TOP
[01] - COVER PAGE.SchDoc

BLOCK_DIAGRAM
[02] - BLOCK DIAGRAM.SchDoc

DOC Revision
[XX] - DOC REVISION HISTORY.SchDoc

Pin DEMUX
[00] - PIN DEMUX.SchDoc

F2
1
Fiducial R1-3

F1
1
Fiducial R1-3

F3
1
Fiducial R1-3

POWER_TREE
[03] - PowerSection.SchDoc
USB_P
USB_N
RESET_SAMD

Conectors
[06] - Conectors.SchDoc
RESET_SAMD
Drivers_CON
EXPANSION_CON

SAMD51
[04] - SAMD51.SchDoc
USB_P
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RESET_SAMD
EXPANSION
SAMD_51_Drivers

Drivers&Mosfet
[05] - Drivers & Mosfet.SchDoc
Drivers

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LC_BG_001

Variant: [No Variations]

15/10/2020
V1I2

Release

DESIGN CONSIDERATIONS

DESIGN NOTE:
Example text for informational design notes .

DESIGN NOTE:
Example text for critical design notes.

DESIGN NOTE:
Example text for cautionary design notes.

LAYOUT NOTE:
Example text for critical layout guidelines.

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PIN DEMUX

DESIGN NOTE:
Excel original en el github
https://github.com/bricogeek/bricolemon

Todos los pines definidos en marlin deben ser sin la D y sin el A. Es decir, solo el número para que el marlin lo entienda.

Heat	
HEAT_01	D6
Heat 2	D7
Heat 3	D45

Endstop	
X_MIN	D10
Z_MIN	D12
Y_MIN	D11
E_MIN	D32

Uart TMC2209	
PDN_SHARE_2	UART1_TX - D18
PDN_SHARE_2	UART1_RX D19
PDN_SHARE	RX D0
PDN_SHARE	TX D1

LCD Display	
LCDRS	D34
LCD4	D36
LCD6	D38
S_EC	D40
SE_1	D42
SD_CARDD_DETE	D44
LCDE	D35
LCD5	D37
LCD7	D39
BEEP	D41
KILL_PIN	D49
SE_2	D43

Definición	Adafruit	Arduino		Adafruit	Definición
PDN_SHARE	RX	D0	D1	TX	PDN_SHARE
E0_STEP	D2	D2	D3	D3	X_STEP
Y_STEP	D4	D4	D5	D5	Z_STEP
HEAT_01	D6	D6	D7	D7	HEAT_02
FAN_01	D8	D8	D9	D9	FAN_02
X_MIN	D10	D10	D11	D11	Y_MIN
Z_MIN	D12	D12	D13	D13	E1_STEP
E1_MIN	UART3_TX	D14	D15	UART3_RX	
PDN_SHARE_2	UART2_TX	D16	D17	UART2_RX	PDN_SHARE_2
HW_SERIAL1_TX	UART1_TX	D18	D19	UART1_RX	HW_SERIAL1_RX
I2C	SDA	D20	D21	SCL	I2C
DIR_A	D22	D22	D23	D23	DIR_B
DIR_C	SCL_01	D24	D25	SDA_01	DIR_D
EN_A	PCC_DEN_01	D26	D27	PCC_DEN_02	EN_B
EN_C	PCC_CLK	D28	D29	PCC_XCLK	EN_D
FAN_03	PCC_D7	D30	D31	PCC_D6	FAN_04
E_MIN	PCC_D5	D32	D33	PCC_D4	BL_TOUCH
LCDRS	PCC_D3	D34	D35	PCC_D2	LCDE
LCD4	PCC_D1	D36	D37	PCC_D0	LCD5
LCD6	PCC_D9	D38	D39	PCC_D8	LCD7
S_EC	PCC_D11	D40	D41	PCC_D10	BEEP
SE_1	PCC_D13	D42	D43	PCC_D12	SE_2
SD_CARDD_DETECT	D44	D44	D45	D45	HEAT_03
DIR_E	D46	D46	D47	D47	EN_E
E_MIN	D48	D48	D49	D49	KILL_PIN
ICSP	MISO	D50	D51	MOSI	ICSP
ICSP	SCK	D52	D53	SS	ICSP
		A0	A1		THERM_0
THERM_1		A2	A3		THERM_2
		A4	A5		
		A6	A7		
		A8	A9		
		A10	A11		
		A12	A13		
		A14	A15		

En marlin poner solo 1/2/3, sin el A. Sino rompe el firmware.

