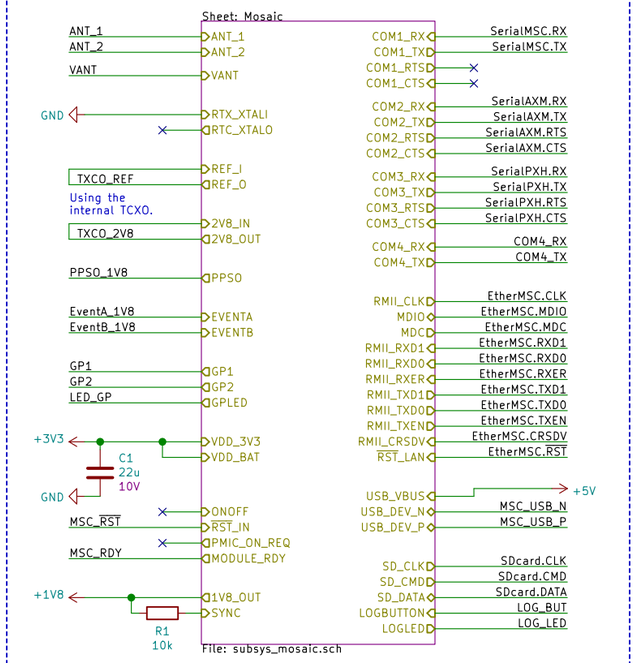
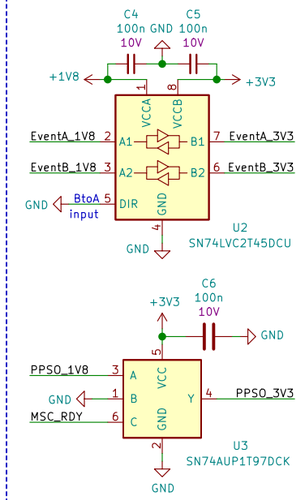
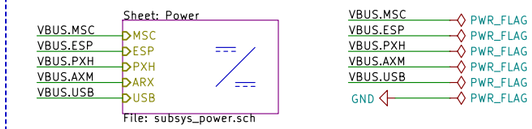
Mosaic x5/H



