

## A

B

C

D

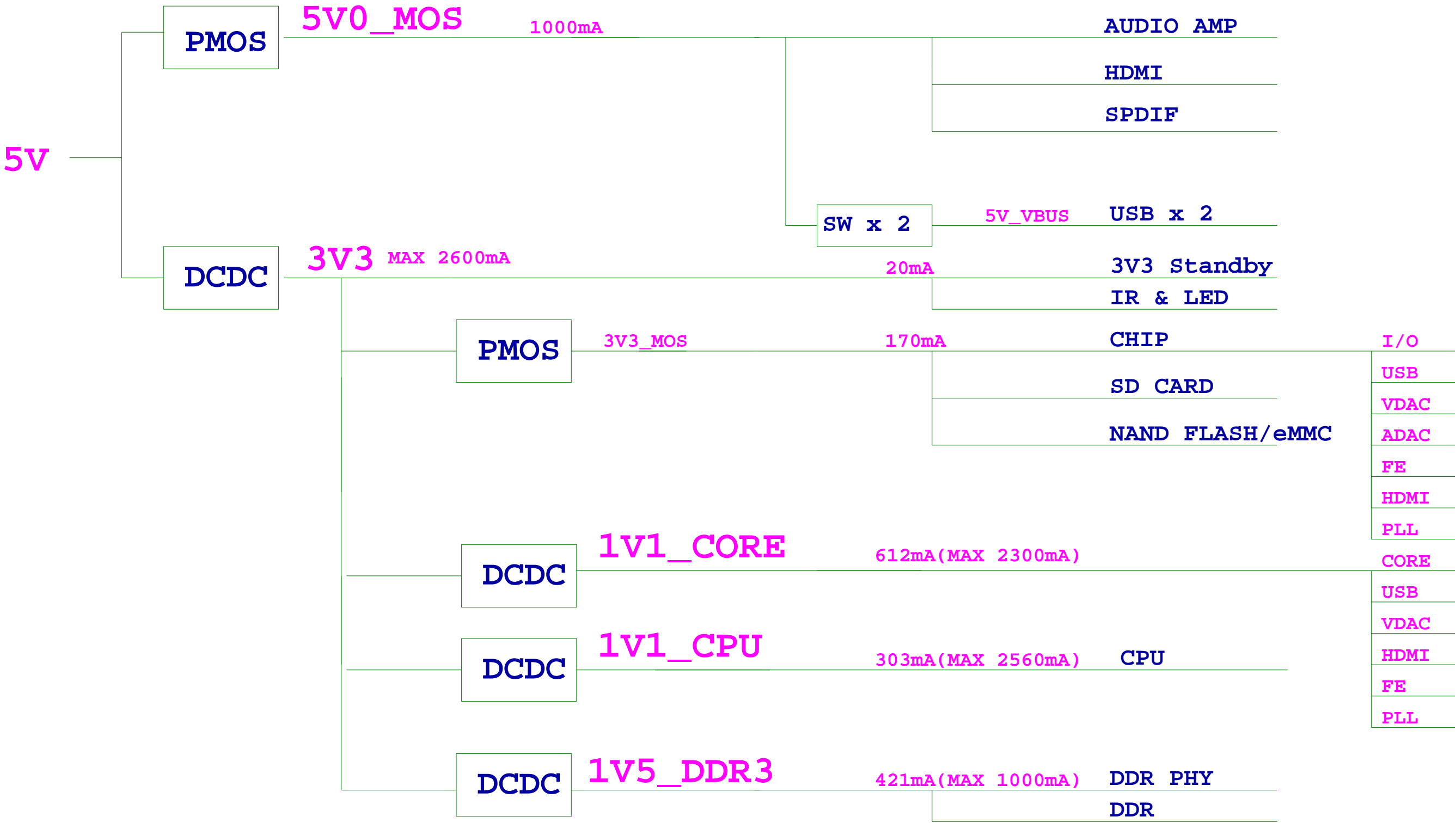
A

B

C

D

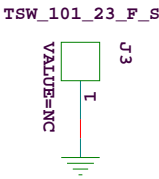
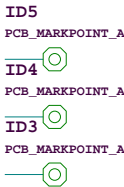
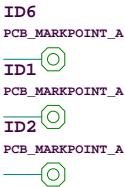
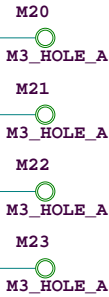
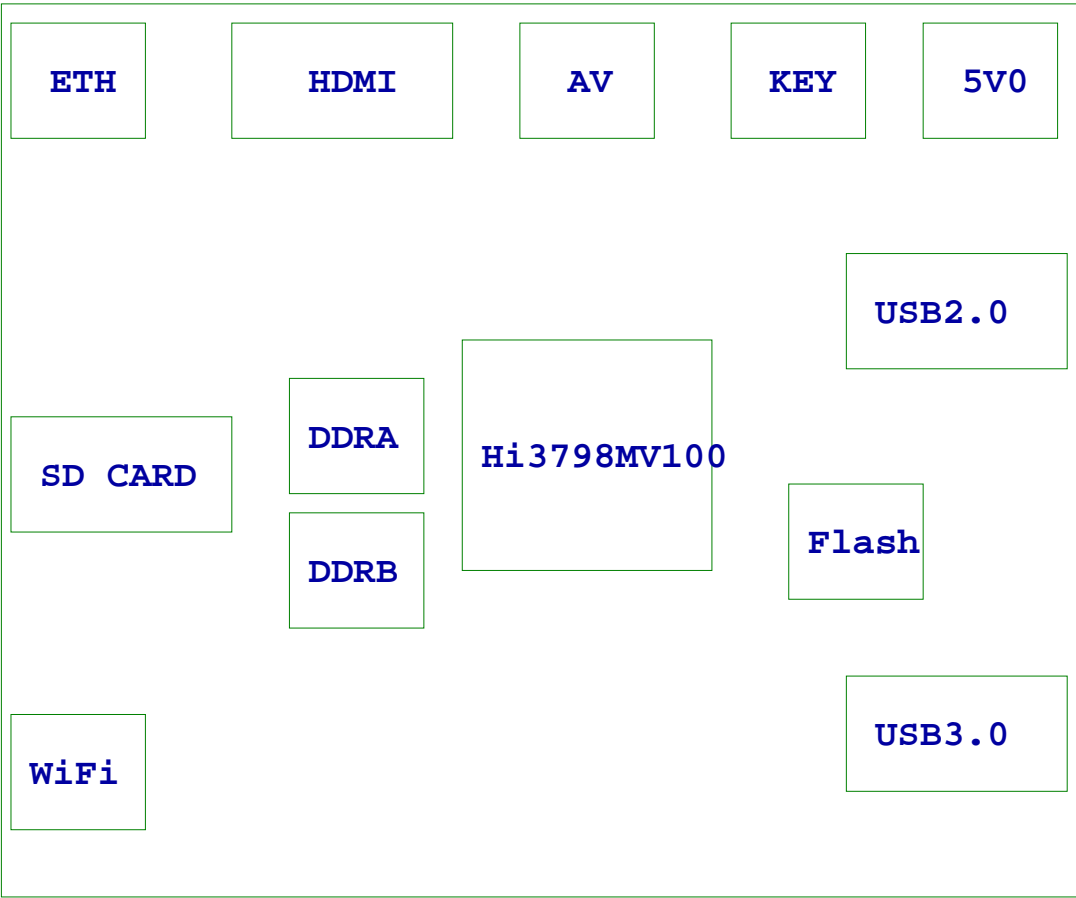
Power Tree



The type and specification of the components refer to the BOM

				NA	2013-07-04
				ECA NO	DATE
DESIGNED	TIANSHOU 00171014	HI3798MDM01A_VERE		00001234	
REVIEWED	CHENYUZHU 00149603				
		VER	PART_NUMBER	SHEET 2 OF 19	
		A	03030001	HUAWEI TECH CO.,LTD.	

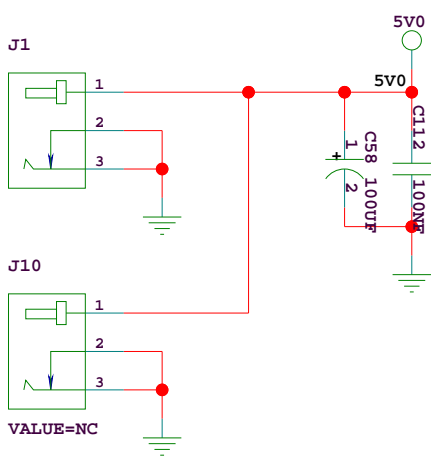
Block Diagram



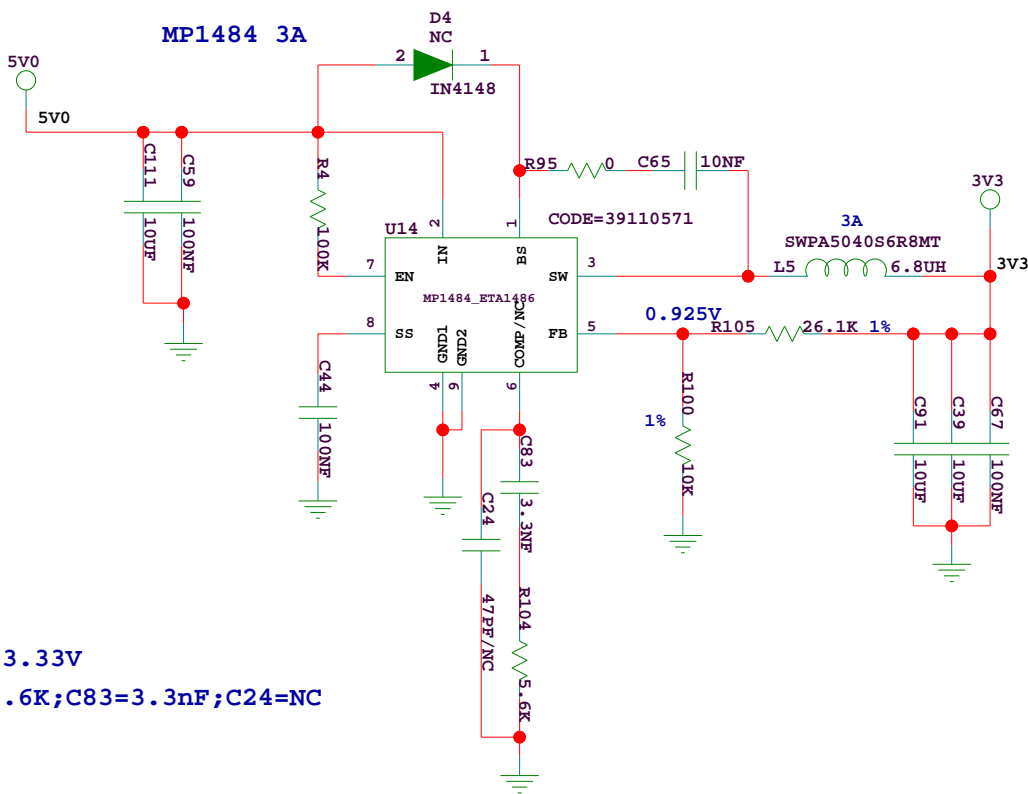
The type and specification of the components refer to the BOM

				NA	2013-07-04
				ECA NO	DATE
DESIGNED	TIANSHOU 00171014	HI3798MDM01A_VERE		00001234	
REVIEWED	CHENYUZHU 00149603				
		VER	PART_NUMBER	SHEET 3 OF 19	
		A	03030001	HUAWEI TECH CO.,LTD.	

