



# **LCD Television Service Manual**

---

**Chassis: MT5651APOI**

**Product Type: 40H5**

**48H5**

**50H5G**

**Ver 1.0**

**February, 2014**

A solid teal horizontal bar is located at the bottom of the page.

---

# Contents

<b>Contents</b> .....	2 -
<b>Service Manual</b> .....	3 -
1. Precautions and notices.....	3 -
1.1 Warning.....	4 -
1.2 Notes.....	7 -
2. Product Function Specifications .....	9 -
2.1 Product Function.....	9 -
2.2 Specifications.....	10 -
3. Factory/Service OSD Menu and Adjustment.....	11 -
3.1 To enter the Factory OSD Menu .....	11 -
3.2 Factory OSD Menu .....	12 -
3.3 Designer Menu.....	14 -
4. Software Upgrading.....	14 -
Before upgrading, read the following .....	14 -
4.1 USB Software Upgrading directly .....	15 -
4.2 USB upgrading unsuccessfully .....	15 -
4.3 Upgrading with the FlashTool0.6.0.exe .....	17 -
4.4 Network online updating .....	20 -
5. Trouble shooting .....	25 -
5.1 Troubleshooting for Remote Control .....	27 -
5.2 Troubleshooting for Function Key.....	28 -
5.3 TV won't Power On.....	29 -
5.4 Troubleshooting for Audio.....	30 -
5.5 Troubleshooting for TV/VGA/HDMI input.....	31 -
5.6 Troubleshooting for YPbPr input.....	32 -
5.7 Troubleshooting for Video input.....	33 -
6. Signals Block Diagram and power assign: .....	34 -
7. Schematic circuit diagram .....	34 -
8. Explode View.....	34 -

---

# Service Manual

## 1. Precautions and notices

BEFORE SERVICING THE LCD TV, READ THE SAFETY PRECAUTIONS IN THIS MANUAL.

USE ONLY MANUFACTURER SPECIFIED REPLACEMENT PARTS WHEN SERVICING.

USE OF NON-AUTHORIZED PARTS WILL VOID THE MANUFACTURE'S WARRANTY

Proper service and repair is important to the safe, reliable operation of all Hisense Equipment. The service procedures recommended by Hisense and described in this Service Guide are effective methods of performing service operations. Some of these service operations require the use of tools specially designed for the purpose. The special tools should be used when and as recommended.

It is important to note that this manual contains various CAUTIONS and NOTICES which should be carefully read in order to minimize the risk of personal injury to service personnel. The possibility exists that improper service methods may damage the equipment and pose risk of personal injury

. It is also important to understand that these CAUTIONS and NOTICES ARE NOT

---

EXHAUSTIVE. Service should only be performed by an experienced electronics technician trained in the proper Television safety and service methods and procedures. Hereafter throughout this manual, HISENSE will be referred to.

## 1.1 Warning

### 1.1.1

Critical components having special safety characteristics are identified with a ▲ by the Ref. No. in the parts list. Use of non-manufacturer's recommended parts may create shock, fire, or other hazards. Under no circumstances should the original design be modified or altered without written permission from RCA. Hisense Eassumes no liability, express or implied, arising out of any unauthorized modification of design. Servicetech assumes all liability.

#### DANGER CAUTION

TO ENSURE THE CONTINUED RELIABILITY OF THIS PRODUCT, USE ONLY ORIGINAL MANUFACTURER'S REPLACEMENT PARTS, WHICH ARE LISTED WITH THEIR PART NUMBERS IN THE PARTS LIST SECTION OF THIS SERVICE GUIDE.

### 1.1.2.

All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically. When repairing, be sure to use anti-static table mats and properly use a grounding wrist strap. Keep components and tools also at this same potential.

---

## IMPORTANT:

Always disconnect the power cord from AC outlet before replacing parts or modules.

### 1.1.3

To prevent electrical shock, use only a properly grounded 3 prong outlet or extension cord.

### 1.1.4

When replacement parts are required, be sure to use replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards and will void the manufacturer's warranty.

### 1.1.5

Safety regulations require that after a repair the set must be returned in its original condition. In addition, prior to closing set, check that:

-Note:

>All wire harnesses and flex cables are properly routed and secured with factory tape and/or mounted cable clamps.

> All cables and connectors are properly insulated and do not have any bare wires/lead exposed

---

### 1.1.6

(1) Do not supply a voltage higher than that specified to this product. This may damage the product and may cause a fire.

(2) Do not use this product:

> High humidity areas

> In an area where any water could enter or splash into the unit.

High humidity and water could damage the product and cause fire.

(3) If a foreign substance (such as water, metal, or liquid) gets inside the panel module, immediately turn off the power. Continuing to use the product may cause fire or electric shock.

(4) If the product emits smoke, and abnormal smell, or makes an abnormal sound, immediately turn off the power. Continuing to use the product, it may cause fire or electric shock.

(5) Do not pull out or insert the power cable from/to an outlet with wet hands. It may cause electric shock.

(6) Do not damage or modify the power cable. It may cause fire or electric shock.

(7) If the power cable is damaged, or if the connector is loose, do not use the product: otherwise, this can lead to fire or electric shock.

(8) If the power connector or the connector of the power cable becomes dirty or dusty, wipe it with a dry cloth. Otherwise, this can lead to fire.

(9) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer,

---

or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over

## **1.2 Notes**

Notes on Safe Handling of the LCD panel and during service

The work procedures shown with the Note indication are important for ensuring the safety of the product and the servicing work. Be sure to follow these instructions.

- Before starting the work, secure a sufficient working space.
- At all times other than when adjusting and checking the product, be sure to turn OFF the POWER Button and disconnect the power cable from the power source of the TV during servicing.
- To prevent electric shock and breakage of PC board, start the servicing work at least 30 seconds after the main power has been turned off. Especially when installing and removing the power board, start servicing at least 2 minutes after the main power has been turned off.
- While the main power is on, do not touch any parts or circuits other than the ones specified. If any connection other than the one specified is made between the measuring equipment and the high voltage power supply block, it can result in electric shock or may trip the main circuit breaker When installing the LCD module in, and removing it from the packing carton, be sure to have at least two persons perform the work.
- When the surface of the panel comes into contact with the cushioning materials, be sure to confirm that there is no foreign matter on top of the cushioning materials before

---

the surface of the panel comes into contact with the cushioning materials. Failure to observe this precaution may result in, the surface of the panel being scratched by foreign matter.

- Be sure to handle the circuit board by holding the large parts as the heat sink or transformer. Failure to observe this precaution may result in the occurrence of an abnormality in the soldered areas.
- Do not stack the circuit boards. Failure to observe this precaution may result in problems resulting from scratches on the parts, the deformation of parts, and short-circuits due to residual electric charge.
- Perform a safety check when servicing is completed. Verify that the peripherals of the serviced points have not undergone any deterioration during servicing. Also verify that the screws, parts and cables removed for servicing purposes have all been returned to their proper locations in accordance with the original setup.



The lightning flash with arrowhead symbol, within an equilateral triangle is intended to alert the user to the presence of uninsulated

dangerous voltage within the products enclosure that may be of sufficient magnitude to constitute a risk of electric shock.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing)

instructions in the literature accompanying the set.

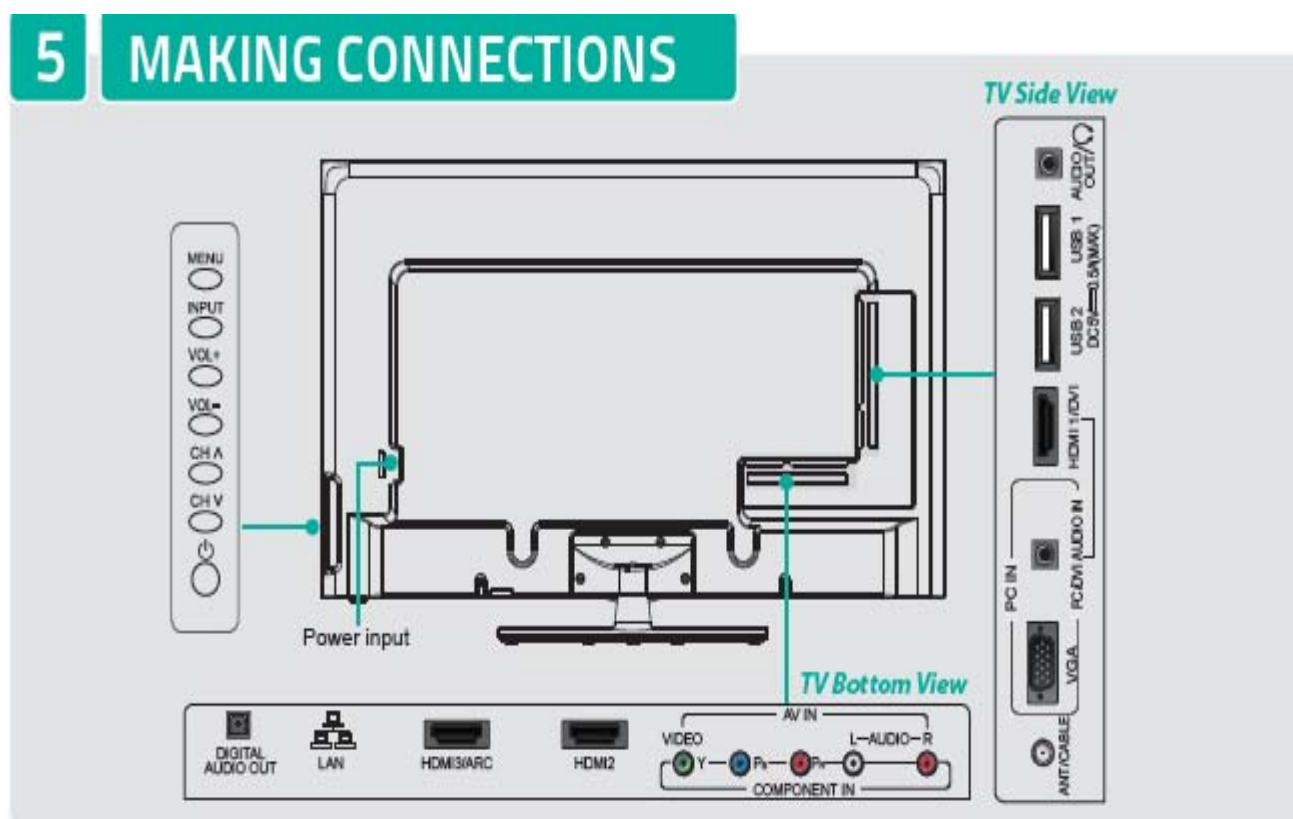


---

## 2. Product Function Specifications

### 2.1 Product Function

Rear:



## 2.2 Specifications

<b>Nombre de Modelo</b>		<b>40H5</b>	<b>48H5</b>	<b>50H5G</b>
<b>Dimensión (W×H×D)</b>	<b>Sin soporte</b>	36.39 pulgadas (924.3mm) 21.46 pulgadas (545mm) 3.33 pulgadas (84.5mm)	42.9 pulgadas (1091mm) 25.1 pulgadas (637mm) 3.3 pulgadas (85mm)	44.4 pulgadas (1129mm) 26.3 pulgadas (667mm) 3.1 pulgadas (79.9mm)
	<b>Con soporte</b>	36.39 inches (924.3mm) 23.82 pulgadas (605mm) 8.86 pulgadas (225mm)	42.9 pulgadas (1091mm) 27.7 pulgadas (704mm) 11.1 pulgadas (282mm)	44.4 pulgadas (1129mm) 28.5 pulgadas (725mm) 11.1 pulgadas (282mm)
<b>Peso</b>	<b>Sin soporte</b>	22.05 libras (10 kg)	33.1 libras (15 kg)	33.1 libras (15 kg)
	<b>Con soporte</b>	25.35 libras (11.5 kg)	39.7 libras (18 kg)	39.7 libras (18 kg)
<b>Tamaño de Pantalla Activa (Diagonal)</b>		40 pulgadas	47.6 pulgadas	49.5 pulgadas
<b>Resolución de pantalla</b>		1920 × 1080	1920 × 1080	1920 × 1080
<b>Potencia de audio</b>		7 W + 7 W	8 W + 8 W	10 W + 10 W
<b>Fuente de alimentación</b>		120 V ~ 60 Hz		
<b>Sistema de recepción</b>	<b>Analógica</b>	NTSC		
	<b>Digital</b>	ATSC / QAM		
<b>Recepción de canales</b>		VHF: 2~13 UHF: 14~69 CATV: 1 ~ 125 Transmisión Digital Terrestre (8VSB): 2 ~ 69 Cable Digital (64/256 QAM): 1 ~ 135		
<b>Tipo de sintonizador</b>		Frecuencia sintetizada		
<b>Condiciones ambientales</b>		Temperatura: 41°F ~ 95°F (5°C ~ 35°C) Humedad: 20% ~ 80% RH Presión atmosférica: 86 kPa ~ 106 kPa		
<b>Entrada de Componente</b>		480 I / 60 Hz, 480 P / 60 Hz, 720 P / 60 Hz, 1080 I / 60 Hz, 1080 P / 60 Hz		
<b>Entrada VGA</b>		VGA (640×480 / 60 Hz), SVGA (800×600 / 60 Hz), XGA (1024×768 / 60 Hz)		
<b>Entrada HDM</b>		RGB / 60 Hz (640×480, 800×600, 1024×768) YUV / 60 Hz (480 I, 480 P, 720 P, 1080 I, 1080 P)		

