KFLOP Connectors

K1
KFLOP_Outline

ENCODERS Connection

Pin	Name	Description
1	IO36	Gen Purpose LVTTL I/O (5V Tolerant) or (or Step 4 output) or (Encoder 4 Input Phase A)
2	IO37	Gen Purpose LVTTL I/O (5V Tolerant) or (or Dir 4 output) or (Encoder 4 Input Phase B)
3	IO38	Gen Purpose LVTTL I/O (5V Tolerant) or (or Step 5 output) or (Encoder 5 Input Phase A)
4	IO39	Gen Purpose LVTTL I/O (5V Tolerant) or (or Dir 5 output) or (Encoder 5 Input Phase B)
5	IO40	Gen Purpose LVTTL I/O (5V Tolerant) or (or Step 6 output) or (Encoder 6 Input Phase A)
6	IO41	Gen Purpose LVTTL I/O (5V Tolerant) or (or Dir 6 output) or (Encoder 6 Input Phase B)
7	IO42	Gen Purpose LVTTL I/O (5V Tolerant) or (or Step 7 output) or (Encoder 7 Input Phase A)
8	IO43	Gen Purpose LVTTL I/O (5V Tolerant) or (or Dir 7 output) or (Encoder 7 Input Phase B)

CONN_01X08
LP5

Pin	Name	Description
1	VDD33	+3.3 Volts Output
2	VDD33	+3.3 Volts Output
3	VDD12	+12 Volts Output
4	RESET#	Power up Reset (low true) output
5	IO44	Gen Purpose LVTTL I/O (3.3V Only)
6	IO45	Gen Purpose LVTTL I/O (3.3V Only)
7	IO0	Gen Purpose LVTTL I/O (5V Tolerant) or Encoder 0 Input Phase A
8	IO1	Gen Purpose LVTTL I/O (5V Tolerant) or Encoder 0 Input Phase B
9	IO2	Gen Purpose LVTTL I/O (5V Tolerant) or Encoder 1 Input Phase A
10	IO3	Gen Purpose LVTTL I/O (5V Tolerant) or Encoder 1 Input Phase B
11	IO4	Gen Purpose LVTTL I/O (5V Tolerant) or Encoder 2 Input Phase A
12	IO5	Gen Purpose LVTTL I/O (5V Tolerant) or Encoder 2 Input Phase B
13	IO6	Gen Purpose LVTTL I/O (5V Tolerant) or Encoder 3 Input Phase A
14	IO7	Gen Purpose LVTTL I/O (5V Tolerant) or Encoder 3 Input Phase B
15	IO8	Gen Purpose LVTTL I/O (5V Tolerant) or Axis 0 Home (or Step 0 output)
16	IO9	Gen Purpose LVTTL I/O (5V Tolerant) or Axis 1 Home (or Dir 0 output)
17	IO10	Gen Purpose LVTTL I/O (5V Tolerant) or Axis 2 Home (or Step 1 output)
18	IO11	Gen Purpose LVTTL I/O (5V Tolerant) or Axis 3 Home (or Dir 1 output)
19	IO12	Gen Purpose LVTTL I/O (5V Tolerant) or Axis 0 + Limit (or Step 2 output)
20	IO13	Gen Purpose LVTTL I/O (5V Tolerant) or Axis 0 - Limit (or Dir 2 output)
21	IO14	Gen Purpose LVTTL I/O (5V Tolerant) or Axis 1 + Limit (or Step 3 output)
22	IO15	Gen Purpose LVTTL I/O (5V Tolerant) or Axis 1 - Limit (or Dir 3 output)
23	VDD5	+5 Volts Output
24	VDD5	+5 Volts Output
25	GND	Digital Ground
26	GND	Digital Ground

KANALOG Connection & ENCODERS

JP7
CONN_02X13

R5
150

Pin	KFLOP Name	Konnect Name
1	VDD5	VDD5
2	VDD12	VDD12
3	VDD33	VDD33
4	RESET#	RESET#
5	IO26	DB0
6	IO27	DB1
7	IO28	DB2
8	GND	GND
9	GND	GND
10	IO29	DB3
11	IO30	DB4
12	IO31	DB5
13	IO32	DB6
14	IO33	DB7
15	IO34	CLKIN
16	IO35	STARTIN

