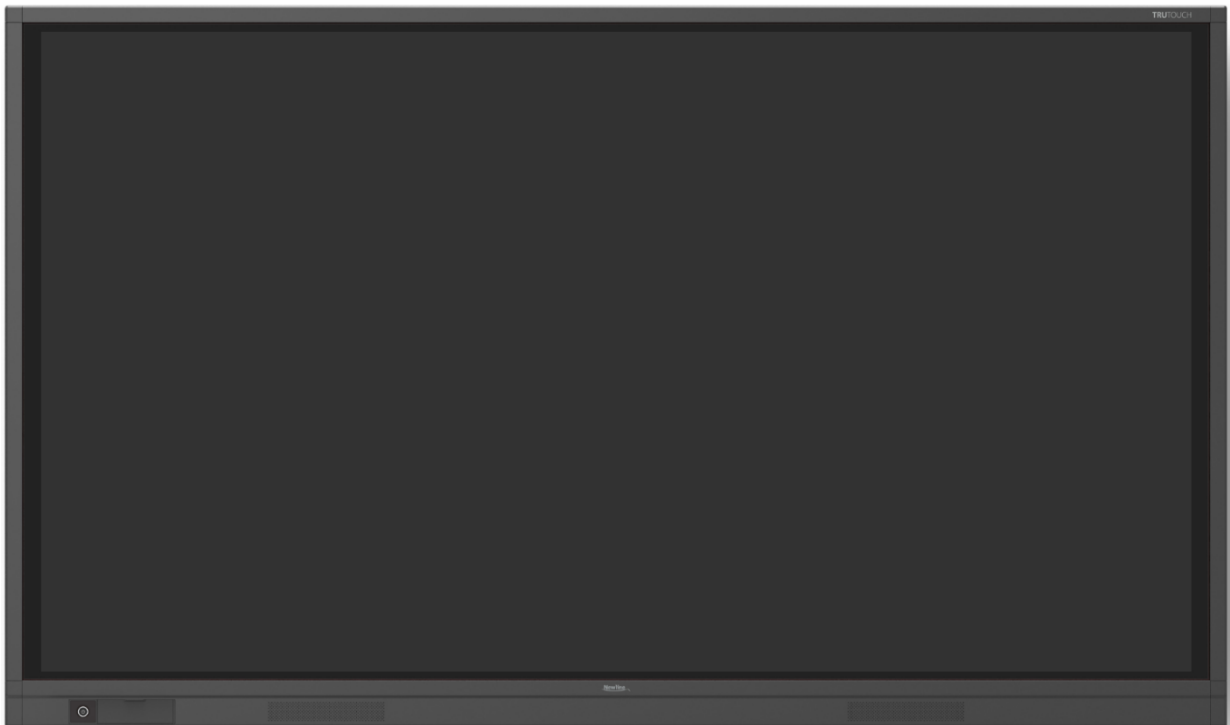


RS Series

Service Manual

Version: V1.0, 12/6/2018



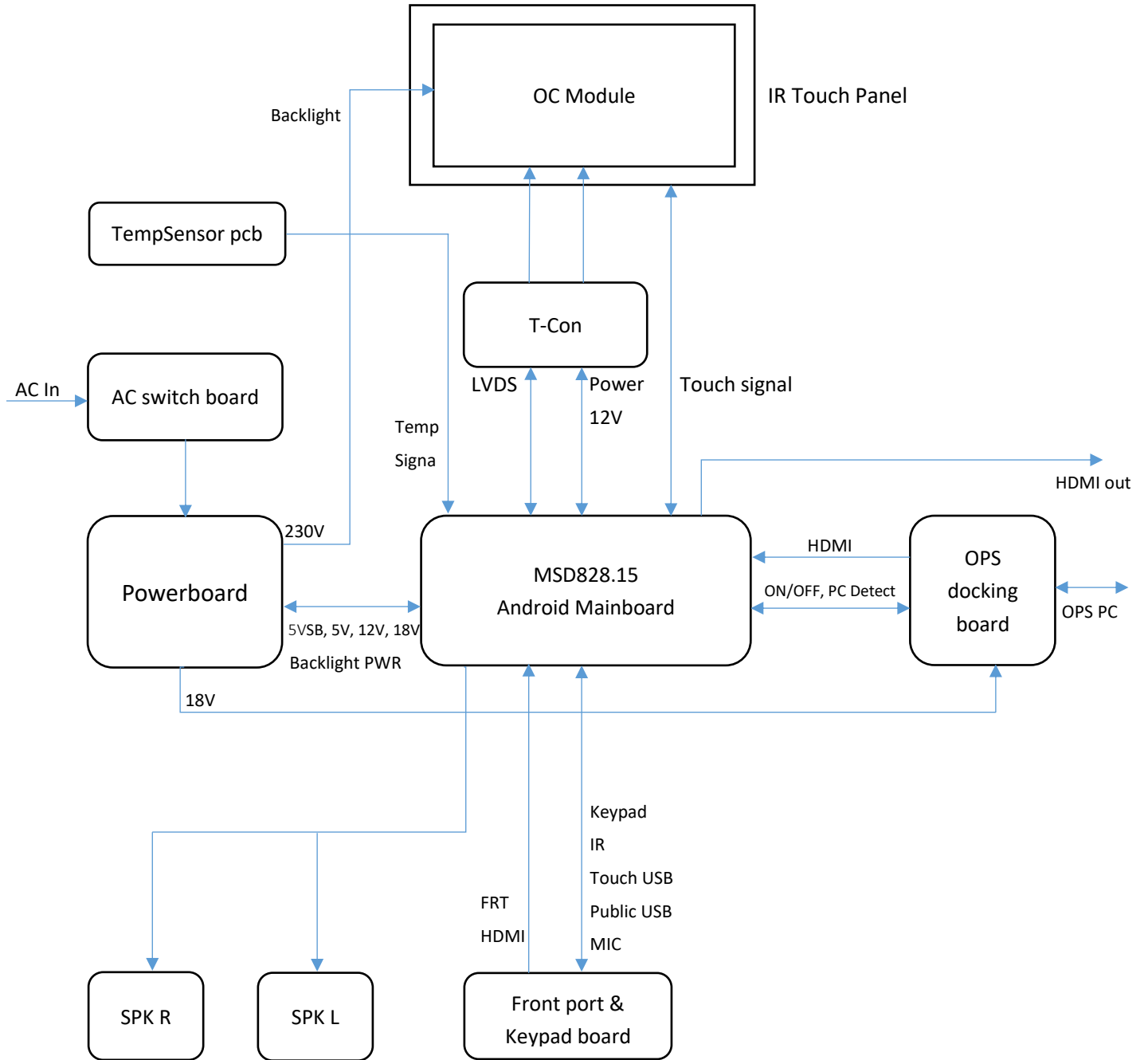
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Safety Nnotice

1. There are many electrical and mechanical parts in the RS series touchscreen, which the technician need pay attention to the safety precaution before repairing.
2. It is essential that all the components should be replaced with the same or authorized components as recommended in this manual to prevent Shock, Fire, or any other Hazards.
3. Please do not modify the original mechanical or electrical design without previous verification from the manufacturer or authorized agent.
4. Before start repairing or disassembling the machine, please make sure unplug the machine from any power source and properly grounded.

Part A. System Diagram



Part B. Recommended Spare Parts List

TT-6518RS RSPL:

Part No.	Part Description	Usage
3% Standard Spare Parts		
10503T7AP000006	Powerboard, MP600T-65P	1
30500T7AC001011	Mainboard, MSD828.15 V1.1A UHD 8GB	1
30100T5J5031010	OPS docking board, HHT-OPS_PI3HDX1204B1-4K60HZ V02	1
30100T7AP001010	AC switch board, HHT_AC_SWITCHBOARD_AP6	1
30100T8A5002010	TempSensor pcb, HHT_TEMPSENSOR_NO-UP	1
30100T8G5001010	Front port (Keypad) board, RS_FRONTBOARD_18	1
10503T7AC000005	65" IR PCB SET, X65H02 (10pcs PCBA)	1
Non-3% Spare Parts		
10503T5A5000046	T-con board, 60Hz for AUO T650QVN06.3	1
10403ZZZZ001683	Inner cable, between Powerboard and Mainboard, 14pin, 500mm	1
10403ZZZZ001656	Inner cable, LVDS cable, between Mainboard to T-CON board, 51pin, 800mm	1
10403ZZZZ001384	Inner cable, between Mainboard and speaker, 2 ports cable, longer side 1290mm shorter side 950mm	1
10403ZZZZ001140	Inner cable, between Powerboard and OPS docking board, with Magnetic ring, 6pin to 4pin, 330mm	1
10403ZZZZ001487	Inner HDMI cable, HDMI2.0, between Mainboard and Front port board, 900mm	1
10403ZZZZ000905	Inner cable, between AC switch board and Powerboard, 3pin, 560mm	1
10403ZZZZ001305	Inner cable, between TempSensor board and Mainboard, 7pin to 5pin, 950mm	1
10403ZZZZ001990	Inner cable, between Mainboard and IR Touch mainboard, 2 ports cable, 10pin to 6pin & 8pin, 1190mm	1
10403ZZZZ001888	Inner cable, between Mainboard and Front port (Keypad) board, 2 ports cable, 26pin to 24pin & 26pin, 1200 and 1350mm	1
10403ZZZZ001542	Inner cable, between Mainboard and 4K OPS board, 22pin to 18pin, 500mm	1
10403ZZZZ001496	Inner HDMI cable, HDMI2.0, between Mainboard and OPS docking board, 630mm	1
10403ZZZZ001875	RS DC power supply cable, 100mm	1
10500T6C6004011	Speaker, 8Ω15W, UY40223B8-10F-B	2
10505T7JC001010	2018 remote controller	1
10500T8A5009010	Double head wood stylus kit, 6pcs/box, Newline	2
10403ZZZZ000807	USB A-A cable, 3m	1
10403ZZZZ0001451	HDMI Cable, 3M	1
10500T6J8007010	Wifi dongle, EDUP AC1602, USB3.0, Dual-band	1
10403ZZZZ001858	DC5.5 to DC3.5 cable, 1.2m	1

TT-7518RS RSPL:

Part No.	Part Description	Usage
3% Standard Spare Parts		
10503T6GP000009	Powerboard, MP600S-H-75T	1
30500T7AC001011	Mainboard, MSD828.15 V1.1A UHD 8GBT	1
30100T5J5031010	OPS docking board, HHT-OPS_PI3HDX1204B1-4K60HZ V02	1
30100T5I3011010	AC switch board, HHT-AC_Switch	1
30100T8A5002010	TempSensor pcb, HHT_TEMPSENSOR_NO-UP	1
30100T8G5001010	Front port (Keypad) board, RS_FRONTBOARD_18	1
10503T7GC000003	75" IR PCB SET, X75H02 (10pcs PCBA)	1
Non-3% Spare Parts		
10503T5G5000025	T-con board, 60Hz for AUO T750QVR01.206	1
10403ZZZZ001234	Inner cable, between Powerboard and Mainboard, 14pin, 1050mm	1
10403ZZZZ001503	Inner cable, LVDS cable, between Mainboard and T-CON board, 51pin, 790mm	1
10403ZZZZ001241	Inner cable, between Mainboard and speaker, 2 ports cable, longer side 1380mm shorter side 500mm	1
10403ZZZZ001386	Inner cable, between Powerboard and OPS docking board, with Magnetic ring, 6pin to 4pin, 1450mm	1
10403ZZZZ001963	Inner HDMI cable, HDMI2.0, between Mainboard and OPS docking board, 350mm	1
10403ZZZZ001236	Inner cable, between AC switch board and Powerboard, 5pin, 130mm	1
10403ZZZZ001242	Inner cable, between TempSensor board and Mainboard, 7pin to 5pin, 1500mm	1
10403ZZZZ001992	Inner cable, between Mainboard and IR Touch mainboard, 2 ports cable, 10pin to 6pin & 8pin, 660mm	1
10403ZZZZ001889	Inner cable, between Mainboard and Front port (Keypad) board, 2 ports cable, 26pin to 24pin & 26pin, 620mm and 750mm	1
10403ZZZZ001542	Inner cable, between Mainboard and 4K OPS board, 22pin to 18pin, 500mm	1
10403ZZZZ001496	Inner HDMI cable, HDMI2.0, between Mainboard and Front port board, 630mm	1
10403ZZZZ001875	RS DC power supply cable, 100mm	
10500T6C6004011	Speaker, 8Ω15W, UY40223B8-10F-B	2
10505T7JC001010	2018 remote controller	1
10500T8A5009010	Double head wood stylus kit, 6pcs/box, Newline	2
10403ZZZZ000807	USB A-A cable, 3m	1
10403ZZZZ0001451	HDMI Cable, 3M	1
10500T6J8007010	Wifi dongle, EDUP AC1602, USB3.0, Dual-band	1
10403ZZZZ001666	X6 DC to DC cable, 360mm	1

