



LG

Life's Good

LED MONITOR

SERVICE MANUAL

CHASSIS : LM47A

MODEL : 24/ 27BA550 24/ 27BA550-BA
24/ 27BA560 24/ 27BA560-BA

CAUTION

BEFORE SERVICING THE CHASSIS, READ THE SAFETY PRECAUTIONS IN THIS MANUAL.



P/NO : MFL71804674 (2405-REV01)

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SAFETY PRECAUTIONS

IMPORTANT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These parts are identified by in the Exploded View.

It is essential that these special safety parts should be replaced with the same components as recommended in this manual to prevent Shock, Fire, or other Hazards.

Do not modify the original design without permission of manufacturer.

General Guidance

An **isolation Transformer should always be used** during the servicing of a receiver whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injury from electrical shocks.

It will also protect the receiver and its components from being damaged by accidental shorts of the circuitry that may be inadvertently introduced during the service operation.

If any fuse (or Fusible Resistor) in this TV receiver is blown, replace it with the specified.

When replacing a high wattage resistor (Oxide Metal Film Resistor, over 1 W), keep the resistor 10 mm away from PCB.

Keep wires away from high voltage or high temperature parts.

Before returning the receiver to the customer,

always perform an **AC leakage current check** on the exposed metallic parts of the cabinet, such as antennas, terminals, etc., to be sure the set is safe to operate without damage of electrical shock.

Leakage Current Cold Check(Antenna Cold Check)

With the instrument AC plug removed from AC source, connect an electrical jumper across the two AC plug prongs. Place the AC switch in the on position, connect one lead of ohm-meter to the AC plug prongs tied together and touch other ohm-meter lead in turn to each exposed metallic parts such as antenna terminals, phone jacks, etc.

If the exposed metallic part has a return path to the chassis, the measured resistance should be between 1 M Ω and 5.2 M Ω .

When the exposed metal has no return path to the chassis the reading must be infinite.

An other abnormality exists that must be corrected before the receiver is returned to the customer.

Leakage Current Hot Check (See below Figure)

Plug the AC cord directly into the AC outlet.

Do not use a line Isolation Transformer during this check.

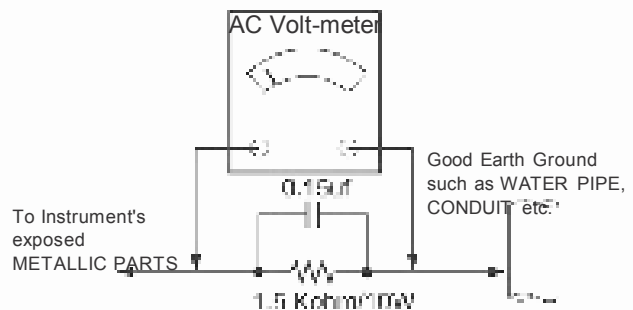
Connect 1.5 K / 10 watt resistor in parallel with a 0.15 μ F capacitor between a known good earth ground (Water Pipe, Conduit, etc.) and the exposed metallic parts.

Measure the AC voltage across the resistor using AC voltmeter with 1000 ohms/volt or more sensitivity.

Reverse plug the AC cord into the AC outlet and repeat AC voltage measurements for each exposed metallic part. Any voltage measured must not exceed 0.75 volt RMS which corresponds to 0.5 mA.

In case any measurement is out of the limits specified, there is possibility of shock hazard and the set must be checked and repaired before it is returned to the customer.

Leakage Current Hot Check circuit



When 25A is impressed between Earth and 2nd Ground for 1 second, Resistance must be less than 0.1

*Base on Adjustment standard

SPECIFICATION

NOTE : Specifications and others are subject to change without notice for improvement.

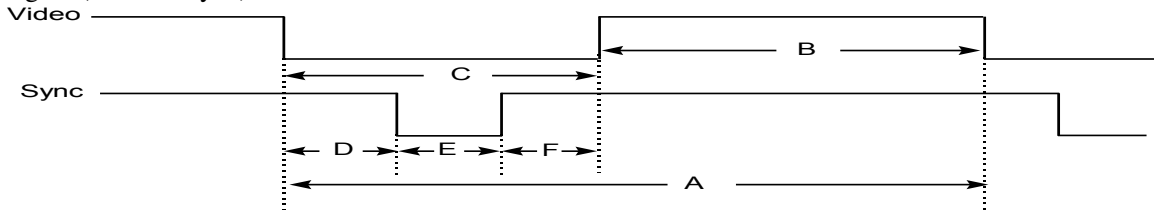
1. General Specification

No	Item		Content	Remark	
1	Customer		BRAND		
2	User Model Name		24BA560/24BA550/24BA450/27BA560/24BA550/24BA450		
3	Sale region		Word Wide		
4	Feature		23.8" & 27" Monitor		
5	Chassis Name		LM47A		
6	General Scope	External SW &Adj.	5-WAY Joystick Switch (Menu, Input, Game Mode, Power Off , Exit)		
		Function	Game mode, FreeSync, HDR		
		Input	HDMI , DP USB Upstream 1ea, USB2.0 Down 2ea, USB3.2 Down 2ea		
7	Power Cord		Length : 1.87±0.05 M Shape : Desk top Color : Black	Support P/No :Refer to Accessory table(Defend on suffix)	
8	Cable	USB 3.0 UP	Length :1.8m±0.05 M Shape : Detachable Type Color : Black	AUO P/No : 50.M2721.003 LGE P/No. : COV37849201	
		Display Port	Length : 1.8 m±0.05 M ,Shape : Detachable Type . Color : Black	AUO P/No: 50.M2721.002 LGE P/No. : COV37849101	
		HDMI	Length :1.8m±0.05 M Shape : Detachable Type Color : Black	AUO P/No: 50.M2721.001 LGE P/No : COV37849001	
9	Power	Power board	Model: ADO-40W1 19 Input: AC100~240V 50~60Hz, 1.5 A Max Output: DC 19V 2.2A 41.8W, Model : 24/27BA560&550 Model: ADO-28W1 19 Input: AC100~240V 50~60Hz, 1.5 A Max Output: DC 19V 1.6A 30.4W, Model : 24/27BA450 Manufacturer : SHENZHEN HONOR ELECTRONICS CO.LTD	41.8W & 30.4W power Board LGE P/No : EAY65899302 EAY65899202	
10	Applying module list		P/No	Specification	LGD OPEN Cell:

