SAMSUNG

LED TV

Chassis : U8FA

Model   : UN48H8000AG
UN55H8000AG
UN65H8000AG

SERVICE*Manual*

LED TV

UN**H8000AG

Contents

Contents

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

> ⚠️ **WARNING**
>
> 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 resistorcapacitor networks, mechanical insulators, etc.

3. Leakage Current Hot Check:
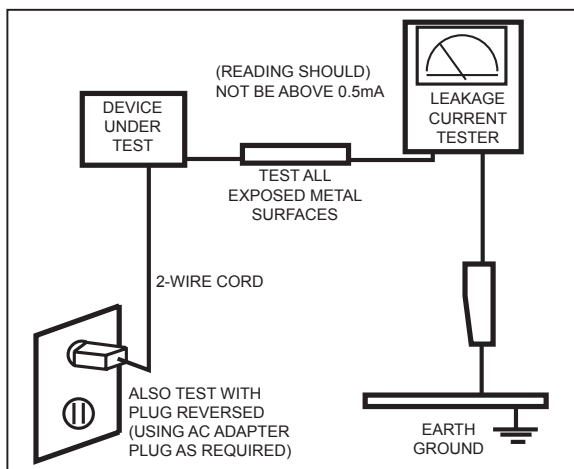
> ⚠️ **WARNING**
>
> Do not use an isolation transformer during this test.
>
> Use a leakage current tester or a metering system that complies with American National Standards Institute (ANSI C101.1, Leakage Current for Appliances), and Underwriters Laboratories (UL Publication UL1410, 59.7).

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

1-1-4. Product Safety Notices

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

1-2. Servicing Precautions

1-2

WARNING

An electrolytic capacitor installed with the wrong polarity might explode.

CAUTION

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

NOTE

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.

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

8. Minimize body motions when handling unpackaged replacement ESDs. Motions such as brushing clothes together, or lifting your foot from a carpeted floor can generate enough static electricity to damage an ESD.
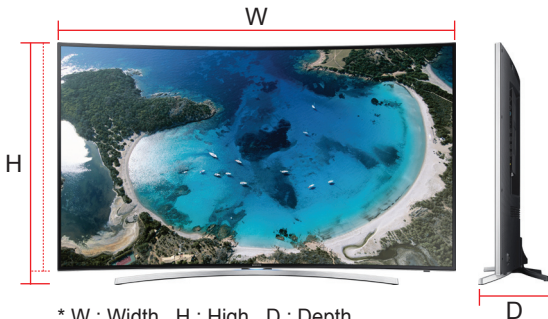
1-4. Installation Precautions

1. For safety reasons, more than a people are required for carrying the product.

2. Keep the power cord away from any heat emitting devices, as a melted covering may cause fire or electric shock.

3. Do not place the product in areas with poor ventilation such as a bookshelf or closet. The increased internal temperature may cause fire.

4. Bend the external antenna cable when connecting it to the product. This is a measure to protect it from being exposed to moisture. Otherwise, it may cause a fire or electric shock.

5. Make sure to turn the power off and unplug the power cord from the outlet before repositioning the product. Also check the antenna cable or the external connectors if they are fully unplugged. Damage to the cord may cause fire or electric shock.

6. Keep the antenna far away from any high-voltage cables and install it firmly. Contact with the highvoltage cable or the antenna falling over may cause fire or electric shock.

7. When installing the product, leave enough space (0.4m) between the product and the wall for ventilation purposes. A rise in temperature within the product may cause fire.

8. If an equipment is provided with a replaceable battery, and if replacement by an incorrect type could result in an explosion (for example, with some lithium batteries), the following applies:

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

2. Product Specifications

2-1. Product information

Model	UN**H8000AG		
Front View	 * W : Width H : High D : Depth		
Detail View			
Color	Front Color : BLACK / Stand Color : SILVER		
Dimensions (W x H x D)	48"	Without Stand	1078.6 x 625.9 x 79.2 mm
		With Stand	1078.6 x 671.9 x 236.8 mm
	55"	Without Stand	1232.8 x 713.3 x 89.8 mm
		With Stand	1232.8 x 759.4 x 236.8 mm
	65"	Without Stand	1451.0 x 838.4 x 107.3 mm
		With Stand	1451.0 x 893.7 x 307.8 mm
Weight	48"	Without Stand	13.2 kg
		With Stand	14.7 kg
	55"	Without Stand	17.4 kg
		With Stand	18.9 kg
	65"	Without Stand	24.0 kg
		With Stand	27.2 kg
Panel Type	Ultra Clear Panel		
Internal Memory	4 GB		
DDR	GOLF-AP : 512GB x 2 , 256MB x 2, 800MHz / GOLF-MP : 128MB x 2 , 933MHz		
Feature	3D, Media Bridge, Allshare, Internet TV, Built-in WiFi, Full Browser, Bluetooth		

2-2. Product specification

2-2-1. Feature & Specifications

■ Feature

- Digital-TV, RF, 4-HDMI, 1-Component, 2-A/V(Common Use for Component Y), 3-USB

■ Specifications

Model	UN48H8000AG	UN55H8000AG	UN65H8000AG
Item	**Description**		
Screen Size (Diagonal)	48 inches	55 inches	65 inches
LCD Panel	FHD 240Hz		
Scanning Frequency	Horizontal : 67.5KHz(TYP) Vertical : 60Hz(TYP)		
Display Colors	Wide Color Enhancer Plus		
Display Resolution	1920 x 1080		
Input Signal	Analog 0.7 Vp-p ± 5% positive at 75Ω, internally terminated		
Input Sync Signal	H/V Separate, TTL, P. or N.		
Maximum Pixel Clock Rate	148.5MHz		
AC Power Voltage & Frequency	AC100-240V 50/61Hz		
Environmental Considerations	Operating Temperature : 50˚F ~ 104˚F (10˚C ~ 40˚C) Operating Humidity : 10% ~ 80%, non-condensing Storage Temperature : -4˚F ~ 113˚F (-20˚C ~ 45˚C) Storage Humidity : 5% ~ 95%, non-condensing		
Sound (Output)	40W (Left:10W, Right:10W, Woofer:20W)		
Note : 3D, Media Bridge, Allshare, Internet TV, Built-in WiFi, Full Browser, Bluetooth			

2-2-2. Detailed Specifications

📝 **NOTE**

Design and specifications are subject to change without prior notice.

Item		UN**H8000AGXPR
General Information	Product	LED
	Series	8
	Country	PARAGUAY
Display	Inch	**55"/65"**
	Resolution	1920x1080
	Ultra Clear Panel	Yes
	Screen Curvature	4,200R
Video	Picture Engine	3D HyperReal Engine
	Clear Motion Rate	1200
	Dynamic Contrast Ratio	Mega Contrast
	Micro Dimming	M/D Ultimate
	Precision Black (Local Dimming)	No
	Wide Color Enhancer (Plus)	Yes
	Wide Color Gamut	N/A
	Color Accuracy	Yes
	Auto Depth Enhancer	Yes
	Film Mode	Yes
	Natural Mode Support	Yes
Audio	Dolby MS10 / MS110	Dolby MS11
	DTS Studio Sound / DNSe+	DNSe+
	DTS Premium Sound / DTS Premium Sound 5.1	DTS Premium Sound 5.1
	3D Sound	Yes
	Auto Volume Leveler	Yes
	Sound Output (RMS)	40W(Left:10W, Right:10W, Woofer:20W)
	Speaker Type	Down Firing + New Waveguide
	Woofer	Yes
	HD Audio	No
Smart TV	Smart Hub	Yes
	Samsung SMART TV	Yes
	On TV	No
	Movies & TV Shows	No
	Multimedia	Yes
	Apps	Yes
	News On	Yes

Item		UN**H8000AGXPR
Smart TV	Game	No
	My Space	N/A
	Social	Yes
	Fitness	Yes
	Kids	Yes
	Multi-Screen (Dual / Quad Screen)	Dual
	Skype™ on Samsung TV	Yes
	Web Browser	Yes
	Search	Yes
Smart Interaction	Voice Interaction	No
	Voice Control	Yes
	Camera Built-in	N/A
	Face recognition	Ready
	Motion control	Ready
Smart Convergence	Contents Streaming	Yes
	Screen Mirroring	Yes
	Samsung SMART View	Yes
	Smart Home	No
	Wake On LAN	N/A
	WiDi	No
Tuner/Broadcasting	DTV Tuner	ISDB-T/DVB T
	Analog Tuner	Yes
	MHP / MHEG / HbbTV / ACAP / GINGA / OHTV	GINGA(UY)
Connectivity	HDMI	4
	USB	3
	Component In (Y/Pb/Pr)	1
	Composite In (AV)	2(1Common Use for Component Y)
	Ethernet (LAN)	Yes
	Headphone	No
	Audio Out (Mini Jack)	Yes
	Digital Audio Out (Optical)	1
	PC In (D-sub)	N/A
	PC/DVI Audio In (Mini Jack)	N/A
	RF In (Terrestrial / Cable input)	1/1/0
	Ex-Link (RS-232C)	No
	IR Out	Yes
	CI Slot	No
	Scart	No

Item		UN**H8000AGXPR
Connectivity	MHL 3	No
	One Connect (Jack)	No
	WiFi Direct	Yes
	MHL	Yes
	Dongle Ready (3G / LTE)	No
	HDMI 1.4 3D Auto Setting	Yes
	HDMI 1.4 A/Return Ch. Support	Yes
	InstaPort S (HDMI quick switch)	Yes
	Wireless LAN Adapter Support	No
	Wireless LAN Built-in	Yes
	Anynet+ (HDMI-CEC)	Yes
Design	Design	C-Shape Stand
	Bezel Type	VNB
	Slim Type	Slim
	Front Color	Black
	Light Effect (Deco)	Yes
	Stand Type	C-Stand
	Swivel (Left/Right)	None
	Camera Type	N/A
Additional Feature	Samsung 3D	Yes
	3D Converter	Yes
	Instant On	Yes
	N-KIT	N/A
	Quad Core+	Yes
	Accessibility	Zoom
	Digital Clean View	Yes
	Auto Channel Search	Yes
	Auto Power Off	Yes
	Clock&On/Off Timer	Yes
	Sleep Timer	Yes
	BD Wise Plus	Yes
	Caption (Subtitle)	Yes
	ConnectShare™ (USB 2.0)	Movie
	AC/DC TV	N/A
	Sports Mode	Advanced(w/Soccer Panel)
	Screen Capture	N/A
	Sound Capture	N/A
	Embeded POP	Yes

Item		UN**H8000AGXPR
Additional Feature	EPG	Yes
	Extended PVR	Yes
	Game Mode	Yes
	History	N/A
	Multiroom Compatible	No
	OSD Language	Local Languages
	Picture-In-Picture	Yes
	USB HID Support	Yes
	Smart Evolution Support	Yes
	TV SoundConnect	Yes
	Teletext (TTXT)	No
	Time Shift	Yes
	Analog Clean View	No
	Triple Protector	No
	GUI	Golden Bridge
Eco Feature	Eco Mark	N/A
	Eco Label	N/A
	Eco Sensor	Yes
	Energy Efficiency Class	N/A
Accessory	3D Active Glasses (Included)	Yes(2ea)
	Remote Controller Model	No
	Batteries (for Remote Control)	Yes
	Samsung Smart Touch Control (Included)	Yes
	Electric Stand Support	No
	Electric Wall Mount Support	No
	Ultra Slim Wall Mount Supported	Yes
	Mini Wall Mount Supported	Yes
	Vesa Wall Mount Supported	Yes
	Floor Stand Support	Yes
	TV Camera (Included)	N/A
	IR Extender Cable (Included)	Yes
	Network Speaker (Included)	N/A
	Wireless Keyboard (Included)	No
	Wireless LAN Adaptor (Included)	No
	User Manual	Yes
	E-Manual	Yes
	ANT-Cable	No
	Power Cable	Yes

Item		UN**H8000AGXPR
Accessory	Slim Gender Cable	Yes

2-3. Accessories

Product	Code. No	Product	Code. No
• Samsung Smart Control	BN59-01181H	• User Manual	BN68-05874B
• Batteries (AA x 2)	4301-000101	• Regulatory guide	BN68-04972A
• Power Cord	3903-000532	• Cleaning cloth	BN63-01798B
• Samsung 3D Active Glasses	BN96-27418A		

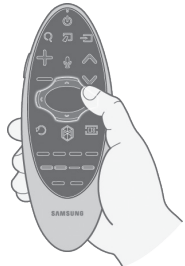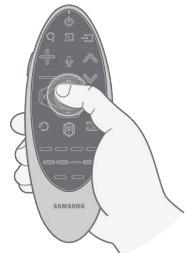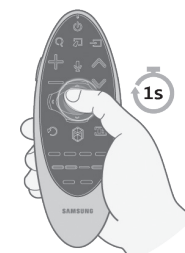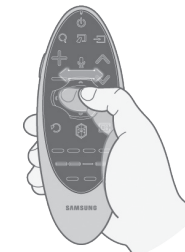| Image	Product	Code. No
	• IR Extender Cable	BN96-31644A
	• RCA Adapter	BN39-01154H
	• Wall mount adapter (Depending on the Model)	BN61-07295A
	• Cable Holder (Depending on the Model)	BN61-08370A

2-4. Viewing the Functions

2-4-1. Using the Samsung Smart Control

■ Buttons and Functions

⊄ : Cuts off the sound temporarily.

