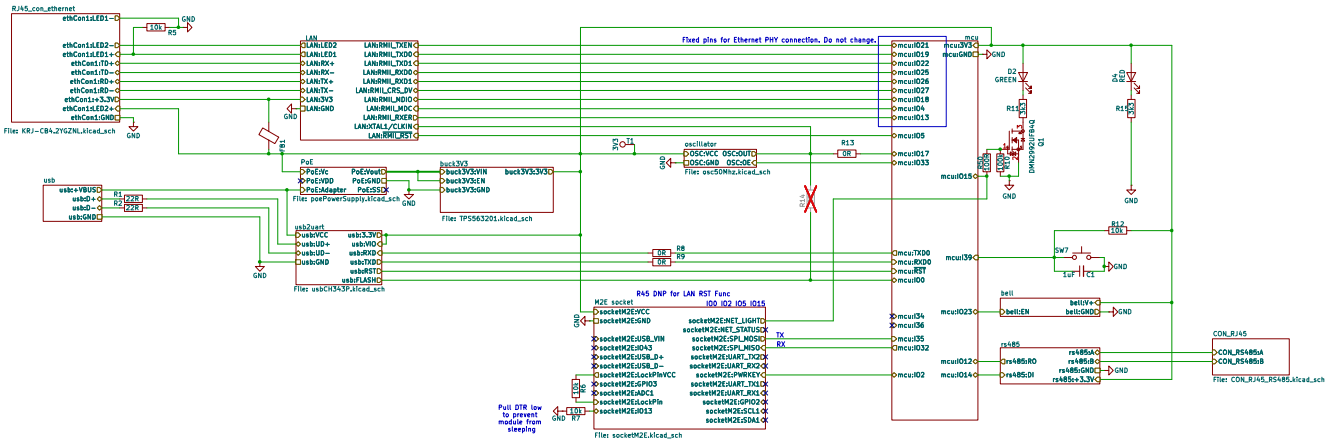
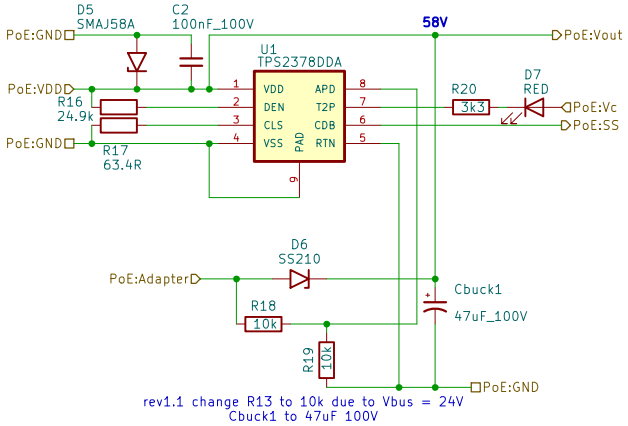
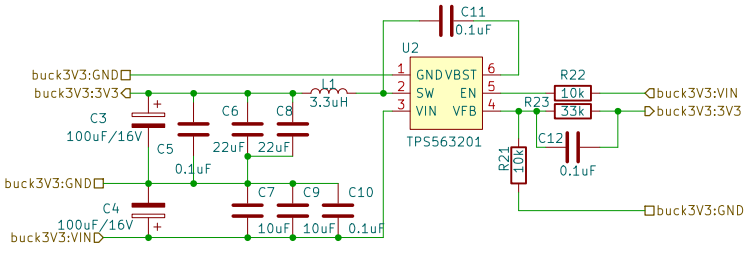