5V PLUG-IN



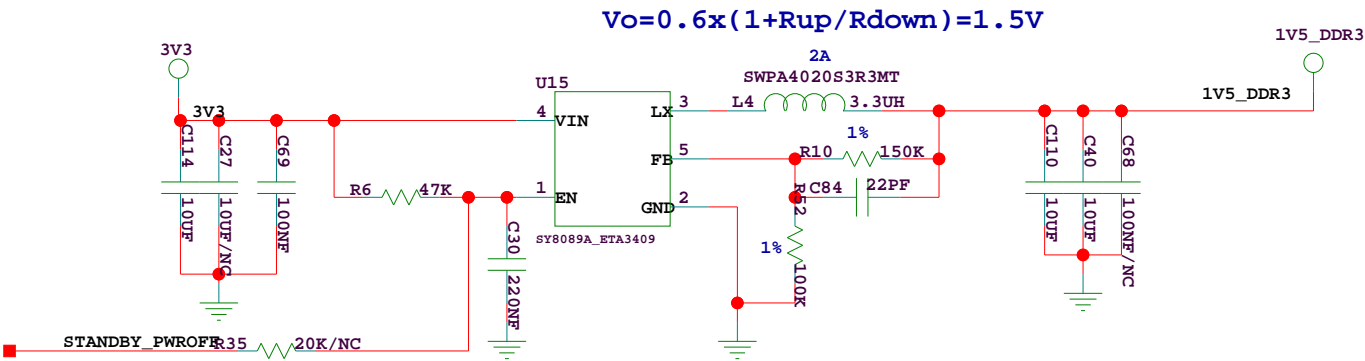
3.3V POWER



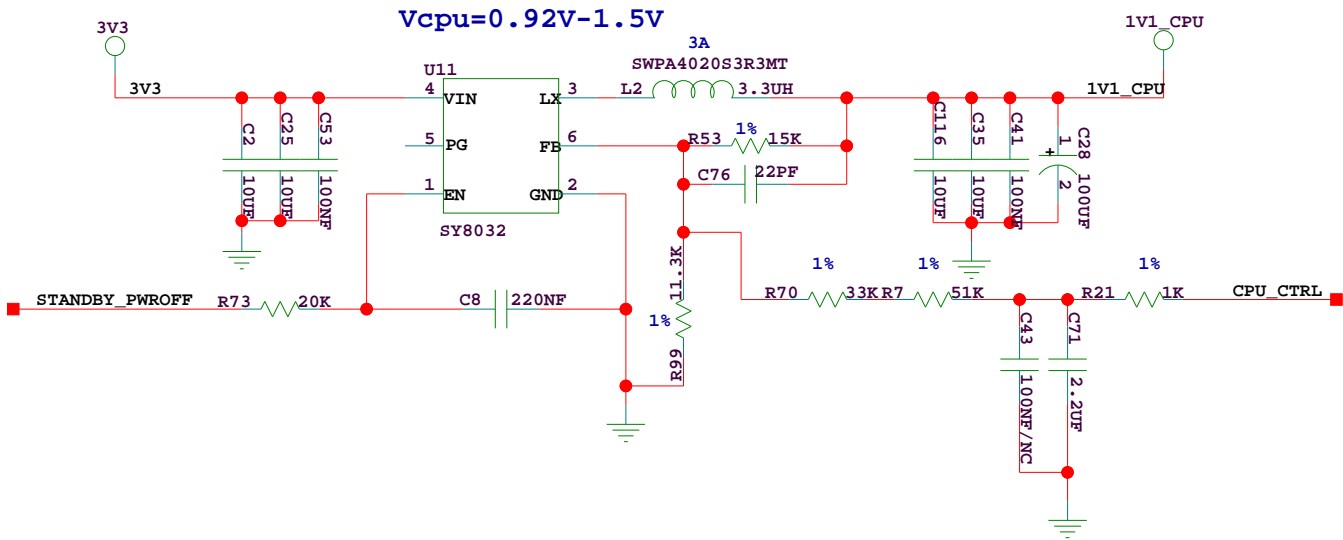
ETA1486 4A  
 $V_{OUT}=0.923 \times (1 + 26.1K/10K) = 3.33V$   
 $C44=100nF$ ;  $C65=10nF$ ;  $R104=5.6K$ ;  $C83=3.3nF$ ;  $C24=NC$   
 $R105=26.1K$ ;  $R100=10K$

MP1484 3A  
 $V_{OUT}=0.925 \times (1 + 26.1K/10K) = 3.34V$   
 $C44=100nF$ ;  $C65=10nF$ ;  $R104=5.6K$ ;  $C83=3.3nF$ ;  $C24=NC$ ;  $R105=26.1K$ ;  $R100=10K$

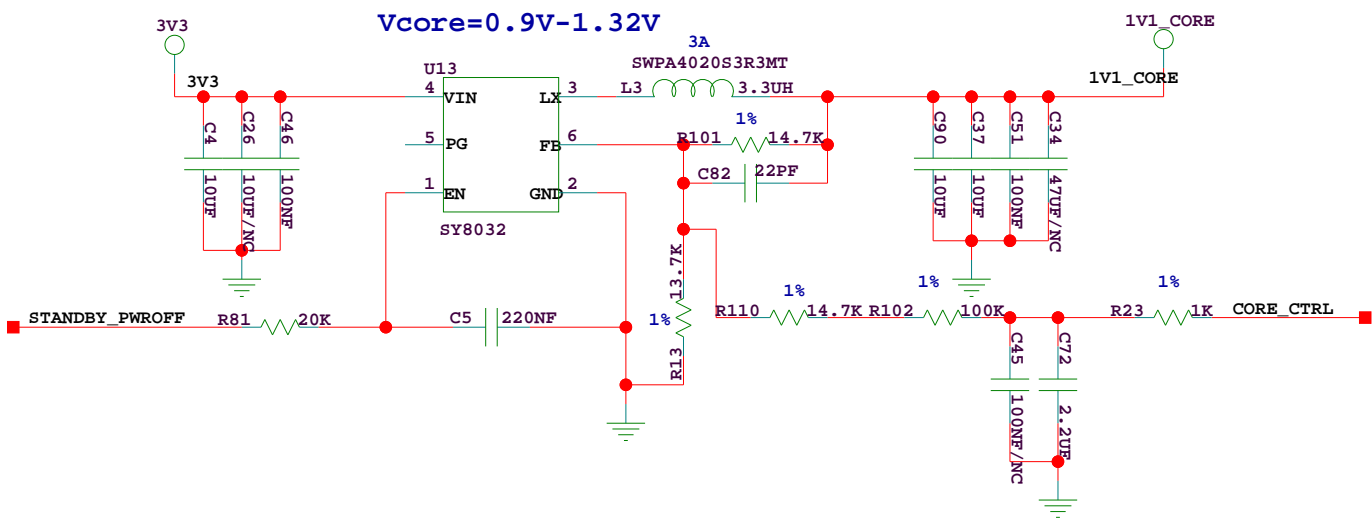
DDR POWER



CPU POWER



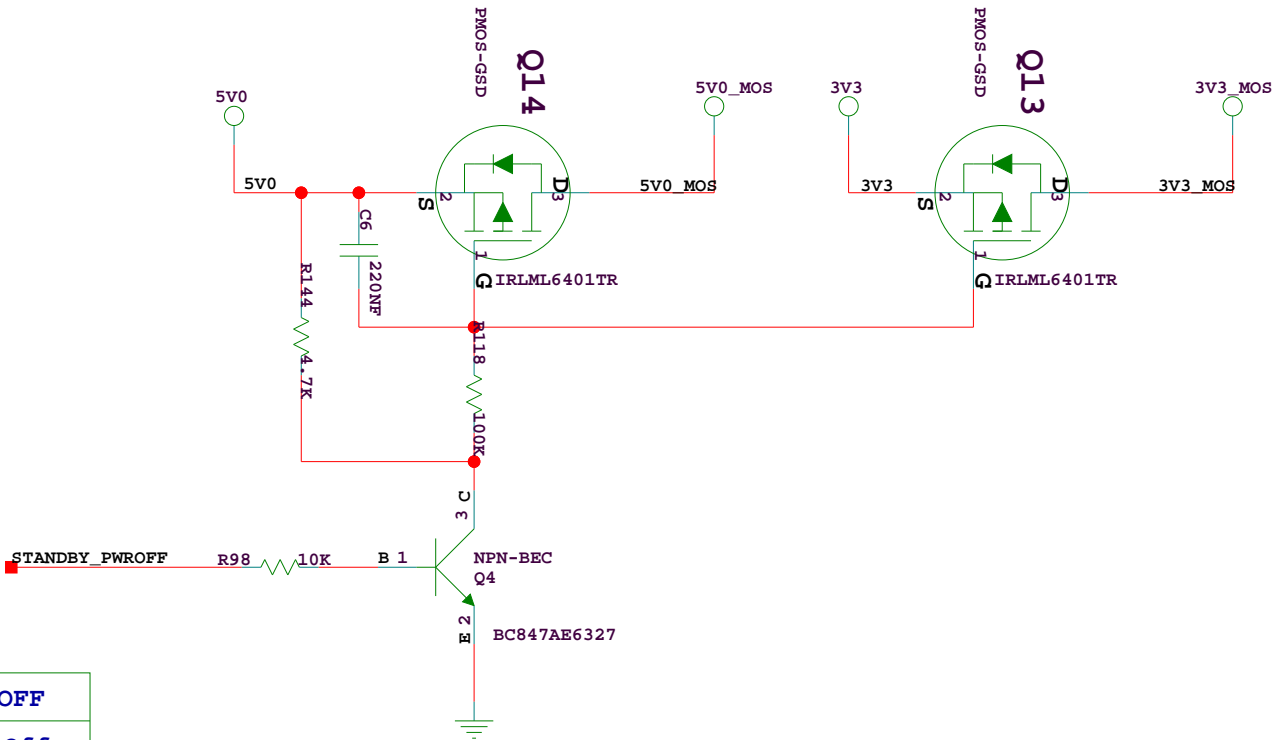
CORE POWER



The type and specification of the components refer to the BOM

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				ECA NO	DATE
DESIGNED	TIANSHOU 00171014	HI3798MDM01A_VERE		00001234	
REVIEWED	CHENYUZHU 00149603				
		VER	PART_NUMBER	SHEET 4 OF 19	
		A	03030001	HUAWEI TECH CO.,LTD.	

