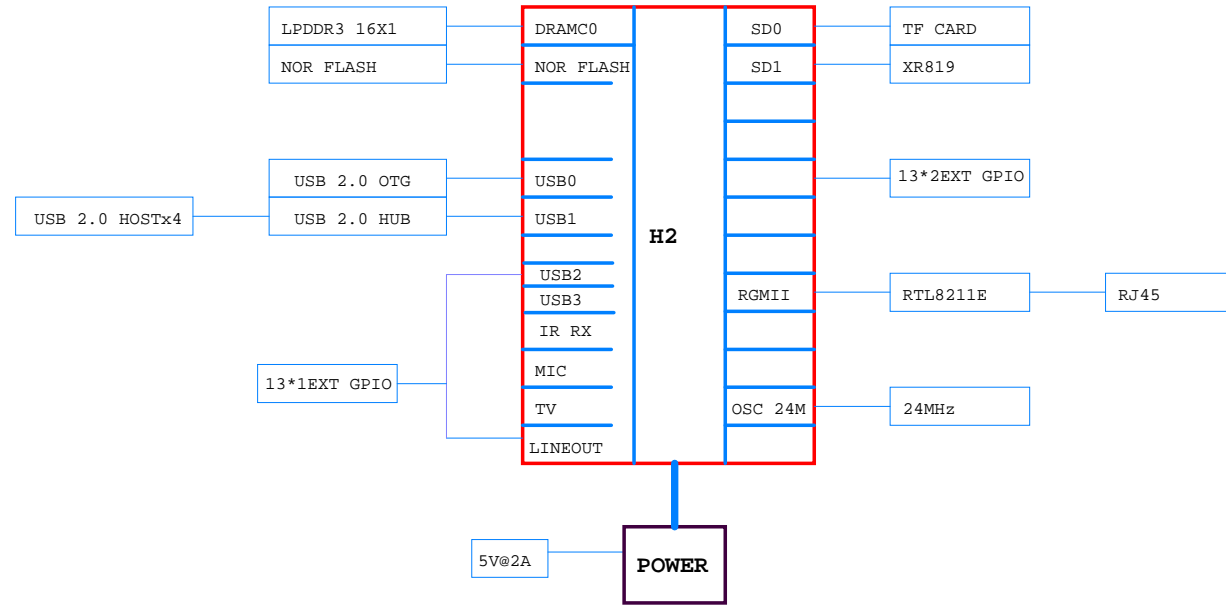


REVISION HISTORY

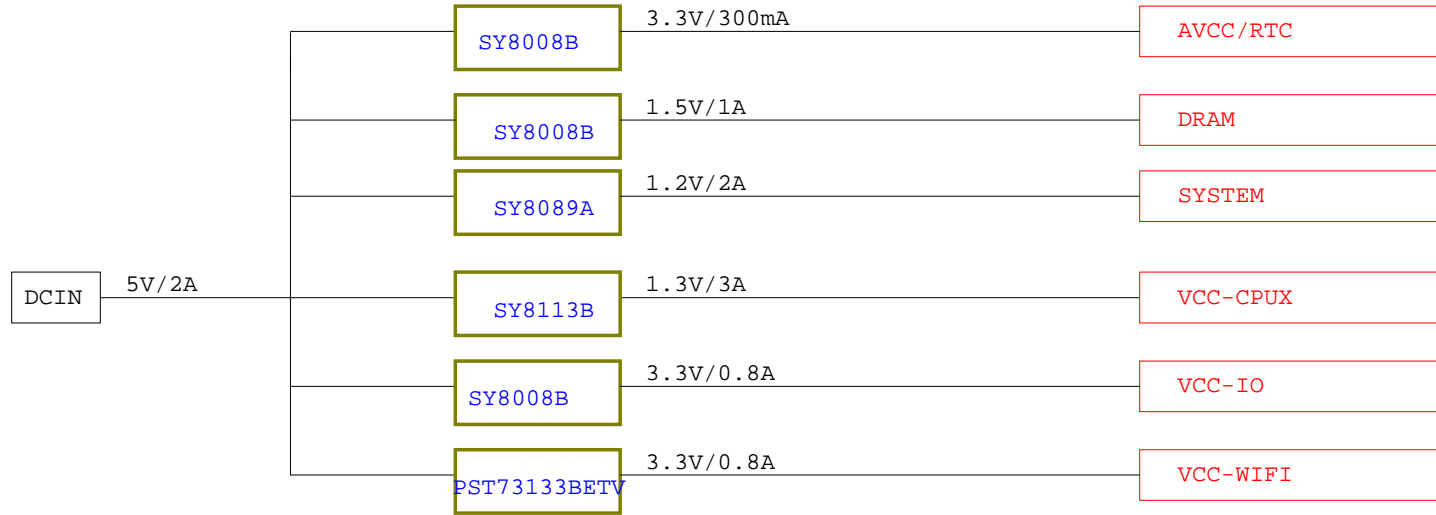
Schematics Index:

