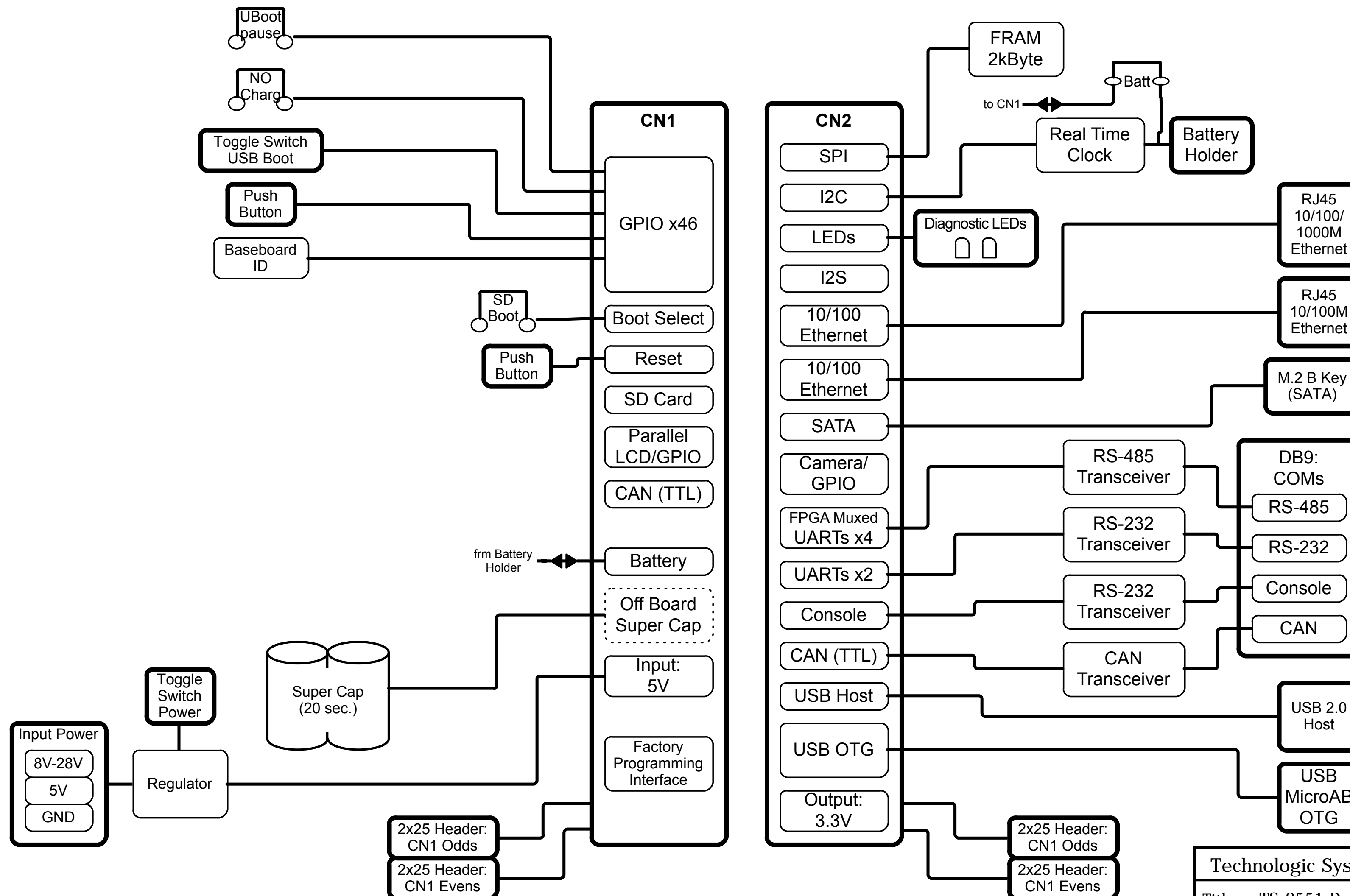


TS-8551 = TS-4100 and 4400 Base Board

The TS-8551 is an evaluation platform for the TS-4100 and TS-4400

This platform brings out all major features of these Computer on Modules for development and evaluation purposes.

This platform can also be used as a reference design for creating a custom carrier/baseboard solution for the TS-4100 and/or the TS-4400



Web Schematic: Some proprietary information has been withheld.

Technologic Systems		Date	Oct. 22, 2017
Title: TS-8551 Documentation			
Rev: A	Designer	Sheet 1 of 11	

Warning:

The TS-8551 was designed for the TS-4100 and TS-4400
Other macrocontrollers can be used, but
care must be exercised when SuperCap is charged

Rev.A Changes

Removed rechargeable battery

FRAM (U35) write protect to 3.3V always

Changed C68 to 1000 pF (quieter)

Changed both SW2 and SW3 to top push button

Removed silkscreen label for FRAM Prot

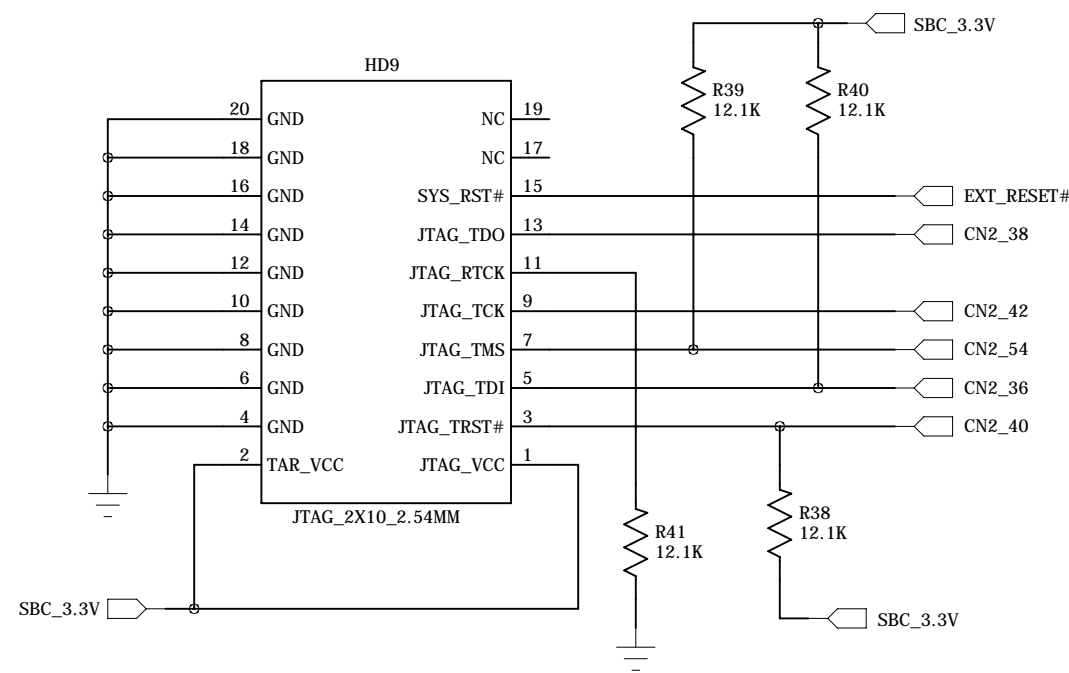
Added for TS-4400 support:

