1080P
Direct View LCD
Training

LG TRAINING CENTER

55LW56000

LED Backlights

LG Smart TV

LED Plus

LG CINEMA 3D

LG
Life's Good

LCD-DV Troubleshooting
55" Class 1080P 120Hz LED
TV SmartTV (54.6" diagonally)

wireless
1080p Ready

Published July 30th, 2011

OUTLINE

Preliminary Section:

Contact Information, Preliminary Matters, LCD Overview, General Troubleshooting Steps

Product Information Section: Specifications, Menu Information

Cinema 3D Section: Screen design and theory

Disassembly Section: Removal of Circuit Boards

Troubleshooting Section: Board Operation Troubleshooting of :

- **Switch Mode Power Supply with LED Backlight Driver**
- **Main Board**
- **T-CON (TFT Panel Driver Board)**
- **Front IR/Intelligent/Soft Touch Key Board**
- **Speaker**

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55LW56000 LCD Direct View Display

Section 1

This Section will cover Contact Information and remind the Technician of Important Safety Precautions for the Customers Safety as well as the Technician and the Equipment.

Basic Troubleshooting Techniques which can save time and money sometimes can be overlooked. These techniques will also be presented.

This Section will get the Technician familiar with the Disassembly, Identification and Layout of the LCD Display Panel.

At the end of this Section the Technician should be able to Identify the Circuit Boards and have the ability and knowledge necessary to safely remove and replace any Circuit Board or Assembly.

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IMPORTANT SAFETY NOTICE

The information in this training manual is intended for use by persons possessing an adequate background in electrical equipment, electronic devices, and mechanical systems. In any attempt to repair a major Product, personal injury and property damage can result. The manufacturer or seller maintains no liability for the interpretation of this information, nor can it assume any liability in conjunction with its use. When servicing this product, under no circumstances should the original design be modified or altered without permission from LG Electronics. Unauthorized modifications will not only void the warranty, but July lead to property damage or user injury. If wires, screws, clips, straps, nuts, or washers used to complete a ground path are removed for service, they must be returned to their original positions and properly fastened.

CAUTION

To avoid personal injury, disconnect the power before servicing this product. If electrical power is required for diagnosis or test purposes, disconnect the power immediately after performing the necessary checks. Also be aware that many household products present a weight hazard. At least two people should be involved in the installation or servicing of such devices. Failure to consider the weight of an product could result in physical injury.

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ESD Notice (Electrostatic Static Discharge)

Today's sophisticated electronics are electrostatic discharge (ESD) sensitive. ESD can weaken or damage the electronics in a manner that renders them inoperative or reduces the time until their next failure. Connect an ESD wrist strap to a ground connection point or unpainted metal in the product. Alternatively, you can touch your finger repeatedly to a ground connection point or unpainted metal in the product. Before removing a replacement part from its package, touch the anti-static bag to a ground connection point or unpainted metal in the product. Handle the electronic control assembly by its edges only. When repackaging a failed electronic control assembly in an anti-static bag, observe these same precautions.

Regulatory Information

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential installation. This equipment generates, uses, and can radiate radio frequency energy, and, if not installed and used in accordance with the instruction manual, July cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: Reorient or relocate the receiving antenna; Increase the separation between the equipment and the receiver; Connect the equipment to an outlet on a different circuit than that to which the receiver is connected; or consult the dealer or an experienced radio/TV technician for help.

LG Contact Information

Customer Service (and Part Sales)	**(800) 243-0000**
Technical Support (and Part Sales)	**(800) 847-7597**
USA Website (GSFS)	**http://gsfs-america.lge.com**
Customer Service Website	**http://www.us.lgservice.com**
Knowledgebase Website	**http://lgtechassist.com** ← New: 2010/11 Wireless Ready Models Software Downloads
LG Web Training	**https://lge.webex.com** ← Presentations with Audio/Video and Screen Notations
LG CS Learning Academy	**http://ln.lge.com/ilearn** ← **http://136.166.4.200**

Training Manuals, Schematics with Navigational Bookmarks, Start-Up Sequence, Owner's Guides, Interconnect Diagrams, Dimensions, Connector IDs, Product Pictures and Features.

Also available on the Plasma Page:
PDP Panel Alignment Handbook,
Plasma Control Board ROM Update (Jig required)

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201 James Record Road, Huntsville, AL, 35813.

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Safety and Handling Regulations

1. Approximately 20 minute pre-run time is required before making any picture performance adjustments from the Menu.
2. Refer to the Voltage/Current silk screening on the Switch Mode Power Supply.
3. C-MOS circuits are sensitive to static electricity.
   Use caution when dealing with these IC and circuits.
4. Exercise care when making voltage and waveform checks to prevent costly short circuits from damaging the unit.
5. Be cautious of lost screws and other metal objects to prevent a possible short in the circuitry.

Checking Points to be Considered

1. Check the appearance of the Replacement Panel and Circuit Boards for both physical damage and part number accuracy.
2. Check the model label. Verify model names and board model matches.
3. Check details of defective condition and history. Example: Oscillator failure dead set, etc…

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Basic Troubleshooting Steps

Define, Localize, Isolate and Correct

•**Define** Look at the symptom carefully and determine what circuits could be causing the failure. Use your senses Sight, Smell, Touch and Hearing. Look for burned parts and check for possible overheated components. Capacitors will sometimes leak dielectric material and give off a distinct odor. Frequency of power supplies will change with the load, or listen for relay closing etc. Observation of the front Power LED July give some clues.

•**Localize** After carefully checking the symptom and determining the circuits to be checked and after giving a thorough examination using your senses the first check should always be the DC Supply Voltages to those circuits under test. Always confirm the supplies are not only the proper level but be sure they are noise free. If the supplies are missing check the resistance for possible short circuits.

•**Isolate** To further isolate the failure, check for the proper waveforms with the Oscilloscope to make a final determination of the failure. Look for correct Amplitude Phasing and Timing of the signals also check for the proper Duty Cycle of the signals. Sometimes “glitches” or “road bumps” will be an indication of an imminent failure.

•**Correct** The final step is to correct the problem. Be careful of ESD and make sure to check the DC Supplies for proper levels. Make all necessary adjustments and lastly always perform a Safety AC Leakage Test before returning the product back to the Customer.

55LW56000 PRODUCT INFORMATION SECTION

This section of the manual will discuss the specifications of the 55LW56000 LCD Direct View Display

IS IT A TV? OR SOMETHING BETTER?

Welcome to the third dimension! The LW5600 delivers LG Cinema 3D technology and a whole lot more. It lets you tap into the virtually limitless entertainment capabilities of LG Smart TV and enjoy better picture quality with LG's LED Plus display technology.

Wireless Media Box (Sold Separately)

The Wireless Media box communicates to the television via a wireless receiver called a "Dongle". The Dongle attaches to the Television via two connections:

1. HDMI Cable from the Dongle to the TV to transfer Audio and Video Signals.
2. Wired Remote cable between the TV and Dongle for Control Functions.

Media Box

Audio only to TV
(TV audio can not be heard via Optical Audio Out on Media Box).
Not 3D Ready

Wired Remote to control the Media Box

Audio/Video is only sent to the TV, not from the TV to the Media Box.

TV A/V Inputs

Wireless Receiver/Transmitter "Dongle" Attaches via Velcro to the back of the set

HDMI

Wireless Network Adaptor (AN-WF100)

Wireless Network Adaptor Sold Separately

Using the LG Wireless LAN for Broadband Adaptor, which is sold separately, allows the TV to connect to a wireless LAN network. The Wireless Network adaptor attaches to the Television via either of the two USB connections:

Allows access to DLNA: Digital Living Network Alliance

Note: If Software Update does not complete using Wireless Dongle, use Wired (CAT-5) Connection to the Router.

Key TV Features

- LG Smart TV[1]
- LG Cinema 3D[2]
- 2D to 3D Conversion
- LED Plus w/Local Dimming
- TruMotion 120Hz
- Wi-Fi® Ready (Adapter Included)
- Magic Motion Remote (Included)
- Full HD 1080p Resolution
- DLNA Certified®
- ENERGY STAR® Qualified
- Picture Wizard II
- Intelligent Sensor
- Smart Energy Saving
- ISFccc® Ready

[1] Internet connection & subscriptions required and sold separately. The Magic Motion Remote does not come equipped with all LG Smart TV enabled TVs and a separate purchase maybe required. The Hulu Plus service is projected to be available via a firmware update in July 2011. The LG web browser does not support Flash 10 or HTML 5, therefore, access to certain web content July be limited or unavailable.

[2] For a small percentage of the population, the viewing of stereoscopic 3D video technology may cause discomfort such as headaches, dizziness or nausea. If you experience any symptoms, discontinue using the 3D functionality and contact your health care provider. 4 Pairs of 3D glasses are included.

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Logo Familiarization Page 1 of 3

LG Cinema 3D
Want 3D like you get it in the movie theater? Lightweight glasses, wider viewing angles and with clear 3D images? LG's Cinema 3D experience can bring it right to your home. Enjoy amazing depth along with smoother, crisper images, and a clear picture from virtually any angle.

LED Plus
Want deeper blacks and richer colors? LG's LED Plus technology provides even greater control of brightness through local dimming technology to deliver better contrast, amazing clarity and color detail, as well as greater energy efficiency compared to conventional LCD TVs.

LG SmartTV
A revolutionary, easy way to access virtually limitless content, thousands of movies, customizable apps, videos and browse the web all organized in a simple to use interface.

Magic Motion Remote (Included)
Just point and choose selections with LG's unique motion-controlled Magic Remote.

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Logo Familiarization Page 2 of 3

DLNA Certified®
To build a digital network, you need digital devices. That's obvious. But unless those devices are compatible, it won't be much of a network. **DLNA Certified®** devices work together.

FULL HD RESOLUTION 1080P HD Resolution Pixels: 1920 (H) × 1080 (V)
This stunning picture is the reason you wanted HDTV in the first place. With almost double the pixel resolution, Full HD 1080p gives it superior picture quality over standard HDTV. You'll see details and colors like never before.

WiFi Ready:
Getting your LG TV connected to NetCast™ Entertainment Access and other online content is easy when you are WiFi™ Ready. If you have existing wireless broadband, setting it up is simple and you don't need to worry about messy wires.

Intelligent Sensor
The Intelligent sensor will monitor the room lighting environment. When the room lights go out, the TV will automatically adjust the picture for the best viewing enjoyment.

Picture Wizard
Get easy self-calibration with on-screen reference points for key picture quality elements such as black level, color, tint, sharpness and backlight levels. Take the guesswork out of picture adjustments with this simple-to-use feature. It's not actually magic, but it will sure seem that way.

Logo Familiarization Page 3 of 3

Clear Voice Clearer dialogue sound
Automatically enhances and amplifies the sound of the human voice frequency range to provide high-quality dialogue when background noise swells.

Save Energy, Save Money
Home electronic products use energy when they're off to power features like clock displays and remote controls. Those that have earned the ENERGY STAR use as much as 60% less energy to perform these functions, while providing the same performance at the same price as less-efficient models. Less energy means you pay less on your energy bill. Draws less than 1 Watt in stand by.

TruMotion 120Hz
See sports, video games and high-speed action with virtually no motion blur and in crystal clarity with LG's TruMotion 120Hz technology. Now your TV can keep up with the fastest moving scenes.

5M:1 Dynamic Contrast Ratio
Worrying about dark scenes is a thing of the past. The mega contrast ratio of 5,000,000:1 delivers vivid colors and deep blacks.

AV Mode "One click" Cinema, THX Cinema, Sport, Game mode.
TAKE IT TO THE EDGE is a true multimedia TV with an AV Mode which allows you to choose from 4 different modes of Cinema, Sports and Game by a single click of a remote control.

55LW56000 Remote Control

p/n AKB72914041

TOP PORTION

BOTTOM PORTION

Parts List and Owner's Manual list a p/n AKB72914043. It has the same buttons, but some may be in different locations.

TV Rear Input / Output Jacks

USB1 or USB2 for Software Upgrades, Music, Videos and Photos. Also for the Wireless Network adaptor.

Rear In/Out Jacks

Side In/Out

Software Updates (New and Changed Functions)

A wireless Internet Connection will work for Automatic Software Downloads, however if there are problems completing download, a Wired Internet Connection is preferred

Bring up the Customer's Menu then cursor down 2 times, (Input) will be highlighted. Cursor right to highlight (SETUP).
Press "ENTER" on the Remote.

Scroll down to highlight the "?" mark (SUPPORT). Cursor right to highlight "Software Update", Press "ENTER" on Remote

Highlight "Check Update Version" to see if an update is available. Scroll up to highlight "ON" and cursor right to turn off automatic Software Update.

Generic Plasma USB Automatic Software Download Instructions

1) Download the Software File.

2) Copy new software (xxx.epk) to "**LG_DTV**" folder. Make sure to have correct software file.
3) With TV turned on, insert USB flash drive.
4) The "**TV Software Upgrade**" screen appears. (See figure to right)
5) Cursor left and highlight "**START**" Button and push "**Enter**" button using the remote control.
6) You can see the download progress Bar.
7) Do not unplug until unit has automatically restarted.
8) When download is completed, you will see "**COMPLETE**".
9) Your TV will be restarted automatically.

