

Hi3798MDMO1G

VER\_A\_V1.0.0.0

Hi3798MV100 DEMO Board(QFP)

4 layers PCB with 2 DDR3 16bit

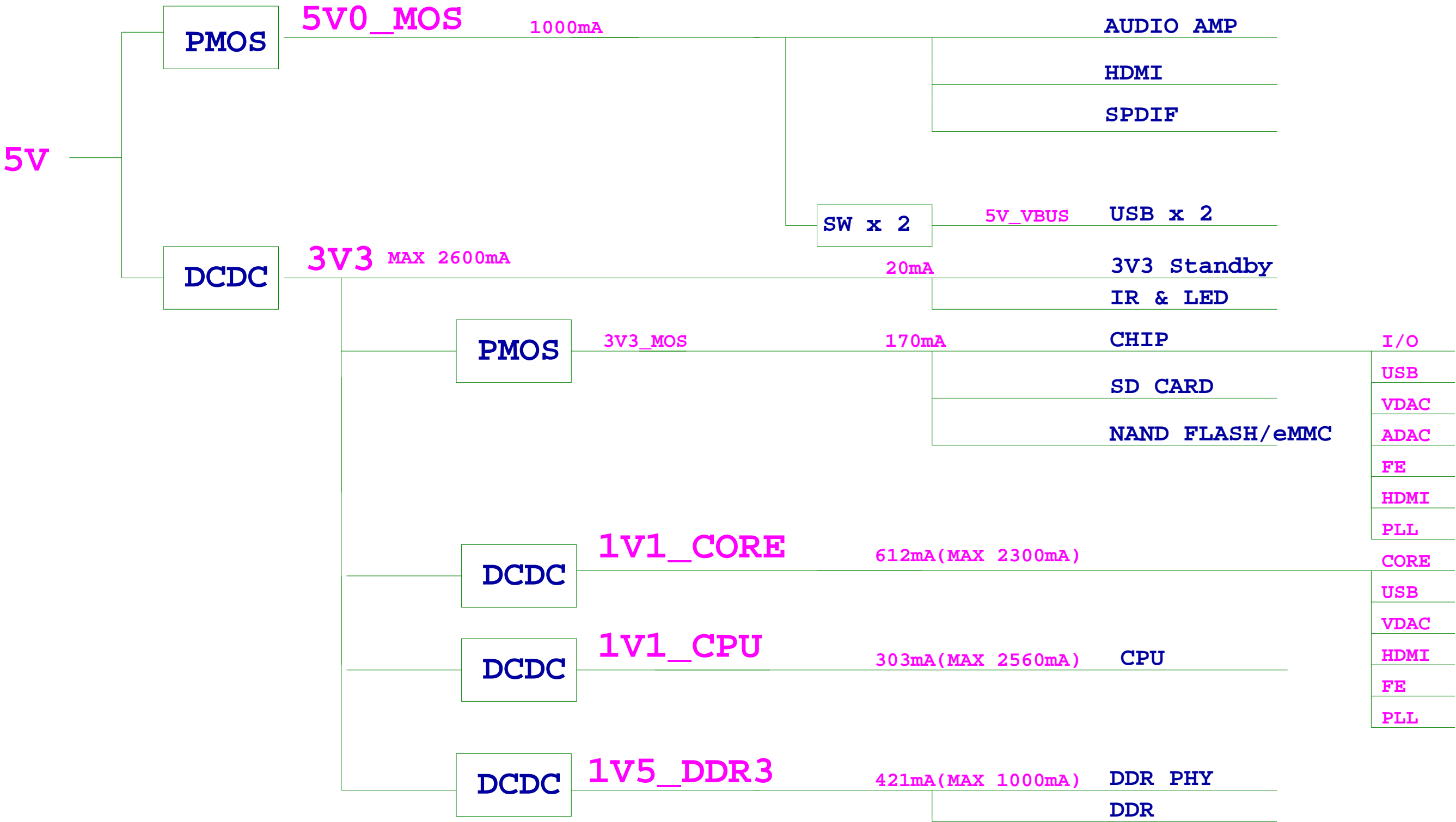
Board Size:86mm x 88mm x 1.6mm

|        |   |
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|        |   |

The type and specification of the components refer to the BOM

|          |                    |                   |             |                      |            |
|----------|--------------------|-------------------|-------------|----------------------|------------|
|          |                    |                   |             | NA                   | 2013-07-04 |
|          |                    |                   |             | ECA NO               | DATE       |
| DESIGNED | TIANSHOU 00171014  | HI3798MDMO1G_VERA |             | 00001234             |            |
| REVIEWED | CHENYUZHU 00149603 |                   |             |                      |            |
|          |                    | VER               | PART_NUMBER | SHEET 1 OF 18        |            |
|          |                    | A                 | 03030001    | HUAWEI TECH CO.,LTD. |            |

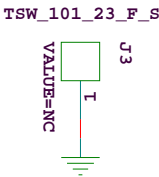
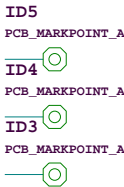
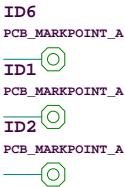
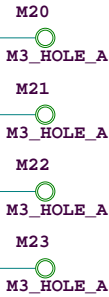
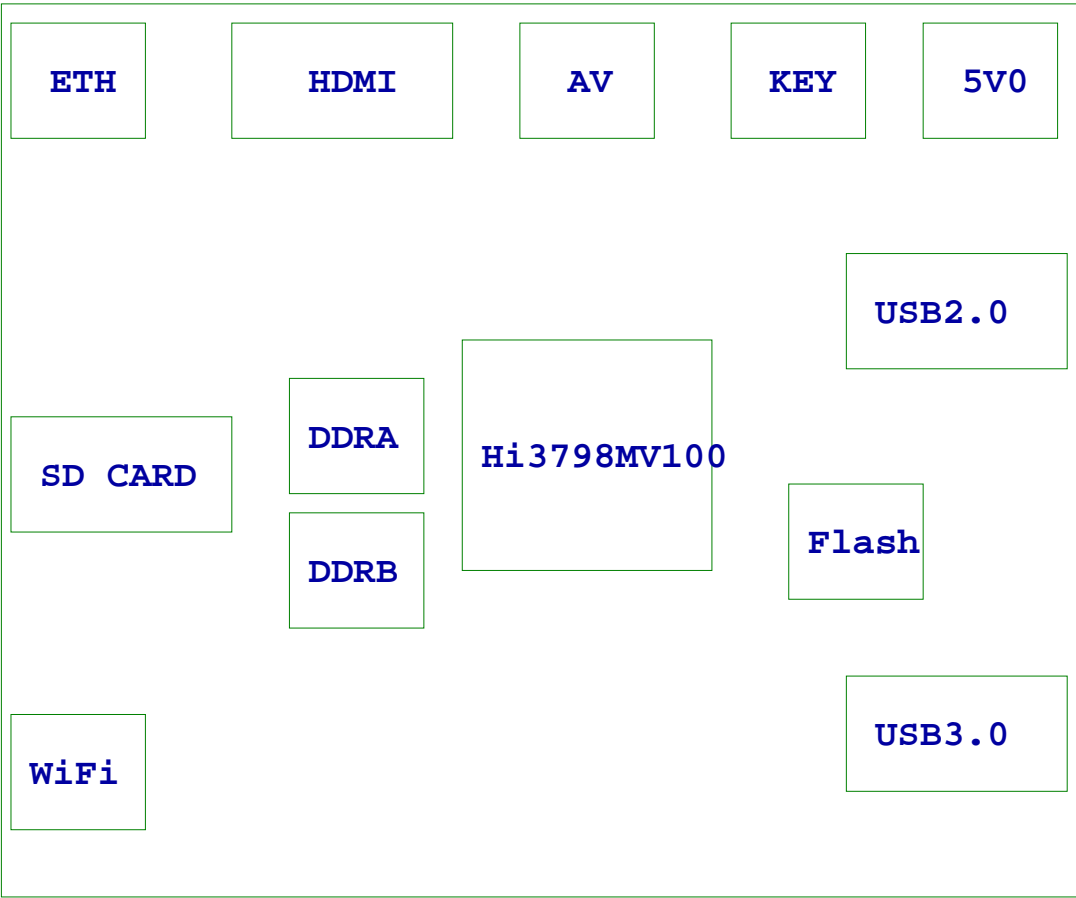
Power Tree



The type and specification of the components refer to the BOM

|          |                    |                   |             |                      |            |
|----------|--------------------|-------------------|-------------|----------------------|------------|
|          |                    |                   |             |                      |            |
|          |                    |                   |             | NA                   | 2013-07-04 |
|          |                    |                   |             | ECA NO               | DATE       |
| DESIGNED | TIANSHOU 00171014  | HI3798MDMO1G_VERA |             | 00001234             |            |
| REVIEWED | CHENYUZHU 00149603 |                   |             |                      |            |
|          |                    | VER               | PART_NUMBER | SHEET 2 OF 19        |            |
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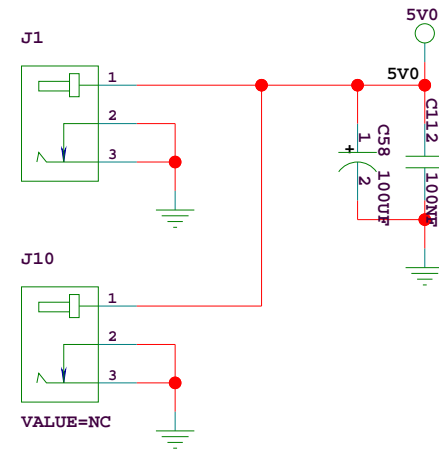
Block Diagram



