Duet3 Mainboard

Processor

Processor

Processor.sch

sheet5F4EC370

Endstops
&
Probes

Endstops.sch

Power

Power

Power.sch

Stepper Driver & Endstops

Stepper Drivers

Stepper_Drv.sch

MOSFET outputs

MOSFET outputs

Htr_Fan.sch

Headers

Headers

Headers.sch

sheet5B64A4E5

Comms

Comms.sch

(c) Duet3D

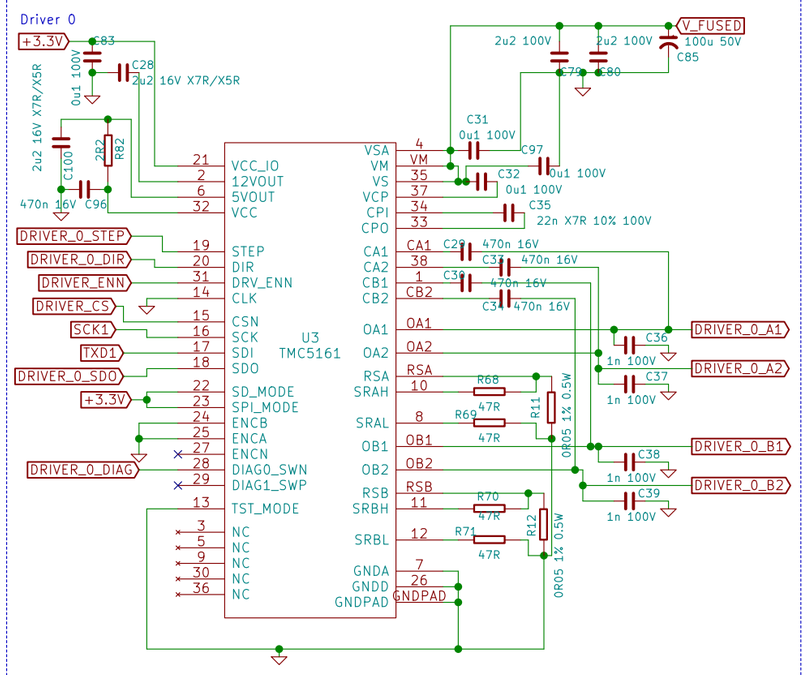
