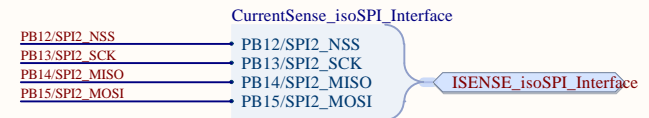
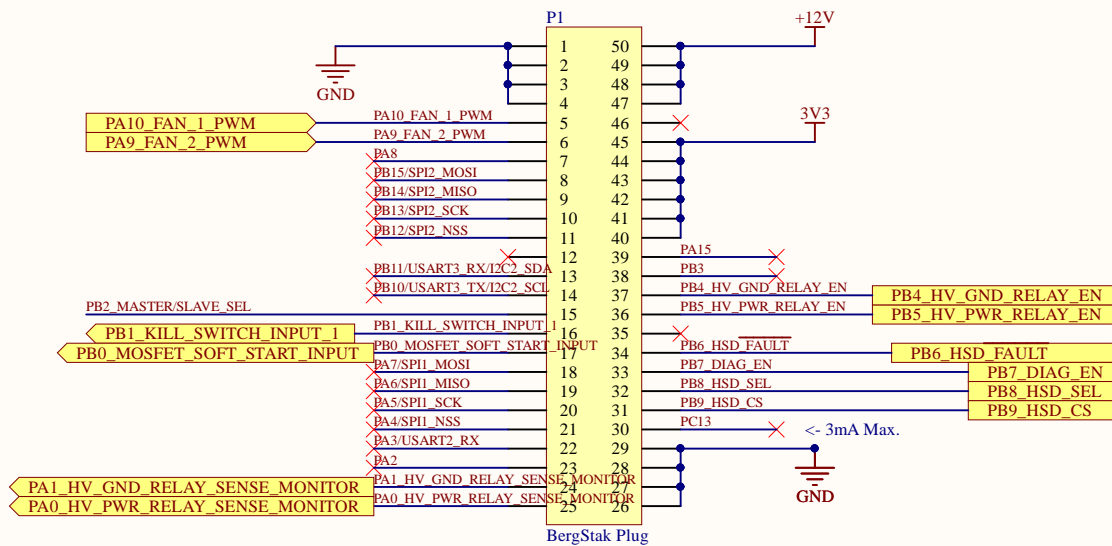



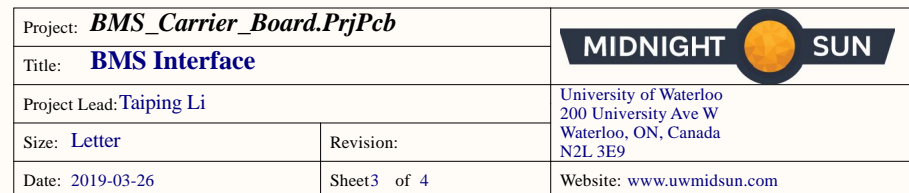
Controller Board

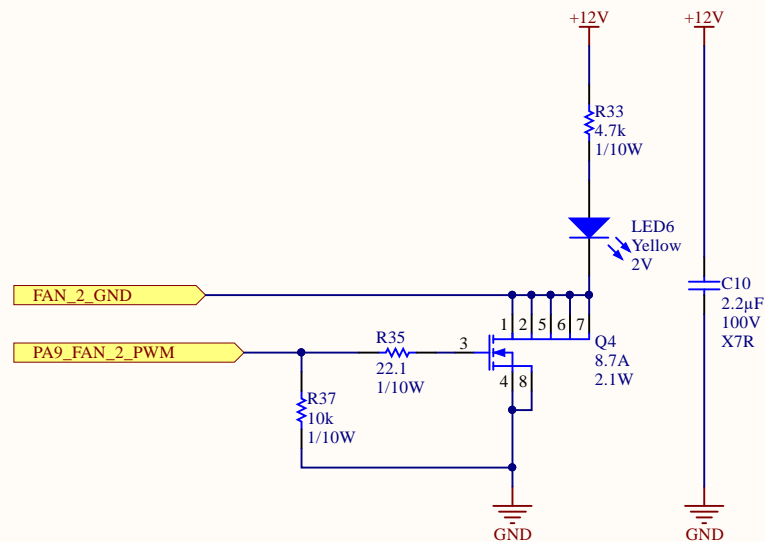
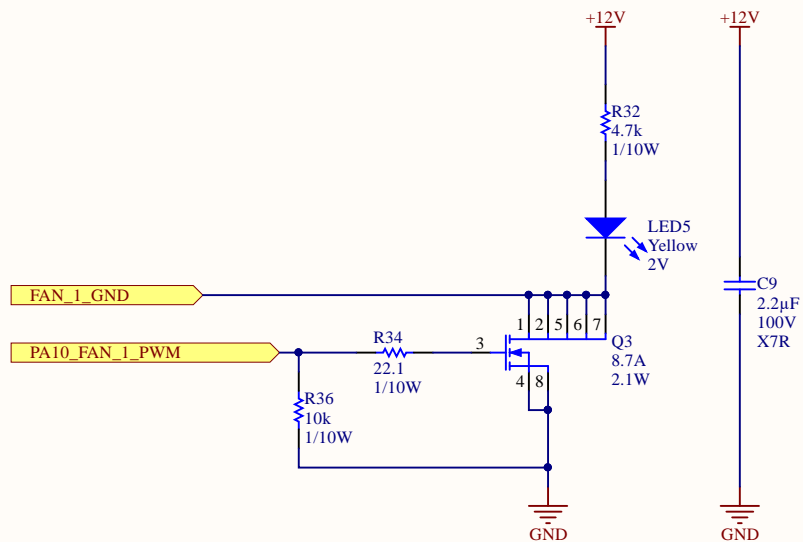



Project: <i>BMS_Carrier_Board.PrjPcb</i>		
Title: Controller Board Interface		
Project Lead: Taiping Li		University of Waterloo 200 University Ave W Waterloo, ON, Canada N2L 3E9 Website: www.uwmidsun.com
Size: Letter	Revision:	
Date: 2019-03-26	Sheet 1 of 4	

MODE	POL	PHA	DESCRIPTION
0	0	0	SCK Idles Low, Latches on Rising (1st) Edge
1	0	1	SCK Idles Low, Latches on Falling (2nd) Edge
2	1	0	SCK Idles High, Latches on Falling (1st) Edge
3	1	1	SCK Idles High, Latches on Rising (2nd) Edge

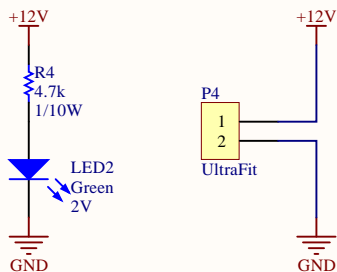
Bias Current I_{BIAS} can be adjusted from 0.1mA to 1mA
Currently set to 1mA