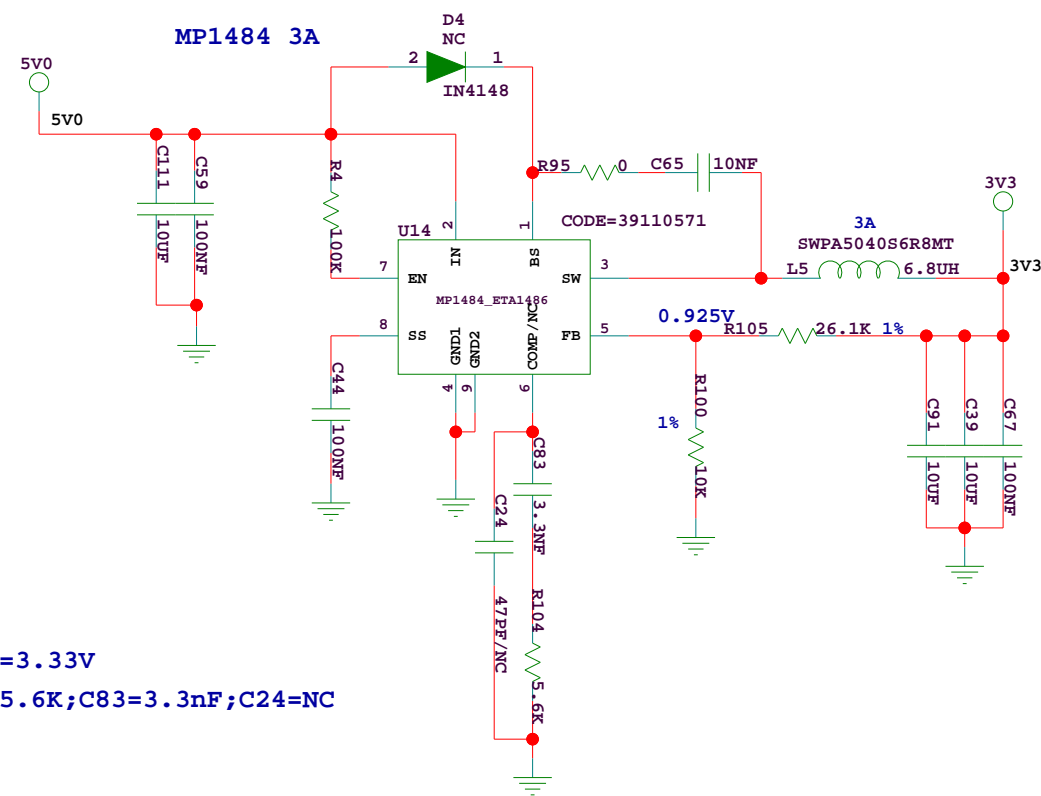
The type and specification of the components refer to the BOM

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

## 5V PLUG-IN



### 3.3V POWER



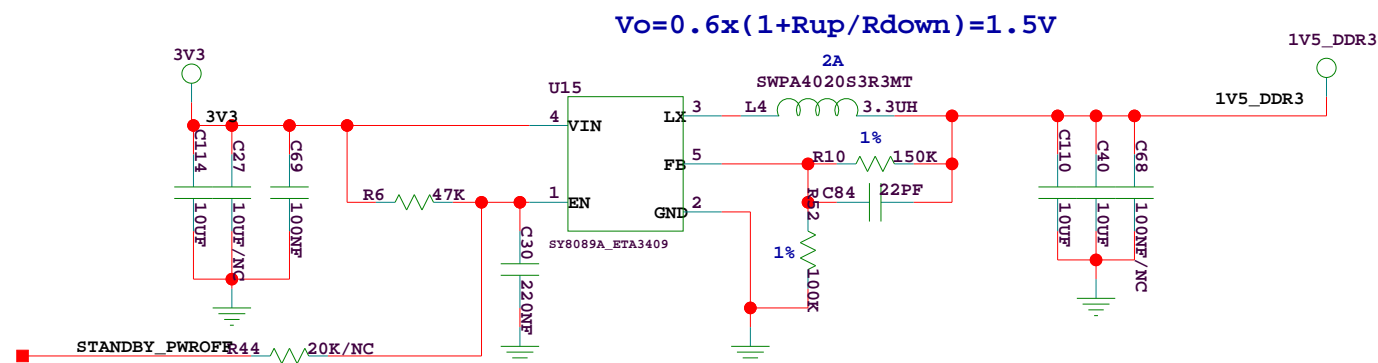
ETA1486 4A  
 $V_{OUT} = 0.923 \cdot (1 + 26.1K/10K) = 3.33V$   
 C44=100nF;C65=10nF;R104=5.6K;C83=3.3nF;C24=NC  
 R105=26.1K;R100=10K

MP1484 3A

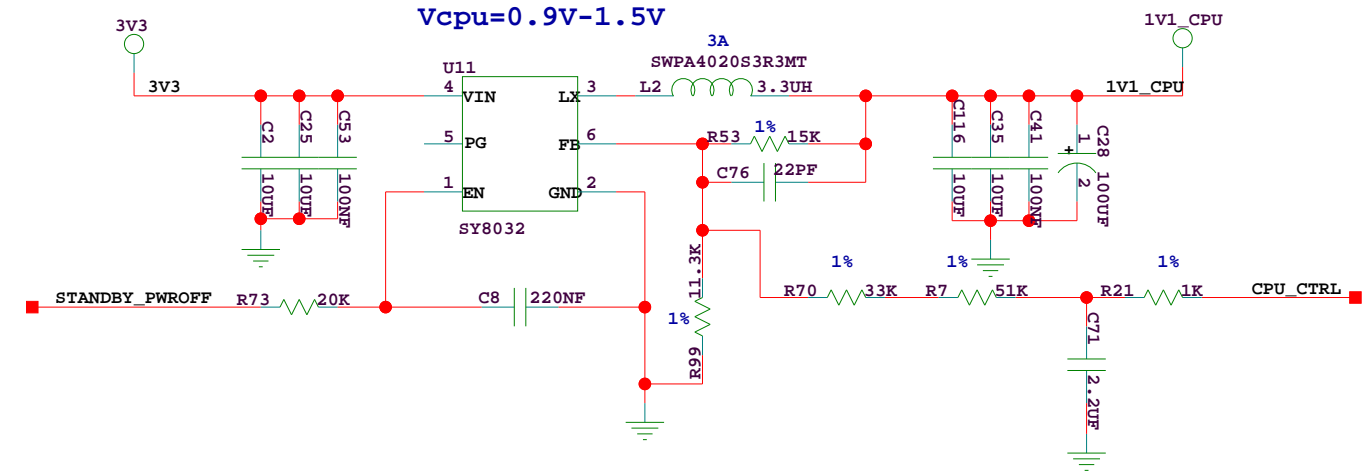
$V_{OUT} = 0.925 * (1 + 26.1K/10K) = 3.34V$

