

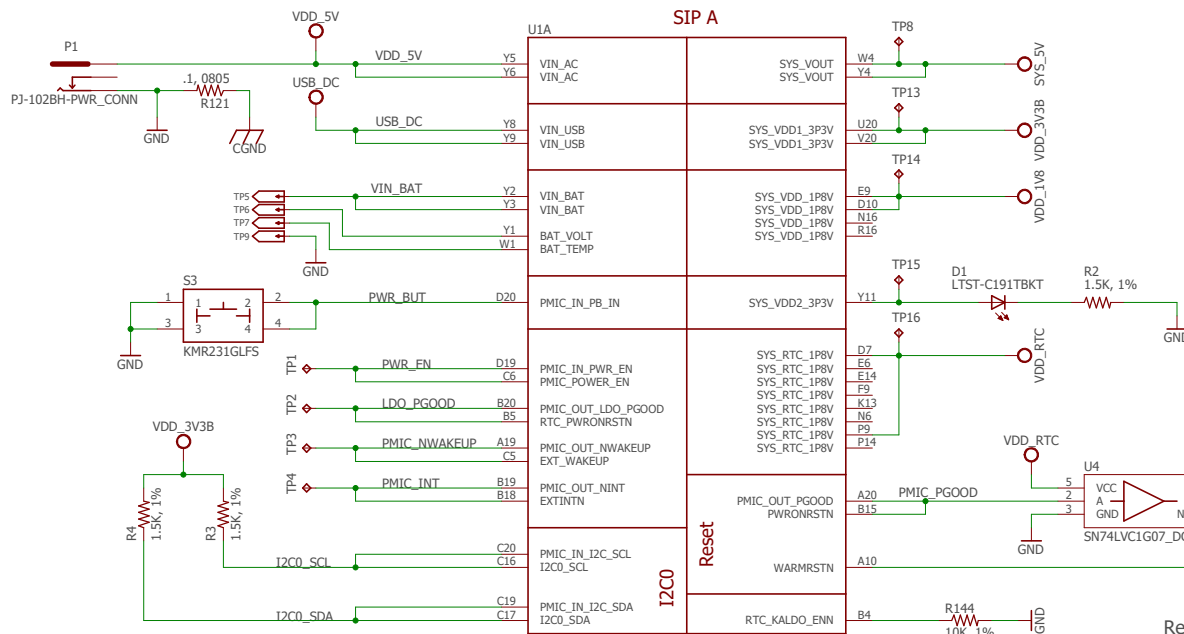
# Power & Reset

Octavo Systems OSD3358-BAS SBC Reference Design

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No power input protection. Adjust according to your application.



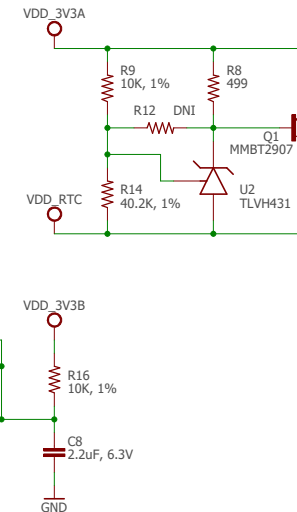
The OSD335x contains 4.7K pull-up resistors on I2C0. External resistors added so that pull-up strength can be chagned due to layout or other requirements.

TPS65217 I2C Address: 0x24

RTC\_KALDO\_ENN is grounded thru a 10K ohm resistor so that the internal RTC LDO is enabled and CAP\_VDD\_RTC does not need to be connected to VDD\_CORE.

Reset inputs:  
1) Manual push-button  
2) PMIC\_PG00D  
Each reset input is effectively open drain and can only pull reset line low.

This is a clamping circuit between the SYS\_RTC\_1P8V and VDDSHV\_3P3V outputs of the TPS65217 power management IC inside the OSD335x-SM. The clamping circuit is related to power down issues (see <https://octavosystems.com/osd335x/clamping/> for more information). This may not be needed in your application if the power down conditions do not apply to your application.



To Print: Use 8.5"x11" paper in landscape; 0.69 scaling factor.