| Revision | Description | Date | Drawn | Checked |
|----------|---|------------|-------|---------|
| Ver 1.0 | Initial | 2016-09-05 | | |
| | 1、主控晶振和匹配电容 (WIFI) ? 2、POE供电 | | | |
| Ver 1.1 | | | | |
| | 1、去掉WIFI部分n型滤波 2、串口调试更改为3pin 3、bom默认无POE供电 (需要选择) | | | |
| Ver 1.2 | | | | |
| | 1、简化WIFI部分的电路, WC11容值更改为0.22uF | | | |
| Ver 1.3 | | | | |
| Ver 1.4 | | | | |
| Ver 1.5 | | | | |
| | 1、更改供电逻辑, 减弱对WIFI的干扰 | | | |

BLOCK



POWER TREE



GPIO ASSIGNMENT

| PIN | Define | CFG | Function |
|------|--------------|-----|-----------|
| PA0 | DMS/DRVVBUS0 | 3/1 | JTAG /USB |
| PA1 | CK/DRVVBUS1 | 3/1 | |
| PA2 | TDO/WPS | 3/1 | |
| PA3 | TDI | 3 | UART |
| PA4 | JART-TX | 3 | |
| PA5 | JART-RX | 3 | |
| PA6 | NC | 7 | |
| PA7 | NC | 7 | |
| PA8 | NC | 7 | |
| PA9 | NC | 7 | |
| PA10 | NC | 7 | |
| PA11 | NC | 7 | |
| PA12 | NC | 7 | |
| PA13 | NC | 7 | |
| PA14 | NC | 7 | |
| PA15 | STATUS-LED | 1 | LED |
| PA16 | MUTE | 1 | AV |
| PA17 | SPDIF-OUT | 2 | SPDIF |
| PA18 | NC | 7 | |
| PA19 | NC | 7 | |
| PA20 | NC | 7 | |
| PA21 | NC | 7 | |

| PIN | Define | CFG | Function |
|------|--------|-----|-----------------|
| PC0 | NWE | 2/3 | NAND /eMMC /NOR |
| PC1 | NALE | 2/3 | |
| PC2 | NCLE | 2/3 | |
| PC3 | NCE1 | 2/3 | |
| PC4 | NCE0 | 2 | |
| PC5 | NRE | 2/3 | |
| PC6 | NRB0 | 2/3 | |
| PC7 | NRB1 | 2 | |
| PC8 | NDQ0 | 2/3 | |
| PC9 | NDQ1 | 2/3 | |
| PC10 | NDQ2 | 2/3 | |
| PC11 | NDQ3 | 2/3 | |
| PC12 | NDQ4 | 2/3 | |
| PC13 | NDQ5 | 2/3 | |
| PC14 | NDQ6 | 2/3 | |
| PC15 | NDQ7 | 2/3 | |
| PC16 | NDQS | 2/3 | |

| PIN | Define | CFG | Function |
|------|--------|-----|----------|
| PD0 | NC | 7 | |
| PD1 | NC | 7 | |
| PD2 | NC | 7 | |
| PD3 | NC | 7 | |
| PD4 | NC | 7 | |
| PD5 | NC | 7 | |
| PD6 | NC | 7 | |
| PD7 | NC | 7 | |
| PD8 | NC | 7 | |
| PD9 | NC | 7 | |
| PD10 | NC | 7 | |
| PD11 | NC | 7 | |
| PD12 | NC | 7 | |
| PD13 | NC | 7 | |
| PD14 | NC | 7 | |
| PD15 | NC | 7 | |
| PD16 | NC | 7 | |
| PD17 | NC | 7 | |

| PIN | Define | CFG | Function |
|------|--------|-----|----------|
| PE0 | NC | 7 | |
| PE1 | NC | 7 | |
| PE2 | NC | 7 | |
| PE3 | NC | 7 | |
| PE4 | NC | 7 | |
| PE5 | NC | 7 | |
| PE6 | NC | 7 | |
| PE7 | NC | 7 | |
| PE8 | NC | 7 | |
| PE9 | NC | 7 | |
| PE10 | NC | 7 | |
| PE11 | NC | 7 | |
| PE12 | NC | 7 | |
| PE13 | NC | 7 | |
| PE14 | NC | 7 | |
| PE15 | NC | 7 | |

| PIN | Define | CFG | Function |
|-----|--------|-----|----------|
| PF0 | D1 | 2 | CARD0 |
| PF1 | D0 | 2 | |
| PF2 | CLK | 2 | |
| PF3 | CMD | 2 | |
| PF4 | D3 | 2 | |
| PF5 | D2 | 2 | |
| PF6 | DET | 0 | |