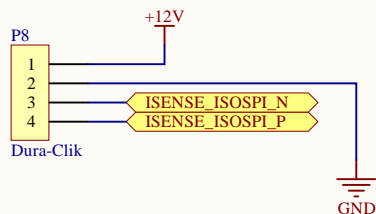


Project: BMS_Carrier_Board.PrjPcb		
Title: BMS Fan and Relay Control		
Project Lead: Taiping Li		University of Waterloo 200 University Ave W Waterloo, ON, Canada N2L 3E9
Size: Letter	Revision:	
Date: 2019-03-26	Sheet4 of 4	
		Website: www.uwmidSun.com

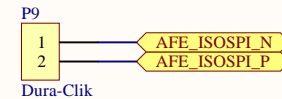
12V Power



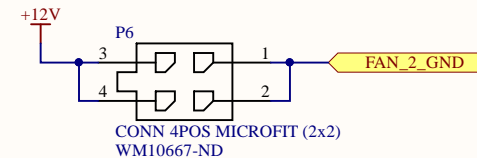
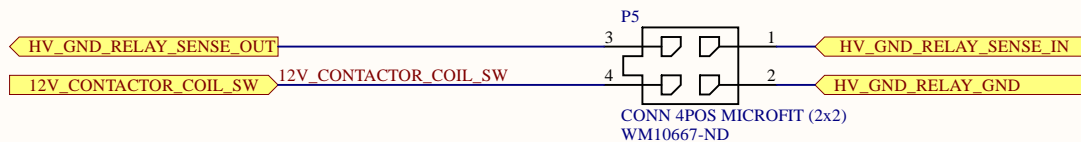
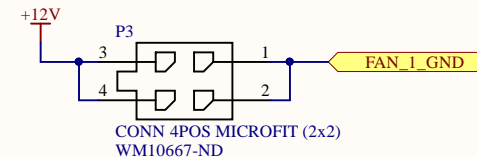
BMS Current Sense



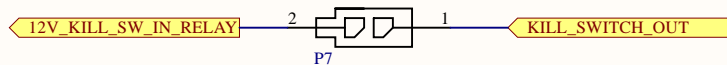
AFE isoSPI



Fan & Relays



Kill Switch



Project: **BMS_Carrier_Board.PrjPcb**

Title: **BMS Fan and Relay Control**

Project Lead: Taiping Li

Size: Letter

Date: 2019-03-26

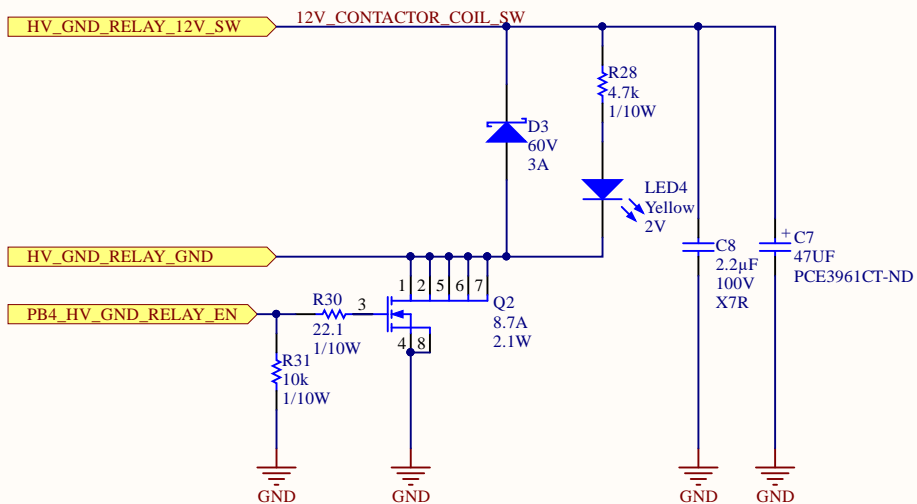
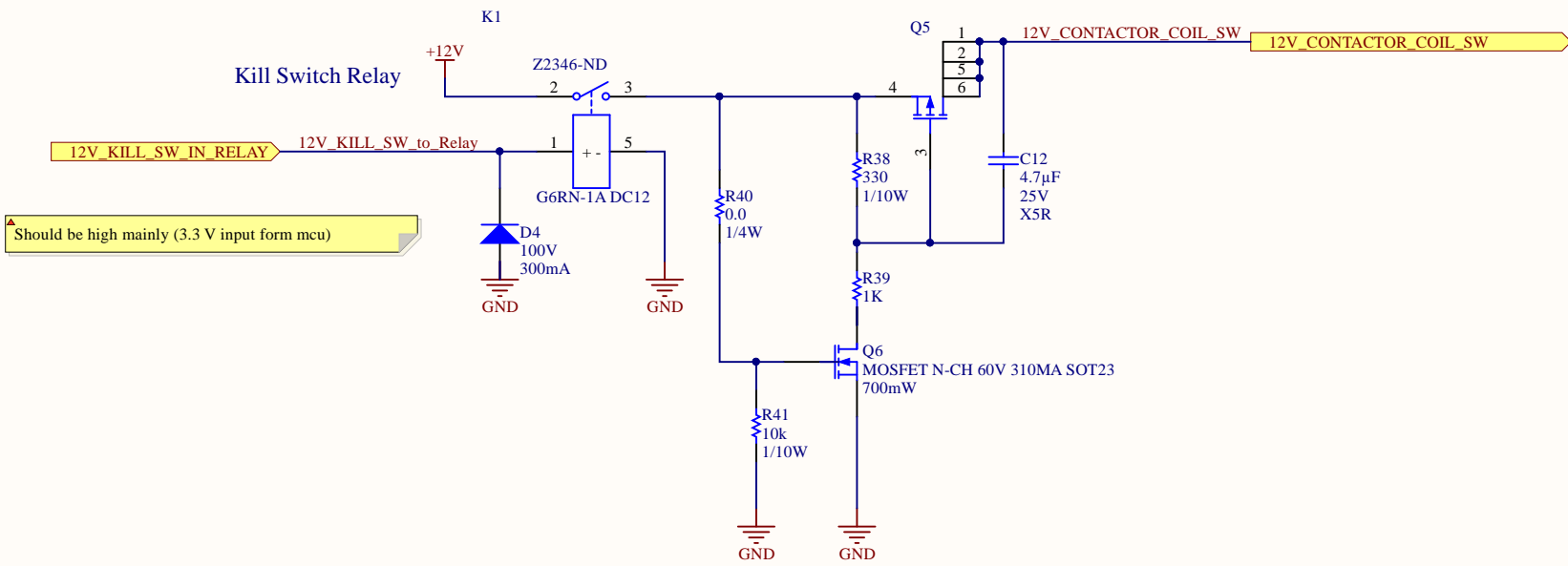
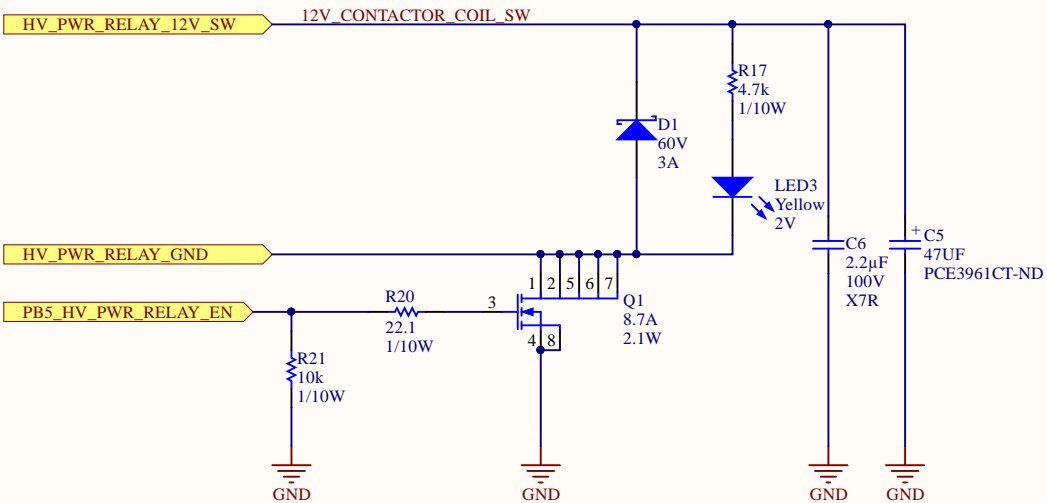
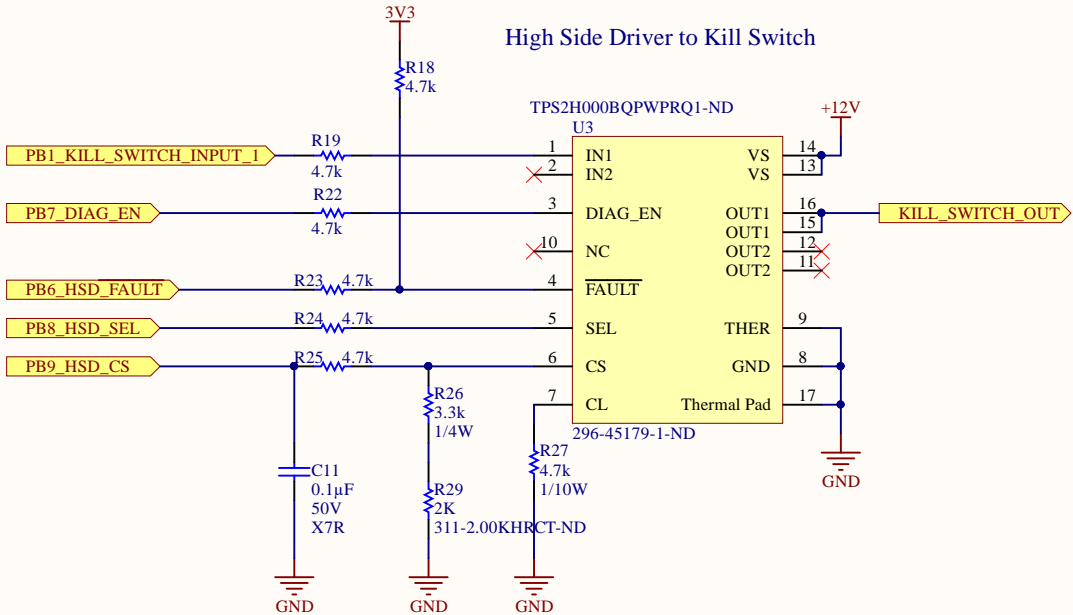
Revision:

