



CAUTION:

READ THIS MANUAL CAREFULLY
TO DIAGNOSE TROUBLE CORRECTLY
BEFORE OFFERING SERVICE

SERVICE MANUAL

COLOR TV

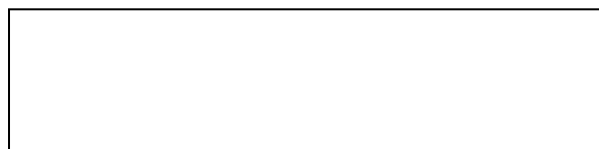
MODEL : NS-LCD40HD-09

(Chassis:ZORAN780)



V

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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 dealt with in this service information by anyone else could result in serious injury or death.

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1. Warning



Warning

To reduce the risk of electric shock, do not remove the cover or back. There are no user-serviceable parts inside. Refer servicing to qualified service personnel.

To reduce the risk of fire or electric shock, do not expose your TV to rain or moisture.

Caution

To prevent electric shock, match the wide blade on the power cord plug to the wide slot on an electric outlet. If the plug does not fit, consult a licensed electrician to replace the obsolete outlet. Do not modify the power cord plug, or you will defeat this safety feature.



This symbol indicates that dangerous voltage constituting a risk of electric shock is present within your TV. This label is located on the back of your TV.



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

Warning

Your TV contains tin-lead solder and a fluorescent lamp containing a small amount of mercury. Disposal of these materials may be regulated for environmental reasons. For disposal or recycling information, contact your local authorities or the Electronic Industries Alliance at www.eia.org.

IMPORTANT SAFETY INSTRUCTIONS

Read all of the instructions before using this appliance. When using this appliance, always exercise basic safety precautions, including the following:

Read instructions

Read all of the safety and operating instructions before you use your TV.

Retain instructions

Retain safety and operating instructions for future reference.

Follow warnings and instructions

Follow all warnings on your TV and in the operating instructions. Follow all operating and use instructions.

Water and moisture

Do not use your TV near water. For example, do not use it near a bath tub, wash bowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool.

Cleaning

Unplug your TV before cleaning. Do not use liquid or aerosol cleaners. Use only a damp cloth to clean the exterior of your TV.

Ventilation

Slots and openings in the cabinet and the back or bottom are provided for ventilation, reliable operation, and protection from overheating. These openings must not be blocked or covered. Do not block the openings by placing your TV on a bed, sofa, rug, or other similar surface. Do not place your TV near or over a radiator or heat register. Do not place your TV in a built-in installation, such as a bookcase or rack, unless you provide correct ventilation or follow the manufacturer's instructions.

Heat

Make sure that your TV is located away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

Grounding or polarization

Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a grounding prong. The wide blade or grounding prong are provided for your safety. If the plug does not fit, contact an electrician to replace the obsolete outlet.

Power cord protection

Route power cords so that they are not likely to be walked on or pinched by items placed on or against them. Pay particular attention to cords at plugs, convenience receptacles, and the point where they exit from your TV.

Attachments

Use only attachments recommended by Insignia.

Stand

Do not place your TV on an unstable cart, stand, tripod, bracket, or table. Your TV may fall, causing serious personal injury and serious damage to your TV. Use only with a stand, tripod, bracket, or table recommended by the manufacturer, or sold with your TV. If you mount your TV to the wall, follow the manufacturer's instructions and use a mounting accessory recommended by the manufacturer. Your TV and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause your TV and cart combination to overturn.

Lightning

For added protection for your TV's receiver during a lightning storm, or when it is left unattended and



unused for long periods of time, unplug it from the power outlet and disconnect the antenna or cable system. This helps prevent damage to your TV from lightning and power line surges.

Servicing

Do not attempt to service your TV yourself because opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

Replacement parts

When replacement parts are required, make sure that the service technician uses replacement parts specified by the manufacturer that have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, personal injury, or other hazards.

Overloading

Do not overload power outlets and extension cords because this can result in a risk of fire or electric shock.

Object and liquid entry

Never push objects of any kind into your TV through openings because objects may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquid of any kind on your TV.

Damage requiring service

Unplug this TV from the power outlet and refer servicing to qualified service personnel under the following conditions:

- When the power supply cord or plug is damaged or frayed.
- If liquid has been spilled or objects have fallen into your TV.
- If your TV has been exposed to rain or water.
- If your TV does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions because incorrect adjustment of other controls may result in

damage and will often require extensive work by a qualified technician to restore your TV to its normal operation.

- If your TV has been dropped or damaged in any way.
- When your TV exhibits a distinct change in performance.

Safety check

After completing any service or repair to this TV, ask the service technician to perform routine safety checks to determine that your TV is in correct operating condition.

Power source

Operate your TV only from the type of power source indicated on the marking label. If you are not sure of the type of power supplied to your home, consult your TV dealer or local power company.

Screen protection

Your TV's screen is made of glass. Do not drop your TV or hit the glass screen. If the screen breaks, be careful of broken glass. Reviewers: Please confirm.

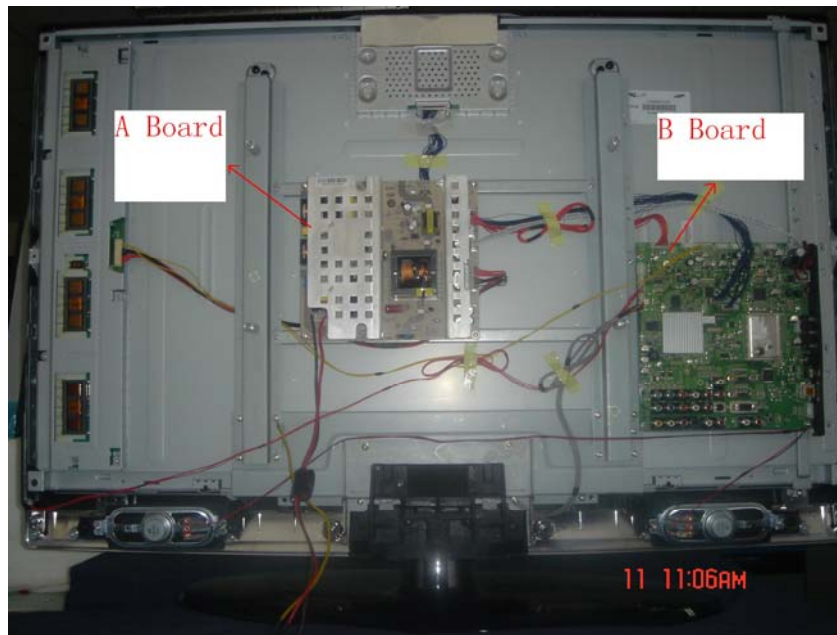
Non-active pixels

The LCD panel contains almost 3 million thin film transistors, which provide exceptionally sharp video quality. Occasionally, a few non-active pixels may appear on the screen as a fixed blue, green, or red point. These non-active pixels do not adversely affect the performance of your TV, and are not considered defects.

2. Specification

Model	NS-LCD40HD-09
Screen size	40inch
Aspect ratio	16:9
Resolution	1920x1080
Response Time (ms)	8(GRAY TO GRAY)
Angel of view	178 ⁰
Color display	16777216
NO.of preset channels	181
OSD language	English
Color system	NTSC/ATSC
Audio system	
Audio output power(Built-in)(W)	15W×2
Audio output power(outer)(W)	YES
Total power input (W)	260W
Voltage range (V)	AC110V
Power frequency (Hz)	60Hz
Time of sleep timer(MINS)	120Min
Net weight(KG)	21.5
Gross weight(KG)	26
Net dimension(MM)	1043*315*755
Packaged dimension(MM)	1058*330*780

3. LOCATION OF CONTROLS AND COMPONENTS



3.1.Board Location

No.	Parts number	Description
A Board	TV-5210-291	Power Board
B Board	TV-5210-296	Main Board

3.2. Main Board

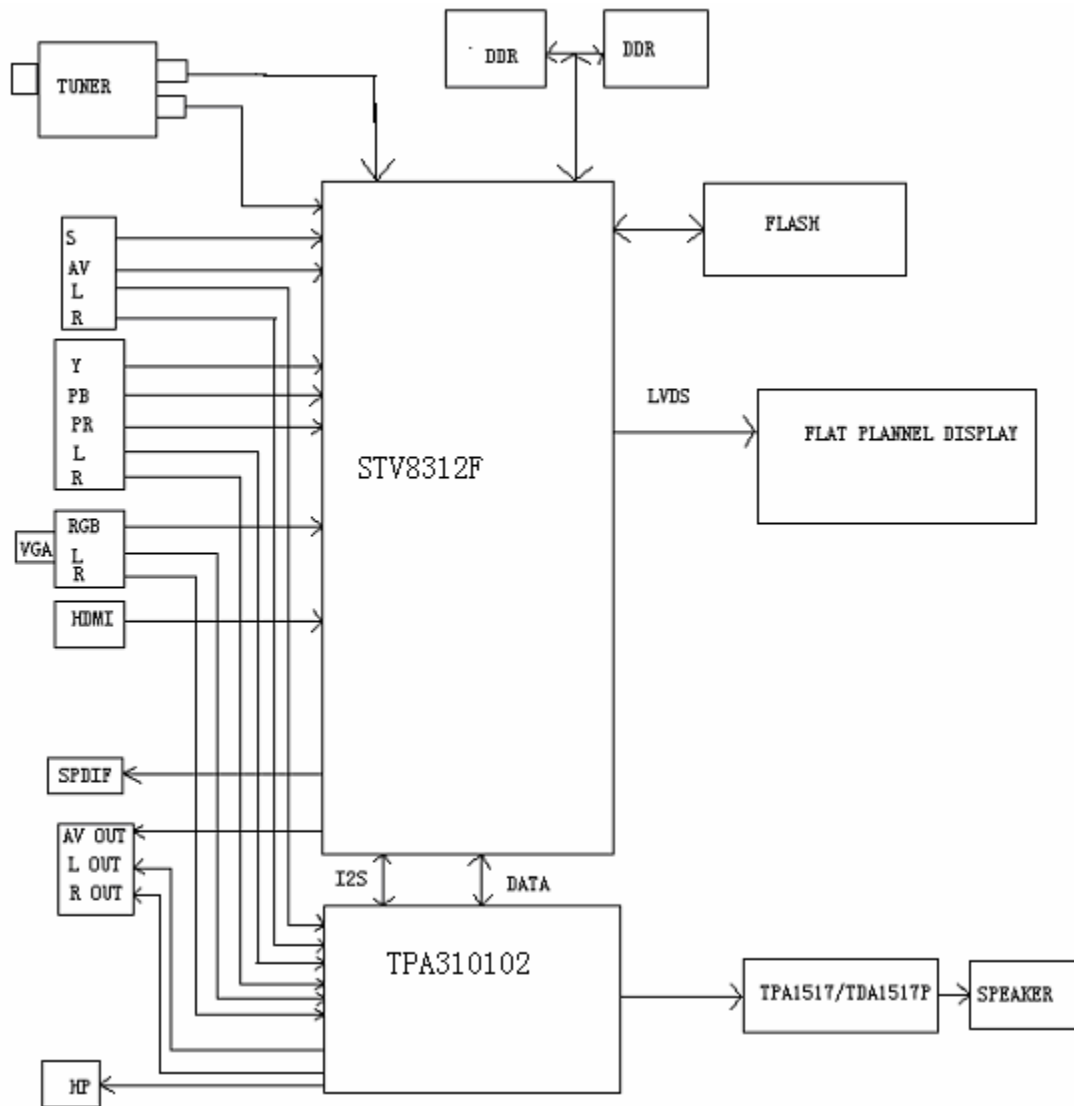


3.2.1 Function Description:

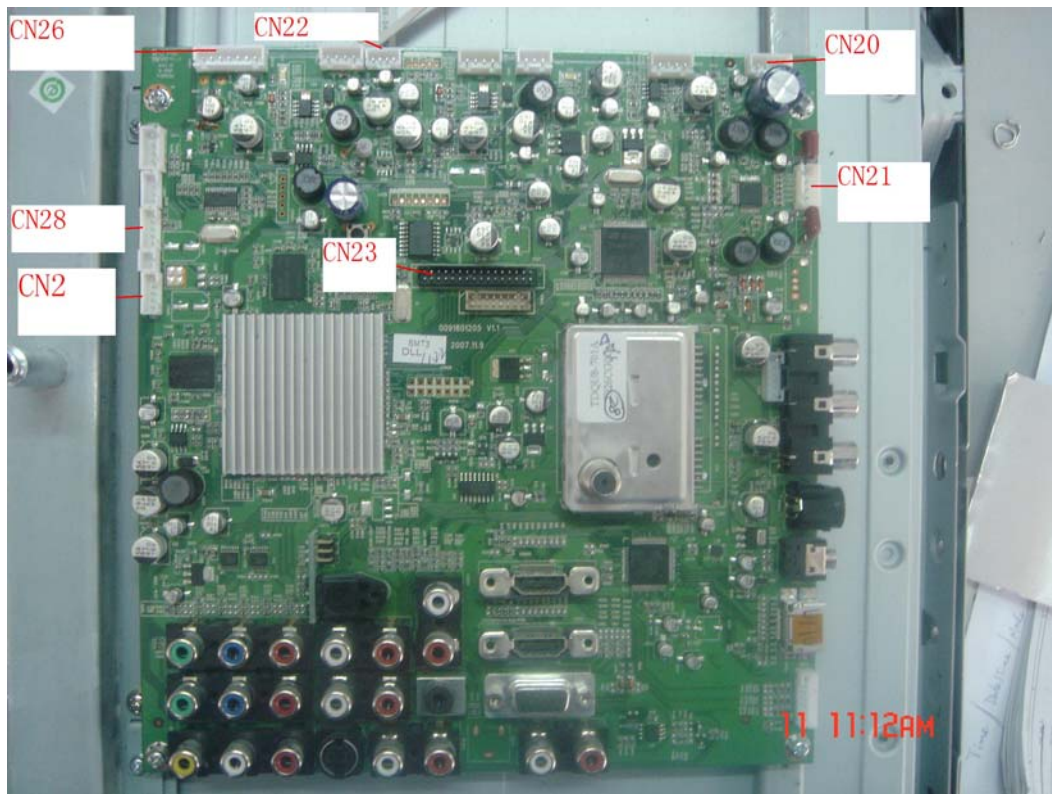
Main Board:

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

Signal flowing chart



3.2.2 Connector definition



Power connector(CN26)

Pin number	Signal name	Description
1	ON/OFF	Control the power of system
2	GND	Ground
3	5VSB	Power of TV standby
4	GND	Ground
5	GND	Ground
6	12V	Power of system
7	12V	Power of system

IR connector (CN2)

Pin number	Signal name	Description
1	5V	Supply the Power of bright and IR receiver
2	IR	Receive IR signal
3	G	Show green when TV standby
4	B	Show blue when TV working
5	GND	Ground
6	NC	NC

Key connector(CN28)

Pin number	Signal name	Description
1	GND	Ground
2	AD0	Control Power,CH+,CH-
3	AD1	Control Menu,V+,V-,INPUT

Backlight control connector(CN22)

Pin number	Signal name	Description
1	BKANJ	Control the backlight of pannel
2	BKEN	The system turn on or turn off the backlight of TFT LCD Panel through the power supply unit path.
3	GND	GND
4	5V	Not use

LVDS Signal connector(CN23)

Pin number	Signal name	Pin number	Signal name	Pin number	Signal name
1	LVDS VDD	9	Not use	17	A1P
2	LVDS VDD	10	Not use	18	A1N
3	LVDS VDD	11	Not use	19	A2P
4	LVDS VDD	12	Not use	20	A2N
5	Not use	13	A0P	21	GND
6	Not use	14	A0N	22	GND
7	GND	15	GND	23	CK1P
8	GND	16	LVDS_SEL	24	CK1N
Pin number	Signal name				
25	A3P				
26	A3N				
27	GND				
28	GND				
29	Not use				
30	Not use				

AMP connector(CN20)

Pin number	Signal name	Description
1	18V	Power of Audio power amp
2	18V	Power of Audio power amp
3	GND	Ground
4	GND	Ground

Speaker connector(CN21)

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

3.3 Power Board

3.3.1 Function Description:

Supply power for Main board,Panel and DC/DC power board



3.3.2 Connector definition

CONNECTOR (CON2)

CON2	Signal name
1	24V
2	24V
3	24V
4	24V
5	24V
6	GND
7	GND
8	GND
9	GND
10	GND
CON6	Signal name
1-2	16.5V
3-4	GND

CONNECTOR (CON6)

CONNECTOR (CON4)

CON4	Signal name
1	ON/OFF
2	GND
3	5VSB
4	GND
5	GND
6	12V
7	

3.4 LCD PANEL.



3.4.1 Function Description:

Display the signal.

3.4.2 Connector definition

Pin No	Symbol	Description	Note
1	Power	DC 12V	
2	Power	DC 12V	
3	Power	DC 12V	
4	Power	DC 12V	
5	Power	DC 12V	
6	GND	GND	
7	GND	GND	
8	GND	GND	
9	GND	GND	
10	RO[0]N	ODD LVDS SINGAL-	
11	RO[0]P	ODD LVDS SINGAL+	
12	RO[1]N	ODD LVDS SINGAL-	
13	RO[1]P	ODD LVDS SINGAL+	
14	RO[2]N	ODD LVDS SINGAL-	
15	RO[2]P	ODD LVDS SINGAL+	
16	GND	GND	
17	ROCLK-	ODD LVDS SINGAL-	
18	ROCLK-	ODD LVDS SINGAL+	
19	GND	GND	
20	RO[3]N	ODD LVDS SINGAL-	
21	RO[3]P	ODD LVDS SINGAL+	
22	NC	NC	
23	NC	NC	
24	GND	GND	
25	RE[0]P	EVEN LVDS SINGAL-	

26	RE[0]N	EVEN LVDS SINGAL+	
27	RE[1]P	EVEN LVDS SINGAL-	
28	RE[1]N	EVEN LVDS SINGAL+	
29	RE[2]P	EVEN LVDS SINGAL-	
30	RE[2]N	EVEN LVDS SINGAL+	

CN1(Header):S14B-PH-SM4-TB(D)(LF)(JST) or equivalent.

Pin No.	Symbol	Description
1	VBL	+24V Power input
2		
3		
4		
5		
6	GND	Ground
7		
8		
9		
10		
11	NC	NC
12	BLON	BL ON/OFF
13	PWM	Internal PWM Control
14	NC	NC

4. INSTALLATION INSTRUCTIONS

4.1 External Equipment Connections

Accessories



Remote Control

User Manual

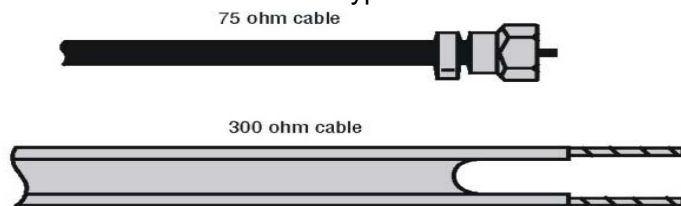
Battery

Antenna Connection

Generally speaking, to enjoy a clearer picture, we recommend that you use a CATV system or an

outdoor antenna . location and antenna positioning

Antenna cables come in two types: 75 ohm and 300 ohm.



- If your antenna cable has a 75 ohm connector, connect the cable to the coaxial jack on the back of your TV.
- If your antenna cable has a 300 ohm connector, connect the cable to a 300-75 ohm adapter (not included), connect the adapter to a 75 ohm cable, then connect the other end of the 75 ohm connector to the coaxial jack on the back of your TV.

Connecting cable TV

Your TV has a 75 ohm jack for connecting cable TV .Some cable TV providers scramble the signals for “premium” (pay) channels. To view these channels, you need a converter/descrambler box.If you do not have a converter/descrambler box,you can connect your cable TV directly to your TV. If you have a converter/descrambler box, you can connect your cable TV using an RF switch (not supplied). For more information about connecting a converter/descrambler box, contact your cable TV provider.

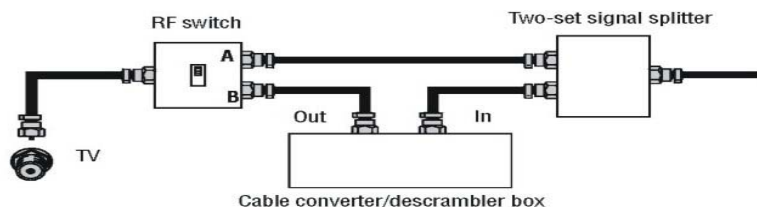
To connect cable TV without a converter/descrambler box:

- 1 Connect one end of a 75 ohm cable to the coaxial jack on the back of your TV.
- 2 Connect the other end of the cable to the cable TV wall outlet.

To connect cable TV with a converter/descrambler box:

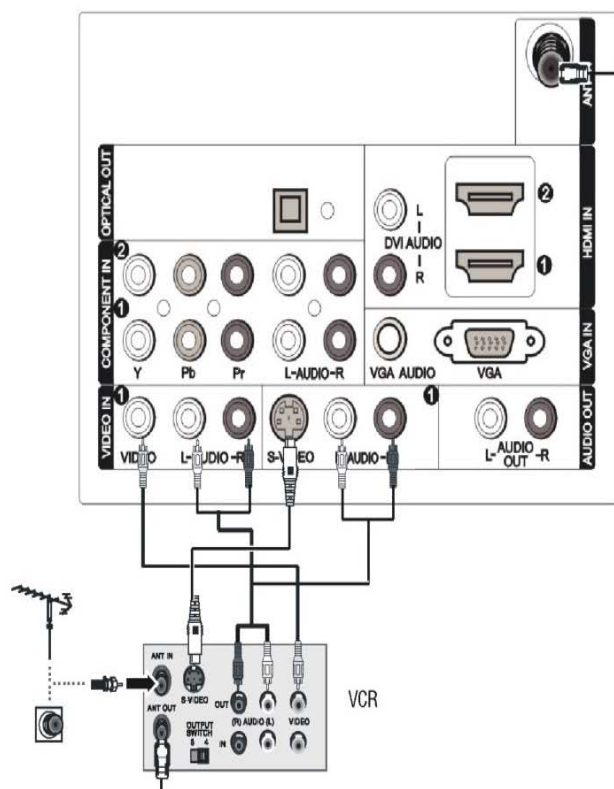
- Use the following illustration to connect a converter/descrambler box. (The RF switch and the signal splitter are not provided.) Set the RF switch to the A position to watch unscrambled channels controlled by your TV

remote control. Set the RF switch to the B position to watch scrambled channels controlled by the converter/descrambler controls.