TT-8618RS RSPL:

Part No.	Part Description	Usage
3% Standard Spare Parts		
10503T6JP000006	Powerboard, MP600S-H-86T	1
30500T7AC001011	Mainboard, MSD828.15 V1.1A UHD 8GBT	1
30100T5J5031010	OPS docking board, HHT-OPS_PI3HDX1204B1-4K60HZ V02	1
30100T5I3011010	AC switch board, HHT-AC_Switch	1
30100T8A5002010	TempSensor pcb, HHT_TEMPSENSOR_NO-UP	1
30100T8G5001010	Front port (Keypad) board, RS_FRONTBOARD_18	1
10503T7JC000004	86" IR PCB SET, X86H02 (12pcs PCBA)	1
Non-3% Spare Parts		
10503T5J5000014	T-con board, 60Hz for LC860EQY-FJA4	1
10403ZZZZ001234	Inner cable, between Powerboard and Mainboard, 14pin, 1050mm	1
10403ZZZZ001504	Inner cable, LVDS cable, between Mainboard and T-CON board, 51pin, 880mm	1
10403ZZZZ001235	Inner cable, between Mainboard and T-CON board, for power supply, 5pin, 900mm	1
10403ZZZZ001241	Inner cable, between Mainboard and speaker, 2 ports cable, longer side 1380mm shorter side 500mm	1
10403ZZZZ001386	Inner cable, between Powerboard and OPS docking board, with Magnetic ring, 6pin to 4pin, 1450mm	1
10403ZZZZ001963	Inner HDMI cable, HDMI2.0, between Mainboard and OPS docking board, 350mm	1
10403ZZZZ001236	Inner cable, between AC switch board and Powerboard, 5pin, 130mm	1
10403ZZZZ001242	Inner cable, between TempSensor board and Mainboard, 7pin to 5pin, 1500mm	1
10403ZZZZ001992	Inner cable, between Mainboard and IR Touch mainboard, 2 ports cable, 10pin to 6pin & 8pin, 660mm	1
10403ZZZZ001889	Inner cable, between Mainboard and Front port (Keypad) board, 2 ports cable, 26pin to 24pin & 26pin, 620mm and 750mm	1
10403ZZZZ001542	Inner cable, between Mainboard and 4K OPS board, 22pin to 18pin, 500mm	1
10403ZZZZ001496	Inner HDMI cable, HDMI2.0, between Mainboard and Front port board, 630mm	1
10403ZZZZ001875	RS DC power supply cable, 100mm	1
10500T6C6004011	Speaker, 8Ω15W, UY40223B8-10F-B	2
10505T7JC001010	2018 remote controller	1
10500T8A5009010	Double head wood stylus kit, 6pcs/box, Newline	2
10403ZZZZ000807	USB A-A cable, 3m	1
10403ZZZZ0001451	HDMI Cable, 3M	1
10500T6J8007010	Wifi dongle, EDUP AC1602, USB3.0, Dual-band	1
10403ZZZZ001666	X6 DC to DC cable, 360mm	1

Part C. Structure Exploded Diagram

Basically there are 4 layers for RS series structure, they are Outer frame (IR touch panel inside), Tempered glass, OC module (OC panel & Backlight) and PCBAs.

Structure exploded diagram (Zoom in to see details):

RS65:

<https://www.dropbox.com/s/k4fssy4phzlcldt/RS65%20exploded%20drawing.pdf?dl=0>

RS75 & RS86:

<https://www.dropbox.com/s/ch2rkaub3h6onva/RS75%20%26%20RS86%20exploded%20drawing.pdf?dl=0>

Part D. OC module & IR touch PCBA Disassembly & Reassembly

A. Operation video of disassembling and reassembling OC module:

https://www.dropbox.com/s/oqlbsha5d6j2s3k/2018%20OEM_OC%20module_Disassembly%20%26%20Reassembly.mp4?dl=0

Operations involved in the above video:

1. Take off rear covers, remove all PCBAs on the OC back cover.
2. Take off OC module.
3. Put back OC module.
4. Put back all PCBAs, fix cables and install rear covers.

Note:

1. The above step 2-3 had better be done in a dust-free plant to avoid the dust stick onto the tempered glass or OC module surface.

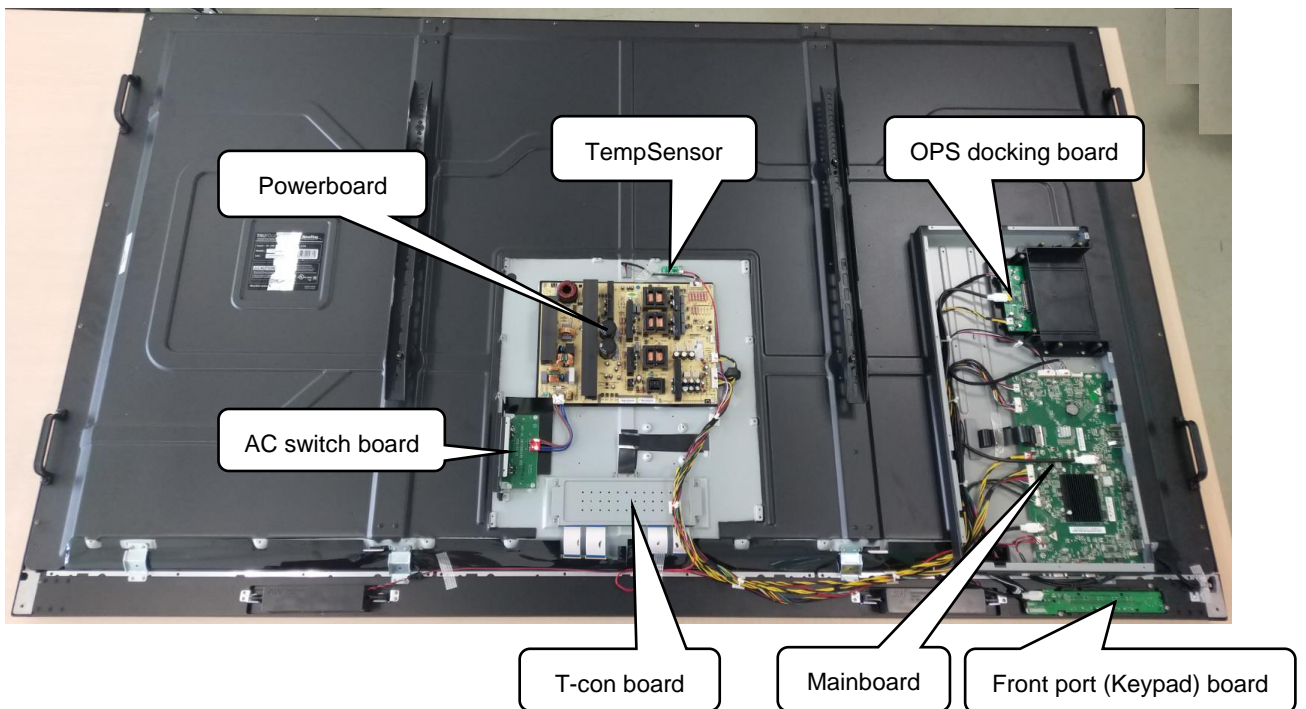
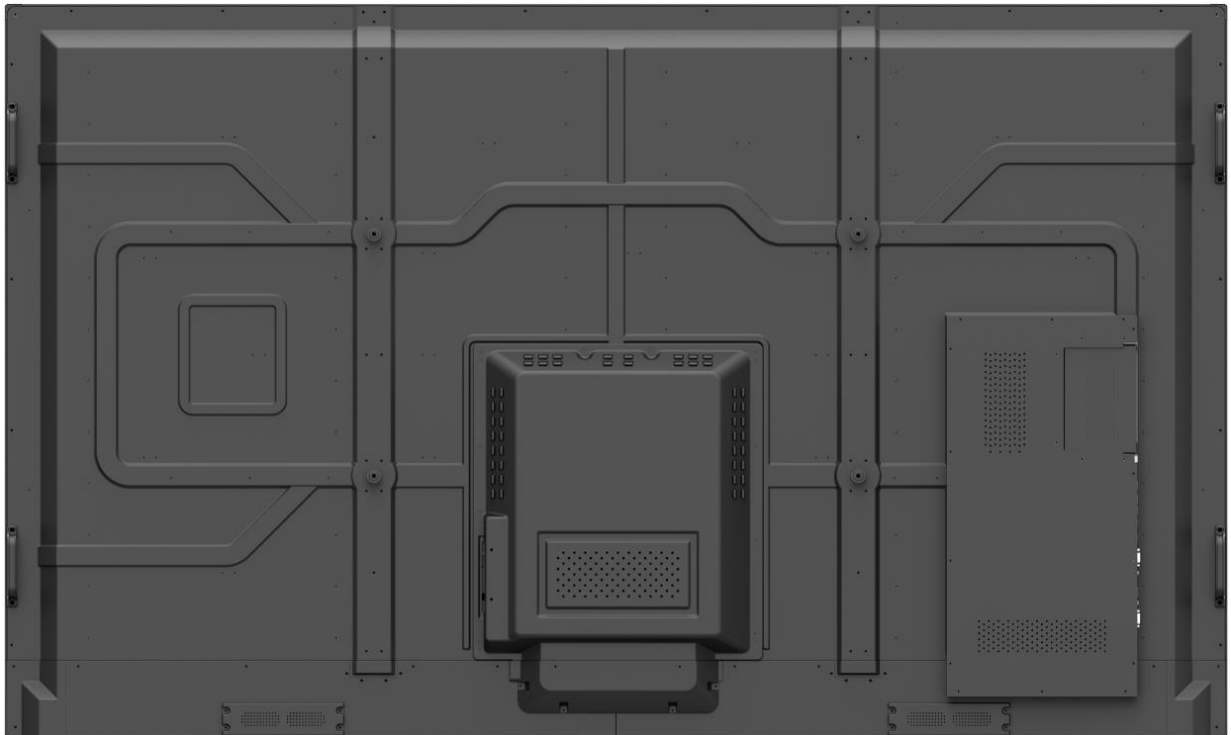
B. Operation video of disassembling and reassembling IR touch PCBAs:

https://www.dropbox.com/s/vwmeazi4wgpcswk/2018%20OEM_IR%20PCB%20SET_Disassembly%20%26%20Reassembly.mp4?dl=0

Operations involved in the above video:

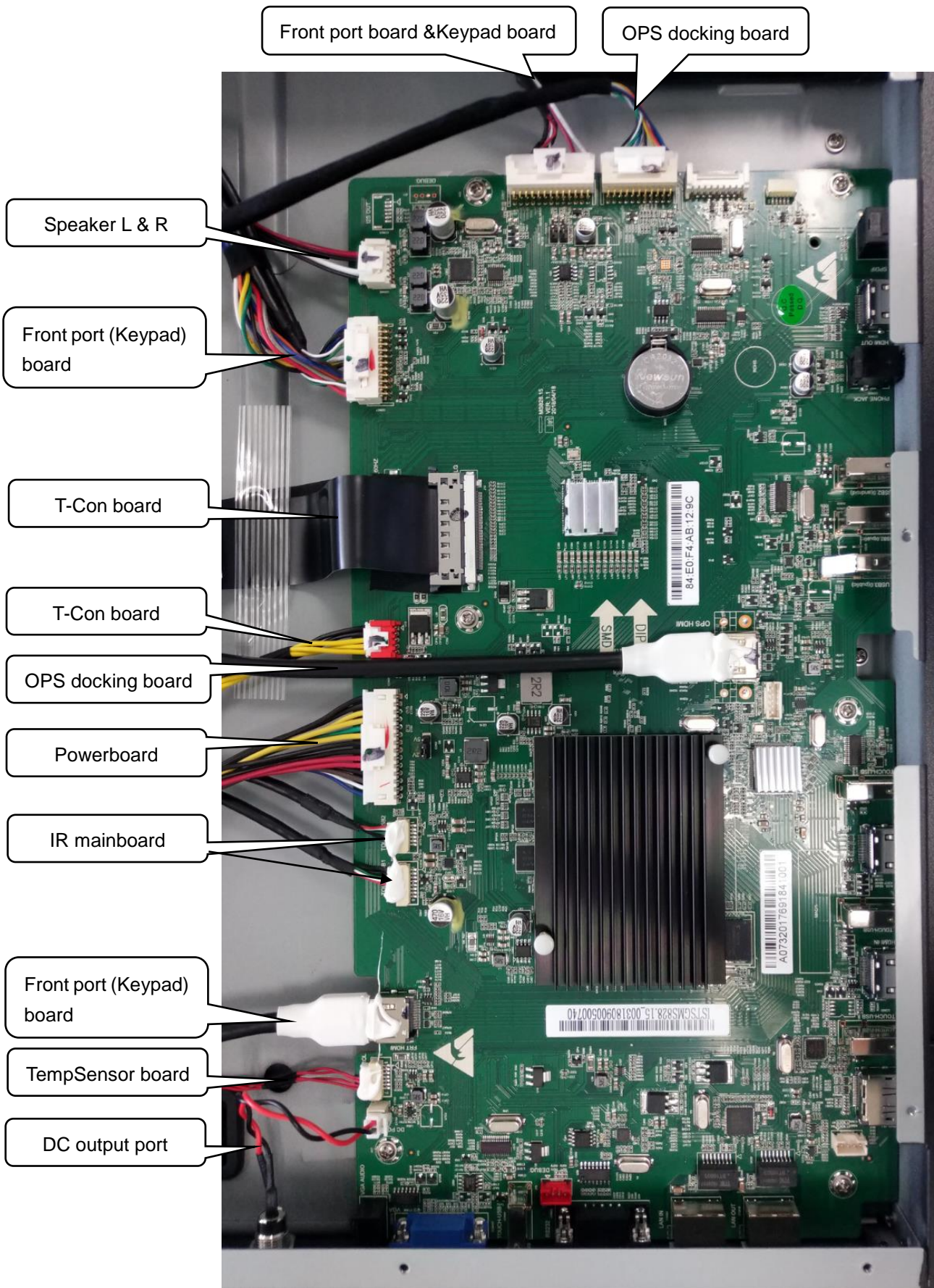
1. Take off 4 corner covers, there is no connection in the upper-right corner in front view, from right to left to remove upper IR PCBAs, from bottom to up to remove the left and right side IR PCBAs, from right to left to remove the bottom side IR PCBAs.
2. According to IR PCBA layout and refer to above opposite order to insert the 4 frames IR PCBAs.
3. Connect the bottom-left, bottom-right and upper-left corner PCBA, pay attention not to bend the contact pins, assemble the 4 corner covers.

Part E. PCBA Overviews

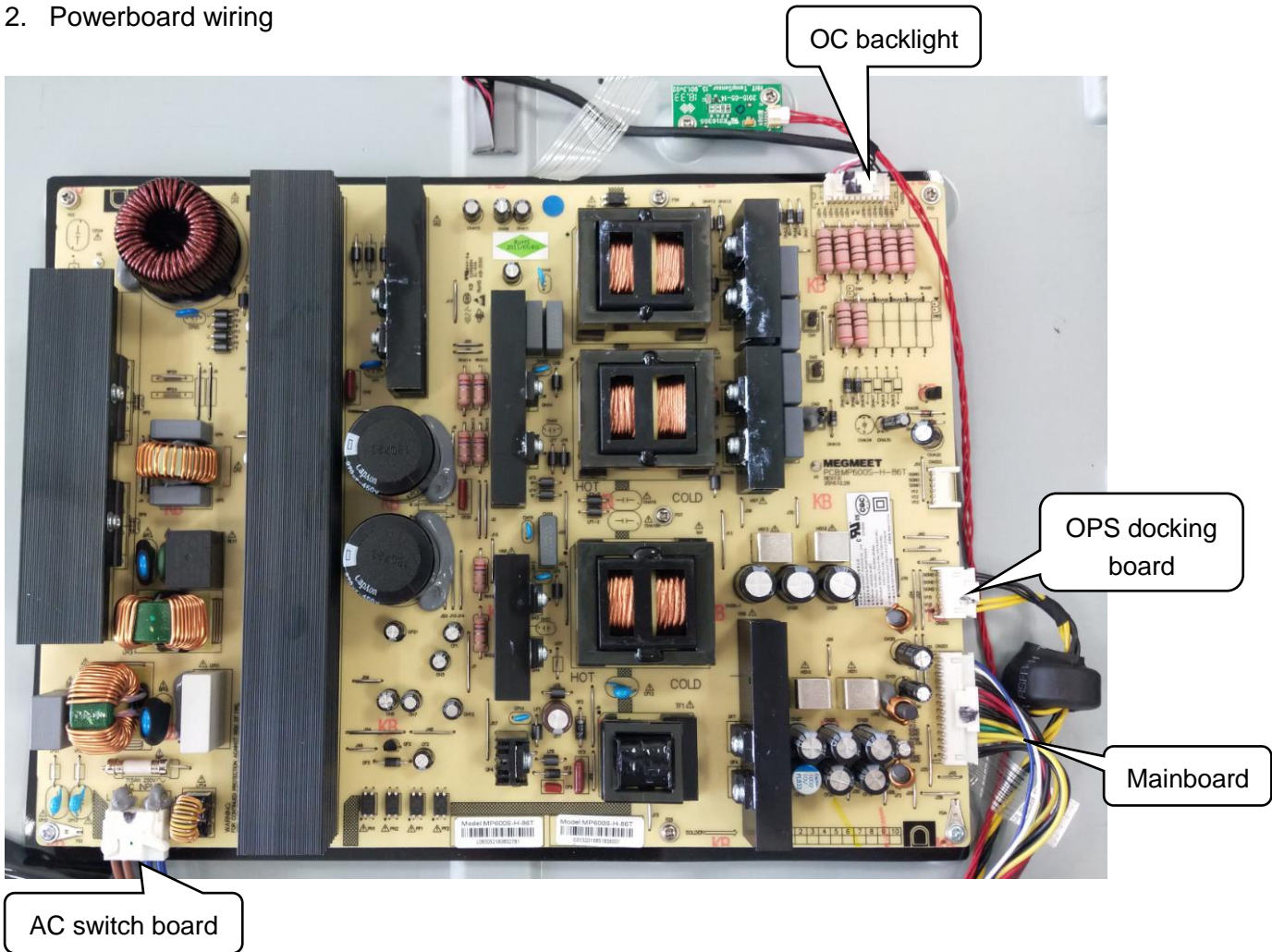


Note: IR PCB SET is in the outer frame, not show on the above picture.