MIC: Use the microphone with the **Voice Control** and Voice functions.

- The **Voice Control** function can be affected by unclear pronunciation, voice level, or surrounding noise.

Turns the TV on and off.

SEARCH: Run the Search function.
KEYPAD: Displays the On-Screen Remote. See the e-Manual chapter, **Using the Remote Control and Peripherals** > **Using the Samsung Smart Control** > **Displaying and Using the On-Screen Remote**.
SOURCE: Displays and lets you select video sources.
VOICE: Takes your voice commands and lets you enter text using your voice.

Changes channels.

Adjusts the volume.

Touch pad
Place a finger on the touch pad and move the Samsung Smart Control. The pointer on the screen moves in the direction you moved the Samsung Smart Control.
Press the touch pad to run the focused item.
Press and hold the touch pad to display the Context-Sensitive Menus.
∧ ∨ ⟨ ⟩ : Moves the cursor, selects the on-screen menu items, and changes the values seen on the TV's menu.

RETURN / EXIT: Returns to the previous menu. / Press and hold this button to exit all currently running applications.
SMART HUB: Brings up **Smart Hub** applications. See the e-Manual chapter, **Smart Features** > **Smart Hub**.

- To exit an application quickly, press the ⬡ button.

GUIDE / CH.LIST: Displays the **EPG** (Electronic Program Guide). / Press and hold this button to lunch the **Channel List**.

Use these buttons with a specific feature and according to the directions on the TV's screen.

⚽ : Enable **Soccer Mode** for an optimal sports viewing experience.
M.SCREEN: You can split the TV screen and use various functions such as watching TV, surfing the web, watching video, and so on.

Color button: Use these color buttons to access additional options specific to the feature in use.
MENU: Press and hold the **B** button to display the menu on the screen.
REC: Press and hold the **C** button to record the broadcast.
INFO: Press and hold the **D** button to view information about the current digital channel or media file.

■ Using the Touch Pad and the Directional Buttons

| Image	Description
	Moving the Focus/Pointer Press the directional buttons (up, down, left, and right) to move the pointer or focus in the direction.
	Menu Access & Item Selection Press on the touchpad. This lets you access a TV menu or select an item.
	Displaying the Context-sensitive Menu on Smart Hub Press and hold on the touch pad from the Smart Hub screen. The Options menu available to the selected item appears. • The Options menu depends on the context.
	Moving to the Smart Hub panel On the Smart Hub screen, drag left or right on the touchpad. This will move the Smart hub panels left or right.
	Scrolling on the Web Browser Drag up/down on the touchpad in the web browser screen. This scrolls through the web screen.

2-4-2. Viewing the Panel

■ NewsON Panel

The screen shown may vary depending on the model.

This service may be not available depending on the country or region.
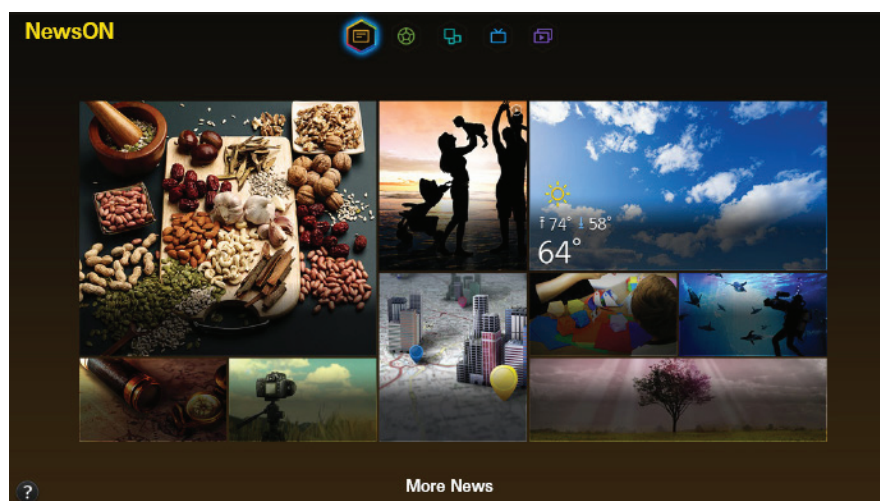
NewsON provides a real-world service that informs users of news and weather-related information in one place without the need for a newspaper, smartphone, or computer.
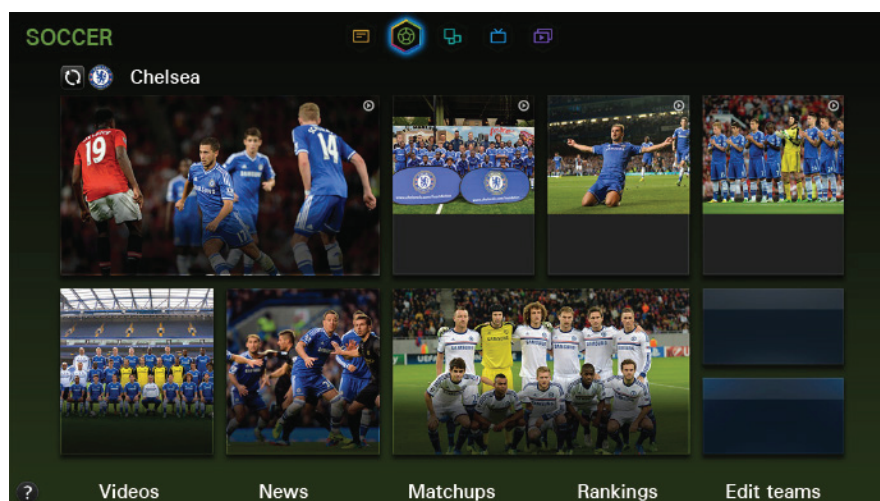
NewsON users can find daily information on a wide variety of topics in a smart and convenient way.

Updated in real time, **NewsON** informs users of the latest headlines, top stories, popular issues, and weather forecasts.

■ SOCCER Panel

The screen shown may vary depending on the model.

This service may be not available depending on the country or region.


The **SOCCER** panel offers a variety of information about world soccer matches, featuring videos, news, matchups, and ratings. Adding a favorite team to the Favorite list allows easy access to information about team.

- Before you use the **SOCCER** panel, check if the TV is connected to the Internet. An Internet connection is required to access the **SOCCER** panel.
- To view the Quick Guide, select the ❓ button.

■ SAMSUNG APPS Panel

The screen shown may vary depending on the model.
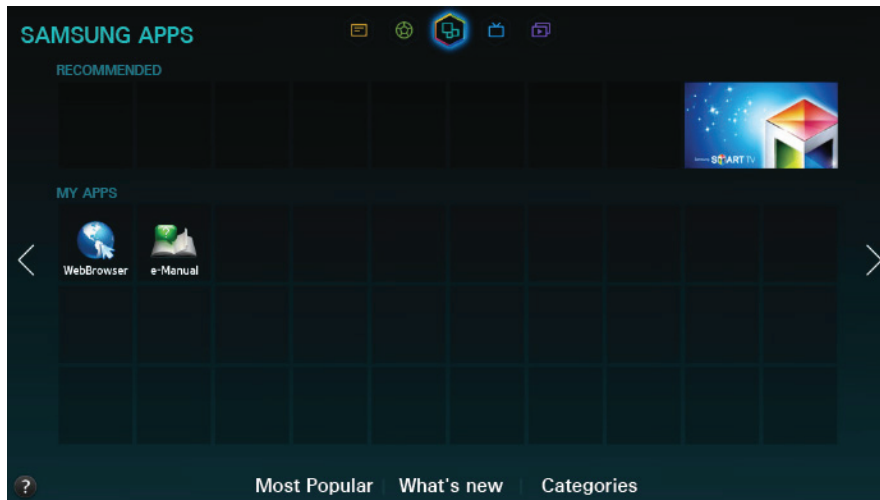
Smart Hub offers a variety of free news, sports, weather, and gaming content you can directly install and enjoy on your TV as you do on your smartphone or tablet.
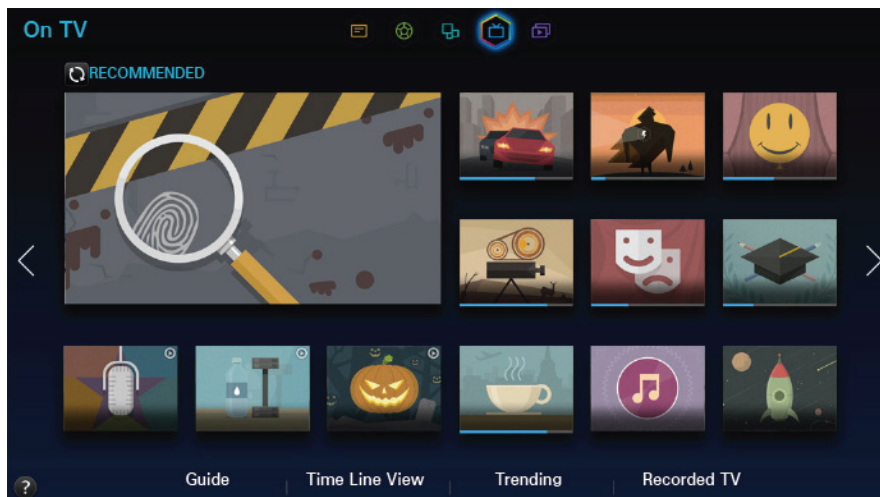
- Before you use **SAMSUNG APPS**, check if the TV is connected to the Internet. Your TV must be connected to the Internet in order to use **SAMSUNG APPS**.

- When the Smart Hub is launched for the first time, the default apps are automatically installed. The default apps may differ depending on the region.

■ On TV Panel

The screen shown may vary depending on the model.

Availability depends on the specific area.

Availability of recommended content depends on the specific model and area.


If you move to the **On TV** panel in the Smart Hub, you can view the program list of the channels recommended by Smart Hub while you are watching a program.

- Before you use **On TV**, check if the TV is connected to the Internet. The TV must be connected to the Internet in order to use **On TV**.

- The channels or programs recommended by **On TV** may differ from the actual ones depending on the broadcast information provider.

■ Multimedia Panel (Playing Photos, Videos, and Music)

The screen shown may vary depending on the model.
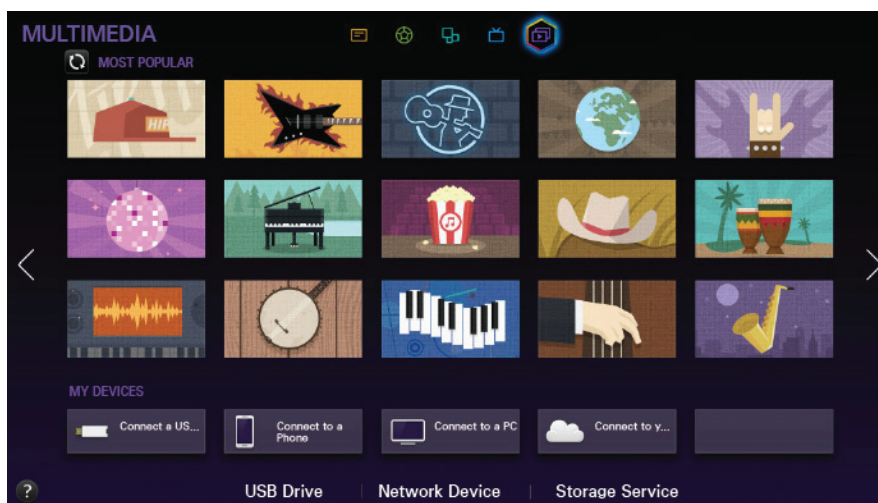
You can play media content saved on a USB device, smartphone, camera, computer, or cloud service on the TV.