Currently Installed Version

Software Version found on the USB Flash Drive

File found on the USB Flash Drive

Highlight Start Press Select

*** CAUTION:**
Do not remove AC power or the USB Flash Drive. Do not turn off Power, during the upgrade process.

Software Files are now available from LGTechassist.com

Manual Software Download:

Prepare the Jump Drive as described in the “USB Automatic Download” section and insert it into either of the USB ports.
Bring up the Customer’s Menu then cursor down 2 times, (Input) will be highlighted. Cursor right to highlight (SETUP).
Press “ENTER” on the Remote.
Scroll to “OPTIONS”, (Nothing should be highlighted on the right side).
Press the “FAV” key 7 times to bring up the first screen for Manual Download Screen (Expert Mode).

1

Press the “FAV” key 7 times

3

File shown is not correct for this model.

2 Scroll down and highlight “Options”

4 Highlight the Software update file which will appear at the bottom of the screen. (Scroll down if more than one file is on the jump drive). Press “SELECT” to begin the download process.

WARNING:
Use extreme Caution when using the Manual “Forced” Download Menu. Any file can be downloaded when selected and July cause the Main board to become inoperative if the incorrect file was selected.

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Product and Service Info. Menu

1) Bring up the Customer's Menu then cursor down 2 times, (Input) will be highlighted. Cursor right to highlight (SETUP). Press "ENTER" on the Remote.

2) Scroll down to highlight the "?" mark (SUPPORT). Cursor right and scroll down to highlight "Product/Service Info", Press "ENTER" on Remote

3) Information for Customer Support appears.
Note: Model Number does not include suffix.

Accessing the Host Diagnostic Screen (Page 1 of 2)

Use the Host Diagnostic screen to investigate the signal quality of a problem channel.

1) Place Television on the digital channel that July be showing problems.

2) Bring up the Customer's Menu. Cursor down two times and right once to highlight "Setup". Press "Enter" on the remote.

3) The "Setup" Menu appears.

4) Scroll down and highlight "Options".

5) Press the (1) Key 5 times.
The Host Diagnostics screen appears.

See next page for more details.

55LW5600 Understanding the Host Diagnostic Screen (Page 2 of 2)

Host Diagnostics

Host Information

Model Name : 55LW5600-UA (Liquid Crystal Display)

Memory

FLASH : 524288 KB

DRAM : 524288 KB

NVM : 128 KB

Host Release Version

Firmware Version(PQ) : 2.02.07.01(25329) — **Software Version**

Micom Version : V2.21.2

Compile Date & Time : 20101130 & 08:45:52

Compile User : hellyhorse.kang

FAT Status (Main)

Center Frequency : 663.00 MHz — **Channel Frequency**

PCR lock : Locked — **Program Clock Reference (Locked or No)**

Modulation mode : QAM 256 — **Channel Type (8VSB, QAM 64, 256)**

Carrier lock status : Locked — **Channel (Locked or Unlocked)**

SNR : 37 dB — **Channel Signal to Noise Ratio**

Signal level : 100% — **Channel Signal Level (Above 80% good)**

Current Channel (Main)

Channel Selected

Channel Info : Digital 19-1

Blocked or Not Blocked

Parental Control : Channel is not blocked

DVI/HDMI Status

Can't display this information now

Wireless ready Status

Wireless Host Ver:0.00.0
Wireless B/B Ver:0.00.0
RF Region Config : Not Configured
Media Box Type : Not Configured
RF Frequency (Value):Auto (N.A.)
Uplink RF Power gain (Value):Auto (Min 0)
Downlink RF Power gain (Value):Auto:Auto (Min 0)
Link Mode : Unicast
RX MAC Address : ff:ff:ff:ff:ff:ff
TX MAC Address : ff:ff:ff:ff:ff:ff
Wireless connection status : Disconnected
Avera

8VSB (Above 20 is good)
QAM 64 (Above 24 is good)
QAM 256 (Above 30 is good)

◄ ► Half Page CH Move Page Exit

Accessing the Service Menu

105-201M

To access the Service Menu.

1) **You must have either Service Remote. p/n 105-201M or p/n MKJ39170828**
2) **Press "In-Start"**
3) **A Password screen appears.**
4) **Enter the Password.**

Note: A Password is required to enter the Service Menu. Enter; **0000**

Note: If **0000** does not work use **0413.**

MKJ39170828

55LW5600 Service Menu First Page

Bring up the Service Menu using the Service Remote
And pressing “In-Start” enter password 0413.

IN START

Model Name: 55LW5600-UA
Serial Number: 011PTCA8Y075
S/W Version: : 02.02.07.01
MICOM Version : 2.21.2
BOOT Version : 1.02.33
FRC Version : 20.ba
IR LED Version : a2.0
EDID (RGB/HDMI) : 0.00/0.00
Chip Type : BCM 35230
Wireless Host Ver. : 0.00.0
Wireless B/B/ Ver. : 0.00.0
Vi-Fi Version : 1.0
Vi-Fi Channel : 0
Wi-Fi MAC : 00:00:00:00:00:00
MAC Address : E8:5B:5B:2E:C3:67
Widevine : LGTV10L000010332
ESN Num. : LGE-LW4500XXXX00101F449C
Formatter Version : 20.ba
RF Receiver Version : VB091
Debug Status : RELEASE

UTT : 12
APP History Ver.:25329
PQL DB:LGD_AF_LGT10_XXXXXX

Model and S/N

SW Version

Video Processor Chip Type

Electronic Serial No.

Unit’s Total Time

1. Adjust Check
2. ADC Data
3. Power Off Status
4. System 1
5. System 2
6. Model Number D/L
7. Test Option
8. External ADC
9. Spread Spectrum
10. Sync Level
11. Wireless Ready
12. Stable Count
13. ODC Test
14. Local Dimming
15. SDP Server Selection
16. Network Error History

Adjust Check

Country Group

1. Country Group (Press OK to Save)
   - Country Group Code: 02
   - Country Group: US
   - Country: US
2. Tool Option
   - Tool Option 1: 33179
   - Tool Option 2: 4161
   - Tool Option 3: 7295
   - Tool Option 4: 21897
   - Tool Option 5: 14925
   - Tool Option 6: 665
3. Adjust White Balance: OK(0)
4. Adjust ADC: OTP
   - 480i Component: OK
   - 1080p Component: OK
   - RGB: OK
5. EDID(PCM): OK
   - RGB: OK (0x89)
   - HDMI1: OK (0x5B,0x72)
   - HDMI2: OK (0x5B,0x62)
   - HDMI3: OK (0x5B,0x52)
   - HDMI4: OK (0x5B,0x42)

Priority Audio Processing Mode

55LW5600 Model Number Download Screen

When the Main Board is replaced, the Model Number and Serial Number must be corrected. Follow these instructions

Bring up the Service Menu using the Service Remote. Scroll down to item 6. Model Number D/L to highlight. Press "**Cursor Right**" a black cursor should appear under the first digit in the Model Number line.

IN SART

Model Name: 55LW5600-UA
Serial Number: 011PTCA8Y075
S/W Version: : 02.02.07.01
MICOM Version : 2.21.2
BOOT Version : 1.02.33
FRC Version : 20.
IR LED Version : a2.0
EDID (RGB/HDMI) : 0.00/0.00
Chip Type : BCM 35230
Wireless Host Ver. : 0.00.0
Wireless B/B/ Ver. : 0.00.0
Vi-Fi Version : 1.0
Vi-Fi Channel : 0
Wi-Fi MAC : 00:00:00:00:00:00
MAC Address : E8:5B:5B:2E:C3:67
Widevine : LGTV10L000010332
ESN Num. : LGE-LW4500XXXX00101F449C
Formatter Version : 20.ba
RF Receiver Version : VB091
Debug Status : RELEASE

UTT : 12
APP History Ver.:25329
PQL DB:LGD_AF_LGT10_XXXXXX

Select Item 6

1. Adjust Check
2. ADC Data
3. Power Off Status
4. System 1
5. System 2
6. Model Number D/L ▶
7. Test Option
8. External ADC
9. Spread Spectrum
10. Sync Level
11. Wireless Ready
12. Stable Count
13. ODC Test
14. Local Dimming
15. SDP Server Selection
16. Network Error History

Model Number D/L

0. Model Name ◀ **55LW5600-UA** ▶
1. Serial Num. 011PTCA8Y075

Press OK to Save

To Change the Model Number
1) Use the cursor right or left to select the digit to change.
2) Use the cursor up or down to change.
3) Press "**ENTER**" to Save
4) Cursor right until there is no cursor under the text.
5) Cursor down to highlight "Serial Number" and change per step 2 above.
6) Press "**ENTER**" to Save
Note: If you need to return to the "Model Number" line, Cursor right until there is no cursor under the text and then press the Cursor Up button on the remote.
Be sure to press "Save" after all changes are made on any line.
After completion, press "In-Start" to update information on the left in the IN START Screen.

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55LW5600 UTT Reset (IN START) Screen

IN START

Model Name: 55LW5600-UA
Serial Number: 011PTCA8Y075
S/W Version: : 02.02.07.01
MICOM Version : 2.21.2
BOOT Version : 1.02.33
FRC Version : 20.ba
IR LED Version : a2.0
EDID (RGB/HDMI) : 0.00/0.00
Chip Type : BCM 35230
Wireless Host Ver. : 0.00.0
Wireless B/B/ Ver. : 0.00.0
Vi-Fi Version : 1.0
Vi-Fi Channel : 0
Wi-Fi MAC : 00:00:00:00:00:00
MAC Address : E8:5B:5B:2E:C3:67
Widevine : LGTV10L000010332
ESN Num. : LGE-LW4500XXXX00101F449C
Formatter Version : 20.ba
RF Receiver Version : VB091
Debug Status : RELEASE

UTT : 12 — **Unit's Total Time**
APP History Ver.:25329
PQL DB:LGD_AF_LGT10_XXXXXX

1. Adjust Check
2. ADC Data
3. Power Off Status
4. System 1 ▶
5. System 2
6. Model Number D/L
7. Test Option
8. External ADC
9. Spread Spectrum
10. Sync Level
11. Wireless Ready
12. Stable Count
13. ODC Test
14. Local Dimming
15. SDP Server Selection
16. Network Error History

SYSTEM 1

0. Baudrate	9600
1. 2 Hours Off (On Timer)	On
2. 2 Hours Off (Screen Mute)	Off
3. 15Min Force Off	On
4. Audio EQ	On
5. Dynamic EQ	On
6. A2 Threshold	11
7. HDMI Sound(Port1)	HDMI Port1
8. Lip Sync Adjust(DTV)	0
9. Dimming	On
10. Tuner Option	Default
11. Atten RF Signal	Off
12. UTT Reset	◀ Reset ▶
13. Channel Mute	On
14. Debug Status	RELEASE
15. NVRAM Type	EEPROM
16. HDEV	Off
17. Blue back	On
18. China Cable SO	On
19. Booster On (VHF)	0
20. Booster Off (VHF)	0
21. Booster On (UHF)	0
22. Booster Off (UHF)	0
23. Auto ADC	On

Changes to "Doing"

Note: After UTT is reset, the UTT time on the left will not reset to "0" until the Service Menu is exited.

Scroll to (System 1) then Right Cursor

Scroll to (UTT Reset) Press (Select) Reset changes to Doing then back to Reset

After Reset (Doing) has completed, Reset returns. After Exit the UTT Timer is "0"

55LW5600 EDID Download Screens

EZ ADJUST

0. Tool Option1
1. Tool Option2
2. Tool Option3
3. Tool Option4
4. Tool Option5
5. Tool Option6
6. Country Group
7. ADC Calibration
8. White Balance
9. 10 Point WB
10. Test Pattern
11. PCM EDID D/L
12. AC3 EDID D/L
13. Sub B/C
14. Touch Sensitivity Setting
15.Ext.Input Adjust

When Item 11 was selected

PCM EDID D/L	
HDMI1	OK/(PCM)
HDMI2	OK/(PCM)
HDMI3	OK/(PCM)
HDMI4	OK/(PCM)
RGB	OK/(PCM)

Start Reset

If Item 5 on Adjust Check in the 1st page of the Service Menu shows **EDID PCM** this shows **OK(PCM)**

If Item 5 on Adjust Check in the 1st page of the Service Menu shows **AC3**, this shows **NG.**

If **NG** was shown, highlight "**Start**" and press Select on the remote. "**Writing**" appears, then **OK/(PCM)** shows here. Now Item 5 on Adjust Check in the 1st page of the Service Menu shows **EDID PCM**.

If **Reset** is selected, **Erasing** will appear and then this shows "**NG**".

When Item 12 was selected

AC3 EDID D/L	
HDMI1	OK/(AC3)
HDMI2	OK/(AC3)
HDMI3	OK/(AC3)
HDMI4	OK/(AC3)
RGB	OK/(AC3)

Start Reset

If Item 5 on Adjust Check in the 1st page of the Service Menu shows **EDID AC3** this shows **OK(AC3)**

If Item 5 on Adjust Check in the 1st page of the Service Menu shows **PCM**, this shows **NG.**

If **NG** was shown, highlight "**Start**" and press Select on the remote. "**Writing**" appears, then **OK/(AC3)** shows here. Now Item 5 on Adjust Check in the 1st page of the Service Menu shows **EDID AC3**.

If **Reset** is selected, **Erasing** will appear and then this shows "**NG**".

