LED COLOUR TV

MAINTENANCE MANUAL

CHASIS:MSD6586P(ISDB)

JUC7.820.00213581

Please read this manual carefully before maintenance

Chapter1 Safety and notes

1.1 Installation notes

(1) Please don't beat or rub, scratch the surface of the LED screen heavily, don't touch it with your hand casually.

(2) When the screen is dirty, please clean it with absorbent cotton or cotton cloth slightly.

(3) Please clean it timely when water or other viscosity pollution fall, which may make the LED face or color change.

(4) Please don't make the LED screen shaked by strong external force.

1.2 Attention points of operation and using

(1) Please unplug the power cable before moving the LED screen.

(2) Please don't change the original setting of the mainboard's, if not, the brightness and white balance etc. may not meet the specification.

(3) The radiation of a long time using in the room temperature is larger than the low temperature.

(4) Please note that the long displaying image may remain at the top when shutdown the machine.

(5) Please avoid the impact from the mobile phone to protect your TV.

1.3 Storage notes

(1)When stored for a long time, please keep the temperature between 0℃to 40℃,don't expose the TV to the strong sunlight, the humidity should be less than 85％RH.

(2)Please don't put your TV under high humidity and high temperature environment, for example, the temperature: 60℃, and the humidity: 85%RH.

(3)Please don't put your TV under low temperature environment, for example, the temperature lower than -25℃.

1.4 Dismantling notes

(1)As LED screen is easy to be damaged, while dismantle, please attention to protect.

(2)Please attention the position of each screw when dismantle, in case to beat the wrong position when install, if not, it may lead to crack or slide of the face frame.

(3) If you need to dismantle the power board or the mainboard, please attention the position and

direction of each line, especially the direction of the screen line, in case of causing accident when install. Before dismantle, we can take some photos of the line route for the comparison of installing.

(4)After check and maintenance, please assure that there is no foreign body in the machine when install.

1.5 High-voltage warning

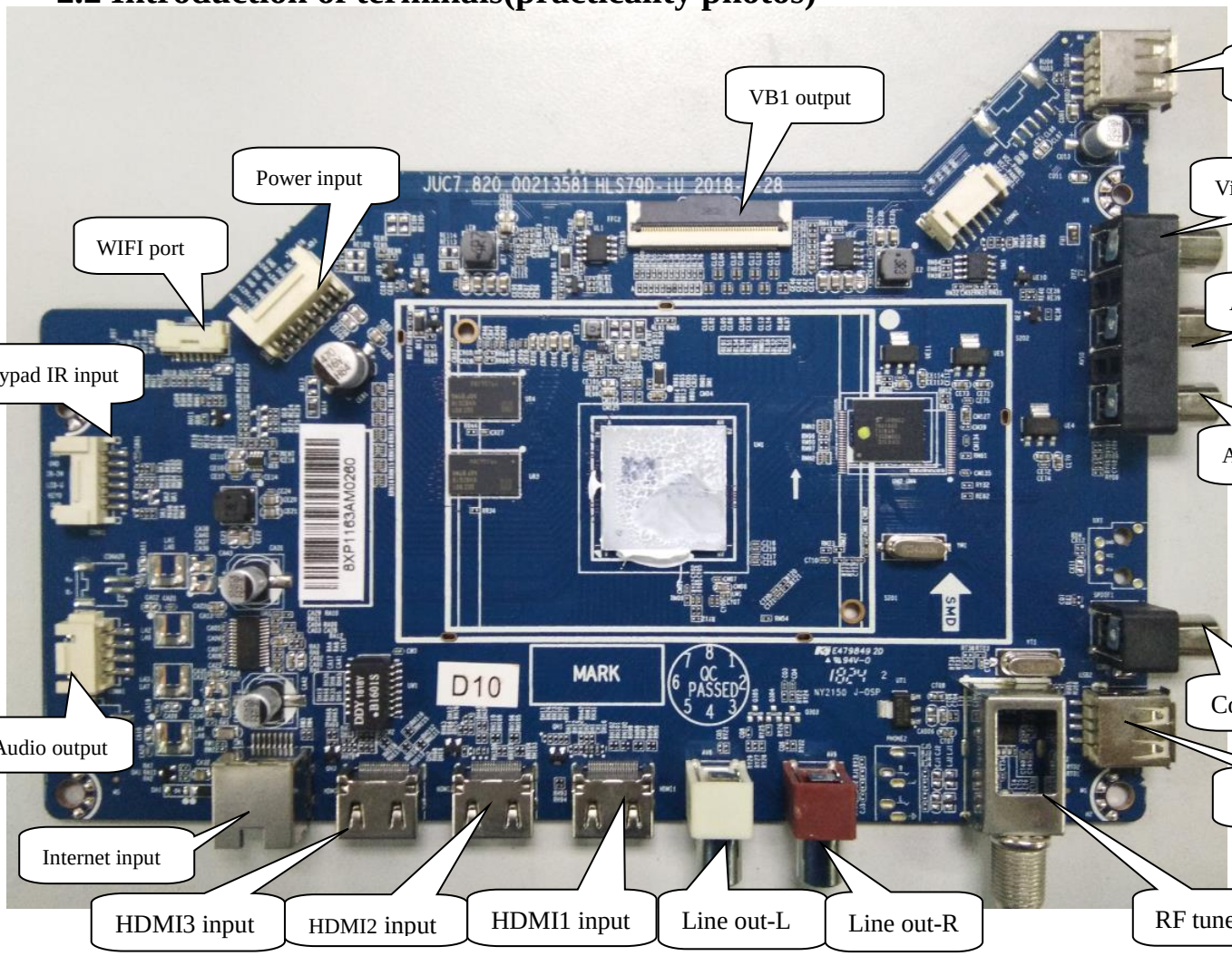
The high-voltage of the LED screen is generated by the power supply board, without attention to exposure to the high voltage, one may meet a serious electricity shock.

Chapter2 whole machine standard and terminal functions

2.1 Basic standard

Item		Standard	
TV function	sound system	M	
	color system	PAL-N/M、NTSC	
	DTV	ISDB-T	
Audio and video signal input	AV	AV x 1	Audio L/R x 1
	HDMI	HDMI ×3	Support HDMI 4Kx2K video format
	USB	USB x2	support media player
Audio output terminals		Lineout x 1	Audio L/R
		coaxial x 1	Digital audio out
Audio output		Audio output L / R	8W inner speakers for each channel
Power		power supply	AC100V~240V, 50/60Hz
requirement for environment		operation temperature storage temperature operation humidity	+ 0 ℃ ~ + 40 ℃, - 20 ℃ ~ + 60 ℃ 10% ~ 85%

2.2 Introduction of terminals(practicality photos)



ATTENTION:

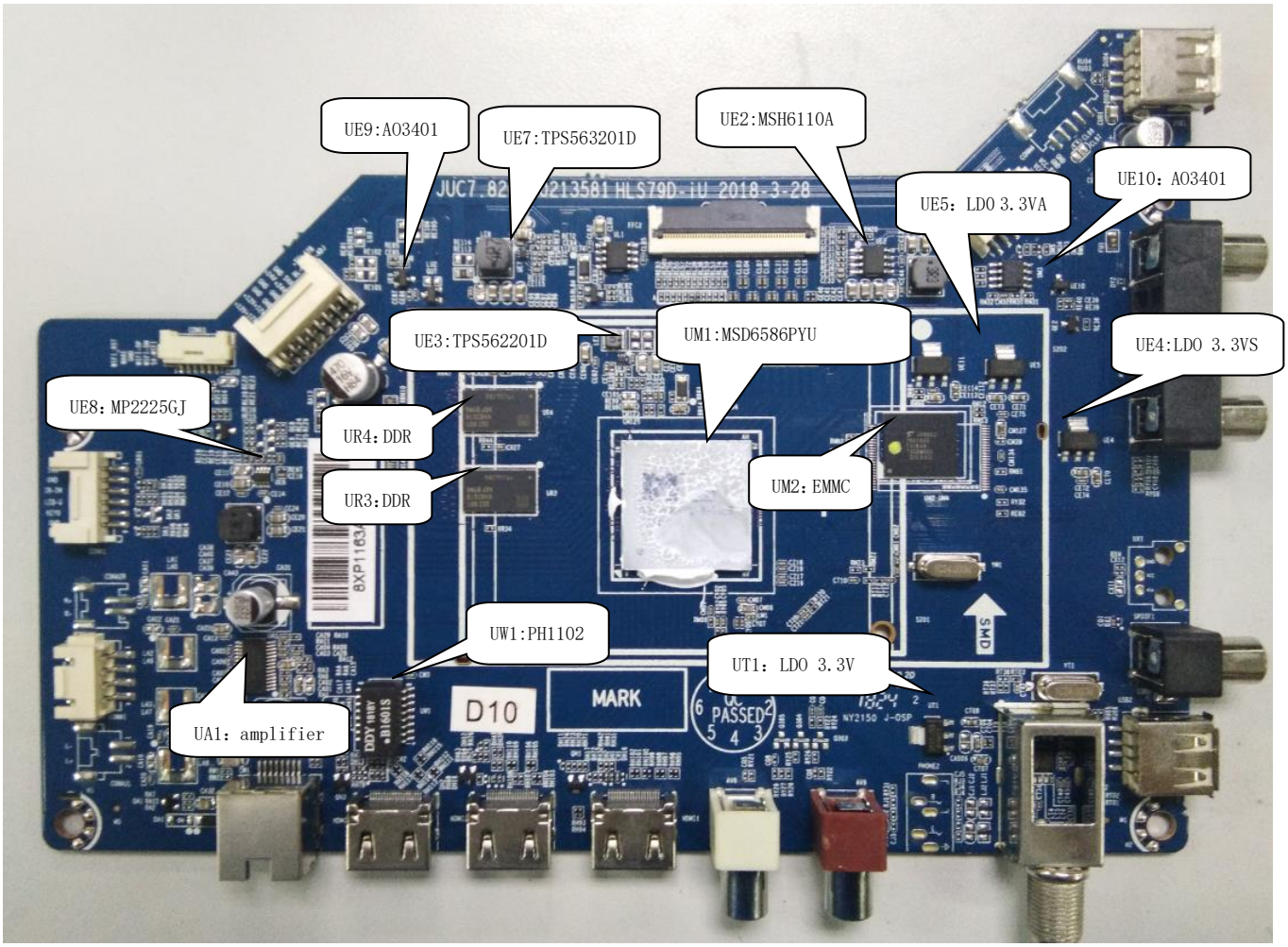
1. USB1 and USB2 support to USB2.0;
2. HDMI2.0 support to 4K@60Hz

Chapter3 Main chip functions and the introductions of power supply

3.1 Main IC and functions

No.	Item no.	Model(EXAMPLE)	Main function
1	UA1	CS3818EO	amplifier
2	UE2	MSH6110A	12V to 1.05V VDDC_CPU DC-DC
3	UE3	MP1658	5V to 1.5V DC-DC
4	UE4	LR1117/A-3.3$AZ1117H-3.3TR$LD1117S33TR$AMS1117-3.3$LM1117MPX-3.3$NCP1117ST33T3$SPX1117M3-3.3$CW1117CB-3.3V	5VS to 3.3VS LDO
5	UE5	LR1117/A-3.3$AZ1117H-3.3TR$LD1117S33TR$AMS1117-3.3$LM1117MPX-3.3$NCP1117ST33T3$SPX1117M3-3.3$CW1117CB-3.3V	5VA to 3.3VA LDO
6	UE9 UE10	ME2345A$AO3401A$SSF3341$KO3401	power switch(12VS to 12VA，5VS to 5VA)
7	UE7	MP1658	12VS to 5VS DC-DC
8	UE8	MP2225	12VA to 1.1V DC-DC
9	UM1	MSD6586PYU	main ic
10	UM2	THGBMDG5D1LBAIL	Toshiba
11	UR3	K4B2G1646F-BYMA	DDR
12	UR4	K4B2G1646F-BYMA	DDR
13	UT1	LR1117/A-3.3$AZ1117H-3.3TR$LD1117S33TR$AMS1117-3.3$LM1117MPX-3.3$NCP1117ST33T3$SPX1117M3-3.3$CW1117CB-3.3V	5V to 3.3V LDO(for tuner)
14	UW1	B1601S$PH1102G	B1601S$PH1102G
15	UL1	ME4953$AO4803$SSF4953	power switch for panel
16	UE11	LR1117/A-1.8$AZ1117H-1.8TRE1	5V to 1.8V

NOTE: Models are only for reference, change is not informed.


