

VERSION HISTORY

4

3

2

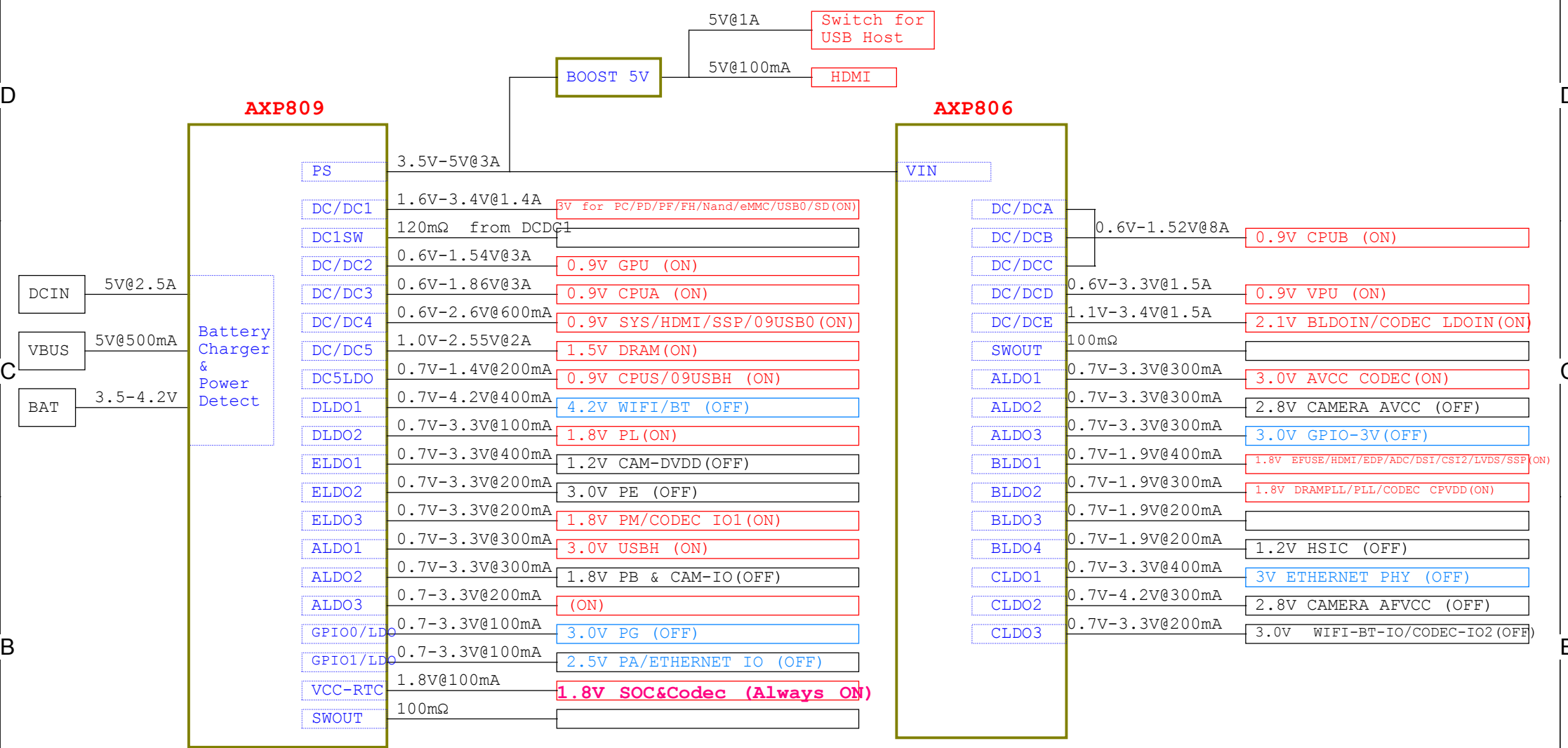
1

Index:

- P01: VERSION HISTORY
- P02: BLOCK DIAGRAM
- P03: POWER TREE
- P04: GPIO ASSIGNMENT
- P05: CPU1
- P06: CPU2
- P07: DDR3
- P08: PMIC
- P09: POWER
- P10: NAND/EMMC
- P11: T-CADD/CAM/LED/IR
- P12: HDMI/GPIO
- P13: WIFI/BT
- P14: ETHERNET
- P15: CODEC
- P16: USB/JTAG

| | | | |
|-----------------|---------------------------|-------|---------|
| Title | | | |
| Arches-A80-V1.0 | | | |
| Size | Document Number | Rev | |
| A3 | <Doc> | | |
| Date: | Friday, February 06, 2015 | Sheet | 1 of 16 |

POWER TREE



A80 GPIO

| | | | |
|----|-------------------------|----|----------------------------|
| PA | [AXP809:GPIO1-LDO] 2.5V | PF | [AXP809:DCDC1] 3V |
| PB | [AXP809:ALDO2] 1.8V | PG | [AXP809:GPIO0-LDO] 3.0V |
| PC | [AXP809:DCDC1] 3V | PH | [AXP809:DCDC1] 3V |
| PD | [AXP806:S-BLDO1] 1.8V | PL | [AXP809:DLDO2] 3.0V |
| PE | [AXP809:ELDO2] 3.0V | PM | [AXP809:ELDO3] 1.8V / 3.0V |

GPIO ASSIGNMENT

| PIN | Define | CFG | Function |
|------|-------------|-----|----------|
| PA0 | RXD3-AN1 | 2 | ETHERNET |
| PA1 | RXD2-AN0 | 2 | |
| PA2 | RXD1-TXDLY | 2 | |
| PA3 | RXD0-SELRGV | 2 | |
| PA4 | GRXCK | 2 | |
| PA5 | RXCTL-AD2 | 2 | |
| PA6 | | | |
| PA7 | TXD3 | 2 | |
| PA8 | TXD2 | 2 | |
| PA9 | TXD1 | 2 | |
| PA10 | TXD0 | 2 | |
| PA11 | | | |
| PA12 | GTXCCK | 2 | |
| PA13 | TXCTL | 2 | |
| PA14 | MAC-RST | 1 | |
| PA15 | GCLKIN | 2 | |
| PA16 | MDC | 2 | |
| PA17 | MDIO | 2 | |

| PIN | Define | CFG | Function |
|------|----------------|-----|----------|
| PB5 | MIPI-CSI-RESET | 1 | CAMERA |
| PB6 | MIPI-CSI-PWDN | 1 | |
| PB14 | MIPI-CSI-MCLK | 2 | |
| PB15 | MIPI-CSI-SCK | 2 | |
| PB16 | MIPI-CSI-SDA | 2 | |

| PIN | Define | CFG | Function |
|------|---------------|-----|------------|
| PC0 | NWE | 2 | NAND |
| PC1 | NALE | 2 | |
| PC2 | NCLE | 2 | |
| PC3 | NCE1 | 2 | |
| PC4 | NCE0 | 2 | |
| PC5 | NRE | 2 | NAND /eMMC |
| PC6 | NRB0/eMMC-CMD | 2/3 | |
| PC7 | NRB1/eMMC-CLK | 2/3 | |
| PC8 | NDQ0/eMMC-D0 | 2/3 | |
| PC9 | NDQ1/eMMC-D1 | 2/3 | |
| PC10 | NDQ2/eMMC-D2 | 2/3 | |
| PC11 | NDQ3/eMMC-D3 | 2/3 | |
| PC12 | NDQ4/eMMC-D4 | 2/3 | |
| PC13 | NDQ5/eMMC-D5 | 2/3 | |
| PC14 | NDQ6/eMMC-D6 | 2/3 | |
| PC15 | NDQ7/eMMC-D7 | 2/3 | |
| PC16 | NDQ8/eMMC-RST | 2/3 | NAND |
| PC17 | NCE2 | 2 | |
| PC18 | NCE3 | 2 | |
| PC19 | | | |

| PIN | Define | CFG | Function |
|------|--------|-----|----------|
| PD0 | | | |
| PD1 | | | |
| PD2 | | | |
| PD3 | | | |
| PD4 | | | |
| PD5 | | | |
| PD6 | | | |
| PD7 | | | |
| PD8 | | | |
| PD9 | | | |
| PD10 | | | |
| PD11 | | | |
| PD12 | | | |
| PD13 | | | |
| PD14 | | | |
| PD15 | | | |
| PD16 | | | |
| PD17 | | | |
| PD18 | | | |
| PD19 | | | |
| PD20 | | | |
| PD21 | | | |
| PD22 | | | |
| PD23 | | | |
| PD24 | | | |
| PD25 | | | |
| PD26 | | | |
| PD27 | | | |

| PIN | Define | CFG | Function |
|------|--------|-----|----------|
| PE0 | | | |
| PE1 | | | |
| PE2 | | | |
| PE3 | | | |
| PE4 | | | |
| PE5 | | | |
| PE6 | | | |
| PE7 | | | |
| PE8 | | | |
| PE9 | | | |
| PE10 | | | |
| PE11 | | | |
| PE12 | | | |
| PE13 | | | |
| PE14 | | | |
| PE15 | | | |
| PE16 | | | |
| PE17 | | | |

