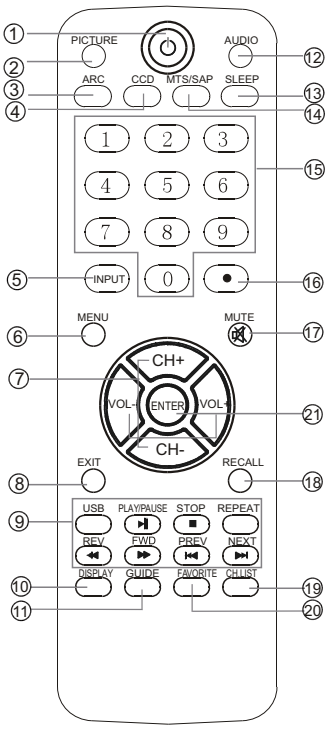
After being setting up properly, your remote control can operate in six different modes: TV, VCR, CABLE, DVD, SETBOX or AUDIO.

Pressing the corresponding button on the remote control allows you to switch between these modes, and control whichever piece of equipment you choose.

Note:

The remote control might not be compatible with all DVD Players, VCRs and Cable boxes.

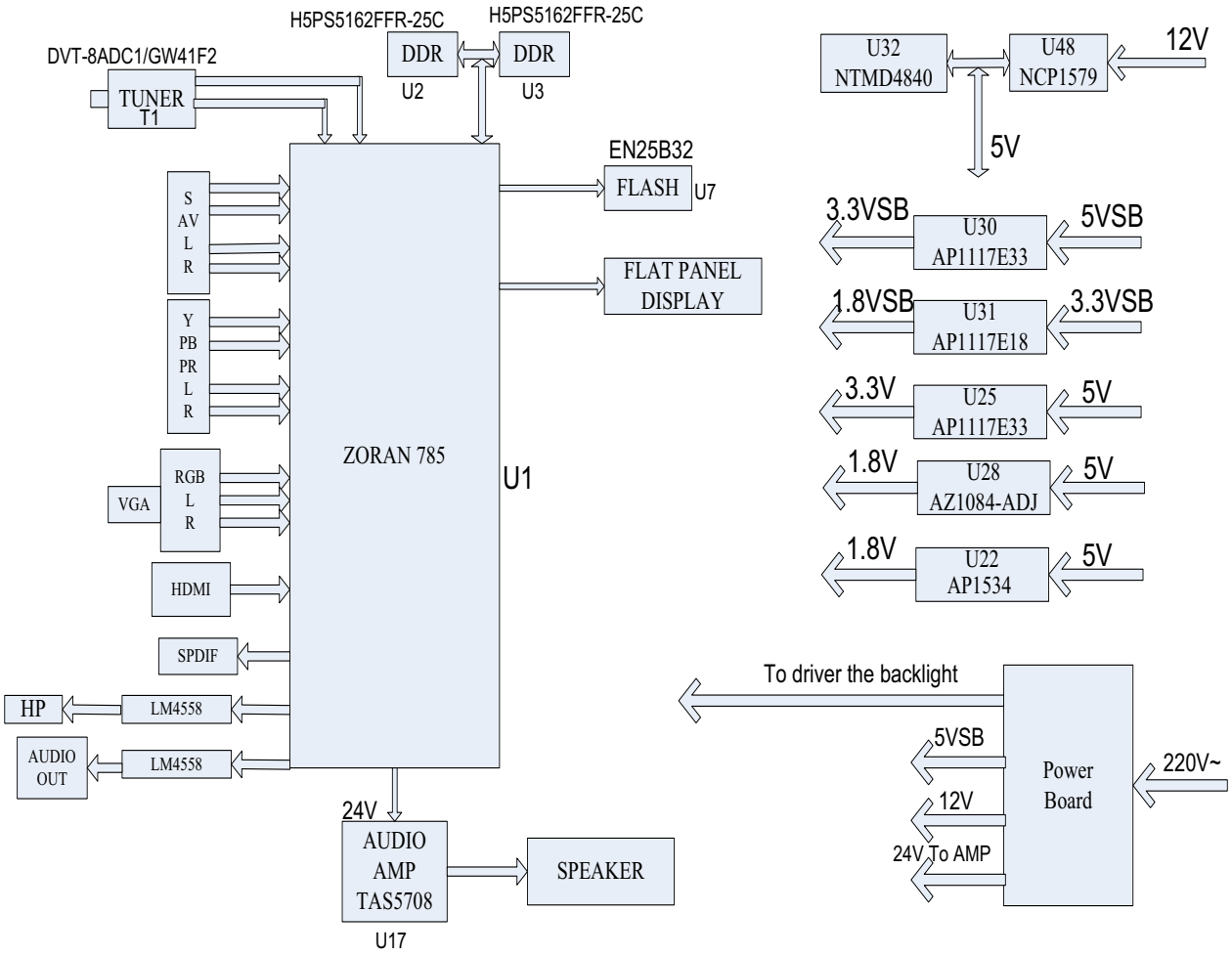
The remote control cannot be operated unless the batteries are properly loaded.
When using the remote control, aim it at the remote sensor on the TV.



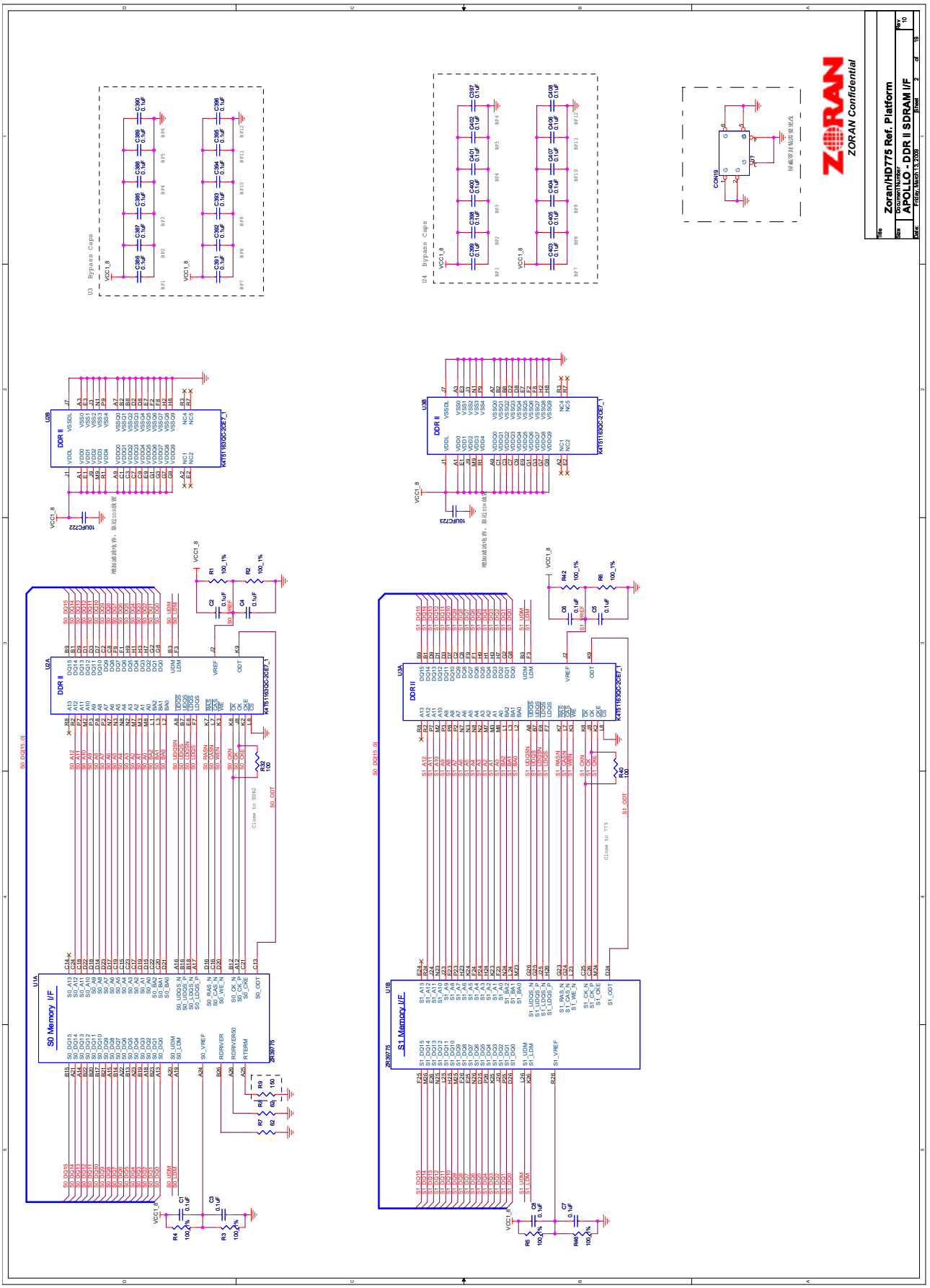
①	**POWER**	Press to turn on and off the TV
②	**PICTURE**	Press repeatedly to cycle through the available picture modes
③	**ARC**	Select the aspect ratio
④	**CCD (closed caption)**	Select a closed caption option
⑤	**INPUT**	Show the input source
⑥	**MENU**	Press to open the on-screen menu
⑦	**Thumbstick (Up/Down/ Left/Right)**	Allows you to navigate the on-screen menus and adjust the system settings to your preference
⑧	**EXIT**	Clears all on-screen displays and returns to TV viewing from any menu
⑨	**No available**	
⑩	**DISPLAY**	Press to display the TV status information on the top of the TV screen
⑪	**GUIDE**	Display the guide when you are watching analog or digital channels
⑫	**AUDIO**	Press to cycle through different sound settings
⑬	**SLEEP button**	Press to display the sleep timer option
⑭	**MTS/SAP**	Select MONO, STEREO, SAP in NTSC system
⑮	**Number buttons**	Press to change a channel
⑯	**• button**	Press to select digital channels. For example, to enter "54-3", press "54", "• " and "3"
⑰	**MUTE**	Switches the sound on or off
⑱	**RECALL**	Press to jump back and forth between two channels
⑲	**CH.LIST**	Open the channel list in TV
⑳	**FAVORITE**	Open the favourite channel list in TV
㉑	**ENTER**	Accesses the highlighted item in the on-screen menu