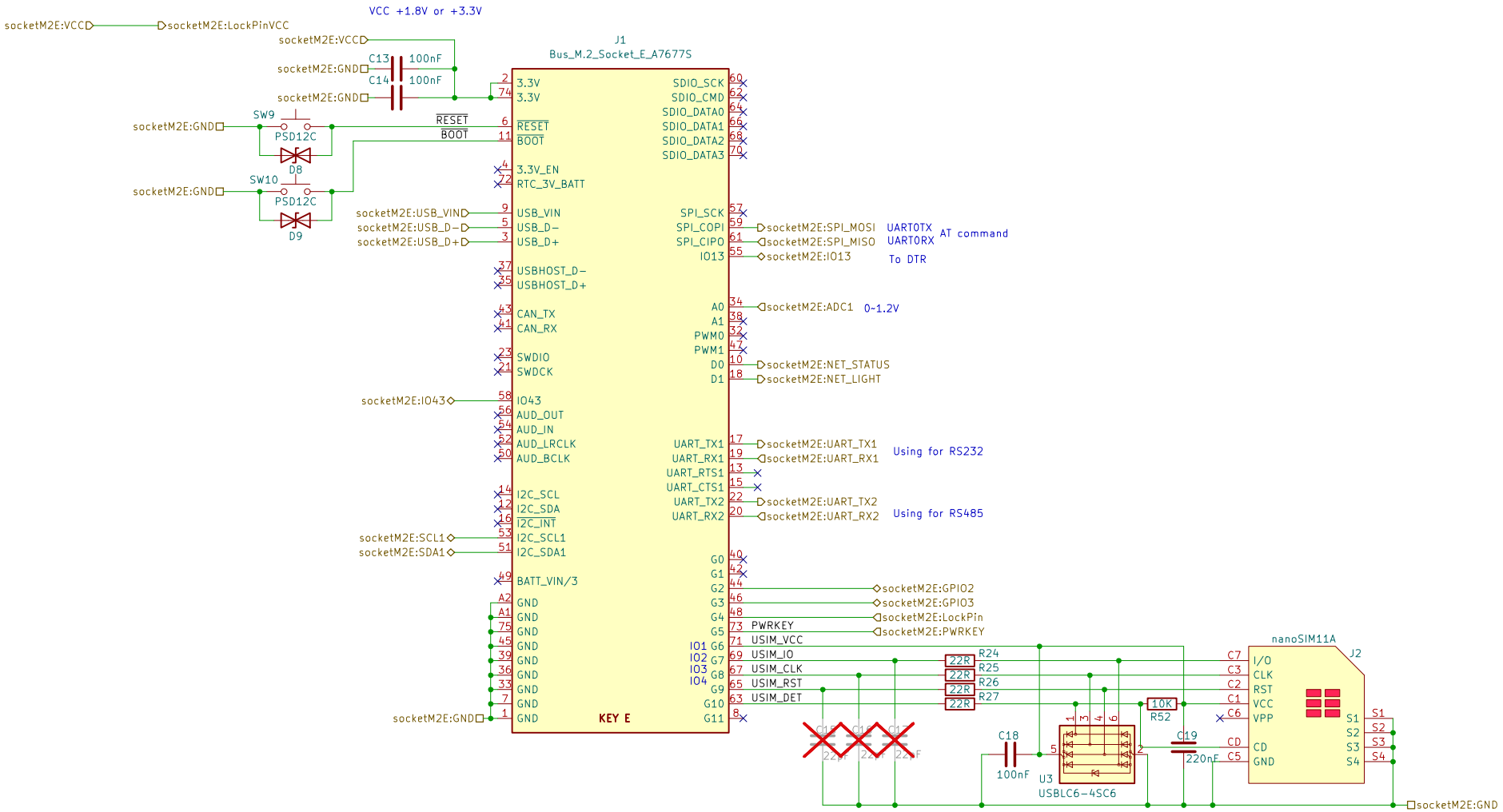
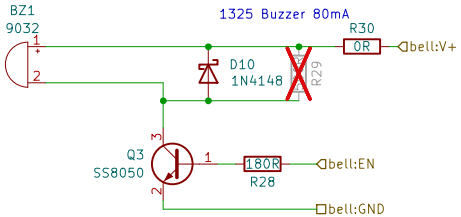
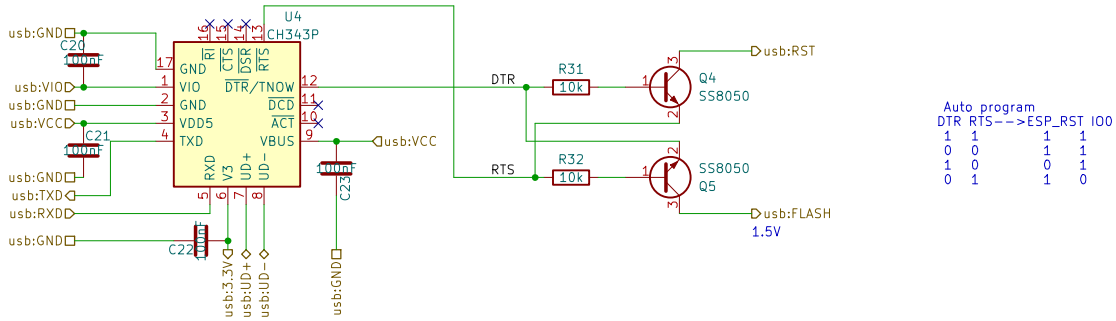

