

COLOR TELEVISION

SERVICE MANUAL

LCD-W# series

LC-27W18S, LC-27W25S

LC-32W18S, LC-32W25S

LC-37W18S, LC-37W25S

LC-42W17S

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Attention: This service manual is only for service personnel to take reference with. Before servicing please read the following points carefully.

Safety precautions

1. Instructions

Be sure to switch off the power supply before replacing or welding any components or inserting/plugging in connection wire. Anti static measures to be taken (throughout the entire production process!):

- a) Do not touch here and there by hand at will;
- b) Be sure to use anti static electric iron;
- c) It's a must for the welder to wear anti static gloves.

Please refer to the detailed list before replacing components that have special safety requirements. Do not change the specs and type at will.

2. Points for attention in servicing of LCD

2.1 Screens are different from one model to another and therefore not interchangeable. Be sure to use the screen of the original model for replacement.

2.2 The operation voltage of LCD screen is 700-825V. Be sure to take proper measures in protecting yourself and the machine when testing the system in the course of normal operation or right after the power is switched off. Please do not touch the circuit or the metal part of the module that is in operation mode. Relevant operation is possible only one minute after the power is switched off.

2.3 Do not use any adapter that is not identical with the TV set. Otherwise it will cause fire or damage to the set.

2.4 Never operate the set or do any installation work in bad environment such as wet bathroom, laundry, kitchen, or nearby fire source, heating equipment and devices or exposure to sunlight etc. Otherwise bad effect will result.

2.5 If any foreign substance such as water, liquid, metal slices or other matters happens to fall into the module, be sure to cut the power off immediately and do not move anything on the module lest it should cause fire or electric shock due to contact with the high voltage or short circuit.

2.6 Should there be smoke, abnormal smell or sound from the module, please shut the power off at once. Likewise, if the screen is not working after the power is on or in the course of operation, the power must be cut off immediately and no more operation is allowed under the same condition.

2.7 Do not pull out or plug in the connection wire when the module is in operation or just after the power is off because in this case relatively high voltage still remains in the capacitor of the driving circuit. Please wait at least one minute before the pulling out or plugging in the connection wire.

2.8 When operating or installing LCD please don't subject the LCD components to bending, twisting or extrusion, collision lest mishap should result.

2.9 As most of the circuitry in LCD TV set is composed of CMOS integrated circuits, it's necessary to pay attention to anti statics. Before servicing LCD TV make sure to take anti static measure and ensure full grounding for all the parts that have to be grounded.

2.10 There are lots of connection wires between parts behind the LCD screen. When servicing or moving the set please take care not to touch or scratch them. Once they are damaged the screen

would be unable to work and no way to get it repaired.

2.11 Special care must be taken in transporting or handling it. Exquisite shock vibration may lead to breakage of screen glass or damage to driving circuit. Therefore it must be packed in a strong case before the transportation or handling.

2.12 For the storage make sure to put it in a place where the environment can be controlled so as to prevent the temperature and humidity from exceeding the limits as specified in the manual. For prolonged storage, it is necessary to house it in an anti-moisture bag and put them altogether in one place. The ambient conditions are tabulated as follows:

Temperature	Scope for operation	0 ~ +50 °C
	Scope for storage	-20 ~ +60 °C
Humidity	Scope for operation	20% ~ 85%
	Scope for storage	10% ~ 90%

2.13 Display of a fixed picture for a long time may result in appearance of picture residue on the screen, as commonly called “ghost shadow”. The extent of the residual picture varies with the maker of LCD screen. This phenomenon doesn’t represent failure. This “ghost shadow” may remain in the picture for a period of time (several minutes). But when operating it please avoid displaying still picture in high brightness for a long time.

3. Points for attention during installation

3.1 The front panel of LCD screen is of glass. When installing it please make sure to put it in place.

3.2 For service or installation it’s necessary to use specified screw lest it should damage the screen.

3.3 Be sure to take anti dust measures. Any foreign substance that happens to fall down between the screen and the glass will affect the receiving and viewing effect

3.4 When dismantling or mounting the protective partition plate that is used for anti vibration and insulation please take care to keep it in intactness so as to avoid hidden trouble.

3.5 Be sure to protect the cabinet from damage or scratch during service, dismantling or mounting.

Alignment instructions

1. Test equipment

PM5515 (Video signal generator)
PM54200(SCART signal generator)
VG-848(YUV, VGA and DVI signal generator)
K-7253 (VGA signal generator)
CA210 (White balancer)

2. The alignment flow chart (see below figure)

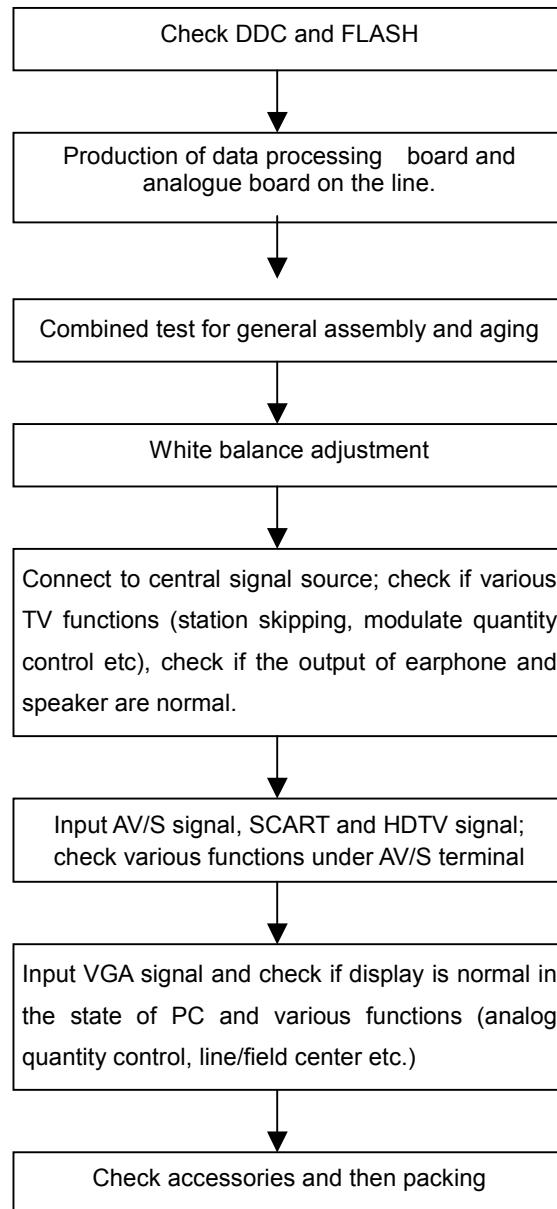


Fig.1 Flow process of alignment

3 Unit adjustments

Method for entering factory menu: Press MENU → -/-- → 9→1→8 one by one, then enter factory menu, press the SLEEP button to select adjustment page, exit factory menu to press the MENU button.

4 EEPROM initialization

Enter the first page of factory menu, select “EEPROM INITIALIZE” to be “on”, after turn off the unit, repeating turn on the unit is over.

5 white balance adjustment

Input PAL signal of 16-level gray-scale (TIMING969 PATTAN921) from VG848 to AV channel, enter user menu, set color to 0, APL to “off”, enter factory menu white balance adjustment page, select color temperature, fixed the GGAIN to 50H, adjust BGIAN and RGAIN to 400nits, then the color coordinate to 284, 299. Fixed the BOFFSET to 50H, adjust GOFFSET and ROFFSET to 5nits, then the color coordinate to 284, 299.

Select cool tint, adjust color coordinate to 270, 283.

Select warm tint, adjust color coordinate to 313, 329.

6. Performance Inspections

6.1 TV function

Enter the search menu → auto search, connect RF-TV terminal to the central signal source, check if there is station skipping.

6.2 AV/S input terminal

Input AV/S signal, check the picture and sound is normal

6.3 SCART terminal (note: check the SCART terminal, set display mode to AUTO)

6.3.1 Check SCART INPUT special function

6.3.1.1 SCART1 terminal function

a. After turn on the unit, connect the SCART1 to PM54200 signal generator, then the unit auto select to SCART1 mode.

b. SCART signal generator sends CVBS signal to the unit, check if the image and sound is normal. It sends image format (16:9 and 4:3) to the unit, check if the unit auto identify is normal. Change SCART signal to RGB signal, check if the image and sound is normal, It sends image format (16:9 and 4:3) to the unit, check the unit auto identify is normal. Select the PIP mode, connect earphone cable, and check if the sound is normal.

6.3.1.2 SCART2 terminal function

a. After turn on the unit, connect the SCART2 to PM54200 signal generator, then the unit auto select to SCART2 AV mode.

b. SCART signal generator sends CVBS signal to the unit, check if the image and sound is normal. It sends image format (16:9 and 4:3) to the unit, check if the unit auto identify is normal, and display the SCART2 AV. Change SCART signal to Y/C signal, select the SCART2 Y/C channel mode, check if the image and sound is normal, It sends image format (16:9 and 4:3) to the unit, check if the unit auto identify is normal. Select the PIP mode, connect earphone cable, and check if the sound is normal.

6.3.2 Check SCART OUTPUT special function

6.3.2.1 SCART1 terminal function

Input signal in the TV states, connect the SCART1 terminal to the TV. Change the TV program, check if output signal of SCART1 is TV signal, and the image and sound is normal, change the unit channel, the CART1 output TV signal, it can not other signal.

6.3.2.2 SCART2 terminal function

Input signal in the TV/AV/S states, connect the SCART2 terminal to the TV. Change the unit channel, check if output signal of SCART2 is current signal, and the image and sound is normal.

6.4 YPbPr/YPbPr terminal

Input the YUV signal (VG-848 signal generator), separate input YUV format signal of table 1, check if the image and sound is normal. If the image is deflection of the H-field, select auto sync correction of the SCREEN menu. If the image is slight disturb, adjust the FINE TUNE correction of the SCREEN menu. Open the PIP mode, connect the earphone, and check if the image and sound is normal.

Table 1 YUV format signal

	H-frequency(kHz)	V-frenquency(Hz)	signal
1	15.734	59.94	SDTV 480i
2	31.469	59.94	HDTV 480p
4	44.955	59.94	HDTV 720p
6	33.716	59.94	HDTV 1080i
7	15.625	50	SDTV 576i
8	31.25	50	HDTV 576p
9	33.75	50	HDTV 1080i
10	37.50	50	HDTV 720p

6.5 VGA terminal

Input the VGA signal (VG-848 signal generator), separate input VGA format signal of table 1, check if the image and sound is normal. If the image is deflection of the H-field, select auto sync correction of the SCREEN menu. If the image is slight disturb, adjust the FINE TUNE correction of the SCREEN menu. Open the PIP mode, connect the earphone, and check if the image and sound is normal.

6.6 HDMI terminal

HDMI signal format receive the three high definition signal: 480P, 576P, 720P/50/60 Hz, 1080I/50/60 Hz, except for the table 2 signal. Check if the image (contain HDCP ON and OFF) and sound is normal. If the image is deflection of the H-field, select auto sync correction of the SCREEN menu. Open the PIP mode, connect the earphone, and check if the image and sound is normal.

TABLE2 VGA signal format

	resolution	H-frequency(kHz)	V-frenquency(Hz)	Point clock pulse frequency(MHz)	remark
1	720 X 400	31.469	70.086	28.322	IBM
2	640 X 480	31.469	59.94	25.175	IBM
3	640 X 480	37.861	72.809	31.5	VESA
4	640 X 480	37.5	75	31.5	VESA
5	640 X 480	43.269	85.008	36	VESA
6	800 X 600	35.156	56.25	36	VESA
7	800 X 600	37.879	60.317	40	VESA
8	800 X 600	48.077	72.188	50	VESA
9	800 X 600	46.875	75	49.5	VESA
10	800 X 600	53.674	85.061	56.25	VESA
11	1024 X 768	48.363	60.004	65	VESA

12	1024 X 768	56.476	70.069	75	VESA
13	1024 X 768	60.023	75.029	78.75	VESA
14	1280 X 1024	63.98	60.02	108.00	VESA
15	1024 X 768	68.667	84.98	94.486	VESA

6.7 ex-factory setting see to TABLE 3 - TABLE 9

TABLE 3 Factory Option Menus

Items	Ex-factory setting
IIC Bus-off	Off
EEPROM Erase	Off
Backlight Adjustable	Off
Back Light	100
Menu Timeout	5
Blank switch enable	On
ShowLogo	On
Auto Program Sort	On
TT Char Group	West Europe / East Europe / Cyrillic / Turkish /Greek/Arabic/Hebrew
Dynamic Scart	Off
Note: the latter 6 items should set according to clients' require.	

TABLE 4 Factory Audio Setting

Items	Ex-factory setting			
	LC-27W18S/27W25S	LC-32W25S	LC-37W25S	LC-42W17S
Volume 1	2CH	2CH	2CH	2CH
Volume 25	55H	57H	5AH	5AH
Volume 50	5CH	5EH	61H	61H
Volume 75	64H	65H	69H	69H
Volume 100	6BH	6DH	72H	72H
HP VOLUME SETTING				
Volume 1	64H			
Volume 25	96H			
Volume 50	A1H			
Volume 75	AEH			
Volume 100	BEH			
MSP Scart1 Volume	72H			
Prescale Scart	4CH			
Prescale FM/AM	27H			
Prescale Nicam	64H			
Scart TV Volume	20H			
Scart AV Volume	72H			

D/K select HDEV3	Off
AVC	Off
Equalizer Bands Max	60H
Spatial Mode	0
Spatial Strength	00H

TABLE 5 Factory Video limit Setting

Items	CVBS	SC-RGB	YPBPR	D-SUB	HDMI
Bright Min	D5H	CFH	C7H	CFH	D2H
Bright Middle	00H	00H	03H	05H	07H
Bright Max	38H	3DH	34H	3DH	31H
Contrast Min	09H	09H	09H	09H	08H
Contrast Middle	20	25H	20H	25H	23H
Contrast Max	2AH	31H	29H	31H	2CH
Sharpness Min	00H	00H	00H	00H	00H
Sharpness Middle	10H	10H	10H	10H	10H
Sharpness Max	1FH	1FH	1FH	1FH	1FH
Color Min	00H	00H	00H	00H	00H
Color Middle	1DH	1DH	1DH	1DH	1DH
Color Max	2DH	2DH	2DH	2DH	2DH
Hue Min	80H	80H	80H	80H	80H
Hue Middle	20H	20H	20H	20H	20H
Hue Max	7FH	7FH	7FH	7FH	7FH

TABLE 6 White Balance Adjust

Items	LC-27WXXS	LC-32WXXS	LC-37WXXS	LC-42WXXS
R Offset	55	55	54	53
G Offset	51	53	57	49
B Offset	50	50	50	50
R Gain	42	36	36	37
G Gain	50	50	50	50
B Gain	21	40	51	38
Brightness	51	51	51	51
Contrast	100	100	100	100
Color Temperature	Standard			
R Offset	60	59	58	55
G Offset	55	55	58	52

B Offset	50	50	50	50
R Gain	35	25	24	32
G Gain	50	50	50	50
B Gain	28	48	61	48
Brightness	51	51	51	51
Contrast	100	100	100	100
Color Temperature	Cold			
R Offset	55	49	49	44
G Offset	53	51	53	47
B Offset	50	50	50	50
R Gain	62	51	58	66
G Gain	50	50	50	50
B Gain	8	23	33	22
Brightness	51	51	51	51
Contrast	100	100	100	100
Color Temperature	Warm			

TABLE 7 Image analog setting

CVBS	Vivid	Standard	Mild	Custom
Contrast	90	80	50	80
Brightness	40	35	35	35
Color	70	60	40	60
Hue	00	00	00	00
Sharpness	60	50	30	50
SC-RGB	Vivid	Standard	Mild	Custom
Contrast	90	85	50	85
Brightness	60	50	35	50
Color	80	65	40	65
Hue	00	00	00	00
Sharpness	60	50	30	50
YPBPR	Vivid	Standard	Mild	Custom
Contrast	90	85	50	85
Brightness	50	40	35	50
Color	80	65	40	65
Hue	00	00	00	00
Sharpness	60	50	30	50
D-SUB	Vivid	Standard	Mild	Custom
Contrast	90	80	50	80
Brightness	50	40	35	40
Color	80	65	40	65
Hue	00	00	00	00
Sharpness	60	50	30	50

HDMI	Vivid	Standard	Mild	Custom
Contrast	90	80	50	80
Brightness	50	35	35	35
Color	80	70	40	70
Hue	00	00	00	00
Sharpness	60	50	30	50
Note: in factory menu states, it can change the factory mode to value of the image and sound, else select the image and sound balanced value in the other states.				

TABLE9 SOUND equilibrium value setting

	Live	Pop	Rock	Custom
120 Hz	50	50	65	50
500 Hz	50	50	55	50
1.5 kHz	50	60	55	50
5 kHz	80	70	55	50
10 kHz	85	70	55	50

6.8 Ex-factory setting of user menu

6.8.1 select TV channel

6.8.2 video menu, Mode: Standard, NR: Medium, APL:ON

6.8.3 sound menu, Volume: 20, Balance: 00, Equalizer: Custom, HP Volume: 20;

6.8.4 edit menu, Color System: Auto, Sound System: DK;

6.8.5 option menu, Default Zoom: Auto, Child Lock: Off, Menu Language: English, Country: UK, WSS: OFF, Blue Screen: On.

Note: the 6.8.4 and 6.8.5 items should set according to clients require.

Method of software upgrading

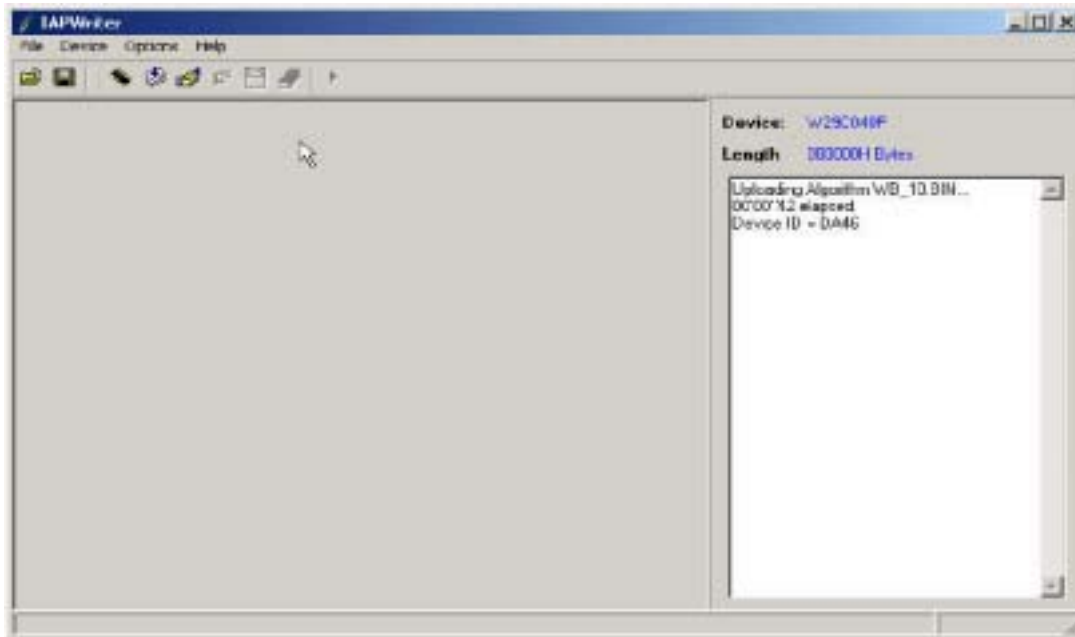
1. Enter the software upgrading state of the TV

Method 1: press the VOL- button in the unit, turn on the main power switch, then the screen display black screen, but the indicator to blue.

