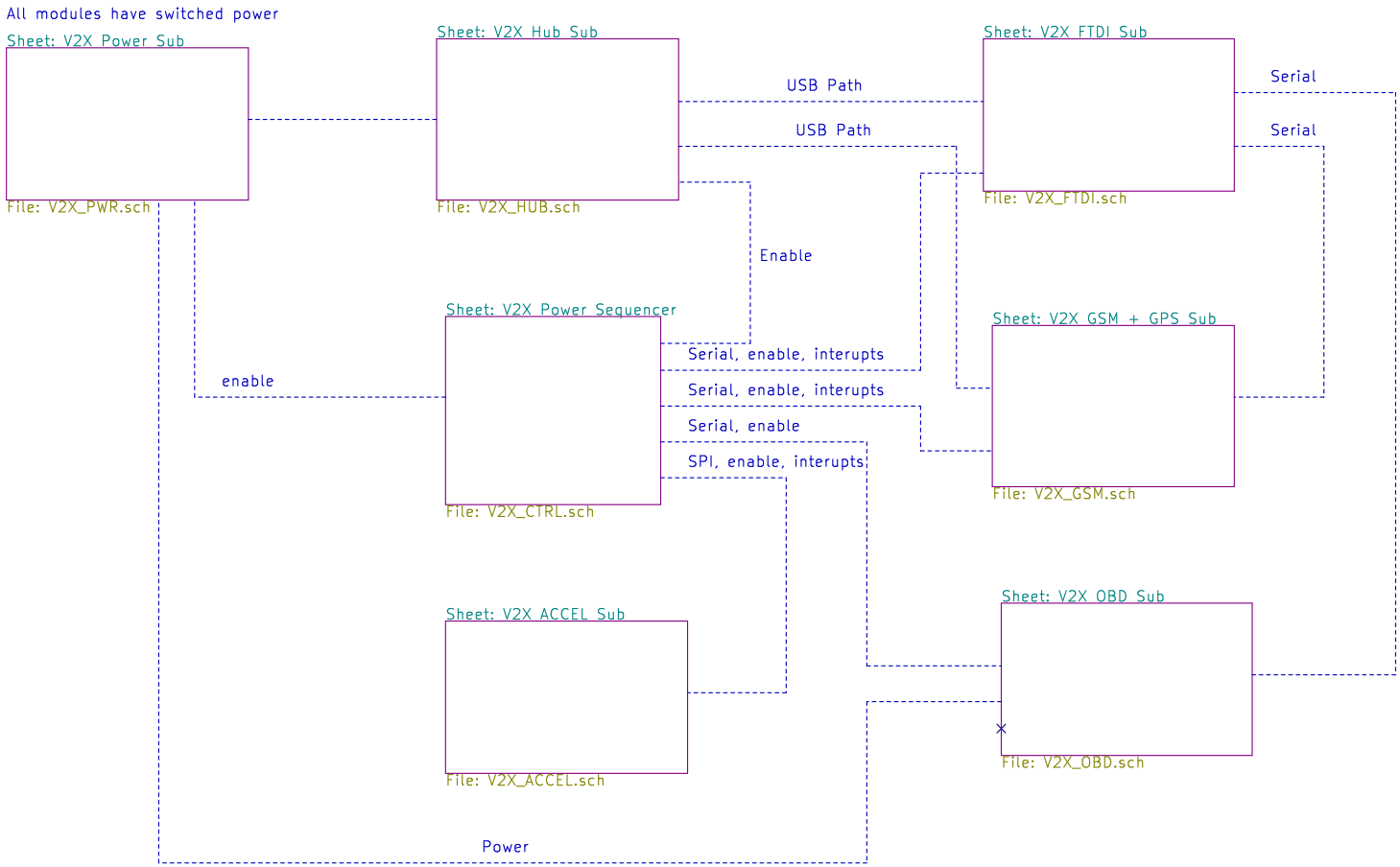
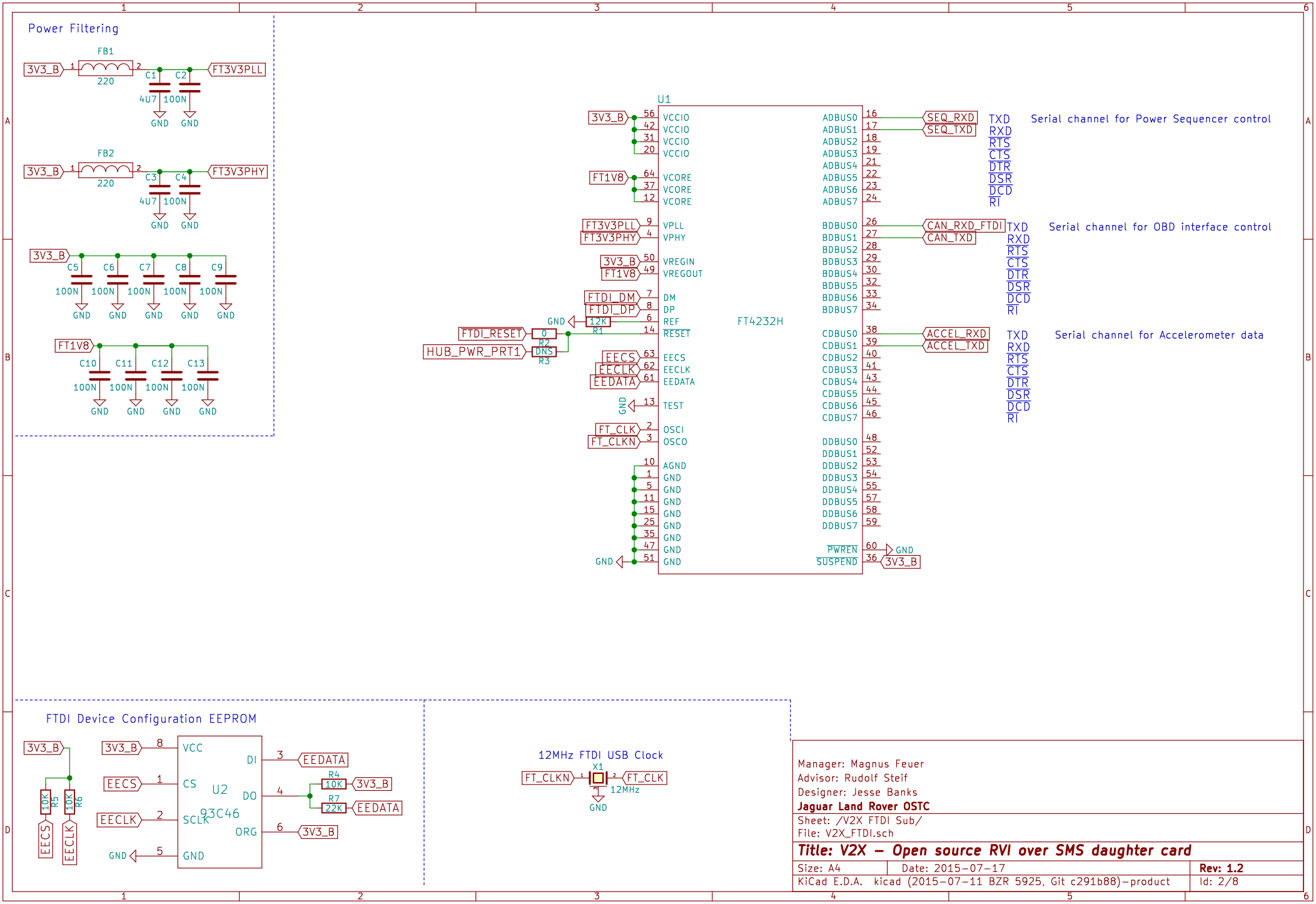


