Haier SERVICE MANUAL

Order No.

LCD TV

Model No. L32F6
L42F6

MTK5363 **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.

Haier Group

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Chapter 1.General Information

1-1. Document Information

Document format: Adobe PDF
Author:
Compiler:

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 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.

12. Use only a grounded-tip soldering iron to solder or unsolder ES devices.

13. 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.

14. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.

15. 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).

16. 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.

17. 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	L32F6	L42F6
Screen size	31.5 inch	42 inch
Aspect ratio	16:9	16:9
Resolution	1366*768	1920*1080
Response Time (ms)	6.5ms	6.5ms
Angel of view	H:178/V:178	H:178/V:178
Contrast	3000:1	5000:1
Brightness	400cd/m2	500cd/m2
OSD language	English Portuguese Spanish	English Portuguese Spanish
Color system	PAL NTSC	PAL NTSC
Audio system	M N	M N
Audio output power(Built-in)(W)	2*8W	2*8W
Total power input (W)	130W	180W
Voltage range (V)	100-240V	100-240V
Power frequency (Hz)	50/60HZ	50/60HZ
Net weight(KG)	10(withstand)	17.5(withstand)
Gross weight(KG)	13(withstand)	24.6(withstand)
Net dimension(MM)	798*230*575 (withstand)	1020*300*697 (with stand)
Packaged dimension(MM)	870*265*655 (withstand)	1120*360*795 (withstand)

2-2. External pictures (four faces)

2-2-1 L32F6

Front Side

Left Side

Right Side

Back Side

2-2-2 L42F6

Front Side

Left Side

Right Side

Back Side

Chapter 3. Disassemble and Assemble

3-1. L32F6

3-1-1. Remove the Stand

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

② Remove the four screws from the rear cover indicated with ↙

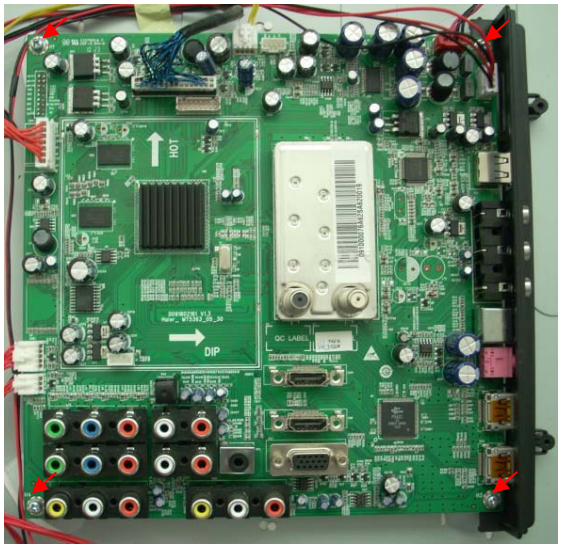
③ Then remove the stand.

3-1-2. Remove the Back Cover

① Remove the fourteen screws indicated on figure above by ↙

② Then remove the back cover from the unit.

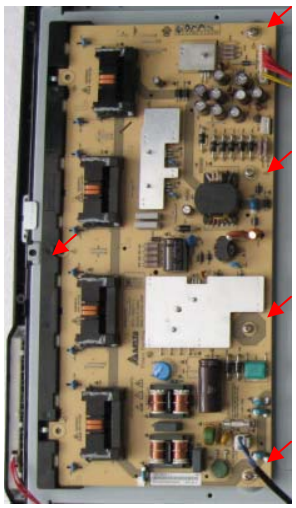
3-1-3. Remove the mainboard



① Remove the four screws indicated on the figure above by ↙

② Remove the Main board.

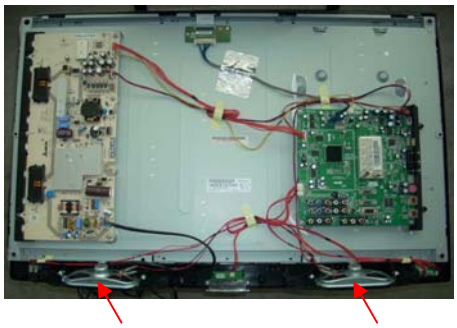
3-1-4. Remove the power supply



① Remove the five screws indicated on the figure above by ↙

② Then remove the power supply.

3-1-5. Remove the Speaker



Take out the speaker directly.

① Remove the six screws indicated on the figure above by ↙
② Then remove the panel.

3-1-6. Remove the remote control

Remove the screw,
take out the remote control board.

3-1-7. Remove the Ornamental Assembly

① Remove the two screws indicated on the figure above by ↙
② Then remove the Ornamental Light Assembly

3-1-8. Remove the Panel

3-2. L42F6

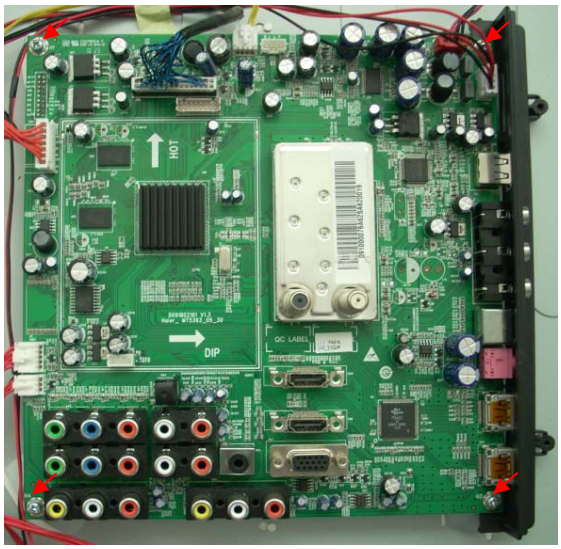
3-2-1. Remove the Stand

① Lay down the unit so that rear cover faces upward
② Remove the four screws from the rear cover indicated with ↙
③ Then remove the stand.

3-2-2. Remove the Back Cover

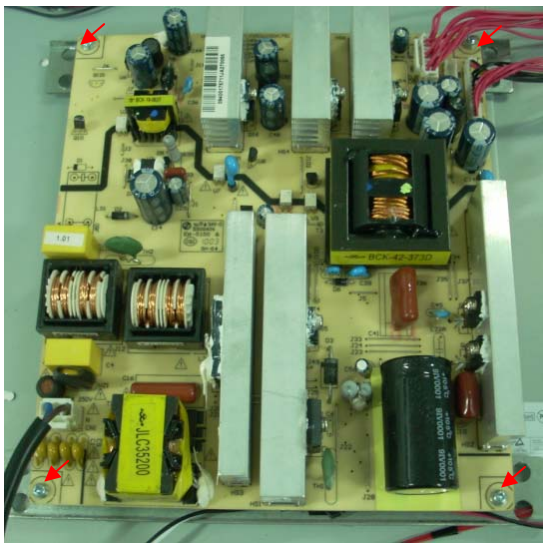
① Remove the twenty screws indicated on figure above by ↙
② Then remove the back cover from the unit.

3-2-3. Remove the mainboard and bracket of Side AV



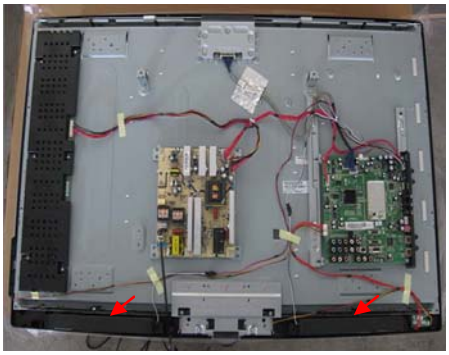
① Remove the four screws indicated on the figure above by ↙
② Remove the Main board.

3-2-4. Remove the power supply



① Remove the four screws indicated on the figure above by ↙
② Then remove the power supply.

3-2-5. Remove the Speaker

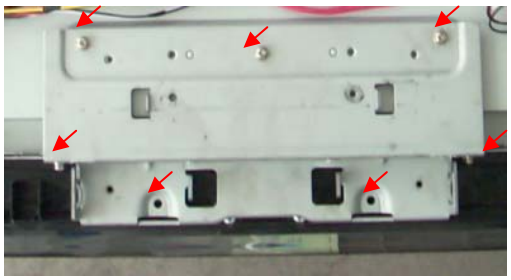


Take out the speaker indicated on the figure above by ↙ directly.

3-2-6. Remove the remote control

Remove the screw,
take out the remote control board.

3-2-7. Remove the Metal connecting board

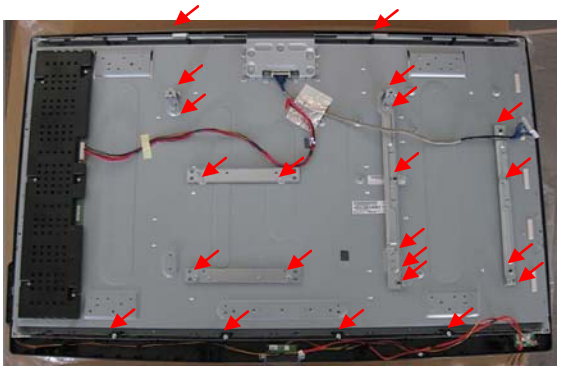


① Remove the seven screws indicated on the figure above by ↙
② Remove the Metal connecting board.

3-2-8. Remove the Ornamental Light Assembly

① Remove the two screws indicated on the figure above by ↙
② Then remove the Ornamental Light Assembly

3-2-9. Remove the panel bracket

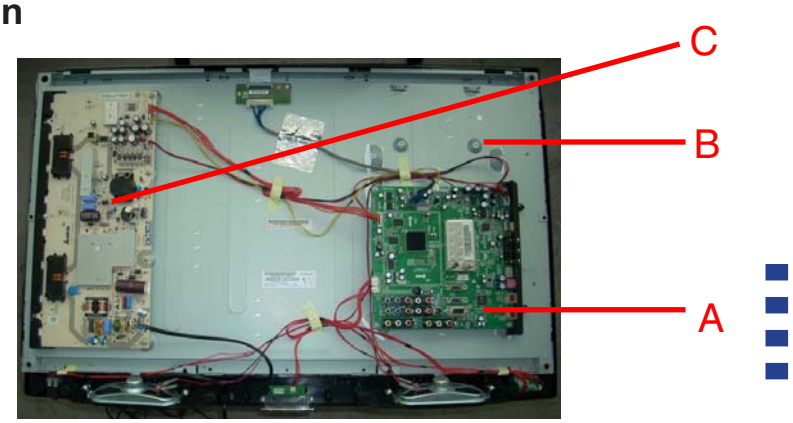


① Remove the twenty-two screws indicated on the figure above by ↙
② Remove the Panel Bracket and Metal Slice.
③ Then you can take off the Panel.

Chapter 4. Location of Controls and Components

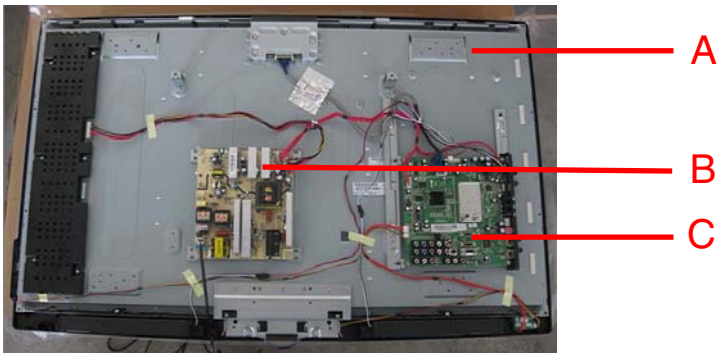
4-1. Board Location

4-1-1. L32F6



No.	Parts number	Description
A Board	DZ0YE0E0100M	Mainboard Assembly
B Board	0094001236DC	Panel
C Board	0094001274B	Power Supply

4-1-2. L42F6



No.	Parts number	Description
A Board	0094001165DE	Panel
B Board	0094001757	Power Supply
C Board	DZ0YF0E0100M	Mainboard Assembly

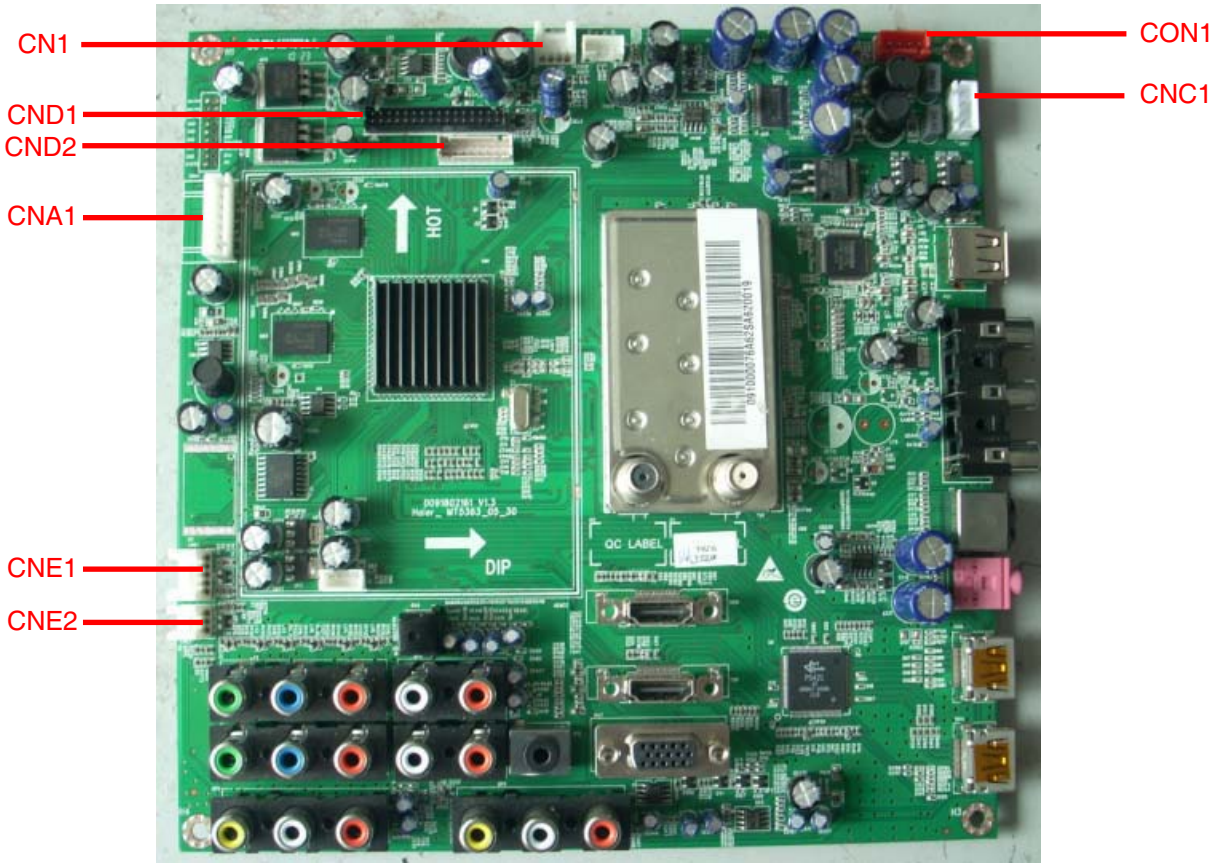
4-2.Mainboard

4-2-1. Function Description:

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

4-2-2.Connector definition

4-2-2-1.Mainboard of L32F6　L42F6



4-2-2-2.Connector definition

Power connectors (CNA1)

Pin number	Signal name	Description
1	PW-ON/OFF	ON/OFF
2	GND	GND
3	5VS	5V-Stand
4	GND	GND
5	GND	GND
6	12VA	12V-Mainboard
7	12VA	12V-Mainboard

Back light connectors (CN1)

Pin number	Signal name	Description
1	ADJ	Back light adjust
2	PBON	Back light ON/OFF
3	GND	GND
4	5VS	5VS

Power of audio anplifier connector (CON1)

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

Speaker connector (CNC1)

Pin number	Signal name	Description
1	L+	Left of audio
2	L-	Left of audio
3	L+	Right of audio
4	R+	Right of audio

Key connector (CNE2)

Pin number	Signal name	Description
1	GND	GND
2	KEY1	KEY1
3	KEY0	KEY0

Remote connector (CNE1)

Pin number	Signal name	Description
1	5V	5V
2	IRIN	IR IN
3	LEDR	LED-RED
4	LEDB	LED-BLUE
5	GND	GND

LVDS Connector (CND1)

Pin number	Signal name	Description	Pin number	Signal name	Description
1	GND	GND	17	GND	GND
2	GND	GND	18	GND	GND
3	B0+	BO+	19	ODSEL2	ODSEL2
4	B0-	BO-	20	ODSEL1	ODSEL1
5	B1+	B1+	21	B4-	B4-
6	B1-	B1-	22	B4+	B4+
7	GND	GND	23	PNL_SDA	PNL_SDA
8	GND	GND	24	PNL_CLK	PNL_CLK
9	B2-	B2-	25	GND	GND
10	B2+	B2+	26	GND	GND
11	BC-	BC-	27	VCC	VCC
12	BC+	BC+	28	VCC	VCC
13	GND	GND	29	VCC	VCC
14	GND	GND	30	VCC	VCC
15	B3-	B3-	31	BRI_IN	BRI_IN
16	B3+	B3+	32	PB-ADJUST	PB-ADJUST

LVDS Connector (CND2)

Pin number	Signal name	Description	Pin number	Signal name	Description
1	A0-	A0-	9	AC-	AC-
2	A0+	A0+	10	GND	GND
3	A1-	A1-	11	A3-	A3-
4	A1+	A1+	12	A3+	A3+
5	A2-	A2-	13	A4-	A4-
6	A2+	A2+	14	A4+	A4+
7	GND	GND	15	N/A	N/A
8	AC+	AC+	16	N/A	N/A

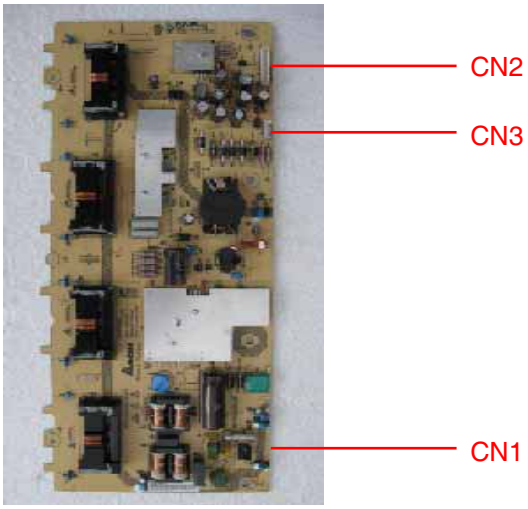
4-3. Power Supply Board

4-3-1. Function description:

To supply power for Mainboard, Panel.

