



LED-TV

Chassis : U78C
Model : HG32EA590**
HG40EA590**
HG46EA590**

SERVICE MANUAL

LED TV

Contents



HG**EA590**

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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.

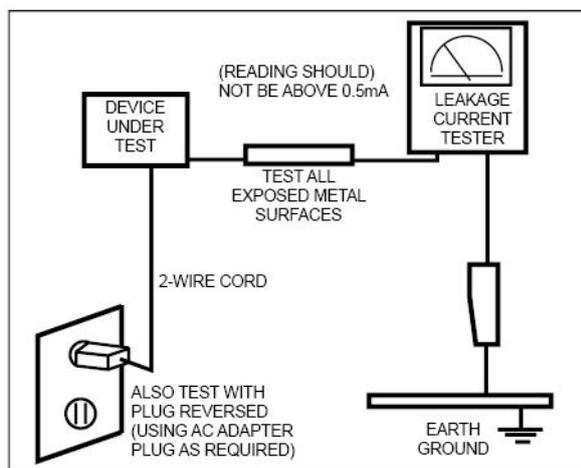
1-1-2. Servicing the LED TV

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 safety-related 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.

2. Product Specifications

2.1. Product Information

2-1-1. Model Comparison

Model	HG**EA590**		
Front View	 <p style="text-align: center;">* W : Width H : High D : Depth</p>		
Detail View			
Front Color	Black (Panel)		
Dimensions (W x H x D)	32"	Set with Stand	738.3 x 498.2 x 191.9 mm / 29.1 x 19.6 x 7.6 inches
		Set without Stand	738.3 x 444.9 x 93.2 mm / 29.1 x 17.5 x 3.7 inches
	40"	Set with Stand	927.6 x 606.5 x 247.8 mm / 36.5 x 23.9 x 9.8 inches
		Set without Stand	927.6 x 511.0 x 93.0 mm / 36.5 x 20.1 x 3.7 inches
	46"	Set with Stand	1059.8 x 680.7 x 247.8 mm / 41.7 x 26.8 x 9.8 inches
		Set without Stand	1059.8 x 625.6 x 94.6 mm / 41.7 x 24.6 x 3.7 inches
Weight	32"	Set with Stand	6.5 kg / 14.3 lbs
		Set without Stand	5.8 kg / 12.8 lbs
	40"	Set with Stand	10.9 kg / 24.0 lbs
		Set without Stand	8.9 kg / 19.6 lbs
	46"	Set with Stand	14.2 kg / 31.3 lbs
		Set without Stand	12.2 kg / 26.9 lbs
Panel Type	Anti Glare		
Internal Memory	2 G		
DDR	256 MB*3(768MB)		
Feature	Samsung SMART TV, AllShare(Powerd By DLNA), Anynet+(HDMI-CEC)		

2-1-2. Feature & Specifications

Model	HG32EA590**	
Feature		
<ul style="list-style-type: none"> • Digital-TV, RF, 3-HDMI, 1-SCART, 1-Component, 1-A/V, 2-USB2.0(AllShare Play), LAN • Contrast Ratio : Mega Contrast • Dynamic contrast, Super-PVA • Response Time : 8 ms • CMR : 100 • PIP(in HDMI 1, 2, 3 Component and Sub picture is available only in TV mode(DTV/ATV)) • Dolby Digital Plus / DolbyPulse, SRS TheaterSound HD 		
Specifications		
Item	Description	
LCD Panel	32 inch FHD 60 Hz	
Scanning Frequency	Horizontal : 50 kHz ~ 73 kHz (Automatic) Vertical : 47 Hz ~ 63 Hz (Automatic)	
Display Colors	16.7M colors	
Maximum Resolution	Horizontal : 1920 Pixels Vertical : 1080 Pixels	
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	74.25 MHz	
Active Display (H x V)* * Horizontal x Vertical	698.4 (H) x 392.9 (V) mm / 27.5 (H) x 15.47 (V) inches	
AC Power Voltage & Frequency	AC 220 V ~ 240 V, 50/60 Hz	
Power Consumption	60 W (Under 0.5 W, Stand by)	
Dimensions Set (W x H x D)* * Width x High x Depth	Set with Stand	738.3 x 498.2 x 191.9 mm / 29.1 x 19.6 x 3.7 inches
	Set without Stand	738.3 x 444.9 x 93.2 mm / 29.1 x 17.5 x 3.7 inches
Weight	Set with Stand	6.5 kg / 14.3 lbs
	Set without Stand	5.8 kg / 12.8 lbs
TV System	TV	<ul style="list-style-type: none"> • Analogue : B/G, D/K, L, I (Depending on your country selection) • Digital : DVB-T/DVB-C (UK, Nordic Area : DVB-T2/DVB-C)
	Colour Video	<ul style="list-style-type: none"> • Analogue : PAL, SECAM, NTSC-4.43, NTSC-3.58, PAL60 • Digital : MPEG-2 MP@ML, MPEG-4, H.264/AVC MP@L3 MP@L4.0, HP@L4.0
	Sound	BG, DK, L, NICAM, MPEG1, DD, DD+, HEAAC
Environmental Considerations	Operating Temperature : 50°F ~ 104°F (10°C ~ 40°C) Operating Humidity : 10% ~ 80%, non-condensing Storage Temperature : -13°F ~ 113°F (-25°C ~ 45°C) Storage Humidity : 5% ~ 95%, non-condensing	

2. Product Specifications

Specifications	
Item	Description
Audio Specifications	<ul style="list-style-type: none">• MAX Internal Audio Output Power : Each 10 W (Left/Right)• Equalizer : 5 Band• Output Frequency : RF : 20 Hz ~ 15.4 kHz AV/Componet/HDMI : 20 Hz ~ 20 kHz
Note: Game Mode, Smart Hub, Energy Saving	

Model	HG40EA590**	
Feature		
<ul style="list-style-type: none"> Digital-TV, RF, 3-HDMI, 1-SCART, 1-Component, 1-A/V, 2-USB2.0(AllShare Play), LAN Contrast Ratio : Mega Contrast Dynamic contrast, Super-PVA Response Time : 8 ms CMR : 100 PIP(in HDMI 1, 2, 3 Component and Sub picture is available only in TV mode(DTV/ATV)) Dolby Digital Plus / DolbyPulse, SRS TheaterSound HD 		
Specifications		
Item	Description	
LCD Panel	40 inch FHD 60 Hz	
Scanning Frequency	Horizontal : 50 kHz ~ 73 kHz (Automatic) Vertical : 47 Hz ~ 63 Hz (Automatic)	
Display Colors	16.7M colors	
Maximum Resolution	Horizontal : 1920 Pixels Vertical : 1080 Pixels	
Input Signal	Analog 0.7 Vp-p \pm 5% positive at 75 Ω , internally terminated	
Input Sync Signal	H/V Separate, TTL, P. or N.	
Maximum Pixel Clock Rate	74.25 MHz	
Active Display (H x V)* * Horizontal x Vertical	885.6 (H) x 498.2 (V) mm / 34.87 (H) x 19.61 (V) inches	
AC Power Voltage & Frequency	AC 220 V ~ 240 V, 50/60 Hz	
Power Consumption	87 W (Under 0.3 W, Stand by)	
Dimensions Set (W x H x D)* * Width x High x Depth	Set with Stand	927.6 x 606.5 x 247.8 mm / 36.5 x 23.9 x 9.8 inches
	Set without Stand	927.6 x 511.0 x 93.0 mm / 36.5 x 20.1 x 3.7 inches
Weight	Set with Stand	10.9 kg / 24.0 lbs
	Set without Stand	8.9 kg / 19.6 lbs
TV System	TV	<ul style="list-style-type: none"> Analogue : B/G, D/K, L, I (Depending on your country selection) Digital : DVB-T/DVB-C (UK, Nordic Area : DVB-T2/DVB-C)
	Colour Video	<ul style="list-style-type: none"> Analogue : PAL, SECAM, NTSC-4.43, NTSC-3.58, PAL60 Digital : MPEG-2 MP@ML, MPEG-4, H.264/AVC MP@L3 MP@L4.0, HP@L4.0
	Sound	BG, DK, L, NICAM, MPEG1, DD, DD+, HEAAC
Environmental Considerations	Operating Temperature : 50°F ~ 104°F (10°C ~ 40°C) Operating Humidity : 10% ~ 80%, non-condensing Storage Temperature : -13°F ~ 113°F (-25°C ~ 45°C) Storage Humidity : 5% ~ 95%, non-condensing	

2. Product Specifications

Specifications	
Item	Description
Audio Specifications	<ul style="list-style-type: none">• MAX Internal Audio Output Power : Each 10 W (Left/Right)• Equalizer : 5 Band• Output Frequency : RF : 20 Hz ~ 15.4 kHz AV/Componet/HDMI : 20 Hz ~ 20 kHz
Note: Game Mode, Smart Hub, Energy Saving	

Model	HG46EA590**	
Feature		
<ul style="list-style-type: none"> • Digital-TV, RF, 3-HDMI, 1-SCART, 1-Component, 1-A/V, 2-USB2.0(AllShare Play), LAN • Contrast Ratio : Mega Contrast • Dynamic contrast, Super-PVA • Response Time : 8 ms • CMR : 100 • PIP(in HDMI 1, 2, 3 Component and Sub picture is available only in TV mode(DTV/ATV)) • Dolby Digital Plus / DolbyPulse, SRS TheaterSound HD 		
Specifications		
Item	Description	
LCD Panel	46 inch FHD 60 Hz	
Scanning Frequency	Horizontal : 50 kHz ~ 73 kHz (Automatic) Vertical : 47 Hz ~ 63 Hz (Automatic)	
Display Colors	16.7M colors	
Maximum Resolution	Horizontal : 1920 Pixels Vertical : 1080 Pixels	
Input Signal	Analog 0.7 Vp-p \pm 5% positive at 75 Ω , internally terminated	
Input Sync Signal	H/V Separate, TTL, P. or N.	
Maximum Pixel Clock Rate	74.25 MHz	
Active Display (H x V)* * Horizontal x Vertical	1018.1 (H) x 572.7 (V) mm / 40.08 (H) x 22.55 (V) inches	
AC Power Voltage & Frequency	AC 220 V ~ 240 V, 50/60 Hz	
Power Consumption	92 W (Under 0.3 W, Stand by)	
Dimensions Set (W x H x D)* * Width x High x Depth	Set with Stand	1059.8 x 680.7 x 247.8 mm / 41.7 x 26.8 x 9.8 inches
	Set without Stand	1059.8 x 625.6 x 94.6 mm / 41.7 x 24.6 x 3.7 inches
Weight	Set with Stand	14.2 kg / 31.3 lbs
	Set without Stand	12.2 kg / 26.9 lbs
TV System	TV	<ul style="list-style-type: none"> • Analogue : B/G, D/K, L, I (Depending on your country selection) • Digital : DVB-T/DVB-C (UK, Nordic Area : DVB-T2/DVB-C)
	Colour Video	<ul style="list-style-type: none"> • Analogue : PAL, SECAM, NTSC-4.43, NTSC-3.58, PAL60 • Digital : MPEG-2 MP@ML, MPEG-4, H.264/AVC MP@L3 MP@L4.0, HP@L4.0
	Sound	BG, DK, L, NICAM, MPEG1, DD, DD+, HEAAC
Environmental Considerations	Operating Temperature : 50°F ~ 104°F (10°C ~ 40°C) Operating Humidity : 10% ~ 80%, non-condensing Storage Temperature : -13°F ~ 113°F (-25°C ~ 45°C) Storage Humidity : 5% ~ 95%, non-condensing	

2. Product Specifications

Specifications	
Item	Description
Audio Specifications	<ul style="list-style-type: none">• MAX Internal Audio Output Power : Each 10 W (Left/Right)• Equalizer : 5 Band• Output Frequency : RF : 20 Hz ~ 15.4 kHz AV/Componet/HDMI : 20 Hz ~ 20 kHz
Note: Game Mode, Smart Hub, Energy Saving	

2-1-3. Specification Comparison to Old Models

Model	HGA5M(HG**EA590)		UD5R(UE**D5500)	
Design				
Display Type	LED TV 2D		LED TV 2D	
Built-in Tuner	○		○	
Resolution	1920 x 1080		1920 x 1080	
LCD Panel	TFT LCD Panel 60 Hz		TFT LCD Panel 60 Hz	
Picture ratio	16 : 9		16 : 9	
Power Consumption	32"	60 W (Under 0.3W, Standby)	32"	68 W (Under 0.3W, Standby)
	40"	87 W (Under 0.3W, Standby)	40"	103 W (Under 0.3W, Standby)
	46"	92 W (Under 0.3W, Standby)	46"	134 W (Under 0.3W, Standby)
Dimensions (W x H x V)	32"	29.1 x 19.6 x 7.6 inches_with stand	32"	30.2 x 20.9 x 9.4 inches_with stand
		29.1 x 17.5 x 3.7 inches_without stand		30.2 x 18.4 x 1.2 inches_without stand
	40"	36.5 x 23.9 x 9.8 inches_with stand	40"	37.6 x 25.1 x 10.0 inches_with stand
		36.5 x 20.1 x 3.7 inches_without stand		37.6 x 22.6 x 1.2 inches_without stand
	46"	41.7 x 26.8 x 9.8 inches_with stand	46"	43.0 x 28.1 x 10.8 inches_with stand
		41.7 x 24.6 x 3.7 inches_without stand		43.0 x 25.6 x 1.2 inches_with stand
Weight	32"	14.3 lbs_with stand	32"	22.8 lbs_with stand
		12.8 lbs_without stand		27.6 lbs_without Stand
	40"	24.0 lbs_with stand	40"	31.7 lbs_with stand
		19.6 lbs_without stand		24.4 lbs_without Stand
	46"	31.3 lbs_with stand	46"	38.1 lbs_with stand
		26.9 lbs_without stand		30.3 lbs_without Stand
Contrast Ratio	Mega Contrast		Mega Contrast	
Picture Enhancer	HyperReal Engine (X10+)		HyperReal Engine (X6)	
Equalizer	5 Band		5 Band	
Auto Volume Control	○		○	
Surround Sound	Dolby Digital plus / Dolby Pulse		Dolby Digital plus	
Function	Jog Function		Touch Function	
Speaker Output	10 W x 10 W		10 W x 10 W	
PIP	X		○	
Antenna	1(Cable/Air)		1(Cable/Air)	

2.2. 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".

Model Name			HG32EA590**	HG40EA590**	HG46EA590**
Panel	Vendor		CMI	AML	AML
	Code		BN07-01096A	BN95-00587A	BN95-00589A
	Spec.		DE320BGM-C1	LTJ400HM08-V	LTJ460HN05-V
SMPS	Vendor		SEM	SEM	SEM
	Code		BN44-00494A	BN44-00498A	BN44-00498A
	Spec.		PD32AV1_CSM	PD46AV1_CSM	PD46AV1_CSM
Byte	Item	Chassis Ass'y	BN91-09323Q	BN91-09323S	BN91-09323W
0	Factory Reset	PBA Ass'y code	BN94-05762Q	BN94-05762S	BN94-05762W
1	Type		32P6AF0E	40R6AF0E	46R6AF0E
2	Model		HA590	HA590	HA590
3	SVC Model		590	590	590
4	Local Set		EU_ITALY (Italy area models) EU_GER (Germany area models) EU_FRANCE (France area models) EU_BENELUX (Benelux area models) EU_SPAIN (Spain area models) CIS_RUSSIA (Russia area models) CIS_UA (Ukraine area models) CIS_CA_MS (Azerbaijan area models) EU_TURKEY (Turkey area models) EU (other models)		
5	Tuner		DVB_T2C	DVB_T2C	DVB_T2C
6	Ch Table		NONE	NONE	NONE
7	Front Color		U-S-C-5K	U-S-C-5K	U-S-C-5K

2.3. Accessories

Product	Description	Code. No	Remark
	Remote Control	AA59-00629A OR AA59-00818A	Samsung Electronics Service center
	Batteries (AAA x 2)	4301-000121	
	Power Cord	3903-000603 3903-000619 (UK Only)	
	Data Cable	AA39-00864A	
	Warranty Card / Manual Users / Safety Guide Manual (Not available in all locations)	BN68-00514K BN68-04055A BN68-03019A	
	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.



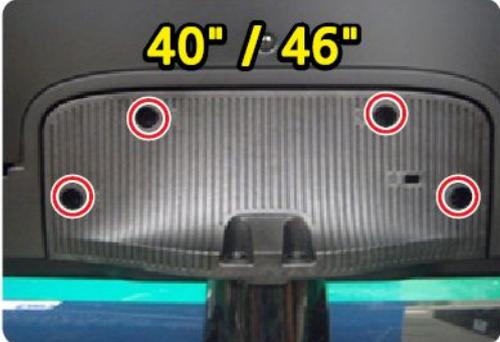
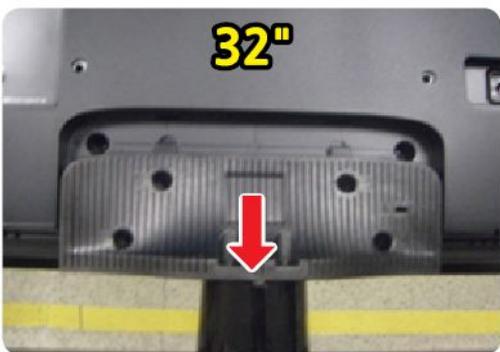
This LED TV contains electrostatically sensitive devices. Use caution when handling these components.

