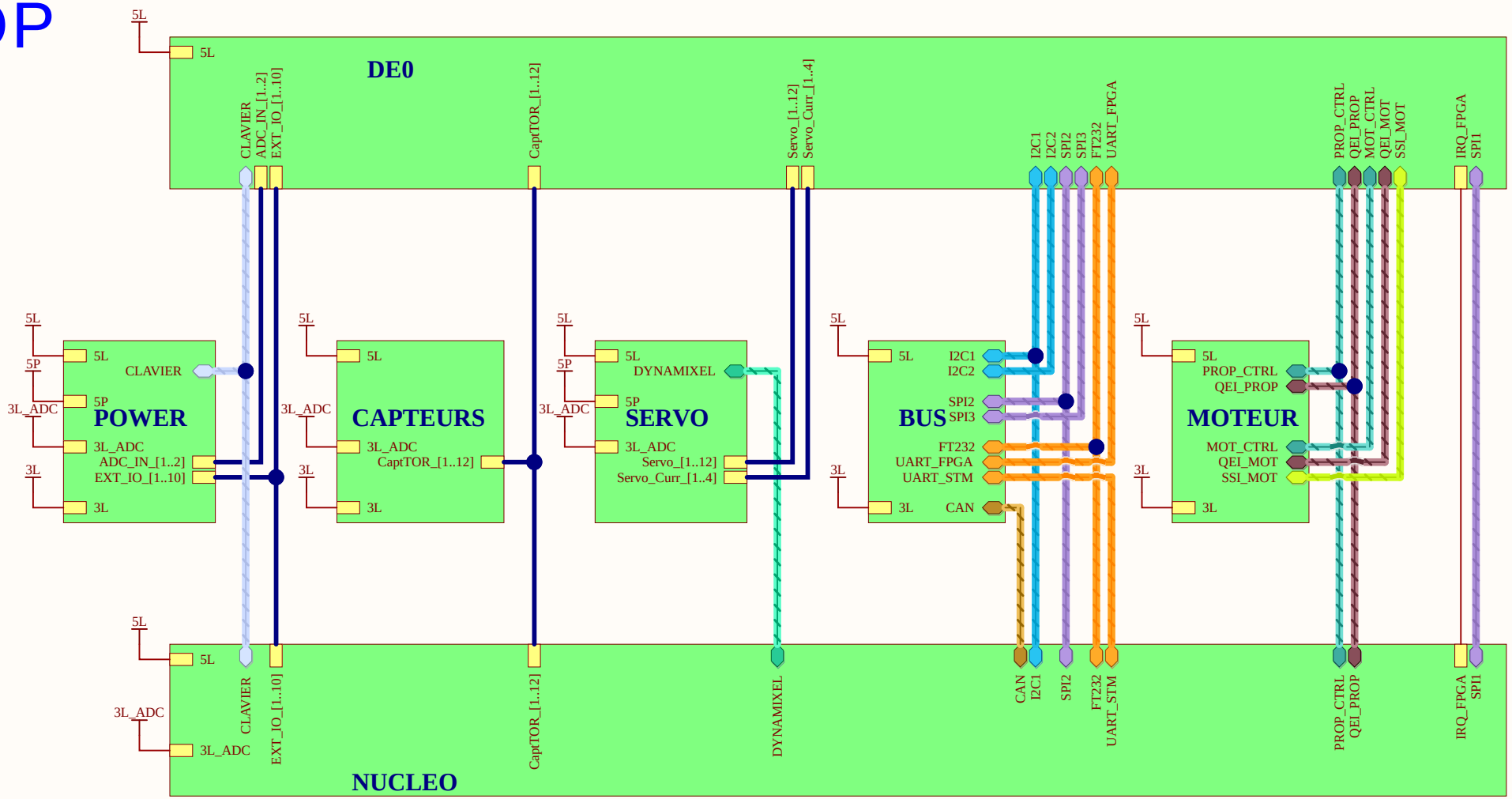
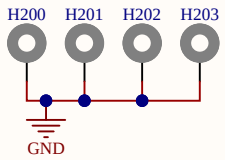
TOP