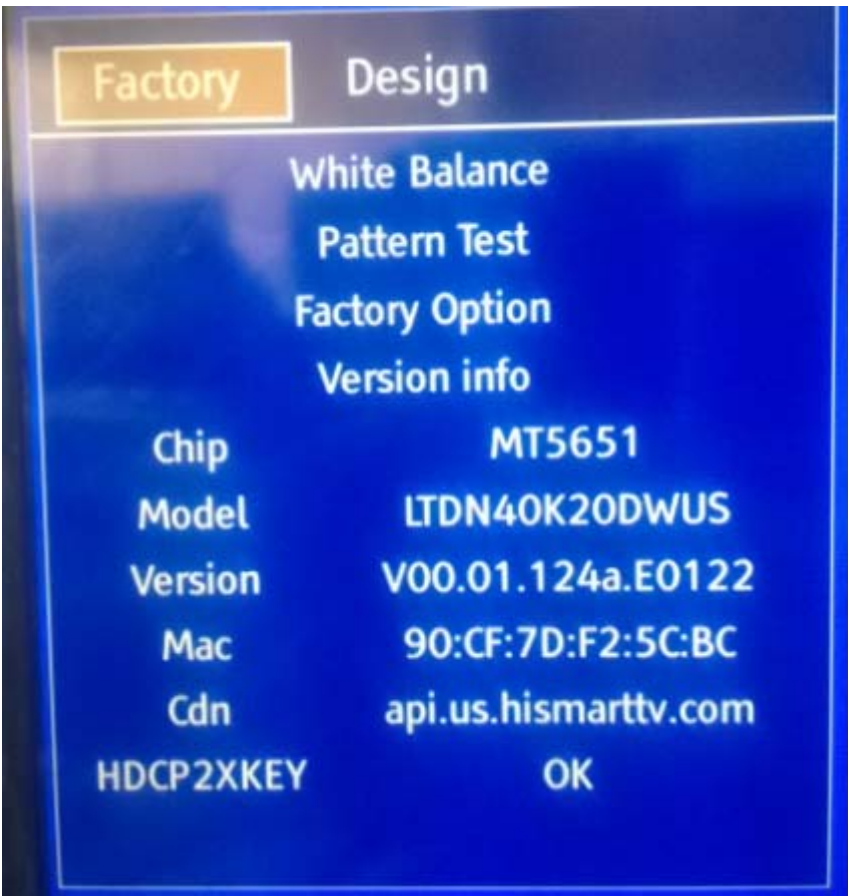
---

## 3. Factory/Service OSD Menu and Adjustment

### 3.1 To enter the Factory OSD Menu

- a. With factory RC (remote control)
  1. Press “M” button and enter factory mode.
  2. Press “Menu” button and enter factory OSD menu.
  3. Press “CH+”/“CH-” button select the function menu, press “VOL+”/“VOL-” enter the selected function menu. Press “VOL+”/“VOL-” button adjust values in the menu.
- b. With user’s RC
  1. Power TV On
  2. Press Menu button and call up User OSD Menu
  3. Select Audio-> Balance, when Balance is “0”
  4. Enter 1->9->6->9 in sequence.  
Note: If necessary, re-enter number keys.
  5. Factory OSD appears.
  6. Press Menu again and leave factory OSD.

### 3.2 Factory OSD Menu

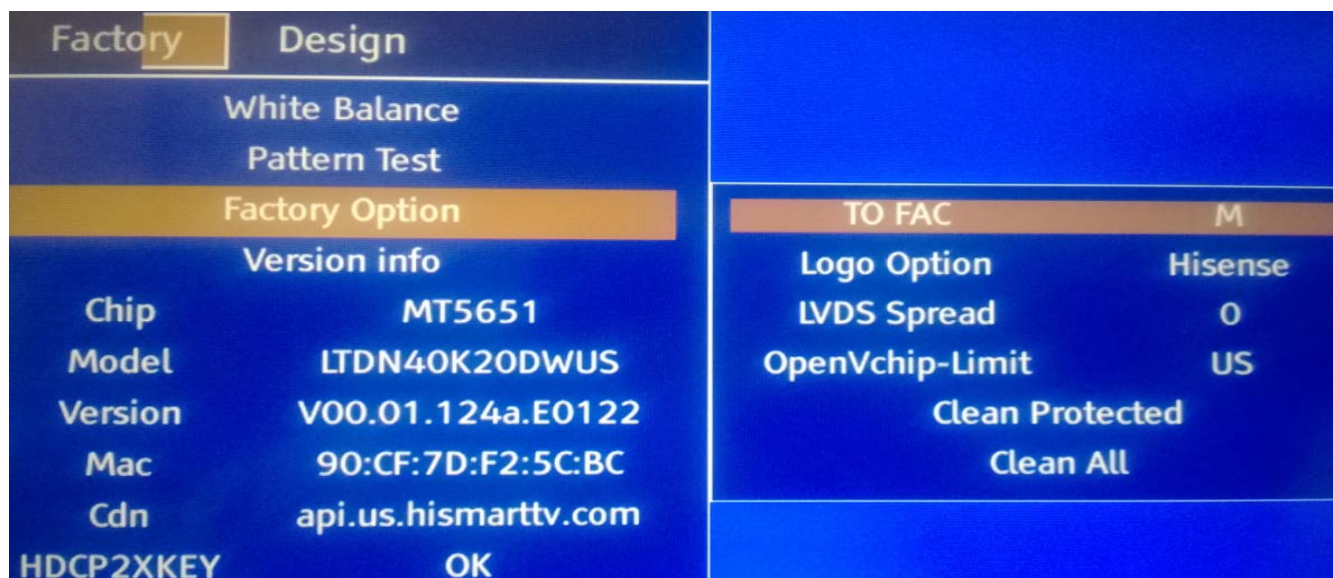


Factory	Design		
White Balance		Panel	B1
Pattern Test		R Gain	128
Factory Option		G Gain	128
Version info		B Gain	128
Chip	MT5651	R Offset	128
Model	LTDN40K20DWUS	G Offset	128
Version	V00.01.124a.E0122	B Offset	128
Mac	90:CF:7D:F2:5C:BC		
Cdn	api.us.hismarttv.com		
HDCP2XKEY	OK		

### 3.2.1 White Balance

**Note:** Different source has different WB values. Before adjusting, please change to desired source.

### 3.2.2 Factory Option



	Item	Default	Options	Notes
1	MODE	M	M, U	M-Can enter factory mode with factory RC or user RC. U-Can enter factory mode only with user' s RC.

Note: MODE “M” is only used for factory production.

### 3.2.3 Version Info

	Item	Default	Options	Note
1	Version			Software version
2	Date			The date of current version

Note: Software version info of the TV, readable only.

### 3.2.4 Clear the EEPROM

Item	Meaning	Note
Clean Protected	Clear partly	Clean data except WB data and Auto Color data
Clean All	Clear completely	Clean all data



---

**Note:** The factory menu date varies according to different sources. Incase changing the factory data by error, you can choose to “Clean Protected”, by which you can resume the default value.

**To clear the EEPROM:**

- a. Select the item “Clean All” .
- b. Press VOL+ button to clear the EEPROM data.
- c. Close the OSD menu after 5 seconds.
- d. Restart the TV.

### 3.3 Designer Menu



**Note:**

The above “Factory/Service OSD Menu” is reference for chassis MTK5651 , please refer to the actual units to determine the appearances for different TV.

## 4. Software Upgrading

**Before upgrading, read the following.**

First: Upgrade the software.

Second: To clear the EEPROM .

- A Select the item “Clear Unprotected”.
- B Press VOL+ button to clear the EEPROM data.
- C Close the OSD menu after 5 seconds.
- D Restart the TV.

Last: After the operation above all, necessarily, Re-search the channels for the users

---

## 4.1 USB Software Upgrading directly

The software can be upgraded by USB Disk.

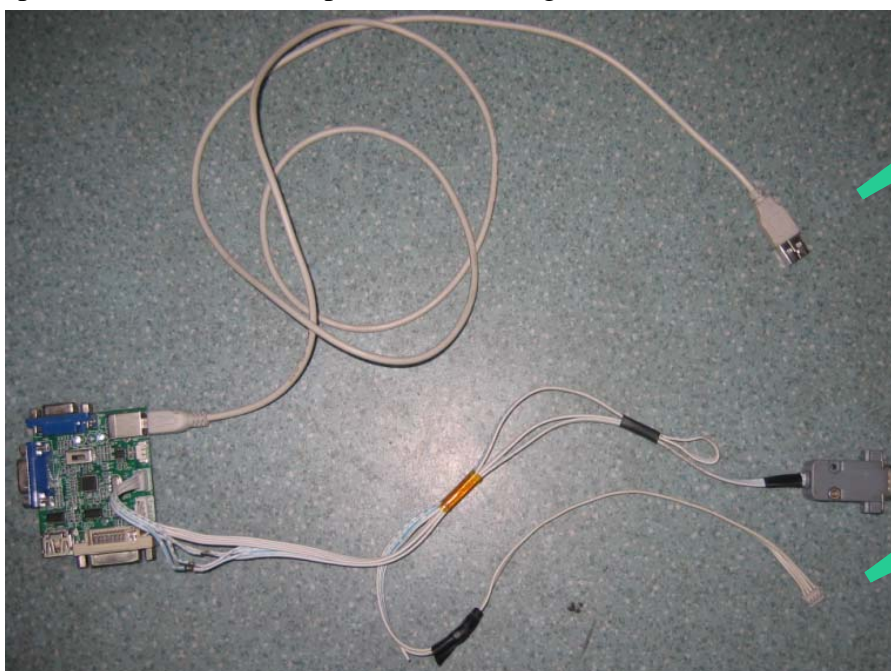
- First, copy the upgrade\_loader.pkg file to USB Disk;.
- Second, make sure there is no other .pkg file in the root directory of USB Disk such as upgrade.pkg or upgrade\_loader LTDN40K20DWUS.pkg(40H5).
- Insert USB Disk to USB port, and then turn on the TV.
- The TV will identify the software and upgrade automatically.

## 4.2 USB upgrading unsuccessfully

If USB upgrading unsuccessfully, then need burning the Nand Flash program file“ \*.bin ”to the Nand Flash.