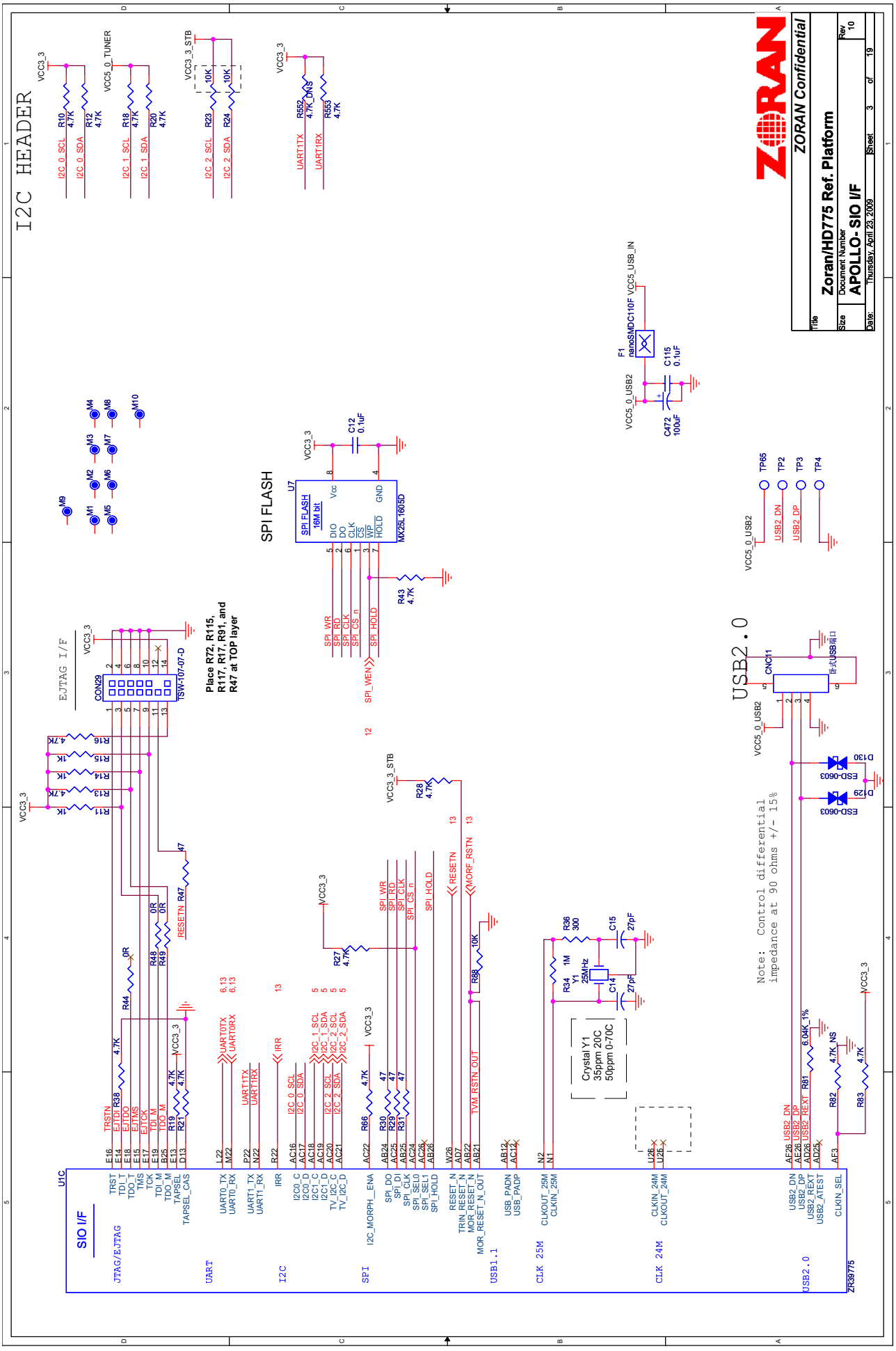
Chapter 7. Electrical Parts

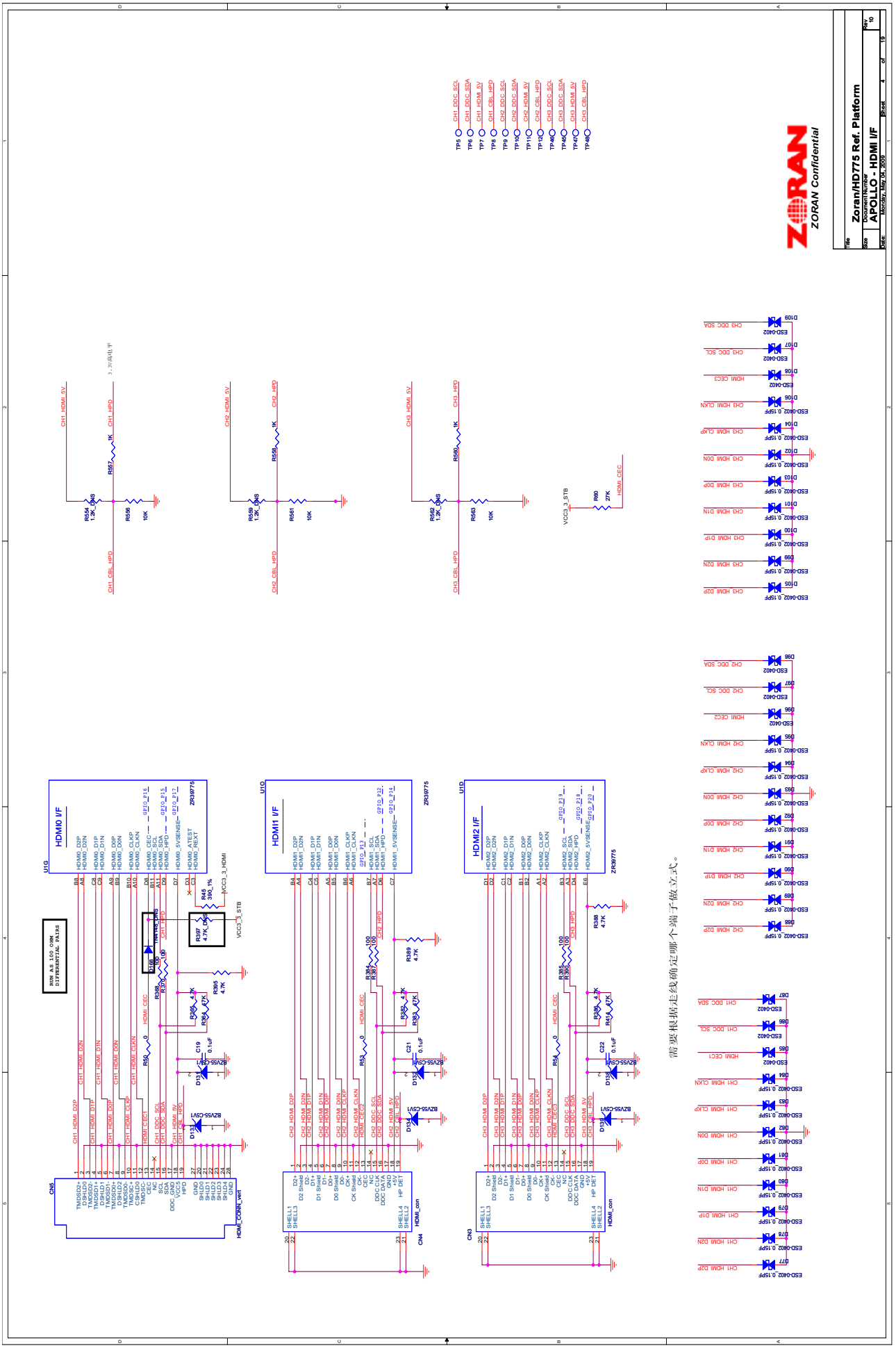
7-1. Block Diagram

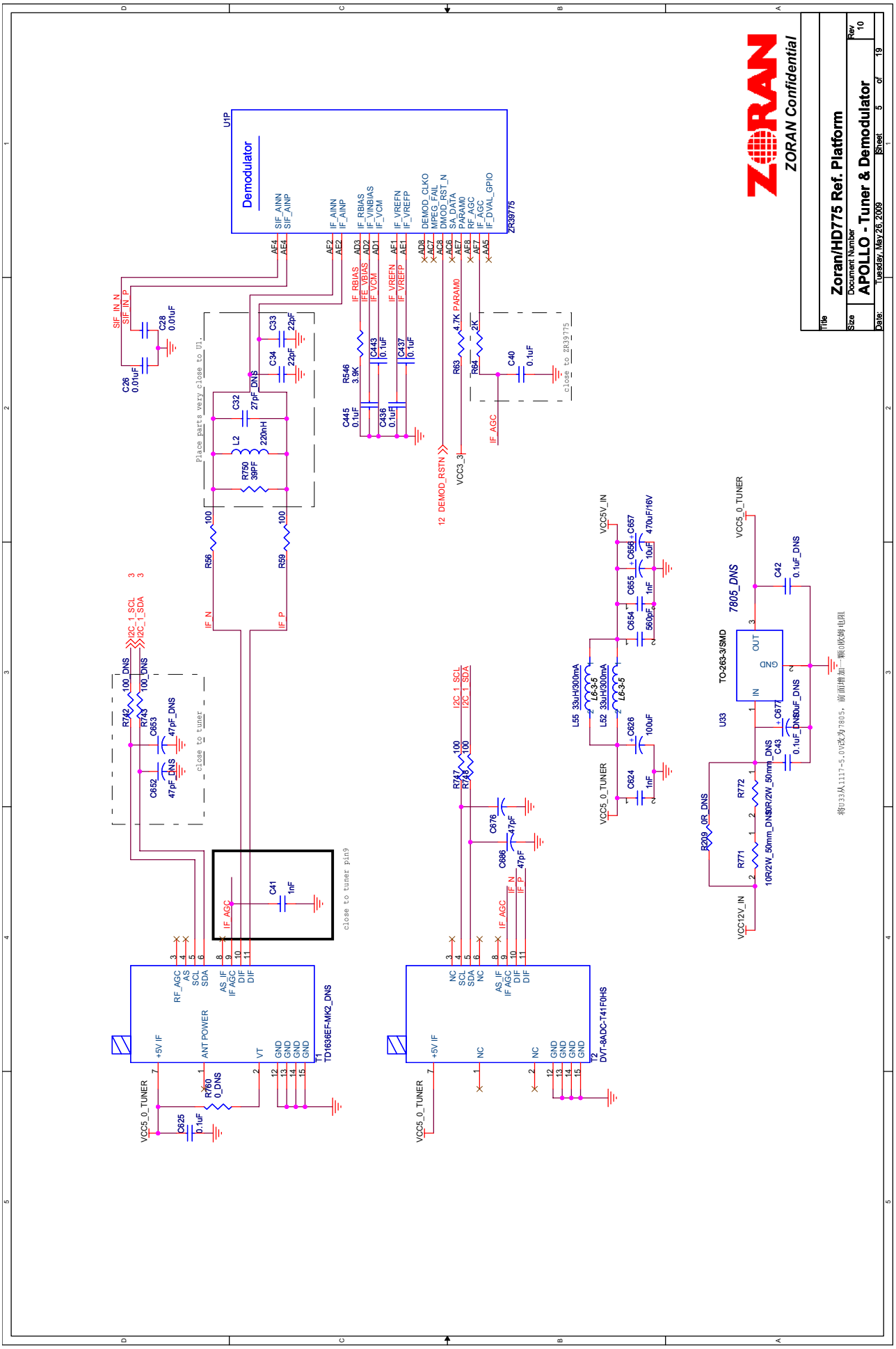


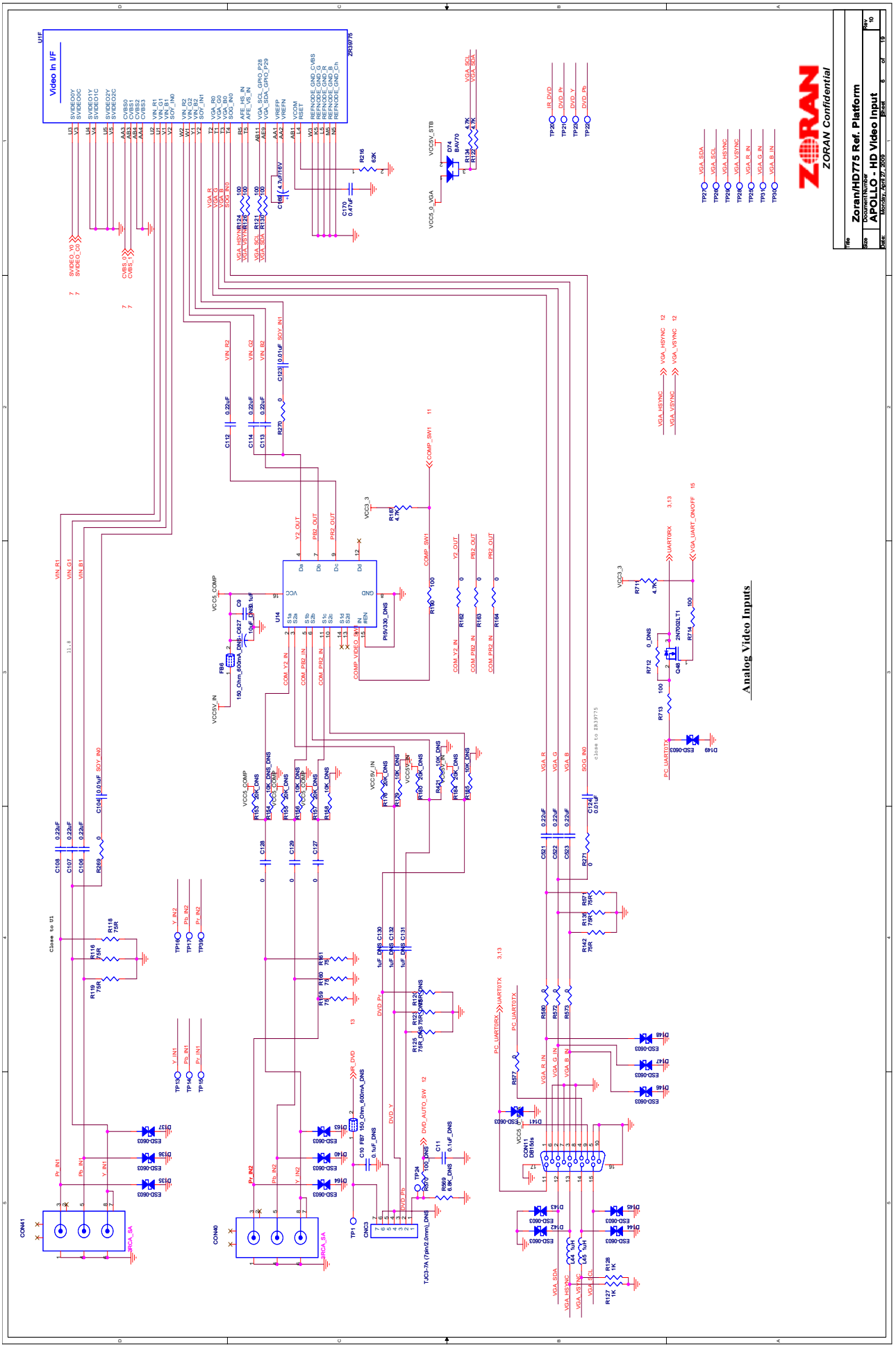
7-2. Circuit Diagram

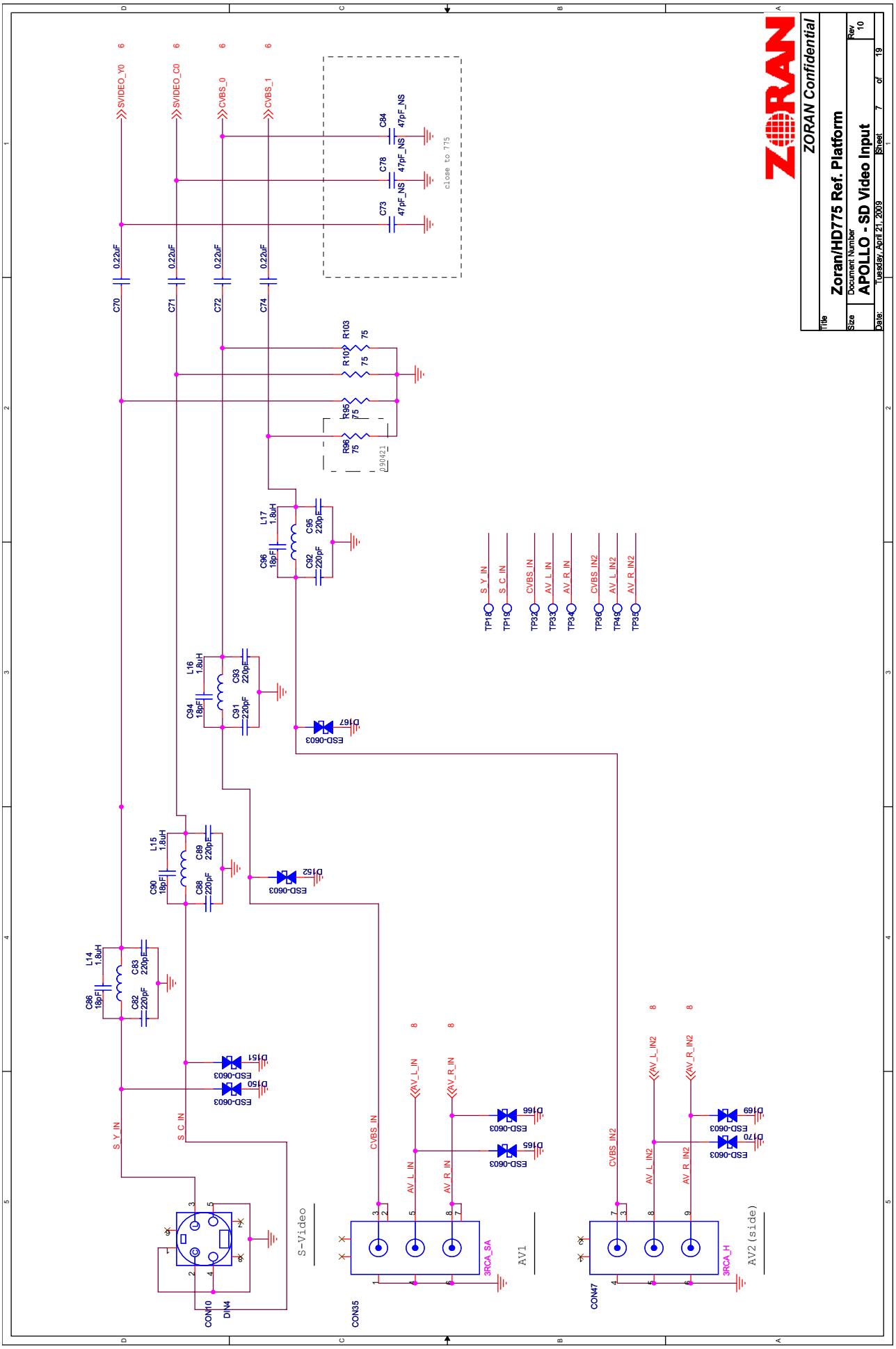


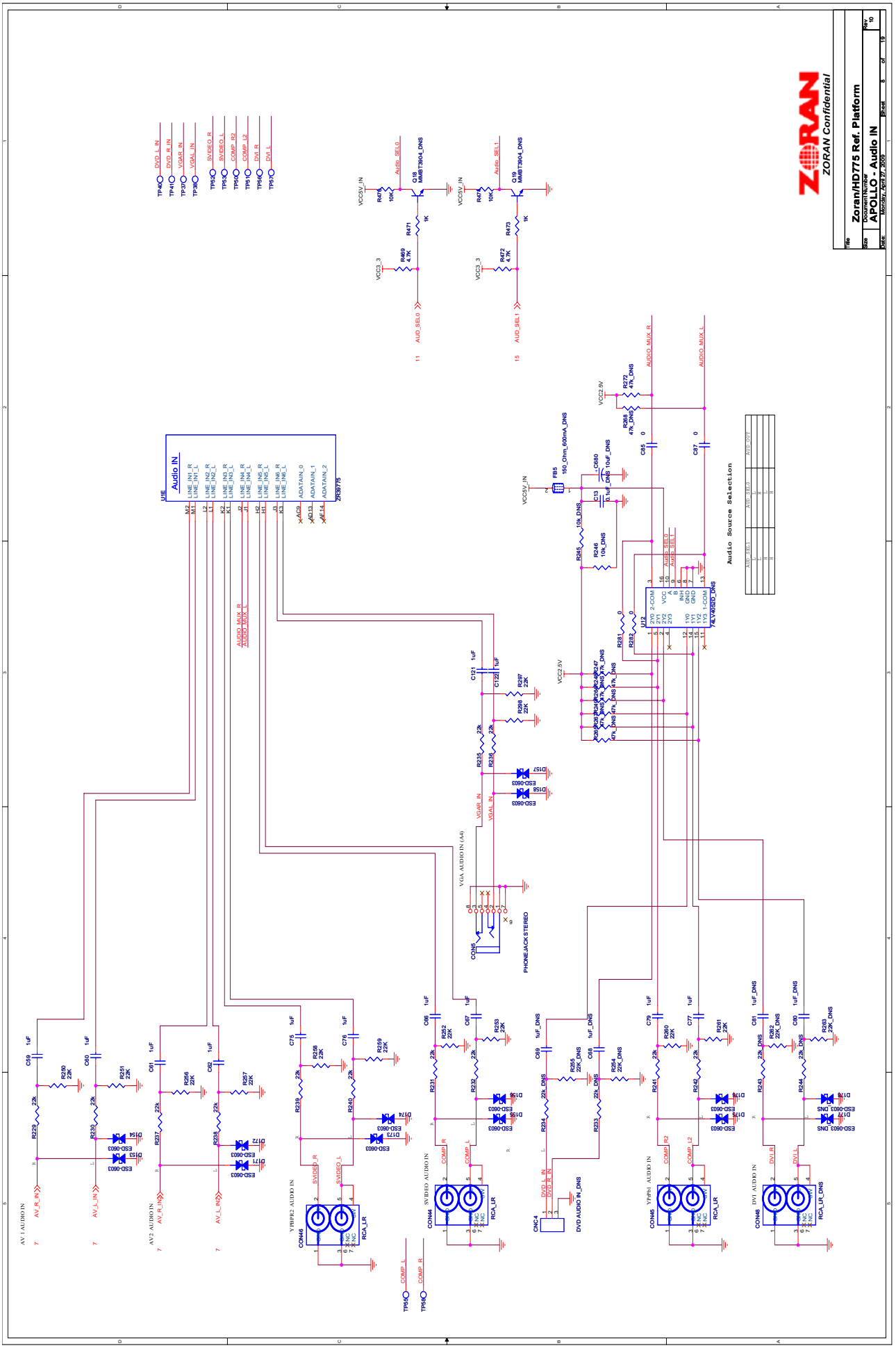

I2C HEADER
EJTAG I/F
SPI FLASH
USB2.0
SIO I/F
U1C
ZR39775
Place R72, R115, R117, R17, R91, and R47 at TOP layer
Note: Control differential impedance at 90 ohms +/- 15%
Crystal Y1 35ppm 20C 50ppm 0-70C
ZORAN Confidential
Zoran/HD775 Ref. Platform
APOLLO- SIO I/F
Thursday, April 23, 2009

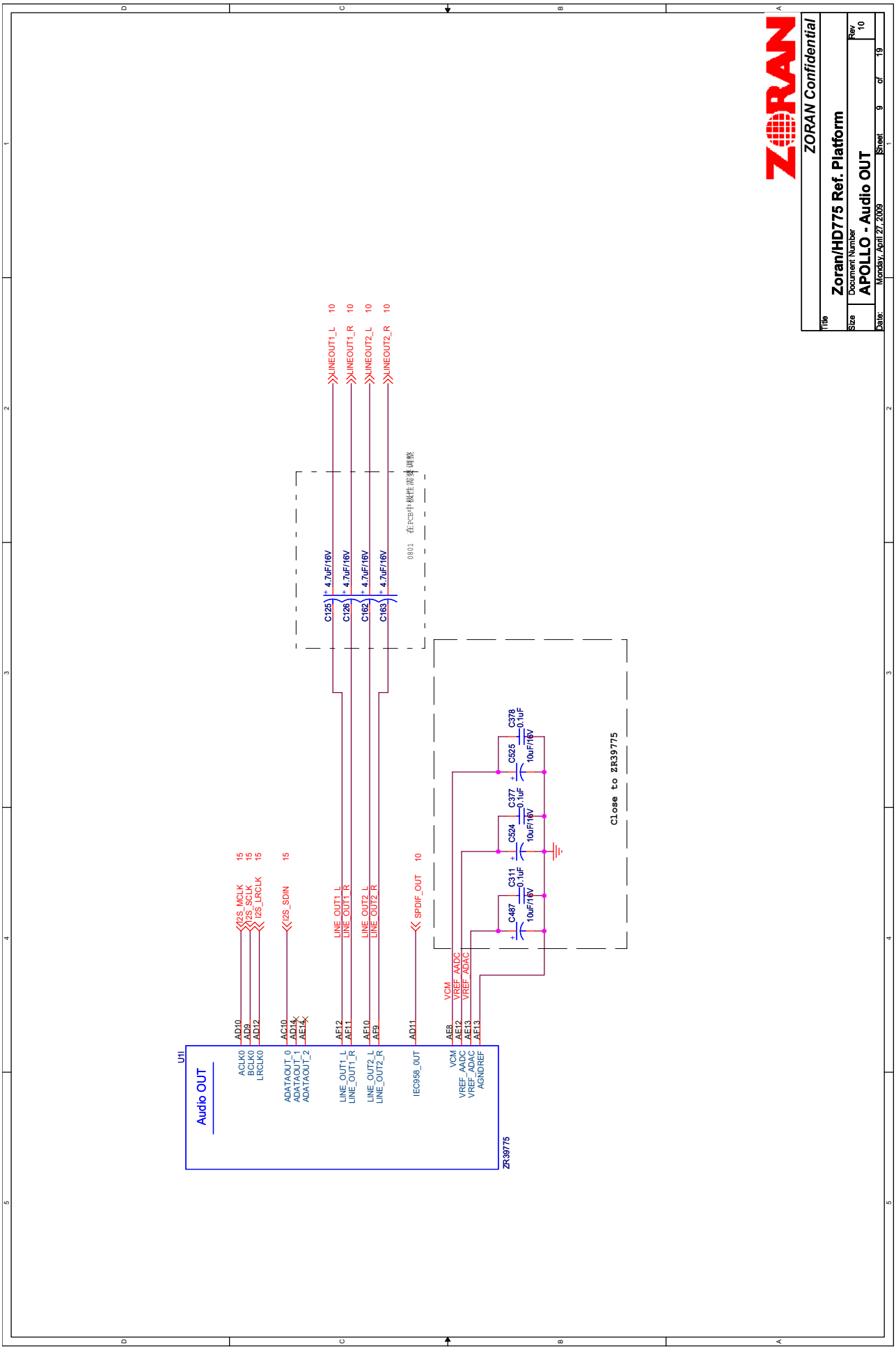