	PWM
X_MOTOR	
X_STEP	D3
X_DIR	D22
X_EN	D26
Y_MOTOR	
Y_STEP	D4
Y_DIR	D23
Y_EN	D27
Z_MOTOR	
Z_STEP	D5
Z_DIR	D24
Z_EN	D28
E0_MOTOR	
E0_STEP	D2
E0_DIR	D25
E0_EN	D29
E1_MOTOR	
E1_STEP	D13
E1_DIR	D46
E1_EN	D47

Thermistor	
Thermistor 0	A1
Thermistor 1	A2
Thermistor 2	A3

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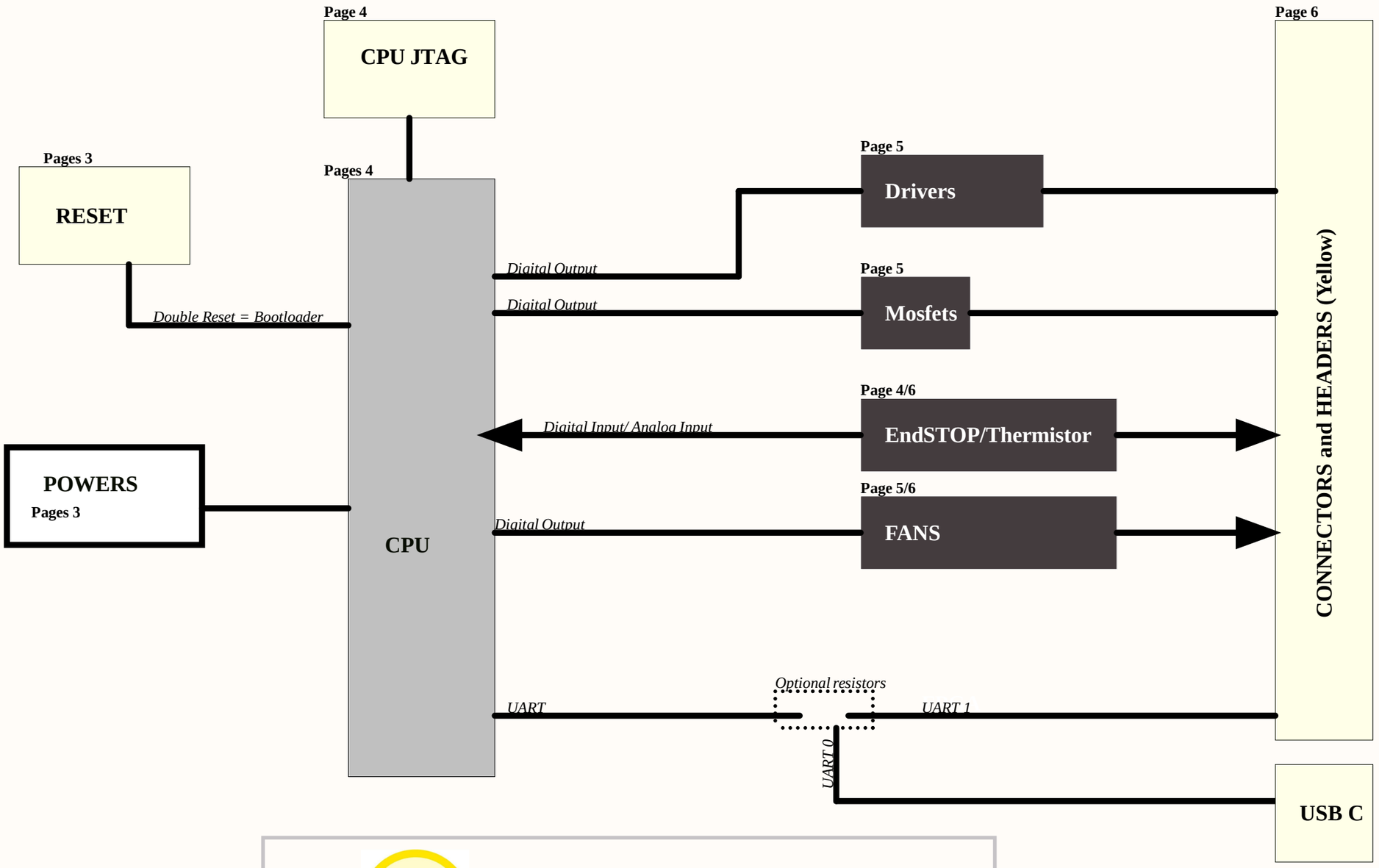
LC_BG_001

(Block Diagram)



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CLOCKS (CPU & PCIE)

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[03] - PowerSection.SchDoc

(Power Tree)

Mechanical Hole
HOLE1 M3 3mm hole
HOLE2 M3 3mm hole
HOLE4 M3 3mm hole
HOLE3 M3 3mm hole

J2 4 PIN therminal 490-TB006-508-04BE
FUSE2 Fuse Holder MINI Blade 297 534-3544-2
FUSE1 Fuse Holder MINI Blade 297 534-3544-2