Duet3d

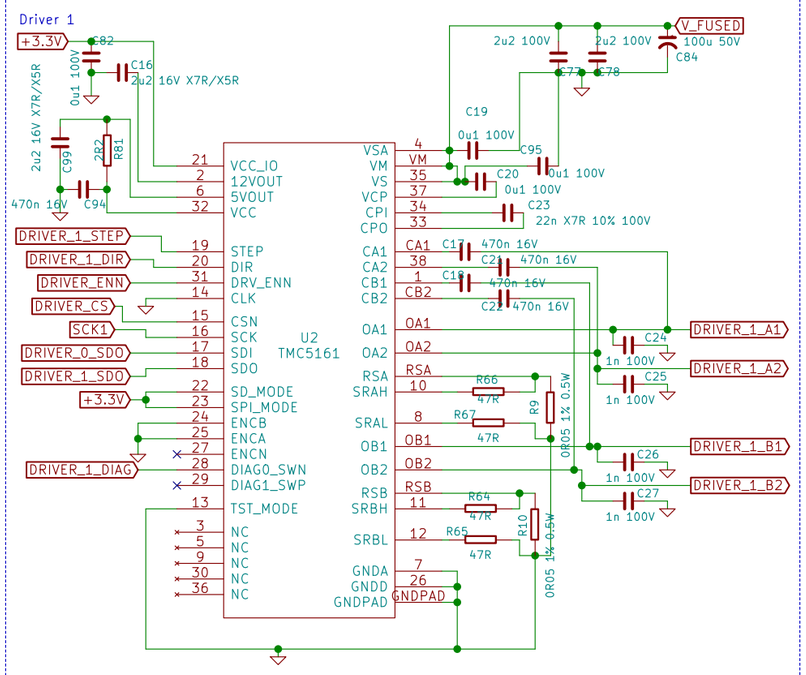
Sheet: /

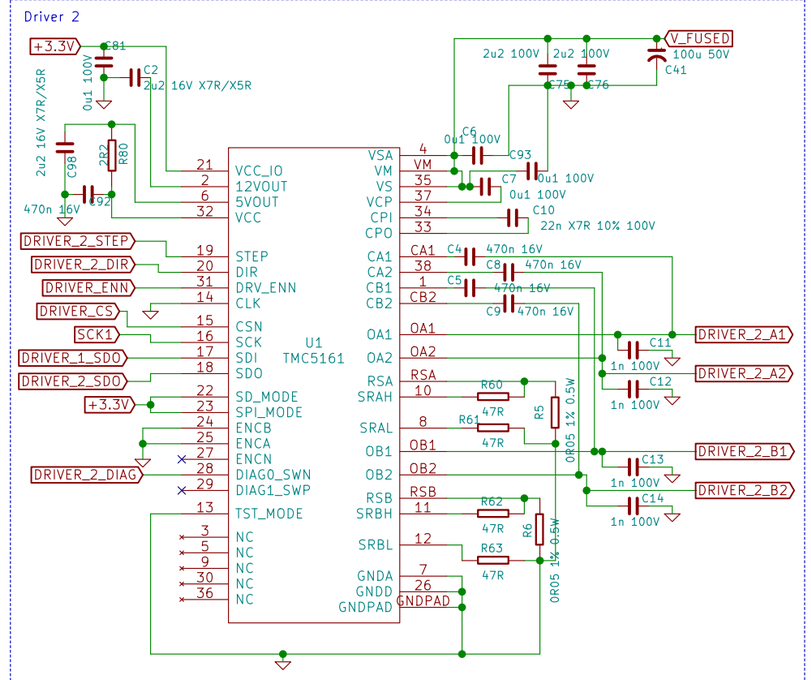
File: Duet3_MB.sch

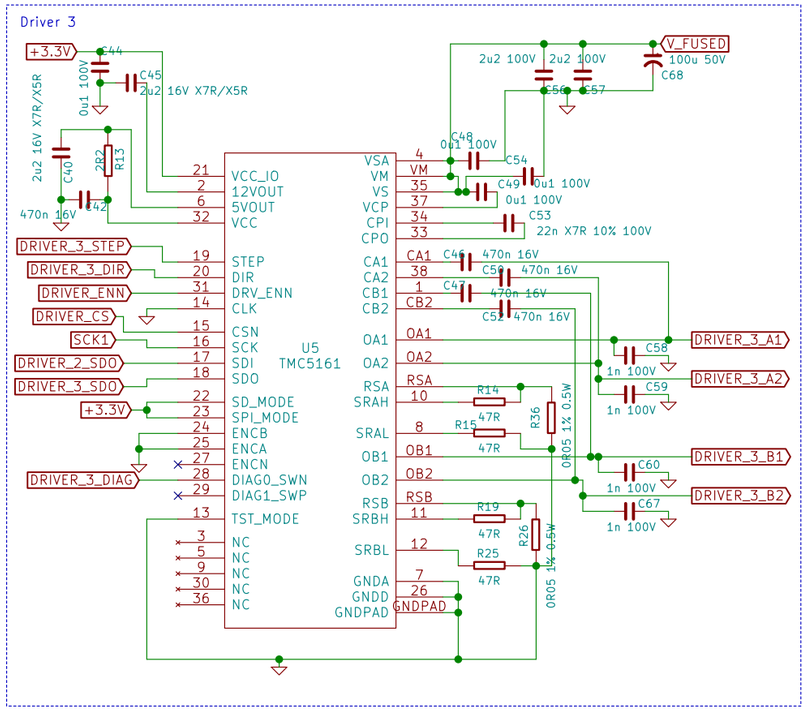
Title: Duet 3 Main Board Prototype

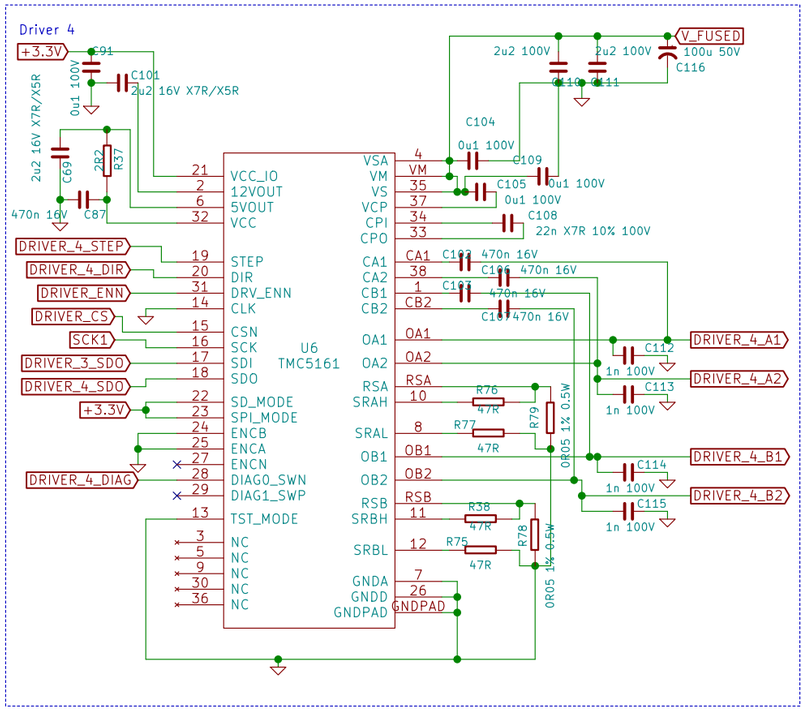
Size: A4	Date: 2018-12-20	**Rev: 0.5**
KiCad E.D.A. kicad (5.0.0)		Id: 1/8

