4. Troubleshooting

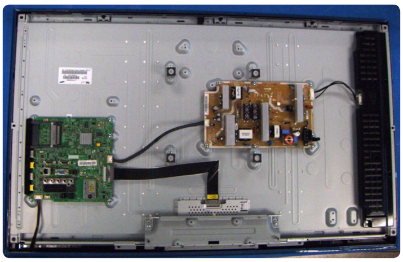
4-1. Troubleshooting

4-1-1. Previous Check

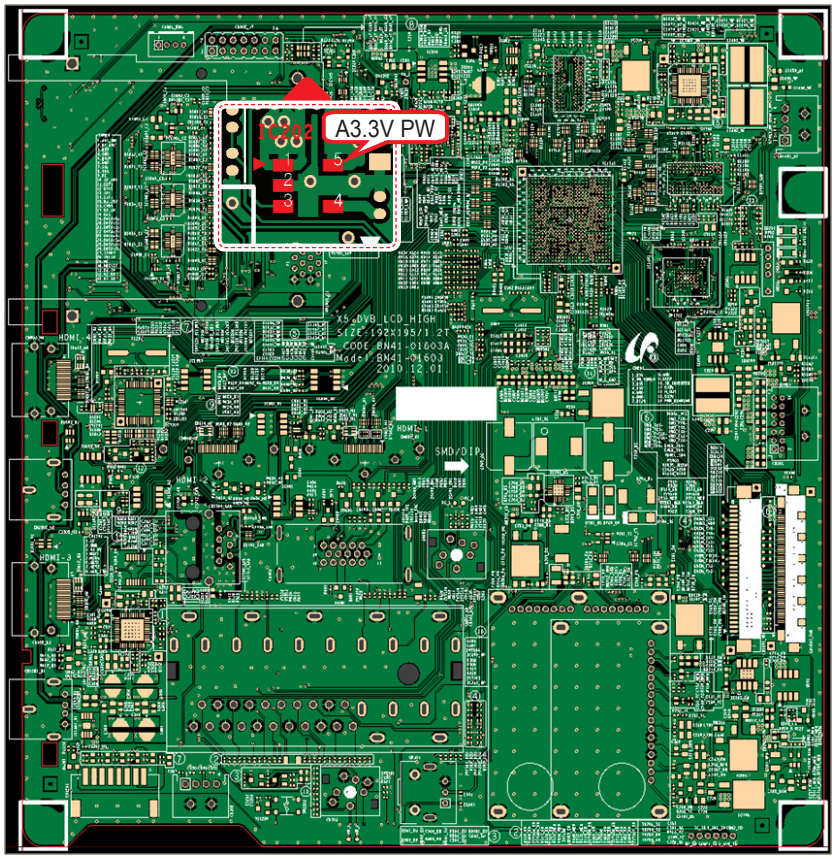
1. Check the various cable connections first.
   - Check to see if there is a burnt or damaged cable.
   - Check to see if there is a disconnected or loose cable connection.
   - Check to see if the cables are connected according to the connection diagram.
2. Check the power input to the Main Board.

4-1-2. No Power

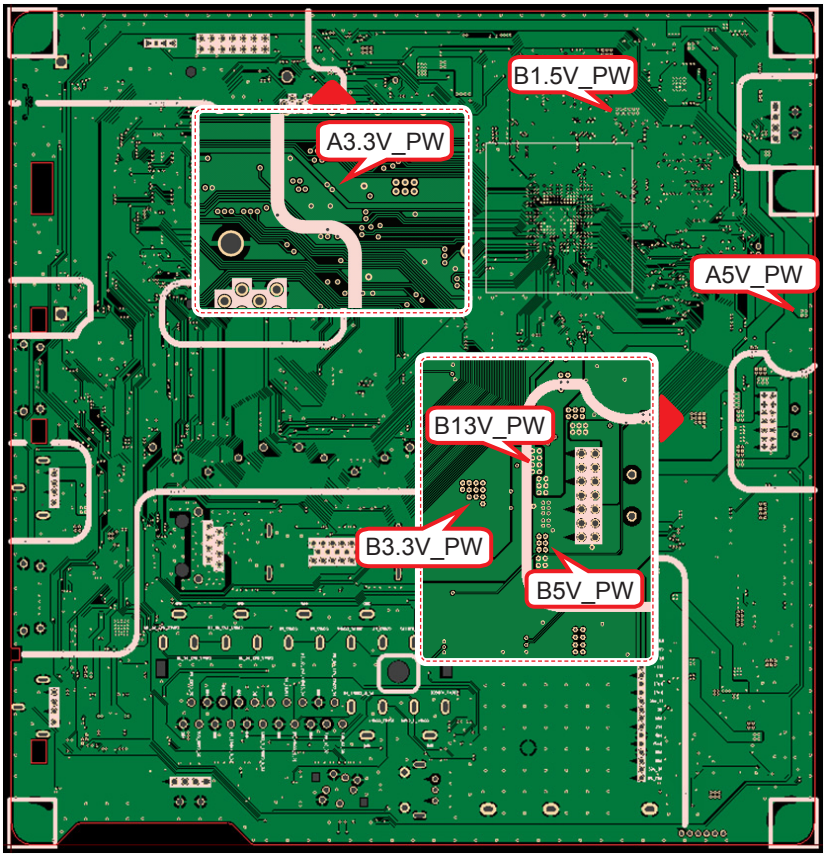
■ LD550_LD450_26" 32" 37" 40" 46"

Symptom	– 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 Check points	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: – 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	
Caution	Make sure to disconnect the power before working on the IP board.

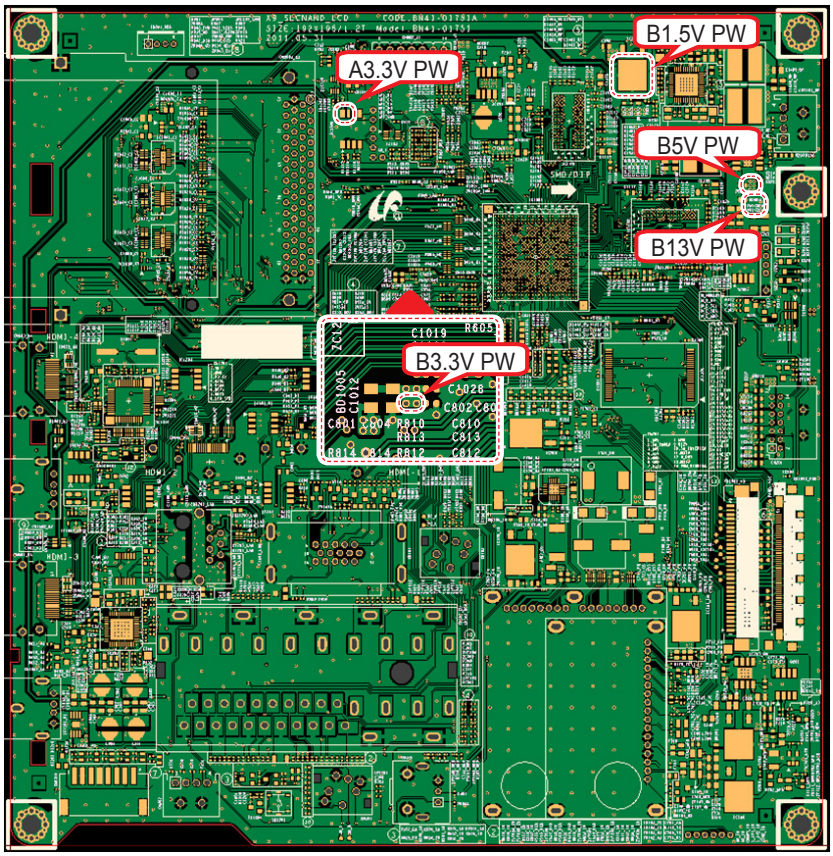
Main Board (Top)_X5



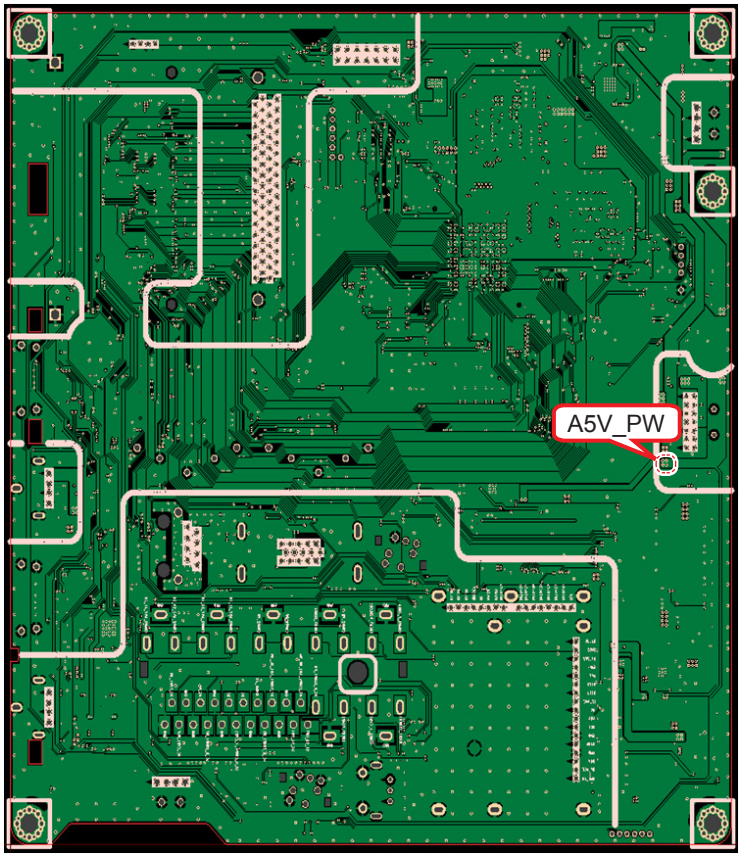
Main Board (Bottom)_X5

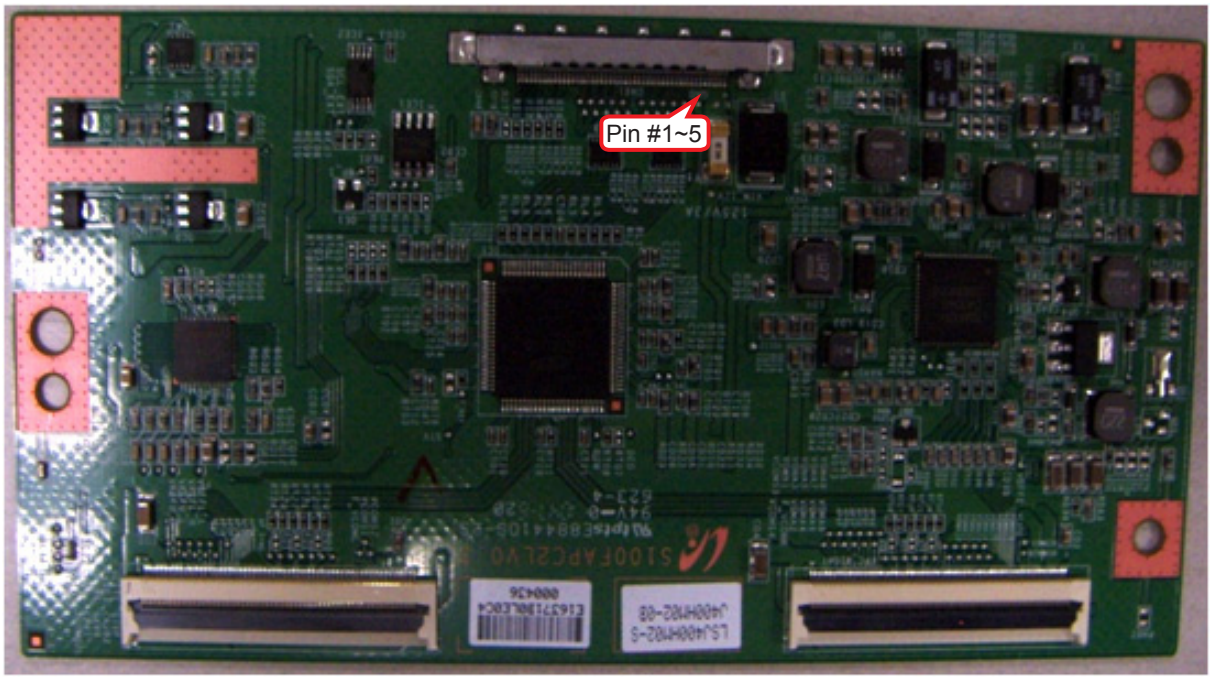


Main Board (Top)_X9



Main Board (Bottom)_X9

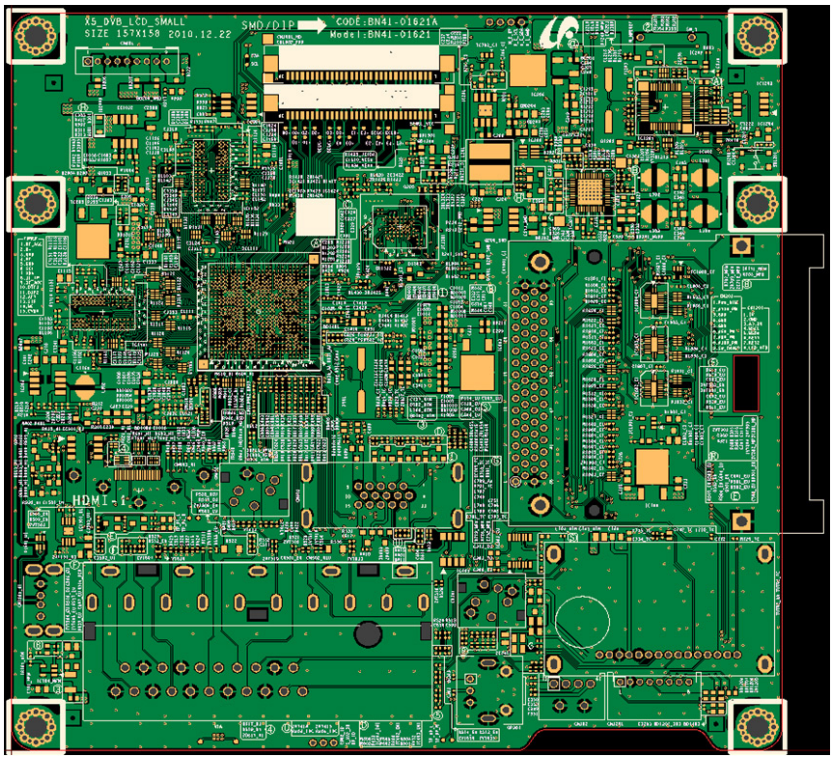


T-CON


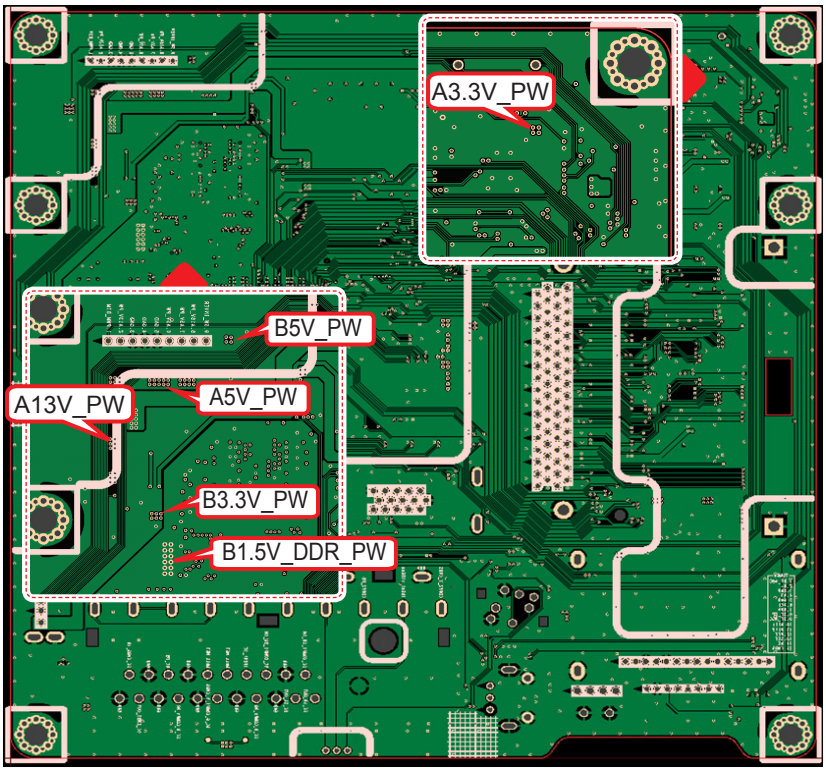
■ LD450_19" 22"

Symptom	– 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 Check points	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: – 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	
Caution	Make sure to disconnect the power before working on the IP board.

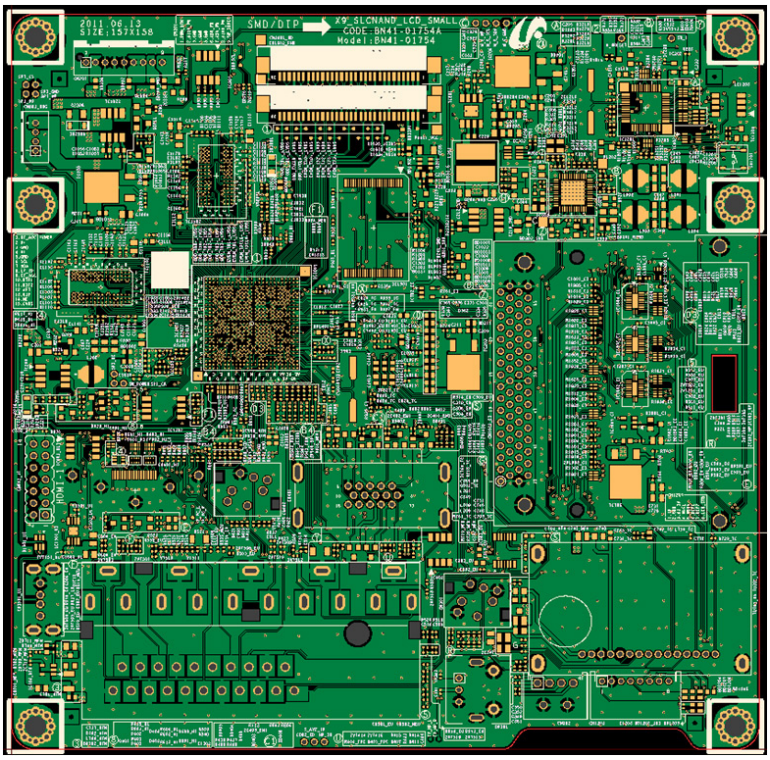
Main Board (Top)_X5



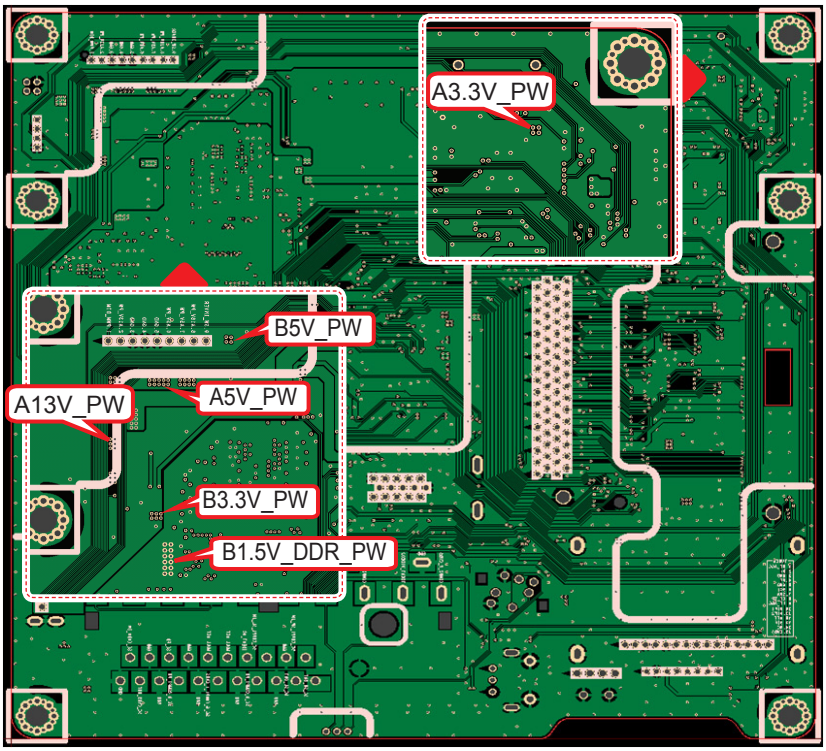
Main Board (Bottom)_X5

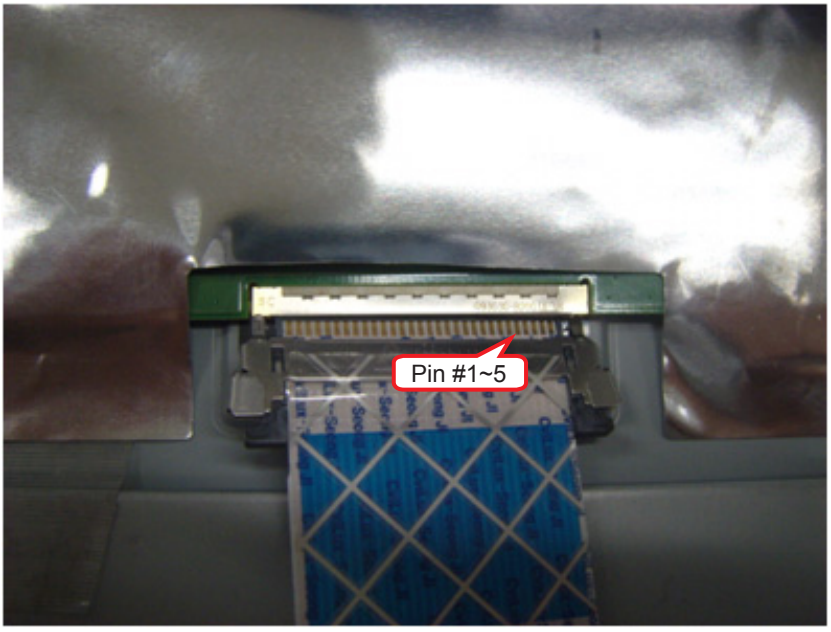


Main Board (Top)_X9



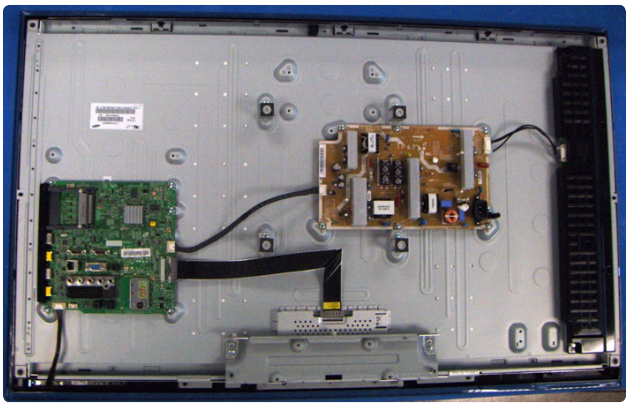
Main Board (Bottom)_X9



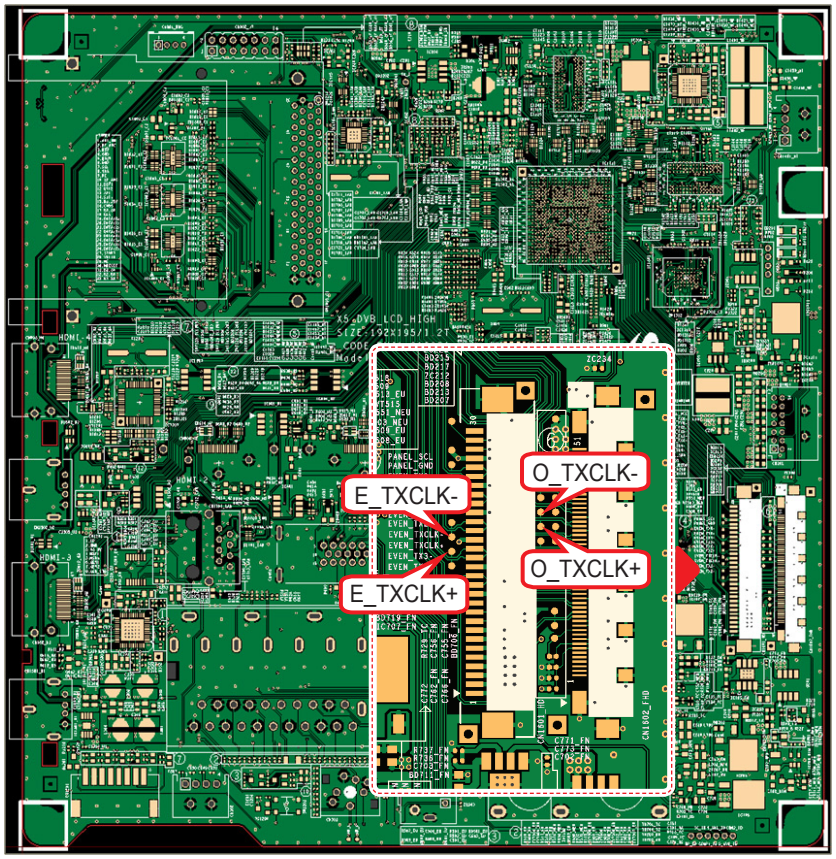
T-CON


4-1-3. No Video (Analog PC Signal)

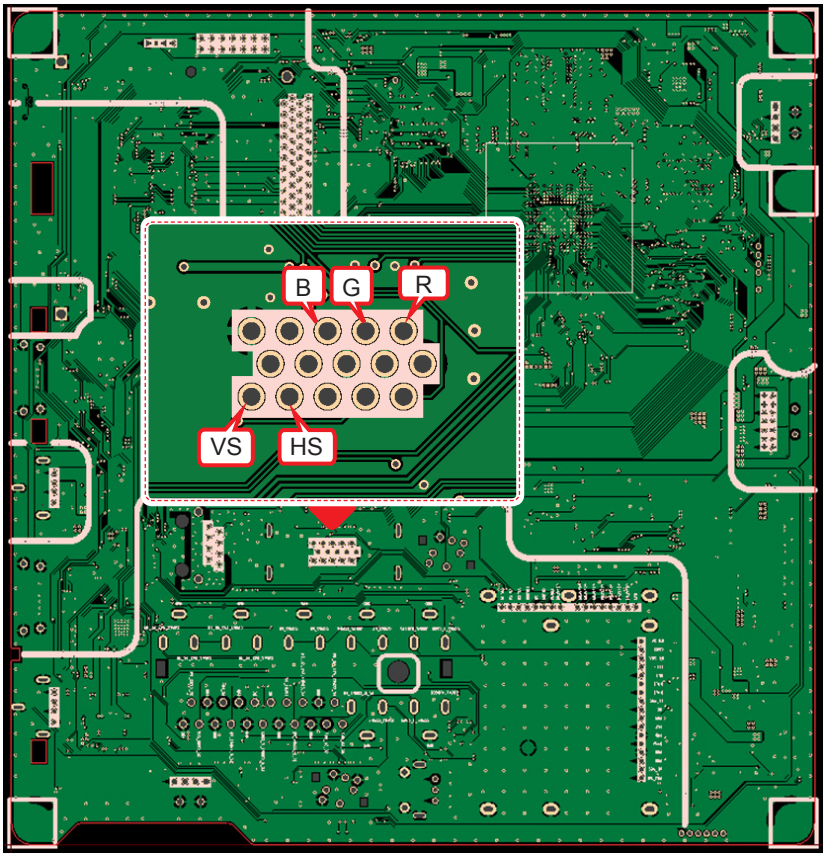
■ LD550_LD450_26" 32" 37" 40" 46"

Symptom	– Audio is normal but no picture is displayed on the screen.
Major Check points	– Check the PC source – Check the Arsenal, Check the Chelsea. – This may happen when the LVDS cable connecting the Main Board and the Panel is disconnected.
Diagnostics	
Caution	Make sure to disconnect the power before working on the IP board.

