

SERVICE MANUAL



LCD TV
NS-LCD37HD-09
LC-37HV41

No.: 9237HV4111
Ver.1.0

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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 static. 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.

If the connection wires, connectors or components fixed by the thermotropic glue need to disengage when service, please soak the thermotropic glue into the alcohol and then pull them out in case of damage.

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

VG-848 (YPbPr, VGA signal generator)

CA210 (white balancer)

2 Alignment flow-chart

The alignment flow-chart is shown as fig-1

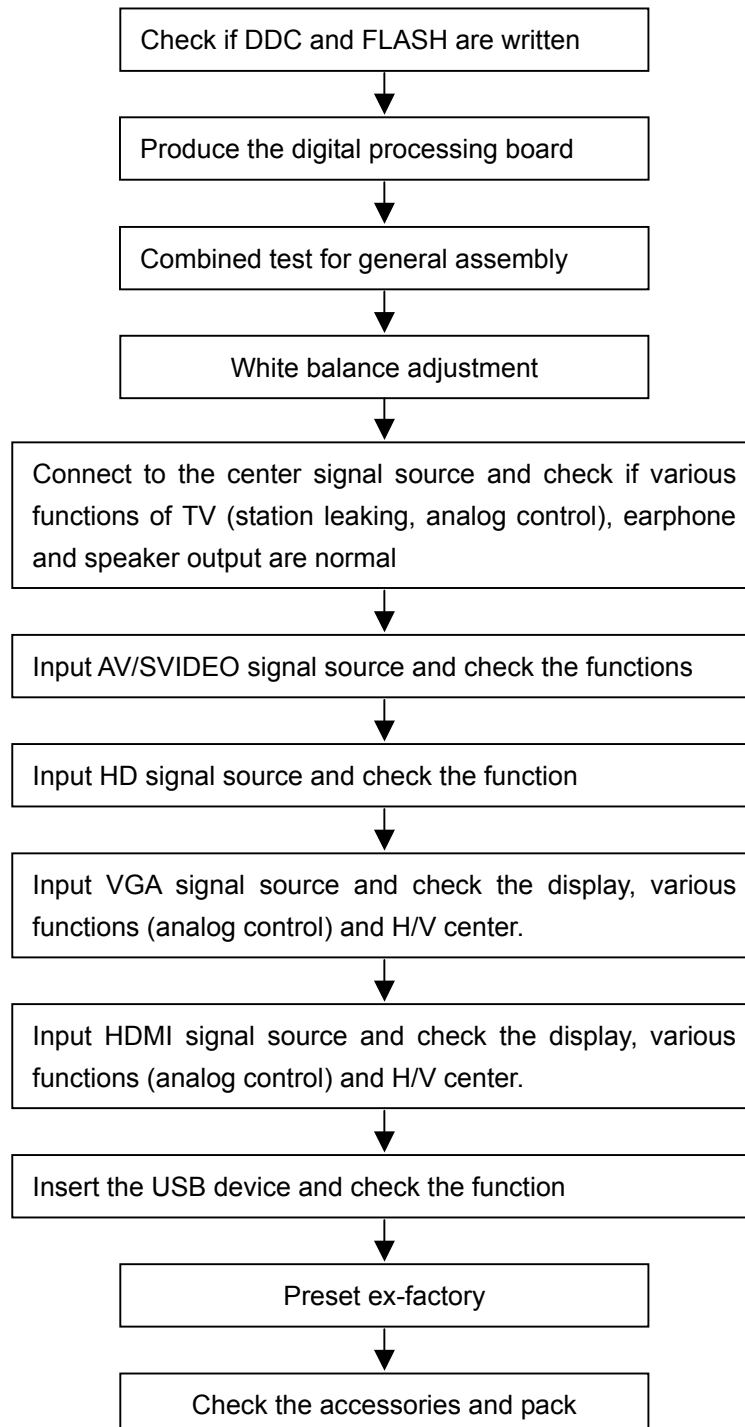


Fig-1 adjustment flow-chart

3 Unit adjustments

Connect all the boards according to wiring diagram, connect with power and observe the display.

3.1 Method for using factory menu:

- a) Press "INPUT", "2", "5", "8" and "0" in turn to enter level-one factory menu;
- b) Press "CH+" and "CH-" to move the cursor to the adjustment page of the level-one factory menu then press "OK" to enter;
- c) Press "CH+" and "CH-" to move the cursor up and down;
- d) When the cursor move to a certain adjust item, press "VOL+" and "VOL -" to adjust value;
- e) Press "MENU" to exit to the level-one factory menu;
- f) Press "EXIT" to exit the factory menu.
- g) After exit the factory menu, press "SLEEP" to enter the factory menu again as long as power on.
- h) "Power on mode" item of "Otherseting" menu: on= turn on; off =standby; memory=memory function of turn on

3.2 White balance adjustment

3.2.1 Before adjustment

Before adjustment, the unit should keep working for over 30 minutes to be in a stable status.

- a) In VGA channel, input VESA800*600/60HZ chessboard signal(VG848 Timing 854, pat 914), enter user menu ADVANCE and perform AUTO to let picture display integrity, enter the factory menu ADC Setting and perform ADC AUTO to do ADC correction.
- b) In YPbPr channel, input 480i/60HZ 75%color bar and gray scale signal (VG848 Timing 968, PAT 918), enter the factory menu ADC Setting and perform ADC AUTO.

3.2.2 Four groups white balance adjustments (HDMI and VGA)

Allowable error range is below:

a) 12000K:

The white balance error range of the gray scale lower than 10IRE: $X=(-15, +15)$ $Y=(-50, +50)$

The white balance error range of the gray scale between 10IRE and 30IRE: $X=(-10, +10)$ $Y=(-20, +20)$

The white balance error range of the gray scale higher than 30IRE: $X=(-5, +5)$ $Y=(-15, +15)$

b) 9300K:

The white balance error range of the gray scale lower than 10IRE: $X=(-15, +15)$ $Y=(-50, +50)$

The white balance error range of the gray scale between 10IRE and 30IRE: $X=(-10, +10)$ $Y=(-20, +20)$

The white balance error range of the gray scale higher than 30IRE: $X=(-5, +5)$ $Y=(-15, +15)$

c) 6500K:

The white balance error range of the gray scale lower than 10IRE: $X=(-15, +15)$ $Y=(-50, +50)$

The white balance error range of the gray scale between 10IRE and 30IRE: $X=(-10, +10)$ $Y=(-20, +20)$

The white balance error range of the gray scale higher than 30IRE: $X=(-5, +5)$ $Y=(-15, +15)$

For BESTBUY, it needs to check if the white balance of 50IRE gray scale is up to the mustard at 9300K and 6500K (BBY channel of CA210).

3.2.2.1 ATV channel adjustment (same for AV, S-VIDEO)

Input 21-channel signal to the TV AIR, enter the factory menu "Color Temp", set "Color Mode" to COOL, 11-gray scale will display, fixed G GAIN, adjust R GAIN, B GAIN to let the color coordinate of the ninth level be (272, 278); fixed G OFF, adjust R OFF, B OFF to let the color coordinate of the

third level be (272, 278). Adjust R GAIN, B GAIN, R OFF and B OFF repeatedly until the value of the two levels gray-scale are (272, 278) then press MENU return to the previous menu or press SAVE TO EEPROM to store the value.

Check if the color temperature of NORMAL and WARM is up to the mustard, if not, adjust R-GAIN/B-GAIN/R-OFF/B-OFF till accord with the requirement.

3.2.2.2 DTV channel adjustment (same for HDMI)

Input 26-channel signal to the TV AIR, enter the factory menu "Color Temp", set "Color Mode" to COOL, 11-gray scale will display, fixed G GAIN, adjust R GAIN, B GAIN to let the color coordinate of the ninth level be (272, 278); fixed G OFF, adjust R OFF, B OFF to let the color coordinate of the third level be (272, 278) then press MENU return to the previous menu or press SAVE TO EEPROM to store the value.

Check if the color temperature of NORMAL and WARM is up to the mustard, if not, adjust R GAIN/ B GAIN/R OFF/B OFF till accord with the requirement.

3.2.2.3 YPbPr channel adjustment

Input 1920*1080I/60Hz 8-level gray scale signal of VG848 to YPbPr, enter the factory menu "Color Temp", set "Color Mode" to COOL, fixed G GAIN, adjust R GAIN, B GAIN to let the color coordinate of the seventh level be (272, 278); fixed G OFF, adjust R OFF, B OFF to let the color coordinate of the second level be (272, 278). Adjust R GAIN, B GAIN, R OFF and B OFF repeatedly until the value of the two levels gray-scale are (272, 278) then press MENU return to the previous menu or press SAVE TO EEPROM to store the value.

Check if the color temperature of NORMAL and WARM is up to the mustard, if not, adjust R GAIN/ B GAIN/R OFF/B OFF till accord with the requirement.

3.2.2.4 VGA channel adjustment

Input 800*600/60Hz 8-level gray scale signal of VG848 to VGA, enter the factory menu "Color Temp", set "Color Mode" to COOL, fixed G GAIN, adjust R GAIN, B GAIN to let the color coordinate of the seventh level be (272, 278); fixed G OFF, adjust R OFF, B OFF to let the color coordinate of the second level be (272, 278). Adjust R GAIN, B GAIN, R OFF and B OFF repeatedly until the value of the two levels gray-scale are (272, 278) then press MENU return to the previous menu or press SAVE TO EEPROM to store the value.

Check if the color temperature of NORMAL and WARM is up to the mustard, if not, adjust R GAIN/ B GAIN/R OFF/B OFF till accord with the requirement.

4 Performance check

4.1 TV function

Connect RF terminal with central signal source, enter CHANNEL menu and perform auto search, check if there are channels be skipped. Check the speaker and the picture. Especially notice that the single should include NTSC and ATSC.

4.2 AV/S-Video terminals

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

4.3 YPbPr/YCbCr terminal

Input YUV signal (VG848 signal), separately input the signal of table1 and check if the display and sound is normal.

Table1 YUV signal format

No.	Resolution	H-frequency (kHz)	V-frequency (Hz)	Pixel clock pulse frequency (MHz)	Remark
1	720x480i	15.734	59.94/60	13.5	480i
2	720x480p	31.469	59.94/60	27.00	480p
3	1280x720p	44.96	59.94	74.18	720p(59p)
4	1280x720p	45.00	60.00	74.25	720p(60p)
5	1920x1080i	33.75	59.94	74.25	1080i(59i)
6	1920x1080i	33.75	60.00	74.25	1080i(60i)
7	1920x1080p	67.5	60	149.00	1080p(60p)
8	1920x1080p	67.43	59.94	148.35	1080p(59p)

4.4 VGA terminal

Input the VGA signal (VG848 signal generator), separate input format signal of table1 and table2 and check the display and sound. If the image is slight deflection of the H-field, press “Advance” of OPTION menu to do auto correction.

Table2 VGA signal format

No.	Resolution	H-frequency (kHz)	V-frequency (Hz)	Pixel clock pulse frequency (MHz)	Remark
1	720x400	31.469	70.086	28.322	IBM (1)
2	640x480	31.469	59.94	25.175	IBM
3	800x600	37.879	60.317	40	VESA
4	1024x768	48.363	60.004	65	VESA
5	1360x768	47.71	60.01	85.50	VESA

4.5 HDMI terminal

Input HDMI signal (VG848 signal generator), separate input signal of table1 and check the display and sound.

4.6 presetting before ex-factory

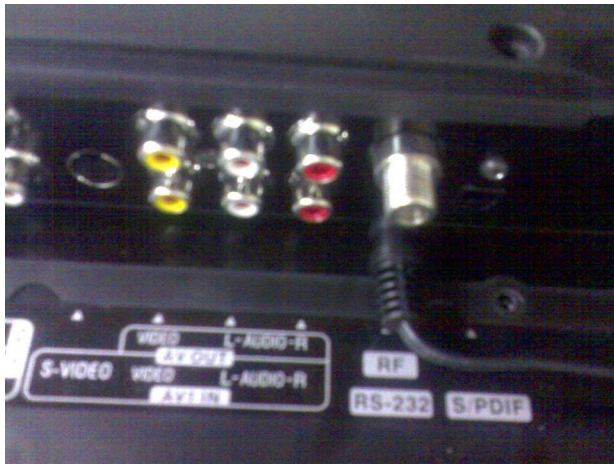
Enter the factory menu and select SHIPMENT, the unit will preset the data automatically. Perform the step after factory menu adjustment. SHIPMENT will perform the steps below:

- 1) Clear the program information of the channel
- 2) Clear VCHIP information
- 3) Default setting of user analog
- 4) Menu Language is English
- 5) Set AIR/CABLE to AIR
- 6) Power on mode is Off

