Service
Service
Service

EU

Service Manual

Chassis name	Platform	Model name
TPM17.7E LA	MTK5802	43PUS6162/12
		43PUT6162/12
		43PUT6162/60
		43PUS6262/12
		43PUT6262/12
		49PUS6162/12
		49PUT6162/12
		49PUT6162/60
		49PUS6262/12
		49PUT6262/12
		50PUS6162/12
		50PUT6162/12
		50PUS6262/12
		50PUT6262/12
		55PUS6162/12
		55PUT6162/12
		55PUT6162/60
		55PUS6262/12
		55PUT6262/12
		65PUS6162/12
		65PUT6162/12
		65PUS6262/12
		65PUT6262/12

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2017-Sep-08

1. Product information

16.3

Display Resolution

Diagonal screen size

- 43PUx6162 : 108 cm / 43 inch
- 49PUx6162 : 123 cm / 49 inch
- 50PUx6162 : 126 cm / 50 inch
- 55PUx6162 : 139 cm / 55 inch
- 65PUx6162 : 164 cm / 65 inch

Display resolution

- 3840 x 2160

16.4

Supported Input Resolution - Video

HDMI

- 480i - 24Hz, 25Hz, 30Hz, 50Hz, 60Hz
- 480p - 24Hz, 25Hz, 30Hz, 50Hz, 60Hz
- 576i - 24Hz, 25Hz, 30Hz, 50Hz, 60Hz
- 576p - 24Hz, 25Hz, 30Hz, 50Hz, 60Hz
- 720p - 24Hz, 25Hz, 30Hz, 50Hz, 60Hz
- 1080i - 24Hz, 25Hz, 30Hz, 50Hz, 60Hz
- 1080p - 24Hz, 25Hz, 30Hz, 50Hz, 60Hz
- 3840 x 2160p - 24Hz, 25Hz, 30Hz, 50Hz, 60Hz

HDMI - UHD

(Home) > Settings > General settings > HDMI Ultra HD

This TV can display Ultra HD signals. Some devices - connected with HDMI - do not recognise a TV with Ultra HD and might not work correctly or show distorted picture or sound.

To avoid the malfunctioning of such a device, you can set the signal quality to a level the device can handle. If the device is not using Ultra HD signals, you can switch off Ultra HD for this HDMI connection.

An HDMI connection with the setting **UHD 4:4:4/4:2:2*** allows maximum up to UHD (50Hz or 60Hz) RGB 4:4:4 or YCbCr 4:4:4/4:2:2/4:2:0 signals. The setting **UHD 4:2:0** allows maximum up to UHD (50Hz or 60Hz) YCbCr 4:2:0 signals.

Component, Composite

Composite

- PAL, NTSC, SECAM

Component

- 480i - 24Hz, 25Hz, 30Hz, 50Hz, 60Hz
- 480p - 24Hz, 25Hz, 30Hz, 50Hz, 60Hz
- 576i - 24Hz, 25Hz, 30Hz, 50Hz, 60Hz
- 576p - 24Hz, 25Hz, 30Hz, 50Hz, 60Hz
- 720p - 24Hz, 25Hz, 30Hz, 50Hz, 60Hz
- 1080i - 24Hz, 25Hz, 30Hz, 50Hz, 60Hz
- 1080p - 24Hz, 25Hz, 30Hz, 50Hz, 60Hz

16.5

Supported Input Resolution - Computer

- 640 x 480 - 60Hz
- 800 x 600 - 60Hz
- 1024 x 768 - 60Hz
- 1280 x 800 - 60Hz
- 1280 x 960 - 60Hz
- 1280 x 1024 - 60Hz
- 1366 x 768 - 60Hz
- 1440 x 900 - 60Hz
- 1920 x 1080 - 60Hz
- 3840 x 2160 - 60Hz

16.6

Sound

- Incredible Surround
- Clear sound
- Smart Sound
- Output power (RMS) : 20W
- Dolby® Digital
- DTS 2.0+ Digital out

16.7

Multimedia

Connections
- USB 2.0 / USB 3.0
- Ethernet LAN RJ-45
- Wi-Fi 802.11n (built-in)

Supported USB file systems
- FAT, NTFS

Playback formats
- Video Codec : AVI, MKV, HEVC, H.264/MPEG-4 AVC, MPEG1, MPEG2, MPEG4, WMV9/VC1, VP9
- Audio Codec : MP3, WAV, AAC, WMA (v2 up to v9.2), WMA-PRO (v9 and v10)
- Subtitles :
- Format: SRT, SMI, SSA, SUB, ASS, TXT
- Character encodings : UTF-8, Central Europe and Eastern Europe (Windows-1250), Cyrillic (Windows-1251), Greek (Windows-1253), Turkish (Windows-1254), Western Europe (Windows-1252)
- Image Codec : JPEG, GIF, PNG, BMP

Wi-Fi Certified

This TV supports Miracast certified devices.

Performance may vary, depending on the capabilities of the mobile device and the software used.

16.8

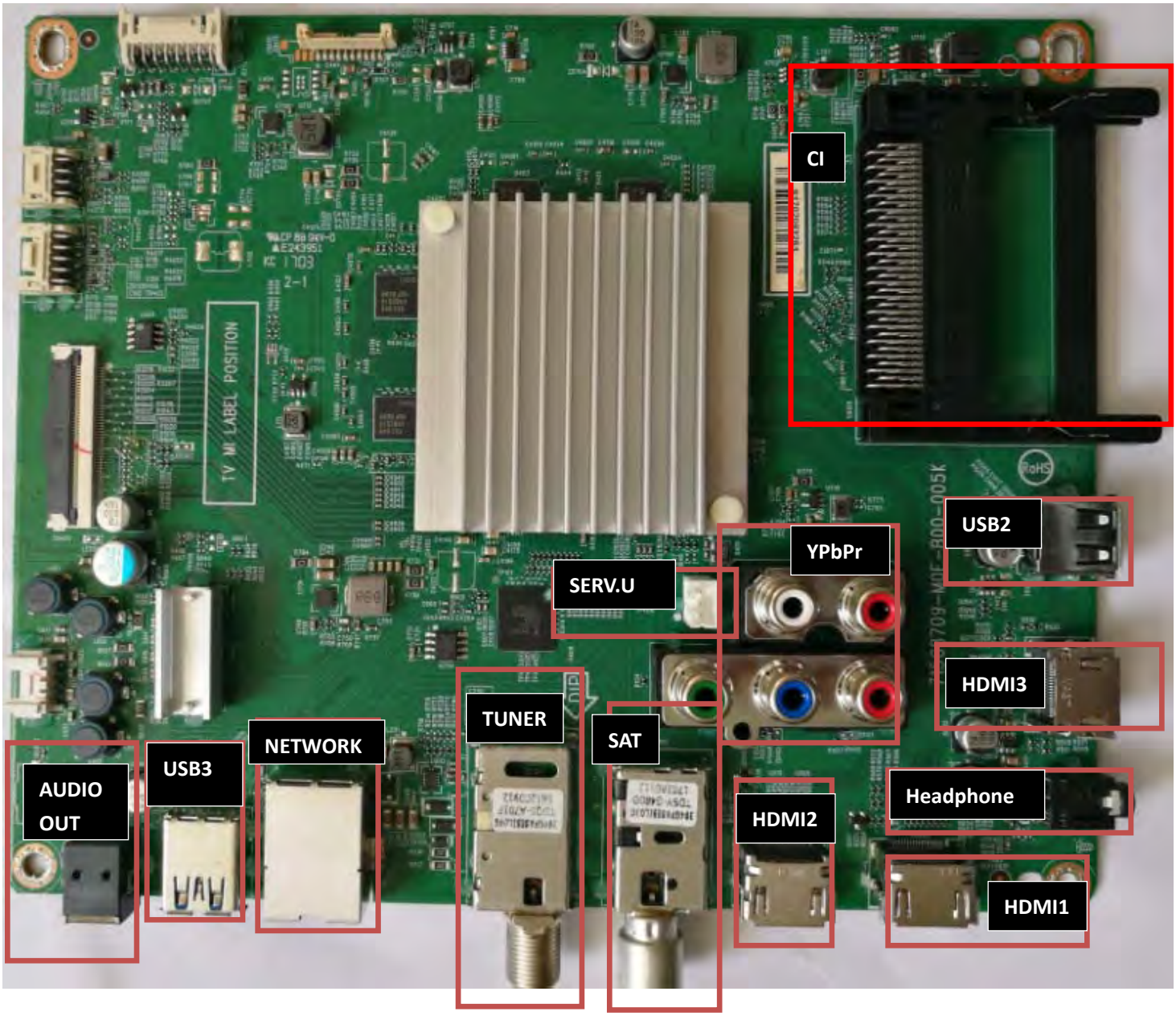
Connectivity

TV Side
- Common Interface slot: CI+/CAM
- USB 2 - USB 2.0
- HDMI 3 in - MHL - UHD - HDR
- Headphones - Stereo mini-jack 3.5mm

TV Rear
- YPbPr : Y Pb Pr, Audio L/R
- CVBS : CVBS, Audio L/R (Shared with YPbPr)

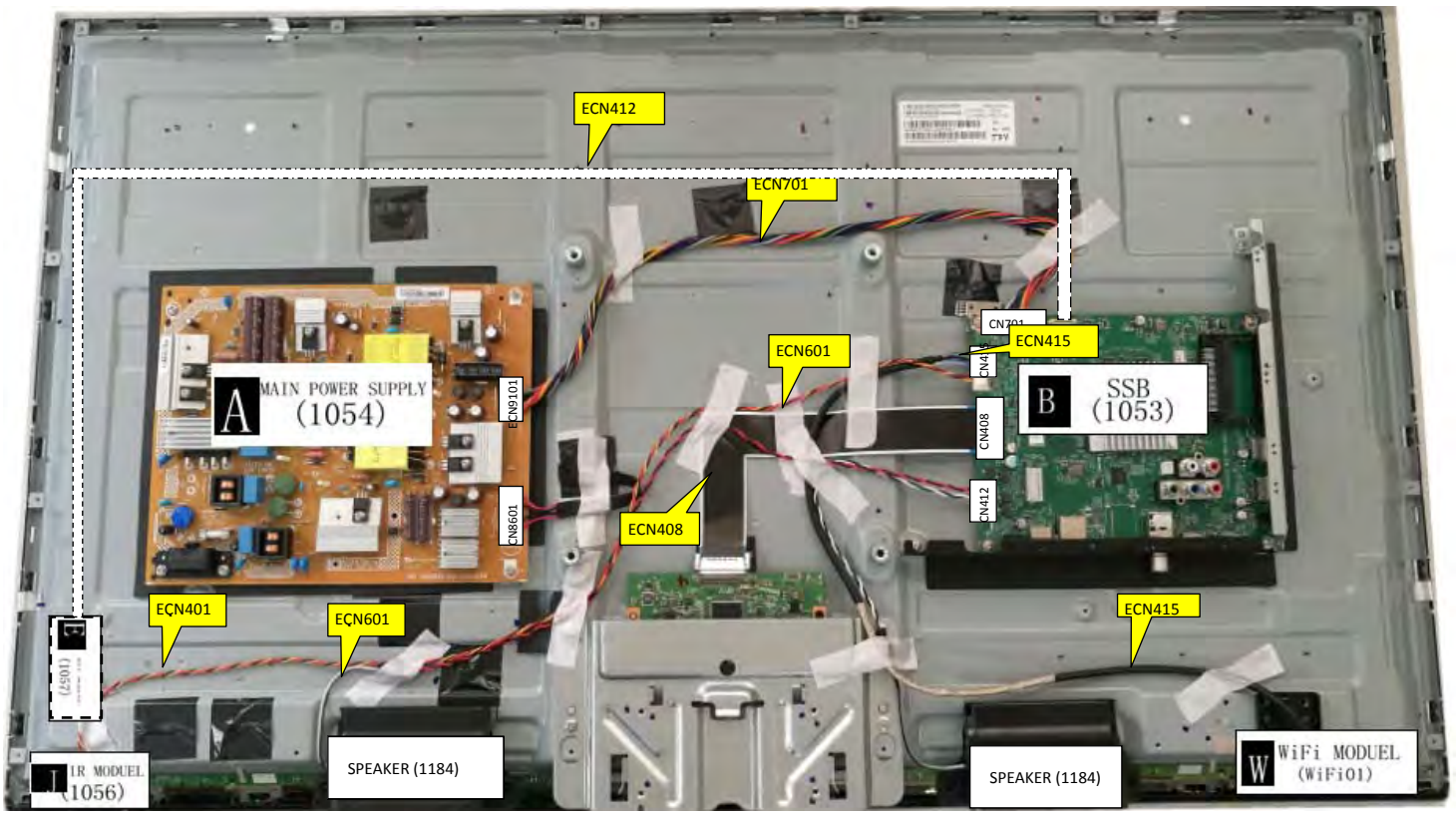
TV Bottom
- Audio out - Optical Toslink
- USB 1 - USB 3.0
- Network LAN - RJ45
- Satellite tuner
- Antenna (75 ohm)
- HDMI 1 in - ARC - UHD
- HDMI 2 in - UHD - HDR

2. Connections Overview

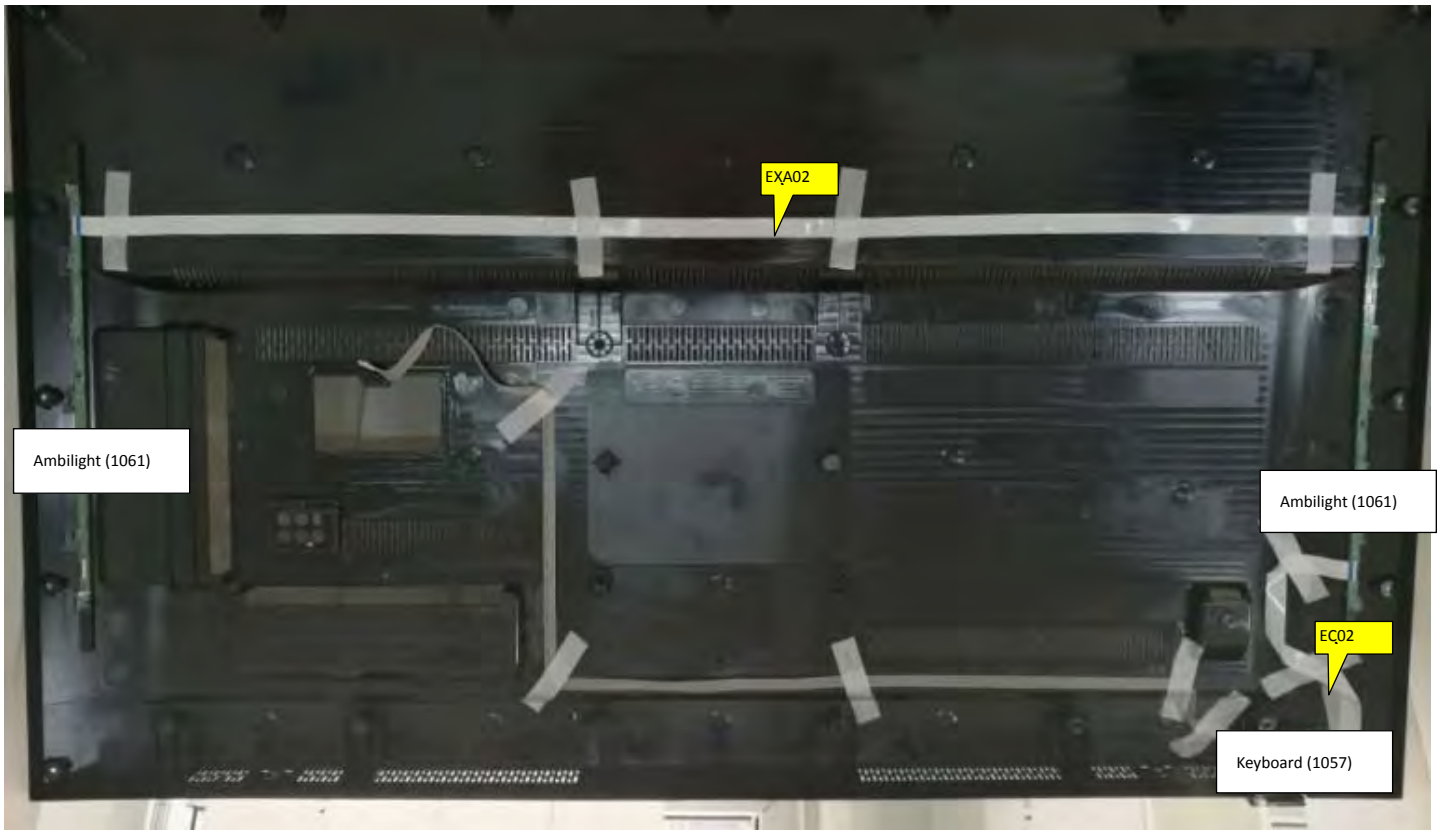


3. Mechanical Instructions

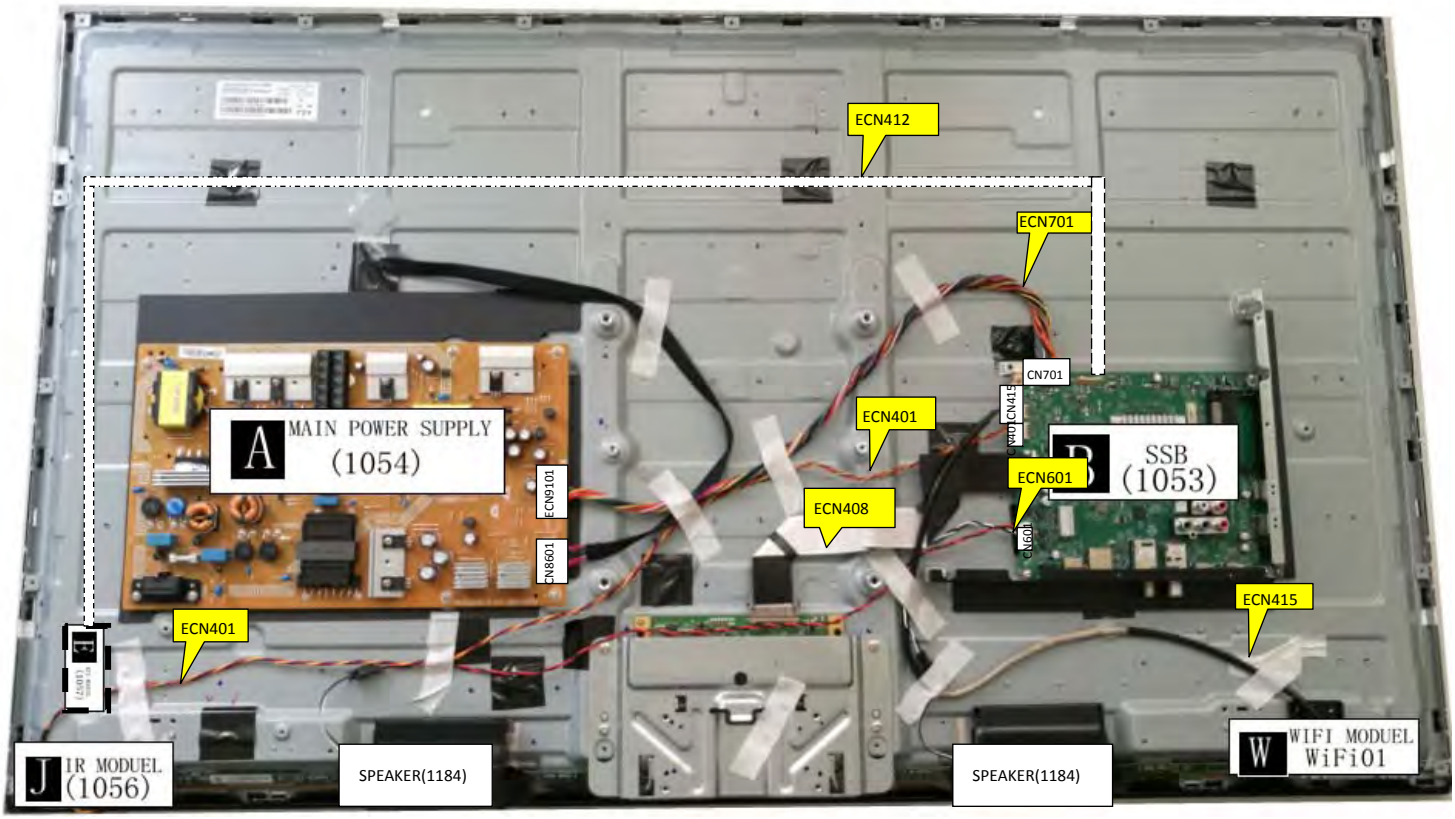
3.1 Cable Dressing



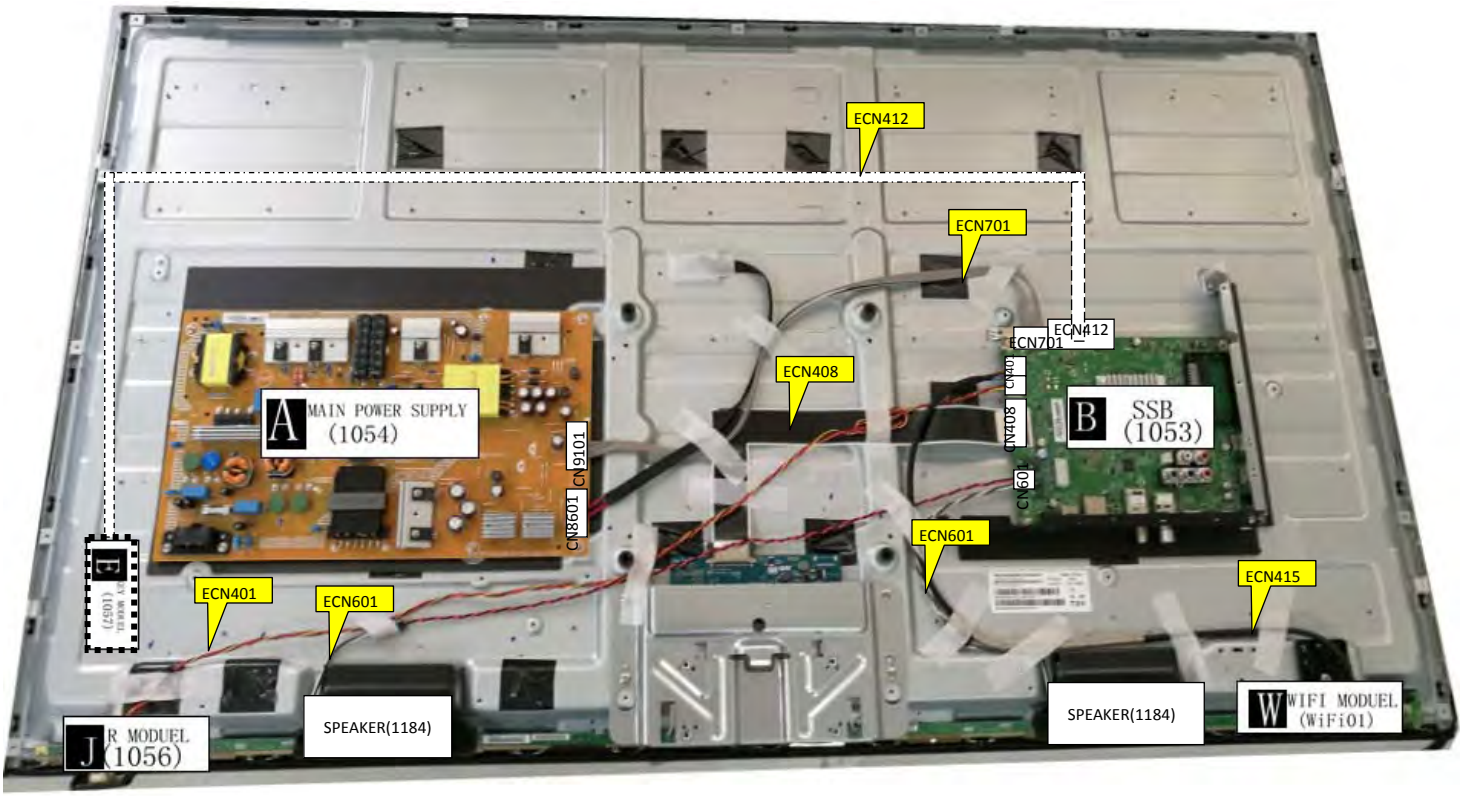
Cable dressing (43" 6162/6262 series)



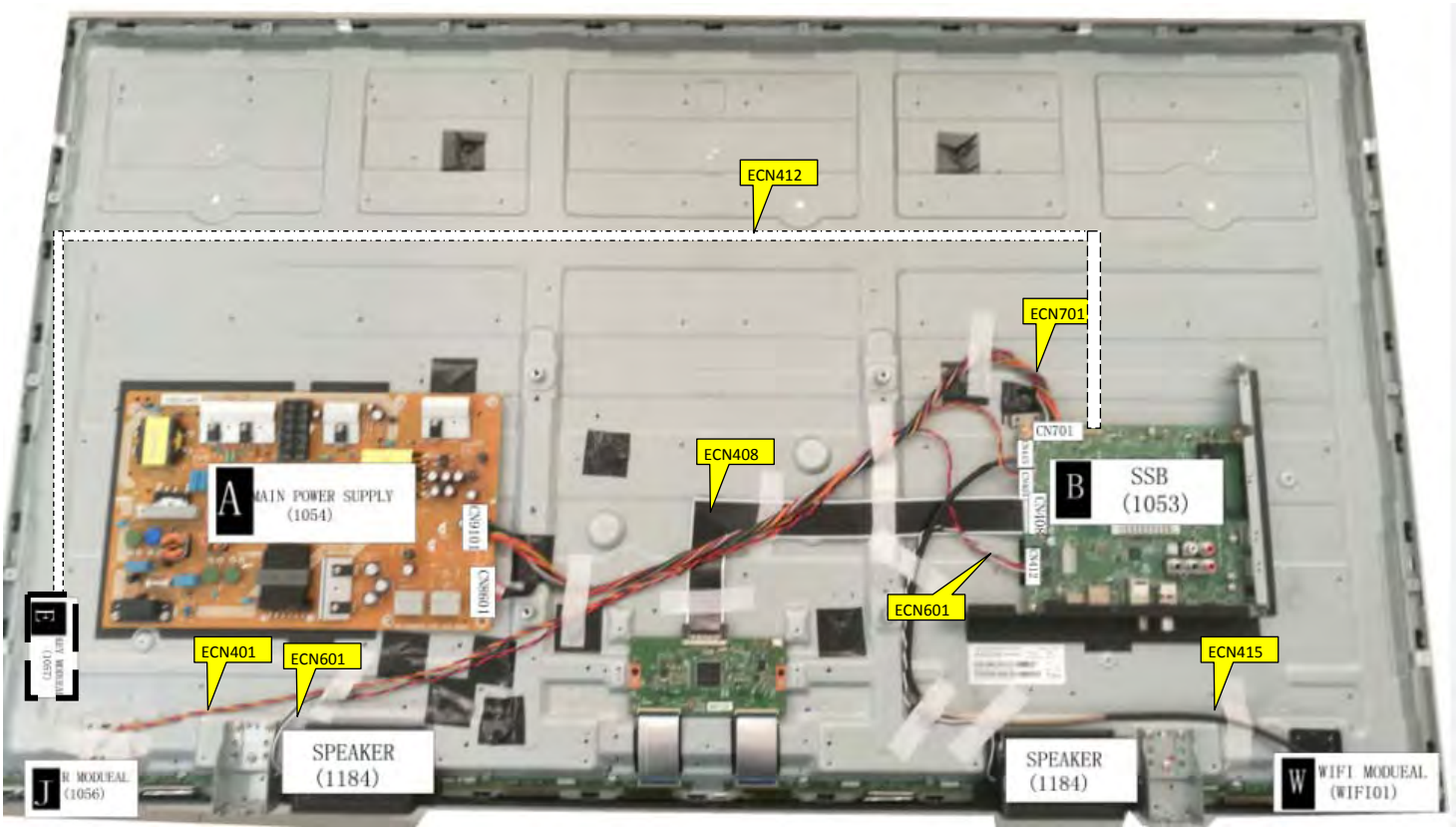
Back cover view (43"/ 49"/ 55" 6262 series)



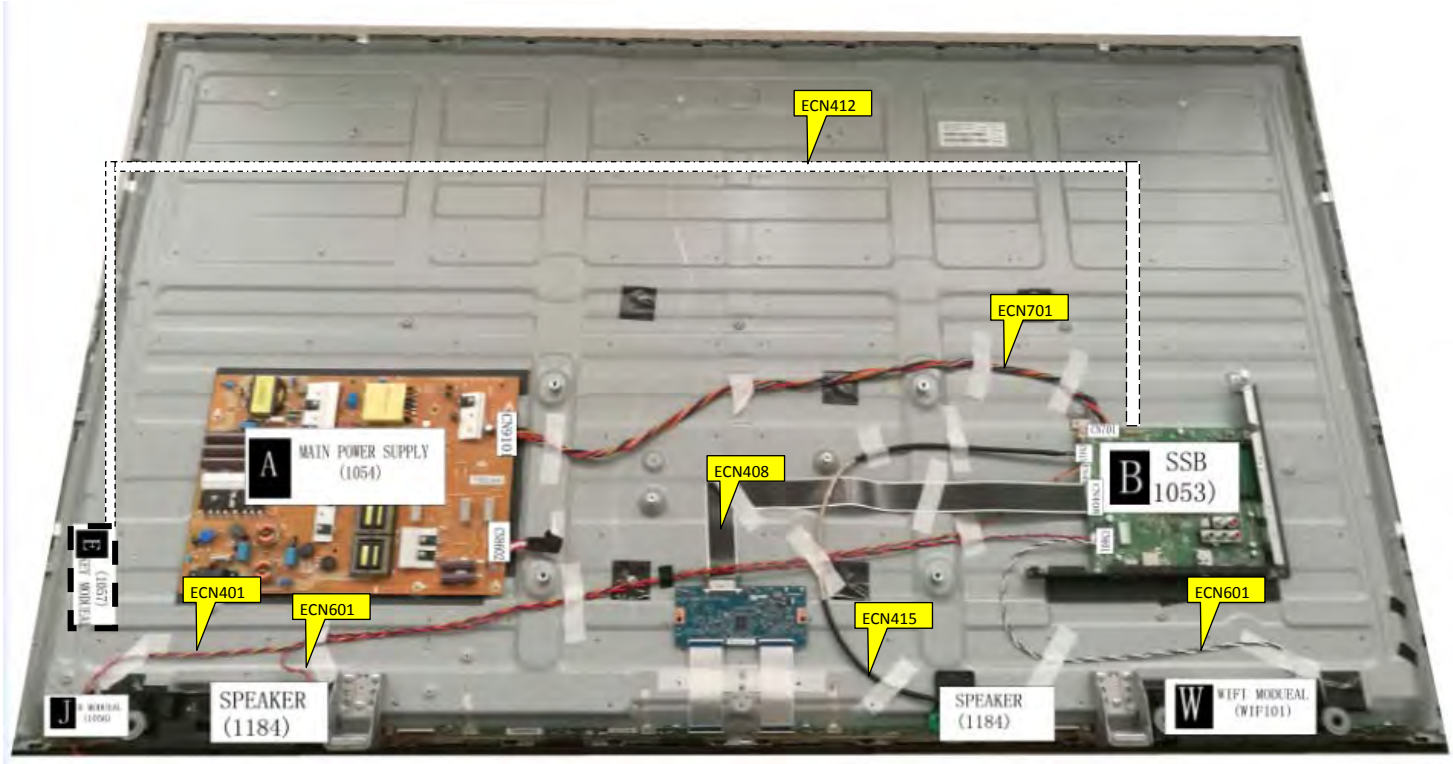
Cable dressing (49" 6162/6262 series)



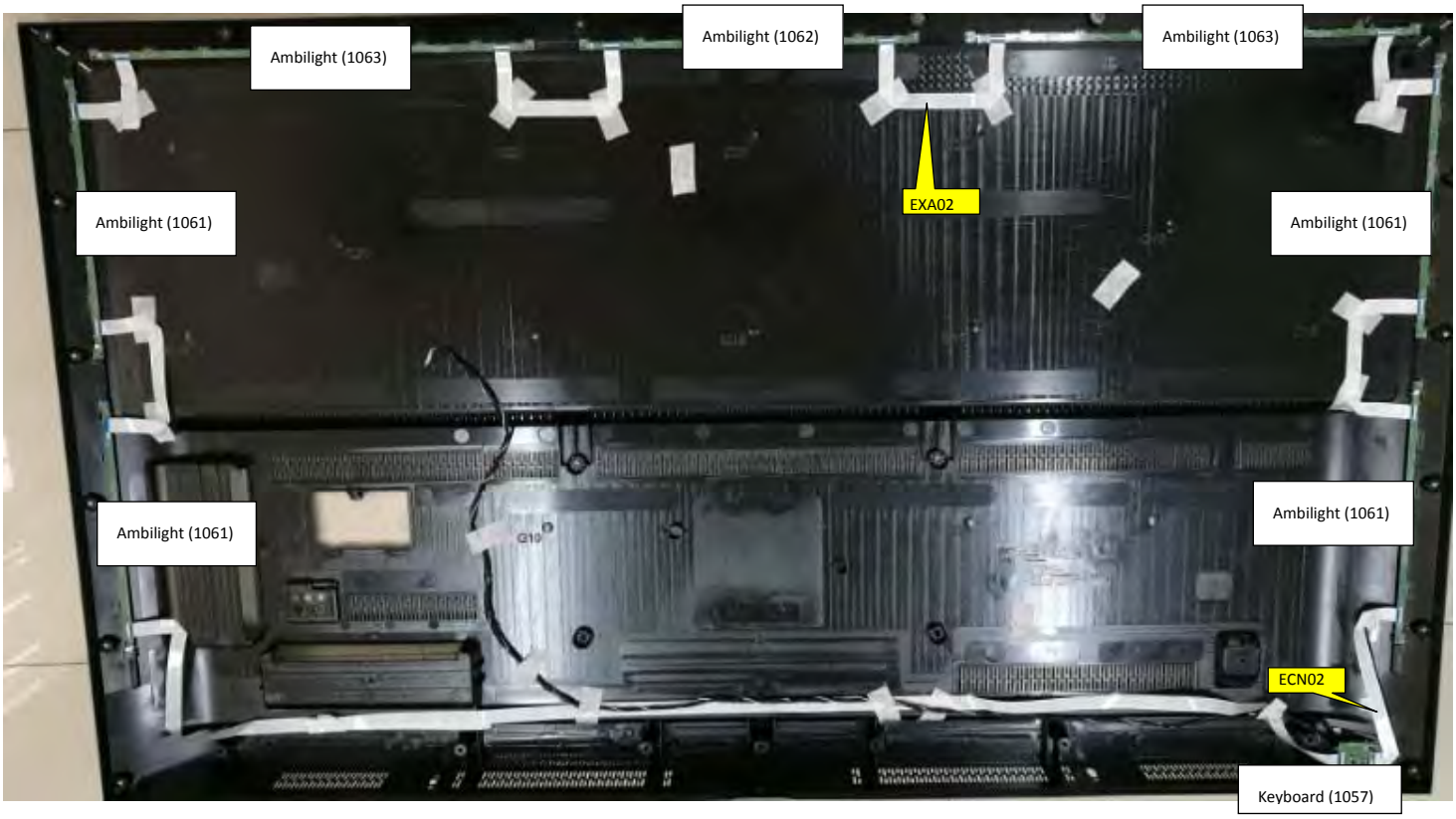
Cable dressing (50"/55" 6162 series)



Cable dressing (50"/55" 6262 series)



Cable dressing (65" 6162/6262 series)



Back cover view (65" 6262 series)

3.2 Assembly/Panel Removal

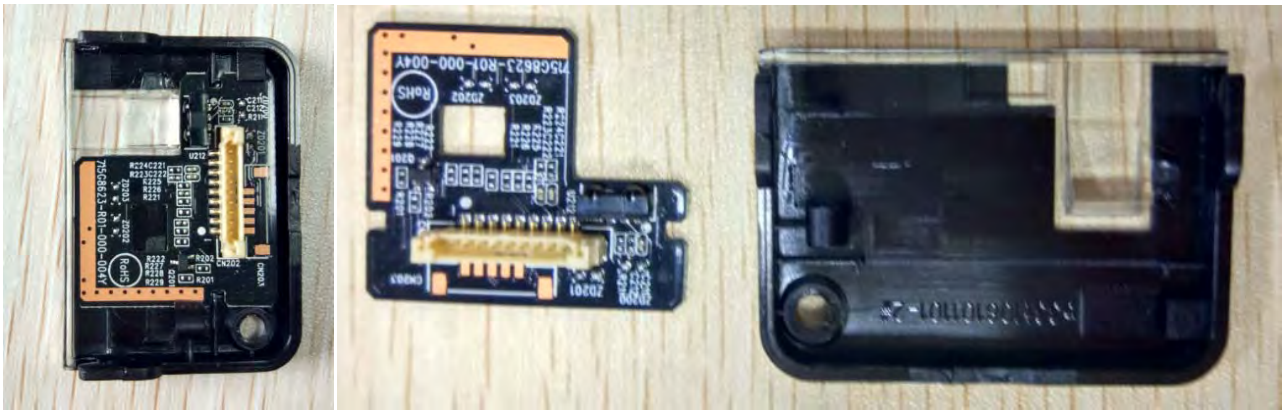
3.2.1 IR board Control Unit

1. Unplug the connector from the SSB.

   Caution: be careful, as these are very fragile connectors!

