

TWR-MPC8309 Schematic

SCHEMATIC PAGE DESCRIPTION:

- 01: Cover
- 02: Reset, Clock and Switch
- 03: DDR2 and NOR Flash Memory
- 04: eLBC, Latch, Buffer and Logics
- 05: Display, SD Card and CAN
- 06: Ethernet Interface and Clock
- 07: Ethernet PHYs and RJ45
- 08: USB Interface and USB PHY
- 09: RS485, RS232 and RS232 MUX
- 10: PCI Interface and Mini PCI Connector
- 11: Primary and Secondary Elevators
- 12: ColdFire MCU, IEEE1588, JTAG and I2C Device
- 13: Audio CODEC
- 14: MPC Decoupling
- 15: Power Supplies

PCB MECHANICAL DETAILS:

- 1: PCB SIZE: 90mm x 70mm
- 2: PCB MATERIAL: FR4
- 3: NUMBER OF LAYERS: 08
- 4: IMPEDENCE CONTROL: YES

NOTES, UNLESS OTHERWISE SPECIFIED:

- 1. RESISTANCE TOLERANCE IS 5% IF NOT SPECIFIED
- 2. PARTS NOT INSTALLED ARE INDICATED WITH 'NP'.
- 3. SIGNAL NET NAMES WITH "#" SUFFIX, ARE ACTIVE LOW SIGNALS.
- 4. PACKAGE SIZE FOR DESCRETES IS "0402" IF NOT SPECIFIED

I2C2 ADRESS DETAILS

- 1. Audio CODEC, SGT15000 = 0x0A
- 2. Digital Accelerometer, MMA8541 = 0x1C
- 3. MPR121 on Display Module = 0x5B (ADDR pin = VDD)

MAJOR REVISION HISTORY:

PCB REV.	SCM REV.	DESCRIPTION	DATE
30	A	Initial Version	4/12/2011
31	B	Production Version	9/14/2011
32	C	Modify Audio	10/26/2011

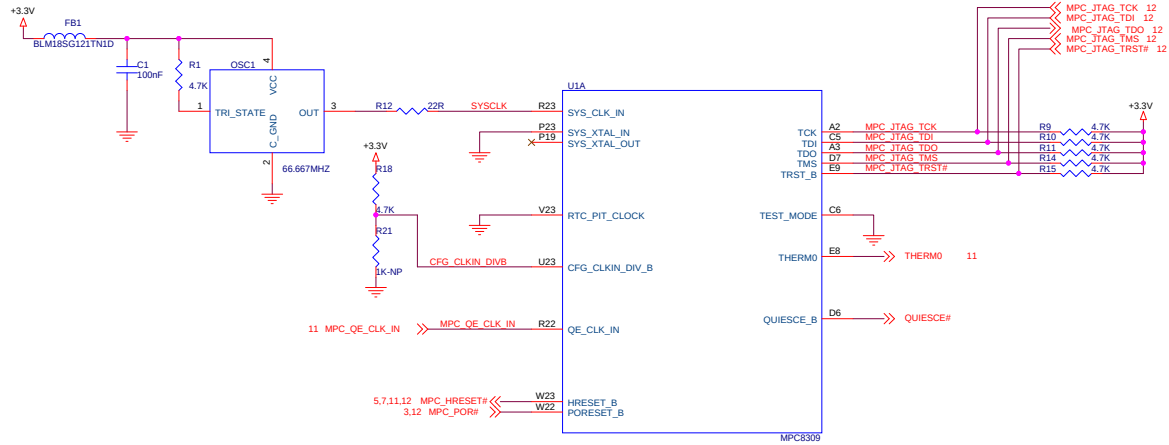
VOLTAGE RAIL NOTATION

PWR RAIL	DESCRIPTION
+5V	5.0V Input voltage from sources
+5V_ELEV	5.0V Input/output voltage to/from tower system
+3.3V	3.3V MPC & Other I/O Voltage
+3.3V_ELEV	3.3V Output to Tower system
+1.8V	1.8V MPC & DDR I/O voltage
+1.0V	1.0V MPC Core Voltage

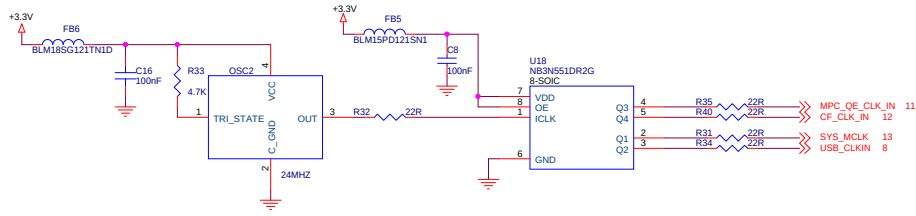
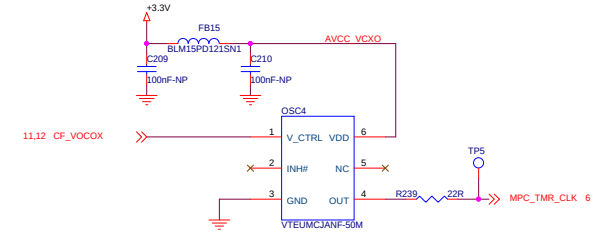
COMPONENT MOUNT / UNMOUNT NOTATIONS:

NOTATION (IN "MOUNTING" PROPERTY FIELD)	MOUNTING INSTRUCTIONS
BLANK	COMPONENT TO BE POPULATED
NP	NOT POPULATE

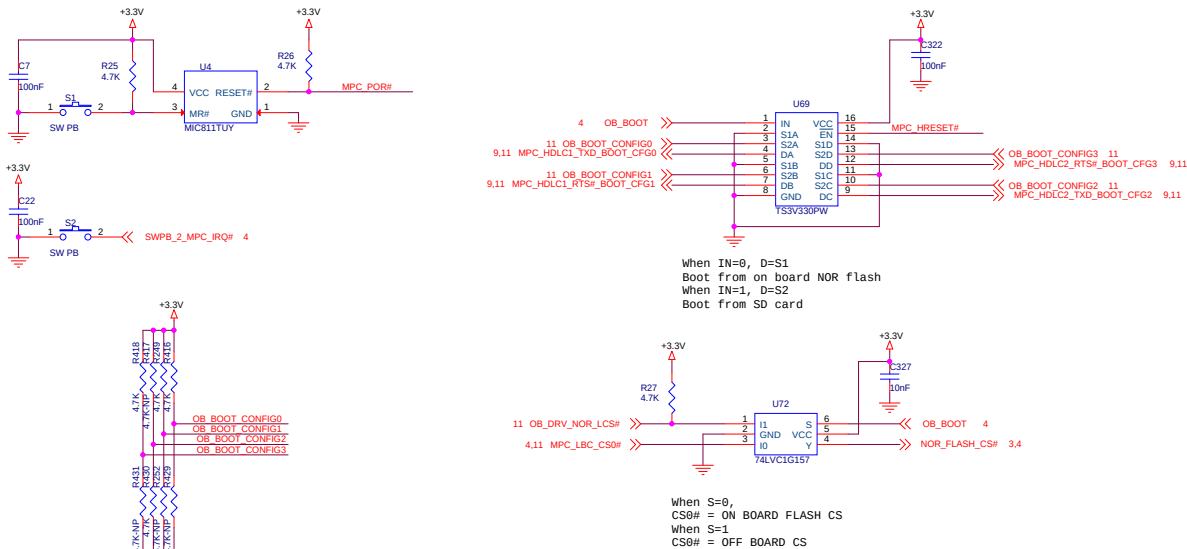
MPC RESET, CLOCK & Switch



IEEE1588 Clock Generation



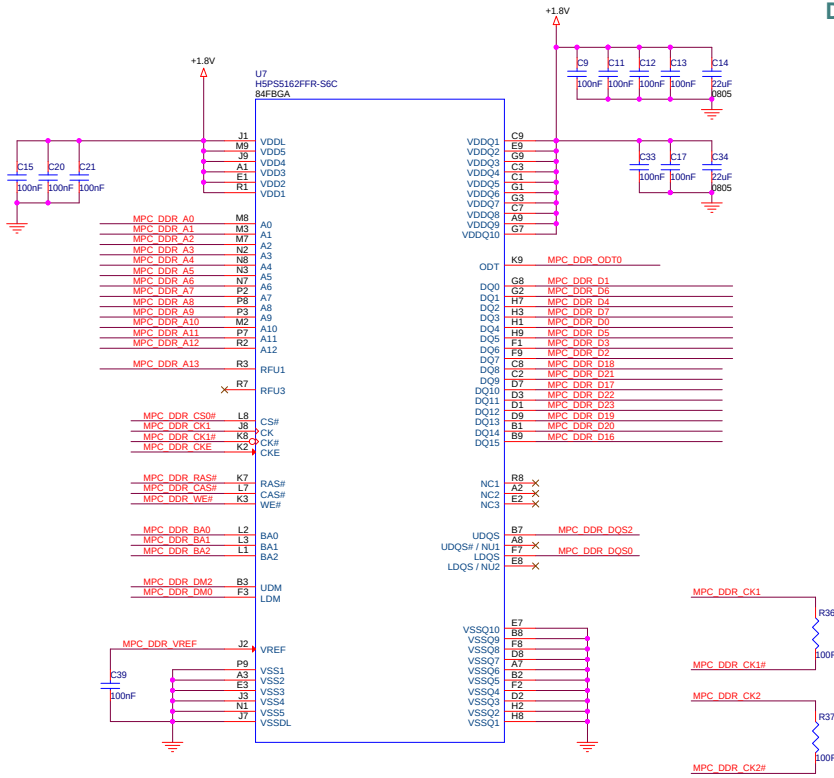
MPC Boot MUX

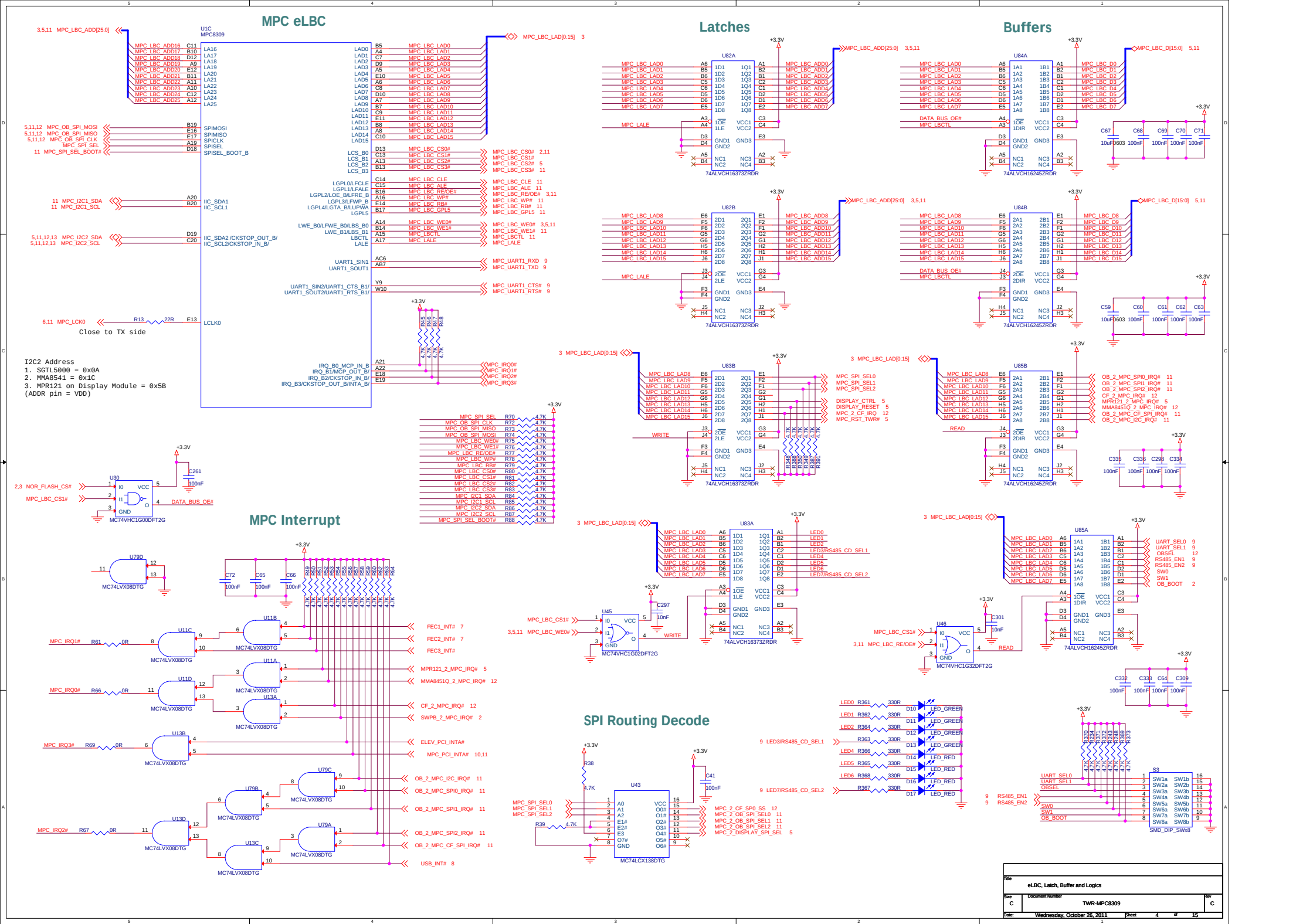


Reset Configuration Words Source

CFG_RESET SOURCE[0:3]	DESCRIPTION
0000	RCW from eLBC NOR (Default)
0001	RCW from eLBC NAND (small page 8-bit)
0010	Reserved
0011	Reserved
