CYBERNETIQUE EN NORD

Description de la carte Mechanical Main Board

Table des matières

1 Description de la carte Electronical Main Board

1.1.1 Présentation

La carte Mechanical Main Board est chargée de gérer tous les capteurs et de commander les servomoteurs.

Elle est équipée de 3 pic afin de pouvoir effectuer plusieurs taches simultanément.

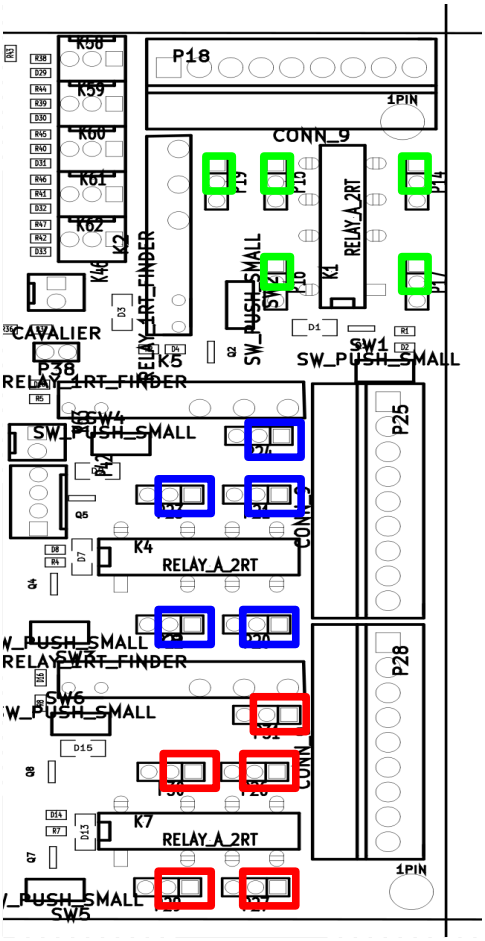
Elle dispose de 15 entrées logiques 12V, de 12 commandes de servomoteurs, et de 18 entrées/sorties ou ADC.

Chaque pic peut générer un IRQ vers la carte Electronical Main Board.

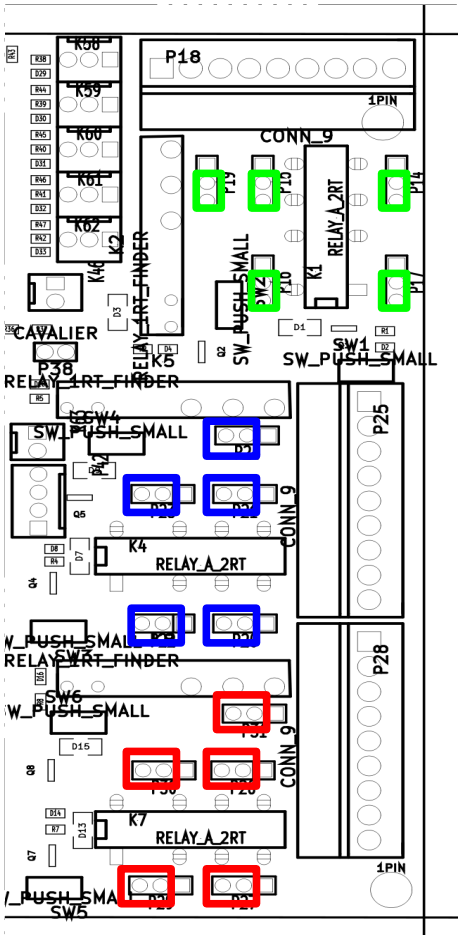
Les relais on deux configurations possibles libres, ou commande de moteur, ceci à l'aide de cavailier

L'option de la commande de moteur necessite un relais simple pour la commande de marche arrêt et un relais double pour avoir les deux sens de rotation.