ZORAN
ZORAN Confidential
Zoran/HD775 Ref. Platform
APOLLO - HDMI I/F
HDMI0 I/F
HDMI1 I/F
HDMI2 I/F
HDMI_CONN_vert
HDMI_con
需要根据走线确定哪个端子做方式。

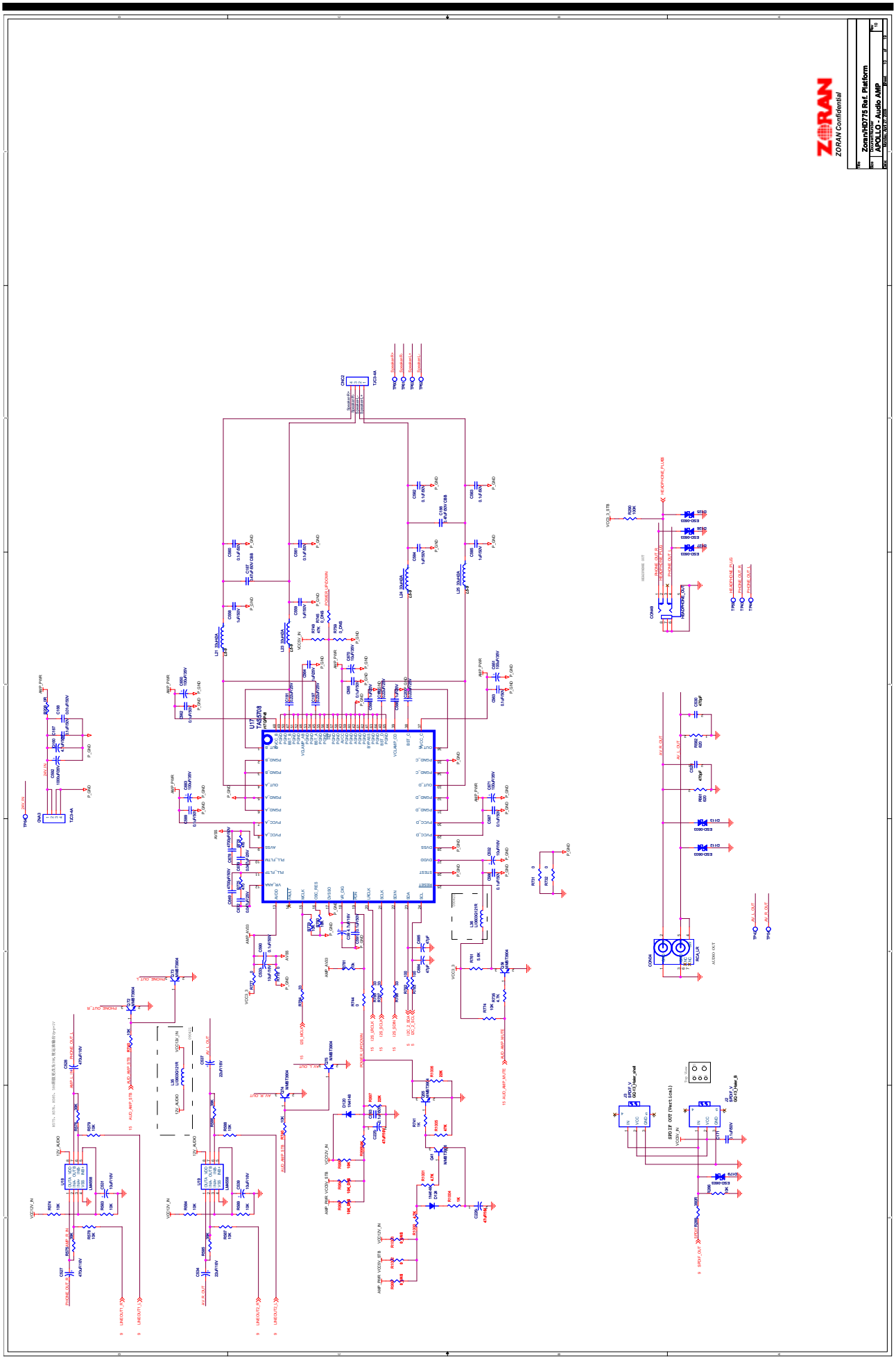

ZORAN Confidential
Zoran/HD775 Ref. Platform
APOLLO - Tuner & Demodulator
Tuesday, May 26, 2009
Demodulator
ZR39775
TD1636EF-MK2_DNS
DVT-8ADC-T41F0HS
7805_DNS
TO-263-3/SMD
close to tuner
Place parts very close to U1.
close to ZR39775
close to tuner pin9
将U33从1117-5.0V改为7805，前面增加一颗0欧姆电阻

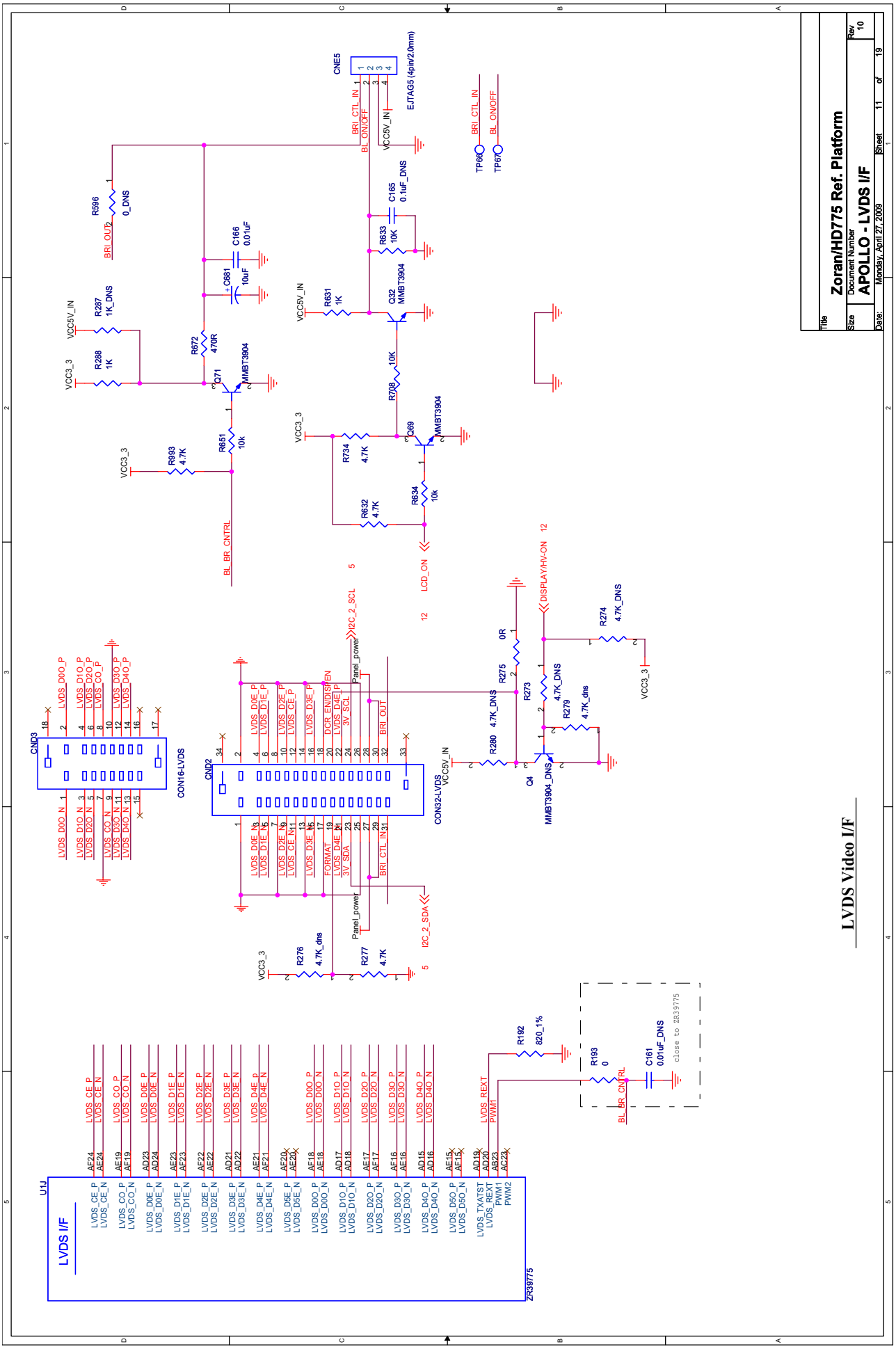

Video In I/F
ZORAN Confidential
Zoran/HD775 Ref. Platform
APOLLO - HD Video Input
Analog Video Inputs