UE9:AO3401
UE7:TPS563201D
UE2:MSH6110A
UE10：AO3401
UE5：LDO 3.3VA
UE3:TPS562201D
UM1:MSD6586PYU
UE4:LDO 3.3VS
UE8：MP2225GJ
UR4：DDR
UR3:DDR
UM2：EMMC
UW1:PH1102
UT1：LDO 3.3V
UA1：amplifier
D10
MARK
SMD

3.2 Pin function description of chip

3.2.1 MSD6586 recommended operating power conditons

Recommended Operating Conditions

Parameter	Symbol	Min	Typ	Max	Unit
3.3V Supply Voltages	V_{VDD_33}	3.14		3.46	V
1.5V Supply Voltages	V_{VDD_15}	1.43		1.57	V
Core Supply Voltages	V_{VDD_core}	0.921	0.95	0.978	V
CPU Supply Voltages	V_{VDD_cpu}	1.018	1.05 (VID Case2)	1.081	V
		0.97	1.00 (VID Case1)	1.03	V
		0.978	0.95 (VID Case0)	0.978	V
Ambient Operating Temperature	T_A	0		70	°C
Junction Temperature	T_J			125	°C

3.2.2 MSH6110A DC-DC brief introduction

Pin NO.	Pin Name	I/O	Function
1	EN	I	Enable control Input
2	FB	I	Feedback Voltage Input
3	VRGE5	O	5V Regulator Output（cann't provide external current sinke）
4	SDA	I	I2C
5	SCL	I	I2C
6	SW	O	Switch Node of Buck Convert
7	BSR	O	Supply of High Side MOSFET Driver Circuit
8	PVDD	I	Power Supply
9	EPAD		Ground（Back Side）

3.2.2 MP1658 Brief introduction

Package Pin #	Name	Description
1	VIN	Supply Voltage. The MP1658 operates from a 4.5V-to-16V input rail. Requires C1 to decouple the input rail. Connect using a wide PCB trace.
2	SW	Switch Output. Connect using a wide PCB trace.
3	GND	System Ground. Reference ground of the regulated output voltage: requires extra care during PCB layout. Connect to GND with copper traces and vias.
4	BST	Bootstrap. Connect a capacitor and a resistor between SW and BST pins to form a floating supply across the high-side switch driver. Use a 1μF BST capacitor.
5	EN	EN=HIGH to enable the MP1658. For automatic start-up, connect EN to VIN through 100k pull-up resistor.
6	FB	Feedback. Connect to the tap of an external resistor divider from the output to GND to set the output voltage. The frequency fold-back comparator lowers the oscillator frequency when the FB voltage drops below 600mV to prevent current-limit runaway during a short circuit fault.

3.2.3 CS3818 Brief introduction

PIN		I/O/P(1)	DESCRIPTION
NAME	NUMBER		
$\overline{SD}$	1	I	Shutdown logic input for audio amp (LOW = outputs Hi-Z, HIGH = outputs enabled). TTL logic levels with compliance to AVCC.
$\overline{FAULT}$	2	O	Open drain output used to display short circuit or dc detect fault status. Voltage compliant to AVCC. Short circuit faults can be set to auto-recovery by connecting $\overline{FAULT}$ pin to $\overline{SD}$ pin. Otherwise, both short circuit faults and dc detect faults must be reset by cycling PVCC.
LINP	3	I	Positive audio input for left channel. Biased at 3 V.
LINN	4	I	Negative audio input for left channel. Biased at 3 V.
NC	5, 6, 13	I	No Connect Pin. Can be shorted to PVCC or shorted to GND or left open.
AVCC	7	P	Analog supply
GND	8	P	Analog signal ground.
GVDD	9	O	High-side FET gate drive supply. Nominal voltage is 7 V.
PLIMIT	10	I	Power Limiter Control pin
RINN	11	I	Negative audio input for right channel. Biased at 3 V.
RINP	12	I	Positive audio input for right channel. Biased at 3 V.

PIN		I/O/P(1)	DESCRIPTION
NAME	NUMBER		
PBTL	14	I	Parallel BTL mode select pin. L=Stereo BTL mode, H=Mono PBTL mode
PVCC	15, 16	P	Power supply for right channel H-bridge. Right channel and left channel power supply inputs are connected internally.
BSPR	17	I	Bootstrap I/O for right channel, positive high-side FET.
OUTPR	18	O	Class-D H-bridge positive output for right channel.
GND	19	P	Power ground for the H-bridges.
OUTNR	20	O	Class-D H-bridge negative output for right channel.
BSNR	21	I	Bootstrap I/O for right channel, negative high-side FET.
BSNL	22	I	Bootstrap I/O for left channel, negative high-side FET.
OUTNL	23	O	Class-D H-bridge negative output for left channel.
GND	24	P	Power ground for the H-bridges.
OUTPL	25	O	Class-D H-bridge positive output for left channel.
BSPL	26	I	Bootstrap I/O for left channel, positive high-side FET.
PVCC	27, 28	P	Power supply for left channel H-bridge. Right channel and left channel power supply inputs are connected internally.
Thermal Pad		P	Connect to GND for best thermal and electrical performance

3.2.4 Tuner R842 Brief introduction

Parameter	Symbol	Min	Typical	Max	Units
Supply Voltage	V_{CC}	3	3.3	3.6	V
AGC Control	V_{AGC}	0		3.3	V

Pin Number	Symbol	I/O	Description
1	RFIN	I	RF input
2	RF_bias	-	RF circuit bias
5,19,20	Detx	-	Power detector decoupling capacitor
3,4,22,23	TFxx	-	Tracking filter pin out
6	SCL	I	I²C bus, clock input
7	SDA	I/O	I²C bus, data input/ output
8	AVDD	S	AVDD for PLL
9	CP	-	PLL Charge Pump decouple
10	DVSS	S	Digital Ground
11	DVDD	S	Digital 3.3V Supply
12	XTAL_I	I	Crystal Driver Input
13	XTAL_O	I	Crystal Driver Output
14,15	VAGC	I	IF automatic gain control input
16,17	VOP, VON	O	Differential IF output
18	AVDD	S	Analog 3.3V supply
21	NC	-	No used
24	AVDD	S	RF 3.3V Supply

Table 2-1. R842 Summary List of Pin Assignment for Hybrid version

(note: E-Pad is GND)

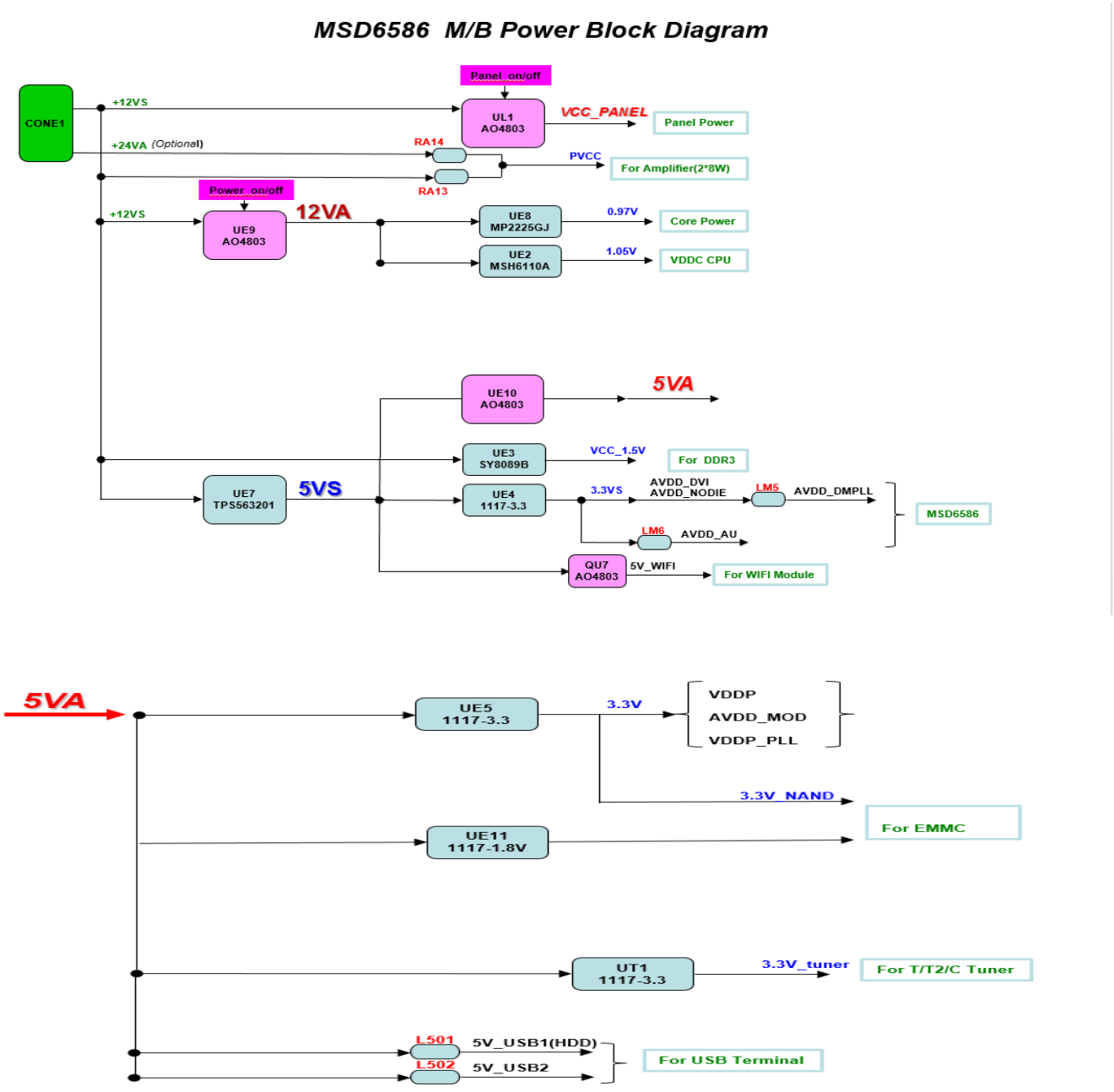
Chapter4 The chassis frame diagram, mainboard power supply systems, mainboard interface definition

This chapter mainly introduce the chassis frame diagram, power supply system, interface definition

