LED TV

Chassis : U91A

Model : UA55F9000AR

UA65F9000AR

SERVICE Manual

LED TV

UA**F9000AR

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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.

3-1-1. TV

Description	Picture Description	Screws
1 Place TV face down on cushioned table.		
2 Remove 4 screws from the BRACKET-STAND,SUPPORT-R/L.		6003-001321
3 Remove ASSY STAND P-BASE. **CAUTION** Becareful when you remove ASSY STAND P-BASE, It could be sharp as a metal parts.		

	Description	Picture Description	Screws
4	Remove the screws for the ASSY COVER P-REAR Then carefully remove the ASSY COVER P-REAR. • 55 inch : 17 EA • 65 inch : TBD EA		 6001-002755
	• Panel View		
5	Remove the electric tapes (▭) shown on the image. **CAUTION** When assembling the TV, the electric tapes must be applied on the same locations. Please remember to take a picture of where the tapes were first applied.		
6	Remove the FFC Cable and screws(2EA) from the ASSY MISC P-AQUILA_UD6. Then carefully remove the ASSY MISC P-AQUILA_UD6.		 6001-003016

Description	Picture Description	Screws
7 Remove the Lead Connector and screws(1EA) from the ASSY BOARD P-JOG FUNCTION. Then carefully remove the ASSY BOARD P-JOG FUNCTION.		6001-003016
8 Remove the Lead Connectors and screws(9EA) from the DC VSS-LED PD BD unit. Then carefully remove the DC VSS-LED PD BD unit. **NOTE** How to disconnect a Side Locking Type Connector 	 : Lead connector	6001-003016
9 Remove the screws(5EA) from the ASSY SHIELD P-PCB,MAIN.		6001-003016
10 Then remove the Cables and screws (3EA) from the ASSY PCB MAIN. Finally carefully remove the ASSY PCB MAIN. **NOTE** How to disconnect the LVDS Cable 	 : Cable : LVDS Cable	6001-003016

Description	Picture Description	Screws
11 Remove the screws(4EA) from the ASSY SHIELD P-PCB,FRC.		6001-003016
12 Remove the cables and screws(4EA) from the ASSY PCB MISC-FRC. Finally carefully remove the ASSY PCB MISC-FRC.	: Cable : LVDS Cable	6001-003016
13 Remove the screws(4EA) from the Cover of ASSY T CON P.		6001-003016
14 Remove the cables and screws(6EA) from the ASSY T CON P. Finally carefully remove the ASSY T CON P.	: Cable : LVDS Cable	6001-003016

Description	Picture Description	Screws
15 Remove the Cable and screws(1EA) from the ASSY BOARD P-RF-MODULE. **NOTE** Remove the ASSY BOARD P-RF-MODULE unit by toggling the unit left and right.	 : Cable	 6001-003016
16 Remove the IR unit by lifting it up.		
17 Remove the NETWORK unit by moving it from top to bottom.		
18 Remove the Cable from the ASSY BLU P-LOGO than remove the ASSY BLU P-LOGO unit by pushing the unit from top to bottom.		
19 Remove the ASSY SPEAKER P(R/L. **NOTE** If the 26p Cable that is connected to all of the modules from steps 15~18, the ASSY SPEAKER P(R/L) can be detached easily.		

Description	Picture Description	Screws
20 Panel Back Side View. • Panel		

NOTE

Reassembly procedures are in the reverse order of disassembly procedures.

- Always remember to disconnect the Power Cord before assembling or disassembling the LED TV.
- Always take precautions and follow the steps properly. Remember to take a picture before disassembling.
- Recommended screwdriver torque : 5 ~ 7kgf (The torque may need to be adjusted accordingly.)

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

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 theblades 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.

2. Product Specifications

2-1. Product information

Model	UA**F9000AR		
Front View			
Detail View			
Front Color	Front Color : Black / Stand Color : Chrome Silver		
Dimensions (W x H x D)	55"	Set with Stand	124.5 x 75.6 x 31 cm
		Set without Stand	124.5 x 71.7 x 3.8 cm
	65"	Set with Stand	146.2 x 87.4 x 33 cm
		Set without Stand	146.2 x 83.7 x 4 cm
Weight	55"	Set with Stand	23.6 kg
		Set without Stand	22.2 kg
	65"	Set with Stand	34.2 kg
		Set without Stand	32.1 kg
Panel Type	SVA (Super Vertical Align)		
Internal Memory	Flash 4G		
DDR	2048Mbyte		
Feature	3D, MoIP, Media Bridge, Allshare, Internet TV, Built-in WiFi, Full Browser, Bluetooth		

2-2. Product specification

2-2-1. Detailed Specifications

NOTE

Design and specifications are subject to change without prior notice.

Item		UA**F9000ARMXL
General Information	Product	LED
	Series	6
	Country	INDIA
Display	Inch	55" / 65"
	Resolution	3,840 x 2,160
	Ultra Clear Panel	Yes
Video	Clear Motion Rate	TBD
	Micro Dimming	Micro Dimming Ultimate
	Precision Black (Local Dimming)	TBD
	Picture Engine	3D HyperReal Engine
	Dynamic Contrast Ratio	Mega Contrast
	Motion Judder Canceller	N/A
	Wide Color Enhancer (Plus)	Yes
	Auto Motion Plus 120/240Hz	N/A
	Film Mode	Yes
	Natural Mode Support	Yes
Audio	3D Sound	Yes
	Sound Output (RMS)	70W(15Wx2+20Wx2)
	Dolby	Dolby Digital Plus / Dolby Pulse
	SRS / DNSe+	DNSe+
	dts 2.0 + Digital Out / DTS Premium Audio	DTS Premium Audio 5.1
	Speaker Type	Down Firing + Full Range
	Sound Customizer	Yes
	Woofer	Yes
Smart TV 2.0	Smart Hub	Yes
	On TV	N/A
	Movies & TV Shows	N/A
	Apps	Yes
	Social	Yes
	Photos, Videos & Music	N/A
	Family Story	No
	Fitness	Yes

Item		UA**F9000ARMXL
Smart TV 2.0	Kids	Yes
	ACR (Advertisement)	N/A
	Samsung Sports Experience (SSE)	N/A
	Samsung SMART View	Yes
	Intelligent Viewing	N/A
	Smart Appliance	N/A
	S Recommendation	N/A
	Prism Screen	N/A
	Web Browser	Yes
Smart Interaction 2.0	Camera Built-in	Yes
	Face recognition	Yes
	Motion control	N/A
	Voice Control (Embedded)	N/A
	Voice Control (Server)	N/A
	Voice Interaction	N/A
	Camera App	Yes
	Samsung TV Apps supported	Yes
System	DTV Tuner	READY
	Analog Tuner	Yes
	MHP / MHEG (version)/ ACAP / GINGA	N/A
Input & Output	Audio Out (Mini Jack)	1
	Component In (Y/Pb/Pr)	1
	Composite In (AV)	N/A
	Digital Audio Out (Optical)	1
	DVI Audio In (Mini Jack)	No
	Ethernet (LAN)	1
	HDMI	4
	PC Audio In (Mini Jack)	No
	PC In (D-sub)	No
	RF In (Terrestrial/Cable Input)	1
	RF In (Satellite Input)	No
	RS-232C (AV CONTROL)	N/A
	USB	3
	Headphone	No
	IR Out	Yes
Design	Design	Metal
	Slim Type	-
	Bezel Type	Ultra Slim (0.5" thin)

