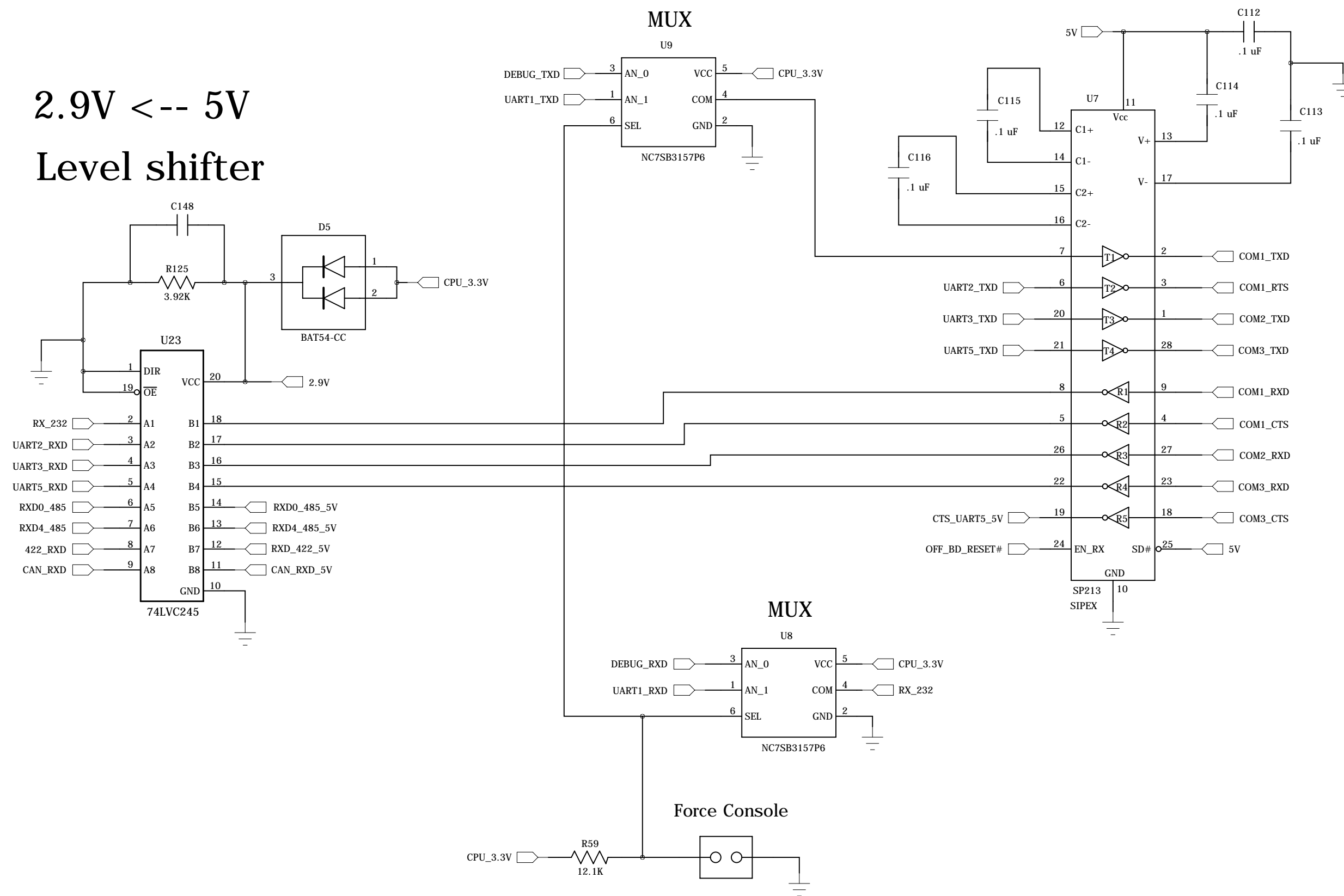
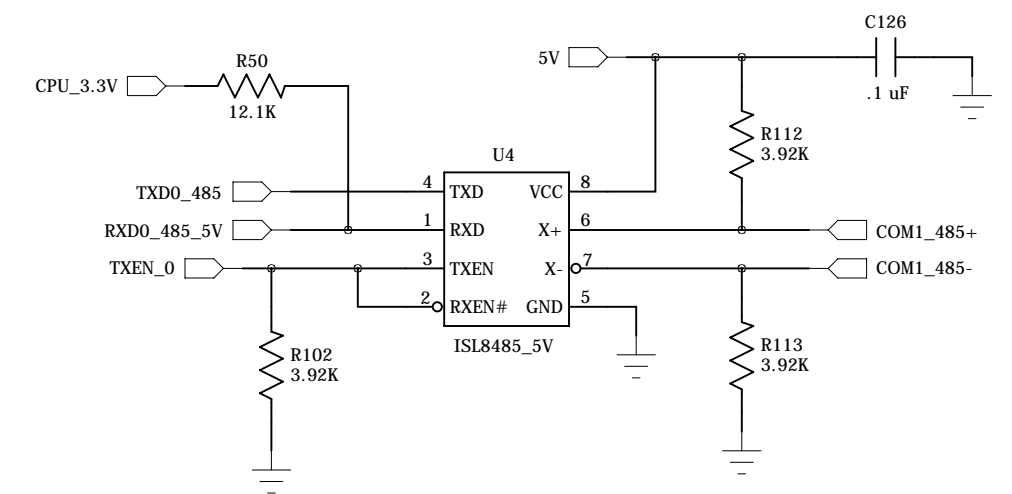