RJ45_con_ethernet
ethCon1sLED1-
ethCon1sLED2+
ethCon1sLED1+
ethCon1:TD+
ethCon1:TD-
ethCon1:RD+
ethCon1:RD-
ethCon1e3.3V
ethCon1sLED2+
ethCon1:GND
10k
R5
GND
Files KRJ-CB4.2YGZNL.klcad_sch
LAN
LAN:LED2
LAN:LED1
LAN:RX+
LAN:RX-
LAN:TX+
LAN:TX-
LAN:3V3
LAN:GND
LAN:RMII_TXEN
LAN:RMII_TXD0
LAN:RMII_TXD1
LAN:RMII_RXD0
LAN:RMII_RXD1
LAN:RMII_CRS_DV
LAN:RMII_MDIO
LAN:RMII_MDC
LAN:RMII_RXER
LAN:XTAL1/CLKIN
LAN:RMII_RST
Fixed pins for Ethernet PHY connection, Do not change.
mcu
mcu:IO21
mcu:IO19
mcu:IO22
mcu:IO25
mcu:IO26
mcu:IO27
mcu:IO18
mcu:IO4
mcu:IO13
mcu:IO5
mcu:IO17
mcu:IO33
mcu:IO15
mcu:7IO0
mcu:RXD0
mcu:RST
mcu:IO0
mcu:IO34
mcu:IO36
mcu:IO35
mcu:IO32
mcu:IO23
mcu:IO12
mcu:IO14
mcu:IO2
mcu3V3
mcuGND
GND
D2
GREEN
R15
1K
Q1
DMN2990UFB4Q
R16
1K
R14
1K
GND
R12
10k
SW7
1uF
C1
GND
bell
bell:V+
bell:EN
bell:GND
GND
rs485
rs485:A
rs485:B
rs485:RO
rs485:DI
rs485:GND
rs485e:3.3V
GND
CON_RJ45
CON_RS485:A
CON_RS485:B
Files CON_RJ45_RS485.klcad_sch
PoE
PoE:Vc
PoE:5V0
PoE:Adapter
PoE:Vout
PoE:GND
PoE:SSSO
Files poePowerSupply.klcad_sch
GND
buck3V3
buck3V3:VIN
buck3V3:EN
buck3V3:GND
buck3V3:3V3
Files TPS563201.klcad_sch
usb
usbc+VBUS
usbc:D+
usbc:D-
usbc:GND
R1
22R
R2
22R
GND
usb2uart
usb:VCC
usb:UD+
usb:UD-
usb:GND
usb:3.3V
usb:VIO
usb:RXD
usb:TXD
usb:RSTC
usb:FLASH
Files usbCH343P.klcad_sch
GND
3V3
T1
oscillator
OSC:VCC
OSC:GND
OSC:OUT
OSC:OE
Files osc50Mhz.klcad_sch
GND
R13
0R
R8
0R
R9
0R
R45 DNP for LAN RST Func
IO0 IO2 IO5 IO15
M2E socket
socketM2E:VCC
socketM2E:GND
socketM2E:USB_VIN
socketM2E:uDA3
socketM2E:USB_D+
socketM2E:USB_D-
socketM2E:LdoIPinVCC
socketM2E:GPIO3
socketM2E:ADC1
socketM2E:LdoIPin
socketM2E:IO13
socketM2E:NET_LIGHT
socketM2E:NET_STATUS
socketM2E:SPI_MOSI
socketM2E:SPI_MISO
socketM2E:UART_TX2
socketM2E:UART_RX2
socketM2E:PWRKEY
socketM2E:UART_TX1
socketM2E:UART_RX1
socketM2E:GPIO2
socketM2E:SCL1
socketM2E:SDA1
TX
RX
GND
10k
GND
10k
R7
Pull DTR low to prevent module from sleeping
Files socketM2E.klcad_sch