Item		UA**F9000ARMXL
Design	Front Color	BLACK
	Light Effect (Deco)	Yes
	Swivel (Left/Right)	No
	Stand Type	ARCH
	Push & Pull Camera	Yes
Feature	3D Converter	Yes
	ConnectShare™ (USB 2.0)	N/A
	Samsung 3D	Yes
	History	Yes
	MultiTasking	Yes
	Smart Evolution Support	Yes
	Wireless LAN Built-in	Yes
	Wireless LAN Adapter Support	No
	OSD Language	Local Languages
	EPG	Yes
	HDMI 1.4 3D Auto Setting	Yes
	HDMI 1.4 A/Return Ch. Support	N/A
	Time Shift	Yes
	AllShare (Content Sharing, Screen Mirroring)	N/A
	Teletext (TTXT)	N/A
	User Interface	Golden bridge
	InstaPort S (HDMI quick switch)	Yes
	Anynet+ (HDMI-CEC)	Yes
	Auto Channel Search	Yes
	Auto Power Off	Yes
	Auto Volume Leveler	Yes
	Caption (Subtitle)	Yes
	Clock&On/Off Timer	N/A
	Game Mode	Yes
	Sports Mode	Yes
	Kids Lock	N/A
	Picture-In-Picture	N/A
	Sleep Timer	Yes
	Extended PVR	Yes
	Smart Phone Remote support	Yes
	WiFi Direct	Yes
	ISP Bound Service	N/A
	BT HID Built-in	Yes

Item		UA**F9000ARMXL
Feature	USB HID Support	Yes
	Network Speaker Support	No
	Sound Share	Yes
	Regional EQ	N/A
	Digital Clean View	N/A
	Analog Clean View	N/A
	MHL	Yes
	Miracast	No
	Twin Tuner	N/A
	BD Wise Plus	Yes
	USB Copy	N/A
	ACS	N/A
	IP Video Closed Caption	N/A
	Embeded POP	No
Accessory	3D Active Glasses (Included)	4 (SSG-5100GB)
	IR Extender Cable (Included)	N/A
	Wireless LAN Adaptor (Included)	N/A
	Network Speaker (Included)	No
	MoIP Camera	N/A
	Wireless Keyboard	N/A
	Remote Controller Model	TM1390A
	Batteries (for Remote Control)	N/A
	Ultra Slim Wall Mount Supported	N/A
	Mini Wall Mount Supported	N/A
	Vesa Wall Mount Supported	N/A
	Slim Gender Cable	1AV, 1 Component(AV share), 1L/R
	Power Cable	Yes
	ANT-Cable	N/A
	User Manual	Yes
	E-Manual	Yes

2-2-2. Feature & Specifications

- **3D:** This new feature enables you to view 3D content.
- **SMART HUB:** This TV features Smart Hub, a multi-purpose entertainment and family center. With Smart Hub, you can surf the web, download applications, and stay in touch with family and friends through social networking services. In addition, you can view or play photo, video, and music files stored on external storage devices.
  Press the button to launch Smart Hub. Choose a service using the icons displayed in the top part of the screen. Smart Hub services and functionality include:
  - **Social**: Watch the latest YouTube videos and your and your friends' video posts on Facebook and Twitter. You can also make video calls to friends by the TV camera.
  - **Apps:** Samsung Apps offers an extensive collection of free and paid news, sports, weather, and gaming content you can directly download to and enjoy on your TV.
  - **On TV:** Check a listing of programs that are currently airing or are scheduled to air.
  - **Movies & TV Shows:** Purchase and watch movies and series without a separate external device.
  - **Photos, Videos & Music:** Play back photo, video, and music files from an external storage device.
- **Anynet+ (HDMI-CEC):** This allows you to control all connected Samsung devices that support Anynet+ with your Samsung TV’s remote.
- **e-Manual:** Provides a detailed, on-screen user's manual built into your TV.
- **SMART Interaction:** Using this function, you can access and control menu options and functions using motions.
- **Device Manager:** Use the TV features with a USB or Bluetooth keyboard and mouse.
- **MHL & Screen Mirroring:** Displays mobile device screens on your TV using a wired or wireless connection.

Model	UA55F9000AR
Item	**Description**
LCD Panel	55 inch UHD 120Hz
Scanning Frequency	Horizontal : 270KHz (TYP) Vertical : 120Hz (TYP)
Display Colors	16.7M (True Display) 1.07B (Dithered 10bit)
Maximum Resolution	Horizontal : 3,840 Pixels Vertical : 2,160 Pixels
Input Signal	Analog 0.7 Vp-p ± 5% positive at 75Ω, internally terminated
Input Sync Signal	H/V Separate, TTL, P. or N.
Maximum Pixel Clock Rate	76.5MHz x 4 (Typ 74.25MHz x 4)
Active Display (H x V)* * Horizontal x Vertical	47.7 (H) x 26.8 (V) inches / 1211.6 (H) x 682.4 (V) mm
AC Power Voltage & Frequency	AC100-240V 50/60Hz
Power Consumption	255W (Under 0.1 W, Stand by)
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
Audio Specifications	• MAX Internal Audio Output Power : 70W – Woofer : 20W x 2 – Tweeter : 15W x 2 • Equalizer : 5 Brand • RF : 20Hz ~ 15.4kHz • AV/Component/HDMI : 20Hz ~ 20kHz
Note : 3D, MoIP, Media Bridge, Allshare, Internet TV, Built-in Wi-Fi, Full Browser, Bluetooth	

Model	UA65F9000AR
Item	**Description**
LCD Panel	65 inch UHD 120Hz
Scanning Frequency	Horizontal : 270KHz (TYP) Vertical : 120Hz (TYP)
Display Colors	16.7M (True Display) 1.07B (Dithered 10bit)
Maximum Resolution	Horizontal : 3,840 Pixels Vertical : 2,160 Pixels
Input Signal	Analog 0.7 Vp-p ± 5% positive at 75Ω, internally terminated
Input Sync Signal	H/V Separate, TTL, P. or N.
Maximum Pixel Clock Rate	76.5MHz x 4 (Typ 74.25MHz x 4)
Active Display (H x V)* * Horizontal x Vertical	56.3 (H) x 31.7 (V) inches / 1430.4 (H) x 805.4 (V) mm
AC Power Voltage & Frequency	AC100-240V 50/60Hz
Power Consumption	283W (Under 0.1 W, Stand by)
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
Audio Specifications	• MAX Internal Audio Output Power : 70W – Woofer : 20W x 2 – Tweeter : 15W x 2 • Equalizer : 5 Brand • RF : 20Hz ~ 15.4kHz • AV/Component/HDMI : 20Hz ~ 20kHz
Note : 3D, MoIP, Media Bridge, Allshare, Internet TV, Built-in Wi-Fi, Full Browser, Bluetooth	

2-3. Accessories

NOTE

- The items' colors and shapes may vary depending on the model.
- Check that there is no accessory hidden behind packing materials when you open the box.
- The part code for some accessories may differ depending on your region.

Product	Code. No	Product	Code. No
• Smart Touch Control	AA59-00762A	• Regulatory Guide	BN68-04972C
• Batteries (AAA x 2)	4301-000103	• User Manual	BN68-05459A
• Power Cord	3903-000541	• Warranty Card	-
• Samsung 3D Active Glasses	BN96-27418A		

Image	Product	Code. No
	• AV Adapter	BN39-01154H
	• Component adapter	BN39-01154C
	• IR Extender Cable	BN96-26652A
	• Cable manager	BN61-08951A
	• One Connect	BN94-06653C
	• One Connect Cable	BN39-01815B

2-4. Viewing the Functions

2-4-1. SMART Interaction

■ Voice Recognition

- Conversation with TV by Human Talks.
- TV answer or execute about User's Talks.

