STLink V3 MODS

U2
STLINK-V3MODS

Pin	Signal		Signal	Pin
1	BRIDGE_UART_RX		T_SW_DIR	32
2	BRIDGE_UART_CTS		T_NRST	31
3	BRIDGE_UART_RTS		T_VCC	30
4	T_JTMS/T_SWDIO		GND	29
5	GNDDETECT		T_JTDI/NC	28
6	T_JTDO/T_SWO		GND	27
7	BRIDGE_SPI_CLK		GND	26
8	GND		BRIDGE_SPI_COPI	25
9	BRIDGE_CAN_RX		GND	24
10	BRIDGE_CAN_TX		BRIDGE_SPI_CIPO	23
11	BRIDGE_UART_TX		RSVD	22
12	T_VCP_TX		BRIDGE_GPIO3	21
13	T_JCLK/T_SWCLK		BRIDGE_GPIO2	20
14	BRIDGE_SPI_NSS		BRIDGE_GPIO1	19
15	T_VCP_RX		BRIDGE_GPIO0	18
16	BRIDGE_I2C_SCL		BRIDGE_I2C_SDA	17

F7_SWDIO
F7_JTDO
F7_RST
F7_JTDI

D12/COM1_TX --> R1 0
F7_SWCLK
D13/COM1_RX <-- R2 0

3V3
GND

Meadow Headers

U3
Meadow HEADERS DNI

meadow
F7v2 Micro

3V3   +5V

	Signal	Pin		Pin	Signal	
F7_RST	RST	1		32	+VBAT	
	+3V3	2		31	EN_+3V3	3V3_EN
AREF	AREF	3		30	+5V	
	GND	4		29	D15	D15/SD2_D3
A00	A0	5		28	D14	D14
A01	A1	6		27	D13/COM1_RX	D13/COM1_RX <--
A02	A2	7		26	D12/COM1_TX	D12/COM1_TX -->
A03	A3	8		25	D11	D11
A04	A4	9		24	D10	D10
A05	A5	10		23	D09	D09
SPI3_CLK	SCK	11		22	D08/I2C_CLK	D08/I2C1_CLK
SPI3_COPI	COPI	12		21	D07/I2C_DAT	D07/I2C1_DAT
SPI3_CIPO	CIPO	13		20	D06	D06
-->D00/COM4_RX	D00/COM4_RX	14		19	D05	D05
<--D01/COM4_TX	D01/COM4_TX	15				
D02	D02	16				
D03/CAN1_RX	D03/CAN_RX	17				
D04/CAN1_TX	D04/CAN_TX	18				

GND

ESP32 JTAG

3V3

P2
FTSH-105-01-L-DV-K

1	2	ESP_MTMS
3	4	ESP_MTCK
5	6	ESP_MTDO
7	8	ESP_MTDI
9	10	

GND

ESP32 JTAG Resistors

3V3

R5 10k DNI   R6 10k   R7 10k DNI

ESP_MTMS
ESP_MTCK
ESP_MTDO
ESP_MTDI

R13 10k DNI   R22 10k DNI   R8 10k DNI

GND

ESP32 UART

3V3

CN1
75869-131LF

		1		2		
ESP_RST		1		2		
--> ESP_TX		3		4		
<-- ESP_RX		5		6		ESP_BOOT

GND

Boot + Reset Buttons

3V3   3V3

R75 10k

F7_RST

F7_BOOT   S1   S2

R76 10k

GND

I2C Display

3V3

U11
SSD1306 128X32 I2C Display

I2C3_DAT	SDA
I2C3_CLK	SCL
	V
	GND

GND

SPI Display

3V3

U10

R79 Display_CS
Display_DC
Display_RST
SPI5_COPI
10k
SPI5_CLK

	1	BLK
	2	CS
	3	DC
	4	RES
	5	SDA
	6	SCL
	7	VCC
	8	GND

TFT Display
1.54" IPS
240x240 SPI
w/CS pin.