0100	RCW from I2C
0101	RCW from eLBC NAND (large page 8-bit)
0110	Reserved
0111	Reserved
1000	RCW hard-coded, boot from eLBC
1001	RCW hard-coded, boot from eLBC
1010	RCW hard-coded, boot from eLBC
1011	RCW from eLBC NOR
1100	RCW hard-coded, boot from eLBC
1101	RCW hard-coded, boot from eSDHC (OB_BOOT default)
1110	RCW hard-coded, boot from eSDHC
1111	RCW hard-coded, boot from SPI

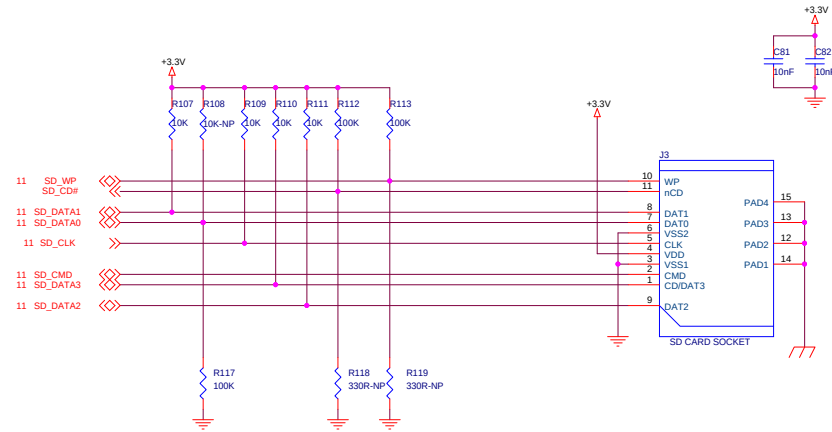
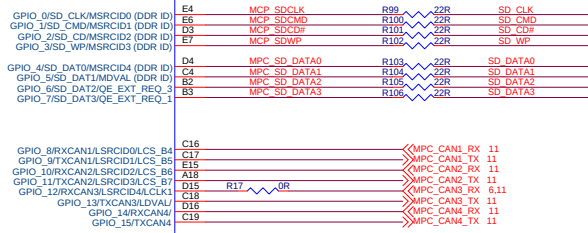
DDR2 Memory