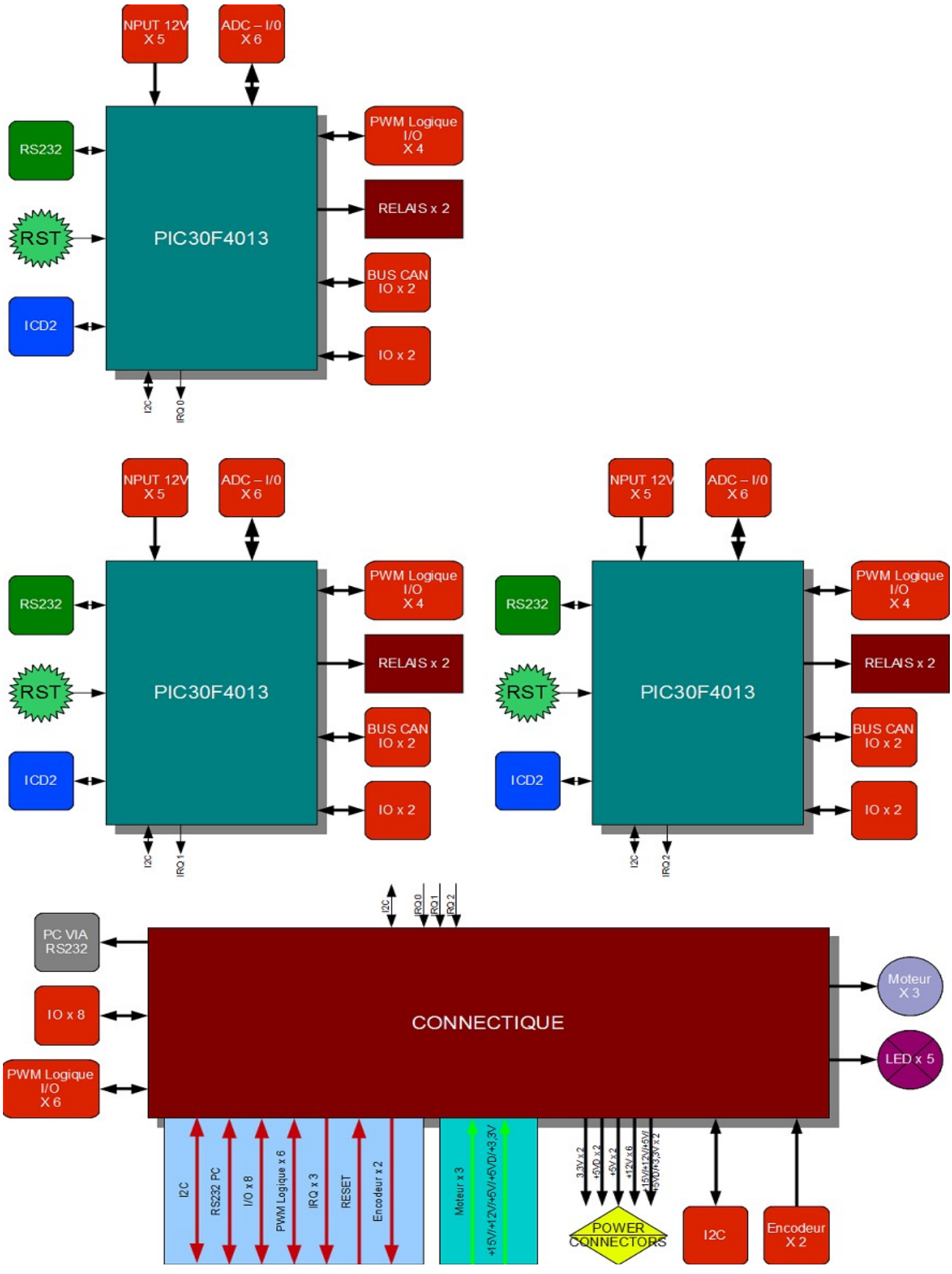
CONFIGURATION RELAIS LIBRES



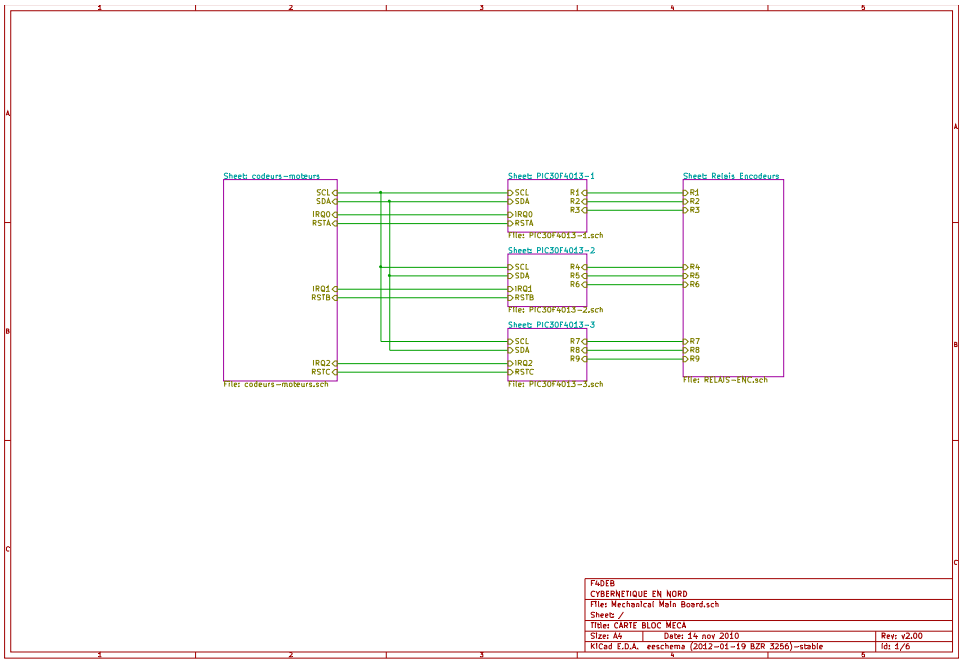
CONFIGURATION COMMANDE MOTEUR

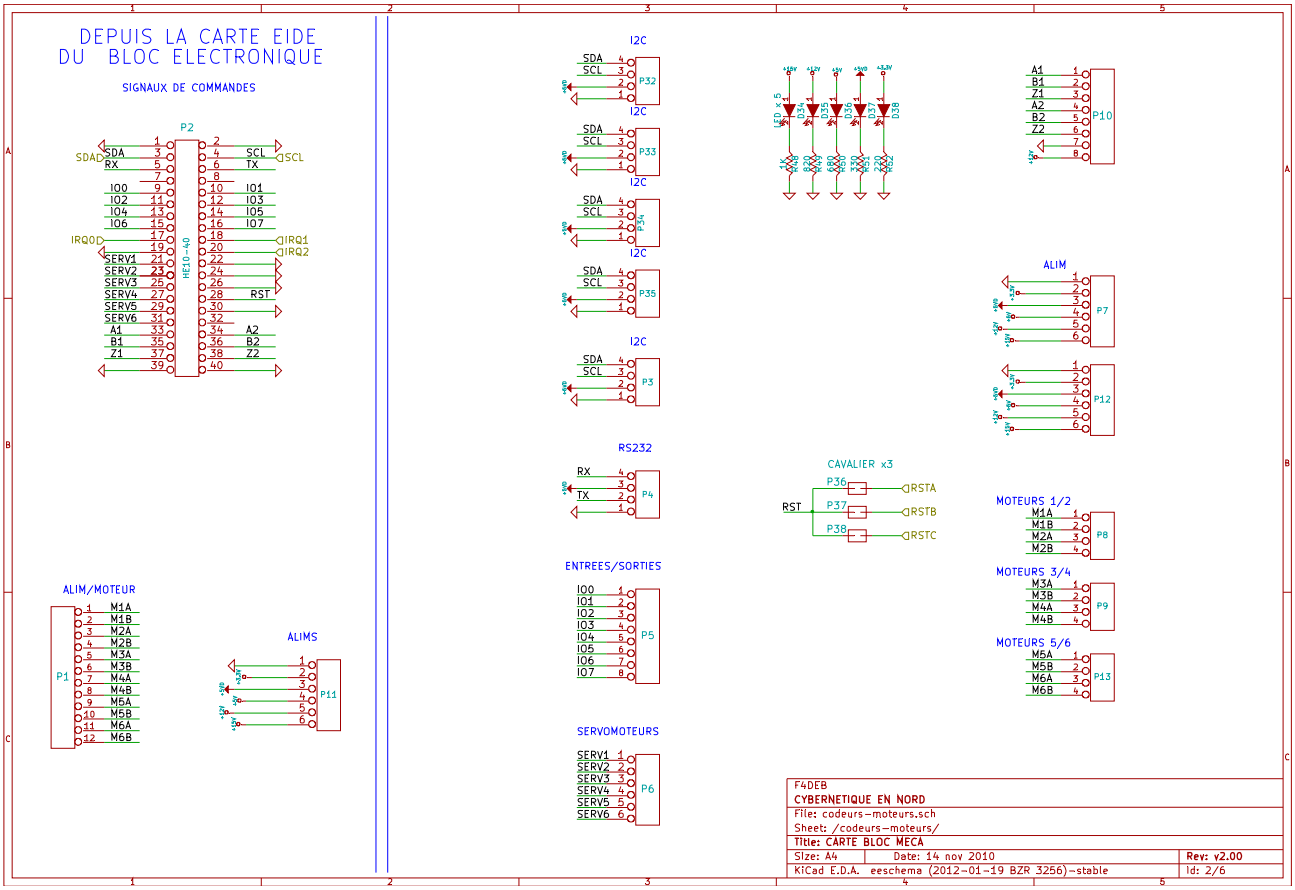


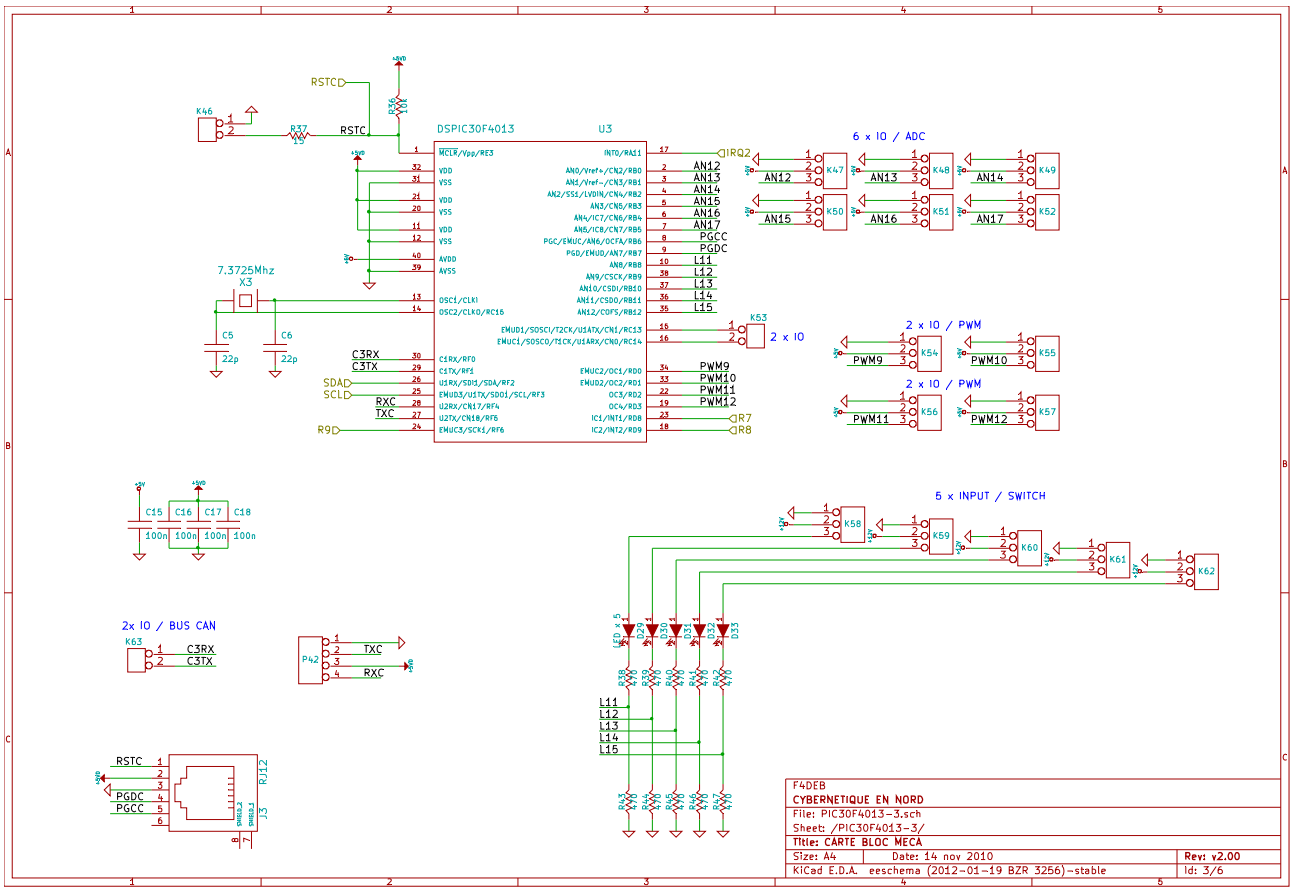
2 Schéma fonctionnel

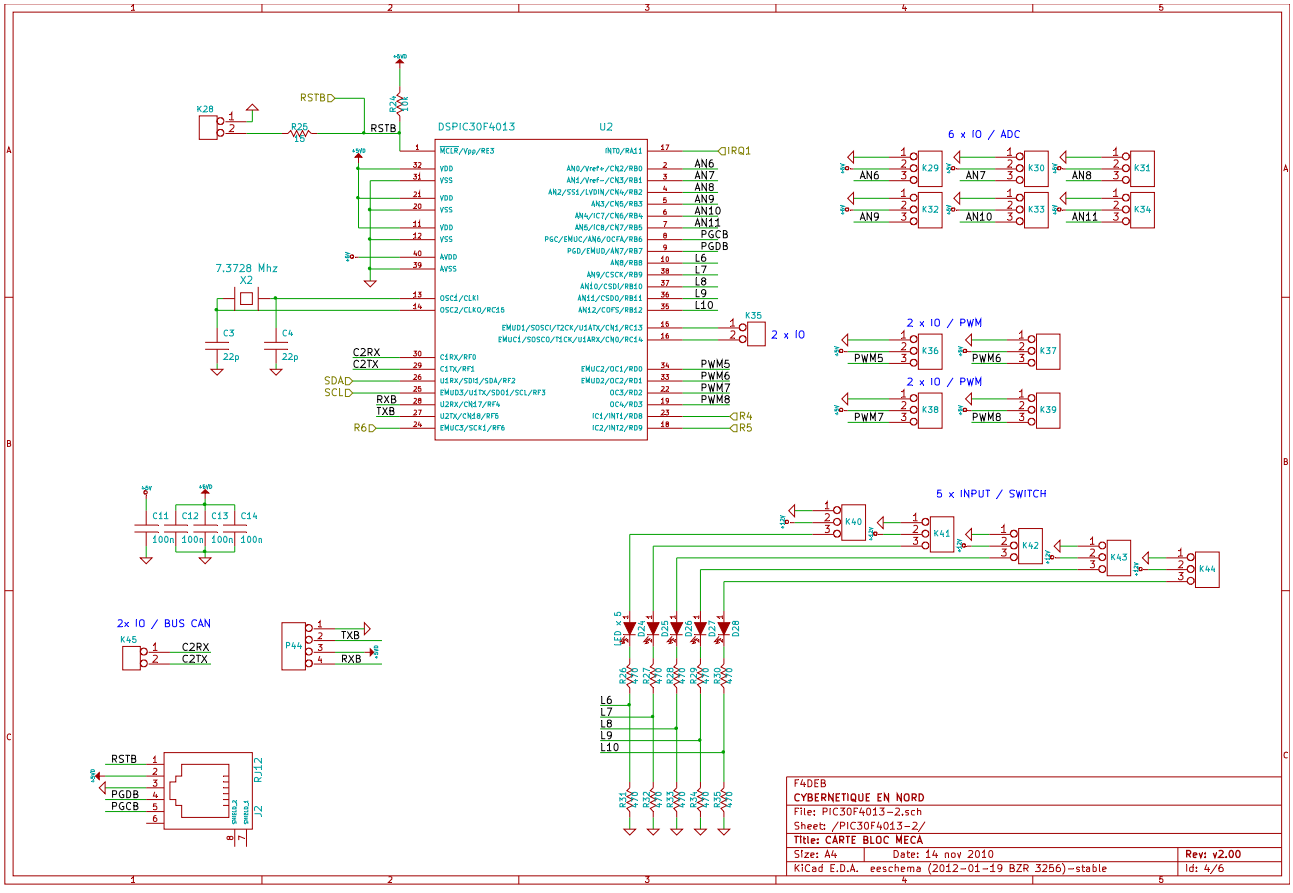


3 Schéma Structurel






DSPIC30F4013
U3
RSTC
7.3725Mhz
X3
6 x IO / ADC
2 x IO / PWM
5 x INPUT / SWITCH
2x IO / BUS CAN
C3RX
C3TX
TXC
RXC
F4DEB
CYBERNETIQUE EN NORD
File: PIC30F4013-3.sch