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55LW5600 Product Dimensions

Wattage
Typica 159W
Max: 175W
Stand By <0.1W

There must be at least 4 inches of Clearance on all sides

Weight w/o Stand 48.5 lbs
Weight with Stand 47.8 lbs

PASSIVE 3D

This section of the manual will discuss the Passive 3D used in the 55LW56000 LCD Direct View Television.

Upon completion of this section the Technician will have a better understanding of Passive 3D.

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Advantages of Passive 3D

GLASSES	ADVANTAGES	
AG-P110 4 Pair Come with the TV Additional Glasses Reasonably priced	Easy Wear	Light Weight : 15g
	• Comfortable • Flicker Free • Light • No Batteries • No Charging	• Possible to watch 3D while laying down • Horizontal (Left/Right) Viewing Angle Free • Large group of people can watch simultaneously • No synchronization pulse to interfere with.
	• Compatibility with all types of 3D Passive TV Maker • Glasses can be made by polarized coating on normal glasses	

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PR Type of 3D Display

Pattern Retarder makes separation of polarization status.
Each eye can see left and right images respectively when wearing polarized glasses.

Separated by patterned retarder

distinguished by polarized glasses

Right images input to odd lines
Left images input to even lines

FPR 3D Display Design

Polarization film (PR) is placed on the front of the LCD panel

1. Patterned Retarder plate is attached on the LCD module
2. Patterned Retarder plate rotates odd line to CW 45 degree and even line CCW 45 degree
3. Odd number pixels see through the Left lens and even number pixels see through the Right lens of the Polarized glasses
4. The brain combines separated images into 3D image

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Polarizer State

Pattern retarder makes 2 kinds of polarization states; LHC, RHC
Polarizer glasses is possible to distinguish polarization state.

Polarization State #4 (Linear)

Polarizer

Polarization State #3 (Circular)

Quarter Wave Plate

Distinguish polarization state
- LHC : Left Handed Circularly Polarization
- RHC : Right Handed Circularly Polarization

Polarization State #2 (Circular)

Pattern Retarder

Polarization State #1 (Linear)

Polarizer of LCD

Divides light output into 2 kinds of polarization states
- LHC : Left Handed Circularly Polarization
- RHC : Right Handed Circularly Polarization

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LCD 3D Formatter

3D Formatter
- All Formats of input are available and converted by 3D technology
- Full HD input available
- 3D Enhancement

HDMI 1.3 / HDMI 1.4

Regular 2D

3D Formats (Frame Packed)

1) Side by Side

2) Top and Bottom

3) Checkerboard

4) Frame Sequential
(Full Resolution available)

HDMI 1.4 (Only)

5) Over/Under

or

Polarized Lens (Frame Retarder) over LCD panel and Polarized Glasses required

No Synchronization required between glasses and TV

L / R represents;
Left Camera View
Right Camera View

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LG 3D TV 3D broadcasting

3D for All types of broadcasting signals

1. Input of broadcasting signal
2. Press “3D” button for mode change
3. Select type of input source,
4. Press “ENTER”.
5. In case 3D looks *abnormal, press “3D Settings” in the “Quick MENU”.

*Abnormality may be caused by reversed L/R order of the input signal. If TV already in Left/Right change to Right/Left or vice versa.

Note: Picture behind the menu is showing a side by side format.
Note: HDMI 1.4 will automatically select 3D type for you.

3D Settings Menu

3D settings may help with 3D view pleasure.

1. **In case 3D looks *abnormal, press "3D Settings" in the "Quick MENU".**

3D Picture Size: Cuts off the outer edges of the picture and stretch it to fit the full screen in 3D mode.

3D Depth: Adjusts the distance between the object and the background in the picture to enhance the 3D effect in 2D to 3D mode.

3D View Point: Brings the picture (including both the object and background images) to the front or back to enhance the 3D effect in 3D mode.

3D Picture Balance: Adjusts the color and brightness difference between the right and left sides of the picture in 3D mode.

3D Picture Correction: Changes the order of images in the right and left sides of the picture in 3D mode.

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Disassembly:

This section of the manual will discuss Disassembly, Layout (Circuit Board Identification) of the 55LW56000 LCD Direct View Television.

Upon completion of this section the Technician will have a better understanding of the disassembly procedures, the layout of the printed circuit boards and be able to identify each board.

Panel Structure and Local Dimming

LED Array is on the side of Module

Backlight Structure

8 Blocks 8 Blocks

Each of the 16 blocks can be controlled independently (Local Dimming) or all of them as a group (Global Dimming) P-DIM

This allows the panel to be darkened out in areas that are black or low brightness areas of the video. This allows for more deeper blacks and a thin design.

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Removing the Back Cover

The Stand has to be removed before removing the back.

Circuit Board Layout

55LW5600 Connector Identification Diagram

IR Soft Touch Keys
p/n: EBR72671301

Speaker (Front Right)
p/n: EAB62088401

Speaker (Front Left)
p/n: EAB62088401

Motion Remote Receiver
p/n: EBR72499601

Power Supply Board Removal

p/n EAY62169901

① **Disconnect P201, P202, P203, P832 and AC In SK100.**

② **Remove the 6 screws indicated by the arrows.**

Press in gently on the two tabs to release lock

Note: This screw Is a different size with washer.

SK100 fits very snug into it's connector. Press in on the two tabs to release lock

Removing the Main Board

1

Disconnect P3503, P502, P1702, P1502, P1501, P901 and P1302.

2

Remove any tape holding down any cables. Remove the 5 (Maybe 6) screws indicated by the arrows.

3

Remove the board.

4

Remove the board. Then Remove the wrap around decorative Metal piece. Note: It is one piece.

p/n: EBR72717002 (AUSYLHR)
p/n: EBR73145701 (AUSYLJR)
p/n: EBR72717004 (AUSYLUR)
p/n: EBT61398007 (AUSYLUR)

The Decorative Metal Plate is one Piece

Removing the T-CON (1 of 2)

Comes with the Panel

1 T-CON is under the Stand Bracket.
Remove the Stand Bracket (4 Screws).

2 T-CON is under a Shield.
Remove the T-CON Shield (3 Screws).

Press in on the two side unlocking tabs.

3 Disconnect CN1, CN2, CN4 and CN5.

Return Screws if testing board.

Flip up the unlocking tabs.

See next page for removing Connectors.

Return Screws if testing board.

Flip up the unlocking tabs.

T-CON Board Removal Continued (2 of 2)

4 To remove the LVDS cables CN1 and CN2;
Press in on the two tabs and slowly rock the cable out of the connector.
(Shown by the arrows in Figures below)

BROKEN TAB:
If a tab is broken,
Use a thin object
And push in at the
Location shown by
The arrow on the left.

Removing LVDS

From the Main (Top of the board)

Removing Ribbons

CN4 **To the Panel (Bottom of the board)** **CN5**

Flip the locking tabs upward and pull out the ribbon cables.

Removing the Front IR Page 1 of 2

IR/Key board p/n: EBR72671301

1 The Front IR Item 510 on the parts breakdown is under a wire routing bracket Item 511. Disconnect the cable coming from the Main board and remove it from the wire holders in Item 511.

2 Remove the Speaker by sliding it forward.

3 Remove the one screw.
Lift up on the three tabs at the top of Item 511 and pull the Item 511 slightly forward.
Lift Item 511 up and out.

Removing the Front IR Continued

p/n: EBR72671301

After gaining access to the Front IR/Intelligent Sensor Board, lay the TV down on its face and remove the LCD Panel by releasing the tabs around the perimeter of the panel. Lift the Panel up and out.
The Front IR / Key Board is attached to the Front Frame Item 300 p/n: ABJ73289206.
It must be separated to replace independently. Part number: EBR72671301.

Troubleshooting:

This section of the manual will discuss troubleshooting.

Upon completion of this section the Technician will have a better understanding of how to diagnosis and resolve problems.

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POWER SUPPLY SECTION

This switch mode power supply develops Stand By 3.5V at all times when AC is applied. At power on, it develops 12V and 24V for the Main board.
It develops 63V for the LED Backlights.

This power supply draws less than 1 watt during stand by mode. The fuse F101 reads approximately 57V and F501 reads 154V during this time (from hot ground) . The transformer T501 delivers an AC signal which is rectified and filtered by D201, D202, C201 and C202 which develops a Stand-By voltage of 3.55V which is used by the SMPS Controller circuit and is also sent to the Main Board. It is output P201 pins 9~12 and sent to the P502 on the Main Board.

When the controller chip on the back side of the SMPS receives the PWR-ON command 3.4V via P201 Pin 1, it turns on the Relay RL101 which supplies AC to the bridge rectifier BD101. The primary section (Power Factor Controller circuit) increases its current supplying ability.
Both Primary fuses F101 and F501 now reads between 395V~397V (from hot ground).
D253 receiving switching pulses from L601 and filtered by C256 and C257, develops the 63V for the LED backlights.

When the SMPS receives the DRV_ON command from the Main board via P201 Pin 18 (3.24V) it turns on the on-board Inverter to start driving the LED backlights. The backlight brightness is controlled by the Main board via PWM Pin 22 and Local Dimming signals via P832.

P201 Connector: (To Main Board)
3.5V_ST (3.55V) output P201 pins 9~12
12V output P201 pins 17, 19 and 21
24V output P201 pins 2, 3 and 4.
Turn on commands.

P202 Connector: (To Panel LEDs)
63V output P202 pins 1 and 12.

P203 Connector: (To Panel LEDs)
63V output P203 pins 1 and 13.

P832 Connector: (To the Main Board)
This connector receives the Local Dimming signals.

55LW5600 Power Supply Drawing

P201 Connector "SMPS Board" To P502 "MAIN Board"

Pin	Label	STBY	Run	Diode Check
24	ERROR	n/c	n/c	2.2V
23	n/c	n/c	n/c	n/c
22	PWM	0V	0.2V~3.3V	OL
21	12V	0V	12.07V	0.48V
20	n/c	n/c	n/c	n/c
19	12V	0V	12.07V	0.48V
18	DRV-ON	0V	3.24V	OL
17	12V	0V	12.07V	0.48V
16	V-SYNC	n/c	n/c	n/c
13~15	Gnd	Gnd	Gnd	Gnd
9~12	3.5V	3.56V	3.51V	OL
5~8	Gnd	Gnd	Gnd	Gnd
2~4	24V	0V	25V	1.1V
1	PWR-ON	0V	3.4V	1.16V

(1) **P-DIM1 (Digital Dimming) Global Pin 22** can vary according to incoming video IRE level, OSD Backlight setting and room light condition.
0.2V 0% to 3.3V 100% and the Intelligent Sensor. Output from the Video Processor IC900.

Indicates Hot Ground

63V Line:
PWR-ON turns on the 63V supply but it will only be 56V.
Note: A block of LEDs can be turned on with this voltage.
It will increase to 63V when the DRV-ON line goes high.

MODEL	LGP55-11SLPB
INPUT	100-240V~50/60Hz 2.5A
OUTPUT	3.5V = 1.8A 12V = 2.8A 24V = 1.2A 81.4V = 1.6A

SMPS TEST 1: To Force Power Supply On.
Disconnect P502 on Main board.
(A) Jump pins 9, 10, 11 or 12 (STBY_3.5V) to pin 1. Test Voltage Outputs 12V, 24V to Main and 56V to the Panel LEDs. Remove AC power. Leave the jumper in place.
No Backlights at this time.
SMPS TEST 2:
(B) Jump pins 9, 10, 11 or 12 (3.5V) to pin 18 (DRV-ON). Apply AC power, the Backlights should turn on. Note, the LED B+ will now jump to 63V then back down to 63V.

Note; If there is a problem with a load from the panel backlights, you can remove AC and Disconnect P202 or P203. When AC is reapplied, the Backlight LEDs should turn on for about 4 seconds and then shut off.

55LW5600 Power Supply Start Up Sequence

55LW5600 Television Turn On Commands Circuit Drawing

PWM-DIM1 (PWM Dimming) can vary according to incoming video IRE level, OSD Backlight setting and Intelligent Sensor (room light condition). Range 0.37V to 3.3V.

Power Supply Board Low Voltage Test 1

AC Should not be applied at any time while adding jumpers or While unplugging connectors as damage to the circuit Board July occur.

a) When AC is applied, the SMPS "MUST" be producing STBY 3.5V on pins 9, 10, 11 or 12 of P201.

If 3.5V Standby is not being generated, the SMPS is defective and must be replaced. There is no need to continue with the next test.
But, make sure AC is arriving at the connector SK101.

(b) Unplug P502 on the Main Board to make insertion of the Jumpers easier.
Use P502 Side to insert resistors

TEST 1:

(1) Add a jumper between (3.5V STBY) pin 7, 8, 9 or 10 and Pin 1 (PWR_ON). Apply AC. This will turn on the power supply, relay will click.
a) Check that the 24V (25.02V) and 12V (12.08V) power supplies are turned on,
- P201 (12V pins 17, 19 and 21)
- P201 (24V pins 2, 3 and 4)
- P202 (56V pins 1 and 12) AND P203 (pins 1 and 13)

(2) Remove AC power

No Backlights during this test

Pin 1 is the Brown Wire

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Power Supply Board Backlights Test 2

Continue if the 1st test was OK.
Leave original jumper in place.

(3) Add another jumper between (STBY_3.5V) pin 9, 10, 11 or 12 and Pin 18 (DRV_ON).

(4) Apply AC Power. Simulating a Power and Backlight On command.