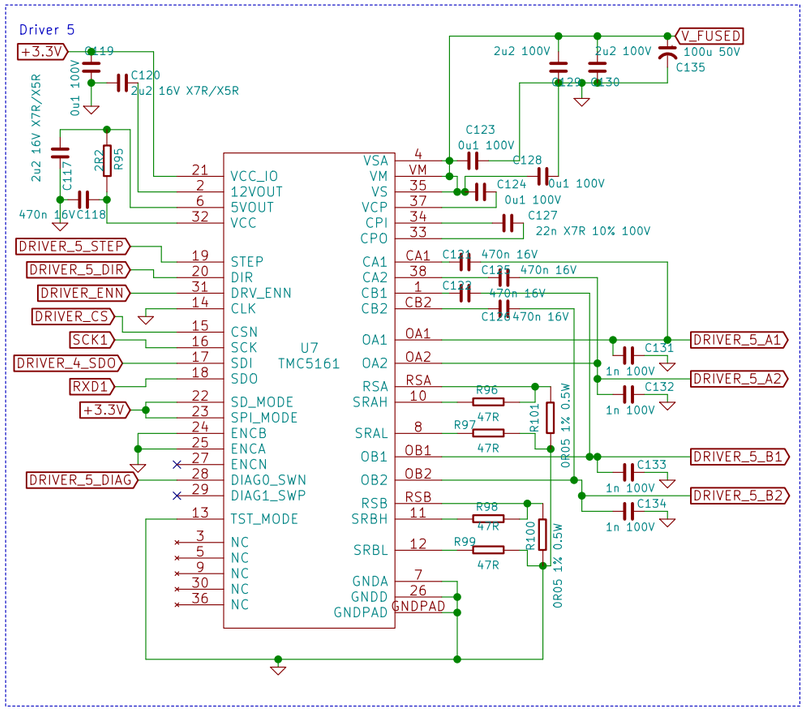






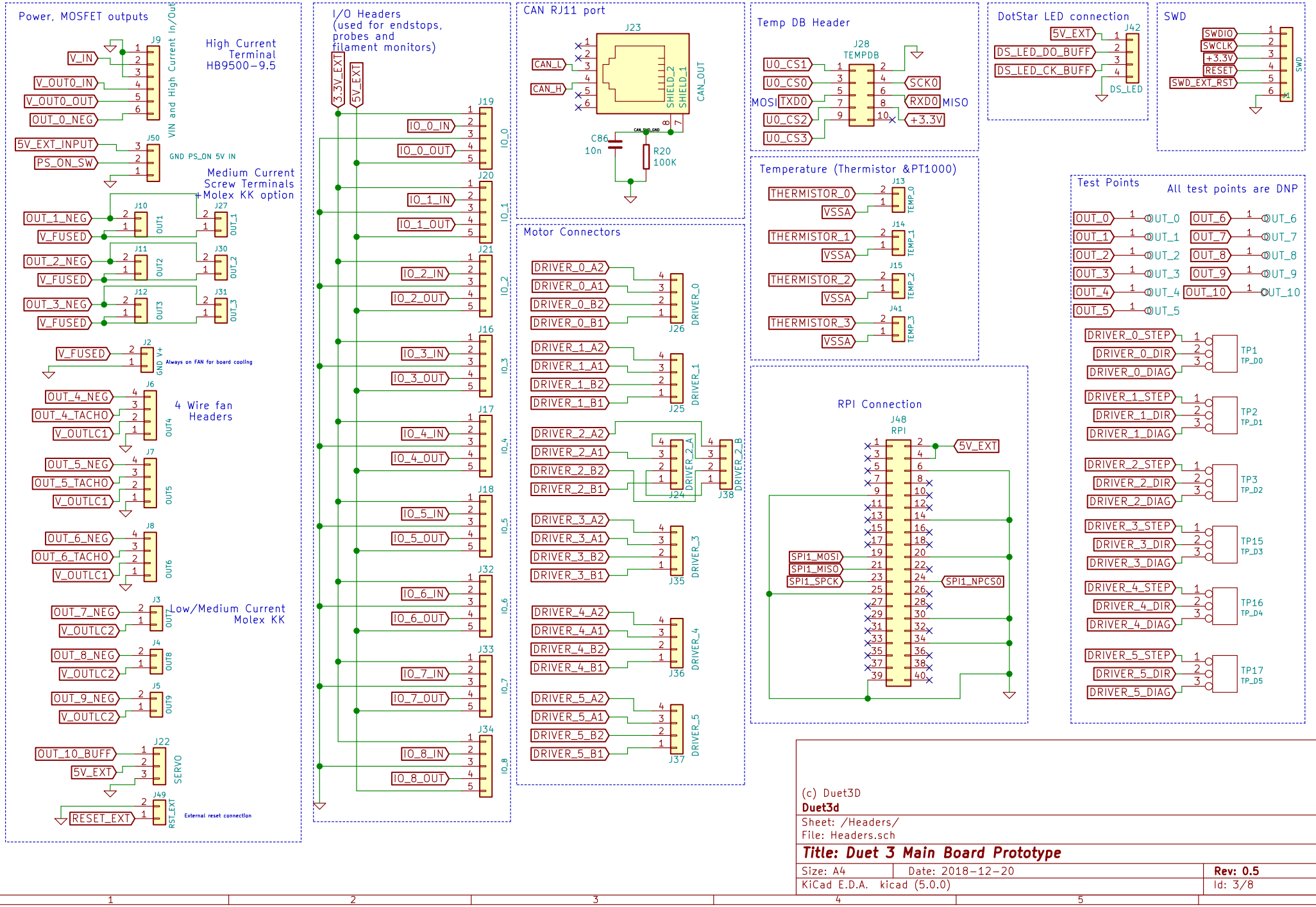


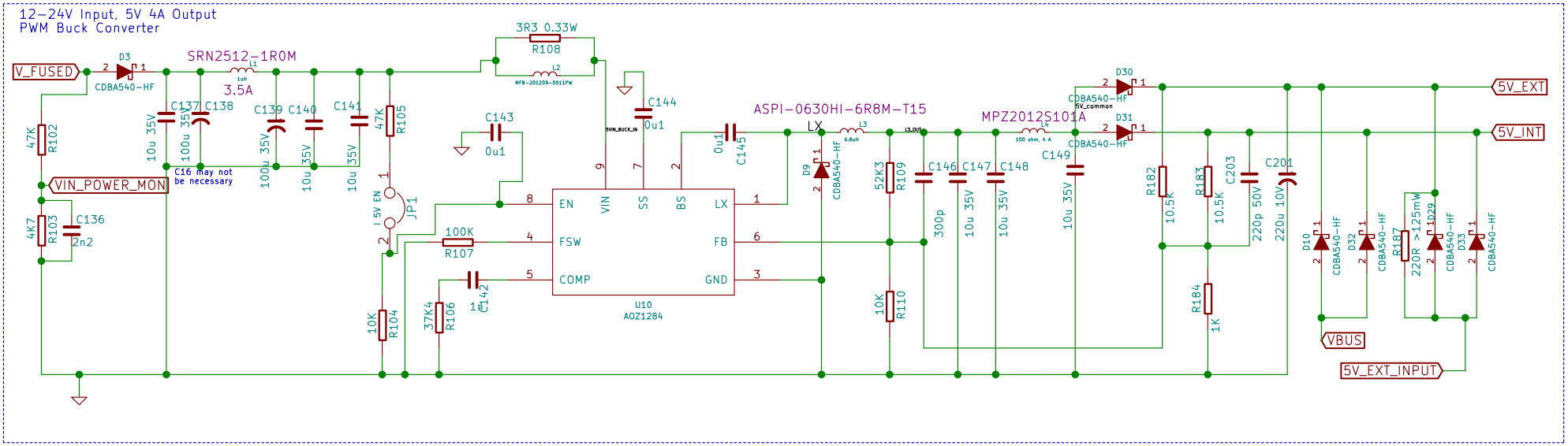


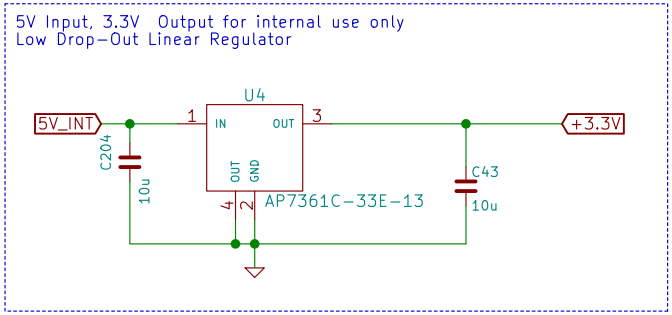


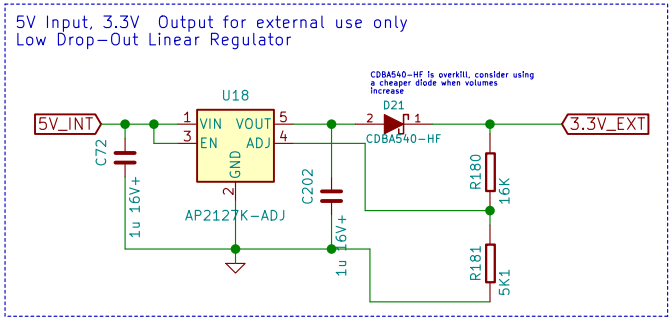
(c) Duet3D
Duet3d

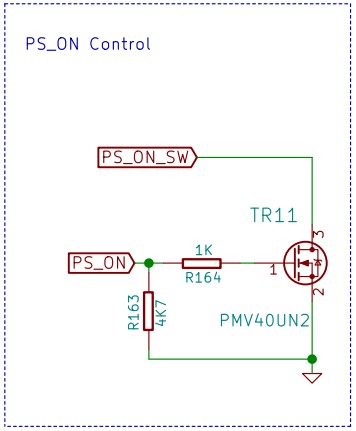
Sheet: /Stepper Driver & Endstops/		
File: Stepper_Drv.sch		
Title: Duet 3 Main Board Prototype		
Size: A3	Date: 2018-12-20	**Rev: 0.5**
KiCad E.D.A. kicad (5.0.0)		Id: 2/8

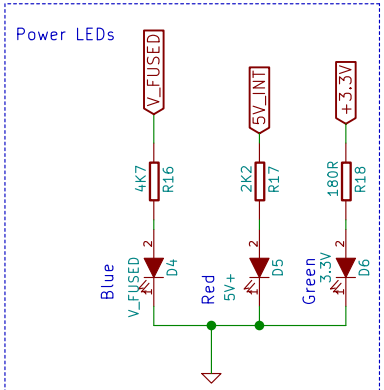

Power, MOSFET outputs
High Current Terminal HB9500-9.5
V_IN
V_OUT0_IN
V_OUT0_OUT
OUT_0_NEG
J9
VIN and High Current In/Out
5V_EXT_INPUT
PS_ON_SW
J50
GND PS_ON 5V IN
Medium Current Screw Terminals +Molex KK option
OUT_1_NEG
V_FUSED
OUT_2_NEG
OUT_3_NEG
J10
J11
J12
J27
J30
J31
OUT1
OUT2
OUT3
OUT_1
OUT_2
OUT_3
V_FUSED
J2
GND V+
Always on FAN for board cooling
4 Wire fan Headers
OUT_4_NEG
OUT_4_TACHO
V_OUTLC1
J6
OUT4
OUT_5_NEG
OUT_5_TACHO
J7
OUT5
OUT_6_NEG
OUT_6_TACHO
J8