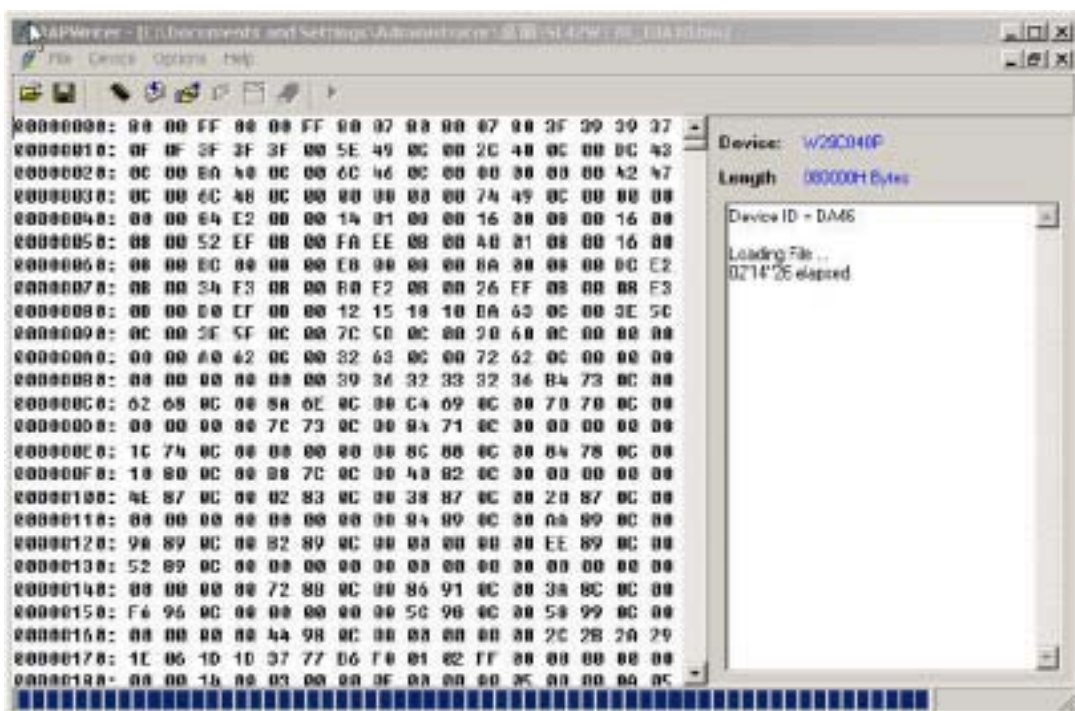
Method 2: Enter factory menu, select the IIC-BUS OFF item.

2. Connection upgrading tools with upgrading port.

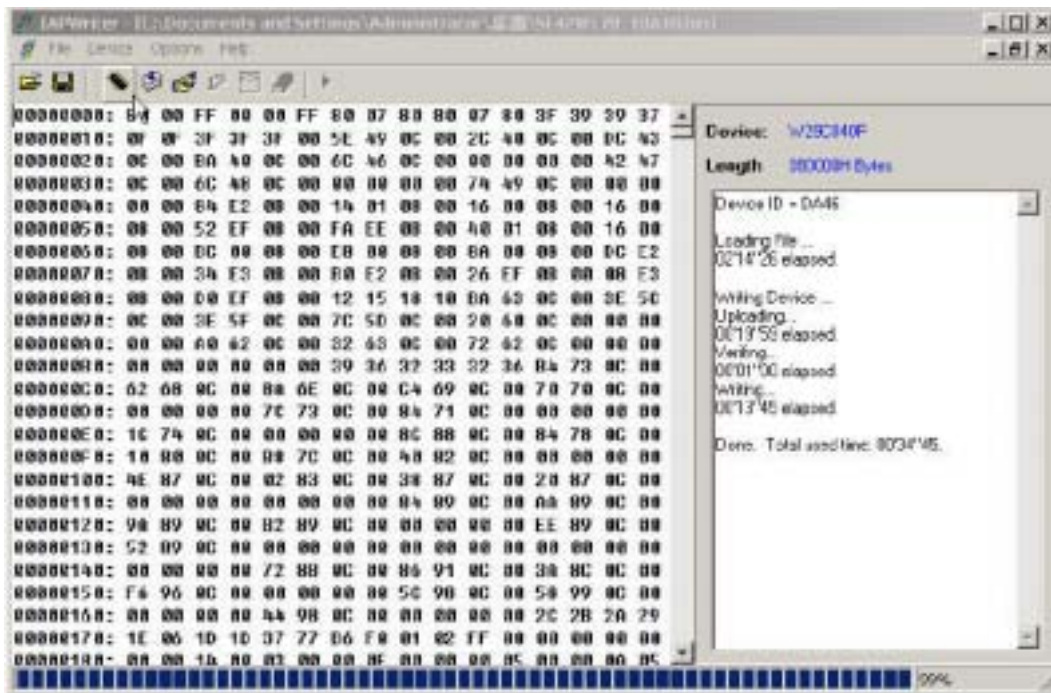
3. Dual- click IAPWriter logo, enter the upgrading states (if the PC and the IIC communication trouble, it can prompt).



4. Select the file menu load the software follow as:

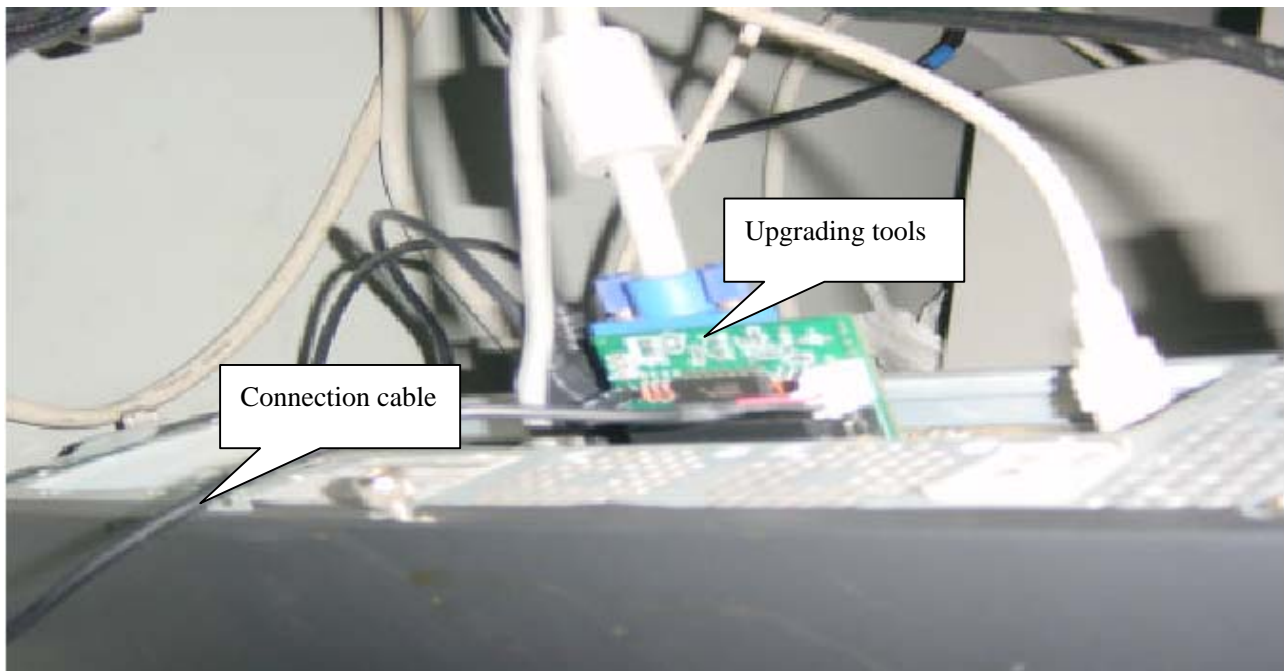


5. Select WRITE DEVICE item of the device menu, till the right screen display “DONE”.



6. turn off the power , restart the unit.

Note: because of the software, it may be no-stabilization, the software can auto download and write.





NOTE: Do not shut the power off or turn the TV set on during the FLASH write. Otherwise it may lead to no way for flash to rewrite.

Working principle analysis of the unit

1. Analog signal flow

Antenna reception signal send to integrative tuner (contain HF and IF amplifier circuit), the tuner is controlled the command (SDA and SCL) of the MCU N301 (M16C), select appropriate channel to system switch, via HF amplifier and IF amplifier decode, output video signal of 2VPP and sound signal of 1VPP.

Sound signal (SCART1, 2 sound, AV sound, YPbPr, HDMI and D-SUB) via N581 HEF4052BT (sound diverter switch) to output signal, it send to N801(MPS3410 sound processing and volume control) switch of audio. Select right/left sound channel, their send to digital sound amplifier N803 (TPA3008) amplify, then send to speaker.

After output video signal of tuner, SCART1 video signal and RGB signal via matched resistance, the signal thought alone channel send to main decode IC(N101 SVP-EX52) video switch, A/D transition, digital decode, image scale and OSD superposition, then send to LVDS level drive for LCD screen.

AV, S-Video, SCART2 video and Y/C signal thought matched resistance, the signal send to the N506 video switch (SN74CBT3257CDR), via switching to selected signal (EX52_Y and EX52_C) to main decode IC (N101 SVP-EX52) video switch, A/D transition, digital decode, image scale and OSD superposition, then send to LVDS level drive for LCD screen.

D-sub and YPbPr signal thought matched resistance, the signal send to the N507 video switch (SN74CBT3257CDR), via switching to selected signal (EX52_YUV) to main decode IC (N101 SVP-EX52) video switch, A/D transition, digital decode, image scale and OSD superposition, then send to LVDS level drive for LCD screen.

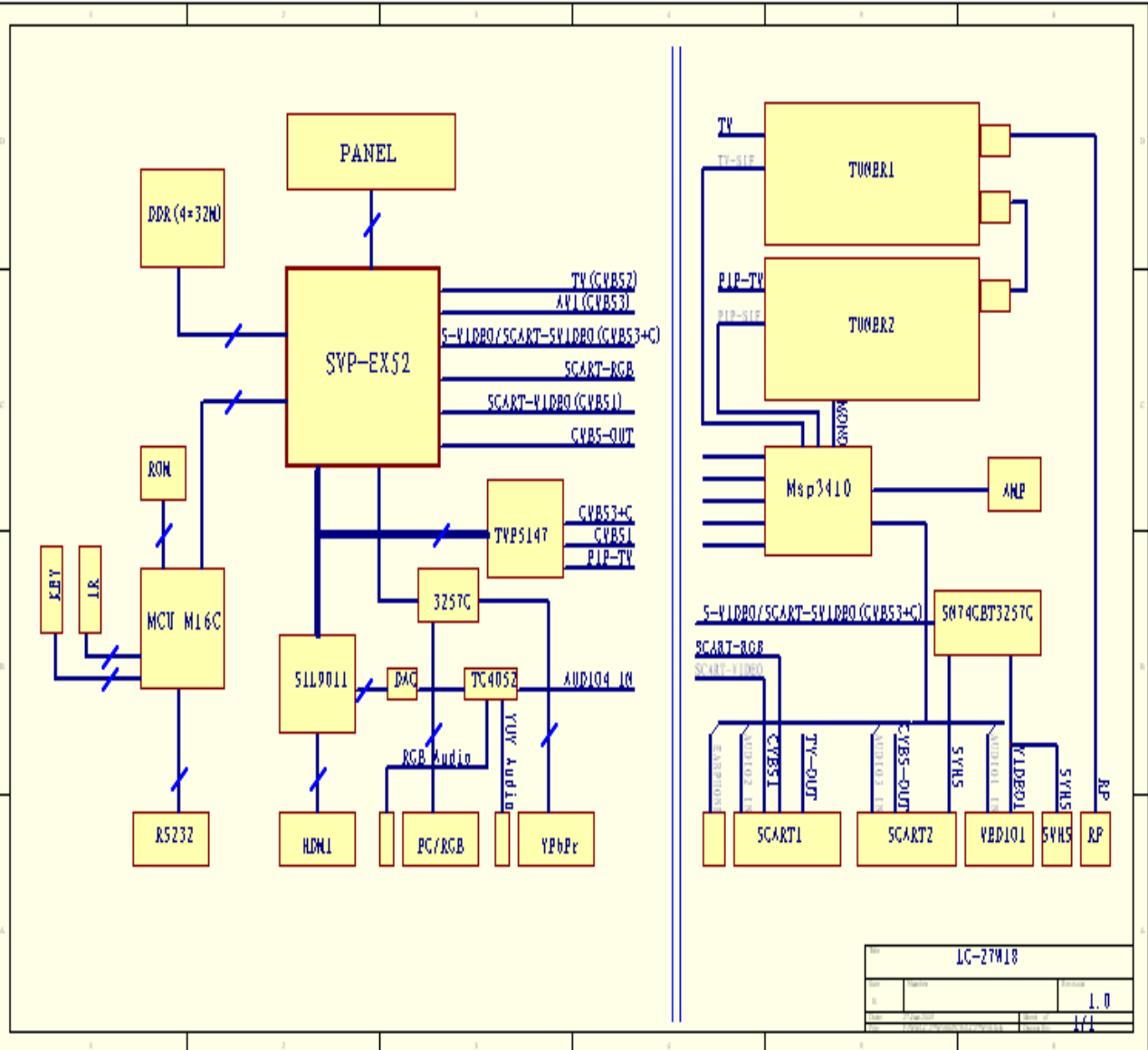
2. Digital signal flow:

HDMI signal thought HDMI reception chip N405 (Sil9011HDMI with HDCP function), after receive, output digital format signal send to SVP-EX52 PIP channel thought image scale and OSD superposition, then send to LVDS level drive for LCD screen. The HDMI chip output audio digital format signal change to analog sound signal from N403 (CS4344 audio DA transfer chip), then N581 switched to N801 (MPS3410 sound processing and volume control).

3. TELETEXT function

This unit adopt main decode IC N101(SVP-EX52) of Trident company, it has TELETEXT decode function, after decoded, the teletext information in OSD display.

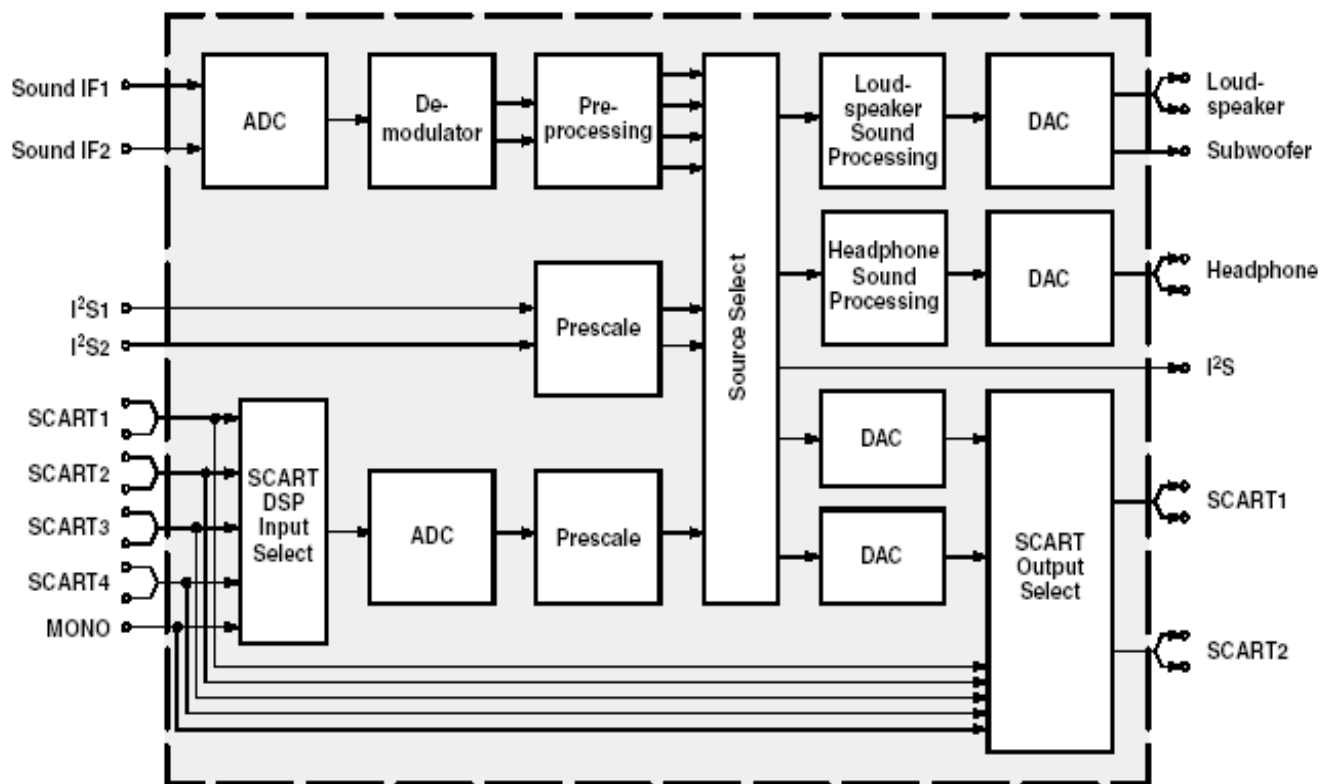
Block diagram



IC block diagram

1. Sound processing IC (MSP3410)

Sound signal send to sound processing N801 MSP3410, and dual-circuit tuner has second SIF, it sends to N801 (stereo decode and auto volume control), N801 has audio channel switch, after switching in N581 (HEF4052BT), the audio input of VGA/HDMI/YPbPr will be sent to N801 together with the audio signal of TV and AV to do the switching process. A way signal thought volume and high-low sound controlled, output the left and right audio send to digital audio amplifier N803 (TPA3008) amplify, then it send to speaker, other way signal output left-right audio send to earphone amplifier N805 (NJW1109), after audio control and power amplifier, it output to earphone socket. Other two ways signal output audio of TV out and AV out by SCART terminal of video board. MSP3410 internal block diagram as follow:



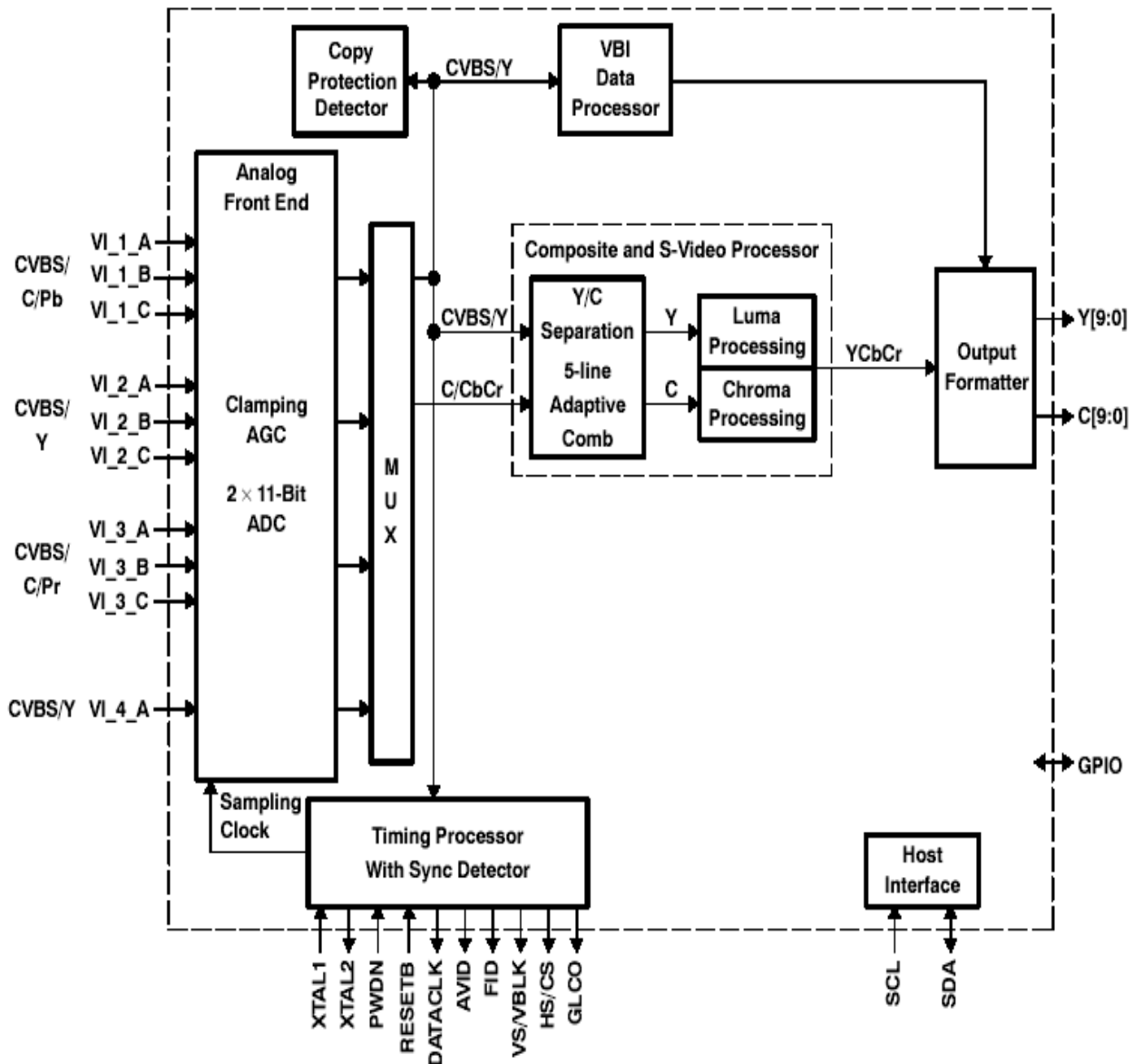
Main pins instructions:

- 2, 3: SCL, SDA
- 27, 28: left-right audio of audio power amplification
- 36, 37: left-right audio of earphone
- 24, 25: left-right audio of AV OUT
- 33, 34: left-right audio of TV OUT
- 47, 48: left-right audio from main board
- 50, 51: left-right audio of SCART2
- 53, 54: left-right audio of SCART1
- 56, 57: left-right audio of AV IN
- 67, 69: SIF input of sub-channel and main-channel TV
- 59: MONO input of sub-channel TV

2. Sub-channel and SCART video signal decode IC (TVP5147)

Sub-tuner TUNER202 decode video, AV, S-VIDEO, SCART1 video, SCART2 video and Y/C signal, after matching impedance, enter decoding IC N601 (TVP5147), so the PIP image of sub-channel can selecting arbitrary video signal.

MSP3410 internal block diagram as follow:



TVP5147 main pins instructions:

28, 29: SCL, SDA

22: Video input for SCART1

7, 80: Y/C signal input for SCART2

16: video signal input of sub-tuner

8: Y signal input of AV or S-Video

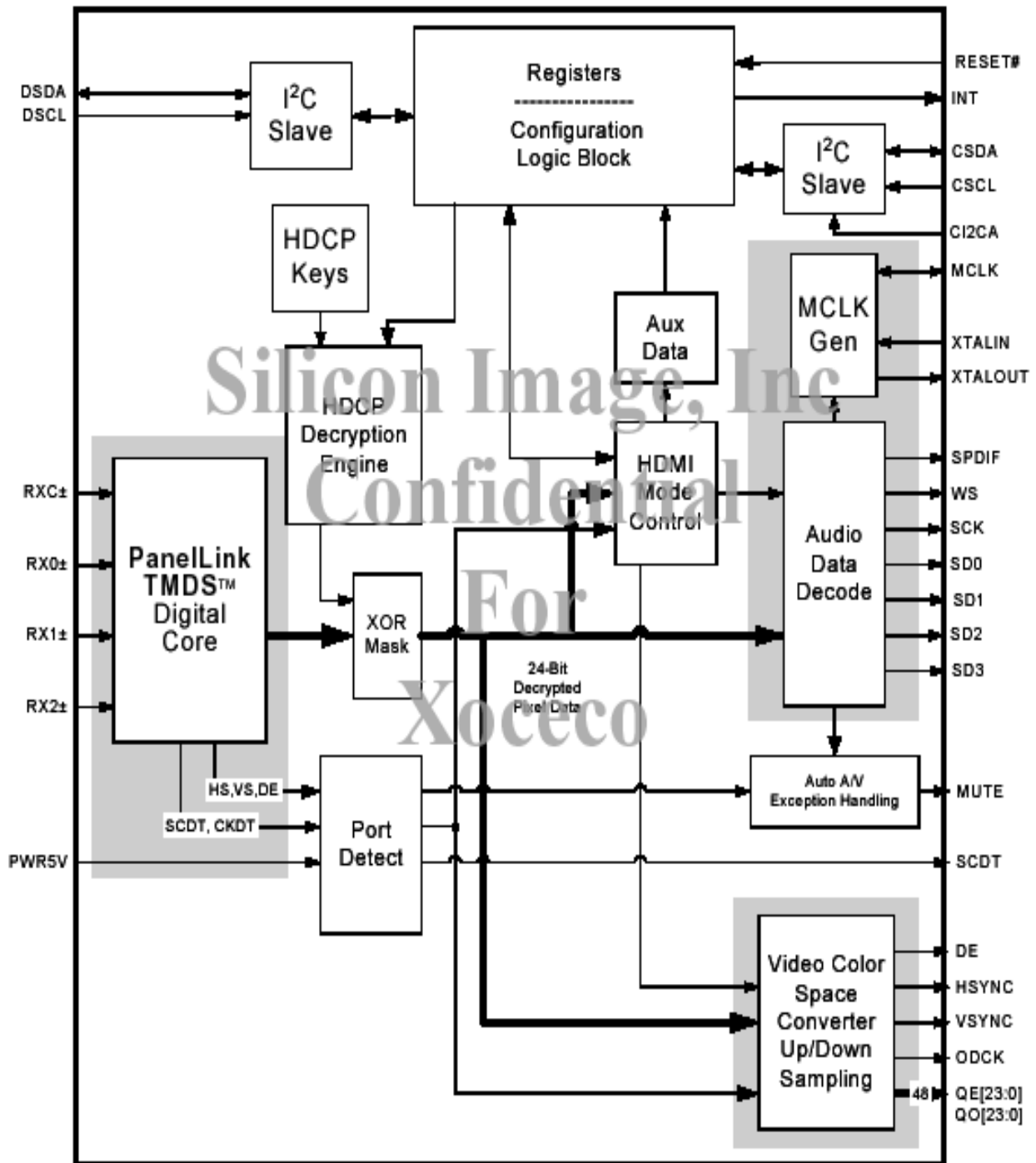
1: C signal input of S-Video

9, 2, 18: YUV signal input of compatible DTV

3. Reception HDMI signal (Sil9011)

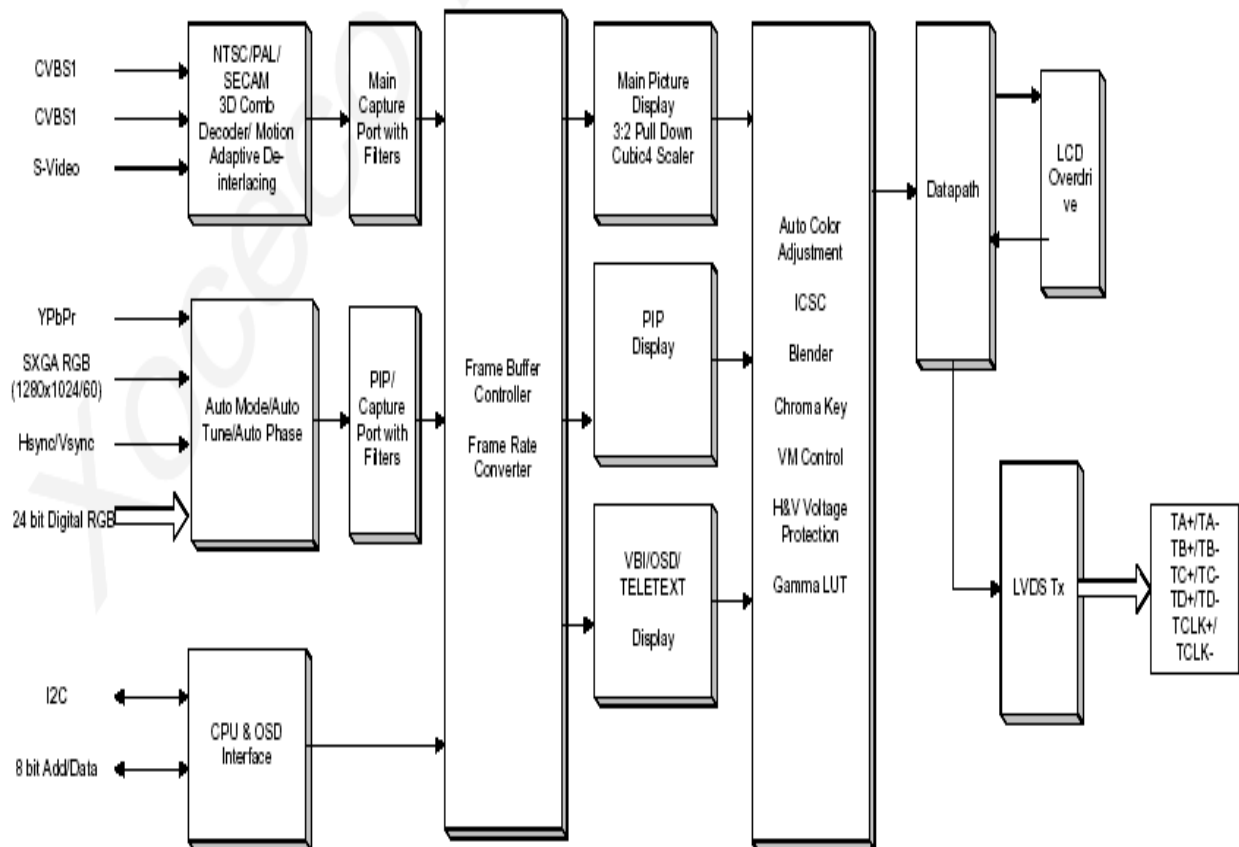
After differential signal of HDMI send to N405 (Sil9011), then it transform 24bit for video digital signal, and sent to IC N101 (SVP-EX52) processing.

Sil9011 internal block diagram as follow:



4. Main decode and processing IC(DPTV-SVP-EX52)

SVP-EX52 internal block diagram as follow:



SVP-EX52 main pins instructions:

14, 16: SCL, SDA

10, 11: VGAHS, VGAVS input,

244, 231: EX52_Y and EX52_C input

243: main tuner video signal input

242: video signal input for Scart1

226, 248, 233: Scart1 RGB input

246, 232, 225: EX52_YUV input

236, 237: video output for SCART2

Assembly list**LC-27W18S/LC-27W25S**

Name	Part No.	Main IC and No.
Data processing board	667-L27W18-69	N101 DPTV-SVP-EX52 (353-DPTV0-20) N201 K4D2632838F (353-26323-10) N302 W29C040P-90B (353-29040-30) N301 M30620SPGP (353-30620-20) N601 TVP5147PFP (353-51470-10) N405 Sil9011CLU (353-90110-10) N403 CS4344CZZ (353-43440-10)
Audio processing board	667-L27W18-15	TUNER201 JS-6B2/122A2-A2 (590-40512-00) TUNER202 JS-6B2/121A2 (590-40511-00) N801 MSP3410G (353-34100-80) N803 TPA3008D2 (353-30080-10) N805 NJW1109M (353-11092-20)
Video processing board	667-L27W18-40	
IR reception board	667-L27W18-09 (LC-27W18S)	
Button board	667-L27W18-05 (LC-27W18S) 667-L32W25-05 (LC-27W25S)	
Power supply board	667-L27W18-20	

LC-32W18S/LC-32W25S

Name	Part no.	Main IC and no.
Data processing board	667-L32W25-69	N101 DPTV-SVP-EX52 (353-DPTV0-20) N201 K4D2632838F (353-26323-10) N302 W29C040P-90B (353-29040-30) N301 M30620SPGP (353-30620-20) N601 TVP5147PFP (353-51470-10) N405 Sil9011CLU (353-90110-10) N403 CS4344CZZ (353-43440-10)
Audio processing board	667-L32W25-15	TUNER201 JS-6B2/122A2-A2 (590-40512-00) TUNER202 JS-6B2/121A2 (590-40511-00) N801 MSP3410G (353-34100-80) N803 TPA3008D2 (353-30080-10) N805 NJW1109M (353-11092-20)
Video processing board	667-L27W18-40	
IR reception board	667-L32W18-09 (LC-32W18S)	
Button board	667-L27W18-05 (LC-32W18S) 667-L32W25-05 (LC-32W25S)	

Power supply board	667-L32K5-20A	
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LC-37W18S/LC-37W25S

Name	Part no.	Main IC and no.
Data processing board	667-L37W25-69	N101 DPTV-SVP-EX52 (353-DPTV0-20) N201 K4D2632838F (353-26323-10) N302 W29C040P-90B (353-29040-30) N301 M30620SPGP (353-30620-20) N601 TVP5147PFP (353-51470-10) N405 Sil9011CLU (353-90110-10) N403 CS4344CZZ (353-43440-10)
Audio processing board	667-L32W25-15	TUNER201 JS-6B2/122A2-A2 (590-40512-00) TUNER202 JS-6B2/121A2 (590-40511-00) N801 MSP3410G (353-34100-80) N803 TPA3008D2 (353-30080-10) N805 NJW1109M (353-11092-20)
Video processing board	667-L37W25-40	
IR reception board	667-L37W18-09 (LC-37W18S)	
Button board	667-L37W18-05 (LC-37W18S) 667-L37W25-05 (LC-37W25S)	
Power supply board	667-L37K5-20C	

LC-42W17S

Name	Part no.	Main IC and no.
Data processing board	667-L42W17-69	N101 DPTV-SVP-EX52 (353-DPTV0-20) N201 K4D2632838F (353-26323-10) N302 W29C040P-90B (353-29040-30) N301 M30620SPGP (353-30620-20) N601 TVP5147PFP (353-51470-10) N405 Sil9011CLU (353-90110-10) N403 CS4344CZZ (353-43440-10)
Audio processing board	667-L32W25-15	TUNER201 JS-6B2/122A2-A2 (590-40512-00) TUNER202 JS-6B2/121A2 (590-40511-00) N801 MSP3410G (353-34100-80) N803 TPA3008D2 (353-30080-10) N805 NJW1109M (353-11092-20)
Video processing board	667-L42W17-40	
IR reception board	667-L42W17-09	
Button board	667-L42W17-05	
Power supply board	667-L42W17-20	

Identification criteria for the bright spot and dark spot of the LCD screen

Category	criteria	quantity allowed					Distance between two spots				
		15"	20"	22"	30"	40"	15"	20"	22"	30"	40"
Bright spot	One single spot	≤5	≤2	≤5	≤2	≤3	≥15mm	≥15mm			
	Two neighboring spots	≤2	≤1	≤2	≤1	≤1					
	Total No.	≤5	≤2	≤5	≤2	≤3					
Dark spots	One single spot	≤6	≤7	≤5	≤4	≤10		≥10mm	≥5mm		
	Two neighboring spots	≤2	≤2	≤2	≤1	≤5					
	Total No.	≤6	≤7	≤5	≤4	≤10					
Total defected point		≤8	≤7	≤5	≤4	/					

Notes:

1. Definition of defected point (bright spot, dark spot): It is identified as a defected point if its area exceeds 1/2 of a single picture element (R, G, B).
2. Definition of bright spot: It is identified as a bright spot if it is bright in the state of dark field and its bright size remains unchanged
3. Definition of dark spot: It is identified as a dark spot if it is dark in the state of white field and its dark size remains unchanged
4. Definition of two neighboring points: Defects of a group of picture elements (RB, RG, GB).

Trouble shooting

1. Fault clearance

Before servicing please check to find the possible causes of the troubles according to the table below.