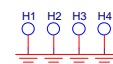
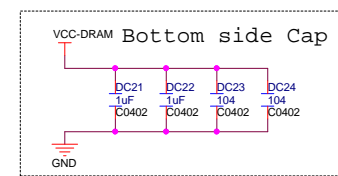
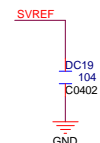
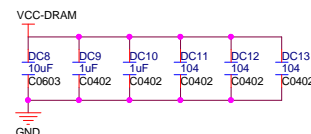
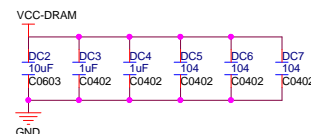
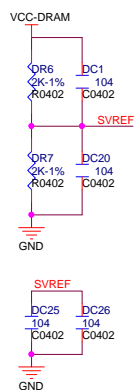
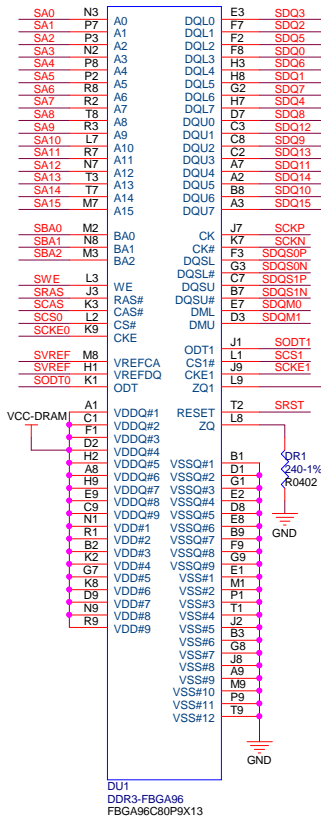
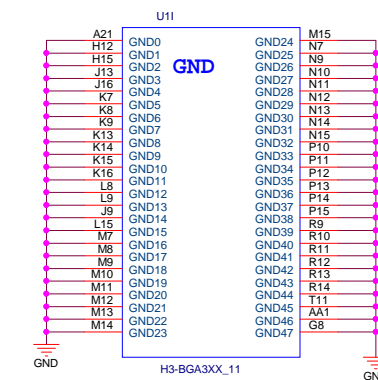
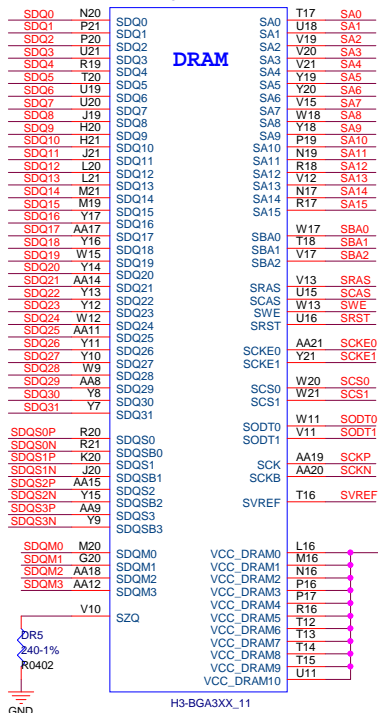
| PIN | Define | CFG | Function |
|------|--------|-----|----------|
| PG0 | NC | 7 | |
| PG1 | NC | 7 | |
| PG2 | NC | 7 | |
| PG3 | NC | 7 | |
| PG4 | NC | 7 | |
| PG5 | NC | 7 | |
| PG6 | NC | 7 | |
| PG7 | NC | 7 | |
| PG8 | NC | 7 | |
| PG9 | NC | 7 | |
| PG10 | NC | 7 | |
| PG11 | NC | 7 | |
| PG12 | NC | 7 | |
| PG13 | NC | 7 | |

| PIN | Define | CFG | Function |
|------|--------------|-----|----------|
| PL0 | TWI | 2 | TWI |
| PL1 | TWI | 2 | |
| PL2 | USB0-DRVVBUS | 1 | USB |
| PL3 | USB1-DRVVBUS | 1 | |
| PL4 | RECOVERY | 0 | KEY |
| PL5 | VCC-IO-EN | 1 | IO-EN |
| PL6 | NC | 7 | |
| PL7 | WIFI-EN | 7 | WIFI-EN |
| PL8 | PWR-STB | 1 | |
| PL9 | PWR-DRAM | 1 | |
| PL10 | PWR-LED | 1 | |
| PL11 | IR-RX | 2 | |



