# LCD Television

# Service Manual

Chassis： Hi3751ARBCV5510A00 (HI3751V551)

Version: V 1.00

Hisense Electric Co.，Ltd.

September 2018

| REVISION HISTORY | | | |
|---|---|---|---|
| Version | Revise content | Reviser | Date |
| V1.00 | First issued | | 2018-09-27 |
| | | | |
| | | | |

# Contents

# Service Manual

## 1. Precautions and notices

BEFORE SERVICING THE LCD TV, READ THE SAFETY PRECAUTIONS IN THIS MANUAL.

USE ONLY MANUFACTURER SPECIFIED REPLACEMENT PARTS WHEN SERVICING.

USE OF NON-AUTHORIZED PARTS WILL VOID THE MANUFACTURE'S WARRANTY

Proper service and repair is important to the safe, reliable operation of all Hisense Equipment. The service procedures recommended by Hisense and described in this Service Guide are effective methods of performing service operations. Some of these service operations require the use of tools specially designed for the purpose. The special tools should be used when and as recommended.

It is important to note that this manual contains various CAUTIONS and NOTICES which should be carefully read in order to minimize the risk of personal injury to service personnel. The possibility exists that improper service methods may damage the equipment and pose risk of personal injury

. It is also important to understand that these CAUTIONS and NOTICES ARE NOT EXHAUSTIVE. Service should only be performed by an experienced electronics

techician trained in the proper Television safety and service methods and procedures Hereafter throughout this manual, HISENSE will be referred to.

## 1.1 Warning

1.1.1

Critical components having special safety characteristics are identified with a ⚠ by the Ref. No. in the parts list. Use of non-manufacturer's recommended parts may create shock, fire, or other hazards. Under no circumstances should the original design be modified or altered without written permission from RCA. Hisense Eassumes no liability, express or implied, arising out of any unauthorized modification of design. Servicetech assumes all liability.

1.1.2.

All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically. When repairing, be sure to use anti-static table mats and properly use a grounding wrist stra. Keep components and tools also at this same potential.

IMPORTANT:

Always disconnect the power cord from AC outlet before replacing parts or modules.

1.1.3

To prevent electrical shock, use only a properly grounded 3 prong outlet or extension cord.

1.1.4

When replacement parts are required, be sure to use replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards and will void the manufacturer's warranty.

1.1.5

Safety regulations require that after a repair the set must be returned in its original condition. In addition, prior to closing set, check that:

-Note:

>All wire harnesses and flex cables are properly routed and secured with factory tape and/or mounted cable clamps.

> All cables and connectors are properly insulated and do not have any bare wires/lead exposed

1.1.6

(1) Do not supply a voltage higher than that specified to this product. This may damage the product and may cause a fire.

(2) Do not use this product:

> High humidity areas

> In an area where any water could enter or splash into the unit.

High humidity and water could damage the product and cause fire.

(3) If a foreign substance (such as water, metal, or liquid) gets inside the panel module, immediately turn off the power. Continuing to use the product may cause fire or electric shock.

(4) If the product emits smoke, and abnormal smell, or makes an abnormal sound, immediately turn off the power. Continuing to use the product, it may cause fire or electric shock.

(5) Do not pull out or insert the power cable from/to an outlet with wet hands. It may cause electric shock.

(6) Do not damage or modify the power cable. It may cause fire or electric shock.

(7) If the power cable is damaged, or if the connector is loose, do not use the product: otherwise, this can lead to fire or electric shock.

(8) If the power connector or the connector of the power cable becomes dirty or dusty, wipe it with a dry cloth. Otherwise, this can lead to fire.

(9) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over

## 1.2 Notes

Notes on Safe Handling of the LCD panel and during service

The work procedures shown with the Note indication are important for ensuring the safety of the product and the servicing work. Be sure to follow these instructions.

• Before starting the work, secure a sufficient working space.

• At all times other than when adjusting and checking the product, be sure to turn OFF the POWER Button and disconnect the power cable from the power source of the TV during servicing.

• To prevent electric shock and breakage of PC board, start the servicing work at least 30 seconds after the main power has been turned off. Especially when installing and removing the power board, start servicing at least 2 minutes after the main power has been turned off.

• While the main power is on, do not touch any parts or circuits other than the ones specified. If any connection other than the one specified is made between the measuring equipment and the high voltage power supply block, it can result in electric shock or may trip the main circuit breaker When installing the LCD module in, and removing it from the packing carton, be sure to have at least two persons perform the work.

• When the surface of the panel comes into contact with the cushioning materials, be sure to confirm that there is no foreign matter on top of the cushioning materials before the surface of the panel comes into contact with the cushioning materials. Failure to observe this precaution may result in, the surface of the panel being scratched by foreign matter.

• Be sure to handle the circuit board by holding the large parts as the heat sink or transformer. Failure to observe this precaution may result in the occurrence of an abnormality in the soldered areas.

• Do not stack the circuit boards. Failure to observe this precaution may result in

problems resulting from scratches on the parts, the deformation of parts, and short-circuits due to residual electric charge.

• Perform a safety check when servicing is completed. Verify that the peripherals of the serviced points have not undergone any deterioration during servicing. Also verify that the screws, parts and cables removed for servicing purposes have all been returned to their proper locations in accordance with the original setup.

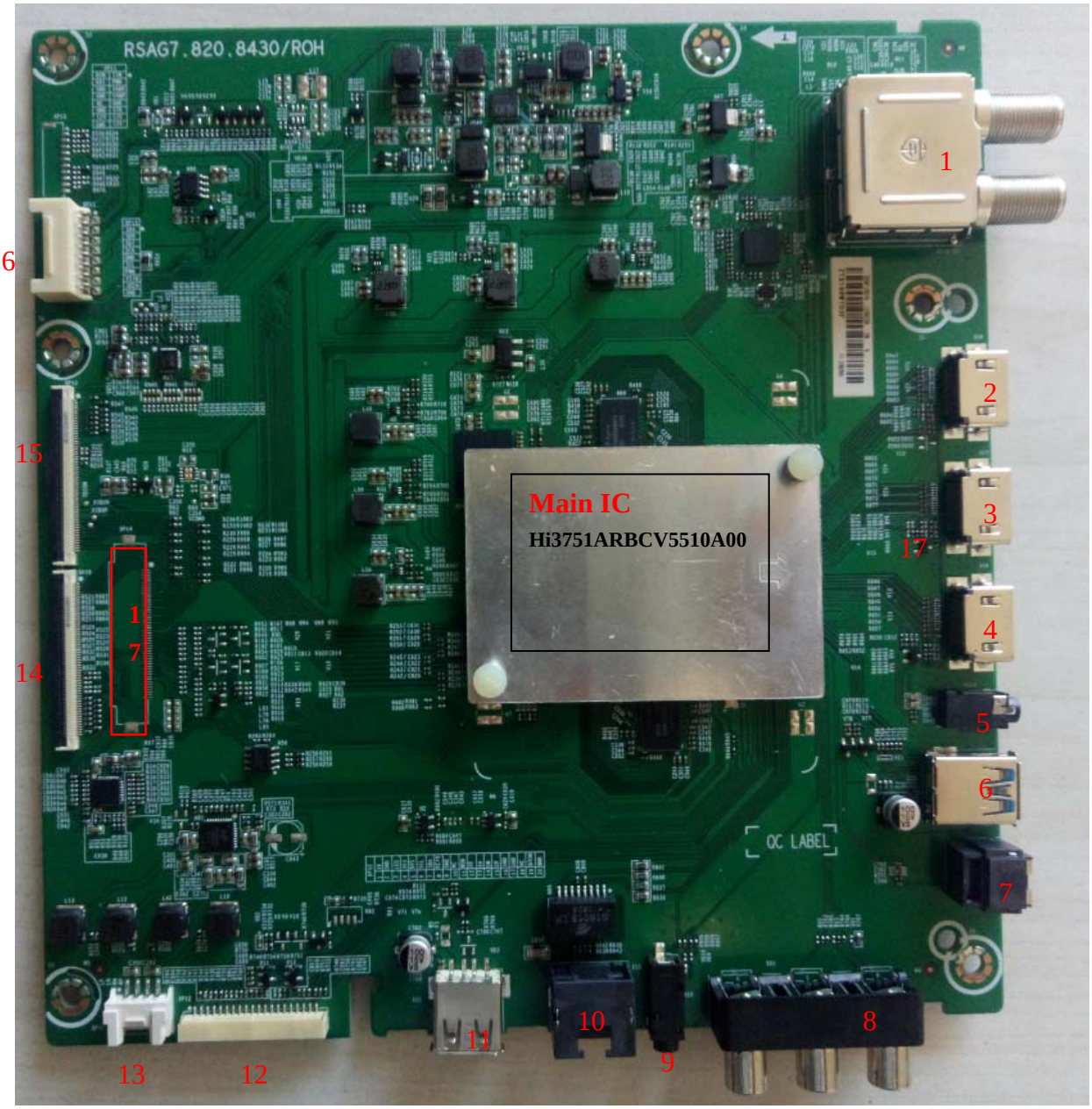
The lightning flash with arrowhead symbol, within an equilateral triangle is intended to alert the user to the presence of uninsulated dangerous voltage within the products enclosure that may be of sufficient magnitude to constitute a risk of electric shock.

The exclamation point within an equilateral triangle is intended to alert the service personnel to important safety information in the service literature. .

# 2. TV boards:

## 2.1 Main board layout

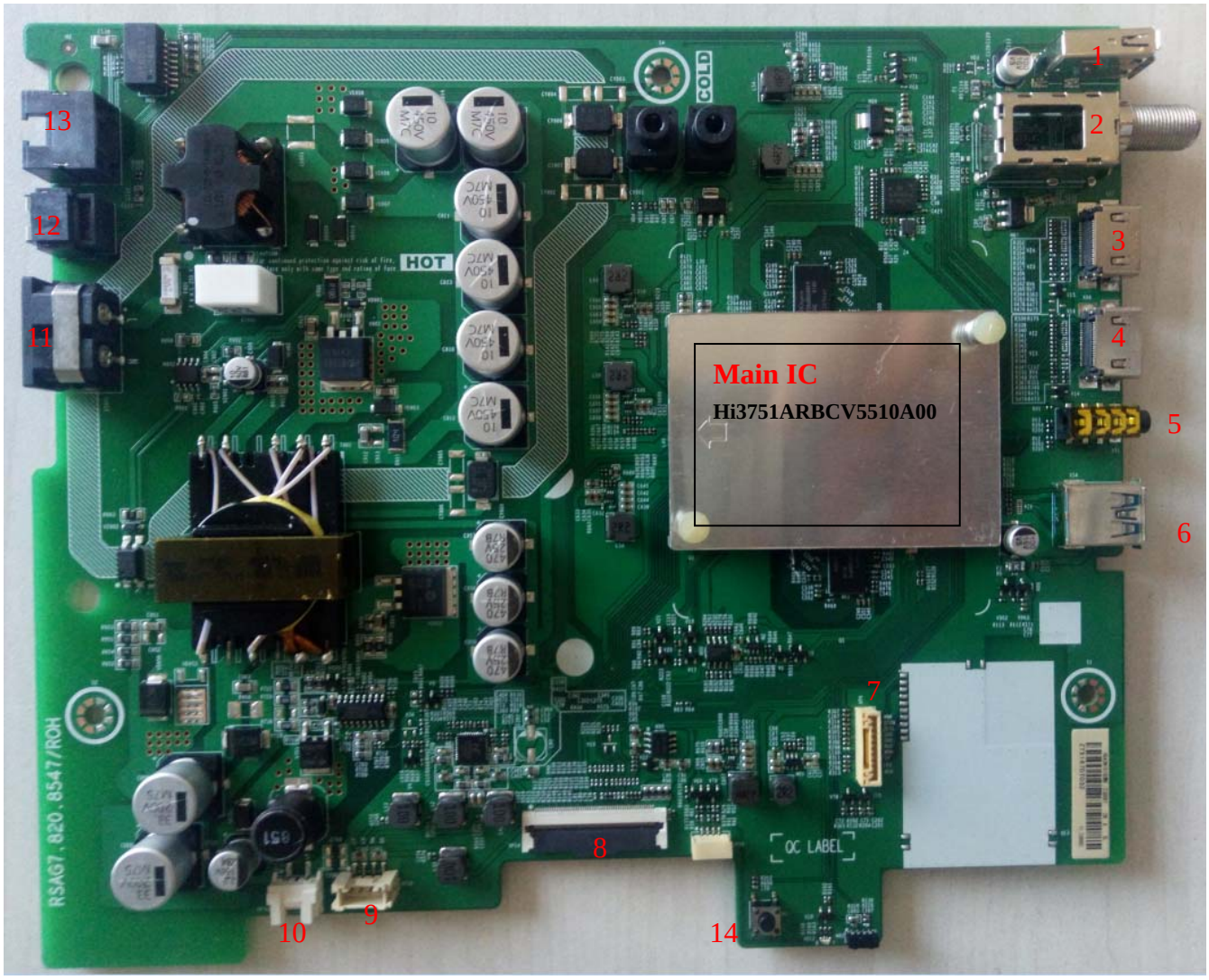
2.1.1 The top of board 8430:



Terminals of board 8430 description:

| | Position | Description | Market |
|---|---|---|---|
| 1 | U7 | RF Input | |
| 2 | XS8 | HDMI 1 | |
| 3 | XS7 | HDMI 2 | |
| 4 | XS6 | HDMI 3 | |
| 5 | XS10 | Headphone | |
| 6 | XS4 | USB3.0 | |
| 7 | XS3 | SPDIF | |
| 8 | XS1 | AV IN | |
| 9 | XS9 | Service Port | |
| 10 | XS5 | LAN | |
| 11 | XS2 | USB (2.0) | |
| 12 | XP12 | IR/key/ LED/WIFI | |
| 13 | Xp10 | Speaker amplifier | |
| 14 | Xp16 | Mini LVDS | |
| 15 | XP13 | Mini LVDS | |
| 16 | XP11 | Power input | |
| 17 | Xp14 | FFC | Use it to connect the TCON module,such as HS65A6100UWB(1000) |

2.1.2 The top of board 8547 :

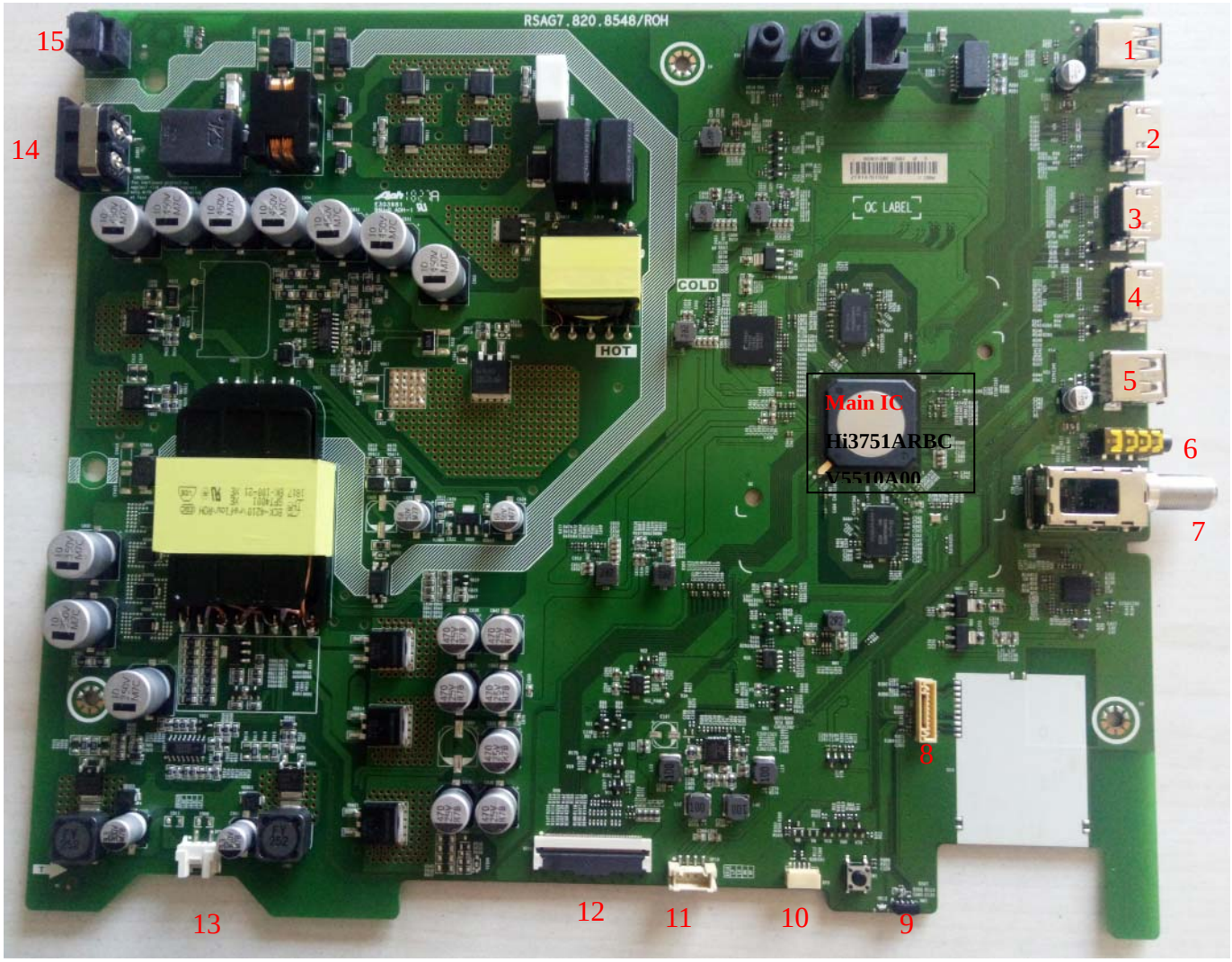



Terminals of board 8547 description:

| | Position | Description | Market |
|---|---|---|---|
| 1 | XS2 | USB2.0 | |
| 2 | XS12 | RF input | |
| 3 | XS7 | HDMI | |

| | | | |
|---|---|---|---|
| 4 | XS6 | HDMI (ARC) | |
| 5 | XS1 | AV Input | |
| 6 | XS4 | USB3.0 | |
| 7 | XP6 | IR/BT/WIFI | |
| 8 | XP14 | Mini LVDS | |
| 9 | XP10 | Speaker AMP | |
| 10 | XP701 | Power for Panel Led bar | |
| 11 | XS801 | Power input | |
| 12 | XS3 | SPDIF out | |
| 13 | XS5 | LAN | |
| 14 | SW1 | Key | |

## 2.1.3 The top of board 8548:




9-1

The top of board 8548

| | Position | Description | Market |
|---|---|---|---|
| 1 | XS10 | USB3.0 | |
| 2 | XS20 | HDMI | |
| 3 | XS9 | HDMI | |
| 4 | XS8 | HDMI(ARC) | |
| 5 | XS25 | USB2.0 | |
| 6 | XS14 | AV input | |
| 7 | XS11 | RF input | |
| 8 | XP6 | IR/WIFI/BT | |
| 9 | N82 | IR receive | |
| 9-1 | SW1 | Key | |
| 10 | XP8 | Led effective | |
| 11 | XP10 | Speaker AMP | |
| 12 | XP14 | Mini LVDS | |
| 13 | XP901 | Power for Panel Led bar | |
| 14 | XS801 | Power input | |
| 15 | XS15 | SPDIF | |

## 2.2 TV boards part list

| Board type | TV type |
|---|---|
| 8430 | HSxxA6100UWB |
| 8547 | HS43N1810UWB…… |
| 8548 | HS50N1810UWB…… |

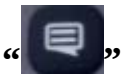
# 3. Factory/Service OSD Menu and Adjustment

## 3.1 Remote Control


Note:
Only for reference, logo and button silk-screen can vary for different customers.

## 3.2 How to enter the Factory OSD Menu

**. With user's RC**

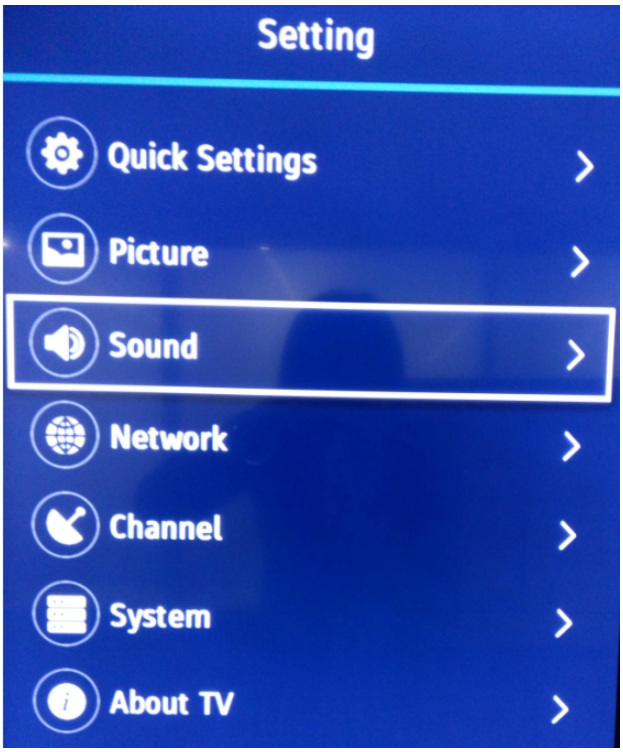
1. Power TV on
2. Press **"**  **"** button on the RC then call up "**Menu**" option
3. Select **Settings** ->**Sound**-> **Advanced setting** -> **Balance**
4. When Balance is "0" , Input 1->9->6->9 in sequence on RC.

Note: It is important to remind that the hand fingers can't shield the RC emitter diode. If necessary ,re-enter number keys.

5. Factory OSD appears.
6. DC power off and DC power on the TV, which can exit Factory OSD.

## Figures as following:

Select **" Setting"** -> **"Sound"**



**Next** Select **Sound-> Advanced setting -> Balance**


**Next： Balance interface**

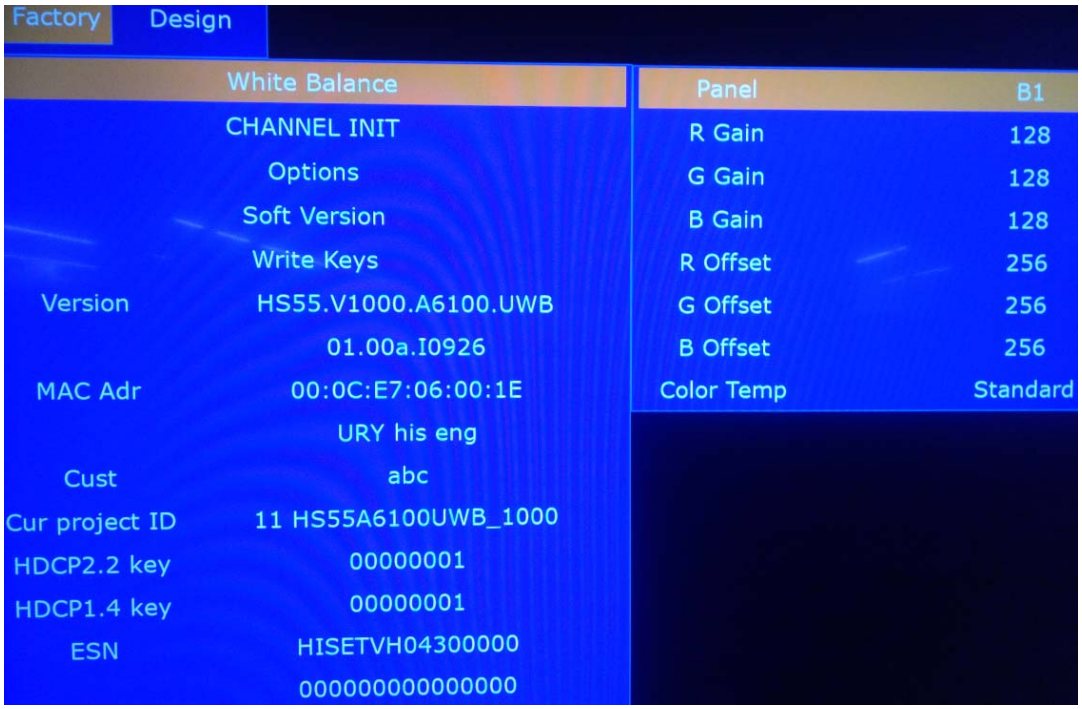

Input “1969” in sequence, when balance is “0”.

When Balance is “0” ,enter figure “1->9->6->9” in sequence with remote control..

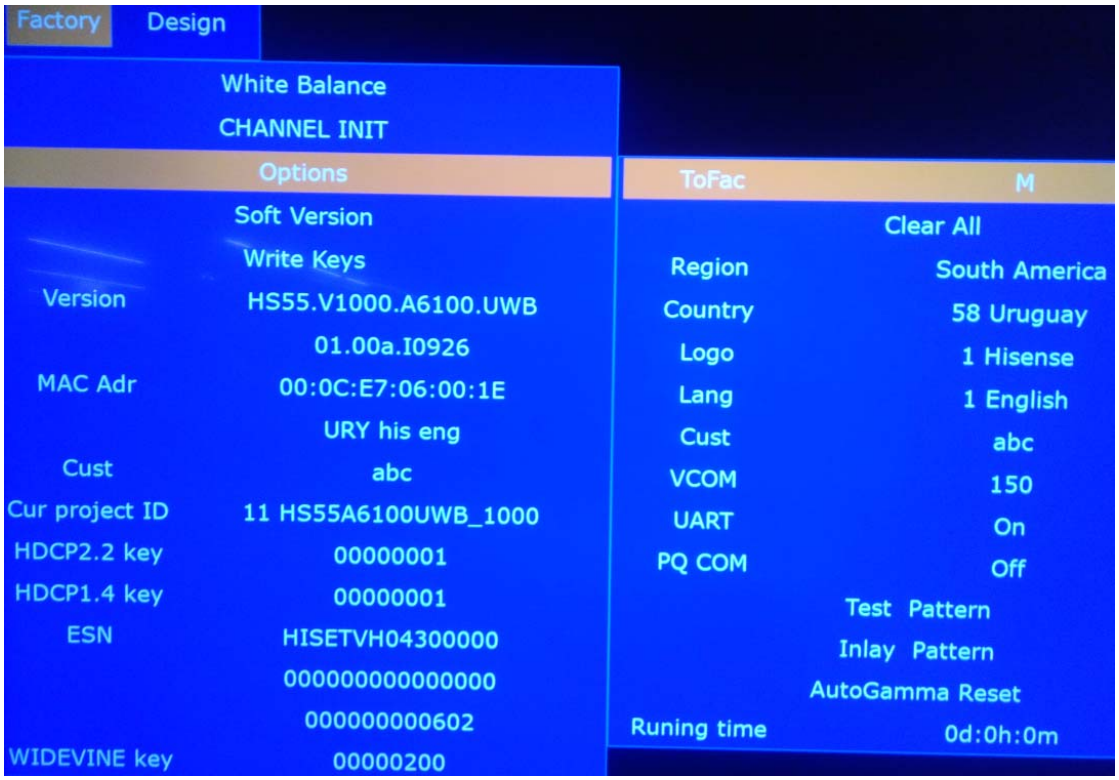
## 3.3 Factory OSD Menu

Factory OSD menu list: if you want to learn more about TV, you'd better read it but would not adjust the value please. The Factory menu may have difference for diverse market and customer. Take HS55A6100UWB(1000) for example.