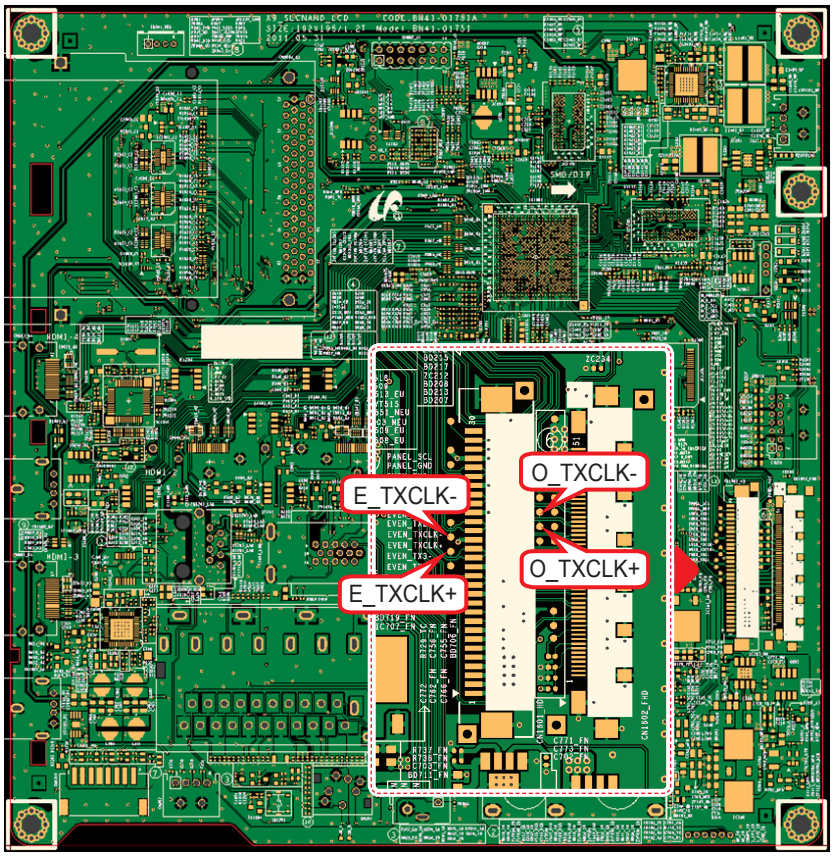
Main Board (Top)_X5



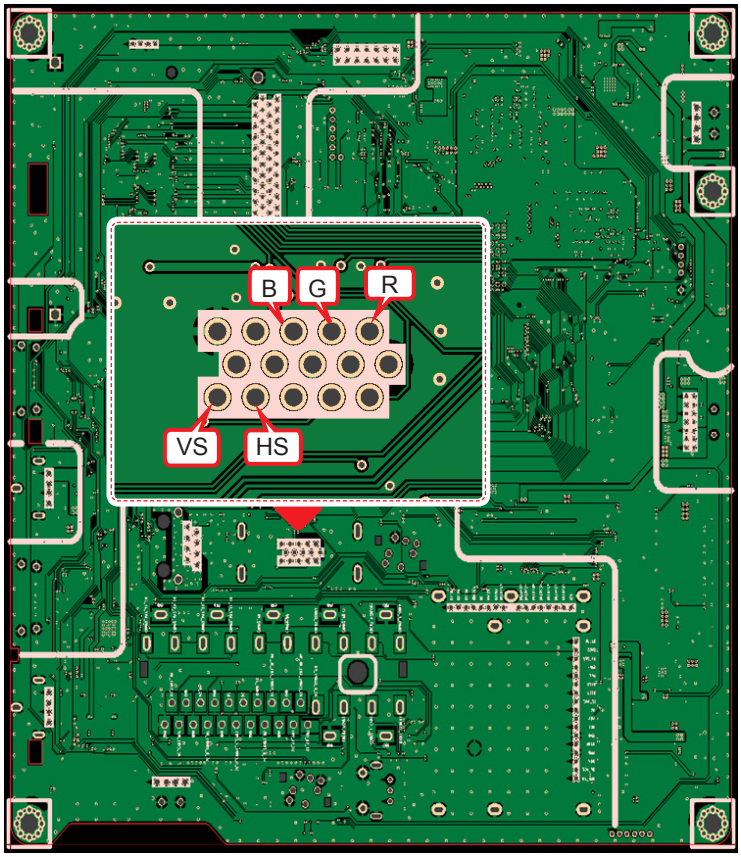
Main Board (Bottom)_X5



Main Board (Top)_X9

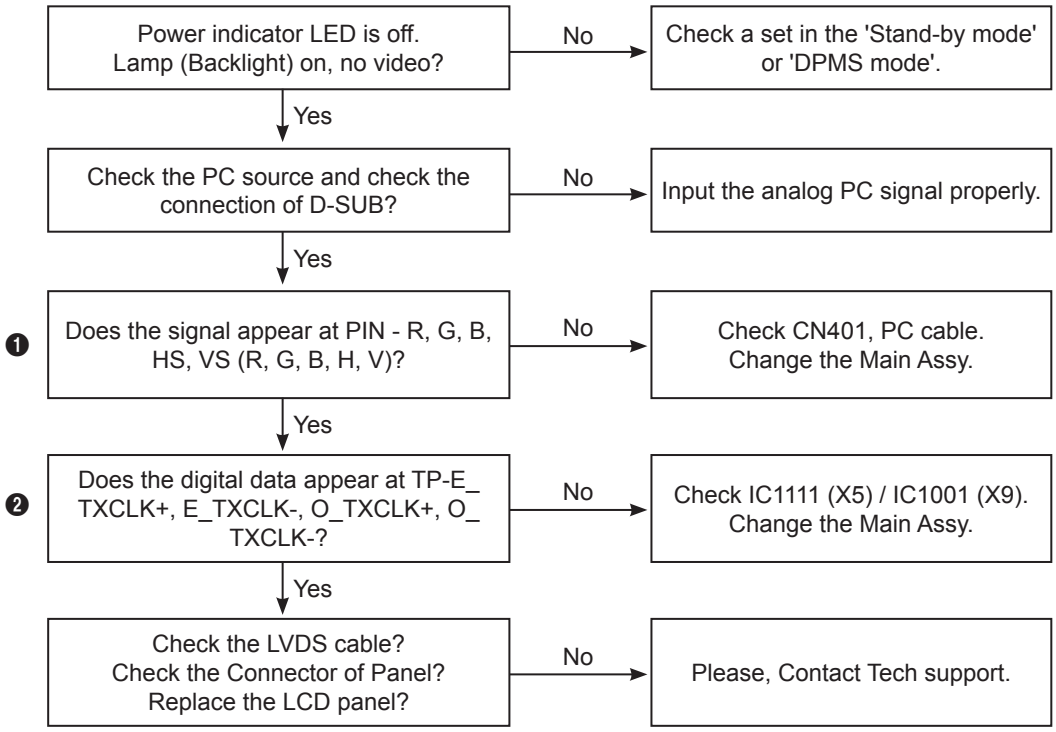


Main Board (Bottom)_X9

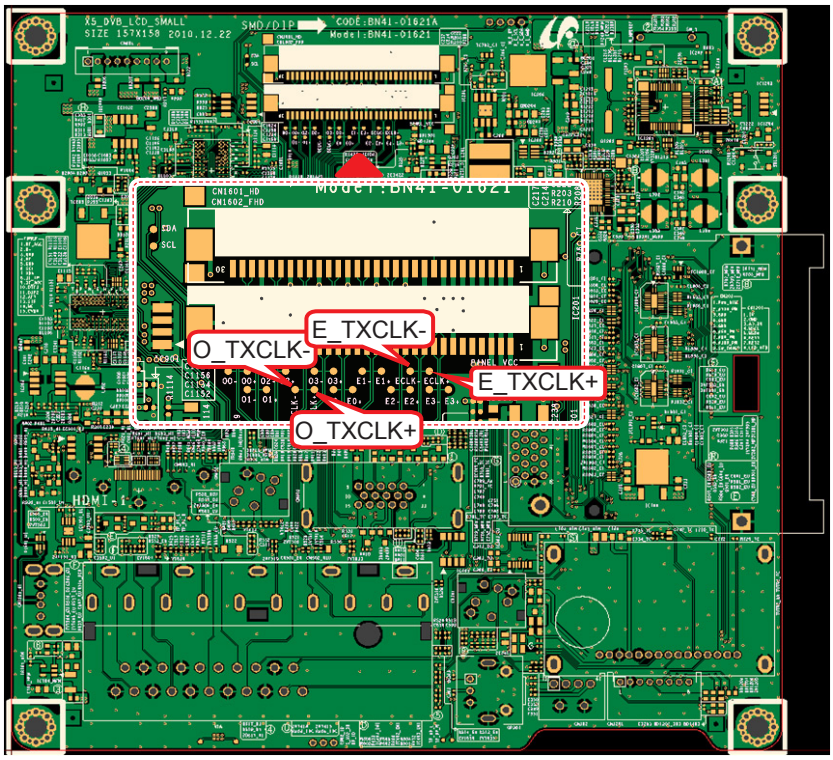


■ LD450_19" 22"

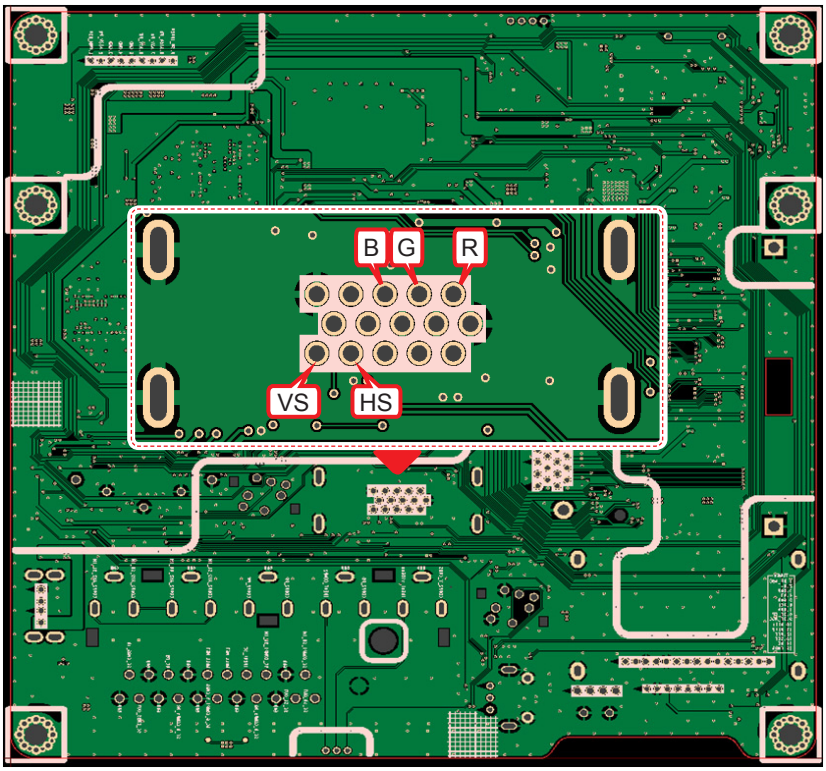
Symptom	– Audio is normal but no picture is displayed on the screen.
Major Check points	– Check the PC source – Check the Arsenal, Check the Chelsea. – This may happen when the LVDS cable connecting the Main Board and the Panel is disconnected.
Diagnostics	
Caution	Make sure to disconnect the power before working on the IP board.



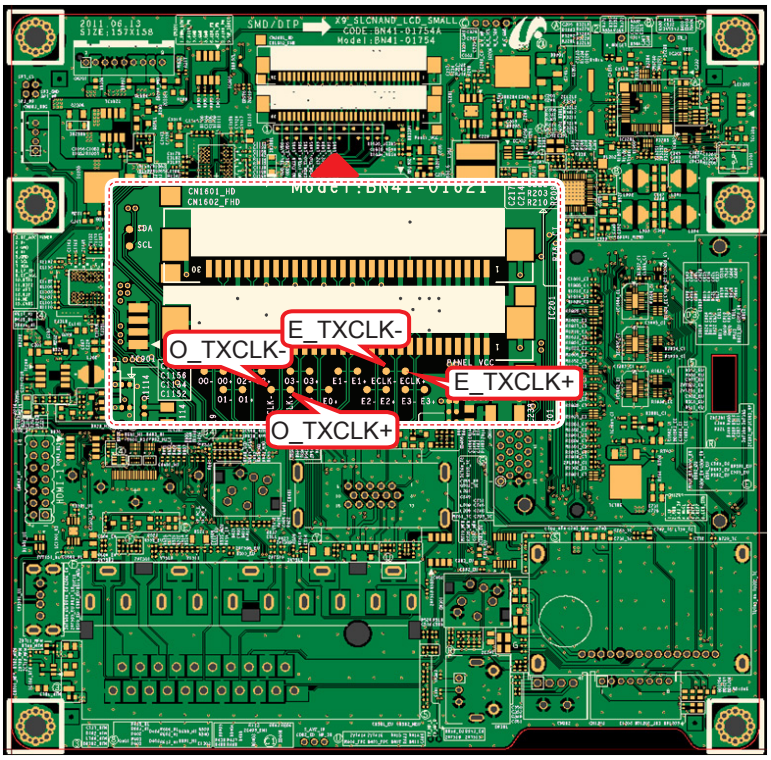
Main Board (Top)_X5



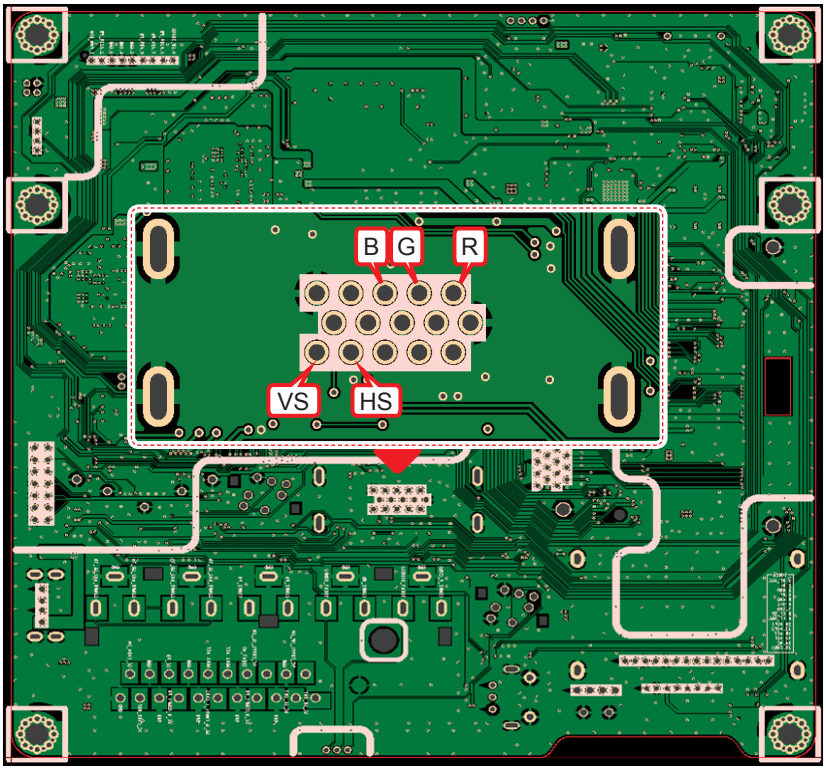
Main Board (Bottom)_X5



Main Board (Top)_X9

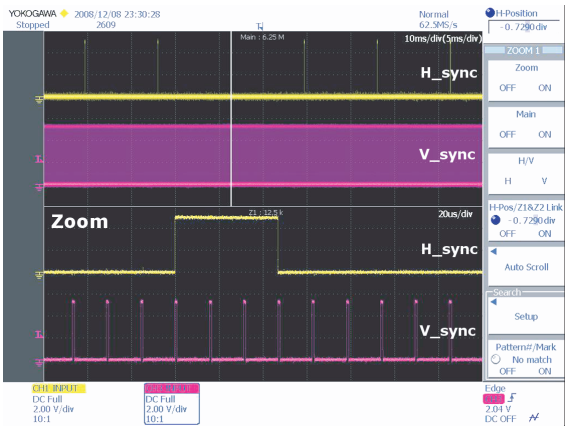


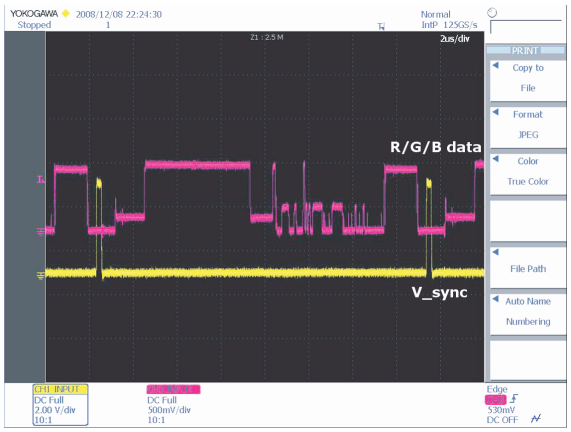
Main Board (Bottom)_X9



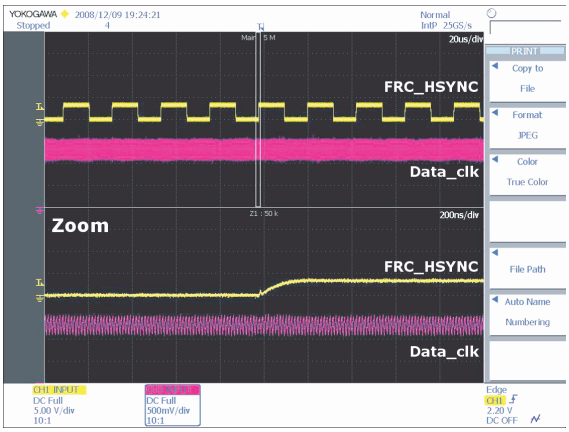
■ WAVEFORMS

❶	**PC input (V-sink, H-sink, R/G/B)**



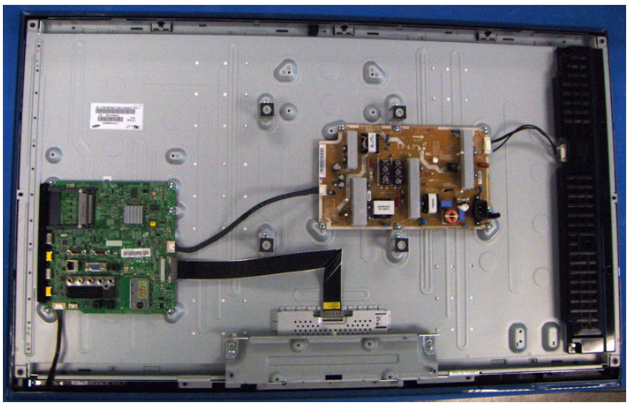


❷	**LVDS output**

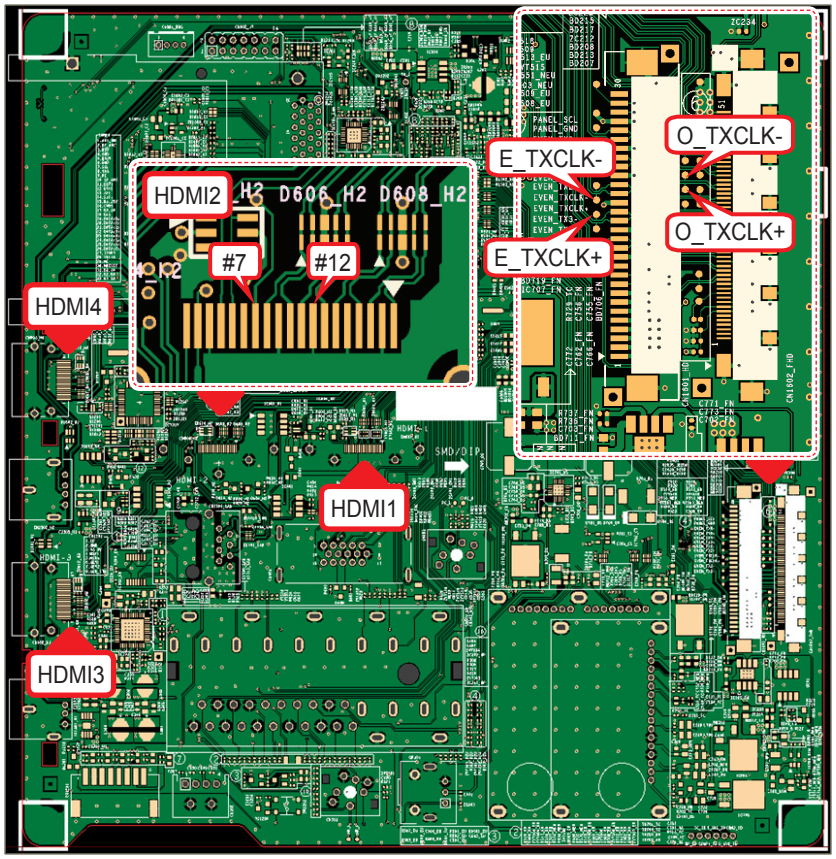


4-1-4. No Video (HDMI1, 2, 3, 4 - Digital Signal)

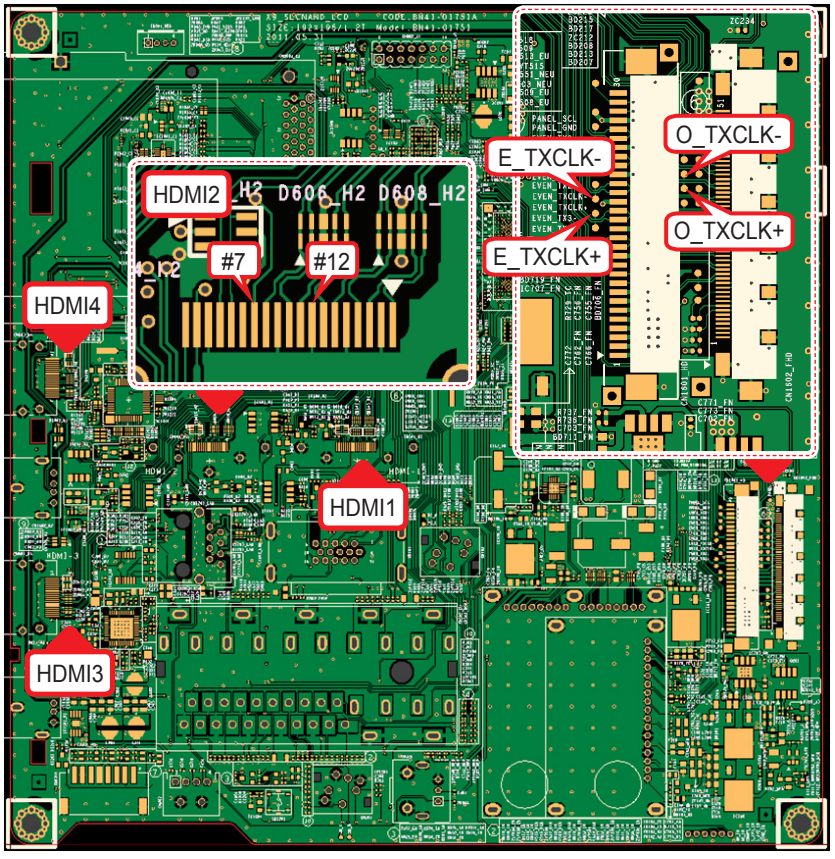
■ LD550_LD450_26" 32" 37" 40" 46"

Symptom	– Audio is normal but no picture is displayed on the screen.
Major Check points	– Check the HDMI source. – Check the HDMI switch, Check the Chelsea. – This may happen when the LVDS cable connecting the Main Board and the Panel is disconnected.
Diagnostics	
Caution	Make sure to disconnect the power before working on the IP board.

Main Board (Top)_X5



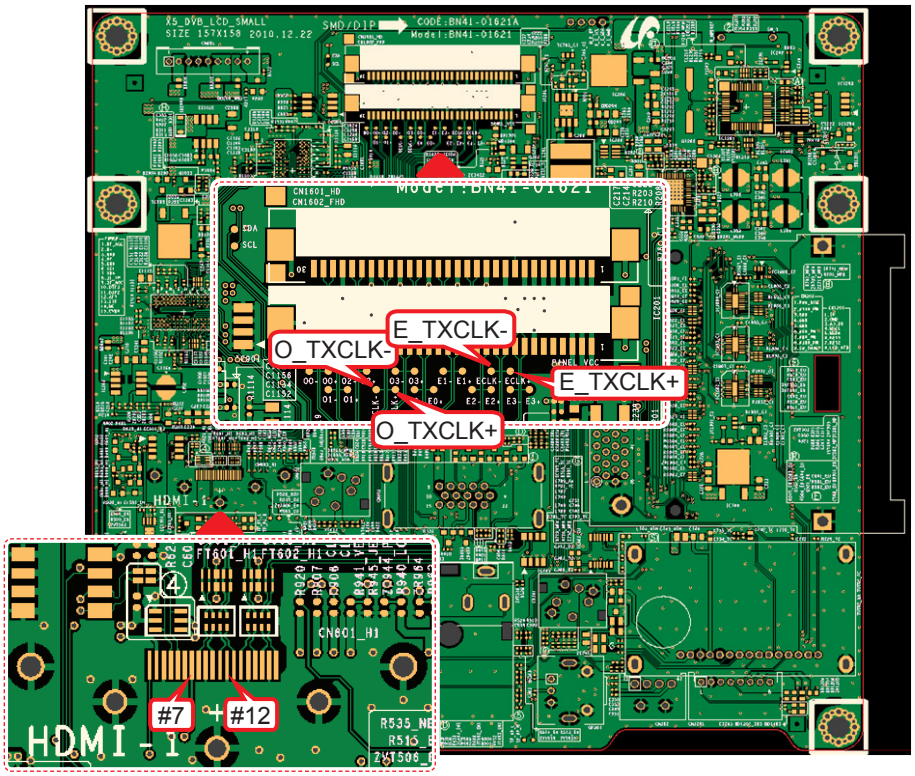
Main Board (Top)_X9



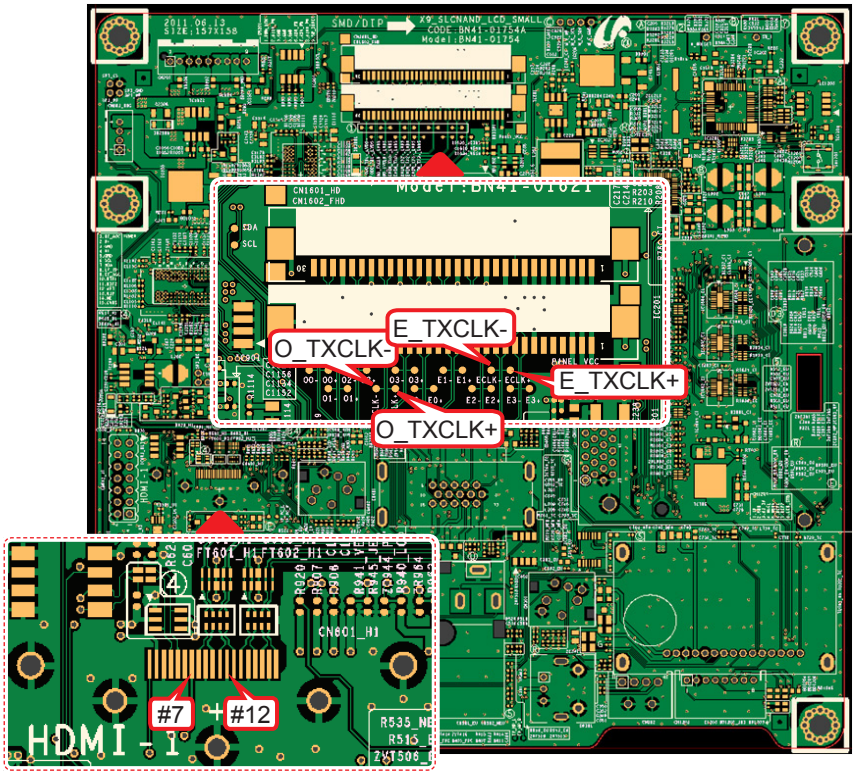
■ HDMI1 Digital Signal LD450_19" 22"

Symptom	– Audio is normal but no picture is displayed on the screen.
Major Check points	– Check the HDMI source. – Check the HDMI switch, Check the Chelsea. – This may happen when the LVDS cable connecting the Main Board and the Panel is disconnected.
Diagnostics	
Caution	Make sure to disconnect the power before working on the IP board.

Main Board (Top)_X5

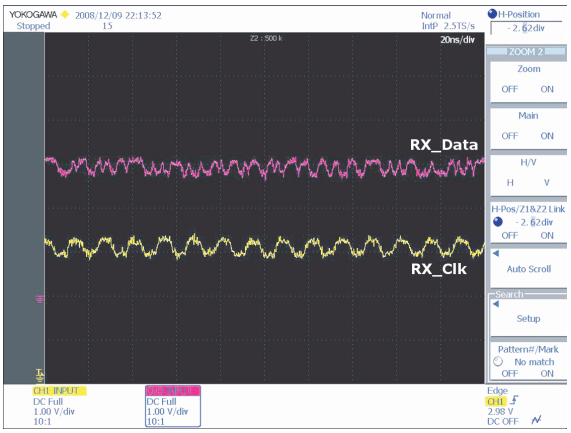


Main Board (Top)_X9

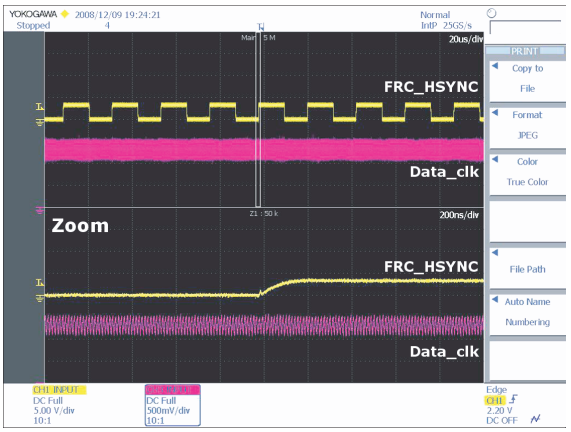


■ WAVEFORMS

❸	**HDMI Input (RX_Data, RX_Clk)**

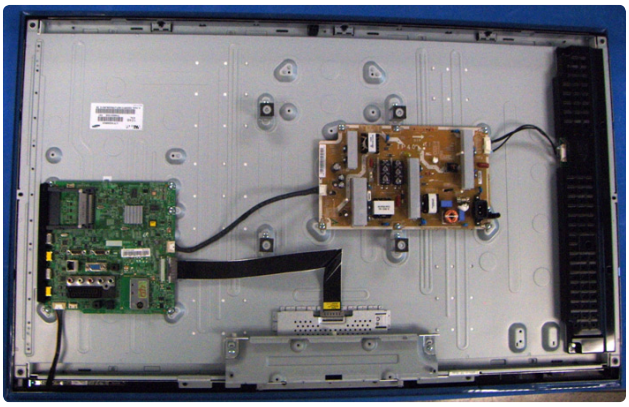


❷	**LVDS Output**

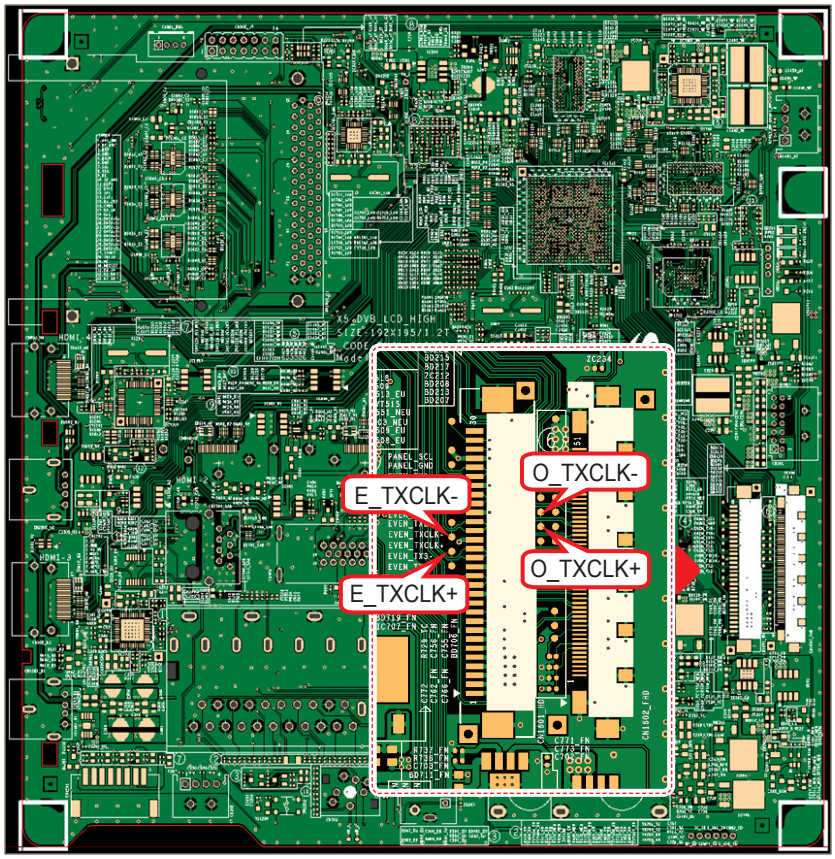


4-1-5. No Video (Tuner_CVBS)

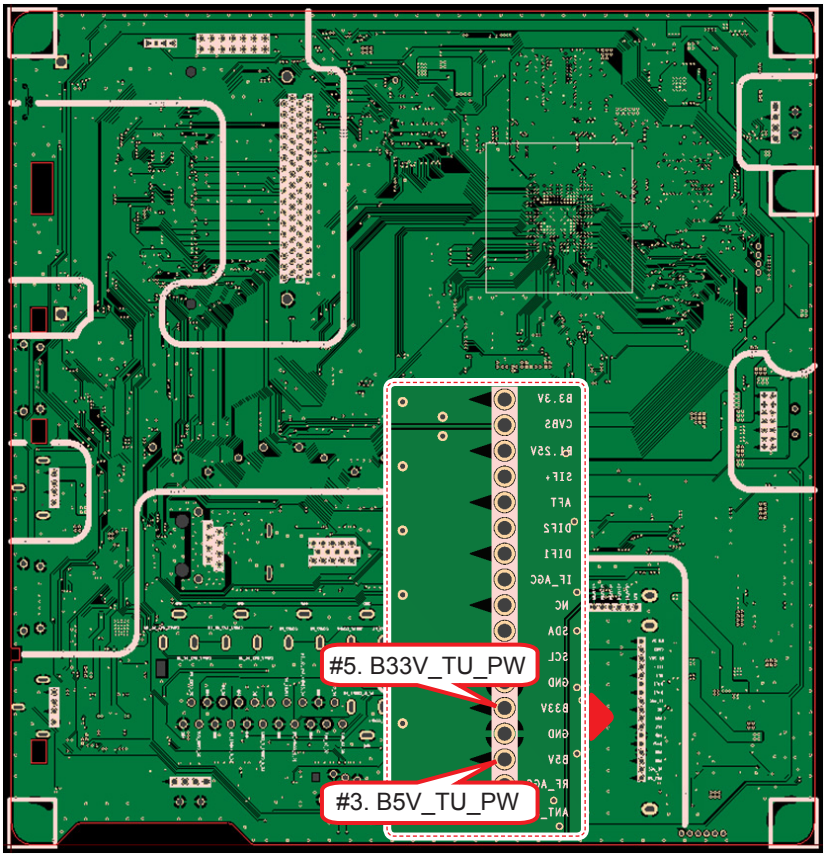
■ LD550_LD450_26" 32" 37" 40" 46"

Symptom	– Audio is normal but no picture is displayed on the screen.
Major Check points	– Check the Tuner CVBS source. – Check the Tuner, Check the Chelsea. – This may happen when the LVDS cable connecting the Main Board and the Panel is disconnected.
Diagnostics	
Caution	Make sure to disconnect the power before working on the IP board.