- However, you cannot play media content if the content or the storage device is not supported by the TV. For more information, refer to "**Read Before Playing Photo, Video, or Music Files**".
- Backup important files before connecting a USB device. Samsung is not responsible for damaged or lost files.

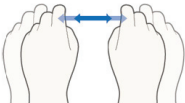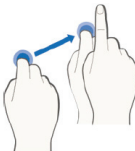## 2-4-3. Motion Control

The following basic motion control commands are available:

Image	Description
	Moving the pointer Moving your hand moves the pointer accordingly.
	Selecting an item Fold down and raise your index finger to select items. This is the equivalent of clicking a mouse button. You can select a TV menu or run a function. Keeping your index finger lowered is like holding down a remote control button.
	Returning to the previous menu Make a circle with your hand in the counterclockwise direction to return to the previous menu.
	Moving from one Smart Hub panel to another Move your hand from left to right or from right to left as you would turn a book page. You can move directly from one Smart Hub panel to another. • Example: SAMSUNG APPS panel → On TV panel
	Displaying the Context-sensitive Menu on Smart Hub Fold your index finger down for 1 second and then raise it. This displays the context-sensitive menu that is available for the selected item.
	Zooming the picture on the screen in or out Facing the camera, raise both hands, and then raise the index finger on both hands. Two pointers appear on the screen when the TV recognizes the hands. Fold the index fingers of both hands down, and then horizontally widen or close your hands. This lets you zoom the picture on the screen in or out when the TV is displaying a web page, map, or photo.
	Panning a Zoomed-in Picture To pan a zoomed-in picture, fold the index finger on one hand down, move the hand in the desired direction, and then raise the index finger.
	Rotating a Picture Facing the camera, raise both hands, and then raise the index finger on both hands. Two pointers appear on the screen when the TV recognizes the hands. Fold the index fingers of both hands down, and then make a circle with your hands in clockwise or counterclockwise direction. You can rotate the picture when a video or photo is displayed on the screen.
	Using Like function On Facebook, without activating Motion Control, face the camera, and then raise and hold a thumb up for 2 seconds. This automatically adds the Facebook 'Like' icon. Available only in Facebook.

3. Disassembly and Reassembly

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

> ⚠️ **WARNING** This LED TV contains electrostatically sensitive devices. Use caution when handling these components.

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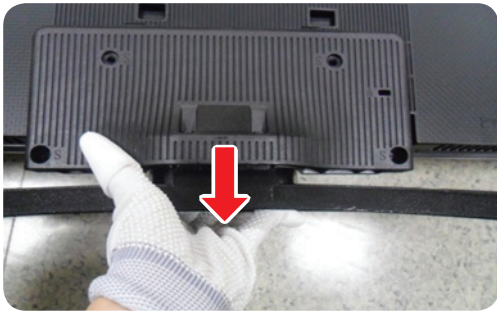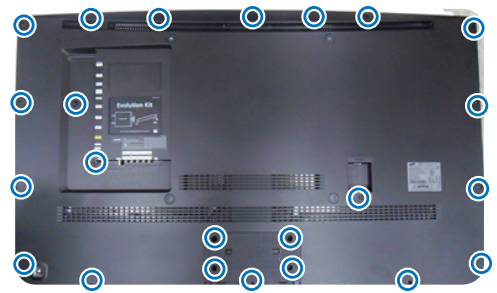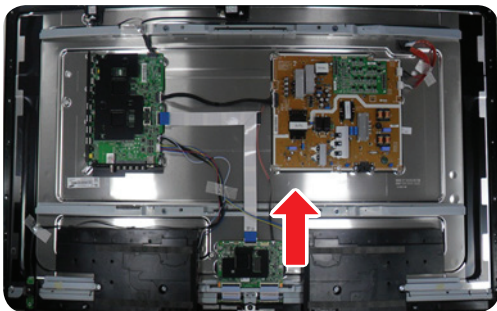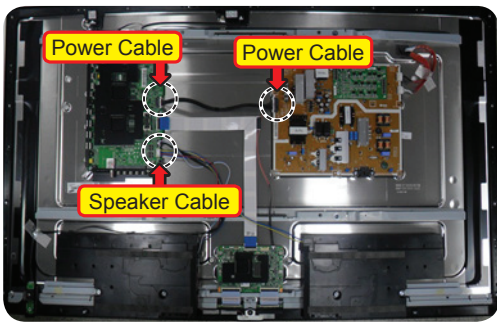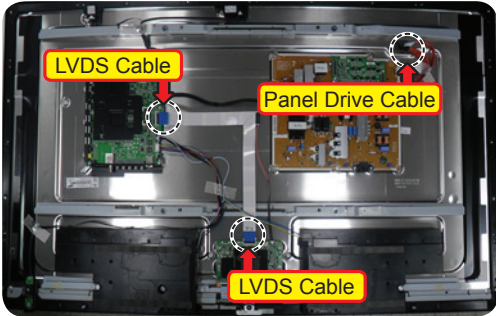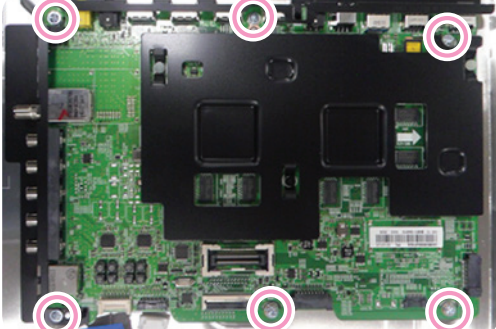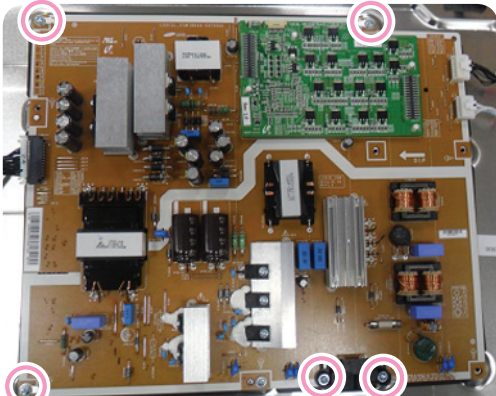
> ⚠️ **CAUTION**
> 1. Disconnect the LED TV from the power source before disassembly.
> 2. Follow these directions carefully; never use metal instruments to pry apart the cabinet.
> 3. If there is no additional coment, it is same for all inches.

3-1-1. TV Disassembly
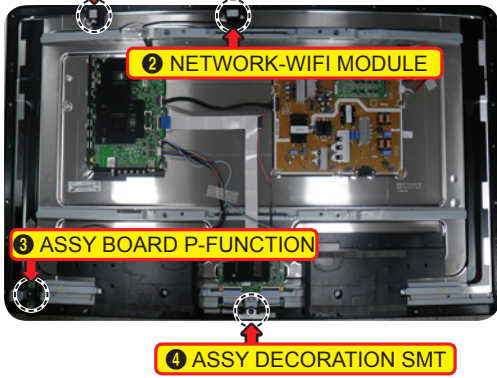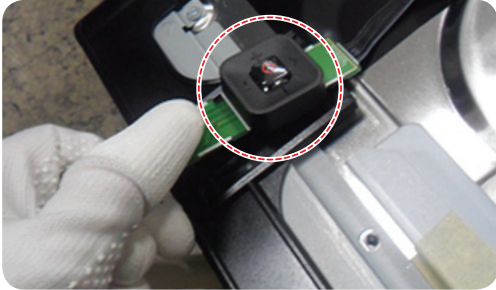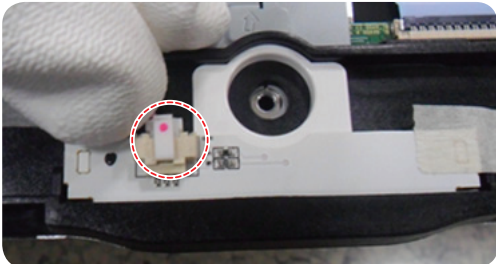
Description	Picture Description	Screws
1 Carefully position the TV so that the screen is facing downwards. ⚠️ **CAUTION** Make sure to place the TV upon a soft curved cushion or any material that will prevent damage to the screen.		
2 Remove 4 screws from the ASSY GUIDE P-STAND.		TORQUE 7~ 8Kgf.cm. 6003-001782 (COMMON)
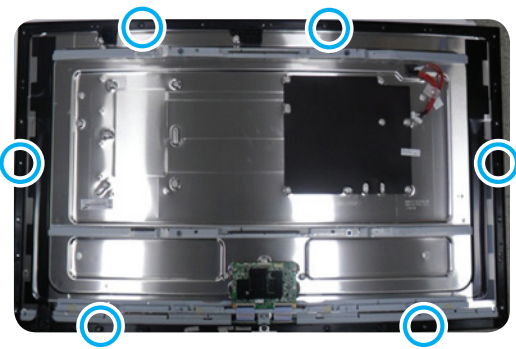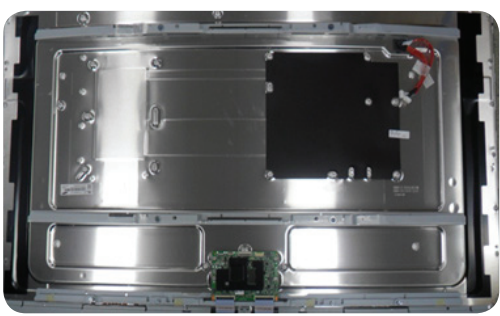
Description	Picture Description	Screws
3 Remove the ASSY STAND P-BASE.		
4 Remove the screws of ASSY COVER P-REAR. • 48 inch : 19 EA • 55 inch : 23 EA • 65 inch : 19 EA		TORQUE 4~ 5Kgf.cm. 6001-002755 (C/REAR + PANEL)
Remove the ASSY COVER P-REAR. ⚠ **CAUTION** Becareful when you lift up the rear-cover, It's really sharp.		
• Rear view.		
5 Remove the Power Cables and Speaker Cables.	 Power Cable Power Cable Speaker Cable	

Description	Picture Description	Screws
Remove the LVDS Cable, Panel Wire Cable.	LVDS Cable / Panel Drive Cable / LVDS Cable	
6 Remove the ASSY SPEAKER (L/R).		
7 Remove the 6 screws of ASSY PCB MAIN.		TORQUE 7~ 8Kgf.cm. 6001-003016 (MAIN + PANEL)
8 Remove the 5 screws of DC VSS-LED TV PD BD.		TORQUE 7~ 8Kgf.cm. 6001-003016 (POWER + PANEL)

Description	Picture Description	Screws
9 Remove cable of the ❶ ASSY BOARD P-RF-MODULE, ❷ NETWORK-WIFI MODULE, ❸ ASSY BOARD P-FUNCTION, ❹ ASSY DECORATION SMT.	❶ ASSY BOARD P-RF-MODULE ❷ NETWORK-WIFI MODULE ❸ ASSY BOARD P-FUNCTION ❹ ASSY DECORATION SMT	
• ❶ ASSY BOARD P-RF-MODULE		
• ❷ NETWORK-WIFI MODULE		
• ❸ ASSY BOARD P-FUNCTION		
• ❹ ASSY DECORATION SMT		

Description	Picture Description	Screws

10 Remove 5 screws from the Middle COVER.
   • 48 inch : 8 EA
   • 55 inch : 6 EA
   • 65 inch : 5 EA
		TORQUE 6~ 7Kgf.cm.
		6001-002996
		(C/MIDDLE + PANEL)

11 Remove the Middle COVER. • Panel		

📝 **NOTE**

Reassembly procedures are in the reverse order of disassembly procedures.