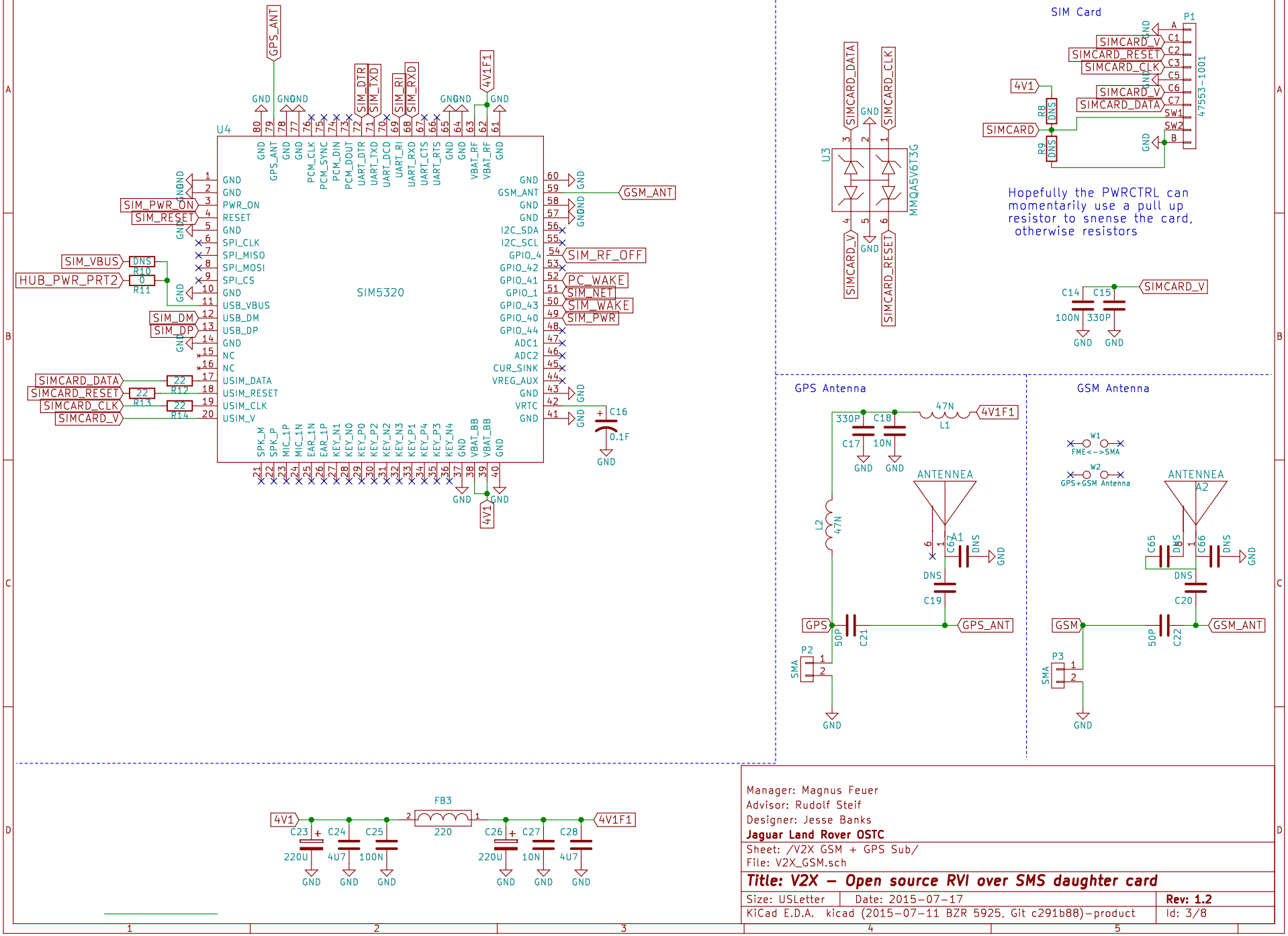
Manager: Magnus Feuer
Advisor: Rudolf Steif
Designer: Jesse Banks
Jaguar Land Rover OSTC