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

| PIN | Define | CFG | Function |
|------|---------------------|-----|----------|
| PG0 | WL-SDIO-CLK | 2 | WIFI/BT |
| PG1 | WL-SDIO-CMD | 2 | |
| PG2 | WL-SDIO-D0 | 2 | |
| PG3 | WL-SDIO-D1 | 2 | |
| PG4 | WL-SDIO-D2 | 2 | |
| PG5 | WL-SDIO-D3 | 2 | |
| PG6 | BT-UART-RX | 2 | |
| PG7 | BT-UART-TX | 2 | |
| PG8 | BT-UART-CTS | 2 | |
| PG9 | BT-UART-RTS | 2 | |
| PG10 | GPIO-PG10-TWI3-SCK | 2 | GPIO |
| PG11 | GPIO-PG11-TWI3-SDA | 2 | |
| PG12 | GPIO-PG12-UART4-FX | 2 | |
| PG13 | GPIO-PG13-UART4-RX | 2 | |
| PG14 | GPIO-PG14-UART4-RTS | 2 | |
| PG15 | GPIO-PG15-UART4-CTS | 2 | |

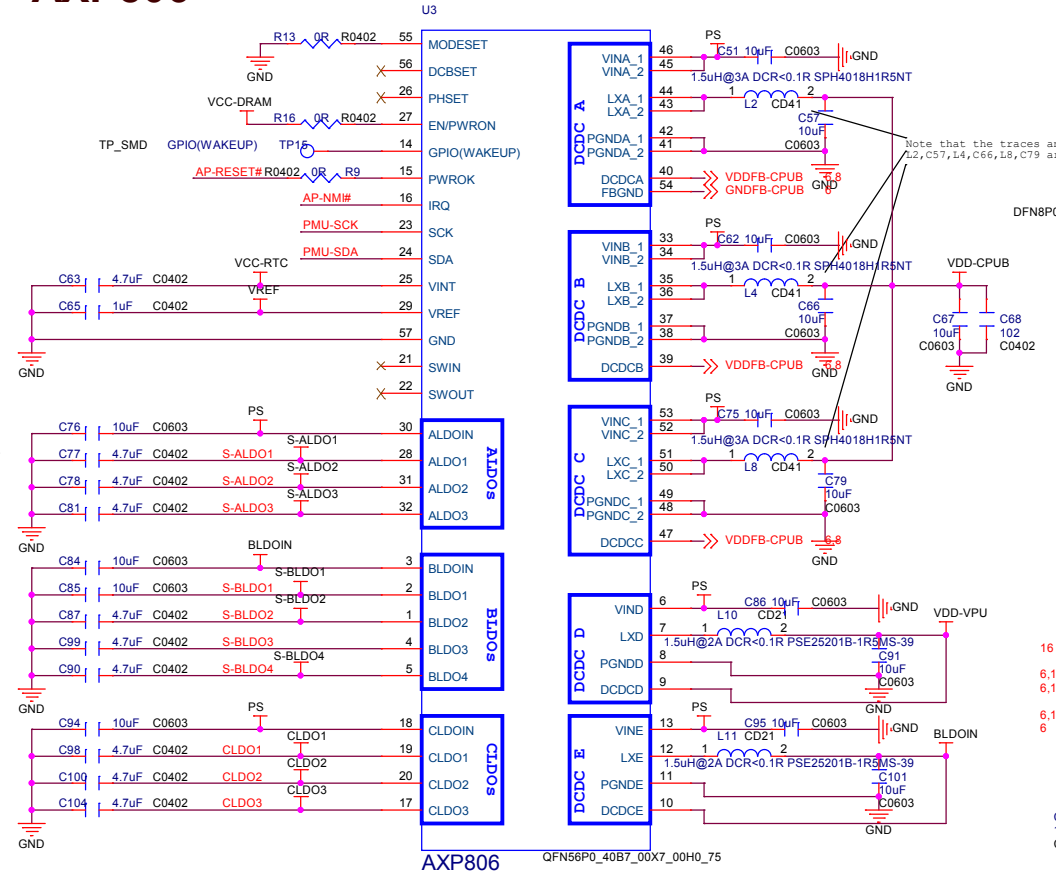
| PIN | Define | CFG | Function |
|------|---------------------|-----|----------|
| PH0 | STATUS-LED1 | 1 | LED |
| PH1 | STATUS-LED2 | 1 | |
| PH2 | GPIO-PH2 | 1 | GPIO |
| PH3 | PH3-USB0-IDDET | 1 | |
| PH4 | JSB1-DRVVBUS | 1 | USB |
| PH5 | JSB2-DRVVBUS | 1 | |
| PH6 | GPIO-PH6-PWM0 | 2 | GPIO |
| PH8 | CPUB-TMS | 2 | |
| PH9 | CPUB-TCK | 2 | JTAG |
| PH10 | CPUB-TDO | 2 | |
| PH11 | CPUB-TDI | 2 | GPIO |
| PH12 | GPIO-PH12-UART0-FX | 2 | |
| PH13 | GPIO-PH12-UART0-RX | 2 | |
| PH14 | GPIO-PH14-SPI3-CLK | 2 | |
| PH15 | GPIO-PH15-SPI3-MOSI | 2 | |
| PH16 | GPIO-PH16-SPI3-MISO | 2 | |
| PH17 | GPIO-PH17-SPI3-CS0 | 2 | |
| PH18 | SDC0-DET | 1 | SD-CARD0 |
| PH19 | HSCL | 2 | HDMI |
| PH20 | HSDA | 2 | |
| PH21 | HCEC | 2 | |

| PIN | Define | CFG | Function |
|-----|------------------|-----|----------|
| PL0 | GPIO-PL0-CPUS-TX | 2 | GPIO |
| PL1 | GPIO-PL1-CPUS-RX | 2 | |
| PL2 | WL-PMU-EN | 1 | WIFI+BT |
| PL3 | WL-WAKE-AP1 | 1 | |
| PL4 | BT-WAKE-AP1 | 1 | |
| PL5 | BT-RST-N | 1 | IR |
| PL6 | IR-RX | 2 | |
| PL7 | GPIO-PL7-IWIRE | 2 | GPIO |
| PL8 | AP-WAKE-BT1 | 1 | |
| PL9 | IRQ-AUDIO | 1 | |

| PIN | Define | CFG | Function |
|------|--------------|-----|----------|
| PM0 | GPIO-PM0 | 1 | GPIO |
| PM1 | GPIO-PM1 | 1 | |
| PM2 | GPIO-PM2 | 1 | |
| PM3 | GPIO-PM3 | 1 | CODEC |
| PM8 | GPIO-PM8 | 1 | |
| PM9 | GPIO-PM9 | 1 | LED |
| PM10 | AP-I2S-MCLK | 2 | |
| PM11 | AP-I2S-BCLK | 2 | |
| PM12 | AP-I2S-LRCK | 2 | |
| PM13 | AP-I2S-DIN | 2 | |
| PM14 | AP-I2S-DOUT0 | 2 | |
| PM15 | STATUS-LED3 | 1 | |