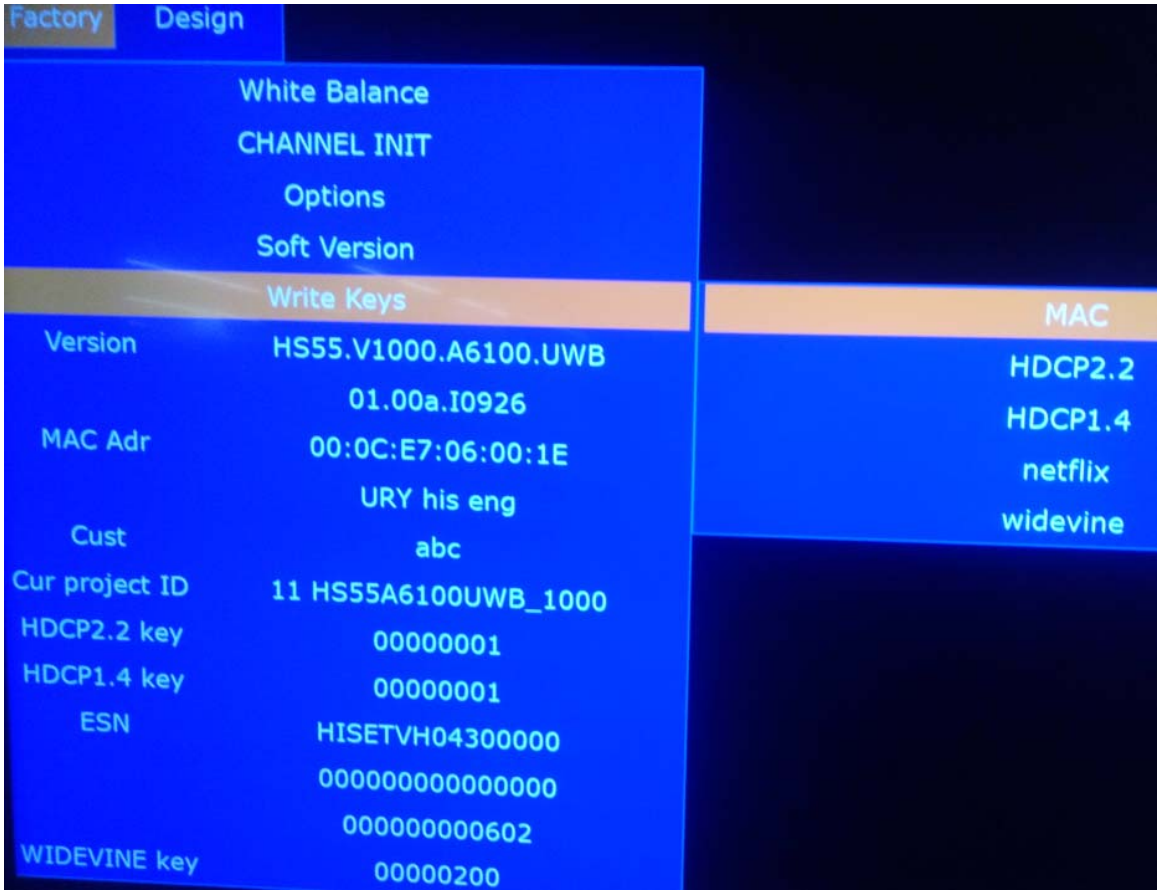
White Balance→




Option→



Write key→


Factory
Design
White Balance
CHANNEL INIT
Options
Soft Version
Write Keys
MAC
HDCP2.2
HDCP1.4
netflix
widevine
Version
HS55.V1000.A6100.UWB
01.00a.I0926
MAC Adr
00:0C:E7:06:00:1E
URY his eng
Cust
abc
Cur project ID
11 HS55A6100UWB_1000
HDCP2.2 key
00000001
HDCP1.4 key
00000001
ESN
HISETVH04300000
000000000000000
000000000602
WIDEVINE key
00000200

| | Factory menu | Description | Remark |
|---|---|---|---|
| Menu | **White Balance** | White Balance data adjusting, different source has different WB values. Before adjusting, please change to desired source. | |
| | **Channel Init** | TV Produce signal preset, during the factory produce using. | |
| | **Option** | Items can choose | |
| | **Write Key** | Once key lost , can use this item to write key | |
| | **Design Menu** | | |
| | **UART** | ENABLE/ DISABLE | |
| | **Upgrade** | | |
| | **Country Logo Language** | | |
| | **Cust** | | |
| | **Version** | **S**oftware Version information | |
| | **MAC** | MAC address information | |
| | **Cur Project ID** | Display the TV model | |
| | **HDCP2.2 key** | HDCP2.2 key information | |
| | **HDCP1.4 key** | HDCP2.2 key information | |
| | **ESN** | | |
| | **Widevine key** | | |

| White Balance | BIN B1 | can choose B1/B2/B3/B4/B5/B6 |
|---|---|---|
| | R Gain 128 | High Brightness Red |
| | G Gain 128 | High Brightness Green |
| | B Gain 128 | High Brightness Blue |
| | R Offset 128 | Low Brightness Red |
| | G Offset 128 | Low Brightness Green |
| | B Offset 128 | Low Brightness Blue |

| **Channel init** | huangdao | |
|---|---|---|
| Option | ToFAC M/U | "M" used in factory product.<br>"U" used in exit factory state, |
| | Clear all | initialize the factory signal ,<br>EEPROM reset |
| | Area | |
| | Region | |
| | country | country choose |
| | Logo | region logo choose |
| | Language | |
| | Cust | Smart TV |
| | VCOM | |
| | Uart | On/off |
| | PQ COM | |

Note:

The Factory menu may be have difference for diverse market and customer, above Factory menu only for reference.

### 3.2.1

**White Balance:**

Different source has different WB values. Before adjusting, please change to desired source.

**Option:**

Clear all function in it.

**Write Key Include:**

| |
|---|
| MAC |
| HDCP 2.2 |
| HDCP1.4 |
| Netflix |
| Widevine |

**3.2.2** The Keys information must been checked, if appear “NG” or messy code, which must rewrite key code.

**Note:**

**Check whether the Key information under the current Version is OK, if appears “NG” or as following red surround information then need rewrite the key.**

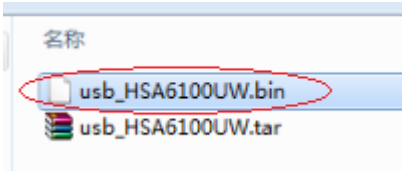
# 4. Software Upgrading

## 4.1 USB Upgrading

**Main software upgrading directly with USB**

The main software can be upgraded with USB Disk. Take HS55A6100UWB(1000) for example.

First, Decompress the main software “usb_HSA6100UW..bin” file to the USB root Disk.

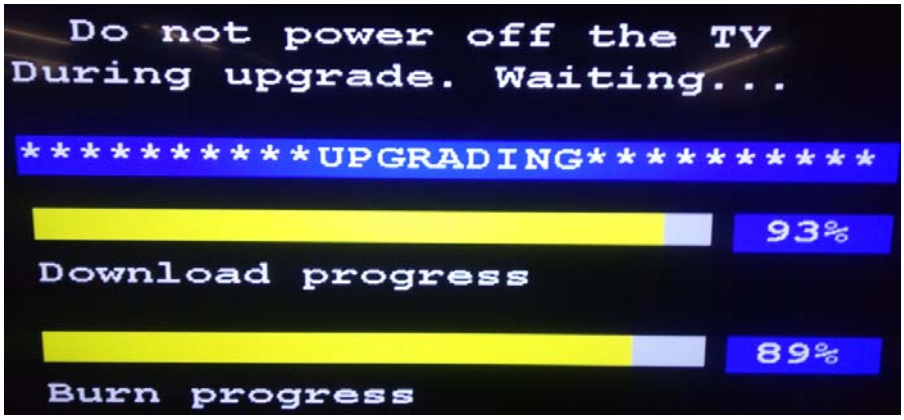



Second, ensure there are no other “*.bin” files in the root directory of USB Disk

### 4.1.1 When TV in Factory status ,USB auto upgrade.

AC power off TV, Insert the USB Disk to TV USB 2.0 port, then AC power on the TV.

- The TV will identify the software and upgrade automatically then pop up the update process bar. It need about spend 7-8 minutes to complete the update.




Next

| INFO<br><br>Upgrade succeed,<br><br>Please reboot he machine. |
|---|

- After update success, TV can automatically restart.

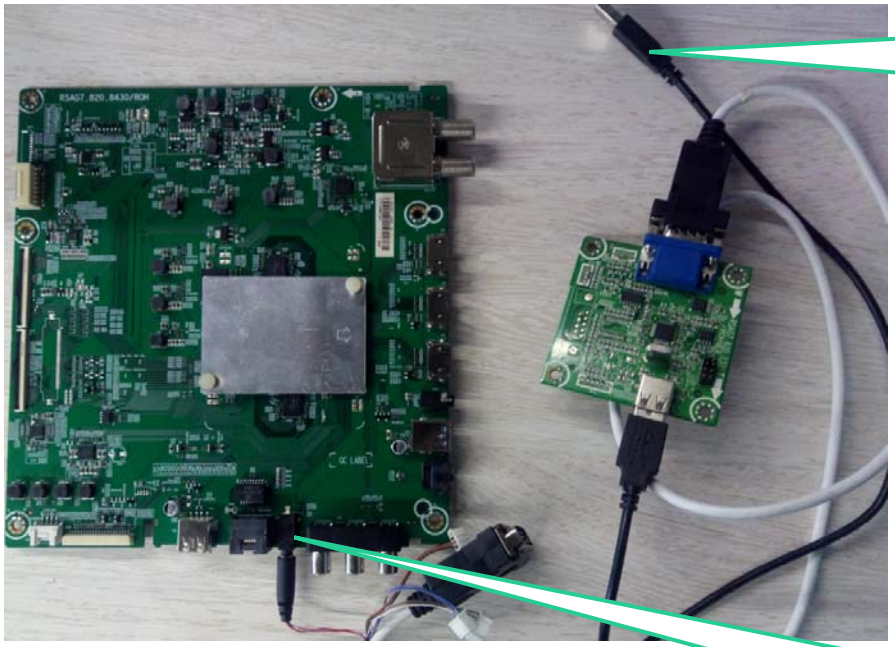
### 4.1.2 When TV in user status ,USB force upgrade(with button)

- AC power off TV, Insert the USB Disk to TV USB 2.0 port, then AC power on the TV.
- after 5 seconds ,press 1 time standby button ,next immediately constantly press the  button on the remote control . Till bounce the update interface…..

## 4.2 Force upgrade with upgrade TOOL

### 4. 2. 1 Hardware serial connecting

- If USB upgrade failure 、Panel backlight normal but black panel 、picture abnormal.
- Connect the unit to your pc with a USB-to-serial port cable. USB port connects to your PC and serial port to the TV's debug port. As following



### 4.2.2 **Mstar USB-serial driver**

If First use Mstar bebug Tool, you have to install drive software f.

If your PC is Windows XP system:

First install FTCUNIN.EXE of FTC100103(MSTAR) rar file in your PC.

This is a drive software of Mstar


Another:

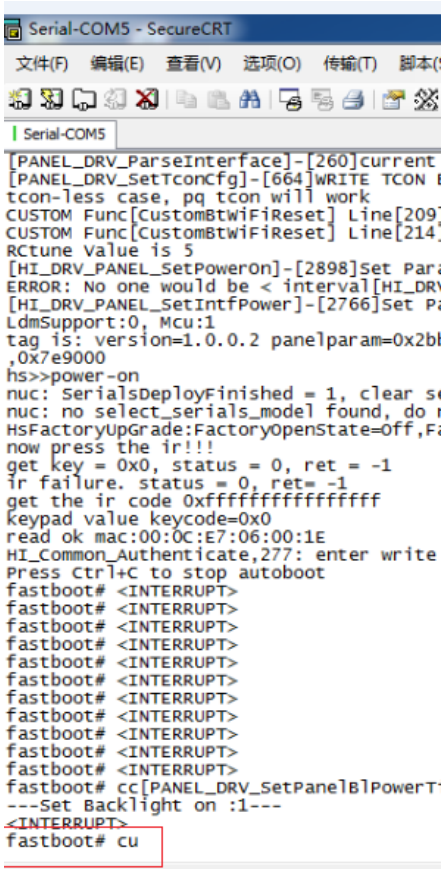
If your PC is Win7 system, you will have to install CDM20802_Setup_WIN7 rar file，and then open the software of SecureCRT in your PC.

### 4.2.3 connect with SecureCRT

1) TV power on.
2) SecureCR tool print information can appear or not.
3) Insert the USB disk
4) Upgrade serial has connected.

Run SecureCRT.exe

AC power off the TV and then AC power on ,at the moment press the “ctrl +c” keyboard. Enter”fastboot#”model, behide input lower-case letter “cu “ enter; next appear the upgrade interface.



## Notice:

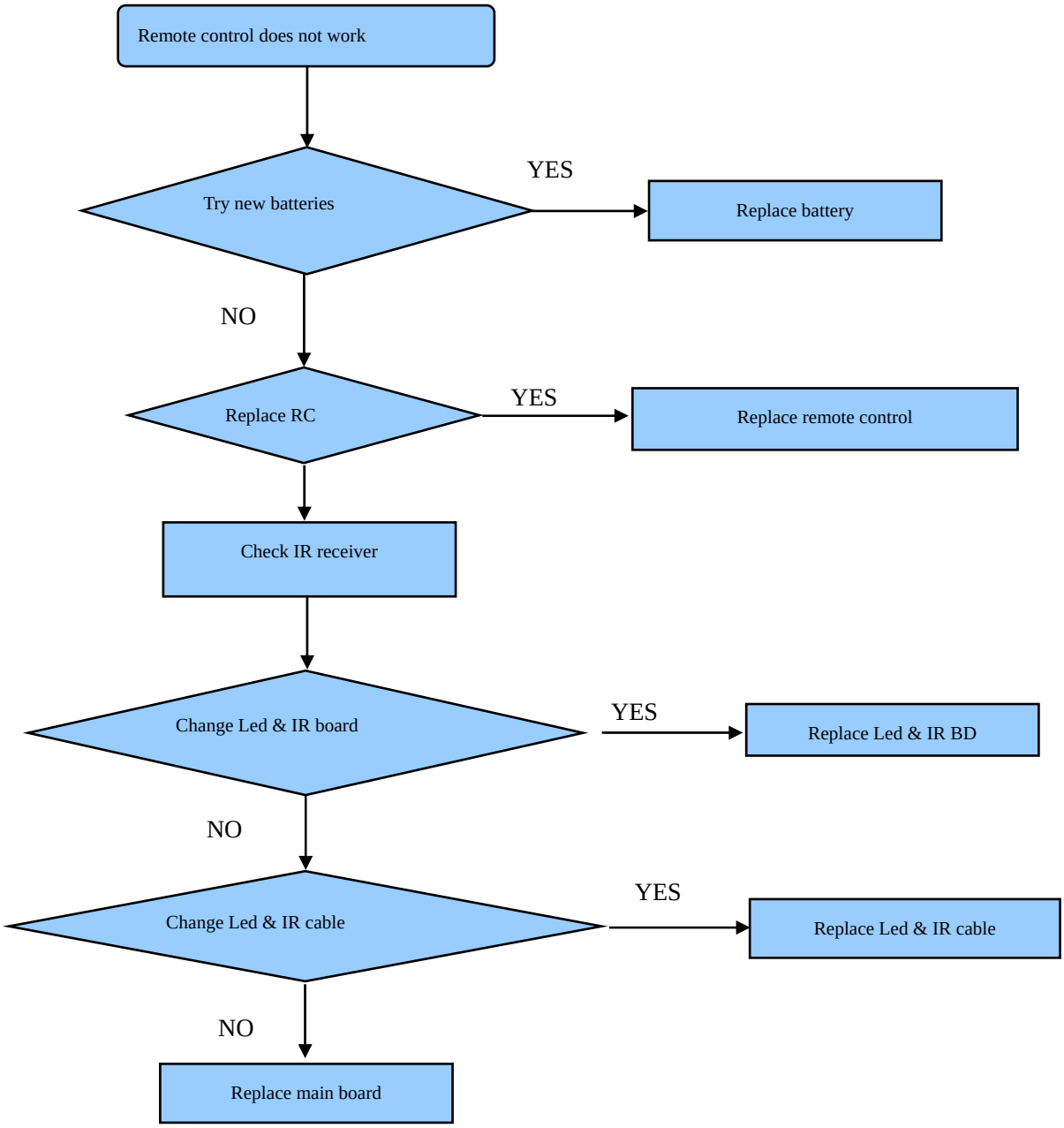
1、After upgrading ,remember to pull off the USB disk. Otherwise TV will upgrade automatically next power AC.

2、Can not USB upgrade the null IC.

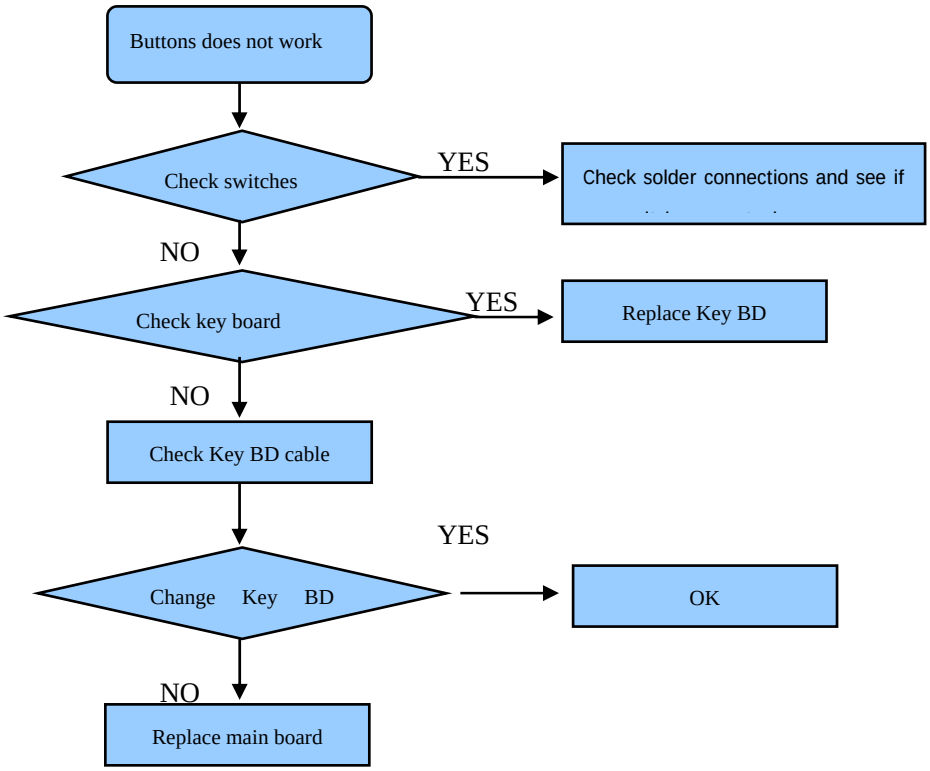
3、 USB disk insert to USB2.0 port of TV ,Not USB3.0 port

# 5. Trouble shooting

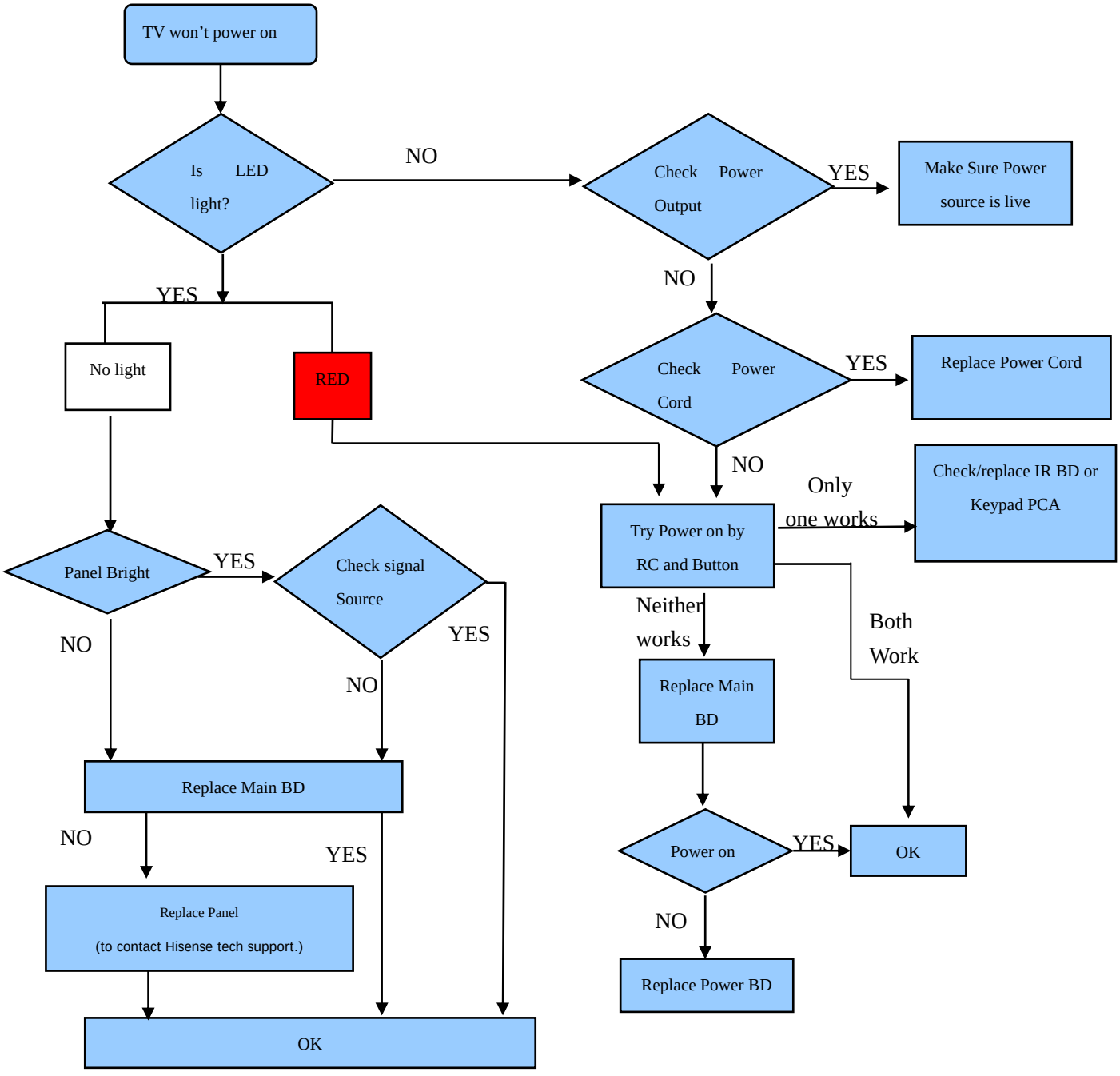
## 5.1 Troubleshooting for Remote Control



## 5.2 Troubleshooting for Function Key



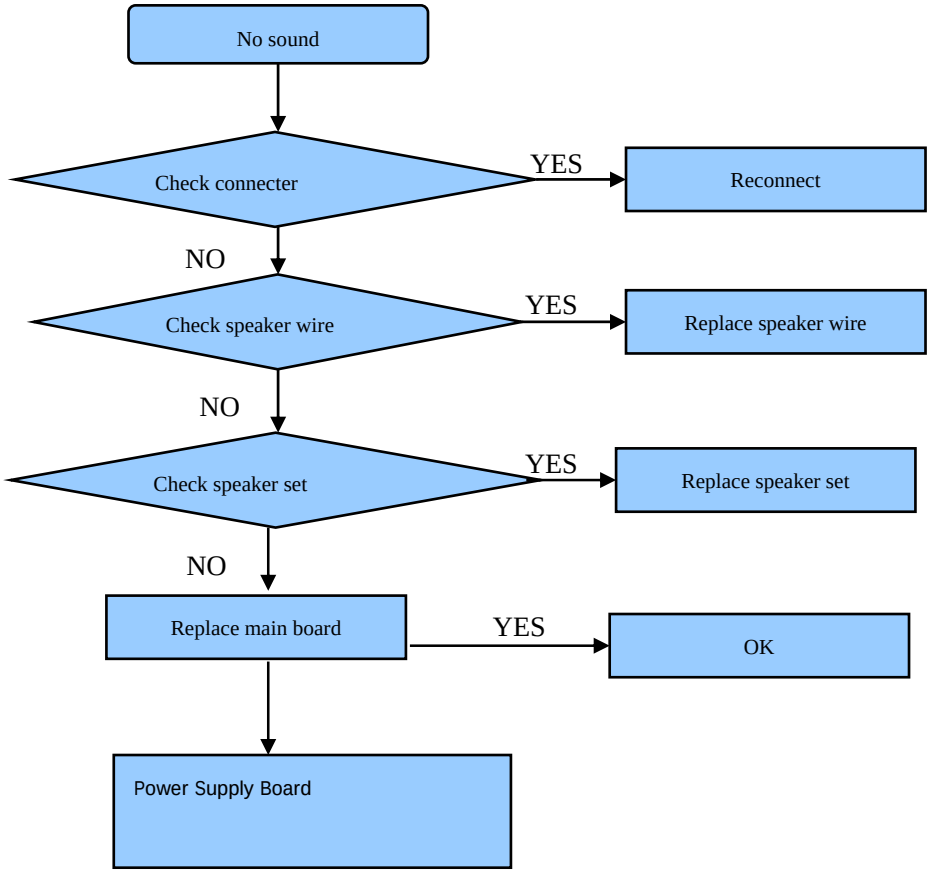
## 5.3 TV won’t Power On



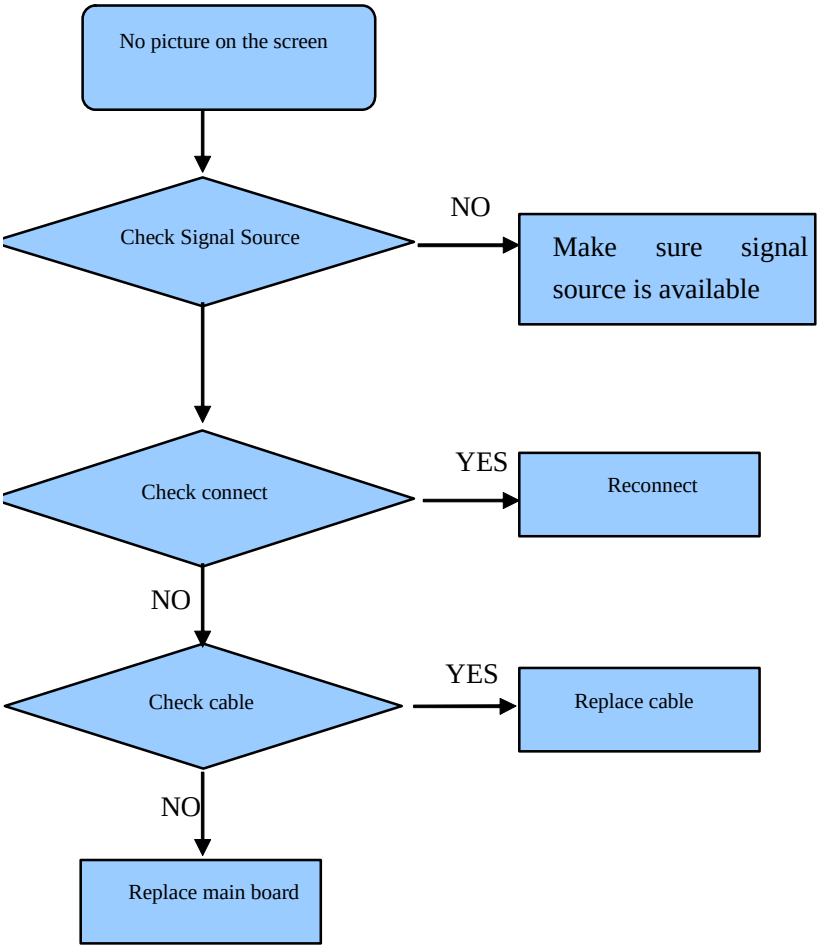

**Note:**

HI3751V551US market:
TV works indication led is no light.
TV standby indication led is red.

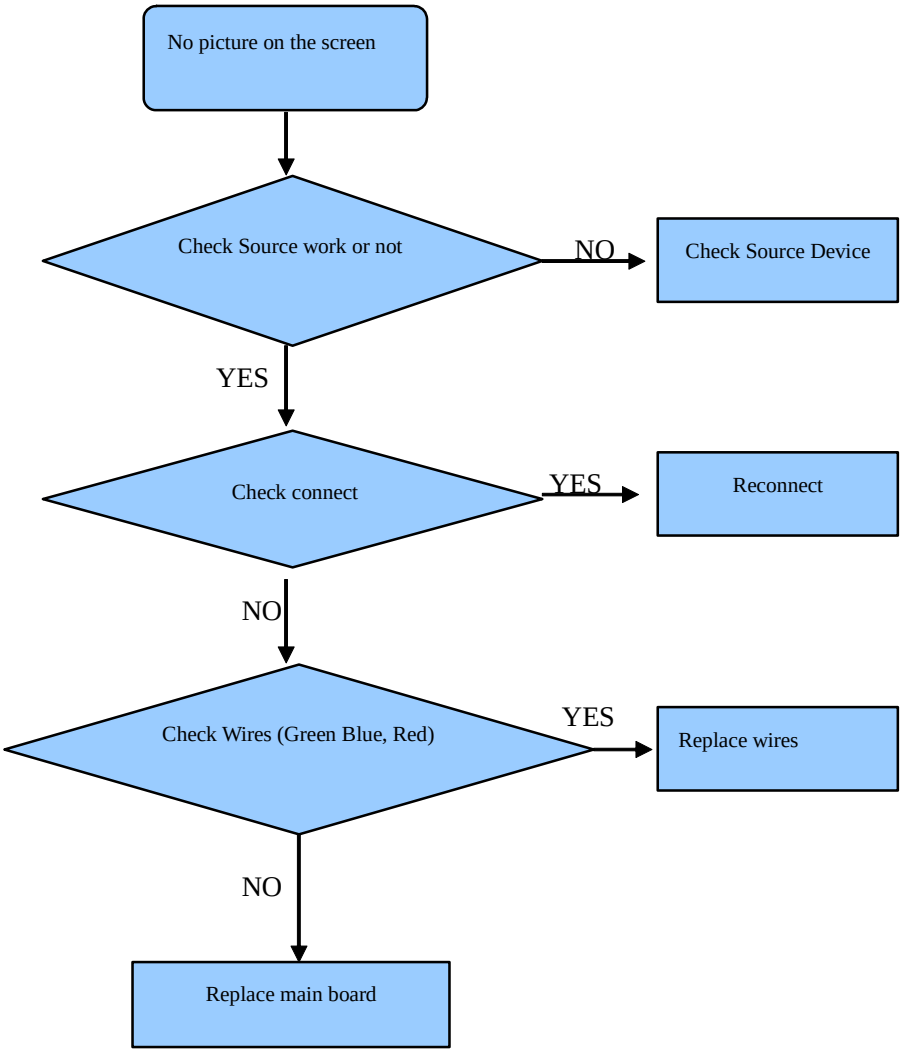
## 5.4 Troubleshooting for Audio



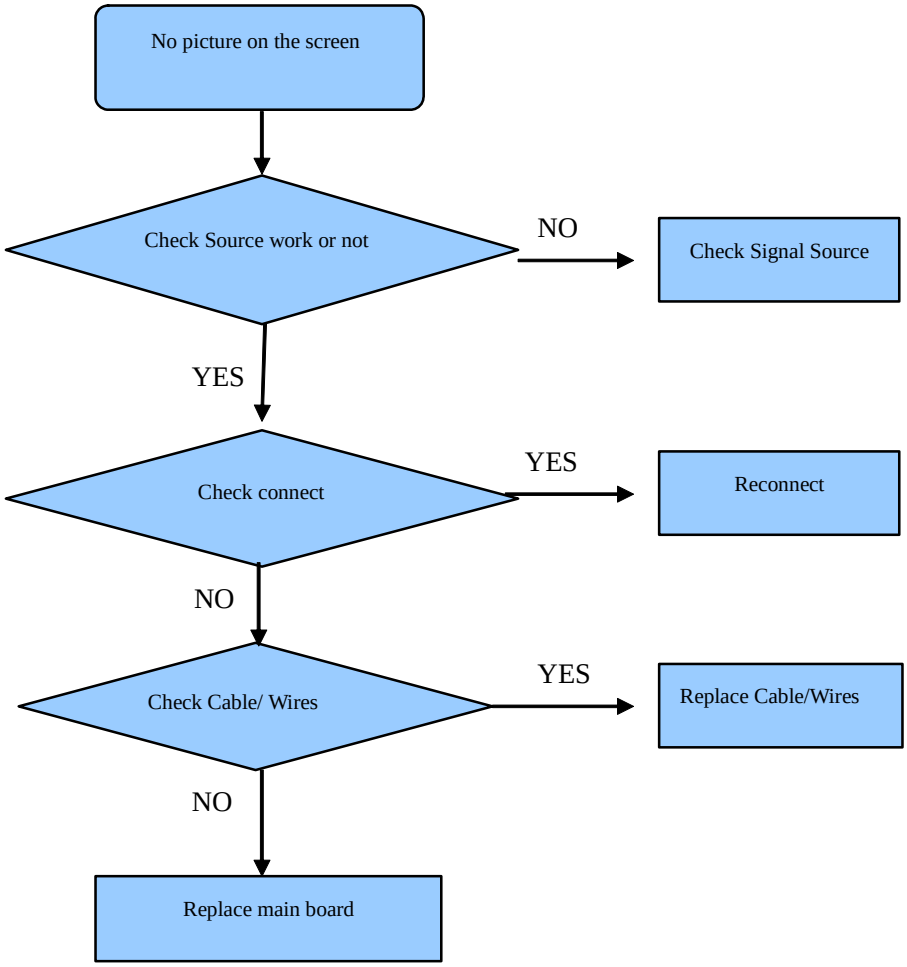
## 5.5 Troubleshooting for TV/HDMI input