Backlights Normal:

a) If normal, the backlights should turn on. SMPS OK, Inverter OK.

Backlights Abnormal:

a) Recheck all connections.
b) Confirm the **DRV_ON** line pulling up to at least 3V.
c) Check the connections to the Panel.

Pin 1 is the Brown Wire

If the DRV_On command is pulling up to at least 3V and the 63V is being generated from C256 + leg, see the Inverter Section of the Power Supply for additional checks.
Note: If either P202 or P203 is disconnected, the backlights will come on,
The Error line will go high, then the backlights shut off in 4~6 seconds.

REMOVE AC POWER:

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55LW5600 2 Sided Edge Lit Panel (V6) 2011

55" TWO SIDED EDGE 2011 (Rear View)

Block: VC-2D (EL69 Rivet) P203 pin 11	Block: VC-3A (EL70 Rivet) P202 pin 3
Block: VC-2C (EL68 Rivet) P203 pin 10	Block: VC-3B (EL71 Rivet) P202 pin 4
Block: VC-2B (EL67 Rivet) P203 pin 9	Block: VC-3C (EL72 Rivet) P202 pin 5
Block: VC-2A (EL66 Rivet) P203 pin 8	Block: VC-3D (EL73 Rivet) P202 pin 6
Block: VC-1D (EL65 Rivet) P203 pin 6	Block: VC-4A (EL74 Rivet) P202 pin 7
Block: VC-1C (EL64 Rivet) P203 pin 5	Block: VC-4B (EL75 Rivet) P202 pin 8
Block: VC-1B (EL63 Rivet) P203 pin 4	Block: VC-4C (EL76 Rivet) P202 pin 9
Block: VC-1A (EL62 Rivet) P203 pin 3	Block: VC-4D (EL77 Rivet) P202 pin 10

LEDs

Example

Connector
63V P203
pin 1 and 13
B+ 8 blocks

Connector
63V P202
pin 1 and 12
B+ 8 blocks

160 Total LEDs
2 Boards (Strips)
80 LEDs per/board

ONE STRIP = (Board)

16 Total Blocks
8 Blocks per/board (8 on Left, 8 on Right)
10 LEDs per/block

P202 or P203

EL62 ~ EL77 Test Point
1.59V Bright ~ 18V Dark

One LED can be tested with a Diode Check using a DVM. Forward biased, the LED should light.

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63V Power Supply for the Backlights Section of the SMPS

The Power Supply for the Backlights can be checked at the (+) side of C256 or C257 or the Cathode of D253.

Note: When the PWR_ON command Arrives, this voltage will read 56V. When the DRV_ON command arrives This voltage will rise to 63V.

Location: Top Center of the SMPS

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P202 and P203 Backlight Driver Section of the SMPS Association with TPs

Tip: You can use the right side of R287 or R288 to check for the 63V.
Tip: Remember to use a 220Ω to ground on any of the "EL" Test Points to force an LED Block to turn on.

P203

Pin	Label	TP
1	LED+	C256+
2	n/c	n/a
3	VC-1A	EL62
4	VC-1B	EL63
5	VC-1C	EL64
6	VC-1D	EL65
7	n/c	n/a
8	VC-2A	EL66
9	VC-2B	EL67
10	VC-2C	EL68
11	VC-2D	EL69
12	n/c	n/a
13	LED+	C256+

P202

Pin	Label	TP
1	LED+	C256+
2	n/c	n/c
3	VC-3A	EL70
4	VC-3B	EL71
5	VC-3C	EL72
6	VC-3D	EL73
7	VC-4A	EL74
8	VC-4B	EL75
9	VC-4C	EL76
10	VC-4D	EL77
11	n/c	n/c
12	LED+	C256+

WARNING: Do not simply "Ground" any of the EL Test Points (EL62~EL77) to turn on an LED Block. The LED Block will be destroyed.

P202 / P203 Power Supply Connector Voltage and Diode Check

P202 White Plug "SMPS Board" To "Panel LEDs"

Pin	Label	TP	Run	Diode Check
1	**LED+**	**C256+**	**63V**	**OL**
2	n/c	n/c	n/c	OL
3	VC-3A	EL70	*1.59V~18V	OL
4	VC-3B	EL71	*1.59V~18V	OL
5	VC-3C	EL72	*1.59V~18V	OL
6	VC-3D	EL73	*1.59V~18V	OL
7	VC-4A	EL74	*1.59V~18V	OL
8	VC-4B	EL75	*1.59V~18V	OL
9	VC-4C	EL76	*1.59V~18V	OL
10	VC-4D	EL77	*1.59V~18V	OL
11	n/c	n/c	n/c	OL
12	**LED+**	**C256+**	**63V**	**OL**

*White to Black screen

P203 Black Plug "SMPS Board" To "Panel LEDs"

Pin	Label	TP	Run	Diode Check
1	**LED+**	**C256+**	**63V**	**OL**
2	n/c	n/a	n/c	OL
3	VC-1A	EL62	*1.59V~18V	OL
4	VC-1B	EL63	*1.59V~18V	OL
5	VC-1C	EL64	*1.59V~18V	OL
6	VC-1D	EL65	*1.59V~18V	OL
7	n/c	n/a	n/c	OL
8	VC-2A	EL66	*1.59V~18V	OL
9	VC-2B	EL67	*1.59V~18V	OL
10	VC-2C	EL68	*1.59V~18V	OL
11	VC-2D	EL69	*1.59V~18V	OL
12	n/c	n/a	n/c	OL
13	**LED+**	**C256+**	**63V**	**OL**

*White to Black screen

*The drive signal changes due to the brightness level of the backlights. Low indicates “Bright”. High indicates “Dim”.

Diode Mode values taken with all Connectors Removed

P832 Local Dimming Drive Waveforms

P832 "SMPS" to P1601 "MAIN"

Pin	Label
1	VSYNC
2	SDA
3	SCL
4	SIN
5	Gnd
6	L/DIM0_SCLK
7	n/c
8	Reverse

Top Waveforms are 500uSec/div
Bottom Waveforms are 100uSec/div

P832 Pin 2 SDA 3.3V p/p

P832 Pin 3 SCL 3.2V p/p

2mSec/div

P832 Pin 1 VSYNC 3.5V p/p

P832 Pin 4 SIN 3.35V p/p

P832 Pin 6 SCLK 3.3V p/p

P832 Voltages and Diode Checks

P832 "SMPS" to P3503 "MAIN Board"

Pin	Label	STBY	Run	Diode Check
8	Reverse	0V	0V	1.91V
7	n/c	n/c	n/c	OL
6	SCLK	0V	0.1V	OL
5	Gnd	Gnd	Gnd	Gnd
4	SIN	0V	0V	OL
3	SCL	0V	3.2V	OL
2	SDA	n/c	3.2V	OL
1	VSYNC	0V	0V	2V

P832 Connector

Pin numbers are inverted on the Main Board

Diode Mode values taken with all Connectors Removed

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P201 Power Supply Connector Voltage and Diode Check

P201 Connector "SMPS Board" To P502 "MAIN Board"

Pin	Label	STBY	Run	Diode Check
24	**ERROR**	n/c	n/c	2.2V
23	**n/c**	n/c	n/c	n/c
22	**PWM**	0V	0.2V~3.3V	OL
21	**12V**	0V	12.07V	0.48V
20	**n/c**	n/c	n/c	n/c
19	**12V**	0V	12.07V	0.48V
18	**DRV-ON**	0V	3.24V	OL
17	**12V**	0V	12.07V	0.48V
16	**V-SYNC**	n/c	n/c	n/c
13~15	**Gnd**	Gnd	Gnd	Gnd
9~12	**3.5V**	3.56V	3.51V	OL
5~8	**Gnd**	Gnd	Gnd	Gnd
2~4	**24V**	0V	25V	1.1V
1	**PWR-ON**	0V	3.4V	1.16V

P201 Connector

Odd pins are on top row

1

(1) PWR_ON Pin 1 turns on the SMPS which send 12V and 24V to the Main. The 63V Power Supply turns on too, but only generates 56V at this time.

(3) PDIM1 Pin 22 can vary according to incoming video IRE level, OSD Backlight setting and then Intelligent Sensor (room light condition) Output from the Video Processor IC900. Range 0.37V to 3.3V.

.

P-DIM1
3.66V p/p 50IRE

Diode Mode values taken with all Connectors Removed

SK100 and AC Fuse Power Supply Voltage and Diode Check

SK100 "SMPS" to AC IN

Pin	Label	STBY	Run	Diode Check
EL1	L	120Vac		OL
EL3	N			OL

AC Voltage Readings (From Hot Ground)
Pins 1 and 2 for STBY and RUN.

F100
5A/250V
AC IN

Diode Mode values taken with all Connectors Removed

F100 (Diode Check)

Red or Black Lead on Fuse (Open)
Other Lead on Hot Ground

Bottom Left of SMPS

F101 and F501 Power Supply Voltage Checks

F101
3.15A/250V

From Hot Gnd
STBY 57V
Run 396.5V

F501
1A/250V

From Hot Gnd
STBY 154V
Run 398.5V

If the set was on and then turned off, the voltage takes a while to bleed down.

MAIN BOARD SECTION

The Main board receives its operational B+ from the Power Supply via P502.
There are two LVDS cable feeds that are output to the T-CON (TFT Driver). These carry the duel 24 bit LVDS Video and TruMotion Video equaling a 120Hz video signal. These signals have already been prepared for the T-CON board. The Main board also includes the Frame Rate Converter for 3D, Tuner, Audio and Audio/Video inputs and selection circuits.

Input Voltages from SMPS.

STAND-BY
- **STBY 3.5V (P502 pins 9~12)**

RUN
- **12V (P502 pins 17, 19 and 21).**
- **24V (P502 pins 2~4).**

The Main board also develops several B+ sources on the board.

STAND-BY VOLTAGES
- **3.3V_ST** (Direct from SMPS through L503).

LVDS
- **Panel_VCC** (12V Not generated, but switched by Q507 from the 12V arriving from the SMPS).

TUNER TU2101 and VSB CIRCUIT
- **5V_TU** (Made from 5V_Normal through L2101 / 4)
- **3.3V_TU** (Made from 3.3V_Normal L2103).
- **1.26V_TU IC2103** (Made from 3.3V_TU).

AUDIO IC1702
- **3.3V_AU_AVDD** (Made from 3.3V_Normal).
- **3.3V_DVDD** (Made from 3.3V_Normal).
- **1.8V** (Made from 3.3V_Normal).
- **24V** (Direct from SMPS through L504).

GENERAL
- **5V_Normal IC507** (Made from 12V In).
- **3.3V_Normal IC505** (Made from 12V In).
- **5V USB IC506** (Made from 12V In).

BCM IC101 Video Processor
- **3.3V_ST** (Direct from SMPS through L503).
- **2.5V_BCM52230 (**IC504)
- **D1.5V_DDR (**IC508)
- **0.9V_CORE (**IC501)

Frame Rate Converter (IC5201) FRC
- **1.26V_FRC** (IC5401) **3.3V_FRC** (IC5402), **1.5V_FRC** (IC5403)

HDMI SELECTOR VOLTAGES (IC701)
- **3.3V_HDMI**
  (From 3.3V_Normal through L701)

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Main Board Layout

55LW5600 Main Board (Front and Back Side) Component Layout

P502 "MAIN Board" Connector To P201 "SMPS Board"

Pin	Label	STBY	Run	Diode Check
1	PWR-ON	0V	3.4V	2.79V
2-4	24V	0V	25V	OL
5-8	Gnd	Gnd	Gnd	Gnd
9-12	3.5V_ST	3.56V	3.51V	1.15V
13-15	Gnd	Gnd	Gnd	Gnd
16	GND/VSYNC	n/c	n/c	OL
17	12V	0V	12.01V	2.09V
18	DRV-ON	0V	3.24V	1.54V
19	12V	0V	12.01V	2.09V
20	A-DIM	n/c	n/c	OL
21	12V	0V	12.01V	2.09V
22	PDIM-1	0V	0.2V~3.3V	2.4V
23	n/c	n/c	n/c	OL
24	Err OUT	n/c	n/c	OL

P901 "MAIN Board" To "IR Board" J1

Pin	Label	STBY	Run	Diode Check
1	SCL	3.55V	3.48V	3.29V
2	SDA	3.55V	3.48V	3.29V
3	Gnd	Gnd	Gnd	Gnd
4	KEY 1	3.33V	3.31V	1.84V
5	KEY 2	3.33V	3.31V	1.84V
6	3.5V_ST	3.55V	3.48V	1.15V
7	Gnd	Gnd	Gnd	Gnd
8	LED_B/BUZZ	0V	0V	OL
9	IR	1.5V	1.41V	OL
10	Gnd	Gnd	Gnd	Gnd
11	+3.3V_Normal	0.0V	3.33V	0.55V
12	LED_R/BUZZ	0V	0V	2.68V
13	Gnd	Gnd	Gnd	Gnd
14	S/T_SCL	3.55V	3.48V	1.91V
15	S/T_SDA	3.55V	3.48V	1.92