C44=100nF;C65=10nF;R104=5.6K;C83=3.3nF;C24=NC;R105=26.1K;R100=10K

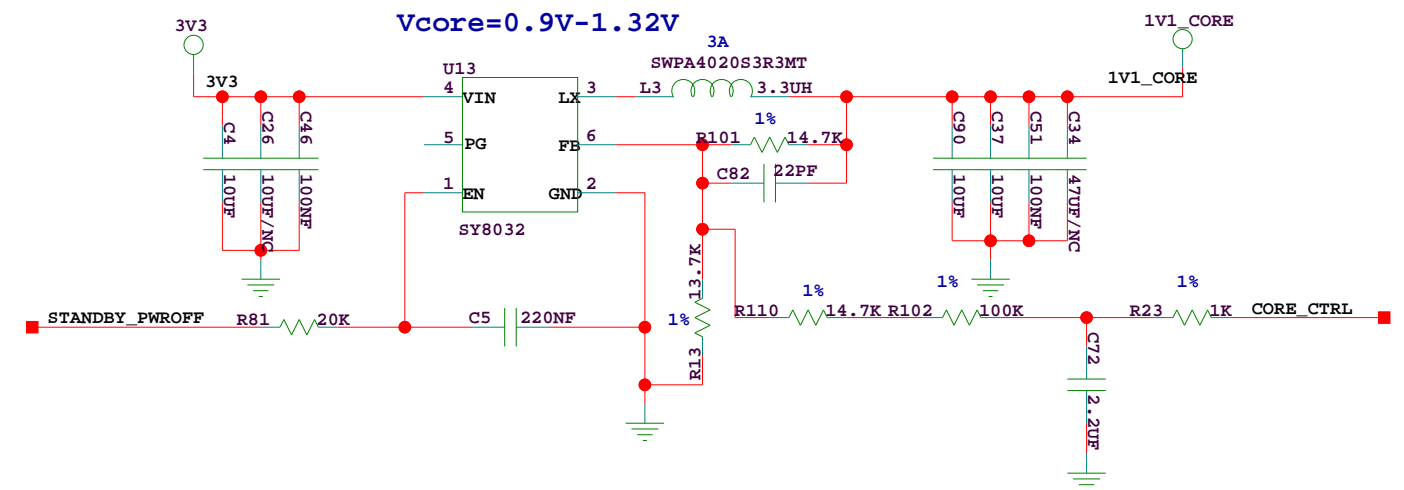
## DDR POWER



## CPU POWER



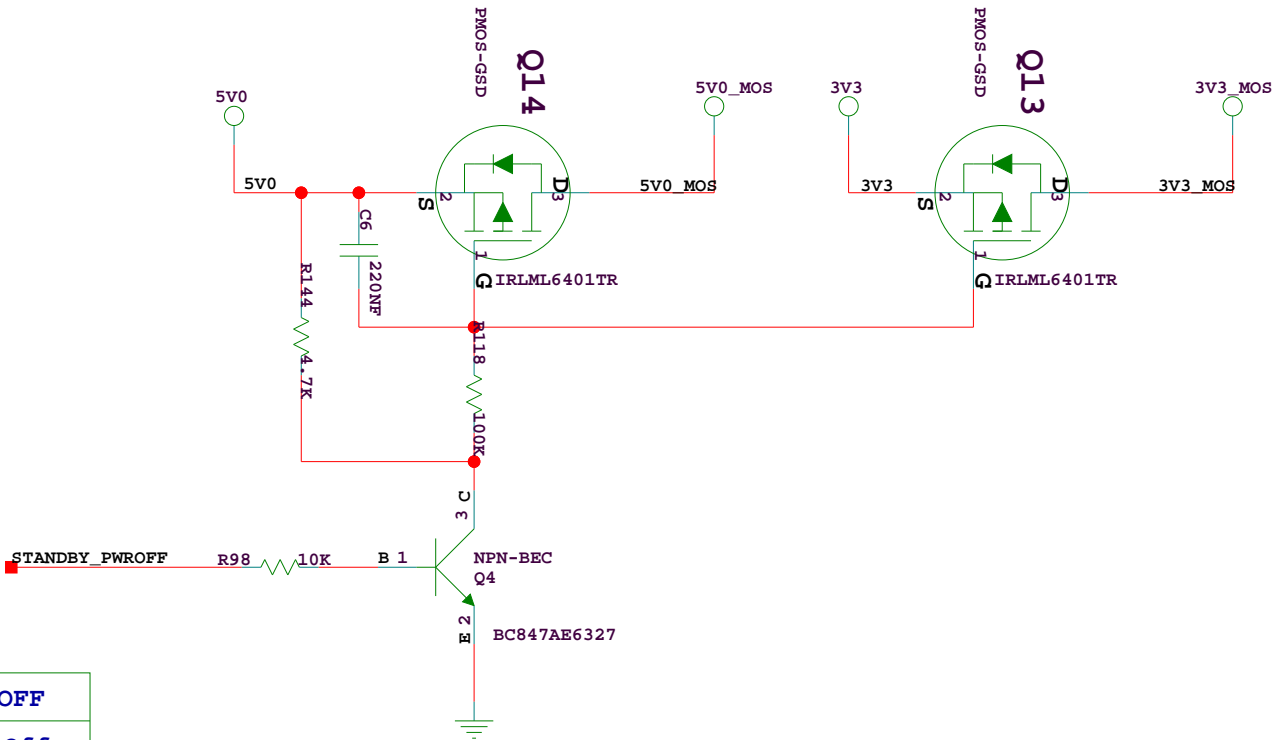
## CORE POWER



The type and specification of the components refer to the BOM

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|          |                    |                   |             | NA                  | 2013-07-04 |
|          |                    |                   |             | ECA NO              | DATE       |
| DESIGNED | TIANSHOU 00171014  | HI3798MDMO1G_VERA |             | 00001234            |            |
|          |                    |                   |             |                     |            |
| REVIEWED | CHENYUZHU 00149603 |                   |             |                     |            |
|          |                    | VER               | PART_NUMBER | SHEET 4 OF 18       |            |
|          |                    | A                 | 03030001    | HUAWEI TECH CO.,LTD |            |

Power Ctrl

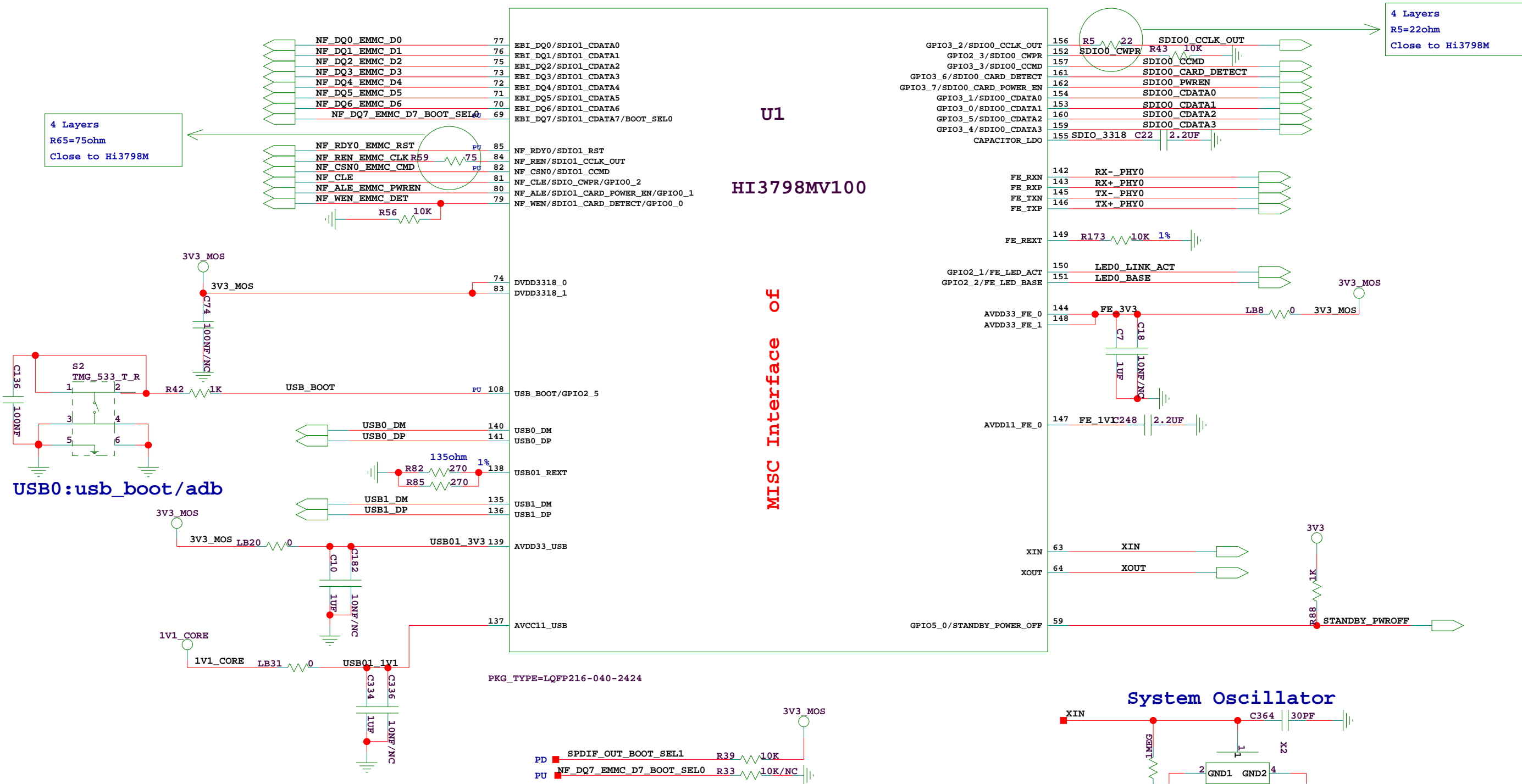


| STANDBY_PWROFF |           |
|----------------|-----------|
| 0              | Power Off |
| 1              | Power On  |

The type and specification of the components refer to the BOM

|          |                    |                   |             |                      |            |
|----------|--------------------|-------------------|-------------|----------------------|------------|
|          |                    |                   |             | NA                   | 2013-07-04 |
|          |                    |                   |             | ECA NO               | DATE       |
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| 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)



U1  
HI3798MV100

MISC Interface of

USB0:usb\_boot/adb

System Oscillator

\*\* 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       |
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| REVIEWED | CHENYUZHU 00149603 |                   |             |                      |            |
|          |                    | VER               | PART_NUMBER | SHEET 6 OF 18        |            |
|          |                    | A                 | 03030001    | HUAWEI TECH CO.,LTD. |            |