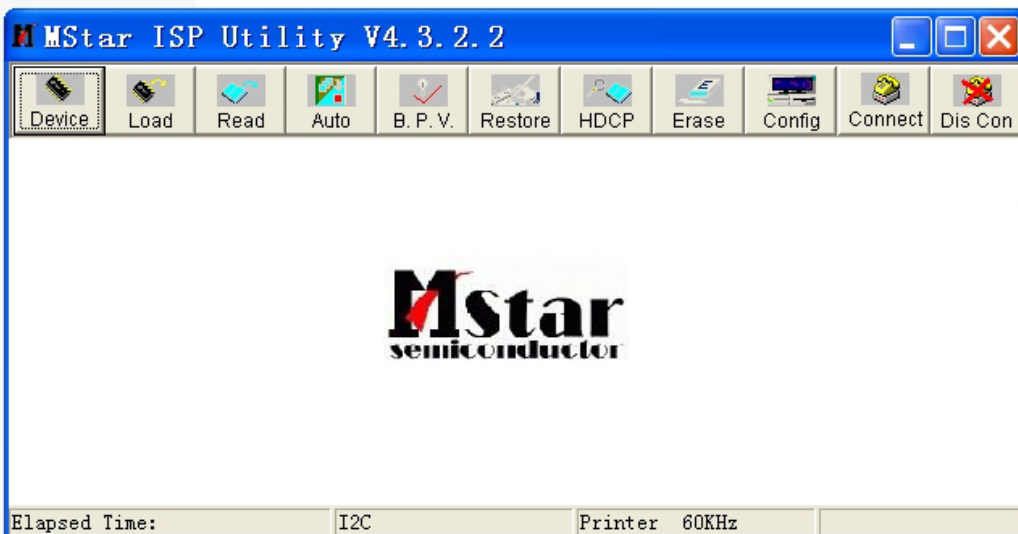
Method of software update

Please follow listed below steps:

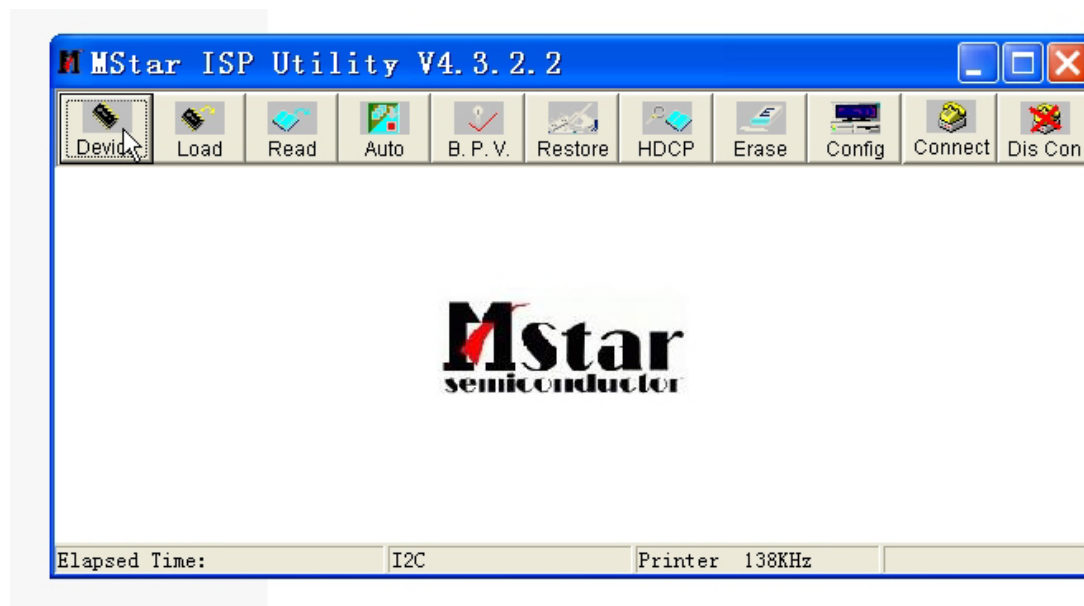
1. Copy all files to your computer, Include three files
ISP_Tool_V43.exe: Debug Tool software for Dynex to update
Dynex_32HV36_new.bin: New software for Dynex 32 LCD , (Note: Maybe the update filename no as same as Dynex_32hv36_new.bin, the filename only for example)
Dynex32_software_update.doc: Document of software update
2. Cable Connect
The debug tool board one port connect your computer LPT, the other port connect to Dynex32LCD RS232.



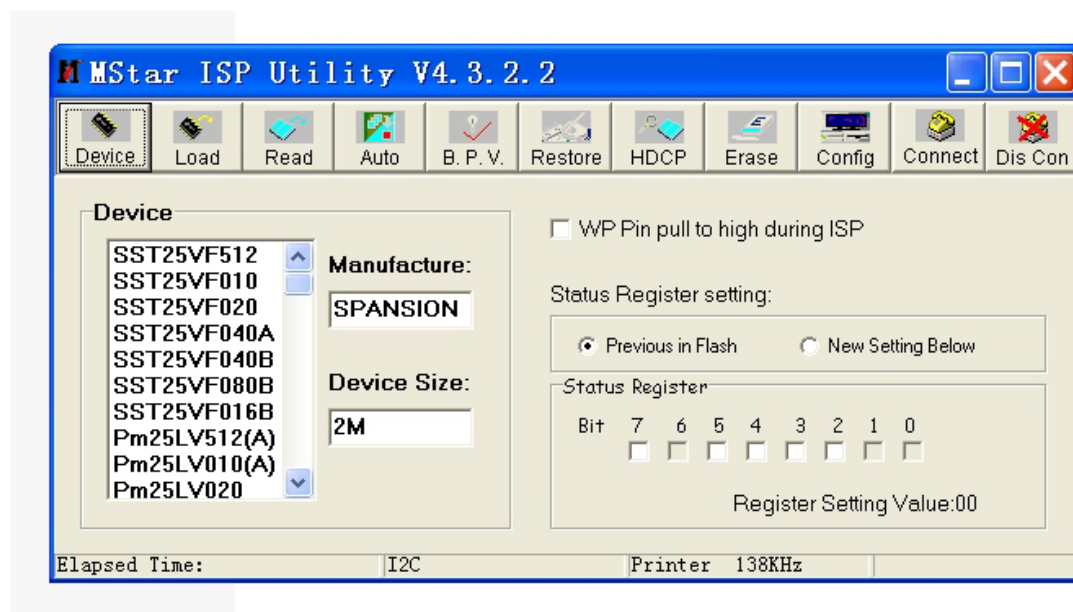
3. Connect the Dynex to Power Socket. The Power LED will turn Red. You can update the software at TV Power on of TV Standby.
4. Run Debug Tool Software
Double click the file of ISP_Tool_V43.exe , then you can see the follow picture.



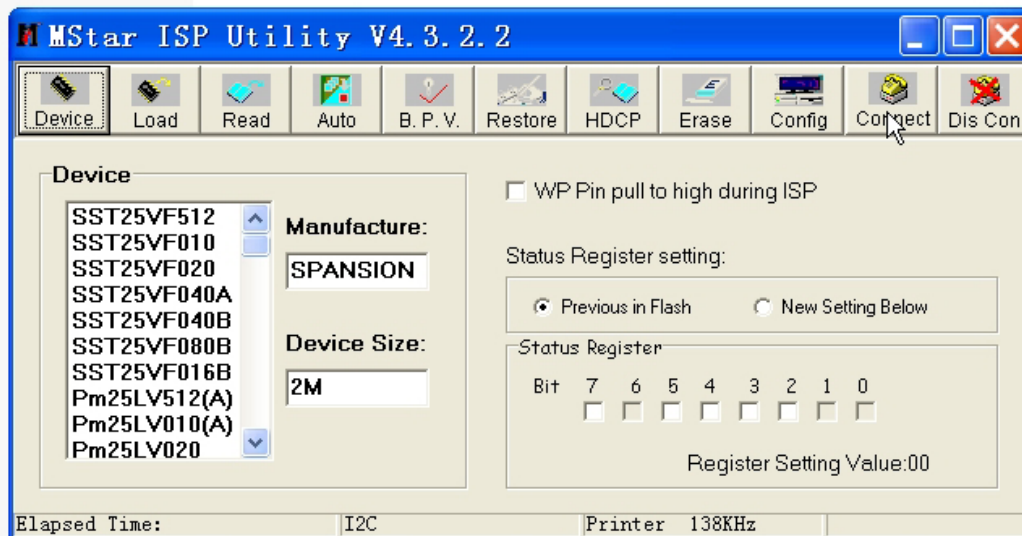
5. Click the icon of Device (If not the first time to run this software we can skip step 5)



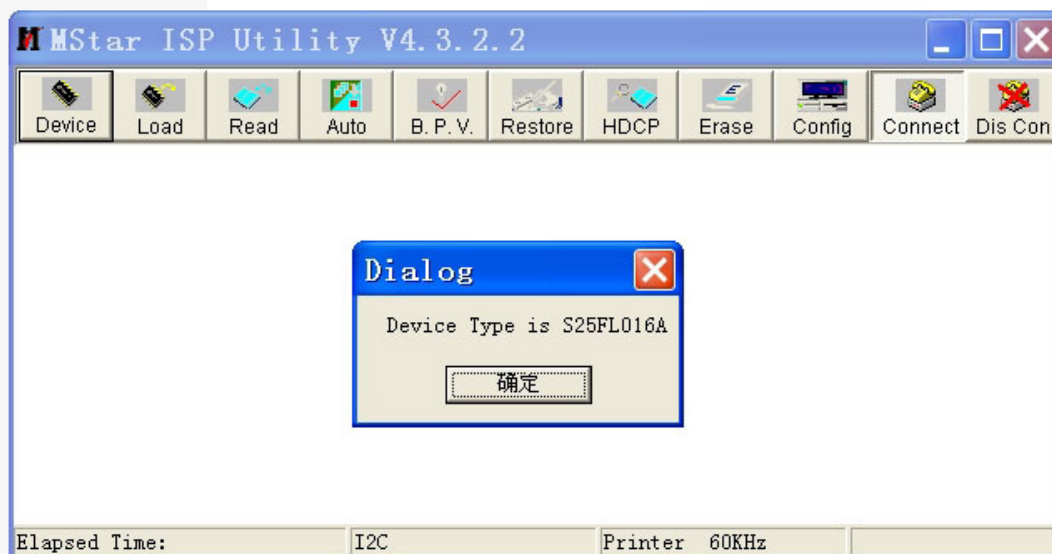
Set the Device information as below



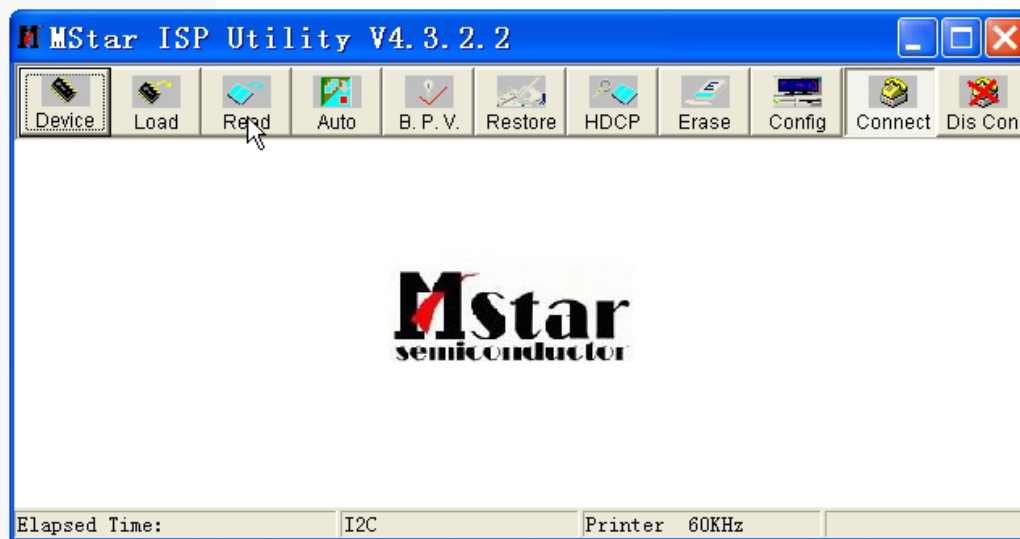
6. Click the icon of Connect



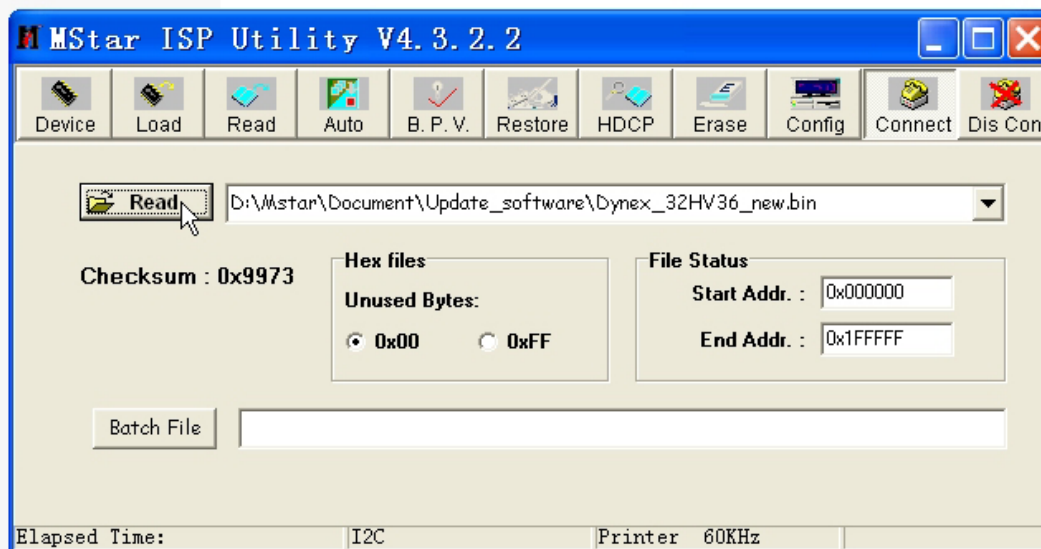
7. If cable connect is ok, you can get the follow picture. If failure please double check the cable connect and try again.