KONNECT Connection

JP6
Conn_02x08_Odd_Even

JP4
Conn_02x08_Odd_Even

Pin	Name	Description
1	VDD5	+5 Volts Output
2	VDD12	+12 Volts Output
3	VDD33	+3.3 Volts Output
4	RESET#	Power up Reset (low true) output
5	IO16	Gen Purpose LVTTL I/O (3.3V Only)
6	IO17	Gen Purpose LVTTL I/O (3.3V Only)
7	IO18	Gen Purpose LVTTL I/O (3.3V Only)
8	GND	Digital Ground
9	GND	Digital Ground
10	IO19	Gen Purpose LVTTL I/O (3.3V Only)
11	IO20	Gen Purpose LVTTL I/O (3.3V Only)
12	IO21	Gen Purpose LVTTL I/O (3.3V Only)
13	IO22	Gen Purpose LVTTL I/O (3.3V Only)
14	IO23	Gen Purpose LVTTL I/O (3.3V Only)
15	IO24	Gen Purpose LVTTL I/O (3.3V Only)
16	IO25	Gen Purpose LVTTL I/O (3.3V Only)

KFLOP Power Connector

JR1

TLAUX_MPG
TLAUX_MPG.sch

Encoders
AxisEncoders.sch

Analog
Analog_IO.sch

IO_Connectors
IO_Connectors.sch

J1
Conn_01x05

U2A
LCMX02-7000HE-4TG144C

U2B
LCMX02-7000HE-4TG144C

U2C
LCMX02-7000HE-4TG144C

PS
PowerSupply.sch

Charge Pump

U32
7SZ04

R150
300

C110
0.1uF

D12
BAT54S

R151
10K

C111
0.1uF

R152
330

D13
LED_RED

KEEP_ALIVE

Kanalog Running

Sheet: /
File: Danalog.sch

Title:

Size: C	Date:	**Rev:**
KiCad E.D.A. kicad (6.0.0-rc1-dev-1425-g4c184f07a)		Id: 1/6

X–Axis Encoder Input

Y–Axis Encoder Input

Z–Axis Encoder Input

A–Axis Encoder Input

SPINDLE Encoder Input

5V to 3.3V conversion

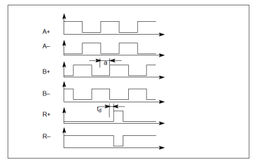


Fig. 1-2 Signal characteristics for a clockwise direction or rotation

Sheet: /Encoders/	
File: AxisEncoders.sch	
Title:	
Size: C	Date:
KiCad E.D.A. kicad (6.0.0-rc1-dev-1425-g4c184f07a)	Id: 2/6