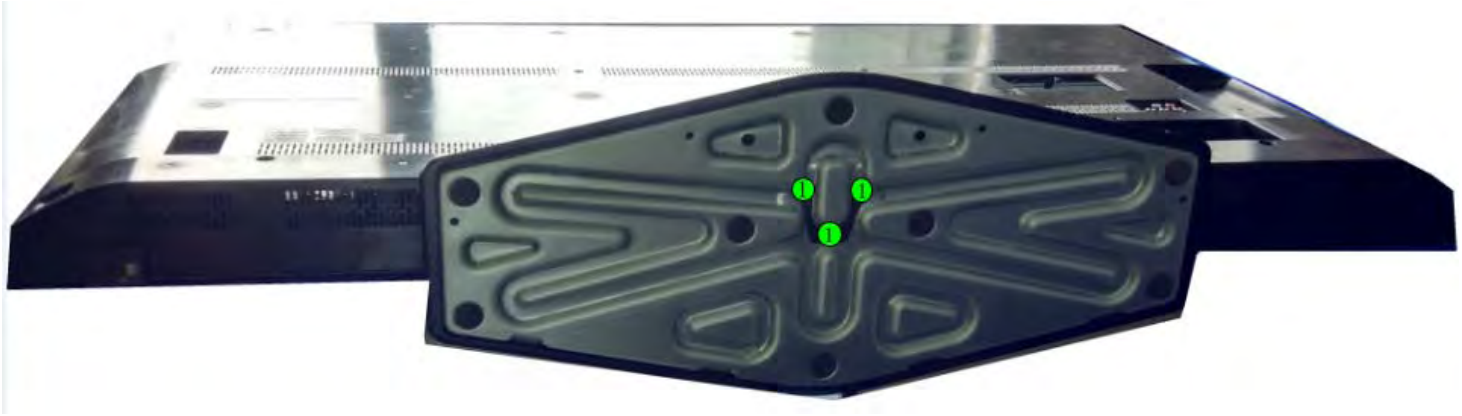
1. Remove all the fixation screws [1] and connector from the IR board control unit.
3. Remove the IR lens, IR board from the DECO_REAR_COVER.

When defective, replace the whole unit.



3.2.2 Stand removal

1. For 6262 Serial, remove the fixation screws [2] that secure the stand for 6262 Serial
   For 6162 Serial, remove the fixation screws [1] that secure the stand
2. Take the stand bracket out from the set.



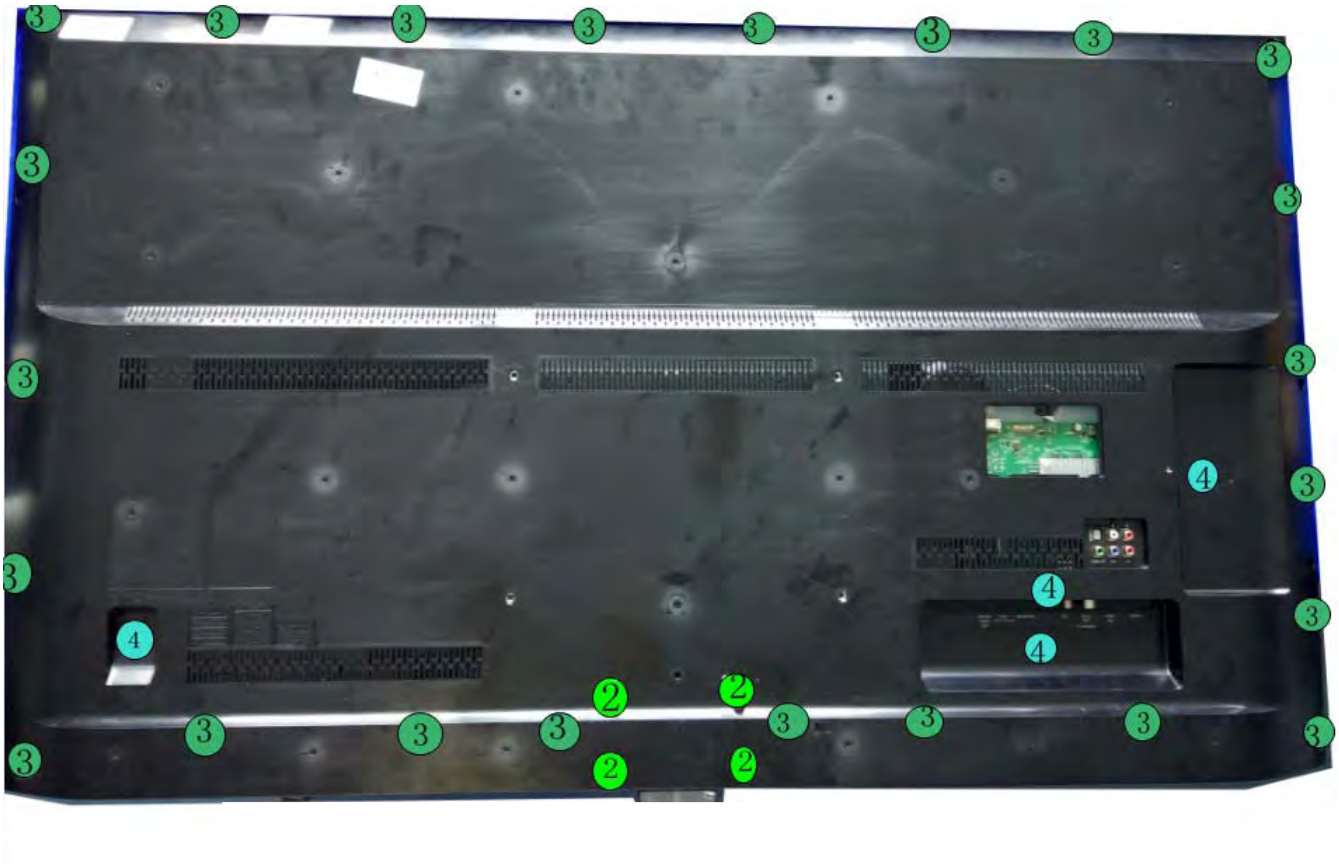
(6162 series)

(6262 series)

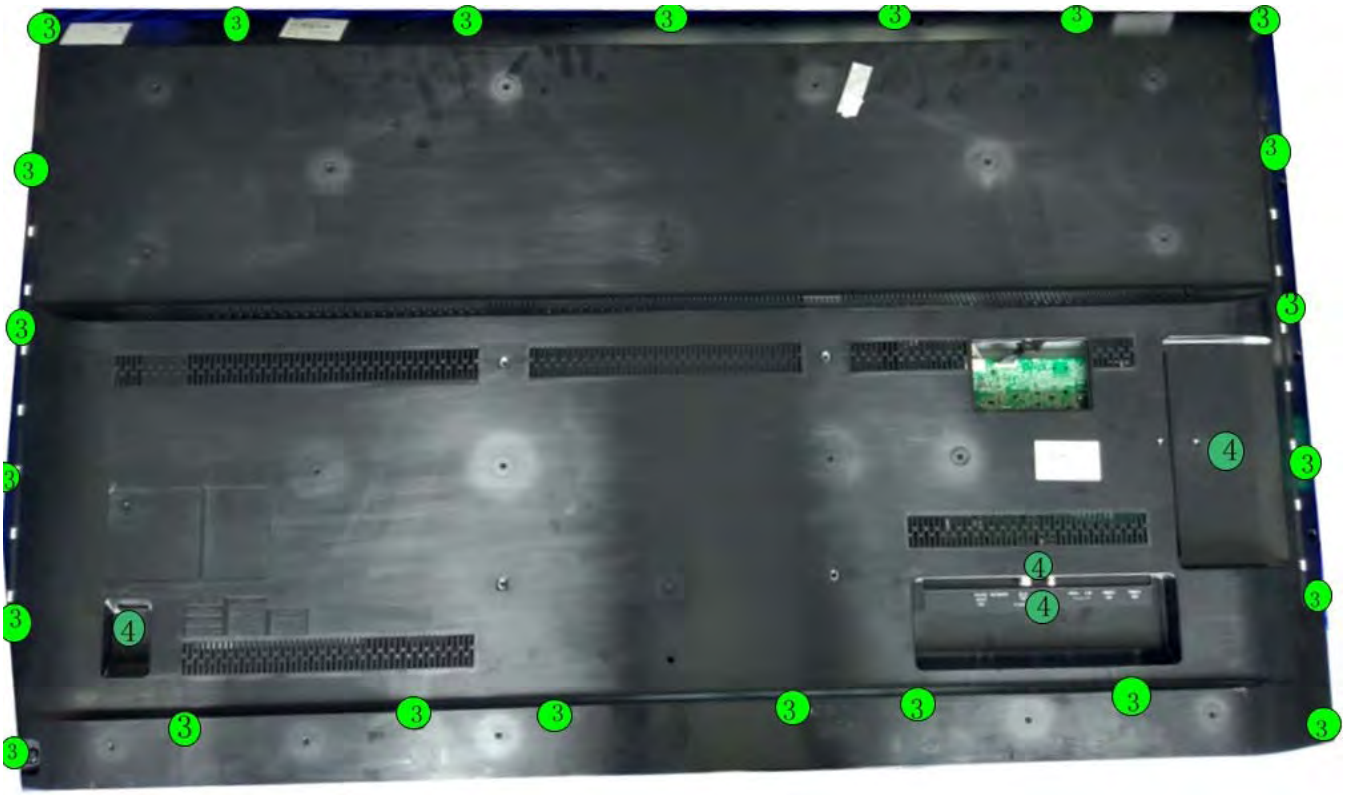
3.2.3 Rear Cover

Warning: Disconnect the mains power cord before removing the rear cover.

Remove fixation screws [3] and [4] gently lift the rear cover from the TV. Make sure that wires and cables are not damaged while lifting the rear cover from the set.



(6162 series)



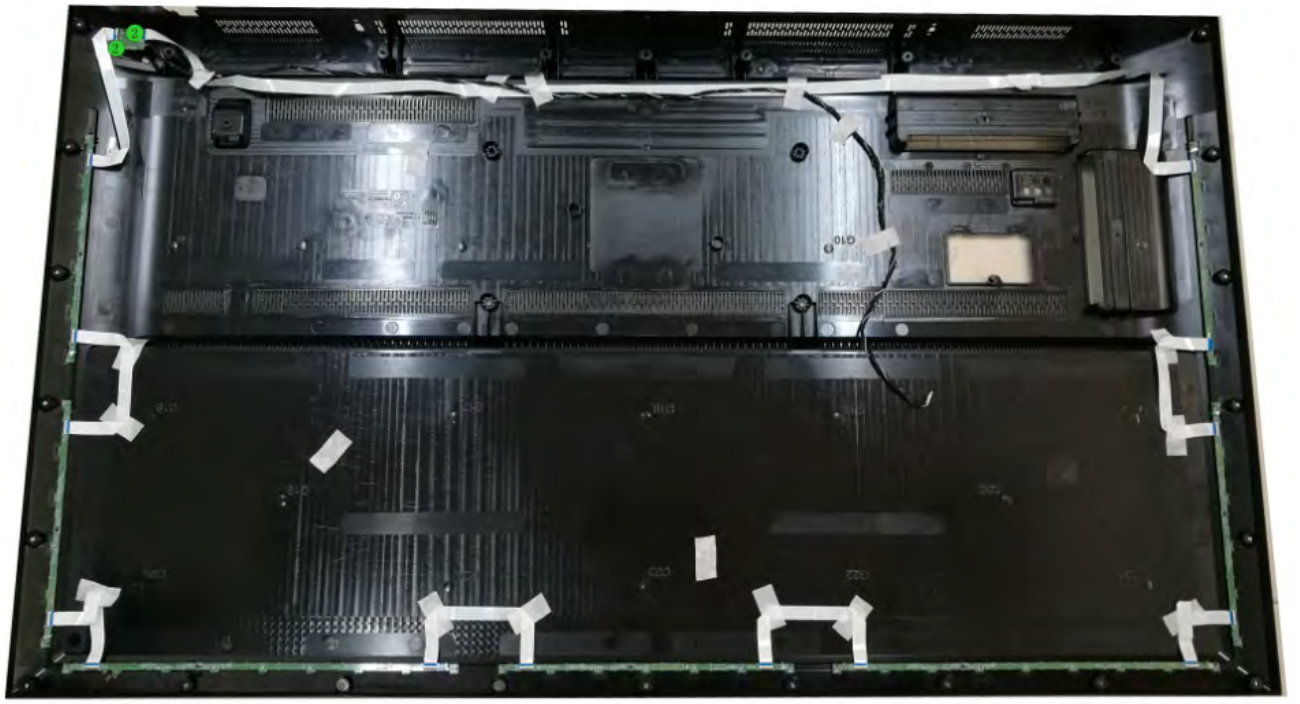
(6262 series)

3.2.4 Keyboard Control Unit

1. Release the connector from the SSB Board.

   Caution: be careful, the Keyboard is catch on the Back cover, please be careful to avoid damage the fragile connectors!
2. Remove all the fixation screws from the keyboard control panel [2] and take it out from the Back cover

   When defective, replace the whole unit.

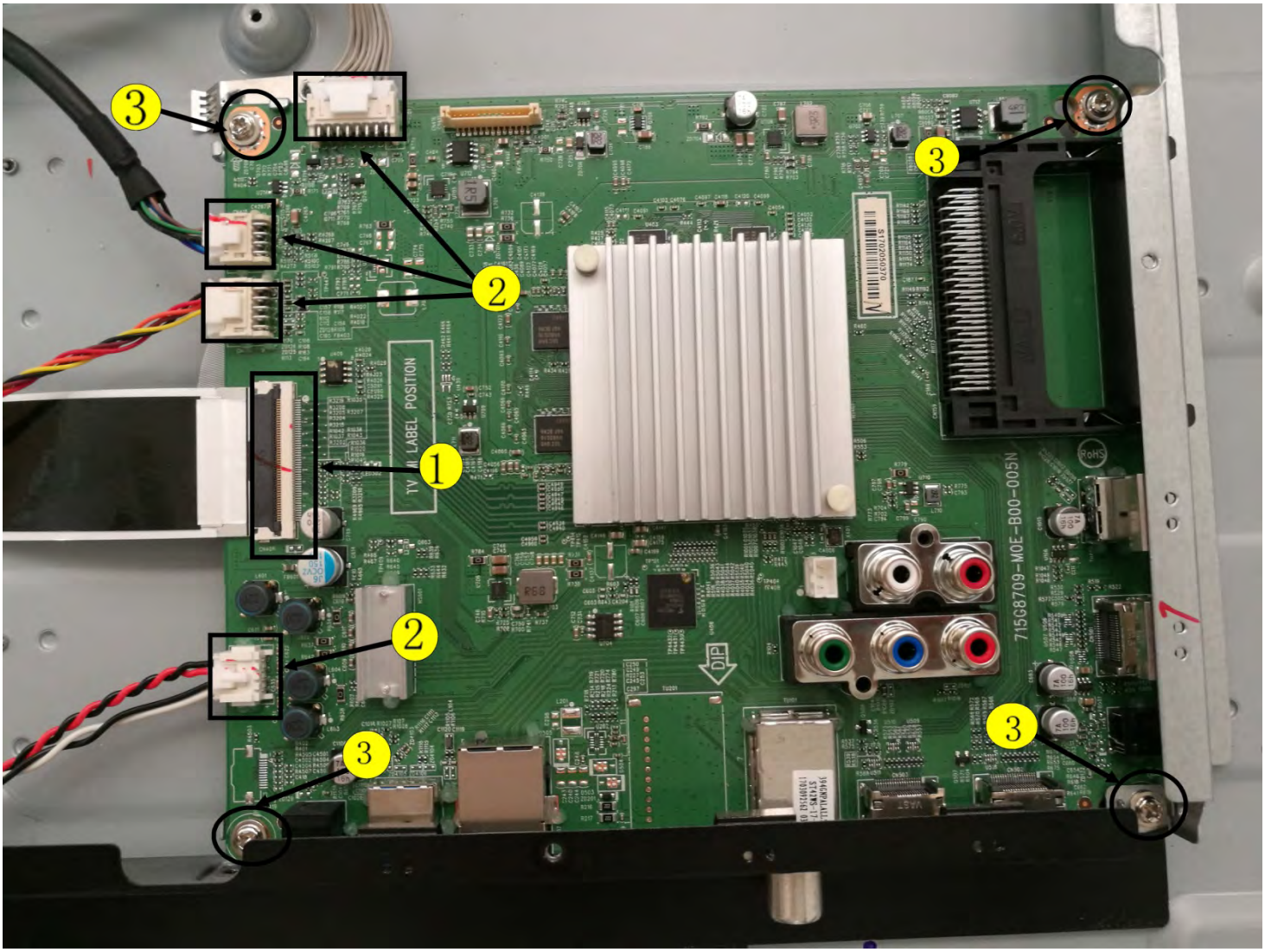


3.2.5 Small Signal Board (SSB)

Caution: it is mandatory to remount all different screws at their original position during re-assembly. Failure to do so may result in damaging the SSB.

1. Release the clips from the LVDS connector that connect with the SSB[1].

   Caution: be careful, as these are very fragile connectors!
2. Unplug all other connectors [2] .
3. Remove all the fixation screws from the SSB [3].
4. The SSB can now be shifted from side connector cover, then lifted and taken out of the I/O bracket.



3.2.6 Power Supply Unit (PSU)

Caution: it is mandatory to remount all different screws at their original position during re-assembly. Failure to do so may result in damaging the PSU.

1. Gently unplug all connectors from the PSU.
3. Remove all fixation screws from the PSU.
3. The PSU can be taken out of the set now.

3.2.7 Speakers

1. Gently release the tapes that secure the speaker cables.
2. Unplug the speaker connector from the SSB.
3. Take the speakers out.

When defective, replace the both units.

3.2.8 WIFI module

1. Unplug the connector from the SSB..
2. Remove fixation screw that secure the WIFI module,

When defective, replace the whole unit.

3.2.9 LCD Panel

1. Remove the SSB as described earlier.
2. Remove the PSU as described earlier.
3. Remove the keyboard control panel as described earlier.
4. Remove the stand bracket as described earlier.
5. Remove the IR/LED as described earlier.
6. Remove the fixations screws that fix the metal clamps to the front bezel. Take out those clamps.
7. Remove all other metal parts not belonging to the panel.
8. Lift the LCD Panel from the bezel.

When defective, replace the whole unit.

4. Service Modes

4.1 Service Modes

The Service Mode feature is split into following parts:

- Service Alignment Mode (SAM).
- Factory Mode.
- Customer Service Mode (CSM).SAM and the Factory mode offer features, which can be used by the Service engineer to repair/align a TV set.

SAM and the Factory mode offer features, which can be used by the Service engineer to repair/align a TV set. Some features are:

- Make alignments (e.g. White Tone), reset the error buffer(SAM and Factory Mode).
- Display information (“SAM” indication in upper right corner of screen, error buffer, software version, operating hours,options and option codes, sub menus).

The CSM is a Service Mode that can be enabled by the consumer. The CSM displays diagnosis information, which the customer can forward to the dealer or call centre. In CSM mode, “CSM”, is displayed in the top right corner of the screen. The information provided in CSM and the purpose of CSM is to:

- Increase the home repair hit rate.
- Decrease the number of nuisance calls.
- Solved customers’ problem without home visit.

Note: For the new model range, a new remote control (RC) is used with some renamed buttons. This has an impact on the activation of the Service modes. For instance the old “MENU” button is now called “HOME” (or is indicated by a “house” icon).

4.2 Service Alignment Mode (SAM)

Purpose

- To modify the NVM.
- To display/clear the error code buffer.
- To perform alignments.

Specifications

- Operation hours counter (maximum five digits displayed).
- Software version, error codes, and option settings display.
- Error buffer clearing.
- Option settings.
- Software alignments (White Tone).
- NVM Editor.
- Set screen mode to full screen (all content is visible).

How to Activate SAM

To activate SAM, use one of the following methods:

- Press the following key sequence on the remote control transmitter: **“062596”**, directly followed by the **“INFO/OK”** button. Do not allow the display to time out between entries while keying the sequence.
- Or via ComPair.

After entering SAM, the following items are displayed,

with “SAM” in the upper right corner of the screen to indicate that the television is in Service Alignment Mode.

How to Navigate

- In the SAM menu, select menu items with the UP/DOWN keys on the remote control transmitter. The selected item will be indicated. When not all menu items fit on the screen, use the **UP/DOWN keys** to display the next/previous menu items.

- With the “LEFT/RIGHT” keys, it is possible to:
  - (De) activate the selected menu item.
  - (De) activate the selected sub menu.
  - Change the value of the selected menu item.
- When you press the MENU button once while in top level SAM, the set will switch to the normal user menu (with the SAM mode still active in the background).

How to Store SAM Settings

To store the settings changed in SAM mode (except the RGB Align settings), leave the top level SAM menu by using the POWER button on the remote control transmitter or the television set. The mentioned exceptions must be stored separately via the STORE button.

How to Exit SAM

Use one of the following methods:

- Switch the set to STANDBY by pressing the mains button on the remote control transmitter or the television set.
- Via a standard RC-transmitter, key in “00” sequence.

Note: When the TV is switched “off” by a power interrupt while in SAM, the TV will show up in “normal operation mode” as soon as the power is supplied again. The error buffer will not be cleared.

SAM mode overview

4.3 Factory mode:

Purpose

- To perform extended alignments.

Specifications

- Displaying and or changing Panel ID information.
- Displaying and or changing Tuner ID information.
- Error buffer clearing.
- Various software alignment settings.
- Testpattern displaying.
- Public Broadcasting Service password Reset.
- etc.

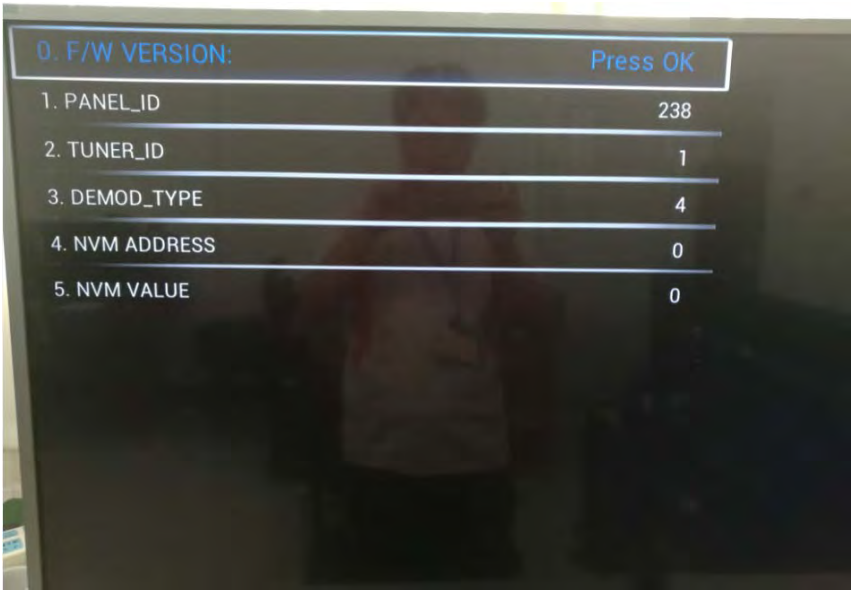
How to Activate the Factory mode

To activate the Factory mode, use the following method:

- Press the following key sequence on the remote control transmitter: from the **“menu/home”** press **“1999”**, directly followed by the **“Back/Return”** button. Do not allow the display to time out between entries while keying the sequence.

After entering the Factory mode, we can see many items displayed, use the **UP/DOWN** keys to display the next/previous menu items

Factory mode overview



How to Exit the Factory mode

Use one of the following methods:

- Select EXIT_FACTORY from the menu and press the “OK” button.

Note: When the TV is switched “off” by a power interrupt, or normal switch to “stand-by” while in the factory mode, the TV will show up in “normal operation mode” as soon as the power is supplied again. The error buffer will not be cleared.

4.4 Customer Service Mode (CSM)

Purpose

The Customer Service Mode shows error codes and information on the TVs operation settings.The call centre can instruct the customer (by telephone) to enter CSM in order to identify the status of the set.This helps the call centre to diagnose problems and failures in the TV set before making a service call.

The CSM is a read-only mode; therefore, modifications are not possible in this mode.

Specifications

- Ignore “Service unfriendly modes”.
- Line number for every line (to make CSM language independent).
- Set the screen mode to full screen (all contents on screen is visible).
- After leaving the Customer Service Mode, the original settings are restored.
- Possibility to use “CH+” or “CH-” for channel surfing, or enter the specific channel number on the RC.

How to Activate CSM

To activate CSM, press the following key sequence on a standard remote control transmitter: **“123654”** (do not allow the display to time out between entries while keying the sequence). After entering the Customer Service Mode, the following items are displayed. use the **Right/Left** keys to display the next/previous menu items

Note: Activation of the CSM is only possible if there is no (user) menu on the screen!

CSM Overview

How to Navigate

By means of the “CURSOR-DOWN/UP” knob (or the scroll wheel) on the RC-transmitter, can be navigated through the menus.

How to Exit CSM

To exit CSM, use one of the following methods.

- Press the MENU/HOME button on the remote control transmitter.
- Press the POWER button on the remote control transmitter.
- Press the POWER button on the television set.

5. Software Upgrading, Error code and Panel Code

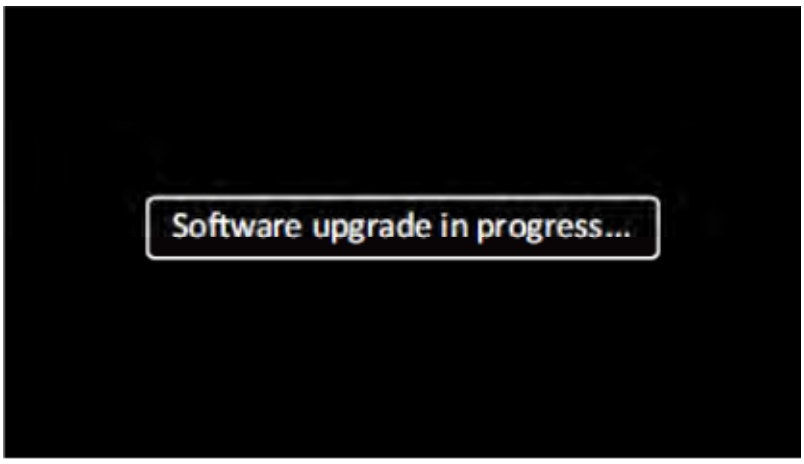
5.1 Software Upgrading

5.1.1. The following update is for .pkg file.

1. Rename the file to “upgrade_loader.pkg”
2. Prepare a USB memory.
3. Copy the software to USB flash disk(root directory).
4. Switch off the TV and Insert the USB memory stick that contains the software update files in one of the TV’s USB 2.0 ports.

Note: It contains USB3.0 port, if connect on it, the software may can’t be detected.

5. Switch on the TV. The TV will detect the USB memory s tick automatically. Then a window jumps out as below



6. When the TV software is updated, the TV will turn on again automatically. Remove your USB flash drive.
7. We can enter in CSM or Factory mode to check the current software version.

5.1.2. The following update is for .upg file.

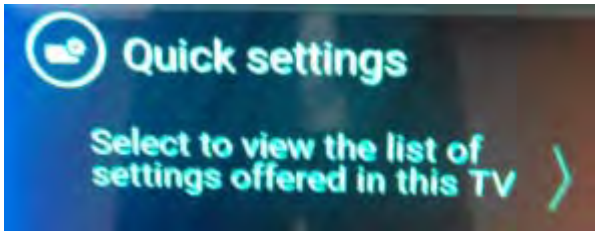
Step 1: Ready for F/W Upgrade

1. Rename the file to “autorun.upg”
2. Prepare a USB memory.
3. Copy the software to USB flash disk(root directory).
4. Switch on the TV and Insert the USB memory stick that contains the software update files in one of the TV’s USB 2.0 ports

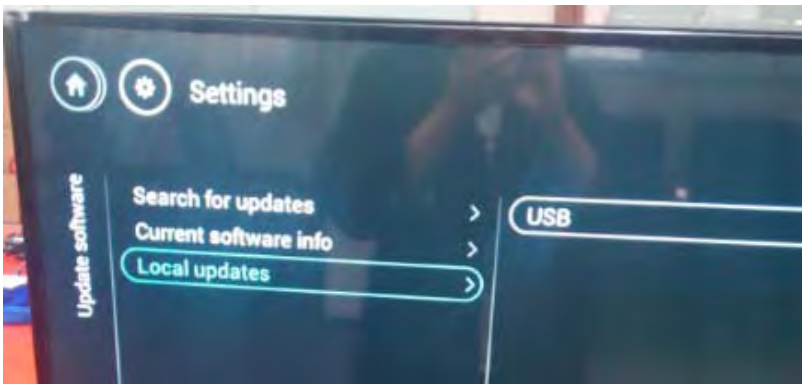
Note the version of this F/W before you change the software file name.

Step 2: F/W Upgrade

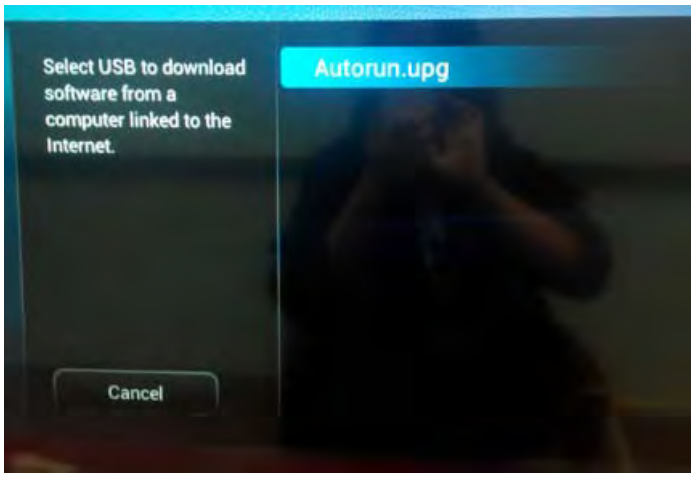
1. Press [Quick settings], then Choose [Update Software] in the Settings menu



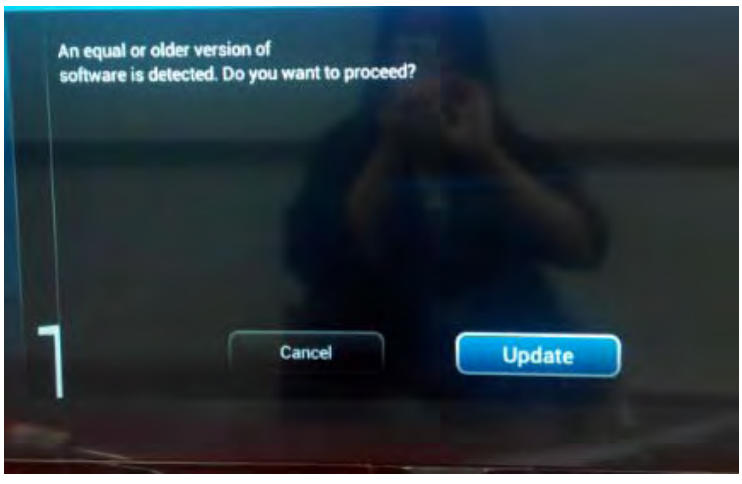
2. Choose [Local Updates], then press OK.

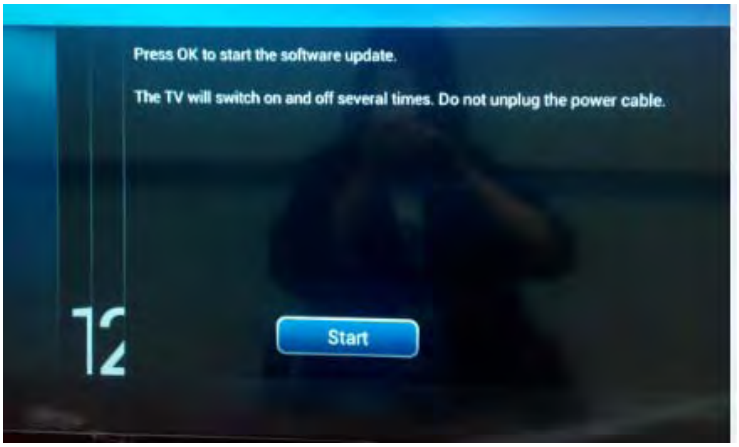


3. Select the file that you downloaded and press OK

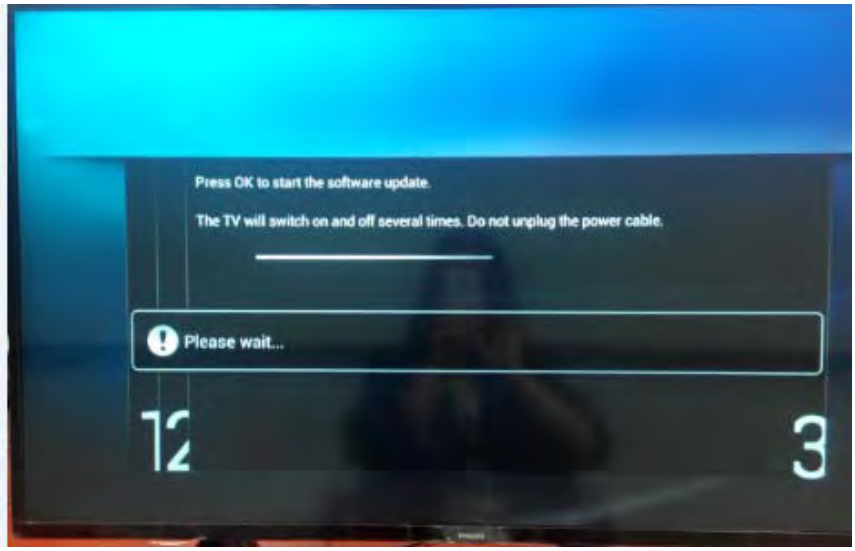


4. Choose [Update], then choose [Start] on following step





5. Upgrade in progress



Step 3: Check the SW version

1. After burning software, TV will restart
2. Press “Menu+1999+back”, enter Factory mode to check if the software version is correct

Caution: Please make sure that software upgrade is finished before unplug the USB and AC power!

5.2 Error Code

5.2.1 Introduction

Error codes are required to indicate failures in the TV set. In principle a unique error code is available for every:

• Activated (SW) protection.

• Failing I2C device.

• General I2C error.

The last five errors, stored in the NVM, are shown in the Service menu’s. This is called the error buffer.

The error code buffer contains all errors detected since the last time the buffer was erased. The buffer is written from left to right. When an error occurs that is not yet in the error code buffer, it is displayed at the left side and all other errors shift one position to the right.

An error will be added to the buffer if this error differs from any error in the buffer. The last found error is displayed on the left.

An error with a designated error code never leads to a deadlock situation. It must always be diagnosable (e.g. error buffer via OSD or blinking LED).

In case a failure identified by an error code automatically results in other error codes (cause and effect), only the error code of the MAIN failure is displayed.

5.2.2 How to Read the Error Buffer

You can read the error buffer in three ways:

• On screen via the SAM/CSM (if you have a picture).

Example:

– **ERROR: 000 000 000 000 000**: No errors detected

– **ERROR: 013 000 000 000 000**: Error code 13 is the last and only detected error

– **ERROR: 034 013 000 000 000**: Error code 13 was detected first and error code 34 is the last detected (newest) error

• Via the blinking LED procedure (when you have no picture).

5.2.3 Error codes overview

In this chassis only “layer 2” error codes are available and point to problems on the SSB. They are triggered by LED blinking when CSM is activated. Only the following layer 2 errors are defined:

Description	LAYER 1 error	LAYER 2 error	Monitored	Error	I²C address	EB: in error buffer	Device	Defective board
				Prot.		BL: Blinking LED		
I²C BUSSES								
DSP bus (00)	2	11	SOC	E	00	BL/EB	SSB	Audio DSP
AMP bus (01)	2	12	SOC	E	01	BL/EB	SSB	Audio DSP
SSB bus (0F)	2	13	SOC	E	0F	BL/EB	SSB	SSB
BE bus (3F)	2	14	SOC	E	3F	BL/EB	SSB	SSB
FE bus (2F)	2	17	SOC	E	2F	BL/EB	SSB	SSB
DISP bus (30)	2	18	SOC	E	30	BL/EB	SSB	Display
AMBI bus (31)	2	19	SOC	E	31	BL/EB	SSB	Proj AL
SOC doesn't boot (HW cause)	2	15	St-by µP	P	D4	BL	MT5593	SSB
Supply related								
12V	3	16	St-by µP	P		BL		Supply
SSB								
I2C switch (SSB bus)	9	24	SOC	E	E0	EB	PCA9540	Audio DSP
I2C switch (BE bus)	2	25	SOC	E	E0	EB	PCA9540	SSB
Channel dec	2	27	SOC	E	C8-CE	EB	Silab Si216x	SSB
Boston (HDMI2.2)	2	29	SOC	E	40	EB	SIL 9777	SSB
Lnb controler	2	31	SOC	E	10	EB	LNBH 25	SSB
Tuner	2	34	SOC	E	C0	EB	Si2151/AV 2019	SSB
Tuner S2	2	36	SOC	E		EB		
Class - D 3 (DSP bus)	9	35	SOC	E	D8	EB	TAS 5760 LD	Audio DSP
Audio DSP	9	36	SOC	E	70	EB		Audio DSP
Class-D 1	2/9	37	SOC	E	D8	EB	TAS5760LD	SSB/Audio DSP
DSP EEPROM	9	38	SOC	E	A0	EB	Durango	Audio DSP
Class - D 2	2/9	39	SOC	E	DA	EB	TAS 5760 LD	SSB/Audio DSP
T° sensor SSB	2	42	SOC	E	98	EB	LM75	T°sensor
Light sensor	6	43	SOC	E	52	EB	TSL2571	SET
B&O signal board	4	44	SOC	E		EB		
HDD XFS repair	8	45	SOC	E		EB		
DSP doesn't boot (SW cause)	9	52	SOC	E	70	EB	MT5593	Audio DSP
SOC doesn't boot (SW cause)	2	53	St-by µP	P	D4	BL	MT5593	SSB
FRC	2	61	SOC	E	34	EB	NT72324/72333	SSB
ASIC	2	62	SOC	E	84	EB	ASIC	SSB
Display	5	63	SOC	E	34	EB	Innolux	Display

5.2.4 How to Clear the Error Buffer

The error code buffer is cleared in the following cases:

• By using the CLEAR command in the SAM menu

• By using the CLEAR command in the Factory mode:

• By using the following key sequence on the remote control transmitter: “**062599**” directly followed by the **OK** button.