3.1. Disassembly and Reassembly

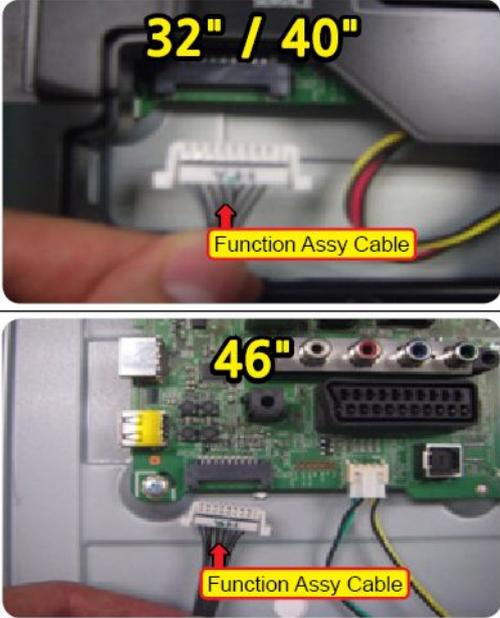
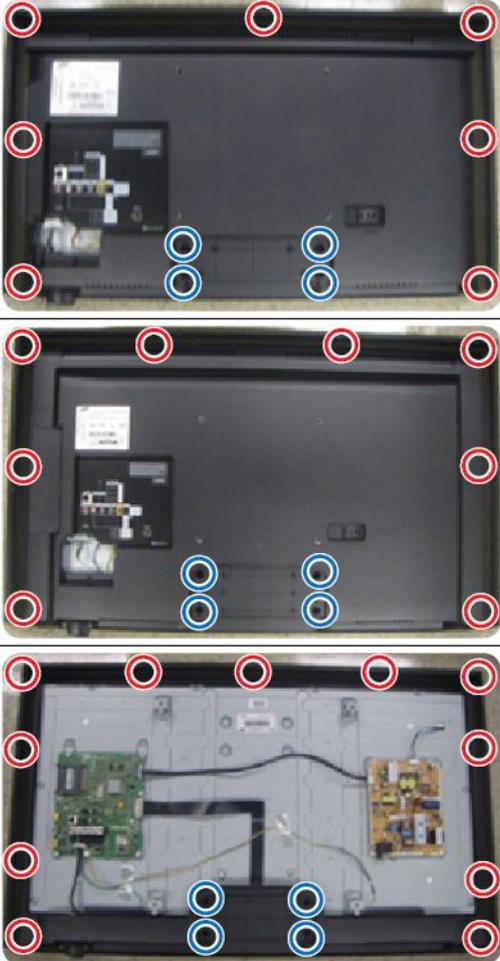


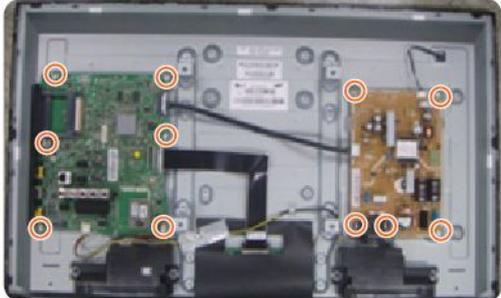
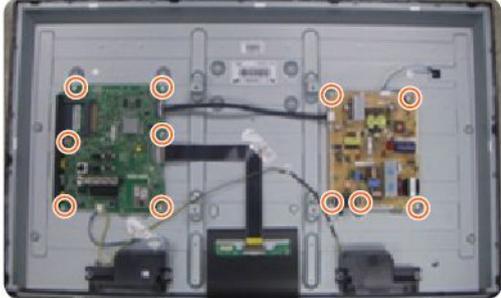
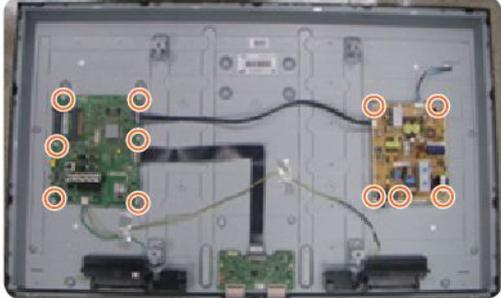
1. Disconnect the LED TV from the power source before disassembly.
2. Follow these directions carefully; never use metal instruments to pry apart the cabinet.
3. If there is no additional coment, it is same for all inches.

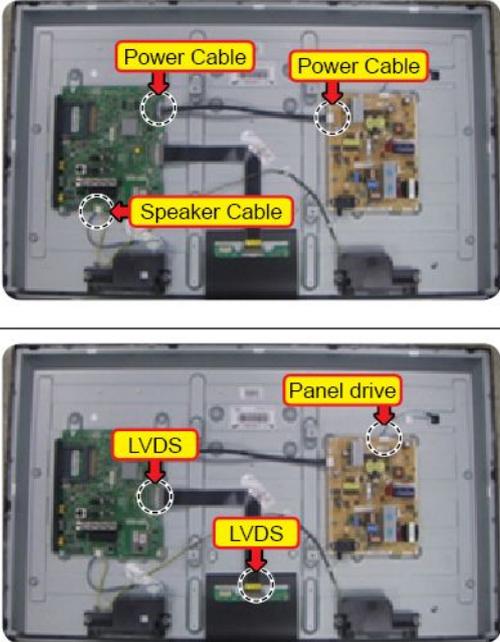
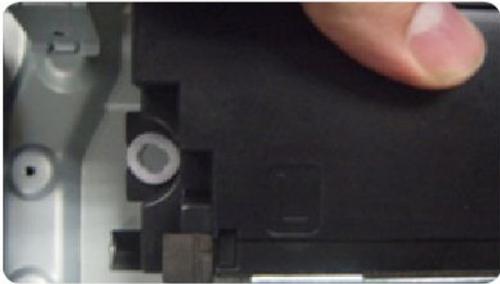
Description	Picture Description	Screws
<p>1 Place TV face down on cushioned table.</p>		

Description	Picture Description	Screws
2 Remove 4 screws from the Stand.	 <p>32"</p>	 6001-001782
	 <p>40" / 46"</p>	 6001-001782
3 Remove Stand.	 <p>32"</p>	
	 <p>40" / 46"</p>	

Description	Picture Description	Screws
<p>4 Remove 1 screw of ASSY COVER P-MIDDLE REAR and 1 screw of COVER-JACK.</p> <p>Remove 11 screws of ASSY COVER P-REAR.</p>	 <p>32" / 40"</p>  <p>46"</p>	 <p>6001-001782</p>  <p>6001-001782</p>  <p>6001-002755</p>
<p>5 Remove the COVER-JACK.</p> <p>Remove the ASSY COVER P-REAR.</p>	 <p>32"</p>  <p>40" / 46"</p>	

Description	Picture Description	Screws
<p>6 Disconnect the Function Assy Cable.</p>		
<p>7 Remove screw of ASSY COVER P-MIDDLE REAR.</p> <ul style="list-style-type: none"> • 32" : 11 EA <ul style="list-style-type: none"> • 40" : 12 EA <p>Remove screw of ASSY COVER P-MIDDLE.</p> <ul style="list-style-type: none"> • 46" : 15 EA 		 <p>6001-001782</p> <p>6001-002755</p>  <p>6001-001782</p> <p>6001-002755</p>  <p>6001-001782</p> <p>6001-002755</p>

Description	Picture Description	Screws
<p>8 Remove the ASSY COVER P-MIDDLE REAR.</p>		
<p>Remove the ASSY COVER P-MIDDLE.</p>		
<p>8 Remove the screws of MAIN BOARD, SMPS BOARD.</p> <ul style="list-style-type: none"> • 32" : MAIN BOARD: 6 EA SMPS BOARD: 5 EA 		 6001-002756
<ul style="list-style-type: none"> • 40" : MAIN BOARD: 6 EA SMPS BOARD: 5 EA 		 6001-002756
<ul style="list-style-type: none"> • 46" : MAIN BOARD: 6 EA SMPS BOARD: 5 EA 		 6001-002756

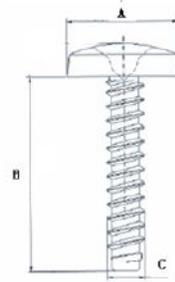
Description	Picture Description	Screws
<p>9 Remove the Power Cables and Speaker Cables. Remove the LVDS Cable and Panel Drive Cable.</p>		
<p>10 Remove the Speakers (R/L).</p>		
<p>11 Remove the BRACKET-WALL (4EA).</p>		
<p>12 Completed disassembly.</p>		

 **NOTE**

Reassembly procedures are in the reverse order of disassembly procedures.

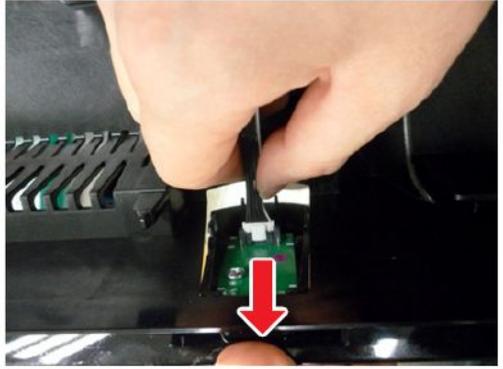
■ Screw Size

Code No.	COLOR	A (mm)	B (mm)	C (mm)
6003-001782	BLACK	7.80~8.30	11.20~12.00	3.81~3.91
6001-002755	BLACK	7.1~7.5	5.7~6.0	2.98~3.02
6001-002756	WHITE	7.1~7.5	5.7~6.0	2.98~3.02



3.2. Assy Board P-Jog Switch & Ir

■ How to disassembly

Description	Picture Description	Refer
1 Check the 2 Locking Holders.		
2 Press both holders.		
3 Remove the Function Assy.		

■ How to assembly

Description	Picture Description	Refer
<p>1 Check the locking hole.</p>		
<p>2 Combine the function assy to locking hole.</p>		
<p>3 Press the function assy to TV.</p>		

When you want to ignore the funtion key actions

- Option
- Control**
- SVC
- Expert
- ADC/WB
- Advanced

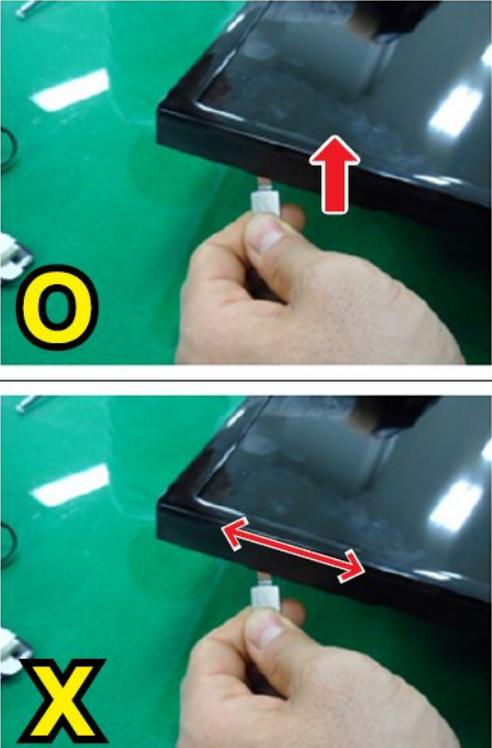
Config Option

Navigation Key Func

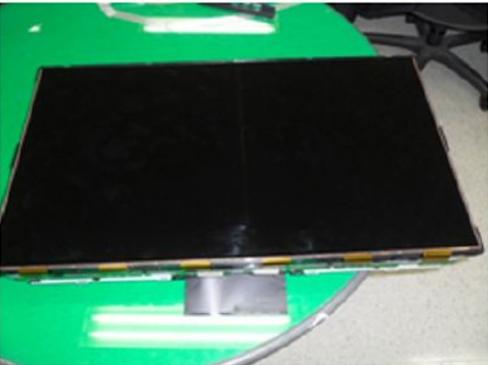
- 0 : New Function (Naviagtion) Key ← [Default]
- 1 : Old Function (Touch) Key
- 2 : Do not work Function key

3.3. Disassembly(PTC)

■ How to disassembly

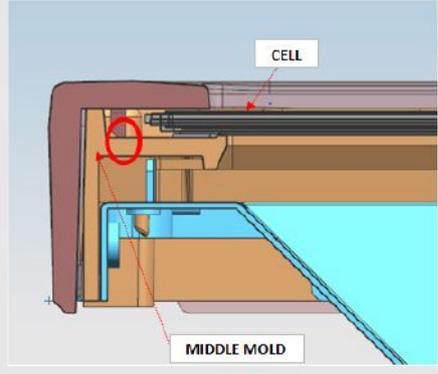
Description	Picture Description	Refer
<p>1 Place TV face up on cushioned table.</p>		
<p>2 Remove the ASSY Function assy.</p>		
<p>3 Spread the both sides of PTC upper (marked "▼") by use the tool.</p> <p>! CAUTION Do not scratch on both side by use tool. Gate Cof will be damaged.</p> 		

3. Disassembly and Reassembly

Description	Picture Description	Refer
<p>4 Separate the left and right side of the PTC as shown.</p>		
<p>5 Separate the Bottom of the PTC as shown</p>		
<p>6 Raise up the PTC Bottom.</p>		
<p>7 Disassembly is complete.</p>		

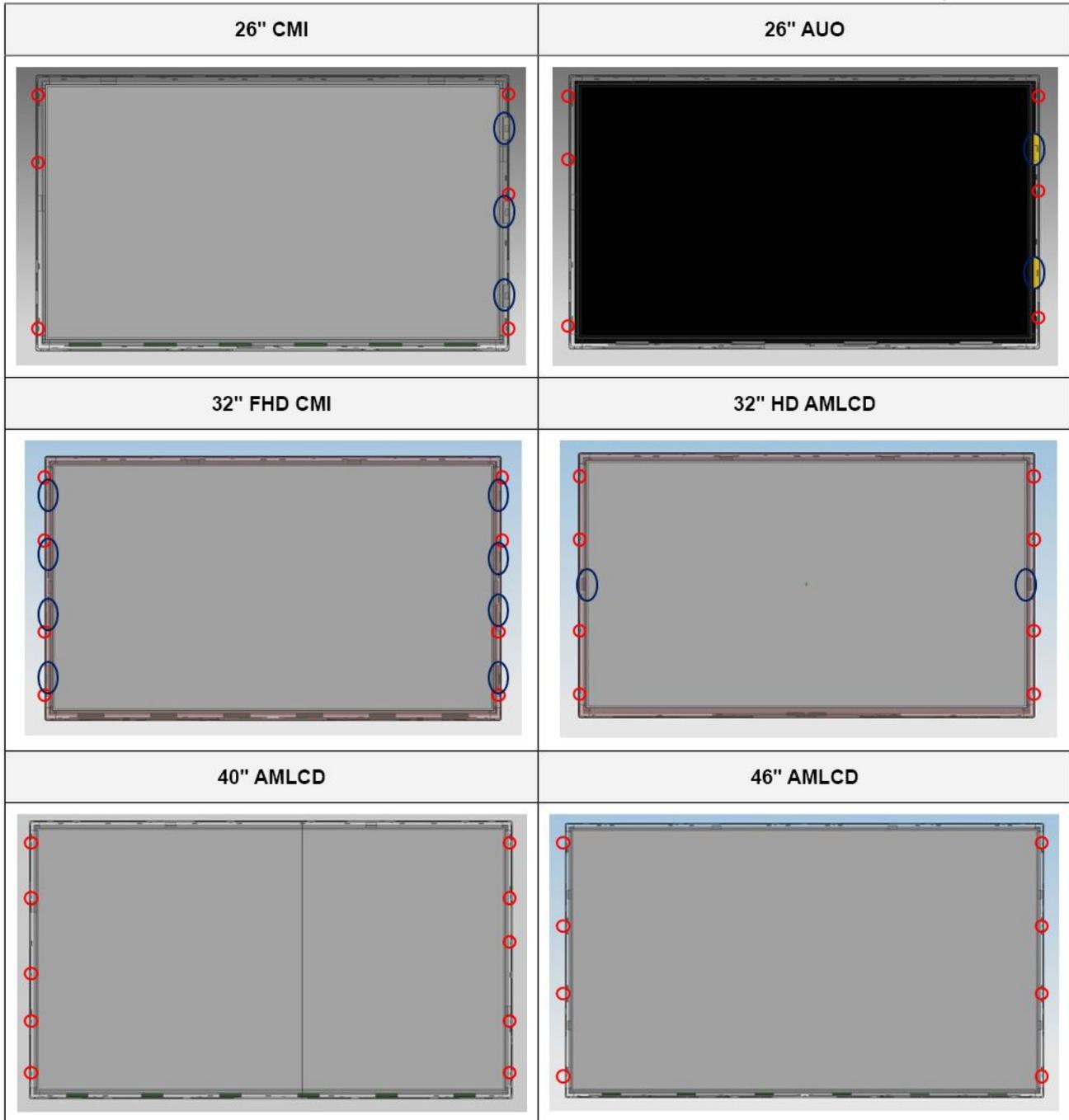
How to reassembly

Description	Picture Description	Refer
1 Attach the PTC Bottom first to the Panel.		
2 Secure the plastic latch on the left and right side of the PTC as shown.		

Description	Picture Description	Refer
<p>3 Visually inspect the spacing between the PTC and the Panel for equal clearance.</p> <p>! CAUTION Combine to stick the PTC Rib into the middle mold.</p> 	    	

Description	Picture Description	Refer
4 Assembly is complete.		

○ : HOOK ○ : GATE COF

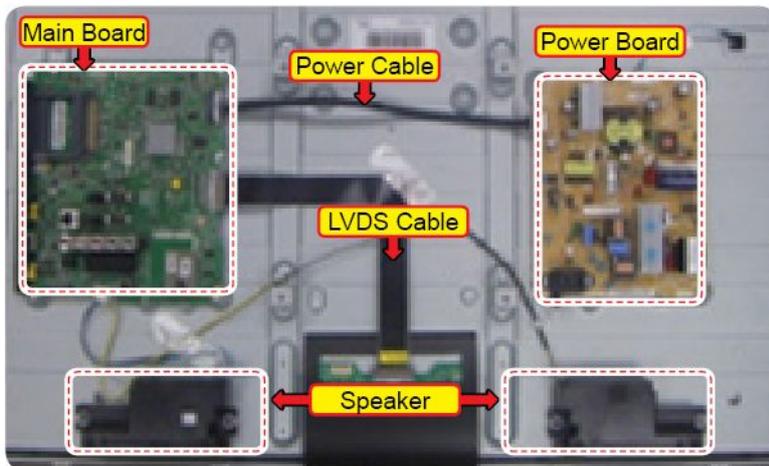


4. Troubleshooting

4.1. Troubleshooting

■ 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.



- Pin Map (Series 5 use the 14P / Series6 use the 20P)

Main Board (CN201)																			
1	B5.3V	2	A3.3V	3	B5.3V	4	A5.3V	5	GND	6	GND	7	B12VS	8	GND	9	B12VS	10	B5.3V
11	B13V	12	B13V	13	B13V	14	N.C	15	N.C	16	N.C	17	N.C	18	N.C	19	N.C	20	N.C

Power Board (CNM803)																			
1	B5.3V	2	A3.3V	3	B5.3V	4	A5.3V	5	GND	6	GND	7	B12VS	8	GND	9	B12VS	10	B5.3V
11	B13V	12	B13V	13	B13V	14	N.C	15	N.C	16	N.C	17	N.C	18	N.C	19	N.C	20	N.C

3. Check the power in & output between IP & Main Board, Main Board & Panel, IP & Panel.

■ How to know it is from Main Board or T-Con when some problems happen

1. No Picture : Backlight is on, but there is no picture and LED indicator in front of TV is blinking.
 - Check the LVDS Cable connection. If still problems, change the T-CON Board and then Main Board step by step.
2. Picture distortion : Enter the service mode → Choose 'SVC' → Check the 'internal pattern.'

- Enter 'Service Mode.'