Power Ctrl

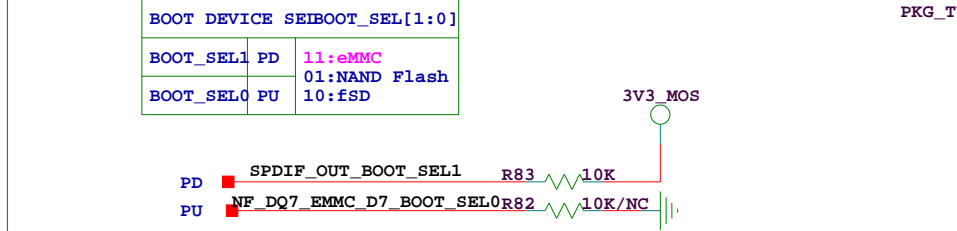
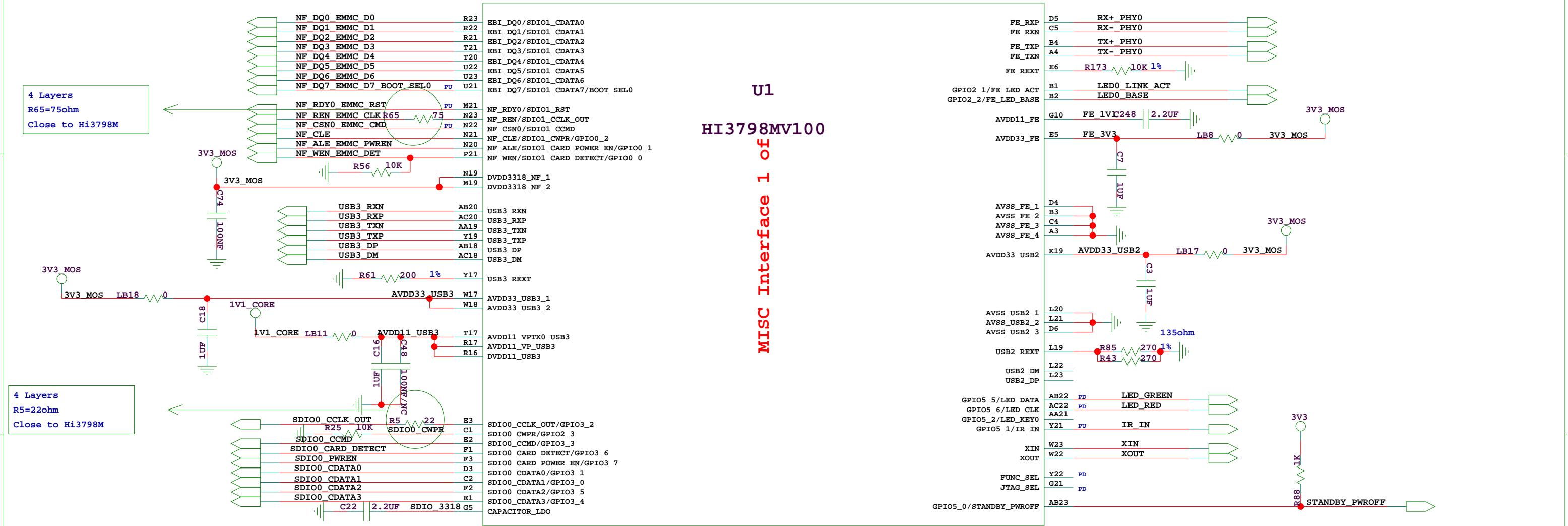


STANDBY_PWROFF	
0	Power Off
1	Power On

The type and specification of the components refer to the BOM

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				ECA NO	DATE
DESIGNED	TIANSHOU 00171014	HI3798MDM01A_VERE		00001234	
REVIEWED	CHENYUZHU 00149603				
		VER	PART_NUMBER	SHEET 5 OF 19	
		A	03030001	HUAWEI TECH CO.,LTD.	

Unit 1 of Hi3798MV100 (NAND/USB3.0/IR/SDIO/XTAL/FE)



** FE PHY Design guideline **	
A.routing	
1.Route as 100 Ohm differential impedance.	
2.Differential pairs should be routed on TOP layer only.	
3.Differential pairs should be separated from other traces by GND .	
B.trace length	
1.The length for the differential pairs should be less than 5 inches.	
2.Match trace length of RX and TX differential pairs, 10 mils max within a pair.	
C.component selection	
1.REXT resistor should be 10K ohm +/-1%.	
2.ESD components are suggested for ports protection, Put between Hi3798MV100 and transformer.	

The type and specification of the components refer to the BOM					
				NA	2013-07-04
				ECA NO	DATE
DESIGNED	TIANSHOU 00171014	HI3798MDM01A_VERE		00001234	
REVIEWED	CHENYUZHU 00149603				
		VER	PART_NUMBER	SHEET 6 OF 19	
		A	03030001	HUAWEI TECH CO.,LTD.	

## Unit 2 of Hi3798MV100(JTAG/USB2.0/HDMI TX/DAC/I2S/SPI/UART)

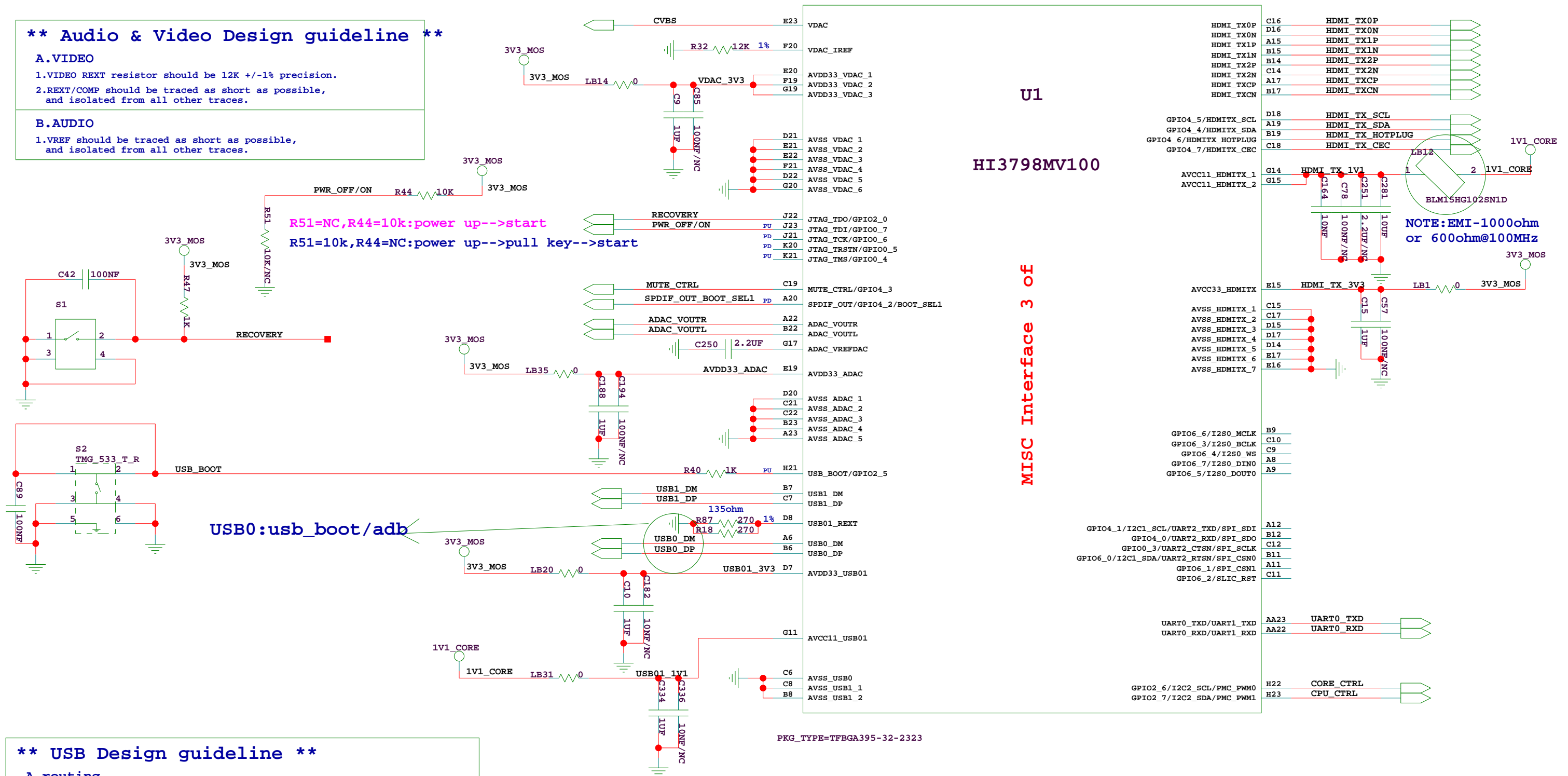
## **\*\* Audio & Video Design guideline \*\***

## A.VIDEO

- 1.VIDEO REXT resistor should be 12K +/-1% precision.
- 2.REXT/COMP should be traced as short as possible, and isolated from all other traces.

## B.AUDIO

- 1.VREF should be traced as short as possible, and isolated from all other traces.



## **\*\* USB Design guideline \*\***

## A.routing

- 1.Route as 90 Ohm differential impedance.
- 2.Differential pairs should be routed on TOP layer only.
- 3.Differential pairs should be separated from other traces by GND .

B.trace length

- 1.The length for the differential pairs should be less than 5 inches.
- 2.Match trace length of DP and DM differential pairs, 10 mils max within a pair.