CN99-2 for virgin TS-4400 bring up

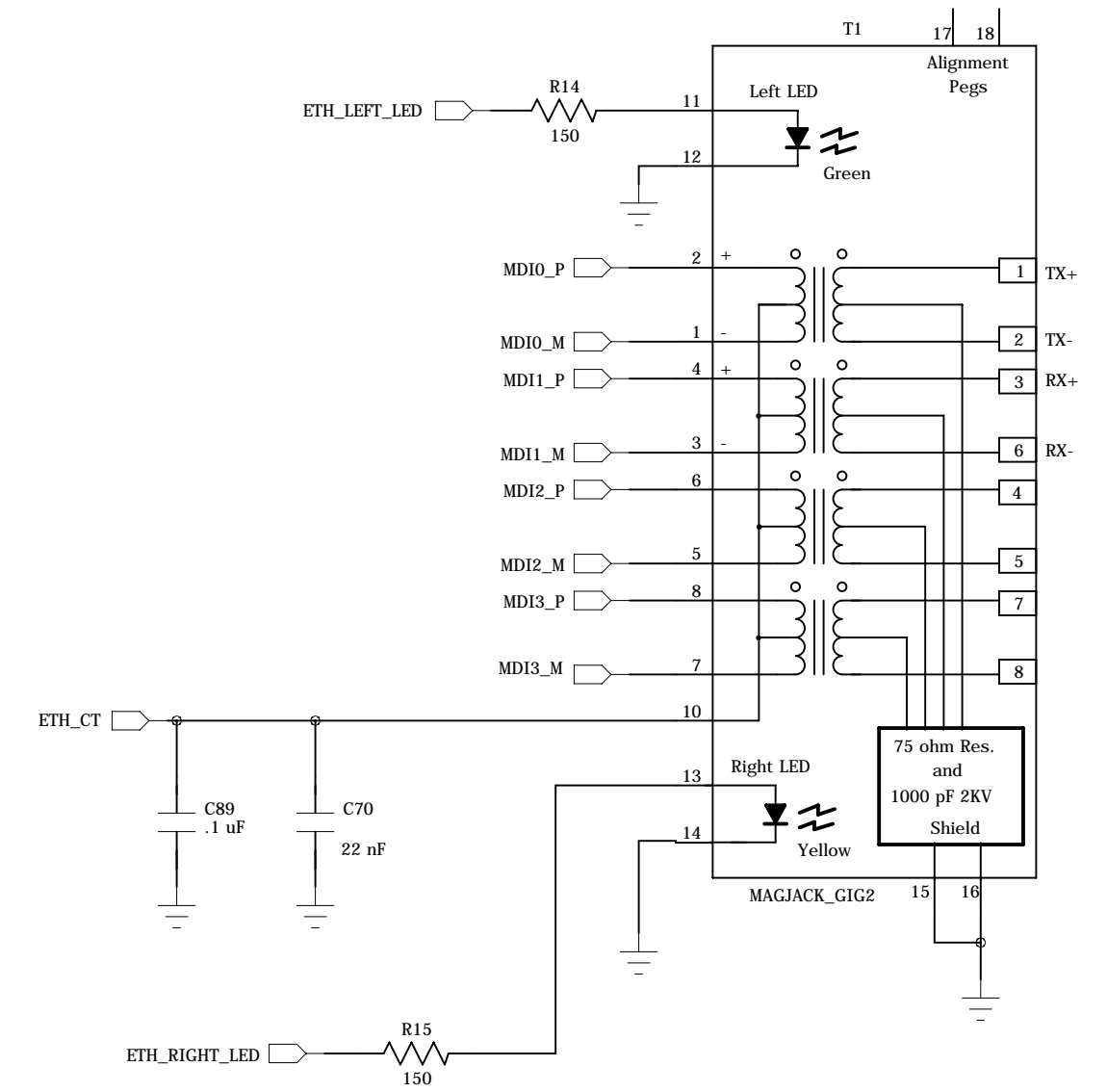
M.2 SATA conn (CN5) added

Battery jumper to CN1 pin 36

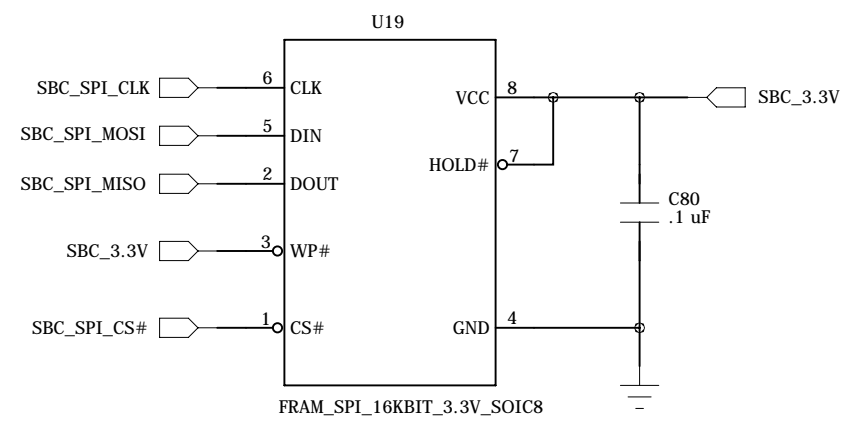
CPU JTAG



Gig MagJack

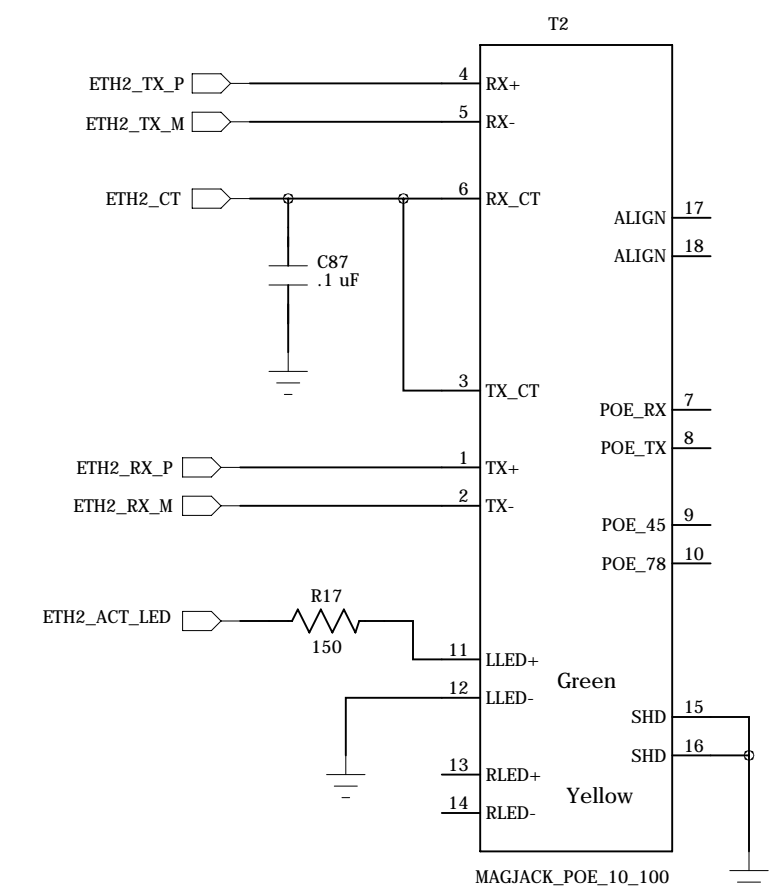


FRAM Memory



2K Bytes

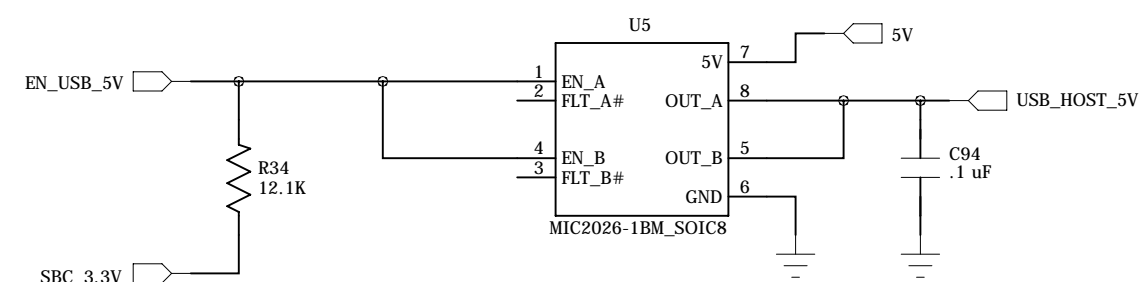
10/100 MagJack



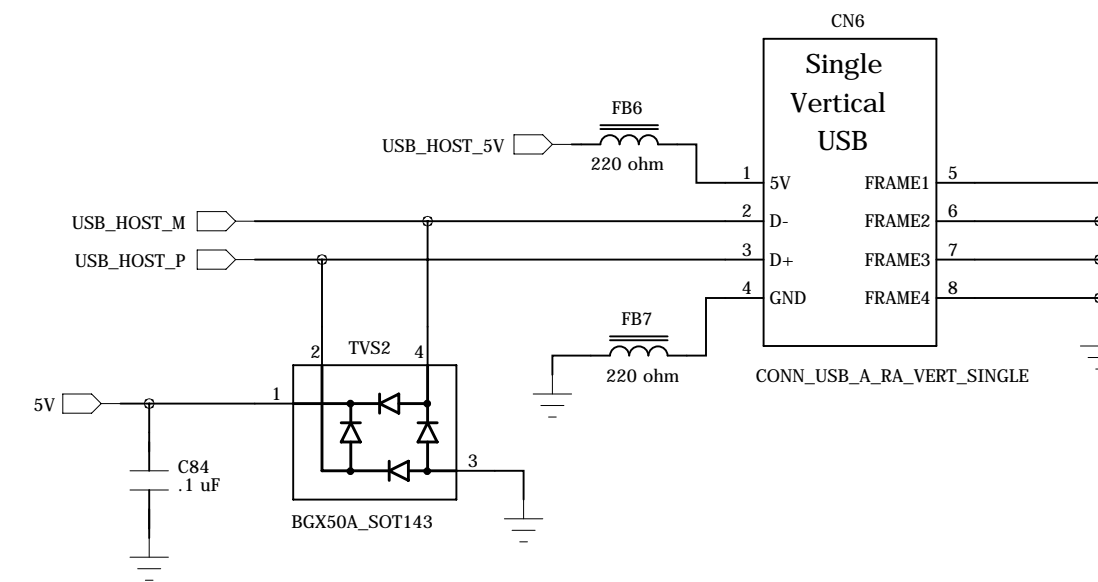
Swapped RX and TX Pairs

Technologic Systems	Date Oct. 22, 2017
Title: TS-8551 MagJacks, JTAG, FRAM	
Rev: A	Designer
Sheet 3 of 11	