D5
SMAJ58A
C2
100nF_100V
58V
PoE:Vout
PoE:GND
U1
TPS2378DDA
PoE:VDD
R16
24.9k
VDD
DEN
CLS
VSS
PAD
APD
T2P
CDB
RTN
R20
3k3
D7
RED
PoE:Vc
PoE:SS
PoE:GND
R17
63.4R
D6
SS210
PoE:Adapter
Cbuck1
47uF_100V
R18
10k
R19
10k
PoE:GND
rev1.1 change R13 to 10k due to Vbus = 24V
Cbuck1 to 47uF 100V


C11
0.1uF
U2
GND VBST
SW EN
VIN VFB
TPS563201
buck3V3:GND
buck3V3:3V3
L1
3.3uH
C3
100uF/16V
C5
0.1uF
C6
22uF
C8
22uF
R22
10k
33k
R23
C12
0.1uF
R21
10k
buck3V3:VIN
buck3V3:3V3
buck3V3:GND
C4
100uF/16V
buck3V3:VIN
C7
10uF
C9
10uF
C10
0.1uF
Vout=0.768x(1+33k/10k)=3.3V

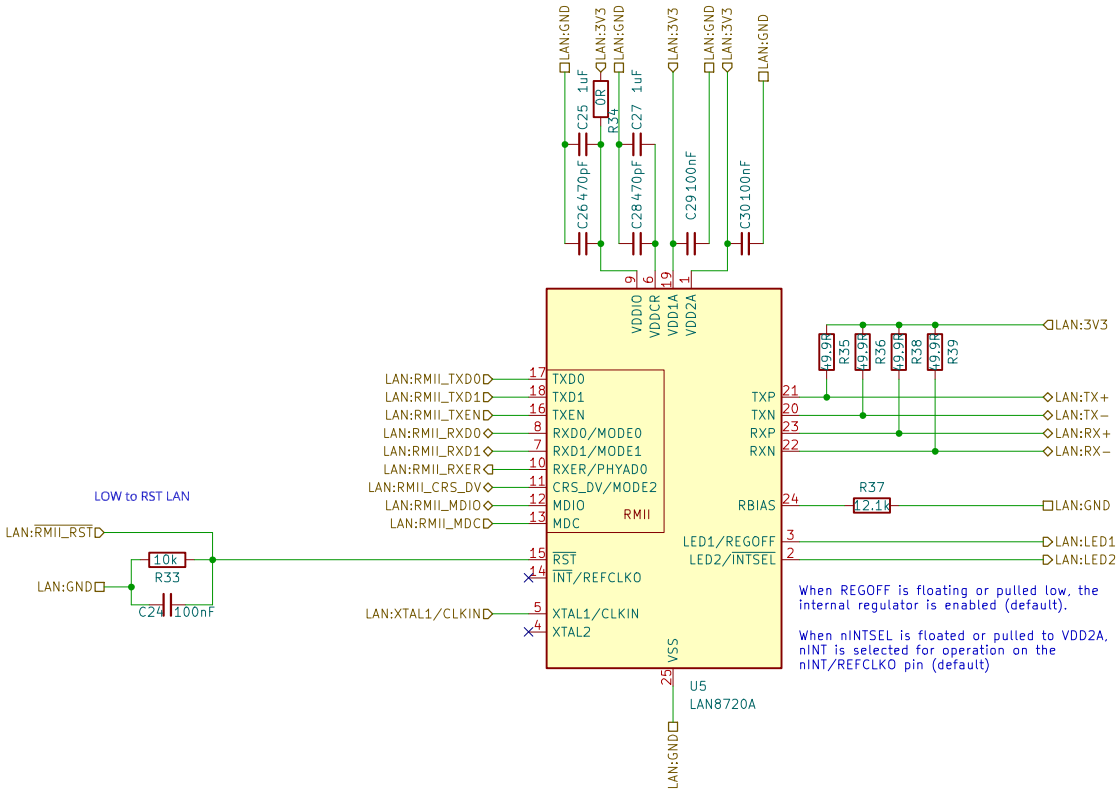

VCC +1.8V or +3.3V
socketM2E:VCC
socketM2E:LockPinVCC
J1
Bus_M.2_Socket_E_A7677S
C13 100nF
C14 100nF
SW9
SW10
PSD12C
D8
D9
RESET
BOOT
3.3V_EN
RTC_3V_BATT
USB_VIN
USB_D−
USB_D+
USBHOST_D−
USBHOST_D+
CAN_TX
CAN_RX
SWDIO
SWDCK
IO43
AUD_OUT
AUD_IN
AUD_LRCLK
AUD_BCLK
I2C_SCL
I2C_SDA
I2C_INT
I2C_SCL1
I2C_SDA1
BATT_VIN/3
GND
KEY E