**A**

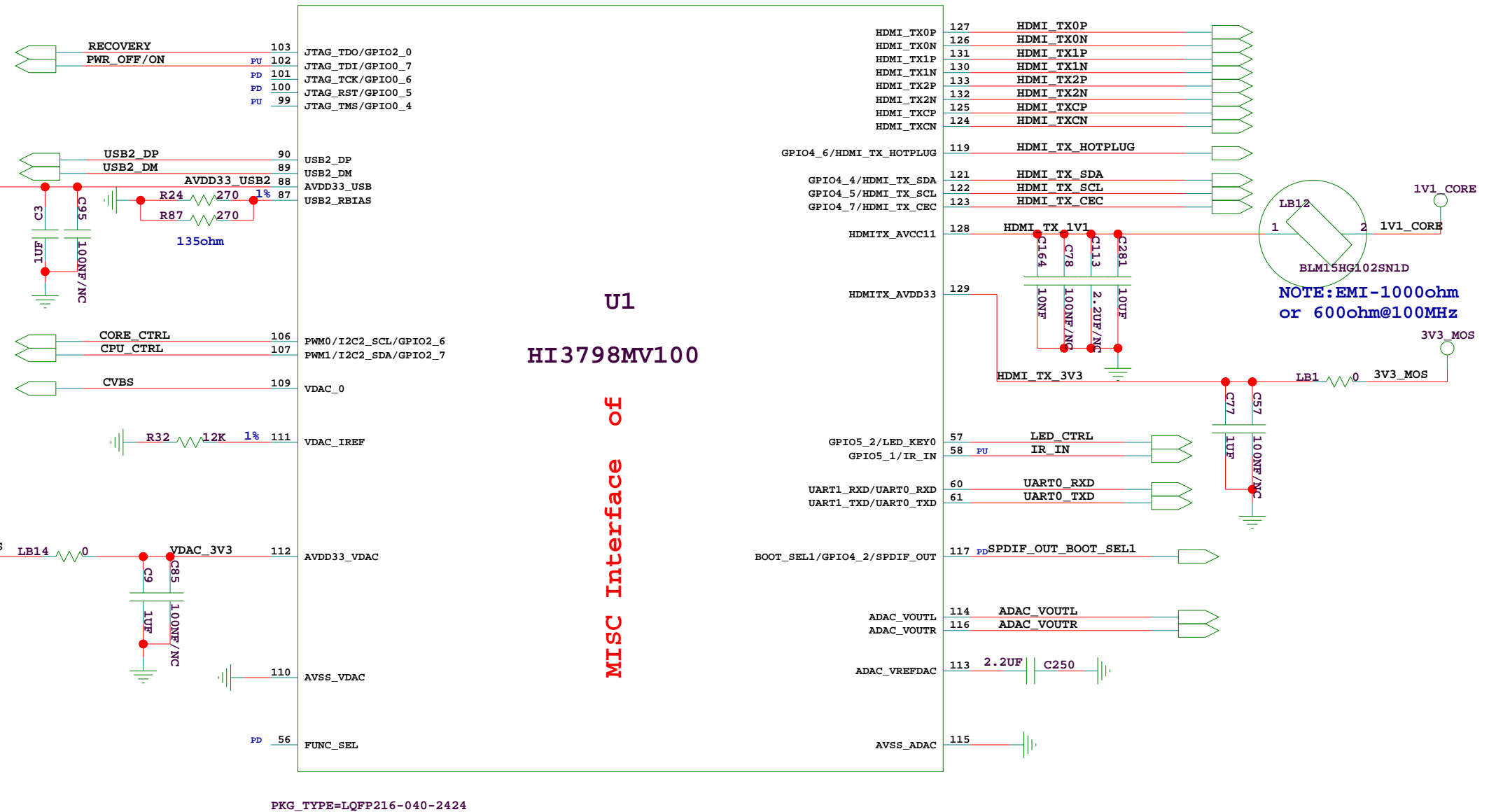
## B

## C

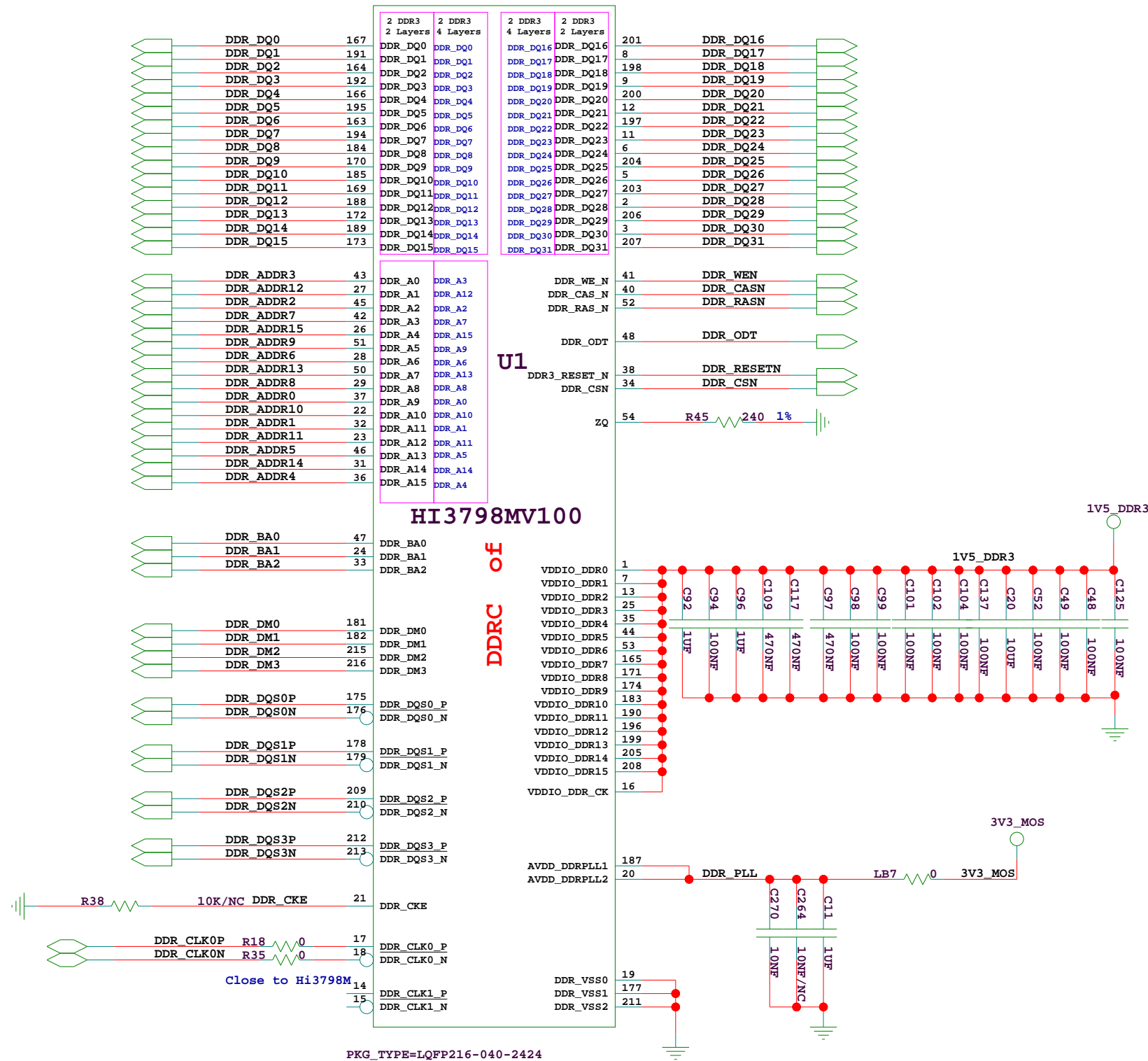
D

## D

|          |                    |                   |             |                     |            |
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| 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

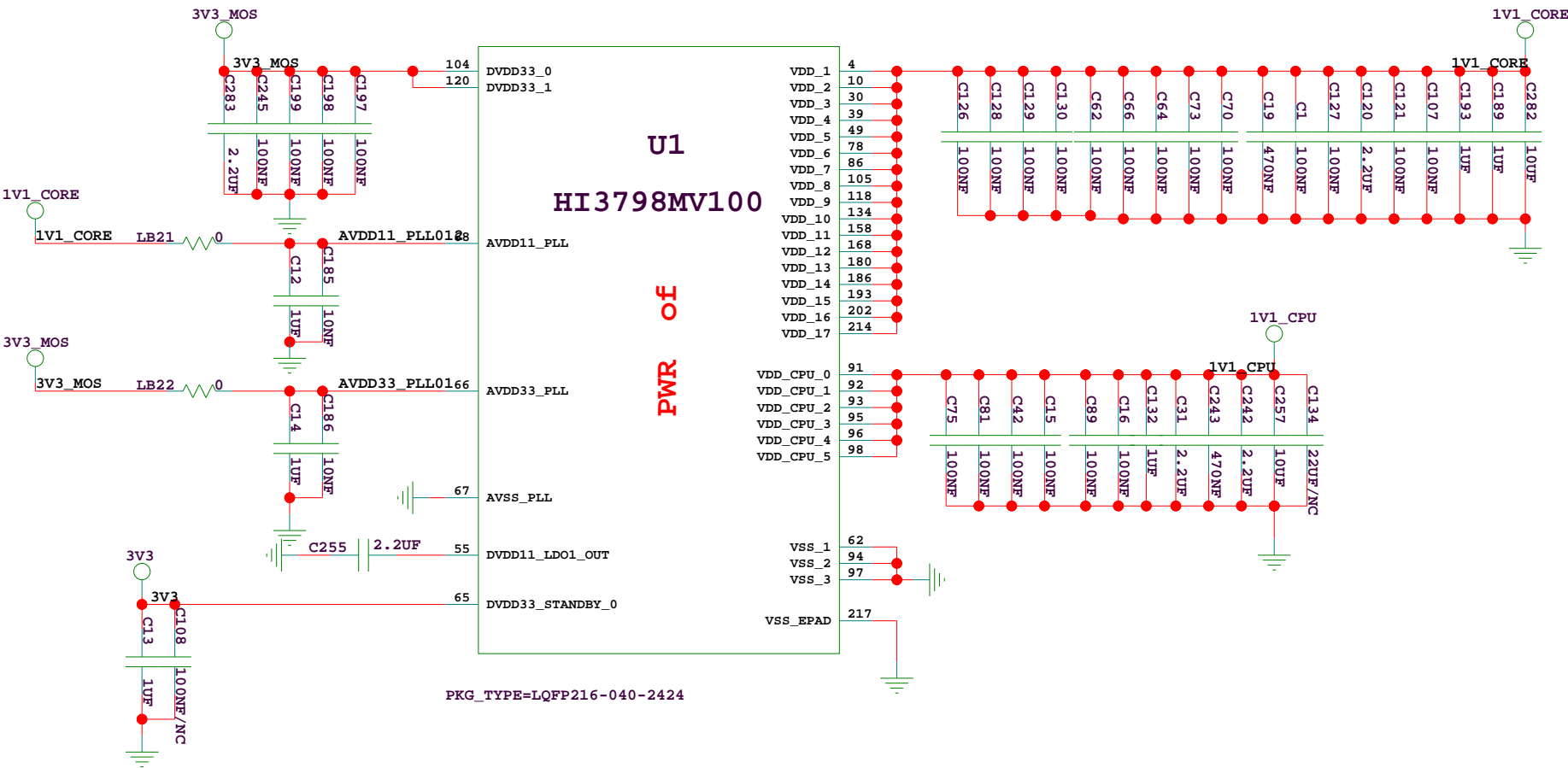