4. Troubleshooting

4-1. Previous Check

■ Check list for initial operation
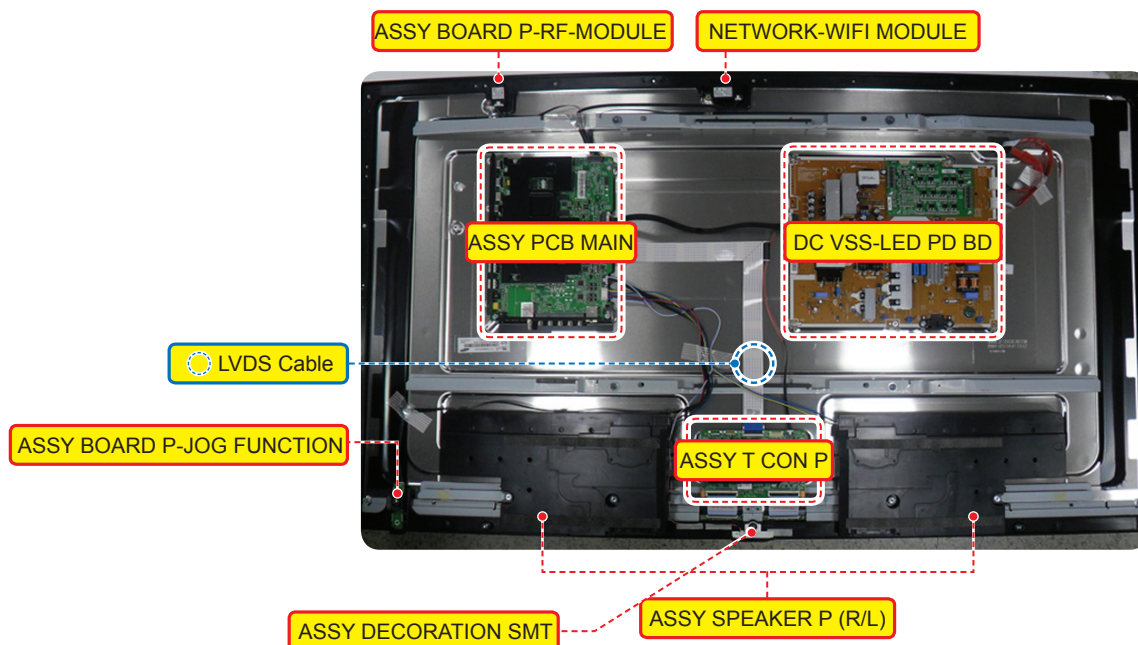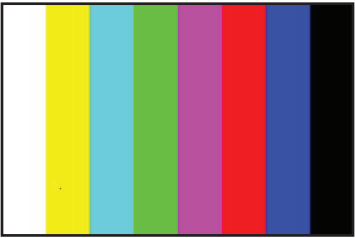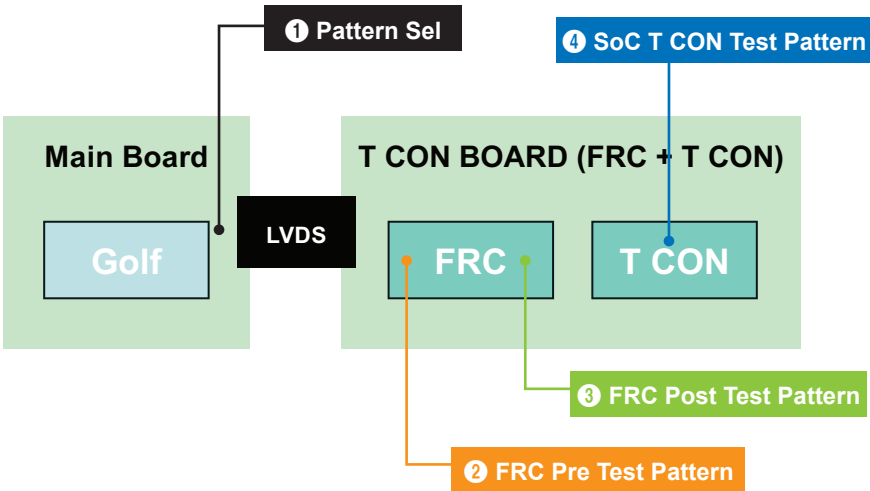
- AC Power Cord connected to the TV and the wall receptacle.
- Standby Power/IR Indicator LED is turned On.
- If Power/IR Indicator is not on check 10p power cable is connected and for correct Standby Voltage from SMPS to Main. Also check Jog Function Cable.
- Power turned On with Jog Function or Remote.
- Power on command from main Board to SMPS.
- Power/IR Indicator Flashes.
- Panel Back Lights are turned On.
- If no Backlights, unplug AC Power Cord, unplug 10 pin connector to SMPS, plug in AC Power Cord, Back light should come on. Check Main Board operation for error.
- Power/IR Indicator goes off.
- Picture or banner is displayed.
    - If nothing is displayed, check the LVDS cable.
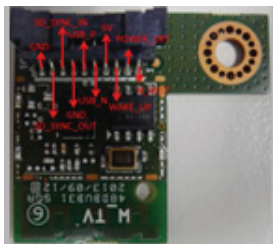
4-2. How to Check Fault Symptom

4-2-1. Video

Main Board	Pre-T-Con.	Post T-Con.	Problem
Pass	Pass	Pass	Check Signal Source and other inputs.
Fail	Pass	Pass	Main Board or LVDS Cable.
Fail	Fail	Pass	T CON Board.
Fail	Fail	Fail	T CON Board or Panel.

Symptom	Major checkpoints
	• **ENTER** : Factory mode - SVC Info - Test Pattern • **CHECK TEST PATTERNS** ❶ Verify "Pattern Sel" ❷ Verify "FRC Pre Test Pattern" ❸ Verify "FRC Post Test Pattern" ❹ Verify "SoC T CON Test Pattern"

4-2-2. Network

Troubleshooting	Major checkpoints

Bluetooth Module	• **MAIN : SVC, MODE : DTV, RES : NOTSUPPORT**
	
	1. Check Bluetooth Address at **Contact Samsung**.
	
	2. Check BT F/W Version at Factory Mode screen.
	  − Might require upgrade.
	  − Check GSPN.
	
	3. If errors exist than Check BT Connector Voltages. If DC voltages are missing check cable & Main Board feed.

Pin No.	Pin Name	Direction	Description
1	N_RESET	I	Active-low reset input
2	GPIO_0	I/O	POWER_DET (BT_SLEEP)
3	GPIO_1	I/O	WAKE_UP
4	5V	---	5V
5	USb_D-	I/O	USB_N
6	USb_D+	I/O	USB_P
7	GND	GND	GND
8	GPIO_5	I/O	3D_SYNC_IN_FROM_TV
9	GPIO_6	I/O	3D_SYNC_OUT_FROM_BT
10	GND	GND	GND

Troubleshooting	Major checkpoints

WIFI Module	**1.** Check Wired MAC Address and Wireless MAC Address at **Contact Samsung**.
	
	2. Check Wired MAC and Wireless MAC at Factory Mode Menu. (Success/Failure)
	   – If Wired MAC errors exist the Main Board is defective.
	   – If Wireless MAC errors exist:
	     Check Wi-Fi Module Connector Voltages. If OK replace Module.

Pin No.	Pin Name	Description	Type
1	GND	Ground	G
2	USB_DP	USB Interface	I/O
3	USB_DN	USB Interface	I/O
4	B+_5V	+5V DC Power supply for SWL -R55	V
5	NC	NC	-
6	Reset	Reset signal Input	I

4-2-3. Problems and Solutions

■ Apps

- Due to the product characteristics featured on the Samsung Smart Hub, as well as limitations in available content, certain features, applications, and services may not be available on all devices or in all territories. Some Smart Hub features may also require additional peripheral devices or membership fees. Visit http://www.samsung.com for more information on specific device information and content availability. Services and content availability are subject to change without prior notice.

- Samsung Electronics takes no legal responsibility whatsoever for any interruption of app services caused by the service provider for any reason.

- Application services may be provided in English only and available content may vary depending on the area.

- For more information about applications, visit the applicable service provider's website.

- An unstable Internet connection may cause delays or interruptions. In addition, applications may terminate automatically depending on the network environment. If this occurs, check your Internet connection and try again.

- Application services and updates may become unavailable.

- Application content is subject to change by the service provider without prior notice.

- Specific services may vary depending on the version of the application installed on the TV.

- An application's functionality may change in future versions of the application. If this occurs, run the application's tutorial or visit the service provider's website.

- Depending on the service provider's policies, certain applications may not support multitasking.

■ WebBrowser

- Select **Web Browser**. The browsing screen may differ from the one on your computer.
- The web browser is not compatible with Java applications.
- You cannot download files. If you attempt to download a file, you will receive an error message instead.
- The web browser may not be able to access certain websites.
- Playing Flash videos may be restricted.
- E-commerce for online purchases is not supported.
- With websites that have scrollable windows, scrolling through such a window can result in corrupted characters.
- ActiveX is not supported.
- Certain options are not accessible in Link Browsing mode. (Switch to Pointer Browsing to activate this.)
- Only a limited number of fonts are supported. Certain symbols and characters may not be displayed properly.
- The response to remote commands and the resulting on-screen display may be delayed while a webpage is loading.
- Loading a webpage may be delayed or suspended completely with certain operating systems.
- The copy and paste operations are not supported.
- When composing an email or a simple message, certain functions such as the font size and color selection may not be available.
- There is a limit to the number of bookmarks and the size of the log file that can be saved.
- The number of windows that can be opened concurrently varies depending on the search conditions and the TV model.
- The web browsing speed will vary depending on the network environment.
- Playing embedded video automatically disables PIP. Video playback may not commence after PIP is disabled. In this case, you will have to reload the page.
- The web browser supports .mp3 audio files only.
- The web browser supports a specific file format for importing and exporting bookmarks. (Compatible Format: Netscape-bookmarkfile- 1)
- The folder tree information is not included when importing and exporting bookmarks.
- Exporting bookmarks to a USB device connected to the TV saves the bookmarks under a folder named "Samsung SmartTV Bookmark".
- If **Clock** (**System** - **Time** - **Clock**) has not been enabled, the browsing history will not be saved.
- The browsing history is saved in the order of latest to oldest, with the oldest entries being overwritten first.

- Depending on the types of video/audio codecs supported, it might not be possible to play back certain video and audio files during Flash playback.
- A sudden change in the picture brightness inside a video window may affect the brightness of the screen. This problem applies to PDP TVs only.
- Video sources from PC-optimized streaming service providers may not play properly on our proprietary web browser.
- Using the on-screen QWERTY keyboard automatically disables PIP. (Except when entering a URL.)

■ Photo, Video, and Music File Use Limitations

- The TV supports MSC (Mass Storage Class) USB devices only. MSC is a class designation for mass storage devices. Types of MSC devices include external hard drives, flash card readers, and digital cameras. (USB hubs are not supported.) These kinds of devices must be connected directly to the TV's USB port. The TV may not be able to recognize the USB device or read the files on the device if it is connected to the TV via a USB extension cable. Do not disconnect the USB device while transferring files.
- When connecting an external hard drive, use the USB (HDD) port. We recommend that you use an external hard drive with its own power adapter.
- Certain digital cameras and audio devices may not be compatible with the TV.
- If there are multiple USB devices connected to the TV, the TV might not be able to recognize some or all the devices. USB devices that use high-power input should be connect the USB [5V, 1A] port.
- The TV supports the FAT, exFAT, and NTFS file systems.
- After sorting files in the Folder view mode, the TV can display up to 1000 files per folder. If the USB device contains more than 8,000 files and folders, however, some files and folders might not be accessible.
- The PTP (pier to pier) connection mode is available only for digital cameras. If you connect a smartphone or tablet to the TV using PTP mode, the TV will not recognize it.