SDIO_SCK
SDIO_CMD
SDIO_DATA0
SDIO_DATA1
SDIO_DATA2
SDIO_DATA3
SPI_SCK
SPI_COPI
SPI_CIPO
IO13
A0
A1
PWM0
PWM1
D0
D1
UART_TX1
UART_RX1
UART_RTS1
UART_CTS1
UART_TX2
UART_RX2
G0
G1
G2
G3
G4
G5
IO1 G6
IO2 G7
IO3 G8
IO4 G9
G10
G11
PWRKEY
USIM_VCC
USIM_IO
USIM_CLK
USIM_RST
USIM_DET
socketM2E:USB_VIN
socketM2E:USB_D−
socketM2E:USB_D+
socketM2E:IO43
socketM2E:SCL1
socketM2E:SDA1
socketM2E:GND
socketM2E:SPI_MOSI
socketM2E:SPI_MISO
socketM2E:IO13
UART0TX
UART0RX
AT command
To DTR
socketM2E:ADC1
0~1.2V
socketM2E:NET_STATUS
socketM2E:NET_LIGHT
socketM2E:UART_TX1
socketM2E:UART_RX1
Using for RS232
socketM2E:UART_TX2
socketM2E:UART_RX2
Using for RS485
socketM2E:GPIO2
socketM2E:GPIO3
socketM2E:LockPin
socketM2E:PWRKEY
22R
R24
R25
R26
R27
10K
R52
C18
100nF
U3
USBLC6−4SC6
C19
220nF
nanoSIM11A
J2
I/O
CLK
RST
VCC
VPP
CD
GND
S1
S2
S3
S4


BZ1
9032
1325 Buzzer 80mA
R30
0R
bell:V+
D10
1N4148
R29
Q3
SS8050
180R
R28
bell:EN
bell:GND