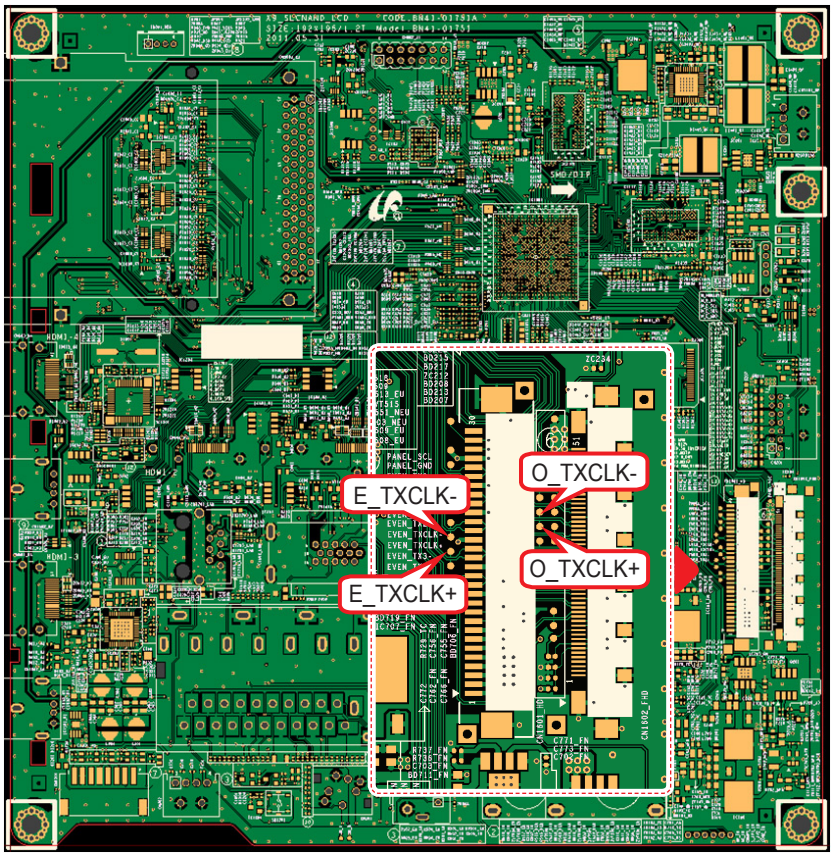
Main Board (Top)_X5



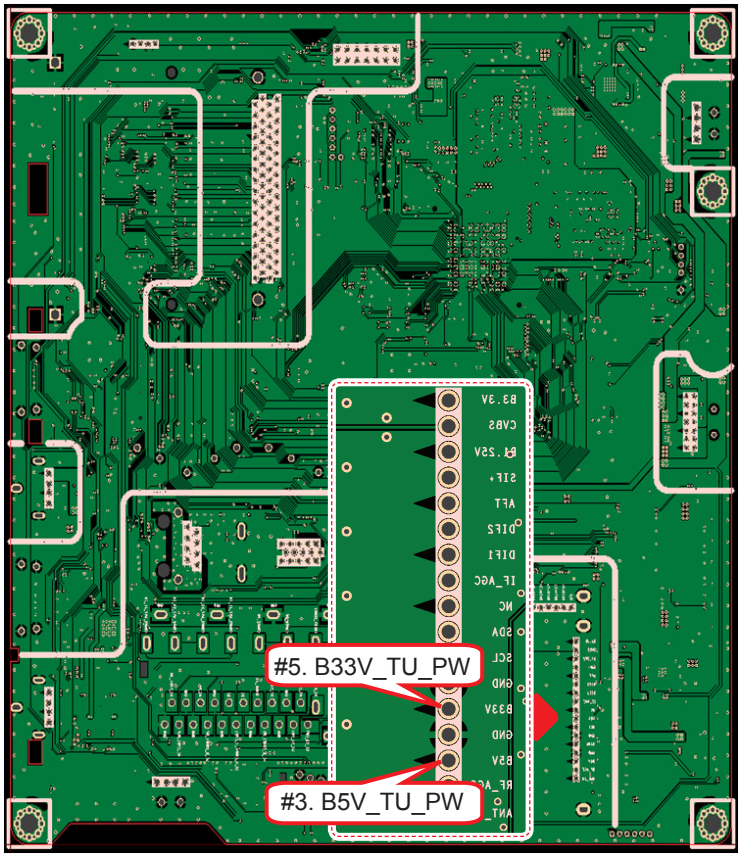
Main Board (Bottom)_X5



Main Board (Top)_X9



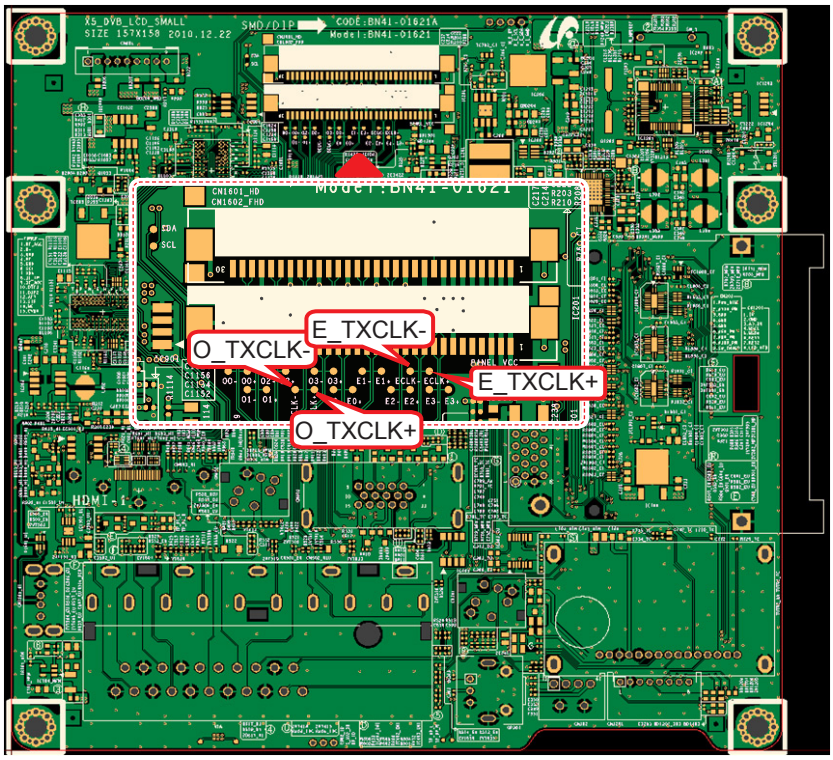
Main Board (Bottom)_X9



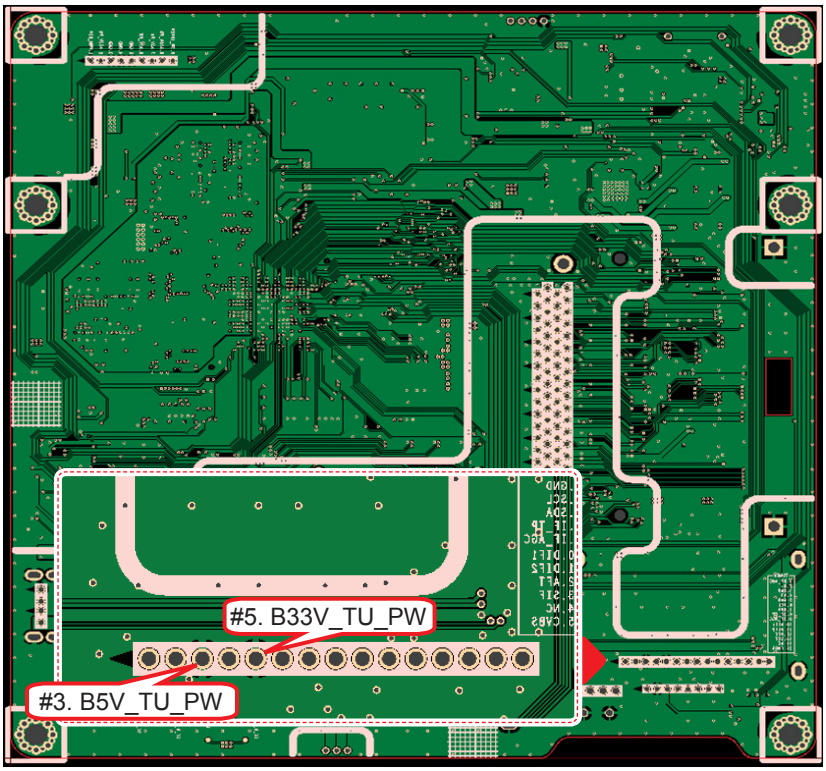
■ LD450_19" 22"

Symptom	– Audio is normal but no picture is displayed on the screen.
Major Check points	– Check the Tuner CVBS source. – Check the Tuner, Check the Chelsea. – This may happen when the LVDS cable connecting the Main Board and the Panel is disconnected.
Diagnostics	
Caution	Make sure to disconnect the power before working on the IP board.

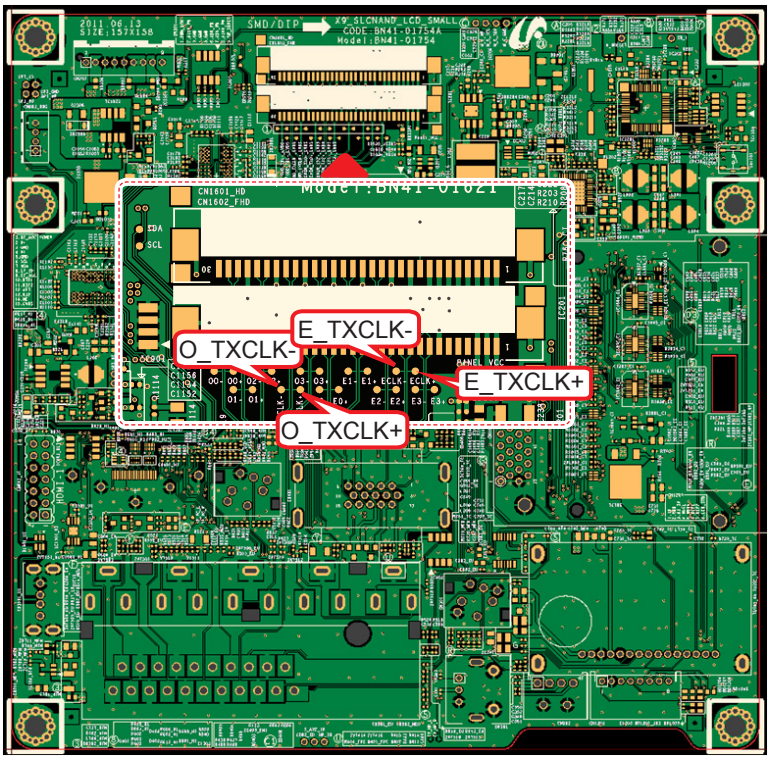
Main Board (Top)_X5



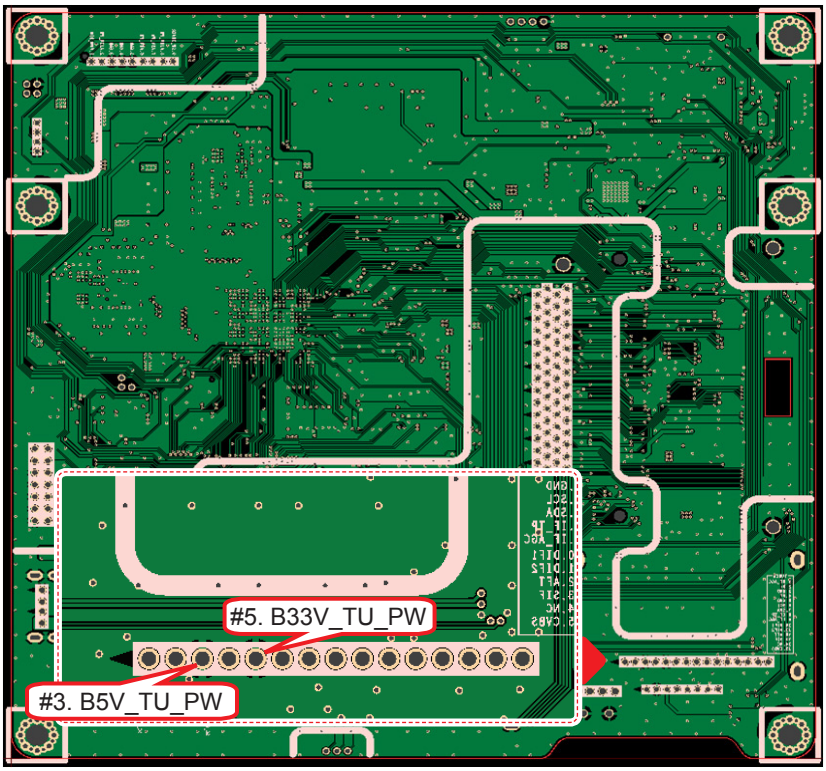
Main Board (Bottom)_X5



Main Board (Top)_X9

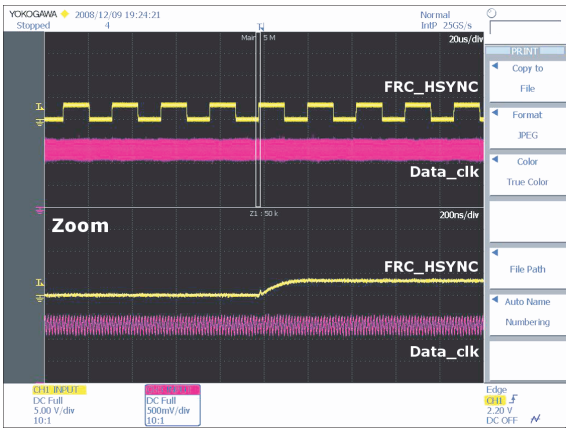


Main Board (Bottom)_X9



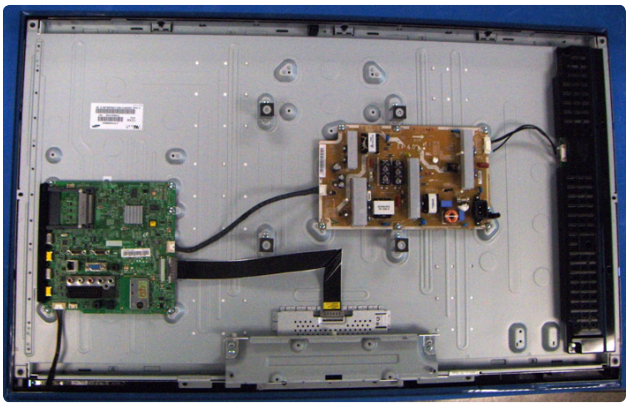
■ WAVEFORMS

❷	LVDS Output

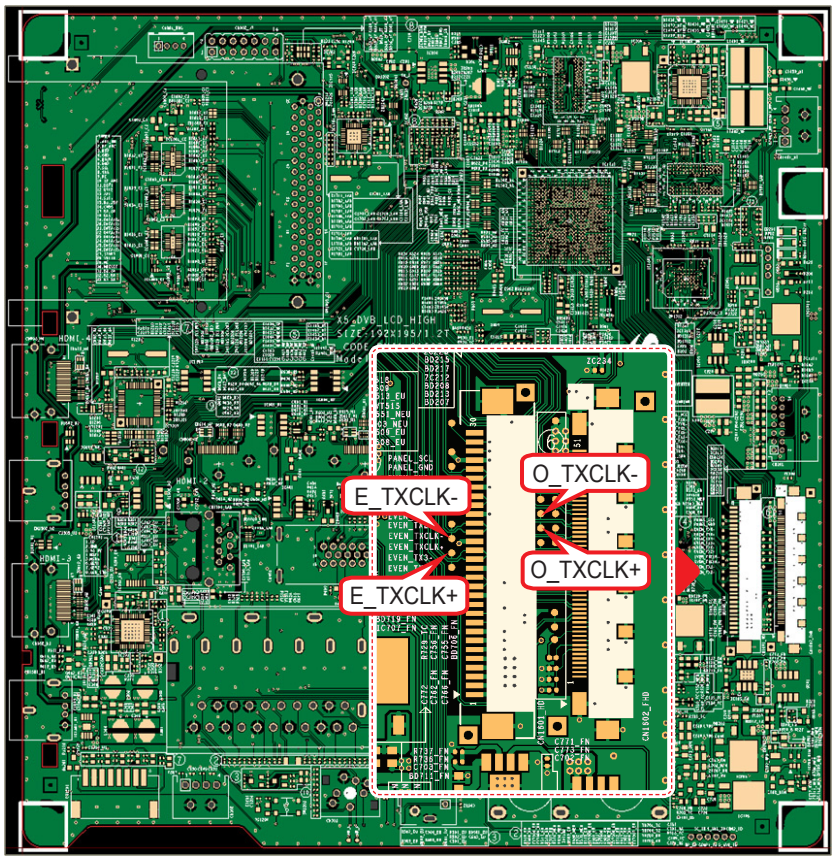


4-1-6. No Video (Tuner DTV)

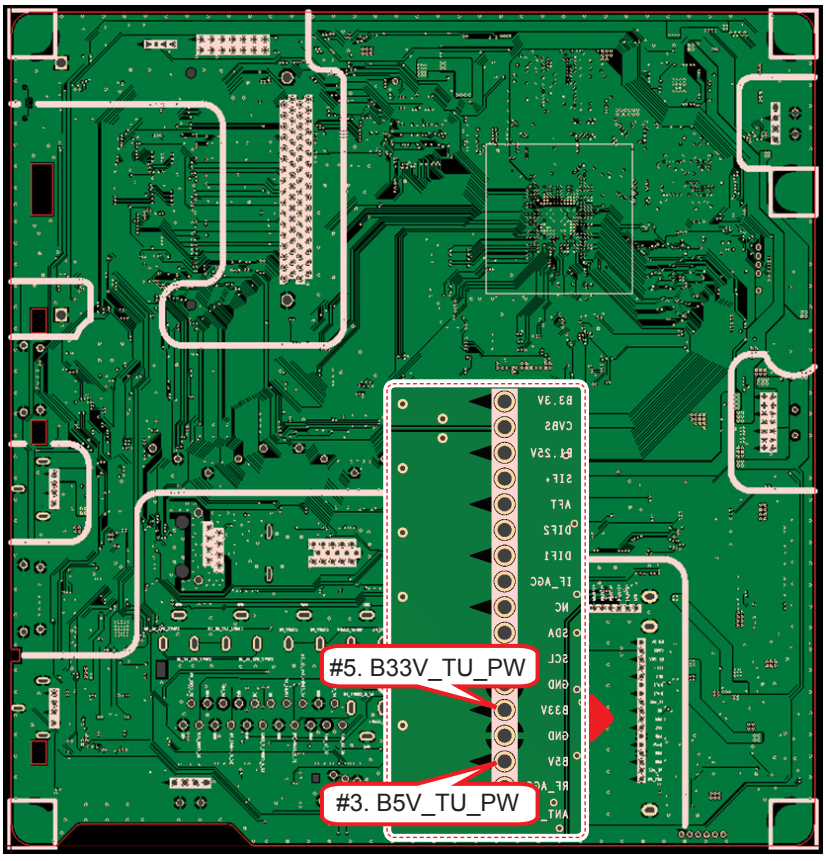
■ LD550_LD450_26" 32" 37" 40"46"

Symptom	– Audio is normal but no picture is displayed on the screen.
Major Check points	– Check the DTV source. – Check the Tuner, Check the Chelsea. – This may happen when the LVDS cable connecting the Main Board and the Panel is disconnected.
Diagnostics	
Caution	Make sure to disconnect the power before working on the IP board.

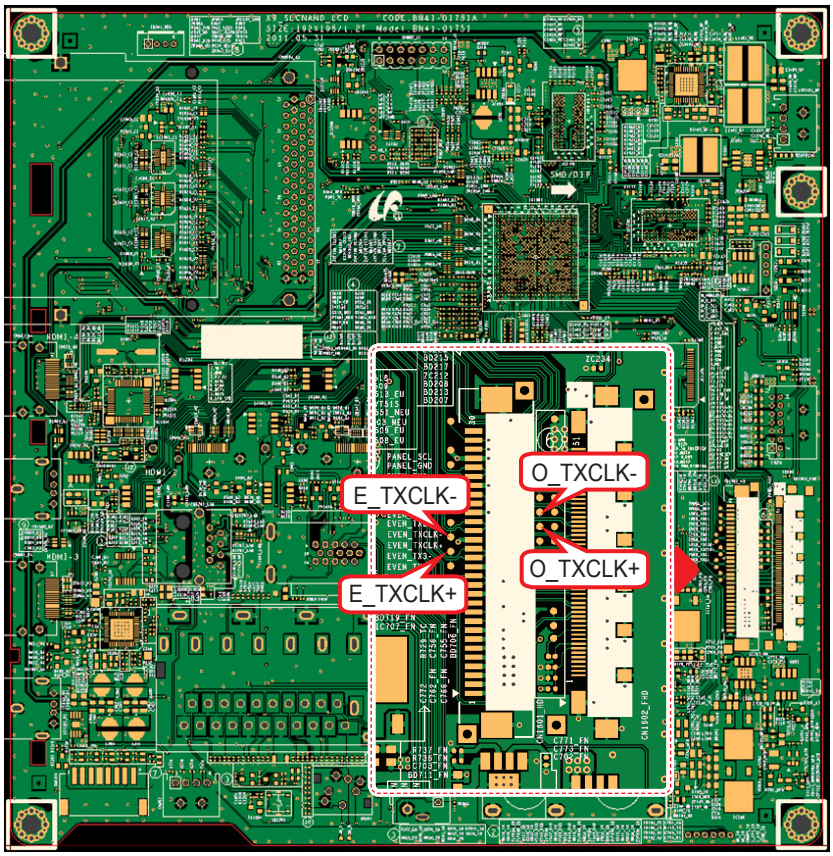
Main Board (Top)_X5



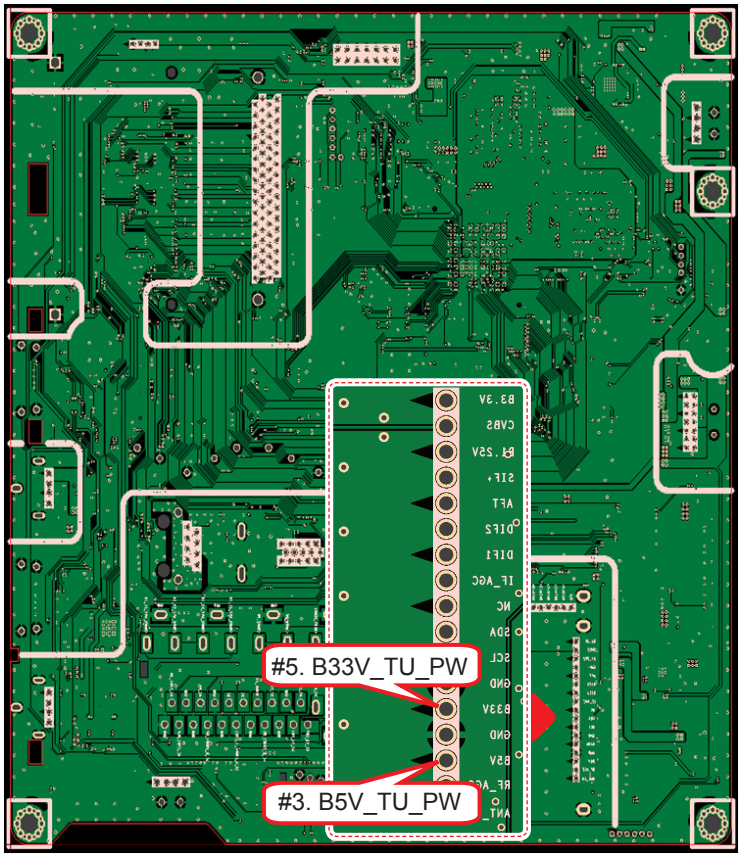
Main Board (Bottom)_X5



Main Board (Top)_X9



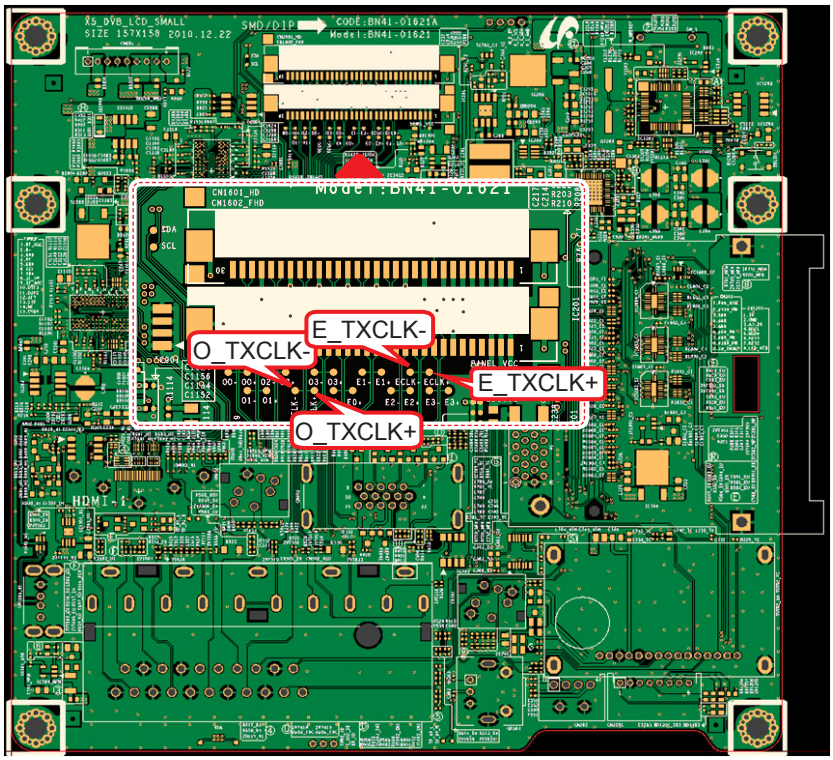
Main Board (Bottom)_X9



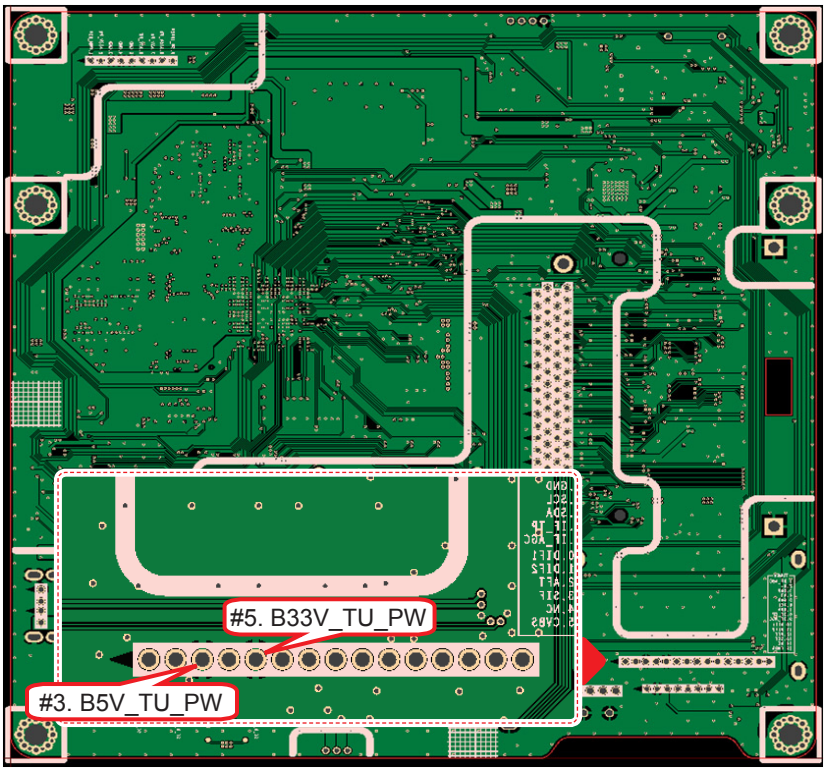
■ LD450_19" 22"

Symptom	– Audio is normal but no picture is displayed on the screen.
Major Check points	– Check the DTV source. – Check the Tuner, Check the Chelsea. – This may happen when the LVDS cable connecting the Main Board and the Panel is disconnected.
Diagnostics	
Caution	Make sure to disconnect the power before working on the IP board.