# RS-232 Transceiver

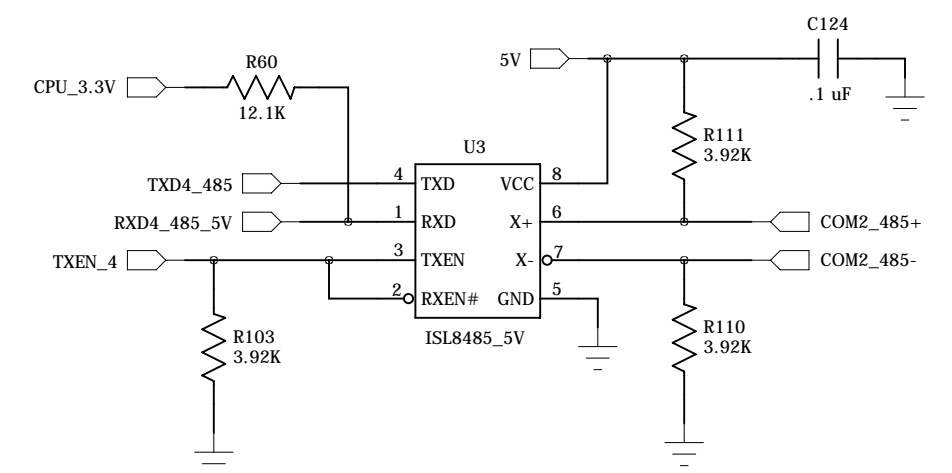
2.9V <-- 5V  
Level shifter



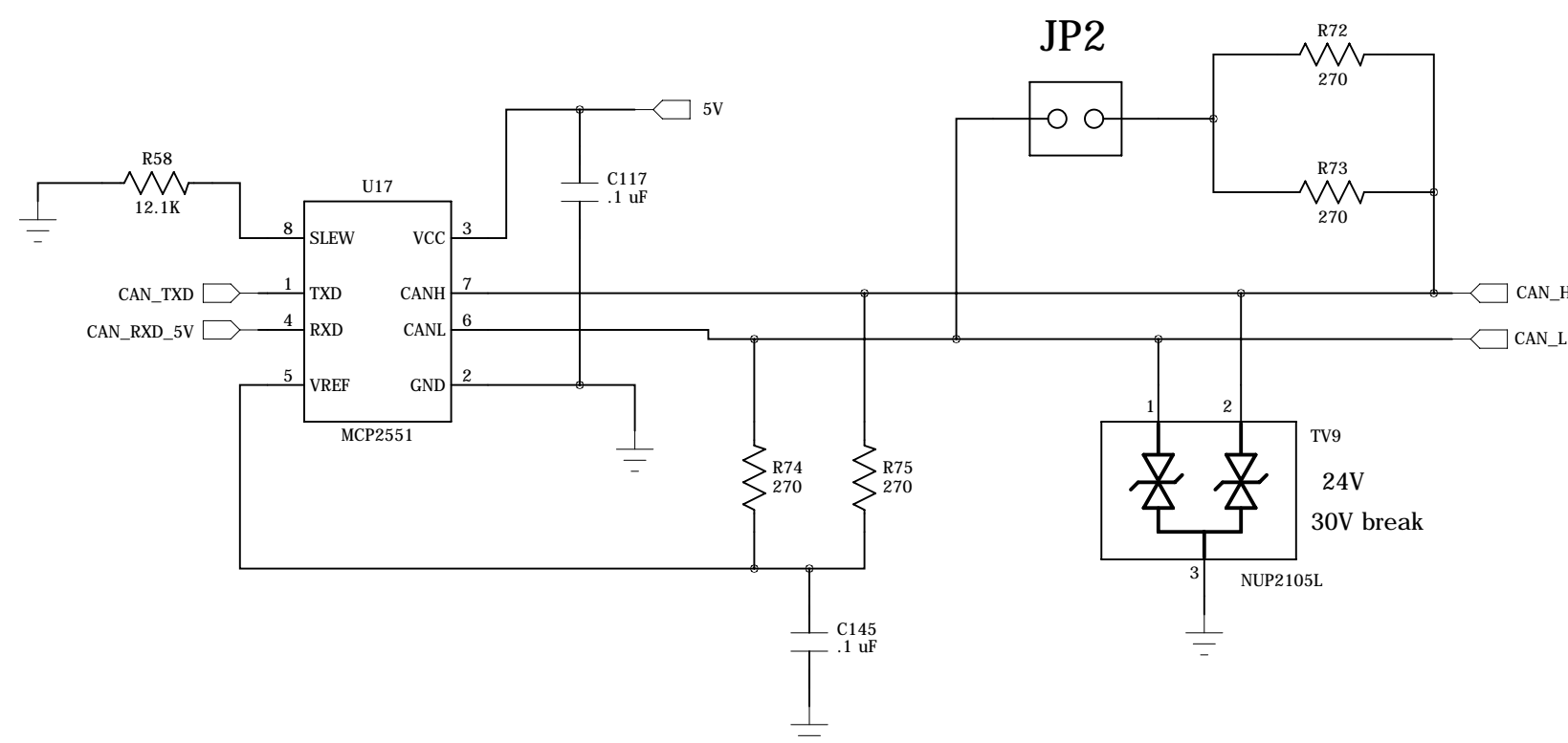
# COM1 RS-485 Driver



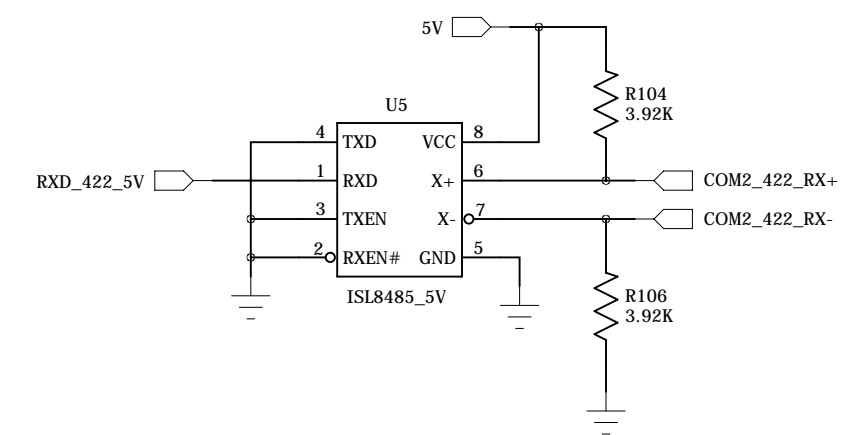
# COM2 RS-485 Driver



# Primary CAN Transceiver

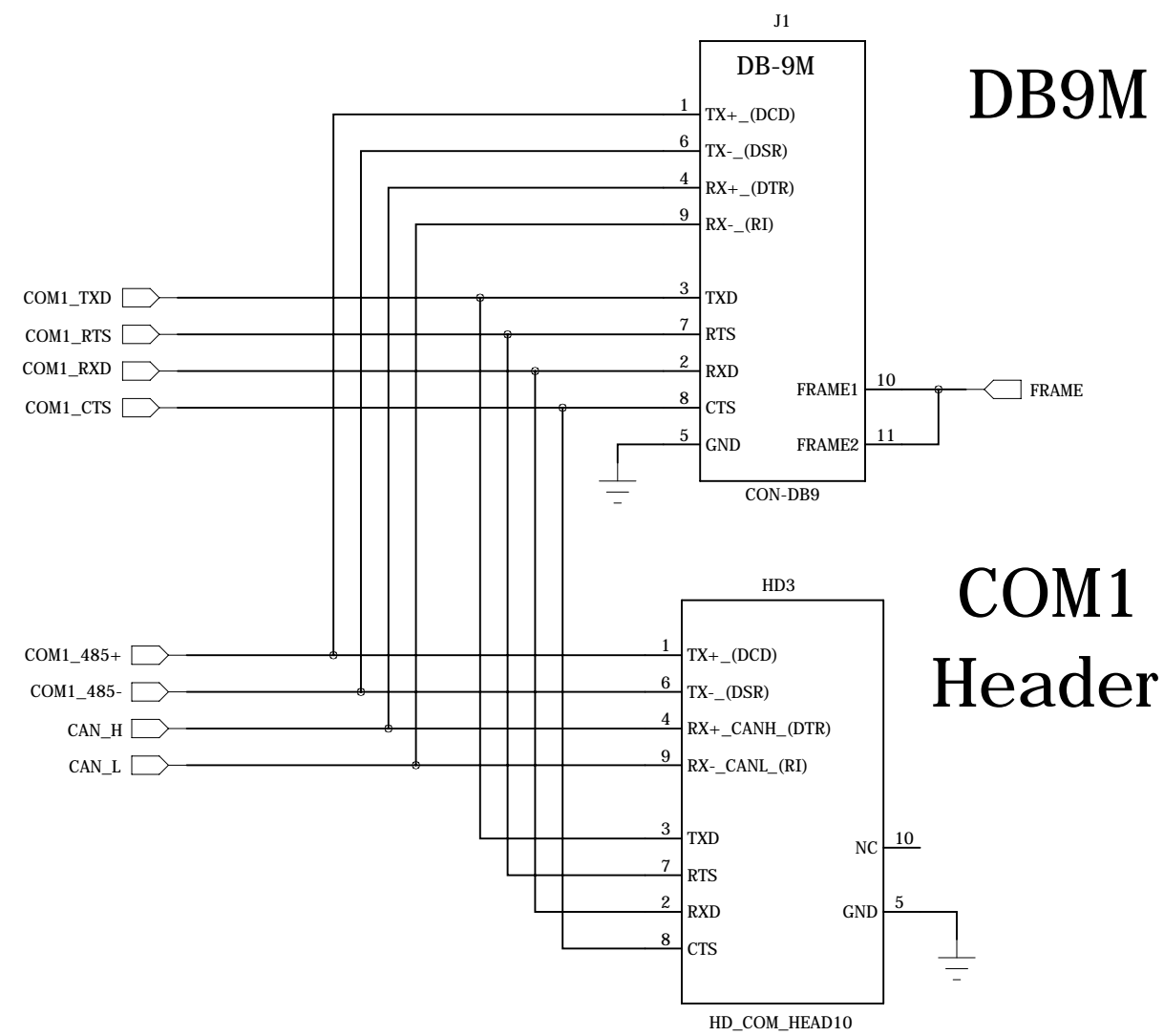


# COM2 RS-422 Receiver

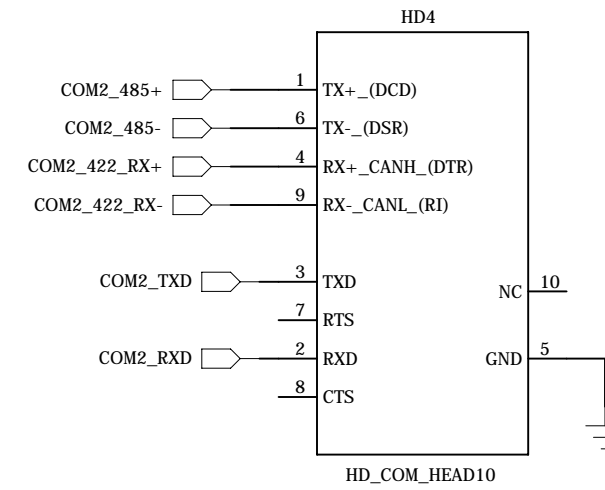


# COM Connectors and Headers

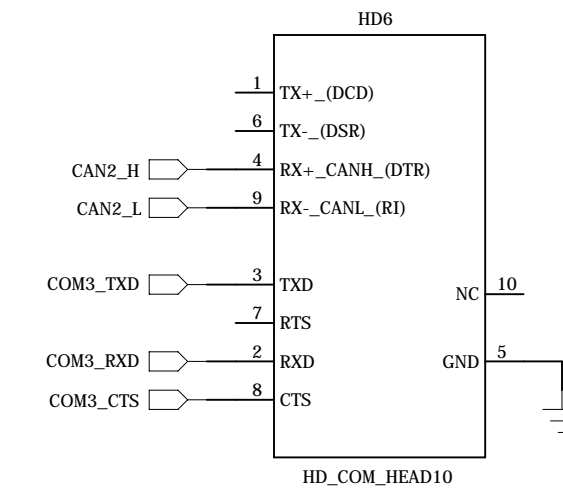
## COM1



## COM2 Header

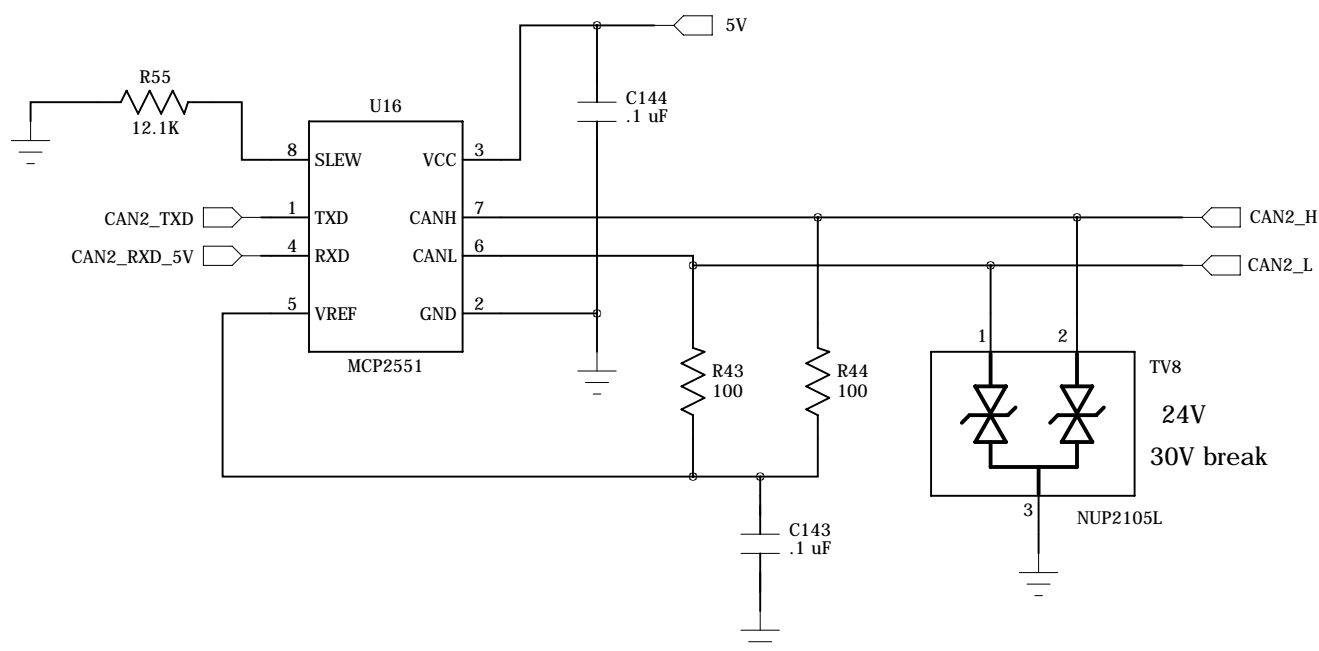


## COM3 Header

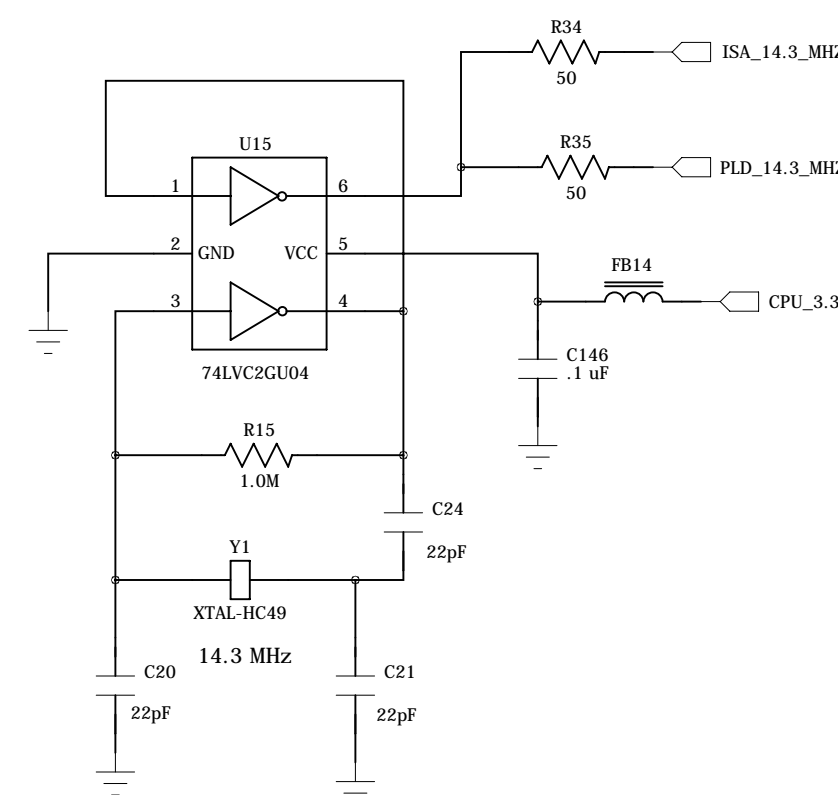