R52 2.2K 1% 1/10W 0603 — POWER LED — LED12 Led Red 0603
R53 2.2K 1% 1/10W 0603 — POWER LED — LED13 Led Red 0603
R51 2.2K 1% 1/10W 0603 — POWER LED — LED11 Led Red 0603

D6 50V 3A SMC 512-S3A (VM → V_INPUT)
D5 50V 3A SMC 512-S3A (V_USB_C → V_INPUT)

SW1 Tactile Switch SKRPACE010 — RESET_SAMD
R55 10K 1% 1/10W 0603
C65 0.1uF X7R 25V 0603

U7E ATSAMD51P20 556-ATSAMD51P20AAU
RESETN ← RST_SAMD51
VDDANA_1 / VDDANA_2 / VDDANA_3 ← 3V3 via L3 Ferrite Bead 330mOH 1.5A 100Mhz 0805 (VDD_ANA)
VDDCORE ← L2 10uH inductor 1210, 900mA 963-CBC3225T100KR; C70 4.7uF X5R 0603 25V; C71 0.1uF X7R 25V 0603
VSW
VDDIOB_1 / VDDIOB_2 ← 3V3
VDDIO_1 / VDDIO_2 / VDDIO_3 / VDDIO_4 / VDDIO_5 / VDDIO_6 / VDDIO_7 / VDDIO_8
GNDIO / GNDANA_1 / GNDANA_2 / GND_1 … GND_10

U6 5V Fixed 1,1MHZ BUCK 621-AP63205WU-7
V_INPUT MAX 32V INPUT
C56 10uF 25V X5R 0603
C62 0.1uF X7R 25V 0603
L1 4.7uH 3.2A 32mOhm SRN5040TA-4R7M
C66 22uF X5R 25V 0805
C61 22uF X5R 25V 0805
TEST10 TestPad
5V

U8 Linear 3V3 600mA (VIN, EN, GND, VOUT, ADJ/NC)
C74 0.1uF X7R 25V 0603
C83 10uF 25V X5R 0603
C81 0.1uF X7R 25V 0603

CHR_USB_LANES
DIFFPAIR DIFF90
CHARGER_P → USB_P
CHARGER_N → USB_N

J21 USB_TYPE_C 490-UJ31-CH312SMT-TR
V_USB_C
TX1+ TX1- TX2+ TX2- CC1 CC2 SBU1 SBU2 RX1+ RX1- RX2+ RX2-
VBUS1 VBUS2 VBUS3 VBUS4 D1+ D1- D2+ D2- GND1 GND2 GND3 GND4 SHIELD SHIELD SHIELD SHIELD
CHARGER_P / CHARGER_N / CHARGER_P / CHARGER_N
R58 5.11K 0% 1/10W 0603
R61 5.11K 0% 1/10W 0603
SHIELD → B1 120OHM 0603 1LN

TVS1 TVS USB Protection 595-TPD4S012DRYR
CHARGER_P / CHARGER_N → D+ / D-
VBUS → V_USB_C
NC → SHIELD
ID, GND → GND

Desacople, 1 for each VDDIO_ANA
C79 0.1uF X7R 25V 0603
C78 0.1uF X7R 25V 0603
C80 0.1uF X7R 25V 0603

Desacople, 1 for each VDDIO
C73 C68 C63 C59 C58
C57 C60 C76 C64 C72
0.1uF X7R 25V 0603

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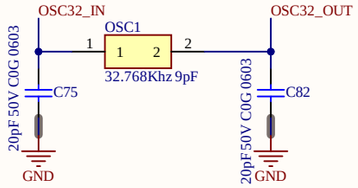
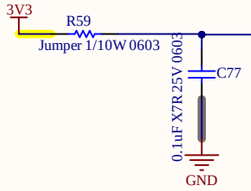
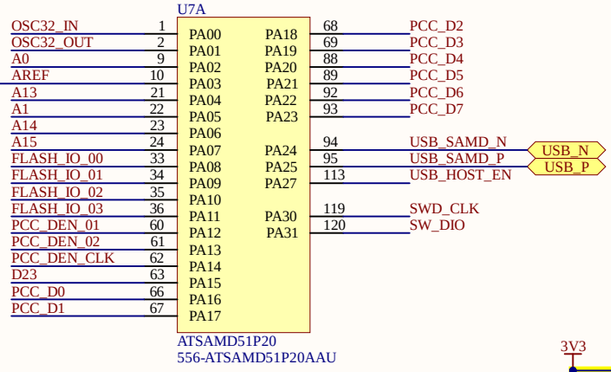
[04] - SAMD51.SchDoc