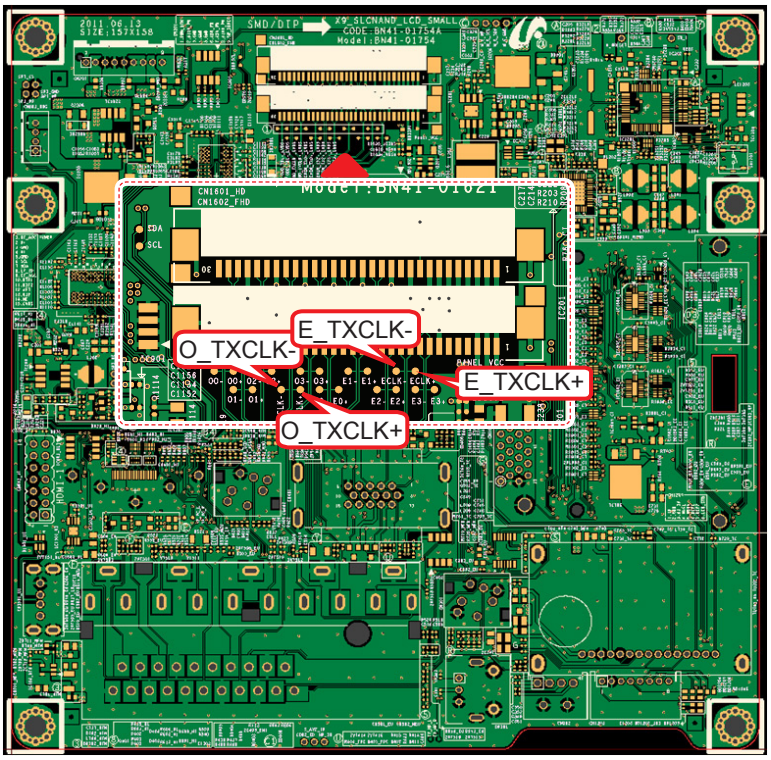
Main Board (Top)_X5



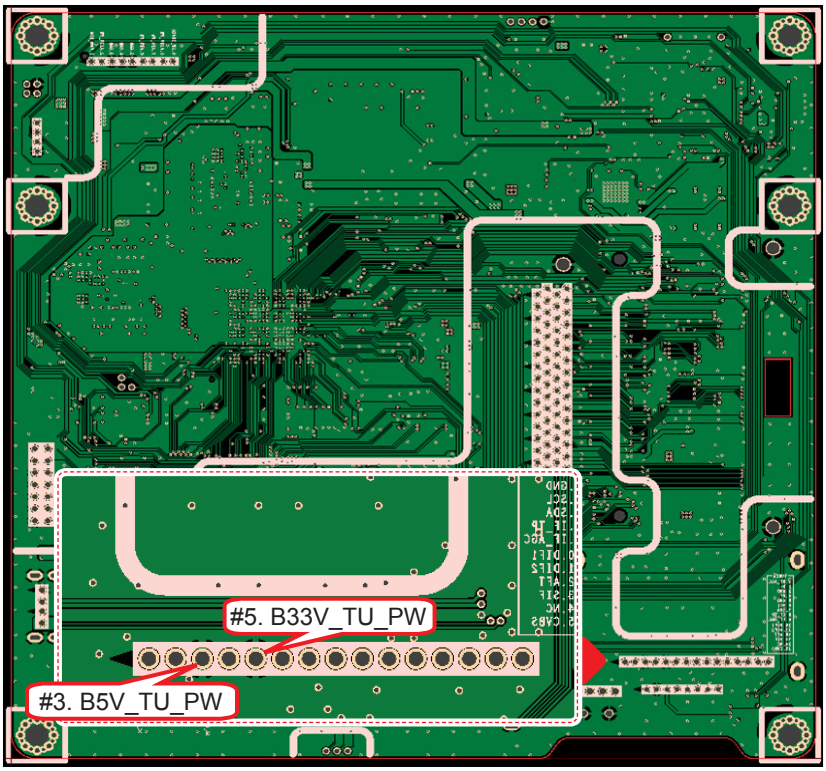
Main Board (Bottom)_X5



Main Board (Top)_X9

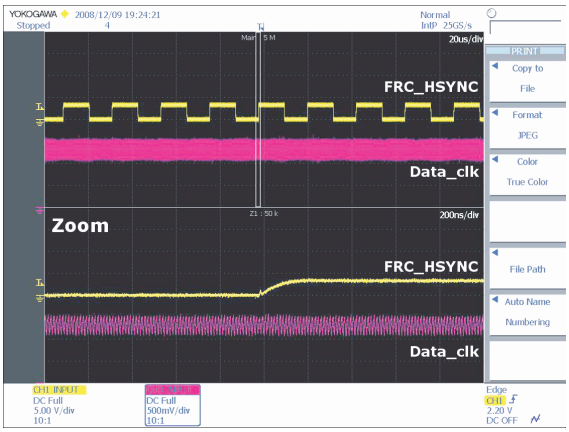


Main Board (Bottom)_X9



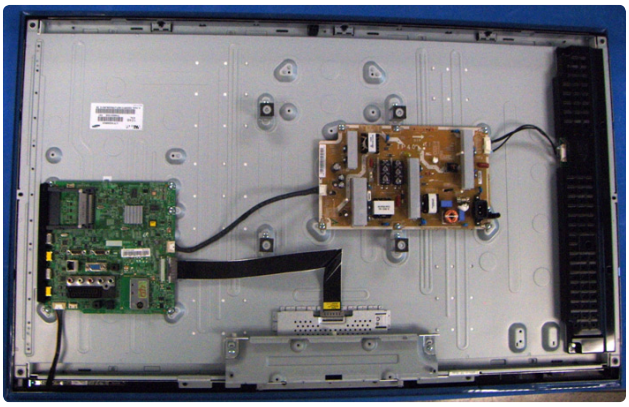
■ WAVEFORMS

❷	LVDS Output

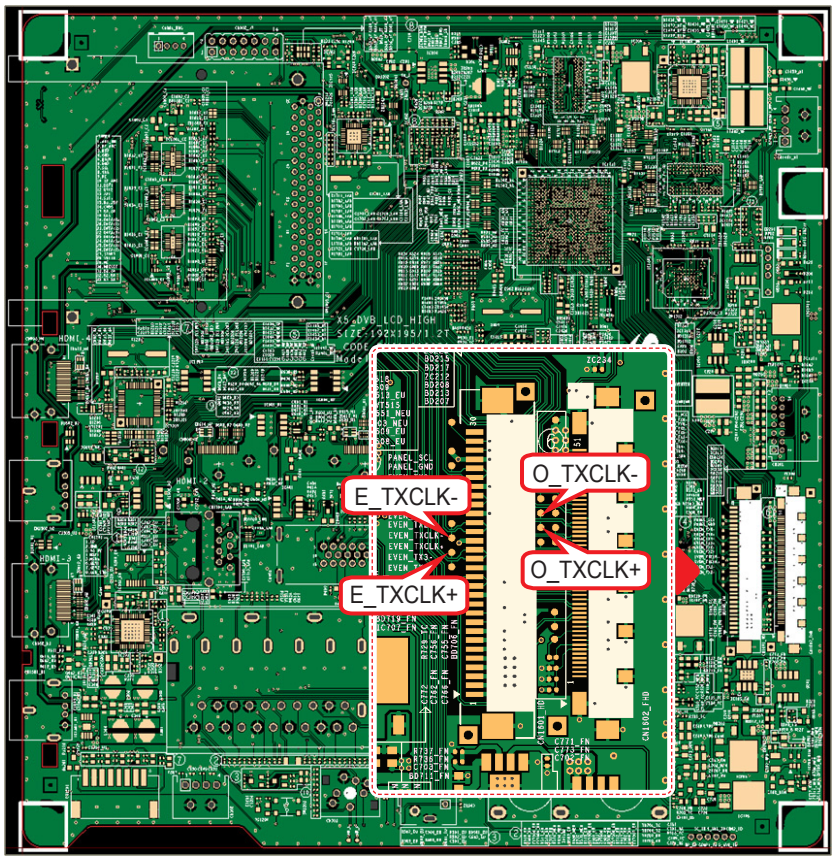


4-1-7. No Video (Video CVBS)

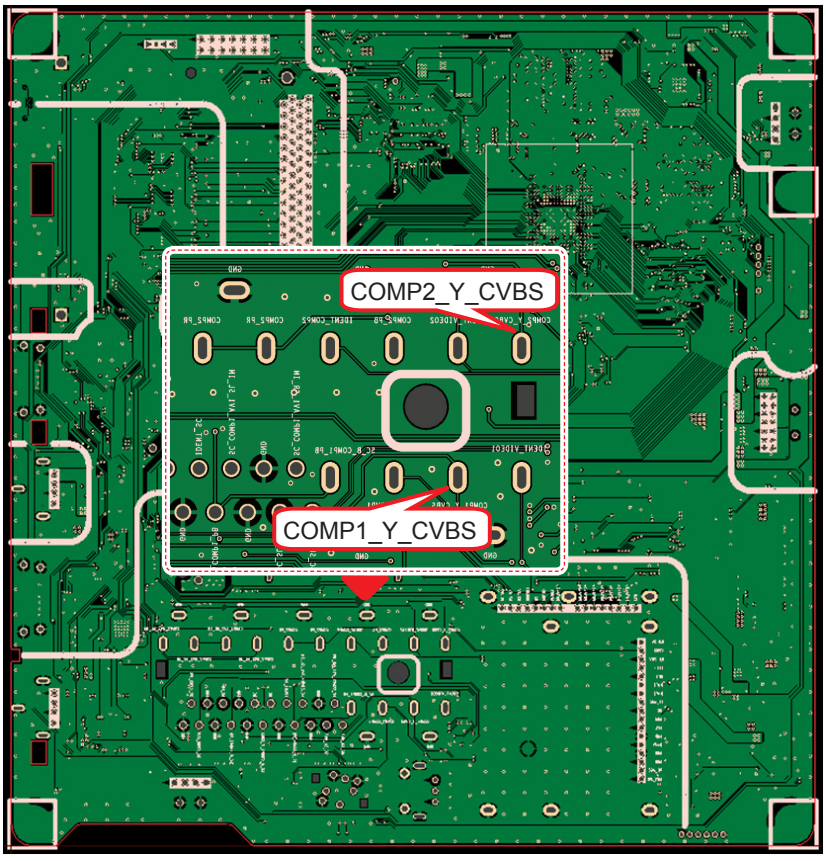
■ LD550_LD450_26" 32" 37" 40" 46"

Symptom	– Audio is normal but no picture is displayed on the screen.
Major Check points	– Check the Video CVBS source – Check the Chelsea. – This may happen when the LVDS cable connecting the Main Board and the Panel is disconnected.
Diagnostics	
Caution	Make sure to disconnect the power before working on the IP board.

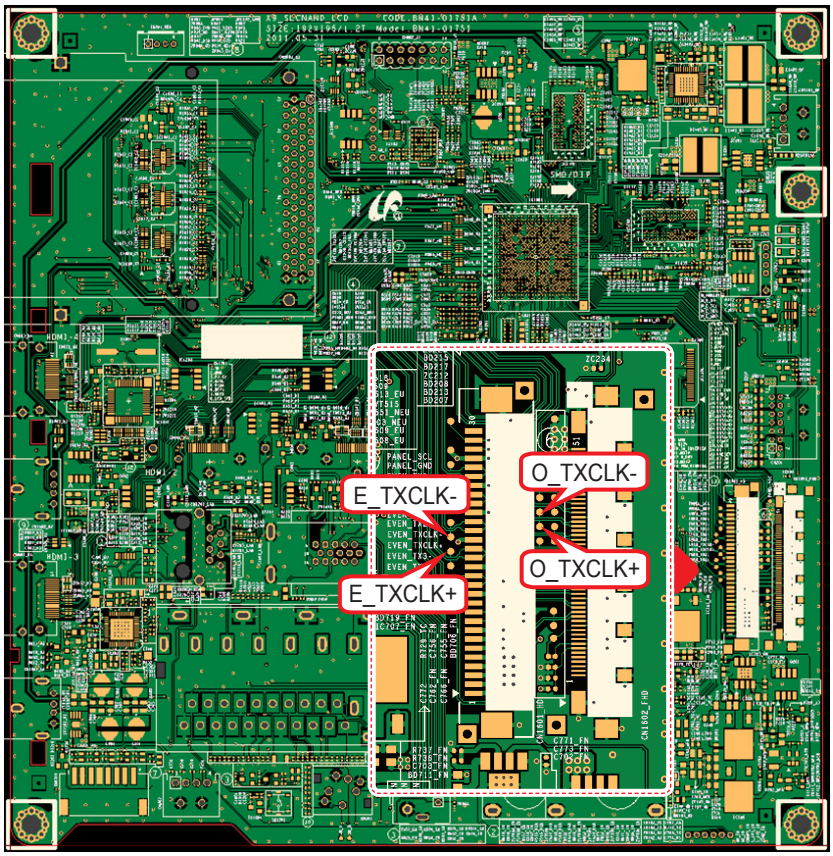
Main Board (Top)_X5



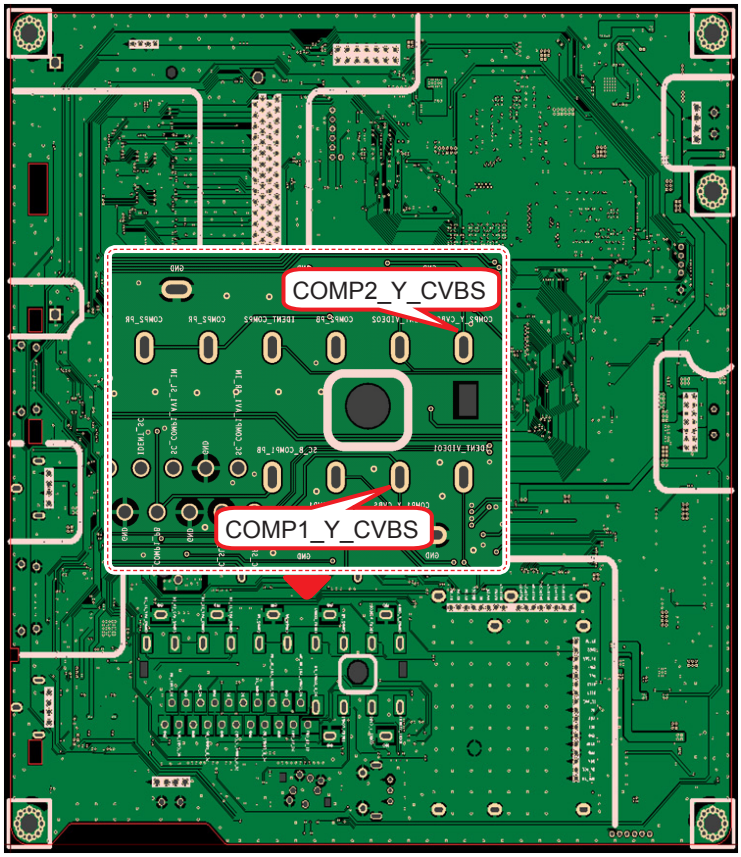
Main Board (Bottom)_X5



Main Board (Top)_X9



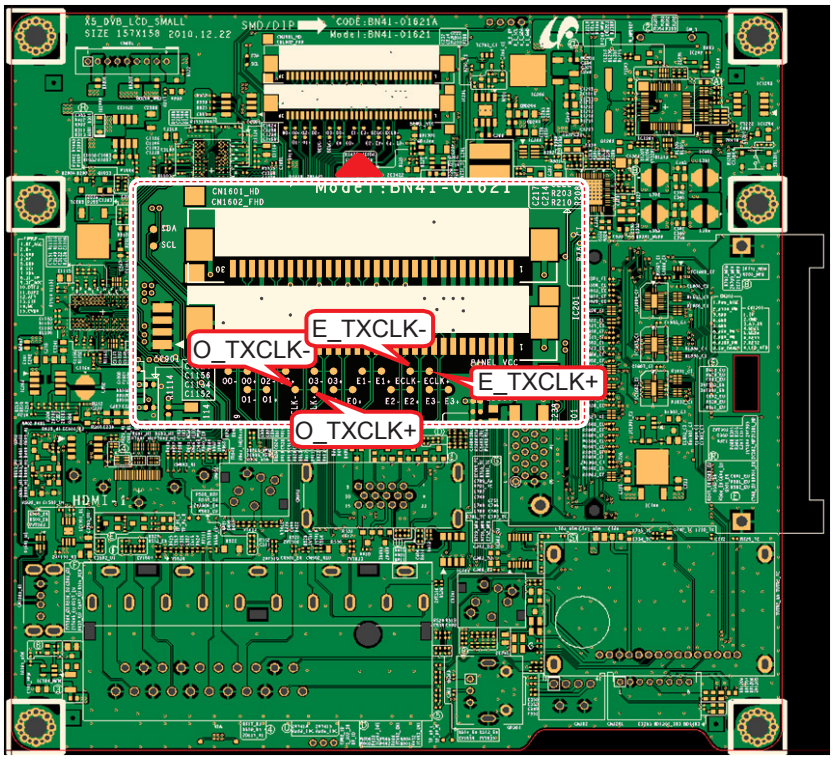
Main Board (Bottom)_X9



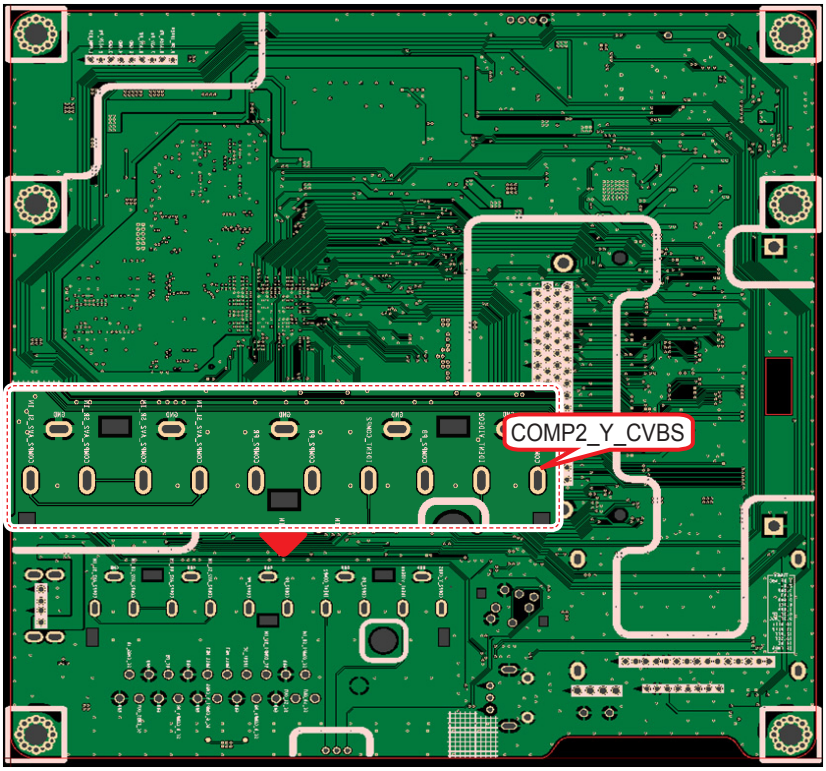
■ LD450_19" 22"

Symptom	– Audio is normal but no picture is displayed on the screen.
Major Check points	– Check the Video CVBS source – Check the Chelsea. – This may happen when the LVDS cable connecting the Main Board and the Panel is disconnected.
Diagnostics	
Caution	Make sure to disconnect the power before working on the IP board.

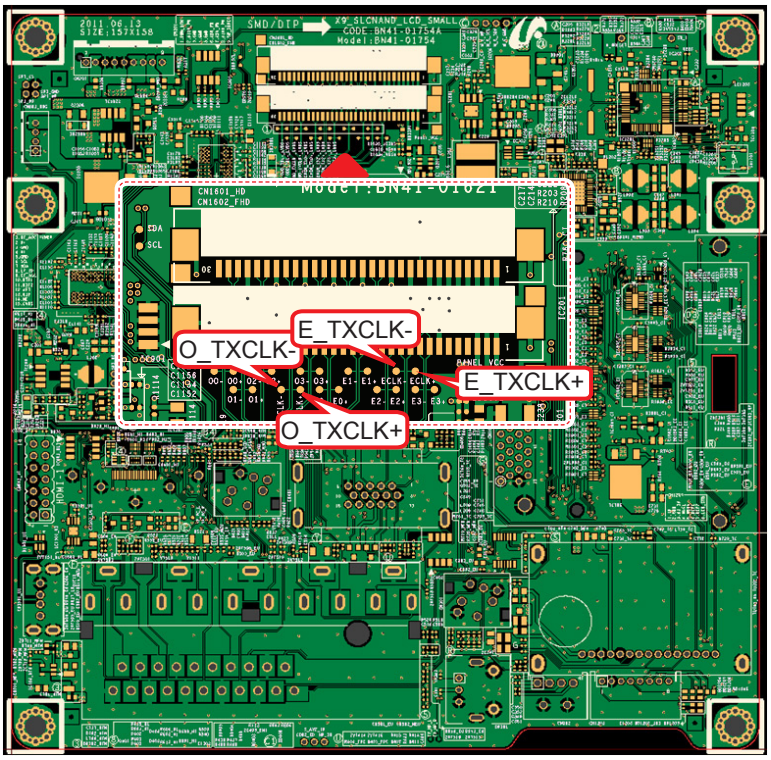
Main Board (Top)_X5



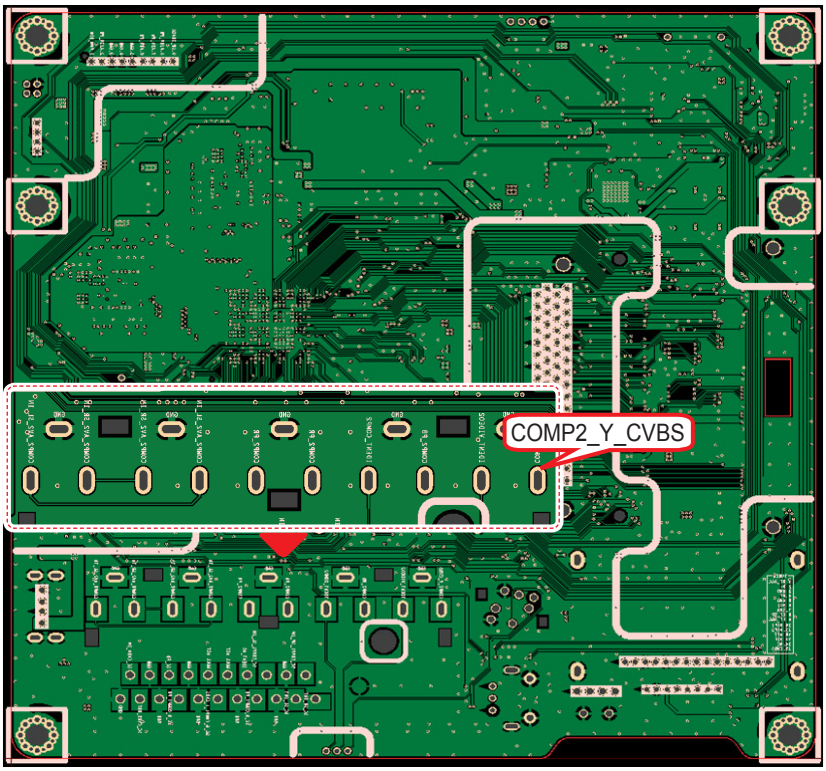
Main Board (Bottom)_X5



Main Board (Top)_X9

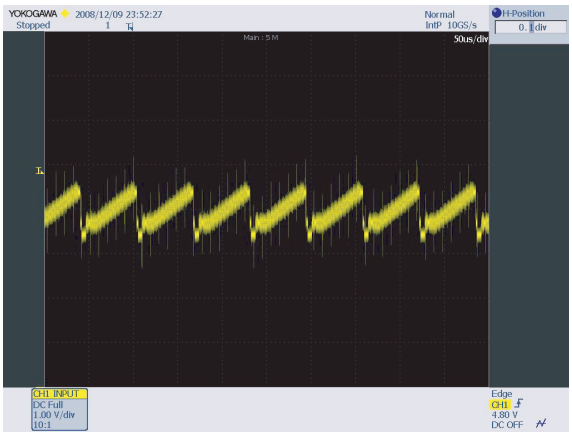


Main Board (Bottom)_X9

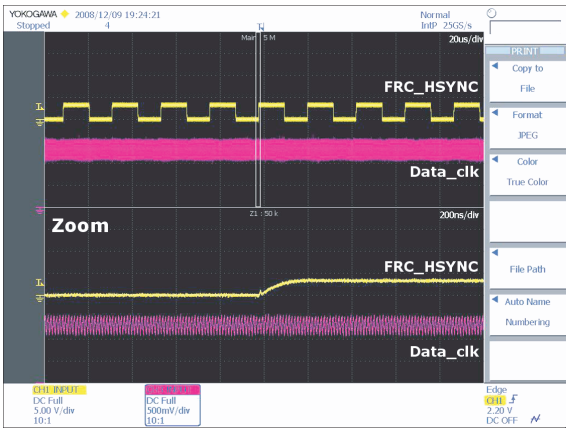


■ WAVEFORMS

❹	**CVBS OUT (Grey Bar)**

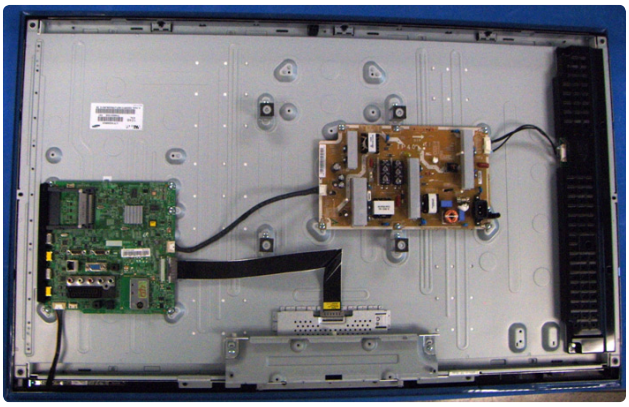


❷	**LVDS Output**

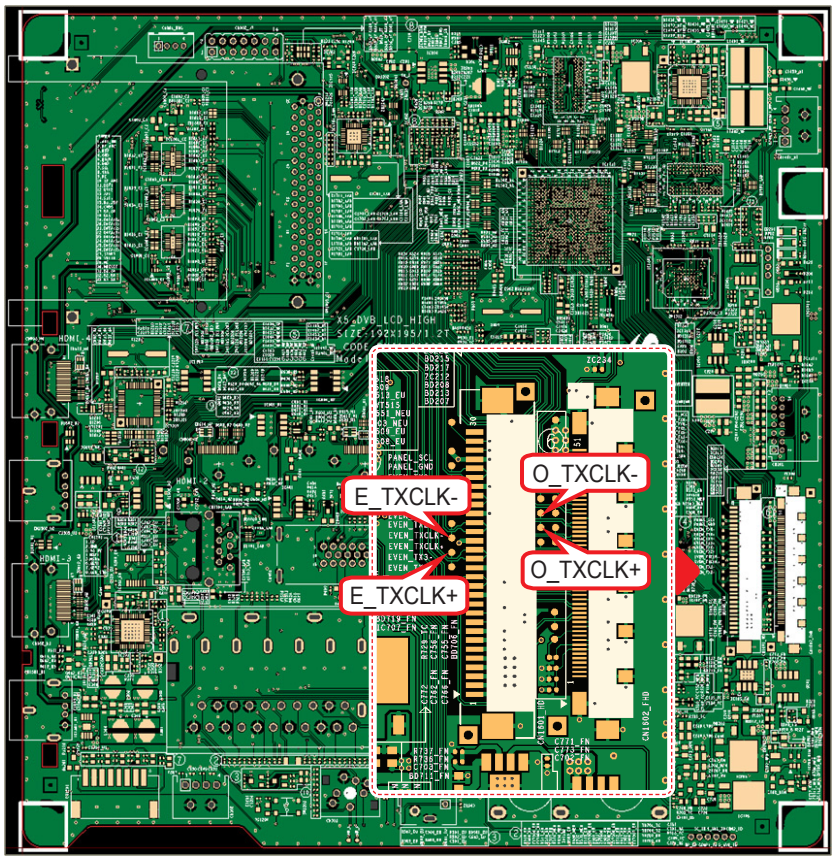


4-1-8. No Video (Component)

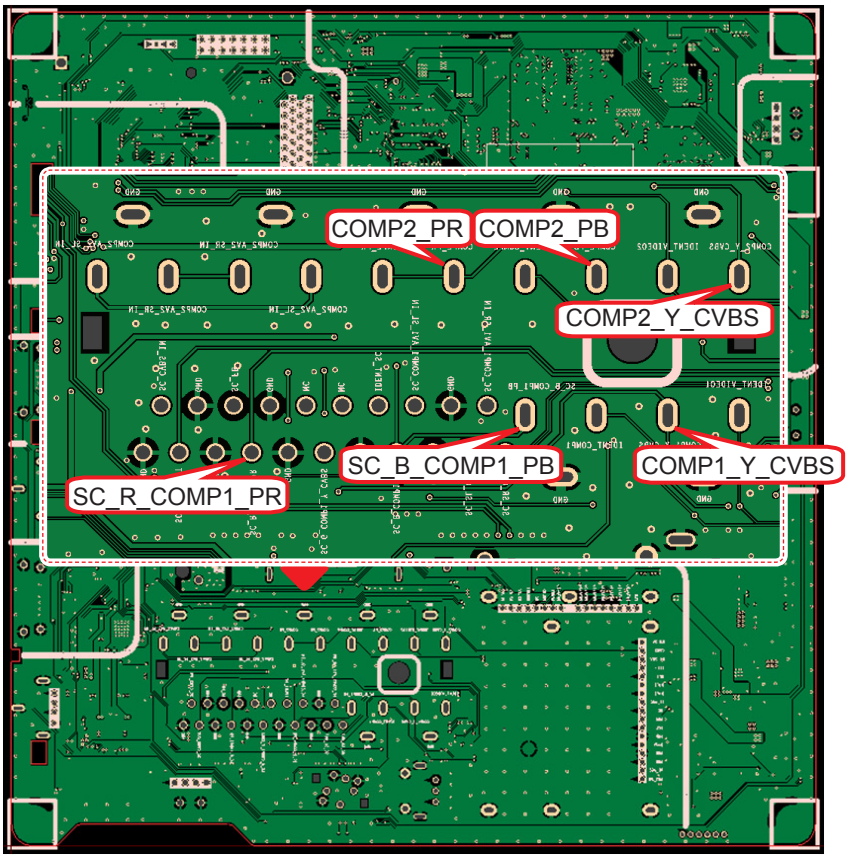
■ LD550_LD450_26" 32" 37" 40" 46"

Symptom	– Audio is normal but no picture is displayed on the screen.
Major Check points	– Check the Component source – Check the chelsea. – This may happen when the LVDS cable connecting the Main Board and the Panel is disconnected.
Diagnostics	
Caution	Make sure to disconnect the power before working on the IP board.

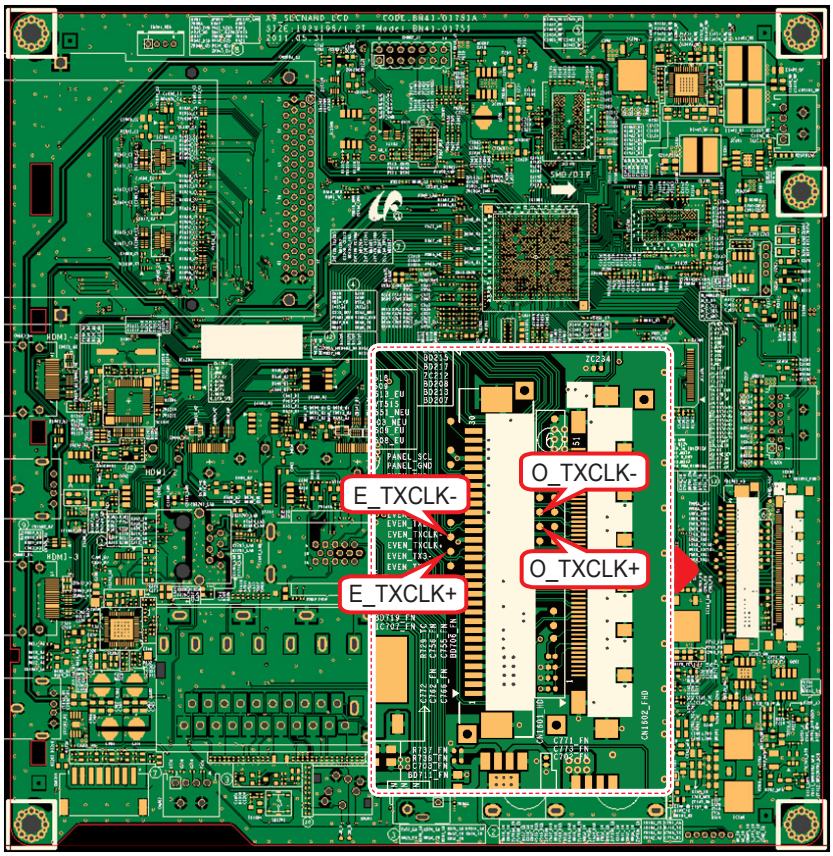
Main Board (Top)_X5



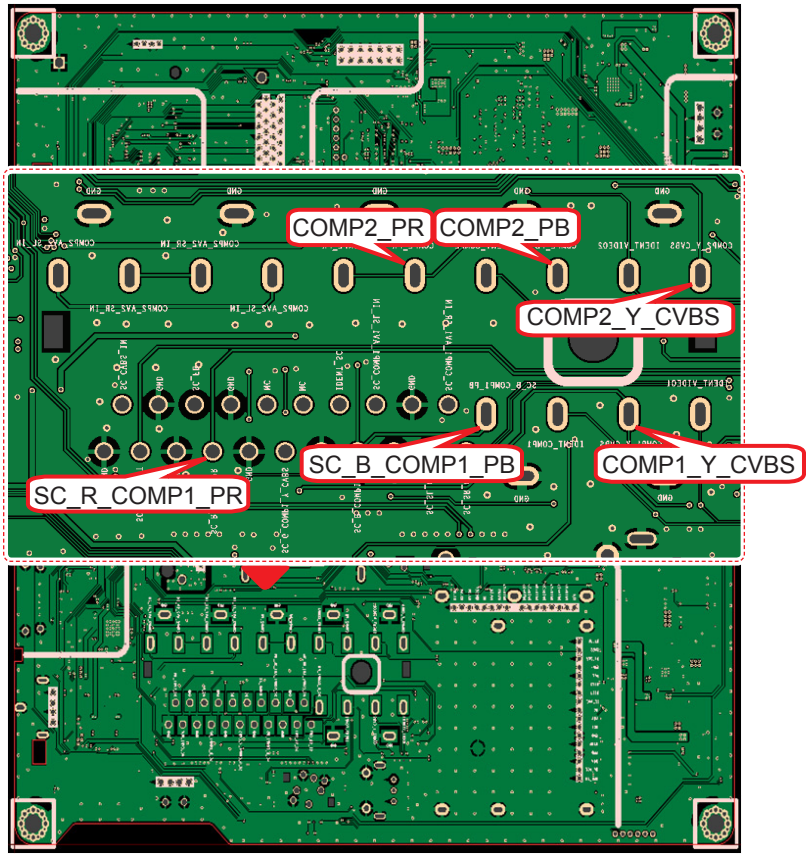
Main Board (Bottom)_X5



Main Board (Top)_X9



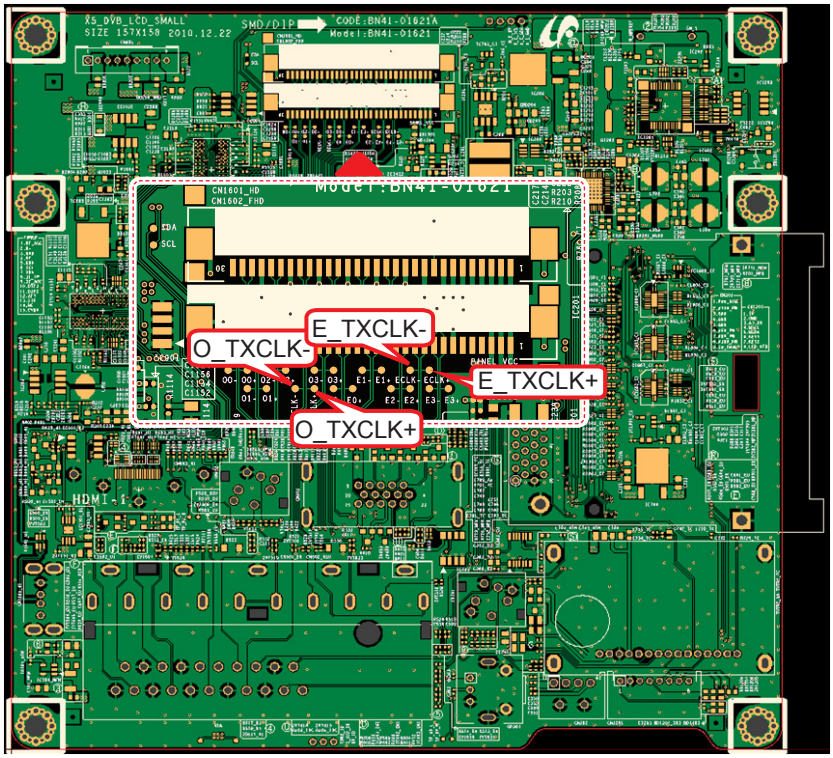
Main Board (Bottom)_X9



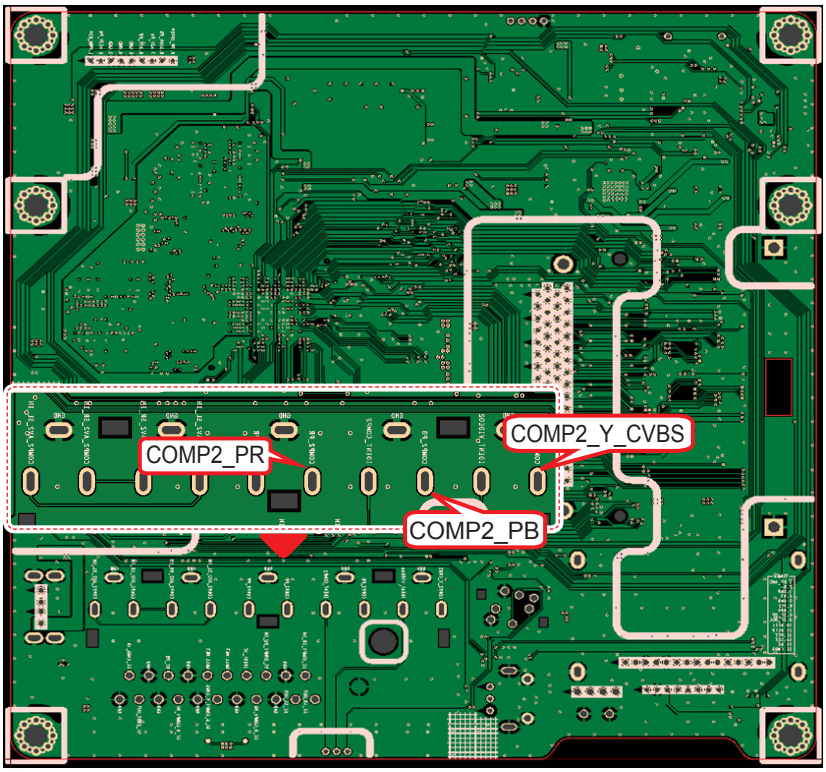
■ LD450_19" 22"

Symptom	– Audio is normal but no picture is displayed on the screen.
Major Check points	– Check the Component source – Check the chelsea. – This may happen when the LVDS cable connecting the Main Board and the Panel is disconnected.
Diagnostics	
Caution	Make sure to disconnect the power before working on the IP board.

