C86CA-LGA572D-M

Service Manual V1.0

Document Revision History					
Version	Modification Date	Page NO.	Updated Instructions	Reviser	Confirmed by
1.0	9/19/2020	All	Release Version	Hooke Lin	Yiqingduo

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Safety Instructions

Please read the safety information carefully before installing, maintaining, or disassembling this product.

I. Safety warning

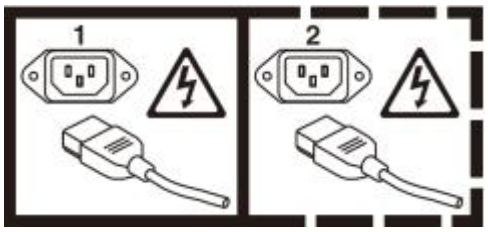
The current of power supply, telephone and communication cable is dangerous and the on/off button, power switch on the device do not cut off the current completely. To avoid the danger of electric shock:

- Be aware that the device may have several power supply cables at the same time. To cut off the power, make sure all power supply cables are disconnected.
- Do not connect or disconnect any cables, install, maintain, or reset the product during thunderstorm.
- Connect all power cables to the right and use the well grounding power supply socket.
- Connect all devices to the proper connector.
- Connect or disconnect cables with one hand is recommended.
- Do not turn on any device when there is a fire, flood, or collapse of a house.
- Please disconnect the power cable, remote communication system, network, modem, and other devices before opening the screen, unless otherwise specified in the installation and configuration process.
- When the product is installed, moved or opened, the step of cable connection or disconnection is provided as below.

To connect cables：	To disconnect cables：
1. Turn off all devices. 2. Connect power cords to devices. 3. Connect signal/ communication cables to devices. 4. Connect the power cord to power supply socket. 5. Turn on devices。	1. Turn off all devices. 2. Unplug power cords from the socket. 3. Disconnect signal /communication cables from connector. 4. Disconnect the power cords from devices

II. Notice

1. When replacing the system battery, please use the same kind of battery.
2. Battery containing lithium, improper operation or handling will cause explode. Please DO NOT：
   - Put the battery into water
   - Heat the battery to more than 100 degrees C (212 degrees F)
   - Repair or disassemble the battery without authorization
3. The AC switch or button mightn't cut off the AC power supply, Please disconnect the AC cable if you need.
4. Do not remove any cover of the module with the danger label attached.