DDR3 16x2

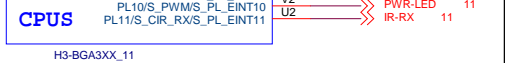
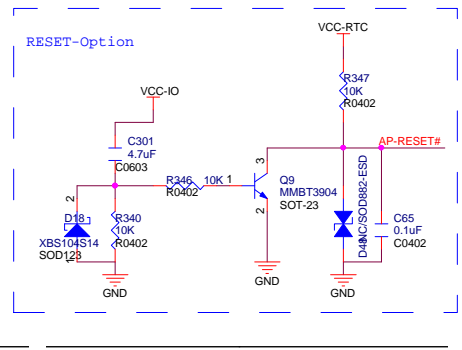
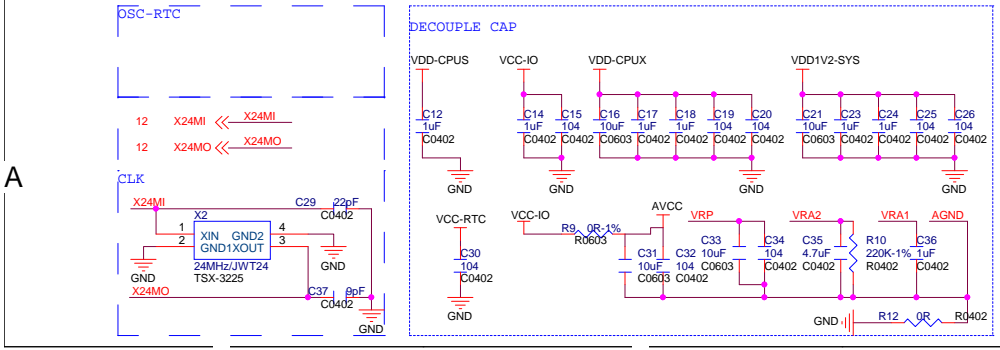
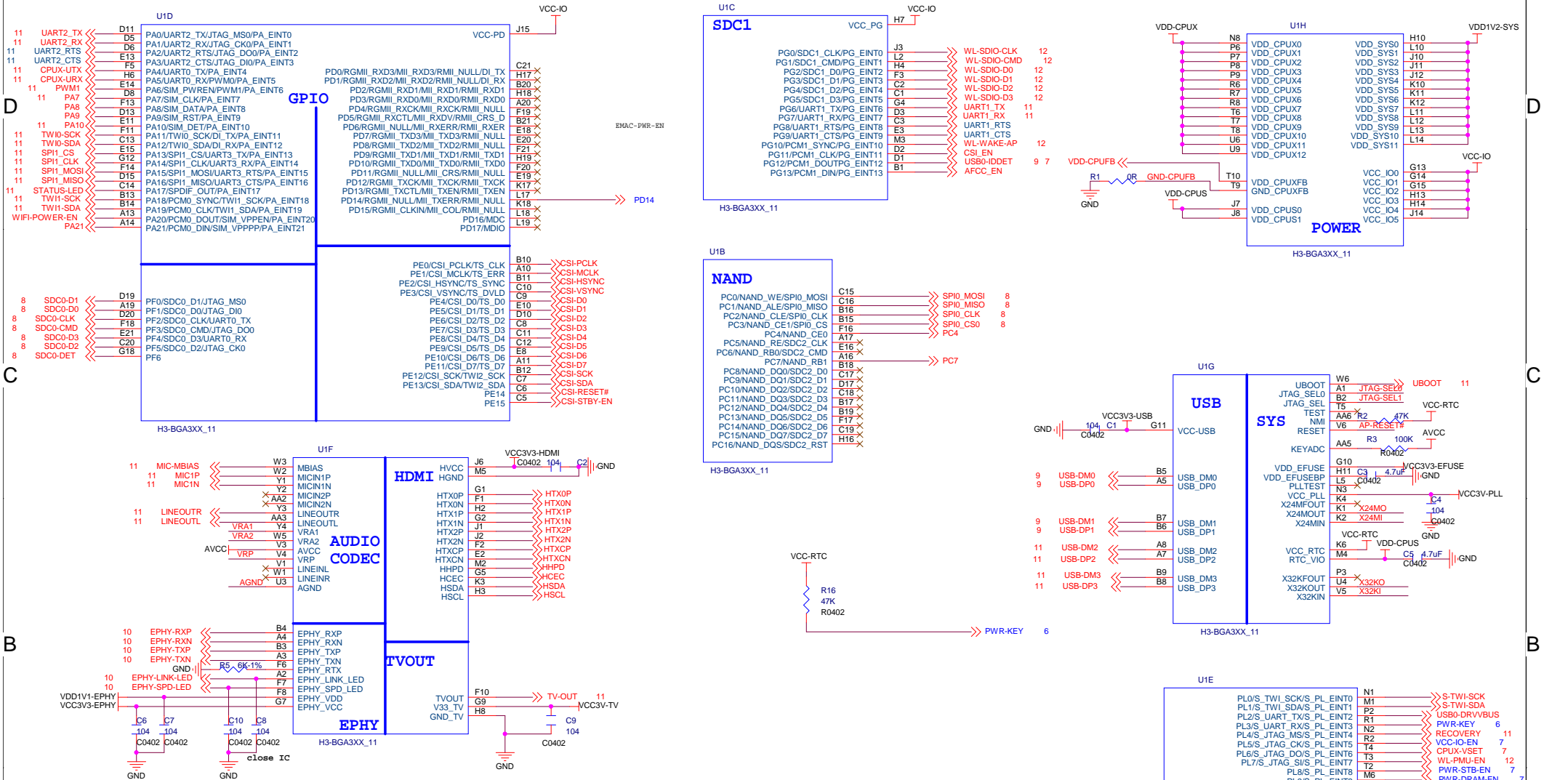
U1A



