Comments:

Cortex M0 can be powered from USB or by 8-28VDC Power

Cortex M0 is powered up first, then it controls MX286 start up

Cortex M0 does these functions:

- Controls MX286 power up sequence
- Controls MX286 Boot Strapping
- USB Device to Console conversion
- Controls Blue LED
- Can read Push Switch
- Measures Analog Vin value
- Reads SD_BOOT Jumper
- Contains customer specific "ID Code" ?
- Other NV Parameter storage ?

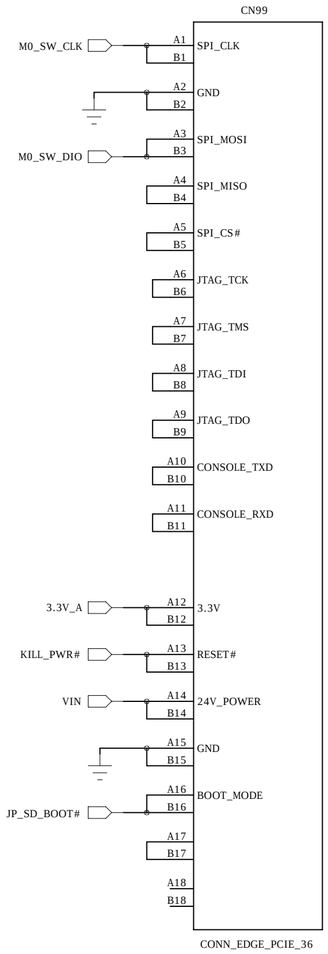
Serial Port Usage

UART0 = RS-232
UART1 = RS-232
UART2 = Modbus/DC
UART3 = DC
UART4 = GPS Radio
Debug = Console/DC

DC = Daughter Card

10 DIO also go to DC

Programmer Edge Conn.



GPS option adds:

U14, PF2, L4, HD3

2nd CAN adds:

U26 and TVS6

Technologic Systems	Date Jan. 7, 2014	
Title: TS-7670 Documentation		
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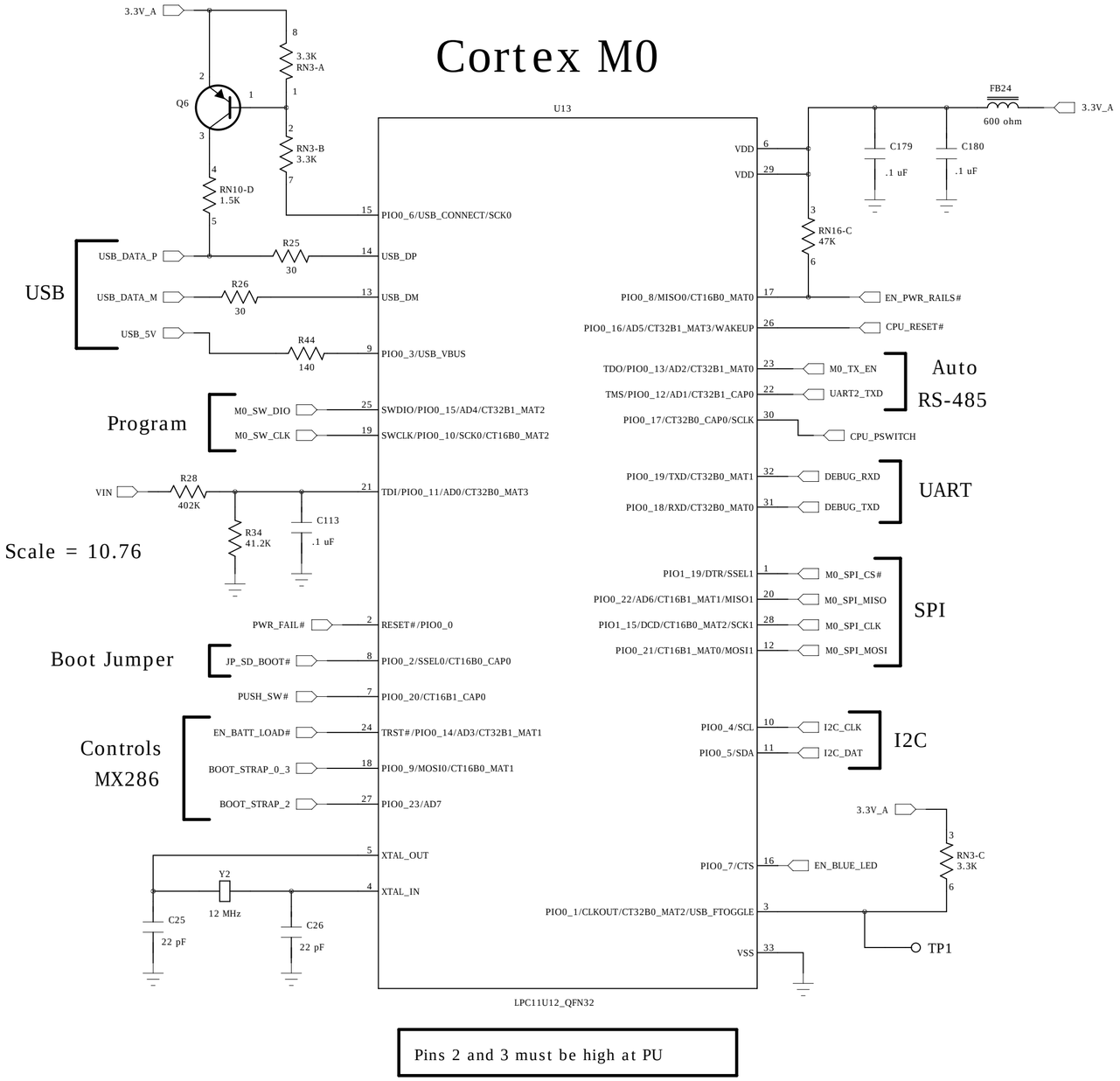
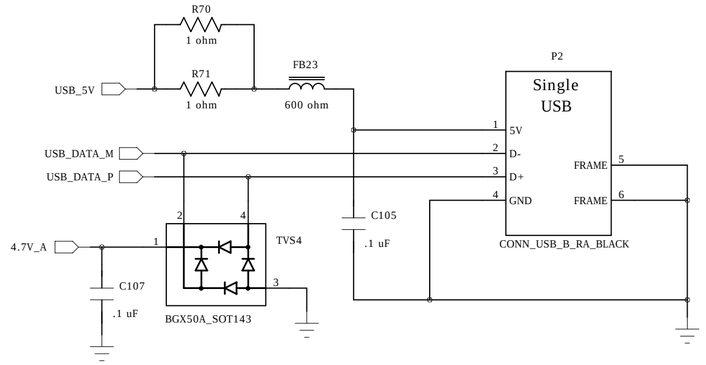
USB Device Port and Cortex M0