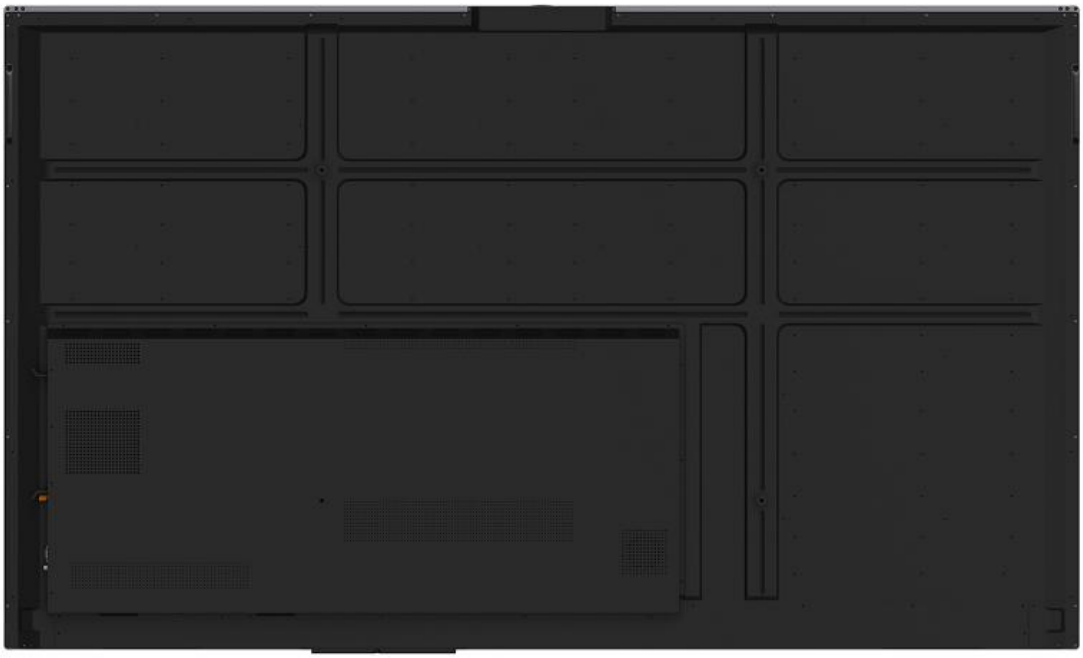


Product Basic Specifications

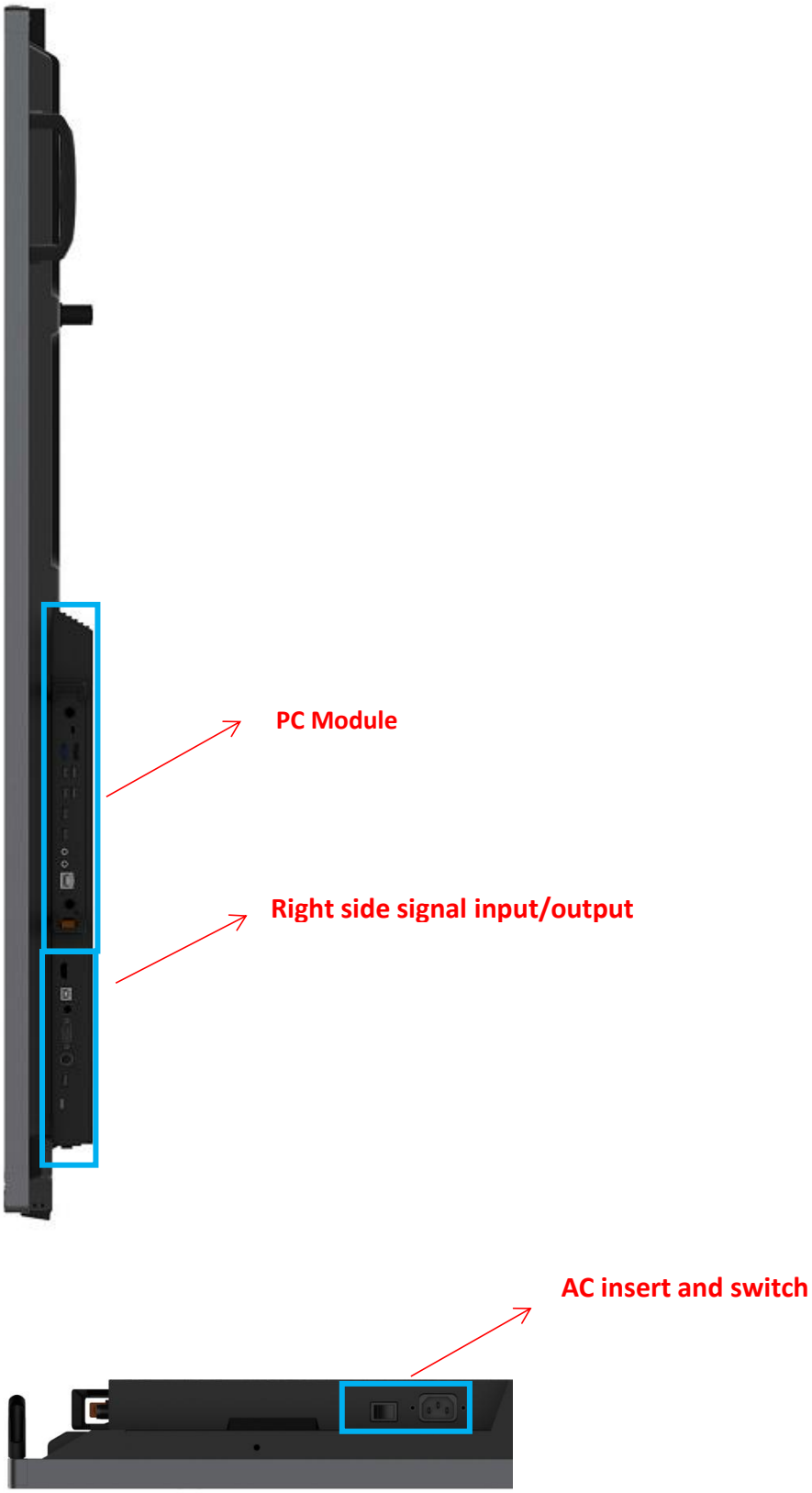
I. Product Appearance

- Front view

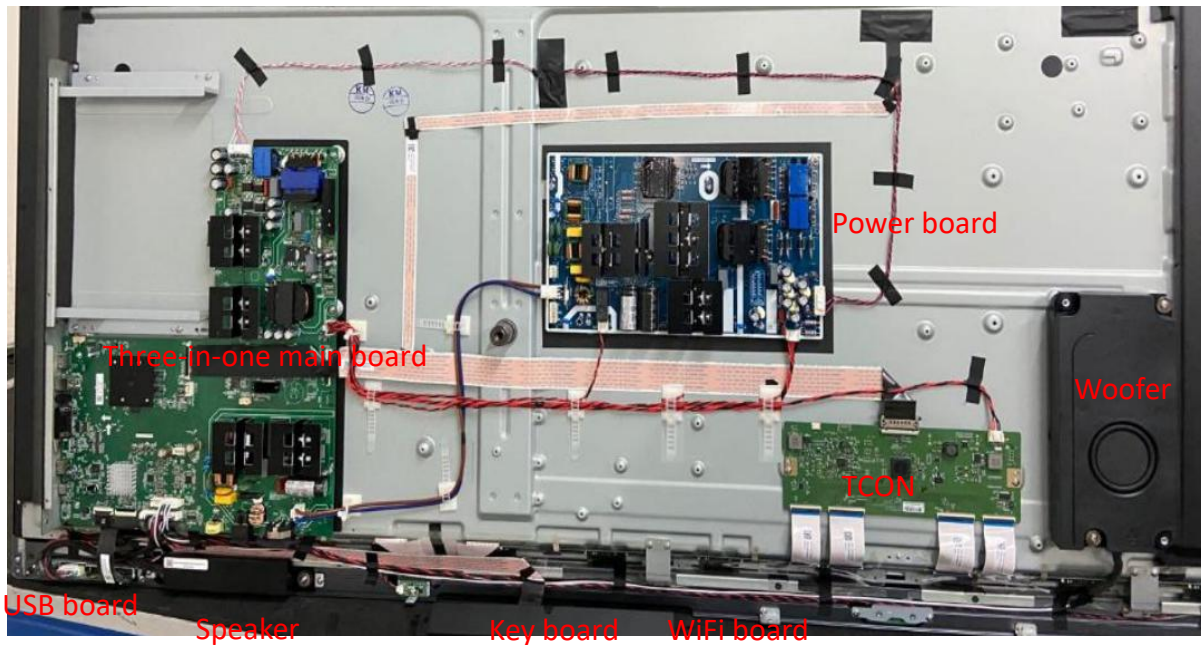
- Back view



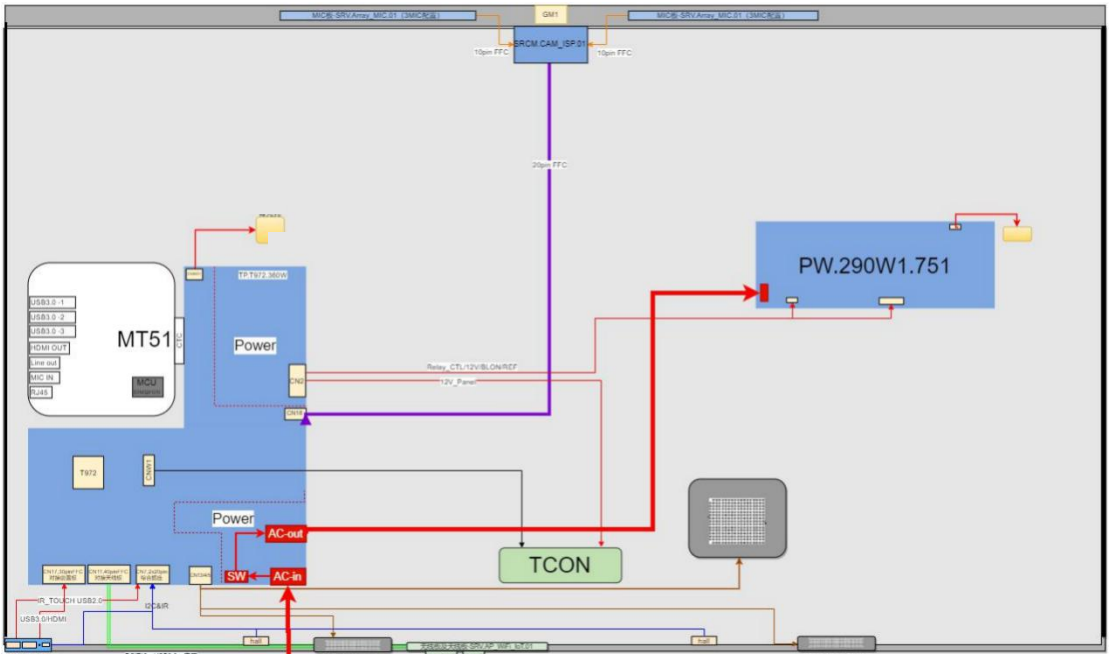
➢ Side view


PC Module
Right side signal input/output
AC insert and switch

➢ Back view of the screen

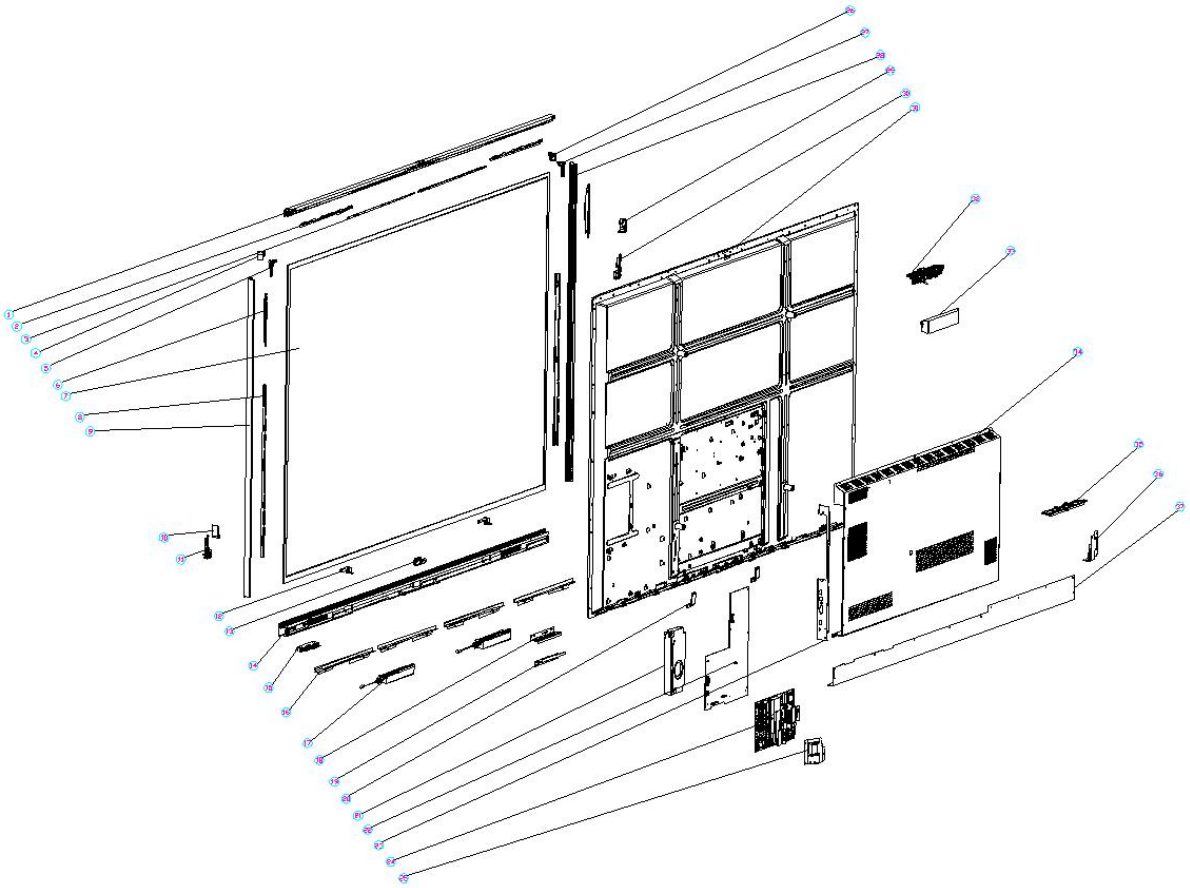


Electrical Diagram



Disassembly guide

I. Exploded Views

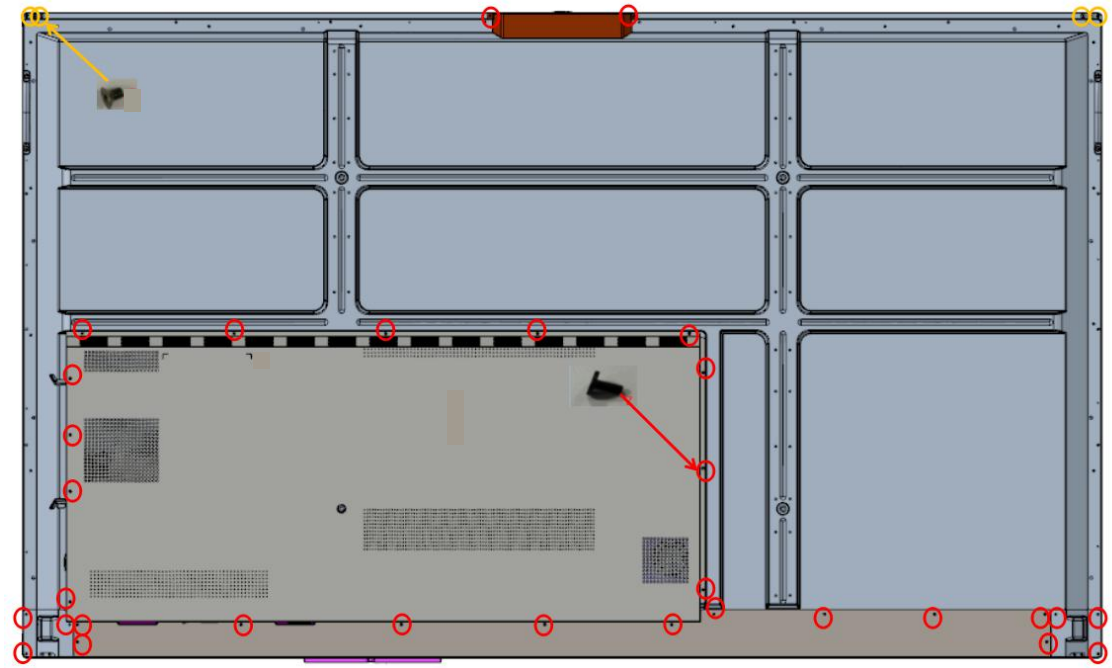


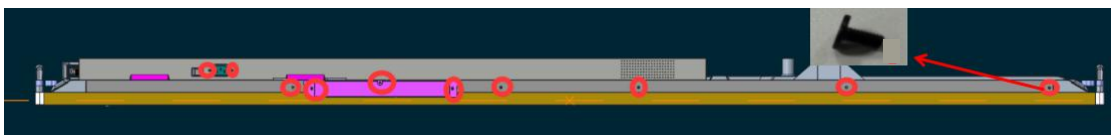
NO.	NAME	QTY	NO.	NAME	QTY
1	Upper bezel	1	19	PC module bracket(bottom)	1
2	AG Glass bracket(Upper)	2	20	Panel pressing block	2
3	AG Glass bracket(Upper middle)	2	21	woofer	1
4	Left external upper corner	1	22	Three-in-one main board	1
5	Left inside upper corner	1	23	Side terminal bracket	1
6	Handle bracket	2	24	Power board	1
7	AG Glass	2	25	Small back cover(Left)	1
8	AG Glass bracket(Left,Right)	1	26	Right external upper corner	1
9	Left bezel	1	27	Right inside bottom corner	4
10	Left external bottom corner	1	28	Right bezel	1
11	Left inside bottom corner	1	29	Right external bottom corner	2

12	Hall device	2	30	Right inside upper corner	1
13	Key board	1	31	Backlight	1
14	Bottom bezel	1	32	Camera & MIC board	1
15	USB board	1	33	Camera & MIC cover	2
16	AG Glass bracket(Bottom)	4	34	Big cover	1
17	Speaker	2	35	WiFi board	1
18	PC module bracket(upper)	1	36	Small back cover(Right)	1
			37	Small back cover(Middle)	1

