

REV	Description	DATE DD/MM/YYYY	BY
3a	Initial Production Release. The BBB_Derivat Rev 3A has the same range of functions and specifications as the original BeagleBone Black Rev C.	29/07/2015	MG

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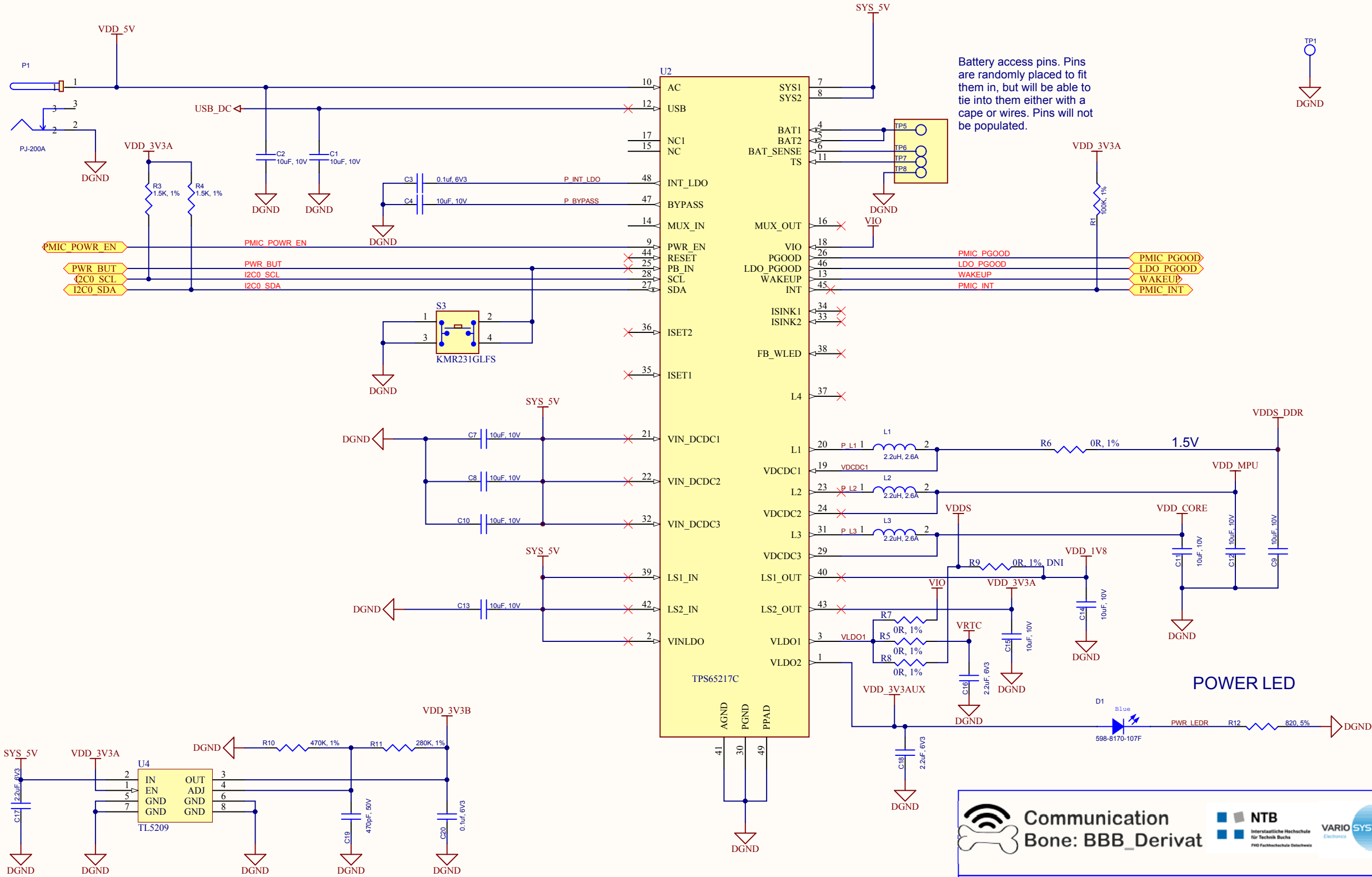
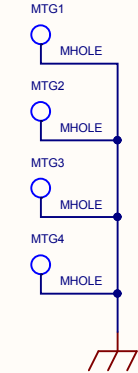
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5V DC POWER






