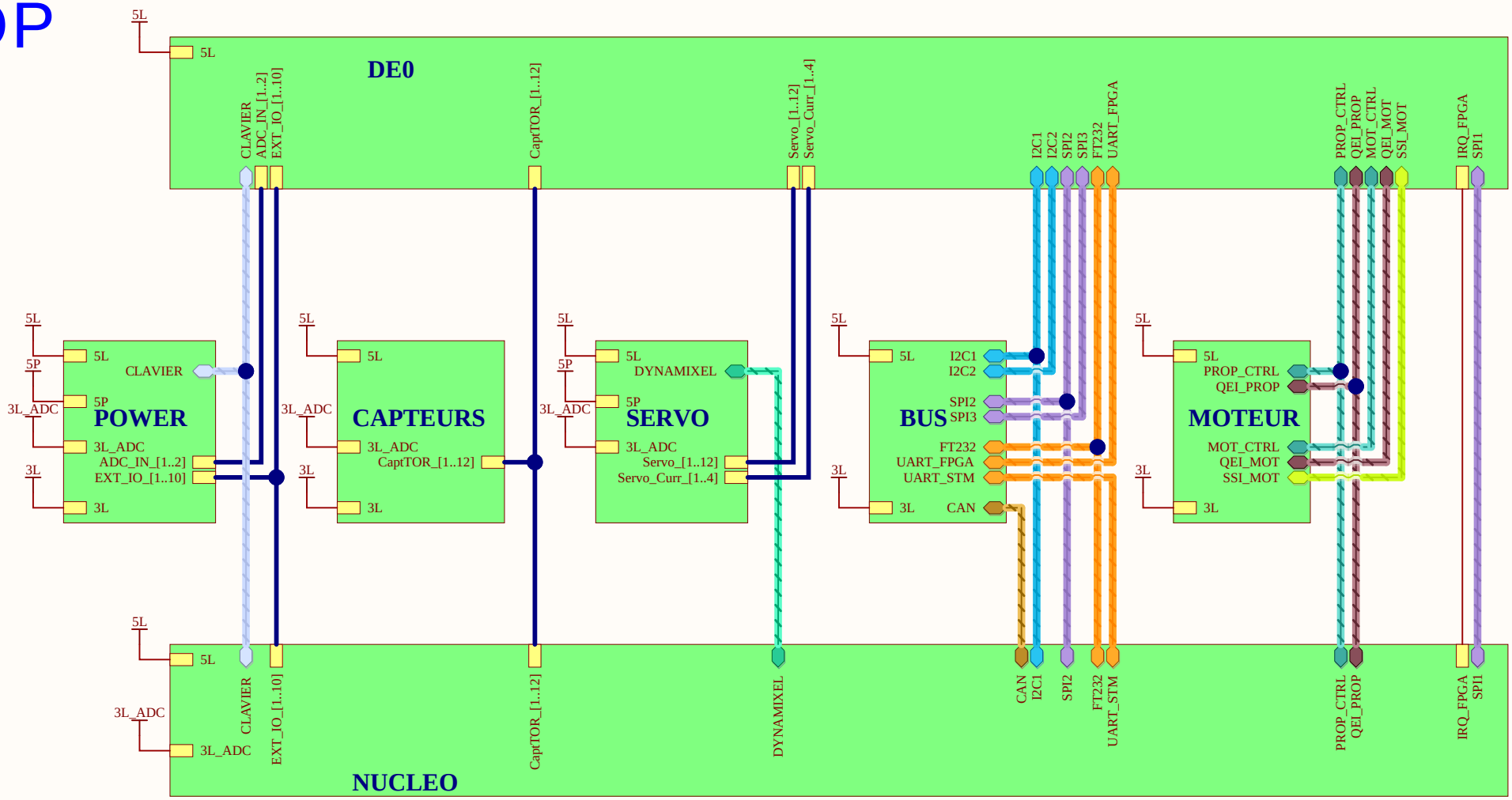
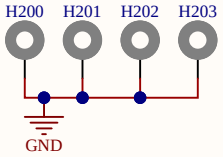
TOP



Mecanique

colonnete_soudé



Connecteur principal

Utiliser la ref TSW-136-25-F-T-RA

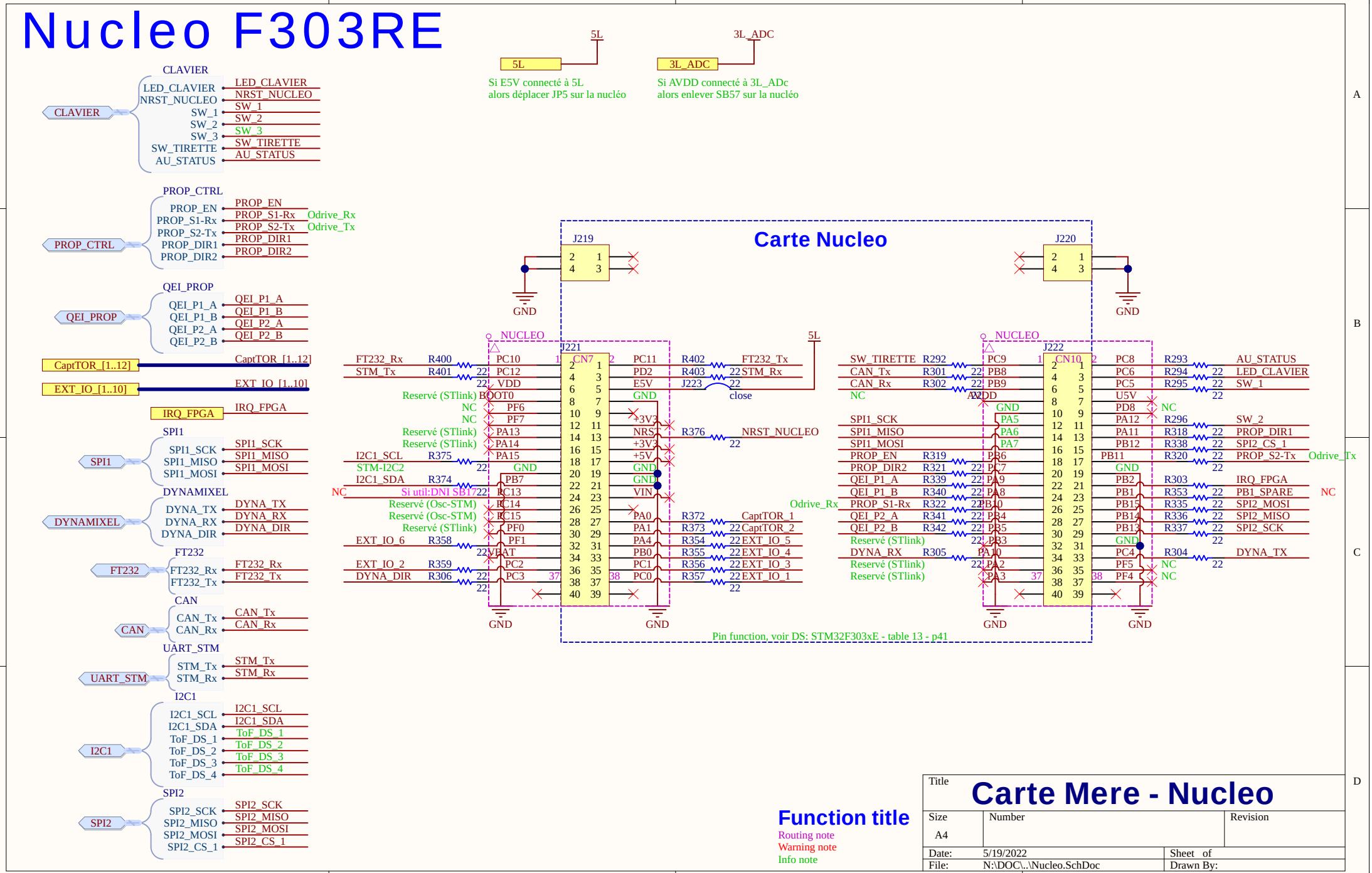
farnell 2053738

Function title

Routing note
Warning note
Info note

Title	Carte Mere - TOP	
Size A4	Number	Revision
Date: 5/19/2022		Sheet of
File: N:\DOC\..\TOP.SchDoc		Drawn By:

Nucleo F303RE



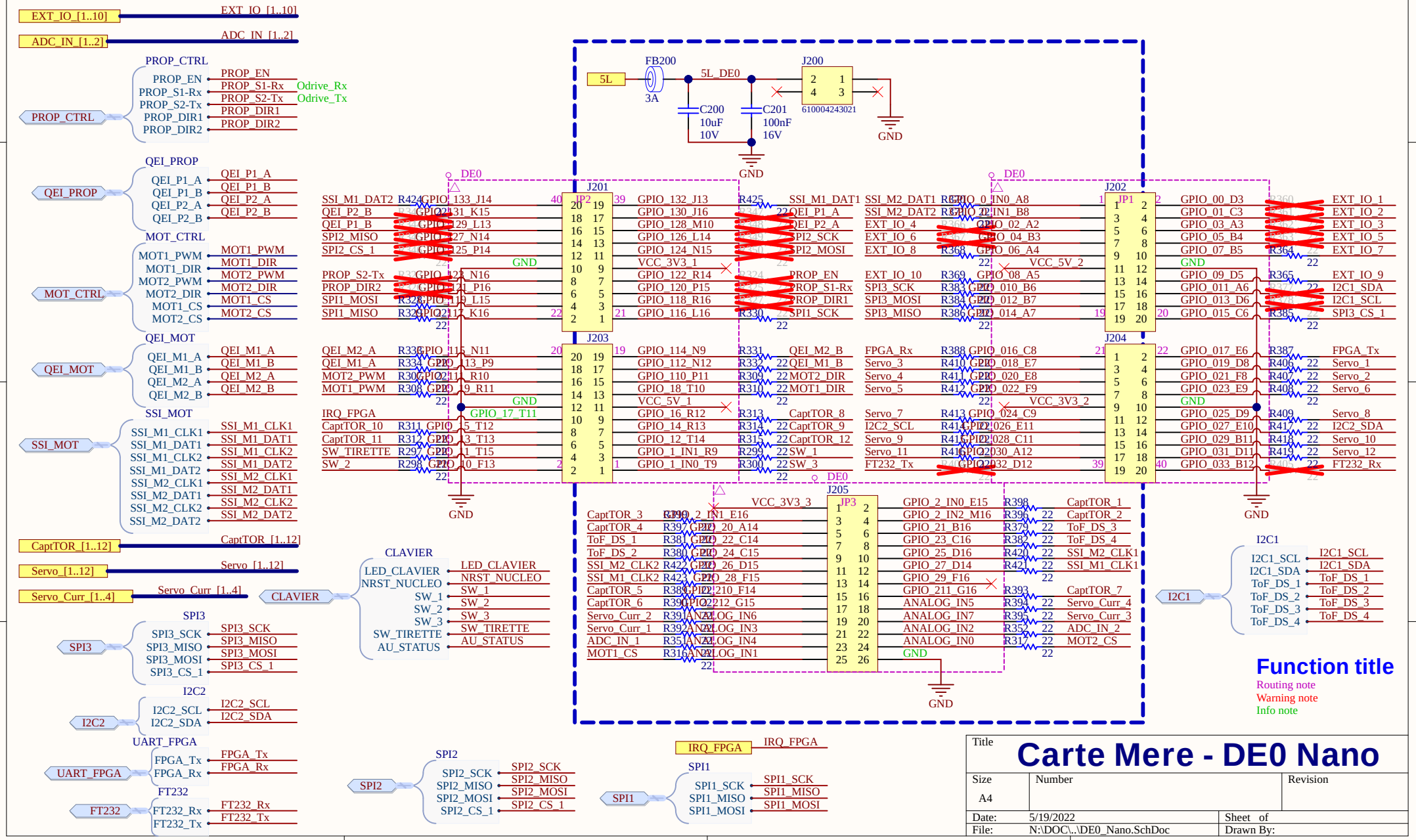
Function title

Routing note
Warning note
Info note

Title	**Carte Mere - Nucleo**	
Size A4	Number	Revision
Date: 5/19/2022		Sheet of
File: N:\DOC\..\Nucleo.SchDoc		Drawn By:

DE0 Nano (FPGA)

Conn. Femelle D_20p: 610020243021 x2
Conn. Male D_40p à souder à l'envers: 61304021121

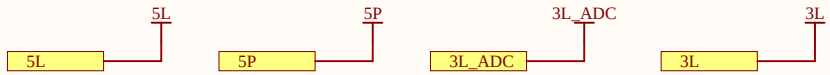


Function title

Routing note
Warning note
Info note

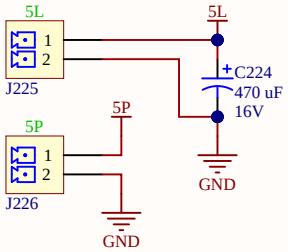
Title	Carte Mere - DE0 Nano	
Size A4	Number	Revision
Date: 5/19/2022		Sheet of
File: N:\DOC\..\DE0_Nano.SchDoc		Drawn By:

Power et Extension



ALIM_IN

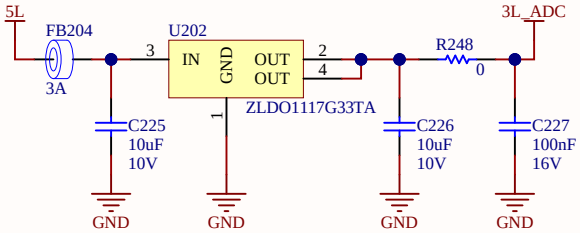
Entrée d'Alimentation



3L_ADC

3V3 ADC

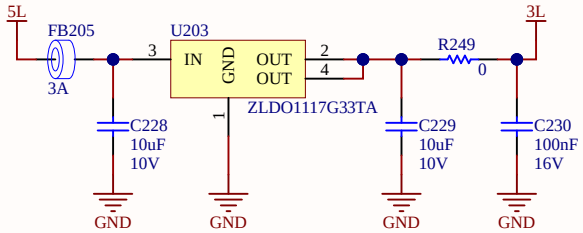
Génération de la tension pour les périphérique 3V3 pour l'ADC du FPGA



3L

3V3

Génération de la tension pour les périphérique 3V3 pour les IO de la carte

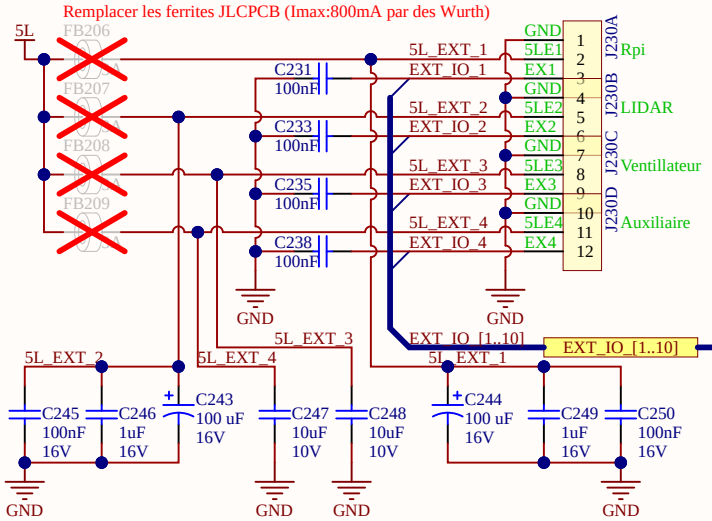


ALIM_OUT

Sortie d'Alimentation

Connecteur d'alimentation pour les principaux périphériques du robot

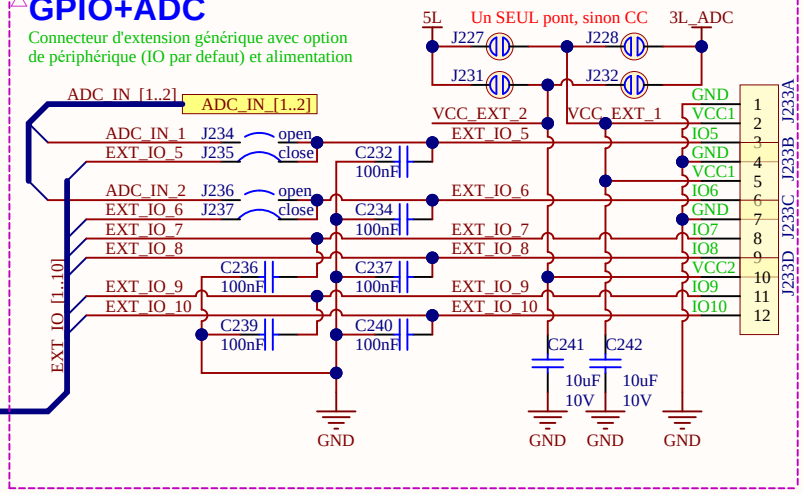
Remplacer les ferrites JLCPCB (Imax:800mA par des Wurth)