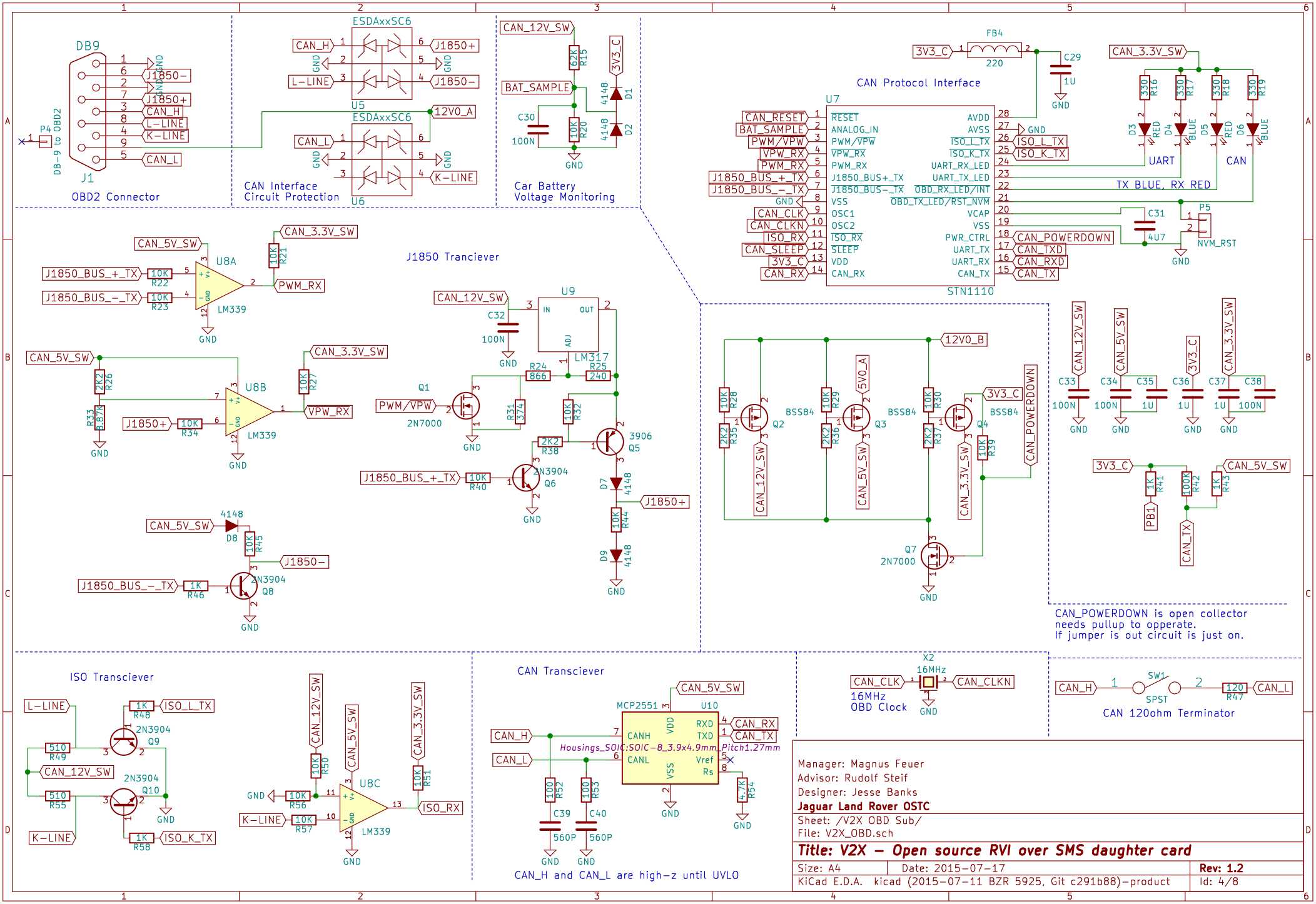
Sheet: /
File: V2X.sch