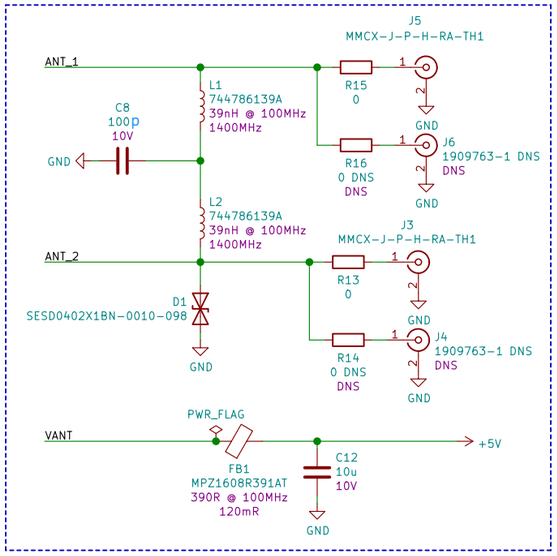
Timing Signal Level Conversion



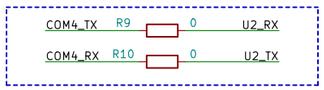
Power management



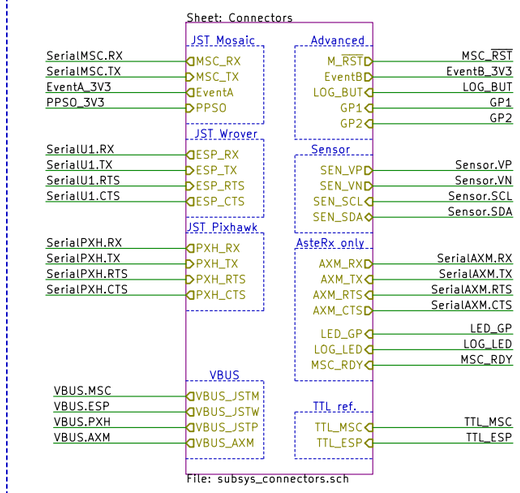
GNSS antenna & VANT circuitry



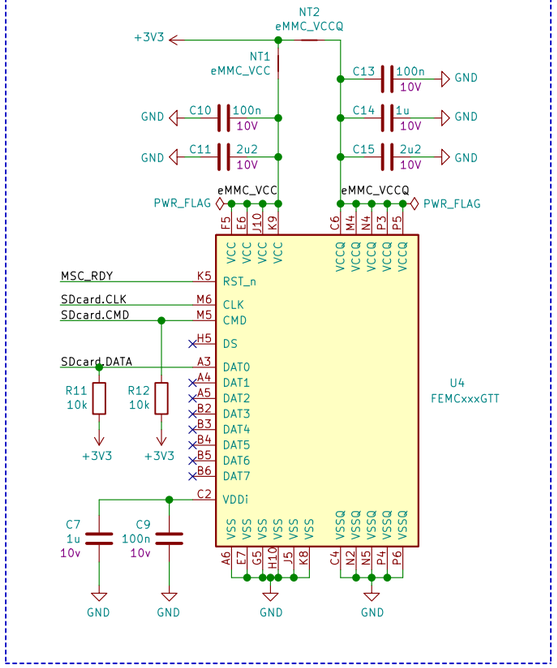
Inboard Serial



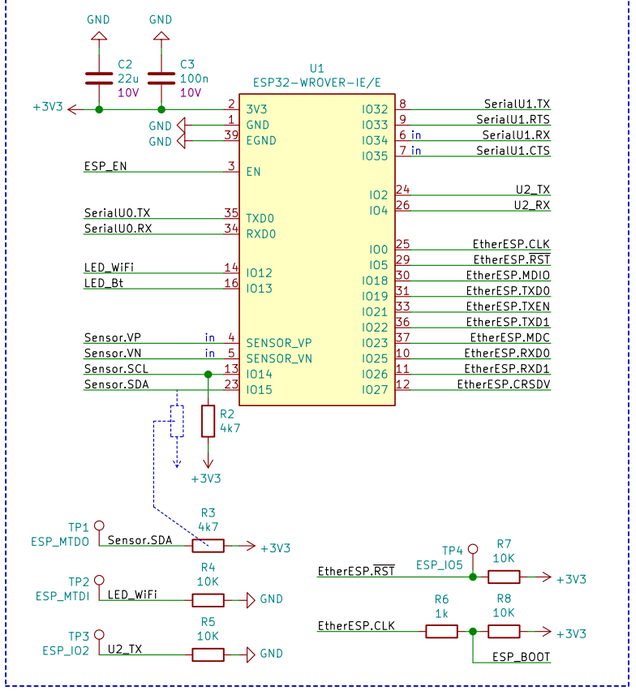
Connectors



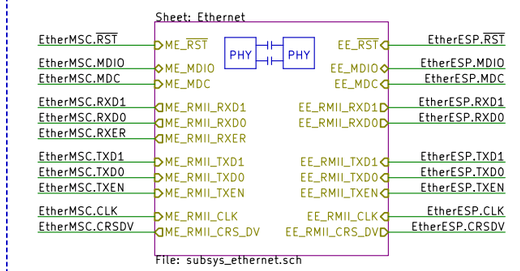
eMMC memory



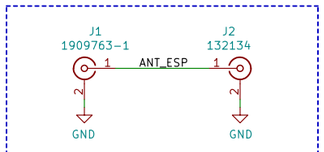
ESP32 Wrover E/IE



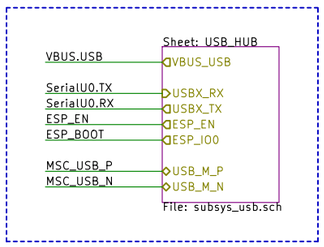
Ethernet link



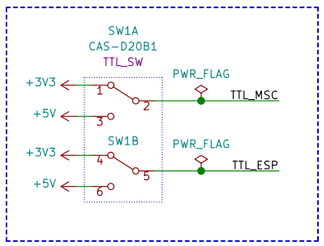
WiFi antenna



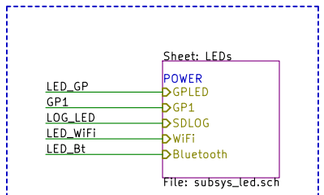
USB connector and HUB



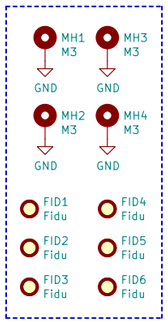
TTL switch



LEDs and their drivers

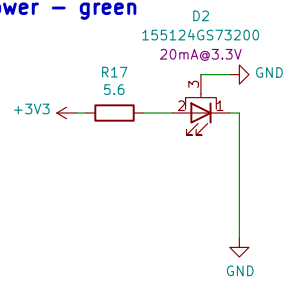


Mechanical

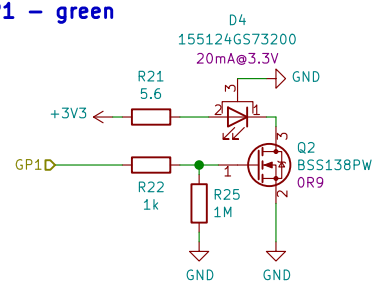


Sheet: / File: mowi.sch		
Title: mowi		
Size: A3	Date: 2021-08-10	**Rev: v1.0**
KiCad E.D.A. kicad 5.1.10-6.fc34		Id: 1/7