OUT6
Low/Medium Current Molex KK
OUT_7_NEG
V_OUTLC2
J3
OUT7
OUT_8_NEG
J4
OUT8
OUT_9_NEG
J5
OUT9
OUT_10_BUFF
5V_EXT
J22
SERVO
RESET_EXT
J49
RST_EXT
External reset connection
I/O Headers (used for endstops, probes and filament monitors)
3.3V_EXT
5V_EXT
IO_0_IN
IO_0_OUT
J19
IO_0
IO_1_IN
IO_1_OUT
J20
IO_1
IO_2_IN
IO_2_OUT
J21
IO_2
IO_3_IN
IO_3_OUT
J16
IO_3
IO_4_IN
IO_4_OUT
J17
IO_4
IO_5_IN
IO_5_OUT
J18
IO_5
IO_6_IN
IO_6_OUT
J32
IO_6
IO_7_IN
IO_7_OUT
J33
IO_7
IO_8_IN
IO_8_OUT
J34
IO_8
CAN RJ11 port
J23
CAN_L
CAN_H
SHIELD_2
SHIELD_1
CAN_OUT
C86
10n
R20
100K
Motor Connectors
DRIVER_0_A2
DRIVER_0_A1
DRIVER_0_B2
DRIVER_0_B1
J26
DRIVER_0
DRIVER_1_A2
DRIVER_1_A1
DRIVER_1_B2
DRIVER_1_B1
J25
DRIVER_1
DRIVER_2_A2
DRIVER_2_A1
DRIVER_2_B2
DRIVER_2_B1
J24
DRIVER_2_A
J38
DRIVER_2_B
DRIVER_3_A2
DRIVER_3_A1
DRIVER_3_B2
DRIVER_3_B1
J35
DRIVER_3
DRIVER_4_A2
DRIVER_4_A1
DRIVER_4_B2
DRIVER_4_B1
J36
DRIVER_4
DRIVER_5_A2
DRIVER_5_A1
DRIVER_5_B2
DRIVER_5_B1
J37
DRIVER_5
Temp DB Header