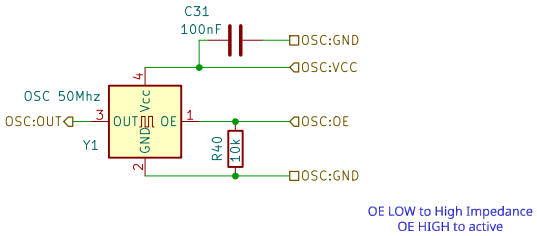


Auto program

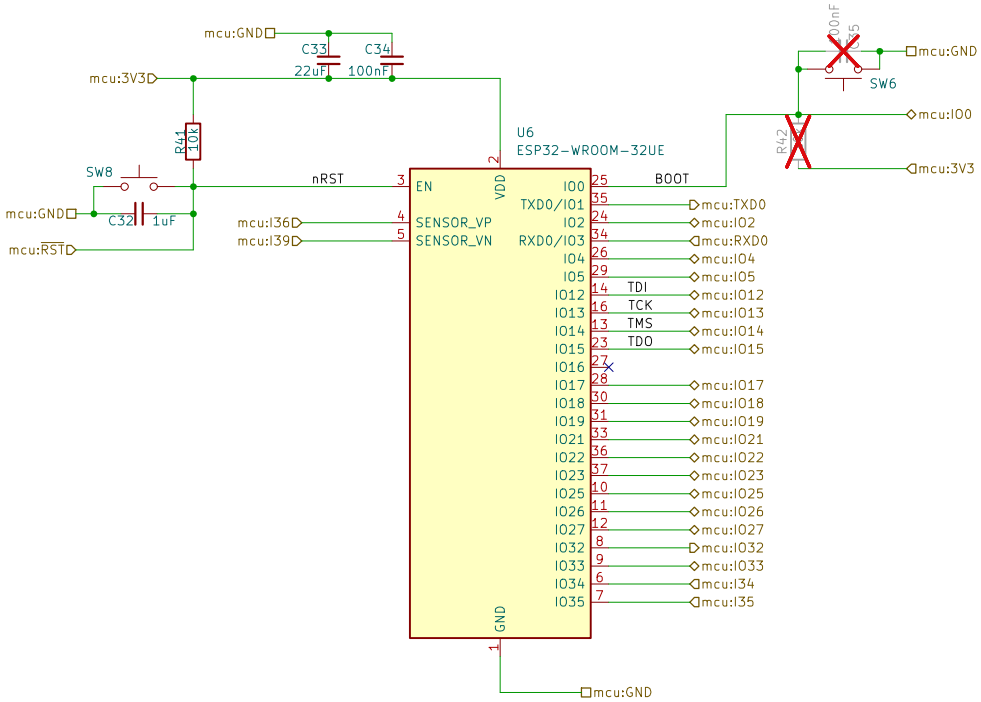
DTR	RTS-->ESP_RST	IO0
1	1	1
0	0	1
1	0	0
0	1	1