4-3-2. Connector definition:

4-3-2-1.L32F6



CN2

PIN NUMBER	DESIGNATION
1	12V
2	12V
3	GND
4	GND
5	5VSTB
6	GND
7	STN
8	SEL
9	V-IPWM
10	BL-ON
11	V-EPWM

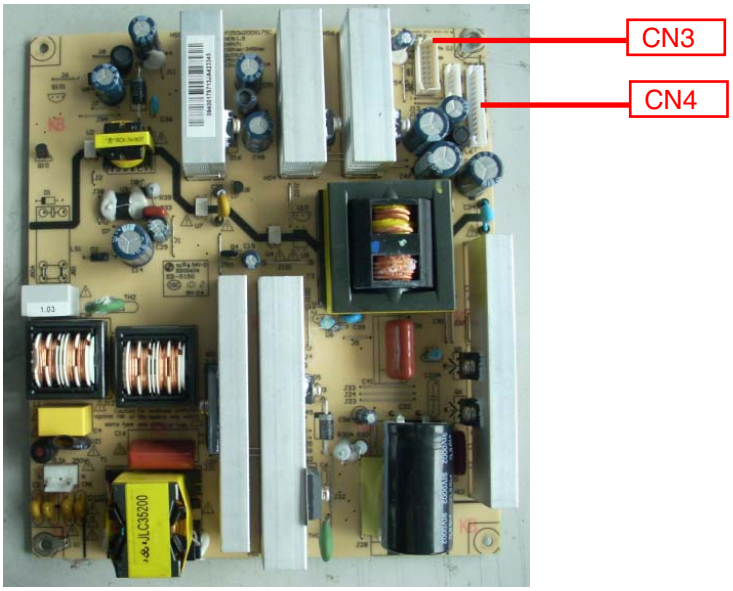
CN1

Pin number	Signal name
1	L
2	N

CN3

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

4-3-2-2.L42F6



CN3

Pin number	Signal name	Pin number	Signal name
1	24V	8	GND
2	24V	9	GND
3	24V	10	GND
4	24V	11	DC-DIMMING
5	24V	12	BL-ON/OFF
6	GND	13	PWM-DIMMING
7	GND	14	STATUS

CN4

Pin number	Signal name	Pin number	Signal name
1	12V	10	GND
2	P-ON/OFF	11	DC-DIMMING
3	12V	12	GND
4	24V	13	PWM-DIMMING
5	12V	14	GND
6	24V	15	BL-ON/OFF
7	GND	16	GND
8	GND	17	STATUS
9	GND	18	5V

4-4.LCD Panel

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

4-4-2. Connector definition

4-4-2-1.L32F6

BACKLIGHT CONNECTOR PIN CONFIGURATION :

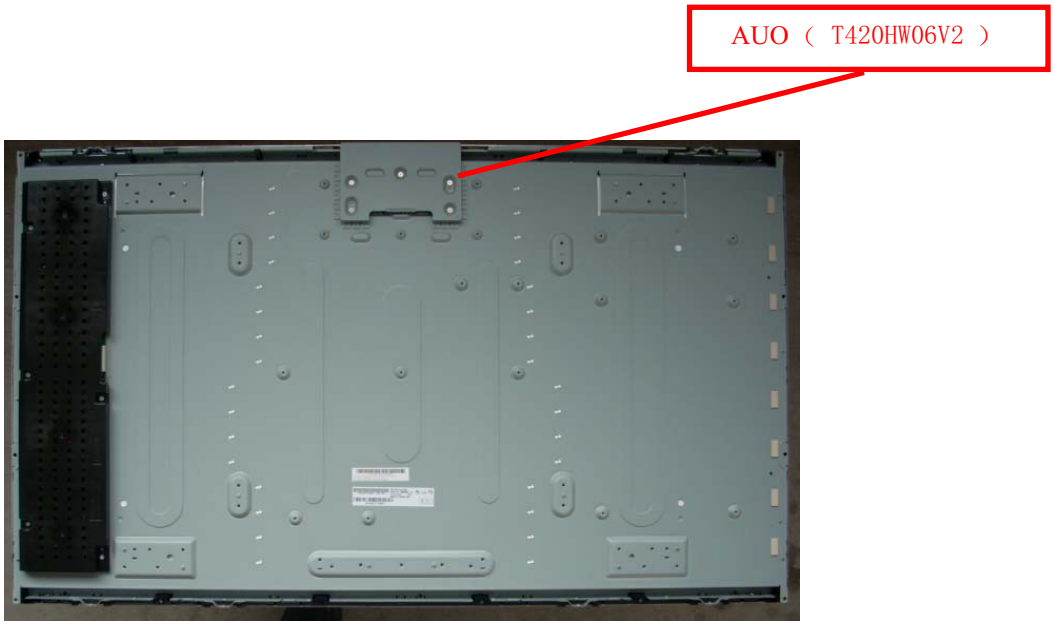
	Description		Min	Typ	Max	Unit	Condition/Note
1	Operating Voltage	Vo	639	710	781	Vrms	1. Dimming range is set 100% 2. Base on lamp specification, for each lamp need to be applied at least minimum operating voltage to ensure each lamp can be normally worked!
2	Operating Current	Io	12	12.5	13	mArms	1. Dimming range is set 100% 2. Base on lamp specification, for each lamp need to be applied at least minimum operating current to ensure each lamp can be normally worked!
3	BL Total Power Dissipation	PBL	76	**78**	80	Watt	1. Dimming range is set 100%. 2. In order to get typical light out, the backlight need to be applied typical power. 3. Input power of JIG BD is about 78 W (typ) by AUO measure!
4	Striking Voltage At 0℃	Vstrike	1500	1650		Vrms	1. Base on lamp specification, to ensure each lamp can be normally ignited, need to apply at least minimum striking voltage to each lamp
	Striking Voltage At 25℃		1350	1500			
5	Striking Time	Ts	1000	-	1500	msec	1. To ensure each lamp can be normally ignited, each lamp need to be applied at least minimum striking voltage during minimum striking time.
6	Operating Frequency	fo				kHz	1. Operating frequency is set by customer. 2. Need to double confirm display quality.(*)
7	PWM Operating Frequency	F_PWM	120	180	240	Hz	1. PWM frequency is set by customer. 2. Need to double confirm display quality.(*)
8	PWM Dimming Duty Ratio	D_PWM	**20**	-	**100**	%	**Note 1. Dimming range** **Note 2.** **Note 3. Duty ratio definition.**
9	Lamp Type		U type				
10	Number of Lamps		4			pcs	

LVDS:

Connector on Panel: **093G30-B0001A-1** (Manufactured by Starconn)

Pin No	Symbol	Description	Default
1	VCC	+12V, DC, Regulated	
2	VCC	+12V, DC, Regulated	
3	VCC	+12V, DC, Regulated	
4	VCC	+12V, DC, Regulated	
5	GND	Ground and Signal Return	
6	GND	Ground and Signal Return	
7	GND	Ground and Signal Return	
8	GND	Ground and Signal Return	
9	LVDS Option	Low/Open for Normal (NS), High for JEIDA	NS mode
10	Reserved	Open	AUO internal test
11	GND	Ground and Signal Return for LVDS	
12	RIN0-	LVDS Channel 0 negative	
13	RIN0+	LVDS Channel 0 positive	
14	GND	Ground and Signal Return for LVDS	
15	RIN1-	LVDS Channel 1 negative	
16	RIN1+	LVDS Channel 1 positive	
17	GND	Ground and Signal Return for LVDS	
18	RIN2-	LVDS Channel 2 negative	
19	RIN2+	LVDS Channel 2 positive	
20	GND	Ground and Signal Return for LVDS	
21	RCLK-	LVDS Clock negative	
22	RCLK+	LVDS Clock positive	
23	GND	Ground and Signal Return for LVDS	
24	RIN3-	LVDS Channel 3 negative	
25	RIN3+	LVDS Channel 3 positive	
26	GND	Ground and Signal Return for LVDS	
27	Reserved	Open or High	AUO internal test
28	Reserved	Open or High	AUO internal test
29	GND	Ground and Signal Return	
30	GND	Ground and Signal Return	

4-4-2-2.L42F6



INVERTER UNIT

Symbol	Description
VDDB (Main Power)	DV input 24.0 VDC
VDDB (Main Power)	DV input 24.0 VDC
VDDB (Main Power)	DV input 24.0 VDC
VDDB (Main Power)	DV input 24.0 VDC
VDDB (Main Power)	DV input 24.0 VDC
GND	Ground
GND	Ground
GND	Ground
GND	Ground
GND	Ground
Reserved	Please leave it open
VBLON (Enable Pin)	BL On/Off control signal High/Open: On, Low: Off (Low=0~ 0.8V, High=2.0~5.0V)
VDIM	Internal PWM (3.3V,100% duty)/open for 100% luminance, 0V : 10% duty
NC	

LVDS connector

P-TWO 187059-5122 which is compatible FI-RE51S-HF (JAE)

No	Symbol	Description	No	Symbol	Description
1	GND	Ground	27	GND	Ground
2	NC	No connection	28	RE0N	SECOND CHANNEL 0-
3	NC	No connection	29	RE0P	SECOND CHANNEL 0+
4	NC	No connection	30	RE1N	SECOND CHANNEL 1-
5	NC	No connection	31	RE1P	SECOND CHANNEL 1+
6	Reserved		32	RE 2N	SECOND CHANNEL 2-
7	LVDS SEL	LVDS order	33	RE 2P	SECOND CHANNEL 2+
8	NC	No connection	34	GND	Ground
9	Reserved		35	RECLKN	SECOND CLOCK CHANNEL C-
10	Reserved		36	RECLKP	SECOND CLOCK CHANNEL C+
11	GND	Ground	37	GND	Ground
12	RO 0N	FIRST CHANNEL 0-	38	RE3N	SECOND CHANNEL 3-
13	RO 0P	FIRST CHANNEL 0+	39	RE3P	SECOND CHANNEL 3+
14	RO 1N	FIRST CHANNEL 1-	40	NC	No connection
15	RO 1P	FIRST CHANNEL 1+	41	NC	No connection
16	RO 2N	FIRST CHANNEL 2-	42	GND	Ground
17	RO 2P	FIRST CHANNEL 2+	43	GND	Ground
18	GND	Ground	44	GND	Ground
19	ROCLKN	FIRST CLOCK CHANNEL C-	45	GND	Ground
20	ROCLKP	FIRST CLOCK CHANNEL C+	46	GND	Ground
21	GND	Ground	47	NC	No connection
22	RO 3N	FIRST CHANNEL 3-	48	VLCD	Power Supply +12V
23	RO 3P	FIRST CHANNEL 3+	49	VLCD	Power Supply +12V
24	NC	No connection	50	VLCD	Power Supply +12V
25	NC	No connection	51	VLCD	Power Supply +12V
26	GND	Ground	-	-	-

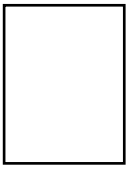
Note: 1. All GND (ground) pin should be connected together to the LCD module's metal frame.

2. All V_{LCD} (power input) pins should be connected.

Chapter 5. Installation Instructions

5-1. Accessories

Remote control



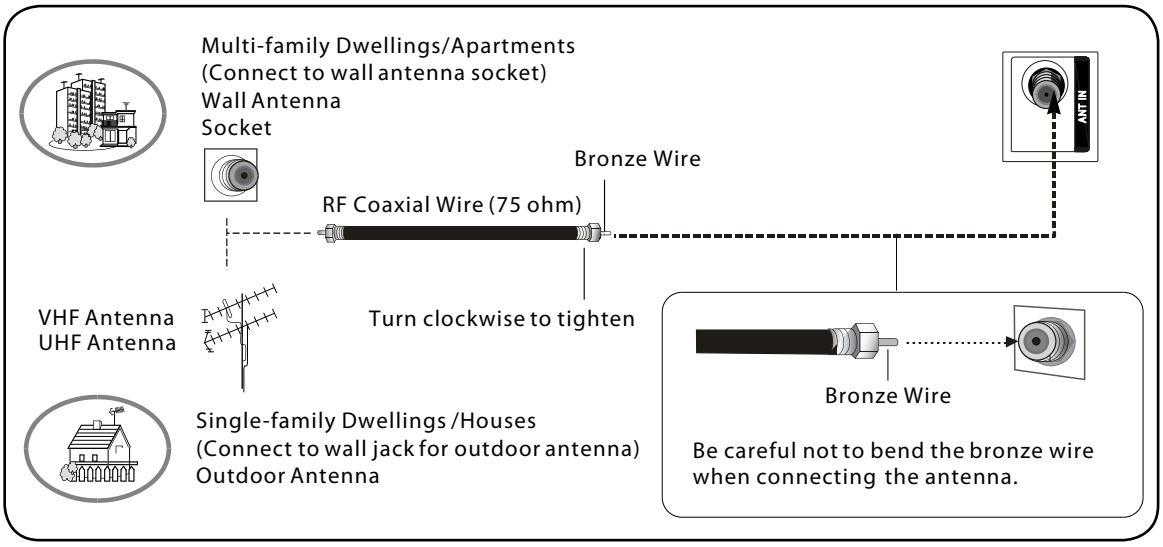
Owner's manual

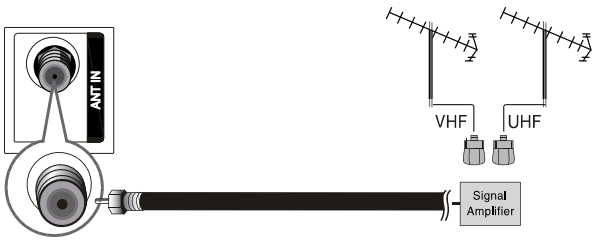
Alkaline battery (AAA) x2

5-2. External Equipment Connections

Antenna Connection

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.

Note

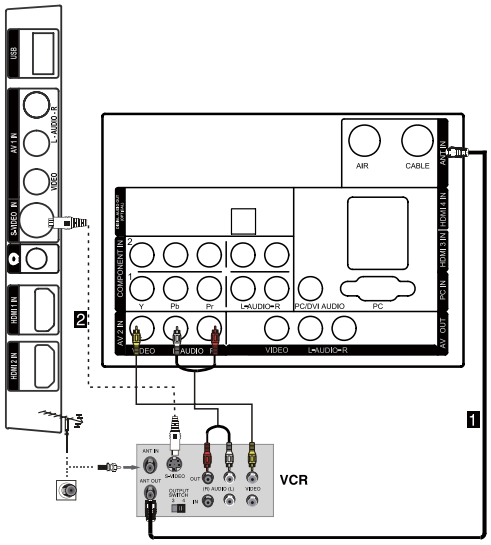
❑ All cables shown are not included with the TV.