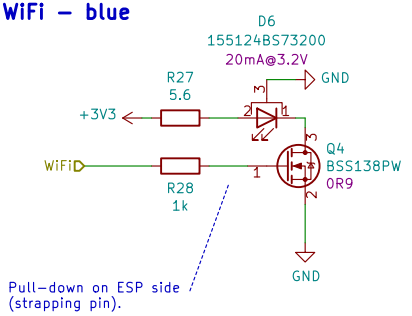
1: Power – green



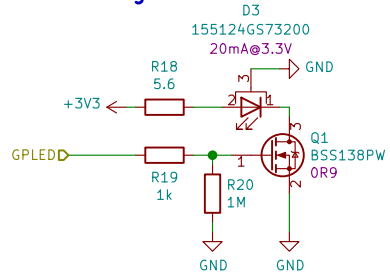
3: GP1 – green



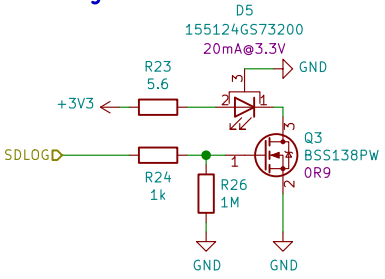
5: WiFi – blue



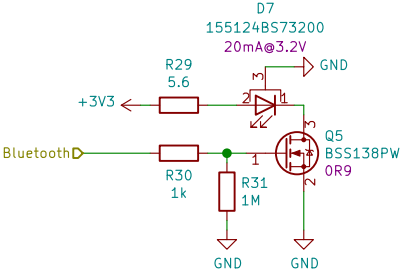
2: GPLED – green



4: SDLOG – green



6: Bluetooth – blue

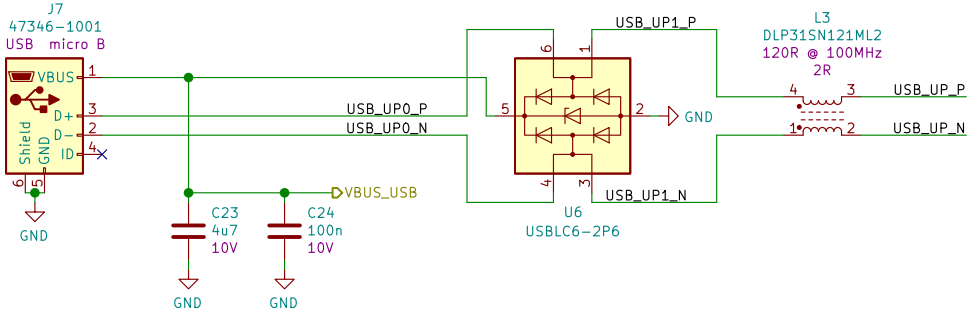


Sheet: /LEDs/
File: subsys_led.sch

Title: mowi

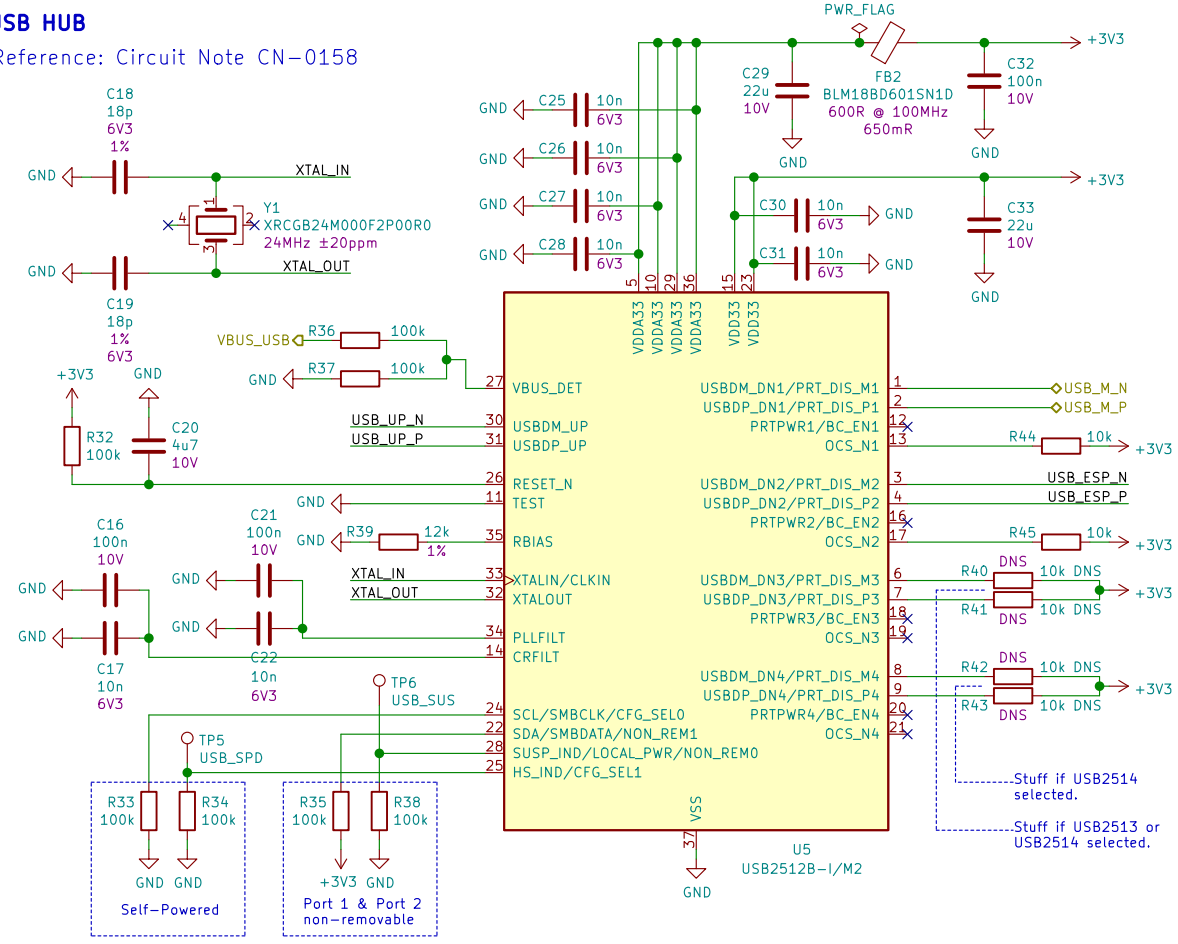
Size: User	Date: 2021-08-10	**Rev: v1.0**
KiCad E.D.A. kicad 5.1.10-6.fc34		Id: 2/7