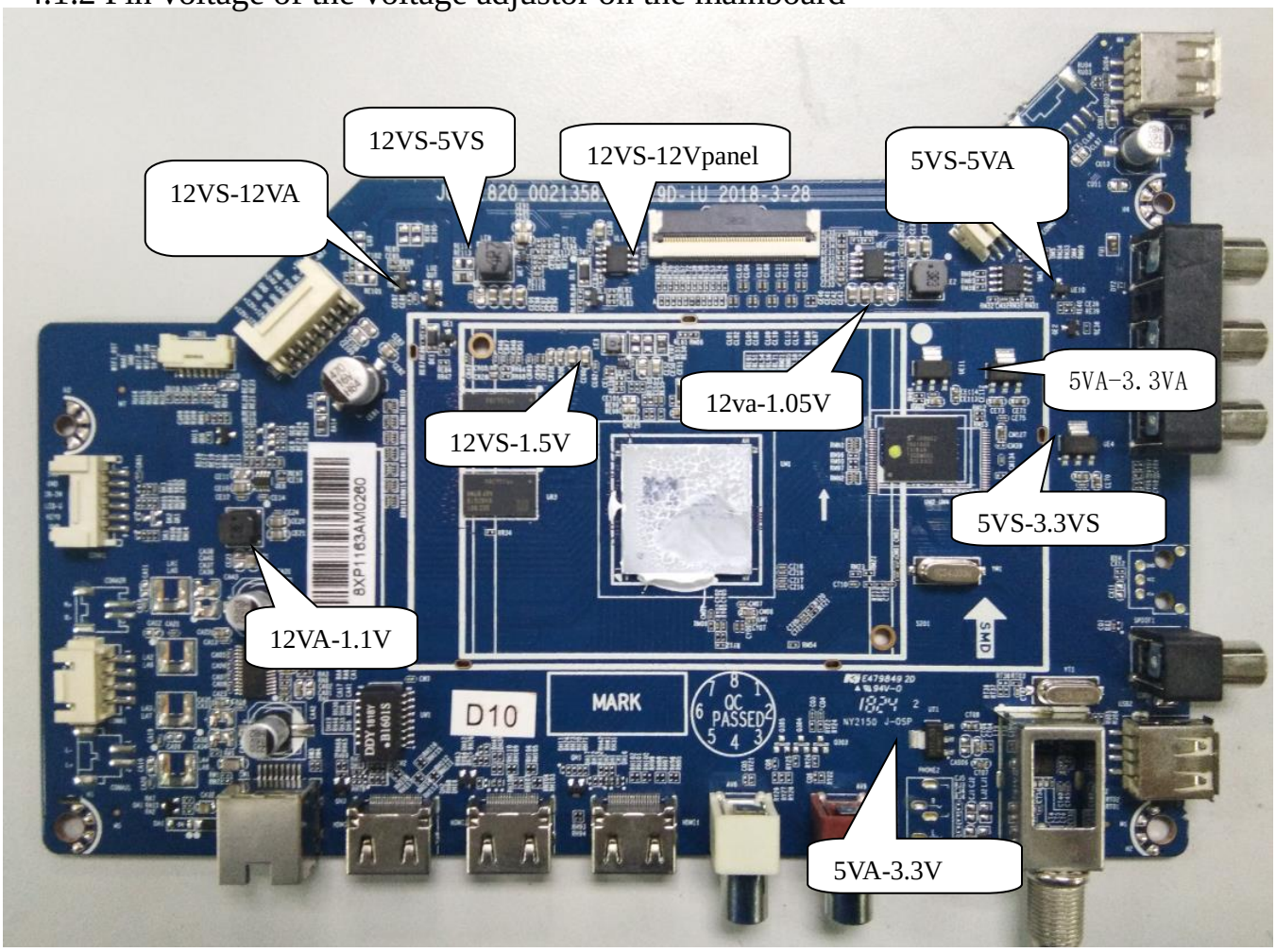
4.1 Power supply system

Power board has two kinds of output voltage: +12V

4.1.1 The composition and distribution of the TV power supply

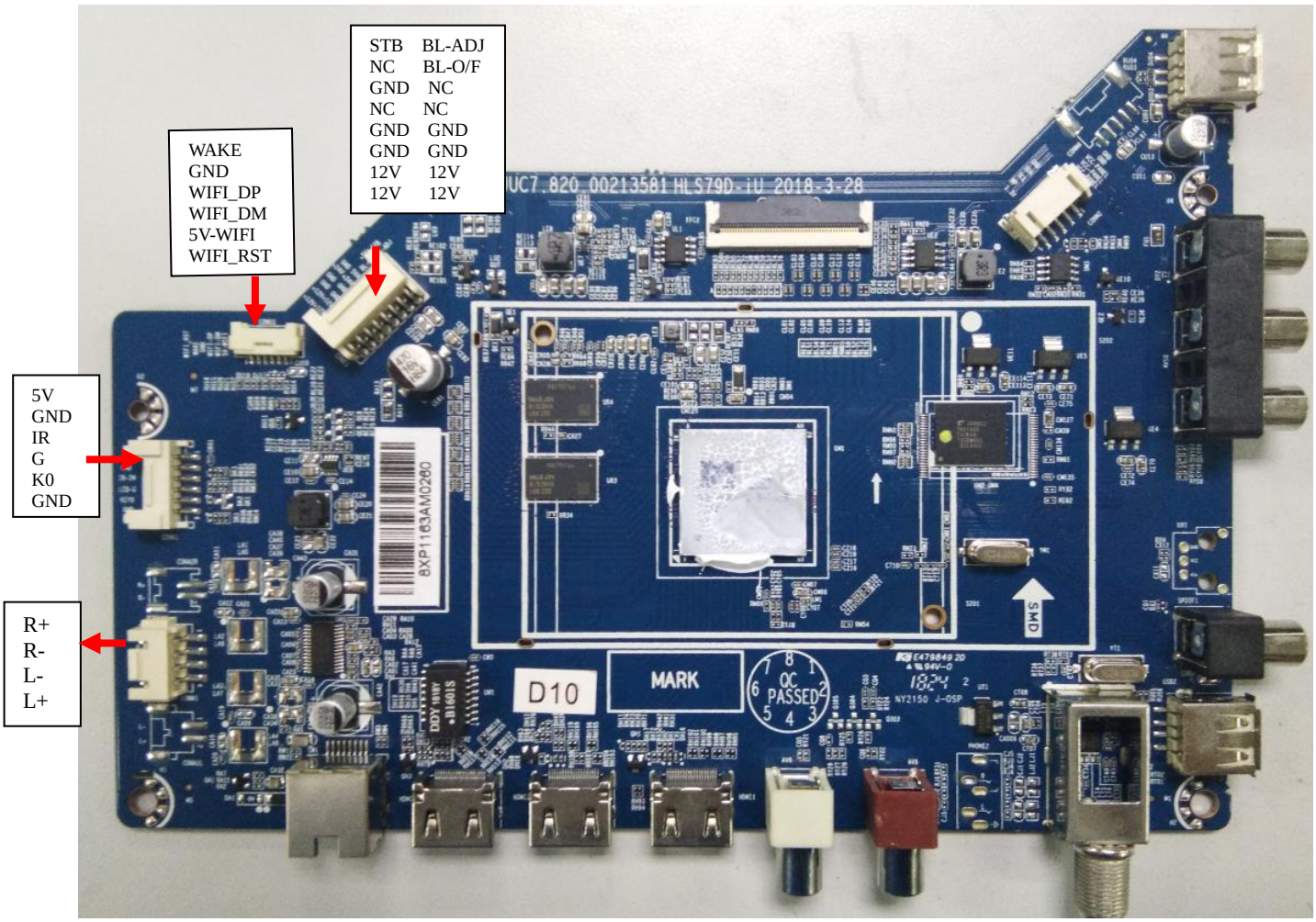


4.1.2 Pin voltage of the voltage adjustor on the mainboard



item No.	UE8	UE4	UE7	UE2	UE3	UE5	UE9
output voltage	1.1V	3.3VS	5VS	1.05VA	1.5VA	3.3VA	12VA
item No.	UT1	UE10					
output voltage	3.3V	5VA					

4.1.3 Interface definition



Chapter5 Software upgrade instructions

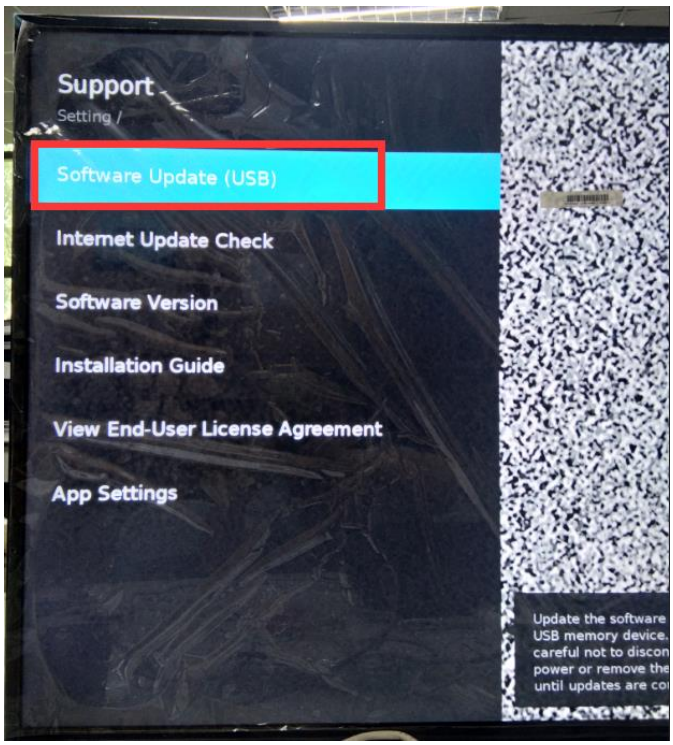
5 Software upgrade method： Use a U diskincluding the upgrade programme directly upgrade

5.1 First method

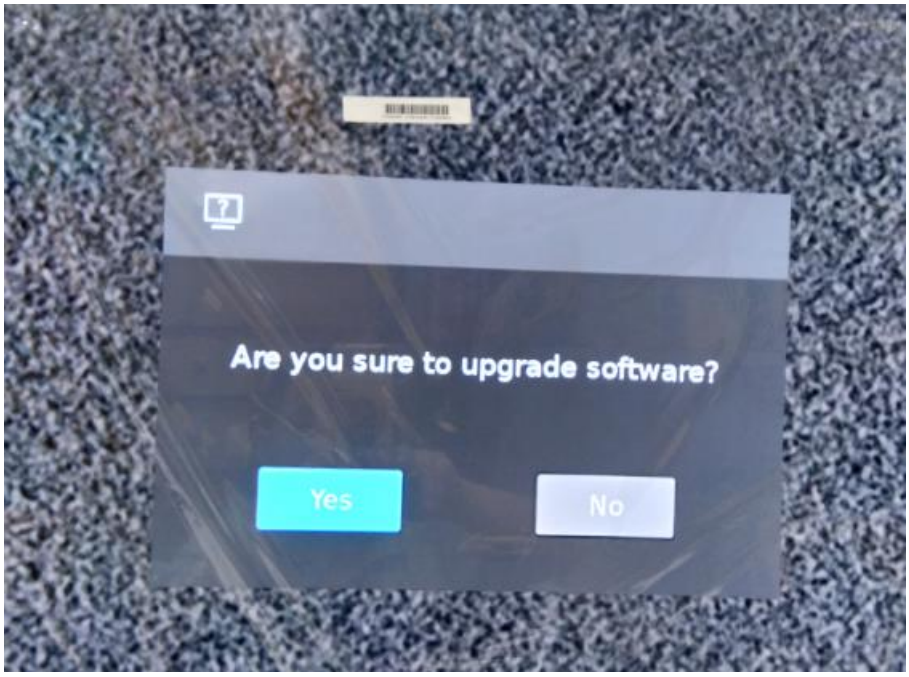
1.Download the bin file To the root directory of your USB device (filename：MstarUpgrade.bin);Then insert the USB device to USB interface of TV set.

2.Press the "  " button on remote control， select “support” item,

3.press "  " key to selec the "software Upgrade(USB)" item



4.press "OK" key，It will pop up the following dialog.



5.Select “YES”，Press “OK” key. It will automatically shutdown and then boot upgrade, the upgrade process can not power off.

6.When update finished. TV will automatically shutdown and then reboot

5.2 Second method(black screen,Boot sw is OK)

1.Download the bin file To the root directory of your USB device (filename：MstarUpgrade.bin);

2. Insert the USB device, Press (don’t loosen)power key of key board ,then plug AC Power. don’t loosen power key untill TV start to update.TV indicator light will flicker when TV start to update

Chapter6: Classical accident maintenance procedures and examples

6.1 The thinking of don't boot

The power is not connected.

6.2 Common problems for your reference

To speed you to dignose and solve problems, the following commom problems are offered for your reference.

Symptoms	Possible Reason	Solutions
No picture, no sound, and no indicator light on	1.The power cord is not plugged in 2.The power is off	1.Plug in the power cord 2.Turn the power on
abnormity Picture and sound with	1.Contrast, sharpness, and color are set improperly 2.Color system is improperly 3.Sound system is improperly	1.Adjust the numberical value of Contrast, sharpness, and color 2.Set the Color system to the country broadcasting standard 3.Set the Sound system to meet the country's broadcasting standard
Picture is spotted or with snow	Signal source is low-grade or the signal cord is in a lower quality	Use the qualified signal cord
No picture, no sound and indicator light is green	Contrast, brightness, color and volume are all in the minimum value or TV is in mute mode.	Adjust the value of contrast, brightness, color and volume
	The signal cable is not correctly connected.	Connect the signal cable correctly
Blue screen, AV or SVIDEO is displayed	There is no signal input or the video cable is not connected or incorrectly connected	Connect the video cable correctly
No sound	There is no audio signal input or audio cable is not connected correctly	Connect the audio cable correctly
VGA picture display with improper color	The color temp is adjusted incorrectly by user	Readjust the color temp, or select the original color setting
HDMI source, with snow pixel of full screen	The signal source is not normal	Plug the HDMI cable again
The remote control does not work	Batteries are improperly installed or exhausted	1. Make sure the positive and the negative polarities are correct. 2.Check if there is a loose contact between the batteries and the springs 3.Replace the batteries

Chapter7 Factory mode parameter setting instructions and notes

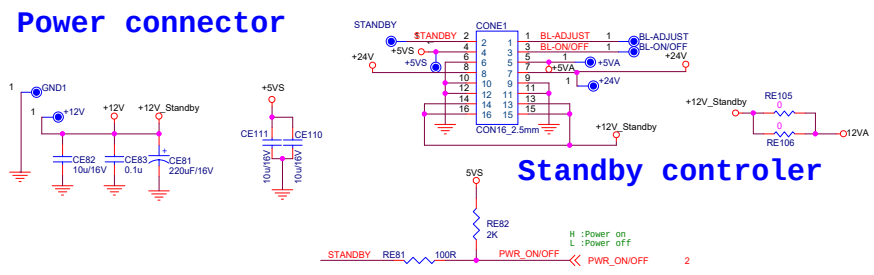
Press the  button, and then the continuous input "3138", directly into the factory menu, enter the factory after the menu, there will be the software version number and software release date display, Press"◄/► “▲/▼” to select items,press "◄/► " to adjust,press  key to return to the previous menu, press  key to exit the menu.