			Type Name : MN238FG01 LGE P/No: COV37825701 AUO P/No: 9F.M2307.S01	Module Type name: MN238FG01.0 23.8" SERVICE LCM MODULE FLAT FHD	LM238WF2-SJX2 BM (AUO Dummy LCM module)
			Type Name : MN270FG01 LGE P/No: COV37849401 AUO P/No: 9F.M2721.S01	Module Type name: MN270FG01.0 27" SERVICE LCM MODULE FLAT FHD	AUO OPEN Cell: LM270WF7-SJX2 BM (AUO Dummy LCM module)
11	Screw	-	AUO P/No : 86.8A524.5R0 AUO P/No : 86.00000.629 AUO P/No : 86.00000.591 AUO P/No : 86.00000.557 AUO P/No : 86.00000.175	M3 x L5, 16ea M4 x L5, 1ea M3 x L6, 3ea M3 x L8, 2ea M3 x L3, 2ea	All models common

2. Signal Timing (Resolution)

2-1. Signal (Video & Sync)



2-2. H/V Timing : DP input & HDMI 1 / 2 input

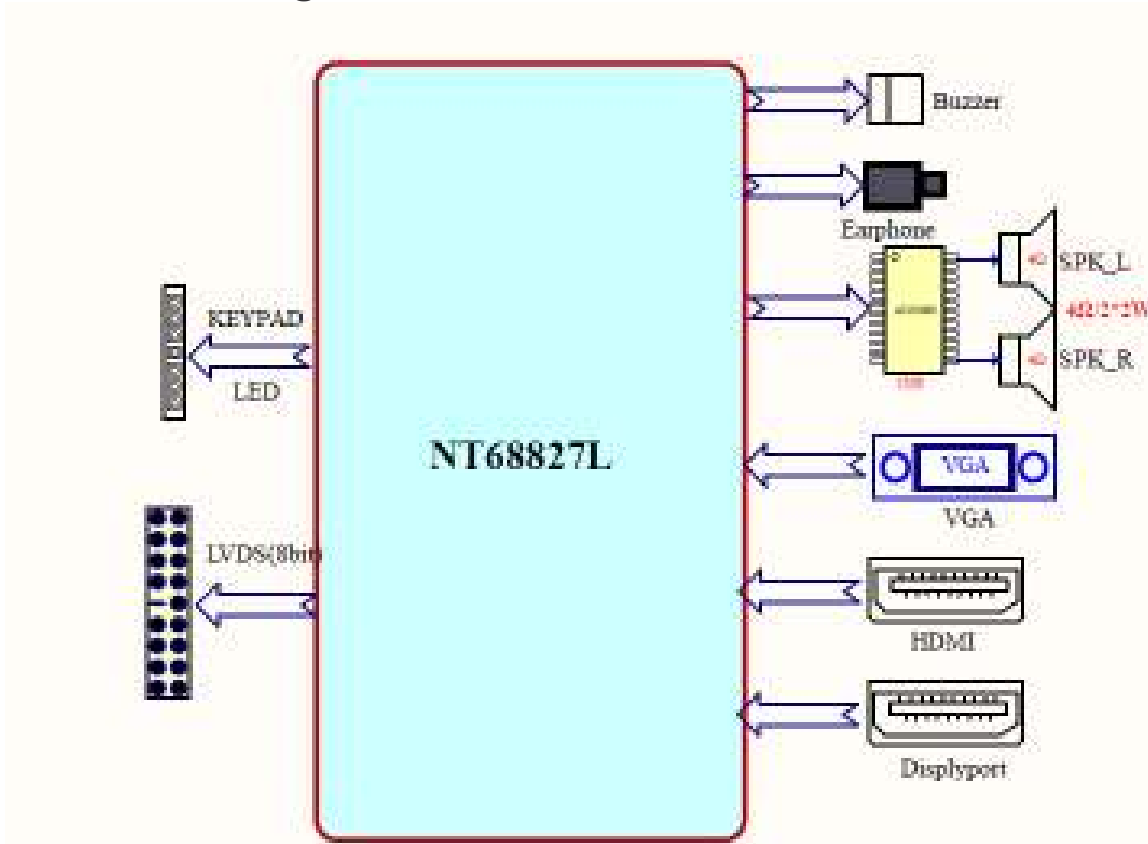
mode	section	polarity	DOT CLOCK [MHz]	Frequency [kHz]/[Hz]	Total Period(E)	Display (A)	Front Porch (D)	Sync. (C)	Back Porch (B)	Resolution	Support or not	
											HDMI1/2	DP
1	H(Pixels)	-	25.175	31.469	800	640	16	96	48	640 x 480	Yes	Yes
	V(Lines)	-		59.94	525	480	10	2	33			
2	H(Pixels)	+	40.00	37.879	1056	800	40	128	88	800 x 600	Yes	Yes
	V(Lines)	+		60.317	628	600	1	4	23			
3	H(Pixels)	-	65.00	48.363	1344	1024	24	136	160	1024 x 768	Yes	Yes
	V(Lines)	-		60.0	806	768	3	6	29			
4	H(Pixels)	+	135.00	79.976	1688	1280	16	144	248	1280 x 1024	Yes	Yes
	V(Lines)	+		75.025	1066	1024	1	3	38			
5	H(Pixels)	+	148.50	67.50	2200	1920	88	44	148	1920 x 1080	Yes	Yes
	V(Lines)	+		60	1125	1080	4	5	36			
6	H(Pixels)	+	185.60	84.364	2200	1920	88	44	148	1920 x 1080	Yes	Yes
	V(Lines)	+		74.990	1125	1080	4	5	36			
7	H(Pixels)	+	285.50	137.26	2080	1920	48	32	80	1920 x 1080	Yes	Yes
	V(Lines)	+		119.982	1144	1080	3	5	56			
8	H(Pixels)	+	304.25	111.857	2720	2560	48	32	80	2560 x 1440	Yes	Yes
	V(Lines)	-		74.971	1492	1440	3	10	39			
*9	H(Pixels)	+	412.50	198.317	2080	1920	48	48	64	1920 x 1080	Yes	Yes
	V(Lines)	-		179.961	1102	1080	3	5	14			