## 5.6 Troubleshooting for YPbPr input



## 5.7 Troubleshooting for Video input



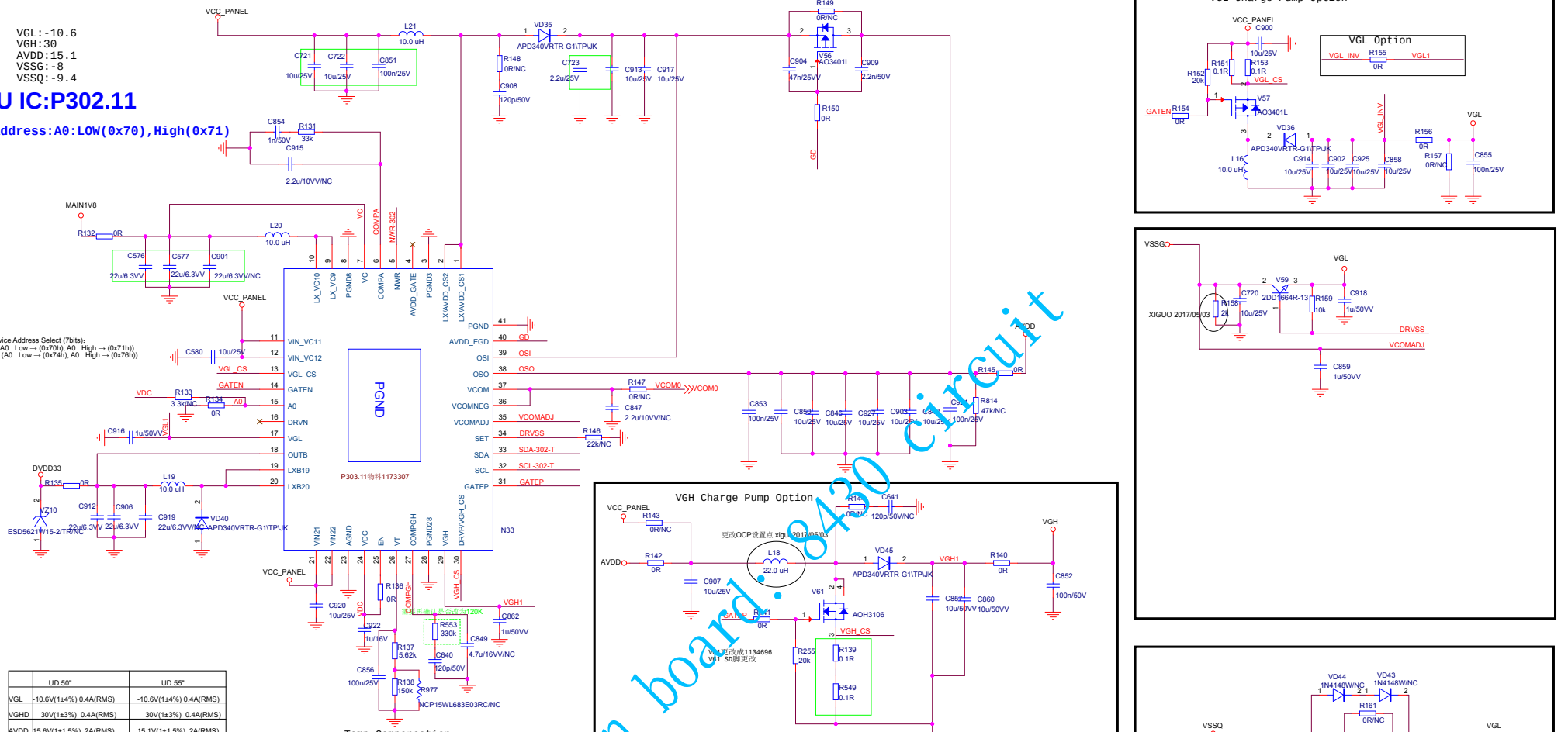

## 5. Trouble shooting

## 6. Schematic diagram

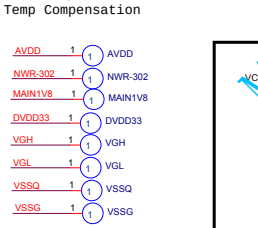
VGL:-10.6
VGH:30
AVDD:15.1
VSSG:-8
VSSQ:-9.4

# PMU IC:P302.11

**I2C Address:A0:LOW(0x70),High(0x71)**

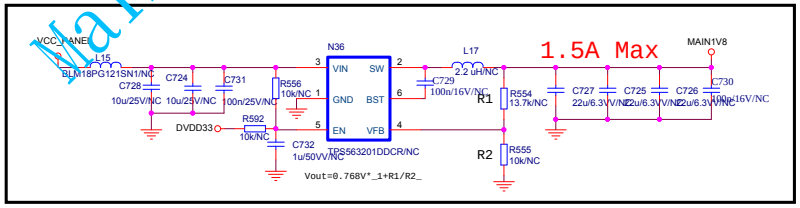


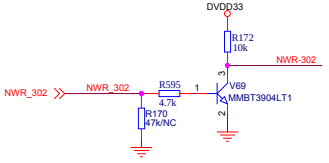

| | UD 50" | UD 55" |
|---|---|---|
| VGL | -10.6V(1±4%) 0.4A(RMS) | -10.6V(1±4%) 0.4A(RMS) |
| VGHD | 30V(1±3%) 0.4A(RMS) | 30V(1±3%) 0.4A(RMS) |
| AVDD | 15.6V(1±1.5%) 2A(RMS) | 15.1V(1±1.5%) 2A(RMS) |
| VCOM | 6.8V(1±5%) | 6.7V(1±5%) |
| VSSG | -8.0V(1±4%) 0.1A(RMS) | -8.0V(1±4%) 0.1A(RMS) |
| VSSQ | -9.4V(1±4%) 0.1A(RMS) | -9.4V(1±4%) 0.1A(RMS) |
| V1D8 | 1.8V(1±1.5%) 0.6A(RMS) | 1.8V(1±1.5%) 0.6A(RMS) |
| V12 | 12V(1±10%) | 12V(1±10%) |







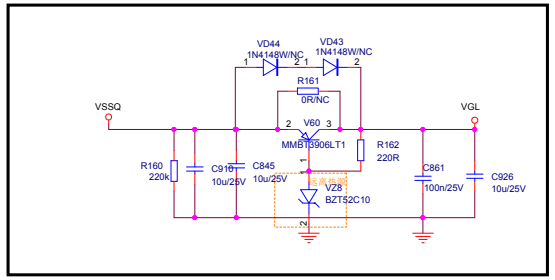


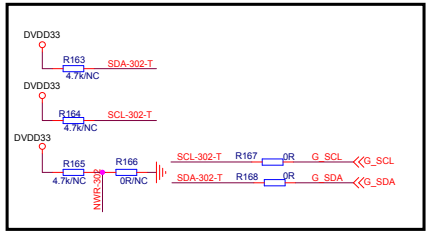









# GAMMA IC:G1632QA1R

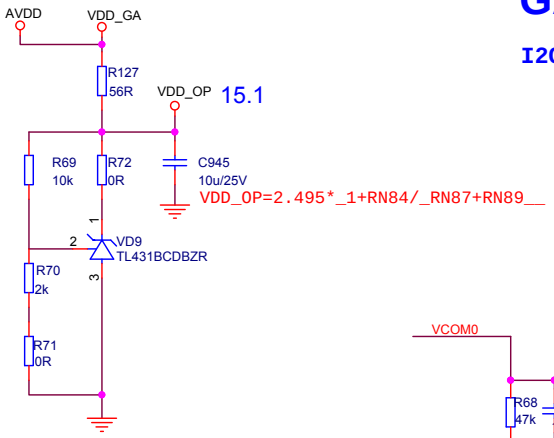
**I2C Address:A0:LOW(0x74),High(0x75)**

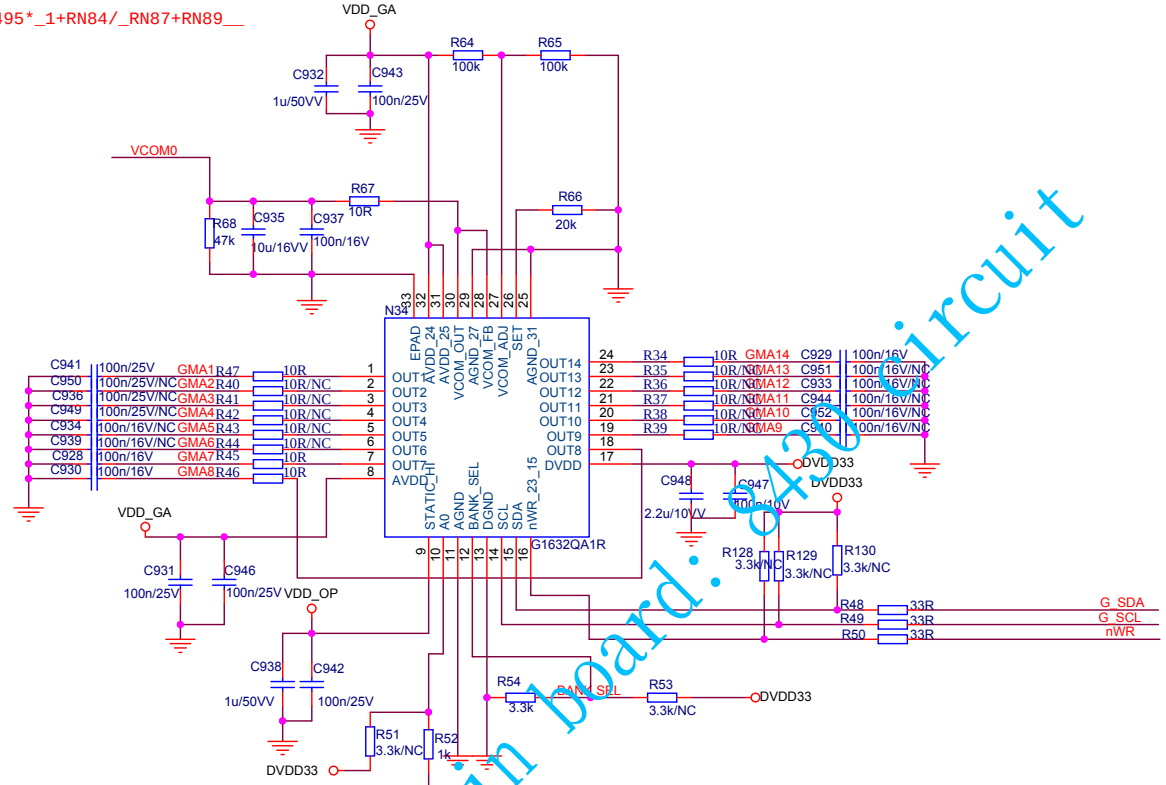
GM1:14.1 GM8:7.16

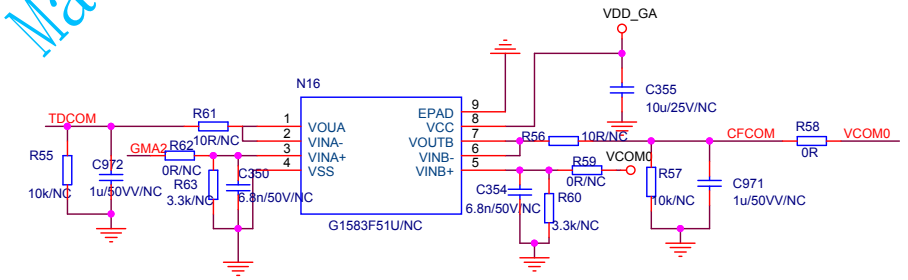
GM7:8.3 GM14:0.513

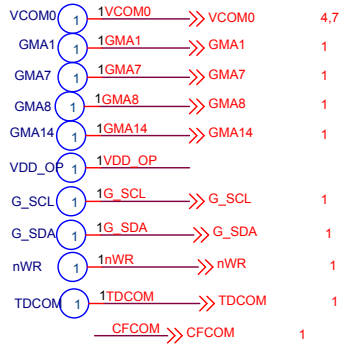
VCOM:6.7V AVDD:15.1V

NN7 address: 0X74
NN8 address: 0X75
BANK_SEL:LOW BANKA, HIGH BANKB



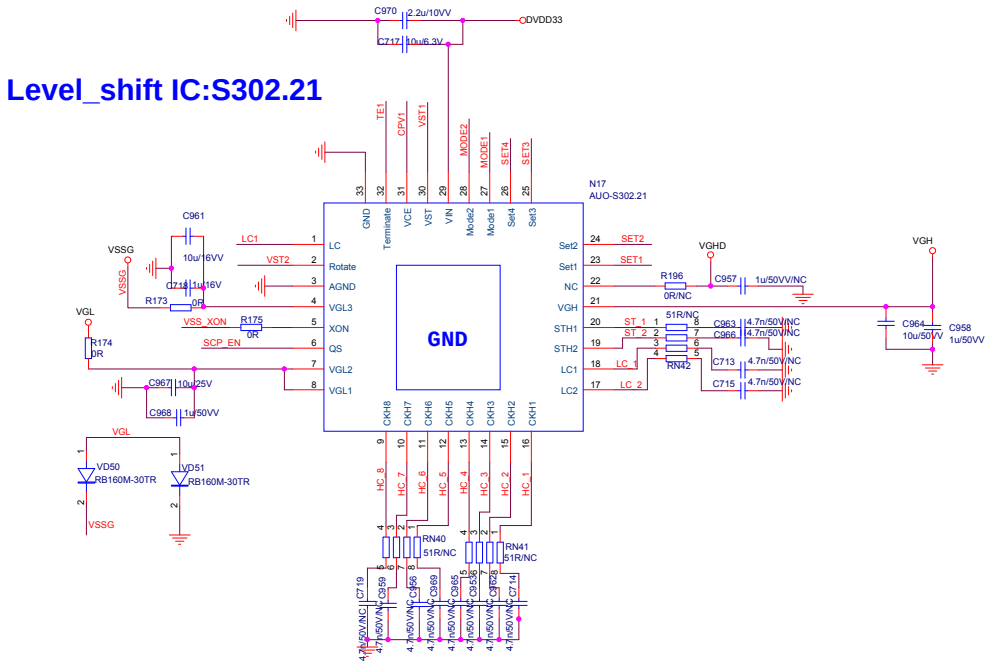

| Symbol | Specification | | |
|---|---|---|---|
| | Typical | Tolerance | Tol. V |
| VGA1 | 14.2 | +/-1.5% | ±0.21 |
| VGA7 | 8.57 | +/-1.6% | ±0.14 |
| VGA8 | 7.4 | +/-1.6% | ±0.12 |
| VGA14 | 1.38 | +/-5.0% | ±0.07 |

**Note:**

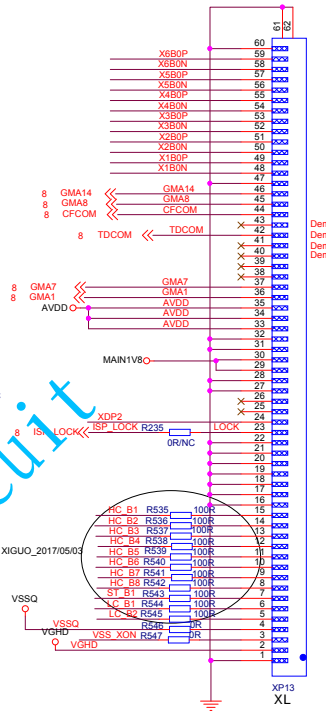
**VCOM OP output driving ability : +/-100mA**

**Gamma OP output driving ability : +/-25mA**

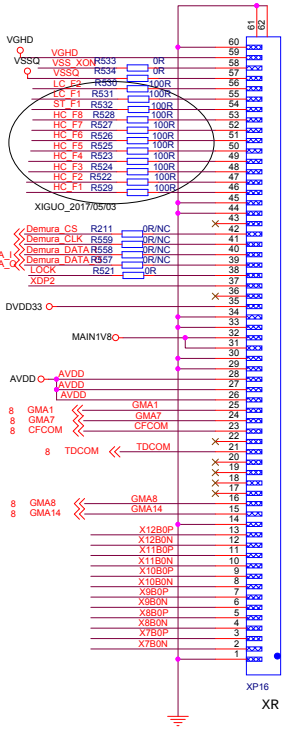
# Level_shift IC:S302.21

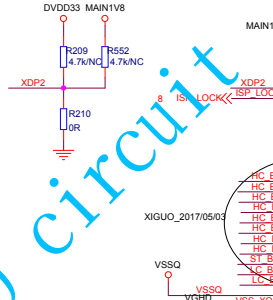


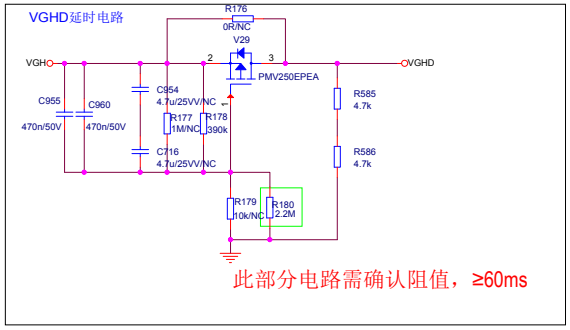

Layout place UP

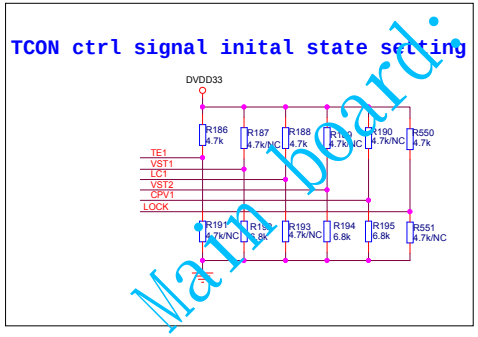


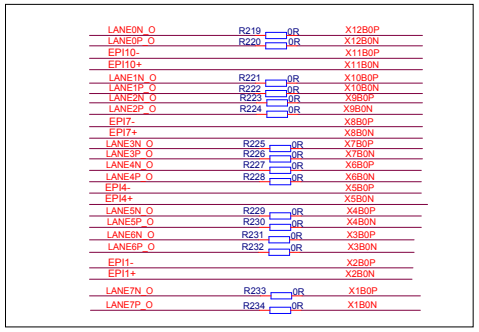

Layout place DOWN

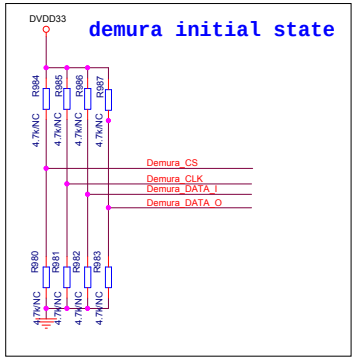


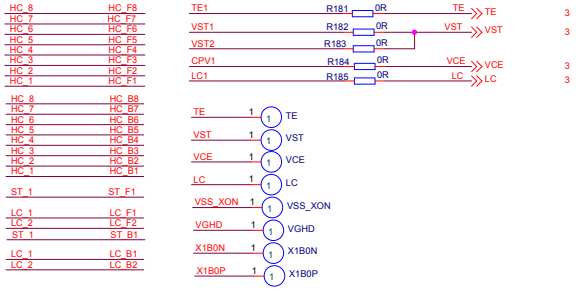



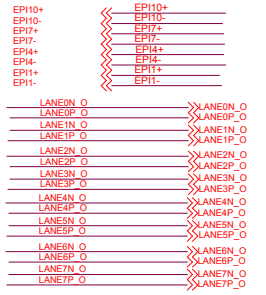



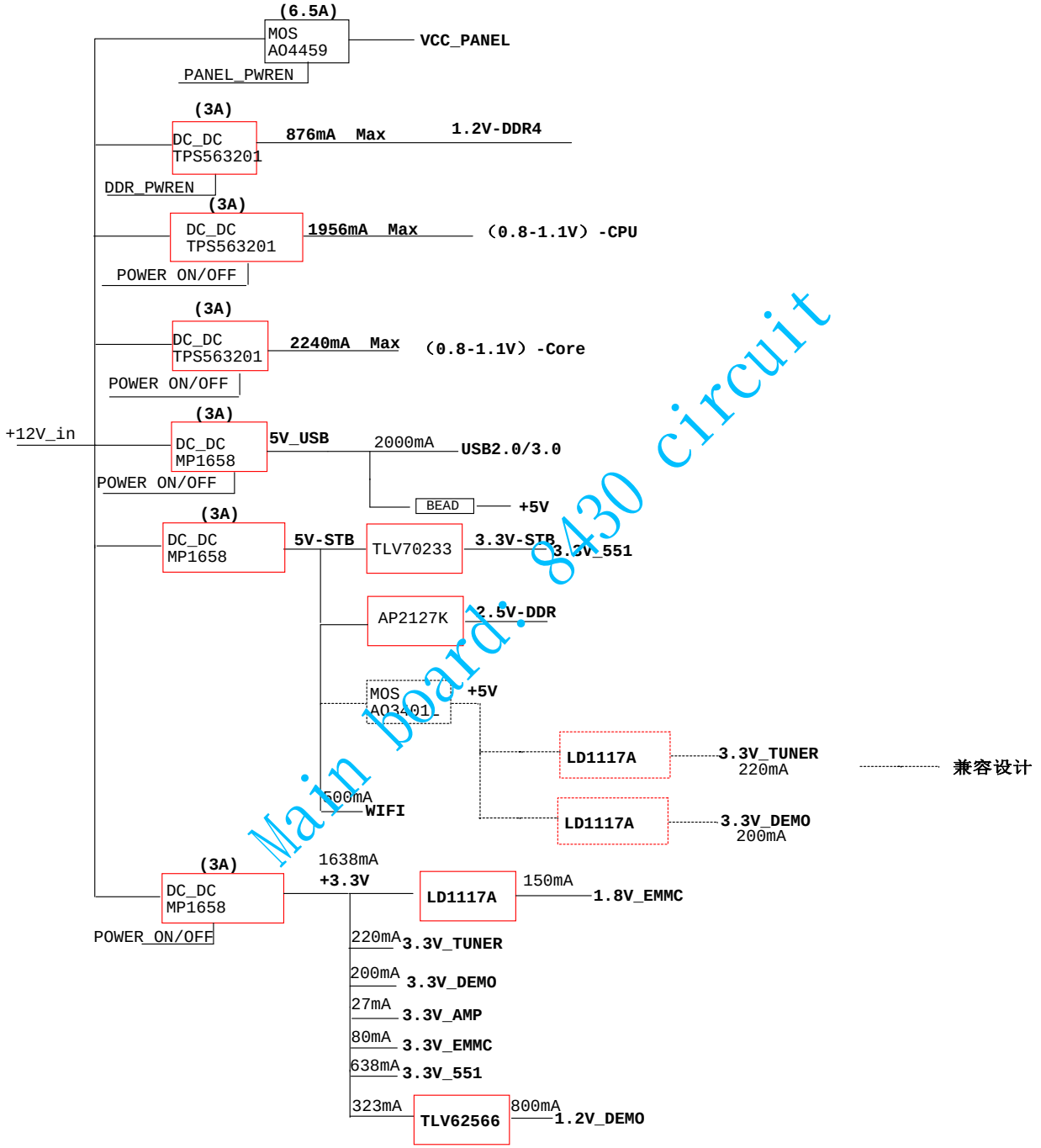



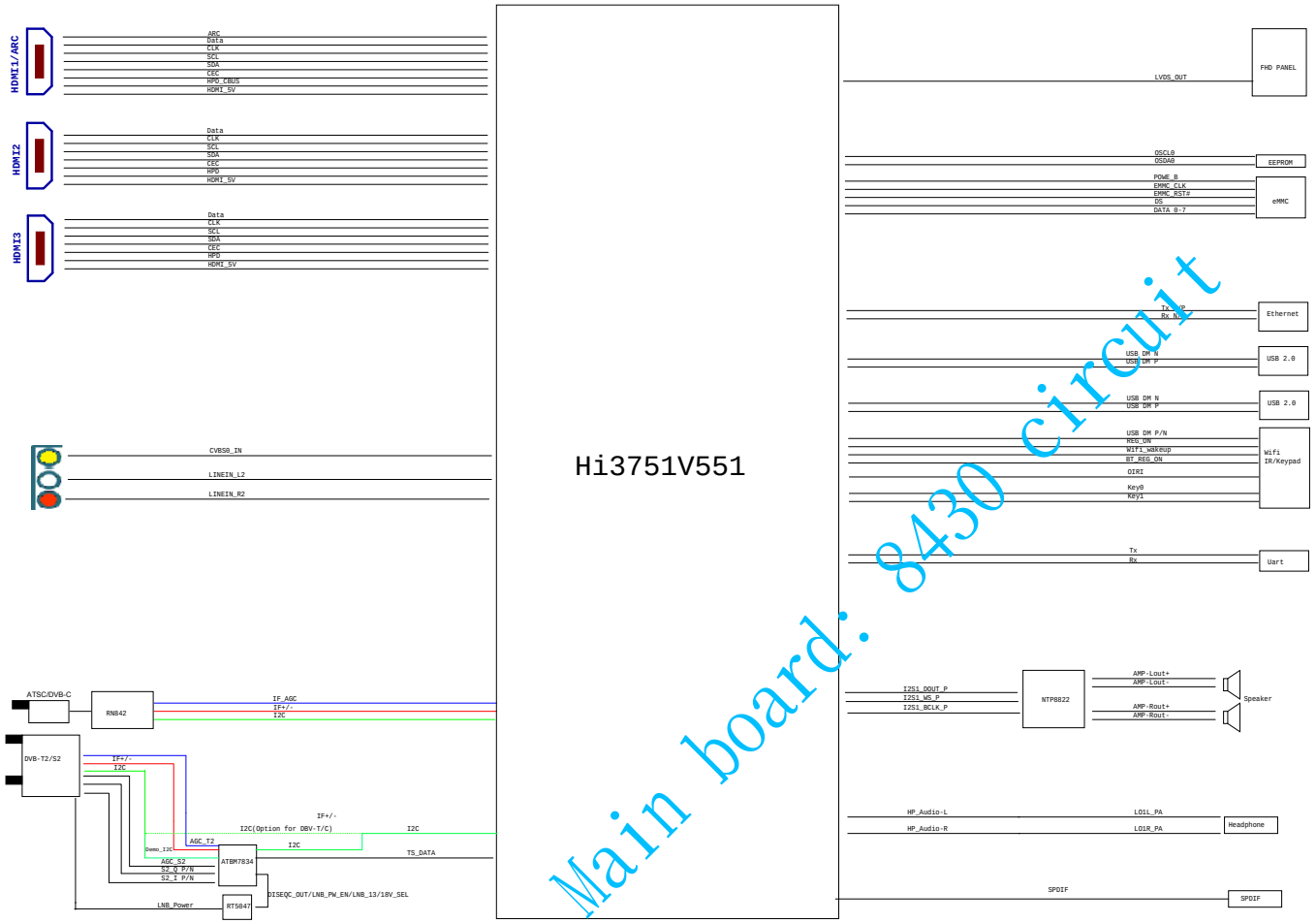








# Block Diagram






| | | |
|---|---|---|
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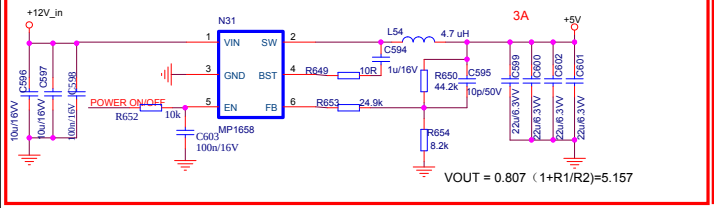
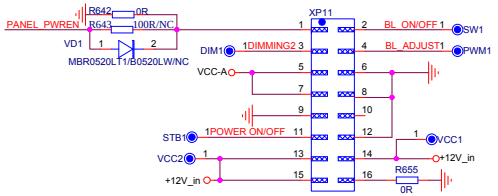
## 5V POWER