Sheet4 of 4



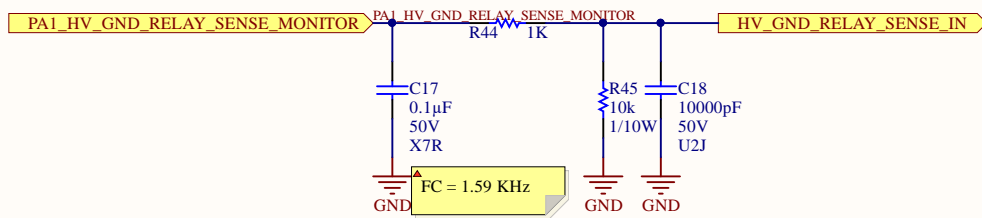
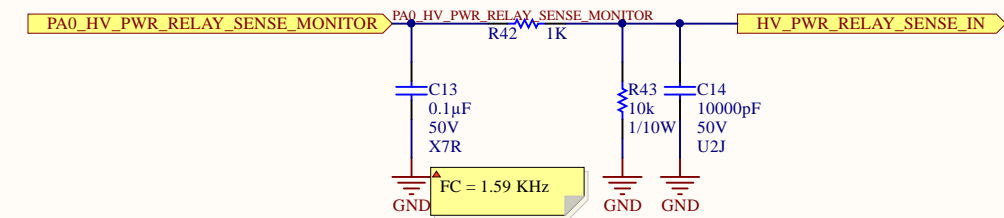
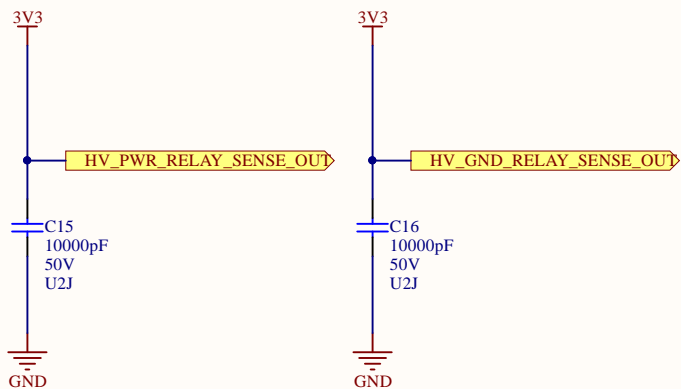
University of Waterloo
200 University Ave W
Waterloo, ON, Canada
N2L 3E9


Website: www.uwmidsun.com



Should be high mainly (3.3 V input form mcu)