Start to use Voice Recognition

Voice Recognition

Voice Recognition On

Voice Recognition Tutorial

Example of Broadcasting & Contents

- Search Program title (on air) "What's the title?"
- Recommend/Search Program (Channel) "Something interesting program?"
- Search the specific Genre of contents "Which channel is on NEWS?"
- Search the specific Program title "Find "American Idols"
- Search the program by performer "Find channel which Oprah Winfrey appear"
- Change Channel by calling the channel "FOX, USA Network, CWTY, NBC, …"

NOTE

- Support Genre

DRAMA	MOVIE	CARTOON	ENTERTAINMENT
SPORTS	HOBBY	MUSIC	EDUCATION
SHOPPING	NEWS	CURRENT EVENTS	CULTURE

■ Motion Recognition

- One-Hand Motion Control

Slightly shake the hand forward to TV
Degree : front/left/right 45 degree

- Two-Hand Motion Control

[Case 1] Recognize one hand

Slightly shake the hand forward to TV

[Case 2] Recognize two hands

Slightly shake two hands forward to TV

Motion Recognition

- Pointing Mode Command Set

Slap : Free Pointing

Grab : Execute

Grab & Move : Panning

CCW Rotation : Back

Same as “Return” key on remote.

- Special Command Set ('13 New Functions)

Slap : Move SMART HUB Window, Photo

Two-Handed : Zoom In/Out

Slap : Move SMART HUB Window, Photo

Rotation : Rotating Photo

2-4-2. Smart Touch Control

■ Connecting to the TV

In order to operate the TV using a Smart Touch Control, you must first pair it to the TV via Bluetooth. However, the Smart Touch Control is only available for the paired Samsung TV.

1. When the TV is off, point the Smart Touch Control at the remote control receiver of the TV and press the TV button for the first pairing. Only this buttons sends an IR signal.
2. A Bluetooth icon will appear at the bottom left of the screen as shown below. The TV will then attempt to connect to the Smart Touch Control unit automatically.

<Attempting to connect and completion icons>

Reconnecting the Smart Touch Control

- The Smart Touch Control pairing button

If you need to reestablish the connection between the TV and the Smart Touch Control, press the pairing button at the back of the Smart Touch Control. The pairing button can be accessed by removing the Smart Touch Control's battery cover. Pressing the pairing button automatically reestablishes the connection between the control and the TV.

Low Battery Power Warning

If the battery becomes and blanks low while using the Smart Touch Control, the following alarm window blinks and appears at the bottom left of the screen. Use alkaline batteries for longer usage.

■ Inserting the Batteries (AAA X 2)

1. Slightly lift the battery cover by using a plastic card. Next, pull on the cover's notch with a fingernail to remove the cover completely.

   NOTE

   Check the location of the battery cover groove. The groove's location may vary depending on the type of Smart Touch Control is provided with the product.
2. Insert 2 AAA batteries, making sure to align the positive and negative ends correctly.
3. Align the battery cover with the back of the remote control and press down along the edges until it is cleanly attached to the remote control.

■ Touchpad

Use the touchpad to perform various commands. Navigate to Tutorial (**System** > **Device Manager** > **Smart Touch Control Settings** > **Tutorial**) to view an on-screen guide to using the Smart Touch Control.

Dragging	Press
Drag on the touchpad in the desired direction. Move the focus or the pointer in the direction the finger is dragging.	Press the touchpad. This selects the focused item.
Scrolling Up and Down	**Scrolling Left and Right**
Slide a finger along the raised line on either side of the Touch Pad to scroll up or down in a list or webpage. The line on the left side is designed for left-handed users.	Move your finger horizontally on the projected line at the top of the touchpad. You can horizontally scroll a horizontal list or the Smart Hub panel.

■ Changing Channels by Entering Numbers

While watching TV, tap on the protruding line on the left or right edge of the touchpad to bring up the numerical input window on the screen. Use your finger to enter the number for the channel you want to watch. The recognised number is displayed on the screen and the TV switches to the corresponding channel. See the e-Manual chapter, **Controlling TV** > **Touchpad**.

Numerical Input Guide

Refer to the diagrams below when entering numerical values. The TV may not recognise your entries if you do not follow the sequences shown below.

2-4-3. SMART HUB

This TV features Smart Hub, a multi-purpose entertainment and family center. With Smart Hub, users can surf the web, download applications, and stay in touch with family and friends through social networking services. In addition, you can enjoy photo, video, and music files stored on external storage devices.

5. Social

Social Content

4. Apps

Apps & Signature SVC

1. [HOME] On TV

Advaced EPG
Watching history baes

2. Movies & TV Shows

P-VoD

3. Photos, Videos & Music

User EPG
From AllShare

On TV

This functions is only available on U.S and Canada.

While you watch TV, a list of recommended programs on other channels appears on the screen. You can use this list to change the channel and find out more information about the recommended programs including how much time is left until they air.

Movies & TV Shows

Purchase and watch movies and series without a separate external device.

This functions is only available on U.S and Canada.

Users can buy movies and TV shows online.

Open Smart Hub and select Movies & TV Shows.

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

Photos, Videos & Music

Play back photo, video, and music files from an external storage device.

Open Smart Hub and select Photos, Videos & Music.

Enjoy photo, video and music files from an external storage device directly on your TV. Back up important files before connecting an external storage device to the TV. Samsung will not be held responsible for damaged or lost files.

Social

Watch the latest YouTube videos and you and your friends' video posts on Facebook and Twitter. You

can also make video calls to friends by connecting the TV to a camera (sold separately).

Apps

Download and install applications such as WebBrowser and Family Tree.

Samsung Apps offers an extensive collection of free and paid news, sports, weather, and gaming content you can directly download to and enjoy on your TV. First, check the network and make sure the TV is connected to the Internet. Your TV needs to be connected to the Internet in order to use Apps.

- Samsung Apps

  Samsung Apps offers various free and paid news, sports, weather, and gaming applications. Samsung Apps lets you search for applications and install them directly on your TV. Read and agree to the terms and conditions of use and then browse through the categories or directly search for applications.
- Fitness

  Fitness is an application that helps you stay fit. Create a profile, set up an exercise plan, and start exercising according to a structured regimen. Read and agree to the terms and conditions before using Fitness.
- Family Story

  Family Story allows people to share photos, messages and events with family and friends. Family Story is available on TVs, computers, and mobile devices, allowing you to stay connected with your friends and loved ones at home, at the office, and even while on the go. Read and agree to the terms and conditions before using Family Story.
- Kids

  This is a quick launcher and recommended list for applications and content that is suitable for children and even provides services not currently installed on your TV. Using Kids, you can download applications and content for your children to your TV. Certain services, however, are fee-based.
- WebBrowser

  WebBrowser is a web-browsing application. Using WebBrowser, you can browse the Internet on your TV as you would on your computer and even watch TV while you surf the web. The browsing experience, however, may not be the same as it is on your computer. Use a keyboard and mouse for a more convenient web browsing experience.
- Social Networks

  Share your thoughts and comments about a program on the air through social networking services. Social Networks displays social network services such as Twitter, Facebook, Google Talk, and NateOn on a single screen. You can even post messages and comments in the same manner as you would using a computer. You must first link your Samsung account to the respective SNS accounts before you can access them using Social Networks.