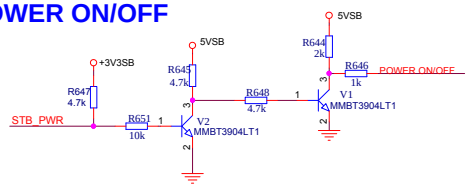



VOUT = 0.807（1+R1/R2)=5.157

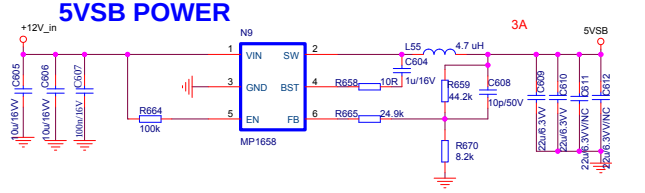
## MAIN POWER CONNECTOR




## POWER ON/OFF

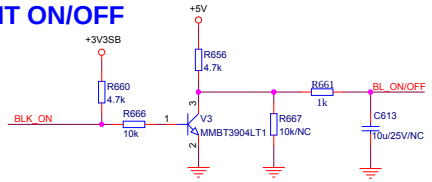



## 5VSB POWER

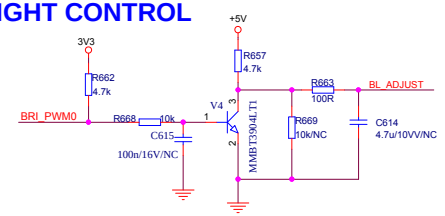



VOUT = 0.807（1+R1/R2)=5.157

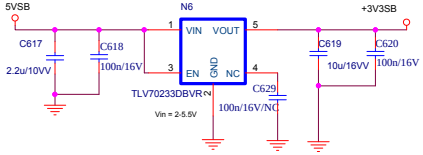
## BACKLIGHT ON/OFF



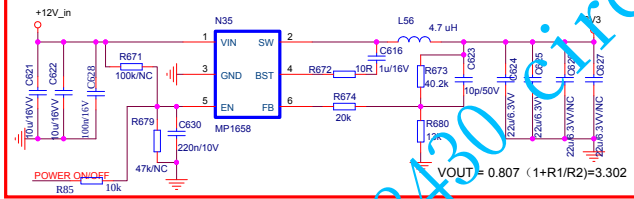

## BACKLIGHT CONTROL




## 3V3SB POWER

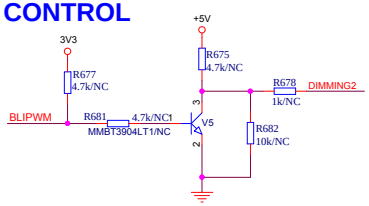



## 3V3 POWER

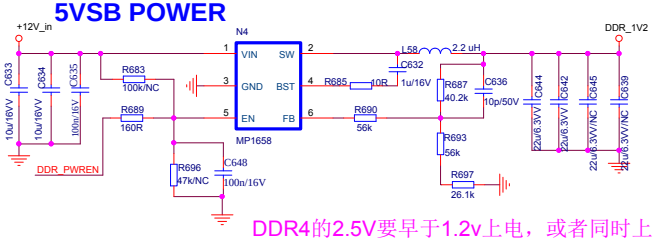



VOUT = 0.807（1+R1/R2)=3.302

## DIMMING2 CONTROL

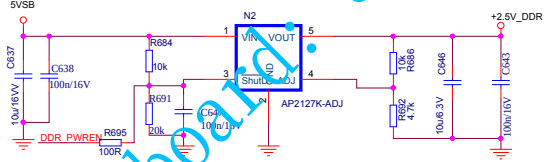



## 5VSB POWER

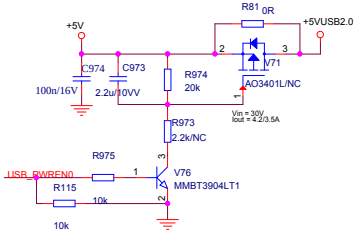



DDR4的2.5V要早于1.2v上电，或者同时上电；

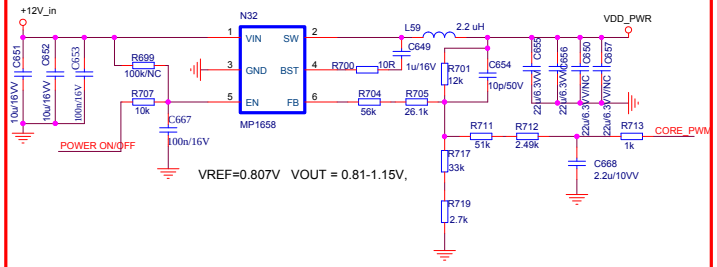
## DDR4 POWER




VOUT=0.8*(1+10/4.7)=2.502V
( 2.375V min , 2.75V max)

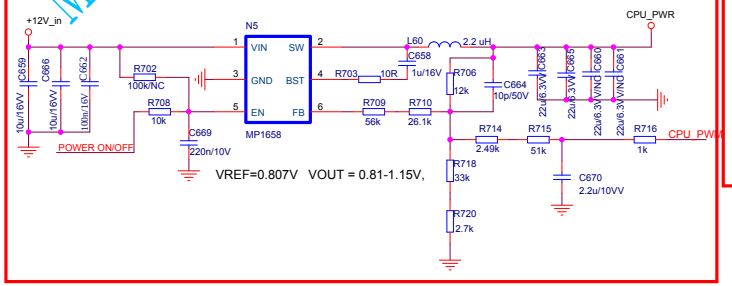



## CORE POWER

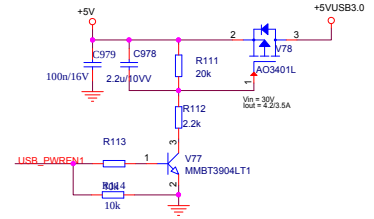



VREF=0.807V VOUT = 0.81-1.15V,

## CPU POWER




VREF=0.807V VOUT = 0.81-1.15V,




STB_PWR
BLK_ON
BL_ADJUST
BRI_PWM0
BLIPWM
CPU_PWM
CORE_PWM
DDR_PWREN
USB_PWREN0
PANEL_PWREN
USB_PWREN1

| | | |
|---|---|---|
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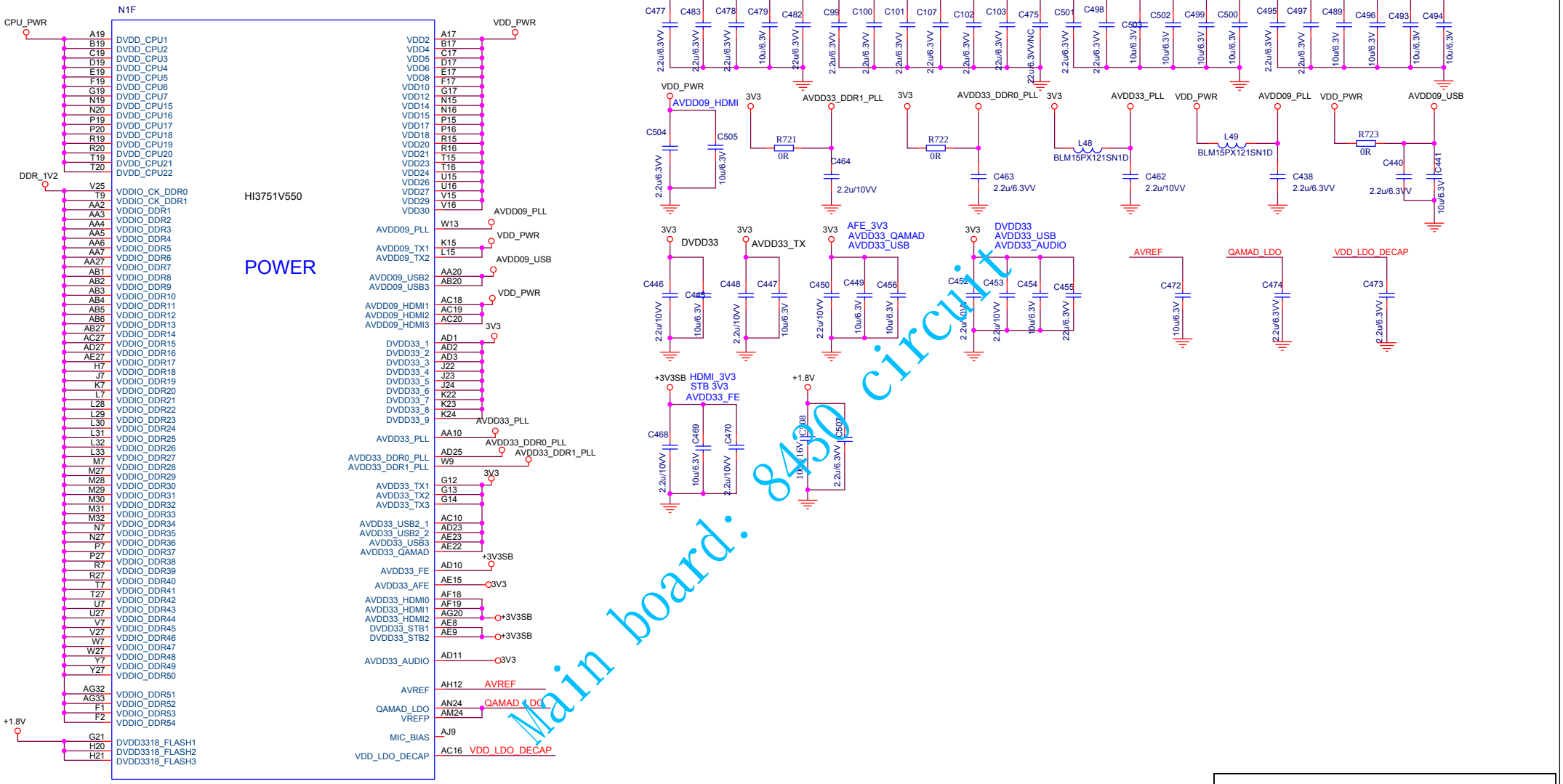
# HI3751_PWR









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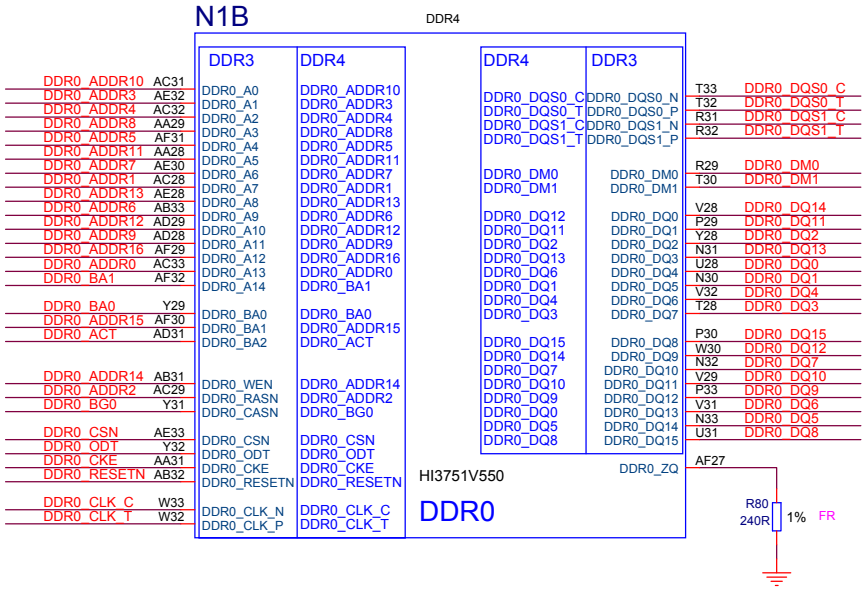
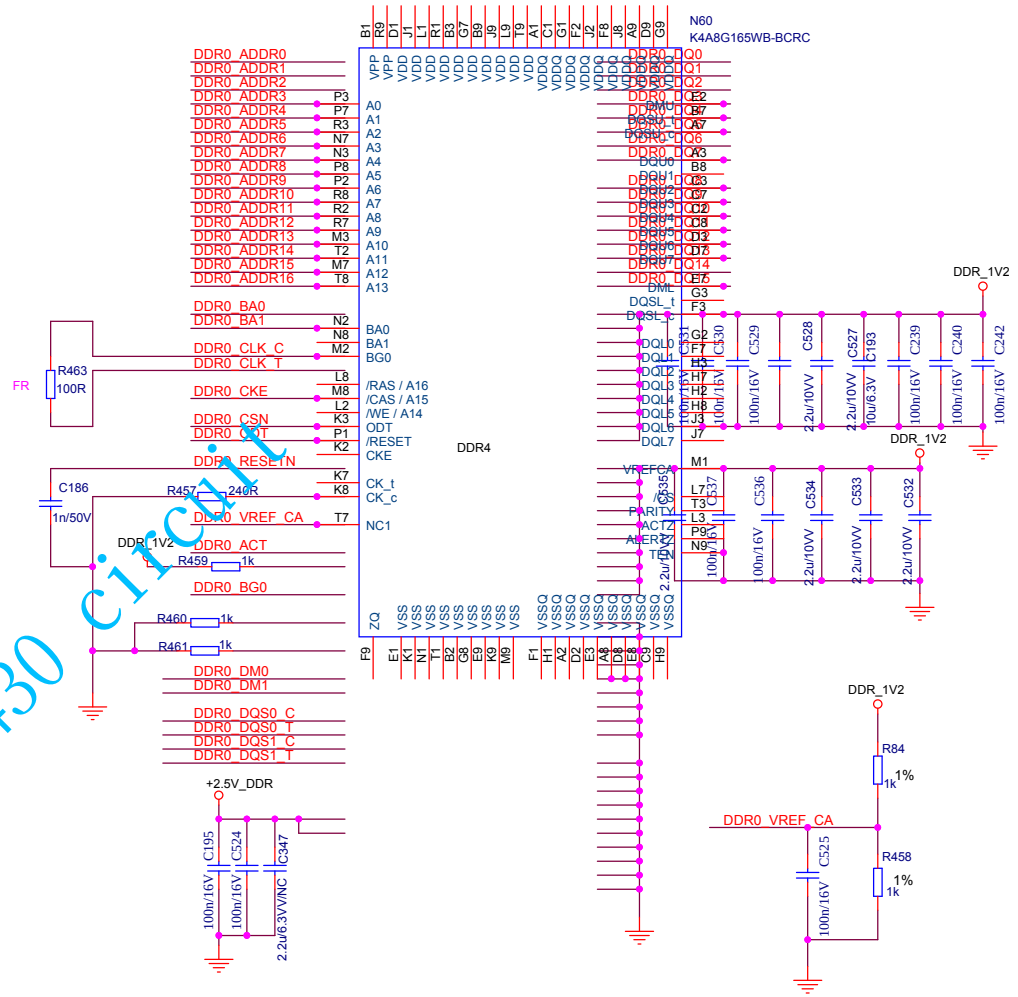
# Unit 6 of Hi3751V551(DDR4 PHY0/DDR0)

| | N60 | N61 |
|---|---|---|
| 1GB | 4Gbit | 4Gbit |
| 1.5GB | 8Gbit | 4Gbit |
| 2GB | 8Gbit | 8Gbit |



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|---|---|
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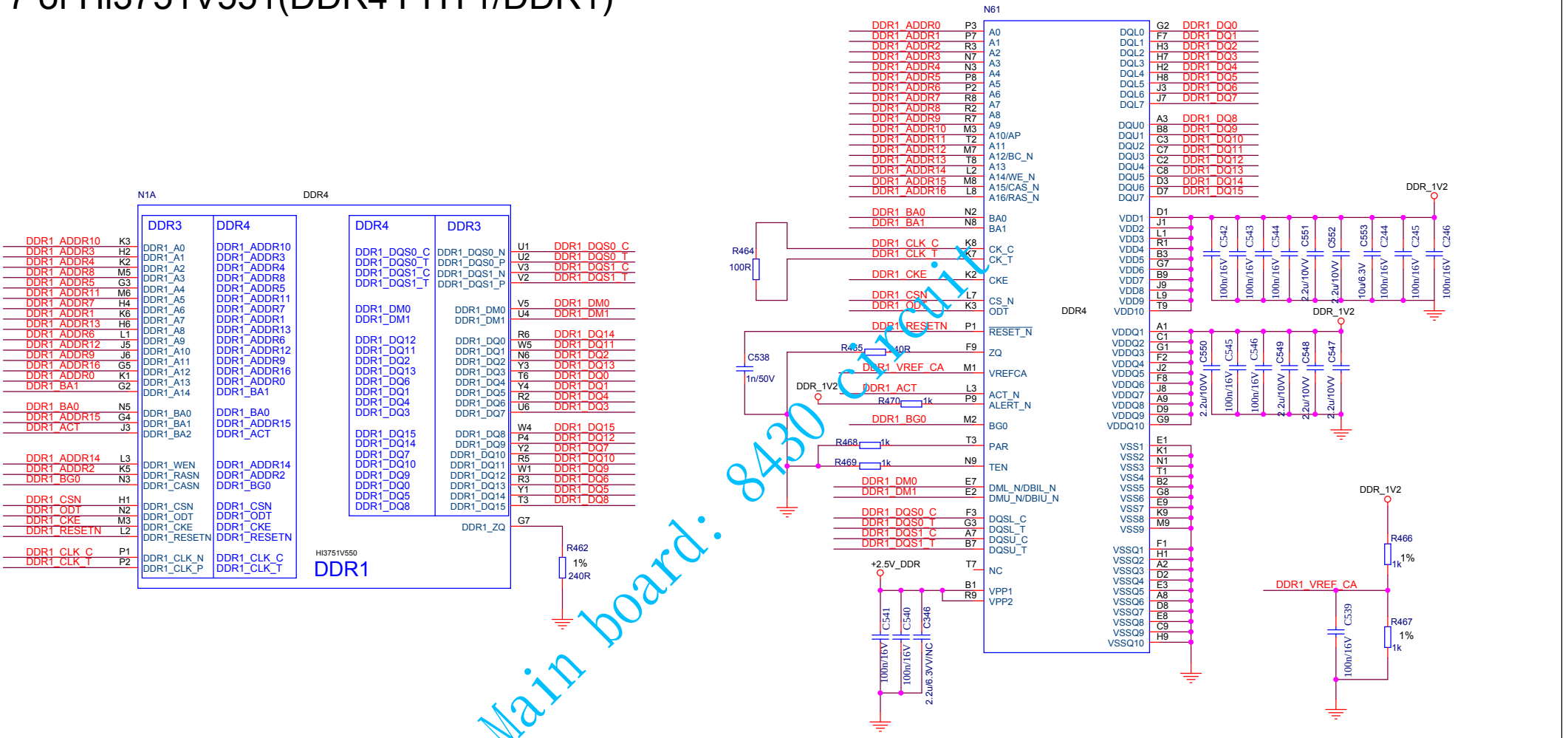
# Unit 7 of Hi3751V551(DDR4 PHY1/DDR1)




| | | | |
|---|---|---|---|
| Title | HI3751V551 | | |
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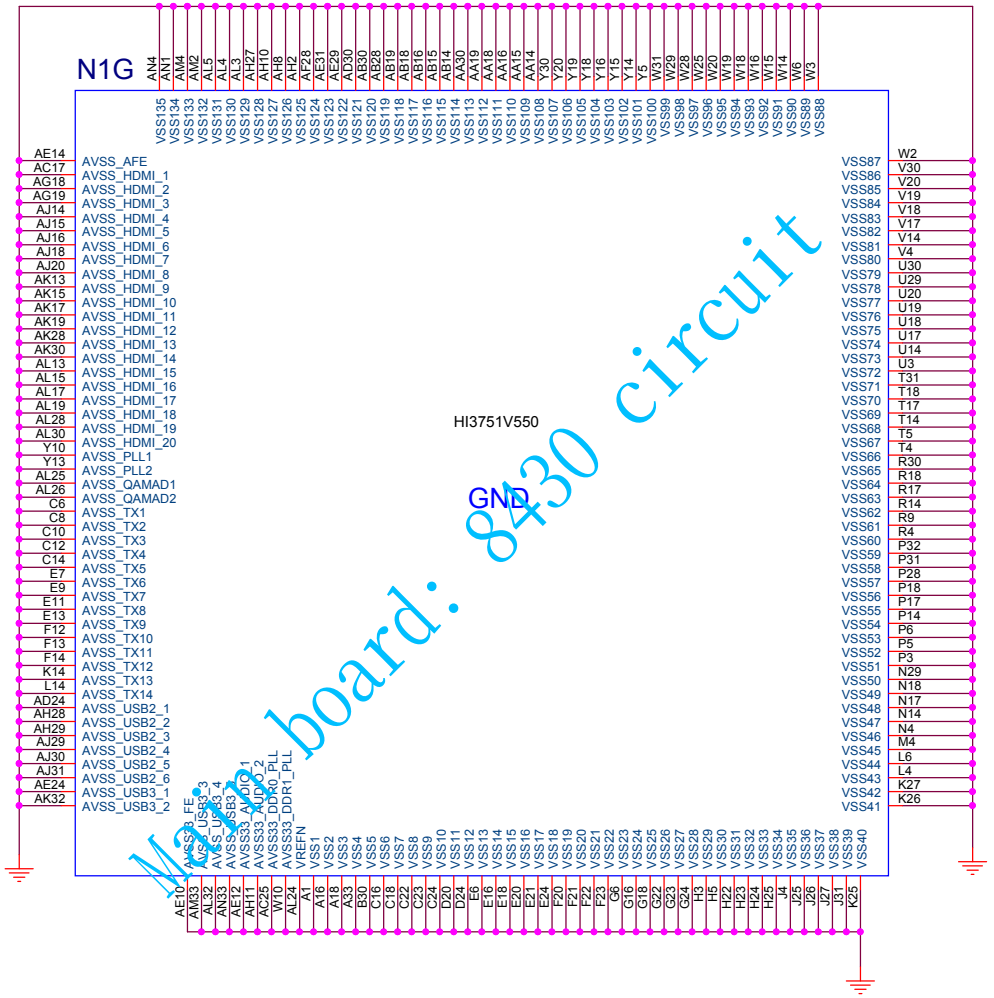
# Unit 7 of Hi3751V551(GND)






| | | |
|---|---|---|
| Title | HI3751V551 | |
| Size: Custom | Document Number: V551_GND | Rev: Ver.A |
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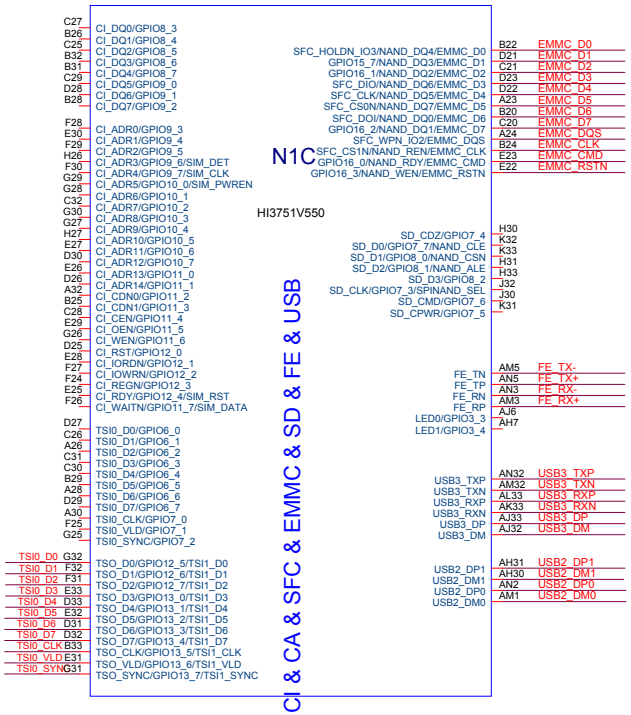
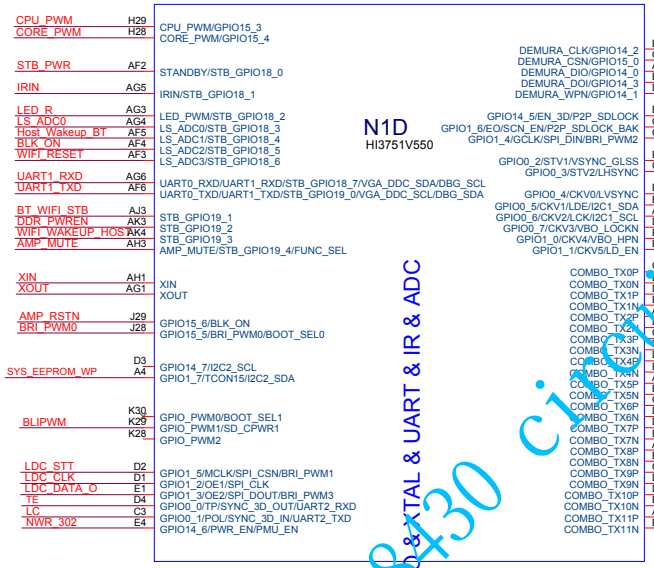
# Unit 3 of Hi3751V550(CI/CA/IF/EMMC/SD/FE/USB)




# Unit 4 of Hi3751V550(VBO/I2C/XTAL/UART/IR/ADC)






SYS_EEPROM_WP

| Title | | | |
|---|---|---|---|
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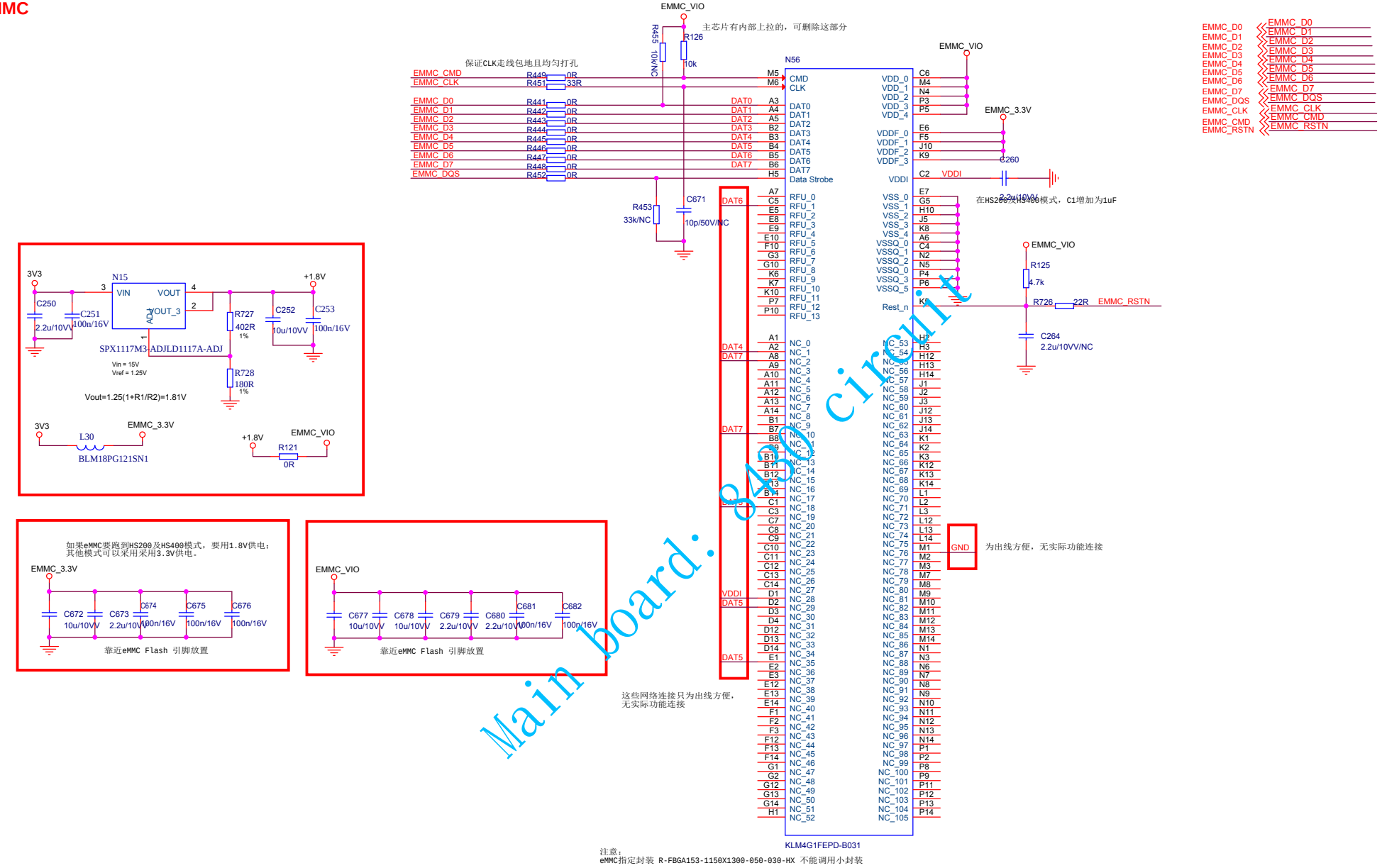
# eMMC






