



LED TV

Chassis : U87A

Model : UN40FH5303G

UN46FH5303G

UN50FH5303G

SERVICE Manual

LED TV



UN**FH5303G

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2. Product specifications
3. Disassembly and Reassembly
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1. Precautions

1-1. Safety Precautions

Follow these safety, servicing and ESD precautions to prevent damage and to protect against potential hazards such as electrical shock.

1-1-1. Warnings



For continued safety, do not attempt to modify the circuit board.
Disconnect the AC power and DC power jack before servicing.

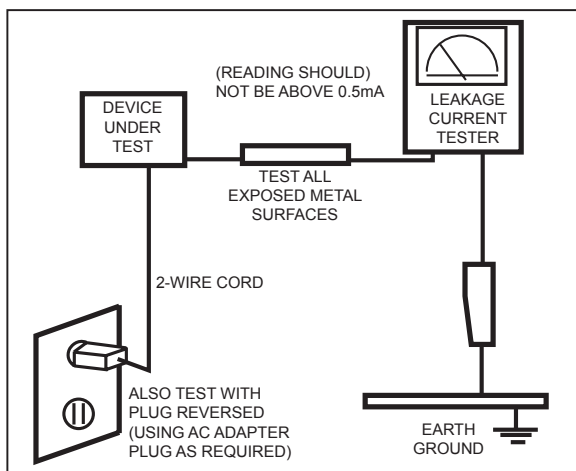
1-1-2. Servicing the LED TV

1. When servicing the LED TV, Disconnect the AC line cord from the AC outlet.
2. It is essential that service technicians have an accurate voltage meter available at all times. Check the calibration of this meter periodically.

1-1-3. Fire and Shock Hazard

Before returning the monitor to the user, perform the following safety checks:

1. Inspect each lead dress to make certain that the leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the monitor.
2. Inspect all protective devices such as nonmetallic control knobs, insulating materials, cabinet backs, adjustment and compartment covers or shields, isolation resistor/capacitor networks, mechanical insulators, etc.
3. Leakage Current Hot Check:




Do not use an isolation transformer during this test.

Use a leakage current tester or a metering system that complies with American National Standards Institute (ANSI C101.1, Leakage Current for Appliances), and Underwriters Laboratories (UL Publication UL1410, 59.7).

4. With the unit completely reassembled, plug the AC line cord directly into a 120V AC outlet. With the unit's AC switch first in the ON position and then OFF, measure the current between a known earth ground (metal water pipe, conduit, etc.) and all exposed metal parts, including: metal cabinets, screwheads and control shafts.
The current measured should not exceed 0.5 milliamp.
Reverse the power-plug prongs in the AC outlet and repeat the test.

1-1-4. Product Safety Notices

Some electrical and mechanical parts have special safetyrelated characteristics which are often not evident from visual inspection. The protection they give may not be obtained by replacing them with components rated for higher voltage, wattage, etc. Parts that have special safety characteristics are identified by  on schematics and parts lists. A substitute replacement that does not have the same safety characteristics as the recommended replacement part might create shock, fire and/or other hazards. Product safety is under review continuously and new instructions are issued whenever appropriate.

1-2. Servicing Precautions



An electrolytic capacitor installed with the wrong polarity might explode.



Before servicing units covered by this service manual, read and follow the Safety Precautions section of this manual.



If unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions, always follow the safety precautions.

1-2-1. General Servicing Precautions

1. Always unplug the unit's AC power cord from the AC power source and disconnect the DC Power Jack before attempting to: (a) remove or reinstall any component or assembly, (b) disconnect PCB plugs or connectors, (c) connect a test component in parallel with an electrolytic capacitor.
2. Some components are raised above the printed circuit board for safety. An insulation tube or tape is sometimes used. The internal wiring is sometimes clamped to prevent contact with thermally hot components. Reinstall all such elements to their original position.
3. After servicing, always check that the screws, components and wiring have been correctly reinstalled. Make sure that the area around the serviced part has not been damaged.
4. Check the insulation between the blades of the AC plug and accessible conductive parts (examples: metal panels, input terminals and earphone jacks).
5. Insulation Checking Procedure: Disconnect the power cord from the AC source and turn the power switch ON. Connect an insulation resistance meter (500 V) to the blades of the AC plug. The insulation resistance between each blade of the AC plug and accessible conductive parts (see above) should be greater than 1 megohm.
6. Always connect a test instrument's ground lead to the instrument chassis ground before connecting the positive lead; always remove the instrument's ground lead last.

1-3. Static Electricity Precautions

Some semiconductor (solid state) devices can be easily damaged by static electricity. Such components are commonly called Electrostatically Sensitive Devices (ESD). Examples of typical ESD are integrated circuits and some field-effect transistors. The following techniques will reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor components or assemblies, drain the electrostatic charge from your body by touching a known earth ground. Alternatively, wear a discharging wrist-strap device. To avoid a shock hazard, be sure to remove the wrist strap before applying power to the monitor.
2. After removing an ESD-equipped assembly, place it on a conductive surface such as aluminum foil to prevent accumulation of an electrostatic charge.
3. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ESDs.
4. Use only a grounded-tip soldering iron to solder or desolder ESDs.
5. Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ESDs.
6. Do not remove a replacement ESD from its protective package until you are ready to install it. Most replacement ESDs are packaged with leads that are electrically shorted together by conductive foam, aluminum foil or other conductive materials.
7. Immediately before removing the protective material from the leads of a replacement ESD, touch the protective material to the chassis or circuit assembly into which the device will be installed.



Be sure no power is applied to the chassis or circuit and observe all other safety precautions.

8. Minimize body motions when handling unpackaged replacement ESDs. Motions such as brushing clothes together, or lifting your foot from a carpeted floor can generate enough static electricity to damage an ESD.

1-4. Installation Precautions



1. For safety reasons, more than a people are required for carrying the product.
2. Keep the power cord away from any heat emitting devices, as a melted covering may cause fire or electric shock.
3. Do not place the product in areas with poor ventilation such as a bookshelf or closet. The increased internal temperature may cause fire.
4. Bend the external antenna cable when connecting it to the product. This is a measure to protect it from being exposed to moisture. Otherwise, it may cause a fire or electric shock.
5. Make sure to turn the power off and unplug the power cord from the outlet before repositioning the product. Also check the antenna cable or the external connectors if they are fully unplugged. Damage to the cord may cause fire or electric shock.
6. Keep the antenna far away from any high-voltage cables and install it firmly. Contact with the highvoltage cable or the antenna falling over may cause fire or electric shock.
7. When installing the product, leave enough space (0.4m) between the product and the wall for ventilation purposes. A rise in temperature within the product may cause fire.
8. If an equipment is provided with a replaceable battery, and if replacement by an incorrect type could result in an explosion (for example, with some lithium batteries), the following applies:



- Risk of explosion if battery is replaced by an incorrect type dispose of used batteries according to the instructions.
- Do not dispose of batteries in a fire.
- Do not short circuit, disassemble or overheat the batteries.
- Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type.
- Do not be exposed to excessive heat such as sunshine, fire or the like.

2. Product Specifications

2-1. Product information

Model	UN**FH5303G		
Front View	 <p>* W : Width H : High D : Depth</p>		
Detail View			
Front Color	Black		
Dimensions (W x H x D)	40"	With Stand	927.6 x 603.4 x 255.0 mm / 36.5 x 23.8 x 10.0 inches
		Without Stand	927.6 x 551.0 x 93.0 mm / 36.5 x 21.7 x 3.7 inches
	46"	With Stand	1059.8 x 677.8 x 275.0 mm / 41.7 x 26.7 x 10.8 inches
		Without Stand	1059.8 x 625.6 x 94.3 mm / 41.7 x 24.6 x 3.7 inches
	50"	With Stand	1137.6 x 721.6 x 275.0 mm / 44.8 x 28.4 x 10.8 inches
		Without Stand	1137.6 x 669.4 x 94.5 mm / 44.8 x 26.4 x 3.7 inches
Weight	40"	With Stand	12.2 kg / 26.9 lbs
		Without Stand	8.9 kg / 19.6 lbs
	46"	With Stand	15.5 kg / 34.2 lbs
		Without Stand	12.0 kg / 26.5 lbs
	50"	With Stand	19.3 kg / 42.5 lbs
		Without Stand	15.7 kg / 34.6 lbs
Panel Type	Anti Glare		
Internal Memory	2 GB		
DDR	1 GB		
Feature	Smart(Web browsing), DLNA(AllShare), AllShare Play(Movie)		

2-2. Product specification

2-2-1. Detailed Specifications


NOTE

Design and specifications are subject to change without prior notice.

Item		UN**FH5303GXPR
General Information	Product	LED
	Series	5
	Country	PARAGUAY
Display	Screen Size	40/46/50
	Resolution	1,920 x 1,080
	Ultra Clear Panel	No
Video	Picture Engine	HyperReal Engine
	Clear Motion Rate	120
	Dynamic Contrast Ratio	Mega Contrast
	Micro Dimming	No
	Precision Black (Local Dimming)	No
	Wide Color Enhancer (Plus)	Yes
	Wide Color Gamut	N/A
	Color Accuracy	N/A
	Auto Depth Enhancer	N/A
	Film Mode	Yes
	Natural Mode Support	Yes
Audio	Dolby MS10 / MS110	Dolby Digital Plus / Dolby Pulse
	DTS Studio Sound / DNSe+	DTS Studio Sound
	DTS Premium Sound / DTS Premium Sound 5.1	DTS Premium Audio 5.1
	3D Sound	No
	Auto Volume Leveler	Yes
	Sound Customizer	No
	Sound Output (RMS)	10W X 2
	Speaker Type	Down Firing + Full Range
	Woofer	No
Smart TV	Smart Hub	Yes
	Samsung SMART TV	
	On TV	No
	Movies & TV Shows	No

Item		UN**FH5303GXPR
Smart TV	Multimedia	NO
	Apps	Yes
	News On	NO
	Game	NO
	My Space	NO
	Social	N/A
	Fitness	Yes
	Kids	Yes
	Multi-Screen (Dual / Quad Screen)	NO
	Skype™ on Samsung TV	N/A
	Web Browser	Yes
	AllShare Control	
	Search	
Smart Interaction	Voice Interaction	No
	Voice Control	No
	Camera Built-in	No
	Face recognition	No
	Motion control	No
	Samsung Apps Supported	
Smart Convergence	Contents Sharing	Yes
	Screen Mirroring	Yes
	Samsung SMART View	Yes (Clone View only)
	Smart Home	NO
	Wake On LAN	No
	WiDi	N/A
Tuner/Broadcasting	DTV Tuner	ISDB-T
	Analog Tuner	Yes (Trinorma)
	MHP / MHEG / HbbTV / ACAP / GINGA / OHTV	N/A
Connectivity	HDMI	2
	USB	1
	Component In (Y/Pb/Pr)	1
	Composite In (AV)	1 (Common Use for Component Y)
	Ethernet (LAN)	1
	Headphone	No
	Audio Out (Mini Jack)	1

2. Product specifications

Item		UN**FH5303GXPR
Connectivity	Digital Audio Out (Optical)	1
	PC In (D-sub)	No
	PC/DVI Audio In (Mini Jack)	No
	RF In (Terrestrial / Cable input)	2
	Ex-Link (RS-232C)	No
	IR Out	No
	CI Slot	N/A
	Scart	N/A
	MHL CE 3.0	No
	One Connect (Jack)	No
	WiFi Direct	Yes
	MHL	No
	Dongle Ready (3G / LTE)	
	HDMI 1.4 3D Auto Setting	No
	HDMI 1.4 A/Return Ch. Support	No
	InstaPort S (HDMI quick switch)	No
	Wireless LAN Adapter Support	No
	Wireless LAN Built-in	Yes
	Anynet+ (HDMI-CEC)	Yes
Design	Design	One Design
	Bezel Type	NNB
	Slim Type	Normal
	Front Color	Black
	Light Effect (Deco)	No
	Stand Type	Square
	Swivel (Left/Right)	NO
	Camera Type	N/A
Additional Feature	Samsung 3D	No
	3D Converter	No
	Instant On	No
	N-KIT	No
	Quad Core+	No
	Accessibility	No
	Digital Clean View	Yes
	Auto Channel Search	Yes

Item		UN**FH5303GXPR
Additional Feature	Auto Power Off	Yes
	Clock&On/Off Timer	Yes
	Sleep Timer	Yes
	BD Wise Plus	No
	Caption (Subtitle)	Yes
	ConnectShare™ (USB 2.0)	Movie
	AC/DC TV	N/A
	Sports Mode	Soccer 1.0 (Advanced)
	Screen Capture	No
	Embedded POP	Yes
	EPG	Yes
	Extended PVR	Yes
	Game Mode	Yes
	History	Yes
	Multiroom Compatible	N/A
	OSD Language	Local Languages
	Picture-In-Picture	Yes
	MultiTasking	N/A
	BT HID Built-in	N/A
	USB HID Support	Yes
	Smart Evolution Support	No
	TV SoundConnect	N/A
	Teletext (TTXT)	No
	Time Shift	Yes
	Triple Protector	N/A
	GUI	NO
Eco Feature	Eco Mark	Planet First
	Eco Label	N/A
	Eco Sensor	Yes
	Energy Efficiency Class	N/A
Accessory	3D Active Glasses (Included)	No
	Remote Controller Model	TM1250A
	Batteries (for Remote Control)	Yes
	Samsung Smart Touch Control (Included)	No
	Electric Stand Support	N/A

2. Product specifications

Item		UN**FH5303GXPR
Accessory	Electric Wall Mount Support	N/A
	Ultra Slim Wall Mount Supported	No
	Mini Wall Mount Supported	Yes
	Vesa Wall Mount Supported	Yes
	Floor Stand Support	No
	TV Camera (Included)	0
	IR Extender Cable (Included)	No
	Network Speaker (Included)	No
	Wireless Keyboard (Included)	0
	Wireless LAN Adaptor (Included)	0
	User Manual	Yes
	E-Manual	Yes
	ANT-Cable	0
	Power Cable	Yes
	Slim Gender Cable	0

2-2-2. Feature & Specifications


■ Feature

- Digital-TV, RF, 2-HDMI, 1-Component, 1-A/V, 1-USB2.0, LAN
- Brightness : 300 cd/m²
- Response Time : 8ms
- CMR : 120
- Dynamic contrast Ratio : Mega Contrast
- Dolby Digital Plus Pulse, DTS Premium Sound 5.1, DTS Studio Sound

■ Specifications


Model	UN40FH5303G	UN46FH5303G	UN50FH5303G
Item	Description		
Screen Size (Diagonal)	40 inches	46 inches	50 inches
LCD Panel	FHD 60Hz		
Display Colors	16.7M / 1.07B color		
Display Resolution	1920 x 1080		
Input Signal	Analog 0.7 Vp-p ± 5% positive at 75Ω, internally terminated		
Input Sync Signal	H/V Separate, TTL, P. or N.		
Maximum Pixel Clock Rate	148.5MHz		
AC Power Voltage & Frequency	AC100-240V 50/60Hz		
Environmental Considerations	Operating Temperature : 50°F ~ 104°F (10°C ~ 40°C) Operating Humidity : 10% ~ 80%, non-condensing Storage Temperature : -4°F ~ 113°F (-20°C ~ 45°C) Storage Humidity : 5% ~ 95%, non-condensing		
Sound (Output)	20W (10W X 2)		
Note : Smart(Web browsing), DLNA(AllShare), AllShare Play(Movie)			

2-3. Accessories

 **NOTE**

- The items' colors and shapes may vary depending on the model.
- Cables not included in the package contents can be purchased separately.
- The part code for some accessories may differ depending on your region.

Product	Code. No	Product	Code. No
• Remote Control	AA59-00809A	• User Manual	BN68-05754B
• Batteries (AAA x 2)	4301-000121	• Warranty Card (Not available in some locations)	6801-001157
• Power Cord	3903-000851		

Image	Product	Code. No
	• Holder-Wire Stand	BN61-05491A

3. Disassembly and Reassembly

This section of the service manual describes the disassembly and reassembly procedures for the LED TV.



This LED TV contains electrostatically sensitive devices. Use caution when handling these components.