### C.component selection

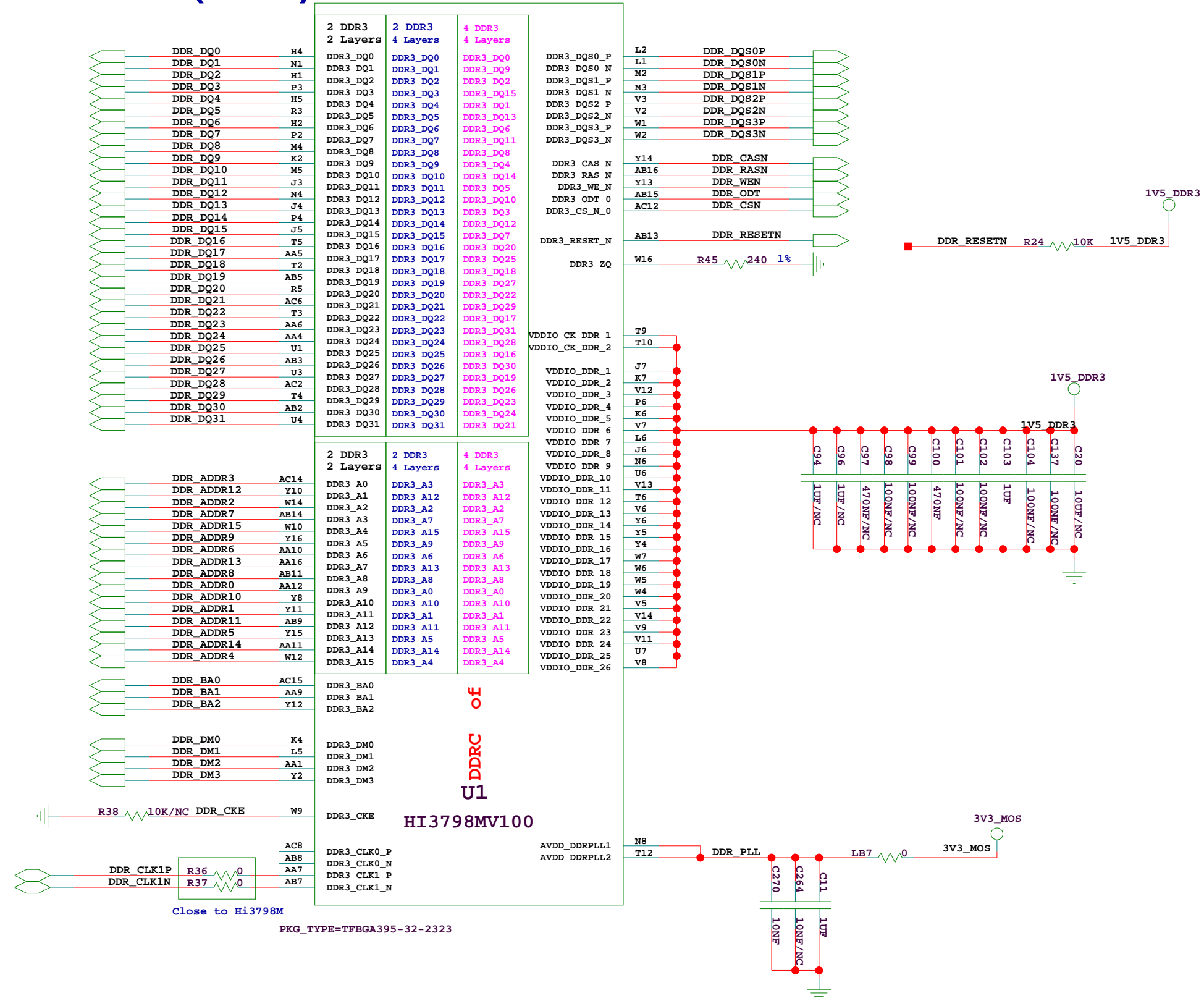
- 1.USB2.0 REXT resistor should be 135 ohm +/-1% and USB3.0 200 ohm +/-1%
- 2.ESD components are suggested for ports protection.
- 3.Equivalent capacitance of ESD component should be < 1.5pF.

The type and specification of the components refer to the BOM

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				ECA NO	DATE
DESIGNED	TIANSHOU 00171014	HI3798MDMO1A_VERE		00001234	
REVIEWED	CHENYUZHU 00149603				
		VER	PART_NUMBER	SHEET 7 OF 19	
		A	03030001	HUAWEI TECH CO.,LTD.	



## Unit 3 of Hi3798MV100(DDR)



## **\*\* DDR Design guideline \*\***

### A.general suggestion

- 1.Hi3798MV100 supports up to 2GB DDR3.
- 2.DDR chip and DDR controller both need at least one 10uF decoupling ceramic capacitor.
- 3.The circuit of DDR\_VREF\_CA and DDR\_VREF\_DQ must be independent
4. 3V3 DDRPLL is needed.

### B.Layout suggestion

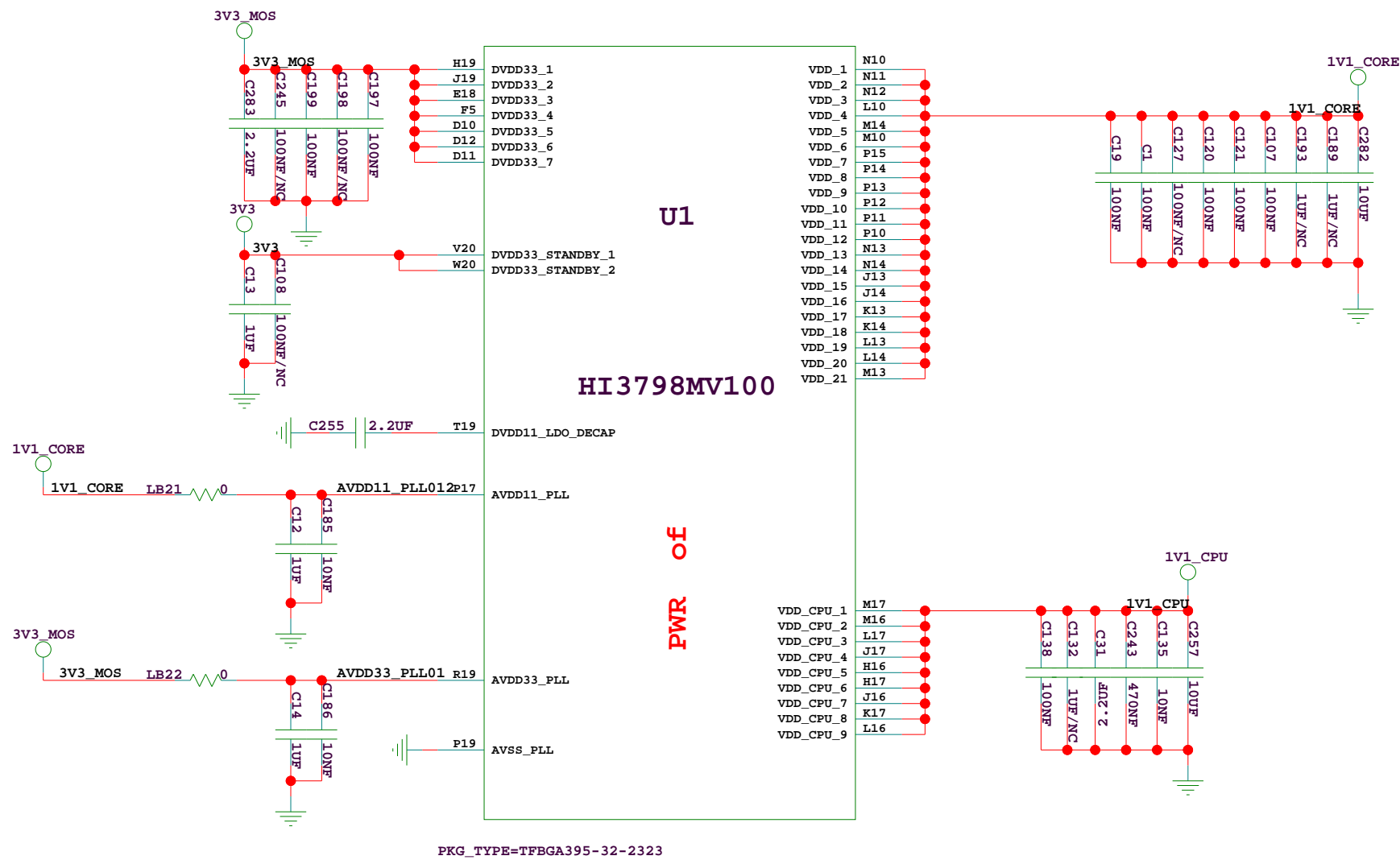
1. Please copy hisilicon demo board completely

The type and specification of the components refer to the BOM

				NA	2013-07-04
				ECA NO	DATE
DESIGNED	TIANSHOU 00171014	HI3798MDMO1A_VERE		00001234	
REVIEWED	CHENYUZHU 00149603				
		VER	PART_NUMBER	SHEET 8 OF 19	
		A	03030001	HUAWEI TECH CO.,LTD.	

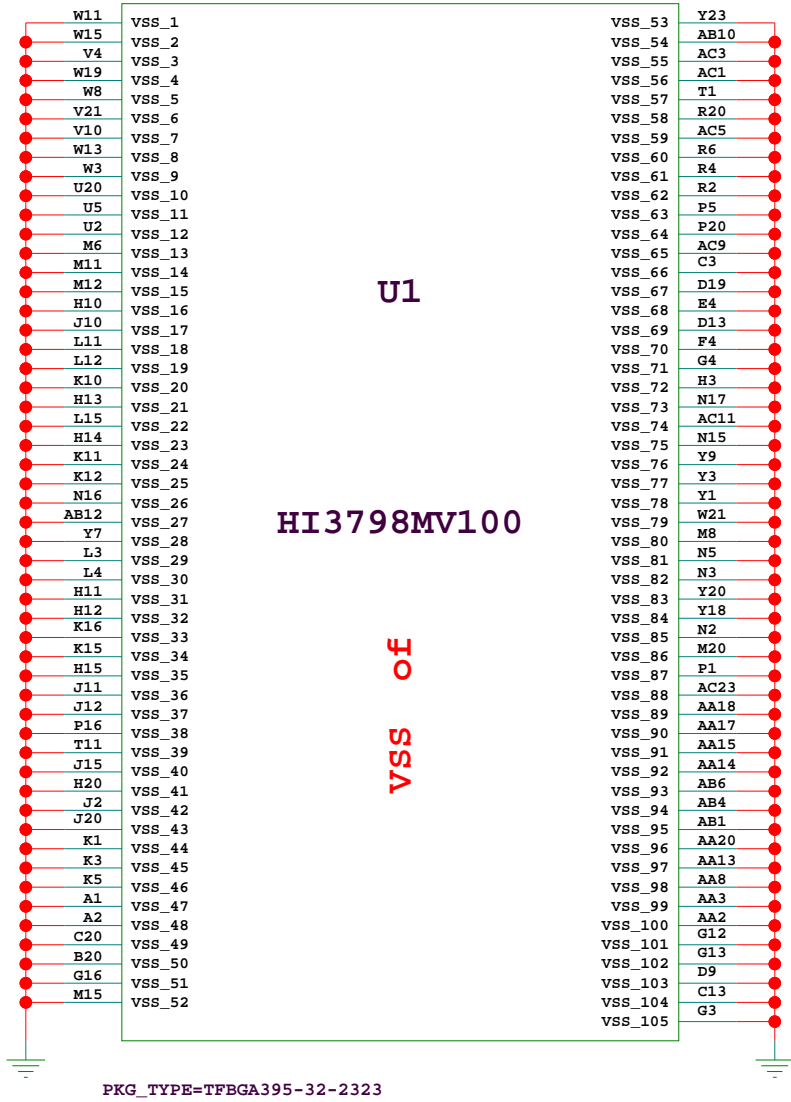


Unit 4 of Hi3798MV100(POWER)