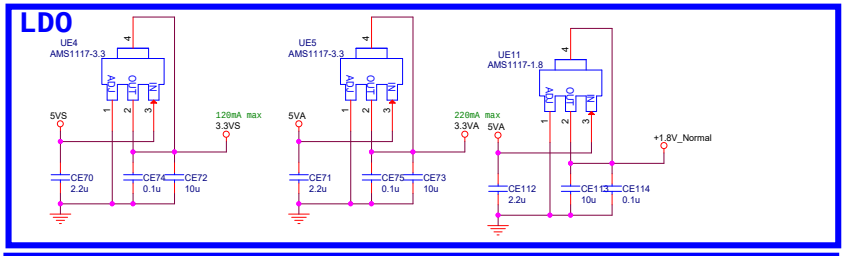
Sorting item	Setting item	Parameters	Remark
PROJECT SELECT	ID	1/2/3…	panel/logo/key/country/source information
ADC ADJUST	MODE	PC-RGB/YPbPr(S/YPbPr(H/SCART	Source select
	R-GAIN	default parameters	
	G-GAIN	default parameters	
	B-GAIN	default parameters	
	R-OFFSET	default parameters	
	G-OFFSET	default parameters	
	B-OFFSET	default parameters	
	AUTO ADC	Success/Fail	ADC adjust
Customer Setting	Gamma Table	-1/0	Gamma select
	Panel Setting	NO USE	NO USE
	Uart Enable	ON/Off	Serial port switc
	Aging Mode	ON/Off	ok
	Ginga	ON/Off	Ginga switch
	Power ON Mode	Direct/Secondary/Memory	Power on power mode select
	white Pattern	ON/Off	White pattern
	WDT	ON/Off	Dog switch
	Pvr Recored ALL	ON/Off	Full record
W/B ADJUST	MODE	ATV/DTV…	Source select
	TEMPERATURE	Medium/warm/cool/use	Color temperature mode select
	R-GAIN	default parameters	“Red” Bright field adjustment
	G-GAIN	default parameters	“Green” Bright field adjustment
	B-GAIN	default parameters	“Blue” Bright field adjustment
	R-OFFSET	default parameters	“Red”dark field adjustment
	G-OFFSET	default parameters	“Green”dark field adjustment
	B-OFFSET	default parameters	“Blue”dark field adjustment
	Default		
RESET ALL			All clean
Non-linear	MODE	Volume/Contrast/Saturation/Sharpness/Hue/ Back Light	Nonlinear adjustment
	OSD 0	default parameters	

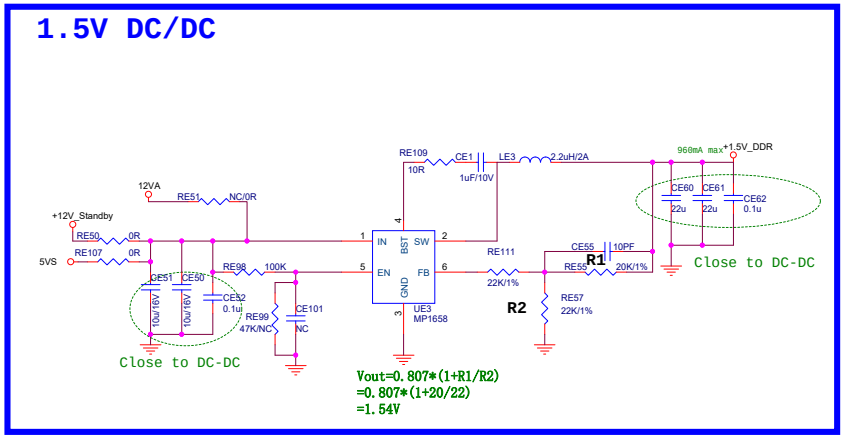
	OSD 25	default parameters	
	OSD 50	default parameters	
	OSD 75	default parameters	
	OSD 100	default parameters	
OverScan	Input Source		Show current Source
	Left Crop	default parameters	Left reproduction rate adjustment
	Right Crop	default parameters	right reproduction rate adjustment
	UP Crop	default parameters	up reproduction rate adjustment
	Down CROP	default parameters	Down reproduction rate adjustment
SSC Setting	SSC MIU	ON/Off	DDR SSC switch
	MIU0 Span(0.1kHz)	40	DDR0 Spread-frequency modulation frequency
	MIU0 Step(0.01%)	20	DDR0 Spread-frequency range
	MIU1 Span(0.1kHz)	40	DDR1 Spread-frequency modulation frequency
	MIU1 Step(0.01%)	20	DDR1 Spread-frequency range
	SSC LVDS	ON/Off	VB1 SSC switch
	LVDS Span	200	VB1 Spread-frequency modulation frequency
	LVDS Step	10	VB1 Spread-frequency range
	LVDS Swing	250	VB1 swing
Others	UART BUS	ON/OFF	Bus Switch
	White Balance ADJ	ON/OFF	
	DTV log	ON/OFF	No use
	Key Upgrade Auto	ON/OFF	KEY data upgrade switch
	Key Upgrade Force	ON/OFF	KEY data forced upgrade switch
	PQ file update	OFF/ON	No use
	Sound Setting	SP-Prescale	
	AVD PARAMETER	No use	No use
	Overwrite USB Upgrade	USB Upgrade	Clean key
PICTURE MODE	Input Source	DTV /ATV/AV…	Source selection
	MODE	Home/Sports/standard/Movie/User	Picture mode selection
	BRIGHTESS	default parameters	Brightness adjustment
	CONTRAST	default parameters	contrast adjustment
	CORLOR	default parameters	color saturation adjustment
	SHARPNESS	default parameters	Sharpness adjustment
	TINT	default parameters	Hue adjustment
	Backup Database	No use	No use
	Restore Database	No use	No use
Key Info	HDCP 1 key		Key data check

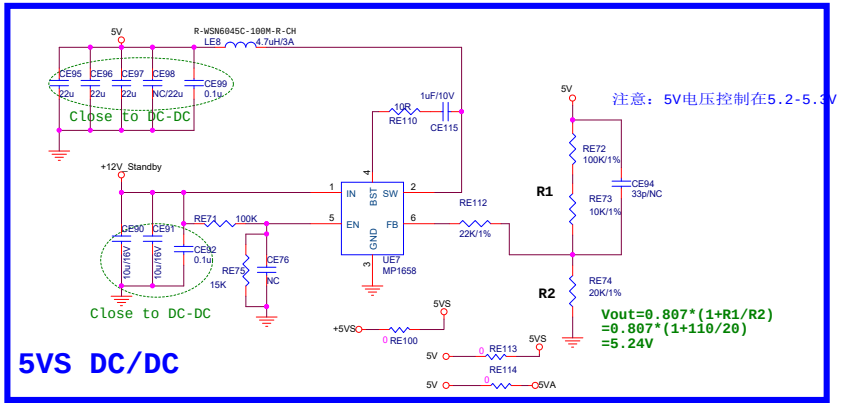
	HDCP 2 key		Key data check
	ETH MAC		Address display
	WIFI MAC		Address display
	ESN		Key data check
	WideVine		Key data check
	Playready		Key data check
	IP		Key data check
	USB port		display
	software version		display
	NetReady Device ID		display
RAM Log	ON/OFF		For USB obtain LOG

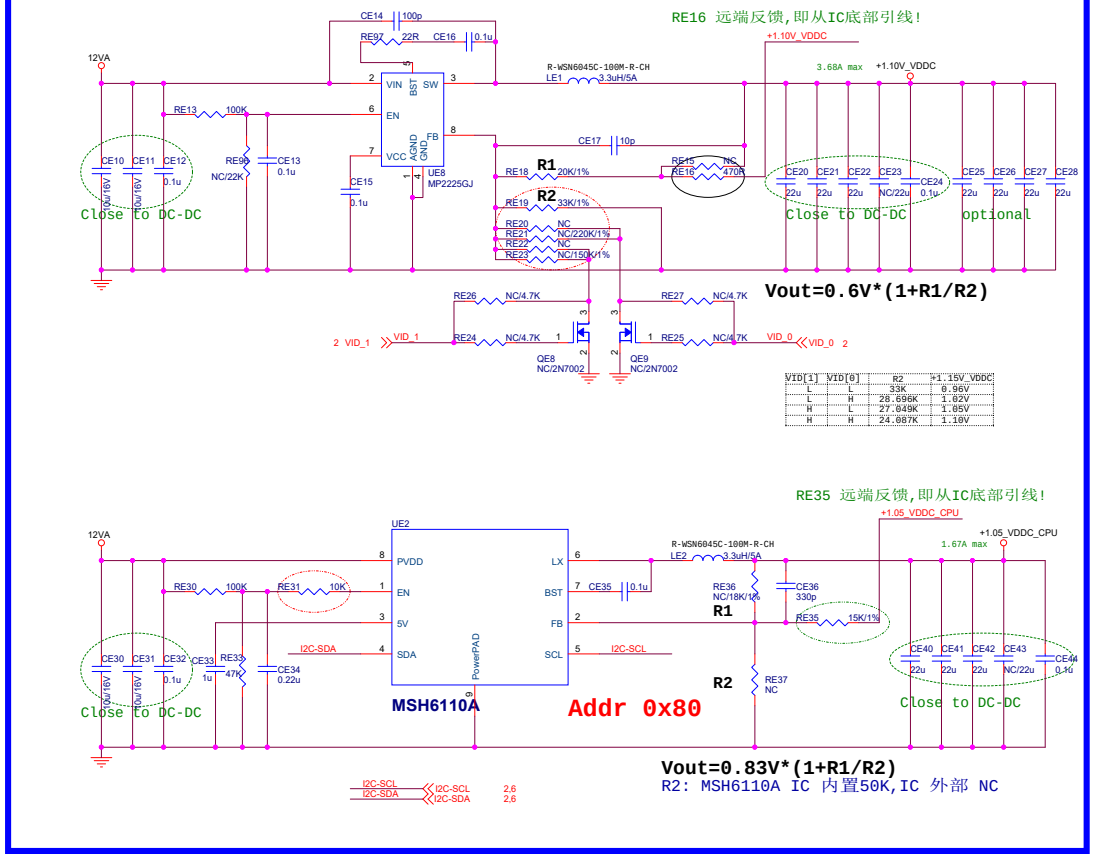
Appendix ： Circuit Schematic Diagram

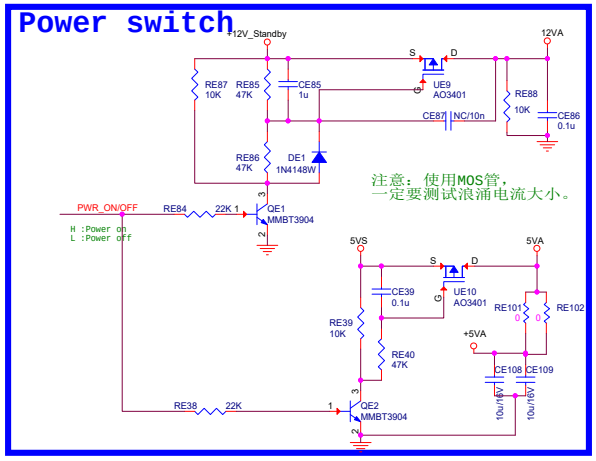


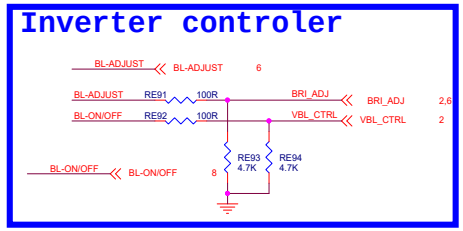












CHANGHONG 长虹	MSD6586		
Schematict Name	Main Board	Rev	VER1.0
Size C	Sheet 1 of 18	Date:	Monday, July 02, 2018

Note : Port A needs shielding ground all signal pair

UM1C

Bottom 1

HDMI1-RX0N
HDMI1-RX0P
HDMI1-RX1N
HDMI1-RX1P
HDMI1-RX2N
HDMI1-RX2P
HDMI1-CLKN
HDMI1-CLKP
HDMI1-SCL
HDMI1-SDA
HDMI1-HPD
HDMI-CEC
HDMI1-Detect

Bottom 2

HDMI2-RX0N
HDMI2-RX0P
HDMI2-RX1N
HDMI2-RX1P
HDMI2-RX2N
HDMI2-RX2P
HDMI2-CLKN
HDMI2-CLKP
HDMI2-SCL
HDMI2-SDA
HDMI2-HPD
HDMI2-Detect

Bottom 3

HDMI3-RX0N
HDMI3-RX0P
HDMI3-RX1N
HDMI3-RX1P
HDMI3-RX2N
HDMI3-RX2P
HDMI3-CLKN
HDMI3-CLKP
HDMI3-SCL
HDMI3-SDA
HDMI3-HPD
HDMI3-Detect

HDMI

Analog Audio

LINE_IN_0L
LINE_IN_0R
LINE_IN_2L
LINE_IN_2R
LINE_OUT_0L
LINE_OUT_0R
LINE_OUT_2L
LINE_OUT_2R
EARPHONE_OUT_L
EARPHONE_OUT_R

AV
VGA
Amplifier
AV out
Earphone

I2S

ARC0
AUVAG
AUVRM
NC1
NC2
NC3
I2S_OUT_BCK
I2S_OUT_MCK
I2S_OUT_WS
I2S_OUT_SD
I2S_OUT_SD1
I2S_OUT_SD2

HDMI-ARC

Close to MSTAR IC with wide trace

SPDIF

SPDIF_IN
SPDIF_OUT

MSD6586

RGB/CVBS/PHY/USB Block

UM1E

VGA
YPbPr
SCART
AV out

PHY
RGB
CVBS
USB
USB3.0

Close to MSTAR IC with wide trace

MSD6586

EEPROM

3.3VEXT
EE-3.3V
EEWP1
I2C-SDA
I2C-SCL
EEWP
EE-SDA
EE-SCL
UM3
24C32
CONM2
CON5-2.0

Write address:A0
Read address:A1

CI PCMCIA / TS0 (In) / TS1 (In/Out) / TS2 (In)

UM1B

CI PCMCIA
TS0 (In)
TS1 (In/Out)
TS2 (In)

NAND EMMC
Front End

MSD6586

LVDS/GPIO

UM1D

PWM
SAR
LVDS 60Hz
SPI
GPIO /UART
PM
I2C
PM_UART

MSD6586

Pull up

3.3VS
5VA
3.3VA

I2C Pull up

3.3VA
TUN_3V3

DIF&AGC

TUN_3V3

For layout smooth, IF+/- signal need to swap.