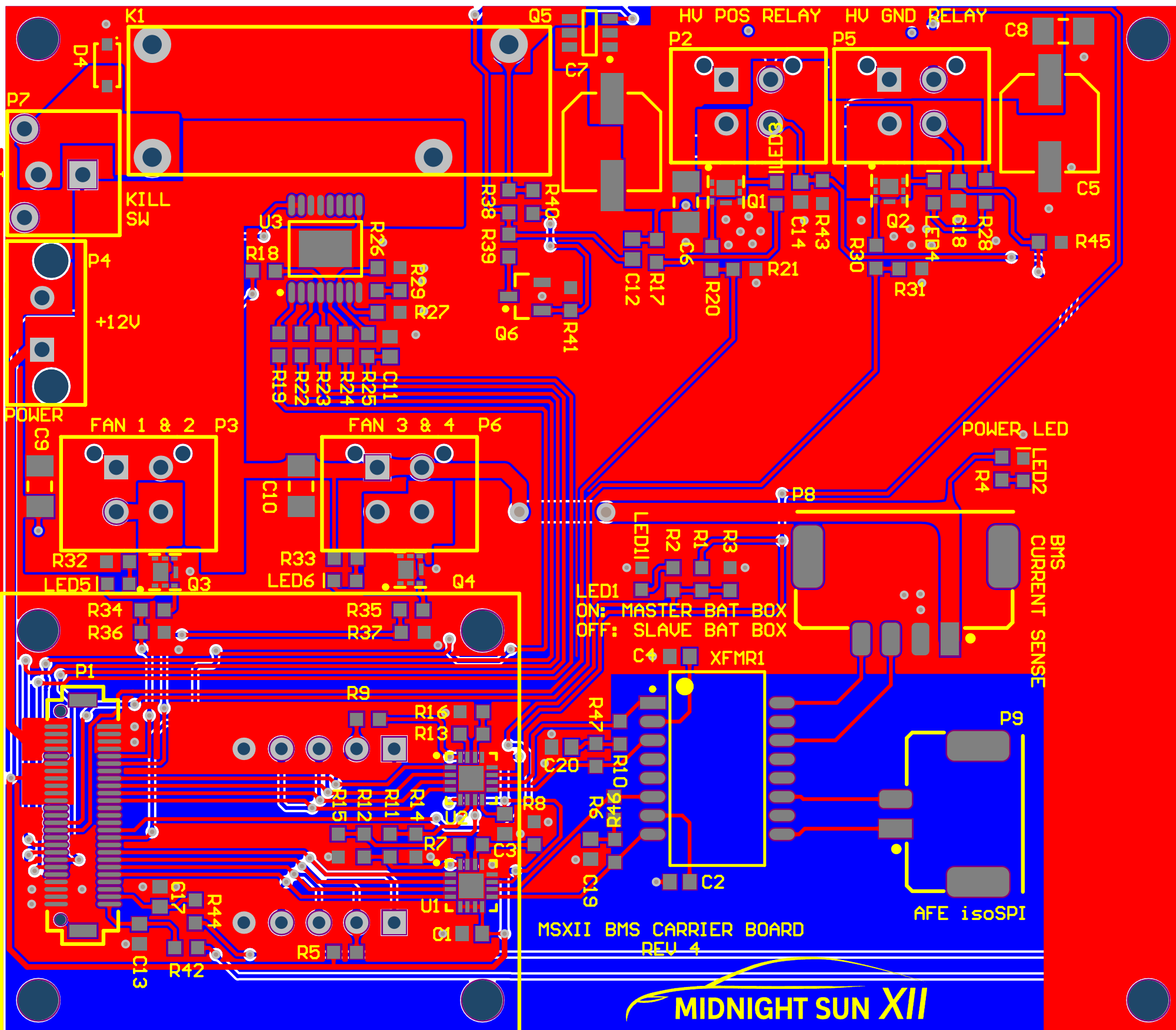
Firmware Detection State of Contactor



Project: <i>BMS_Carrier_Board.PrjPcb</i>		<div>MIDNIGHTSUN</div>
Title: *		
Project AuthorTaiping Li		University of Waterloo 200 University Ave W Waterloo, ON, Canada N2L 3E9
Size: Letter	Revision:	
Date: 2019-03-26	Sheet* of *	Website:

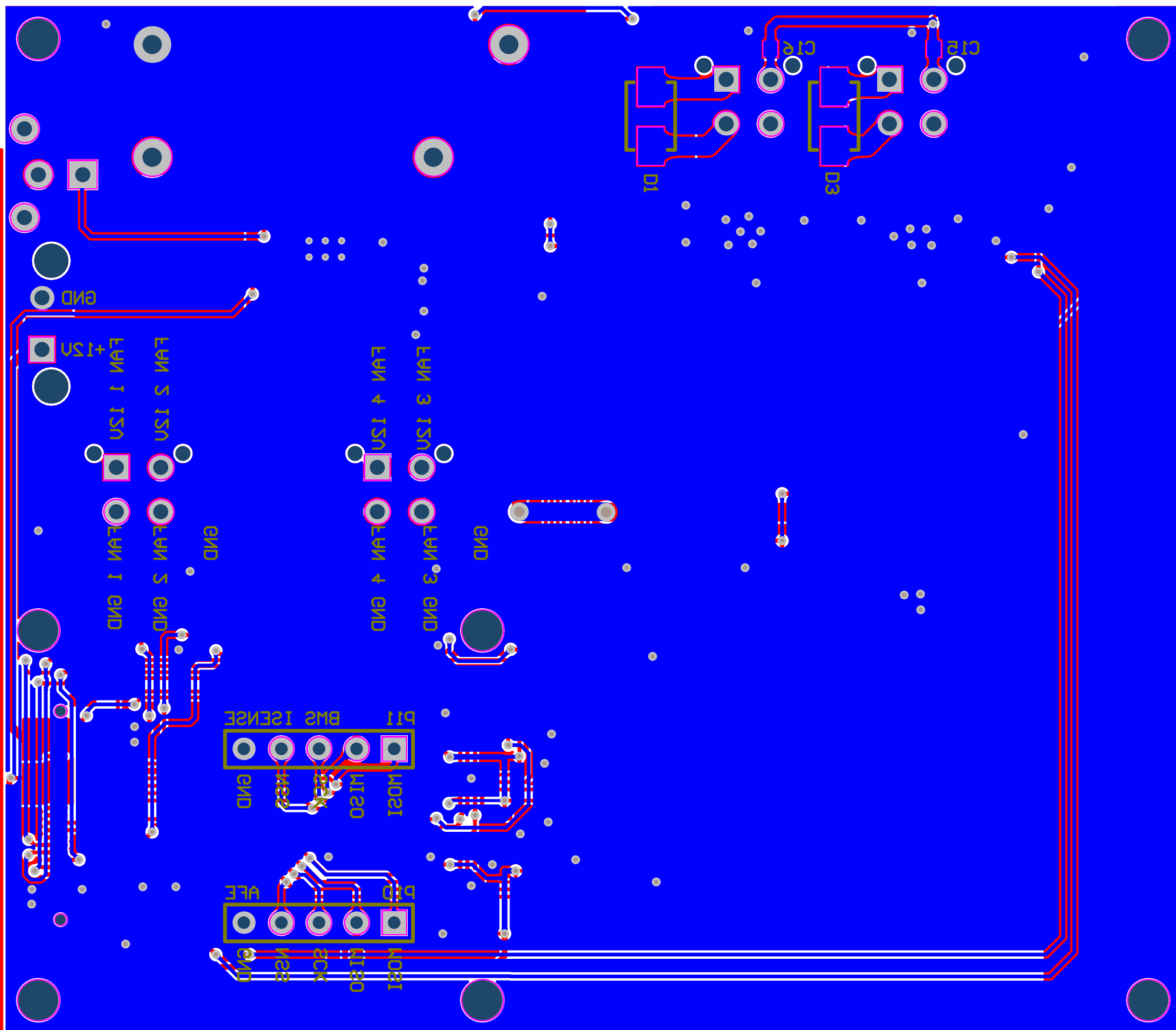
MIDNIGHT SUN

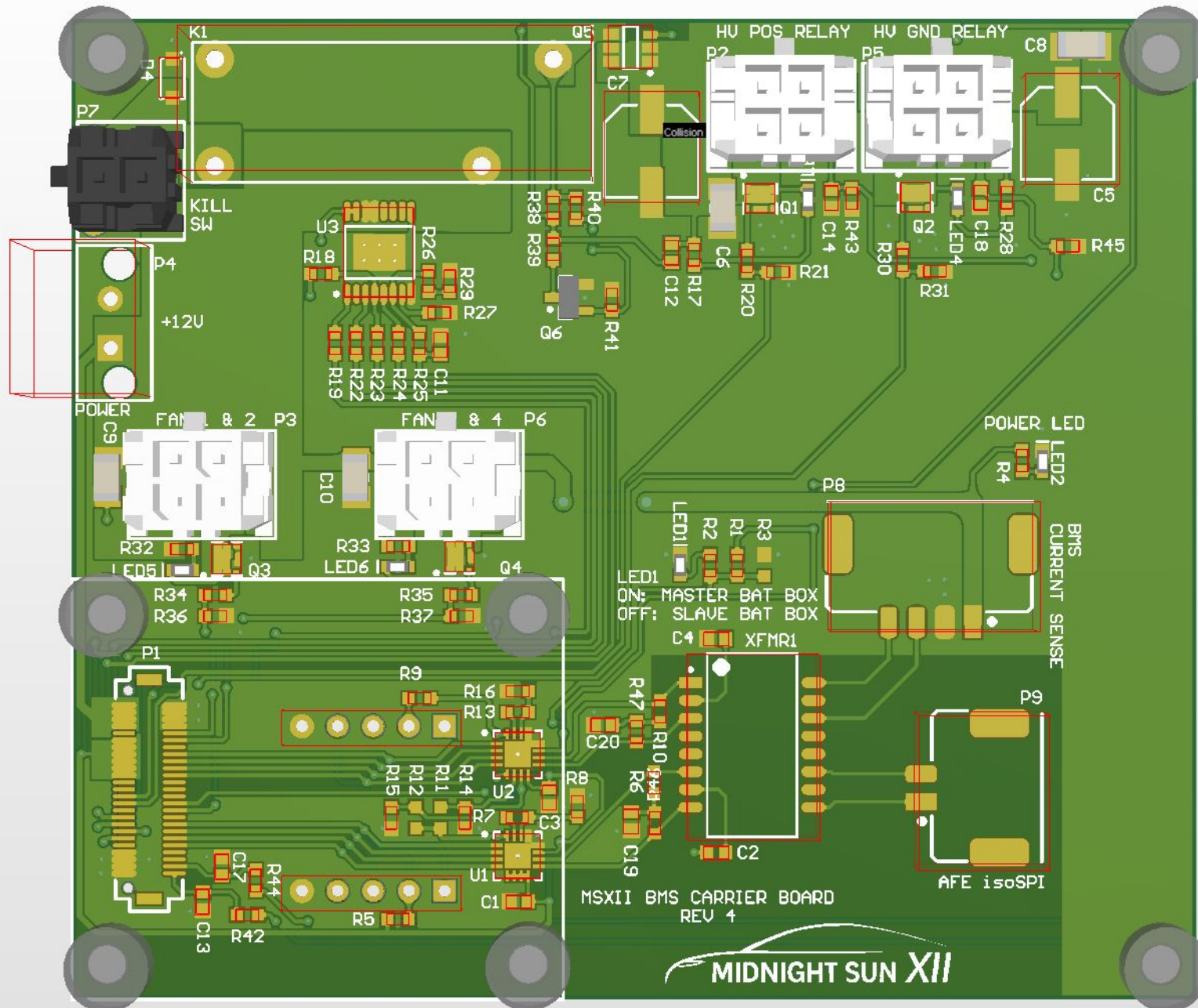
LibRef	Designator	Manufacturer 1	Manufacturer Part Number 1	Supplier 1	Supplier Part Number 1	Supplier Unit Price 1	Supplier Order Qty	Supplier Subtotal 1
CAP CER 0.1UF 50V 10% X7R 0603	C1	Kyocera AVX	06035C-10K4KTA2	Digi-Key	478-5052-1-ND	0.21	1	\$ 0.21
CAP CER 20PF 50V 45% COG/NPO 0603	C2	Murata	GRM1885C1H20J40A1D	Digi-Key	490-1410-1-ND	0.13	1	\$ 0.13
CAP CER 0.1UF 50V 10% X7R 0603	C3	Kyocera AVX	06035C-10K4KTA2	Digi-Key	478-5052-1-ND	0.21	1	\$ 0.21
CAP CER 20PF 50V 45% COG/NPO 0603	C4	Murata	GRM1885C1H20J40A1D	Digi-Key	490-1410-1-ND	0.13	1	\$ 0.13
CAP ALUM 47UF 20V 35V SMD	C5	Panasonic	EEE1V4A70WV	Digi-Key	PEC3961CT-ND	0.55	1	\$ 0.55
CAP CER 2.2UF 100V ±20% X7R 1206	C6	Murata	GRM31CR72A225MA73	Digi-Key	490-12773-1-ND			
CAP ALUM 47UF 20V 35V SMD	C7	Panasonic	EEE1V4A70WV	Digi-Key	PEC3961CT-ND	0.55	1	\$ 0.55
CAP CER 2.2UF 100V ±20% X7R 1206	C8	Murata	GRM31CR72A225MA73	Digi-Key	490-12773-1-ND			
CAP CER 2.2UF 100V ±20% X7R 1206	C9	Murata	GRM31CR72A225MA73	Digi-Key	490-12773-1-ND			
CAP CER 2.2UF 100V ±20% X7R 1206	C10	Murata	GRM31CR72A225MA73	Digi-Key	490-12773-1-ND			
CAP CER 0.1UF 50V 10% X7R 0603	C11	Kyocera AVX	06035C-10K4KTA2	Digi-Key	478-5052-1-ND	0.21	1	\$ 0.21
CAP CER 4.7UF 25V 10% X5R 0603	C12	Murata	GRM1888R1E475KE11D	Digi-Key	400-7203-1-ND	0.49	1	\$ 0.49
CAP CER 0.1UF 50V 10% X7R 0603	C13	Kyocera AVX	06035C-10K4KTA2	Digi-Key	478-5052-1-ND	0.21	1	\$ 0.21
CAP CER 10nF 50V 5% X7R 0603	C14	KEMET	C0603C103J5JACTU	Digi-Key	399-13384-1-ND	0.48	1	\$ 0.48
CAP CER 10nF 50V 5% X7R 0603	C15	KEMET	C0603C103J5JACTU	Digi-Key	399-13384-1-ND	0.48	1	\$ 0.48
CAP CER 10nF 50V 5% X7R 0603	C16	KEMET	C0603C103J5JACTU	Digi-Key	399-13384-1-ND	0.48	1	\$ 0.48
CAP CER 0.1UF 50V 10% X7R 0603	C17	Kyocera AVX	06035C-10K4KTA2	Digi-Key	478-5052-1-ND	0.21	1	\$ 0.21
CAP CER 10nF 50V 5% X7R 0603	C18	KEMET	C0603C103J5JACTU	Digi-Key	399-13384-1-ND	0.48	1	\$ 0.48
CAP CER 10nF 50V 5% X7R 0603	C19	KEMET	C0603C103J5JACTU	Digi-Key	399-13384-1-ND	0.48	1	\$ 0.48
CAP CER 10nF 50V 5% X7R 0603	C20	KEMET	C0603C103J5JACTU	Digi-Key	399-13384-1-ND	0.48	1	\$ 0.48
DIODE SCHOTTKY 60V 3A SMD	D1	Diodes	B360A-13-F	Digi-Key	B360A-FDICT-ND	0.55	1	\$ 0.55
DIODE SCHOTTKY 60V 3A SMD	D3	Diodes	B360A-13-F	Digi-Key	B360A-FDICT-ND	0.55	1	\$ 0.55
DIODE GEN PURP 100V 300MA SOD123	D4	Diodes Zetex	1N4148WQ.7-F	Digi-Key	1N4148WQ.7-FDICT-ND	0.29	1	\$ 0.29
RELAY SPST 12V 8A OMRON	K1	Omron	G6RM-1ADC12	Digi-Key	22346-ND	5.44	1	\$ 5.44
LED RED CLEAR 2V 0603	LED1	Wurth Electronics	150060Y575000	Digi-Key	732-4981-1-ND	0.19	1	\$ 0.19
LED GREEN CLEAR 2V 0603	LED2	Wurth Electronics	150060Y575000	Digi-Key	732-4981-1-ND	0.19	1	\$ 0.19
LED YELLOW CLEAR 2.1V 0603	LED3	Wurth Electronics	150060Y575000	Digi-Key	732-4981-1-ND	0.19	1	\$ 0.19
LED YELLOW CLEAR 2.1V 0603	LED4	Wurth Electronics	150060Y575000	Digi-Key	732-4981-1-ND	0.19	1	\$ 0.19
LED YELLOW CLEAR 2.1V 0603	LED5	Wurth Electronics	150060Y575000	Digi-Key	732-4981-1-ND	0.19	1	\$ 0.19
LED YELLOW CLEAR 2.1V 0603	LED6	Wurth Electronics	150060Y575000	Digi-Key	732-4981-1-ND	0.19	1	\$ 0.19