J28
TEMPDB
U0_CS1
U0_CS0
MOSI
TXD0
U0_CS2
U0_CS3
SCK0
RXD0
MISO
+3.3V
Temperature (Thermistor &PT1000)
THERMISTOR_0
VSSA
J13
TEMP_0
THERMISTOR_1
J14
TEMP_1
THERMISTOR_2
J15
TEMP_2
THERMISTOR_3
J41
TEMP_3
RPI Connection
J48
RPI
5V_EXT
SPI1_MOSI
SPI1_MISO
SPI1_SPCK
SPI1_NPCS0
DotStar LED connection
5V_EXT
DS_LED_DO_BUFF
DS_LED_CK_BUFF
J42
DS_LED
SWD
SWDIO
SWCLK
+3.3V
RESET
SWD_EXT_RST
Test Points
All test points are DNP
OUT_0
OUT_1
OUT_2
OUT_3
OUT_4
OUT_5
OUT_6
OUT_7
OUT_8
OUT_9
OUT_10
DRIVER_0_STEP
DRIVER_0_DIR
DRIVER_0_DIAG
TP1
TP_D0
DRIVER_1_STEP
DRIVER_1_DIR
DRIVER_1_DIAG
TP2
TP_D1
DRIVER_2_STEP
DRIVER_2_DIR
DRIVER_2_DIAG
TP3
TP_D2
DRIVER_3_STEP
DRIVER_3_DIR
DRIVER_3_DIAG
TP15
TP_D3
DRIVER_4_STEP
DRIVER_4_DIR
DRIVER_4_DIAG
TP16
TP_D4
DRIVER_5_STEP
DRIVER_5_DIR
DRIVER_5_DIAG
TP17
TP_D5
(c) Duet3D
Duet3d
Sheet: /Headers/
File: Headers.sch
Title: Duet 3 Main Board Prototype
Size: A4
Date: 2018-12-20
Rev: 0.5
KiCad E.D.A. kicad (5.0.0)
Id: 3/8