• If the contents of the error buffer have not changed for 50 hours, the error buffer resets automatically.

Note: If you exit SAM by disconnecting the mains from the television set, the error buffer is not reset.

5.3 Panel Code

Press the following key sequence on a standard RC transmitter: “062598” directly followed by MENU and “xxx”, where “xxx” is a 3 digit decimal value of the panel type: see column “Display Code” in below tab. After resetting the Display Code, restart the set immediately.

CTN_ALT BOM#	Panel Type	Step option code
43PUS6162/12	TPT430U3-EQYSHM.G S1V	002
43PUS6162/12	TPT430U3-EQYSHM.G S1AD	019
43PUS6162/12	TPT430U3-QVN03.U S0B0F	083
43PUT6162/12	TPT430U3-EQYSHM.G S1V	001
43PUT6162/60	TPT430U3-EQYSHM.G S1V	001
43PUS6262/12	TPT430U3-EQYSHM.G S1U	013
43PUS6262/12	TPT430U3-EQYSHM.G S1AC	028
43PUT6262/12	TPT430U3-EQYSHM.G S1U	013
43PUT6262/12	TPT430U3-EQYSHM.G S1AC	028
49PUS6162/12	TPT490U2-EQYSHM.G SC1V	005
49PUT6162/12	TPT490U2-EQYSHM.G SC1V	004
49PUT6162/60	TPT490U2-EQYSHM.G SC1V	004
49PUS6262/12	TPT490U2-EQYSHM.G SC1U	015
49PUT6262/12	TPT490U2-EQYSHM.G SC1U	015
50PUS6162/12	TPT500U1-QVN03.U S5B0T	034
50PUS6162/12	TPT500U1-DJ6QE1.N ST4A	
50PUT6162/12	TPT500U1-QVN03.U S5B0T	033
50PUS6262/12	TPT500U1-QVN03.U S5B0R	050
50PUT6262/12	TPT500U1-QVN03.U S5B0T	033
55PUS6162/12	TPT550U2-EQYSHM.G S1AD	008
55PUS6162/12	TPT550U2-EQYSKM.G S5G	025
55PUS6162/12	TPT550U2-D072.L S01L	041
55PUS6162/12	TPT550U2-EQYSKM.G S5N	078
55PUT6162/12	TPT550U2-EQYSHM.G S1AD	007
55PUS6262/12	TPT550U2-EQYSHM.G S1AC	017
55PUS6262/12	TPT550U2-EQYSKM.G S5F	099
55PUS6262/12	TPT550U2-D072.L S01M	076
55PUS6262/12	TPT550U2-EQYSKM.G S5M	093
55PUT6262/12	TPT550U2-EQYSHM.G S1AC	016
55PUT6162/60	TPT550U2-EQYSHM.G S1AD	007
65PUS6162/12	TPT650UA-QVN06.U S300B	011
65PUS6162/12	TPT650U2-FN04.S SG01B	071
65PUT6162/12	TPT650UA-QVN06.U S300B	010
65PUS6262/12	TPT650UA-QVN06.U S300G	067
65PUT6262/12	TPT650UA-QVN06.U S300G	036

6. Circuit Descriptions

6.1 Introduction

The TPM17.7E LA is a new chassis launched in EU in 2017. The whole range is covered by MT5802VGEJ platform. The major deltas versus its predecessor support DVB-C; DVB-T/T2, with also USB3.0,WIFI/multi-media, Video out

The TPM17.7E LA chassis comes with the following stylings:

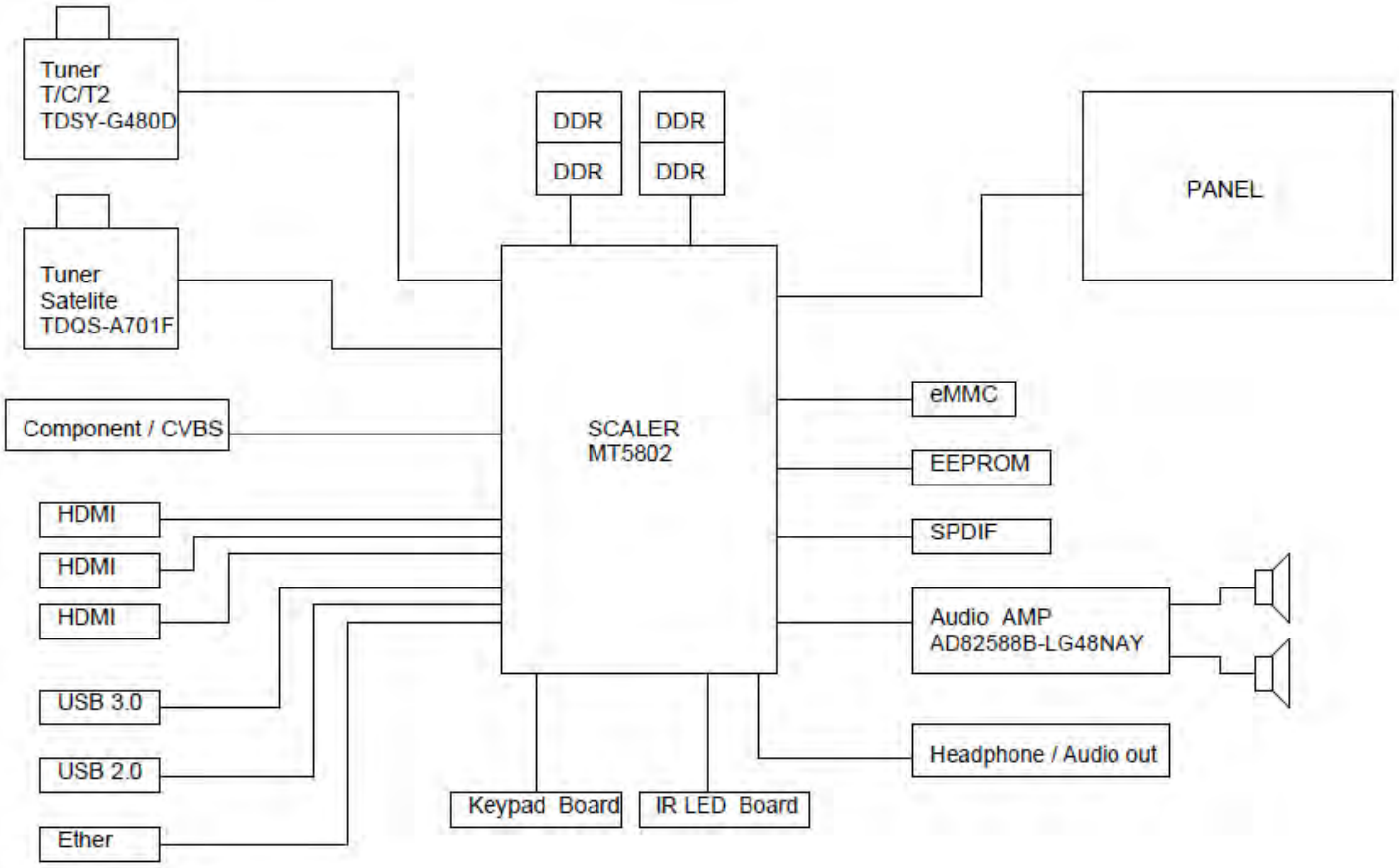
- series xxPUx6162/xx
- series xxPUx6262/xx

6.1.1 Implementation

Key components of this chassis are:

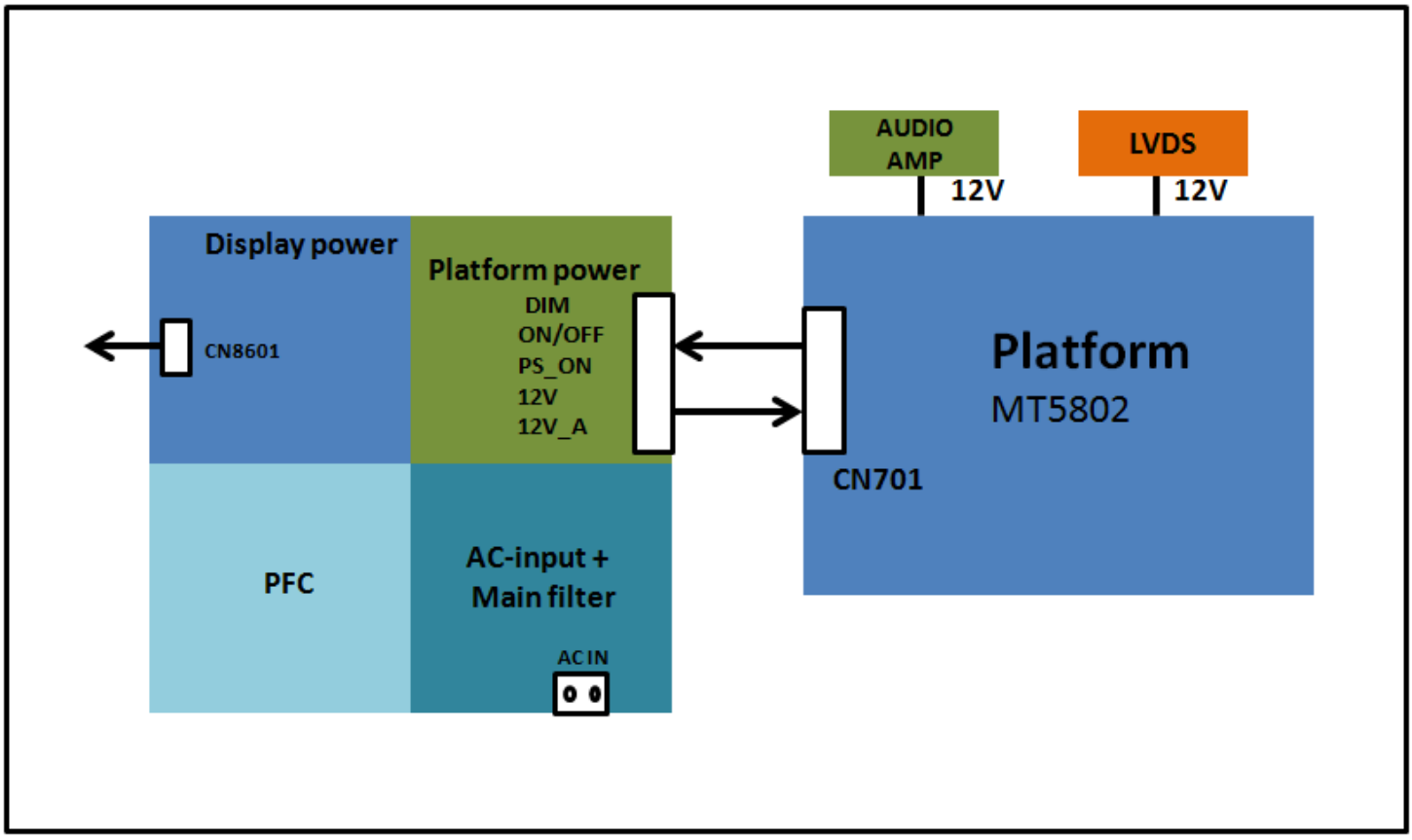
- SCALER MT5802VGEJ HSFBGA-802
- EMMC THGBMDG5D1LBAIT 4GB FBGA153
- EEPROM M24128-BRMN6TP 128k SOP-8
- AUDIO AD82588B-LG48NAY 2x15W stereo E-LQ
- TUNER EUROPE TDSY-G480D

6.1.2 Block diagram



6.2 Power Supply

Power architecture of this platform.



6.2.1 Power Supply Unit

All power supplies are a black box for Service. When defective, a new board must be ordered and the defective one must be returned, unless the main fuse of the board is broken. Always replace a defective fuse with one with the correct specifications! This part is available in the regular market.

Consult the Philips Service web portal for the order codes of the boards.

Important delta's with the platform are:

• New power architecture for LED backlight

• "Boost"-signal is now a PWM-signal + continuous variable

The control signals are:

• PS-ON

• Lamp "on/off"

• DIM (PWM) (not for PSDL)

In this manual, no detailed information is available because of design protection issues.

• +12 output (on-mode)

• +12V_audio (audio AMP power)

• Output to the display; in case of

- IPB: High voltage to the LCD panel

- PSL and PSLS (LED-driver outputs)

- PSDL (high frequent) AC-current.

6.2.2 Diversity

The diversity in power supply units is mainly determined by the diversity in displays.

The following displays can be distinguished:

• CCFL/EEFL backlight: power panel is conventional IPB

• LED backlight:

- side-view LED without scanning: PSL power panel

- side-view LED with scanning: PSLS power panel

- direct-view LED without 2D-dimming: PSL power panel

- direct-view LED with 2D-dimming: PSDL power panel.

PSL stands for **P**ower **S**upply with integrated **L**ED-drivers.

PSLS stands for a **P**ower **S**upply with integrated **L**ED-drivers with added **S**canning functionality (added microcontroller).

PSDL stands for a **P**ower **S**upply for **D**irect-view **L**ED backlight with 2D-dimming.

6.3 DC/DC Converters

The on-board DC/DC converters deliver the following voltages(depending on set execution):

• +5V-STB, permanent voltage for the Stand-by Power system and WIFI

• +3V3-SB,voltage for IR/Key board

• +12V, input from the power supply for the panel common(active mode)

• +12V, input from the power supply for LNB supply

• +1V8-EMMC, +V-EMMC-IO, voltage for EMMC when TV on

• +1V5-DDR, +VREF-A2-DQ,, +VREF-A2-CA, voltage for DDR

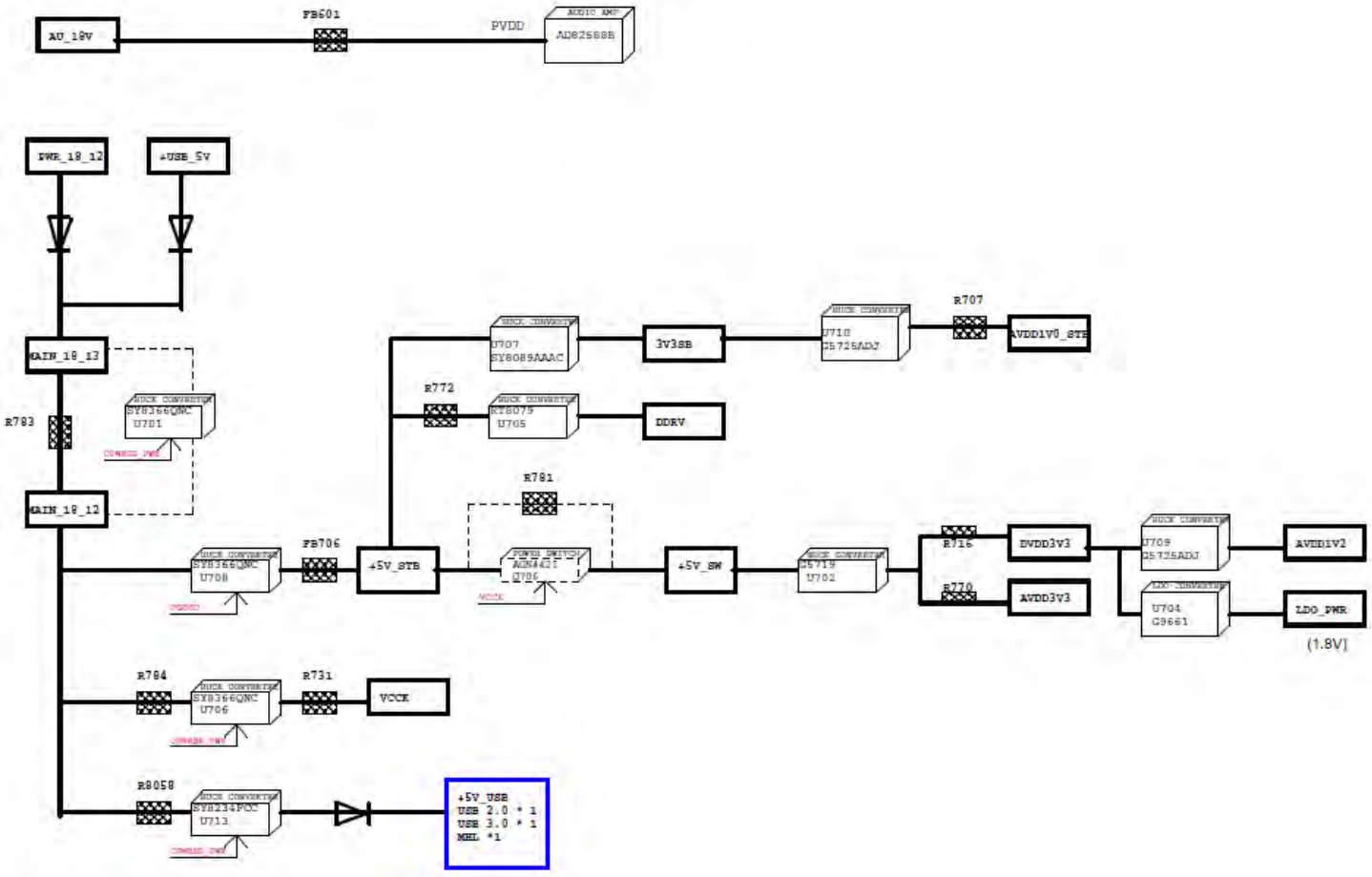
• TUNER_3V3, supply voltage for tuner

• +5V-SW, input intermediate supply voltage for USB Power

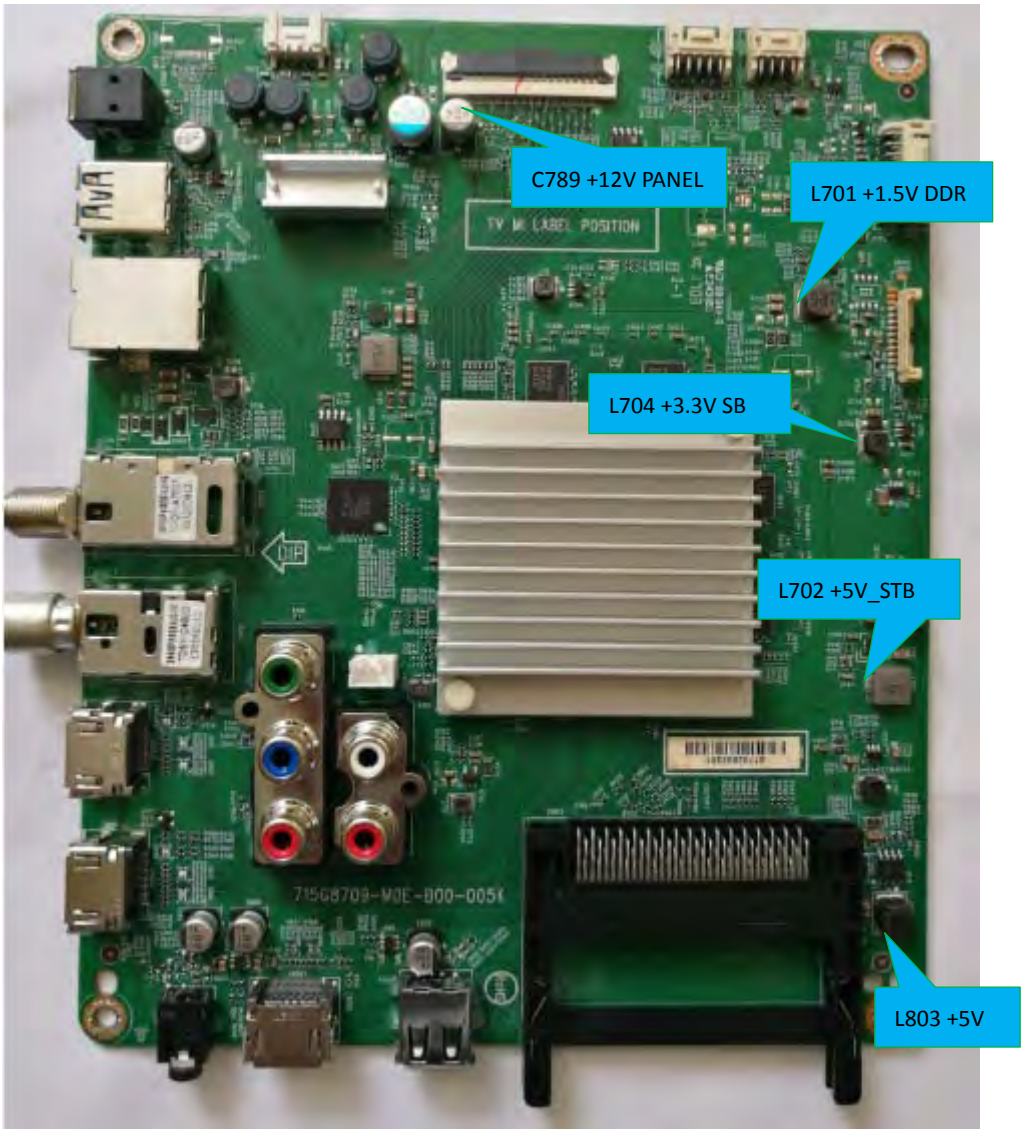
• +12V-AUDIO1 for the AUDIO AMP

• +5V-WIFI,voltage for WIFI

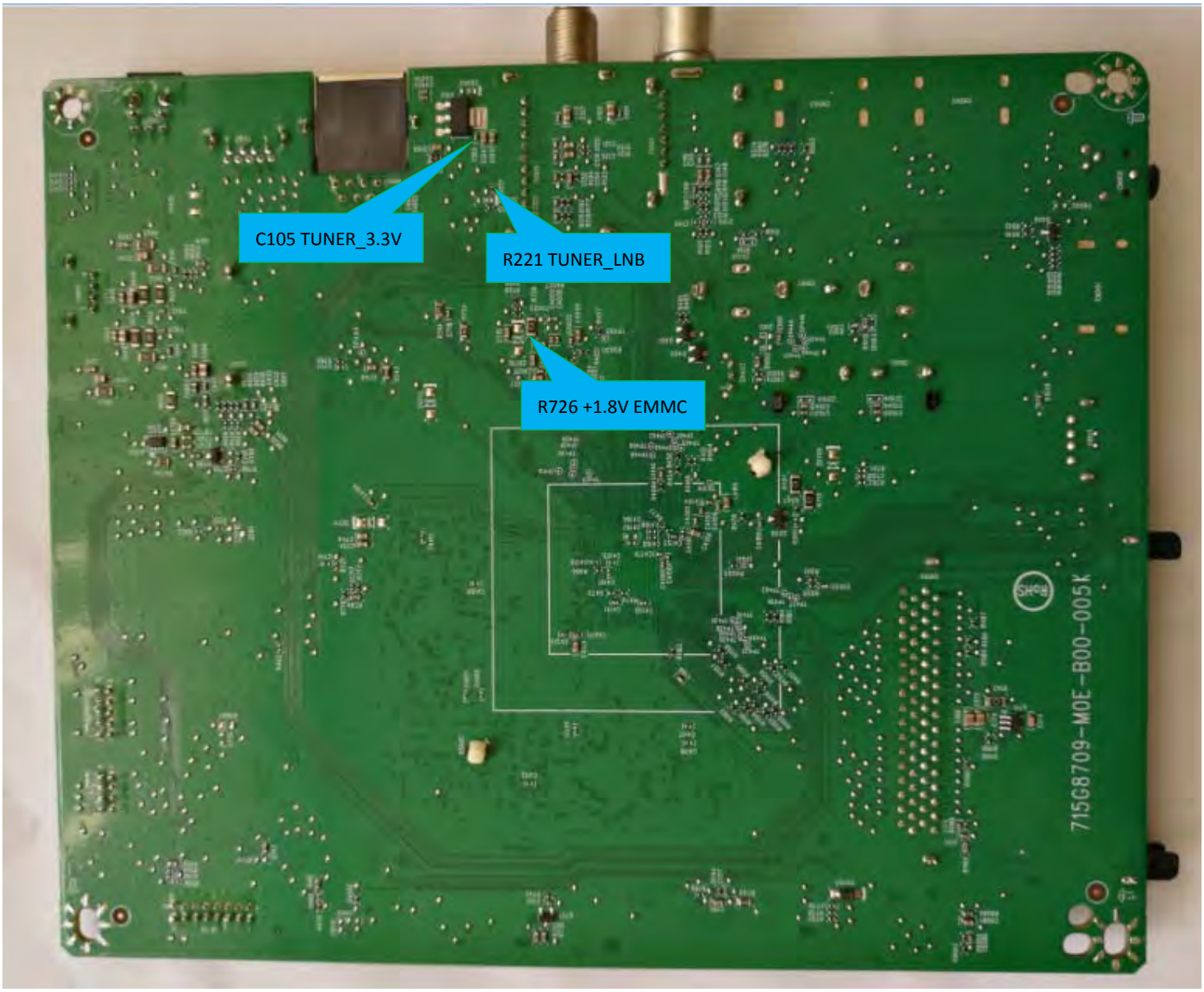
6.3.1 Power tree



6.3.2 Power layout SSB



Power SSB Top View



Power SSB Bottom View

6.4 Front-End Analogue and DVB-T/T2, DVB-C reception

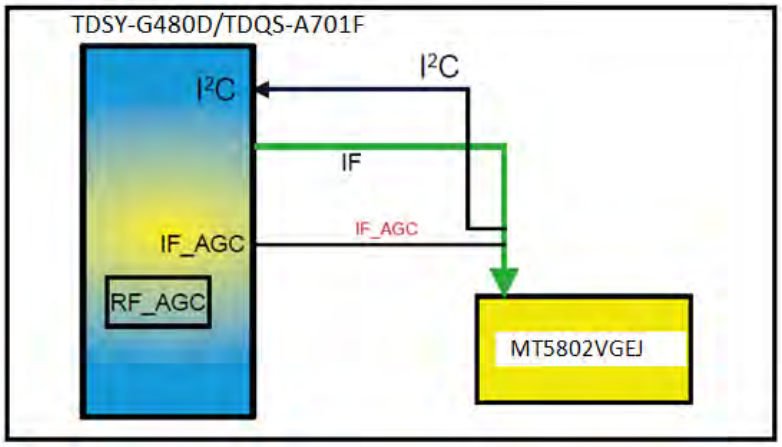
The Front-End for analogue tuner consist of the following key components:

• TUNER EUROPE TDSY-G480D

• TUNER EUROPE TDQS-A701F

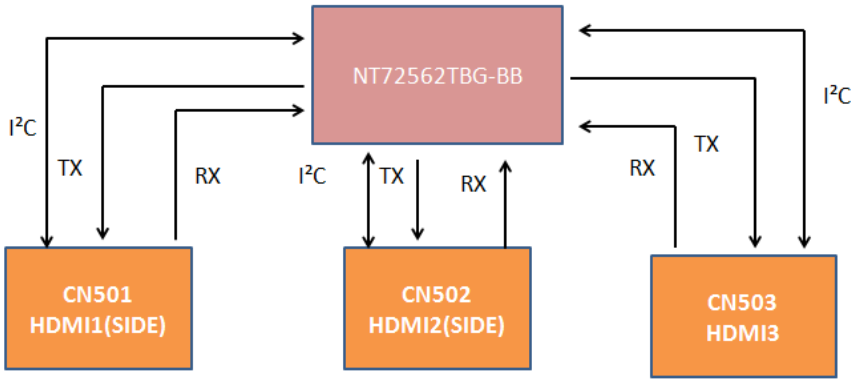
• SCALER MT5802VGEJ HSFBGA-802

Below find a block diagram of the front-end application.



6.5 HDMI

Refer to below for the application.



The following HDMI connector can be used:

• HDMI 1: HDMI input (TV digital interface support HDMI2.0) with digital audio/PC DVI input /MHL

• HDMI 2: HDMI input (TV digital interface support HDMI2.0/HDCP2.2) with digital audio/PC DVI input

• HDMI 3: HDMI input (TV digital interface support HDMI1.4) with digital audio/PC DVI input/ARC

•• +5V detection mechanism

• Stable clock detection mechanism

• MHL function only for HDMI1

• Audio return channel(ARC)

• TMDS output control

• HPD control

• CEC control

6.6 Video and Audio Processing - MT5802VGEJ

The MT5802VGEJ is the main audio and video processor (or System-on-Chip) for this platform. It has the following features:

• Worldwide multi-standard analog TV demodulator

• DVB-T/DVB-T2/DVB-S/DVB-S2/DVB-S2X/DVB-C/DVB-C2 demodulators

• UHD@60Hz direct drive

• Powerful CPU core

• 3D graphic support OpenGL ES 1.1/2.0

• A transport de-multiplexer

• A muti-standard video decoder (including VP9)

• Rich format audio codec

• H.264 encoder

• HDMI 2.0 receiver with 3D support

• MHL 2.0 & Standby Charging

• 2D/3D converter

• Ethernet MAC+PHY

• ME/MC Engine

• Local dimming (LED backlight)

• Two-link LVDS, V-by-one

The MediaTek MT5802VGEJ family consists of a DTV front-end demodulator, a backend decoder and a TV controller and offers high integration for advanced applications. It integrates a transport de-multiplexer, a high definition video decoder, an audio decoder, a two-link LVDS transmitter, a V-by-One transmitter, and a NTSC/PAL/SECAM TV decoder with a 3D comb filter (NTSC/PAL). The MT5802VGEJ enables consumer electronics manufacturers to build high quality, low cost and feature-rich DTV.

World-Leading Audio/Video Technology: The MT5802VGEJ supports Full-HD MPEG1/2/4/h.264/DiviX/VC1/RM/AVS/VP6/VP8 and UHD H.264/AVC, H.265/HEVC, VP9 video decoder standards, and JPEG. The MT5802VGEJ also supports MediaTek MDDiTM de-interlace solution which can reach very smooth picture quality for motions. A 3D comb filter added to the TV decoder recovers great details for still pictures. The special color processing technology provides a natural, deep colors and true studio quality video. Moreover, the MT5802VGEJ family has built-in high resolution and high-quality audio codec.

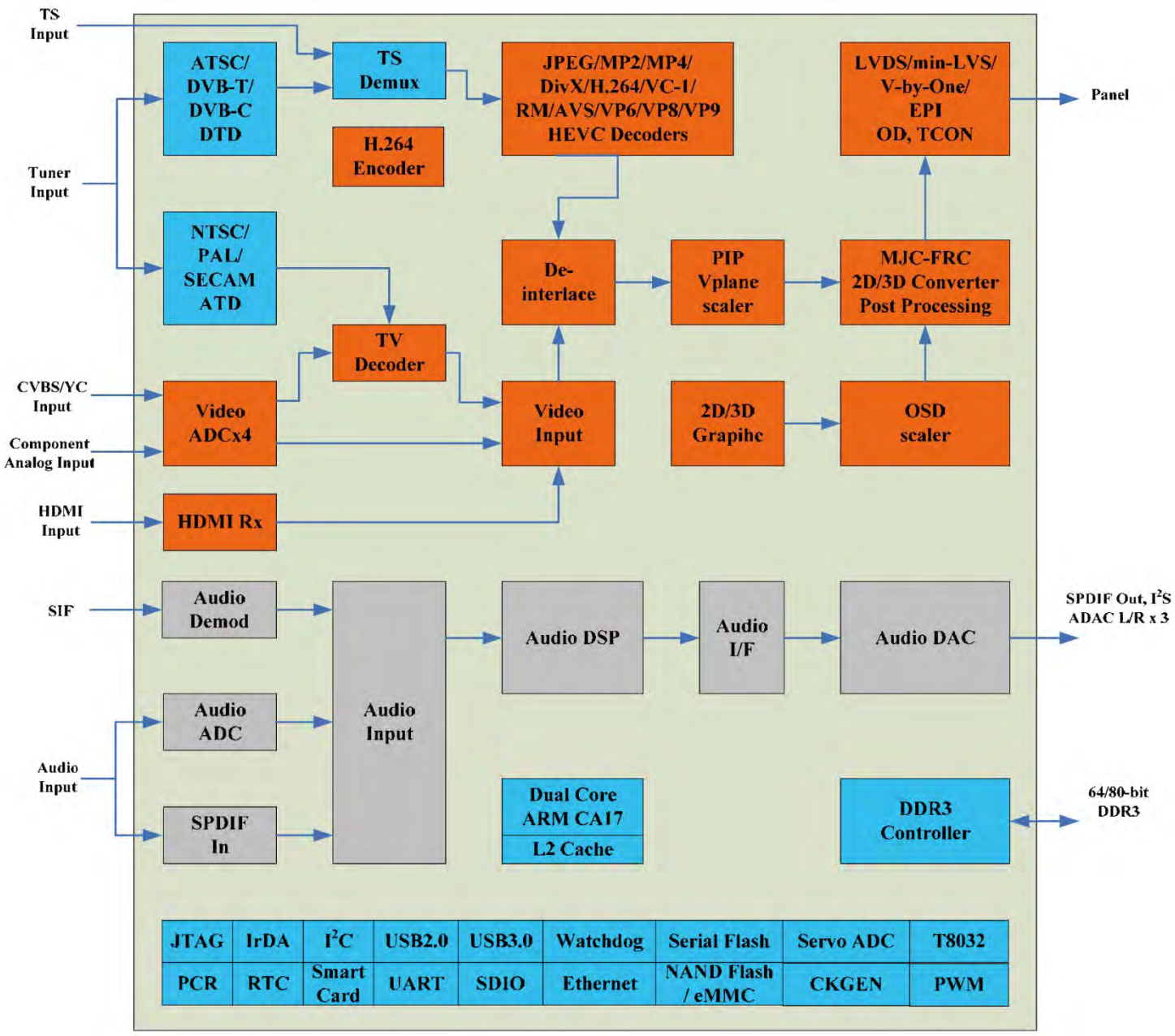
Rich Features for High Value Products: The MT5802VGEJ family enables true single-chip experience. It integrates high-quality HDMI2.0, two-link LVDS, V-by-One, USB2.0/3.0 receiver, Ethernet MAC+PHY, Quad core CPU and 512K bytes L2 cache, OpenGL ES 1.1/2.0，OpenVG 1.1, DirectX DX11 compliant 3D graphic engine, and DVB-T/DVB-T2/DVB-S/DVB-S2/DVB-S2X/DVB-C/DVB-C2 demodulators.

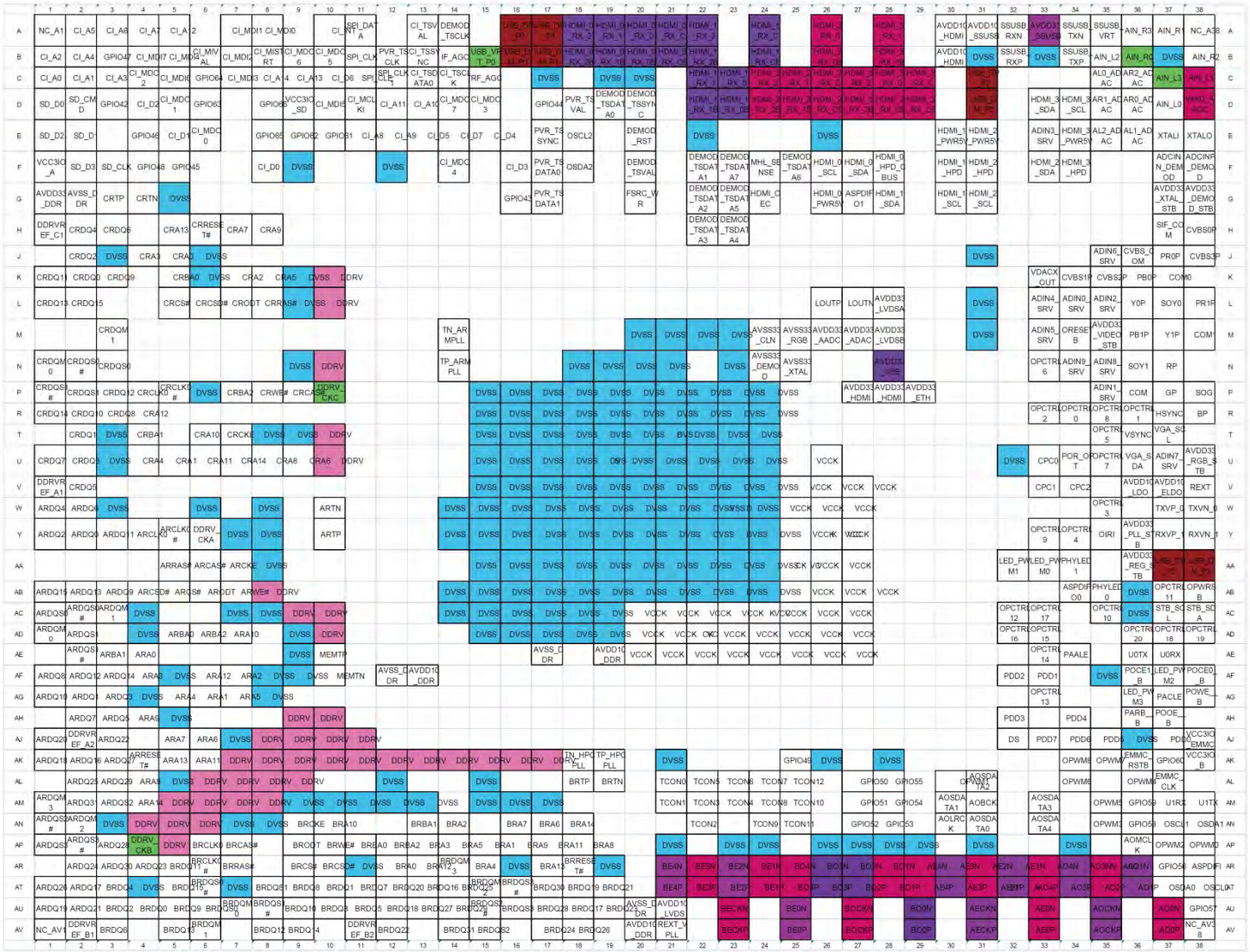
All New UHD@60Hz Experience: The MT5802VGEJ family provides consumers with UHD 60Hz direct drive. And Supports ME/MC Frame rate conversion with data rate 3840x2160p@30Hz up to 3840x2160p@60Hz or 3840x2160p@24Hz up to 3840x2160p@48Hz.