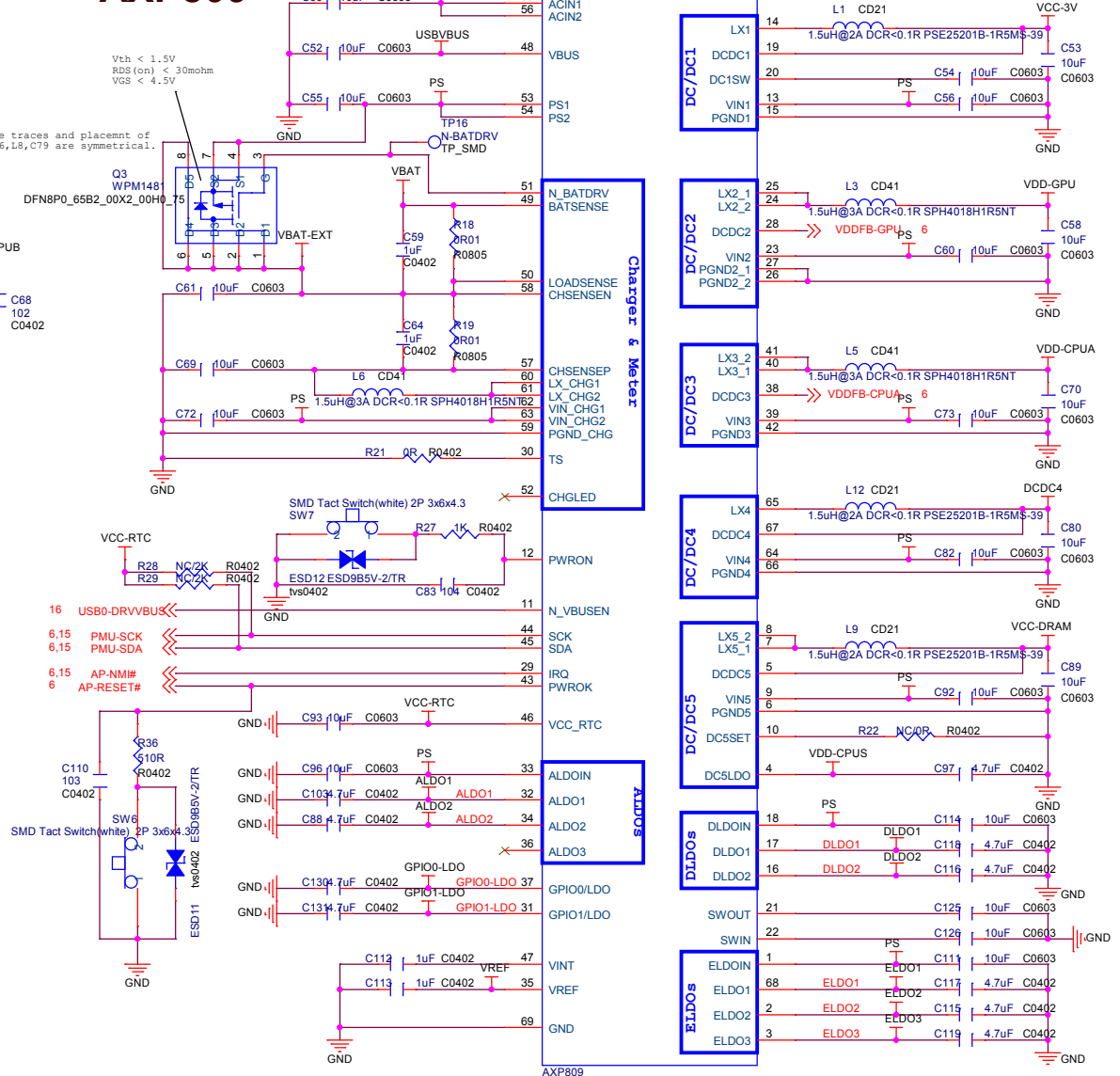
| PIN | Define | CFG | Function |
|-----|---------|-----|----------|
| PN0 | PMU-SCK | 3 | RSB |
| PN1 | PMU-SDA | 3 | |

AXP806

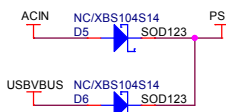
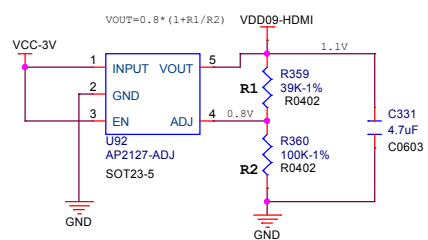


AXP806 QFN56P0_40B7_00X7_00H0_75

AXP809

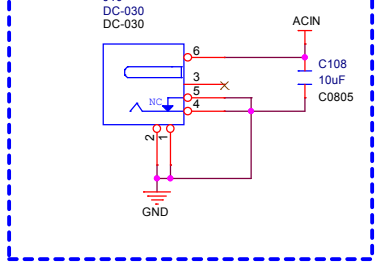


AXP809

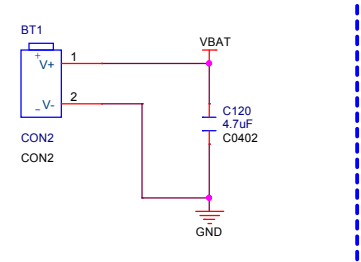


| | | | |
|-----------------|---------------------------|--------|---------|
| Title | | | |
| Arches-A80-V1.0 | | | |
| Size | Document | Number | Rev |
| A3 | <Doc> | | |
| Date: | Friday, February 06, 2015 | Sheet | 8 of 16 |