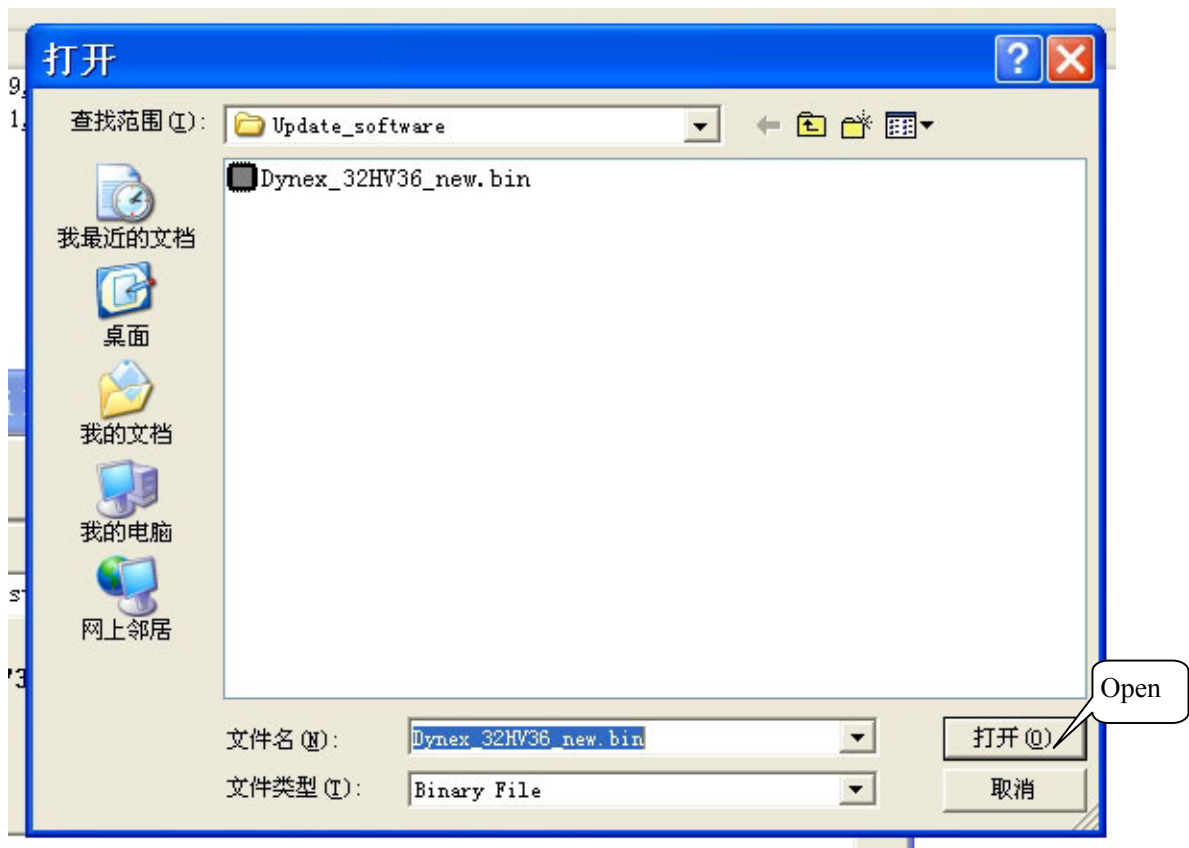
8. Click the icon of Read



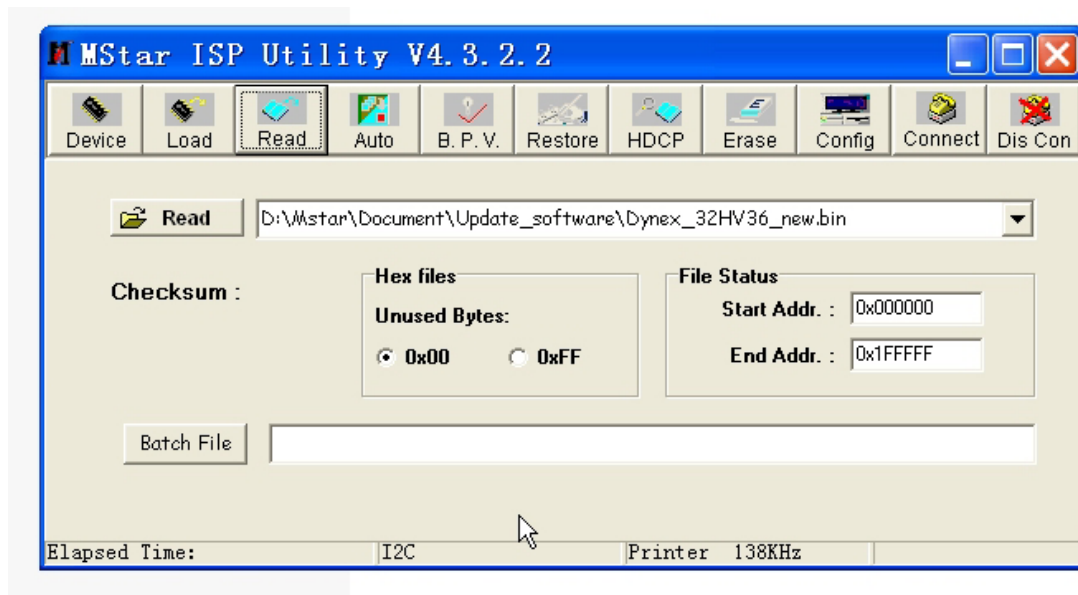
Click the follow Icon of Read



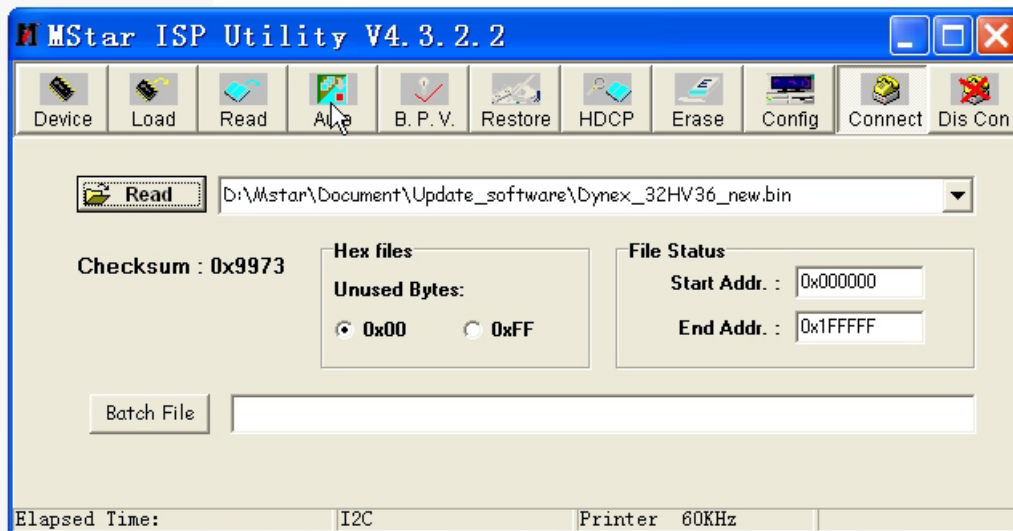
to Select the update software for Dynex



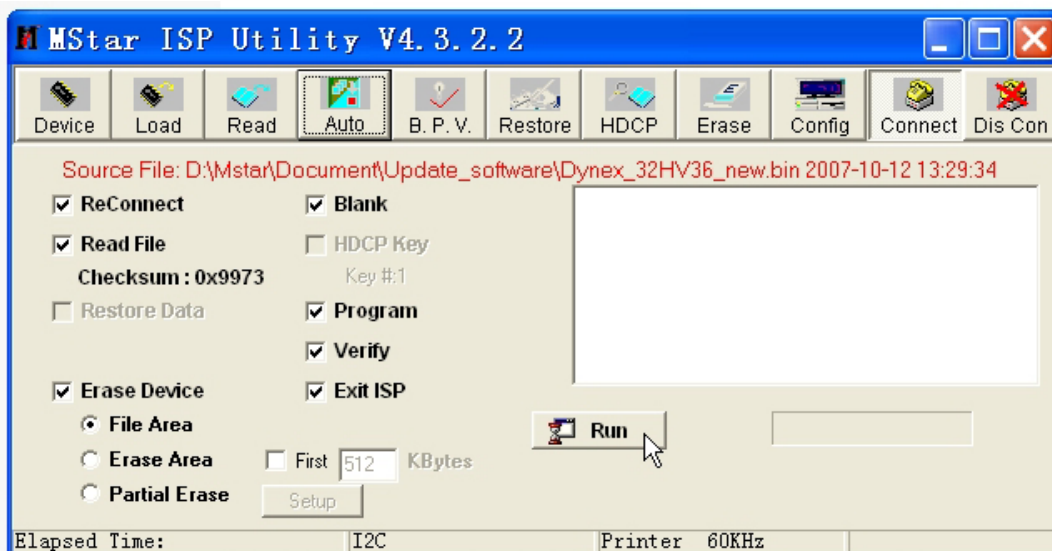
Select Open Icon. Then will appear the follow picture.



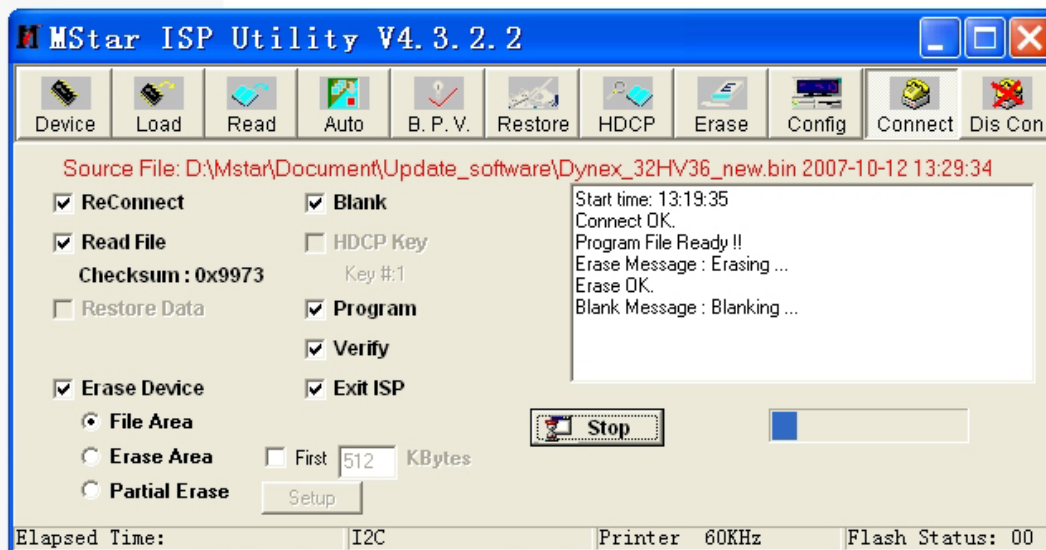
9. Click the Icon of Auto



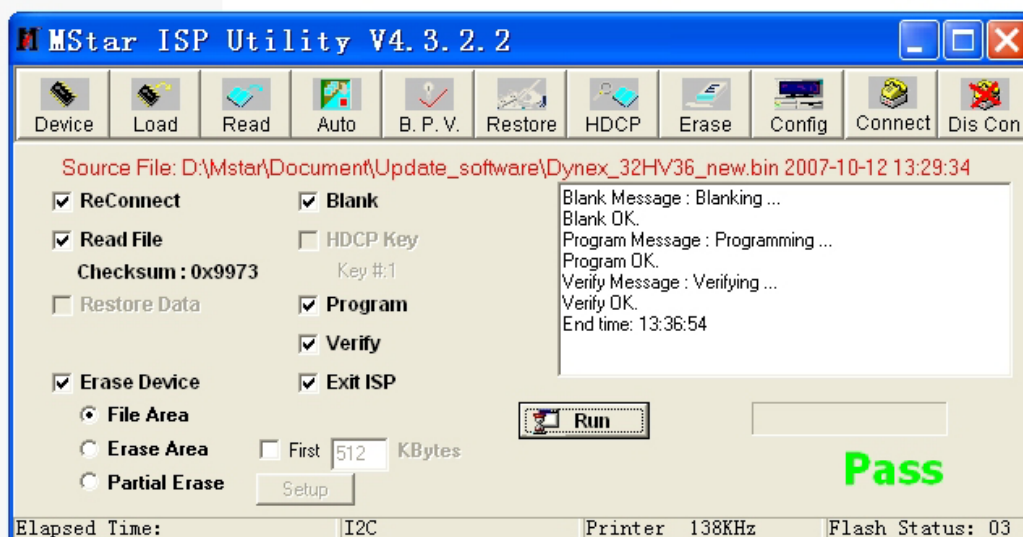
Then will appear the follow picture



Please click the Icon of Run, the software will be updated to Dynex.
It will take about 10 minutes.



10. If update software is finished and OK, It will appear PASS. If error please retry the step from 2 to 9.



11. Please disconnect the Dynex from Power Socket, until the Power LED no light, then reconnect the Dynex to Power Socket and Power on the TV.