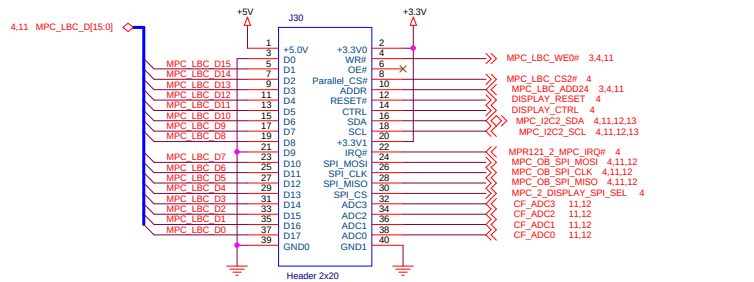


Display, SD Card and CAN Signals

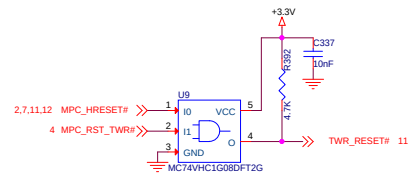
U1D
MPC8309



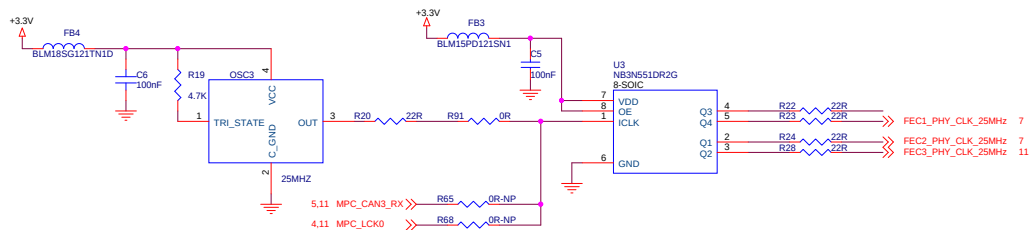
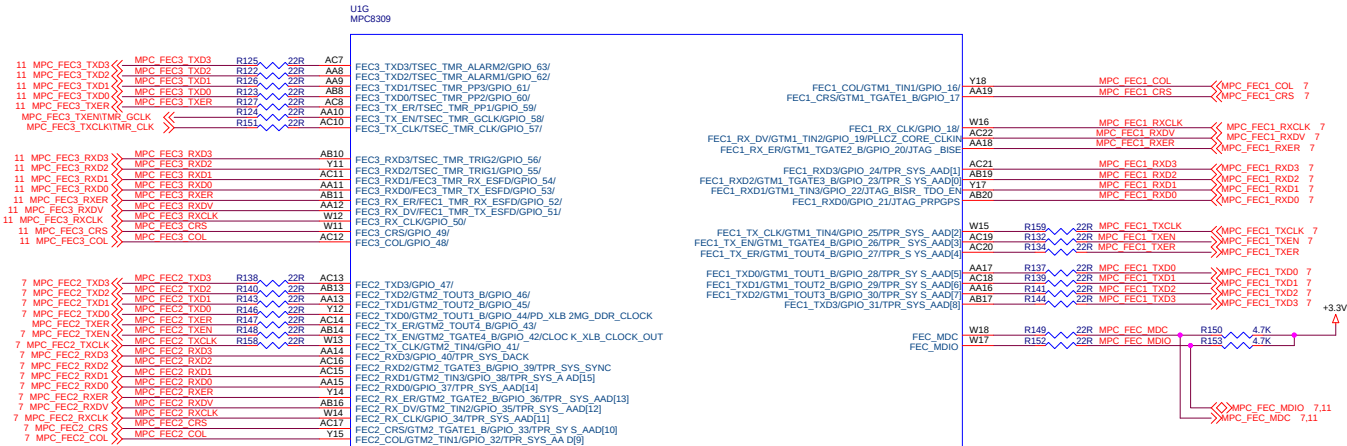
Display Connector



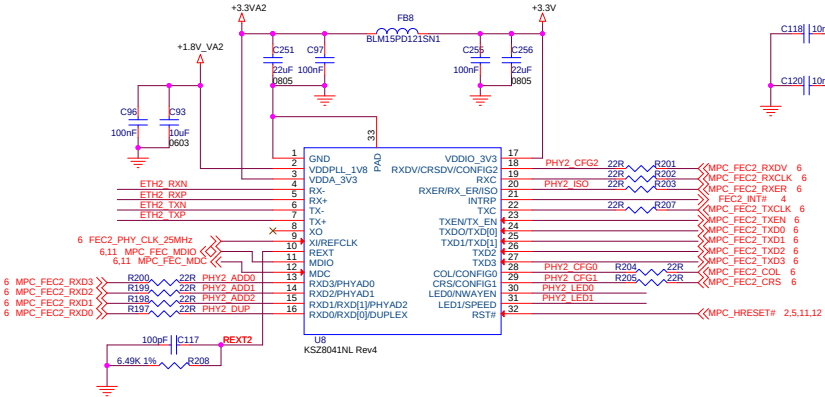
I2C Address = 0x5B
Assume MPR121 on Display Module with ADDR pin = VDD



MPC FEC1,FEC2 & FEC3



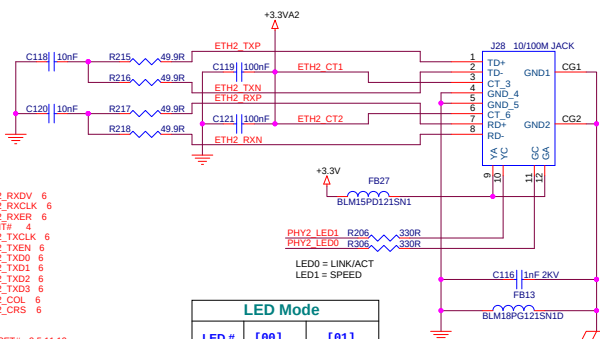
10/100 ETHERNET PHY



LED Mode		
LED #	[00]	[01]
LED0	LINK/ACT	LINK
LED1	SPEED	SPEED

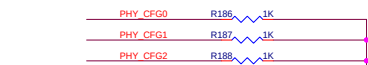
Note:
Software: Configure LED mode for [00] setting