| | | | |
|---|---|---|---|
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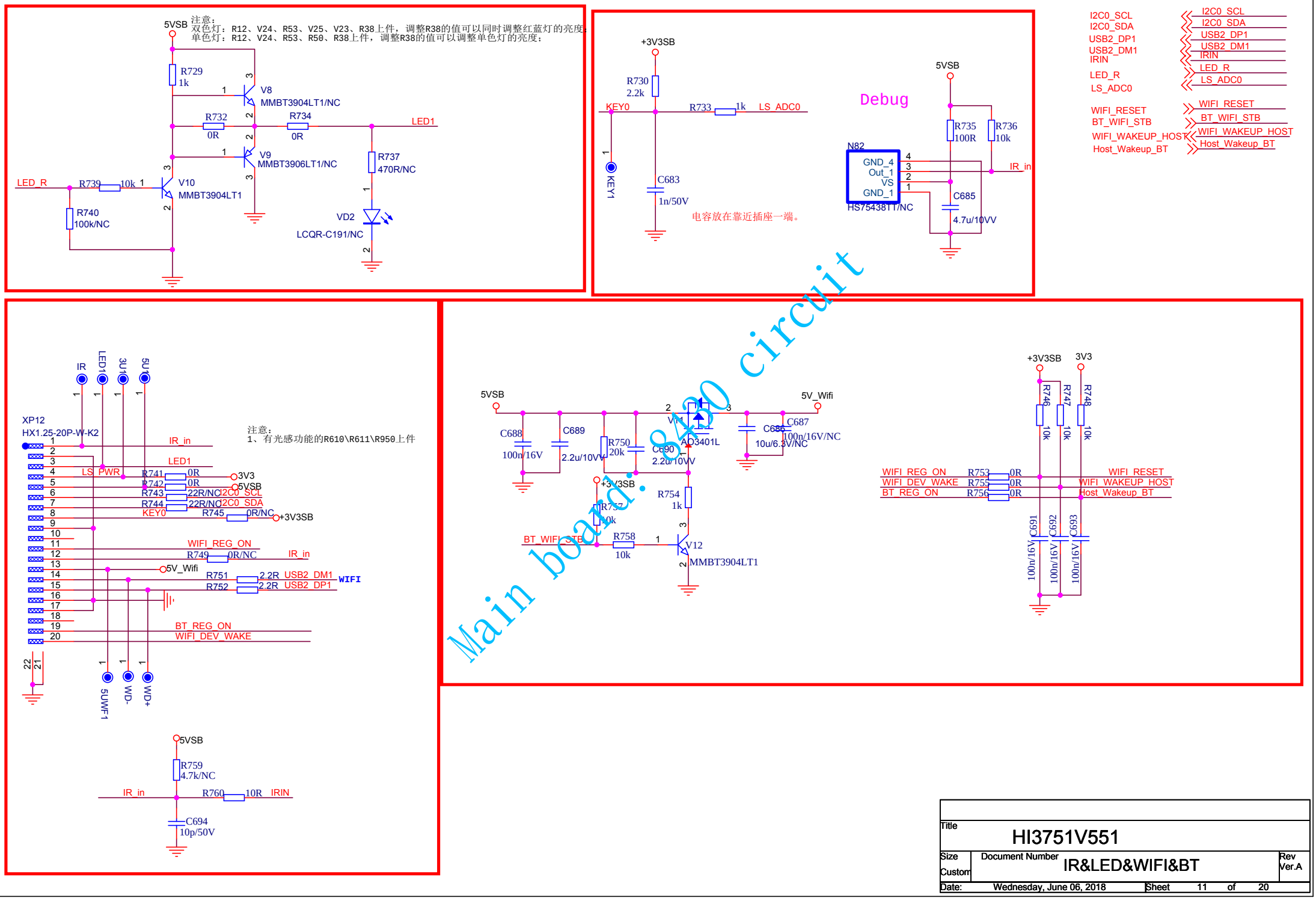
5VSB
注意：
双色灯：R12、V24、R53、V25、V23、R38上件，调整R38的值可以同时调整红蓝灯的亮度；
单色灯：R12、V24、R53、R50、R38上件，调整R38的值可以调整单色灯的亮度；
R729
1k
V8
MMBT3904LT1/NC
R732
0R
R734
0R
LED1
V9
MMBT3906LT1/NC
R737
470R/NC
LED_R
R739
10k
V10
MMBT3904LT1
R740
100k/NC
VD2
LCQR-C191/NC
+3V3SB
R730
2.2k
KEY0
R733
1k
LS_ADC0
KEY1
C683
1n/50V
电容放在靠近插座一端。
Debug
5VSB
R735
100R
R736
10k
N82
GND_4
Out_1
VS
GND_1
HS754381T/NC
IR_in
C685
4.7u/10VV
I2C0_SCL
I2C0_SDA
USB2_DP1
USB2_DM1
IRIN
LED_R
LS_ADC0
WIFI_RESET
BT_WIFI_STB
WIFI_WAKEUP_HOST
Host_Wakeup_BT
IR
LED1
3V3
5V
XP12
HX1.25-20P-W-K2
IR_in
LED1
LS_PWR
R741 0R 3V3
R742 0R 5VSB
R743 22R/NC I2C0_SCL
R744 22R/NC I2C0_SDA
KEY0
R745 0R/NC +3V3SB
WIFI_REG_ON
R749 0R/NC IR_in
5V_Wifi
R751 2.2R USB2_DM1
R752 2.2R USB2_DP1
WIFI
BT_REG_ON
WIFI_DEV_WAKE
5UWF1
WD-
WD+
注意：
1、有光感功能的R610\R611\R950上件
5VSB
R759
4.7k/NC
IR_in
R760
10R
IRIN
C694
10p/50V
5VSB
C688
100n/16V
C689
2.2u/10VV
R750
20k
C690
2.2u/10VV
V11
AO3401L
5V_Wifi
C686
10u/6.3V/NC
C687
100n/16V/NC
+3V3SB
R757
10k
BT_WIFI_STB
R758
10k
R754
1k
V12
MMBT3904LT1
+3V3SB
3V3
R746
10k
R747
10k
R748
10k
WIFI_REG_ON
WIFI_DEV_WAKE
BT_REG_ON
R753 0R
R755 0R
R756 0R
WIFI_RESET
WIFI_WAKEUP_HOST
Host_Wakeup_BT
C691
100n/16V
C692
100n/16V
C693
100n/16V
Main board: 8420 circuit
Title
HI3751V551
Size
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IR&LED&WIFI&BT
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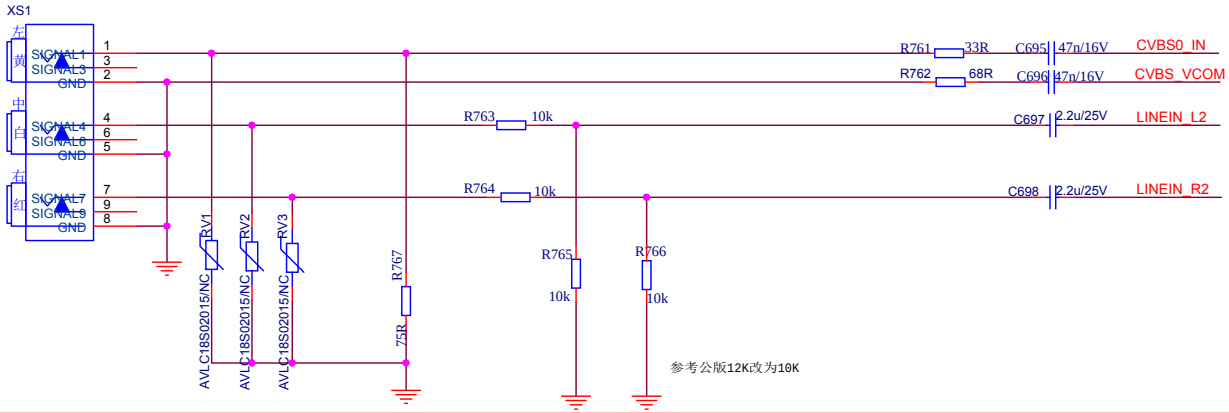
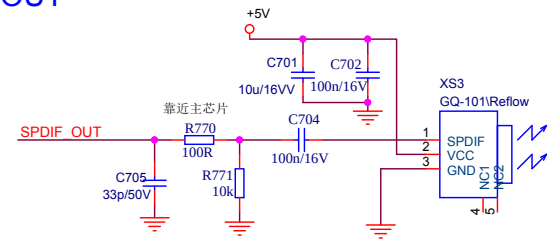
# AV INPUT

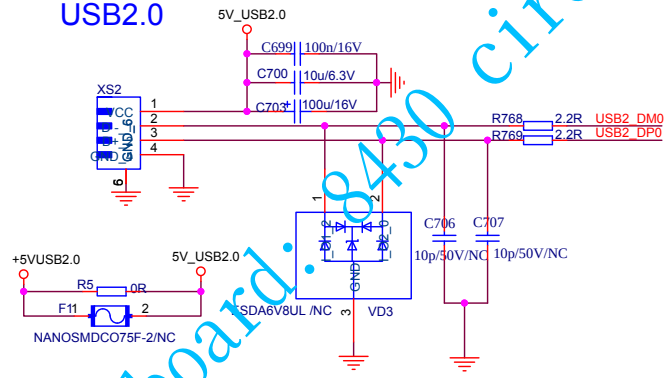
Close to Main Chip



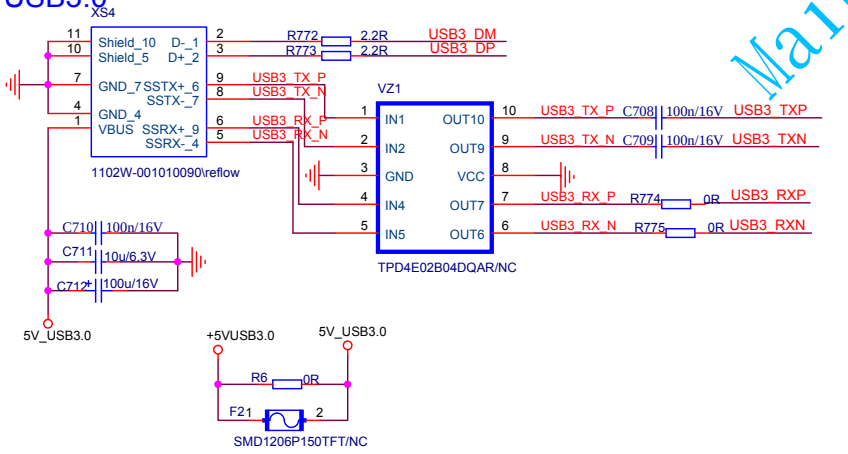

# SPDIF OUT




# USB2.0




# USB3.0






USB3_TXP — USB3_TXP
USB3_TXN — USB3_TXN
USB3_RXP — USB3_RXP
USB3_RXN — USB3_RXN
USB3_RXP — USB3_RXP
USB3_RXN — USB3_RXN
USB3_DP — USB3_DP
USB3_DM — USB3_DM

USB2_DP0 — USB2_DP0
USB2_DM0 — USB2_DM0

CVBS0_IN — CVBS0_IN
CVBS_VCOM — CVBS_VCOM
LINEIN_R2 — LINEIN_R2
LINEIN_L2 — LINEIN_L2
SPDIF_OUT — SPDIF_OUT

| | | |
|---|---|---|
| Title | HI3751V551 | |
| Size: Custom | Document Number: AV&YPBPR&SPDIF | Rev: Ver.A |
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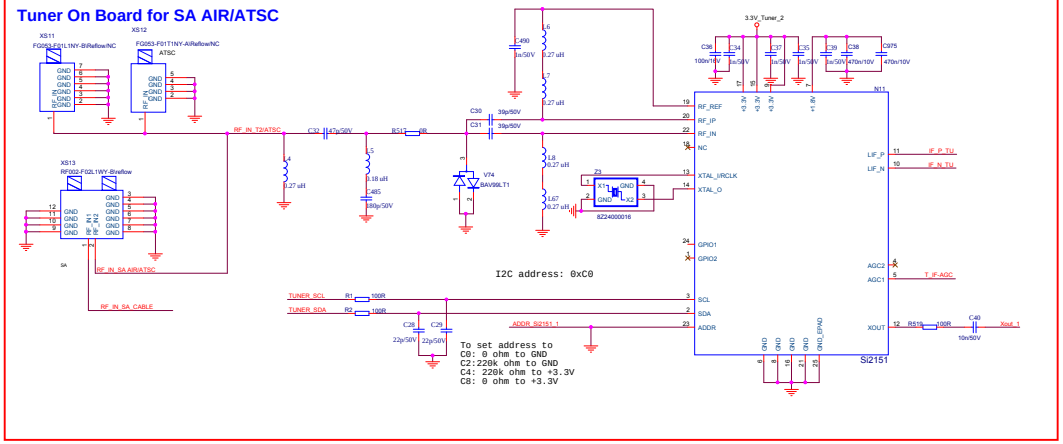
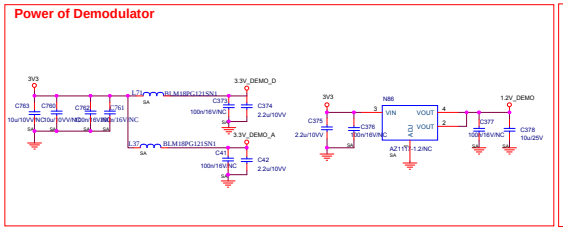
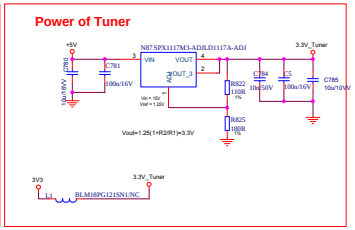
## Tuner On Board for SA AIR/ATSC

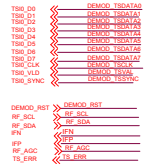


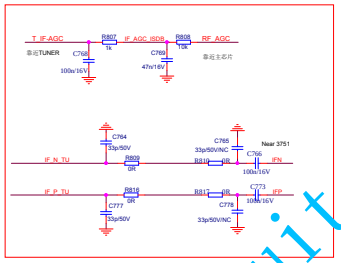

## Power of Demodulator

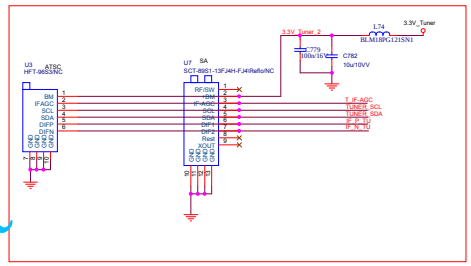



## Power of Tuner

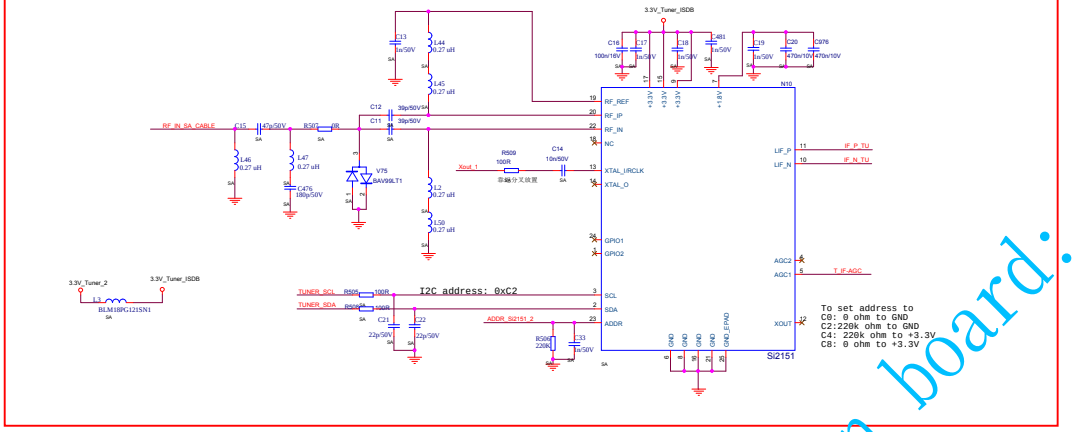


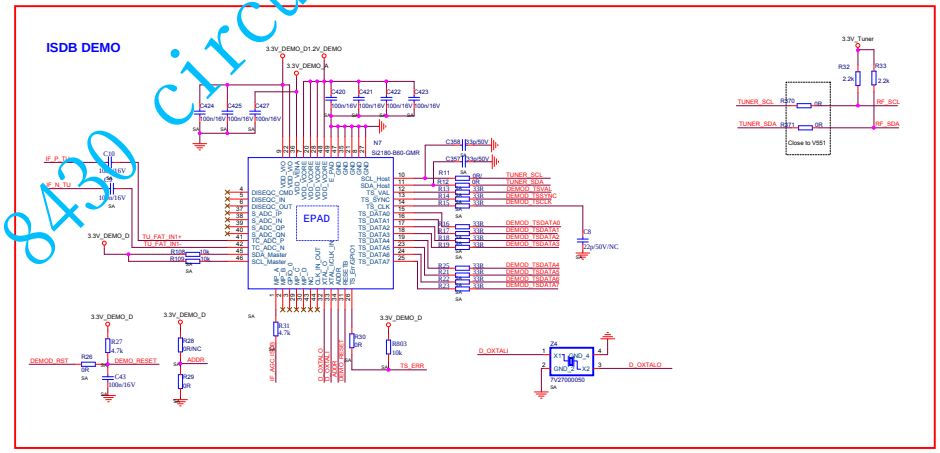




## Tuner On Board for SA Cable




## ISDB DEMO






| | | | |
|---|---|---|---|
| Title | HI3751V551 | | |
| Size | Document Number | TUNER | Rev A.4 |
| Custom | | | |
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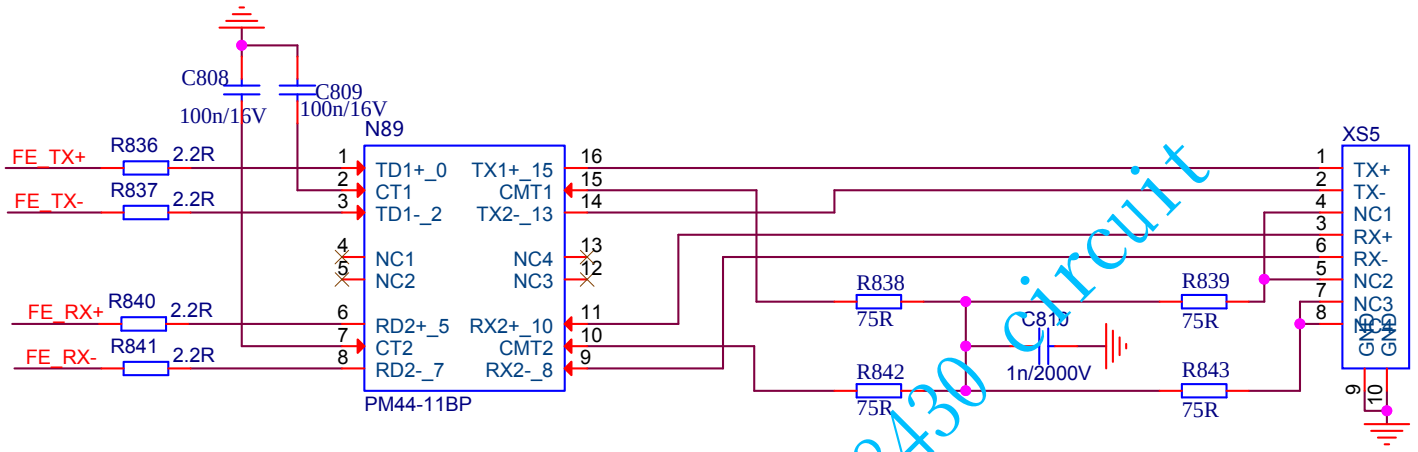
# HI3751_FE

3.5mm min gap between trace and GND plane

FE_TX-
FE_TX+
FE_RX-
FE_RX+






| | | | |
|---|---|---|---|
| Title | HI3751V551 | | |
| Size: Custom | Document Number: FE | | Rev: Ver.A |
| Date: Wednesday, June 06, 2018 | Sheet 14 of 20 | | |

# Unit 2 of Hi3751V550(HDMI/IF/AFE/AUDIO/I2S)


| | | |
|---|---|---|
| Title | HI3751V551 | |
| Size: Custom | Document Number: V551_HDMI | Rev: Ver.A |
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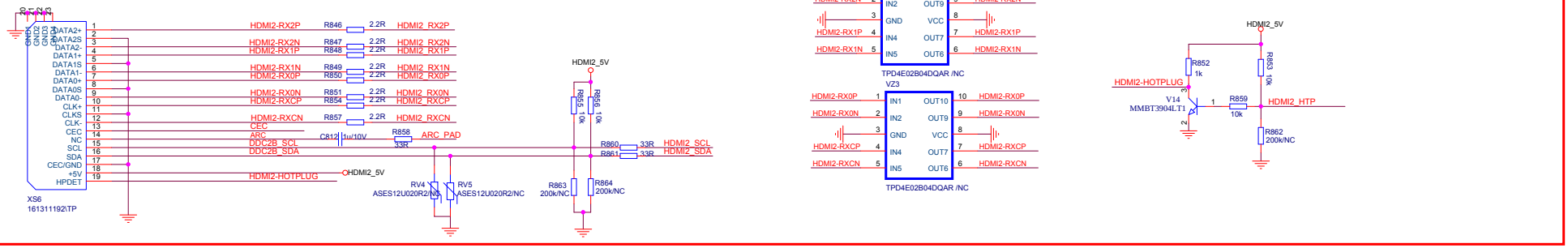
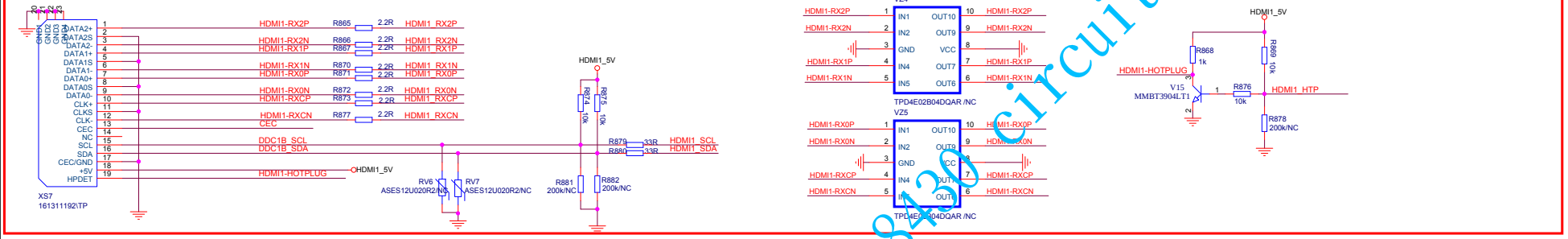
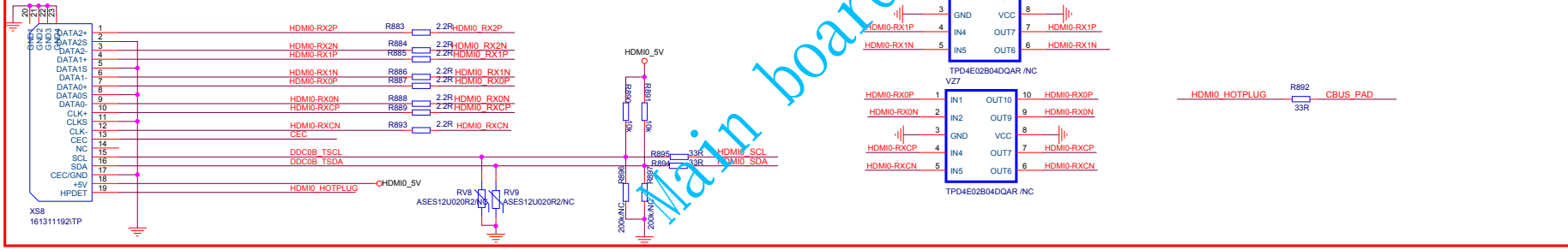
# HDMI PORT1(ARC)




# HDMI PORT2

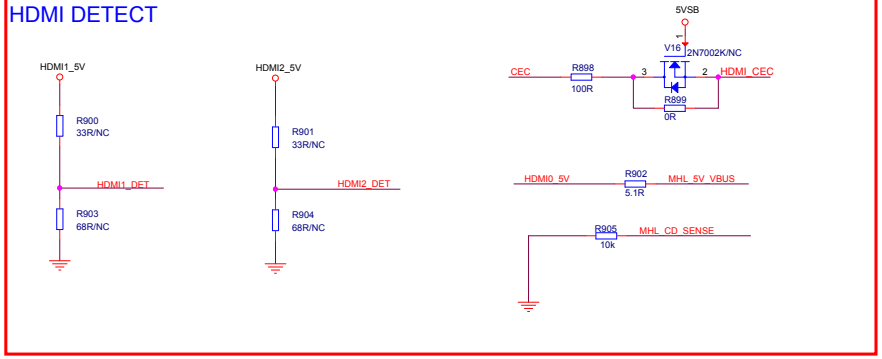


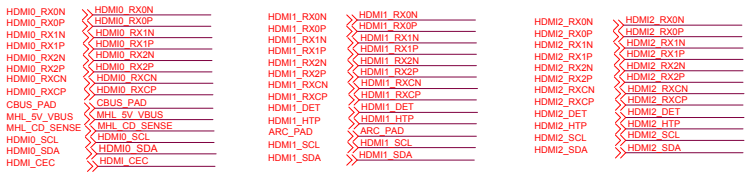

# HDMI PORT 3






## HDMI DETECT




| | | |
|---|---|---|
| Title | HI3751V551 | |
| Size: C | Document Number: HDMI*3 | Rev: Ver.A |
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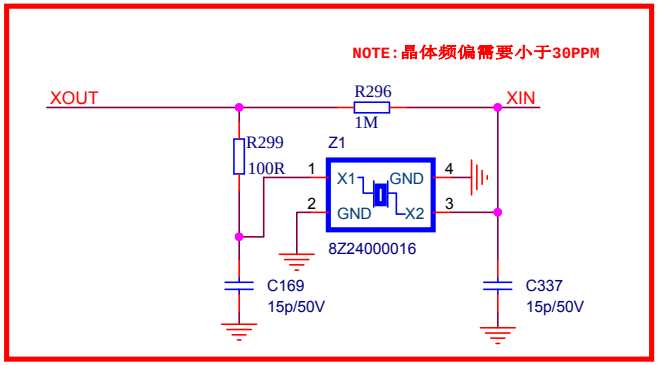
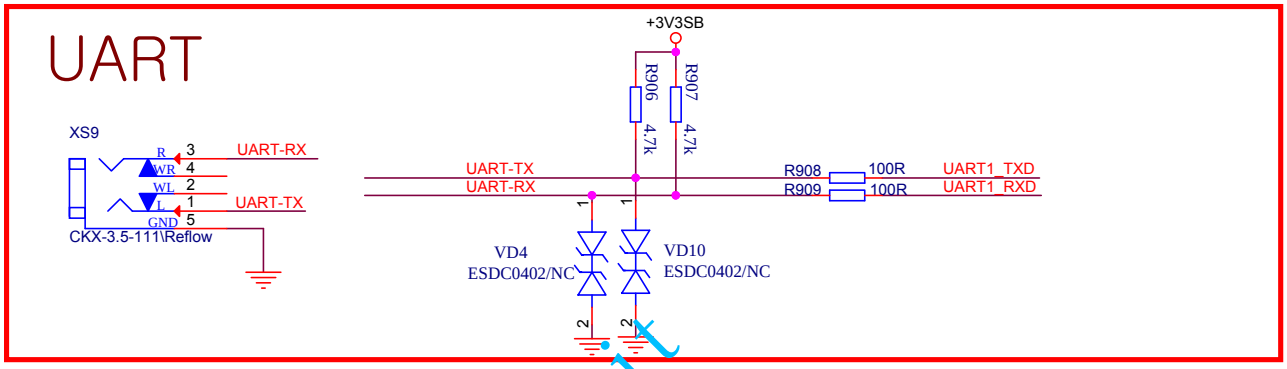
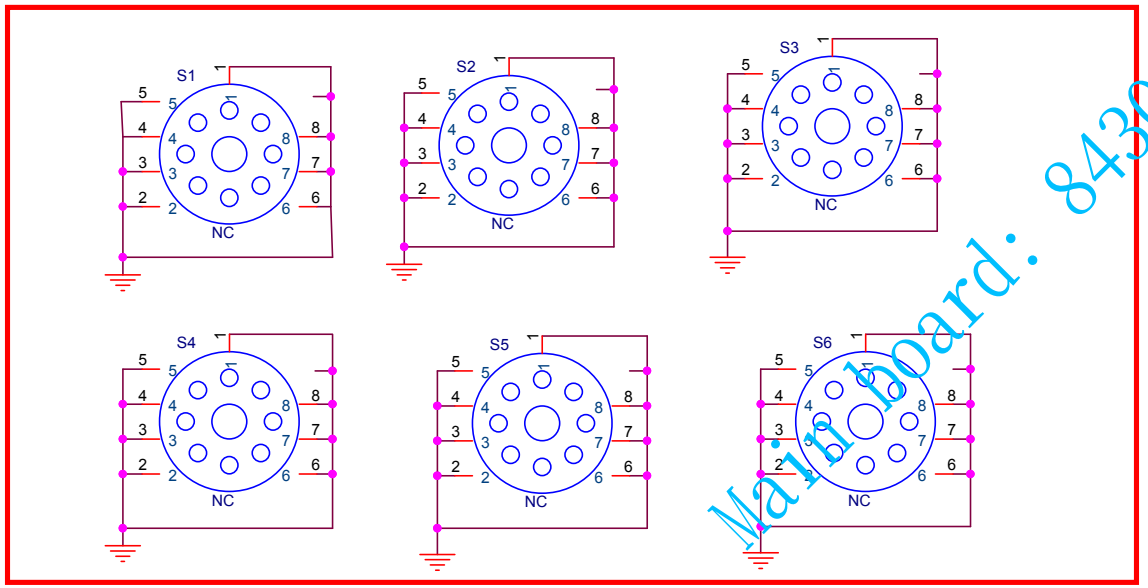
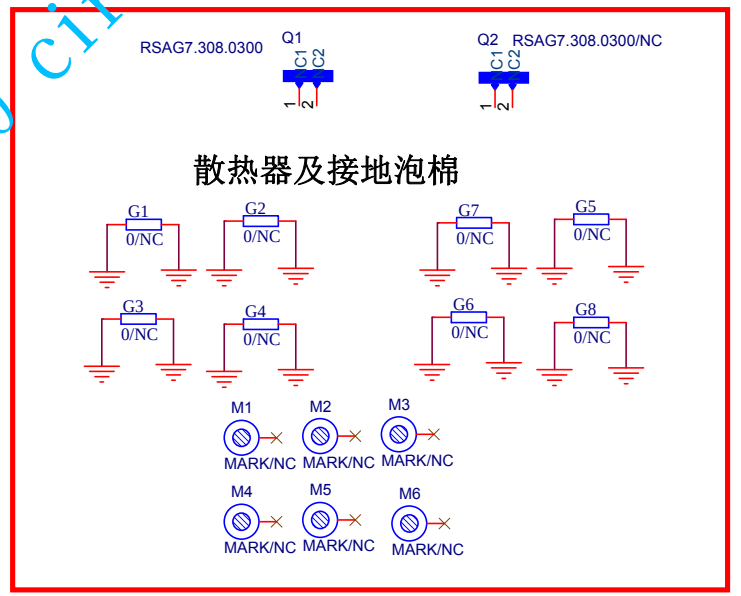
# Peripheral