Working principle analysis of the unit

The analog and digital RF signal received by antenna will be sent to integrative tuner TUNER1(TD1636AF, contains HF and IF amplifier circuits), which selects appropriate channel and sends the selected IF signal to the next level by the control of SDA, SCL.

The analog RF signal sent to tuner, via high amplify and mixed frequency to get IF signal VIF. Then it will be divided into two ways, one way will be sent to acoustic surface-wave ZJ1 to IF filter and get better IF characteristics, then it will be sent to NJ2(M61111FP) through pin20, 21 to do intermediate amplification, phase-locked loop VCO and synchronous wave detection and output VIDEO-TV(ATV) from pin1; another way will be sent to acoustic surface-wave JZ4 to IF filter and get better IF characteristics, then it will be sent to NJ2(M61111FP) to do intermediate amplification and wave detection and output SIF from pin10.

The digital RF via high amplify and mixed frequency in the tuner, output differential digital IF signal from pin10, 11, the signal will be sent to NJ02(MSD809) to do intermediate amplification and demodulation, then demodulate the transform stream TS which contains video/audio and other information.

ATV, SIF, TS, audio/video signal of AV1, AV2, S-VIDEO and VGA; YPbPr video signal selected by switch NB5(PI5V330) from YPbPr1 and YPbPr2; YPbPr audio signal selected by switch NB09 (HEF4052) from YPbPr1 and YPbPr2; HDMI audio/video signal selected by switch NA4 (PS321) from HDMI1, HDMI2, HDMI3; all of the signals will be sent to the main IC NC1(MSD119CL) switch select, video decode and process.

In MSD119CL, TS of DTV via TS demultiplex, distinguish the different programs and pick-up the corresponding audio /video stream and data stream, after MPEG-2 uncompress, video coder and audio D/A transform, recover the analog video signal YCbCr and audio signal L/R.

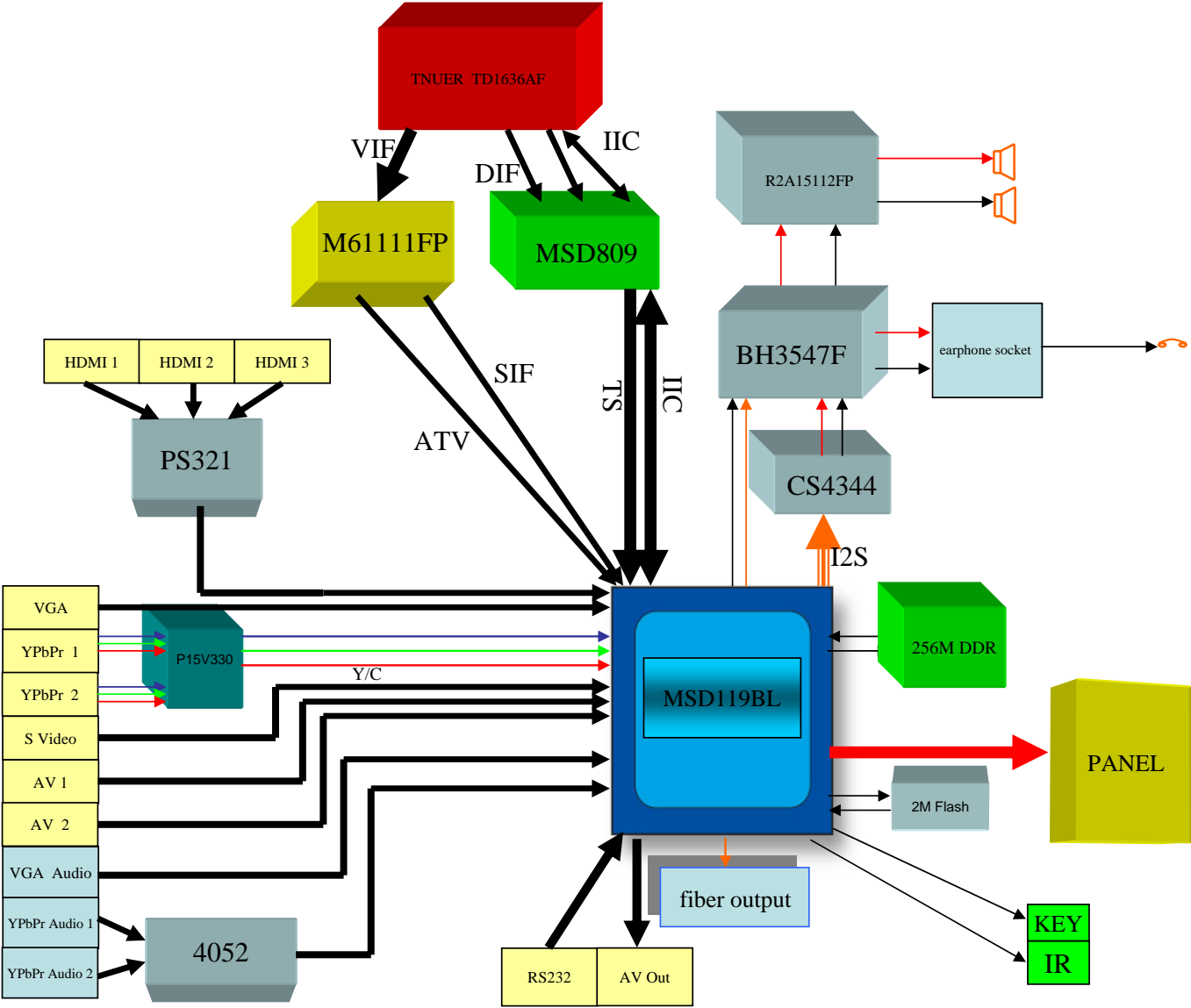
AV, S-Video and ATV output from M61111FP will be sent to MSD119CL video switch, A/D convert and digital decode. The video selected by switch embed in MSD119CL will be sent out in two ways: one is sent to decode and process; the other is AV OUT.

All of the video data (include DTV video) via switch select, video decode and process will be sent to MSD119CL to do D/A transition, image scale, OSD superposition, then LVDS conversion to signal acceptable for LCD panel, namely four pairs of low differential signal and one pair of clock signal, then it will be sent to LCD panel for picture display.

All of the audio signals will be sent to MSD119CL to do audio switch selection and sound effect processing, then output L/R to sound amplifier NV10 (R2S15112FP) amplifying to speaker. The audio L/R also sends to AV OUT.

The unit is control by the MCU built in MSD119CL, it connects tuner,MSD809 and E2PROM through IIC bus line and controls the whole unit working.

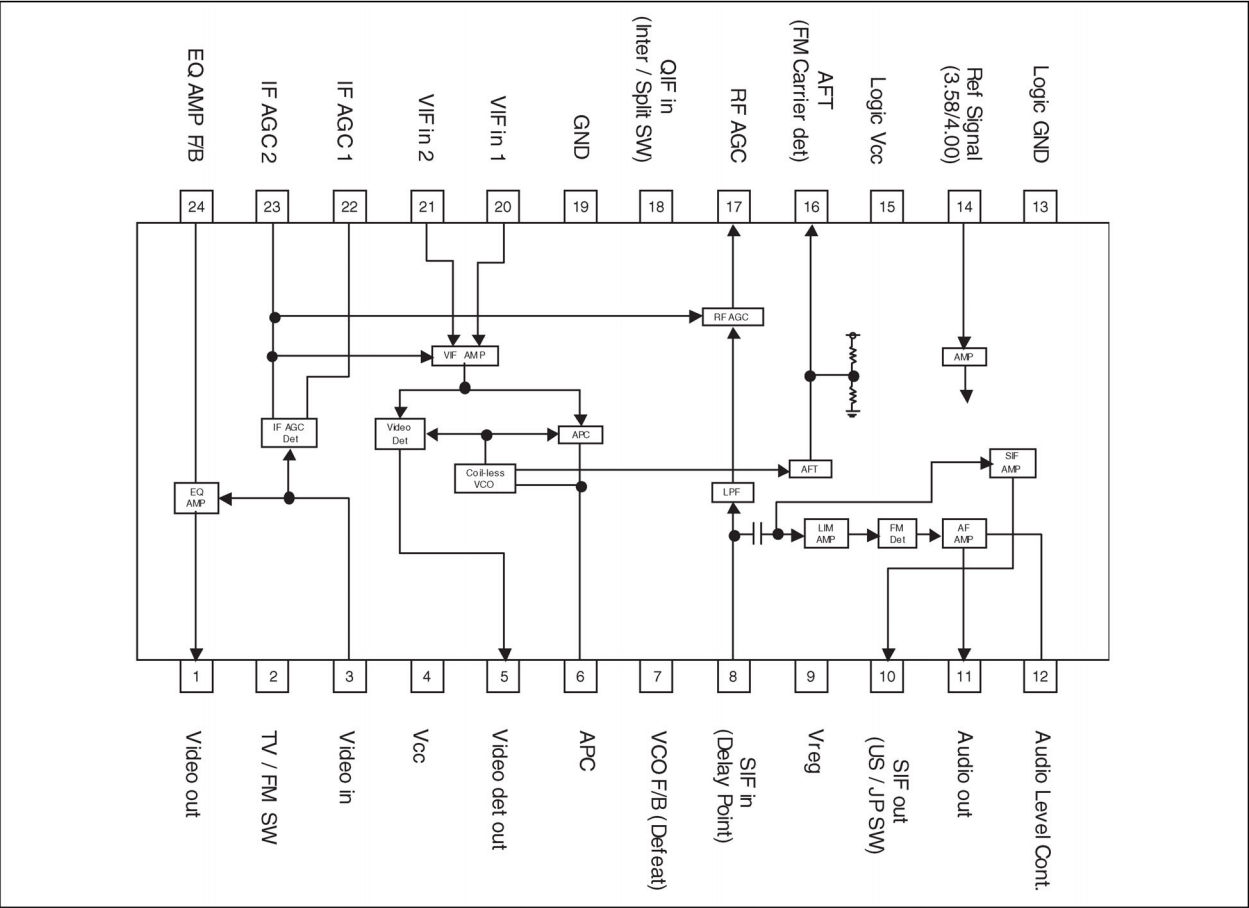
Block diagram



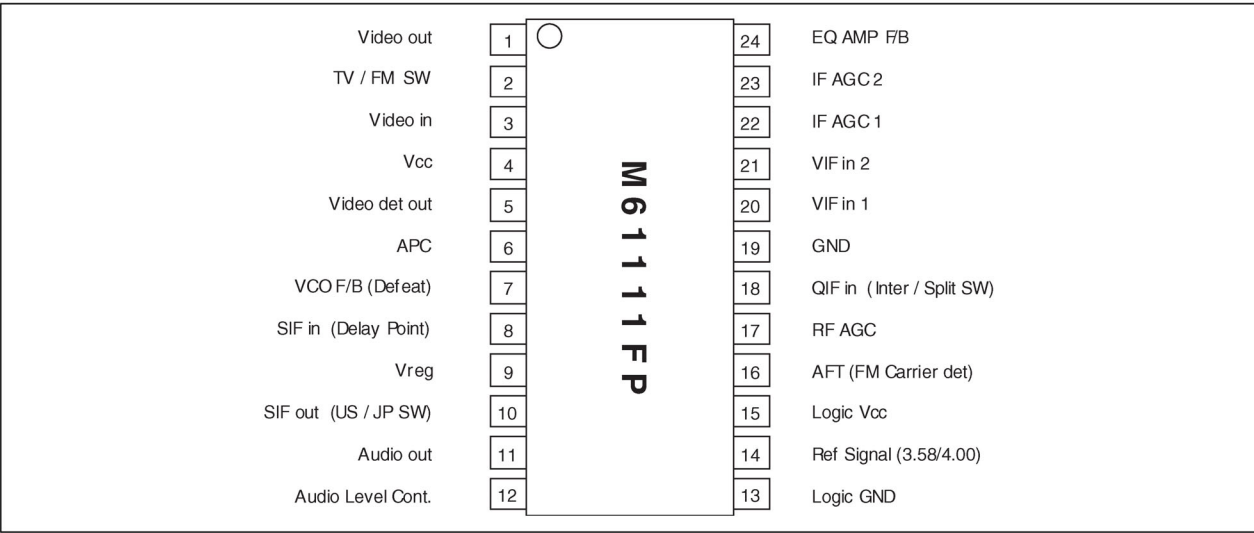
IC block diagram

1. M61111FP

The M61111FP is a semiconductor integrated circuit built-in the PLL inter-carrier method VIF/SIF dedicated to NTSC. The circuit includes the VIF amplifier, image waveform detection, APC detection, IF/RF, AGC, VCO, AFT, LOCK DET, EQ, AF amplifier, limiter, FM waveform detector circuits, and acts as a small tuner.