USB connector



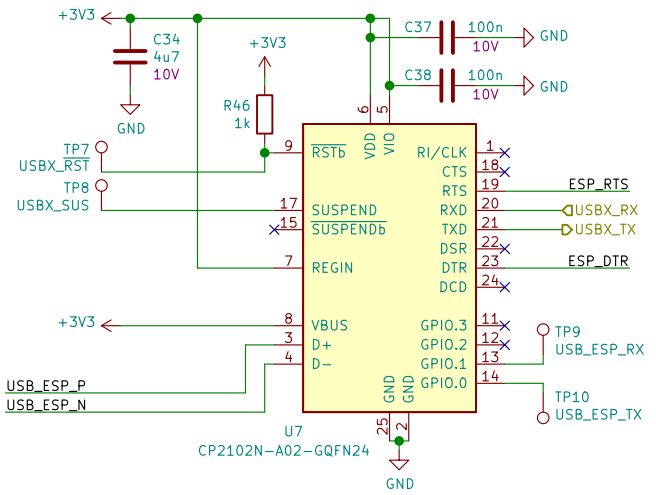
USB HUB

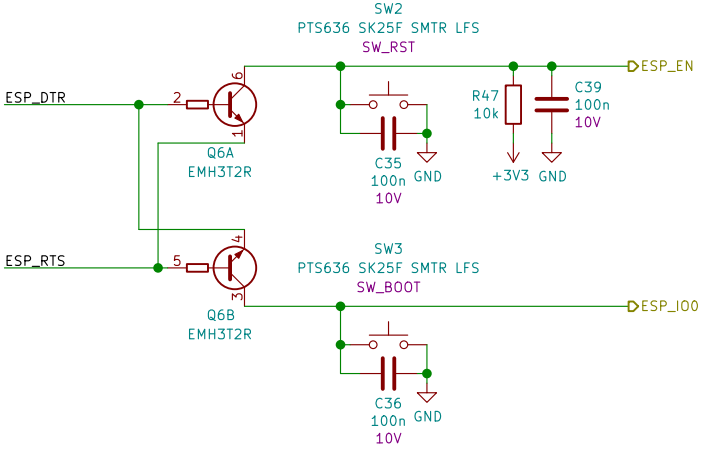
Reference: Circuit Note CN-0158



USB to Serial and auto program of ESP32 Wrover

Reference: ESP32_DevKitc_V4

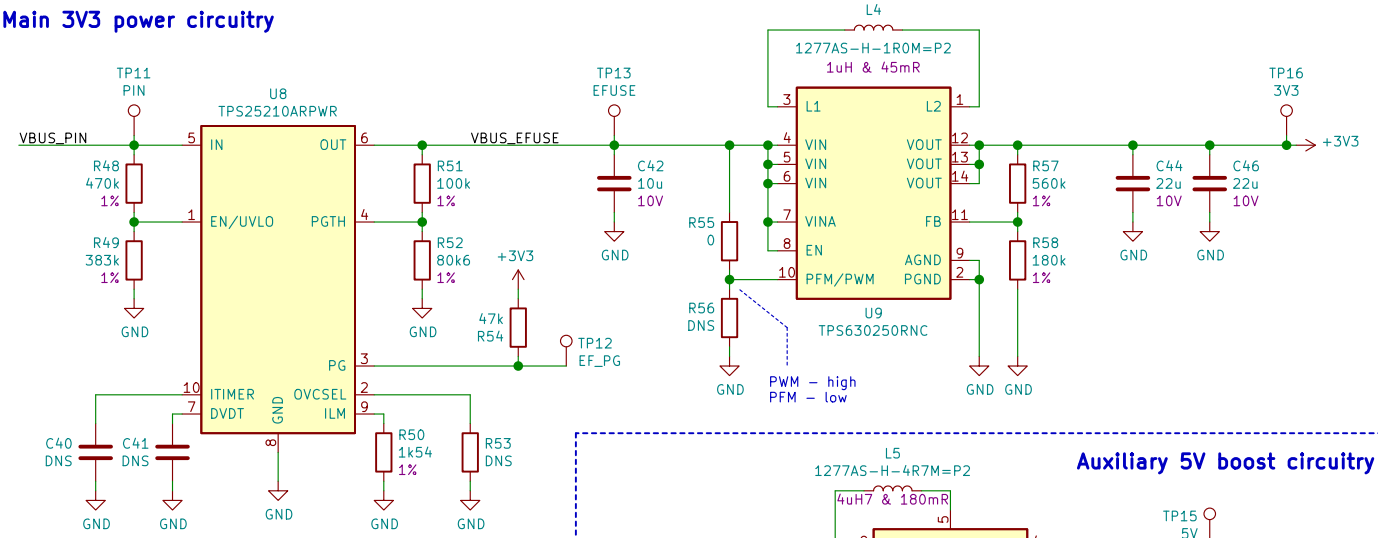




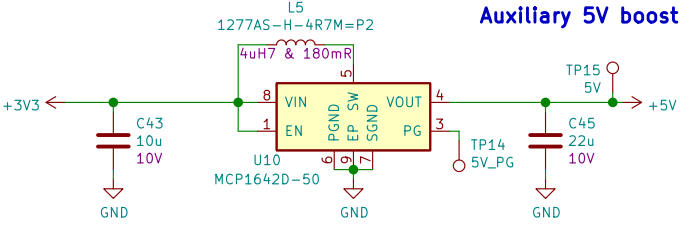
Referenced set-up circuitry using two SS8050 devices with base resistors replaced with a single component EMH3.