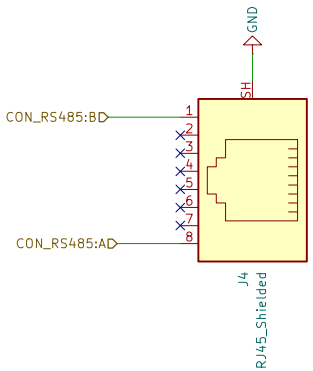

LAN:GND
LAN:3V3
LAN:GND
LAN:3V3
LAN:GND
LAN:3V3
LAN:GND
C25 1uF
R34 0R
C27 1uF
C26 470pF
C28 470pF
C29 100nF
C30 100nF
VDDIO
VDDCR
VDD1A
VDD2A
LAN:3V3
R35 9.9k
R36 9.9k
R38 9.9k
R39 9.9k
LAN:RMII_TXD0
LAN:RMII_TXD1
LAN:RMII_TXEN
LAN:RMII_RXD0
LAN:RMII_RXD1
LAN:RMII_RXER
LAN:RMII_CRS_DV
LAN:RMII_MDIO
LAN:RMII_MDC
TXD0
TXD1
TXEN
RXD0/MODE0
RXD1/MODE1
RXER/PHYAD0
CRS_DV/MODE2
MDIO
MDC
RMII
TXP
TXN
RXP
RXN
LAN:TX+
LAN:TX−
LAN:RX+
LAN:RX−
R37 12.1k
RBIAS
LAN:GND
LED1/REGOFF
LED2/INTSEL
LAN:LED1
LAN:LED2
LOW to RST LAN
LAN:RMII_RST
10k R33
LAN:GND
C24 100nF
RST
INT/REFCLKO
LAN:XTAL1/CLKIN
XTAL1/CLKIN
XTAL2
VSS
U5
LAN8720A
LAN:GND
When REGOFF is floating or pulled low, the internal regulator is enabled (default).
When nINTSEL is floated or pulled to VDD2A, nINT is selected for operation on the nINT/REFCLKO pin (default)

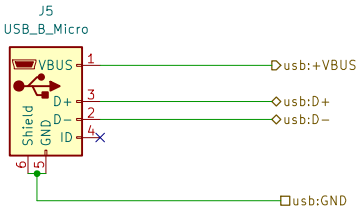
FIG

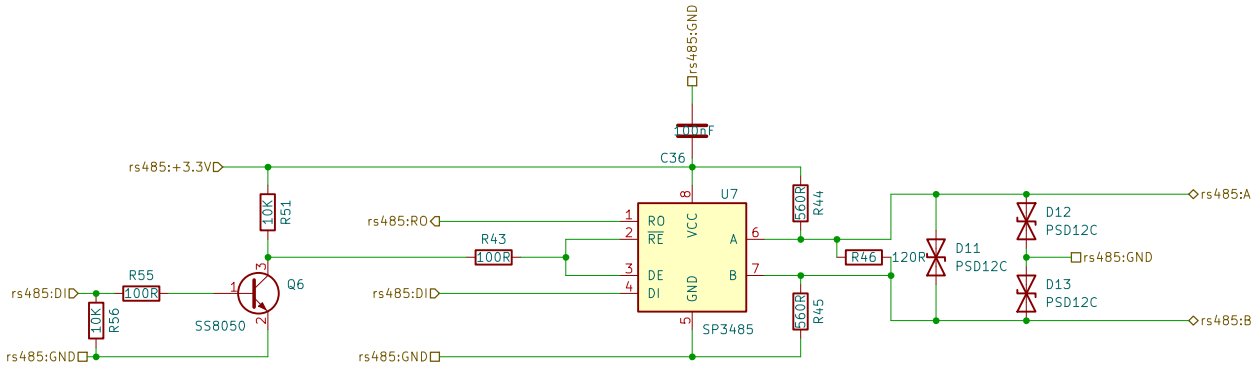


OE LOW to High Impedance
OE HIGH to active


mcu:GND
C33
22uF
C34
100nF
mcu:3V3
R41
10k
SW8
mcu:GND
C32
1uF
mcu:RST
nRST
mcu:I36
mcu:I39
U6
ESP32-WROOM-32UE
EN
VDD
SENSOR_VP
SENSOR_VN
GND
I00
TXD0/I01
I02
RXD0/I03
I04
I05
I012
I013
I014
I015
I016
I017
I018
I019
I021
I022
I023
I025
I026
I027
I032
I033
I034
I035
BOOT
TDI
TCK
TMS
TDO
mcu:TXD0
mcu:I02
mcu:RXD0
mcu:I04
mcu:I05
mcu:I012
mcu:I013
mcu:I014
mcu:I015
mcu:I017
mcu:I018
mcu:I019
mcu:I021
mcu:I022
mcu:I023
mcu:I025
mcu:I026
mcu:I027
mcu:I032
mcu:I033
mcu:I34
mcu:I35
mcu:GND
100nF
C35
SW6
mcu:GND
R42
mcu:I00
mcu:3V3