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.

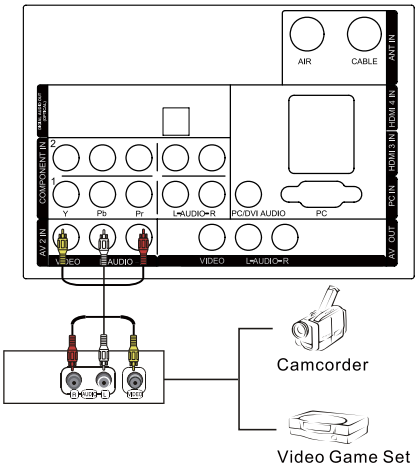
Connection Option 2

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 **OK** button to confirm.

External AV 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

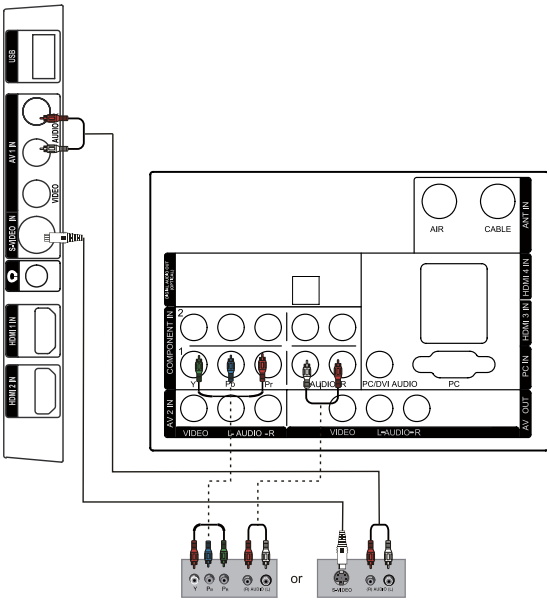
1. Select the input source with using the **INPUT** button on the remote control.
2. Press **CH+/-** button to select the desired source.
3. Press **OK** button to confirm.
4. Operate the corresponding external equipment.

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.



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

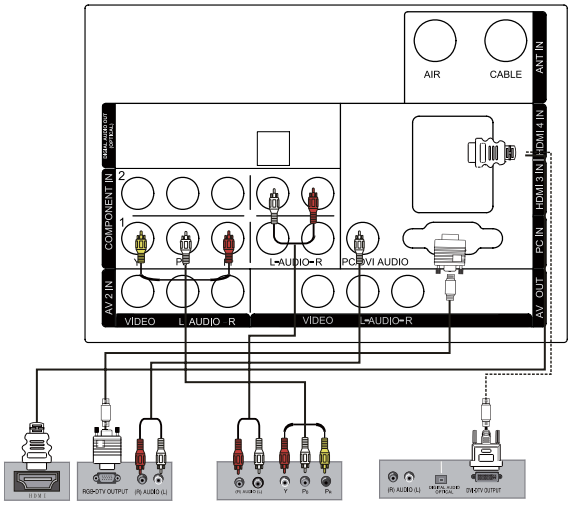
Connecting a digital audio output

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.

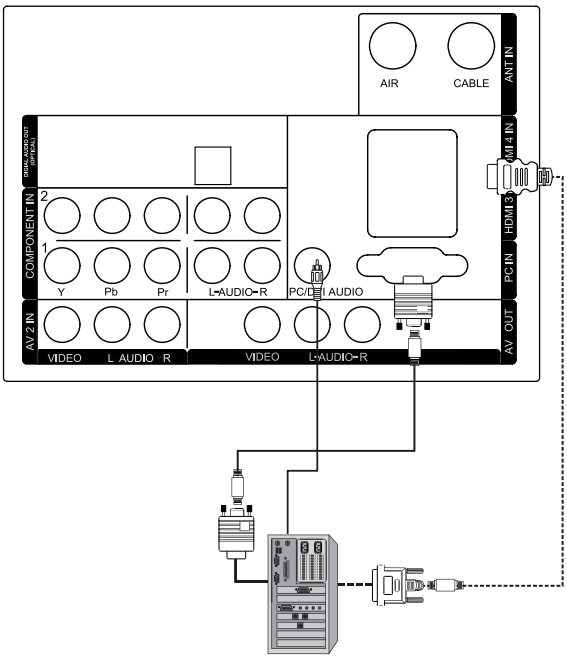
⚠ Caution:

- 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 1280×1024.
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.

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

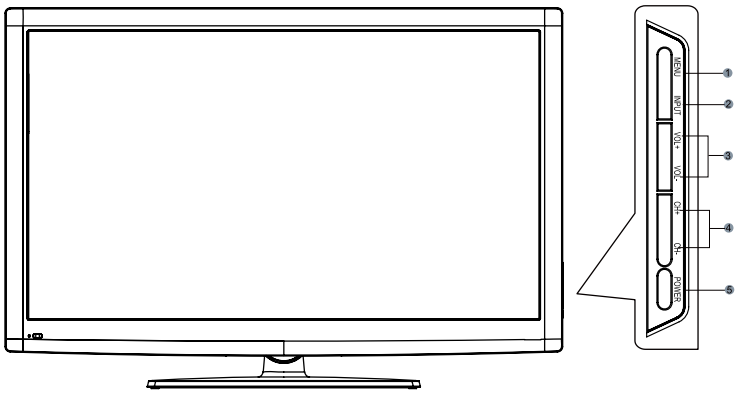
- If the source device supports Auto DVI function, the output resolution of the source device will be automatically set to 1280×720p.
- If the source device does not support Auto DVI, you need to set the output resolution appropriately. To get the best picture quality, adjust the output resolution of the source device to 1280×720p.
- Press the **INPUT** button to select HDMI input source in input source option of Select Main source menu.

Chapter 6. Operation Instructions

6-1. Get to know your TV

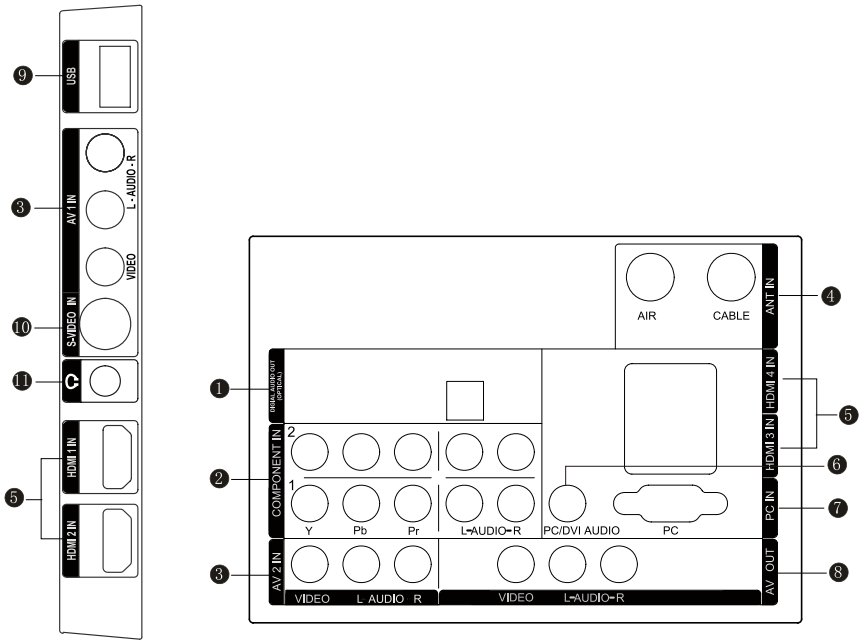
- This is a simplified representation of front panel.
- Here shown may be somewhat different from your TV.

TV Side panel controls and connections



①	**MENU**	Menu display. Press to access the on-screen menu display.
②	**INPUT**	Press this key to open/close signal source options menu.
③	**VOL +/-**	Press to adjust the volume. In the **MENU** screen, these buttons serve as right/left 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.

Back panel connections



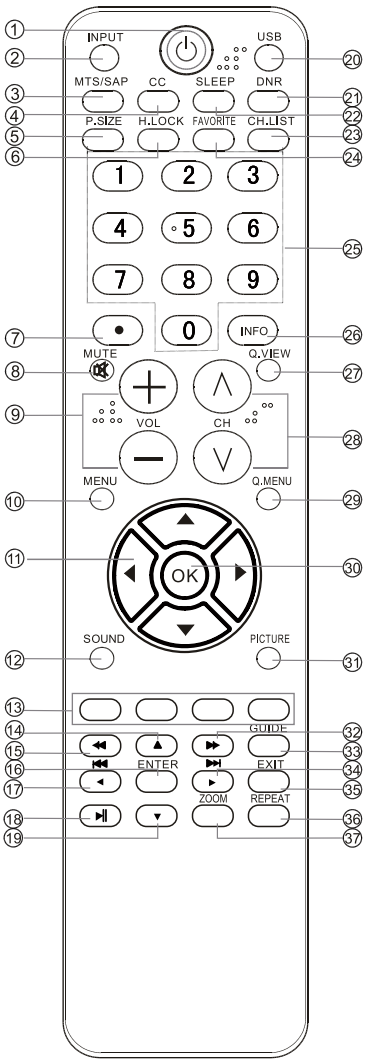
①	**DIGIAL AUDIO OUT(OPTICAL)**	Connect a component Video/Audio device to these jacks.
②	**Component IN**	Connect a component Video/Audio device to these jacks.
③	**AV IN**	Connect Video/Audio out from an Video/Audio device to these jacks.
④	**ANT IN**	Connect cable or antenna signal to the TV, either directly or through your cable box .
⑤	**HDMI IN**	Connect a HDMI device to receive digital audio and uncompressed digital video.
⑥	**PC/DVI Audio In**	Connect the audio L/R cables from a computer to this jack.
⑦	**PC IN**	Connect the monitor output connector from a PC to the jack.

⑧	**AV OUT**	Video/Audio output terminal.
⑨	**USB jack**	Connect USB storage device to this jack.
⑩	**S-Video In**	Connect the S-Video cable from an external signal source to this jack.
⑪	**Headphone jack**	Headphone audio output terminal.

6-2. Get to know your remote control

Remote control

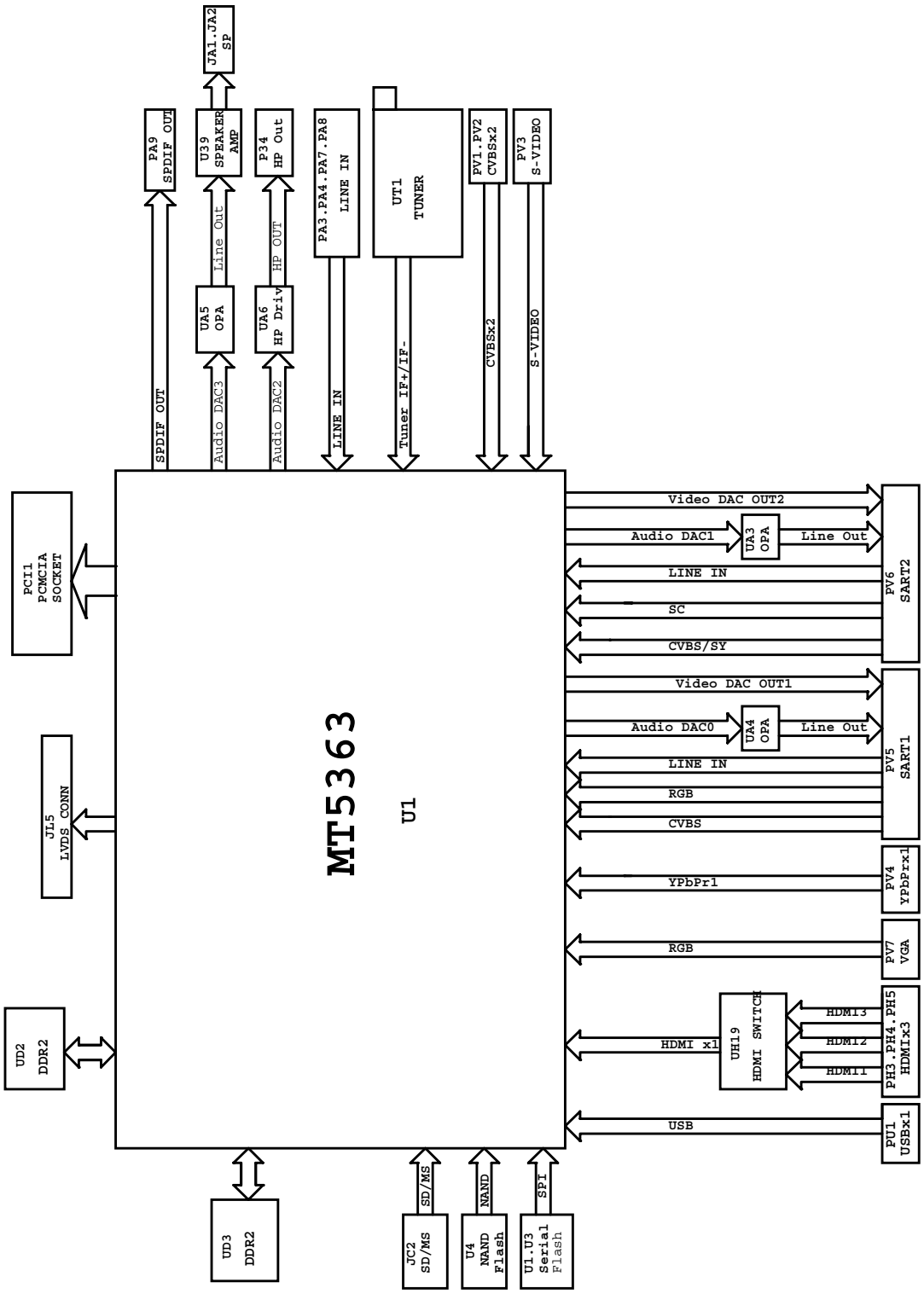
The remote control cannot be operated unless the batteries are properly loaded.
When using the remote control, aim it at the remote sensor on the TV.