Mecanique

colonnete_soudé



Connecteur principal

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

farnell 2053738

Function title

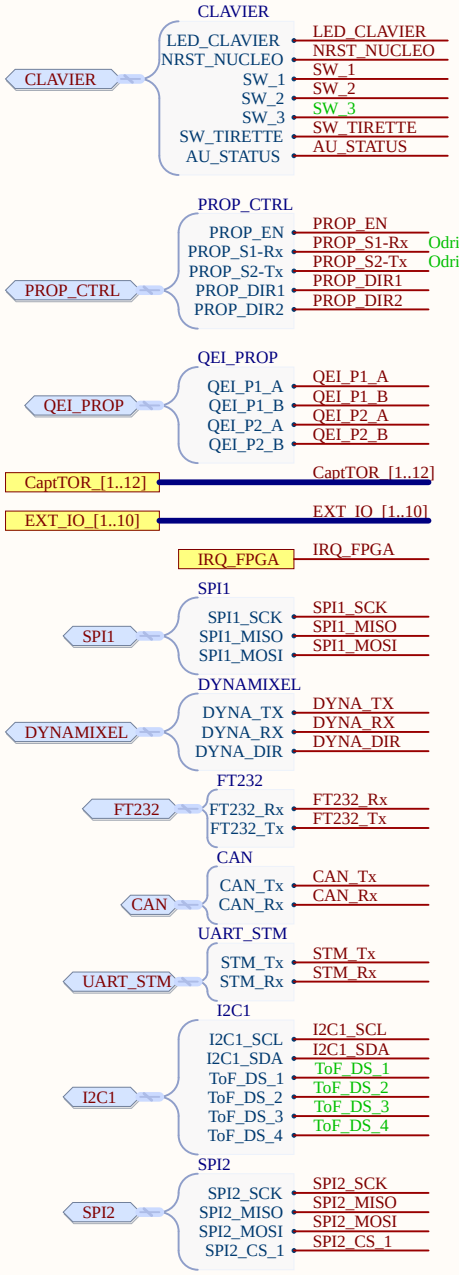
Routing note

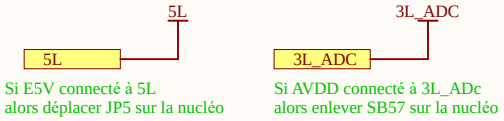
Warning note

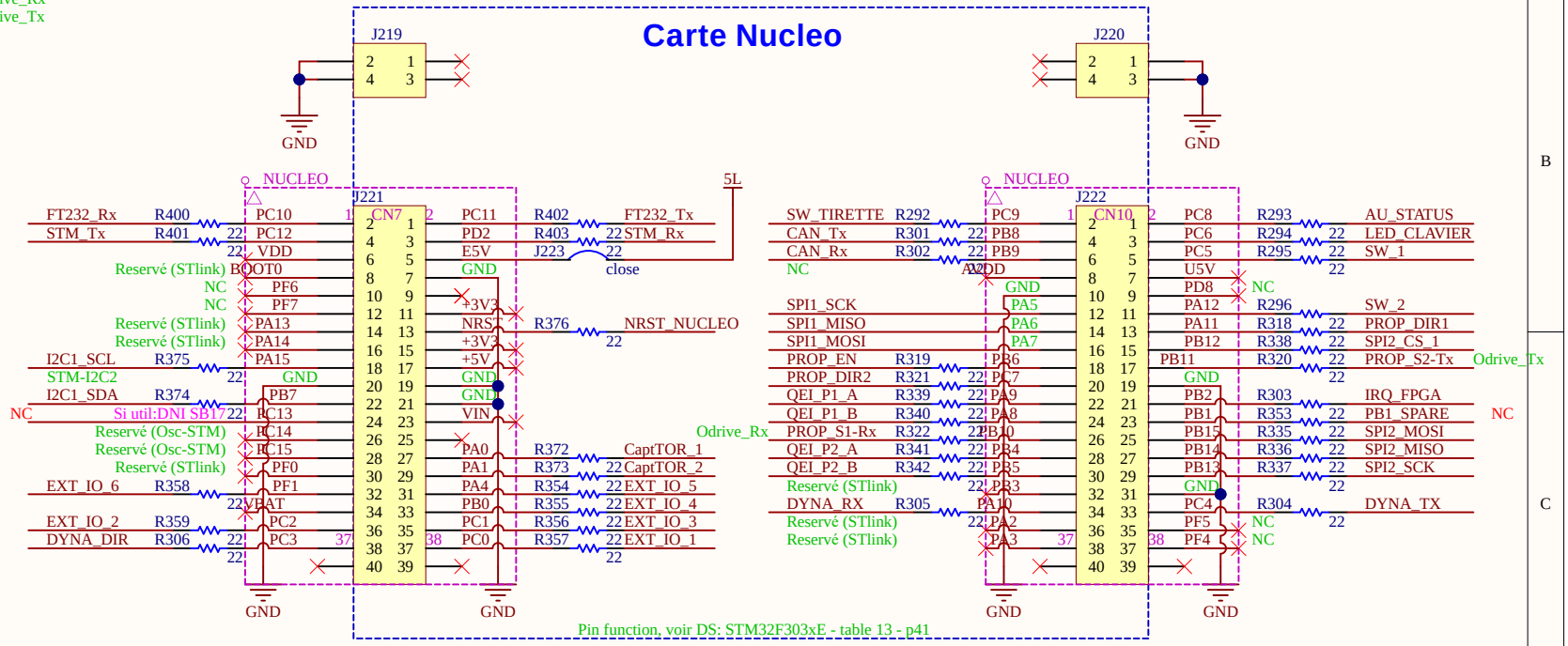
Info note

Title: **Carte Mere - TOP**		
Size: A4	Number:	Revision:
Date: 8/23/2020		Sheet of
File: N:\DOC\..\TOP.SchDoc		Drawn By:

Nucleo F303RE







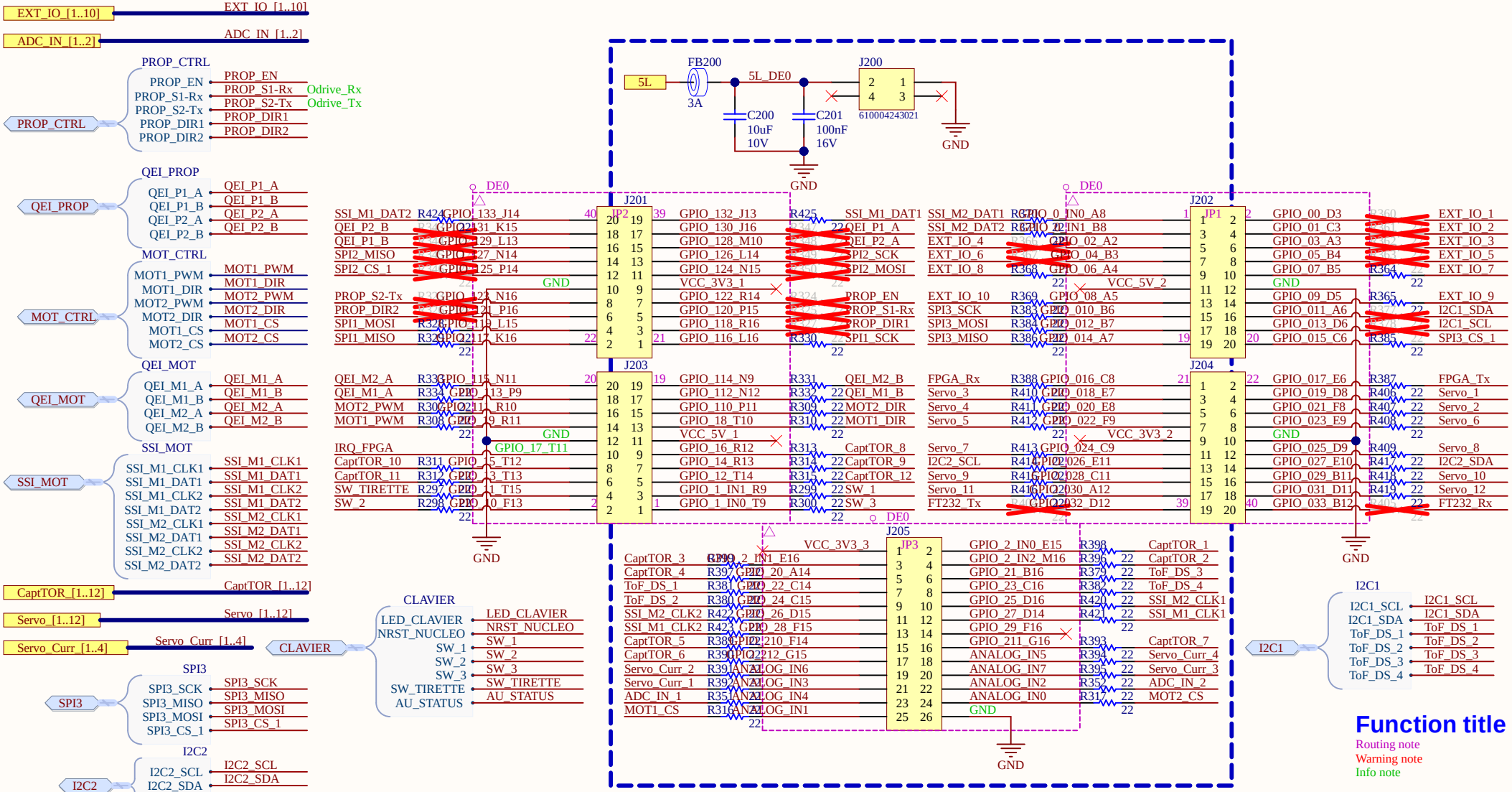
Function title

Routing note
Warning note
Info note

Title: **Carte Mere - Nucleo**		
Size: A4	Number:	Revision:
Date: 8/23/2020		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