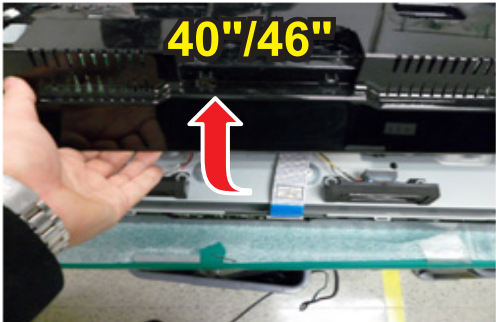
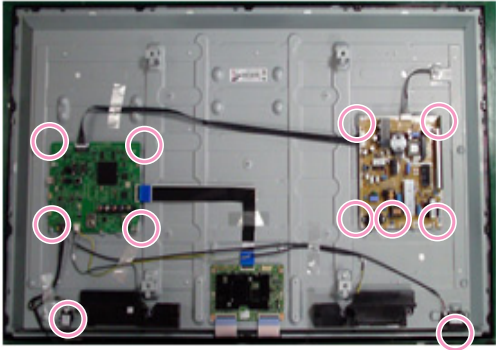

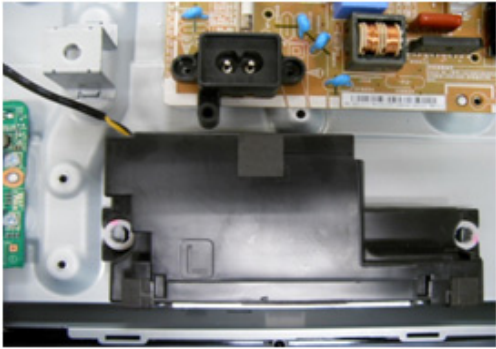
3-1. Disassembly and Reassembly

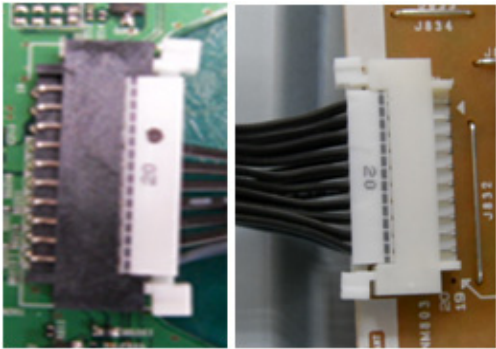
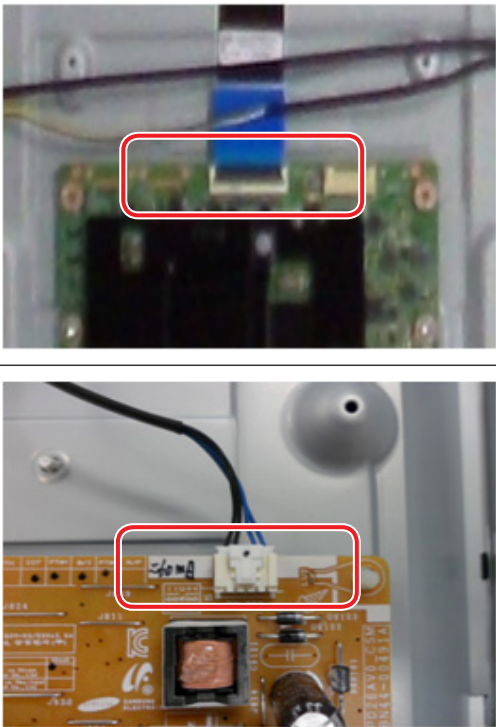



1. Disconnect the LED TV from the power source before disassembly.
2. Follow these directions carefully; never use metal instruments to pry apart the cabinet.
3. If there is no additional coment, it is same for all inches.

Description	Picture Description	Screws
1 Place TV face down on cushioned table.		
2 Remove 4 screws from the Stand.		 6003-001782
3 Remove Stand.		

3. Disassembly and Reassemble

Description	Picture Description	Screws
4 Remove the screw of Rear Cover. <ul style="list-style-type: none"> 40" : 12EA / 4EA 46" : 15EA / 6EA 		<div data-bbox="1262 293 1430 472">  <p>Torque : 7~ 8Kgf.cm</p> </div> <div data-bbox="1262 495 1430 734">  <p>Torque : 7~ 8Kgf.cm</p> </div> <p>6003-001782</p> <p>6003-002755</p>
5 Remove the Rear Cover.		
6 Remove the screws. <ul style="list-style-type: none"> 40" : 11EA 46" : 11EA 		<div data-bbox="1262 1099 1430 1279">  <p>Torque : 7~ 8Kgf.cm</p> </div> <p>001-002756</p>
7 Remove the Speakers and Power Cables.		

Description	Picture Description	Screws
		
8 Remove the LVDS Cable and Panel Drive Cable		
9 Completed Disassembly		

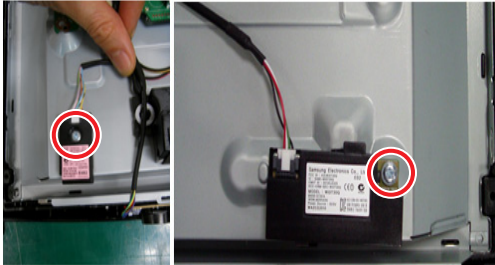
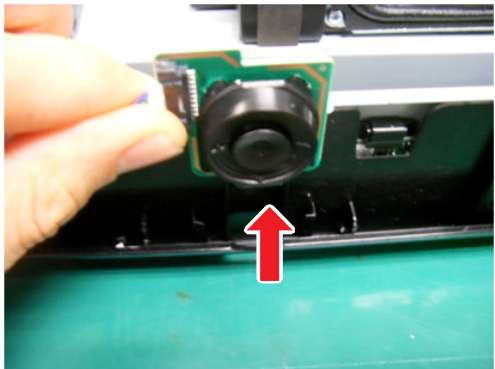


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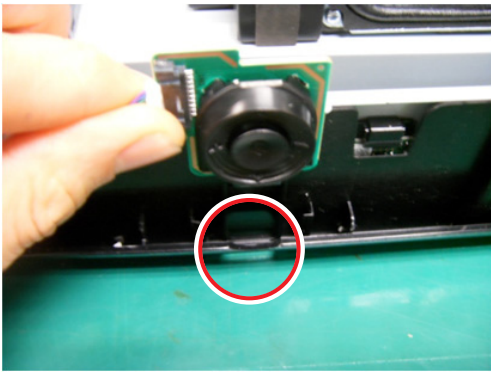
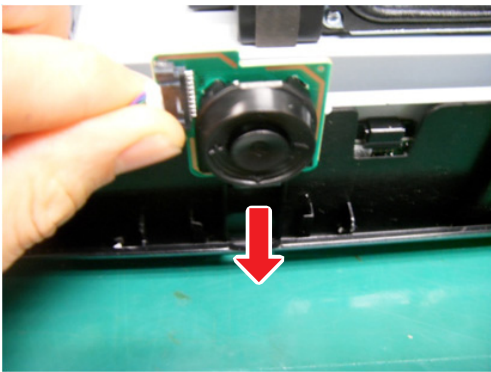
Reassembly procedures are in the reverse order of disassembly procedures.

3-2. Assy Board P-Jog Switch & Ir

■ How to disassembly

Description	Picture Description	Refer
1 Remove the Screw.		
2 Remove the Function Assy.		

■ How to assembly

Description	Picture Description	Refer
1 Check the locking hole.		
2 Combine the function assy to locking hole.		

When you want to ignore the funtion key actions

Option

Control

SVC

Expert

ADC/WB

Advanced



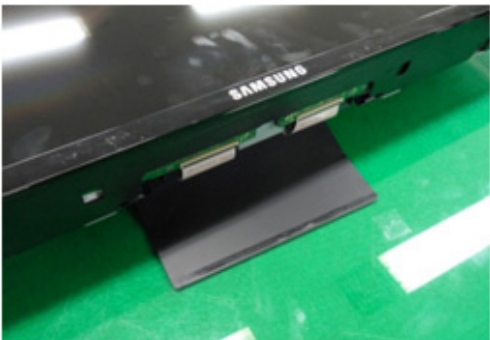

Config Option





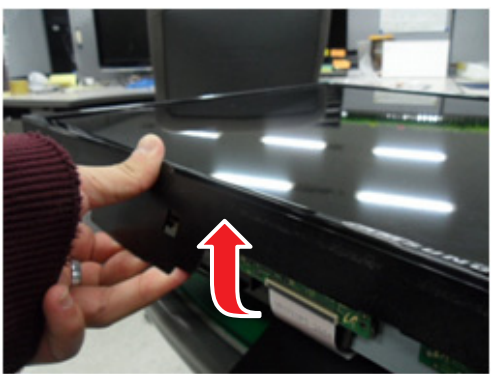
Navigation Key Func

0 : New Function (Naviagtion) Key • [Default]
1 : Old Function (Touch) Key
2 : Do not work Function key

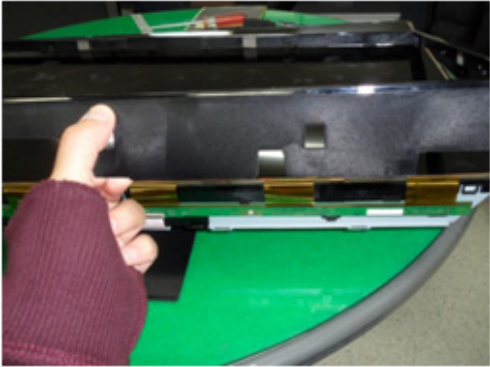
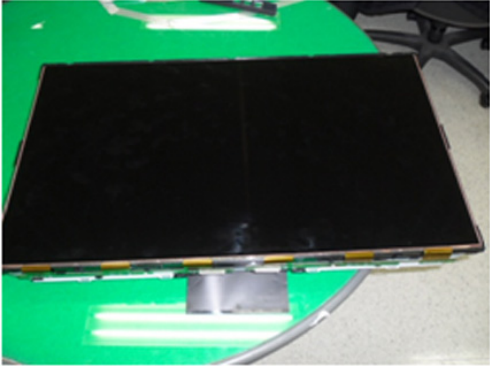
3-3. Disassembly(PTC)

■ How to disassembly




Description	Picture Description	Refer
1 Place TV face up on cushioned table.		
2 Remove the T-CON Cover		
		
3 First spread the PTC upper.		

Description	Picture Description	Refer
<div data-bbox="172 286 209 338">4</div> <div data-bbox="236 286 627 344">Spread the both sides of PTC upper (marked "▼") by use the tool.</div> <div data-bbox="247 365 421 412"><div data-bbox="247 365 311 412">!</div> CAUTION</div> <div data-bbox="247 430 675 488">Do not scratch on both side by use tool. Gate Cof will be damaged.</div> <div data-bbox="247 495 684 658"></div>	<div data-bbox="729 286 1222 658"></div> <div data-bbox="729 680 1222 1052"></div>	
<div data-bbox="172 1075 209 1126">5</div> <div data-bbox="236 1075 593 1104">Apart left and right sides of PTC.</div>	<div data-bbox="729 1075 1222 1447"></div>	
<div data-bbox="172 1469 209 1520">6</div> <div data-bbox="236 1469 517 1498">Raise up the PTC bottom.</div>	<div data-bbox="729 1469 1222 1841"></div>	


3. Disassembly and Reassemble

Description	Picture Description	Refer
7 Disassembly is complete.		
		

■ How to reassembly

Description	Picture Description	Refer
<div>1</div> <div>Cover the PTC bottom.</div>		
		
<div>2</div> <div>Combine the hook of left and right side.</div>		

Description	Picture Description	Refer
<div data-bbox="177 293 209 338">3</div> <div data-bbox="237 293 654 320">Check to combine the top and bottom.</div> <div data-bbox="247 338 654 463"><div data-bbox="247 338 311 392"></div><div data-bbox="311 353 421 383">CAUTION</div><div data-bbox="247 405 654 463">Combine to stick the PTC Rib into the middle mold.</div></div> <div data-bbox="247 470 679 842"></div>		

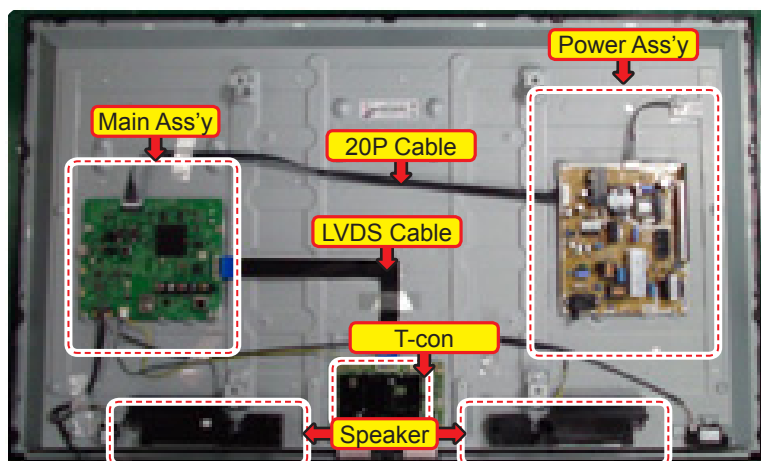
Description	Picture Description	Refer
<div data-bbox="172 286 209 338">4</div> Disassembly is complete.		

4. Troubleshooting

4-1. Troubleshooting

4-1-1. Previous Check

1. Check the various cable connections first.
 - Check to see if there is a burnt or damaged cable.
 - Check to see if there is a disconnected or loose cable connection.
 - Check to see if the cables are connected according to the connection diagram.
2. Check the power input to the Main Board.



3. How to distinguish if the problem is caused by **Main Board** or **T CON**

- No Video

If the problem is No Video but BLU is on and Indication LED is blinking repeatedly and faster than normal booting, replace the T-CON board.

- Distorted Picture

Check the inner patterns.

- For All mode

X10+	FOX_FT1 FRC Post	Picture	Problem
OK	OK	NG	Main Board or Signal Source
NG	OK	NG	Main Board
NG	NG	NG	Main Board or LVDS cable or T CON or Panel

- Only for HDMI mode (additional check)

HDMI	Picture	Problem
OK	NG	There is no problems after HDMI IC check HDMI source or HDMI jack.
NG	NG	There is no problems before HDMI IC check X12 pattern or LVDS cable or T CON

■ How to check inner pattern?