Sheet: /PIC30F4013-3/
Title: CARTE BLOC MECA
Size: A4
Date: 14 nov 2010
Rev: v2.00
KiCad E.D.A. eeschema (2012-01-19 BZR 3256)-stable
Id: 3/6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U2
RSTB
7.3728 Mhz
X2
6 x IO / ADC
2 x IO / PWM
5 x INPUT / SWITCH
2x IO / BUS CAN
C2RX
C2TX
TXB
RXB
F4DEB
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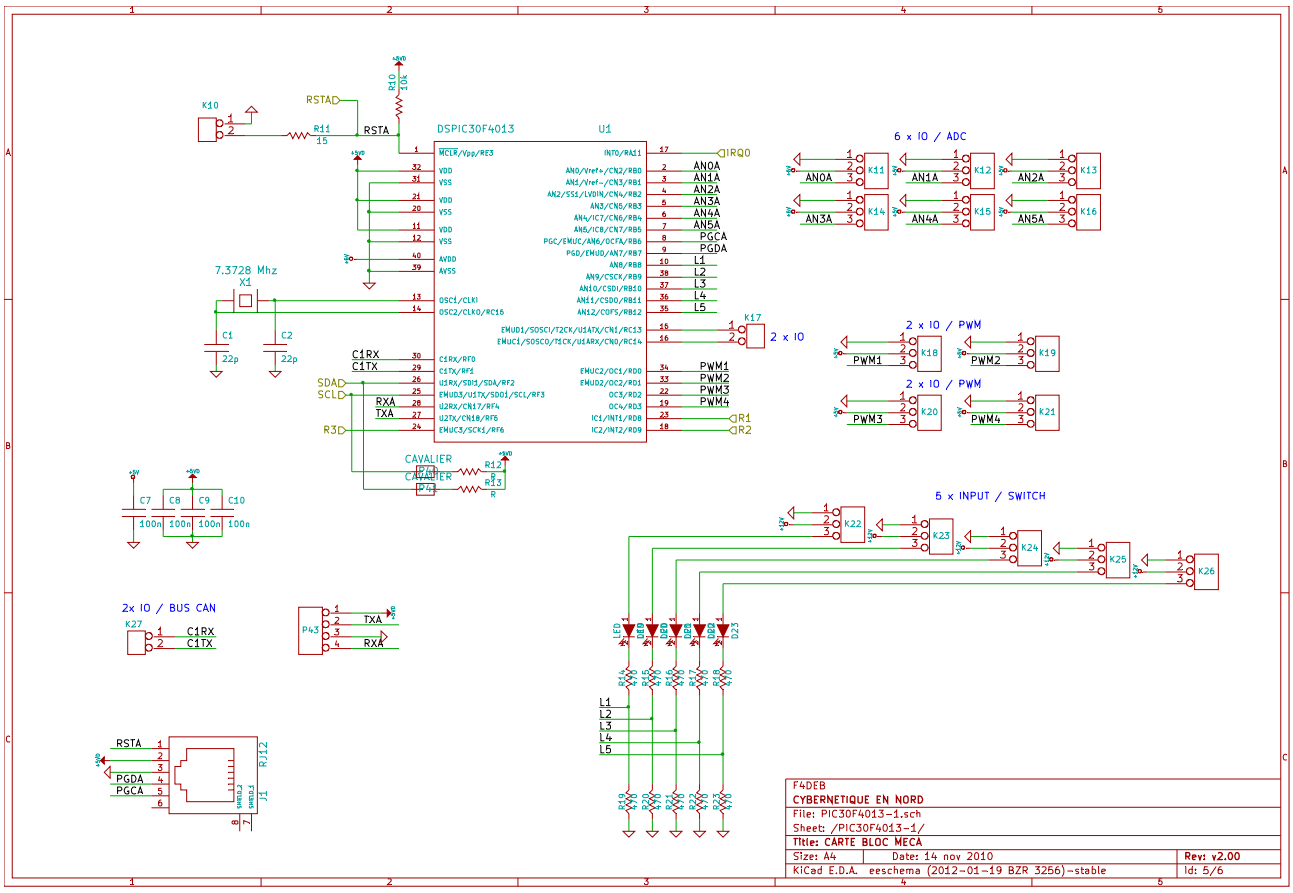
Size: A4
Date: 14 nov 2010
Rev: v2.00
KiCad E.D.A. eeschema (2012-01-19 BZR 3256)-stable