Cortex M0

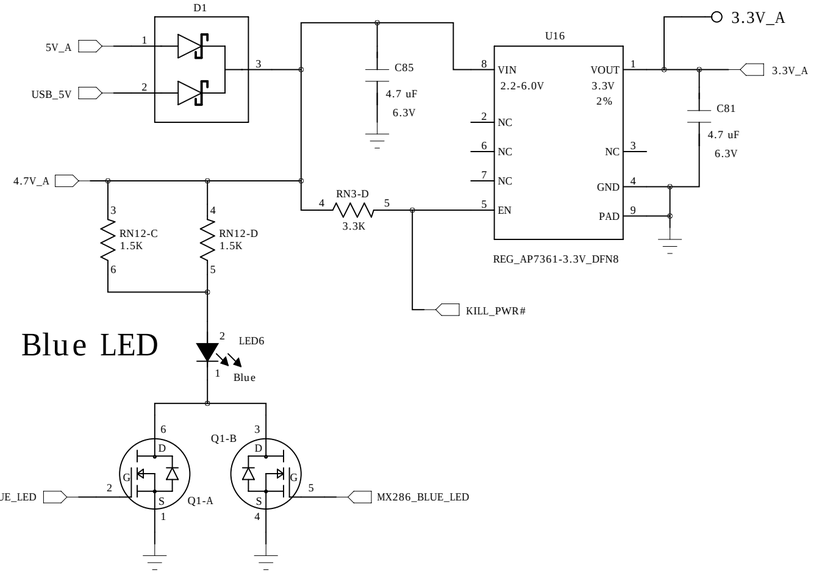


Pins 2 and 3 must be high at PU

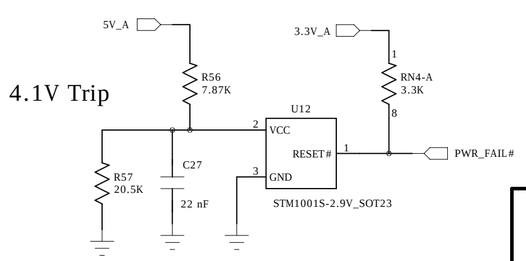
USB Device Port



3.3V Reg. for M0

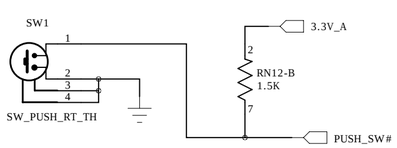


Brown out Detect



If D8 not installed
Then U12 not installed

Push Switch



Technologic Systems	Date Jan. 7, 2014	
Title: TS-7670 Cortex M0 Controller		
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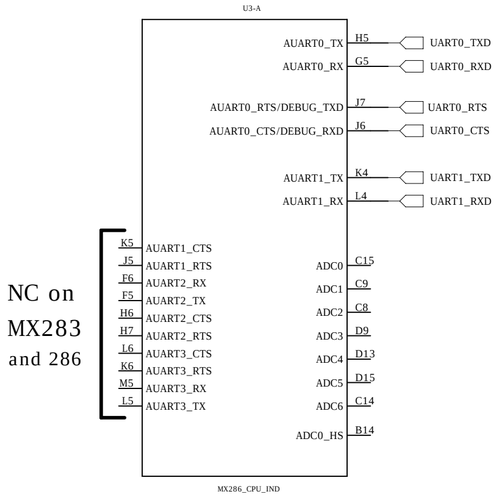
MX286 ARM9 CPU