1. Enter the service mode → Choose 'SVC' → Check the 'internal pattern.'

2. Enter 'Service Mode.'

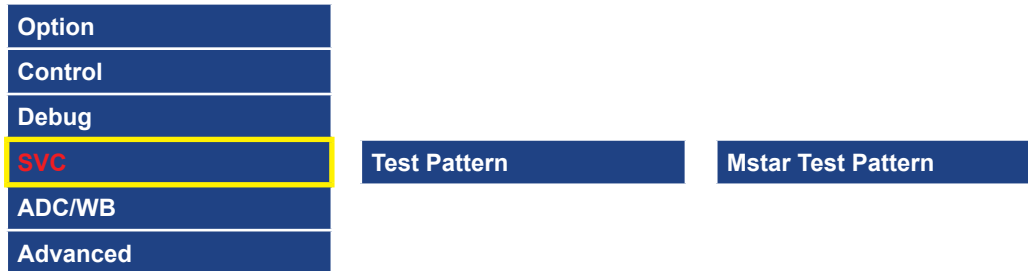
- If you do not have Factory remote control



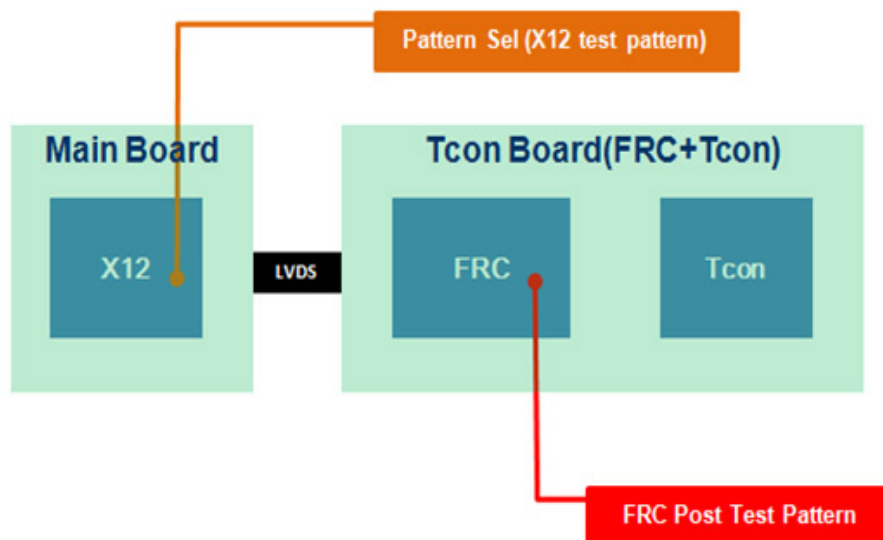
- If you have Factory remote control



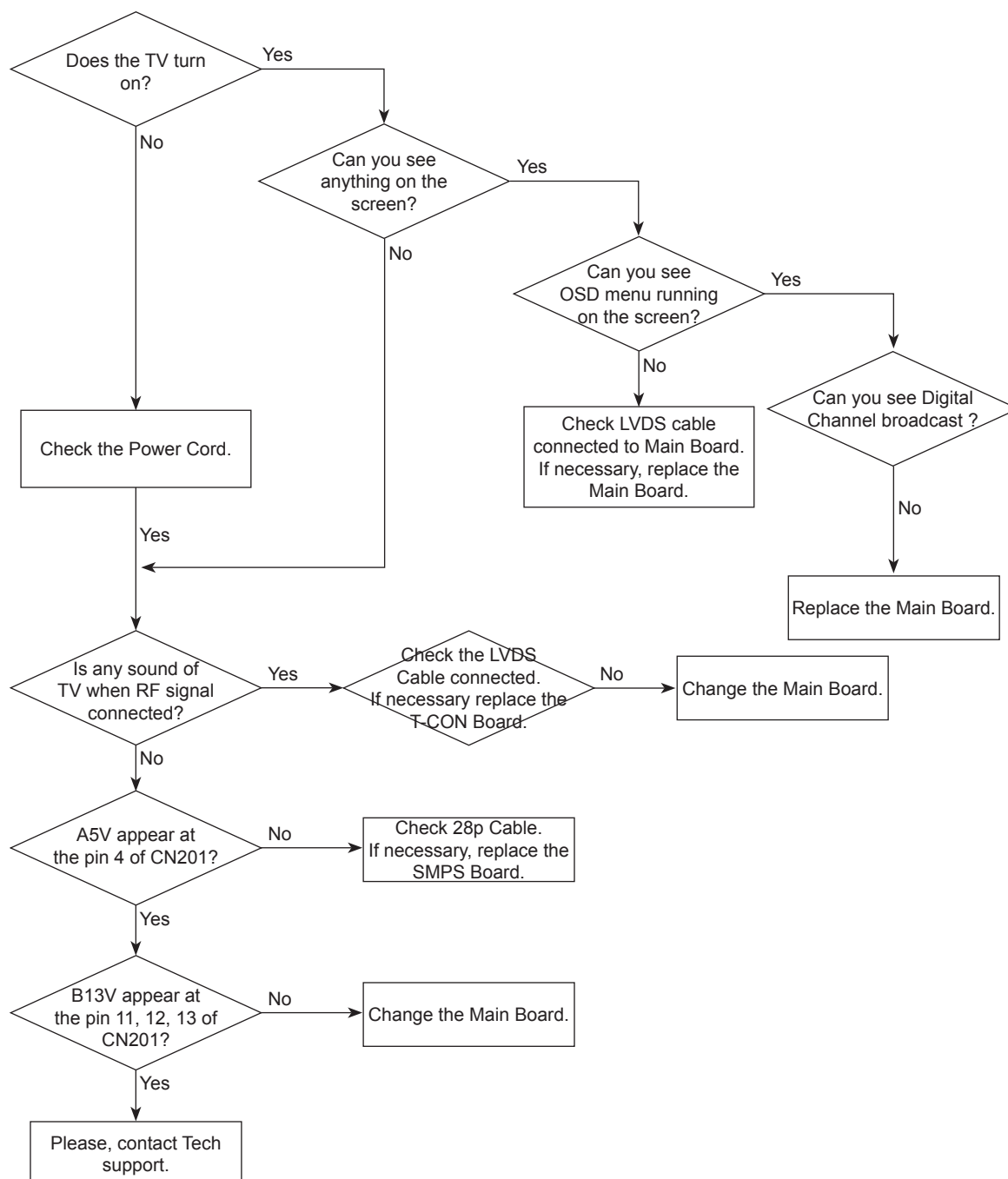
3. Choose 'SVC → Test pattern'.



4. Check inner patterns.



4-1-2. Simple flow chart of malfunction



4-2. How to Check Fault Symptom

4-2-1. NO Power

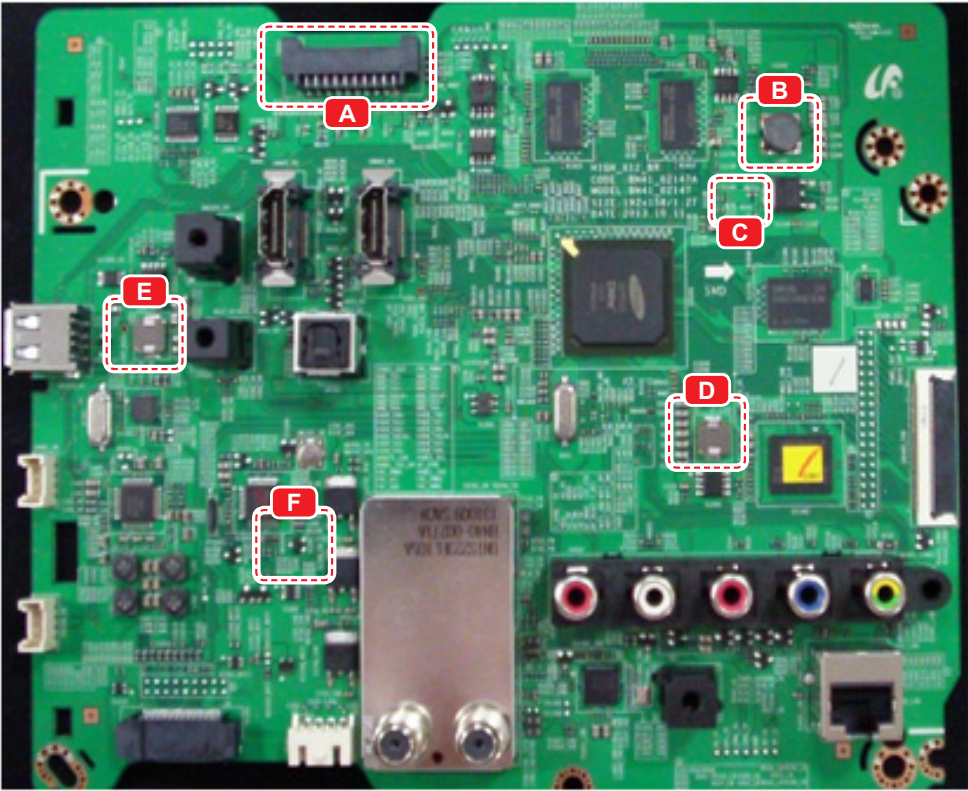
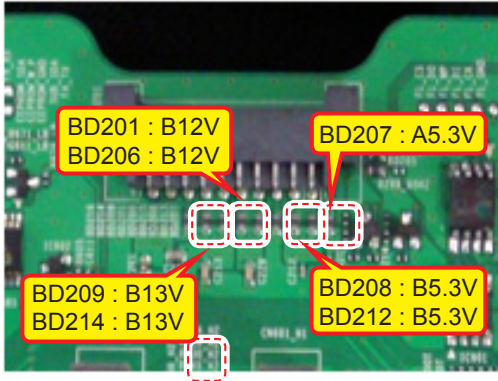
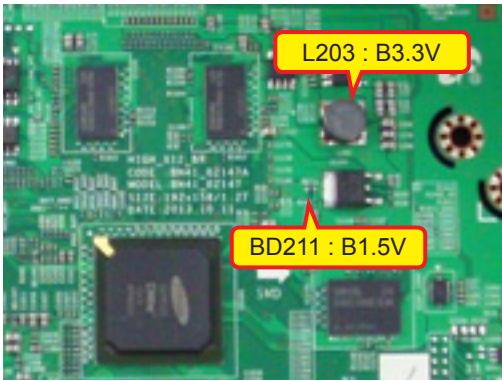
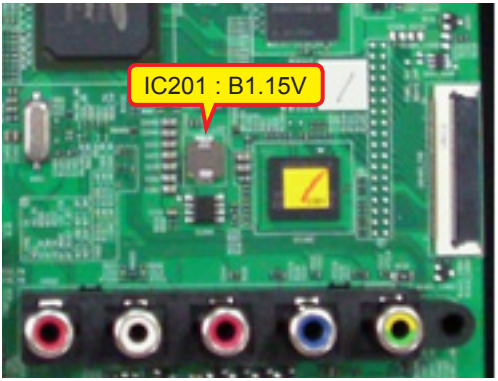
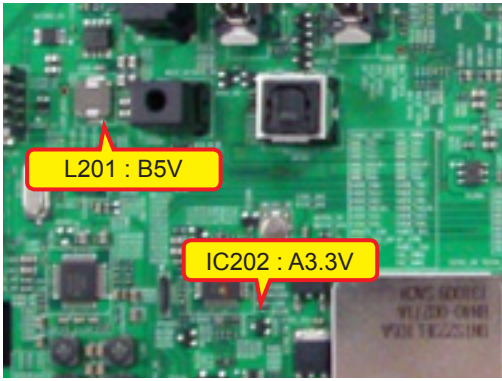

Note

Refer to the next page to check the location such a CN201 or IC201 SVC Manual mentioned.

Symptom	<ul style="list-style-type: none"> The LEDs on The front panel do not work when connecting The power cord. The SMPS relay does not work when connecting The power cord. The units appears to be dead.
Major checkpoints	<p>The IP relay or the LEDs on the front panel does not work when connecting the power cord if the cables are improperly connected or the Main Board or SMPS is not functioning. In this case, check the following:</p> <ul style="list-style-type: none"> Check the internal cable connection status inside the unit. Check the fuses of each part. Check the output voltage of SMPS. Replace the Main Board.
Diagnostics	<pre> graph TD Q1[Power indicator LED is on?] -- No --> A1[Check the power cord connection.] Q1 -- Yes --> Q2[Check the backlight on, when 20 PIN cable unconnected ?] Q2 -- No --> A2[Change 20p cable. Change Main Power Ass'y.] Q2 -- Yes --> Q3[Check 'Stand-By 5V' ? BD207 : A5.3V] Q3 -- No --> A2 Q3 -- Yes --> Q4[Check 'Power input of Main Ass'y' ? - BD206 / BD201 : B12VS - BD214 / 209 : B13V - BD208 / BD213 : B5V] Q4 -- No --> A2 Q4 -- Yes --> Q5[Check 'Power IC output of Main Ass'y' ? - IC202 : A3.3V - L202 : B1.15V / L201 : B5V - L203 : B3.3V / BD211 : B1.5V] Q5 -- No --> A3[Change the Main Ass'y.] Q5 -- Yes --> Q6[Check Input power of 'T CON Board' ? - F1(T CON) : B13V] Q6 -- No --> A4[Reconnect or Change. the LVDS cable.] Q6 -- Yes --> Q7[Check Power of 'T CON Board'. - BD1(T CON) : Panel_12V - B1.1V(T CON-TP) : FT1_1.1V_PW] Q7 -- No --> A5[Change the T CON Board.] </pre>

Diagnostics	<div data-bbox="598 224 646 291">↓ Yes ↓</div> <div data-bbox="392 293 857 356">Please, Contact tech support.</div>
Caution	Make sure to disconnect the power before working on the IP Board.

■ Location of Parts

Main Board_Front			
			
Detail			
<div>A</div>	 <p>BD201 : B12V BD206 : B12V BD207 : A5.3V BD209 : B13V BD214 : B13V BD208 : B5.3V BD212 : B5.3V</p>	<div>B</div> <div>C</div>	 <p>L203 : B3.3V BD211 : B1.5V</p>
	 <p>IC201 : B1.15V</p>	<div>E</div> <div>F</div>	 <p>L201 : B5V IC202 : A3.3V</p>

4-2-2. No Video (HDMI 1, 2, 3, 4 - Digital Signal)

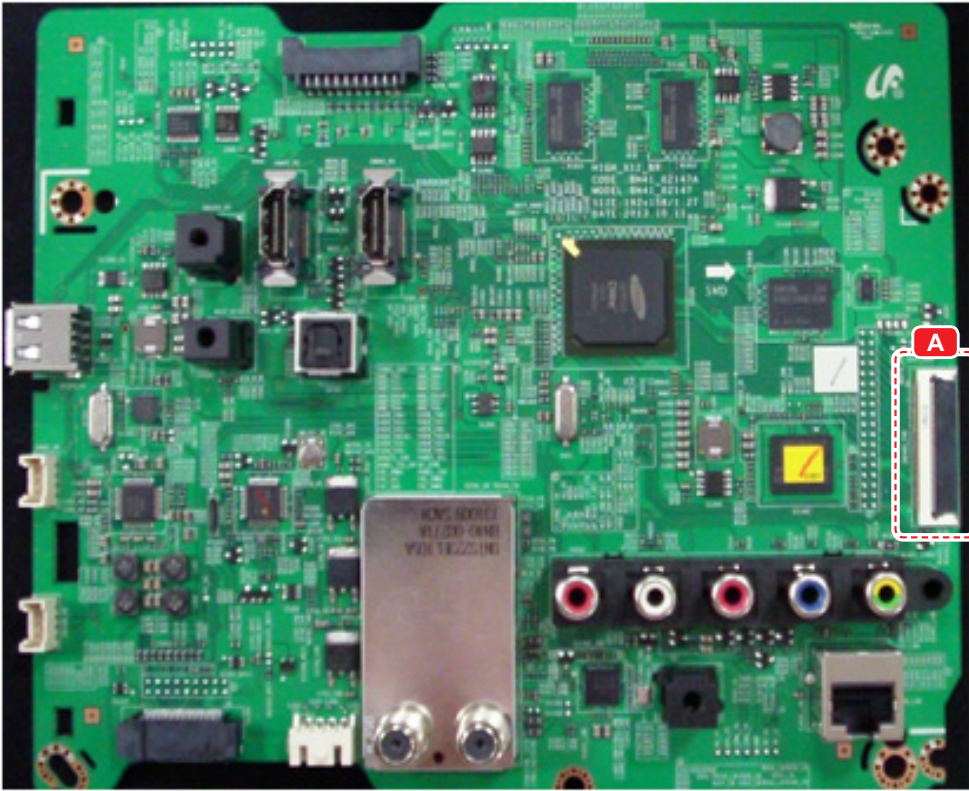

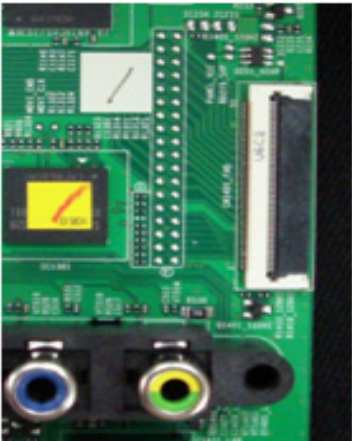


Note

Refer to the next page to check the location such a CN201 or IC201 SVC Manual mentioned.