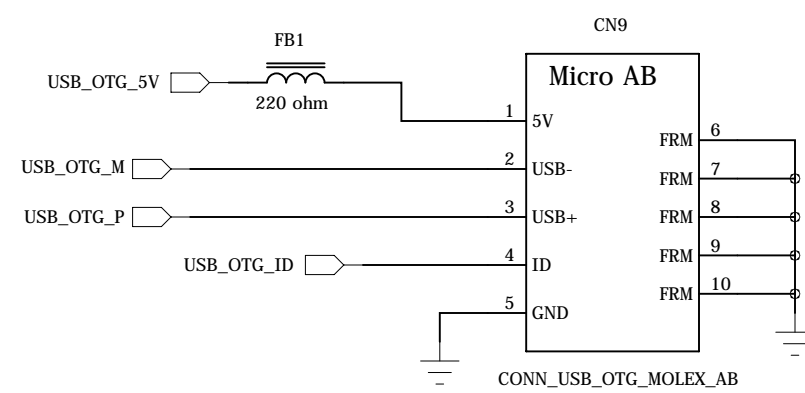
Host USB Power Switch



Host USB



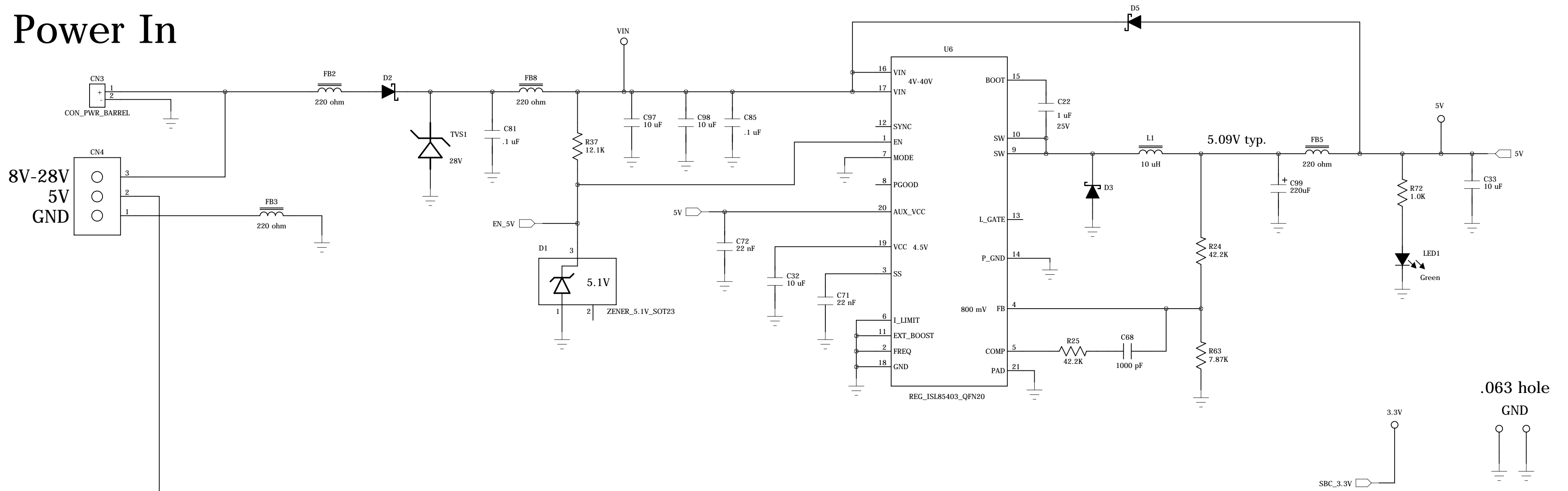
USB OTG Micro AB



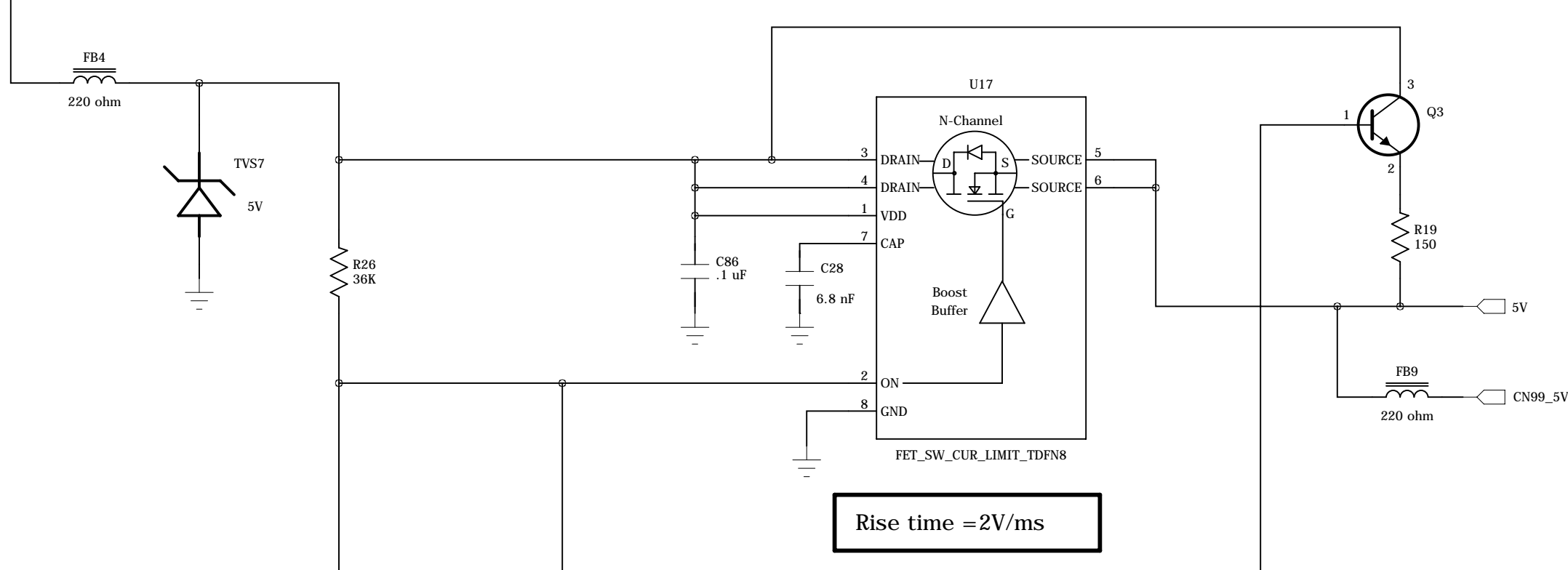
Technologic Systems	Date Oct. 22, 2017
Title: TS-8551 USB Port, USB Power	
Rev: A	Designer
Sheet 4 of 11	

5V Power Supply (2000 mA)

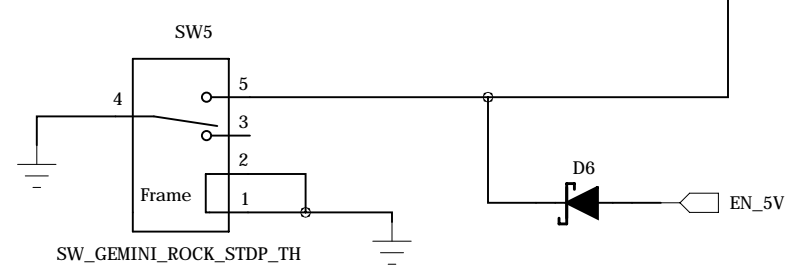
Power In



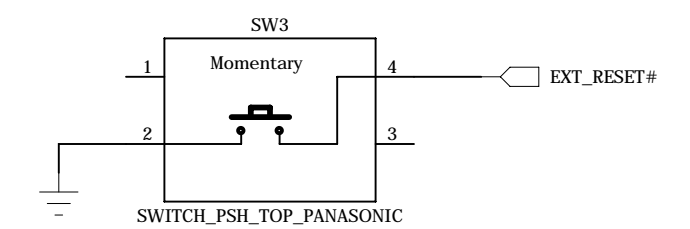
5V Power Switch



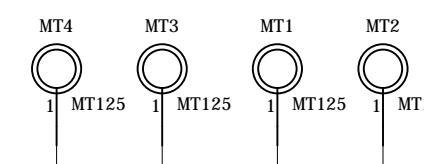
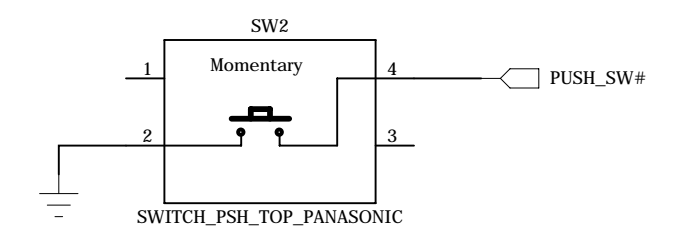
Power Switch



Reset Switch

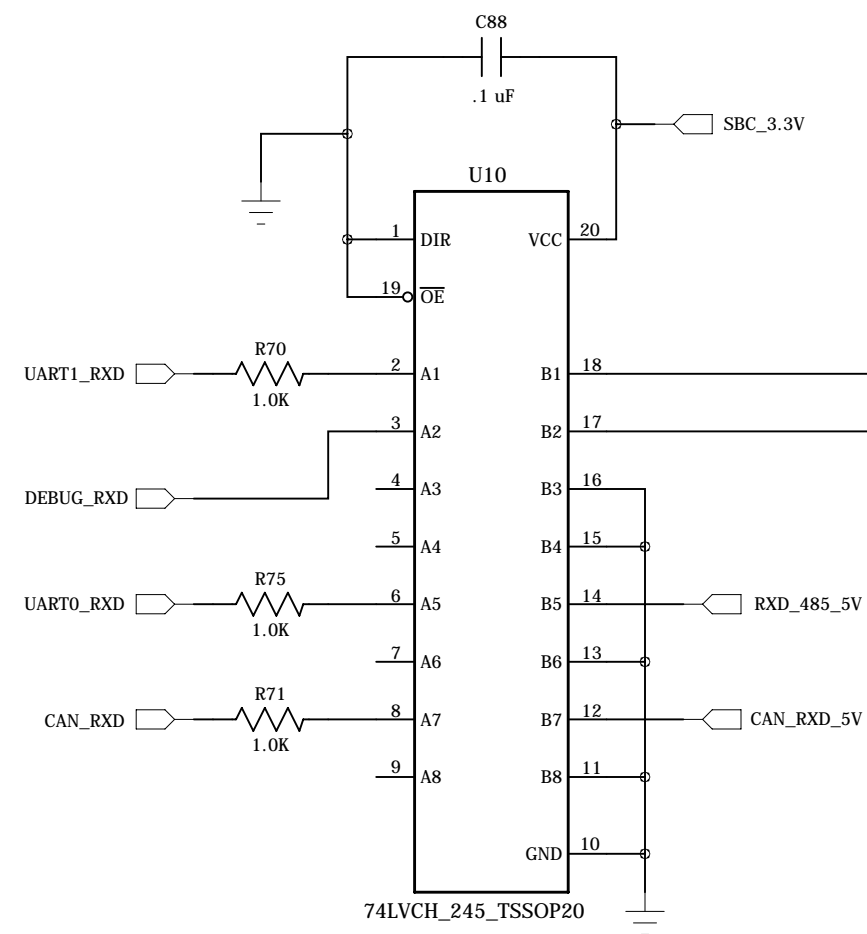


Push Switch

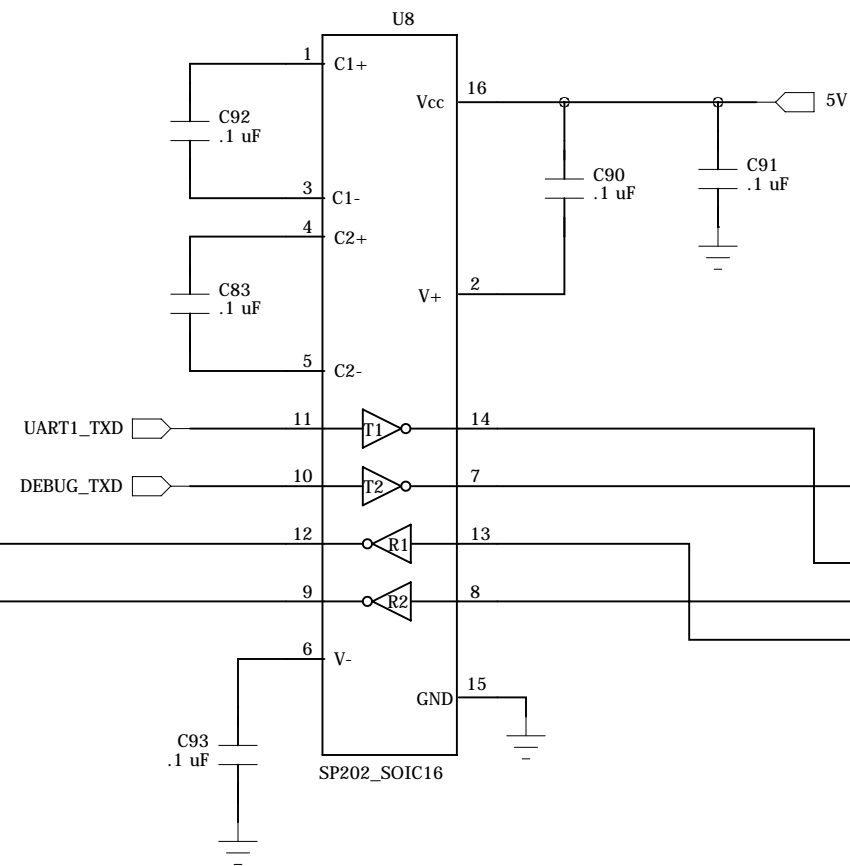


Technologic Systems	Date Oct. 22, 2017
Title: TS-8551 Power IN, 5V Reg, Switches	
Rev: A	Designer RLM Sheet 5 of 11