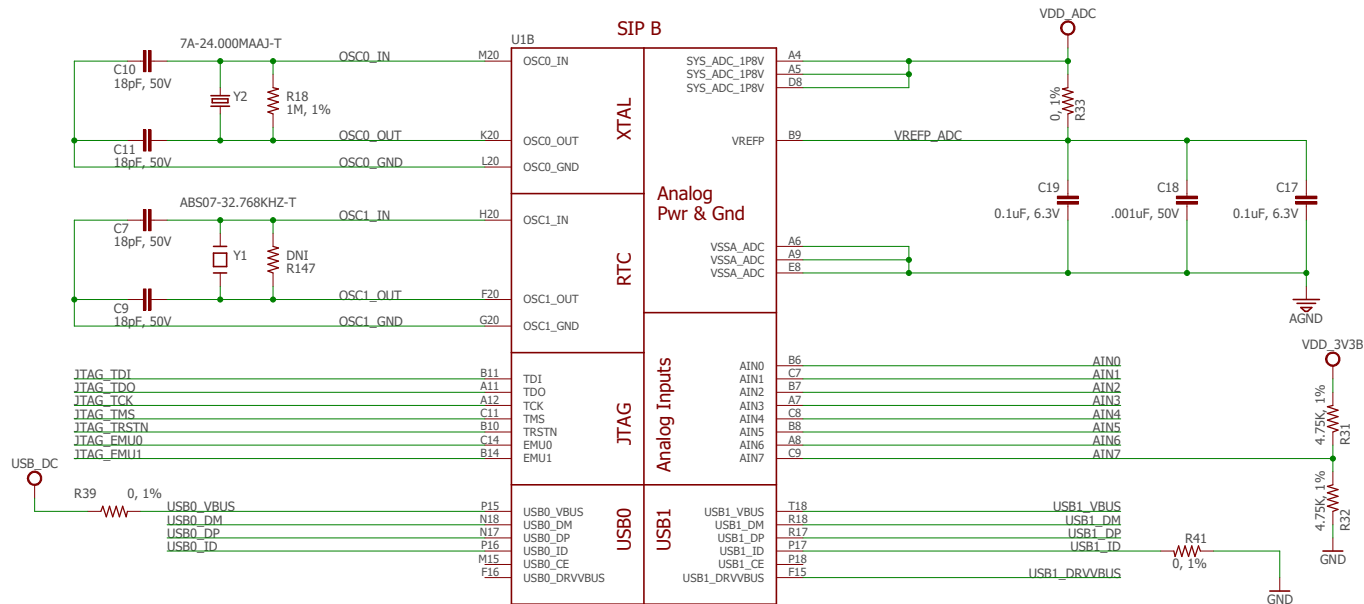


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# Clocks & Reset

Values of C10 and C11 can be calculated using the info given in FAQ:  
<https://octavosystems.com/faqs/design-oscillator-circuit-osd335x-family-devices/#more-3862>

32kHz Oscillator is used for RTC. If your application does not use the RTC, then this can be removed.



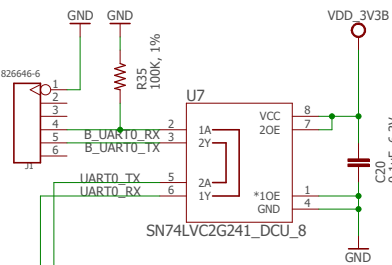
USBx\_VBUS is a voltage sense input. It is NOT a power output pin. The USBx peripheral will be enabled only if a valid voltage ( $>=4.4V$ ) is present on this pin. For more info see "USB Circuitry" article on [www.octavosystems.com/app\\_notes](http://www.octavosystems.com/app_notes)

AIN7 currently monitors the 3.3V TL5209 LDO output of the OSD3358-BAS. This is not necessary and can be removed if desired. If the analog interface is not used, then VREFP should be shorted to VSSA\_ADC.



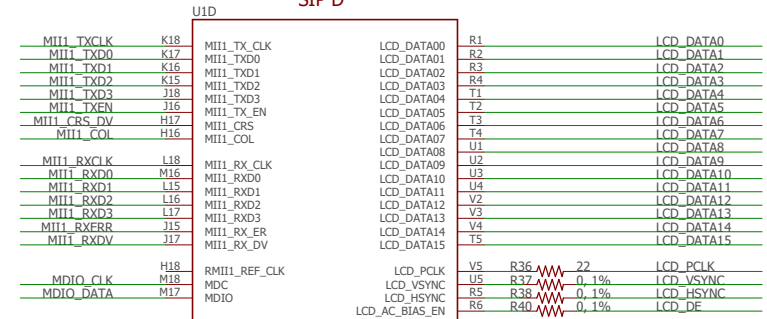
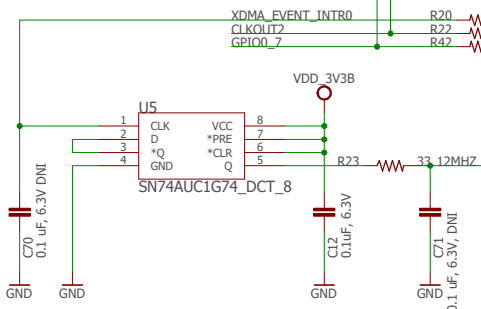
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# SiP Interfaces

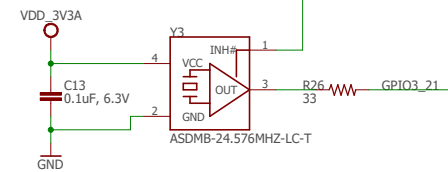
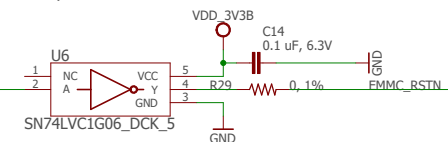


UART0 Header

Nets like CLKOUT2, GPIO0\_7 and GPIO1\_16 are resistor muxed to increase the functionality of the Cape Headers. This is not needed if your application does not require Cape Header compatibility.