WW Common Platform Capability: The MT5802VGEJ family supports DVB-T, DVB-T2, DVB-S, DVB-S2, DVB-S2X, DVB-C, DVB-C2 demodulation functions. It reserves transport stream inputs for external demodulators for other countries or areas. TV maker can easily port the same UI to worldwide TV models. First-class adjacent and co-channel rejection capability grants excellent reception. Professional error-concealment provides stable, smooth and mosaic-free video quality.

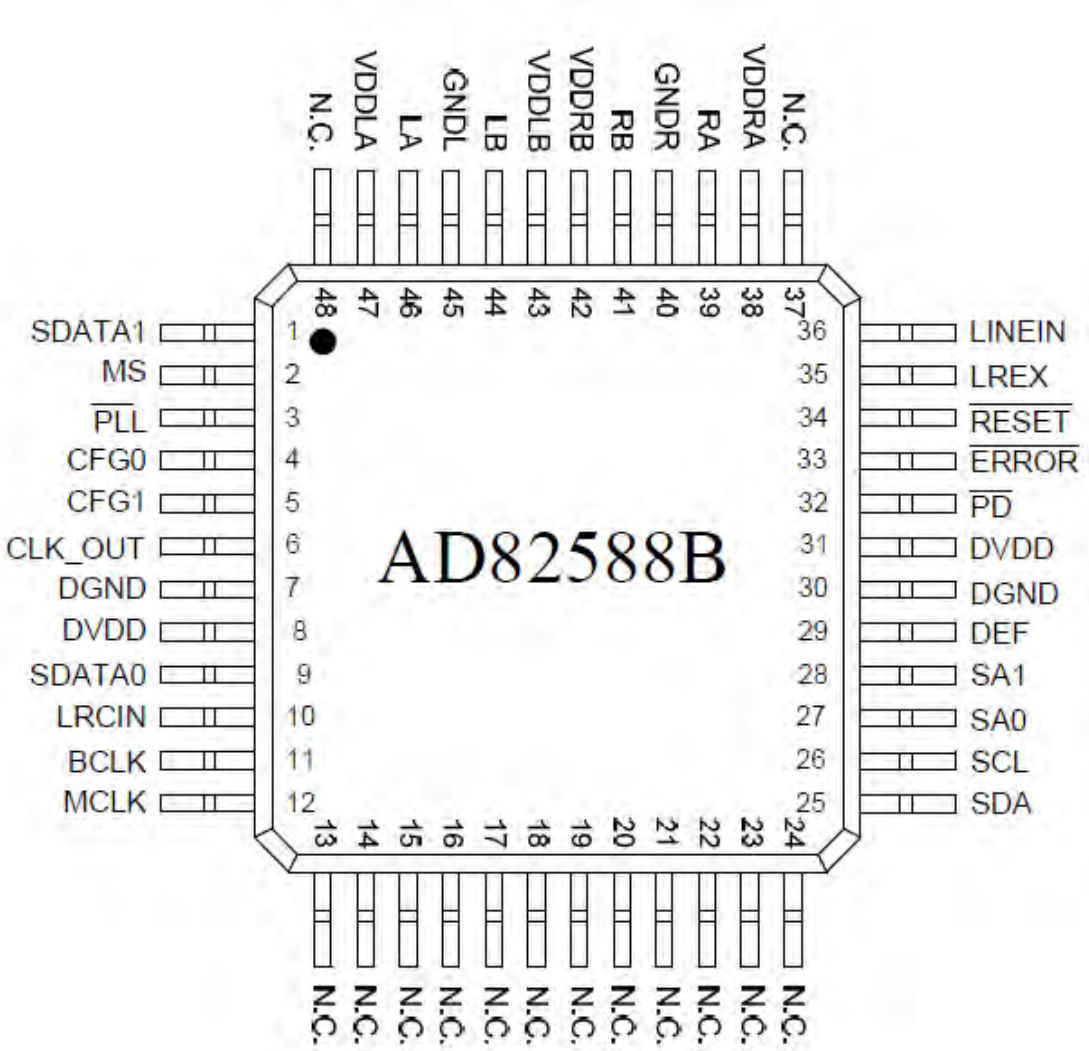
7. IC Data Sheets

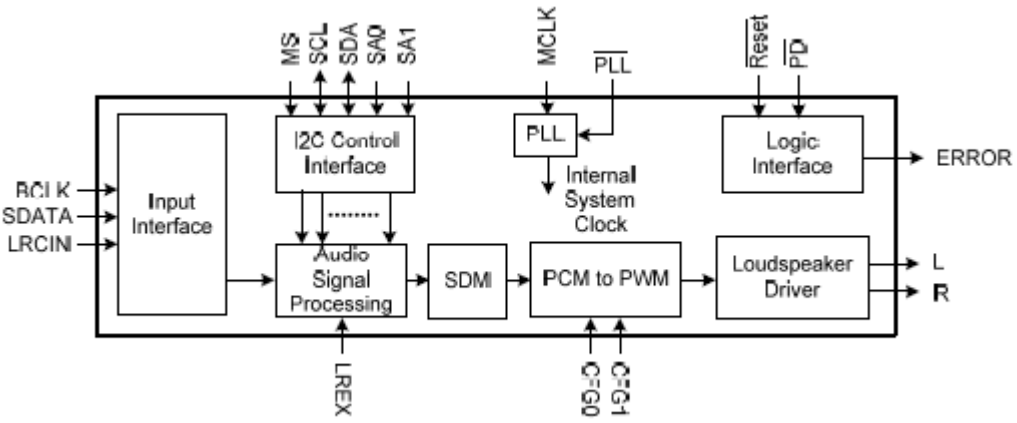
7.1 MT5802VGEJ (IC U401)





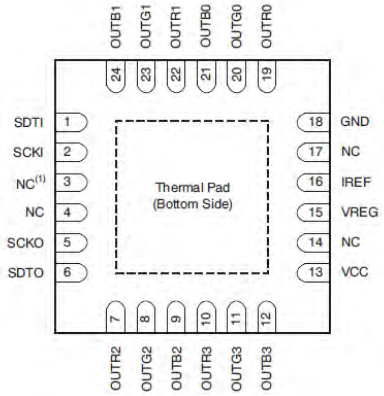
7.2 AD82588B-LG48NAY (IC U601)



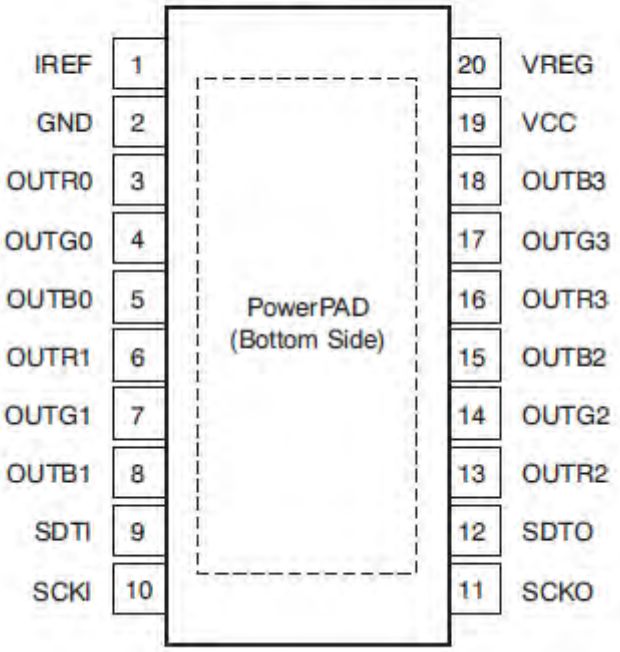


7.3 TLC5971RGER (IC U002)

RGE PACKAGE
QFN-24
(TOP VIEW)



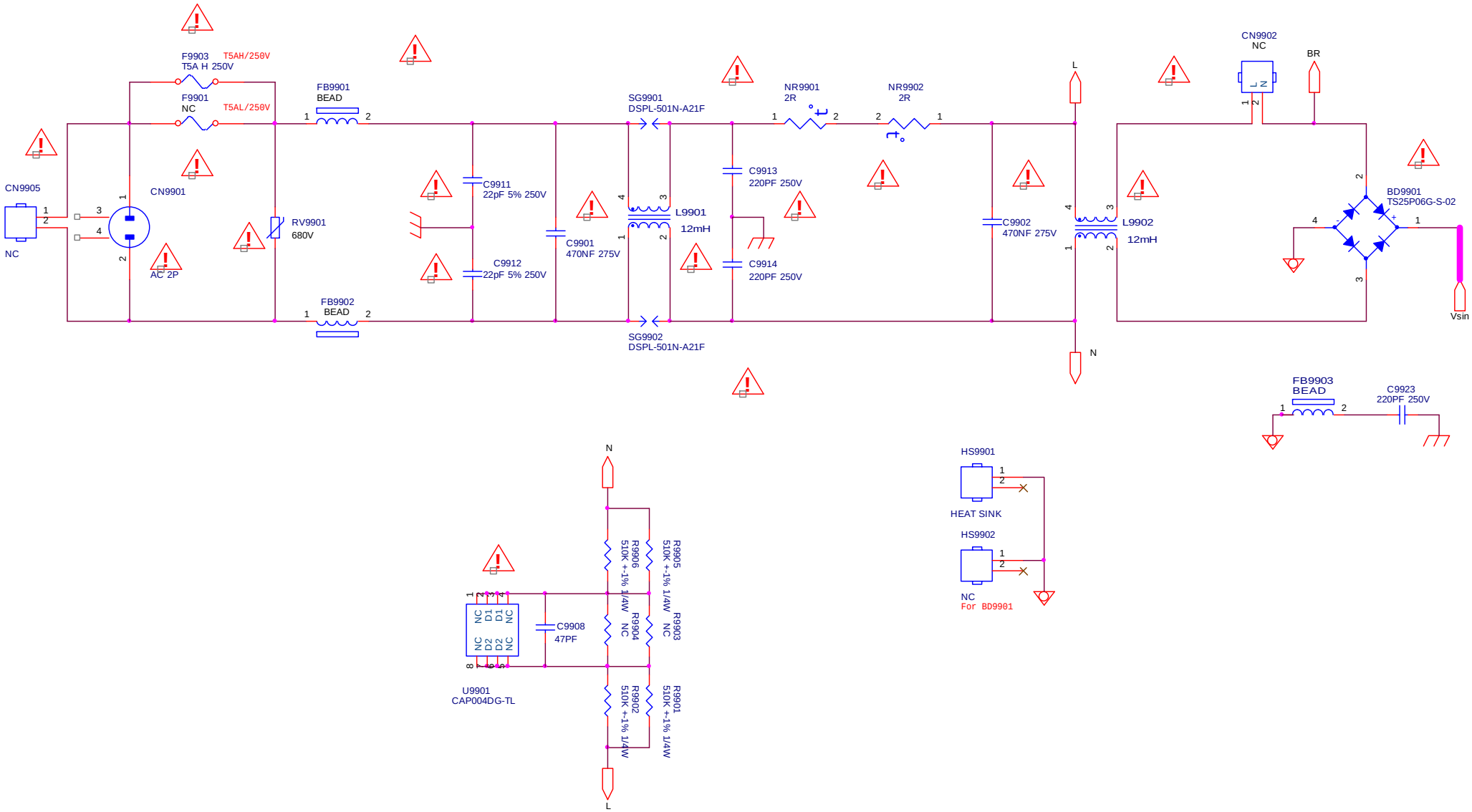
PWP PACKAGE
HTSSOP-20 PowerPAD
(TOP VIEW)



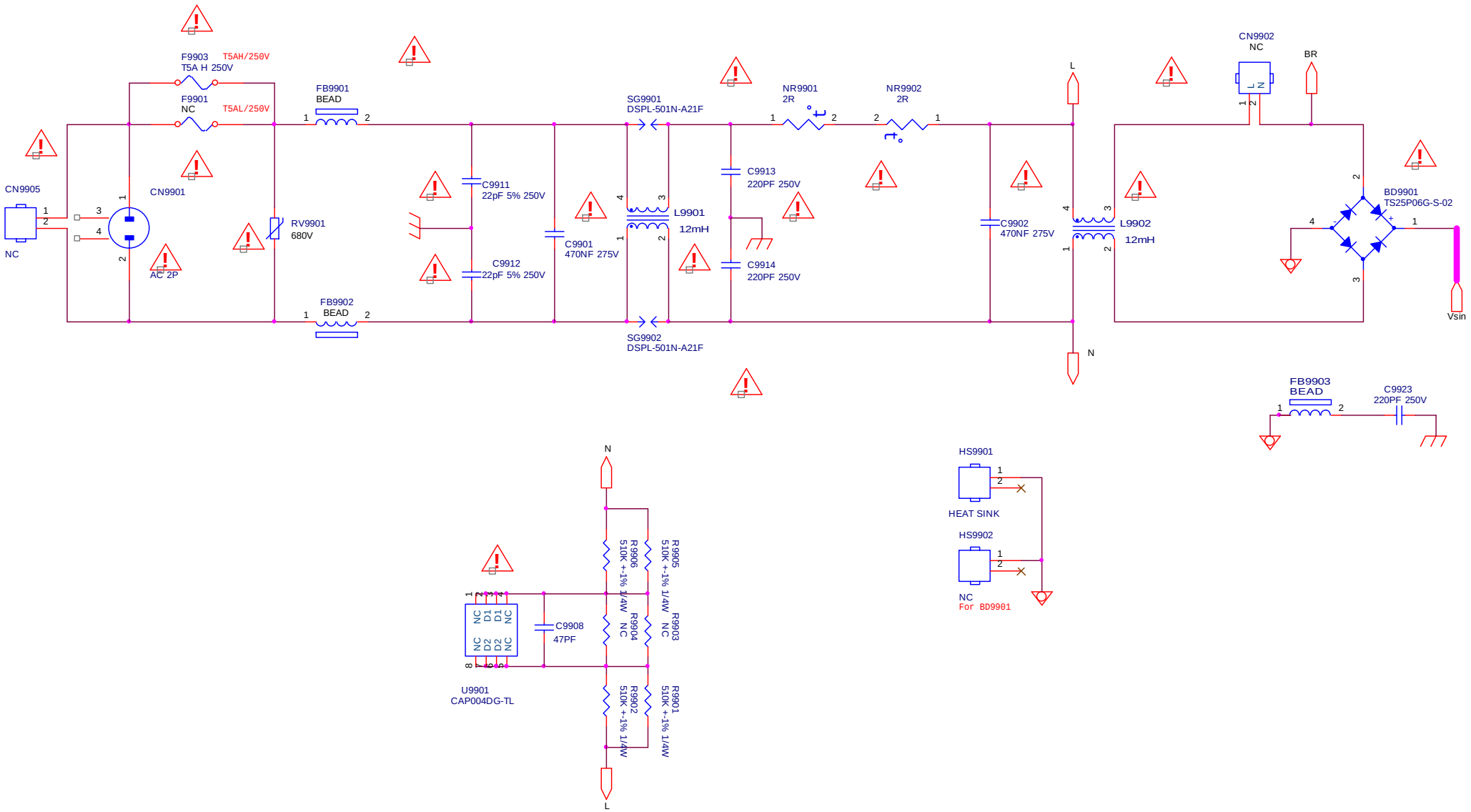
8.Circuit Diagrams

8.1 A 715G8620 PSU(For 43” 6162/6262 Series)

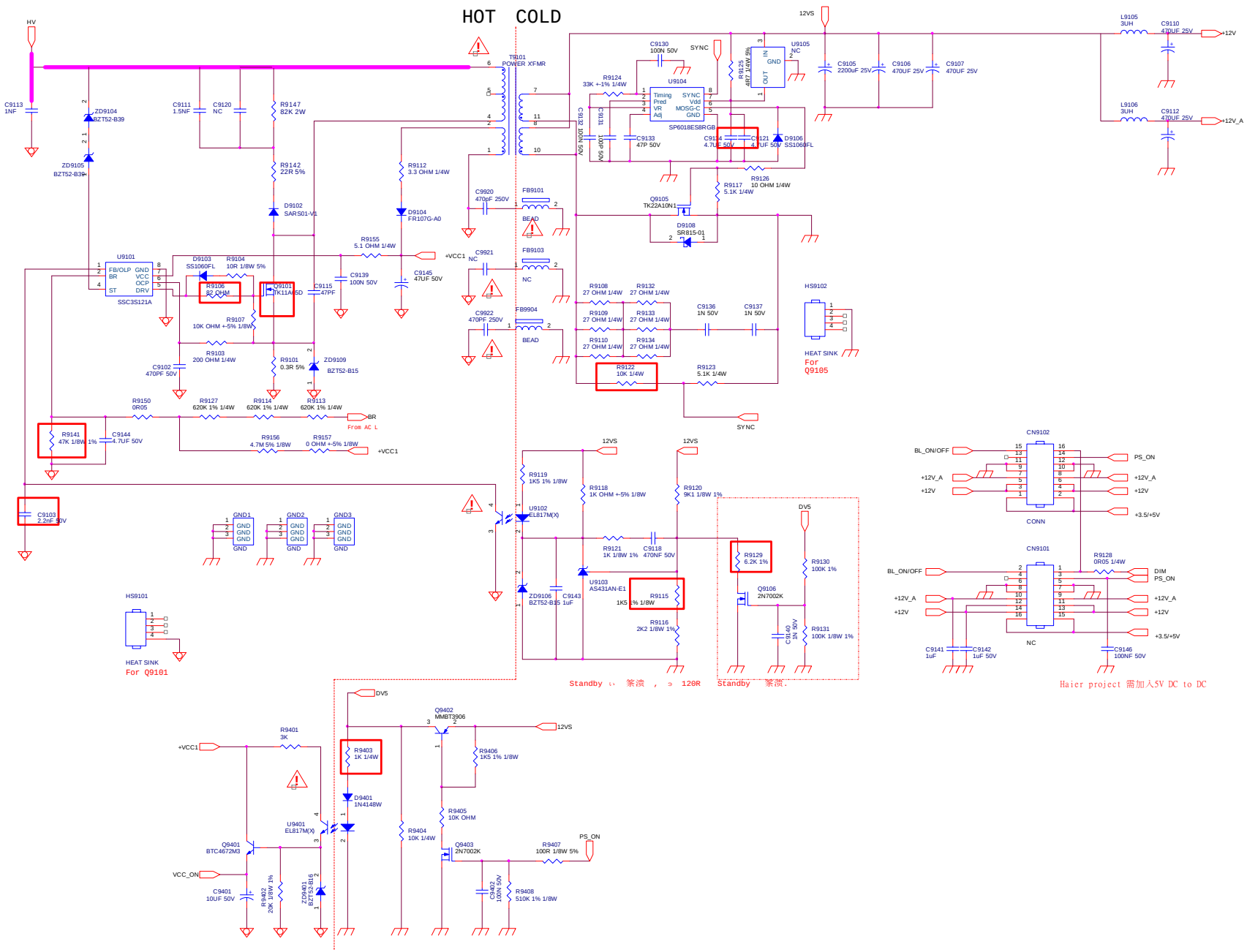
8-1-1 AC Input



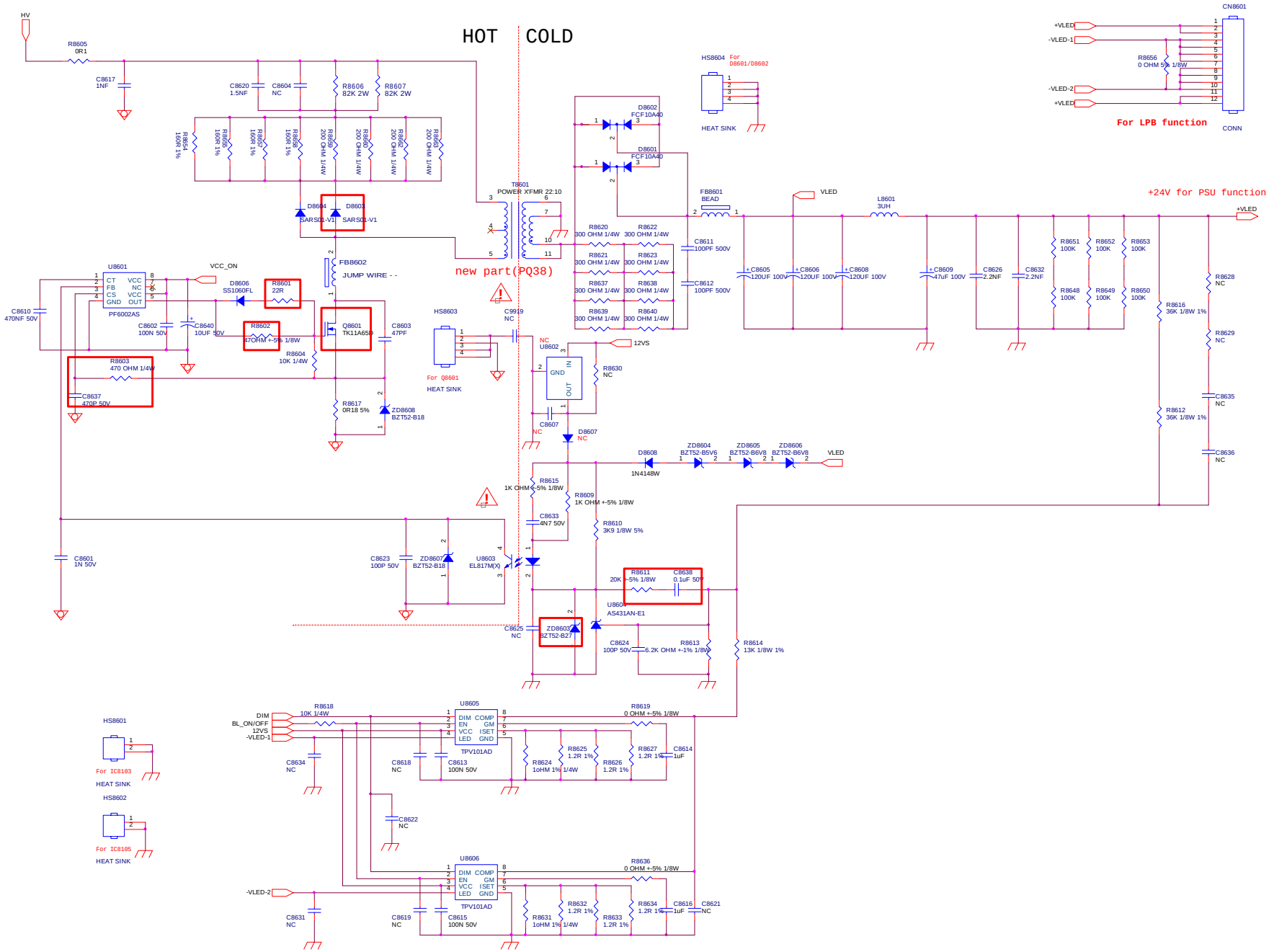
8-1-2 PFC


F9903
T5A H 250V
T5AH/250V
F9901
NC
T5AL/250V
FB9901
BEAD
SG9901
DSPL-501N-A21F
NR9901
2R
NR9902
2R
L
CN9902
NC
BR
CN9905
NC
CN9901
AC 2P
RV9901
680V
C9911
22pF 5% 250V
C9912
22pF 5% 250V
C9901
470NF 275V
L9901
12mH
C9913
220PF 250V
C9914
220PF 250V
C9902
470NF 275V
L9902
12mH
BD9901
TS25P06G-S-02
Vsin
FB9902
BEAD
SG9902
DSPL-501N-A21F
N
FB9903
BEAD
C9923
220PF 250V
HS9901
HEAT SINK
HS9902
NC
For BD9901
U9901
CAP004DG-TL
C9908
47PF
R9906
510K +-1% 1/4W
R9905
510K +-1% 1/4W
R9904
NC
R9903
NC
R9902
510K +-1% 1/4W
R9901
510K +-1% 1/4W

8-1-3 Main power

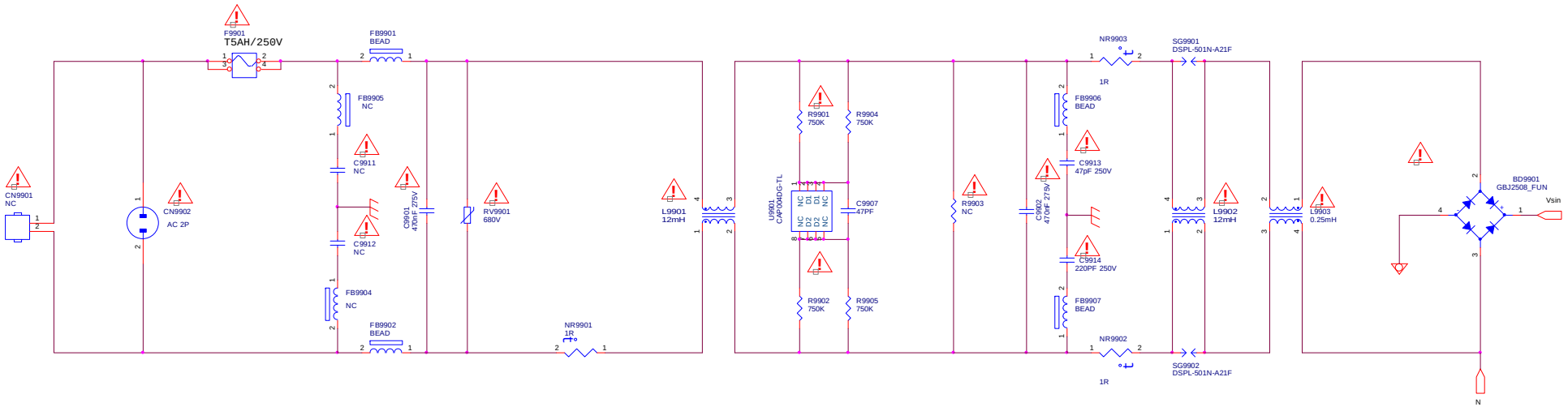


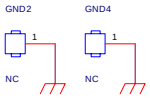
8-1-4 LED Driver

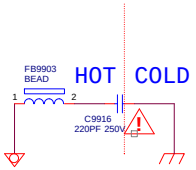


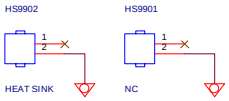
8.2 A 715G8672 PSU(For 49”/ 55 ” 6162 / 6262 Series)