### Hardware connecting

Connect the unit to your pc with a USB-to-serial port cable. USB port connects to your PC and serial port to the TV's RS232 port. As following



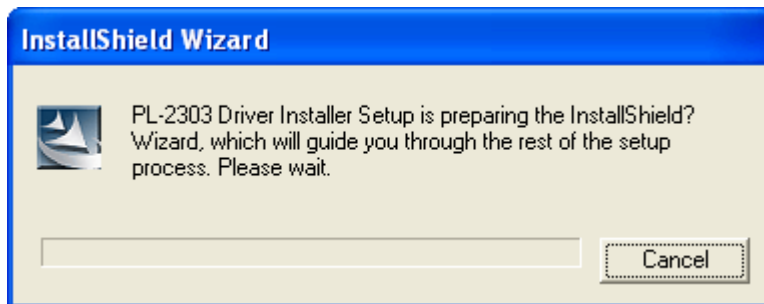
USB Connect to  
the PC

Connect to  
the TV RS232  
port

---

#### 4.2.1 Install the driver

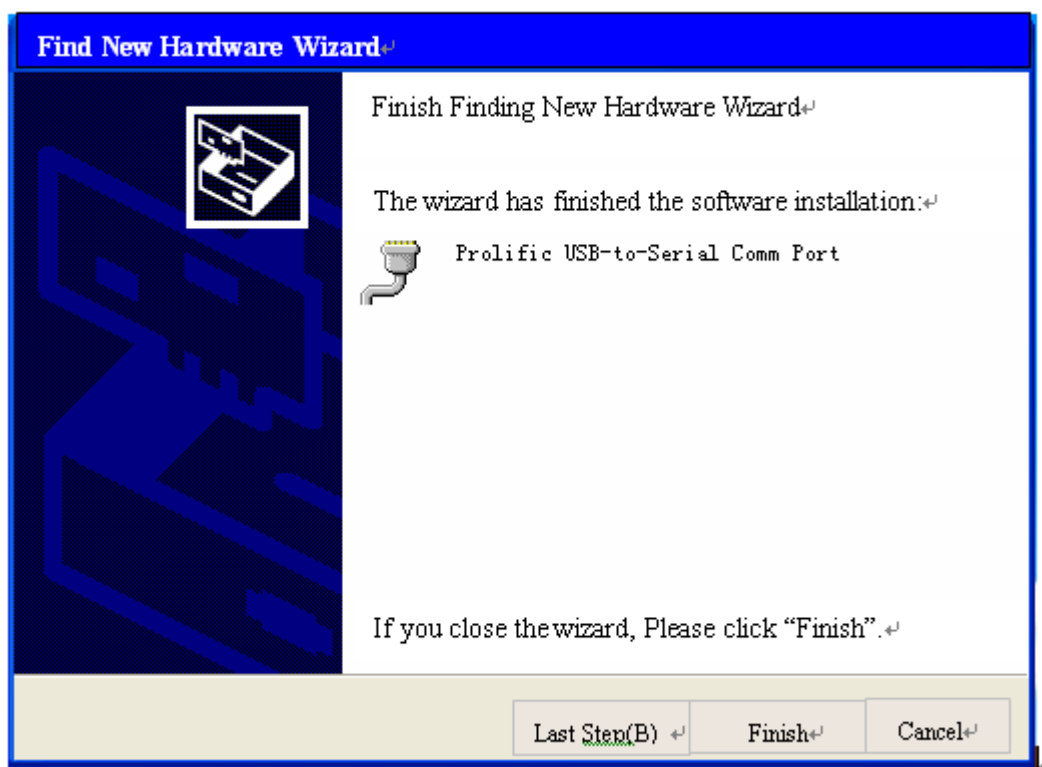
Double click the icon  **PL-2303 Driver Installer.exe**, install the driver.



Select the default value, the driver will be installed step by step.

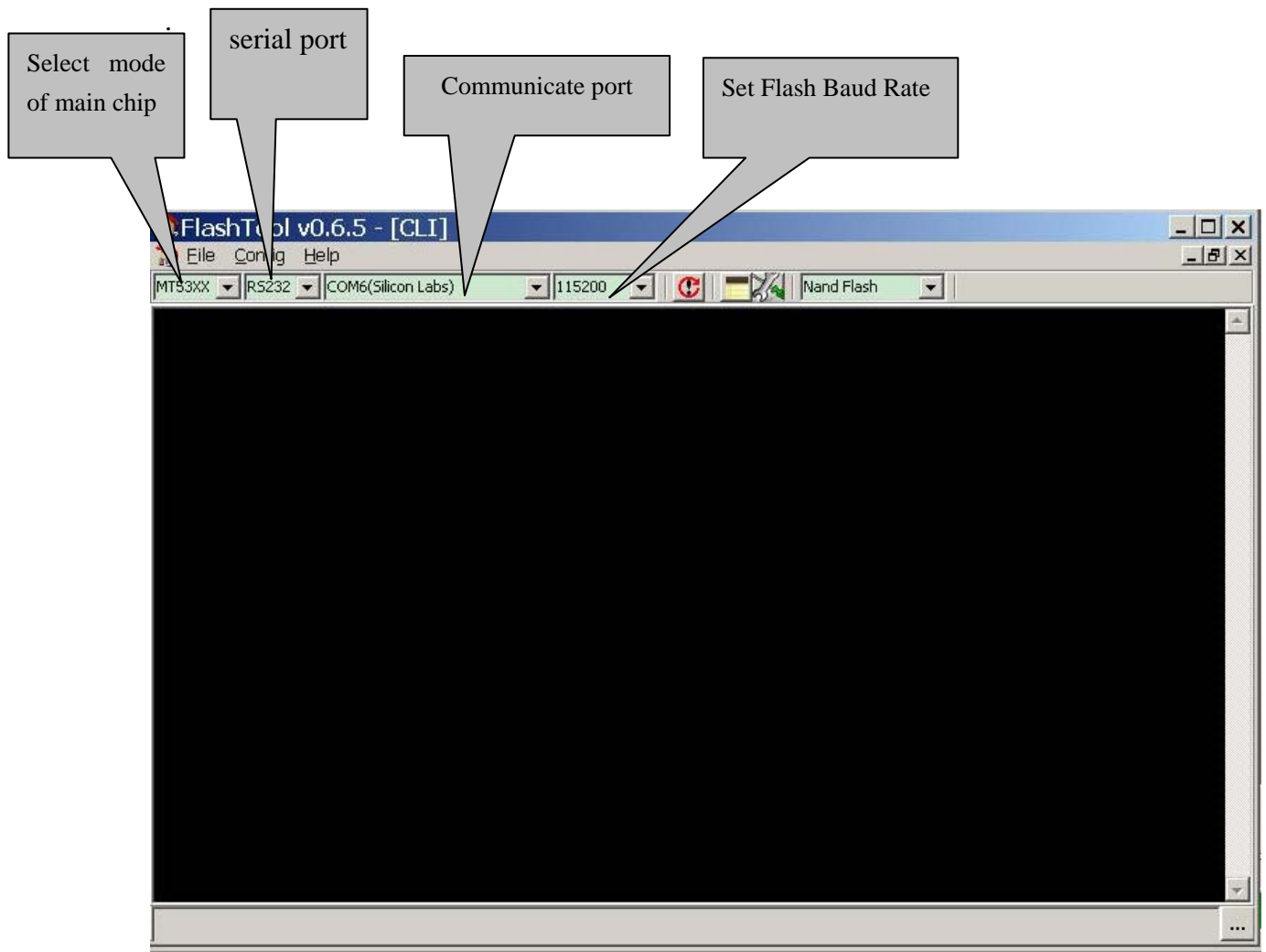






### 4.3 Upgrading with the FlashTool0.6.0.exe




1、FlashTool is a green program needing no installation. After Connect the unit to your pc with a USB-to-serial port cable, run FlashTool0.6.0.exe. Please refer to the following steps to set.

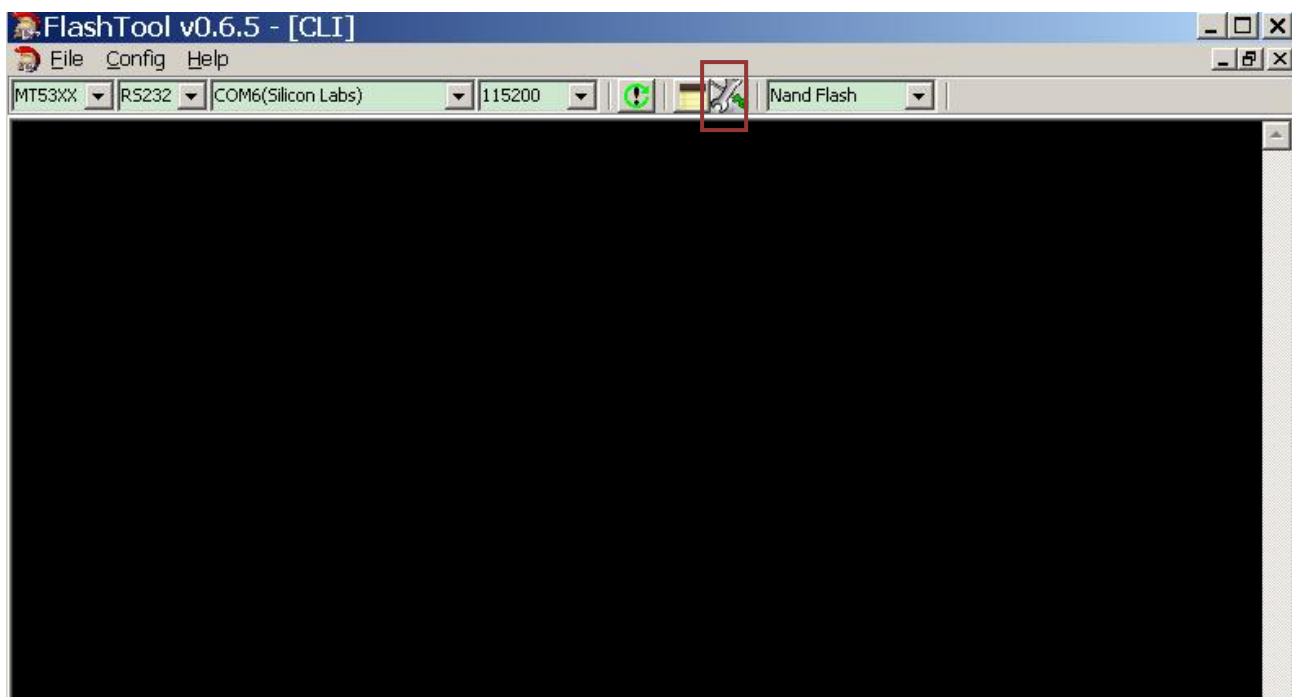


How to choose Communicate port and flash baud rate? See the following instruction..




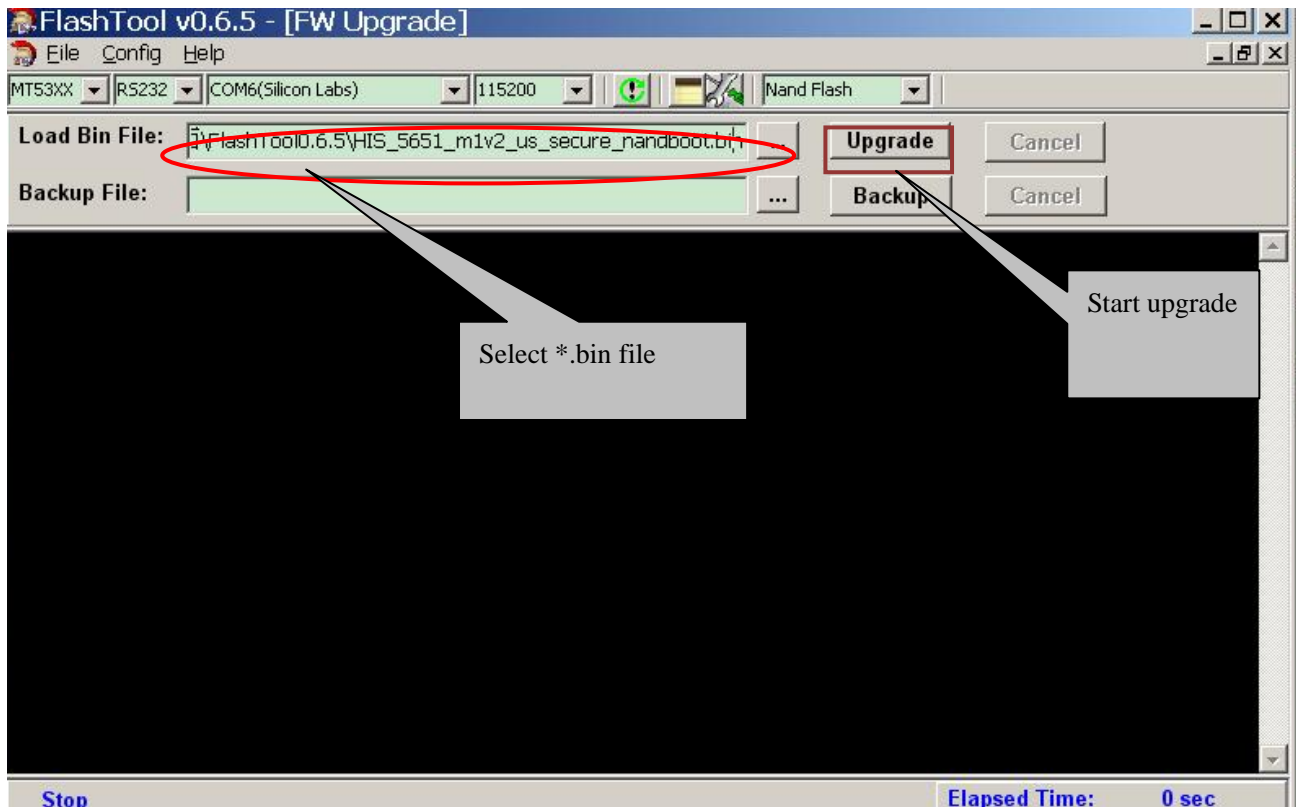
Open “Device Manager” and find which port is connected with the TV. In above picture, COM4 is connected to the TV, so, select “COM4” and if COM6 is connected to the TV, so select “COM6”. Select the right baud rate according to chip model. For this unit( chip model is MT5651), select 115200.