This inverter can be removed if SW is updated to change the polarity the processor drives the eMMC reset.

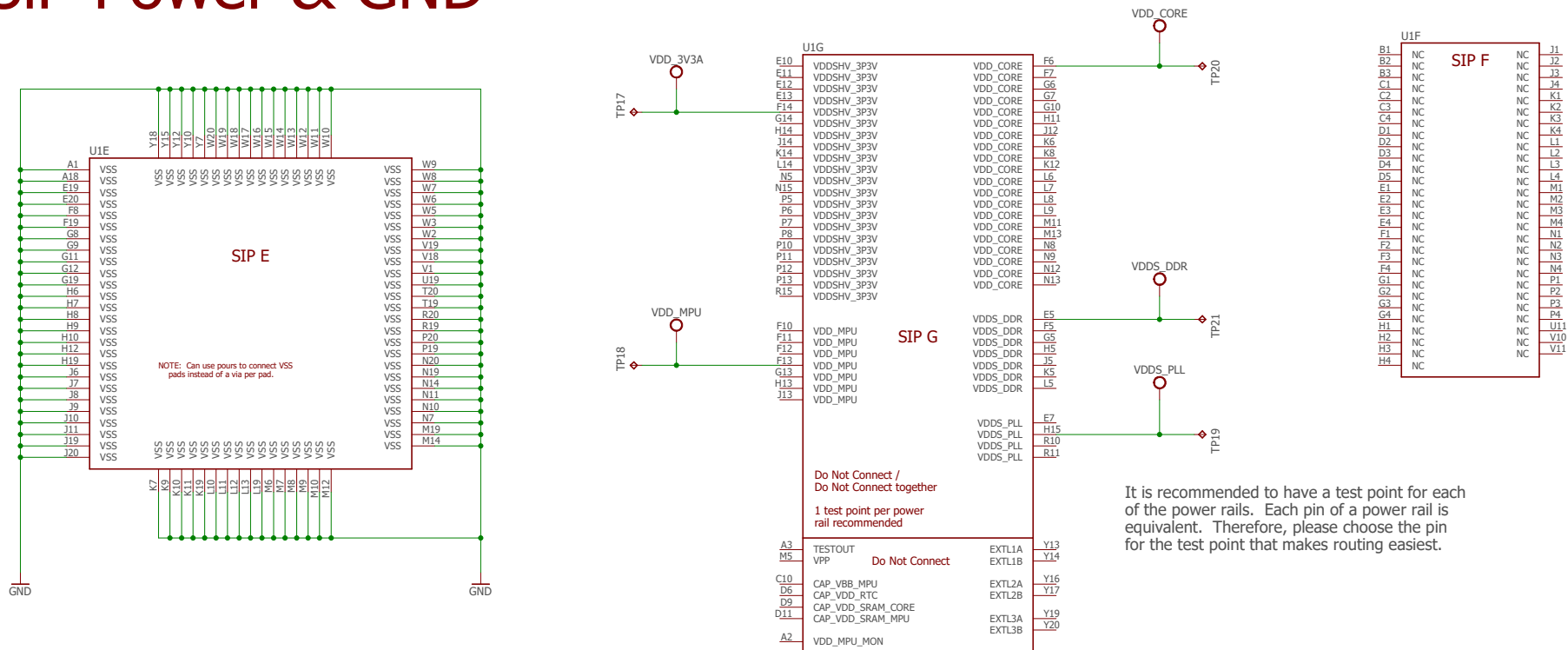


External clock to the McASP0 interface

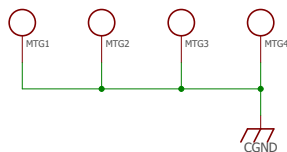
This clock divider is very noisy and care should be taken if re-using this circuit for the HDMI interface. It can cause challenges when trying to pass FCC / CE certification. R20 / R23 can be replaced with ferrite beads and C70 / C71 can be populated to help reduce EMI.