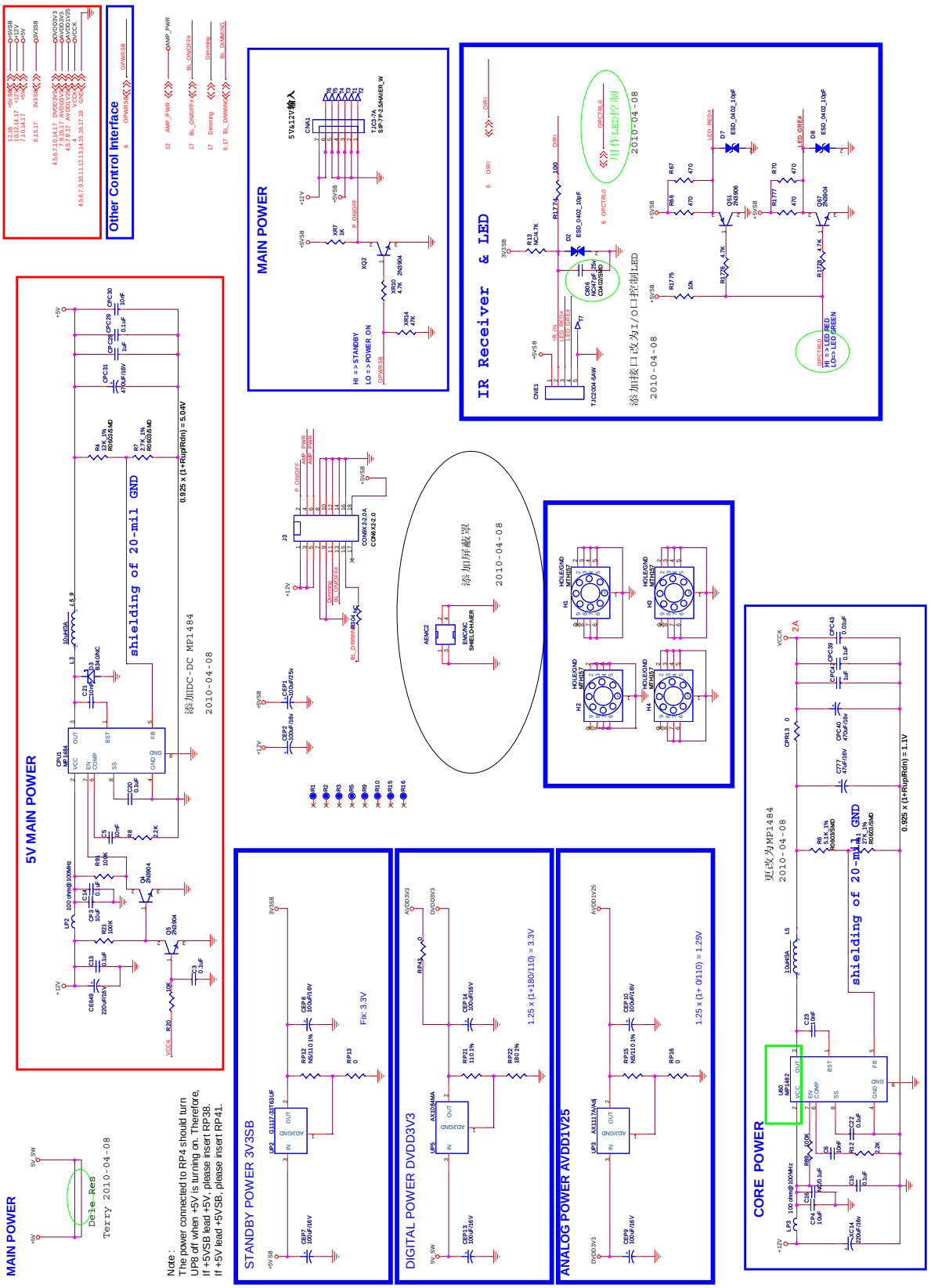
①	**Power**	Press to turn on and off the TV
②	**INPUT**	Show the input source
③	**MTS/SAP**	Select MONO, STEREO, SAP
④	**CCD (closed caption)**	Select a closed caption option
⑤	**P.SIZE**	Select the aspect ratio
⑥	**H.LOCK**	Hotel Lock button
⑦	**• button**	Press to select digital channels. For example, to enter "54-3", press "54","• " and "3"
⑧	**MUTE**	Switches the sound on or off
⑨	**VOLUME UP/DOWN**	Press to adjust the volume
⑩	**MENU**	Press to open the on-screen menu
⑪	**Thumbstick (Up/Down/ Left/Right)**	Allows you to navigate the on-screen menus and adjust the system settings to your preference
⑫	**SOUND**	Press to cycle through different sound settings
⑬	**Color button**	Press to operate the Functions in GUIDE/Program Edit/Block Program/USB
⑭ ⑰ ⑲ ㉞	**Thunbstick(USB)**	Allows you to navigate the on-screen menus in USB function,and 17 for Previous, 34 for Next;
⑮	**REV**	Fast Reverse (Only for USB)
⑯	**ENTER**	Confirm button (Only for USB)
⑱	**Play/Pause button**	(Only for USB)
⑳	**USB**	Press to switch input source to USB in
㉑	**DNR**	Digital Noise Reduction
㉒	**SLEEP button**	Press to display the sleep timer option
㉓	**CH.LIST**	Open the channel list in TV
㉔	**FAVORITE**	Open the favourite channel list in TV
㉕	**Number buttons**	Press to change a channel
㉖	**INFO**	Show Informations about the programs and USB files
㉗	**Q.VIEW**	Press to jump back and forth between two channels
㉘	**CHANNEL UP/DOWN**	Channel selection(up/down)
㉙	**Q.MENU**	Adjust some functions in common use
㉚	**OK**	Accesses the highlighted item in the on-screen menu
㉛	**PICTURE**	Press repeatedly to cycle through the available picture modes
㉜	**FWD**	Fast forward(Only for USB)
㉝	**GUIDE**	Display the guide when you are watching digital channels
㉟	**EXIT**	Clears all on-screen displays and returns to TV viewing from any menu
㊱	**REPEAT**	Replay a music or movie
㊲	**ZOOM**	Press to magnify/minify an image