- If you do not have Factory remote control



- If you have Factory remote control



3. Choose 'SVC.'
4. Choose 'Test pattern.'
5. Select the each pattern and then check all pattern is ok or not.



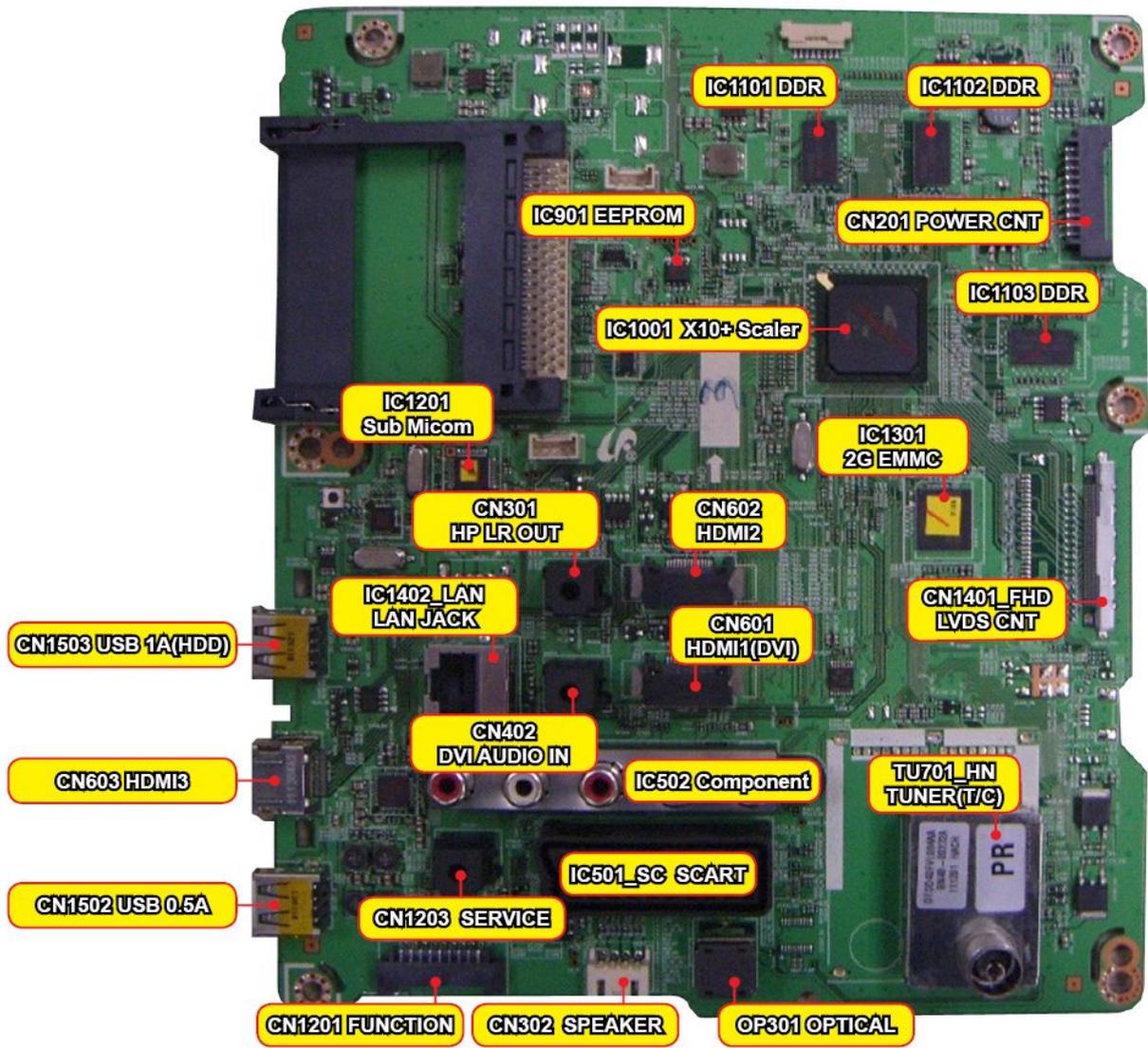
- For All mode

X10+	Echo_FS FRC Post	Picture	Problem
OK	OK	NG	Main Board or Signal Source.
NG	OK	NG	Main Board.
NG	NG	NG	Main 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 X10+ pattern or LVDS cable or T-CON.

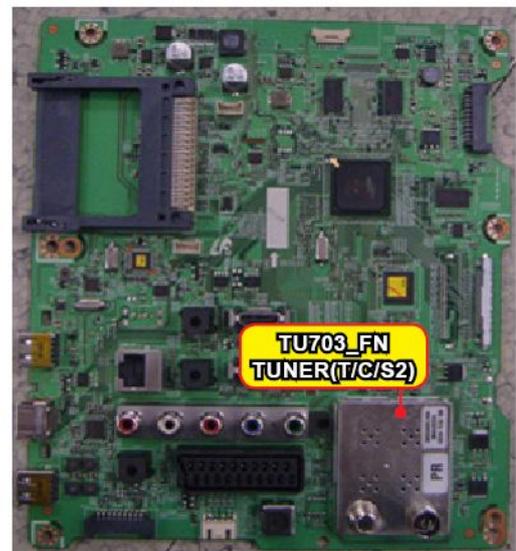
■ DVB-T/C Main Board



DVB-T2/C Main Board



DVB-T/C/S2 Main Board



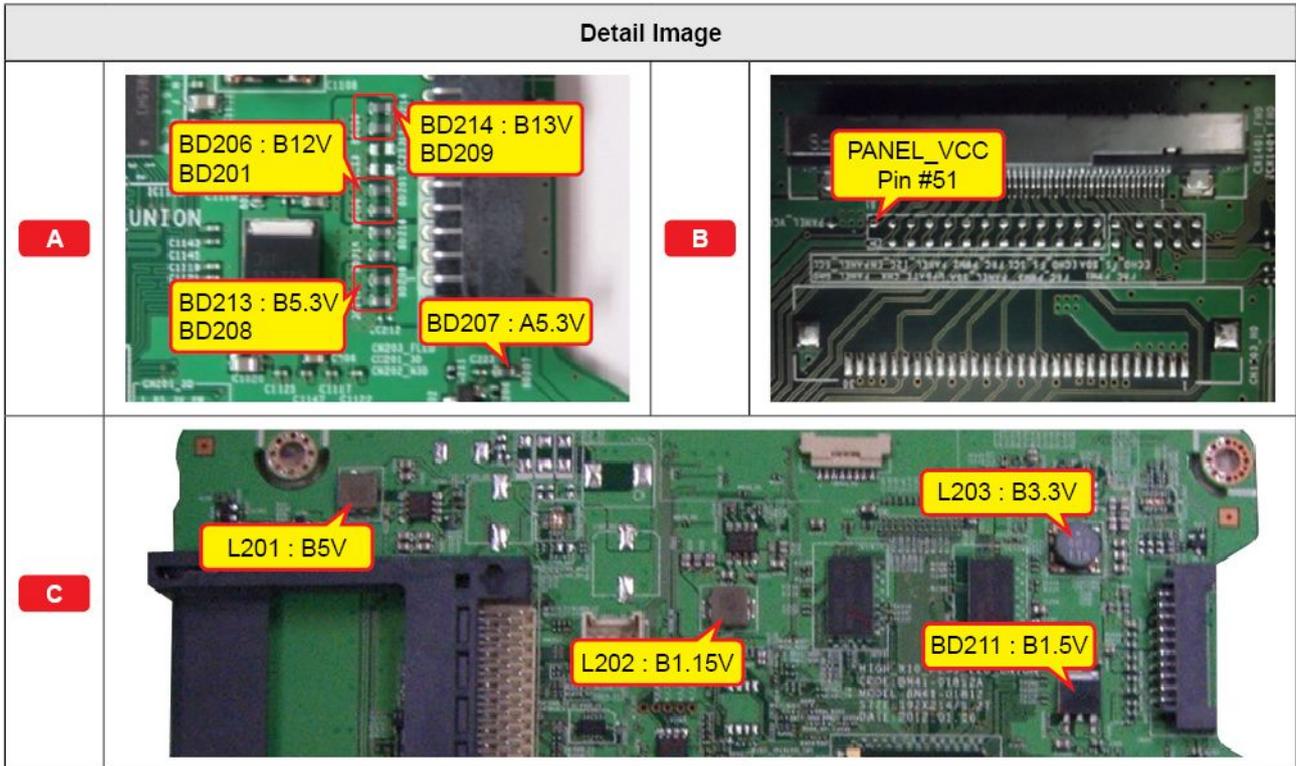
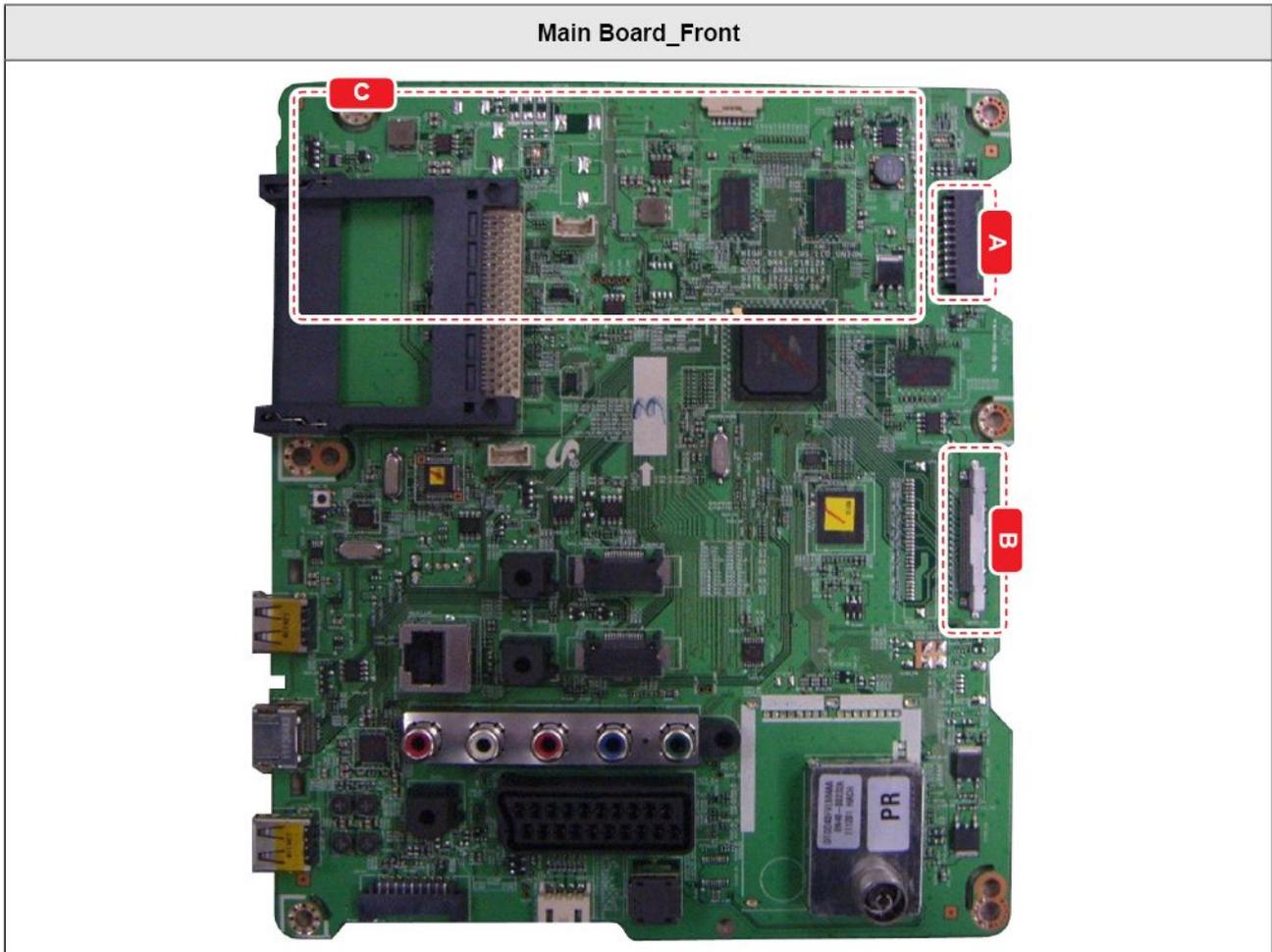
4.2. How to Check Fault Symptom

■ NO Power and No Video

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 A[Power cord on.] -- No --> B[Check a connetion power code.] A -- Yes --> C[Check 'Stand-By A5.3V' 5.3V appear at BD210? 0V to 5.3V (CN201 #4)] C -- No --> D[Change the Power cable. Change SMPS.] C -- Yes --> E[Set On.] E -- Yes --> F[Check 'SW_POWER' more than 3.3V appear at CN201(#2) ? 0V to 3.3V↑ (CN201 #2)] F -- No --> G["Cause : Main IC(X10+) did not control th SW_Power. Measure : Change the Main Board."] F -- Yes --> H[Check 'Power input of Main Ass'y' ? DC B13V, B5.3V appear at CN201 #11,12,13(B13V) CN201 #1,3 (B5.3V)? 0V to 13V (CN201 #11,12,13) 0V to 5.3V (CN201 #1,3)] H -- No --> I["Cause : There did not supply the power from SMPS. Measure : Change 14p power cable and SMPS."] H -- Yes --> J[Check 'Power IC output of Main Ass'y' ? L202 : B3.3V / L203 : B1.15V L201 : B5V / IC208 : 3.3V] J -- No --> K["Cause : There is problem at DCDC/ LDO. Measure : Change the Main Board."] J -- Yes --> L[Check 'Power of LVDS (13V)' appear at TP-PANEL_VCC? 0V to 13V (TP-PANEL_VCC)] L -- No --> M["Cause : There is proble at IC(IC206) or Main IC(X10+) did not control the SW_PVCC. Measure : Change the Main Board."] </pre>

	<p style="text-align: center;">Yes ↓</p> <div style="border: 1px solid black; padding: 5px; margin: 0 auto; width: fit-content;">Please, Contact tech support.</div>
Caution	Make sure to disconnect the power before working on the IP board.

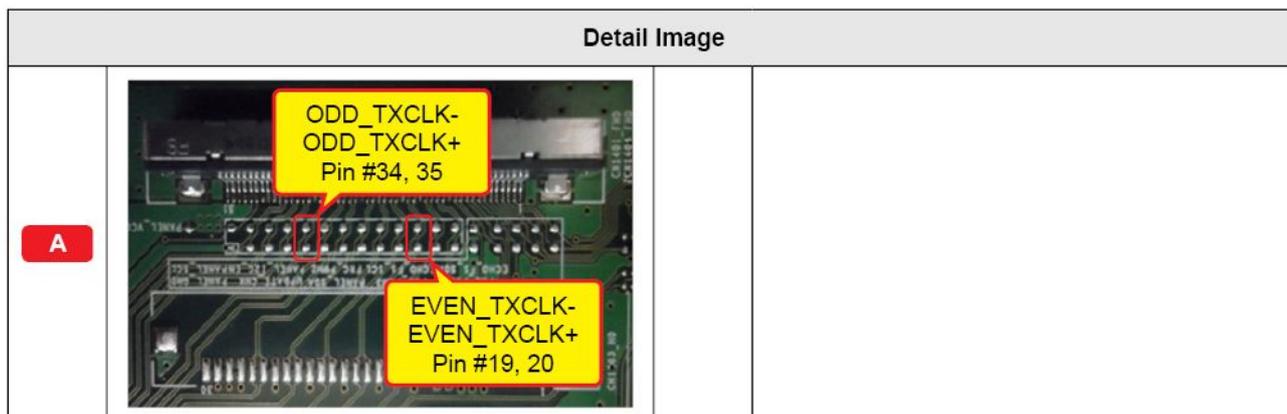
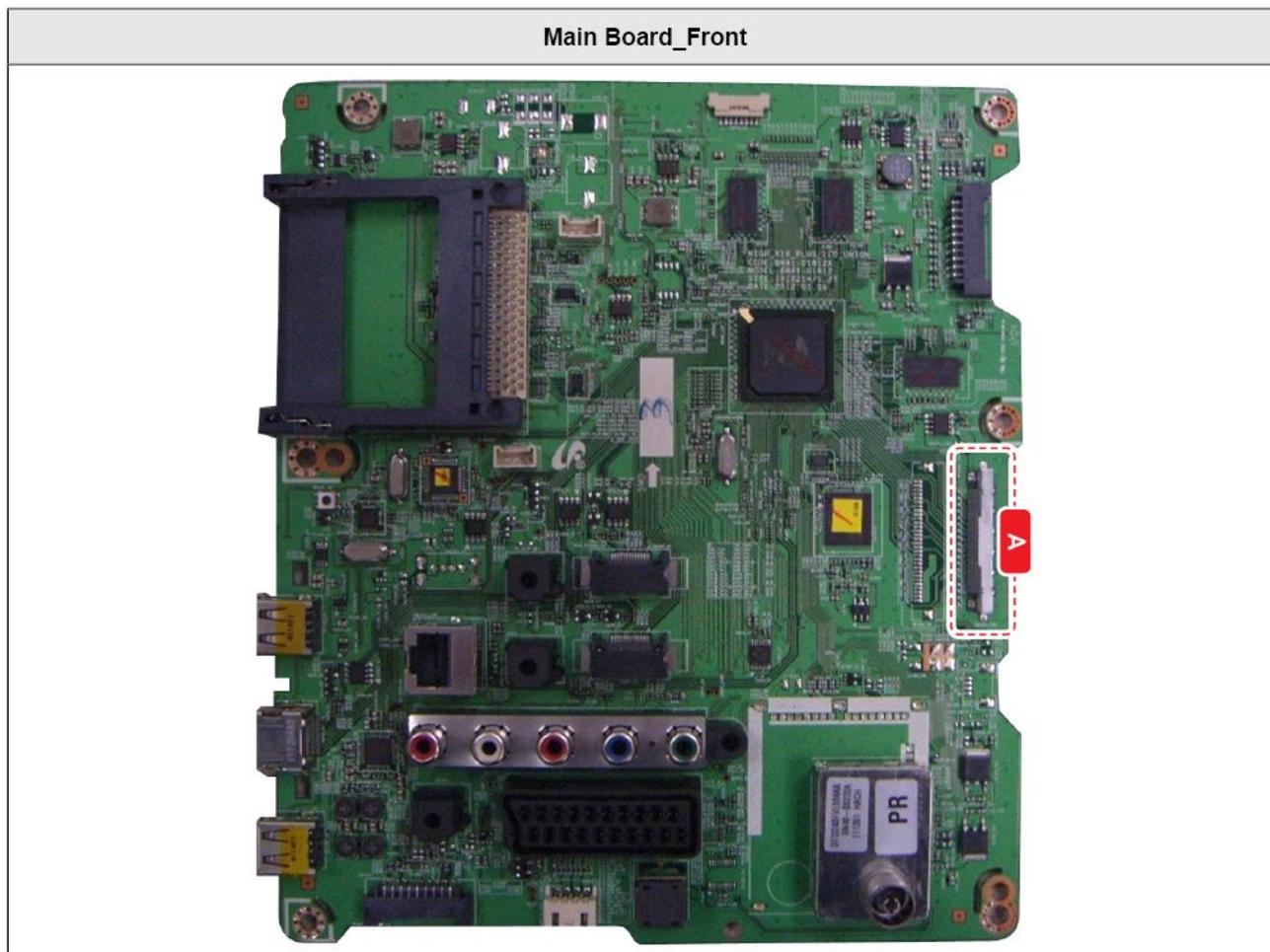
■ Location of Parts