Id: 4/6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U1
7.3728 Mhz
X1
6 x IO / ADC
2 x IO / PWM
2 x IO / PWM
2 x IO
5 x INPUT / SWITCH
2x IO / BUS CAN
CAVALIER
RSTA
C1RX
C1TX
SDA
SCL
RXA
TXA
R3D
IRQ0
AN0A
AN1A
AN2A
AN3A
AN4A
AN5A
PGCA
PGDA
L1
L2
L3
L4
L5
PWM1
PWM2
PWM3
PWM4
R1
R2
F4DEB
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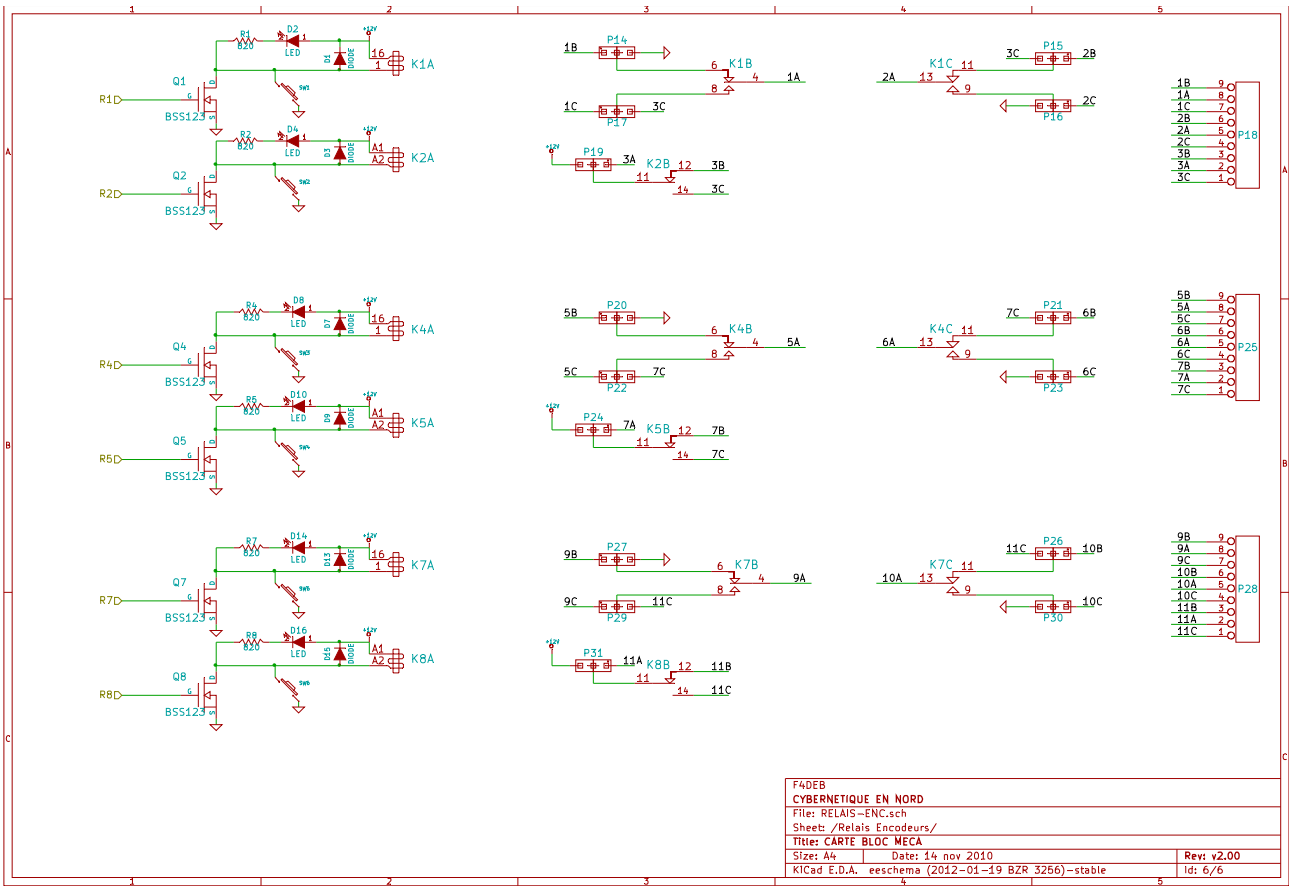
Date: 14 nov 2010
Rev: v2.00
KiCad E.D.A. eeschema (2012-01-19 BZR 3256)-stable
Id: 5/6