II. Shell Disassemble

1. Screw Location

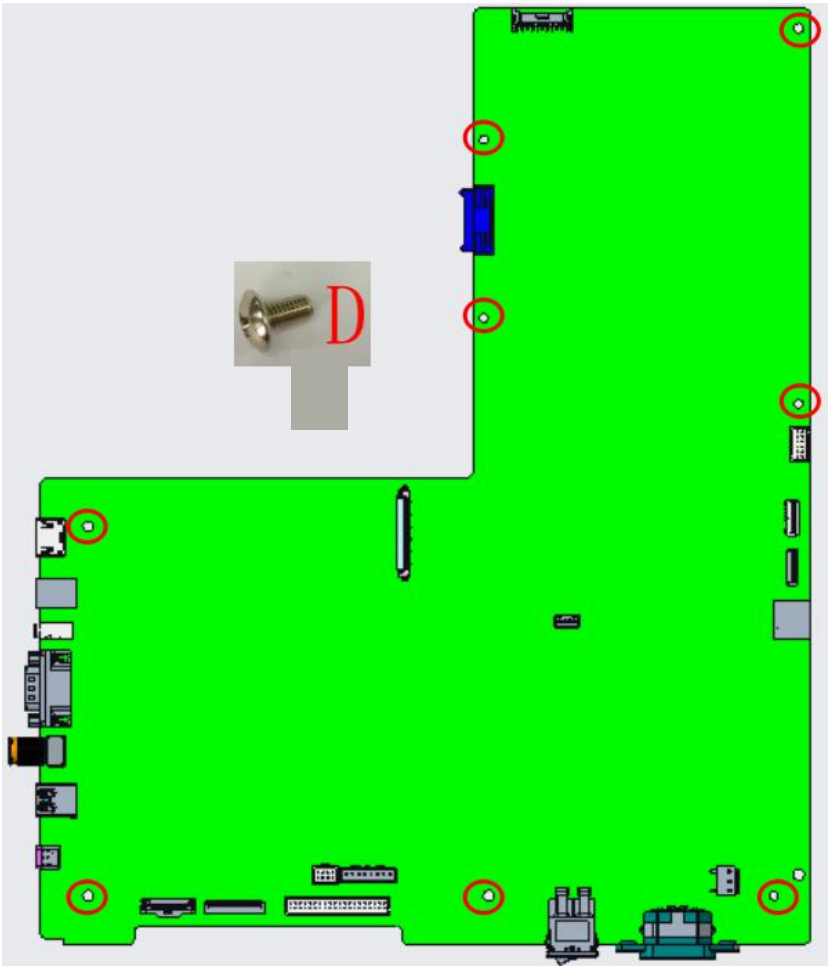




III. Circuit Boards Disassemble

1. Screw Location

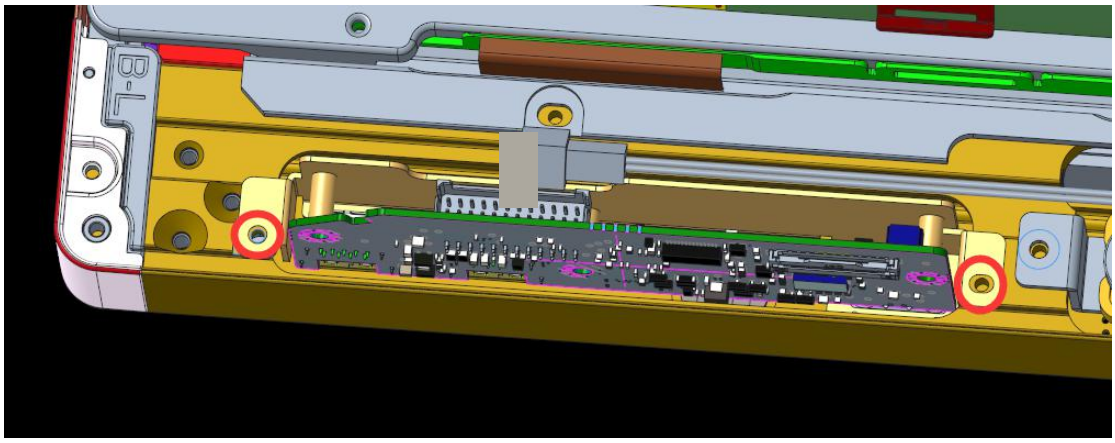
◆ **Three-in-one Main Board**

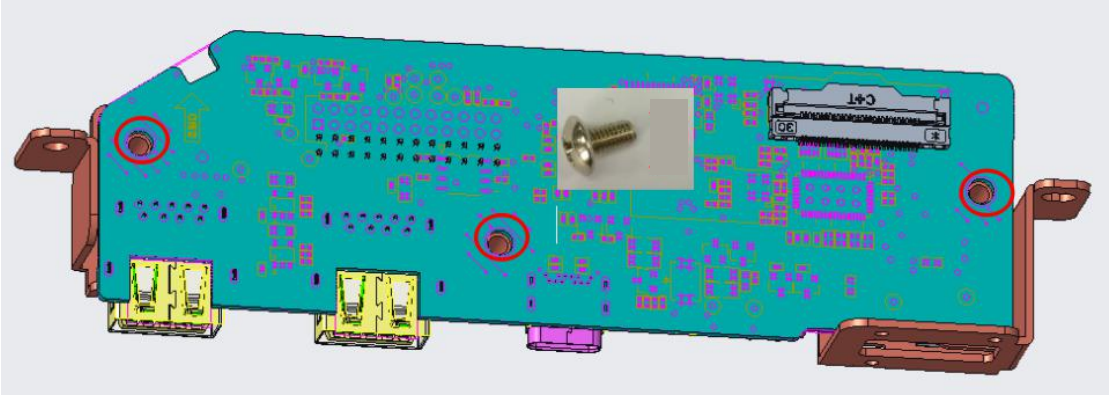


◆ **USB Board**

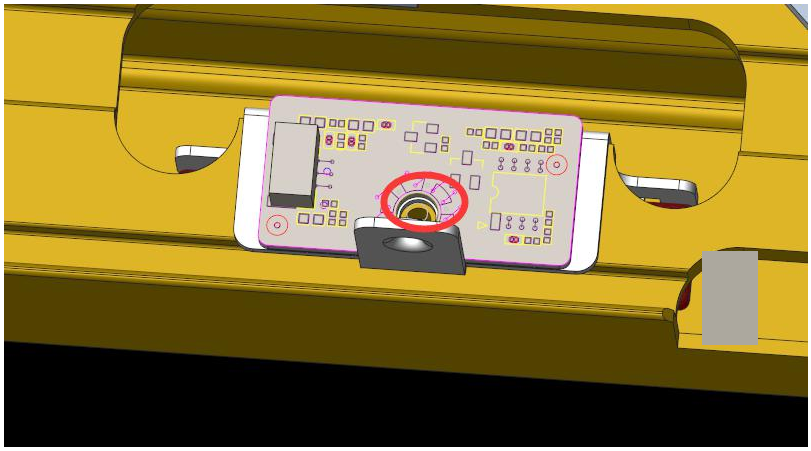
(1) Take off the screws of USB board bracket

(2) Take out the plastic components and USB board

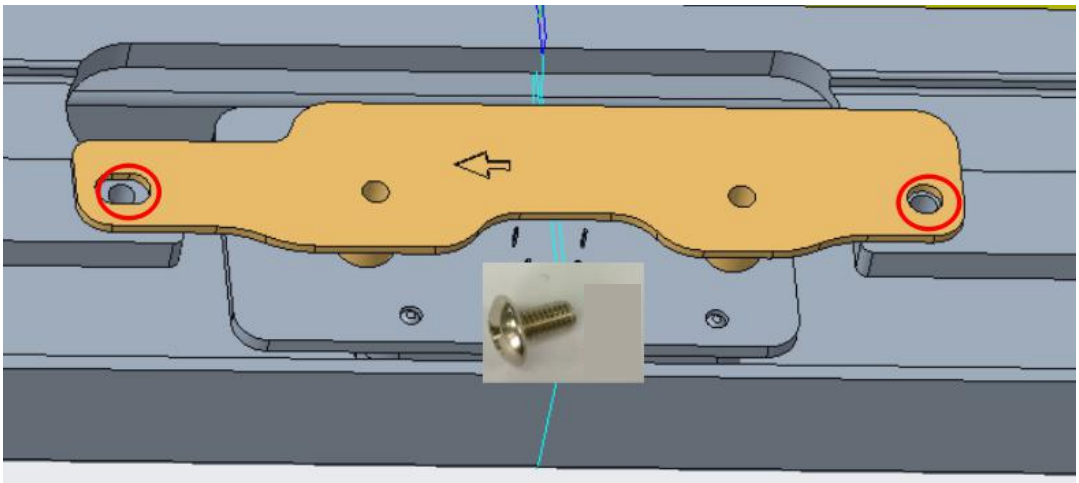


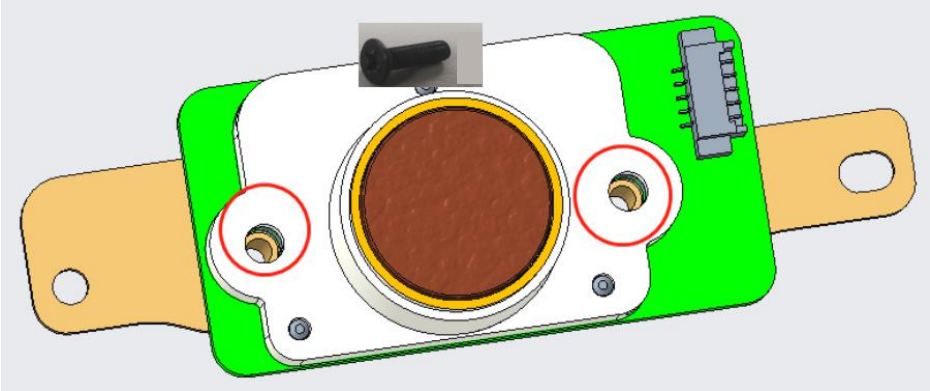


◆ **Hall device**

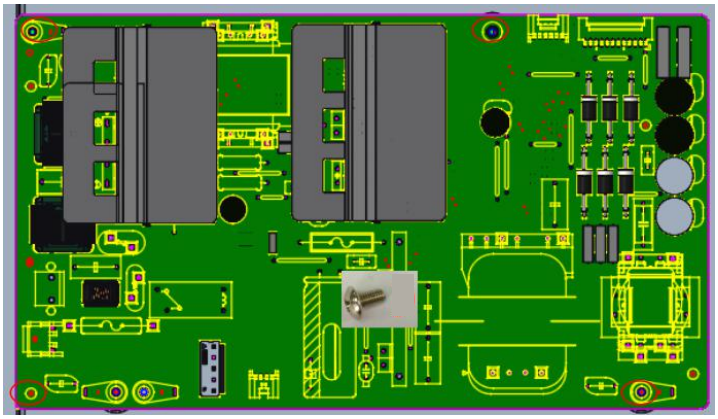


◆ **Key Board**

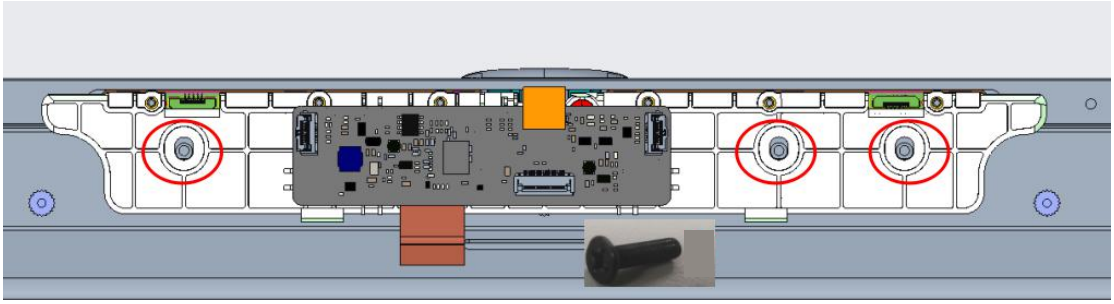


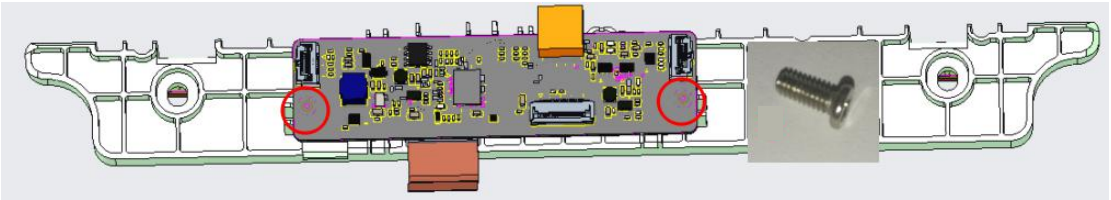


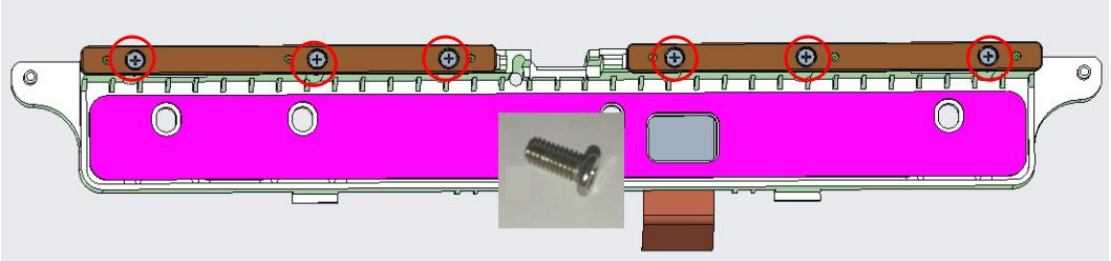
◆ **Power board**



◆ **Camera & MIC Board**







2. Maintenance Description

▩ To replace the circuit boards you need to remove first the rear covers and wires.

▩ To replace the TV main board, you need to remove the lower terminal block, the side terminal block.

▩ Cut off the power before performing replacement, so as to prevent any short circuit resulting from contact of wires.

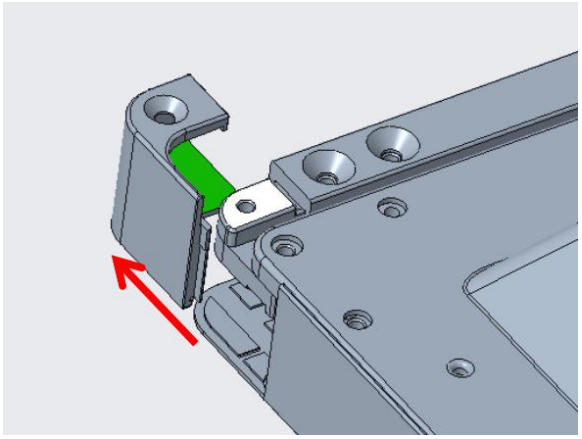
⚠ Please note whether the ports of the cables are properly connected in order to prevent the component from being burnt due to inserting in the wrong ports.

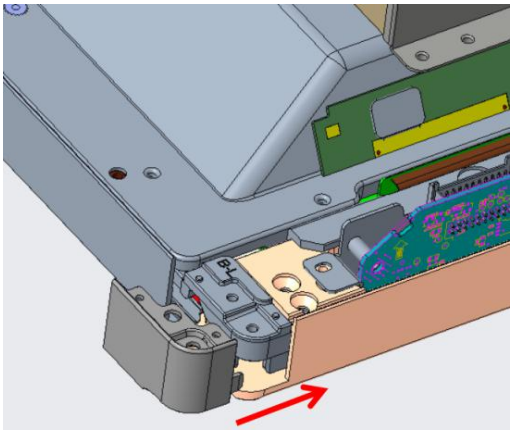
IV. Touch Frame Disassembly

STEP 0: Get machine from the movable bracket and lie it down on the table(Be careful on protection)

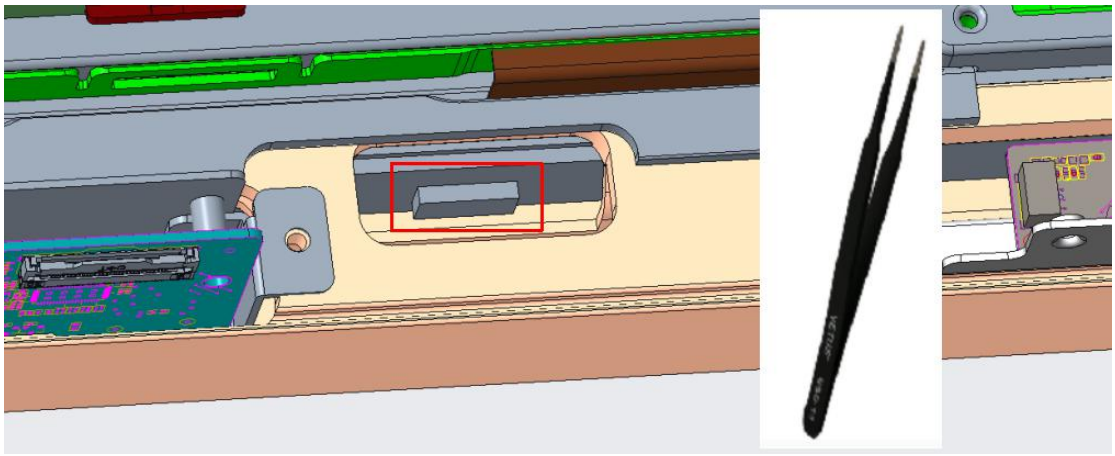
STEP 1: Remove small back board(Left/middle/right)

STEP 2:Remove external corner



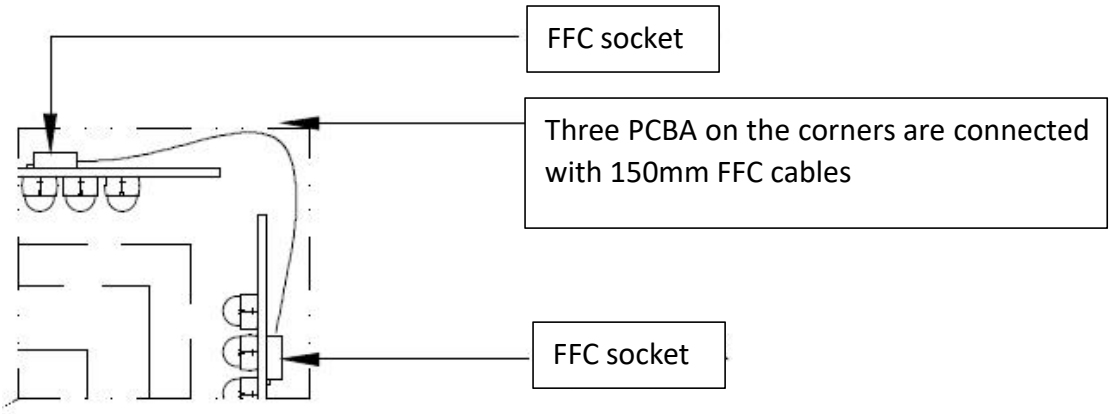


STEP 3: Remove the touch cables between touch frame and Three-in-one main board, use tweezers to press the buckle of touch cable connector and plug out the cable by hands.