10/100 RJ45 with Magnetics

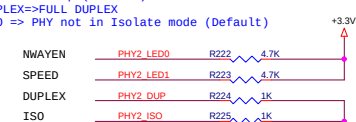


PHY BOOT STRAPS

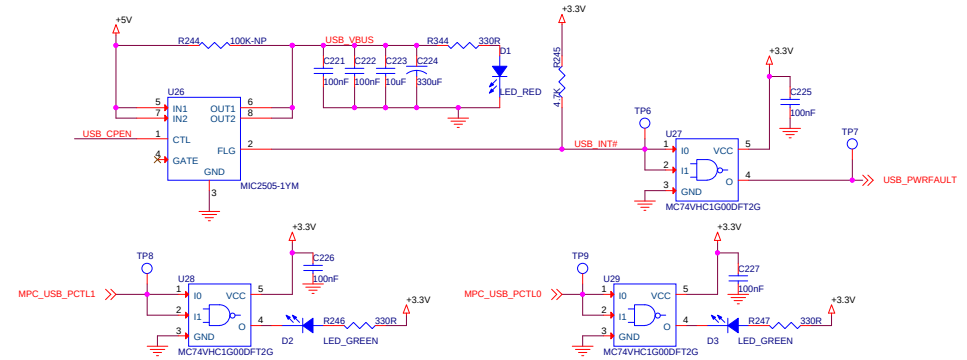
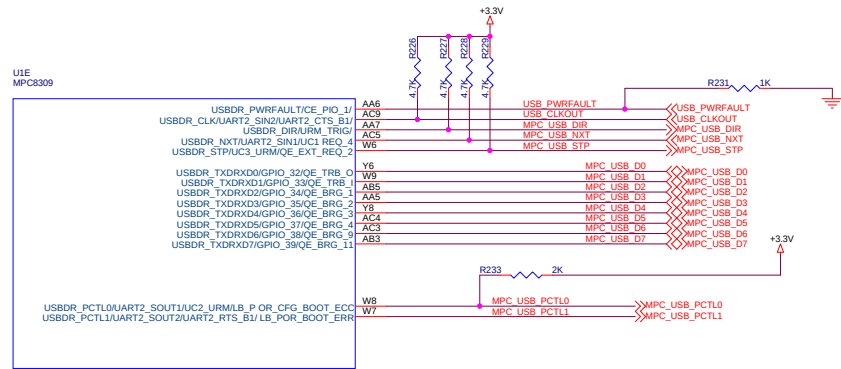
```
PHY ADDRESS[4:0]=>0X00010
```