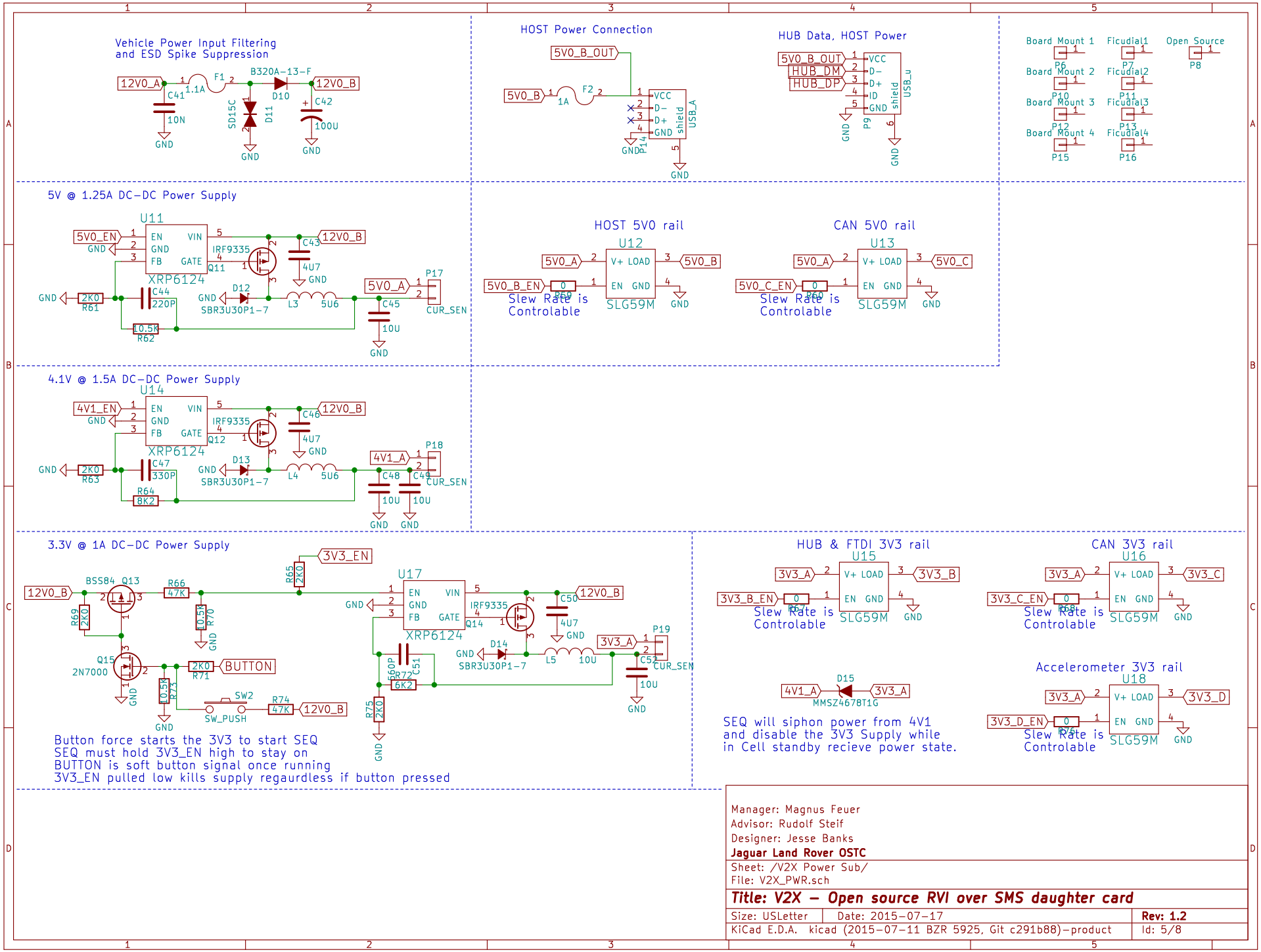
Title: V2X – Open source RVI over SMS daughter card