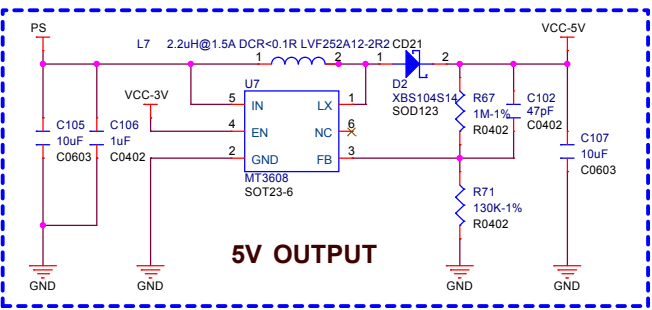
ACIN



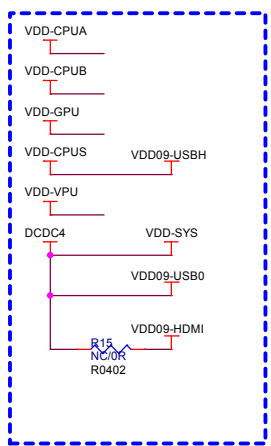
BAT



5V OUTPUT



0.9V



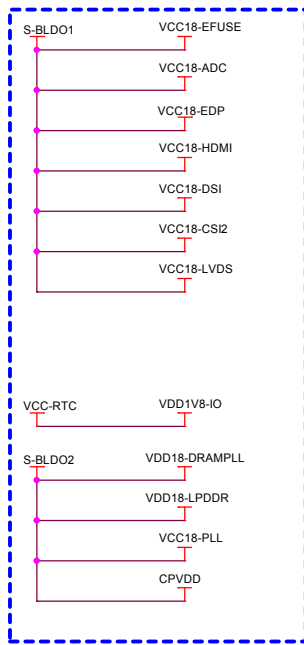
1.5V



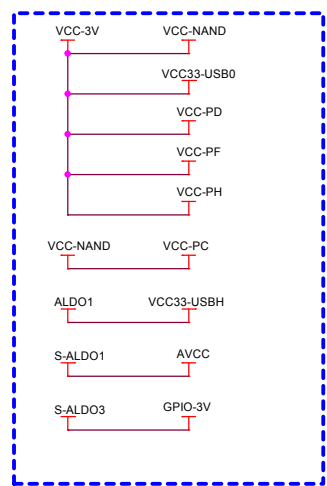
1.2V



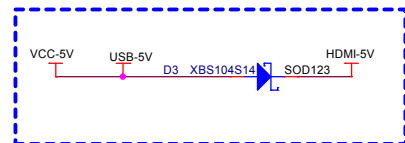
1.8V



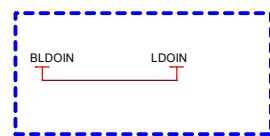
3V



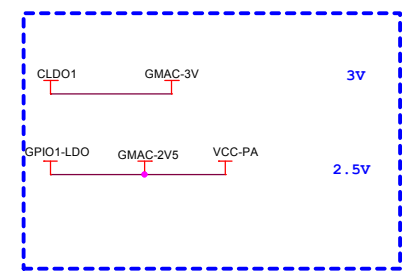
5V



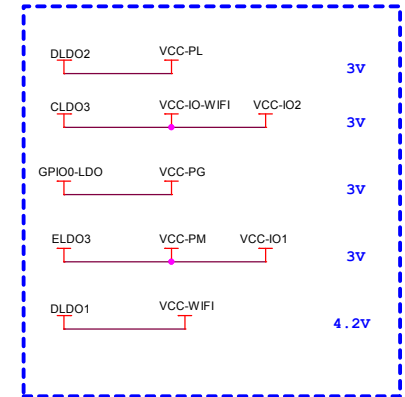
2.1V



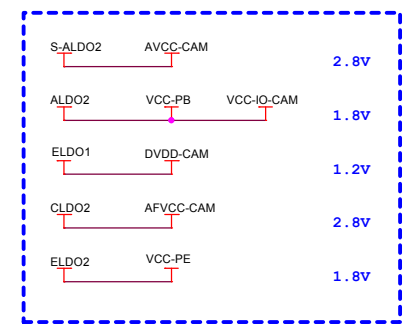
Ethernet

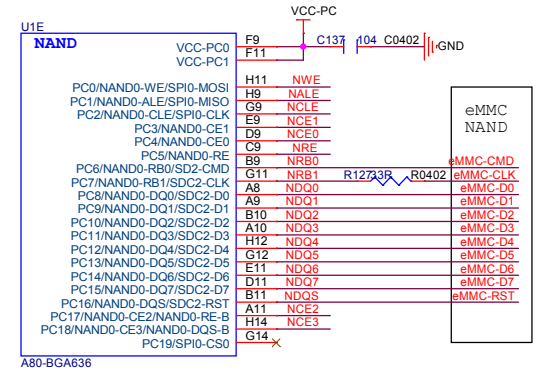


WIFI/BT

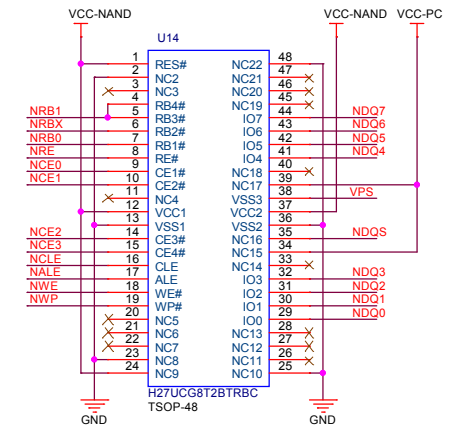
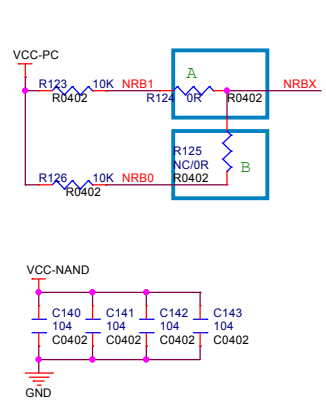
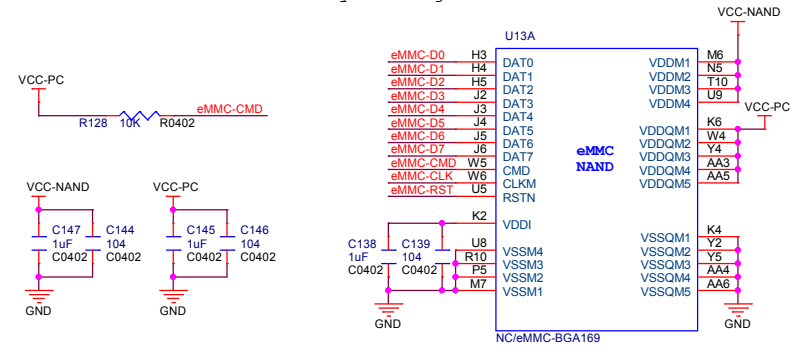


CAMERA

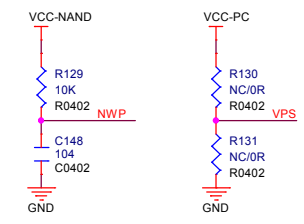




Both eMMC NAND and first TSOP NAND layout together

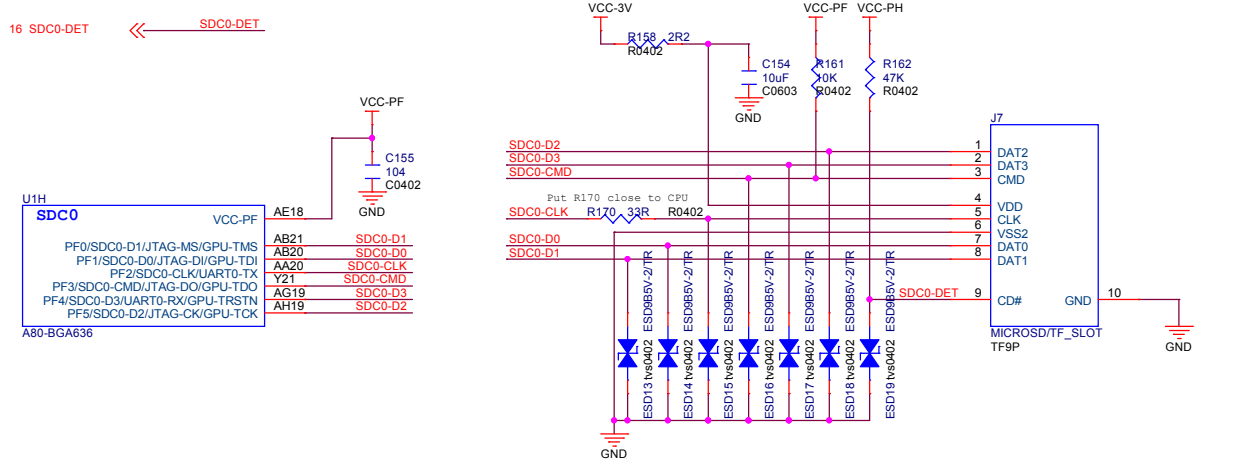


- (1) 1 CE or 2 CE : A=0R, B=NC
- (2) 4 CE : A=NC, B=0R
- (3) The connection of VPS please refer to the NAND configuration form .