1.1 Antenna (signal):

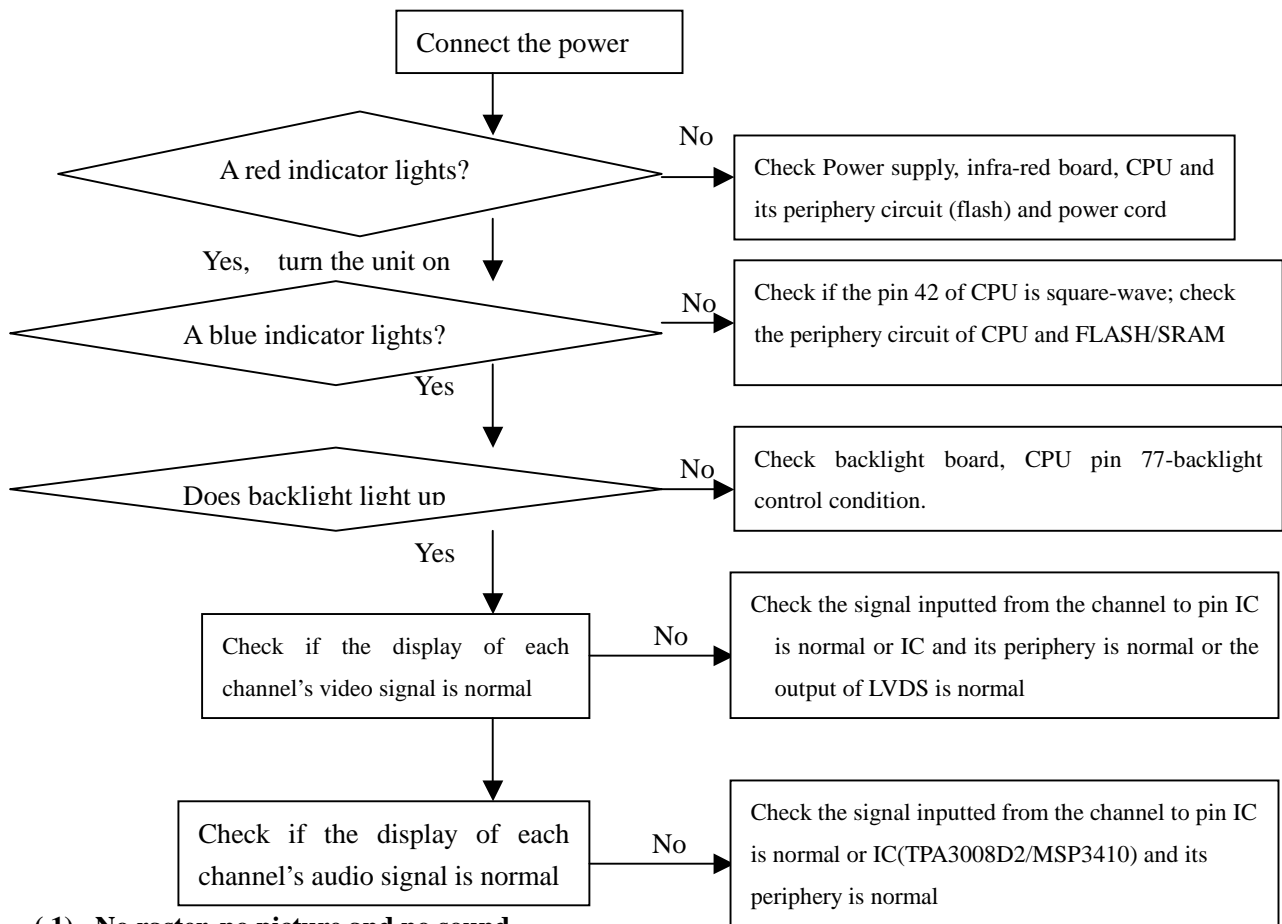
Picture is out of focus or jumping	<ul style="list-style-type: none"> ● Bad status in signal receiving ● Poor signal ● Check if there are failures with the electrical connector or the antenna. ● Check if the antenna is properly connected.
Fringe in picture	<ul style="list-style-type: none"> ● Check if the antenna is correctly oriented. ● Maybe there is electric wave reflected from hilltop or building.
Picture is interfered by stripe shaped bright spots	<ul style="list-style-type: none"> ● Possibly due to interference from automobile, train, high voltage transmission line, neon lamp etc. ● Maybe there is interference between antenna and power supply line. Please try to separate them in a longer distance. ● Maybe the shielded-layer of signal wire is not connected properly to the connector.
There appear streaks or light color on the screen	<ul style="list-style-type: none"> ● Check if interfered by other equipment and if interfered possibly by the equipment like transmitting antenna, non-professional radio station and cellular phone.

1.2 TV set:

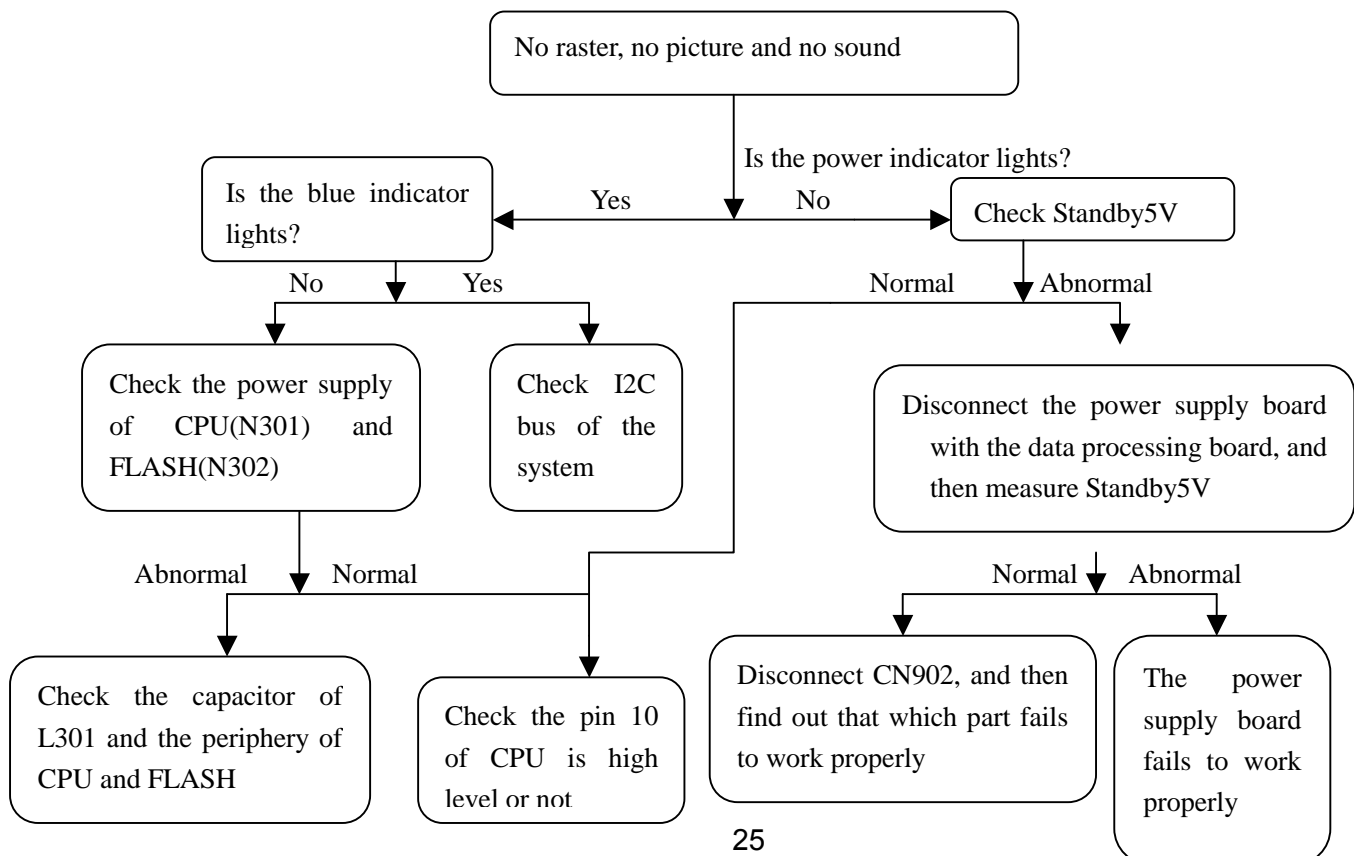
Symptoms	Possible cause
Unable to switch the power on	<ul style="list-style-type: none"> ● Check to see if the power plug has been inserted properly into the socket.
No picture and sound	<ul style="list-style-type: none"> ● Check to see if the power supply of liquid crystal TV has been switched on. (As can be indicated by the red LED at the front of the TV set) ● See if it's receiving the signal that is transmitted from other source than the station ● Check if it's connected to the wrong terminal or if the input mode is correct. ● Check if the signal cable connection between video frequency source and the liquid crystal TV set is correct.
Deterioration of color phase or color tone	<ul style="list-style-type: none"> ● Check if all the picture setups have been corrected.
Screen position or size is not proper	<ul style="list-style-type: none"> ● Check is the screen position and size is correctly set up.
Picture is twisted and deformed	<ul style="list-style-type: none"> ● Check to see if the picture-frame ratio is properly set up.
Picture color changed or colorless	<ul style="list-style-type: none"> ● Check the "Component" or "RGB" settings of the liquid crystal TV set and make proper adjustment according to the

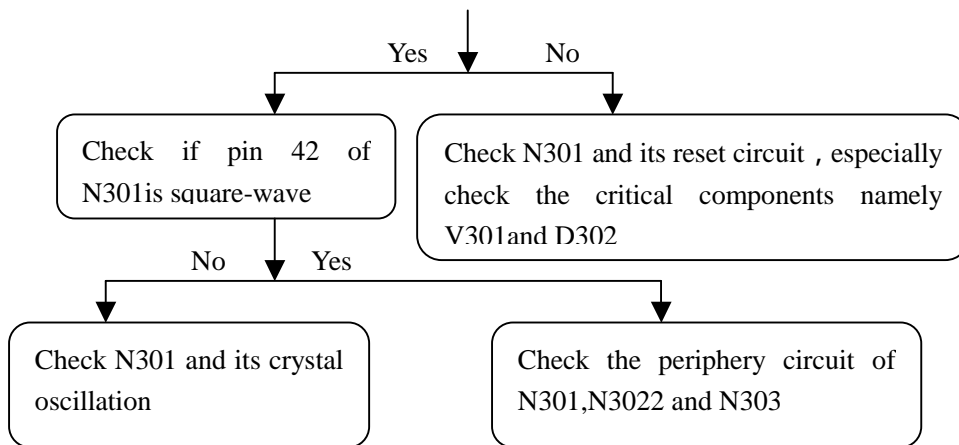
	signal types.
Picture too bright and there is distortion in the brightest area	<ul style="list-style-type: none"> ● Check if the contrast setting is too high. ● Possibly the output quality of DVD broadcaster is set too high. ● It maybe also due to improper terminal connection of the video frequency signal in a certain position of the system.
Picture is whitish or too bright in the darkest area of the picture	<ul style="list-style-type: none"> ● Check if the setting for the brightness is too high ● Possibly the brightness grade of DVD player (broadcaster) is set too high.
No picture or signal produced from the displayer if “XXX in search” appears.	<ul style="list-style-type: none"> ● Check if the cable is disconnected. ● Check if it’s connected to the proper terminal or if the input mode is correct.
There appears an indication - “outside the receivable scope)	<ul style="list-style-type: none"> ● Check if the TV set can receive input signal. The signal is not correctly identified and VGA format is beyond the specified scope.
Remote control cannot work properly	<ul style="list-style-type: none"> ● Check if the batteries are installed in the reverse order. ● Check if the battery is effective. ● Check the distance or angle from the monitor. ● Check if there is any obstruct between the remote control and the TV set. ● Check if the remote control signal- receiving window is exposed to strong fluorescence.
No picture and sound, but only hash.	<ul style="list-style-type: none"> ● Check if the antenna cable is correctly connected, or if it has received the video signal correctly.
Blur picture	<ul style="list-style-type: none"> ● Check if the antenna cable is correctly connected. ● Of if it has received the right video signal.
No sound	<ul style="list-style-type: none"> ● Check if the “mute” audio frequency setting is selected. ● Check if the sound volume is set to minimum. ● Make sure the earphone is not connected. ● Check if the cable connection is loose.
When playing VHS picture search tape, there are lines at the top or bottom of the picture.	<ul style="list-style-type: none"> ● When being played or in pause VHS picture search tape sometimes can’t provide stable picture, which may lead to incorrect display of the liquid crystal TV, In this case please press “auto” key on the remote control so as to enable the liquid crystal TV set to recheck the signal and then to display correct picture signal

2. Troubleshooting guide



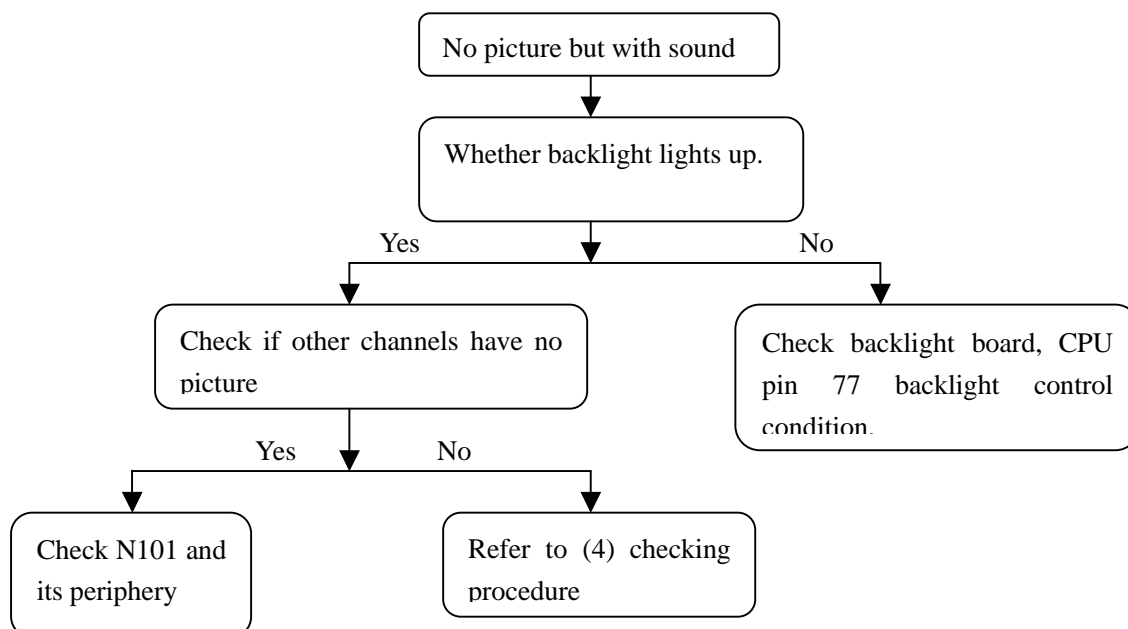
(1) , No raster, no picture and no sound





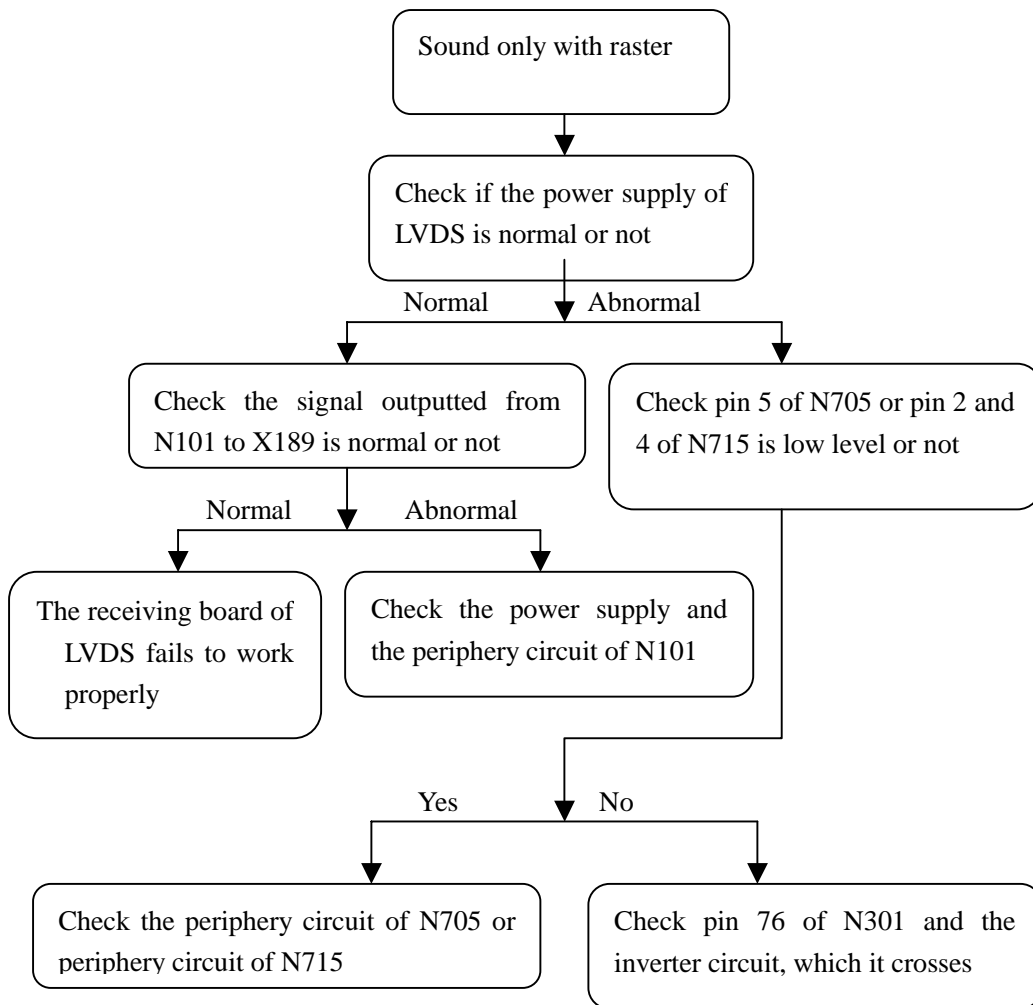
NOTE: When pin 10 of N301 is low level, remove V301 and then check the correspondent pins of N301 are high level or not, the reset circuit fails to work properly if it is high level. If pin 42 of N301 has no square-wave, remove R365, if the square-wave appears, then it is probably the FLASH of N302 fails to work properly. When it comes to check the periphery circuit of N301, N302 and N303, use oscilloscope to check the connecting resistor's pin among N301, N302 and N303 besides checking the connection of correspondent components, if regular square-wave or no signal is found, then it represents that one of N301, N302 or N303 fails to work properly, probably is N302. If R110 and R111 connects N301 with N101 fails to work will also lead to the failure phenomenon.