Title	**Carte Mere - DE0 Nano**	
Size: A4	Number	Revision
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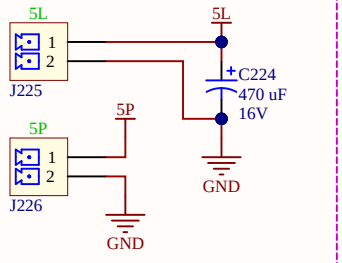
File: N:\DOC\..\DE0_Nano.SchDoc		Drawn By:

Power et Extension

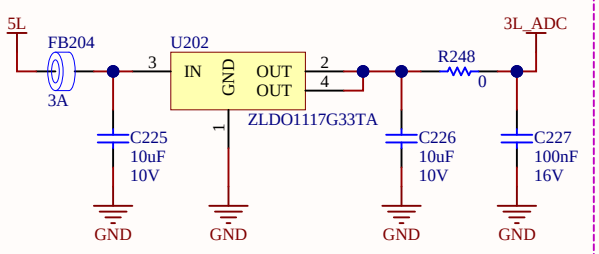
5L 5P 3L_ADC 3L

ALIM_IN — Entrée d'Alimentation



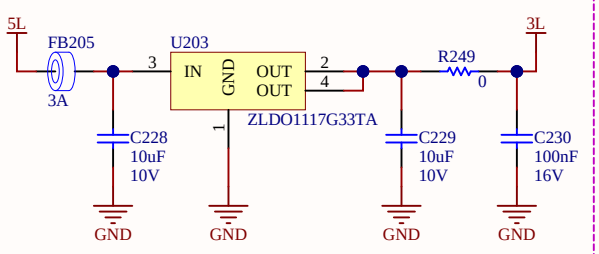
3L_ADC — 3V3 ADC

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



3L — 3V3

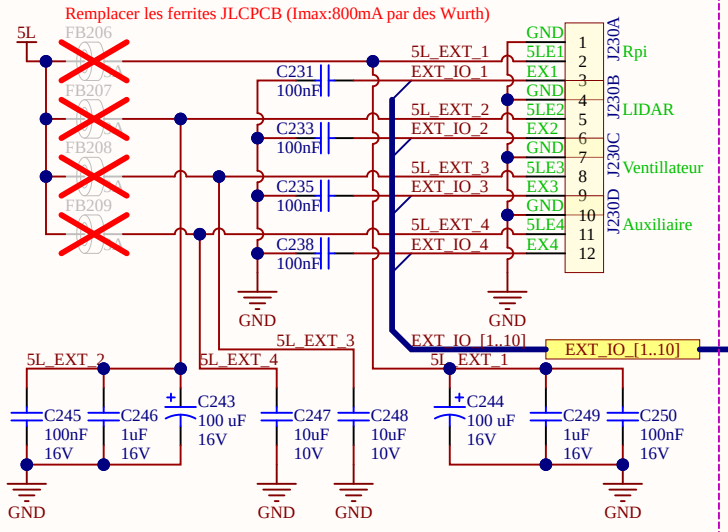
Génération de la tension pour les périphérique 3V3 pour les IO de la carte



ALIM_OUT — Sortie d'Alimentation

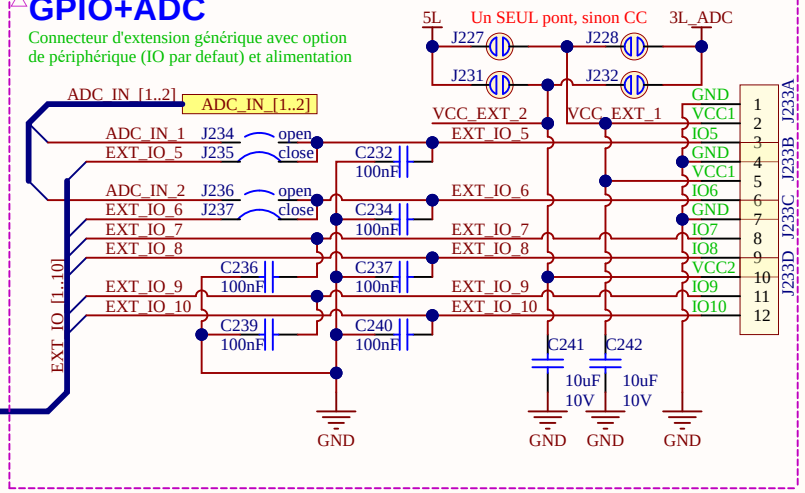
Connecteur d'alimentation pour les principaux périphériques du robot

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

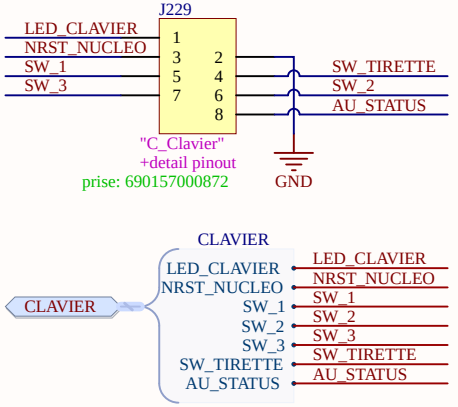


GPIO+ADC

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



CLAVIER — Conn. Clavier



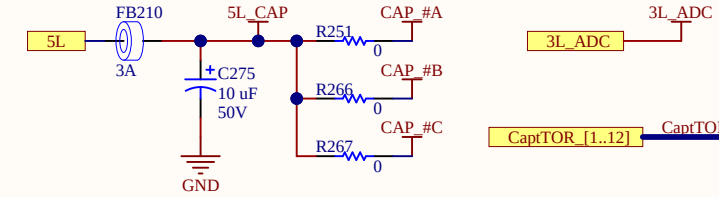
Function title

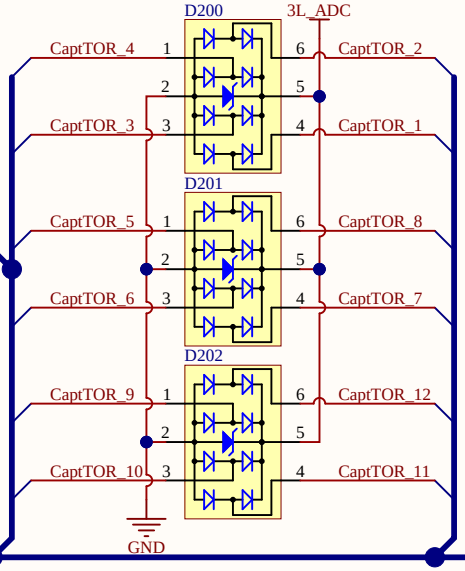
Routing note
Warning note
Info note

Title: **Carte Mere - Power**		
Size: A4	Number:	Revision:
Date: 8/23/2020		Sheet of
File: N:\DOC\..\Power.SchDoc		Drawn By:

Capteurs

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





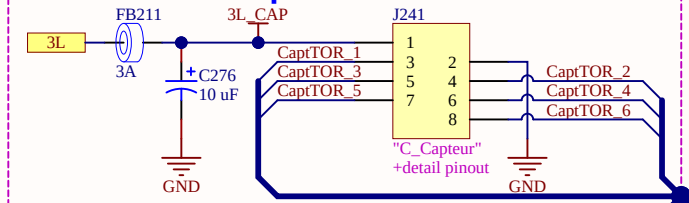
Configuration selon type de capteur

CAPTEUR	NPN Industriel	micro-switch	capteur Analog.
alim:	PWR_CAP	5L_CAP	5L_CAP
pin #			
1	marron (VDD)	NC	VCC
2	blue (GND)	NO (optionnel)	GND
3	black (NPN)	COM	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)

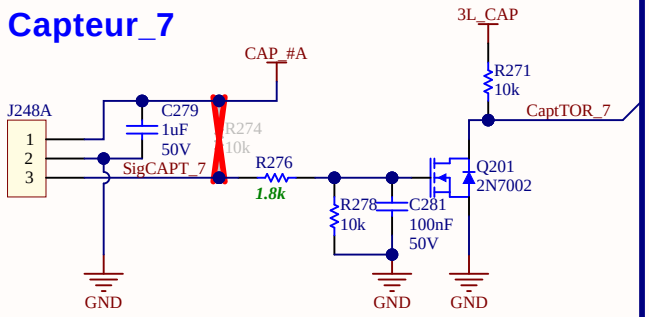
CAPT_EXT

Conn. Carte capteur

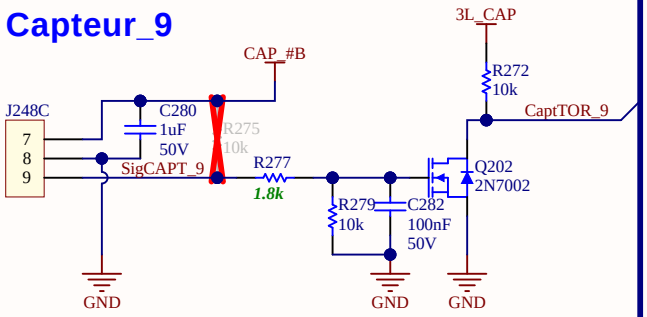


CAPT_INT

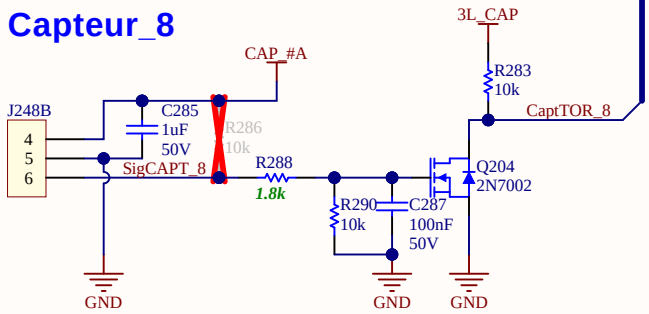
Capteur_7



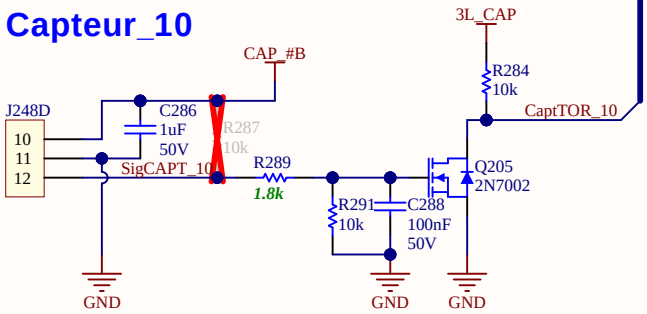
Capteur_9



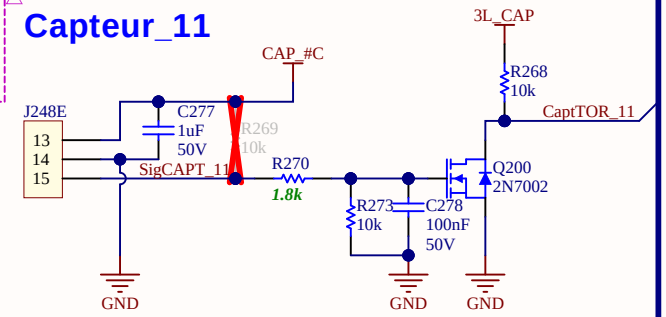
Capteur_8



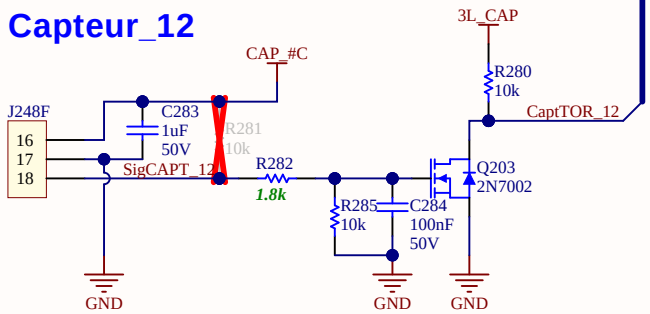
Capteur_10



Capteur_11



Capteur_12



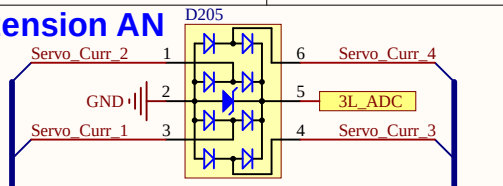
Placer les 2 connecteurs d'un même groupe cote à cote (2.54mm d'interval) +detail pinout

Function title Routing note Warning note Info note

Title	**Carte mère - capteur**	
Size: A4	Number	Revision
Date: 8/23/2020		Sheet of
File: N:\DOC\..\Capteur.SchDoc		Drawn By:

Servomoteur

Clamp tension AN



5P

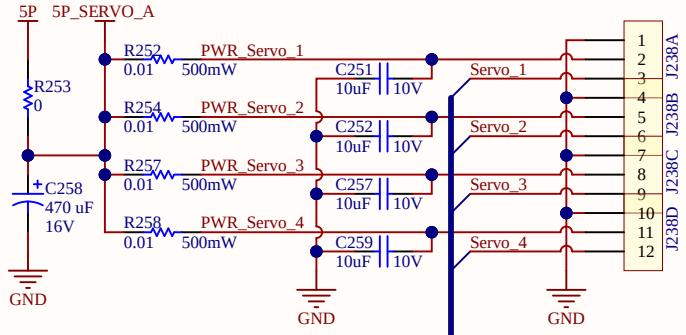
5L_DYNA

5L — R250 0

SERVO_SENSE

Servo avec mesure de courant

INA169



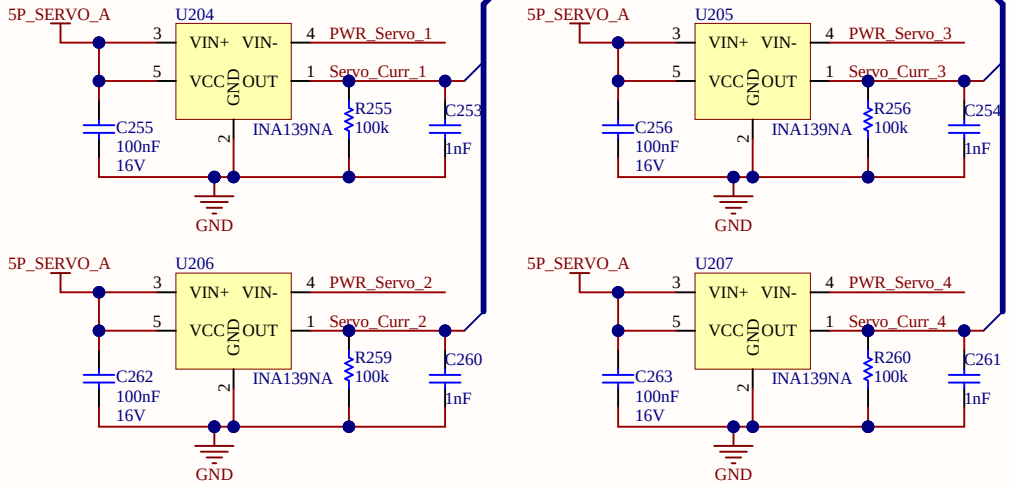
Servo_[1..12] — Servo_[1..12]

SERVO_CURR

Mesure de courant servo 1-5

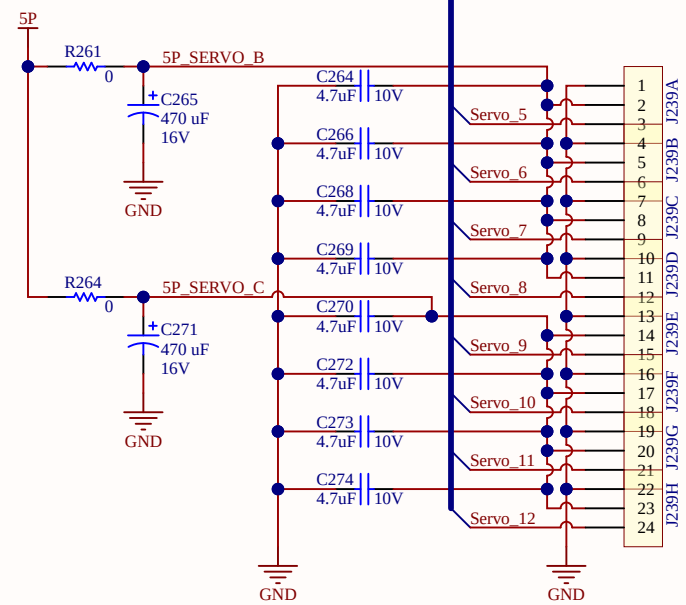
1V = 1A

Servo_Curr_[1..4] — Servo_Curr_[1..4]



SERVO

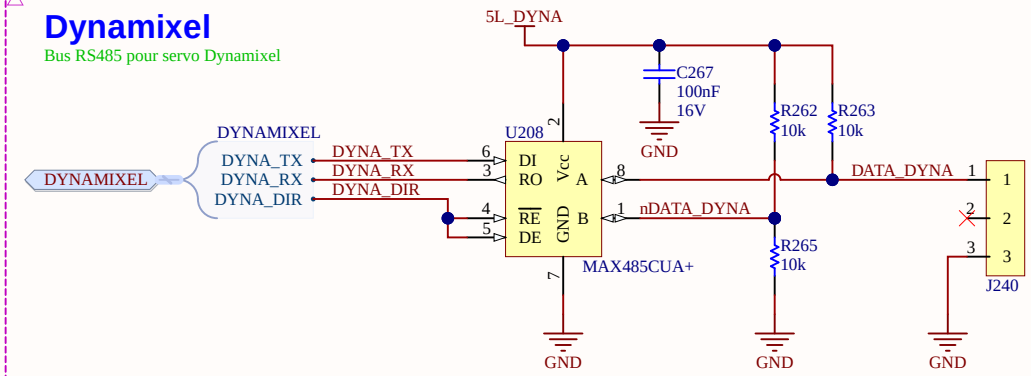
Servo standard



DYNAMIXEL

Dynamixel

Bus RS485 pour servo Dynamixel



Function title

Routing note

Warning note

Info note

Title: **Carte Mere - Servomoteur**		
Size: A4	Number:	Revision:
Date: 8/23/2020		Sheet of
File: N:\DOC\..\Servomoteur.SchDoc		Drawn By:

BUS d'Interfaces

Interface supplémentaire

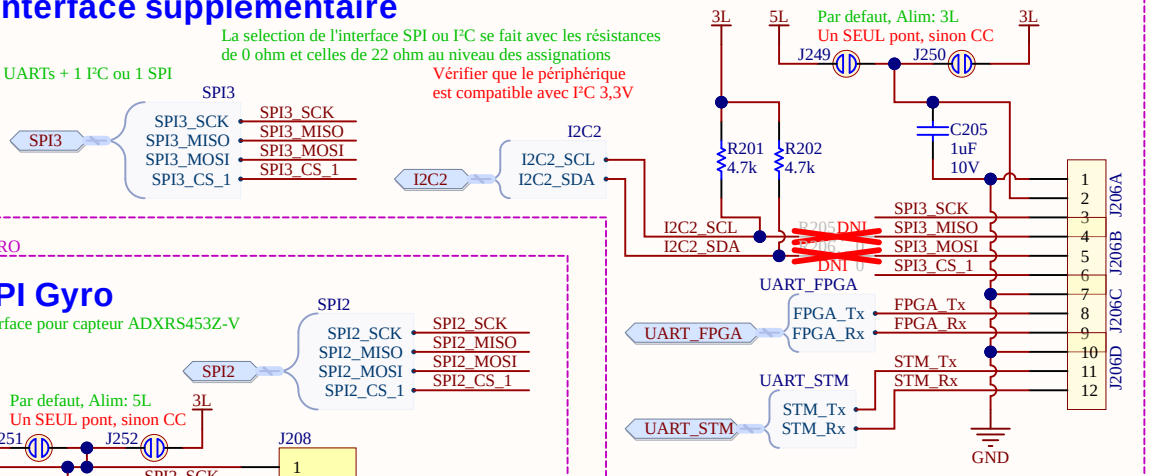
EXT_BUS

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

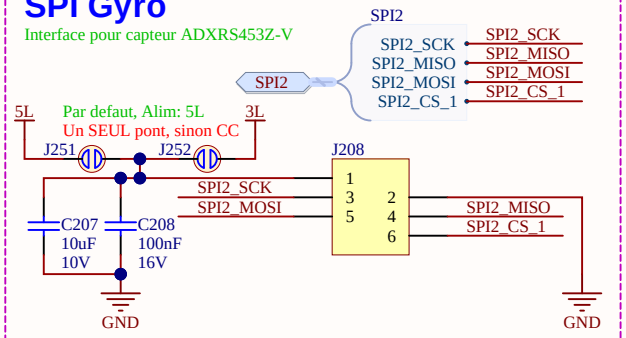


SPI Gyro

GYRO

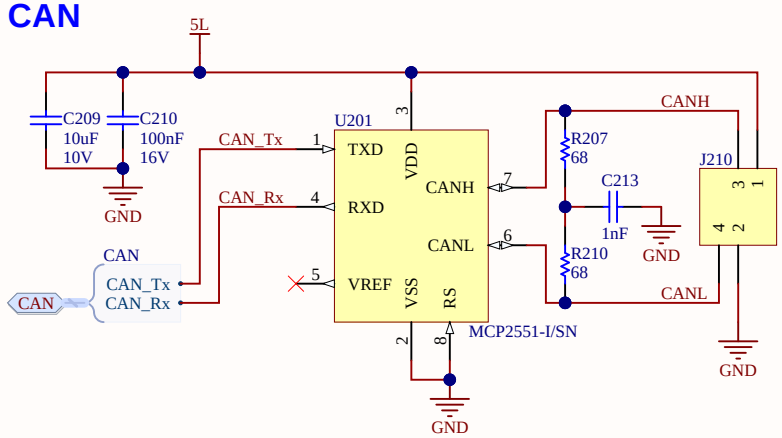
Interface pour capteur ADXRS453Z-V

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



CAN

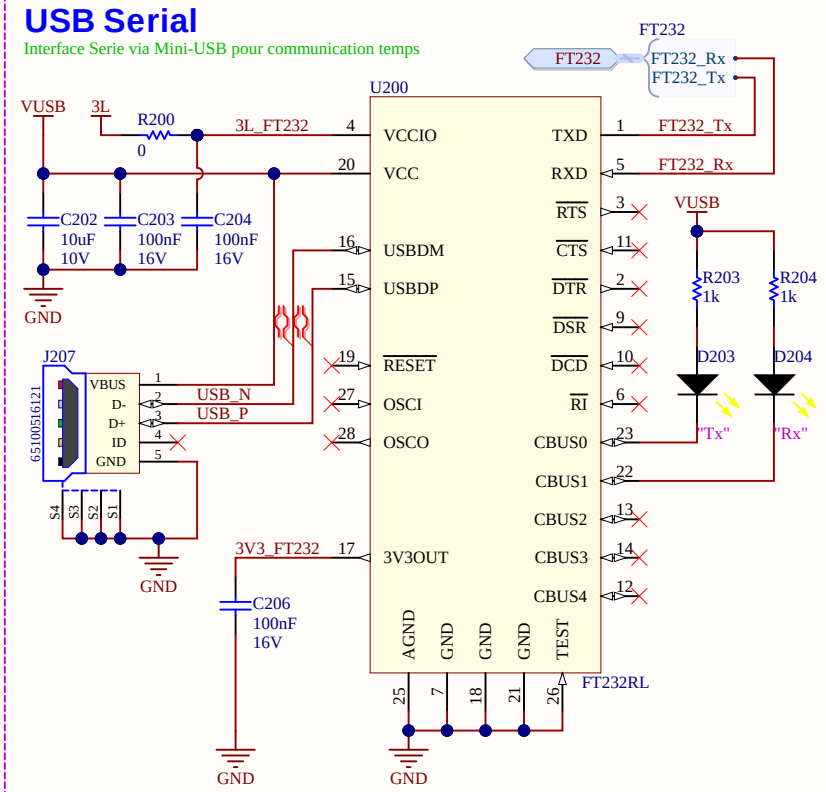
CAN



USB Serial

USB

Interface Serie via Mini-USB pour communication temps



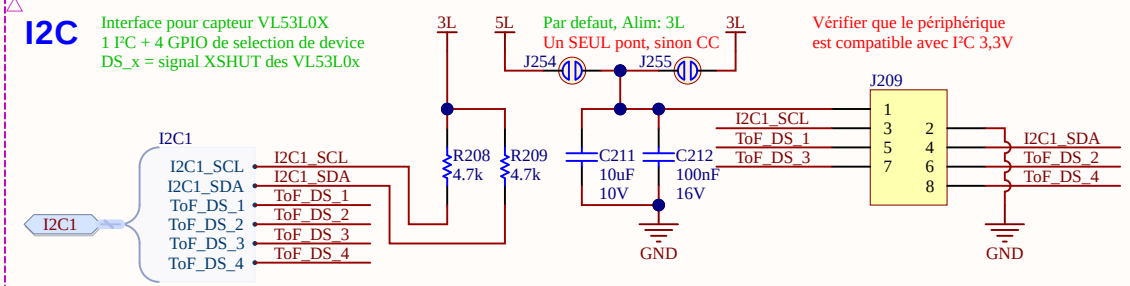
I2C

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



Function title

Routing note
Warning note
Info note

Title: **Carte Mere - Interface BUS**		
Size: A4	Number:	Revision:
Date: 8/23/2020		Sheet of
File: N:\DOC\..\Interface_BUS.SchDoc		Drawn By:

Motorisation

3L_MOT — R211 0 — 3L

5L

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

PROP_CTRL: PROP_EN, PROP_S1-Rx, PROP_S2-Tx, PROP_DIR1, PROP_DIR2

J211: PROP_EN, PROP_S1-Rx, PROP_DIR1, PROP_S2-Tx, PROP_DIR2, GND

MOT_ACT

Controle moteur actionneur

Interface carte de controle moteur d'actionneur

MOT_CTRL: MOT1_PWM, MOT1_DIR, MOT2_PWM, MOT2_DIR, MOT1_CS, MOT2_CS

3L_MOT — C217 10uF 10V — GND

J213: MOT1_PWM, MOT2_PWM, MOT1_CS, MOT1_DIR, MOT2_DIR, MOT2_CS

"C_Moteur"
+detail pinout

ENC_ODO

Encodeur odométrie

Entrées encodeur des roues codeuses

QEI_PROP: QEI_P1_A, QEI_P1_B, QEI_P2_A, QEI_P2_B

5L — FB202 3A

C218 10uF 10V — C219 100nF 16V — C220 100nF 16V

5L_ENC_PROP

J215: ENC_P1_B, ENC_P1_A — GND

J216: ENC_P2_B, ENC_P2_A — GND

ENC_P1_A R232 — QEI_P1_A
ENC_P1_B R234 4.7k — QEI_P1_B
ENC_P2_A R236 4.7k — QEI_P2_A
ENC_P2_B R238 4.7k — QEI_P2_B
4.7k

R240 10k — R241 10k — R242 10k — R243 10k — GND

ENC_ACT

Encodeur moteur actionneur

Entrées encodeur des moteurs d'actionneur

QEI_MOT: QEI_M1_A, QEI_M1_B, QEI_M2_A, QEI_M2_B

5L — FB203 3A

C221 10uF 10V — C222 100nF 16V — C223 100nF 16V

5L_QEI_MOT

J217: ENC_M1_B, ENC_M1_A — GND

J218: ENC_M2_B, ENC_M2_A — GND

ENC_M1_A R233 — QEI_M1_A
ENC_M1_B R235 4.7k — QEI_M1_B
ENC_M2_A R237 4.7k — QEI_M2_A
ENC_M2_B R239 4.7k — QEI_M2_B
4.7k

R244 10k — R245 10k — R246 10k — R247 10k — GND

ENC_SSI

Encodeur SSI actionneur

Synchronous Serial Interface pour encodeur Posic AP3403L

SSI_MOT: SSI_M1_CLK1, SSI_M1_DAT1, SSI_M1_CLK2, SSI_M1_DAT2, SSI_M2_CLK1, SSI_M2_DAT1, SSI_M2_CLK2, SSI_M2_DAT2

5L — FB201 3A

C214 10uF 10V — C215 100nF 16V — C216 100nF 16V

5L_QEI_PROP

J212: ENC_M1_CLK1, ENC_M1_CLK2, ENC_M1_DAT1, ENC_M1_DAT2

J214: ENC_M2_CLK1, ENC_M2_CLK2, ENC_M2_DAT1, ENC_M2_DAT2 — GND

ENC_M1_CLK1 R216 — SSI_M1_CLK1
ENC_M1_CLK2 R217 4.7k — SSI_M1_CLK2
ENC_M1_DAT1 R218 4.7k — SSI_M1_DAT1
ENC_M1_DAT2 R219 4.7k — SSI_M1_DAT2
4.7k

R223 10k — R220 10k — R221 10k — R222 10k — GND

ENC_M2_CLK1 R224 — SSI_M2_CLK1
ENC_M2_CLK2 R225 4.7k — SSI_M2_CLK2
ENC_M2_DAT1 R226 4.7k — SSI_M2_DAT1
ENC_M2_DAT2 R227 4.7k — SSI_M2_DAT2
4.7k