GPIO+ADC

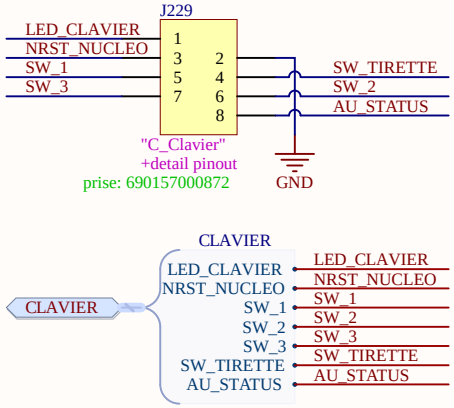
GPIO+ADC

Connecteur d'extension générique avec option de périphérique (IO par defaut) et alimentation



CLAVIER

Conn. Clavier



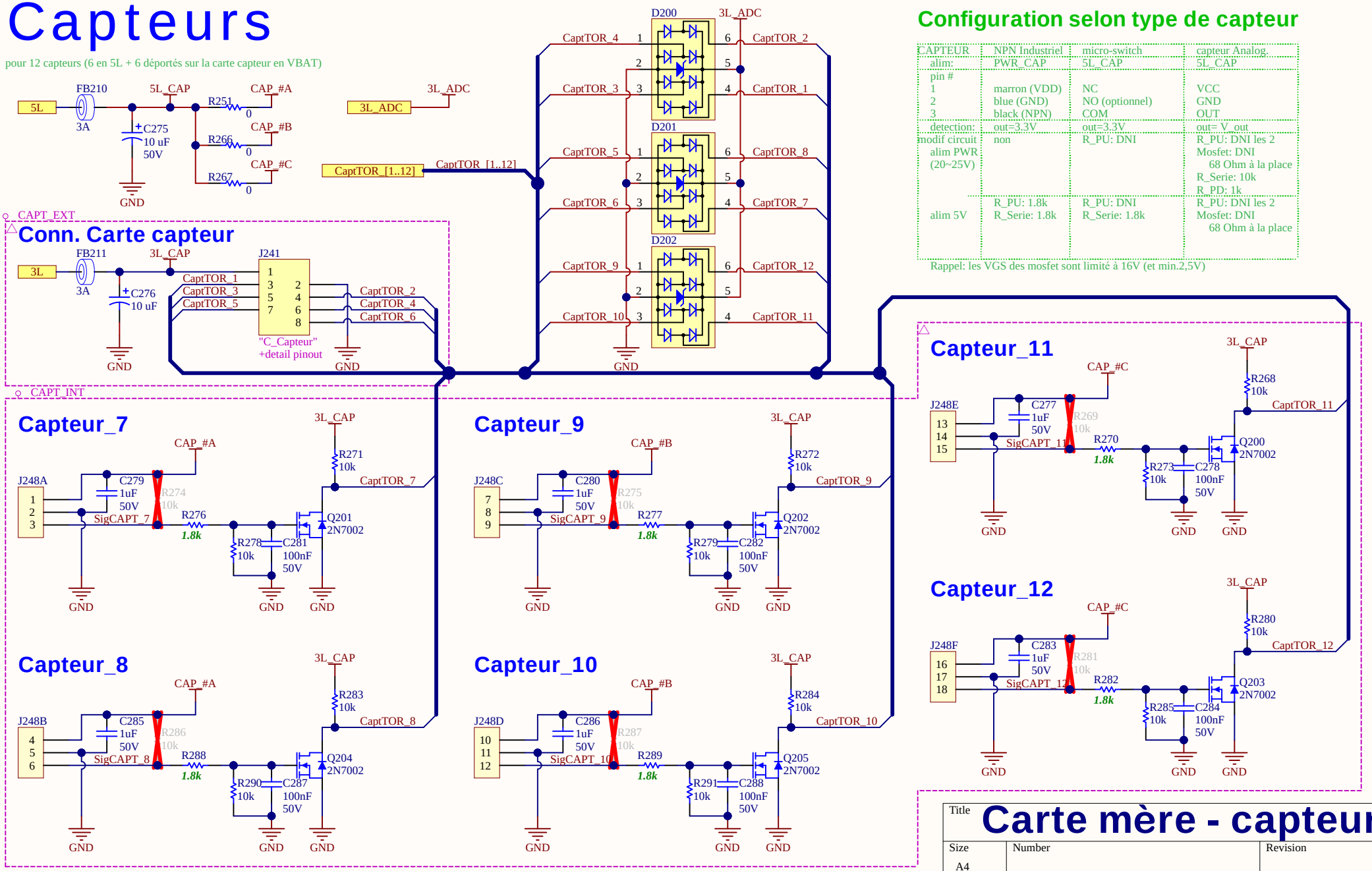
Function title

Routing note
Warning note
Info note

Title	Carte Mere - Power	
Size A4	Number	Revision
Date: 5/19/2022		Sheet of
File: N:\DOC\..\Power.SchDoc		Drawn By:

Capteurs

pour 12 capteurs (6 en 5L + 6 déportés sur la carte capteur en VBAT)



Configuration selon type de capteur

CAPTEUR	NPN Industriel	micro-switch	capteur Analog.
alim:	PWR_CAP	5L_CAP	5L_CAP
pin # 1 2 3	 marron (VDD) blue (GND) black (NPN)	 NC NO (optionnel) COM	 VCC GND OUT
detection:	out=3.3V	out=3.3V	out= V_out
modif circuit alim PWR (20~25V)	non	R_PU: DNI	R_PU: DNI les 2 Mosfet: DNI 68 Ohm à la place R_Serie: 10k R_PD: 1k
alim 5V	R_PU: 1.8k R_Serie: 1.8k	R_PU: DNI R_Serie: 1.8k	R_PU: DNI les 2 Mosfet: DNI 68 Ohm à la place

Rappel: les VGS des mosfet sont limité à 16V (et min.2,5V)