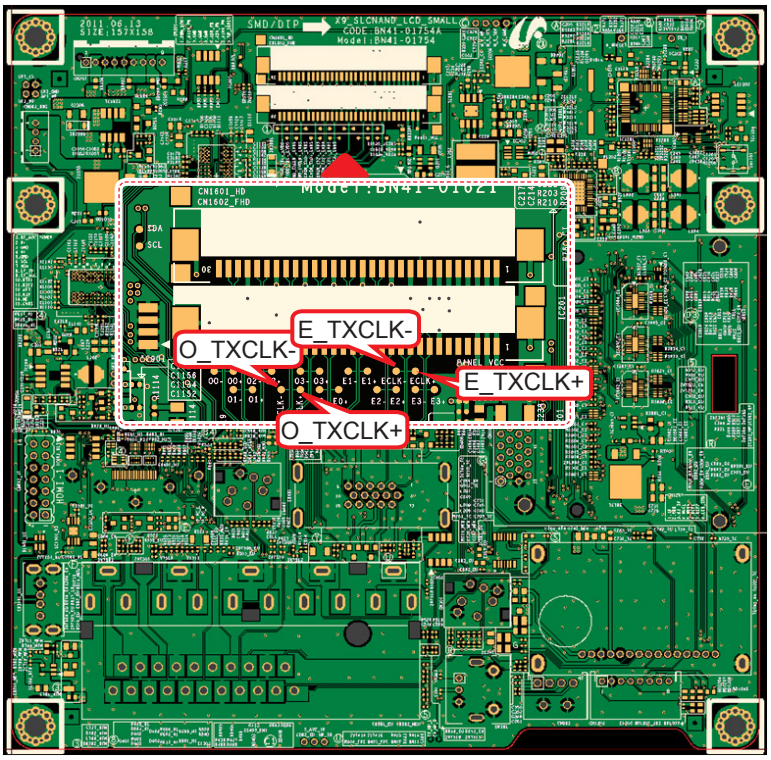
Main Board (Top)_X5



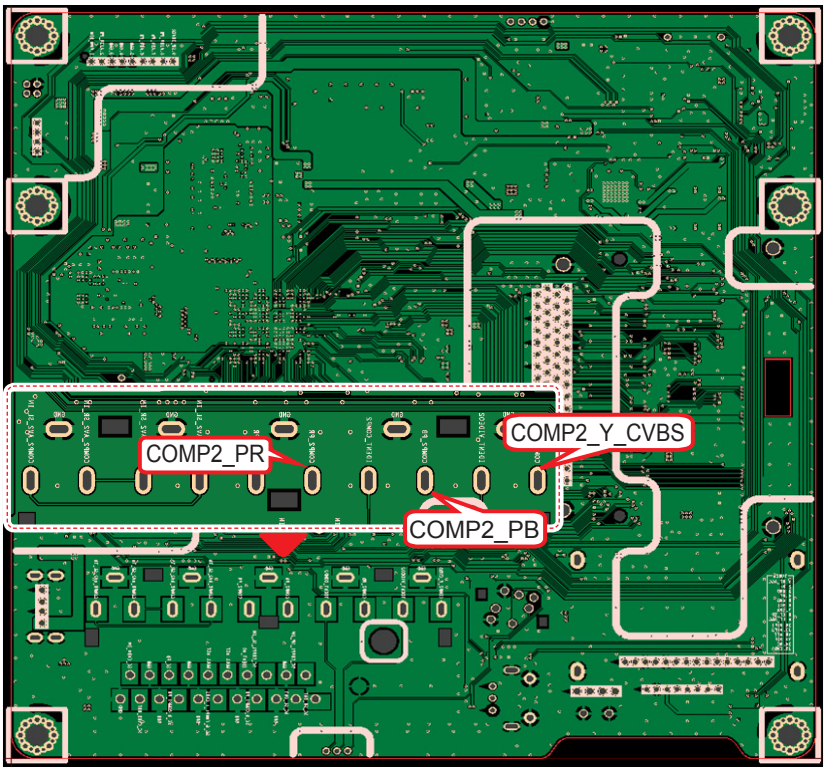
Main Board (Bottom)_X5



Main Board (Top)_X9

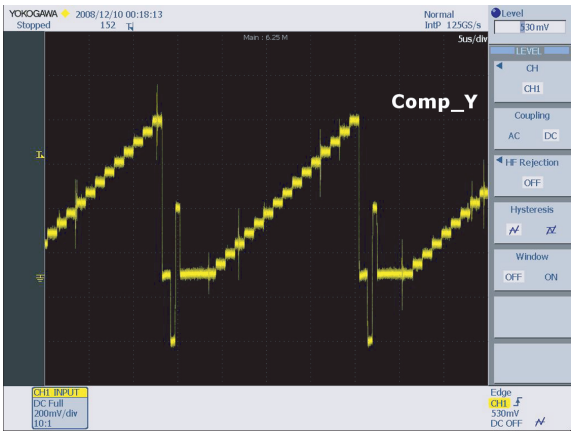


Main Board (Bottom)_X9

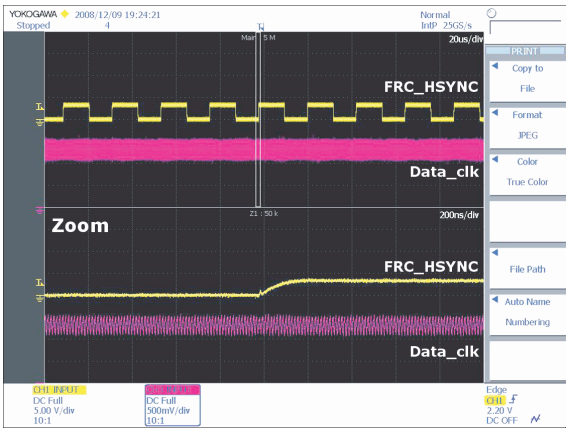


■ WAVEFORMS

❺	**Compnent_Y (Gray scale) / Pb / Pr (Color bar)**

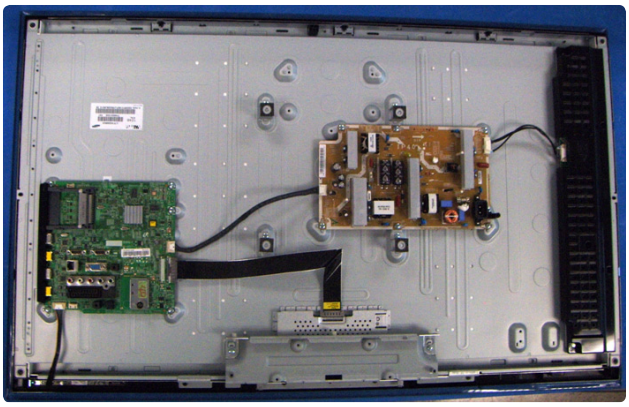


❷	**LVDS Output**

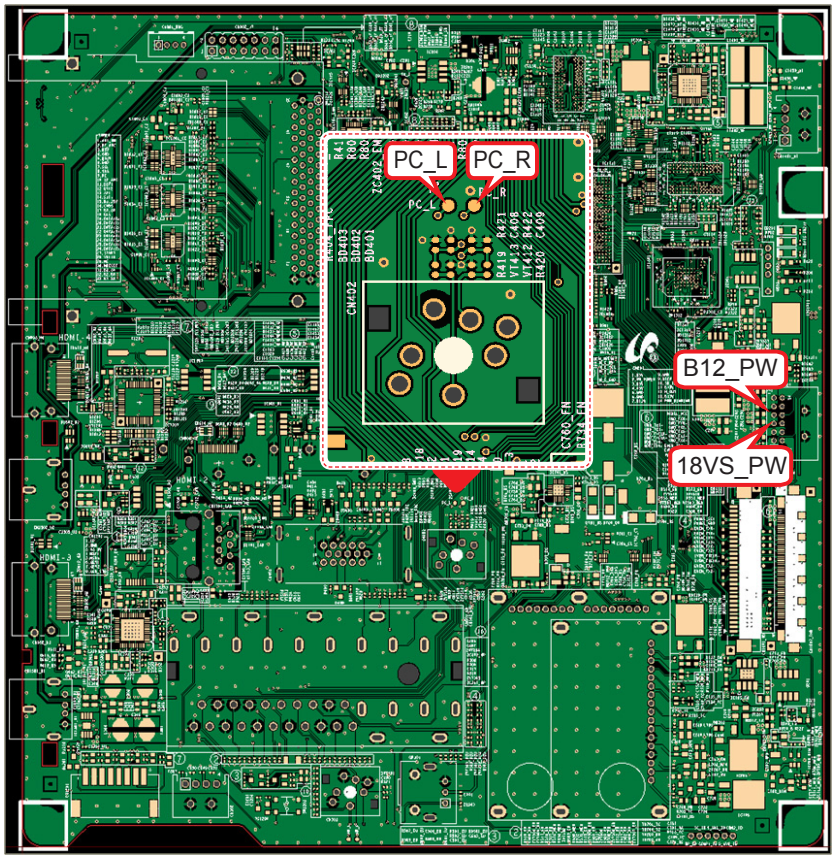


4-1-9. No Sound

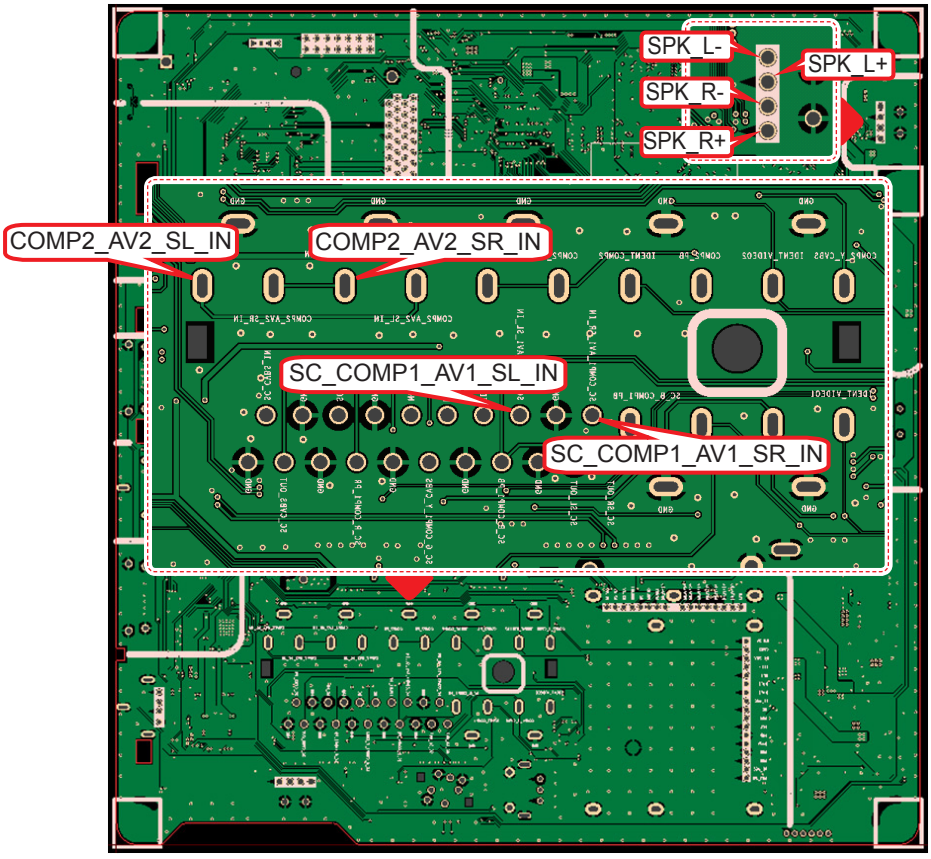
■ LD550_LD450_26" 32" 37" 40" 46"

Symptom	– Video is normal but there is no sound..
Major Check points	– When the speaker connectors are disconnected or damaged. – When the sound processing part of the Main Board is not functioning. – Speaker defect.
Diagnostics	
Caution	Make sure to disconnect the power before working on the IP board.

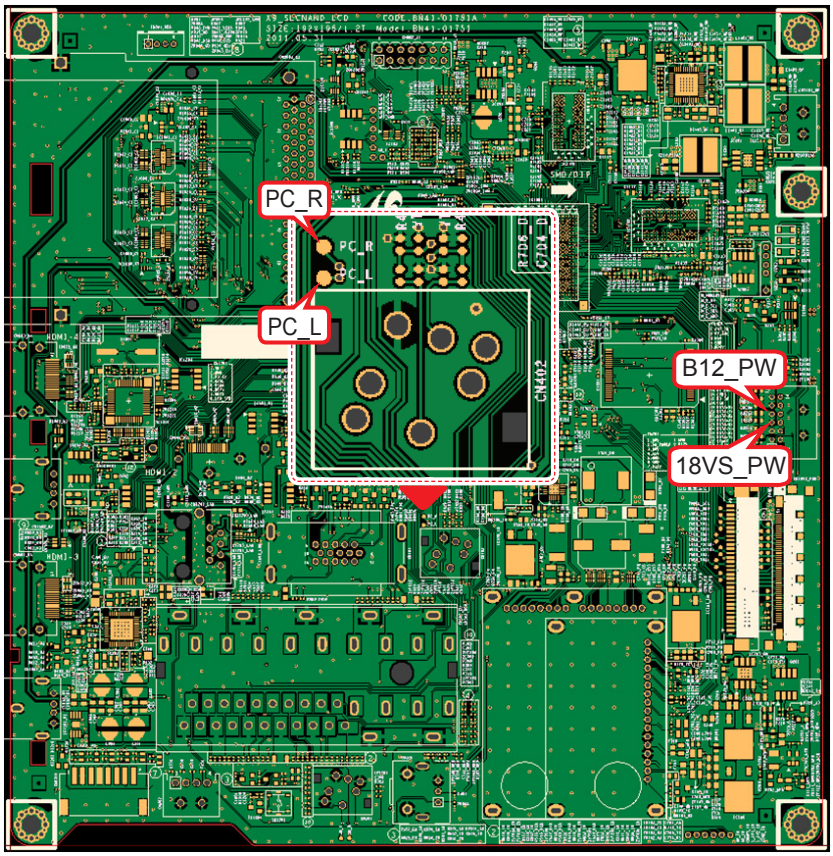
Main Board (Top)_X5



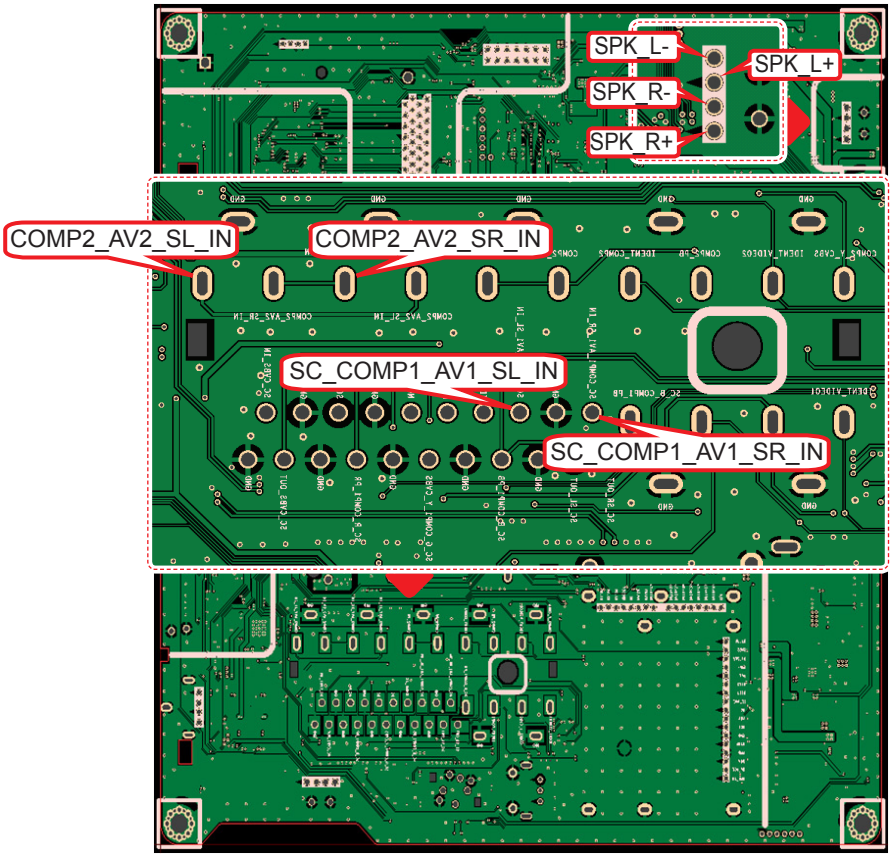
Main Board (Bottom)_X5



Main Board (Top)_X9



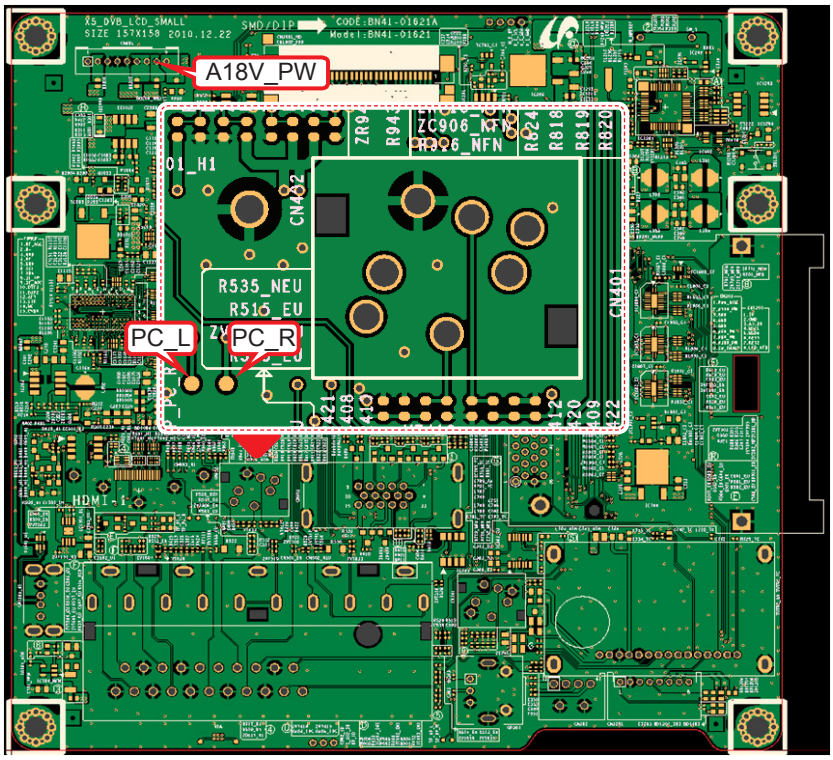
Main Board (Bottom)_X9



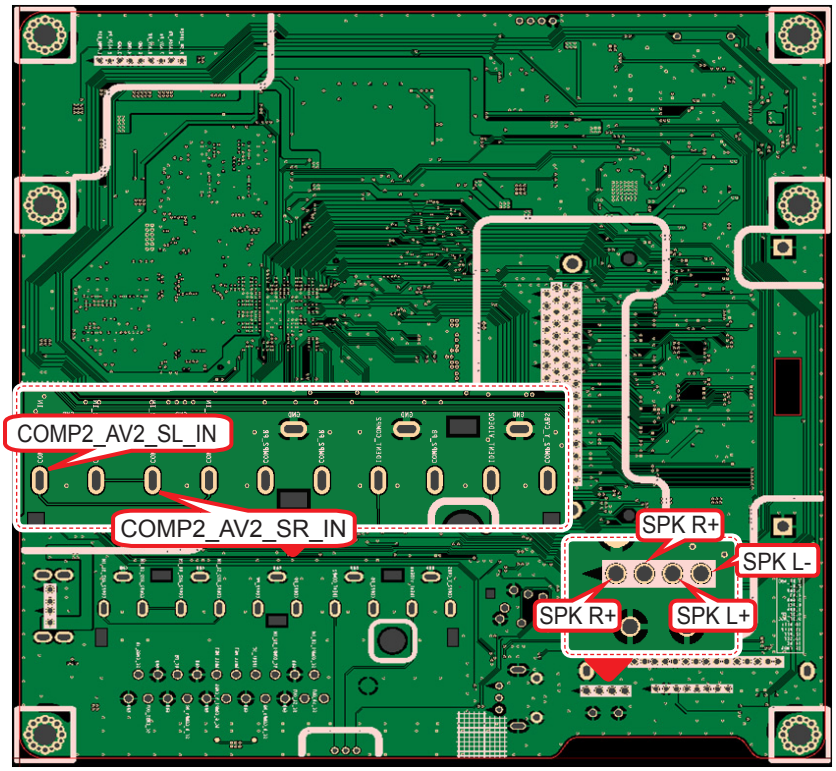
■ LD450_19" 22"

Symptom	– Video is normal but there is no sound..
Major Check points	– When the speaker connectors are disconnected or damaged. – When the sound processing part of the Main Board is not functioning. – Speaker defect..
Diagnostics	
Caution	Make sure to disconnect the power before working on the IP board.

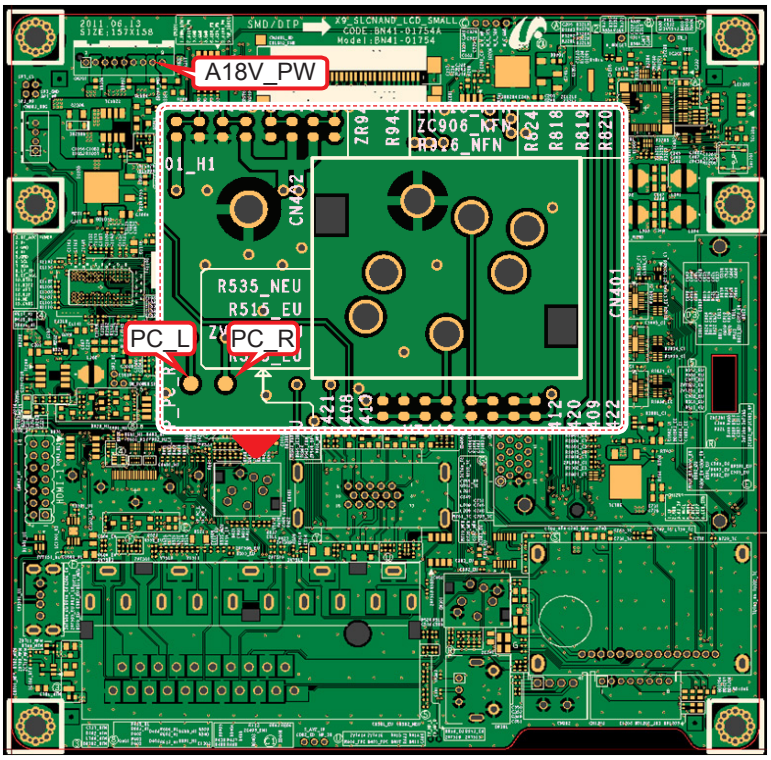
Main Board (Top)_X5



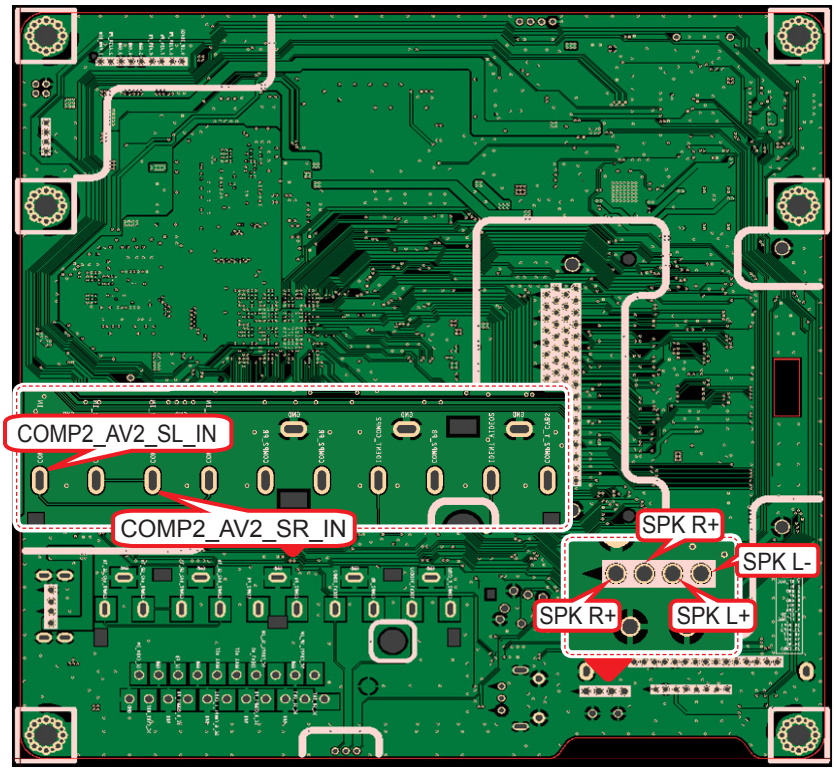
Main Board (Bottom)_X5



Main Board (Top)_X9

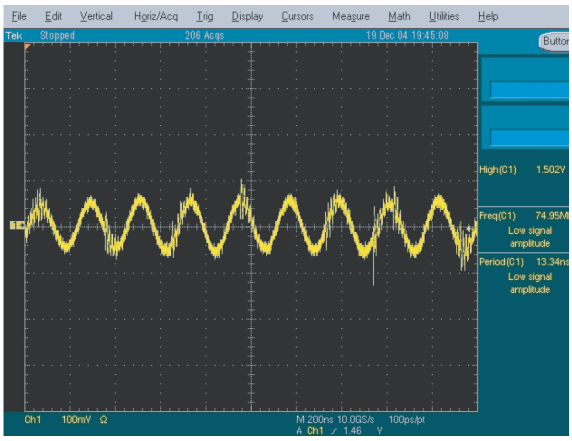


Main Board (Bottom)_X9

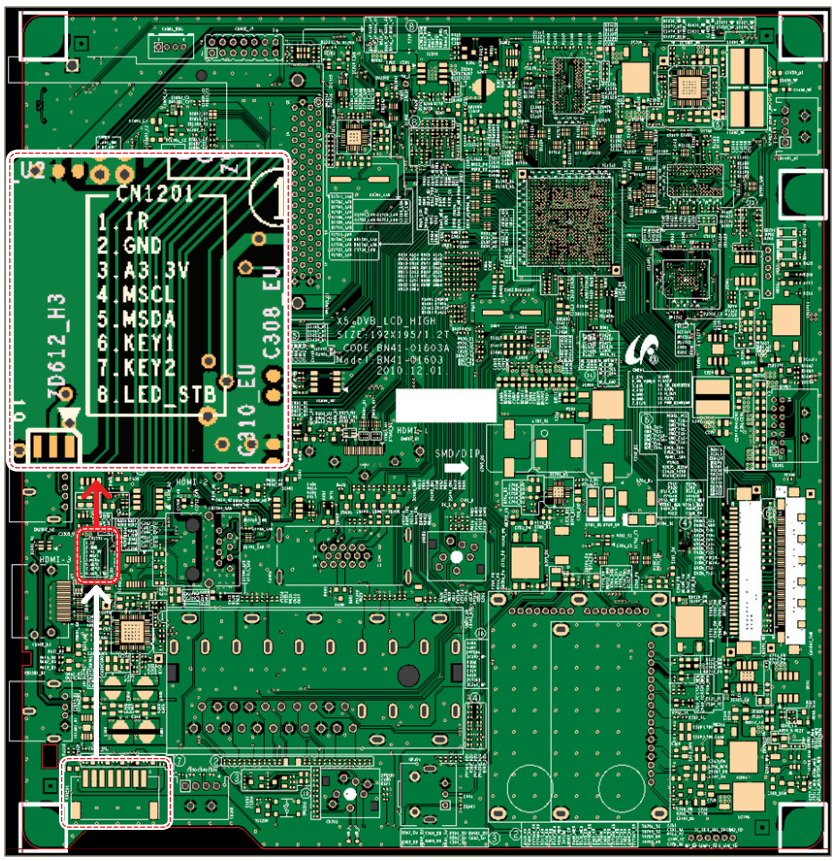
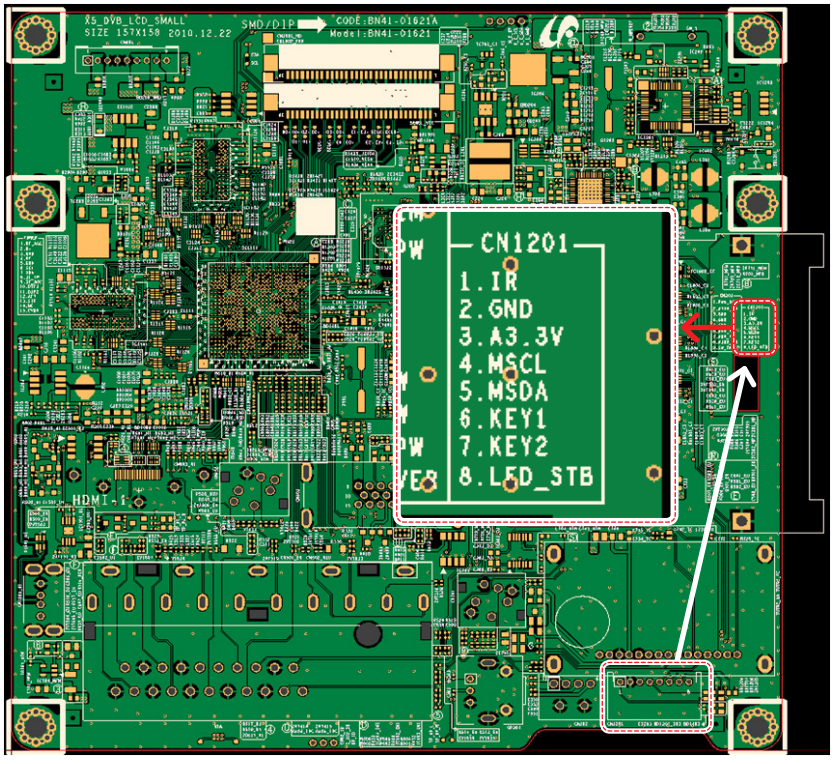


■ WAVEFORMS

❻	**Speaker Out**



4-1-10. Position of Function Pin Assignment Silk

LD550_LD450_26" / 32" / 37" / 40" / 46"

LD450_19" / 22"


4-2. Alignments and Adjustments

4-2-1. General Alignment Instuction

1. Usually, a color LCD-TV needs only slight touch-up adjustment upon installation. Check the basic characteristics such as height, horizontal and vertical sync.
2. Use the specified test equipment or its equivalent.
3. Correct impedance matching is essential.
4. Avoid overload. Excessive signal from a sweep generator might overload the front-end of the TV. When inserting signal markers, do not allow the marker generator to distort test result.
5. Connect the TV only to an AC power source with voltage and frequency as specified on the backcover nameplate.
6. Do not attempt to connect or disconnect any wire while the TV is turned on. Make sure that the power cord is disconnected before replacing any parts.
7. To protect against shock hazard, use an isolation transformer.