8-2-1 AC Input

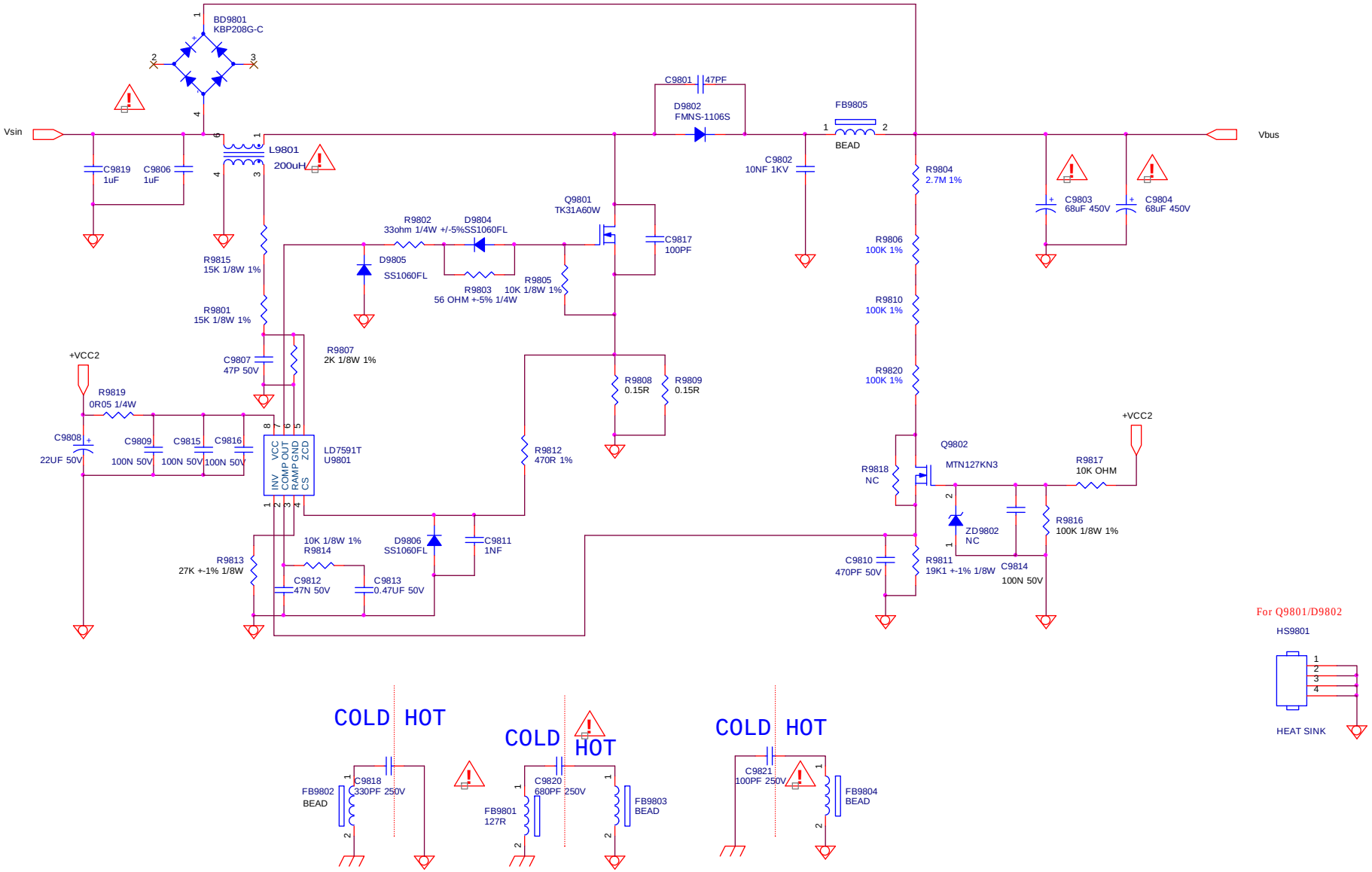




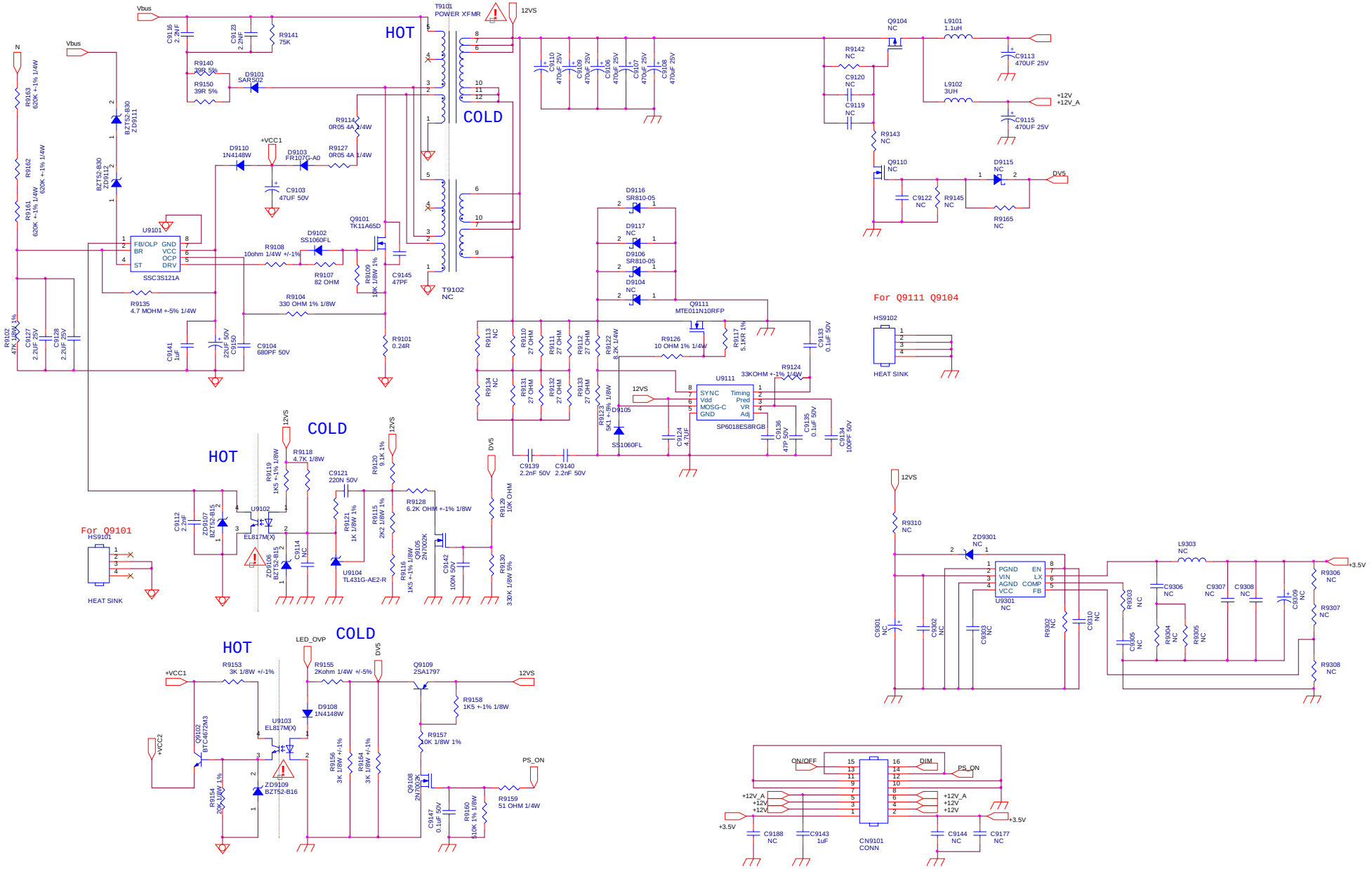




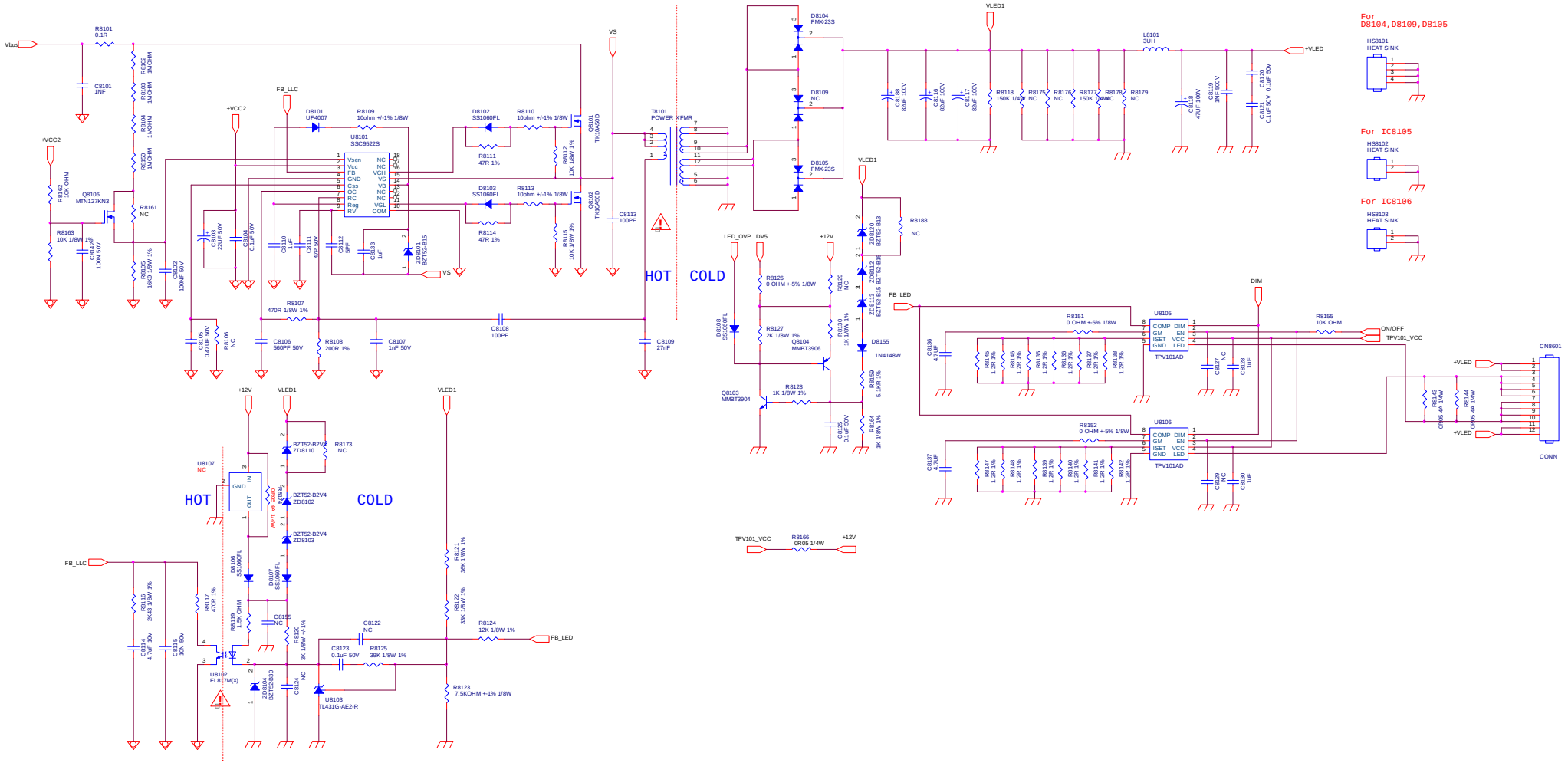
8-2-2 PFC LD7591T



8-2-3 Main power SSC3S121A

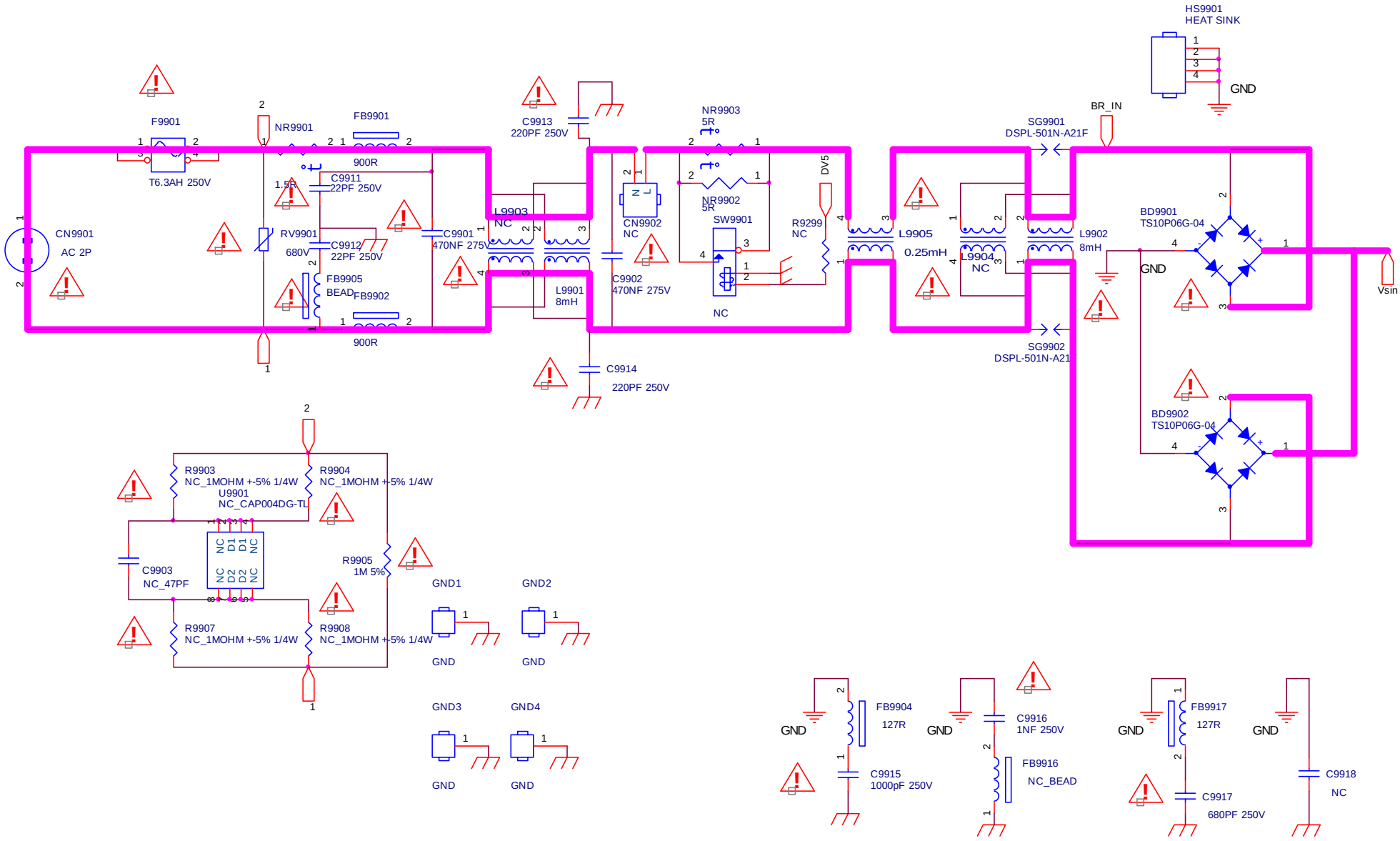


8-2-4 LED Driver SSC9522S

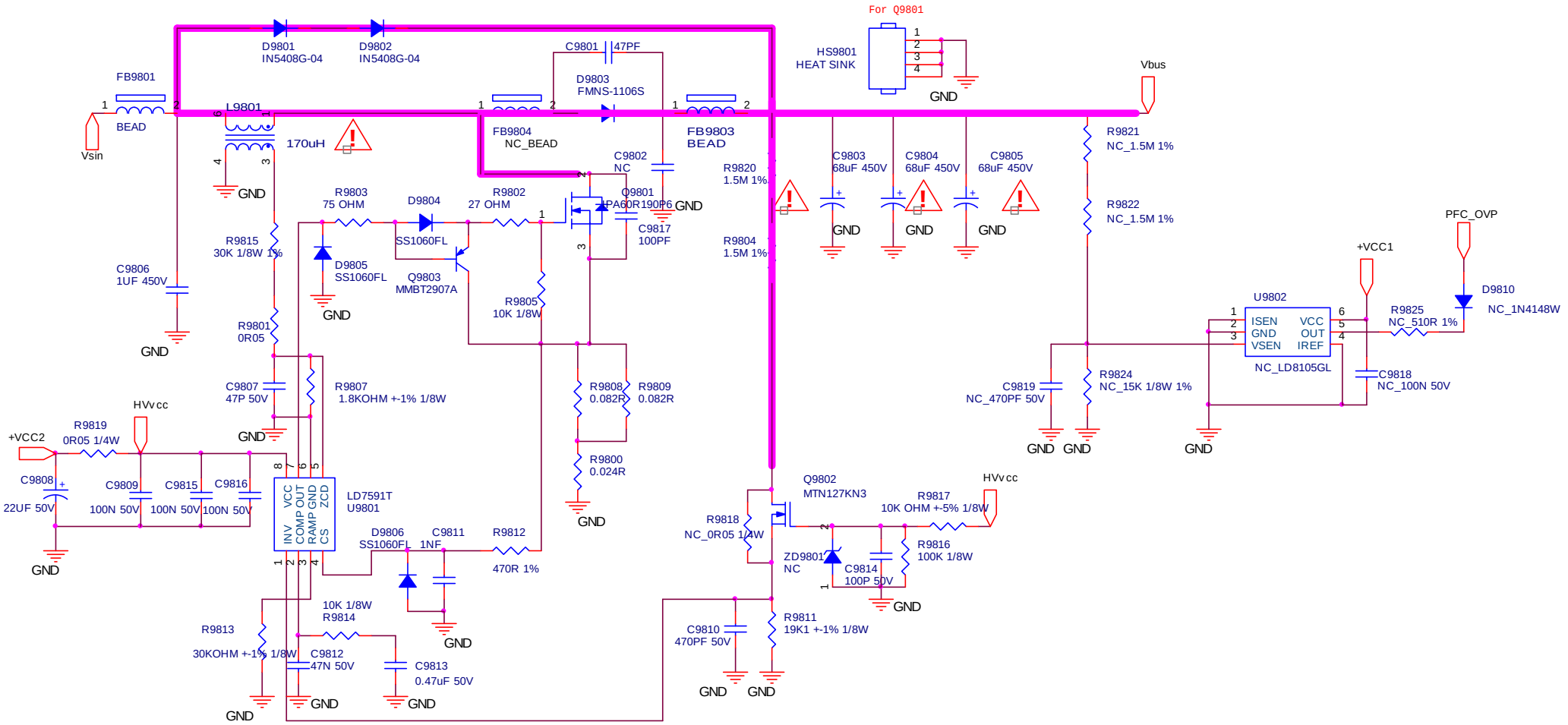


8.3 A 715G8682 PSU(For 65” 6162/6262 Series)

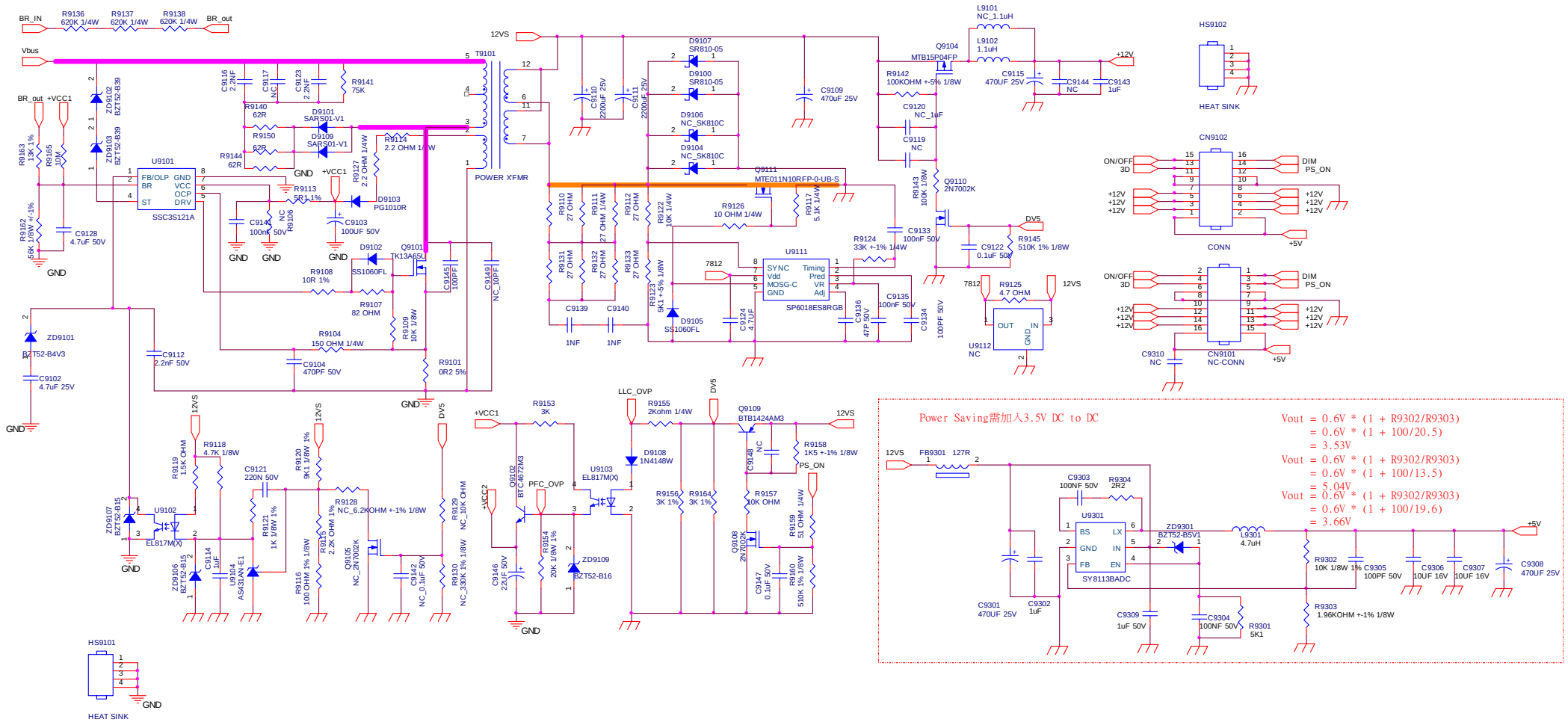
8-3-1 AC Input



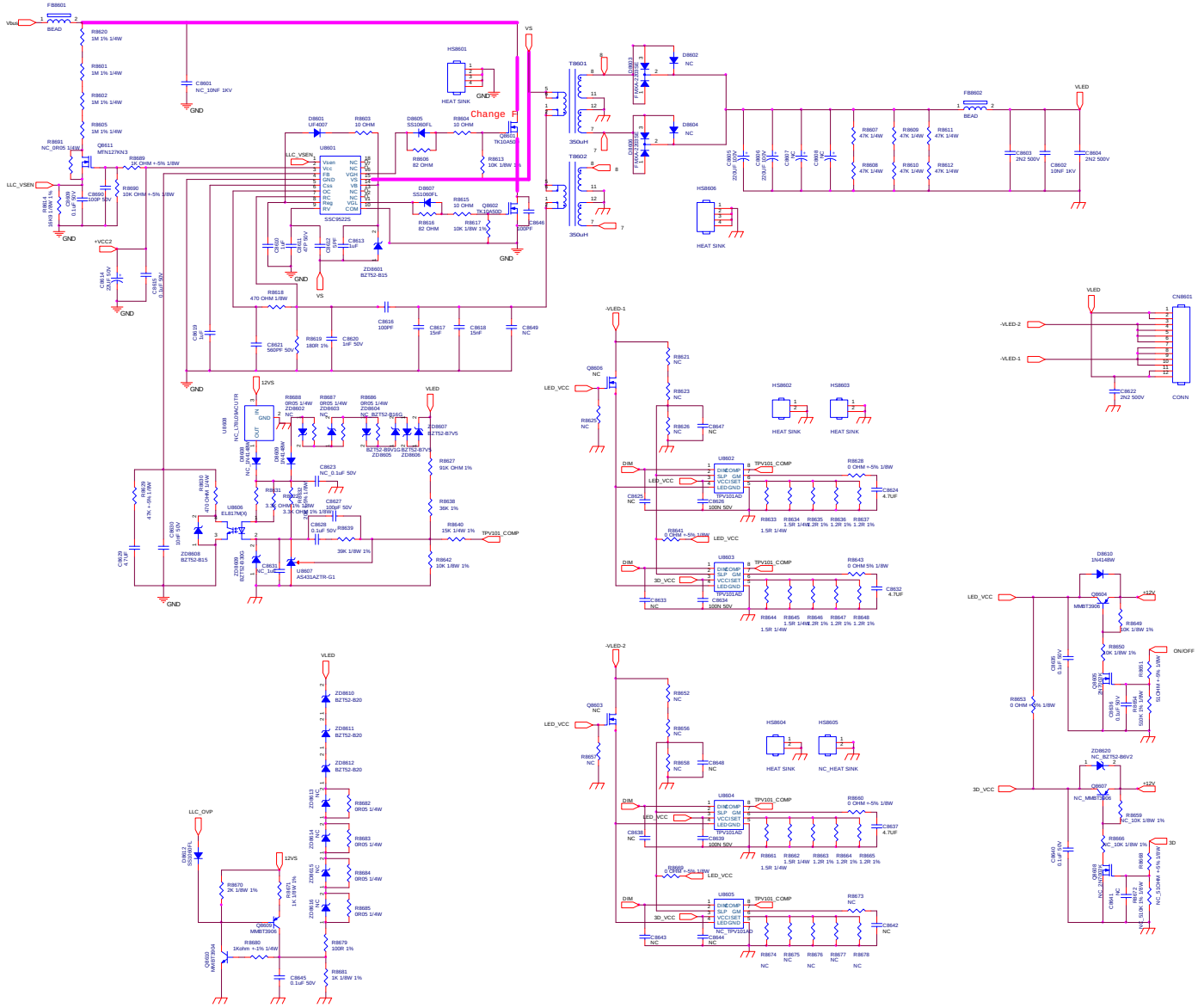
8-3-2 PFC


For Q9801
D9801
IN5408G-04
D9802
IN5408G-04
C9801 47PF
D9803
FMNS-1106S
HS9801
HEAT SINK
GND
Vbus
FB9801
BEAD
Vsin
L9801
170uH
FB9804
NC_BEAD
FB9803
BEAD
C9802
NC
R9820
1.5M 1%
R9804
1.5M 1%
C9803
68uF 450V
C9804
68uF 450V
C9805
68uF 450V
R9821
NC_1.5M 1%
R9822
NC_1.5M 1%
R9803
75 OHM
D9804
SS1060FL
R9802
27 OHM
Q9801
IPA60R190P6
C9817
100PF
R9815
30K 1/8W 1%
D9805
SS1060FL
Q9803
MMBT2907A
R9805
10K 1/8W
C9806
1UF 450V
R9801
0R05
C9807
47P 50V
R9807
1.8KOHM +-1% 1/8W
R9808
0.082R
R9809
0.082R
R9800
0.024R
HVvcc
+VCC2
R9819
0R05 1/4W
C9808
22UF 50V
C9809
100N 50V
C9815
100N 50V
C9816
100N 50V
LD7591T
U9801
INV
VCC
COMP
OUT
RAMP
GND
ZCD
CS
D9806
SS1060FL
C9811
1NF
R9812
470R 1%
R9813
30KOHM +-1% 1/8W
10K 1/8W
R9814
C9812
47N 50V
C9813
0.47uF 50V
Q9802
MTN127KN3
R9818
NC_0R05 1/4W
R9817
10K OHM +-5% 1/8W
ZD9801
NC
C9814
100P 50V
R9816
100K 1/8W
C9810
470PF 50V
R9811
19K1 +-1% 1/8W
U9802
ISEN
GND
VSEN
VCC
OUT
IREF
NC_LD8105GL
+VCC1
PFC_OVP
D9810
NC_1N4148W
R9825
NC_510R 1%
C9818
NC_100N 50V
C9819
NC_470PF 50V
R9824
NC_15K 1/8W 1%

8-3-3 Main Power



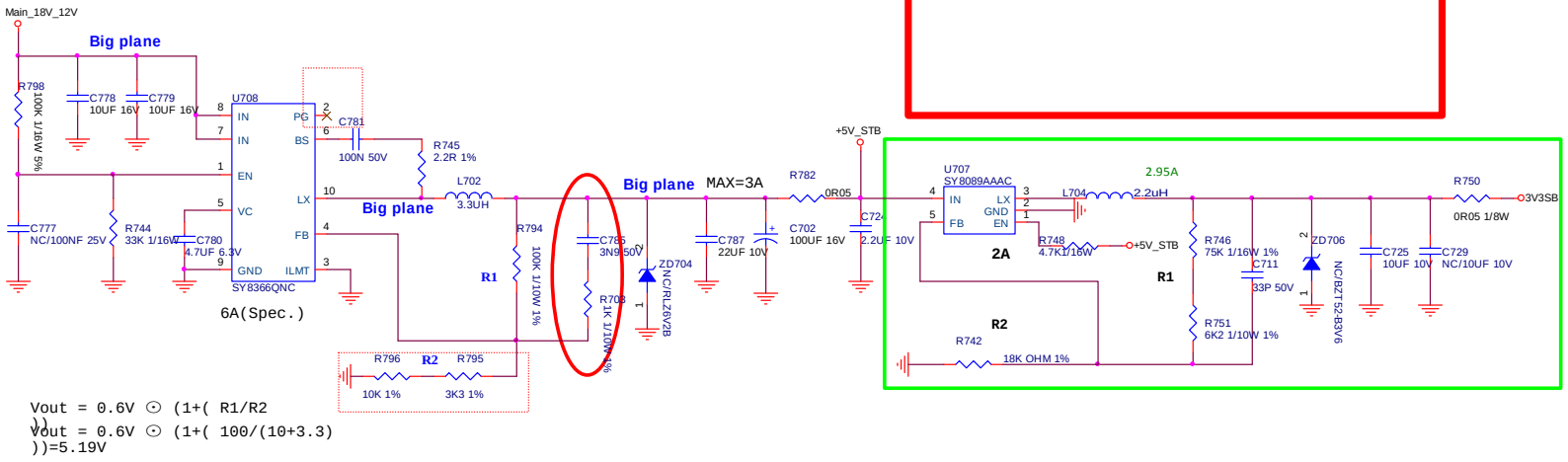
8-3-4 LLC

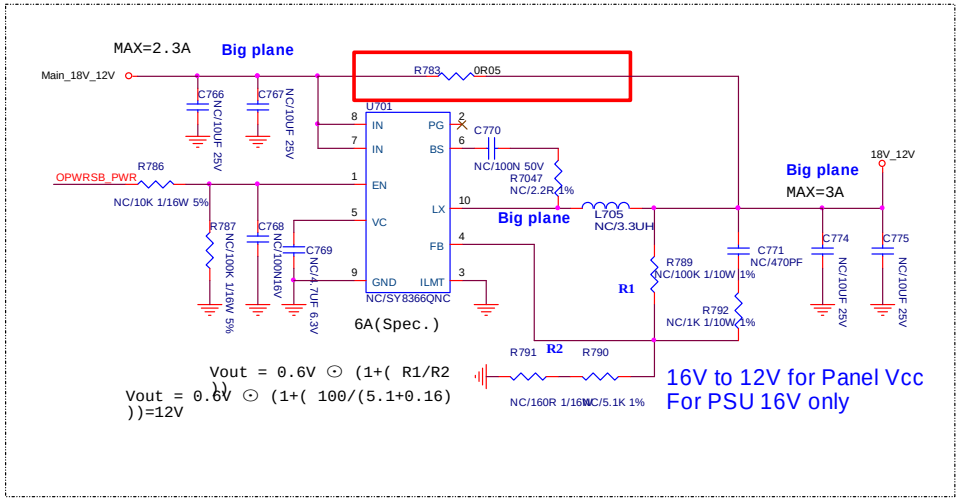

Change F
LLC_VSEN
+VCC2
12VS
VLED
-VLED-1
-VLED-2
LED_VCC
3D_VCC
DIM
ON/OFF
LLC_OVP
HEAT SINK
GND
VS

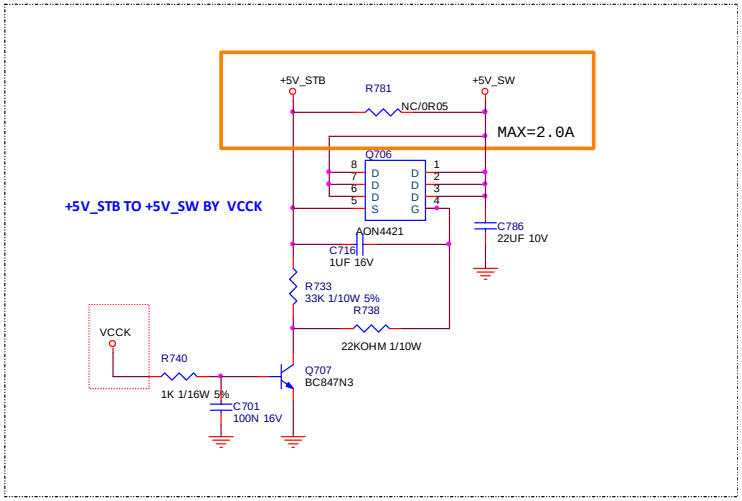
8.4 B 715G8709SSB

8-4-1POWER

2K17 MT5802 platform

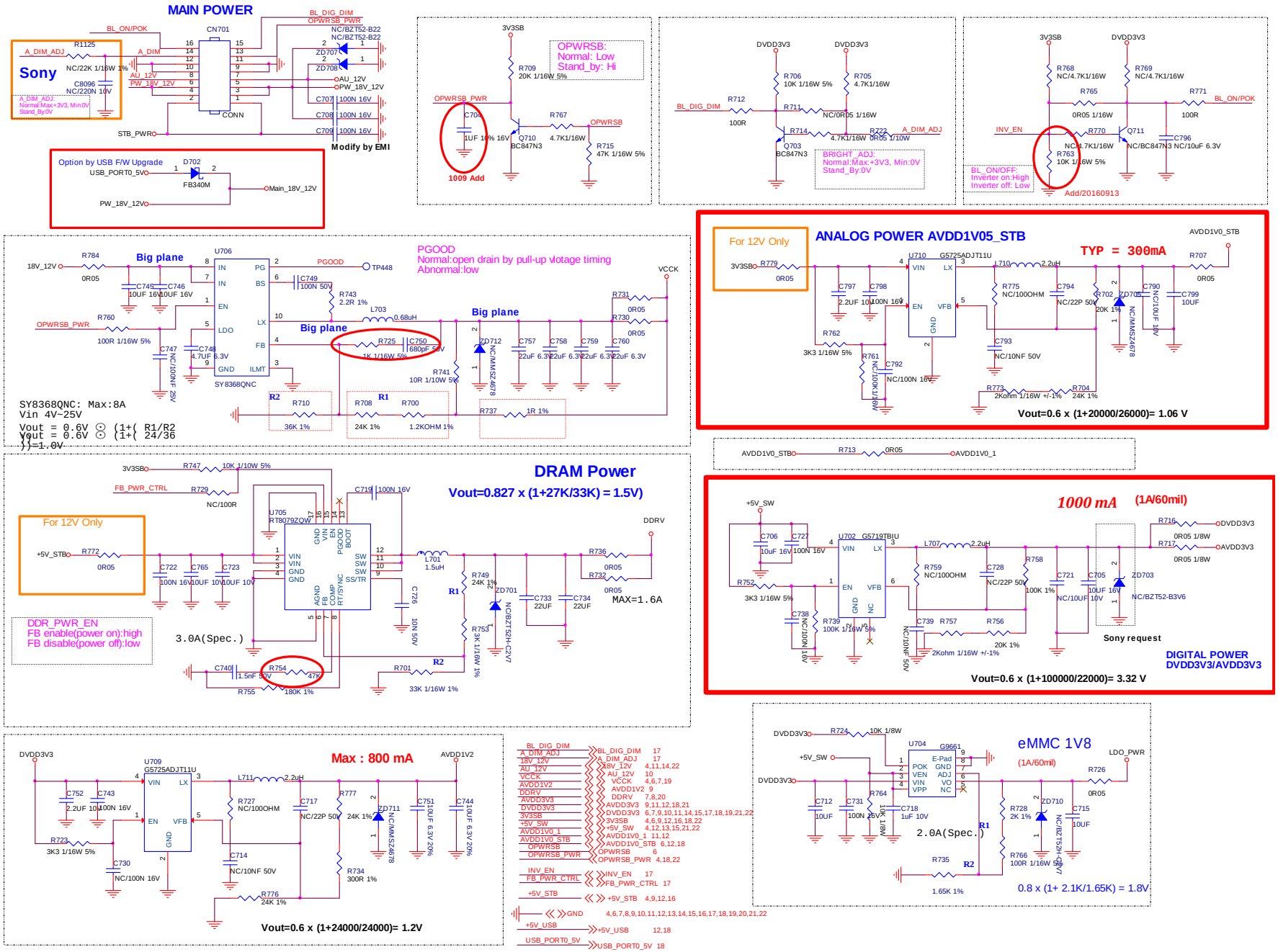




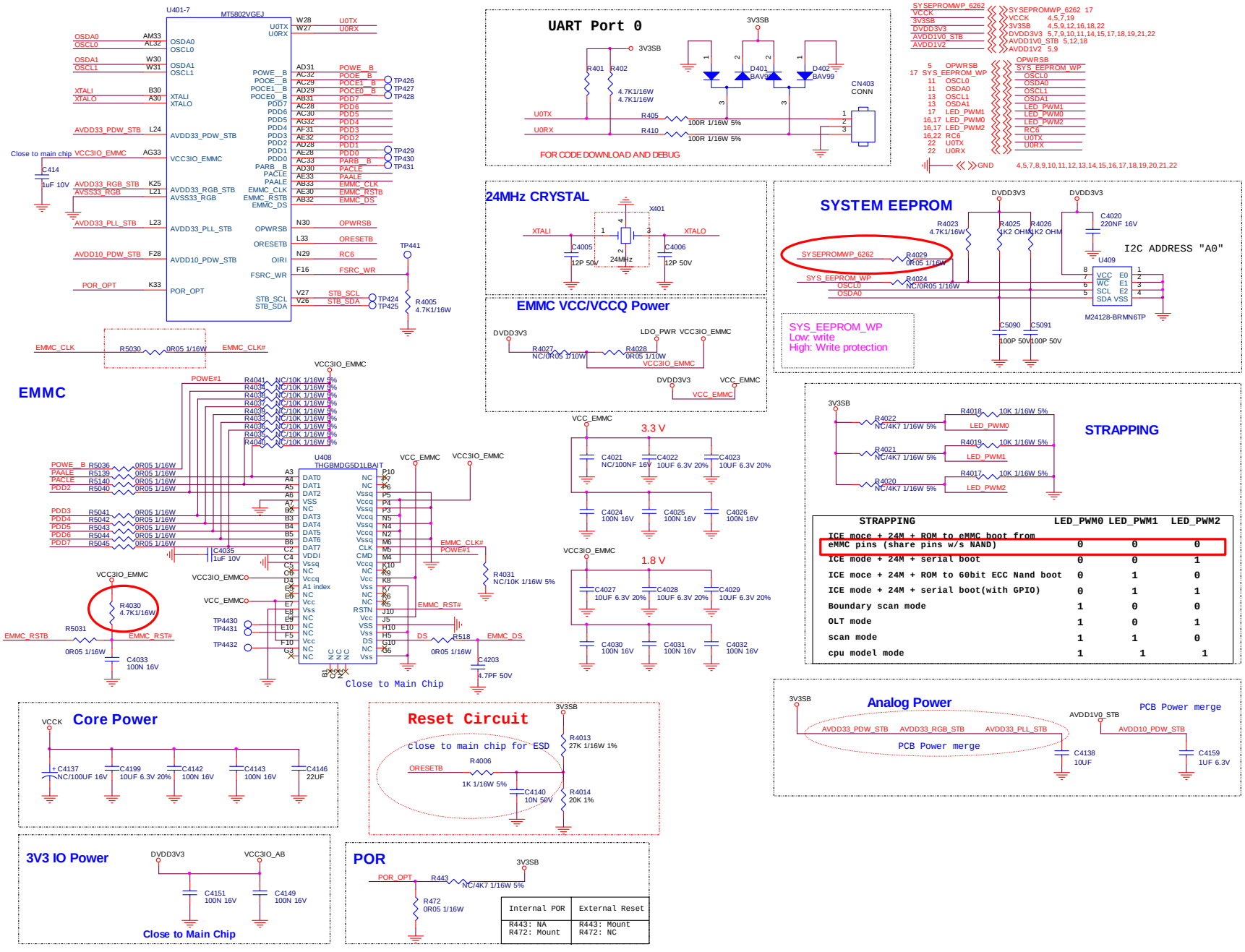


18V_12V	18V_12V	5,11,14,22
+5V_STB	+5V_STB	5,9,12,16
VCCK	VCCK	5,6,7,19
DDRV	DDRV	5,7,8,20
DVDD3V3	DVDD3V3	5,6,7,9,10,11,14,15,17,18,19,21,22
3V3SB	3V3SB	5,6,9,12,16,18,22
+5V_SW	+5V_SW	5,12,13,15,21,22
AVDD1V0_1	AVDD1V0_1	5,11,12
AVDD1V0_STB	AVDD1V0_STB	5,6,12,18
OPWRSB	OPWRSB	5,6
OPWRSB_PWR	OPWRSB_PWR	5,18,22
GND	GND	5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22

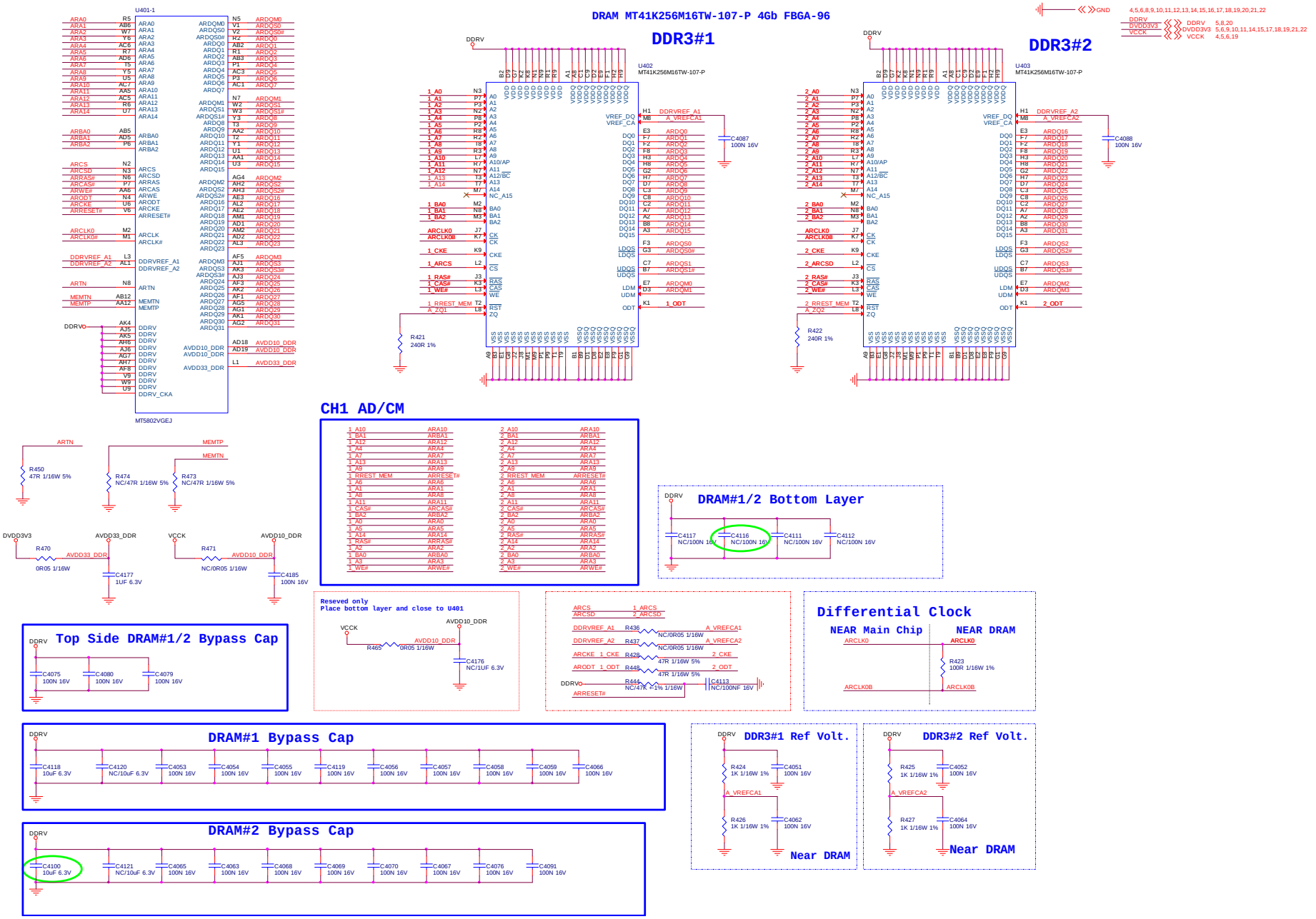
8-4-2 System Power



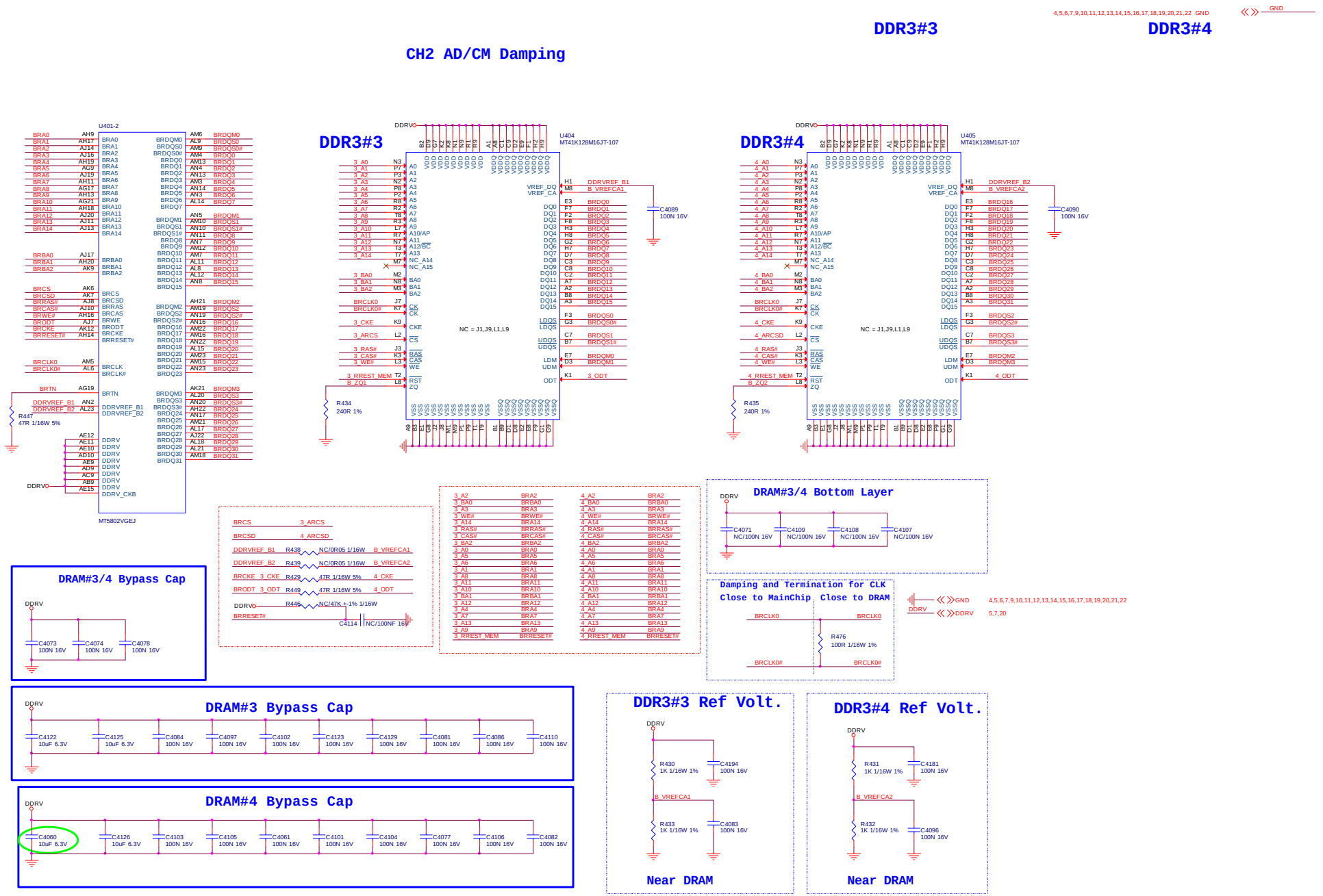
8-4-3 Peripheral



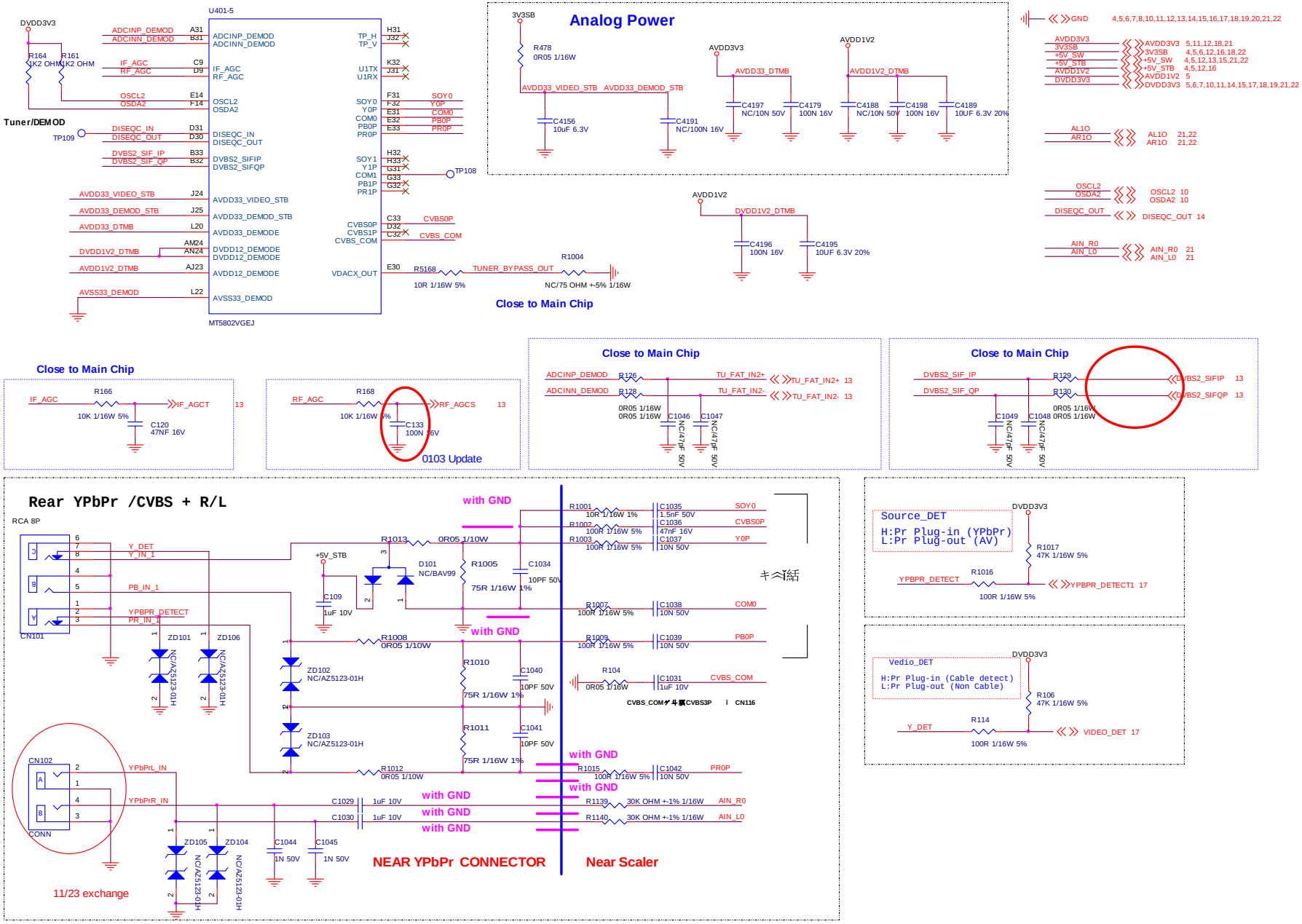
8-4-4 DRR3*2


DRAM MT41K256M16TW-107-P 4Gb FBGA-96
DDR3#1
DDR3#2
U401-1
MT5802VGEJ
U402
MT41K256M16TW-107-P
U403
MT41K256M16TW-107-P
GND
DDRV
DVDD3V3
VCCK
CH1 AD/CM
DRAM#1/2 Bottom Layer
Reseved only
Place bottom layer and close to U401
Differential Clock
NEAR Main Chip
NEAR DRAM
Top Side DRAM#1/2 Bypass Cap
DRAM#1 Bypass Cap
DRAM#2 Bypass Cap
DDR3#1 Ref Volt.
DDR3#2 Ref Volt.
Near DRAM