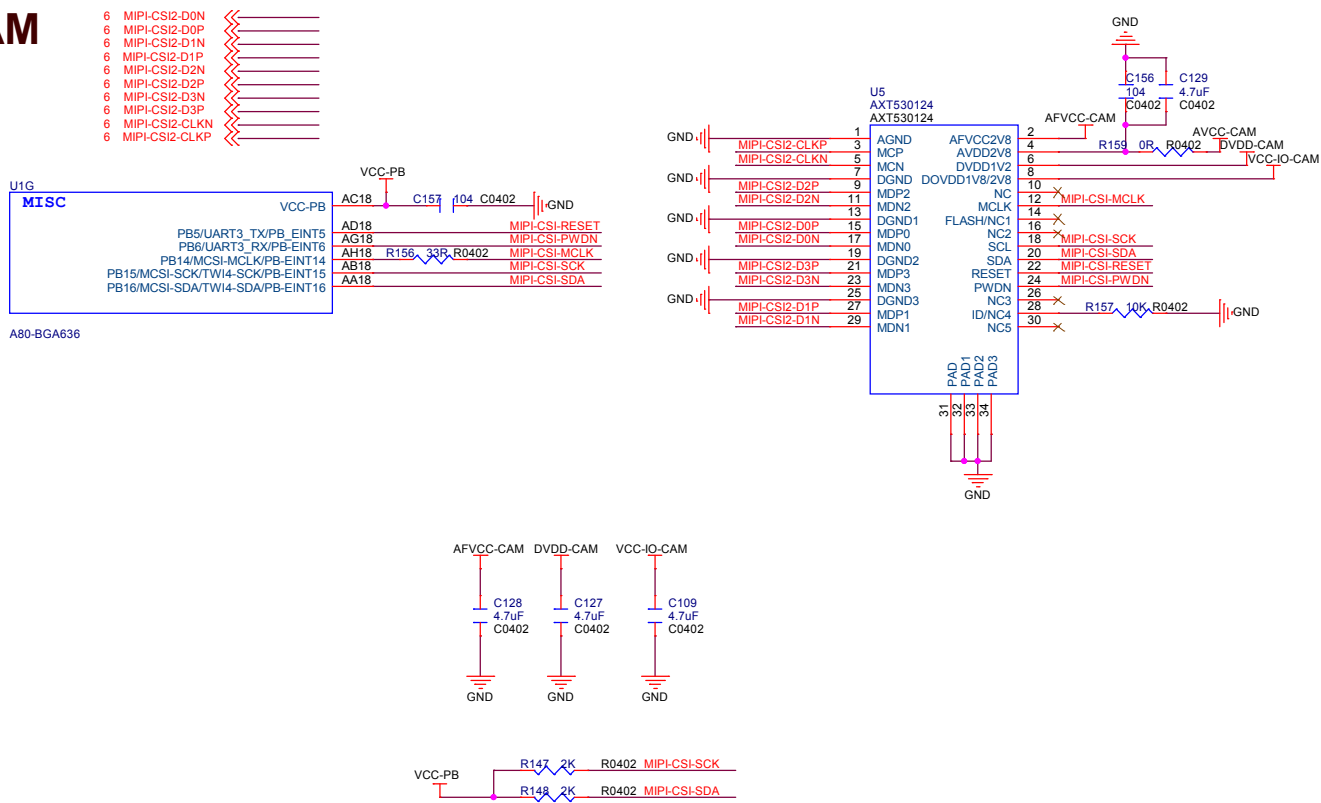


T-CADD/CAM/LED/IR

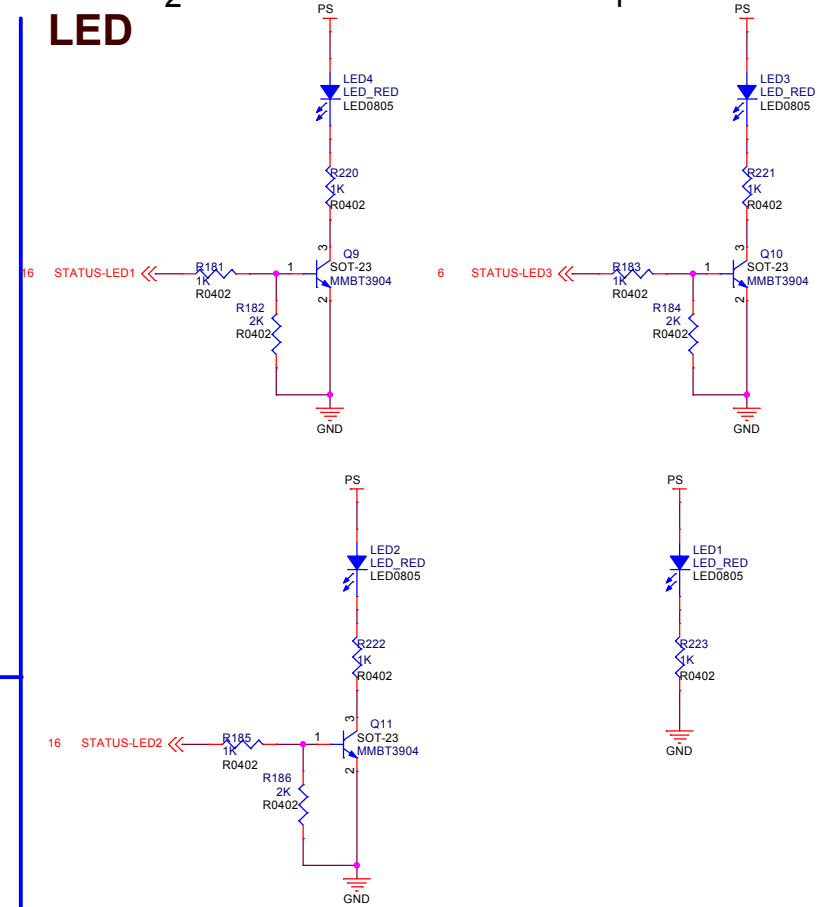
T-CADD



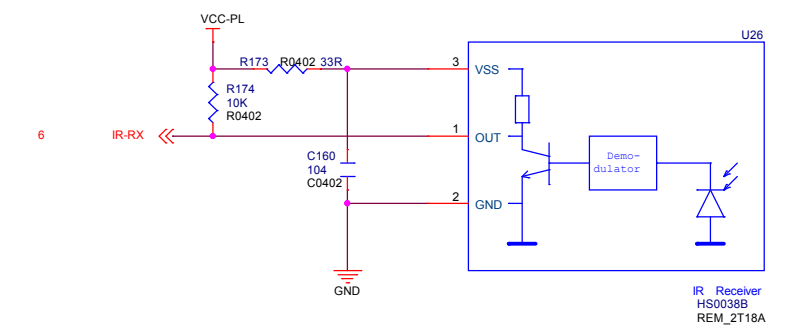
CAM



LED

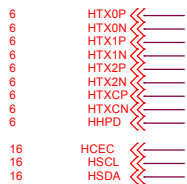


IR

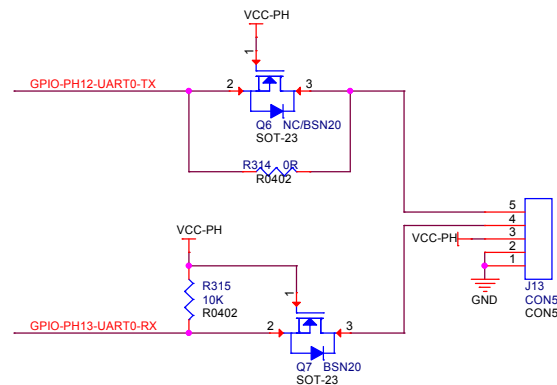
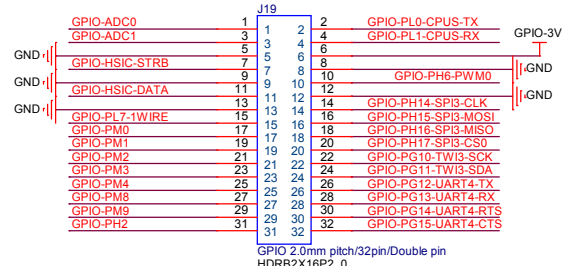
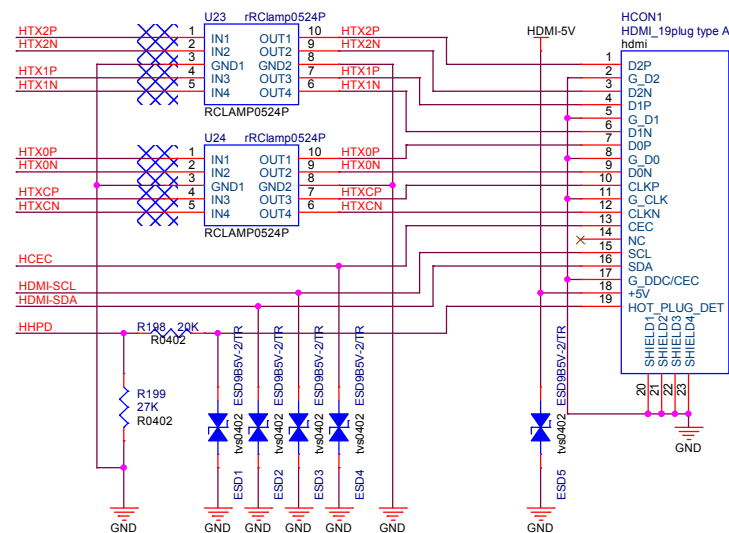
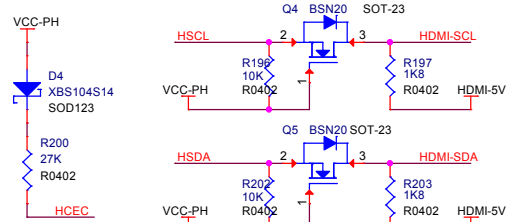


| | | | |
|-----------------|---------------------------|--------|----------|
| Title | | | |
| Arches-A80-V1.0 | | | |
| Size | Document | Number | Rev |
| A3 | <Doc> | | |
| Date: | Friday, February 06, 2015 | Sheet | 11 of 16 |

HDMI/GPIO



Differential pairs
Z0= 100 ohm



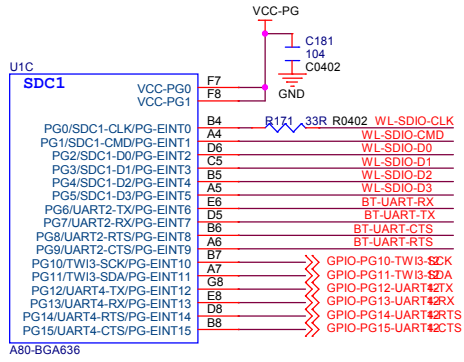
WIFI/BT

- 15 BT-PCM-CLK << BT-PCM-CLK
- 15 BT-PCM-SYNC << BT-PCM-SYNC
- 15 BT-PCM-DIN << BT-PCM-DIN
- 15 BT-PCM-DOUT << BT-PCM-DOUT