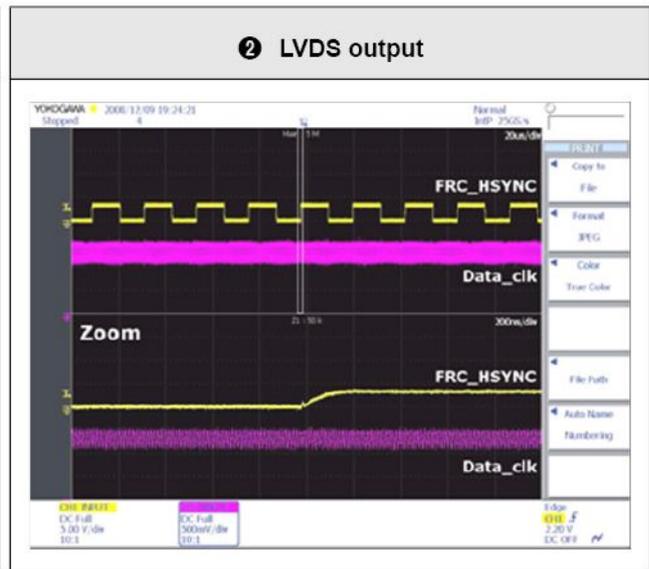
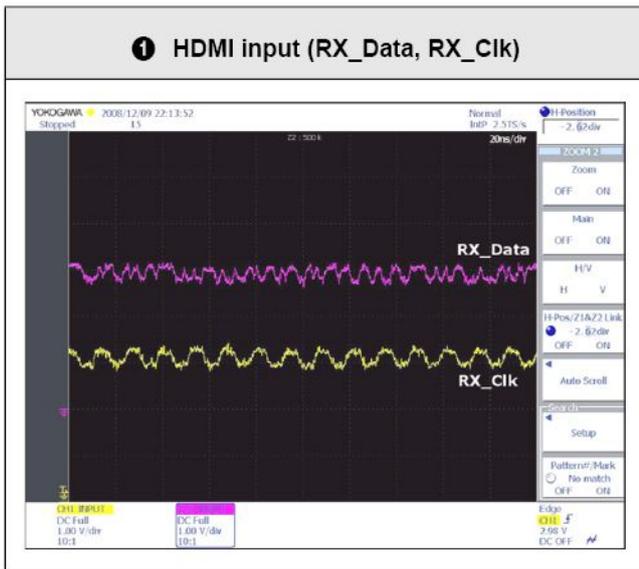
4-2-2. No Video (3-HDMI_Digital Signal)

Symptom	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	<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 HDMI source and check the connection of HDMI cable?] Q2 -- No --> A2[Input the HDMI signal properly.] Q2 -- Yes --> Q3[1 Check the signal at Input of Main Board?] Q3 -- No --> A3[Check CN601~3. Check HDMI cable. Change the Main Board.] Q3 -- Yes --> Q4[2 Check the LVDS clk signal at output of Main Board? ODD_TXCLK- / ODD_TXCLK+ EVEN_TXCLK- / EVEN_TXCLK+] Q4 -- No --> A4[Check IC1001(X10+). Change the Main Board.] Q4 -- Yes --> Q5[Check the LVDS cable? Replace the T-CON, LCD panel?] Q5 -- No --> A5[Please, Contact Tech support.] </pre>
Caution	Make sure to disconnect the power before working on the IP board.

■ Location of Parts



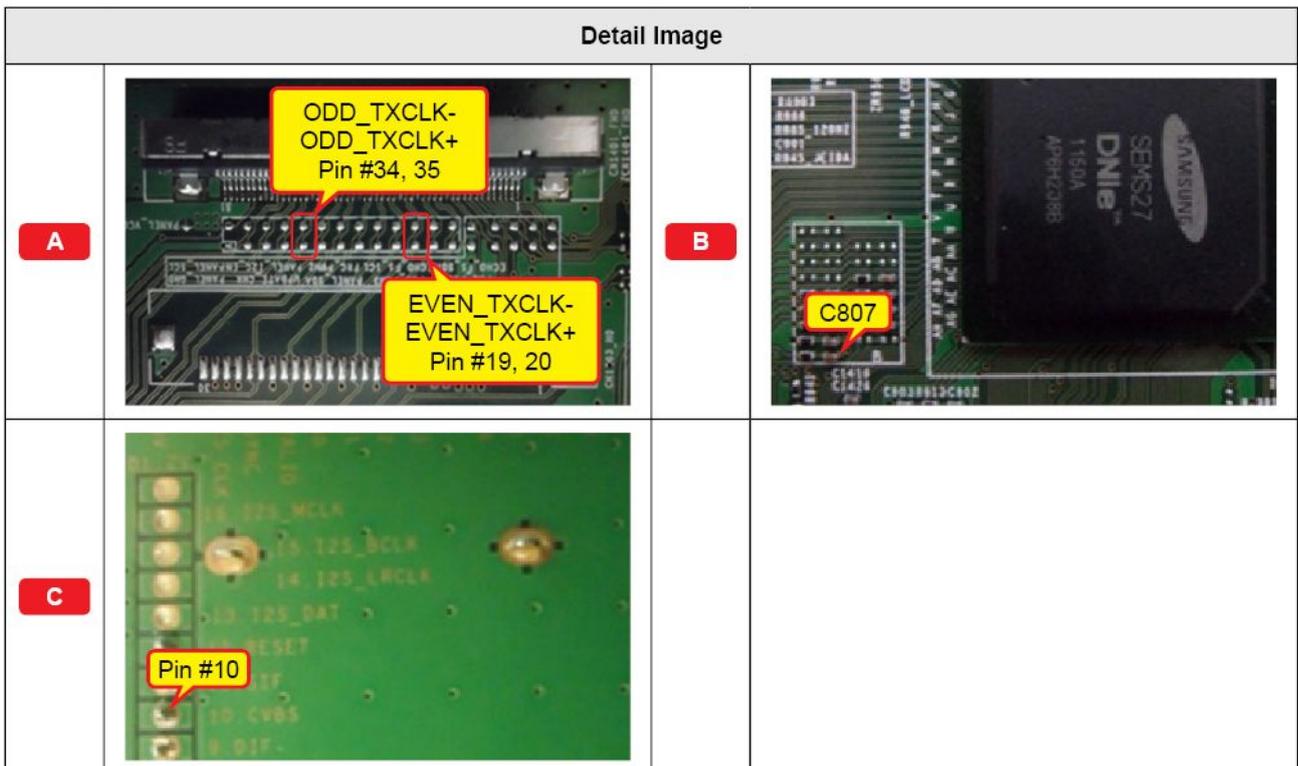
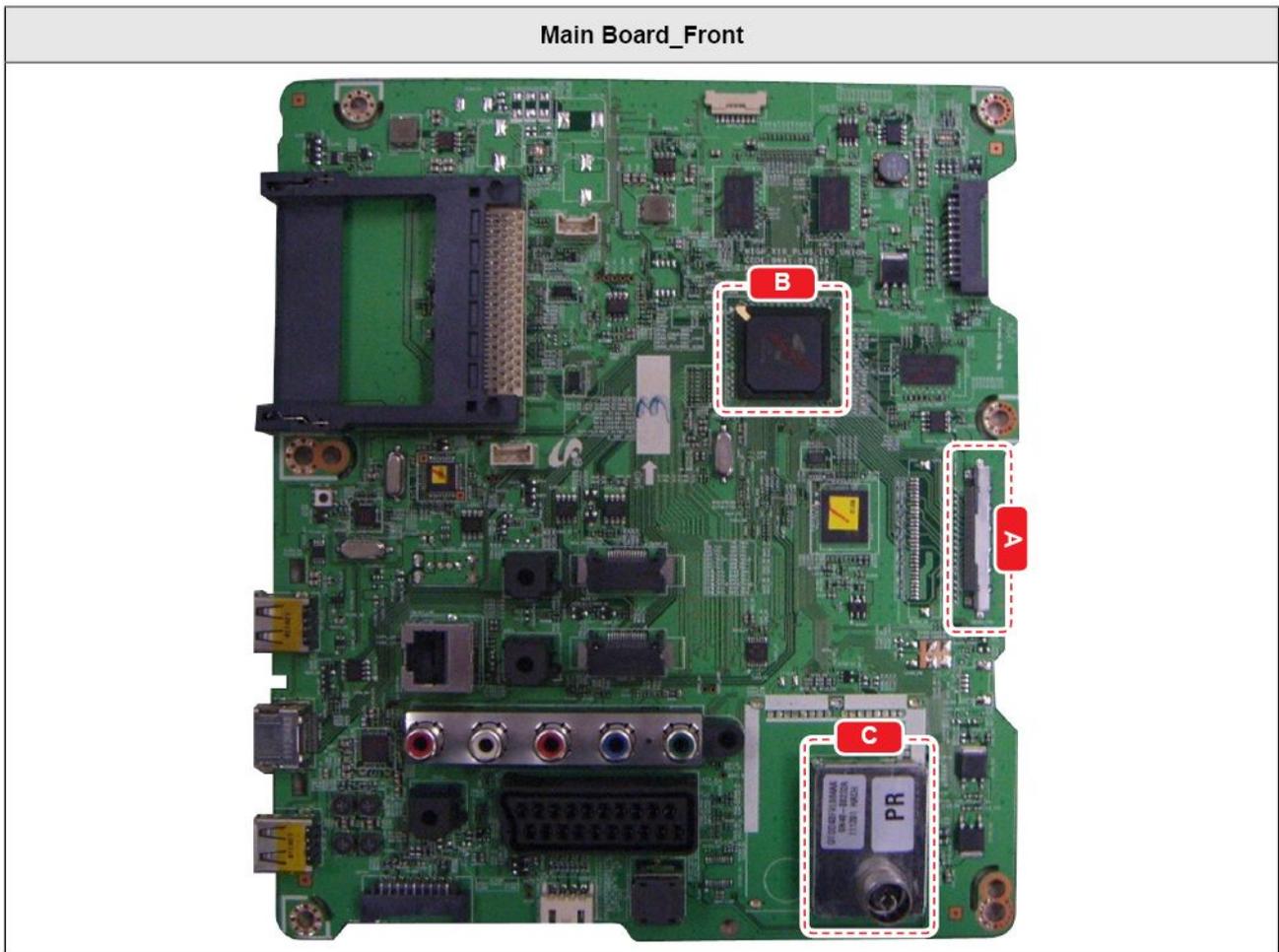
■ Waveforms



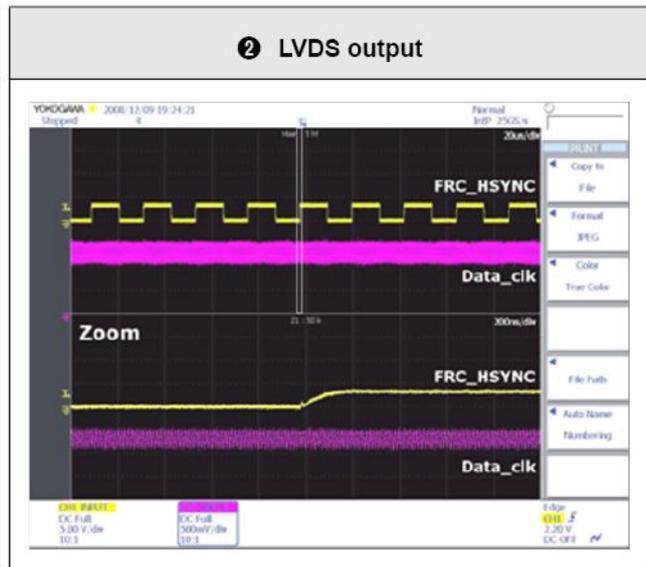
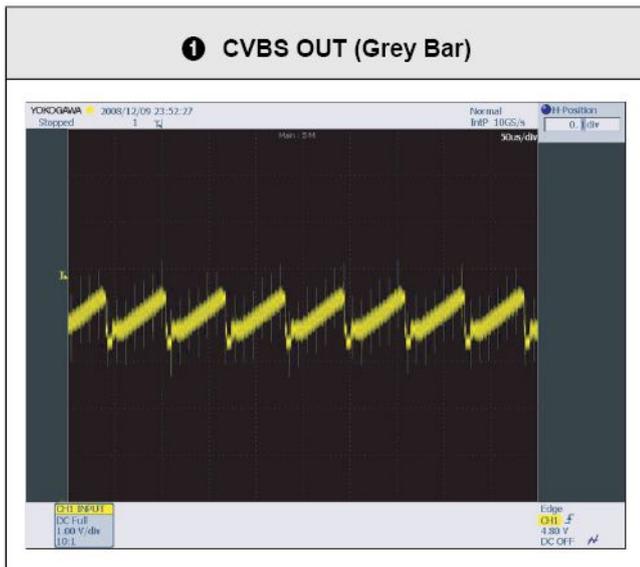
4-2-3. No Video (Tuner_CVBS)

Symptom	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[1 Check the Power of Tuner ? Pin #4 of Tuner : B3.3V_Tuner Pin #2 of Tuner : B1.8V_Tuner] Q3 -- No --> A3[Change the Main Board.] Q3 -- Yes --> Q4[2 Check the CVBS data out of IC1001 ? C807 : Tuner CVBS] Q4 -- No --> A4[Check IC1001(X10+). Change the Main Board.] Q4 -- Yes --> Q5[2 Check the LVDS signal at output of Main Board ? ODD_TXCLK- / ODD_TXCLK+ EVEN_TXCLK- / EVEN_TXCLK+] Q5 -- No --> A5[Check IC1001(X10+). Change the Main Board.] 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



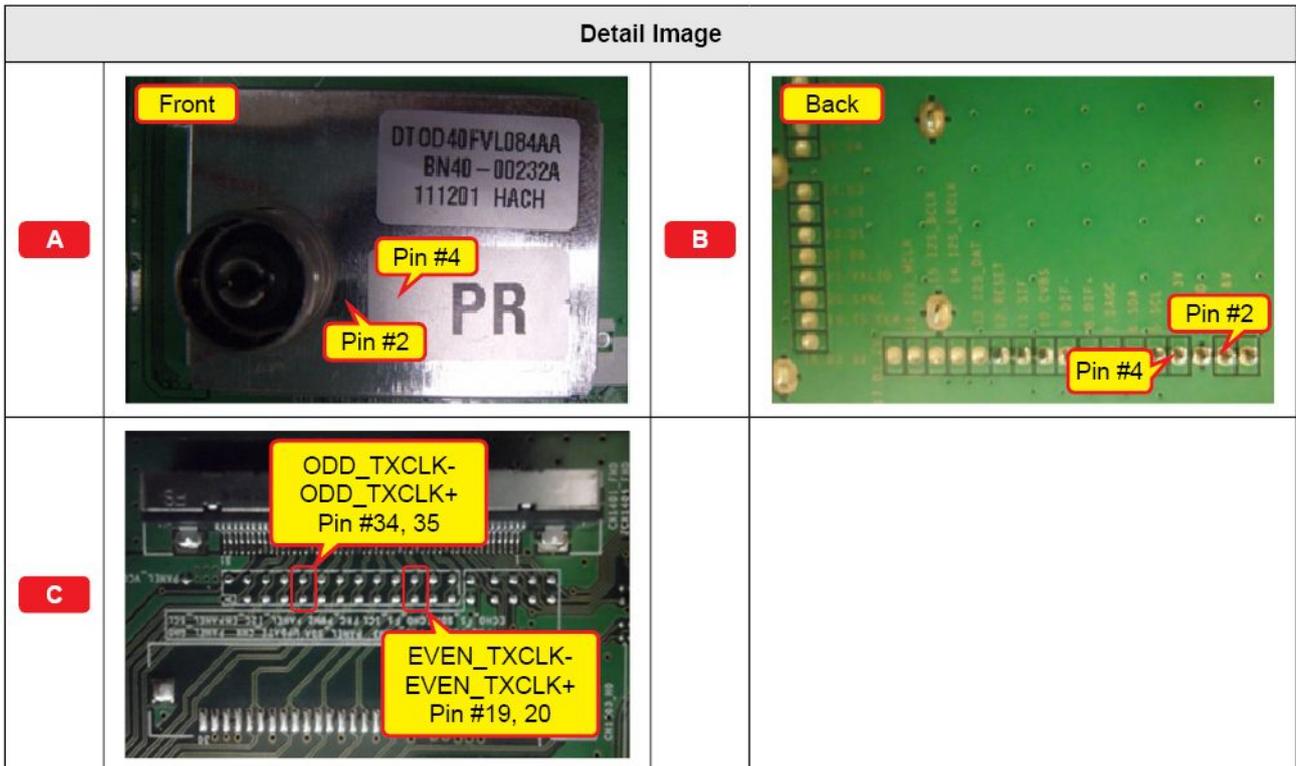
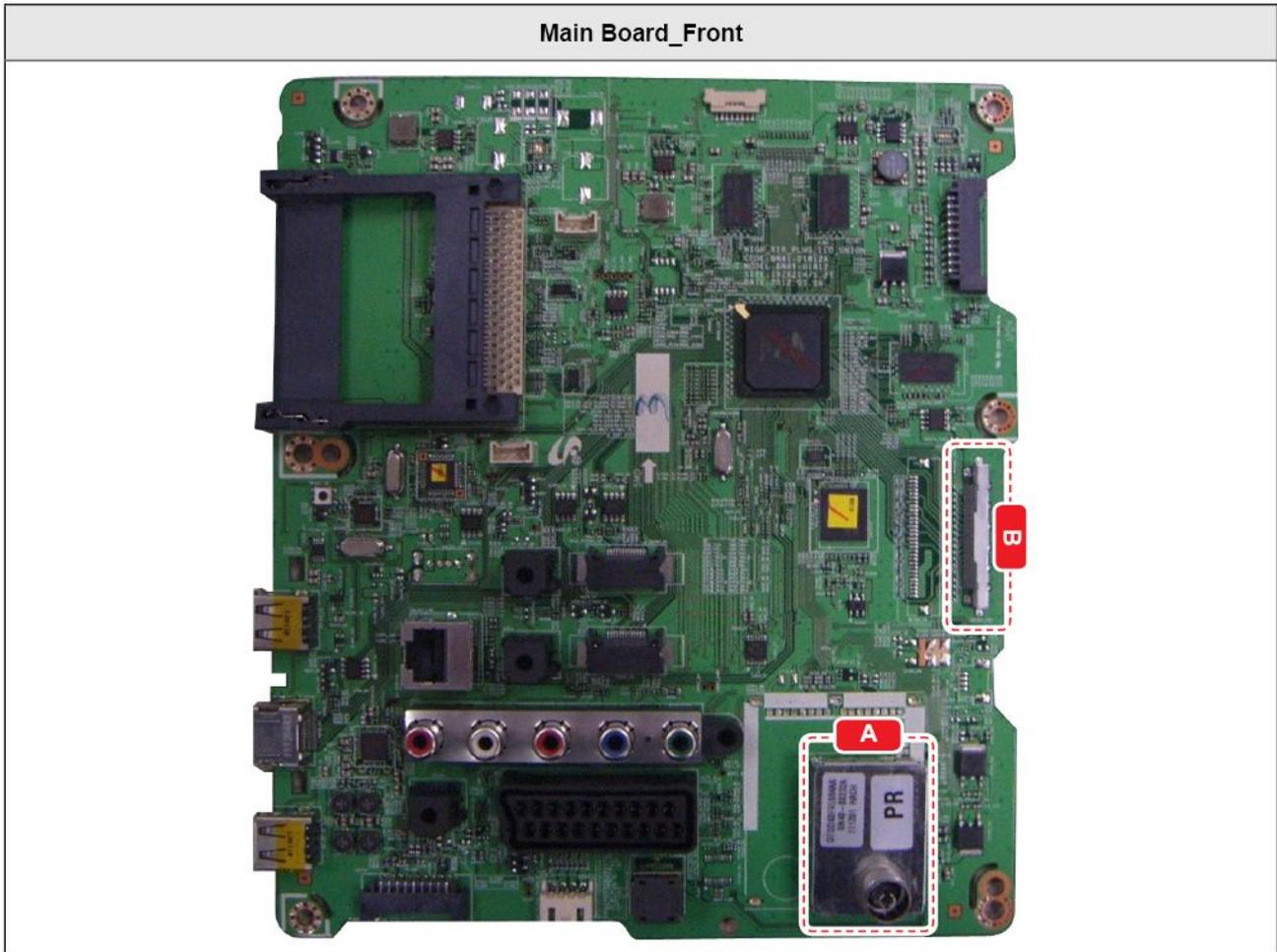
■ Waveforms