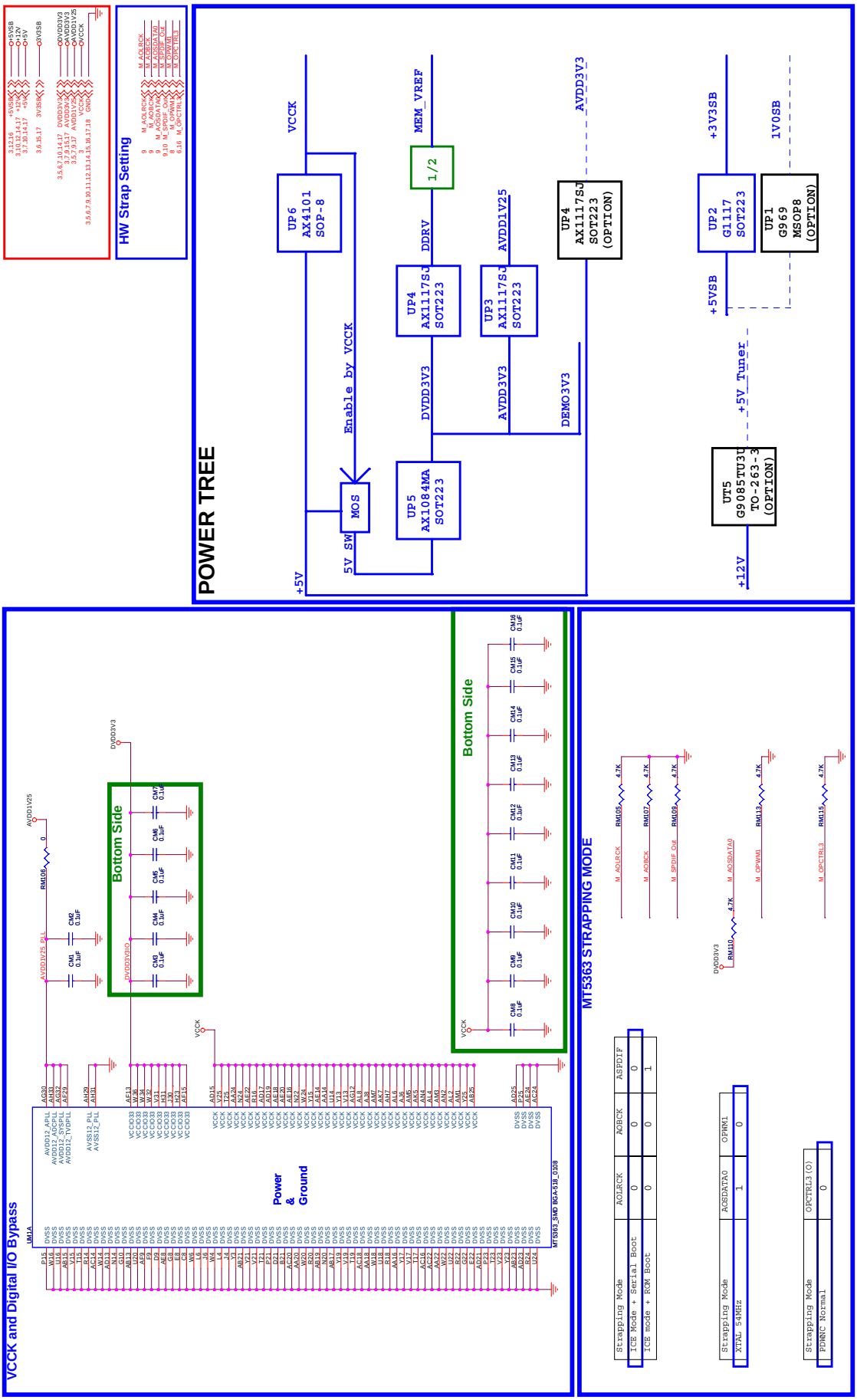
Chapter 7. Electrical Parts

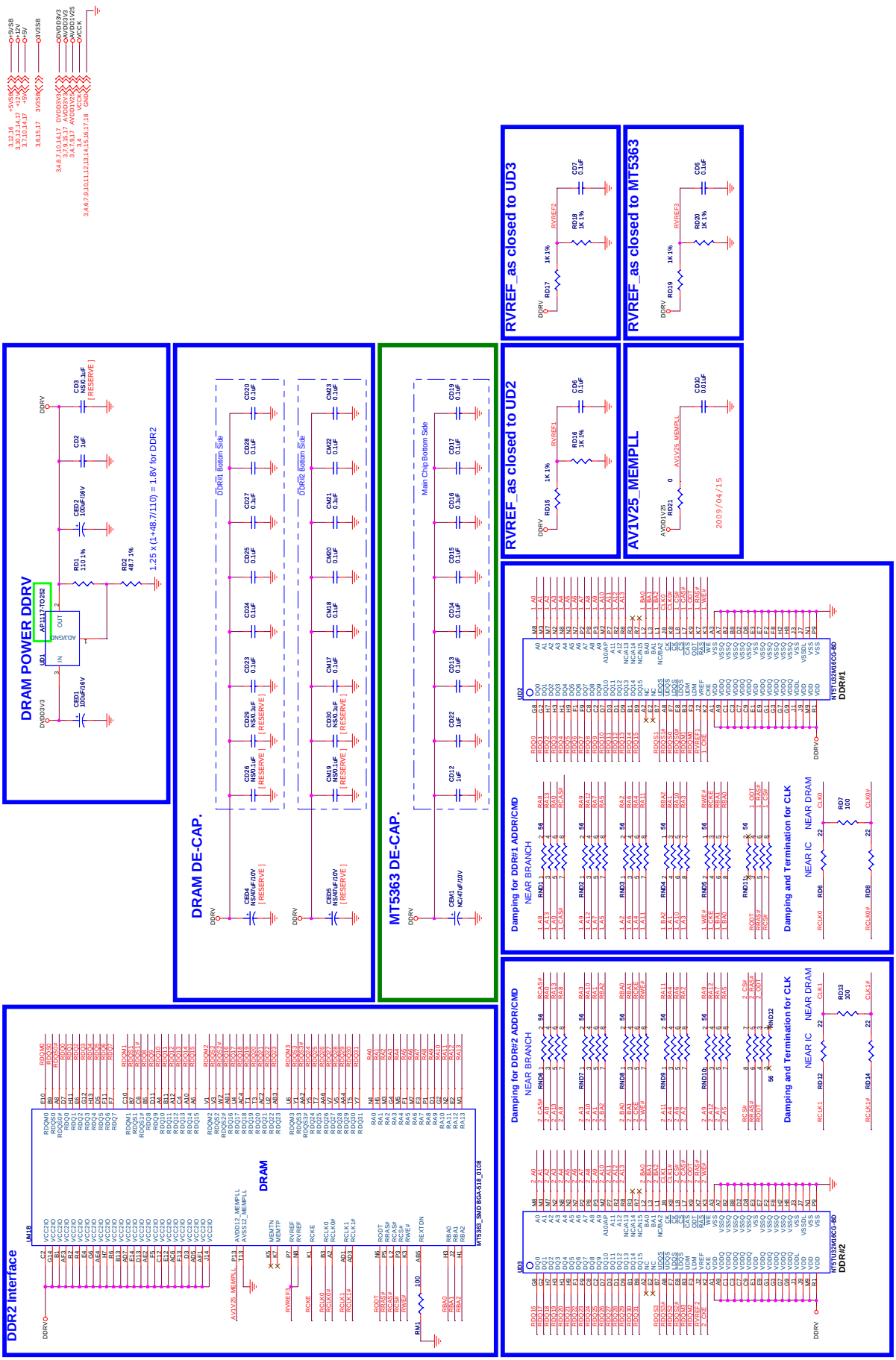
7-1. Block Diagram

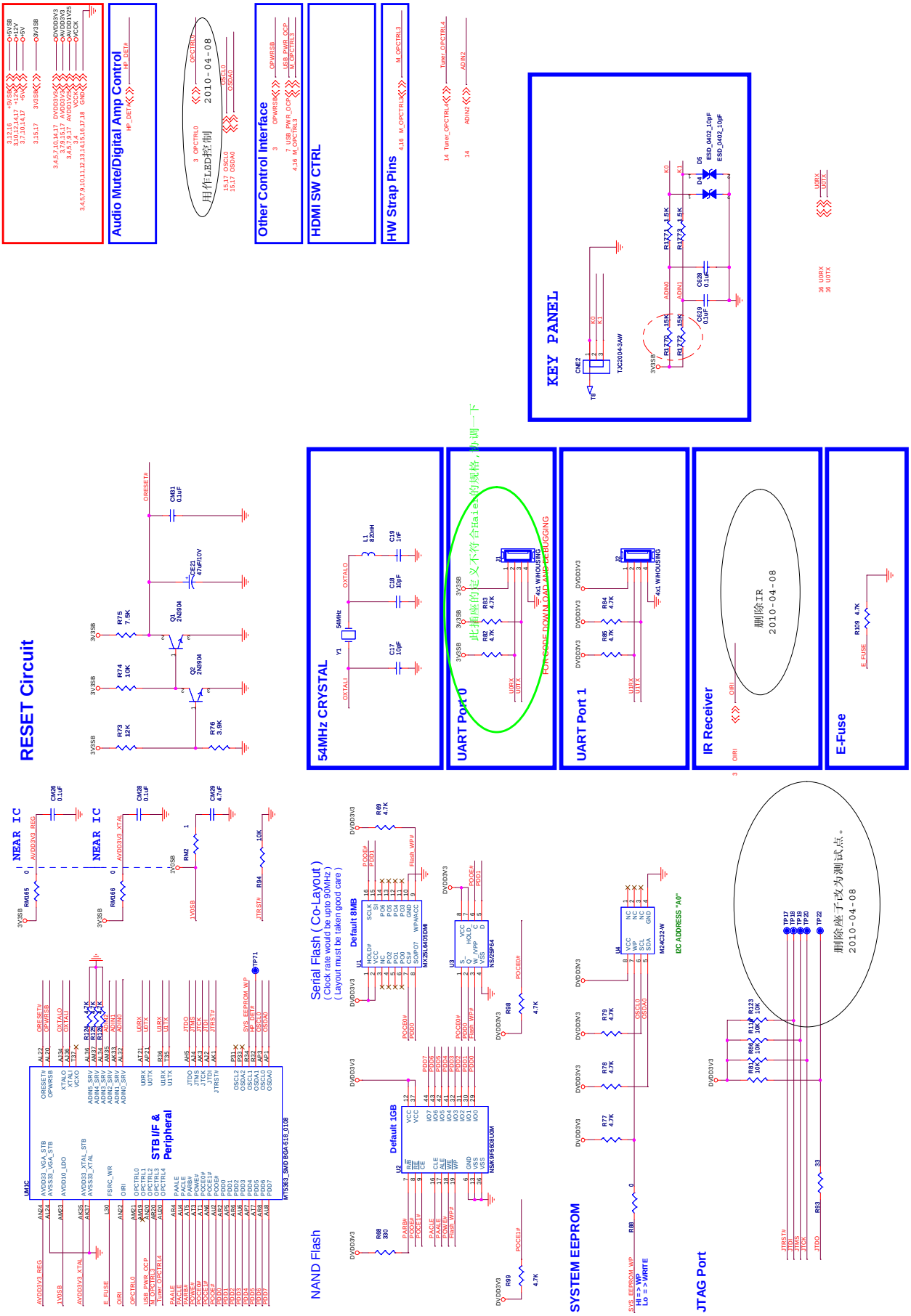


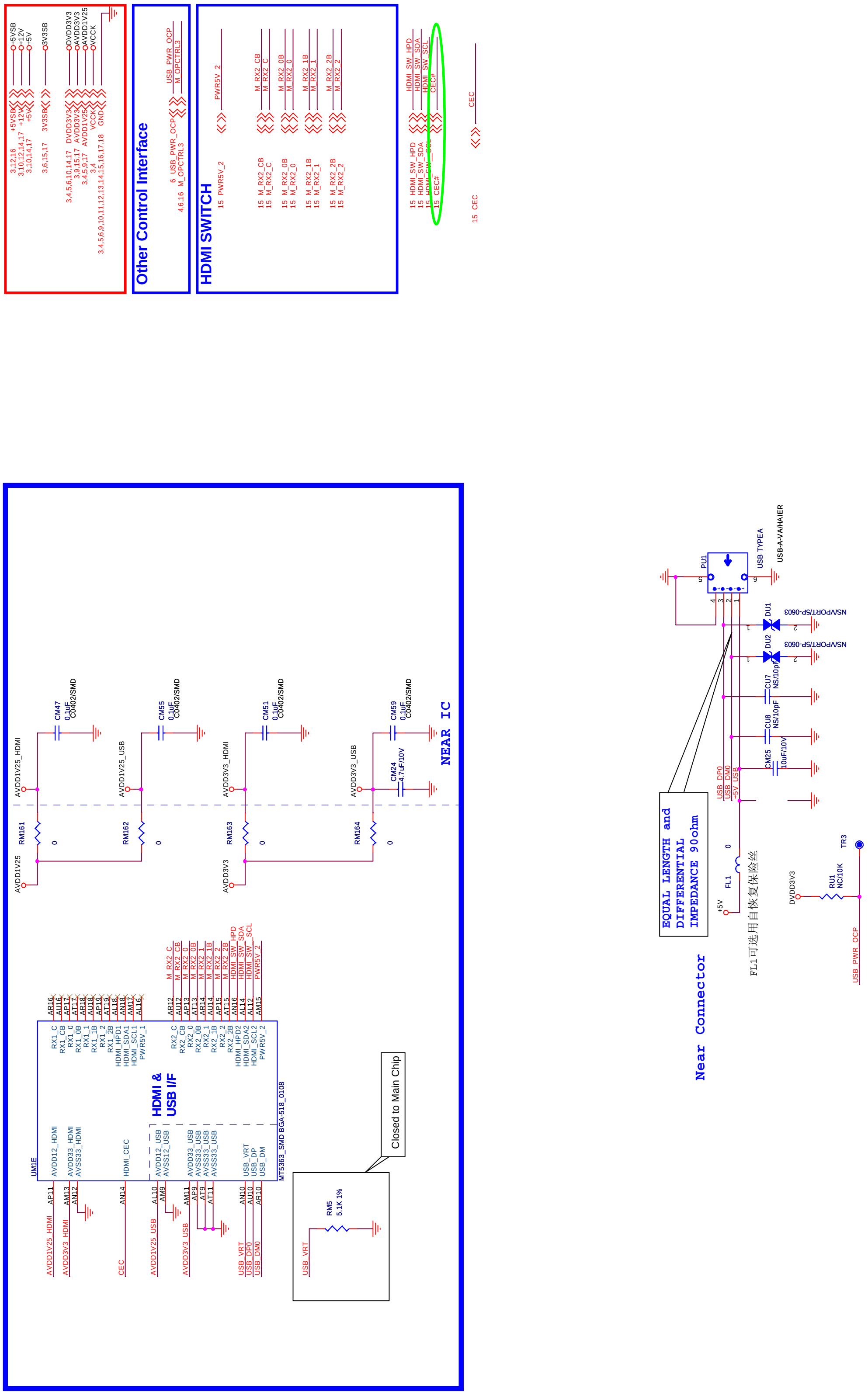
7-2. Circuit Diagram

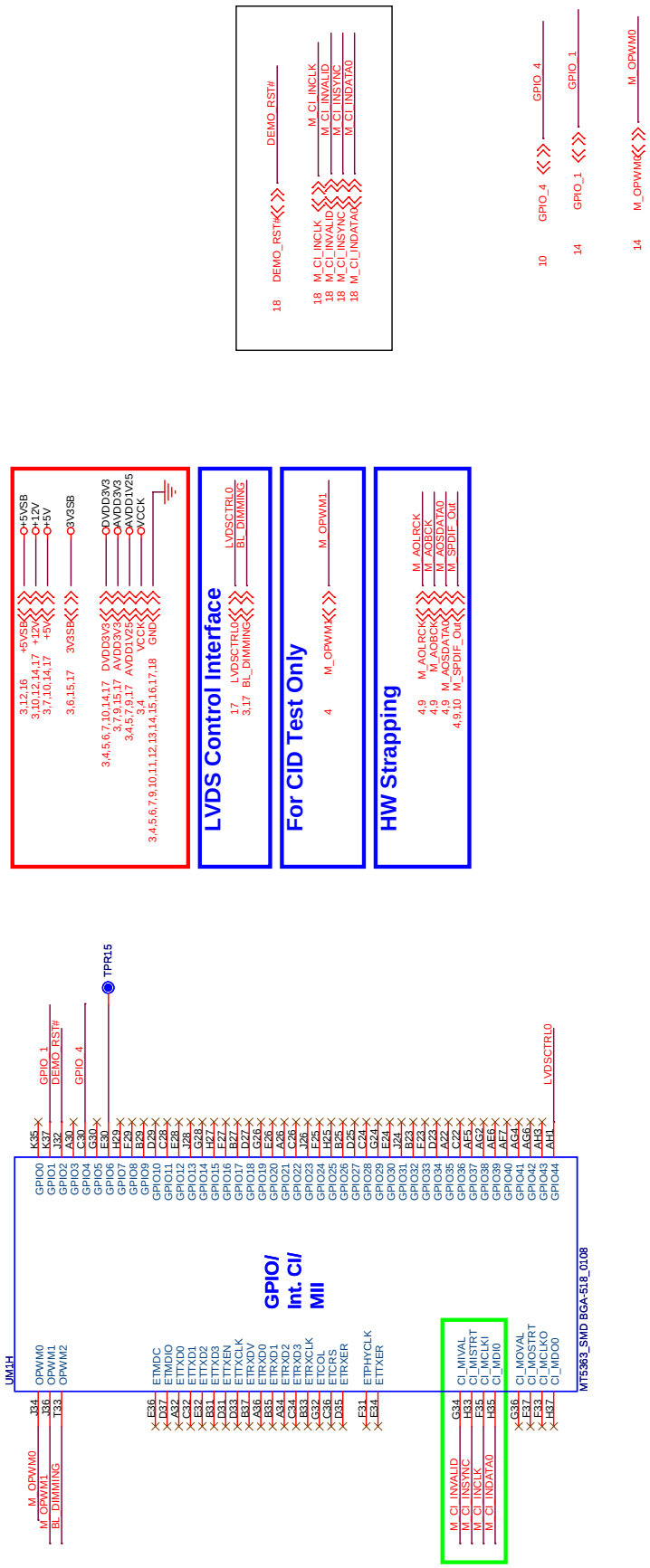


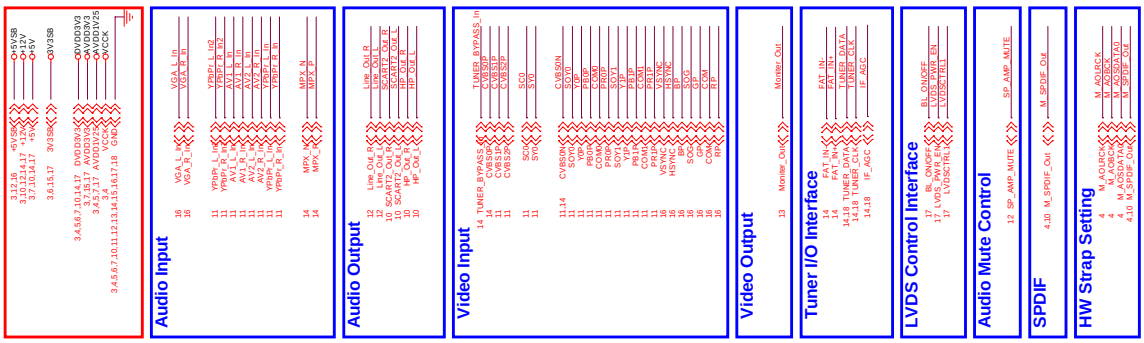

POWER TREE
HW Strap Setting
VCCK and Digital I/O Bypass
Bottom Side
Power & Ground
MT5363 STRAPPING MODE
Enable by VCCK
+5V
5V_SW
VCCK
MEM_VREF
DDRV
DVDD3V3
AVDD3V3
AVDD1V25
DEMO3V3
AVDD3V3
+5VSB
+5V_Tuner
+12V
+3V3SB
1V0SB
UP1 G969 MSOP8 (OPTION)
UP2 G1117 SOT223
UP3 AX1117SJ SOT223
UP4 AX1117SJ SOT223
UP4 AX1117SJ SOT223 (OPTION)
UP5 AX1084MA SOT223
UP5 G9085TU3U TO-263-3 (OPTION)
UP6 AX4101 SOP-8
MOS
1/2
Strapping Mode
ICE Mode + Serial Boot
ICE mode + ROM Boot
AOLRCK
AOBCK
ASPDIF
AGEDATA0
OPWM1
XTAL 54MHz
OPCTRL3(O)
PDNRC Normal

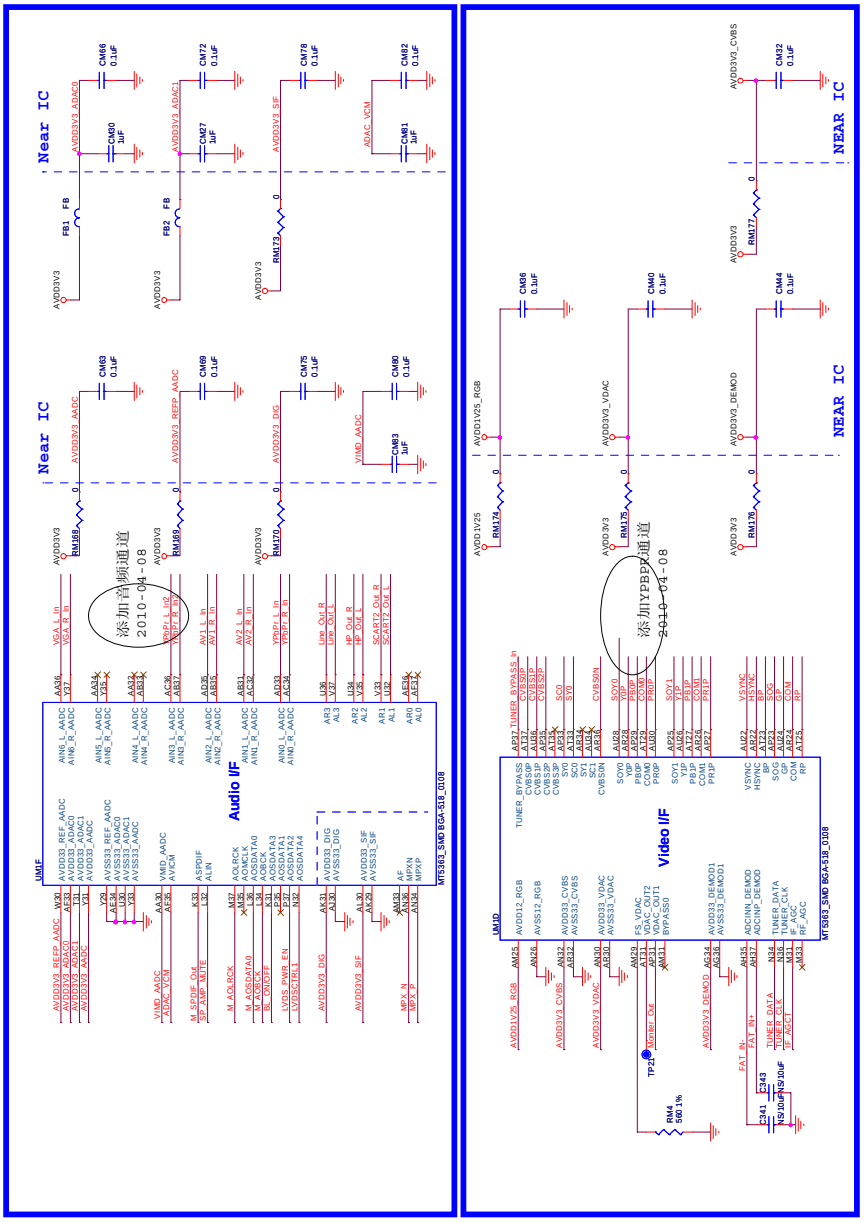

DDR2 Interface
DRAM
DRAM DE-CAP.
MT5363 DE-CAP.
DRAM POWER DDRV
RVREF_as closed to UD2
RVREF_as closed to UD3
RVREF_as closed to MT5363
AV1V25_MEMPLL
Damping for DDR#1 ADDR/CMD
Damping for DDR#2 ADDR/CMD
Damping and Termination for CLK
NEAR BRANCH
NEAR IC
NEAR DRAM
DDR#1
DDR#2
Main Chip Bottom Side
DDR#1 Bottom Side
DDR#2 Bottom Side
AP1117-TO252
1.25 x (1+48.7/110) = 1.8V for DDR2
2009/04/15

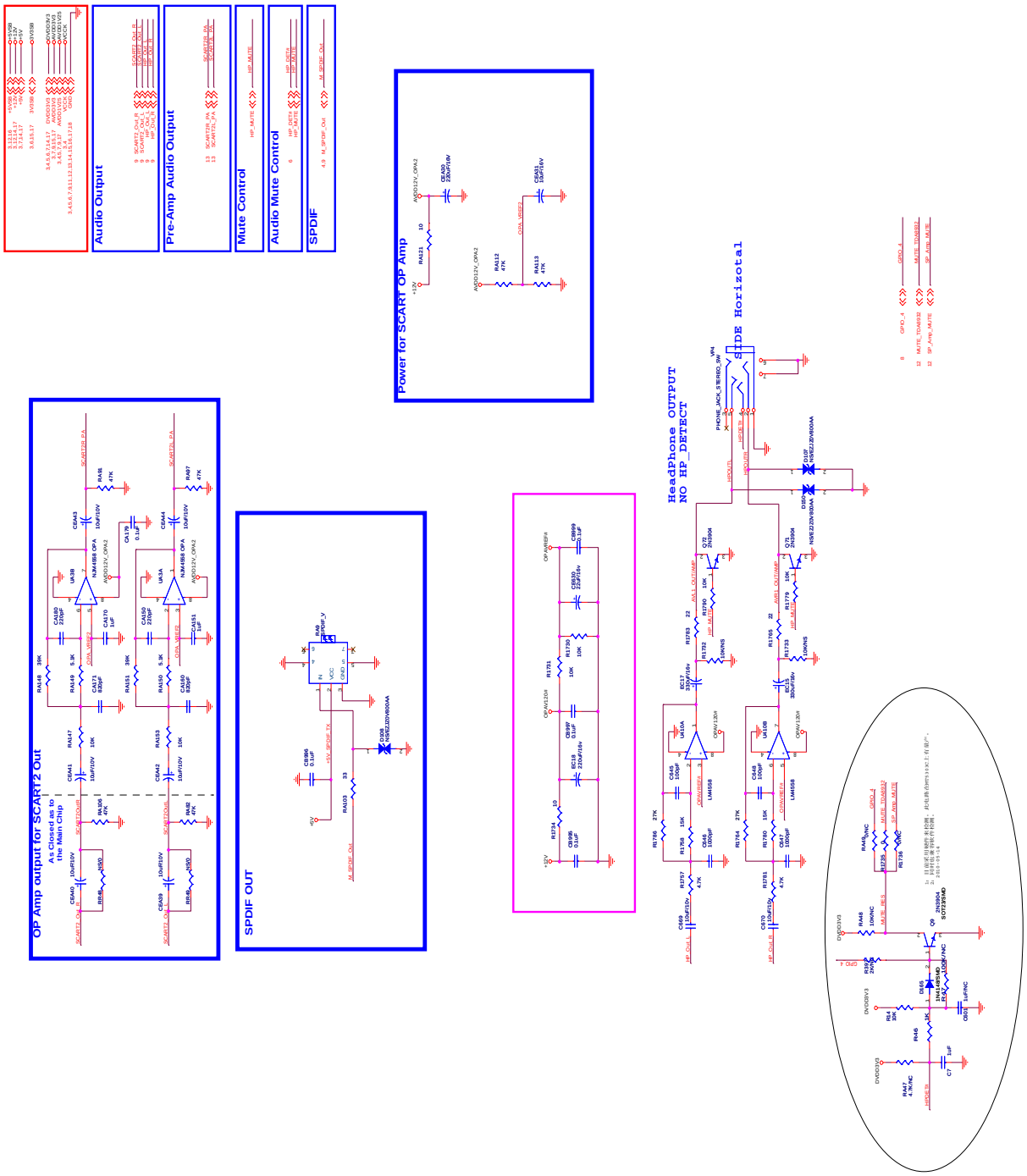

Audio Mute/Digital Amp Control
Other Control Interface
HDMI SW CTRL
HW Strap Pins
KEY PANEL
RESET Circuit
54MHz CRYSTAL
UART Port 0
UART Port 1
IR Receiver
E-Fuse
NEAR IC
STB I/F & Peripheral
Serial Flash (Co-Layout)
(Clock rate would be upto 90MHz)
(Layout must be taken good care)
NAND Flash
SYSTEM EEPROM
JTAG Port
Default 8MB
Default 1GB
I2C ADDRESS "A0"
删除IR
2010-04-08
删除座子改为测试点。
2010-04-08