UARTs, ADC

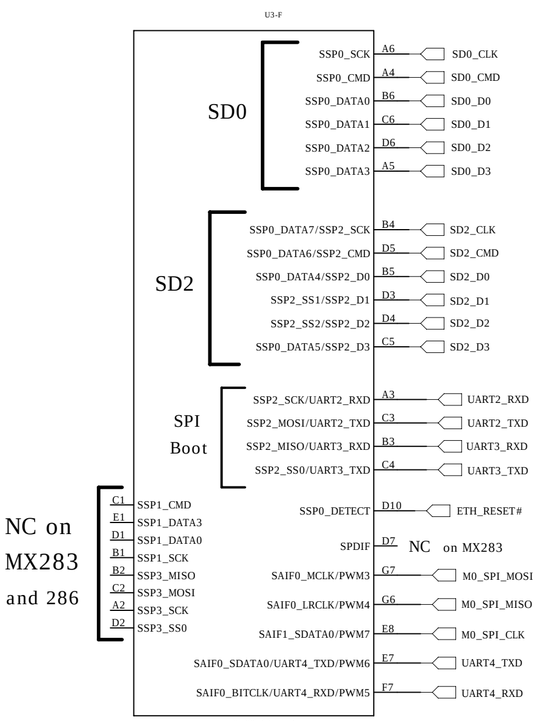


NC on MX283 and 286

Audio

SD Card

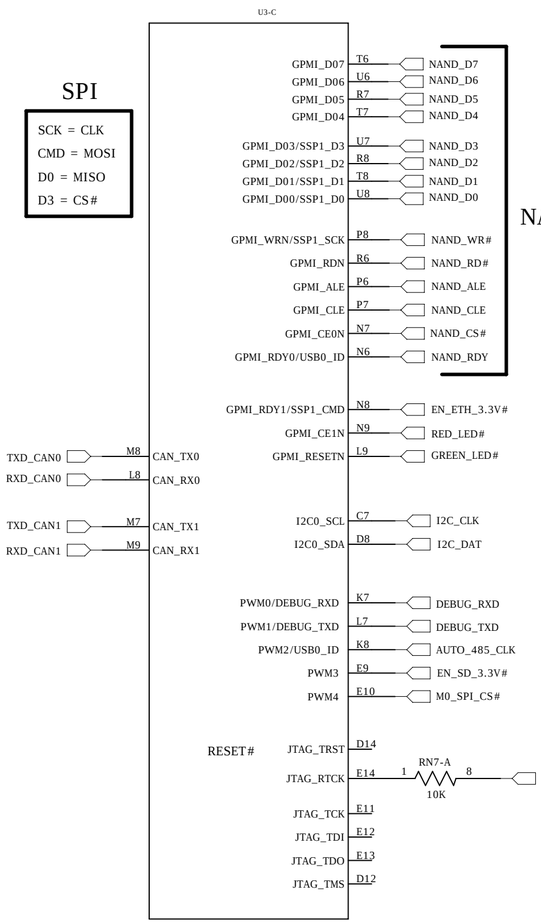
SPI Boot



NC on MX283 and 286

NAND, PWM

JTAG, I2C



SPI

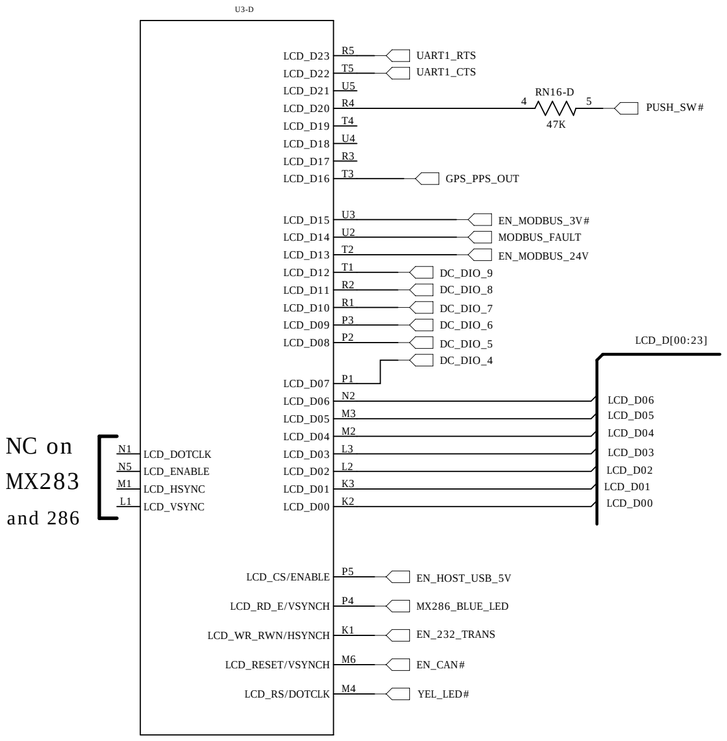
SCK = CLK
CMD = MOSI
D0 = MISO
D3 = CS#

NAND Interface

MX286 adds
4 CAN signals
and ball D7

All JTAG have 47K internal PU except RTCK

LCD



NC on MX283 and 286

Technologic Systems	Date Jan. 7, 2014	
Title: TS-7670 MX286 CPU		
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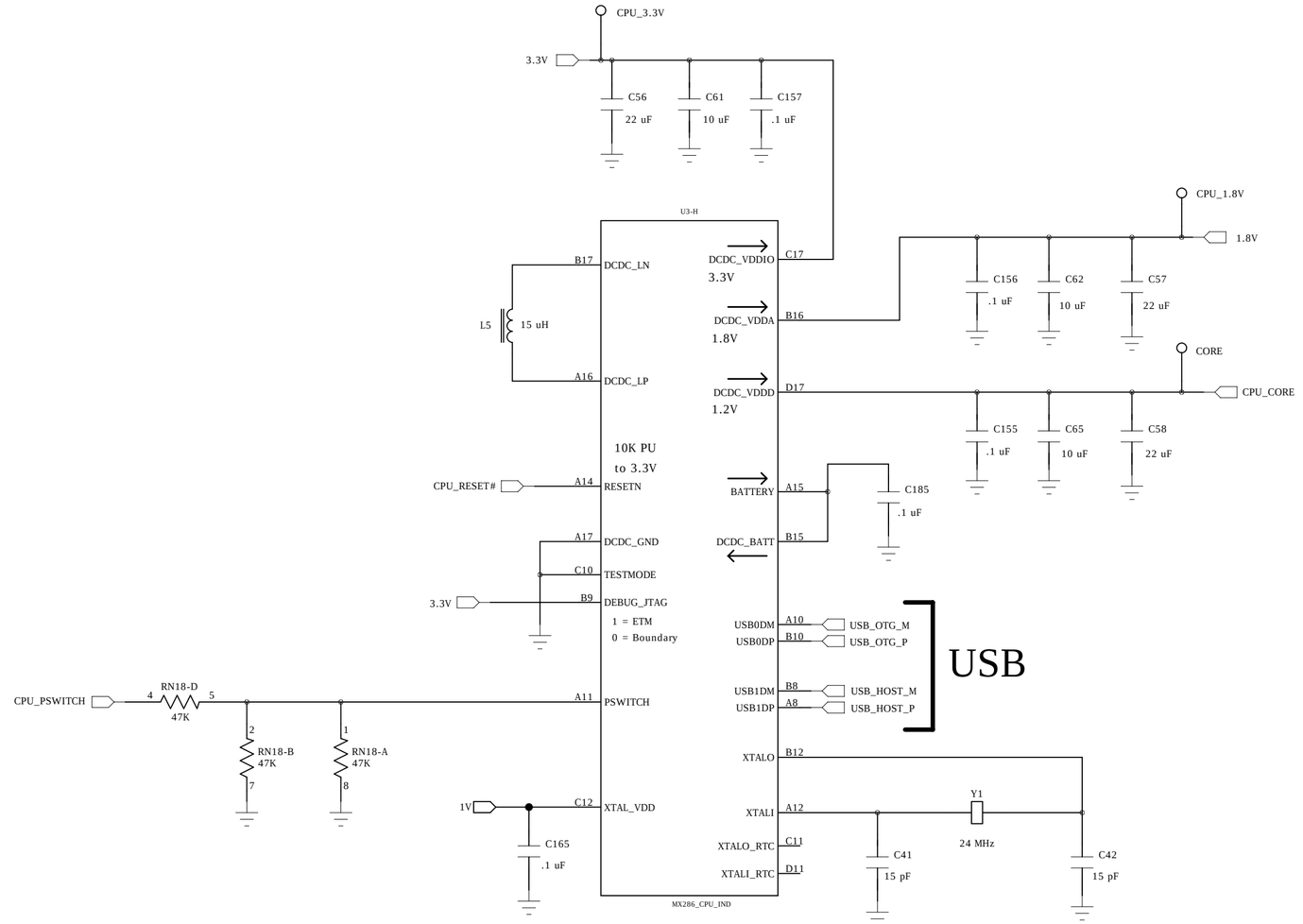
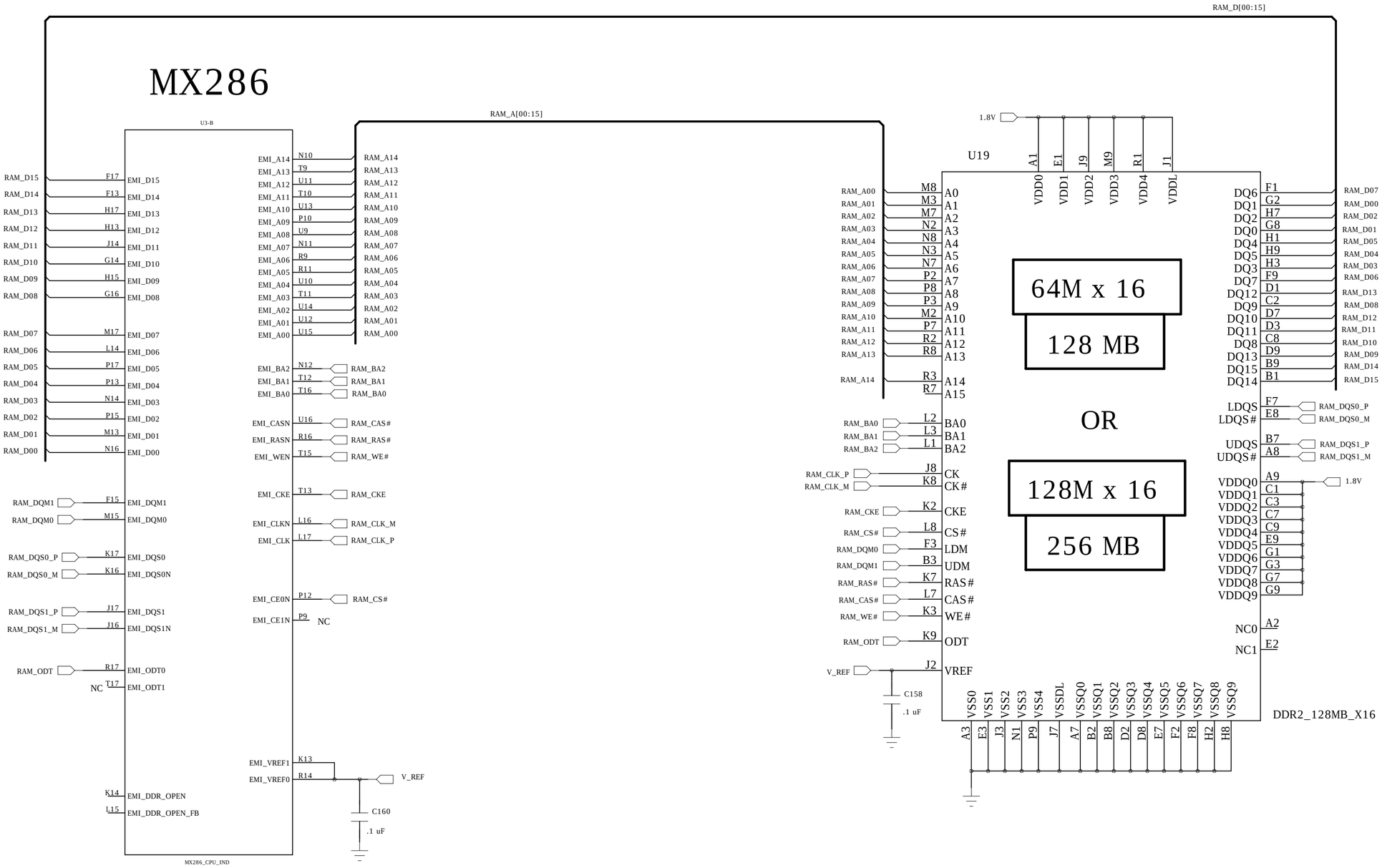
CPU Power