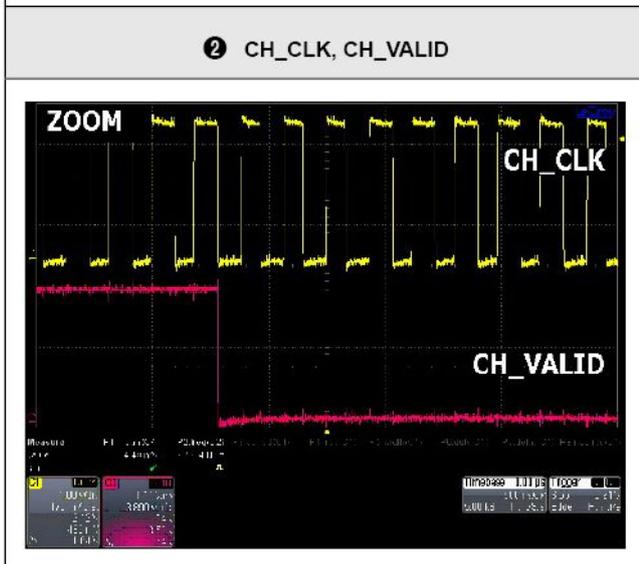
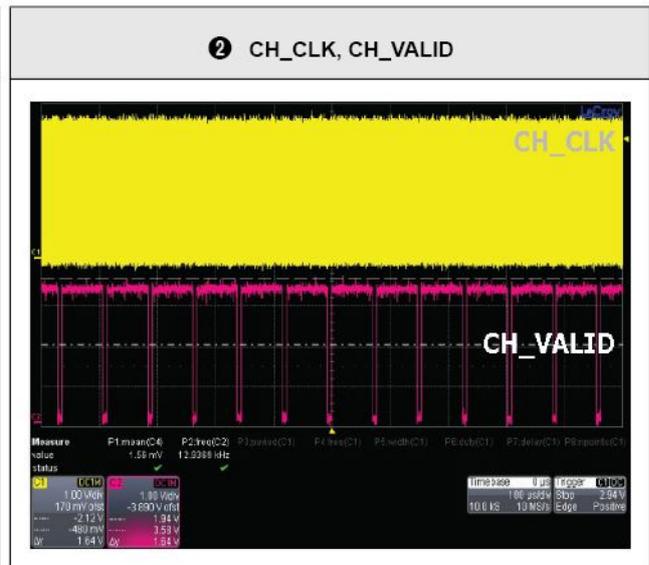
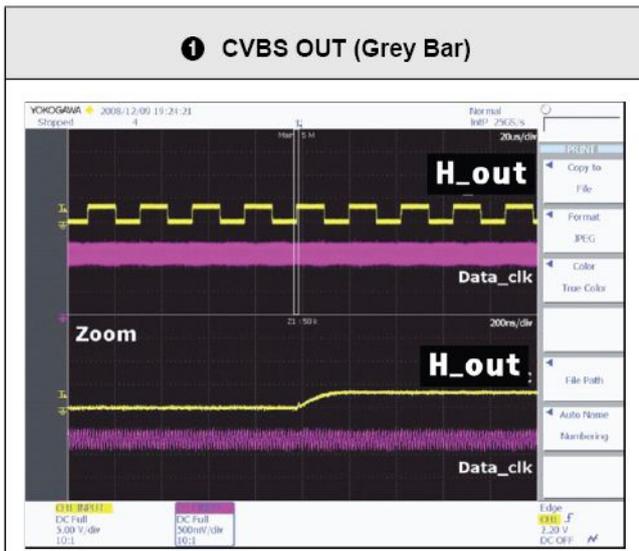
4-2-4. No Video (Tuner_DTV)

Symptom	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 DTV source.] Q3 -- Yes --> Q4[2 Check the Power of Tuner ? Pin #4 of Tuner : B3.3V_Tuner Pin #2 of Tuner : B1.8V_Tuner] Q4 -- No --> A4[Change the Main Board.] Q4 -- Yes --> Q5[2 Check the LVDS signal at output of Main Board ? ODD_TXCLK- / ODD_TXCLK+ EVEN_TXCLK- / EVEN_TXCLK+] Q5 -- No --> A5[Check IC1001(X10+). Change the Main Board.] 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



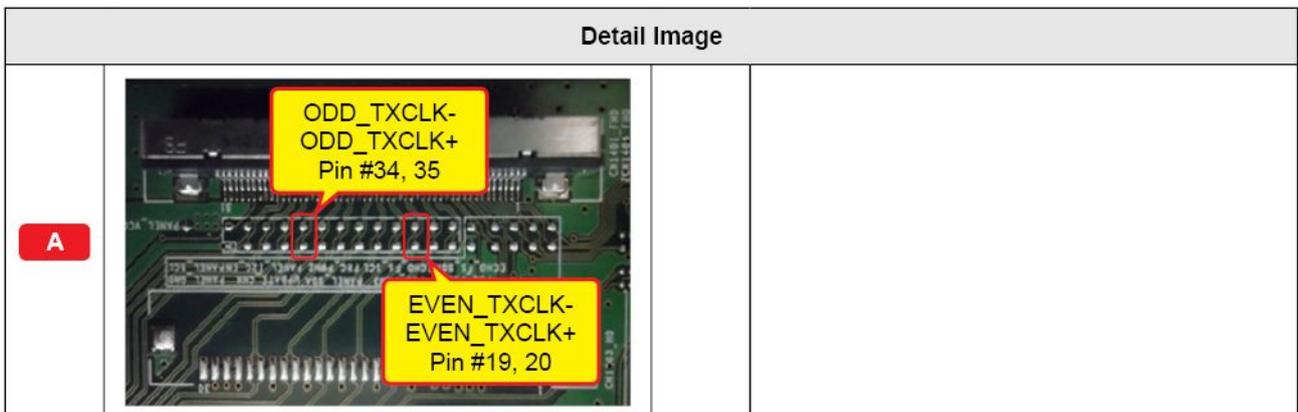
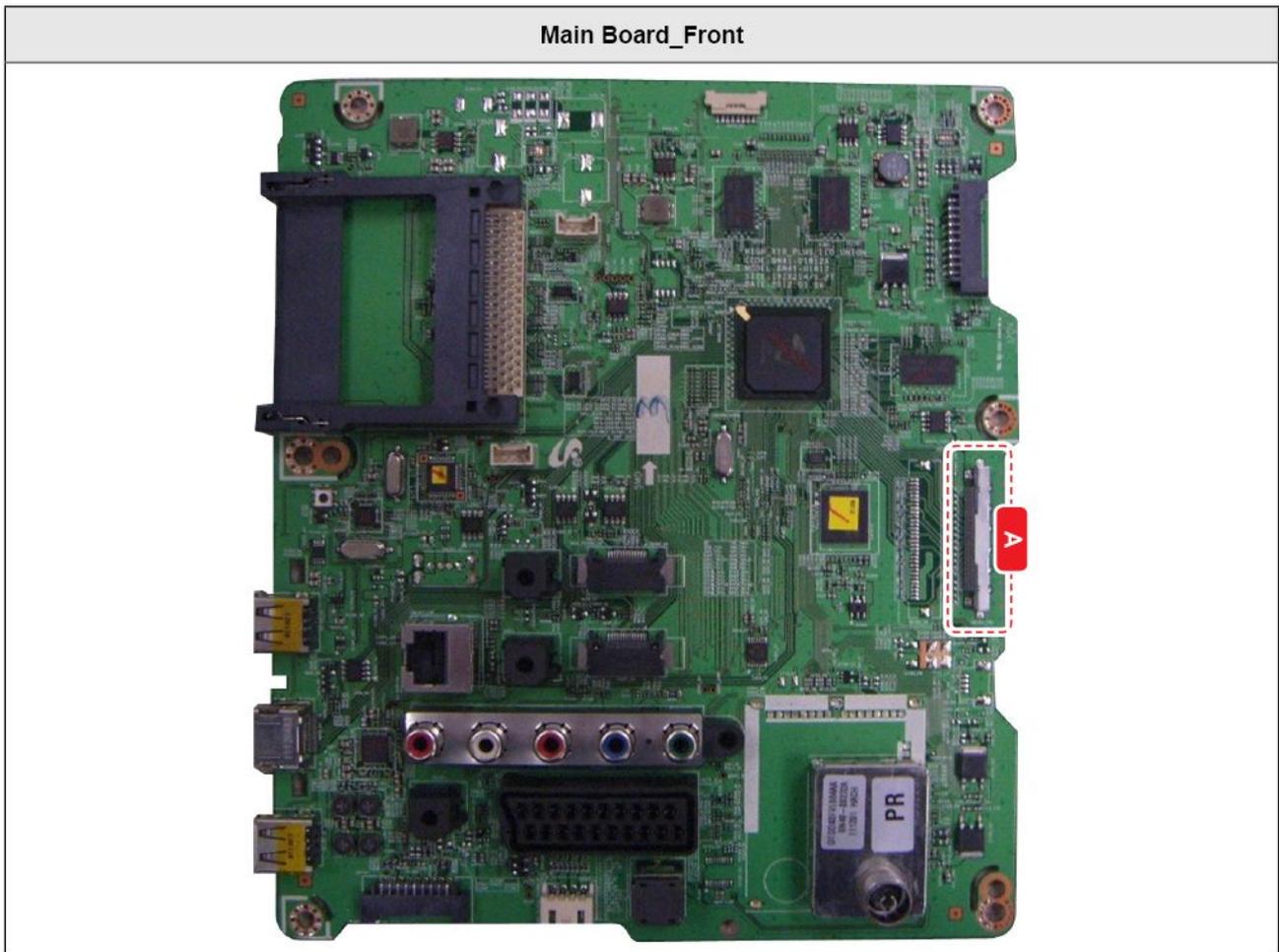
■ Waveforms



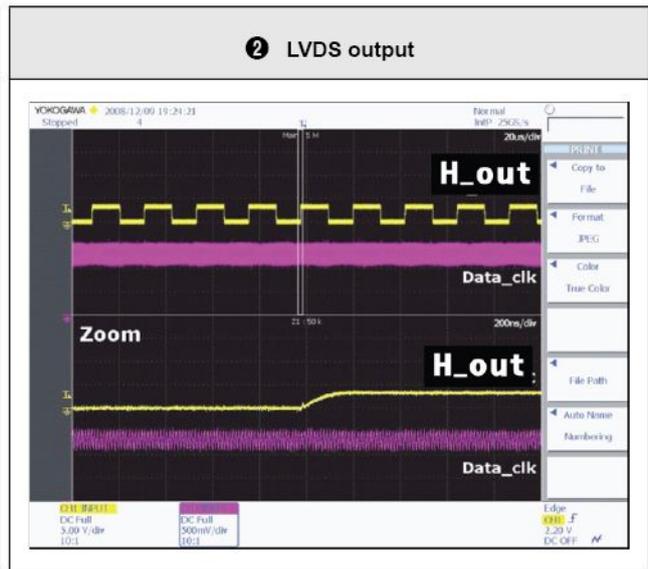
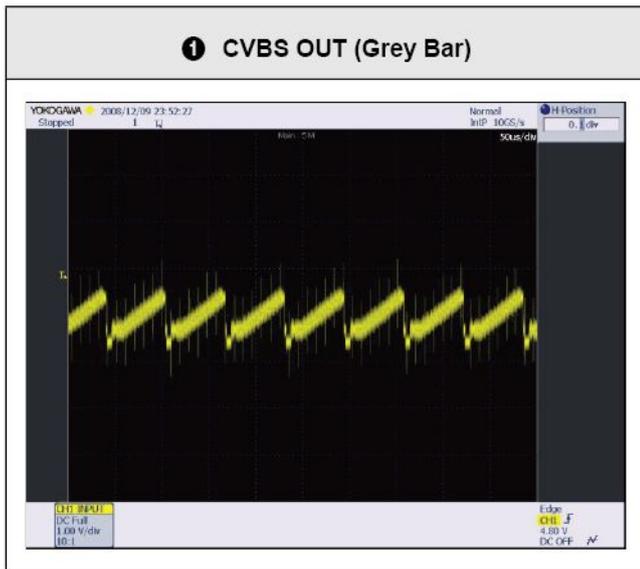
4-2-5. No Video (Video AV)

Symptom	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	<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[1 Check the video source and check the connection of video cable?] Q2 -- No --> A2[Input the video source properly.] Q2 -- Yes --> Q3[2 Check the LVDS signal at output of Main Board? ODD_TXCLK- / ODD_TXCLK+ EVEN_TXCLK- / EVEN_TXCLK+] Q3 -- No --> A3[Check IC1001(X10+). Change the Main Board.] Q3 -- Yes --> Q4[Check the LVDS cable? Replace the T-CON, LCD panel?] Q4 -- No --> A4[Please, Contact Tech support.] </pre>
Caution	Make sure to disconnect the power before working on the IP board.

■ Location of Parts



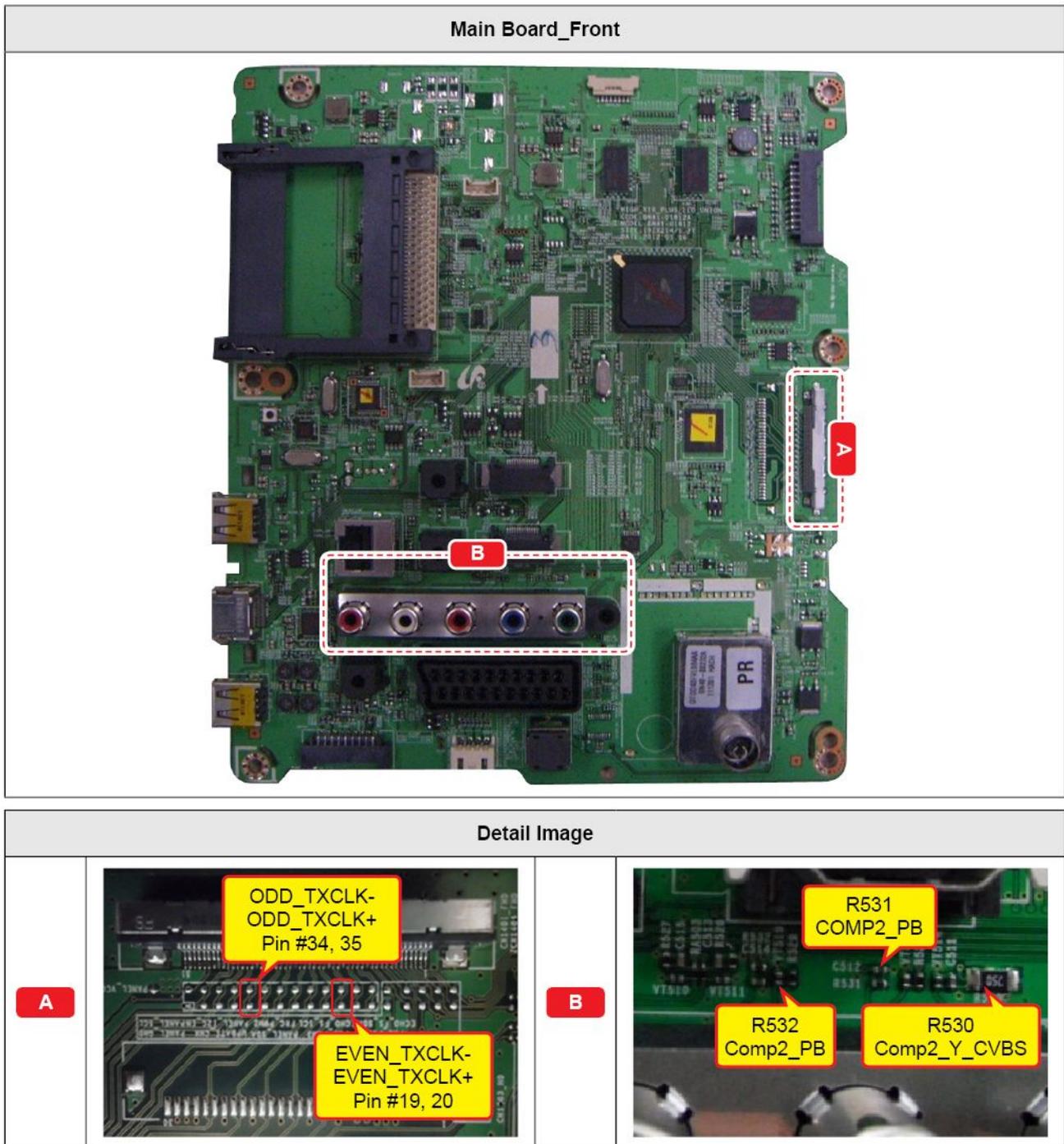
■ Waveforms



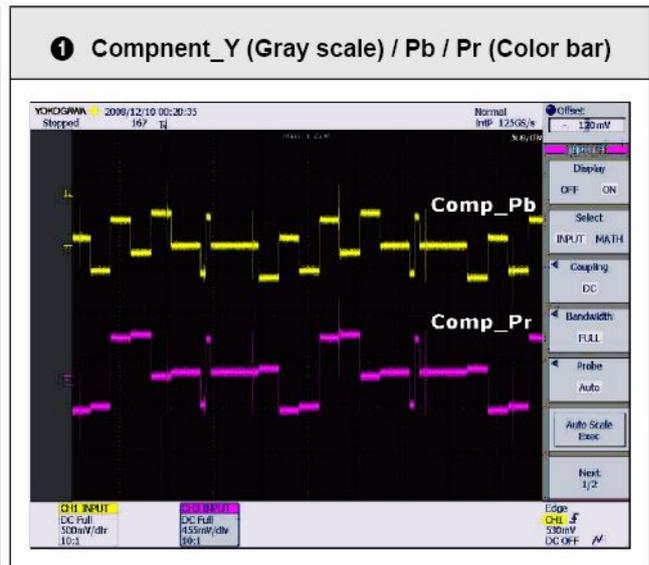
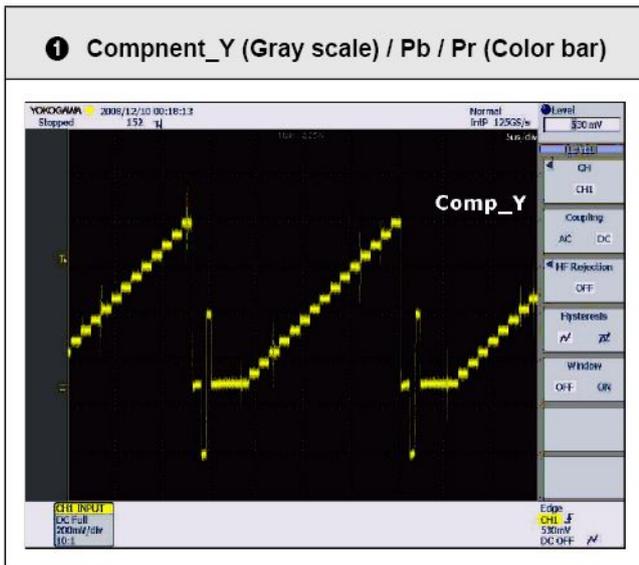
4-2-6. No Video (Component)