| | | | | |
|----------------------------------|------------------------|---------------|--------------------------------------|------------|
| | | | Xunlong Software Co., Limited | |
| | | | Design Name ORANGE_PI-Zero | |
| Size A3 | Page Name DDR3 16x1 | | | Rev 1.5 |
| Date: Tuesday, February 19, 2019 | | Sheet 5 of 12 | | |

CPU

5 4 3 2 1



| | PWRON/WORK | STANDBY | PWROFF |
|----------|------------|---------|--------|
| PWR-STB | 1 | 0 | 0 |
| PWR-DRAM | 1 | 1 | 0 |

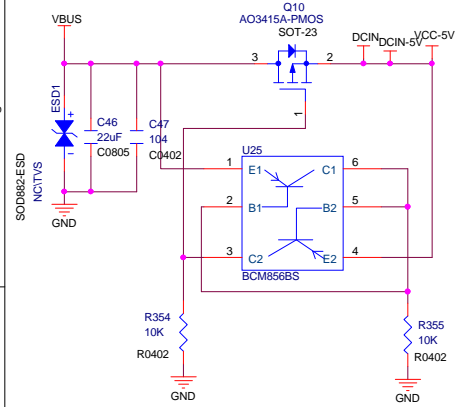
Xunlong Software Co., Limited

Design Name: **ORANGE_PI-Zero**

Size: A3 Page Name: CPU Rev: 1.5

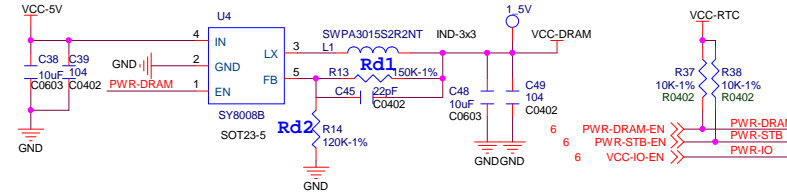
Date: Tuesday, February 19, 2019 Sheet: 6 of 12

DCIN

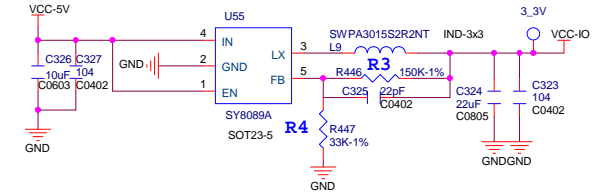


POWER

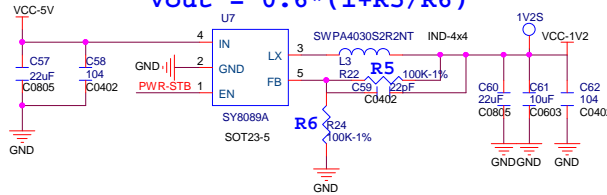
$V_{out} = 0.6 * (1 + R_{d1}/R_{d2})$
 $V_{DRAM} = 1.5V/1A, R_2 = 100K-1\%$
 $V_{DRAM} = 1.35V/1A, R_2 = 120K-1\%$



VCCIO 3.3V/2A



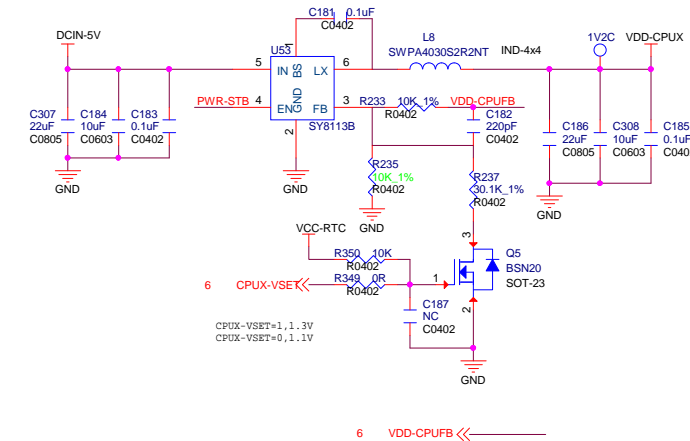
SYSTEM 1.2V/2A
 $V_{out} = 0.6 * (1 + R_5/R_6)$