(2) No picture but with sound(blue screen and OSD appear)



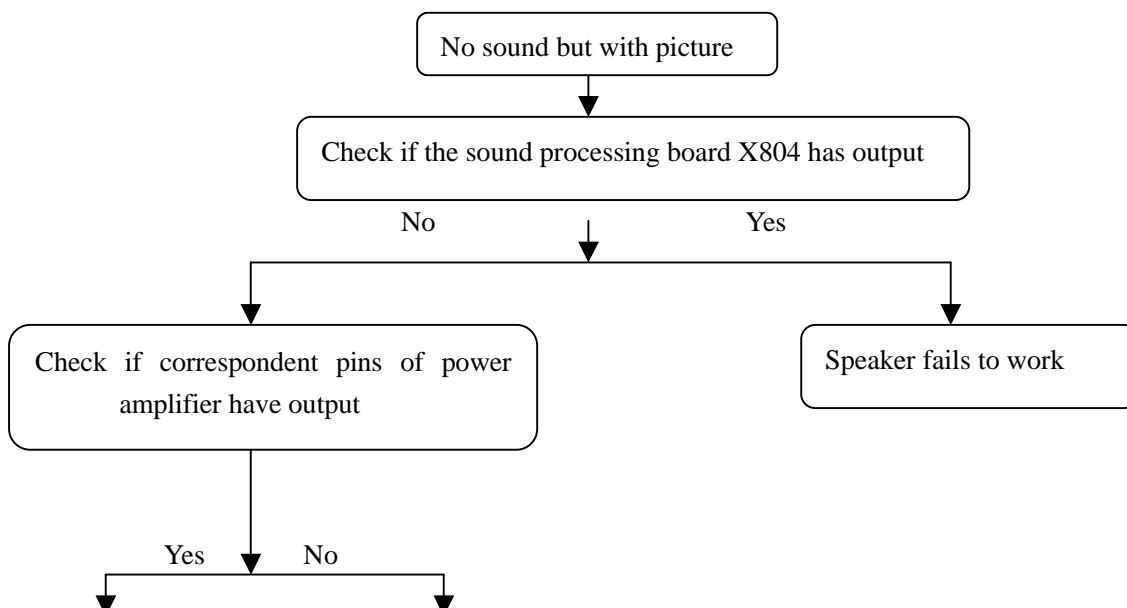
NOTE: Please refer to checking procedure (5) to get the methods for checking the phenomenon of no picture but with sound of HDMI channel

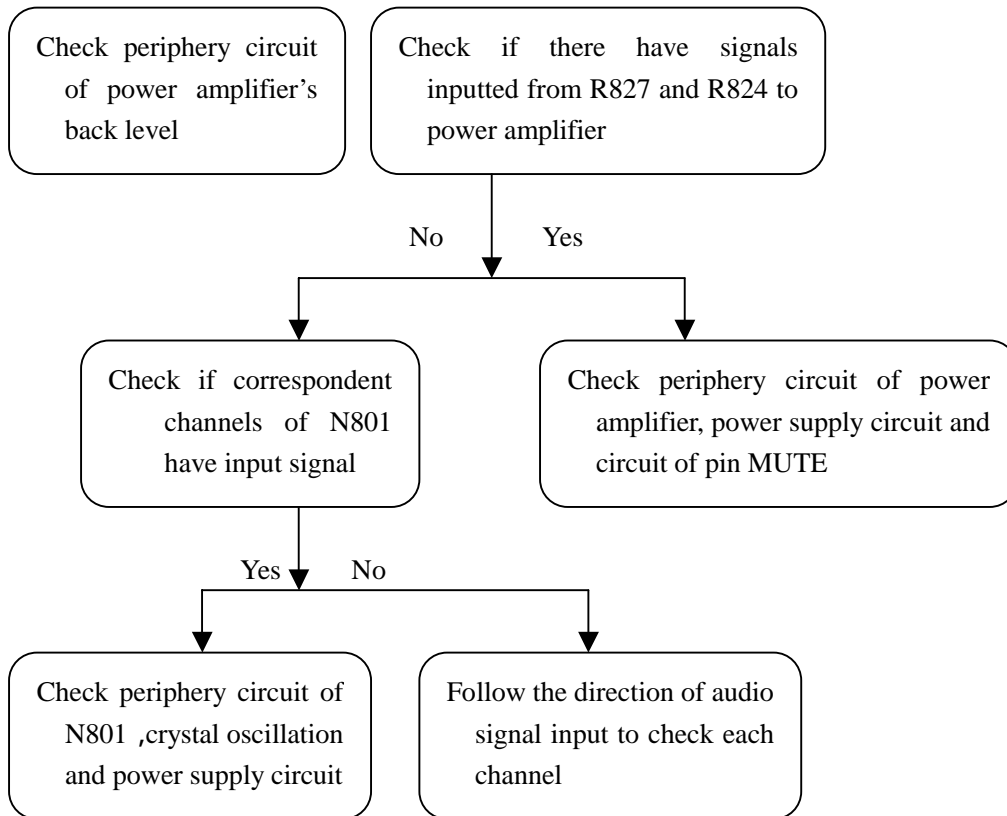
(3) No picture but with sound(only backlight lights up)



NOTE: Because the power supply for 37" LG LVDS is 12V check N715 for 37" and check N705 for other models

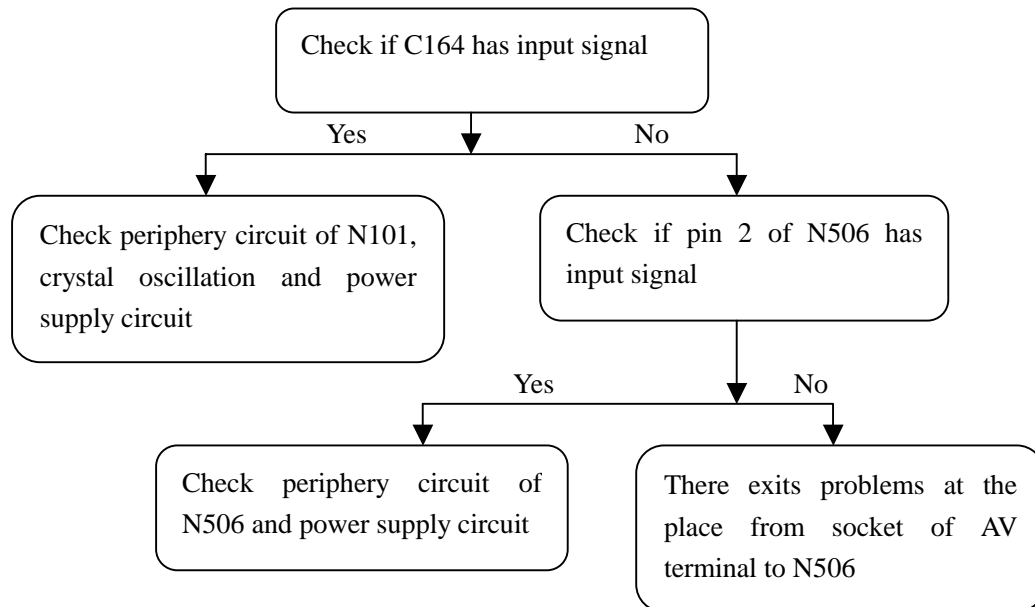
(4), No sound but with picture



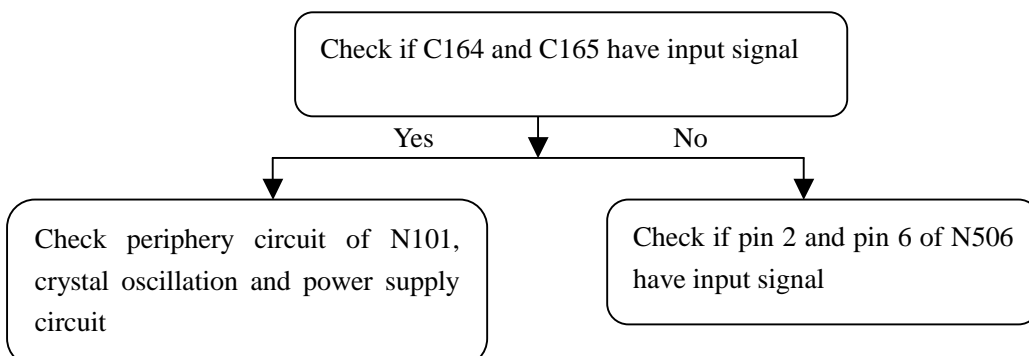


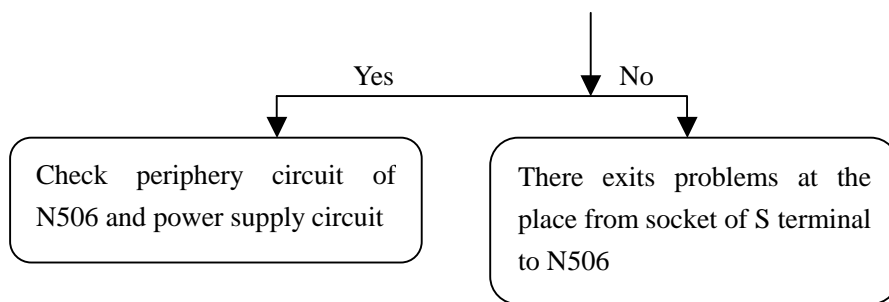
(5) , A certain channel fails to work properly

a), AV with no picture



b), S terminal with no picture

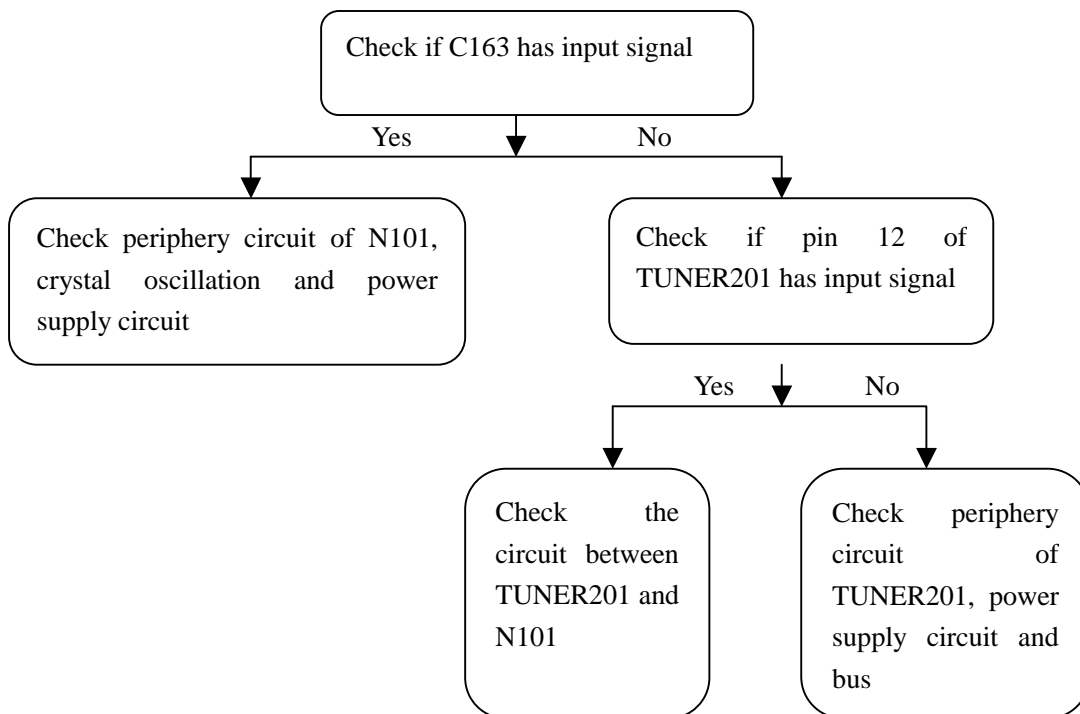




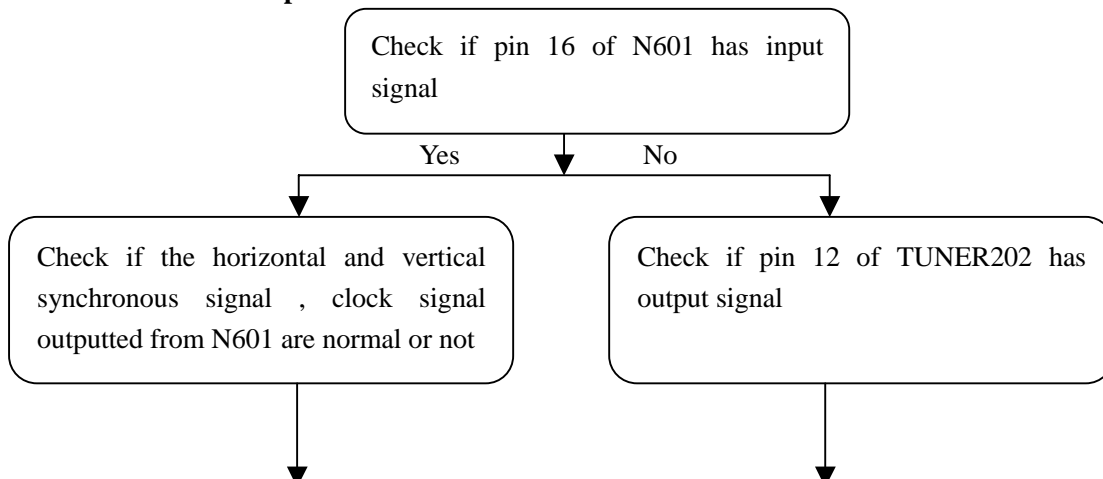
c), TV channel with no picture

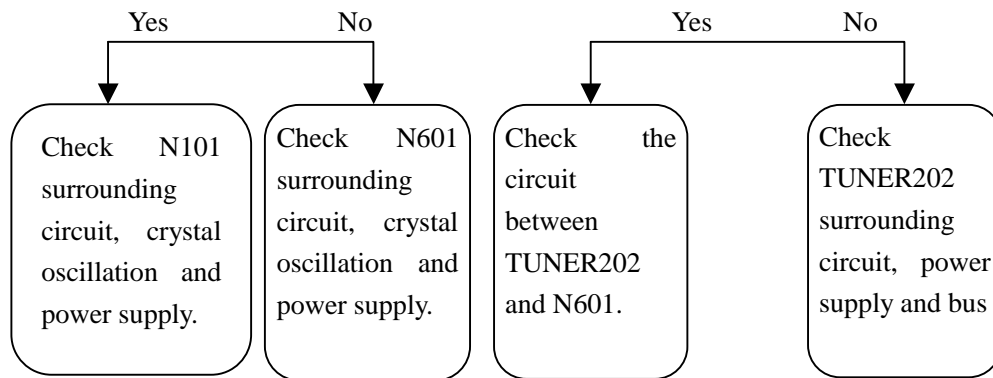
Firstly find out which frame fails to work properly making use of the PIP function, PIP frame or Main frame.

Main frame with no picture:

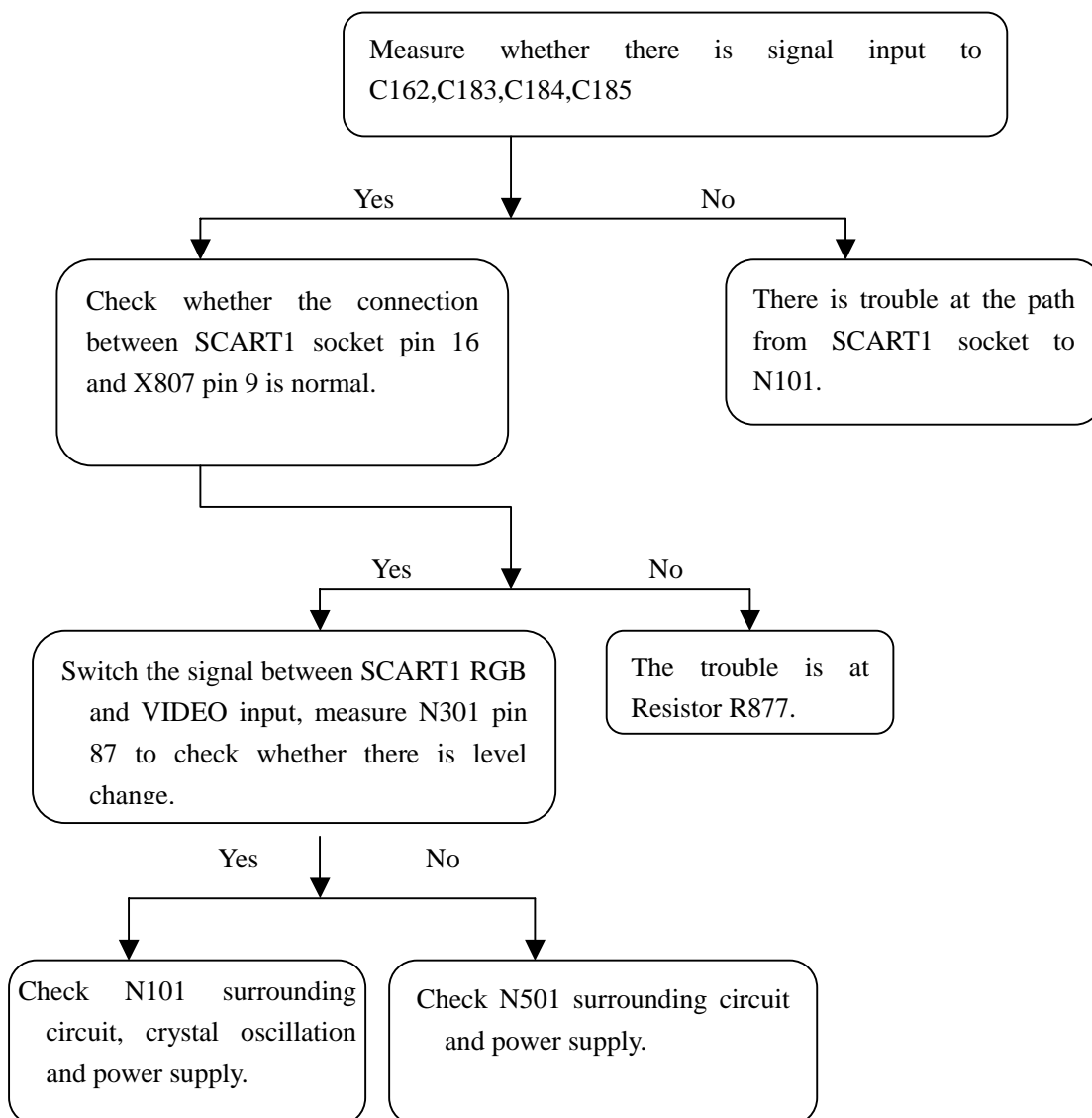


PIP frame with no picture:

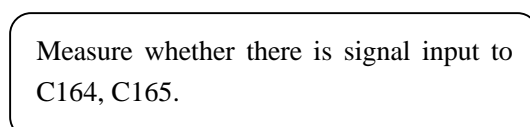


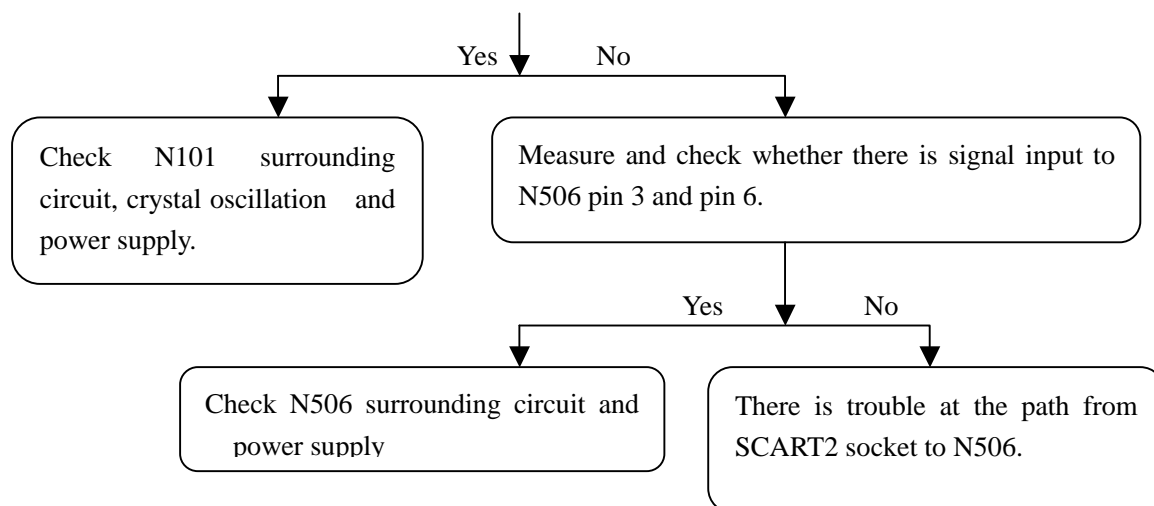


d) No picture in SCART1 mode

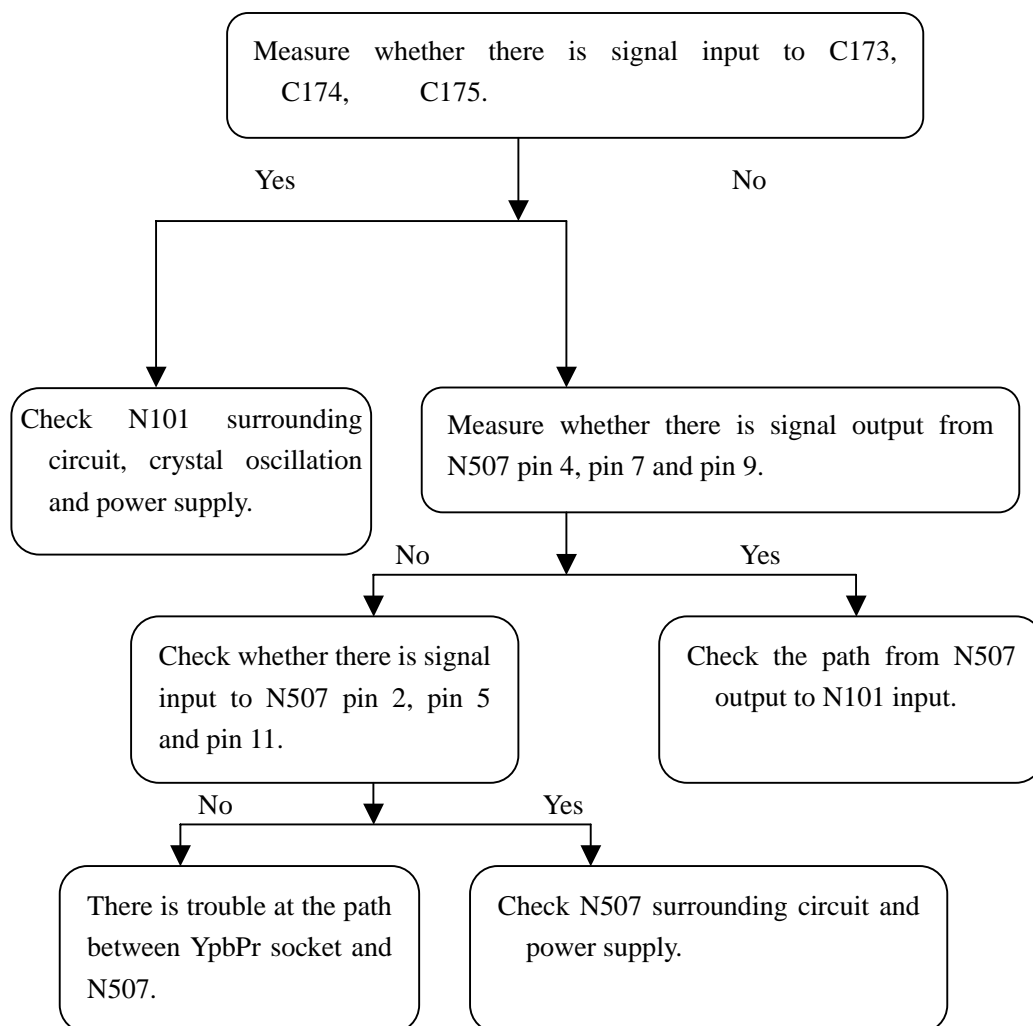


e) No picture at SCART2 mode

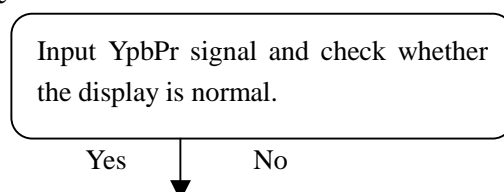


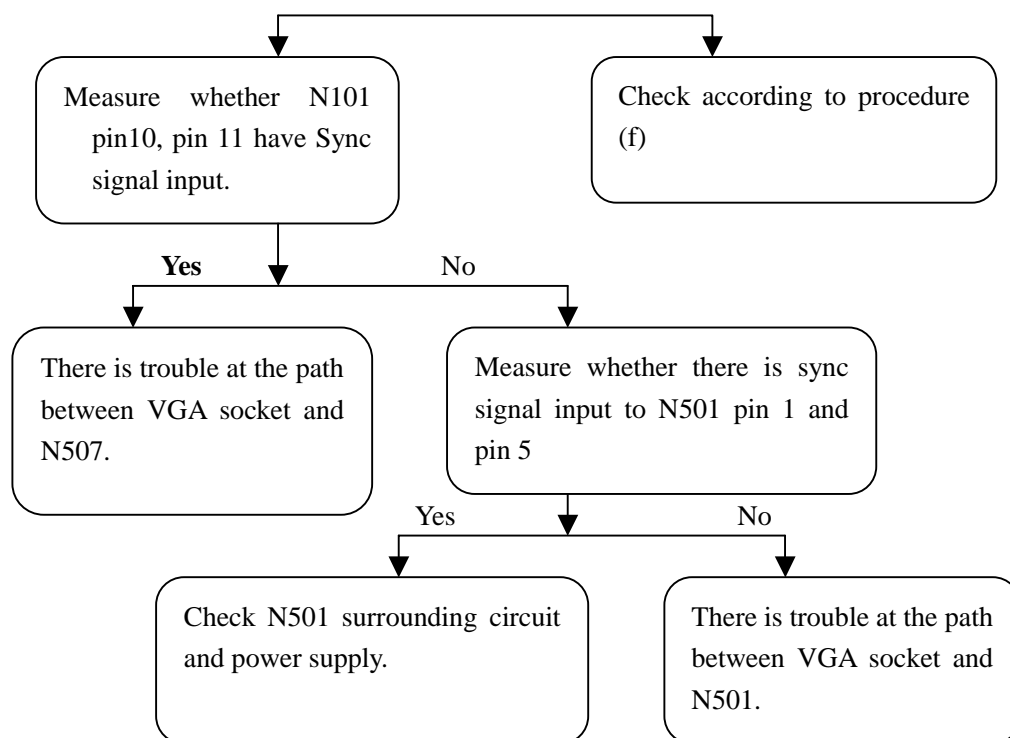


f) No picture at YPbPr or YCbCr mode

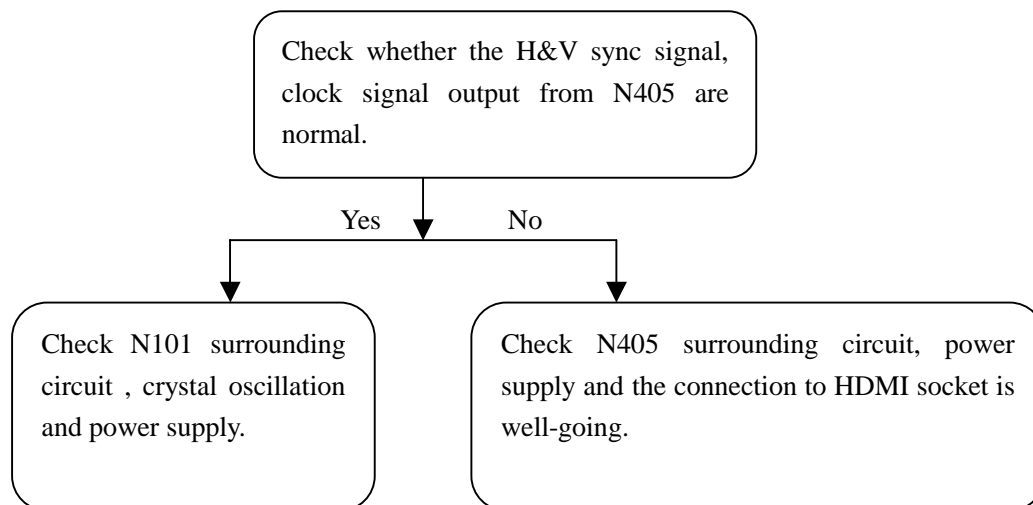


g) No picture in D-Sub mode

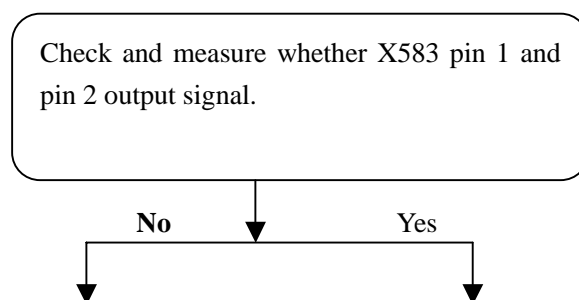


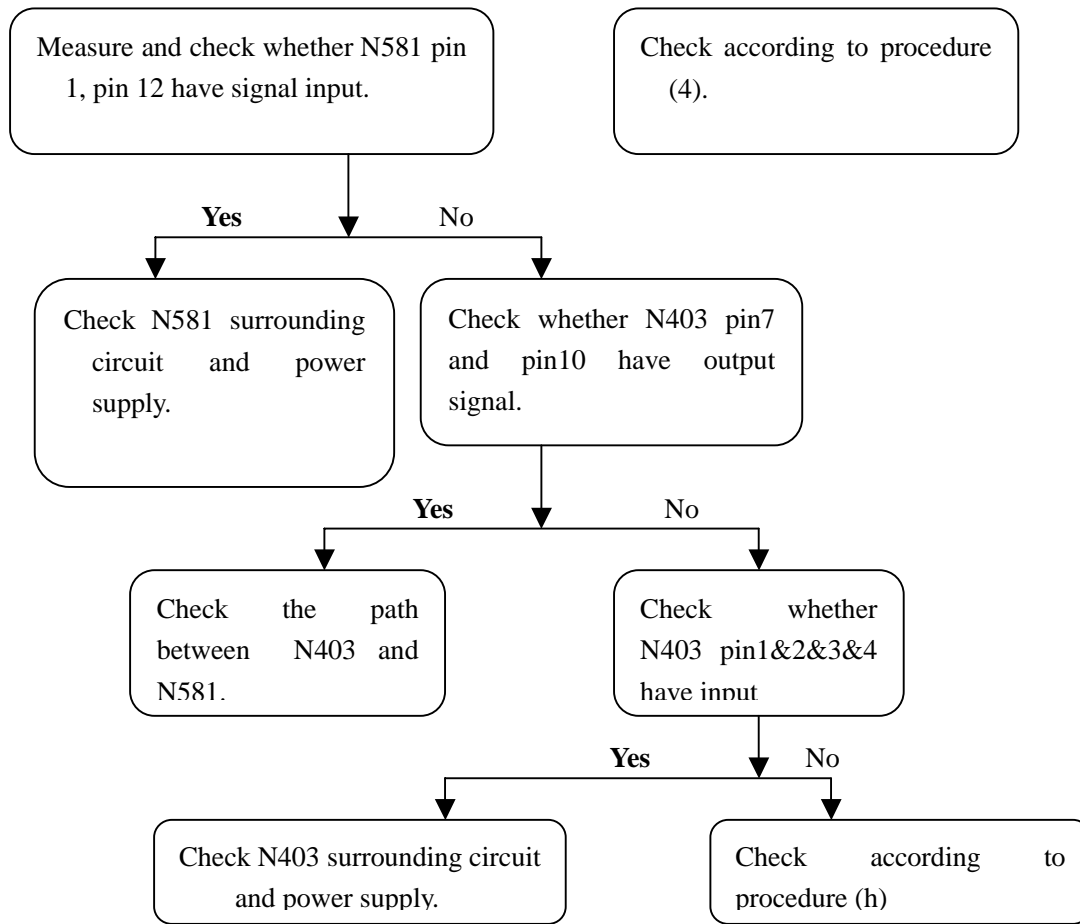


h) No picture in HDMI mode

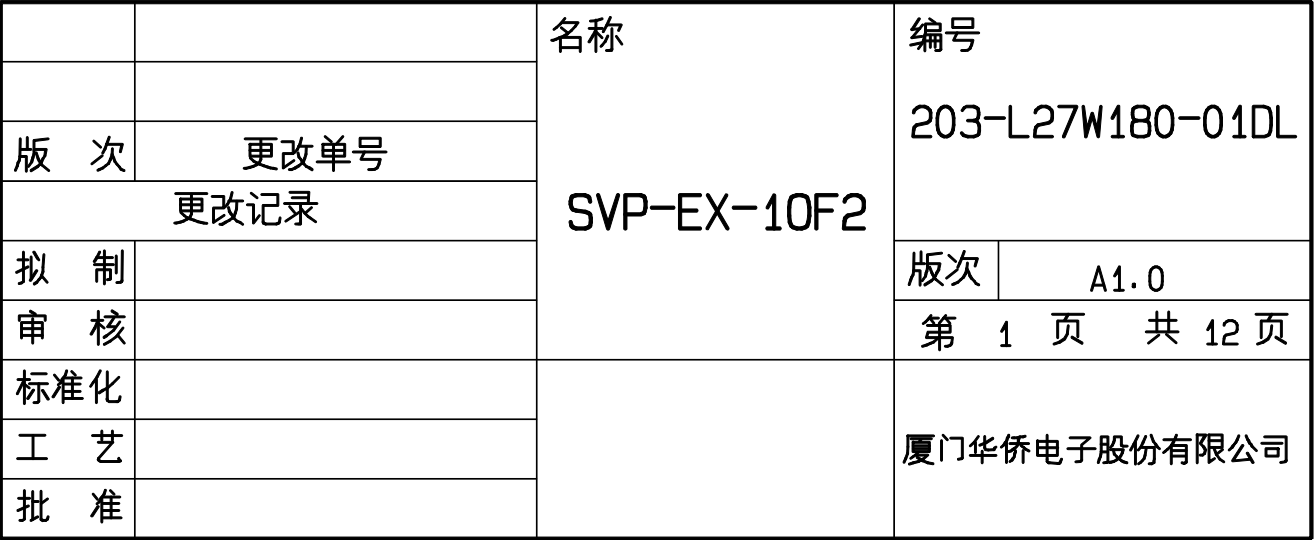


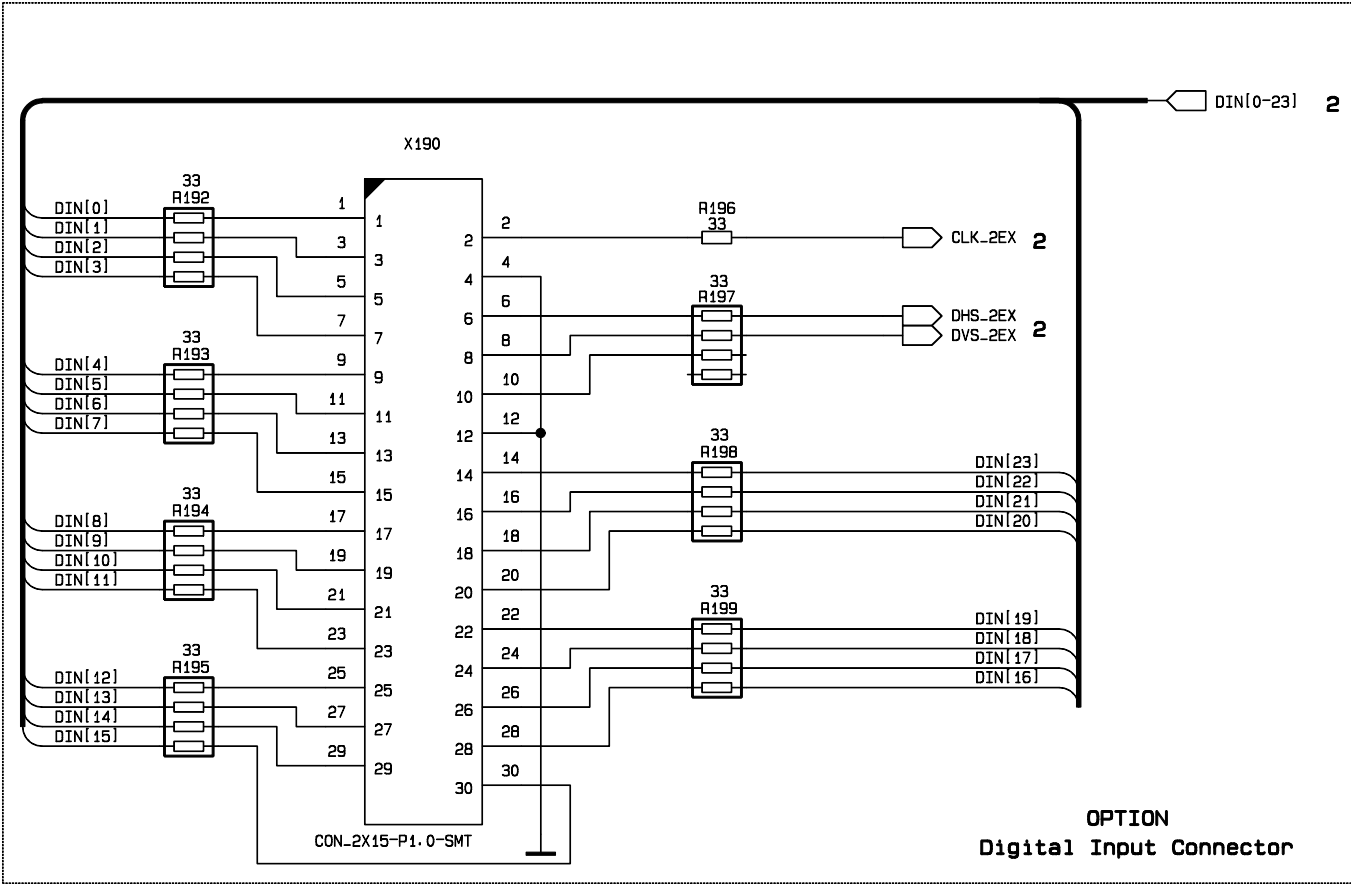
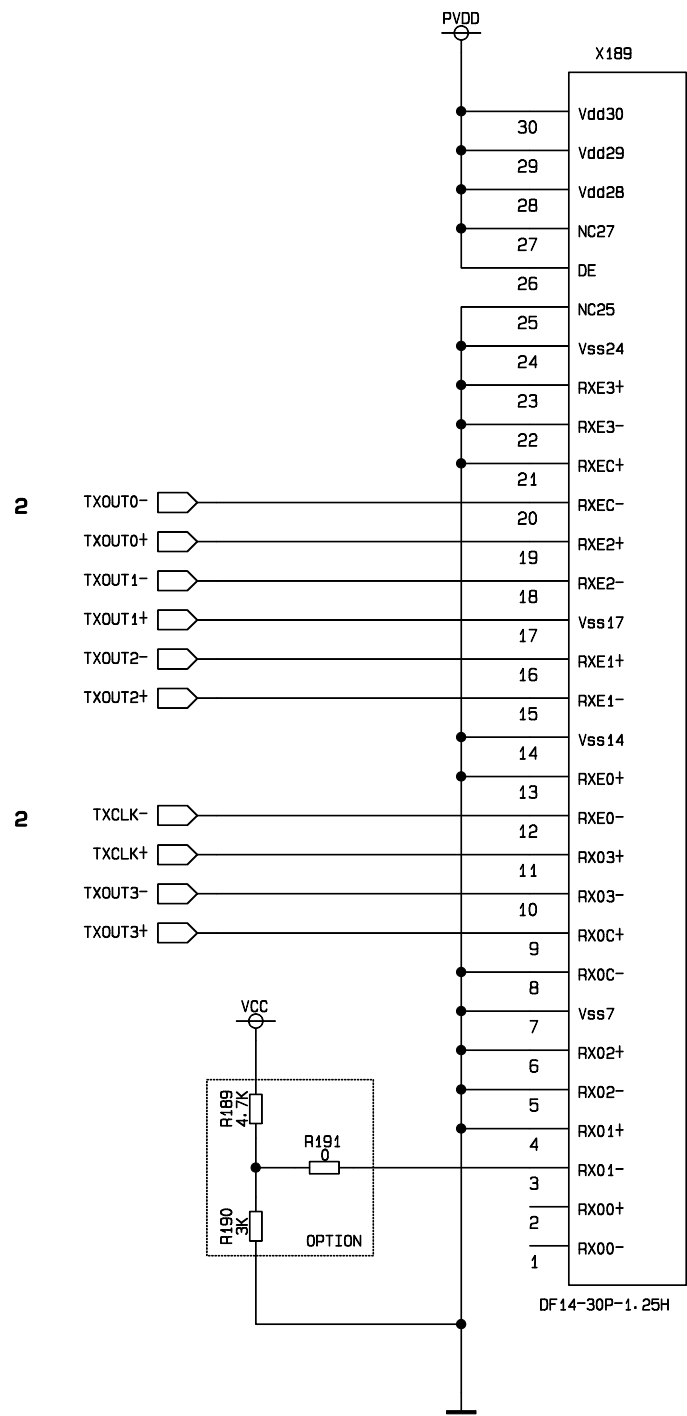
I) No sound in HDMI mode