Pin Configuration



2. MSD119BL

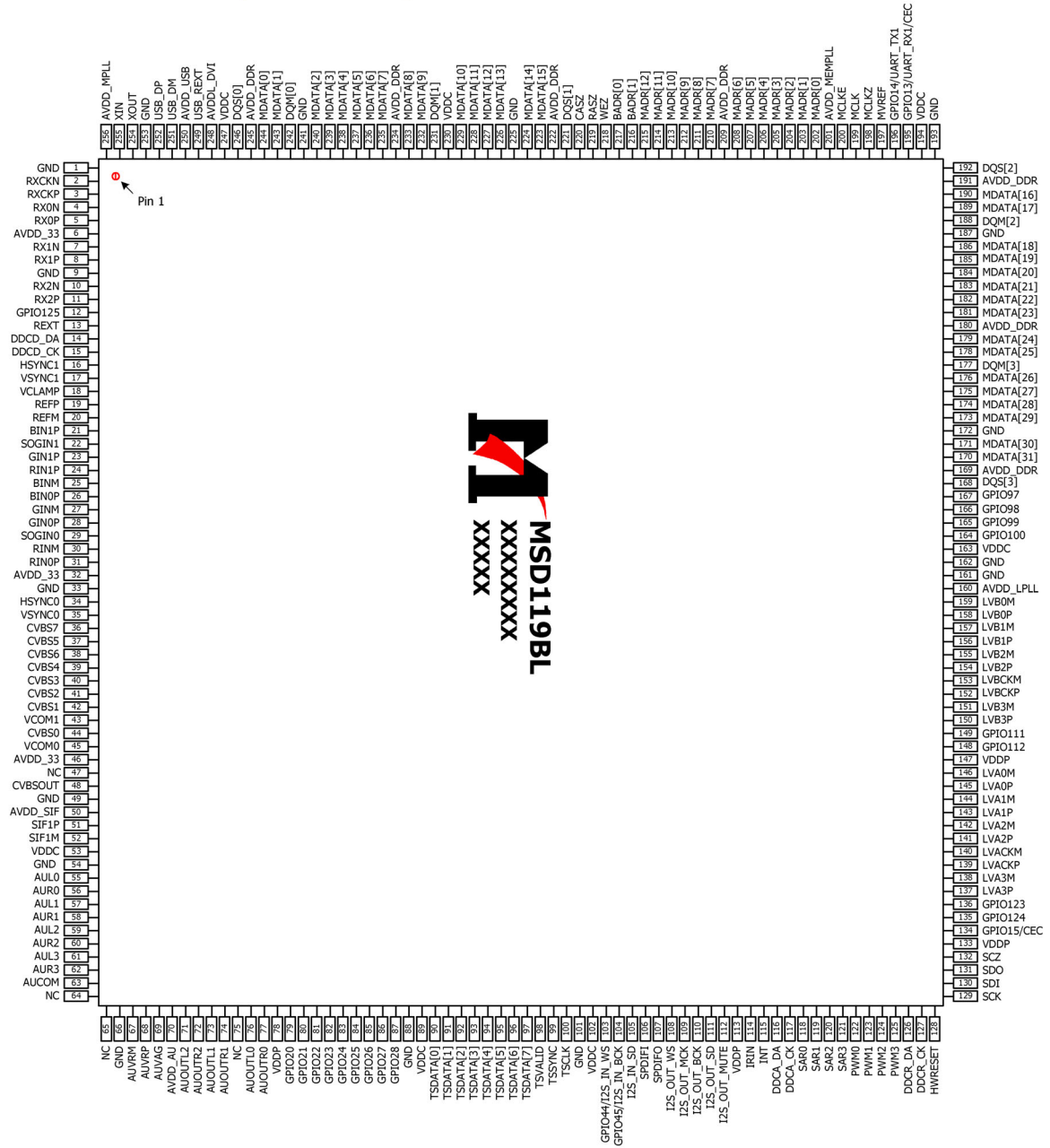
The MSD119BL is a highly integrated ASIC for LCD/PDP DTV applications with resolutions up to 1080P. It is configured with an integrated triple-ADC/PLL, a multi-standard TV video and audio decoder, a motion adaptive video de-interlacer, a scaling engine, the MStarACE-3 color engine, an advanced 2D graphics engine, a transport processor, a high-definition (HD) MPEG video decoder, a 24-bit DSP for MPEG audio decoding, a DVI/HDCP/HDMI receiver, and a peripheral control unit providing a variety of HDTV control functions.

The MSD119BL comprises an MPEG-2 transport processor with advanced section filtering capability, an MPEG-2(MP@HL profile) video decoder, a Dolby* Digital (AC-3)/MPEG layer I and II digital audio decoder with analog audio outputs that are designed to support ATSC HD/SDTV programs while handling ATSC CC and EPG. Furthermore, it is also possible to decode MPEG-4, JPEG, MP3 formats from external sources such as USB interfaces.

For analog TV, the MSD119BL includes NTSC/PAL/SECAM multi-standard video decoder comprising a 3-D motion adaptive comb filter and time-based correction, and a BTSC/A2/EIA-J audio decoder to support worldwide television standards. In addition, the MStar advanced LCD TV processor enhances video quality, motion adaptive de-interlacer, picture quality adjustment units, and MStarACE-3 color engine.

By integrating peripherals including USB 2.0 host controller, UART, IR, SPI, I2C, and PWM, the MSD119BL fulfills all requirements in advanced DTV sets. To further reduce system costs, the MSD119BL also integrates intelligent power management control capability for green-mode requirements and spread-spectrum support for EMI management.

PIN DIAGRAM (MSD119BL)



3. MSD809

AGC Description

The AGC has two modes of operation. When the chip is powered up, the non-coherent IF AGC & RF AGC will function first. The non-coherent AGC loop will provide the control voltage necessary for proper gain control of the external gain amplifier and tuner in the RF section. The two AGC will extend the dynamic range of power amplifier.

It automatically adjusts itself to any system with a matched filter. The automatic gain controller (AGC) takes the input data stream from either the ADC output or the DC remover output, and applies non-coherent detection of the gain level, and adjusts it to a pre-configured reference level. The two AGC work exclusively in parallel; there is the AGC that feeds its output to the IF amplifier, and the AGC that outputs to the tuner amplifier. The AGC also support manual mode, where one is fixed to a pre-configured level, while the other performs normal AGC functions.

Demodulator Description

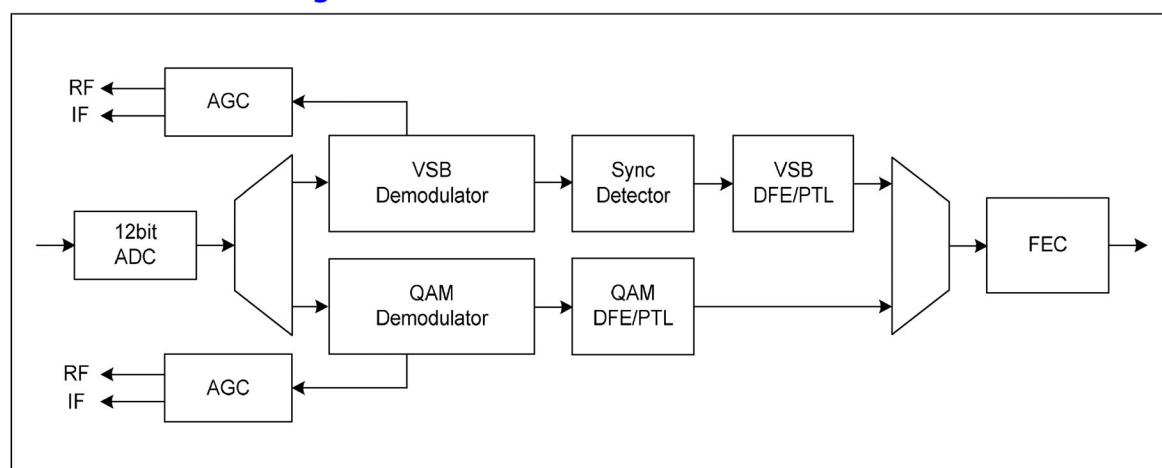
The first function of demodulator is to convert sampling clock to operation rate of two-times symbol rate with interpolator. Interpolator generates operating rate clock of 21.52MHz from ADC rate of 24.69MHz with timing controller.

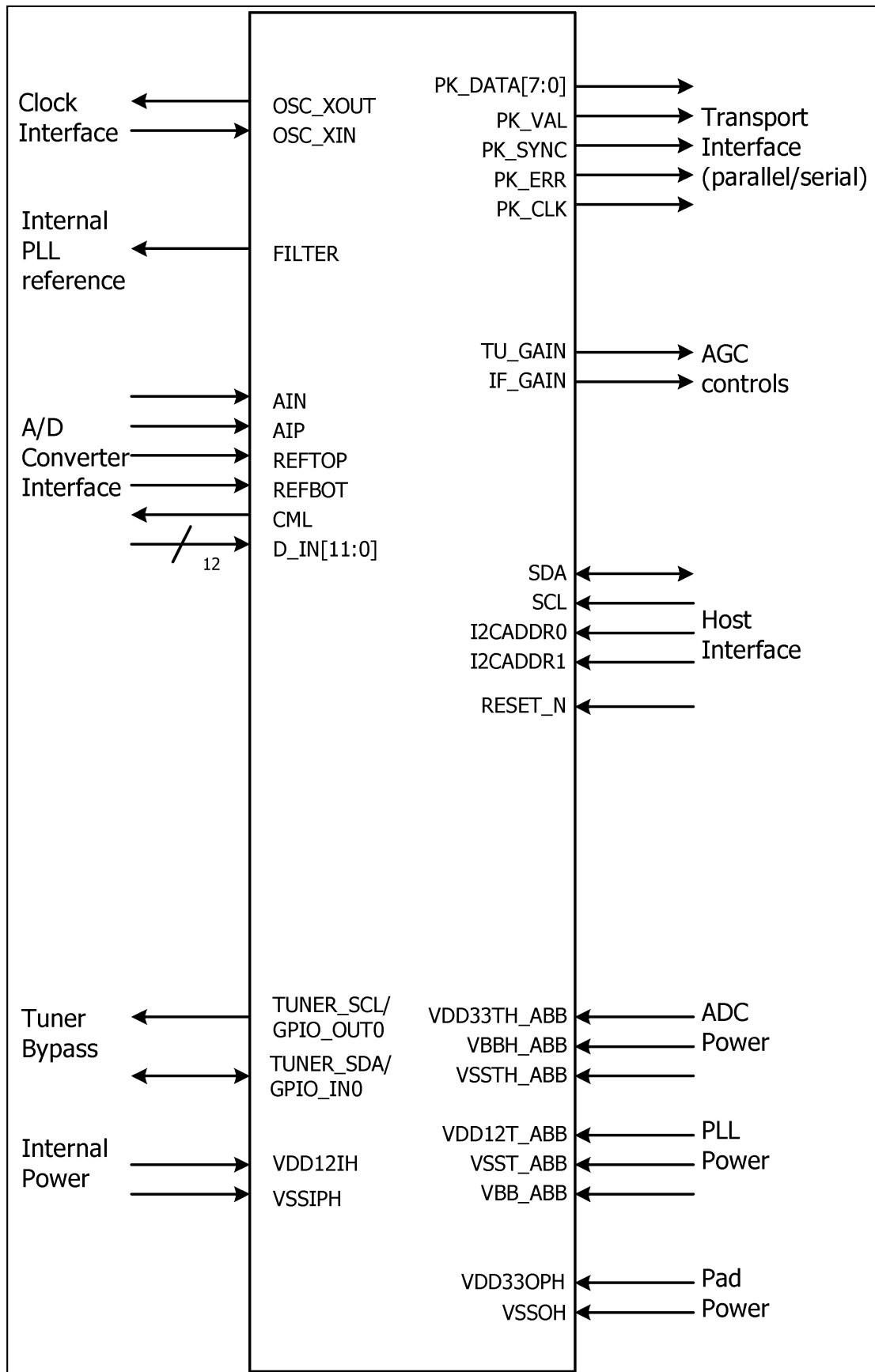
Demodulator also down-convert the received IF signal to near base-band signal. These functions can compensate each estimated offsets from carrier recovery and symbol timing recovery.

Carrier recovery and symbol timing recovery estimate offsets perfectly in severe ghost environment. Especially carrier recovery is able to track offsets in deep fading ghost environment with very weak or no pilot tone.

