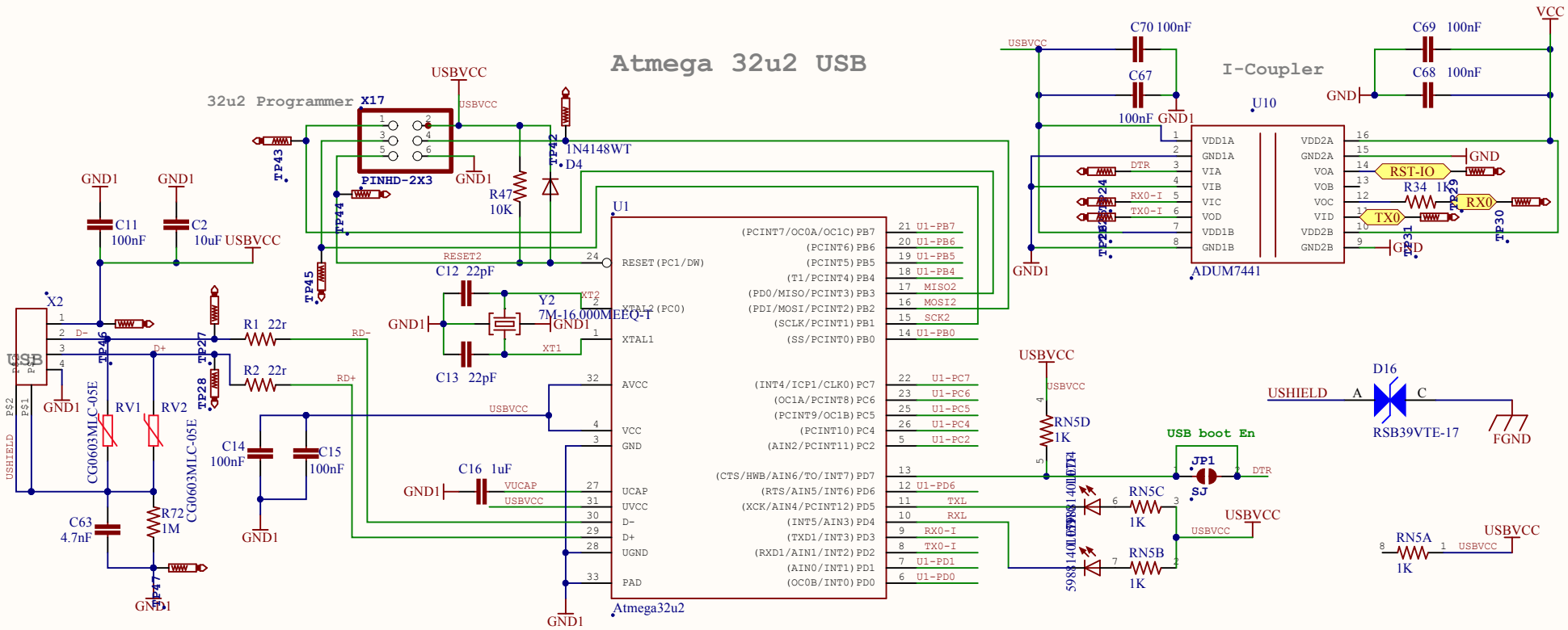


USB to Serial

Atmega 32u2 USB



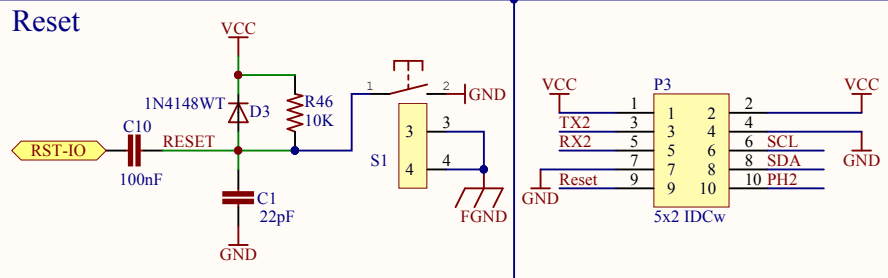
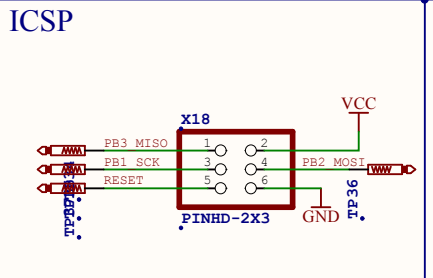
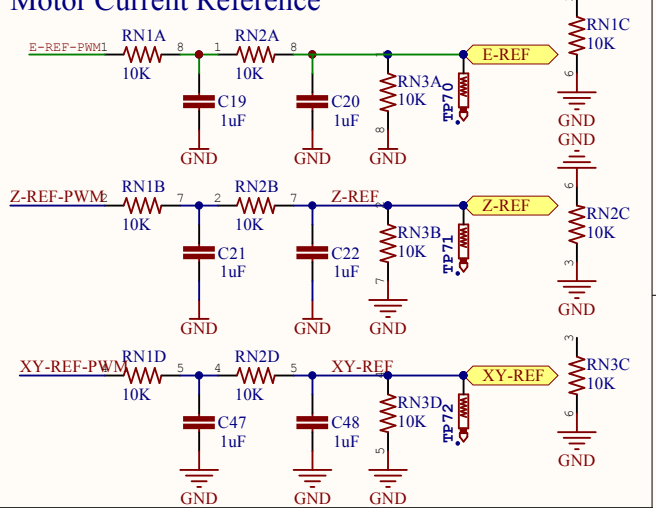
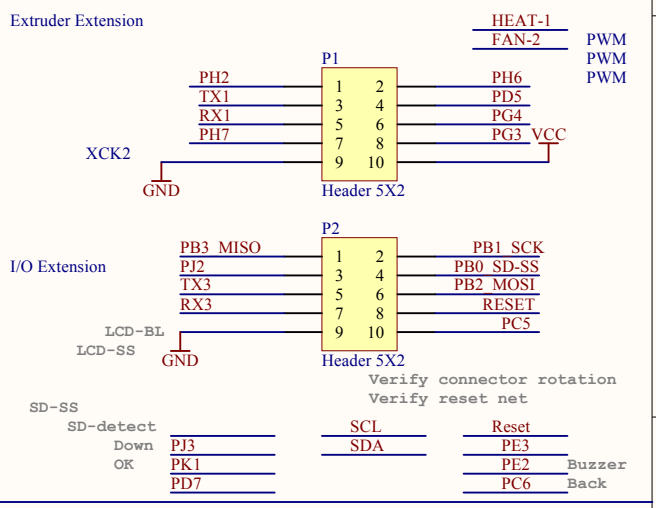
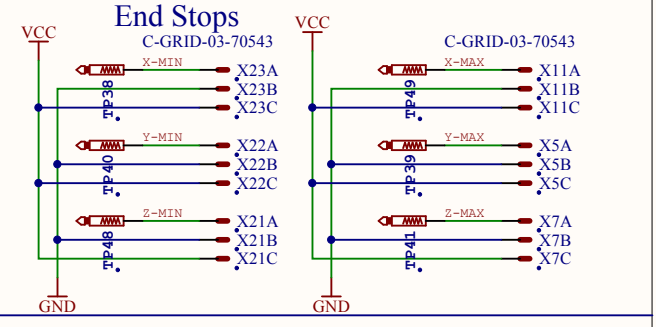
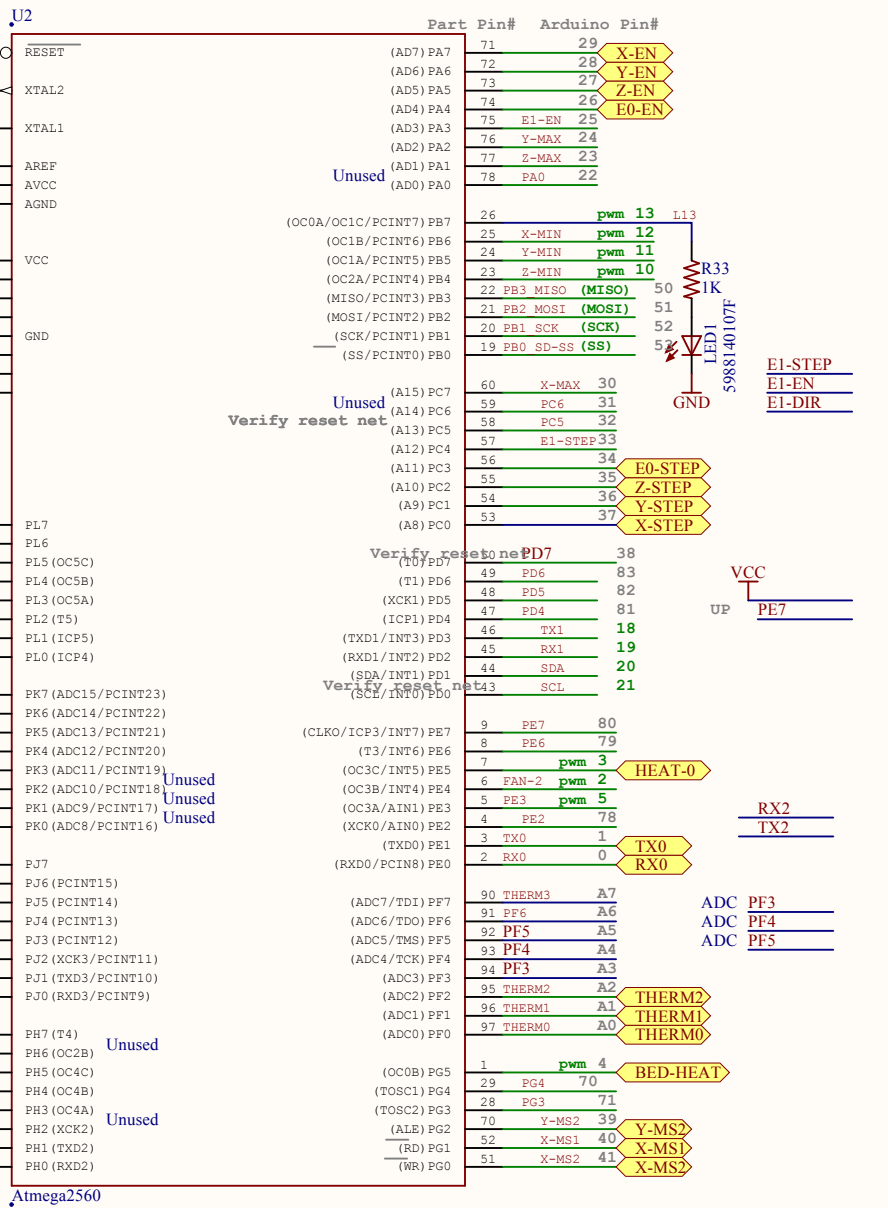
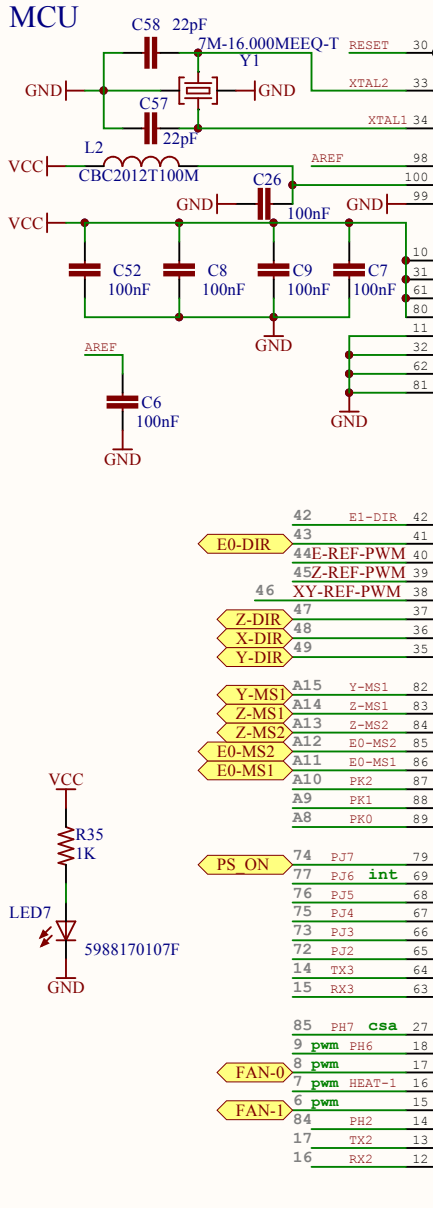
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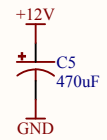
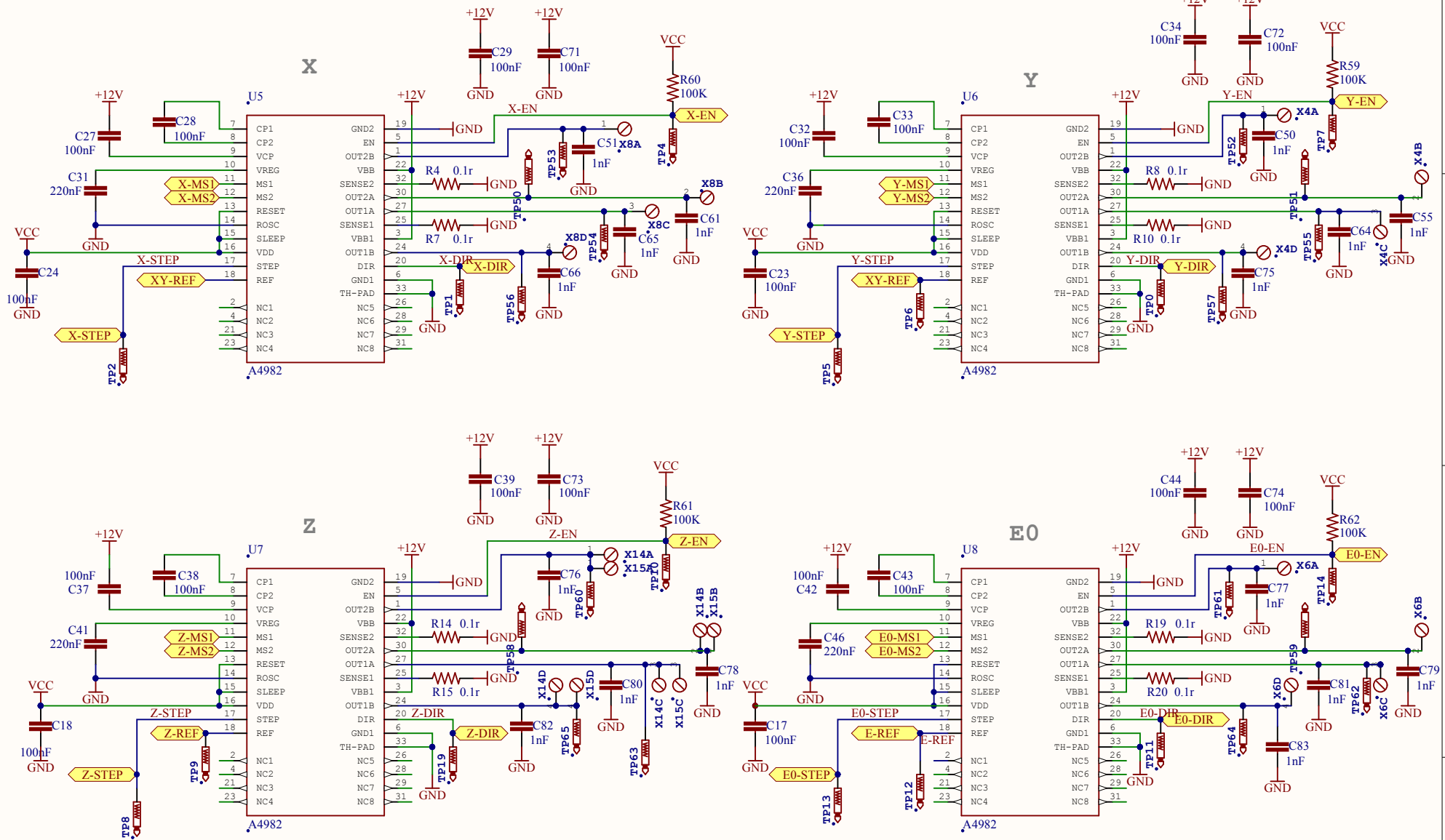
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Size	Number	Revision			
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Date:	4/6/2015	Sheet 1 of 5			
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Mini-Rambo