Schematic diagram





		名称 SVP-EX-Pin Configuration	编号 203-L27W180-01DL	
版 次	更改单号			
更改记录				
拟 制			版次	A1.0
审 核			第 3 页 共 12 页	
标准化			厦门华侨电子股份有限公司	
工 艺				
批 准				

A

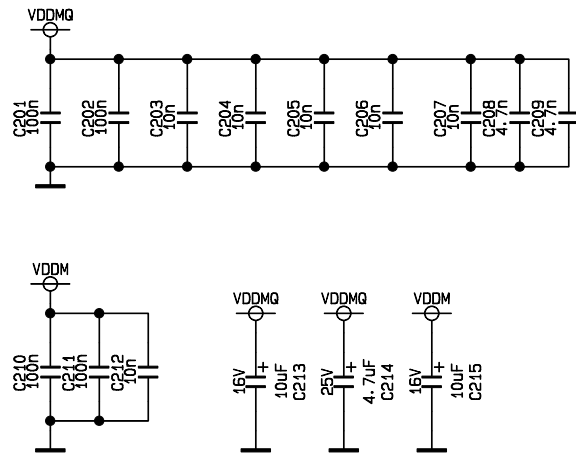
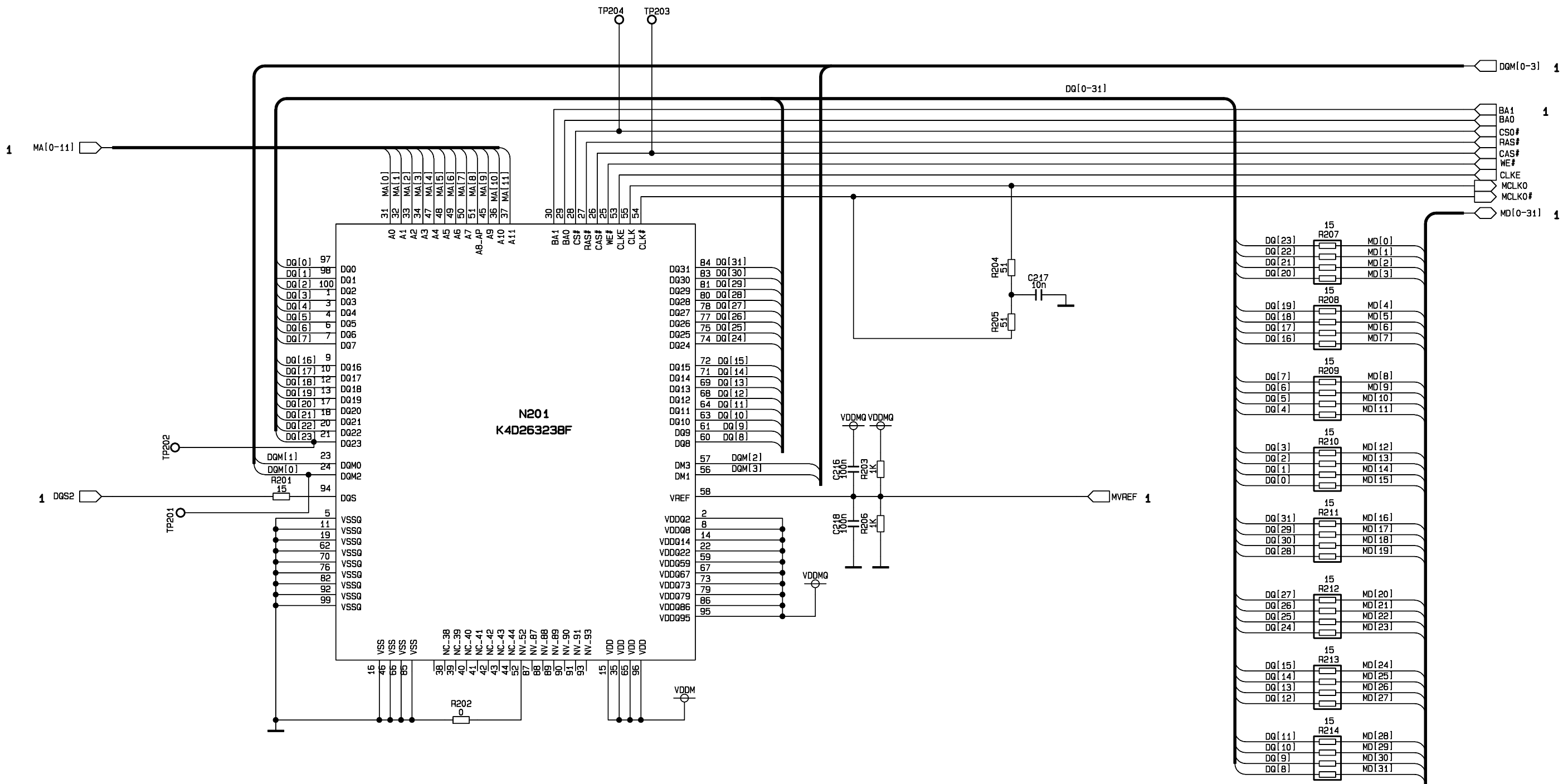
B

C

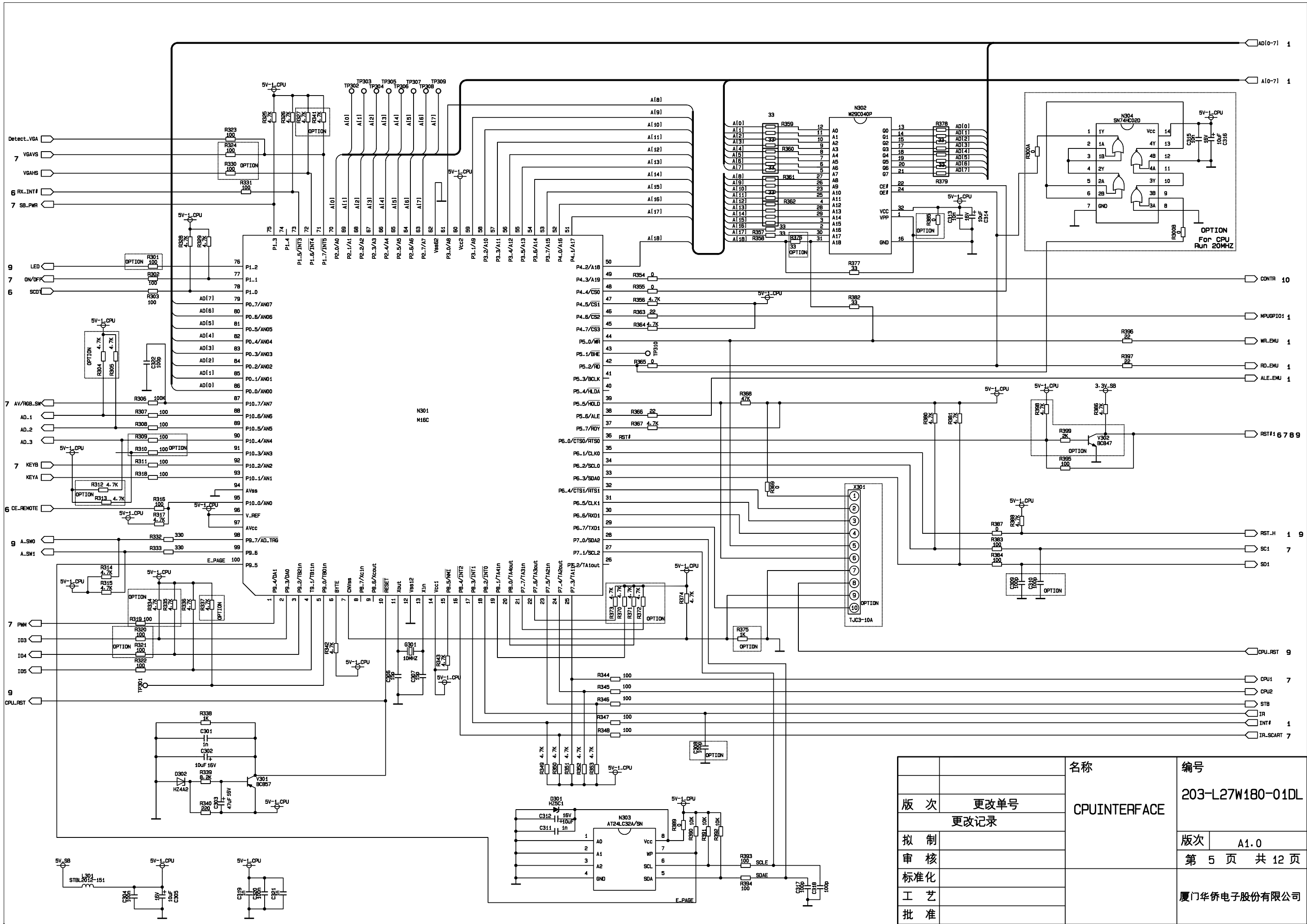
D

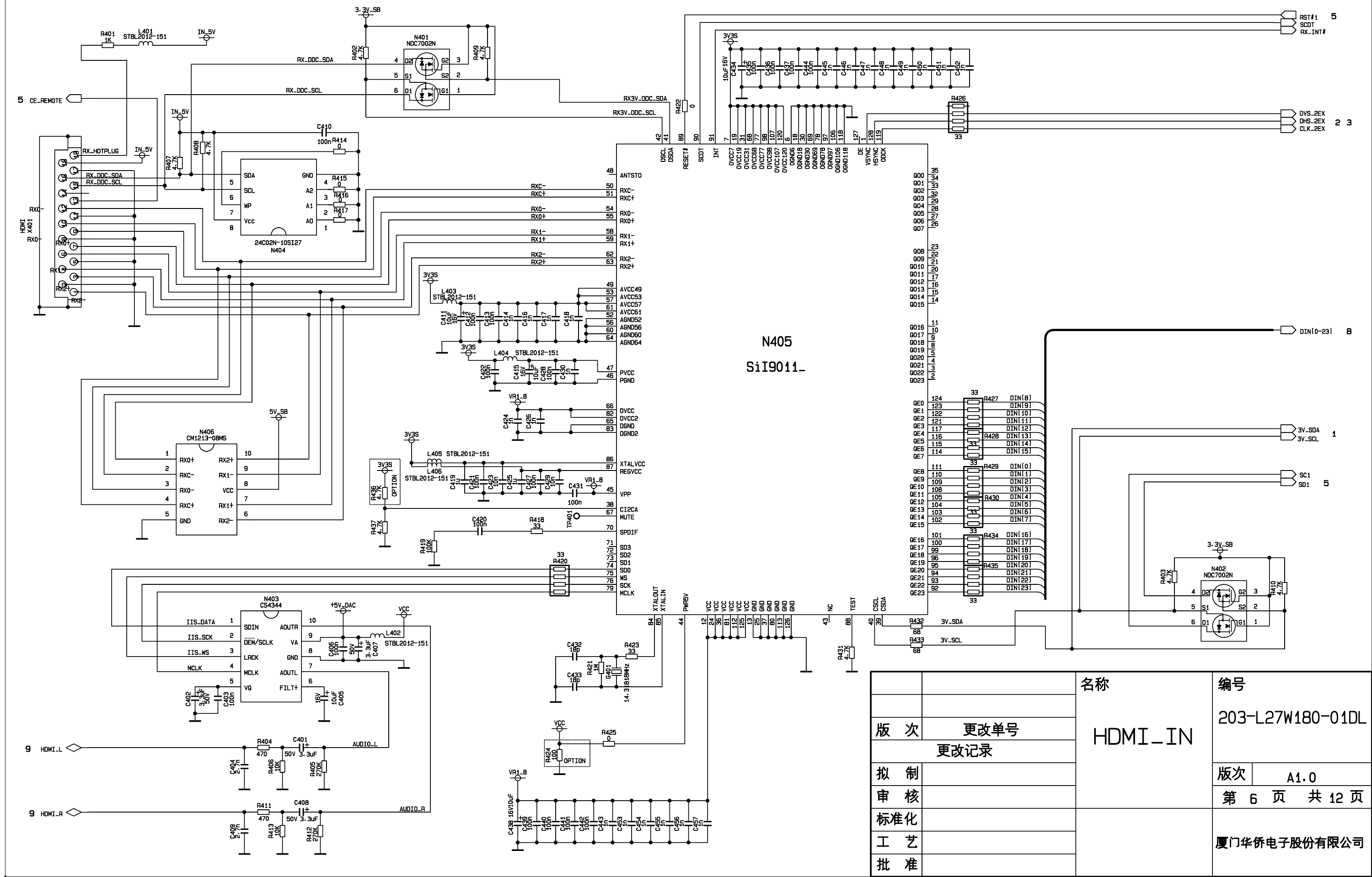
E

F

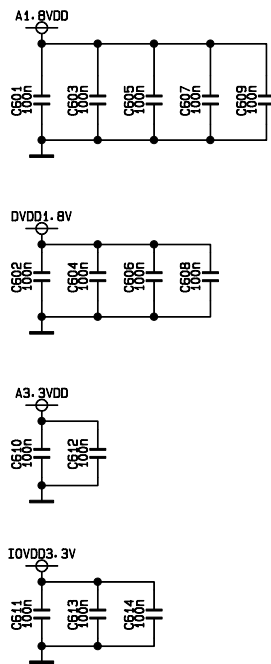
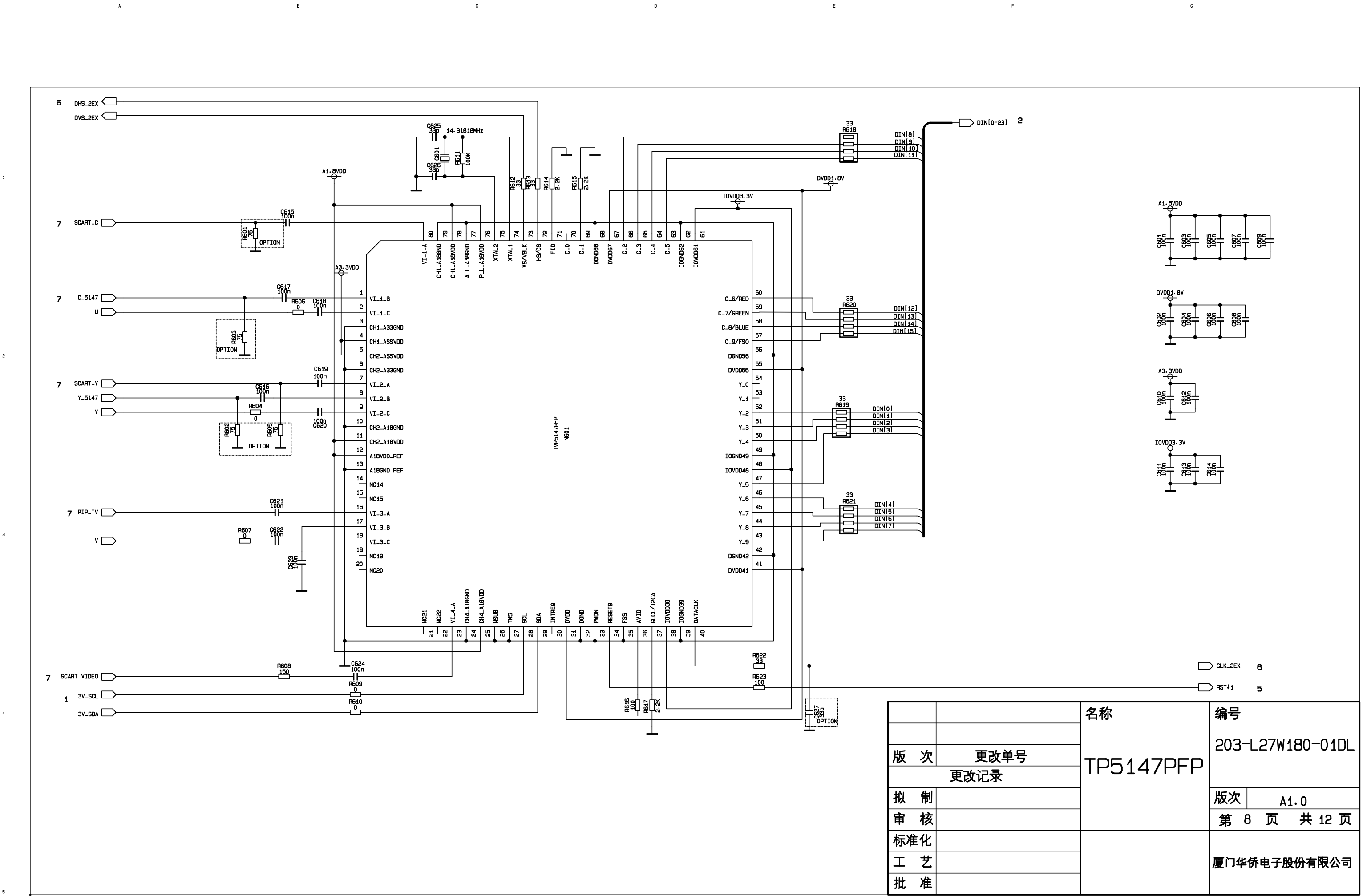


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版次	更改单号		版次	A1.0
更改记录			第 4 页 共 12 页	
拟制			厦门华侨电子股份有限公司	
审核				
标准化				
工艺				
批准				





		名称 HDMI_IN	编号 203-L27W180-01DL	
版 次	更改单号		版次	A1.0
拟 制	更改记录		第 6 页 共 12 页	
审 核			厦门华侨电子股份有限公司	
标准化				
工 艺				
批 准				