R231 10k — R228 10k — R229 10k — R230 10k — GND

Title: **Carte Mere - Motorisation**		
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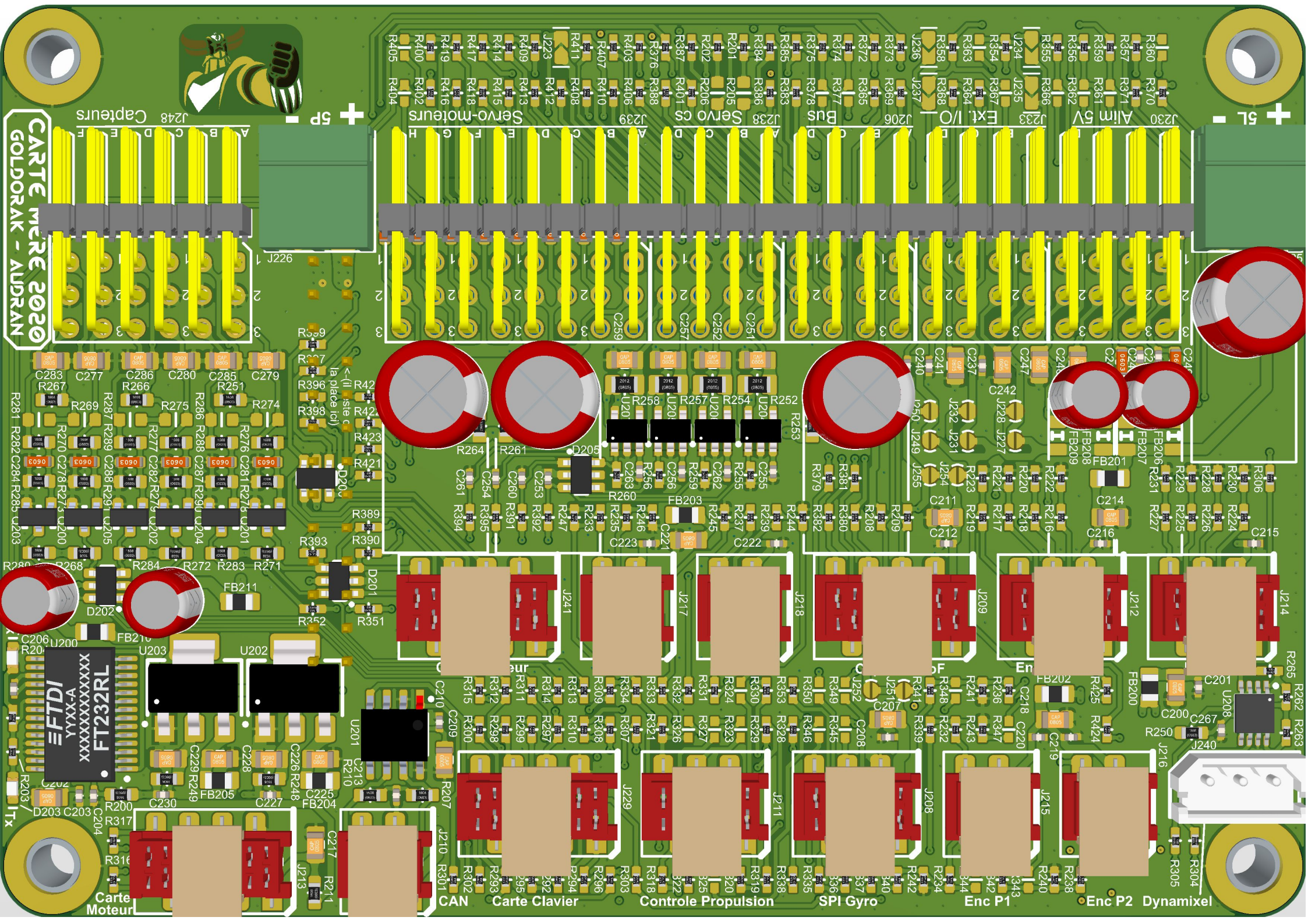
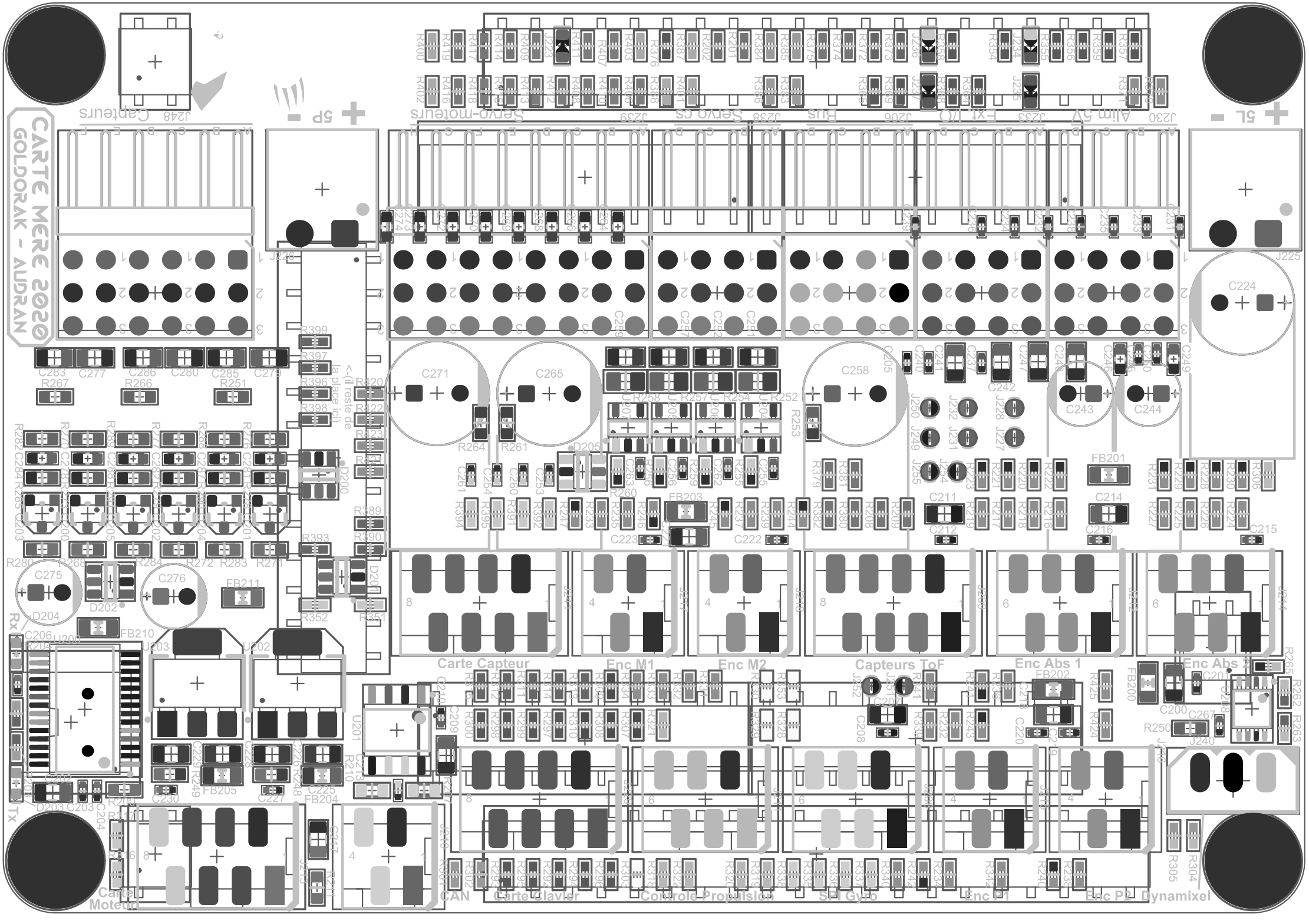
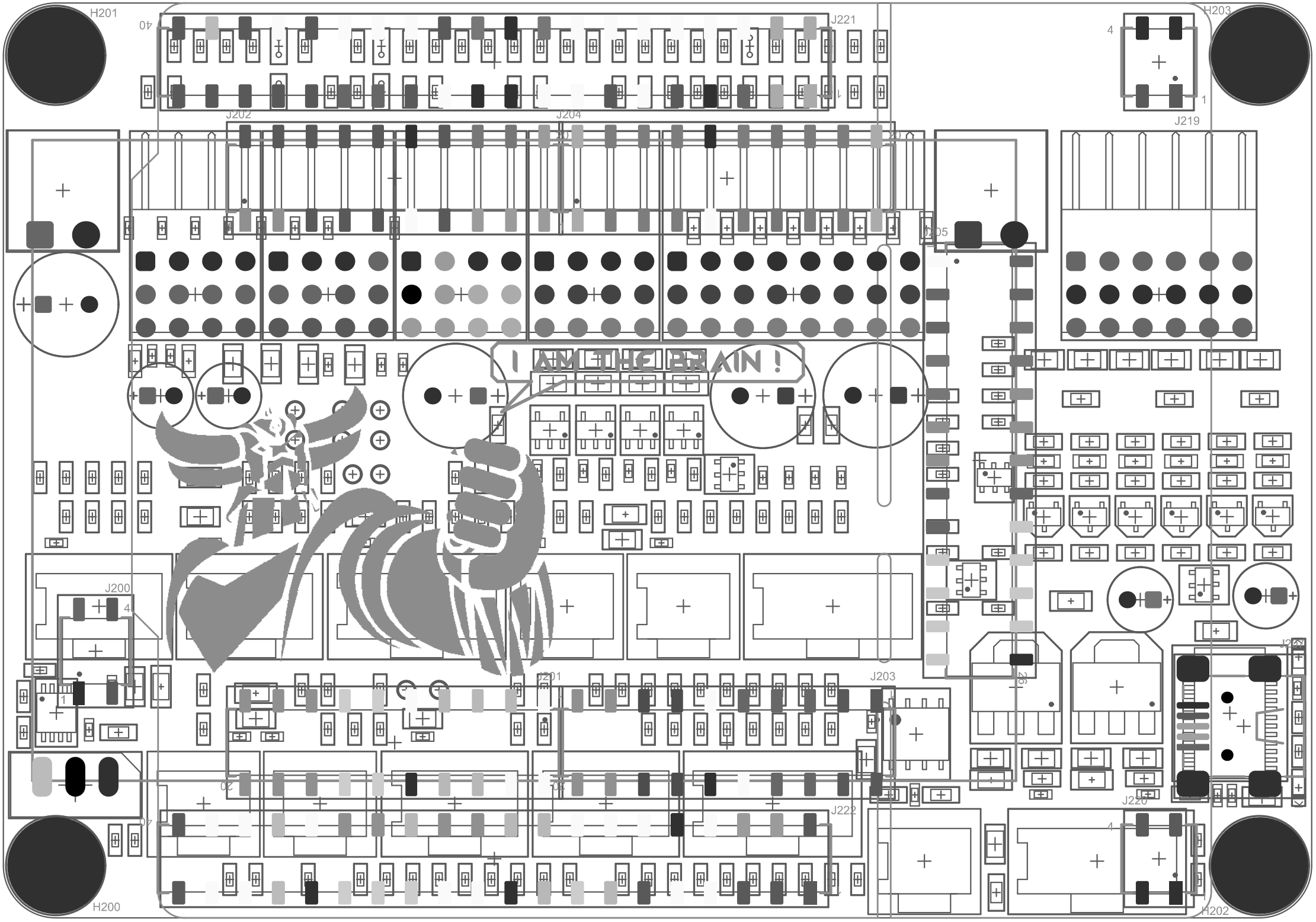

CARTE MERE 2020
GOLDORAK - AUDRAN
Capteurs
Servo-moteurs
Servo CS
Bus
Ext. I/O
Alim 5V
Carte Moteur
CAN
Carte Clavier
Controle Propulsion
SPI Gyro
Enc P1
Enc P2
Dynamixel


CARTE MERE 2020
GOLDORAK - AUDRAN
Capteurs
Servo-moteurs
Servo CS
Bus
E-Xt I/O
Alim 5V
5L
5P
Carte Capteur
Enc M1
Enc M2
Capteurs ToF
Enc Abs 1
Enc Abs 2
Carte Moteur
CAN
Carte Slavier
Controle Propulsion
SPI Gyro
Enc P1
Enc P2
Dynamixel
Rx
Tx


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