The type and specification of the components refer to the BOM					
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				ECA NO	DATE
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REVIEWED	CHENYUZHU 00149603				
		VER	PART_NUMBER	SHEET 9 OF 19	
		A	03030001	HUAWEI TECH CO.,LTD	

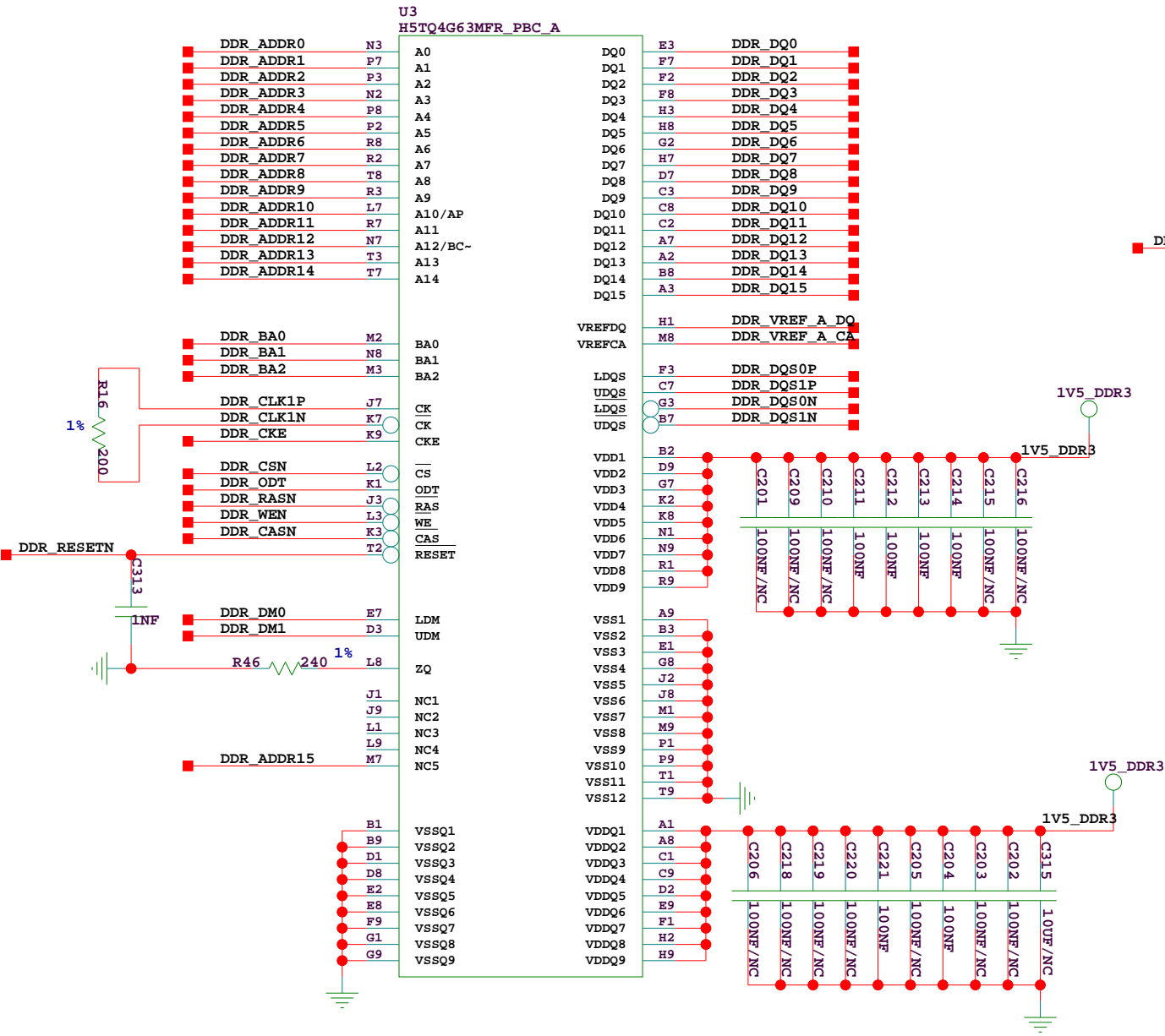
Unit 5 of Hi3798MV100(VSS)



The type and specification of the components refer to the BOM

				NA	2013-07-04
				ECA NO	DATE
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REVIEWED	CHENYUZHU 00149603				
		VER	PART_NUMBER	SHEET 10 OF 19	
		A	03030001	HUAWEI TECH CO.,LTD.	

DDRA



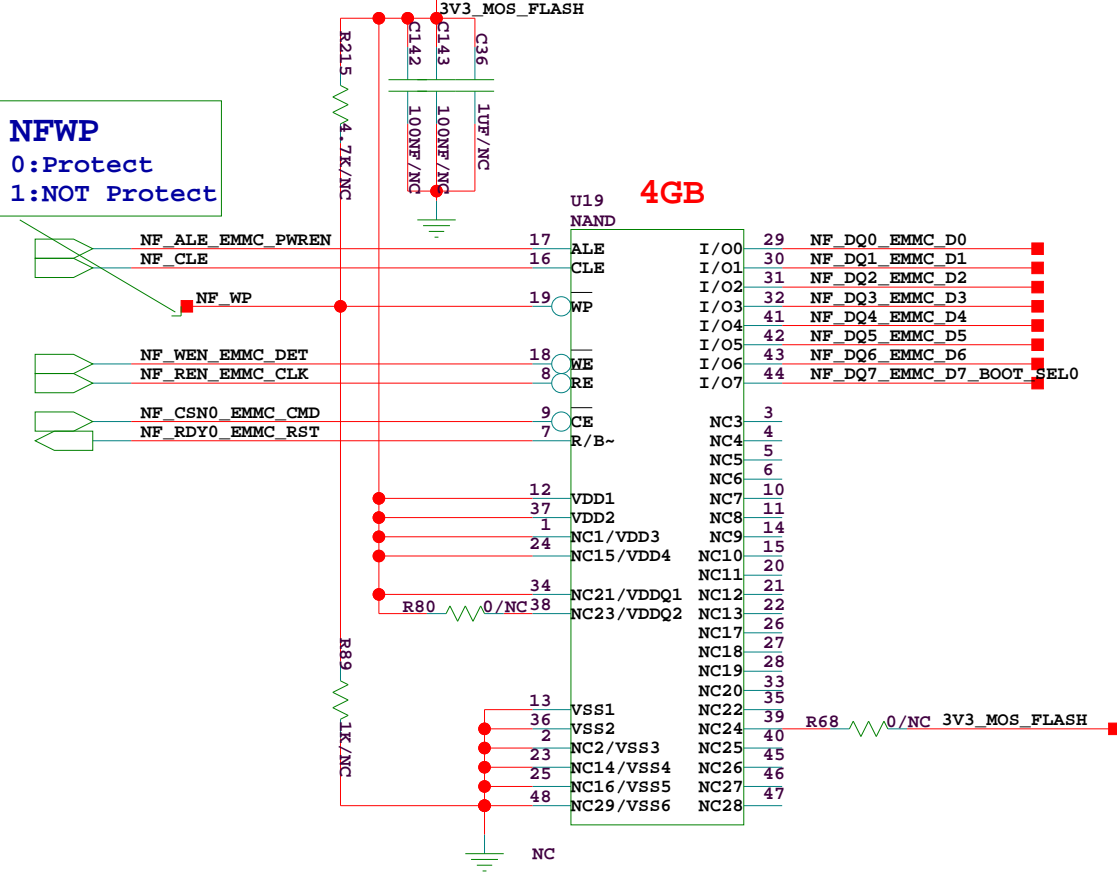
The type and specification of the components refer to the BOM

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REVIEWED	CHENYUZHU 00149603				
		VER	PART_NUMBER	SHEET 11 OF 19	
		A	03030001	HUAWEI TECH CO.,LTD.	

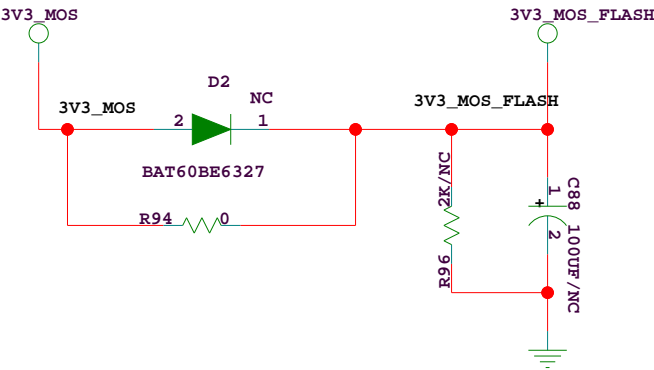


NAND FLASH/EMMC

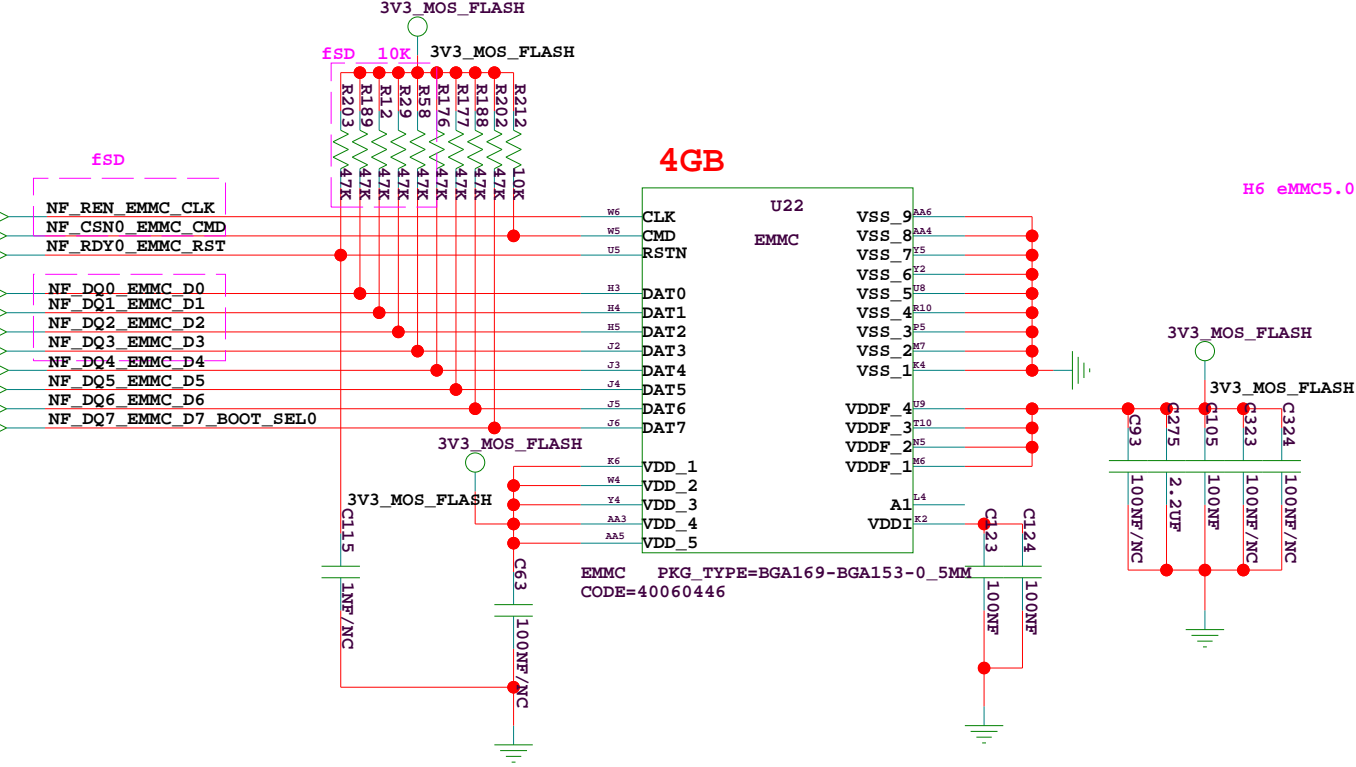
NAND FLASH



Pay attention to pin38&pin39,these pins are NC for the MLC NAND of some brands(such as Micron),but it should be connected to the VCC of others(such as Toshiba and Hynix).  
Pls refer to the corresponding datasheet for detail.