2、 Click  to connect, if connect successfully then button  from red turn green .



---

Click , bounce the following dialog box. Load Bin File: find the upgrading program file, and select it. for example: HIS\_5651\_m1v2\_oceania\_secure\_nandboot.bin. Press “Upgrade” button and start upgrading., if update defeat, try again.



## 4.4 Network online updating

Network online updating includes two ways. one is “Auto Upgrade ”the other is “Network Upgrade”. If Auto Upgrade is ON, then Network Upgrade is invalidated ; if Network Upgrade is on, then Auto Upgrade is invalidated.

Auto Upgrade---- When it is set to “on” , Turn on automatic check whether or not have any new updating file in servers when connects to the network. Customer can download and update according to the guide.

Network Upgrade---- Check the process and it will prompt you to upgrade the software.

---

## 1、Auto Upgrade

Power on

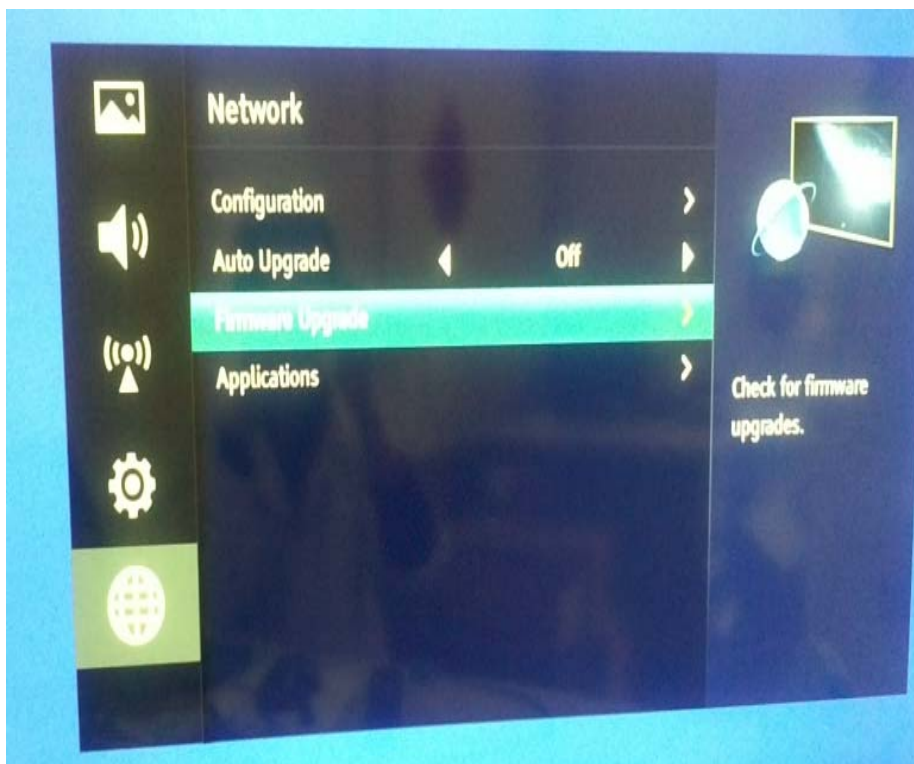


Figure-1

If have checked new version, then bounce the following .

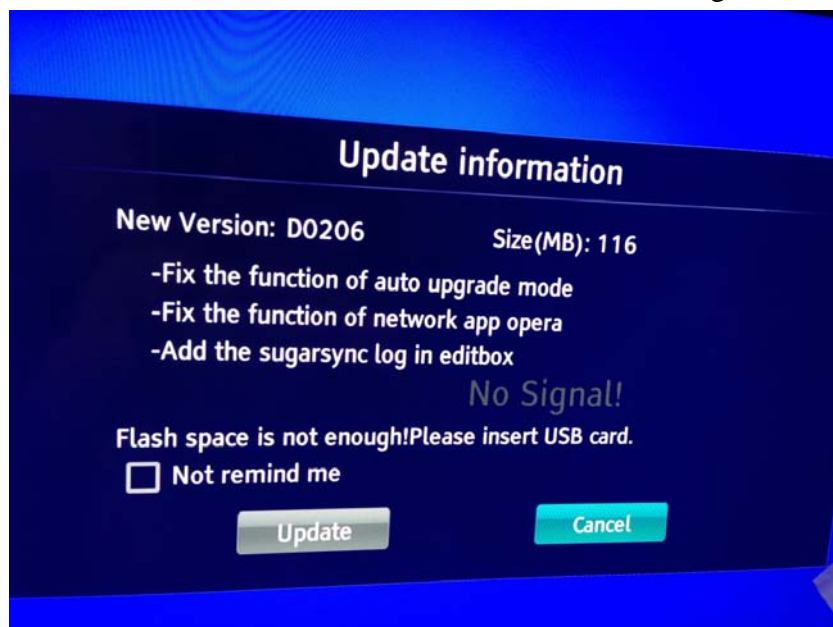


Figure-2

---

Select update to download.....

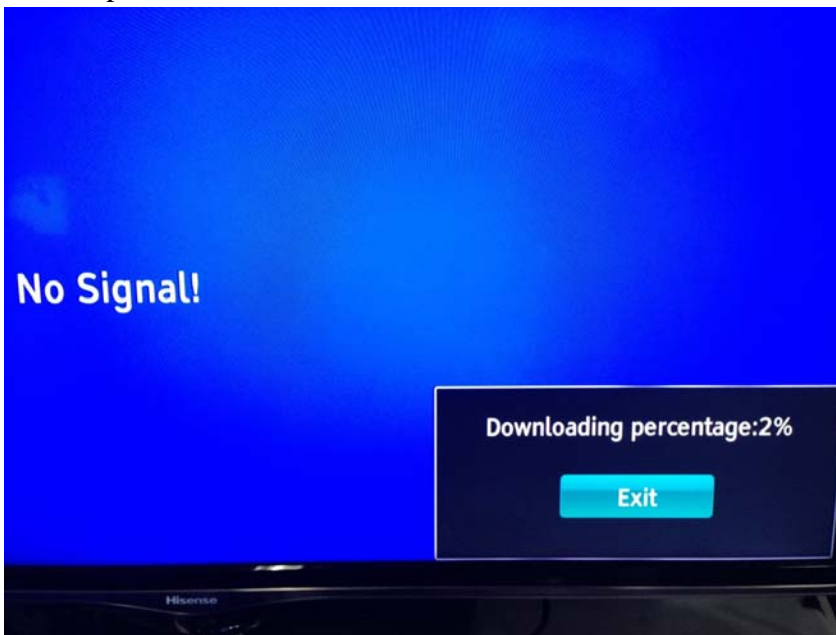


Figure-3

When Finish downloading ,system automatic verify updating wizard.

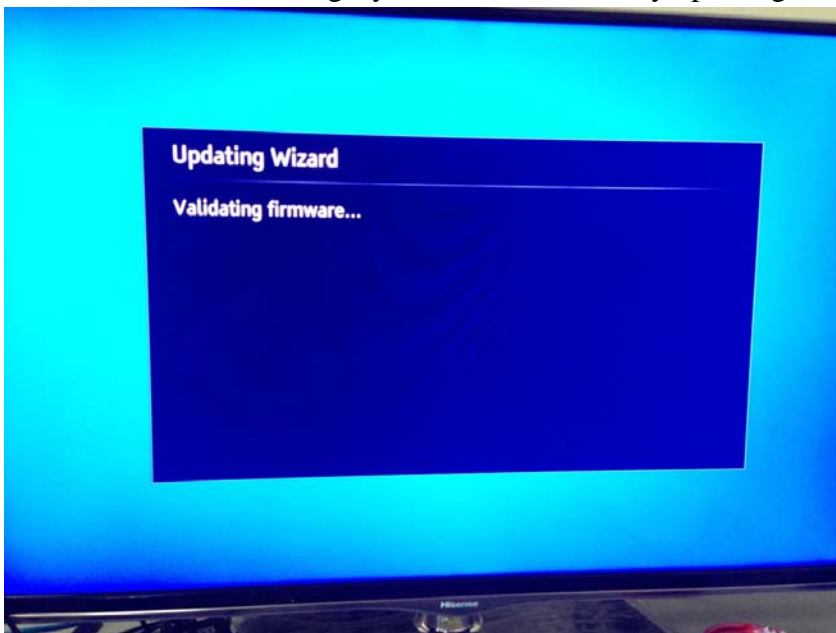


Figure-4

---

After verify, bounce dialog to select “yes” to sure to update the firmware. Waiting.....



Figure-5

Upgrade successfully. power off and restart TV can bounce following prompt message. otherwise upgrade is defeat.

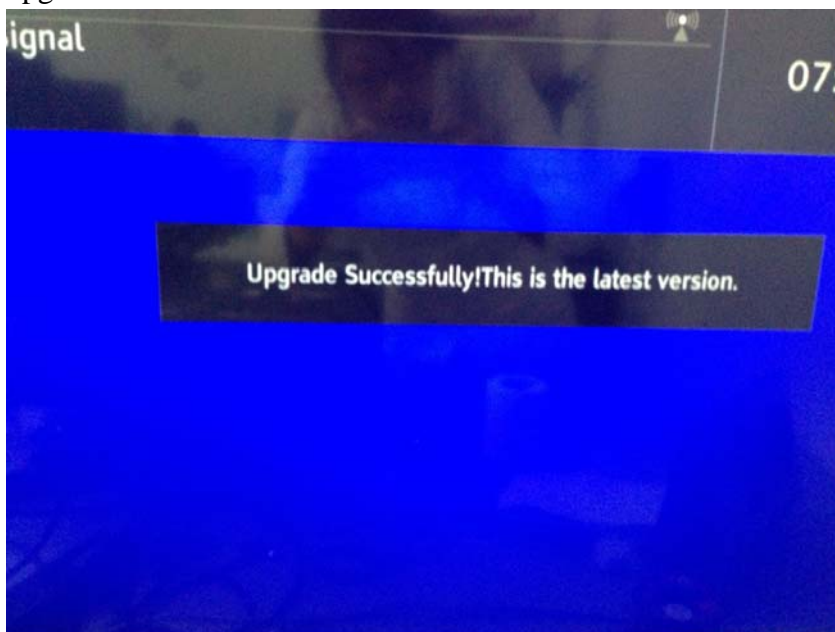


Figure-6



---

## 2、Network Upgrade

Network upgrade and auto upgrade have little difference only in figure-2 as following  
Update can step by step according the prompt..