Size: USLetter	Date: 2015-07-17	**Rev: 1.2**
KiCad E.D.A. kicad (2015-07-11 BZR 5925, Git c291b88)-product		Id: 1/8

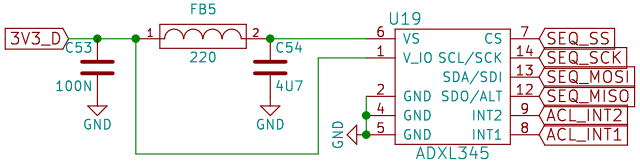

Power Filtering
FB1
3V3_B
220
C1
C2
4U7
100N
FT3V3PLL
GND
FB2
3V3_B
220
C3
C4
4U7
100N
FT3V3PHY
GND
3V3_B
C5
C6
C7
C8
C9
100N
GND
FT1V8
C10
C11
C12
C13
100N
GND
U1
FT4232H
3V3_B
VCCIO
FT1V8
VCORE
FT3V3PLL
VPLL
FT3V3PHY
VPHY
VREGIN
VREGOUT
FTDI_DM
DM
FTDI_DP
DP
FTDI_RESET
HUB_PWR_PRT1
12K
R1
0
R2
DNS
R3
REF
RESET
EECS
EECLK
EEDATA
TEST
FT_CLK
FT_CLKN
OSCI
OSCO
AGND
GND
ADBUS0
ADBUS1
ADBUS2
ADBUS3
ADBUS4
ADBUS5
ADBUS6
ADBUS7
SEQ_RXD
SEQ_TXD
TXD
RXD
RTS
CTS
DTR
DSR
DCD
RI
Serial channel for Power Sequencer control
BDBUS0
BDBUS1
BDBUS2
BDBUS3
BDBUS4
BDBUS5
BDBUS6
BDBUS7
CAN_RXD_FTDI
CAN_TXD
Serial channel for OBD interface control
CDBUS0
CDBUS1
CDBUS2
CDBUS3
CDBUS4
CDBUS5
CDBUS6
CDBUS7
ACCEL_RXD
ACCEL_TXD
Serial channel for Accelerometer data
DDBUS0
DDBUS1
DDBUS2
DDBUS3
DDBUS4
DDBUS5
DDBUS6
DDBUS7
PWREN
SUSPEND
FTDI Device Configuration EEPROM
U2
93C46
VCC
CS
SCLK
GND
DI
DO
ORG
EEDATA
R4
10K
R7
22K
R5
10K
R6
10K
12MHz FTDI USB Clock
X1
12MHz
FT_CLKN
FT_CLK
Manager: Magnus Feuer
Advisor: Rudolf Steif
Designer: Jesse Banks
Jaguar Land Rover OSTC
Sheet: /V2X FTDI Sub/
File: V2X_FTDI.sch
Title: V2X – Open source RVI over SMS daughter card
Size: A4
Date: 2015-07-17
Rev: 1.2
KiCad E.D.A. kicad (2015-07-11 BZR 5925, Git c291b88)-product
Id: 2/8