Close to main IC

Close to main IC

Config

3.3VS

CHIP_CONFIG[3:0]
{PAD_PM_LED1,PAD_PM_SPI_DI,PAD_PM_LED0,PAD_PWM_PM}
Value Description
4'b1010 1 ARM boot from ROM; outer storage is eMMC
4'b1011 ARM boot from ROM; outer storage is NAND

Crystal

C1 CM01 20p
YM1
JA18AS-24MHz(20p)
SM0
C2 CM02 20p
C1=C2=2*CL-5

Reset

5VS
CM04 2.2u
System_RST
DM1 1N4148W
RM01 100K

Debug

5VS

eMMC protect

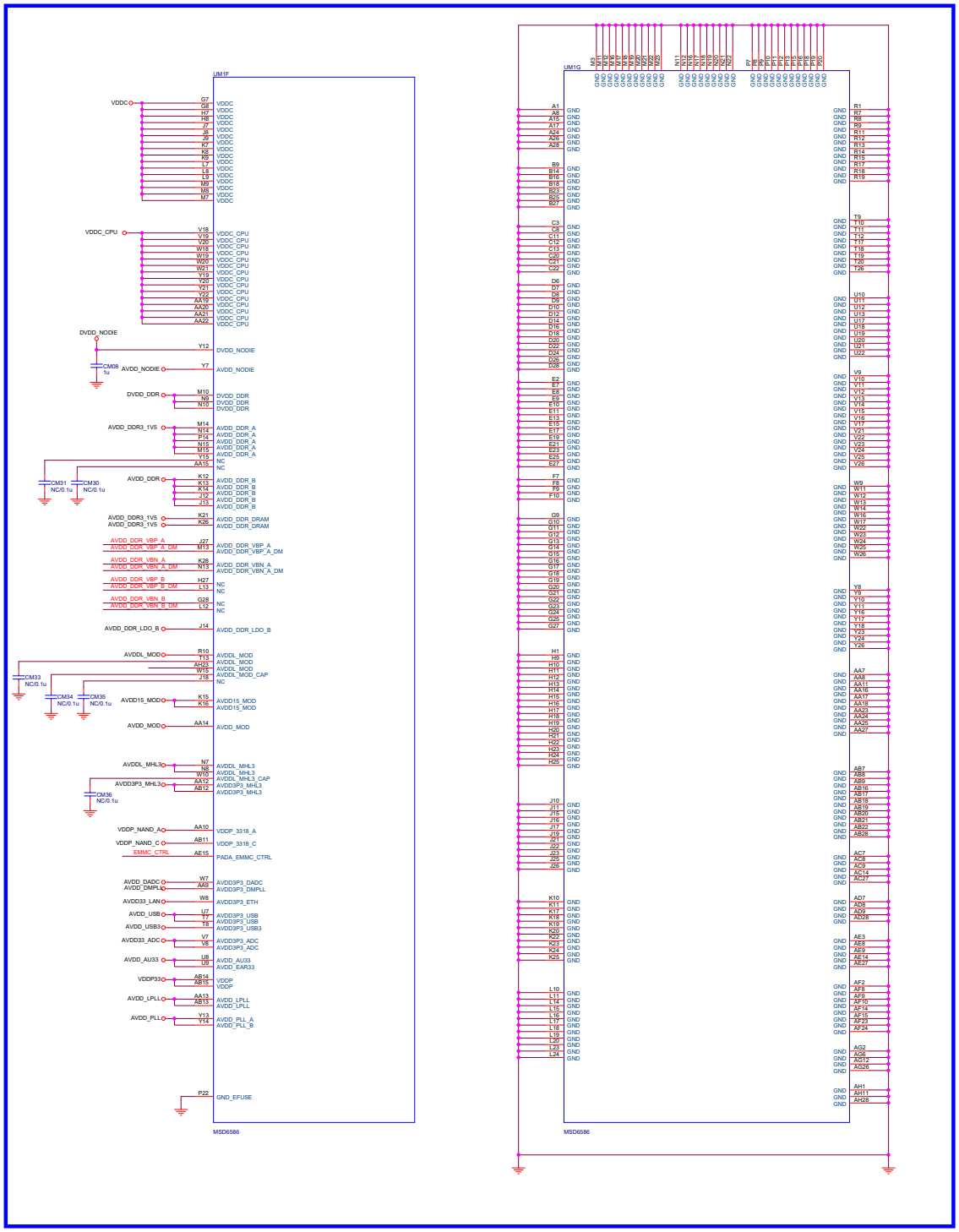
12VA
RM25 1K
RM27 10K
POWER_DETECT
RM28 1K

S202
Heat-sink(Asink50X70)

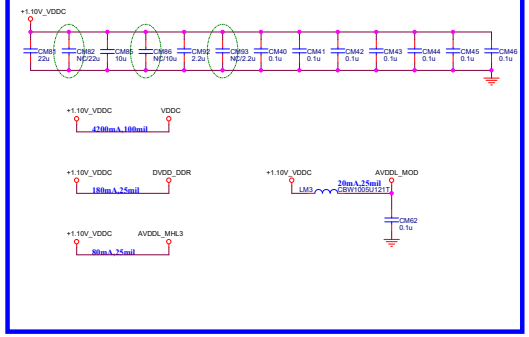
Heat Sink

S201
Heat-sink(Asink50X70)

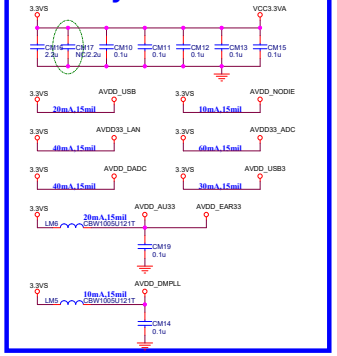
CHANGHONG 长虹	MSD6586
Schematic Name: Main Board	Rev: VER1.0
Size: Custom	Sheet: 2 of 18
Date: Friday, March 23, 2018	



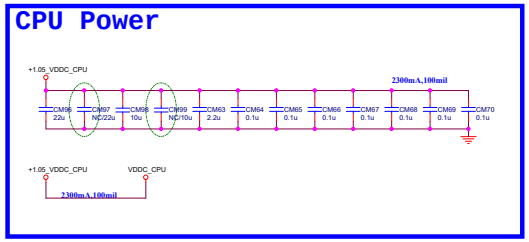
CORE Power



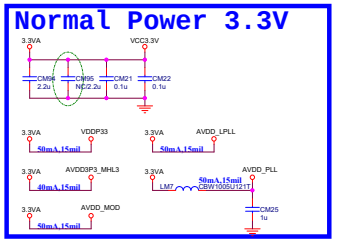
Standby Power 3.3V



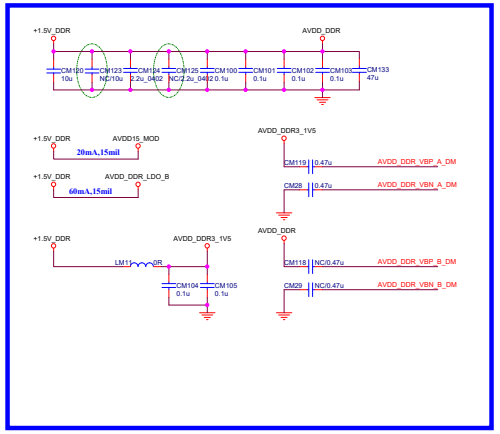
CPU Power



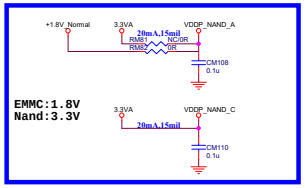
Normal Power 3.3V



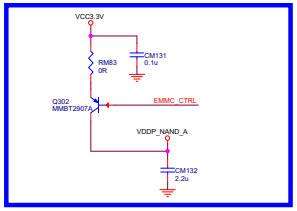
DDR3



eMMC/Nand Power



Internel LDO



CHANGHONG ELECT	MSD6586		
Schematic Name	Main Board	Rev	VER1.0
Size: Custom	Sheet: 3 of 18	Date:	Friday, March 23, 2018

BA2,CSB1,CSB2 need GND shielding

UM1A

MIU1

MSD6586

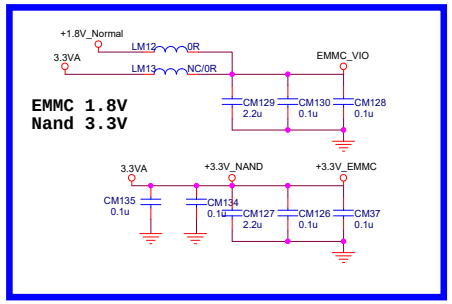
DDR3 : RR02=240R/1%

LPDDR3 : RR02=0.1uF

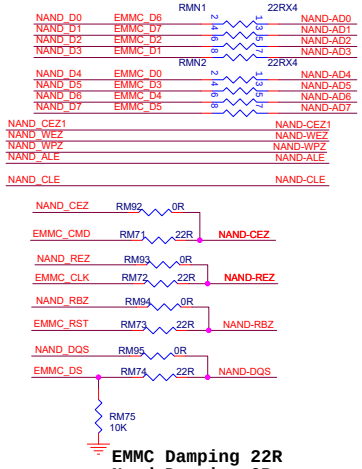
DDR3 4G bit 1866MHz

CSB terminator

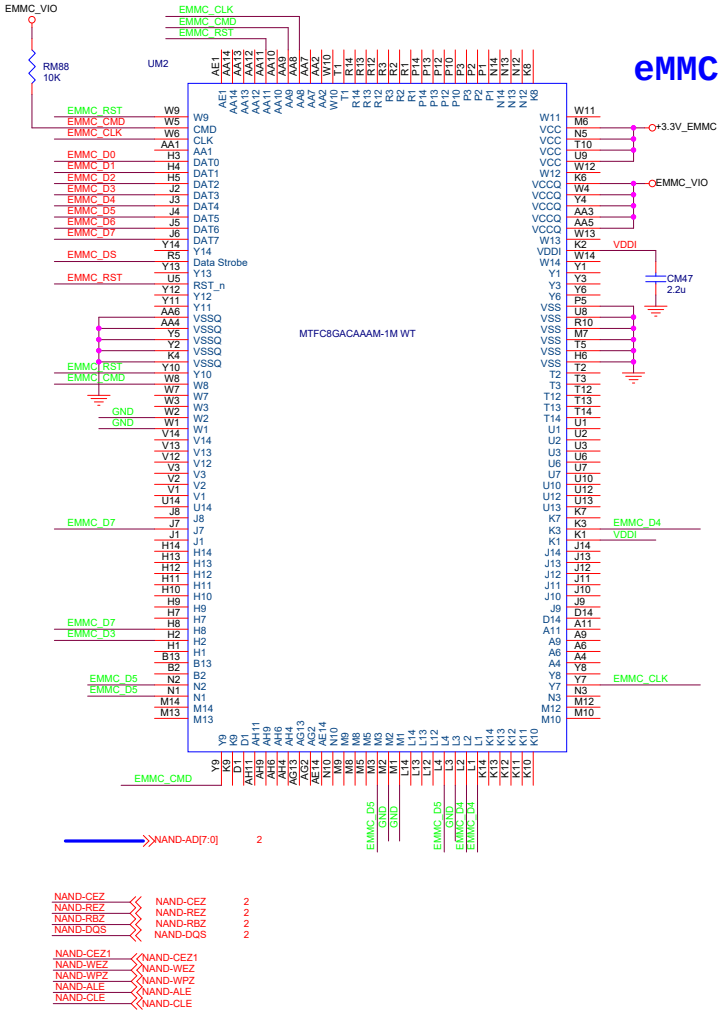
CHANGHONG 长虹	MSD6586
Schematic Name: Main Board	Rev: VER1.0
Size: Custom	Sheet: 4 of 18
Date: Friday, March 23, 2018	