eMMC/fSD



NAND FLASH

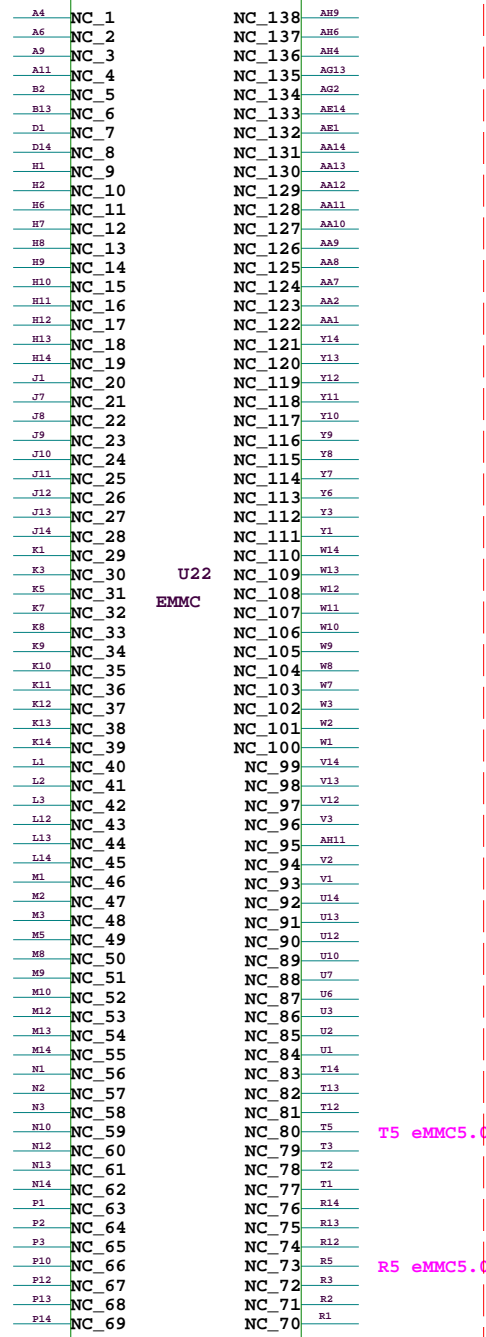
C142=C143=100nF,C36=1uF,R215=4.7K,R68=0,C88=100uF,D2=diode,U19=nand  
others=NC,If use Micron nand flash,R68=NC

eMMC

C63=C123=C124=C93=C105=C323=C324=100nF,C275=2.2uF  
,R203=R189=R12=R29=R58=R176=R177=R188=R202=47K,R212=10K,R94=0,U22=eMMC,others=NC

fSD

C63=C123=C124=C93=C105=C323=C324=100nF,C275=2.2uF  
,R203=R189=R12=R29=R58=R212=10K,R94=0,U22=fSD,others=NC

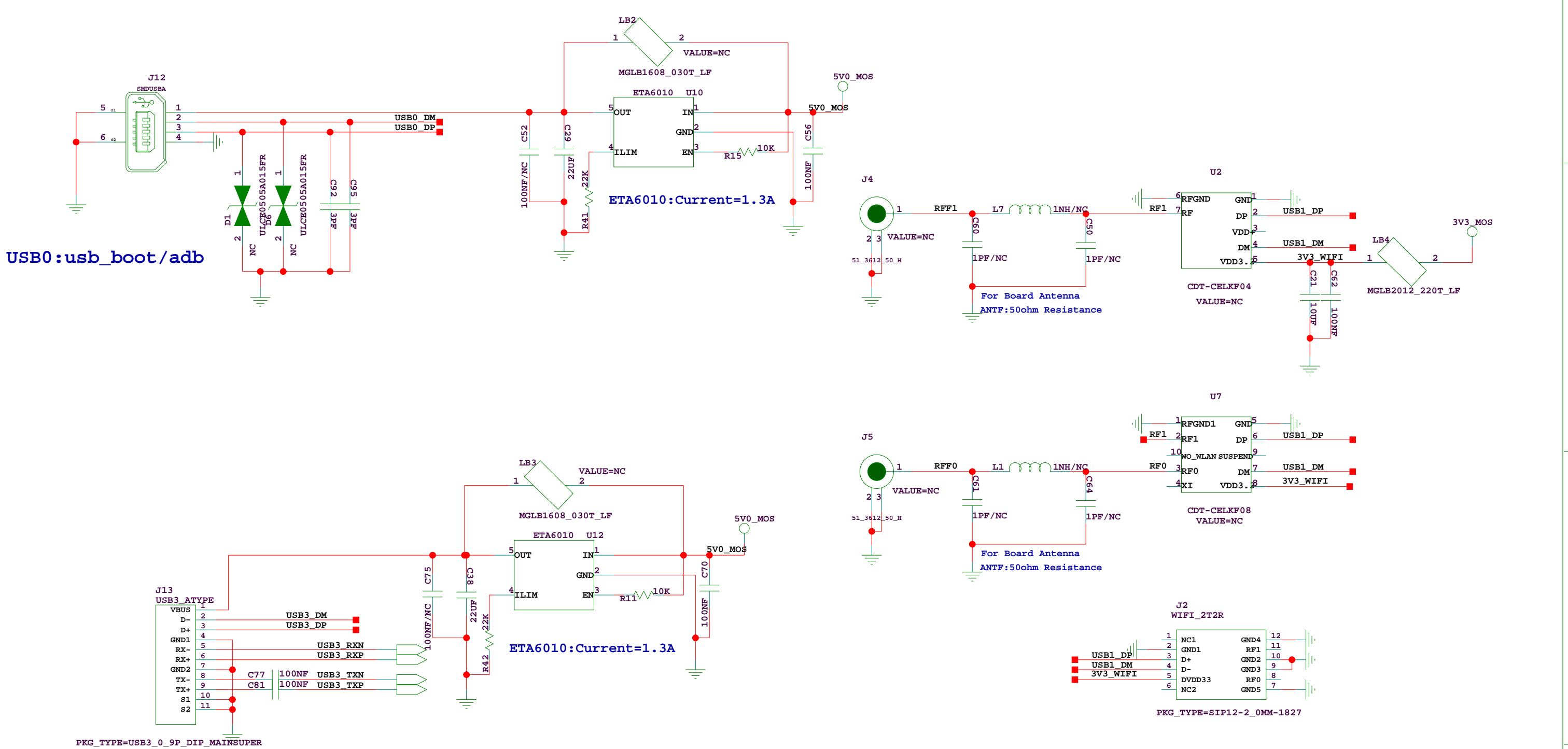


EMMC PKG\_TYPE=BGA169-BGA153-0\_5MM  
CODE=40060446

The type and specification of the components refer to the BOM

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				ECA NO	DATE
DESIGNED	TIANSHOU 00171014	HI3798MDM01A_VERE		00001234	
REVIEWED	CHENYUZHU 00149603				
		VER	PART_NUMBER	SHEET 13 OF 19	
		A	03030001	HUAWEI TECH CO.,LTD.	

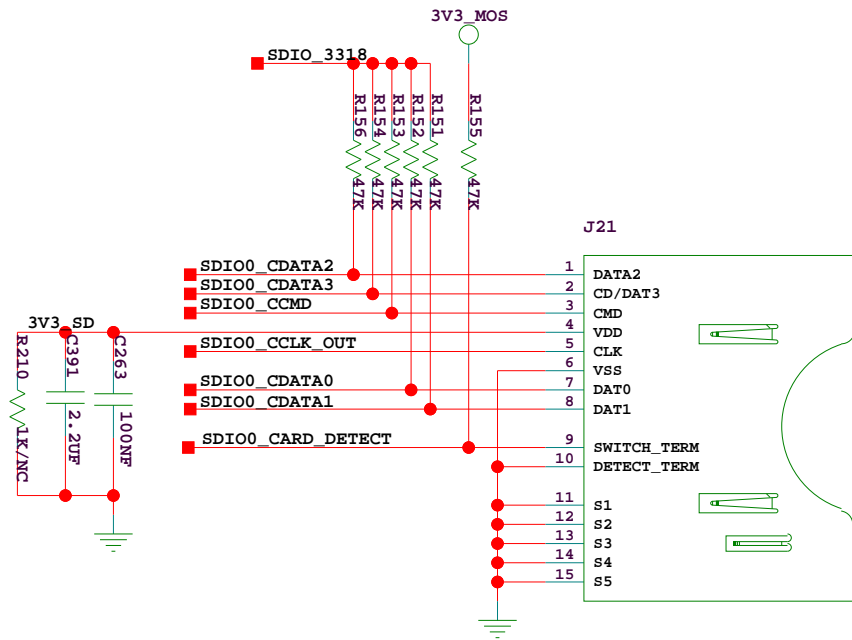
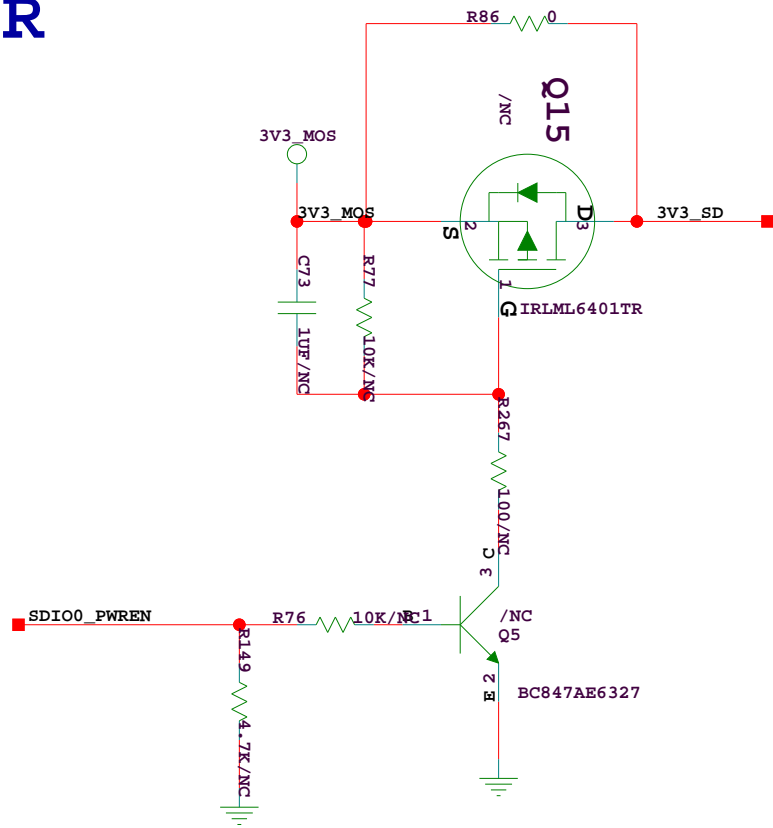
USB2.0/USB3.0/WIFI