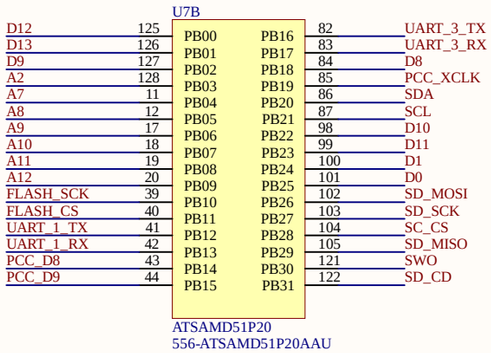
(Block Diagram)

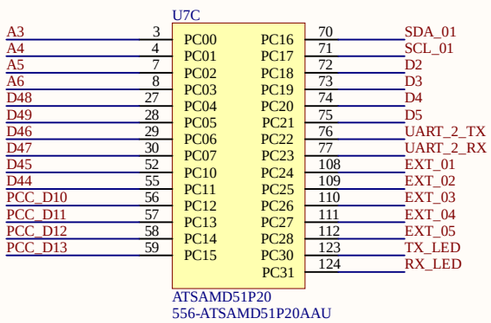


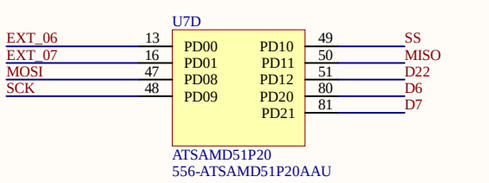
DESIGN NOTE:
Añadido R42,R68,R69 (STANDAR) ,
R70, R43 y R67 SON NO BOM