Symptom	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	<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 component source and check the connection of component cables? Y, Pb, Pr] Q2 -- No --> A2[Input the component source properly.] Q2 -- Yes --> Q3[Does the component data appear at? Comp1 Y : R530 Pb : R531 Pr : R532] Q3 -- No --> A3[Check CN502 or Component Gender. Change the Main Board.] Q3 -- Yes --> Q4[Check the LVDS signal at output of Main Board? ODD_TXCLK- / ODD_TXCLK+ EVEN_TXCLK- / EVEN_TXCLK+] Q4 -- No --> A4[Check IC1001(X10+). Change the Main Board.] Q4 -- Yes --> Q5[Check the LVDS cable? Replace the T-CON, LCD panel?] Q5 -- No --> A5[Please, Contact Tech support.] </pre>
Caution	Make sure to disconnect the power before working on the IP board.

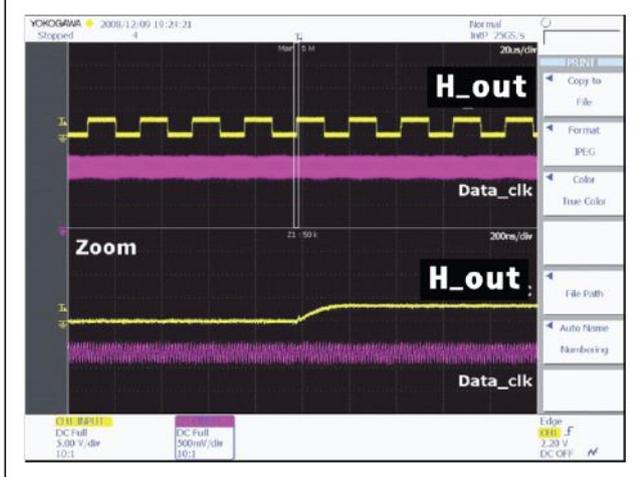
■ Location of Parts



■ Waveforms



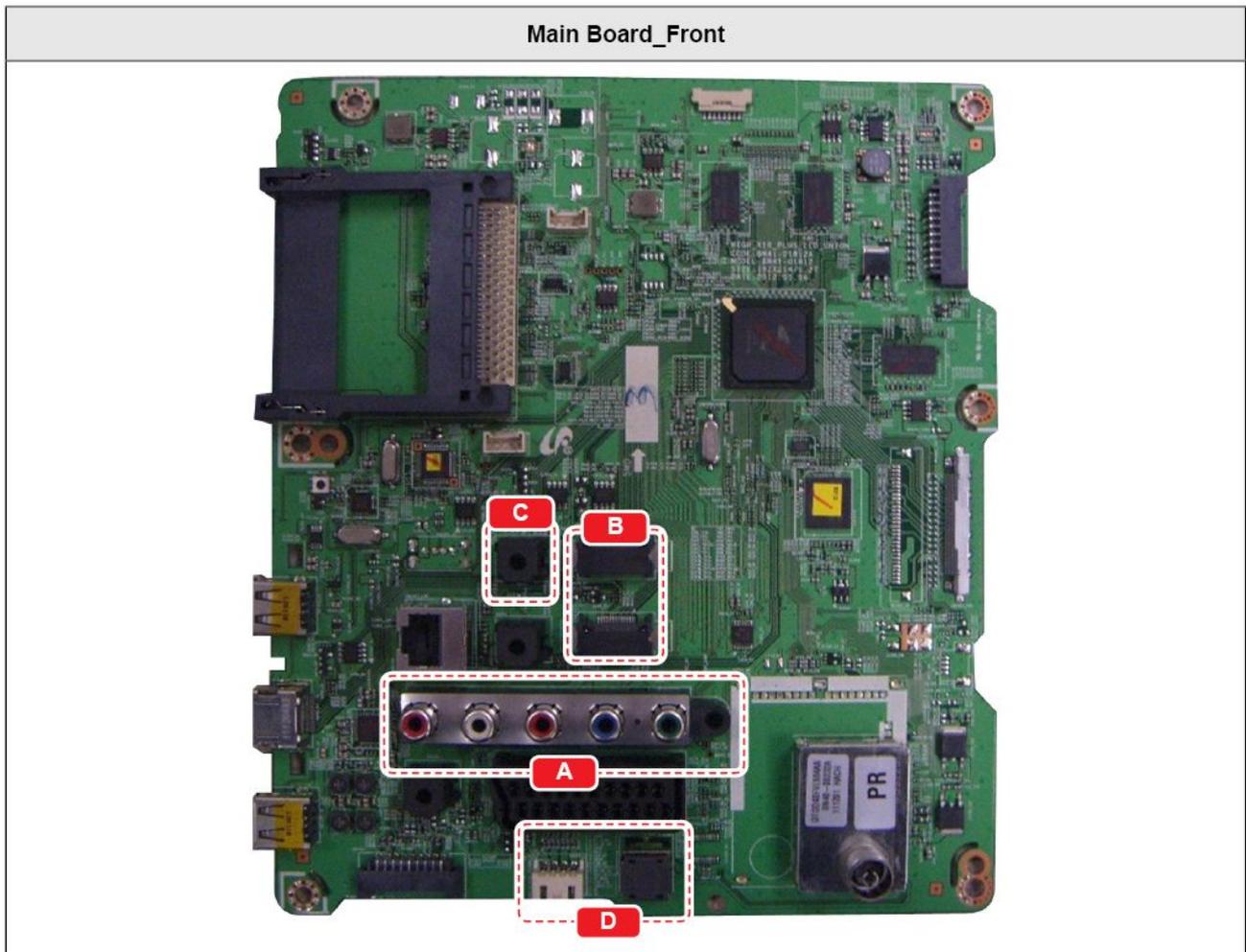
2 LVDS output



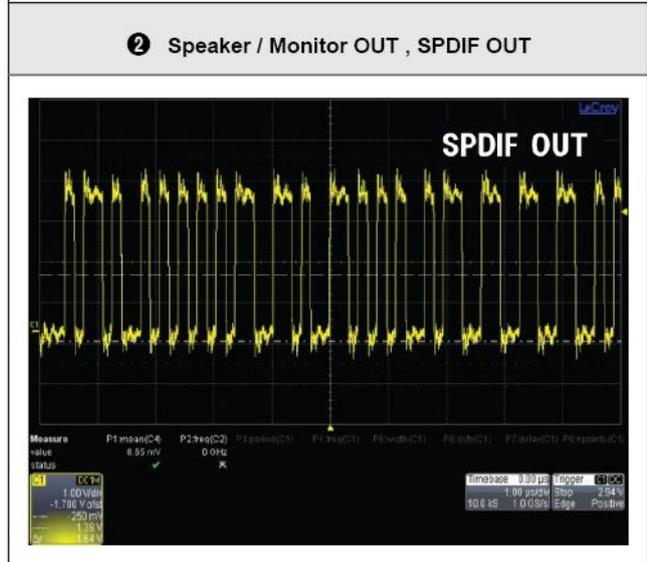
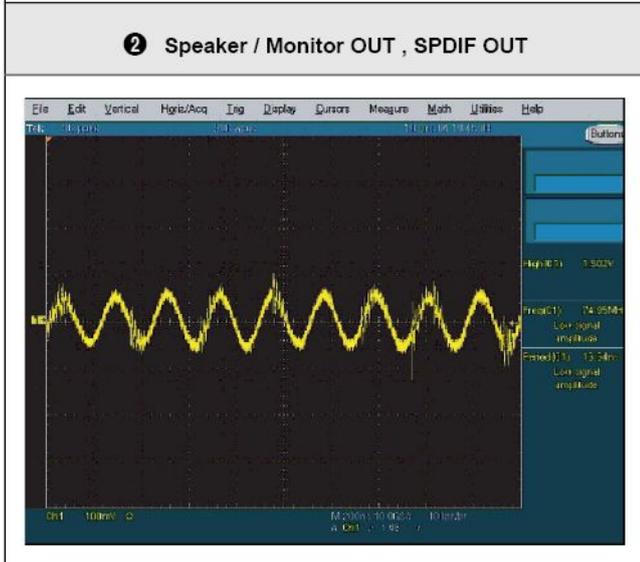
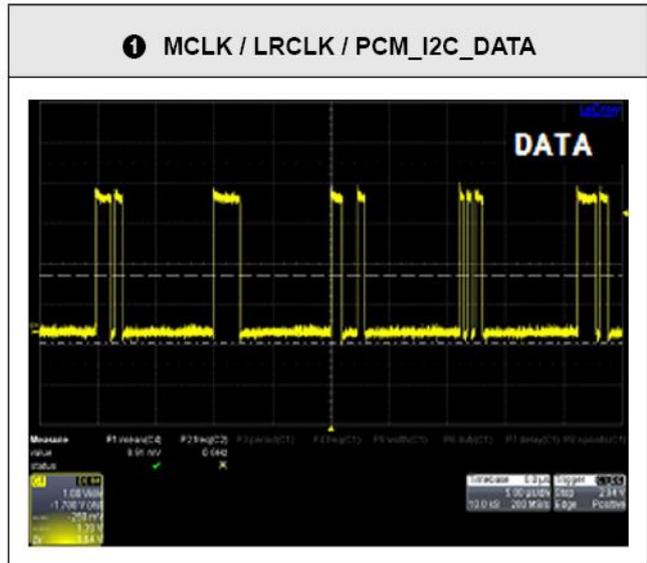
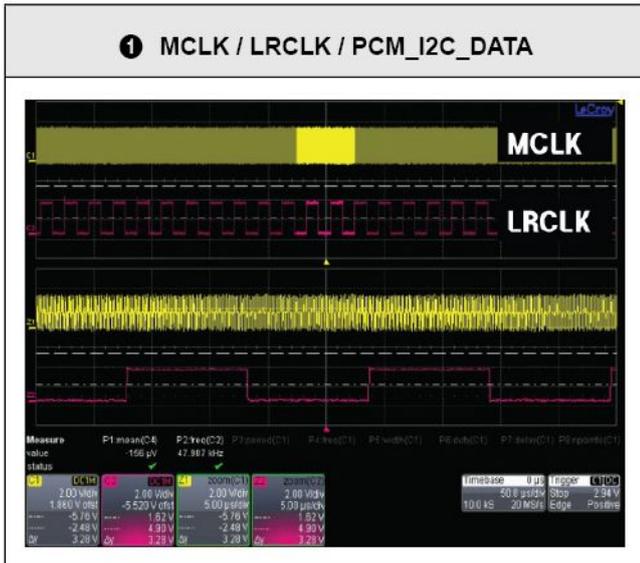
4-2-7. No Sound (1. Speaker_2. Monitor_out_3. Optical)

Symptom	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	<pre> graph TD Q1[Check the source and check the connection of sound cable? (Comp, SCART, HDMI)] -- No --> A1[Input the sound source properly.] Q1 -- Yes --> Q2[Check the signal at input of Main Board?] Q2 -- No --> A2[Check CN501, CN502, CN601~3. Change the Main Board.] Q2 -- Yes --> Q3[Check the DATA between the Audio IC's ? Pin #4 of IC301 : LR_clk Pin #3 of IC301 : I2S_DATA] Q3 -- No --> A3[Check IC301. Change the Main Board.] Q3 -- Yes --> Q4[1. Check the Speaker sound data appear at ? CN301 2. Check the Monitor out sound data appear at ? CN302 3. Does the SODIF OUT sound data appear at ? CN303] Q4 -- No --> A4[Check IC301. Change the Main Board.] Q4 -- Yes --> Q5[Replace speaker ?] Q5 -- No --> A5[Please, Contact Tech support.] </pre>
Caution	Make sure to disconnect the power before working on the IP board.

■ Location of Parts



■ Waveforms



4.3. Factory Mode Adjustments

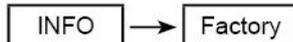
4-3-1. Entering Factory Mode

To 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. (Expert, Advanced menu)

Option
Control
SVC
Expert
ADC/WB
Advanced

```

T-MST10PDEUC-****
T-MST10PDEUCS-****
E-Manual : XTDVBEUE-****

EDID SUCCESS
HDCP SUCCESS
CALIB : AV/COMP/PC/HDMI/
Option : *****
FactoryCS : 0x****
T-MSXDEUCIP-****

Onboot : ****
SDAL-****
RFS : "X10P *****"
2012-**-**
FUNC-TAG-ERR

Type :****
Model : ****
Wired MAC SUCCESS
CIP SUCCESS
DRM ****
Factory Data Ver : ***
EERC Version : ****
DTP-AP-COMP-***
DTP-BP-HAL-***
DTP-BP-***
POP-FLA-****
Date of purchase : mm/dd/yyyy
  
```

- How to enter the hidden factory mode.

1. Into the factory mode.
2. Move the tap to Advanced.
3. Key input : 0 + 0 + 0 + 0.



hidden menu : Advanced

4-3-2. Factory Data

■ Option

Factory Menu Name	Data	Range	Remark
Factory Reset	-	-	
Type	-	32P6AF0E/40R6AF0E/46R6AF0E	use to change panel
Model	HA590		
SVC Model	590		
Local Set	-		
Tuner	DVB_T2C		do not change
Ch Table	-		
Front Color	U-S-C-5K		

■ Control

Factory Menu Name	Data	Range	Remark
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	104		
LNA Support	OFF		
NETWORK Support	Ext-Wifi		
IPERF	Stopped		
Info Link Country	None		
Info Link Server Type	development		
TTX List	-		
TTX Group	-		
24Px4 Support	OFF		

Factory Menu Name	Data	Range	Remark
Power Indicator Support	ON		
BD Wise Support	ON		
Data Service Support	OFF		
IIC Bus Stop	OFF		
Visual Test	Disable		
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		
Period	40K		
Amplitude	1.4		
DDR Spread	1.0% Spread		
Echo-FS LVDS SSC ON/OFF	0		
Echo-FS LVDS SSC MFR	1		
Echo-FS LVDS SSC MRR	10		
Echo-FS DDR SSC ON/OFF	1		
Echo-FS DDR SSC MFR	1		
Echo-FS DDR SCC MRR	15		
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%		
Echo-FP LVDS SSC ON/OFF			
Echo-FP LVDS SSC MFR			
Echo-FP LVDS SSC MRR			
Echo-FP DDR SSC ON/OFF			

4. Troubleshooting

Factory Menu Name	Data	Range	Remark
Echo-FP DDR SSC MFR			
Echo-FP DDR SCC MRR			
DDR Margin			
A CTRL_OFFSET_0_3	0x0		
A CTRL_OFFSET_D	0x0		
B CTRL_OFFSET_0_3	0x0		
B CTRL_OFFSET_D	0x0		
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	Not used		
OTA Support	OFF		
FKP Down			
WIFI REGION	S		
e-Pop Default	ON		
OPTION_SWU			
OPTION_MEDIAPLAY			
3D OPTIMIZE VALUE	1		
ECO IC TYPE	NLS1006		
Energy Star Logo	OFF		
Fast USB Booting	ON		
Nume of Network Stream	0		
CI+1.3	OFF		
HOTEL Option			
Hospitality Mode	Standalone		
SI Vendor	OFF		
Power On			
Power On Channel EN	User Defined		
Power On Channel	1		
Channel Type	ATV		
Power On Volume EN	User Defined		

Factory Menu Name	Data	Range	Remark
Power On Volume	10		
Min Volume	0		
Max Volume	100		
Power On Source	TV		
Power On Option	Las Option		
Channel			
Channel Setup	-		
Channel Editor	-		
Channel Bank Editor	-		
Channel Bank service Level	-		
Mixed Channel Map	OFF		
Dynamic SI	OFF		
Channel Rescan Message	ON		
Pan Euro MHEG	OFF		
MyChannel			
Mychannel	OFF		
Genre editor			
Menu OSD			
Picture Menu Lock	OFF		
Menu Display	ON		
Operation			
Panel Button lock	Unlock		
Subtitle Auto on	On		
Music Mode			
Music mode AV	OFF		
Music Mode PC	OFF		
Music Mode Comp.	OFF		
Music Mode backlight	OFF		
External Device			
7610 Priority AV	1		
7610 Priority PC	2		
7610 Priority HDMI	3		
7610 AV option	AV1		
RJP HDMI Option	HDMI1/DVI		
Sound Bar Out	OFF		
External Source			
USB Media Mode	Default		