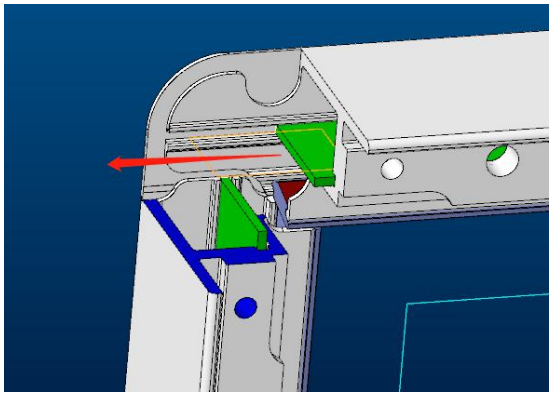


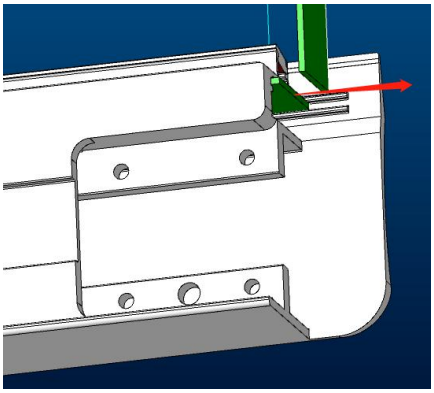
STEP 4: Remove corners

STEP 5: Plug out the FFC cables of below position: Top left、bottom left、bottom right joint point of touch frame



STEP 6: For top and bottom touch frame: Push the touch board from one side and pull out the board by hands from the other side





For left and right touch frame: Push the touch board from bottom side and pull out the board by hands from the top side

STEP 7:Completed

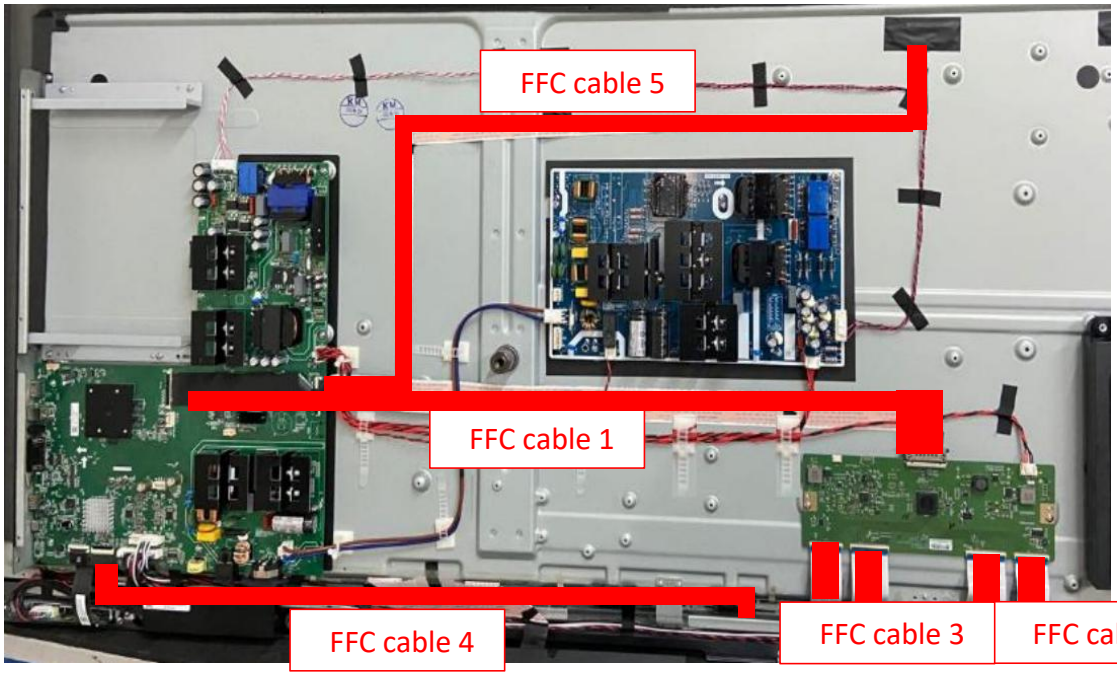
Internal Cables

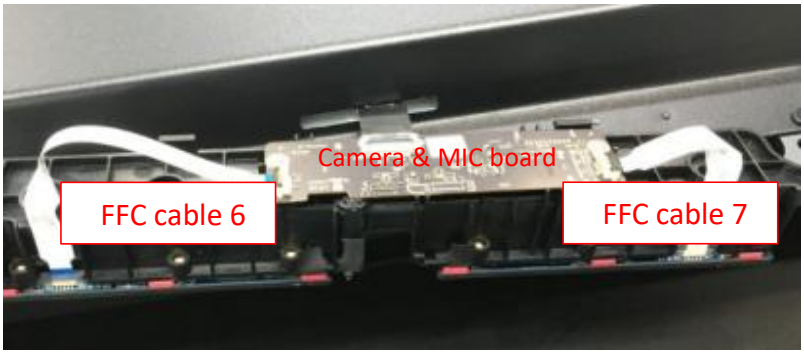
I. Cable Connection Guide

Part Name	Part No	Cable Connection Guide
1.FFC Cable 1	004.050.0004749	Three-in-one main board to TCON board
2.FFC Cable 2	004.050.0004175	TCON board to panel
3.FFC Cable 3	004.050.0004176	TCON board to panel
4.FFC Cable 4	004.050.0050131	Three-in-one main board to WiFi board
5.FFC Cable 5	004.050.0050211	Three-in-one main board to Camera
6.FFC Cable 6	004.050.0004746	Camera to MIC
7.FFC Cable 7	004.050.0004747	Camera to MIC
8.speaker cable	004.050.0050006	Three-in-one main board to speaker
9.USB cable	004.050.0050007	Three-in-one main board to USB board
10.AC cable	004.050.0050227	Three-in-one main board to power board
11.Touch frame FFC cable	004.050.0003249	Three PCBA on the corners are connected with 150mm FFC cables