Communication  
Bone: BBB\_Derivat



NTB  
Interstaatliche Hochschule  
für Technik Buchs  
FHG Fachhochschule Ostschweiz



VARIO SYSTEMS  
Electronics

TitleP02\_Power Management.SchDoc

SizeA4

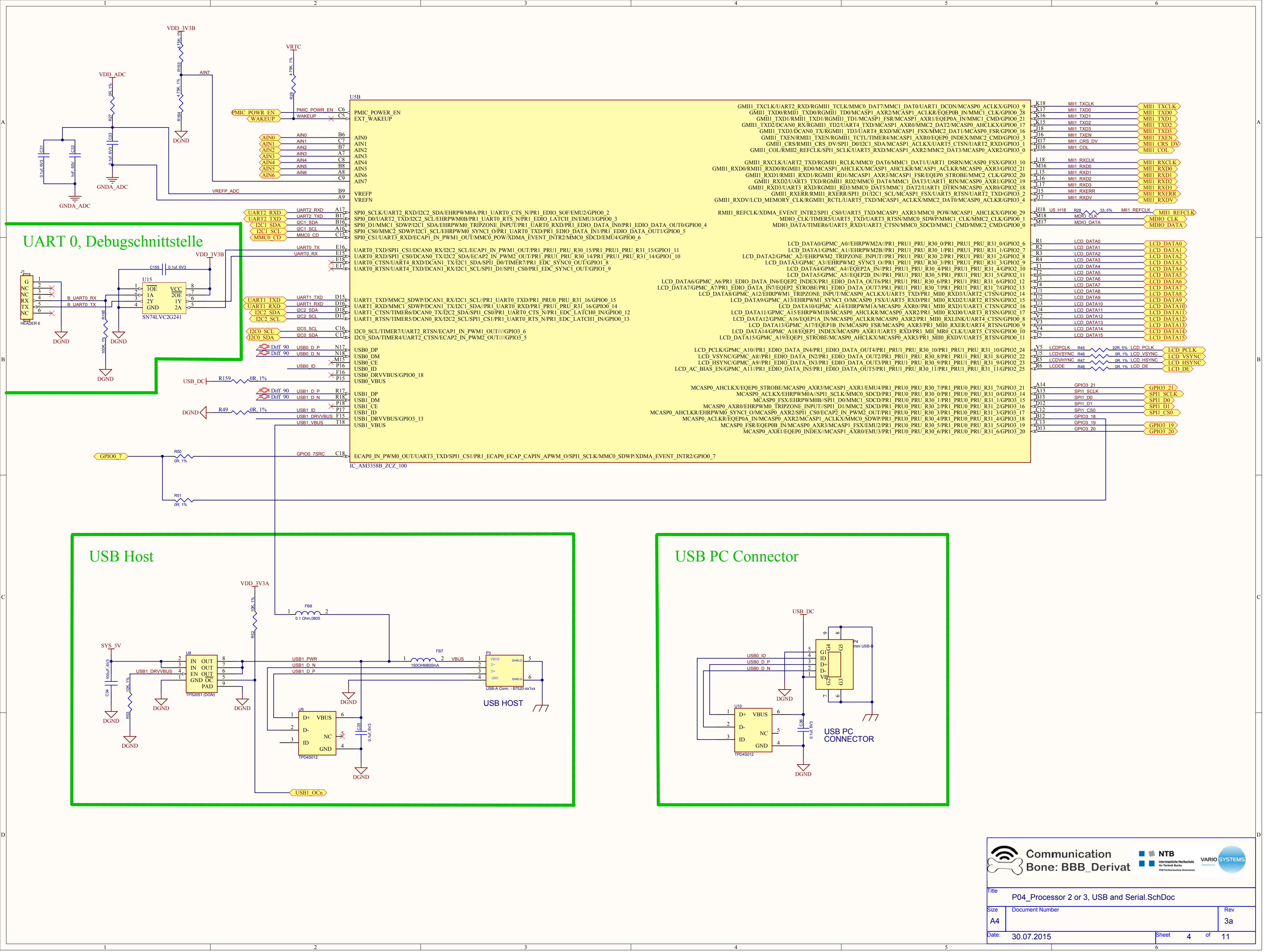
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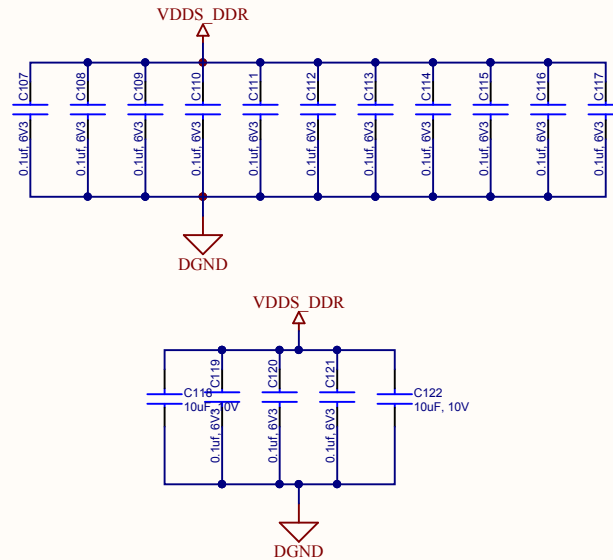
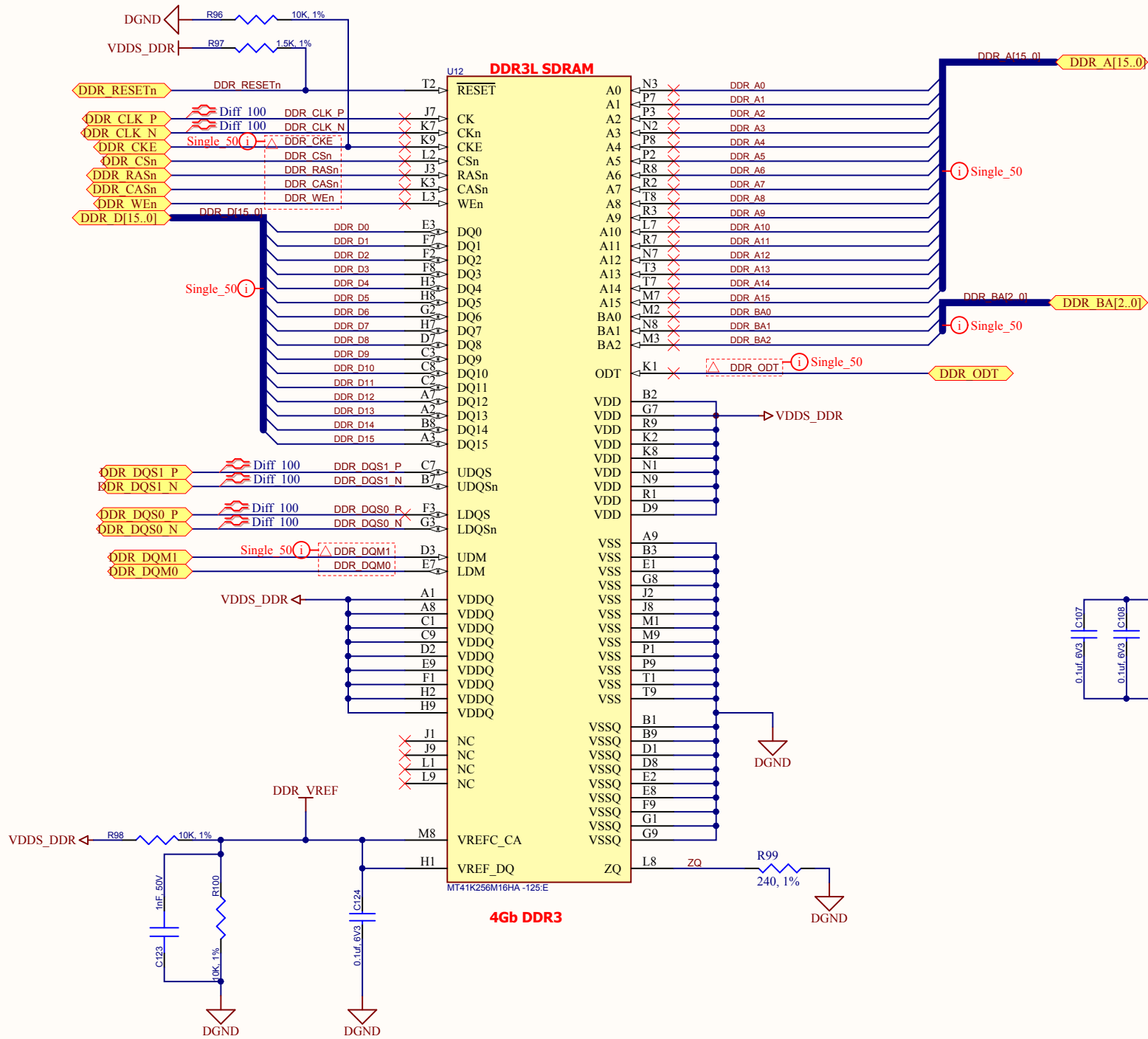