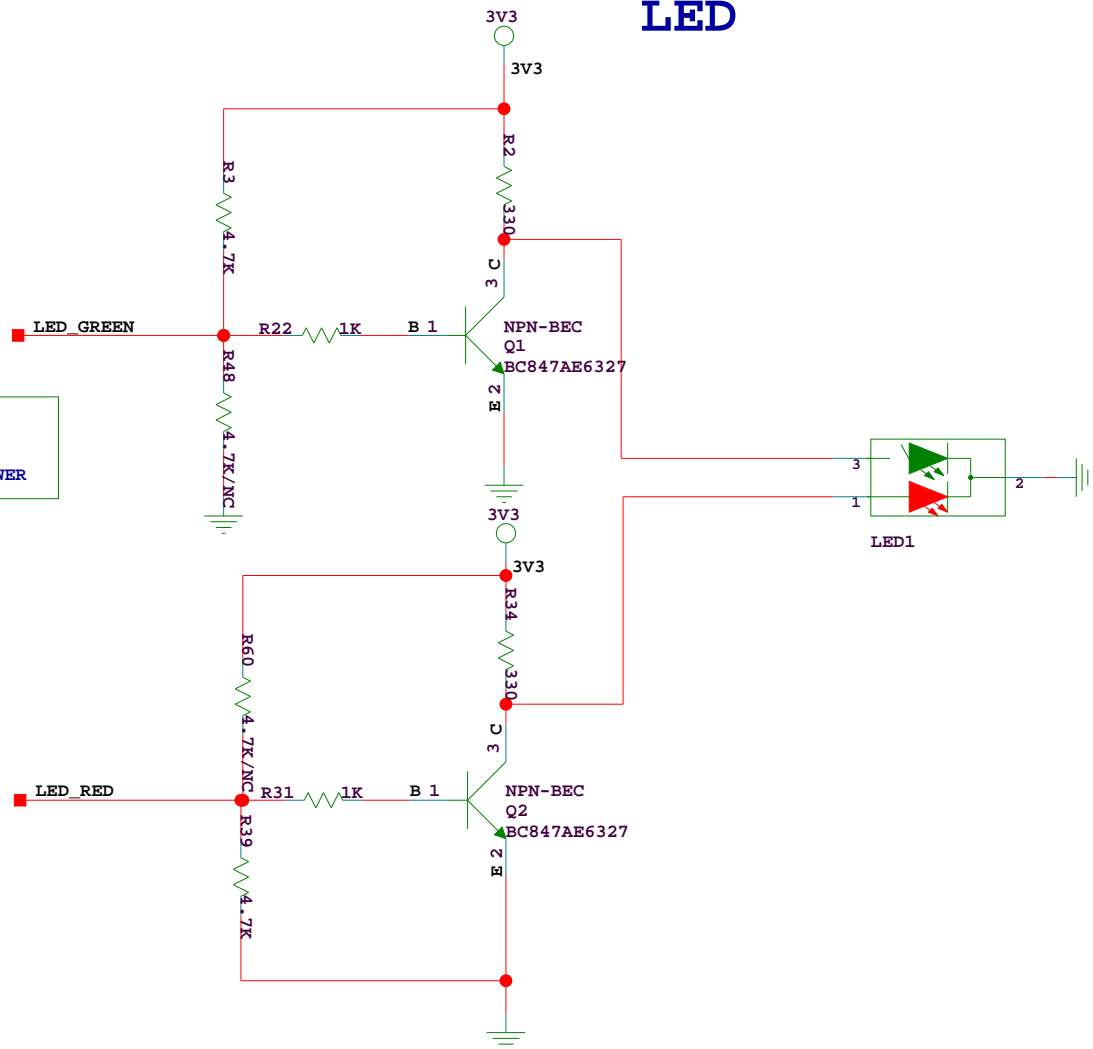
The type and specification of the components refer to the BOM

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				ECA NO	DATE
DESIGNED	TIANSHOU 00171014	HI3798MDM01A_VERE		00001234	
REVIEWED	CHENYUZHU 00149603				
		VER	PART_NUMBER	SHEET 14 OF 19	
		A	03030001	HUAWEI TECH CO.,LTD.	

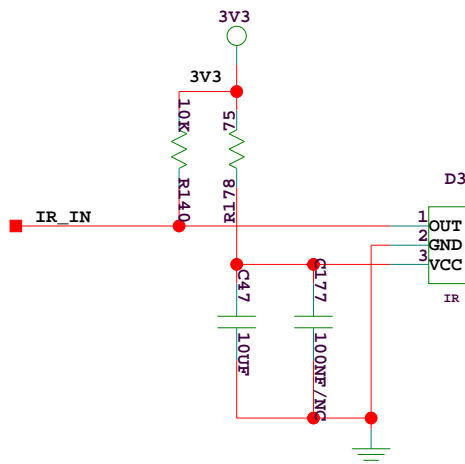
SD CARD/IR



LED



IR

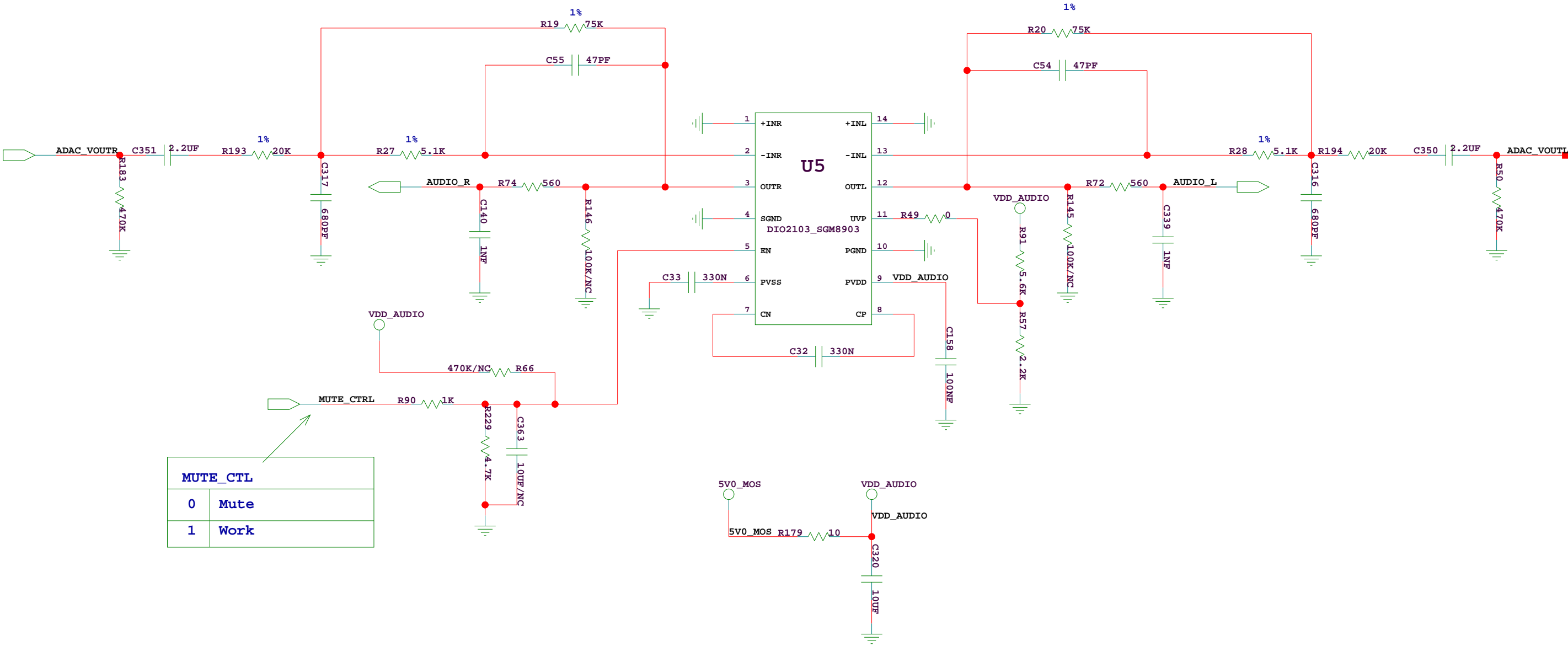


The type and specification of the components refer to the BOM

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				ECA NO	DATE
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REVIEWED	CHENYUZHU 00149603				
		VER	PART_NUMBER	SHEET 15 OF 19	
		A	03030001	HUAWEI TECH CO.,LTD.	