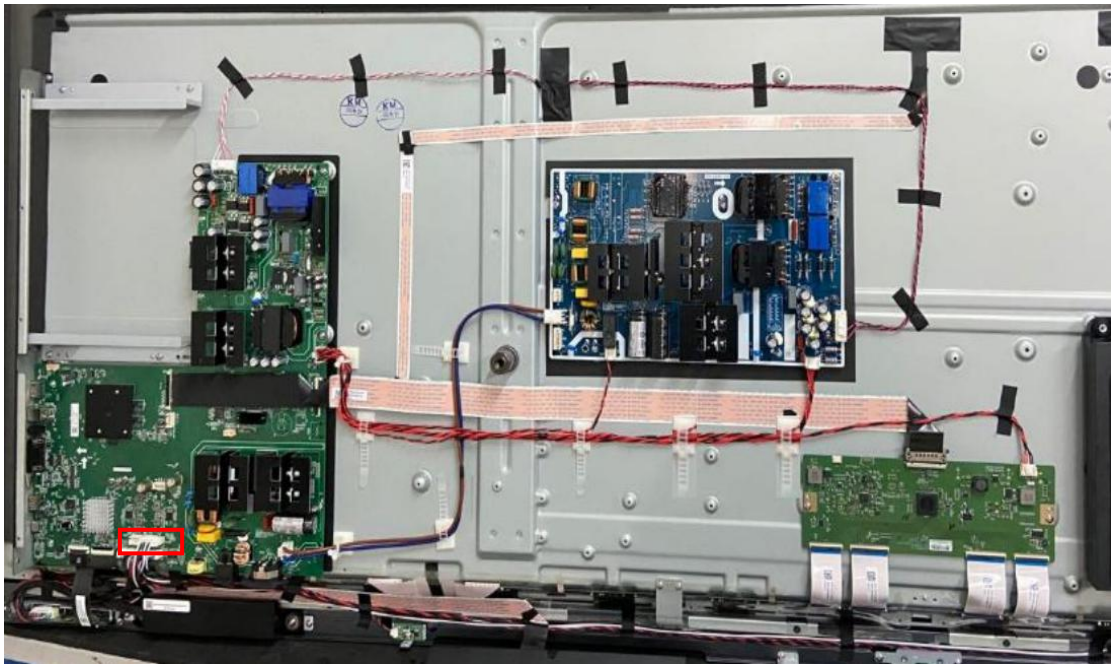
II. Cable Connection Diagram

1~7. FFC Cable 1~FFC cable 7

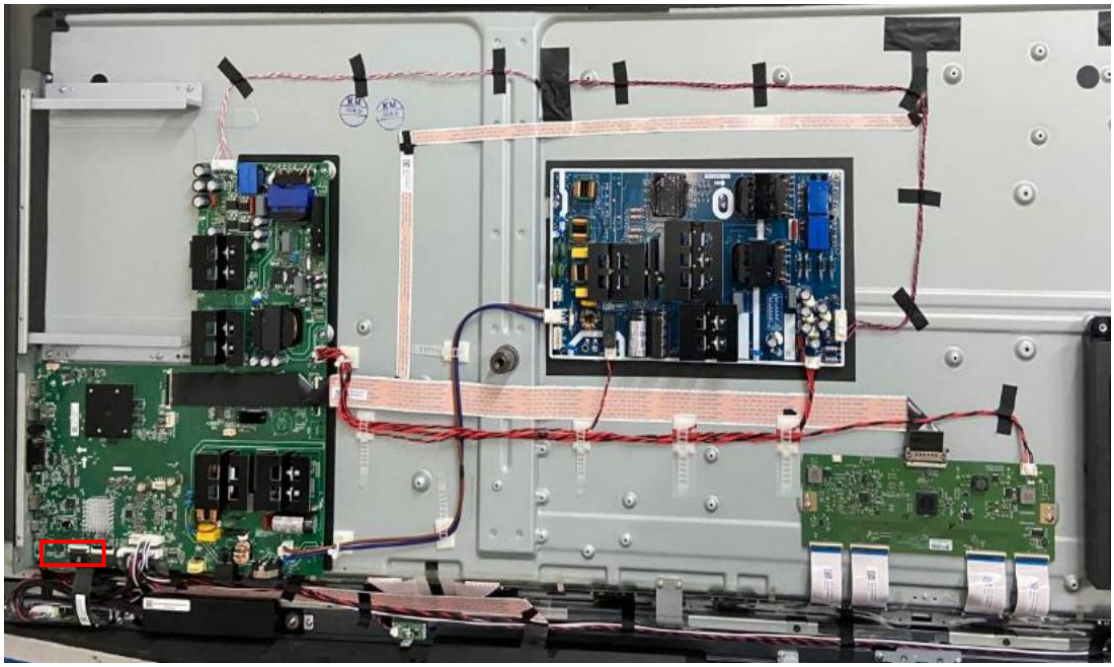




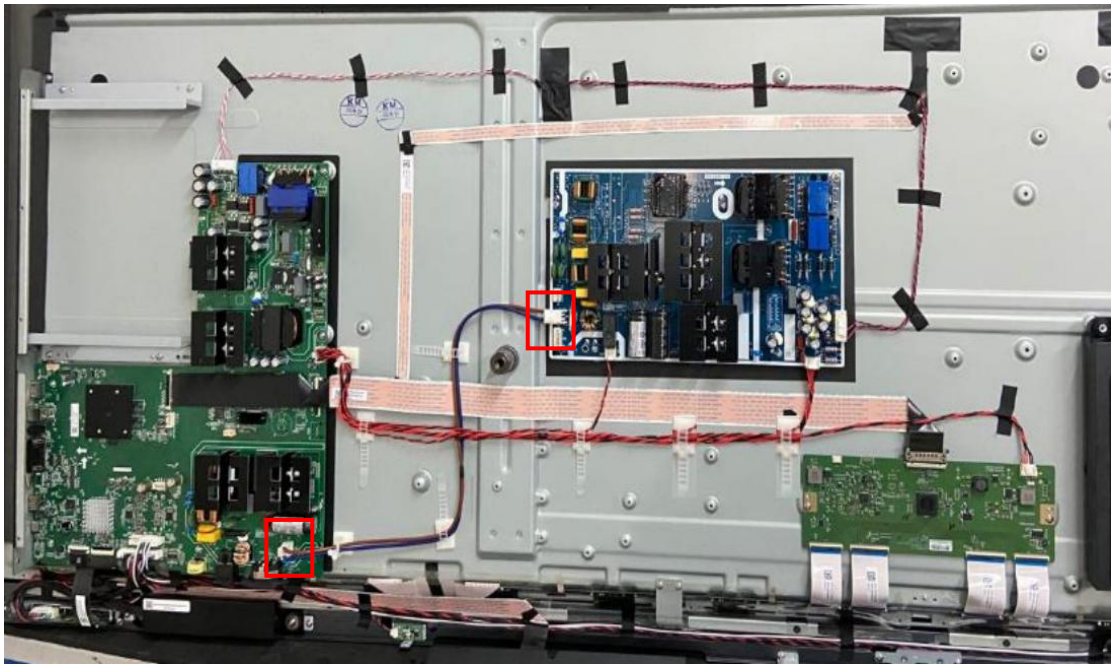
8.Speaker cable



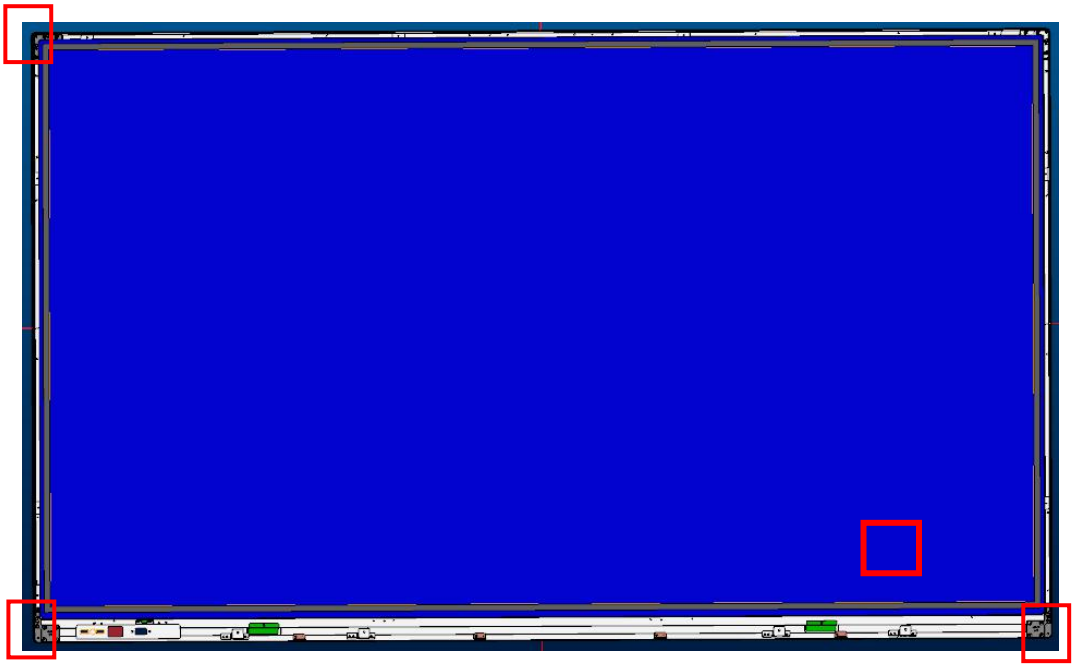
9. USB cable

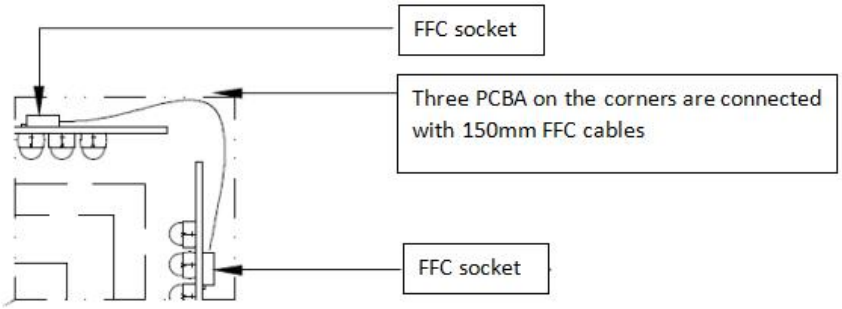


10.AC cable



11.Touch frame FFC cable(Three PCBA on the corners are connected with 150mm FFC cables)



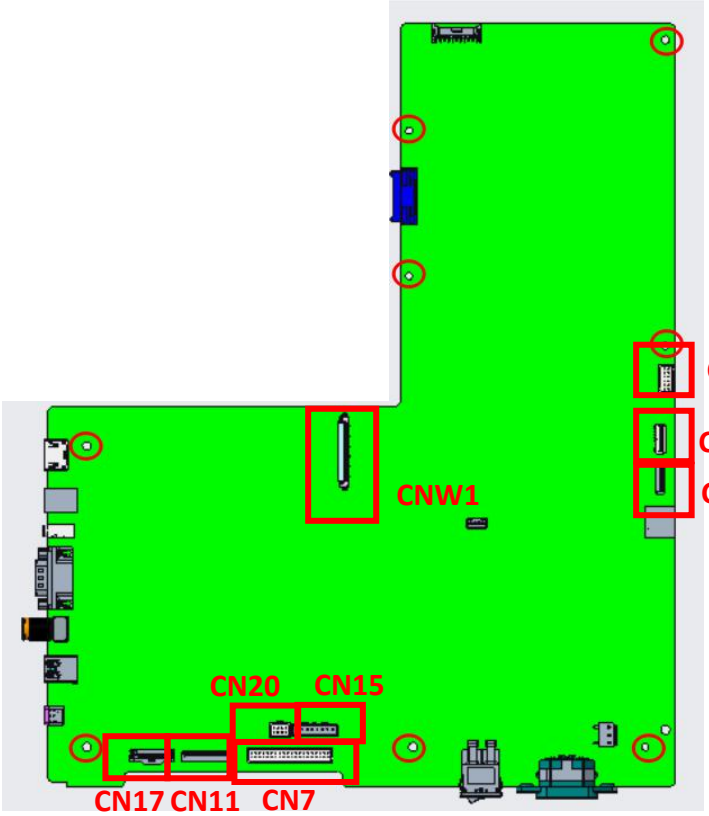


Key Parts List (For reference only)

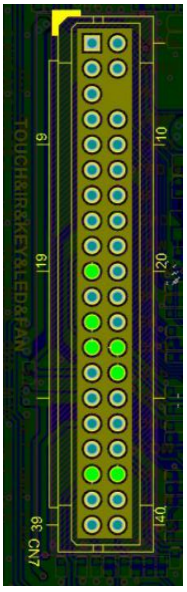
Part No	Component Name	Description	Quantity
004.034.0001435	86” TCON	TCON-LC860EQY-FJA5	1
004.064.0050116	Touch Frame	X86G06	1
004.057.0050600	Power board	PW.290W1.751E	1
004.057.0050544	Three-in-one Main Board	TP.T972.360WD	1
004.057.0001000	Key board	SRC.KEYUSB.02C	1
004.057.0050149	WIFI board	SRK.PC120P.01A	1
004.057.0001078	Camera board	SRCM.CAM_ISP.01D	1
004.028.0000591	Woofer	6ohm,10W	1
004.057.0050171	MIC board	SRV.Array_MIC.01C	1
004.057.0050547	USB board	SRC.KEYUSB.02C	1
004.057.0000999	Hall device	SRC.HALL.01C	1

Principle of Key Components

I. Three-in one Main Board (TP.T972.360W)



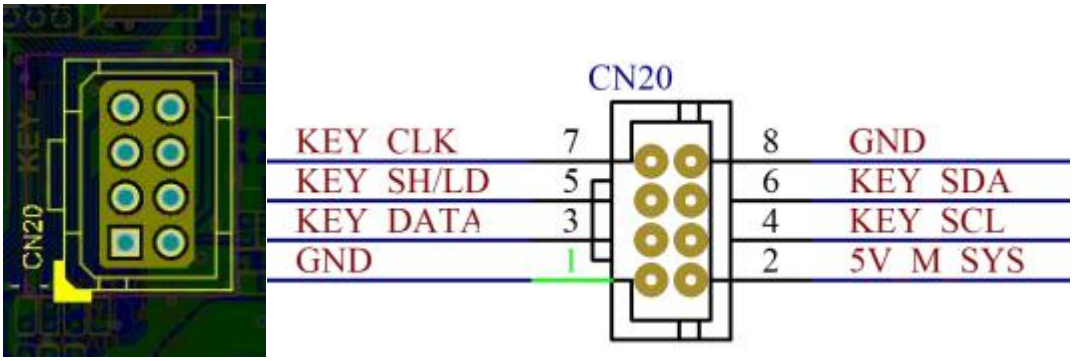
1、CN7：TOUCH&IR&KEY&LED&FAN



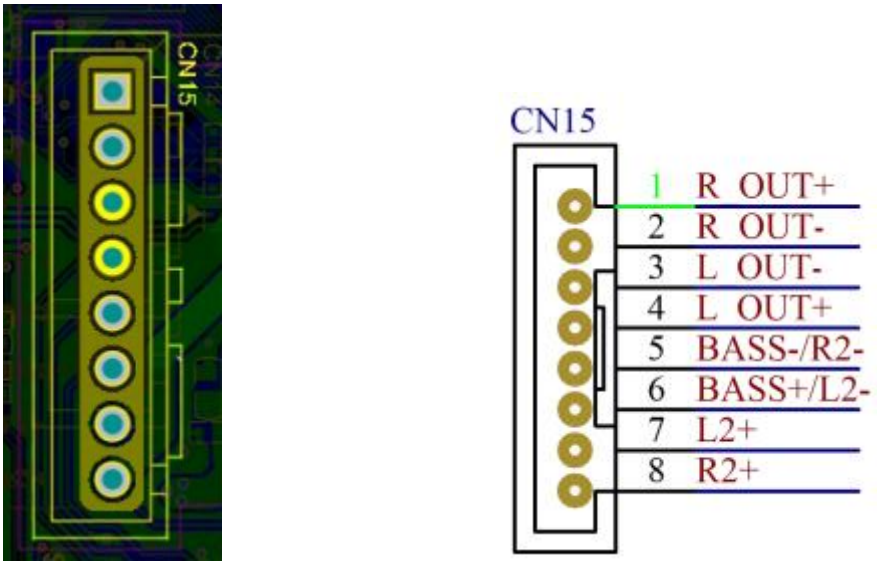
CN7

FAN_G	1	2	FAN_PWM
CTL_GPIO1	3	4	HIS_SCL
HIS_SDA	5		
GND	7	8	TC2_OCP
Light_SDA	9	10	Light_SCL
LED_R	11	12	LED_G/B
KEYIN	13	14	IR
GND	15	16	GND
INF_DP	17	18	INF_DM
5V_INFUSB	19	20	5V_INFUSB
5V_INFUSB	21	22	5V_INFUSB
GND	23	24	HUB_EN
GND	25	26	GND
5V_STB	27	28	INF_OCP
5V_M_SYS	29	30	5V_M_SYS
TOUCH5V	31	32	GND
IR_TOU_DP	33	34	IR_TOU_DM
GND	35	36	GND
TC2_HUB2_DP	37	38	TC2_HUB2_DM
HALL_ADC1	39	40	HALL_ADC2