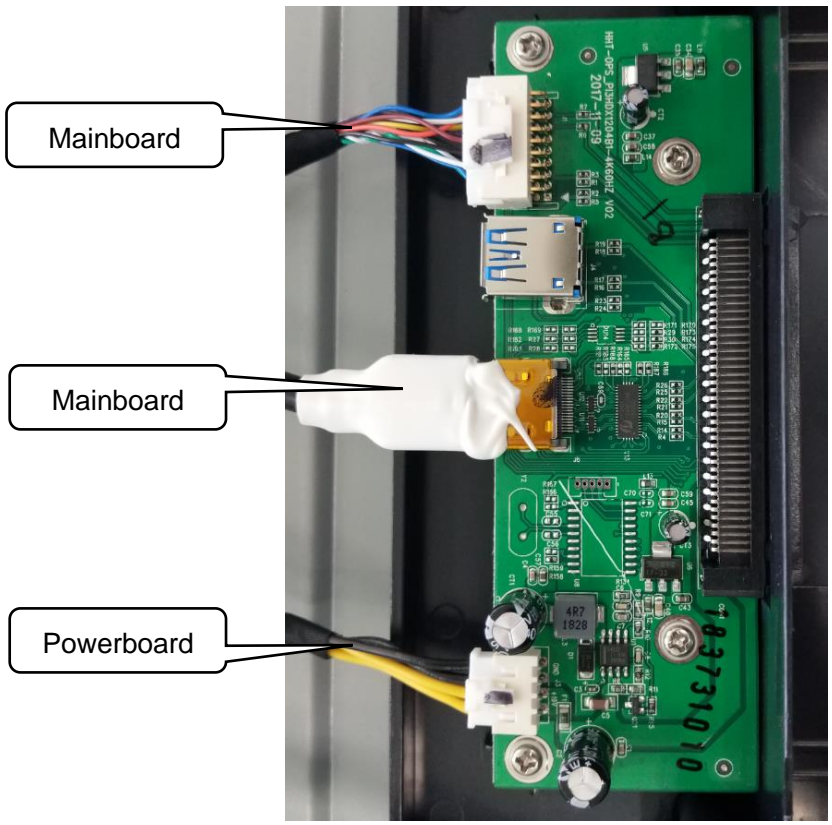
1. Mainboard wiring



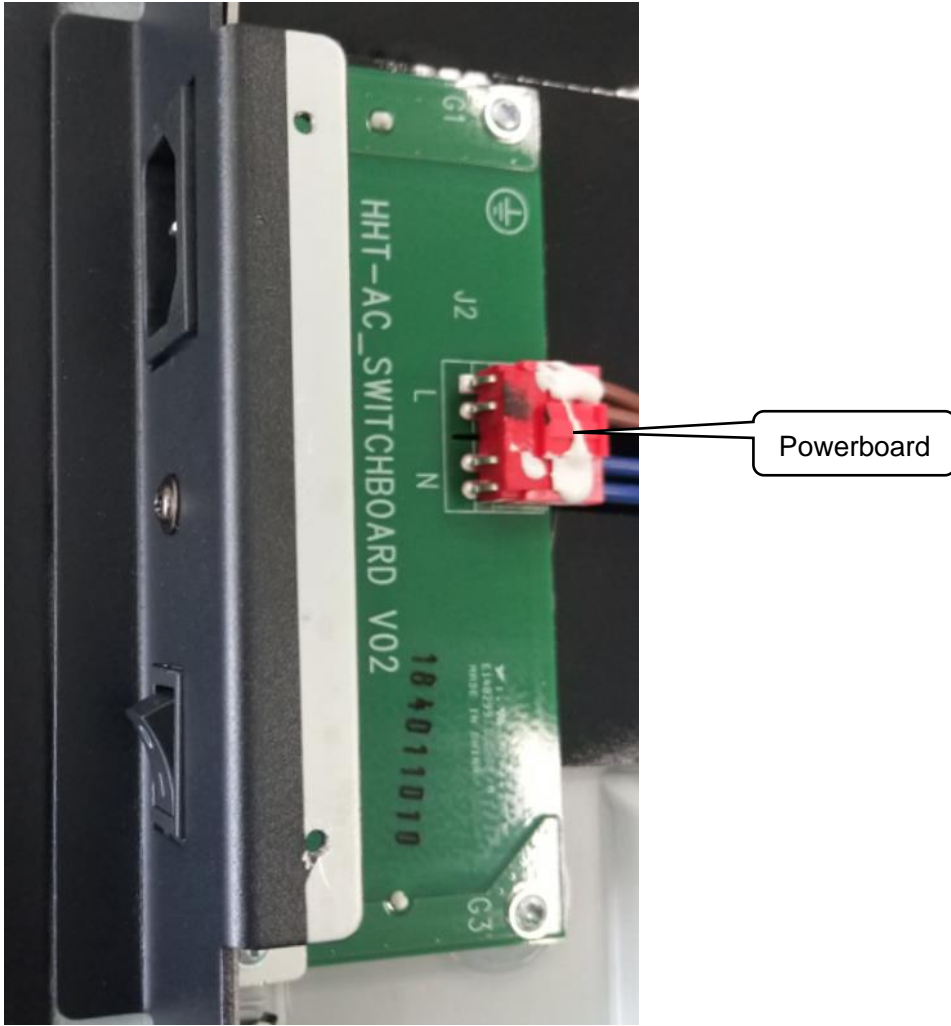
2. Powerboard wiring



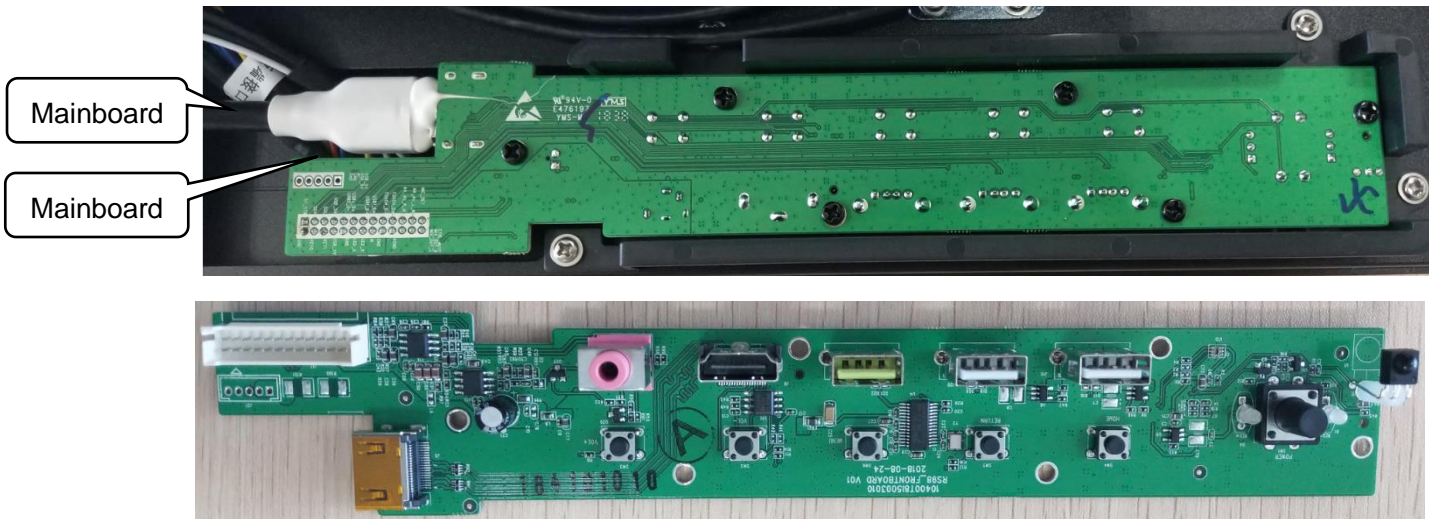
3. OPS docking board wiring



4. AC Switch board wiring



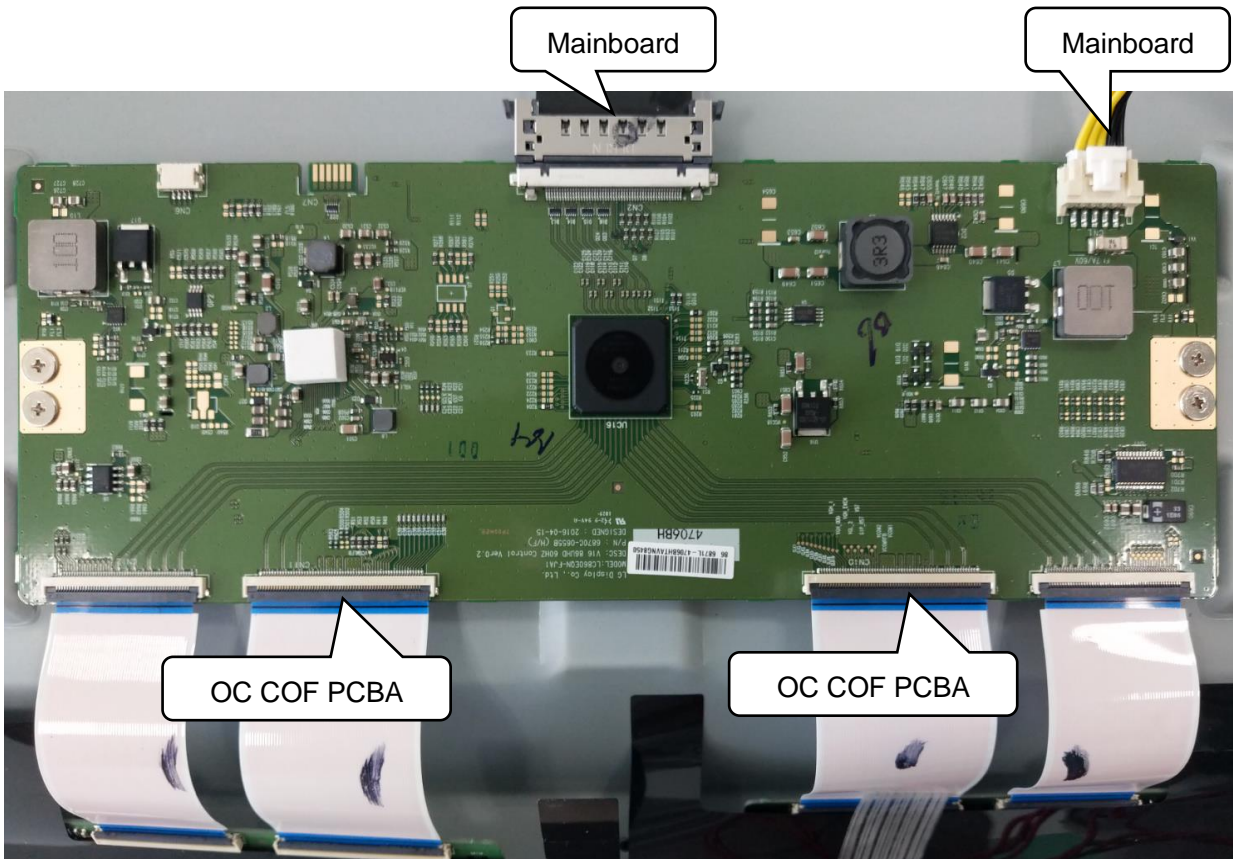
5. Front port board wiring



6. TempSensor PCBA wiring



7. T-CON board wiring



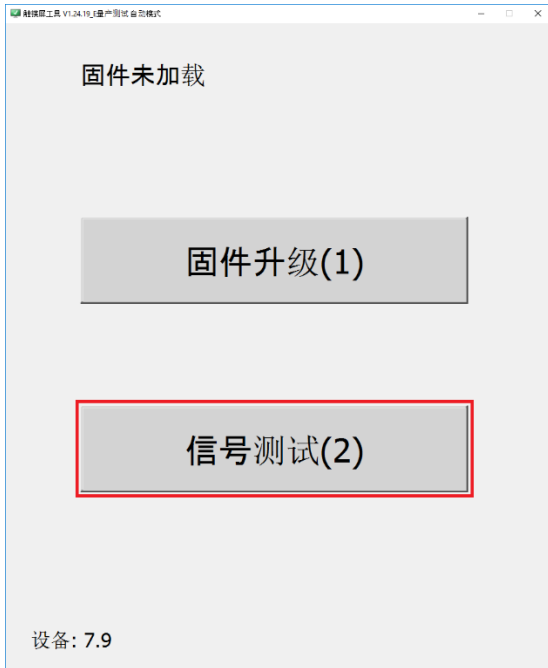
Part F. IR Touch Panel Signal Test

Step 1: Switch to Windows source.

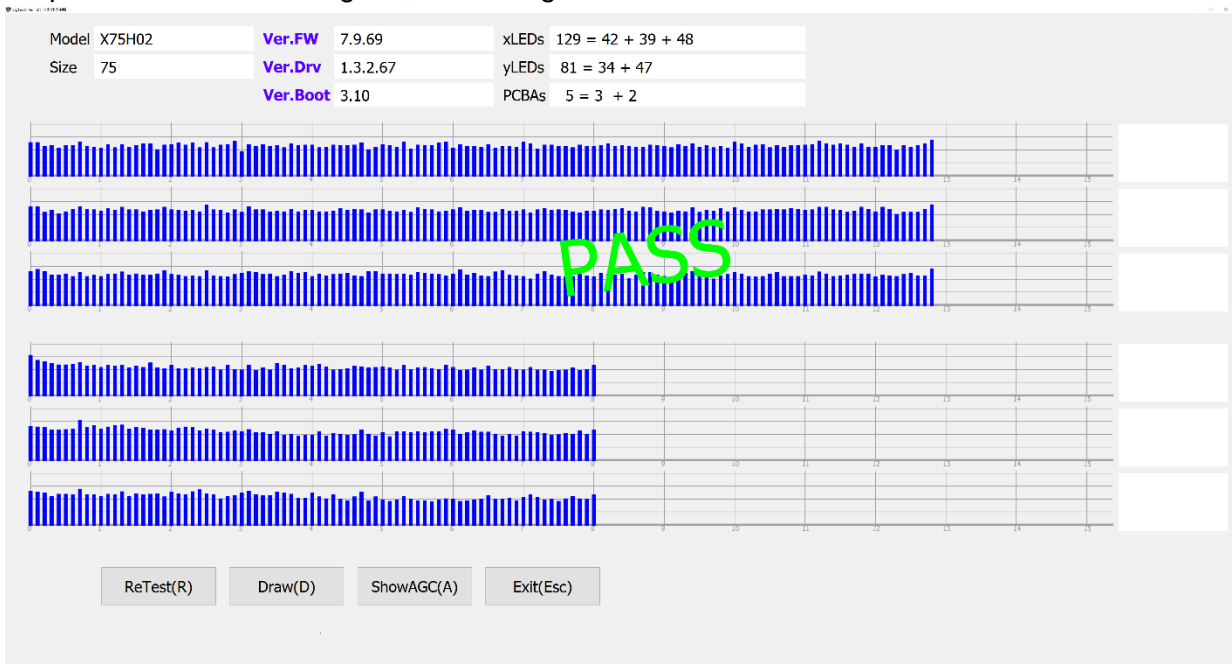
Step 2: Double click “RS series IR signal TouchTestTool_v1.24.20.exe” to run it.

https://www.dropbox.com/s/ey3mdqfndhgg8y1/RS%20Series%20IR%20signal%20TouchTestTool_v1.24.20.exe?dl=0