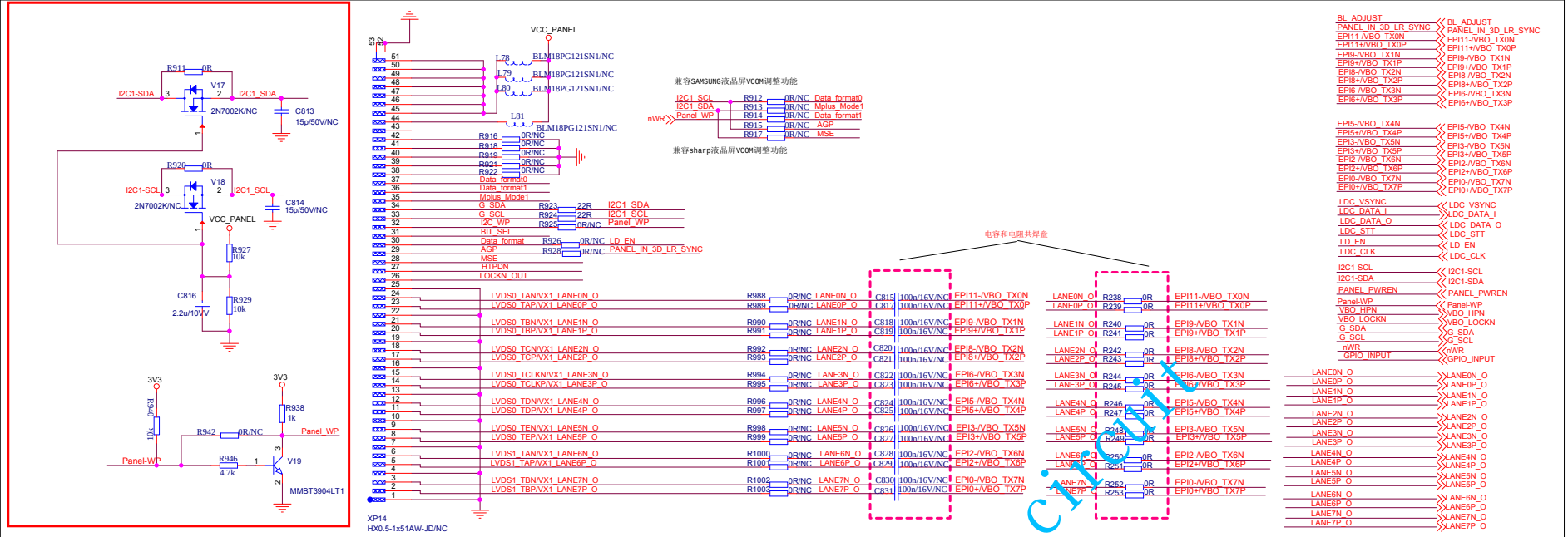



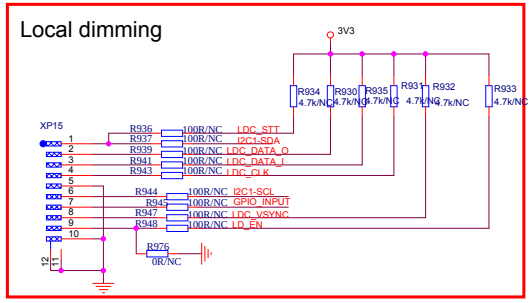


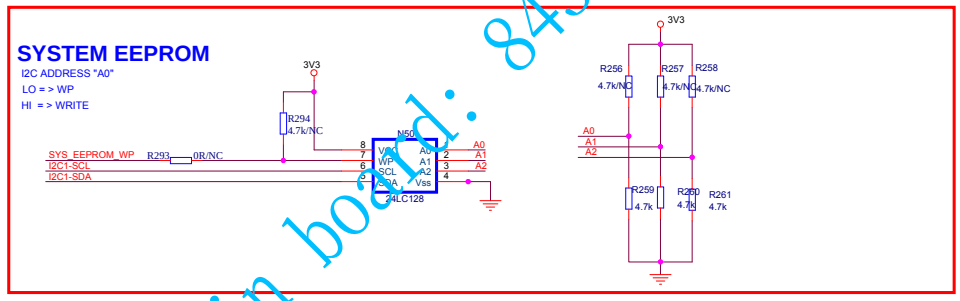

UART1_RXD
UART1_TXD
XIN
XOUT

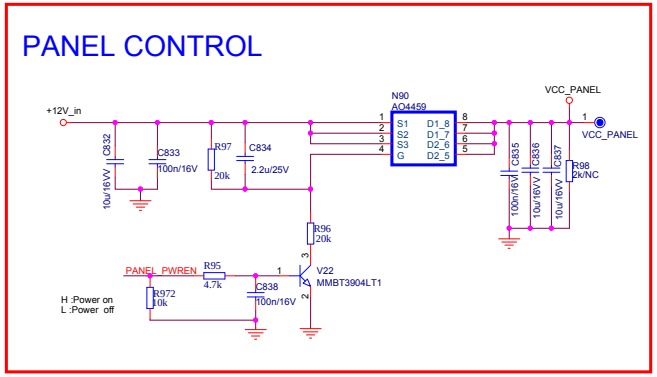
UART1_RXD
UART1_TXD
XIN
XOUT

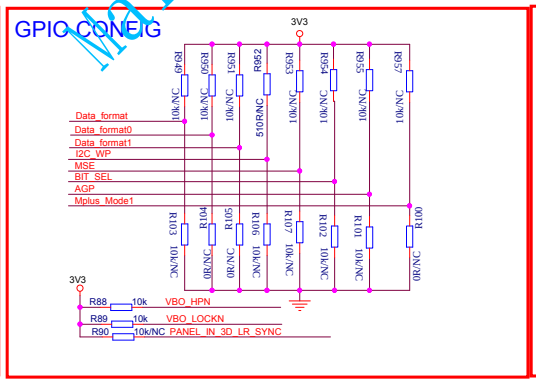
| | | | |
|---|---|---|---|
| Title | HI3751V551 | | |
| Size: Custom | Document Number: UART&EEPROM | | Rev: Ver.A |
| Date: Wednesday, June 06, 2018 | Sheet 17 of 20 | | |

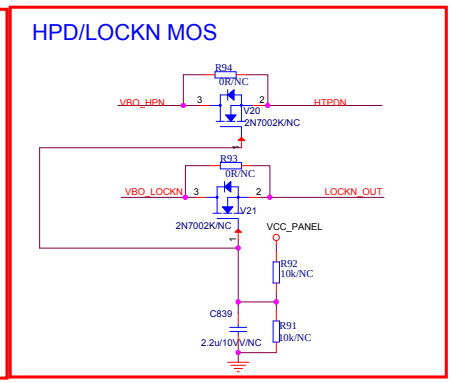


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|---|---|---|---|
| Title | HI3751V551 | | |
| Size | Document Number | | Rev |
| Custom | V-BY-ONE | | Ver.A |
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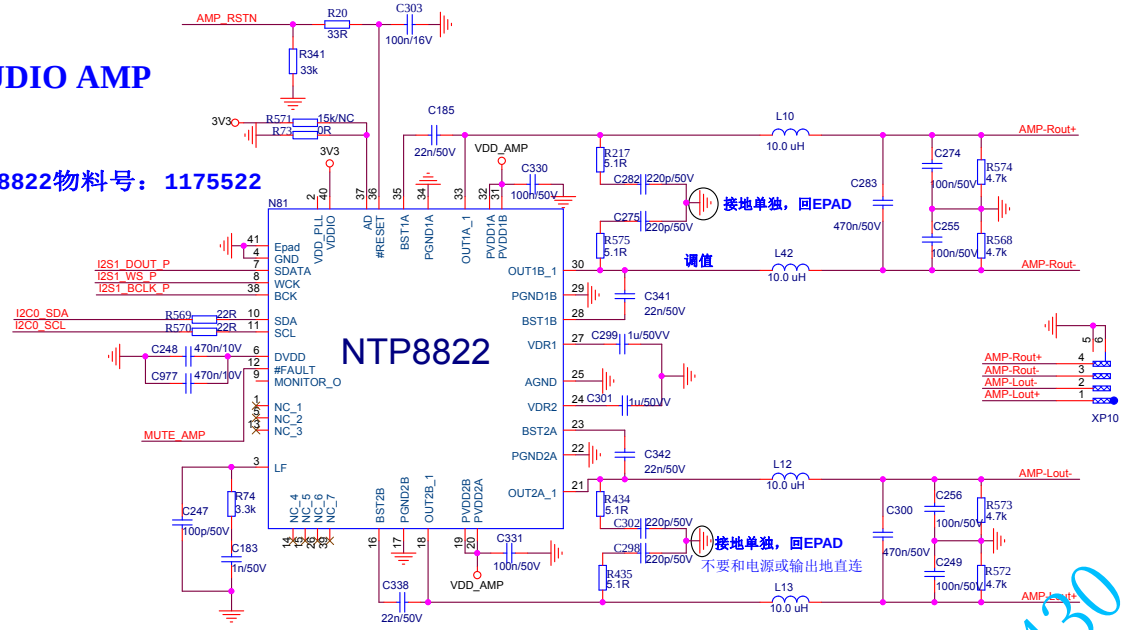
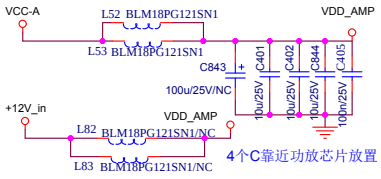
# AUDIO AMP

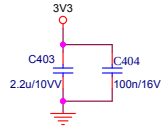
NTP8822物料号：1175522

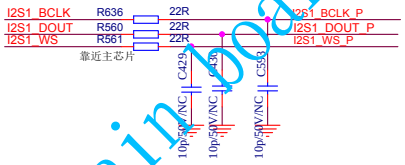


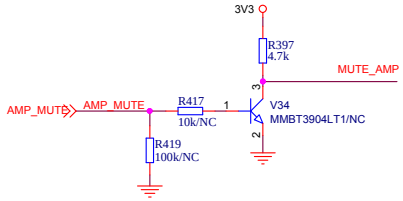

配I2C地址：

| Adr | I2C Address |
|---|---|
| 0 | 0X54 |
| 1 | 0X56 |

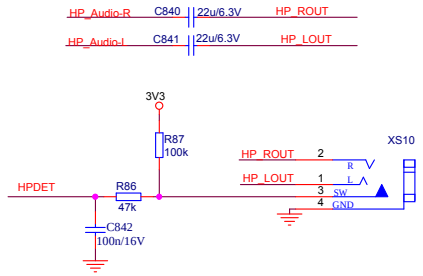


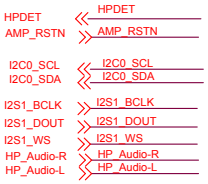




# HEADPHONE



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|---|---|---|---|
| Title | HI3751V551 | | |
| Size: Custom | Document Number: AMP | | Rev: Ver.A |
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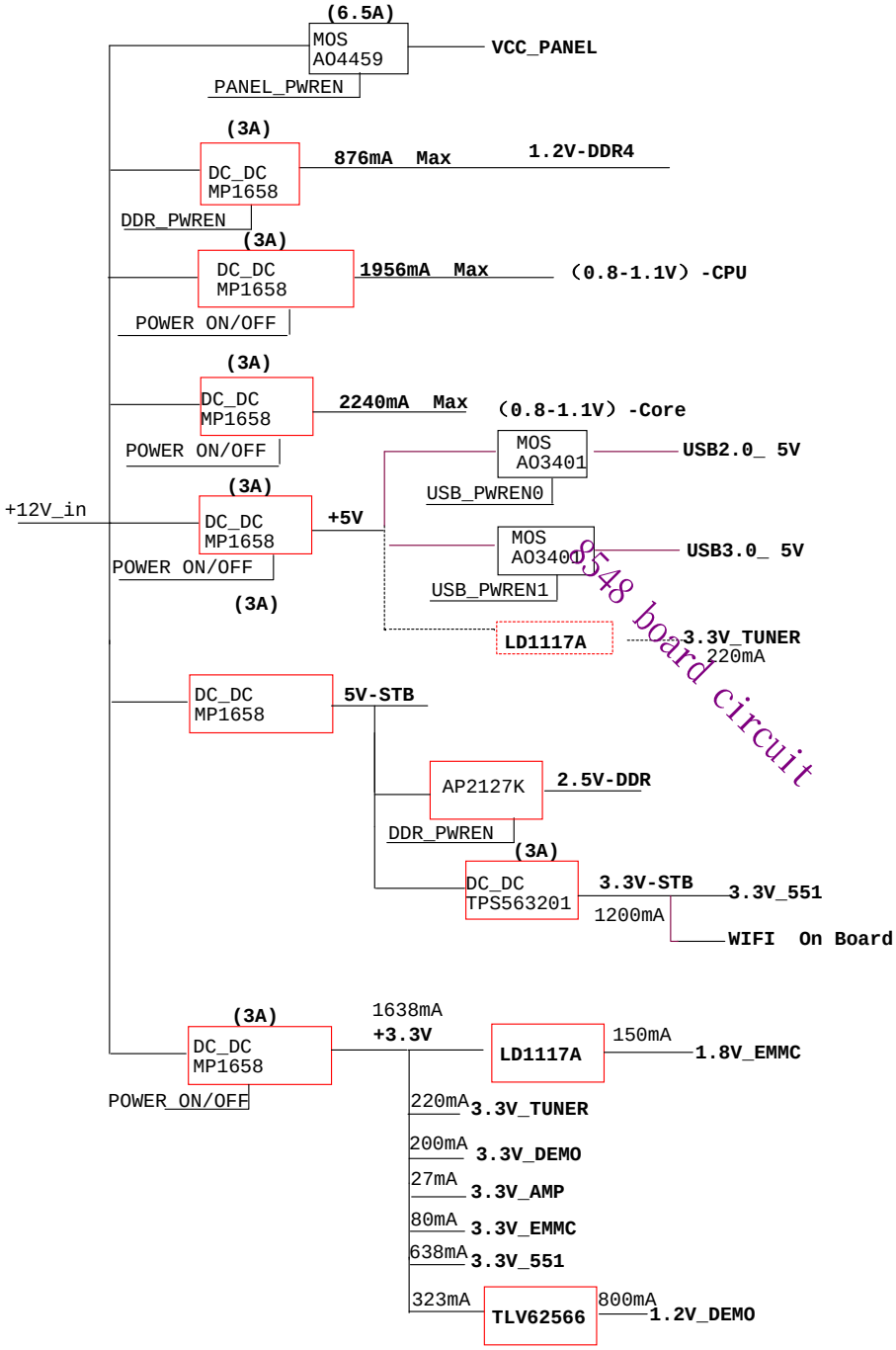
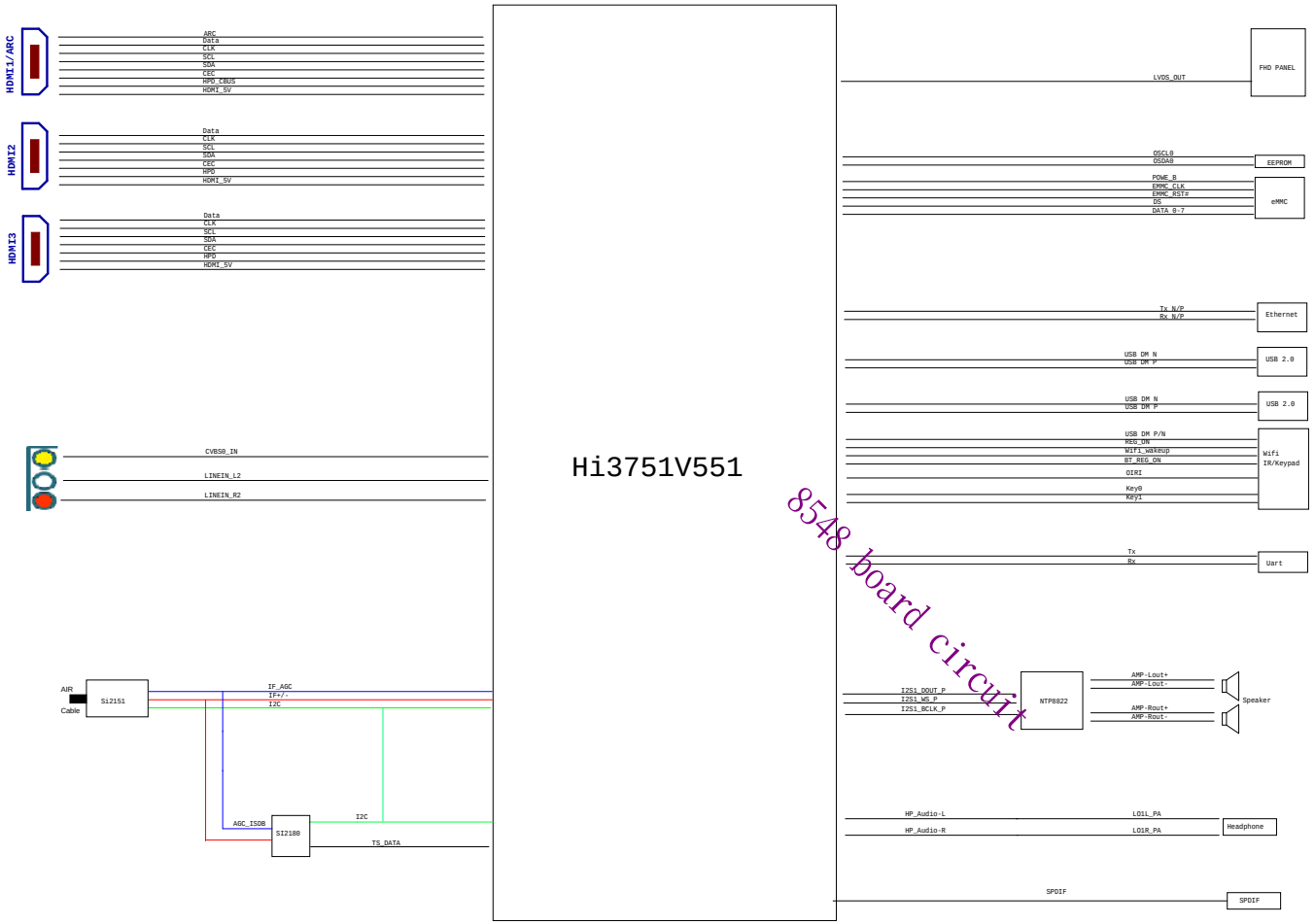

(6.5A)
MOS
AO4459
VCC_PANEL
PANEL_PWREN
(3A)
DC_DC
MP1658
876mA Max
1.2V-DDR4
DDR_PWREN
(3A)
DC_DC
MP1658
1956mA Max
(0.8-1.1V) -CPU
POWER ON/OFF
(3A)
DC_DC
MP1658
2240mA Max
(0.8-1.1V) -Core
POWER ON/OFF
+12V_in
(3A)
DC_DC
MP1658
+5V
POWER ON/OFF
(3A)
MOS
AO3401
USB2.0_ 5V
USB_PWREN0
MOS
AO3401
USB3.0_ 5V
USB_PWREN1
LD1117A
3.3V_TUNER
220mA
8548 board circuit
DC_DC
MP1658
5V-STB
AP2127K
2.5V-DDR
DDR_PWREN
(3A)
DC_DC
TPS563201
3.3V-STB
3.3V_551
1200mA
WIFI On Board
(3A)
DC_DC
MP1658
POWER_ON/OFF
1638mA
+3.3V
LD1117A
150mA
1.8V_EMMC
220mA
3.3V_TUNER
200mA
3.3V_DEMO
27mA
3.3V_AMP
80mA
3.3V_EMMC
638mA
3.3V_551
323mA
TLV62566
800mA
1.2V_DEMO

| Version | Date | Change list |
| --- | --- | --- |
| V1.0 | 20170622 | Initial |
| | | |

8548 board circuit

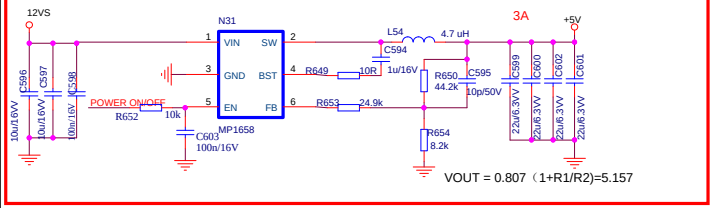
# Block Diagram



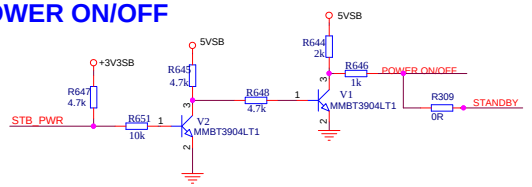

8548 board circuit

| | | | |
|---|---|---|---|
| Title | HI3751V551 | | |
| Size: Custom | Document Number: Power Tree | | Rev: Ver.A |
| Date: Monday, July 09, 2018 | Sheet 3 of 20 | | |

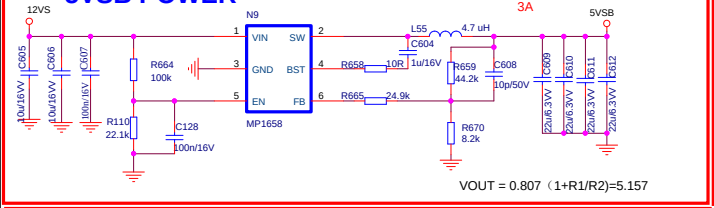
## 5V POWER



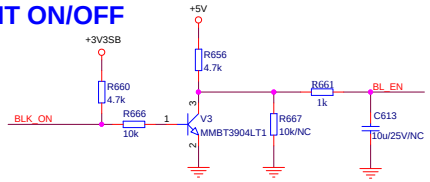

## POWER ON/OFF



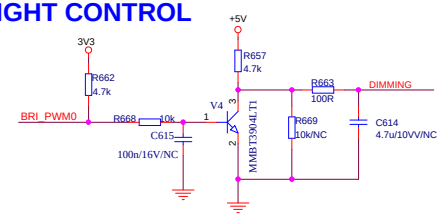

## 5VSB POWER



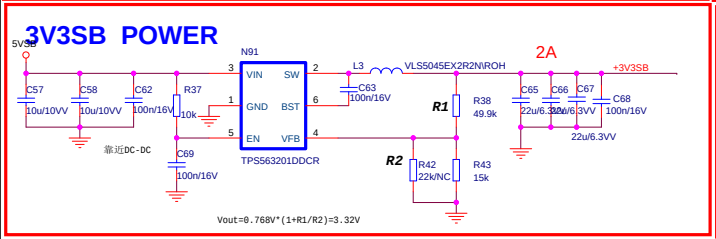

## BACKLIGHT ON/OFF



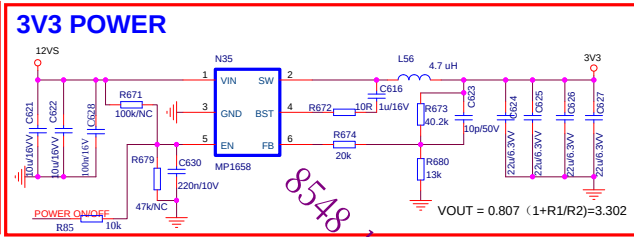

## BACKLIGHT CONTROL



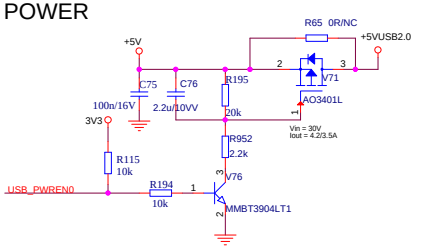

## 3V3SB POWER



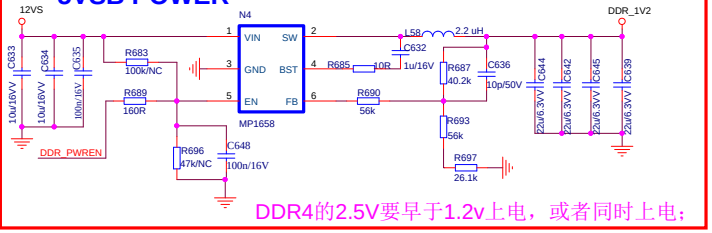

## 3V3 POWER




## USB2.0 POWER

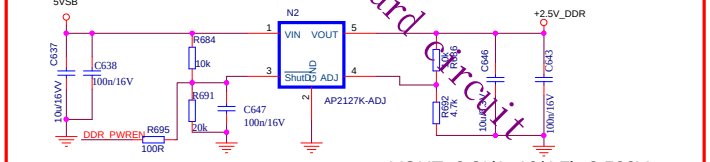



## 5VSB POWER




DDR4的2.5V要早于1.2v上电，或者同时上电；

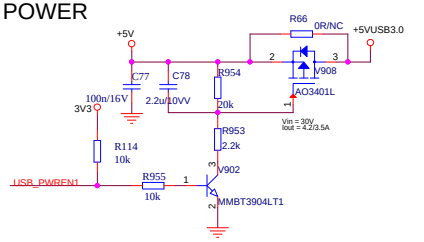
## DDR4 POWER



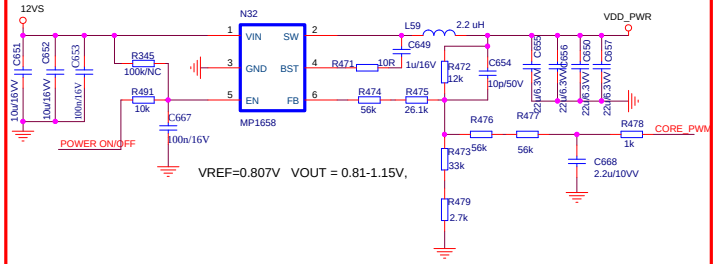

8548 board circuit

VOUT=0.8*(1+10/4.7)=2.502V
( 2.375V min , 2.75V max)

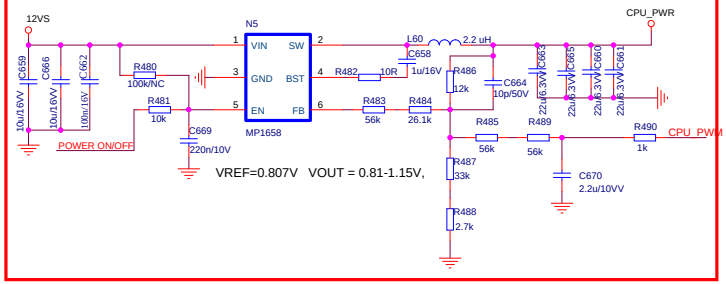
## USB3.0 POWER



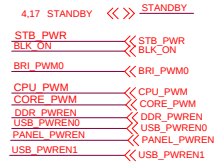

## CORE POWER




## CPU POWER





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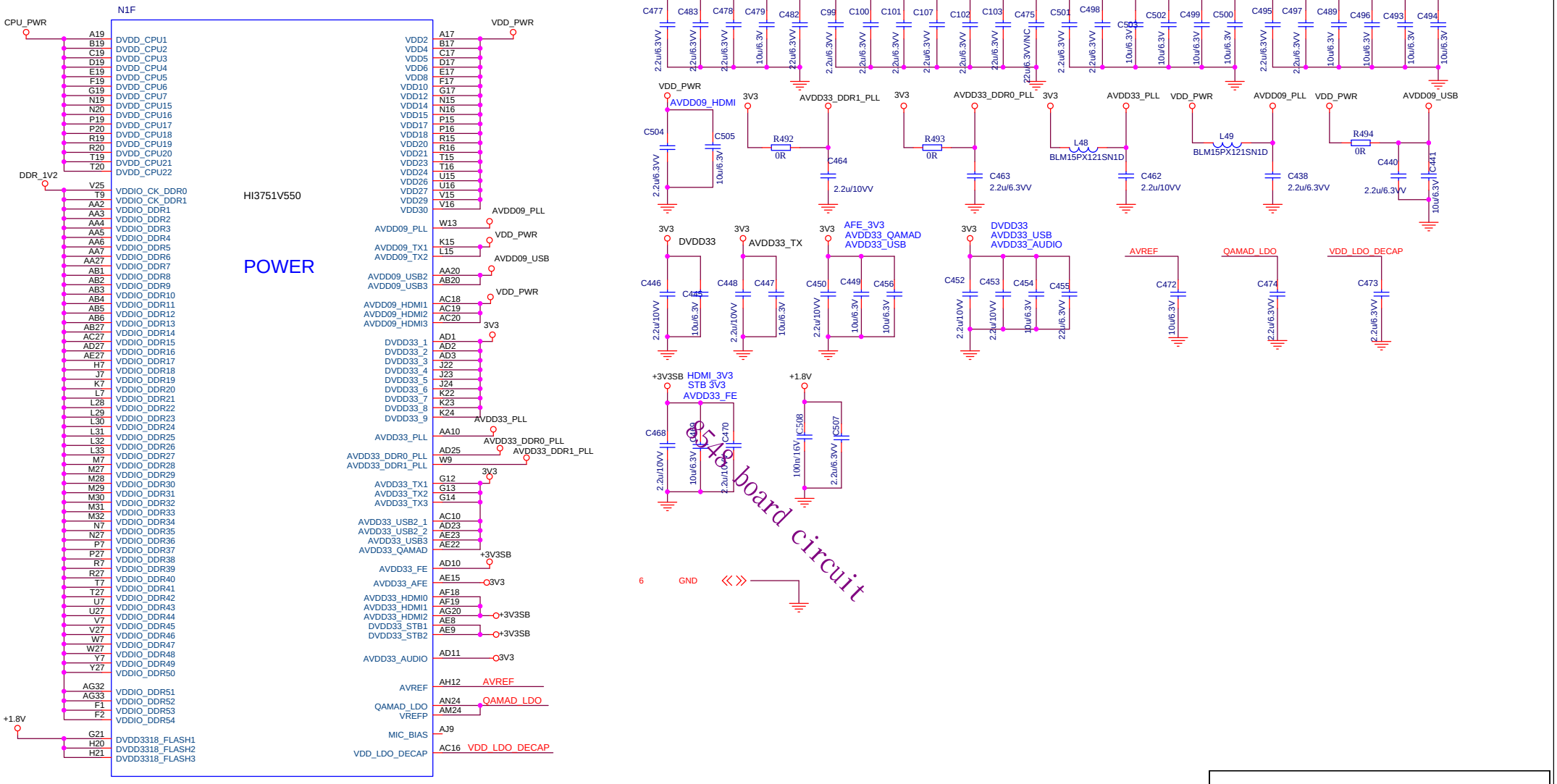
|---|---|---|---|
| Title | HI3751V551 | | |
| Size | Document Number | SYSTEM POWER | Rev Ver.A |
| Custom | | | |
| Date: | Wednesday, July 18, 2018 | Sheet 4 of 20 | |