K1A
K2A
K4A
K5A
K7A
K8A
K1B
K2B
K4B
K5B
K7B
K8B
K1C
K4C
K7C
P14
P15
P16
P17
P18
P19
P20
P21
P22
P23
P24
P25
P26
P27
P29
P30
P31
P28
Q1
Q2
Q4
Q5
Q7
Q8
R1D
R2D
R4D
R5D
R7D
R8D
BSS123
F4DEB
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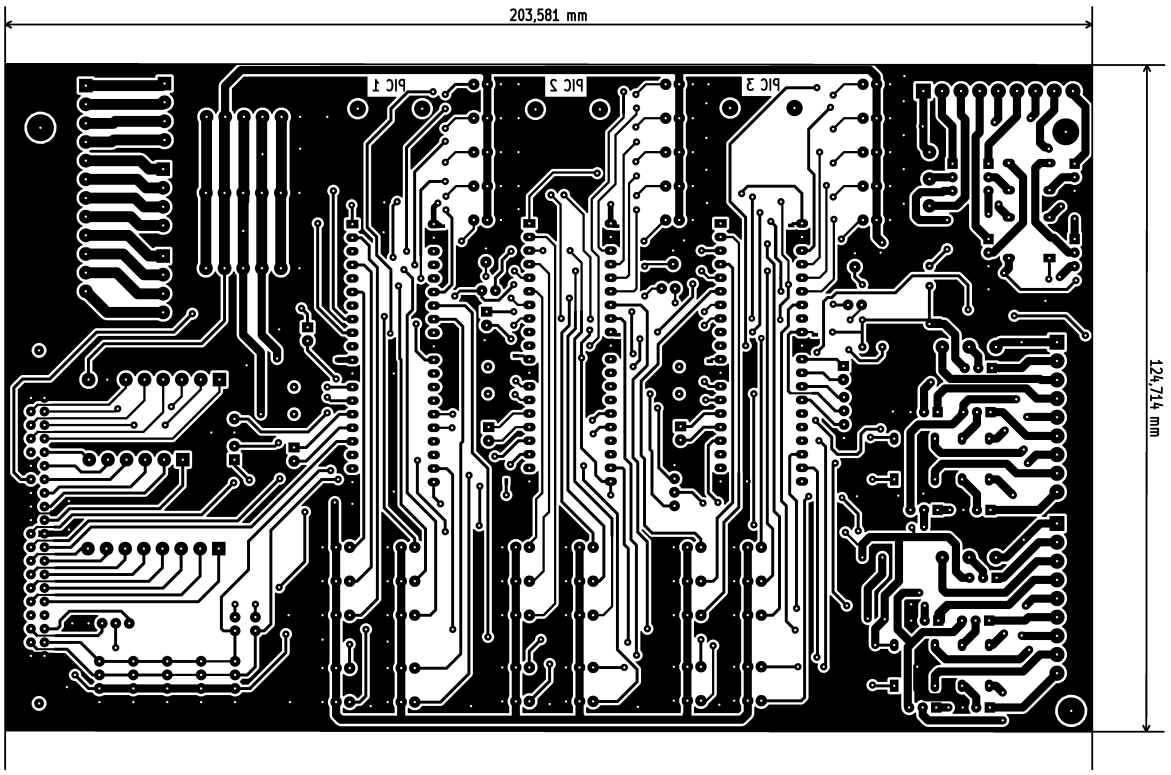
Size: A4
Date: 14 nov 2010
Rev: v2.00
KiCad E.D.A. eeschema (2012-01-19 BZR 3256)-stable
Id: 6/6