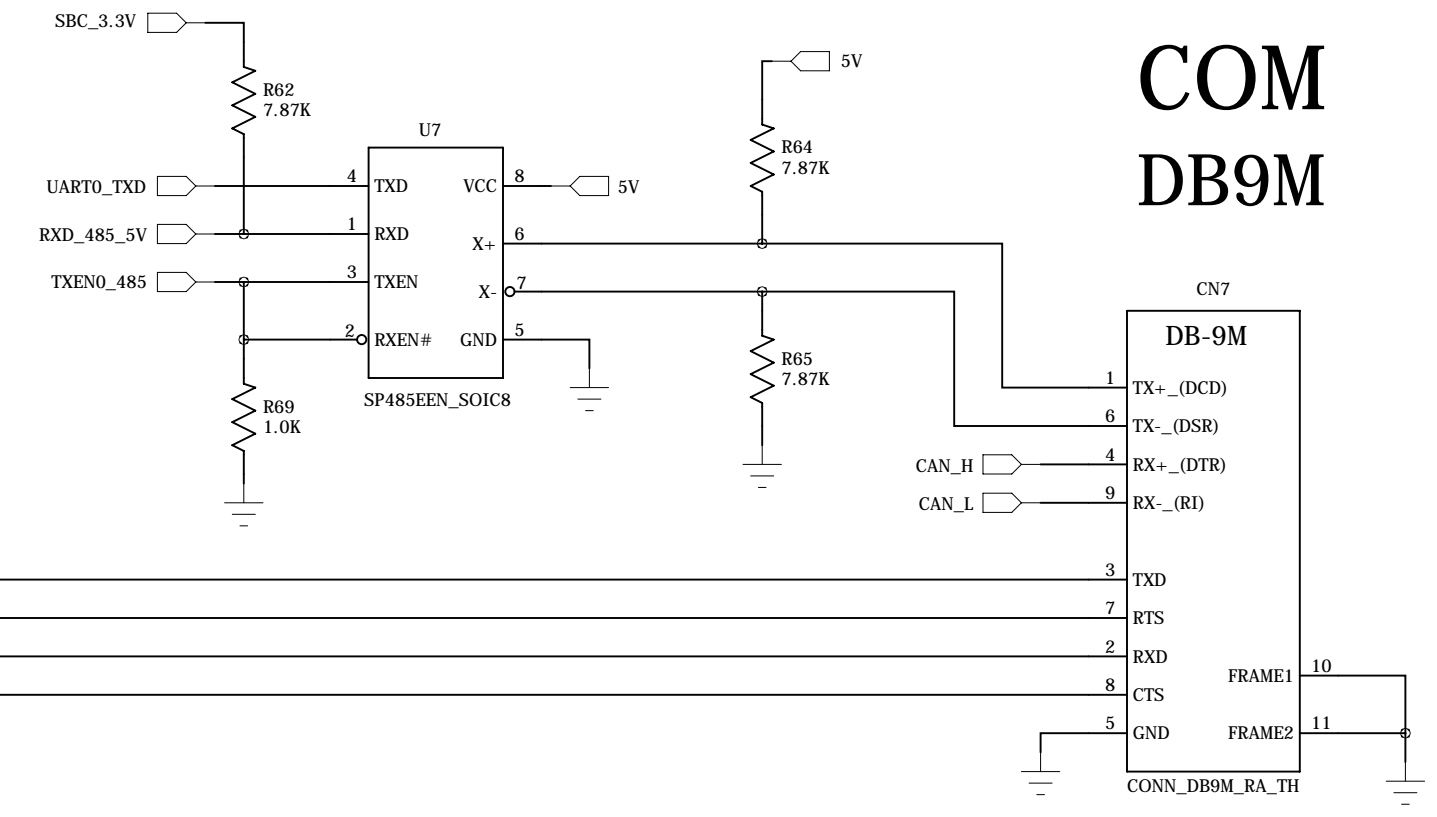
3.3V <-- 5V Level shifter



RS-232 Transceiver



RS-485 Driver

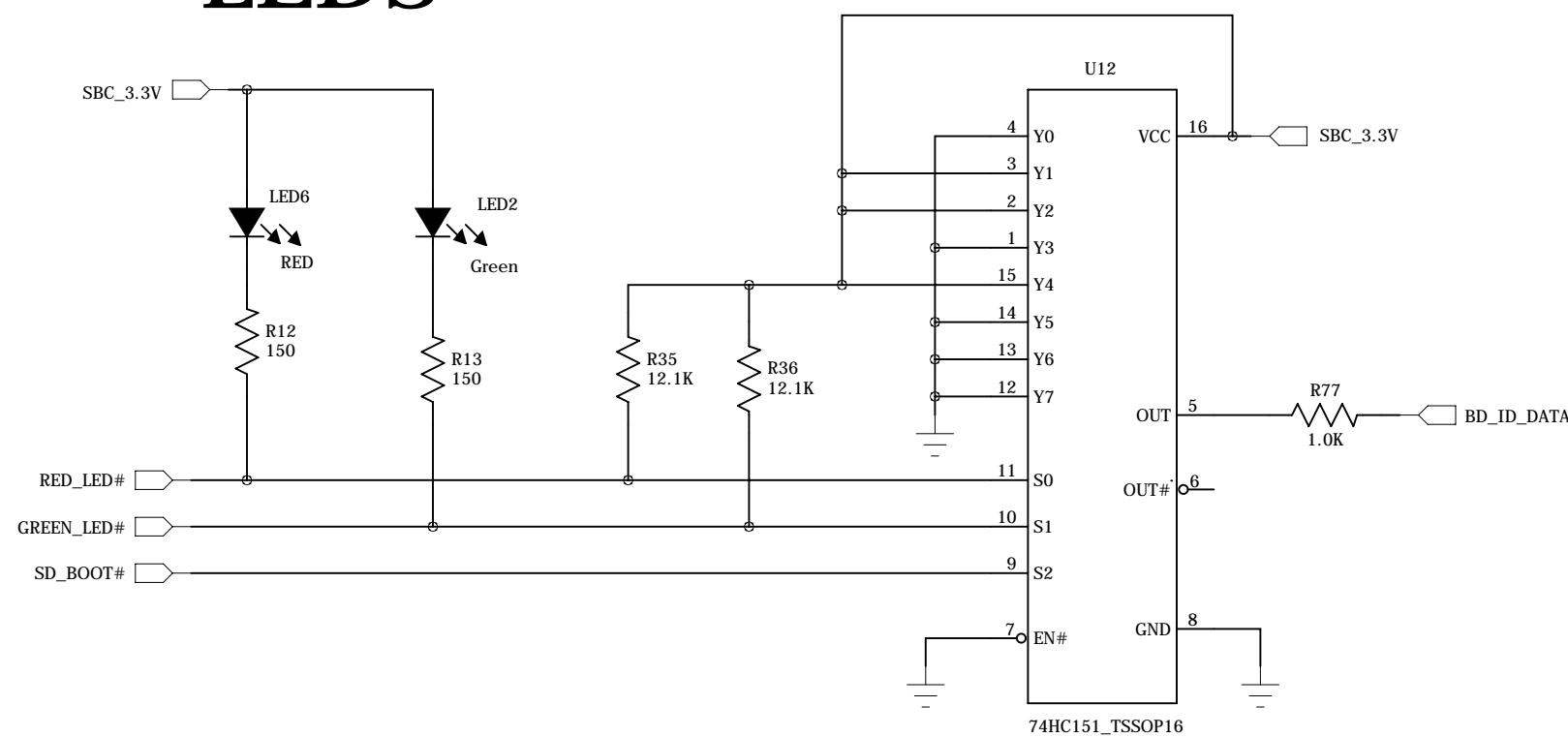


COM DB9M

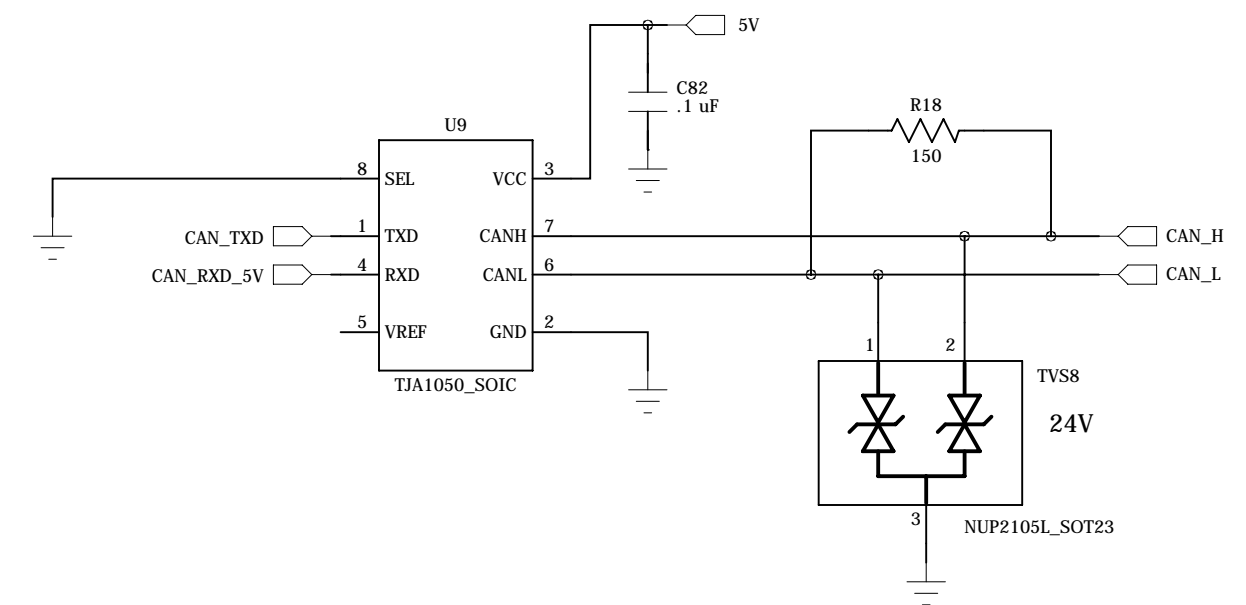
Board ID = Hex 16

Identifies board to TS-4100 and TS-4400 as being the TS-8551
Refer to the Users Guides for these products for information on setting a custom ID