# SiP Power & GND



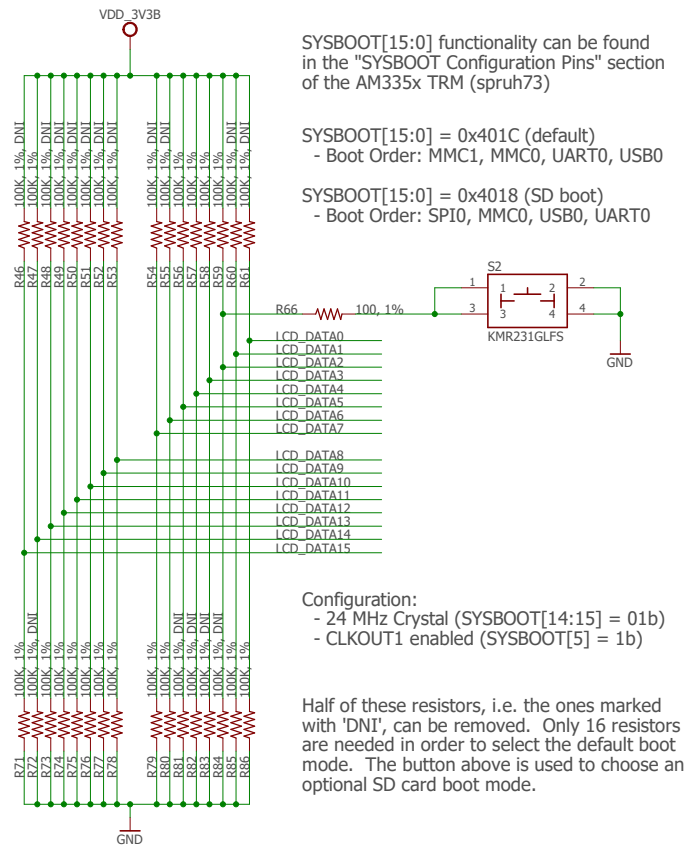
# Mounting Holes



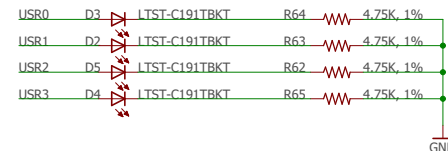
Mounting holes and other connector shields are part of a ground ring, CGND. This ring is connected to ground via a resistor on the Power & Reset Page.



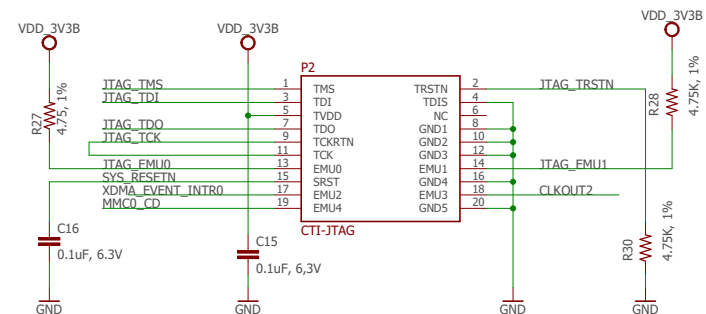
# Boot configuration



# User LEDs



# JTAG Header



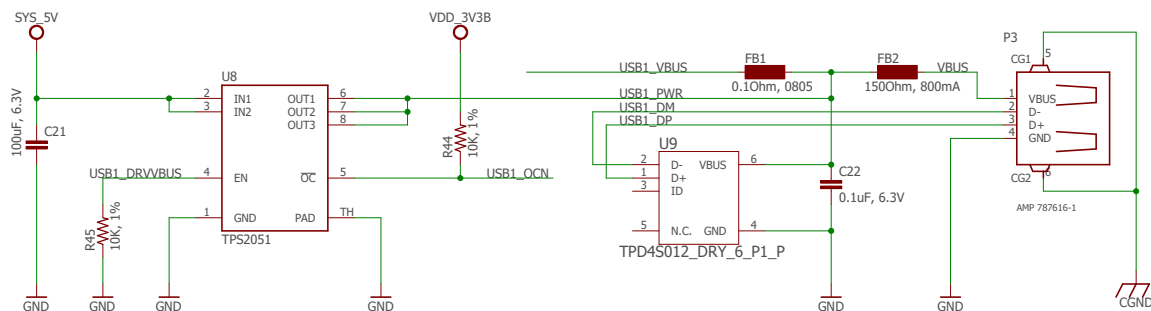
Only connect EMU2, EMU3 and EMU4 if you plan to use advanced JTAG features (HS-RTDX, Core Trace, System Trace, etc) of higher end debuggers:

- [http://processors.wiki.ti.com/index.php/JTAG\\_Connectors](http://processors.wiki.ti.com/index.php/JTAG_Connectors)
- [http://processors.wiki.ti.com/index.php/XDS\\_Target\\_Connection\\_Guide](http://processors.wiki.ti.com/index.php/XDS_Target_Connection_Guide)



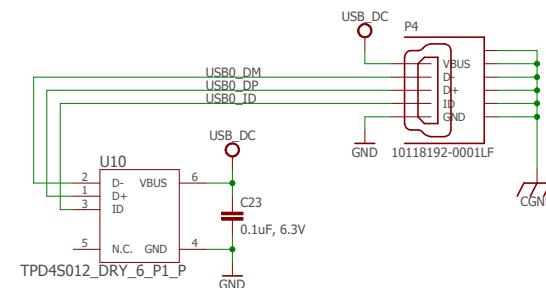
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# USB Host