2-4-4. Supported Formats

■ Supported Subtitle Formats

Exterminal

Name	File Extension
MPEG-4 Timed text	Timed text .ttxt
SAMI	.smi
SubRip	.srt
SubViewer	.sub
Micro DVD	.sub or .txt
SubStation Alpha	.ssa
Advanced SubStation Alpha	.ass
Powerdivx	.psb

Internal

Name	File Extension
Xsub	AVI
SubStation Alpha	MKV
Advanced SubStation Alpha	MKV
SubRip	MKV
MPEG-4 Timed text	MP4

■ Supported Music File Formats

File Extension	Type	Codec	Comments
*.mp3	MPEG	MPEG1 Audio Layer 3	
*.m4a	MPEG4	AAC	
*.mpa			
*.aac			
*.flac	FLAC	FLAC	Supports up to 2 channel
*.ogg	OGG	Vorbis	Supports up to 2 channel
*.wma	WMA	WMA	WMA 10 Pro supports up to 5.1 channel. WMA lossless audio is not supported. Supports up to M2 profile (except LBR mode)
*.wav	wav	wav	
*.mid *.midi	midi	midi	type 0, type 1 are supported.
*.ape	ape	ape	

■ Supported Video Formats

File Extension	Container	Video Codec	Resolution	Frame rate (fps)	Bit rate (Mbps)	Audio Codec
*.avi *.mkv *.asf *.wmv *.mp4 *.3gp *.vro *.mpg *.mpeg *.ts *.tp *.trp *.mov *.flv *.vob *.svi *.m2ts *.mts	AVI MKV ASF MP4 3GP MOV FLV VRO VOB PS TS SVAF	Divx 3.11 / 4 / 5 / 6	1920 x 1080	6~30	30	AC3 LPCM ADPCM(IMA, MS) AAC HE-AAC WMA DD+ MPEG(MP3) G.711(A-Law, μ-Law)
		MPEG4 SP/ASP				
		H.264 BP/MP/HP				
		Motion JPEG	640 x 480		8	
		Microsoft MPEG-4 v3	1280 x 720			
		Window Media Video v7,v8			30	
		Window Media Video v9	1920x1080			
		MPEG2				
		MPEG1				
*.divx		MVC	640 x 480	24/25/30	60	
		VP6		6~30	4	
*.webm	WebM	VP8	1920 x1080		20	Vorbis

■ Other Restrictions

Codecs may not function properly if there is a problem with the content data. Video content does not play or does not play correctly if there is an error in the content or container. "Sound or video may not work if they have standard bit rates/ frame rates above the TV's compatibility ratings." If the Index Table is wrong, the Seek (Jump) function does not work. "When playing video over a network connection, the video may not play smoothly because of data transmission speeds." Some USB/digital camera devices may not be compatible with the player.

■ Video Decorders

- Supports up to H.264, Level 4.1 (does not support FMO/ASO/RS)
- VC1 AP L4 is not supported.
- All video codecs excluding WMV v7, v8, MSMPEG4 v3, MVC, and VP6:
  - Below 1280 x 720: 60 frame max
  - Above 1280 x 720: 30 frame max
- GMC is not supported.
- Supports SVAF top/bottom and left/right only.
- Supports Blu-ray/DVD MVC specs only.

■ Audio Decorders

- WMA 10 Pro supports up to 5.1 channels. Supports up to M2 profile. (Excluding M0 LBR mode)
- WMA lossless audio is not supported.
- Vorbis is supported for up to 2 channels.
- DD+ is supported for up to 5.1 channels.

2-4-5. 3D Active Glasses

■ Features

Samsung's SSG-5100GB 3D glasses enable you to view 3D images on your 3D TV. the Samsung 3D glasses communicate with Samsung 3D TVs via the 2.4 GHz RF band.

NOTE

The Samsung 3D glasses only copatible with Samsung D, E, and F series 3D TV's that were released in 2011, 2012, and 2013. these 3D glasses cannot be connected to other Bluetooth devices.

■ Parts

4. Troubleshooting

4-1. Troubleshooting

4-1-1. Previous Check

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

3. Determining if the failure resulted from the **Main Board**, **FRC Board**, or **T-CON Board**
   - **Nothing on screen**: If the 'Backlight' is on but nothing appears on screen and the LED signal in front of the TV is blinking, please first check the connection of the LVDS cable. If problem persists, please replace in the following order: (1) FRC Board (2) T-CON Board (3) Main Board
   - **Screen distortion**: Go under 'SVC' in the Service Mode and check the internal pattern.

   - For All mode

pattern sel	FRC Pre	FRC POST	NT72314 OSD Pre	NT72314 OSD Post	Problem
OK	OK	OK	OK	OK	Main Board or Signal Input Source
NG	OK	OK	OK	OK	Main Board
NG	NG	OK	OK	OK	Main Board, LVDS, or FRC
NG	NG	NG	OK	OK	Main Board, LVDS, or FRC
NG	NG	NG	NG	OK	Main Board, LVDS, or FRC
NG	NG	NG	NG	NG	Main Board, LVDS, or FRC T-CON, or Panel

   - HDMI Mode (Additional Inspection)

HDMI	Picture	Problem
OK	NG	HDMI Input Source, HDMI Cable, or HDMI Jack
NG	NG	HDMI Switch Failure. Check starting with the pattern for Echo-P

■ How to check inner pattern?

1. Enter the service mode ···› Choose ‘SVC’ ···› Check the ‘internal pattern.’
2. Enter ‘Service Mode.’
   - If you do not have Factory remote control

     Power OFF → MENU → 1 → 8 → 2 → Power On
   - If you have Factory remote control

     INFO → Factory
3. Choose ‘SVC ···› Test pattern’.

4. Select each type of pattern by toggling left and right and make sure that the patterns show properly.

4-1-2. Simple flow chart of malfunction

4-2. How to Check Fault Symptom

4-2-1. NO Power and No Video

■ Location of Parts

Main Board_Front

4-2-3. Video trouble shooting

NOTE

We can't supply to **T-CON test pattern**. Because there are many issues to produce test pattern for two T-con (Top and Bottom).

And we'll supply to Service like below.

- United service materal code: T-con (Top) + T-con (Bottom) + FRC board
- Reason: We can't separate T-CON & FRC board from Video problem easily. the best method is chang the both of FRC board & T-con board.

4-2-4. Problems and Solutions

■ Apps

There is something wrong with the TV.	Try this!
Some application content only appears in English. How can I change the language?	• The application content language may be different from the user interface language. • The ability to change the language depends on the service provider.
Some application services do not work.	• Check with the service provider. • Refer to the help section on the application service provider's website.

■ Photos, Videos & Music

There is something wrong with the TV.	Try this!
Some files can't be played back.	• This problem may occur with high-bitrate files. Most files can be played back, but you might experience problems with high-bitrate files.

■ Web Browser

1. Select Web Browser. The browsing screen may differ from the one on your computer.
2. The web browser is not compatible with Java applications.
3. You cannot download files. If you attempt to download a file, you will receive an error message instead.
4. The web browser may not be able to access certain websites.
5. Playing Flash videos may be restricted.
6. E-commerce for online purchases is not supported.
7. With websites that have scrollable windows, scrolling through such a window can result in corrupted characters.
8. ActiveX is not supported.
9. Certain options are not accessible in Link Browsing mode. (Switch to Pointer Browsing to activate this.)
10. Only a limited number of fonts are supported. Certain symbols and characters may not be displayed properly.
11. The response to remote commands and the resulting on-screen display may be delayed while a webpage is loading.
12. Loading a webpage may be delayed or suspended completely with certain operating systems.
13. The copy and paste operations are not supported.
14. When composing an email or a simple message, certain functions such as the font size and color selection may not be available.
15. There is a limit to the number of bookmarks and the size of the log file that can be saved.
16. The number of windows that can be opened concurrently varies depending on the search conditions and the TV model.
17. The web browsing speed will vary depending on the network environment.
18. 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.
19. The web browser supports .mp3 audio files only.
20. The web browser supports a specific file format for importing and exporting bookmarks. (Compatible Format: Netscape-bookmarkfile- 1)
21. The folder tree information is not included when importing and exporting bookmarks.