4-3. Factory Mode Adjustments

4-3-1. Entering Factory Mode

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

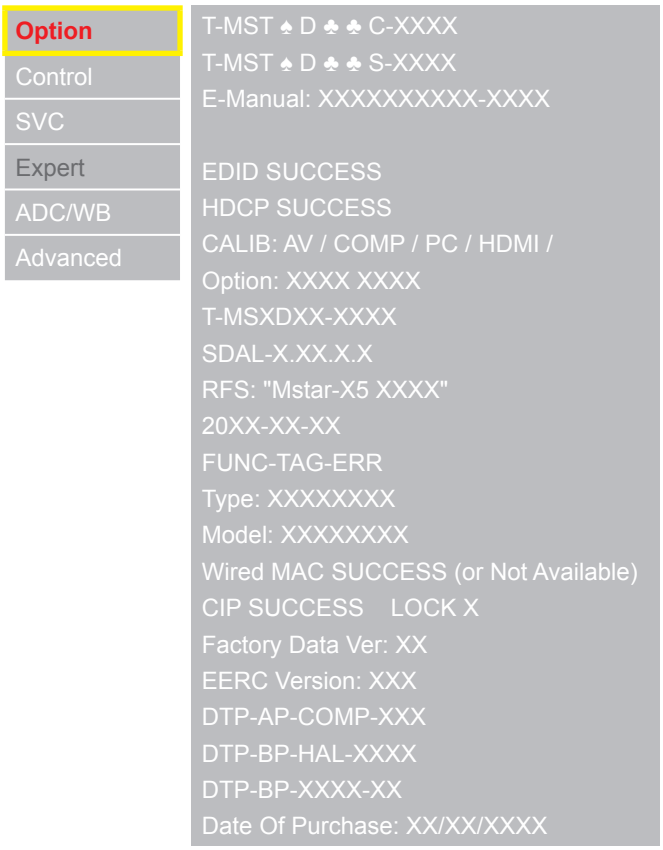
- If you do not have Factory remote - control

Power OFF → INFO → MENU → MUTE

4-3-2. How to Access Service Mode

Using the Customer Remote

1. Turn the power off and set to stand-by mode.
2. Press the remote buttons in this order; POWER OFF- INFO - MENU - MUTE to turn the set on.
3. The set turns on and enters service mode. This may take approximately 20 seconds.
4. Press the "Power" button to exit and store data in memory.
   - If you fail to enter service mode, repeat steps 1 and 2 above.
5. Initial SERVICE MODE DISPLAY State



♠	OPTION (Option-Model)	
5	X6-TV	UD5500 / UD5700
4	X5-TV / X9-TV	LD400/LD450/LD480/LD550/ LD570/LD580/UD4000/ UD4010/UD5000
M	X5-MFM	TA350 / TA550
♣ ♣	OPTION (Option-Local Set)	
EU	EU/EU_*/NORDIG/CIS_*/AD_*	
AA	EA_*/ED_*	

How to enter the hidden factory mode.

- into the factory mode
- move the tap to Advanced
- key input: 0 + 0 + 0 + 0
- hidden menu: Advanced

6. Buttons operations withn Service Mode

Menu	Full Menu Display/Move to Parent Menu
Direction Keys ▲/▼	Item Selection by Moving the Cursor
Direction Keys ◄/►	Data Increase / Decrease for the Selected Item
Source	Cycles through the active input source that are connected to the unit

4-3-3. Factory Data

Option			
Factory Name	**Data**	**Range**	**Use**
Factory Reset			
Type		19A6TH0C/19I6TH0C/22D6TF0C/22I6TF0C/26A6AH0C/26D6AH0C/26L6AH0C/32A6AF0C/32A6AH0C/32D6AF0C/32L6AH0C/37L6AF0C/40A6AF0C/40D6AF0C/40L6AF0C/46A6AF0C/46D6AF0C/19A6TH0E/19L6TH0E/22D6TF0E/22L6TF0E/23A6TF0E/24L6TF0E/27A6TF0E/32A6AH0E/32A6UF0E/32P6AH0E/32P6UF0E/32L6UF0E/32L6AH0E/37P6UF0E/40A6UF0E/40P6UF0E/40H6UF0E/46A6UF0E/46P6UF0E/43DHHcD/51DFHcD/51DHHcD/51DSArD/51DSCrD/59DFHcD/59DSArD/59DSCrD/64DFHcD/64DSCrD	Select Panel Type ❶❷: inch ❸: vendor ❹: refresh ❺: POL ❻: resolution ❼: multi ❽: BLU
Local Set	EU	EU/EU_ITALY/EU_GER/EU_FRANCE/EU_BENELUX/EU_UK/EU_ARMENIA/NORDIG/AD_AU/AD_NZ/AD_SINGAPOL/CIS_RUSIA/CIS_UKRINA/CIS_KAZAKH/EU_TURKEY/EU_AFRICA/EU_MOROCO/EA_VIET/EA_THAI/EA_INA/EA_CHINA/EA_INDIA/EA_SRILANKA/EA_NEPAL/EA_BANGLA/EA_IRAN/EA_ISRAEL/EA_EGYPT/EA_LIBYA/EA_CIS/EA_M_ASIA/EA_IRAQ/EA_ARAB/EA_SAUDI/EA_PAKISTAN/EA_E_ASIA/EA_AFRICA/EA_S_AFRICA/EA_MAL/EA_PHI/ED_IRAN/ED_VIET/ED_INA/ED_ISRAEL/COLOMBIA/TAIWAN	Select Area
Model	LD550	LD400/LD450/LD480/LD550/LD570/LD580/UD4000/UD4010/UD5000/UD5500/UD5550/UD5700/PD450/PD451/PD460/PD490/PD491/PD540/PD541/PD550/PD551/PD560/PD570/PD6400/PD6500/PD6600/PD6900/PD7000/LD460H/LD463H/LD467H/LD468H/LD560H/LD568H/LD580H/UD4000H/UD5000H/UD5500H	Select Model
TUNER	SEC_TC	SEC_ATSC/SEC_TC/ALPS_TC/SI_TCS/SI_T2/SEC_ISDB/SEC_ATC/SI_ATC/SI_TW	EU/AU (DVB-TC/DVB-T): SEC_TC Satellite (DVB-TCS): SI_TCS UK T2 (DVB-T2C): SI_T2 Ready: SEC_ATC
Ch Table		PBA/SUWON/SESK/SEH/SERK/SDMA_AU/SDMA_NZ/SDMA_SG/SEIN/SAVINA/SIEL_C/SIEL_N/TTSEC/TSED/TSE/IRAN/SESK-T2/SUWON-T2/INL	
Front Color		P-S-C-BK/P-S-R-BK/P-S-BK/P-S-B-BK/P-T-R-BK/P-T-C-BK/P-T-W-Bn/P-T-W-Gy/P-T-M-Bn/P-T-C-Gy/P-T-R-Gy/P-W-Milk/P-W-M-Wt/P-W-D-Gy/P-W-Vio/L-S-C-BK/L-S-R-BK/L-S-BK/L-S-B-BK/L-T-R-BK/L-T-C-BK/L-T-W-Bn/L-T-W-Gy/L-T-M-Bn/L-T-C-Gy/L-T-R-Gy/L-W-Milk/L-W-M-Wt/L-W-D-Gy/L-W-Vio/U-S-C-BK/U-S-R-BK/U-S-BK/U-S-B-BK/U-T-R-BK/U-T-C-BK/U-T-W-Bn/U-T-W-Gy/U-T-M-Bn/U-T-C-Gy/U-T-R-Gy/U-T-BL-M/U-T-BK-M/U-TC-L-M/U-W-Milk/U-W-M-Wt/U-W-D-Gy/U-W-Vio	LD4**: L-S-R-BK LD5**: L-T-C-BK UD40**: U-S-BK UD50**: U-T-C-BK UD55**/UD57**: U-T-R-BK

Control			
Factory menu Name			
EDID			
Sub Option			
Shop Option			
Sound			
Factory Name	**Data**	**Range**	**Use**
EDID			
EDID ON/OFF	OFF	Download EDID data to EEPROM. 1. Set "ON" of EDID ON/OFF 2. Go EDID WRITE ALL and Push "Enter" or "▷" button. 3. 3. If You See Success message, SET "OFF" of EDID ON/OFF Case of HDMI 1.2 EDID Service 1. Go EDID VER and Set HDMI 1.2 2. Go EDID PORT and Select HDMI port	
EDID WRITE ALL	…		
EDID WRITE PC	…		
EDID WRITE HDMI	…		
EDID WRITE HDMI1	…		
EDID WRITE HDMI2	…		
EDID WRITE HDMI3	…		
EDID WRITE HDMI4	…		
EDID VER	…		
EDID PORT	…		
EDID WRITE DVI	…		
Sub Option			
RS-232 Jack	UART	Debug/Logic/UART	Select Setting of UART port. Initial value is "UART"
Watchdog	ON	ON/OFF	Select Watchdog. Initial value is "ON"
WD Count	0	255	Watchdog Count. Read Only.
Dimm Type	EXT	fixed	Select Dimming Type. Initial value is "EXT"
Lvds Format	JEIDA	JEIDA/VESA/19INCH	Select LVDS format. 19/22/27inch:"VESA" other inch:"JEIDA"
OTN Server Type	operating	operating/development	
OTN Test Server	OFF	OFF/ A/B/C/D/E Zone	
OTN Support	ON	ON/OFF	
OTN Reset		not modifyed	
OTN Duration	OFF	ON/OFF	
OTN Fail Test	OFF	ON/OFF	
View Log		not modifyed	
KEY SENSITIVITY	36	0~255	LD400: 72 LD45*/LD48*/LD5**: 36 UD40**: 38 UD50**: 41 UD55**/UD57**:36 TA350: 32 TA550: 34

Control				
Factory Name	**Data**	**Range**	**Use**	
			Local Set	WiFi
WIFI REGION	E	A~V	EU	E
			EU_Italy	E
			EU_Germany	E
			EU_France	E
			EU_Benelux	E
			EU_UK	E
			EU_Armenia	A
			NORDIG	E
			AD_Au	E
			AD_NZ	H
			AD_Singapol	F
			CIS_Rusia	C
			CIS_Ukraina	B
			CIS_Kazakhstan	C
			EU_Turkey	A
			EU_Africa	H
			EU_Moroco	A
			EA_Vietnam	F
			EA_Thai	B
			EA_INA	N
			EA_China	N
			EA_India	F
			EA_Srilanka	R
			EA_Nepal	J
			EA_Bangladesh	F
			EA_Iran	M
			EA_Israel	H
			EA_Egypt	F
			EA_Libya	E
			EA_CIS	A
			EA_MidAsia	A
			EA_Iraq	A
			EA_Arab	E
			EA_Saudi	O
			EA_Pakistan	M
			EA_EastAsia	A
			EA_Africa	A
			EA_S_Africa	E
			EA_Malaysia	O
			EA_PHI	B
			ED_Iran	M
			ED_Vietnam	F
			ED_INA	N
			ED_Israel	H

Control			
Factory Name	**Data**	**Range**	**Use**
Hotel Option			
Hotel Hospitality	OFF		
Shop Option			
Shop Mode	OFF	ON/OFF	
Shop Mode	OFF	ON/OFF	
Exhibition Mode	OFF	ON/OFF	
Sound			
High Devi	OFF	ON/OFF	
Carrier_Mute	OFF	ON/OFF	
Speaker Delay Normal	10	0~255	Audio delay for Lipsync
Pilot Level High Thld	0x28h	0x00~0xff	Control for ATV sound of stereo /multiplex
Pilot Level Low Thld	0x10h	0x00~0xff	Control for ATV sound of stereo /multiplex
Speaker EQ	ON	ON/OFF	Control for sound precision

SVC			
Factory menu Name	**Data**	**Range**	**Use**
Test Pattern			
Panel Auto Setting			
Panel Display Time	0Hr		
Logic Usb D/L	off		
Tuner Status			
T-CON Usb Download			
MICOM UPGRADE	off		Set ON→Sub micom upgrade, after upgrade Main Micom (over 5 minutes)
BT ADDRESS	0		
BT UPGRADE			
SVC Reset			
Factory Name	**Data**	**Range**	**Use**
Test Pattern			
Pattern Sel	OFF	OFF/White/Black/Red/Green/Blue/ Cross/OneDot/ColorBar/GrayStep	"Test for Input of Scaler. If you can see pattern well, there is problem at input of Scaler."
Logic Pattern Sel	…	Not modified	
Logic Level Sel	…	Not modified	
TUNER STATUS			
DVB			
ISDB-T			
DVB			
DVB			
SNR		Not modified	

SVC			
Factory menu Name	**Data**	**Range**	**Use**
BER		Not modified	
Singal Strength		Not modified	
Bandwidth		Not modified	
Frequency		Not modified	
LNA Status		Not modified	
FFT		Not modified	
Modulation		Not modified	
Code Rate		Not modified	
GI		Not modified	
Hier Modulation		Not modified	
Frequency Offset		Not modified	
Timing Offset		Not modified	
AGC		Not modified	
UCB		Not modified	
PLL Type		Not modified	
DEMOD Type		Not modified	
TPS LOCK		Not modified	
RS Lock		Not modified	
SSI		Not modified	
SQI		Not modified	
ISDB-T			
FFT Size_1		Not modified	
Guard Interval_1		Not modified	
Freq. Offset_1		Not modified	
SNR_1		Not modified	
IF AGC_1		Not modified	
TMCC Lock_1		Not modified	
TS Packet_1		Not modified	
Master Lock_1		Not modified	
A_Modulation_1		Not modified	
A_Code Rate_1		Not modified	
A_Timer InterLeave_1		Not modified	
A_Segments Num_1		Not modified	
A_Ber_1		Not modified	
B_Modulation_!		Not modified	
B_Code Rate_1		Not modified	
B_Timer InterLeave_1		Not modified	
B_Segments Num_1		Not modified	

SVC			
Factory menu Name	**Data**	**Range**	**Use**
B_BER_1		Not modified	
C_Modulation_1		Not modified	
C_Code Rate_1		Not modified	
C_Timer InterLeave_1		Not modified	
C_Segments Num_1		Not modified	
C_BER_1		Not modified	

ADC WB			
Factory Menu Name			
ADC			
ADC Target			
ADC RESULT			
WB			
Factory Name	**Data**	**Range**	**Use**
ADC			
AV Calibration	Success	Success / Failure	
Comp Calibration	Success	Success / Failure	
PC Calibration	Success	Success / Failure	
HDMI Calibration	Success	Success / Failure	
ADC Target			
1st_AV_Low	64	0 ~1020	
1st_AV_High	880	0 ~1020	
1st_AV_Delta	2	0 ~ 7	
1st_COMP_Y_Low	64	0 ~1020	
1st_COMP_Cb_Low	512	0 ~1020	
1st_COMP_Cr_Low	512	0 ~1020	
1st_COMP_Y_High	940	0 ~1020	
1st_COMP_Cb_High	512	0 ~1020	
1st_COMP_Cr_High	512	0 ~1020	
1st_COMP_Delta	2	0 ~ 7	
1st_PC_Low	4	0 ~1020	
1st_PC_High	1004	0 ~1020	
1st_PC_Delta	2	0 ~ 7	
2nd_ACH_Low	4	0 ~124	
2nd_ACH_High	940	0 ~1020	
Factory Name	**Data**	**Range**	**Use**
2nd_PC_Low	4	0 ~124	
2nd_PC_High	940	0 ~1020	

ADC WB			
Factory Menu Name			
2nd_Delta	2	0 ~ 7	
ADC RESULT			
1st_Y_GH	0	0 ~ 511	
1st_Y_GL	0	0 ~ 255	
1st_Cb_BH	0	0 ~ 511	
1st_Cb_BL	0	0 ~ 255	
1st_Cr_RH	0	0 ~ 511	
1st_Cr_RL	0	0 ~ 255	
2nd_R_L	0	0 ~ 255	
2nd_G_L	0	0 ~ 255	
2nd_B_L	0	0 ~ 255	
2nd_R_H	0	0 ~ 255	
2nd_G_H	0	0 ~ 255	
2nd_B_H	0	0 ~ 255	
WB	**Mode**		
Sub Brightness	128	0 ~ 255	
R_Offset	128	0 ~ 255	
G_Offset	128	0 ~ 255	
B_Offset	128	0 ~ 255	
Sub Contrast	128	0 ~ 255	
R_Gain	128	0 ~ 255	
G_Gain	128	0 ~ 255	
B_Gain	128	0 ~ 255	
Movie R Offset	512	0 ~ 1023	
Movie B Offset	512	0 ~ 1023	
Movie R Gain	512	0 ~ 1023	
Movie B Gain	512	0 ~ 1023	

4-4. White Balance - Calibration

4-4-1. White Balance -Calibration

1. Calibration	→	AV Calibration Comp Calibration PC Calibration HDMI Calibration

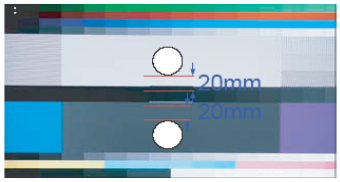
4-4-2. White Balance - Adjustment

		(low light)	(hight light)
3 .W / B	→	Sub Bright R offset G offset B offset	Sub Contrast R gain G gain B gain

(W/B adjustment Condition refer next page)

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. (Refer to Table 1, 2) It varies with Panel's size and Specification.
   - Equipment: CS-210
   - Pattern: MIK K-7256 #92 "Flat W/B Pattern" as standard
   - 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 #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 (PAL)

- If finishing in HDMI mode, adjustment coordinate is almost same in AV/COMP mode.
- White Balance Manual Adjustment

P-Mode		Adjustment Coordinate			
		x	y	Y (Luminance)	T (K) + MPCD
CVBS (PAL)	H/L	272	278	- (Sub_CT: 130)	12,000 (±0)
	L/L	272	278	12.6cd/m2 (3.7 Ft)	12,000 (±0)
COMP (720P)	H/L	272	278	- (Sub_CT: 130)	12,000 (±0)
	L/L	272	278	13.0cd/m2 (3.8 Ft)	12,000 (±0)
HDMI (720P)	H/L	272	278	- (Sub_CT: 130)	12,000 (±0)
	L/L	272	278	13.0cd/m2 (3.8 Ft)	12,000 (±0)

- Adjustment Specification
  - White Balance: High light (±1), Low light (±3)
  - Luminance: High light (Don't care), Low light (±0.2 Ft/L)

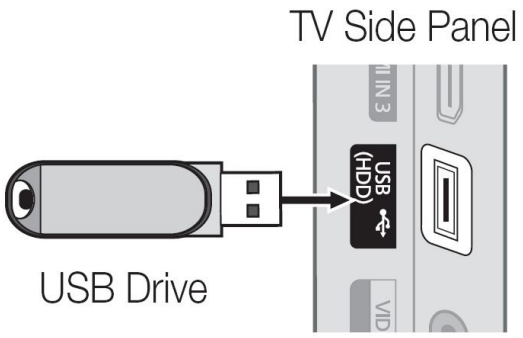
4-6. Servicing Information

4-6-1. USB Download Method (Main SW & E-Manual)

Samsung may offer upgrades for TV's firmware in the future. Upgrades will be possible by connecting a USB drive to the USB port located on your TV.

1. Insert a USB drive containing the firmware (T-MST4DEUC (X5) / T-MSV4DEUC (X9) upgrade into the USB port on the rear of the TV.
2. Press the "MENU" button to display the menu. Press the "▲" or "▼" button to select "Support", then press the ENTER button.
3. Press the "▲" or "▼" button to select "Software Upgrade", then press the "ENTER" button to select "By USB". The message "Scanning for USB. It may take up to 1 minute." is displayed.
4. The message "Upgrade version XXXX to version XXXX? The system will be reset after upgrade." is displayed. Press the "◄" or "►" to select the "OK", then press the "ENTER" button.

Please be careful to not 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. 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 so that you can easily reset them after the upgrade.

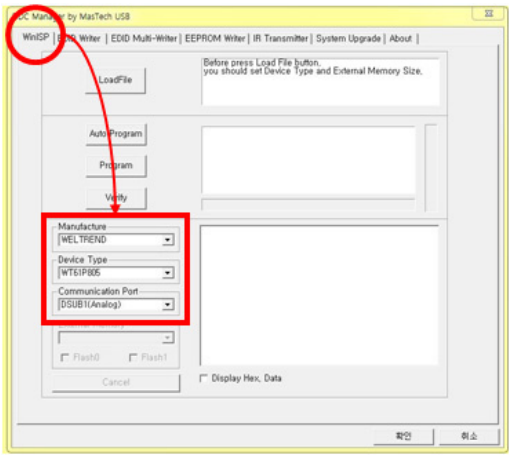
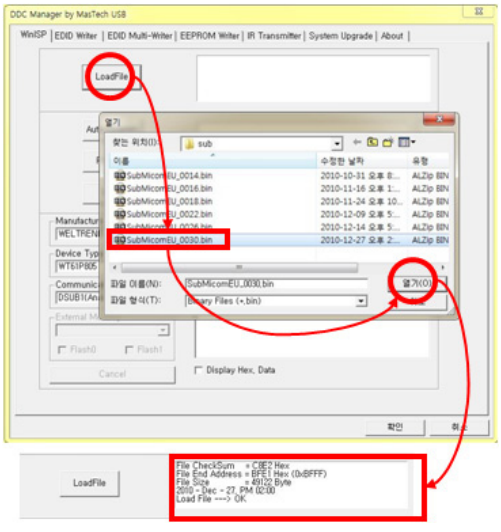


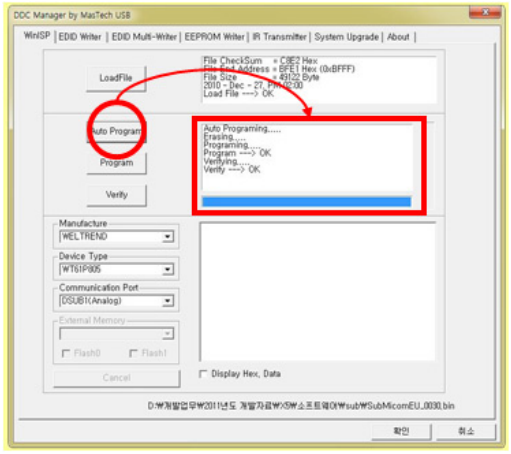
4-7. How To Upgrade Sub Micom

4-7-1. Sub S/W (with DDC Manager)

<table>
<tr><th>Order</th><th colspan="2">Description</th></tr>
<tr><td>1</td><td>Connect DDC MANAGER to the TV Set with D-SUB cable.
And Power on.
(USB type: MTI-2510 / parallel type: MTI-2059)</td><td>  </td></tr>
<tr><td>2</td><td>Open the DDC tool.
(Parallel type & USB type)
 

Check the setting.
<table><tr><td>Manufacture</td><td>WELTREND</td></tr><tr><td>Device Type</td><td>WT61P805</td></tr><tr><td>Communication Port</td><td>DSUB1 (Analog)</td></tr><tr><td>External Memory</td><td>-</td></tr></table></td><td>  </td></tr>
<tr><td>3</td><td>Load the sub micom program file.</td><td>  </td></tr>
</table>

Order	Description	
4	Push the "Auto Program" Button. (It takes about 15 seconds.)	
5	If update completes, TV set will booting automatically. Disconnect the JIG.	

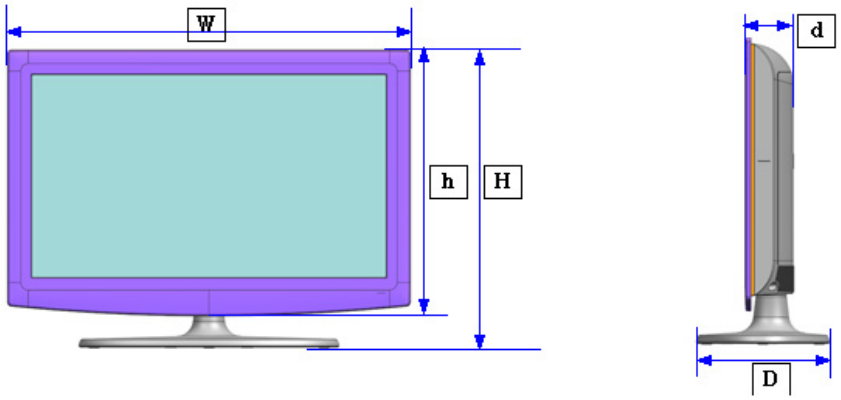
4-7-2. Sub S/W (in Factory Mode)

If you don't have DDC Manager, Use this method.

1. Into the Factory Mode.
2. Select "SVC". (use "▶" button.)
3. Select "MICOM UPGRADE off". (use "▶" button.)
4. If message change from "off" to "wait", TV is upgrading Sub S/W. (It takes about 5 min.)
5. If update completes, TV set will booting automatically.