1. Please copy hisilicon demo board completely

The type and specification of the components refer to the BOM

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|          |                    |                   |             | NA                   | 2013-07-04 |
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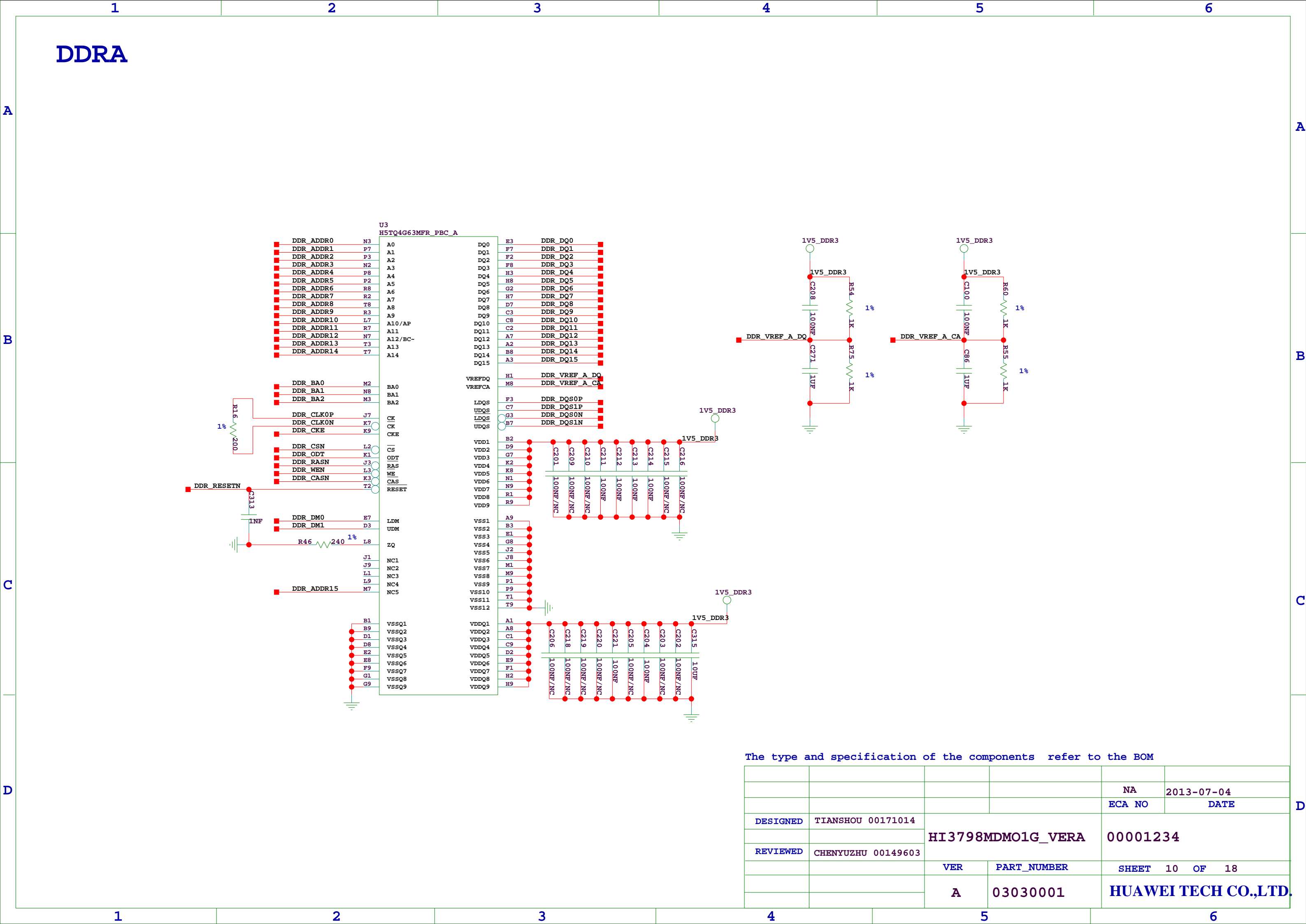