22. Exporting bookmarks to a USB device connected to the TV saves the bookmarks under a folder named "Samsung SmartTV Bookmark".

23. If Clock (System > Time > Clock) has not been enabled, the browsing history will not be saved.

24. The browsing history is saved in the order of latest to oldest, with the oldest entries being overwritten first.

25. 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.

26. 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.

27. Video sources from PC-optimized streaming service providers may not play properly on our proprietary web browser.

28. Using the on-screen QWERTY keyboard automatically disables PIP. (Except when entering a URL.)

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**".

■ UA**F9000ARMXL

Inches		55"	65"
PANEL	Vendor	SEC	SEC
	Code	BN95-01152A	BN95-01153A
	Spec.	CY-KF550FSLV1V	CY-KF650FSLV1V
SMPS BOARD	Vendor	SEM	DONGYANG
	Code	BN44-00675A	BN44-00675B
	Spec.	L65D2L_DSM	L65D2L_DDY
MAIN BOARD	Chassis Ass'y	BN91-11397A	BN91-11397B
	PBA Ass'y	BN94-06655A	BN94-06655B

Byte	Item		
0	Factory Reset	-	-
1	Type	55A1UU9L	65A1UU9L
2	Local set	EA_IND(INDIA)	EA_IND(INDIA)
3	SW Model	UF9000	UF9000
4	BOM Model	9000	9000
5	Tuner	AUTO	AUTO
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 → MENU → 1 → 8 → 2 → Power On

- If you have Factory remote control

  INFO → Factory

- If you don’t have Factory remote control, can’t control some menus. (Expert, Advanced menu)

4-3-3. Factory Data

■ Option

Factory Menu Name	Data	Range
Factory Reset	-	
Type	55A1UU9L 65A1UU9L	
Local Set	US	
SW Model	UF9000	
BOM Model	9000	
TUNER	AUTO	
Ch Table	NONE	
MRT Option		
Front Color	U-MOIP	
LVDS FORMAT	JEIDA	
Language_Arabic	US	
Region	USA	
PnP Language	ENG_US	
WIFI REGION	S	
OTN Support	ON	
OTA Support	OFF	
TTX	OFF	
China HD	OFF	
NT Conversion	OFF	
Num of DTV	1	
Num of AV	1	
Num of COMP	1	
Num of HDMI	4	
Num of SCART	0	
Num of USB Port	3	
Num of HeadPhone	0	
Num of RVU	1	
Num of Display	2	
Num of IPTV	0	
Num of RUI	0	
Num of PVR RECORD	0	
TOOLS Support	40	
LNA Support	OFF	
24Px4 Support	OFF	

Factory Menu Name	Data	Range
BD Wise Support	ON	
Data Service Support	OFF	
PVR Support	OFF	
CI Support	OFF	
LEDMotionPlus Support	ON	
Natural Mode Support	ON	
Relax Mode Support	OFF	
HDMI/DVI SEL	4	
Select LCD/PDP	LCD	
Wall Mount	OFF	
HV Flip		HV Flip / H Filp / OFF
Light Effect	OFF	
e-Pop Default	1	
CAMERA Support	OFF	
NETWORK Support	3	
EcoSensor Support	ON	
3D Support	ON	
BT Support	ON	
BT ADDRESS		
Engineer Option		
Auto Power	MEMORY	
Type Of PANEL KEY	None	
5 Way Function Key	R BACK	
Contents Bar	OFF	
Cable Modulation	QAM	
Standby led on/off	OFF	
Recognition Support		
IF AGC	0	
D AGC	0	
PH BW	0	
FQ BW	0	
PH RATE	0	
PD EN	0	
PEQ Inx	0	
WF Scale		
WF Type	0	
Nu of Network Stream	1	

Factory Menu Name	Data	Range
DP V Size	0	
Backend Device	FOX-FT1	
BT_AUDIO_ON_OFF	OFF	
Config_AV_PATH		
ECO Standby	OFF	
Fast Logo Delay	0	
Num of PANEL KEY	6	

■ Control

Factory Menu Name	Data	Range
EDID		
EDID ON/OFF	OFF	
EDID WRITE ALL	…	
EDID WRITE HDMI	…	
EDID Ver	…	
EDID Port		
Sub Option		
RS-232 Jack	UART	Debug/UART
Watchdog	OFF	
Checksum	0x0000	
Fast Boot in Production	OFF	
USB Serial	OFF	
Eeprom Reset		
ECO IC TYPE	NONE	
Info Link Server Type	development	
Info Link Country	None	
TTX Group	-	
Visual Test	-	
MediaPlayDB	-	
OPTION_SWU		
OTN Server Type	operating	
OTN Test Server	OFF	
SWU Reset		
SWU Duration	OFF	
SWU Fail Test	OFF	
OPTION_NUM		
Num of ATV	1	

Factory Menu Name	Data	Range
Num of SVIDEO	0	
Num of PC	0	
Num of DVI	0	
Num of OPTICAL Link	1	
Num of MEDIA	1	
Num of Tuner	1	
Num of ISP	1	
RF Remocon Support	OFF	
CDD mode	-	
DPMS Support	OFF	
Num of IPTV CIP	0	
Num of CI	0	
Num of DECODER	0	
T-CON Device		
BOARD CONTROL	OFF	
HP LINE	LineOut	
RM		
Server Type	Operating	
RTS Mode	OFF	
PSA		
FKP Download1	0	
FKP Download2	0	
LMK threshold	3	
Low threshold	10	
High threshold	15	
CSB	ON	
CLB	ON	
PDP Option		
Pixel Shift Test	OFF	
Logic SW	0	
Panel Temperature	0	
LOGIC Waveform Day	0	
Logic CheckSum	0	
MRT	0	
SAPC Timer		
APC Speed		
Hotel Option		

Factory Menu Name	Data	Range
Hospitality Mode	OFF	
Power On	…	
Menu OSD	…	
Operation	…	
Music Mode	…	
External Source	…	
Eco Solution	…	
Cloning	…	
Shop Option		
Shop Mode	OFF	
Exhibition Mode	OFF	
3D Cube	OFF	
Asia Option		
Unbalance	OFF	
AF Level adjust	3	
TX Power Level	0	
Mono Last Memory	OFF	
H Shaking	OFF	
SOUND		
Carrier_Mute	OFF	
High Devi	OFF	
Speaker Delay Normal	0x6Eh	
SPDIF PCM Gain	-9dB	
FM M Prescale	0x30h	
FM Prescale	0x00h	
AM Prescale	0x32h	
NICAM Prescale	0x48h	
BTSC Mono Prescale	0x19h	
BTSC stereo Prescale	0x2Fh	
BTSC SAP Prescale	0x2Bh	
A2Ident High THID	31	
A2Ident Low THID	0	
Pilot Level High Thld	0x28h	
Pilot Level Low Thld	0x10h	
Carrier2 Amp High THID	4	
Carrier2 Amp Low THID	3	
Carrier2 SNR High THR	16	

Factory Menu Name	Data	Range
Carrier2 SNR Low THR	80	
Sig Error On	35	
Sig Error Off	41	
Amp Model	TAS5745	
Amp Volume	0xcbh	
Amp Scale	0x35h	
Amp Check Sum	0x000821B2	
Woofer Type	0	
Woofer Scale	0	
Woofer Check Sum	0x8ah	
Woofer Local EQ Checksum	0	
Speaker EQ	ON	
PEQ Test	Ready	
Local Speaker EQ	0	
Local EQ Checksum	0	
Speaker cut-off Ferq	4	
Audio-IP Test		
SRS Tuning Parm	0	
TruBass-CheckSum	0	
Mic Scale	0	
Subwoofer Support	0	
India Sound	OFF	
AudioDock BT delay	50	
Wall Filter Type	0	
Wiselink Delay Menu	90	

