

KSZ9897 Evaluation Board with LAN7801 & KSZ9031

Revision History			
Revision	Date	Revision Summary	Author
0A	07-06-2016	Initial Schematic	J. Hancock
A	07-13-2016	Finalized Schematic	J. Hancock
A1	10-14-2016	Replaced 10k resistor on VIN of 3.3V regulator with 0 Ohm. DNP'd R95 & R97. Replaced RC values on SW_RESET_N. Replaced R24 with 1k. Added extra wire connection to J17 and J22. Added note to remove P6_TXC delay.	J. Hancock
B	12-02-2016	Incorporated all ECO changes from Rev A testing.	J. Hancock
B1	2-13-2017 3-27-2017	Replaced R49 and R89 values. Updated RGMII notes.	J. Hancock K. Maas

Block Diagram

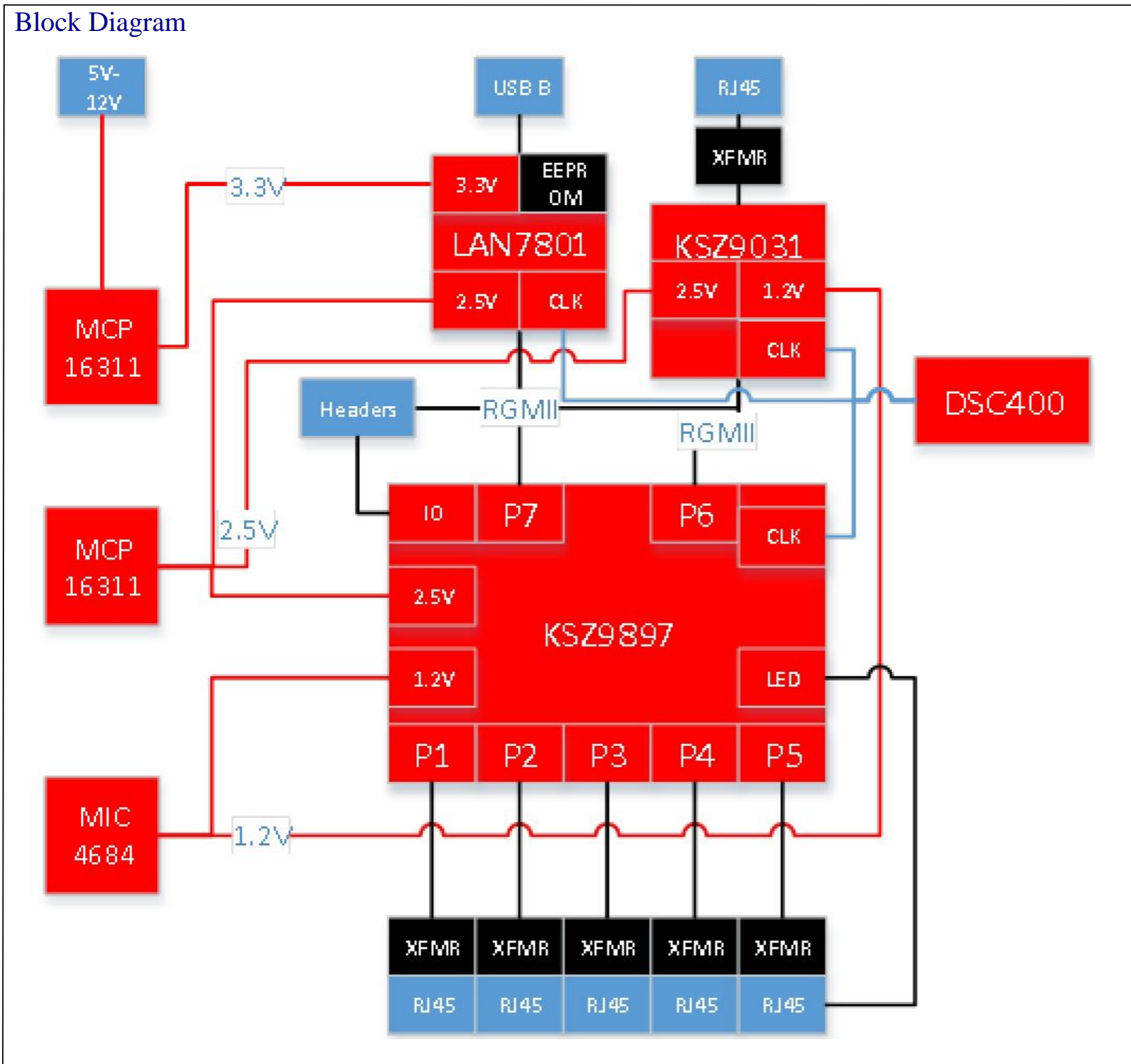
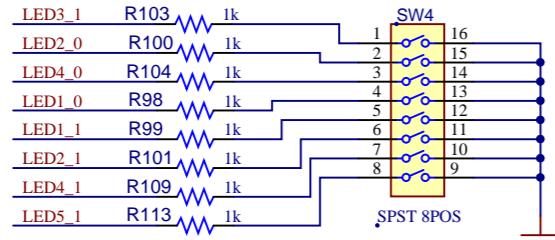
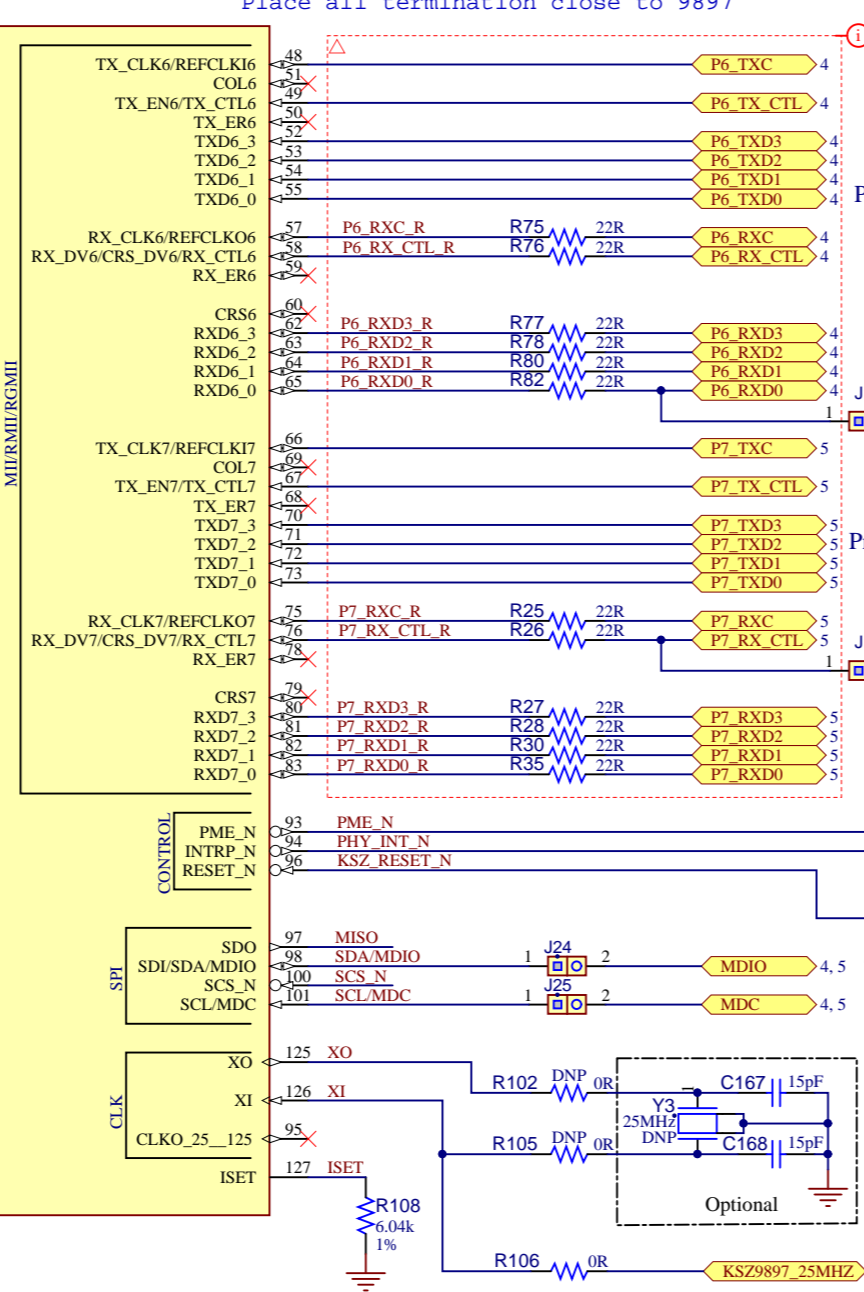
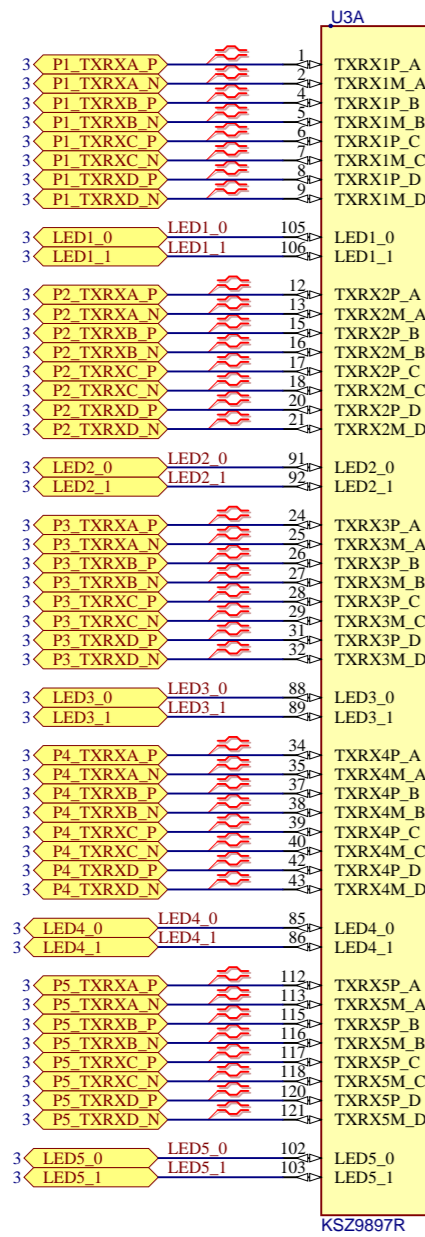