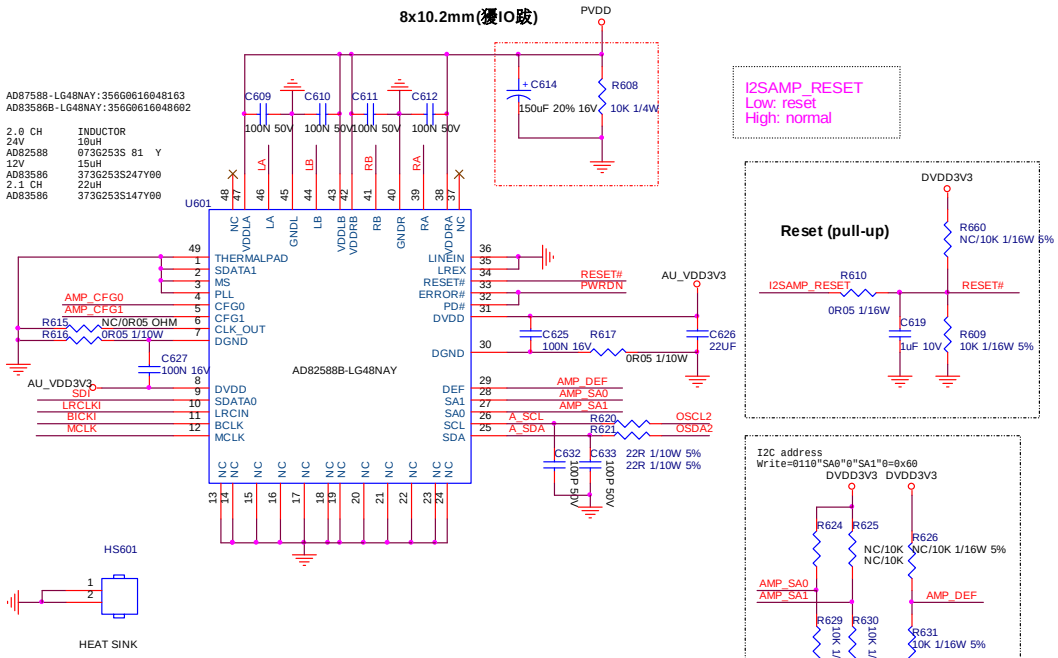
8-4-5 DRR3*2-2


DDR3#3
DDR3#4
CH2 AD/CM Damping
U401-2
MT5802VGEJ
U404
MT41K128M16JT-107
U405
MT41K128M16JT-107
NC = J1,J9,L1,L9
R434
240R 1%
R435
240R 1%
R447
47R 1/16W 5%
DRAM#3/4 Bypass Cap
DRAM#3/4 Bottom Layer
Damping and Termination for CLK
Close to MainChip
Close to DRAM
R476
100R 1/16W 1%
DRAM#3 Bypass Cap
DRAM#4 Bypass Cap
DDR3#3 Ref Volt.
DDR3#4 Ref Volt.
Near DRAM
Near DRAM

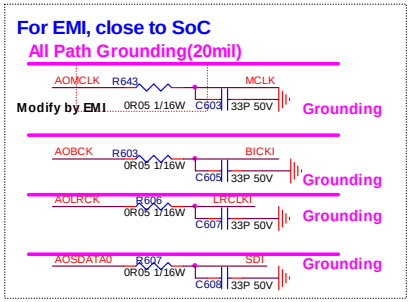
8-4-6 YPbPr/CVBS/SPIDIF

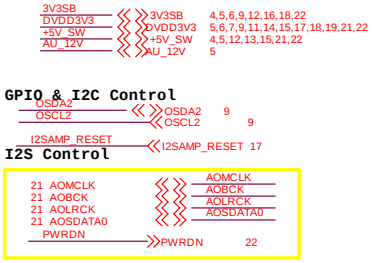


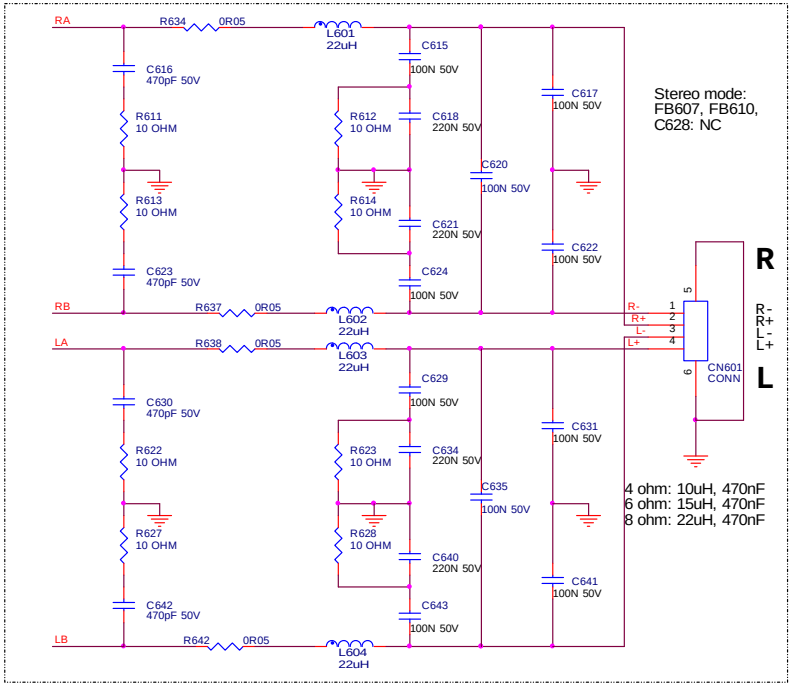
8-4-7 AUDIO AMP

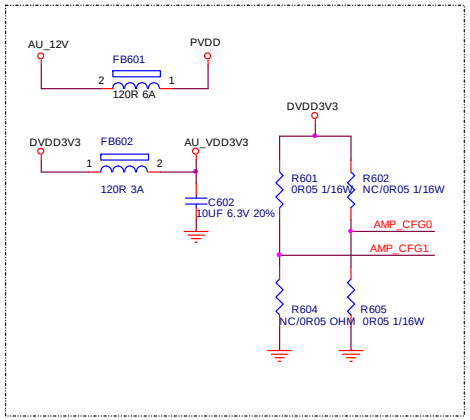


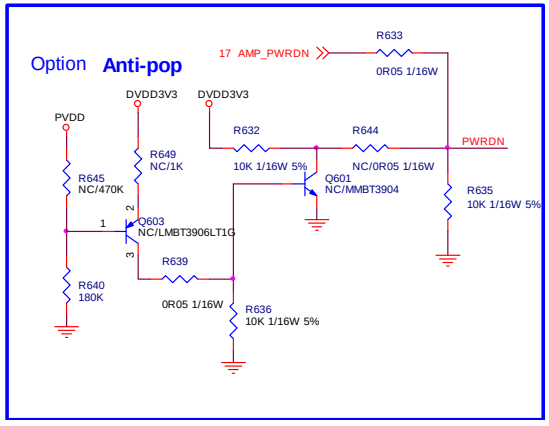
I2SAMP_RESET
Low: reset
High: normal







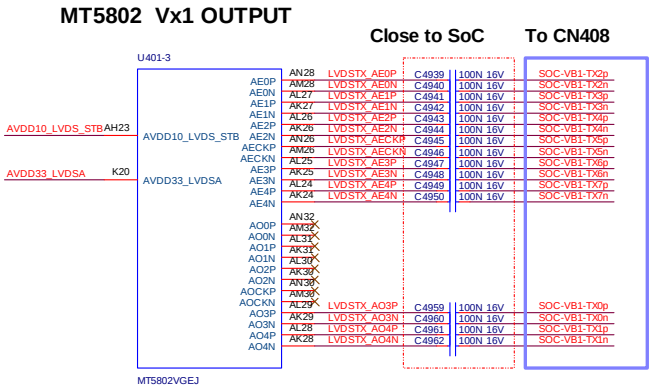


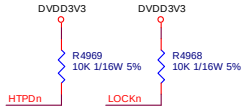


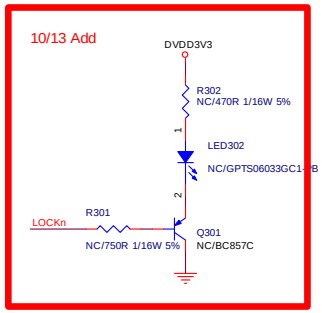
CFG1	CFG0	Mode
0	0	Reserved
0	1	2.1CH
1	0	Stereo
1	1	Mono

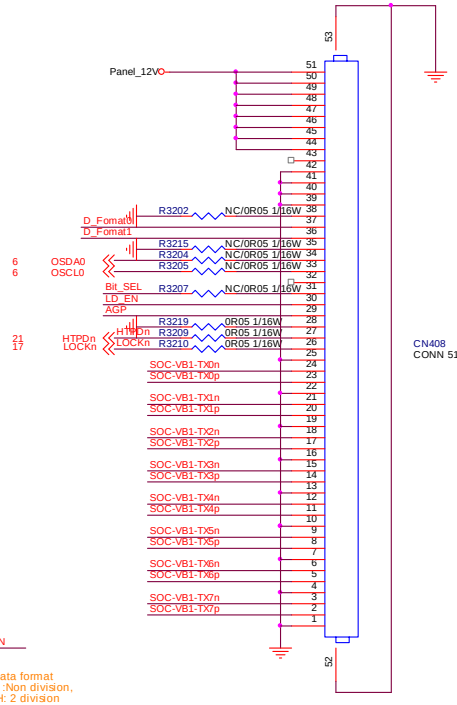
GND 4,5,6,7,8,9,11,12,13,14,15,16,17,18,19,20,21,22

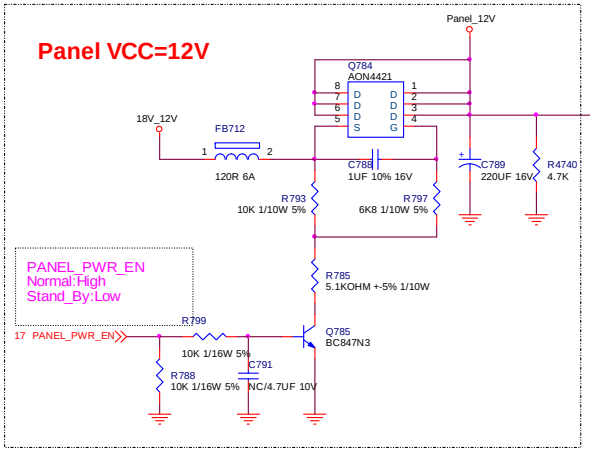
8-4-8VB1 output

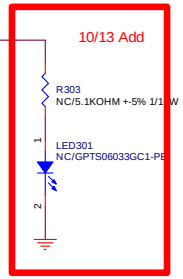


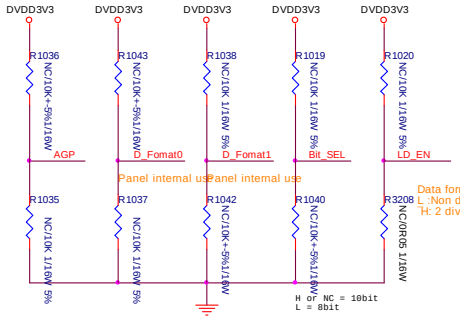




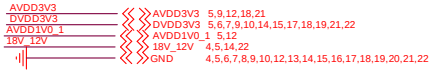


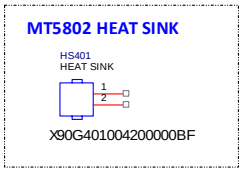


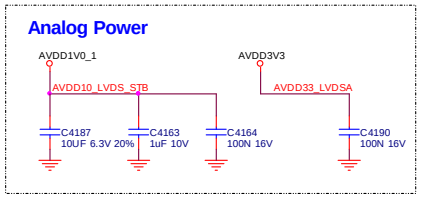




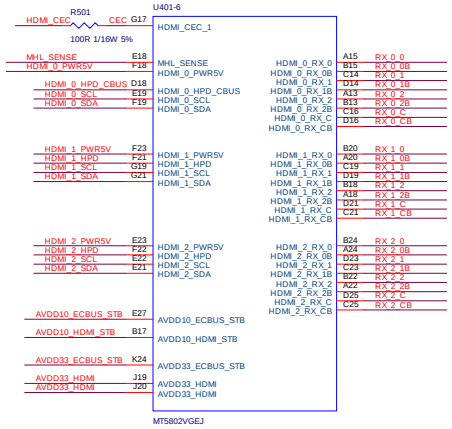
	Port AO						Part AE					
LVDS(Ball name)	AO0	AO1	AO2	AOCK	AO3	AO4	AE0	AE1	AE2	AECK	AE3	AE4
VB1 (MTK)	CH0	CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8	CH9	CH10	CH11
VB1 (TPV)					CH0	CH1	CH2	CH3	CH4	CH5	CH6	CH7

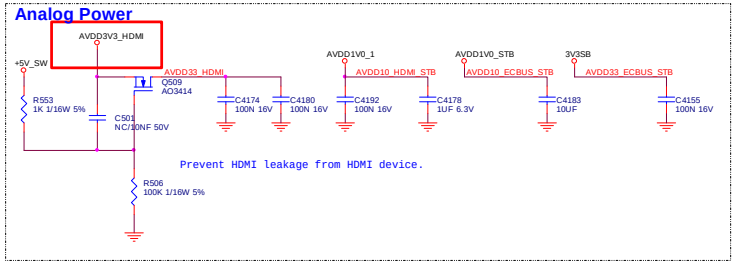


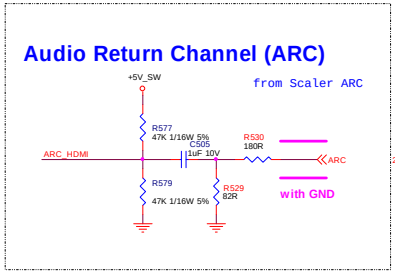


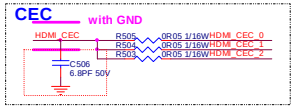


8-4-9HDMI/MHL

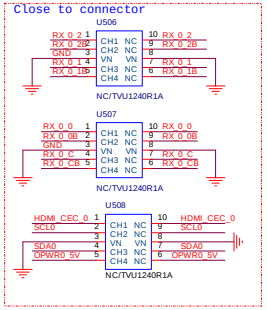

U401-6
R501
HDMI_CEC
CEC G17
100R 1/16W 5%
HDMI_CEC_1
MHL_SENSE E18
HDMI_0_PWR5V F18
HDMI_0_HPD_CBUS D18
HDMI_0_SCL E19
HDMI_0_SDA F19
HDMI_1_PWR5V F23
HDMI_1_HPD F21
HDMI_1_SCL G19
HDMI_1_SDA G21
HDMI_2_PWR5V E23
HDMI_2_HPD F22
HDMI_2_SCL E22
HDMI_2_SDA E21
AVDD10_ECBUS_STB E27
AVDD10_HDMI_STB B17
AVDD33_ECBUS_STB K24
AVDD33_HDMI J19
AVDD33_HDMI J20
MT5802VGEJ

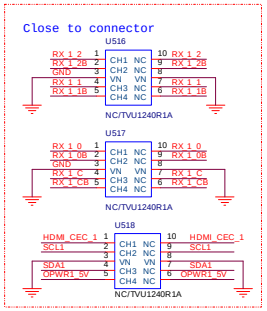

Analog Power
AVDD3V3_HDMI
+5V_SW
R553
1K 1/16W 5%
C501
NC/10NF 50V
AVDD33_HDMI
Q509
AO3414
C4174
100N 16V
C4180
100N 16V
AVDD1V0_1
AVDD10_HDMI_STB
C4192
100N 16V
C4178
1UF 6.3V
AVDD1V0_STB
AVDD10_ECBUS_STB
C4183
10UF
3V3SB
AVDD33_ECBUS_STB
C4155
100N 16V
Prevent HDMI leakage from HDMI device.
R506
100K 1/16W 5%

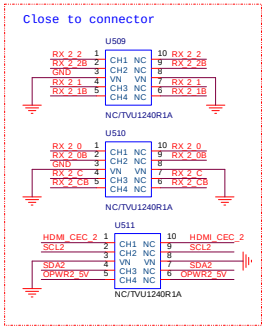

Audio Return Channel (ARC)
+5V_SW
from Scaler ARC
R577
47K 1/16W 5%
C505
1uF 10V
R530
180R
ARC_HDMI
ARC
21
R579
47K 1/16W 5%
R529
82R
with GND

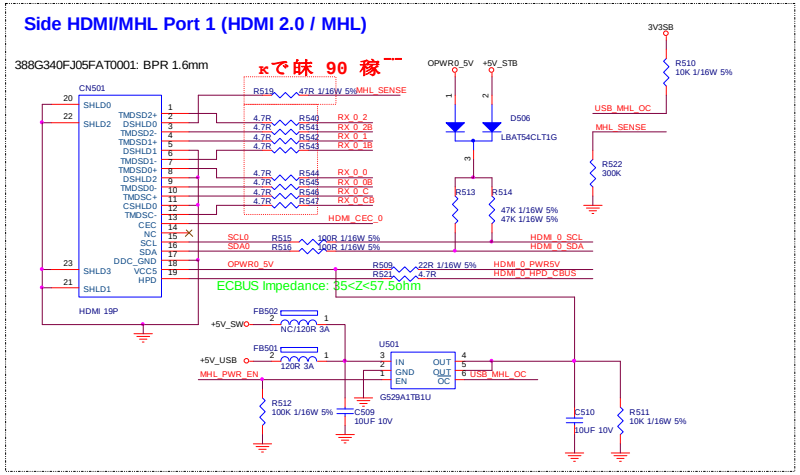

CEC
with GND
HDMI_CEC
R505
R504
R503
0R05 1/16W
HDMI_CEC_0
HDMI_CEC_1
HDMI_CEC_2
C506
6.8PF 50V

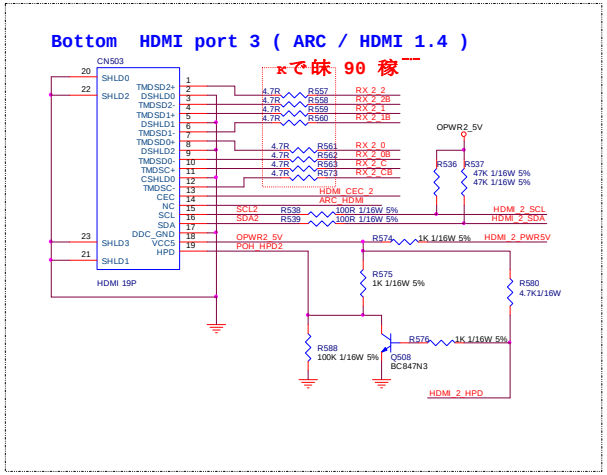

AVDD3V3
R507
0R05 1/16W
AVDD3V3_HDMI

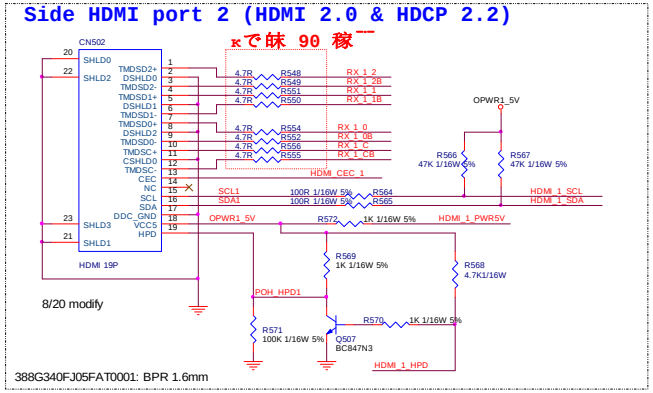

Close to connector
U506
RX_0_2
RX_0_2B
GND
RX_0_1
RX_0_1B
NC/TVU1240R1A
U507
RX_0_0
RX_0_0B
GND
RX_0_C
RX_0_CB
NC/TVU1240R1A
U508
HDMI_CEC_0
SCL0
SDA0
OPWR0_5V
NC/TVU1240R1A

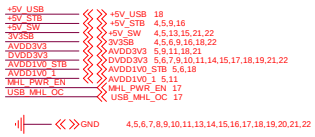

Close to connector
U516
RX_1_2
RX_1_2B
GND
RX_1_1
RX_1_1B
NC/TVU1240R1A
U517
RX_1_0
RX_1_0B
GND
RX_1_C
RX_1_CB
NC/TVU1240R1A
U518
HDMI_CEC_1
SCL1
SDA1
OPWR1_5V
NC/TVU1240R1A


Close to connector
U509
RX_2_2
RX_2_2B
GND
RX_2_1
RX_2_1B
NC/TVU1240R1A
U510
RX_2_0
RX_2_0B
GND
RX_2_C
RX_2_CB
NC/TVU1240R1A
U511
HDMI_CEC_2
SCL2
SDA2
OPWR2_5V
NC/TVU1240R1A

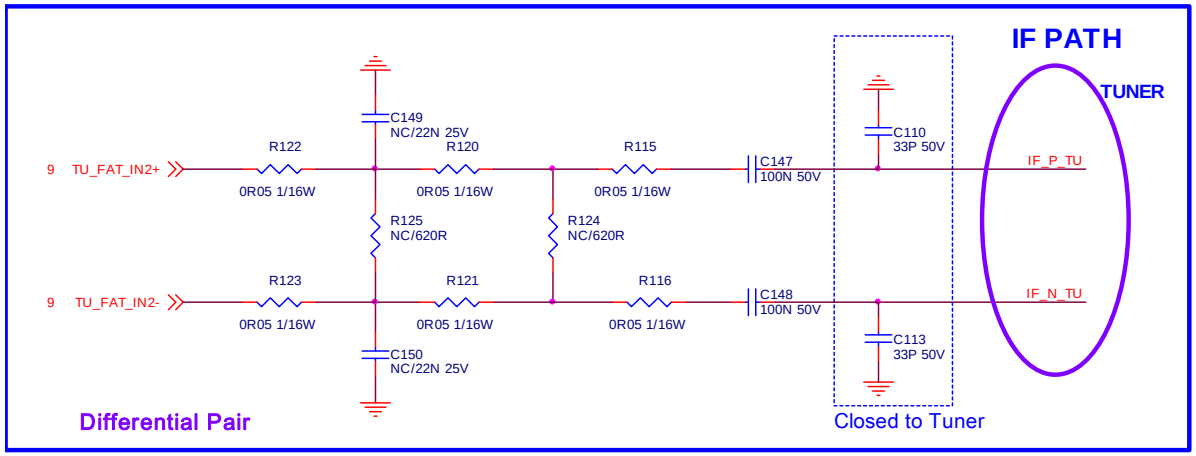

Side HDMI/MHL Port 1 (HDMI 2.0 / MHL)
388G340FJ05FAT0001: BPR 1.6mm
Kで味 90 稼
CN501
HDMI 19P
3V3SB
R510
10K 1/16W 5%
OPWR0_5V
+5V_STB
D506
LBAT54CLT1G
USB_MHL_OC
MHL_SENSE
R522
300K
R519
47R 1/16W 5%
MHL_SENSE
R513
R514
47K 1/16W 5%
47K 1/16W 5%
HDMI_CEC_0
SCL0
SDA0
R515
R516
100R 1/16W 5%
100R 1/16W 5%
HDMI_0_SCL
HDMI_0_SDA
OPWR0_5V
R509
22R 1/16W 5%
R521
4.7R
HDMI_0_PWR5V
HDMI_0_HPD_CBUS
ECBUS Impedance: 85<Z<57.5ohm
FB502
NC/120R 3A
+5V_SW
FB501
120R 3A
+5V_USB
MHL_PWR_EN
U501
G529A1TB1U
C509
10UF 10V
R512
100K 1/16W 5%
C510
10UF 10V
R511
10K 1/16W 5%


Bottom HDMI port 3 (ARC / HDMI 1.4)
Kで味 90 稼
CN503
HDMI 19P
OPWR2_5V
R536
R537
47K 1/16W 5%
47K 1/16W 5%
HDMI_CEC_2
ARC_HDMI
SCL2
SDA2
R538
R539
100R 1/16W 5%
100R 1/16W 5%
HDMI_2_SCL
HDMI_2_SDA
OPWR2_5V
POH_HPD2
R574
1K 1/16W 5%
HDMI_2_PWR5V
R575
1K 1/16W 5%
R580
4.7K1/16W
R588
100K 1/16W 5%
R576
1K 1/16W 5%
Q508
BC847N3
HDMI_2_HPD

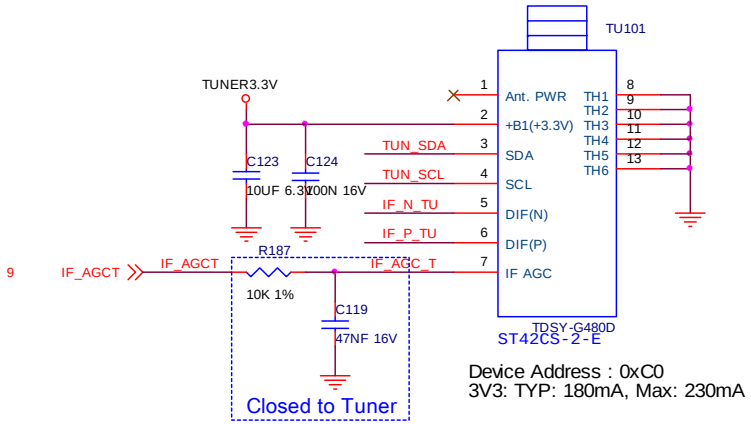

Side HDMI port 2 (HDMI 2.0 & HDCP 2.2)
Kで味 90 稼
CN502
HDMI 19P
OPWR1_5V
R566
47K 1/16W 5%
R567
47K 1/16W 5%
HDMI_CEC_1
SCL1
SDA1
R564
R565
100R 1/16W 5%
100R 1/16W 5%
HDMI_1_SCL
HDMI_1_SDA
OPWR1_5V
R572
1K 1/16W 5%
HDMI_1_PWR5V
R569
1K 1/16W 5%
R568
4.7K1/16W
POH_HPD1
R571
100K 1/16W 5%
R570
1K 1/16W 5%
Q507
BC847N3
HDMI_1_HPD
8/20 modify
388G340FJ05FAT0001: BPR 1.6mm


+5V_USB
+5V_STB
+5V_SW
3V3SB
AVDD3V3
DVDD3V3
AVDD1V0_STB
AVDD1V0_1
MHL_PWR_EN
USB_MHL_OC
+5V_USB 18
+5V_STB 4,5,9,16
+5V_SW 4,5,13,15,21,22
3V3SB 4,5,6,9,16,18,22
AVDD3V3 5,9,11,18,21
DVDD3V3 5,6,7,9,10,11,14,15,17,18,19,21,22
AVDD1V0_STB 5,6,18
AVDD1V0_1 5,11
MHL_PWR_EN 17
USB_MHL_OC 17
GND
4,5,6,7,8,9,10,11,13,14,15,16,17,18,19,20,21,22

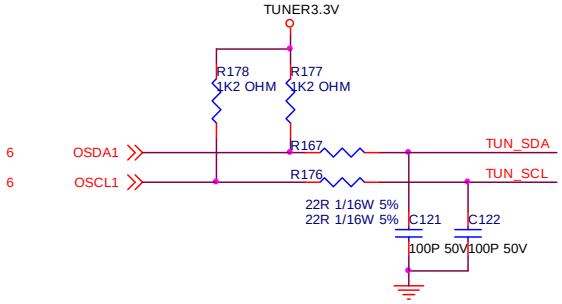
8-4-10Tuner

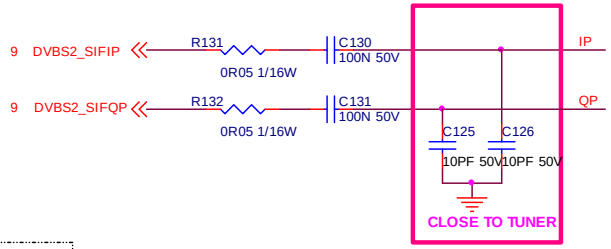


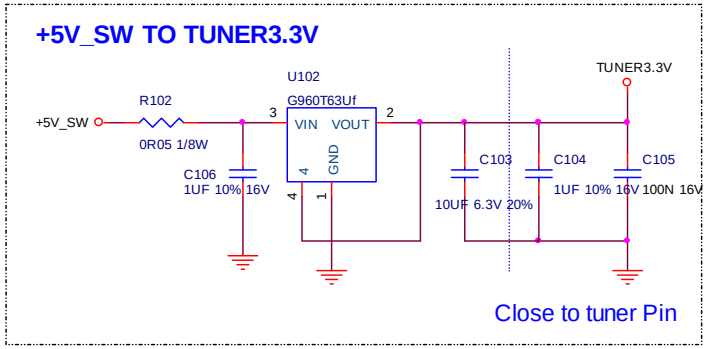
T2 TUNER



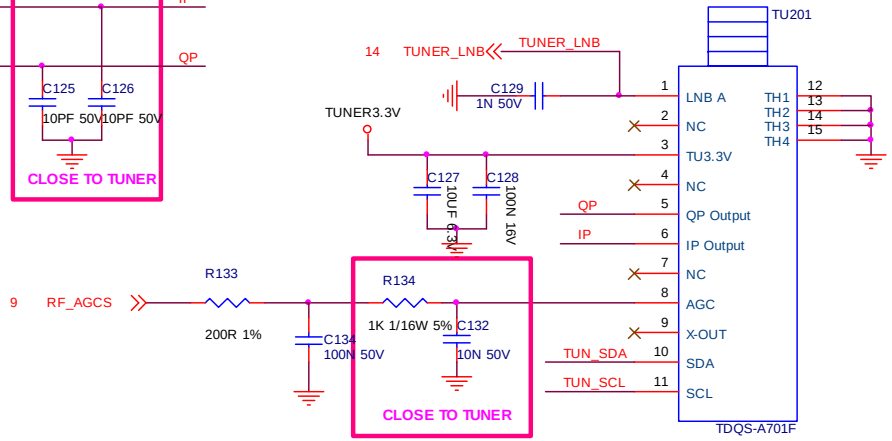
Device Address : 0xC0
3V3: TYP: 180mA, Max: 230mA







S2 TUNER



Device Address : 0xC6

LGTuner with DVB-S/S2

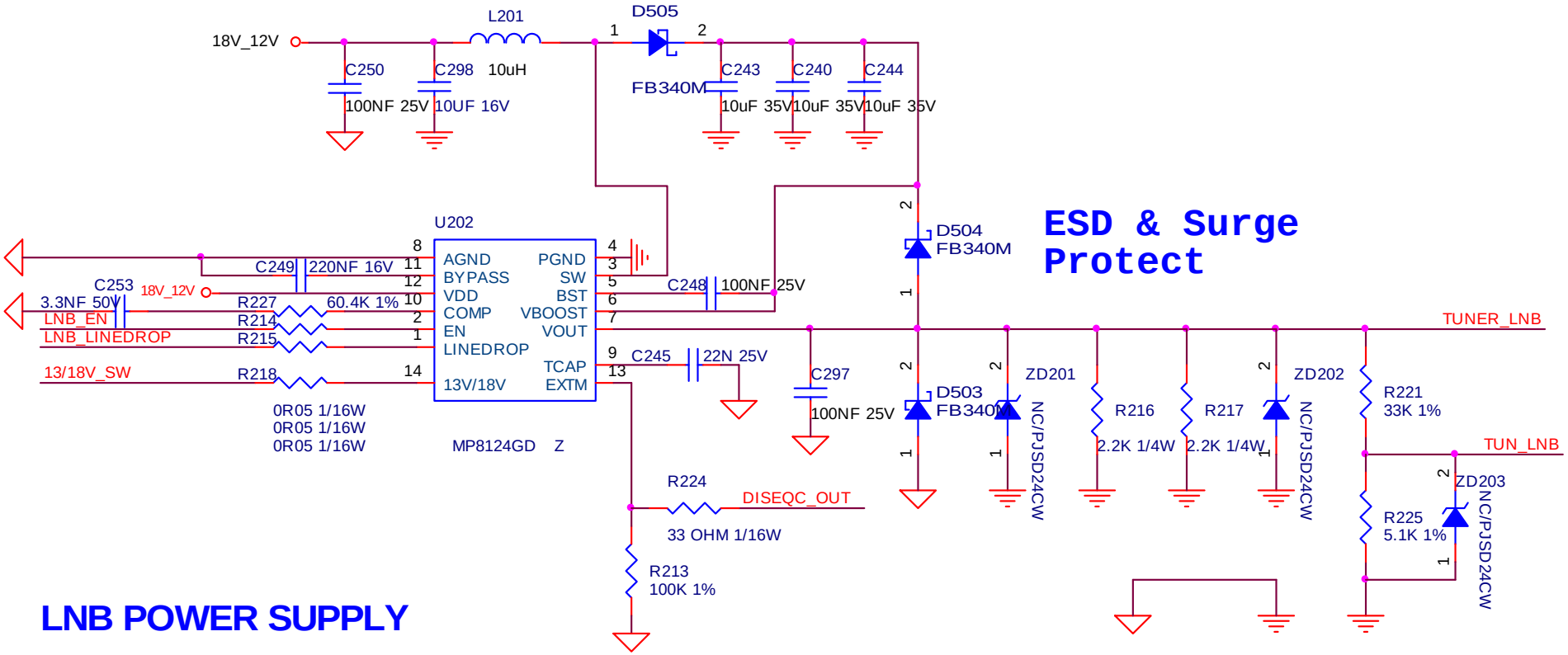
K model : Samsung DNBU02112IH2

GND 4,5,6,7,8,9,10,11,12,14,15,16,17,18,19,20,21,22

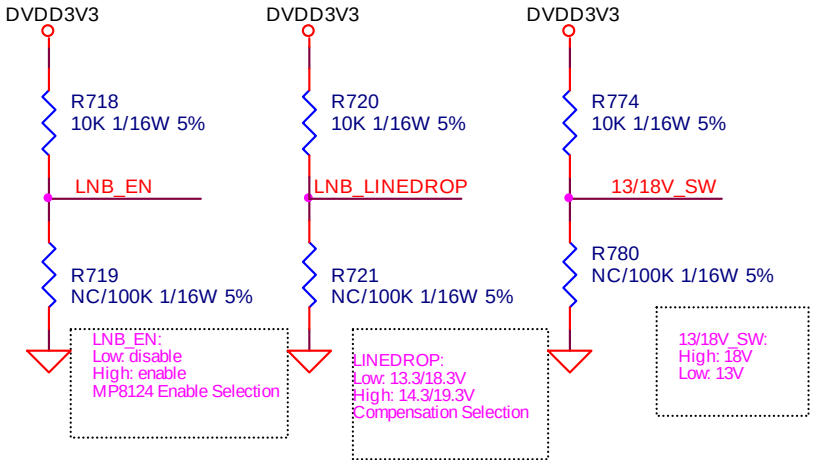
DVDD3V3 DVDD3V3 5,6,7,9,10,11,14,15,17,18,19,21,22