■ Debug

Factory Menu Name	Data	Range
Spread Spectrum		
LVDS Spread	ON	
DDR Spread	1.0% Spectrum	
Period	30K	
Amplitude	1	
HD SSC ON/Off	ON	
HD SSC Value	1	
LVDS SSC ON/Off	ON	
LVDS SSC Value	0	

Factory Menu Name	Data	Range
DDR SSC ON/Off	ON	
DDR SSC Value	1	
FRC LVDS SSC ON/OFF	ON	
FRC LVDS SSC MRR	10	
FRC LVDS SSC MFR	1	
FRC LVDS SSC Period	1	
FRC LVDS SSC Modulation	1	
FRC DDR SSC ON/OFF	ON	
FRC DDR SSC MRR	15	
FRC DDR SSC MFR	1	
FRC DDR SSC Period	1	
FRC DDR SSC Modulation	1	
DDR Margin		
A CTRL_OFFSET_0_3	0x0	
A CTRL_OFFSET_D	0x0	
B CTRL_OFFSET_0_3	0x0	
B CTRL_OFFSET_D	0x0	
ND ADJ Support	OFF	
MICOM POWER OFF	OFF	
RF Mute Time	6ms	
CI+1.3	OFF	
FRC		
FRC FDISPLAY ON/OFF	0	
3D FDISPLAY ON/OFF	OFF	
PC Mode ON/OFF	OFF	
Tuner Margin	10	
MPEG Margin	1000	
H.264 Margin	8	
CAM Wait Time		
TS Clock deldy	0	
TCON_TEMP READ	0	
TEMP LAST	60	
DCC VERSION	0x0	
DCC CHK SEL	0	
DCC CHECK LOCAL	0x0	
DCC CHECK TOTAL	0x0	
MulitACC Checksum	0	

Factory Menu Name	Data	Range
IIC Bus stop	OFF	
Tuner Status		
DVB		
SNR		
BER		
Signal Strength		
Bandwidth		
Frequency		
LNA Status		
FFT		
Modulation		
Code Rate		
GI		
Hier Modulation		
Frequency offset		
Timing offset		
AGC		
UCB		
PLL Type		
DEMOD Type		
TPS Lock		
RS Lock		
SSI		
SQI		
Firmware Version		
ISDB-T		
FFT Size_1		
Guard Interval_1		
Freq. Offset_1		
SNR_1		
IF AGC_1		
TMCC Lock_1		
TS Packer_1		
Master Lock_1		
A_Modulation_1		
A_Code Rate_1		
A_Timer InterLeave_1		

Factory Menu Name	Data	Range
A_Segments Num_1		
A_BER_1		
B_Modulation_1		
B_Code Rate_1		
B_Timer InterLeave_1		
B_Segments Num_1		
B_BER_1		
C_Modulation_1		
C_Code Rate_1		
C_Timer InterLeave_1		
C_Segments Num_1		
C_BER_1		

■ SVC

Factory Menu Name	Data	Range
Test Pattern		
Pattern Sel	OFF	
Logic Pattern Sel	…	
Logic Level Sel	…	
FRC Pre Test Pattern	0	
FRC Post Test Pattern	0	
FRC3D Fdisplay	OFF	
FRC3D PC Mode	OFF	
SOC TCON Test Pattern	0	
SOC TCON Pattern Level	255	
SOC TCON FRC Pattern	0	
HDMI WB Pattern	OFF	
HDMI Pattern Sel	0	
Parma Pre Test Pattern	0	
Parma Post Test Pattern	0	
Panel Display Time	0Hr	
SVC Info	0	
Delete S/N	0	
Upgrade		
T-CON Usb Download	Failute	
T-CON CheckSum	Error	
Logic Usb D/L	…	

Factory Menu Name	Data	Range
SUBMICOM UPGRADE	Failute	
BT UPGRADE		
BT FREEPAIRING	ON	
Function Upgrade	Failute	
FRC3D FW Upgrade		
Camera Upgrade		
Mic Upgrade		
CPLD USB Download		
JP MICOM UPGRADE	Failute	
DP MICOM UPGRADE	Failute	
Jump Upgrade	Failute	
Smart Hub Reset	0	
ER Count		
WD Count	0	
AR Count	0	
WIFI ER Count	0	
BT ER Count	0	
HDMI Err Cnt	0	
Camera ER Count	0	
LOG(View Log)		
Select Log Type	NVRAM	
Log View	0	
Delete Log		
Debug Log Down		
Emergency Log Copy		
Self Diagnosis		
Loop Back		
LAN Test		
AV Audio Test		
DVIN Audio Test		
CVBS Test		
COMP Test		
USB HUB Test		
HDMI Test		
SCART Audio Test		
SCART CVBS Test		
SCART RGB Test		

Factory Menu Name	Data	Range
CPU		
DDR		
FLASH		
EEPROM		
Sound AMP		
HDMI Switch IC		
USB HUB IC		
WIFI		
LVDS		
T-CON/FRC		
PCB Test		
MOIP		
App Self Test		
Device self Test		
Voltage		
EcoSensor		
BT		
EXT Sound Inspection		
Woofer Sound Inspection	NONE	
ATV CH Inspection		
DTV CH Inspection		
Satellite CH Inspection		
IPERF	Stopped	
OPTION HDMI		
Expert		
DVB CI		
CAL Data Backup	…	
CAL Data Restore	…	

■ ADC/WB

Factory Menu Name	Data	Range
ADC		
AV Calibration	Success	
Comp Calibraion	Success	
PC Calibration	Success	
HDMI Calibration	Success	
ADC Result		

Factory Menu Name	Data	Range
1st_Y_GH	258	
1st_Y_GL	128	
1st_Cb_BH	…	
1st_Cb_BL	…	
1st_Cr_RH	…	
1st_Cr_RL	…	
2nd_R_L	132	
2nd_G_L	132	
2nd_B_L	132	
2nd_R_H	70	
2nd_G_H	70	
2nd_B_H	70	
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	164	
WB_W2_B_Gain	63	
WB_N_R_Offset	128	
WB_N_B_Offset	128	
WB_N_R_Gain	151	
WB_N_B_Gain	108	
MGA		
MGA On/Off	OFF	
R1_Gain	…	
B1_Gain	…	
G1_Gain	…	
R2_Gain	…	
B2_Gain	…	
G2_Gain	…	
R3_Gain	…	
B3_Gain	…	

Factory Menu Name	Data	Range
G3_Gain	…	
R4_Gain	…	
B4_Gain	…	
G4_Gain	…	
R5_Gain	…	
B5_Gain	…	
G5_Gain	…	
R6_Gain	…	
B6_Gain	…	
G6_Gain	…	
R7_Gain	…	
B7_Gain	…	
G7_Gain	…	
R8_Gain	…	
B8_Gain	…	
G8_Gain	…	
R9_Gain	…	
B9_Gain	…	
G9_Gain	…	
R10_Gain	…	
B10_Gain	…	
G10_Gain	…	

4-4. White Balance

4-4-1. Calibration

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

4-4-2. Service Adjustment

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

■ Color Calibration

- Adjust Specification

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

(Chess Pattern)

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

Input mode	Calibration	Pattern
CVBS IN (Model_#1)	Perform in NTSC B&W Pattern #24	Lattice
Component IN (Model_#6)	Perform in 720p B&W Pattern #24	Lattice
HDMI IN	Perform in 720p B&W Pattern #24	Lattice