* 9 Timing : Recommended timing at the HDMI and DP input

2-3. HDMI Video Input

	Factory support mode (Preset Mode)	Horizontal frequency (KHz)	Vertical frequency (Hz)
1	480P	31.5	60
2	720P	45	60
3	1080P	67.5	60
4	1080P	135	120

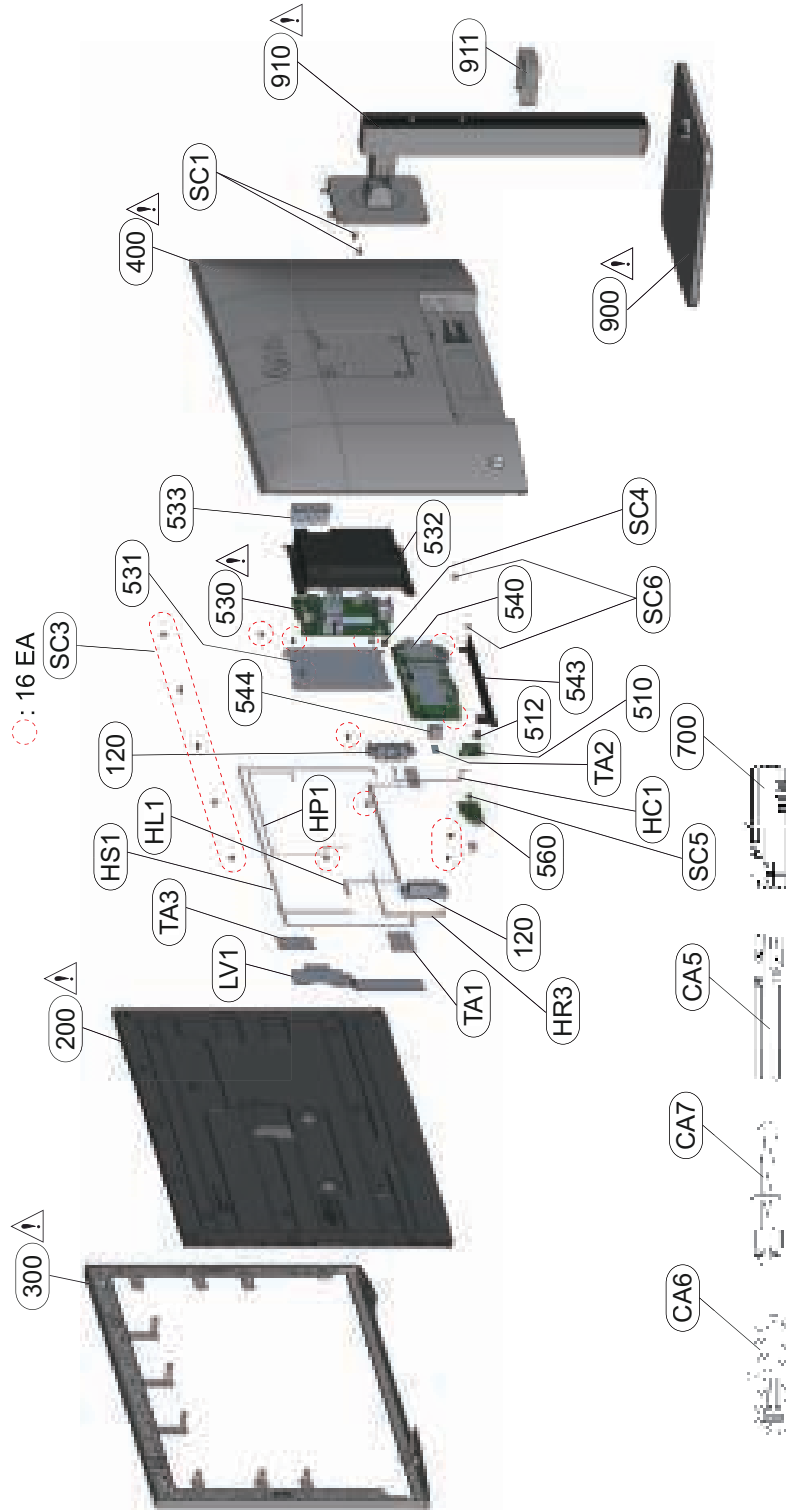
Circuit Block Diagram



EXPLODED VIEW

IMPORTANT SAFETY NOTICE



Many electrical and mechanical parts in this chassis have special safety-related characteristics. These parts are identified by ⚠ in the EXPLODED VIEW. It is essential that these special safety parts should be replaced with the same components as recommended in this manual to prevent Shock, Fire, or other Hazards. Do not modify the original design without permission of manufacturer.