Audio Output

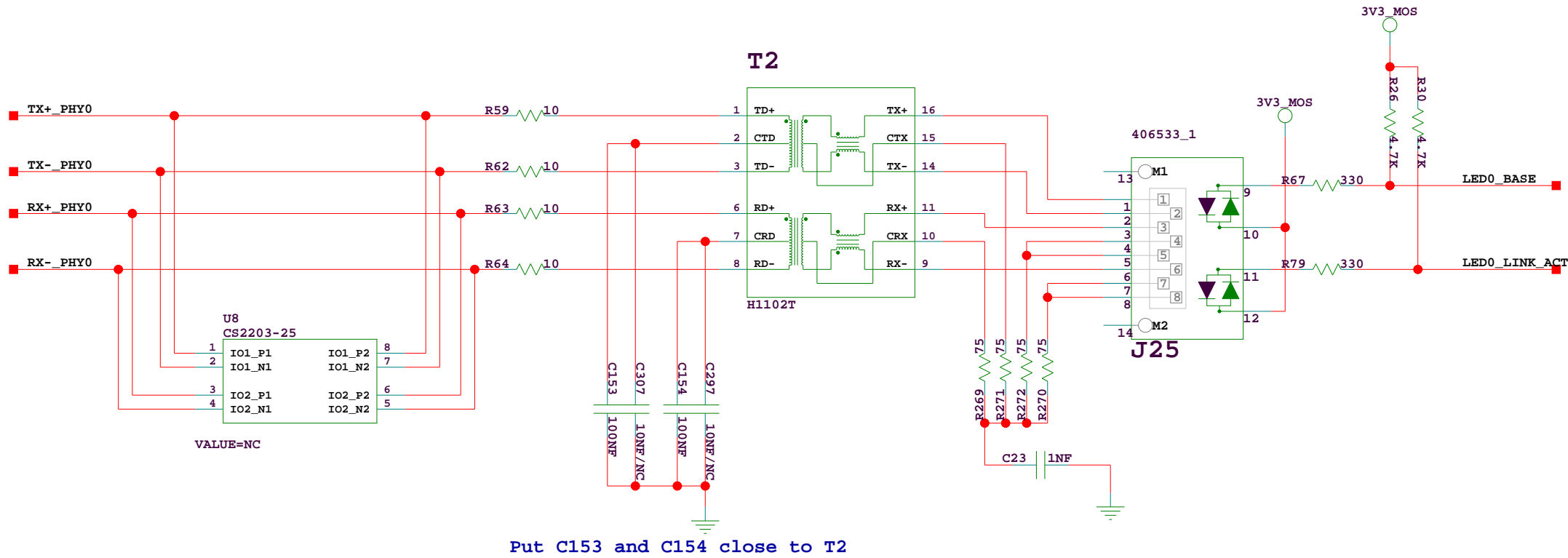


MUTE_CTL	
0	Mute
1	Work

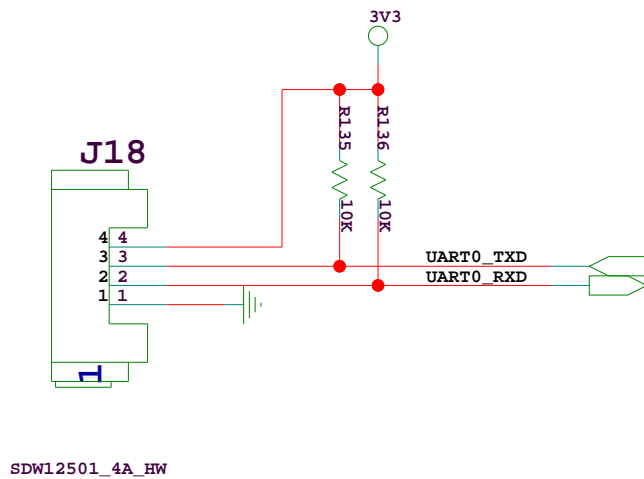
The type and specification of the components refer to the BOM

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				ECA NO	DATE
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REVIEWED	CHENYUZHU 00149603				
		VER	PART_NUMBER	SHEET 16 OF 19	
		A	03030001	HUAWEI TECH CO.,LTD.	

FE PHY/UART



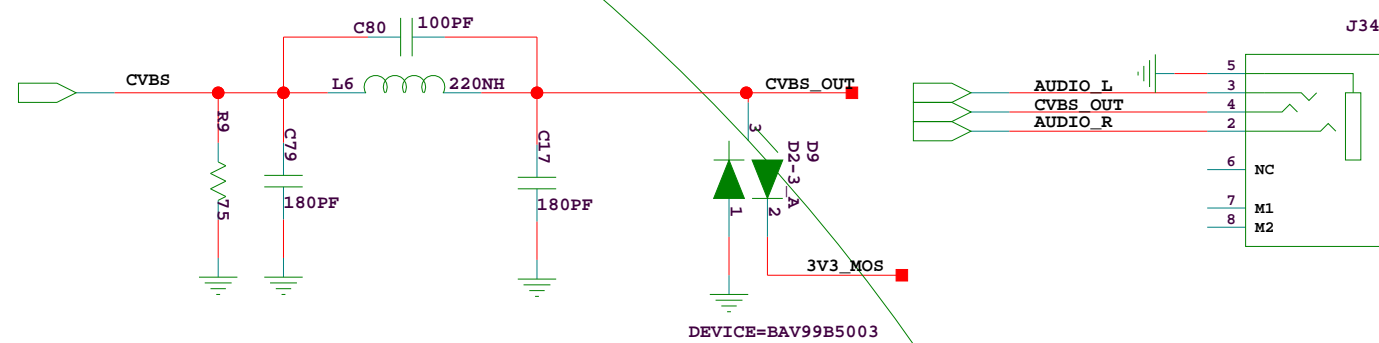
UART



The type and specification of the components refer to the BOM

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				ECA NO	DATE
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REVIEWED	CHENYUZHU 00149603				
		VER	PART_NUMBER	SHEET 17 OF 19	
		A	03030001	HUAWEI TECH CO.,LTD.	

# VDAC OUTPUT



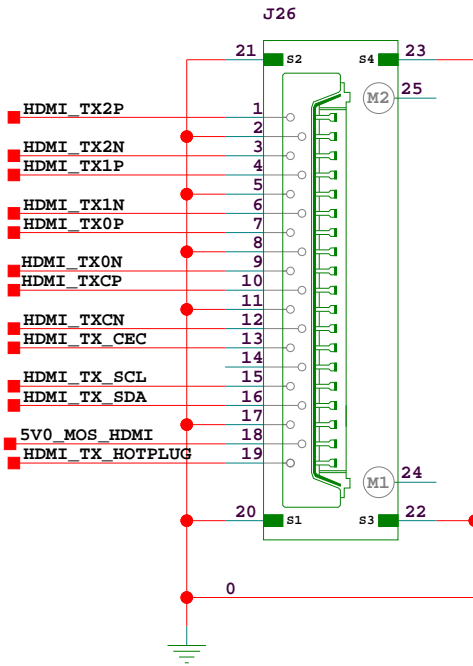
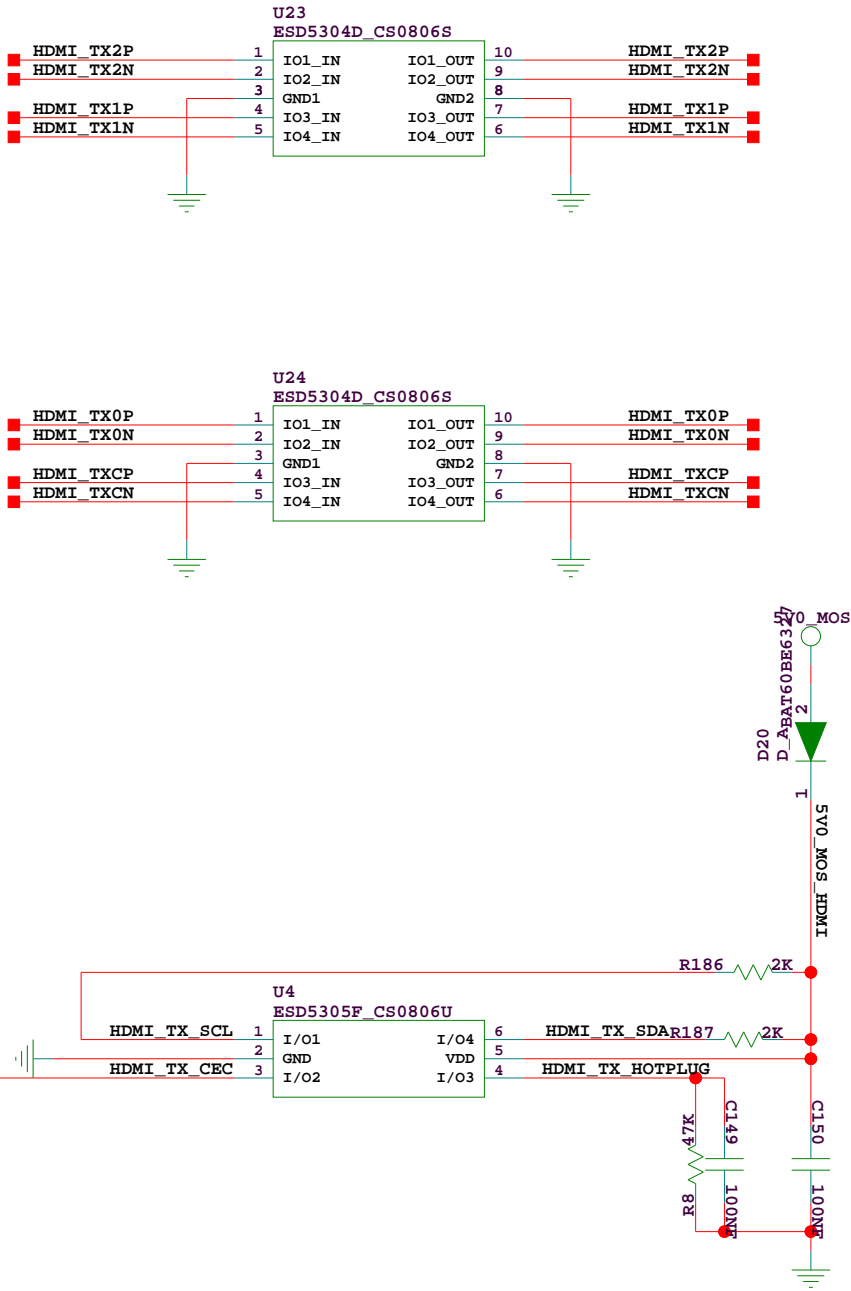
## \*\* Design guideline \*\*

- 1.All channel traces should be separated from other traces by GND.
- 2.ESD components are suggested for ports protection, default BAV99.

The type and specification of the components refer to the BOM

				NA	2013.1.4
				ECA NO	DATE
DESIGNED	TIANSHOU 00171014	HI3798MDM01A_VERE		00001234	
REVIEWED	CHENYUZHU 00149603				
		VER	PART_NUMBER	SHEET 18 OF 19	
		A	03030001	HUAWEI TECH CO.,LTD.	

HDMI TX



\*\* HDMI Design guideline \*\*

- A.routing
- 1.Route as 100 Ohm differential impedance.
  - 2.Differential pairs should be routed on TOP layer only.
  - 3.Differential pairs should be separated from other traces by GND .

- B.trace length
- 1.The length for the differential pairs should be less than 5 inches.
  - 2.Match trace length of differential pairs, 5 mils max within a pair.

- C.component selection
- 1.REXT resistor should be 6.6K Ohm +/-1%.
  - 2.ESD components are suggested for ports protection.
  - 3.All equivalent capacitance of ESD components should be < 0.8pF.

The type and specification of the components refer to the BOM

				NA	2013-07-04
				ECA NO	DATE
DESIGNED	TIANSHOU 00171014	HI3798MDM01A_VERE		00001234	
REVIEWED	CHENYUZHU 00149603				
		VER	PART_NUMBER	SHEET 19 OF 19	
		A	03030001	HUAWEI TECH CO.,LTD.	