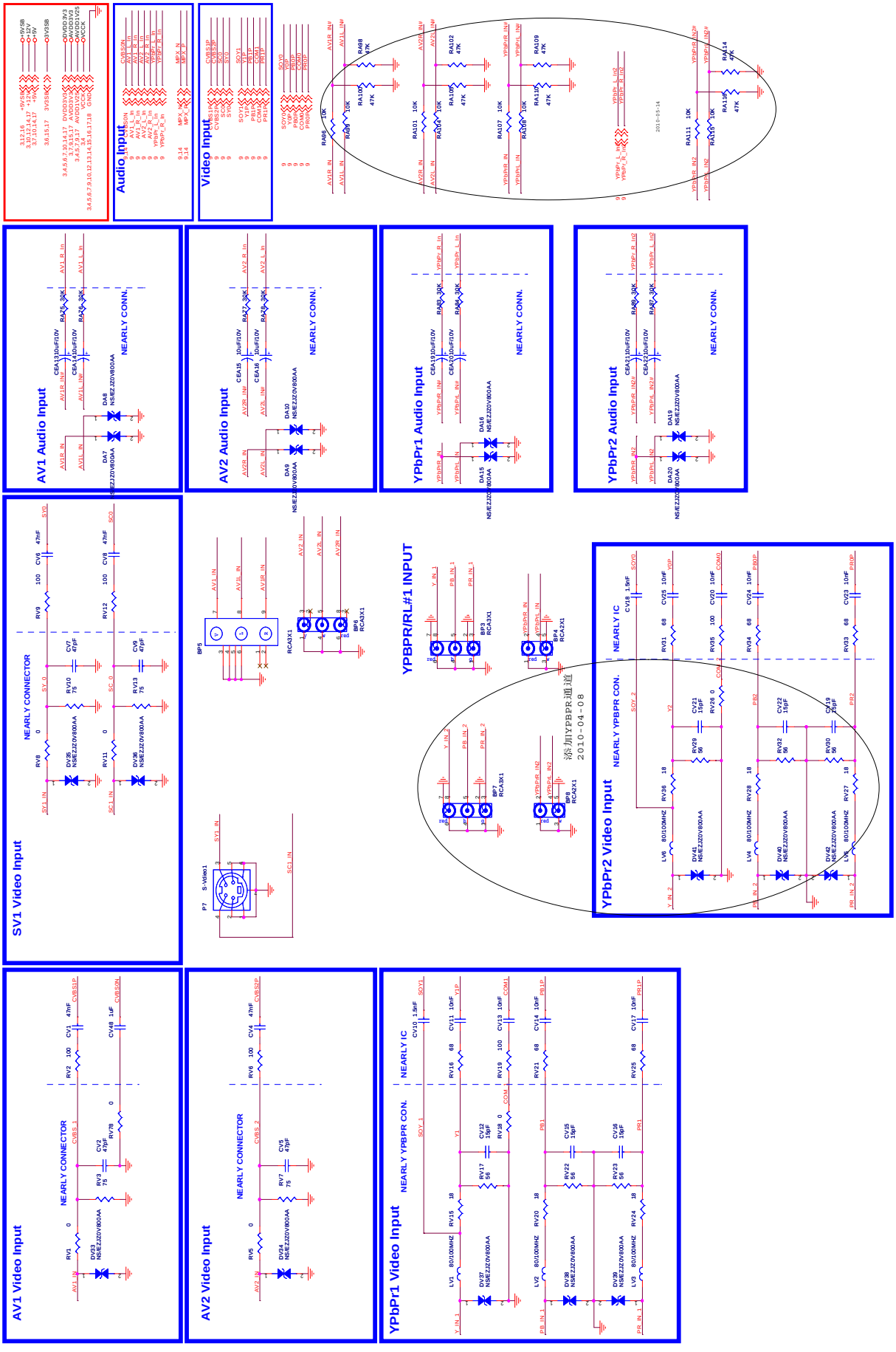

Other Control Interface
HDMI SWITCH
HDMI & USB I/F
Closed to Main Chip
NEAR IC
Near Connector
EQUAL LENGTH and DIFFERENTIAL IMPEDANCE 90ohm
FL1可选用自恢复保险丝

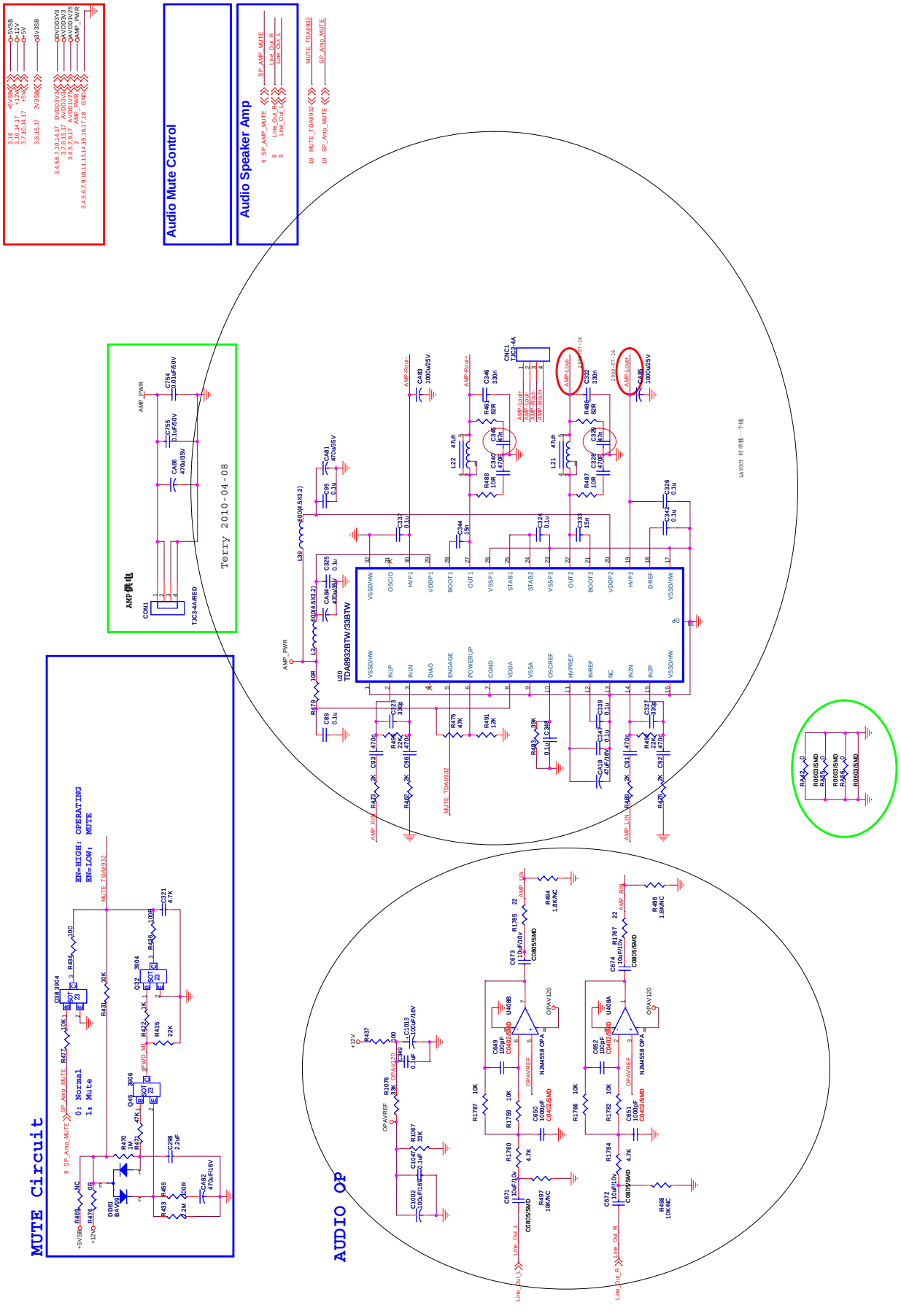

LVDS Control Interface
For CID Test Only
HW Strapping
GPIO/
Int. CI/
MII
UM1H
MT5363_SMD BGA-518_0108
TPR15
DEMO_RST#
M_CI_INCLK
M_CI_INVALID
M_CI_INSYNC
M_CI_INDATA0
GPIO_4
GPIO_1
M_OPWM0
LVDSCTRL0
BL_DIMMING
M_OPWM1
M_AOLRCK
M_AOBCK
M_AOSDATA0
M_SPDIF_Out
+5VSB
+12V
+5V
3V3SB
DVDD3V3
AVDD3V3
AVDD1V25
VCCK
GND

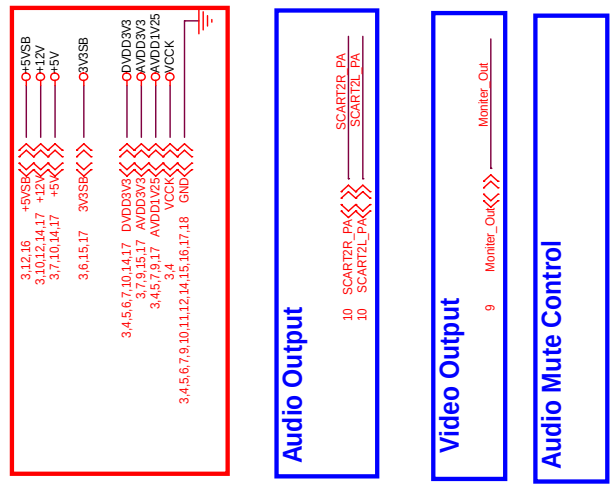

Audio Input
Audio Output
Video Input
Video Output
Tuner I/O Interface
LVDS Control Interface
Audio Mute Control
SPDIF
HW Strap Setting

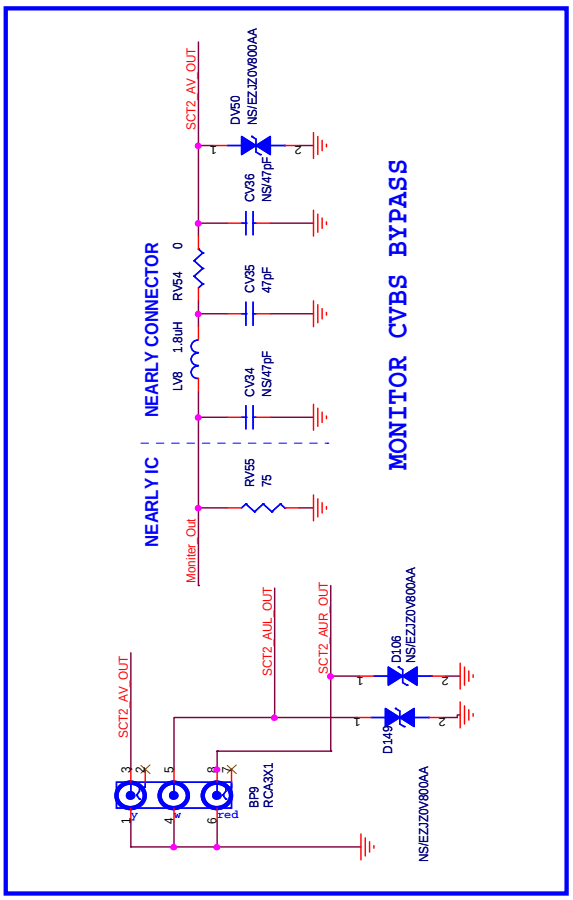

Near IC
NEAR IC
Audio I/F
Video I/F
添加音频通道
添加YPBPR通道
2010-04-08
Place these two LPF closed to main chip rather than tuner.

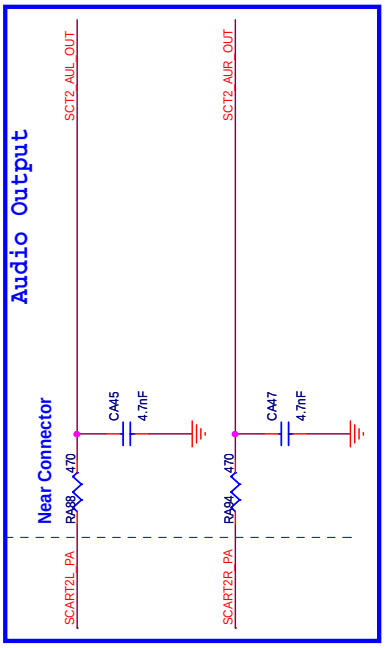

Audio Output
Pre-Amp Audio Output
Mute Control
Audio Mute Control
SPDIF
Power for SCART OP Amp
OP Amp output for SCART2 Out
As Closed as to the Main Chip
SPDIF OUT
HeadPhone OUTPUT
NO HP_DETECT
SIDE Horizotal

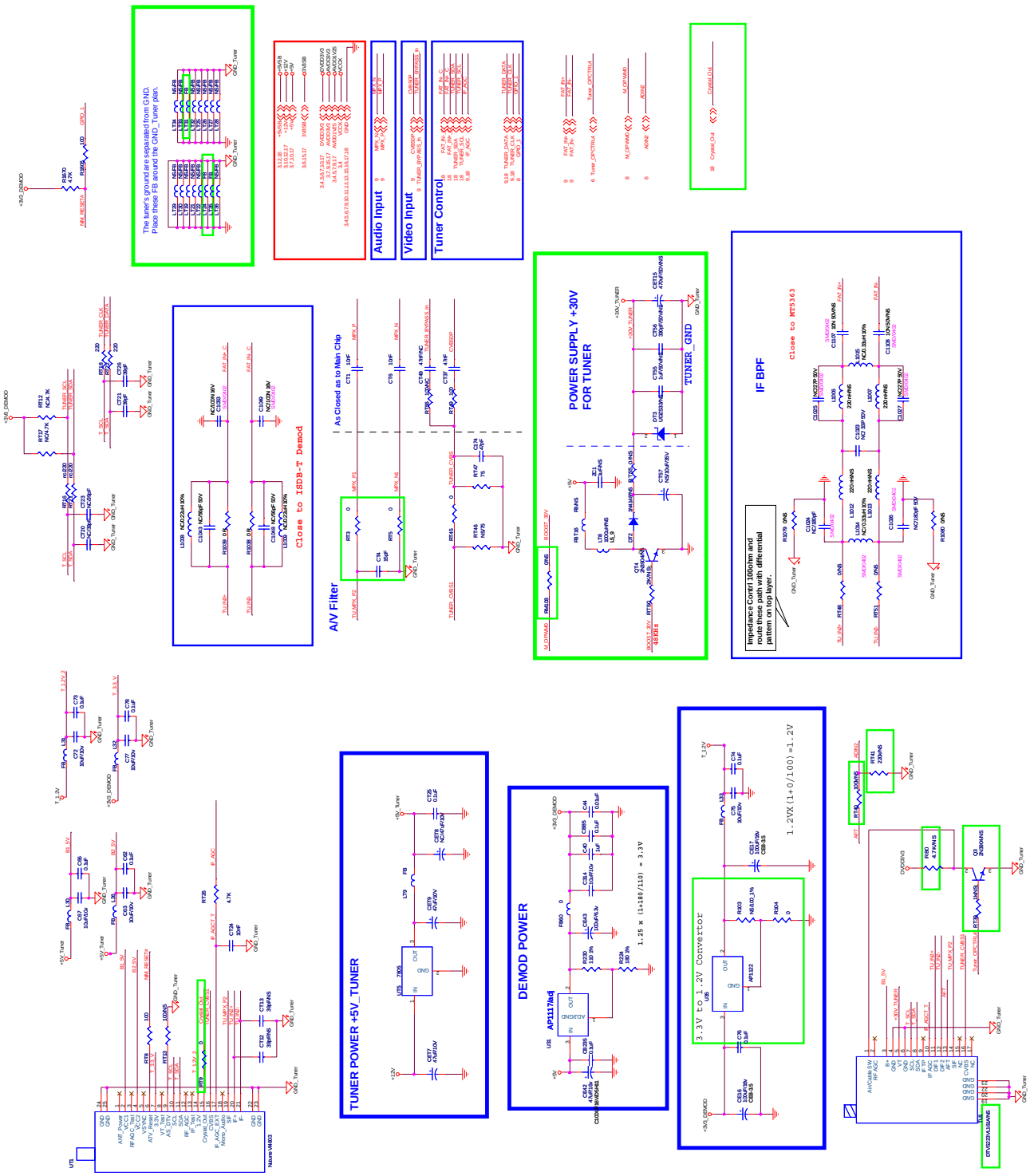

Audio Input
Video Input
AV1 Audio Input
AV2 Audio Input
YPbPr1 Audio Input
YPbPr2 Audio Input
SV1 Video Input
YPBPR/RL#1 INPUT
YPbPr2 Video Input
AV1 Video Input
AV2 Video Input
YPbPr1 Video Input
NEARLY CONNECTOR
NEARLY YPBPR CON.
NEARLY IC
NEARLY CONN.