240x240 ST7789 TFT SPI Display w/Chip Selct

GND

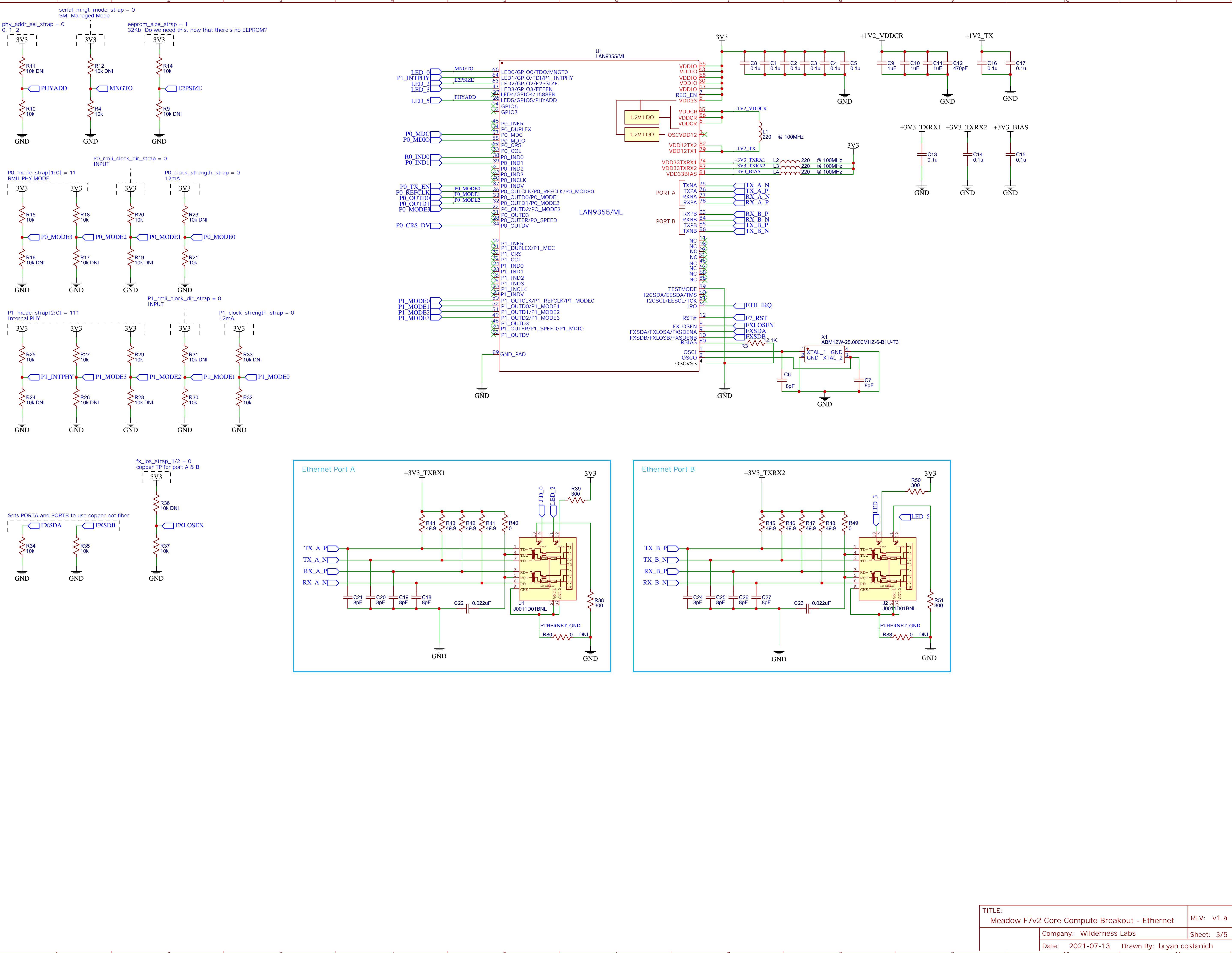