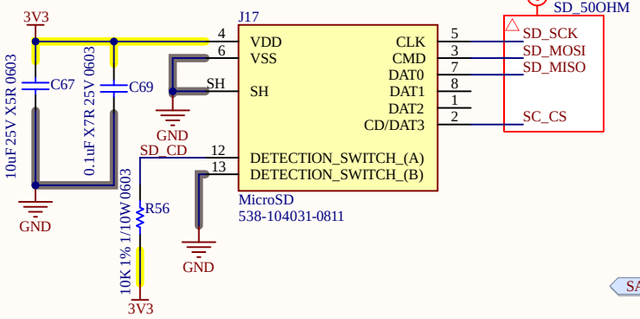


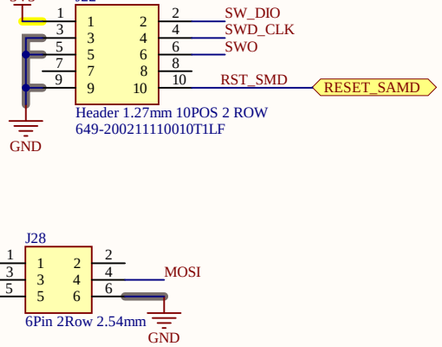


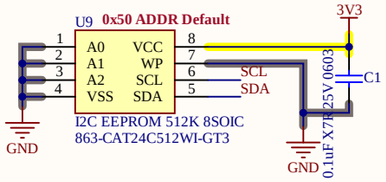


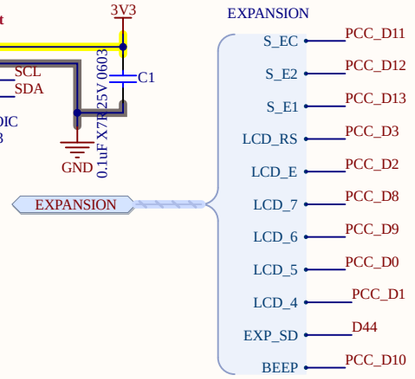


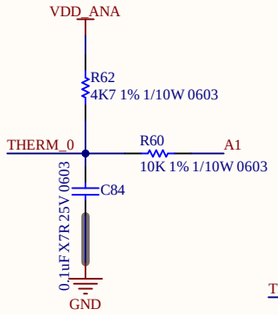


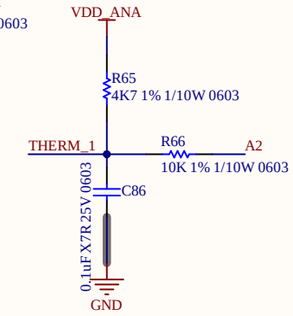


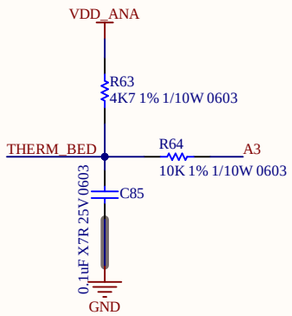


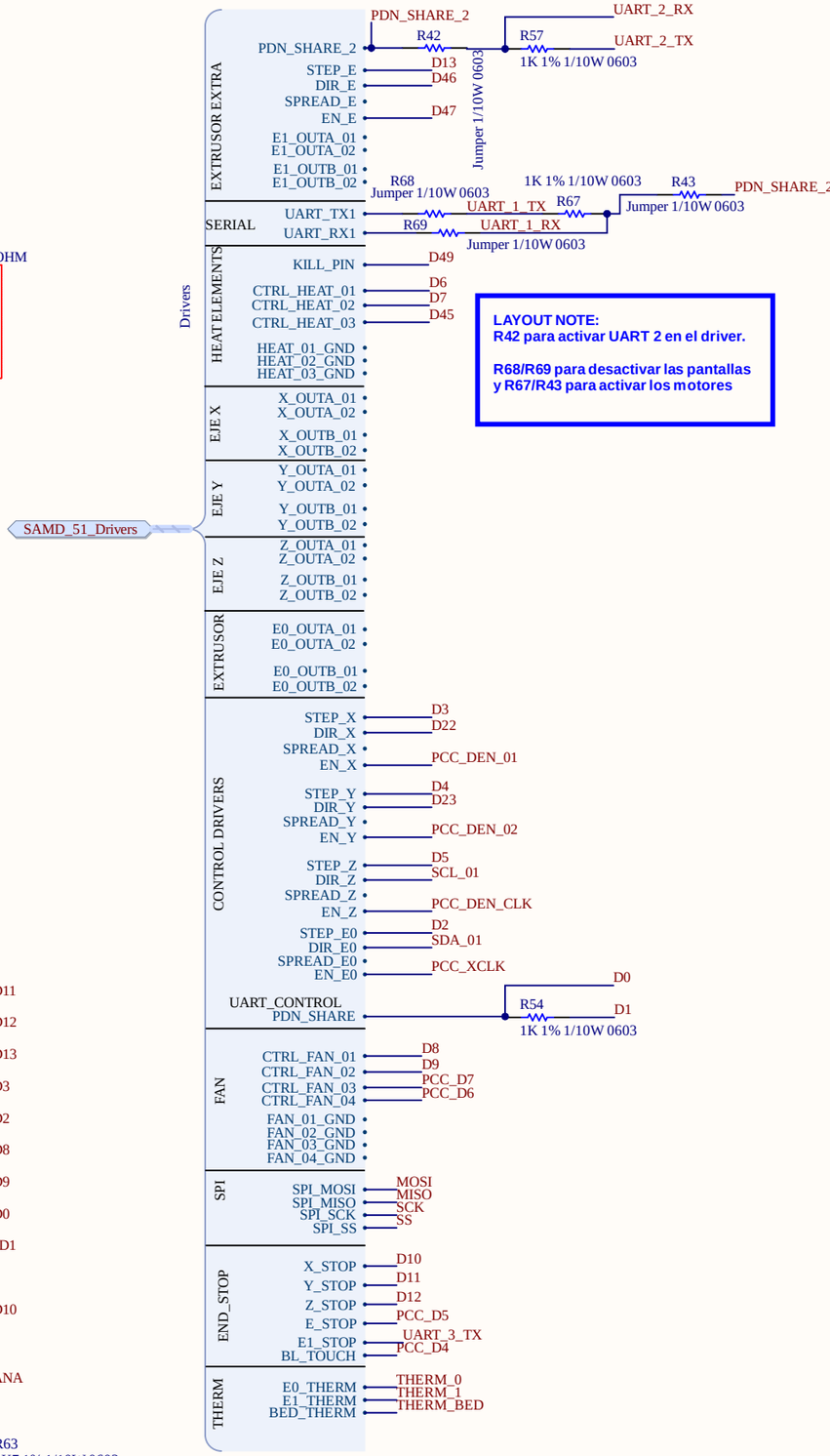












LAYOUT NOTE:
R42 para activar UART 2 en el driver.