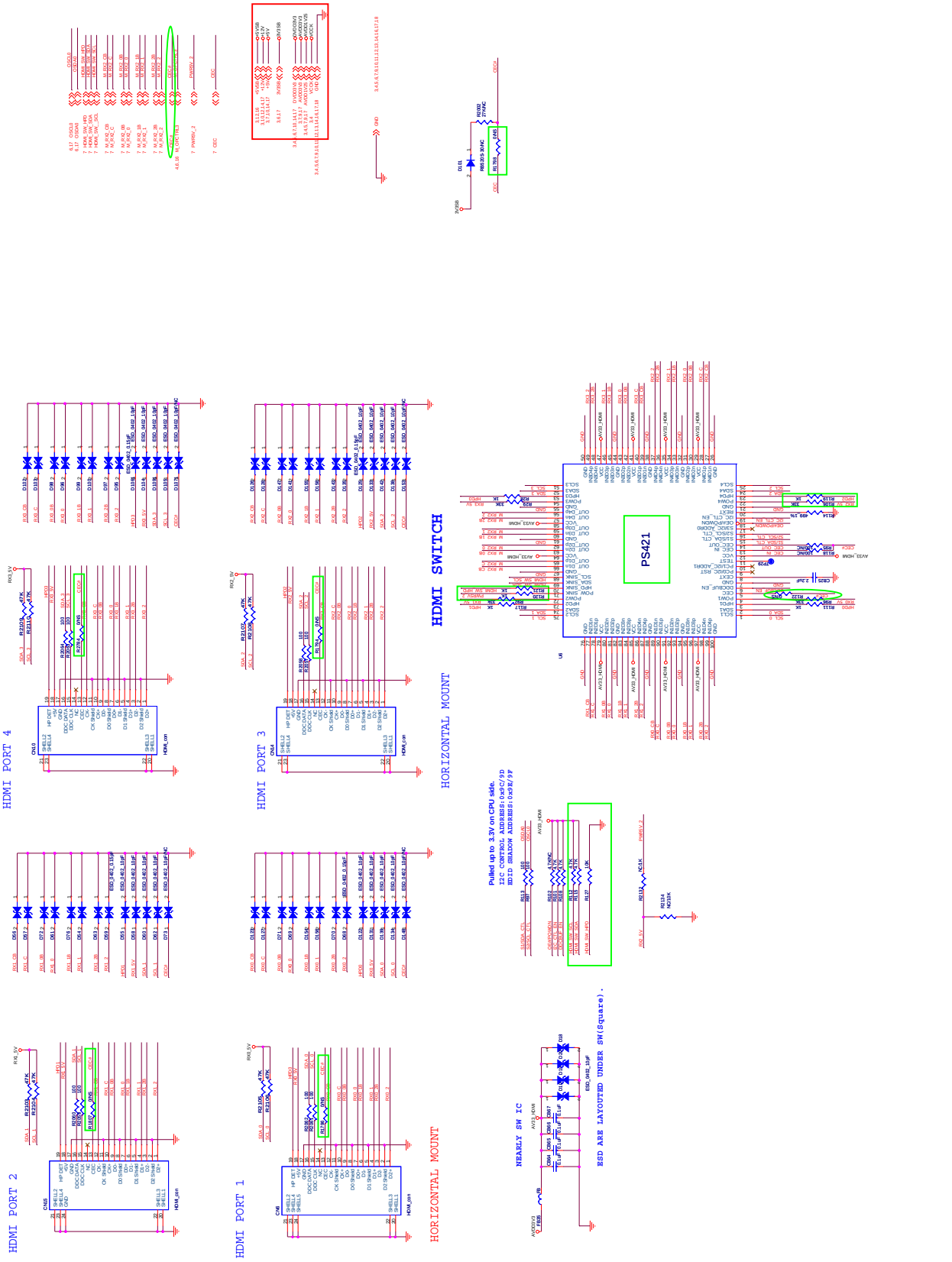

Audio Mute Control
Audio Speaker Amp
AMP供电
CON1
TJC3-4ARED
Terry 2010-04-08
AMP_PWR
U20
TDA8932BTW/335TW
MUTE Circuit
SP_Amp_MUTE
0: Normal
1: Mute
EN=HIGH: OPERATING
EN=LOW: MUTE
AUDIO OP
Line_Out_L
Line_Out_R

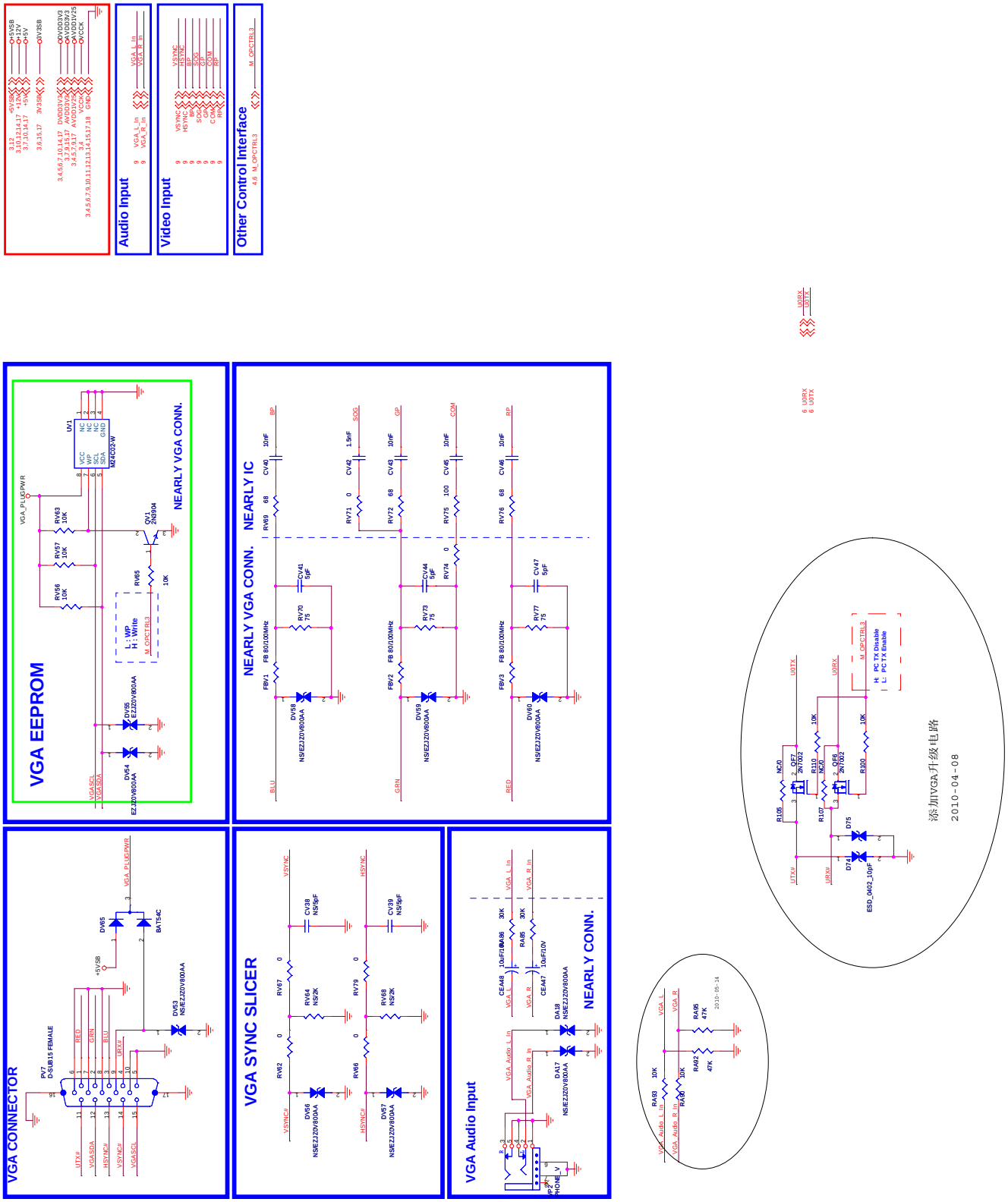

+5VSB
+12V
+5V
3V3SB
DVDD3V3
AVDD3V3
AVDD1V25
VCCK
GND
Audio Output
SCART2R_PA
SCART2L_PA
Video Output
Moniter_Out
Audio Mute Control

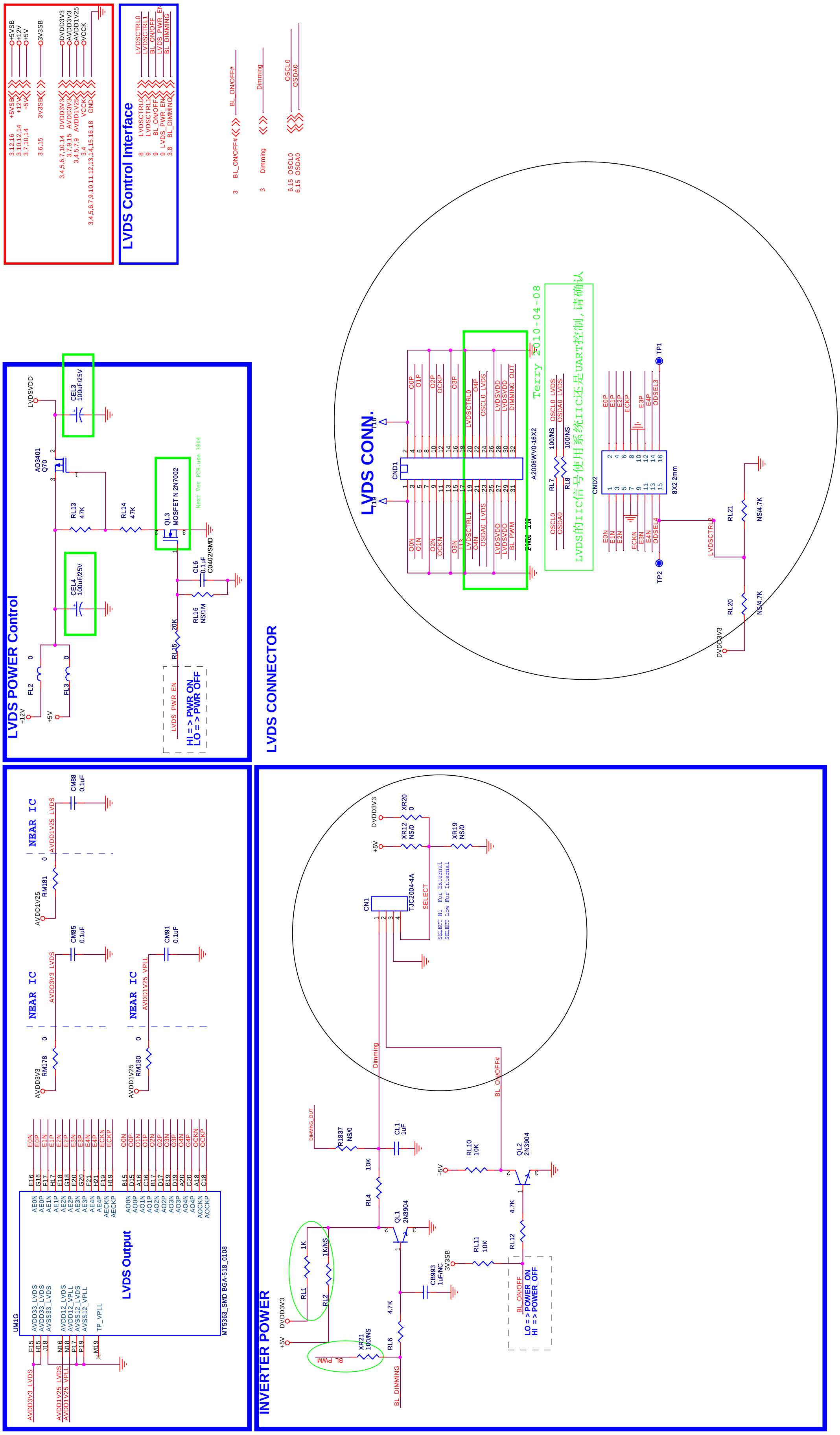

MONITOR CVBS BYPASS
NEARLY IC
NEARLY CONNECTOR
SCT2_AV_OUT
SCT2_AUL_OUT
SCT2_AUR_OUT
Moniter_Out
DV50 NS/EZJZ0V800AA
CV36 NS/47pF
CV35 47pF
CV34 NS/47pF
LV8 1.8uH
RV54 0
RV55 75
D106 NS/EZJZ0V800AA
D149 NS/EZJZ0V800AA
BP9 RCA3X1
red

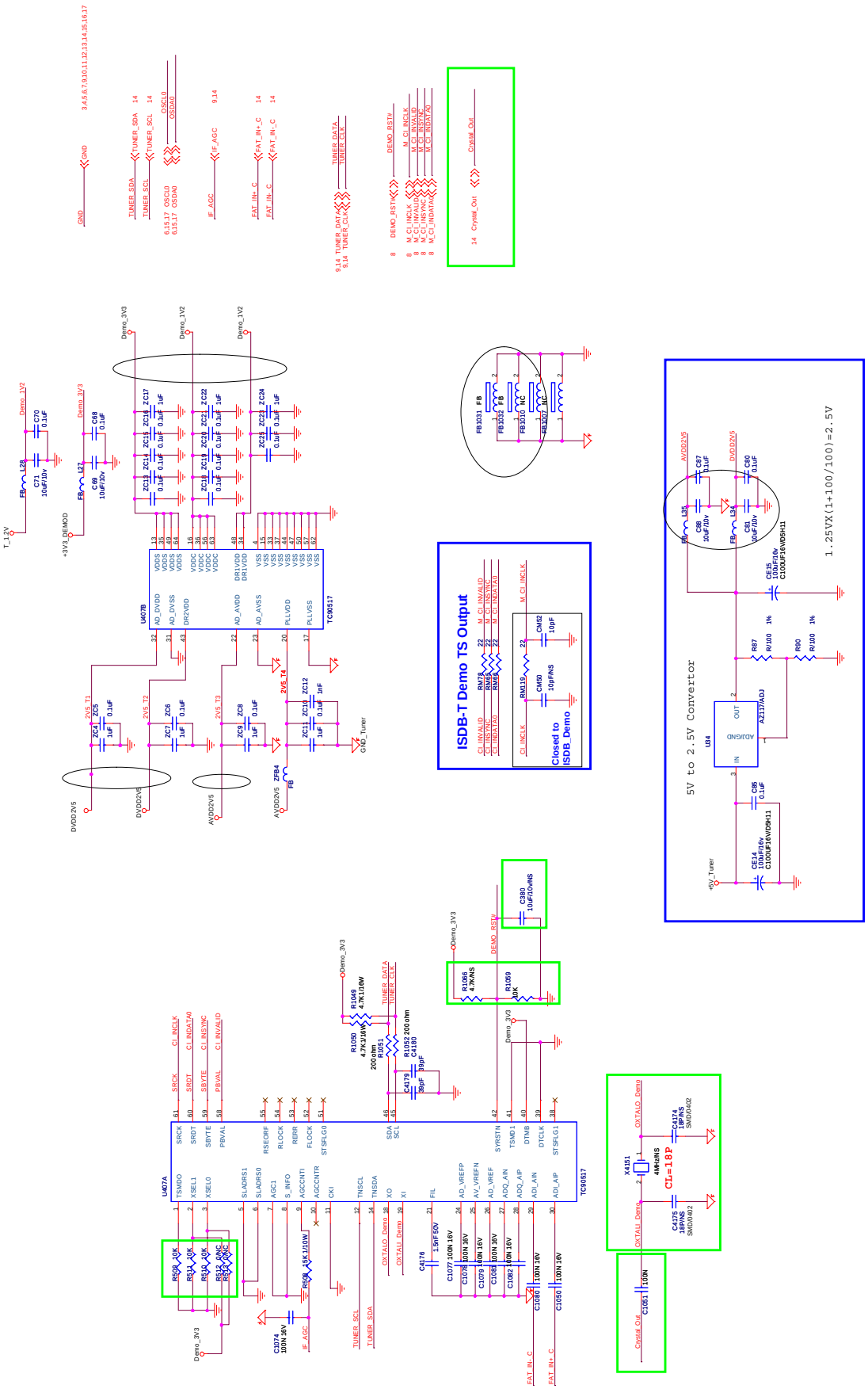

Audio Output
Near Connector
SCART2L_PA
SCART2R_PA
SCT2_AUL_OUT
SCT2_AUR_OUT
RA88 470
RA94 470
CA45 4.7nF
CA47 4.7nF


The tuner's ground are separated from GND.
Place these FB around the GND_Tuner plan.
Audio Input
Video Input
Tuner Control
Close to ISDB-T Demod
A/V Filter
As Closed as to Main Chip
POWER SUPPLY +30V FOR TUNER
TUNER_GND
IF BPF
Close to MT5363
Impedance Contrl 100ohm and route these path with differential pattern on top layer.
TUNER POWER +5V_TUNER
DEMOD POWER
AP1117ne4
1.25 x (1+180/110) = 3.3V
3.3V to 1.2V Converter
1.2V(1+0/100) =1.2V


HDMI SWITCH
HORIZONTAL MOUNT
HDMI PORT 4
HDMI PORT 3
HDMI PORT 2
HDMI PORT 1
HORIZONTAL MOUNT
PS421
NEARLY SW IC
ESD ARE LAYOUTED UNDER SW(Square).
Pulled up to 3.3V on CPU side.
I2C CONTROL ADDRESS: 0x9C/9D
EDID SHADOW ADDRESS: 0x9E/9F