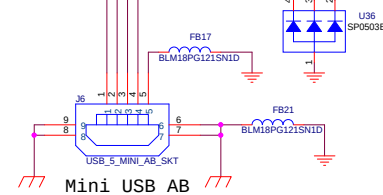
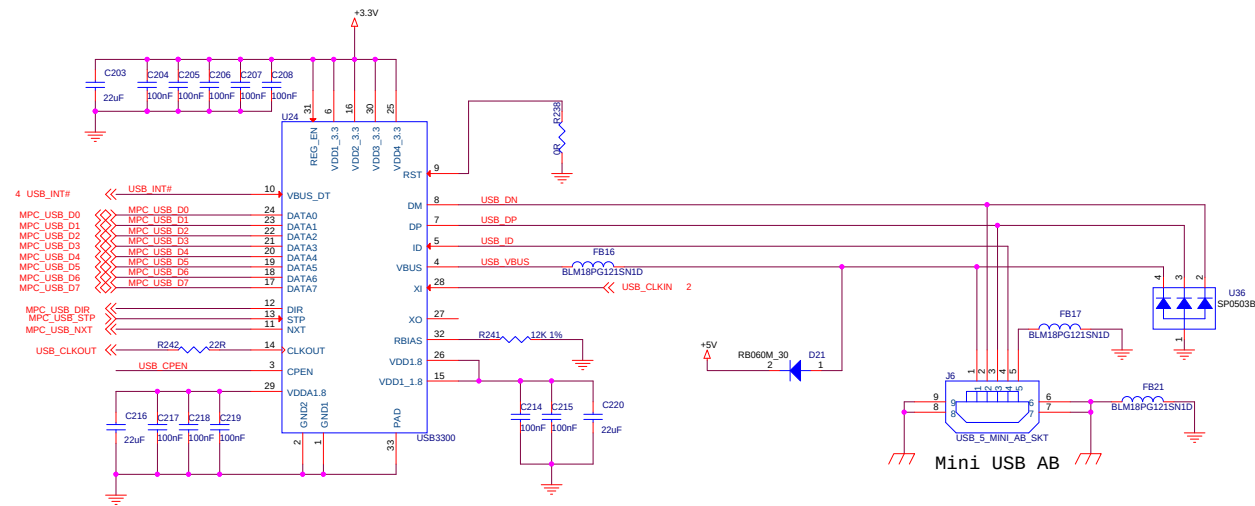
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NWAYEN=>Auto Nego Enable(default)
SPEED=>100Mbps(default)
DUPLEX=>FULL DUPLEX
ISO => PHY not in Isolate mode (Default)
```



USB Interface

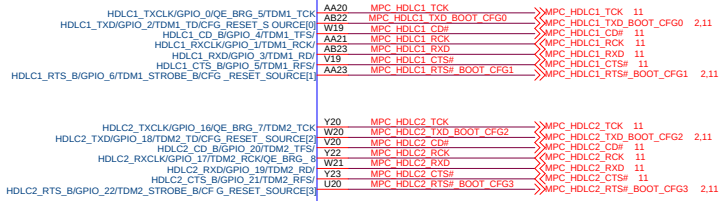


USB PHY

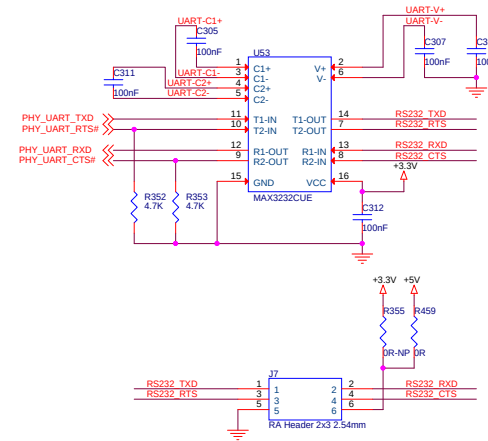


U1H
MPC8309

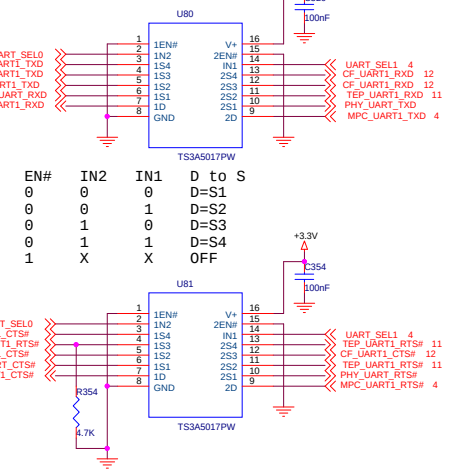
MPC - HDLC