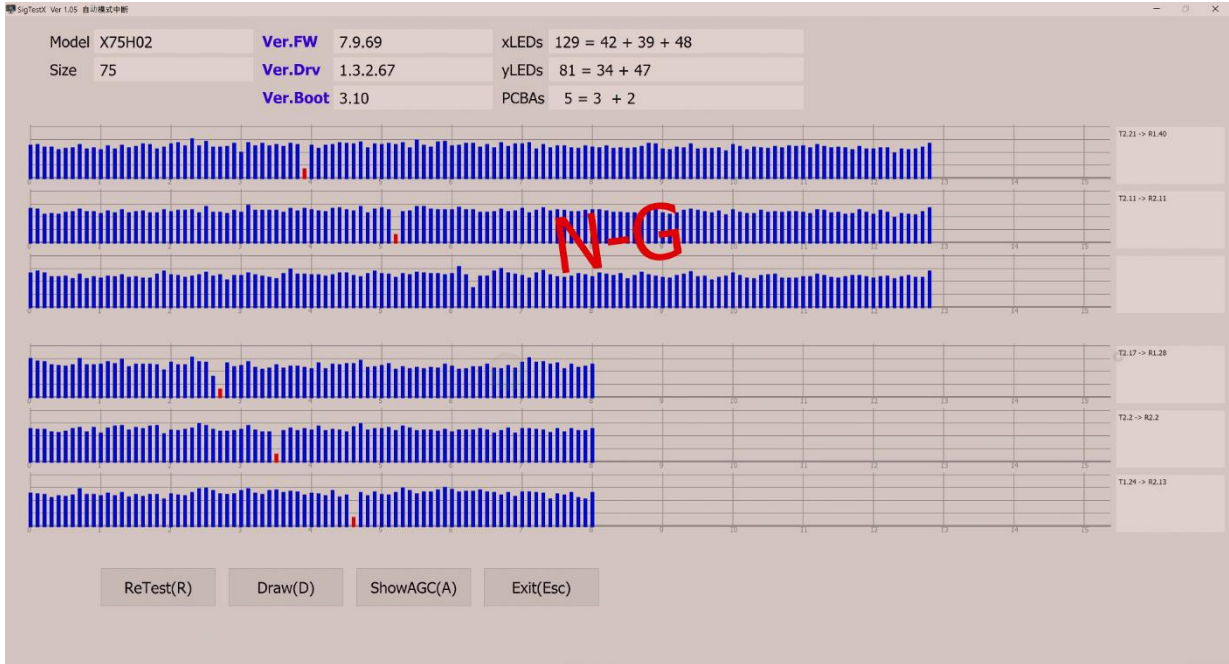
Step 3: Click the second option to start the signal testing.



Step 4: If the hardware is good, the testing tool will show “PASS” result as below.



If the hardware has some problem, you may will get error report such as below:



*It may will not affect the writing performance, if yes, don't need to repair it.

Note: If problem still present, please take picture or screen shoot the testing result to us for analysis.

Part G. Replace OC module (OC panel & backlight)

Refer to chapter A of Part D.

Part H. Clean dirt or condensation behind the tempered glass

Step 1. Refer to chapter A of Part D to remove the OC module.

Step 2. Check panel and glass surface to find where the dirt or condensation is.

Step 3. Use a dustless cloth under a strong light source to wipe it.

Note: If possible, these operation had better be done in a dust-free plant, if there is no dust-free plant available, a clean meeting room is recommended.

Part I. Replace Outer Frame (Front frame)

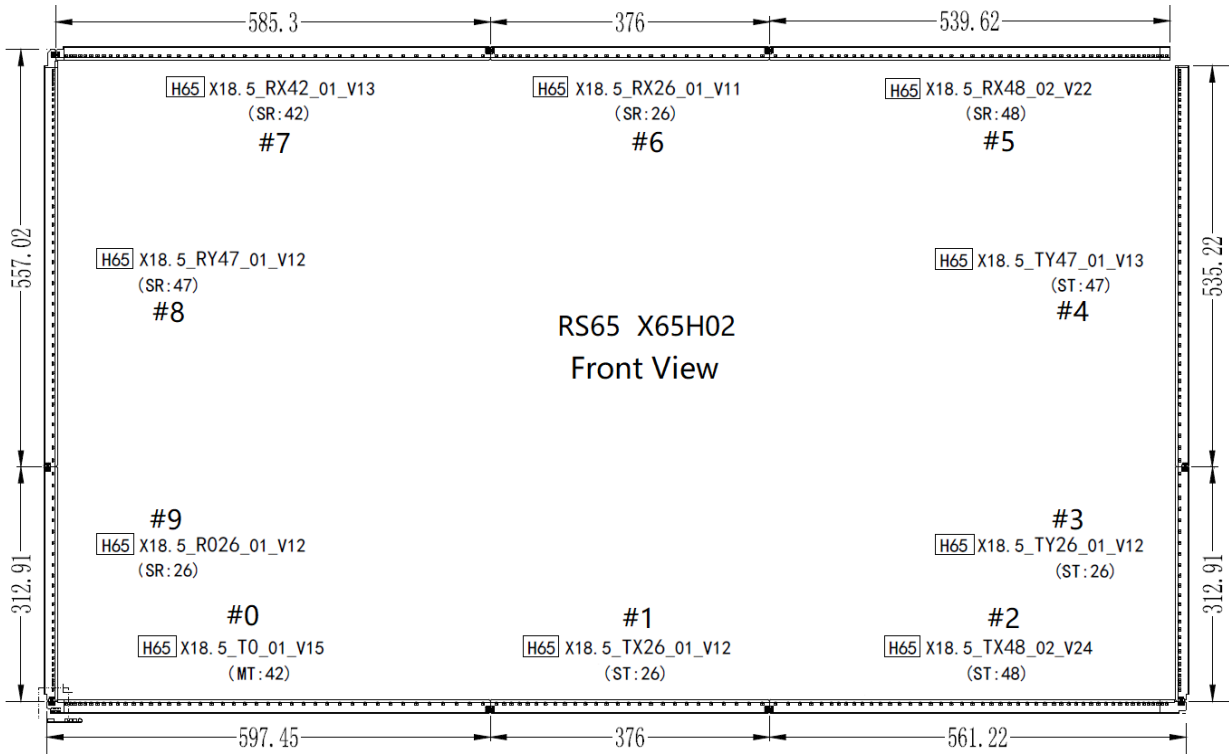
Refer to chapter A of Part D, remove the OC module, remove the tempered glass, then you can disassemble the outer frame and replace anyone of the outer frame.

Note: Pay attention to take out the IR PCB from original outer frame to new frame.

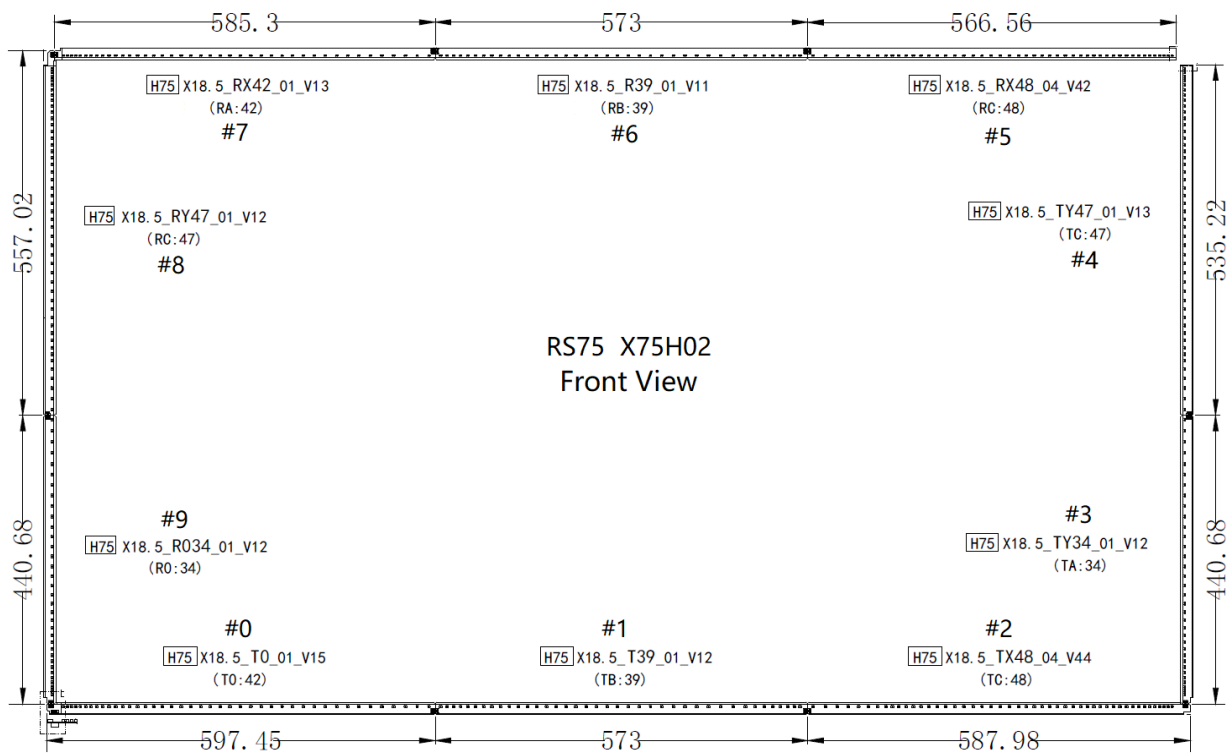
Part J. Replace IR Touch Panel Sensor PCBAs

Please see the chapter B of Part D before operation.

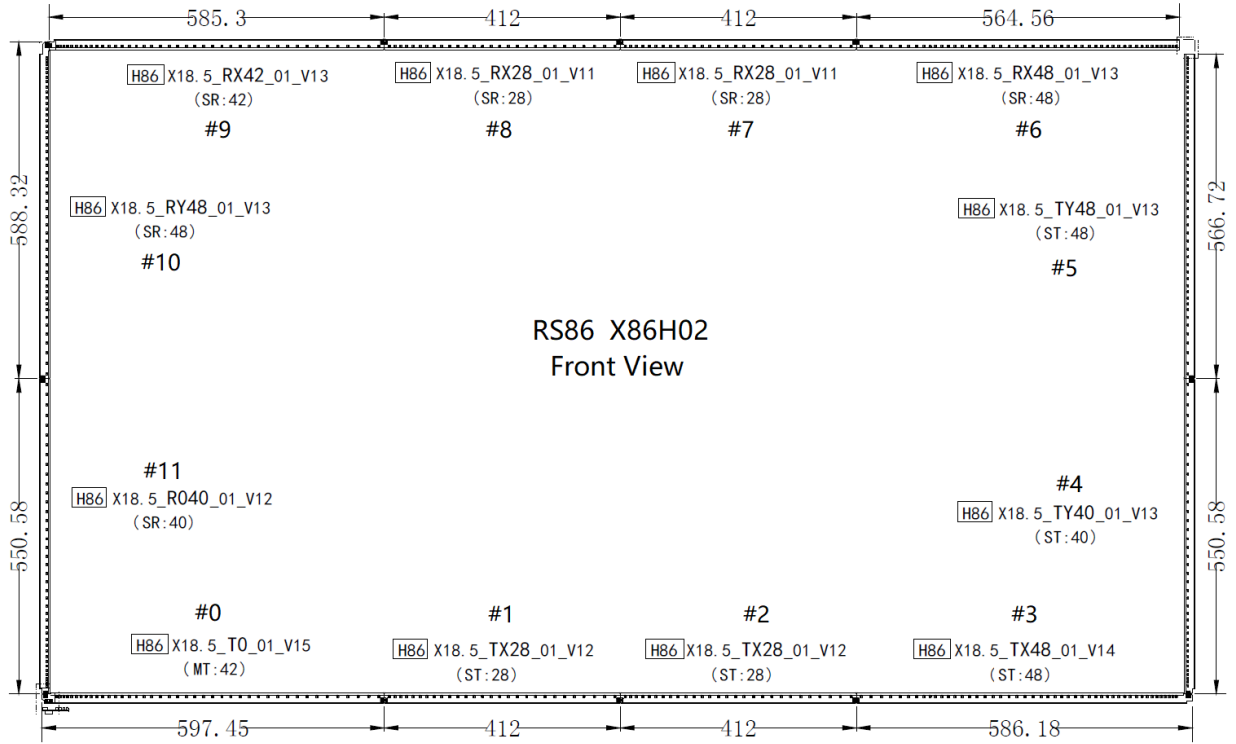
TT-6518RS:



TT-7518RS:

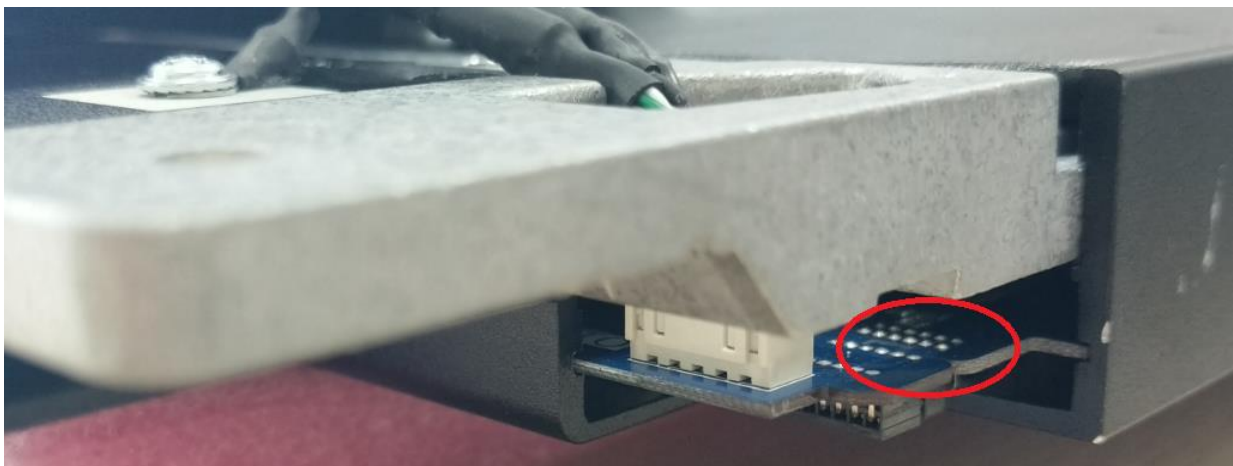
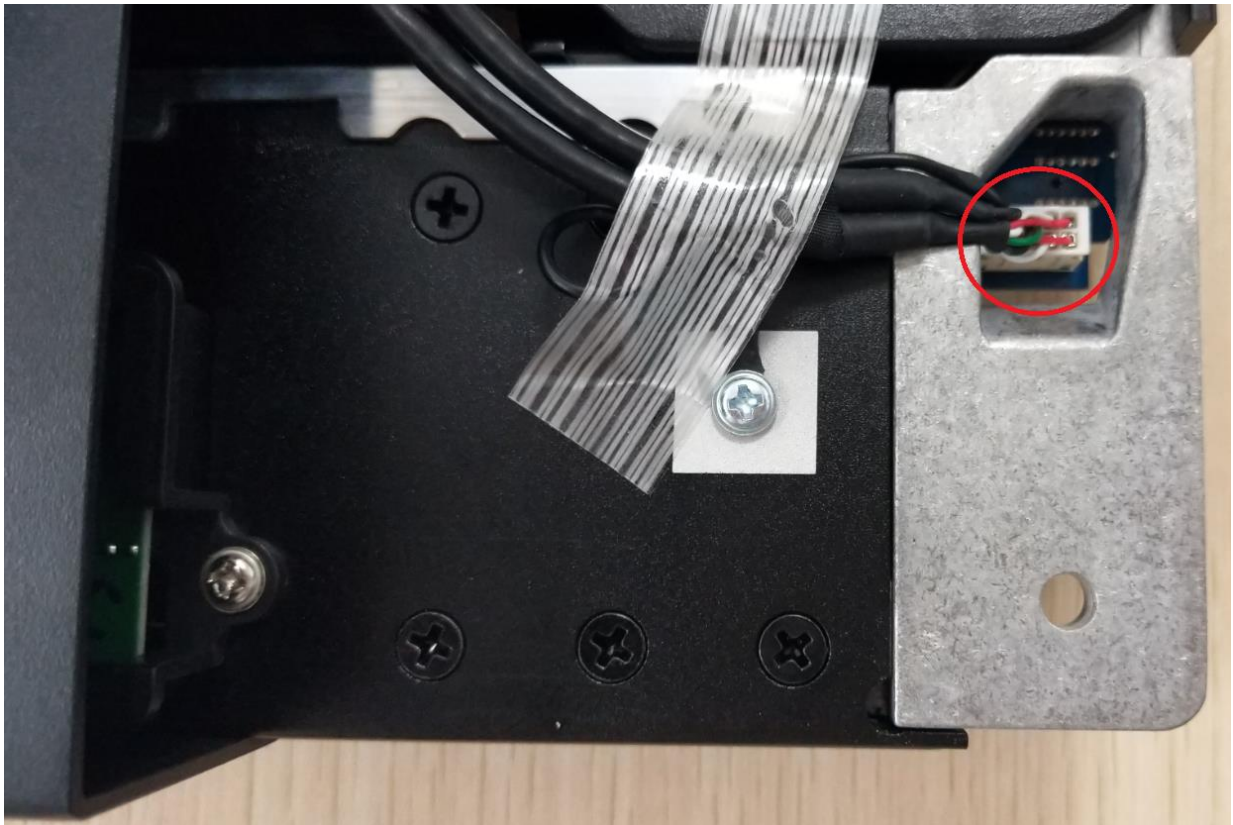


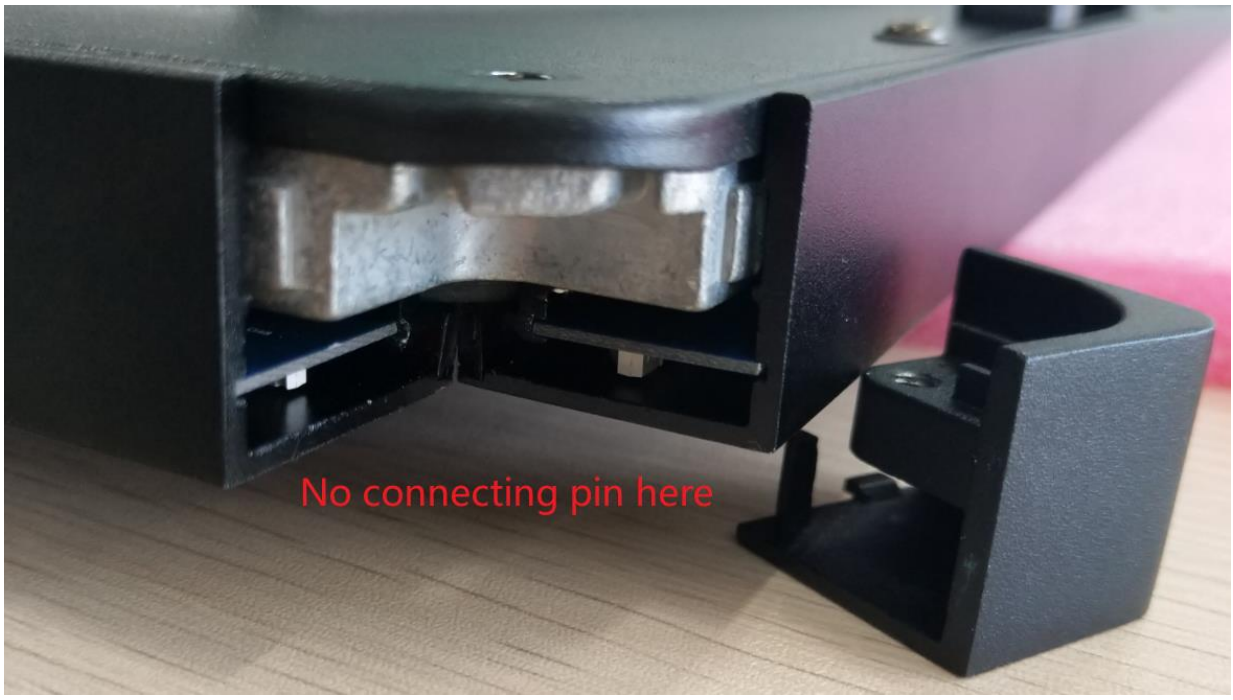
TT-8618RS:



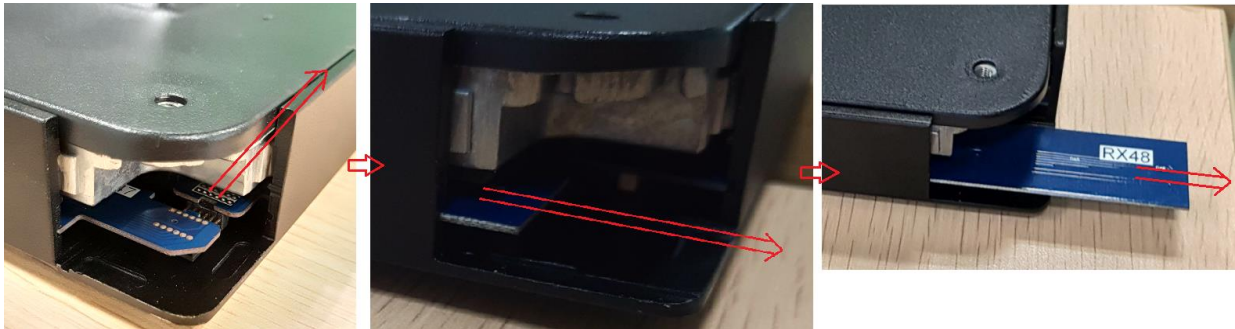
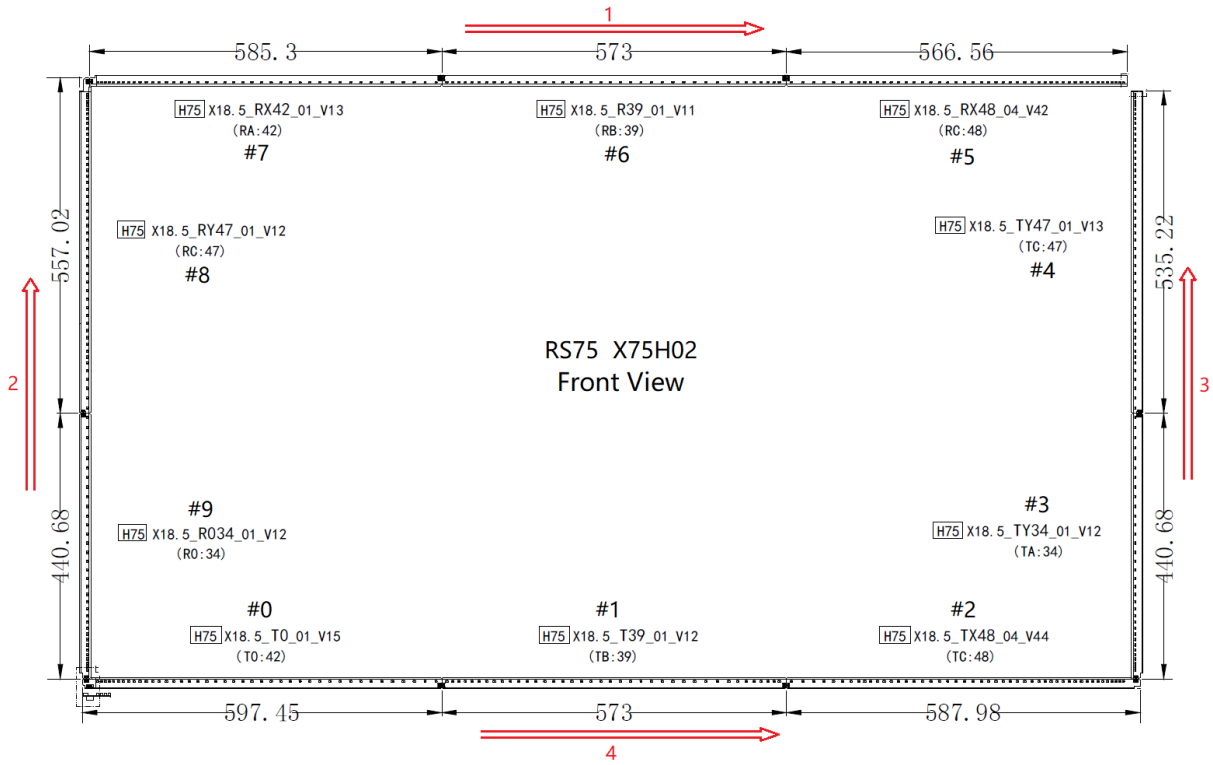
Step 1: Place it on a flat table, remove 4 corner covers.