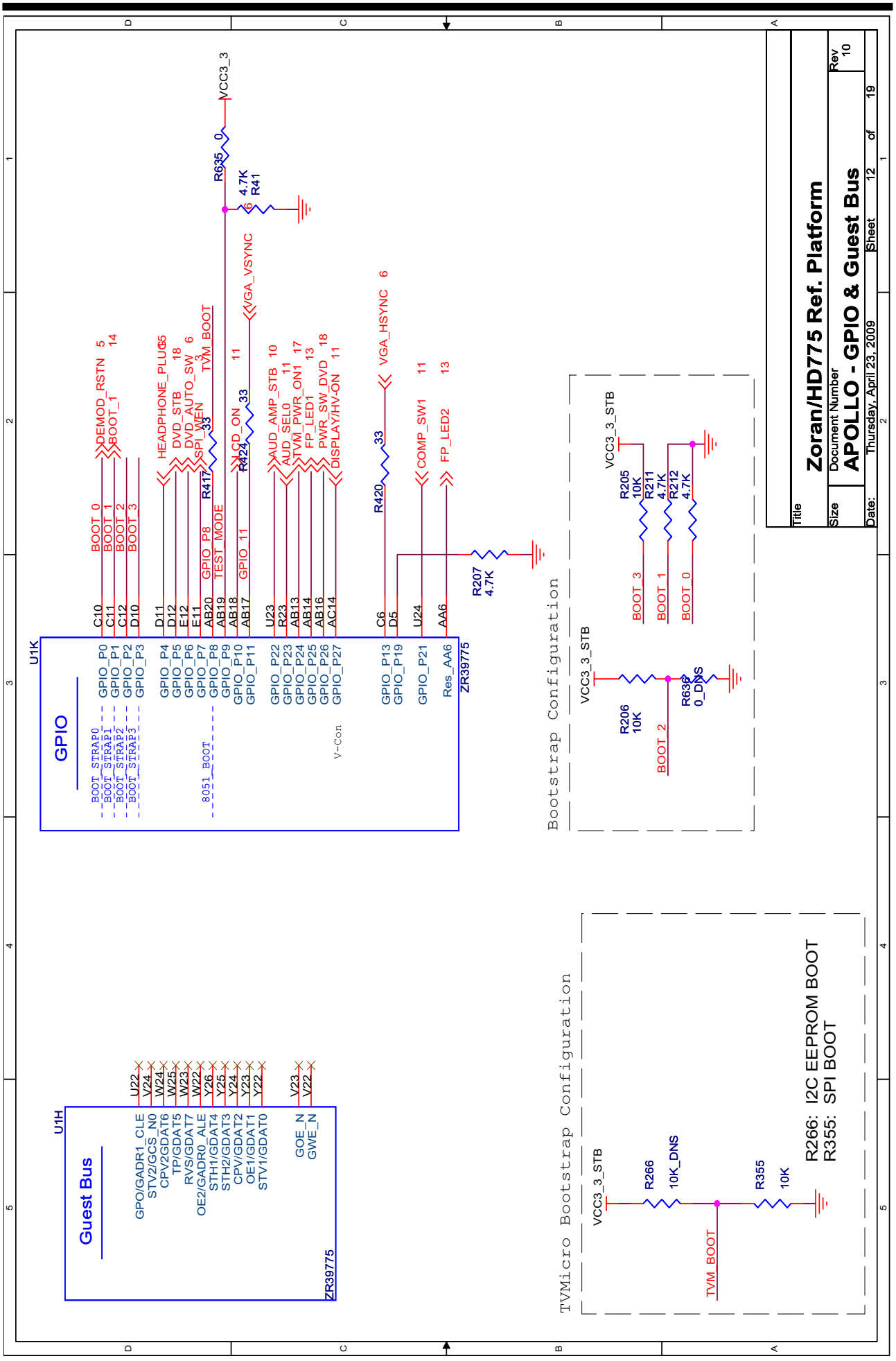

ZORAN Confidential
Zoran/HD775 Ref. Platform
APOLLO - SD Video Input
Tuesday, April 21, 2009
SVIDEO_Y0
SVIDEO_C0
CVBS_0
CVBS_1
close to 775
S-Video
AV1
AV2(side)
CON10
DIN4
CON35
CON47
3RCA_SA
3RCA_H
S_Y_IN
S_C_IN
CVBS_IN
AV_L_IN
AV_R_IN
CVBS_IN2
AV_L_IN2
AV_R_IN2
ESD-0603

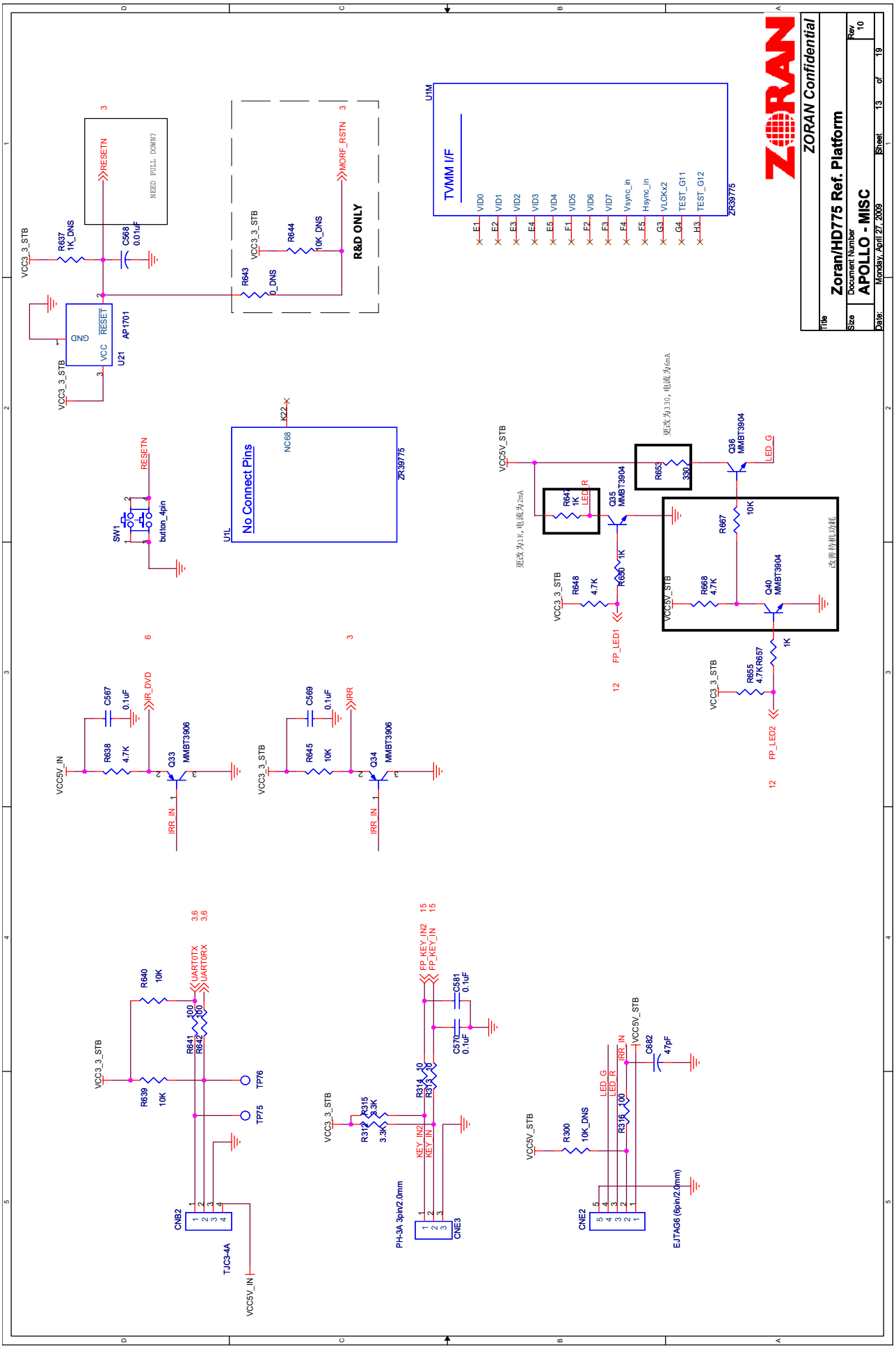

ZORAN Confidential
Zoran/HD775 Ref. Platform
APOLLO - Audio IN
Monday, April 27, 2009
Audio IN
Audio Source Selection
AV 1 AUDIO IN
AV2 AUDIO IN
VGA AUDIO IN (A4)
SVIDEO AUDIO IN
YPbPr2 AUDIO IN
YPbPr1 AUDIO IN
DVI AUDIO IN
DVD AUDIO IN_DNS
PHONEJACK STEREO
74LVQ4052D_DNS

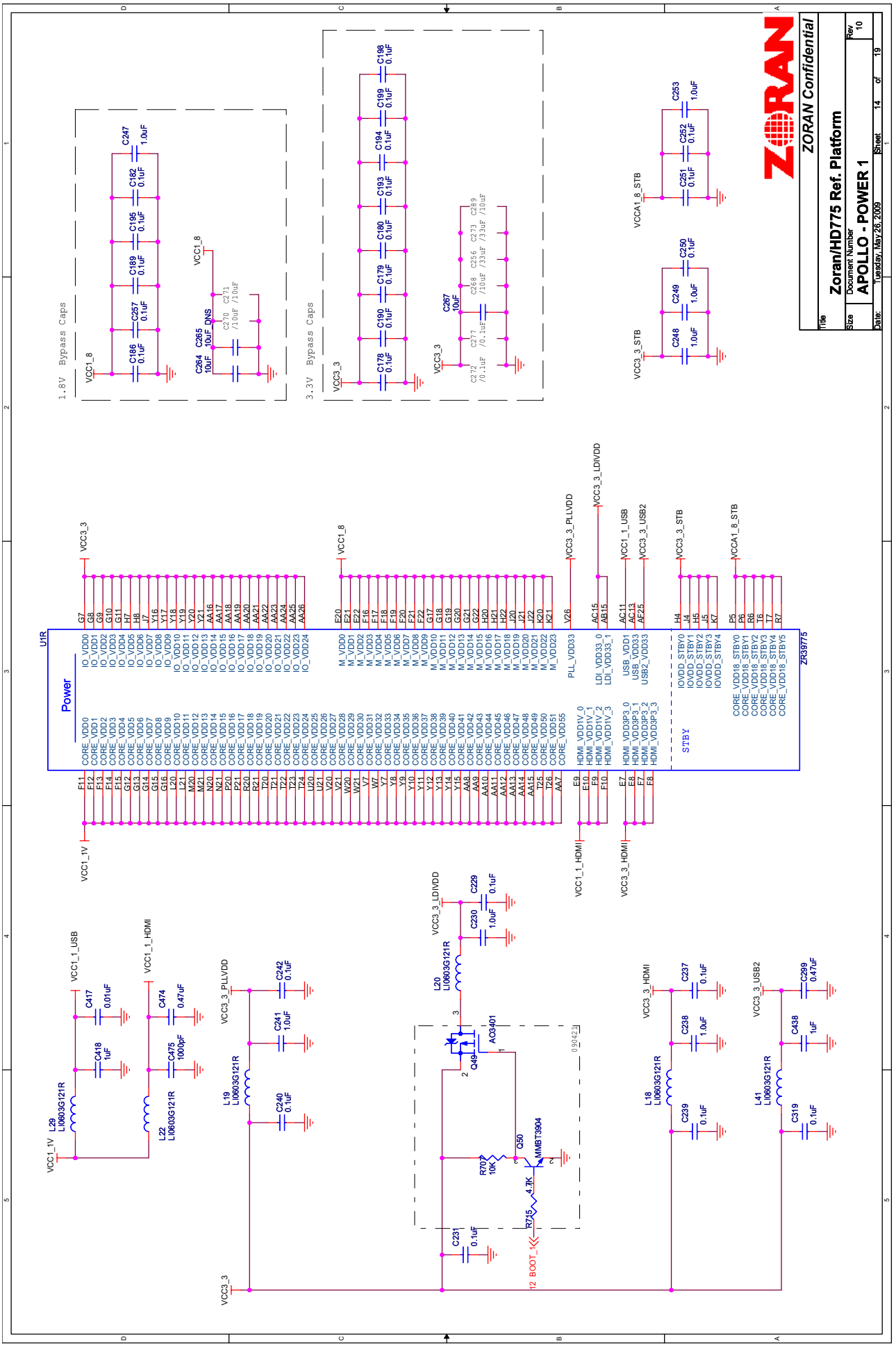

ZORAN Confidential
Title
Zoran/HD775 Ref. Platform
Size
Document Number
APOLLO - Audio OUT
Rev
10
Date:
Monday, April 27, 2009
Sheet
9
of
19
U11
Audio OUT
ZR39775
ACLK0
BCLK0
LRCLK0
ADATAOUT_0
ADATAOUT_1
ADATAOUT_2
LINE_OUT1_L
LINE_OUT1_R
LINE_OUT2_L
LINE_OUT2_R
IEC958_OUT
VCM
VREF_AADC
VREF_ADAC
AGNDREF
I2S_MCLK
I2S_SCLK
I2S_LRCLK
I2S_SDIN
SPDIF_OUT
LINEOUT1_L
LINEOUT1_R
LINEOUT2_L
LINEOUT2_R
C125
C126
C162
C163
4.7uF/16V
C487
C311
C524
C377
C525
C378
10uF/16V
0.1uF
Close to ZR39775