CONN SPOES Bergstak Plug 0.02"	P1	Amphenol FCI	10132797-055100LF	Digi-Key	609-5226-1-ND	1.87	1	\$ 1.87
CONN 4POS MICROFIT (2x2)	P2	Molex	43045-0427	Digi-Key	WM10667-ND	1.79	1	\$ 1.79
CONN 4POS MICROFIT (2x2)	P3	Molex	43045-0427	Digi-Key	WM10667-ND	1.79	1	\$ 1.79
CONN 2POS ULTRA-FIT 0.138"	P4	Molex	172286130Z	Digi-Key	WM11673-ND	1.95	1	\$ 1.95
CONN 4POS MICROFIT (2x2)	P5	Molex	43045-0427	Digi-Key	WM10667-ND	1.79	1	\$ 1.79
CONN 4POS MICROFIT (2x2)	P6	Molex	43045-0427	Digi-Key	WM10667-ND	1.79	1	\$ 1.79
CONN 2POS MICROFIT 3mm	P7	Molex	0430450227	Digi-Key	WM10667-ND	1.12	1	\$ 1.12
CONN 4POS DURA-CLIK 0.079"	P8	Molex	56920-0450	Digi-Key	WM10852CT-ND	2.22	1	\$ 2.22
CONN 2POS DURA-CLIK 0.079" VERT	P9	Molex	56920-0220	Digi-Key	WM10852CT-ND	1.04	1	\$ 1.04
CONN SPOES HEADR MALE 0.1"	P10	Molex	22-28-4050	Digi-Key	WM50014-05-ND	0.32	1	\$ 0.32
CONN SPOES HEADR MALE 0.1"	P11	Molex	22-28-4050	Digi-Key	WM50014-05-ND	0.32	1	\$ 0.32
MOSFET N-CH 30V 8.7A 2.1W 6-PQFN (2x2)	Q1	Infineon	IRLHS6342TRPBE	Digi-Key	IRLHS6342TRPBECT-ND	0.9	1	\$ 0.90
MOSFET N-CH 30V 8.7A 2.1W 6-PQFN (2x2)	Q2	Infineon	IRLHS6342TRPBE	Digi-Key	IRLHS6342TRPBECT-ND	0.9	1	\$ 0.90
MOSFET N-CH 30V 8.7A 2.1W 6-PQFN (2x2)	Q3	Infineon	IRLHS6342TRPBE	Digi-Key	IRLHS6342TRPBECT-ND	0.9	1	\$ 0.90
MOSFET N-CH 30V 8.7A 2.1W 6-PQFN (2x2)	Q4	Infineon	IRLHS6342TRPBE	Digi-Key	IRLHS6342TRPBECT-ND	0.9	1	\$ 0.90
MOSFET P-CH 30V 4A 1.6W SOT23-6	Q5	STMicroelectronics	ST14P33LI4E	Digi-Key	497-15521-1-ND	0.87	1	\$ 0.87
MOSFET N-CH 60V 310MA SOT323	Q6	Diodes	DM6503BL-7	Digi-Key	DM6503BL-7DICT-ND	0.28	1	\$ 0.28
RES 0.0HM 1/4W 0603	R1	Vishay Dale	CRCW0603000020E4HP	Digi-Key	541-0-0SBCCT-ND	0.23	1	\$ 0.23
RES 604 OHM 1% 1/10W 0603	R2	Yageo	RC0603FR-07604RL	Digi-Key	311-604R-RCT-ND	0.13	1	\$ 0.13
RES 4.7K OHM 1% 1/10W 0603	R4	Yageo Phymcorp	RC0603FR-074K7L	Digi-Key	311-4.70K-RCT-ND	0.13	1	\$ 0.13
RES 2K OHM 1% 1/10W 0603	R6	Yageo	RC0603FR-072KL	Digi-Key	311-2.00K-RCT-ND	0.13	1	\$ 0.13
RES 62 OHM 0.1% 1/10W 0603	R5	Panasonic	ERA3AEB620V	Digi-Key	P620BCCT-ND	0.47	1	\$ 0.47
RES 1.4k OHM 1% 1/10W 0603	R7	Yageo	RC0603FR-071K4L	Digi-Key	311-1.40K-RCT-ND	0.13	1	\$ 0.13
RES 604 OHM 1% 1/10W 0603	R8	Yageo	RC0603FR-07604RL	Digi-Key	311-604R-RCT-ND	0.13	1	\$ 0.13
RES 2K OHM 1% 1/10W 0603	R9	Yageo	RC0603FR-072KL	Digi-Key	311-2.0K-RCT-ND	0.13	1	\$ 0.13
RES 62 OHM 0.1% 1/10W 0603	R10	Panasonic	ERA3AEB620V	Digi-Key	P620BCCT-ND	0.47	1	\$ 0.47
RES 1.4k OHM 1% 1/10W 0603	R13	Yageo	RC0603FR-071K4L	Digi-Key	311-1.40K-RCT-ND	0.13	1	\$ 0.13
RES 0.0 OHM 1/4W 0603	R14	Vishay Dale	CRCW0603000020E4HP	Digi-Key	541-0-0SBCCT-ND	0.23	1	\$ 0.23
RES 0.0 OHM 1/4W 0603	R15	Vishay Dale	CRCW0603000020E4HP	Digi-Key	541-0-0SBCCT-ND	0.23	1	\$ 0.23
RES 604 OHM 1% 1/10W 0603	R16	Yageo	RC0603FR-07604RL	Digi-Key	311-604R-RCT-ND	0.13	1	\$ 0.13
RES 4.7K OHM 1% 1/10W 0603	R17	Yageo Phymcorp	RC0603FR-074K7L	Digi-Key	311-4.70K-RCT-ND	0.13	1	\$ 0.13
RES 4.7K OHM 1% 1/10W 0603	R18	Yageo Phymcorp	RC0603FR-074K7L	Digi-Key	311-4.70K-RCT-ND	0.13	1	\$ 0.13
RES 4.7K OHM 1% 1/10W 0603	R19	Yageo Phymcorp	RC0603FR-074K7L	Digi-Key	311-4.70K-RCT-ND	0.13	1	\$ 0.13
RES 22.1 OHM 1% 1/10W 0603	R20	Yageo	RC0603FR-0722R1L	Digi-Key	311-22.1HRCT-ND	0.13	1	\$ 0.13