SIM5320
U4
GPS_ANT
GSM_ANT
SIM_PWR_ON
SIM_RESET
SIM_VBUS
HUB_PWR_PRT2
SIM_DM
SIM_DP
SIMCARD_DATA
SIMCARD_RESET
SIMCARD_CLK
SIMCARD_V
SIM_DTR
SIM_TXD
SIM_RI
SIM_RXD
4V1F1
4V1
SIM_RF_OFF
PC_WAKE
SIM_NET
SIM_WAKE
SIM_PWR
SIM Card
P1
SIMCARD
Hopefully the PWRCTRL can momentarily use a pull up resistor to snense the card, otherwise resistors
U3
MMQA5V6T3G
GPS Antenna
GSM Antenna
ANTENNEA
GPS
GSM
P2
P3
SMA
FB3
220
Manager: Magnus Feuer
Advisor: Rudolf Steif
Designer: Jesse Banks
Jaguar Land Rover OSTC
Sheet: /V2X GSM + GPS Sub/
File: V2X_GSM.sch
Title: V2X – Open source RVI over SMS daughter card
Size: USLetter
Date: 2015-07-17
Rev: 1.2
KiCad E.D.A. kicad (2015-07-11 BZR 5925, Git c291b88)-product
Id: 3/8


DB9
P4
DB-9 to OBD2
J1
OBD2 Connector
ESDAxxSC6
U5
U6
CAN Interface
Circuit Protection
CAN_12V_SW
BAT_SAMPLE
Car Battery
Voltage Monitoring
FB4
CAN Protocol Interface
U7
STN1110
UART
CAN
TX BLUE, RX RED
NVM_RST
U8A
U8B
LM339
J1850 Tranciever
U9
LM317
Q1
2N7000
2N3904
3906
BSS84
Q7
CAN_POWERDOWN is open collector
needs pullup to opperate.
If jumper is out circuit is just on.
ISO Transciever
U8C
CAN Transciever
MCP2551
U10
Housings_SOIC:SOIC-8_3.9x4.9mm_Pitch1.27mm
X2
16MHz
16MHz
OBD Clock
SW1
SPST
CAN 120ohm Terminator
CAN_H and CAN_L are high-z until UVLO
Manager: Magnus Feuer
Advisor: Rudolf Steif
Designer: Jesse Banks
Jaguar Land Rover OSTC
Sheet: /V2X OBD Sub/
File: V2X_OBD.sch
Title: V2X - Open source RVI over SMS daughter card
Size: A4
Date: 2015-07-17
Rev: 1.2
KiCad E.D.A. kicad (2015-07-11 BZR 5925, Git c291b88)-product
Id: 4/8



Manager: Magnus Feuer	
Advisor: Rudolf Steif	
Designer: Jesse Banks	
Jaguar Land Rover OSTC	
Sheet: /V2X Power Sub/	
File: V2X_PWR.sch	
Title: V2X – Open source RVI over SMS daughter card	
Size: USLetter	Date: 2015-07-17
KiCad E.D.A. kicad (2015-07-11 BZR 5925, Git c291b88)-product	Id: 5/8