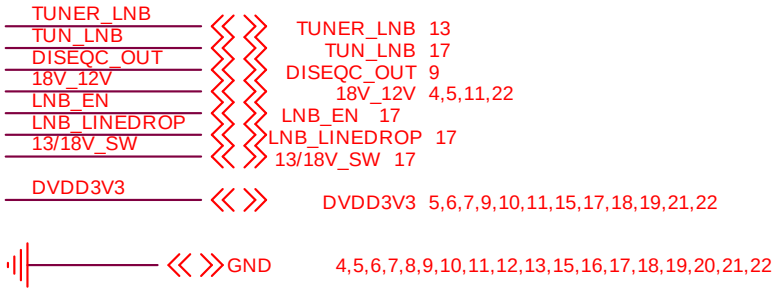
+5V_SW +5V_SW 4,5,12,15,21,22

8-4-11LNB

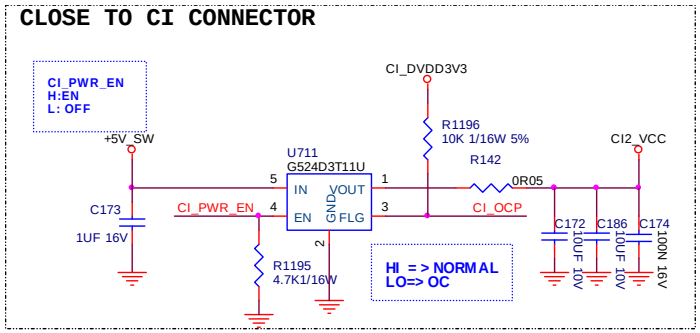


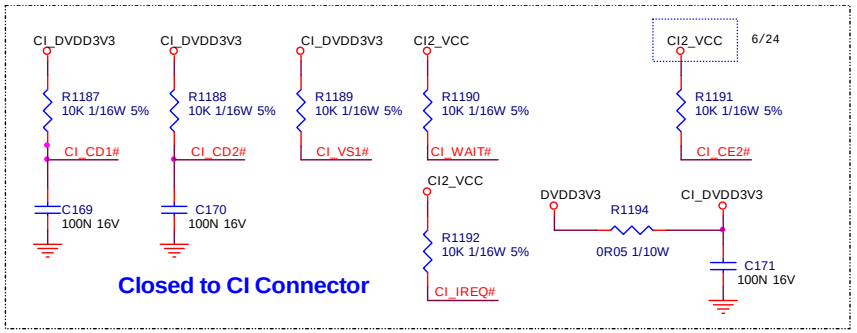
LNB POWER SUPPLY

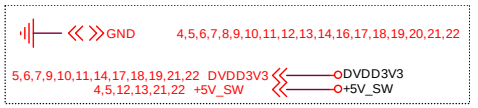


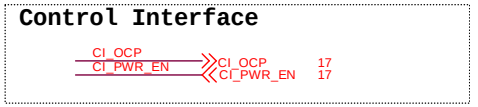


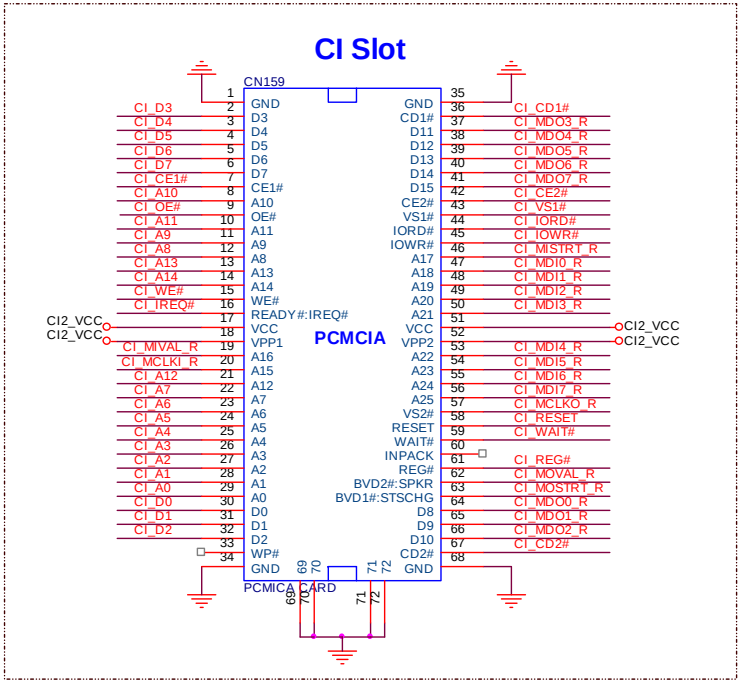
8-4-12Internal CI

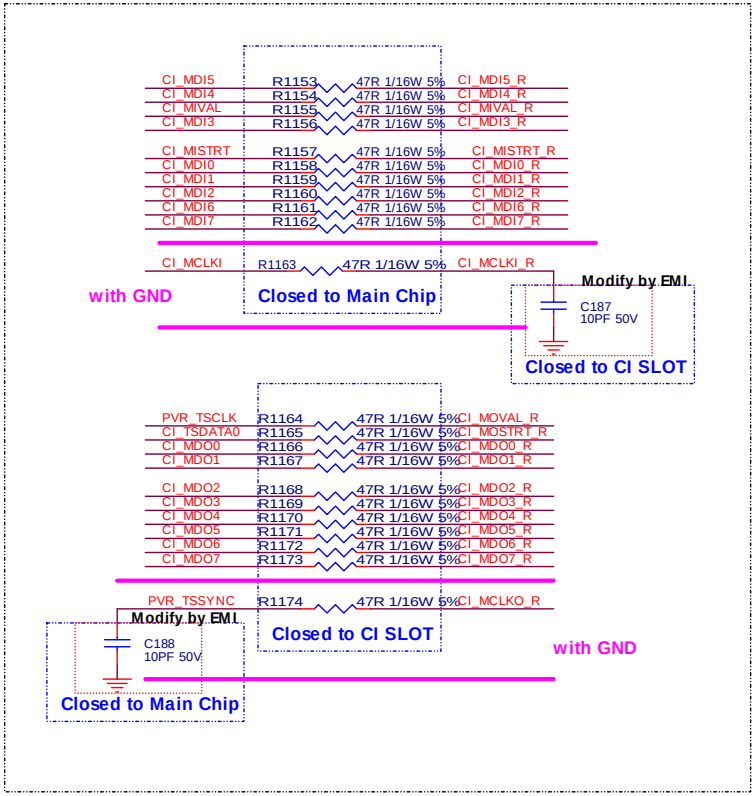


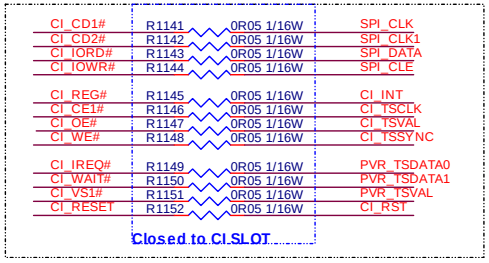


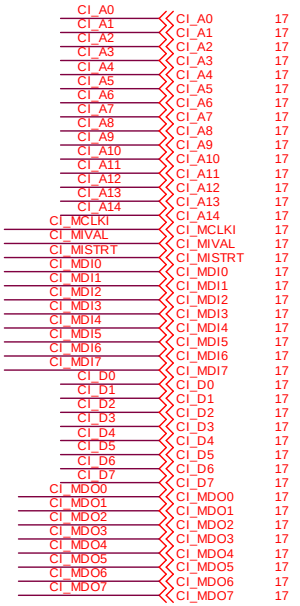


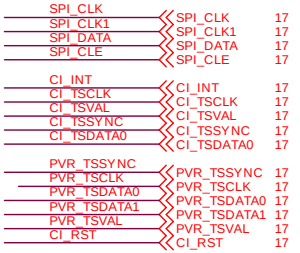




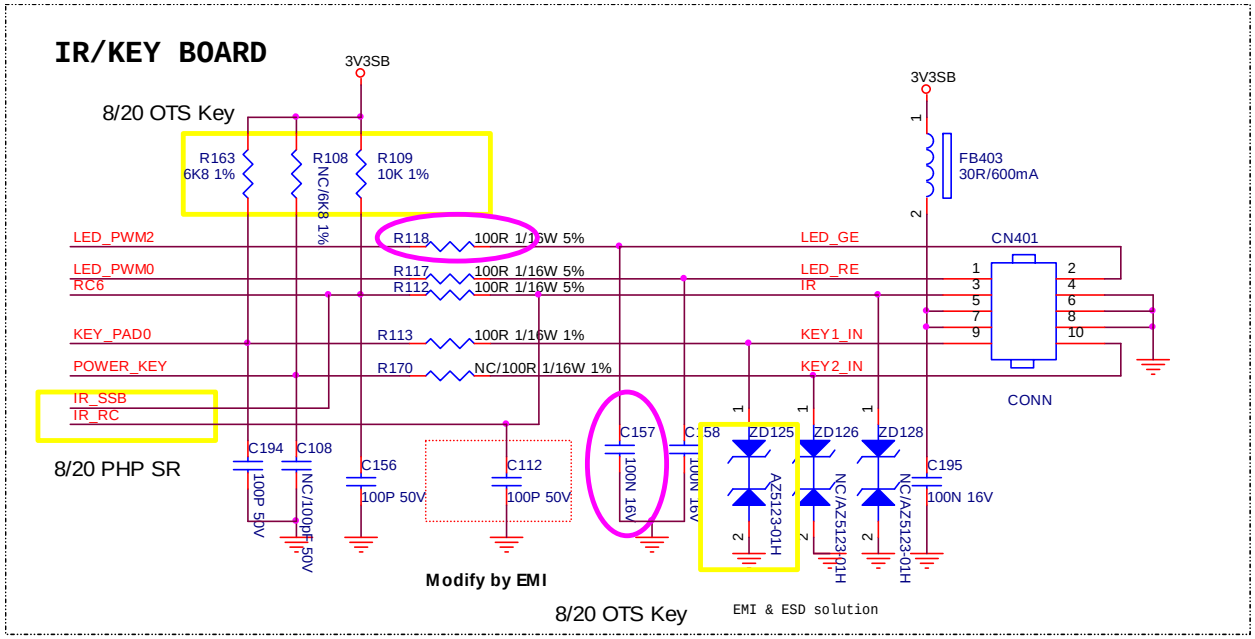


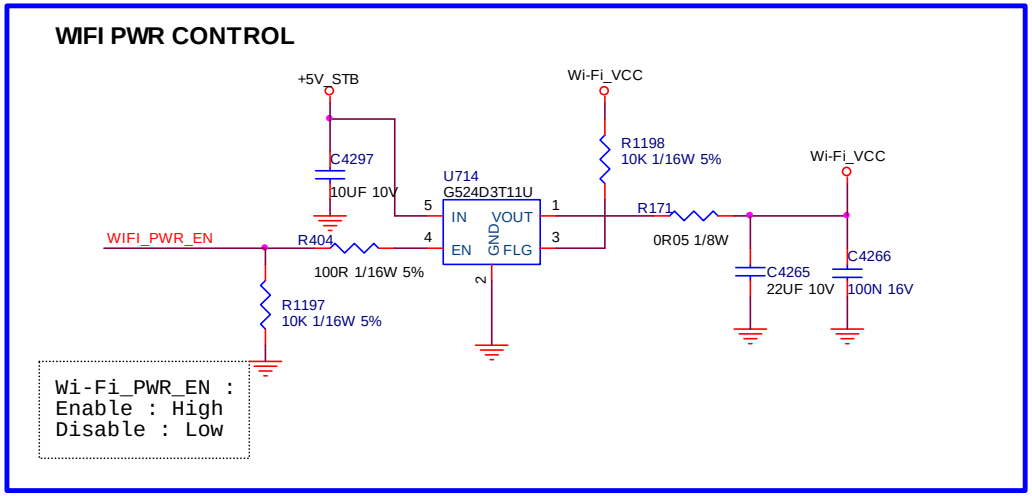


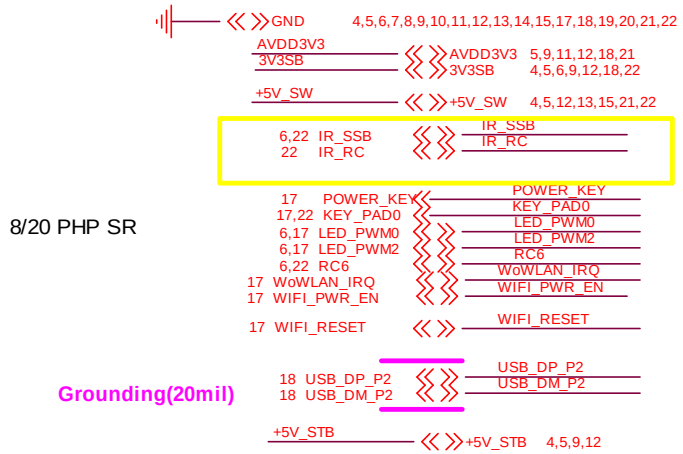


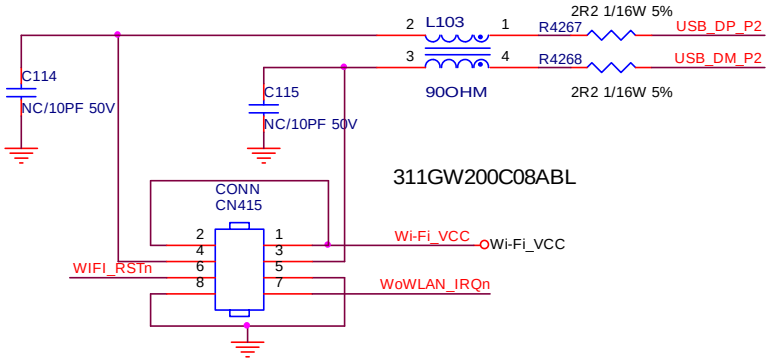


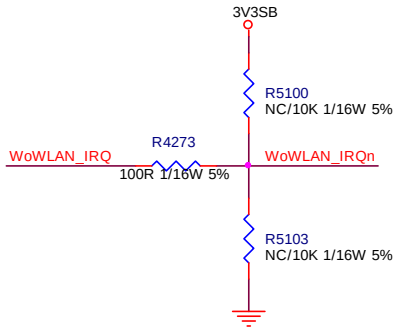
8-4-13WIFI/KEYPAD

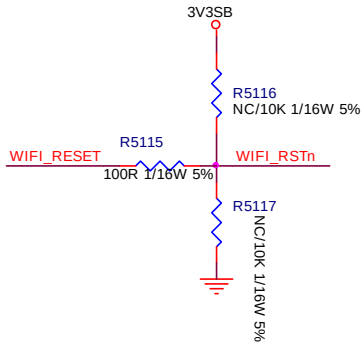




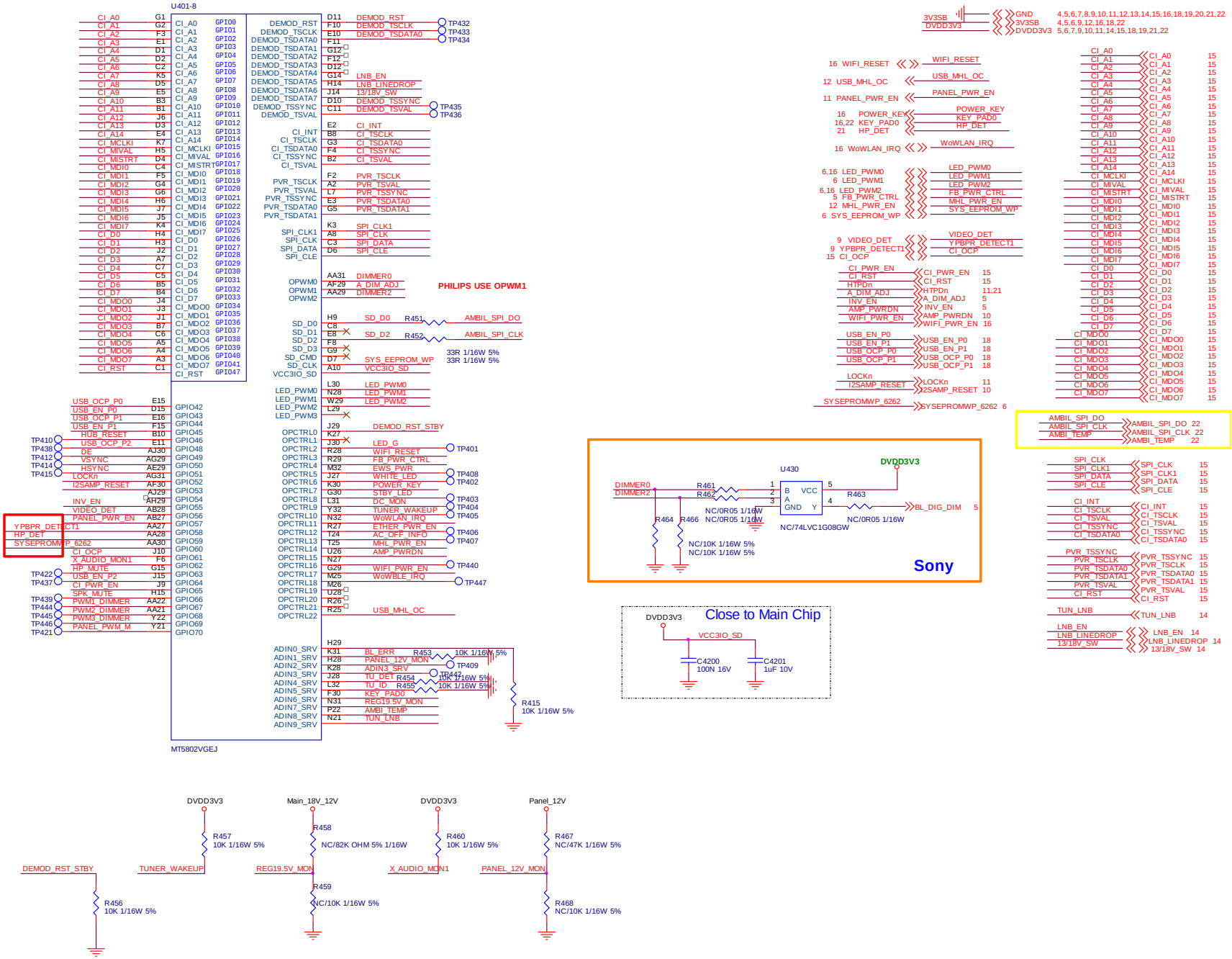




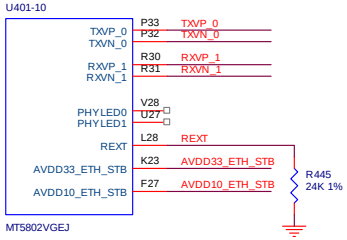


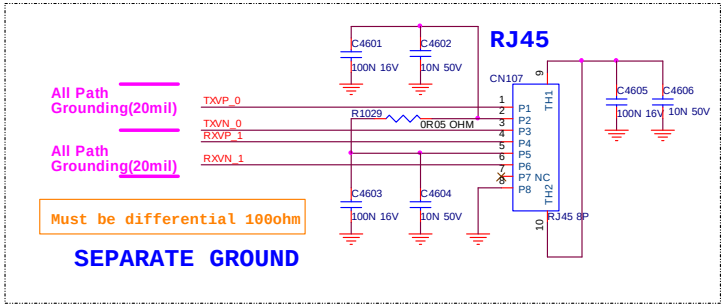


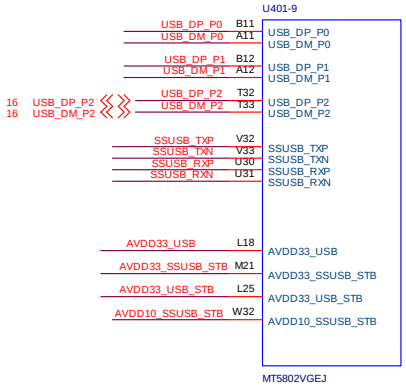
8-4-14GPIO/servAD

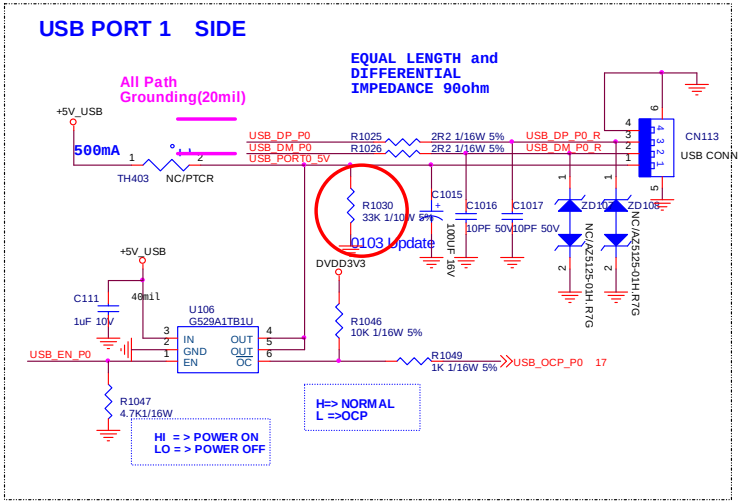


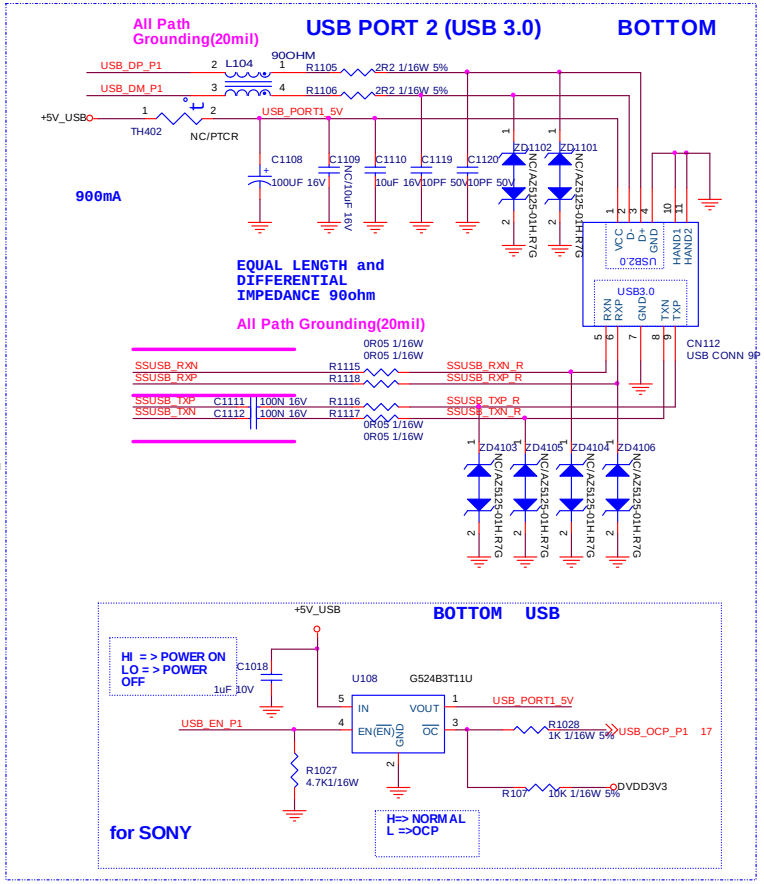
ETHERNET PHY

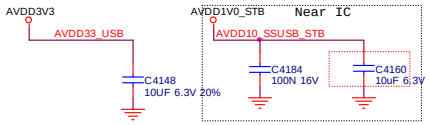


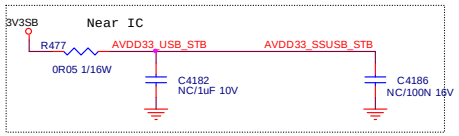


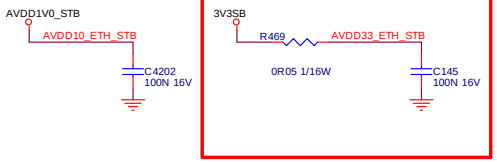


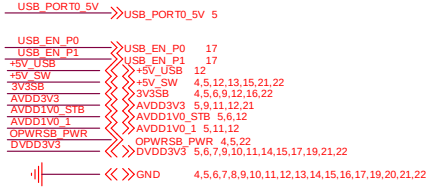


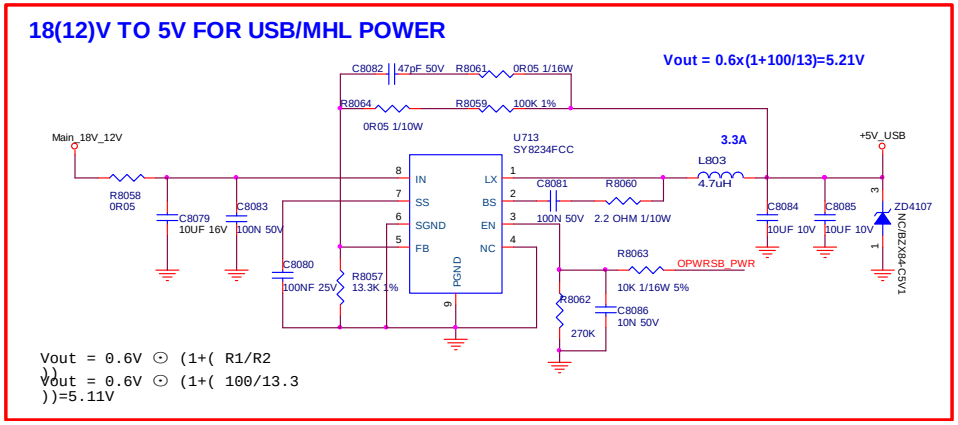






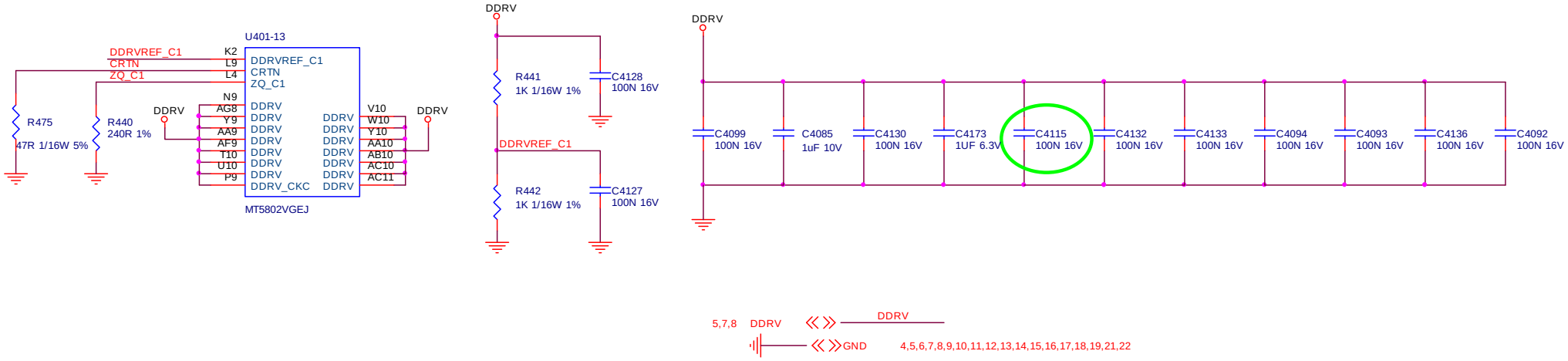






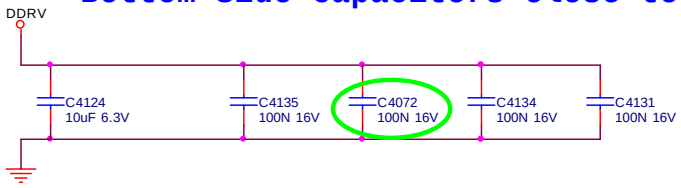
8-4-16VCCK & DVSS

8-4-17DDP POWER

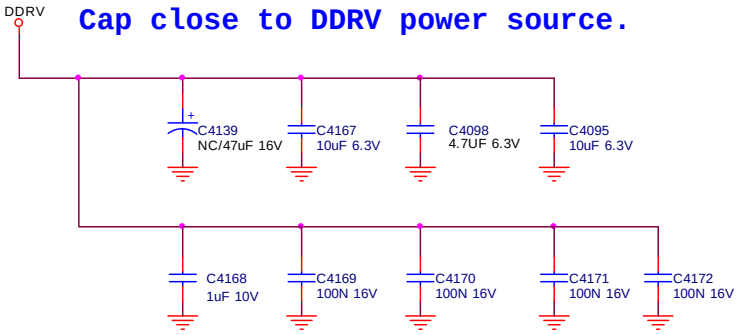


DRAM Power

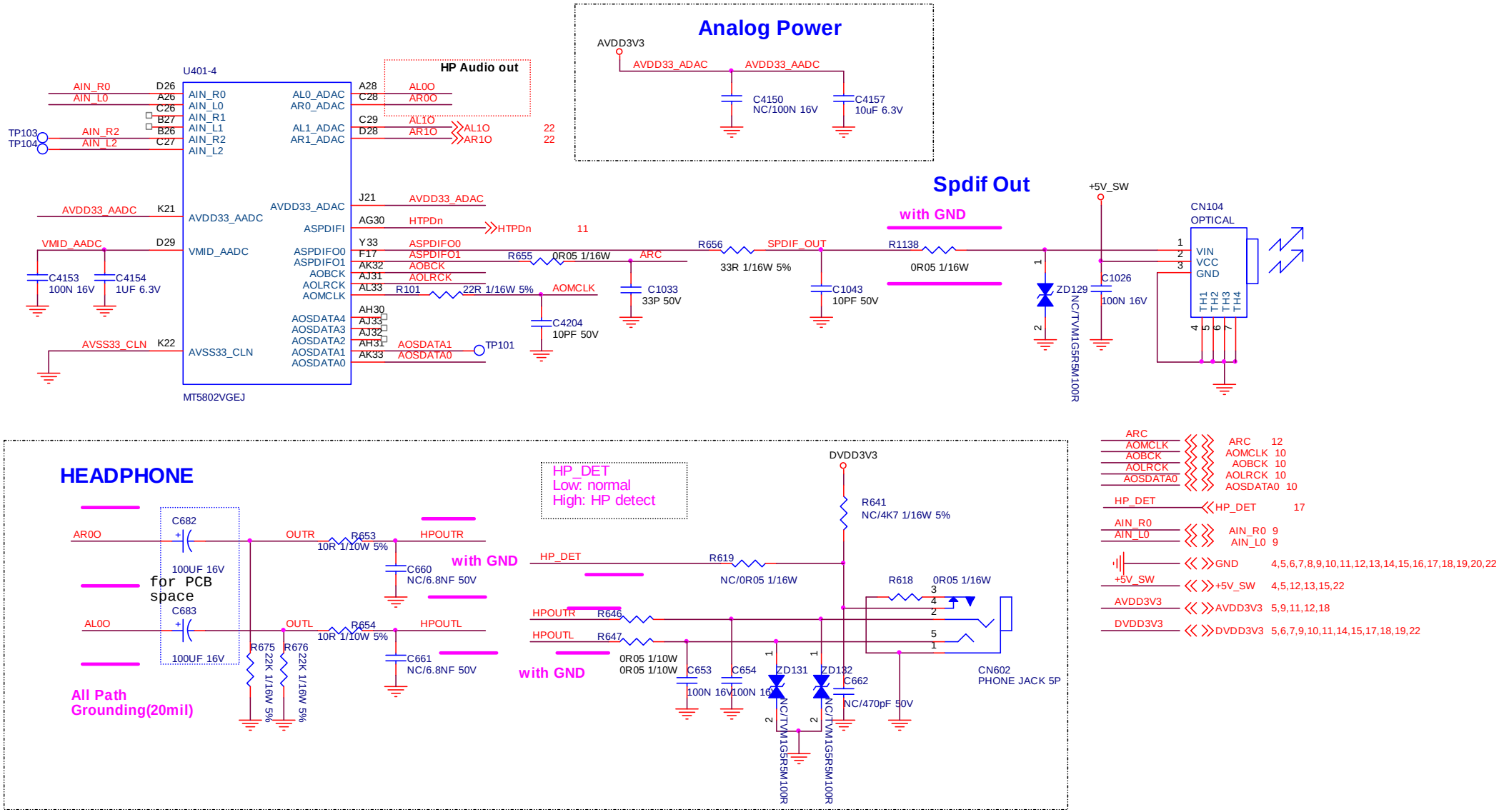
Bottom Side Capacitors close to IC



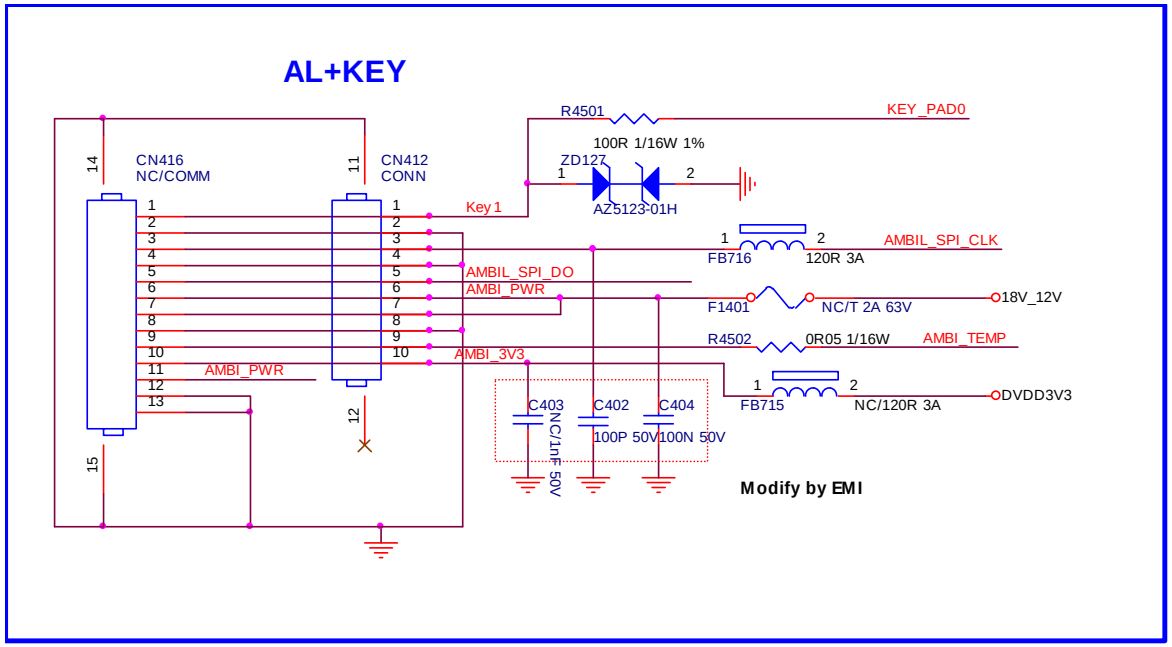
Cap close to DDRV power source.