RES 10K OHM 1% 1/10W 0603	R21	Yageo Phymcorp	RC0603FR-0710KL	Digi-Key	311-10.0K-RCT-ND	0.13	1	\$ 0.13
RES 4.7K OHM 1% 1/10W 0603	R22	Yageo Phymcorp	RC0603FR-074K7L	Digi-Key	311-4.70K-RCT-ND	0.13	1	\$ 0.13
RES 4.7K OHM 1% 1/10W 0603	R23	Yageo Phymcorp	RC0603FR-074K7L	Digi-Key	311-4.70K-RCT-ND	0.13	1	\$ 0.13
RES 4.7K OHM 1% 1/10W 0603	R24	Yageo Phymcorp	RC0603FR-074K7L	Digi-Key	311-4.70K-RCT-ND	0.13	1	\$ 0.13
RES 4.7K OHM 1% 1/10W 0603	R25	Yageo Phymcorp	RC0603FR-074K7L	Digi-Key	311-4.70K-RCT-ND	0.13	1	\$ 0.13
RES 3.3K OHM 1% 1/4W 0603	R26	Panasonic	ERP3AP3301V	Digi-Key	P3.3KBYCT-ND	0.21	1	\$ 0.21
RES 4.7K OHM 1% 1/10W 0603	R27	Yageo Phymcorp	RC0603FR-074K7L	Digi-Key	311-4.70K-RCT-ND	0.13	1	\$ 0.13
RES 4.7K OHM 1% 1/10W 0603	R28	Yageo Phymcorp	RC0603FR-074K7L	Digi-Key	311-4.70K-RCT-ND	0.13	1	\$ 0.13
RES 22.1 OHM 1% 1/10W 0603	R29	Yageo	RC0603FR-0722R1L	Digi-Key	311-22.1HRCT-ND	0.13	1	\$ 0.13
RES 22.1 OHM 1% 1/10W 0603	R30	Yageo	RC0603FR-0722R1L	Digi-Key	311-22.1HRCT-ND	0.13	1	\$ 0.13
RES 10K OHM 1% 1/10W 0603	R31	Yageo Phymcorp	RC0603FR-0710KL	Digi-Key	311-10.0K-RCT-ND	0.13	1	\$ 0.13
RES 4.7K OHM 1% 1/10W 0603	R32	Yageo Phymcorp	RC0603FR-074K7L	Digi-Key	311-4.70K-RCT-ND	0.13	1	\$ 0.13
RES 4.7K OHM 1% 1/10W 0603	R33	Yageo Phymcorp	RC0603FR-074K7L	Digi-Key	311-4.70K-RCT-ND	0.13	1	\$ 0.13
RES 22.1 OHM 1% 1/10W 0603	R34	Yageo	RC0603FR-0722R1L	Digi-Key	311-22.1HRCT-ND	0.13	1	\$ 0.13
RES 22.1 OHM 1% 1/10W 0603	R35	Yageo	RC0603FR-0722R1L	Digi-Key	311-22.1HRCT-ND	0.13	1	\$ 0.13
RES 10K OHM 1% 1/10W 0603	R36	Yageo Phymcorp	RC0603FR-0710KL	Digi-Key	311-10.0K-RCT-ND	0.13	1	\$ 0.13
RES 10K OHM 1% 1/10W 0603	R37	Yageo Phymcorp	RC0603FR-0710KL	Digi-Key	311-10.0K-RCT-ND	0.13	1	\$ 0.13
RES 330 OHM 1% 1/10W 0603	R38	TE Connectivity	1-217639-9	Digi-Key	A129682TR-ND	0.47	1	\$ 0.47
RES 1K OHM 5% 1/10W 0603	R39	Yageo	RC0603JR-071KL	Digi-Key	311-1.0KRGCT-ND	0.13	1	\$ 0.13
RES 0.0 OHM 1/4W 0603	R40	Vishay Dale	CRCW0603000020E4HP	Digi-Key	541-0-0SBCCT-ND	0.23	1	\$ 0.23
RES 10K OHM 1% 1/10W 0603	R41	Yageo Phymcorp	RC0603FR-0710KL	Digi-Key	311-10.0K-RCT-ND	0.13	1	\$ 0.13
RES 1K OHM 5% 1/10W 0603	R42	Yageo	RC0603JR-071KL	Digi-Key	311-1.0KRGCT-ND	0.13	1	\$ 0.13
RES 10K OHM 1% 1/10W 0603	R43	Yageo Phymcorp	RC0603FR-0710KL	Digi-Key	311-10.0K-RCT-ND	0.13	1	\$ 0.13
RES 1K OHM 5% 1/10W 0603	R44	Yageo	RC0603JR-071KL	Digi-Key	311-1.0KRGCT-ND	0.13	1	\$ 0.13
RES 10K OHM 1% 1/10W 0603	R45	Yageo Phymcorp	RC0603FR-0710KL	Digi-Key	311-10.0K-RCT-ND	0.13	1	\$ 0.13
RES 62 OHM 0.1% 1/10W 0603	R46	Panasonic	ERA3AEB620V	Digi-Key	P620BCCT-ND	0.47	1	\$ 0.47
RES 62 OHM 0.1% 1/10W 0603	R47	Panasonic	ERA3AEB620V	Digi-Key	P620BCCT-ND	0.47	1	\$ 0.47
IC ISOSP COMMM INTERFACE LTC6820IU	U1	Analog Devices / Linear Technology	LTC6820IUHPBE	Digi-Key	LTC6820IUHPBE-ND	7.44	1	\$ 7.44
IC ISOSP COMMM INTERFACE LTC6820IU	U2	Analog Devices / Linear Technology	LTC6820IUHPBE	Digi-Key	LTC6820IUHPBE-ND	7.44	1	\$ 7.44
IC HSD Dual-Channel 40V 1KOhm	U3	Texas Instruments	TPS2400BQPWPRQ1	Digi-Key	TPS2400BQPWPRQ1-ND			
IC PULSE XFMR 1CT:1CT 350uH SMD	XFMR1	Bourns	PT61018AAPEL-S	Digi-Key	PT61018AAPEL-SCT-ND	5.12	1	\$ 5.12
						Total:	\$	61.25