## 2nd

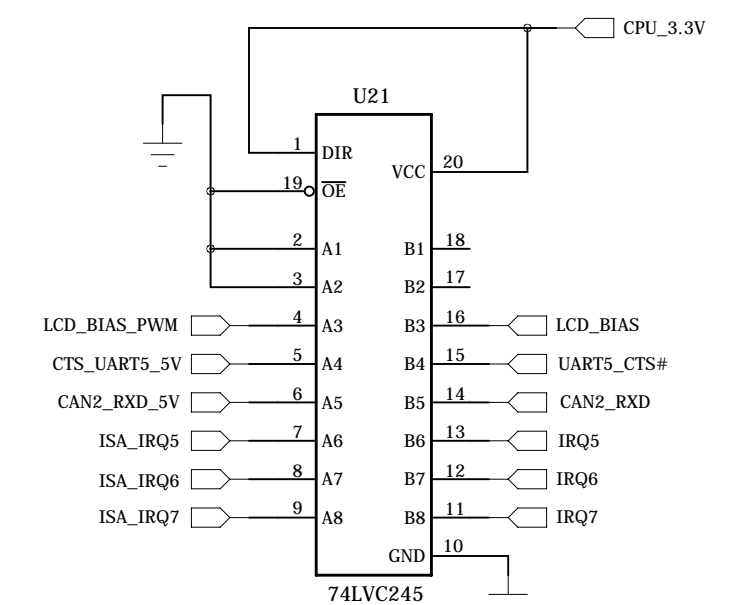
## CAN Transceiver



## 14.3 MHz Osc.



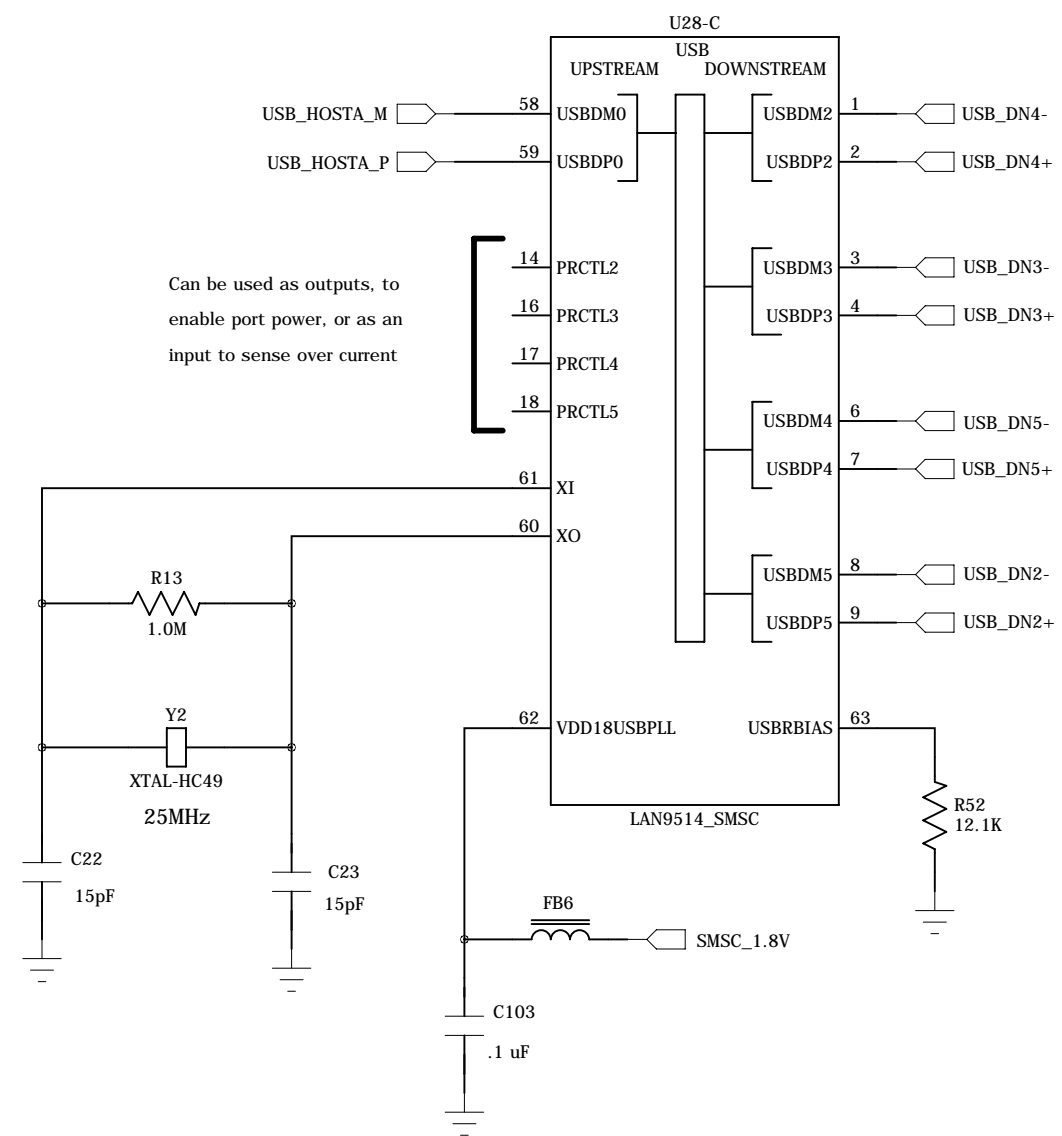
## 5V --> 3.3V



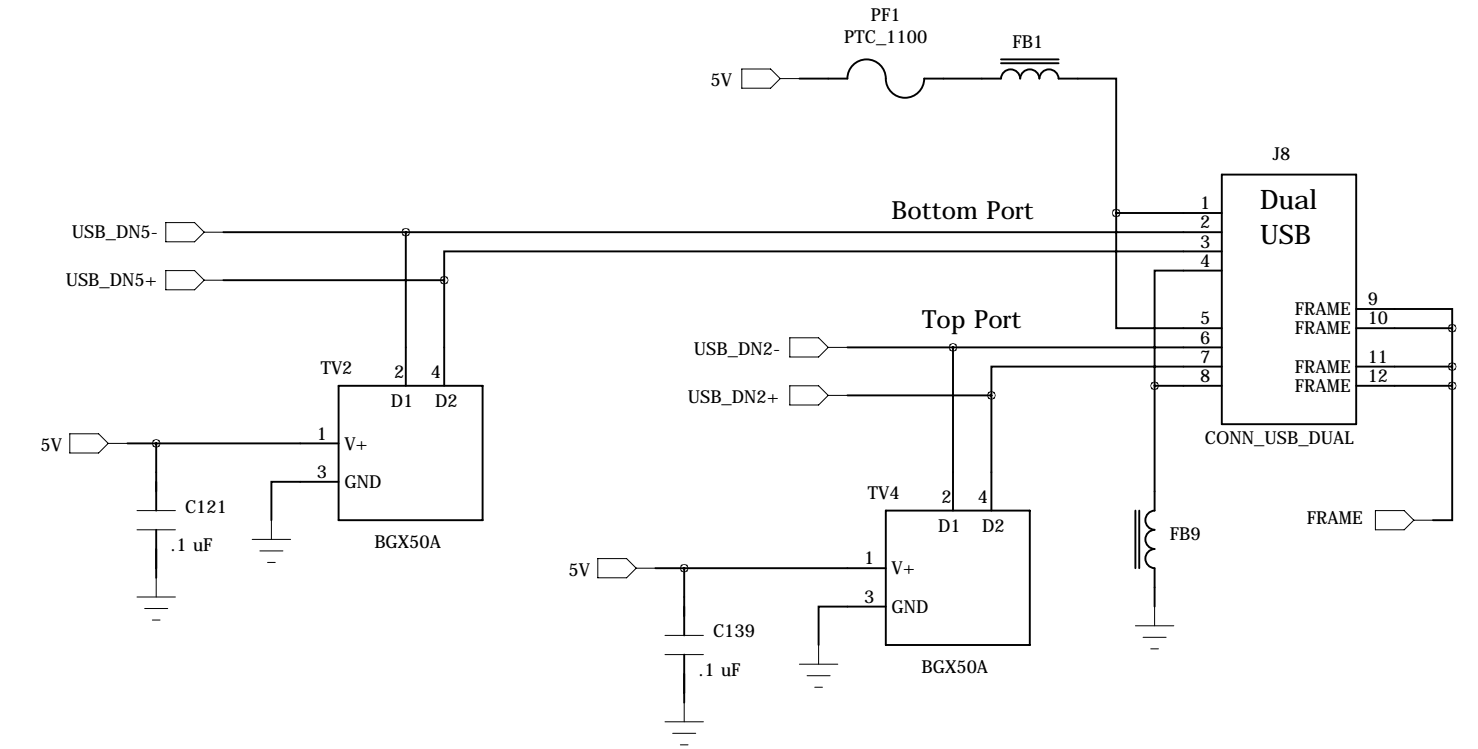
Provides 5V Tolerance

|                                 |              |
|---------------------------------|--------------|
| Technologic Systems             | Nov. 3, 2010 |
| Title: TS-8100 DB9, COM Headers |              |
| Rev:                            | Designer     |
| Sheet 2 of 10                   |              |