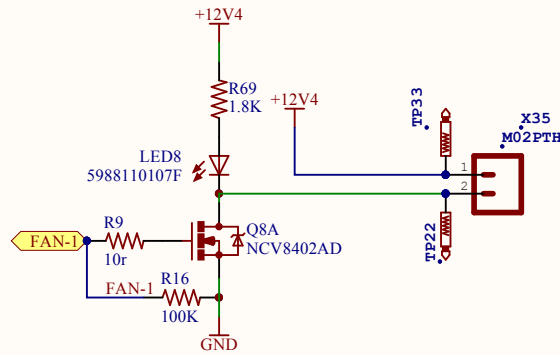
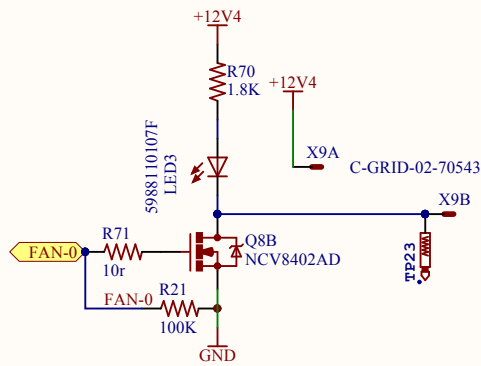
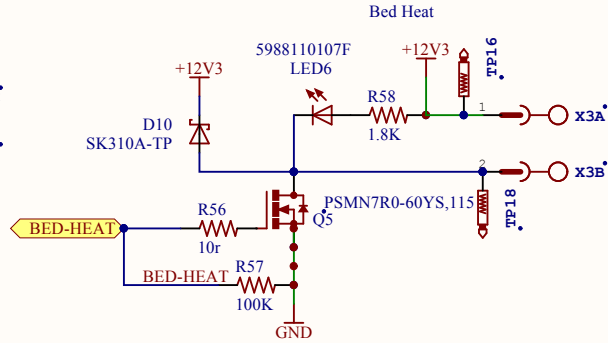
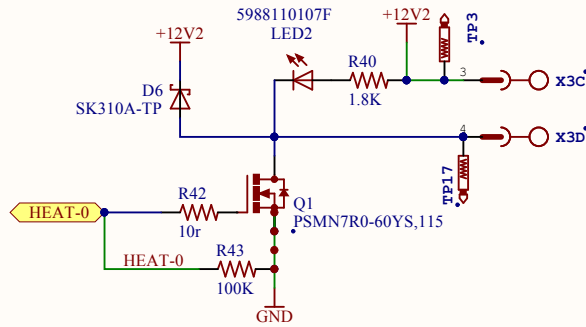
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Stepper Motor Drivers

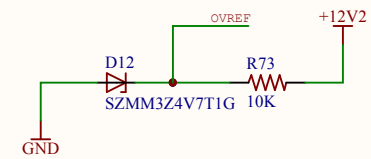
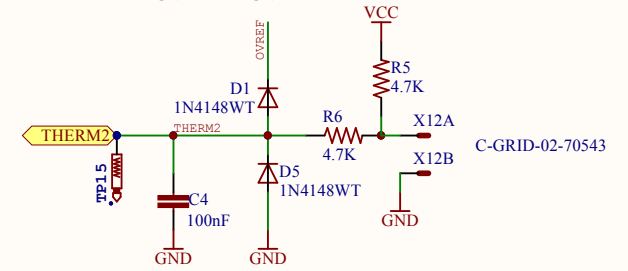
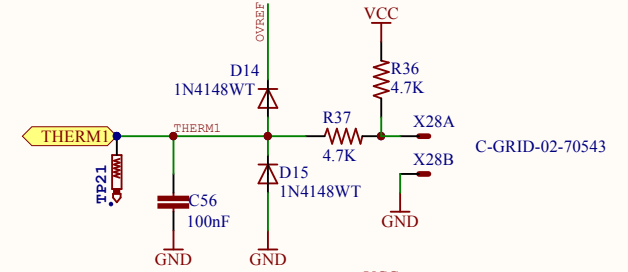
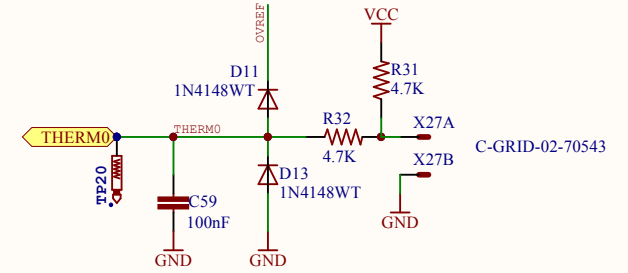


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Size	Number	Revision	
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Heater Outputs

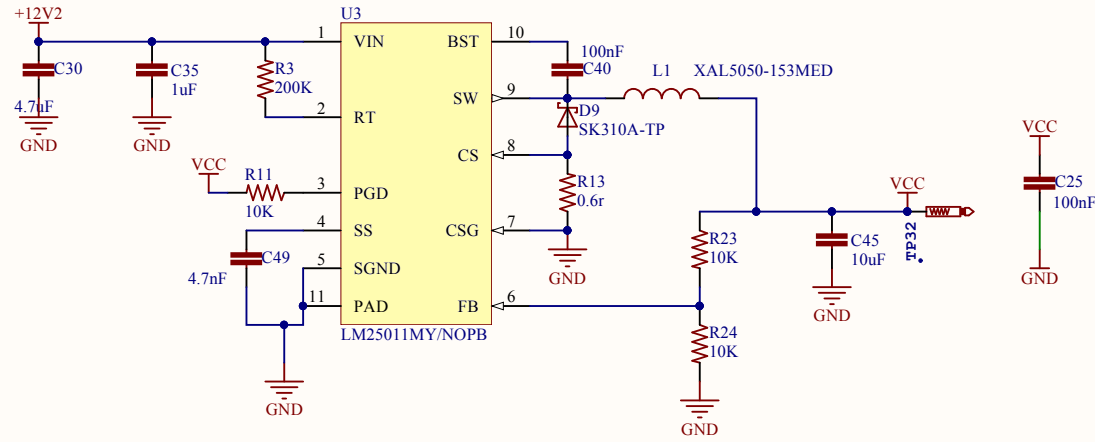


Thermistors

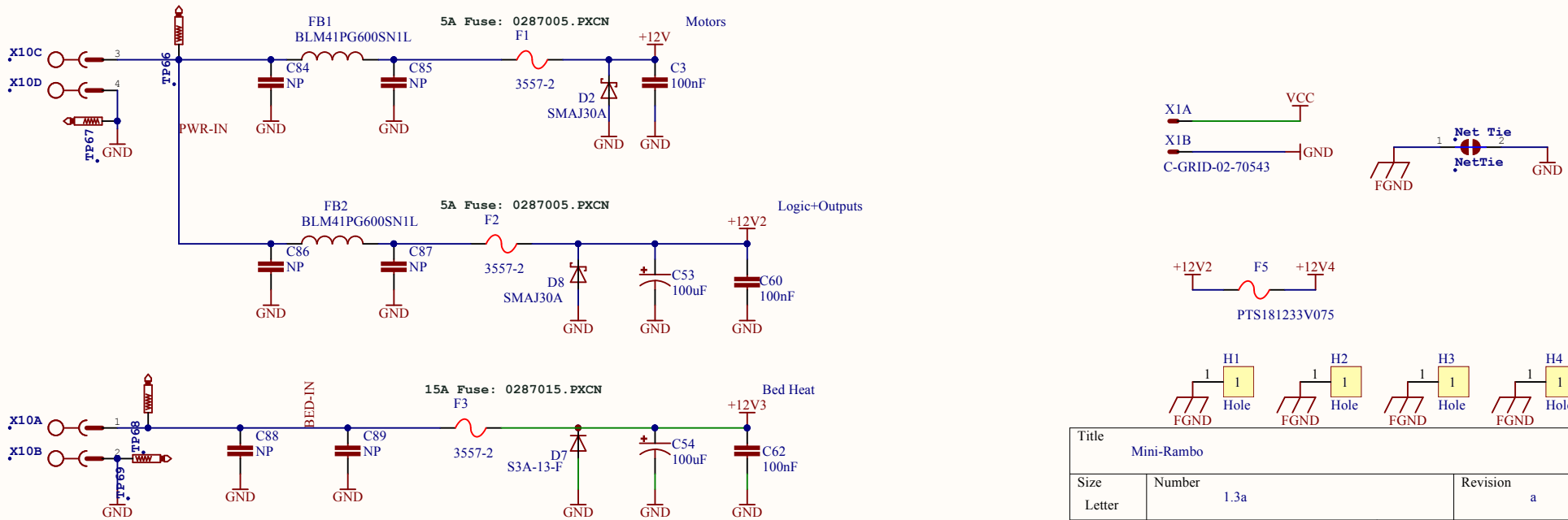