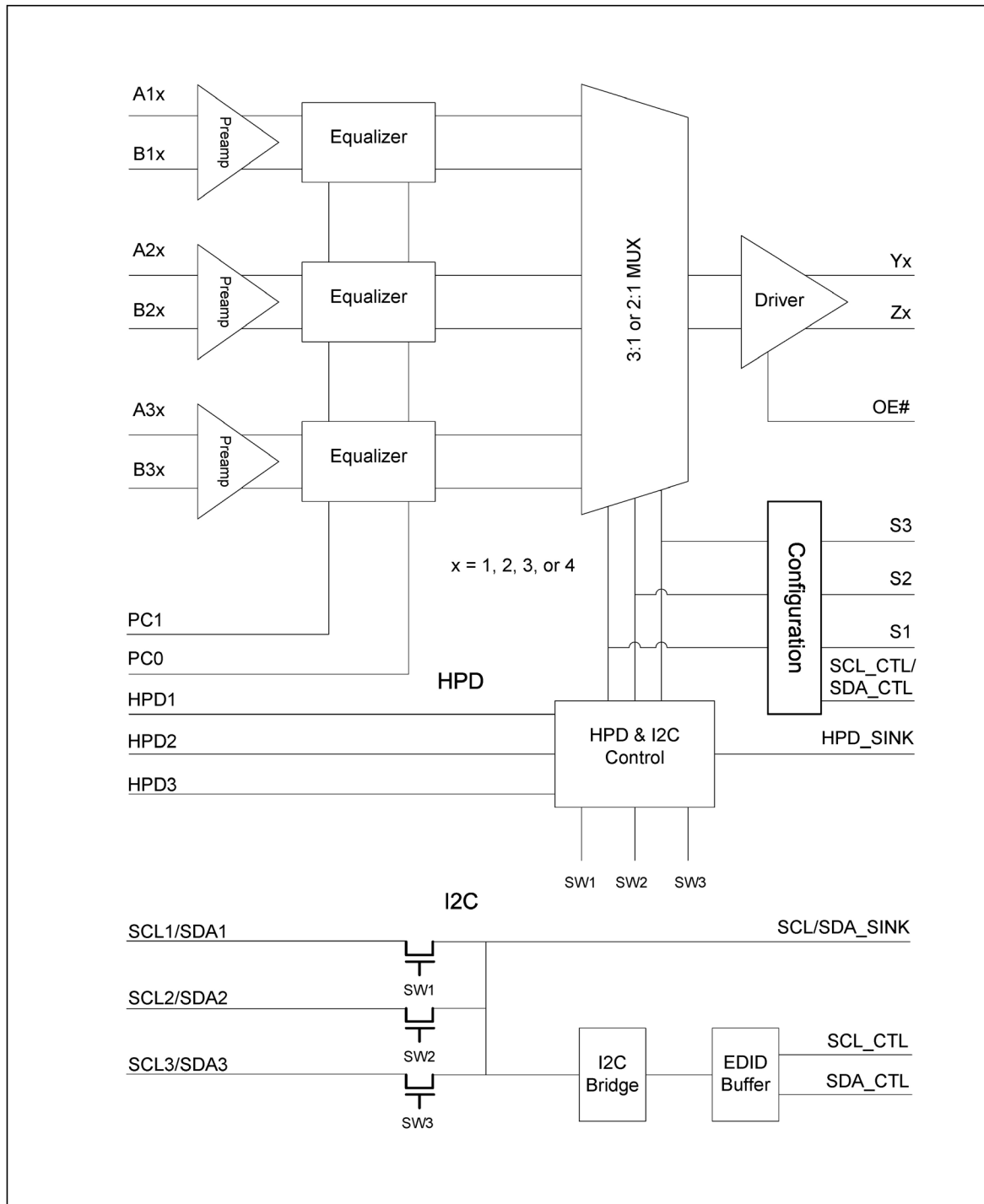
INBAND RECEIVER DESCRIPTION

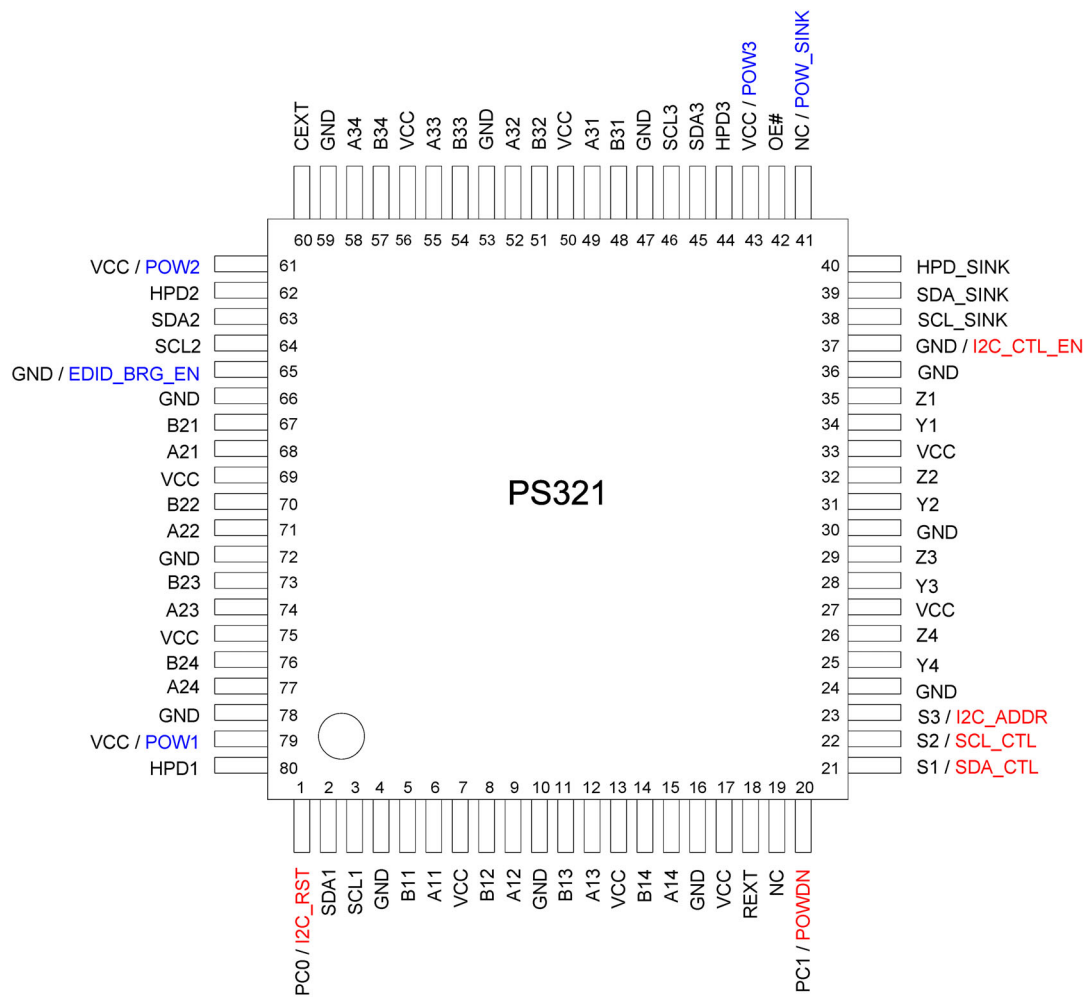
Functional Block Diagram





4. PS321





Note:

Pins in **RED** are for I2C control mode with I2C-CTL-EN=HIGH

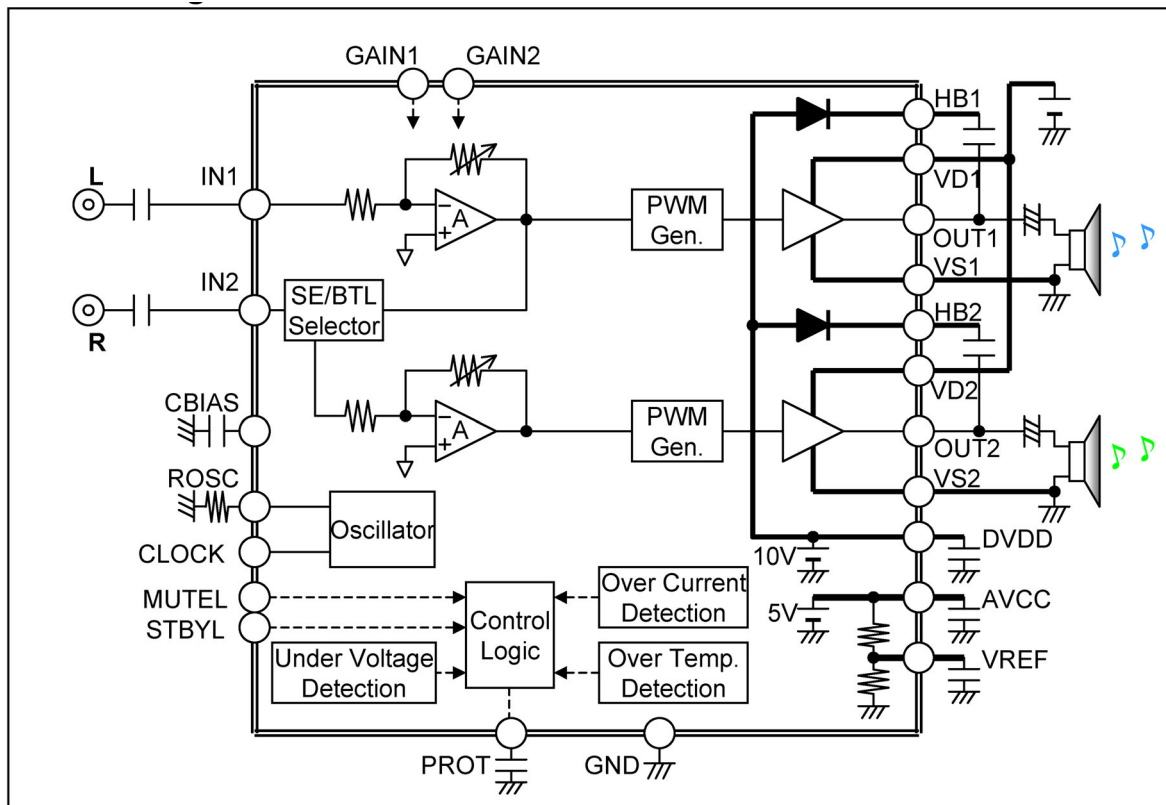
Pins in **BLUE** are for EDID bridge function when EDID-BRG-EN=HIGH

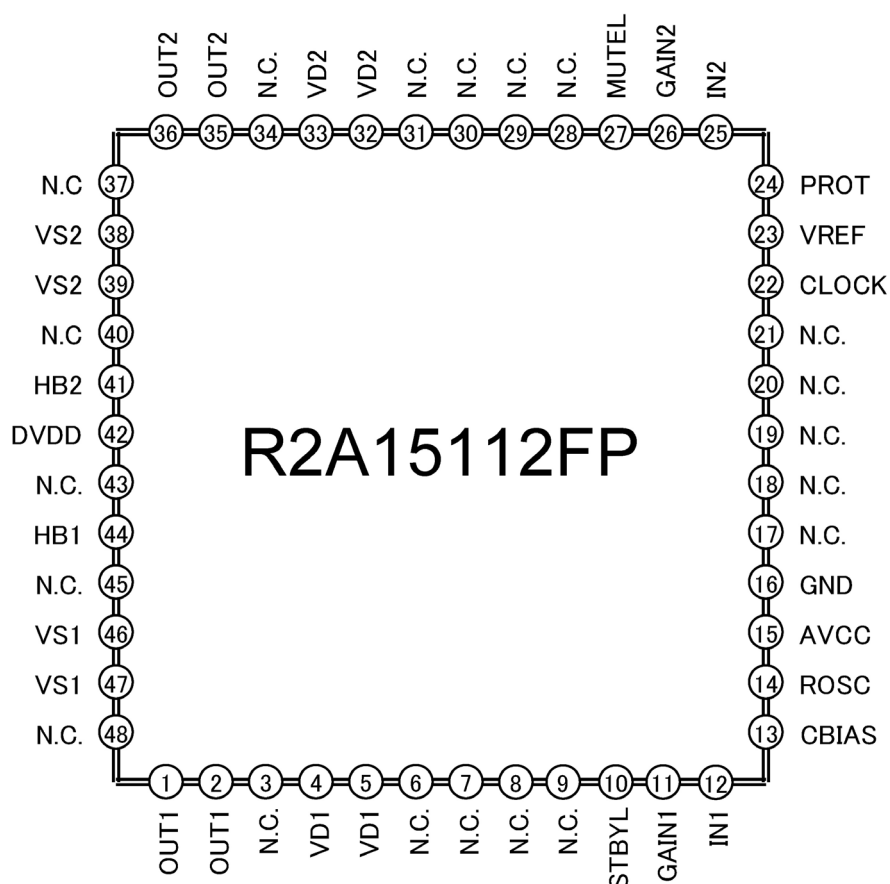
5. R2A15112FP

R2A15112FP is a Digital Power Amplifier IC developed for TV.

R2A15112FP has a maximum power of 15W (typ) x2ch. (VD=24V, THD=1%, SE) at a 4Ω load.

It is possible to replace a conventional analog amplifier with a digital amplifier easily.





Terminal name(In parentheses, pin number.)