Symptom	<ul style="list-style-type: none"> Audio is normal but no picture is displayed on the screen.
Major checkpoints	<ul style="list-style-type: none"> Check the HDMI source. Check the HDMI switch. This may happen when the LVDS cable connecting the Main Board and the Panel is disconnected.
Diagnostics	<div> <div> <div>Power indicator LED is off. Lamp(Backlight) on, no video ?</div> <div>No → Check a set in the 'Stand-by mode'.</div> <div>Yes ↓</div> </div> <div> <div>Check the HDMI source and check the connection of HDMI cable ?</div> <div>No → Input the HDMI signal properly.</div> <div>Yes ↓</div> </div> <div> <div>① Check the HDMI source and check the connection of HDMI cable ?</div> <div>No → Check CN601~2. Check HDMI cable. Change the Main Ass'y</div> <div>Yes ↓</div> </div> <div> <div>② Check the LVDS clk signal at output of Main Board. (TX) - TX2_CLK : ODD_TXCLK_DN/DP - TX4_CLK : EVEN_TXCLK_DN/DP</div> <div>No → Check IC1001(X12). Change the Main Ass'y.</div> <div>Yes ↓</div> </div> <div> <div>Check the LVDS cable? Replace the T CON / LCD panel?</div> <div>No → Please, Contact tech support.</div> </div> </div>
Caution	Make sure to disconnect the power before working on the IP Board.

■ Location of Parts

Main Board_Front		
		
Detail		
		

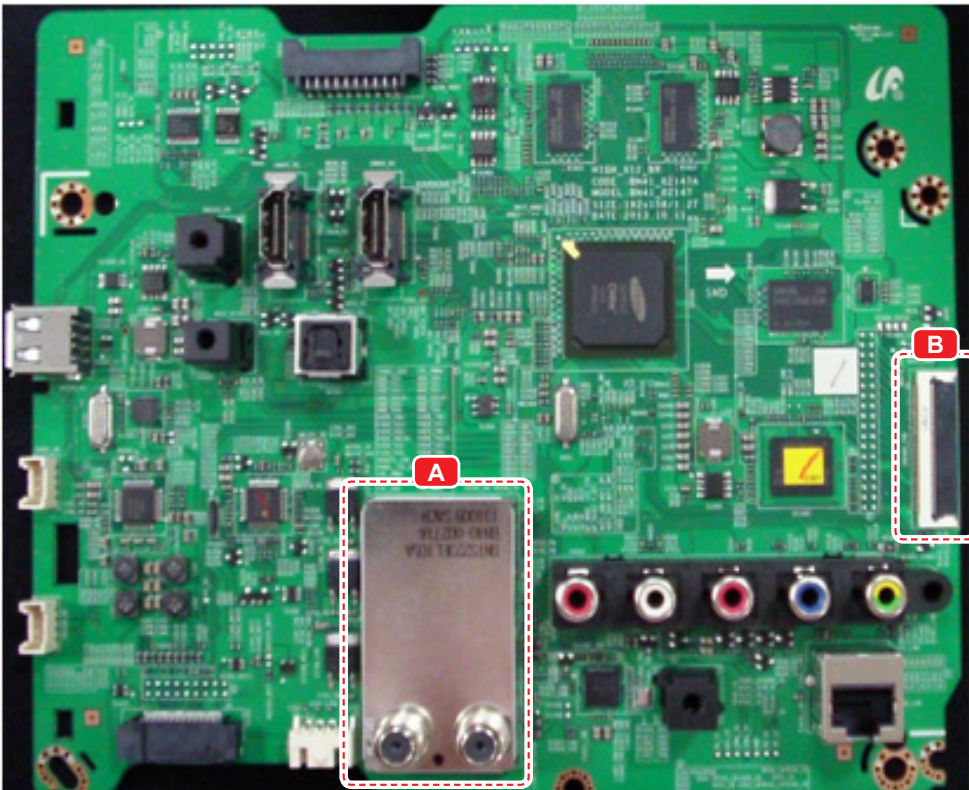
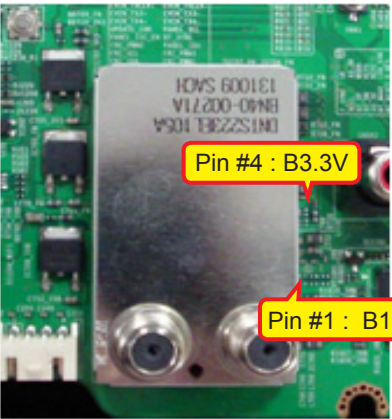
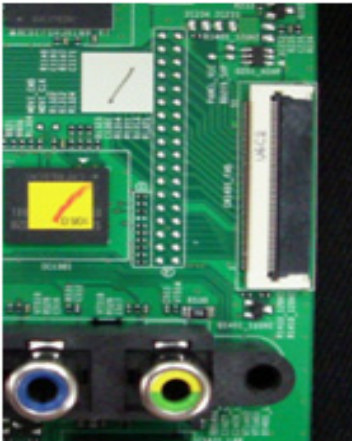
4-2-3. No Video (Tuner_CVBS)


Note

Refer to the next page to check the location such a CN201 or IC201 SVC Manual mentioned.

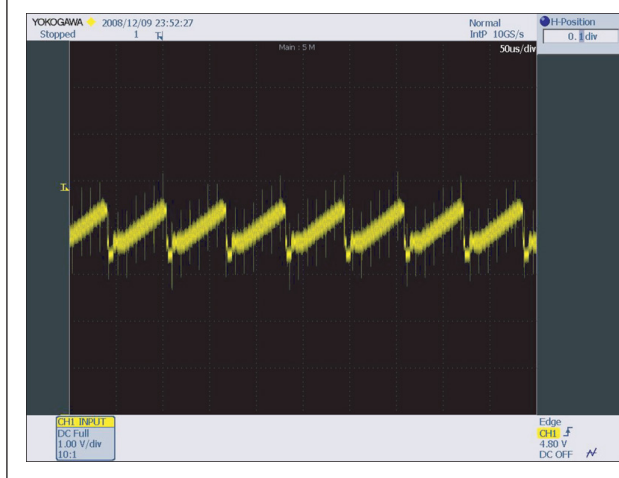
Symptom	<ul style="list-style-type: none"> Audio is normal but no picture is displayed on the screen.
Major checkpoints	<ul style="list-style-type: none"> Check the Tuner CVBS source. Check the Tuner. This may happen when the LVDS cable connecting the Main Board and the Panel is disconnected.
Diagnostics	<pre> graph TD Q1[Power indicator LED is off. Lamp(Backlight) on, no video ?] -- No --> A1[Check a set in the 'Stand-by mode'.] Q1 -- Yes --> Q2[Check the RF source and check the connection of RF cable.] Q2 -- No --> A2[Input the RF source properly.] Q2 -- Yes --> Q3[Check the Power of Tuner ? - Pin #4 of Tuner : B3.3V_Tuner - Pin #1 of Tuner : B1.8V_Tuner] Q3 -- No --> A3[Change the Main Ass'y.] Q3 -- Yes --> Q4[Check the CVBS data out of IC1001 ? C807 : Tuner CVBS] Q4 -- No --> A4[Check IC1001(X12). Change the Main Ass'y.] Q4 -- Yes --> Q5[Check the LVDS clk signal at output of Main board. (TX) - TX2_CLK : ODD_TXCLK_DN/DP - TX4_CLK : EVEN_TXCLK_DN/DP] Q5 -- No --> A5[Check IC1001(X12). Change the Main Ass'y.] Q5 -- Yes --> Q6[Check the LVDS cable? Replace the T CON / LCD panel?] Q6 -- No --> A6[Please, Contact tech support.] </pre>
Caution	Make sure to disconnect the power before working on the IP Board.

■ Location of Parts

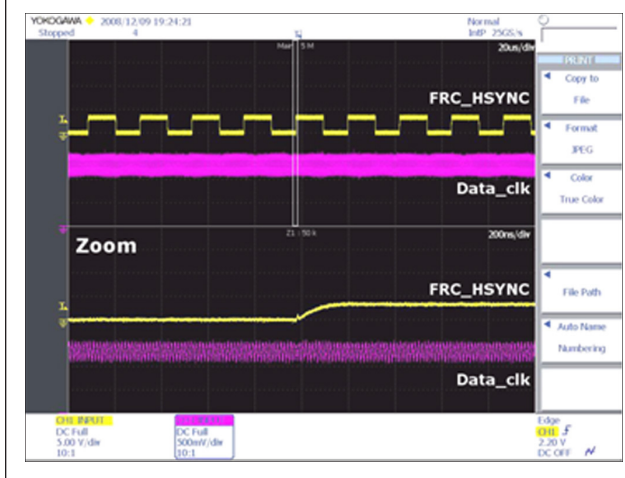
Main Board_Front			
			
Detail			
<div>A</div>		<div>B</div>	

■ Waveforms

① CVBS OUT (Grey Bar)



② LVDS output



4-2-4. No Vido (Tuner DTV)



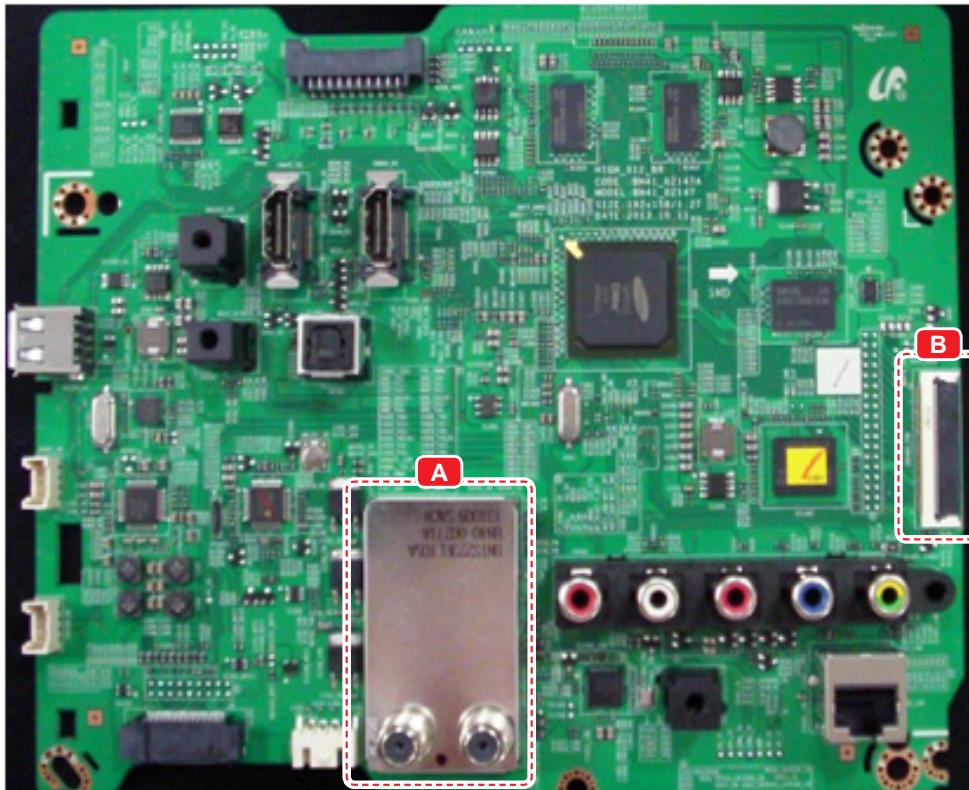
Note

Refer to the next page to check the location such a CN201 or IC201 SVC Manual mentioned.

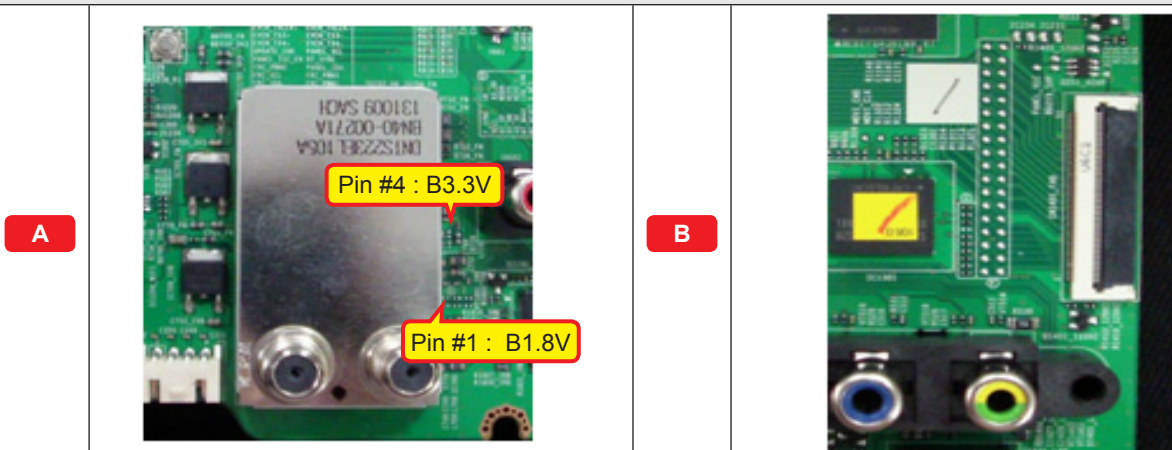
Symptom	<ul style="list-style-type: none"> Audio is normal but no picture is displayed on the screen.
Major checkpoints	<ul style="list-style-type: none"> Check the DTV source. Check the Tuner. This may happen when the LVDS cable connecting the Main Board and the Panel is disconnected.
Diagnostics	<pre> graph TD Q1[Power indicator LED is off. Lamp(Backlight) on, no video ?] -- No --> A1[Check a set in the 'Stand-by mode'.] Q1 -- Yes --> Q2[Check the RF source and check the connection of RF cable.] Q2 -- No --> A2[Input the RF source properly.] Q2 -- Yes --> Q3[1 Check the 'signal strength' in Self Diagnosis menu Strength is enough ?] Q3 -- No --> A3[Check the D-TV source.] Q3 -- Yes --> Q4[2 Check the Power of Tuner ? - Pin #4 of Tuner : B3.3V_Tuner - Pin #1 of Tuner : B1.8V_Tuner] Q4 -- No --> A4[Change the Main Ass'y.] Q4 -- Yes --> Q5[2 Check the LVDS clk signal at output of Main board. (TX) - TX2_CLK : ODD_TXCLK_DN/DP - TX4_CLK : EVEN_TXCLK_DN/DP] Q5 -- No --> A5[Check IC1001(X12) Change the Main Ass'y.] Q5 -- Yes --> Q6[Check the LVDS cable? Replace the T CON / LCD panel?] Q6 -- No --> A6[Please, Contact tech support.] </pre>
Caution	Make sure to disconnect the power before working on the IP Board.