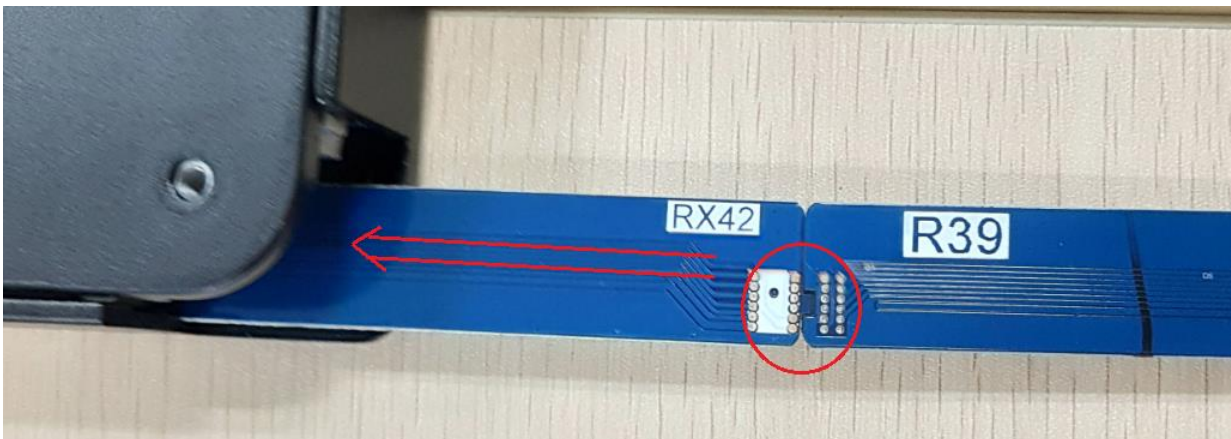
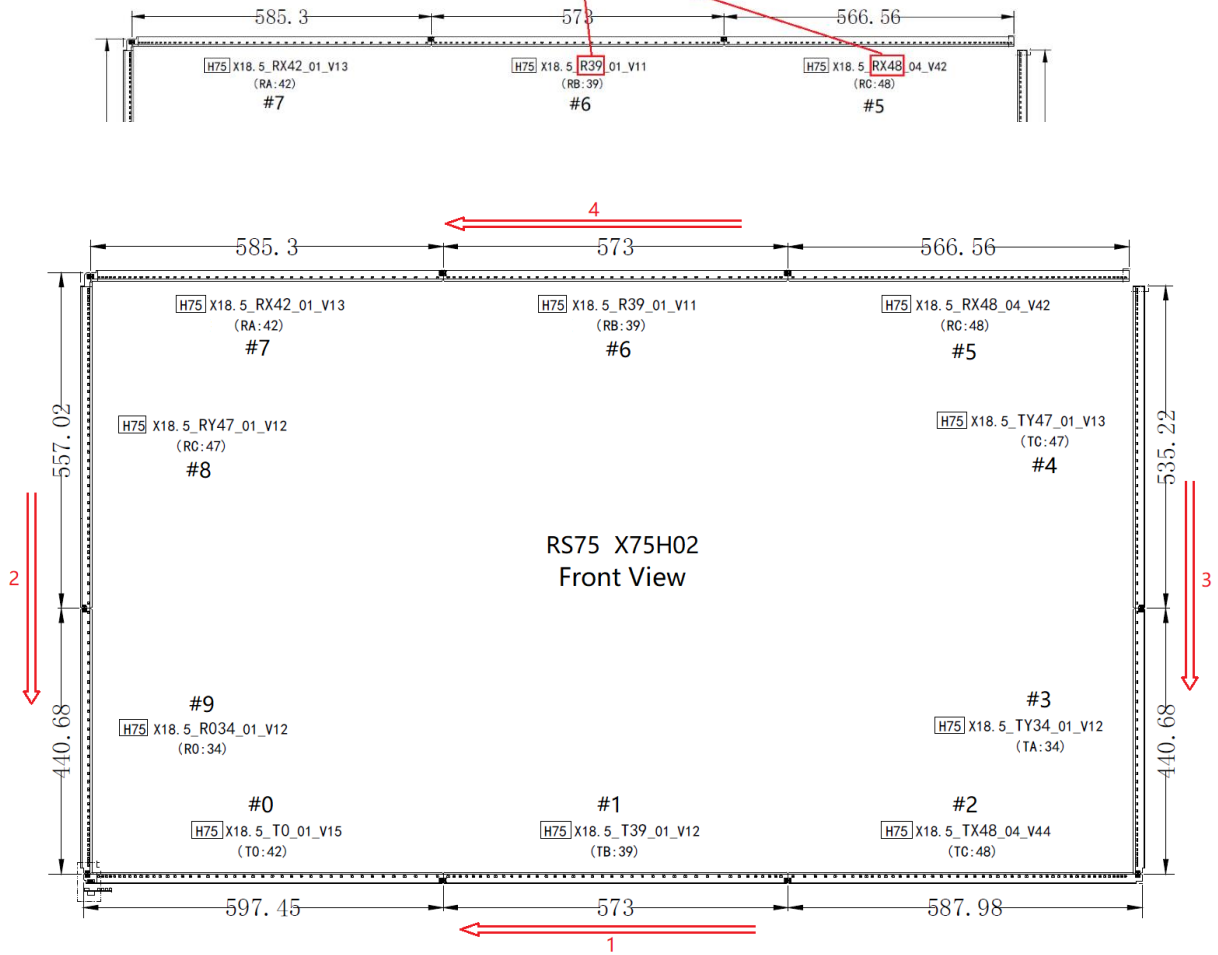
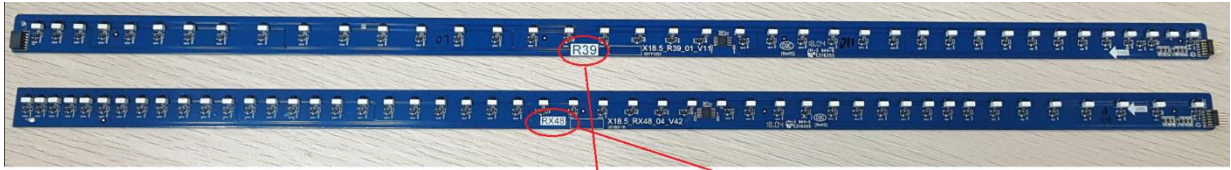


Step 2. Use a thin screwdriver or ball-pen to push and disconnect the PCBAs in the corner then take out the disconnected PCBA according to below red mark direction.



Step 3. Take new IR PCBA SET and according to the IR PCBA Layout to confirm the position in the 4 frames for every pieces PCBA, according to below red mark direction to insert the PCBAs.

PCBA identification:



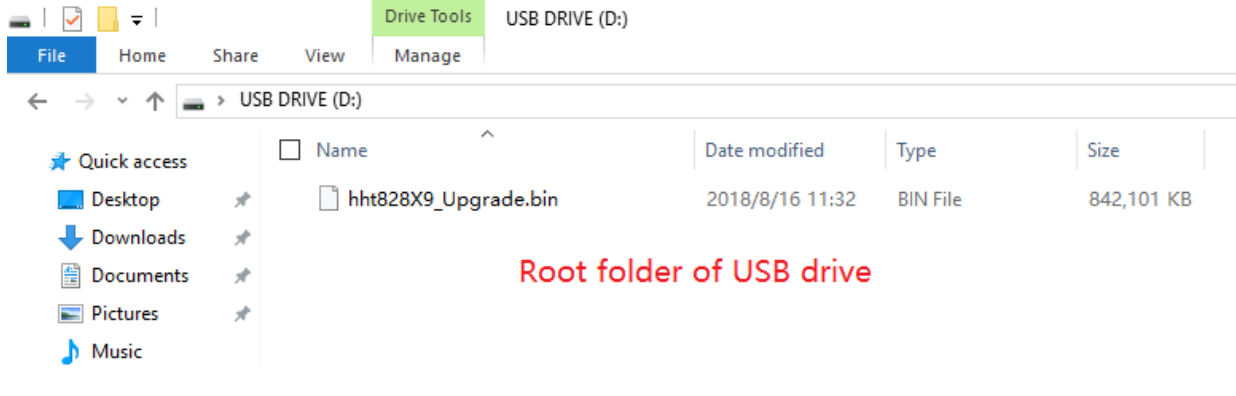


Note: Make sure every piece PCBA have been connected solidly, no loose connection. Usually need 2 person co-work to connect it, one person aim at the contact pins and pin slot, and one person push the PCBA in another side to make the contact pins get in pin slot.

Step 4. Install back 4 corner covers with screws.

Part K. Firmware Upgrade

Step 1: Prepare a USB drive and formatted it with FAT32 format, copy the firmware files to the root folder of the USB drive, show as following:



Step 2: Turn off the screen to standby status, connect the USB drive to below USB port.