VD :VD1(4,5),VD2(32,33)

HB :HB1(44),HB2(41)

DVDD :DVDD(42)

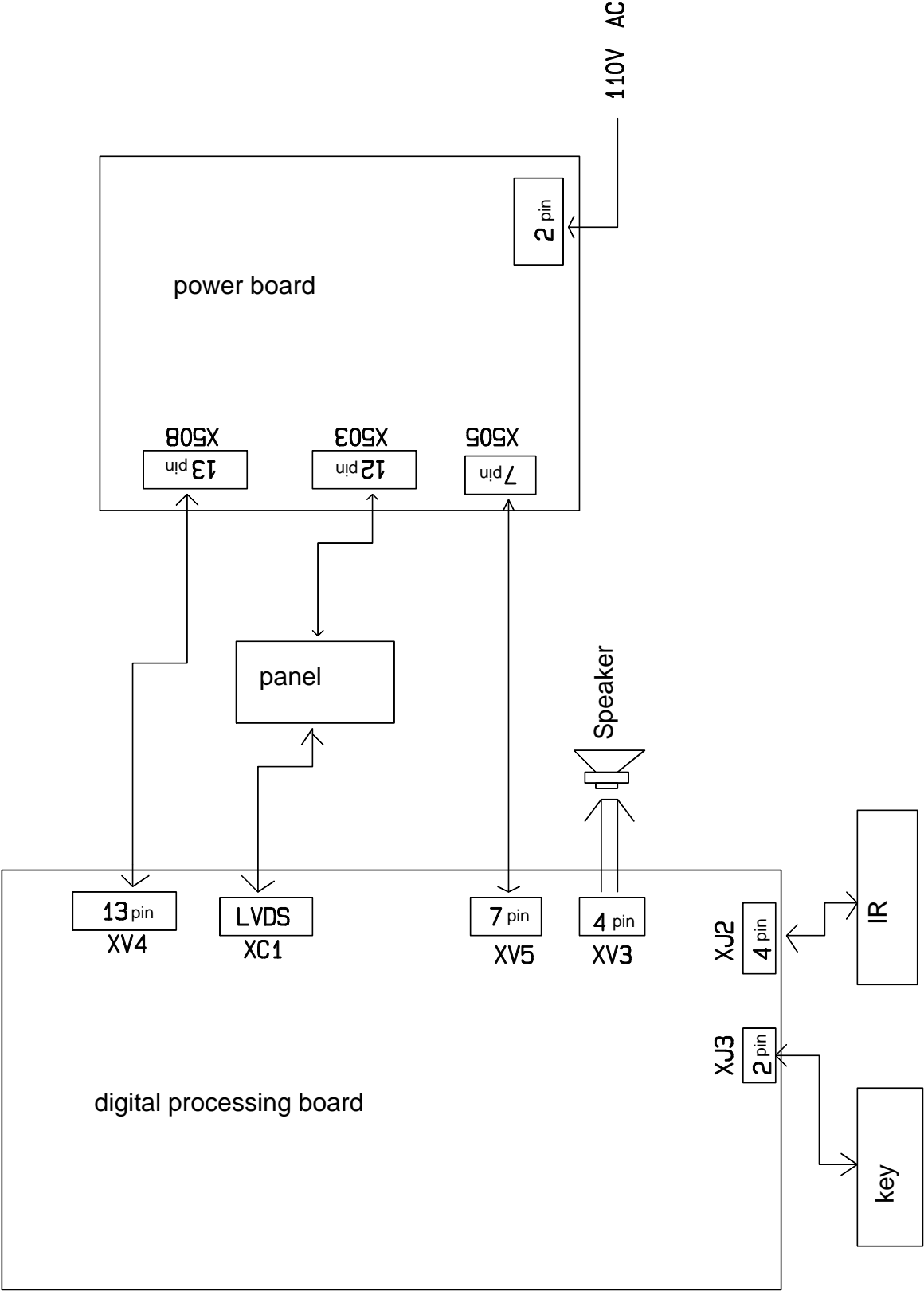
GND :GND(16),VS1(46,47),VS2 (38,39)

OUT :OUT1(1,2),OUT2(35,36)

AVCC :AVCC(15)

5V operation terminal :STBYL(10),GAIN1(11),IN1(12),CBIAS(13),ROSC(14),CLOCK(22),
VREF(23),PROT(24),IN2(25),GAIN2(26),MUTEL(27)

Wiring diagram



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.

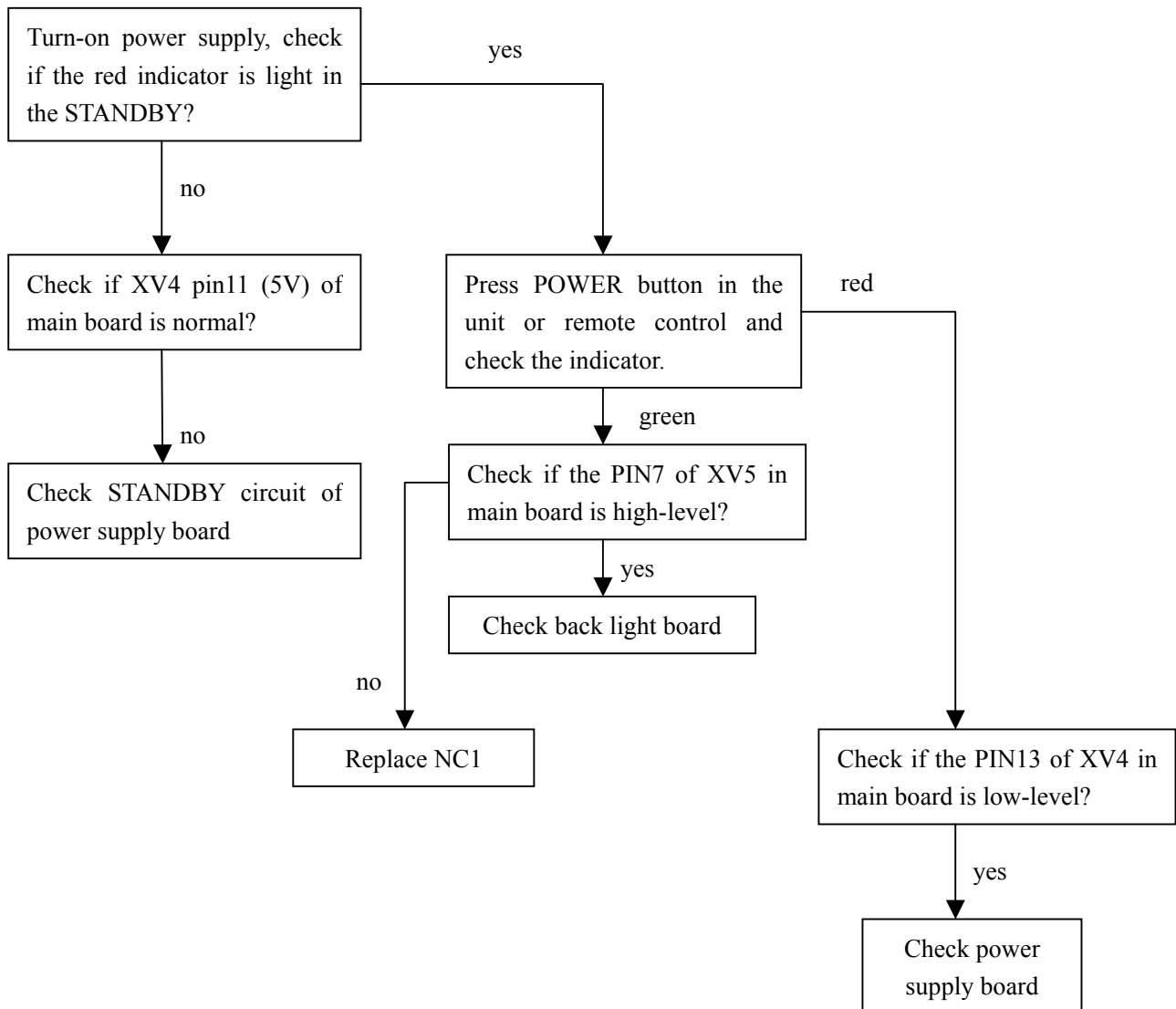
1.2 TV set:

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

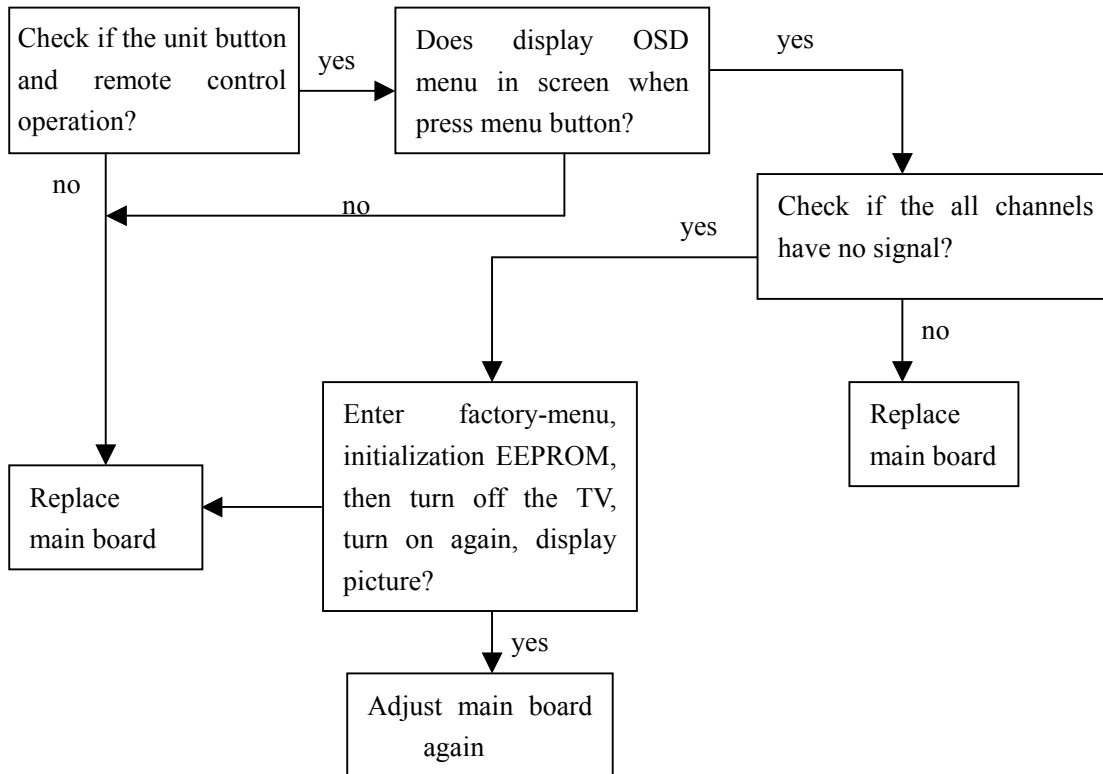
	signal types.
Picture too bright and there is distortion in the brightest area	<ul style="list-style-type: none"> ● Check if the contrast setting is too high. ● Possibly the output quality of DVD broadcaster is set too high. ● It maybe also due to improper terminal connection of the video frequency signal 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