Sheet: /USB_HUB/		
File: subsys_usb.sch		
Title: mowi		
Size: A4	Date: 2021-08-10	**Rev: v1.0**
KiCad E.D.A. kicad 5.1.10-6.fc34		Id: 3/7

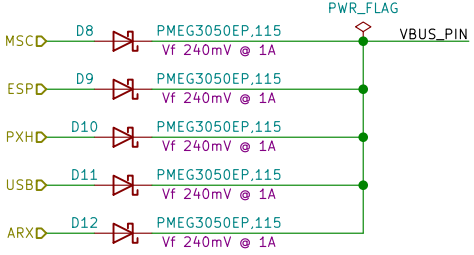
Main 3V3 power circuitry



Auxiliary 5V boost circuitry



Power inputs multiplexer



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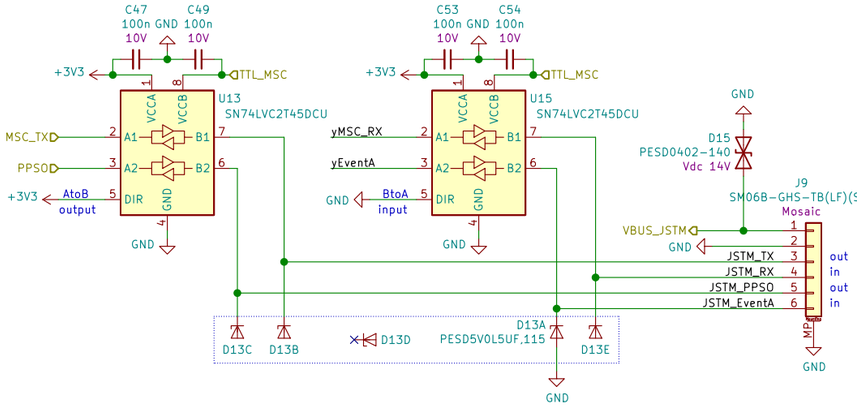
File: subsys_power.sch

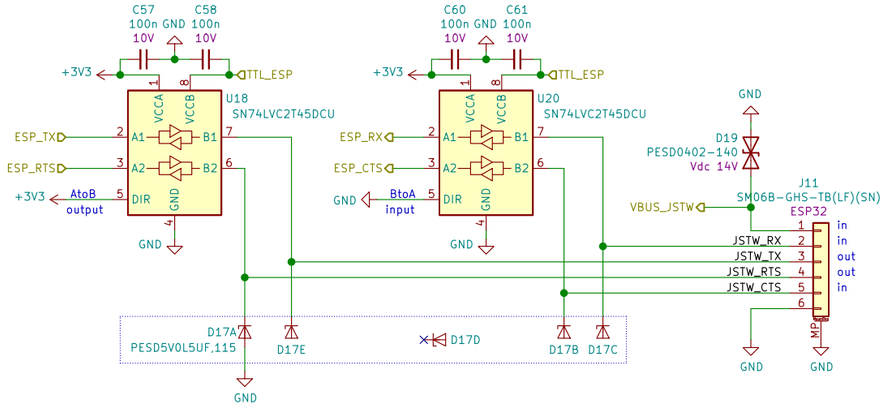
Title: mowi

Size: User	Date: 2021-08-10	**Rev: v1.0**
KiCad E.D.A. kicad 5.1.10-6.fc34		Id: 4/7

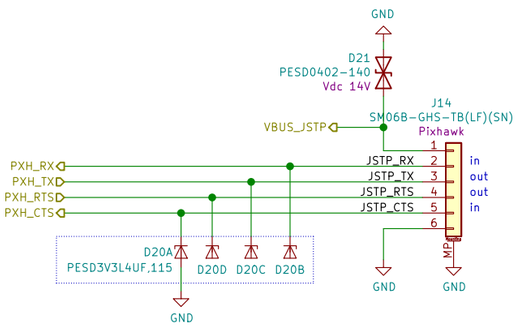
JST connector for Mosaic – *JSTM*



JST connector for Wrover – *JSTW*

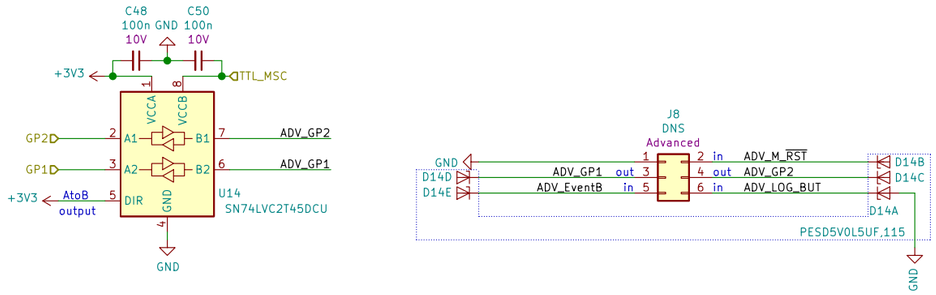


JST connector for Pixhawk – *JSTP*

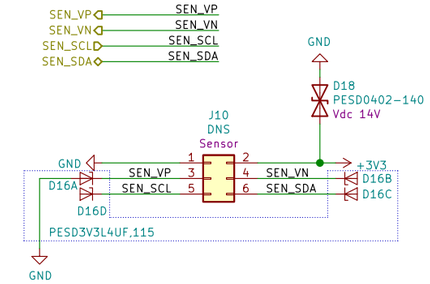


Advanced connector – 2x3 2.54mm header

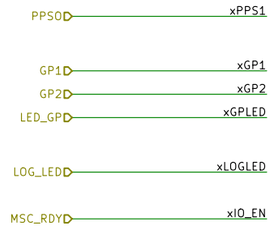
Connectors J8 and J10 are labeled as DNS. However their footprints can be sourced with a standard 02x03 2.54mm pitch socket / header.