External Equipment Connections

Connecting a VCR



Note

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

To connect to a VCR:

- 1 Set VCR output switch to channel 3 or 4 and then tune the TV to the same channel number.
- 2 Connect the audio and video cables from the VCR's output jacks to the TV input jacks, as shown in the figure.

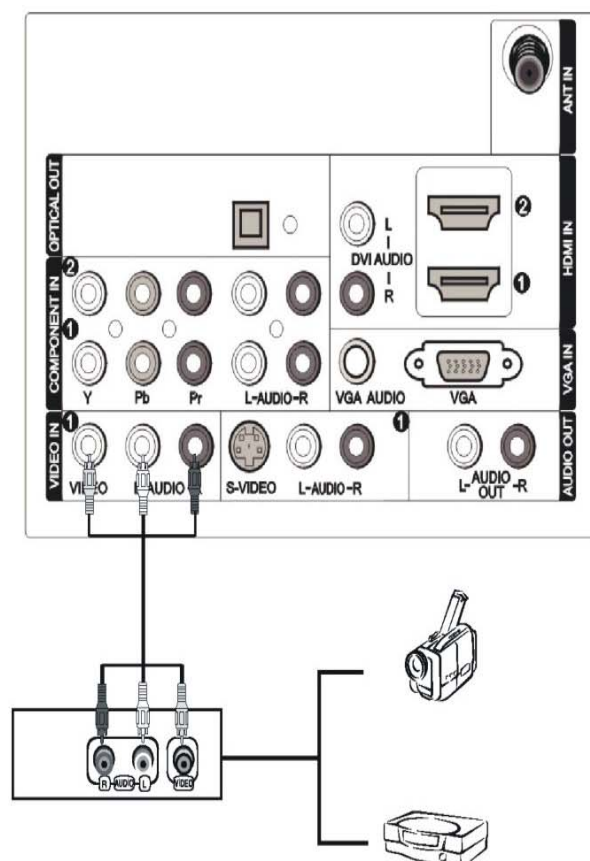
When connecting the VCR to the TV with composite cables, match the jack colors (Video = yellow, Audio Left = white, and Audio Right = red).

- Or -

If you connect an S-VIDEO output from VCR to the S-VIDEO input, the picture quality is improved compared to the composite video connection.

- 3 Insert a video tape into the VCR and press **PLAY** on the VCR. (Refer to the VCR owner's manual.)
- 4 Select the input source by pressing **INPUT** on the remote control, then press **▼** or **▲** to select the source. Press **ENTER** to confirm.

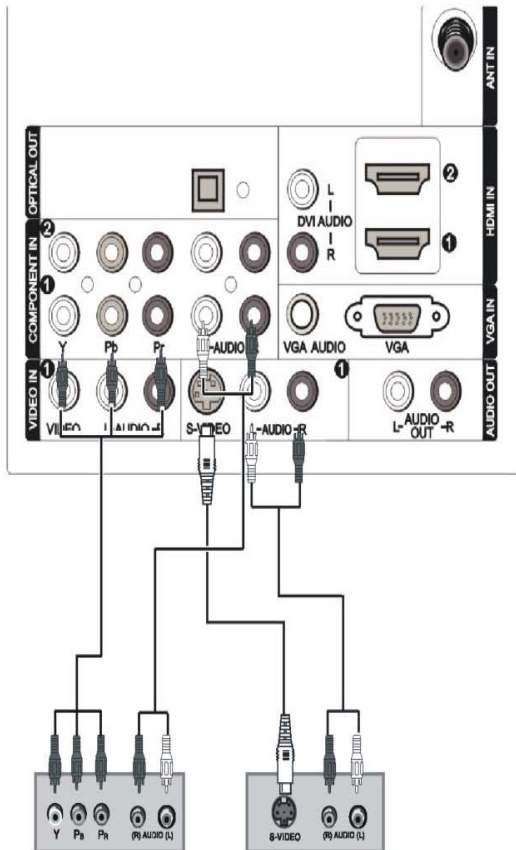
Connecting an external A/V source



To connect to an external A/V source:

- 1 Connect the audio and video outputs from the external source (such as a camcorder or video game set) audio and video input jacks on the TV, 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).
- 2 Select the input source by pressing **INPUT** on the remote control, then press **▼** or **▲** to select the source. Press **ENTER** to confirm.
- 3 Operate the corresponding external equipment.

Connecting a DVD player



Note

To get better picture quality, connect your DVD player to the component input ports as shown in the figure.

To connect to a DVD player:

- 1 Connect the DVD video outputs (COMPONENT) to the Y, Pb, and Pr jacks on the TV and connect the DVD audio outputs to the Y, Pb, Pr Audio IN jacks on the TV, as shown in the figure.

Note

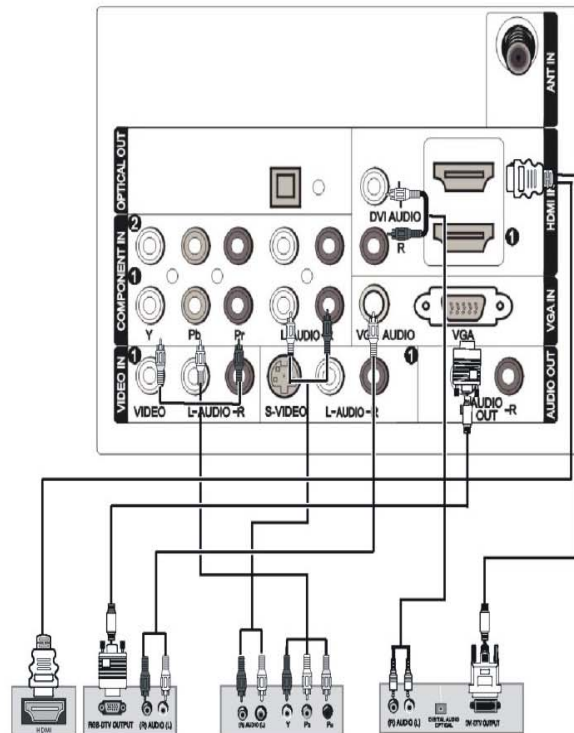
Instead of Y, Pb, and Pr, your DVD players output jacks may be labeled Y, B-Y, R-Y, or Y, Cb, Cr. Make connections accordingly.

- Or -

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.

- 2 Turn on the DVD player and insert a DVD.
- 3 Select the input source by pressing **INPUT** on the remote control, then press **▼** or **▲** to select Y, Pb, Pr, or S-Video, as appropriate. Press **ENTER** to confirm.
- 4 Press **PLAY** to play the DVD.
- 5 Refer to the DVD player's manual for operating instructions.

Connecting DTV (digital TV)



Digital set-top box

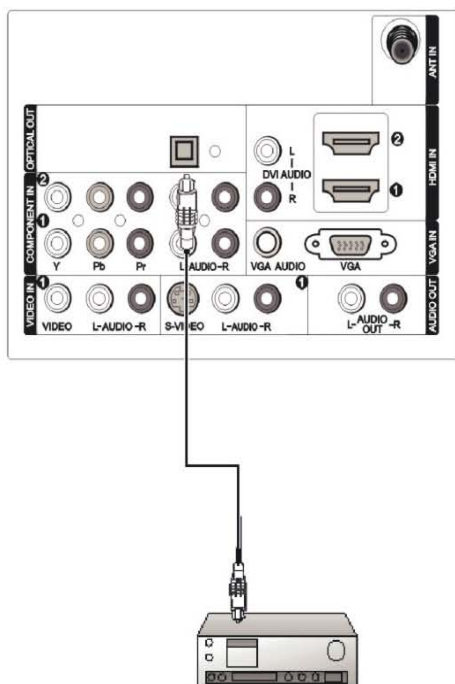
This TV can receive Digital Over-the-air/Cable signals without an external digital set-top box. However, you can also receive digital signals from a digital set-top box or other digital external device, as shown in the illustration.

This TV supports HDCP (*High-bandwidth Digital Contents Protection*) protocol for Digital Contents (480i, 480p, 720p, and 1080i).

To connect to a DTV source:

- 1 Connect the video outputs from the set-top box to the COMPONENT, VGA, or HDMI jacks on the TV and connect the audio outputs to the corresponding jacks on the TV, as shown in the figure.
- 2 Turn on the digital set-top box (refer to the owner's manual for the digital set-top box.).
- 3 Select the input source by pressing **INPUT** on the remote control, then press **▼** or **▲** to select **COMPONENT**, **VGA**, or **HDMI**, as appropriate. Press **ENTER** to confirm.

Connecting digital audio output



You can send the TV's audio signal to external audio equipment (such as a stereo system) through the Digital Audio Output (Optical) port.

Note

When connecting with external audio equipment, such as amplifiers or speakers, please turn the TV speakers off.

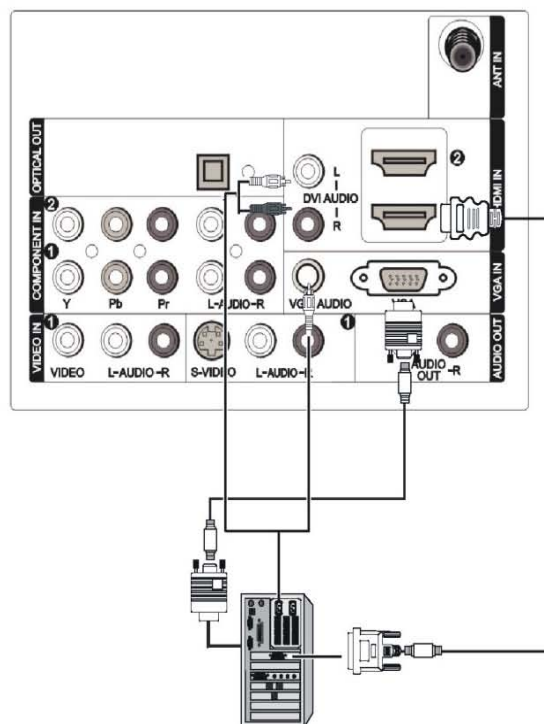
To connect digital audio output:

- 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 port on the audio equipment.

Caution

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

Connecting a computer



To connect a computer:

- 1 Adjust the output of your VGA graphics card to 1024 x 768, to get the best picture quality.
- 2 Use either the TV's VGA or DVI (Digital Visual Interface) VIDEO IN port for video connections, depending on your PC connector.

If the graphics card on the computer does not output analog and digital RGB simultaneously, connect either the VGA IN or HDMI IN to display the VGA on the TV, but not both, then set the TV to either VGA or HDMI. (The other mode is set to Plug and Play automatically by the TV.)

- 3 Make the corresponding audio connection. If using a sound card, adjust the VGA sound as required.
- 4 Turn on the PC and the TV.
- 5 Select the input source by pressing **INPUT** on the remote control, then press **▼** or **▲** to select **VGA**, or **HDMI**, as appropriate. Press **ENTER** to confirm.
- 6 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.

Caution

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.

Connecting headphones

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



To connect headphones:

Plug a set of headphones into the 3.5 mm mini-jack socket on the side panel of the TV. You will not hear sound from the speakers when you connect headphones to the system.

Caution

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

4.2 HDMI CONNECTIONS

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

To connect HDMI input:

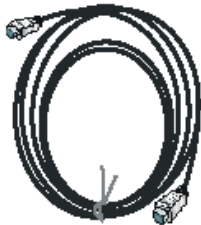
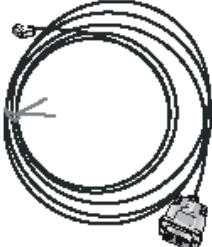

- 1 Connect the source device to the HDMI port on the TV with an HDMI cable (not supplied with this product).
No separate audio connection is necessary.
If the source device supports Auto HDMI, the output resolution of the source device will be automatically set to 1280 x 720p. If the source device does not support Auto HDMI, you need to set the output resolution appropriately.
- 2 To get the best picture quality, adjust the output resolution of the source device to 1280 x 720p.
- 3 Select the input source by pressing **INPUT** on the remote control, then press ▼ or ▲ to select **HDMI**. Press **ENTER** to confirm.

When the source device (DVD player or Set-top box) supports DVI

To connect DVI input:

- 1 Connect the source device to HDMI port of this TV with a HDMI-to-DVI cable (not supplied with this product).
If the source device supports Auto DVI function, the output resolution of the source device will be automatically set to 1280x720p. If the source device does not support Auto DVI, you need to set the output resolution appropriately.
- 2 If the source device has an analog audio output connector, connect the source device audio output to the DVI Audio In port located on the left side of HDMI port.
- 3 To get the best picture quality, adjust the output resolution of the source device to 1280 x 720p.
- 4 Select the input source by pressing **INPUT** on the remote control, then press ▼ or ▲ to select **HDMI**. Press **ENTER** to confirm.

Cable sample

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

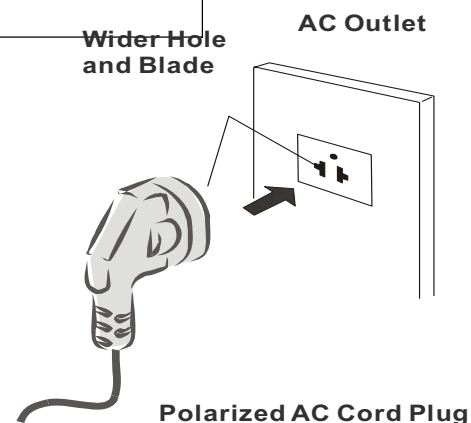
USE AC POWER SOURCE

To connect your TV to a power outlet:

- Plug the power cord into a power outlet.

Notes

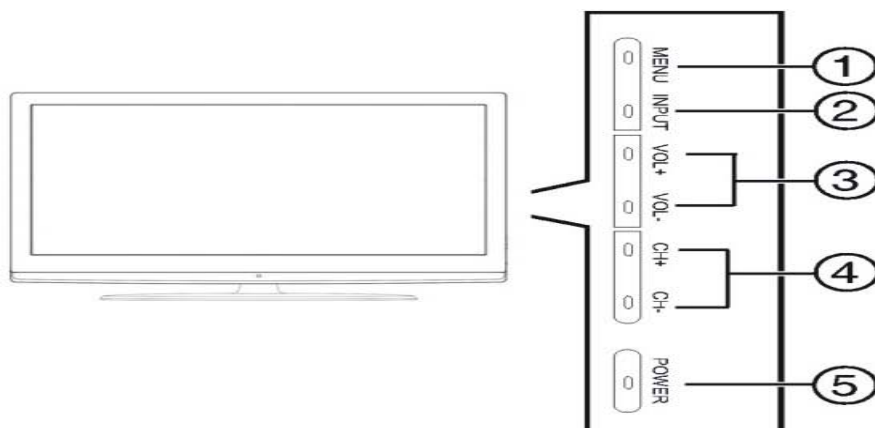
- Make sure that you use the correct type of power. See the label on your TV.
- If you do not intend to use your TV for an extended period of time, unplug the power cord from the power outlet.
- If the polarized AC cord does not fit into your non-polarized AC outlet, do not attempt to file or cut the blade. It is your responsibility to have an electrician replace the obsolete outlet.
- If you cause a static discharge when touching the TV and the TV fails to function, unplug the TV from the AC outlet and plug it back in. The TV should return to normal operation.



5. OPERATION INSTRUCTIONS

5.1 Front panel controls

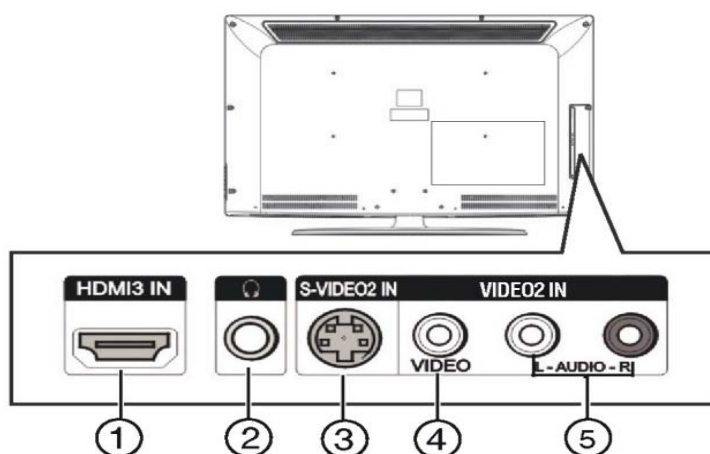
Front



#	Button	Description
1	MENU	Press to show the on-screen menu.
2	INPUT	Press to cycle through the available input sources. In Menu mode, functions as the OK key.
3	VOL+/VOL-	Press to increase or decrease the volume. In Menu mode, function as the right and left arrows, respectively, to go to the next or previous menu, or increase or decrease a setting.
4	CH+/CH-	Press to go to the next higher or lower channel. In Menu mode, function as the up and down arrows, respectively.
5	POWER	Press to turn your TV on or off.

5.2 Back panel controls

Back



#	Description
1	HDMI3 IN jack
2	PHONES (headphone jack)
3	S-VIDEO2 input jack
4	Composite (AV2) VIDEO input jack

5.3 Setting Up Your Remote Control

Using the remote control

To use the remote control:

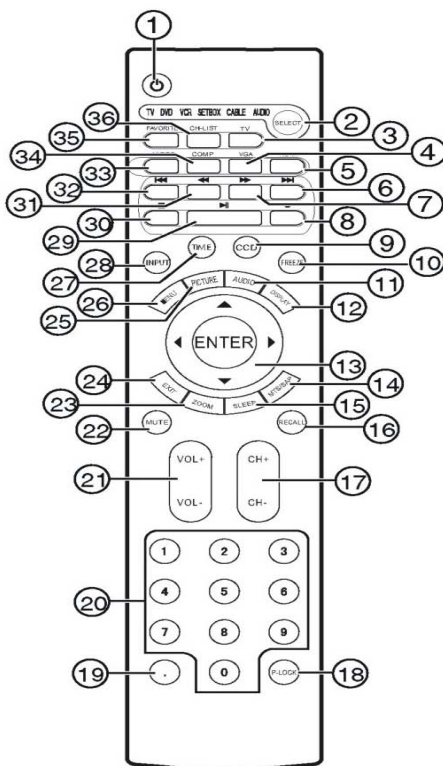
- Point the remote control towards the remote sensor on the front of your TV.

Notes

- Do not expose the remote control to shock or liquids.
- Do not use the remote control in an area with high humidity.
- Do not place the remote control in direct sunlight.
- Do not place objects, such as furniture, between the remote control and the remote sensor.
- The remote control may not work if direct sunlight or bright light shines on the remote sensor. Either move your TV or change the angle at which you use the remote control.

#	Description
5	AUDIO L/R (AV2) input jacks

Remote



#	Button	Description
1	POWER	Press to turn your TV on or off.
2	SELECT	Press repeatedly to select one of the system modes in which the remote control can be used. When the device you want is selected, the corresponding LED lights for 5 seconds.
3	TV	Press to switch TV mode.
4	VGA	Press to switch to VGA signal.
5	HDMI	Press to switch to HDMI signal.
6	(Next)	In VCR, DVD or CD mode, press to advance to the next chapter (DVD) or track (CD).
7	(Fast forward)	In VCR, DVD or CD mode, press to fast forward the DVD or CD. Press repeatedly to step through the fast forward speeds.
8	(Record)	In VCR or DVD mode, press to begin recording.
9	CCD	Press to turn closed captions on and off. For more information, see "Viewing closed captions" on page 16.

#	Button	Description
10	FREEZE	Press to freeze the video image. Press again to unfreeze the image. Do not freeze the video image for long periods of time. You may damage the TV screen.
11	AUDIO	Press to select the sound mode.
12	DISPLAY	Press to display status information.
13	ENTER	Press the arrows to move down, up, left, or right in the on-screen menu. Press the ENTER button to confirm changes or to toggle options on and off in the on-screen menu.
14	MTS/SAP	Press to select one of the preset audio modes. You can select MONO, STEREO, or SAP. In DTV mode, press to change the audio language.
15	SLEEP	Press to set the sleep timer. For more information, see "Setting the sleep timer" on page 15.
16	RECALL	Press to watch the previous channel.
17	CH+ or -	Press to change TV channels.
18	P-LOCK	Press to open the Parental Controls menu. See "Setting parental controls" on page 16 for information on setting up Parental Controls.
19	.	Press to select additional channels (digital) being broadcast by the same station. For example, to select channel 54.3 , press "54", then press "." then "3".
20	[Number buttons]	Press to enter channel numbers. In the on-screen menu, press to enter your parental control's password.
21	VOL + or -	Press to adjust the volume up or down.
22	MUTE	Press to mute the sound. Press again to restore the sound.
23	ZOOM	Press to select the display aspect ratio.
24	EXIT	Press to close the on-screen menu.
25	PICTURE	Press to select a pre-set picture mode.
26	MENU	Press to open the on-screen menu.
27	TIME	Press to show the current time on screen.
28	INPUT	Press to show the video input signal source.
29	(Play/Pause)	In VCR, DVD, or CD mode, press to begin playback. Press again to pause playback. Press again to resume playback.
30	(Stop)	In VCR, DVD, or CD mode, press to stop playback.
31	(Fast reverse)	In VCR, DVD, or CD mode, press to fast reverse. Press repeatedly to step through the fast reverse speeds.
32	(Previous)	Press to return to the previous chapter (DVD) or track (CD).
33	VIDEO	Press to select a video signal source.
34	COMP	Press to select Component video signal.
35	FAVORITE	Press to open your favorite channel list.
36	CH-LIST	Press to open your channel list.