DISASSEMBLY AND ASSEMBLY PROCESS

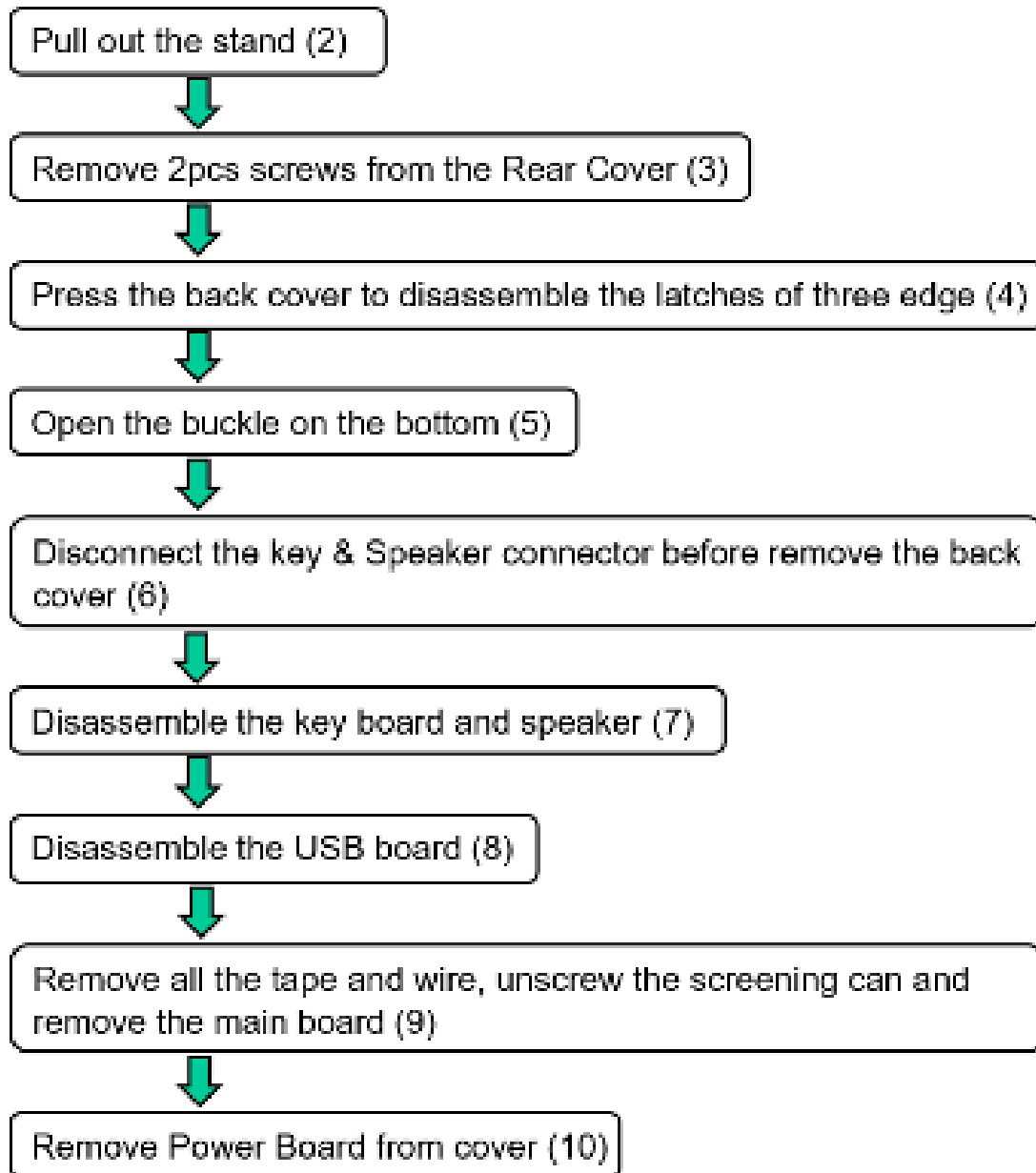
0. Tool Required

List the type that would typically be used to disassemble the product to a point where components and materials requiring selective treatment can be removed.

Tool Description	Tool information
Screw driver	
Crowbar	

1. Disassembly flow chart

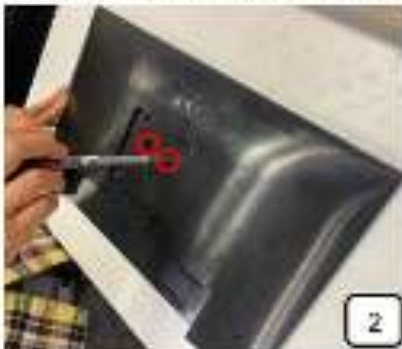
This is disassembly chart .The serial number in parentheses represents the disassembly steps. When assembling , perform this chart