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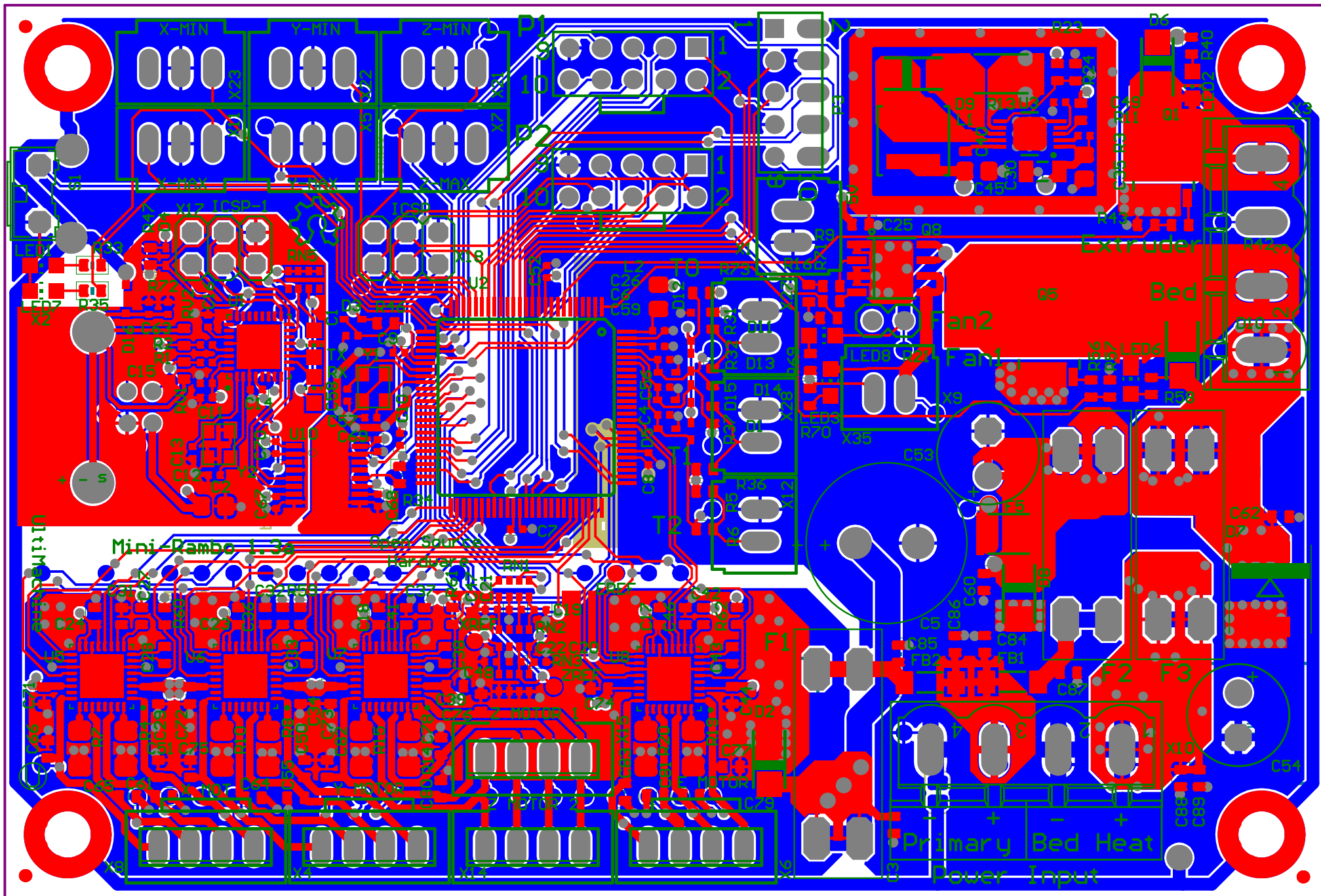
Voltage Regulator



Power Input



Title			Mini-Rambo		
Size	Number			Revision	
Letter	1.3a			a	
Date:	4/6/2015	Sheet 5 of 5			
File:	C:\Users\...\Power-SMPS.SchDoc	Drawn By:		UltiMachine	



Designator	Manufacturer 1	Manufacturer Part Number 1	Description	Comment	Quantity	LibRef
C1, C12, C13, C57, C58			CAP CER 0402 22pF 50V 5% COG	22pF	5	04025A220AT2A
C2, C45			CAP CER 0805 10uF 10V 10% XSR	10uF	2	C0805C106K8PACTU
C3, C17, C18, C23, C24, C25, C27, C28, C29, C32, C33, C34, C37, C38, C39, C40, C42, C43, C44, C60, C62, C71, C72, C73, C74			CAP CER 0603 100nF 50V 10% X7R	100nF	25	C0603C104K5RACTU