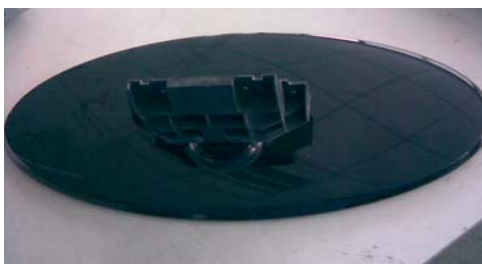
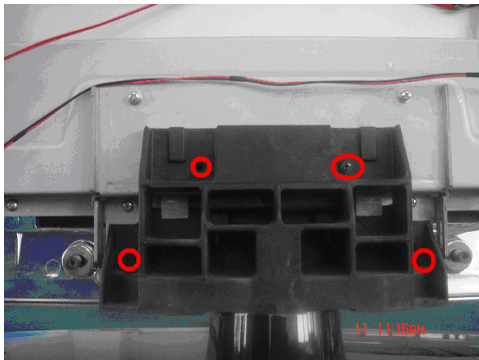
6. DISASSEMBLY INSTRUCTIONS

1. Remove the Back Cover



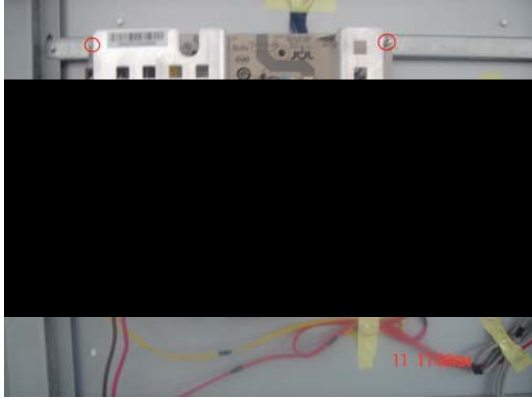
- ① Remove the twelve screws indicated on figure above by ○.
- ② Then remove the back cover from the unit.

2. Remove the Pedestal



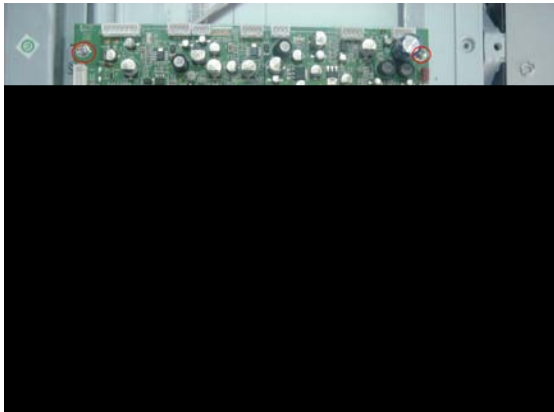
- ① Lay down the unit so that rear cover faces upward
- ② Remove the four screw from the rear cover indicated with ○
- ③ Then remove the pedestal.

3.Remove the power module



- ① Remove the four screws indicated on the figure above by ○
- ② Then remove the power module

4. Remove the Main board



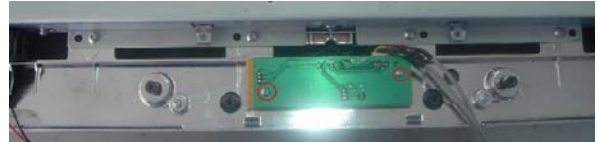
- ① Remove the four screws indicated on the figure above by ○
- ② Disconnected the coupler CN28、CN2、CN26、CN22、CN23、CN20、CN21
- ③ Remove the Main board

5. Remove the speaker



Remove the four screws, take out the speaker

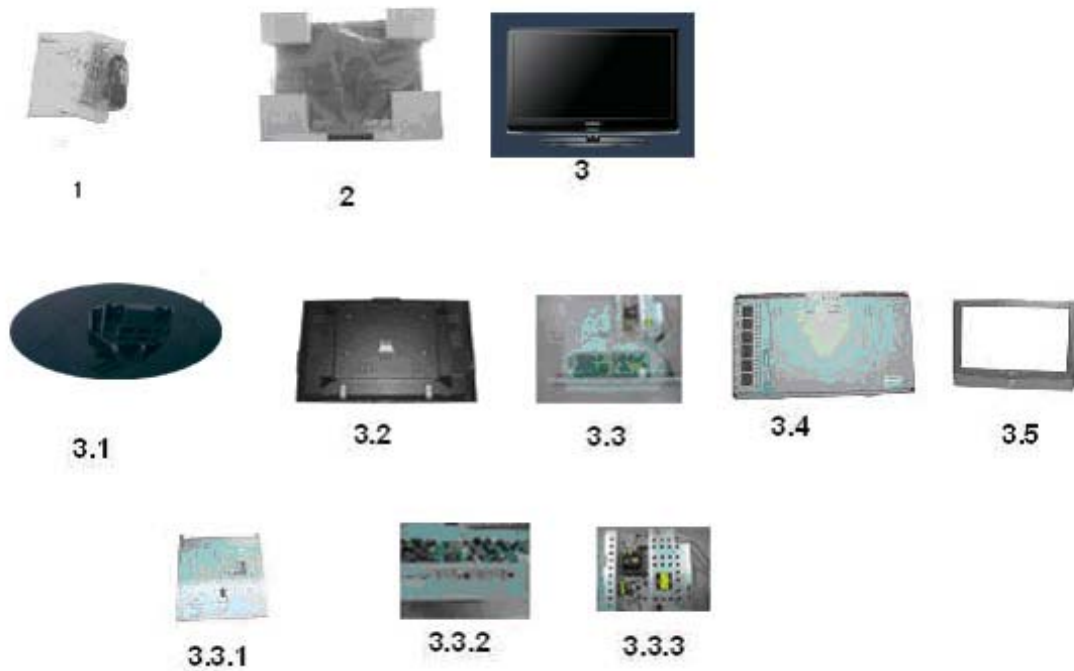
6. Remove the remote control board



Remove the two screws, take out the remote control board

6.1 whole machine

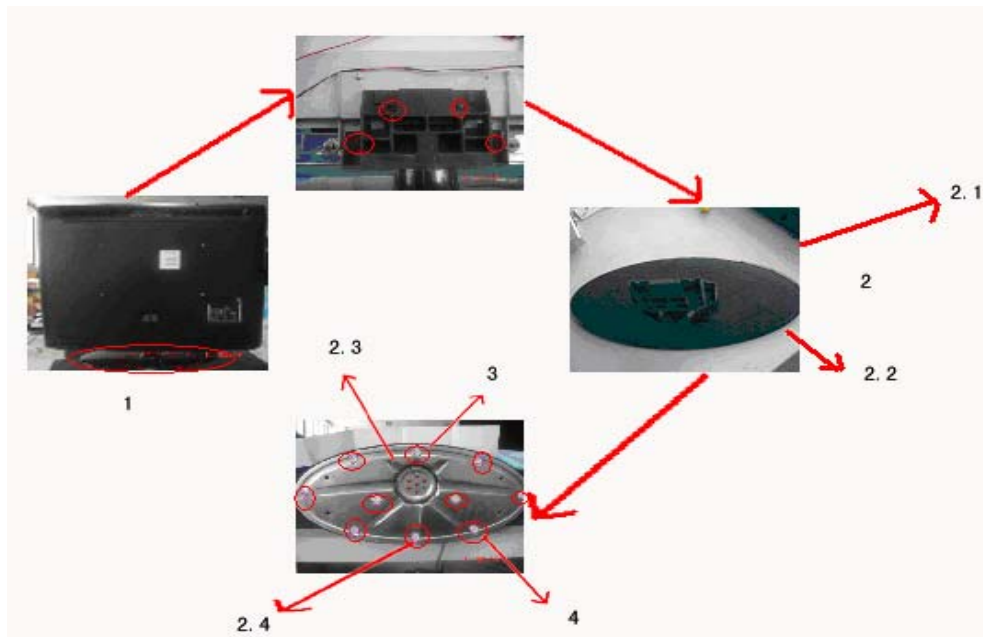
The whole machine includes Packaging subassembly、Front-frame subassembly、Back-cover subassembly、Screen bracket subassembly、Base subassembly、LCD panel、Power assembly (PSU)、Wire subassembly.



Components List

NO	Name	Description	Parts number
1	Accessory		
2	Packaging		
3	TV Set		
3.1	Base subassembly		TV-0250-47
3.2	Back cover subassembly		TV-1300-155
3.3	Screen bracket module		
3.3.1	Screen bracket assembly		
3.3.2	Main Board		TV-5210-296
3.3.3	PSU		TV-5210-291
3.4	LCD PANEL		
3.5	Front-frame subassembly		TV-1300-156

6.2 Base subassembly



NO	Name	Description	Parts number
1	Base subassembly		
2	Base assembly		TV-0250-47
2.1	Base cover		
2.2	Iron soleplate		
2.3	Base support Board		
2.4	Rubber PAD		
3	Bolt		
4	Bolt		

6.3 Back cover subassembly



1.



2.

NO	Name	Description	Parts number
1	Back cover subassembly		TV-1300-155
2	Back cover assembly		
2.1	Back cover		
2.2	Side av label		
2.3	Back jack label		
2.4	Screw		

6.4 Screen bracket subassembly



1.

Components List



1.1

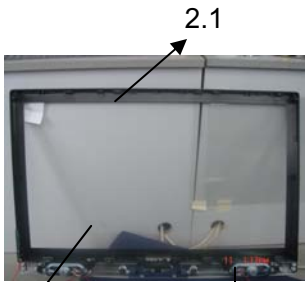
NO	Name	Description	Parts number
1	Screen bracket subassembly		
2	Screen bracket assembly		
2.1	Screen bracket		
2.2	Metallic Jack Board		

6.5 Front-frame subassembly

2



2.3



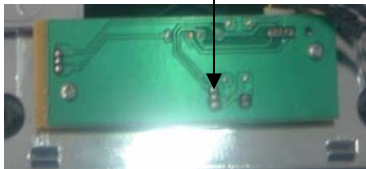
2.1



2.4



2.5



5



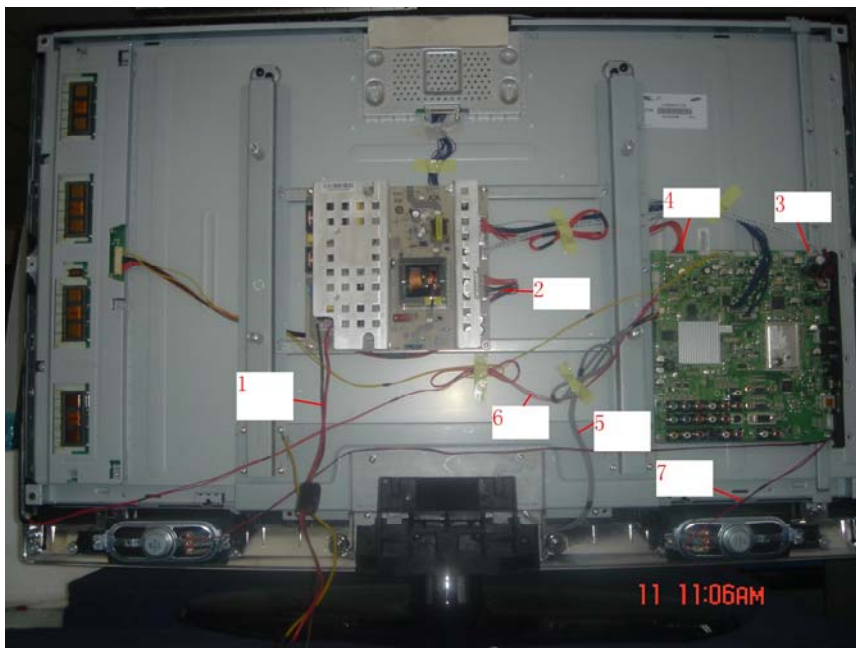
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Components List

NO	Name	Description	Parts number
1	Front frame module		
2	Front frame assembly		
2.1	Front frame		TV-1300-156
2.2	Speaker Cover		
2.3	Decorate ring		
2.4	Power hole stopper		
2.5	Key board trestle		
3	Screw	SJ2824-87 ST3X12F	
4	Screw	SJ2824-87 ST3×10F	

6.6 Wire subassembly---- Connection Sketch Interpretat

6.6.1. Wire Photo



6.6.2 Components List

NO	Name	Description	Parts number
1	Power input connect wire	(2139-5P)-500mm	
2	24v power wire	(TJC3-3P) -450mm- (TJC3-15P)	
3	LVDS wire		
4	12V Power wire		
5	Remote control wire	PH7) -350MM-(PH15)-700MM-(PH5)	
6	Key wire	(PH-3)-800mm-(PH-3)	
7	Speaker wire		

7. MEASUREMENTS AND ADJUSTMENTS

The way to the factory mode menu:

1st, adjust the volume to zero in the TV state,

2en, input 9876,

3rd, press “ok”

Finished these operations , system will be into the factory mode menu.

The following are the detail descriptions for the menu items.