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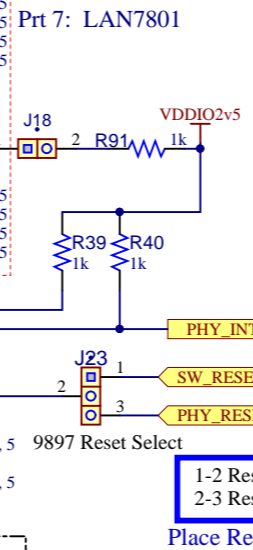
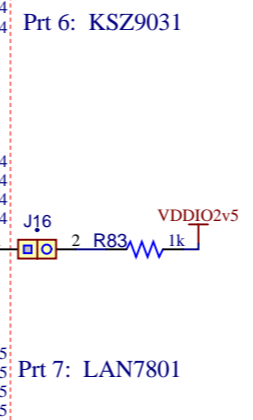
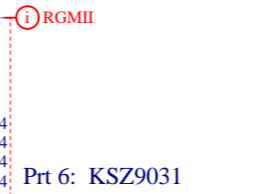
Sheet	Description
1	Block Diagram
2	KSZ9897 Functional
3	RJ45 Magjack Connectors
4	KSZ9031 Functional
5	LAN7801 64QFN Functional
6	LAN7801 / KSZ9897 Power & Regulators

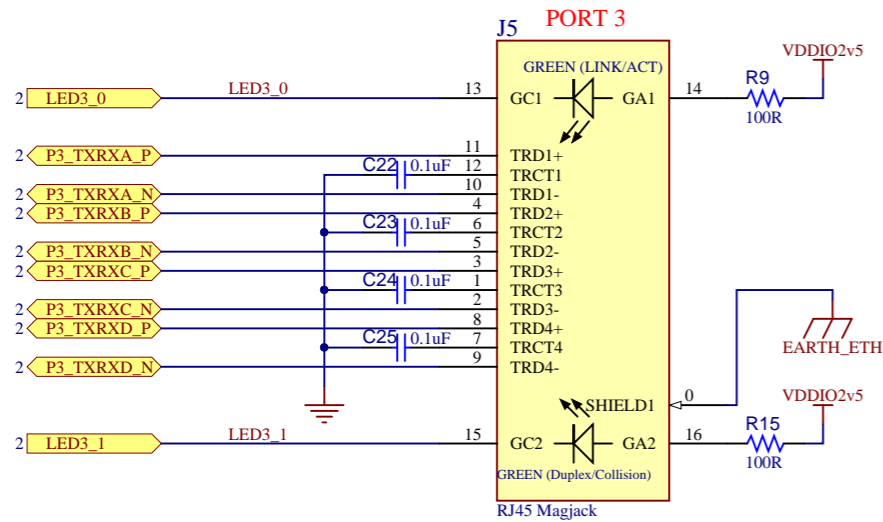