Method of Color Calibration (AV)

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

Method of Color Calibration (Component)

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

Method of Color Calibration (PC)

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

Method of Color Calibration (HDMI)

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

4-4-3. Adjustment

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

4-5. 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
		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	Only for PDP
	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)	Not support
		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	Not support
			On				0x01	

Control Item				Cmd1	Cmd2	Cmd3	Value	
PICTURE		xvYCC	Off			0x10	0x00	
			On				0x01	
		Motion Lighting	Off			0x11	0x00	
			On				0x01	
		Color Space Custom Color	Red			0x12	0x00	Only for active Color Space Custom
			Green				0x01	
			Blue				0x02	
			Yellow				0x03	
			Cyan				0x04	
			Magenta				0x05	
		Color Space Custom Color Red Value	0~100			0x13	0~100	Only for active Color Space Custom
		Color Space Custom Color Green Value	0~100			0x14	0~100	Only for active Color Space Custom
		Color Space Custom Color Blue Value	0~100			0x15	0~100	Only for active Color Space Custom
		LED Motion Plus	Off		0x0a	0x07	0x00	
			On(Normal)				0x01	
			Cinema				0x02	
			Ticker				0x03	
	Picture Option	Color Tone	Cool		0x0a	0x00	0x00	
			Standard				0x01	
			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	

Control Item				Cmd1	Cmd2	Cmd3	Value	
PICTURE		Film Mode	Off			0x05	0x00	
			Auto1				0x01	
			Auto2				0x02	
			Cinema Smooth				0x03	Only for PDP
		Auto Motion Plus	Off			0x06	0x00	
			Clear				0x01	
			Standard				0x02	
			Smooth				0x03	
			Custom				0x04	
			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	Only for DVB
			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	

Control Item				Cmd1	Cmd2	Cmd3	Value
		3D Auto View	Message Notice				0x01
			On				0x02

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

Control Item				Cmd1	Cmd2	Cmd3	Value	
	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	
	Auto Stereo	Manual			0x0b	0x00	0x00	Only for korea model
		Auto					0x01	

Control Item			Cmd1	Cmd2	Cmd3	Value
KEY	Key Generation		0x0d	0x00	0x00	refer to table
OSD	Show/Hide Control	Show	0x0e	0x00	0x00	0x00
		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. Software Upgrade

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

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

Software is represented as ‘Year/Month/Day_Version’.

4-7-1. How to Check the Software Version

■ Use the Main Menu

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

■ Use the Factory Mode

4-7-2. How to Upgade Software

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

   NOTE

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

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

   NOTE

   - When software is upgraded, video and audio settings you have made will return to their default (factory) settings.
   - We recommend you write down your settings before beginning firmware update.

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

■ Main Software Upgrade

1. Store the sw program named "**T-FXPAKUC**" in USB memory stick.
2. Click the "**MENU**" key in Remote Controller.
3. Select "**Support** - **Software Update** - **Update Now**" menu.
4. Click the "**ENTER**" key.
   - Wait for upgrade complete.
   - Check the Software Version.

■ Sub Software Upgrade

USB Download

1. After Main Software upgrade, Enter the Factory menu by below method.
   - Factory Remocon
     - Click the Remocon button continuedly. (Info key+ Factory key)

       Info → Factory
   - Nomal Remocon
     - ❶ Turn off the TV. → ❷ Click the Remocon button continuedly.

       Info → Menu → Mute → Power

2. Select the “SVC”.

Option
Control
Debug
SVC
ADC/WB
Advanced

3. Select the “SUBMICOM UPGARADE”.

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

4. Click the “→” remocon key.

SUBMICOM UPGRADE	Wait

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

5. Wiring Diagram

5-1. Wiring Diagram

5-2. Connector

5-2-1. Main Board

1 CN302(SPEAKER_TOP/BOTTOM			
1	BOTTOM_R+	5	TOP_R1+
2	BOTTOM_R-	6	TOP_R1-
3	BOTTOM_L+	7	TOP_L1+
4	BOTTOM_L-	8	TOP_L1-

2 CN401(AUDIO WOOFER)			
1	WF_R+	4	WF_L-
2	WF_R-	5	NC
3	WF_L+		

3 CN201(POWER)			
1	A5.3V_PW	11	B13V_PW
2	N.C	12	B13V_PW
3	GND	13	B13V_PW
4	GND	14	B13V_PW
5	N.C	15	B13V_PW
6	GND	16	B13V_PW
7	B20VS_PW	17	GND
8	B20VS_PW	18	GND
9	B20VS_PW	19	GND
10	B20VS_PW	20	GND

4 CN3501(LVDS)			
1	N.C	27	LVDS_EVEN_TX0-
2	DGND	28	DGND
3	NT314_SDA	29	LVDS_ODD_TX4+
4	N.C	30	LVDS_ODD_TX4-
5	NT314_SCL	31	LVDS_ODD_TX3+
6	N.C	32	LVDS_ODD_TX3-
7	DCDC_EN0	33	DGND
8	SDA_PANEL	34	TLVDS_ODD_ TXCLK+
9	PANEL_I2C_SW	35	LVDS_ODD_ TXCLK-
10	EMIITER_BT_ SYNC_OUT	36	DGND
11	REF_SYNC_IN	37	LVDS_ODD_TX2+
12	SCL_PANEL	38	LVDS_ODD_TX2-
13	DGND	39	LVDS_ODD_TX1+
14	LVDS_EVEN_TX4+	40	LVDS_ODD_TX1-
15	LVDS_EVEN_TX4-	41	LVDS_ODD_TX0+
16	LVDS_EVEN_TX3+	42	LVDS_ODD_TX0-
17	LVDS_EVEN_TX3-	43	DGND
18	DGND	44	DGND
19	LVDS_EVEN_ TXCLK+	45	DGND
20	LVDS_EVEN_ TXCLK-	46	N.C
21	DGND	47	N.C
22	LVDS_EVEN_TX2+	48	LD_SCL
23	LVDS_EVEN_TX2-	49	N.C
24	LVDS_EVEN_TX1+	50	LD_SDA
25	LVDS_EVEN_TX1-	51	N.C
26	LVDS_EVEN_TX0+		

5 CN3301(UHD LVDS)			
1	N.C	41	N.C
2	LR_STG	42	N.C
3	NT314 S BS0	43	CH5E4+
4	N.C	44	CH5E4-
5	NT314 M BS0	45	CH5E3+
6	N.C	46	CH5E3-
7	N.C	47	N.C
8	N.C	48	CH5ECLK+
9	CH6E4+	49	CH5ECLK-
10	CH6E4-	50	N.C
11	CH6E3+	51	CH5E2+
12	CH6E3-	52	CH5E2-
13	N.C	53	CH5E1+
14	CH6ECLK+	54	CH5E1-
15	CH6ECLK-	55	CH5E0+
16	N.C	56	CH5E0-
17	CH6E2+	57	N.C
18	CH6E2-	58	N.C
19	CH6E1+	59	CH5O4+
20	CH6E1-	60	CH5O4-
21	CH6E0+	61	CH5O3+
22	CH6E0-	62	CH5O3-
23	N.C	63	N.C
24	N.C	64	CH5OCLK+
25	CH6O4+	65	CH5OCLK-
26	CH6O4-	66	N.C
27	CH6O3+	67	CH5O2+
28	CH6O3-	68	CH5O2-
29	N.C	69	CH5O1+
30	CH6OCLK+	70	CH5O1-
31	CH6OCLK-	71	CH5O0+
32	N.C	72	CH5O0-
33	CH6O2+	73	N.C
34	CH6O2-	74	N.C
35	CH6O1+	75	N.C
36	CH6O1-	76	NT314 NRESET
37	CH6O0+	77	N.C
38	CH6O0-	78	PANEL PMIC EN
39	N.C	79	N.C
40	N.C	80	TEMP SEL