R68/R69 para desactivar las pantallas y R67/R43 para activar los motores

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Hardware engineer:	Carlos Patiño mariño
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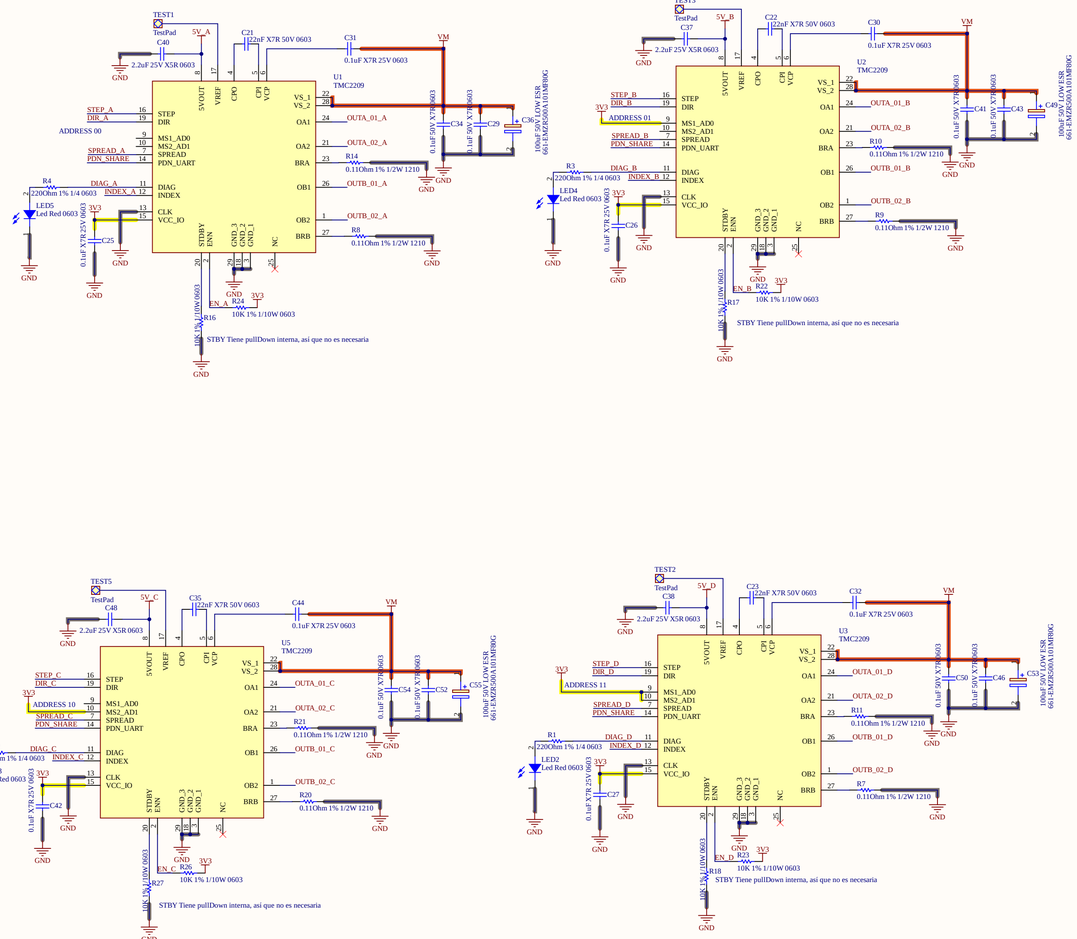
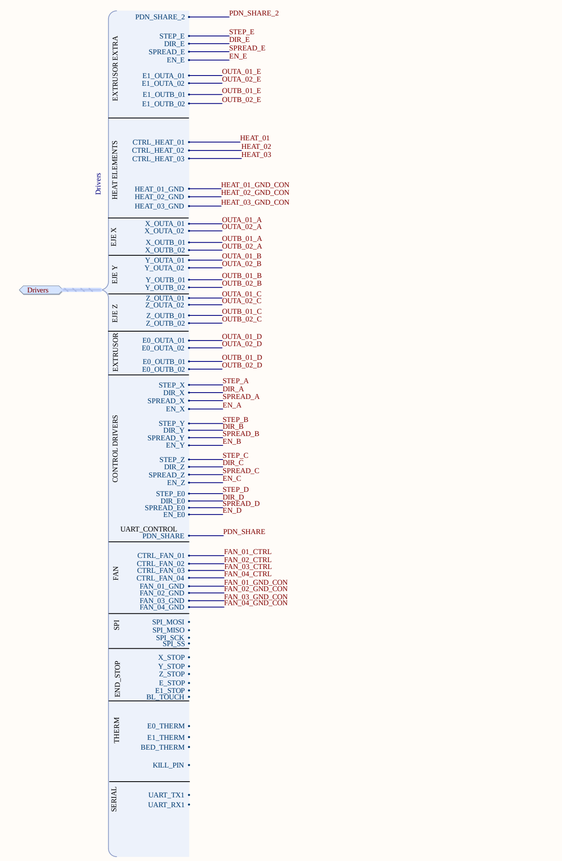
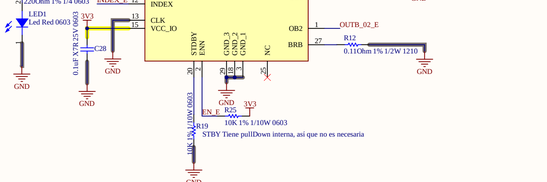
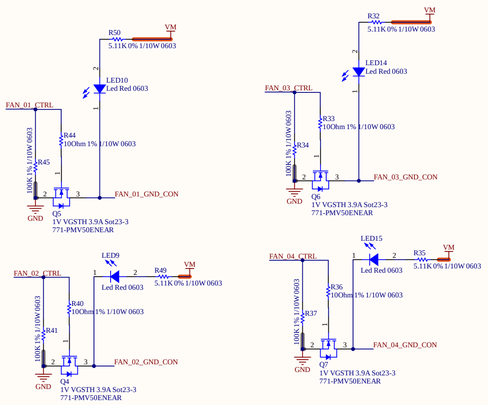
[05] - Drivers & Mosfet.SchDoc