4 PCB



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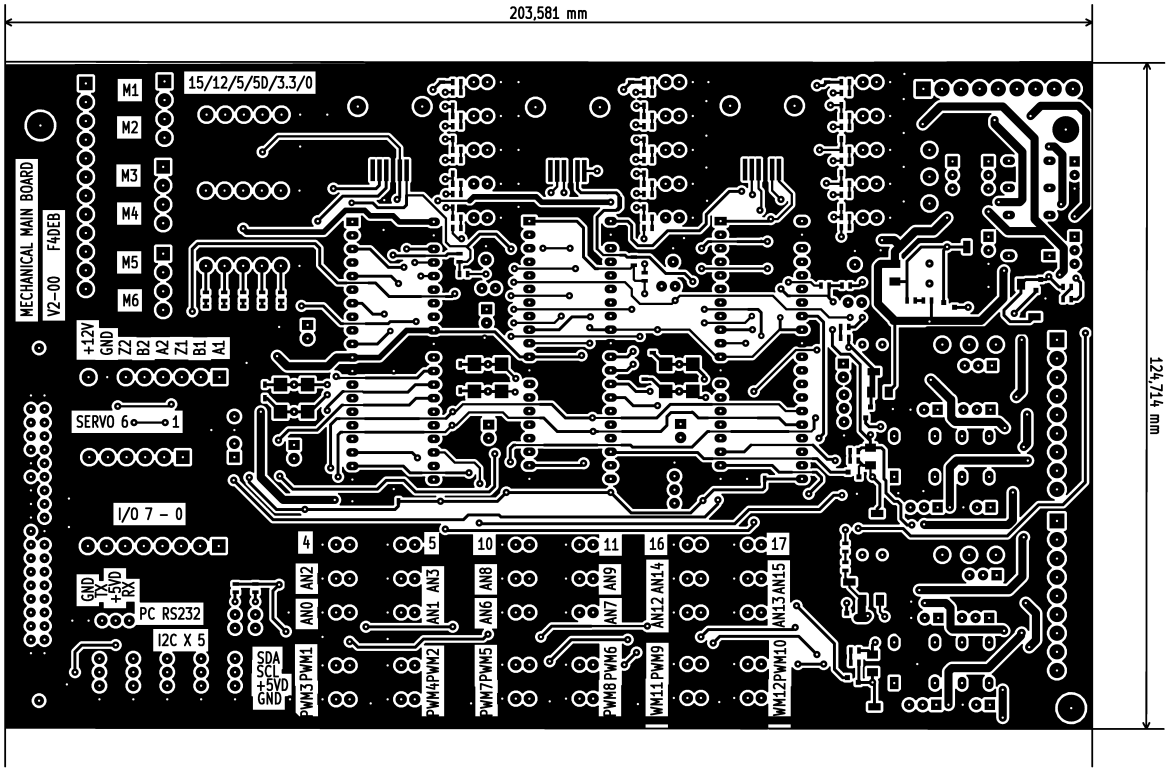
Size: A4 | **Date: 9 nov 2010** | **Rev: V2-00**
KiCad E.D.A. | Id: 1/1



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CYBERNETIQUE EN NORD		
File: Mechanical Main Board.brd		
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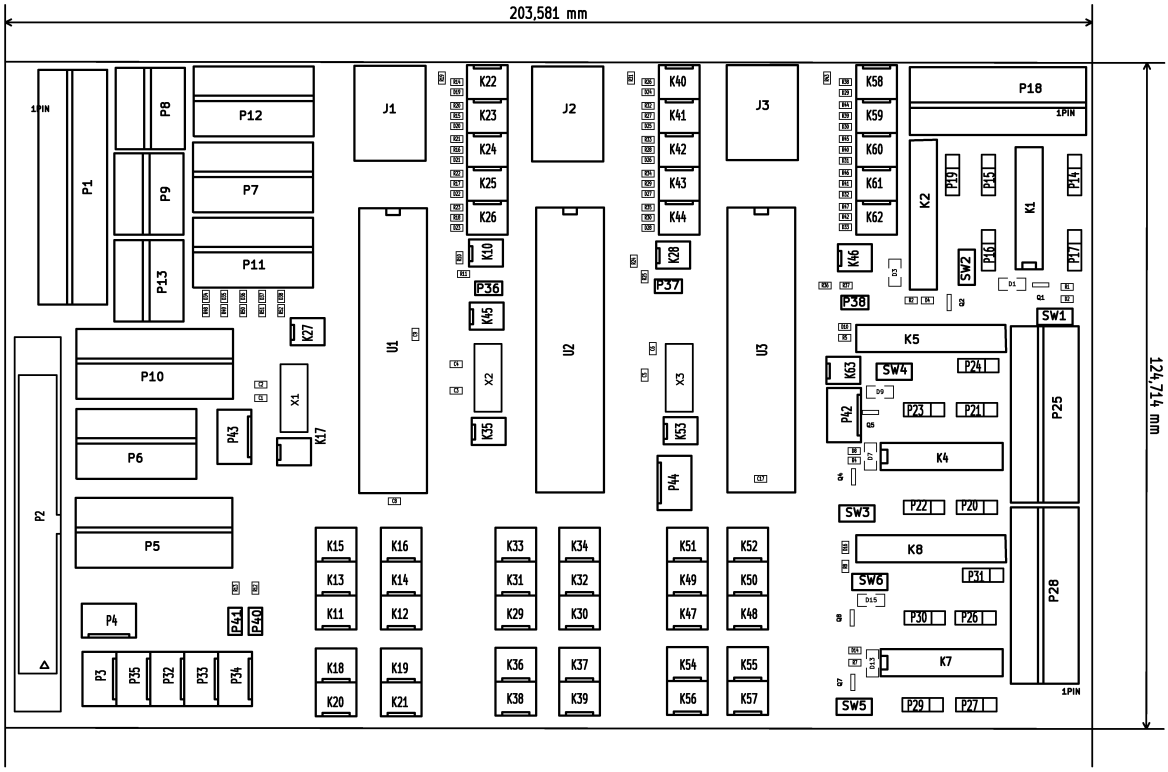
Size: A4	**Date: 9 nov 2010**	**Rev: V2-00**
KiCad E.D.A.		Id: 1/1