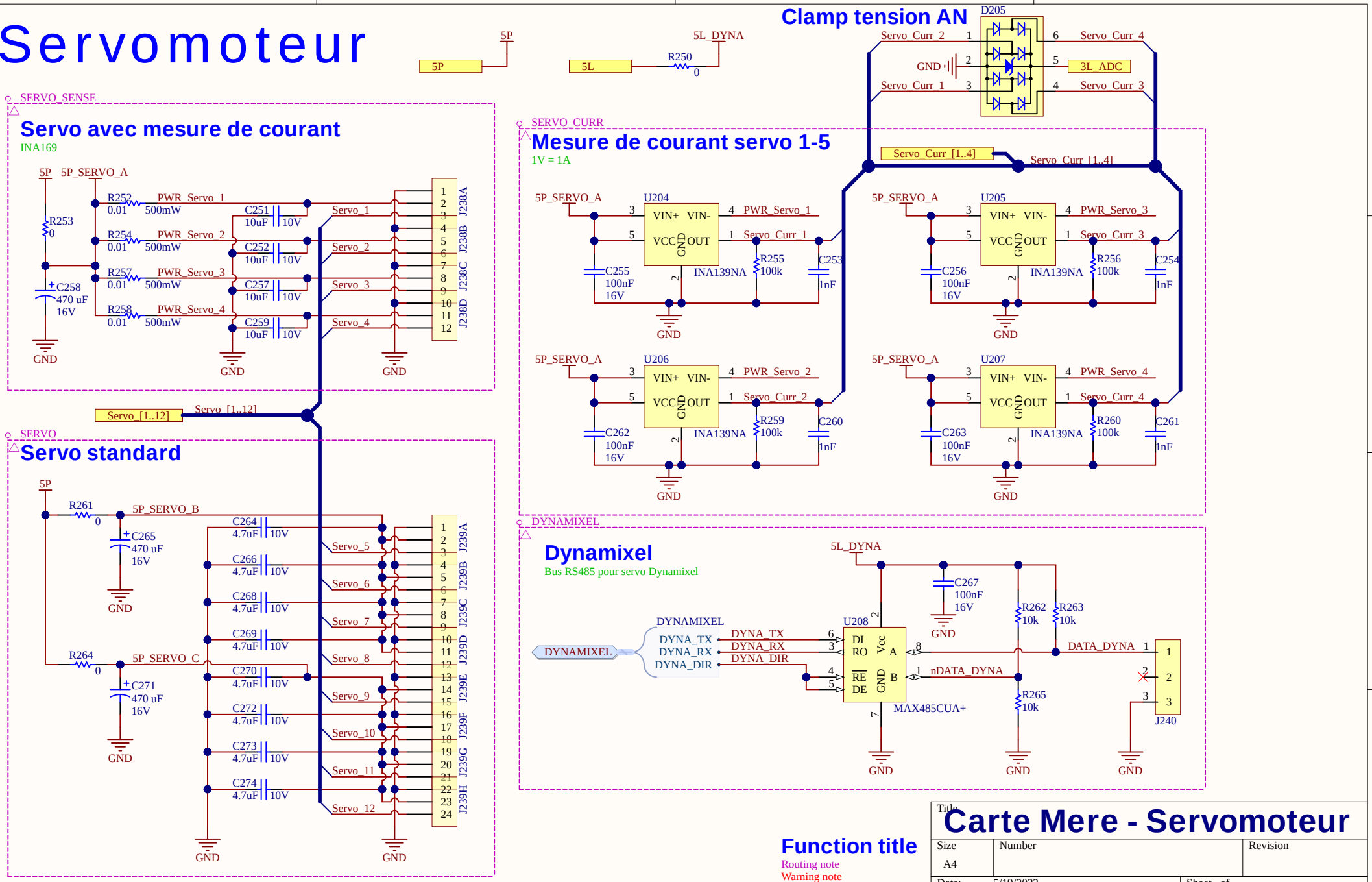
Placer les 2 connecteurs d'un même groupe cote à cote (2.54mm d'interval) +detail pinout

Function title

Routing note Warning note Info note

Title	**Carte mère - capteur**	
Size A4	Number	Revision
Date: 5/19/2022		Sheet of
File: N:\DOC\..\Capteur.SchDoc		Drawn By:

Servomoteur



BUS d'Interfaces

Interface supplémentaire

EXT_BUS

La selection de l'interface SPI ou I²C se fait avec les résistances de 0 ohm et celles de 22 ohm au niveau des assignations

2 UARTs + 1 I²C ou 1 SPI

Vérifier que le périphérique est compatible avec I²C 3,3V

Par defaut, Alim: 3L
Un SEUL pont, sinon CC

SPI3: SPI3_SCK, SPI3_MISO, SPI3_MOSI, SPI3_CS_1

I2C2: I2C2_SCL, I2C2_SDA

R201 4.7k, R202 4.7k, C205 1uF 10V, J249, J250

J206A, J206B, J206C, J206D

UART_FPGA: FPGA_Tx, FPGA_Rx

UART_STM: STM_Tx, STM_Rx

SPI Gyro

GYRO

Interface pour capteur ADXRS453Z-V

SPI2: SPI2_SCK, SPI2_MISO, SPI2_MOSI, SPI2_CS_1

Par defaut, Alim: 5L
Un SEUL pont, sinon CC

J251, J252, J208, C207 10uF 10V, C208 100nF 16V

USB Serial

USB

Interface Serie via Mini-USB pour communication temps

FT232: FT232_Rx, FT232_Tx

U200 FT232RL

VUSB, 3L, R200 0, 3L_FT232, C202 10uF 10V, C203 100nF 16V, C204 100nF 16V

VCCIO, VCC, USBDM, USBDP, RESET, OSCI, OSCO, 3V3OUT, TXD, RXD, RTS, CTS, DTR, DSR, DCD, RI, CBUS0, CBUS1, CBUS2, CBUS3, CBUS4, AGND, GND, GND, GND, TEST

J207 6510051612 1

VBUS, D-, D+, ID, GND

USB_N, USB_P

S4, S3, S2, S1

3V3_FT232, C206 100nF 16V

R203 1k, R204 1k, D203 "Tx", D204 "Rx"

CAN

CAN

U201 MCP2551-I/SN

TXD, RXD, VREF, VDD, VSS, CANH, CANL, RS

CAN_Tx, CAN_Rx

C209 10uF 10V, C210 100nF 16V, R207 68, R210 68, C213 1nF, J210

I2C

CAPT_TOF

Interface pour capteur VL53L0X
1 I²C + 4 GPIO de selection de device
DS_x = signal XSHUT des VL53L0x

Par defaut, Alim: 3L
Un SEUL pont, sinon CC

Vérifier que le périphérique est compatible avec I²C 3,3V

J254, J255, J209

I2C1: I2C1_SCL, I2C1_SDA, ToF_DS_1, ToF_DS_2, ToF_DS_3, ToF_DS_4

R208 4.7k, R209 4.7k, C211 10uF 10V, C212 100nF 16V

Function title

Routing note
Warning note
Info note

Title: Carte Mere - Interface BUS		
Size: A4	Number	Revision
Date: 5/19/2022		Sheet of
File: N:\DOC\..\Interface_BUS.SchDoc		Drawn By:

Motorisation

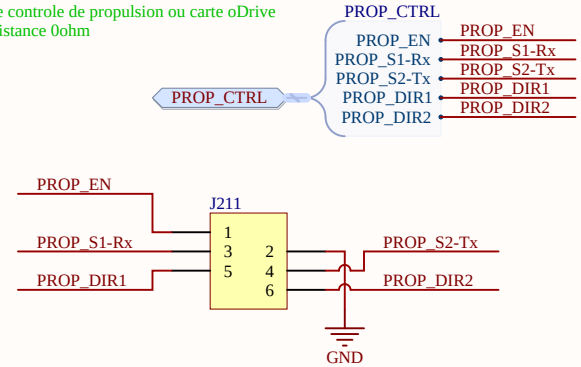
Function title

Routing note
Warning note
Info note

MOT_PROP

Controle moteur propulsion

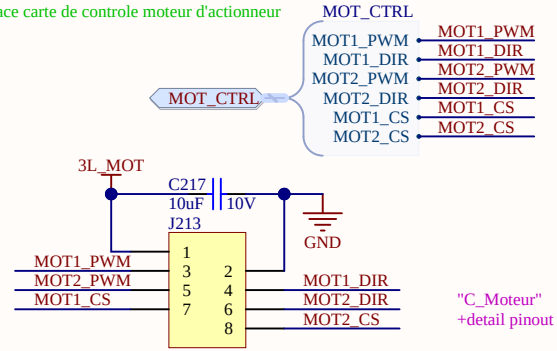
Interface carte de controle de propulsion ou carte oDrive
Selection par résistance 0ohm