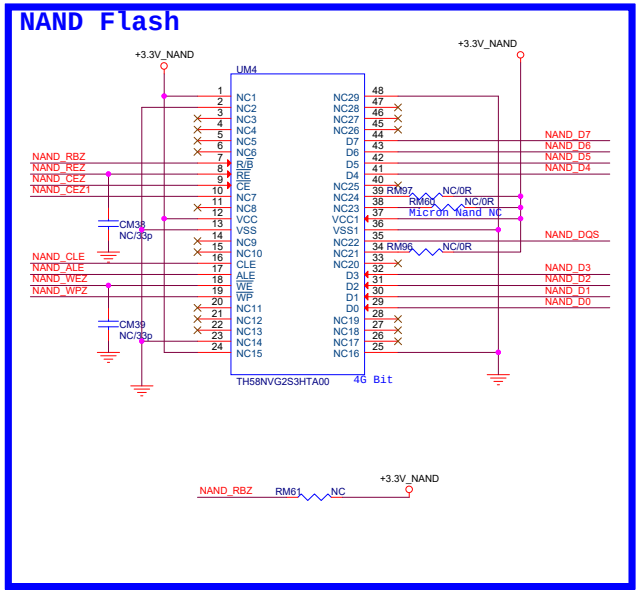
NET



EMMC Damping 22R
Nand Damping 0R

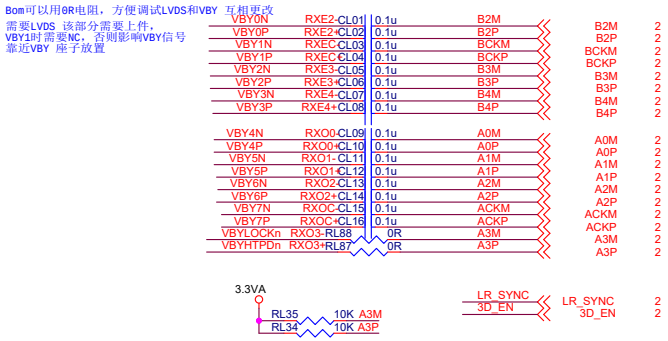


eMMC



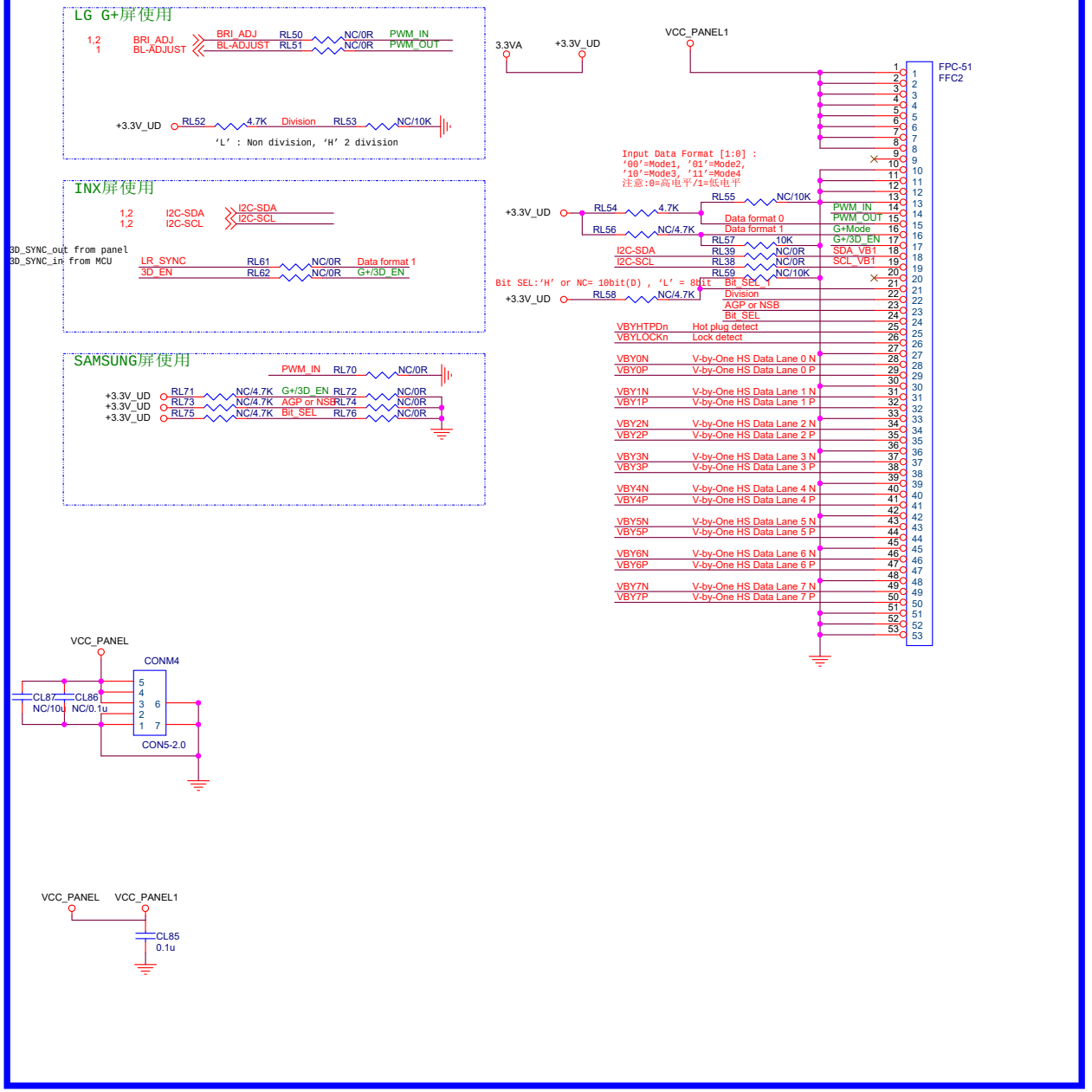
CHANGHONG 长虹	MSD6586		
Schematict Name	Main Board	Rev	VER1.0
Size Custom	Sheet 5 of 18	Date:	Friday, March 23, 2018

VB1 & LVDS

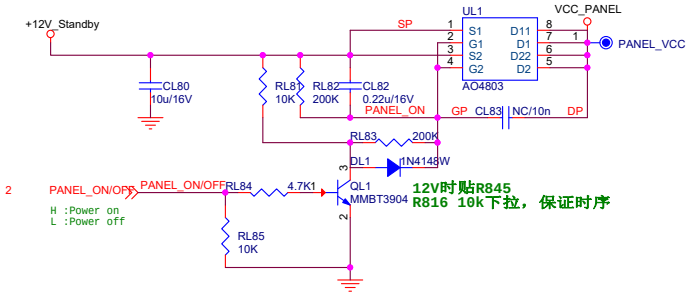


A3M Need Larger TestPad

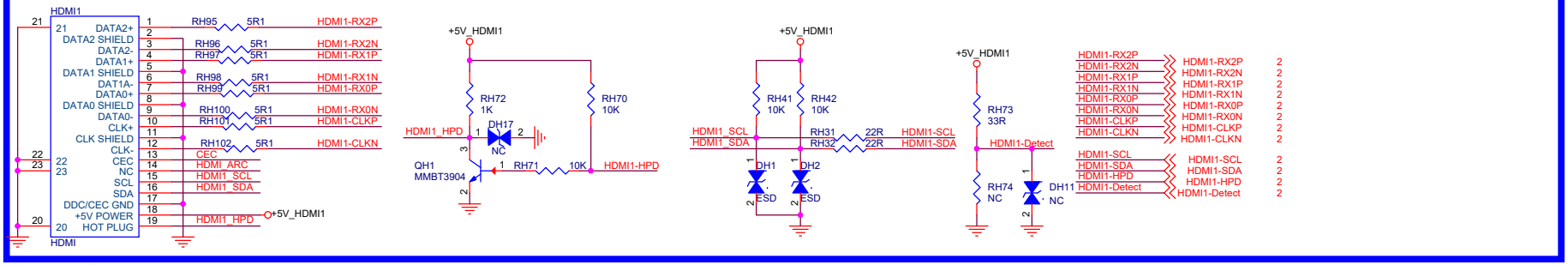
VB1 for LG/INX/SAMSUNG/AUO



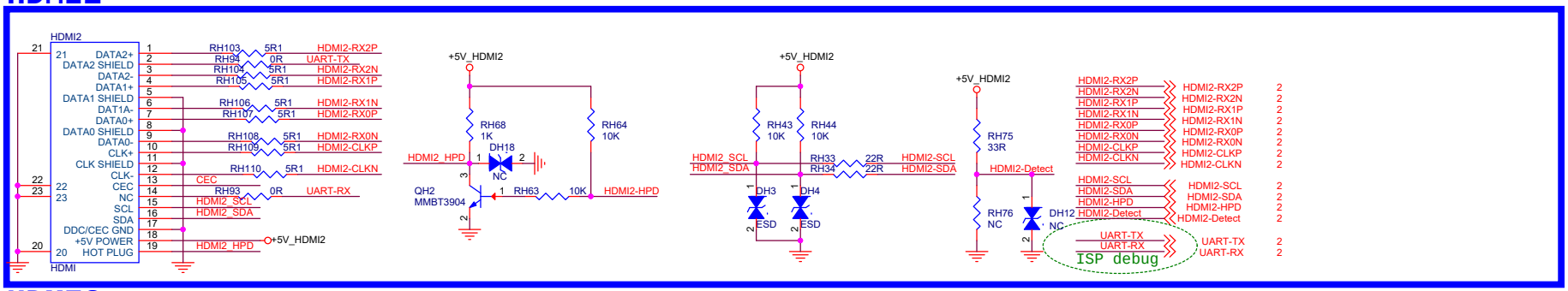
Power for panel



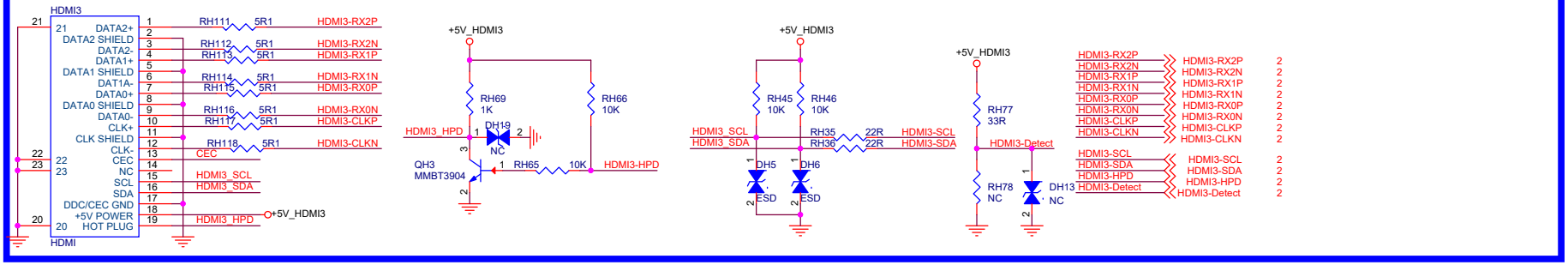
HDMI1(ARC)