4-3. Factory Mode Adjustments

4-3-1. Detail Factory Option

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

■ UN**H8000AGXPR

Inches		55"	65"
PANEL	Vendor	SDC	SDC
	Code	BN95-01376A	BN95-01377A
	Spec.	CY-VH055DSLV1V	CY-VH065DSLV1V
SMPS BOARD	Vendor	DYREL	SEM
	Code	BN44-00727A	BN44-00728A
	Spec.	L55C2Q_EDY	L65C2Q_ESM
MAIN BOARD	Chassis Ass'y	BN91-12422X	BN91-12800F
	PBA Ass'y	BN94-07390X	BN94-07516F

Byte	Item		
0	Factory Reset	-	-
1	Type	55A2UF8R	65A2UF8R
2	Local set	PAR_DTV	PAR_DTV
3	SW Model	UH8000	UH8000
4	BOM Model	8000	8000
5	Tuner	S_ISDB	S_ISDB
6	Ch table	NONE	NONE

4-3-2. 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 | → | MUTE | → | 1 | → | 8 | → | 2 | → | Power On |

- If you have Factory remote control

| INFO | → | Factory |

- Some items are not available without a factory remote.

Option
Control
Debug
SVC
ADC/WB
Advanced

T-GFPUABC-xxxx ◄ - - - - - - - - - - - - - - **Main SW Version**
T-GOLAUSS1-xxxx ◄ - - - - - - - - - - - - - **Sub Version (Main, Jak)**
BT Version : x.x.xx.xxx ◄ - - - - - - - - - - **Bluetooth Version**
E-Manual : GPISDBH-xxxx ◄ - - - - - - - - - **E-Manual Version**
Camera Version : x.xx ◄ - - - - - - - - - - - **Camera Version**
Blaster-Version : x.xx ◄ - - - - - - - - - - - **IR Blaster Version**
EDID SUCCESS
CALIB : AV / COMP / PC / HMDI /
Option : xxxx xxxx xxx

DTP-SDAL-GOLFP-xxxx-xxxx
RFS : "Golf.P 00xx" / 201x-xx-xx
KERNEL : xxx.xxxx/
DTP-DTVTD-xxxx-xx
Backend[GOLF-FT1] Panel[SDC-240Hz]
FW[519] Data[0303]
TCON Version: xxxx

Model : xxxxxxxx
Wired MAC----
Wireless MAC----
WIFI:xxxx
DRM : Crt O,Nf O,Wv O, Hc O, Dc O, Mx O, Ml/
Factory Data Ver : xx

SmartControl:A141130/8704
DTP-BP-HAL-xxxx
DTP-BP-MW-xxxx
DTP-BP-APP-xxxx
POP-FLA-14-0001
Date of purchase : mm/dd/yyyy

4-3-3. Factory Data

■ Option

Factory Menu Name	Data	Range
Factory Reset	-	
Type	55A2UF8R 65A2UF8R	48A2UF8R
Local Set	PAR_DTV	BRA_DTV/PERU_DTV/ARG_DTV/URU_DTV/ PAR_DTV/SA_ATV/SELA/COLOMBIA Depends on the region.
SW Model	UH8000	
BOM Model	8000	
TUNER	S_ISDB	
Ch Table	NONE	
MRT Option		
Engineer Option		

■ Control

Factory Menu Name	Data	Range
EDID		
EDID ON/OFF	Off	
EDID WRITE ALL	…	
EDID WRITE HDMI	…	
EDID WRITE PC	…	
HDMI EDID Ver	…	
HDMI EDID Port	…	
Sub Option		
RS-232 Jack	UART	
Serial Log On/Off	OFF	
Watchdog	ON	
Checksum	0x0000	
Fast Boot In Production	ON	
USB Serial	OFF	
EEPROM RESET		
ECO IC TYPE	CT802FN	
Info Link Server Type	development	
Info Link Country	None	
TTX Group	…	
Visual Test	Diable	

Factory Menu Name	Data	Range
Mediaplay DB	On with 10MB	
OPTION_SWU		
OPTION_NUM		
RF Remocon Support	OFF	
CDD mode		
DPMS Support	OFF	
Num of IPTV CIP	0	
Num of CI	0	
Num of DECODER	1	
T-CON Device	1	
BOARD CONTROL	ON	
RM		
LMK threshold	3	
Low threshold	0	
High threshold	0	
CLB	…	
EOS Click	OFF	
Last Screen	OFF	
App Resume	ON	
BP PMS Reset	1	
Fanet Thread	2	
User InstantOn Default Value	OFF	
ACM_MC	OFF	
Hotel Option		
Hospitality Mode	OFF	
Power On		
Menu OSD		
Operation		
Music Mode		
External Source		
Eco Solution		
Cloning		
Shop Option		
Shop Mode	OFF	
Exhibition Mode	OFF	
3D_EmitOn	ON	
3D_EmitShowMode	OFF	

Factory Menu Name	Data	Range	
3D GLASS PULSE_S	5		
3D GLASS PULSE_H	3		
3D CUBE	OFF		
Asia Option			
Unbalance	OFF		
AF Level adjust	0		
TX Power Level	0		
Mono Last Memory	OFF		
H Shaking	0		
SOUND			
High Devi	OFF		
Carrier_Mute	OFF		
FM Prescale	20		
FM M Prescale	21		
AM Prescale	21		
NICAM Prescale	20		
Pilot Level High Thld	0x20h		
Pilot Level Low THLD	0x10h		
chattering Count	5		
Carrier2 Amp High ThLD	9		
Carrier2 Amp Low THLD	6		
A2 pilot sensitivity	1		
Amp Volume	0xc7h		
Amp Scale	0x8eh		
Amp EQ Check Sum	0x1F6A2A08		
Amp Local Check Sum	0x00000000		
Subwoofer Support	3		
Woofer Type	0		
Woofer Volume	0xc7h		
Woofer Scale	0x5ch		
Woofer Check sum	0x02CBF3C4		
Woofer Local Check Sum	0x00000000		
Local Speaker EQ	0		
PEQ Test	Ready		
Amp Model	NTP7414		
Speaker EQ	ON		
Bottom CheckSum	0x017A6E0A		

Factory Menu Name	Data	Range
Bottom Local Check Sum	0x00000000	
Wall Filter Type	0	
SRS Tuning Parm	0	
SPDIF PCM Gain	-9	
AudioDock BT Delay	50	
3D_Glass BT delay	50	
Speaker cut-off Freq	0	
Audio-IP Test	0	
TruBass-Checksum	0	
Mic Scale	OFF	
India Sound	0	
Speaker Delay Normal	0	
NTV CU Delay	0	
Lipsync Inx	3:GP_U_ATSC	
Lipsync CheckSum	OK:B391:127	
Lipsync USB Test	Ready	
Lipsync BT CheckSum	OKA4EC:127	

■ Debug

Factory Menu Name	Data	Range
Spread Spectrum		
DDR Margin		
ND ADJ Support	OFF	
MICOM POWER OFF	OFF	
BT_ON_OFF	ON	
RF Mute Time	600ms	
CI +1.3	OFF	
FRC		
Tuner Margin	3	
MPEG Margin	20	
H.264 Margin	15	
CAM Wait Time	1500	
TCON_TEMP READ	50.88	
TEMP LAST	50.88	
DCC VERSION	0xC9C7	
DCC CHK SEL	0	
DCC CHECK LACAL	0x0	

Factory Menu Name	Data	Range
DCC CHECK TOTAL	0x0	
MulitACC Checksum	0	
IIC Bus Stop	OFF	
Tuner Status		
Voice Debug	OFF	
Power Management		
HHP option	SHOW	
RM_BIST_DTV	0	
RM_BIST_ATV	0	

■ SVC

Factory Menu Name	Data	Range
Self Test(for HW)		
Info		
Upgrade		
T-CON Usb Download	Failure	* UpgradeT-CON eeprom
T-CON CheckSum	0x3131	* virsion of T-CON eeprom
T-CON2 Usb Download	Failure	
T-CON2 CheckSum		
PANEL EEPROM UPGRADE	Failure	
PANEL FLASH UPGRADE	Failure	
Logic Usb D/L	…	
SUBMICOM UPGRADE	Ready	* Upgrade Sub-Micom Program
SUBMICOM JP UPGRADE	Ready	
BT UPGRADE		* Upgarde BT (There is upgrade program in Main-Image)
BT FREEPAIRING	ON	
Function Upgrade	Failure	
FRC3D FW UPGRADE		
FRC3D LD UPGRADE	Failure	
FRC2 3D FW UPGRADE		
Camera Upgade		* Upgarde Camera module (There is upgrade program in Main-Image)
Mic Upgrade		* Upgarde MIC in Camera module (There is upgrade program in Main-Image)
CPLD USB Download		
CPLD DownLoad		* Upgarde CPLD (There is upgrade program in Main-Image)
Jump UPGRADE	Failure	

Factory Menu Name	Data	Range
IR Blaster Upgrade	Failure	
LP eeprom update	50	
NTV Cu Update	Failure	
Main FPGA Upgrade	Failure	
Serdes FPGA Upgrade	Failure	
Jack FPGA Upgrade	Failure	
UD LDC PROFILE UPGRADE	Failure	
Pic Data USB Update	VER:0x000	
Audio Data USB Update		
Eco Data USB Update	VER:0x0002	
SC ADK Upgrade	Failure	
SC MBR Upgrade	Failure	
Reset		
OPTION_HDMI		
DVB CI		
Test Pattern		
Other setting		
Restriction		
SVC Panel		

■ ADC/WB

Factory Menu Name	Data	Range
ADC		
AV Calibaration	/	
Comp Calibration	/	
PC Calibration	/	
HDMI Calibration	/	
ADC Result		
1st_Y_GH	252	
1st_Y_GL	245	
1st_Cb_BH	.	
1st_Cb_BL		
1st_Cr_RH		
1st_Cr_RL		
2nd_R_L	130	
2nd_G_L	130	
2nd_B_L	130	

Factory Menu Name	Data	Range
2nd_R_H	107	
2nd_G_H	107	
2nd_B_H	107	
White Balance		
R-Offset	128	
G-Offset	128	
B-Offset	128	
R-Gain	128	
G-Gain	128	
B-Gain	128	
WB-W2_R_Offset	128	
WB_W2_B_Offset	128	
WB_W2_R_Gain	128	
WB_W2_B_Gain	70	
WB-N_R_Offset	128	
WB_W2_N_Offset	128	
WB_W2_N_Gain	142	
WB_W2_N_Gain	109	
MGA		
MGA On/Off	OFF	
R1_Gain	512	
G1_Gain	512	
B1_Gain	512	
R2_Gain	512	
G2_Gain	512	
B2_Gain	512	
R3_Gain	512	
G3_Gain	512	
B3_Gain	512	
R4_Gain	512	
G4_Gain	512	
B4_Gain	512	
R5_Gain	512	
G5_Gain	512	
B5_Gain	512	
R6_Gain	512	
G6_Gain	512	

Factory Menu Name	Data	Range
B6_Gain	512	
R7_Gain	512	
G7_Gain	512	
B7_Gain	512	
R8_Gain	512	
G8_Gain	512	
B8_Gain	512	
R9_Gain	512	
G9_Gain	512	
B9_Gain	512	
R10_Gain	512	
G10_Gain	512	
B10_Gain	512	

■ Advanced

4-4. White Balance

4-17

4-4-1. Calibration

1. Into the Factory Mode.

2. Select **ADC/WB** menu.

3. Select **ADC** menu.

Option
Control
Debug
SVC
ADC/WB
Advanced

AV Calibration
Comp Calibration
PC Calibration
HDMI Calibration

4-4-2. Service Adjustment

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

■ Color Calibration

• Adjust Specification

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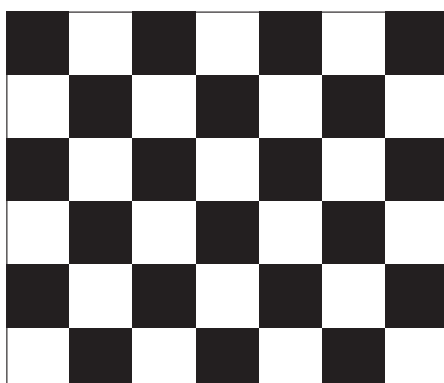
(Chess Pattern)