# SMSC USB Hub

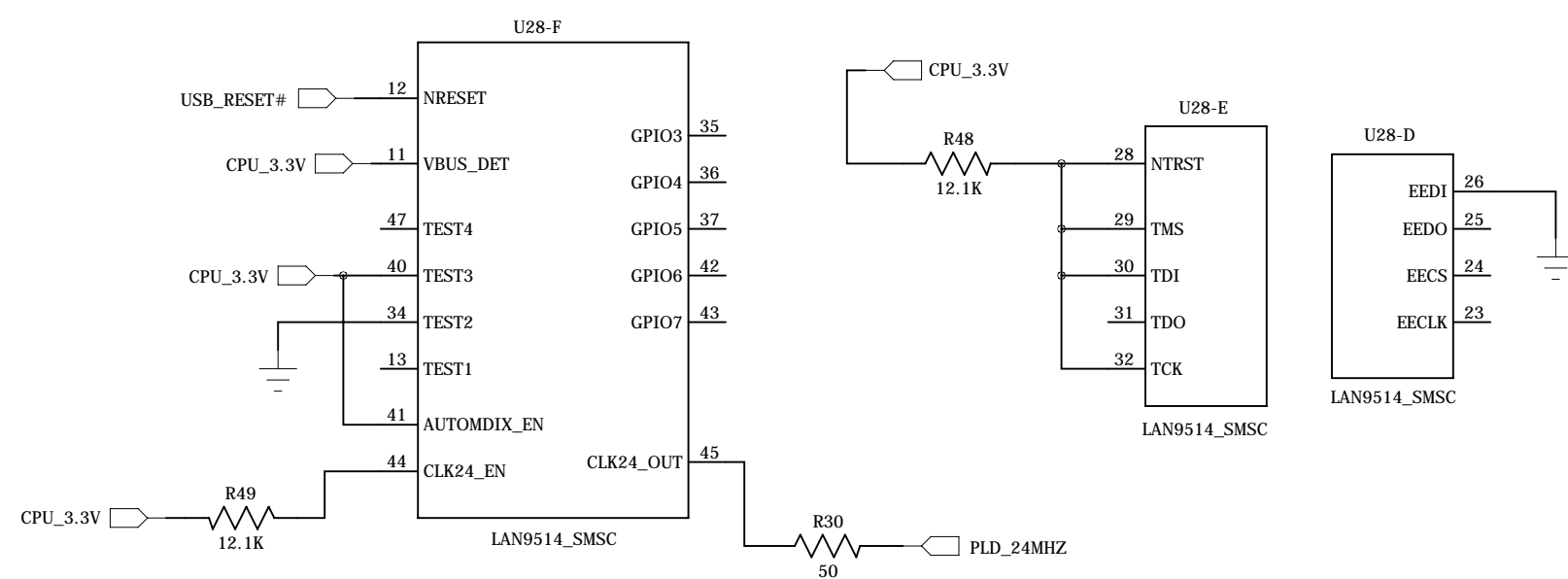
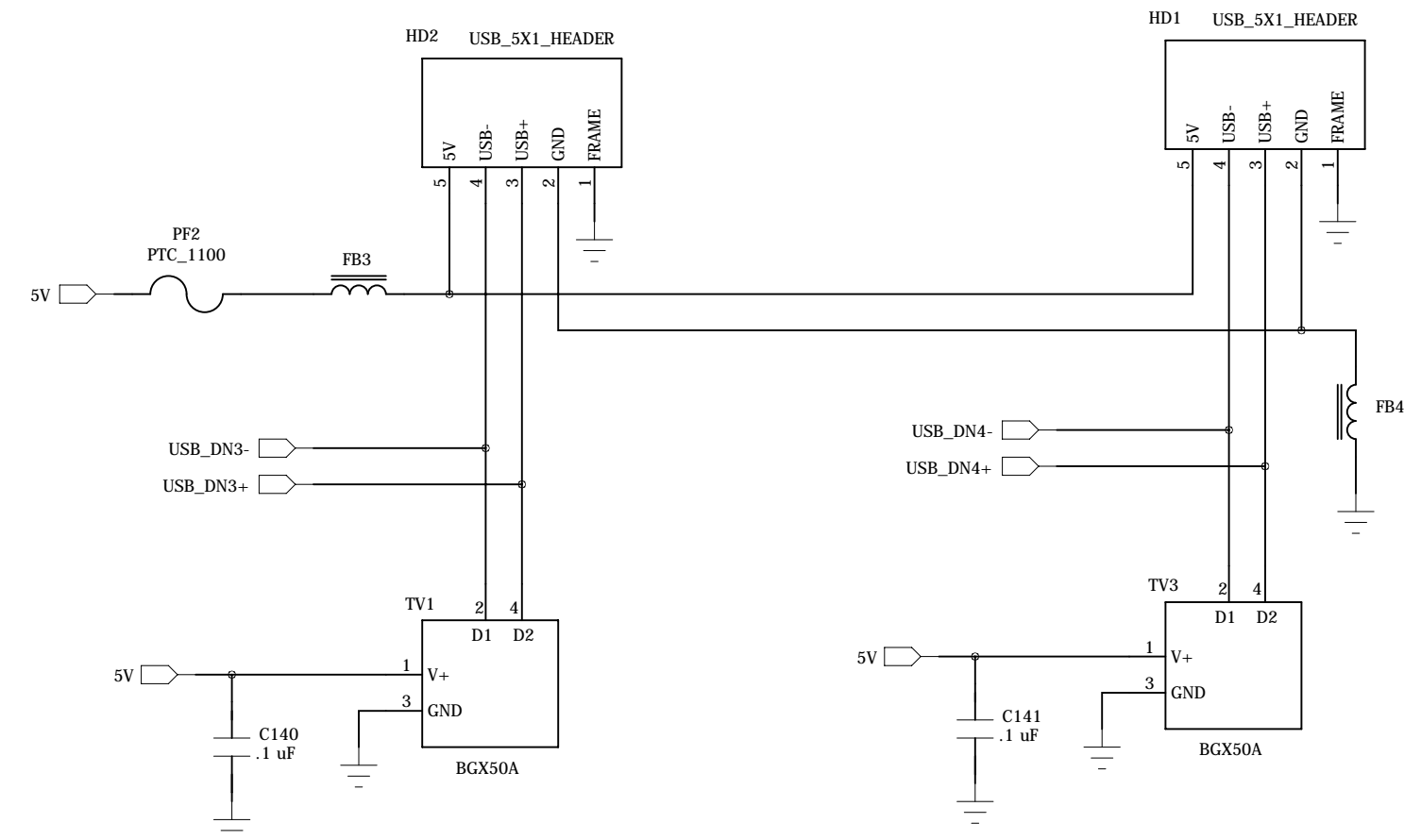
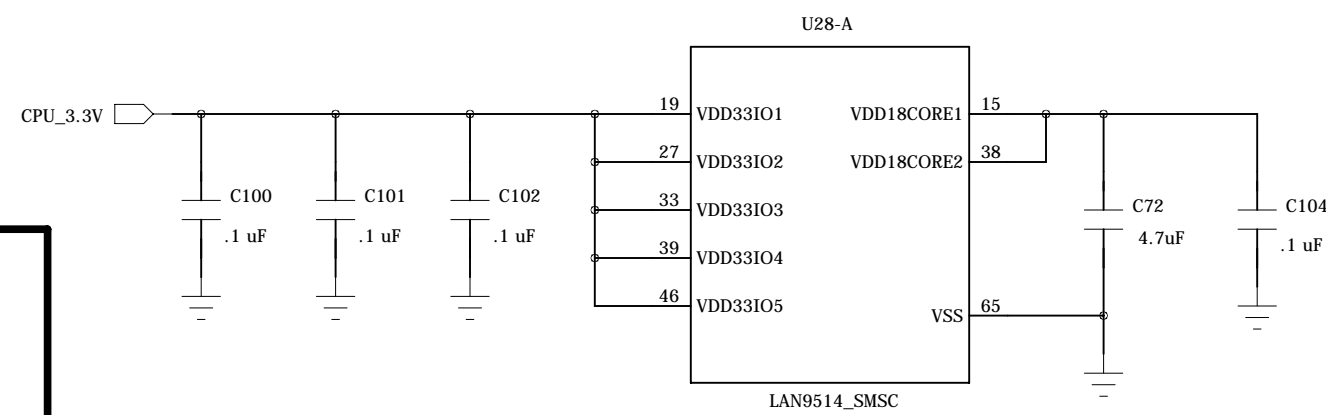


# External Dual USB



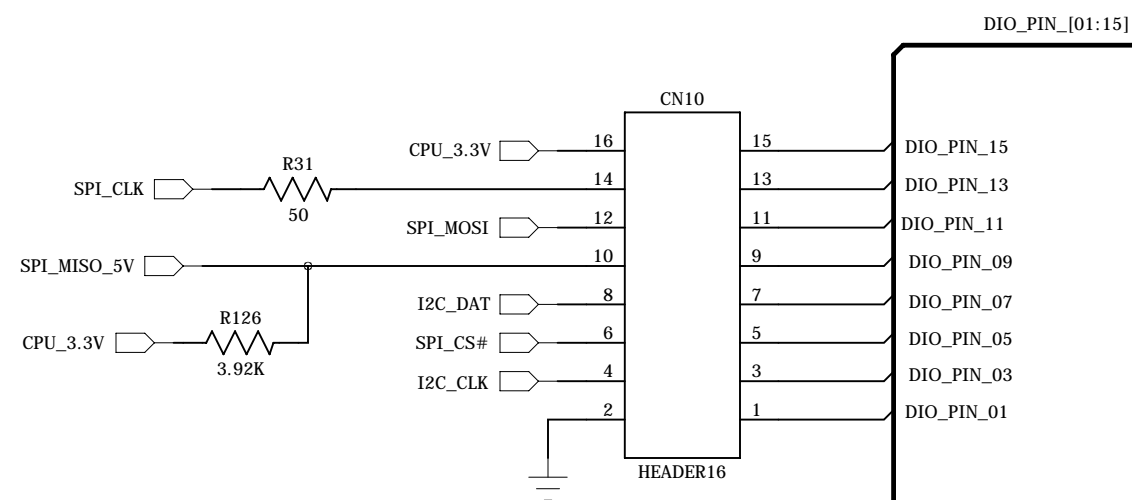
# Internal USB Headers

Typical 3.3V current  
with all ports active  
is 288 mA (950 mw)