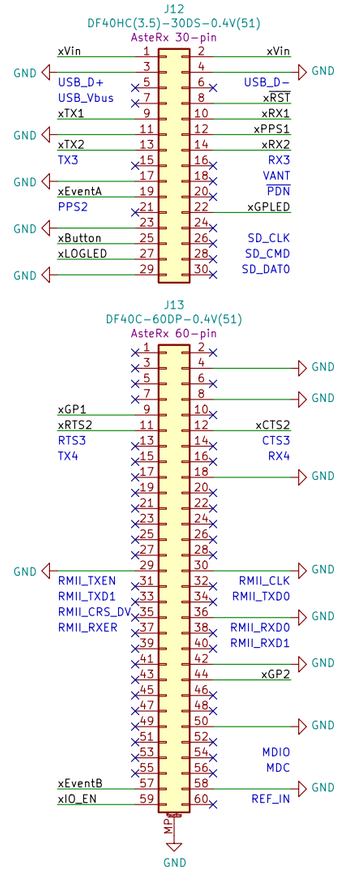
Sensor connector – 2x3 2.54mm header



Outputs only



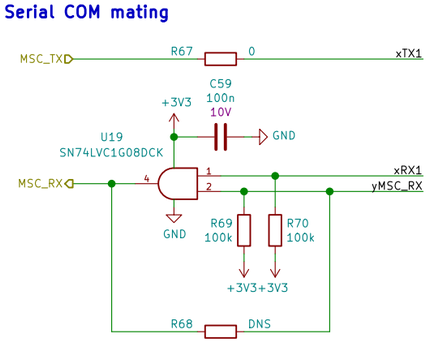
AsteRx connectors



EventA and EventB handling

Including voltage translation:
- xEvent is 3V3
- yEvent is 3V3 or 5V
- Event is 3V3

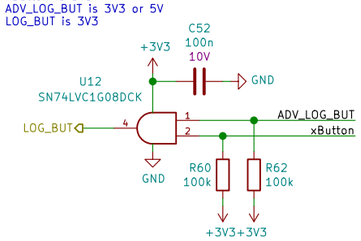
Serial COM mating



Resistors R67 and R68 can be used to enable/disable serial communication with AsteRx-platform modules.

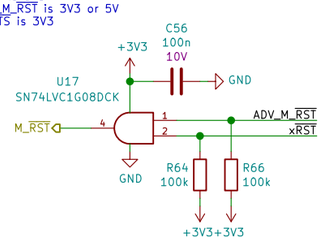
LOG button handling

Including voltage translation:
- xButton is 3V3
- ADV_LOG_BUT is 3V3 or 5V
- LOG_BUT is 3V3



Mosaic $\overline{\text{RST}}$ handling

Including voltage translation:
- $\overline{\text{xRST}}$ is 3V3
- ADV_M_$\overline{\text{RST}}$ is 3V3 or 5V
- M_$\overline{\text{RTS}}$ is 3V3