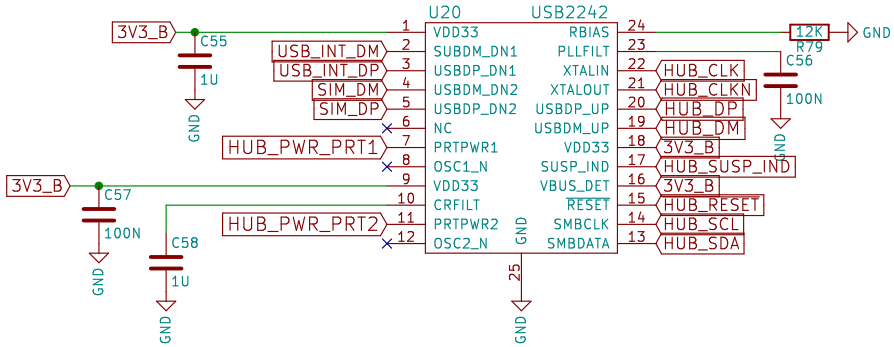


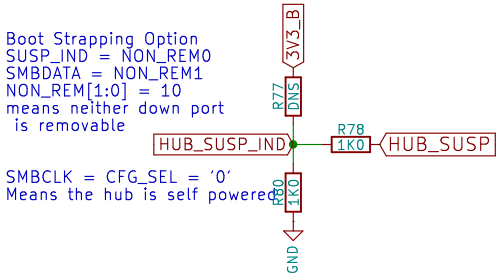
Manager: Magnus Feuer
Advisor: Rudolf Steif
Designer: Jesse Banks
Jaguar Land Rover OSTC

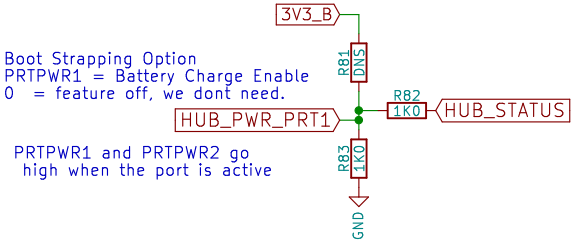
Sheet: /V2X ACCEL Sub/
File: V2X_ACCEL.sch

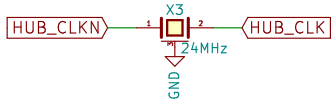
Title: V2X – Open source RVI over SMS daughter card

Size: A4	Date: 2015-07-17	**Rev: 1.2**
KiCad E.D.A. kicad (2015-07-11 BZR 5925, Git c291b88)-product		Id: 6/8