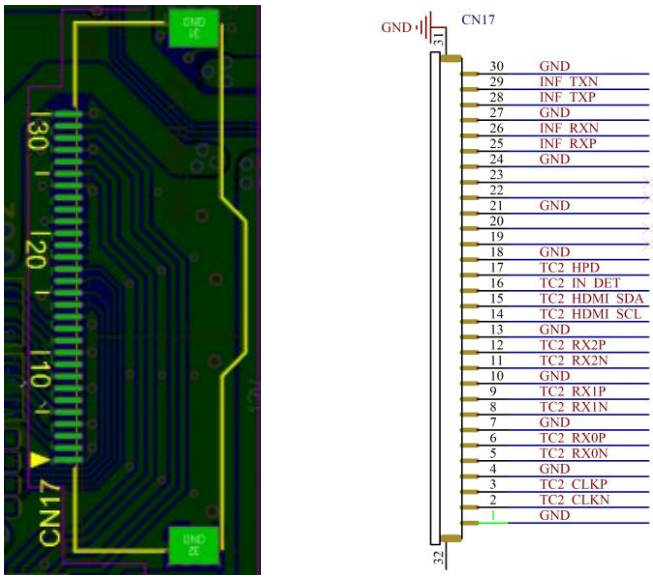
2、CN20：KEY



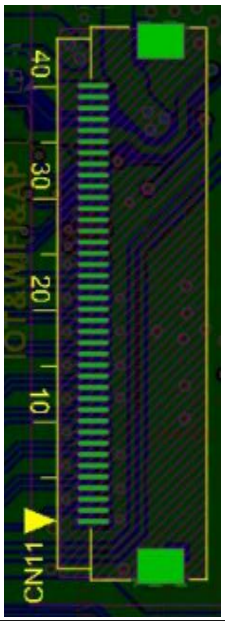
3、CN15：Speaker

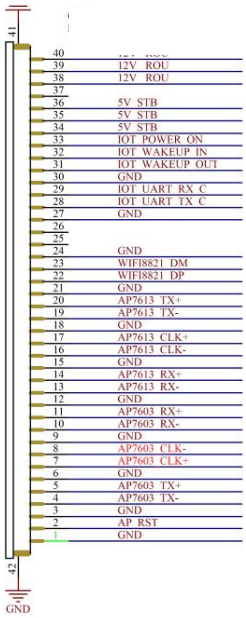


4、CN17：TC2

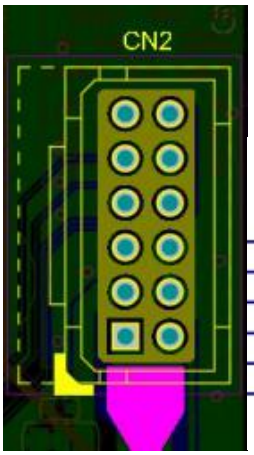


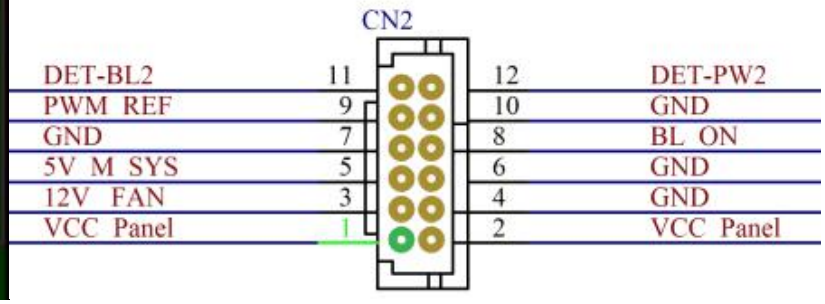
5、CN10：UART



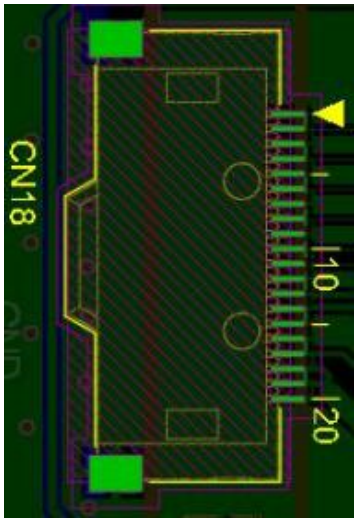


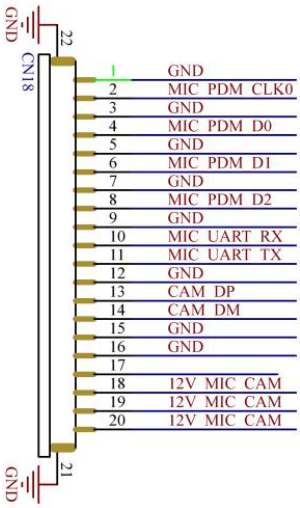
6、CN2：INVERTER&FAN&PANEL



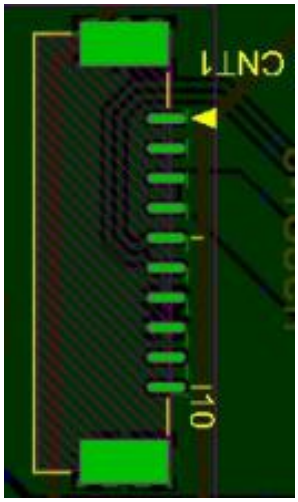


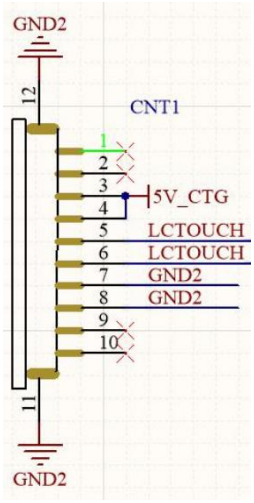
7、CN18: E-CAMMER



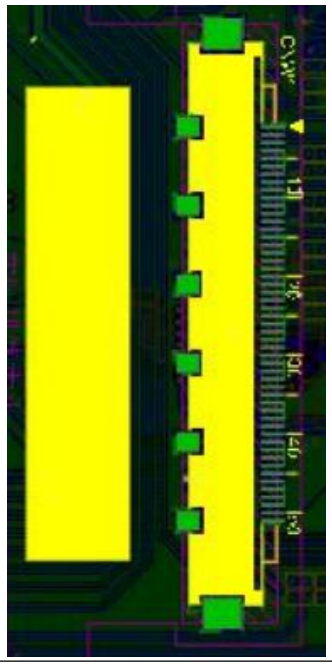


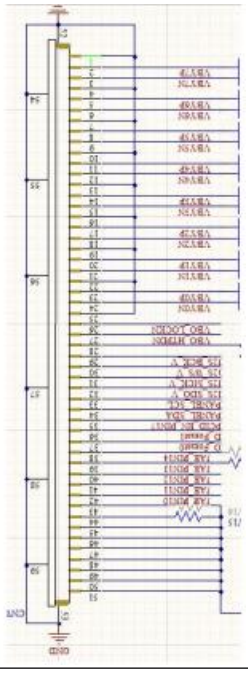
8、CNT1：C-TOUCH



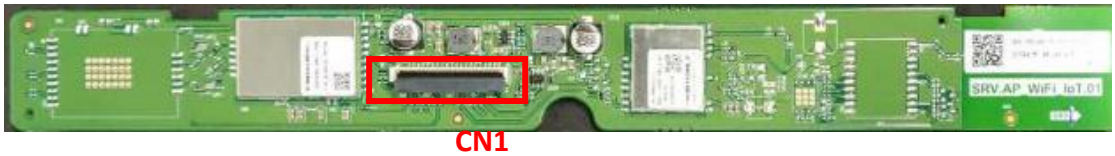


9、CNW1：VBYONE



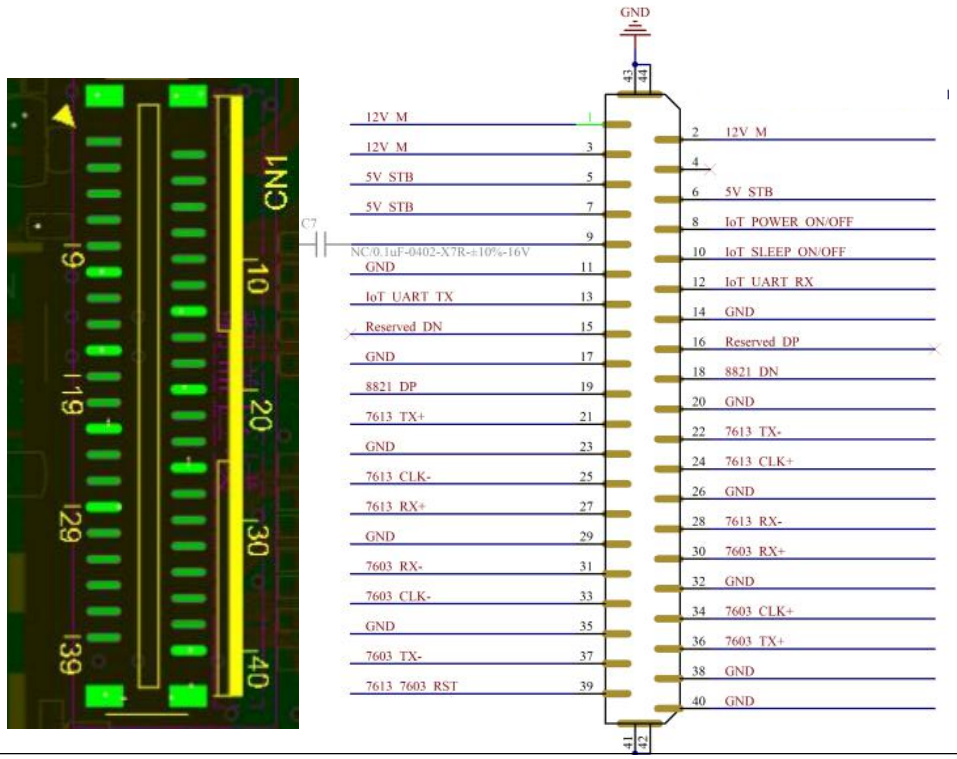


II. Wifi Board (SRV.AP_WiFi_IoT.01)