MOT_ACT

Controle moteur actionneur

Interface carte de controle moteur d'actionneur

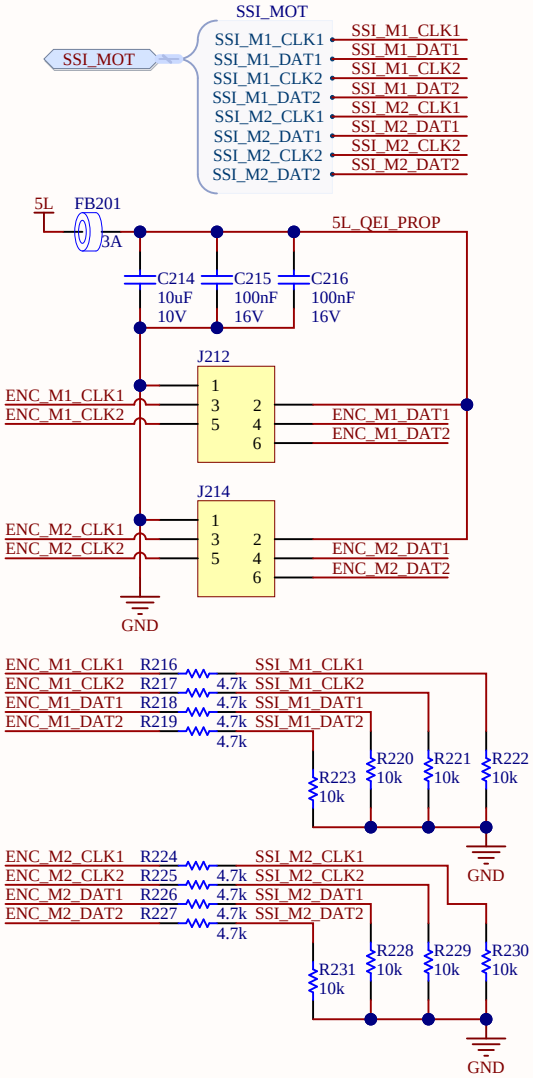


"C_Moteur"
+detail pinout

ENC_SSI

Encodeur SSI actionneur

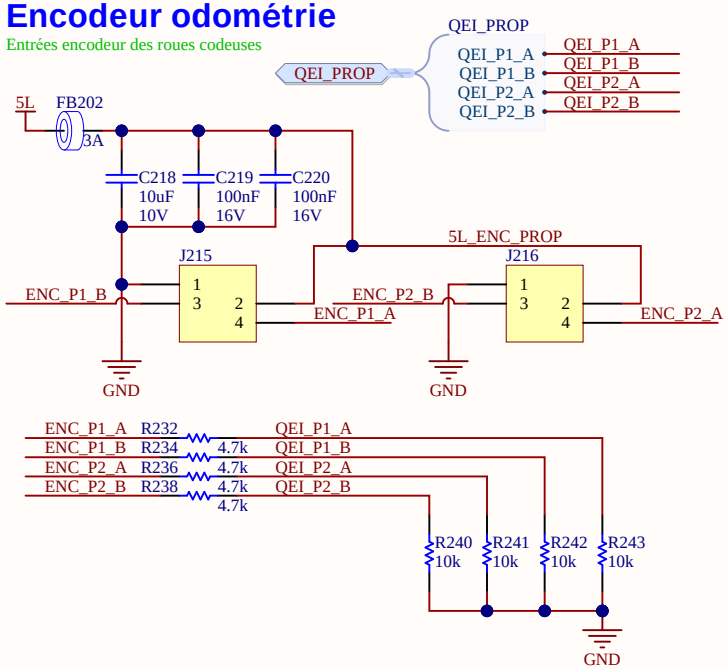
Synchronous Serial Interface pour encodeur Posic AP3403L