Monitor and Control Connections

Switch Closure Inputs

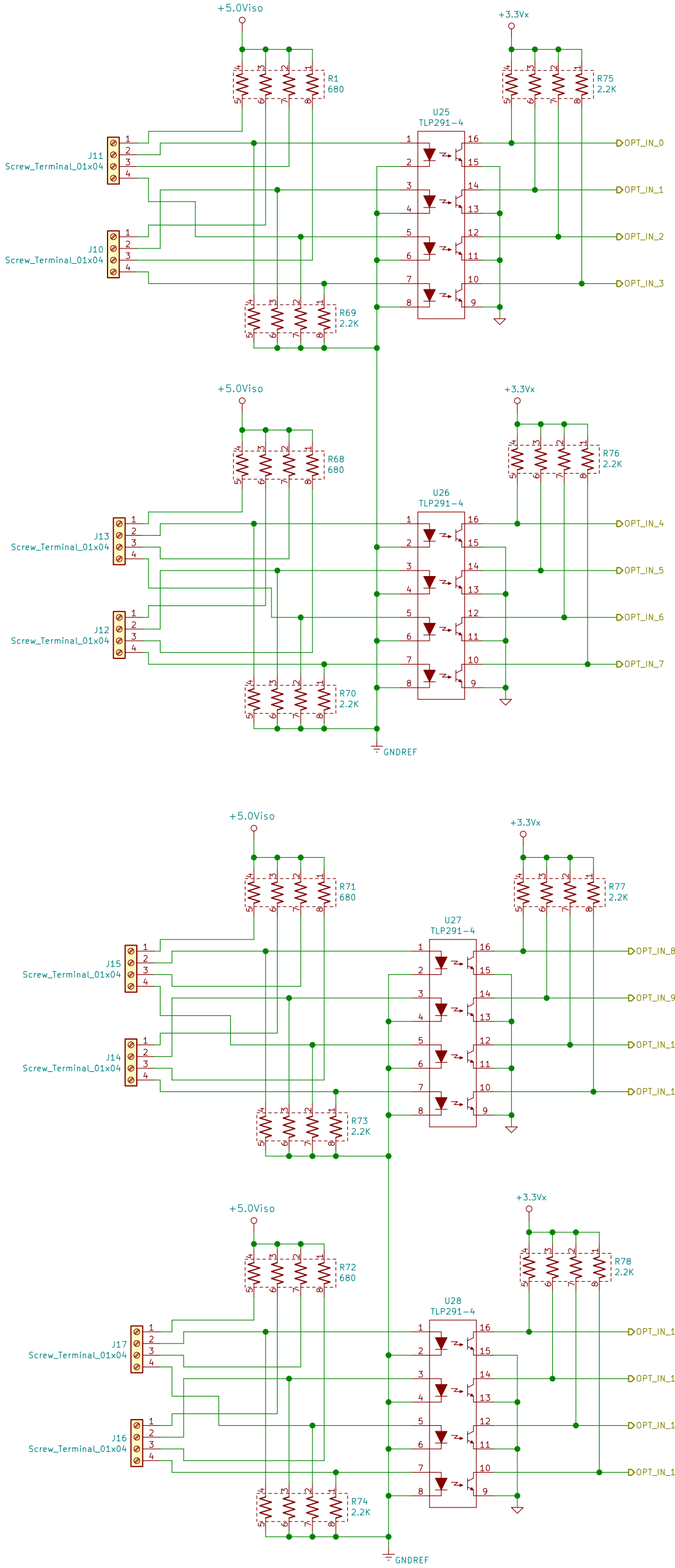
Estop

*Limit Switches
X Limit
Y Limit
Z Limit
A Limit

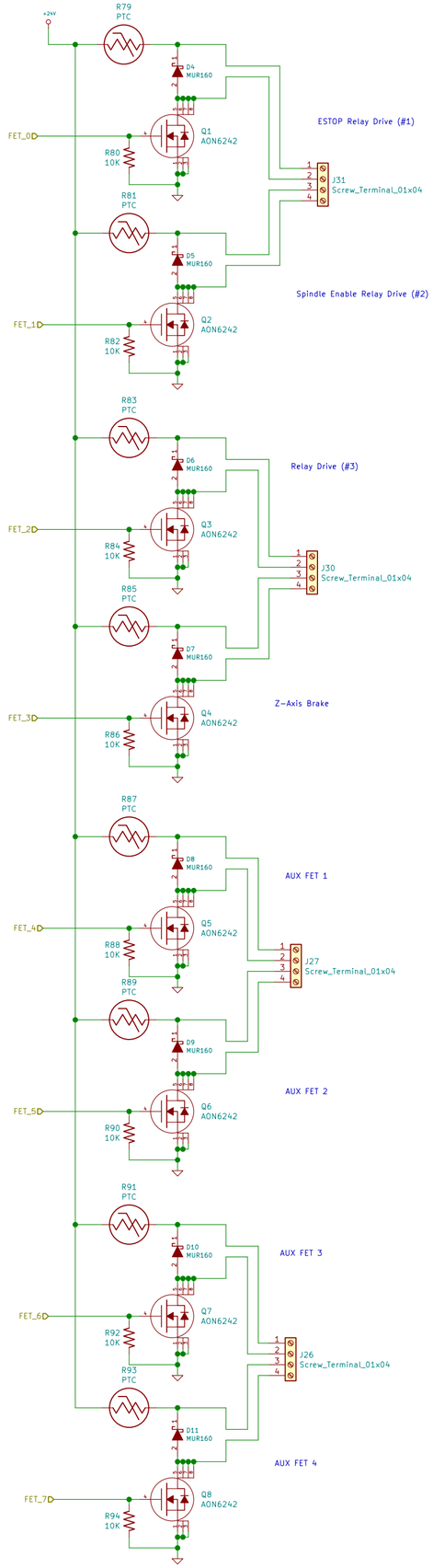
*Home Switches
X Home
Y Home
Z Home
A Home