Auto Upgrade:

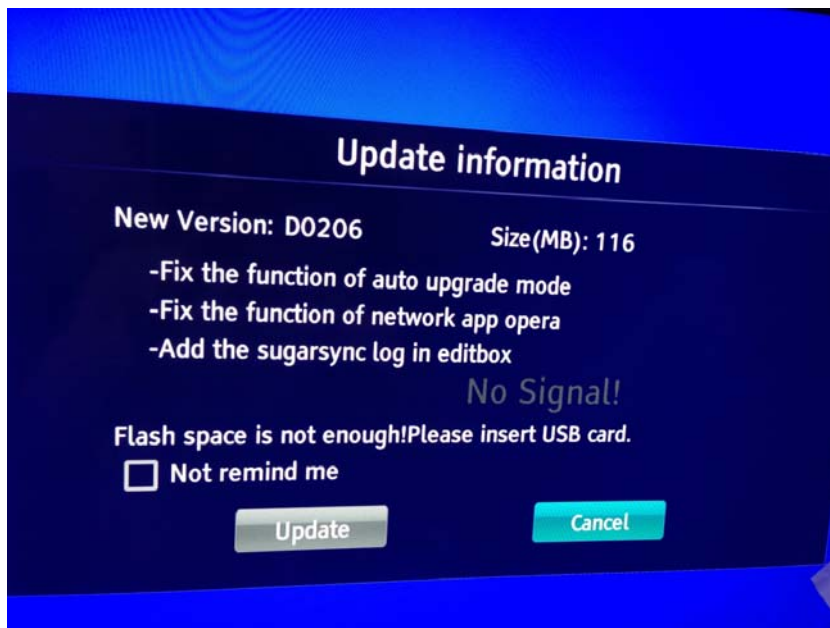


figure-1

Network upgrade:

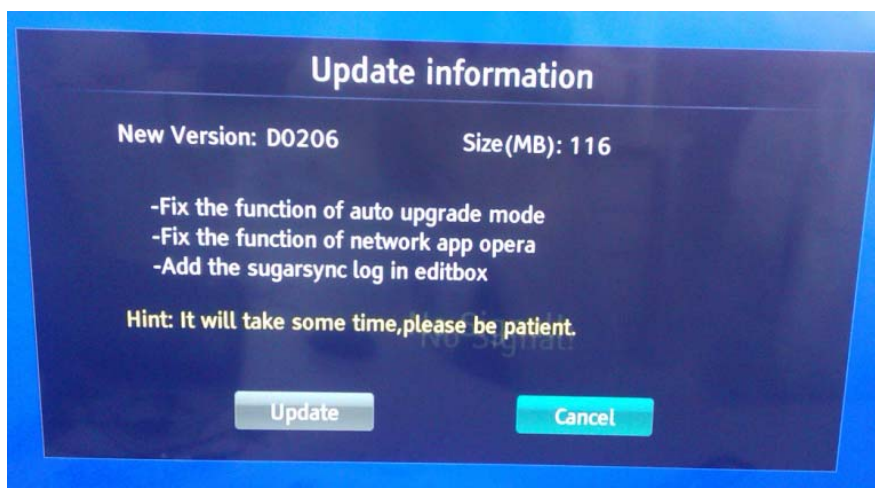


figure-2



---

## 5. Trouble shooting

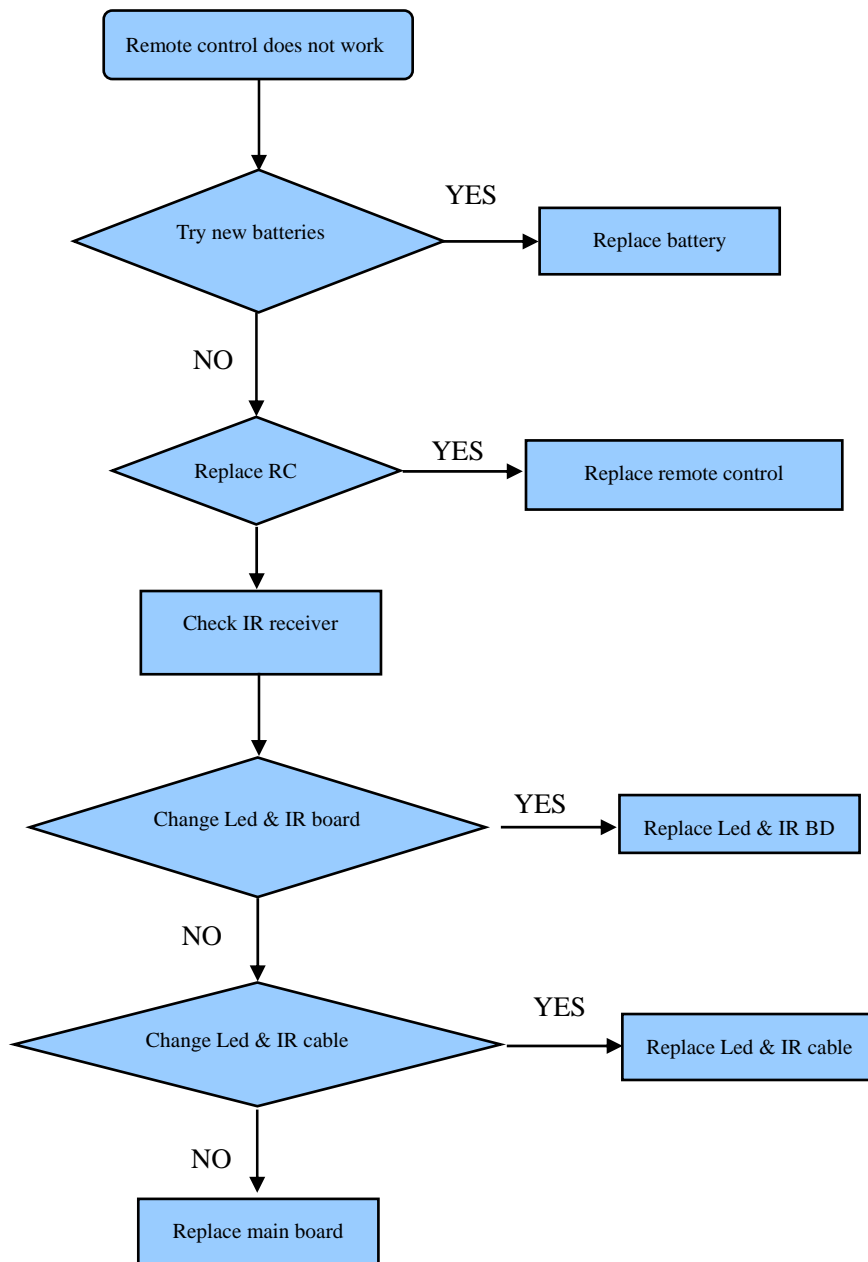
When there is something wrong with your TV, you can try turning off the TV and then restart it. You can also operate according to the follow chart. If the problems still can't be solved, please contact the profession technician.

<i><b>SYMPTOMS</b></i>	<i><b>POSSIBLE SOLUTIONS</b></i>
No sound or picture.	<ul style="list-style-type: none"><li>● Check if the power cord is in the AC outlet and if it has electricity.</li><li>● Check if you have pressed [POWER] button on the TV or [POWER] button on the remote control.</li></ul>
I have connected an external source to my TV and I get no picture and/or sound.	<ul style="list-style-type: none"><li>● Check for the correct output connection on the external source and for the correct input connection on the TV.</li><li>● Make sure you have made the correct selection for the input mode for the incoming signal.</li></ul>
When I turn on my television, there is a few second delay before the picture appears. Is this normal?	Yes, this is normal. That is the TV searching for previous setting information and initializing the TV.
Picture is normal, but no sound.	<ul style="list-style-type: none"><li>● Check the volume settings.</li><li>● Check if Mute mode is set "on".</li></ul>
Sound but no picture or black and white picture.	<ul style="list-style-type: none"><li>● If black and white picture first unplug TV from AC outlet and replug after 60 seconds.</li><li>● Check Color Setting if picture is black and white.</li></ul>
Sound and picture distorted or appear wavy.	<ul style="list-style-type: none"><li>● An electrical appliance may be affecting TV set. Turn off any appliances, if interference goes away, move appliance farther away from TV.</li><li>● Insert the power plug of the TV set into another power outlet.</li></ul>
Sound and picture is blurry or cuts out momentarily.	<ul style="list-style-type: none"><li>● If using an external antenna, check the direction, position and connection of the antenna.</li><li>● Adjust the direction of your antenna or reset or fine tune the channel.</li></ul>
Horizontal/vertical stripe on picture or picture is shaking.	Check if there is interfering source nearby, such as appliance or electric tool.
The plastic cabinet makes a "clicking" type of sound.	"Click" sound can be caused when the room temperature changes. This change causes the television cabinet to inflate or contract, which makes the sound. This is normal and TV is OK.
Black square appears in the center of my television screen?	The Closed Caption function is set in the text mode. To remove it, access Closed Caption from the menu screen and change the Mode setting from text to either CC1 or off .
On some channels getting another language or sometimes no sound at all.	<p>That would indicate that the MTS mode on your unit is set to SAP mode. We suggest setting the MTS mode to either Stereo or Mono . For further instruction, please see Audio Adjust or MTS/SAP in your user manual.</p> <ul style="list-style-type: none"><li>● SAP is Second Audio Program. It's a second audio channel that is usually used for a second language or descriptive audio for the visually impaired.</li><li>● MTS stands for Multichannel Television Sound, a standard that allows the encoding of 3 channels of audio within a standard NTSC (analog) video signal to a television. A television that is able to receive MTS Stereo allows you to watch television with stereo sound.</li></ul>

<b>SYMPTOMS</b>	<b>POSSIBLE SOLUTIONS</b>
Not getting all of my cable channels on the television or I'm only getting 13 channels.	<ul style="list-style-type: none"> <li>● Check the cable connection for an incoming signal. Make sure the signal is coming OK. Best way to confirm signal is to use another TV and/or contact your cable company.</li> <li>● Reprogram your channels. Press [MENU] button on your TV remote control, change Input Source setting to "Cable", then use "Auto Channels Search" to reprogram your channels.</li> </ul>
[CH $\Delta$ / V] don't work when I set the Channel to Cable? They work with the Air setting?	After switching to Cable, please auto program the channels. The TV will "remember" all the channels then the TV will allow you to surf the channels with [CH $\Delta$ /V] buttons.
Remote control does not work.	<ul style="list-style-type: none"> <li>● Confirm that TV still has power and is operational.</li> <li>● Change the batteries in the remote control.</li> <li>● Check if the batteries are correctly installed.</li> <li>● Clean the front of the remote control (LED window).</li> <li>● If using a universal remote, be sure to select the TV mode on the remote.</li> <li>● If the remote still does not work: <ul style="list-style-type: none"> <li>• Remove and reinstall the batteries correctly to reset the remote or install new batteries.</li> <li>• Press the Power button to turn on the TV. With a universal remote if you have reset or changed the batteries you will need to reprogram the remote for the other units.</li> </ul> </li> <li>● Check if there is obstruction between the remote control and the TV.</li> </ul> <p><b>TIP:</b> If you have a digital camera / camera phone, you can aim the front of the remote at camera lenses (at this time, the camera should set on camera mode, not play mode). Observe the camera screen while pressing a button on the remote control; you should see flashing light on the screen. If there is no light observed, the remote control is not working. You need to repair or replace the remote control.</p>