2. Press the button and pull out the stand at the same time



3. Remove 2pcs screws from the Rear Cover



4. Press the back cover to disassemble the latches of three edge(4)



5. Use the Plastic Hera Jig to open the buckle on the bottom



6. Disconnect the key connector & Speaker connector before remove the back cover



7. Disassemble the key board and speaker



8. Disassemble the USB board



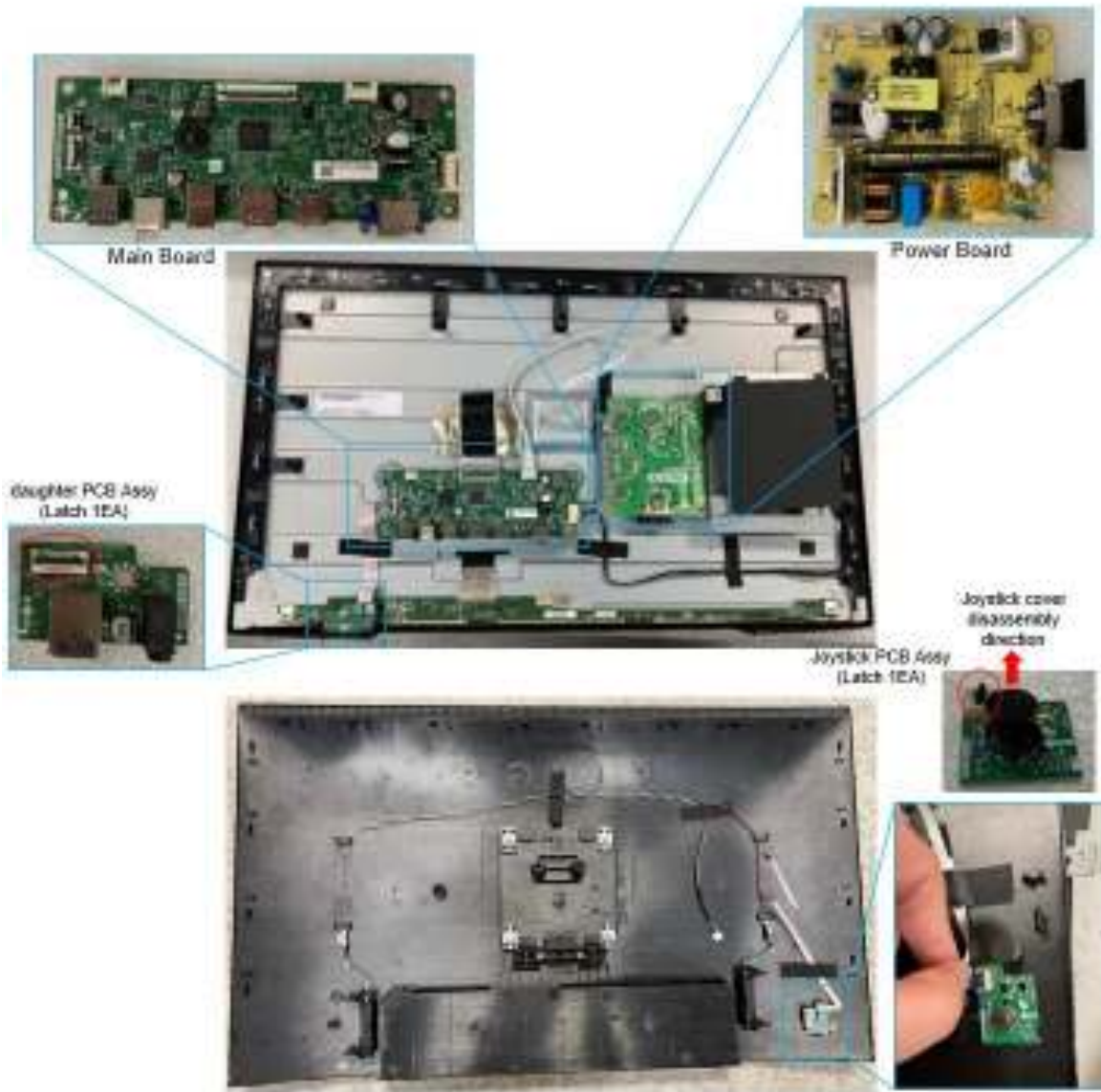
9. Remove all the tape and wire, unscrew the screening can and remove the main board



10. Remove Power Board cover by screw driver. After removing PC sheet by hand, Remove 4 pcs Screws to separate power board from cover.

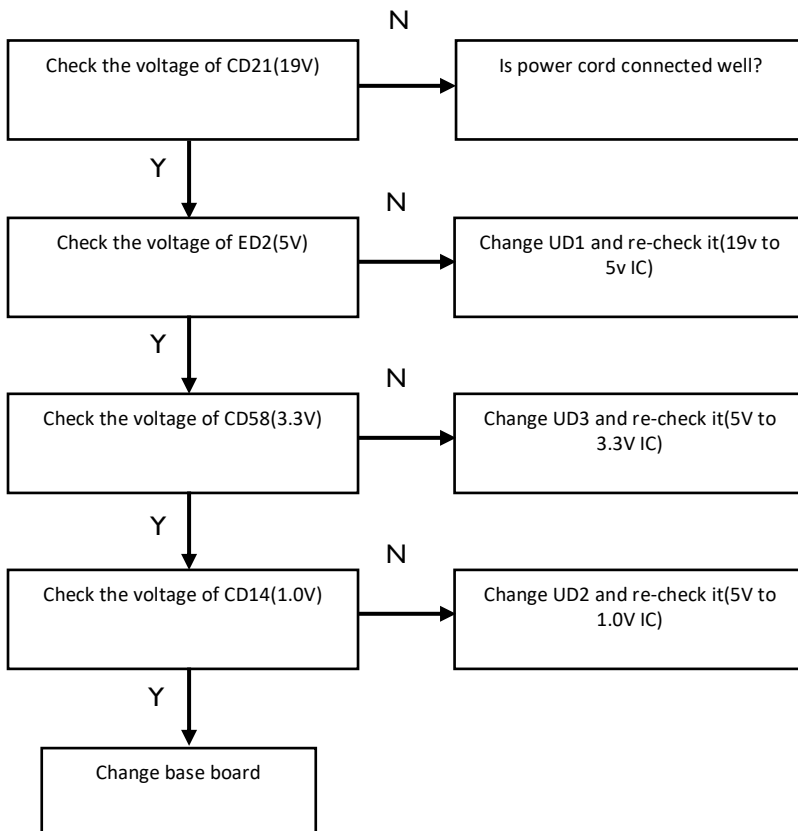


Remove Power Board cover by screw driver. After removing PC sheet by hand, Remove 4 pcs Screws to separate power board from cover.