GND Test Point

Technologic Systems	Date Jan. 7, 2014	
Title: TS-7670 MX286 CPU Power		
Rev: B	Designer	Sheet 4 of 13

DDR2 SDRAM (128 or 256 MByte)



Technologic Systems	Date Jan. 7, 2014	
Title: TS-7670 DDR2 RAM		
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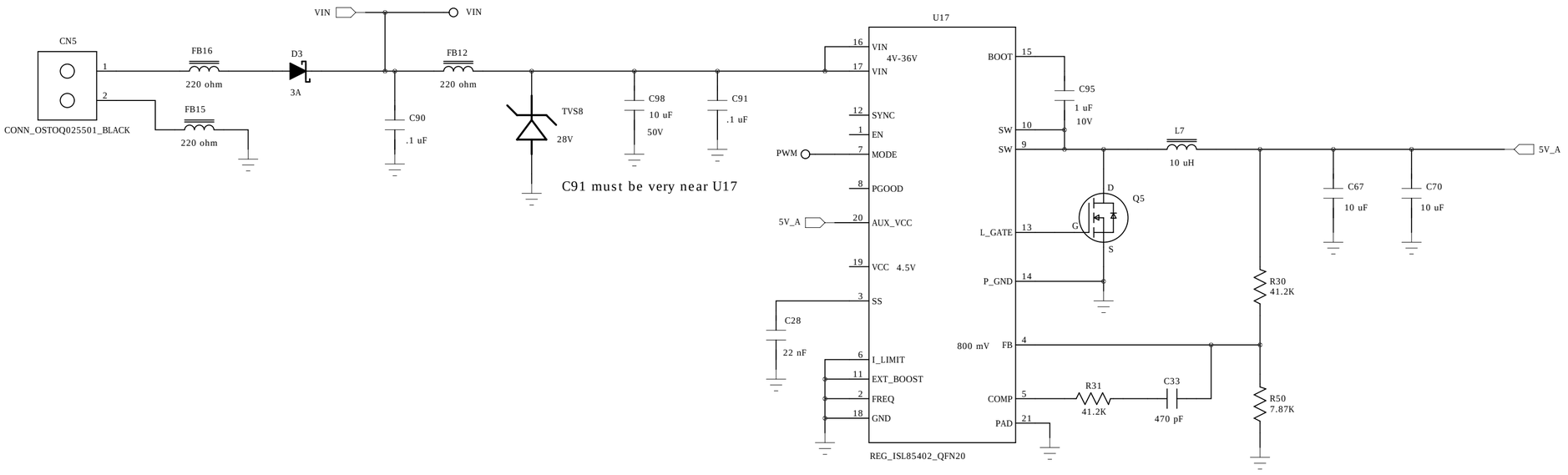
5V Power Supply (2000 mA)