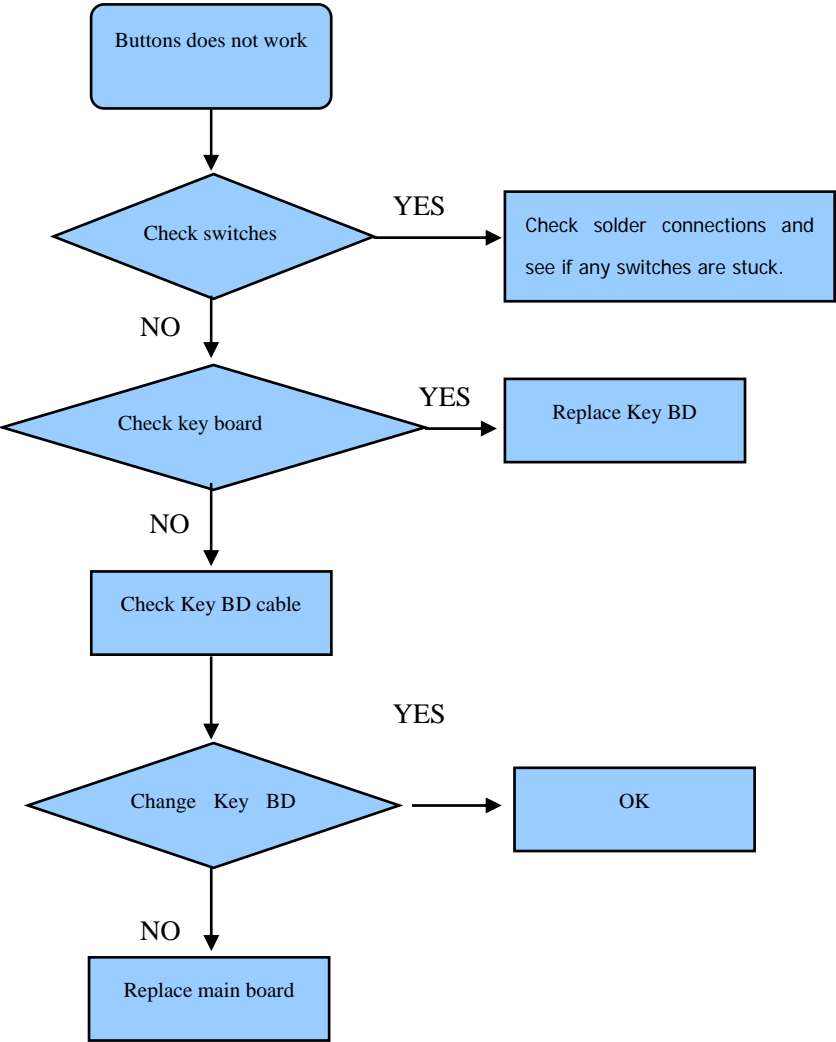
---

## 5.1 Troubleshooting for Remote Control



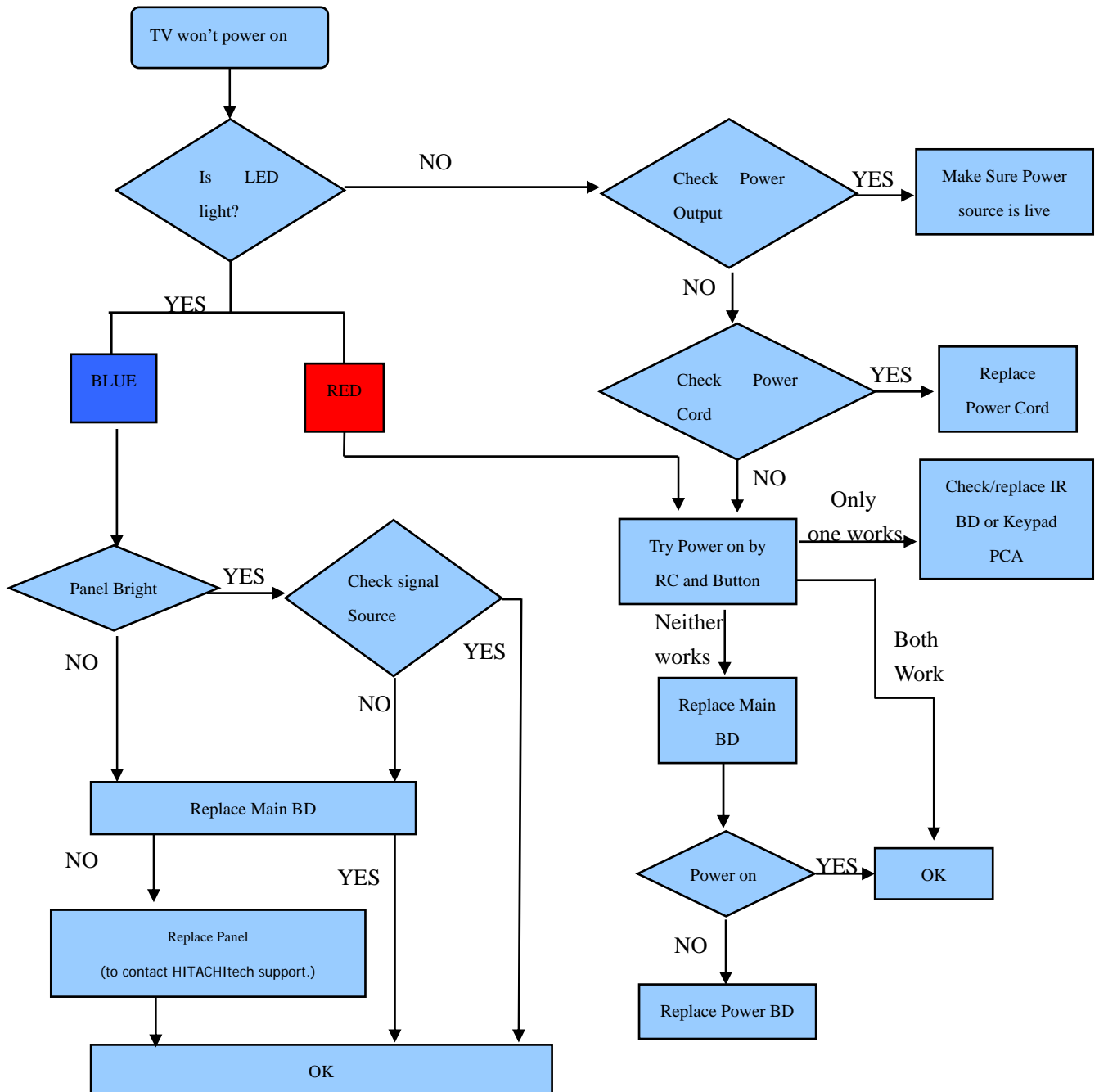
---

# 5.2 Troubleshooting for Function Key



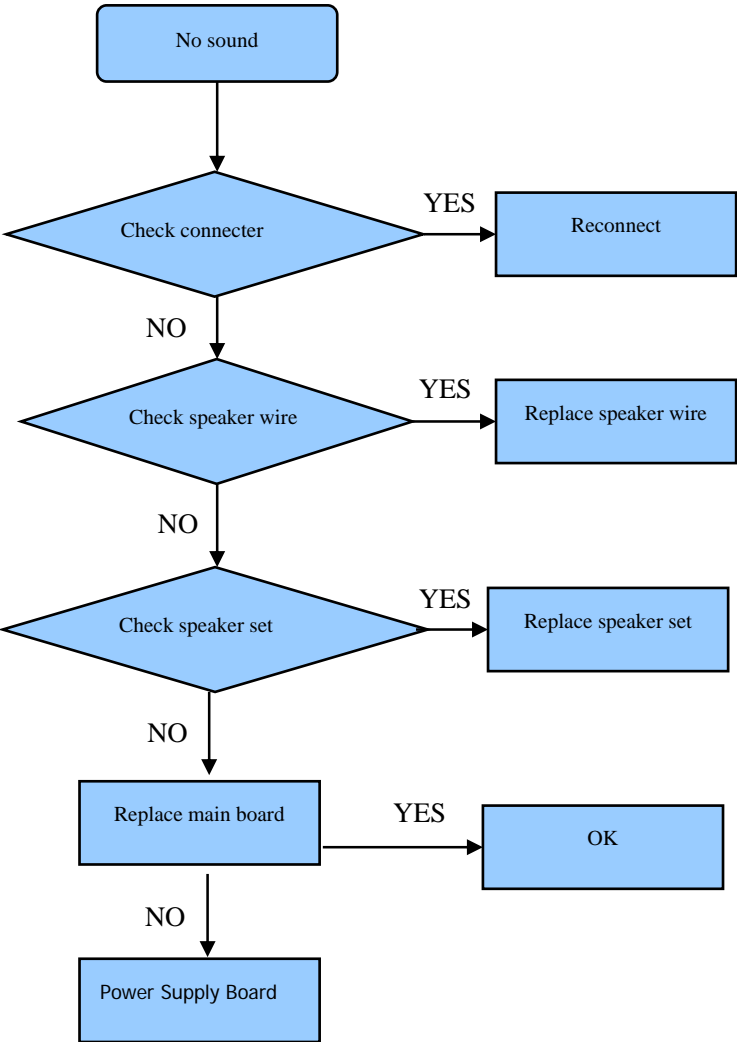
---

## 5.3 TV won't Power On



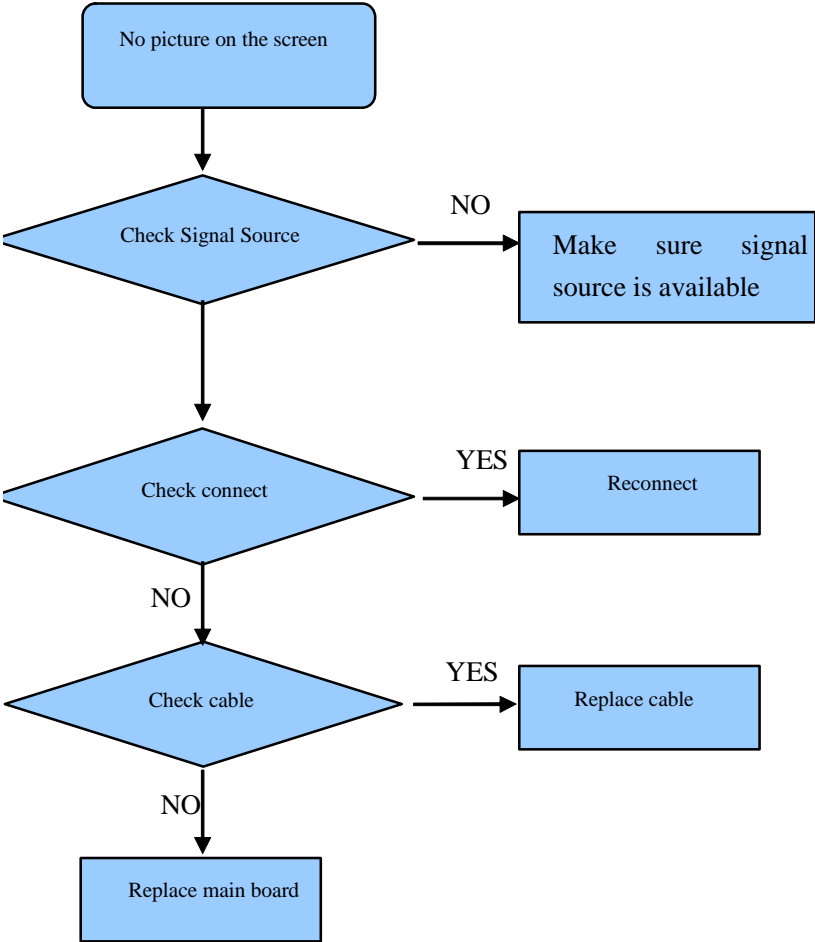
---