C4, C6, C7, C8, C9, C10, C11, C14, C15, C26, C52, C56, C59, C67, C68, C69, C70			CAP CER 0402 100nF 16V 10% X7R	100nF	17	GRM155R71C104KA88D
C5			CAP ALU 470uF 50V 20%	470uF	1	UPW1H471MHD1TO
C16, C19, C20, C21, C22, C47, C48			CAP CER 0402 1uF 6.3V 10% X5R	1uF	7	GRM155R60J105KE19D
C30			CAP CER 1206 4.7uF 50V 10% X5R	4.7uF	1	C1206C475K5PACTU
C31, C36, C41, C46			CAP CER 0603 220nF 10V 10% X7R	220nF	4	CC0603KRX7R7BB224
C35			CAP CER 0805 1uF 50V 10% X7R	1uF	1	GRM21BR71H105KA12L
C49, C63			CAP CER 0402 4.7nF 25V 10% X7R	4.7nF	2	CC0402KRX7R88B472
C50, C51, C55, C61, C64, C65, C66, C75, C76, C77, C78, C79, C80, C81, C82, C83			CAP CER 0603 1nF 50v 10% X7R	1nF	16	C0603C102K5RACTU
C53, C54			CAP ALU 100uF 50V 20% 105C	100uF	2	UVZ1H101MPD1TD