ENC_ODO

Encodeur odométrie

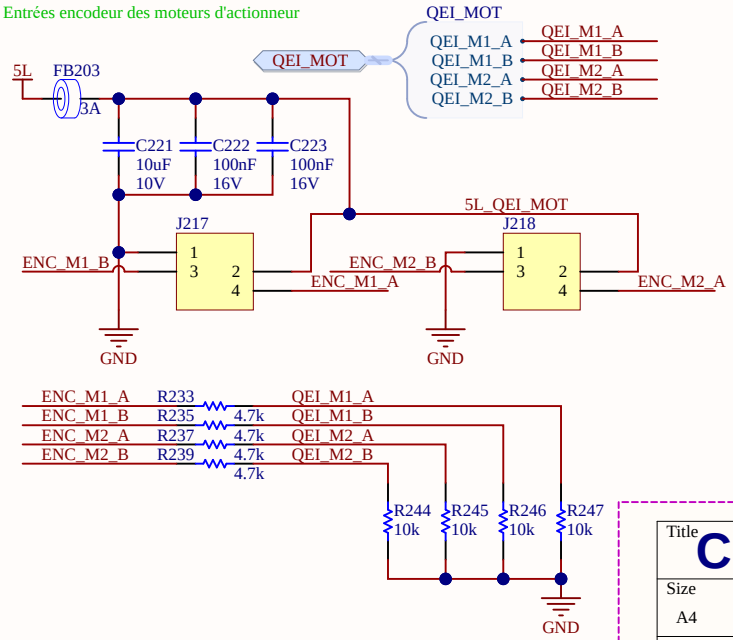
Entrées encodeur des roues codeuses



ENC_ACT

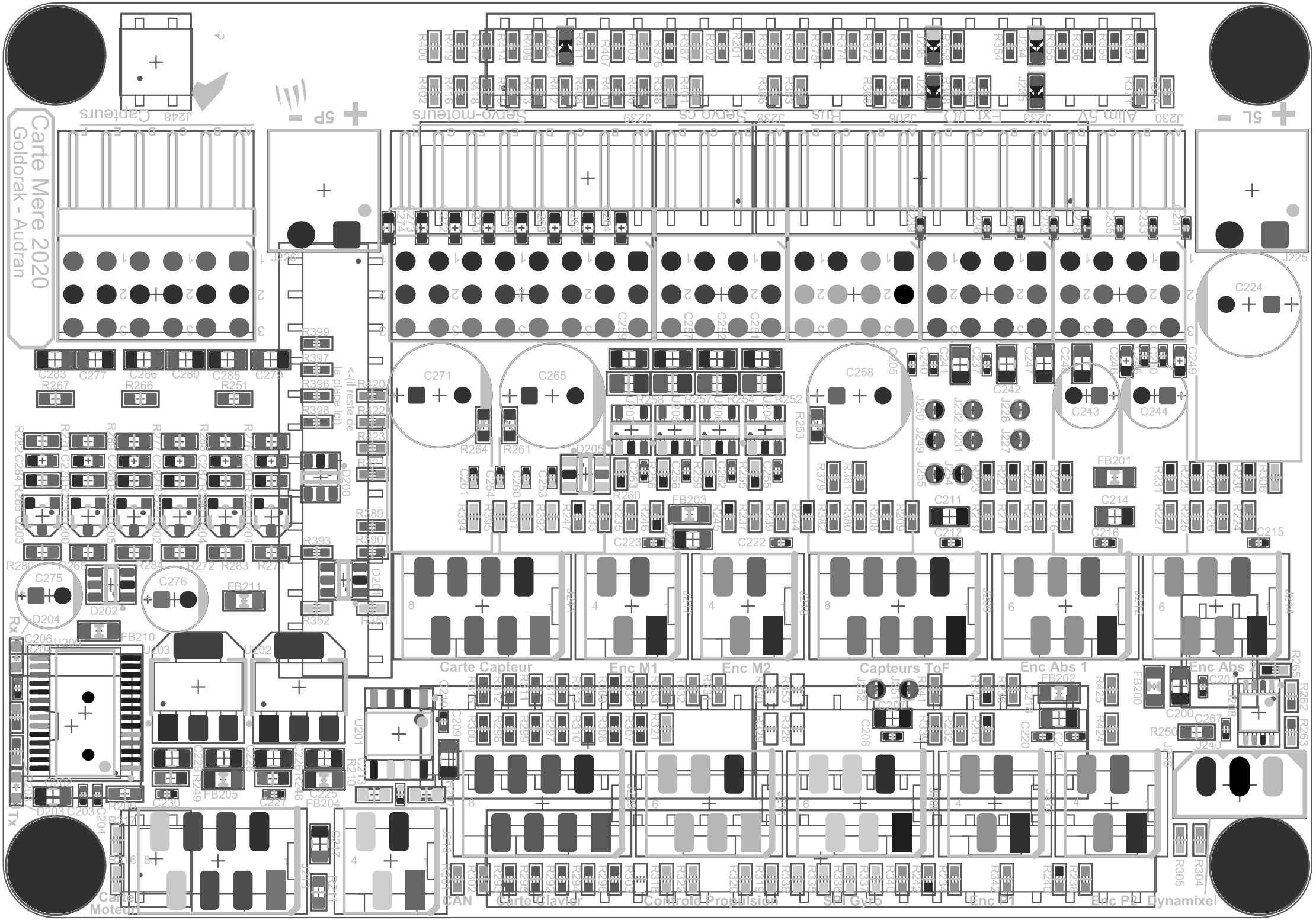
Encodeur moteur actionneur

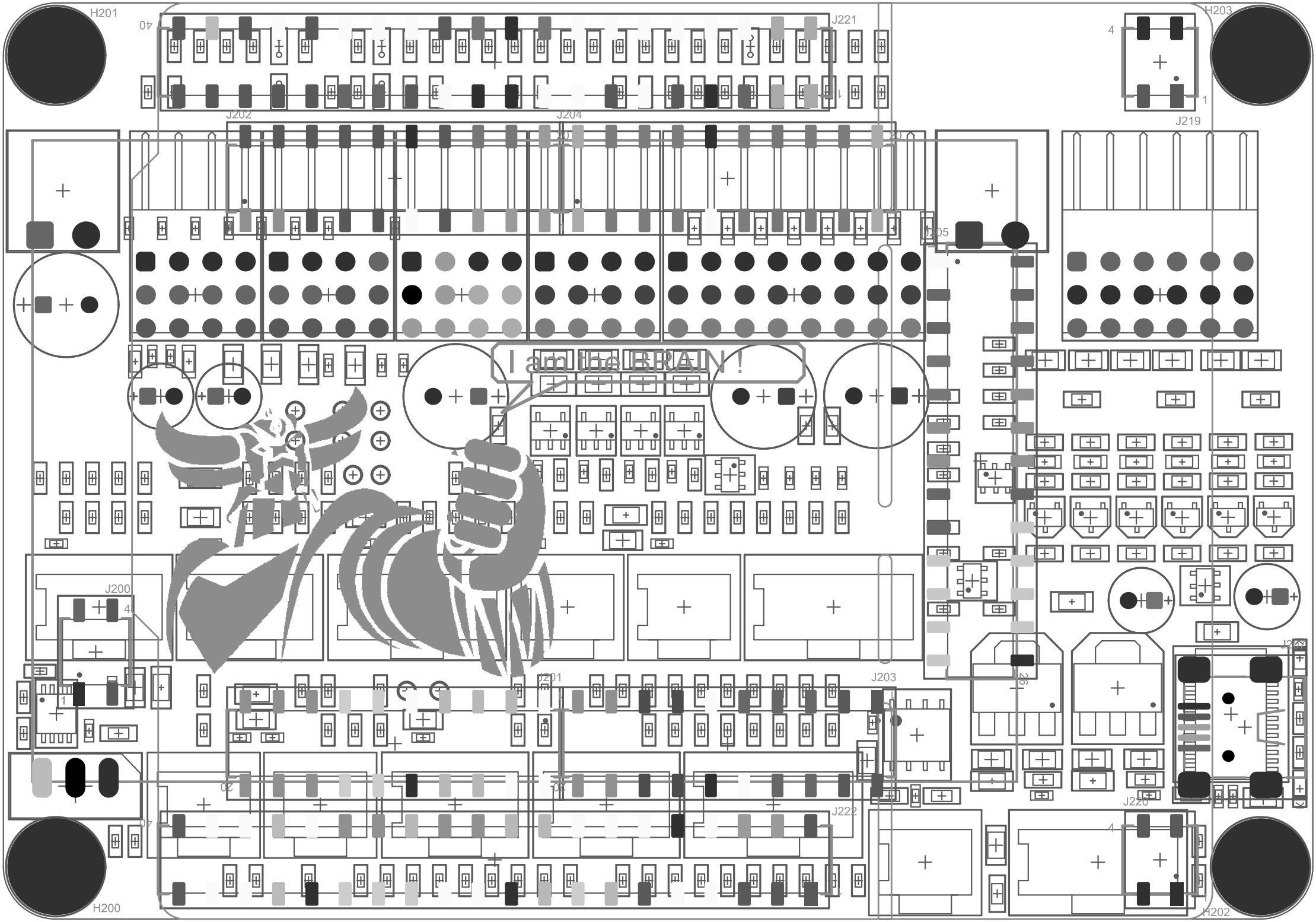
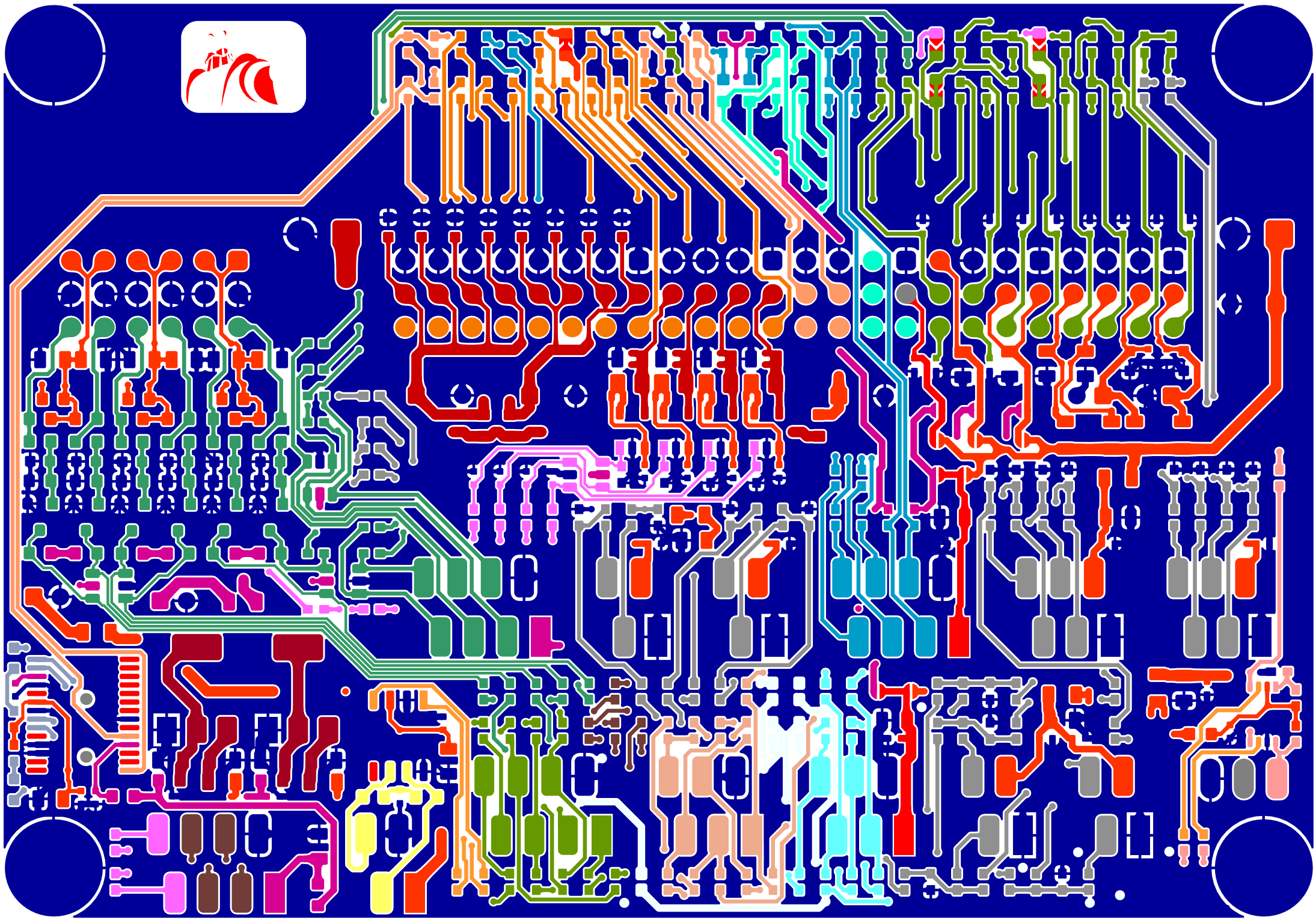
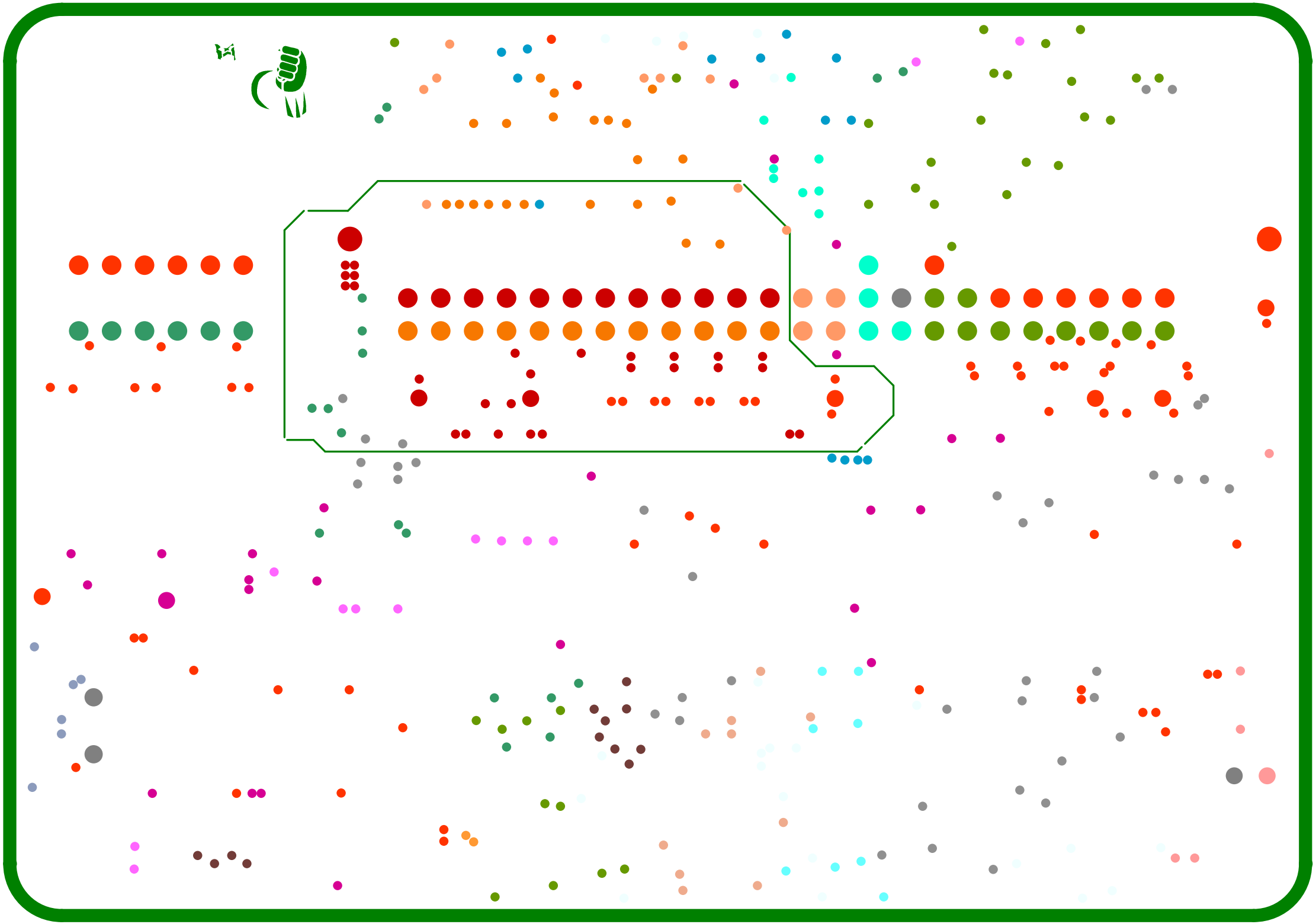
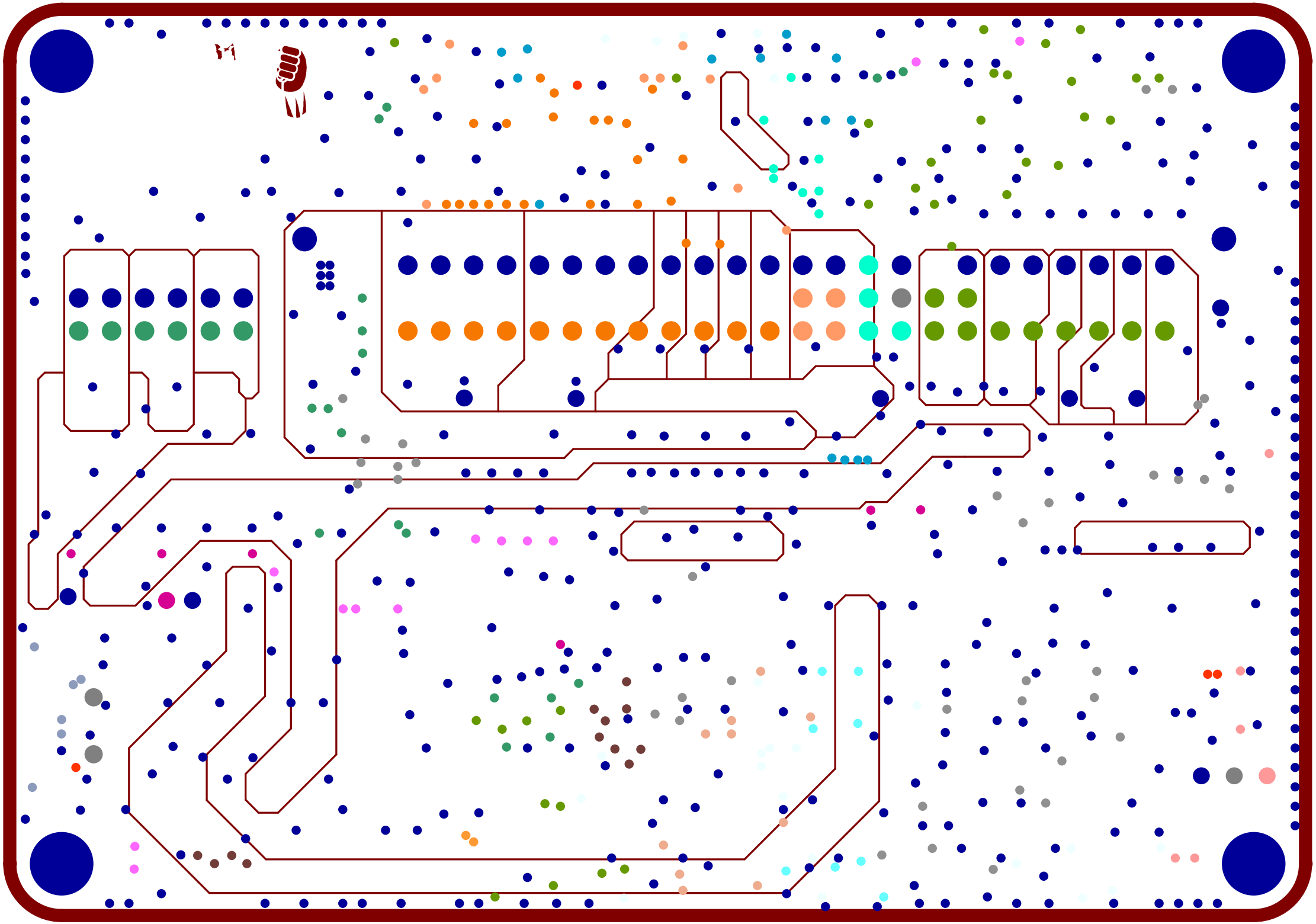
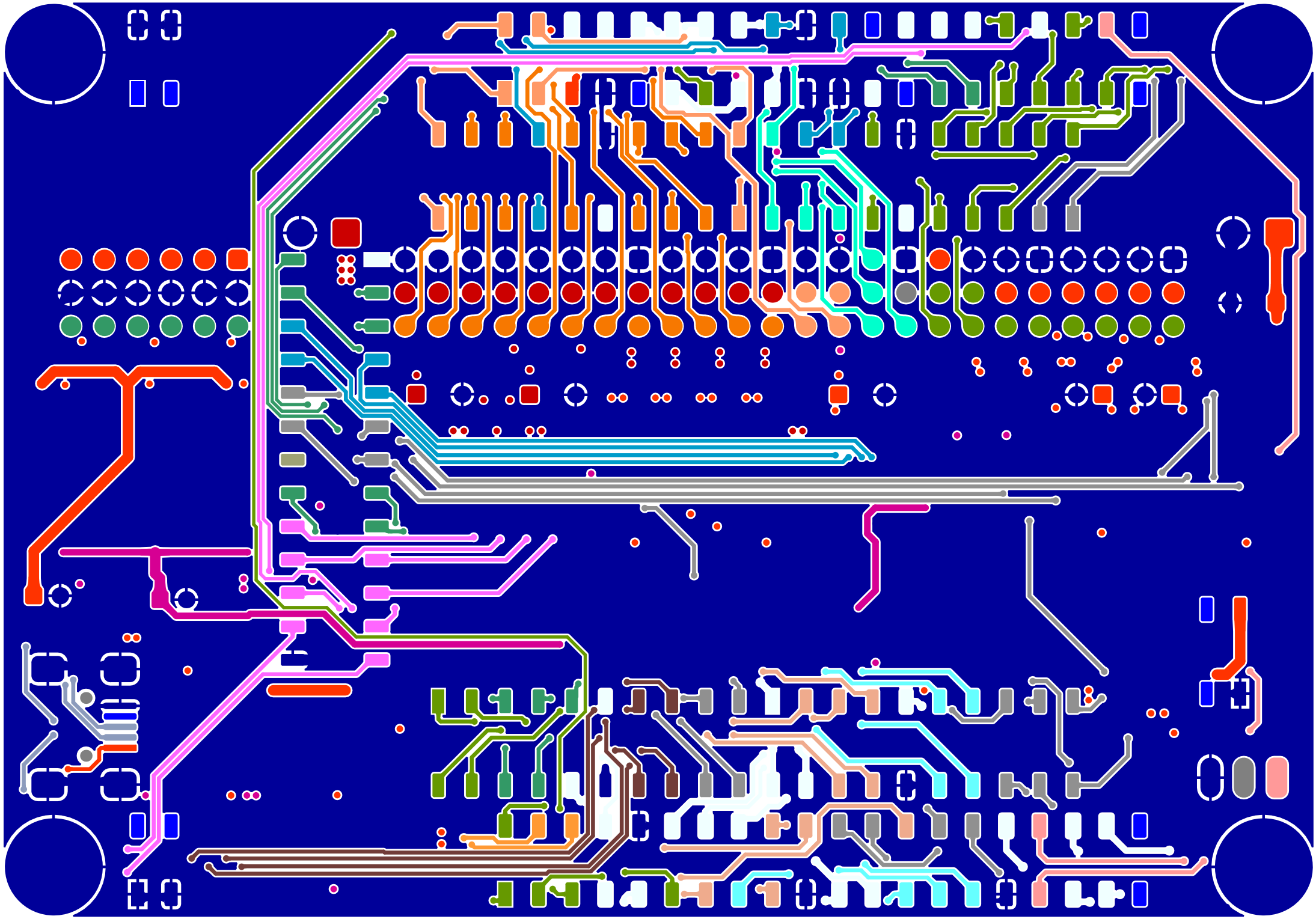