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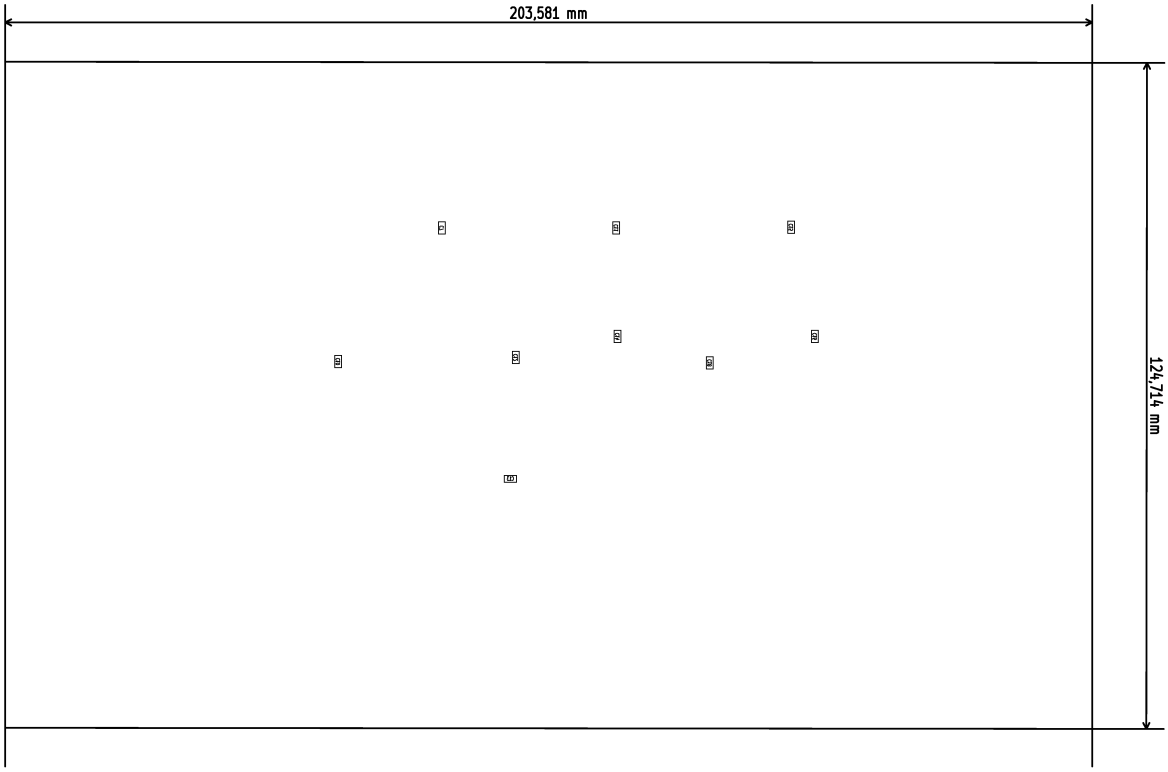
CYBERNETIQUE EN NORD		
File: Mechanical Main Board.brd		
Sheet: 1/1		
Title: MECHANICAL MAIN BOARD		
Size: A4	Date: 9 nov 2010	Rev: V2-00
KiCad E.D.A.		Id: 1/1



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CYBERNETIQUE EN NORD
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Sheet: 1/1
Title: MECHANICAL MAIN BOARD
Size: A4 | **Date: 9 nov 2010** | **Rev: V2-00**
KiCad E.D.A. | Id: 1/1

5 Liste des commandes, nomenclature

REPERE TOPO	VALEUR	REFERENCE
C1	22p	SM0603
C2	22p	SM0603
C3	22p	SM0603
C4	22p	SM0603
C5	22p	SM0603
C6	22p	SM0603
C7	100n	SM0603
C8	100n	SM0603
C9	100n	SM0603
C10	100n	SM0603
C11	100n	SM0603
C12	100n	SM0603
C13	100n	SM0603
C14	100n	SM0603
C15	100n	SM0603
C16	100n	SM0603
C17	100n	SM0603
C18	100n	SM0603
D1	DIODE	SM1206
D2	LED	SM0603
D3	DIODE	SM1206
D4	LED	SM0603
D7	DIODE	SM1206
D8	LED	SM0603
D9	DIODE	SM1206
D10	LED	SM0603
D13	DIODE	SM1206
D14	LED	SM0603
D15	DIODE	SM1206
D16	LED	SM0603
D19	LED	SM0603
D20	LED	SM0603
D21	LED	SM0603
D22	LED	SM0603
D23	LED	SM0603
D24	LED	SM0603
D25	LED	SM0603
D26	LED	SM0603
D27	LED	SM0603
D28	LED	SM0603

REPERE TOPO	VALEUR	REFERENCE
D29	LED	SM0603
D30	LED	SM0603
D31	LED	SM0603
D32	LED	SM0603
D33	LED	SM0603
D34	LED	SM0603
D35	LED	SM0603
D36	LED	SM0603
D37	LED	SM0603
D38	LED	SM0603
J1	RJ12	RJ12_CMS
J2	RJ12	RJ12_CMS
J3	RJ12	RJ12_CMS
K1	RELAY_A_2RT	RELAY_2RT
K2	RELAY_1RT_FINDER	RELAY_1RT_FINDER
K4	RELAY_A_2RT	RELAY_2RT
K5	RELAY_1RT_FINDER	RELAY_1RT_FINDER
K7	RELAY_A_2RT	RELAY_2RT
K8	RELAY_1RT_FINDER	RELAY_1RT_FINDER
K10	CONN_2	KK-2Male Vertical
K11	CONN_3	KK-3Male Vertical
K12	CONN_3	KK-3Male Vertical
K13	CONN_3	KK-3Male Vertical
K14	CONN_3	KK-3Male Vertical
K15	CONN_3	KK-3Male Vertical
K16	CONN_3	KK-3Male Vertical
K17	CONN_2	KK-2Male Vertical
K18	CONN_3	KK-3Male Vertical
K19	CONN_3	KK-3Male Vertical
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K22	CONN_3	KK-3Male Vertical
K23	CONN_3	KK-3Male Vertical
K24	CONN_3	KK-3Male Vertical
K25	CONN_3	KK-3Male Vertical
K26	CONN_3	KK-3Male Vertical
K27	CONN_2	KK-2Male Vertical
K28	CONN_2	KK-2Male Vertical
K29	CONN_3	KK-3Male Vertical
K30	CONN_3	KK-3Male Vertical
K31	CONN_3	KK-3Male Vertical
K32	CONN_3	KK-3Male Vertical