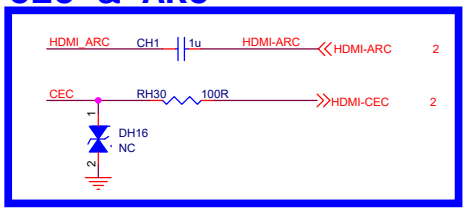
HDMI2



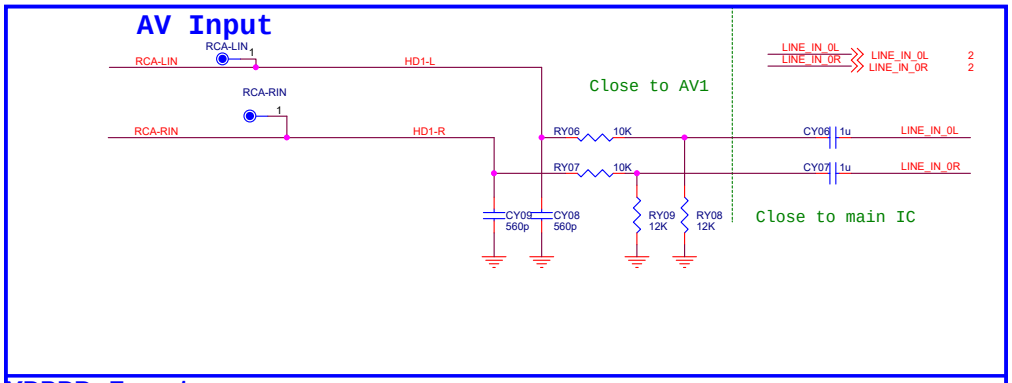
HDMI3

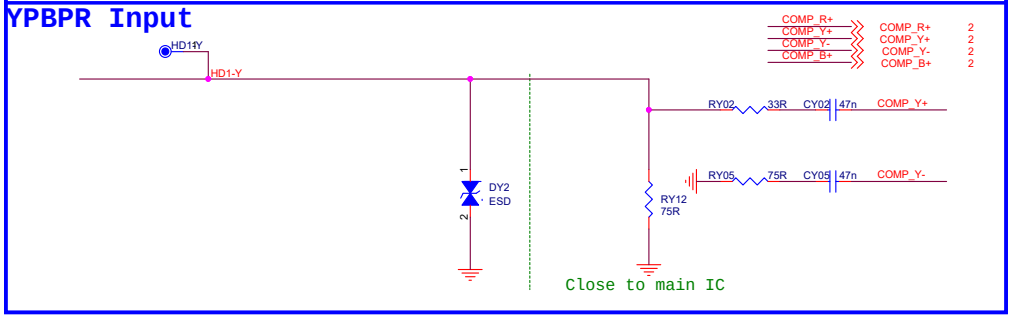


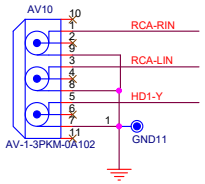
CEC & ARC

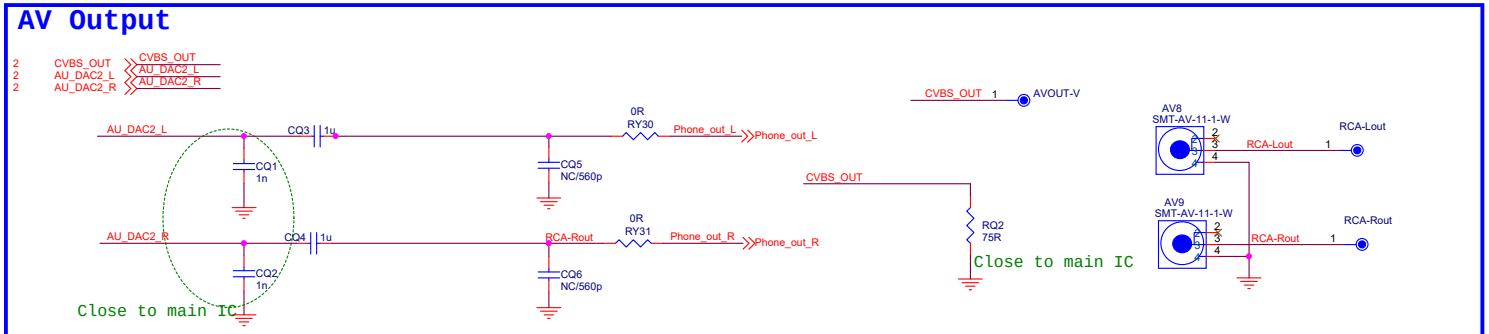


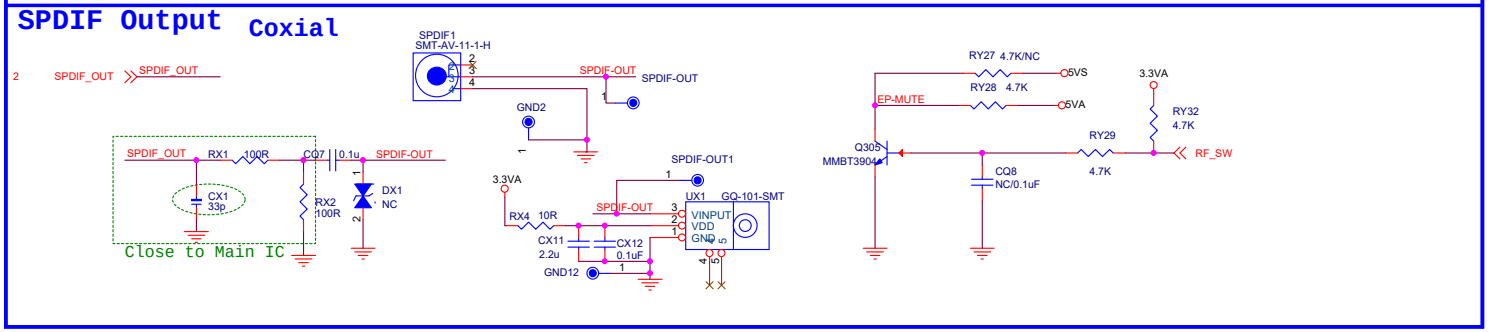
CHANGHONG 长虹	MSD6586		
Schematict Name: Main Board		Rev: VER1.0	
Size: Custom	Sheet: 7 of 18	Date: Monday, June 18, 2018	





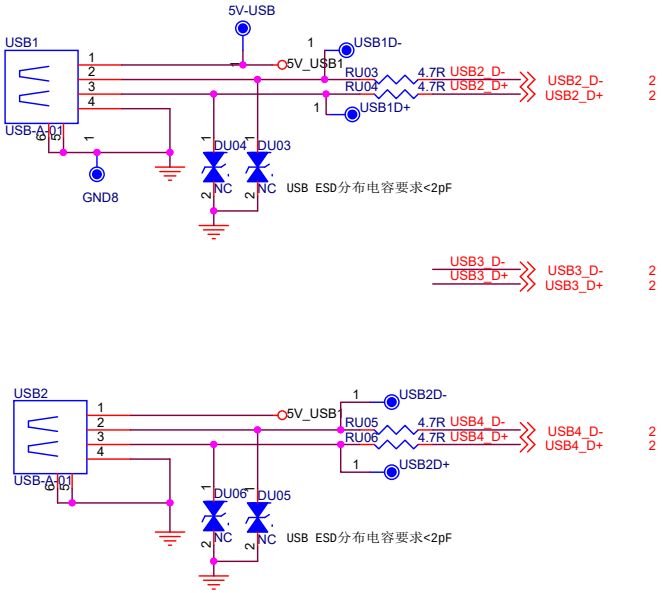






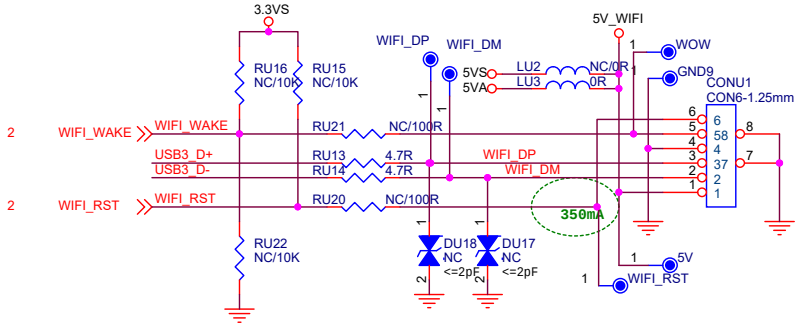
CHANGHONG 长虹	MSD6586	
Schematict Name: Main Board		Rev: VER1.0
Size: Custom	Sheet: 8 of 18	Date: Thursday, June 21, 2018

USB Interface

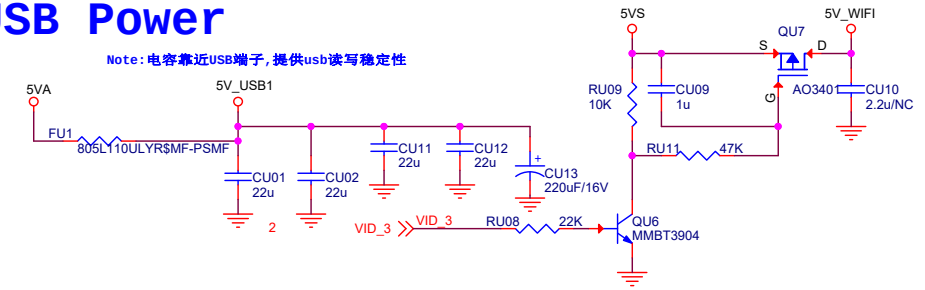


WiFi

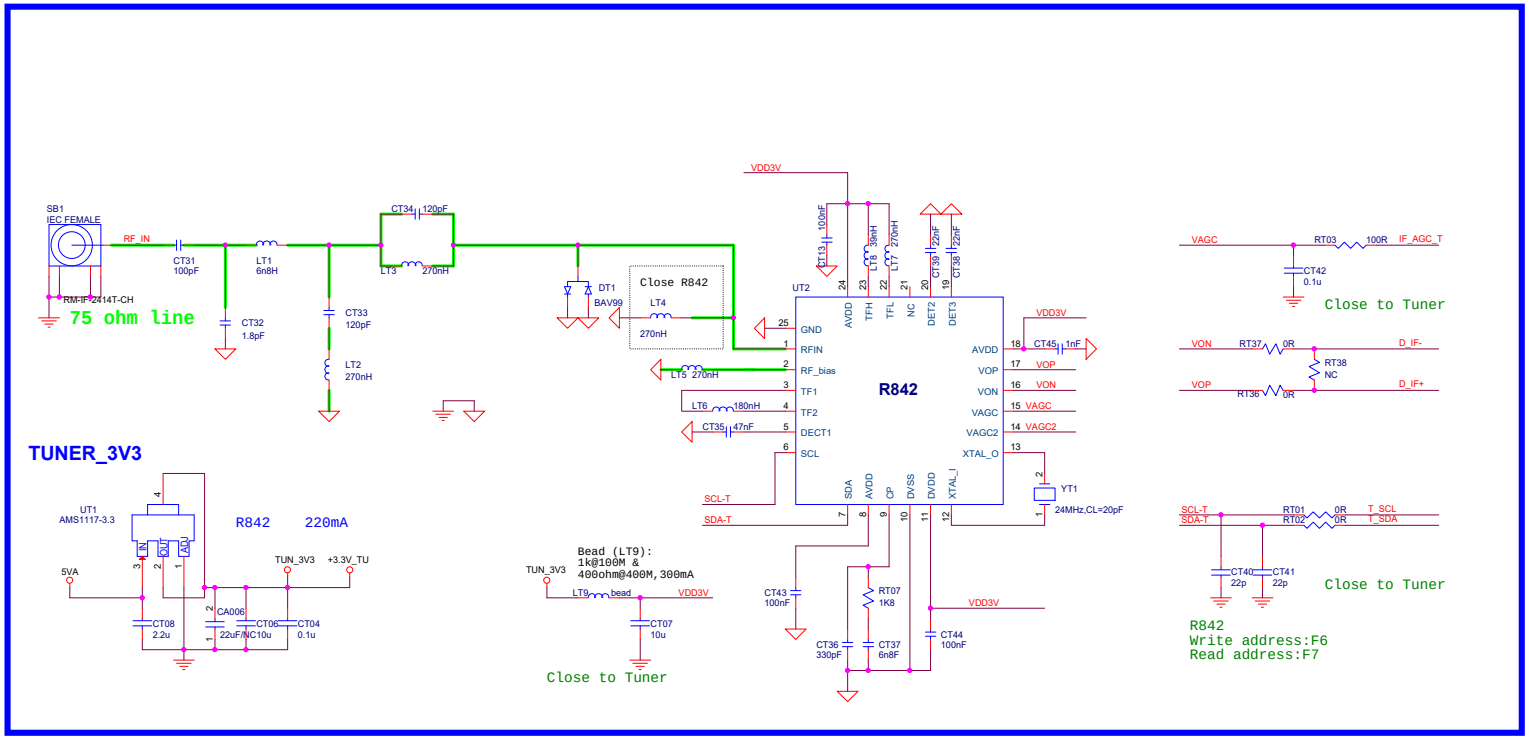
EQUAL LENGTH and DIFFERENTIAL IMPEDANCE 90ohm