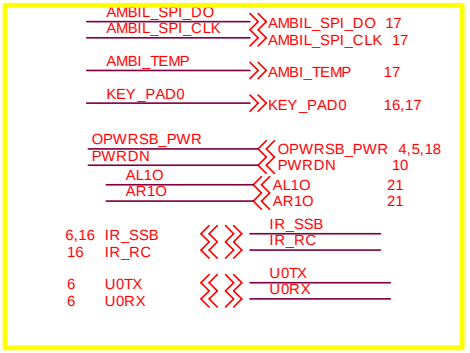
8-4-17LINE OUT

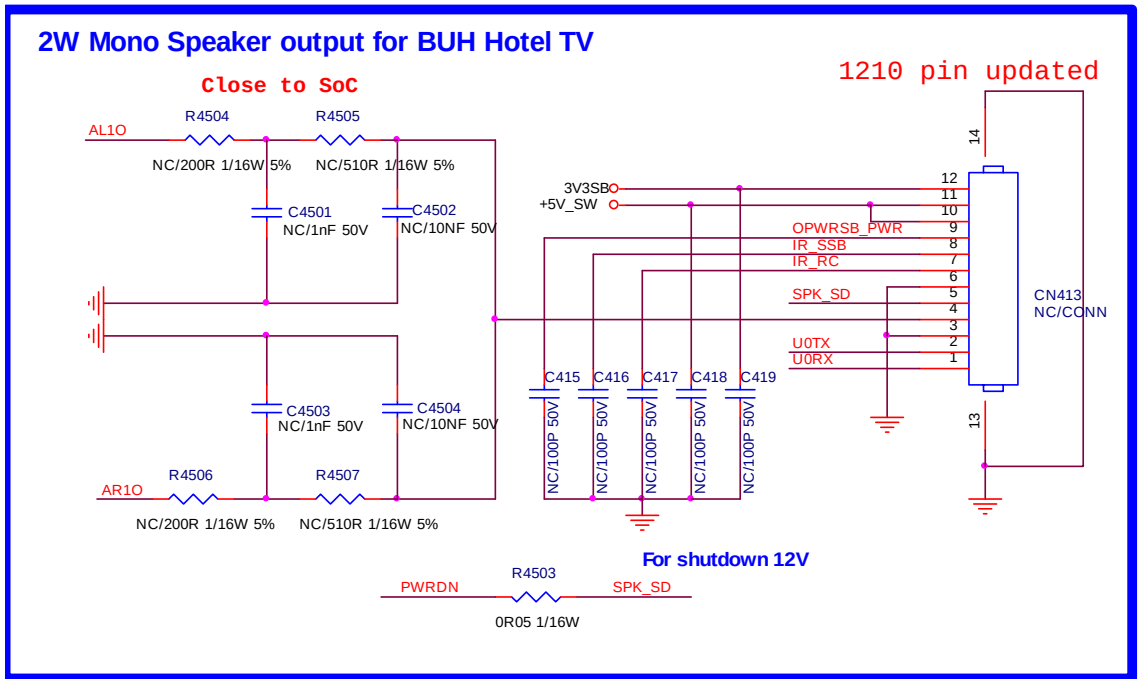


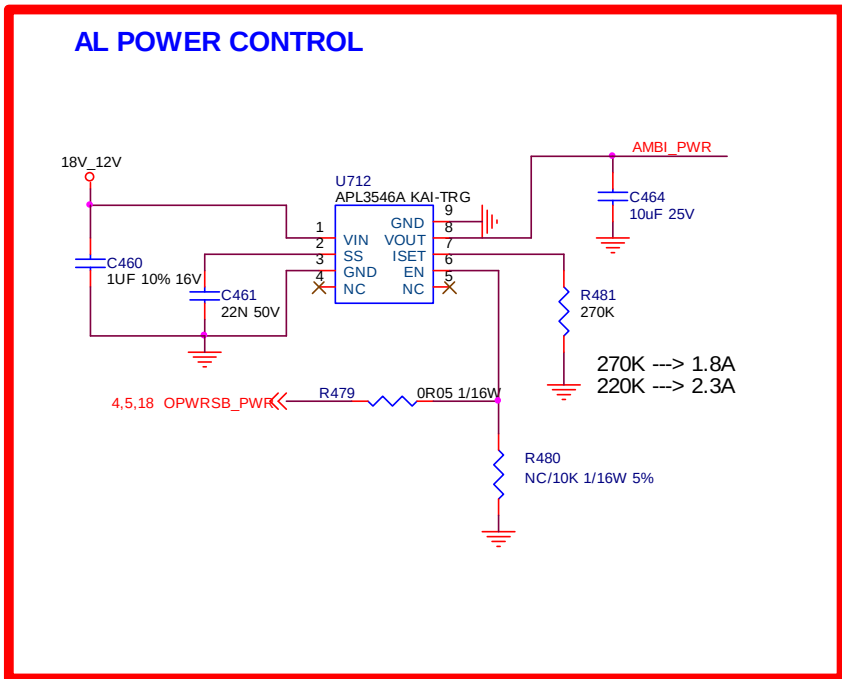
8-4-17AMBILIGHT & Hotel TV



8/20 Add for PHP

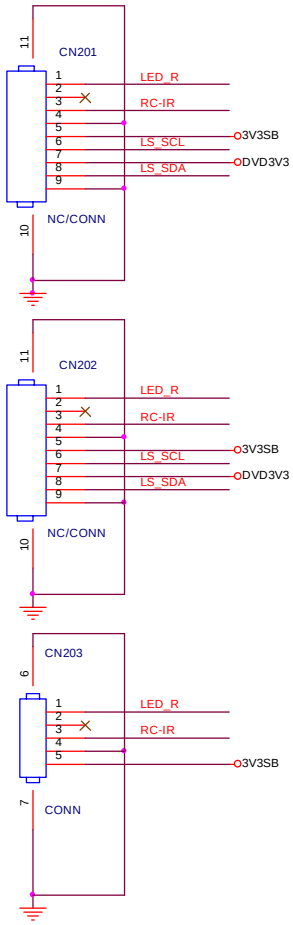


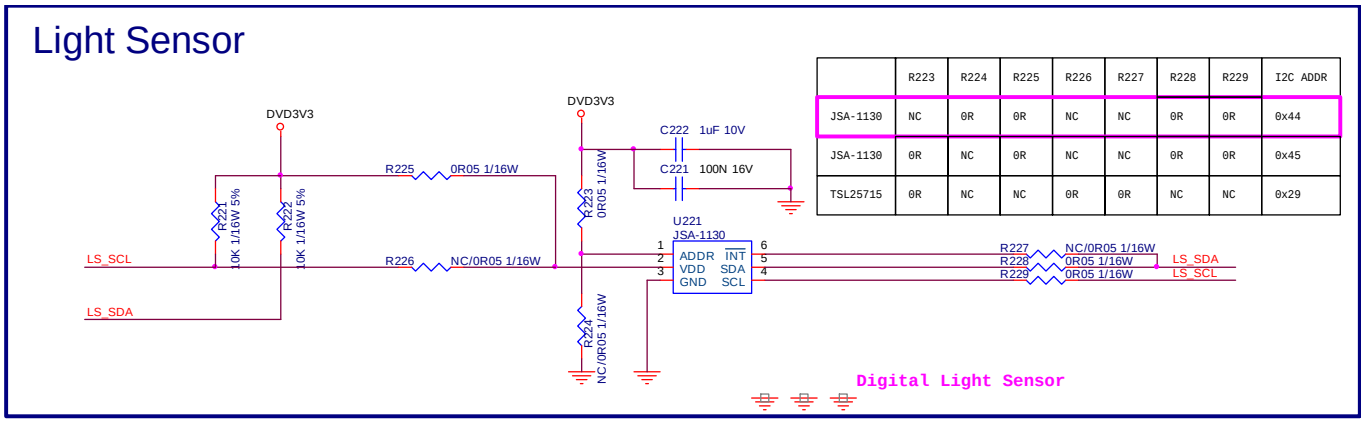




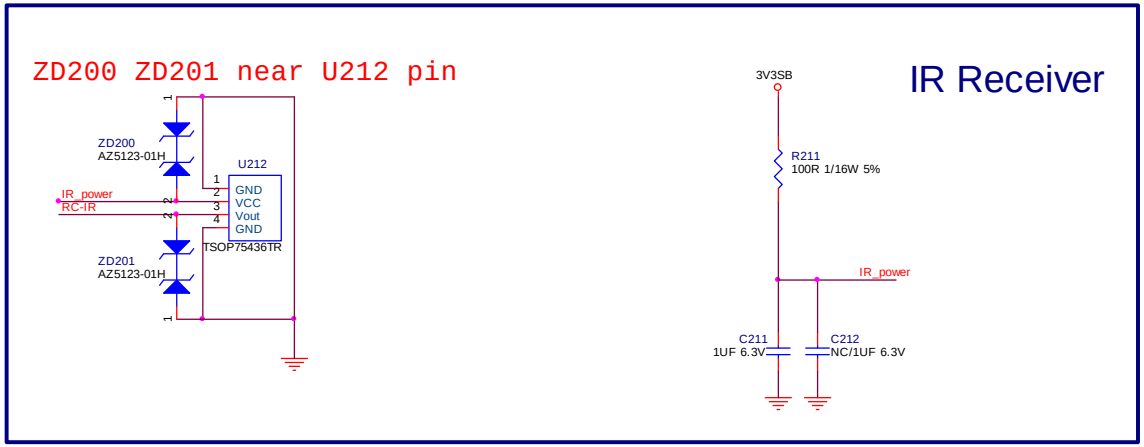
8.5 E 715G8623 IR Board

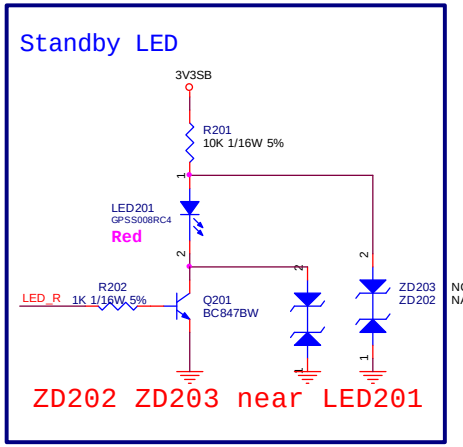
8-5-1 IR





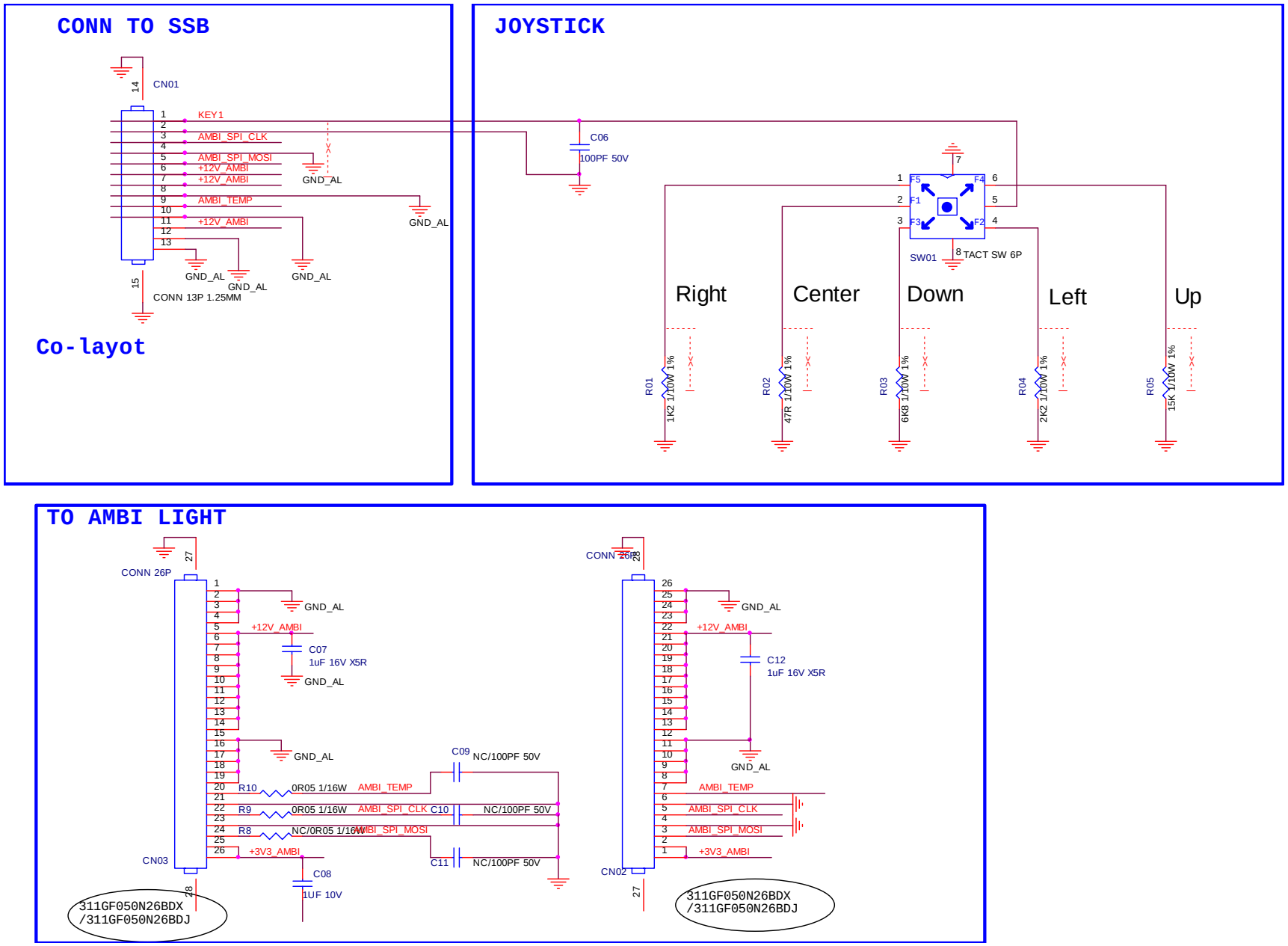
	R223	R224	R225	R226	R227	R228	R229	I2C ADDR
JSA-1130	NC	0R	0R	NC	NC	0R	0R	0x44
JSA-1130	0R	NC	0R	NC	NC	0R	0R	0x45
TSL25715	0R	NC	NC	0R	0R	NC	NC	0x29





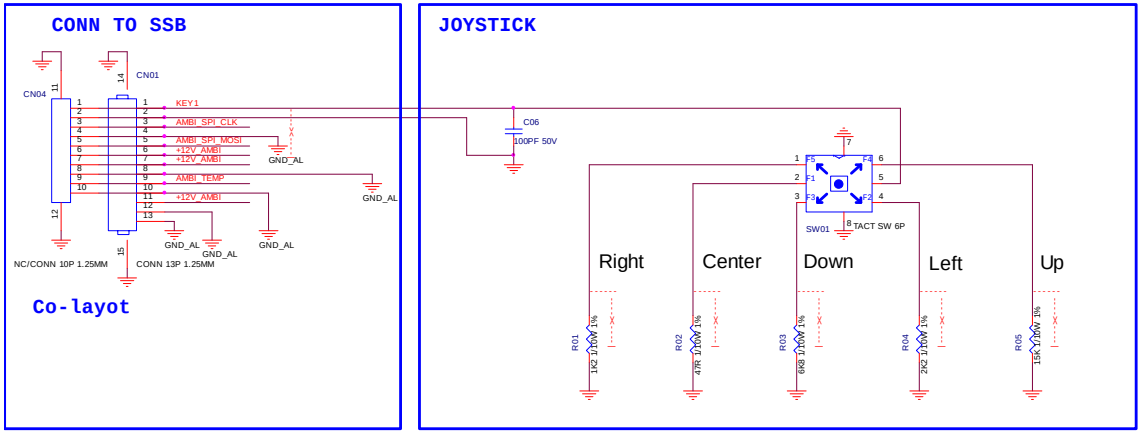
8.6 E 715G7088 Keyboard control panel

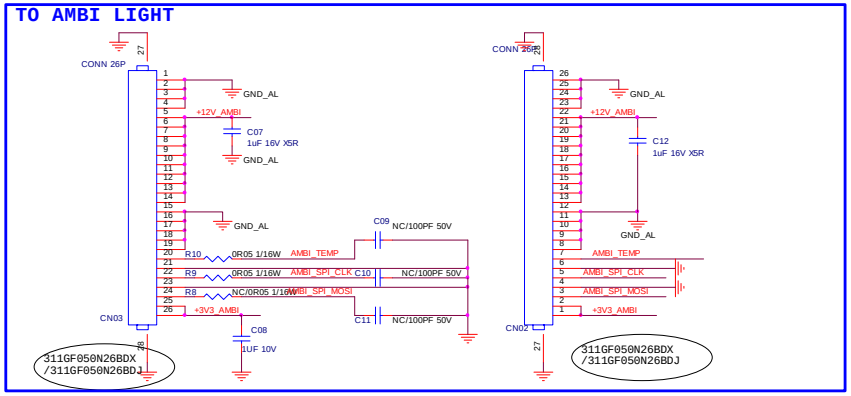
8-6-1 Key



8.7 J 715G8555 Keyboard control panel

8-7-1 Key





Joystick key define

Direction	switch	Key function	Resistance	Voltage	Range
Center	2-5 short	Menu	0R	0V	0.0 to 0.22 V
Right	1-5 short	CH+	1K2	0.5V	0.39 to 0.60 V
Left	4-5 short	CH-	2K2	0.81V	0.67 to 0.95 V
Down	3-5 short	VOL-	6K8	1.65V	1.41 to 1.87 V
Up	6-5 short	VOL+	15K	2.27V	1.93 to 2.58 V
NA	NA	No function	NA	3.3V	3.135 to 3.465V

Joystick circuit diagram

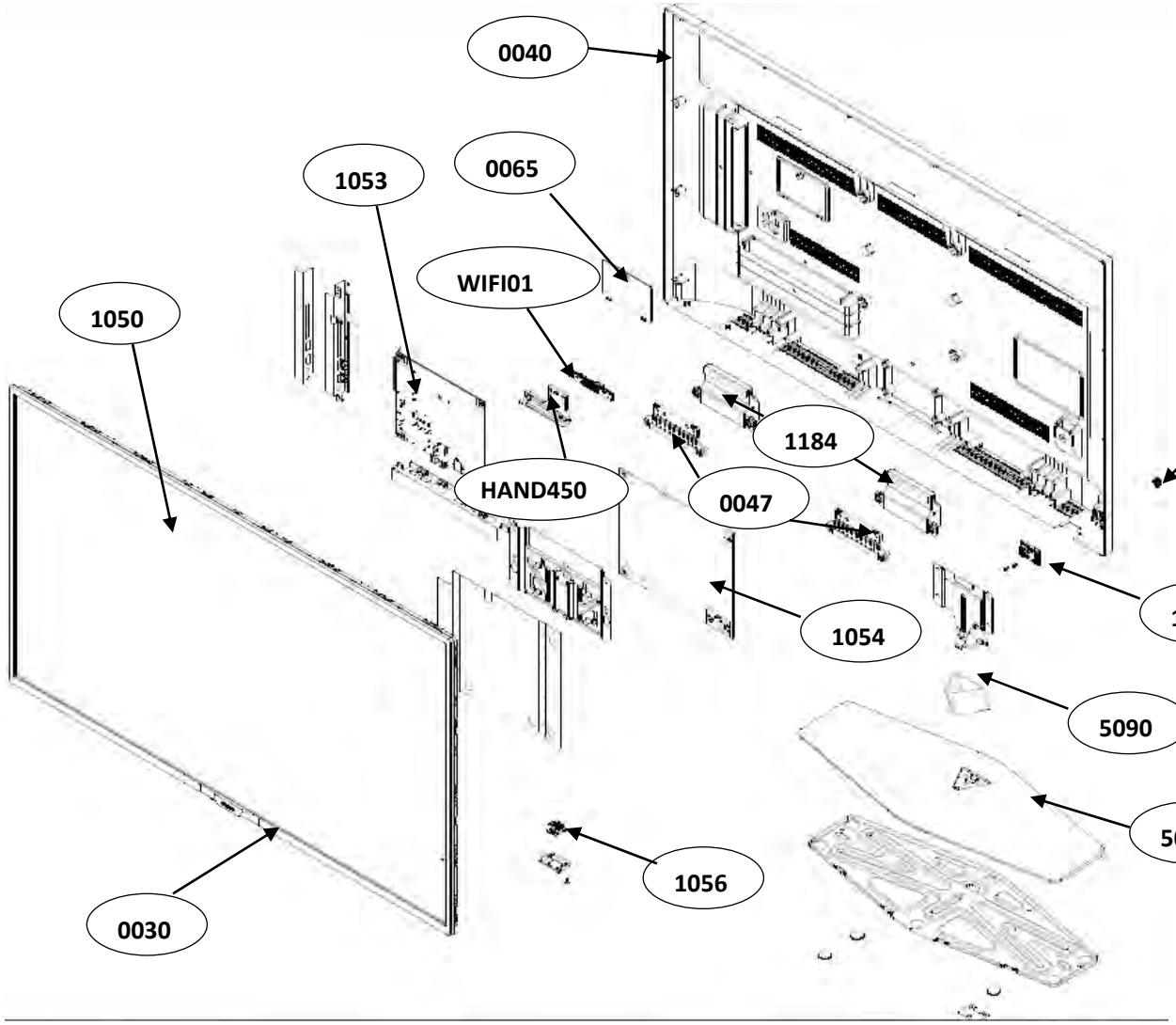
	pin1	pin2	pin3	pin4	pin5	pin6
F1		○			○	
F2				○	○	
F3			○		○	
F4					○	○
F5	○				○	

Joystick diversity for AL

	CN03	C07	R9	R10
AL2	N	N	N	N
AL3/AL4	Y	Y	Y	Y

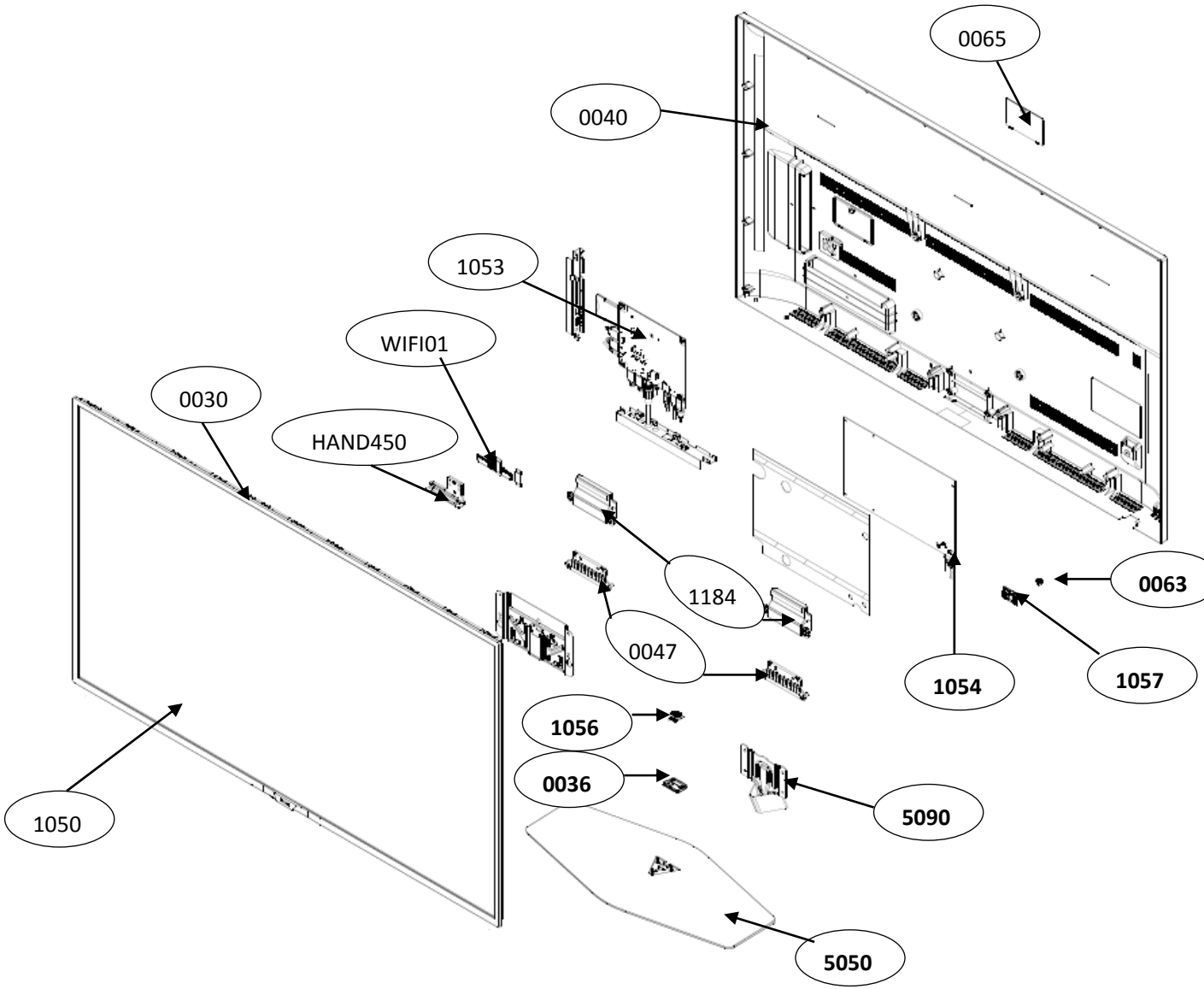
9. Styling Sheets

9.1 6162 series 43"



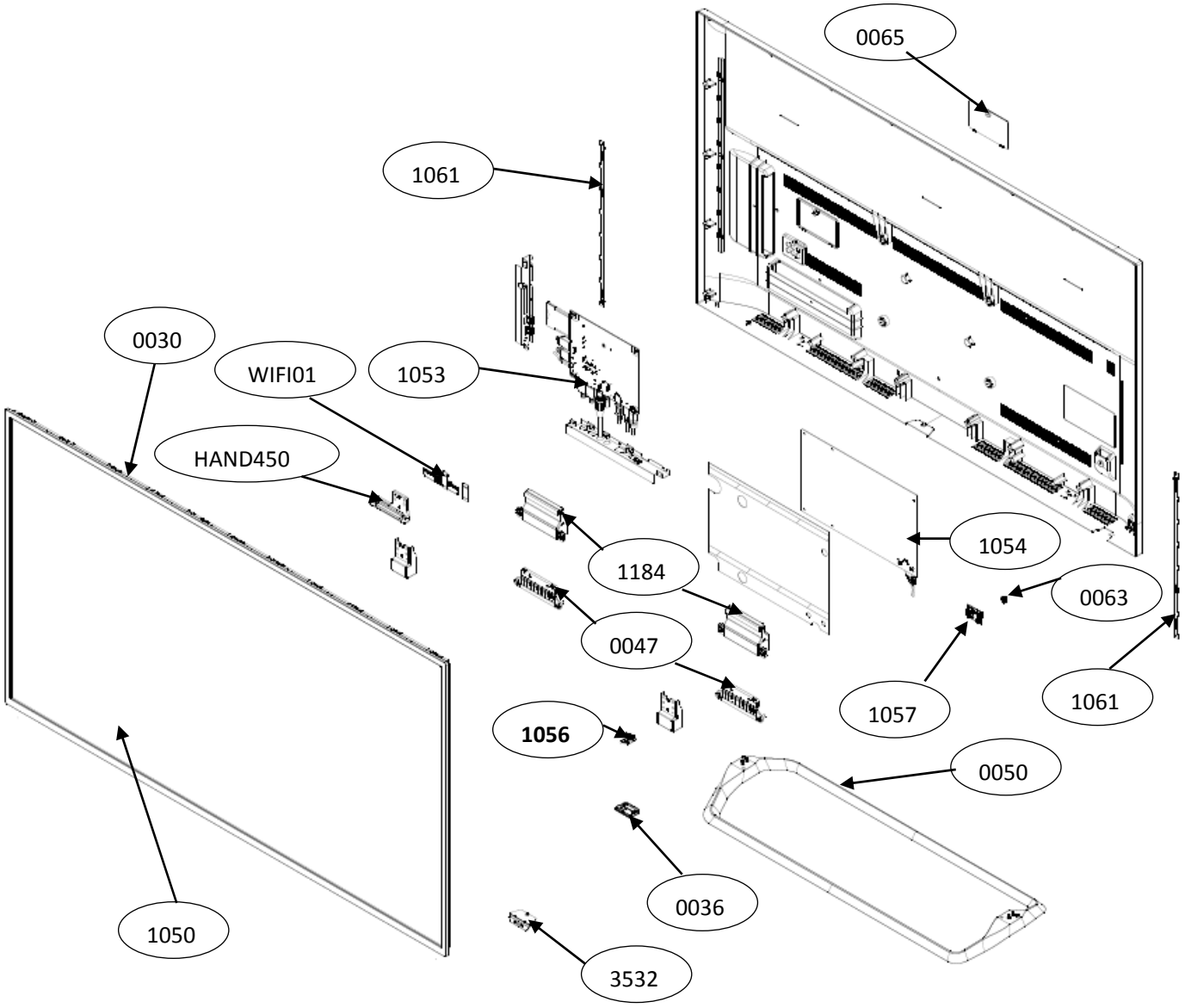
Pos NO.	Description	Remark
0030	BEZEL	
0040	REAR COVER	
0047	HDD Holder	
0063	KEY_FUNCTION	
0065	COVER_CLOCK_REAR	
1050	DISPLAY PANEL	
1053	PANEL SSB	
1054	POWER SUPPLY UNIT	
1056	IR/LED PANEL	
1057	KEYBOARD CONTROL PANEL	
1176	REMOTE control	Not displayed
1184	SPEAKER	
5050	BASE PLATE	
5090	STAND NECK	
WIFI01	WIFI USB	
HAND450	Case_holder	

9.2 6162 series 49"/50"/55"



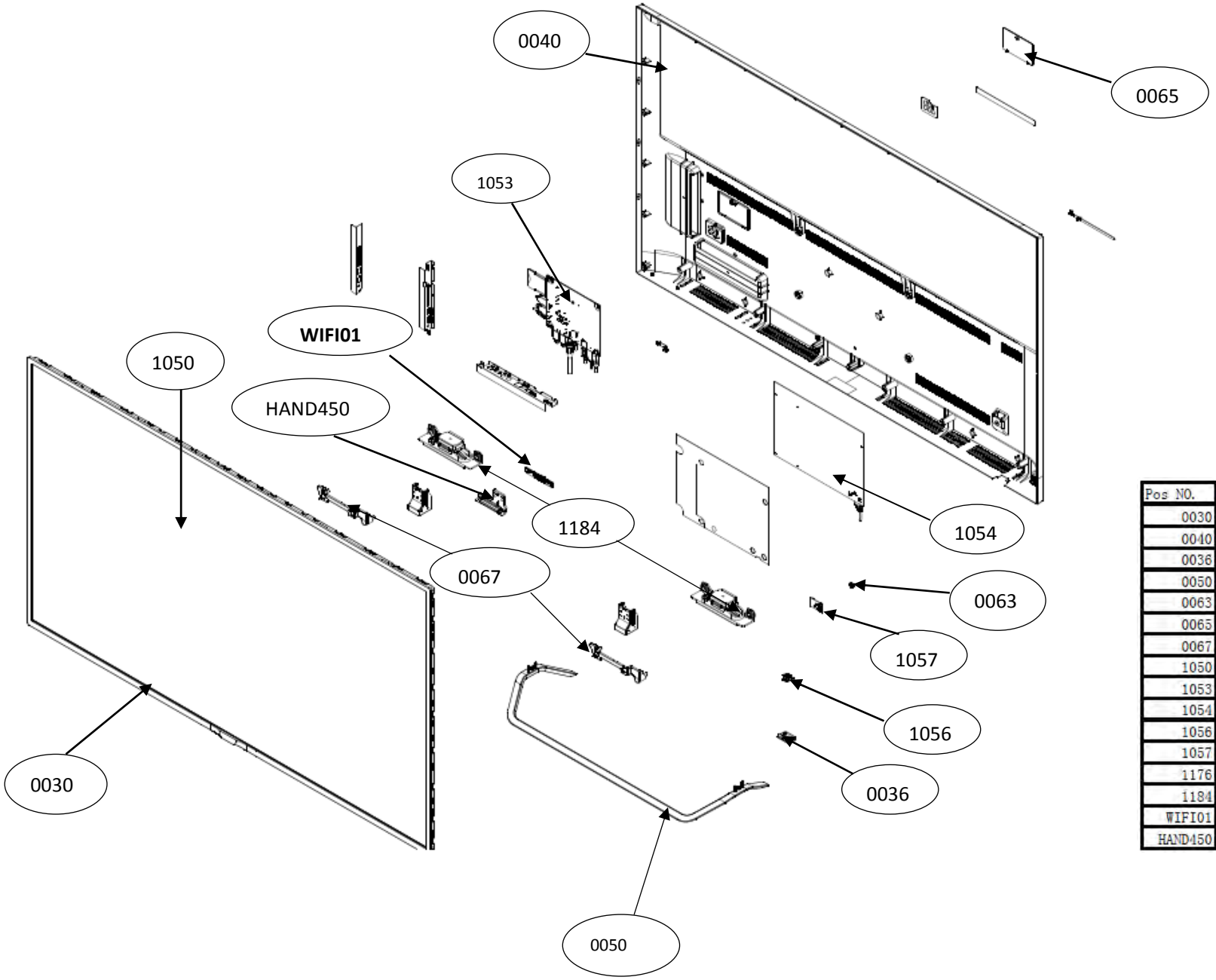
Pos NO.	Description	Remark
0030	BEZEL	
0036	LENS_IR	
0040	REAR COVER	
0047	HDD Holder	
0063	KEY_FUNCTION	
0065	COVER_CLOCK_REAR	
1050	DISPLAY PANEL	
1053	PANEL SSB	
1054	POWER SUPPLY UNIT	
1056	IR/LED PANEL	
1057	KEYBOARD CONTROL PANEL	
1176	REMOTE control	Not displayed
1184	SPEAKER	
5050	BASE PLATE	
5090	STAND NECK	
WIFI01	WIFI USB	
HAND450	Case_holder	

9.3 6262 series 49"/50"/55"



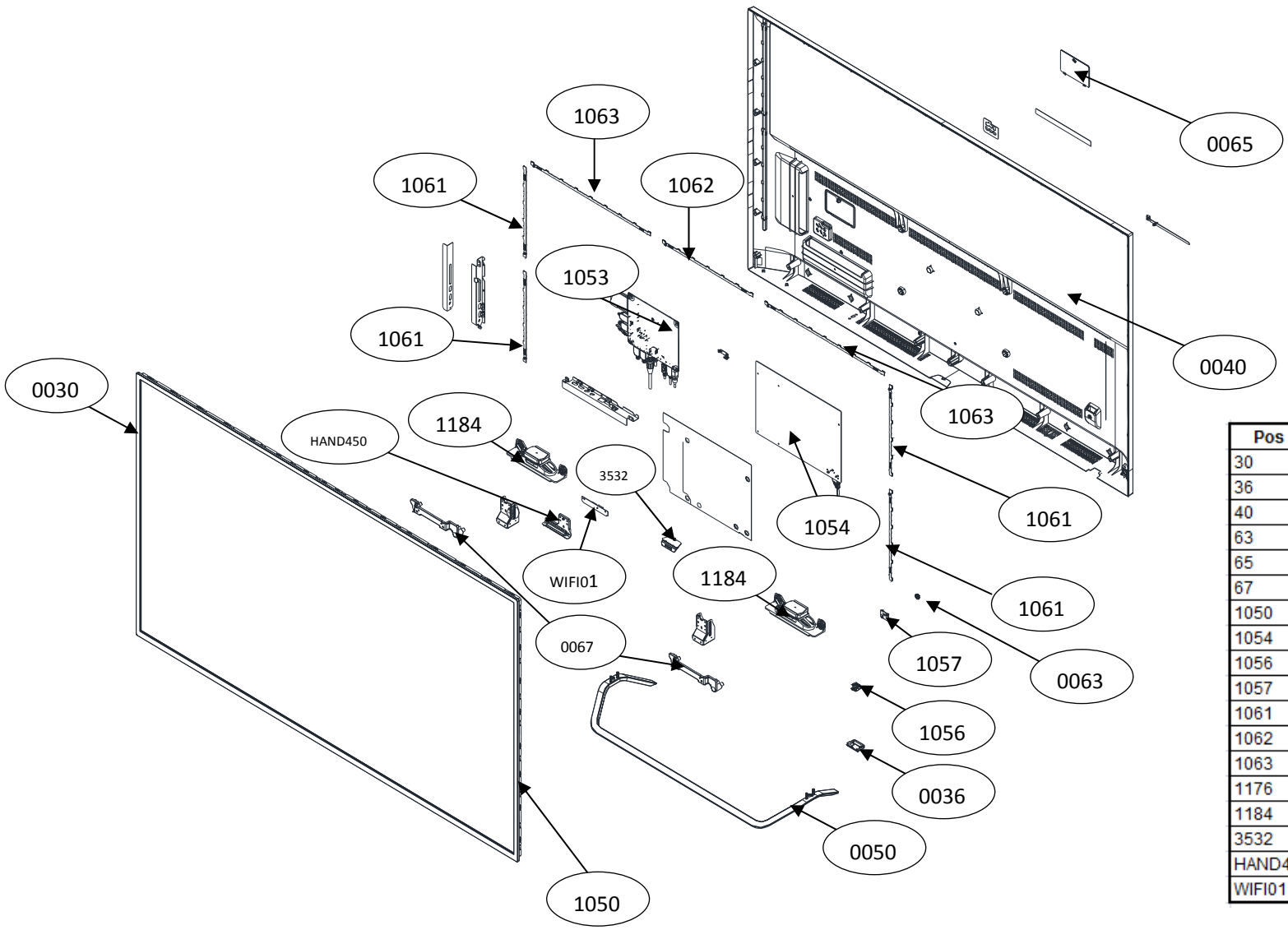
Pos NO.	Description	Remark
0030	BEZEL	
0036	LENS_IR	
0040	REAR COVER	
0047	HDD Holder	
0050	BASE	
0063	KEY_FUNCTION	
0065	COVER_CLOCK_REAR	
1050	DISPLAY PANEL	
1053	PANEL SSB	
1054	POWER SUPPLY UNIT	
1056	IR/LED PANEL	
1057	KEYBOARD CONTROL PANEL	
1061	AMBILIGHT ASSY(LED 6)	
1176	REMOTE control	Not displayed
1184	SPEAKER	
3532	DECO_LOGO	
WIFI01	WIFI USB	
HAND450	Case_holder	

9.4 6162 series 65"



Pos NO.	Description	Remark
0030	BEZEL	
0040	REAR COVER	
0036	LENS_IR	
0050	BASE	
0063	KEY_FUNCTION	
0065	COVER_CLOCK_REAR	
0067	COVER_SPK	
1050	DISPLAY PANEL	
1053	PANEL SSB	
1054	POWER SUPPLY UNIT	Not displayed
1056	IR/LED PANEL	
1057	KEYBOARD CONTROL PANEL	
1176	REMOTE control	
1184	SPEAKER	
WIFI01	WIFI USB	
HAND450	Case_holder	

9.5 6262 series 65"



Pos No	Description	Remark
30	BEZEL ASSY	
36	LENS_IR	
40	REAR COVER	
63	KEY_FUNCTION	
65	COVER_CLOCK_REAR	
67	COVER_SPK	
1050	LCD Panel	
1054	POWER BOARD ASSY	
1056	IR BOARD ASSY	
1057	KEY BOARD ASSY	
1061	AMBILIGHT ASSY(4)	
1062	AMBILIGHT ASSY	
1063	AMBILIGHT ASSY(2)	
1176	REMOTE CONTROL	Not displayed
1184	SPEAKERS	
3532	DECO_LOGO	
HAND450	Case_holder	
WIFI01	WIFI USB	