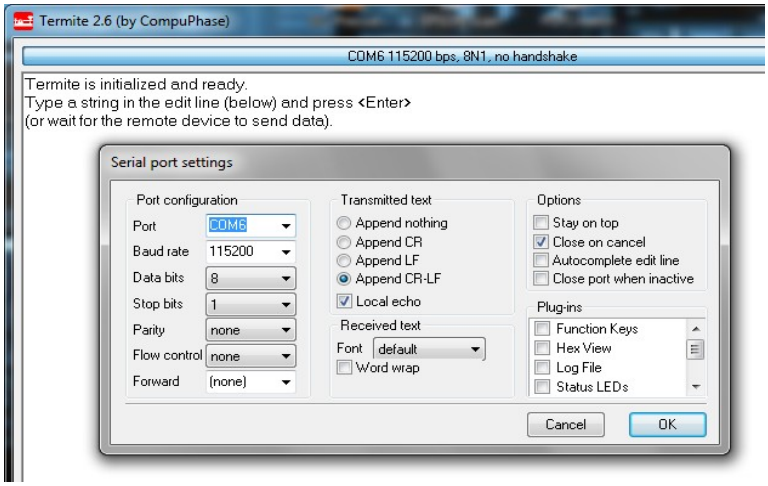
REPERE TOPO	VALEUR	REFERENCE
K33	CONN_3	KK-3Male Vertical
K34	CONN_3	KK-3Male Vertical
K35	CONN_2	KK-2Male Vertical
K36	CONN_3	KK-3Male Vertical
K37	CONN_3	KK-3Male Vertical
K38	CONN_3	KK-3Male Vertical
K39	CONN_3	KK-3Male Vertical
K40	CONN_3	KK-3Male Vertical
K41	CONN_3	KK-3Male Vertical
K42	CONN_3	KK-3Male Vertical
K43	CONN_3	KK-3Male Vertical
K44	CONN_3	KK-3Male Vertical
K45	CONN_2	KK-2Male Vertical
K46	CONN_2	KK-2Male Vertical
K47	CONN_3	KK-3Male Vertical
K48	CONN_3	KK-3Male Vertical
K49	CONN_3	KK-3Male Vertical
K50	CONN_3	KK-3Male Vertical
K51	CONN_3	KK-3Male Vertical
K52	CONN_3	KK-3Male Vertical
K53	CONN_2	KK-2Male Vertical
K54	CONN_3	KK-3Male Vertical
K55	CONN_3	KK-3Male Vertical
K56	CONN_3	KK-3Male Vertical
K57	CONN_3	KK-3Male Vertical
K58	CONN_3	KK-3Male Vertical
K59	CONN_3	KK-3Male Vertical
K60	CONN_3	KK-3Male Vertical
K61	CONN_3	KK-3Male Vertical
K62	CONN_3	KK-3Male Vertical
K63	CONN_2	KK-2Male Vertical
P1	CONN_12	WEIDMULLER12
P2	HE10-40	HE10_40
P3	CONN_4	KK-4Male Vertical
P4	CONN_4	KK-4Male Vertical
P5	CONN_8	WEIDMULLER-8
P6	CONN_6	WEIDMULLER-6
P7	CONN_6	WEIDMULLER-6
P8	CONN_4	WEIDMULLER-4
P9	CONN_4	WEIDMULLER-4
P10	CONN_8	WEIDMULLER-8
P11	CONN_6	WEIDMULLER-6
P12	CONN_6	WEIDMULLER-6

REPERE TOPO	VALEUR	REFERENCE
P13	CONN_4	WEIDMULLER-4
P14	CAVALIER2	SIL-3
P15	CAVALIER2	SIL-3
P16	CAVALIER2	SIL-3
P17	CAVALIER2	SIL-3
P18	CONN_9	WEIDMULLER9
P19	CAVALIER2	SIL-3
P20	CAVALIER2	SIL-3
P21	CAVALIER2	SIL-3
P22	CAVALIER2	SIL-3
P23	CAVALIER2	SIL-3
P24	CAVALIER2	SIL-3
P25	CONN_9	WEIDMULLER9
P26	CAVALIER2	SIL-3
P27	CAVALIER2	SIL-3
P28	CONN_9	WEIDMULLER9
P29	CAVALIER2	SIL-3
P30	CAVALIER2	SIL-3
P31	CAVALIER2	SIL-3
P32	CONN_4	KK-4Male Vertical
P33	CONN_4	KK-4Male Vertical
P34	CONN_4	KK-4Male Vertical
P35	CONN_4	KK-4Male Vertical
P36	CAVALIER	CAVALIER
P37	CAVALIER	CAVALIER
P38	CAVALIER	CAVALIER
P40	CAVALIER	CAVALIER
P41	CAVALIER	CAVALIER
P42	CONN_4	KK-4Male Vertical
P43	CONN_4	KK-4Male Vertical
P44	CONN_4	KK-4Male Vertical
Q1	BSS123	SOT23EBC
Q2	BSS123	SOT23EBC
Q4	BSS123	SOT23EBC
Q5	BSS123	SOT23EBC
Q7	BSS123	SOT23EBC
Q8	BSS123	SOT23EBC
R1	820	SM0603
R2	820	SM0603
R4	820	SM0603
R5	820	SM0603
R7	820	SM0603
R8	820	SM0603

REPERE TOPO	VALEUR	REFERENCE
R10	10k	SM0603
R11	15	SM0603
R12		SM0603
R13		SM0603
R14	470	SM0603
R15	470	SM0603
R16	470	SM0603
R17	470	SM0603
R18	470	SM0603
R19	470	SM0603
R20	470	SM0603
R21	470	SM0603
R22	470	SM0603
R23	470	SM0603
R24	10k	SM0603
R25	15	SM0603
R26	470	SM0603
R27	470	SM0603
R28	470	SM0603
R29	470	SM0603
R30	470	SM0603
R31	470	SM0603
R32	470	SM0603
R33	470	SM0603
R34	470	SM0603
R35	470	SM0603
R36	10k	SM0603
R37	15	SM0603
R38	470	SM0603
R39	470	SM0603
R40	470	SM0603
R41	470	SM0603
R42	470	SM0603
R43	470	SM0603
R44	470	SM0603
R45	470	SM0603
R46	470	SM0603
R47	470	SM0603
R48	1k	SM0603
R49	820	SM0603
R50	680	SM0603
R51	330	SM0603

REPERE TOPO	VALEUR	REFERENCE
R52	220	SM0603
SW1	SW_PUSH_SMALL	SW2
SW2	SW_PUSH_SMALL	SW2
SW3	SW_PUSH_SMALL	SW2
SW4	SW_PUSH_SMALL	SW2
SW5	SW_PUSH_SMALL	SW2
SW6	SW_PUSH_SMALL	SW2
U1	DSPIC30F4013	DIP40__600_ELL
U2	DSPIC30F4013	DIP40__600_ELL
U3	DSPIC30F4013	DIP40__600_ELL
X1	CRYSTAL1	QTZ2
X2	CRYSTAL1	QTZ2
X3	CRYSTAL1	QTZ2

6 Validation de la carte



7 Change Logs :

V 2-00 : Version de Base

V2-10

- Regrouper les alimentations et les 2 moteurs sur un seul connecteur
- Broche 20 HE10-40 NON UTILISABLE (détrompeur). A déplacer sur la broche 32
- Rajouter 2 colonettes au centre de la carte
- Ajouter sérigraphie broche 1 connecteur 40 broches

8 Photos