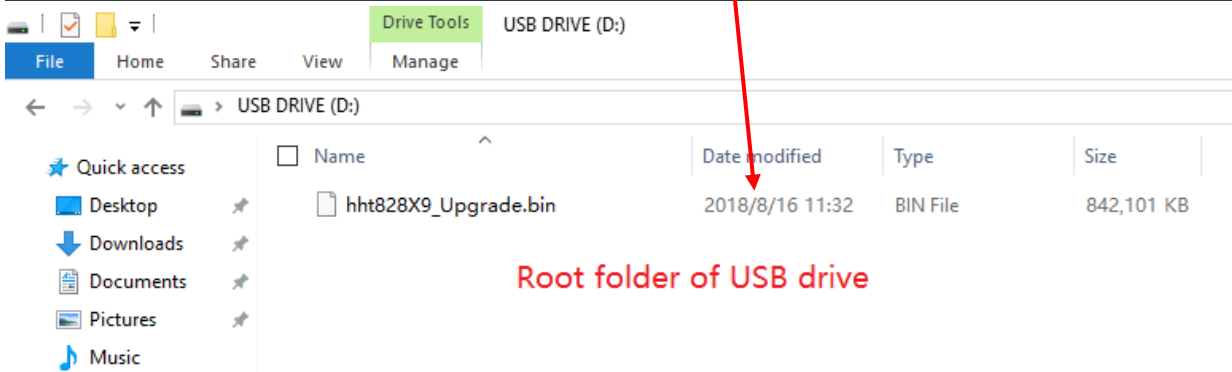
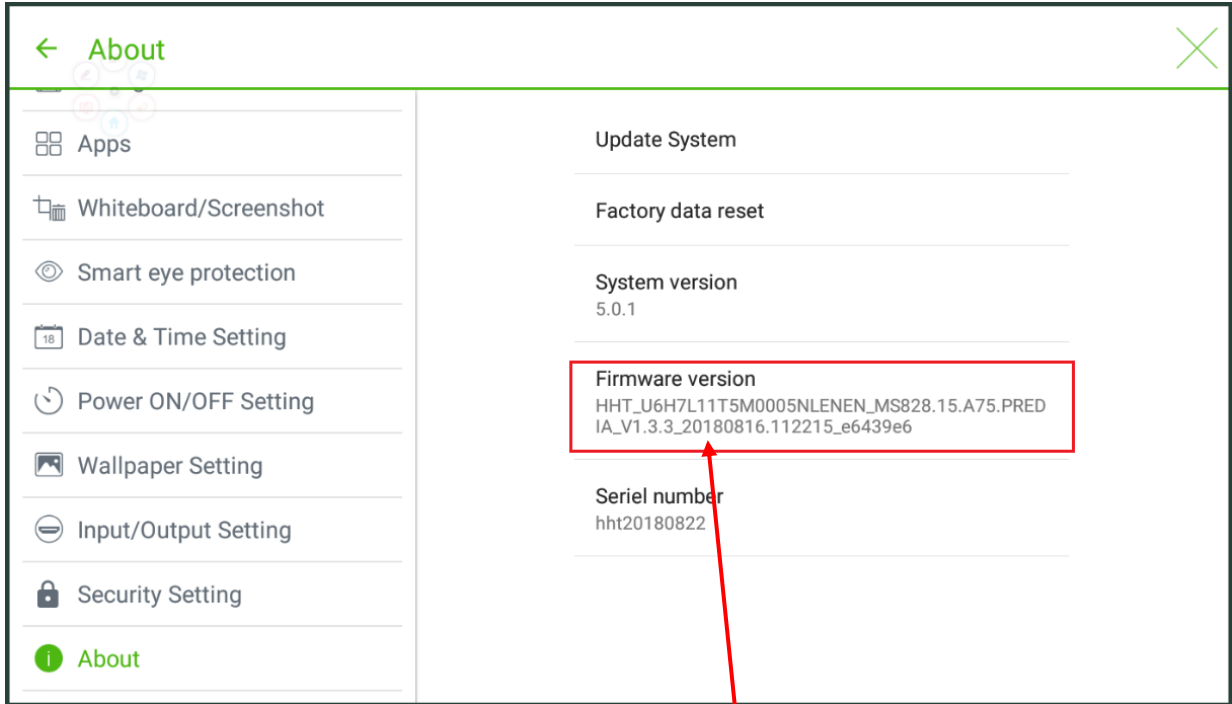


Step 3: Turn on screen, the firmware upgrade will start automatically.



Step 4: After firmware upgrade finished, the screen will return to standby status.

Step 5: First time turn on screen will spend a few minutes for initialization to enter into system, go to setting menu to check the firmware version.



Part L. Trouble shooting

- Problem #1: Can't turn on machine (Power indicator always stay on red)
- Problem #2: Dim screen (After turn on, the display get image but is very faint hard to see)
- Problem #3: Android can't pick up the OPS signal
- Problem #4: No power (Power indicator is blank even no red colour)
- Problem #5: Partial touch or dead touch area
- Problem #6: No touch
- Problem #7: Ghost touch or the calibration is inaccurate
- Problem #8: No image (Black screen) even no faint display
- Problem #9: Black spot or Partial screen is dark
- Problem #10: Vertical line or Horizontal line
- Problem #11: Noise image or colour distortion
- Problem #12: Flicker screen
- Problem #13: Stuck on splash logo, can't enter into homepage
- Problem #14: Always show different colour lines in screen after start.
- Problem #15: Broken sound or sound popping
- Problem #16: No audio output from OPS
- Problem #17: The splash logo appear and disappear quickly, then black screen.
- Problem #18: No signal from all HDMI input
- Problem #19: Front HDMI not working

Problem #1: Can't turn on machine (Power indicator always stay on red)

Step 1: Replace the mainboard.

Step 2: Replace the powerboard.

Problem #2: Dim screen (After turn on, the display get image but is very faint hard to see)

Step 1: Replace the OC module.

Problem #3: Android can't pick up the OPS signal

Step 1: Check if the OPS is powered on, if not, press POWER button on the OPS front panel to check if the OPS can be powered on or not.

Step 2: Check if the OPS can work with another known-working touchscreen, if not work, replace the OPS.

Step 3: If there is no others touchscreen, connect the OPS pc via external HDMI cable to touchscreen's rear HDMI IN port, if yes, check the OPS windows has installed the graphic card driver properly or not, if not, install the graphic card driver.

Step 4: Replace the mainboard.

Step 5: Replace the OPS dock board.

Problem #4: No power (Power indicator is blank even no red colour)

Step 1: Replace the Powerboard

Step 2: Replace the AC switch board.

Step 3: Replace the Mainboard.

Problem #5: Partial touch or dead touch area

Step 1: Refer to Part F to test the FlatFrog touch panel signal.

Step 2: According to testing result to replace some one sensor pcba or whole set sensor pcbas.

Problem #6: No touch

Step 1: Check if only Windows has no touch or both Windows and Android all have no touch.

Step 2: If only Windows has no touch, replace mainboard and OPS docking board one by one.

Step 3: If both Windows and Android all have no touch, please refer to Part F to test the FlatFrog touch panel signal, according to testing result to do next replacement, basically need replace the TP control board at first, if not working, send back testing result for analysis.

Problem #7: Ghost touch or the calibration is inaccurate

Step 1: Refer to Part F to test the FlatFrog touch panel signal.

Step 2: According to testing result to replace some one sensor pcba or whole set sensor pcbas.

Problem #8: No image (Black screen) even no faint display

Step 1: Pull off the power cord for 30s then pull on the power cord to check again, if it become to start with image normally, please replace the Powerboard.

Step 2: If still no image, replace Mainboard, T-CON board, FFC cable of T-CON board, LVDS cable and Powerboard one by one.

Step 3: Replace the OC module.

Problem #9: Black spot or Partial screen is dark

Step 1: Replace OC module.

Problem #10: Vertical line or Horizontal line

Step 1: Replace OC module.

Problem #11: Noise image or colour distortion

Step 1: If only OPS source has this issue, replace the OPS docking board or HDMI cable that between OPS docking board and Mainboard.

Step 2: If all source included the Android all has this issue, replace the Mainboard, T-CON board and LVDS cable one by one.

Step 3: Replace OC module.

Problem #12: Flicker screen

Step 1: Replace Mainboard at first.

Step 2: Replace T-CON board and clean the FFC cable of T-CON.

Step 3: Replace OC module.

Problem #13: Stuck on splash logo, can't enter into homepage

Step 1: Reload FW for mainboard.

Step 2: If it not work, replace Mainboard.

Problem #14: Always show different colour lines in screen after start.

Step 1: Replace T-Con board, clean FFC cable of T-CON, Mainboard, LVDS cable one by one.

Step 2: Replace OC module.

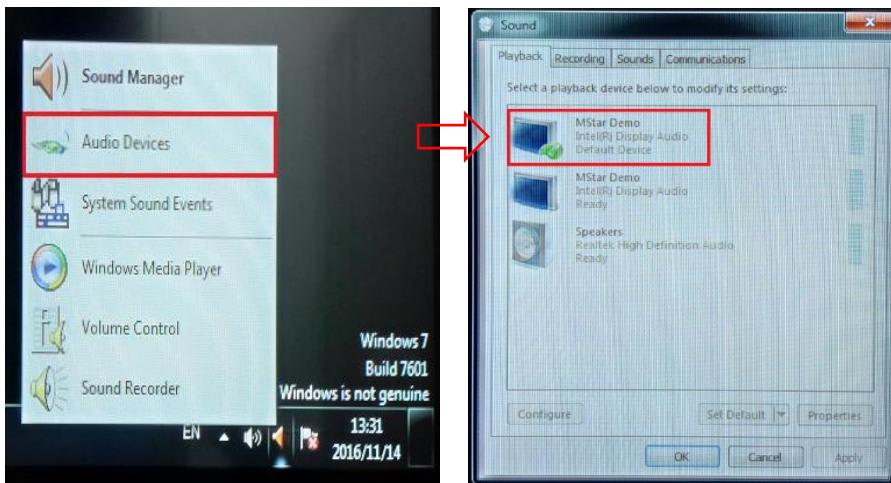
Problem #15: Broken sound or sound popping

Step 1: It should be a speaker issue, replace the speaker.

Problem #16: No audio output from OPS

Step 1: Install audio card driver for OPS windows.

Step 2: Right click Speaker icon in the right side of Windows toolbar, select the "Audio device" item, set "MStar Demo" speaker as default speaker device.



Step 3: Install all OPS driver.

Problem #17: The splash logo appear and disappear quickly, then black screen.

Step 1: Replace LVDS cable and Mainboard one by one.

Step 2: Replace T-CON board, clear FFC cable of T-Con board.

Step 3: Replace OC module.

Problem #18: No signal from all HDMI input

Step 1: Replace Mainboard.

Problem #19: Front HDMI not working

Step 1: Replace Front port board.

Step 2: Replace HDMI cable between Front port board and Mainboard.

Below are some true RMA cases from similar model for reference.

	Defect symptom	Repair procedure	Defect component
1	No image	Replace mainboard, no success. Replace powerboard, problem solved	Powerboard
2	No image	Replace all PCB modules, no success. Replace OC, problem solved	OC module
3	No image, backlight OK	Replace T-con	T-CON
4	No image, no backlight, long turn on	Mainboard	Mainboard
5	No image	Replace mainboard, solved	Mainboard
6	No touch	Fitted 2 sets new sensors	IR PCB SET
7	No touch	Main IR PCB changed	IR mainboard
8	No touch	Ribbon cables reconnected correctly around corners	Cable
9	No proper touch	Reconnect IR PCB's and replace FFC's with new ones	Cable
10	Gaps in touch	Fitted new set of IR (twice)	IR PCB SET
11	No touch	IR FW upgrade	IR firmware
12	No touch	Mainboard	Mainboard
13	Dead areas interactivity	Full set of IR sensors	IR PCB SET
14	No touch externally, android OK	Mainboard changed	Mainboard
15	Poor touch response	Reconnected IR array ribbon cable (bottom right)	Ribbon cable
16	No touch on all sources	Swapped mainboard	Mainboard
17	No touch on all sources	Reseated IR array	IR PCB SET
18	Large dead areas for touch and sluggish	Full set of IR PCBs changed	IR PCB SET
19	Vertical/Horizontal stripe/line in the image	Replace OC module	OC module

20	Vertical stripes in the image.	Reconnect T-con to OC panel connections and cleaned LVDS FFC. LVDS cable was stuck to tighten onto LED panel which causes an improper connection to T-con.	Clean cable & reconnect cable
21	Scrambled image	T-con changed	T-CON
22	3 vertical lines of pixels	T-con board	T-CON
23	Picture colours wrong/pixelated	T-con board	T-CON
24	Bleached image, contrast functions not responding	Firmware flashed	Firmware
25	Picture lines	T-con board replaced	T-CON
26	Picture breakup	T-con board replaced	T-CON
27	Thick vertical lines on image.	Replaced T-con	T-CON
28	Single vertical line of pixels out	Panel issue	OC module
29	No signal on OPS input	Replace OPS docking board, no success. Replace mainboard, problem solved.	Mainboard
30	Stuck on splash screen	Reloaded firmware	Firmware
31	Dead	Powerboard changed	Powerboard
32	Rear HDMI and OPS "no signal"	Mainboard replaced (FW not successful)	Mainboard
33	Won't turn off/won't turn on	FW reloaded	Firmware
34	Will not turn on.	Mainboard changed	Mainboard
35	Stuck on splash screen, will not take flash	Changed mainboard at office	Mainboard
36	Not powering up	Mainboard	Mainboard
37	Not load past boot	FW reloaded	Firmware
38	Speakers popping	Speakers replaced	Speaker
39	No sound	Speakers replaced	Speaker
40	No Power	Replaced AC board & powerboard	AC board & power board

Thank you for reading!

For more info, please contact the manufacturer or authorized agent.