C84, C85, C86, C87, C88, C89			CAP CER 0603 100nF 50V 10% X7R	NP	6	C0603C104K5RACTU
D1, D3, D4, D5, D11, D13, D14, D15			DIODE SOD523	1N4148WT	8	1N4148WT
D2, D8			DIODE TVS 30V SMA	SMAJ30A	2	SMAJ30A
D6, D9, D10			DIODE Schottky 3A SMA	SK310A-TP	3	SK310A
D7			DIODE DO-214AB	S3A-13-F	1	S3A-13-F
D12			Z-Diode	SZMM3Z4V7T1G	1	ZENER-DIODE
D16			DIODE TVS	RSB39VTE-17	1	RSB39VTE-17
F1, F2, F3			FUSE PTH ATO	3557-2	3	3557-2
F5			FUSE 1812 PTC 750mA 6V	PTS181233V075	1	PTS181233V075
F81, F82			FERRITE BEAD 1806 60ohm	BLM41PG600SNL1	2	BLM41PG600SNL1
FID1, FID2, FID3			Fiducial	FIDUCIAL	3	FIDUCIAL
L1			IND 15uH 3.9A 20%	XALS050-153MED	1	XALS050-153MED
L2			IND 0805 10uH 240mA 20%	CRC2012T100M	1	CB2012T100M