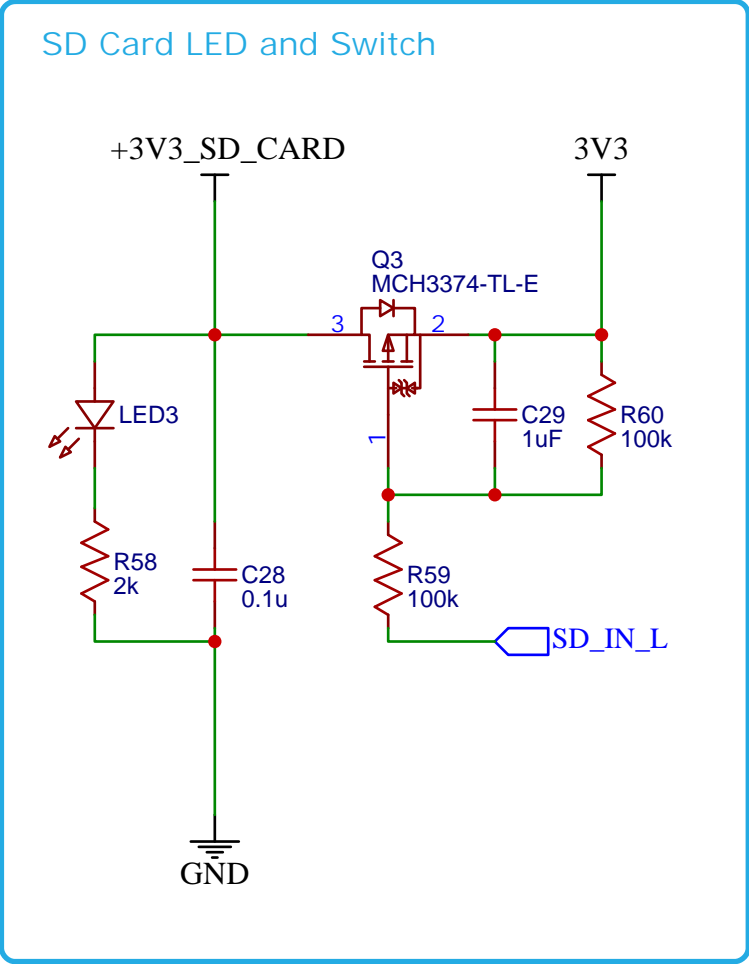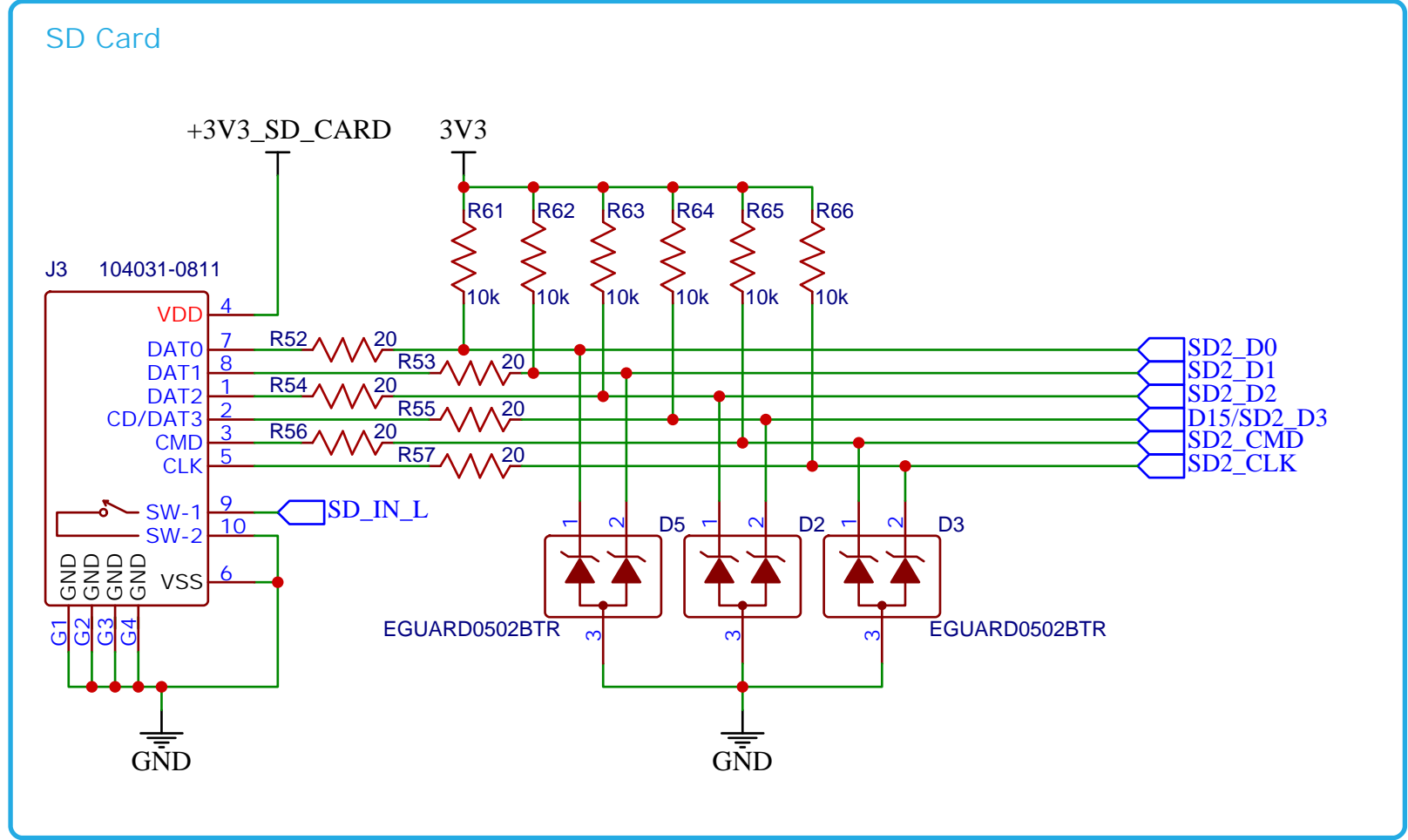# I2C3 Pull-ups