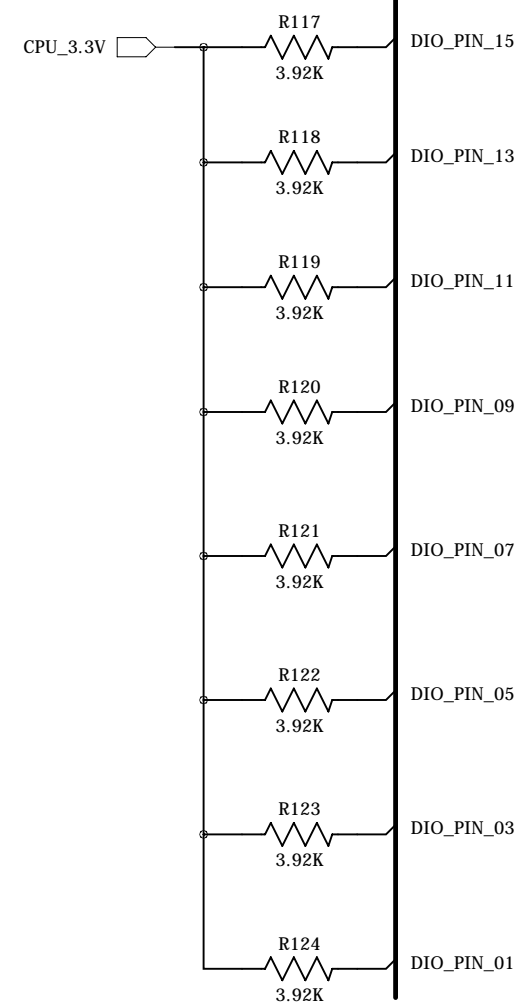


# DIO and LCD and SATA

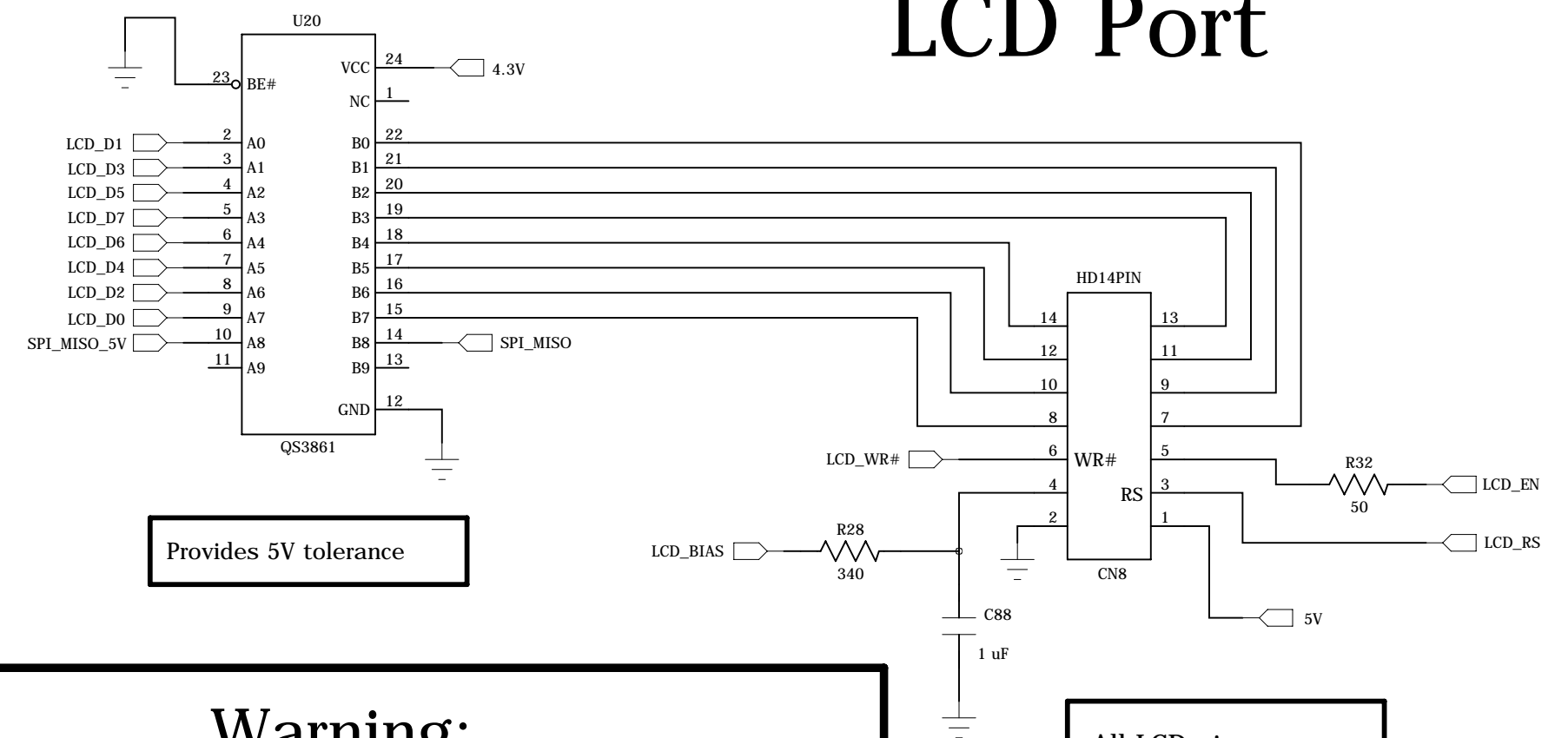
## DIO Port



**Warning:**  
DIO are not 5V tolerant !  
Only SPI\_MISO is 5V tolerant



## LCD Port

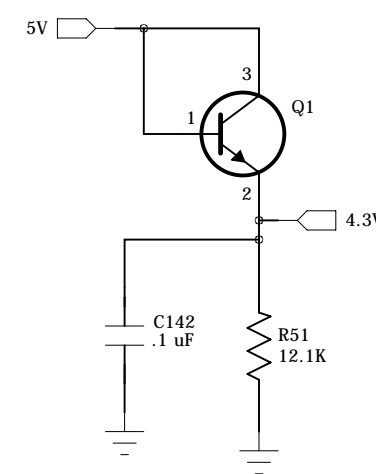


Provides 5V tolerance

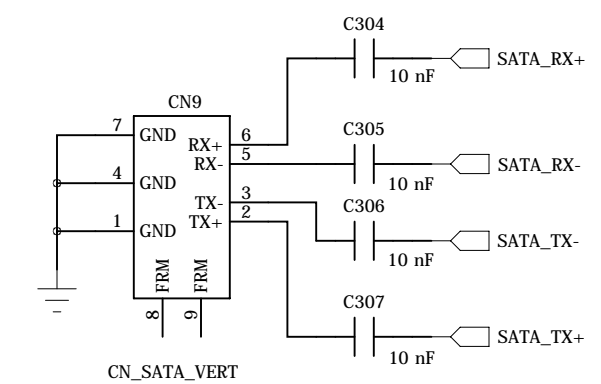
**Warning:**  
LCD\_D0 thru LCD\_D7 are 5V tolerant  
LCD\_WR#, LCD\_RS, and LCD\_EN are not !

All LCD pins are  
bi-directional DIO

## 4.3V Supply



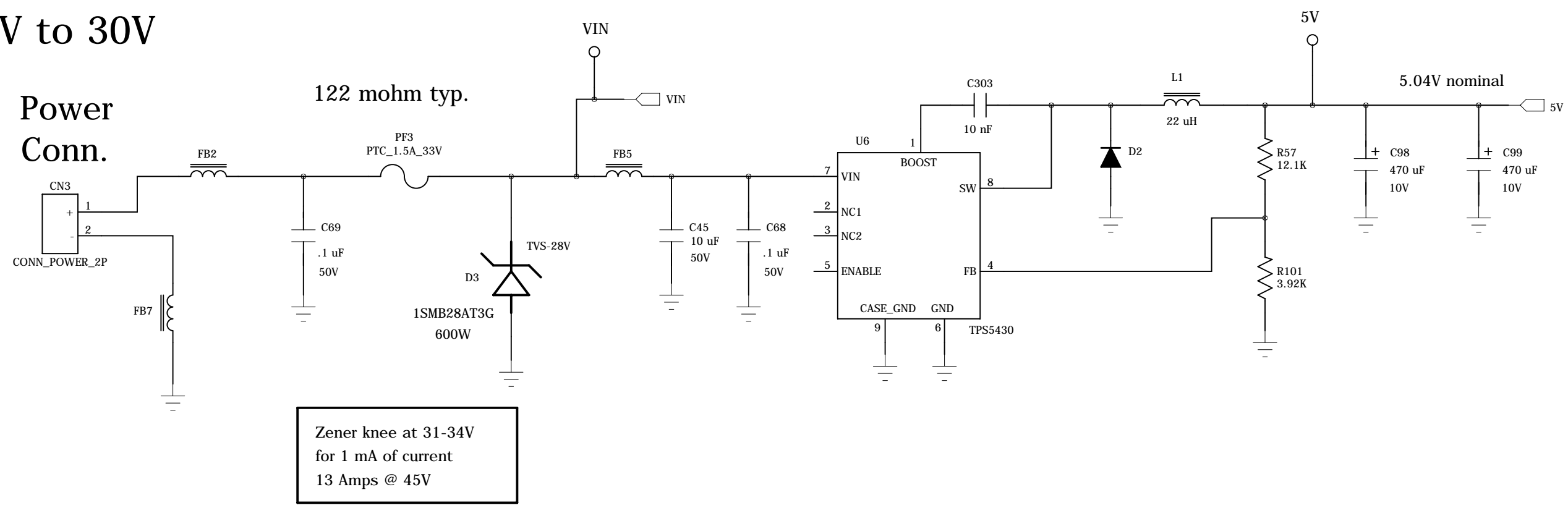
## SATA Port



# Input Power

4.7V to 5.4V  
or  
6.0V to 30V

## 5V Power Supply (3.0 Amps)

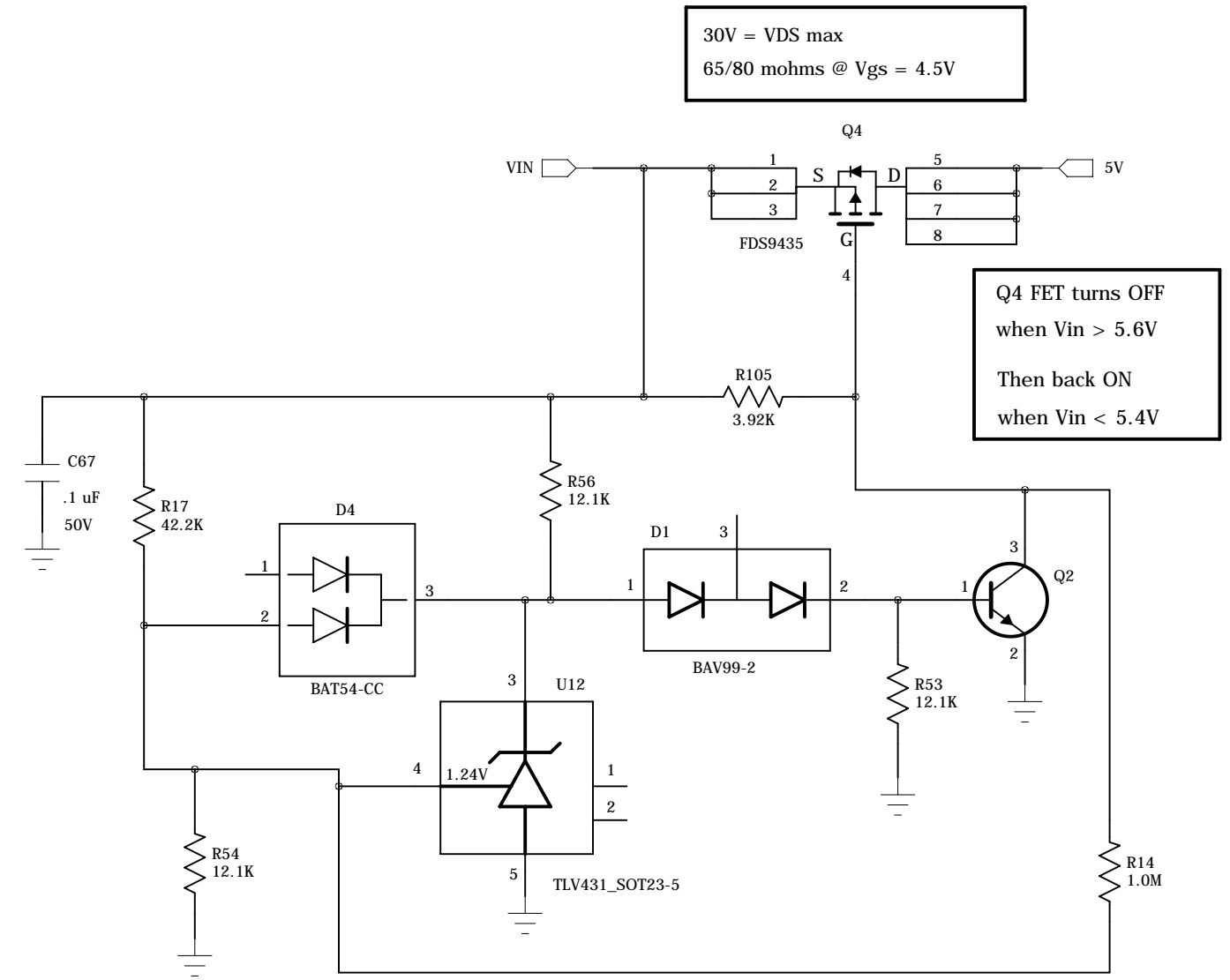


Zener knee at 31-34V  
for 1 mA of current  
13 Amps @ 45V

### Warning:

When Vin is between 5.4V and 6.0V  
The 5V rail can fall below 4.5V  
This means the SBC may reset