AsteRx power input

Sheet: /Connectors/		
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Title: mowi		
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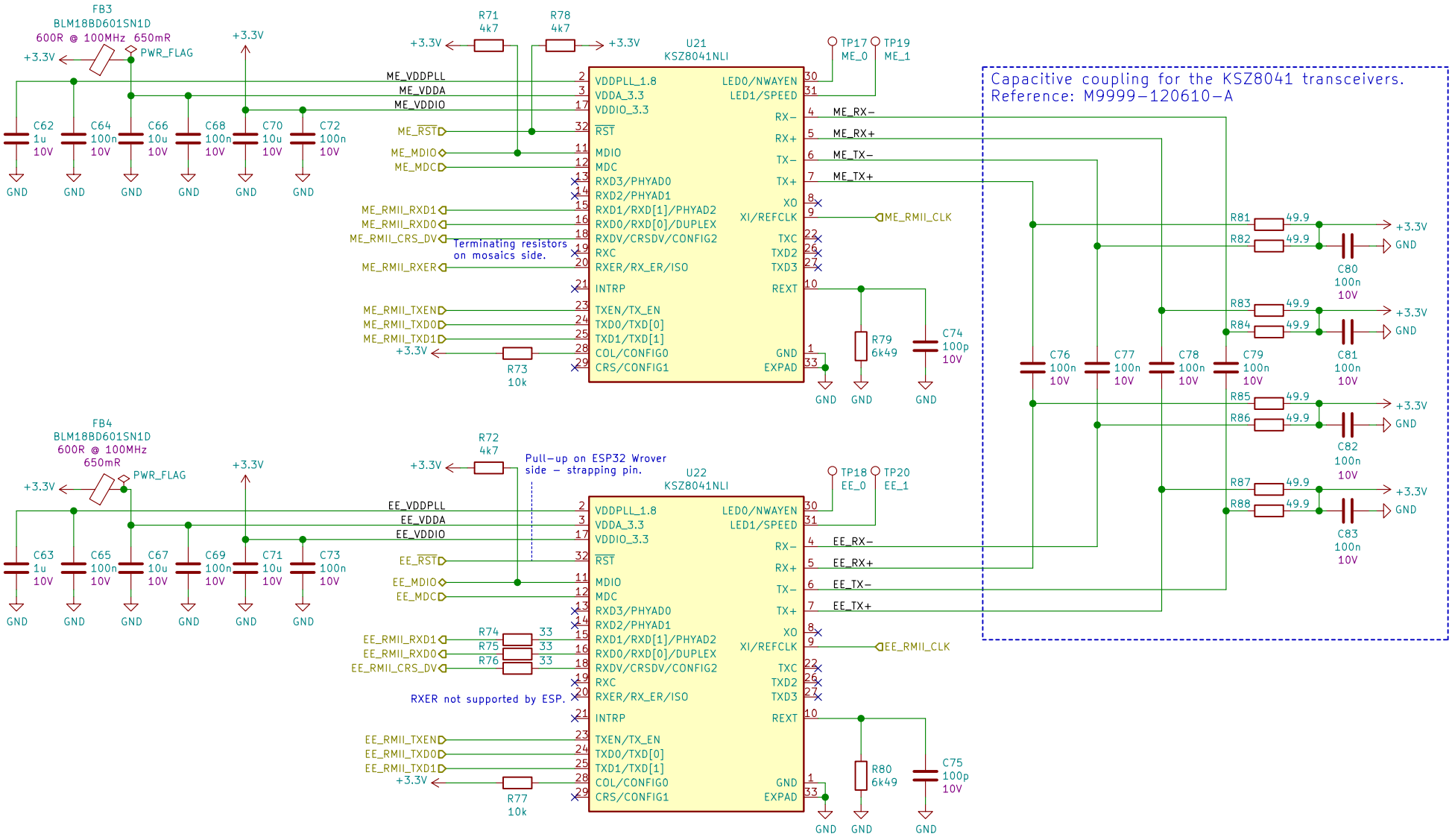
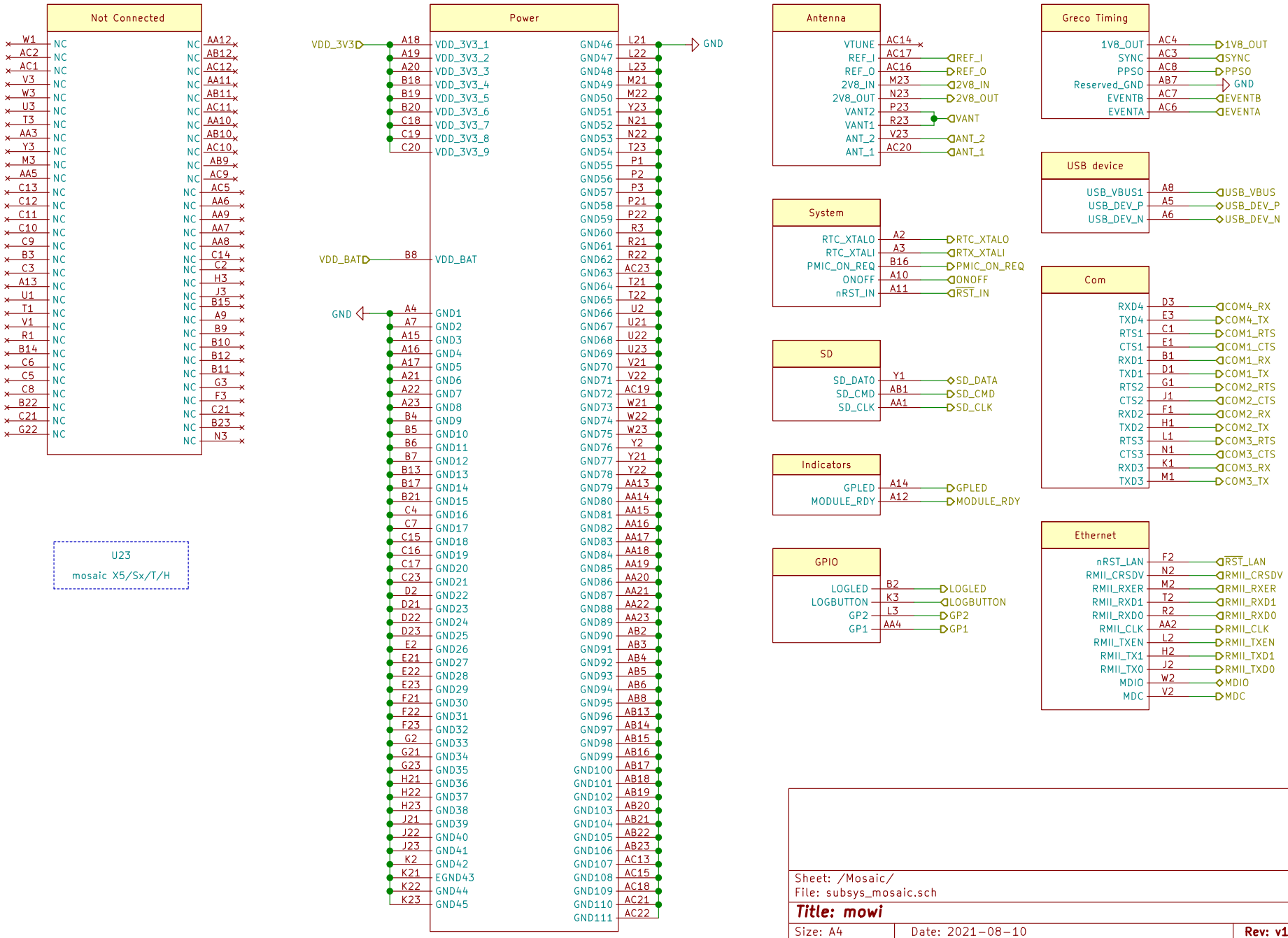
KiCad E.D.A. kicad 5.1.10-6.fc34		Id: 5/7



Sheet: /Ethernet/		
File: subsys_ethernet.sch		
Title: mowi		
Size: A4	Date: 2021−08−10	**Rev: v1.0**
KiCad E.D.A. kicad 5.1.10−6.fc34		Id: 6/7