3V3

R81 4.7k   R82 4.7k

I2C3_DAT
I2C3_CLK

TITLE:
Meadow F7v2 Core Compute Breakout - Debug

REV: v1.a

Company: Wilderness Labs

Sheet: 2/5

Date: 2021-07-13   Drawn By: bryan costanich

Meadow F7v2 Core Compute Breakout - Ethernet

REV: v1.a

Company: Wilderness Labs

Sheet: 3/5

Date: 2021-07-13   Drawn By: bryan costanich

SD Card

+3V3_SD_CARD   3V3

R61 R62 R63 R64 R65 R66
10k 10k 10k 10k 10k 10k

J3   104031-0811

VDD	4
DAT0	7
DAT1	8
DAT2	1
CD/DAT3	2
CMD	3
CLK	5
SW-1	9
SW-2	10
VSS	6

R52 20
R53 20
R54 20
R55 20
R56 20
R57 20

SD2_D0
SD2_D1
SD2_D2
D15/SD2_D3
SD2_CMD
SD2_CLK

SD_IN_L

GND GND GND GND
G1 G2 G3 G4

GND

D5 D2 D3
EGUARD0502BTR   EGUARD0502BTR

GND

SD Card LED and Switch

+3V3_SD_CARD   3V3

Q3
MCH3374-TL-E

LED3

R58
2k

C28
0.1u

C29
1uF

R60
100k

R59
100k

SD_IN_L

GND

TITLE:
Meadow F7v2 Core Compute Breakout - SD Card

REV: v1.a

Company: Wilderness Labs

Sheet: 4/5

Date: 2021-07-21   Drawn By: bryan costanich

USB-C

J4
USB4105-GF-A

USB-C

VBUS B4/A9
VBUS A4/B9
CC1 A5
CC2 B5
D- A7
D- B7
D+ A6
D+ B6
SBU1 A8
SBU2 B8

SHLD_GND G1
SHLD_GND G2
SHLD_GND G3
SHLD_GND G4
A1/B12 GND
B1/A12 GND

+5V

D1
BAT60JFILM

USB_VBUS

USB_D_N

USB_D_P

R67 5.1k
R68 5.1k

GND

Enable Switch

3V3_EN

S4
452403012014

2
5
1
3
4
6

GND

Power: 5V - 3.3V

USB_VBUS

NCP1597AMNTWG
U4

LED4
"Power In"

R69 10k

R73 2k

3V3_EN

C32 22uF
C31 22uF
C30 0.1u

4 VCCP
5 VCC
6 EN
LX 3
GND 2
FB 1
EP 7

SW_OUT

0V8_FB

L5
ASPI-4030S-3R3M-T

R70 24.9k

R71 8.06k

C34 22uF
C33 22uF

3V3

LED5
"3.3V"

R72 2k

GND

GND

GND

Q1
MCH3374-TL-E

2
3

VBUS

R74 10k

1

This circuit prevents
driving current back
to the MCU VBUS pin.

3V3_EN

1

3

Q2
DMG1012UW-7

2

GND

When 3V3_EN is HIGH
VBUS is on.

When 3V3_EN is LOW
VBUS is high Z.

TITLE:
Meadow F7v2 Core Compute Breakout - USB + Power

REV: v1.a

Company: Wilderness Labs

Sheet: 5/5

Date: 2021-07-21   Drawn By: bryan costanich

3V3

3V3

3V3 3V3 3V3 3V3 VBAT
7 23 58 80 64

R86
0

U5
Meadow F7v2 Core-Compute Module

F7_BOOT — 59 — F7_BOOT
F7_RST — 69 — F7_RESET_L

A00 — 83 — A00 (PA4)
A01 — 86 — A01 (PA5)
A02 — 78 — A02 (PA3)
A03 — 89 — A03 (PB0)
A04 — 88 — A04 (PB1)
A05 — 72 — A05 (PC0)
76 — VREF

ANALOG

AREF

R77
0

SPI3_CLK — 37 — SPI3_CLK (PC10)
SPI3_COPI — 61 — SPI3_COPI (PB5)
SPI3_CIPO — 38 — SPI3_CIPO (PC11)