LED1, LED4, LED10			LED 0805 Yellow	5988140107F	3	5988140107F
LED2, LED3, LED6, LED8			LED 0805 Red	5988110107F	4	5988110107F
LED7			LED 0805 Green	5988170107F	1	5988170107F
P1, P2			Header, 5-Pin, Dual row	Header 5X2	2	Header 5X2
P3				5x2 IDCw	1	5X2 IDCw
Q1, Q5			Mosfet N-channel 60V 356A 117W 9.3mOhms	PSMN7R0-60YS.115	2	PSMN7R0-60YS.115
Q8				NCV8402AD	1	NCV8402AD
R1, R2			RES 0402 22r 62.5mW 1%	22r	2	RC0402FR-0722RL
R3			RES 0402 22r 63mW 1%	200K	1	CRCW0402200KFED
R4, R7, R8, R10, R14, R15, R19, R20			RES 1206 0.1r 0.5w 1%	0.1r	8	CRM1206-FX-R100ELF
R5, R6, R31, R32, R36, R37			RES 0603 4.7K 100mW 1%	4.7K	6	ERJ3EKF4701V
R9, R42, R56, R71			RES 0603 10r 100mW 1%	10r	4	CRCW060310R0FKEA
R11, R23, R24, R46, R47, R73			RES 0603 10K 100mW 1%	10K	6	ERJ-3EKF1002V
R13			RES 0.06 OHM 1W 1% 2512 SMD	0.6r	1	RL2512FK-070R06L
R16, R21, R43, R57, R59, R60, R61, R62			RES 100K OHM 1/10W 1% 0603 SMD	100K	8	RC0603FR-07100KL
R33, R34, R35			RES 0603 1K 100mW 1%	1K	3	ERJ-3EKF1001V
R40, R58, R69, R70			RES 0603 1.8K 100mW 5%	1.8K	4	RC0603JR-071K8L
R72			RES 0402 1M 100mW 5%	1M	1	ERJ2GEJ105X
RN1, RN2, RN3			RES ARRAY 4 RES 10K 1206 62.5mW 5%	10K	3	CAV16-103J4LF
RN5			RES ARRAY 4 RES 1K 1206 62.5mW 5%	1K	1	CAV16-102J4LF
RV1, RV2			VAR 0603 5V	CG0603MLC-05E	2	CG0603MLC-05E
S1	TE Connectivity	1571610-2	SWTCH Momentary Washable	1571610-2	1	1571610-2
U1	Atmel	ATMEGA32U2-MUR	Atmega32u2	Atmega32u2	1	ATMEGA32U2-MU2
U2	Atmel	ATMEGA2560-16AUR	Atmega2560	Atmega2560	1	ATMEGA2560AU
U3			REG BUCK	LM25011MY/NOPB	1	LM25011
U5, U6, U7, U8	Allegro Microsystems, LLC	A4982SETR-T	Stepper Driver - Fully Integrated, Control and Power Stage	A4982	4	A4982QFN32
U10			4ch iCoupler	ADUM7441	1	ADUM7441
X1, X9, X12, X27, X28			Connector 2pos 2.54mm locking	C-GRID-02-70543	5	C-GRID-02-70543
X2			USB connector B PTH	USB-B	1	USB-B
X3, X10			PHOENIX	0395311004	2	MSTBV4
X4, X6, X8, X14, X15			PHOENIX CONNECTOR	MPT4	5	MPT4
X5, X7, X11, X21, X22, X23			Connector 2pos 2.54mm locking	C-GRID-03-70543	6	C-GRID-03-70543
X17, X18			PIN HEADER	PINHD-2X3	2	PINHD-2X3
X35			Connector 2x1 2.54mm PTH	M02PTH	1	M02PTH
Y1, Y2			Crystal 16MHz 10ppm 10pF	7M-16.000M	2	7M-16.000MEEQ-T