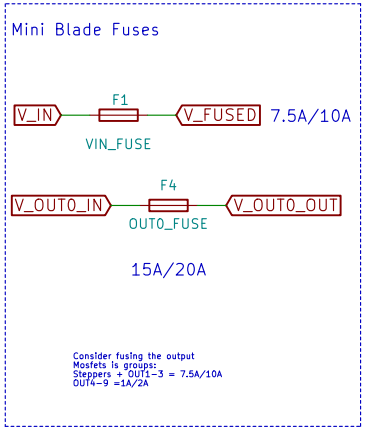










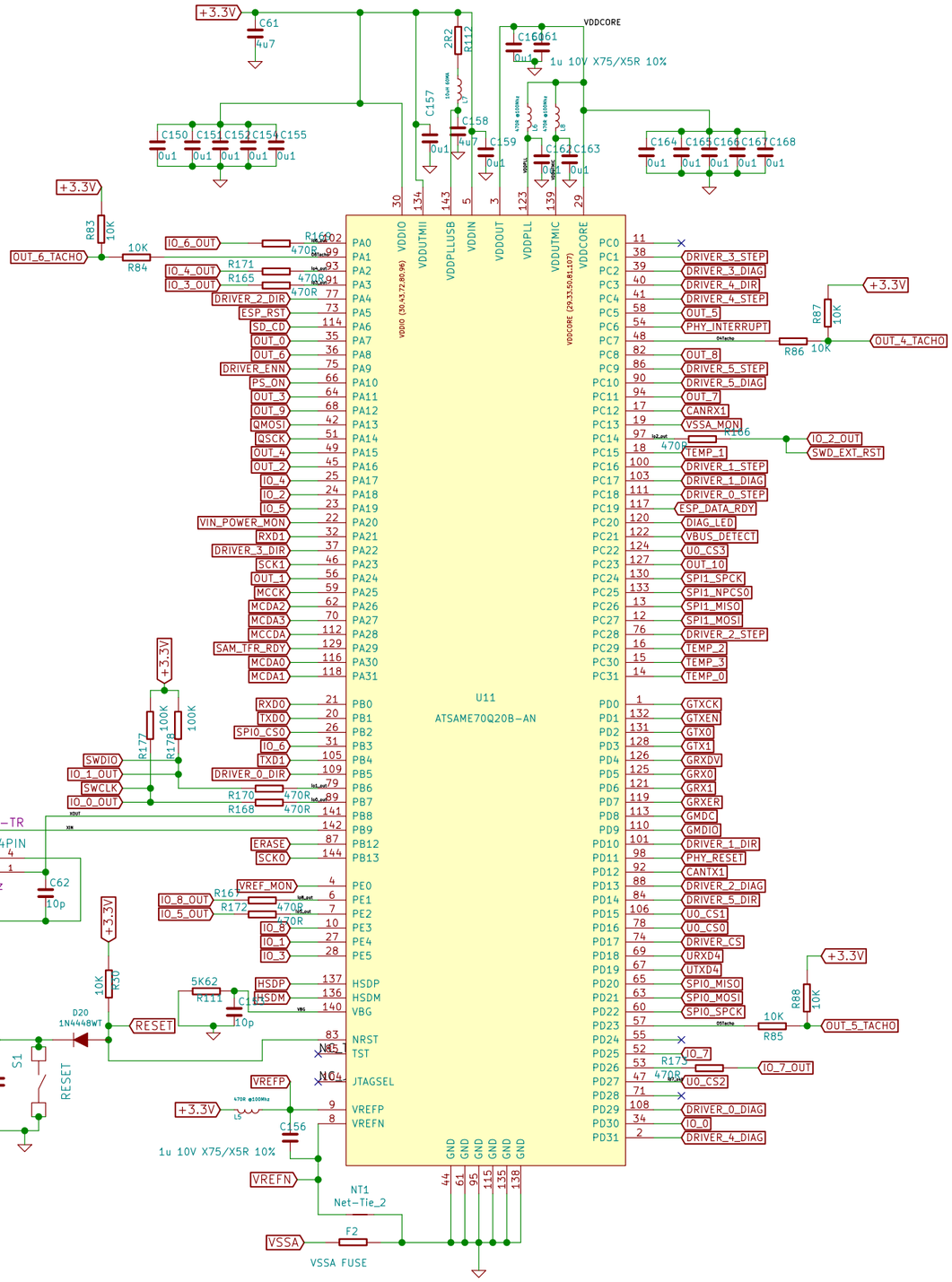


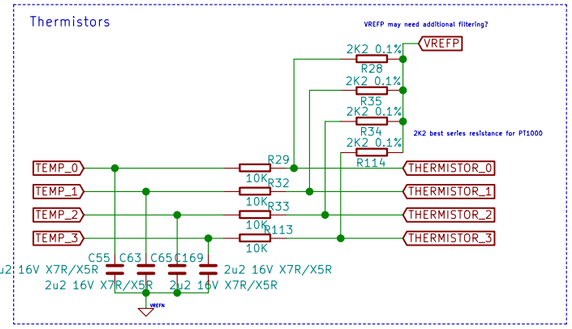
(c) Duet3D
Duet3d

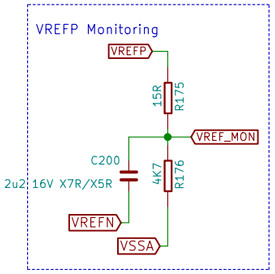
Sheet: /Power/
File: Power.sch

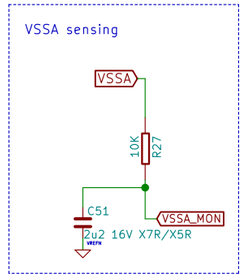
Title: Duet 3 Main Board Prototype

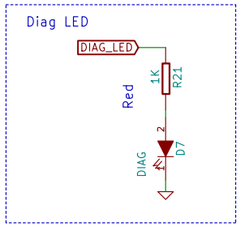
Size: A4	Date: 2018-12-20	**Rev: 0.5**
KiCad E.D.A. kicad (5.0.0)		Id: 4/8