Unit 4 of Hi3798MV100(POWER)

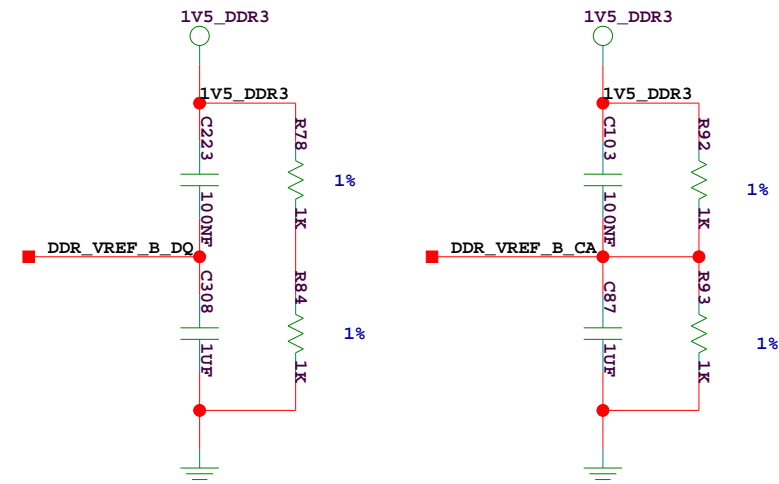
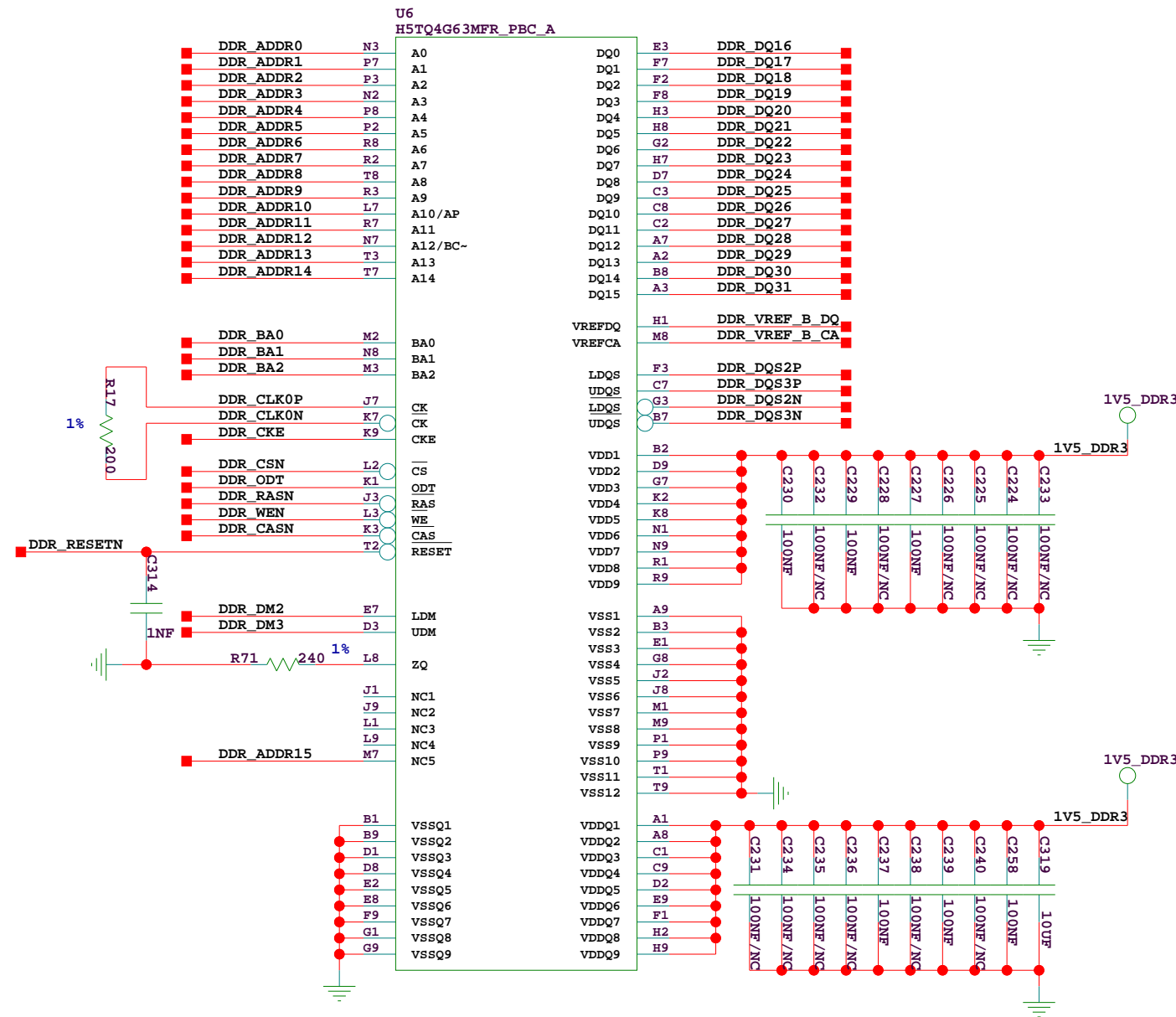


The type and specification of the components refer to the BOM

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|          |                    | VER               | PART_NUMBER | SHEET 9 OF 18        |            |
|          |                    | A                 | 03030001    | HUAWEI TECH CO.,LTD. |            |

[illegible][illegible][illegible]

**DDRB**

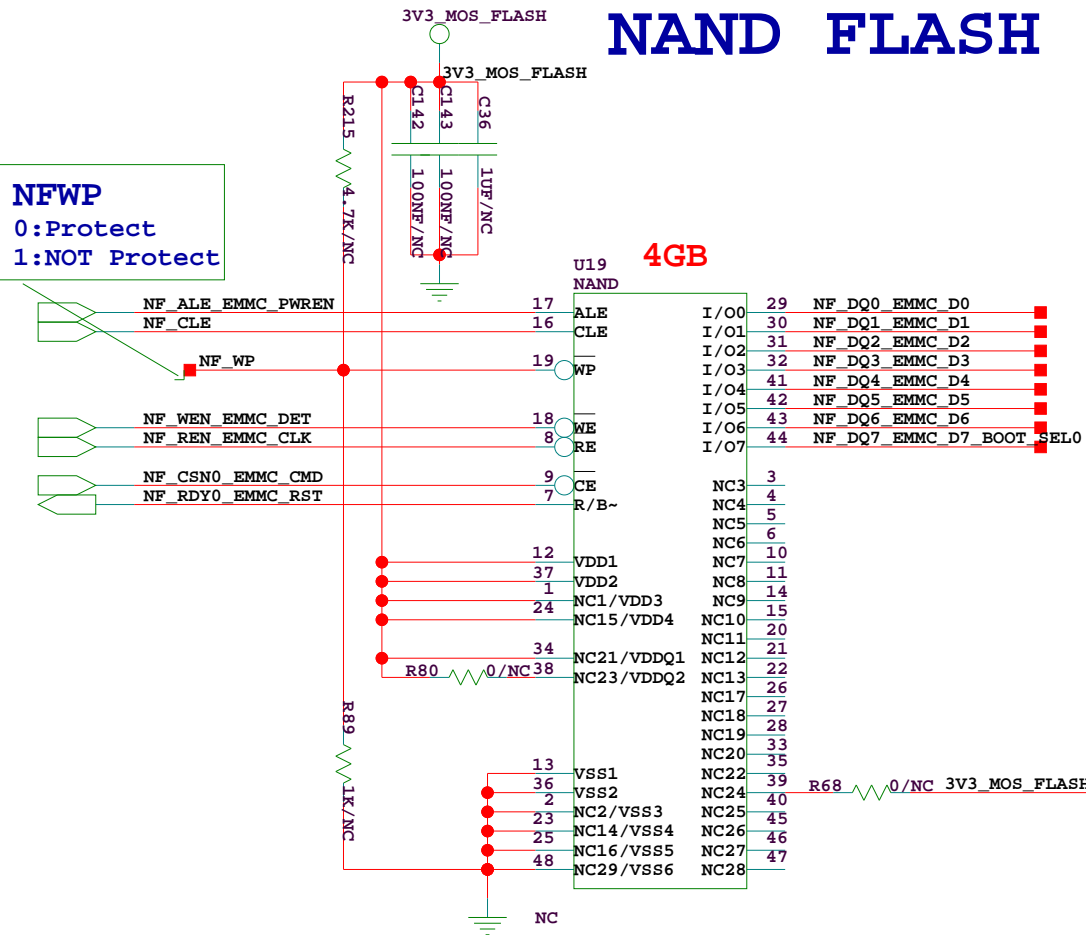


The type and specification of the components refer to the BOM

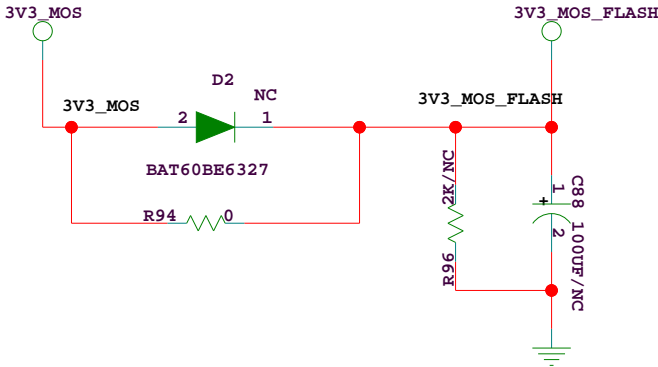
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| REVIEWED | CHENYUZHU 00149603 |                   |             |                      |            |
|          |                    | VER               | PART_NUMBER | SHEET 11 OF 18       |            |
|          |                    | A                 | 03030001    | HUAWEI TECH CO.,LTD. |            |
|          |                    |                   |             |                      |            |