# 5.4 Troubleshooting for Audio



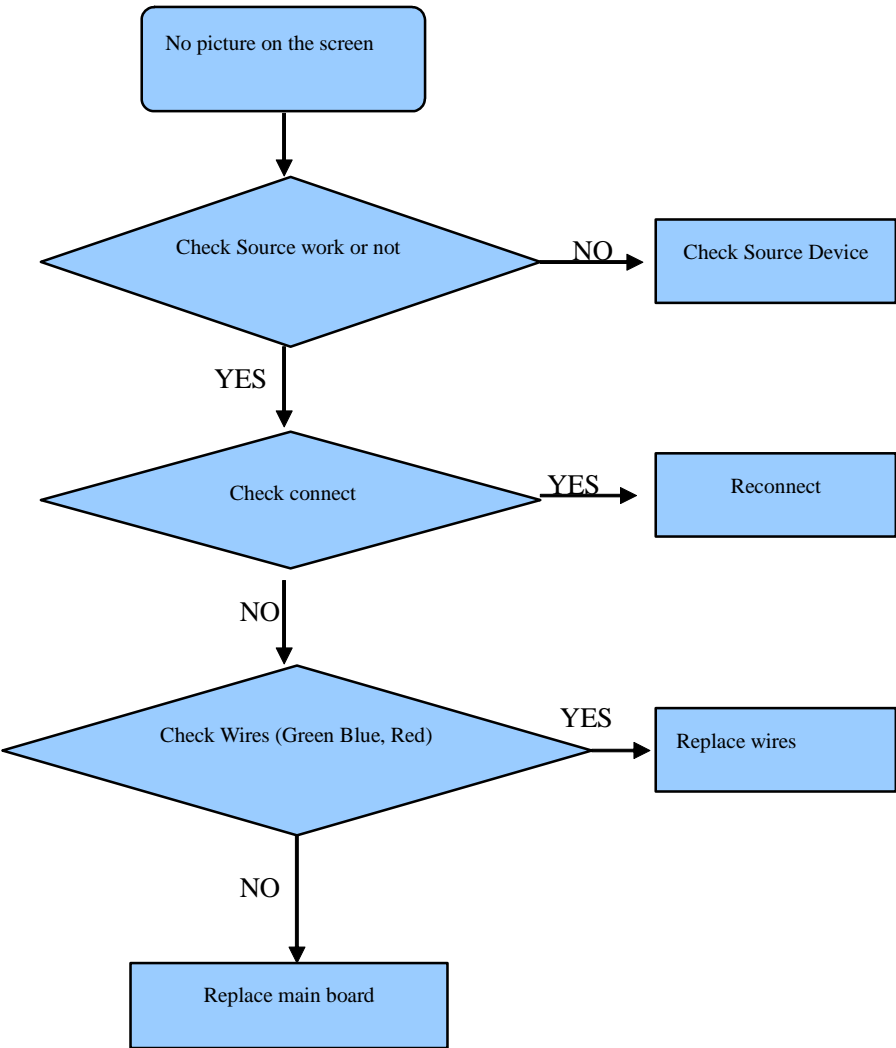
---

# 5.5 Troubleshooting for TV/VGA/HDMI input



---

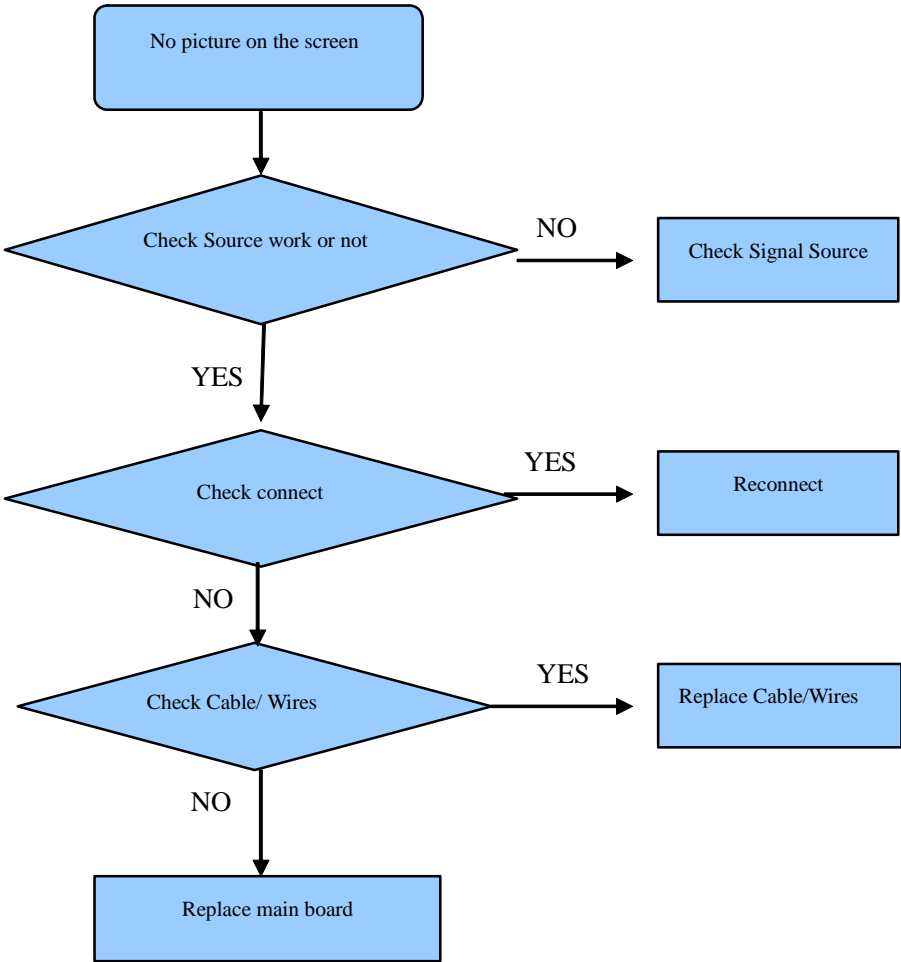
# 5.6 Troubleshooting for YPbPr input





---

# 5.7 Troubleshooting for Video input



---

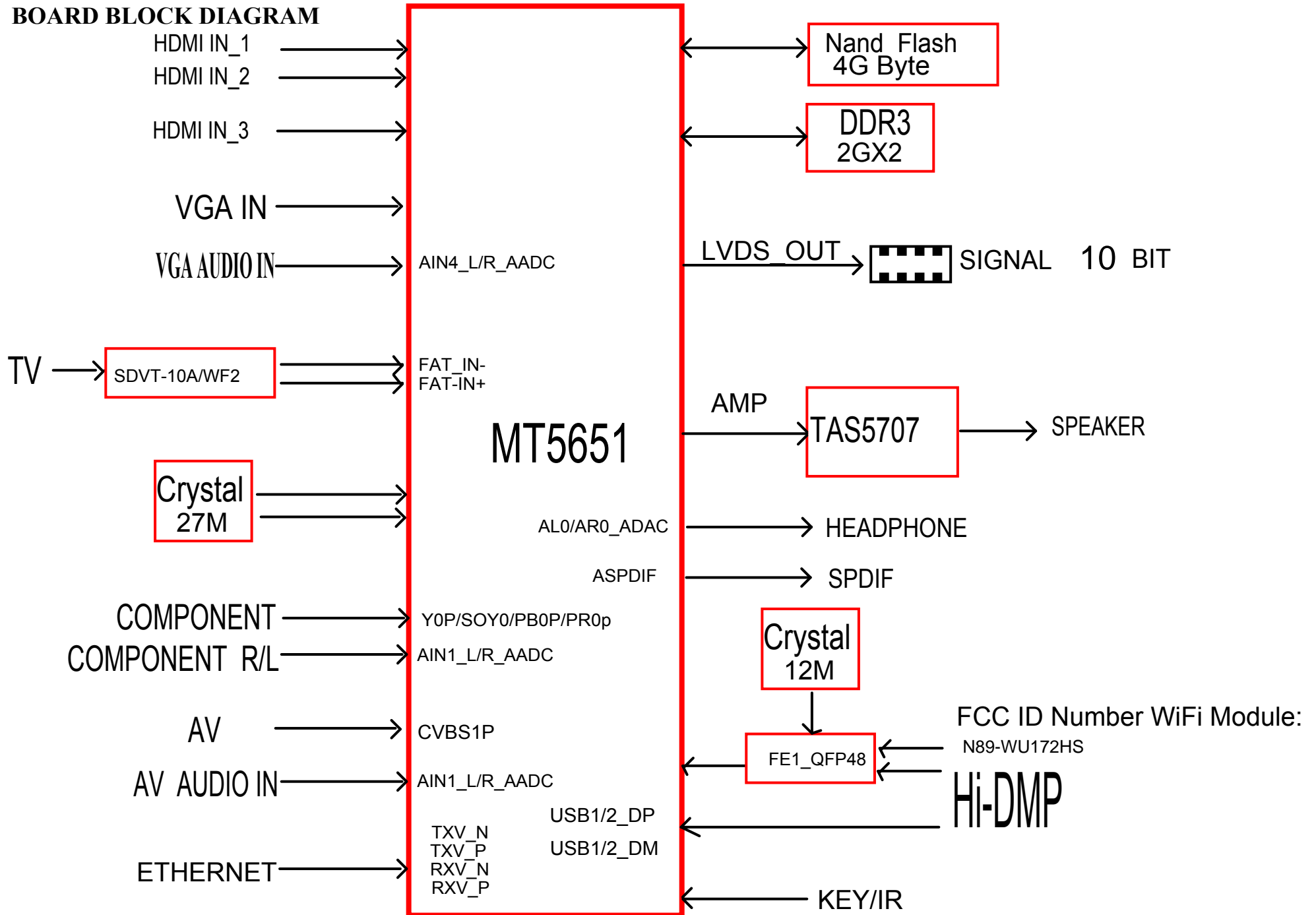
**6. Signals Block Diagram and power assign:**