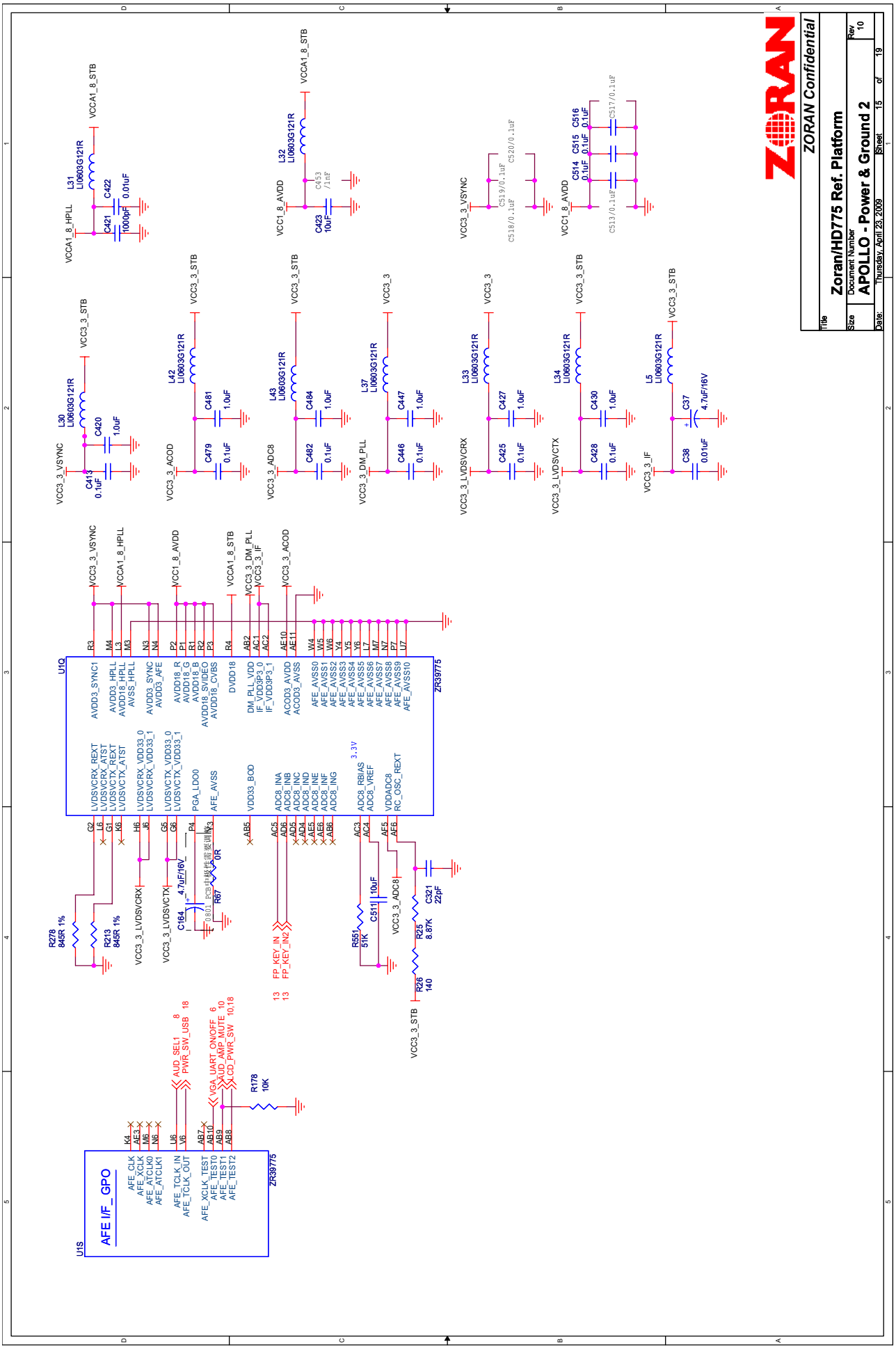

ZORAN
ZORAN Confidential
Zoran/HD775 Ref. Platform
AR3LO - Audio AMP


Zoran/HD775 Ref. Platform
APOLLO - LVDS I/F
LVDS Video I/F
LVDS I/F
U1J
ZR39775
CON16-LVDS
CON32-LVDS
CNE5
E-JTAG5 (4pin/2.0mm)
MMBT3904
MMBT3904_DNS
TP66
TP67
BRI_CTL_IN
BL_ON/OFF
BL_BR_CNTRL
LCD_ON
DISPLAY/HV-ON
I2C_2_SCL
I2C_2_SDA
Panel_power
VCC3_3
VCC5V_IN
close to ZR39775


U1K
GPIO
ZR39775
BOOT_STRAP0
BOOT_STRAP1
BOOT_STRAP2
BOOT_STRAP3
8051_BOOT
V-Con
GPIO_P0
GPIO_P1
GPIO_P2
GPIO_P3
GPIO_P4
GPIO_P5
GPIO_P6
GPIO_P7
GPIO_P8
GPIO_P9
GPIO_P10
GPIO_P11
GPIO_P22
GPIO_P23
GPIO_P24
GPIO_P25
GPIO_P26
GPIO_P27
GPIO_P13
GPIO_P19
GPIO_P21
Res_AA6
BOOT_0
BOOT_1
BOOT_2
BOOT_3
DEMOD_RSTN
BOOT_1
HEADPHONE_PLUG
DVD_STB
DVD_AUTO_SW
SPI_WEN
TVM_BOOT
TEST_MODE
GPIO_11
CD_ON
VGA_VSYNC
AUD_AMP_STB
AUD_SEL0
TVM_PWR_ON1
FP_LED1
PWR_SW_DVD
DISPLAY/HV-ON
VGA_HSYNC
COMP_SW1
FP_LED2
R635 0
VCC3_3
R41 4.7K
R424 33
R417 33
R420 33
R207 4.7K
Bootstrap Configuration
VCC3_3_STB
R206 10K
R205 10K
R211 4.7K
R212 4.7K
R638 0_DNS
BOOT_3
BOOT_1
BOOT_0
BOOT_2
U1H
Guest Bus
ZR39775
GPO/GADR1_CLE
STV2/GCS_N0
CPV2/GDAT6
TP/GDAT5
RVS/GDAT7
OE2/GADR0_ALE
STH1/GDAT4
STH2/GDAT3
CPV/GDAT2
OE1/GDAT1
STV1/GDAT0
GOE_N
GWE_N
TVMicro Bootstrap Configuration
VCC3_3_STB
R266 10K_DNS
R355 10K
TVM_BOOT
R266: I2C EEPROM BOOT
R355: SPI BOOT
Title
Zoran/HD775 Ref. Platform
Size
Document Number
APOLLO - GPIO & Guest Bus
Rev 10
Date: Thursday, April 23, 2009
Sheet 12 of 19


ZORAN Confidential
Zoran/HD775 Ref. Platform
APOLLO - MISC
Monday, April 27, 2009
U21 AP1701
RESETN
MORF_RSTN
R&D ONLY
No Connect Pins
U1M
TVMM I/F
ZR38775
SW1
button_4pin
Q33 MMBT3906
Q34 MMBT3906
Q35 MMBT3904
Q36 MMBT3904
Q40 MMBT3904
CNB2
TJC3-4A
CNE3
PH-3A 3pin/2.0mm
CNE2
EJTAG6 (6pin/2.0mm)
TP75
TP76
改善待机功耗


ZORAN Confidential
Zoran/HD775 Ref. Platform
APOLLO - POWER 1
Power
ZR39775
1.8V Bypass Caps
3.3V Bypass Caps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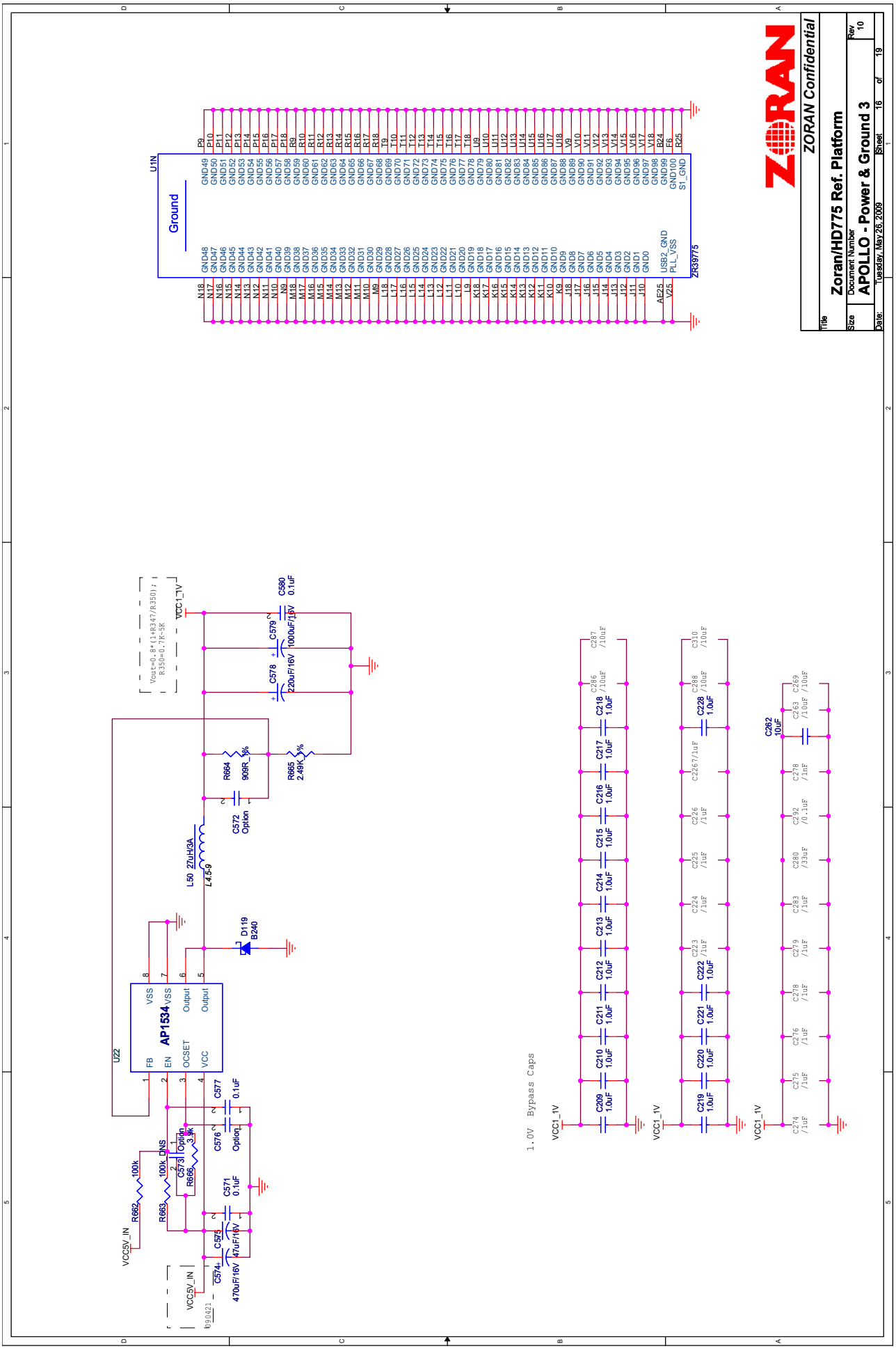
Title
Zoran/HD775 Ref. Platform
Size
Document Number
APOLLO - Power & Ground 2
Rev
10
Date:
Thursday, April 23, 2009
Sheet
15
of
19
ZR39775
AFE I/F_GPO
U1S
U1Q
VCC3_3_VSYNC
VCC3_3_STB
VCCA1_8_HPLL
VCCA1_8_STB
VCC3_3_ACOD
VCC1_8_AVDD
VCC3_3_ADC8
VCC3_3_DM_PLL
VCC3_3_LVDSVCRX
VCC3_3_LVDSVCTX
VCC3_3_IF
VCC3_3
FP_KEY_IN
FP_KEY_IN2
AUD_SEL1
PWR_SW_USB
VGA_UART_ON/OFF
AUD_AMP_MUTE
CD_PWR_SW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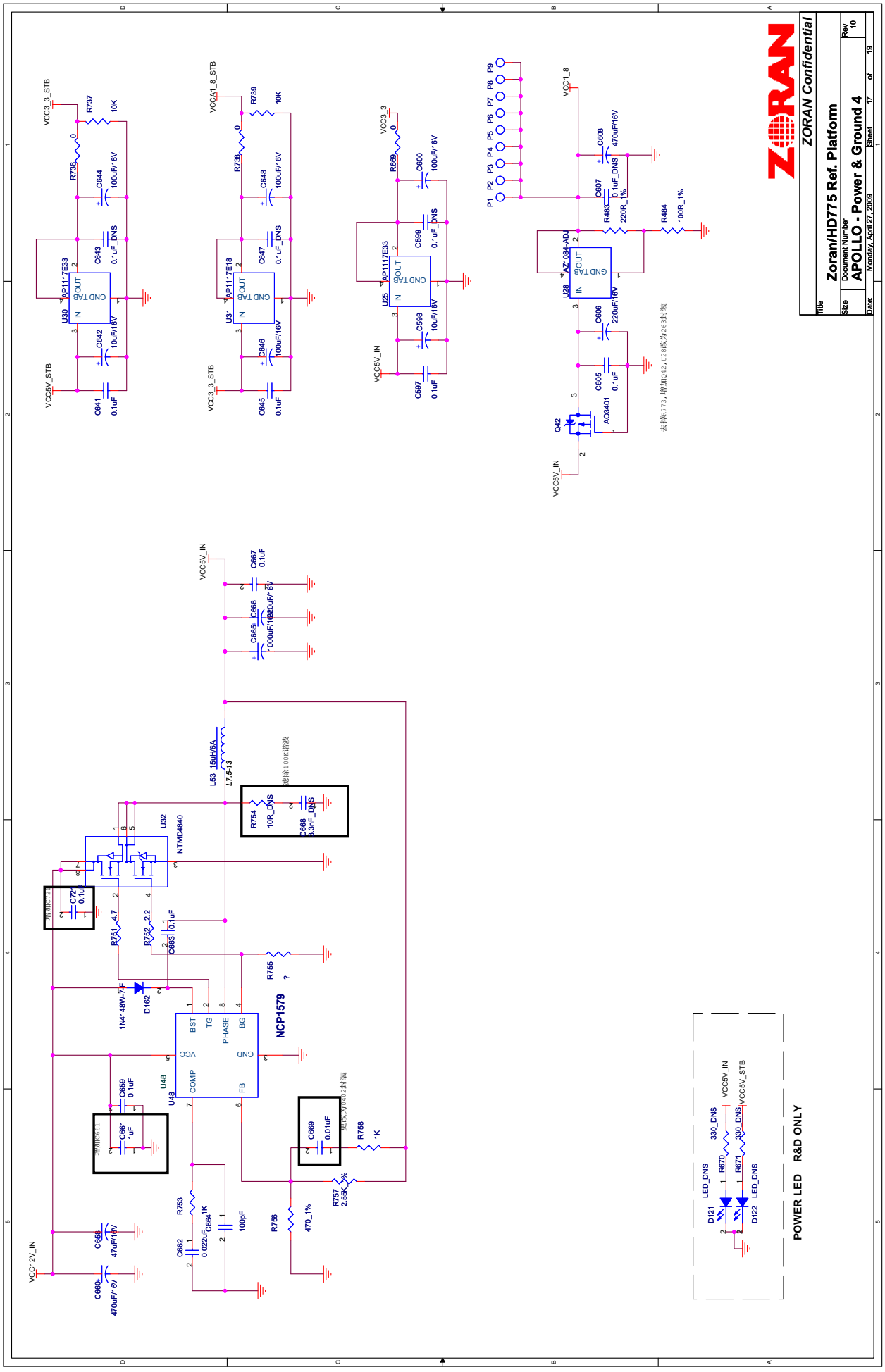
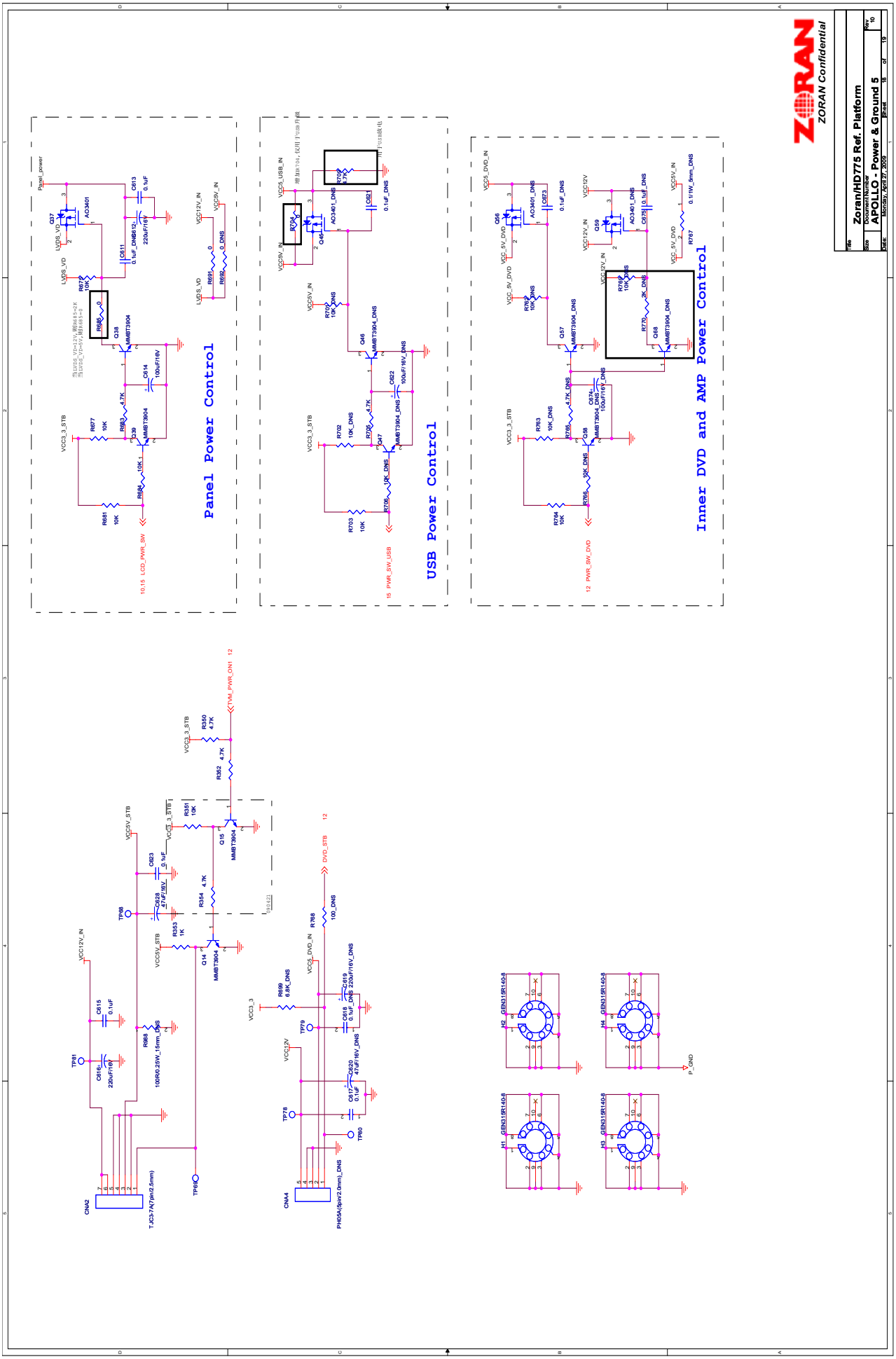
Title
Zoran/HD775 Ref. Platform
Size
Document Number
APOLLO - Power & Ground 3
Rev
10
Date: Tuesday, May 26, 2009
Sheet 16 of 19
Ground
U1N
ZR39775
AP1534
U22
L50 27uH3A
L4.5-9
D119 B240
R664 909R_1%
R665 2.49K_1%
C572 Option
C578 220uF/16V
C579 1000uF/16V
C580 0.1uF
C577 0.1uF
C576 Option
C571 0.1uF
C575 47uF/16V
C574 470uF/16V
R662 100k
R663 100k_DNS
R666 3.3K
C573 Option
VCC5V_IN
VCC1_1V
1.0V Bypass Caps