LEDs

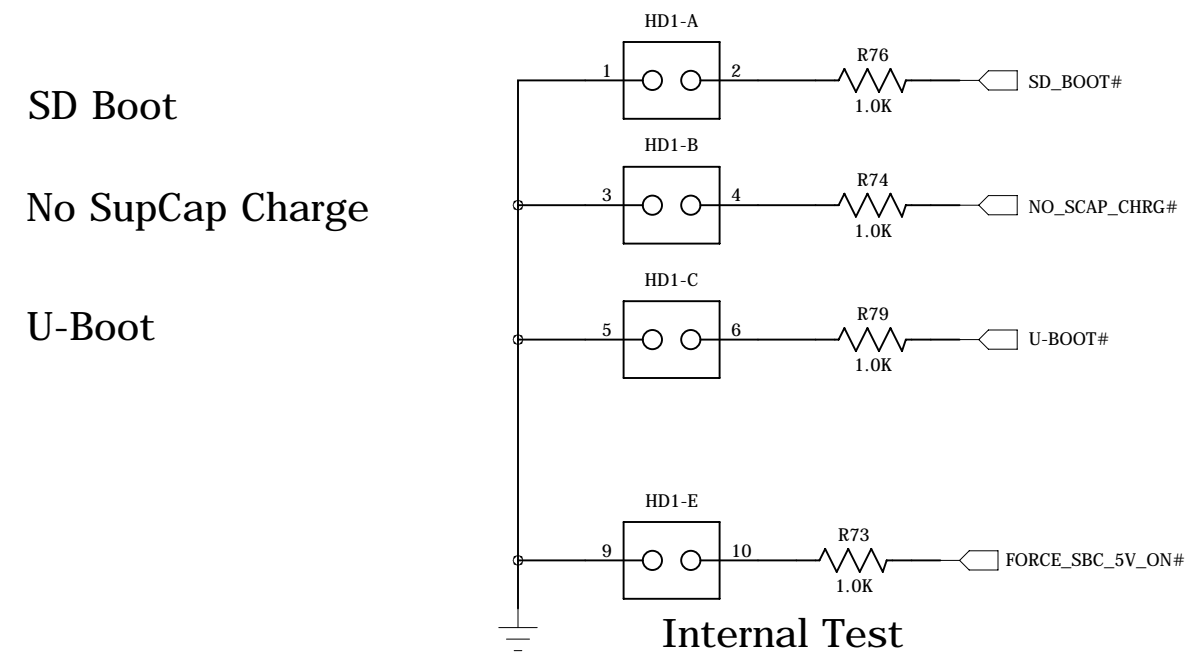


CAN Transceiver

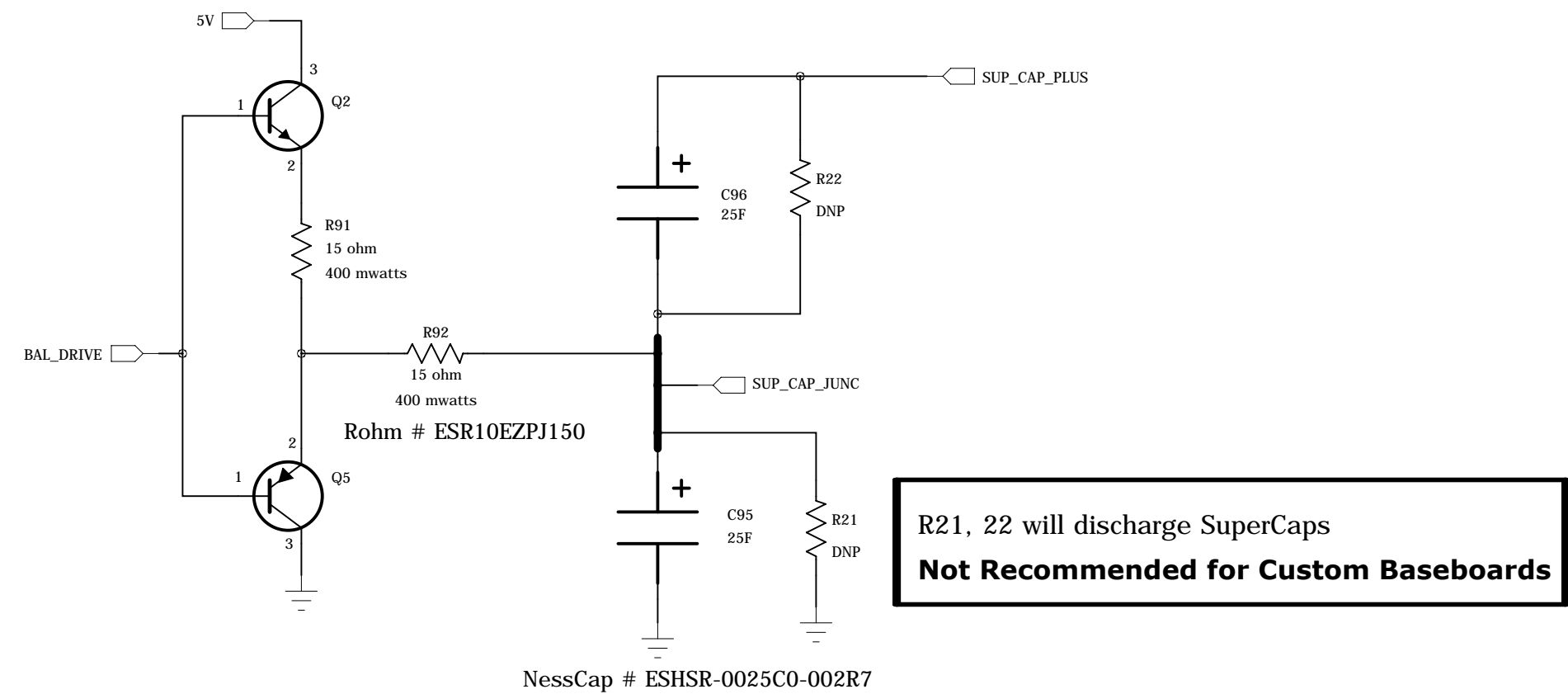


Technologic Systems	Date Oct. 22, 2017
Title: TS-8551 COM Port, CAN, RS-485, ID	
Rev: A	Designer RLM Sheet 6 of 11