*Tool Change Switches
Eject Tool
Index Tool Carousel

*Other Switches
Low Air
Low Lube
Perimeter Door Guard



24V+ Switch to GND



24V Relay Drive - Output

Estop Relay
Perimeter Door Guard Shot Pin
Z Brake
Spindle Off Light

SIEMENS Motorl Control Signals
TBD

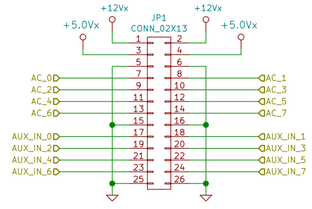
Logic Level Inputs

*MPG Switches
MPG_A
MPG_B

Touch Probe

Serial RS485
(MODBUS?)
TLAUX Interface
MPG Switch Control

220 AC - Output
Lube Motor
Coolant Motor
Mist Coolant Motor
Lights



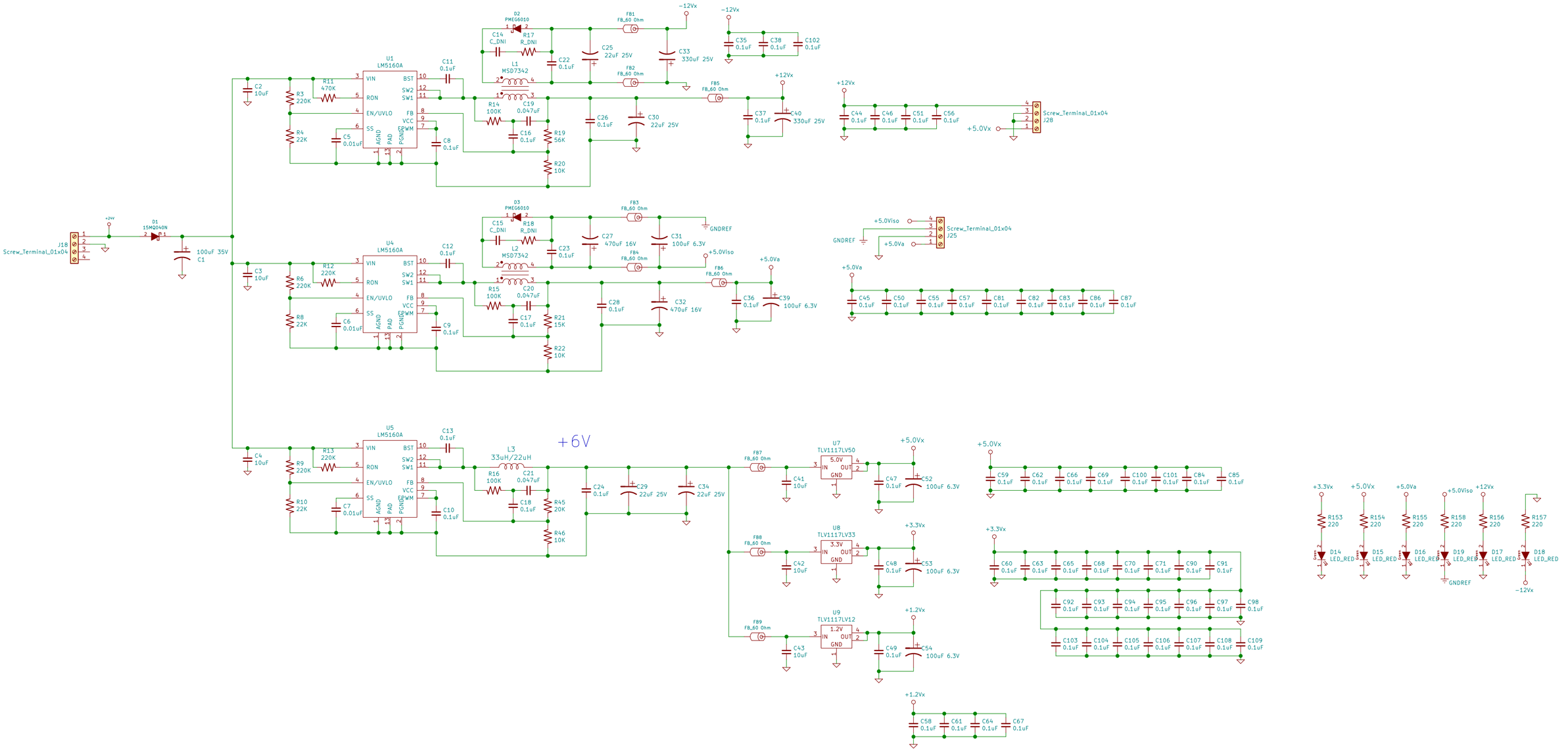
Sheet: /IO_Connectors/
File: IO_Connectors.sch