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

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

■ Method of Color Calibration (AV)

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

■ Method of Color Calibration (Component)

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

■ Method of Color Calibration (PC)

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

■ Method of Color Calibration (HDMI)

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

4-4-3. Adjustment

1. Into the Factory Mode.

2. Select **ADC/WB** menu.

3. Select **White Balance** menu.

Option
Control
Debug
SVC
ADC/WB
Advanced

White Balance

(Low Light)

Sub Brightness
R offset
G offset
B offset

(Hight Light)

Sub Contrast
R gain
G gain
B gain
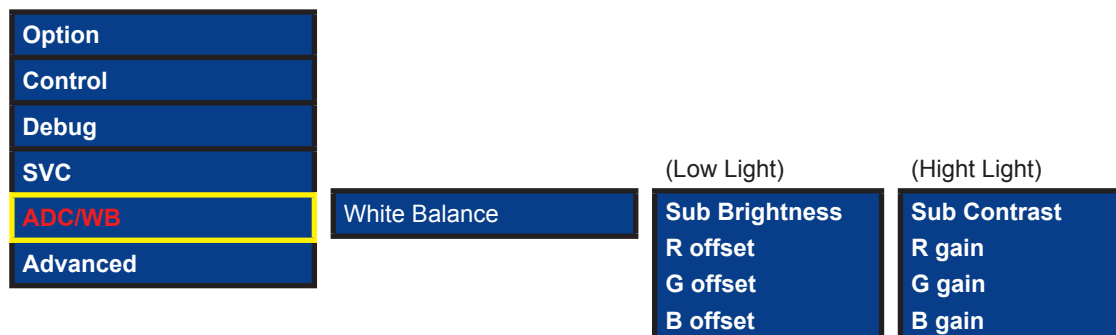
4-5. RS-232C

- **RS232C Control**
  - Port : COM#(Serial)
  - Bit rate : 115200
  - Data Bit : 8 bit
  - Parity : None
  - Stop Bits : 1
  - Flow Control : None
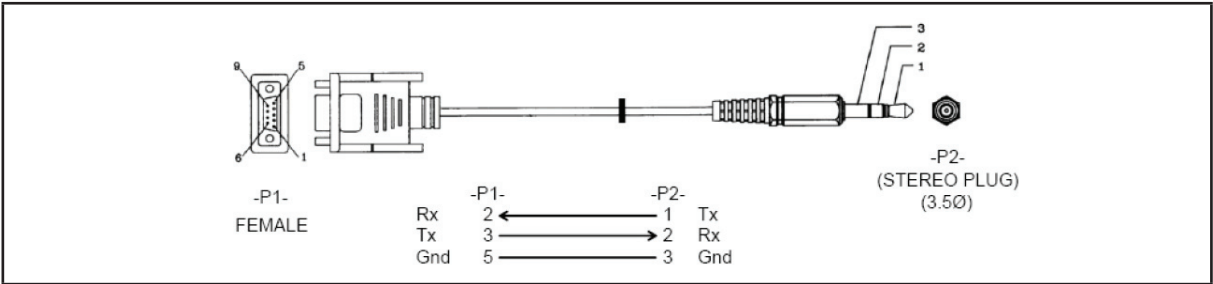
- Description of RS232C

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

4-6. AV Control Tabe

Control Item			Cmd1	Cmd2	Cmd3	Value
General	Power	Power	0x00	0x00	0x00	0x00
		Off				0x01
		On				0x02
	Volume	Direct	0x01	0x00	0x00	(0~100)
		Up			0x01	0x00
		Down			0x02	0x00
	Mute		0x02	0x00	0x00	0x00

Control Item				Cmd1	Cmd2	Cmd3	Value
	Ch.	Direct		0x04		-	
		Continuous	Up	0x03	0x00	0x01	0x00
			Down			0x02	0x00

Control Item				Cmd1	Cmd2	Cmd3	Value
Input	Source List	TV	TV	0x0a	0x00	0x00	0x00
		AV	AV1			0x01	0x00
			AV2				0x01
			AV3				0x02
		S-Video	S-Video1			0x02	0x00
			S-Video2				0x01
			S-Video3				0x02
		Component	Component1			0x03	0x00
			Component2				0x01
			Component3				0x02
		PC	PC1			0x04	0x00
			PC2				0x01
			PC3				0x02
		HDMI	HDMI1			0x05	0x00
			HDMI2				0x01
			HDMI3				0x02
			HDMI4				0x03
		DVI	DVI1			0x06	0x00
			DVI2				0x01
			DVI3				0x02

Control Item			Cmd1	Cmd2	Cmd3	Value
PICTURE	Mode	Dynamic(Entertain)	0x0b	0x00	0x00	0x00
		Standard				0x01
		Movie				0x02
		Natural				0x03

Control Item				Cmd1	Cmd2	Cmd3	Value	
PICTURE	Mode	CAL-NIGHT					0x04	
		CAL-DAY					0x05	
		BD Wise					0x06	
		Relax					0x07	New function of 12" (only PDP TV)
	BackLight (CellLight)		0~20		0x01	0x00	(0~20)	
	Contrast		0~100		0x02	0x00	(0~100)	
	Brightness		0~100		0x03	0x00	(0~100)	
	Sharpness		0~100		0x04	0x00	(0~100)	
	Color		0~10		0x05	0x00	(0~100)	
	Tint	G/R			0x06	0x00	(0~100)	
	Advanced Settings	Black Tone	Off		0x07	0x00	0x00	
			Dark				0x01	
			Darker				0x02	
			Darkest				0x03	
		Dynamic Contrast	Off			0x01	0x00	
			Low				0x01	
			Medium				0x02	
			HIgh				0x03	
		Shadow Detail	-2 ~ 2			0x02	(-2~2)	
		Gamma	-3 ~ 3			0x03	(-3~3)	
		RGB Only Mode	Off			0x05	0x00	
			Red				0x01	
			Green				0x02	
			Blue				0x03	
		Color Space	Auto			0x06	0x00	
			Native				0x01	
			Custom				0x02	
		White Balance	R-Offset(LCD)			0x07	(0~50)	
		White Balance	G-Offset(LCD)			0x08	(0~50)	
		White Balance	B-Offset(LCD)			0x09	(0~50)	
		White Balance	R-Gain(LCD)			0x0a	(0~50)	
		White Balance	G-Gain(LCD)			0x0b	(0~50)	
		White Balance	B-Gain(LCD)			0x0c	(0~50)	
		White Balance	Reset(LCD)			0x0d	0x00	
		Flesh Tone	-15 ~ 15			0x0e	(-15~15)	
		Edge Enhancement	Off			0x0f	0x00	

Control Item				Cmd1	Cmd2	Cmd3	Value	
PICTURE			On				0x01	
		xvYCC	Off			0x10	0x00	
			On				0x01	
		Motion Lighting	Off			0x11	0x00	
			On				0x01	
		LED Motion Plus	Off		0x0a	0x07	0x00	
			On(Normal)				0x01	
			Cinema				0x02	
			Ticker				0x03	
	Picture Option	Color Tone	Cool		0x0a	0x00	0x00	
			Standard				0x01	Change **Normal → Standard** mode
			Warm1				0x02	
			Warm2				0x03	
		Digital Noise Filter	Off			0x02	0x00	
			Low				0x01	
			Medium				0x02	
			High				0x03	
			Auto				0x04	
			Auto Visualization				0x05	
		MPEG Noise Filter	Off			0x03	0x00	
			Low				0x01	
			Medium				0x02	
			High				0x03	
			Auto				0x04	
		HDMI Black Level	Normal			0x04	0x00	
			Low				0x01	
		Film Mode	Off			0x05	0x00	
			Auto1				0x01	
			Auto2				0x02	
			Cinema Smooth				0x03	New function of 12" (only PDP TV)
		Auto Motion Plus	Off			0x06	0x00	
			Clear				0x01	
			Standard				0x02	
			Smooth				0x03	
			Custom				0x04	

Control Item			Cmd1	Cmd2	Cmd3	Value
PICTURE		Demo				0x05
	Screen Adjustment	Picture Size	16:9	0x0b	0x0a	0x01	0x00
			Zoom1				0x01
			Zoom2				0x02
			Wide Fit				0x03
			4:3				0x04
			Screen Fit				0x05
			Smart View I				0x06
			Smart View II				0x07
			Auto Wide				0x08
			Wide Zoom				0x09
			Zoom				0x0a
	Reset Picture	Reset Picture		0x0b	0x0b	0x00	0x00
	3D	3D Mode	Off	0x0b	0x0c	0x00	0x00
			2D ⋯→ 3D				0x01
			Side By Side				0x02
			Top Bottom				0x03
			Line By Line				0x04
			Vertical Line				0x05
			Checker BD				0x06
			Frame Sequence				0x07
		3D ⋯→ 2D	Off			0x01	0x00
			On				0x01
		3D View Point				0x02	(-5~5)
		Depth				0x03	(1~10)
		3D Auto View	Off			0x05	0x00
			Message Notice				0x01
			On				0x02

New function of 12" (only DVB TV)

Control Item			Cmd1	Cmd2	Cmd3	Value
Sound	Sound Mode	Standard		0x0c	0x00	0x00	0x00
		Music					0x01
		Movie					0x02
		Clear Voice					0x03
		Amplify					0x04

Control Item				Cmd1	Cmd2	Cmd3	Value
Sound	Equalizer	Balance				0x01	0x00	(0~20)
		100hz					0x01	(0~20)
		300hz					0x02	(0~20)
		1khz					0x03	(0~20)
		3khz					0x04	(0~20)
		10khz					0x05	(0~20)
		Reset					0x06	0x00
	SRS TruSurround HD (echo)	Off			0x02	0x00	0x00
	Virtual Surrond (echo)	On						0x01
	SRS TruDialog (echo)	Off			0x03	0x00	0x00
	Dialog Clarify (X9)	On						0x01
	Preferred Language	English			0x04	0x00	0x00
		Spanish						0x01
		French						0x02
		Korean						0x03
		Japanese						0x04
	Multi-Track Sound	Mono			0x05	0x00	0x00
		Stereo						0x01
		SAP						0x02
	Auto Volume	Off			0x06	0x00	0x00
		ON						0x01
		Night						0x02
	Speaker Select	TV Speaker			0x07	0x00	0x00
		External Speaker						0x01
	Sound Select	Main			0x08	0x00	0x00
		Sub						0x01
	Sound Reset	Sound Reset			0x09	0x00	0x00
	3D Audio	Off			0x0a	0x00	0x00
		Low						0x01
		Medium						0x02
		High						0x03

New function of 12"

Control Item			Cmd1	Cmd2	Cmd3	Value	
KEY	Key Generation		0x0d	0x00	0x00	refer to table	
OSD	Show/Hide Control	Show	0x0e	0x00	0x00	0x00	New function of 12"
		Hide				0x01	
Get Status	Power (On/Off)		0xf0	0x00	0x00	0x00	
	Volume(0~100)		0xf0	0x01	0x00	0x00	
	Mute (On/Off)		0xf0	0x02	0x00	0x00	
	Channel Number		0xf0	0x03	0x00	0x00	
	Source (TV/AV/…/HDMI/…)		0xf0	0x04	0x00	0x00	
	Picture Size		0xf0	0x05	0x00	0x00	
	3D (On/Off)		0xf0	0x06	0x00	0x00	
	Picture Mode		0xf0	0x07	0x00	0x00	
	Sound Mode		0xf0	0x08	0x00	0x00	

Key value	Value
Up	96 (0x60)
Down	97 (0x61)
Left	101 (0x65)
Right	98 (0x62)
Menu	26 (0x1A)
Internet	147 (0x93)
Enter(OK)	104 (0x68)
EXIT	45 (0x2D)

4-7. Updating the TV's Software

- **MENU > Support > Software Update**

View your TV's software version and update it if necessary.

The TV is set to update software automatically via the internet by default. If you don't want to update it automatically, set **Auto Update** (**Support** > **Software Update** > **Auto Update**) to **Off**.

⚠️ **CAUTION** DO NOT turn off the TV's power until the update is complete. The TV will turn off and on automatically after completing the software update. All video and audio settings return to the default settings after a software update.