■ Location of Parts

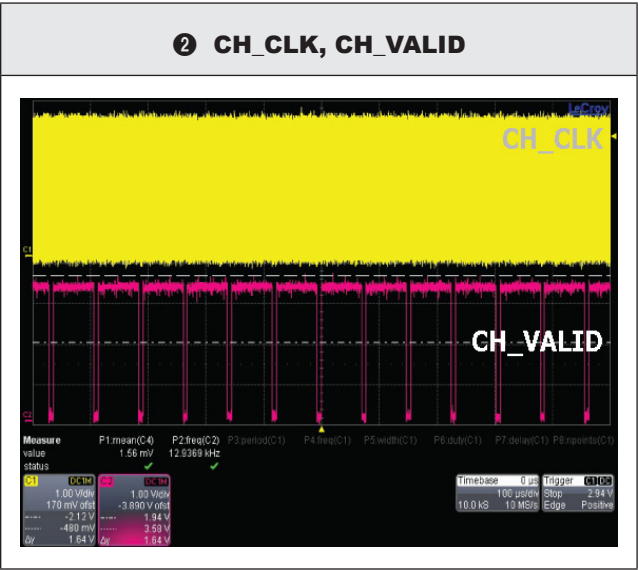
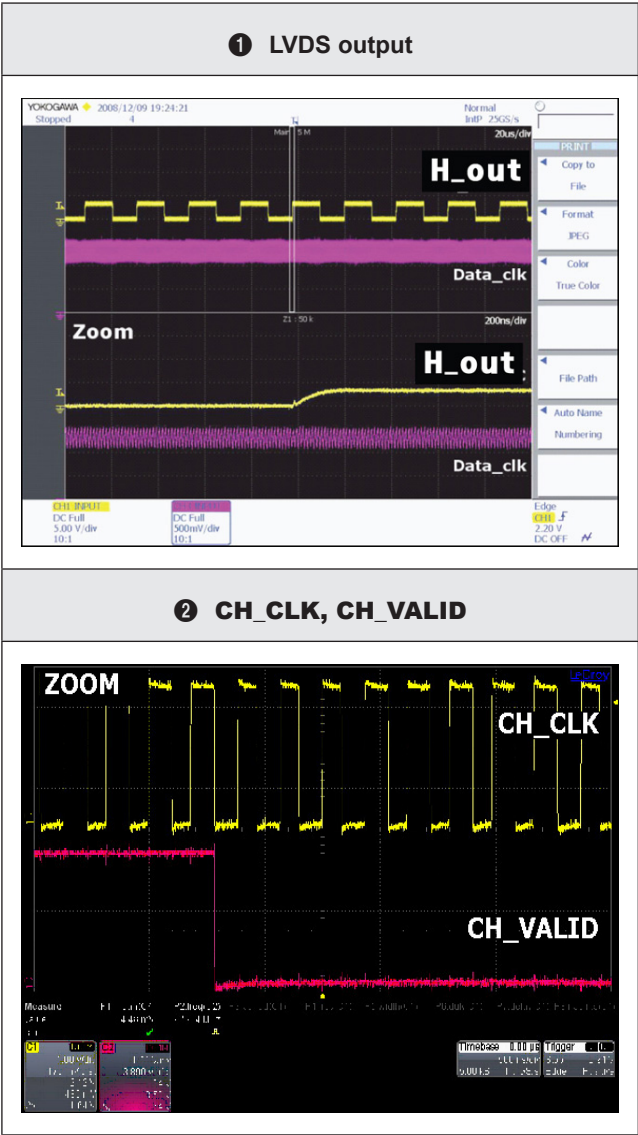
Main Board_Front



Detail



■ Waveforms



4-2-5. No Video (Video AV)

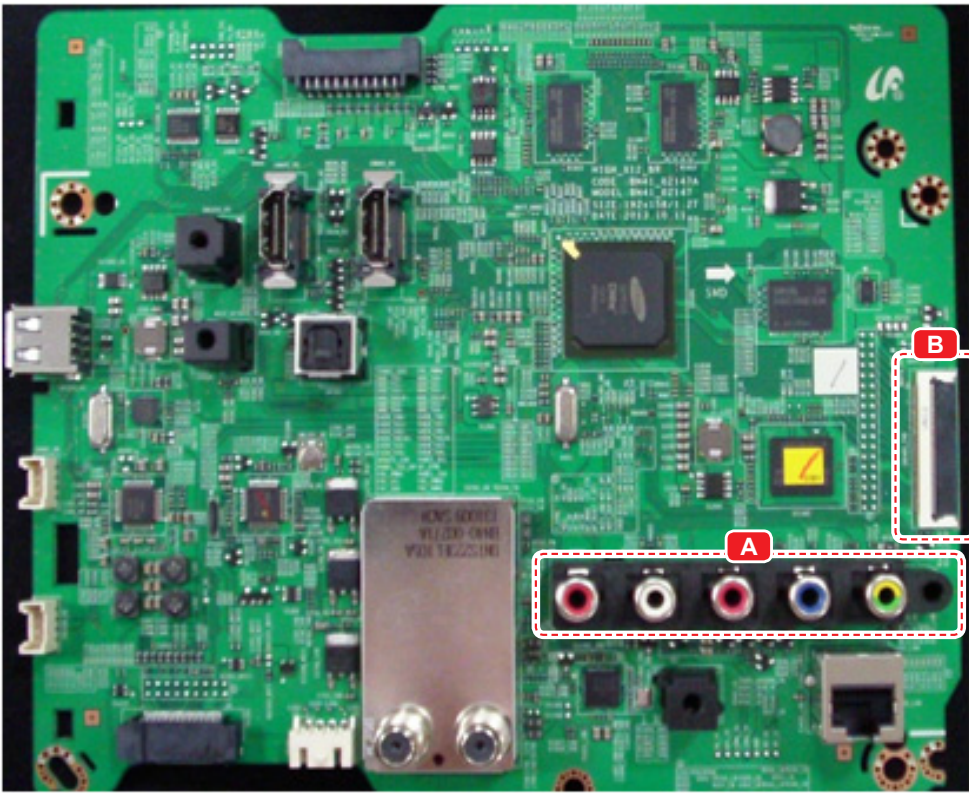

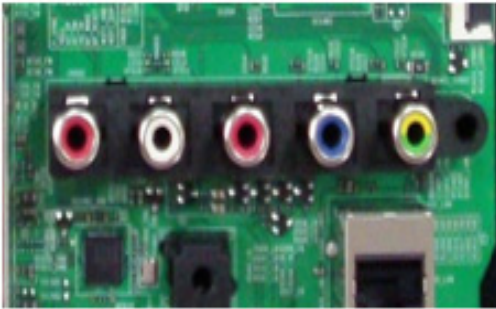

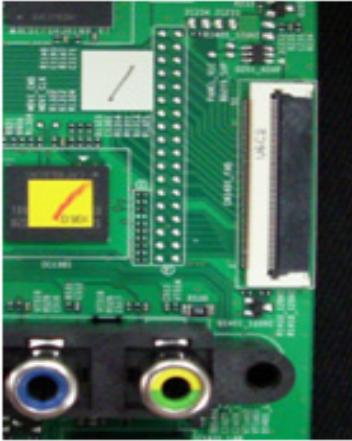


Note

Refer to the next page to check the location such a CN201 or IC201 SVC Manual mentioned.

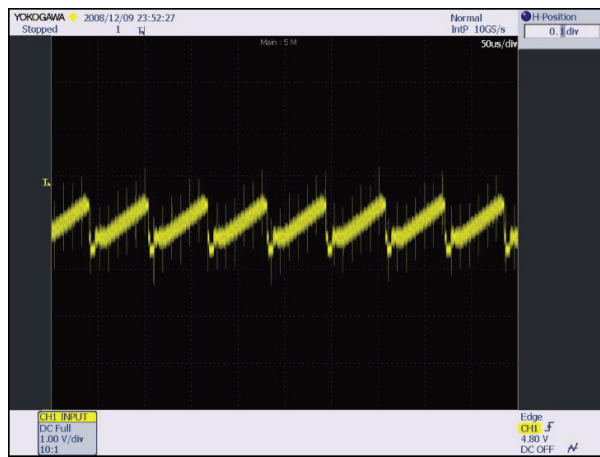
Symptom	<ul style="list-style-type: none"> Audio is normal but no picture is displayed on the screen.
Major checkpoints	<ul style="list-style-type: none"> Check the Video CVBS source. This may happen when the LVDS cable connecting the Main Board and the Panel is disconnected.
Diagnostics	<div> <div> <div>Power indicator LED is off. Lamp(Backlight) on, no video ?</div> <div>No →</div> <div>Check a set in the 'Stand-by mode'.</div> </div> <div> <div>Yes ↓</div> <div>Check the video source and check the connection of video cable?</div> <div>No →</div> <div>Input the video source properly.</div> </div> <div> <div>Yes ↓</div> <div> Check the LVDS clk signal at output of Main board. (TX) <ul style="list-style-type: none"> TX2_CLK : ODD_TXCLK_DN/DP TX4_CLK : EVEN_TXCLK_DN/DP </div> <div>No →</div> <div>Check IC1001(X12) Change the Main Ass'y.</div> </div> <div> <div>Yes ↓</div> <div>Check the LVDS cable? Replace the T CON / LCD panel?</div> <div>No →</div> <div>Please, Contact tech support.</div> </div> </div>
Caution	Make sure to disconnect the power before working on the IP Board.

■ Location of Parts

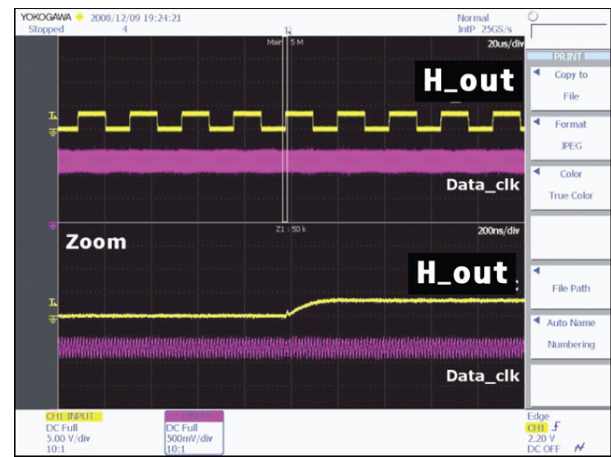
Main Board_Front			
			
Detail			
			

■ Waveforms

① CVBS OUT (Grey Bar)



② LVDS output



4-2-6. No Video (COMPONENT)



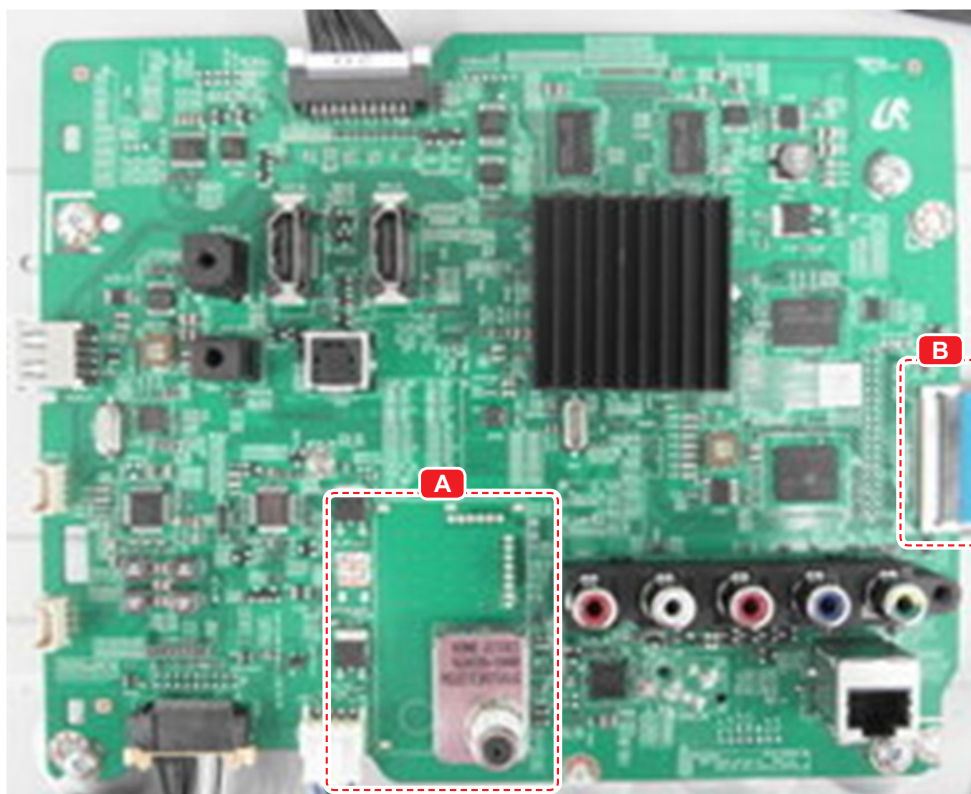
Note

Refer to the next page to check the location such a CN201 or IC201 SVC Manual mentioned.

Symptom	<ul style="list-style-type: none"> Audio is normal but no picture is displayed on the screen.
Major checkpoints	<ul style="list-style-type: none"> Check the Component source This may happen when the LVDS cable connecting the Main Board and the Panel is disconnected.
Diagnostics	<div> <div> <div>Power indicator LED is off. Lamp(Backlight) on, no video ?</div> <div>No → Check a set in the 'Stand-by mode'.</div> <div>Yes ↓</div> </div> <div> <div>Check the component source and check the connection of component cables ? Y, Pb, Pr</div> <div>No → Input the component source properly.</div> <div>Yes ↓</div> </div> <div> <div> ① Does the component data appear at ? - COMP2_Y_CVBS : R816 - Pb : R817 - Pr : R815 </div> <div>No → Check CN502. Change the Main Ass'y.</div> <div>Yes ↓</div> </div> <div> <div> ② Check the LVDS clk signal at output of Main Board. (TX) - TX2_CLK : ODD_TXCLK_DN/DP - TX4_CLK : EVEN_TXCLK_DN/DP </div> <div>No → Check IC1001(X12). Change the Main Ass'y.</div> <div>Yes ↓</div> </div> <div> <div>Check the LVDS cable? Replace the T CON / LCD panel?</div> <div>No → Please, Contact tech support.</div> </div> </div>
Caution	Make sure to disconnect the power before working on the IP Board.

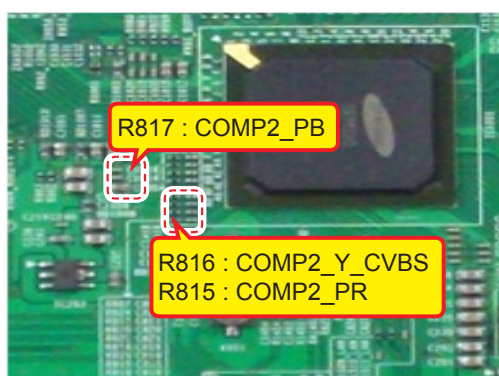
■ Location of Parts

Main Board_Front

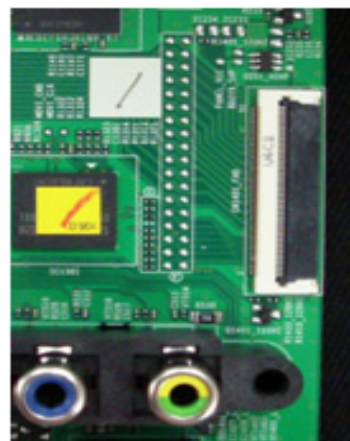


Detail

A

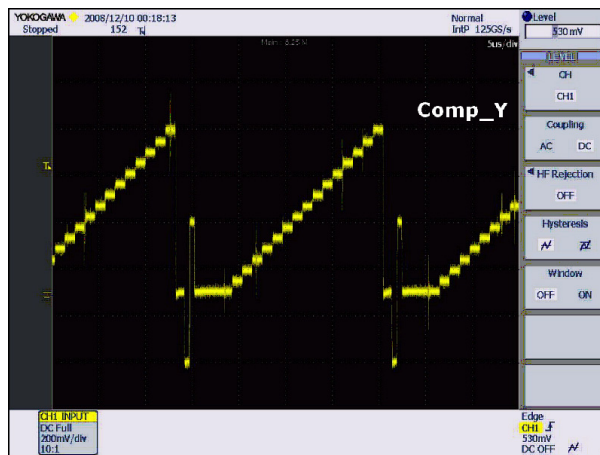


B

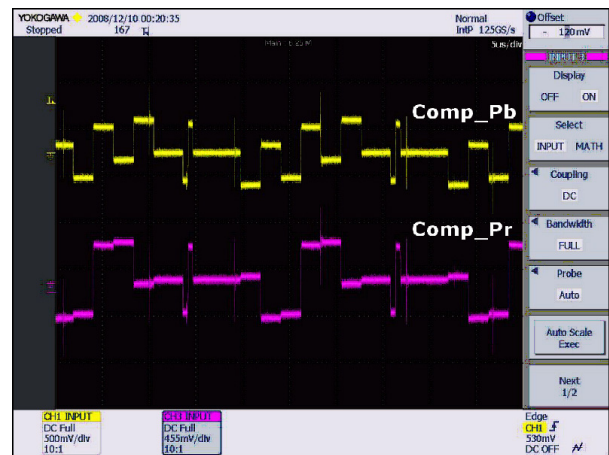


■ Waveforms

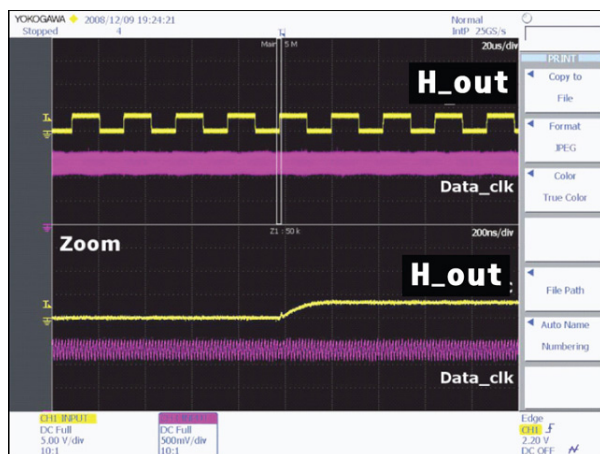
① Component_Y (Gray scale) / Pb / Pr (Color bar)