8-28 VDC

Power Input

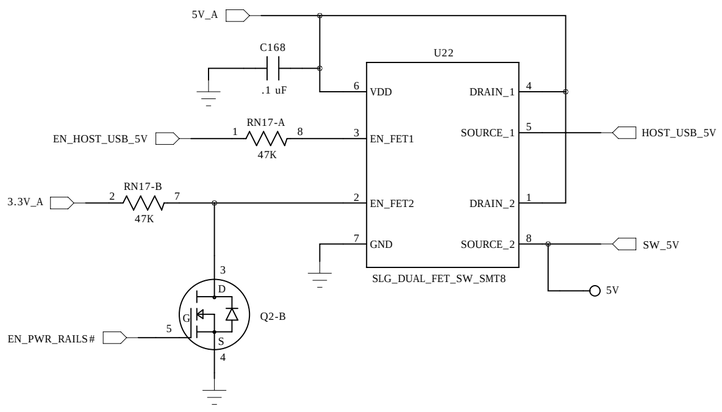


.063 hole

GND

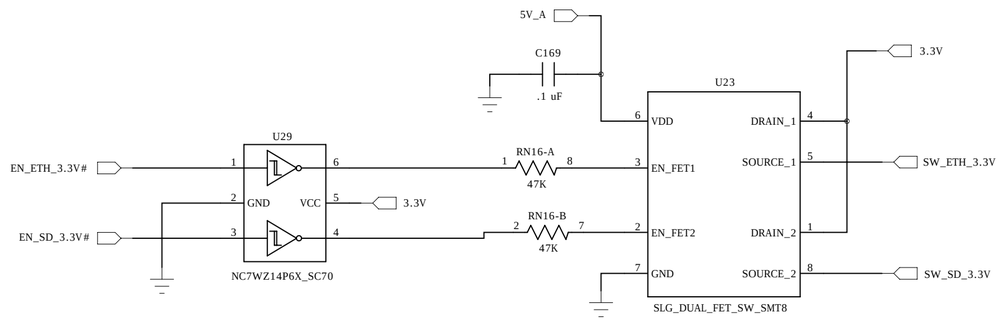
USB and MX286

Switched Power



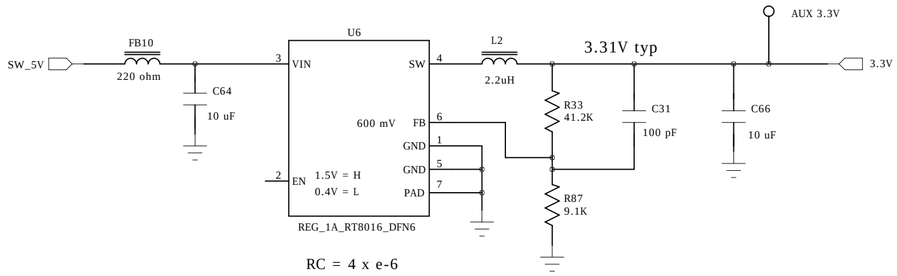
Ethernet and SD

Switched Power



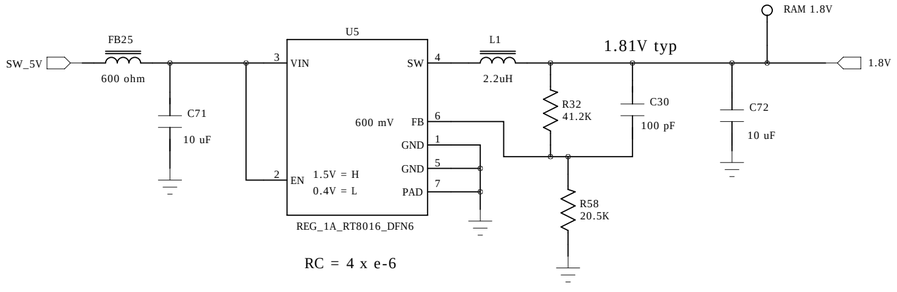
Technologic Systems	Date Jan. 7, 2014	
Title: TS-7670 5V and Switched Power		
Rev: B	Designer	Sheet 6 of 13

3.3V Reg



RC = 4 x e-6

1.8V Reg



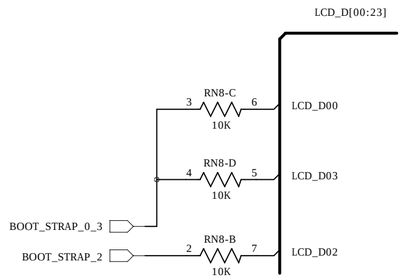
RC = 4 x e-6

Boot Strap Bias Res.