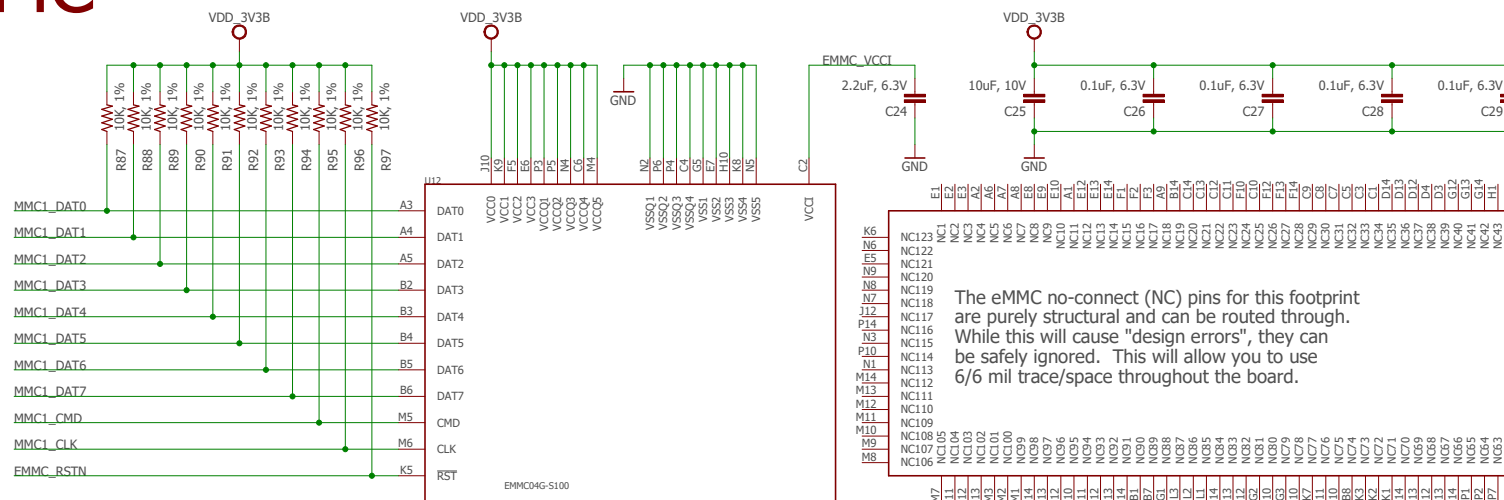
## 500mA current limiting switch

# USB Client



In the TPD4S012, the D-, D+ and ID pins have equivalent ESD circuits and can be used interchangeably in order to make routing easier. See <http://www.ti.com/lit/gpn/tpd4s012>

# eMMC



This design uses the 16GB SDIN8DE2-16G eMMC. Please choose an appropriate footprint compatible eMMC based on size and availability.



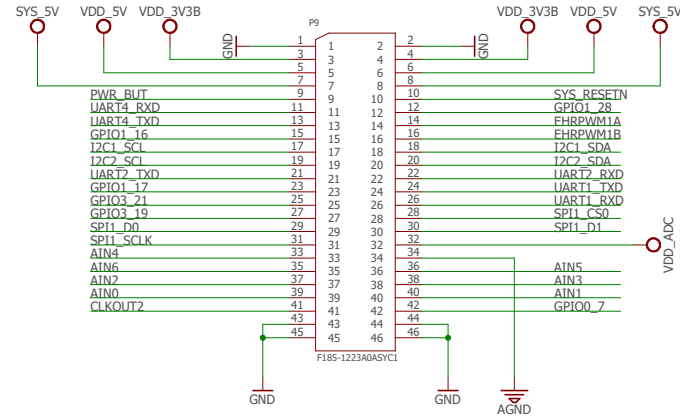
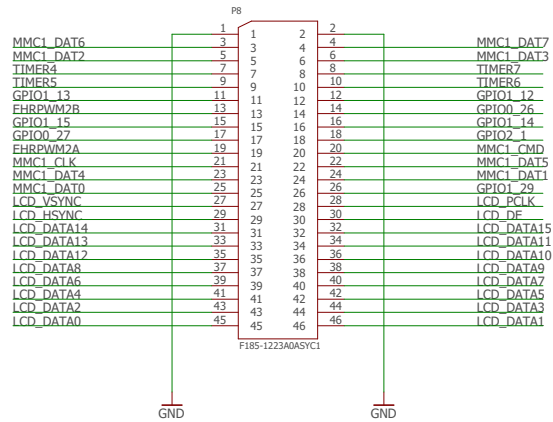
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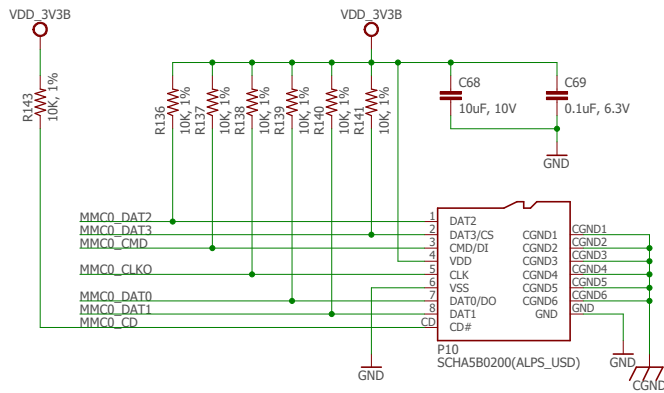
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# Cape Headers



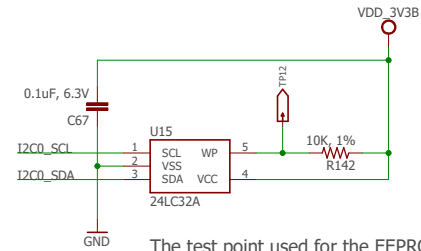
## Micro SD card slot



The SCHA5B0200 is obsolete. For future designs, replace with DM3BT-DSF-PEJS or equivalent part.