① Component_Y (Gray scale) / Pb / Pr (Color bar)



② LVDS output



4-2-7. No Sound (1.Speaker 2.Monitor_out)

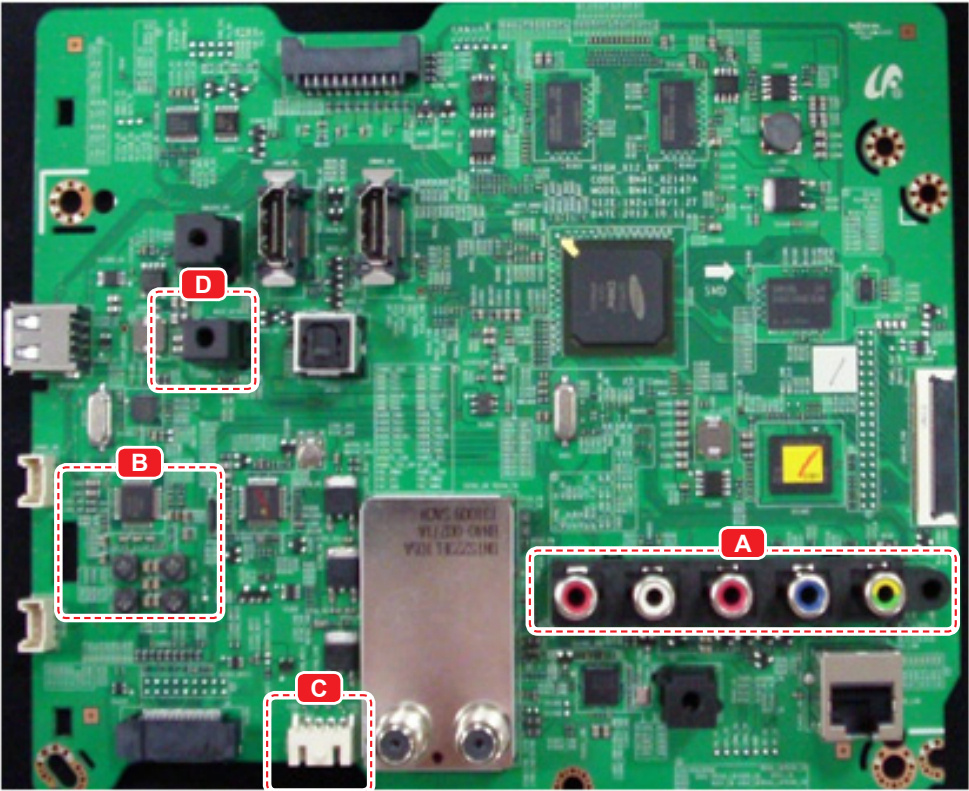

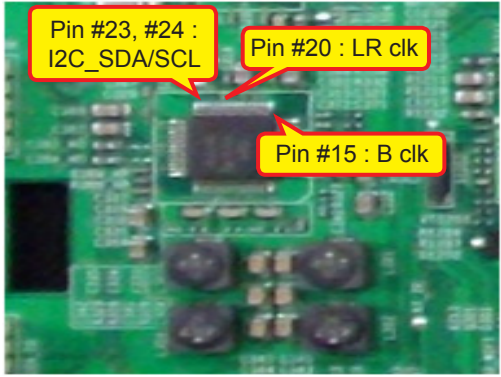
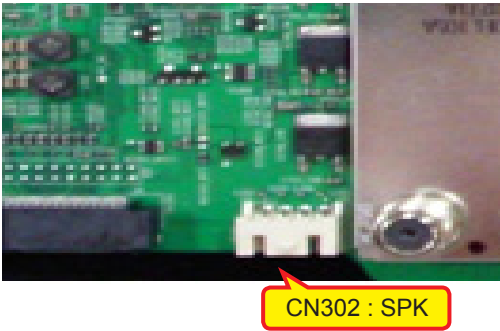
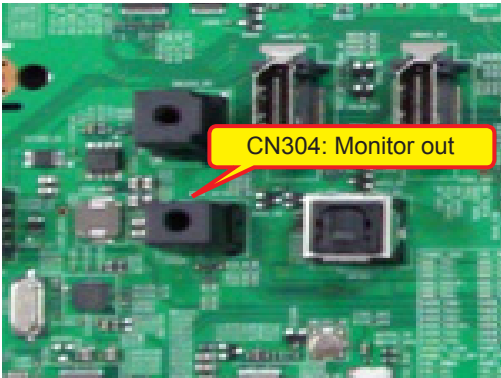


Note

Refer to the next page to check the location such a CN201 or IC201 SVC Manual mentioned.

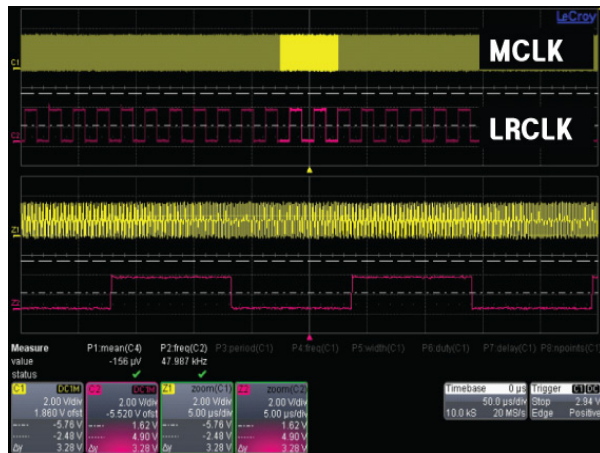
Symptom	<ul style="list-style-type: none"> Video is normal but there is no sound.
Major checkpoints	<ul style="list-style-type: none"> When the speaker connectors are disconnected or damaged. When the sound processing part of the Main Board is not functioning. Speaker defect.
Diagnostics	<div> <div> Check the source and check the connection of sound cable ? (Comp/PC/DVI to HDMI) </div> <div> No → Input the sound source properly. </div> <div> Yes ↓ </div> <div> Check the signal at input of Main Board? AV, COMP L/R : RA503 </div> <div> No → Check CN502. Change the Main Ass'y. </div> <div> Yes ↓ </div> <div> 1 Check the DATA between the Audio IC's ? - Pin #15 of IC301 : B clk - Pin #20 of IC301 : LR clk - Pin #23, #24 of IC301 : I2C_SDA/ SCL </div> <div> No → Check IC301. Change the Main Ass'y. </div> <div> Yes ↓ </div> <div> 2 1. Check the Speaker sound data at ? - CN302 2. Check the Monitor out sound data at ? - CN304 </div> <div> No → Check IC301. Change the Main Ass'y. </div> <div> Yes ↓ </div> <div> Replace speaker ? </div> <div> No → Please, Contact Tech support. </div> </div>
Caution	Make sure to disconnect the power before working on the IP Board.

■ Location of Parts

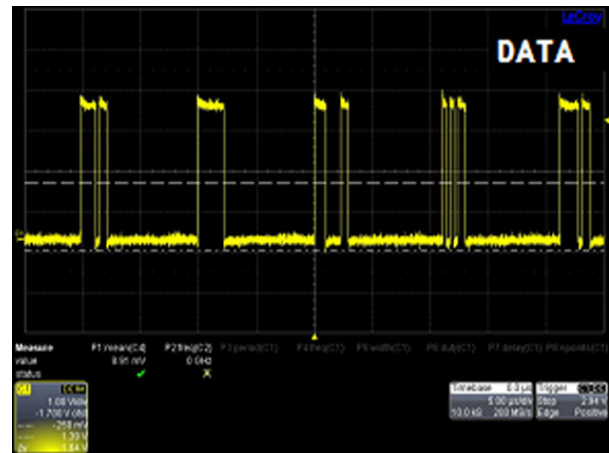
Main Board_Front	
	
Detail	
<div>A</div> 	<div>B</div> 
<div>C</div> 	<div>D</div> 

Waveforms

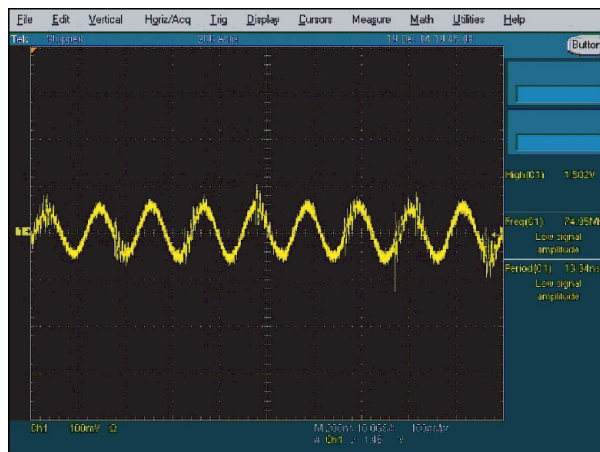
① MCLK / LRCLK / PCM_I2C_DATA



① MCLK / LRCLK / PCM_I2C_DATA



② Speaker / Monitor OUT , SPDIF OUT



② Speaker / Monitor OUT , SPDIF OUT



4-3. Factory Mode Adjustments

4-3-1. Detail Factory Option



NOTE

If you replace the main board with new one, please change the factory option as well.
The options you must change are "**Type**".

■ UN**FH5303GXPR

Inches		40"	46"	50"
PANEL	Vendor	SEM	SEM	AUO
	Code	BN95-01139A	BN95-01135A	BN07-01163B
	Spec.	LSF400HM02	LSF460HN02	DF500BGA-B1
SMPS BOARD	Vendor	SEM	DYREL	HANSOE
	Code	BN44-00666E	BN44-00667A	BN44-00668A
	Spec.	L40GF_ESM	L46GF_DDY	L50GF_DHS
MAIN BOARD	Chassis Ass'y	BN91-11598R	BN91-11598Z	BN91-11599H
	PBA Ass'y	BN94-07223R	BN94-07223Z	BN94-07224H
Byte	Item			
0	Factory Reset	-	-	-
1	Type	40A6AF1D	46A6AF1D	50R6AF1D
2	Local set	PAR_DTV		
3	Basic Model	UF5303		
4	SVC Model	5303		
5	Tuner	ISDB-T		
6	Ch table	-		
7	Front Color	U-S-BK		

4-3-2. Entering Factory Mode

o enter 'Service Mode' Press the remote -control keys in this sequence :

- If you do not have Factory remote control



- If you have Factory remote control



- If you don't have Factory remote control, can't control some menus.

Option	T-MST12AKUC-xxxx T-MST12AKUS-xxxx BT Version : xxxx E-Manual : X12ATSCF-xxxx EDID SUCCESS CALIB : AV/COMP/PC/HDMI/ Option : xxxx,xxxx,xxxx,NONE USB RS232C : OFF
Control	
Debug	
SVC	
ADC/WB	
Advanced	SDAL-X12-MAIN-xxxx-xxxx RFS : "X12 0071" KER/201x-xx-xx KERNEL : 8.0837, D / Onboot :xxxx.x Backend IC[x], Data Ver : xxxx TCON Version : xxxx DTP-DTVTD-xxxx Model : UN40F5303 Wired MAC SUCCESS Wireless MAC SUCCESS DRM : Crt O, Nf O, Wv O, Hc O, Dc O, Mx O, MI O Factory Data Ver : 97 EERC Version : 51 DTP-BP-HAL-3183 DTP-AP-CNC-3151 DTP-AP-MM-3145 DTP-AP-WP-3148 DTP-BP-MW-3156 DTP-BP-APP-3156 POP-FLA-13-TEMP Date of purchase : mm/dd/yyyy

4-3-3. Factory Data

■ Option

Factory Menu Name	Data	Range
Factory Reset	-	
Type		40A6AF0D / 46A6AF0D / 50R6AF0D
Local Set	SD_Mexico	
Model	UF5303	
SVC Model	5303	
TUNER	AUTO	
Ch Table	NONE	
Front Color	U-S-BK	

■ Control

Factory Menu Name	Data	Range
EDID		
EDID ON/OFF	OFF	
EDID WRITE ALL	...	
EDID WRITE HDMI	...	
EDID WRITE PC	...	
EDID Ver	...	
EDID Port	...	
EDID WRITE DVI	...	
Sub Option		
RF Mute Time	600ms	
RS-232 Jack	UART	Debug/UART
Watchdog	OFF	
WD COUNT	0	
LVDS FORMAT	JEIDA	
Language_Arabic	US	
TOOLS Support	57	
LNA Support	0	
NETWORK Support	Not Support	
IPERF	Stopped	
Info Link Country	None	
Info Link Server Type	operating	
TTX List	-	
TTX Group	-	

Factory Menu Name	Data	Range
24Px4 Support	OFF	
Power Indicator Support	ON	
BD Wise Support	OFF	
Data Service Support	OFF	
IIC Bus Stop	OFF	
Visual Test	Disable	
Emergency Log Copy		
Checksum	0x0000	
View Log		
Emergency Log Copy		
Checksum	0x0000	
View Log		
Select Log Type	MICOM	
Log View		
Delete Log		
Gemstar On/Off	OFF	
WSS Support	OFF	
PVR Support	OFF	
CI Support	OFF	
Eeprom Reset		
Spread Spectrum		
LVDS Spread	ON	
LVDS Period	40K	
LVDS Amplitude	3	
DDR Period	20K	
DDR Amplitude	0.00%	
NT72312 LVDS SSC ON/OFF	ON	
NT72312 LVDS SSC Period	30K	
NT72312 LVDS SSC Modulation	1.00%	
NT72312 DDR SSC ON/OFF	ON	
NT72312 DDR SSC Period	30K	
NT72312 DDR SSC Modulation	1.00%	
DDR Margin		
A CTRL_OFFSET_0_3	0x0	
A CTRL_OFFSET_D	0x0	
B CTRL_OFFSET_0_3	0x0	
B CTRL_OFFSET_D	0x0	

4. Troubleshooting

Factory Menu Name	Data	Range
H.264 Margin	8	
MPEG Margin	1000	
2nd mips	ON	
2nd mips count	0	
Region	USA	
PnP Language	ENG_US	
PC Auto Ident	Enable	
OTP Lock	...	
Auto Power	MEMORY	
Key SENSITIVITY	39	
OTA Support	OFF	
FKP Down		
WIFI REGION	S	
e-Pop Default	ON	
OPTION_SWU		
OPTION_MEDIAPLAY		
3D OPTIMIZE VALUE	1	
ECO IC TYPE	2	
Energy Star Logo	ON	
Fast USB Booting	OFF	
Nume of Network Stream	0	
CI+1.3	OFF	
Hotel Option		
Hospitality Mode	OFF	
Power On	...	
Menu OSD	...	
Operation	...	
Music Mode	...	
External Source	...	
Eco Solution	...	
Cloning	...	
Shop Option		
Shop Mode	OFF	
Exhibition Mode	OFF	
3D Cube	OFF	
Asia Option		
TTX	OFF	

Factory Menu Name	Data	Range
China HD	OFF	
NT Conversion	OFF	
Sepco 120Hz	OFF	
Unbalance	OFF	
FMTransmitter Support	OFF	
FMTransmitter Carrier	OFF	
AF Level adjust	3	
TX Power Level	0	
Mono Last Memory	OFF	
H Shaking	OFF	
SOUND		
High Devi	OFF	
Carrier Mute	ON	
Volume Curve	Type1	
Speaker Delay Normal	100	
Pilot Level High Thld	0x0Fh	
Pilot Level Low Thld	0x08h	
FM Prescale	23	
AM Prescale	30	
NICAM Prescale	29	
Amp Volume	0xC7h	
Amp Scale	0x8eh	
Amp Check Sum	0x1B52015	
Woofer Type	0	
Woofer Scale	0x8ah	
Woofer Check Sum		
Speaker EQ	ON	
PEQ Test	0	
Amp Model	NTP7412	
Speaker cut-off Freq	5	
SPDIF PCM Gain	-9	
FM M Prescale	0	
BTSC Mono Prescale	15	
BTSC stereo Prescale	29	
SAP Prescale	29	
A2Ident High Thld	11	
A2Ident Low Thld	5	