1. Factory menu



2. 1) RF Upgrade



2) Service Menu



3) Auto Color



4) Recall PQ settings



5) SW:L_2780_SS40 071227

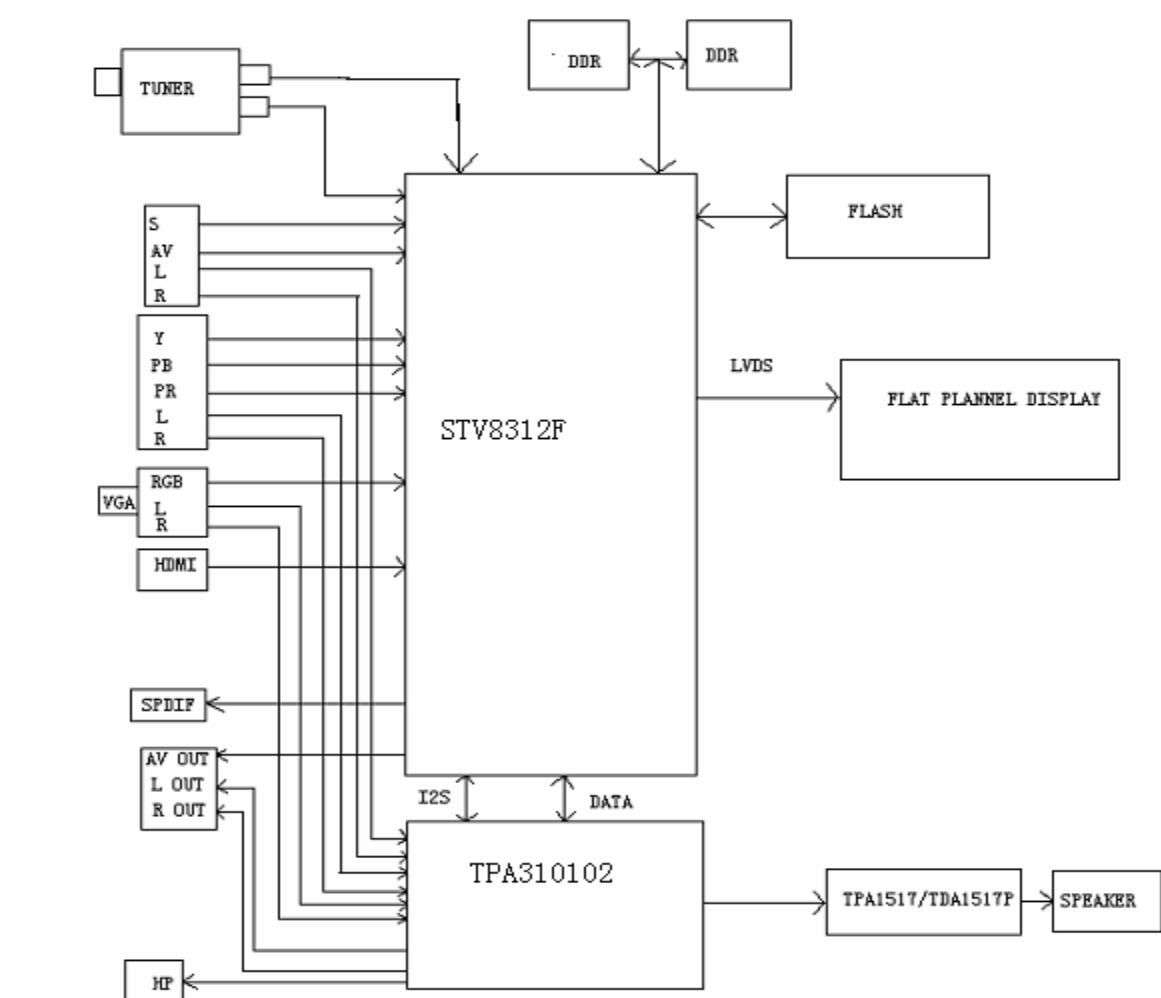


6) Aging Mode

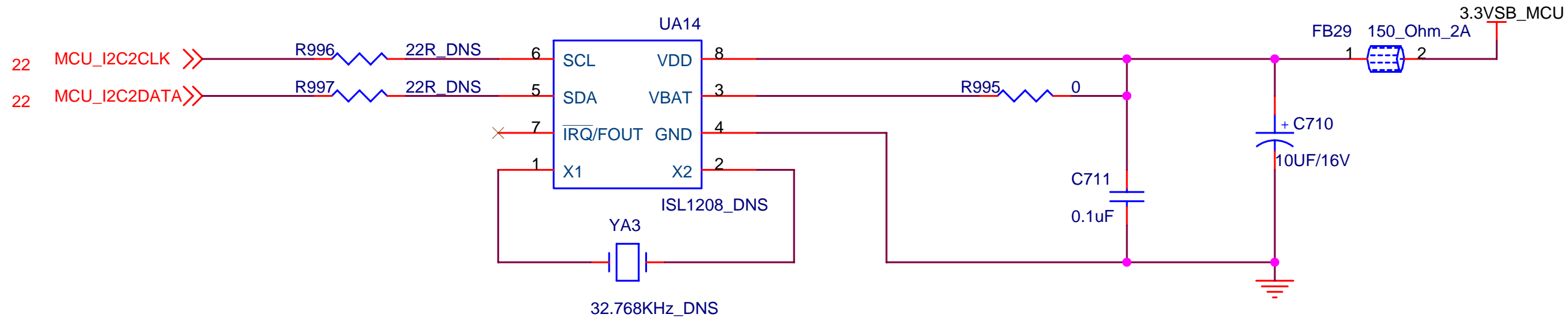


8. BLOCK DIAGRAM AND CIRCUIT DIAGRAM

8.1 BLOCK DIAGRAM

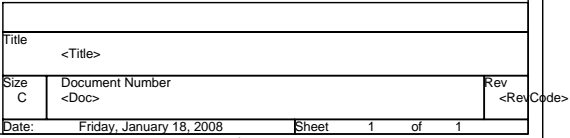


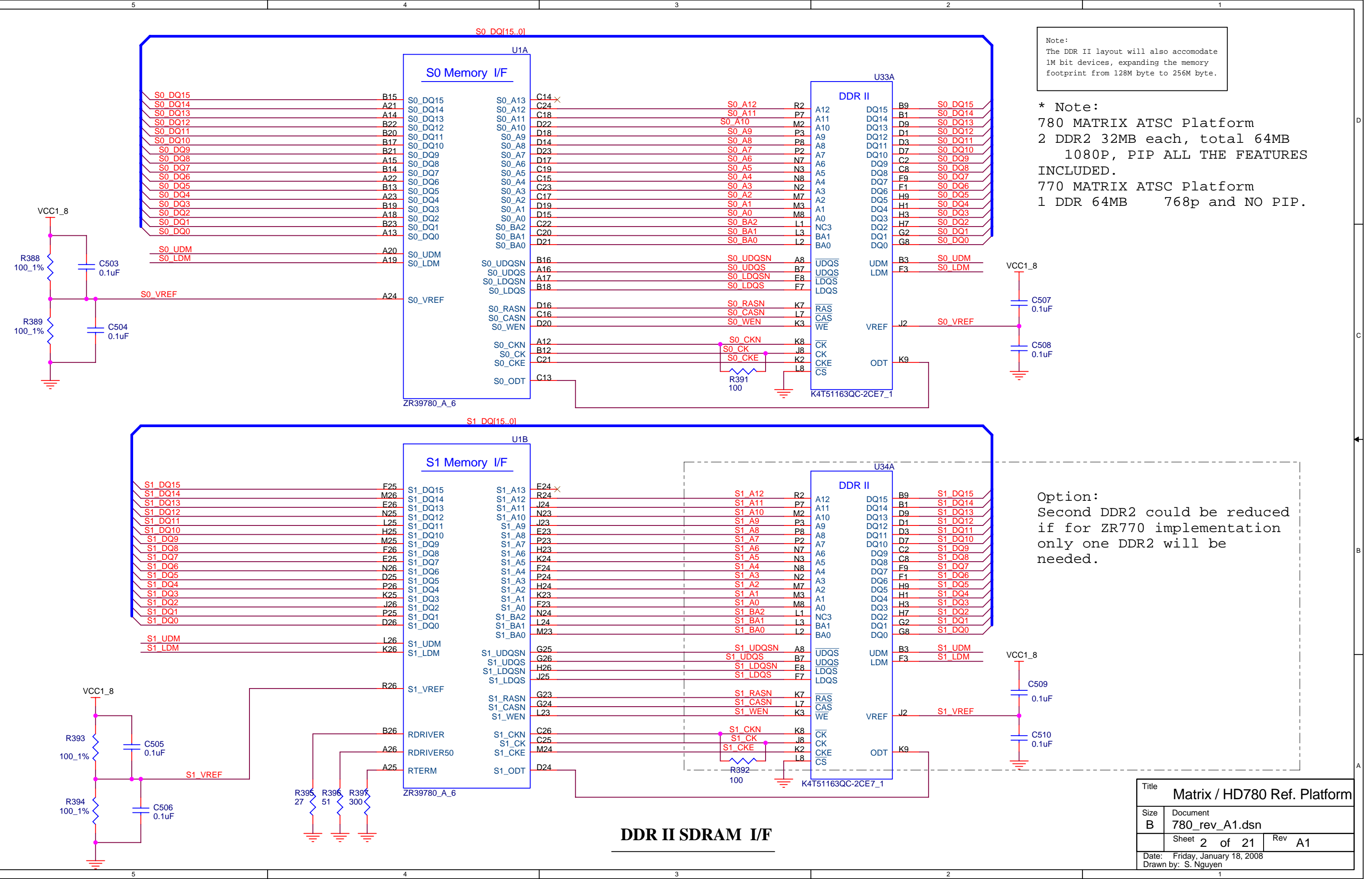
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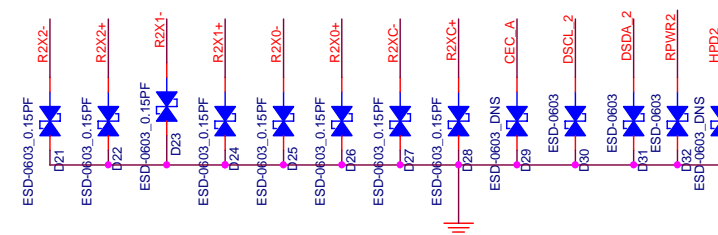
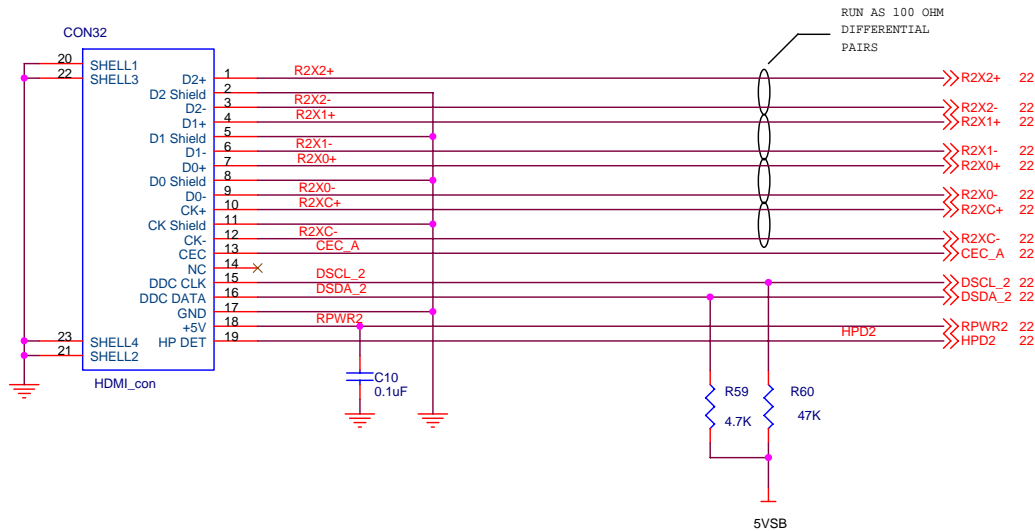
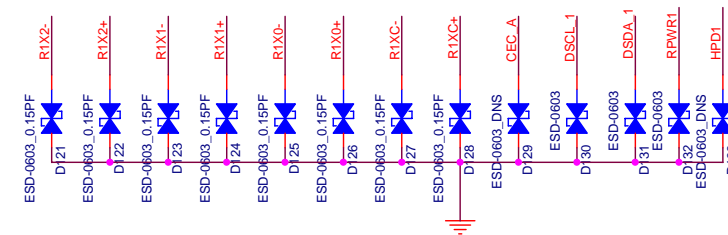
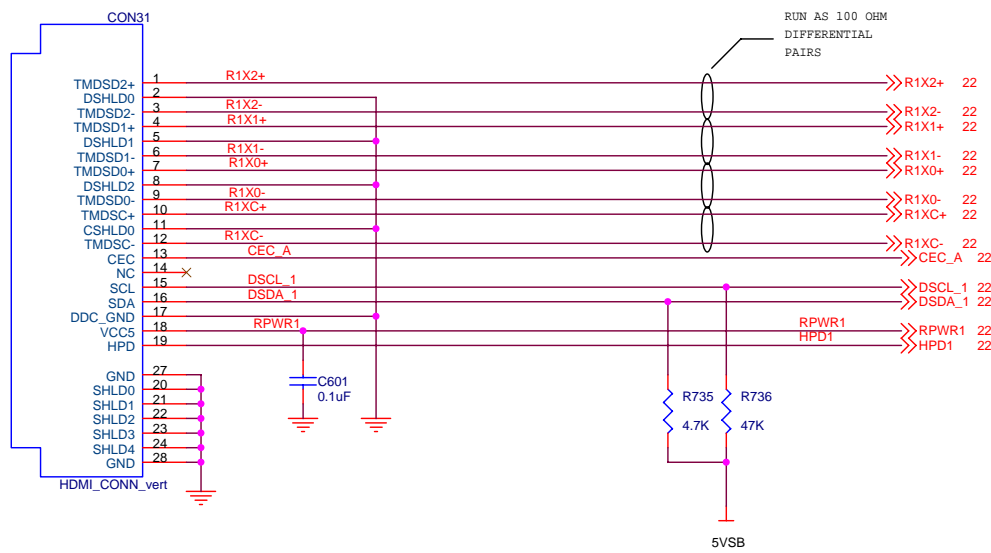
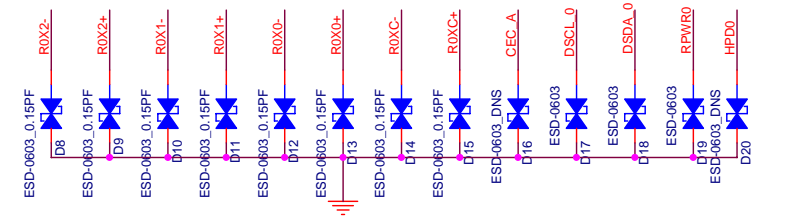
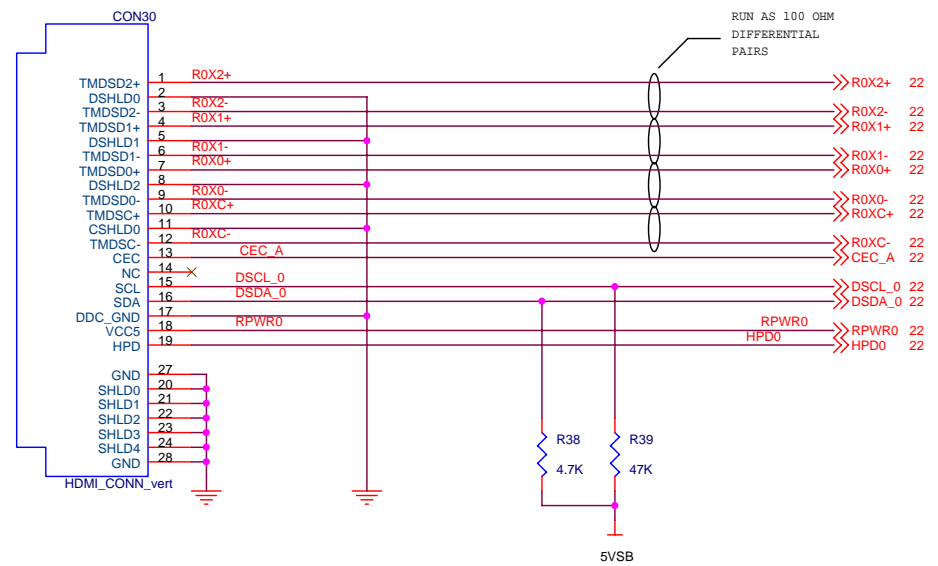


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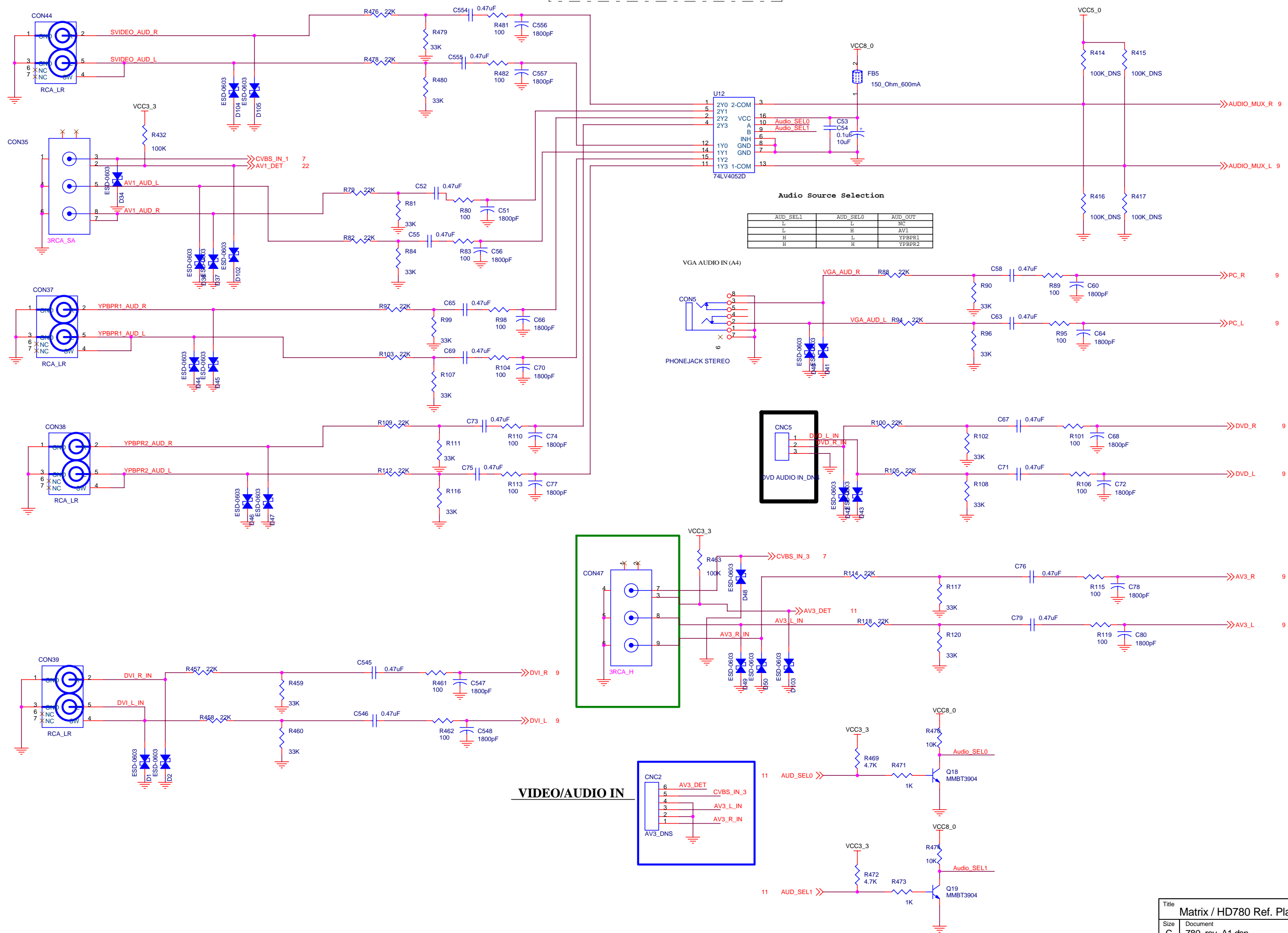


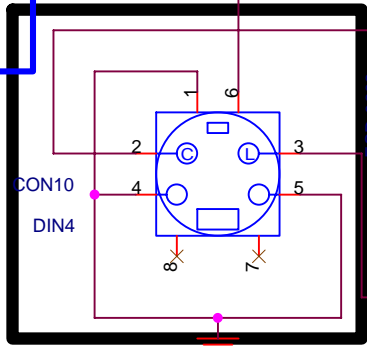
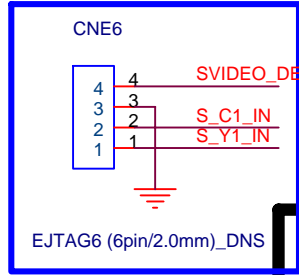




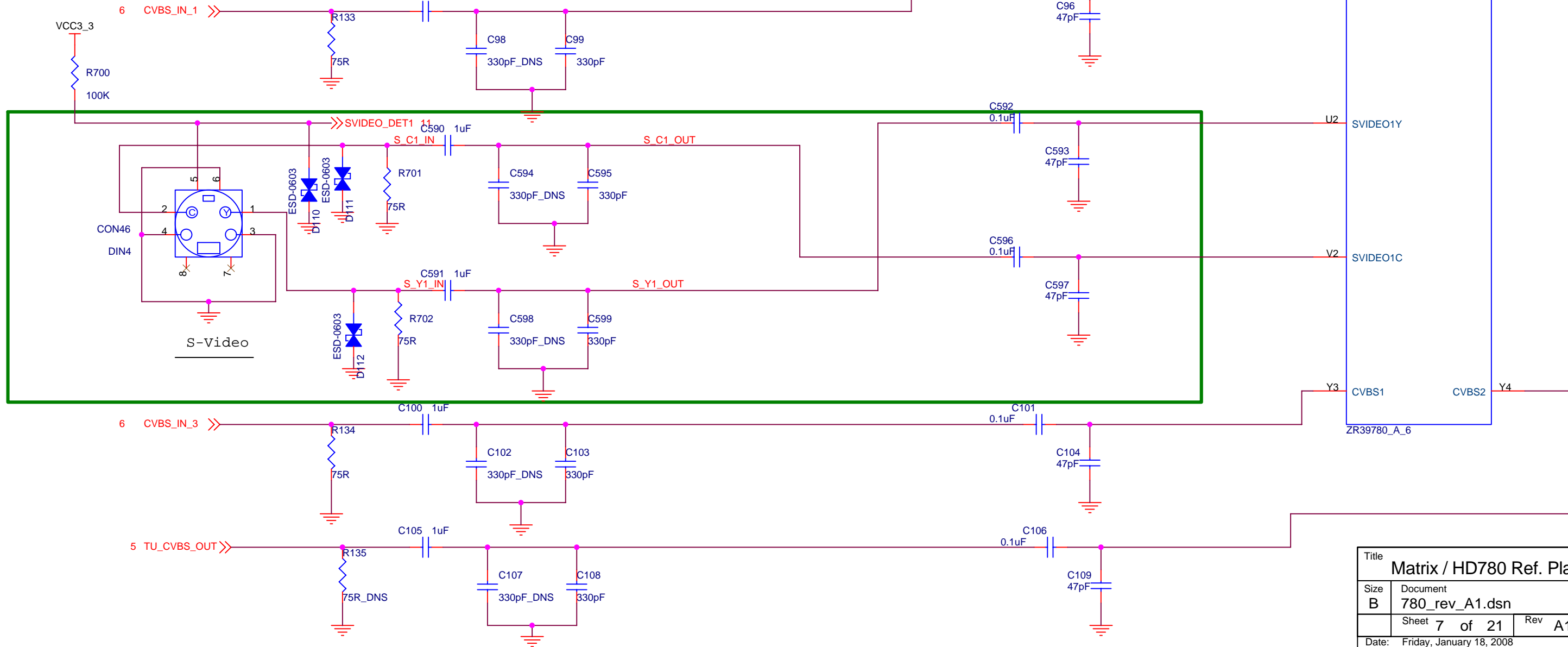
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Drawn by:	S. Nguyen	

RCA接口的开关为常通的。高电平时，有端子插入；低电平时，无端子插入

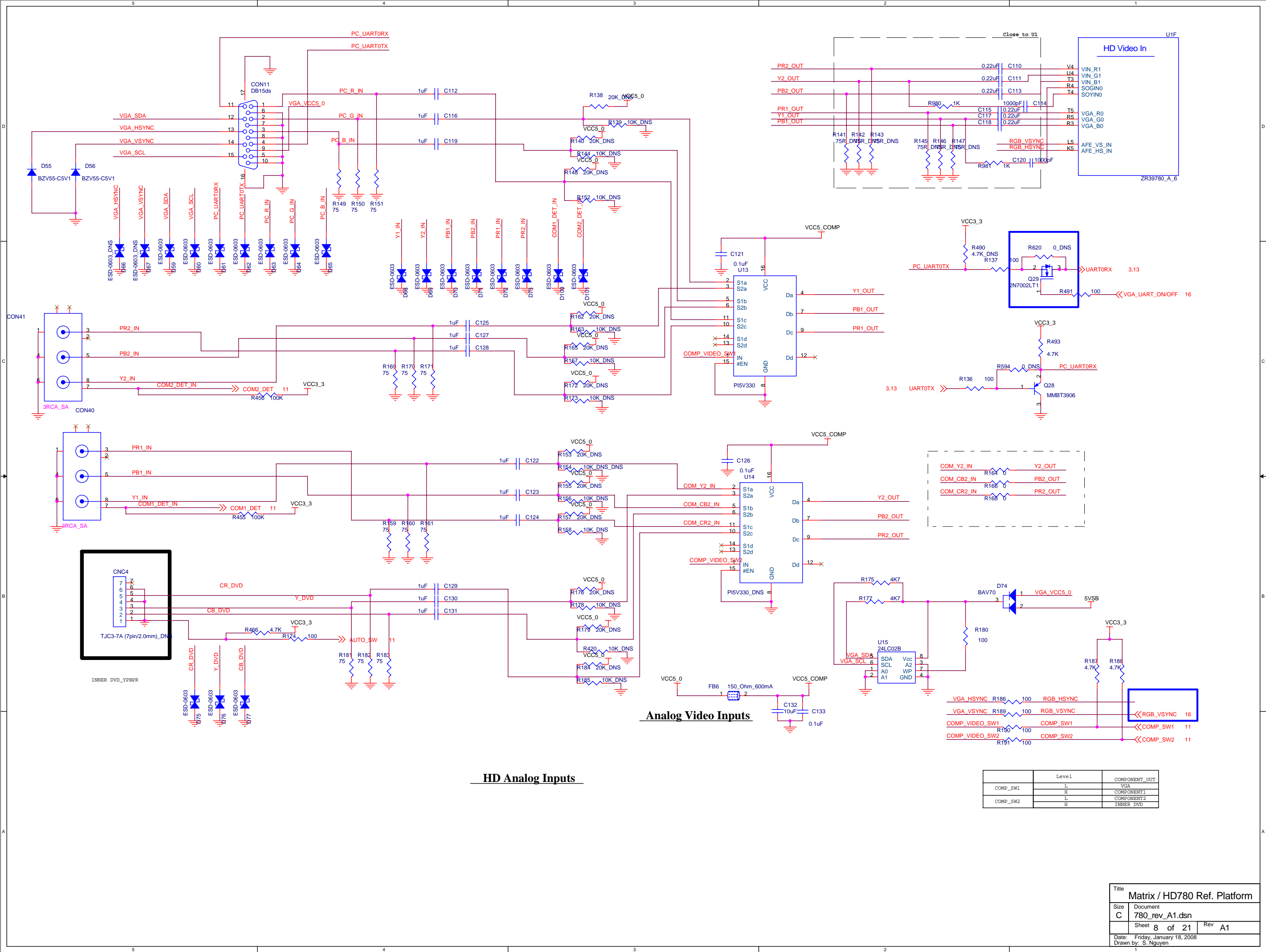




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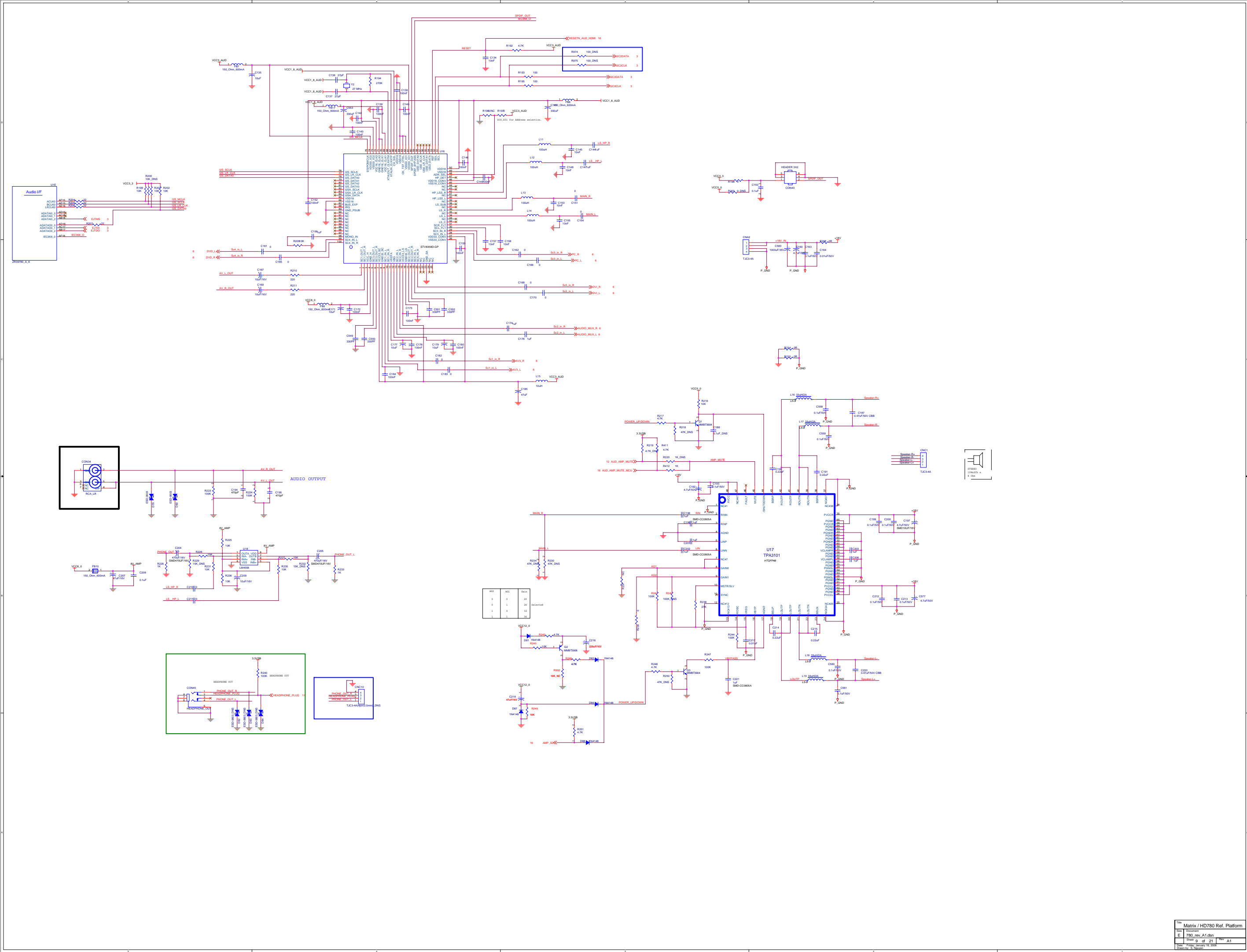