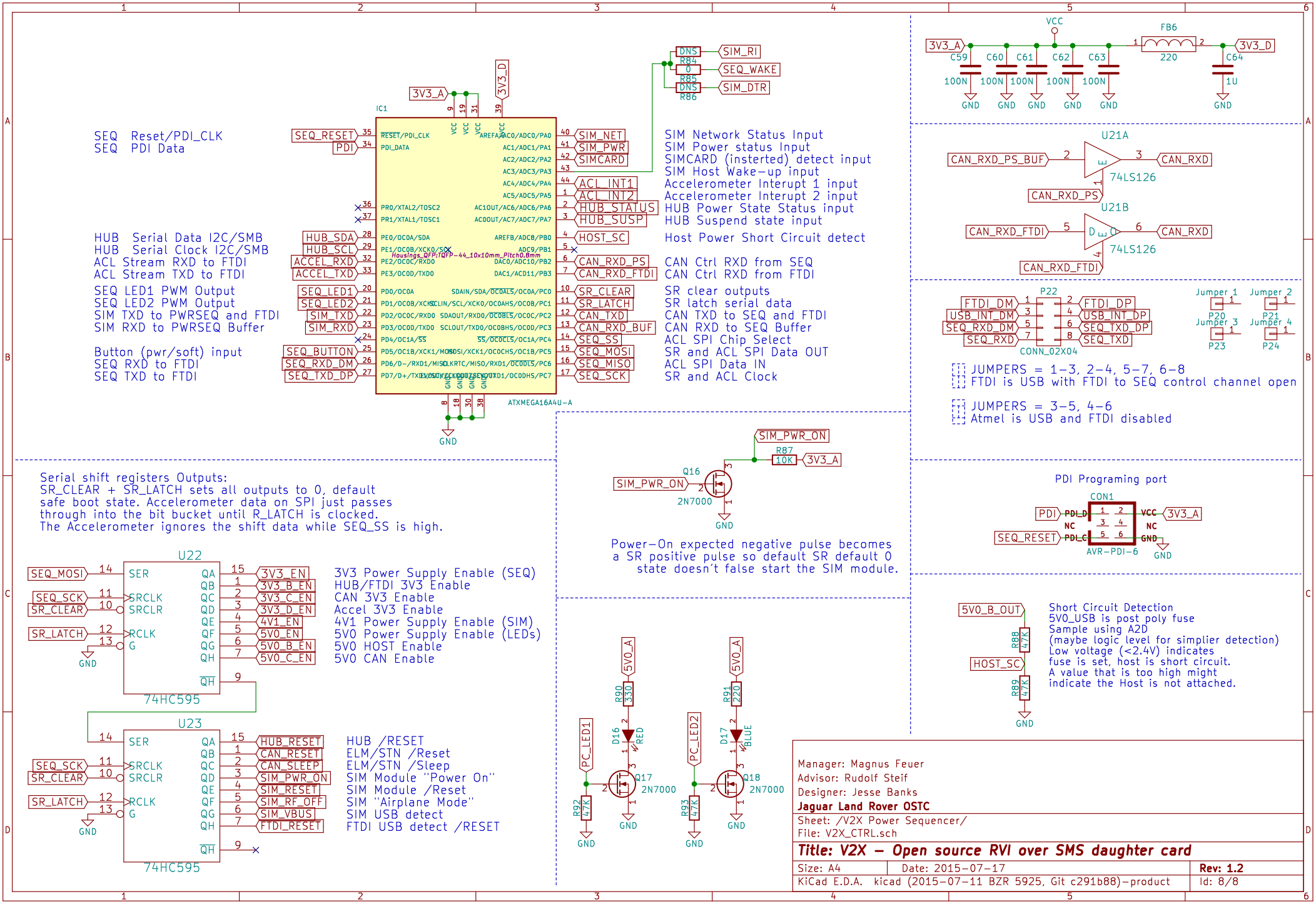


Manager: Magnus Feuer
Advisor: Rudolf Steif
Designer: Jesse Banks
Jaguar Land Rover OSTC

Sheet: /V2X Hub Sub/
File: V2X_HUB.sch

Title: V2X – Open source RVI over SMS daughter card

Size: A4	Date: 2015-07-17	**Rev: 1.2**
KiCad E.D.A. kicad (2015-07-11 BZR 5925, Git c291b88)-product		Id: 7/8


SEQ Reset/PDI_CLK
SEQ PDI Data
HUB Serial Data I2C/SMB
HUB Serial Clock I2C/SMB
ACL Stream RXD to FTDI
ACL Stream TXD to FTDI
SEQ LED1 PWM Output
SEQ LED2 PWM Output
SIM TXD to PWRSEQ and FTDI
SIM RXD to PWRSEQ Buffer
Button (pwr/soft) input
SEQ RXD to FTDI
SEQ TXD to FTDI
IC1
ATXMEGA16A4U-A
SIM Network Status Input
SIM Power status Input
SIMCARD (insterted) detect input
SIM Host Wake-up input
Accelerometer Interupt 1 input
Accelerometer Interupt 2 input
HUB Power State Status input
HUB Suspend state input
Host Power Short Circuit detect
CAN Ctrl RXD from SEQ
CAN Ctrl RXD from FTDI
SR clear outputs
SR latch serial data
CAN TXD to SEQ and FTDI
CAN RXD to SEQ Buffer
ACL SPI Chip Select
SR and ACL SPI Data OUT
ACL SPI Data IN
SR and ACL Clock
U21A
U21B
74LS126
JUMPERS = 1-3, 2-4, 5-7, 6-8
FTDI is USB with FTDI to SEQ control channel open
JUMPERS = 3-5, 4-6
Atmel is USB and FTDI disabled
Serial shift registers Outputs:
SR_CLEAR + SR_LATCH sets all outputs to 0, default
safe boot state. Accelerometer data on SPI just passes
through into the bit bucket until R_LATCH is clocked.
The Accelerometer ignores the shift data while SEQ_SS is high.
U22
U23
74HC595
3V3 Power Supply Enable (SEQ)
HUB/FTDI 3V3 Enable
CAN 3V3 Enable
Accel 3V3 Enable
4V1 Power Supply Enable (SIM)
5V0 Power Supply Enable (LEDs)
5V0 HOST Enable
5V0 CAN Enable
HUB /RESET
ELM/STN /Reset
ELM/STN /Sleep
SIM Module "Power On"
SIM Module /Reset
SIM "Airplane Mode"
SIM USB detect
FTDI USB detect /RESET
Power-On expected negative pulse becomes
a SR positive pulse so default SR default 0
state doesn't false start the SIM module.
PDI Programing port
Short Circuit Detection
5V0_USB is post poly fuse
Sample using A2D
(maybe logic level for simplier detection)
Low voltage (<2.4V) indicates
fuse is set, host is short circuit.
A value that is too high might
indicate the Host is not attached.
Manager: Magnus Feuer
Advisor: Rudolf Steif
Designer: Jesse Banks
Jaguar Land Rover OSTC
Sheet: /V2X Power Sequencer/
File: V2X_CTRL.sch
Title: V2X - Open source RVI over SMS daughter card
Size: A4
Date: 2015-07-17
Rev: 1.2
KiCad E.D.A. kicad (2015-07-11 BZR 5925, Git c291b88)-product
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