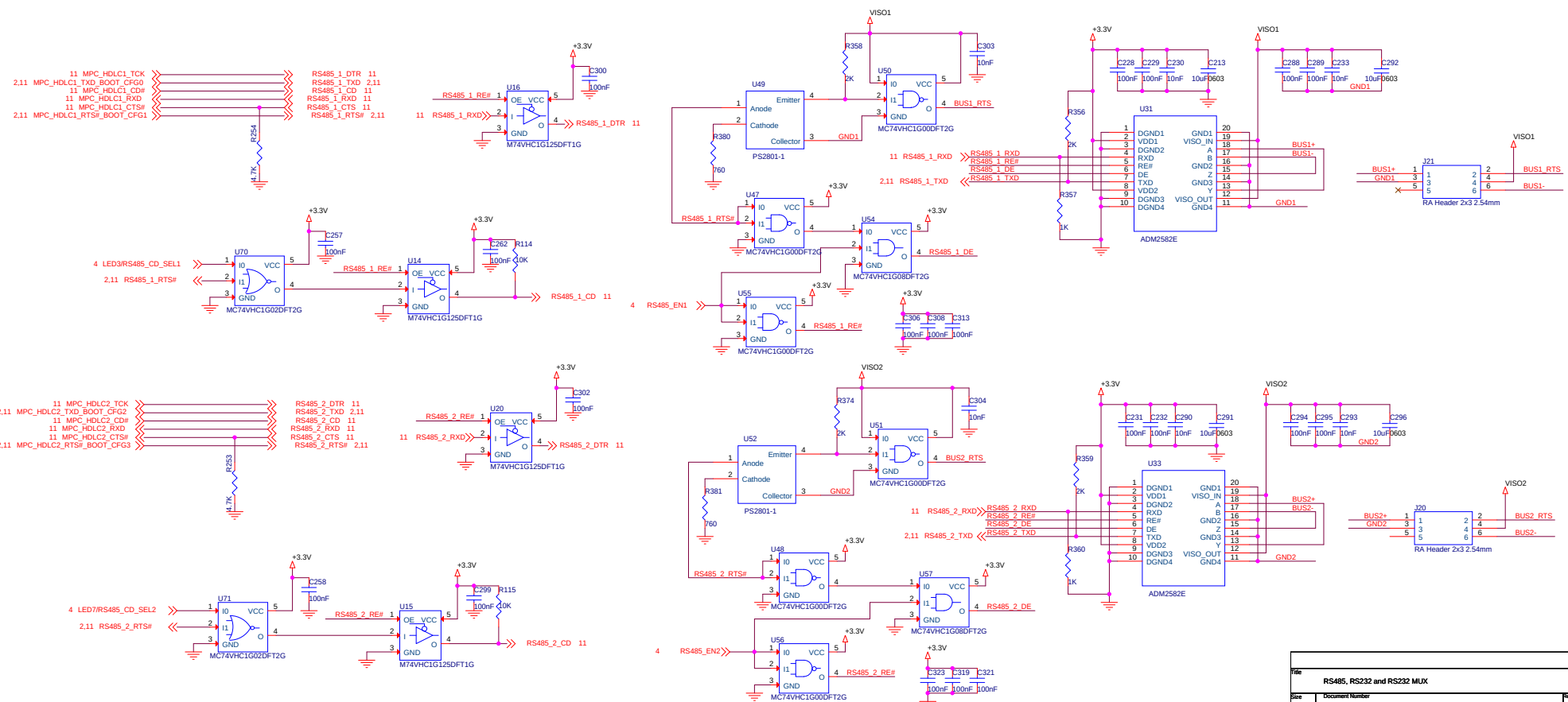
RS232 PHY



Quad 4:1 mux



UCC5 & UCC7 - RS485



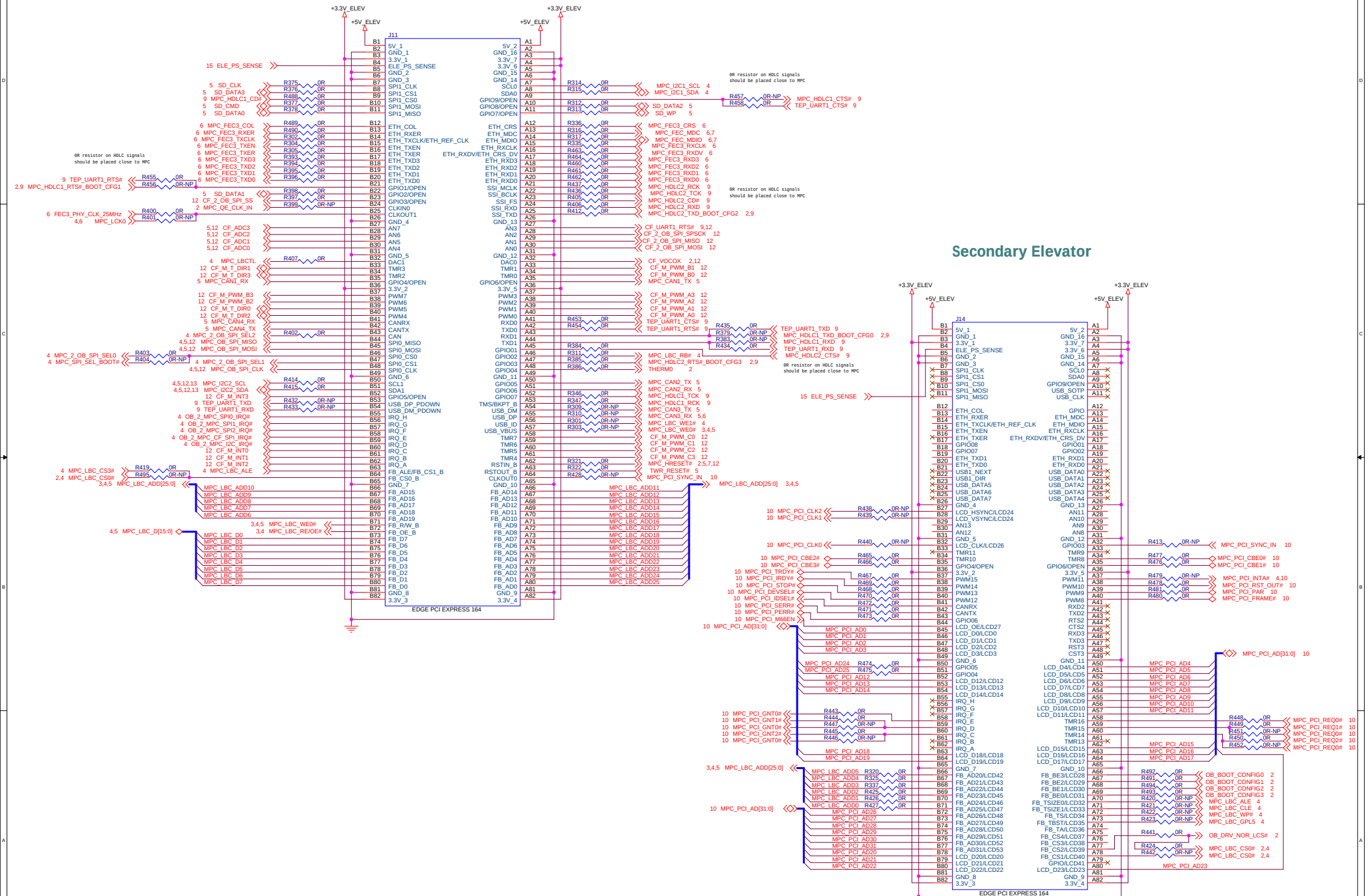
U1F
MPC8309



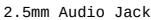
+5V



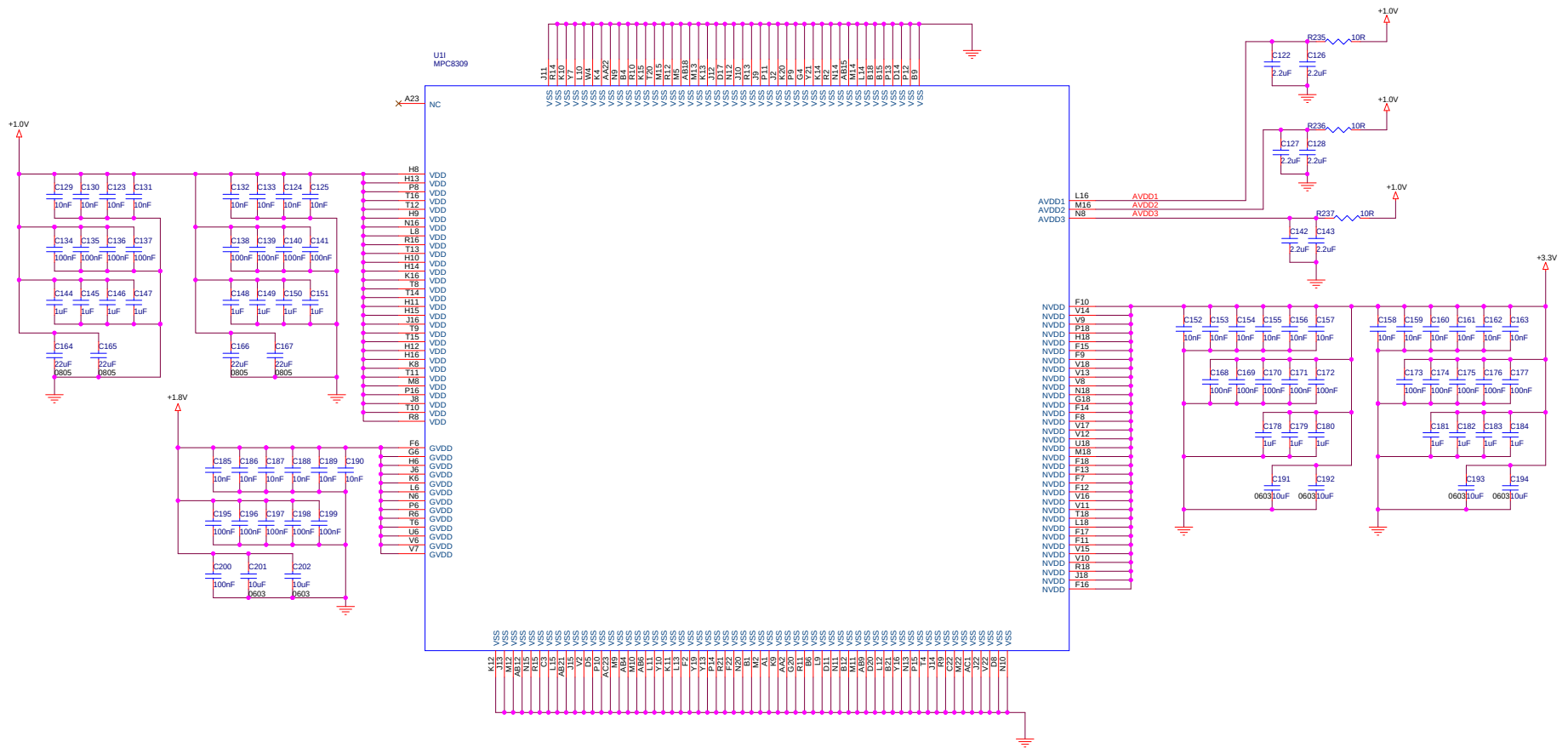
Primary Elevator



Audio CODEC

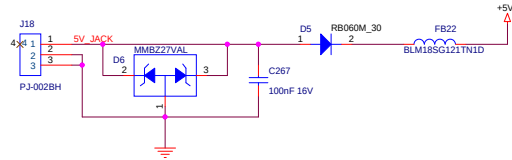


MPC Decoupling

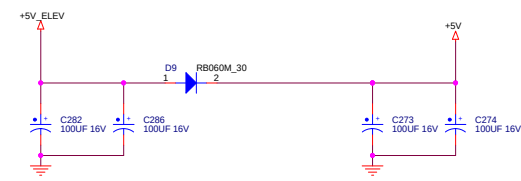


Power Supplies

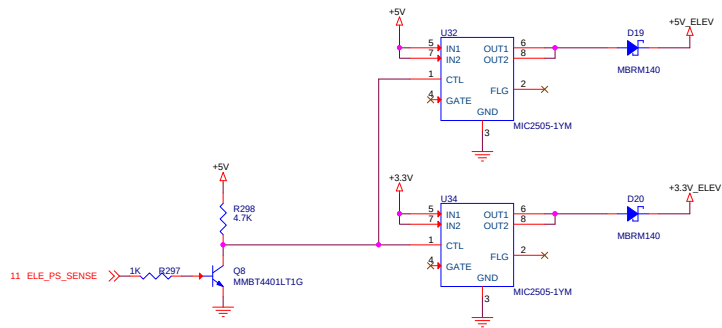
External Power Input