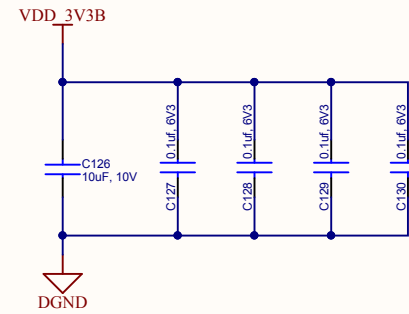
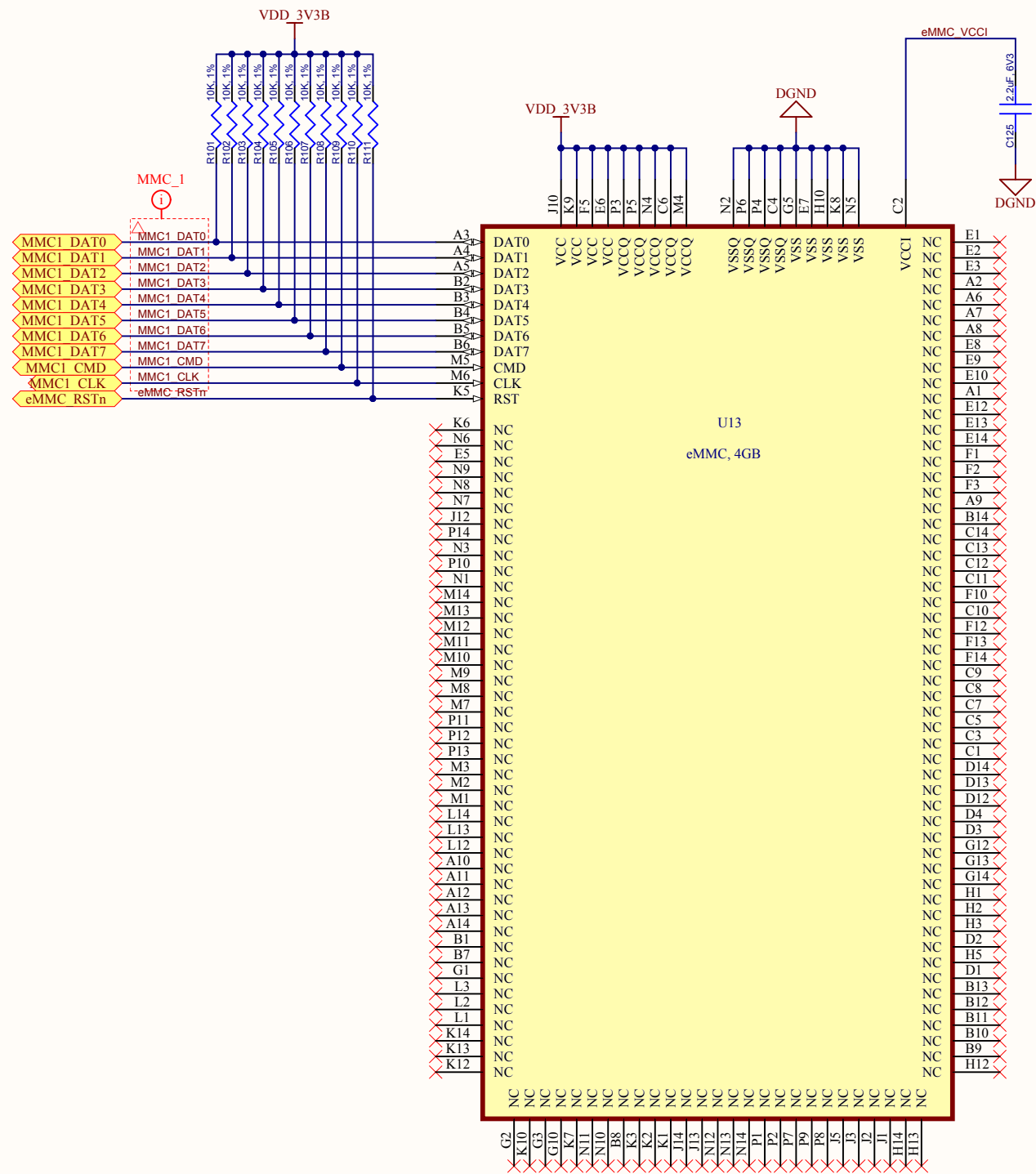