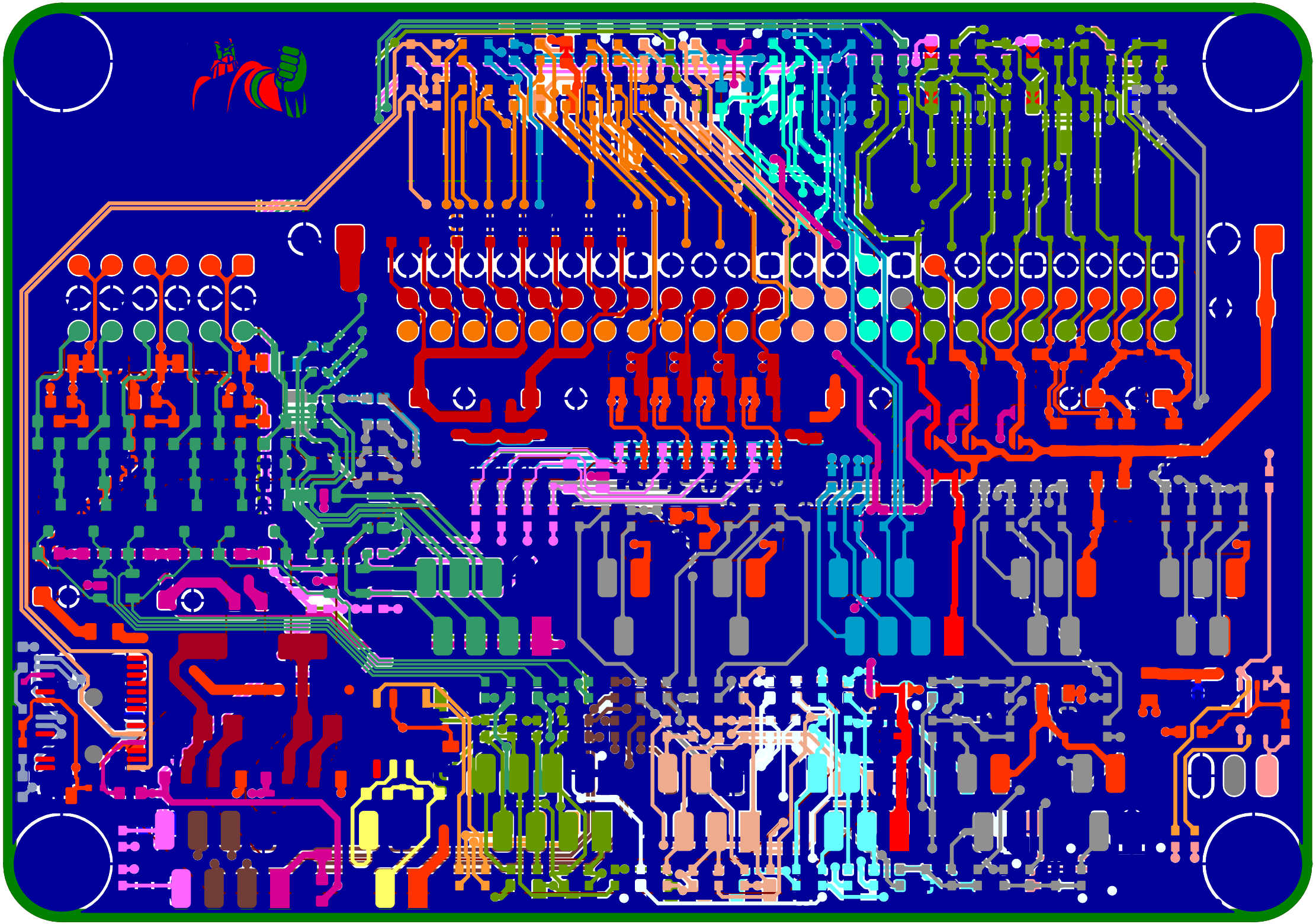
Entrées encodeur des moteurs d'actionneur



Title	**Carte Mere - Motorisation**		
Size A4	Number		Revision
Date:	5/19/2022	Sheet of	
File:	N:\DOC\..\Motorisation.SchDoc	Drawn By:	

Carte Mère 2020
Goldorak - Audran
Capteurs
Servo-moteurs
Servo CS
Bus
Ext. I/O
Alim 5V
5P
5L
Carte Moteur
CAN
Carte Clavier
Controle Propulsion
SPI Gyro
Enc P1
Enc P2
Dynamixel
FT232RL


Carte Mere 2020
Goldorak - Audran
Capteurs
5P
Servo-moteurs
Servo CS
Bus
Ext I/O
Alim 5V
5L
Carte Capteur
Enc M1
Enc M2
Capteurs ToF
Enc Abs 1
Enc Abs 2
Rx
Tx
Carte Moteur
CAN
Carte Clavier
Controle Propulsion
SPI Gyro
Enc P1
Enc P2
Dynamixel


H201
J221
H203
J202
J204
J219
J205
I am the BRAIN !
J200
J201
J203
J222
J220
H200
H202