SPI3

D00/COM4_RX — 67 — D00/COM4_RX (PI9)
D01/COM4_TX — 34 — D01/COM4_TX (PH13)

COM4

D02 — 26 — D02 (PH10)

D03/CAN1_RX — 62 — D03/CAN1_RX (PB8)
D04/CAN1_TX — 65 — D04/CAN1_TX (PB9)

CAN1

P0_TX_EN — 16 — ETH_TX_EN (PB11)
ETH_IRQ — 33 — ETH_IRQ (PH14)
R0_IND0 — 55 — ETH_TXD0 (PG13)
P0_IND1 — 60 — ETH_TXD1 (PG14)
P0_MDC — 73 — ETH_MDC (PC1)
P0_REFCLK — 75 — ETH_REF_CLK (PA1)
P0_MDIO — 77 — ETH_MDIO (PA2)
P0_OUTD0 — 84 — ETH_RXD0 (PC4)
P0_OUTD1 — 85 — ETH_RXD1 (PC5)
P0_CRS_DV — 87 — ETH_CRS_DV (PA7)

ETHERNET

SD_IN_L — 28 — SD2_IN_L (PG6)
SD2_CLK — 47 — SD2_CLK (PD6)
SD2_CMD — 48 — SD2_CMD (PD7)
SD2_D1 — 51 — SD2_D1 (PG10)
SD2_D0 — 52 — SD2_D0 (PG9)
SD2_D2 — 54 — SD2_D2 (PG11)
D15/SD2_D3 — 56 — D15/SD2_D3 (PG12)

SD CARD

Meadow F7 Core-Compute Module
Logical Layout

meadow

USB_D_P — 41 — USB_D_P
USB_D_N — 40 — USB_D_N

OTG USB

OTG_FS_OC (PC2) — 82 —
OTG_VBUS (PA9) — 35 — VBUS
OTG_PWRON (PH12) — 27 —

OTG

BLINKY (PA0) — 79 — R78 2k LED1
D19 (PC8) — 31 — Display_RST
D18 (PA10) — 36 — Display_DC
D17 (PD5) — 46 — Display_CS
D16/WAKEUP (PI11) — 68 — R87 300 1 S3 2

GND

R88

I2C3_DAT (PH8) — 25 — I2C3_DAT
I2C3_CLK (PH7) — 21 — I2C3_CLK

I2C3

10k

SPI5_CLK (PH6) — 24 — SPI5_CLK
SPI5_CIPO (PF8) — 71 — SPI5_CIPO
SPI5_COPI (PF9) — 70 — SPI5_COPI

SPI5

D14 (PB12) — 19 — D14

D13/COM1_RX (PB15) — 18 — D13/COM1_RX
D12/COM1_TX (PB14) — 17 — D12/COM1_TX

COM1

D11 (PC9) — 32 — D11
D10 (PC7) — 30 — D10
D09 (PC6) — 29 — D09

D08/I2C1_CLK (PB6) — 63 — D08/I2C1_CLK
D07/I2C1_DAT (PB7) — 66 — D07/I2C1_DAT

I2C1

D06 (PB13) — 20 — D06
D05 (PB4) — 53 — D05

F7_SWO (PB3) — 50 — F7_JTDO
F7_JTDI (PA15) — 45 — F7_JTDI
F7_SWCLK (PA14) — 44 — F7_SWCLK
F7_SWDIO (PA13) — 43 — F7_SWDIO
ESP_MTDO — 15 — ESP_MTDO
ESP_MTCK — 14 — ESP_MTCK
ESP_MTDI — 13 — ESP_MTDI
ESP_MTMS — 12 — ESP_MTMS
ESP_TX (PC12) — 10 — R84 --> 0 — ESP_TX
ESP_RX (PD2) — 9 — R85 0 — ESP_RX
ESP_BOOT (PI10) — 11 — ESP_BOOT
ESP_RST (PF7) — 8 — ESP_RST <--

DEBUG

GND GND GND GND GND GND GND GND GND GND GND GND GND GND GND GND
1 2 3 4 5 6 22 39 42 49 57 74 81 90 91

GND

J5
HDR-M-2.54_1x8

1
2
3
4
5
6
7
8

I2C3_CLK
I2C3_DAT
SPI5_CLK
SPI5_COPI
SPI5_CIPO

I2C/SPI Header

3V3 +5V

GND

M1 M2
DIN_MOUNT_HOLES

WILDERNESS LABS

TITLE:
Meadow F7v2 Core Compute Breakout - Meadow

REV: v1.a

Company: Wilderness Labs

Sheet: 1/5

Date: 2021-07-21   Drawn By: bryan costanich