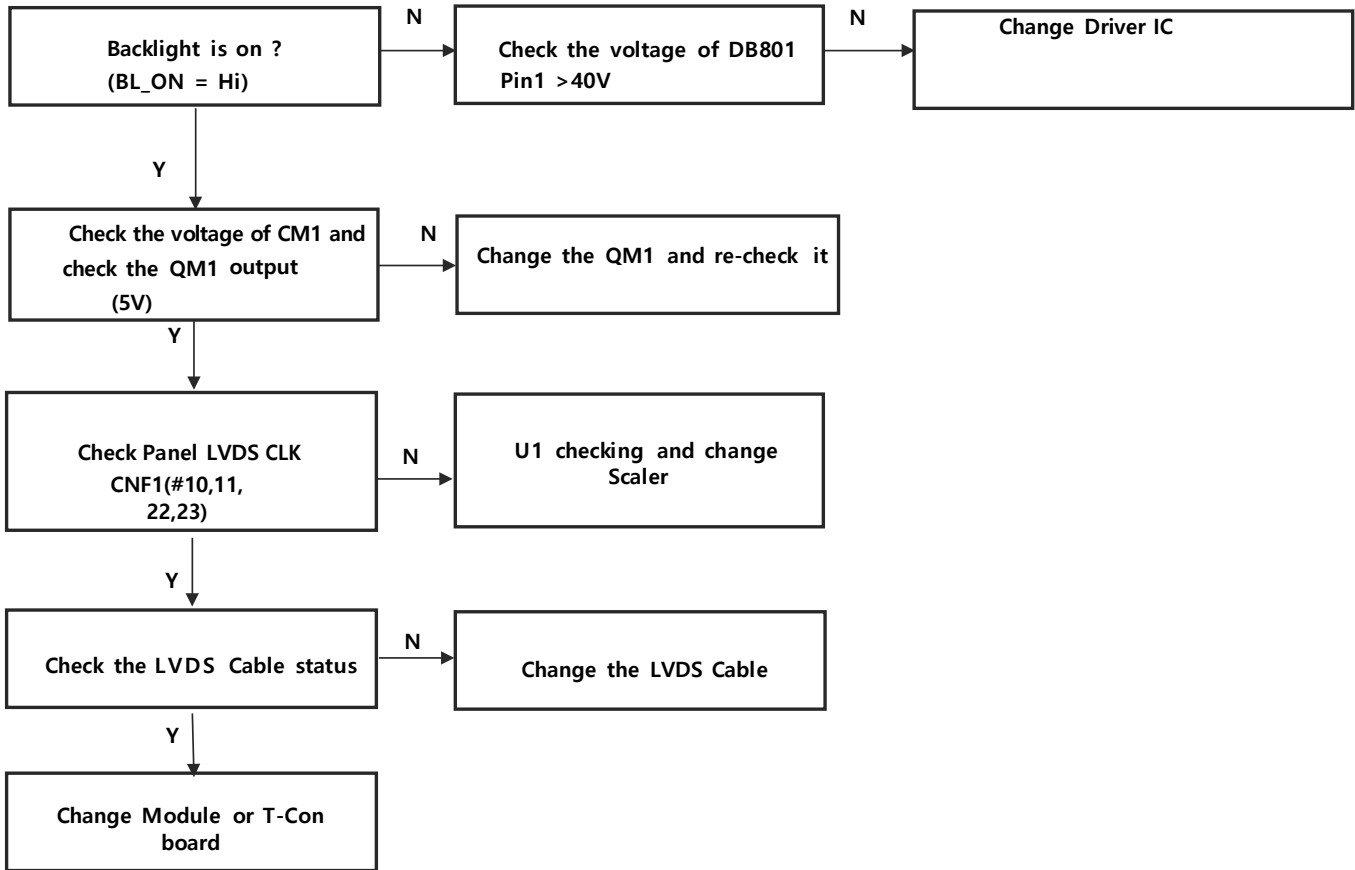


TROUBLE SHOOTING GUIDE

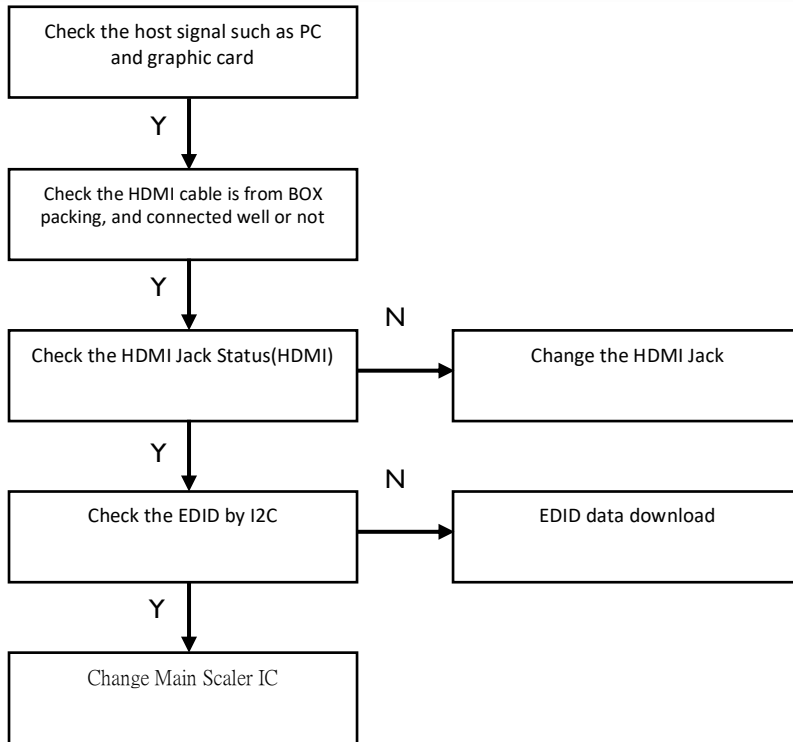
1. No Power



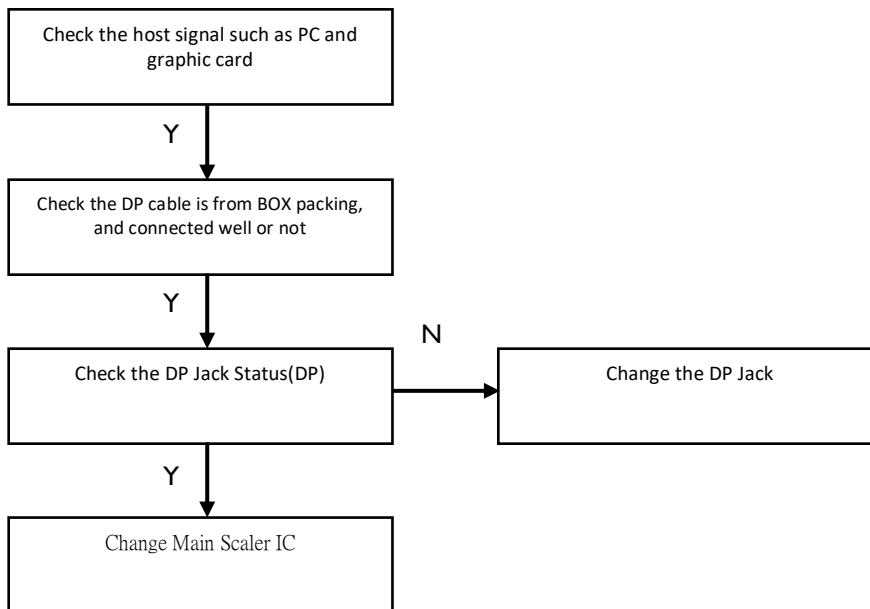
2. No Display



3. No Display for HDMI input



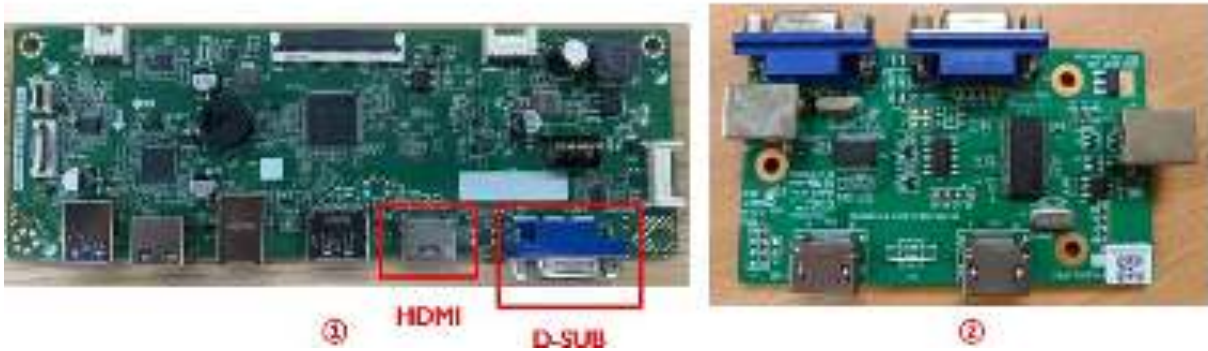
4. No Display for DP input



FIRMWARE UPDATE

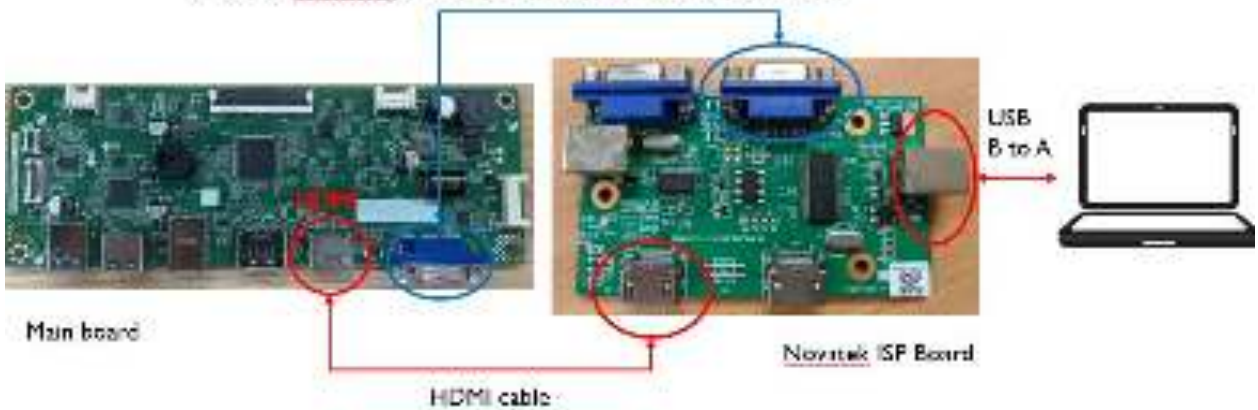
Required Item :

1. NT68B27L Main Board
2. Novatek ISP Board
3. USB A to B Cable
4. HDMI or VGA Cable (choice one)
5. PC and EzWriter Tool



Step 1 : Turn-on the power of Main board.

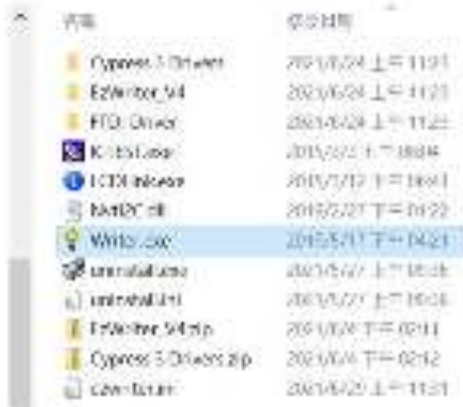
Connect the Main board (**HDMI or D-SUB**) and Novatek ISP board via cable.
Connect Novatek ISP board and PC via USB A to B cable.