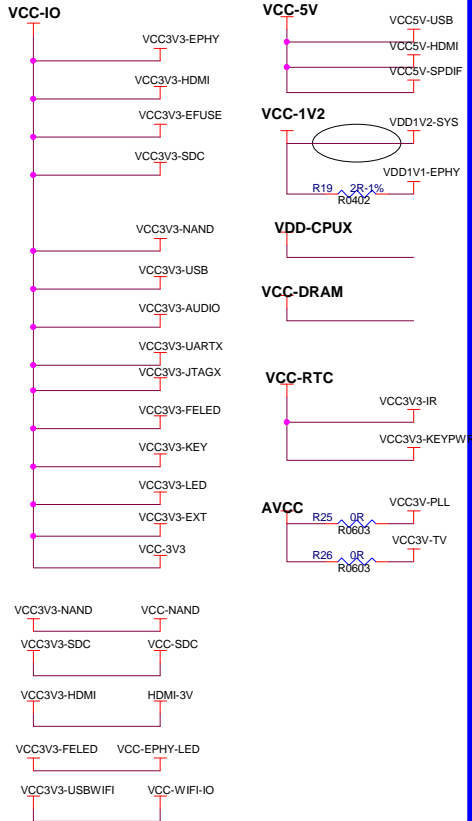
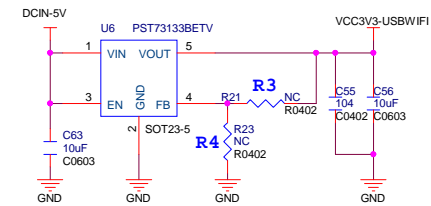
AVCC 3.3V/1A



CPUX 1.1V/1.3V/3A
 $V_{out} = 0.6 * (1 + R_1/R_2)$

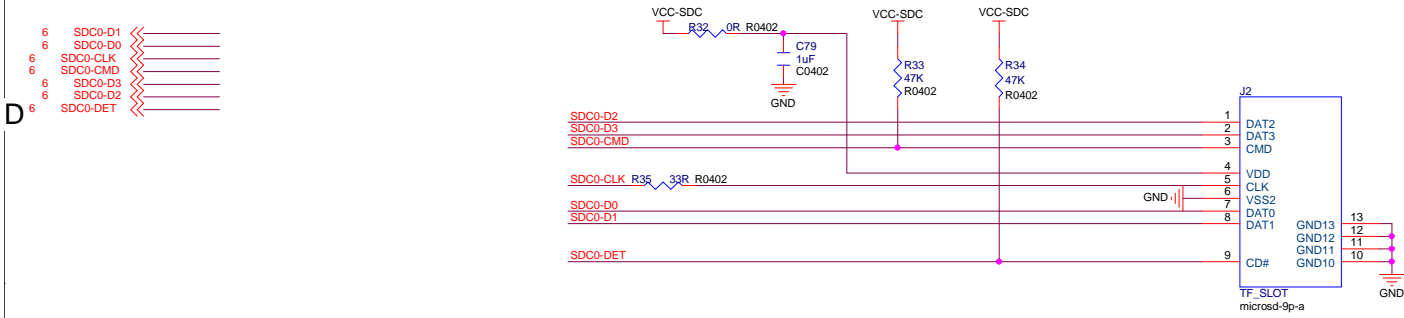


WIFI Power 3.3V/300mA



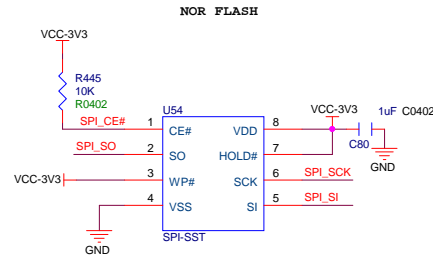
| | | | |
|--------------------------------------|----------------------------|-----------------------|---------|
| Xunlong Software Co., Limited | | | |
| Design Name | | ORANGE PI-Zero | |
| Size | Page Name | Rev | |
| A3 | POWER | 1.5 | |
| Date: | Tuesday, February 19, 2019 | Sheet | 7 of 12 |