## EEPROM

I2C Address: 0x50



The test point used for the EEPROM-WP should be easily accessible and close to a ground pin. It is recommended to use a thru-hole test point so that it is easy to ground in order to program the EEPROM.



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# Ethernet

The schematic diagram illustrates the Ethernet PHY configuration for the OSD3358-BAS SBC. It shows the connection of the LAN8710 PHY (U13) to the SBC's internal PHY (LPJ00118BNL). Key components include resistors (R105-R129), capacitors (C30-C42), and a crystal (Y4). The SBC's internal PHY is configured for 10/100/1000 Mbps operation. The diagram is divided into sections A, B, C, D, and E, corresponding to the board's layout.

**Section A:** VDD\_3V3B, VDD\_PHYA, FB3 (150ohm, 800mA), C34 (0.1uF, 6.3V), R105 (1.5K, 1%), C30 (0.1uF, 6.3V), C31 (0.1uF, 6.3V), C32 (10uF, 10V), C35 (470pF, 6.3V), C33 (1uF, 10V).

**Section B:** MDIO\_DATA, MDIO\_CLK, MII1\_RXD3, MII1\_RXD2, MII1\_RXD1, MII1\_RXD0, MII1\_RXDV, MII1\_RXCLK, MII1\_RXERR, MII1\_TXCLK, MII1\_TXFN, MII1\_TXD0, MII1\_TXD1, MII1\_TXD2, MII1\_TXD3, MII1\_COL, MII1\_CRS\_DV, SYS\_RESETN, PHY\_XTAL1, PHY\_XTAL2, PHYX, C41 (30pF, 50V), C42 (30pF, 50V).