Notice: Choice one (**HDMI or D-SUB**) to upgrade FW

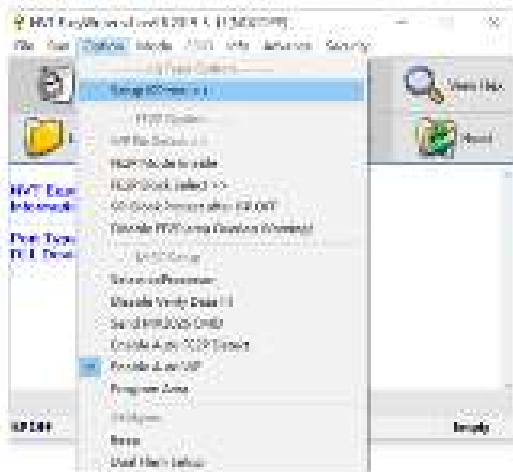
Step 2 : Execute **Writer.exe**


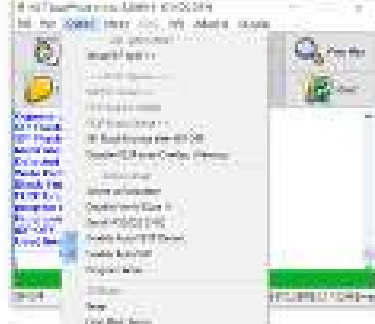
Step 3 : Set the Mode to **Normal Mode**



Step 4 : Click **"Setup ISP tool"**

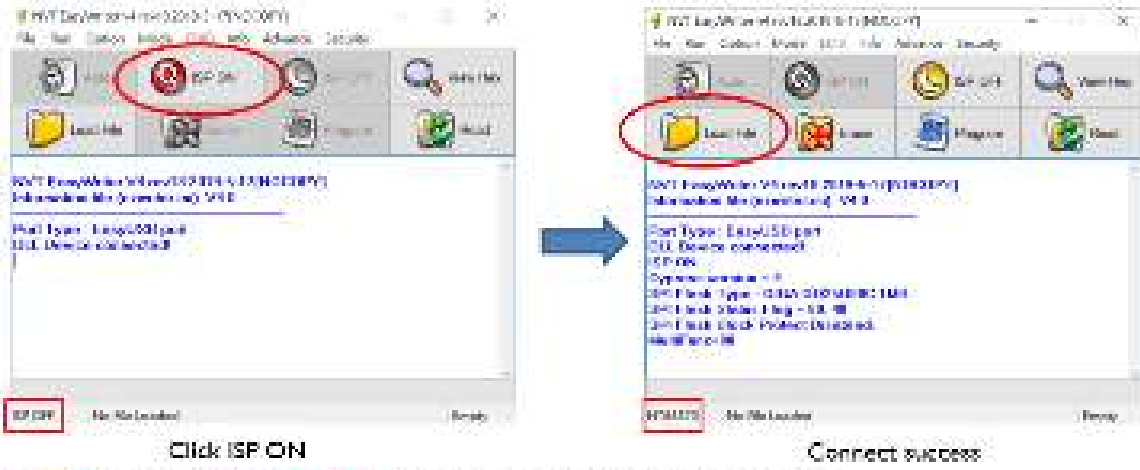
Step 5 : Choose **"Hi Speed"** and **"NVT EasyUSB"**
Press **"Confirm Change"** to save the settings



Full Clean Upgrade (Enter factory mode after upgrade)	Data Protection Upgrade (Keep R/G/B Data)
	
<p>Only Select "Enable Auto FE2P Detect"</p>	<p>Select "Enable Auto FE2P Detect" + "Enable Auto WP"</p>

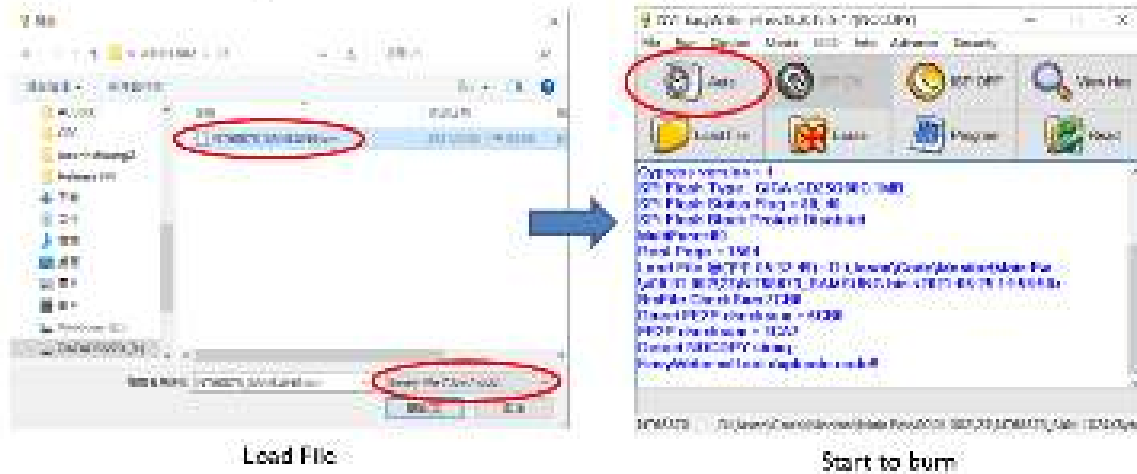
Step 6 : Click **"ISP ON"** to connect the Novatek ISP board

Step 7 : Click **"Load File"** to choose the FW file



Step 8 : Choose **"Binary File"** to filter. Select the FW file and open it.

Step 9 : Click **"Auto"**, it will start to burn FW and verify automatically



Step 10 : Burning process will show progress bar

Step 11 : It will show **"Programming Success"** message after finish burning