USB Power



CHANGHONG 长虹	MSD6586	
Schematict Name: Main Board		Rev: VER1.0
Size: B	Sheet: 9 of 18	Date: Friday, March 23, 2018



IF_AGC_T — IF_AGC_T 2

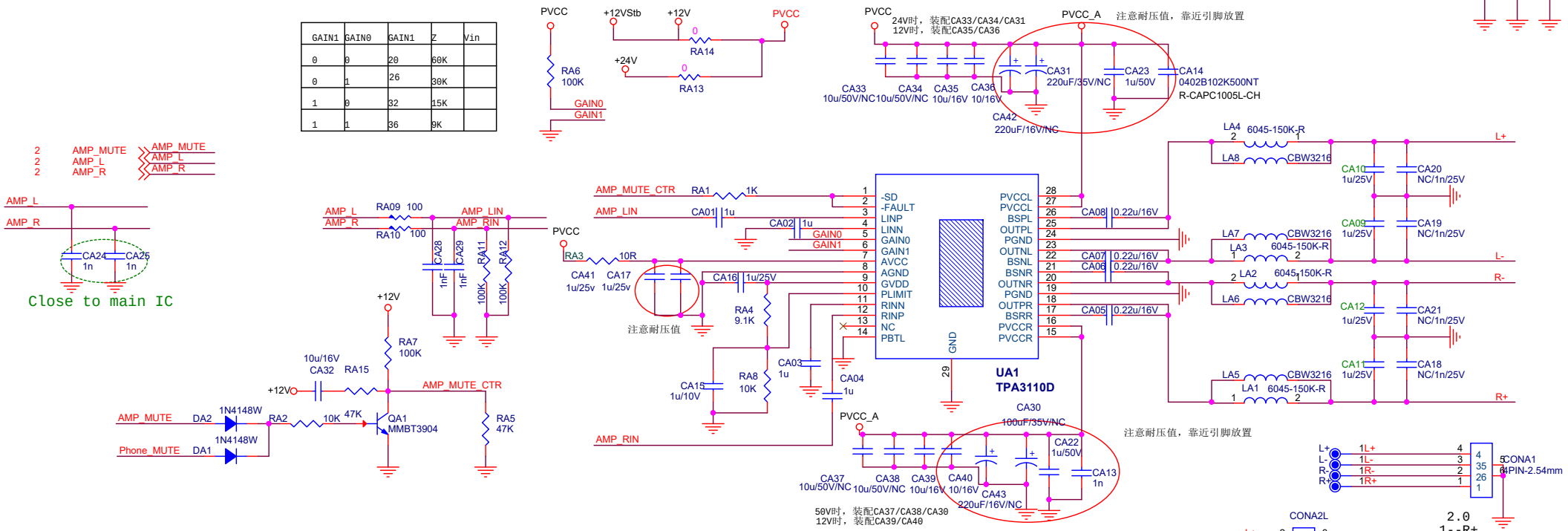
D_IF- — D_IF- 2
D_IF+ — D_IF+ 2

T_SCL — T_SCL 2
T_SDA — T_SDA 2

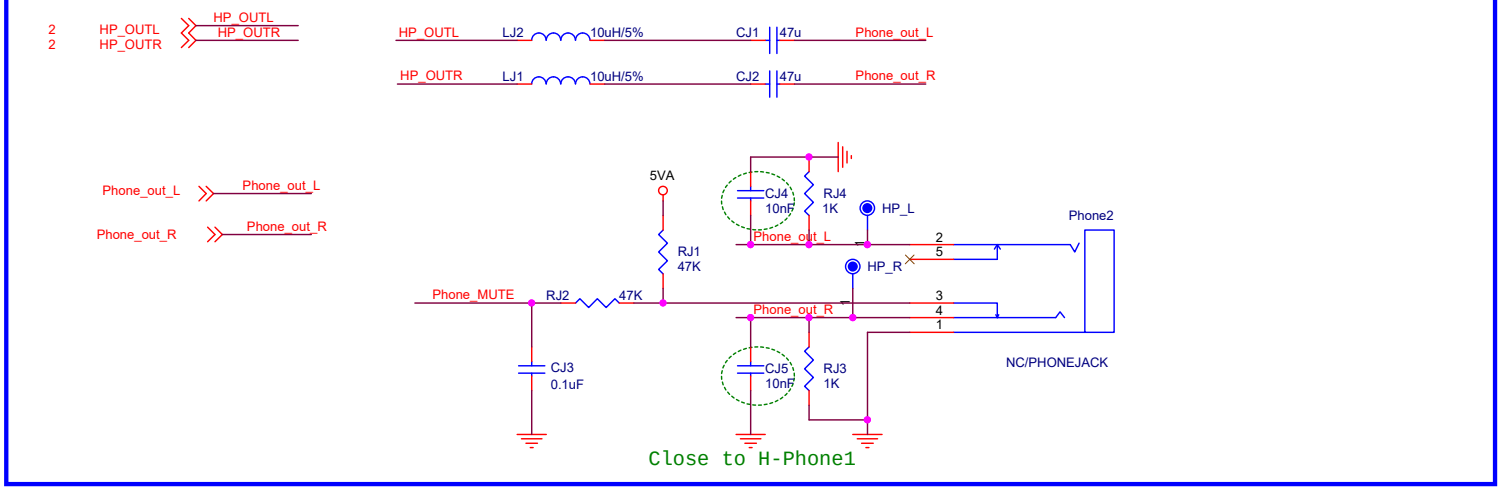
CHANGHONG 长虹	MSD6586		
Schematict Name	Main Board	Rev	VER1.0
Size C	Sheet 10 of 18	Date:	Friday, March 23, 2018

Amplifier

GAIN1	GAIN0	GAIN1	Z	Vin
0	0	20	60K	
0	1	26	30K	
1	0	32	15K	
1	1	36	9K	

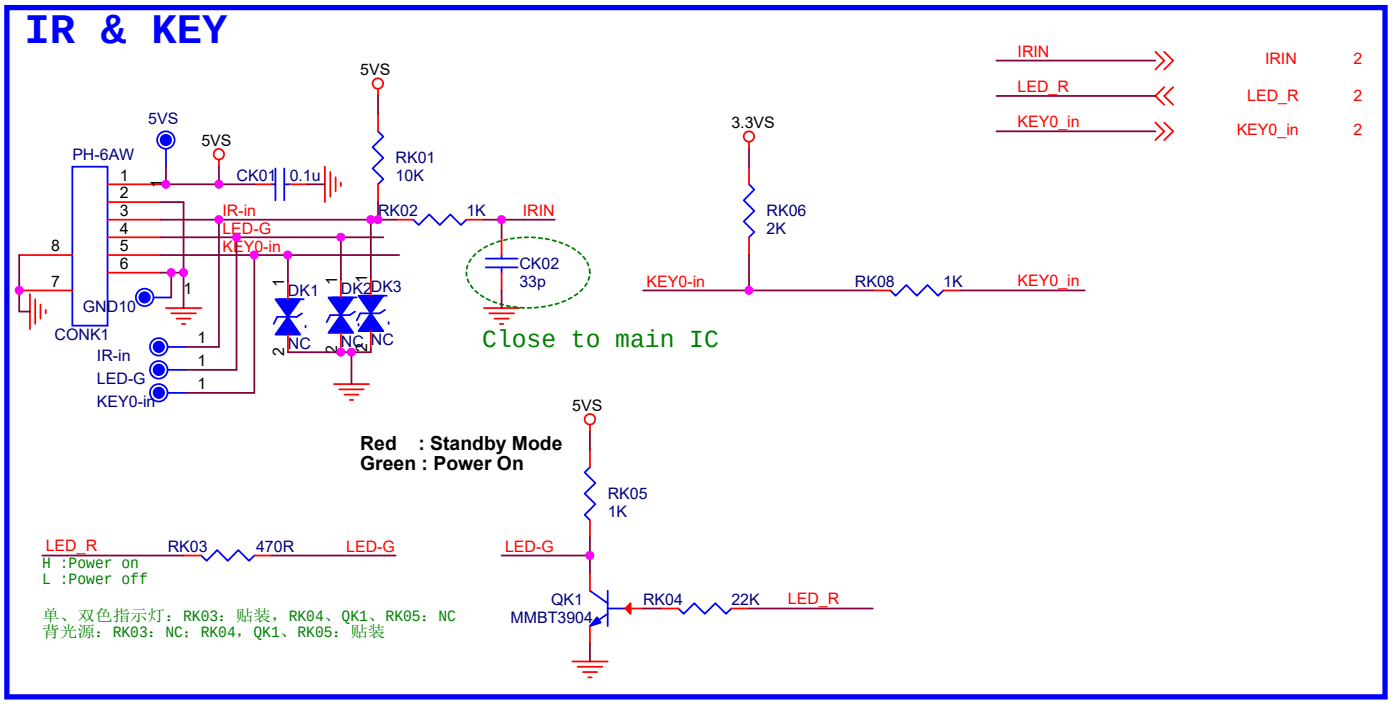


Headphone Output



CHANGHONG 长虹	MSD6586		
Schematict Name: Main Board		Rev: VER1.0	
Size: B	Sheet: 12 of 18	Date: Tuesday, June 26, 2018	

IR & KEY



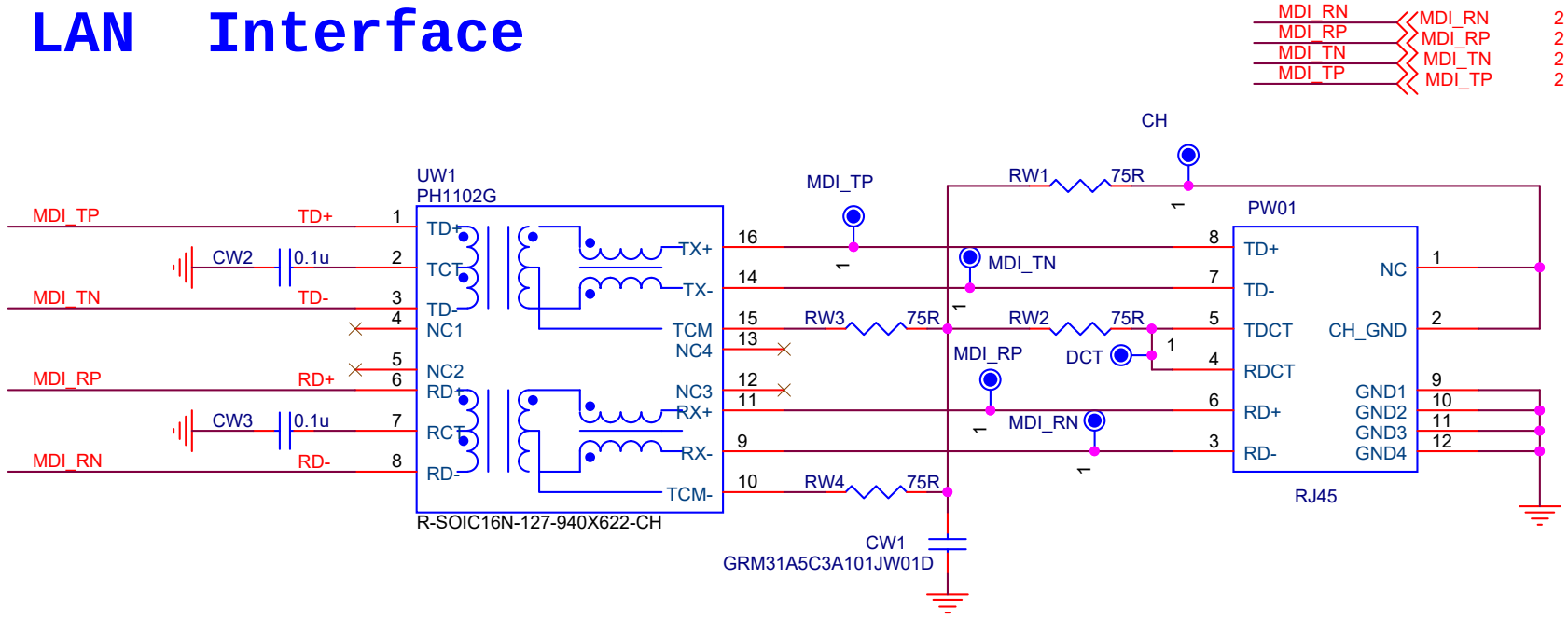
IRIN 2

LED_R 2

KEY0_in 2

CHANGHONG 长虹	MSD6586		
Schematict Name	Main Board	Rev	VER1.0
Size Custom	Sheet 13 of 18	Date:	Friday, March 23, 2018

LAN Interface



CHANGHONG 长虹	MSD6586	
Schematict Name: *Main Board*		Rev: *VER1.0*
Size: A	Sheet: *14 of 18*	Date: Friday, March 23, 2018