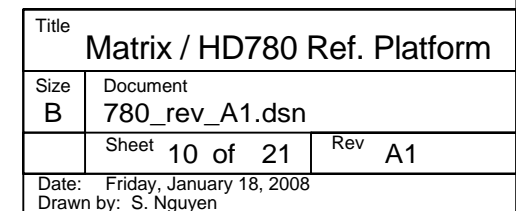
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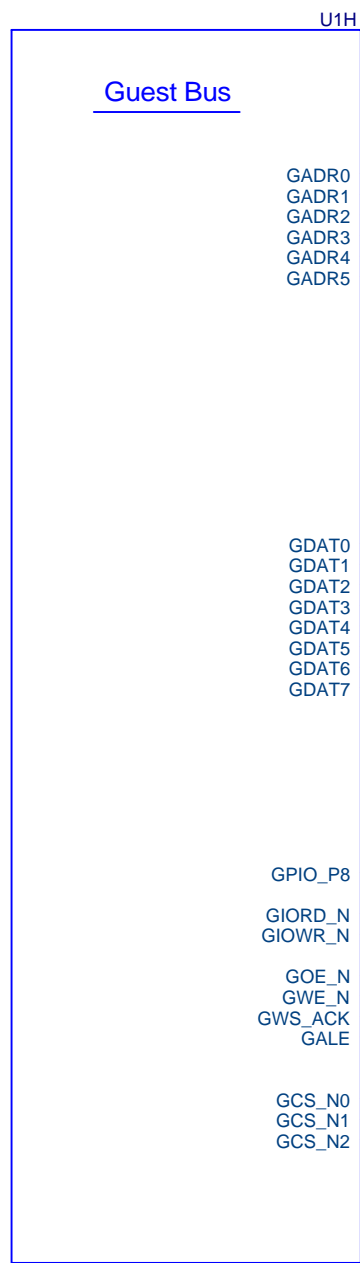


Analog Video Inputs

HD Analog Inputs







NAND FLASH INTERFACE
(for intrenal debug usage)

SD_DET 3

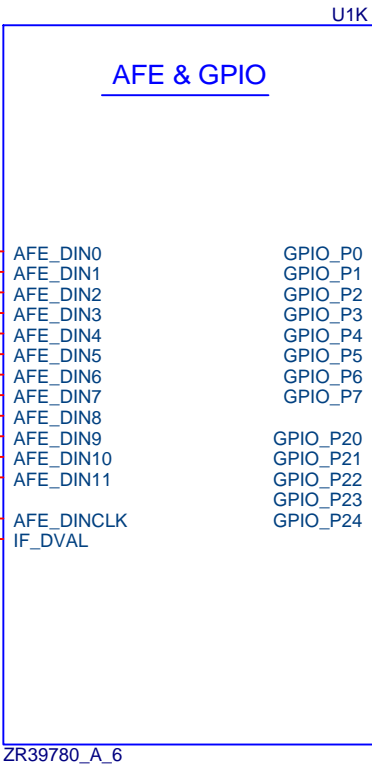
SPI_WEN 3

USB_OC 3
AUTO_SW 8

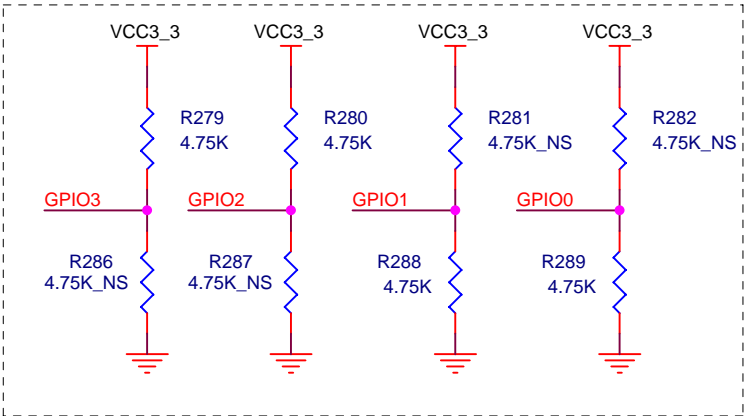
HEADPHONE_PLUG 9
SVIDEO_DET1 7
I2C_SEL/INT_CPU 16

GPIO / Guest Bus

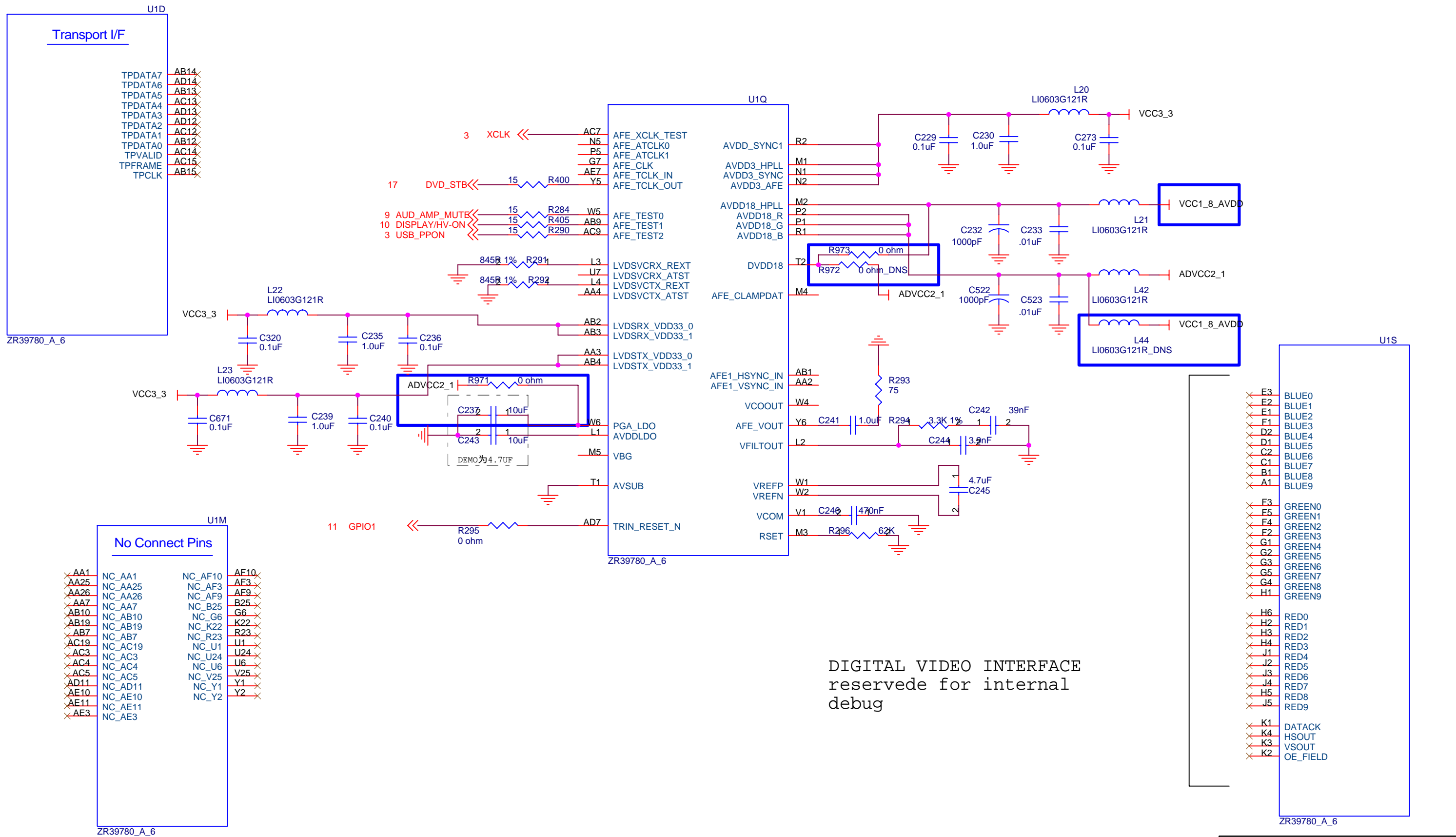
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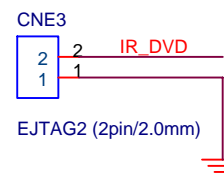
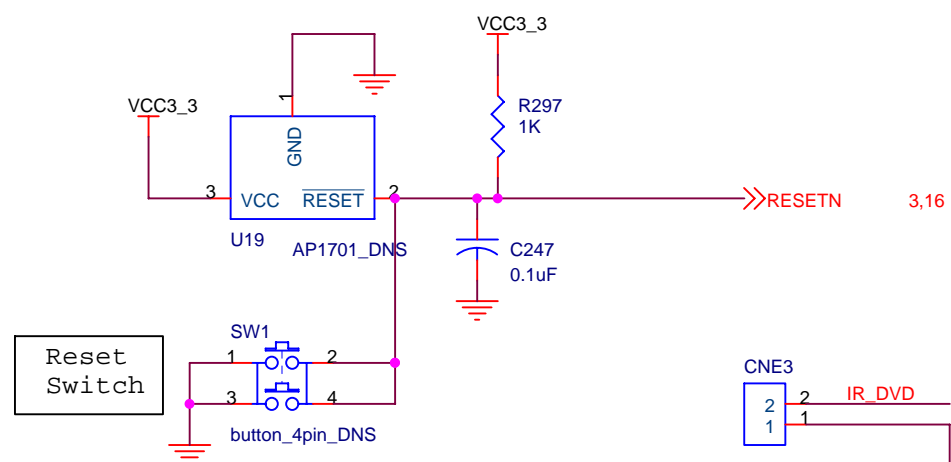
Bootstrap Configuration



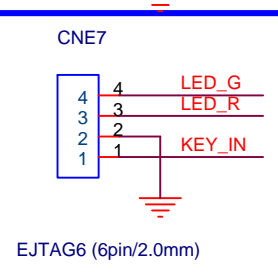
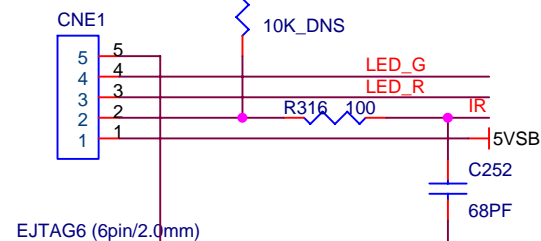
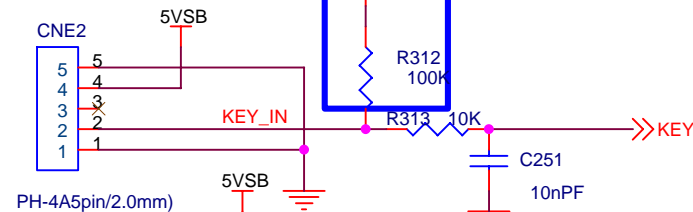
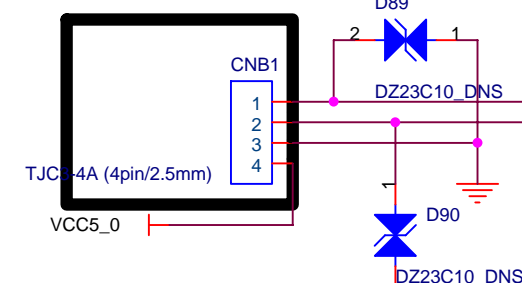
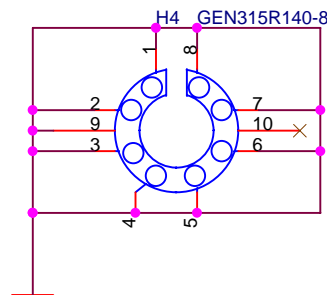
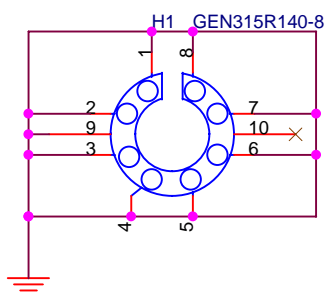
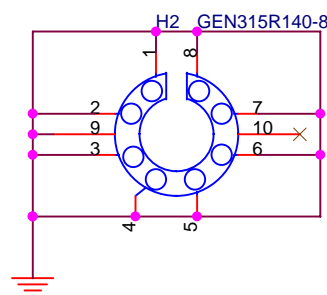
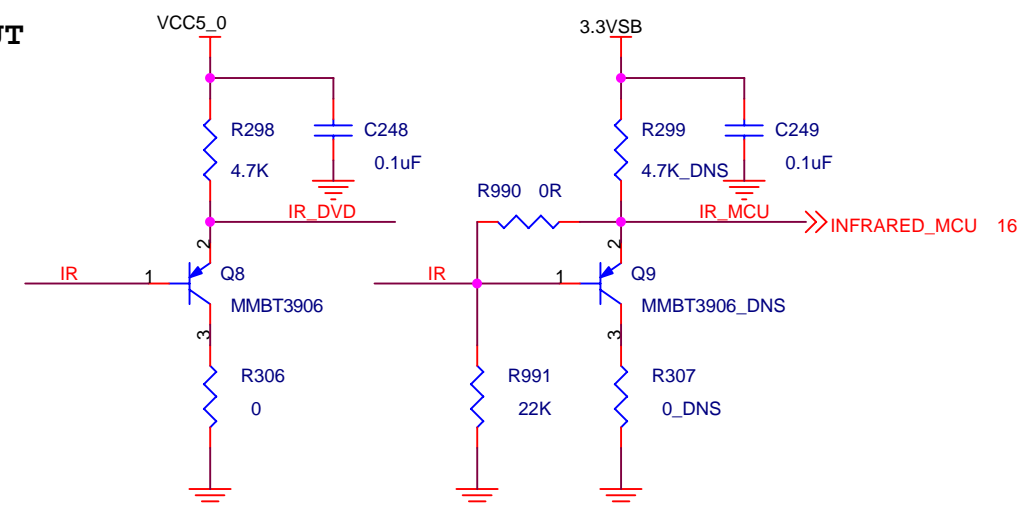
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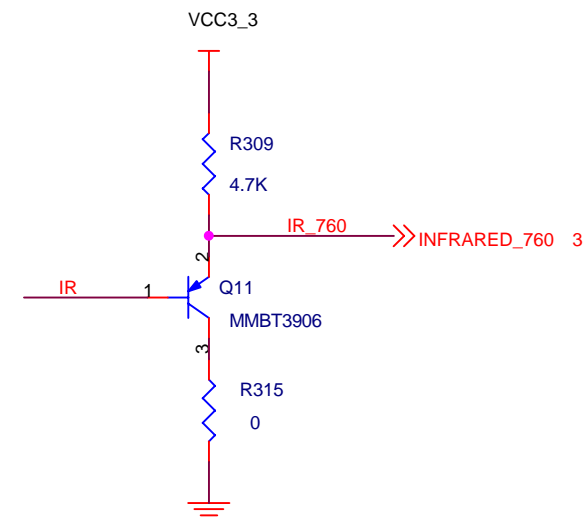
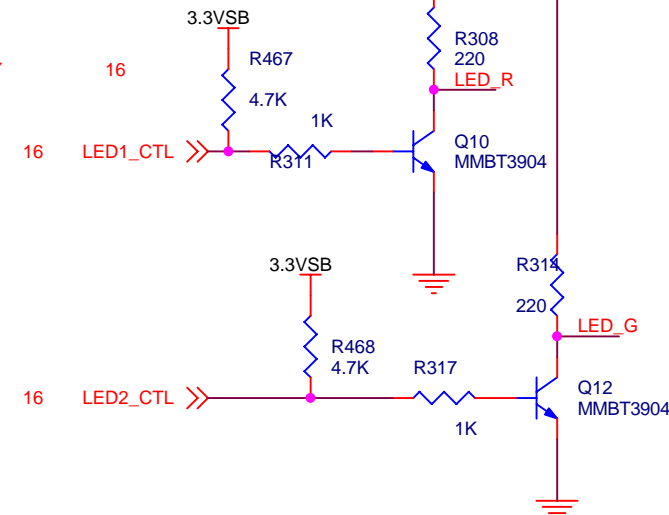
Reset Circuit