Defaults to NAND

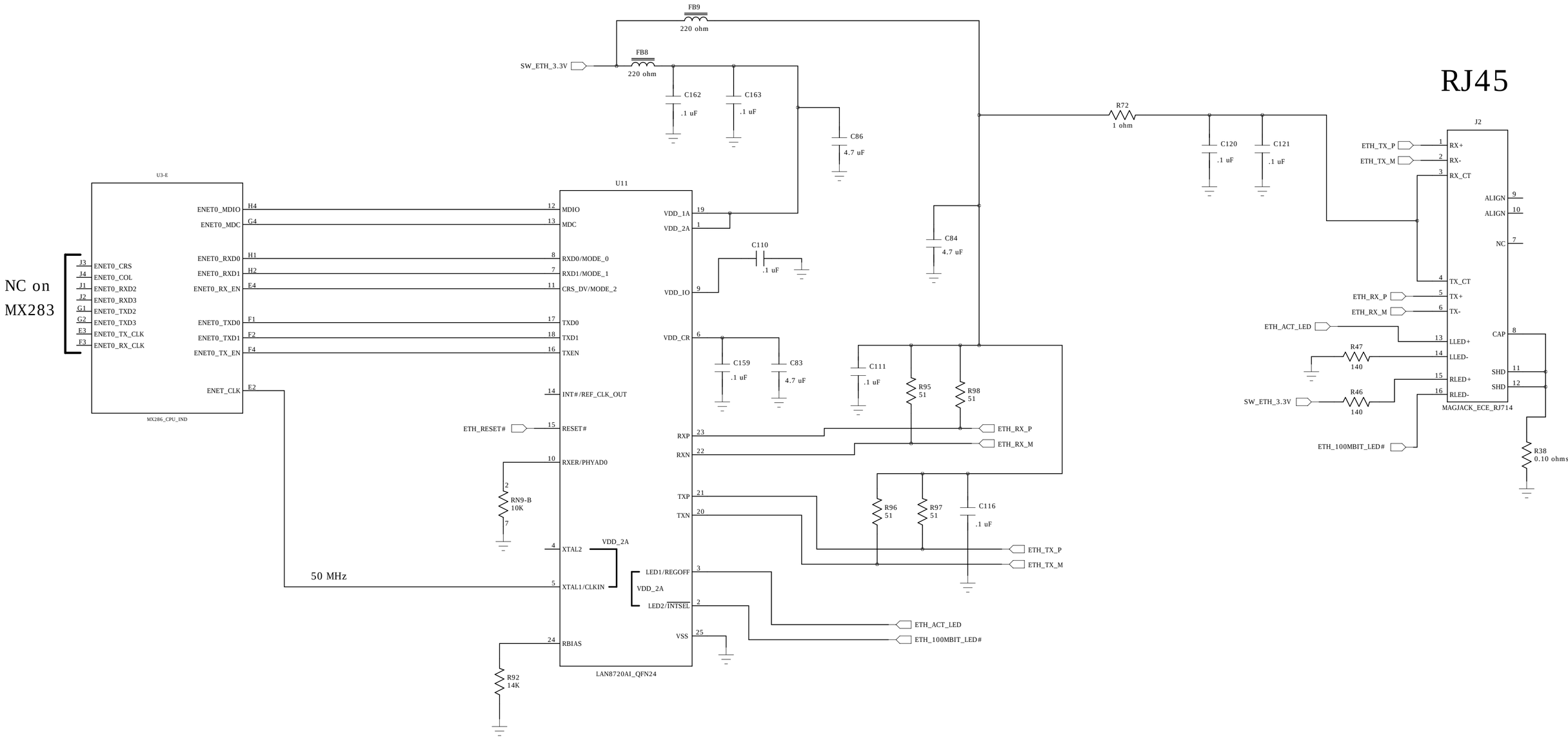
Boot Source

LCD_3			LCD_0	
0	0	1	0	SPI
1	0	0	1	SD Card
0	0	0	0	USB
0	1	0	0	NAND



Technologic Systems		Date Jan. 7, 2014
Title: TS-7670 AUX Power Reg, Boot Strap		
Rev: B	Designer	Sheet 7 of 13

10/100 Ethernet



Auto MDIX is supported and

Polarity Correction supported

Technologic Systems	Date Jan. 7, 2014	
Title: TS-7670 Ethernet Port		
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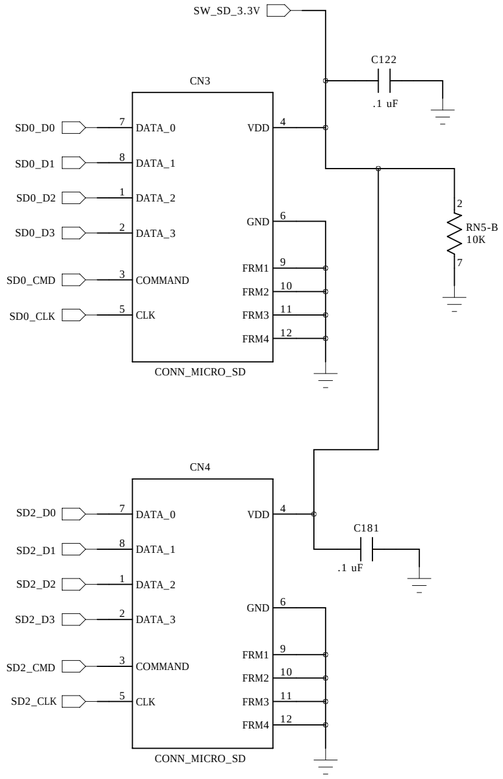
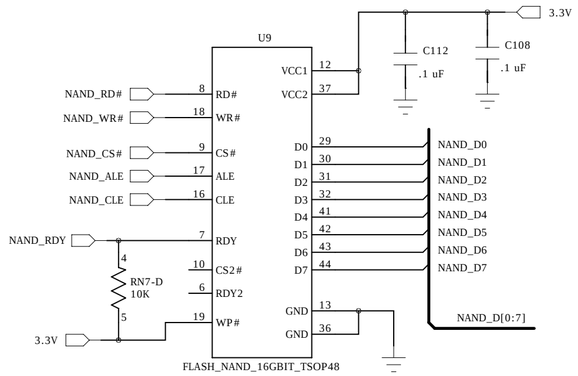
Flash Memory

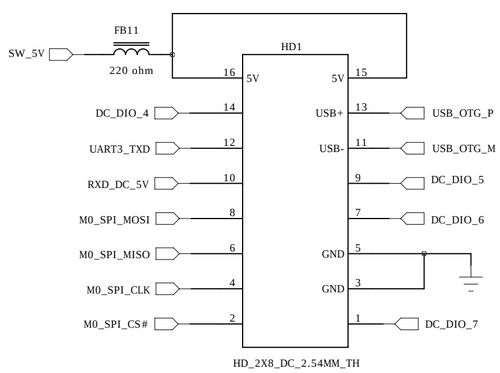
Micro SD Card Socket



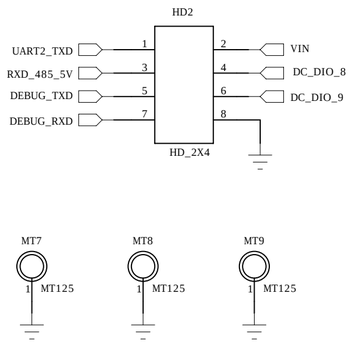
NAND Flash



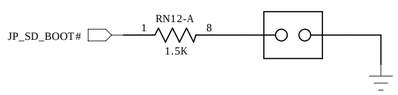
Daughter Card Interface



Supplemental Interface



SD Boot Jumper



Technologic Systems	Date Jan. 7, 2014	
Title: TS-7670 NAND and SD Card		
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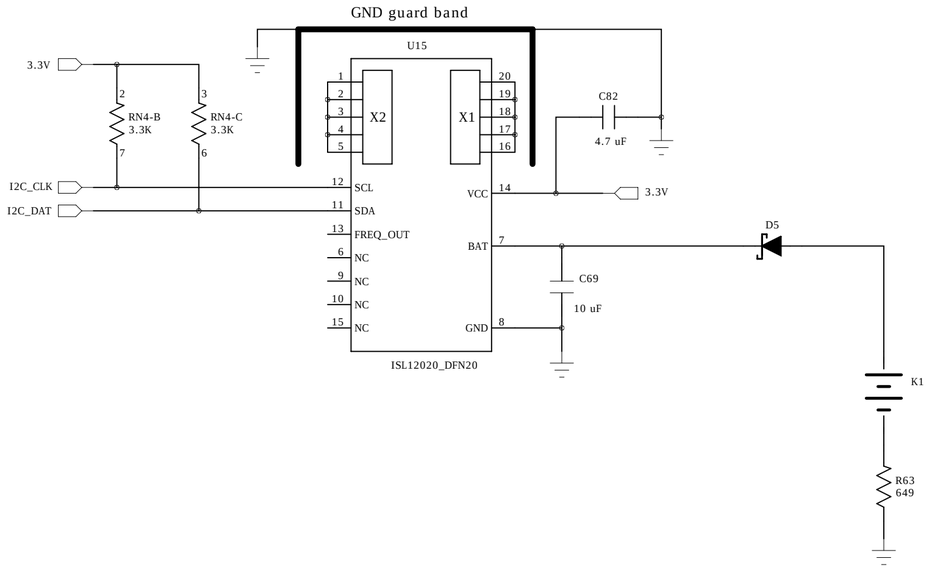
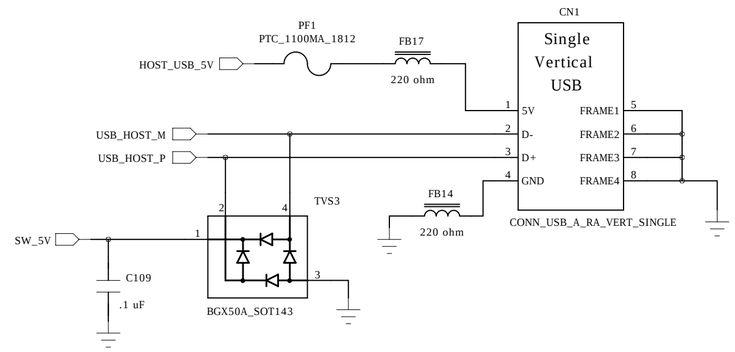
RTC and Host USB