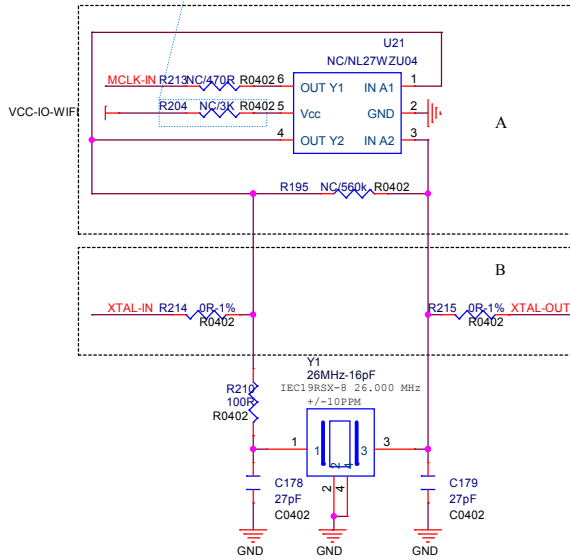
- 6 WL-PMU-EN << WL-REG-ON
- 6 WL-WAKE-AP << WL-WAKE-AP

- 6 BT-WAKE-AP << BT-WAKE-AP
- 6 BT-RST-N << BT-RST-N
- 6 AP-WAKE-BT << AP-WAKE-BT

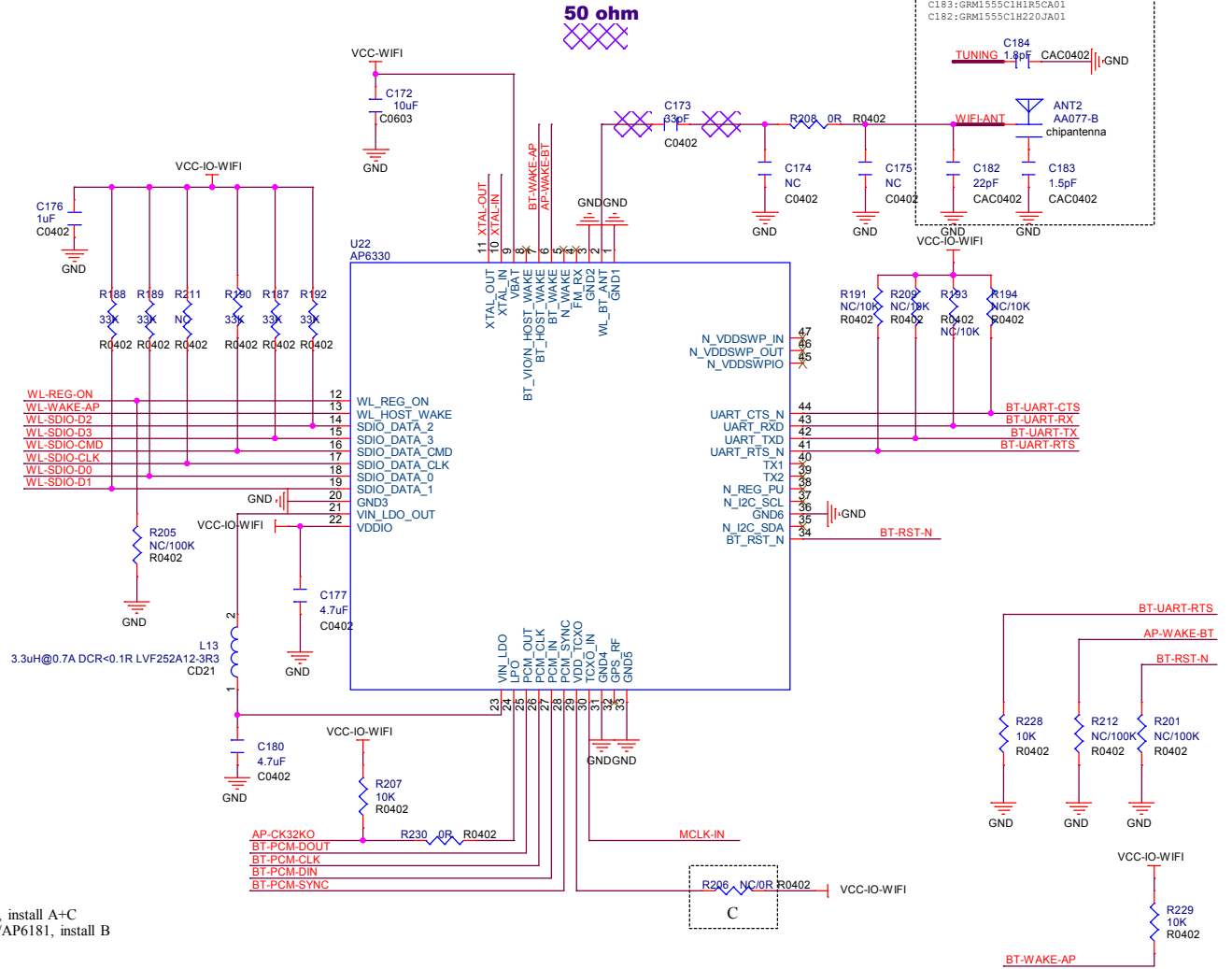
- 15 CODEC-32K << AP-CK32KO



Note:
For VCC-IO-WIFI = 1.8V, R204 = 0R
For VCC-IO-WIFI = 3.0V, R204 = 3K



Note:
For AP6210, install A+C
For AP6330/AP6181, install B



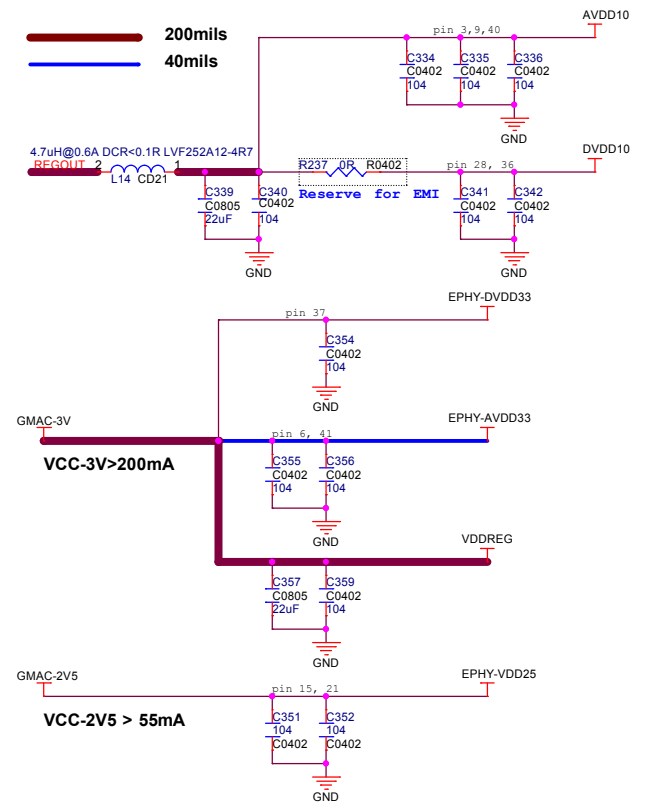
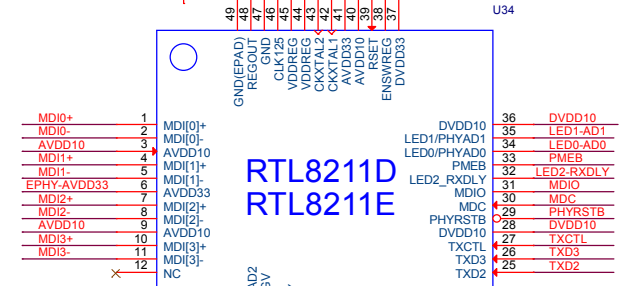
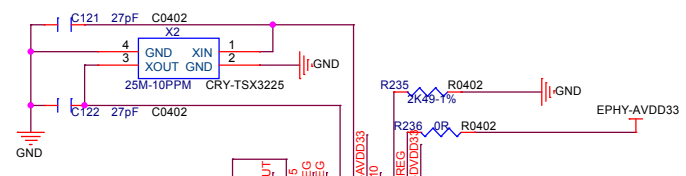
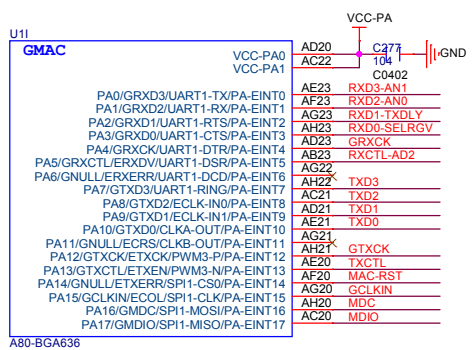
There should be ground clearance around antenna.