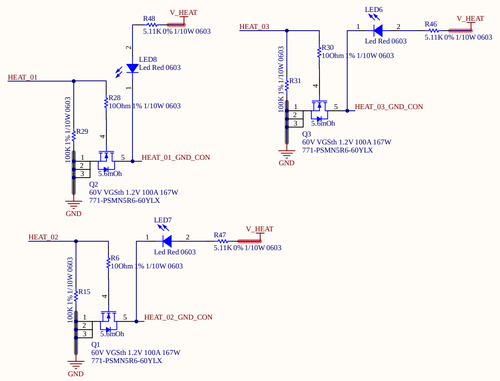






Leds de VM con 5,11k o 10K





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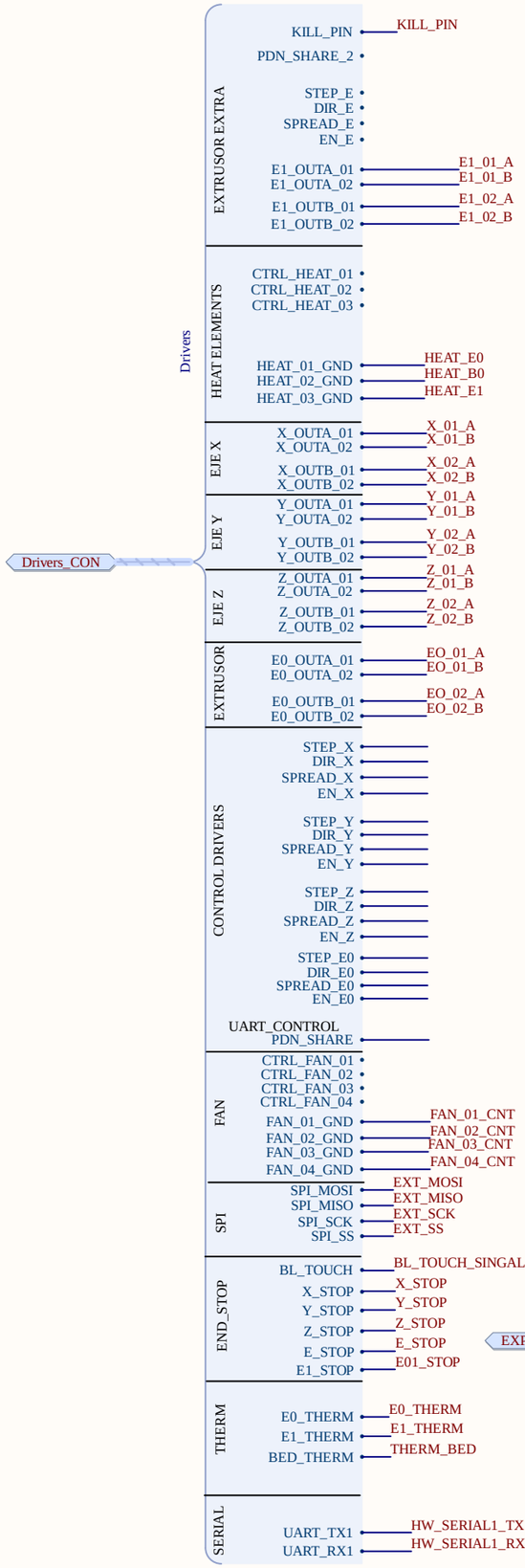
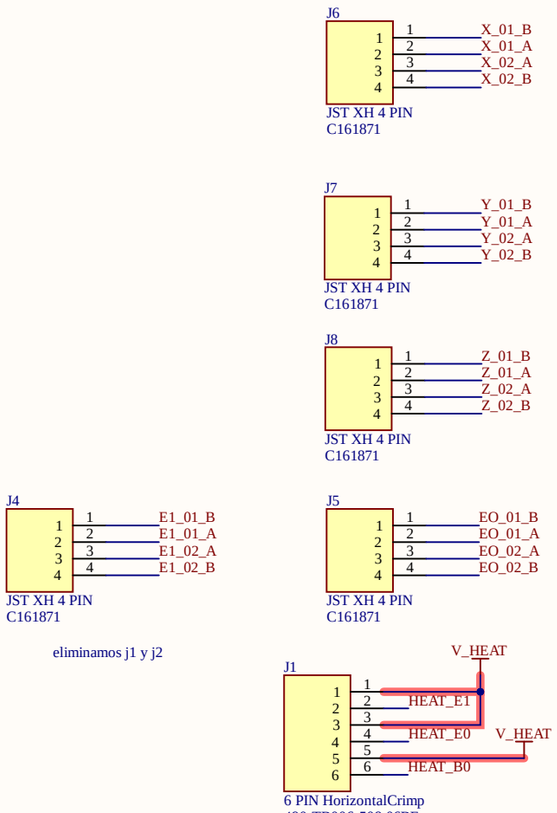
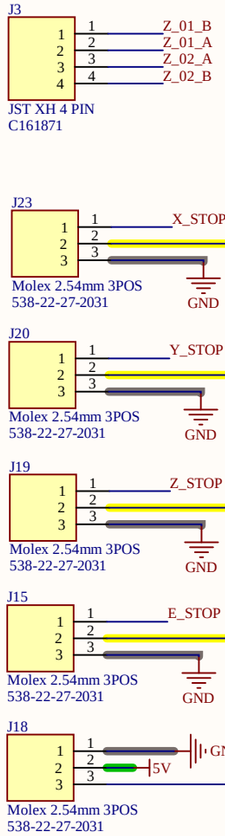
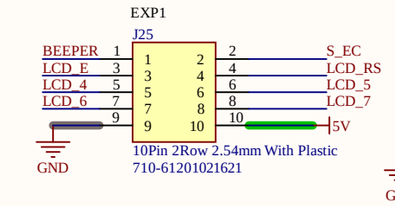
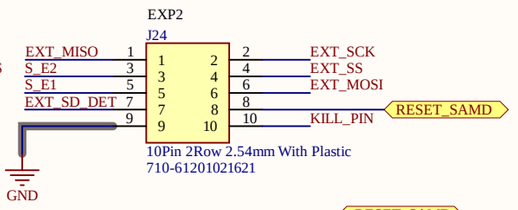
AUDIO section