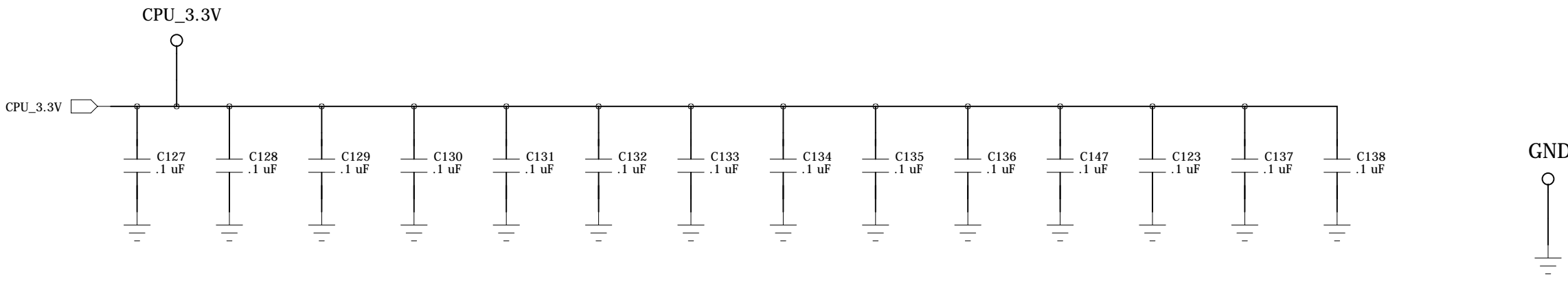
## 5V Regulator Bypass



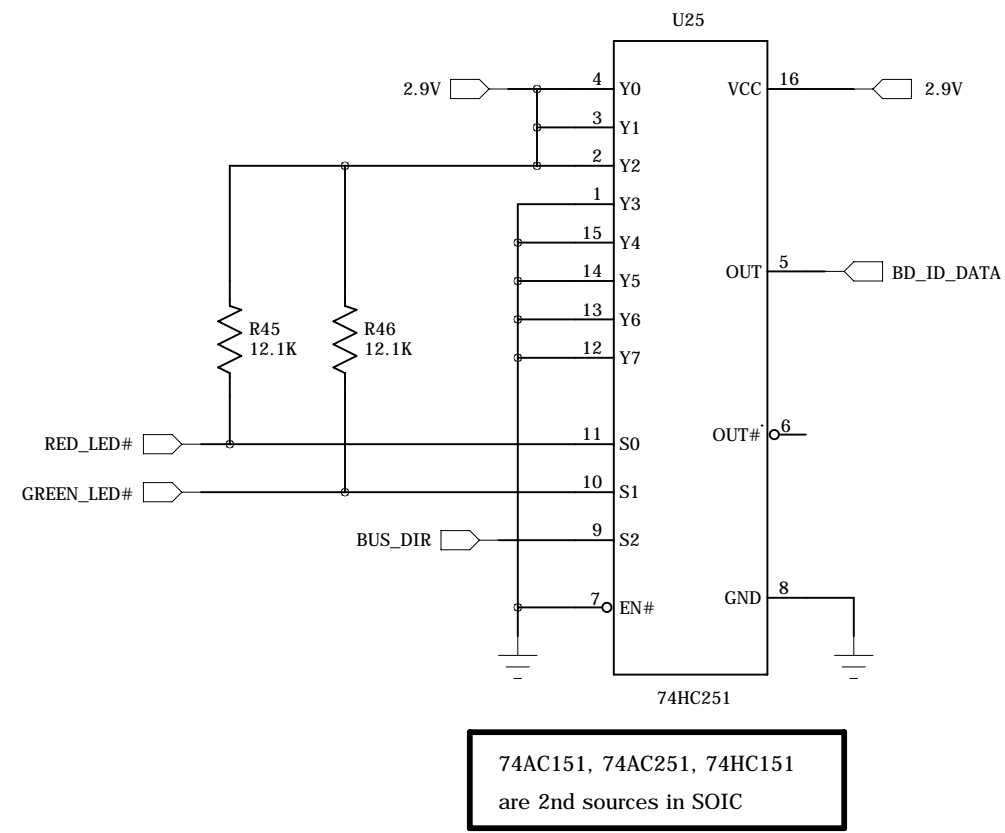
30V = VDS max  
65/80 mohms @ Vgs = 4.5V

Q4 FET turns OFF  
when Vin > 5.6V  
Then back ON  
when Vin < 5.4V

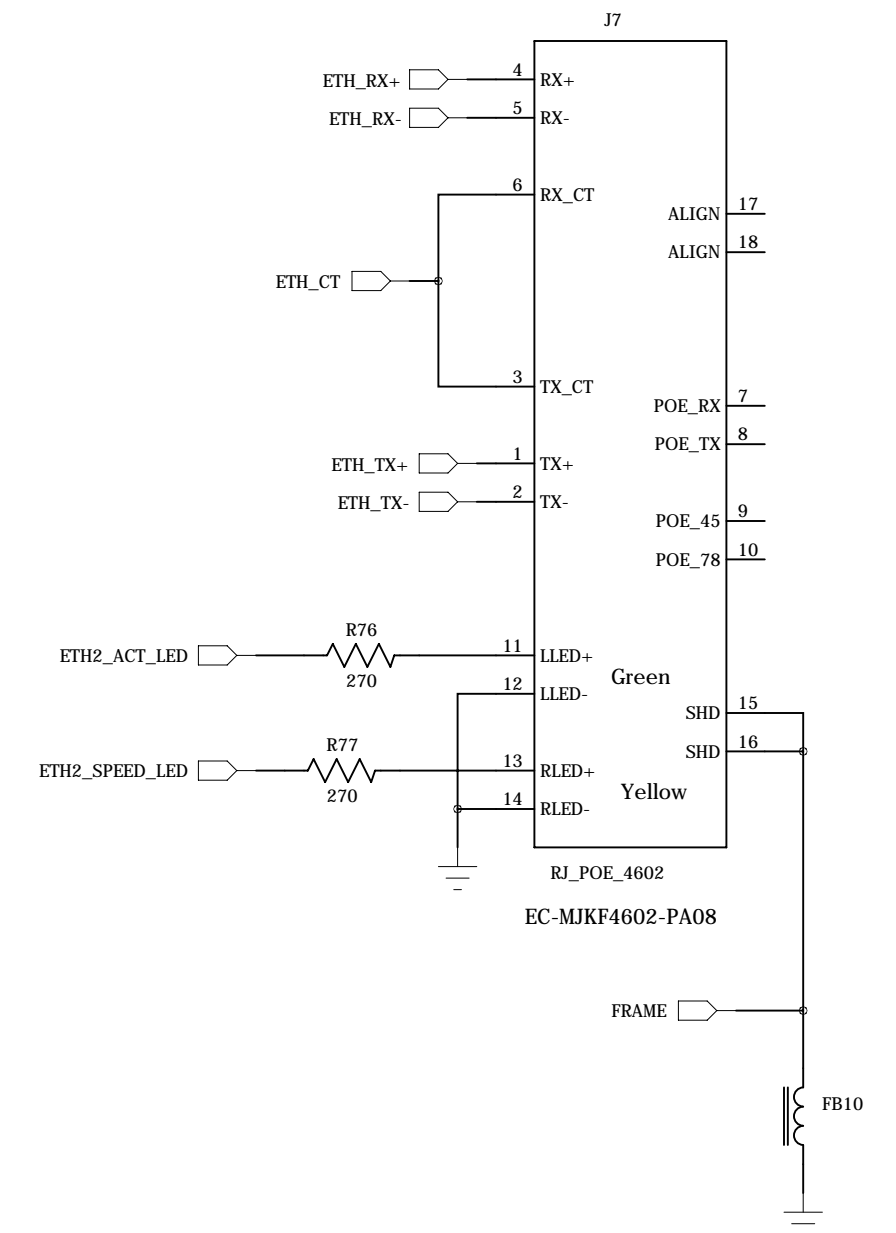
Turns FET on when Vin < 5.5V nominal



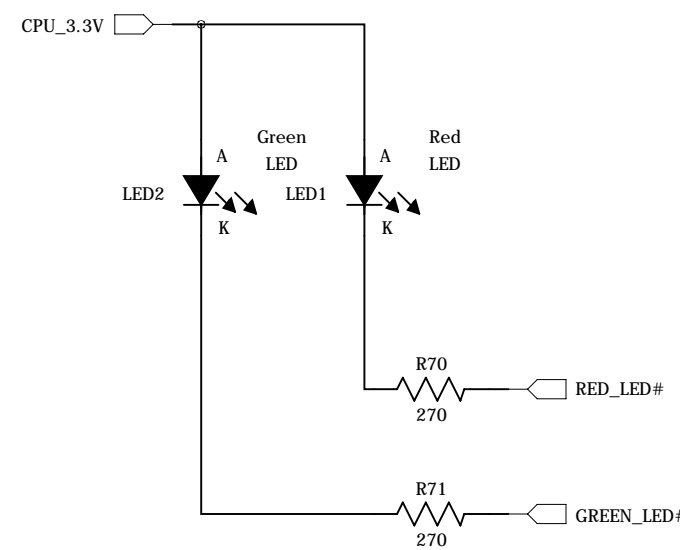
## Board ID = 7



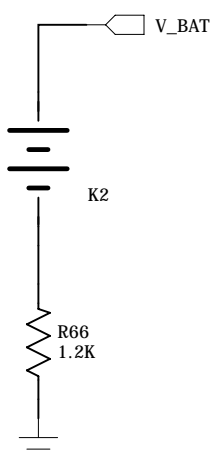
## SBC Primary 10/100 Ethernet



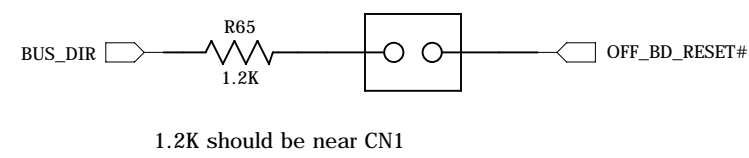
## LEDs



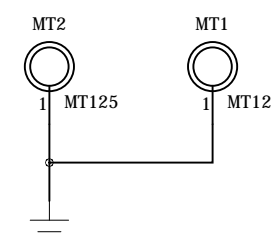
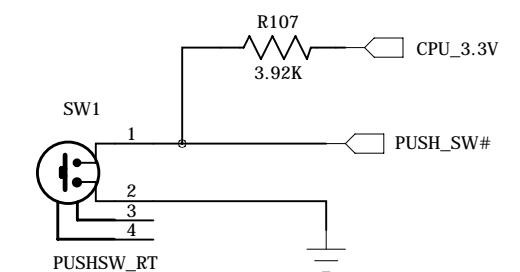
## RTC Battery



## Force Boot to SD card



## Push Switch



|  |                            |
|--|----------------------------|
| Technologic Systems                        | Nov. 3, 2010               |
| Title: TS-8100 Ethernet, Battery, Board ID |                            |
| Rev:                                       | Designer RLM Sheet 6 of 10 |