55LW5600 Main Board (Front) Component Layout

55LW5600 Main (Front Side) Component Voltages

IC103 — NVRAM for USB

Pin	
[1]	n/c
[2]	0V
[3]	3.34V
[4]	0V
[5]	3.22V
[6]	3.22V
[7]	0V (Gnd)
[8]	3.34V

IC501 — +0.9V_CORE DC to DC

Pin	
[1]	3.17V
[2]	0.59V
[3]	0.44V
[4]	11.95V
[5]	0V
[6]	5.33V
[7]	4.6V
[8]	5.81V
[9]	0.95V
[10]	1.36V

IC504 — +2.5V BCM Regulator

Pin	
[1]	n/c
[2]	4.92V (En)
[3]	3.47V (In)
[4]	3.49V (Ctl)
[5]	n/c
[6]	2.57V (Out)
[7]	0.6V
[8]	0V (Gnd)

IC505 — (+3.3V_NORMAL) Regulator

Pin	
[1]	0V (Gnd)
[2]	11.96V (In)
[3]	0V (Gnd)
[4]	0.8V
[5]	0.79V
[6]	3.47V (PWR On/Off2_2)
[7]	3.35V (Out)
[8]	3.35V (Out)

IC506 — Switched 5V for USB 2

Pin	
[1]	0V (Gnd)
[2]	11.98V (In)
[3]	0V (Gnd)
[4]	0.79V
[5]	3.48V
[6]	3.48V (PWR On/Off2_1)
[7]	4.96V (Out)
[8]	4.96V (Out)

IC507 — (+5V_NORMAL) Regulator

Pin	
[1]	0V (Gnd)
[2]	11.98V (In)
[3]	0V (Gnd)
[4]	0.79V
[5]	3.48V
[6]	3.48V (PWR On/Off2_1)
[7]	4.96V (Out)
[8]	4.96V (Out)

IC508 — (+1.5V_DDR) Regulator

Pin	
[1]	3.46V
[2]	n/c
[3]	3.46V (In)
[4]	3.49V (PWR On/Off1)
[5]	0V (Gnd)
[6]	3.31V
[7]	0.79V
[8]	1.5V (Out)

Q901 — IR Buffer 2nd

Pin	
B	0.02V
C	3.48V
E	Gnd

Q902 — IR Buffer 1st

Pin	
B	0.57V
C	0.02V
E	Gnd

IC801 — RGB Data Buffer

Pin	
[1]	1.81V
[2]	1.81V
[3]	3.72V
[4]	1.8V
[5]	1.8V
[6]	n/c (4.44V)
[7]	0V (Gnd)
[8]	n/c (4.43V)
[9]	n/c (1.79V)
[10]	n/c (1.79V)
[11]	3.72V
[12]	1.81V
[13]	1.81V
[14]	5V (Vcc In)

IC802 — EDID Data PC

Pin	
[1]	0V (Gnd)
[2]	0V (Gnd)
[3]	0V (Gnd)
[4]	0V (Gnd)
[5]	4.73V
[6]	4.73V
[7]	4.73V
[8]	4.73V (Vcc In)

Q1001 — Wireless Vcc Driver

Pin	
B	0.02V
C	24.5V
E	Gnd

On when wireless dongle connected

Q1002 — Wireless Vcc Switch

Pin	
S	24.5V
G	24.5V
D	0V

On when wireless dongle connected

IC803 — RS232 Routing

Pin	
[1]	3.5V
[2]	5.64V
[3]	0V
[4]	0V
[5]	(-5.56V)
[6]	(-5.59V)
[7]	n/c (5.64V)
[8]	n/c (0V)
[9]	n/c (3.49V)
[10]	n/c (0V)
[11]	n/c (3.34V)
[12]	3.48V
[13]	0V
[14]	(-5.59V)
[15]	0V (Gnd)
[16]	3.5V (Vcc In)

IC1203 — EDID Data PC

Pin	
[1]	0V (Gnd)
[2]	4.96V (Vcc In)
[3]	4.96V (Vcc In)
[4]	3.34V (USB Ctl2)
[5]	3.17V
[6]	4.96V (Out)
[7]	4.96V (Out)
[8]	n/c (0V)

IC1204 — EDID Data PC

Pin	
[1]	0V (Gnd)
[2]	4.96V (Vcc In)
[3]	4.96V (Vcc In)
[4]	3.34V (USB Ctl1)
[5]	3.17V
[6]	4.96V (Out)
[7]	4.96V (Out)
[8]	n/c (0V)

IC2103 — (+1.26V_TU) Regulator

Pin	
[1]	0V (Gnd)
[2]	1.27V (Out)
[3]	3.33V (In)

IC5401 — (+1.26V_FRC) Regulator

Pin	
[1]	0V (Gnd)
[2]	11.85V (Vcc In)
[3]	0V (Gnd)
[4]	0.8V (FB)
[5]	0.7V
[6]	3.29V (Enable)
[7]	1.29V (Out)
[8]	1.29V (Out)

IC5402 — (+3.3V_FRC) Regulator

Pin	
[1]	Under Shield
[2]	Under Shield
[3]	Under Shield
[4]	Under Shield
[5]	0.8V
[6]	3.45 (PWR On/Off2_2)
[7]	3.3V
[8]	3.3V

Q501 — RL_ON (PWR_On) 1st Driver

Pin	
B	0.64V
C	0V
E	Gnd

Q502 — PWR_ON Switch

Pin	
[1]	3.5V (In)
[2]	0.67V
[3]	2.62V (Out)

Q503 — 0.9V FET Switch

Pin	
[1]	0.95V
[2]	0.95V
[3]	0.95V
[4]	1.36V
[5]	11.96V
[6]	11.96V
[7]	11.96V
[8]	11.96V

Q508 — 0.9V FET Switch

Pin	
[1]	0V (Gnd)
[2]	0V (Gnd)
[3]	0V (Gnd)
[4]	4.6V
[5]	0.95V
[6]	0.95V
[7]	0.95V
[8]	0.95V

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47LW5600 Main Board (Back Side) Component Layout

55LW5600 Main (Back Side) Component Voltages

IC502 — Power Det Gen (For +12V)

Pin	
[1]	0V (Gnd)
[2]	3.8V (In)
[3]	3.73V (Out)

IC503 — Power Det Gen (For +24V)

Pin	
[1]	0V (Gnd)
[2]	3.7V (In)
[3]	3.73V (Out)

IC601 — EEPROM Micro

Pin	
[1]	0V (Gnd)
[2]	0V (Gnd)
[3]	3.49V
[4]	0V (Gnd)
[5]	3.49V
[6]	3.49V
[7]	0V (Gnd)
[8]	3.50V (Vcc In)

IC5202 — SPI FLASH

Pin	
[1]	0.43V
[2]	3.29V
[3]	3.29V
[4]	0V (Gnd)
[5]	??
[6]	??
[7]	3.29V
[8]	3.29V (3.3V_FRC in)

Q101 — RGB_DDC_SDA FET Buffer

Pin	
[B]	0V (Gnd)
[G]	3.3V
[S]	4.74V
[D]	3.34V

Q102 — RGB_DDC_SCL FET Buffer

Pin	
[B]	0V (Gnd)
[G]	3.3V
[S]	4.74V
[D]	3.34V

Q504 — INV_CTL (Drv_On) Driver

Pin	
B	0V (INV ON) En
C	3.28V (Out)
E	Gnd

Q505 — PANEL_VCC Control 1st Driver

Pin	
B	0V
C	0.68V
E	Gnd

Q506 — PANEL_VCC Control 2nd Driver

Pin	
B	0.67V
C	0V
E	Gnd

Q507 — PANEL_VCC Switch

Pin	
S	11.97V (In)
G	1.8V (Enable)
D	11.94V (Out)

Q710 — CEC Remote HDMI CEC

Pin	
[B]	3.47V
[G]	3.51V
[S]	3.47V
[D]	3.49V

Q801 — Earphone Mute

Pin	
B	0V
C	3.35V
E	Gnd

Q904 — IR Wireless Pass 2nd Driver

Pin	
B	0.02V
C	3.48V
E	Gnd

Q906 — IR Wireless Pass 1st Driver

Pin	
B	0.57V
C	0V
E	Gnd

Q1701 — AMP_MUTE Pin 19 IC1702

Pin	
B	0V
C	3.36V
E	Gnd

Q2104 — Tuner SIF (Sound) Buffer

Pin	
B	0.23V
C	0V (Gnd)
E	0.93V

Q2106 — Tuner Video (Analog) Buffer

Pin	
B	3.67V
C	0V (Gnd)
E	4.35V

Q5201 — URSA Reset Driver

Pin	
B	0.11V
C	3.33V
E	0V (Gnd)

Q5202 — URSA Reset

Pin	
G	3.33V
S	3.33V
D	0V (Out)

D707 — 5V Pull-Up to DDC_SCL/SDA_1

Pin	
A1	4.96V
C	5V
A2	0V

D708 — 5V Pull-Up to DDC_SCL/SDA_3

Pin	
A1	4.96V
C	5V
A2	0V

D710 — 5V Pull-Up to DDC_SCL/SDA_2

Pin	
A1	4.96V
C	5V
A2	0V

D711 — 5V Pull-Up to DDC_SCL/SDA_4

Pin	
A1	4.96V
C	5V
A2	0V

D713 — Bias for Q710 HDMI CEC

Pin	
A1	0V
C	3.45V
A2	3.5V

D810 — 5V Routing to IC802 RGB EDID

Pin	
A1	4.73V
C	5.01V
A2	0.07V

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Main Board X601, X602 and X5201 Crystal Checks

24Mhz

Runs when set is on

X602

32.768KHz

No Signal

1.18V

Runs all
The time

3.51V p/p

2.09V

Bottom leg

Runs when set is on

IC601 Micro Crystal

X601

1.57V

2.31V p/p

3.3V p/p

2V

10Mhz

Runs all the time

MAIN Board

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Audio Amplification for Speakers Information

Use speaker out to test for defective Audio Amp IC1702
Note: (Normal, ½ Audio B+) 12.43V on each pin.

IC1702 VOLTAGES

3.3V_AU_AVDD pin 13
3.3V_DVDD pin 27
All made from
3.3V_Normal

Right Channel:
24V pin 34, 35 (R-)
24V pin 40, 41 (R+)

Left Channel:
24V pin 44, 45 (L-)
24V pin 2, 3 (L+)

Amp _Reset pin 25

Q1701 Back side of the board is (Mute) Active Low.
3.3V_ST Collector to AMP_MUTE_PDN Pin 19

P1702 Main Board Connector to Speakers Voltage and Diode Check

P1702 Connector "Main" To "Speakers"

Pin	Label	SBY	Run	Diode Check
1	SPK-R(-)	0V	12.43V	Open
2	SPK-R(+)	0V	12.43V	Open
3	SPK-L(-)	0V	12.43V	Open
4	SPK-L(+)	0V	12.43V	Open

P1702

Diode Mode values taken with all Connectors Removed

P502 Main Board Connector to Power Supply Voltage and Diode Check

P502

Odd Pins Top Row

P502 "MAIN Board" Connector To P201 "SMPS Board"

Pin	Label	STBY	Run	Diode Check
1	PWR-ON	0V	3.4V	2.79V
2-4	24V	0V	25V	OL
5-8	Gnd	Gnd	Gnd	Gnd
9-12	3.5V_ST	3.56V	3.51V	1.15V
13-15	Gnd	Gnd	Gnd	Gnd
16	GND/VSYNC	n/c	n/c	OL
17	12V	0V	12.01V	2.09V
18	DRV-ON	0V	3.24V	1.54V
19	12V	0V	12.01V	2.09V
20	A-DIM	n/c	n/c	OL
21	12V	0V	12.01V	2.09V
22	PDIM-1	0V	0.2V~3.3V	2.4V
23	n/c	n/c	n/c	OL
24	Err OUT	n/c	n/c	OL

(1) PDIM Pin 22 can vary according to incoming video IRE level, OSD Backlight setting and Intelligent Sensor (room light condition). Range 0.2V to 3.3V.

P-DIM1
3.66V p/p 50IRE

Diode Mode values taken with all Connectors Removed

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P3501 "Main" to "T-CON" Voltage and Diode Check

P3501 "MAIN Board" To "T-CON" CN1

Pin	Label	Run	Diode Check
1	2D/3D_CTL	0V	1.17V
2	n/c	n/c	n/c
3	n/c	n/c	n/c
4	n/c	n/c	n/c
5	n/c	n/c	n/c
6	AU0_65_Mirror	0V	OL
7	LVDS_SEL	0V	OL
8	n/c	n/c	n/c
9	n/c	n/c	n/c
10	n/c	n/c	n/c
11	Gnd	Gnd	Gnd
12	**TXA0N**	**1.24V**	**1.13V**
13	**TXA0P**	**1.18V**	**1.13V**
14	**TXA1N**	**1.23V**	**1.13V**
15	**TXA1P**	**1.16V**	**1.13V**
16	**TXA2N**	**1.25V**	**1.10V**
17	**TXA2P**	**1.16V**	**1.10V**
18	Gnd	Gnd	Gnd
19	TXACLKN	1.19V	0.84V
20	TXACLKP	1.23V	1.12V

Pin	Label	Run	Diode Check
21	Gnd	Gnd	Gnd
22	**TXA3N**	**1.24V**	**1.12V**
23	**TXA3P**	**1.18V**	**1.12V**
24	**TXA4N**	**1.23V**	**1.12V**
25	**TXA4P**	**1.16V**	**1.12V**
26	Gnd	Gnd	Gnd
27	BIT_SEL	2.4V	OL
28	**TXB0N**	**1.24V**	**1.13V**
29	**TXB0P**	**1.18V**	**1.13V**
30	**TXB1N**	**1.23V**	**0.85V**
31	**TXB1P**	**1.16V**	**1.15V**
32	**TXB2N**	**1.25V**	**1.13V**
33	**TXB2P**	**1.16V**	**1.13V**
34	Gnd	Gnd	Gnd
35	TXBCLKN	1.19V	1.11V
36	TXBCLKP	1.23V	1.11V
37	Gnd	Gnd	Gnd
38	**TXB3N**	**1.24V**	**1.13V**
39	**TXB3P**	**1.18V**	**1.13V**
40	**TXB4N**	**1.23V**	**1.13V**

Pin	Label	Run	Diode Check
41	**TXB4P**	**1.16V**	**1.13V**
42	Gnd	Gnd	Gnd
43	Gnd	Gnd	Gnd
44	Gnd	Gnd	Gnd
45	Gnd	Gnd	Gnd
46	Gnd	Gnd	Gnd
47	n/c	n/c	n/c
48	Panel_VCC	12.13V	0.89V
49	Panel_VCC	12.13V	0.89V
50	Panel_VCC	12.13V	0.89V
51	Panel_VCC	12.13V	0.89V

P3501

There are no Stand-By Voltages for the Connector
Diode Mode values taken with all Connectors Removed

Pins in **Bold** are Video.