**7. Schematic circuit diagram**

**8. Explode View**

**(The next page)**

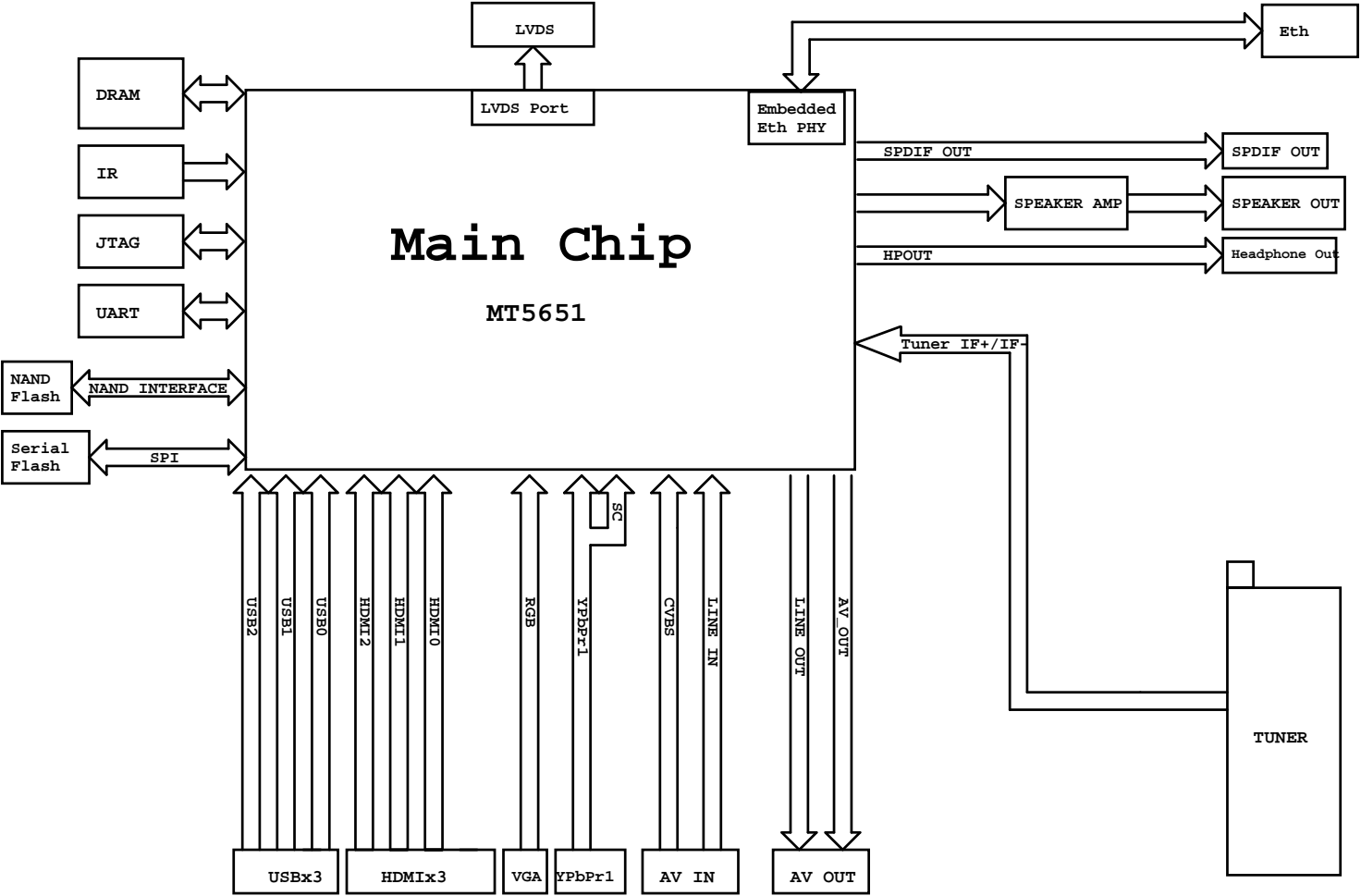
## BOARD BLOCK DIAGRAM

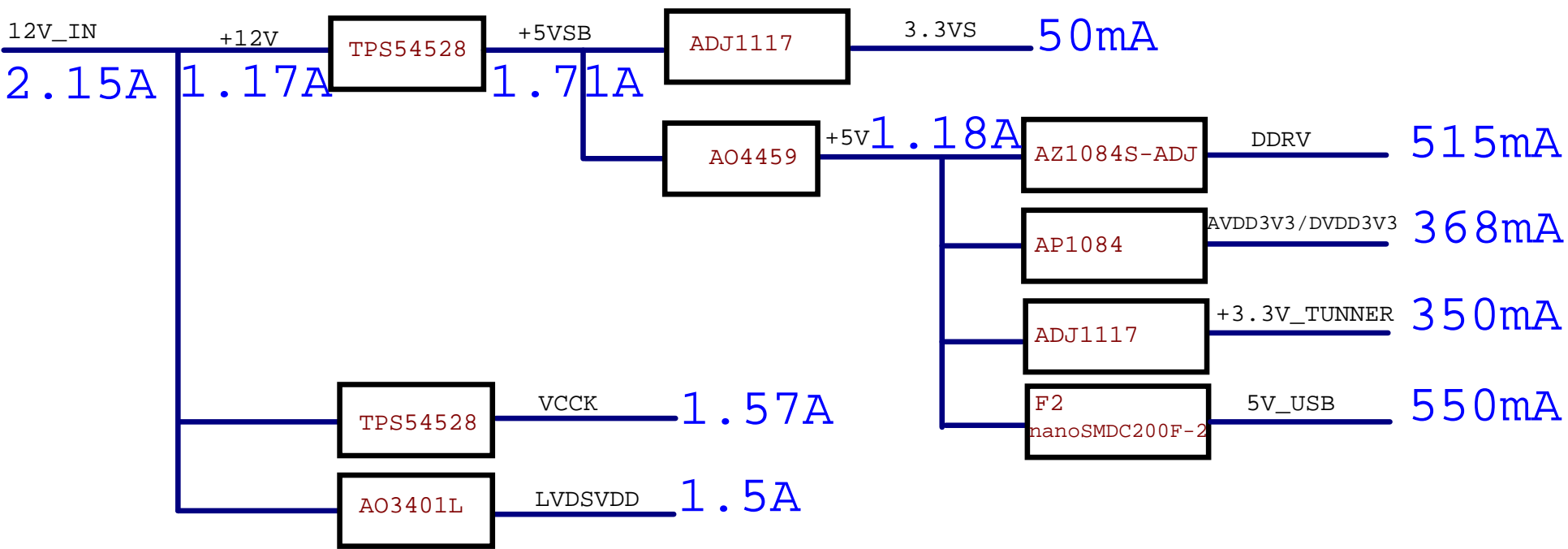


GPIO LIST

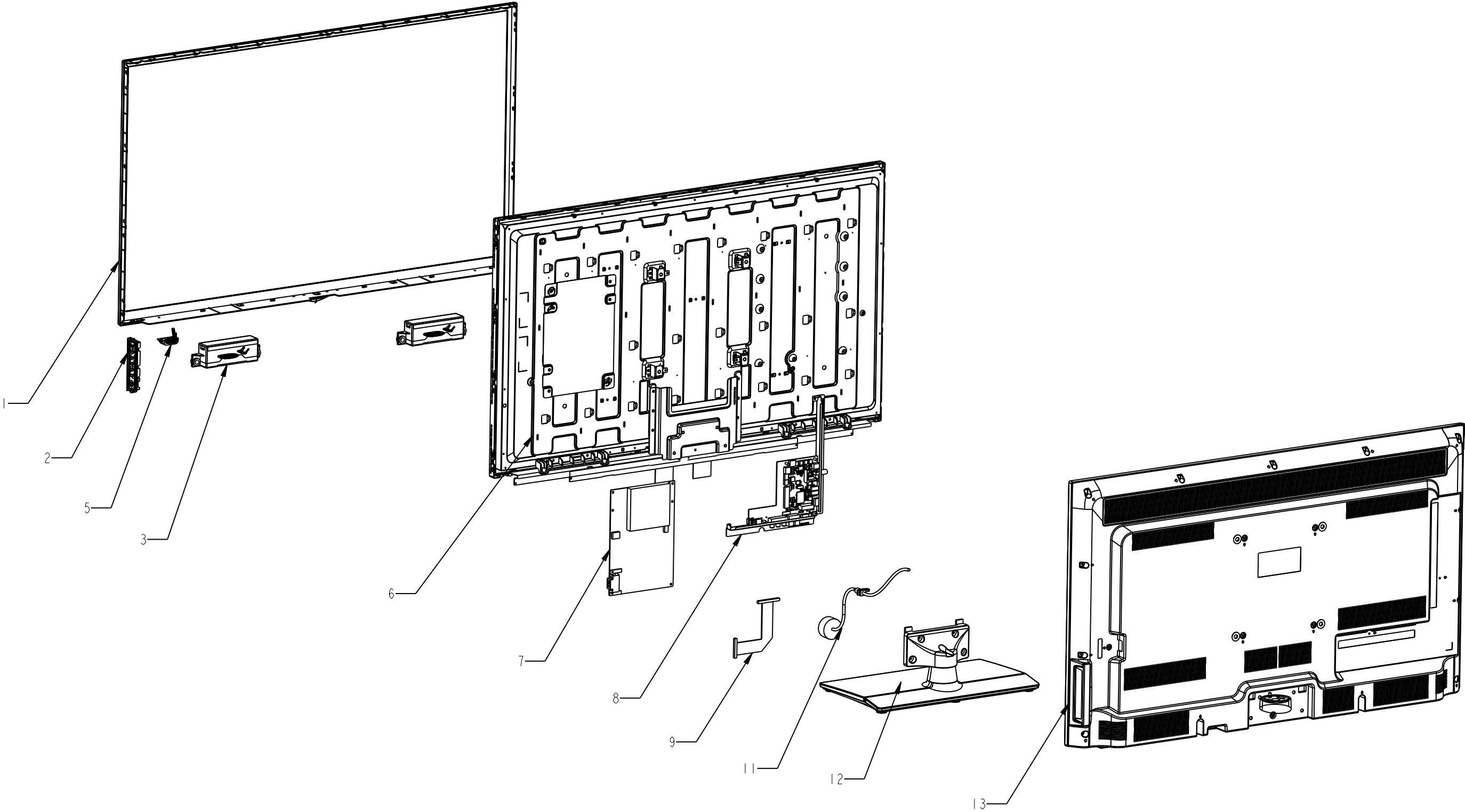
PIN NAME	GPIO Function	Function define
GPIO_0		LOCAL_DIM_EN
GPIO_1		PWR_FAULT#
GPIO_2		LVDS_PWR_EN
GPIO_3		EMMC_RST
GPIO_4		WIFI_EN
GPIO_5		1292 RESET#
GPIO_6		1292_INT
GPIO_7		1292_WAKEUP
GPIO_8		HPDET#
GPIO_9		SYS_EEPROM_WP
ADIN0		SCART_FS_SEL
ADIN1		
ADIN2		ADIN0
ADIN3		ADIN1
ADIN4		MUTE_HP
ADIN5		MEMC_ON/OFF
OPCTRL0		strap[1] AMP_MUTE
OPCTRL1		BL_ON/OFF
OPCTRL2		3D_EN
OPCTRL3		strap[2]
OPCTRL4		strap[3] RST_AMP
OPWM0		PWM2
OPWM1		POWER_LED
OPWM2		BL_DIMMING
OPWM3		LED_DX
OPWM4		
OPWM5		LED2/PHYAD2
OPWM6		LED3/PHYAD3
PACLE		strap[0]

Block Diagram

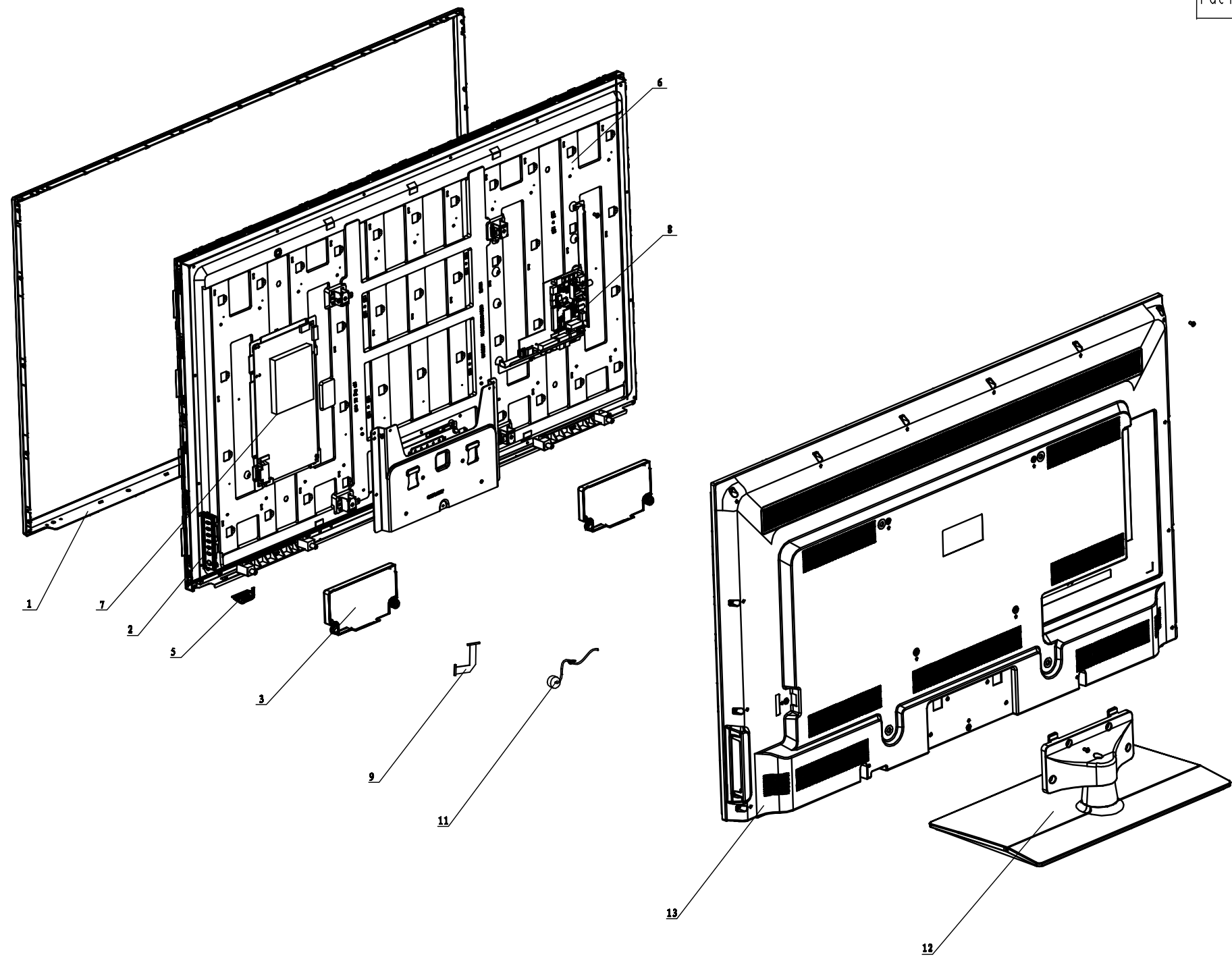




Brand	Hisense
Retail model number	40H5
Version	A
Factory model number	LTDN40K20DWUS



Brand	Hisense
Retail model number	50H5G
Version	A
Factory model number	LTDN50K22DGWUS



Brand	HISENSE
Retail model number	48H05
Version	
Factory model number	LTDN48K20DUS