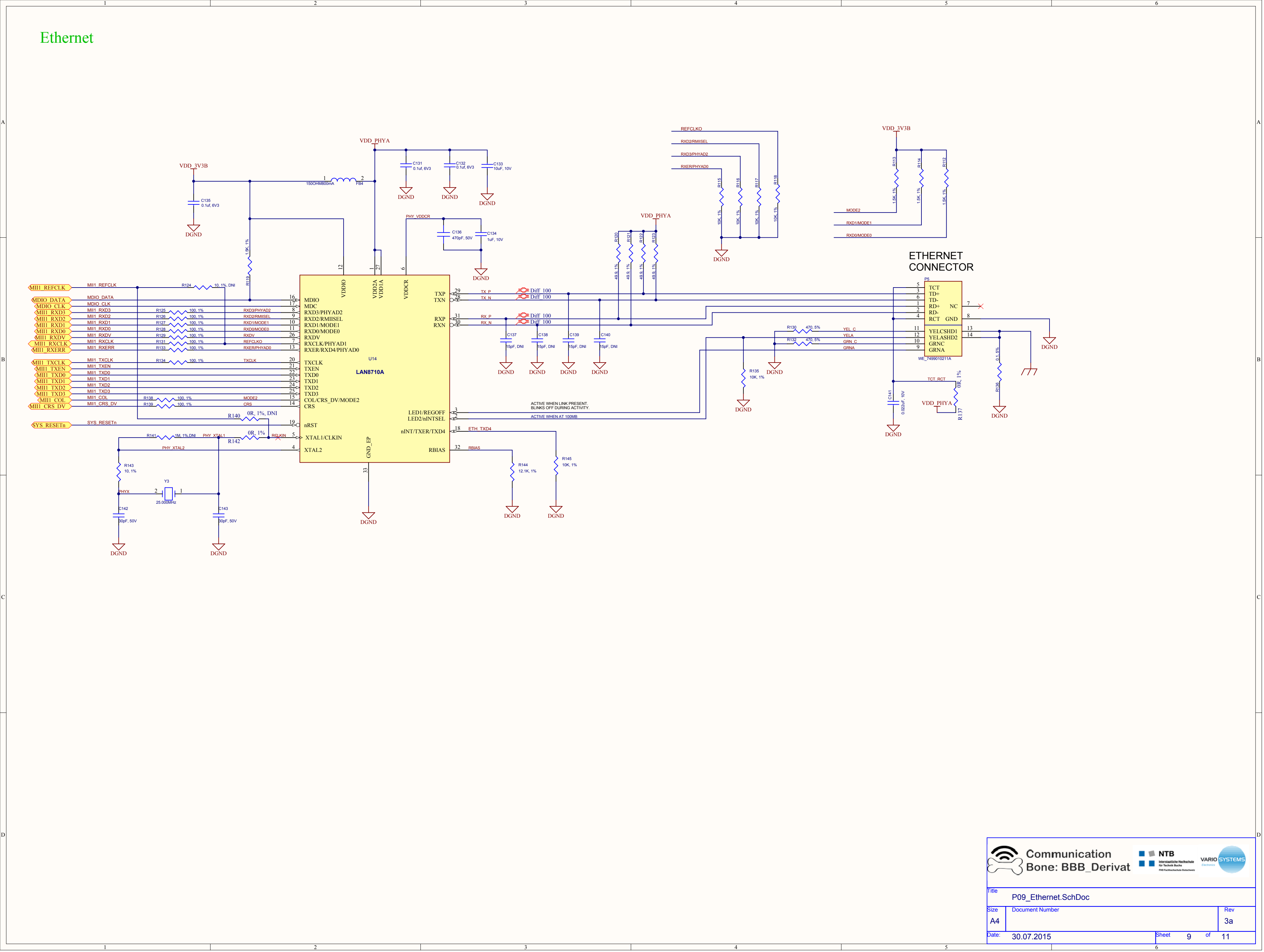




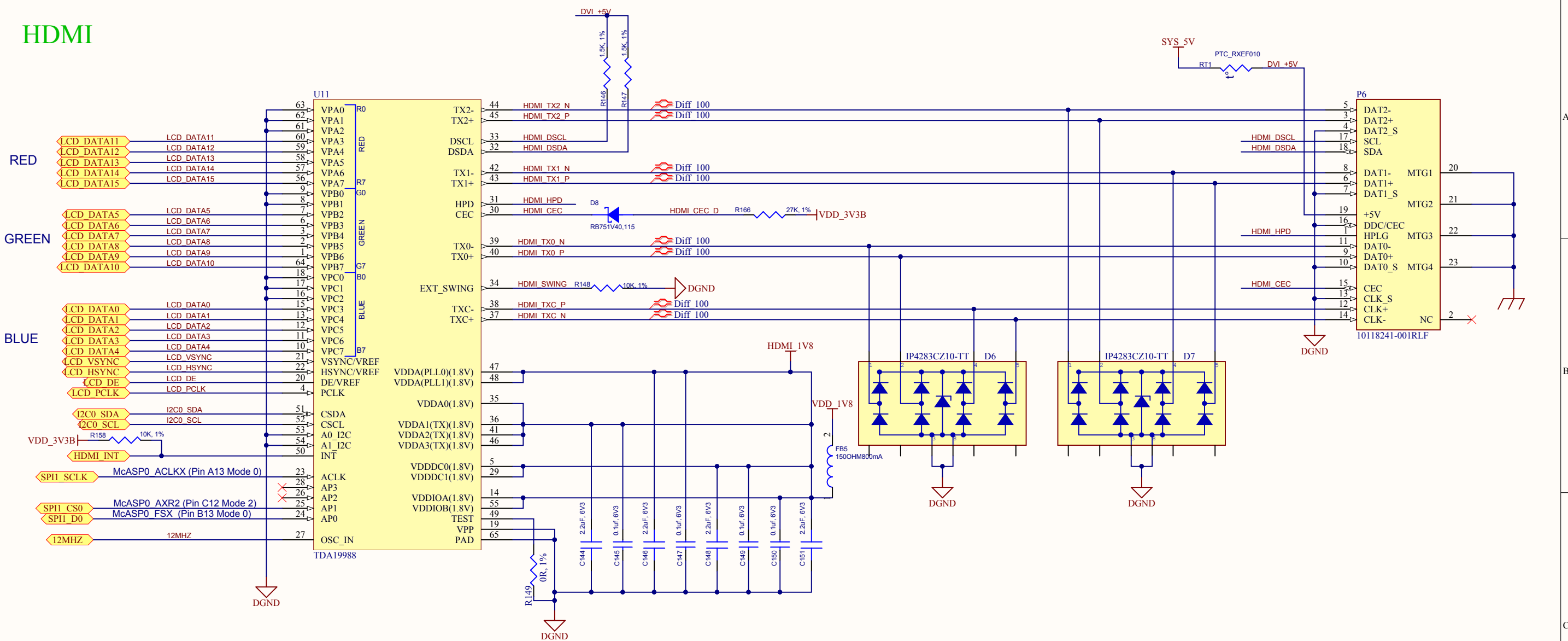
**Ethernet**

The schematic diagram illustrates the Ethernet interface for the BBB\_Derivat board, centered around the LAN8710A Ethernet PHY (U14). The PHY is connected to an Ethernet connector (P5) and configured for 10/100 Mbps operation. The diagram includes the following components and connections:

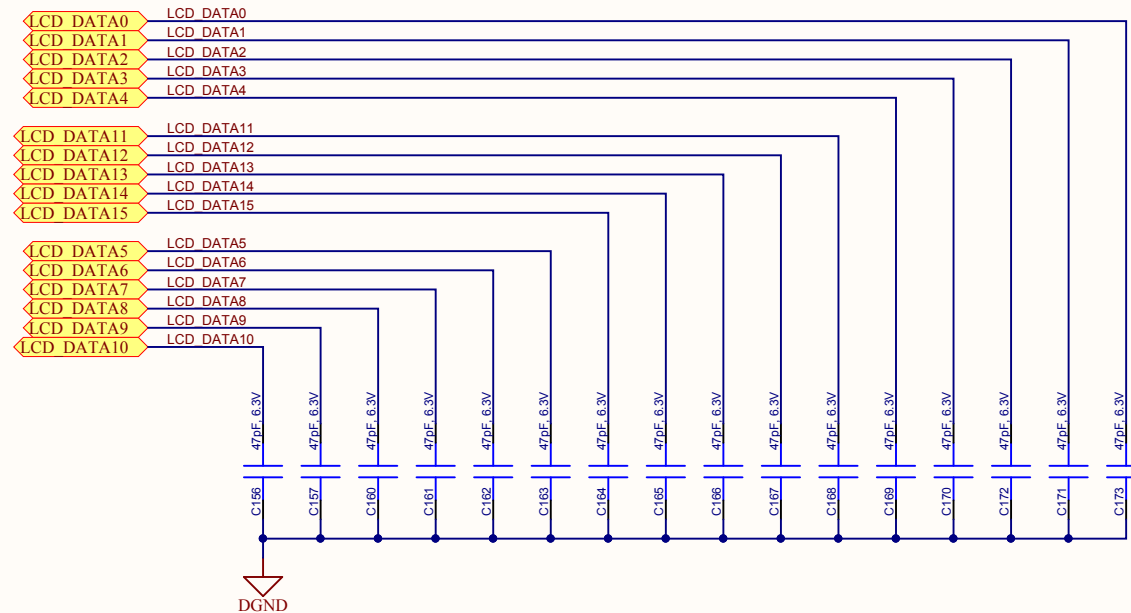
- Power Supply:**
  - VDD\_3V3B:** Connected to the PHY's VDDIO pin (pin 12) and the connector's VDD\_PHYA pin (pin 13) via a 1500HMM00mA current source and a 0.1uF, 6V3 capacitor (C135).
  - VDD\_PHYA:** Connected to the PHY's VDDA pin (pin 27) and the connector's VDD\_PHYA pin (pin 13) via a 0.1uF, 6V3 capacitor (C131) and a 10uF, 10V capacitor (C133).
  - PHY\_VDDCR:** Connected to the PHY's VDDCR pin (pin 6) and the connector's VDD\_PHYA pin (pin 13) via a 470pF, 50V capacitor (C136) and a 1uF, 10V capacitor (C134).
- Signal Connections:**
  - MI1 REFCLK:** Connected to the PHY's MDIO pin (pin 16) via a 10.1% resistor (R124).
  - MDIO DATA:** Connected to the PHY's MDIO pin (pin 16) via a 10.1% resistor (R124).
  - MI1 RXD3:** Connected to the PHY's RXD3/PHYAD2 pin (pin 8) via a 100.1% resistor (R125).
  - MI1 RXD2:** Connected to the PHY's RXD2/RMISEL pin (pin 9) via a 100.1% resistor (R126).
  - MI1 RXD1:** Connected to the PHY's RXD1/MODE1 pin (pin 10) via a 100.1% resistor (R127).
  - MI1 RXD0:** Connected to the PHY's RXD0/MODE0 pin (pin 11) via a 100.1% resistor (R128).
  - MI1 RXDV:** Connected to the PHY's RXDV pin (pin 26) via a 100.1% resistor (R129).
  - MI1 RXCLK:** Connected to the PHY's RXCLK/PHYAD1 pin (pin 7) via a 100.1% resistor (R131).
  - MI1 RXERR:** Connected to the PHY's RXER/PHYAD0 pin (pin 13) via a 100.1% resistor (R133).
  - MI1 TXCLK:** Connected to the PHY's TXCLK pin (pin 20) via a 100.1% resistor (R134).
  - MI1 TXEN:** Connected to the PHY's TXEN pin (pin 21) via a 10.1% resistor (R140).
  - MI1 TXD0:** Connected to the PHY's TXD0 pin (pin 22) via a 10.1% resistor (R141).
  - MI1 TXD1:** Connected to the PHY's TXD1 pin (pin 23) via a 10.1% resistor (R142).
  - MI1 TXD2:** Connected to the PHY's TXD2 pin (pin 24) via a 10.1% resistor (R143).
  - MI1 TXD3:** Connected to the PHY's TXD3 pin (pin 25) via a 10.1% resistor (R144).
  - MI1 COL:** Connected to the PHY's COL/CRS\_DV/MODE2 pin (pin 14) via a 10.1% resistor (R145).