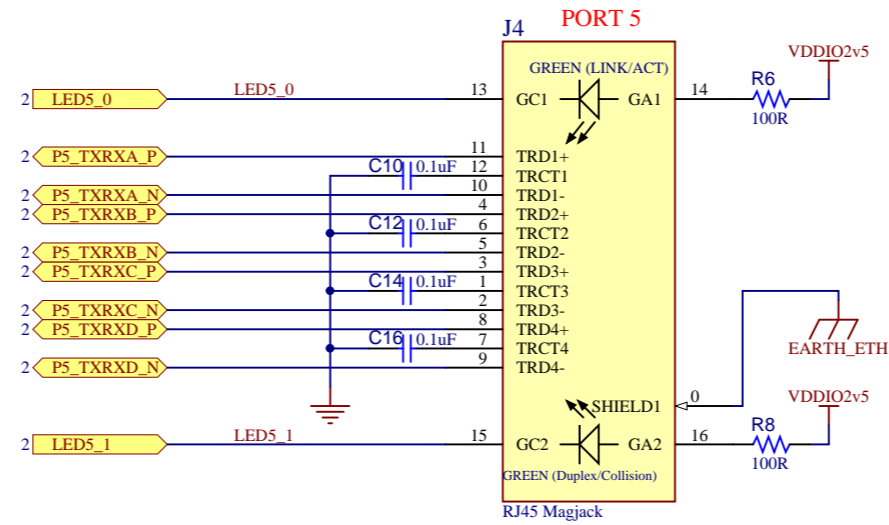
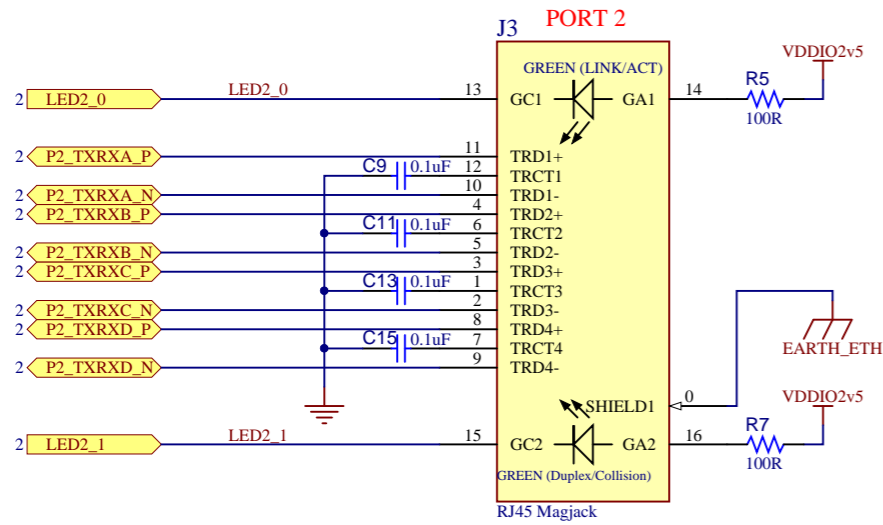
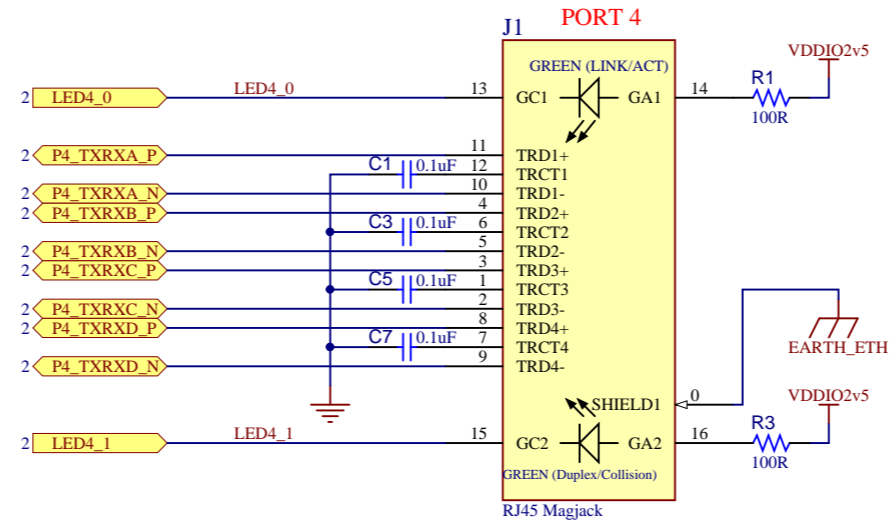
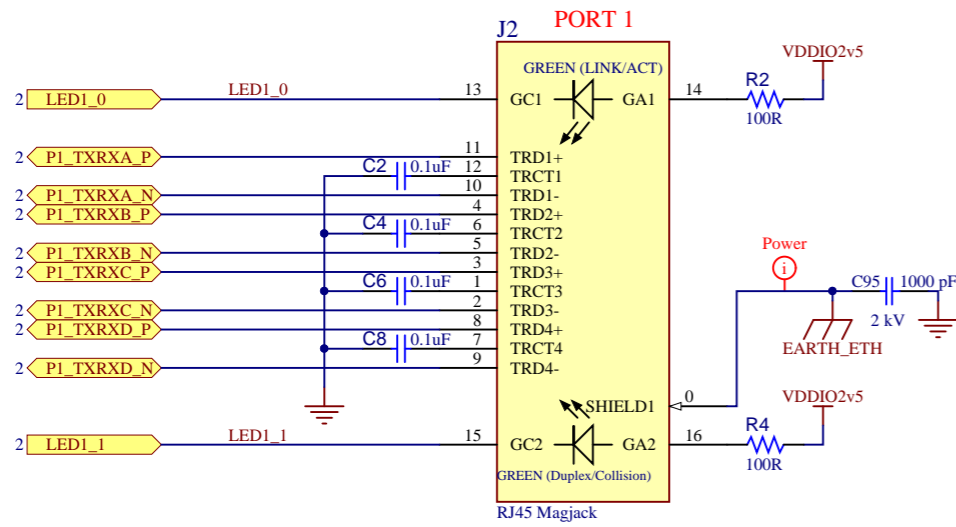


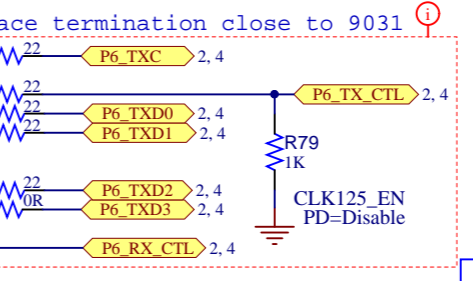
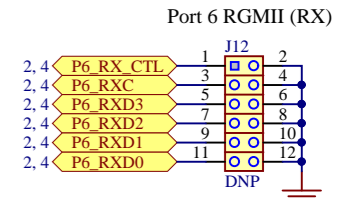
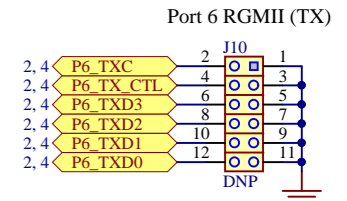
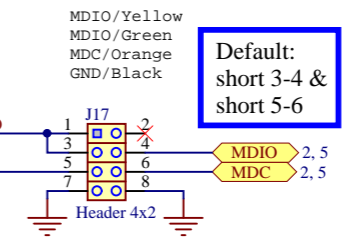
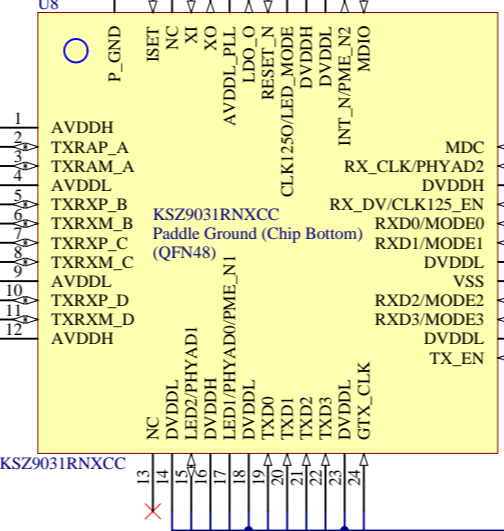