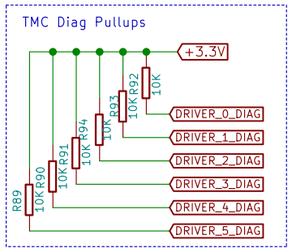








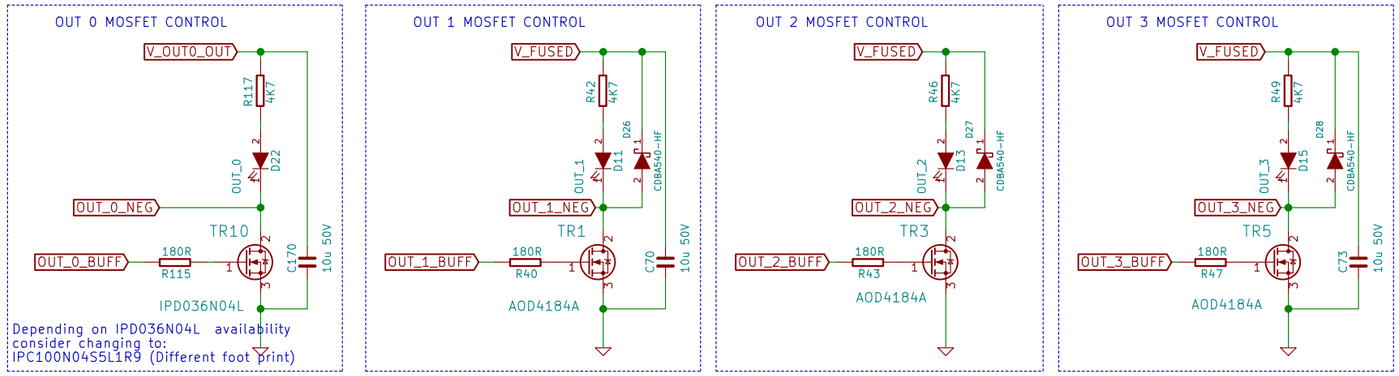




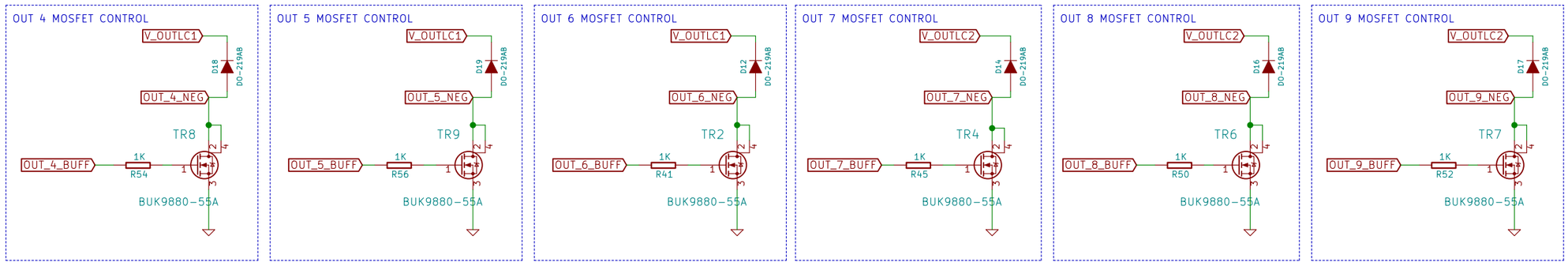
(c) Duet3D

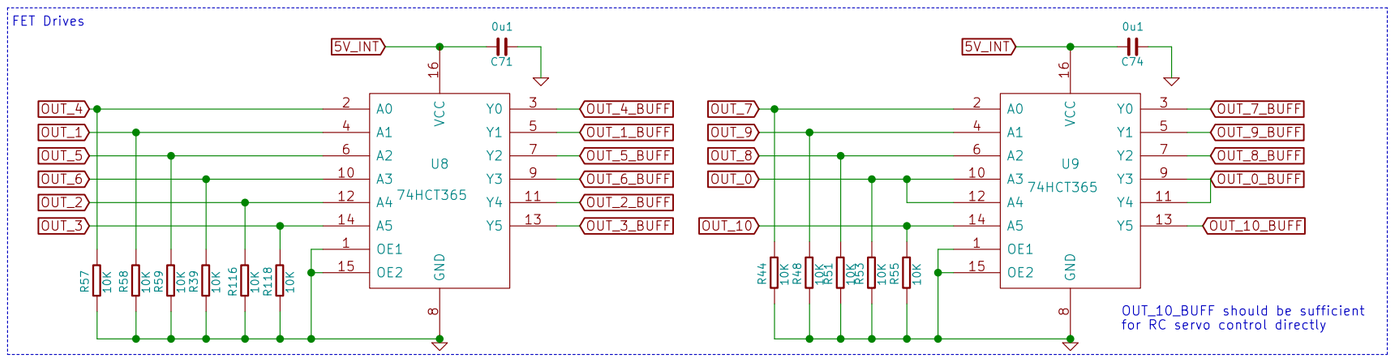
Duet3d		
Sheet: /Processor/		
File: Processor.sch		
Title: Duet 3 Main Board Prototype		
Size: A3	Date: 2018-12-20	**Rev: 0.5**
KiCad E.D.A. kicad (5.0.0)		Id: 5/8

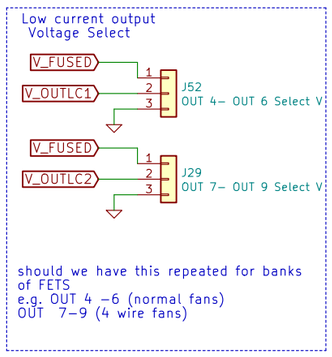
OUT0 – OUT3 – High current MOSFETs

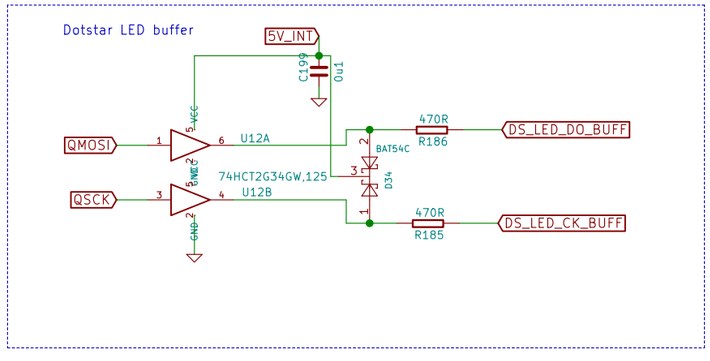


Should replace the PMV40UN2 with a higher voltage and potentially higher current MOSFET (gate resistors change depending on FET choice)