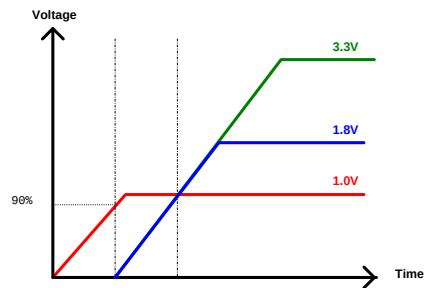
Tower Power Input



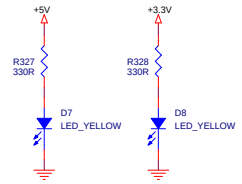
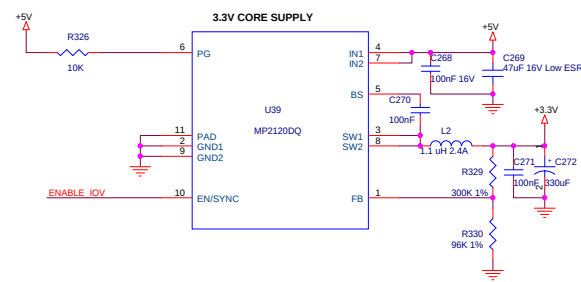
When ELE_PS_SENSE = 0,
Drive on board +3.3V to +3.3V_ELEV and +5V to +5V_ELEV
When ELE_PS_SENSE = 1,
Disconnect +3.3V_ELEV from on board +3.3V and +5V_ELEV from +5V



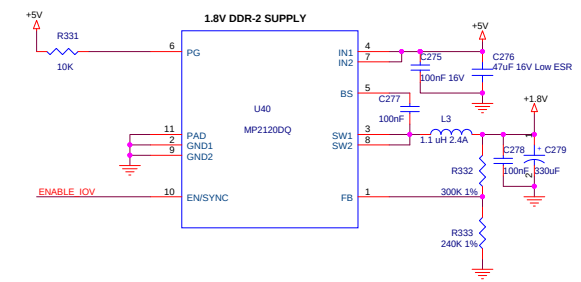
Power-up Sequence



3.3V @ 2.5A POWER SUPPLY



1.8V @ 2.5A POWER SUPPLY



1.0V @ 2.5A POWER SUPPLY