■ Update now

- **MENU > Support > Software Update > Update now**

Update now lets you update your TV's software in three ways:
- Online, by downloading the update from the Internet directly to your TV.
- Manually, using a USB flash drive.
- Automatically (Auto Update), while the TV is in Standby Mode.

⚠️ **CAUTION** Do not turn off the TV during the Software Update. It may cause the TV to malfunction.

Online

To update your TV using the Online method, follow these steps:

1 Make sure that your TV is connected to your local network and the Internet.
- The connection can be wired or wireless.

2 All video and audio settings return to their default settings after a software update.
- We recommend you record your current settings now so you can easily re-establish your settings when the update is complete.

3 Press the **MENU** button, and then select **Support** > **Software Update** > **Update now**.
- The Update now pop-up appears.

4 The TV searches on line for the latest software version for your TV.
- If it does not find an update, the "**No new updates**" pop-up appears. Press the **EXIT** button to exit.
- If the TV finds a new version, the Update Request pop-up appears.

5 Select **OK**. The TV updates the software, turns off, and then turns on automatically.

Manually, Using a USB Flash Drive

To update your TV using the Manual method, follow these steps:

1
All video and audio settings return to their default settings after a software update.
- We recommend you record your current settings now so you can easily re-establish your settings when the update is complete.

2
On a computer, visit **www.samsung.com**.
- Select **GET SUPPORT** > **Get Downloads**.

3
Enter the product's model number into the search field.
- As you enter the model number, a drop down will display products that match the model number.

4
Click your product's model number in the drop down list.
- On the page that appears, scroll down to and then click **Downloads**.

5
Click **Firmware** in the center of the page.

6
Click the **ZIP** button in the File column.
- Click **Send** in the first pop-up that appears.

7
Click **Save** in the second pop-up to download, and then save the firmware file to your computer.
- Unzip the zip archive to your computer. You should have a single folder with the same name as the zip file.

8
Copy the folder to a USB flash drive.
- Insert the USB flash drive into a USB port of the TV.

9
In the TV's menu, go to **Support** > **Software Update** > **Update now**.
- The TV searches for the software on the USB drive. When it finds the software, the Update Request pop-up appears.

10
Select **OK**. The TV updates the software, turns off, and then turns back on automatically.

Enabling Automatic Software Updates

- **MENU > Support > Software Update > Auto Update**

If the TV is connected to the Internet, it can be updated via Auto Update while watching the TV. When the Background upgrade completed, the update will be applied the next time the TV is used.

> ✎ **NOTE**
>
> This option requires an Internet connection.

If you agree to the Smart Hub terms and conditions, Auto Update will be set to On automatically. If you don't want the TV's software updated automatically, set **Auto Update** (**Support** > **Software Update** > **Auto Update**) to Off.

5. Wiring Diagram

5-1. Wiring Diagram
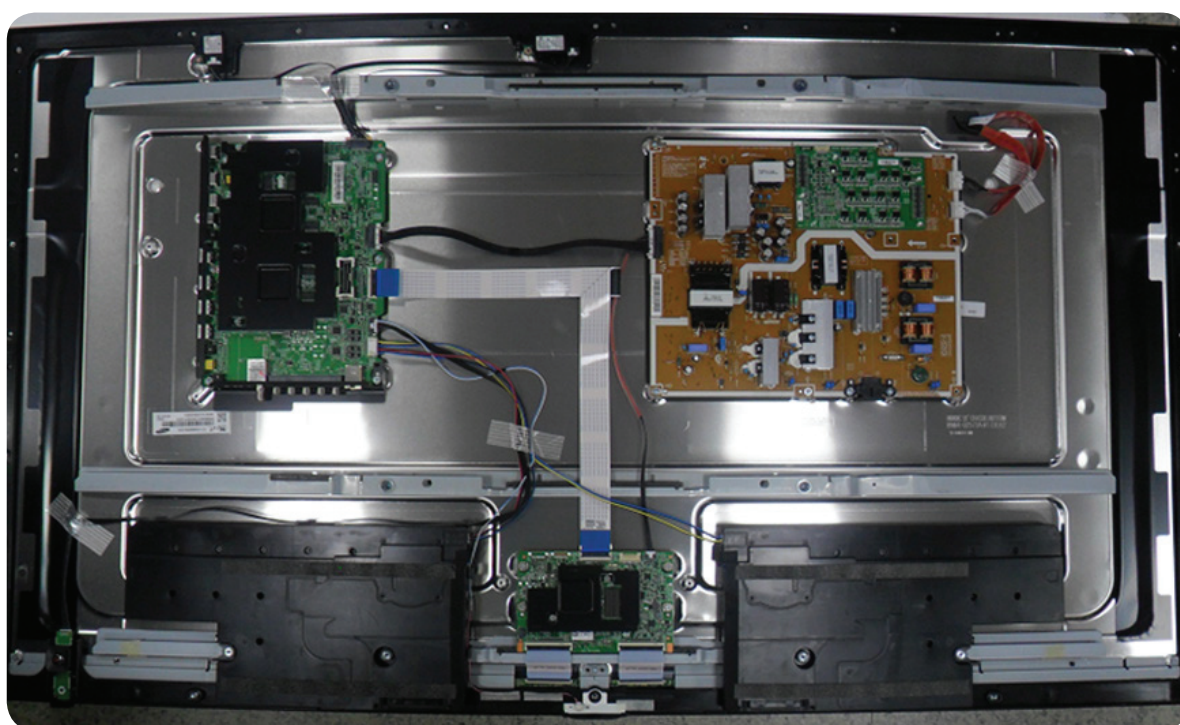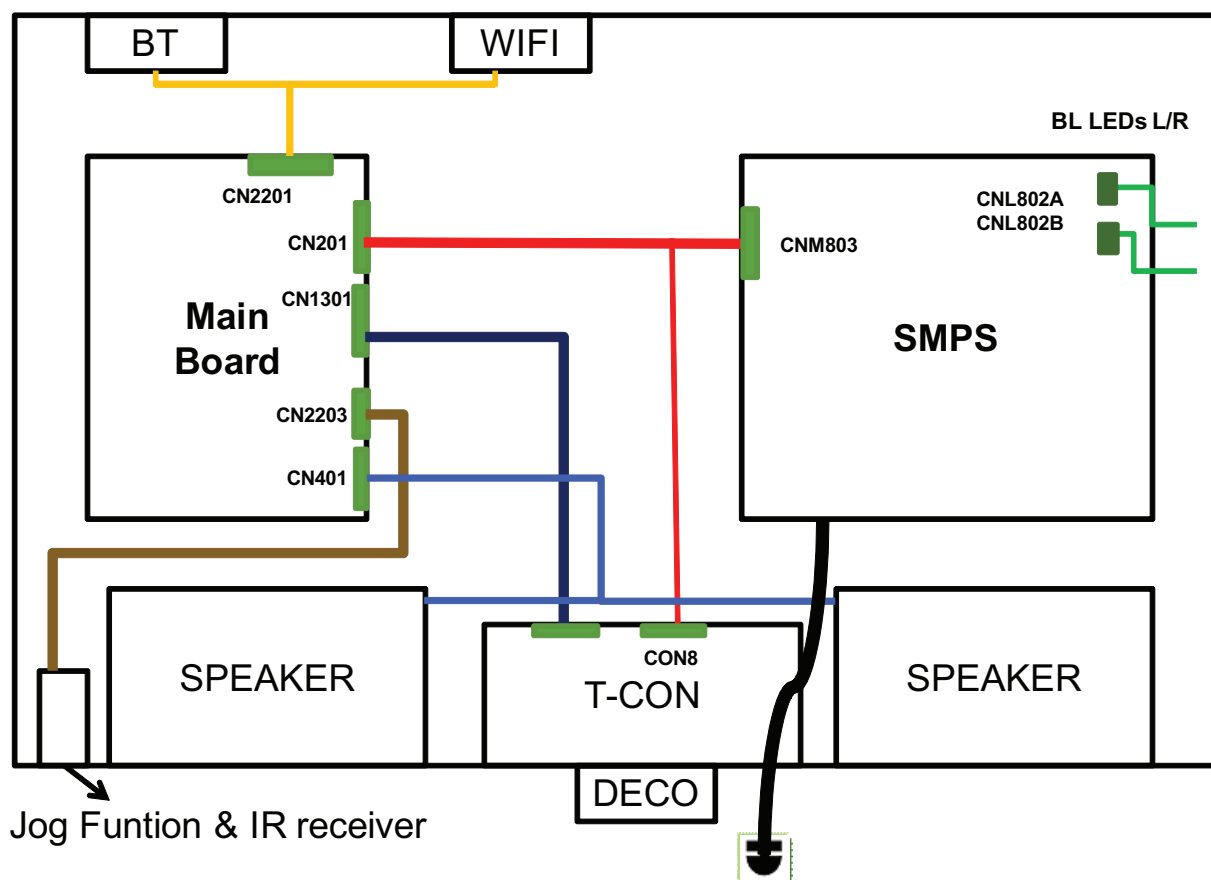
5-2. Connector

■ Main Board
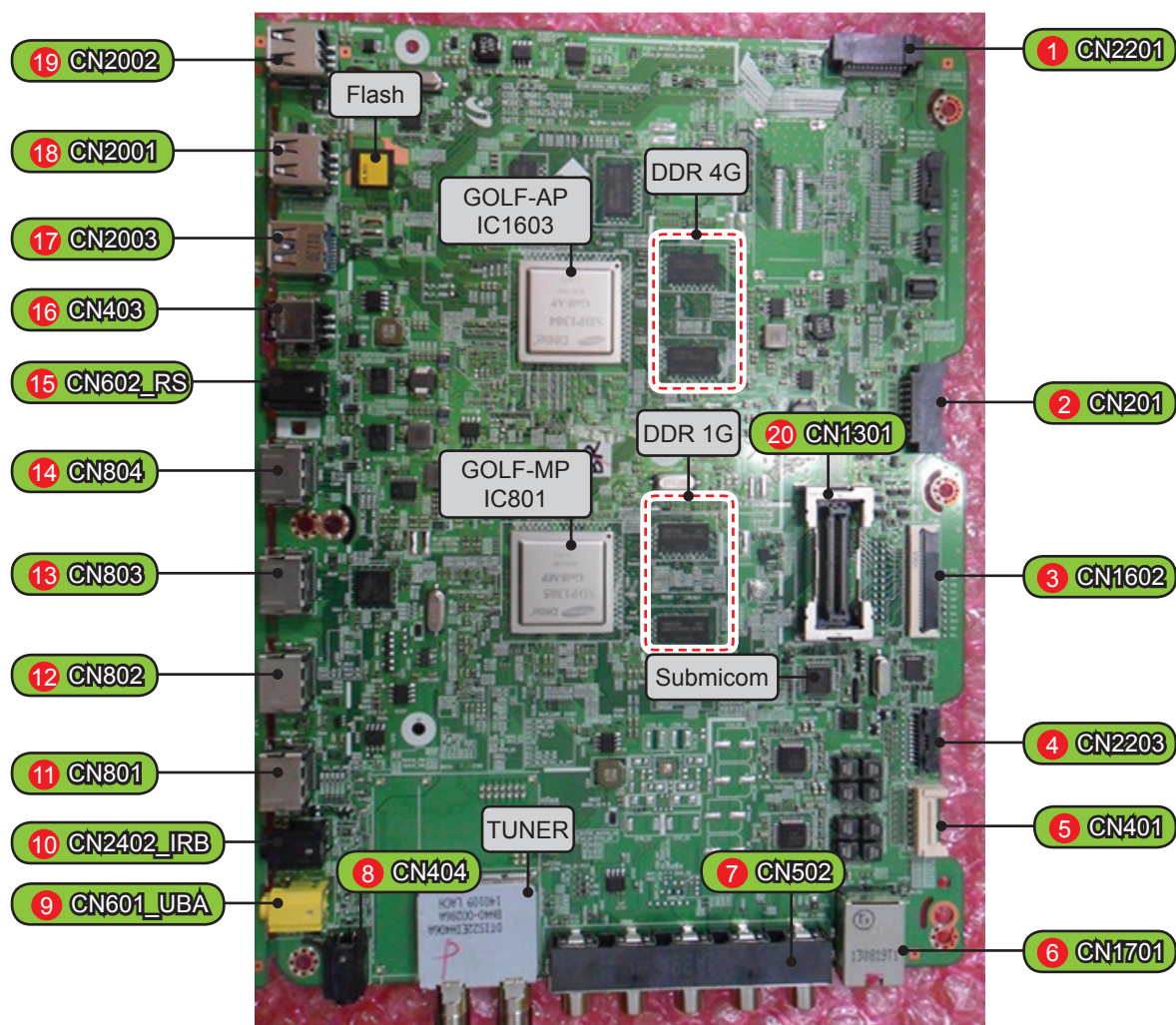
① CN2201 (WIFI/ BT)			
1	BT NRESET	14	REF_SYNC_IN
2	WAKE_BT	15	NC
3	POWER_DET	16	DGND
4	A5V_PW	17	NC
5	NC	18	DGND
6	BT_D-_USB	19	NC
7	NC	20	WIFI_D+_USB
8	BT_D+_USB	21	NC
9	NC	22	WIFI_D-_USB
10	DGND	23	NC
11	DGND	24	B5V_PW
12	EMITTER_BT_SYNC_OUT	25	WAKE_ON_LAN
13	NC	26	WIFI_NRESET