CN1

1. CON1 (AC IN)

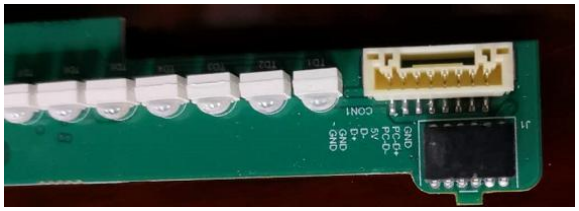


III. Touch Frame(12FFC-PH0)

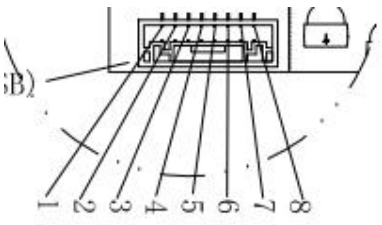
1. Top view of touch frame main board

2. Back view of touch frame main board

3. Touch Cable Connecter of Touch frame main board (just for reference)



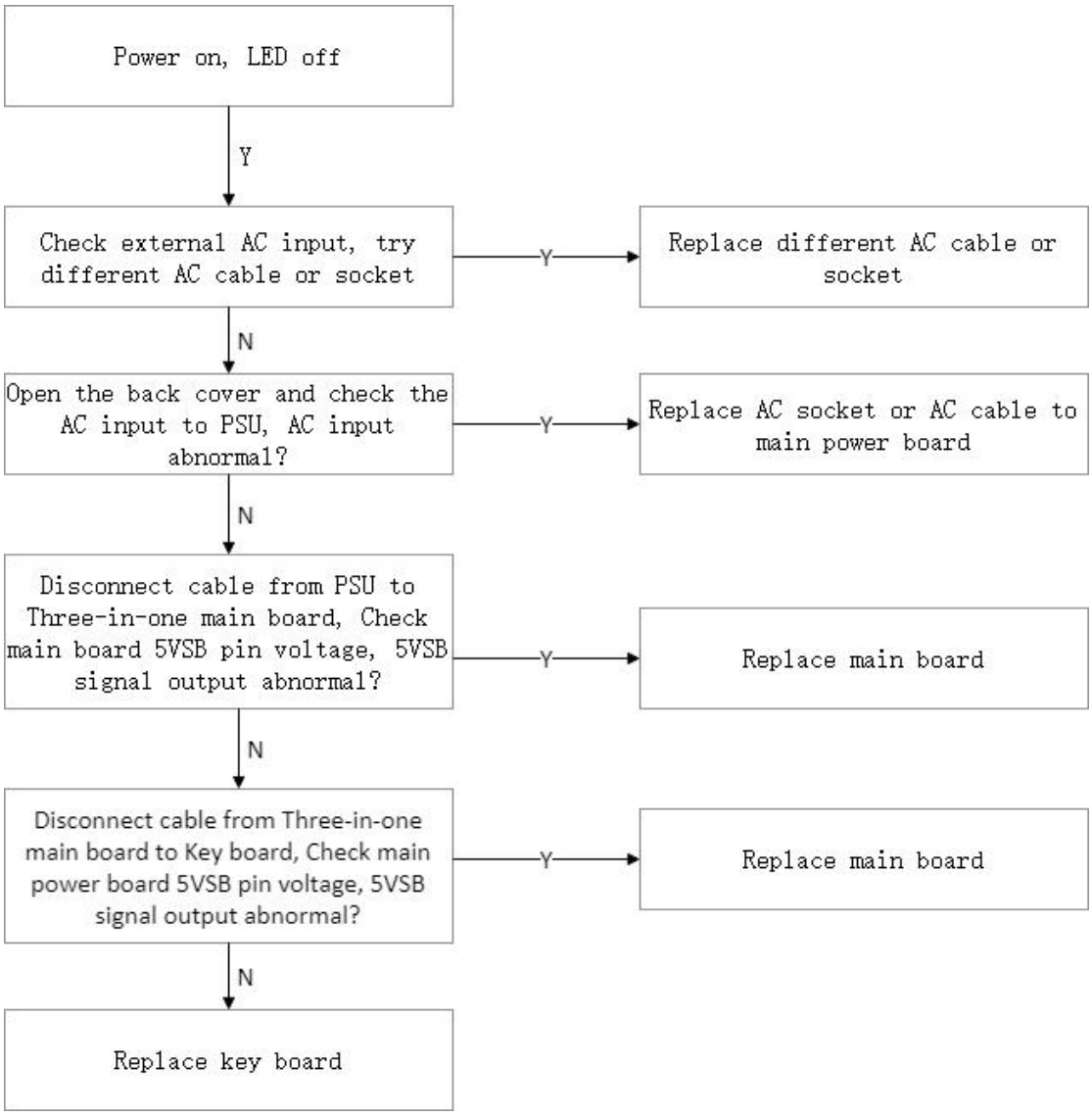
4. Touch Frame Connector Pin Definition

Pin	USB (connect boards)	Description (connect PC module)	
1 PGND		√	
2 D+		√	

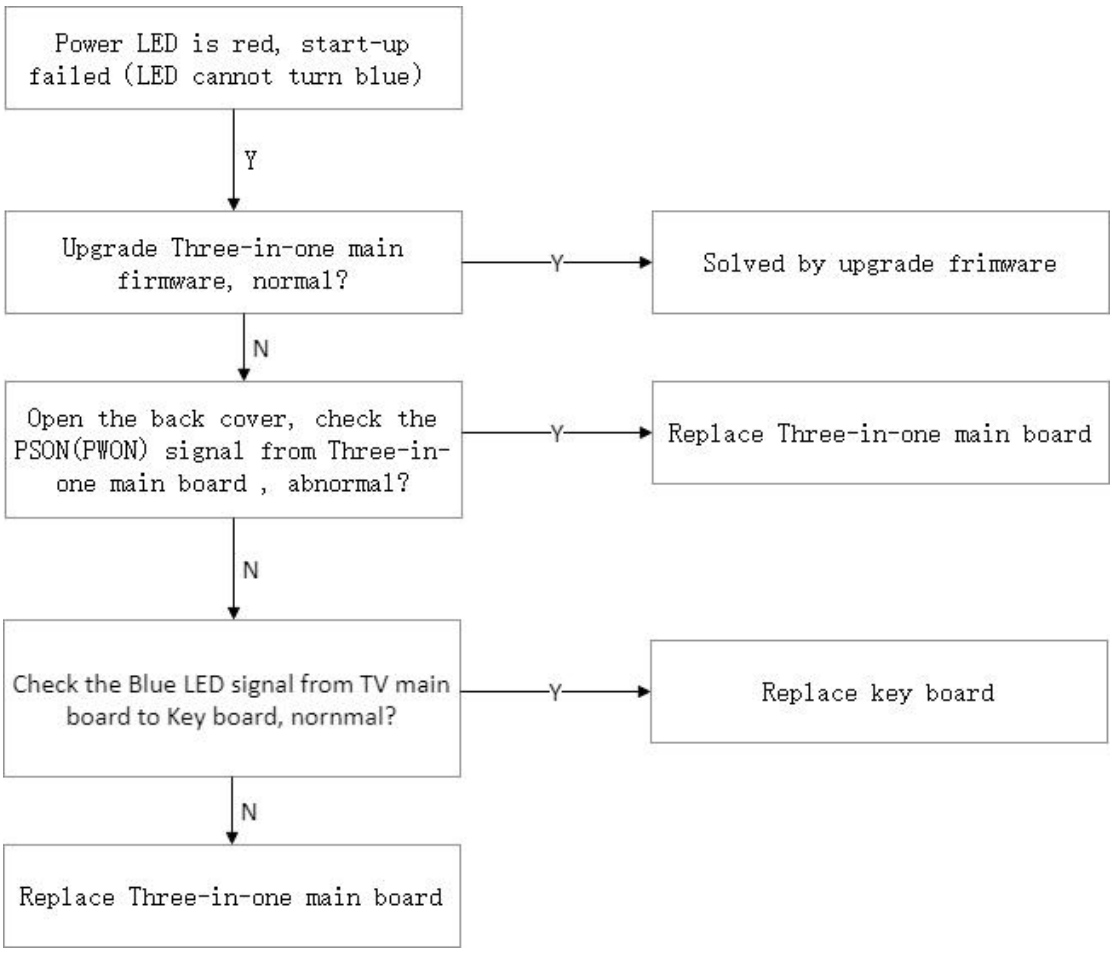
3 D-		√	
4 VCC	√		
5 D-	√		
6 D+	√		
7 GND	√		
8 PGND	√		

Troubleshoot steps

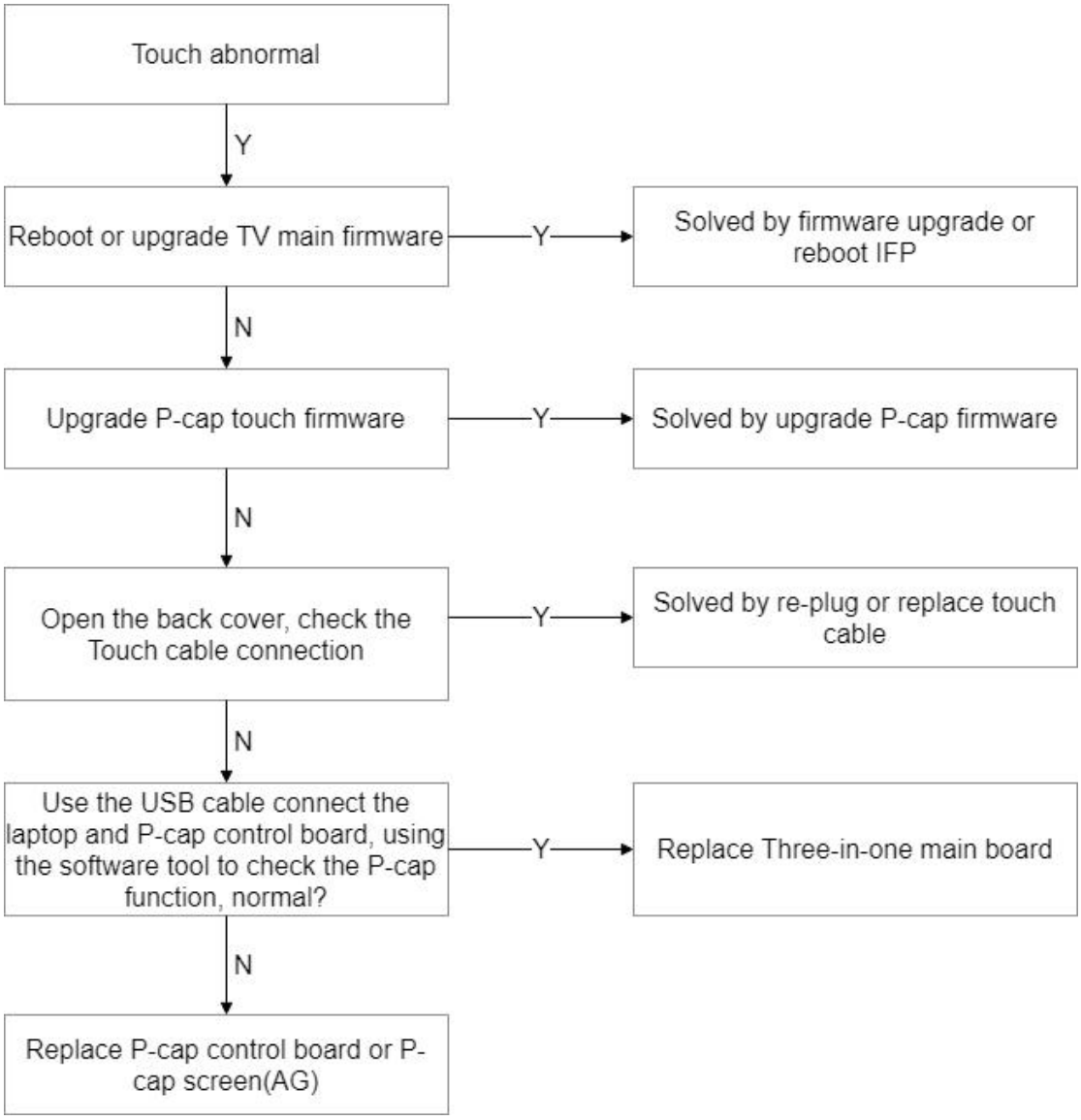
I. LED does not turn red.



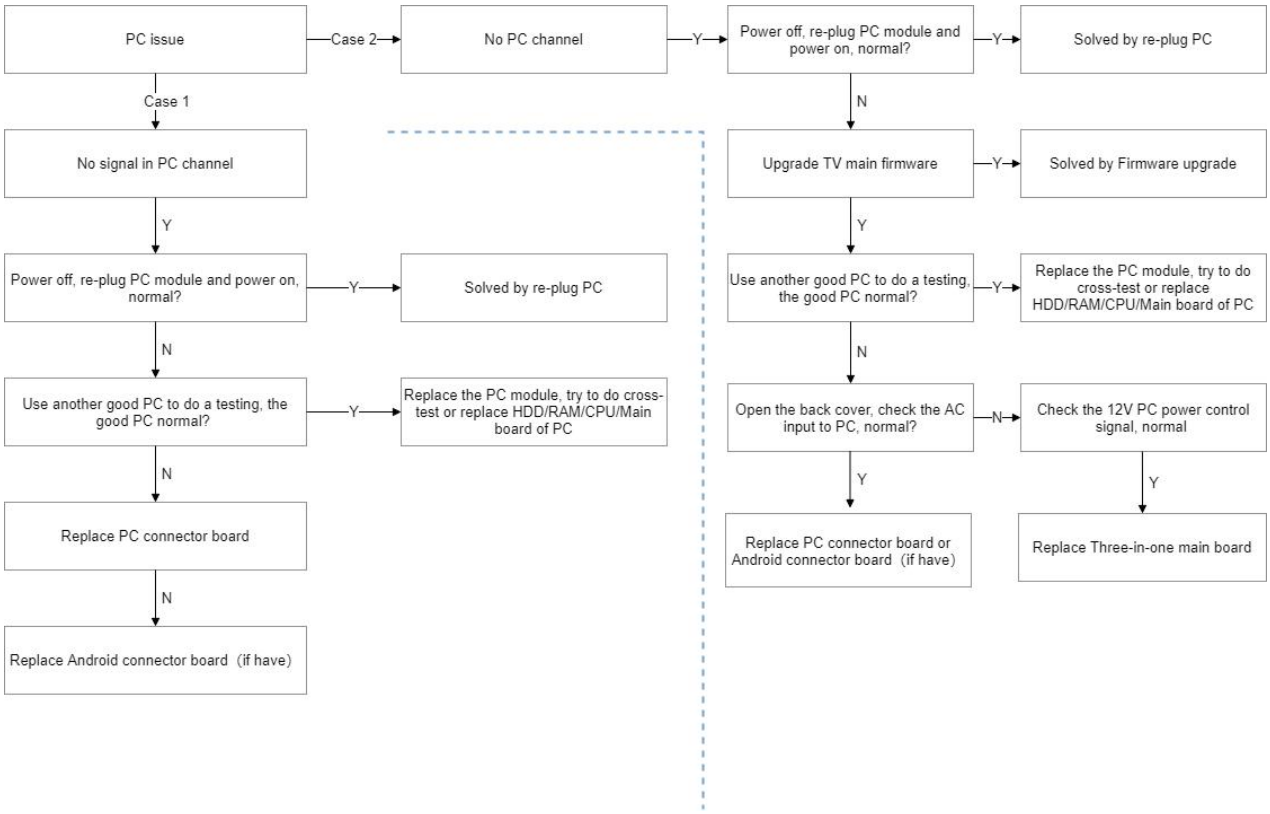
II. LED does not turn blue.