NAND FLASH/EMMC

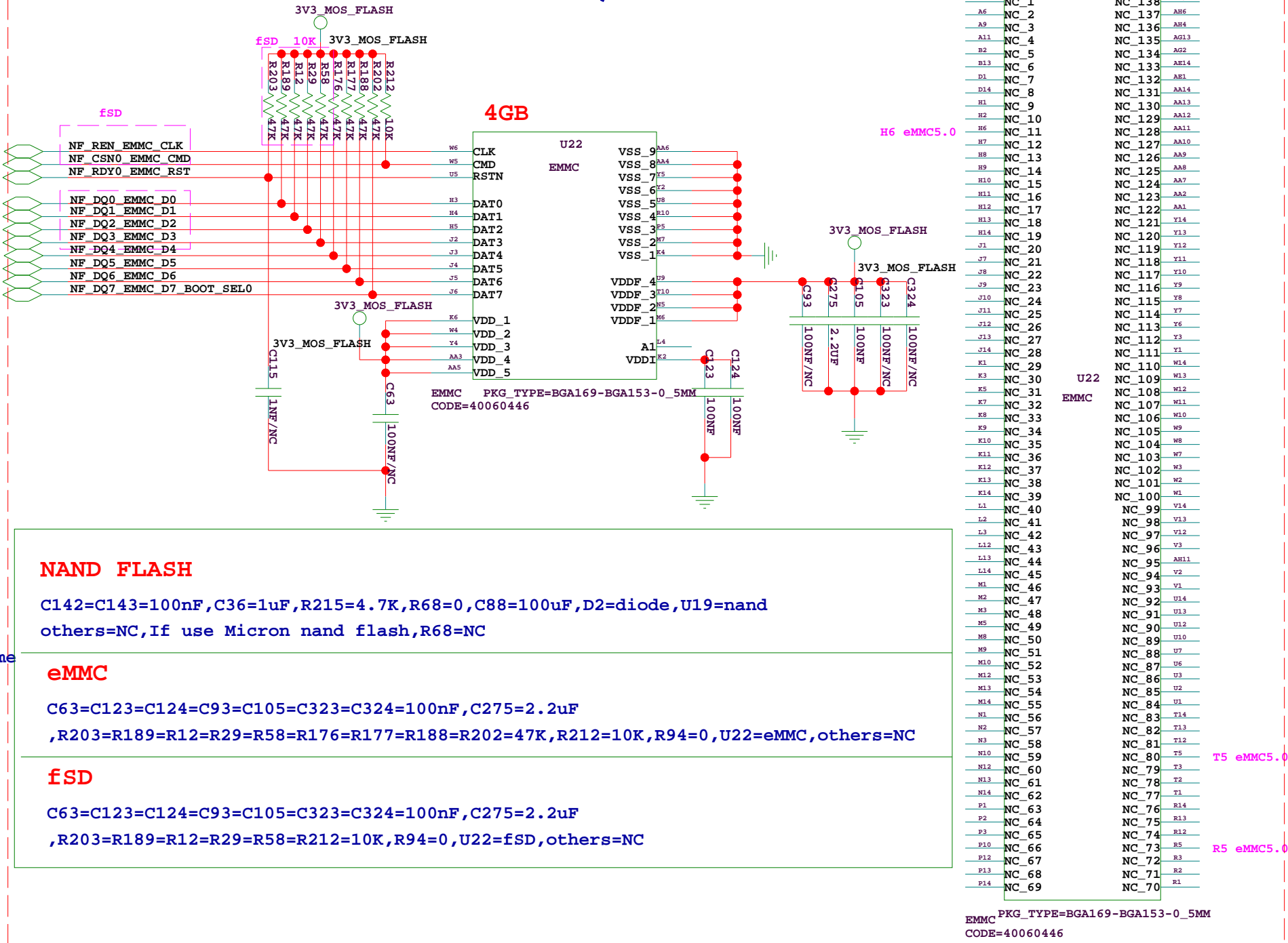
NAND FLASH



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

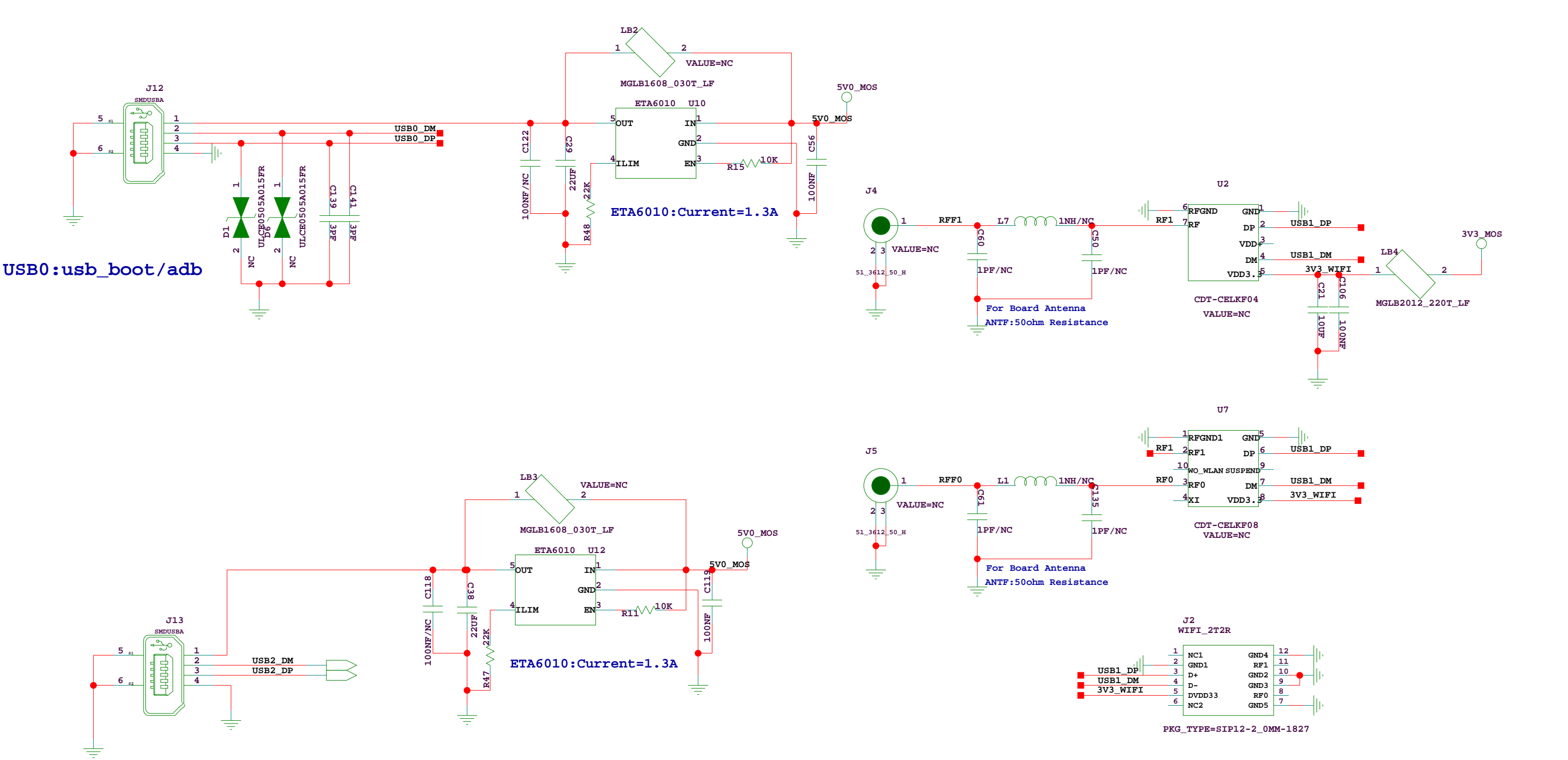
fSD

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

The type and specification of the components refer to the BOM

|          |                    |                   |             |                      |            |
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| REVIEWED | CHENYUZHU 00149603 |                   |             |                      |            |
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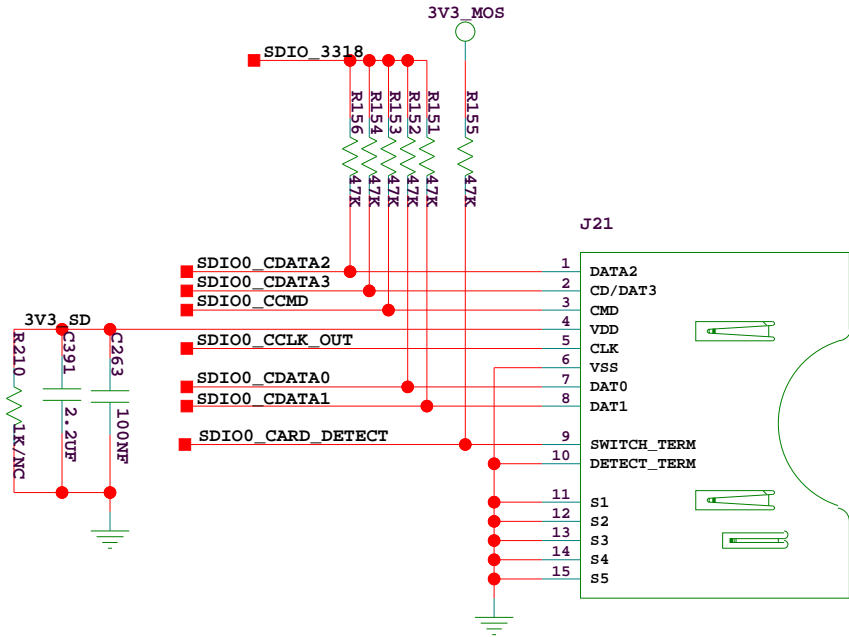
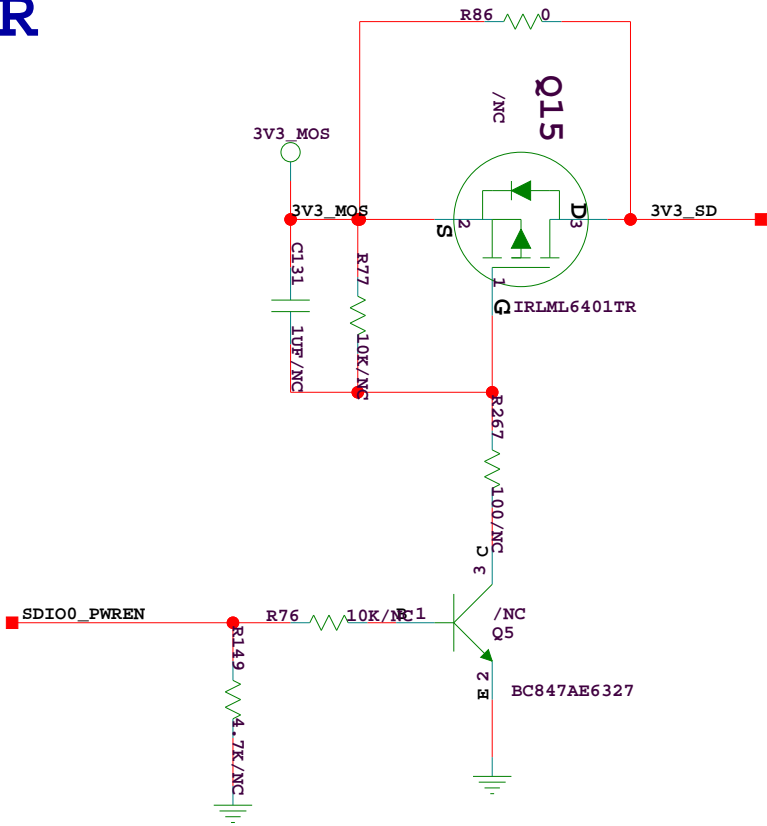
USB2.0/USB3.0/WIFI



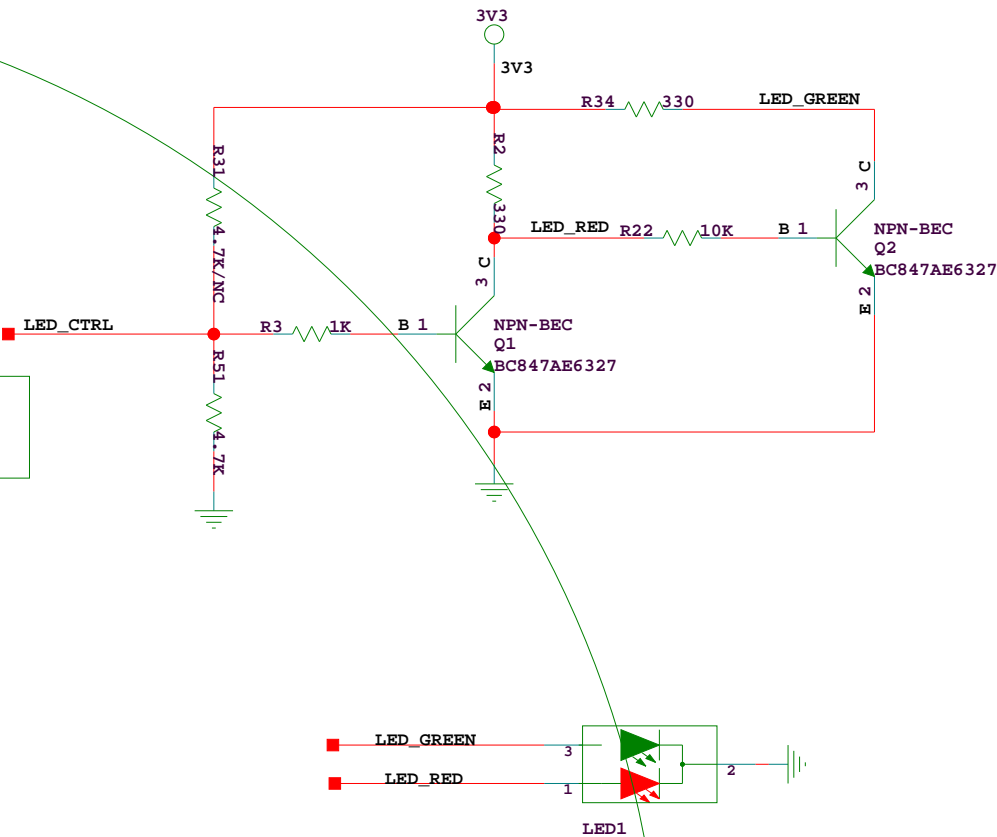
The type and specification of the components refer to the BOM

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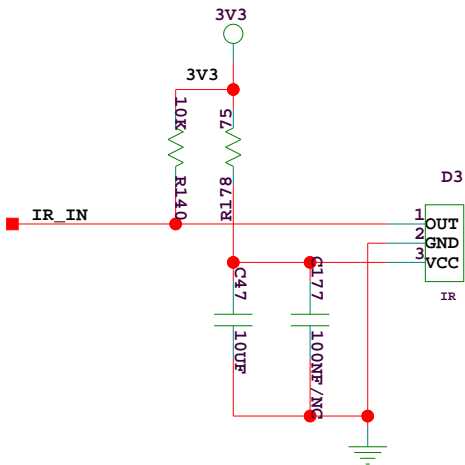
SD CARD/IR