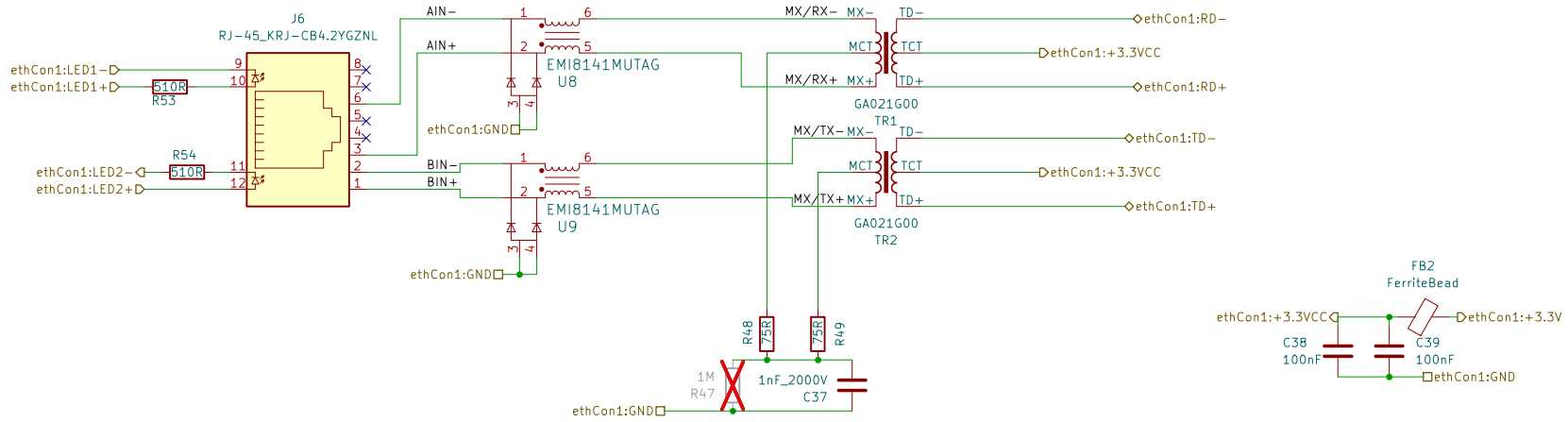

GND
SH
CON_RS485:B
1
2
3
4
5
6
7
8
CON_RS485:A
J4
RJ45_Shielded


J5
USB_B_Micro
VBUS
D+
D−
ID
GND
Shield
1
3
2
4
5
6
usb:+VBUS
usb:D+
usb:D−
usb:GND



$\overline{RE}$ Reciever output enable Active Low
DE Driver output enable Active High
Device is in receive mode when $\overline{RE}$ is logic low,
and in transmit mode when DE is logic high

when the A−B > +0.2V, the RO output logic 1; When A−B <−0.2V, the RO outputs logic 0


J6
RJ-45_KRJ-CB4.2YGZNL
ethCon1:LED1-
ethCon1:LED1+
510R
R53
R54
510R
ethCon1:LED2-
ethCon1:LED2+
AIN-
AIN+
BIN-
BIN+
EMI8141MUTAG
U8
EMI8141MUTAG
U9
ethCon1:GND
ethCon1:GND
MX/RX-
MX/RX+
MX/TX-
MX/TX+
MX-
MX+
MCT
TD-
TCT
TD+
GA021G00
TR1
GA021G00
TR2
ethCon1:RD-
ethCon1:+3.3VCC
ethCon1:RD+
ethCon1:TD-
ethCon1:+3.3VCC
ethCon1:TD+
R48
75R
75R
R49
1M
R47
1nF_2000V
C37
ethCon1:GND

FB2
FerriteBead
ethCon1:+3.3VCC
ethCon1:+3.3V
C38
100nF
C39
100nF
ethCon1:GND