4. Troubleshooting

Factory Menu Name	Data	Range
Carrier2 Amp High Thld	4	
Carrier2 Amp Low Thld	2	
Carrier2 SNR High THR	16	
Carrier2 SNR Low THR	6	
Audio-IP Test	Ready	
TruBass CheckSum	0xFFFFFFFF	
PWM Mode	BD	
Mic Scale	0	
SubWoofer Support	0	
India Sound	OFF	
Config Option		
Num of ATV	1	
Num of DTV	1	
Num of AV	1	
Num of SVIDEO	0	
Num of COMP	1	
Num of HDMI	2	
Num of PC	0	
Num of SCART	0	
Num of DVI	0	
Num of OPTICAL Link	1	
Num of MEDIA	1	
Num of PANEL KEY	6	
Num of USB Port	1	
Num of HeadPhone	0	
Num of RVU	0	
MFT Offset	62.5	
Select LCD/PDP	LCD	
HDMI/DVI SEL	1	
Indicator Led	OFF	
Wall Mount	OFF	
HV Flip	ON	
Num Of Display	1	
DVI/HDMI SOUND	Auto	
HDMI HOT PLUG	Disable	
HOTPLUG SWITCHING	Boot	
HOTPLUG DURATION	1200ms	

Factory Menu Name	Data	Range
CLK TERM DURATION	300ms	
HDMI FLT CNT SIG	100ms	
HDMI FLT CNT LOS	100ms	
UNSTABLE BAN CNT	3500ms	
HDMI Err Cnt	1	
HDMI ROBIN	ON	
HDMI Callback	OFF	
HDMI CTS Thld	8	
HDMI CTS Cnt1	1	
HDMI EQ	AUTO	AUTO/Low/Middle/High/Strong
HDMI Write Type	Separate	
HDMI Switch	NONE	
DVI SET TIME	300ms	
Type Of PANEL KEY	None	
EcoSensor Support	ON	
LEDMotionPlus Support	ON	
Natural Mode Support	ON	
All Share Support	ON	
Relax Mode Support	OFF	
BT Support	OFF	
3D Support	OFF	
H Write		
HDMI Sync	DE	
HeadPhone Port		
FANET	ON	
Support MultiMedia Key	ON	
Config_AV_PATH		
Num of IPTV	1	
PVR RECORD NUM	0	
Num of RUI	1	
5 Way Function Key	R BOTTOM	
Contents Bar	OFF	
Num of Tuner	1	

■ SVC

Factory Menu Name	Data	Range
Test Pattern		

4. Troubleshooting

Factory Menu Name	Data	Range
LOGIC Pattern Sel		
LOGIC Level Sel		
Echo-FS Pre Test Pattern	0	
Echo-FS Post Test Pattern	0	
Echo-FS FRC FDISPLY ON/OFF	OFF	
Echo-FS 3D FDISPLAY ON/OFF	OFF	
Echo-FS PC Mode ON/OFF	OFF	
NT72312 Pre Test Pattern	0	
NT72312 Post Test Pattern	0	
NT72312 PC mode ON/OFF	OFF	

■ Expert

Factory Menu Name	Data	Range
N/D ADJ	OFF	
Source	...	

■ Expert

Factory Menu Name	Data	Range
ADC		
AV Calibration	Success	
Comp Calibraion	Success	
PC Calibration	Success	
HDMI Calibration	Success	
ADC Target		
1st_AV_Low	64	
1st_AV_High	880	
1st_AV_Delta	2	
1st_COMP_Y_Low	64	
1st_COMP_Cb_Low	512	
1st_COMP_Cr_Low	512	
1st_COMP_Y_High	940	
1st_COMP_Cb_High	512	
1st_COMP_Cr_High	512	
1st_COMP_Delta	2	
1st_PC_Low	4	
1st_PC_High	1016	

Factory Menu Name	Data	Range
1st_PC_Delta	2	
2nd_ACH_Low	4	
2nd_ACH_High	940	
2nd_PC_Low	4	
2nd_PC_High	940	
2nd_Delta	2	
ADC Result		
1st_Y_GH	134	
1st_Y_GL	126	
1st_Cb_BH	...	
1st_Cb_BL	...	
1st_Cr_RH	...	
1st_Cr_RL	...	
2nd_R_L	133	
2nd_G_L	133	
2nd_B_L	133	
2nd_R_H	69	
2nd_G_H	69	
2nd_B_H	69	
White Balance		
Sub Brightness	128	
R-Offset	128	
G-Offset	128	
B-Offset	128	
Sub Contrast	128	
R-Gain	128	
G-Gain	128	
B-Gain	128	
Movie R-Offset	...	
Movie B-Offset	...	
Movie R-Gain	...	
Movie B-Gain	...	

4-4. White Balance

4-4-1. Calibration

1. Into the Factory Mode.
2. Select **ADC/WB** menu.
3. Select **ADC** menu.

Option	AV Calibration
Control	Comp Calibration
Debug	PC Calibration
SVC	HDMI Calibration
ADC/WB	
Advanced	

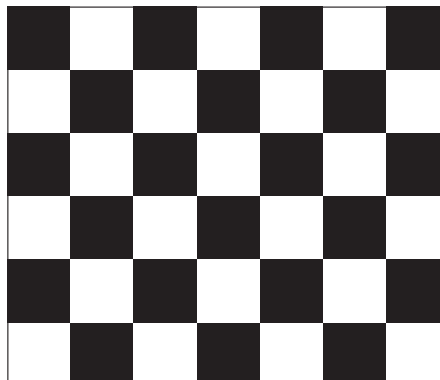
4-4-2. Service Adjustment

You must perform Calibration in the Lattice Pattern before adjusting the White Balance.

■ Color Calibration

- Adjust Specification

Source	Setting Mode	Pattern	Use Equipment
HDMI	1280 x 720@60 Hz	Pattern #24 (Chess Pattern)	CA210 & Master MSPG925 Generator



(Chess Pattern)

- Use other equipment only after comparing the result with that of the Master equipment.

Input mode	Calibration	Pattern
CVBS IN (Model_#1)	Perform in NTSC B&W Pattern #24	Lattice
Component IN (Model_#6)	Perform in 720p B&W Pattern #24	Lattice
PC Analog IN (Model_#21)	Perform in VESA XGA (1024x768) B&W Pattern #24	Lattice
HDMI IN	Perform in 720p B&W Pattern #24	Lattice

Method of Color Calibration (AV)

1. Apply the NTSC Lattice (N0. 3) pattern signal to the AV IN 1 port.
2. Press the Source key to switch to "AV1" mode.
3. Enter Service mode.
4. Select the "ADC" menu.
5. Select the "AV Calibration" menu.
6. In "AV Calibration Off" status, press the "▶" key to perform Calibration.
7. When Calibration is complete, it returns to the high-level menu.
8. You can see the change of the "AV Calibration" status from Failure to Success.

Method of Color Calibration (Component)

1. Apply the 720p Lattice (N0. 6) pattern signal to the Component IN 1 port.
2. Press the Source key to switch to "Component1" mode.
3. Enter Service mode.
4. Select the "ADC" menu.
5. Select the "Comp Calibration" menu.
6. In "Comp Calibration Off" status, press the "▶" key to perform Calibration.
7. When Calibration is complete, it returns to the high-level menu.
8. You can see the change of the "Comp Calibration" status from Failure to Success.

Method of Color Calibration (PC)

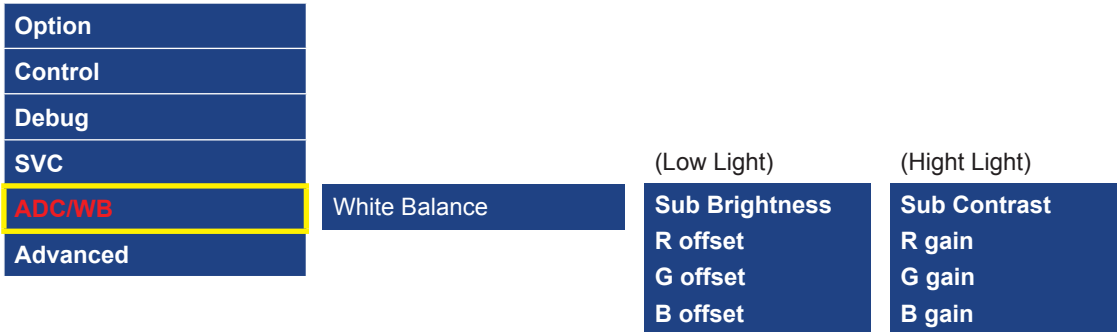
1. Apply the VESA XGA Lattice (N0. 21) pattern signal to the PC IN port.
2. Press the Source key to switch to "PC" mode.
3. Enter Service mode.
4. Select the "ADC" menu.
5. Select the "PC Calibration" menu.
6. In "PC Calibration Off" status, press the "▶" key to perform Calibration.
7. When Calibration is complete, it returns to the high-level menu.
8. You can see the change of the "PC Calibration" status from Failure to Success.

Method of Color Calibration (HDMI)

1. Apply the 720p Lattice (N0. 6) pattern signal to the HDMI1/DVI IN port.
2. Press the Source key to switch to "HDMI1" mode.
3. Enter Service mode.
4. Select the "ADC" menu.
5. Select the "HDMI Calibration" menu.
6. In "HDMI Calibration Off" status, press the "▶" key to perform Calibration.
7. When Calibration is complete, it returns to the high-level menu.
8. You can see the change of the "HDMI Calibration" status from Failure to Success.

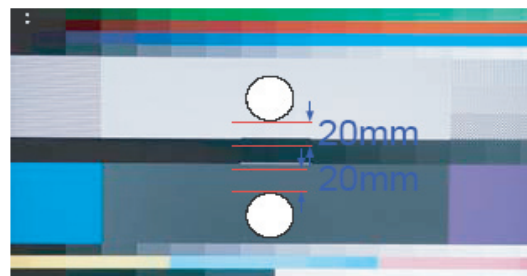
4-4-3. Adjustment

- 1. Into the Factory Mode.
- 2. Select **ADC/WB** menu.
- 3. Select **White Balance** menu.



4-5. White Ratio (Balance) Adjustment

1. You can adjust the white ratio in factory mode (1:Calibration, 3:White-Balance).
2. Since the adjustment value and the data value vary depending on the input source, you have to adjust these in CVBS, Component 1 and HDMI 1 modes.
3. The optimal values for each mode are configured by default. It varies with Panel's size and Specification.
 - Equipment : CS-210
 - Pattern: MIK K-7256 #92 "Flat W/B Pattern" as standard
 - Alternate Equipment : CA200& anyone Master supported pattern#92(refer to right photo)
 - Use other Equipment only after comparing the result with that of the Master equipment.
 - Set Aging time : 60 min



Calibration and Manual setting for WB adjustment

- HDMI : Calibration at #24 Chessboard Pattern Manual adjustment at #92 pattern (720p)
- COMP: Calibration at #24 Chessboard Pattern Manual adjustment at #92 pattern (720p)
- CVBS: Calibration at #24 Chessboard Pattern Manual adjustment at #92 pattern (NTSC)



Note

If finishing in HDMI mode, adjustment coordinate is almost same in AV/COMP mode.

White Balance Manual adjustment

P-Mode Input source	Section	Adjustment Coordinate CA-210					
HDMI COMP VIDEO	W/B High	Hx	264	Hy	274	HY	NA
	W/B Low	Lx	NA	Ly	NA	LY	NA
MOVIE	W/B High	Hx	318	Hy	340	HY	NA
	W/B Low	Lx	318	NA	NA	LY	NA

Sub Contrast	135	Sub Bright	128		
R-Gain	AJD	G-Gain	128	B-Gain	AJD
R-Offset	128	G-Offset	128	B-Offset	128

4-6. Software Upgrade

Software Upgrade can be performed by downloading the latest firmware from samsung.com to a USB memory device.

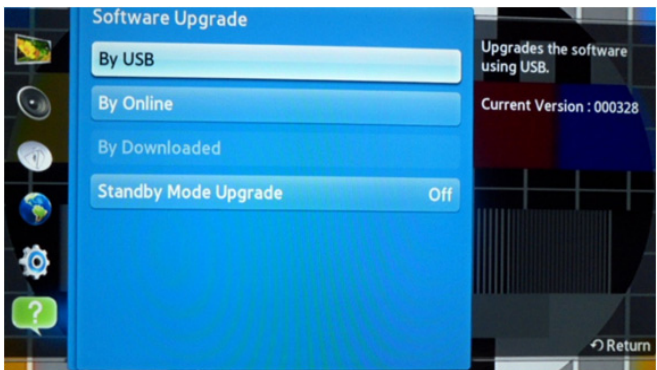
- Current Version - The software already installed in the TV.

Software is represented as 'Year/Month/Day_Version'.

4-6-1. How to Check the Software Version

■ Use the Main Menu

1. Click the "MENU" key in remote controller.
2. Select "Support" menu.
3. Locate the menu cursor "Software Upgrade" menu.
4. Click the "INFO" key.
 - Check the Main SW and Micom version.



■ Use the Factory Mode

Option
Control
SVC
Expert
ADC/WB
Advanced

TT-MST12AKUC-xxxx
T-MST12AKUS-xxxx
BT Version : xxxx
E-Manual : X12ATSCF-xxxx
EDID SUCCESS
CALIB : AV/COMP/PC/HDMI/
Option : xxxx,xxxx,xxxx,NONE
USB RS232C : OFF

4-6-2. How to Upgrade Software and Micom

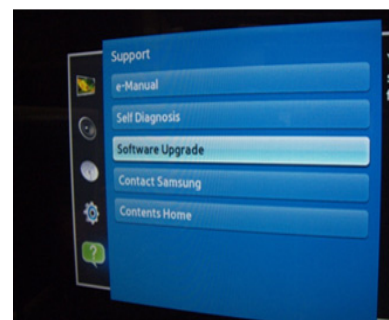
Insert a USB drive containing the firmware upgrade downloaded from samsung.com into the TV. Please be careful not to disconnect the power or remove the USB drive while upgrades are being applied. The TV will turn off and turn on automatically after completing the firmware upgrade. Please check the firmware version after the upgrades are complete (the new version will have a higher number than the older version). When software is upgraded, video and audio settings you have made will return to their default (factory) settings. We recommend you write down your settings before beginning firmware update. After update is completed, restore your previous settings.

■ Main Software Upgrade

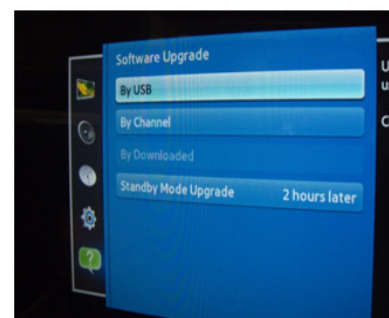
1. Store the sw program named "T-MST12AKUC" in USB memory stick.
 - Connect the USB.



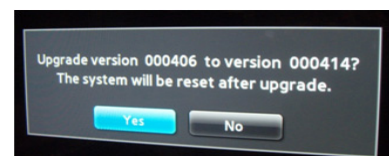
2. Click the "MENU" key in Remote Controller.
3. Select "Support" menu.
Locate the menu cursor "Software Upgrade" menu.



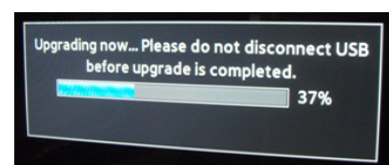
4. Locate the menu cursor "By USB" menu.