LED



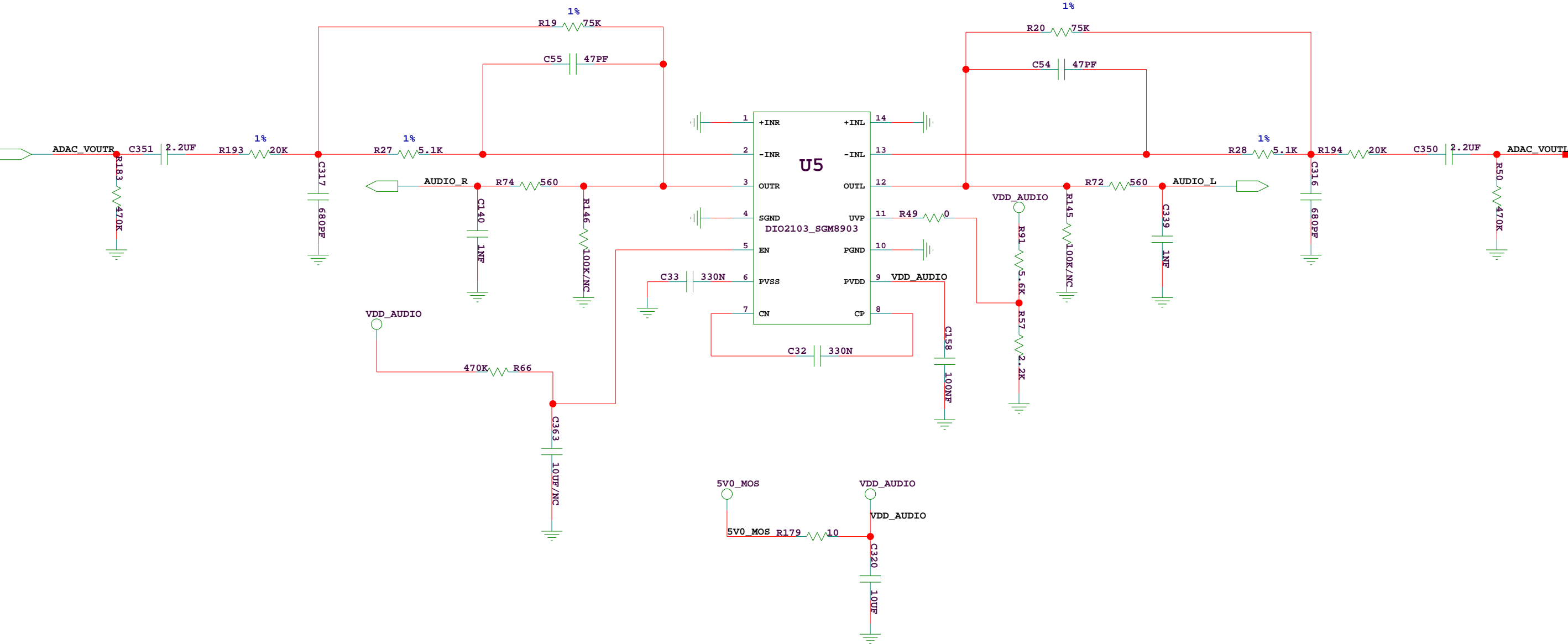
IR



The type and specification of the components refer to the BOM

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| REVIEWED | CHENYUZHU 00149603 |                   |             |                      |            |
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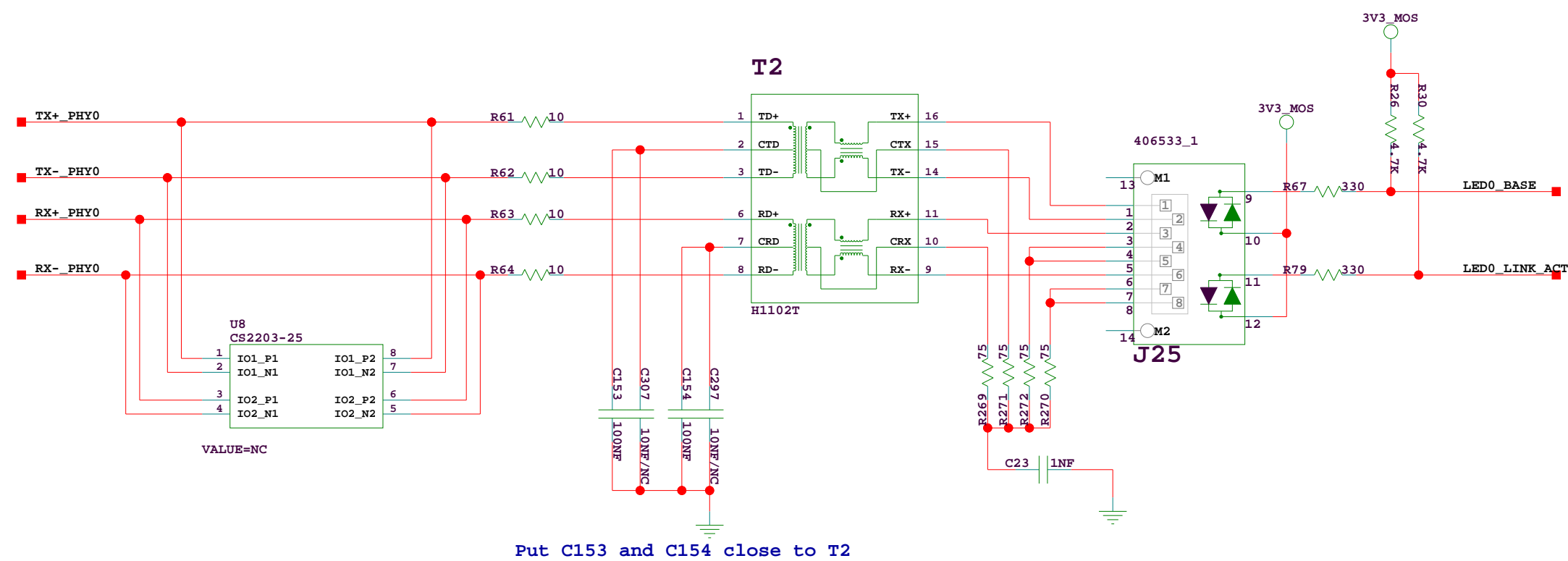
Audio Output



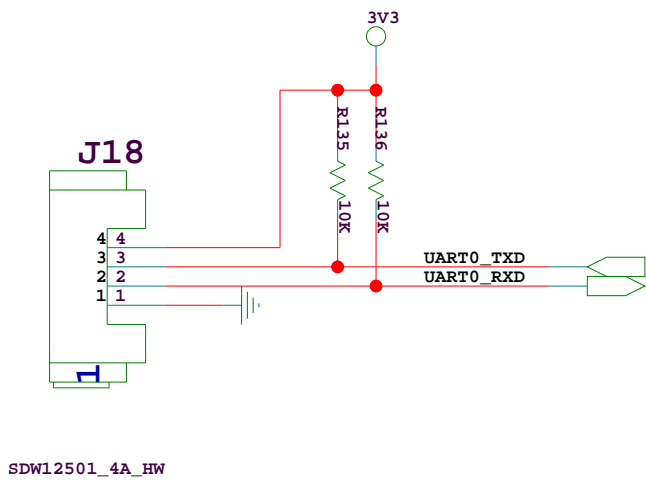
The type and specification of the components refer to the BOM

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|----------|--------------------|-------------------|-------------|----------------------|------------|
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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. |            |

FE PHY/UART



UART

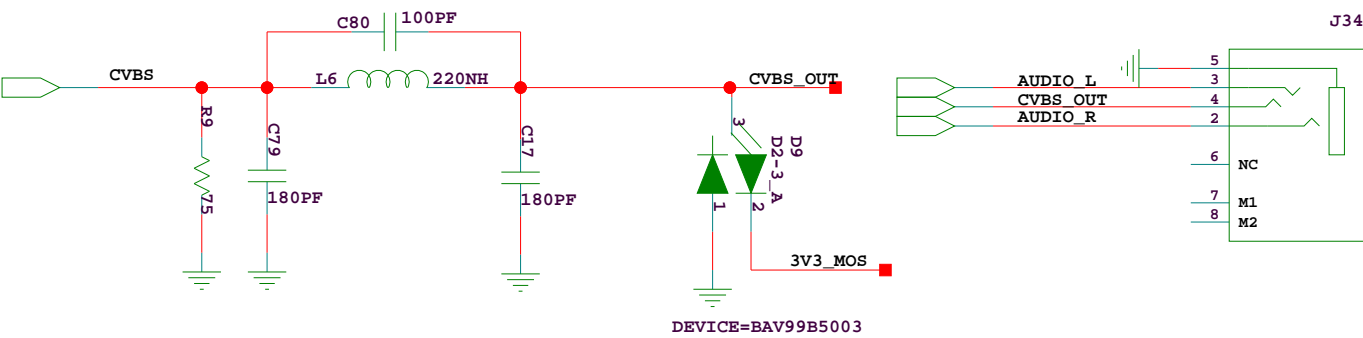


The type and specification of the components refer to the BOM

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|          |                    |                   |             | ECA NO               | DATE       |
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| REVIEWED | CHENYUZHU 00149603 |                   |             |                      |            |
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VDAC OUTPUT



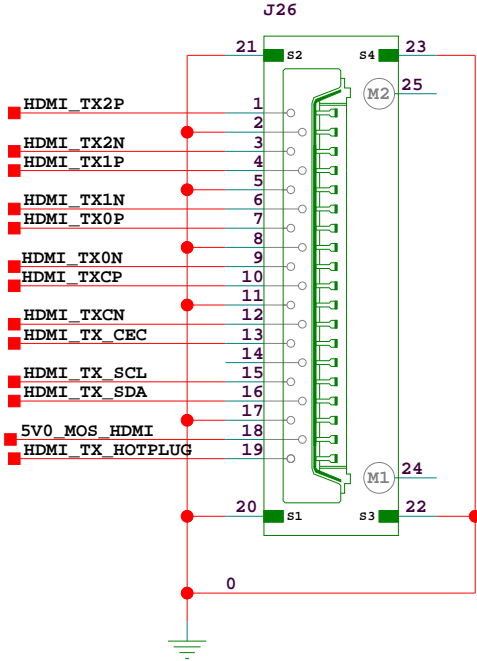
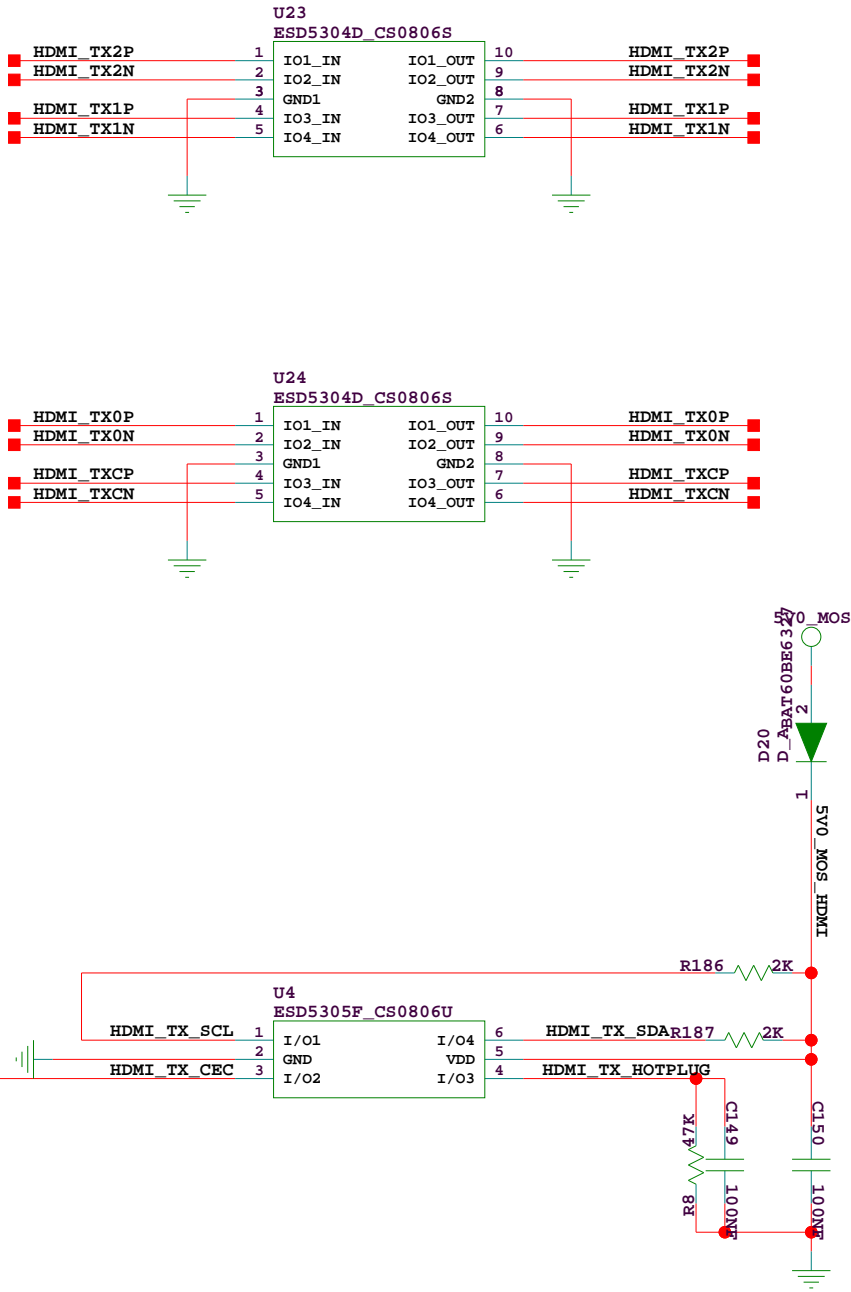
**\*\* Design guideline \*\***

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                   | 2013-05-15 |
|          |                    |                   |             | ECA NO               | DATE       |
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| REVIEWED | CHENYUZHU 00149603 |                   |             |                      |            |
|          |                    | VER               | PART_NUMBER | SHEET 17 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                   | 2013.1.4 |
|          |                    |                   |             | ECA NO               | DATE     |
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|          |                    | A                 | 03030001    | HUAWEI TECH CO.,LTD. |          |