4-8. Mechanical Diagram

■ LD450



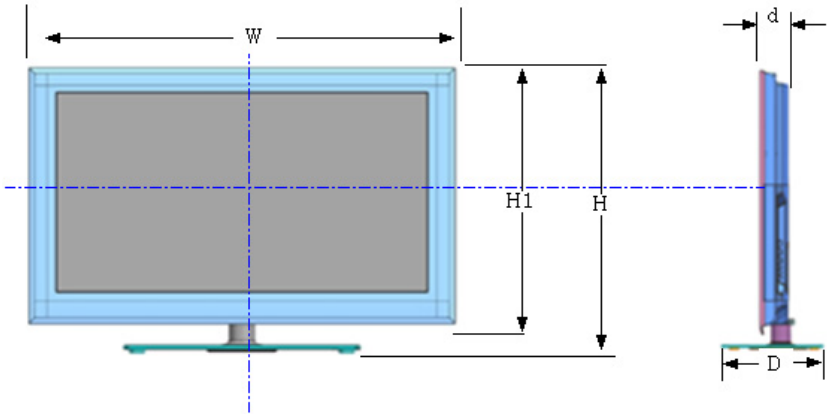
▶ LD450_Middle

		LE26D45*G*W	LE32D45*G*W	LE32D45*G*W
		Plastic	Plastic (CIS)	Press (EU)
Size [mm]	Set with Stand (W x D x H)	660.7 x 222.1 x 482.8	795.5 x 251.7 x 571.1	795.5 x 251.7 x 571.1
	Set without Stand (W x D x H1)	660.7 x 78.6 x 435.0	795.5 x 80.4 x 510.3	795.5 x 77.8 x 510.3
Weight [Kg]	Set with Stand	6.7	10.85	11.05
	Set without Stand	6.2	8.6	8.8

▶ LD450_Small

		LE19D45*G*W	LE22D45*G*W
		Plastic	Plastic
Size [mm]	Set with Stand (W x D x H)	476.5 x 160.7 x 356.1	543.4 x 171.6 x 395.9
	Set without Stand (W x D x H1)	476.5 x 63.3 x 315.7	543.4 x 61.9 x 353.5
Weight [Kg]	Set with Stand	4.2	5.2
	Set without Stand	4	5

■ LD550_LD570_LD580



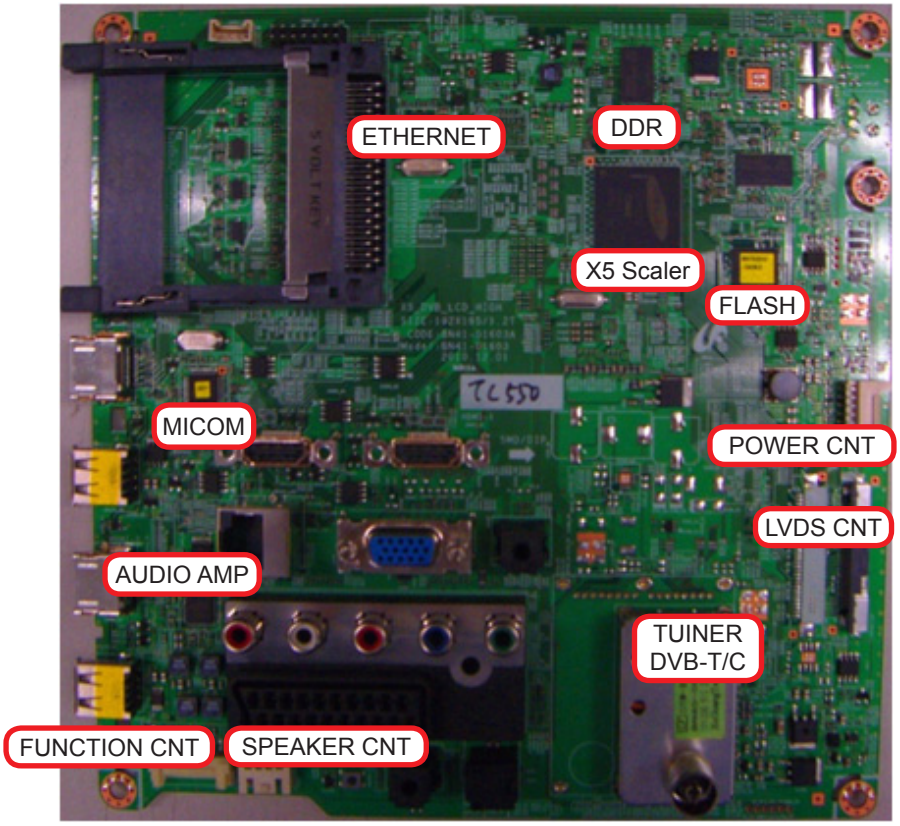
		LE32D55*K*W	LE32D55*K*W LE32D57*K*S LE32D58*K*K
		Plastic (CIS)	Press (EU)
Size [mm]	Set with Stand (W x D x H)	804.7 x 240.0 x 563.7	804.7 x 240.0 x 563.7
	Set without Stand (W x D x H1)	804.7 x 80.3 x 507.4	804.7 x 77.8 x 507.4
Weight [Kg]	Set with Stand	11.8	12
	Set without Stand	9.1	9.3

		LE37D55*K*W LE37D57*K*S LE37D58*K*K	LE40D55*K*W LE40D57*K*S LE40D58*K*K	LE46D55*K*W LE46D57*K*S LE46D58*K*K
		Press	Press	Press
Size [mm]	Set with Stand (W x D x H)	923.5 x 255.0 x 629.2	992.1 x 255.0 x 667.2	1124.1 x 275.0 x 742.8
	Set without Stand (W x D x H1)	923.5 x 78.5 x 573.2	992.1 x 80.4 x 611.0	1124.1 x 80.4 x 686.1
Weight [Kg]	Set with Stand	15.8	16.5	21.7
	Set without Stand	12.55	13.25	18.1

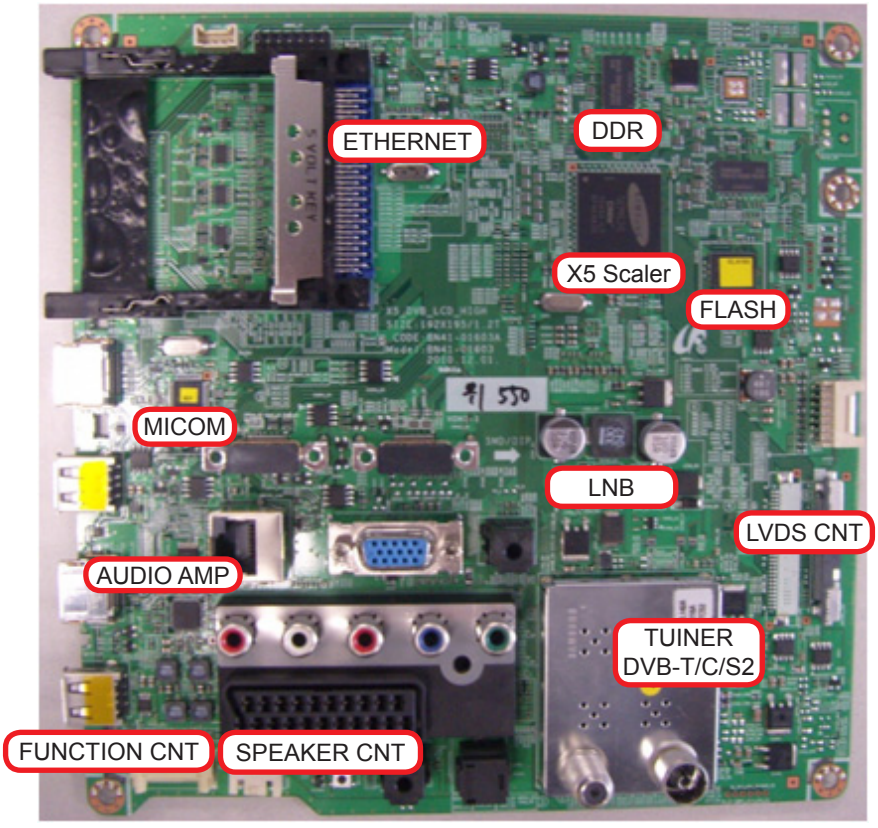
4-9. PCB Diagram

■ PCB Layout_X5

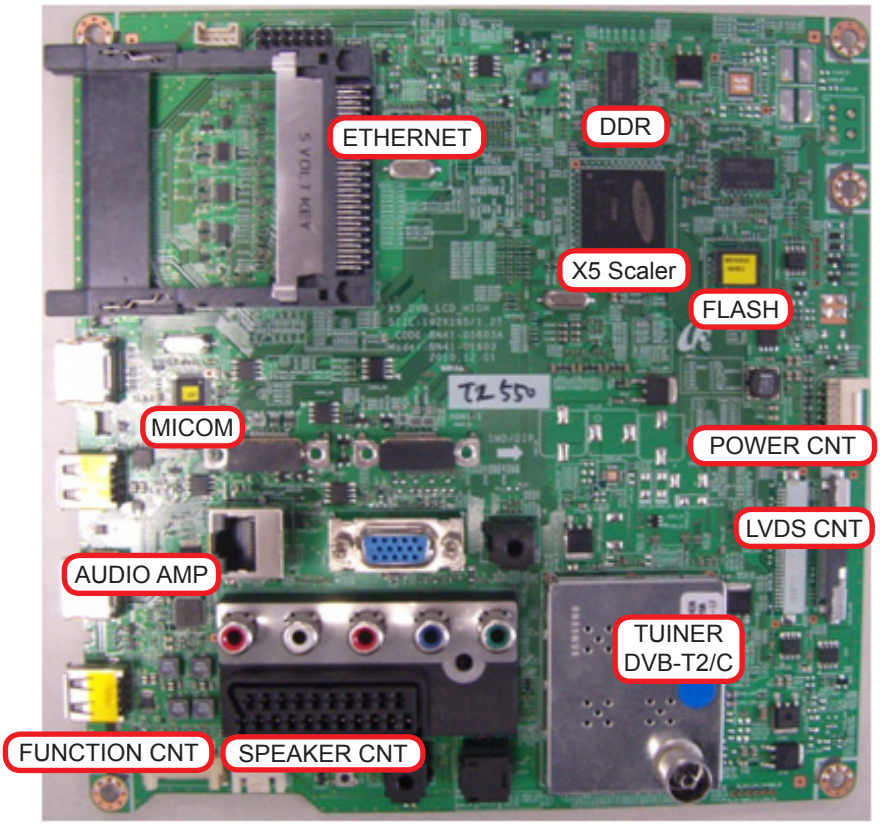
U56A - LD550 32" / 37" / 40" / 46"



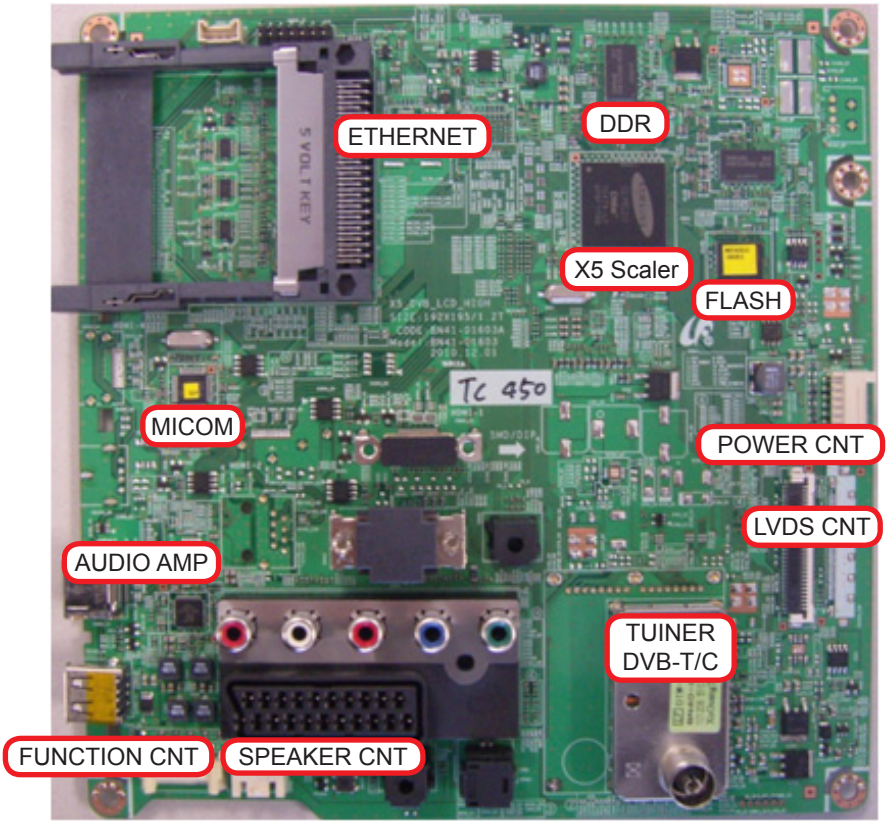
U56A - LD570 32" / 37" / 40" / 46"



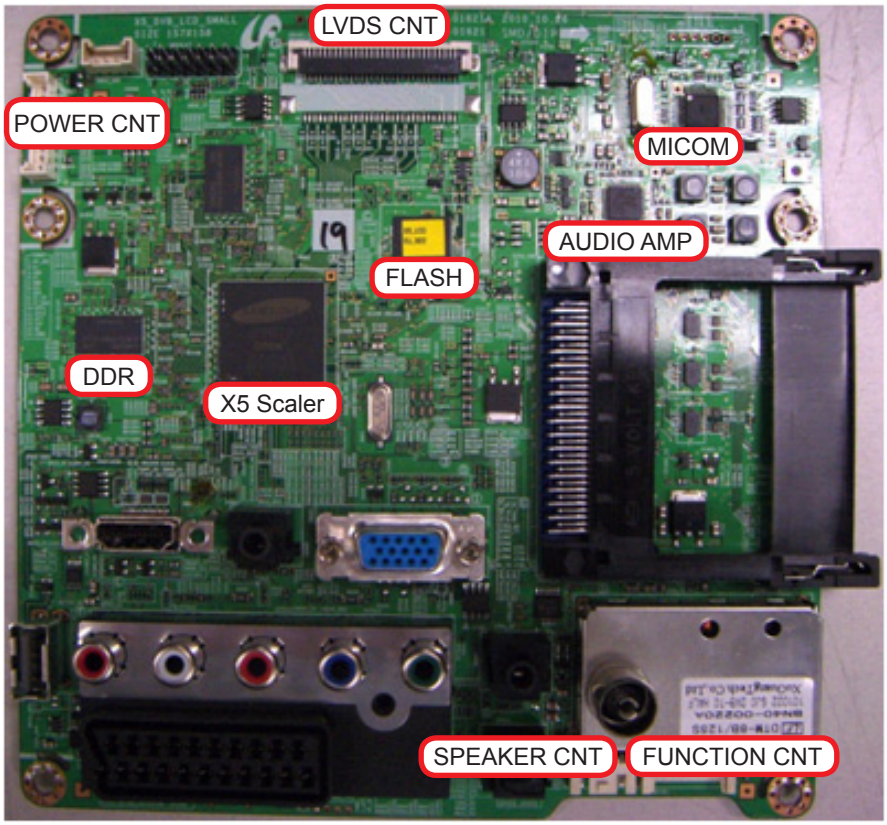
U56A - LD580 32" / 37" / 40" / 46"



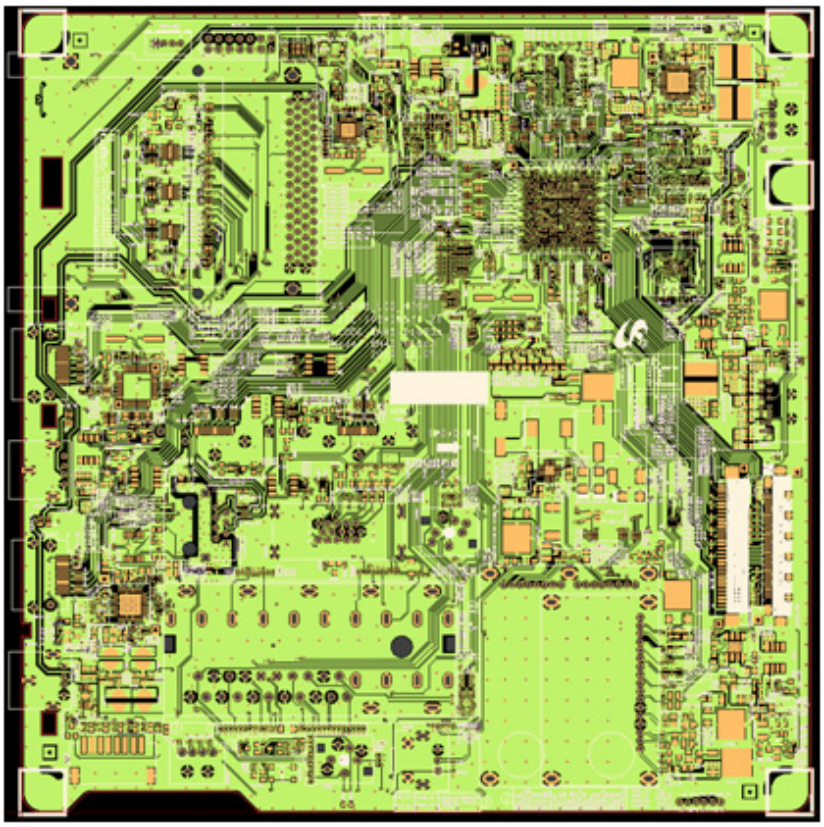
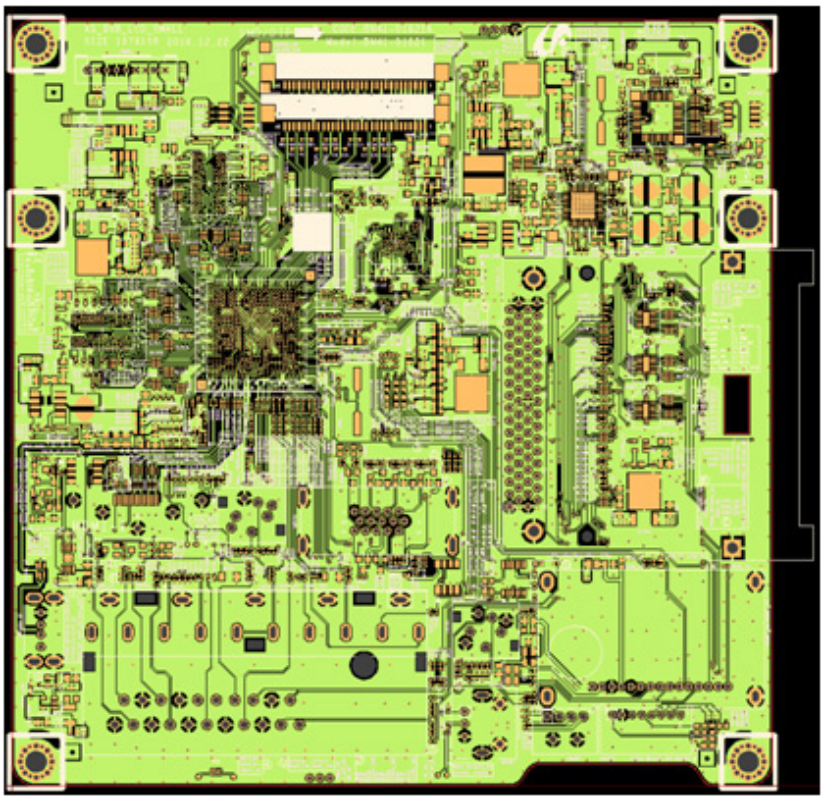
U56A - LD450 26" / 32"



U56B - LD450 19" / 22"

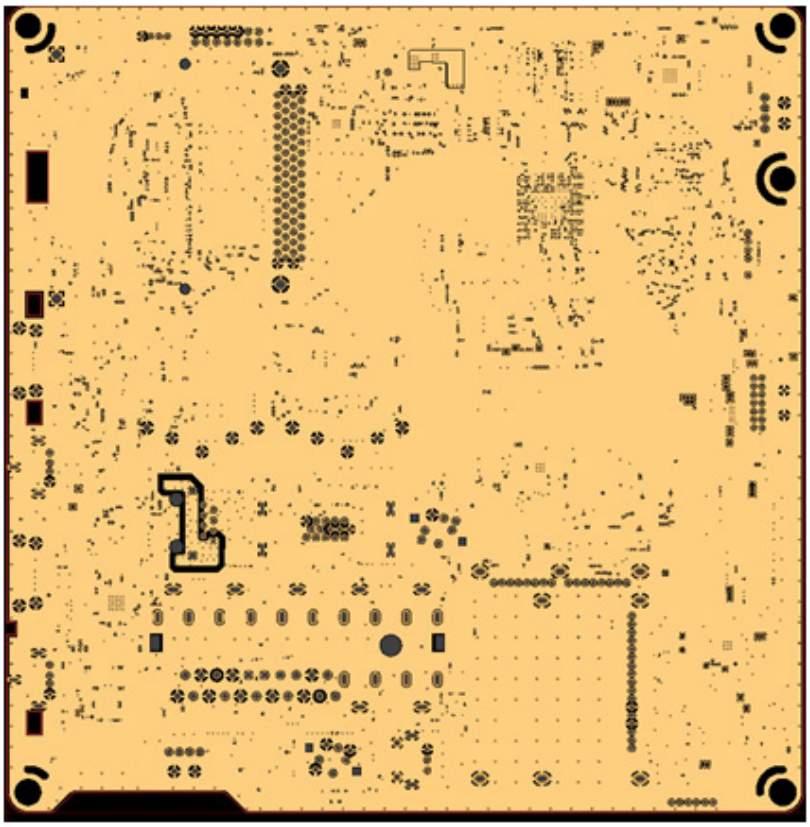


■ Main Top_X5

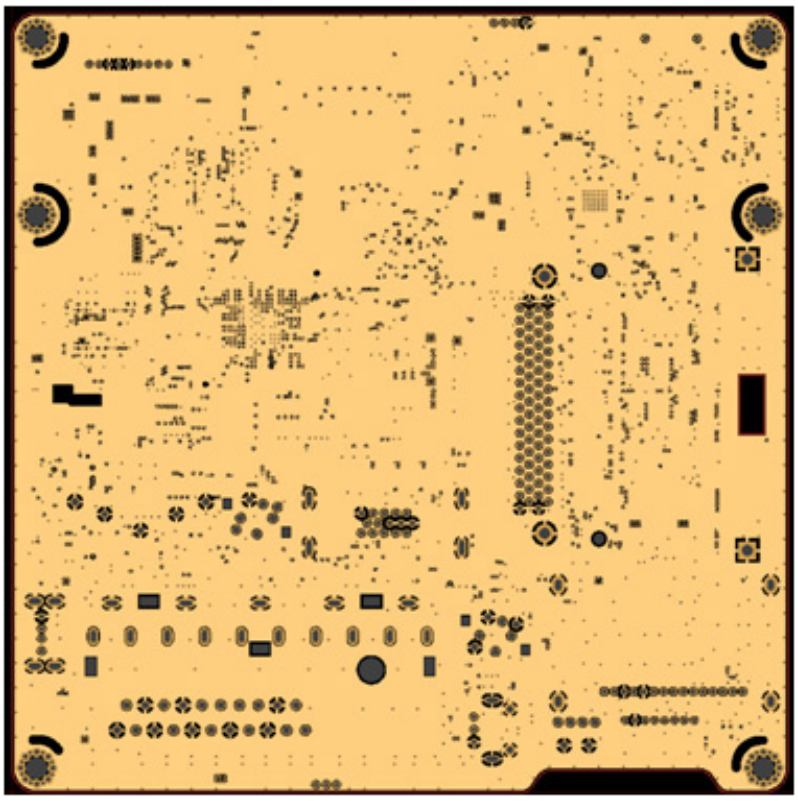
U56A - 26" / 32" / 37" / 40" / 46"

U56B - 19" / 22"


■ Main Inner (2)_X5

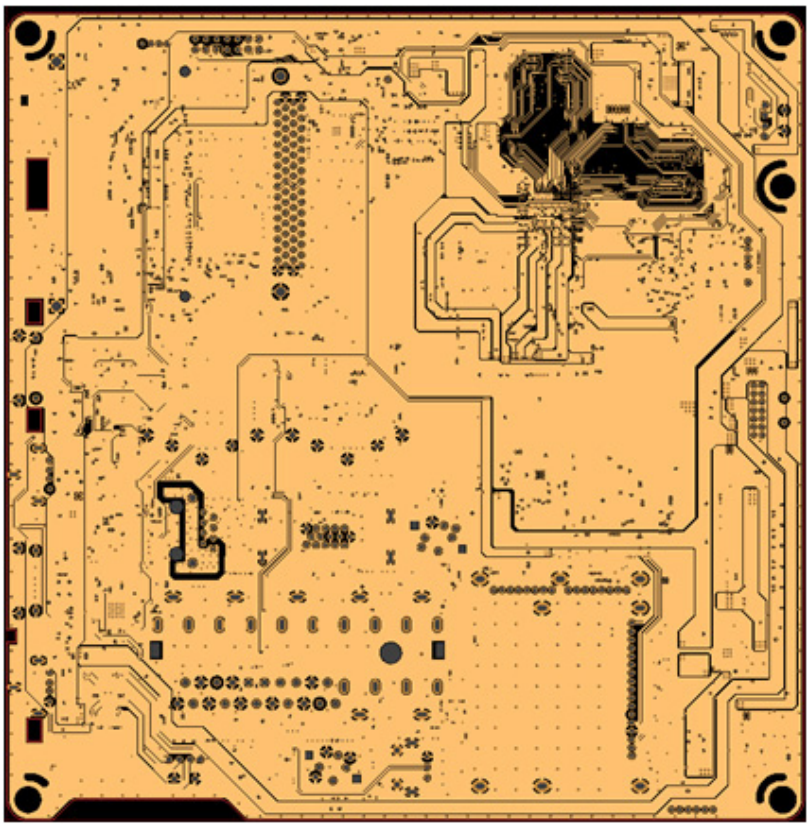
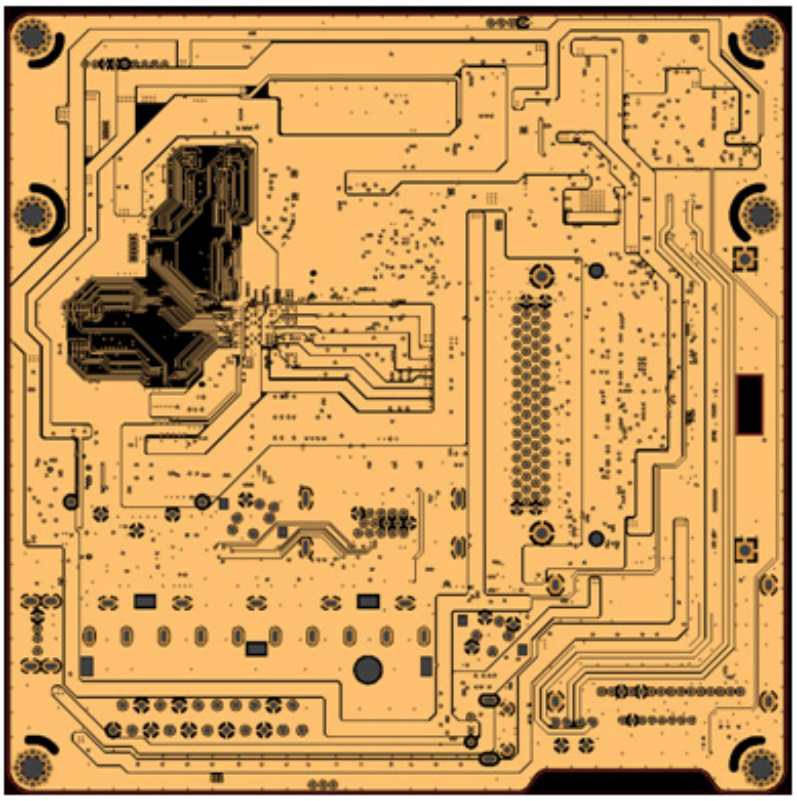
U56A - 26" / 32" / 37" / 40" / 46"



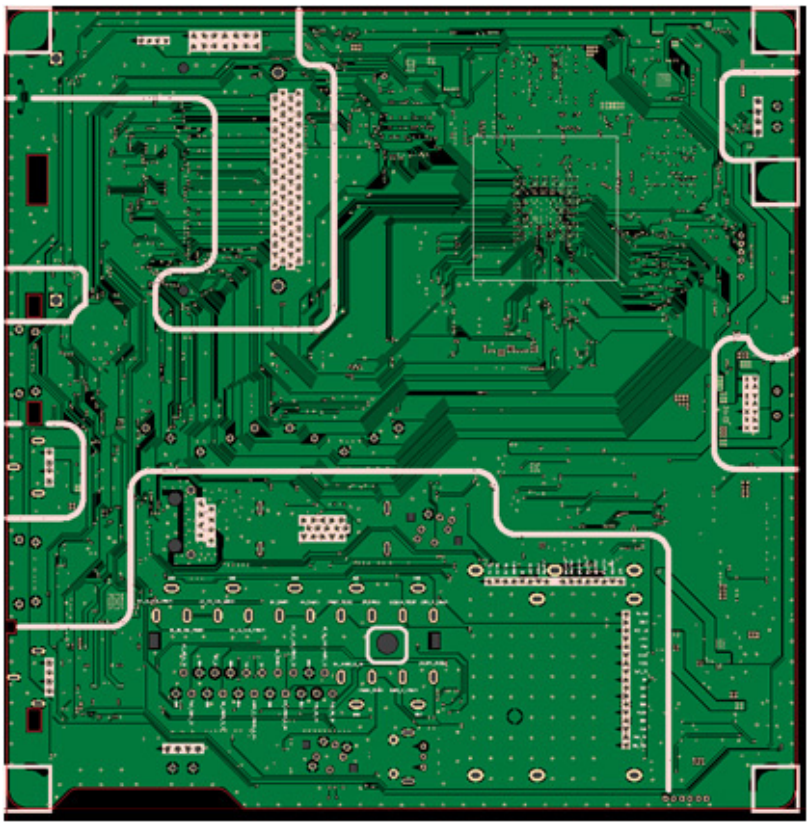
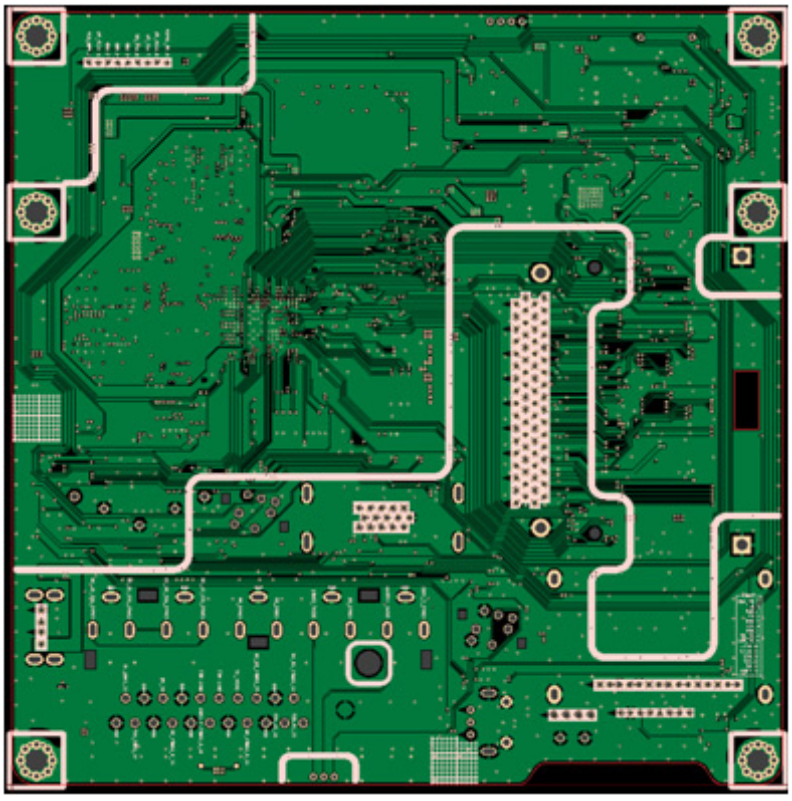
U56B - 19"/22"



■ Main Inner (3)_X5

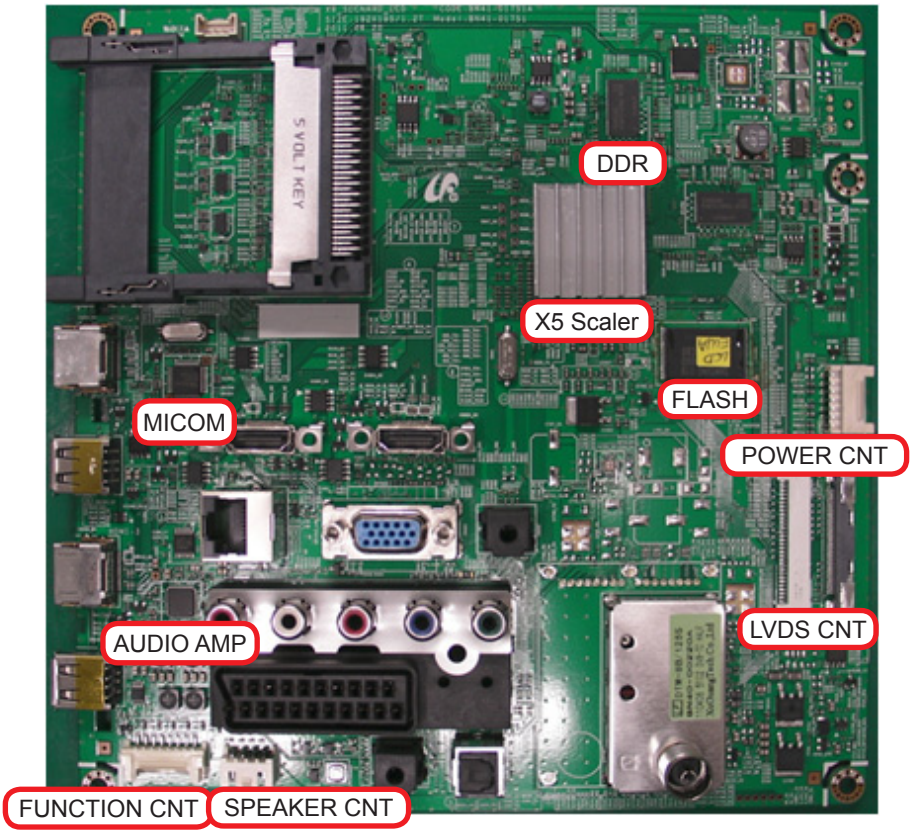
U56A - 26" / 32" / 37" / 40" / 46"

U56B - 19" / 22"