eMMC



NOR FLASH

- 6 SPI0_MOSI <- SPI_SI
- 6 SPI0_MISO <- SPI_SO
- 6 SPI0_CLK <- SPI_SCK
- 6 SPI0_CS0 <- SPI_CE#



USB

5

4

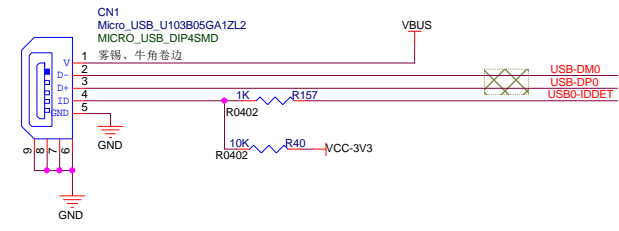
3

2

1

6 USB-DM0
6 USB-DP0

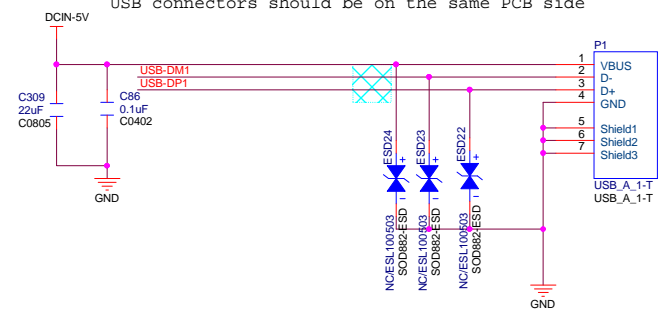
6 USB0-IDDET
6 USB0-DRVVBUS



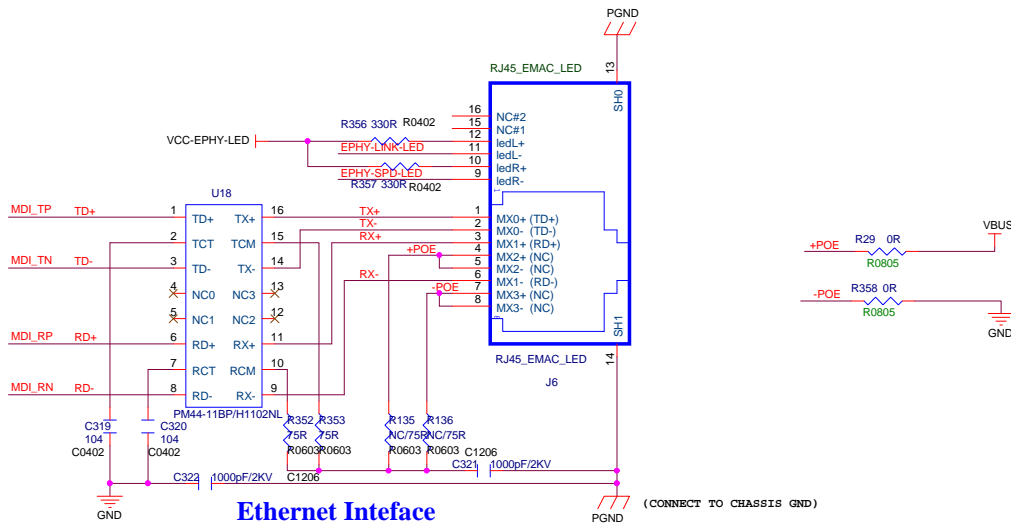
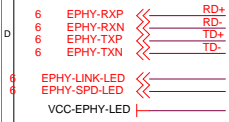
6 USB-DM1
6 USB-DP1

6 USB-DM1
6 USB-DP1

note: Make sure the routing between the ESD and the USB connectors should be on the same PCB side



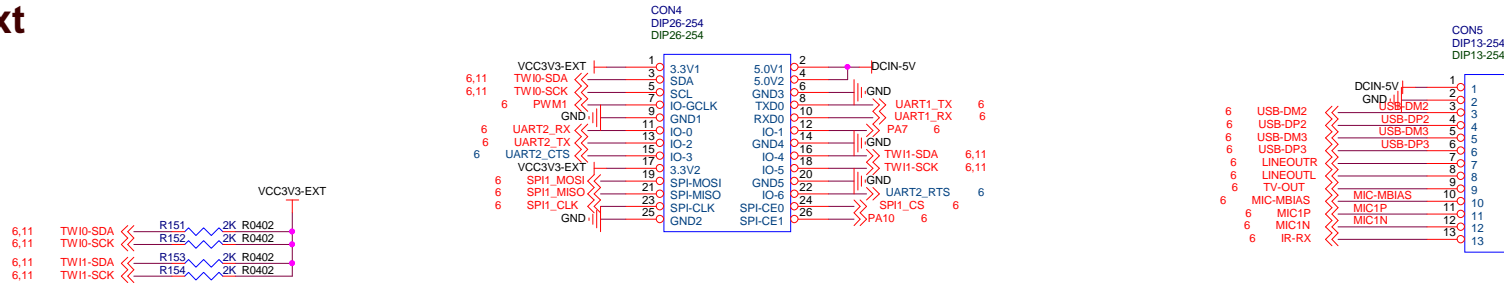
EMAC



| | | | |
|--------------------------------------|----------------------------|-----------------------|----------|
| Xunlong Software Co., Limited | | | |
| Design Name | | ORANGE_PI-Zero | |
| Size | Page Name | | |
| A3 | FE-DBG | | Rev 1.5 |
| Date: | Tuesday, February 19, 2019 | Sheet | 10 of 12 |