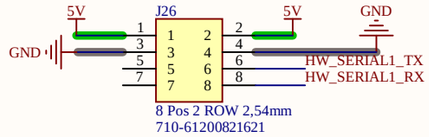


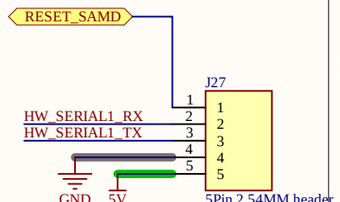


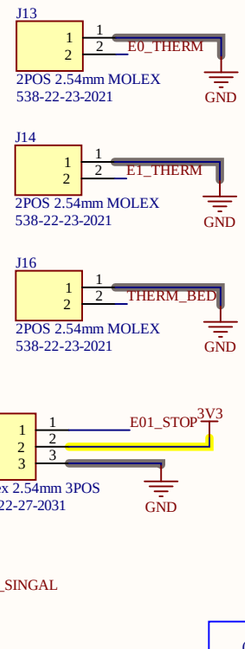


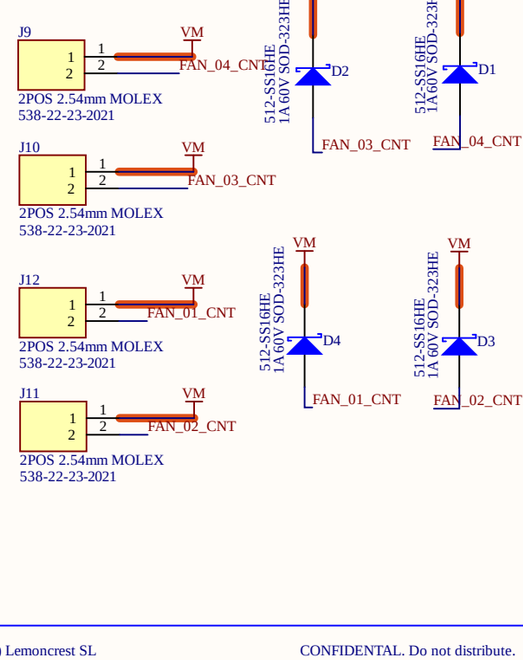












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DOC: REVISION HISTORY

Diodo D1 y D2, el footprint está incorrecto, pasarlo a SMC	Correjido
Mejora footprint Led	Correjido
Pins EXP1 y EXP2, pin 8 Reset 9 GND	Correjido
3D del EXP1 y EXP2 con el hueco hacia arriba	Correjido

Pedidos de prototipo enviados a Oscar Bricogeek

Pin 10 a KILLPIN	OK

Rev B entrega final

Compatibildad con la pantalla TFT MKS	OK
Sacar pines de manera externa para el usuario	-
Todos los ventiladores controlados	OK
Cambiar conectores motores a un JST XH	OK
Añadido I2C EEPROM	OK
Bajar luminosidad led	OK

CLOCKS (CPU & PCIE)

BricoGeek

https://tienda.bricogeek.com/impresion-3d-electronica/1476-bricolemon-revb.html

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