MSXII BMS CARRIER BOARD
REV 4

MIDNIGHT SUN XII





MIDNIGHT SUN XII

Electrical Rules Check Report

Class	Document	Message
Warning	BMS Carrier - Firmware Contactor Control.SchDoc	Global Power-Object 3V3 at 2600mil,5100milhas been reduced to local level bypresence of port at 2800mil,4500mil
Warning	BMS Carrier - AFE Interface.SchDoc	Incorrect link between project variant "BMS Carrier - Slave Battery Box" and schematic component Component R6 62R
Warning	Controller_Board_Interface.SchDoc	Net 3V3 has no driving source (Pin C1-1,Pin C3-1,Pin C15-1,Pin C16-1,Pin P1-40,Pin P1-41,Pin P1-42,Pin P1-43,Pin P1-44,Pin P1-45,Pin P2-3,Pin P5-3,Pin R1-1,Pin R5-1,Pin R9-1,Pin R11-1,Pin R12-1,Pin R18-2,Pin U1-5,Pin U1-6,Pin U1-7,Pin U1-8,Pin U1-11,Pin U1-16,Pin U2-5,Pin U2-8,Pin U2-11,Pin U2-16)
Error	BMS Carrier - Connectors.SchDoc	Net 12V_CONTACTOR_COIL_SW contains multiple Input Ports (Port 12V_CONTACTOR_COIL_SW,Port 12V_CONTACTOR_COIL_SW)
Error	BMS Carrier - Battery Relay Controls.SchDoc	Net 12V_CONTACTOR_COIL_SW contains multiple Input Ports (Port 12V_CONTACTOR_COIL_SW,Port 12V_CONTACTOR_COIL_SW,Port HV_GND_RELAY_12V_SW,Port HV_PWR_RELAY_12V_SW)
Error	BMS Carrier - Battery Relay Controls.SchDoc	Net 12V_CONTACTOR_COIL_SW contains multiple Input Ports (Port HV_GND_RELAY_12V_SW,Port HV_PWR_RELAY_12V_SW)
Error	BMS Carrier - Battery Relay Controls.SchDoc	Net NetD1_1 contains multiple Input Ports (Port HV_PWR_RELAY_GND,Port HV_PWR_RELAY_GND)
Error	BMS Carrier - Battery Relay Controls.SchDoc	Net NetD3_1 contains multiple Input Ports (Port HV_GND_RELAY_GND,Port HV_GND_RELAY_GND)
Error	BMS Carrier - Fan Controls.SchDoc	Net NetLED5_2 contains multiple Input Ports (Port FAN_1_GND,Port FAN_1_GND)
Error	BMS Carrier - Fan Controls.SchDoc	Net NetLED6_2 contains multiple Input Ports (Port FAN_2_GND,Port FAN_2_GND)
Error	BMS Carrier - Fan Controls.SchDoc	Net PA9_FAN_2_PWM contains multiple Input Ports (Port PA9_FAN_2_PWM,Port PA9_FAN_2_PWM)
Error	BMS Carrier - Fan Controls.SchDoc	Net PA10_FAN_1_PWM contains multiple Input Ports (Port PA10_FAN_1_PWM,Port PA10_FAN_1_PWM)
Warning	Controller_Board_Interface.SchDoc	Net PB0_MOSFET_SOFT_START_INPUT has no driving source (Pin P1-17)
Error	BMS Carrier - AFE Interface.SchDoc	Net PB0_MOSFET_SOFT_START_INPUT has only one pin (Pin P1-17)
Warning	BMS Carrier - Battery Relay Controls.SchDoc	Unconnected line (4850mil,2100mil) T o (4950mil,2100mil)

Design Rules Verification Report

Filename : C:\Users\Aashmika Mali\Documents\First Year\Midnight Sun\hardware\MSXII_BN

Warnings 0
Rule Violations 99

Warnings	
Total	0

Rule Violations	
Clearance Constraint (Gap=0.152mm) (All),(All)	0
Short-Circuit Constraint (Allowed=No) (All),(All)	0
Un-Routed Net Constraint ((All))	0
Modified Polygon (Allow modified: No), (Allow shelved: No)	0
Width Constraint (Min=0.203mm) (Max=2.54mm) (Preferred=0.203mm) (All)	0
Power Plane Connect Rule(Direct Connect)(Expansion=0.508mm) (Conductor Width=0.254mm) (Air Gap=0.254mm)	0
Hole Size Constraint (Min=0.025mm) (Max=5.08mm) (All)	0
Hole To Hole Clearance (Gap=0.254mm) (All),(All)	0
Minimum Solder Mask Sliver (Gap=0.254mm) (All),(All)	99
Silk To Solder Mask (Clearance=0.254mm) (Disabled)(IsPad),(All)	0
Silk to Silk (Clearance=0.254mm) (Disabled)(All),(All)	0
Net Antennae (Tolerance=0mm) (All)	0
Height Constraint (Min=0mm) (Max=25.4mm) (Preferred=12.7mm) (All)	0
Total	99

Tuesday 26 Mar 2019 8:59:06 PM

[illegible]