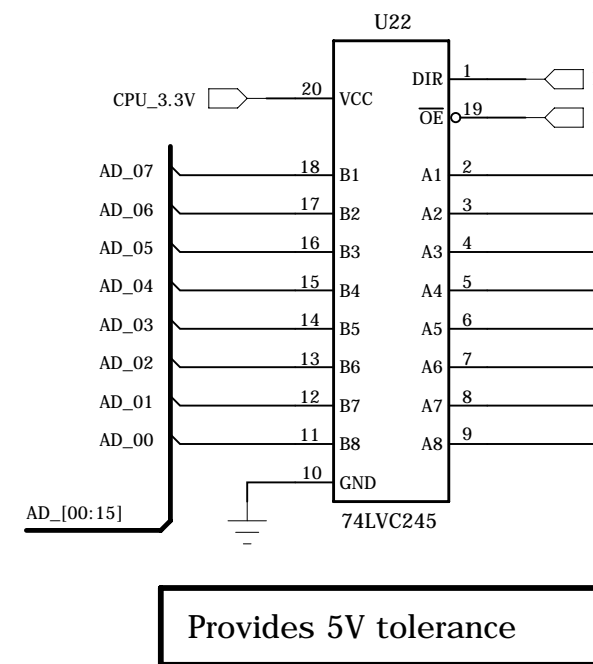
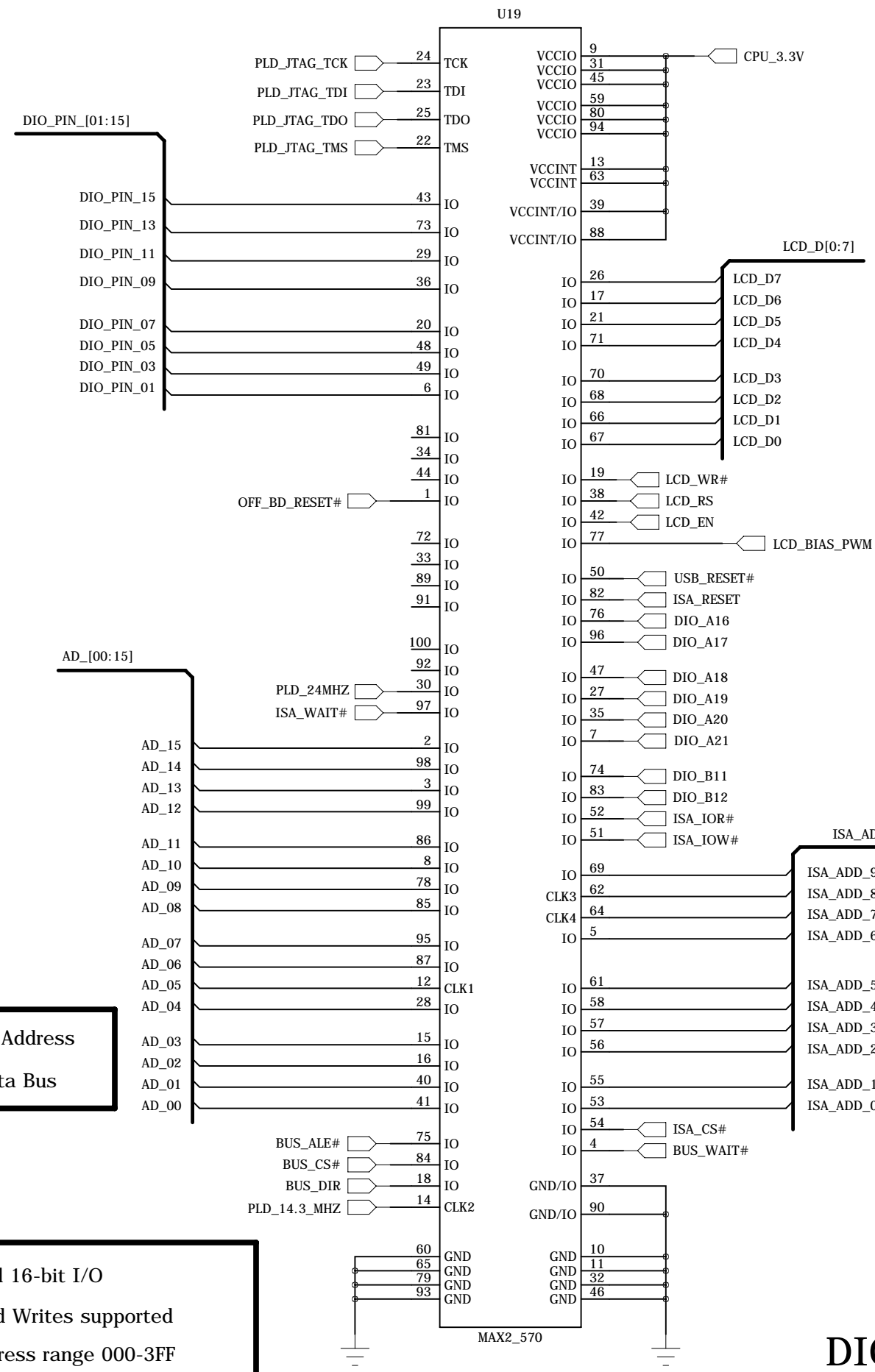
Inputs on Left

# PLD

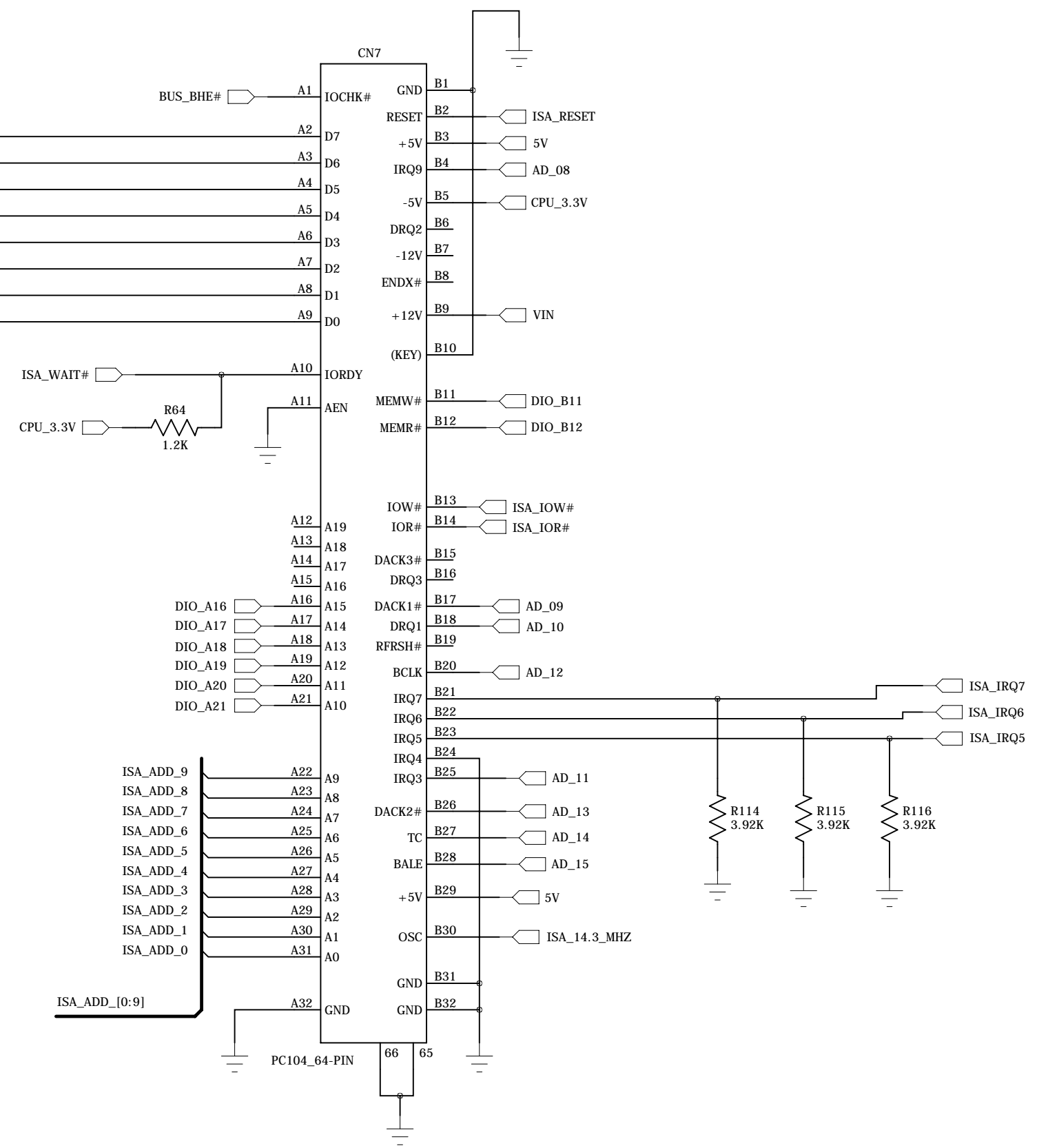
Outputs on Right

## PC/104

### 64-pin Connector



Provides 5V tolerance



MUXed Address and Data Bus

8-bit and 16-bit I/O  
Read and Writes supported  
over address range 000-3FF

Address range 100-3FF  
drives PC/104 bus

Address range 000-0FF  
is internal PLD registers

DIO Outputs

DIO\_A16 thru DIO\_A21 and LCD\_EN should default to logic zero

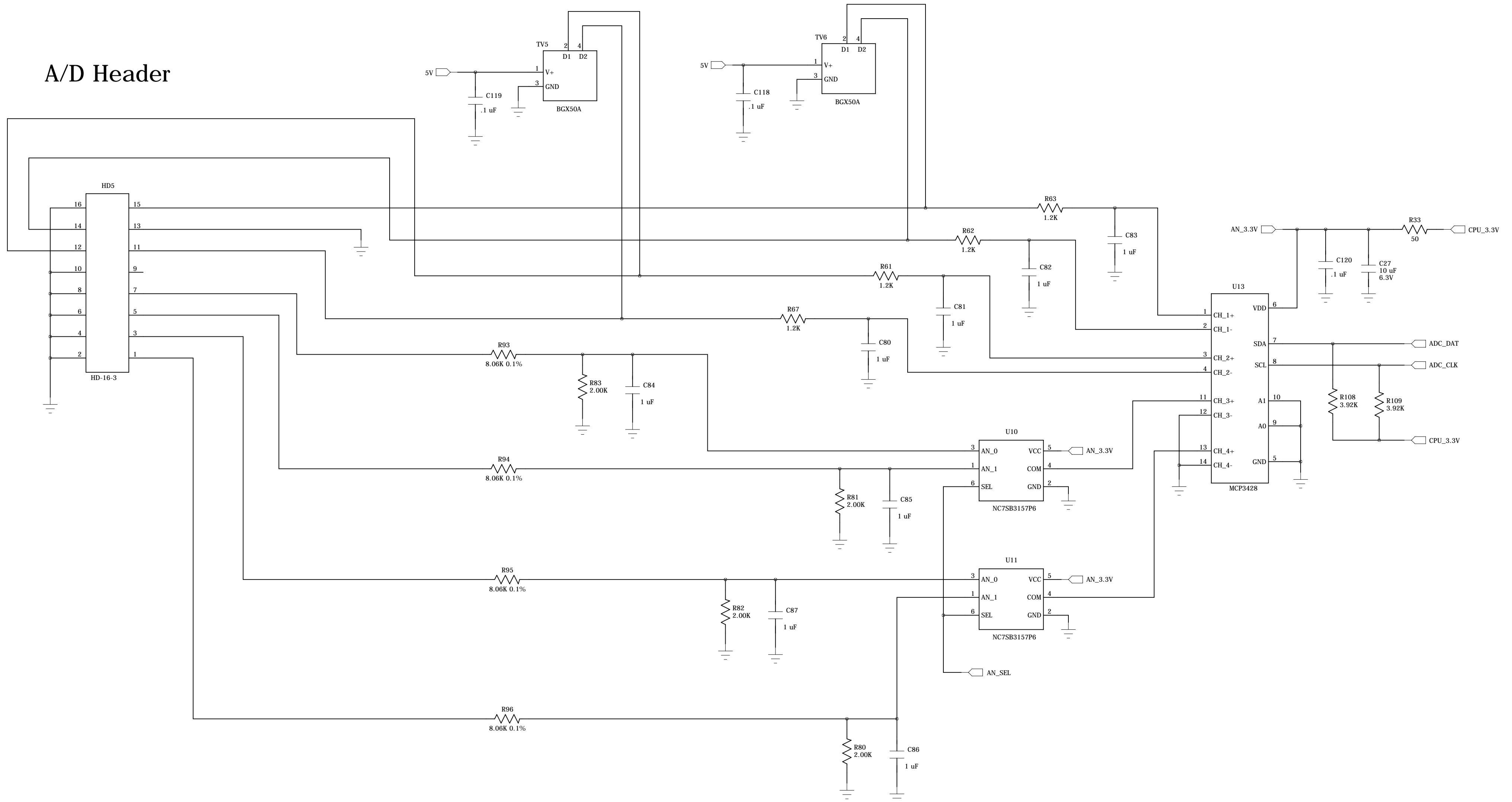
DIO\_B11 and DIO\_B12 should default to logic "1"