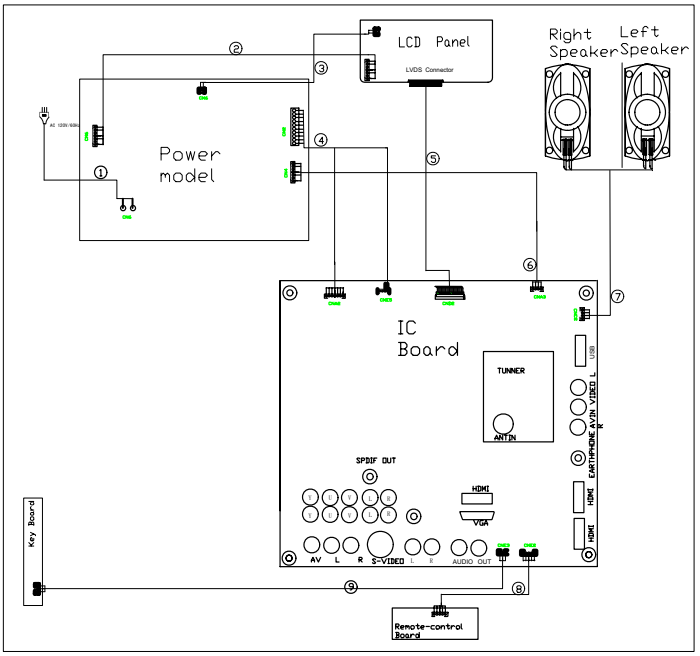

ZORAN Confidential
Zoran/HD775 Ref. Platform
APOLLO - Power & Ground 4
Monday, April 27, 2009
NCP1579
NTMD4840
AP1117E33
AP1117E18
AZ1084-AD
AO3401
POWER LED R&D ONLY


ZORAN Confidential
Zoran/HD775 Ref. Platform
APOLLO - Power & Ground 5
Monday, April 27, 2009
Panel Power Control
USB Power Control
Inner DVD and AMP Power Control

7-3 .Wiring Connection Diagram

Customer Model	HL40XP1
Service Model	HL40XP1a
Factory Model	L40K1
Serial No.	DC0XU0E0700
Job Order No.	AT08SR0804US12
Country	CANADA
Customer	HAC
Brand	Haier

9.WIRRING CONNECTION DIAGRAM



Connecting sketch

No.	serial No.	Name
①	0090401964	power cord
②	0090401738	Backlight wire
③	0090402600	Panel check wire
④	0090402341	Power supply wire
⑤	0090401417	LVDS Wire
⑥	0090403399B	Amplifier wire
⑦	0090401749	Speaker Wire
⑧	0090402069	Remote control Wire
⑨	0090402799	keypad Wire

Date		Sign		Approve	

Arc (3)

Chapter 8. Measurements and Adjustments

8-1. Service Mode

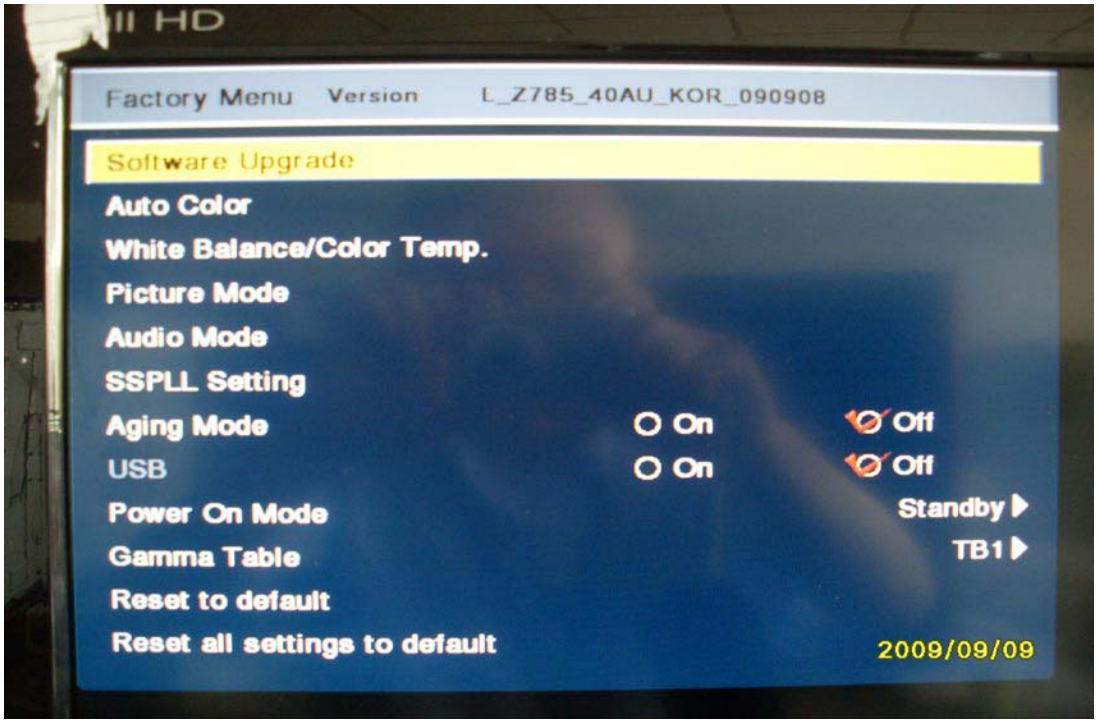
8-1-1.How to enter into Service Mode

The way to the factory mode menu:
Step 1: Press Menu,
Step 2: Input 8893,
Step 3: Press “OK”
System will be into the factory mode menu when 3 steps above are done.

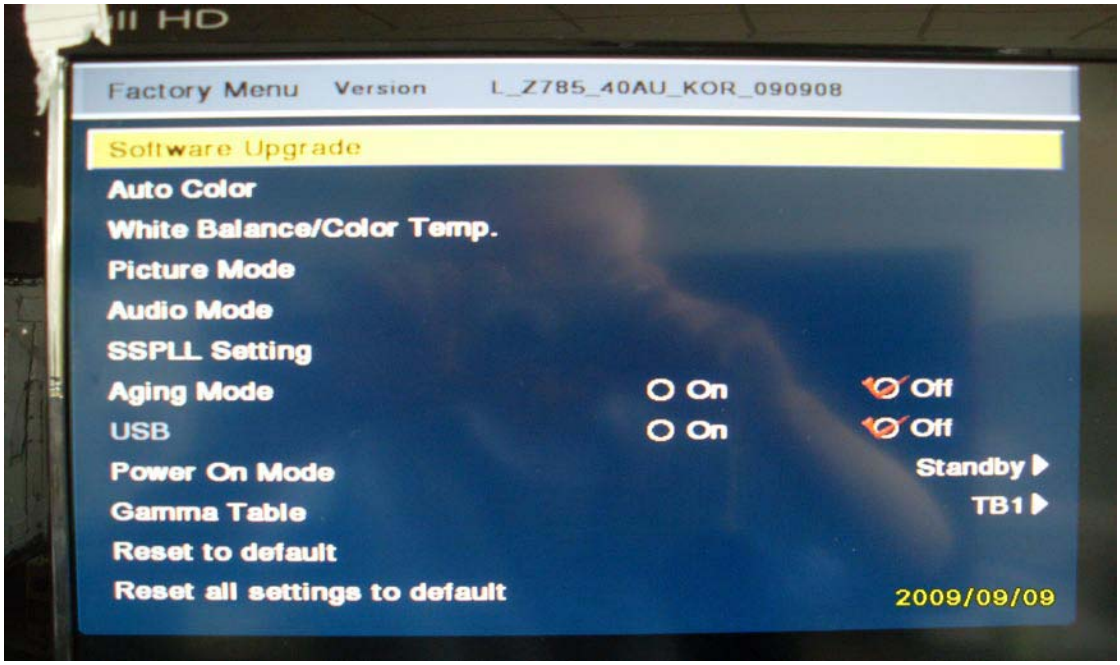
8-1-2.How to exit

If you want to exit this factory menu, please press the button ”Exit” on the remote.