P3502 “Main” to “T-CON” Voltage and Diode Check

P3502 "MAIN" To "T-CON" CN2

Pin	Label	Run	Diode Check
1	n/c	n/c	n/c
2	n/c	n/c	n/c
3	n/c	n/c	n/c
4	n/c	n/c	n/c
5	n/c	n/c	n/c
6	n/c	n/c	n/c
7	n/c	n/c	n/c
8	n/c	n/c	n/c
9	Gnd	Gnd	Gnd
10	**TXC0N**	**1.24V**	**1.13V**
11	**TXC0P**	**1.18V**	**1.13V**
12	**TXC1N**	**1.23V**	**1.12V**
13	**TXC1P**	**1.16V**	**1.12V**
14	**TXC2N**	**1.25V**	**1.10V**
15	**TXC2P**	**1.16V**	**1.10V**
16	Gnd	Gnd	Gnd
17	TXCCLKN	1.19V	1.10V
18	TXCCLKP	1.23V	1.10V
19	Gnd	Gnd	Gnd
20	**TXC3N**	**1.24V**	**1.12V**

Pin	Label	Run	Diode Check
21	**TXC3P**	**1.18V**	**1.12V**
22	**TXC4N**	**1.23V**	**1.12V**
23	**TXC4P**	**1.16V**	**1.12V**
24	Gnd	Gnd	Gnd
25	Gnd	Gnd	Gnd
26	**TXD0N**	**1.24V**	**1.11V**
27	**TXD0P**	**1.18V**	**1.12V**
28	**TXD1N**	**1.23V**	**1.12V**
29	**TXD1P**	**1.16V**	**1.13V**
30	**TXD2N**	**1.25V**	**1.12V**
31	**TXD2P**	**1.16V**	**1.12V**
32	Gnd	Gnd	Gnd
33	TXDCLKN	1.19V	1.14V
34	TXDCLKP	1.23V	1.10V
35	Gnd	Gnd	Gnd
36	**TXD3N**	**1.24V**	**1.10V**
37	**TXD3P**	**1.18V**	**1.10V**
38	**TXD4N**	**1.23V**	**1.10V**
39	**TXD4P**	**1.16V**	**1.10V**
40	Gnd	Gnd	Gnd
41	Gnd	Gnd	Gnd

P3502

Pins in **Bold** are Video Signals.

There are no Stand-By Voltages for the Connector.

Diode Mode values taken with all Connectors Removed.

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P901 Main Board to (Ft. IR/Intelligent Sensor) Voltage and Diode Check

P901 Connector "MAIN Board" To "IR Board" J1

Pin	Label	STBY	Run	Diode Check
1	(1)SCL	3.55V	3.48V	3.29V
2	(1)SDA	3.55V	3.48V	3.29V
3	Gnd	Gnd	Gnd	Gnd
4	KEY 1	3.31V	3.31V	1.84V
5	KEY 2	3.31V	3.31V	1.84V
6	3.5V_ST	3.55V	3.48V	1.15V
7	Gnd	Gnd	Gnd	Gnd
8	LED_B/BUZZ	0V	0V	OL
9	(2)IR	1.5V	1.41V	OL
10	Gnd	Gnd	Gnd	Gnd
11	+3.3V_Normal	0V	3.33V	0.55V
12	LED_R/BUZZ	0V	0V	2.68V
13	Gnd	Gnd	Gnd	Gnd
14	(3)S/T_SCL	3.55V	3.48V	1.91V
15	(3)S/T_SCL	3.55V	3.48V	1.92V

P901

(1) Clock & Data pulses only present when Intelligent Sensor is turned on. (3.6V p/p)
(2) IR pulses (2V p/p)
(3) Clock & Data pulses only present when Set is turned on or Off. (3.9V p/p)

Diode Mode values taken with all Connectors Removed

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P1302 “Main” to “Motion Remote” (Voltage and Diode Check)

P1302 "MAIN Board" To "Motion Remote"

Pin	Label	Run	Diode Check
1	3.5V_Normal	3.41V	0.56V
2	Gnd	Gnd	Gnd
3	M_Remote_RX	3.30V	OL
4	M_Remote_TX	3.31V	OL
5	Reset	3.32V	2.41V
6	DC_MRemote	3.31V	2.42V
7	DD_MRemote	3.31V	2.40V
8	Gnd	Gnd	Gnd
9	GPI0-O	0V	OL
10	GPI0-1	0V	OL
11	GPI0-2	0V	OL
12	GPI0-3	0V	OL

Not Used

Diode Mode values taken with all Connectors Removed

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JK1001 Main Wireless Media Box Dongle Jack (Voltage and Diode Check)

JK1001 "MAIN Board" To "Wireless Media Box Dongle"

Pin	Label	STBY	Run	Diode Check
1-6	*25V	0V	25V	OL
7	Detect	0V	0.3V	2.39V
8	Interrupt	0V	3.3V	OL
9	Gnd	0V	Gnd	Gnd
10	n/c	0V	3.3V	OL
11	Gnd	0V	Gnd	Gnd
12	I2C_SCL	0V	3.3V	1.77V
13	I2C_SDA	0V	3.3V	1.77V
14	Gnd	0V	Gnd	Gnd
15	Wireless_RX	0V	3.3V	OL
16	Wireless_TX	0V	3.3V	OL
17	Gnd	0V	Gnd	Gnd
18	IR	0.67V	3.3V	OL
19-20	Gnd	0V	Gnd	Gnd

Wireless Media Box Dongle must be plugged in for these voltages.

Diode Mode values taken with all Connectors Removed

Voltages with Wireless Media Box Dongle plugged in. Use Media Box Dongle side to read voltages.
Remove cover, (see Wireless Media Box training manual for details).
*25V Switched from Q1002 Drain front side of the board.
Q1002 turned on by Q1001 front side of the board.
Q1001 turned on by Microprocessor pin 38.

TFT-LCD Controller Board

The T-CON is located at the bottom of the panel under the Stand Bracket.

12V is supplied to the T-CON Board from the Main Board via connector CN1 (easily measured at fuse F1). IC UC1 receives 24 bit LVDS video signals from the Main Board at CN1 and CN2 which it processes into TFT Drive Signals. It delivers its output signals through connectors CN4 and CN5 to control the LCD Panel.

US1 and U6 are DC to DC converters which develop the Panels driver voltages. These voltages can be read at the ribbon connector or at test locations on the board which are identified on the following pages.

T-CON (TFT Drive) Board Layout

TIP: The two screws shown in the picture are for the Service Position.
They would have been removed when removing the shield.
Be sure to reinstall them if servicing the T-CON board.

55LW5600 T-CON (TFT Drive) with (Shield Removed) Components Identified

Warning: T-Con Board under shield. Be sure to reinsert screws before operating set with shield removed.

PANEL TEST

To run the T-CON "Panel Test", remove the LVDS cables. Jump 12V to the 12V fuse. Jump VCC 3.3V to pin 44 on CN1. White, Red, Blue, Green and Black patterns show on screen.

TO TFT MODULE

Pin 51, 52 VGH	27.74V	Pin 35, 36 VCC	3.3V
Pin 47, 48 VGL	-5.3V	Pin 40, 41 VDD	16.4V
Pin 38, 39 HVDD	8.21V		

Pin 9, 10 VGH	27.74V	Pin 25, 26 VCC	3.3V
Pin 13, 14 VGL	-5V	Pin 20, 21 VDD	16.4V
Pin 22, 23 HVDD	8.21V		

Other Voltages from U6 to the Panel with no silk screen labels:

U6 pin 10: (16.12V) to CN4 pin 2, CN5 pin 59
U6 pin 11: (13.3V) to CN4 pin 3, CN5 pin 58
U6 pin 12: (12.2V) to CN4 pin 4, CN5 pin 57
U6 pin 13: (10.26V) to CN4 pin 5, CN5 pin 56

U6 pin 14: (5.9V) to CN4 pin 8, CN5 pin 53
U6 pin 15: (4.05V) to CN4 pin 9, CN5 pin 52
U6 pin 18: (3.01V) to CN4 pin 10, CN5 pin 51
U6 pin 19: (2.36V) to CN4 pin 11, CN5 pin 50

T-CON (TFT Drive) Board Panel Test

1. Set up the Power Supply Test as in Test 2 (Shown on page 46). Do not apply AC at this time.

3. Jump 12V from the SMPS to the T-CON Fuse F1 (P201 pin 17 or 19 or 21)

2. Disconnect both LVDS Cables

4. Jump 3.3V from the VCC TP to pin 44 of CN1

Note: The connector has hash marks to indicate steps of 5. The marks are off one pin to the left. 5 is actually 6.

5. Apply AC to the Power Supply and Toggling patterns of White, Red, Blue, Green should appear on the screen

CN1 T-CON Connector CN1 to the Main PWB (Voltage and Diode Check)

CN1 "T-CON" to "MAIN Board" P3501

Pin	Label	Run	Diode Check
1	n/c	n/c	n/c
2	*3D_SYNC	0V	OL
3	n/c	n/c	n/c
4	SDA2_3.3V	3.3V	OL
5	SCL2_3.3V	3.3V	OL
6	FRC_RESET	3.14V	OL
7	LVDS_SEL	0V	OL
8	n/c	n/c	n/c
9	n/c	n/c	n/c
10	PANEL_CTL	0V	OL
11	Gnd	Gnd	Gnd
12	**TXA0N**	1.23V	1.94V
13	**TXA0P**	1.16V	1.94V
14	**TXA1N**	1.25V	1.94V
15	**TXA1P**	1.15V	1.94V
16	**TXA2N**	1.27V	1.94V
17	**TXA2P**	1.15V	1.94V
18	Gnd	Gnd	Gnd
19	TXACLKN	1.19V	1.94V
20	TXACLKP	1.23V	1.94V

Pin	Label	Run	Diode Check
21	Gnd	Gnd	Gnd
22	**TXA3N**	1.29V	1.94V
23	**TXA3P**	1.12V	1.94V
24	**TXA4N**	1.33V	1.94V
25	**TXA4P**	1.08V	1.94V
26	Gnd	Gnd	Gnd
27	BIT_SEL	2.40V	OL
28	**TXB0N**	1.23V	1.94V
29	**TXB0P**	1.18V	1.94V
30	**TXB1N**	1.24V	1.94V
31	**TXB1P**	1.17V	1.94V
32	**TXB2N**	1.29V	1.94V
33	**TXB2P**	1.15V	1.94V
34	Gnd	Gnd	Gnd
35	TXBCLKN	1.19V	1.94V
36	TXBCLKP	1.23V	1.94V
37	Gnd	Gnd	Gnd
38	**TXB3N**	1.27V	1.94V
39	**TXB3P**	1.31V	1.94V
40	**TXB4N**	1.31V	1.94V

Pin	Label	Run	Diode Check
41	**TXB4P**	1.08V	1.94V
42	Gnd	Gnd	Gnd
43	Gnd	Gnd	Gnd
44	Gnd	Gnd	OL
45	Gnd	Gnd	Gnd
46	Gnd	Gnd	Gnd
47	n/c	n/c	n/c
48	Panel_VCC	11.98V	OL
49	Panel_VCC	11.98V	OL
50	Panel_VCC	11.98V	OL
51	Panel_VCC	11.98V	OL

Bold labels are video signals.
Pins 48~51 are 12V

CN1

Hash marks in steps of 5.
First hash mark is off by 1 pin.
Starts on pin 6.

Pin 2 (3D_Sync) will go high when 3D is played.
But is not used by the Main Board.