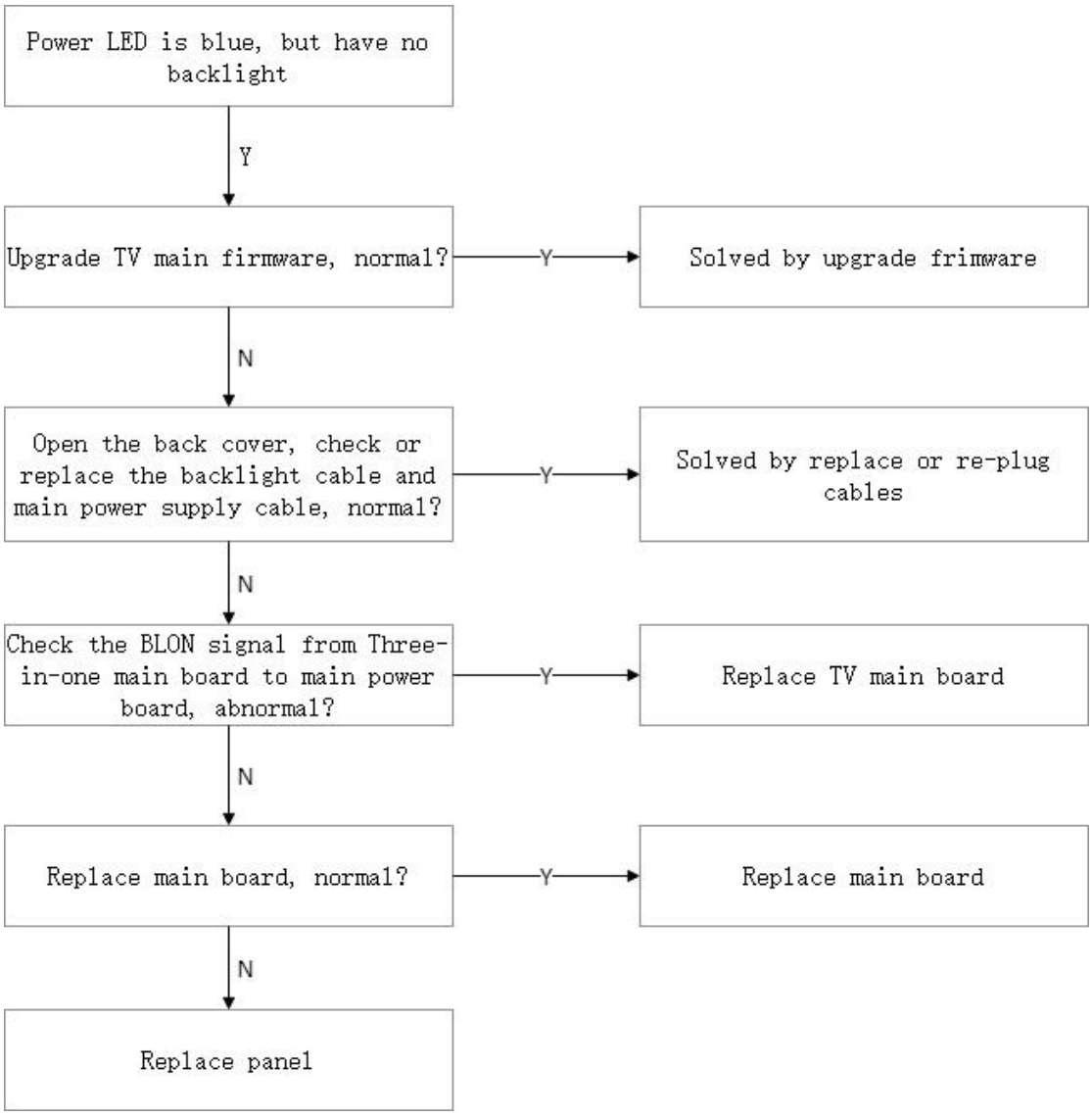
III. Touch issue



IV. PC issue


PC issue
Case 2
No PC channel
Y
Power off, re-plug PC module and power on, normal?
Y
Solved by re-plug PC
Case 1
N
No signal in PC channel
Upgrade TV main firmware
Y
Solved by Firmware upgrade
Y
Power off, re-plug PC module and power on, normal?
Y
Solved by re-plug PC
Use another good PC to do a testing, the good PC normal?
Y
Replace the PC module, try to do cross-test or replace HDD/RAM/CPU/Main board of PC
N
Use another good PC to do a testing, the good PC normal?
Y
Replace the PC module, try to do cross-test or replace HDD/RAM/CPU/Main board of PC
N
Open the back cover, check the AC input to PC, normal?
N
Check the 12V PC power control signal, normal
N
Replace PC connector board
Y
Y
Replace PC connector board or Android connector board (if have)
Replace Three-in-one main board
N
Replace Android connector board (if have)

V. LED turn blue but no backlight



Firmware update procedure

I. Upgrade All (TV & MCU)

1. Debug Menu Upgrade Procedure (recommend)

Tools:

(1) USB disk (Format FAT32）*1PCS.

(2) Remote controller *1PCS.

Procedure:

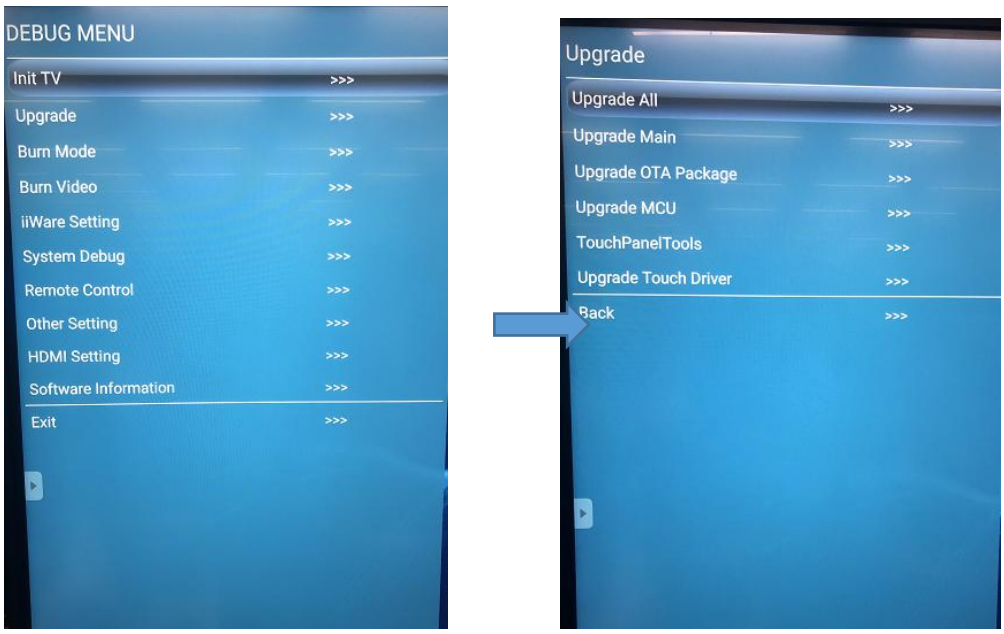
(1) Format the USB disk as FAT32.

(2) Extract upgrade file to the U disk (FAT32) in the root directory. You will get "upgrade_972" folder.(contains allupgrade_v972.bin、MCU.bin)

(3) Insert USB disk into the USB port of the TV board.

(4) Turn on the panel. Press “INPUT 1379” with remote controller, and then the debug menu will pop up. Select

Upgrade-> Upgrade All, press “Enter”, and confirm.



(4) The power LED will keep twinkle in red and green during upgrade process. After finished, the panel will reboot and enter Android channel. It will take 4 minutes to complete the upgrade procedure.

Note: If MCU upgrade is failure with tips “Do not power off, please re-upgrade MCU”, press “Back” on the remote controller to exit the process. Upgrade MCU separately by Debug Menu – Upgrade – Upgrade MCU.

2. Power Key Upgrade Procedure

Tools:

USB disk (SanDisk, Format FAT32）*1PCS.

Procedure

(1) Format the U disk as FAT32.

(2) Extract upgrade file to the U disk (FAT32) in the root directory. You will get "upgrade_972" folder. Insert

USB disk into the USB2.0 port of the TV board.

(3) Power on the panel. Press the **POWER** key and hold it until the power LED twinkles in red and blue.

The TV will upgrade first. When finished, the screen will reboot and upgrade MCU automatically. It will take 4 minutes to complete the upgrade procedure.

II. Touch frame Update

1. Internal android

Tools:

(1) USB disk (Format FAT32）*1PCS.

(2) Remote controller *1PCS.

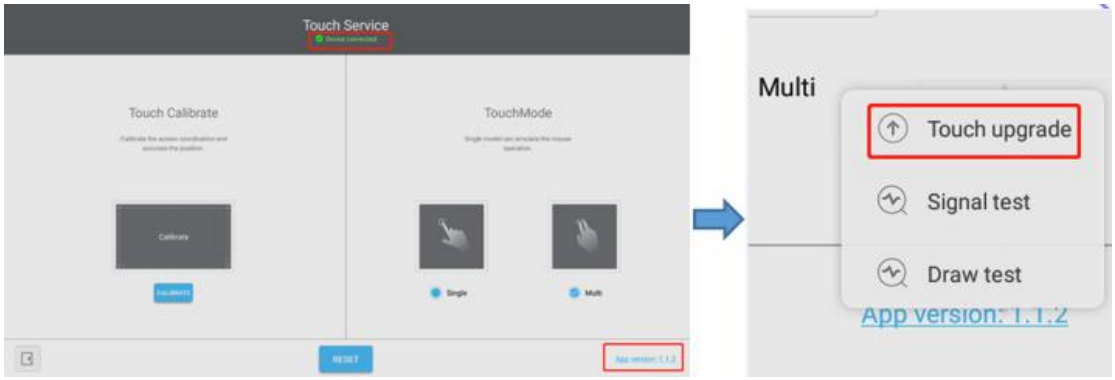
Procedure:

(1) Format the USB disk as FAT32.

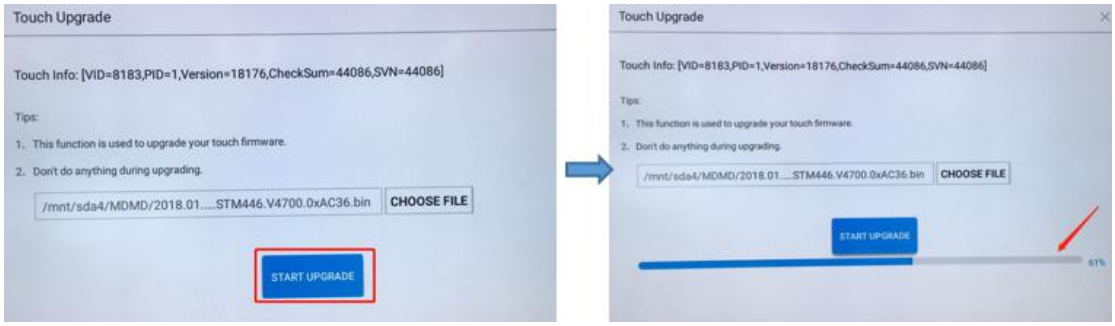
(2) Extract upgrade file to the U disk (FAT32) in the root directory. You will get a “.bin” touch file. Insert USB disk into the USB port of the TV board.

(3) Turn on the panel. Press “INPUT 1379” with remote controller, and then the debug menu will pop up. Select

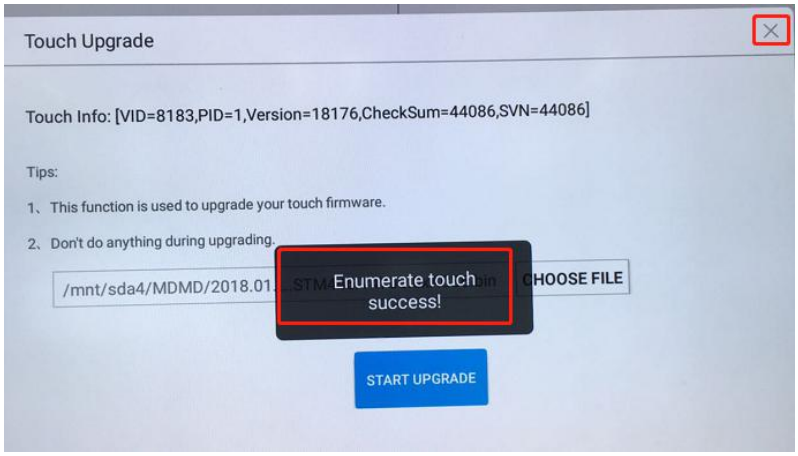
Upgrade-> TouchPanelTools, press “Enter”, long press the “App version”

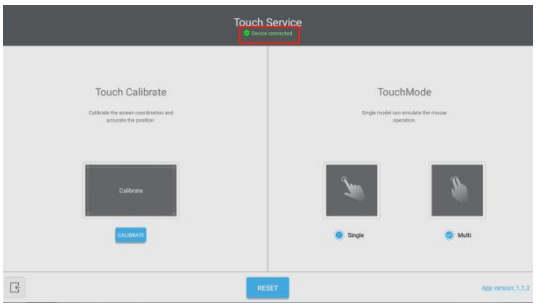


(4) Select “Touch upgrade” and get into the upgrade interface, choose the touch file(bin file) from the USB disk, press “START UPGRADE”



(5) After upgrade finished, press the “X” button in the right corner and exit.



Note:

When running the “TouchPanelTools” application, the Touch Service should be showing “Device connected”. If not, please reboot and upgrade again.