(c) Duet3D

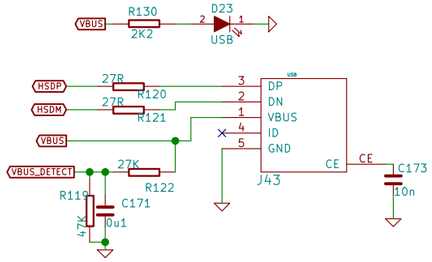
Duet3d

Sheet: /MOSFET outputs/
File: Htr_Fan.sch

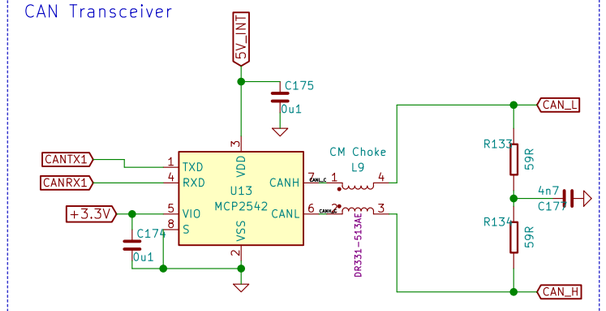
Title: Duet 3 Main Board Prototype

Size: A3	Date: 2018–12–20	**Rev: 0.5**
KiCad E.D.A. kicad (5.0.0)		Id: 6/8

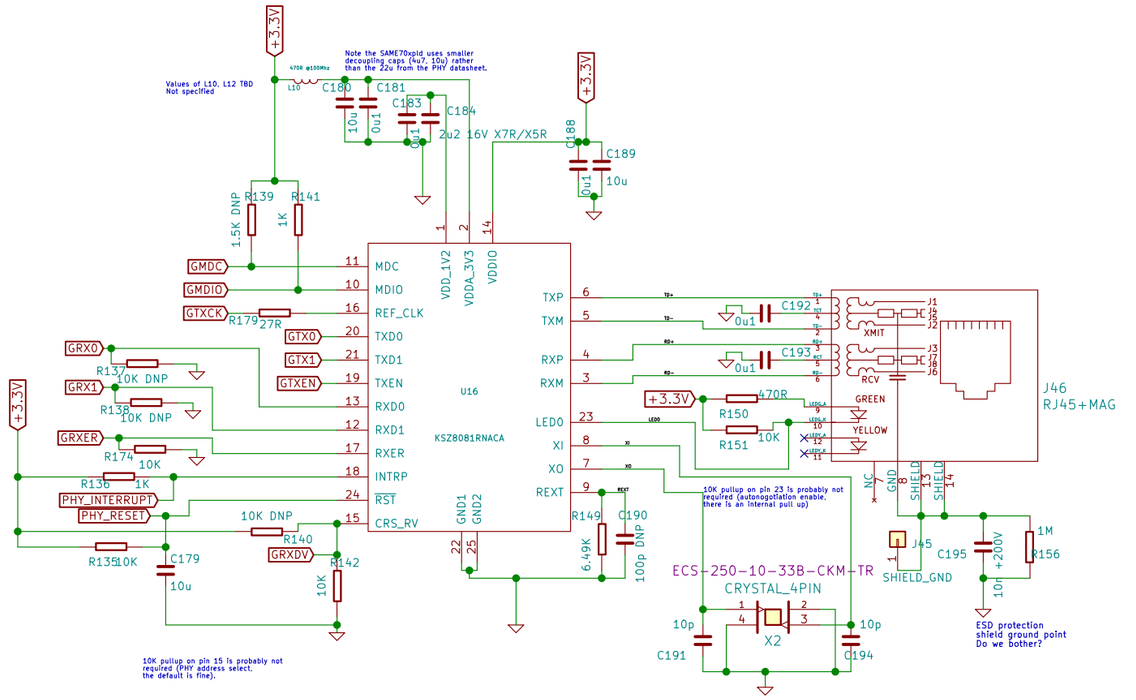
USB



CAN Transceiver



Ethernet/Ethercat Master



(c) Duet3D

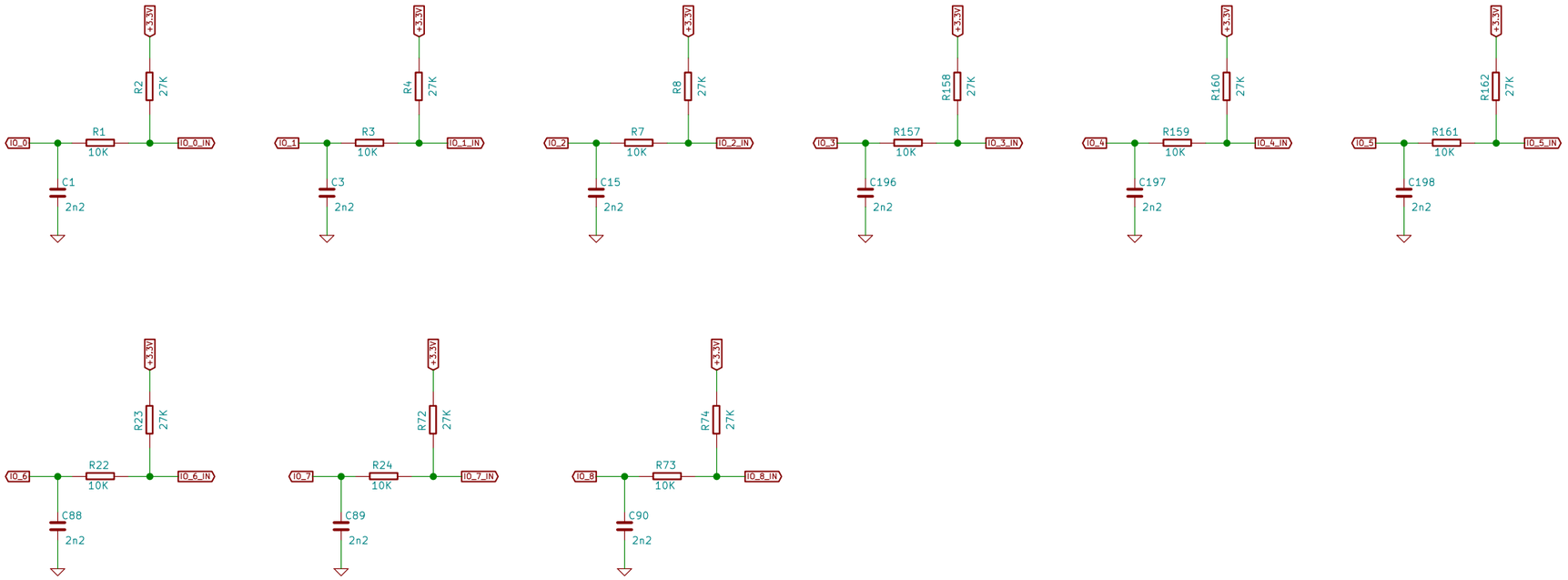
Duet3d

Sheet: /sheet5B64A4E5/
File: Comms.sch

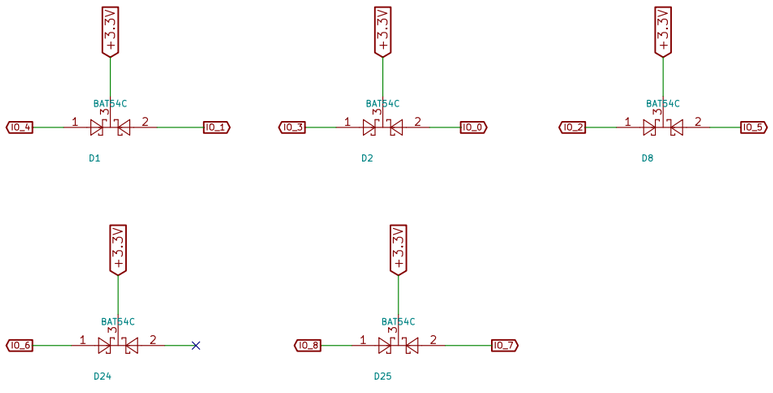
Title: Duet 3 Main Board Prototype

Size: A3	Date: 2018-12-20	**Rev: 0.5**
KiCad E.D.A. kicad (5.0.0)		Id: 7/8

Endstops & probe inputs



Input Protection



(c) Duet3D

Duet3d

Sheet: /sheet5F4EC370/
File: Endstops.sch

Title: Duet 3 Main Board Prototype

Size: A3	Date: 2018-12-20	**Rev: 0.5**
KiCad E.D.A. kicad (5.0.0)		Id: 8/8