Diode Mode values taken with all Connectors Removed

CN2 T-CON to the Main PWB (Voltage and Diode Check)

CN2 "T-CON" to "MAIN" P1503

Pin	Label	Run	Diode Check
1	n/c	n/c	n/c
2	n/c	n/c	n/c
3	n/c	n/c	n/c
4	n/c	n/c	n/c
5	n/c	n/c	n/c
6	n/c	n/c	n/c
7	n/c	n/c	n/c
8	n/c	n/c	n/c
9	Gnd	Gnd	Gnd
10	TXC0N	1.23V	1.94V
11	TXC0P	1.18V	1.94V
12	TXC1N	1.24V	1.94V
13	TXC1P	1.19V	1.94V
14	TXC2N	1.26V	1.94V
15	TXC2P	1.15V	1.94V
16	Gnd	Gnd	Gnd
17	TXCCLKN	1.18V	1.94V
18	TXCCLKP	1.22V	1.94V
19	Gnd	Gnd	Gnd
20	TXC3N	1.24V	1.94V
21	TXC3P	1.16V	1.94V

Pin	Label	Run	Diode Check
22	TXC4N	1.28V	1.94V
23	TXC4P	1.11V	1.94V
24	Gnd	Gnd	Gnd
25	Gnd	Gnd	Gnd
26	TXD0N	1.23V	1.94V
27	TXD0P	1.18V	1.94V
28	TXD1N	1.23V	1.94V
29	TXD1P	1.18V	1.94V
30	TXD2N	1.25V	1.94V
31	TXD2P	1.15V	1.94V
32	Gnd	Gnd	Gnd
33	TXDCLKN	1.19V	1.94V
34	TXDCLKP	1.23V	1.94V
35	Gnd	Gnd	Gnd
36	TXD3N	1.25V	1.94V
37	TXD3P	1.17V	1.94V
38	TXD4N	1.31V	1.94V
39	TXD4P	1.20V	1.94V
40	Gnd	Gnd	Gnd
41	Gnd	Gnd	Gnd

CN2

Bold labels are video signals.

Diode Mode values taken with all Connectors Removed

FRONT (IR, INTELLIGENT SENSOR and POWER LED) SECTION

The Intelligent Sensor and IR board (located on the bottom left as viewed from the rear) contains the IR (Infrared Remote Sensor) and the Intelligent Sensor. This board also has the Soft Touch Key Board.

The IR board receives it operating B+ pin 6 from the Main P901 (STBY 3.5V).

The IR (Infrared) remote receiver can be measured (1.48V) at pin 9 of connector P901 on the Main board in Stand-By. During run pin 9 reads (1.47V).
The IR pulses (2V p/p) are sent to the Main board and on to the Microprocessor (IC602) via pin 16.

The Front Power LEDs are controlled by different Clock and Data lines which communicate with the LED Driver IC U1. These clock and data lines are from the Main board P901 pins 14 and 15 which are only active when the Power is turned on or off.

The Soft Touch Keys are part of the IR board. Key 1 (pin 4) and Key 2 (pin 5) are output From Pat P901 on the Main Board, then to the Microprocessor 25 and 26 lines.

The Intelligent Sensor communicates with the Micro Processor IC602 pins 3 & 4 via clock and data lines EEPROM_SCL and EEPROM_SDA arriving on connector P901 pins 1 and 2 on the Main board.
The Intelligent Sensor circuit receives it's operational voltage when the set turns on via pin 11 (3.3V_Normal).

Front IR and Soft Touch Key Board p/n EBR72671301

Plastic Cover. Wire routing.

To Main Board

Gaining access to the Front IR/Key Board

IR/Key board p/n: EBR72671301

1 The Front IR Item 510 on the parts breakdown is under a wire routing bracket Item 511. Disconnect the cable coming from the Main board and remove it from the wire holders in Item 511.

2 Remove the Speaker by sliding it forward.

3 Remove the one screw.
Lift up on the three tabs at the top of Item 511 and pull the Item 511 slightly forward.
Lift Item 511 up and out.

Front IR Component Identification

See Disassembly section for gaining access to the IR/Key Board

Attached to the Front Frame

IR/Key Board p/n: EBR72671301

J1 Front IR/Soft Touch Key Board Voltage and Diode Check

J1 "IR Board" To P901 "Main Board"

Pin	Label	STBY	Run	Diode Check
1	SCL	3.55V	3.49V	OL
2	SDA	3.55V	3.49V	OL
3	Gnd	Gnd	Gnd	Gnd
4	KEY 1	3.33V	3.33V	OL
5	KEY 2	3.33V	3.33V	OL
6	3.5V_ST	3.55V	3.49V	OL
7	Gnd	Gnd	Gnd	Gnd
8	LED_B/BUZZ	0V	0V	OL
9	IR	1.48V	1.47V	OL
10	Gnd	Gnd	Gnd	Gnd
11	+3.3V_Normal	0V	3.33V	OL
12	LED_R/BUZZ	0V	0V	OL
13	Gnd	Gnd	Gnd	Gnd
14	S/T_SCL	3.55V	3.49V	OL
15	S/T_SDA	3.55V	3.49V	OL

(1) Clock & Data pulses only present when Intelligent Sensor is turned on. (3.6V p/p)
(2) IR pulses (2V p/p)
(3) Clock & Data pulses only present when Set is turned on or Off. (3.9V p/p)

Diode Mode values taken with all Connectors Removed

Soft Touch Key Resistance and Voltages

Key 2 Line

KEY 1	Pin 4 measured from Gnd
Volume (+)	16.8M Ohms
Volume (-)	10.7M Ohms
Home	5.4M Ohms
Enter	1.19M Ohms

KEY 1	Pin 4 measured from Gnd
Volume (+)	1.67V
Volume (-)	1.07V
Home	0.54V
Enter	0.12V

Key 2 Line

KEY 2	Pin 5 measured from Gnd
CH (Up)	15.9M Ohms
CH (Dn)	9.8M Ohms
Power	5.7M Ohms
Input	1.19M Ohms

KEY 2	Pin 5 measured from Gnd
CH (Up)	1.56V
CH (Dn)	0.98V
Power	0.53V
Input	0.12V

Diode Mode values taken with all Connectors Removed

Leandro Palmeira

MOTION REMOTE BOARD SECTION

The first time the Motion Remote has it's batteries installed and pointed at the Television, the Motion Remote is synchronized with the TV. After that, when pointing the remote at the TV and pressing the Enter key, a pointer appears on screen, then by moving the Motion Remote around, the pointer moves with the movement of the remote. When the pointer is placed over a selectable button, you can press the center "Enter" button and active the object. This makes navigation much easier.

You can also adjust the volume, change channels and mute the audio with the Motion Remote and it has a convenient "Home" button for the TV Menu.

A wrist band can be attached to the remote to avoid dropping and damaging the remote.

The Motion Remote utilizes a specialized receiver on the Television to receive the RF signal and this information is then routed to P1302 and on to the IC101 the BCM IC for pointer positioning and interpretation of the other functions.

How to **Re-register the Magic Motion Remote** Control after Registration Failure. Reset the remote control by pressing and holding both the **ENTER** and **MUTE** buttons for **5 seconds**. An LED will blink 3 times indicating the remote is ready for registering.

Motion Remote "Magic Remote" AKB72914043

Motion Remote Receiver Board Voltage and Diode Check

Motion Remote Board
p/n EBR72499601

"Motion Remote Receiver Board" To P1302 "Main"

Pin	Label	STBY	Run	Diode Check
1	3.5V_Normal	0.35V	3.33V	0.53V
2	Gnd	Gnd	Gnd	Gnd
3	M_Remote_RX	0.35V	3.33V	OL
4	M_Remote_TX	0.35V	3.33V	OL
5	Reset	0.35V	3.33V	OL
6	DC_MRemote	0.35V	3.33V	2.41V
7	DD_MRemote	0.35V	3.33V	2.38V
8	Gnd	Gnd	Gnd	Gnd
9	GPI0-O	0V	0V	OL
10	GPI0-1	0V	0V	OL
11	GPI0-2	0V	0V	OL
12	GPI0-3	0V	0V	OL

Diode Mode values taken with all Connectors Removed

INVISIBLE SPEAKER SECTION

The 55LW56000 contains the Invisible Speaker system.
The Full Range Speakers point downward, so there is no front viewable speaker grill or air ports.

Back View

Front View

Speaker
p/n EAB62088401

INTERCONNECT DIAGRAM (11 X 17 FOLDOUT SECTION)

This section shows the 11X17 foldout that's available in the Paper and Adobe version of the Training Manual.

The Adobe version of this Training Manual allows the viewer to zoom in and out making reading of the small text easier.
This Power Point shows a graphical representation of the 11 X 17 foldout page so clarity is limited.

Leandro Palmeira

55LW5600 INTERCONNECT DIAGRAM

Note: If a particular area is exhibiting a dimmer backlight level than other areas or the overall brightness seems dim, be sure to first check the customer's Menu setting for Backlights. Raise the percentage and see if the overall brightness returns to normal. If not,
1st: Check the P-DIM level, it should rise with the percentage shown on screen. 100%, 3.3V. Follow the P-DIM signal all the way to the Inverter.
2nd: Turn off Local Dimming in the Customers Menu or unplug P832.
If the brightness returns to normal, examine the signals required for Local Dimming. (SIN, V-SYNC and SCLK). Suspect the Main Board.

You can also test each of the 12 blocks functionality by grounding the return path signal (V1~V4) through a 220Ω, providing the 63V LED Power is present. See "LED Single Block Test" instructions below.

P832 "SMPS" to P3503 "MAIN Board"

Pin	Label	Run	Diode	Pin	Label	Run	Diode
1	VSYNC	0V	2V	5	GND	Gnd	Gnd
2	SDA	3.2V	OL	6	SCLK	0V	OL
3	SCL	3.2V	OL	7	N.C.	n/c	n/c
4	SIN	0V	OL	8	REVERSE	0V	1.91V

No Stand-By voltages

PWR-ON: Starts 12V, 24V and 63V LED Power. (56V at this time). No Backlights.

DRV-ON: Starts Backlights. LED Power goes to 63V.

(1) **PWM Pin 22** can vary according to incoming video IRE level, OSD Backlight setting and Intelligent Sensor (room light condition). Output from the Video Processor. Range 0.2V to 3.3V.

P201 "SMPS Board" To P502 "MAIN Board"

Pin	Label	STBY	Run	Diode Check
24	ERROR	n/c	n/c	2.2V
23	n/c	n/c	n/c	n/c
22	(1) PWM	0V	0.2V~3.3V	OL
21	12V	0V	12.07V	0.48V
20	n/c	n/c	n/c	OL
19	12V	0V	12.07V	0.48V
18	DRV-ON	0V	3.24V	OL
17	12V	0V	12.07V	0.48V
16	V_Sync	0V	0V	OL
13-15	Gnd	Gnd	Gnd	Gnd
9-12	3.5V	3.56V	3.51V	OL
5-8	Gnd	Gnd	Gnd	Gnd
2-4	24V	0V	25V	1.1V
1	PWR-ON	0V	3.4V	1.16V

P1302 "MAIN Board" To "Motion Remote"

Pin	Label	STBY	Run	Diode Check
1	3.5V_Normal	0V	3.41V	0.56V
2	Gnd	Gnd	Gnd	Gnd
3	M_Remote_RX	0V	3.30V	OL
4	M_Remote_TX	0V	3.31V	OL
5	Reset	0V	3.32V	2.41V
6	DC_MRemote	0V	3.31V	2.42V
7	DD_MRemote	0V	3.31V	2.40V
8	Gnd	Gnd	Gnd	Gnd
9	GPI0-O	0V	0V	OL
10	GPI0-1	0V	0V	OL
11	GPI0-2	0V	0V	OL
12	GPI0-3	0V	0V	OL

P202 White Plug "SMPS Board" To "Panel LEDs"

Pin	Label	TP	Run	Diode
1	LED+	C256+	63V	OL
2	n/c	n/c	n/c	OL
3	VC-3A	EL70	*1.59V~18V	OL
4	VC-3B	EL71	*1.59V~18V	OL
5	VC-3C	EL72	*1.59V~18V	OL
6	VC-3D	EL73	*1.59V~18V	OL
7	VC-4A	EL74	*1.59V~18V	OL
8	VC-4B	EL75	*1.59V~18V	OL
9	VC-4C	EL76	*1.59V~18V	OL
10	VC-4D	EL77	*1.59V~18V	OL
11	n/c	n/c	n/c	OL
12	LED+	C256+	63V	OL

*White to Black screen

MOSI Pin 4 P832
3.57V p/p
Local Dimming On

MOSI Pin 4 P832
3.57V p/p
Local Dimming Off

SCLK Pin 6 P832
3.54V p/p

V-SYNC Pin 1 P832
3.5V p/p

P203 Black Plug "SMPS Board" To "Panel LEDs"

Pin	Label	TP	Run	Diode
1	LED+	C256+	63V	OL
2	n/c	n/a	n/c	OL
3	VC-1A	EL62	*1.59V~18V	OL
4	VC-1B	EL63	*1.59V~18V	OL
5	VC-1C	EL64	*1.59V~18V	OL
6	VC-1D	EL65	*1.59V~18V	OL
7	n/c	n/a	n/c	OL
8	VC-2A	EL66	*1.59V~18V	OL
9	VC-2B	EL67	*1.59V~18V	OL
10	VC-2C	EL68	*1.59V~18V	OL
11	VC-2D	EL69	*1.59V~18V	OL
12	n/c	n/a	n/c	OL
13	LED+	C256+	63V	OL

*White to Black screen

Any drive signal VC1 through VC4 A~D

P502 "MAIN Board" To P201 "SMPS Board"

Pin	Diode
1	2.79V
2-4	OL
5-8	Gnd
9-12	1.15V
13-15	Gnd
16	OL
17	2.09V
18	1.54V
19	2.09V
20	OL
21	2.09V
22	2.4V
23	OL
24	OL

For voltages, see SMPS Tables.