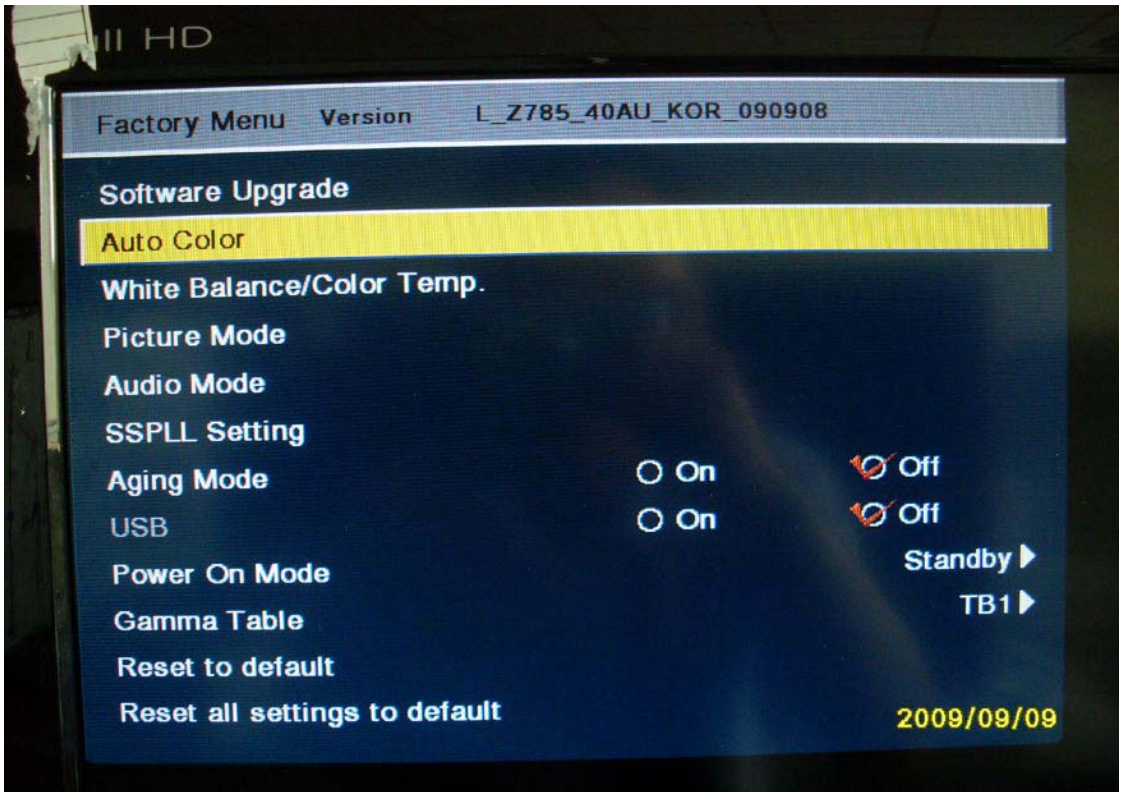
8-2. Measurements and Adjustments



8-2-1. Software Update

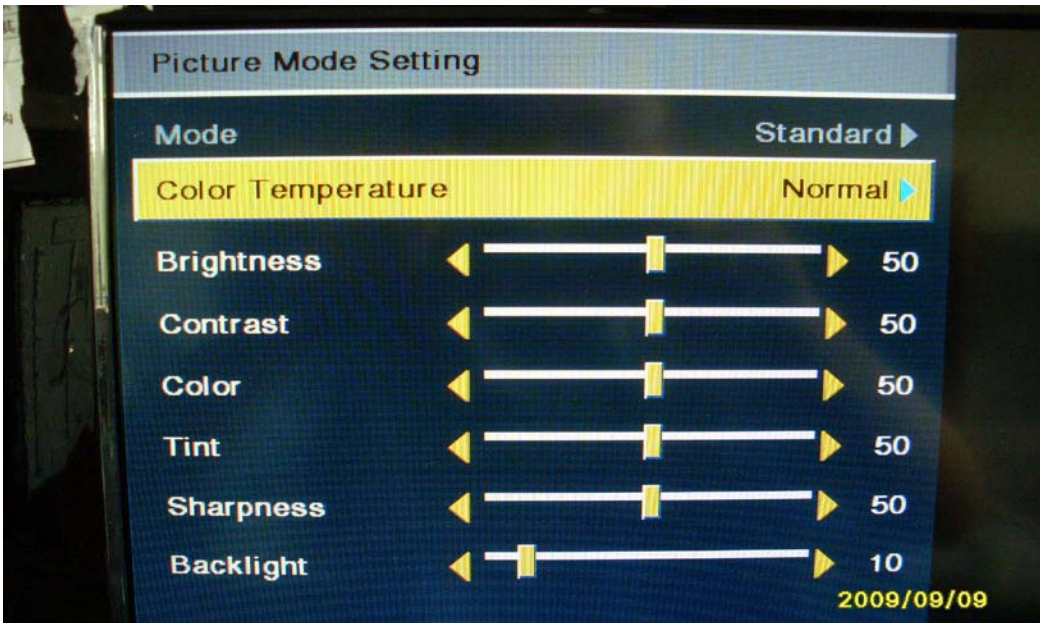


8-2-2. Auto Color

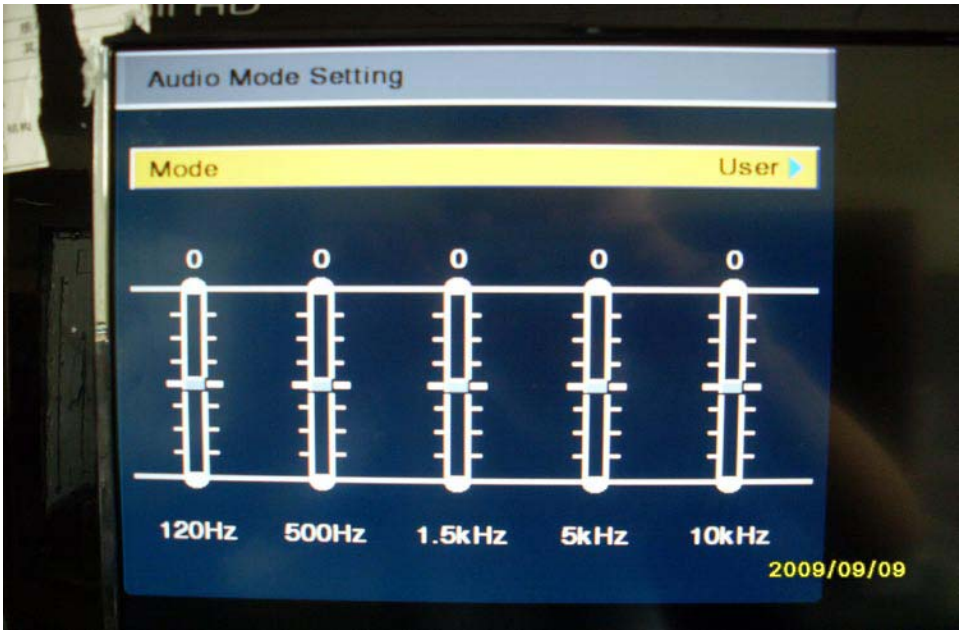


8-2-3. Whinte Balance/Color Temp

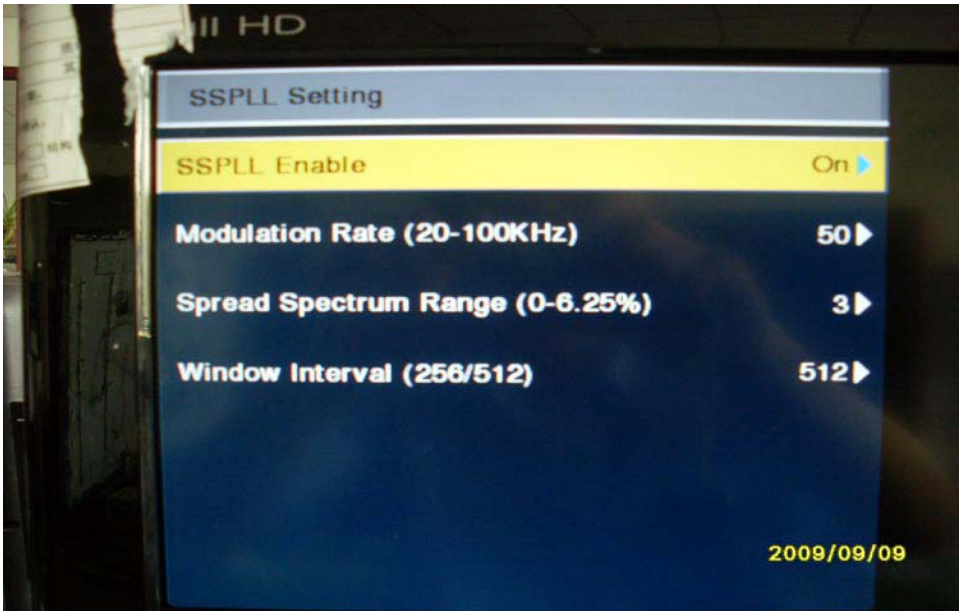
8-2-4. Picture Mode



8-2-5. Audio Mode

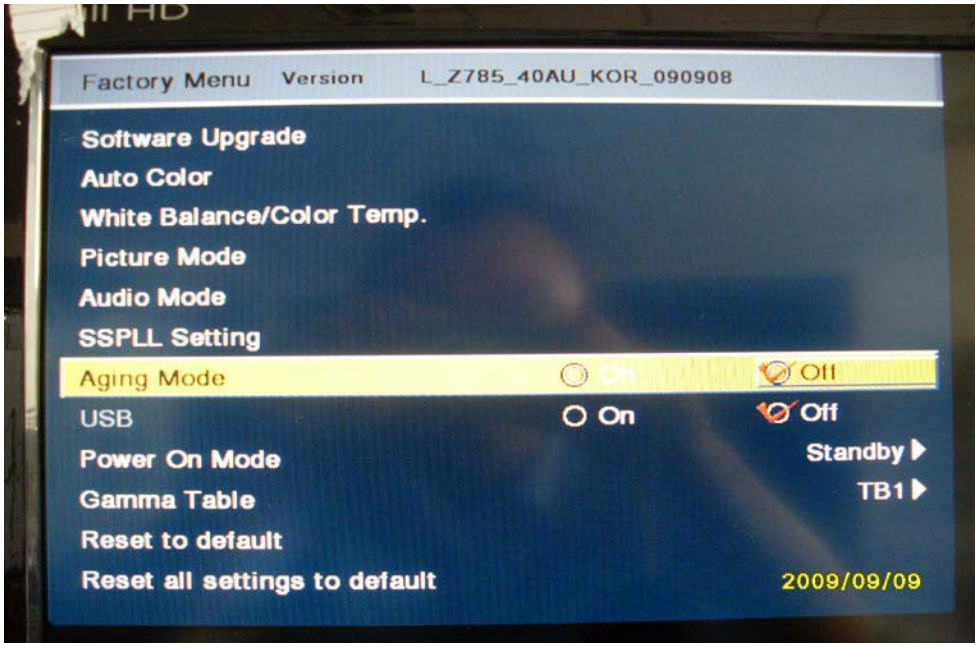


8-2-6. SSPLL Setting

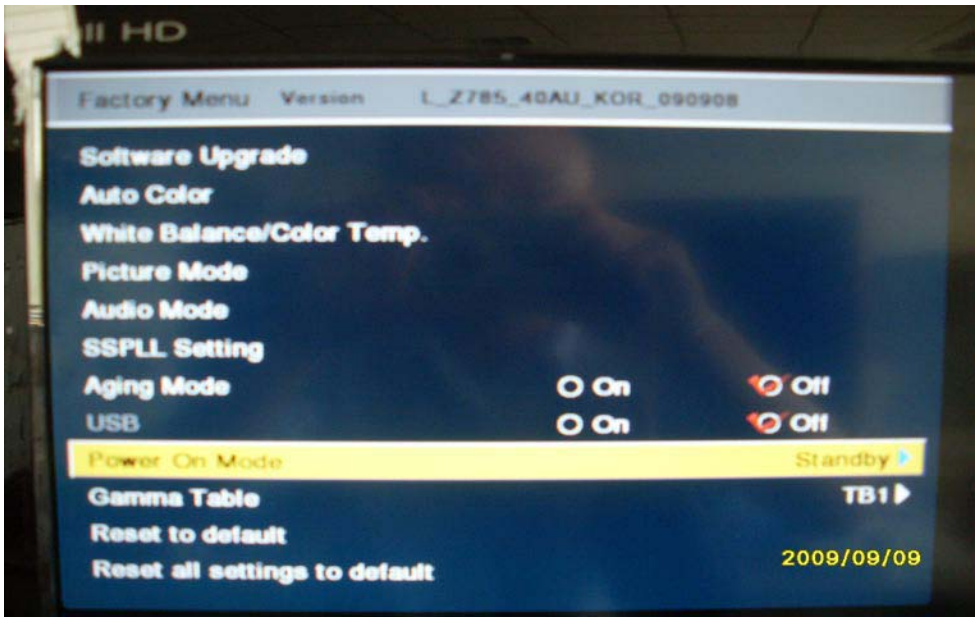


Tuner Diagnostic: Project debugging setting, used to inspect the audio function.