4. Troubleshooting

Factory Menu Name	Data	Range	Remark
External Source Banner	ON		
Auto source	OFF		
Anynet+Return Source	Power On Src		
Bathroom Speaker			
SubAmp Mode	2		
SubAmp Volume	6		
Eco Solution			
Energy saving	OFF		
Logo/Message			
Welcome Message	OFF		
Edit Welcome Message			
Hospitality Logo	OFF		
Hospitality Logo DL			
Logo Display Time	5 Second		
Cloning			
Clone TV to USB			
Clone USB to TV			
Setting Auto Intialize	OFF		
SIRCH			
SIRCH update Time	1 Hour		
SIRCH Update Immediate	OFF		
Manual SIRCH			
SIRCH Channel	87		
SIRCH Version	0		
SIRCH Group ID	ALL		
STORY	OFF		
Network			
Network Setting			
Network Status			
Hotel ID Setting			
Smart Hub			
Service			
Self Diagnosis			
SW Upgrade			
Test Pattern			
TV Reset			
Shop Option			

Factory Menu Name	Data	Range	Remark
Shop Mode	OFF		
Exhibition Mode	OFF		
3D Cube	OFF		
Asia Option			
TTX	OFF		
China HD	OFF		
NT Conversion	OFF		
Sepeco 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	60		
Pilot Level High Thld	0x28h		
Pilot Level Low Thld	0x10h		
FM Prescale	68		
AM Prescale	49		
NICAM Prescale	45		
Amp Volume	0xC7h		
Amp Scale	0x8eh		
Amp Check Sum	0x009CD116		
Woofer Type	1		
Woofer Scale	0x8ah		
Woofer Check Sum			
Speaker EQ	ON		
PEQ Test	0		
Amp Model	NTP7412		
Speaker cut-off Freq	4		
SPDIF PCM Gain	-9		
FM M Prescale	48		

4. Troubleshooting

Factory Menu Name	Data	Range	Remark
BTSC Mono Prescale	25		
BTSC stereo Prescale	47		
SAP Prescale	43		
A2Ident High Thld	31		
A2Ident Low Thld	2		
Carrier2 Amp High Thld	4		
Carrier2 Amp Low Thld	3		
Carrier2 SNR High THR	16		
Carrier2 SNR Low THR	80		
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	4		
Num of PC	0		
Num of SCART	0		
Num of DVI	0		
Num of OPTICAL Link	0		
Num of MEDIA	1		
Num of PANEL KEY	6		
Num of USB Port	3		
Num of HeadPhone	0		
Num of RVU	0		
MFT Offset	62.5		
Select LCD/PDP	LCD		
HDMI/DVI SEL	1		
Indicator Led	ON		
Wall Mount	OFF		
HV Flip	ON		

Factory Menu Name	Data	Range	Remark
Num Of Display	2		
DVI/HDMI SOUND	Auto		
HDMI HOT PLUG	Disable		
HOTPLUG SWITCHING	Boot		
HOTPLUG DURATION	1200ms		
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		
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	ON		
H Write			
HDMI Sync	DE		
HeadPhone Port			
FANET	ON		
Support MultiMedia Key	ON		
Config_AV_PATH			
Num of IPTV	0		
PVR RECORD NUM	1		
Num of RUI	1		
5 Way Function Key	R BACK		
Contents Bar	OFF		

4. Troubleshooting

Factory Menu Name	Data	Range	Remark
Num of Tuner	1		
HDMI 3D DET	1		

■ SVC

Factory Menu Name	Data	Range	Remark
Test pattern			
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		
Echo-FP Pre Test Pattern	0		
Echo-FP Post Test Pattern	0		
Echo-FP FRC FDISPLY ON/OFF	OFF		
Echo-FP 3D FDISPLAY ON/OFF	0		
Panel Diplay Time	2Hr		
LOGIC Usb D/L	...		
Tuner Status			
T-CON Usb Download	Failure		
T-CON Checksum			
Tuner Margin	10		
CAM Wait Time			
TS Clock delay	0		
SUBMICOM UPGRADE	Off		
BT ADDRESS	0		
BT UPGRADE			
BT FREPAIRING	ON		
SVC Reset			
TCON_TEMP READ	0		
TEMP LAST	60		
DCC VERSION	0x0		
DCC CHK SEL	0		
DCC CHECK LOCAL	0x0		

Factory Menu Name	Data	Range	Remark
DCC CHECK TOTAL			
Function Upgrade	Off		
Smart Hub Reset	Off		
WIFI ER COUNT	0		
BT ER COUNT	0		
Debug Log Down			
MultiACC Checksum	Error		
SVC Info			
TS Clock delay TC	0		
TS Clock delay S	0		
CAL Data Backup	...		
CAL Data Restore	...		

■ Expert

Factory Menu Name	Data	Range	Remark
N/D ADJ			
Source			

■ ADC/WB

Factory Menu Name	Data	Range	Remark
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	16		
1st_PC_High	1004		

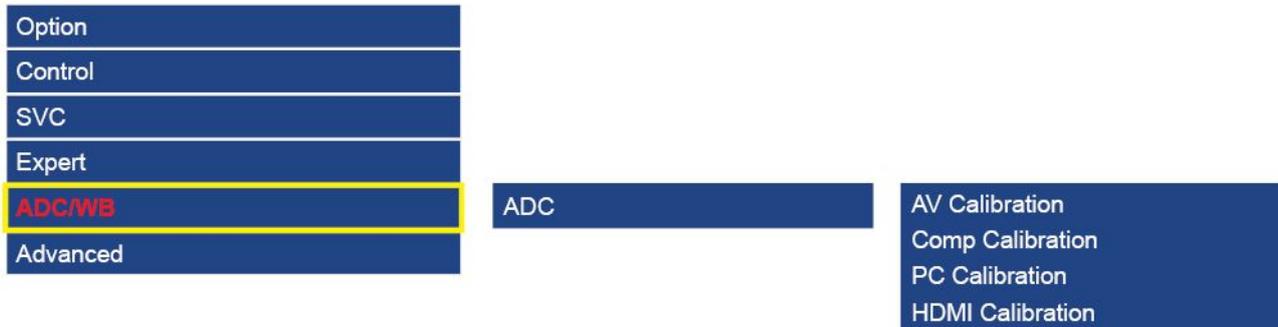
4. Troubleshooting

Factory Menu Name	Data	Range	Remark
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	250		
1st_Y_GL	246		
1st_Cb_BH	...		
1st_Cb_BL	...		
1st_Cr_RH	...		
1st_Cr_RL	...		
2nd_R_L	130		
2nd_G_L	130		
2nd_B_L	130		
2nd_R_H	108		
2nd_G_H	108		
2nd_B_H	108		
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 **SVC** Menu.
3. Select **ADC/WB** menu.
4. Select **ADC** menu.



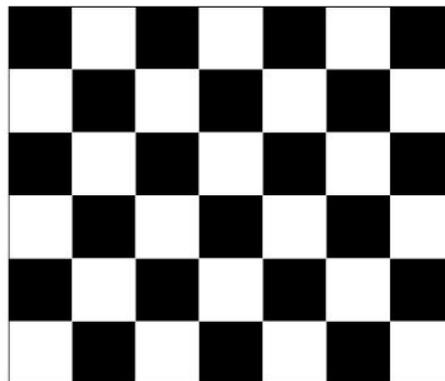
4-4-2. Service Adjustment

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)

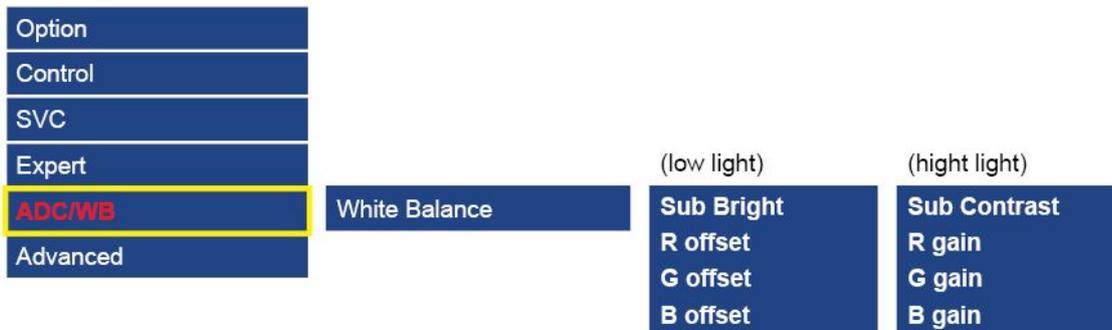
1. Apply the VESA XGA Lattice (N0. 21) pattern signal to the PC IN port.
2. Press the Source key to switch to "PC" mode.
3. Enter Service mode.
4. Select the "ADC" menu.
5. Select the "PC Calibration" menu.
6. In "PC Calibration Off" status, press the "▶" key to perform Calibration.
7. When Calibration 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

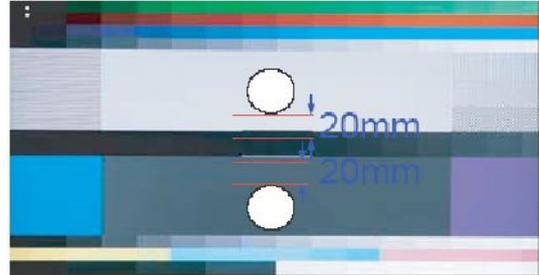
1. Into the Factory Mode.
2. Select **SVC** Menu.
3. Select **ADC/WB** menu.
4. Select **White Balance** menu.



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

- HG32EA590**

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

- Fixed Parameter

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

- HG40EA590**

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

- Fixed Parameter

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

- HG46EA590**

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

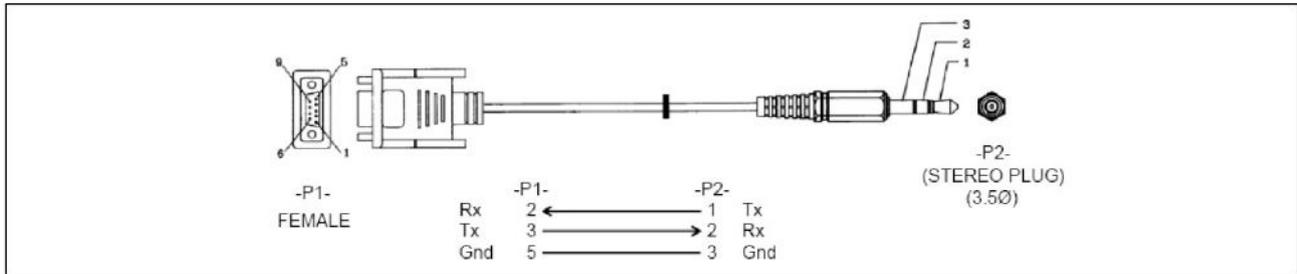
- Fixed Parameter

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

4.6. RS-232C

RS232C Control

- Port : COM#(Serial)
- Bit rate : 115200
- Data Bit : 8 bit
- Parity : None
- Stop Bits : 1
- Flow Control : None



Description of RS232C

Pin#	Name	Full Name	Pin#	Name	Full Name	Pin#	Name	Full Name
1	CD	Carrier Detect	4	DTR	Data Terminal Ready	7	RTS	Request To Send
2	RxD	Received Data	5	GND	Signal Ground	8	CTS	Clear To Send
3	TxD	Transmitted Data	6	DSR	Data Set Ready	9	RI	Ring Indicator

4.7. 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'.

4-7-1. 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	T-MST10PDEUC-****
Control	T-MST10PDEUCS-****
SVC	E-Manual : XTDVBEUE-****
Expert	EDID SUCCESS
ADC/WB	HDCP SUCCESS
Advanced	CALIB : AV/COMP/PC/HDMI/
	Option : ****
	FactoryCS : 0x****
	T-MSXDEUCIP-****

4-7-2. How to Upgrade Software

1. Insert a USB drive containing the firmware upgrade downloaded from samsung.com into the TV.

 **NOTE**

Please be careful not to disconnect the power or remove the USB drive while upgrades are being applied.

2. The TV will turn off and turn on automatically after completing the firmware upgrade.
3. Please check the firmware version after the upgrades are complete.
 - the new version will have a higher number than the older version.

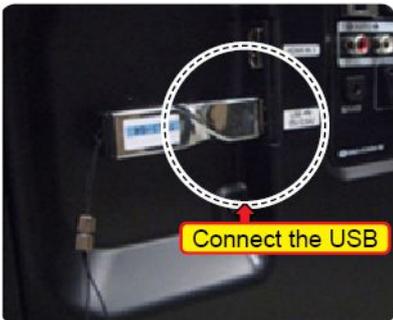
 **NOTE**

- 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.

4. After update is completed, restore your previous settings.

■ Main Software Upgrade

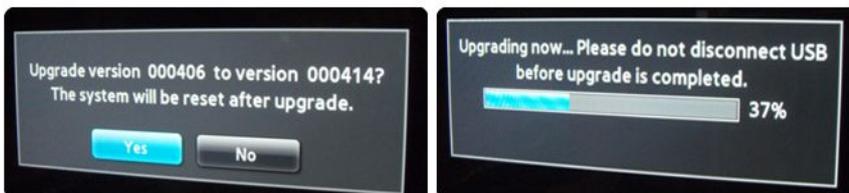
1. Store the sw program named "T-MST10PDEUC" in USB memory stick.



2. Click the "MENU" key in Remote Controller.
3. Select "Support - Software Upgrade - By USB" menu.



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



■ Sub Software Upgrade

USB Download

1. Store the SW program file named "SubMicomEU_X10****.bin" in USB memory stick.
2. Connect the USB.
3. Access the **Factory mode**.
4. Select the "SVC".

Option
Control
SVC
Expert
ADC/WB
Advanced

5. Select the "SUBMICOM UPGRADE".

Test pattern		DCC CHK SEL	0
Panel Display Time	1Hr	DCC CHECK LOCAL	0x0
Tuner Status		DCC CHECK TOTAL	
T-CON Usb Download	Failure	Fuction Upgrade	off
T-CON CheckSum	Error	Smart Hub Reset	off
Tuner Margin	10	WIFI ER COUNT	0
TS Clock delay	0	BT ER COUNT	0
SUBMICOM UPGRADE	off	Debug Log Down	
BT ADDRESS	0000	MultACC Checksum	Error
BT UPGRADE		SVC Info	
BT FREPAIRING	ON	TS Clock delay TC	0
SVC Reset		TS Clock delay S	0
TCON_TEMP READ	0.00	CAL Data Backup
TEMP LAST	60.00	CAL Data Restore
DCC VERSION	0x0		

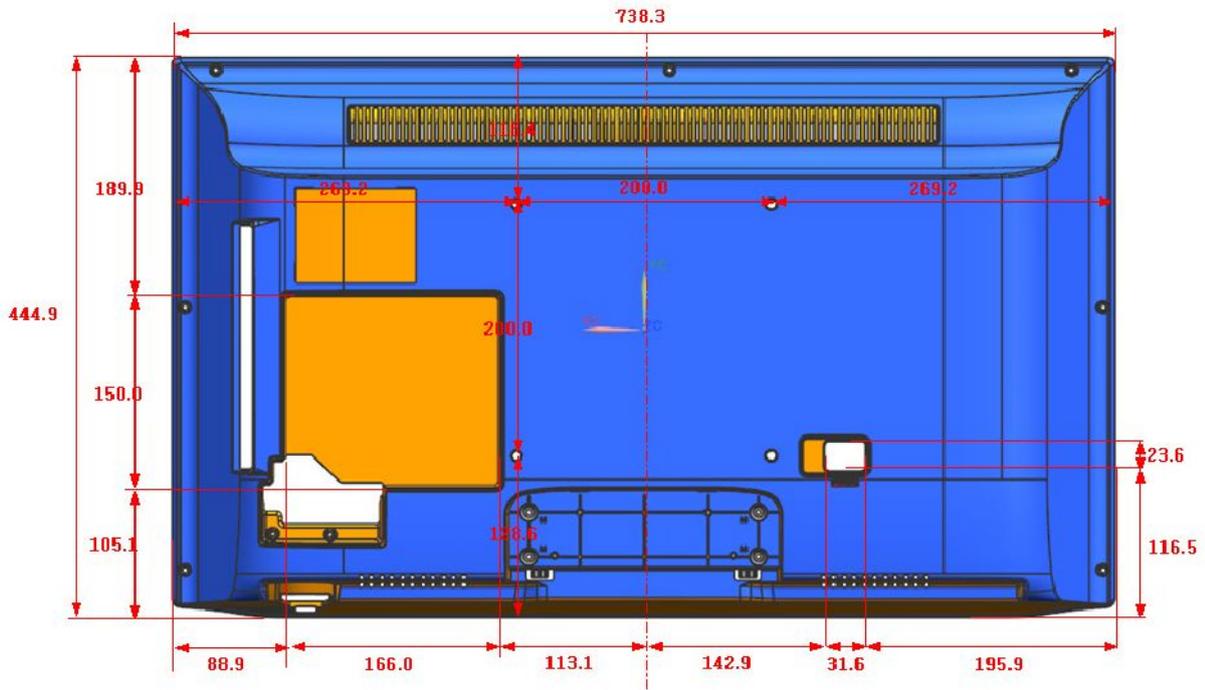
6. Click the "→" remocon key.

SUBMICOM UPGRADE	Wait
-------------------------	------

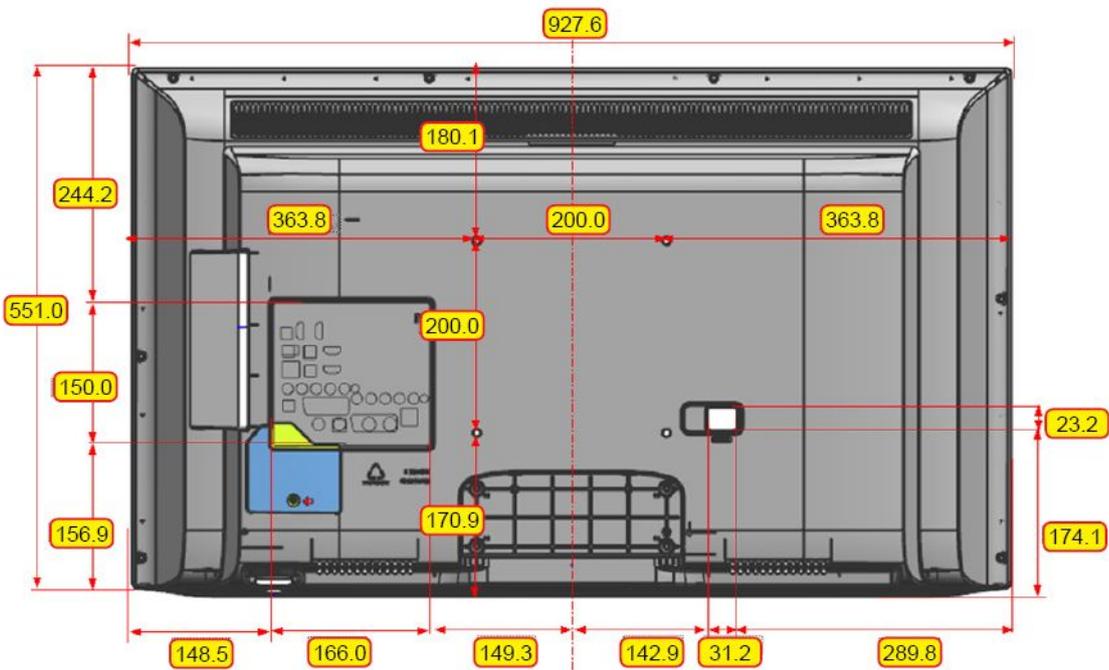
- Wait for upgrade complete.
- Check the Software version.