  - MI1 CRS DV:** Connected to the PHY's COL/CRS\_DV/MODE2 pin (pin 14) via a 10.1% resistor (R145).
  - SYS\_RESEn:** Connected to the PHY's nRST pin (pin 19) via a 10.1% resistor (R141).
- Connector (P5):**
  - TCT:** Connected to the PHY's TXP pin (pin 29) via a 10K, 1% resistor (R115).
  - TD+:** Connected to the PHY's TXN pin (pin 30) via a 10K, 1% resistor (R116).
  - TD-:** Connected to the PHY's TXN pin (pin 30) via a 10K, 1% resistor (R117).
  - RD+:** Connected to the PHY's RXN pin (pin 31) via a 10K, 1% resistor (R118).
  - RD-:** Connected to the PHY's RXN pin (pin 31) via a 10K, 1% resistor (R119).
  - RCT:** Connected to the PHY's RXN pin (pin 31) via a 10K, 1% resistor (R120).
  - GND:** Connected to the PHY's GND pin (pin 32) via a 10K, 1% resistor (R121).
  - YELC:** Connected to the PHY's YELC pin (pin 11) via a 470.5% resistor (R130).
  - YELASHD1:** Connected to the PHY's YELASHD1 pin (pin 12) via a 470.5% resistor (R131).
  - YELASHD2:** Connected to the PHY's YELASHD2 pin (pin 13) via a 470.5% resistor (R132).
  - GRNC:** Connected to the PHY's GRNC pin (pin 9) via a 470.5% resistor (R133).
  - GRNA:** Connected to the PHY's GRNA pin (pin 10) via a 470.5% resistor (R134).
  - TCT\_RCT:** Connected to the PHY's TCT\_RCT pin (pin 14) via a 10K, 1% resistor (R135).
  - VDD\_PHYA:** Connected to the PHY's VDD\_PHYA pin (pin 13) via a 10K, 1% resistor (R136).
- Other Components:**
  - Y3:** A 25.000MHz crystal connected to the PHY's XTAL1/CLKIN pin (pin 5) and XTAL2 pin (pin 4) via 10.1% resistors (R141, R142).
  - C142:** A 30pF, 50V capacitor connected to the PHY's XTAL1/CLKIN pin (pin 5) and XTAL2 pin (pin 4).
  - C143:** A 30pF, 50V capacitor connected to the PHY's XTAL1/CLKIN pin (pin 5) and XTAL2 pin (pin 4).
  - C144:** A 0.022uF, 10V capacitor connected to the PHY's nRST pin (pin 19) and GND.
  - C145:** A 0.022uF, 10V capacitor connected to the PHY's nRST pin (pin 19) and GND.



## HDMI



LCD or HDMI



Extension Header for Capes