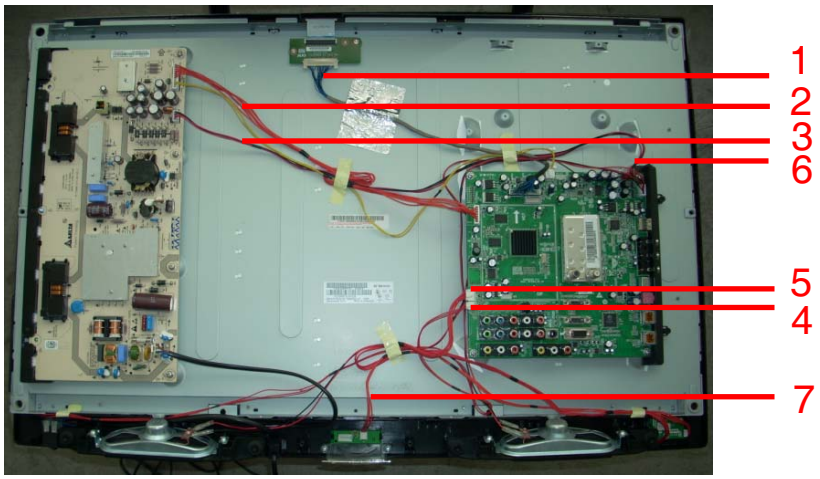

Audio Input
Video Input
Other Control Interface
VGA EEPROM
NEARLY VGA CONN.
NEARLY VGA CONN. NEARLY IC
VGA CONNECTOR
VGA SYNC SLICER
VGA Audio Input
NEARLY CONN.
添加VGA升级电路
2010-04-08


LVDS Control Interface
LVDS POWER Control
LVDS CONNECTOR
LVDS CONN.
LVDS Output
NEAR IC
INVERTER POWER


ISDB-T Demo TS Output
Closed to ISDB_Demo
5V to 2.5V Convertor
1.25VX(1+100/100)=2.5V

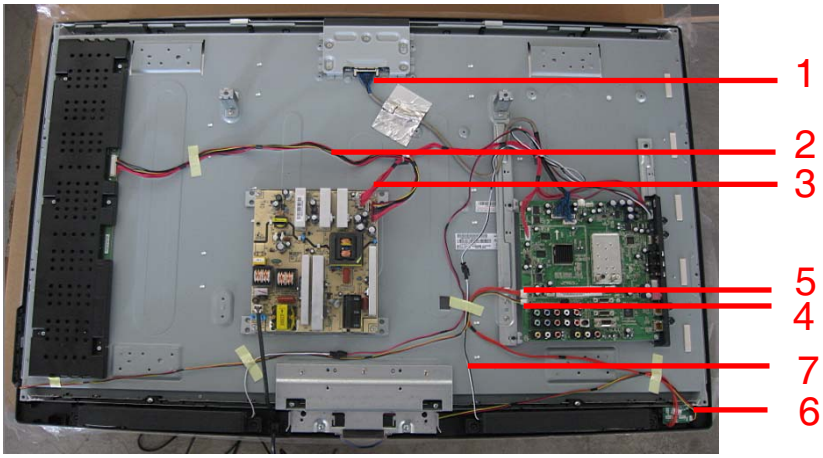
7-3. Wiring Connection Diagram

L32F6



NO.	Name	Parts number
1	LVDS Cable	0090402070B
2	Cable(Power For Mainboard)	0090402469
3	Cable(Power For Audio Amplifier)	0090403399E
4	Cable(For Keypad)	0090402849A
5	Cable(For Remote)	0090401643D
6	Cable(For Speaker)	0090400647H
7	Cable(For Ornamental Light)	0090402750B

L42F6



NO.	Name	Parts number
1	LVDS Cable	0090402724B
2	Cable(For Back Light)	0090402862B
3	Cable(Power For Mainboard)	0090402865C
4	Cable(For Keypad)	0090402849A
5	Cable(For Remote)	0090401643B
6	Cable(For Ornamental Light)	0090402750F
7	Cable(For Speaker)	0090401752C

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:
1st, press menu,
2en, input 8893,
Finished these operations ,system will be into the factory mode menu.
At the end of the main factory menu, you can see the edition of the software,
like this" L_MST6M36J S_AU32VP_BX ".

8-1-2.How to exit

If you want to exit this factory menu, please press the button "Exit" on the remote.
system will be out the factory mode menu.

8-2. Measurements and Adjustments

8-2-1. The Main Menu

In factory mode menu,press up/down button to choose the up/down item,press left/right button to the submenu,press "OK"button to affirm .press MENU button go **to the last page.**

MTK5363 Factory Menu

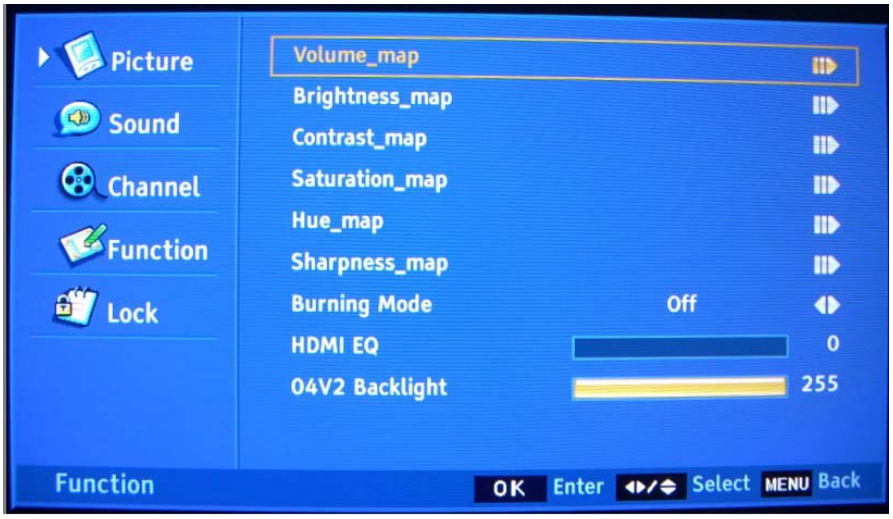
In this page, you should consider "Clean Storage" function.This function you can reset all data return to original state.if you encounter inextricable problem,you can try this function.
Press up/down button to select "Clean Storage ",then press ">" button.It needs a few secounds. After Clean Storage, choose "Fac Reset" and reset all data to out-factory state.

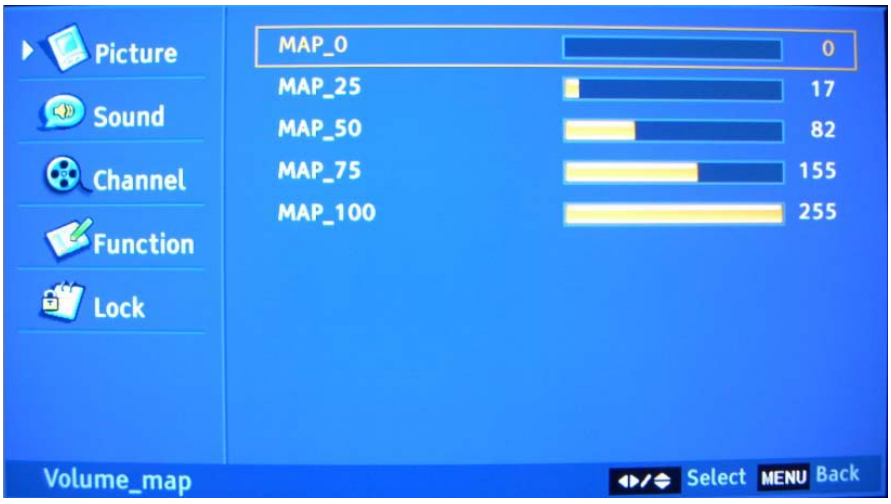
NOTE : After reset ,please shut off the power.
Be carefully use this function.

8-2-2. Video

Color Temperature
This page is control the Color Temperature,
like normal,warm,cool.

8-2-3. Audio





This page is control the sound effect .

(nonlinear volume)

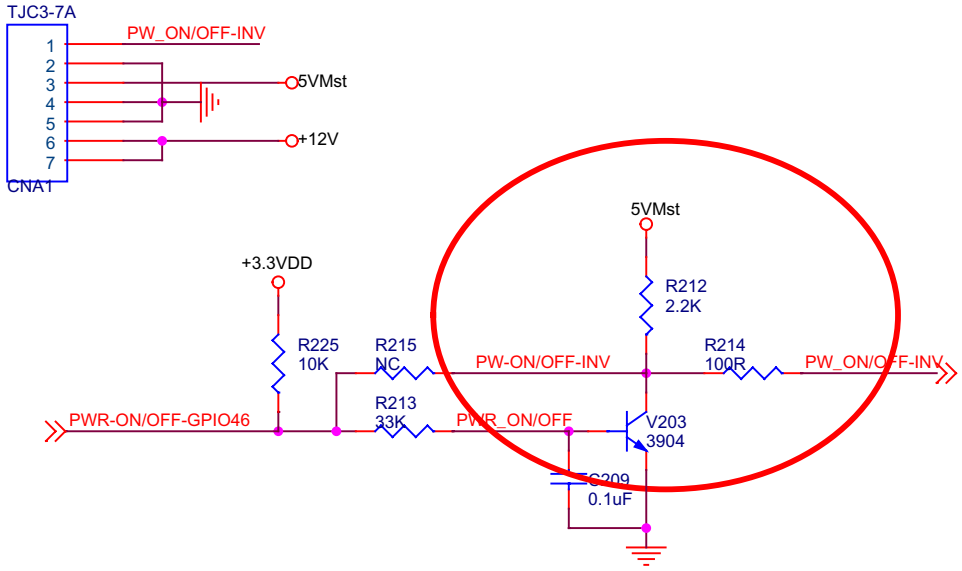
Chapter 9. Trouble shooting

9-1. Simple check

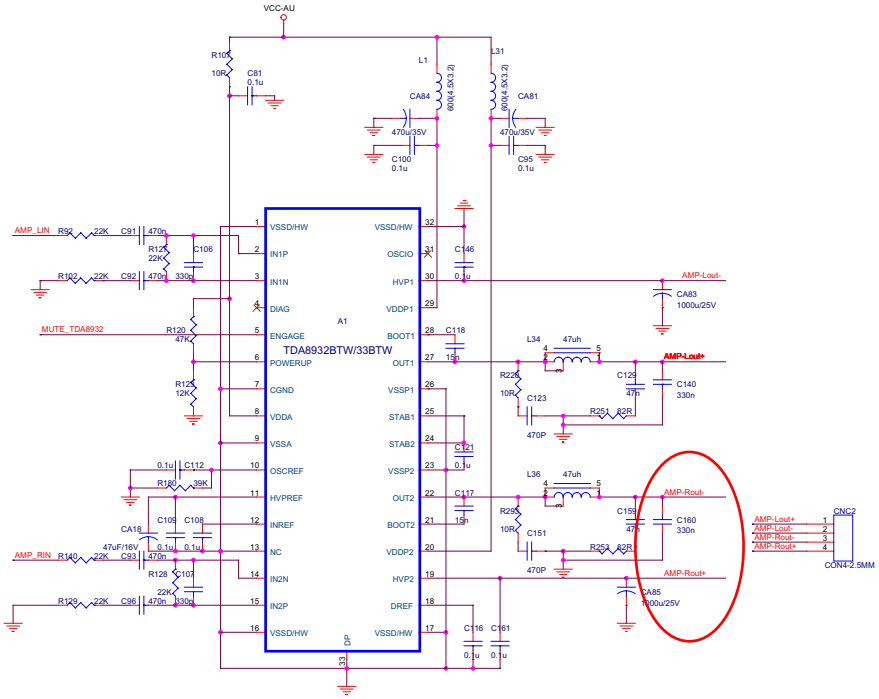
No picture/ No sound	Verify if the television is properly plugged Verify if the television is properly supplied power Verify if electricity is available.
Blank screen	Verify if correct signals are input Press INPUT button to change signal input to TV input Restart the television of power supply is interrupted
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.

State:No picture
First,check cables which connect with PSU,then check as follows
Check input voltage
voltage: +5VSB----POWER ON(2.6V) -----+12V

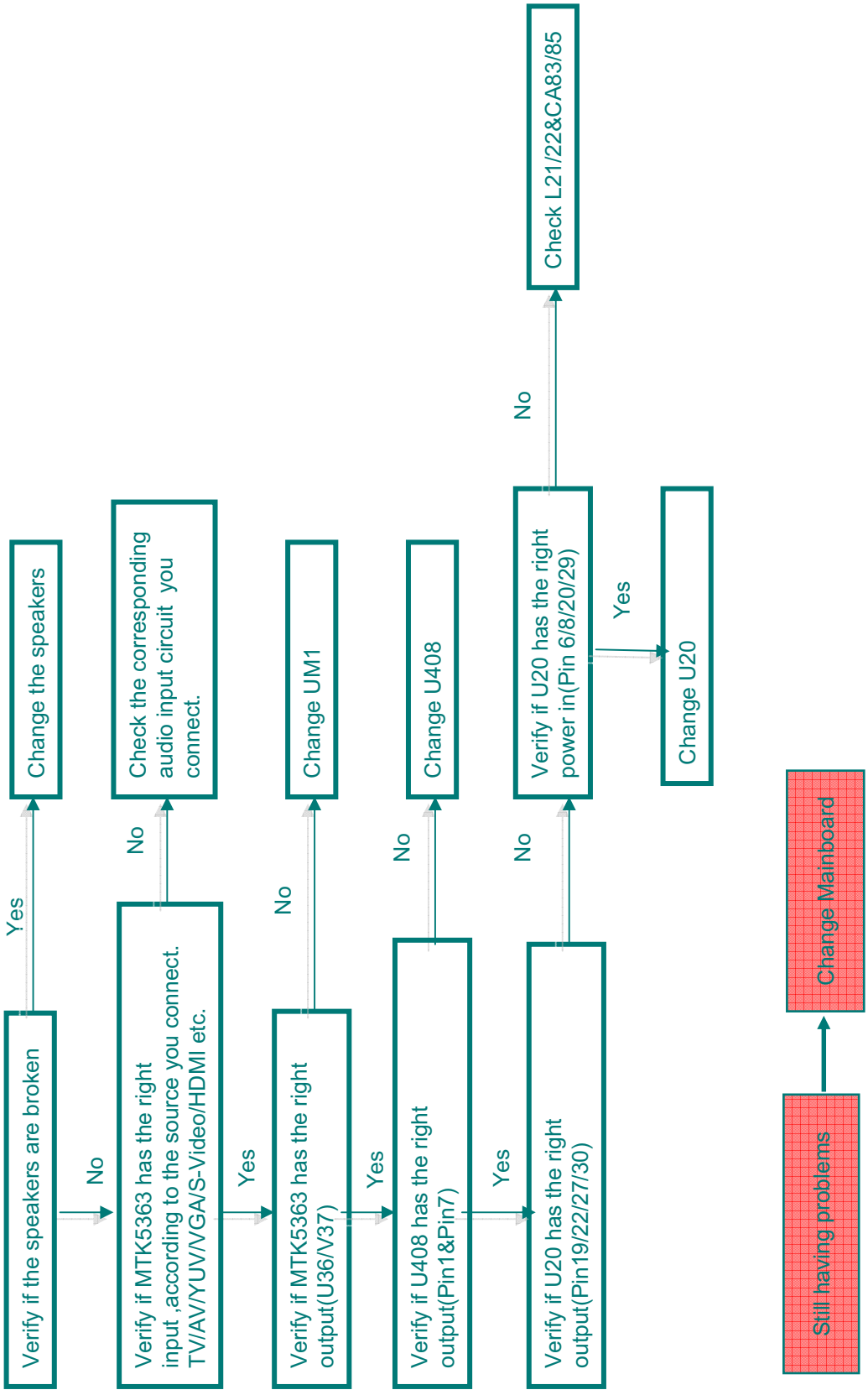


State:No sound
First,check cables which connect with PSU,then check as follows
1) Check input voltage as NO picture
2) Check speaker output
First,check speaker anode(+) and cathode(-),confirm speaker short or not.If short ,replace speaker.
Second, check CNC2 with oscillograph, confirm wave output or not.



9-3. Mainboard Failure Check

Symptom:no sound but have picture



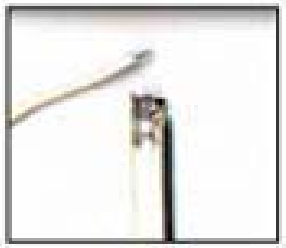
9-4. Pannel Failure

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		
	FIlcker	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

Sincere Forever

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http://www.haier.com

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