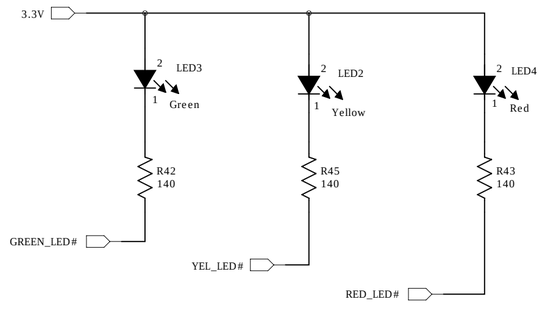
RTC and Temp. Sensor



External Host USB Port



SMT RA LEDs



Technologic Systems	Date Jan. 7, 2014	
Title: TS-7670 RTC and Host USB		
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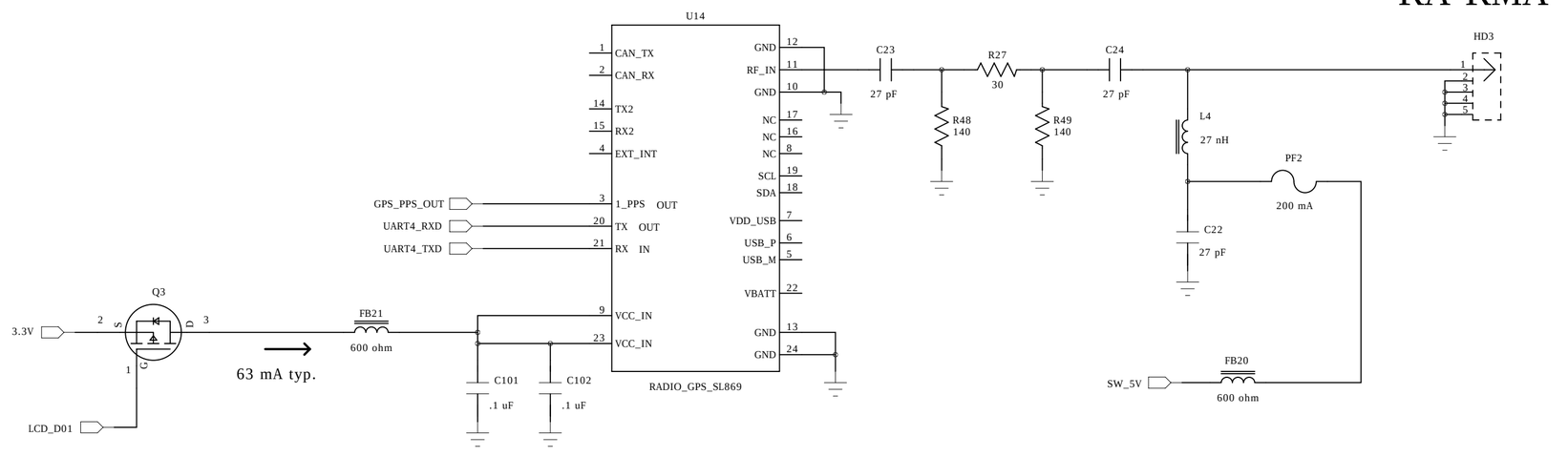
GPS Radio

Telit SL869
GPS Radio

RF Conn.

RA RMA



Technologic Systems		Date Jan. 7, 2014
Title: TS-7670 GPS Radio		
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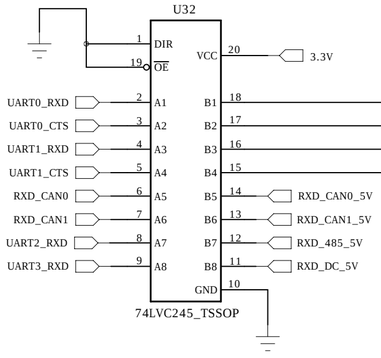
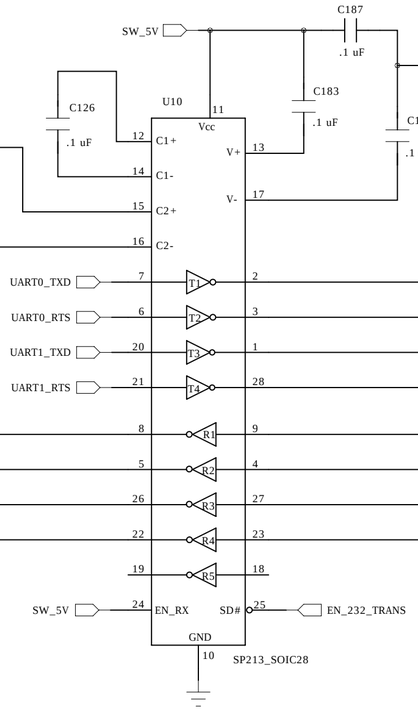
RS-232 Ports