USB\_RESET# should default to a logic zero

# 16-bit A/D Converter

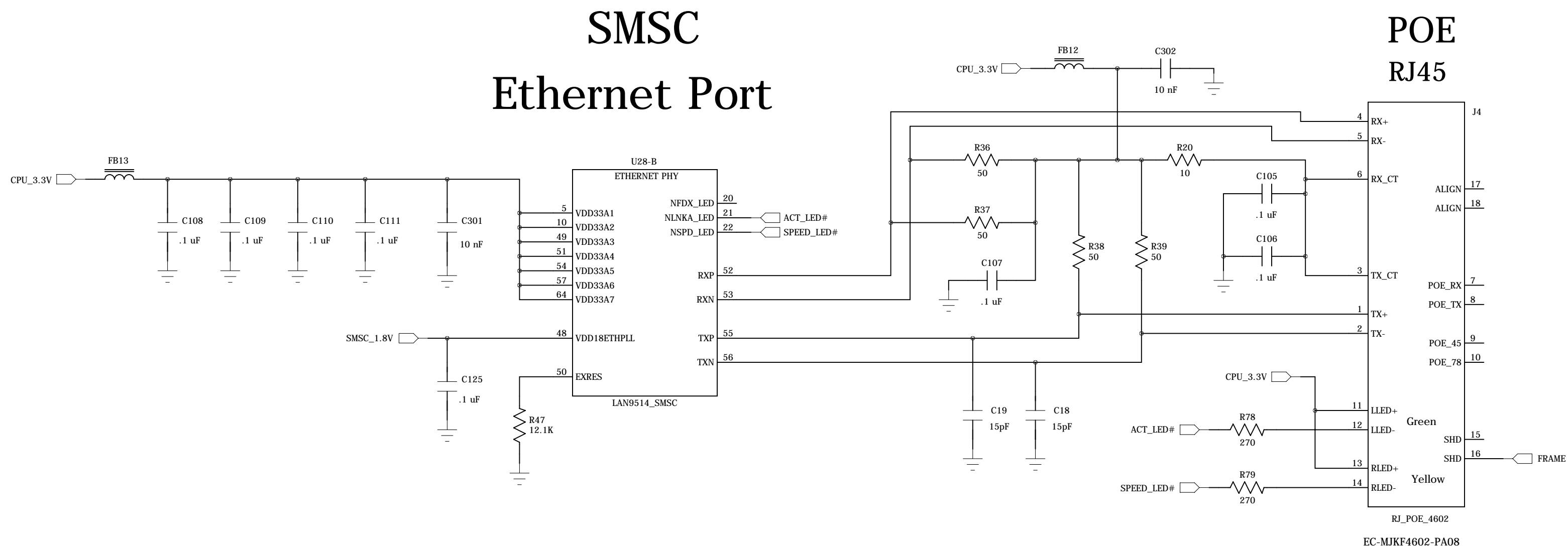
Four single-ended 0-10V Inputs

Two differential pairs 0-2V range



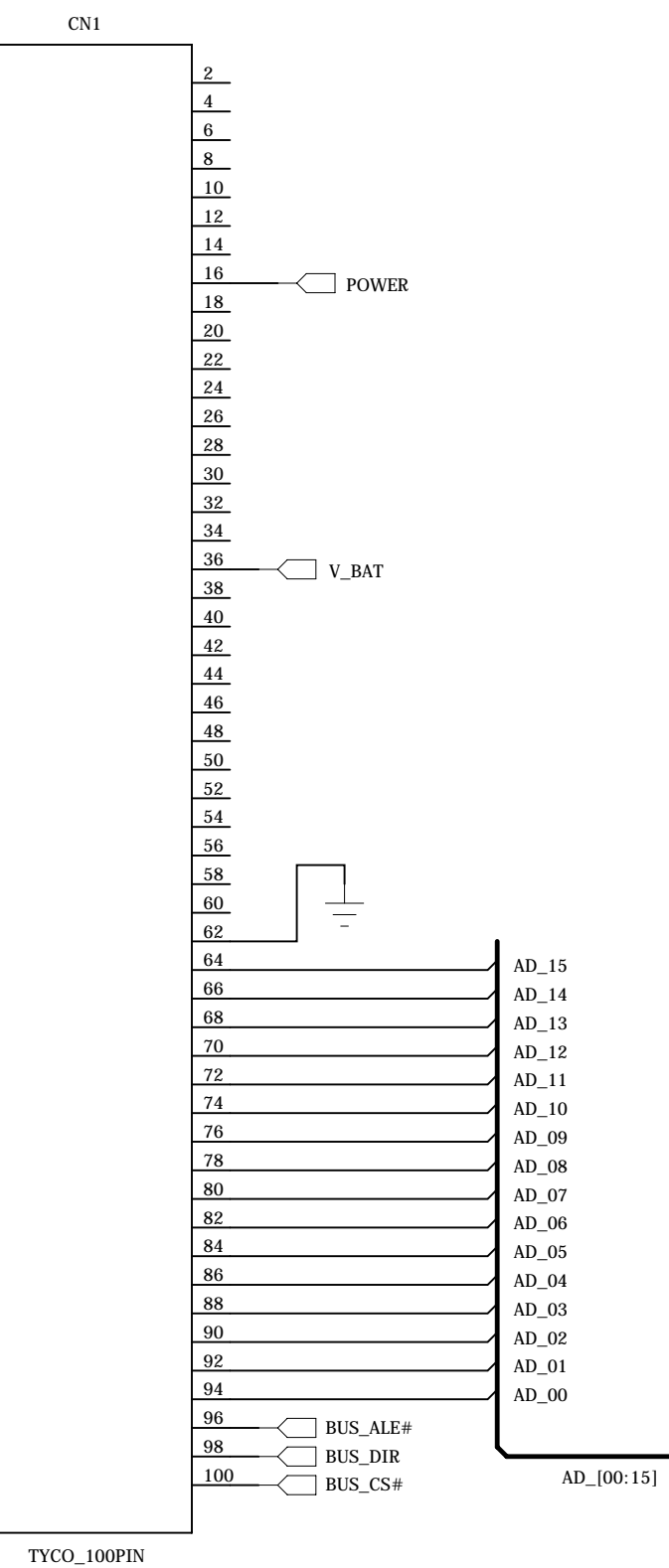


# 2nd Ethernet Port (Optional)



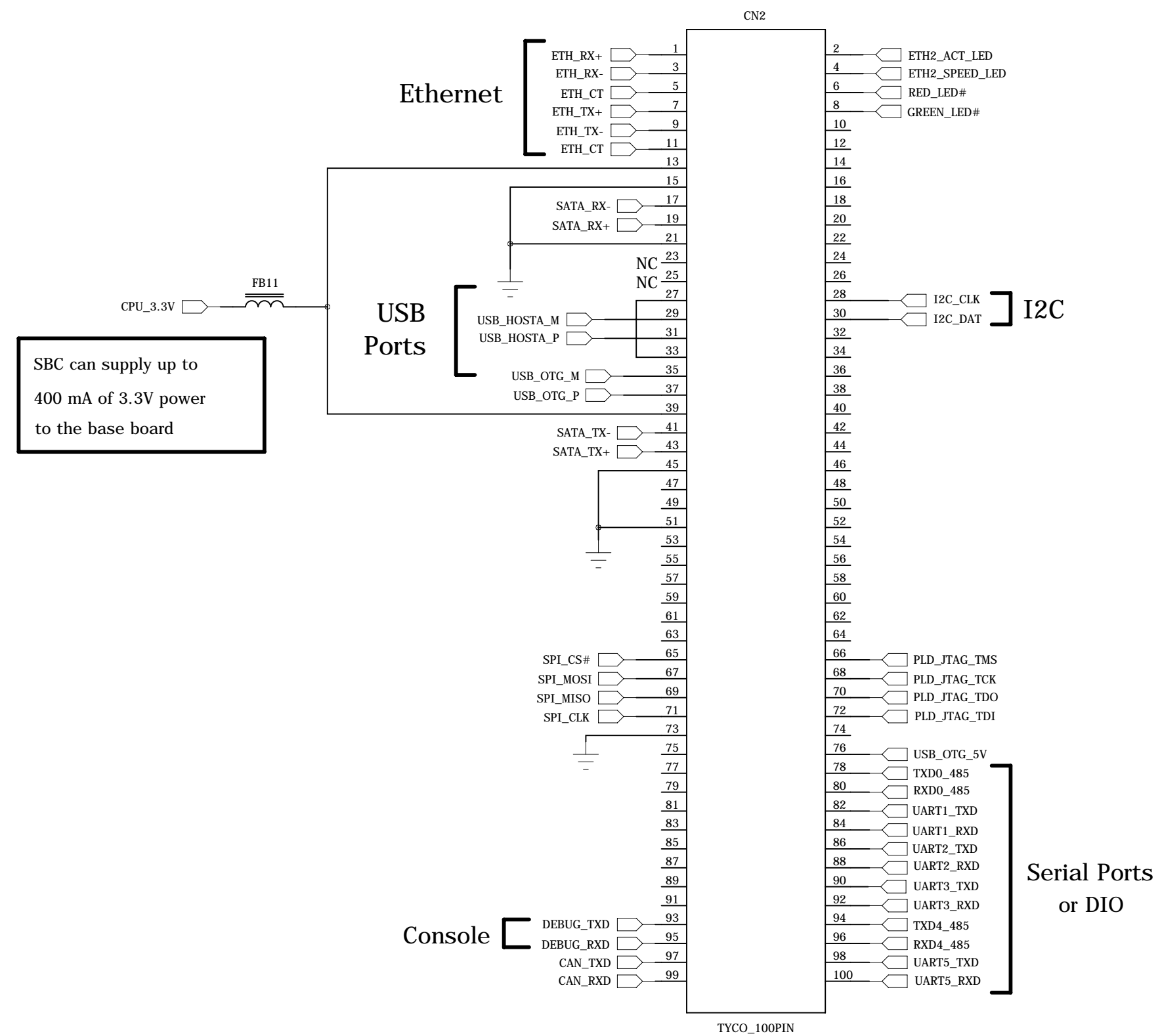
# Two 100-pin Module Connectors

Left



OFF\_BD\_RESET# is an Output from the SBC used to reset all peripherals

Right



SBC can supply up to 400 mA of 3.3V power to the base board

## Boot Strap

| BUS_DIR | SBC Boots from |
|---------|----------------|
| 1       | NAND Flash     |
| 0       | SD Card        |

BUS\_DIR state is latched prior to OFF\_BD\_RESET# deasserted

BUS\_DIR has a 12K pull-up resistor on the SBC module

Use 1.2K ohm resistor to OFF\_BD\_RESET# to strap logic low