6 CN2201(KEY FUNCTION & BLUETOOTH & WIFI)			
1	BT_NRESET	14	REF_SYNC_IN
2	WAKE_BT	15	DSCL_3.3V
3	POWER_DET	16	GND
4	A5V_PW	17	DSDA_3.3V
5	A3.3V_PW	18	B5V_MODULE_PW
6	MODULE_DP2	19	B5V_MODULE_PW
7	LED_CNTR	20	MODULE_DM
8	MODULE_DM2	21	B5V_MODULE_PW
9	IR	22	MODULE_DP
10	GND	23	B5V_MODULE_PW
11	GND	24	GND
12	EMITTER_BT_ SYNC_BUFF	25	GND
13	A3.3_PW	26	USB2_NRESET

7 CN601(MOIP)			
1	A5V_MOIP_PW	7	KITE_I2STX_BCLK
2	A5V_MOIP_PW	8	DGND
3	A5V_MOIP_PW	9	KITE_I2STX_ LRCLK
4	DGND	10	KITE_I2STX_DATA1
5	WOV	11	KITE_I2STX_DATA3
6	AIT_RESET	12	KITE_I2STX_DATA2

8 CN2202 (SUBMICOM SW DOWNLOAD & POWER BUTTON)			
1	KEY_INPUT1	3	SDA_DOWN
2	SCL_DOWN	4	DGND

9 CN3702(SERDES)			
1	B3.3_PW	14	SERSES_FW1_N
2	GCLK1_P	15	GND
3	GND	16	SERSES_FW0_P
4	SERSES_BW0_P	17	SERSES_FW0_N
5	SERSES_BW0_N	18	GND
6	GND	19	N.C
7	SERSES_FW3_P	20	N.C
8	SERSES_FW3_N	21	A5V_PW
9	GND	22	TX_MICOM_JACK
10	SERSES_FW2_P	23	RX_MICOM_JACK
11	SERSES_FW2_N	24	GCLK0_P
12	GND	25	B13V_PW_1
13	SERSES_FW1_P	26	B13V_PW_1

10 CN601(AV-LINK / RS232C)			
1	DGND	5	N.C
2	FA_TX	6	IDENT_FANET
3	FA_RX	7	DGND
4	N.C		

11 CN1902(USB3)			
1	USB3_VCC_5V_PW	3	FOXAP_USB3_DP
2	FOXAP_USB3_DM	4	DGND

5-2-2. Jack Pin Board

1 CN2402_IRB(IR_OUT)			
1	DGND	5	NC
2	IRB_IR_TX	6	IRB_JACK_ID
3	NC	7	DGND
4	NC		

2 CN301(HEADPHONE / LR_OUT)			
1	DGND	5	TEST_SR
2	HP_AUD_SL_OUT	6	IDENT_HP
3	HP_SUD_SR_OUT	7	DGND
4	TEST_SL		

3 CN404(COMPONENT)			
1	DGND	5	TEST_PB
2	COMP_Y	6	TEST_PR
3	COMP_PB	7	COMP_PR
4	TEST_CVBS_Y3		

4 CN405(AV-LINK)			
1	DGND	5	TEST_SR
2	AV1_CVBS	6	TEST_SL
3	COMP_AV1_SR_IN	7	COMP_AV1_SL_IN
4	IDENT_AV1		

5 CN501_UBA(AV-LINK2)			
1	DGND	5	TEST_SR
2	AV1_CVBS	6	TEST_SL
3	COMP_AV1_SR_IN	7	COMP_AV1_SL_IN
4	IDENT_AV1		

6 CN601(HDMI 4/MHL)			
1	HDMI3_RX2+	11	DGND
2	DGND	12	HDMI3_RXCLK-
3	HDMI3_RX2-	13	HDMI_CEC
4	HDMI3_RX1+	14	DGND
5	DGND	15	HDMI3_DDC_SCL
6	HDMI3_RX2-	16	HDMI3_DDC_SDA
7	HDMI3_RX0+	17	DGND
8	DGND	18	HDMI3_5V
9	HDMI3_RX0-	19	HDMI3_HPD
10	HDMI3_RXCLK+		

7 CN603(HDMI 2/DVI_PC)			
1	HDMI4_RX2+	11	DGND
2	DGND	12	HDMI4_RXCLK-
3	HDMI4_RX2-	13	HDMI_CEC
4	HDMI4_RX1+	14	DGND
5	DGND	15	HDMI4_DDC_SCL
6	HDMI4_RX2-	16	HDMI4_DDC_SDA
7	HDMI4_RX0+	17	DGND
8	DGND	18	HDMI4_5V
9	HDMI4_RX0-	19	HDMI4_HPD
10	HDMI4_RXCLK+		

8 CN602(HDMI 3/ARC)			
1	HDMI2_RX2+	11	DGND
2	DGND	12	HDMI2_RXCLK-
3	HDMI2_RX2-	13	HDMI_CEC
4	HDMI2_RX1+	14	DGND
5	DGND	15	HDMI2_DDC_SCL
6	HDMI2_RX2-	16	HDMI2_DDC_SDA
7	HDMI2_RX0+	17	DGND
8	DGND	18	HDMI2_5V
9	HDMI2_RX0-	19	HDMI2_HPD
10	HDMI2_RXCLK+		

9 CN601(HDMI 4/MHL)			
1	HDMI3_RX2+	11	DGND
2	DGND	12	HDMI3_RXCLK-
3	HDMI3_RX2-	13	HDMI_CEC
4	HDMI3_RX1+	14	DGND
5	DGND	15	HDMI3_DDC_SCL
6	HDMI3_RX2-	16	HDMI3_DDC_SDA
7	HDMI3_RX0+	17	DGND
8	DGND	18	HDMI3_5V
9	HDMI3_RX0-	19	HDMI3_HPD
10	HDMI3_RXCLK+		

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

11 U301(OPTICAL)	
1	FPGA_SPDIF_OUT / FOX_SPDIF_OUT_TEST
2	B5V_USB_OP_WIFI_CI_PW
3	DGND

12 CN501(AV-LINK / RS232C)			
1	DGND	5	N.C
2	FA_TX	6	IDENT_FANET
3	FA_RX	7	DGND
4	N.C		

13 CN1(SERDES)			
1	B3.3_PW	14	SERSES_FW1_N
2	GCLK1+	15	GND
3	GND	16	SERSES_FW0_P
4	SERSES_BW0_P	17	SERSES_FW0_N
5	SERSES_BW0_N	18	GND
6	GND	19	N.C
7	SERSES_FW3_P	20	N.C
8	SERSES_FW3_N	21	A5V_PW
9	GND	22	TX_MICOM_JACK
10	SERSES_FW2_P	23	RX_MICOM_JACK
11	SERSES_FW2_N	24	GCLK0+
12	GND	25	B13V_PW_1
13	SERSES_FW1_P	26	B13V_PW_1

14 CN2103(USB2)			
1	USB2_VCC_5V_PW	3	USB2_DP
2	USB2_DM	4	DGND

15 CN2102(USB1)			
1	USB1_VCC_5V_PW	3	USB1_DP
2	USB1_DM	4	DGND

5-3. Connector Functions

Connector	Function
CN201 ↔ CN100_MAIN	Supply main power from FRC board to Main Board.
CN101_SMPS ↔ CNM804	Supply main power from SMPS board to FRC Board.
CN3501 ↔ CN301 / CN3301 ↔ CN300	The LVDS signal transfered from Main Board to FRC.