Not Connected
W1 NC AA12
AC2 NC AB12
AC1 NC AC12
V3 NC AA11
W3 NC AB11
U3 NC AC11
T3 NC AA10
AA3 NC AB10
Y3 NC AC10
M3 NC AB9
AA5 NC AC9
C13 NC AC5
C12 NC AA6
C11 NC AA9
C10 NC AA7
C9 NC AA8
B3 NC C14
C3 NC C2
A13 NC H3
U1 NC J3
T1 NC B15
V1 NC A9
R1 NC B9
B14 NC B10
C6 NC B12
C5 NC B11
C8 NC G3
B22 NC F3
C21 NC C21
G22 NC B23
NC N3
U23
mosaic X5/Sx/T/H
Power
VDD_3V3
A18 VDD_3V3_1
A19 VDD_3V3_2
A20 VDD_3V3_3
B18 VDD_3V3_4
B19 VDD_3V3_5
B20 VDD_3V3_6
C18 VDD_3V3_7
C19 VDD_3V3_8
C20 VDD_3V3_9
VDD_BAT
B8 VDD_BAT
GND
A4 GND1
A7 GND2
A15 GND3
A16 GND4
A17 GND5
A21 GND6
A22 GND7
A23 GND8
B4 GND9
B5 GND10
B6 GND11
B7 GND12
B13 GND13
B17 GND14
B21 GND15
C4 GND16
C7 GND17
C15 GND18
C16 GND19
C17 GND20
C23 GND21
D2 GND22
D21 GND23
D22 GND24
D23 GND25
E2 GND26
E21 GND27
E22 GND28
E23 GND29
F21 GND30
F22 GND31
F23 GND32
G2 GND33
G21 GND34
G23 GND35
H21 GND36
H22 GND37
H23 GND38
J21 GND39
J22 GND40
J23 GND41
K2 GND42
K21 EGND43
K22 GND44
K23 GND45
GND46 L21
GND47 L22
GND48 L23
GND49 M21
GND50 M22
GND51 Y23
GND52 N21
GND53 N22
GND54 T23
GND55 P1
GND56 P2
GND57 P3
GND58 P21
GND59 P22
GND60 R3
GND61 R21
GND62 R22
GND63 AC23
GND64 T21
GND65 T22
GND66 U2
GND67 U21
GND68 U22
GND69 U23
GND70 V21
GND71 V22
GND72 AC19
GND73 W21
GND74 W22
GND75 W23
GND76 Y2
GND77 Y21
GND78 Y22
GND79 AA13
GND80 AA14
GND81 AA15
GND82 AA16
GND83 AA17
GND84 AA18
GND85 AA19
GND86 AA20
GND87 AA21
GND88 AA22
GND89 AA23
GND90 AB2
GND91 AB3
GND92 AB4
GND93 AB5
GND94 AB6
GND95 AB8
GND96 AB13
GND97 AB14
GND98 AB15
GND99 AB16
GND100 AB17
GND101 AB18
GND102 AB19
GND103 AB20
GND104 AB21
GND105 AB22
GND106 AB23
GND107 AC13
GND108 AC15
GND109 AC18
GND110 AC21
GND111 AC22
GND
Antenna
VTUNE AC14
REF_I AC17 REF_I
REF_O AC16 REF_O
2V8_IN M23 2V8_IN
2V8_OUT N23 2V8_OUT
VANT2 P23 VANT
VANT1 R23
ANT_2 V23 ANT_2
ANT_1 AC20 ANT_1
System
RTC_XTALO A2 RTC_XTALO
RTC_XTALI A3 RTX_XTALI
PMIC_ON_REQ B16 PMIC_ON_REQ
ONOFF A10 ONOFF
nRST_IN A11 RST_IN
SD
SD_DAT0 Y1 SD_DATA
SD_CMD AB1 SD_CMD
SD_CLK AA1 SD_CLK
Indicators
GPLED A14 GPLED
MODULE_RDY A12 MODULE_RDY
GPIO
LOGLED B2 LOGLED
LOGBUTTON K3 LOGBUTTON
GP2 L3 GP2
GP1 AA4 GP1
Greco Timing
1V8_OUT AC4 1V8_OUT
SYNC AC3 SYNC
PPSO AC8 PPSO
Reserved_GND AB7 GND
EVENTB AC7 EVENTB
EVENTA AC6 EVENTA
USB device
USB_VBUS1 A8 USB_VBUS
USB_DEV_P A5 USB_DEV_P
USB_DEV_N A6 USB_DEV_N
Com
RXD4 D3 COM4_RX
TXD4 E3 COM4_TX
RTS1 C1 COM1_RTS
CTS1 E1 COM1_CTS
RXD1 B1 COM1_RX
TXD1 D1 COM1_TX
RTS2 G1 COM2_RTS
CTS2 J1 COM2_CTS
RXD2 F1 COM2_RX
TXD2 H1 COM2_TX
RTS3 L1 COM3_RTS
CTS3 N1 COM3_CTS
RXD3 K1 COM3_RX
TXD3 M1 COM3_TX
Ethernet
nRST_LAN F2 RST_LAN
RMII_CRSDV N2 RMII_CRSDV
RMII_RXER M2 RMII_RXER
RMII_RXD1 T2 RMII_RXD1
RMII_RXD0 R2 RMII_RXD0
RMII_CLK AA2 RMII_CLK
RMII_TXEN L2 RMII_TXEN
RMII_TX1 H2 RMII_TXD1
RMII_TX0 J2 RMII_TXD0
MDIO W2 MDIO
MDC V2 MDC
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