5. Click the "ENTER" key.

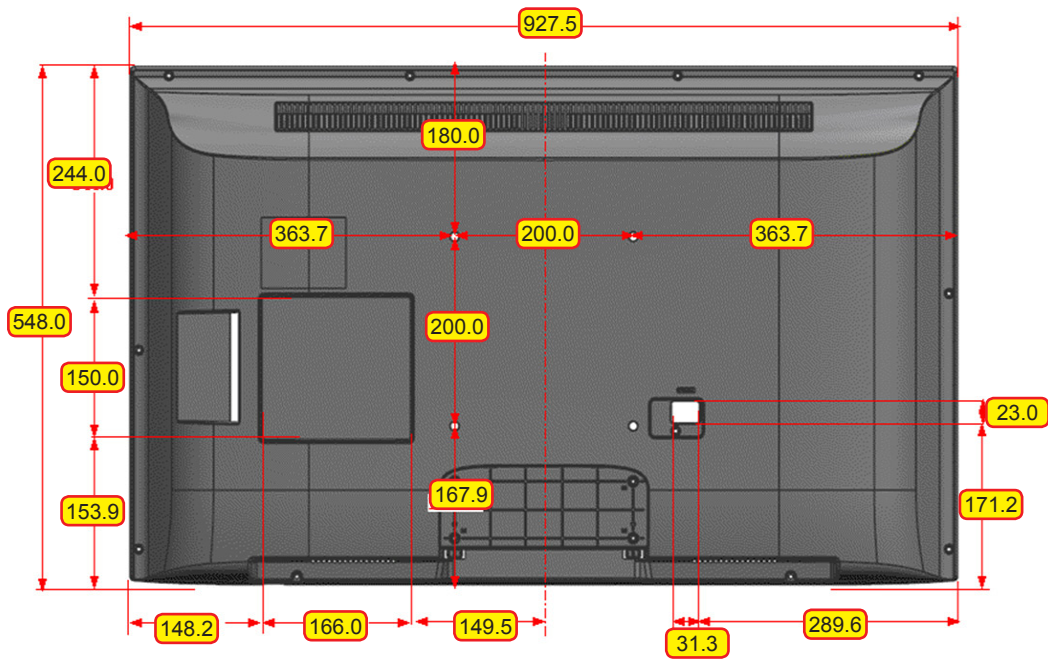


6. Click the "ENTER" key.
 - Wait for upgrade complete.
 - Check the Software Version.

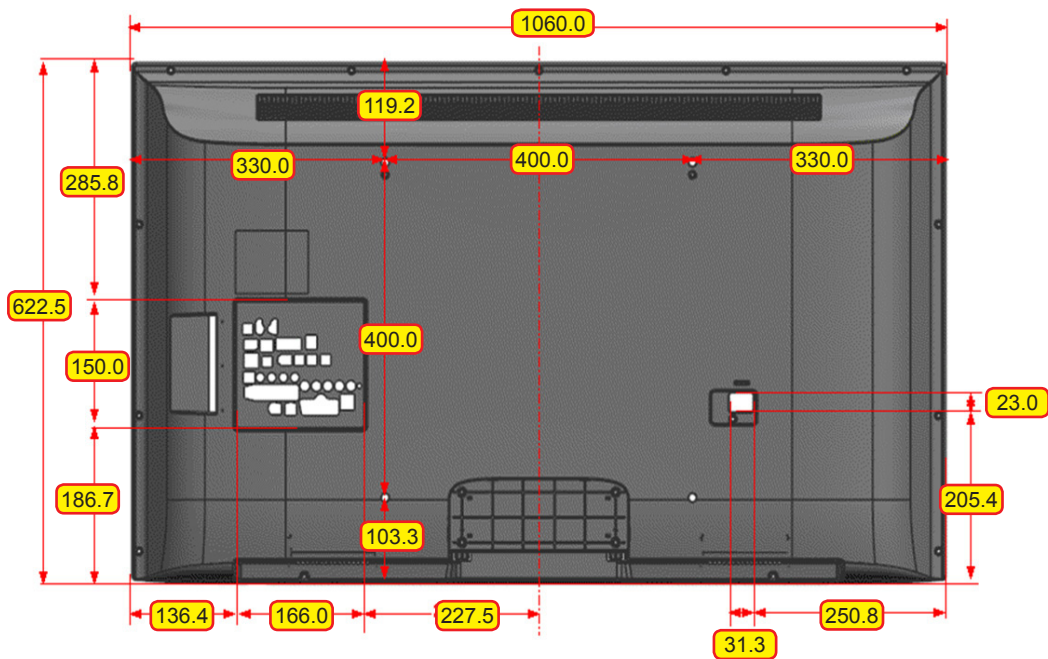


4-7. Rear Cover Dimension

■ UN40FH5303G

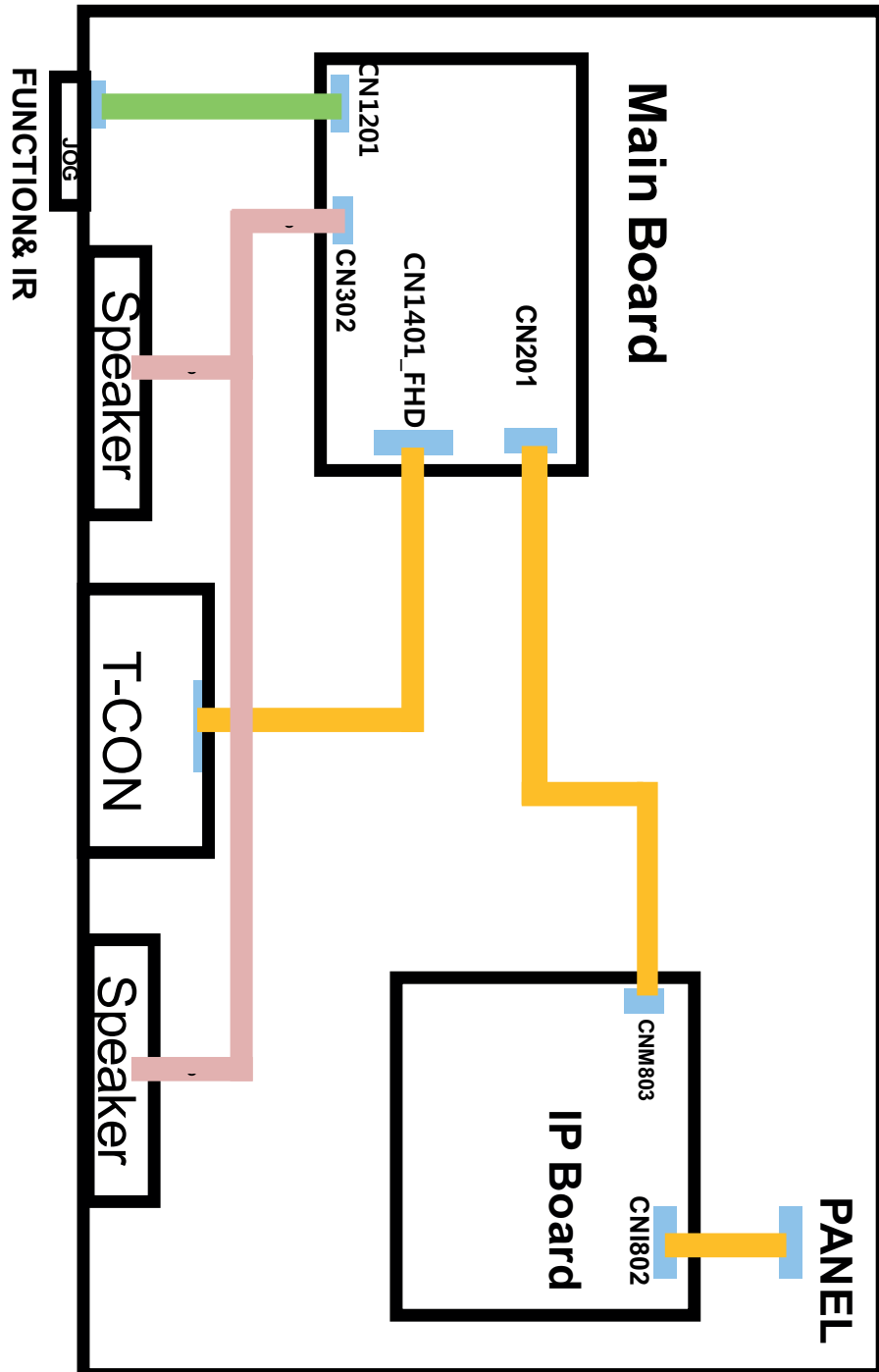


■ UN46FH5303G

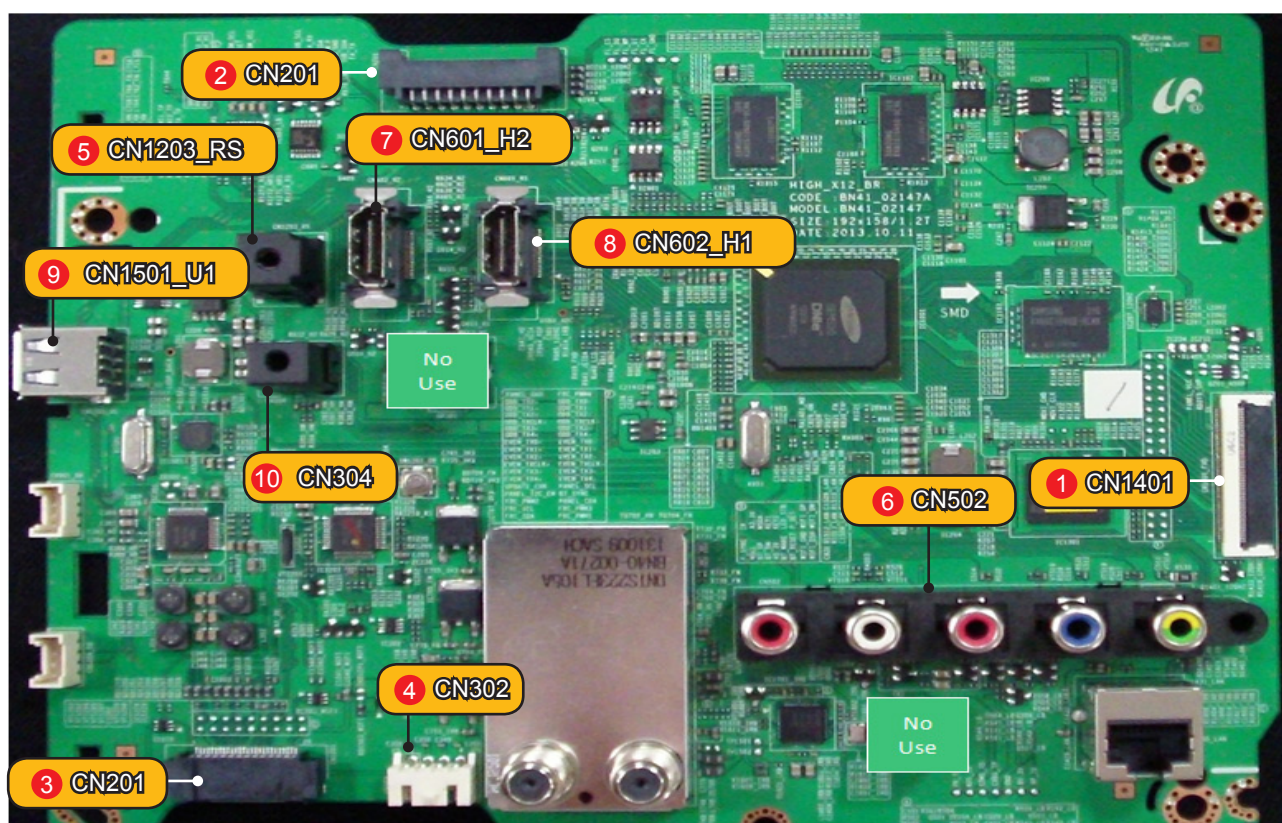


5. Wiring Diagram

5-1. Wiring Diagram



5-2. Connector



① CN1401_FHD (to Panel)			
1	NC	16	EVEN_TX3+_LVDS
2	GND	17	EVEN_TX3-_LVDS
3	NC	18	GND
4	NC	19	EVEN_TXCLK+_LVDS
5	NC	20	EVEN_TXCLK-_LVDS
6	NC	21	GND
7	GND	22	EVEN_TX2+_LVDS
8	TCON_SDA	23	EVEN_TX2-_LVDS
9	PANEL_I2C_EN	24	EVEN_TX1+_LVDS
10	NC	25	EVEN_TX1-_LVDS
11	NC	26	EVEN_TX0+_LVDS
12	TCON_SCL	27	EVEN_TX0-_LVDS
13	GND	28	GND
14	EVEN_TX4+_LVDS	29	ODD_TX4+_LVDS
15	EVEN_TX4-_LVDS	30	ODD_TX4-_LVDS

① CN1401_FHD (to Panel)			
31	ODD_TX3+_LVDS	42	ODD_TX0-_LVDS
32	ODD_TX3-_LVDS	43	GND
33	GND	44	GND
34	ODD_TXCLK+_LVDS	45	GND
35	ODD_TXCLK-_LVDS	46	NC
36	GND	47	Panel_13V_PW
37	ODD_TX2+_LVDS	48	Panel_13V_PW
38	ODD_TX2-_LVDS	49	Panel_13V_PW
39	ODD_TX1+_LVDS	50	Panel_13V_PW
40	ODD_TX1-_LVDS	51	Panel_13V_PW
41	ODD_TX0+_LVDS		

② CN201 (to Powr board)

1	B5.3V	11	B13V
2	SW_POWER_OUT	12	B13V
3	B5.3V	13	B13V
4	A5.3V	14	PWM_DIMM1_OUT
5	GND	15	GND
6	GND	16	PWM_DIMM2_OUT
7	B12VS	17	OVD_ON_OFF
8	GND	18	PWM_DIMM3_OUT
9	B12VS	19	NC
10	SW_INVERTER	20	PWM_DIMM4_OUT

③ CN1201 (FUNCTION/IR/WIFI)

1	IR	14	A5.3V
2	GND	15	LED_STB
3	GND	16	BT_WAKE
4	FRAME_SYNC_IN	17	IR_GND
5	A3.3V	18	POWER_DET
6	BT_SYNC	19	NC
7	MSCL	20	BT_RESET
8	MDnS	21	NC
9	MSDA	22	NC
10	USB_BT_DP	23	GND
11	KEY_INPUT1	24	WIFI_DP
12	USB_BT_DM	25	WIFI_DM
13	KEY_INPUT2	26	B5V_DC_PW

④ CN302 (SPEAKER)

1	R+	3	L+
2	R-	4	L-

⑤ CN1203_RS(DEBUG)

1	GND	4	DEBUG_TX
2	DEBUG_RX	5	DEBUG_TX
3	DEBUG_TX	6	GND

⑥ CN502 (COMPONENT)

1	GND	9	COMP2_PR
2	COMP2_Y_CVBS	10	GND
3	IDENT_VIDEO2	11	COMP2_AV2_SL_IN
4	GND	12	COMP2_AV2_SR_IN
5	COMP2_PB	13	GND
6	IDENT_COMP2	14	COMP2_AV2_SR_IN
7	GND	15	COMP2_AV2_SL_IN
8	COMP2_PR		

⑦ CN601_H2 (HDMI2)

1	HDMI2_RX2+	11	GND
2	GND	12	HDMI2_RXCLK-
3	HDMI2_RX2-	13	HDMI_CEC
4	HDMI2_RX1+	14	GND
5	GND	15	SCL
6	HDMI2_RX1-	16	SDA
7	HDMI2_RX0+	17	GND
8	GND	18	5V
9	HDMI2_RX0-	19	HPD
10	HDMI2_RXCLK+		

⑧ CN602_H1 (HDMI1)

1	HDMI1_RX2+	11	GND
2	GND	12	HDMI1_RXCLK-
3	HDMI1_RX2-	13	HDMI_CEC
4	HDMI1_RX1+	14	GND
5	GND	15	SCL
6	HDMI1_RX1-	16	SDA
7	HDMI1_RX0+	17	GND
8	GND	18	5V
9	HDMI1_RX0-	19	HPD
10	HDMI1_RXCLK+		

⑨ CN1501_U1 (USB1)

1	USB_VCC	3	USB_DP
2	USB_DM	4	GND

⑩ CN304 (Monitor_OUT)

1	GND	5	NC
2	AUD_SL_OUT	6	IDENT
3	AUD_SR_OUT	7	GND
4	NC		

5-3. Connector Functions

Connector	Function
CN201 ↔ IP CN	Supply main power and dimming signal from IP Board to Main Board.
CN1401_FHD ↔ T-CON CNF1	The LVDS signal transferred from Main Board to Panel.