3.3V <-- 5V

Level shifter

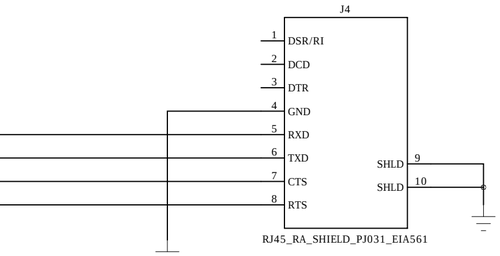


RS-232 Transceiver



Port 1

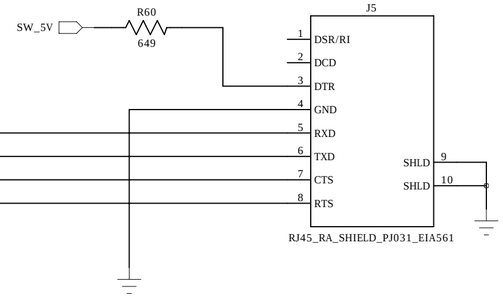
RS-232



RTS/CTS Hardware
Flow control supported

Port 2

RS-232



Technologic Systems	Date Jan. 7, 2014	
Title: TS-7670 RS-232 Ports		
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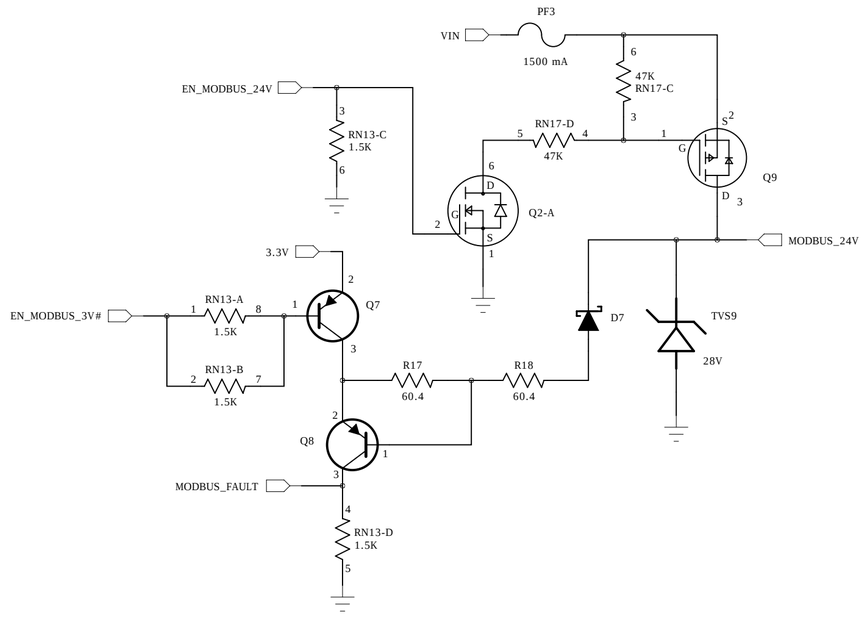
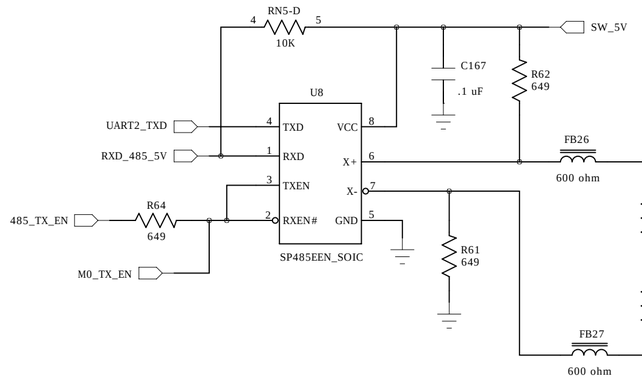
Mod Bus RS-485 and CAN Port

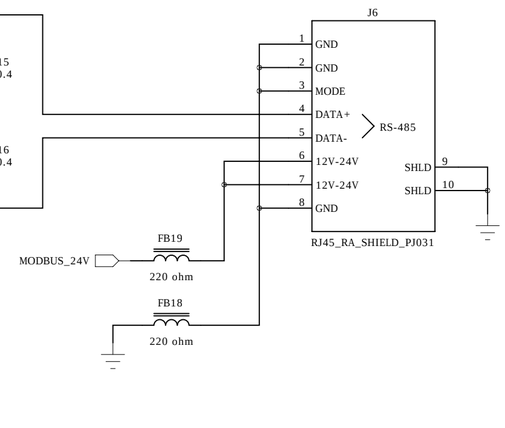
Modbus Power Switch



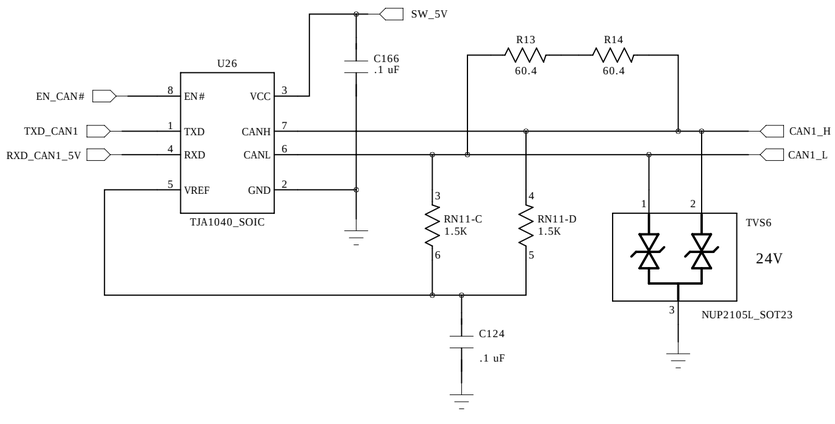
RS-485 Driver



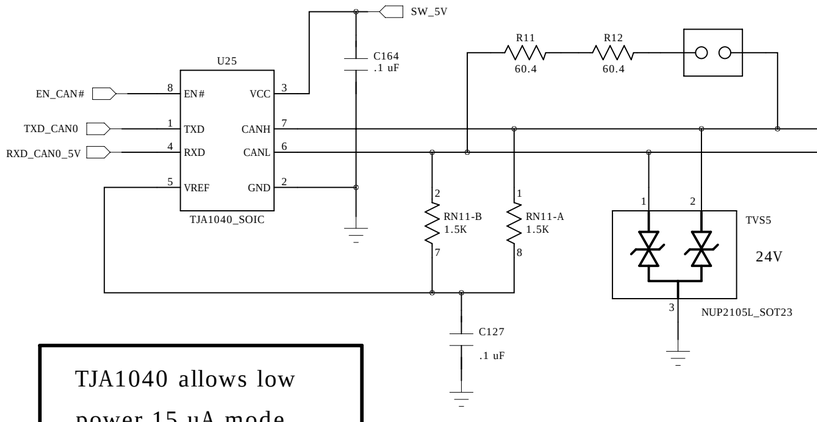
Modbus RJ45



CAN_1 Tranceiver

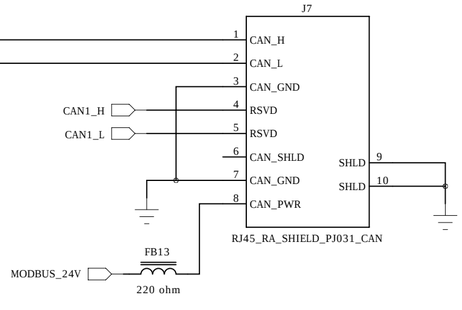


CAN_0 Tranceiver



TJA1040 allows low power 15 uA mode

CAN RJ45



Technologic Systems	Date Jan. 7, 2014	
Title: TS-7670 Modbus and CAN		
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