Ext Port

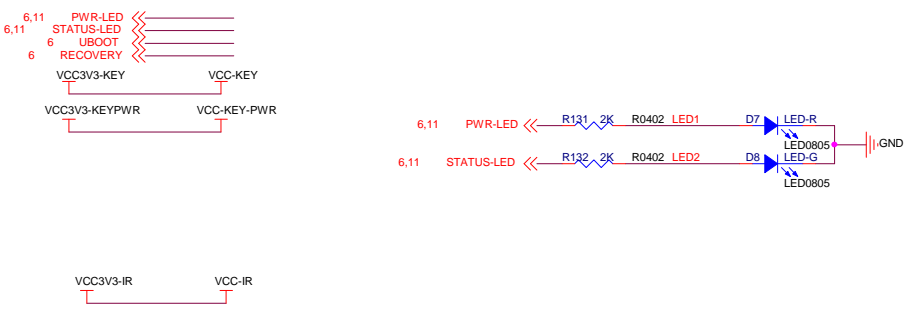
Ext



USB*2 @ AUDIO @ IR

LED

KEY



DEBUG



| | | |
|--------------------------------------|-----------|-----|
| Xunlong Software Co., Limited | | |
| Design Name | | |
| ORANGE_PI-Zero | | |
| Size | Page Name | Rev |
| A3 | EXT | 1.5 |
| Date: Tuesday, February 19, 2019 | | |
| Sheet 11 of 12 | | |

WIFI

5

4

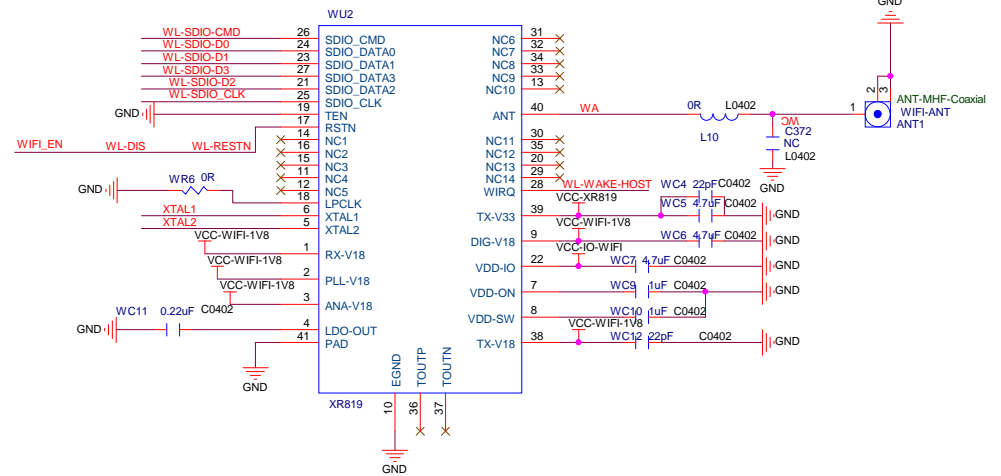
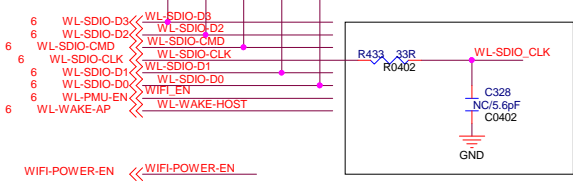
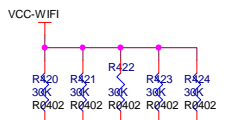
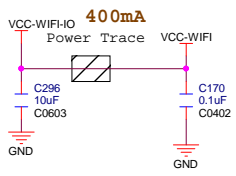
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2

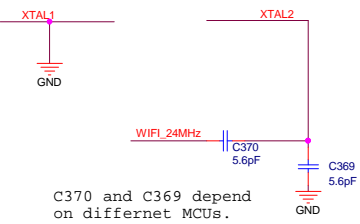
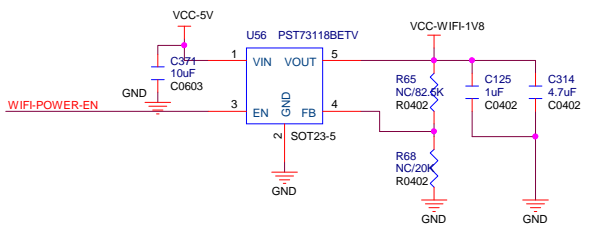
1



XR819 ON BOARD



VCC-1V8 1.8V 1%/0.3A



C370 and C369 depend on different MCUs.

注：
WC13焊接0R电阻，C370焊接5.6pF，
C369焊接5.6pF

注：主控晶振和匹配电容需要选配；
参考：
主控晶振短用型号：JW74.000
主控晶振匹配电容改为：
XC31焊接27pF，
XC41焊接12pF