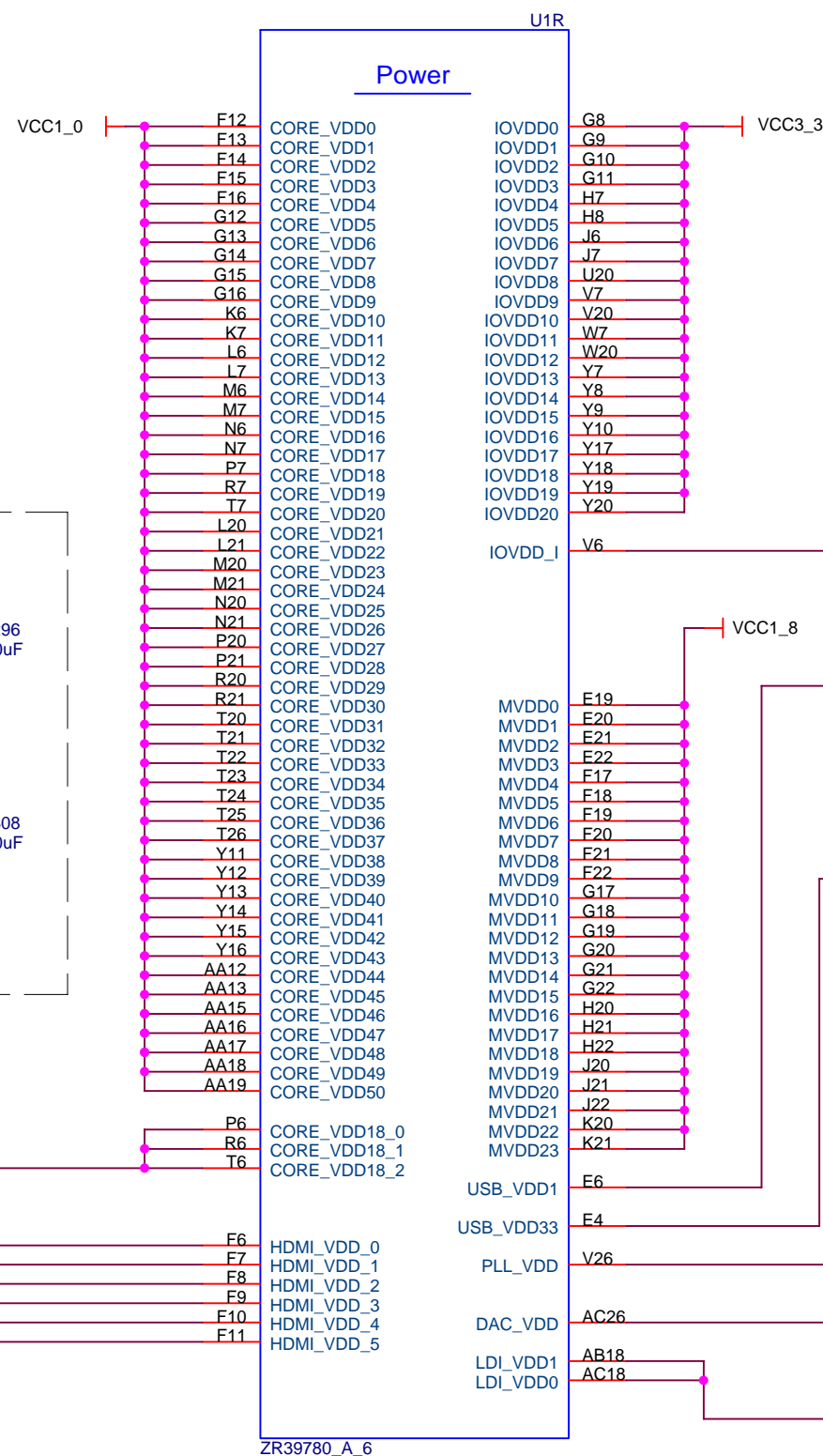
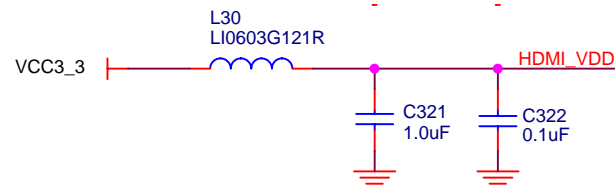
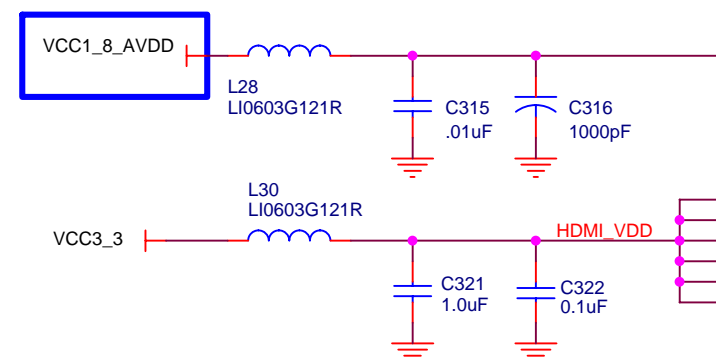
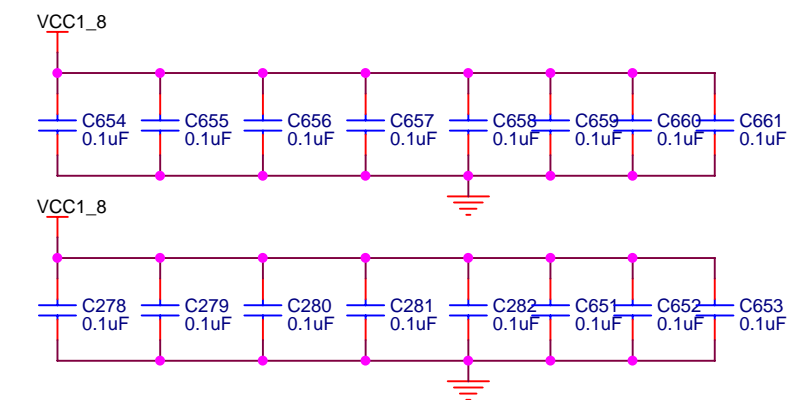
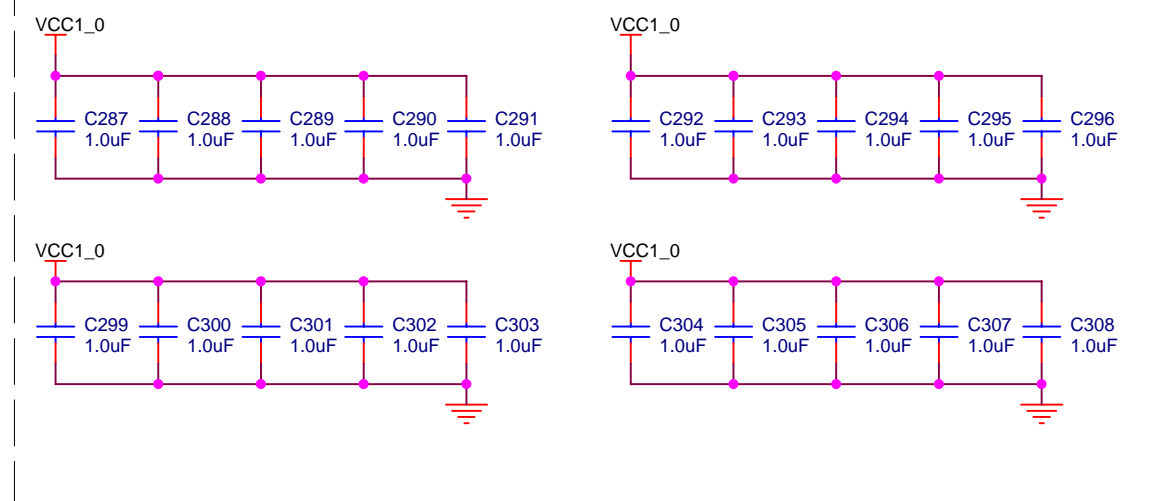
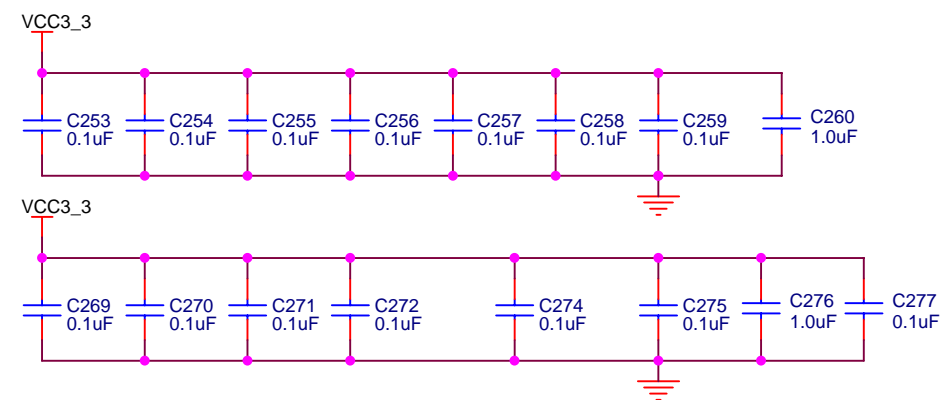
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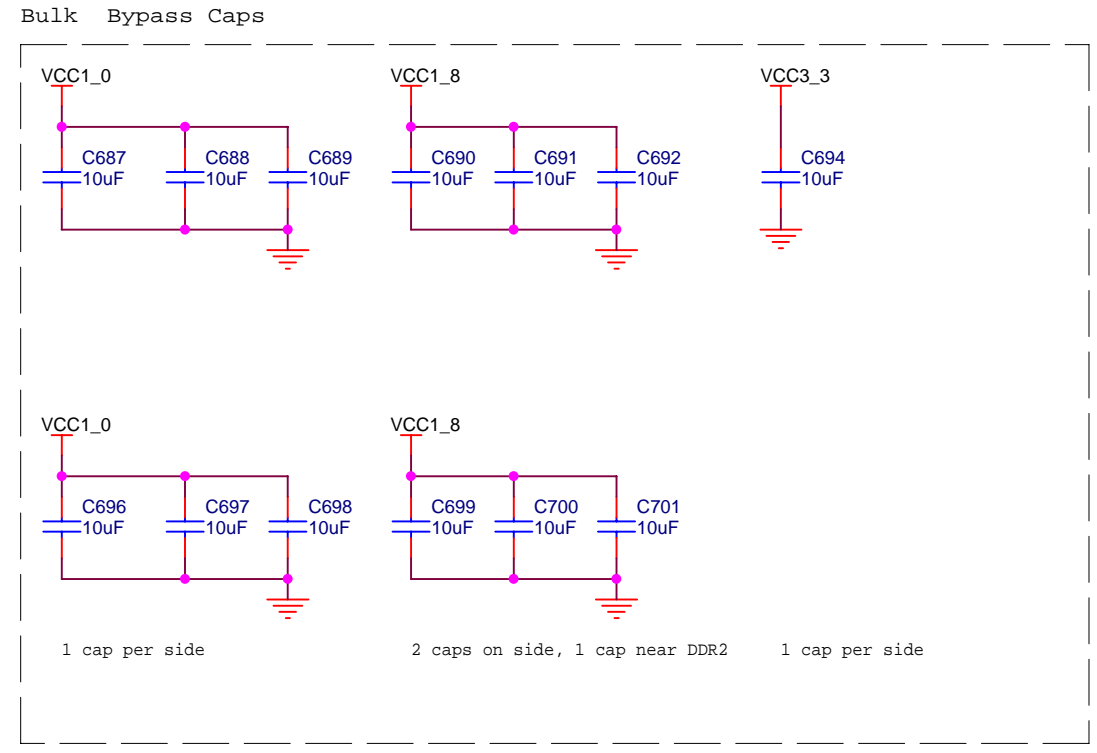
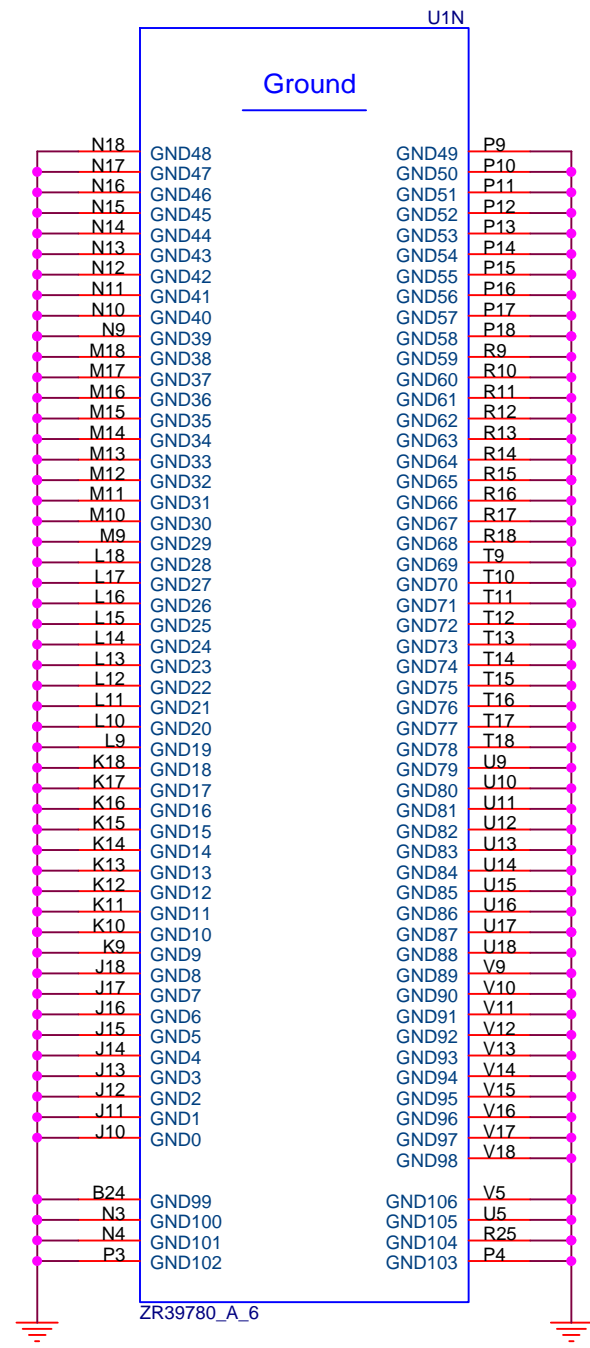
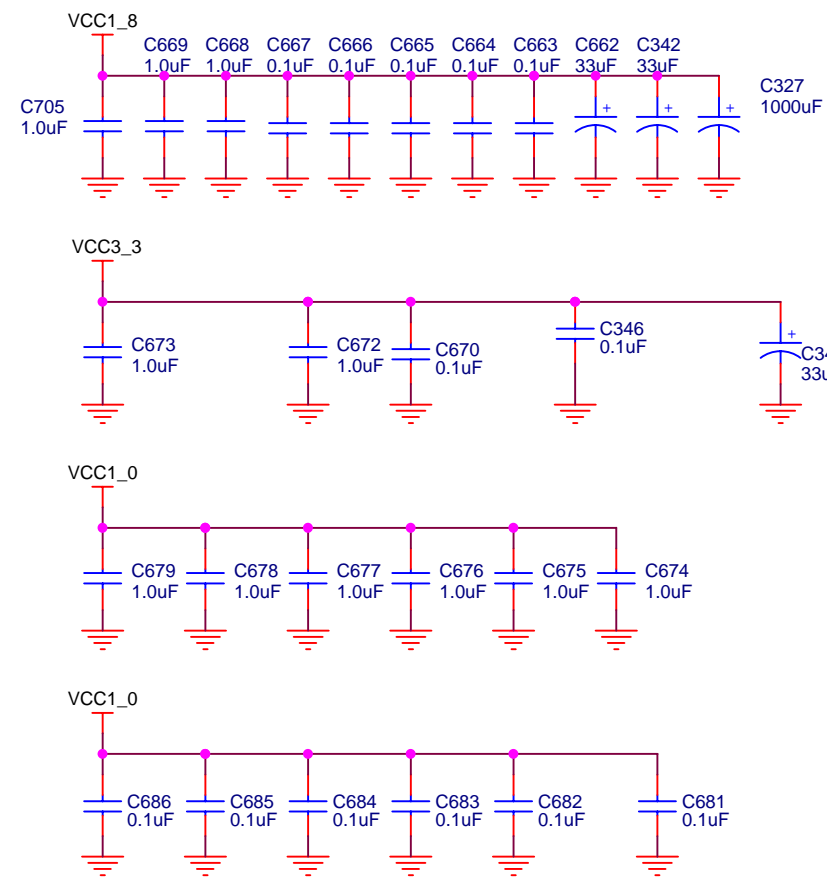
MISC & Connectors



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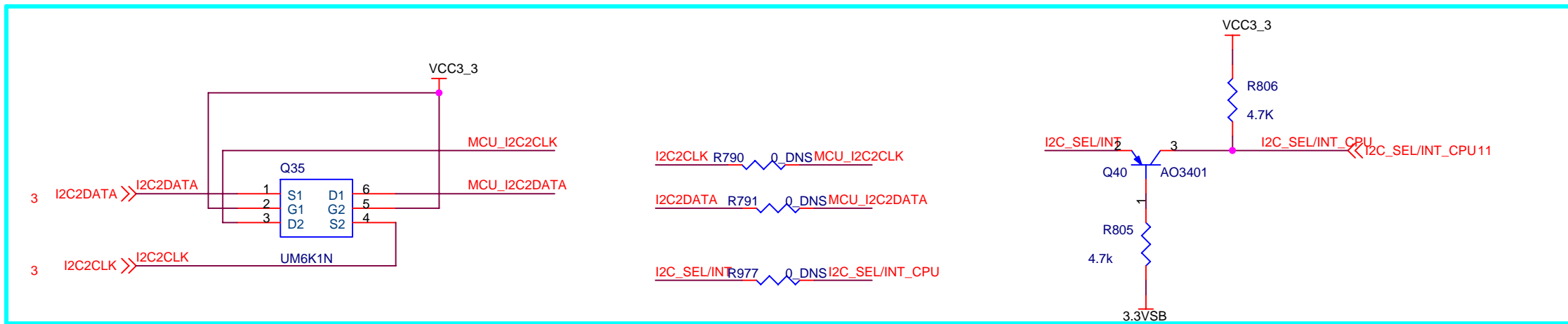
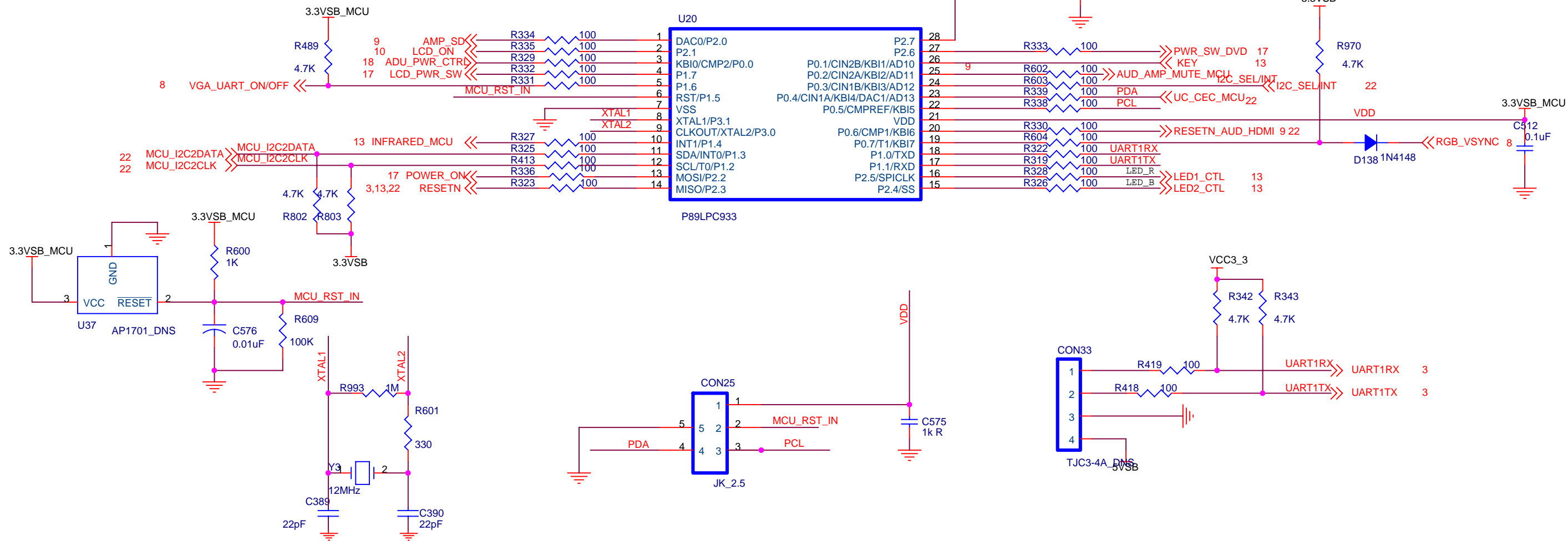
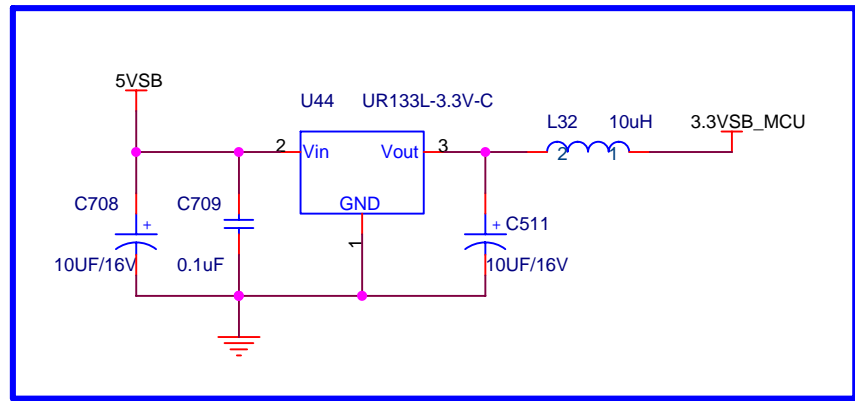