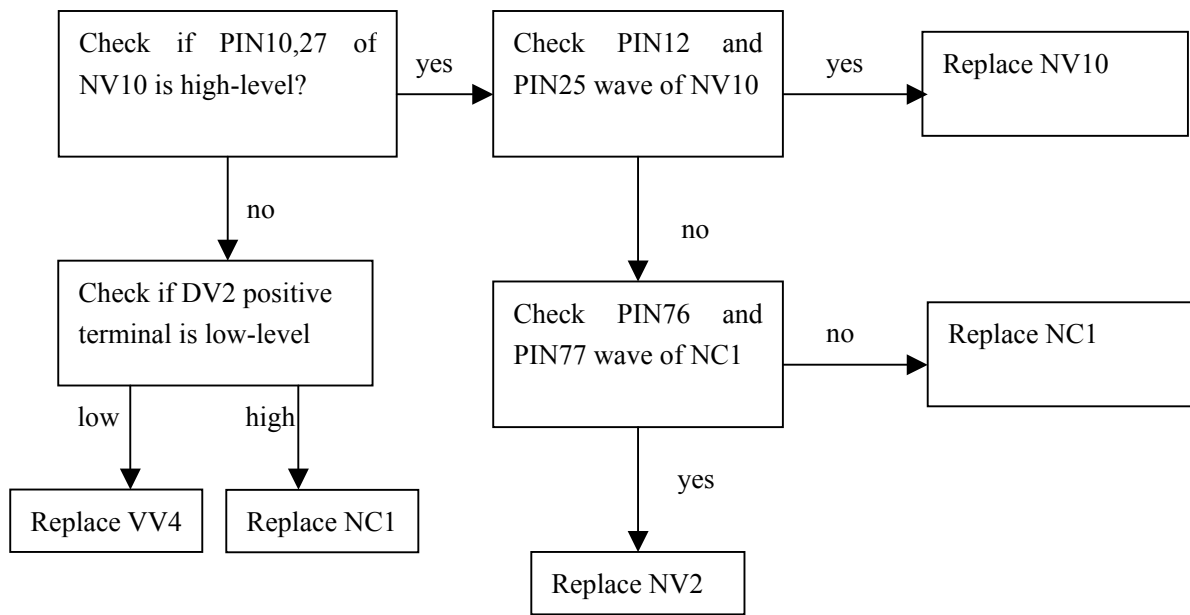
2.1 No raster



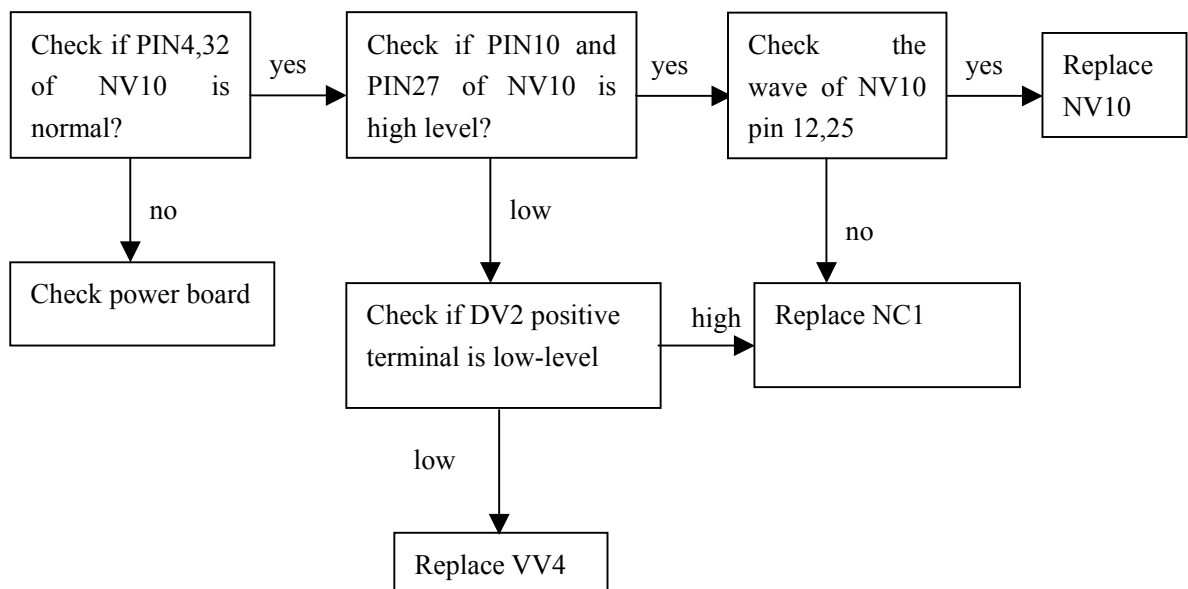
2.2 Raster, but no picture

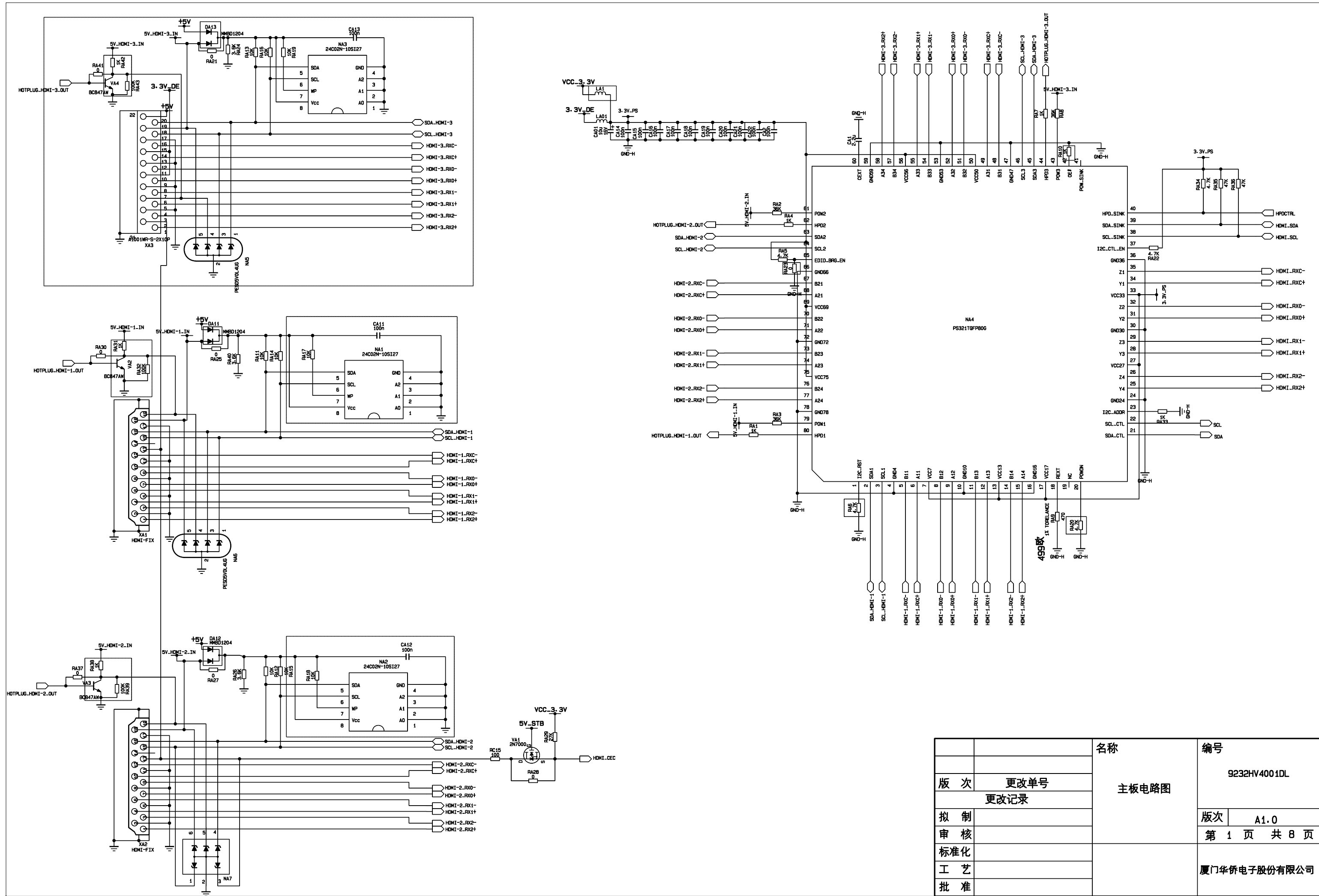


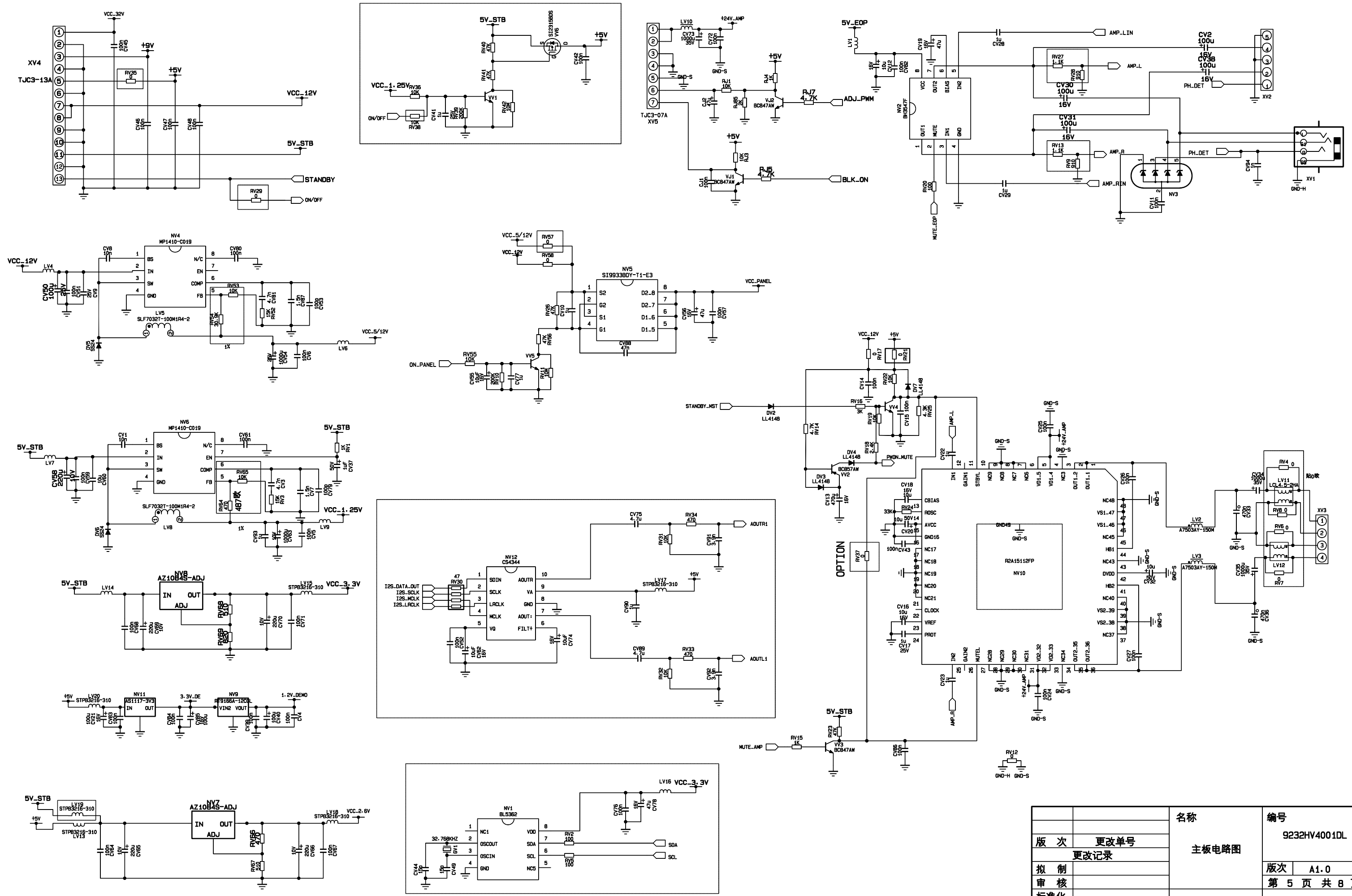
2.3 Picture, but no sound(TV input)



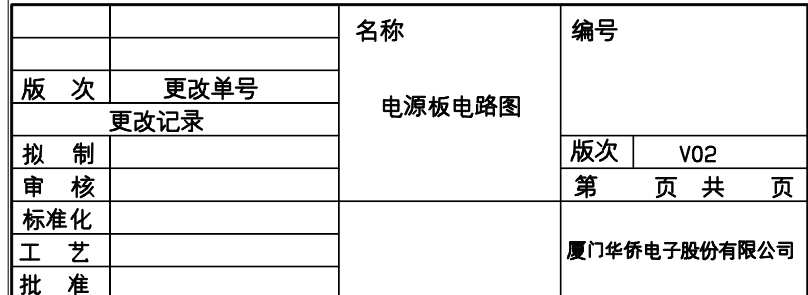
2.4 Picture, but no sound(channel except TV)







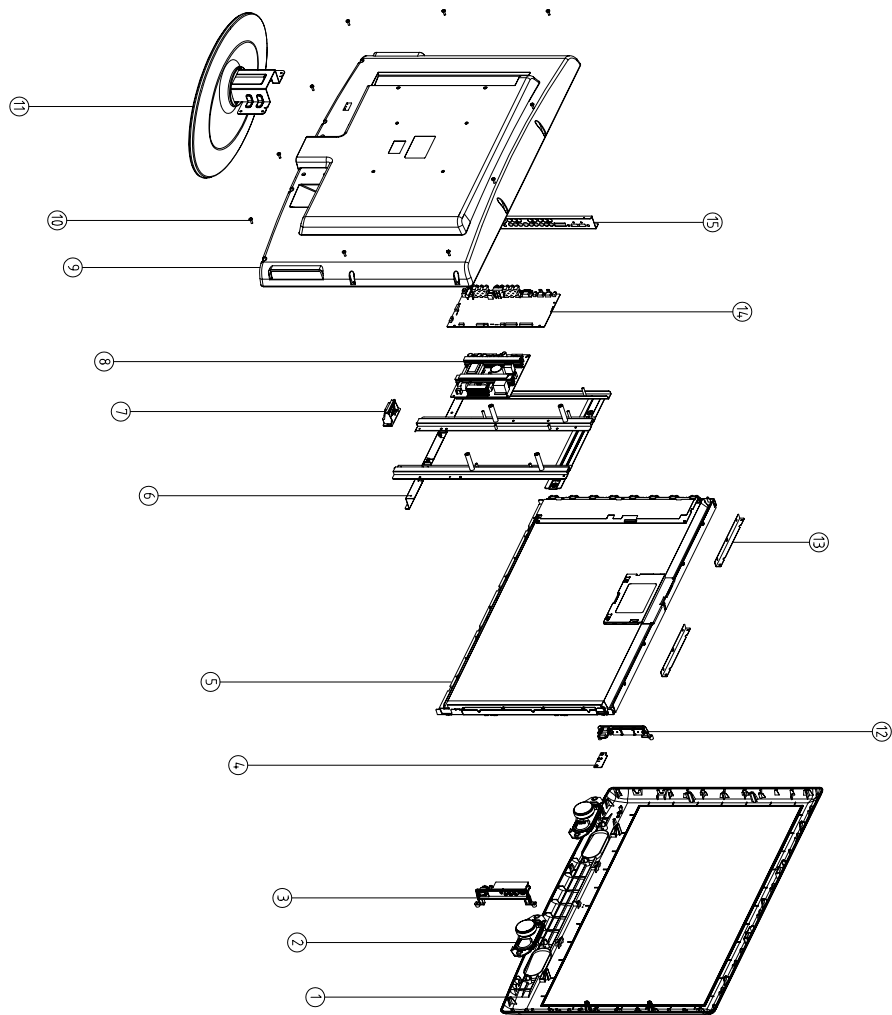
名称		编号
更改单号		9232HV4001DL
更改记录		
版次	更改单号	版次
拟制		A1.0
审核		第 5 页 共 8 页
标准化		
工艺		
批准		厦门华侨电子股份有限公司



APPENDIX-A: Main assembly 9237HV4111

NAME	NO.	MAIN COMPONENT AND IT'S NO.	
Digital processing board	6HV0216910	NC1 NJ2 NJ02 NA4 NV10	MSD119CL (5270119002) M61111FP (5276111101) MSD809 (5270809003) PS321TQF (5270321001) R2A15112FP (5271511201)
Side interface board	6HV0214610		
IR board	6HU0310910		
Key board	6HV0190510		
Power board	6HV0052010		
Remote control	6010200101	RC-201-0A	
Panel	5203378B03	LC370WUN-SAB1	

APPENDIX-B: Exploded view (LC-37X41)



PART LIST OF EXPLODED VIEW

NO.	PART NO.	DESCRIPTION
1	5Q37410010	front cabinet
2	5501206002	speaker
3		side connection board
4		IR board
5		panel
6	6153141000	panel fixed bracket
7	615A102000	power socket
8		power board
9	5H3741H010	back cabinet
10	5981340121	screw
11	6151132000	stand
12		key board
13	5810064400	panel connection bar
14		digital processing board
15	5810064310	interface baffle

Note: design and specifications are subject to change without notice.