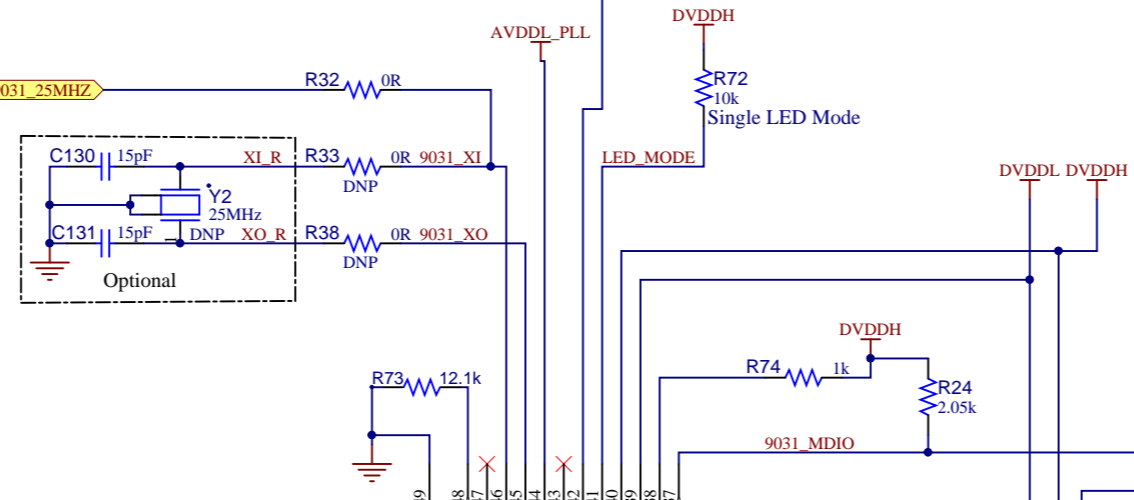
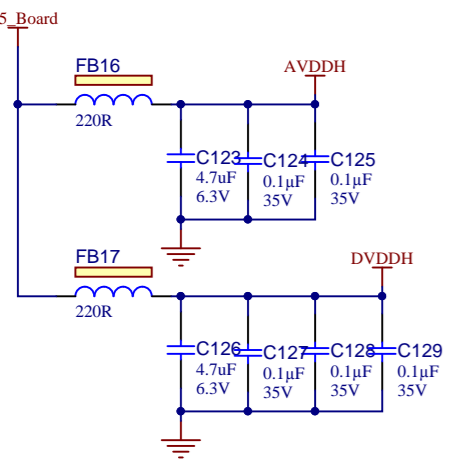
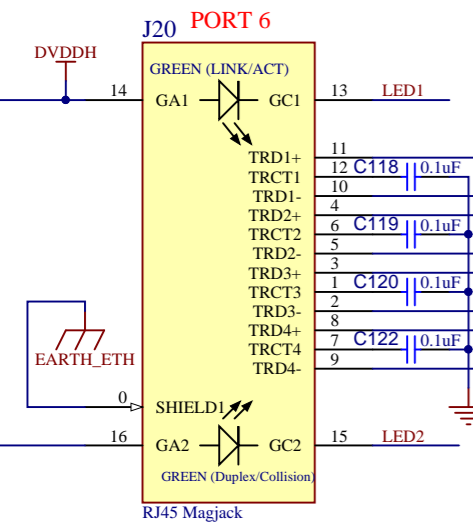
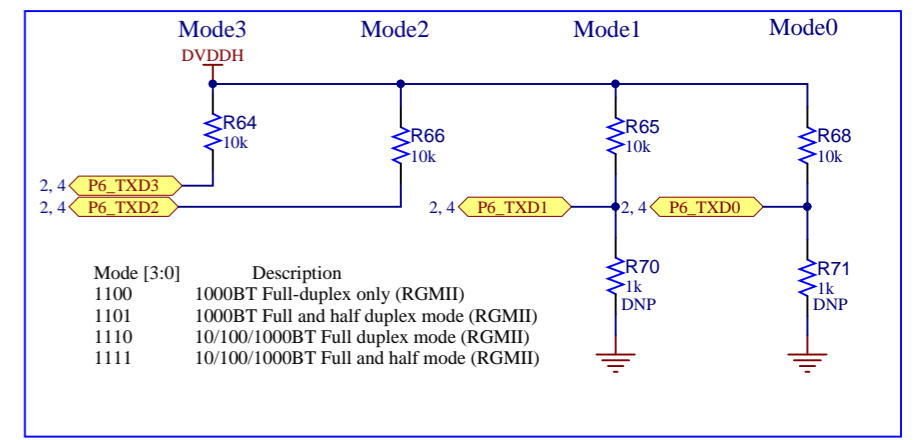
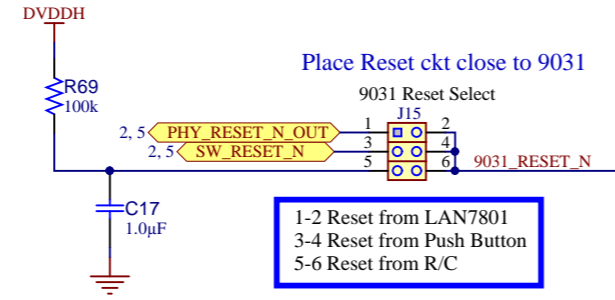
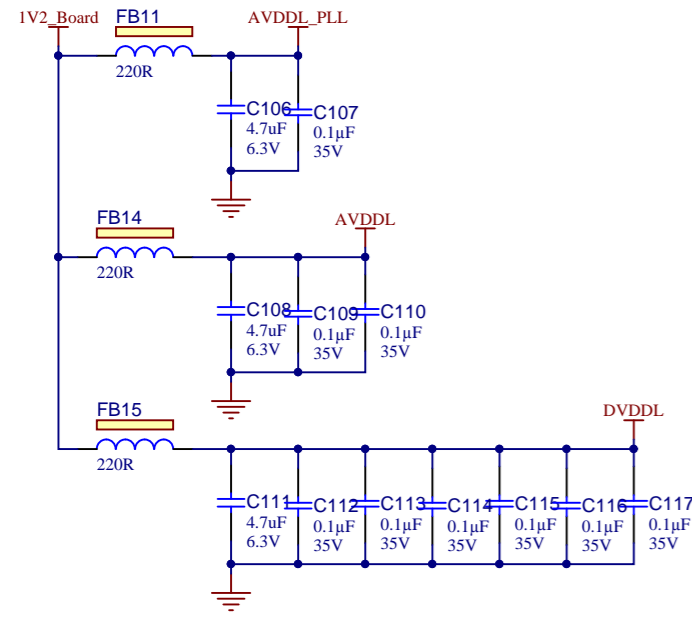
Strapping Options
(default = all LEDs low)

RGMIIL layout requirements

1. Match trace lengths within 100 mils.
2. RX signals do not need to be length matched to TX signals.
3. Due to KSZ9897 port 6 RGMIIL setup time requirement, P6_TXC must be routed for additional 1.2ns delay relative to P6_TXD[3:0] and P6_TX_CTL. The amount of required extra delay may differ for different VDDIO voltage or for a different device driving the signals.
4. Alternatively, the additional P6_TXC trace delay is not needed if the RGMIIL ingress delay bit is set in the KSZ9897: bit 4 in register 0x6301.







R49 is reduced to 0 ohms, and capacitor is installed at R89 to improve P6_TXD3 setup time at KSZ9897 relative to P6_TXC.

Reason: P6_TXC is routed 5 inches longer than the other P6_TX signals on this board, but this added delay is insufficient.

See note on sheet 2 about KSZ9897 port 6 RGMII signal routing.