Jumpers

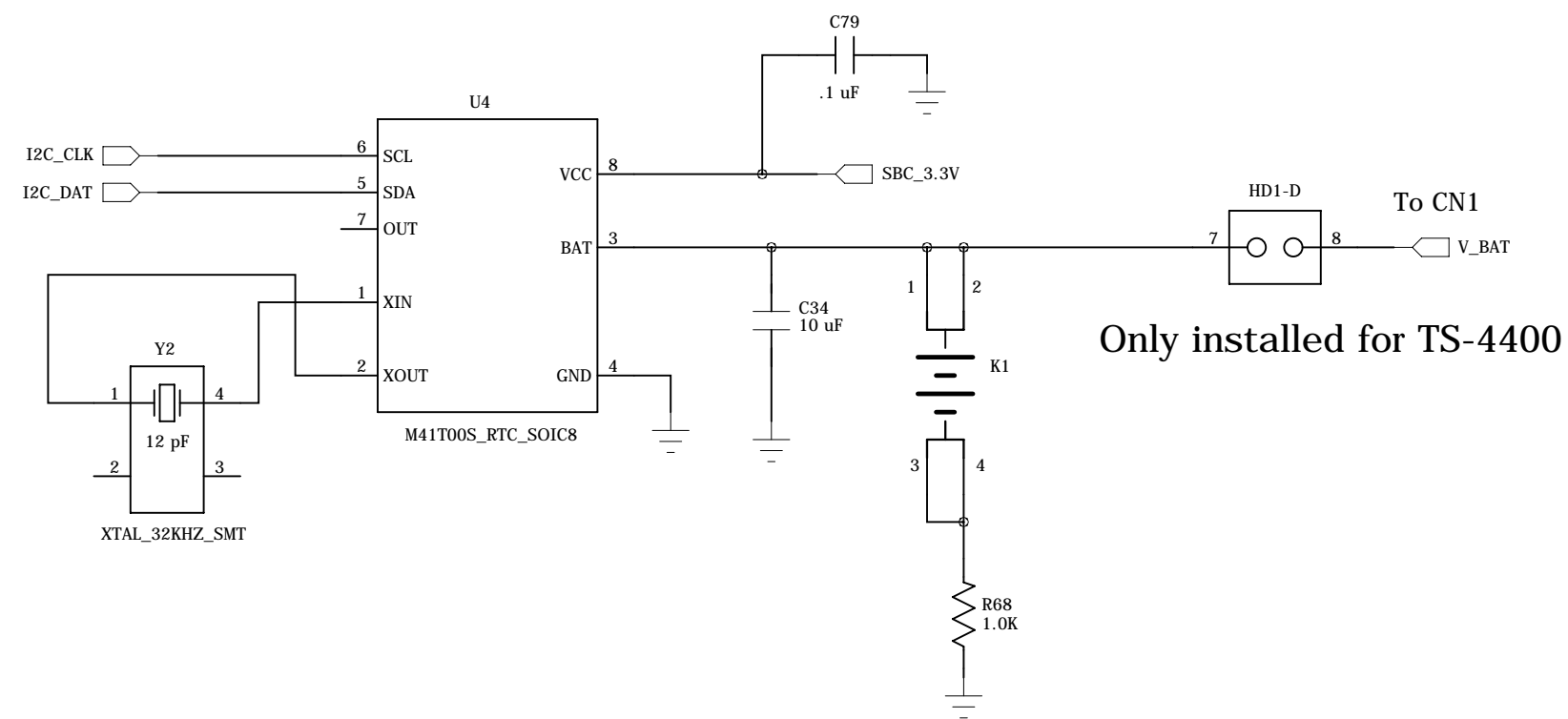


2 x 25 Farad Super Caps



Super Cap balance circuit

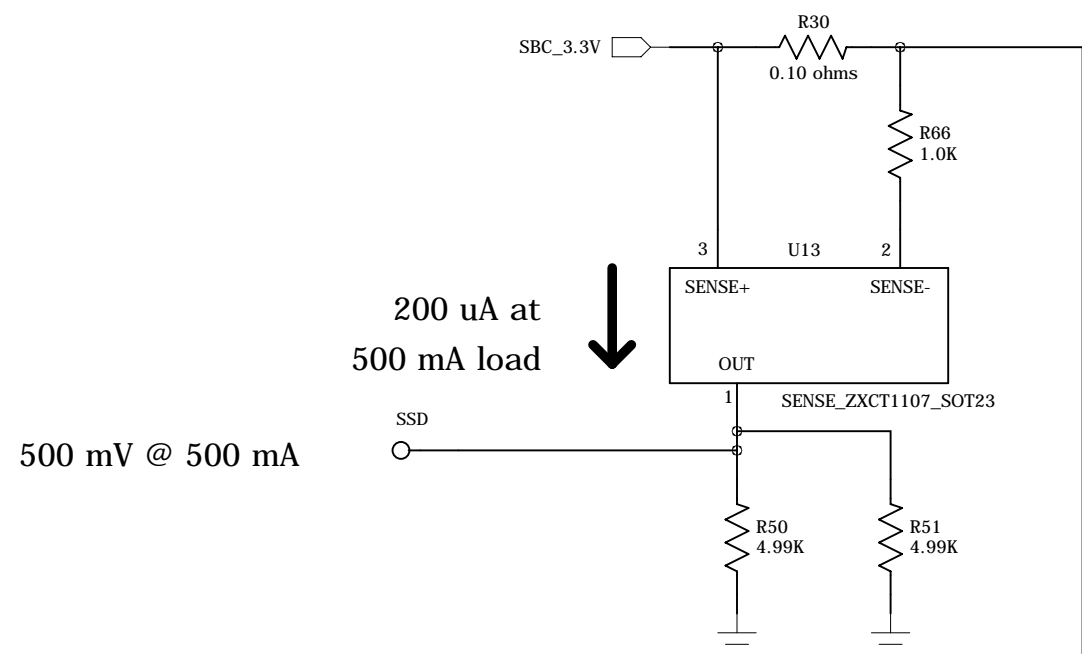
ST Micro RTC



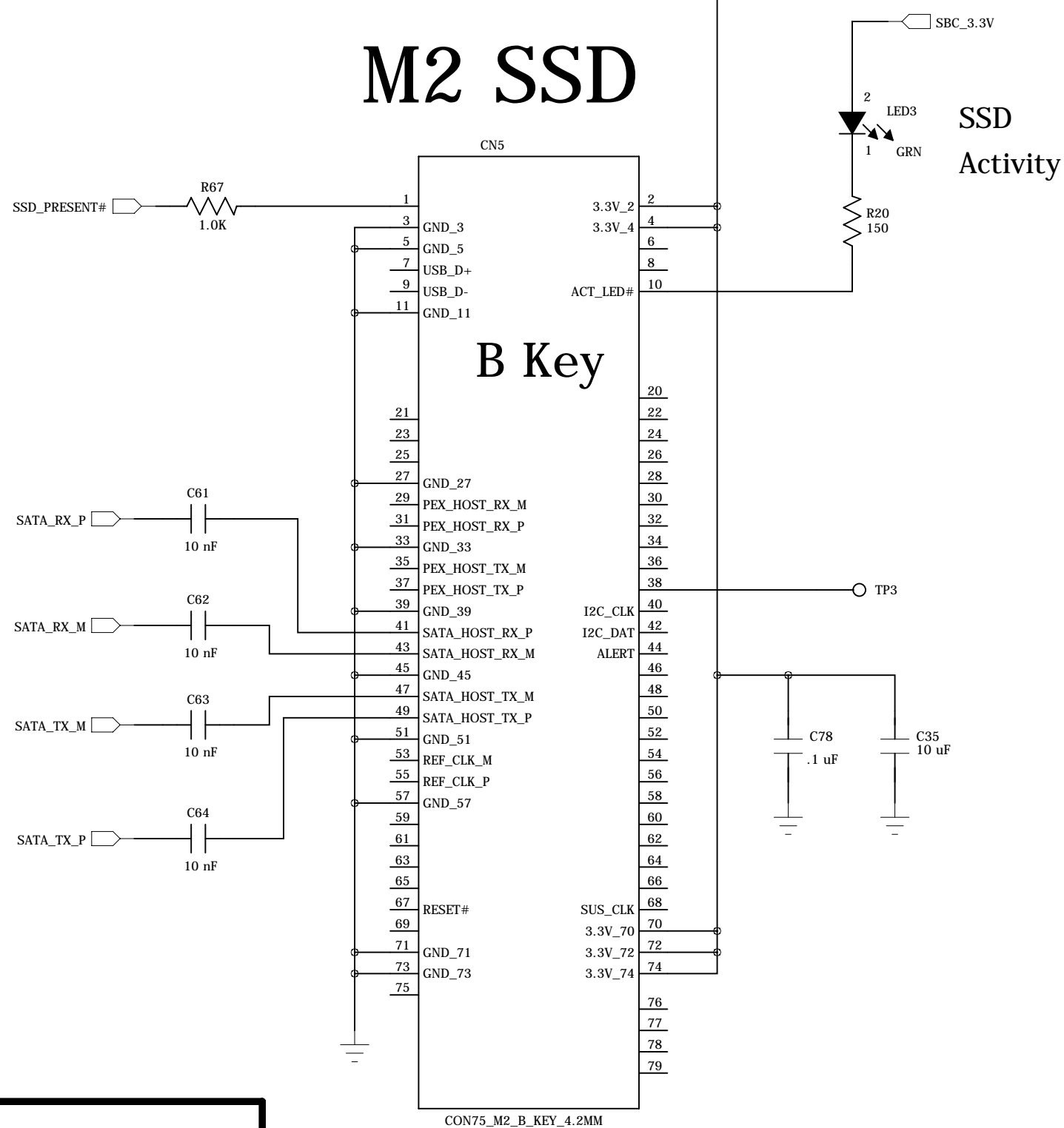
Technologic Systems	Date Oct. 22, 2017
Title: TS-8551 Super Caps, Jumpers	
Rev: A	Designer RLM
Sheet 7 of 11	