C184 and C183 are tuning elements.

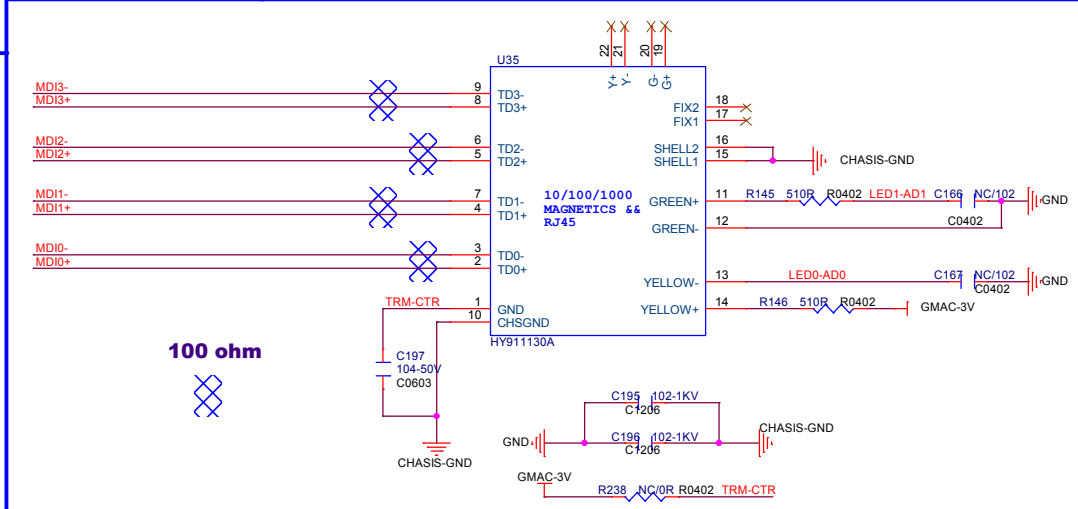
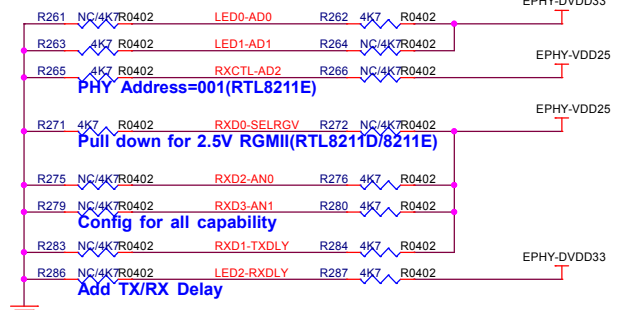
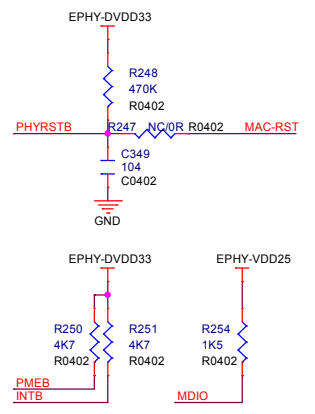
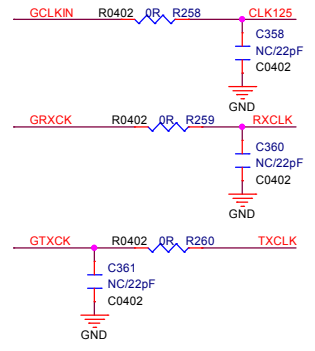
C184:GRM1555C1H1R8CA01
C183:GRM1555C1H1R5CA01
C182:GRM1555C1H220AR01

| | | |
|-----------------|---------------------------|----------------|
| Title | | |
| Arches-A80-V1.0 | | |
| Size | Document Number | Rev |
| A3 | <Doc> | |
| Date: | Friday, February 06, 2015 | Sheet 13 of 16 |

ETHERNET

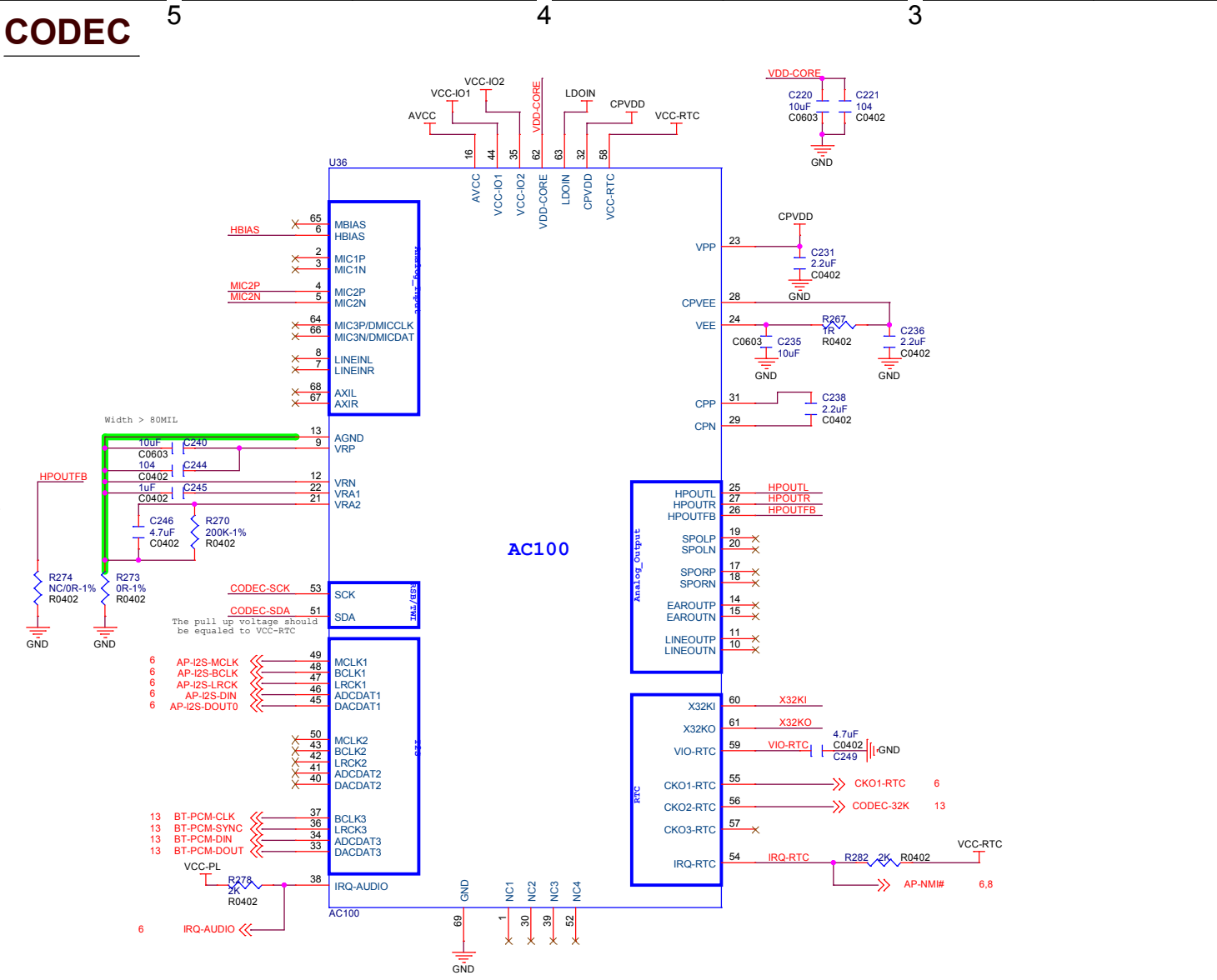


The placement of R258 R259 C358 C360 is close to PHY.
The placement of R260 C361 is close to AP.