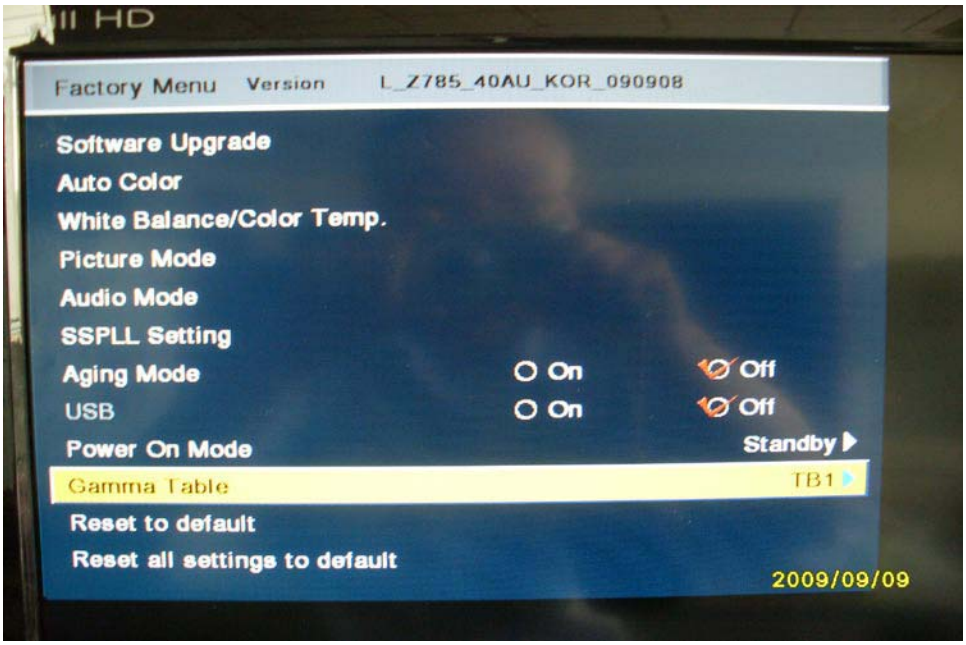
8-2-7. Aging Mode



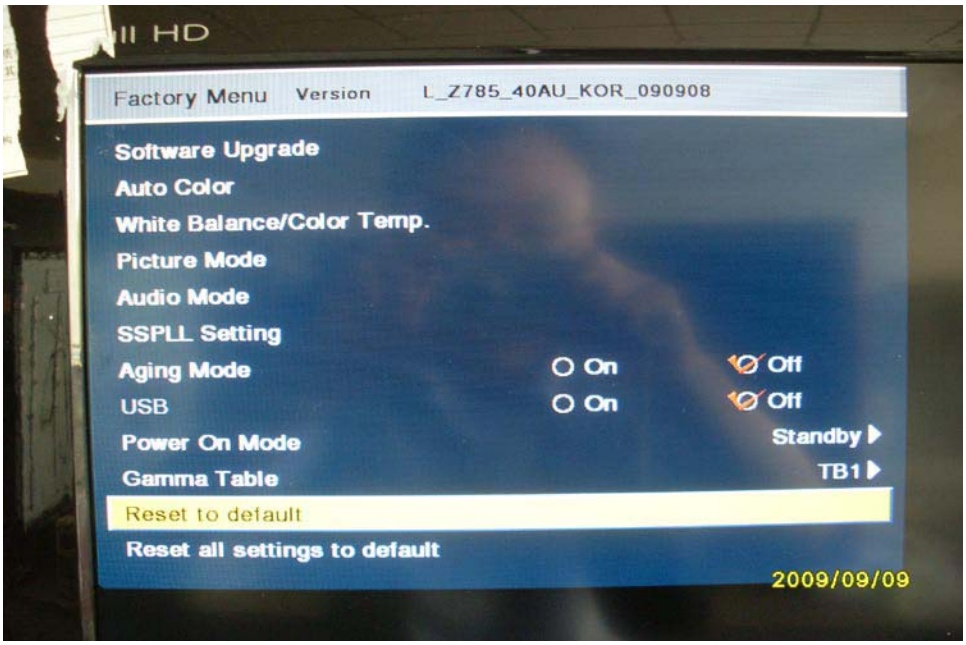
8-2-8. Power On Mode



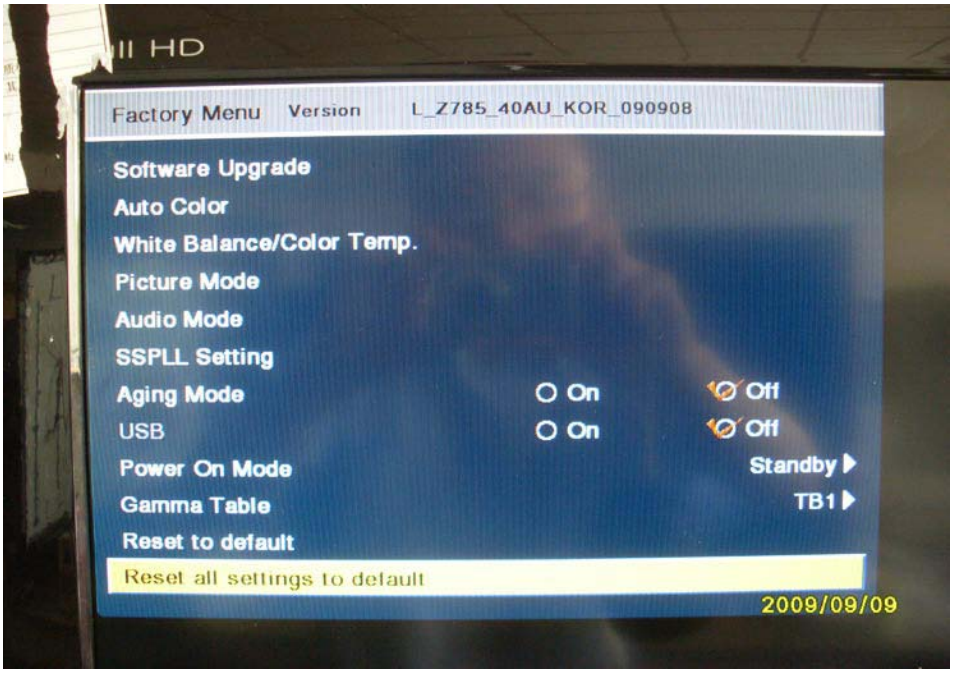
8-2-9. Camma Table



8-2-10. Reste to default



8-2-11. Reset all setting to default

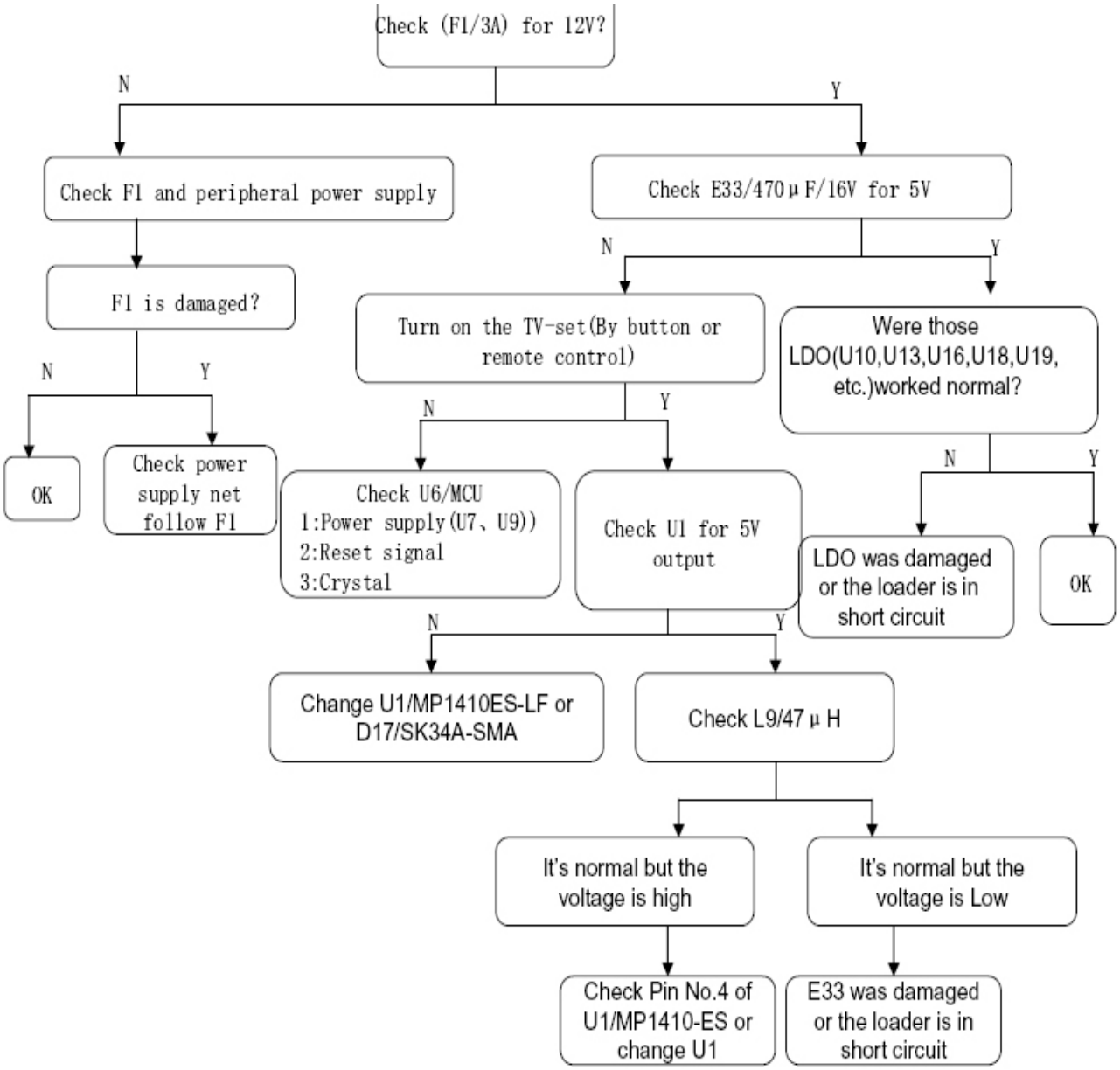


Chapter 9. Trouble shooting

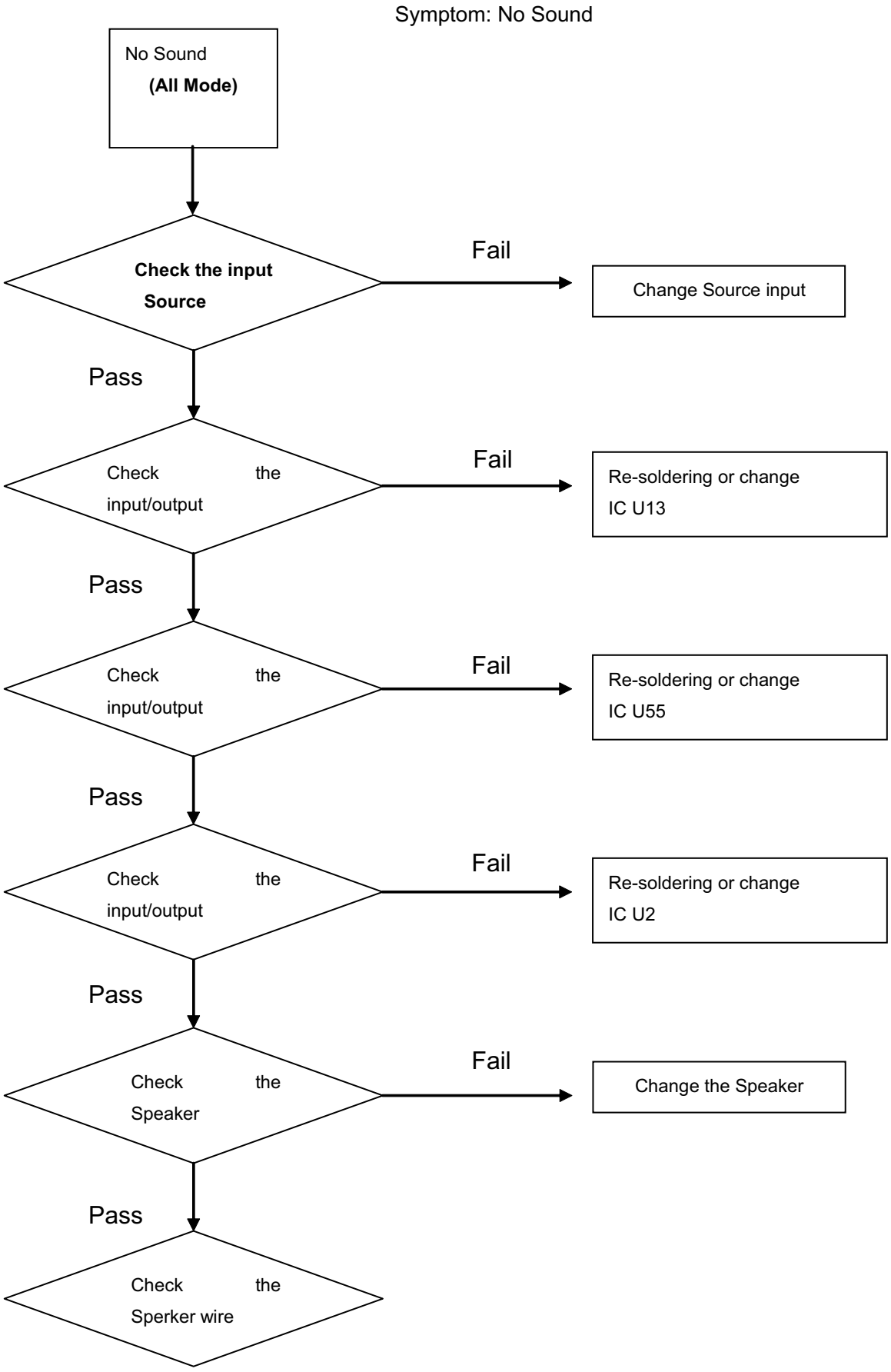
9-1. Simple check

No picture/ No sound	Verify if the television is properly plugged Verify if the television is properly supplied power Verify if electricity is available.
Blank screen	Verify if correct signals are input Press INPUT button to change signal input to TV input Restart the television of power supply is interrupted
No sound	Press Mute button and verify if Mute mode is set. Switch to otger channel and verify if the same problem happens. Press VOL+ button to see of he problem can be solved.
Poor sound	Verufy if sound system is correct .Refer to some chapter for adjust.
No picture in some channel	Verify if correct channel is selected. Adjust the antenna. Make adjustments by Fine Tune and MANUAL Scan.
No color for some channel program (black and white)	Verify if the same problem exists in other channels. check out of picture and sound system. Refer to relative instructions in the Manual for color adjust.
Spots with some or all pictures	Verify if the antennal is correctly connected. Verify if the antennal is in good condition. Make fine adjustment of channel.
Horizontal/ vertical bars or picture shaking	Check for local interference such as an electrical appliance or power tool.
Television out of control	Disconnect the television from power supply and 10 seconds later, connect the television to the power supply. If the problem still exists, contact authorized after-sales service for technical assistance.

9-2. Power Supply Board Failure Check.



9-3. Mainboard Failure Check

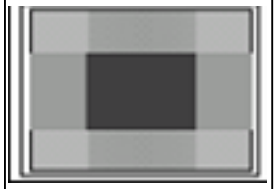


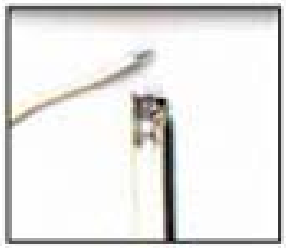
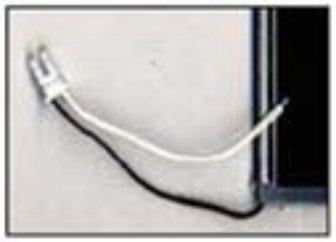
9-4. Pannel Failure

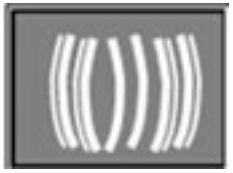
Failure Mode

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		
	H Dim	Horizontal gary line		
	H L/D	Horizontal line(light or dark forever)		

Part	Name	Description	Phenomena	Failure Cause
Panel or Polarlzer	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/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		

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		
	FIIcker	Crosstalk		LCD Vcom imbalance
	Abnormal Color	Only color abormal		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
	Mechanlcal Nolse	When turn panel,appear cacophony		Caused by Mechanica noise of backlight unit
	Ripple	Connectric circle		Causeed 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 badnessShort 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 bitween lamp housing and wire, Because consume power too much
	F/M	F/M inB/L ,white,balck Rotundity or wirelike		F/M in B/L unit

Part	Name	Description	Phenomena	Failure Cause
Mechanlcal 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

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