Title:

Size: C	Date:	**Rev:**
KiCad E.D.A. kicad (6.0.0-rc1-dev-1425-g4c184f07a)		Id: 3/6

Power Supply

All power nets are global so no hierarchical ports on this page

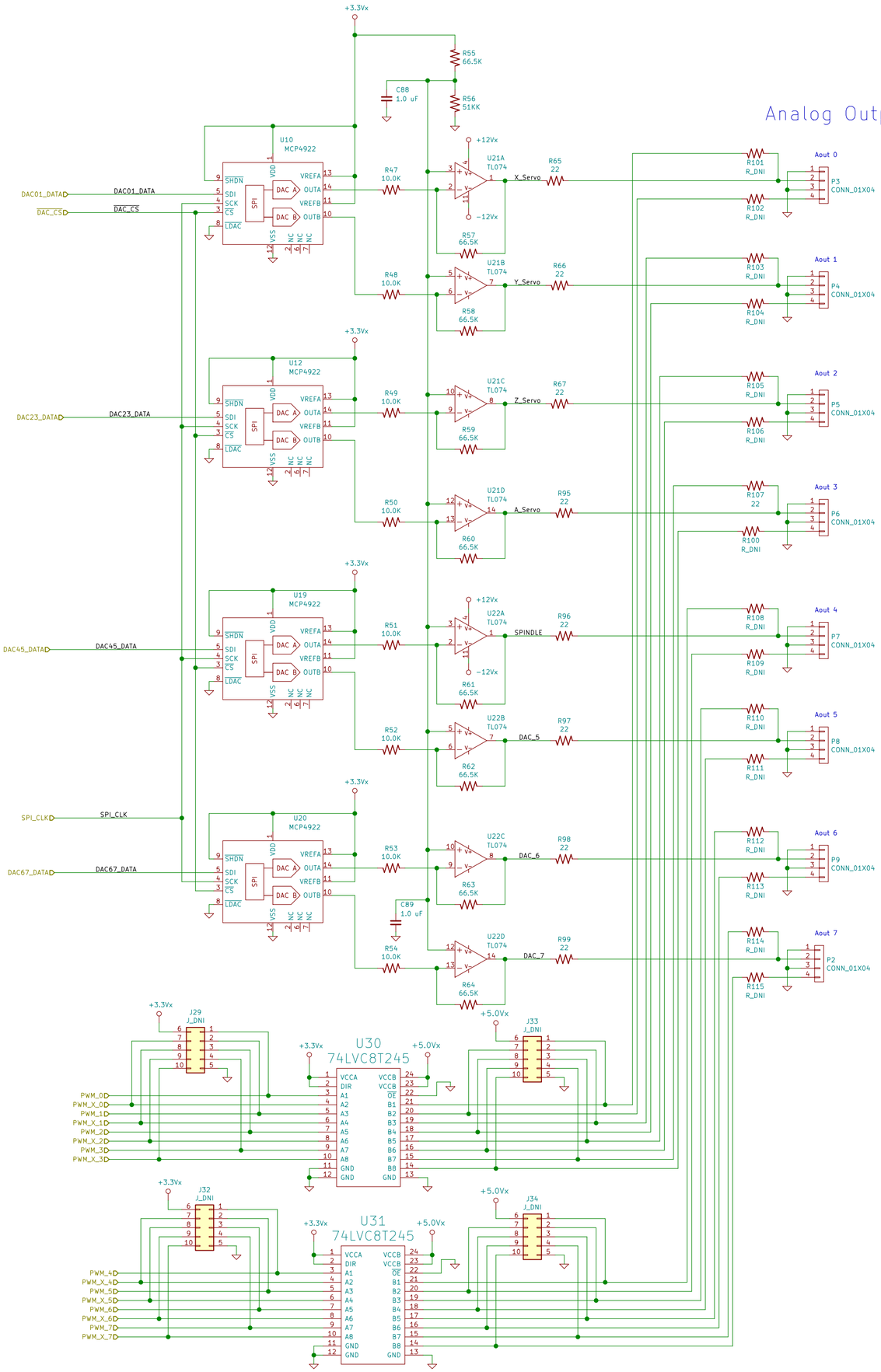


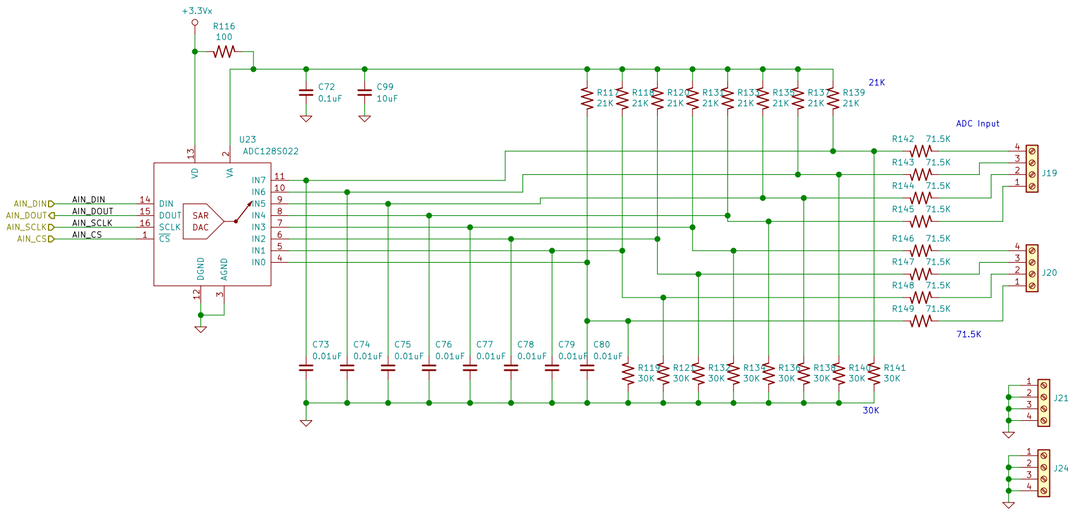
Sheet: /PS/
File: PowerSupply.sch

Title:

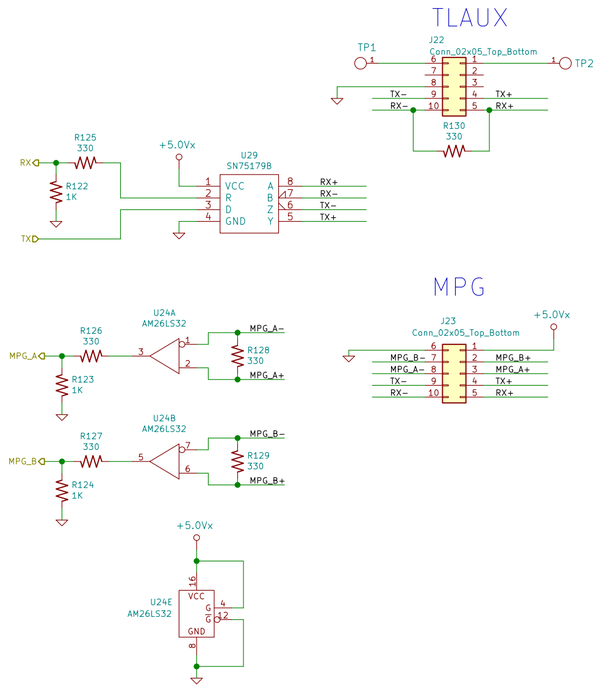
Size: C	Date:	Rev:
KiCad E.D.A. kicad (6.0.0-rc1-dev-1425-g4c184f07a)		Id: 4/6

Analog Outputs





Sheet: /Analog/		
File: Analog_IO.sch		
Title:		
Size: C	Date:	**Rev:**
KiCad E.D.A. kicad (6.0.0-rc1-dev-1425-g4c184f07a)		Id: 5/6



Sheet: /TLAUX_MPG/
File: TLAUX_MPG.sch

Title:

Size: C	Date:	**Rev:**
KiCad E.D.A. kicad (6.0.0-rc1-dev-1425-g4c184f07a)		Id: 6/6