M2 SATA Conn. TS-4400 Only

SSD Current



M2 SSD



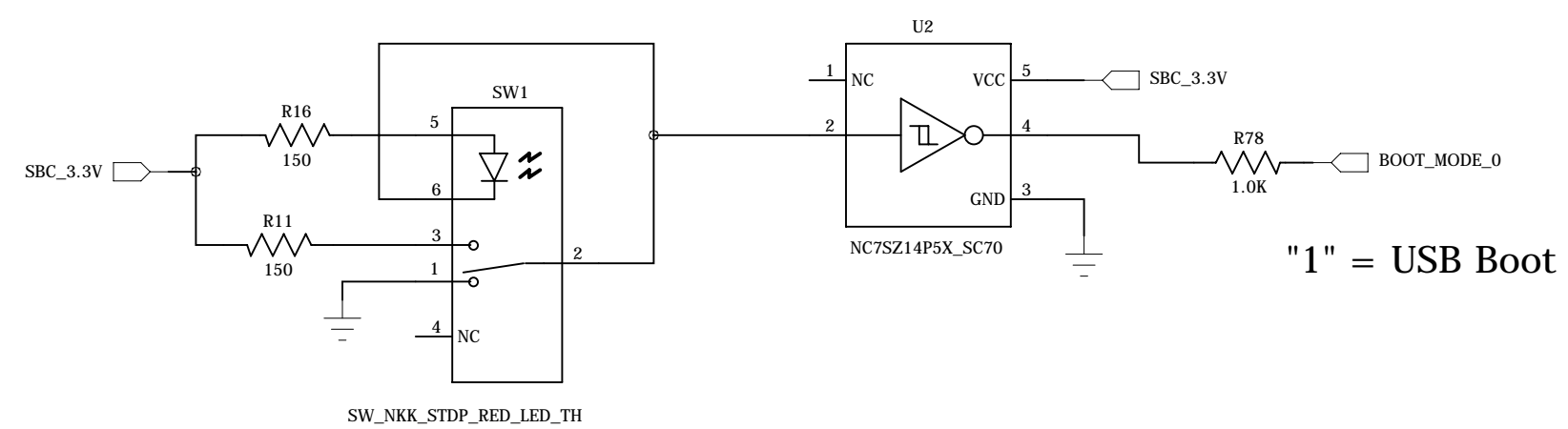
No SATA support on TS-4100

TS-4400 Supports SATA at 3 Gbit/sec

22 x 80mm

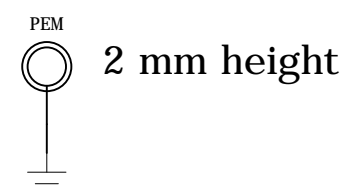
Boot Switch

LED On = USB Boot



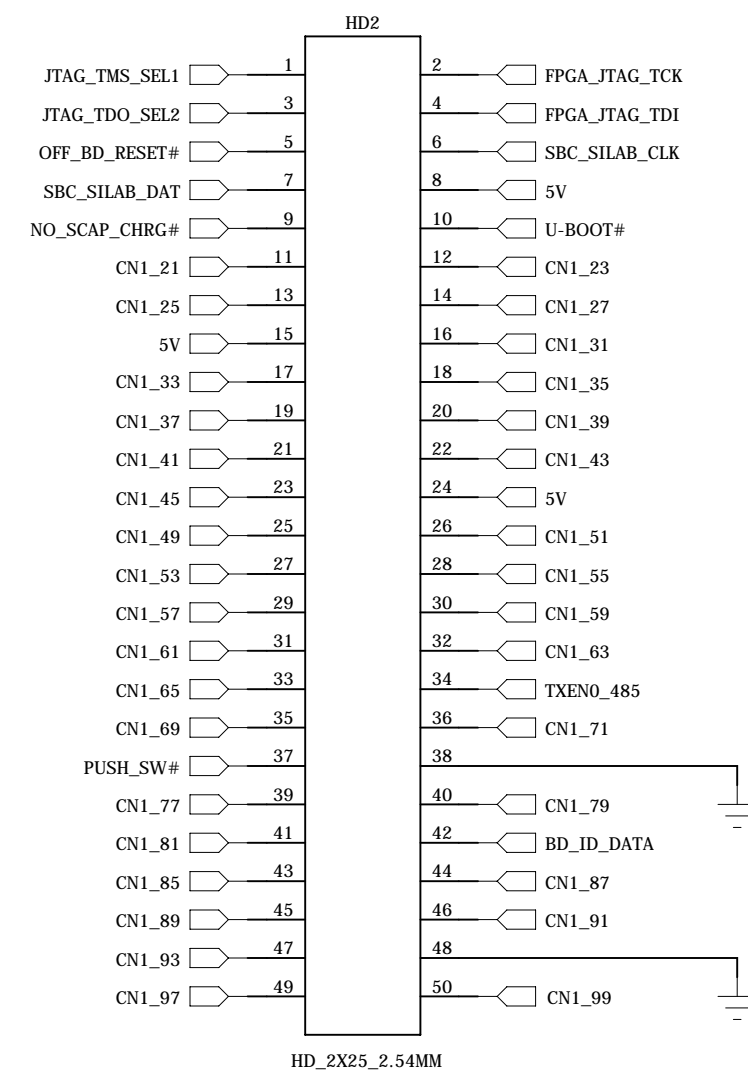
Allows TS-4100 booting to either eMMC or over the USB OTG port

M.2 Mount

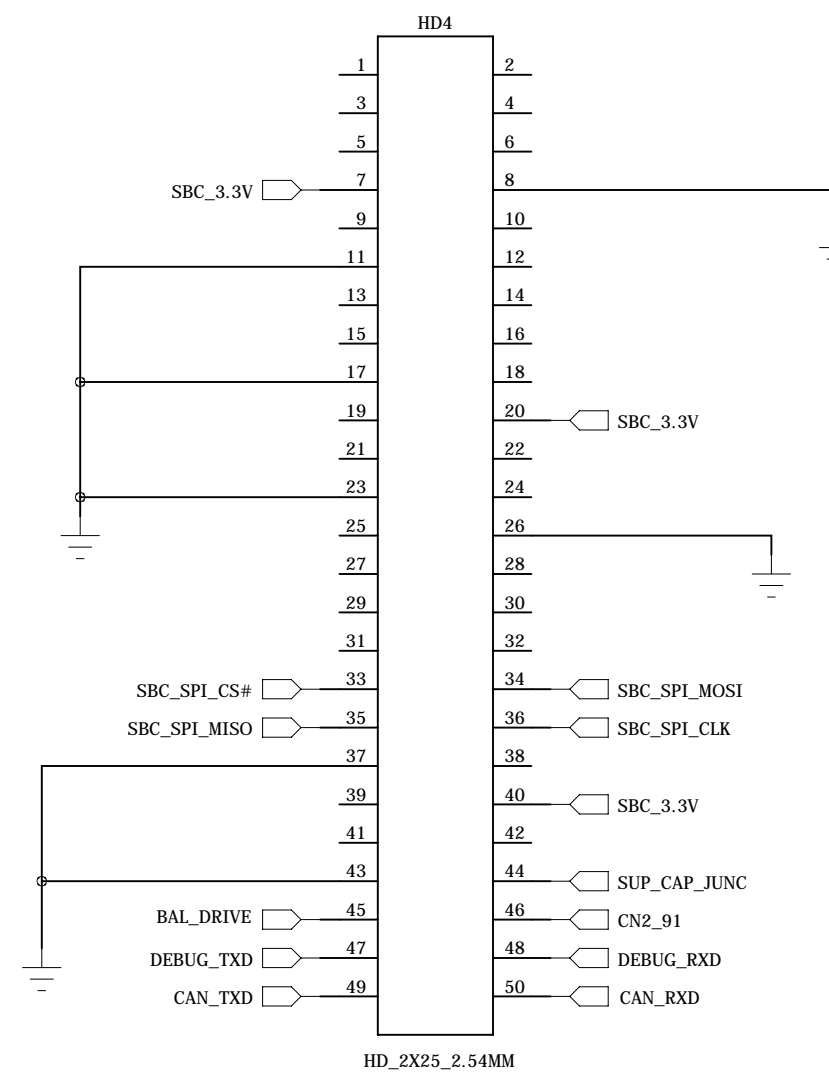


Breakout Connectors for all I/O on the TS-4100 and/or TS-4400

CN1 Odd Pins

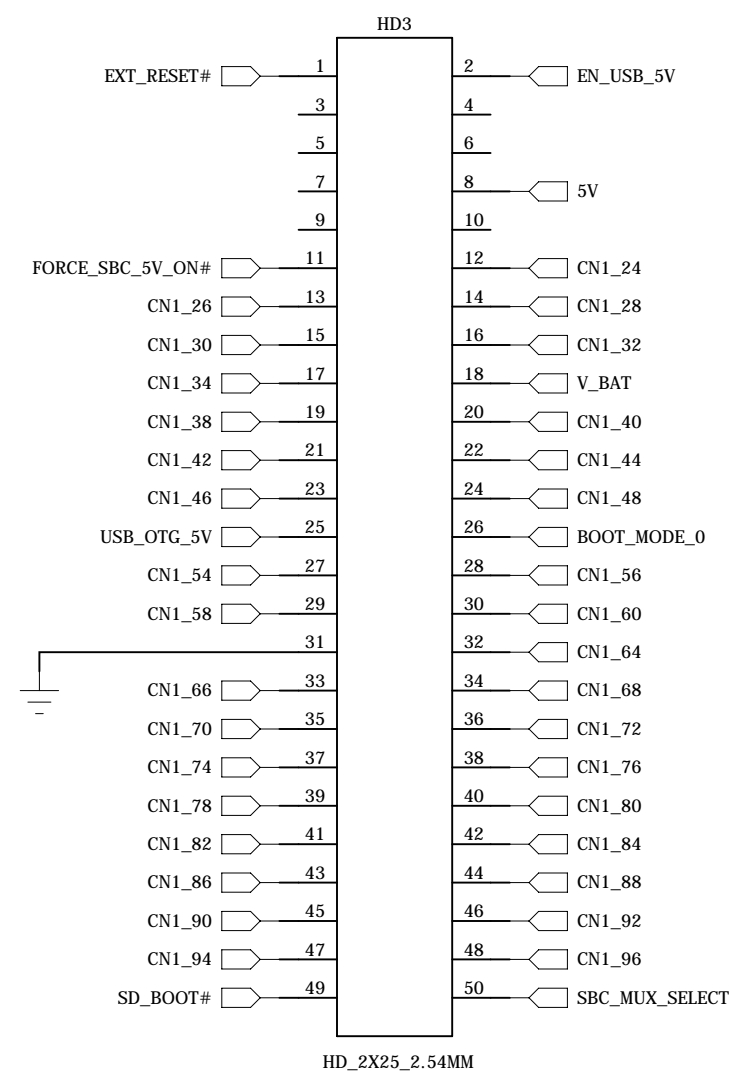


CN2 Odd Pins

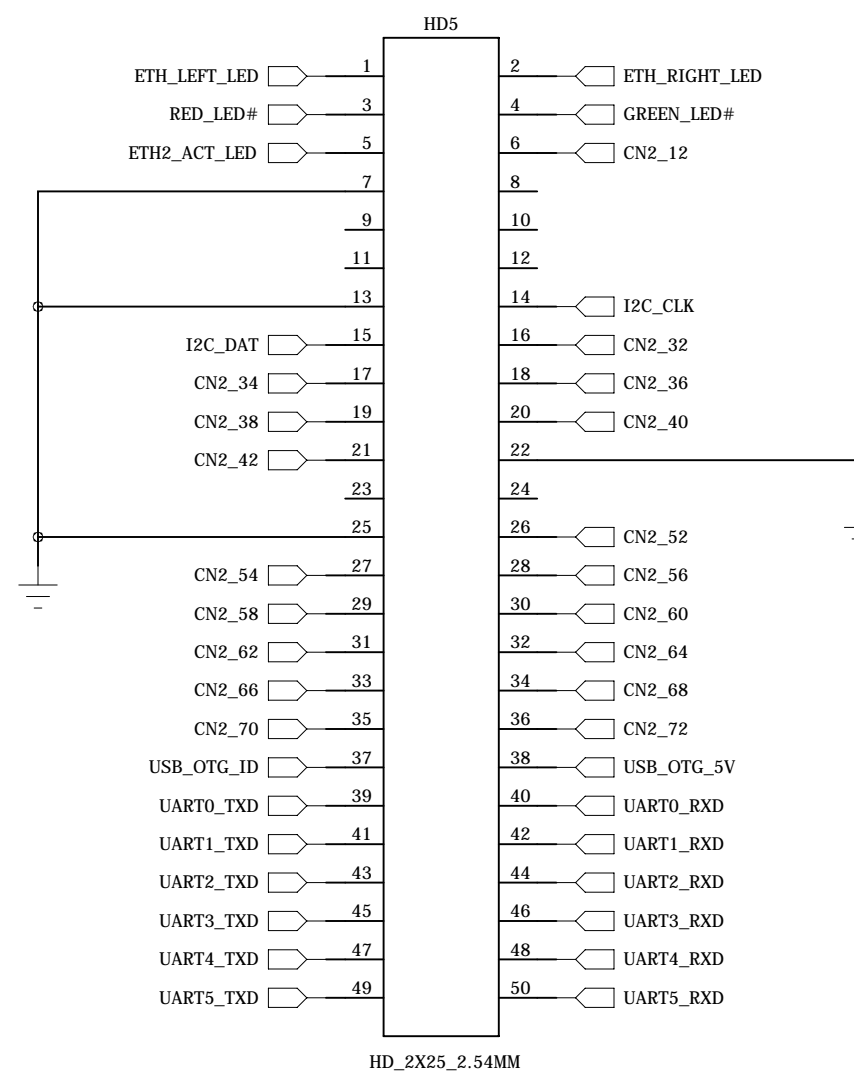


High-speed differential pairs (USB and Ethernet) and SD card are not routed to these headers