4.8. Cover-Middle Rear Dimension

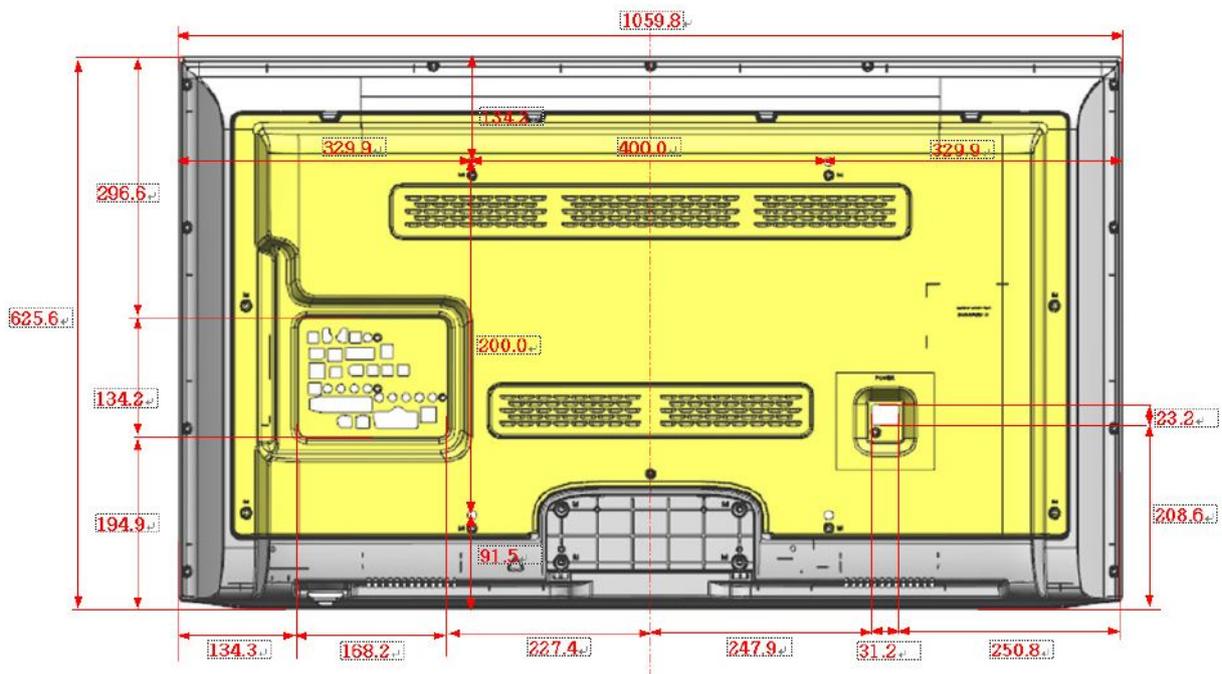
■ 32 inch



■ 40 inch

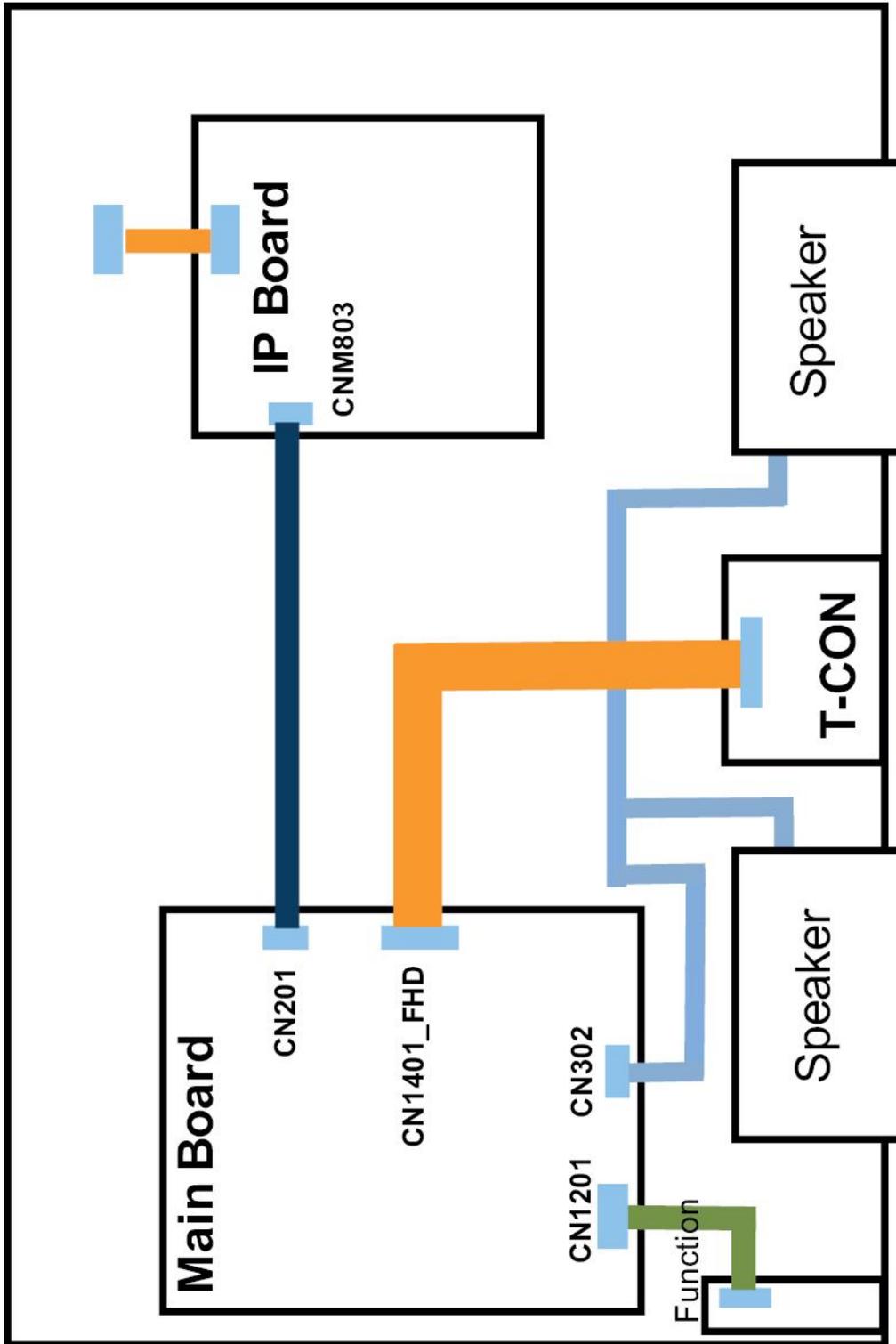


■ 46 inch

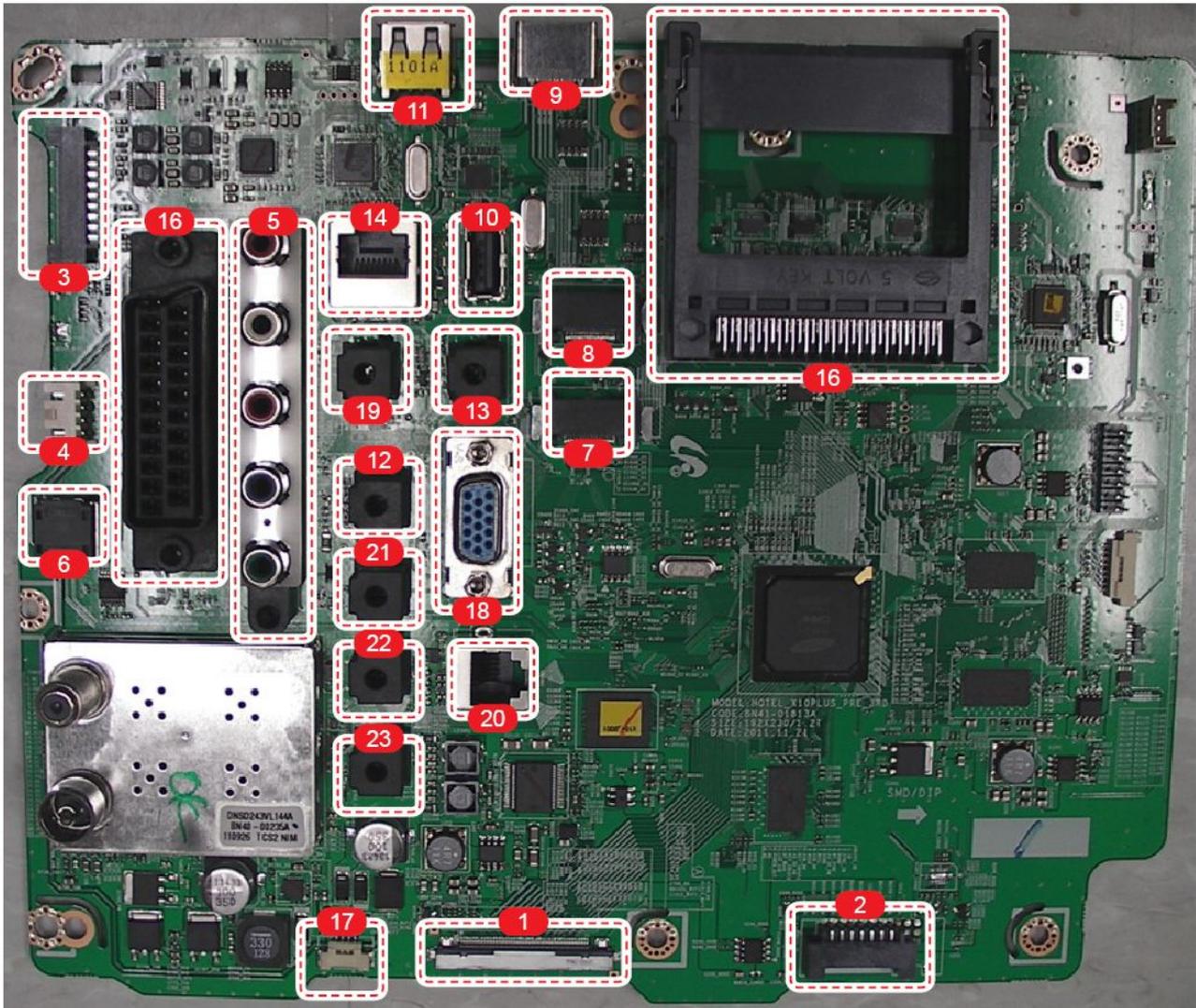


5. Wiring Diagram

5.1. Wiring Diagram



5.2. Connector



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

1 CN1401_FHD			
27	EVEN_TX0-_LVDS	40	ODD_TX1-_LVDS
28	GND	41	ODD_TX0+_LVDS
29	ODD_TX4+_LVDS	42	ODD_TX0-_LVDS
30	ODD_TX4-_LVDS	43	GND
31	ODD_TX3+_LVDS	44	GND
32	ODD_TX3-_LVDS	45	GND
33	GND	46	NC
34	ODD_TXCLK+_LVDS	47	Panel_13V_PW
35	ODD_TXCLK-_LVDS	48	Panel_13V_PW
36	GND	49	Panel_13V_PW
37	ODD_TX2+_LVDS	50	Panel_13V_PW
38	ODD_TX2-_LVDS	51	Panel_13V_PW
39	ODD_TX1+_LVDS		

2 CN201 (to Power board)			
1	B5.3V	11	B13V
2	SW_PW	12	B13V
3	B5.3V	13	B13V
4	A5.3V	14	PWM_DIM
5	GND	15	NC
6	GND	16	NC
7	B12VS	17	NC
8	GND	18	NC
9	B12VS	19	NC
10	SW_INV	20	NC

3 CN1201 (FUNCTION)			
1	IR	10	NC
2	NC	11	KEY_INPUT1
3	GND	12	NC
4	NC	13	KEY_INPUT2
5	A3.3V	14	NC
6	NC	15	A3.3V
7	MSCL	16	NC
8	NC	17	NC
9	MSDA	18	NC

4 CN302 (SPEAKER)			
1	R+	3	L+
2	R-	4	L-

5 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		

6 OP301 (OPTICAL)			
1	SPDIF_OUT	3	GND
2	B5V_DC_PW		

7 CN601_H1 (HDMI1)			
1	HDMI1_RX2+	11	GND
2	GND	12	HDMI1_RXCLK-
3	HDMI1_RX2-	13	CEC
4	HDMI1_RX1+	14	NC
5	GND	15	HDMI1_SCL_DDC
6	HDMI1_RX1-	16	HDMI1_SDA_DDC
7	HDMI1_RX0+	17	GND
8	GND	18	IDENT_HDMI1
9	HDMI1_RX0-	19	HDMI1_HOT_PLUG
10	HDMI1_RXCLK+		

8 CN602_H2 (HDMI2)			
1	HDMI2_RX2+	11	GND
2	GND	12	HDMI2_RXCLK-
3	HDMI2_RX2-	13	CEC
4	HDMI2_RX1+	14	NC
5	GND	15	HDMI2_SCL_DDC
6	HDMI2_RX1-	16	HDMI2_SDA_DDC
7	HDMI2_RX0+	17	GND
8	GND	18	IDENT_HDMI2
9	HDMI2_RX0-	19	HDMI2_HOT_PLUG
10	HDMI2_RXCLK+		

9 CN603_H3 (HDMI3)			
1	HDMI3_RX2+	11	GND
2	GND	12	HDMI3_RXCLK-
3	HDMI3_RX2-	13	CEC
4	HDMI3_RX1+	14	NC
5	GND	15	HDMI3_SCL_DDC
6	HDMI3_RX1-	16	HDMI3_SDA_DDC
7	HDMI3_RX0+	17	GND
8	GND	18	IDENT_HDMI3
9	HDMI3_RX0-	19	HDMI3_HOT_PLUG
10	HDMI3_RXCLK+		

10 CN1502_U1 (USB1)			
1	B5V_USB1_PW	3	USB1_DP
2	USB1_DM	4	GND

11 CN1503_U3 (USB3)			
1	B5V_USB3_PW	3	USB3_DP
2	USB3_DM	4	GND

12 CN301(HEADPHONE&LR OUT)			
1	GND	4	GND
2	HP_SR_OUT	5	IDENT_HP
3	HP_SL_OUT	6	GND

13 CN402 (DVI_AUDIO)			
1	DVI_SR_IN	4	NC
2	DVI_SL_IN	5	NC
3	NC	6	NC

14 CN1402 (LAN)			
1	LAN_TXD+	5	B2.5V_PW
2	B2.5V_PW	6	LAN_RXD-
3	LAN_TXD-	7	NC
4	LAN_RXD+	8	GND

15 CN501 (SCART)			
1	SC_SR_OUT	12	NC
2	SC_SR_IN	13	GND
3	SC_SL_OUT	14	GND
4	GND	15	SC_R
5	GND	16	SC_FB
6	SC_SL_IN	17	GND
7	SC_B	18	GND
8	IDENT_SC	19	SC_CVBS_OUT
9	GND	20	SC_CVBS_IN
10	NC	21	GND
11	SC_G		

16 CN1601_CI (PCMCIA)			
1	GND	17	CI_VCC
2	EXT_DATA[3]	18	CI_VCC
3	EXT_DATA[4]	19	CH_VALID
4	EXT_DATA[5]	20	CH_CLK
5	EXT_DATA[6]	21	EXT_ADDR[12]
6	EXT_DATA[7]	22	EXT_ADDR[7]
7	PCM_CE1	23	EXT_ADDR[6]
8	EXT_ADDR[10]	24	EXT_ADDR[5]
9	PCM_OE	25	EXT_ADDR[4]
10	EXT_ADDR[11]	26	EXT_ADDR[3]
11	EXT_ADDR[9]	27	EXT_ADDR[2]
12	EXT_ADDR[8]	28	EXT_ADDR[1]
13	EXT_ADDR[13]	29	EXT_ADDR[0]
14	EXT_ADDR[14]	30	EXT_DATA[0]
15	PCM_WE	31	EXT_DATA[1]
16	PCM_IRQA	32	EXT_DATA[2]

16 CN1601_CI (PCMCIA)			
33	CI_VCC	51	CI_VCC
34	GND	52	CI_VCC
35	GND	53	CH_DATA[4]
36	PCM_CD1	54	CH_DATA[5]
37	TSO_DATA[3]	55	CH_DATA[6]
38	TSO_DATA[4]	56	CH_DATA[7]
39	TSO_DATA[5]	57	TSO_CLK
40	TSO_DATA[6]	58	PCM_RESET
41	TSO_DATA[7]	59	PCM_WAIT
42	PCM_CE2	60	NC
43	NC	61	PCM_REG
44	PCM_IORD	62	TSO_VALID
45	PCM_IOWR	63	TSO_START
46	CH_START	64	TSO_DATA[0]
47	CH_DATA[0]	65	TSO_DATA[1]
48	CH_DATA[1]	66	TSO_DATA[2]
49	CH_DATA[2]	67	GND
50	CH_DATA[3]	68	GND

17 CN1505_WiFi			
1	B5V_DC_PW	3	WiFi_DP
2	WiFi_DM	4	GND

18 CN1601 (D-SUB)			
1	PC RED+	9	PC_5V
2	PC GREEN+	10	IDENT_PC
3	PC BLUE+	11	RDB_FANET_PC
4	TDB_FANET_PC	12	DSDA
5	GND	13	H_SYNC
6	PC RED-	14	V_SINC
7	PC GREEN-	15	DDC_WP
8	PC BLUE-		

19 CN1203(RJP)			
1	GND	4	
2	FA_RX	5	
3	FA_TX	6	GND

20 CN2001(Hotel JACK)			
1	GND	4	TX_T
2	IR_T	5	CLK_T
3	MGND	6	RX_T

5.3. Connector Functions

Connector	Function
CN201 ↔ IP CNM803	Supply main power and dimming signal from Power board to Main Board.
CN1401_FHD ↔ T-CON CNF1	The LVDS signal transferred from Main Board to Panel.
CN1505_WIFI_S ↔ WIFI MODULE	The Wifi signal signal transferred from Module to Main Board.

5.4. Cables

Use	LEAD (Main - SMPS)	LVDS CALBE (Main - panel)
Code No.	32" : BN39-01652A 40" : BN39-01652B 46" : BN39-01652C	32" : BN96-17116E 40" : BN96-22239P 46" : BN96-22239Q
Image		



GSPN (GLOBAL SERVICE PARTNER NETWORK)

Area	Web Site
Europe, MENA, CIS, Africa	https://gspn1.samsungsportal.com
E.Asia, W.Asia, China, Japan	https://gspn2.samsungsportal.com
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