# HI3751_PWR







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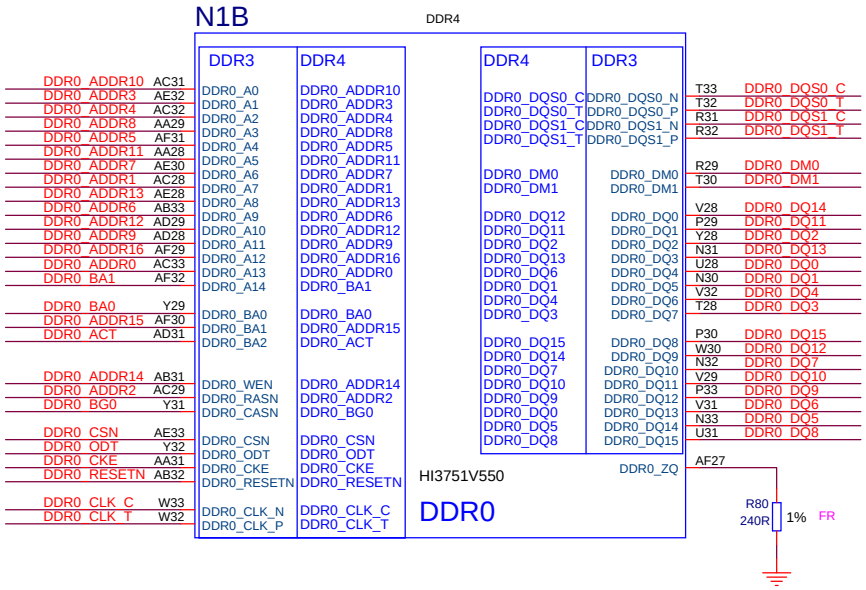
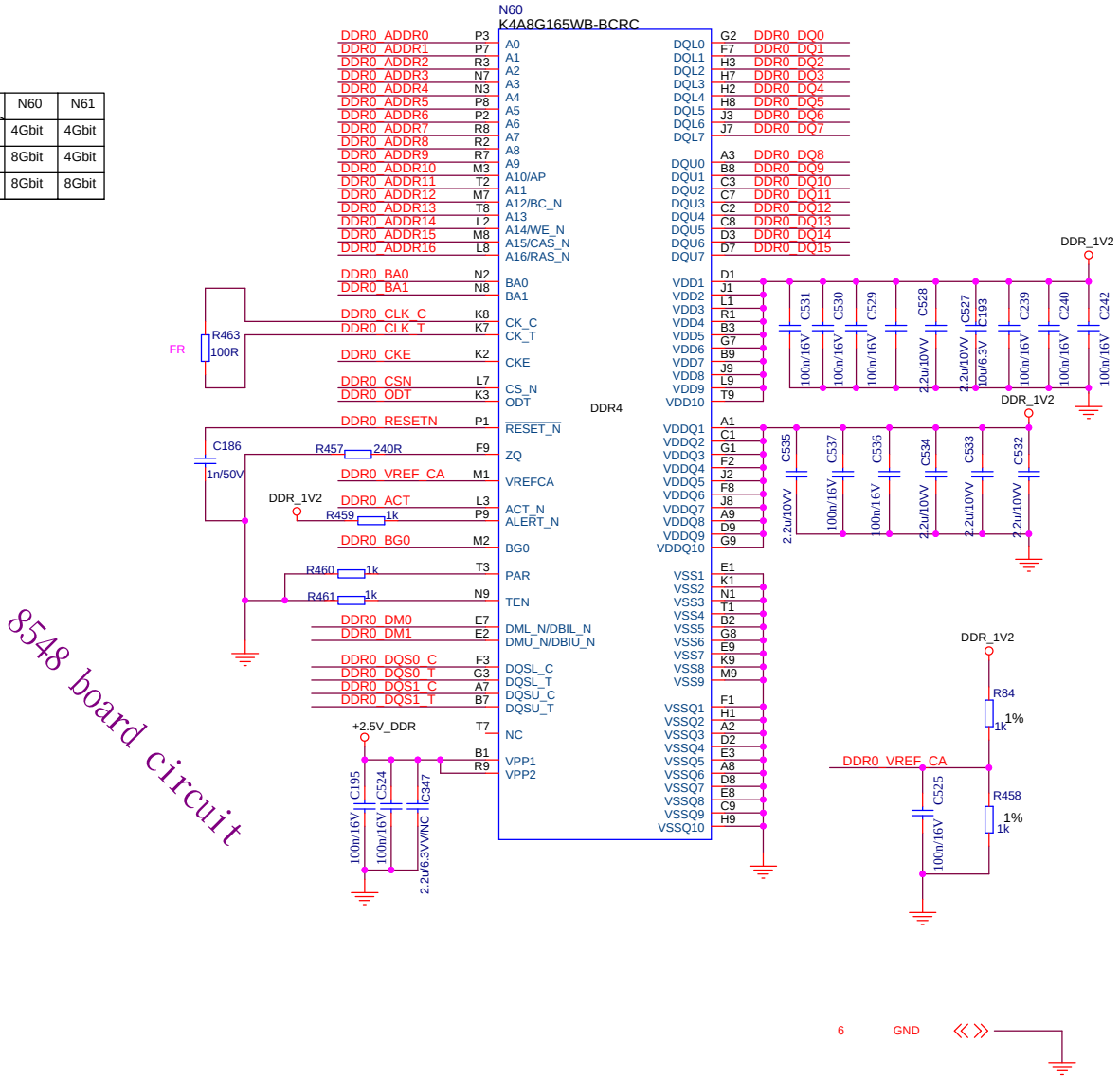
| Title | HI3751V551 | | |
| Size: Custom | Document Number: V551 POWER | | Rev: Ver.A |
| Date: Thursday, July 12, 2018 | Sheet 5 of 20 | | |

# Unit 6 of Hi3751V551(DDR4 PHY0/DDR0)

| | N60 | N61 |
|---|---|---|
| 1GB | 4Gbit | 4Gbit |
| 1.5GB | 8Gbit | 4Gbit |
| 2GB | 8Gbit | 8Gbit |




8548 board circuit

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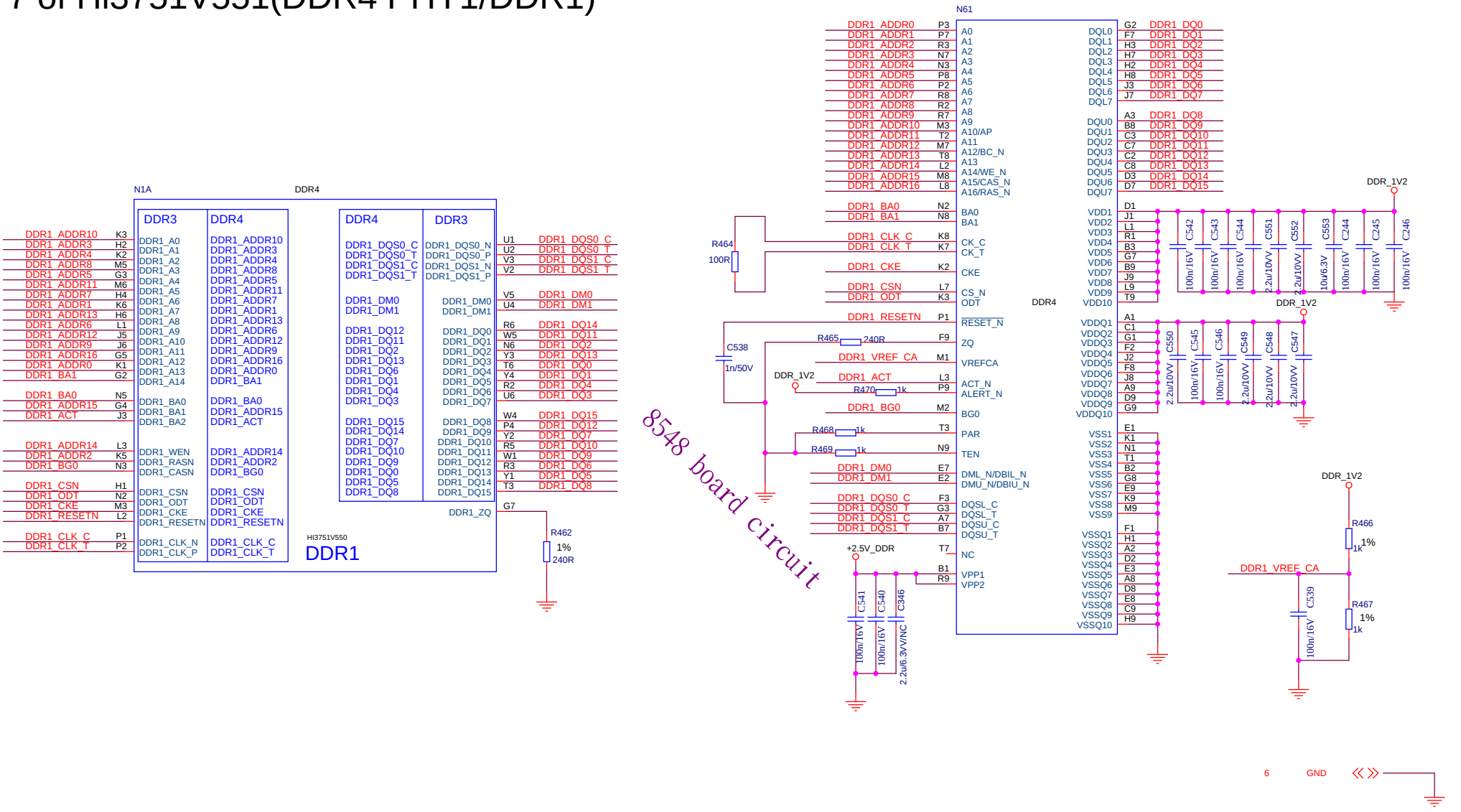
|---|---|
| Title | HI3751V551 |
| Size: Custom | Document Number: DDR4_0 |
| Rev: Ver.A | |
| Date: Saturday, June 23, 2018 | Sheet 6 of 20 |

# Unit 7 of Hi3751V551(DDR4 PHY1/DDR1)

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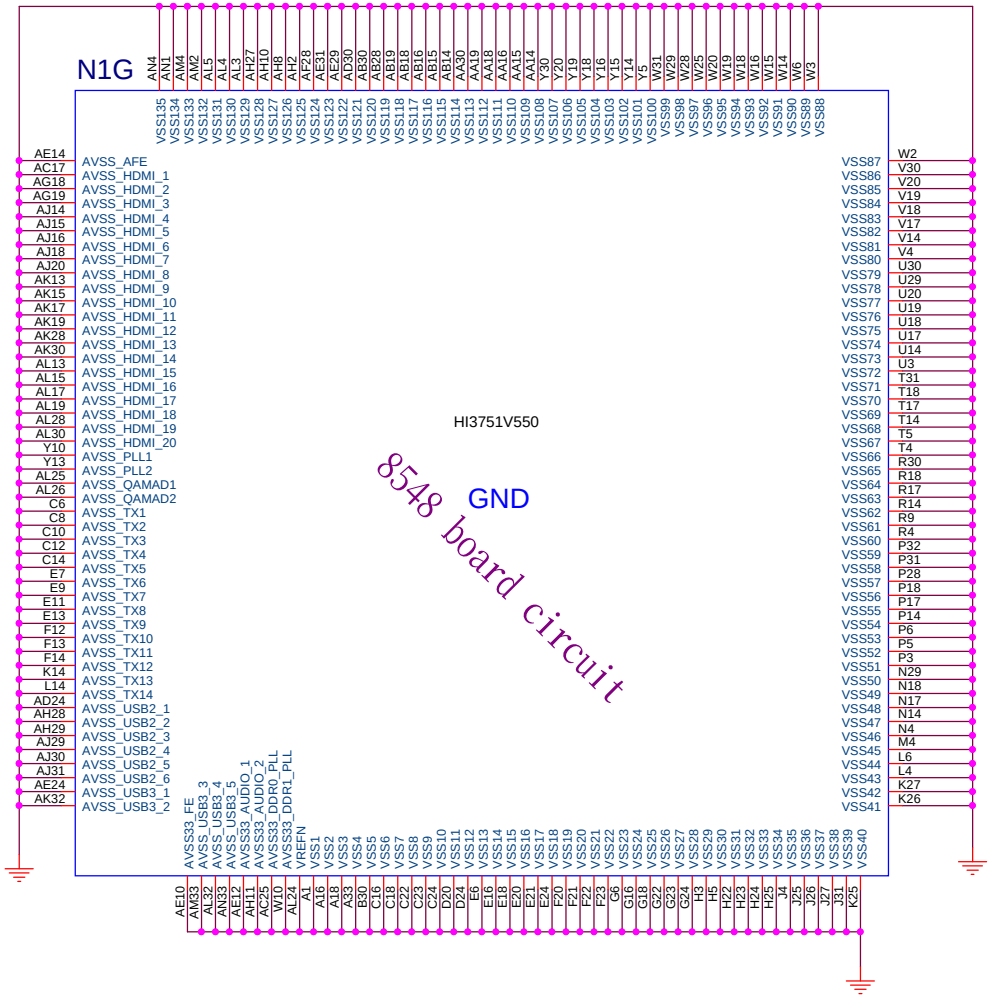
| Title | HI3751V551 | |
| Size: Custom | Document Number: DDR4_1 | Rev: Ver.A |
| Date: Monday, July 09, 2018 | Sheet 7 of 20 | |

# Unit 7 of Hi3751V551(GND)




6 GND

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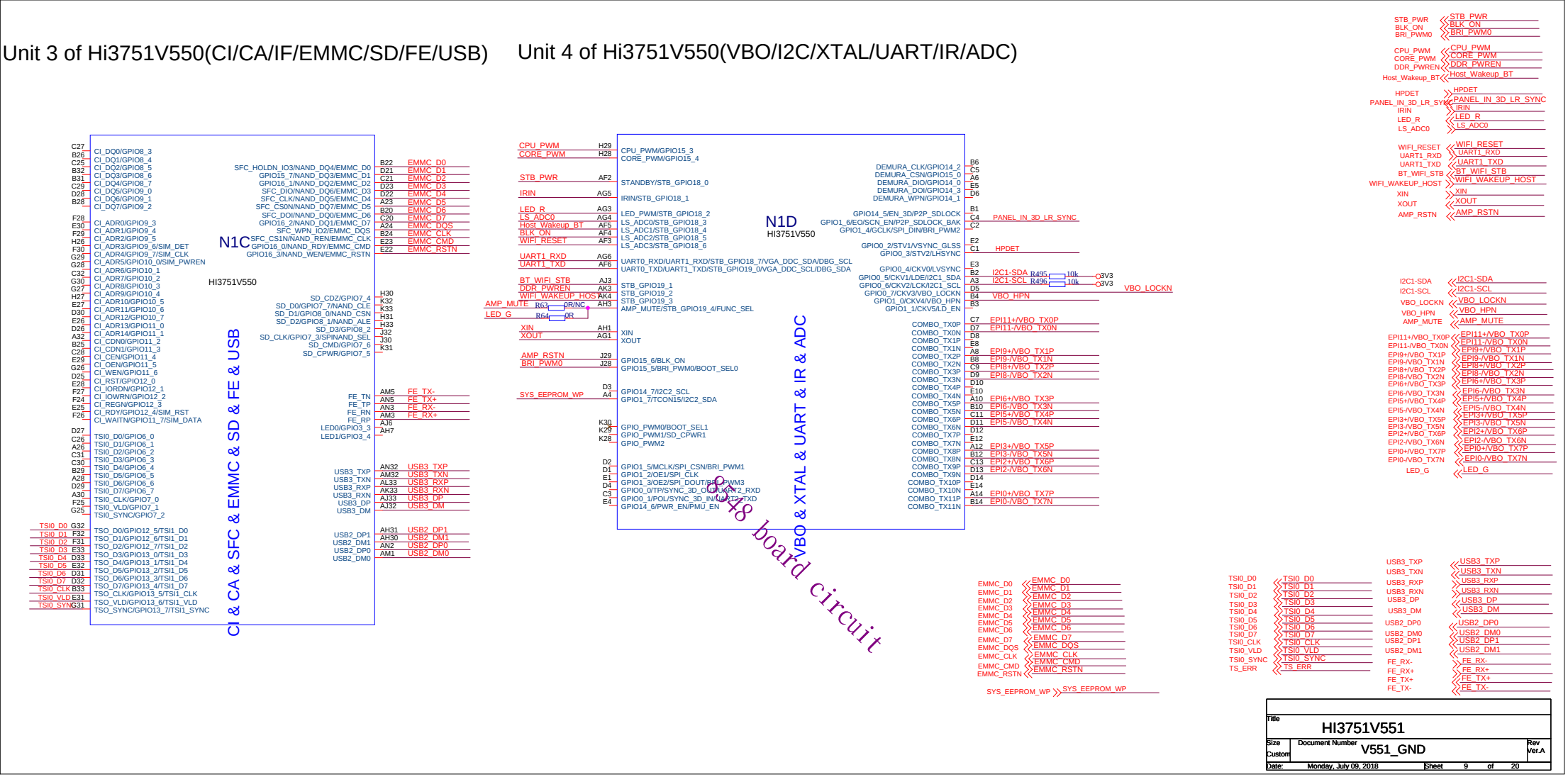
|---|---|---|
| Title | HI3751V551 | |
| Size: Custom | Document Number: V551_GND | Rev: Ver.A |
| Date: Wednesday, May 23, 2018 | Sheet 8 of 20 | |

Unit 3 of Hi3751V550(CI/CA/IF/EMMC/SD/FE/USB)

Unit 4 of Hi3751V550(VBO/I2C/XTAL/UART/IR/ADC)

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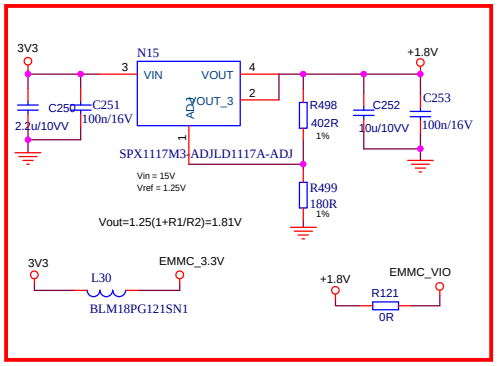
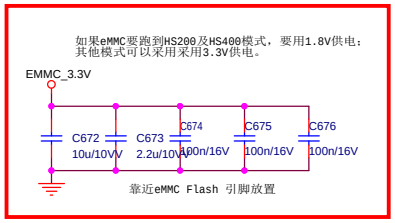
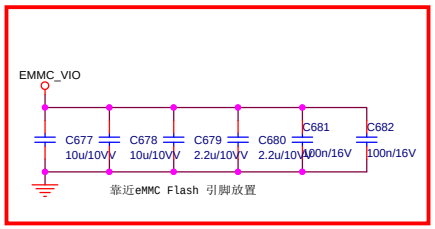
|---|---|
| Title | HI3751V551 |
| Size: Custom | Document Number: V551_GND |
| Rev: Ver.A | |
| Date: Monday, July 09, 2018 | Sheet 9 of 20 |

# eMMC







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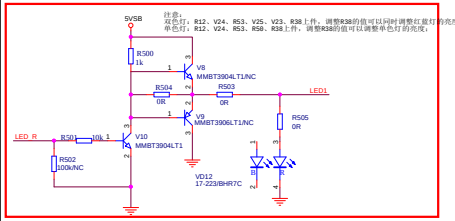
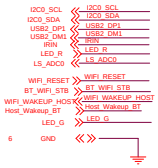
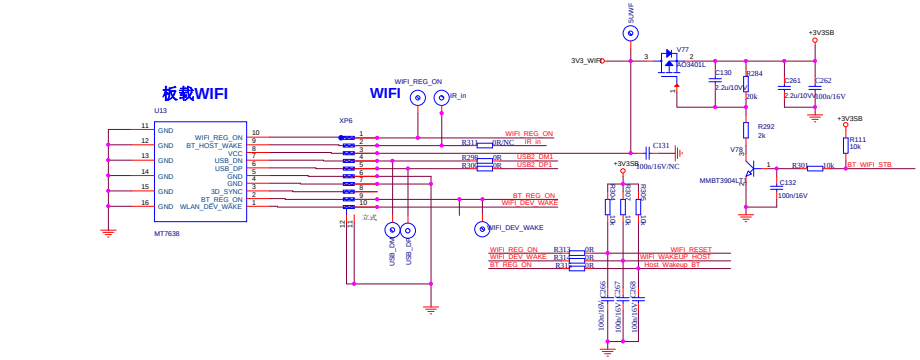
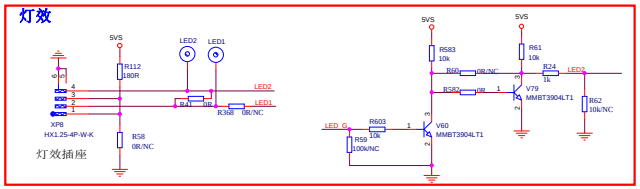
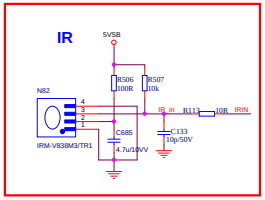
|---|---|---|---|
| Title | HI3751V551 | | |
| Size: Custom | Document Number: EMMC | | Rev: Ver.A |
| Date: Saturday, June 23, 2018 | Sheet 10 of 20 | | |

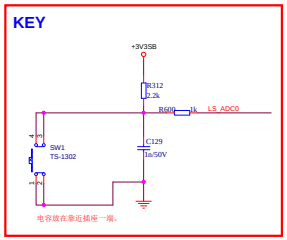



8548 board circuit

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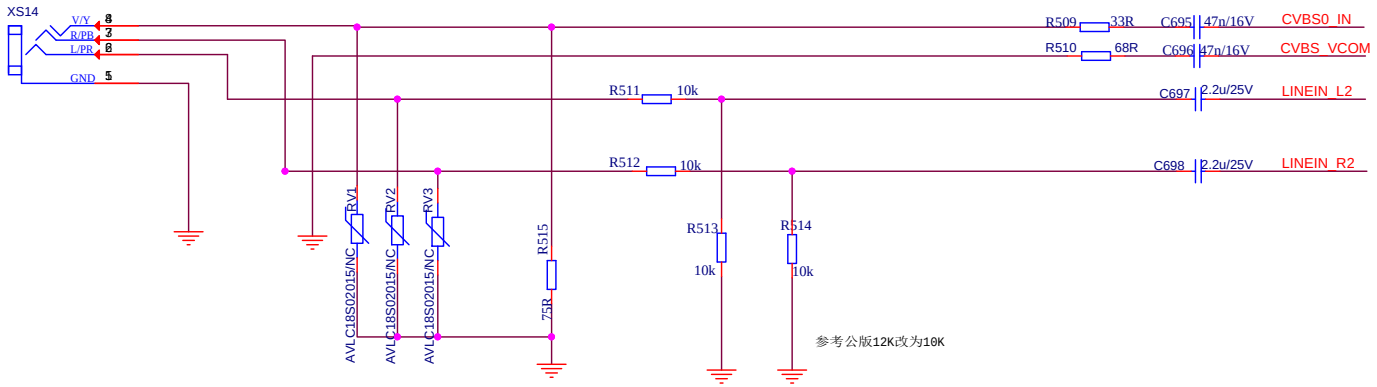
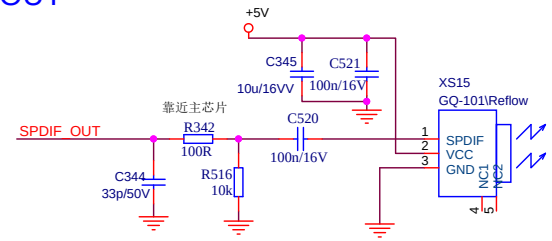
|---|---|---|---|
| Title | HI3751V551 | | |
| Size | Document Number | IR&LED&WIFI&BT | Rev Ver.A |
| Custom | | | |
| Date: | Tuesday, July 17, 2018 | Sheet 11 of 20 | |

# AV INPUT

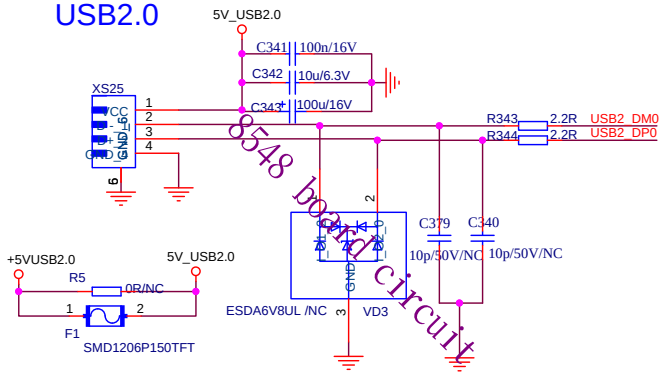
Close to Main Chip



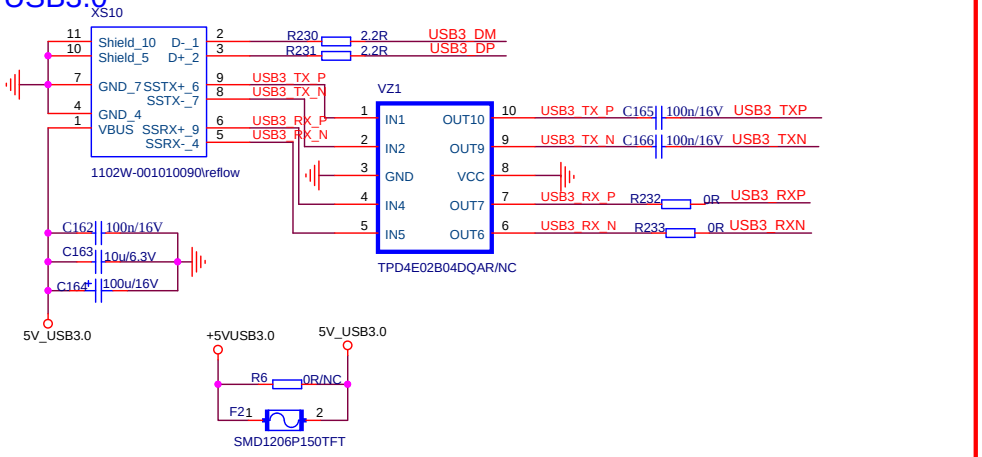

# SPDIF OUT

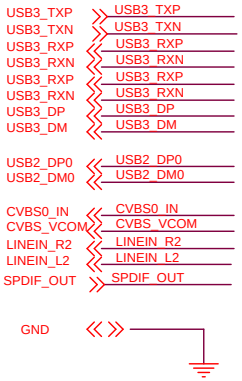



# USB2.0




# USB3.0

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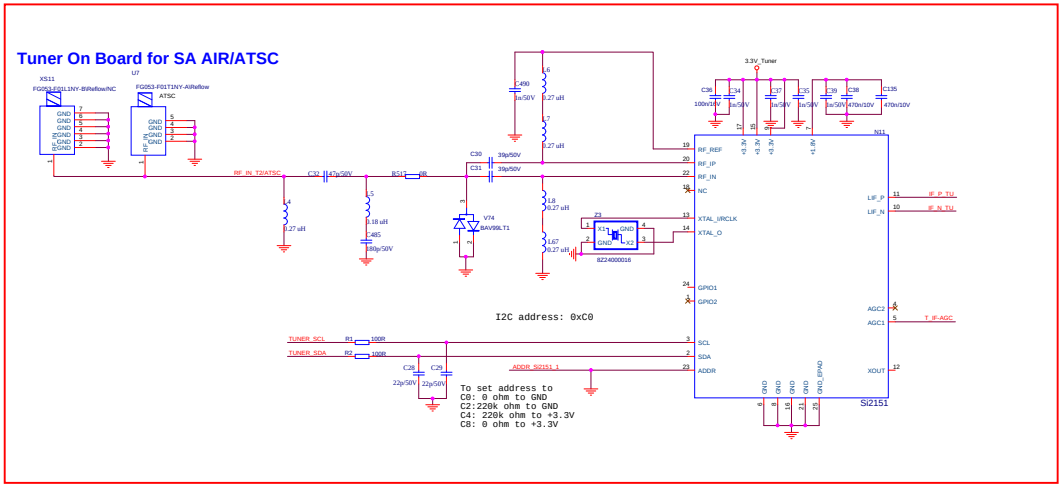
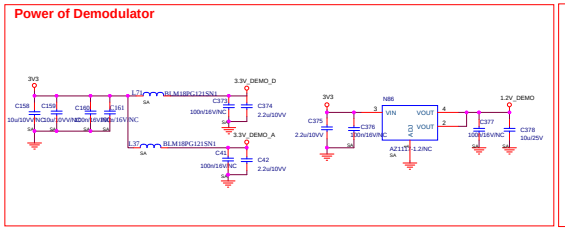
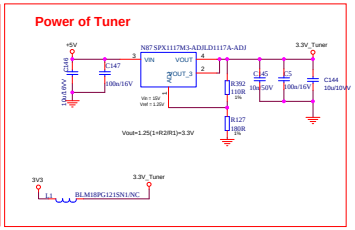
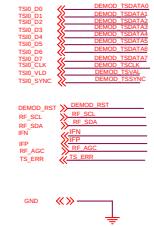
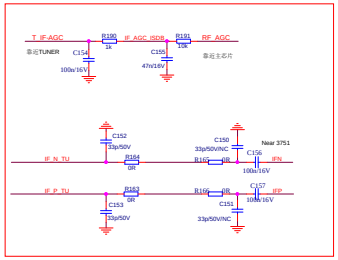
|---|---|---|---|
| Title | HI3751V551 | | |
| Size: Custom | Document Number: AV&YPBPR&SPDIF | | Rev: Ver.A |
| Date: Saturday, June 23, 2018 | Sheet 12 of 20 | | |