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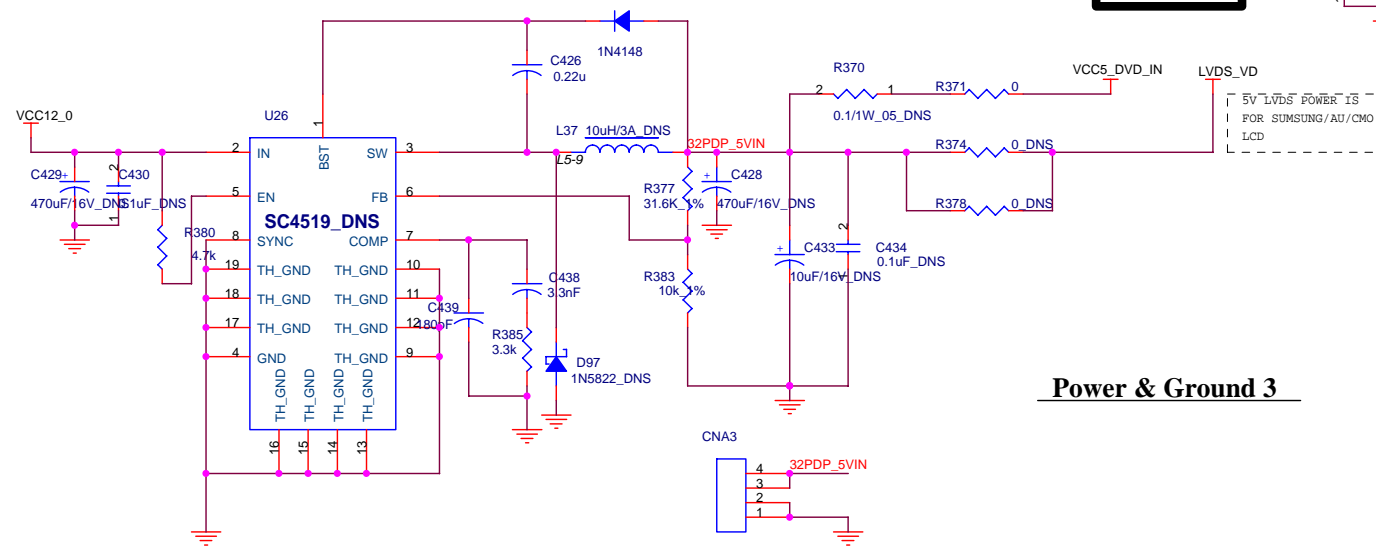
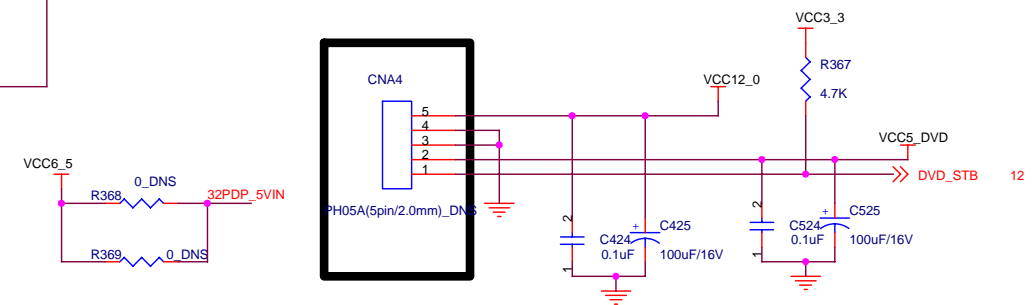
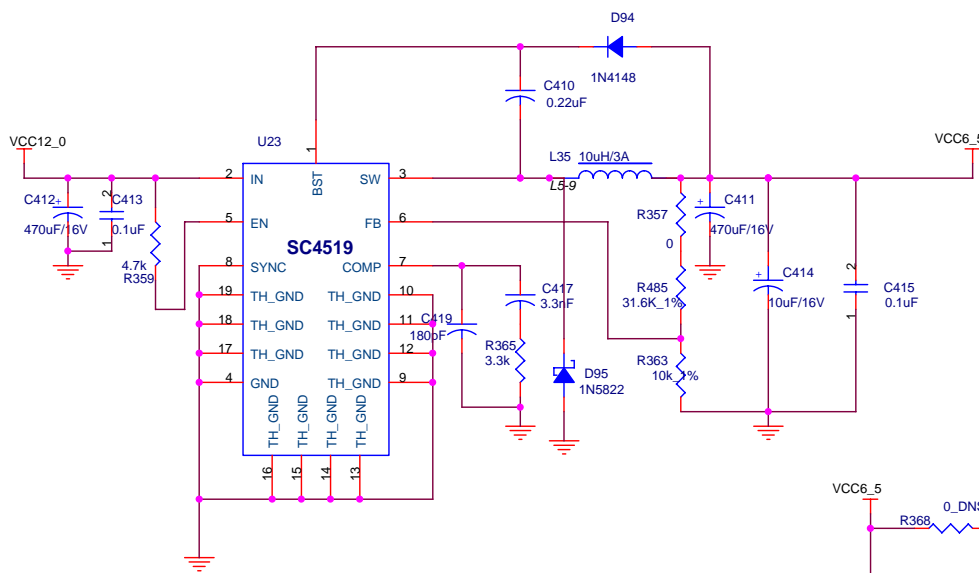
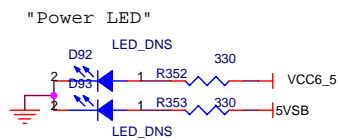
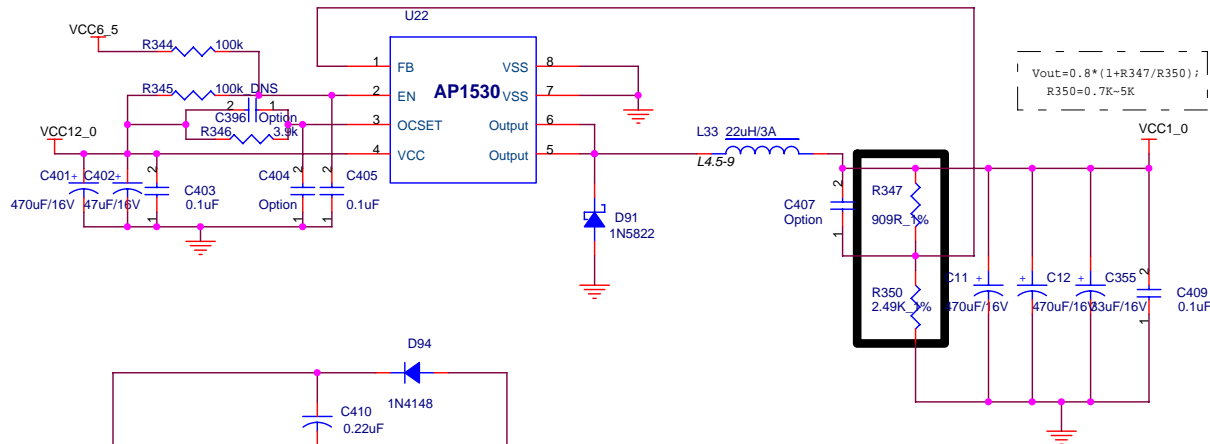
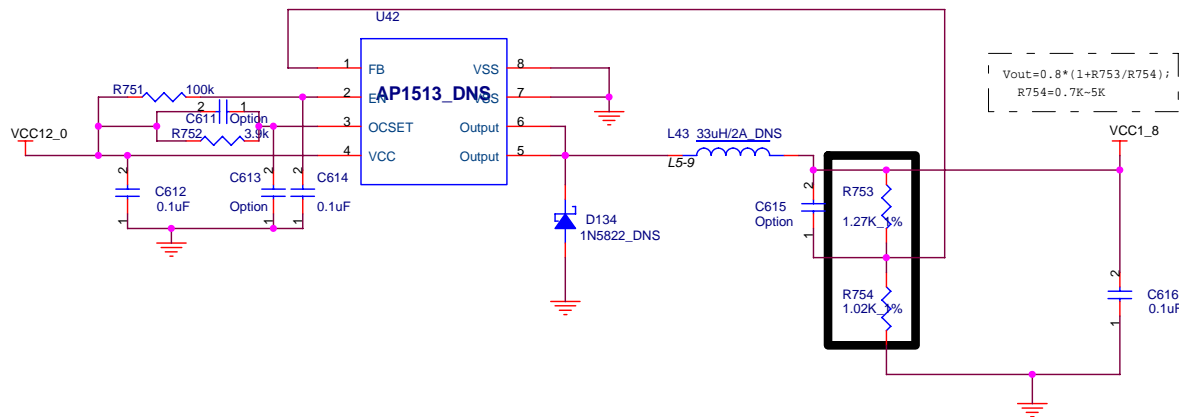
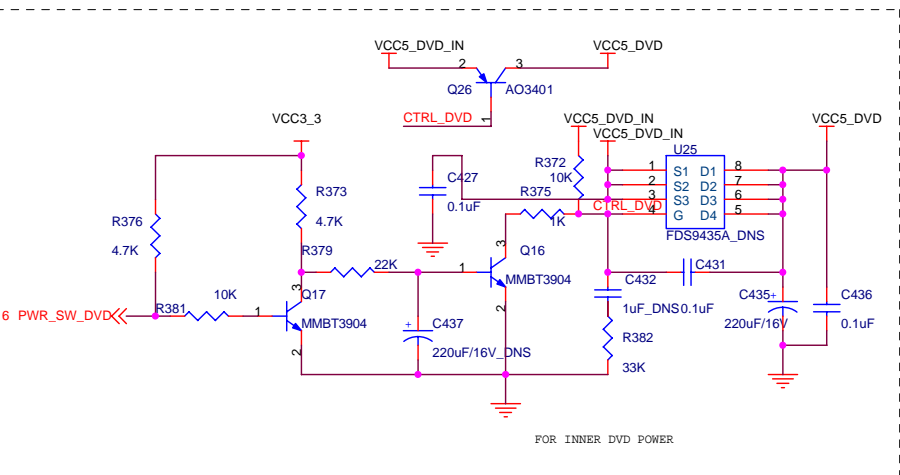
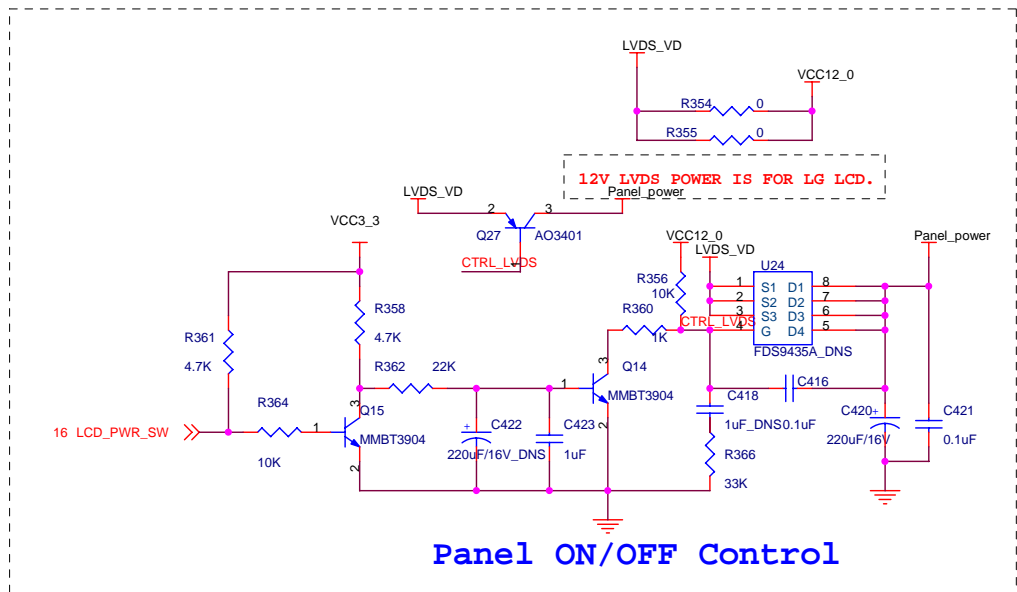
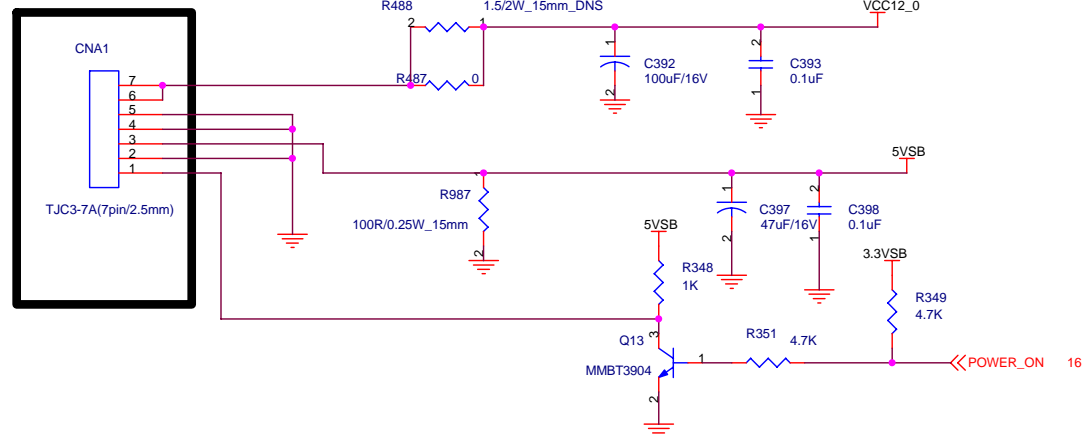
HD780 Ground

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MCU

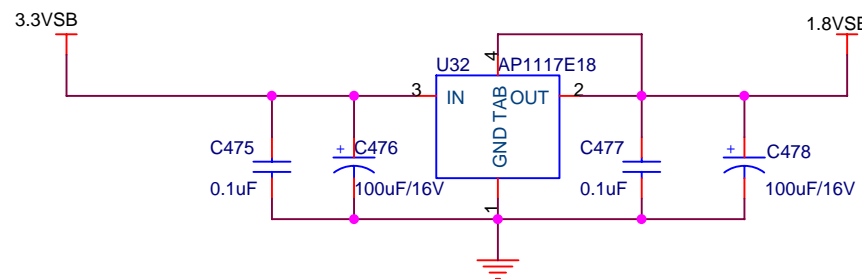
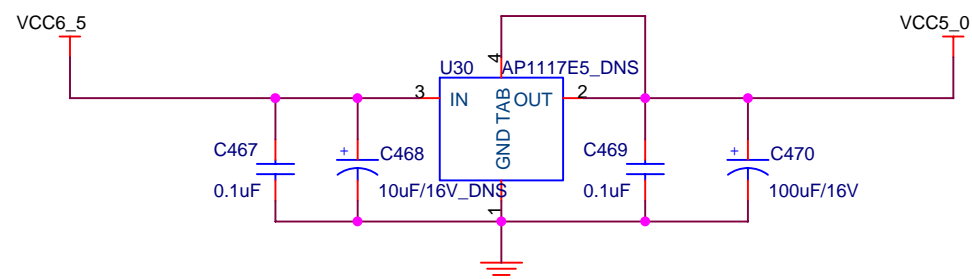
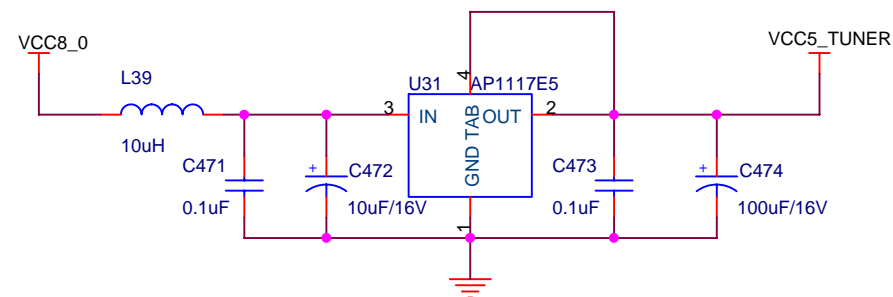
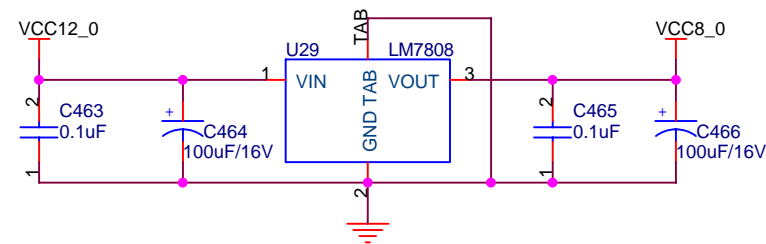
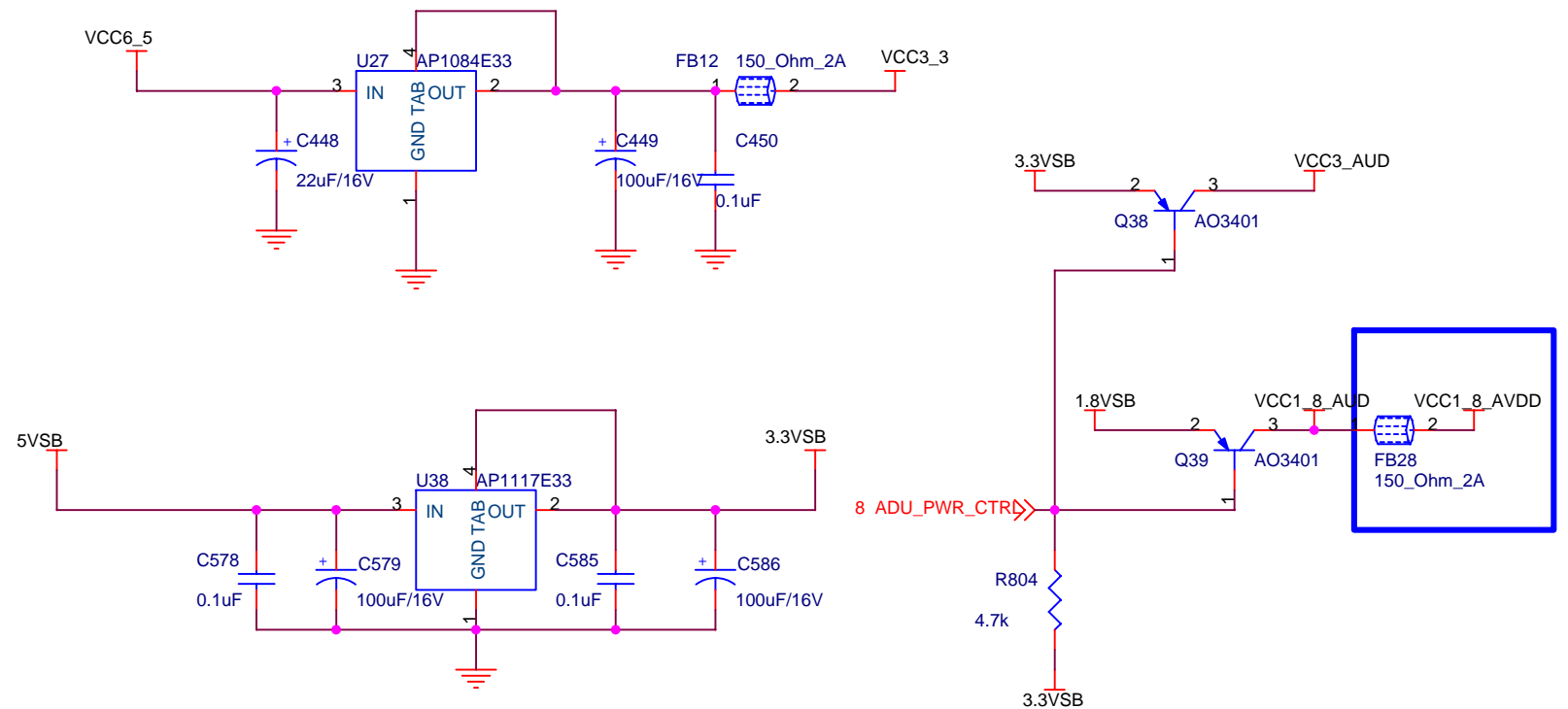
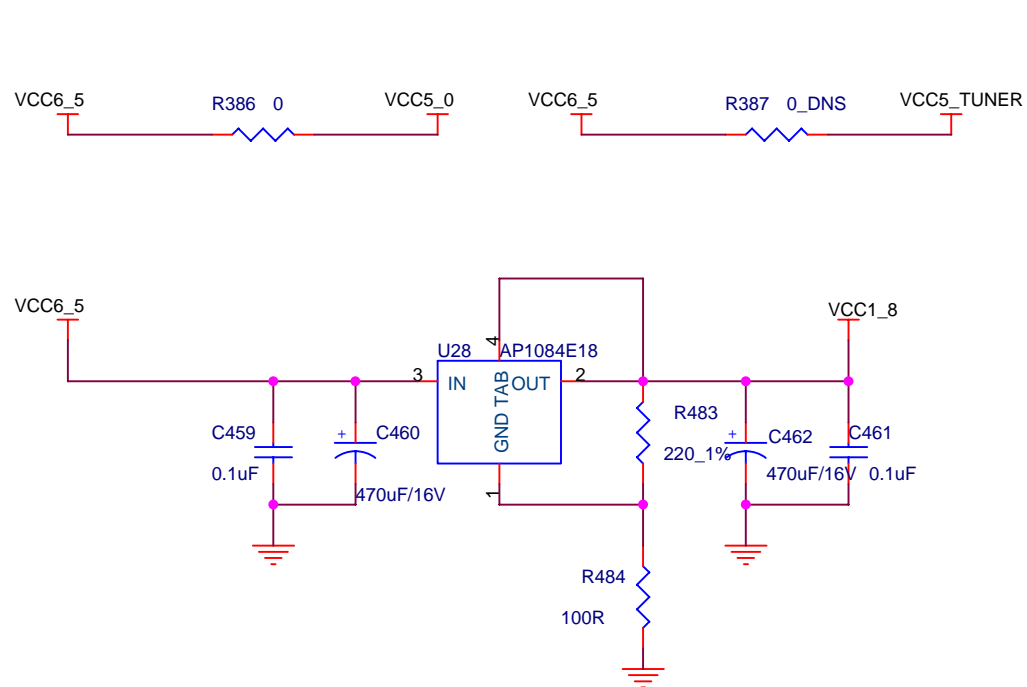
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Size	Document		Haier_780_V2.0.dsn
	Sheet	16 of 21	Rev 2.0
Date:			Friday, January 18, 2008
Drawn by:			S. Nguyen



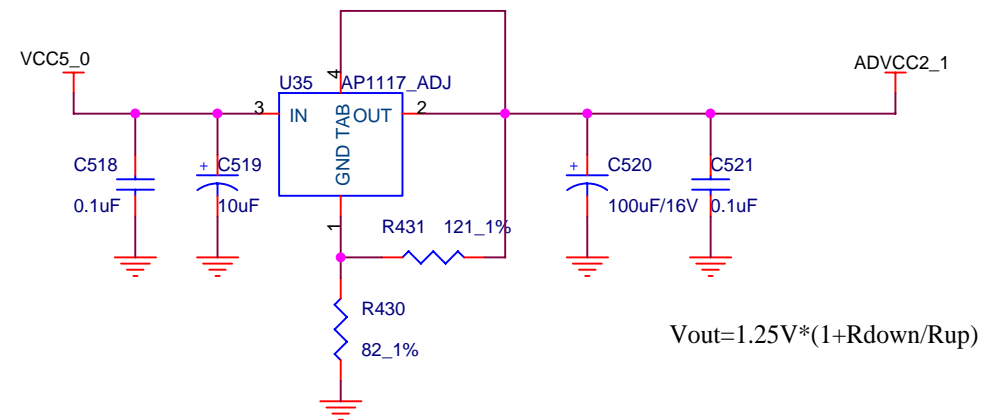
Power & Ground 3

TJC3-3A(3pin/2.5mm)_DNS

Title	Matrix / HD780 Ref. Platform		
Size	Document		
C	780_rev_A1.dsn		
	Sheet	17 of 21	Rev A1
Date: Friday, January 18, 2008			
Drawn by: S. Nguyen			



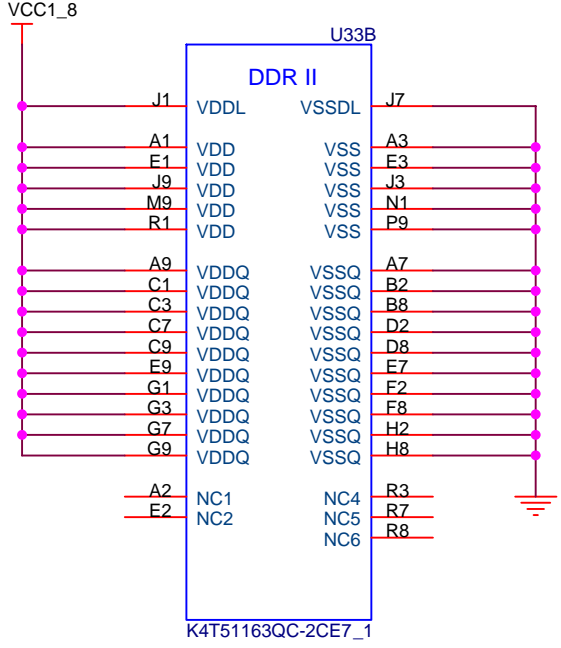
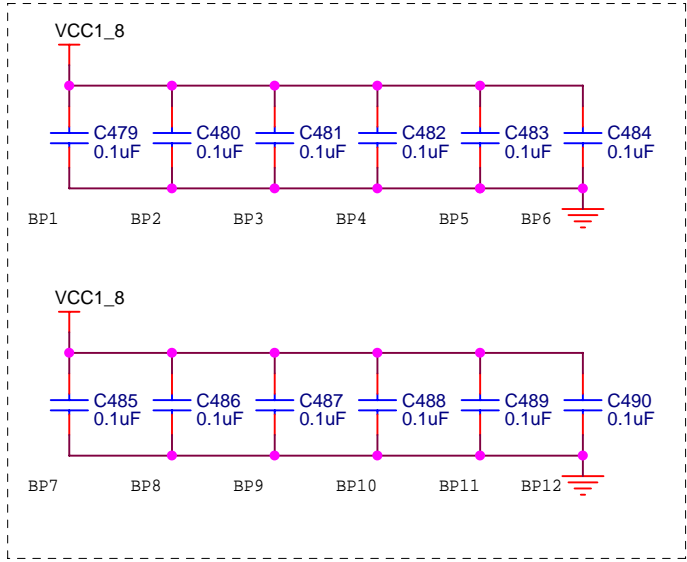
Power & Ground 3



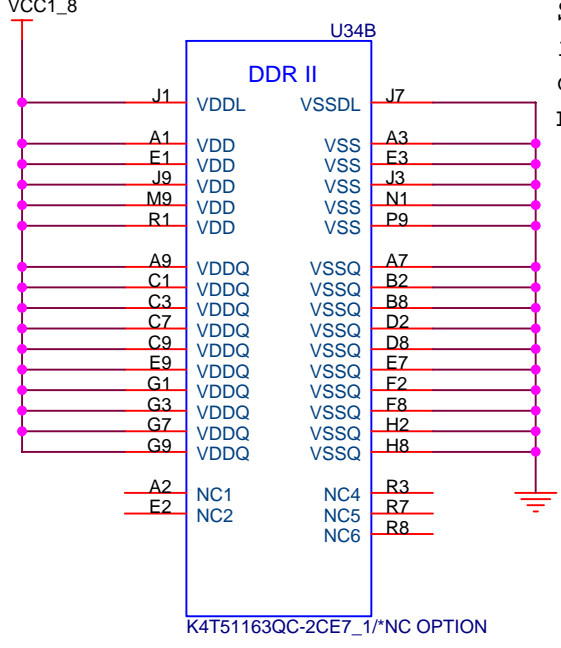
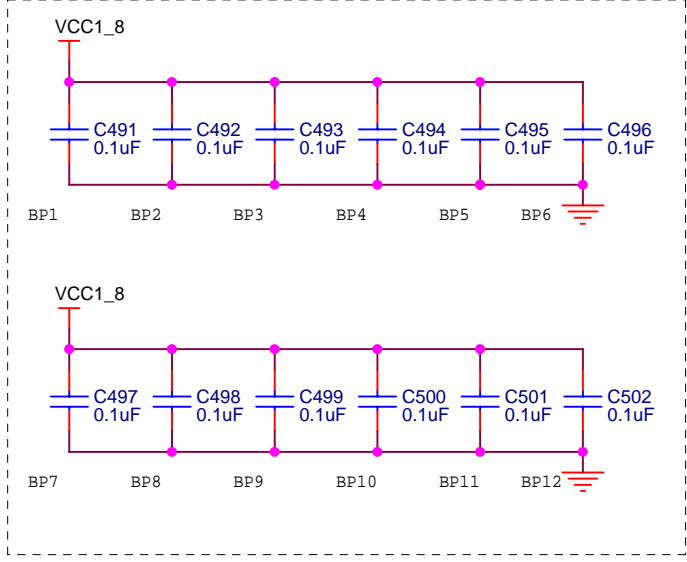
$$V_{out}=1.25V*(1+R_{down}/R_{up})$$

Title		
Matrix / HD780 Ref. Platform		
Size	Document	
B	780_rev_A1.dsn	
	Sheet	18 of 21
	Rev	A1
Date: Friday, January 18, 2008		
Drawn by: S. Nguyen		

U2 Bypass Caps



U3 Bypass Caps



Option:
Second DDR2 could be reduced
if for ZR770 implementation
only one DDR2 will be
needed.