P3503 "Main" to P832 "SMPS"

Pin	Diode
1	OL
2	OL
3	OL
4	Gnd
5	OL
6	1.73V
7	1.71V
8	OL

For voltages, see SMPS Tables.

PANEL TEST
To run the T-CON "Panel Test", remove the LVDS cables.
Jump 12V to the 12V fuse.
Jump VCC 3.3V to pin 44 on CN1.
White, Red, Blue, Green and Black patterns show on screen.

TO TFT MODULE

Other Voltages from U6 to the Panel with no silk screen labels:
U6 pin 10: (16.12V) to CN4 pin 2, CN5 pin 59
U6 pin 11: (13.3V) to CN4 pin 3, CN5 pin 58
U6 pin 12: (12.2V) to CN4 pin 4, CN5 pin 57
U6 pin 13: (10.26V) to CN4 pin 5, CN5 pin 56
U6 pin 14: (5.9V) to CN4 pin 8, CN5 pin 53
U6 pin 15: (4.05V) to CN4 pin 9, CN5 pin 52
U6 pin 18: (3.01V) to CN4 pin 10, CN5 pin 51
U6 pin 19: (2.36V) to CN4 pin 11, CN5 pin 50

SMPS TEST 1

SMPS TEST 2

SMPS TEST 1: Force Power Supply On.
Disconnect P502 on Main board.
(A) Jump pins 9, 10, 11 or 12 (3.5V) to pin 1. Test Voltage Outputs 12V, 24V to Main and 63V to the LED Backlights. Remove AC power. Leave the jumper in place.
No Backlights. 63V to Backlights reads 56V.

SMPS TEST 2: Force the Backlights On.
(B) Jump pins 9, 10, 11 or 12 (3.5V) to pin 18 (DRV-ON). Apply AC power, the Backlights should turn on. Note, the LED B+ will now be 65V.

Note; If there is a problem with a load from the panel backlights, you can remove AC and Disconnect P202 or P203. When AC is reapplied, the Backlight LEDs should turn on for about 4 seconds and then shut off.

LED SINGLE BLOCK TEST DIM OR DARK PICTURE:
Confirm the 63V to the LED Backlights is present.
Turn the Brightness, Contrast and Backlights all the way up.
Confirm P-DIM is 3.3V. Using a 220Ω resistor, jump any of the blocks grounding lug (VC_1~4_A~D) while observing the picture and each block should turn on maximum.

p/n: EBR72671301
Front IR/Key
Ft. IR/Intelligent Sensor And Soft Touch Key Board

Warning:
T-CON Board under shield.
Be sure to reinsert screws before operating set with shield removed.

P901 Connector "MAIN Board" To "IR Board"

Pin	Label	STBY	Run	Diode	Pin	Label	STBY	Run	Diode	Pin	Label	STBY	Run	Diode
1	SCL	3.55V	3.48V	3.29V	7	Gnd	Gnd	Gnd	Gnd	13	Gnd	Gnd	Gnd	Gnd
2	SDA	3.55V	3.48V	3.29V	8	LED_B	0V	0V	OL	14	S/T_SCL	3.55V	3.48V	1.91V
3	Gnd	Gnd	Gnd	Gnd	9	IR	1.5V	1.41V	OL	15	S/T_SDA	3.55V	3.48V	1.92V
4	KEY 1	3.31V	3.31V	1.84V	10	Gnd	Gnd	Gnd	Gnd					
5	KEY 2	3.31V	3.31V	1.84V	11	+3.3V_Normal	0V	3.33V	0.55V					
6	3.5V_ST	3.55V	3.48V	1.15V	12	LED_R	0V	0V	2.68V					

PANEL PART NUMBERS p/n: EAJ61750001 (All Models)
p/n: EAJ61928201 (AUSYLJR/UR)

Motion Remote
p/n: EBR72499601

For DC voltages for Main board components see Page 2 of the Interconnect diagram.

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55LW5600 MAIN (FRONT SIDE) SIMICONDUCTORS

IC103 — NVRAM for USB

Pin	
[1]	n/c
[2]	0V
[3]	3.34V
[4]	0V
[5]	3.22V
[6]	3.22V
[7]	0V (Gnd)
[8]	3.34V

IC501 — +0.9V_CORE DC to DC

Pin	
[1]	3.17V
[2]	0.59V
[3]	0.44V
[4]	11.95V
[5]	0V
[6]	5.33V
[7]	4.6V
[8]	5.81V
[9]	0.95V
[10]	1.36V

IC504 — +2.5V BCM Regulator

Pin	
[1]	n/c
[2]	4.92V (En)
[3]	3.47V (In)
[4]	3.49V (Ctl)
[5]	n/c
[6]	2.57V (Out)
[7]	0.6V
[8]	0V (Gnd)

IC505 — (+3.3V_NORMAL) Regulator

Pin	
[1]	0V (Gnd)
[2]	11.96V (In)
[3]	0V (Gnd)
[4]	0.8V
[5]	0.79V
[6]	3.47V (PWR On/Off2_2)
[7]	3.35V (Out)
[8]	3.35V (Out)

IC506 — Switched 5V for USB 2

Pin	
[1]	0V (Gnd)
[2]	11.98V (In)
[3]	0V (Gnd)
[4]	0.79V
[5]	3.48V
[6]	3.48V (PWR On/Off2_1)
[7]	4.96V (Out)
[8]	4.96V (Out)

IC507 — (+5V_NORMAL) Regulator

Pin	
[1]	0V (Gnd)
[2]	11.98V (In)
[3]	0V (Gnd)
[4]	0.79V
[5]	3.48V
[6]	3.48V (PWR On/Off2_1)
[7]	4.96V (Out)
[8]	4.96V (Out)

IC508 — (+1.5V_DDR) Regulator

Pin	
[1]	3.46V
[2]	n/c
[3]	3.46V (In)
[4]	3.49V (PWR On/Off1)
[5]	0V (Gnd)
[6]	3.31V
[7]	0.79V
[8]	1.5V (Out)

IC801 — RGB Data Buffer

Pin	
[1]	1.81V
[2]	1.81V
[3]	3.72V
[4]	1.8V
[5]	1.8V
[6]	n/c (4.44V)
[7]	0V (Gnd)
[8]	n/c (4.43V)
[9]	n/c (1.79V)
[10]	n/c (1.79V)
[11]	3.72V
[12]	1.81V
[13]	1.81V
[14]	5V (Vcc In)

IC802 — EDID Data PC

Pin	
[1]	0V (Gnd)
[2]	0V (Gnd)
[3]	0V (Gnd)
[4]	0V (Gnd)
[5]	4.73V
[6]	4.73V
[7]	4.73V
[8]	4.73V (Vcc In)

IC803 — RS232 Routing

Pin	
[1]	3.5V
[2]	5.64V
[3]	0V
[4]	0V
[5]	(-5.56V)
[6]	(-5.59V)
[7]	n/c (5.64V)
[8]	n/c (0V)
[9]	n/c (3.49V)
[10]	n/c (0V)
[11]	n/c (3.34V)
[12]	3.48V
[13]	0V
[14]	(-5.59V)
[15]	0V (Gnd)
[16]	3.5V (Vcc In)

IC1203 — EDID Data PC

Pin	
[1]	0V (Gnd)
[2]	4.96V (Vcc In)
[3]	4.96V (Vcc In)
[4]	3.34V (USB Ctl2)
[5]	3.17V
[6]	4.96V (Out)
[7]	4.96V (Out)
[8]	n/c (0V)

IC1204 — EDID Data PC

Pin	
[1]	0V (Gnd)
[2]	4.96V (Vcc In)
[3]	4.96V (Vcc In)
[4]	3.34V (USB Ctl1)
[5]	3.17V
[6]	4.96V (Out)
[7]	4.96V (Out)
[8]	n/c (0V)

IC2103 — (+1.26V_TU) Regulator

Pin	
[1]	0V (Gnd)
[2]	1.27V (Out)
[3]	3.33V (In)

IC5401 — (+1.26V_FRC) Regulator

Pin	
[1]	0V (Gnd)
[2]	11.85V (Vcc In)
[3]	0V (Gnd)
[4]	0.8V (FB)
[5]	0.7V
[6]	3.29V (Enable)
[7]	1.29V (Out)
[8]	1.29V (Out)

IC5402 — (+3.3V_FRC) Regulator

Pin	
[1]	Under Shield
[2]	Under Shield
[3]	Under Shield
[4]	Under Shield
[5]	0.8V
[6]	3.45 (PWR On/Off2_2)
[7]	3.3V
[8]	3.3V

Q501 — RL_ON (PWR_On) 1st Driver

Pin	
B	0.64V
C	0V
E	Gnd

Q502 — PWR_ON Switch

Pin	
[1]	3.5V (In)
[2]	0.67V
[3]	2.62V (Out)

Q503 — 0.9V FET Switch

Pin	
[1]	0.95V
[2]	0.95V
[3]	0.95V
[4]	1.36V
[5]	11.96V
[6]	11.96V
[7]	11.96V
[8]	11.96V

Q508 — 0.9V FET Switch

Pin	
[1]	0V (Gnd)
[2]	0V (Gnd)
[3]	0V (Gnd)
[4]	4.6V
[5]	0.95V
[6]	0.95V
[7]	0.95V
[8]	0.95V

Q1001 — Wireless Vcc Driver

Pin	
B	0.02V
C	24.5V
E	Gnd

On when wireless dongle connected

Q1002 — Wireless Vcc Switch

Pin	
S	24.5V
G	24.5V
D	0V

On when wireless dongle connected

Q901 — IR Buffer 2nd

Pin	
B	0.02V
C	3.48V
E	Gnd

Q902 — IR Buffer 1st

Pin	
B	0.57V
C	0.02V
E	Gnd

55LW5600 MAIN (BACK SIDE) SIMICONDUCTORS

IC502 — Power Det Gen (For +12V)

Pin	
[1]	0V (Gnd)
[2]	3.8V (In)
[3]	3.73V (Out)

IC503 — Power Det Gen (For +24V)

Pin	
[1]	0V (Gnd)
[2]	3.7V (In)
[3]	3.73V (Out)

IC601 — EEPROM Micro

Pin	
[1]	0V (Gnd)
[2]	0V (Gnd)
[3]	3.49V
[4]	0V (Gnd)
[5]	3.49V
[6]	3.49V
[7]	0V (Gnd)
[8]	3.50V (Vcc In)

IC5202 — SPI FLASH

Pin	
[1]	0.43V
[2]	3.29V
[3]	3.29V
[4]	0V (Gnd)
[5]	??
[6]	??
[7]	3.29V
[8]	3.29V (3.3V_FRC in)

Q506 — PANEL_VCC Control 2nd Driver

Pin	
B	0.67V
C	0V
E	Gnd

Q507 — PANEL_VCC Switch

Pin	
S	11.97V (In)
G	1.8V (Enable)
D	11.94V (Out)

Q101 — RGB_DDC_SDA FET Buffer

Pin	
[B]	0V (Gnd)
[G]	3.3V
[S]	4.74V
[D]	3.34V

Q102 — RGB_DDC_SCL FET Buffer

Pin	
[B]	0V (Gnd)
[G]	3.3V
[S]	4.74V
[D]	3.34V

Q504 — INV_CTL (Drv_On) Driver

Pin	
B	0V (INV ON) En
C	3.28V (Out)
E	Gnd

Q505 — PANEL_VCC Control 1st Driver

Pin	
B	0V
C	0.68V
E	Gnd

Q710 — CEC Remote HDMI CEC

Pin	
[B]	3.47V
[G]	3.51V
[S]	3.47V
[D]	3.49V

Q801 — Earphone Mute

Pin	
B	0V
C	3.35V
E	Gnd

Q904 — IR Wireless Pass 2nd Driver

Pin	
B	0.02V
C	3.48V
E	Gnd

Q906 — IR Wireless Pass 1st Driver

Pin	
B	0.57V
C	0V
E	Gnd

Q2104 — Tuner SIF (Sound) Buffer

Pin	
B	0.23V
C	0V (Gnd)
E	0.93V

Q2106 — Tuner Video (Analog) Buffer

Pin	
B	3.67V
C	0V (Gnd)
E	4.35V

Q5201 — URSA Reset Driver

Pin	
B	0.11V
C	3.33V
E	0V (Gnd)

Q5202 — URSA Reset

Pin	
G	3.33V
S	3.33V
D	0V (Out)

D707 — 5V Pull-Up to DDC_SCL/SDA_1

Pin	
A1	4.96V
C	5V
A2	0V

D708 — 5V Pull-Up to DDC_SCL/SDA_3

Pin	
A1	4.96V
C	5V
A2	0V

D710 — 5V Pull-Up to DDC_SCL/SDA_2

Pin	
A1	4.96V
C	5V
A2	0V

D711 — 5V Pull-Up to DDC_SCL/SDA_4

Pin	
A1	4.96V
C	5V
A2	0V

D713 — Bias for Q710 HDMI CEC

Pin	
A1	0V
C	3.45V
A2	3.5V

D810 — 5V Routing to IC802 RGB EDID

Pin	
A1	4.73V
C	5.01V
A2	0.07V

Leandro Palmeira

55LW56000 Conclusion Page

Direct View LCD

3D

This concludes the 55LW56000 training session.

Life's Good

Update Notifications

In the future, if there are any Updates,
they will appear here.

Leandro Palmeira