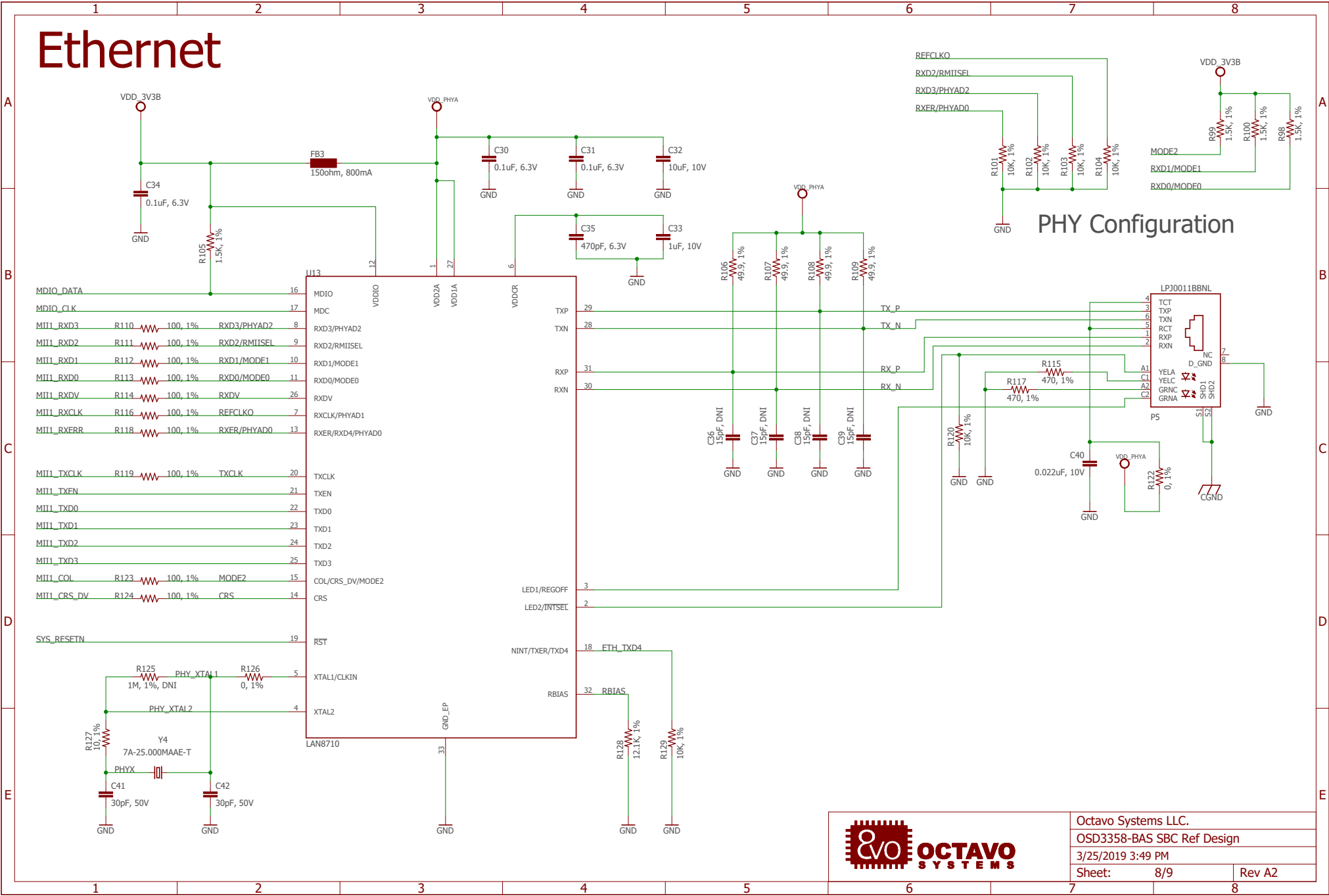
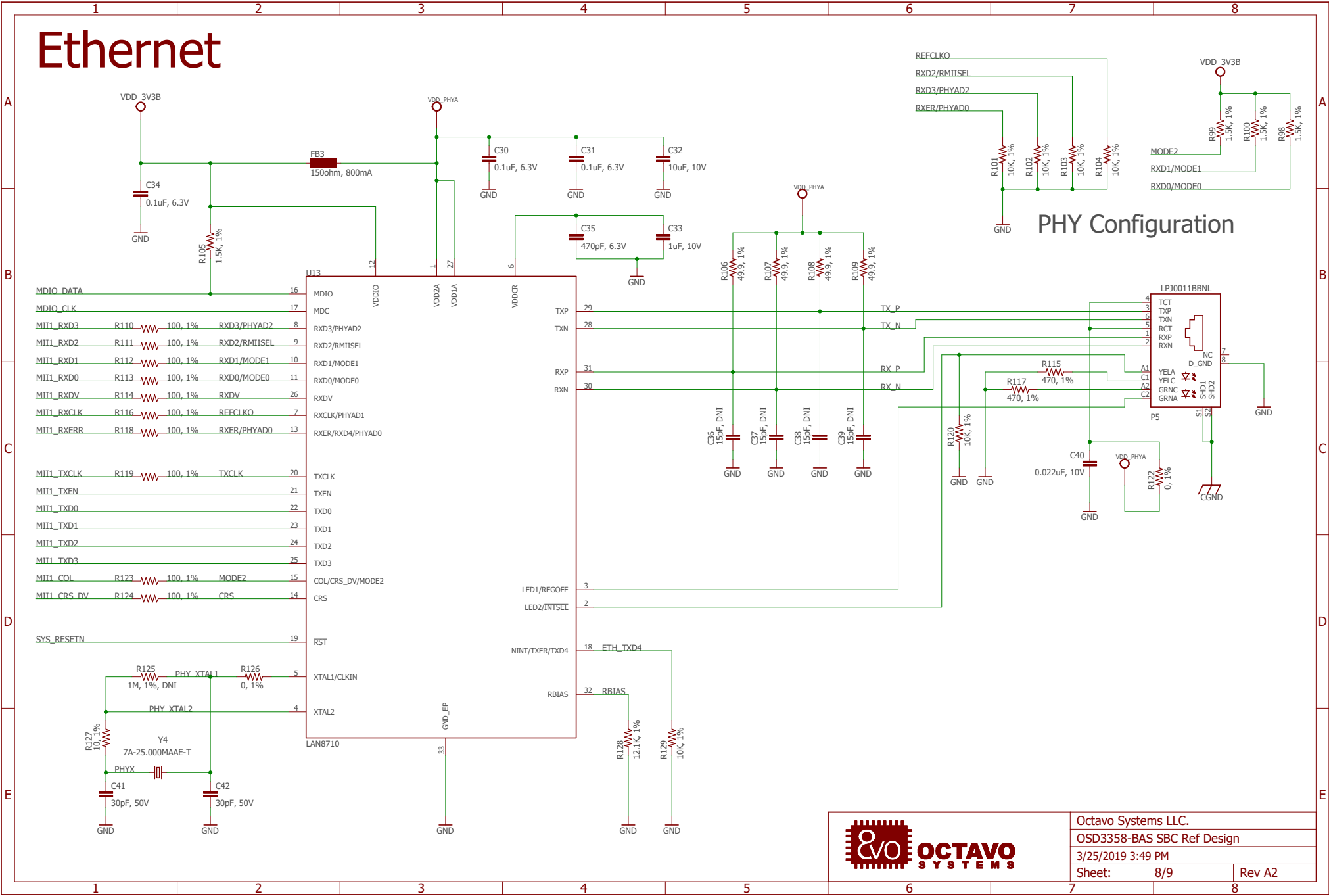
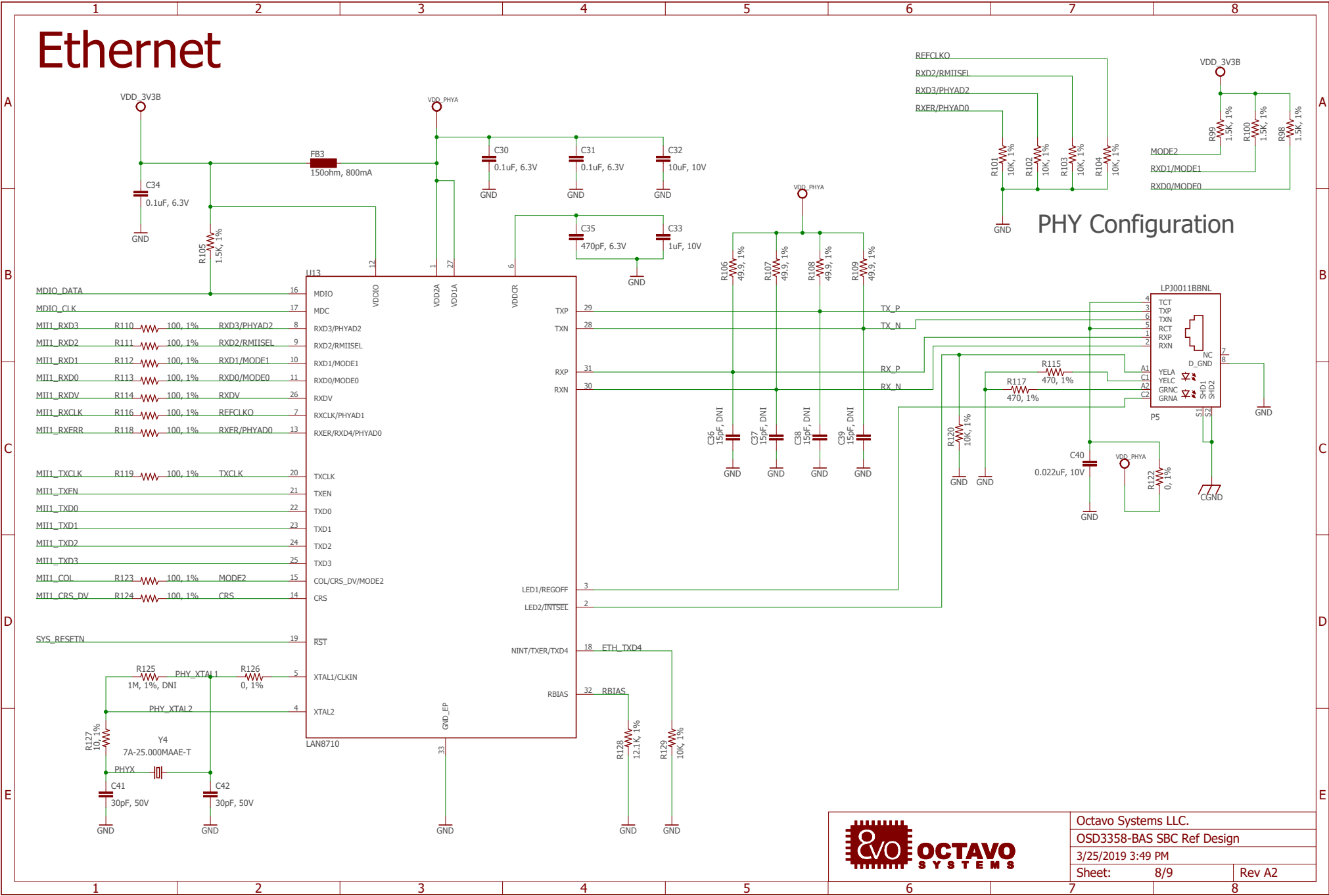
**Section C:** TX\_P, TX\_N, RX\_P, RX\_N, TXCLK, TXEN, TXD0, TXD1, TXD2, TXD3, COL/CRS\_DV/MODE2, CRS, RST, ETH\_TXD4, RBIAS.