DDR2 Power/Gnd

Title Matrix / HD780 Ref. Platform		
Size B	Document 780_rev_A1.dsn	
	Sheet 19 of 21	Rev A1
Date: Friday, January 18, 2008 Drawn by: S. Nguyen		

GPIO Pin Table

Signal	ZR39760 GPIO #	Function	Note
FP_CH-	07	Tuner control	Active low
FP_CH+	06	Tuner control	Active low
FP_VOL-	31	VOL control	Active low
FP_VOL+	30	VOL contol	Active low
FP_MENU	26	MENU set	Active low
FP_VIN_SW	27	Video IN select (FP)	Active low
FP_SEL	28	GUI ENTER	Active low
Video_Input_Select	36	CVBS -Y/C Video IN Recognition	1=CVBS; 0 = Y/C
LCD_PWR_SW	04	Enable signal for 12V supply	Active high
LCD_ON	05	LCD backlight on/off control	Active high
SD_CSN	34	SD card CS	Active low
SD_DET	62	SD card detect	Active low
GPIO_HPD	33	HDMI HPD Recognition	Active high
BL_BR_CNTRL	63	Back light voltage control	PWM type
VID_IN_SEL	55	Video IN select	
AUD_AMP_MUTE	47	Audio PWR Amp MUTE	Active low
AUD_RESETN	48	Audio IC's reset	Active low
TU_5V_SW	42	Tuner PWR switch	0 = OFF; 1 = ON

Setting	Boot Options
0000	Boot from SPI flash, fall back to UART0
0001	Boot from UART0
0010	Boot from SPI flash, fall back to UART1
0011	Boot from UART1
01XX	Perform ROM Checksum
1111	Boot from 8 bit NAND flash
1110	
1010	
1011	Boot from 16 bit NAND flash
1100	Boot from SPI flash

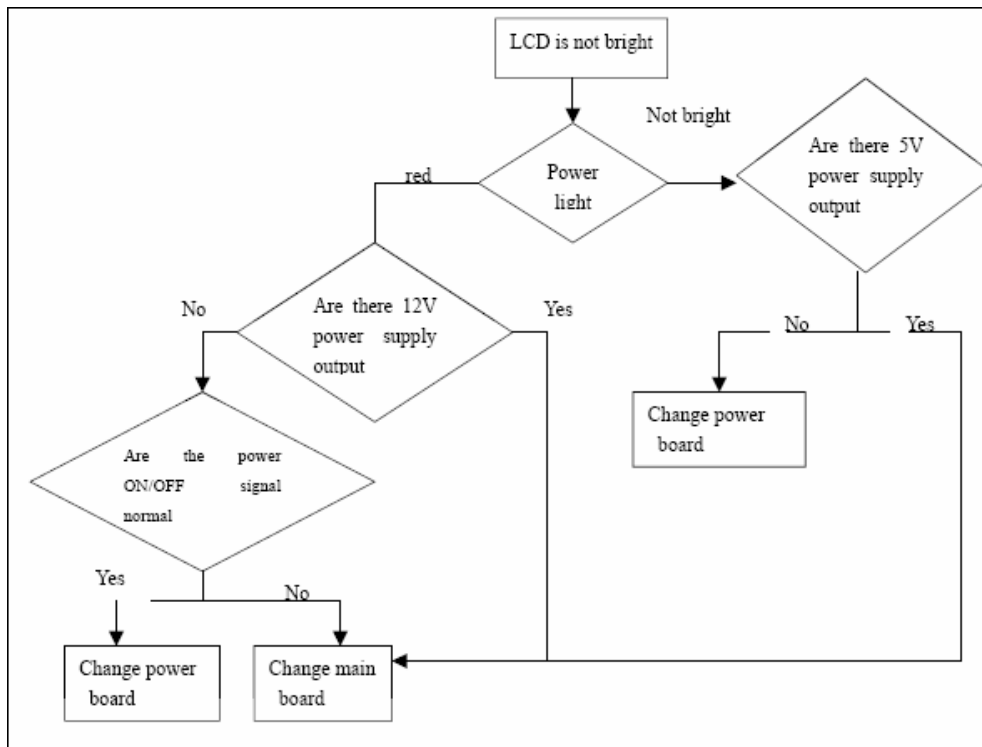
GPOIs Table

Title			Matrix / HD780 Ref. Platform
Size	Document		
B	780_rev_A1.dsn		
	Sheet	21 of 21	Rev A1
Date: Friday, January 18, 2008			
Drawn by: S. Nguyen			

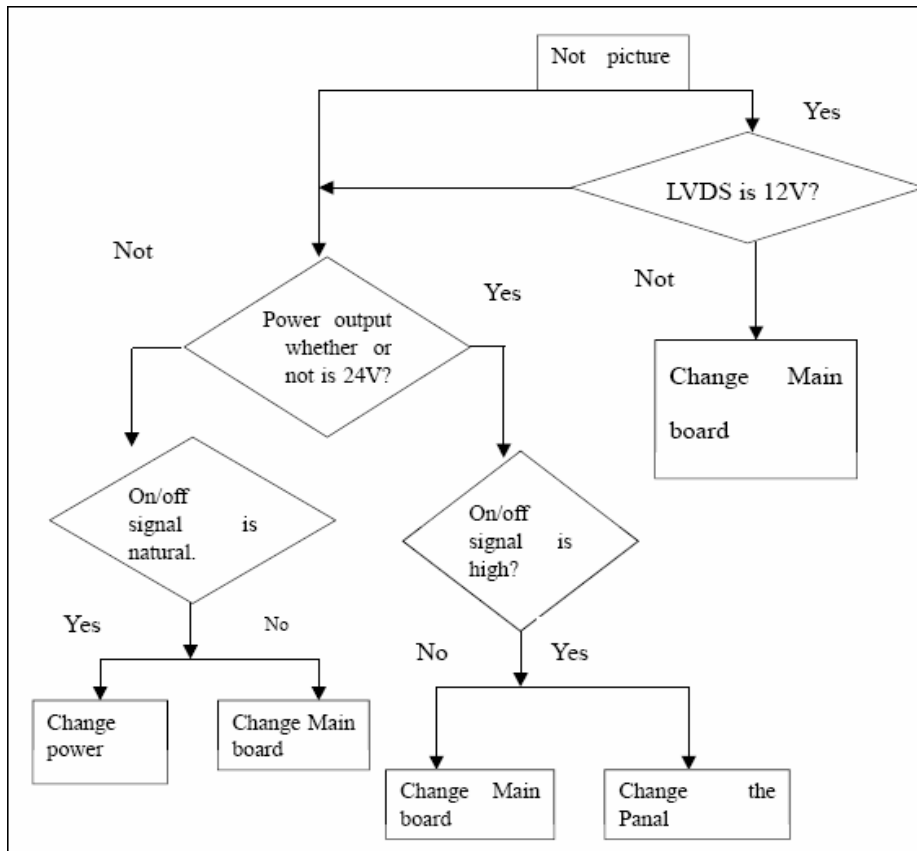
10. TROUBLE SHOOTING GUIDE

10.1. Simple check

10.1.1 LCD is not bright



10.1.2 No picture



First, check cables which connect with PSU, then check as follows

1) Check input voltage

voltage: +5VSB→POWER ON(5V) →+12V→5V

connector: CN4(P1) → CN4(P13) →CN5(P1,P2,P3) →CN4(P2,P3,P4,P5) →CN4(P12) →CON4(P14)

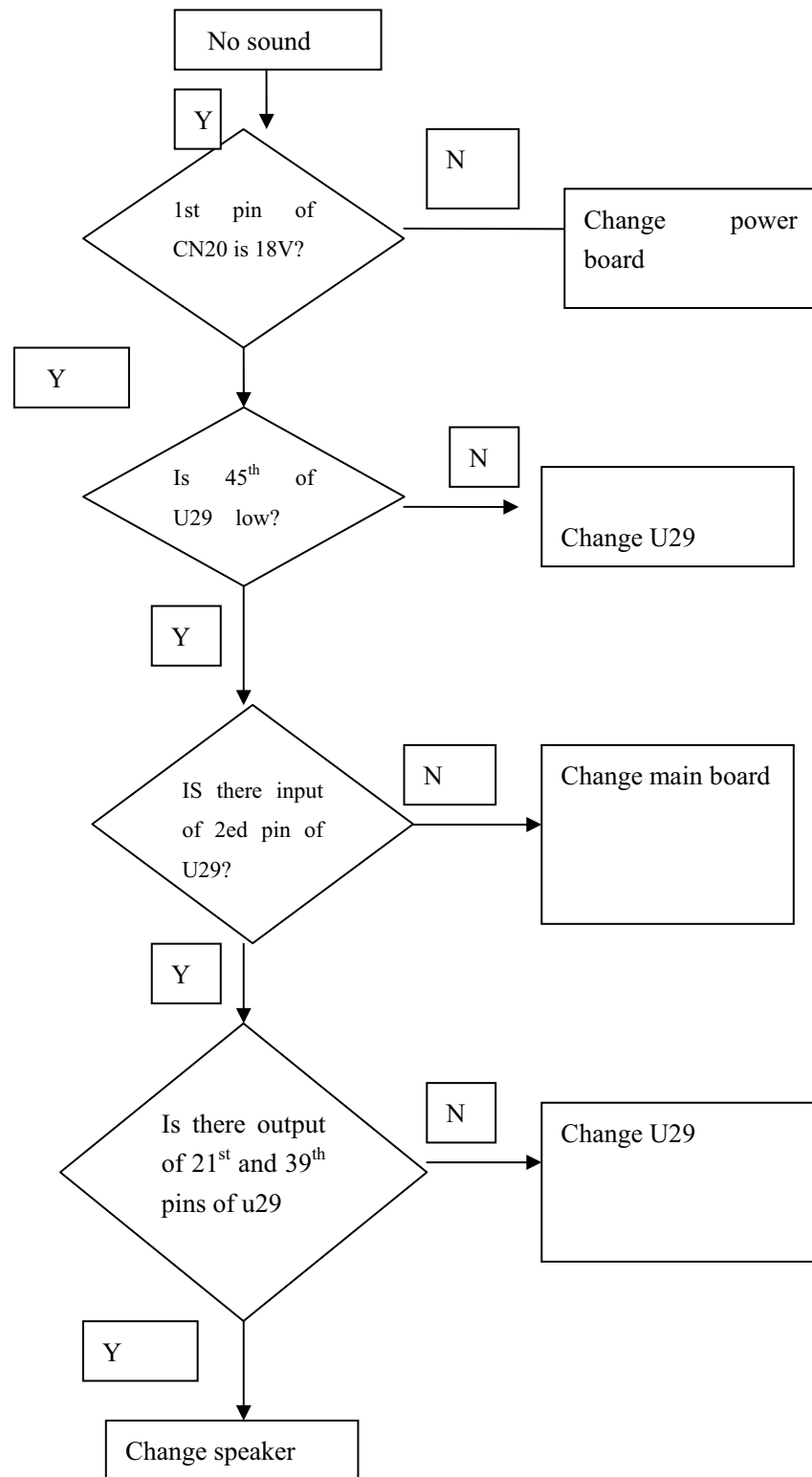
2)Check output voltage

voltage: Vblon →+5V→Vipwm

connector: CN4(P12) →J28(P26-P30) →CON4(P14)

CN4 CN5

On/Off Control Voltage	ON	VBLON	-	2.0	-	5.0	V	
	OFF		-	0	-	0.8	V	
Internal PWM Control Voltage	MAX	VIPWM	VSEL=L	3.0	3.15	3.3	V	Maximum duty ratio
	MIN				0	-	V	Minimum duty ratio



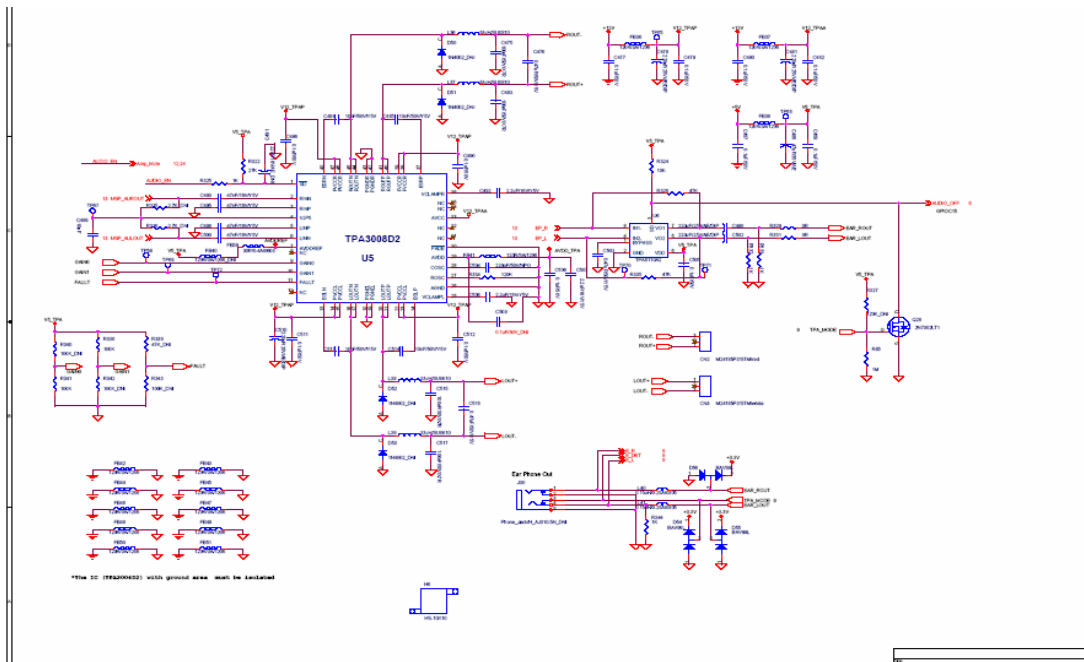
First, check cables which connect with PSU, then check as follows

- 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 CN2, CN3 with oscillograph, confirm wave output or not.

Connector: CN2, CN3



10.2 PSU failure check

State: No power

First, check cables which connect with PSU, then check as follows

- 1) Check PSU input voltage (AC input)

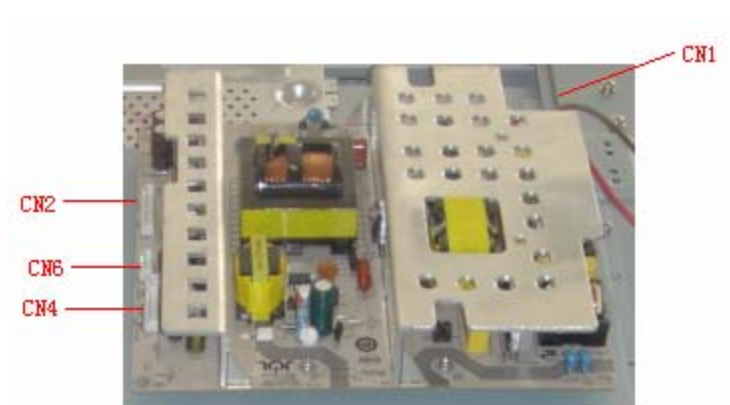
voltage : $\sim 120V$

connector: CON1 (P1,P5)

- 2) Check PSU output voltage orderly:

voltage : +5V(Stand-By) \rightarrow ON (5.0V) \rightarrow +24V , +12V


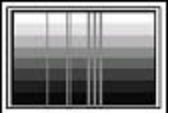
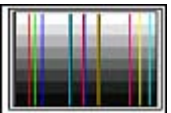

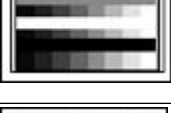

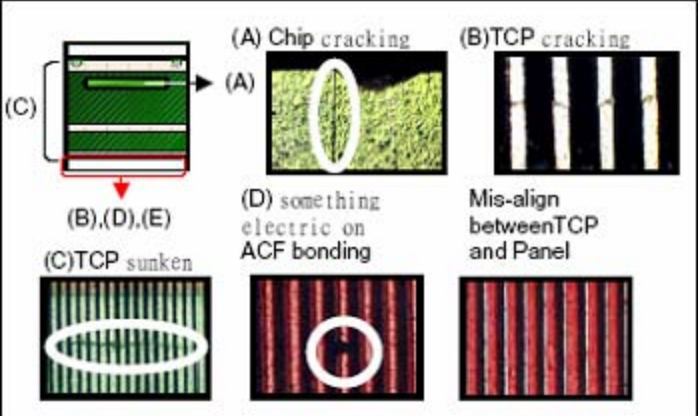
connector: CON4 (3) \rightarrow CON4 (1) \rightarrow CON4 (6,7) , CON2 (1-4)







State: No sound


10.3 Panel failure

Failure Mode



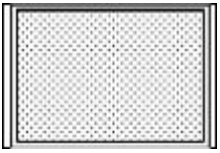

Part	Name	Description	Phenomena	Failure cause
TCP	V B/D	Vertical bar		Block Defect :TCP cracking or cracking Dim or L/D :TCP Sunken :TCP lead cracking :ACF bonding short :Awful environment and something electric enter into LCD :Mis-align between TCP and Panel :Panel failure :TCP failure
	V Dim	Virtual 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)		
				

Failure Mode


Part	Name	Description	Phenomena	Failure cause
Panel or Polarizer	Dot Defect	Bright dot dark dot in panel		Incoming Inspection Standard
	Polarizer Bubble	Bladder in Polarizer		Bladder between Polarizer and top glass
	Polarizer Scratch	Polarizer Scratch		Tine or rigidity arose
	F/M inside Polarizer	Eyewinker inside Polarizer		Eyewinker inside Polarizer
Circuit	Abnormal Display	Abnormal Display		1.Chip lose action 2.IC Abort or jointing bad



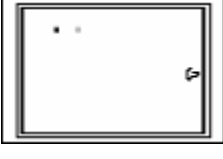
	Flashing	Bright and dark display alternately		3.Panel and VSC connect bad
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Failure Mode


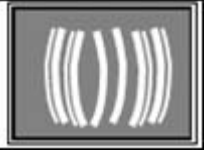
Part	Name	Description	Phenomena	Failure cause
Circuit	White Screen	B/L normal, only white screen display		Maybe caused by surge current and EDS
	Black Screen	B/L normal, only Black screen display		
	Flicker	Crosstalk		LCD Vcom imbalance
	Abnormal Color	Only color abnormal		Capacitance improper bring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

Failure Mode

Part	Name	Description	Phenomena	Failure cause
	Mechanical Noise	When turn panel, appear cacophony		Caused by Mechanica noise of backlight unit
	Ripple	Connectric circle		Causeed by between mechanism and Panel
	B/L off	B/L lose action		*Connect badness between wire and electrode

	B/L dark	B/L brightness darker than normal		*Connect badness Short between wire and electrode
	B/L wire damaged	B/L wire damaged		Operation abnormal or systemic noise
	B/L wire open	Without backlight		Operation abnormal or systemic noise
	B/L shut down	B/L shutdown in sometime		Short between lamp housing and wire, Because consume power too much
	F/M	F/M in B/L ,white, back Rotundity or wire like		F/M in B/L unit

Failure Mode

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