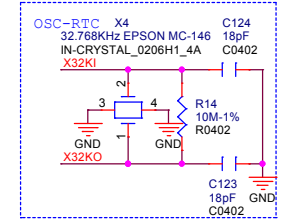
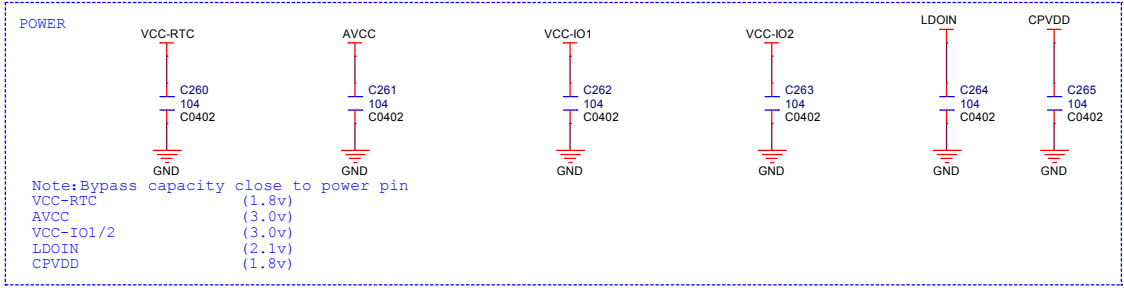
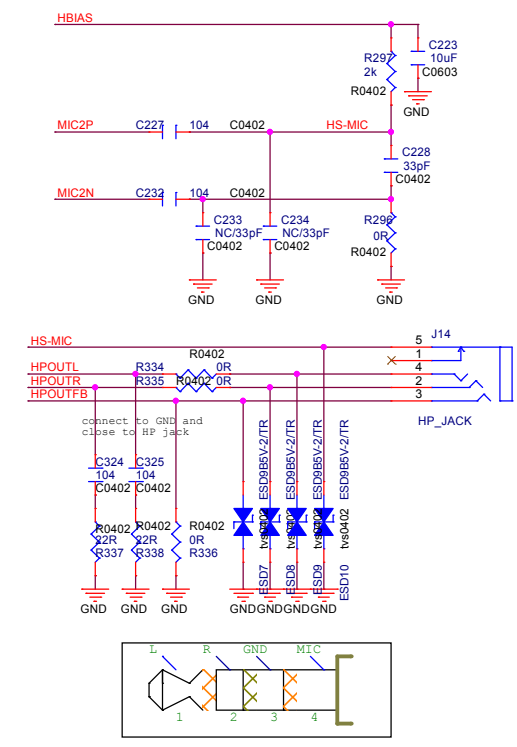


| | | | |
|-------|---------------------------|-----------------|----------|
| Title | | Arches-A80-V1.0 | |
| Size | A3 | Document Number | <Doc> |
| Date: | Friday, February 06, 2015 | Sheet | 14 of 16 |

CODEC

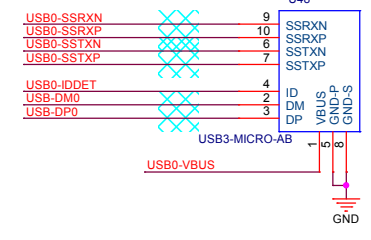
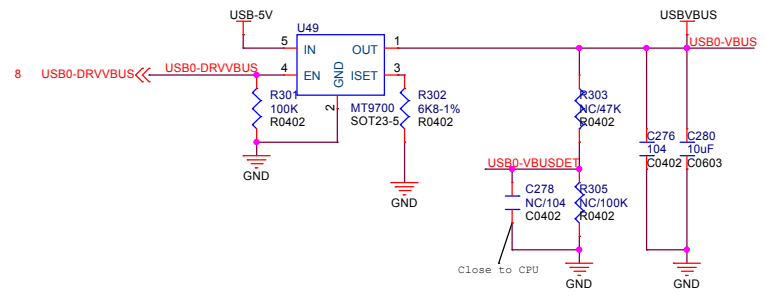
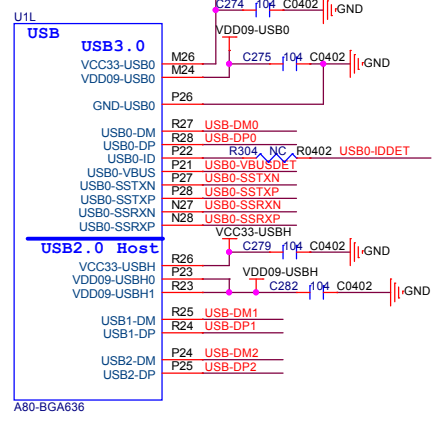


HP_JACK

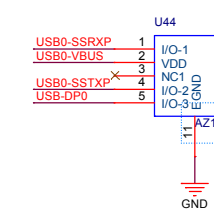
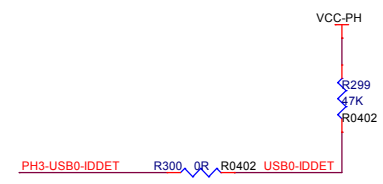
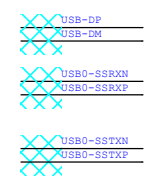


| | | | |
|-----------------|---------------------------|-----------------|----------|
| Title | | | |
| Arches-A80-V1.0 | | | |
| Size | A3 | Document Number | <Doc> |
| Date: | Friday, February 06, 2015 | Sheet | 15 of 16 |

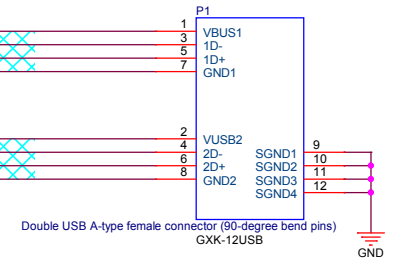
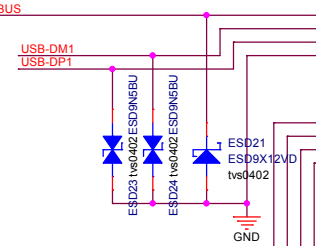
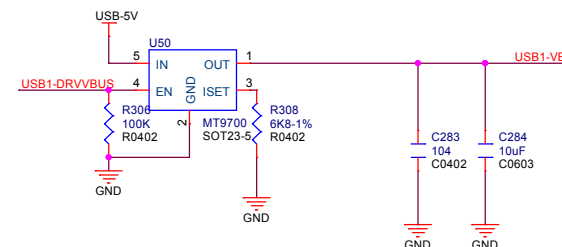
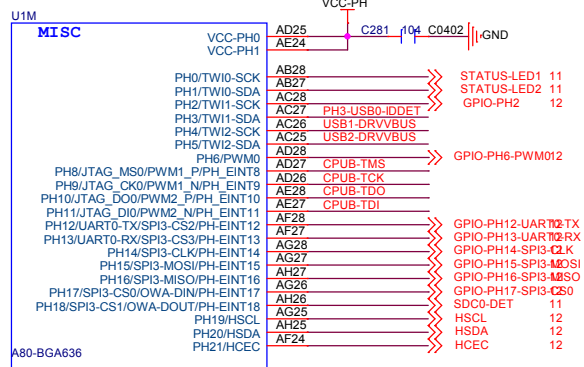
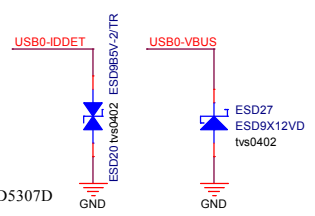
USB/JTAG



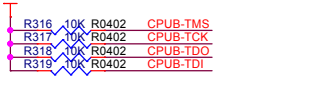
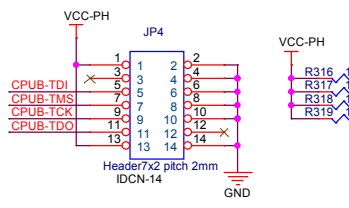
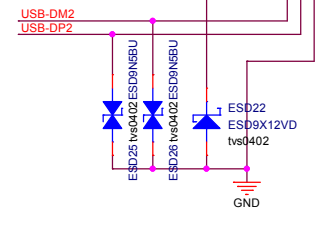
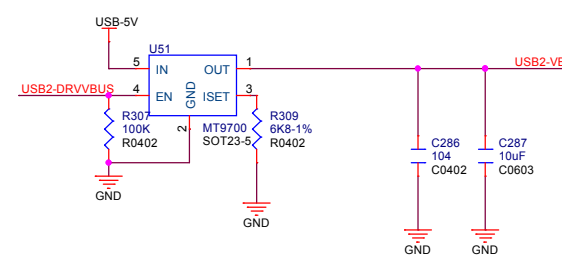
Differential pairs
Z0= 90 ohm



Note: AZ1065-06F/ESD5306D/ESD5307D



Double USB A-type female connector (90-degree bend pins)
GXK-12USB



| | | | |
|-----------------|---------------------------|--------|----------|
| Title | | | |
| Arches-A80-V1.0 | | | |
| Size | Document | Number | Rev |
| A3 | <Doc> | | |
| Date: | Friday, February 06, 2015 | Sheet | 16 of 16 |