**Section D:** TX\_P, TX\_N, RX\_P, RX\_N, TXCLK, TXEN, TXD0, TXD1, TXD2, TXD3, COL/CRS\_DV/MODE2, CRS, RST, ETH\_TXD4, RBIAS.

**Section E:** TX\_P, TX\_N, RX\_P, RX\_N, TXCLK, TXEN, TXD0, TXD1, TXD2, TXD3, COL/CRS\_DV/MODE2, CRS, RST, ETH\_TXD4, RBIAS.

**PHY Configuration:** REFCLKO, RXD2/RMIISEL, RXD3/PHYAD2, RXER/PHYAD0, MODE2, RXD1/MODE1, RXD0/MODE0, R101 (10K, 1%), R102 (10K, 1%), R103 (10K, 1%), R104 (10K, 1%), R106 (49.9, 1%), R107 (49.9, 1%), R108 (49.9, 1%), R109 (49.9, 1%), R110 (100, 1%), R111 (100, 1%), R112 (100, 1%), R113 (100, 1%), R114 (100, 1%), R116 (100, 1%), R118 (100, 1%), R119 (100, 1%), R123 (100, 1%), R124 (100, 1%), R125 (1M, 1%, DNI), R126 (0, 1%), R127 (10, 1%), R128 (12.1K, 1%), R129 (10K, 1%), R115 (470, 1%), R117 (470, 1%), R120 (10K, 1%), C40 (0.022uF, 10V), R122 (0, 1%).

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I2C Address: 0x70