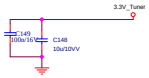


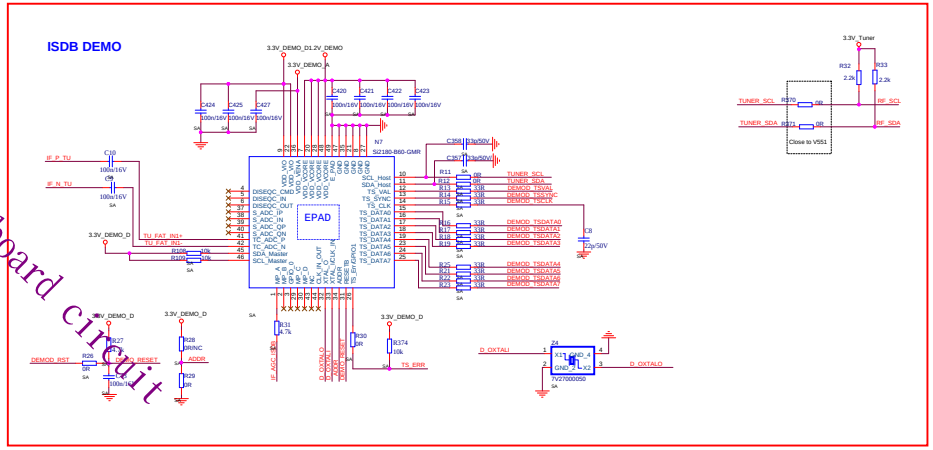




8548 board circuit

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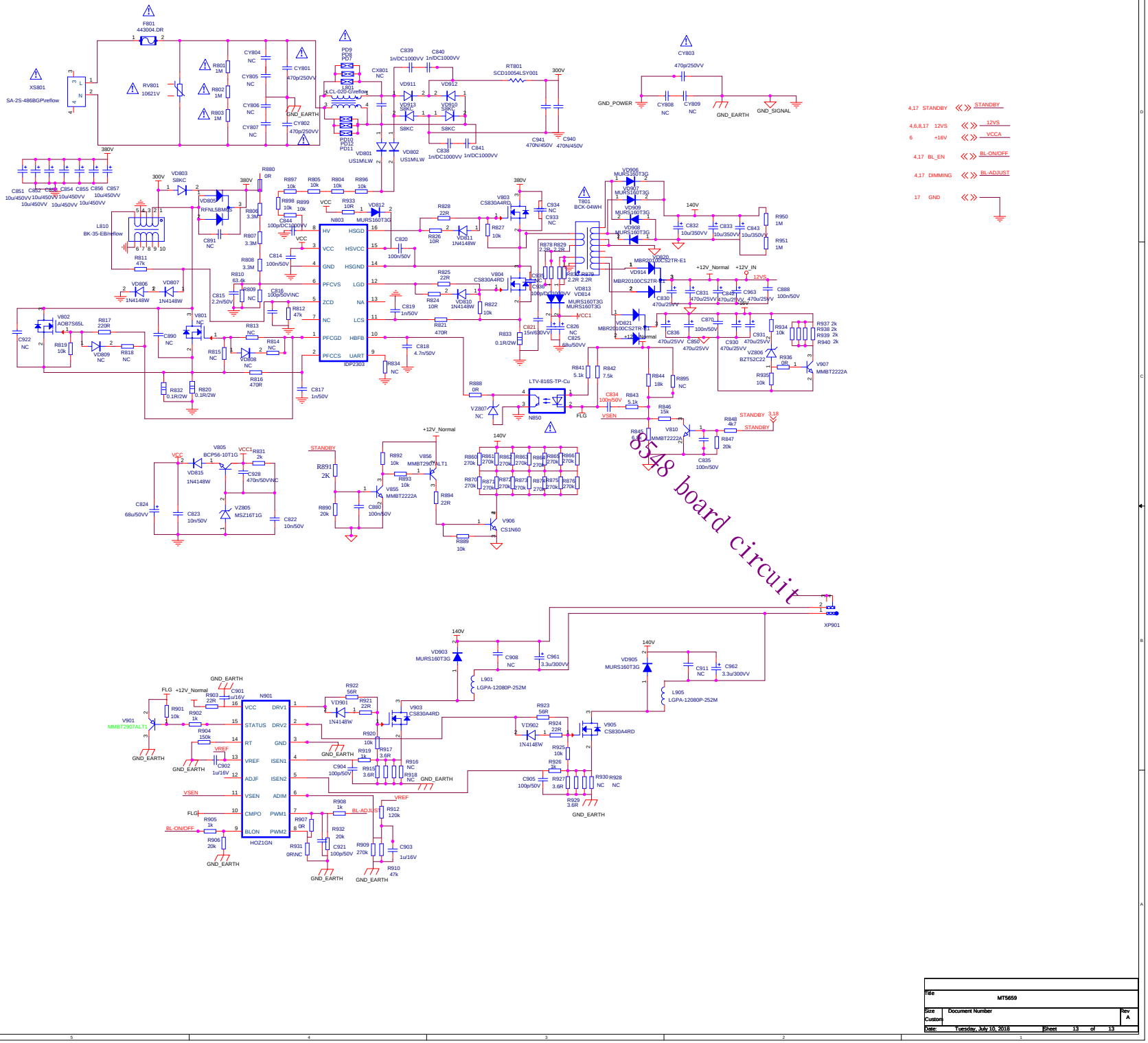
|---|---|---|---|
| Title | HI3751V551 | | |
| Size: Custom | Document Number: TUNER | | Rev: Ver.A |
| Date: Saturday, June 23, 2018 | Sheet 13 of 20 | | |

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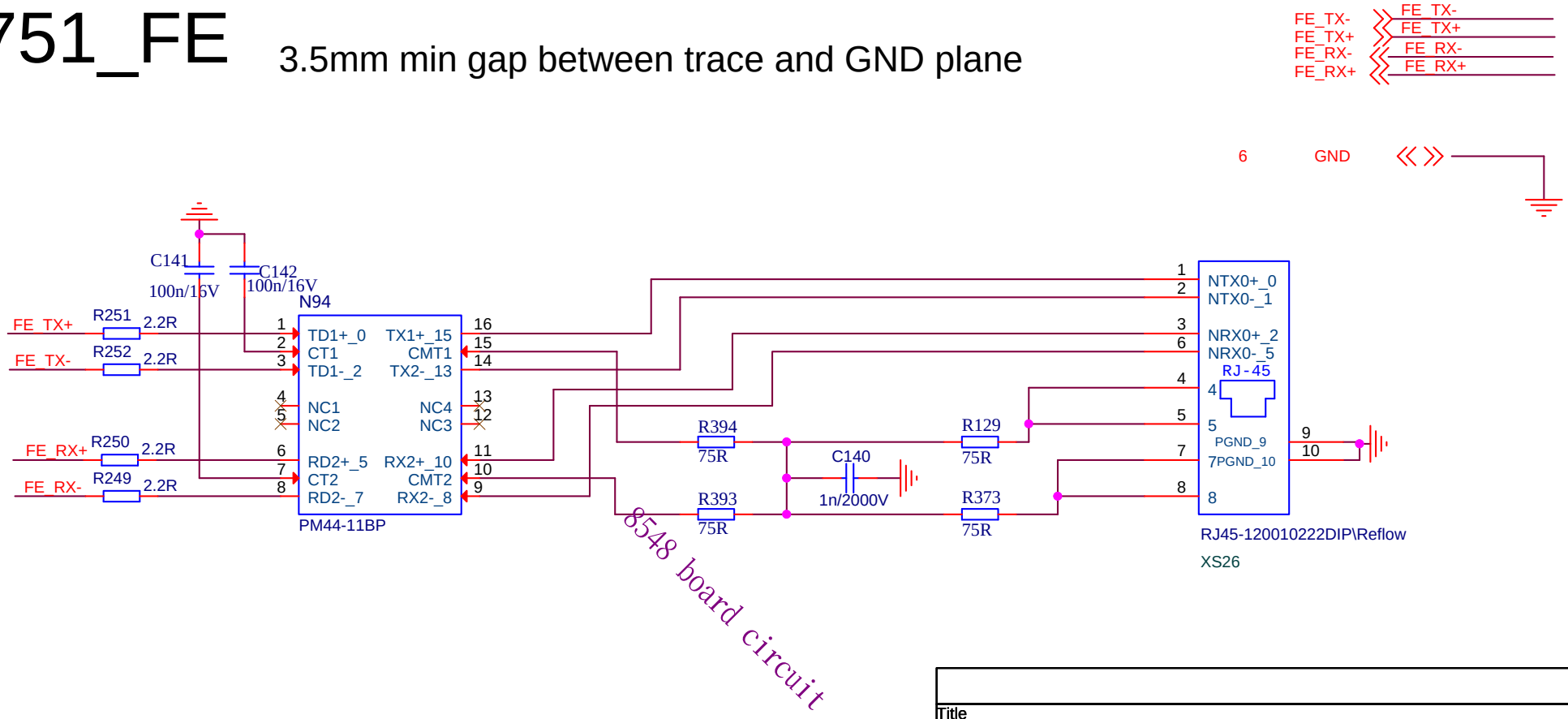
| Title | MT5659 |
| Size | Custom |
| Document Number | |
| Rev | A |
| Date: | Tuesday, July 10, 2018 |
| Sheet | 13 of 13 |

# HI3751_FE

3.5mm min gap between trace and GND plane

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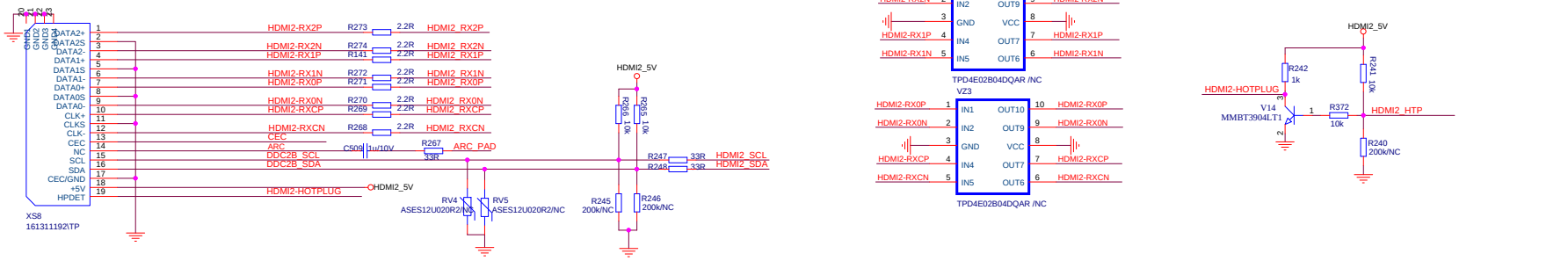
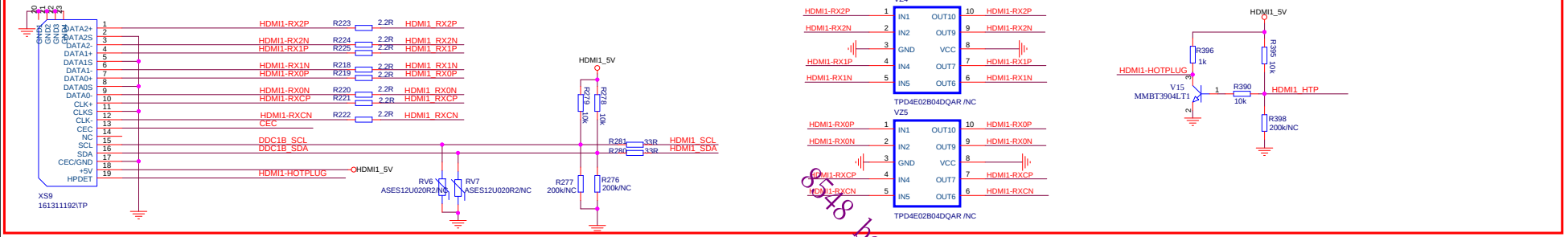
|---|---|---|---|
| Title | HI3751V551 | | |
| Size: Custom | Document Number: FE | | Rev: Ver.A |
| Date: Wednesday, May 23, 2018 | Sheet 14 of 20 | | |

# Unit 2 of Hi3751V550(HDMI/IF/AFE/AUDIO/I2S)

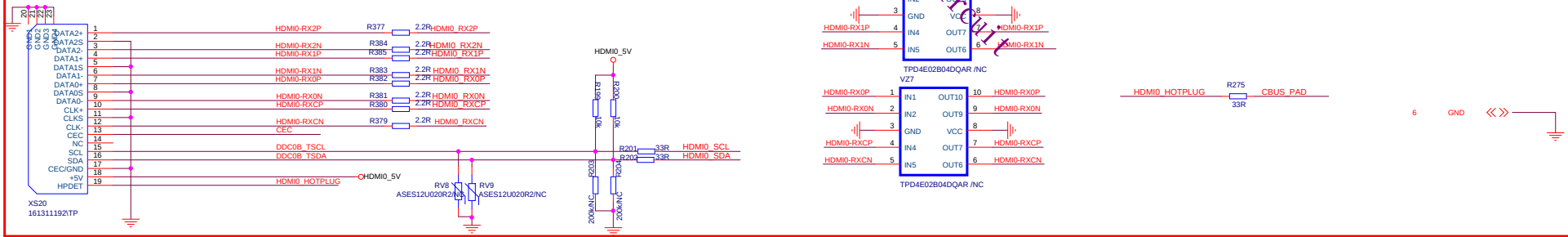
# HDMI PORT1(ARC)




# HDMI PORT2

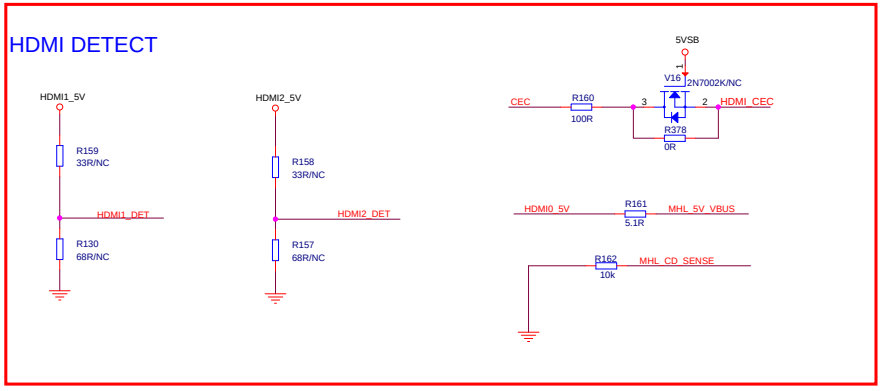



# HDMI PORT 3




8548 board Circuit

# HDMI DETECT




| | | | |
|---|---|---|---|
| HDMI0_RX0N | HDMI0_RX0N | HDMI1_RX0N | HDMI1_RX0N | HDMI2_RX0N | HDMI2_RX0N |
| HDMI0_RX0P | HDMI0_RX0P | HDMI1_RX0P | HDMI1_RX0P | HDMI2_RX0P | HDMI2_RX0P |
| HDMI0_RX1N | HDMI0_RX1N | HDMI1_RX1N | HDMI1_RX1N | HDMI2_RX1N | HDMI2_RX1N |
| HDMI0_RX1P | HDMI0_RX1P | HDMI1_RX1P | HDMI1_RX1P | HDMI2_RX1P | HDMI2_RX1P |
| HDMI0_RX2N | HDMI0_RX2N | HDMI1_RX2N | HDMI1_RX2N | HDMI2_RX2N | HDMI2_RX2N |
| HDMI0_RX2P | HDMI0_RX2P | HDMI1_RX2P | HDMI1_RX2P | HDMI2_RX2P | HDMI2_RX2P |
| HDMI0_RXCN | HDMI0_RXCN | HDMI1_RXCN | HDMI1_RXCN | HDMI2_RXCN | HDMI2_RXCN |
| HDMI0_RXCP | HDMI0_RXCP | HDMI1_RXCP | HDMI1_RXCP | HDMI2_RXCP | HDMI2_RXCP |
| CBUS_PAD | | HDMI1_DET | | HDMI2_DET | |
| MHL_5V_VBUS | MHL_5V_VBUS | HDMI1_HTP | HDMI1_HTP | HDMI2_HTP | HDMI2_HTP |
| MHL_CD_SENSE | MHL_CD_SENSE | ARC_PAD | ARC_PAD | HDMI2_SCL | HDMI2_SCL |
| HDMI0_SCL | HDMI0_SCL | HDMI1_SCL | HDMI1_SCL | HDMI2_SDA | HDMI2_SDA |
| HDMI0_SDA | HDMI0_SDA | HDMI1_SDA | HDMI1_SDA | | |
| HDMI_CEC | HDMI_CEC | | | | |

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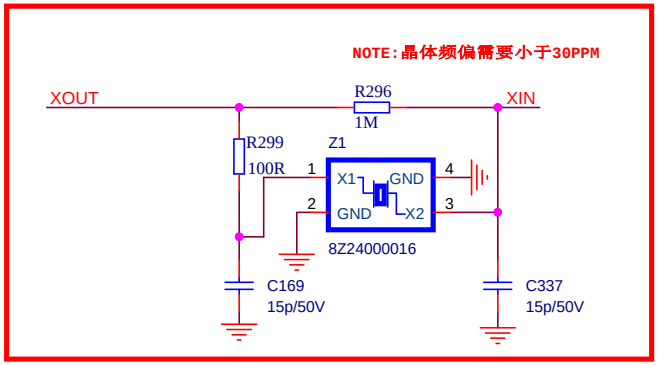
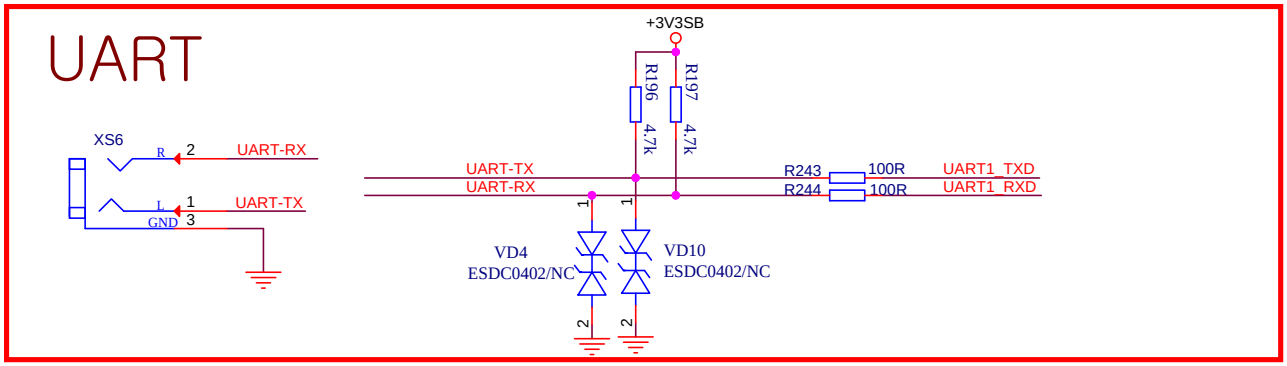
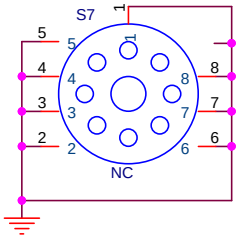
|---|---|
| Title | HI3751V551 |
| Size: C | Document Number: HDMI*3 |
| Rev: Ver.A | |
| Date: Wednesday, May 23, 2018 | Sheet 16 of 20 |

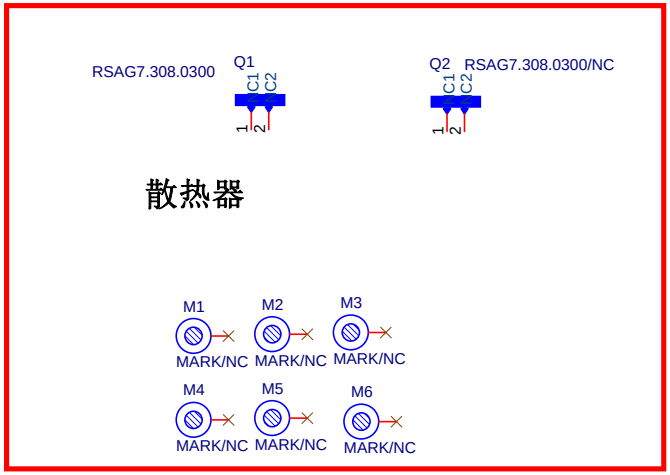
# Peripheral

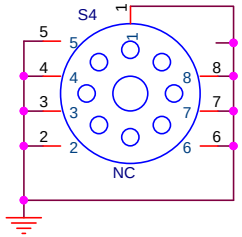


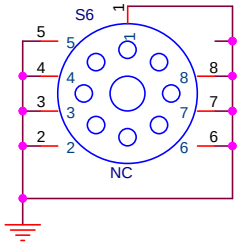



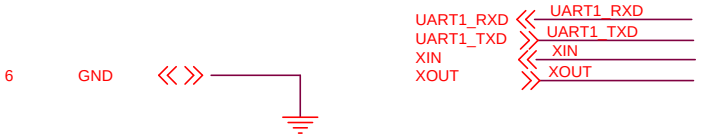




8548 board circuit

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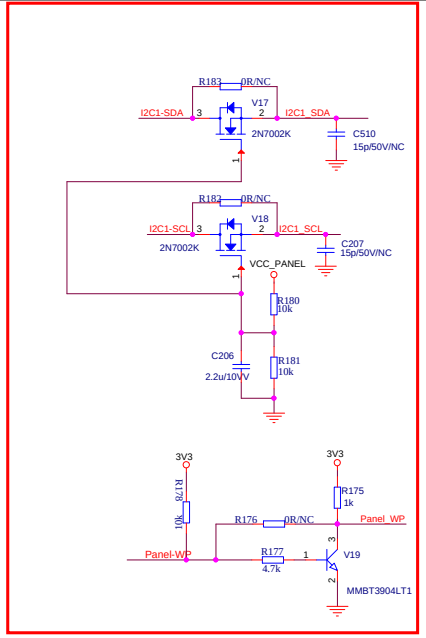
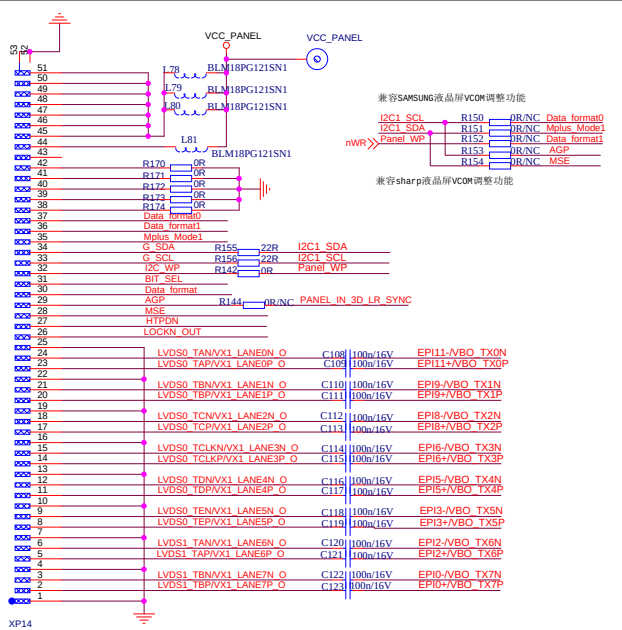
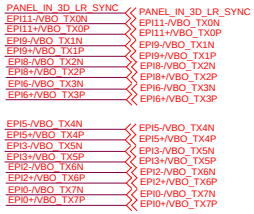
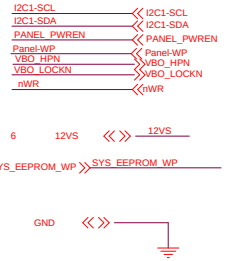
|---|---|---|---|
| Title | HI3751V551 | | |
| Size: Custom | Document Number: UART&EEPROM | | Rev: Ver.A |
| Date: Thursday, May 31, 2018 | Sheet 17 of 20 | | |

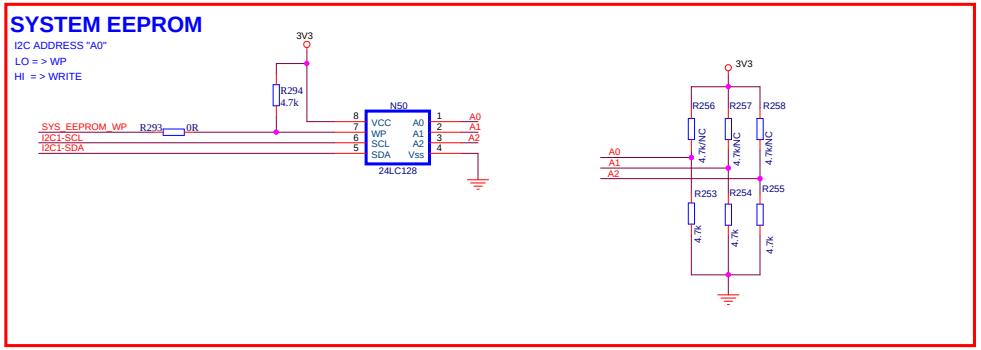


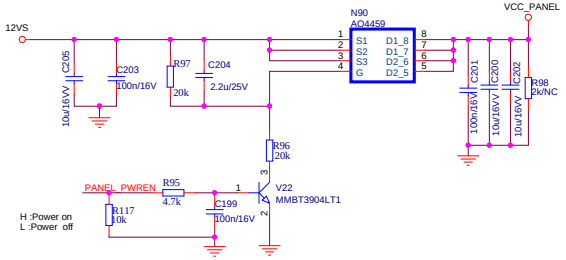




## SYSTEM EEPROM

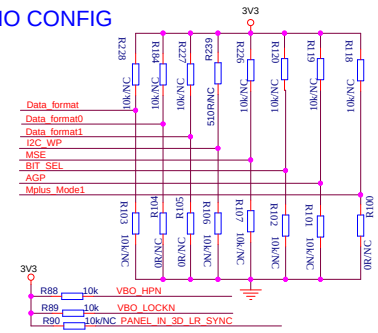



8548 board circuit

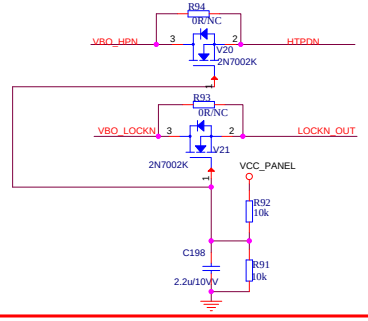
## PANEL CONTROL




## GPIO CONFIG




## HPD/LOCKN MOS

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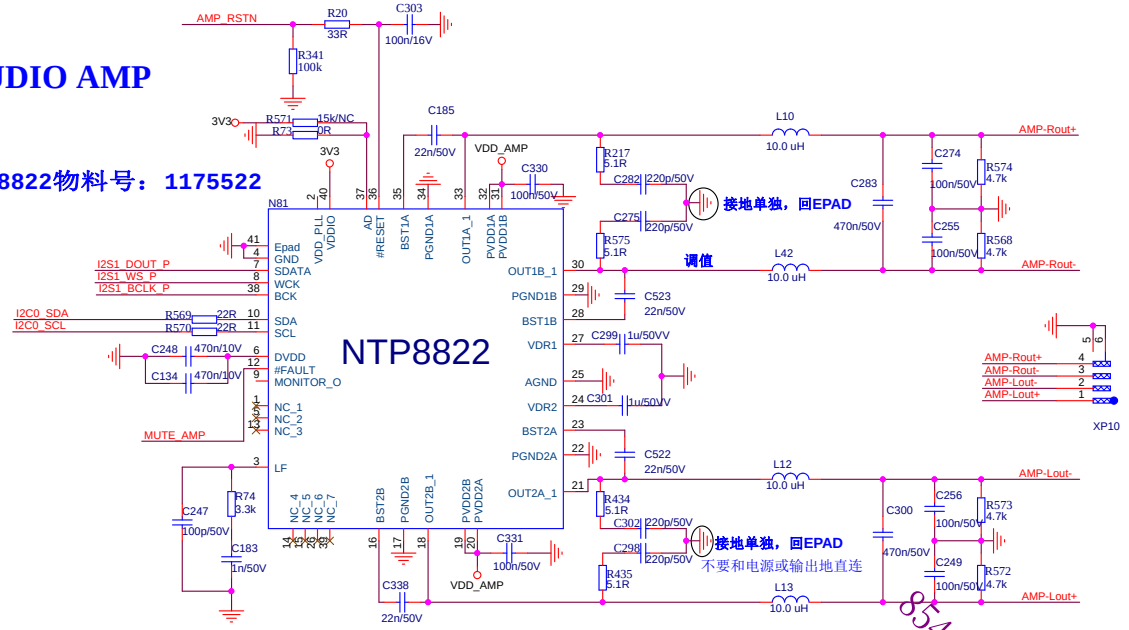
# AUDIO AMP

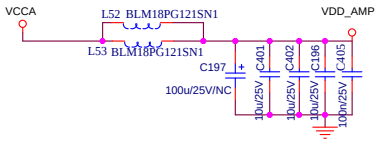
**NTP8822物料号：1175522**



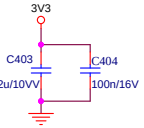

**配I2C地址：**

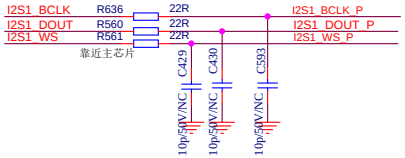
| Adr | I2C Address |
|---|---|
| 0 | 0X54 |
| 1 | 0X56 |

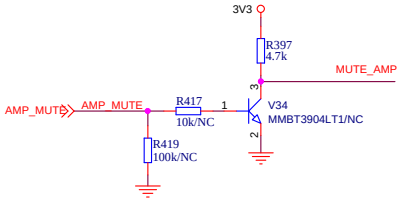
8548 board circuit



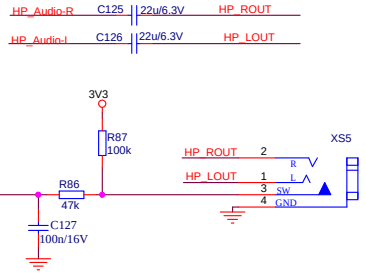

4个C靠近功放芯片放置

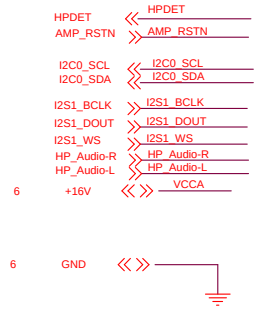



# HEADPHONE

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| Size: Custom | Document Number: AMP | | Rev: Ver.A |
| Date: Saturday, June 23, 2018 | | Sheet 19 of 20 | |