② CN201 (POWER)			
1	A13_18VS_PW	9	A13V_PW
2	DGND	10	A13V_PW
3	A13_18VS_PW	11	SW_POWER_OUT
4	A13_18VS_PW	12	SW_INVERTER
5	DGND	13	A13V_PW
6	DGND	14	OVD_LEVEL
7	A13V_PW	15	A13V_PW
8	GND	16	OVD_ON_OFF

③ CN1602(LVDS)			
1	NC	27	MP_EVEN_A-_FLVDS
2	DGND	28	DGND
3	SDA_3D_FRC	29	EVK_ODD_E+_FLVDS
4	DGND	30	EVK_ODD_E-_FLVDS
5	SCL_3D_FRC	31	EVK_ODD_D+_FLVDS
6	FLVDS_CH_SEL	32	EVK_ODD_D-_FLVDS
7	DGND	33	DGND
8	SDA_PANEL	34	EVK_ODD_CLK+_FLVDS
9	PANEL_I2C_SW	35	EVK_ODD_CLK-_FLVDS
10	EMITTER_BT_SYNC_OUT	36	DGND
11	REF_SYNC_IN	37	EVK_ODD_C+_FLVDS
12	SCL_PANEL	38	EVK_ODD_C-_FLVDS
13	DGND	39	EVK_ODD_B-_FLVDS
14	MP_EVEN_E+_FLVDS	40	EVK_ODD_B+_FLVDS
15	MP_EVEN_E-_FLVDS	41	EVK_ODD_A+_FLVDS
16	MP_EVEN_D+_FLVDS	42	EVK_ODD_A-_FLVDS
17	MP_EVEN_D-_FLVDS	43	DGND
18	DGND	44	DGND
19	MP_EVEN_CLK+_FLVDS	45	DGND
20	MP_EVEN_CLK-_FLVDS	46	NC
21	DGND	47	PANEL_VCC_13V
22	MP_EVEN_C+_FLVDS	48	PANEL_VCC_13V
23	MP_EVEN_C-_FLVDS	49	PANEL_VCC_13V
24	MP_EVEN_B+_FLVDS	50	PANEL_VCC_13V
25	MP_EVEN_B-_FLVDS	51	PANEL_VCC_13V
26	MP_EVEN_A+_FLVDS		

④ CN2203			
1	IR	6	KEY_INPUT1
2	DGND	7	KEY_INPUT2
3	A3.3V_PW	8	A3.3V_PW
4	SCL_HUB_AMP_I2C	9	A3.3V_PW
5	SDA_HUB_AMP_I2C	10	LED_CNTR

⑤ CN401			
1	R1+	5	L1+
2	R1-	6	L1-
3	DGND	7	DGND
4	DGND	8	DGND

⑥ CN1701(LAN)			
1	TX+	5	DGND
2	DGND	6	RX-
3	TX-	7	NC
4	RX+	8	LAN_GND

⑦ CN502 (COMPONENT)			
1	DGND	8	COMP_PR
2	COMP_AV1_SR_IN	9	JIG_TEST_PR
3	TEST_SR	10	DGND
4	DGND	11	COMP_PB
5	COMP_AV1_SL_IN	12	IDENT_COMP
6	TEST_SL	13	DGND
7	DGND	14	COMP_Y

⑧ CN404 (HEADPHONE / LR_OUT)			
1	DGND	5	TEST_SR
2	HP_AUD_SL_OUT	6	IDENT_HP
3	DGND	7	DGND
4	TEST_SL		

⑨ CN601_UBA			
1	DGND	5	TEST_SR
2	SC1_AV2_CVBS_IN	6	TEST_SL
3	SC1_AV2_SR_IN	7	SC1_AV2_SL_IN
4	IDENT_SC1_AV2		

⑩ CN2402_IRB			
1	DGND	5	NC
2	IRB_IR_TX	6	IRB_JACK_ID
3	NC	7	DGND
4	NC		

⑪ CN801(HDMI 1/STB)			
1	HDMI1_RX2+_HDMI	11	DGND
2	DGND	12	HDMI1_RXCLK-_HDMI
3	HDMI1_RX2-_HDMI	13	NC
4	HDMI1_RX1+_HDMI	14	NC
5	DGND	15	HDMI1_DDC_SCL
6	HDMI1_RX1-_HDMI	16	HDMI1_DDC_SDA
7	HDMI1_RX0+_HDMI	17	DGND
8	DGND	18	HDMI1_5V
9	HDMI1_RX0-_HDMI	19	HDMI1_HPD
10	HDMI1_RXCLK+_HDMI		

⑫ CN803 (HDMI 2/DVI_PC)			
1	HDMI2_RX2+_HDMI	11	DGND
2	DGND	12	HDMI2_RXCLK-_ HDMI
3	HDMI2_RX2-_HDMI	13	NC
4	HDMI2_RX1+_HDMI	14	NC
5	DGND	15	HDMI2_DDC_SCL
6	HDMI2_RX1-_HDMI	16	HDMI2_DDC_SDA
7	HDMI2_RX0+_HDMI	17	DGND
8	DGND	18	HDMI2_5V
9	HDMI2_RX0-_HDMI	19	HDMI2_HPD
10	HDMI2_RXCLK+_ HDMI		

⑬ CN804 (HDMI 2/MHL)			
1	HDMI3_RX2+_HDMI	11	DGND
2	DGND	12	HDMI3_RXCLK-_ HDMI
3	HDMI3_RX2-_HDMI	13	NC
4	HDMI3_RX1+_HDMI	14	ARC2_SINGLE
5	DGND	15	HDMI3_DDC_SCL
6	HDMI3_RX1-_HDMI	16	HDMI3_DDC_SDA
7	HDMI3_RX0+_HDMI	17	DGND
8	DGND	18	HDMI3_5V
9	HDMI3_RX0-_HDMI	19	HDMI3_HPD
10	HDMI3_RXCLK+_ HDMI		

⑭ CN804 (HDMI 2/MHL)			
1	HDMI4_RX2+_MHL	11	DGND
2	MHL_INT	12	HDMI4_RXCLK-_ MHL
3	HDMI4_RX2-_MHL	13	NC
4	HDMI4_RX1+_MHL	14	NC
5	DGND	15	HDMI4_DDC_SCL
6	HDMI4_RX1-_MHL	16	HDMI4_DDC_SDA
7	HDMI4_RX0+_MHL	17	DGND
8	DGND	18	A5V_PW
9	HDMI4_RX0-_MHL	19	HDMI4_HPD
10	HDMI4_RXCLK+_ MHL		

⑮ CN602_RS(RS232C)			
1	DGND	5	NC
2	TDB	6	IDENT_FANET
3	RDB	7	DGND
4	NC		

⑯ CN403(OPTICAL)			
1	GOLF_SPDIF_OUT	3	GOLF_SPDIF_OUT_ TEST
2	DGND		

⑰ CN2003(USB 1)			
1	USB1_VCC_5V_PW	6	P4_RX+_USB3
2	JACK3_D-_USB3	7	DGND
3	JACK3_D+_USB3	8	P4_TX-_USB3
4	DGND	9	P4_TX+_USB3
5	P4_RX-_USB3		

⑱ CN2001(USB 2)			
1	USB2_VCC_5V_PW	3	JACK2_D+_USB
2	JACK2_D-_USB	4	DGND

⑲ CN2002(USB 3)			
1	USB3_VCC_5V_PW	3	JACK1_MOIP_D+_ USB
2	JACK1_MOIP_D-_ USB	4	DGND

🔴20 CN1301(UPGRADE TV MODULE)						
1	UP_SSRXP	24	FOX_LVDS_EVEN_TX1+	47	UP_SSTXP	70	LVDS_EVEN_TX1+
2	UP_SSRXM	25	FOX_LVDS_EVEN_TX2-	48	UP_SSTXM	71	LVDS_EVEN_TX2-
3	NC	26	FOX_LVDS_EVEN_TX2+	49	NC	72	LVDS_EVEN_TX2+
4	B13V_UP_PW	27	DGND	50	B13V_UP_PW	73	DGND
5	B13V_UP_PW	28	FOX_LVDS_EVEN_TXCLK-	51	B13V_UP_PW	74	LVDS_EVEN_TXCLK-
6	NC	29	FOX_LVDS_EVEN_TXCLK+	52	NC	75	LVDS_EVEN_TXCLK+
7	FOX_LVDS_ODD_TX0-	30	DGND	53	LVDS_ODD_TX0-	76	DGND
8	FOX_LVDS_ODD_TX0+	31	FOX_LVDS_EVEN_TX3-	54	LVDS_ODD_TX0+	77	LVDS_EVEN_TX3-
9	FOX_LVDS_ODD_TX1-	32	FOX_LVDS_EVEN_TX3+	55	LVDS_ODD_TX1-	78	LVDS_EVEN_TX3+
10	FOX_LVDS_ODD_TX1+	33	FOX_LVDS_EVEN_TX4-	56	LVDS_ODD_TX1+	79	LVDS_EVEN_TX4-
11	FOX_LVDS_ODD_TX2-	34	FOX_LVDS_EVEN_TX4+	57	LVDS_ODD_TX2-	80	LVDS_EVEN_TX4+
12	FOX_LVDS_ODD_TX2+	35	DGND	58	LVDS_ODD_TX2+	81	FOX_I2STX1_LRCLK
13	DGND	36	HUB2CPU_USB_DP	59	DGND	82	FOX_I2STX1_BCLK
14	FOX_LVDS_ODD_TXCLK-	37	HUB2CPU_USB_DM	60	LVDS_ODD_TXCLK-	83	FOX_I2STX1_SPK_SDATA
15	FOX_LVDS_ODD_TXCLK+	38	DGND	61	LVDS_ODD_TXCLK+	84	UP_MODULE_SYNC
16	DGND	39	FOXAP_USB3_DP	62	DGND	85	EXT_GPIO0_NRESET
17	FOX_LVDS_ODD_TX3-	40	FOXAP_USB3_DM	63	LVDS_ODD_TX3-	86	B3.3V_PW
18	FOX_LVDS_ODD_TX3+	41	DGND	64	LVDS_ODD_TX3+	87	EXT_GPIO1_WAKEUP
19	FOX_LVDS_ODD_TX4-	42	EXT_UART_RX	65	LVDS_ODD_TX4-	88	UP_MODULE_SPDIF
20	FOX_LVDS_ODD_TX4+	43	EXT_UART_TX	66	LVDS_ODD_TX4+	89	A5V_PW
21	FOX_LVDS_EVEN_TX0-	44	CPU2CPU_USB_DP	67	LVDS_EVEN_TX0-	90	CPU2CPU_USB_DM
22	FOX_LVDS_EVEN_TX0+	45	SBB_MDI0_TX+	68	LVDS_EVEN_TX0+	91	SBB_MDI1_RX+
23	FOX_LVDS_EVEN_TX1-	46	SBB_MDI0_TX-	69	LVDS_EVEN_TX1-	92	SBB_MDI1_RX-