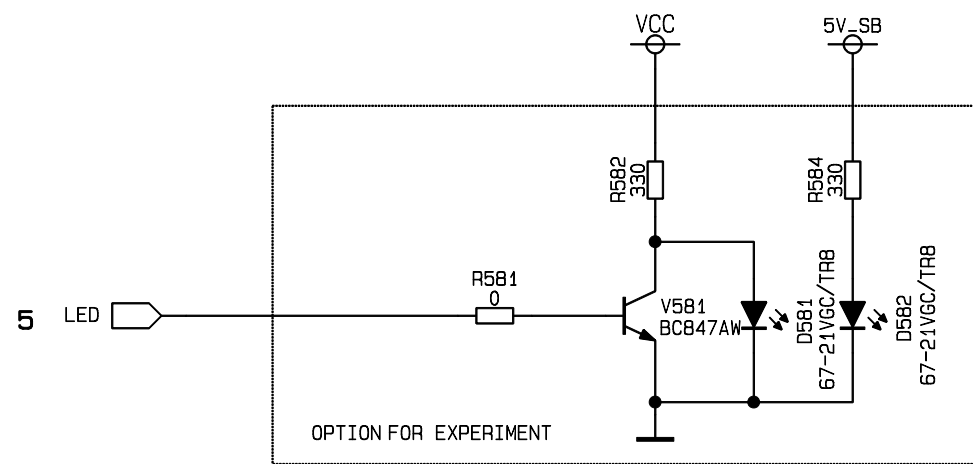
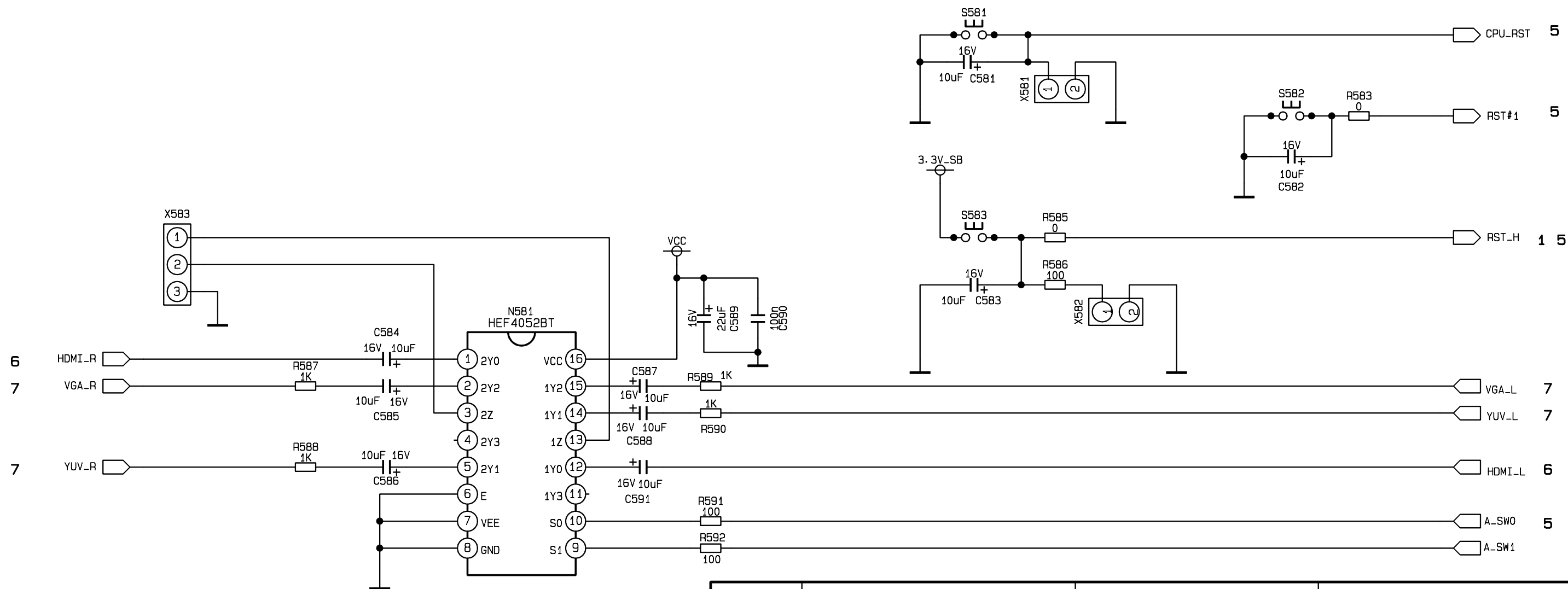


名称	编号
TP5147PFP	203-L27W180-01DL
版次	第 8 页 共 12 页
更改单号	更改记录
拟制	
审核	
标准化	
工艺	
批准	

1

2

3



		名称 BUTTON&AUDIO	编号 203-L27W180-01DL	
版次	更改单号			
更改记录				
拟制			版次	A1.0
审核		第 9 页 共 12 页		
标准化			厦门华侨电子股份有限公司	
工艺				
批准				

1

2

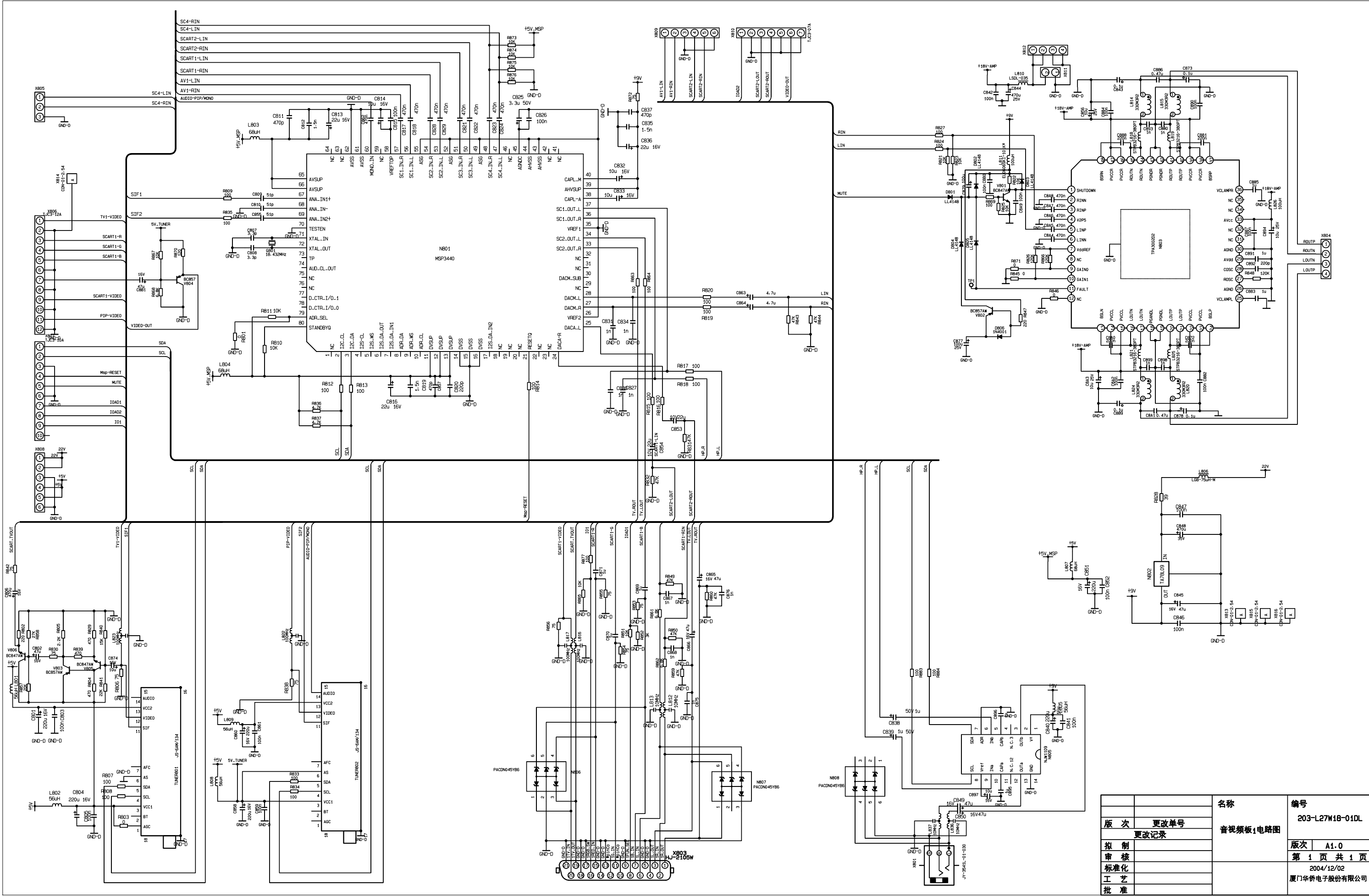
3

4

5

6

7



名称		编号
音视频板1电路图		203-L27W18-01DL
版次	更改单号	版次
1.0		A1.0
审核		第 1 页 共 1 页
标准化		2004/12/02
工艺		厦门华侨电子股份有限公司
批准		

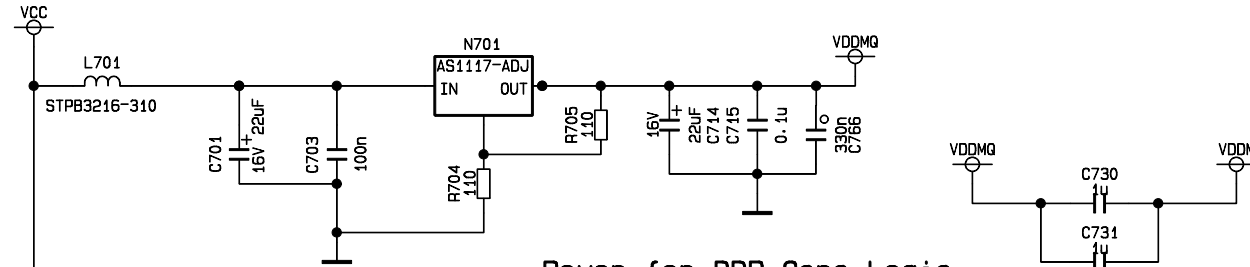
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2

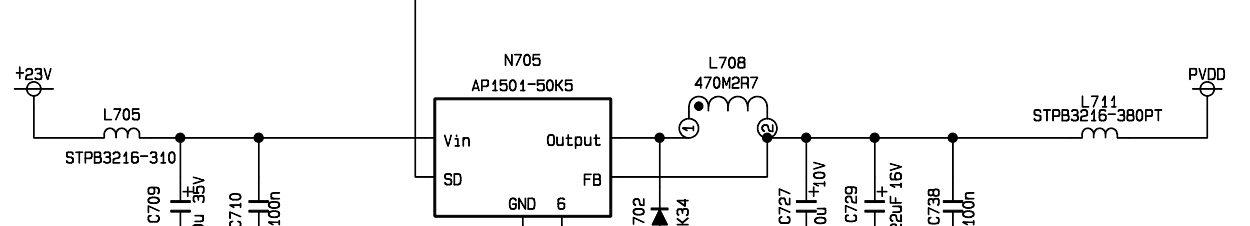
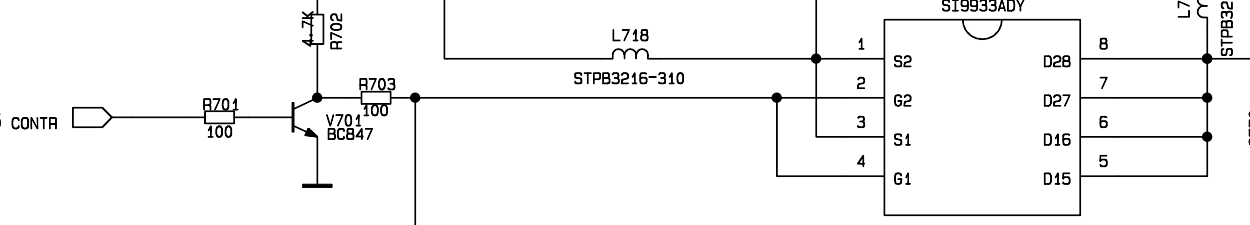
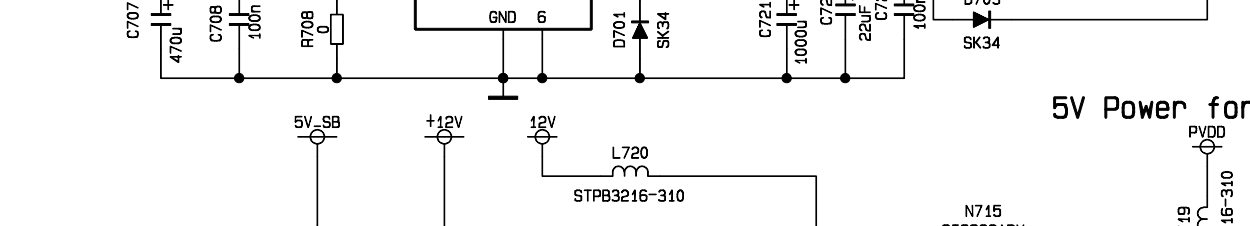
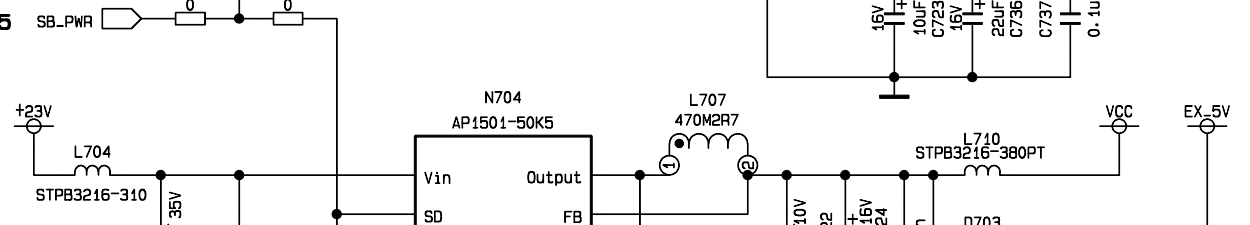
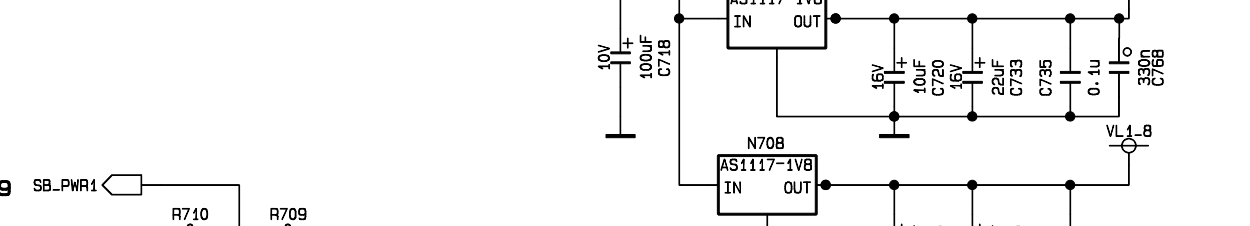
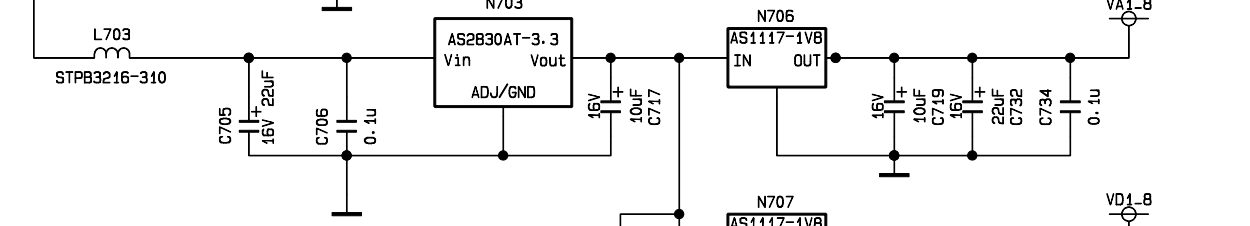
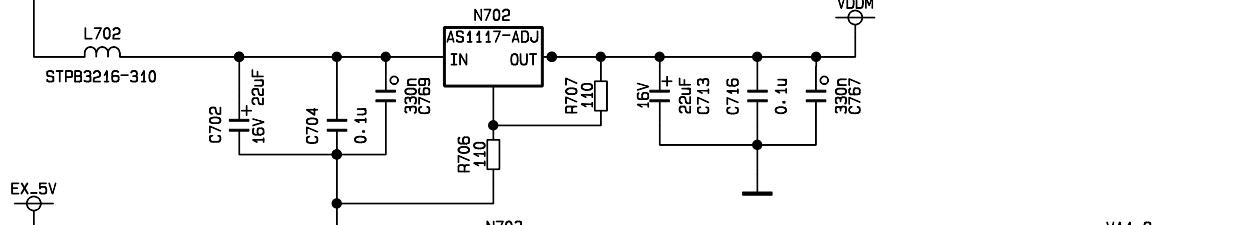
3

4

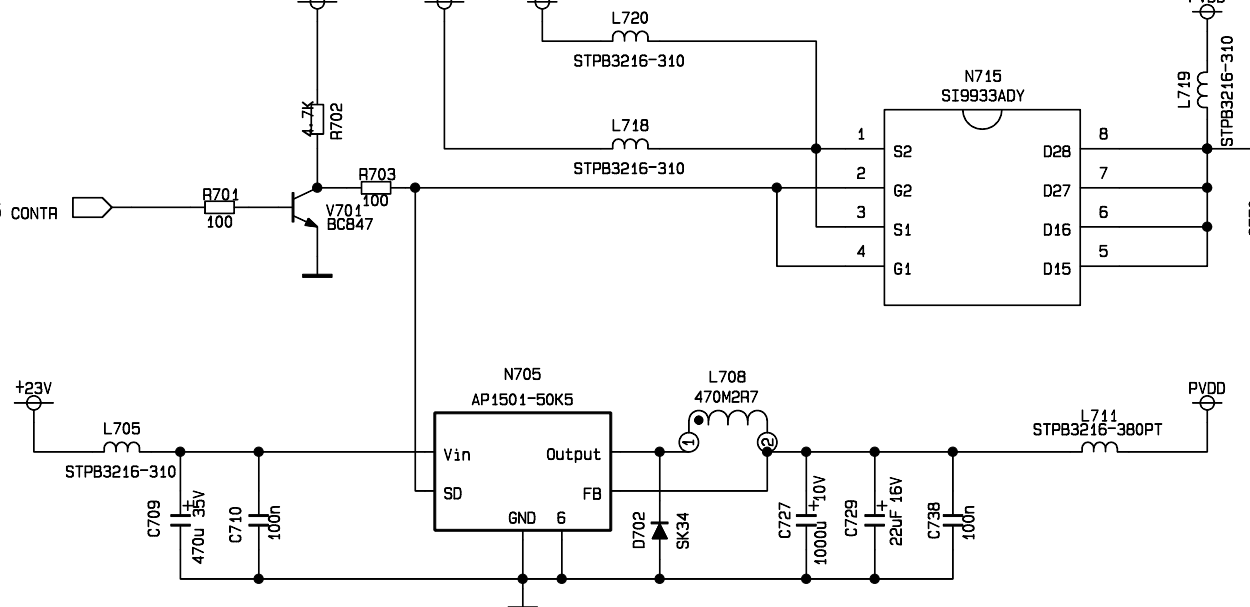
Power for DDR IO PADS



Power for DDR Core Logic



5V Power for LVDS



1
2
3
4
5
6