CN1 Even Pins



CN2 Even Pins



Two 100-pin Module Connectors

"5V" pins supply all power to the module
Apply 4.5V to 5.5V to these pins

Current drain is < 800 mA
(less than 4 Watts)

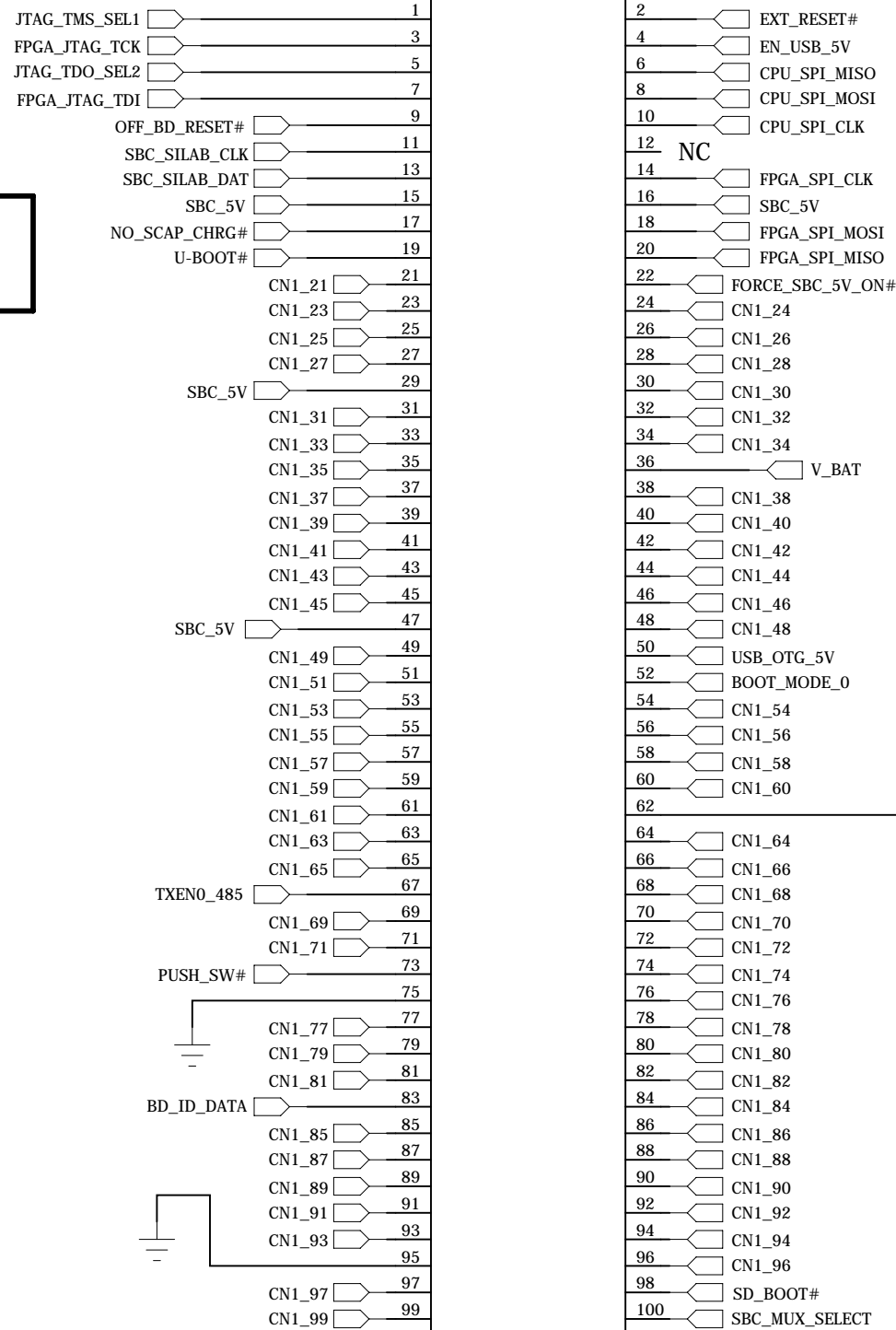
EXT_RESET# is an Input to the
SBC used to reboot the CPU

Do not drive active high
(use open drain)

Left

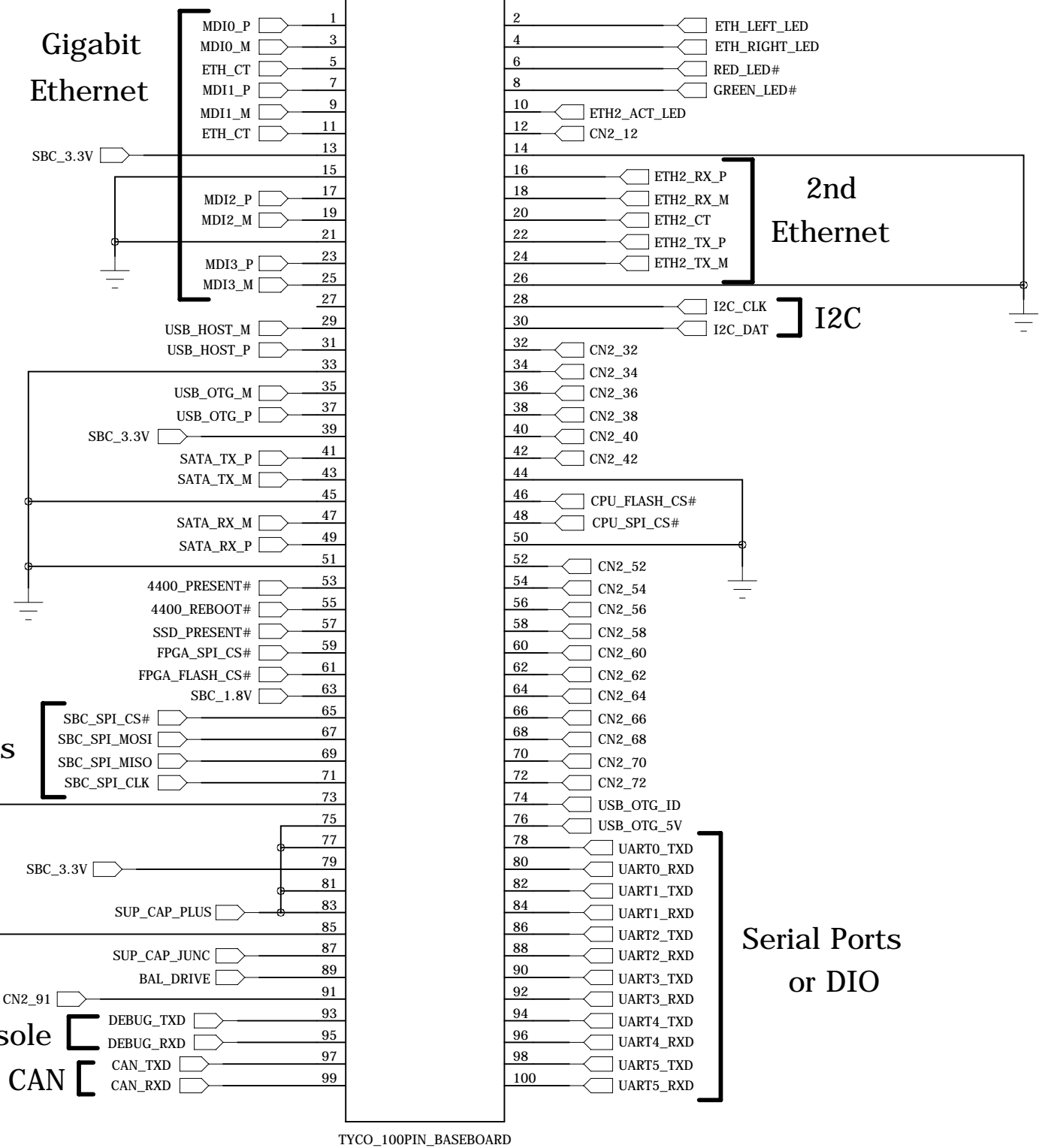
Right

TS-4100
FPGA
JTAG

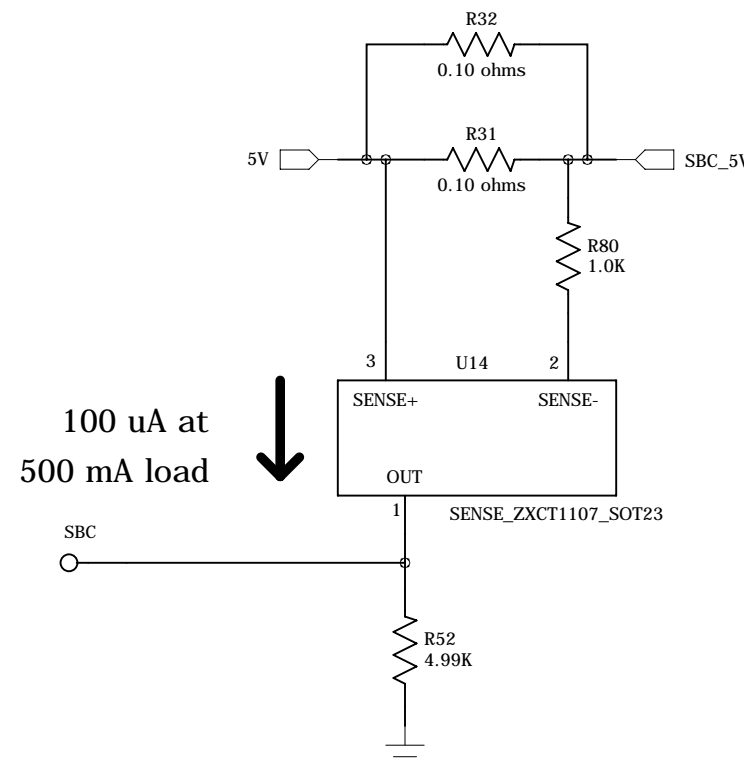


OFF_BD_RESET# is an
output from the SBC

Maximum load on
3.3V rail is 500 mA



SBC Current



⚠ All signals driving DIO on CN1 & CN2 must be powered by the 3.3V on CN2, or remain at 0V until the CN2 3.3V rail is > 3.0V

CN1_98	TS-4100 Boots from
1	eMMC Flash
0	SD Card

CN1_98 state is latched prior to OFF_BD_RESET# deasserted

CN1_98 has weak PU on the SBC module

500 mV @ 500 mA