■ Main Bottom_X5

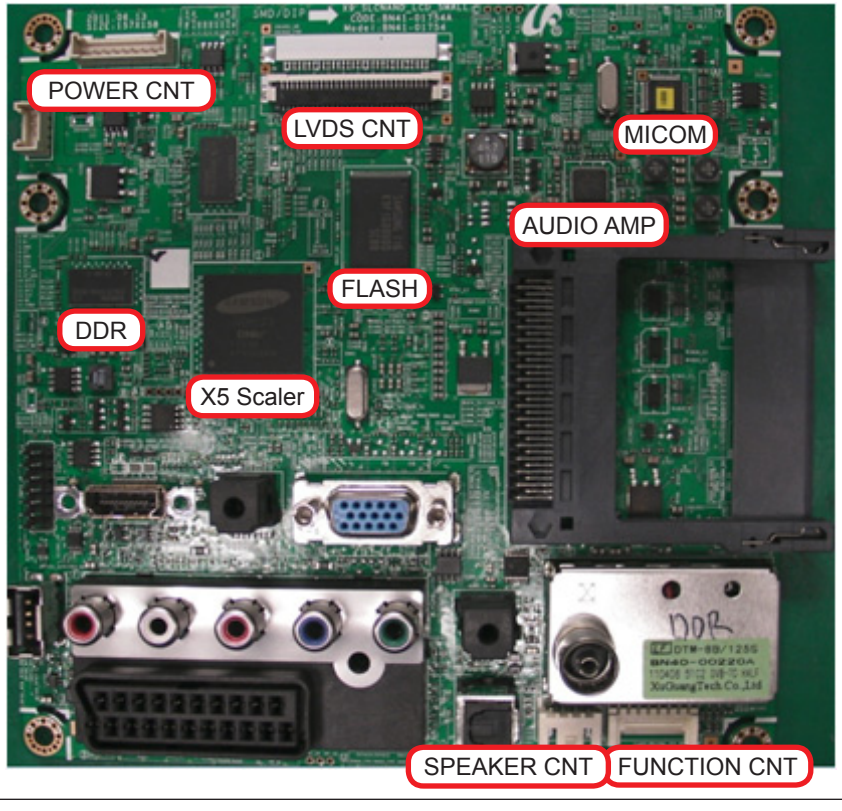
U56A - 26" / 32" / 37" / 40" / 46"

U56B - 19" / 22"


■ PCB Layout_X9

U56A -26" / 32" / 37" / 40" / 46"

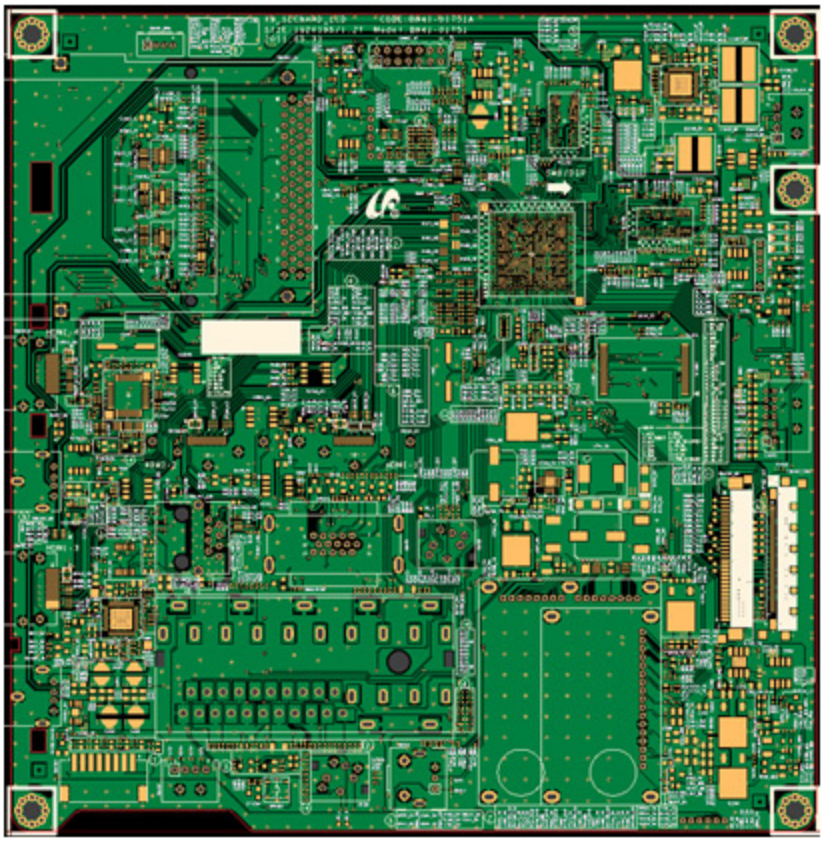


U56B - 19" / 22"

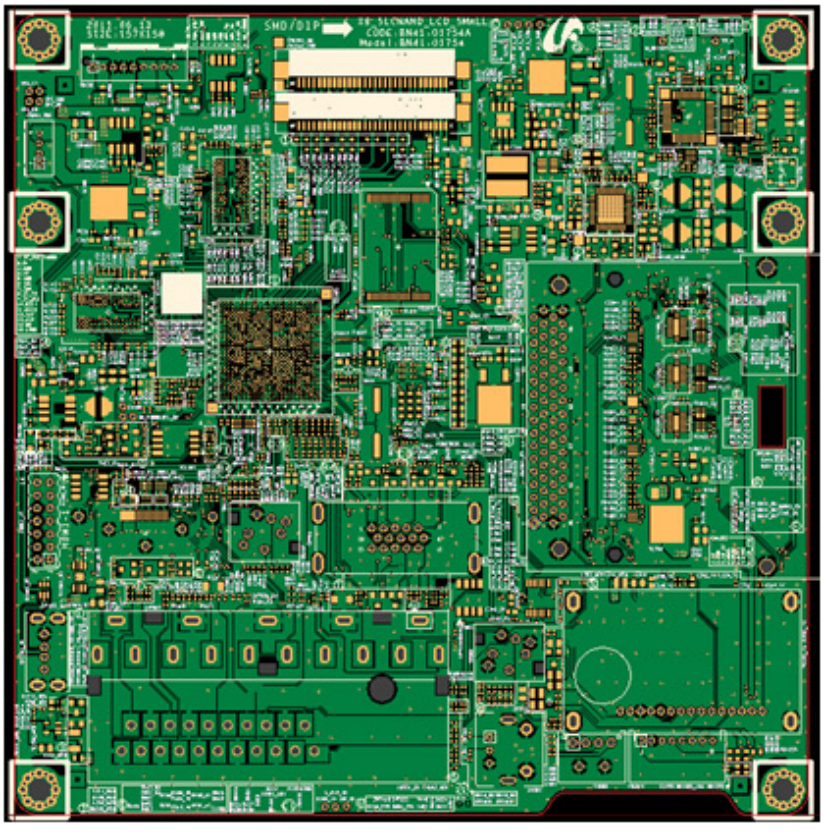


■ Main Top_X9

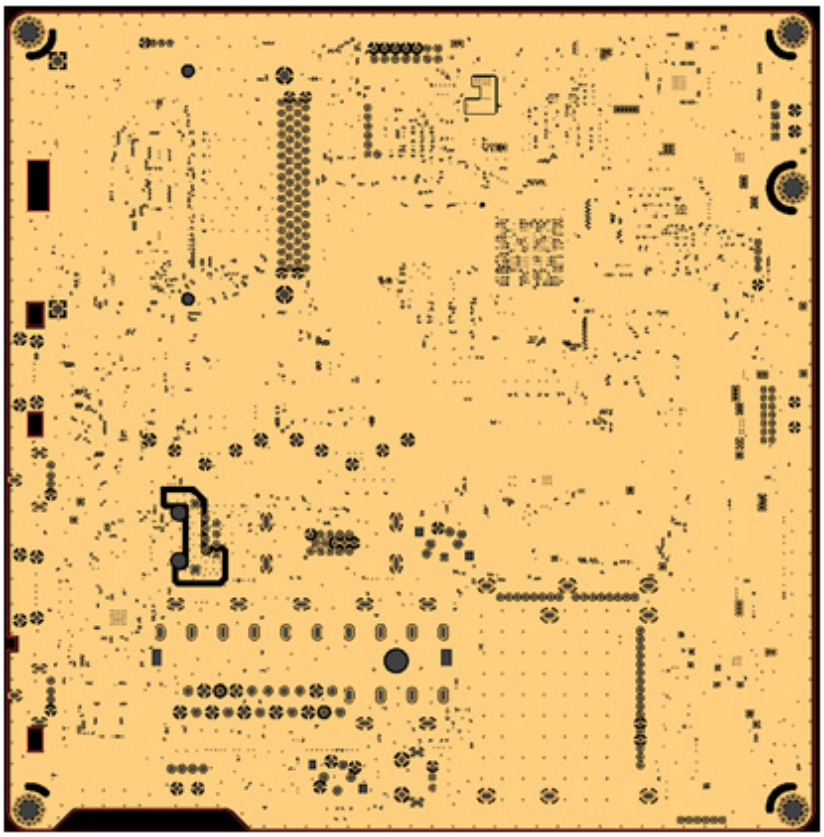
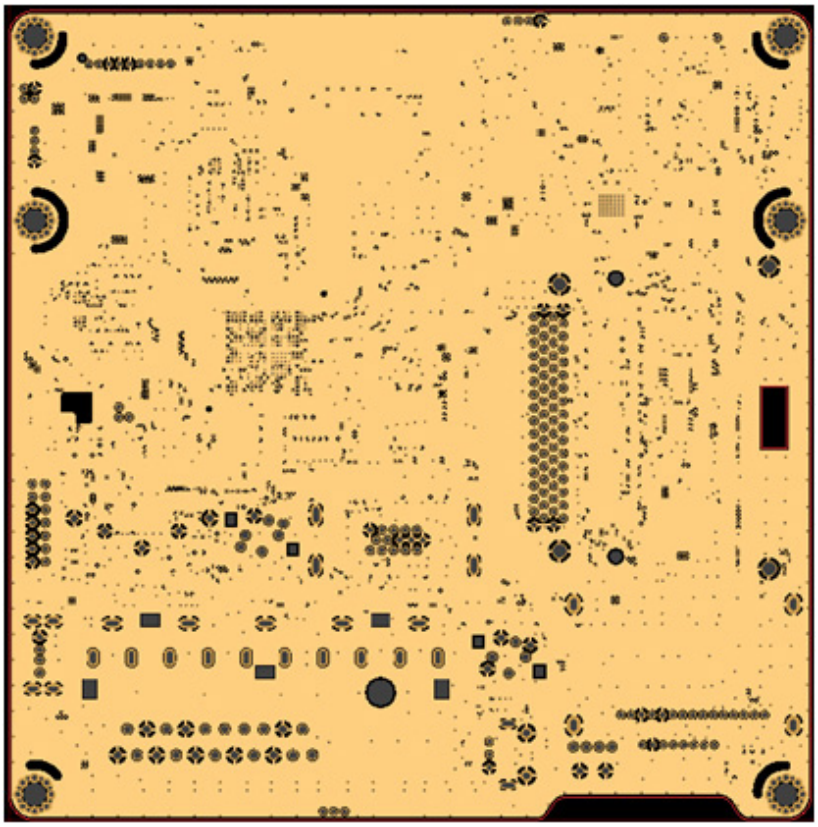
U56A -26" / 32" / 37" / 40" / 46"



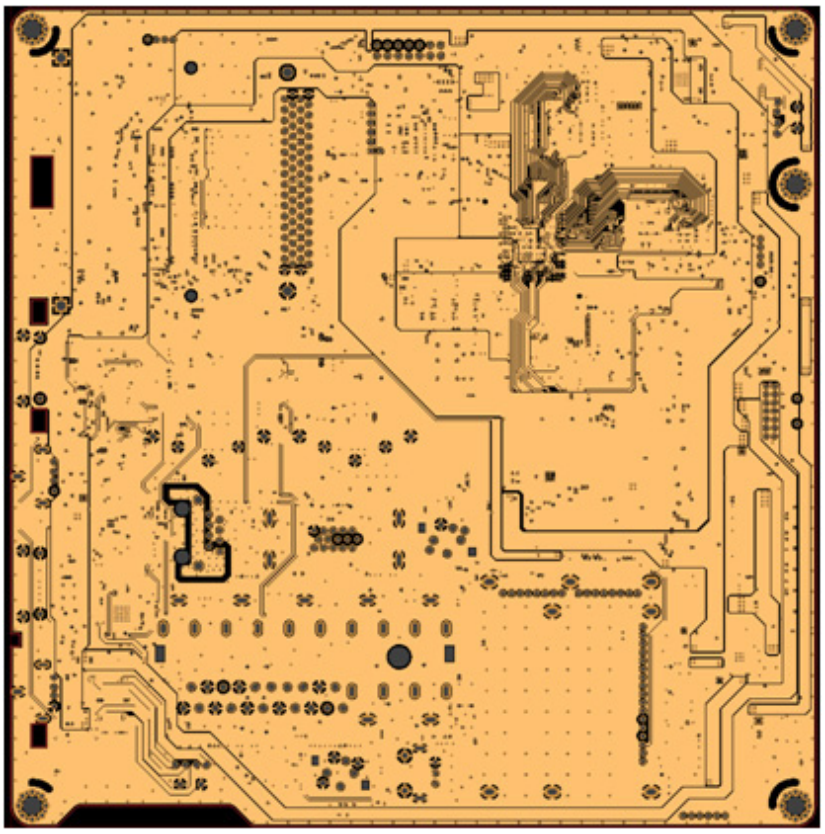
U56B - 19" / 22"



■ Main Inner (2)_X9

U56A -26" / 32" / 37" / 40" / 46"

U56B - 19" / 22"


■ Main Inner (3)_X9

U56A -26" / 32" / 37" / 40" / 46"

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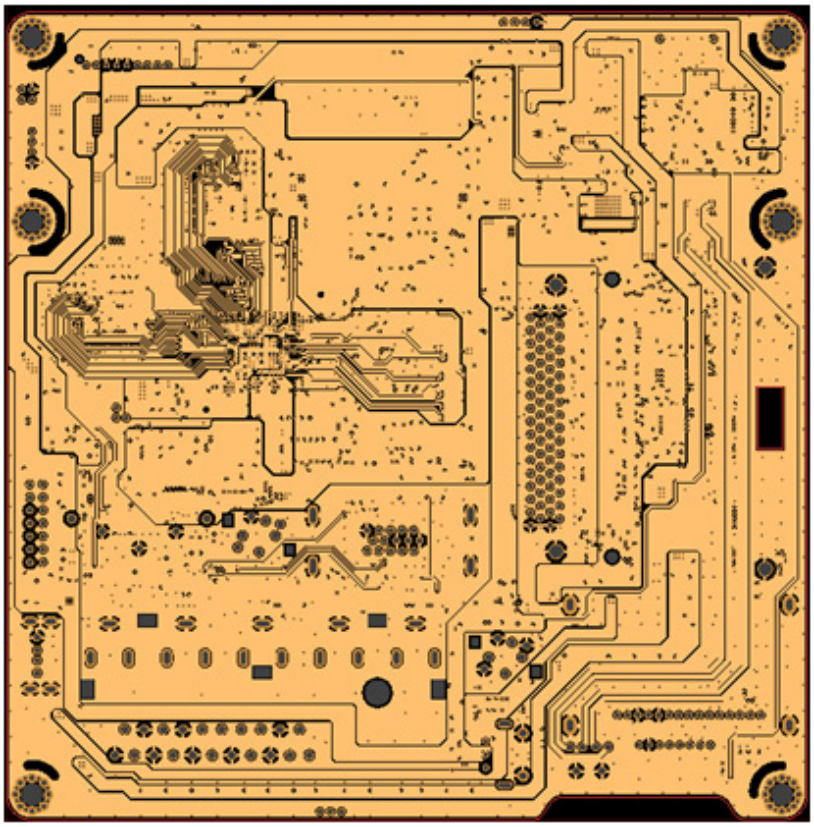
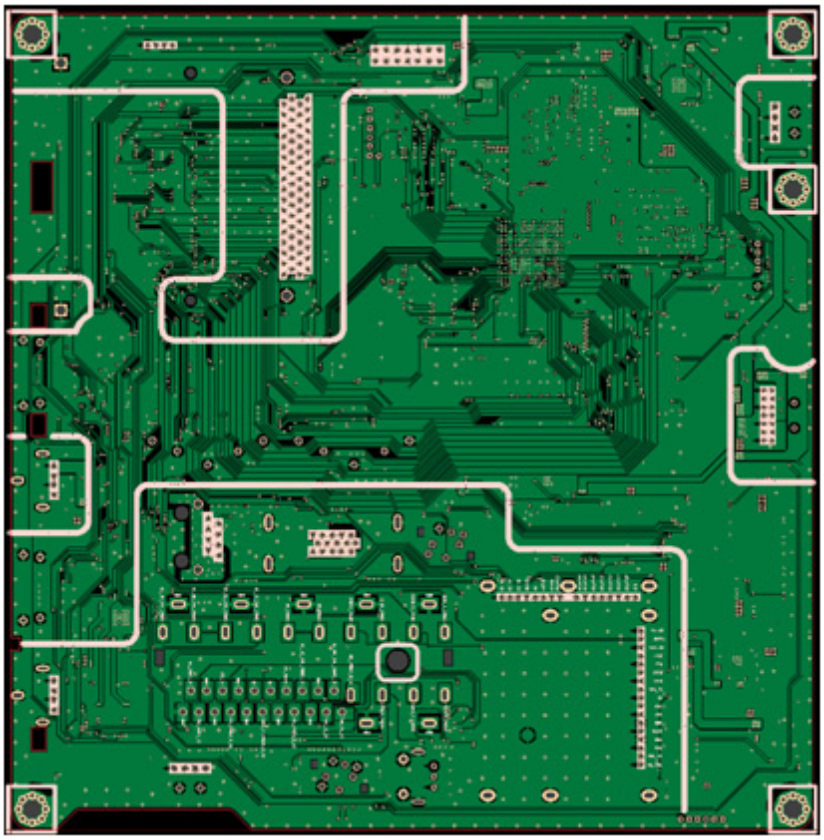
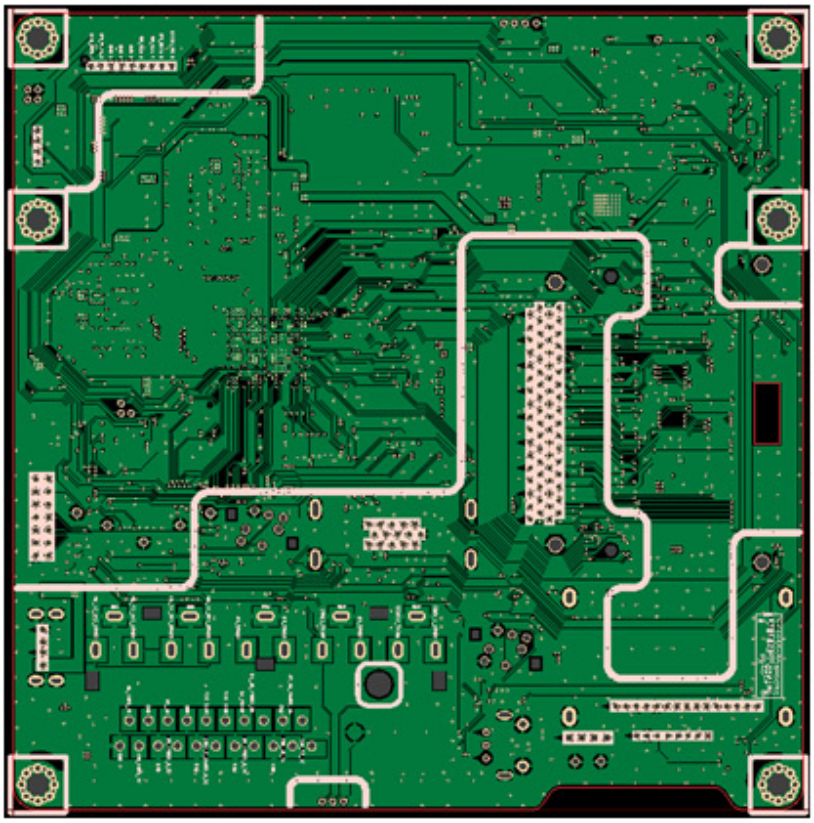
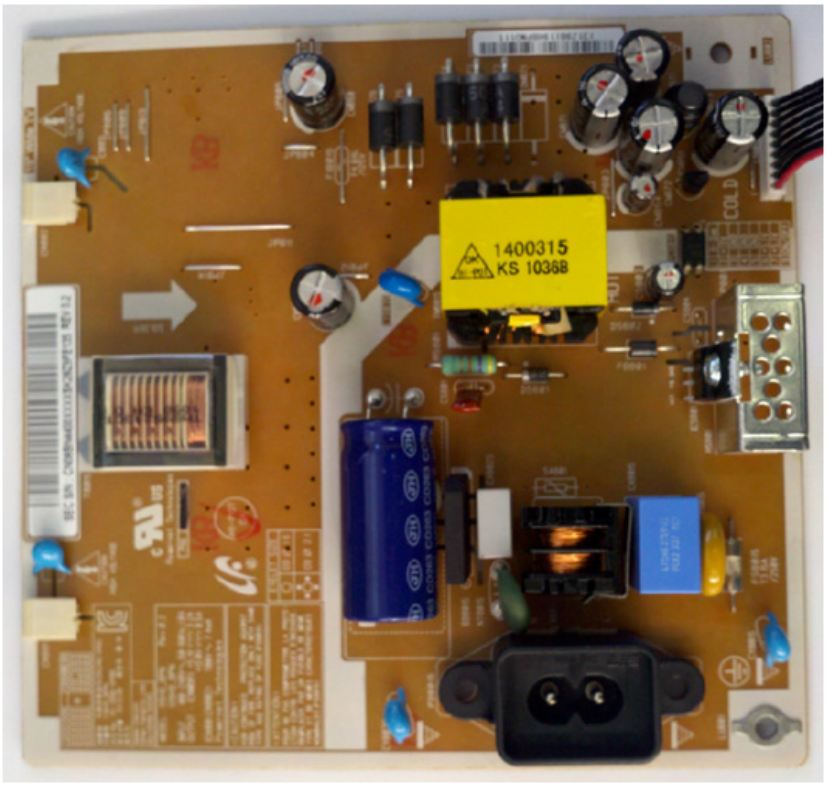


■ Main Bottom_X9

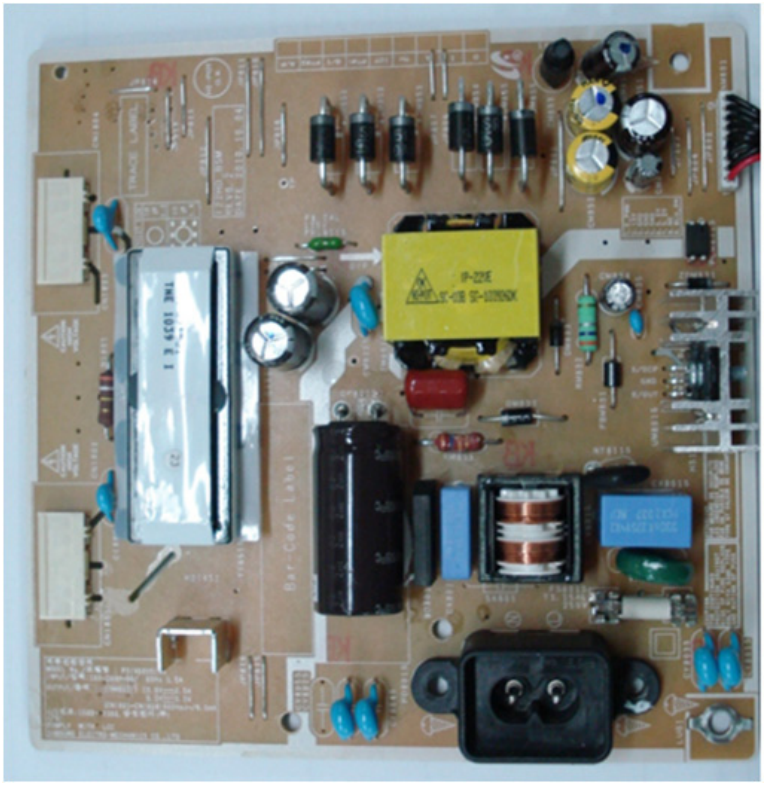
U56A -26" / 32" / 37" / 40" / 46"

U56B - 19" / 22"


■ SMPS

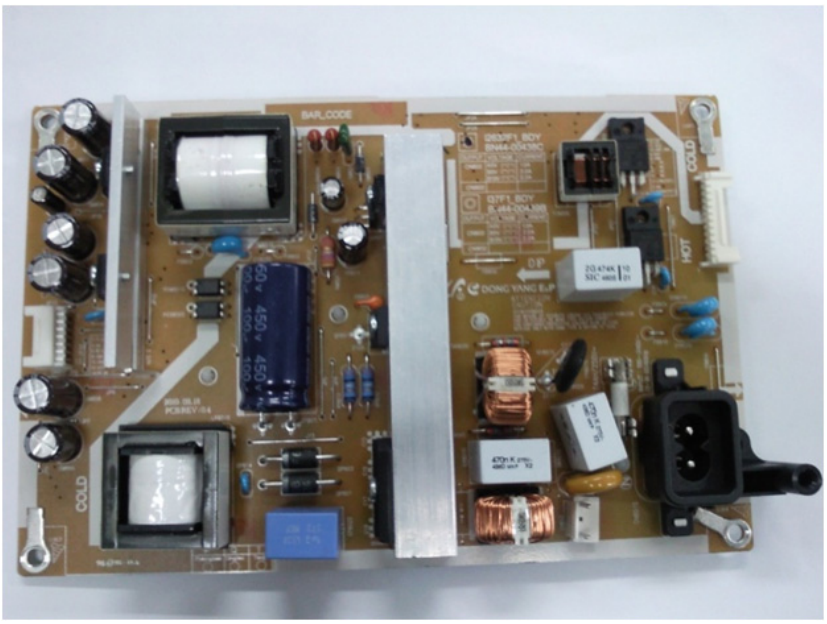
Model / Inch	CODE	P/N
LD450 / 19"	BN44-00436A	I19HD_BPN



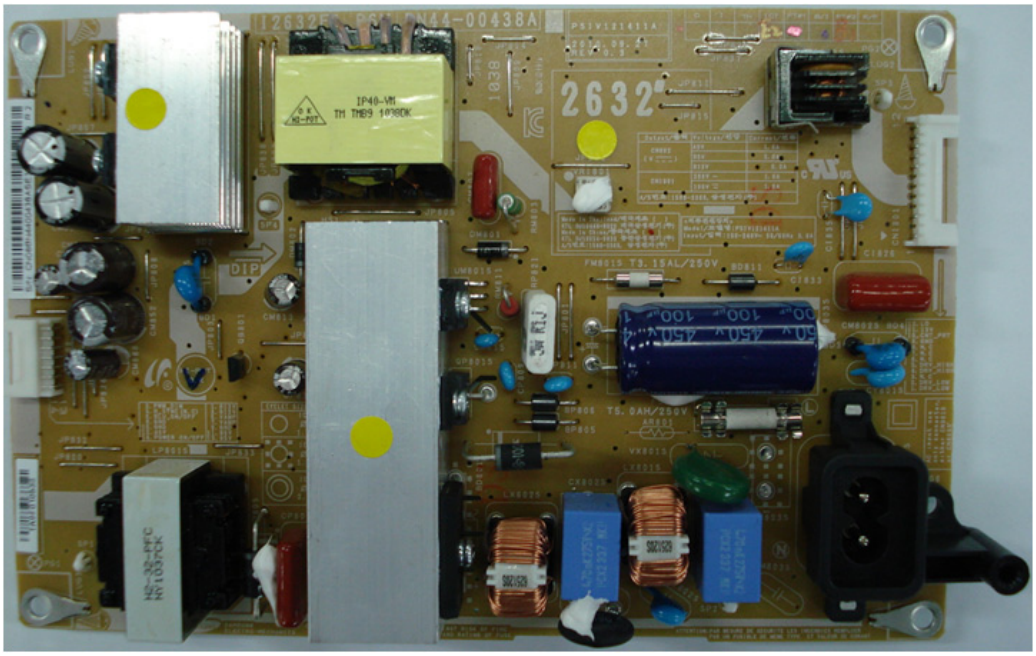
Model / Inch	CODE	P/N
LD450 / 22"	BN44-00437A	I22HD_BSM



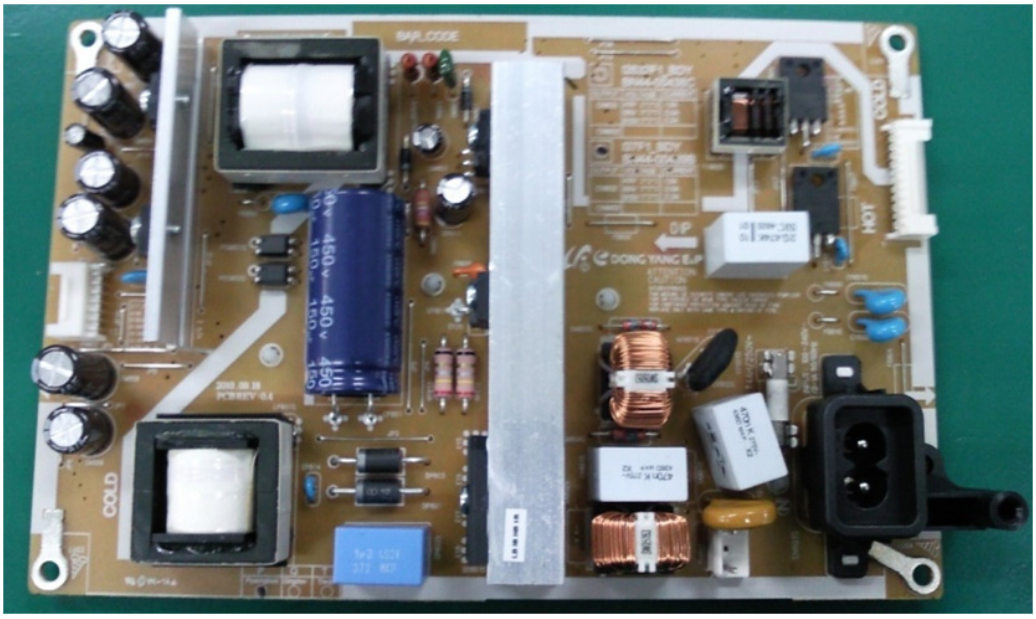
Model / Inch	CODE	P/N
LD450 / 26" LD5xx / 32"	BN44-00438C	I2632F1_BDY



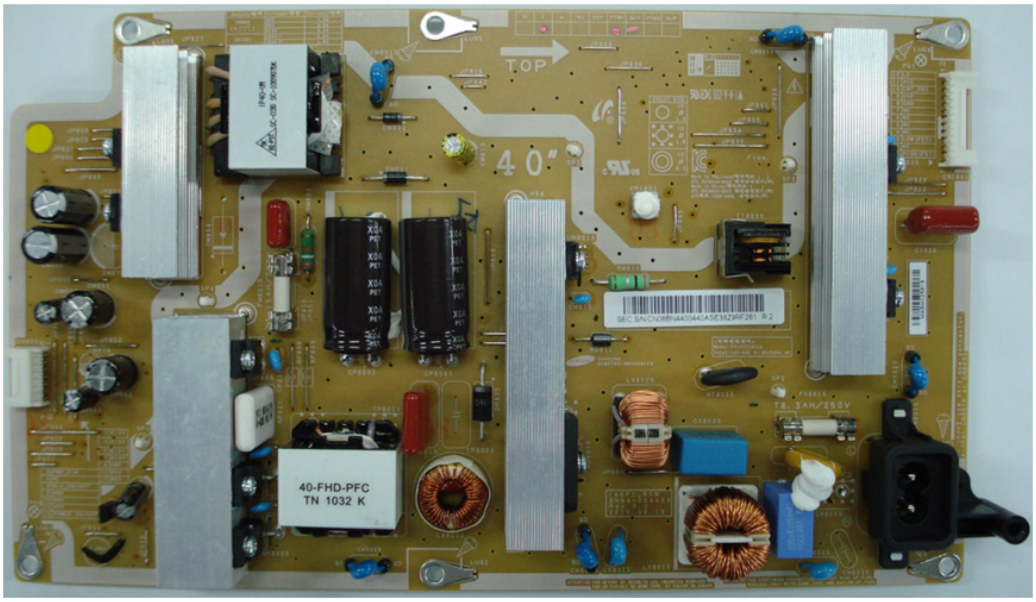
Model / Inch	CODE	P/N
LD450 / 32"	BN44-00438A	I2632F1_BSM



Model / Inch	CODE	P/N
LD5xx / 37"	BN44-00439B	I37F1_BDY



Model / Inch	CODE	P/N
LD5xx / 40"	BN44-00440A	I40F1_BSM



Model / Inch	CODE	P/N
LD5xx / 46"	BN44-00441A	I46F1_BHS