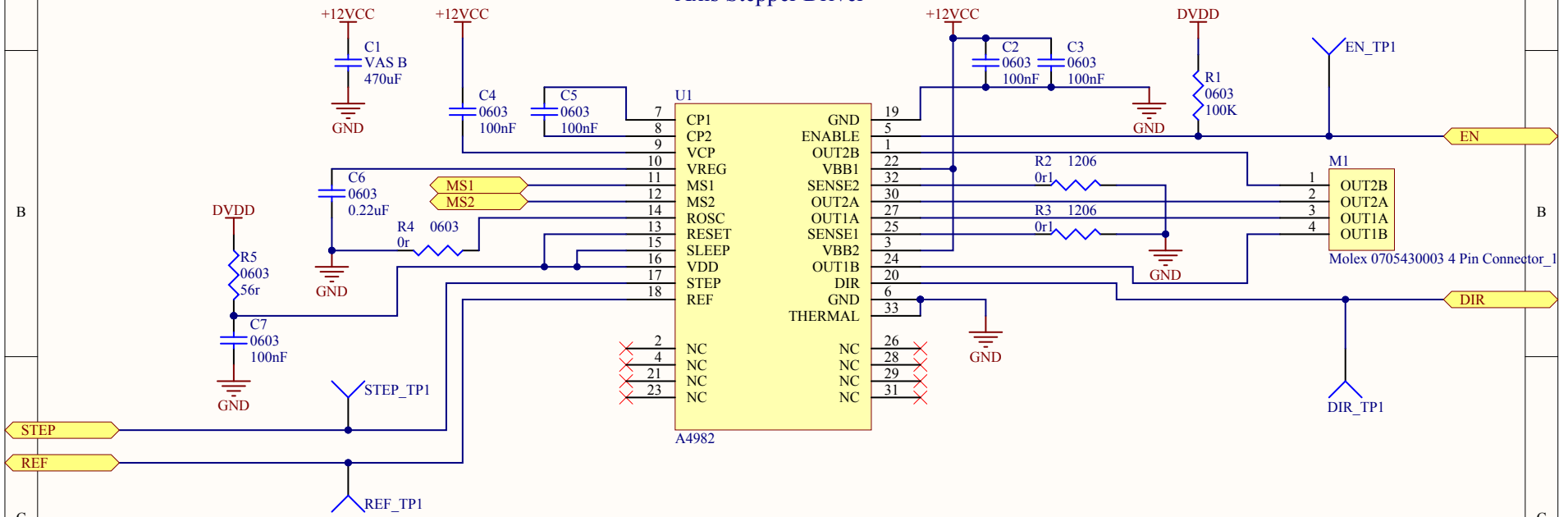
Axis Channel

Axis Stepper Driver



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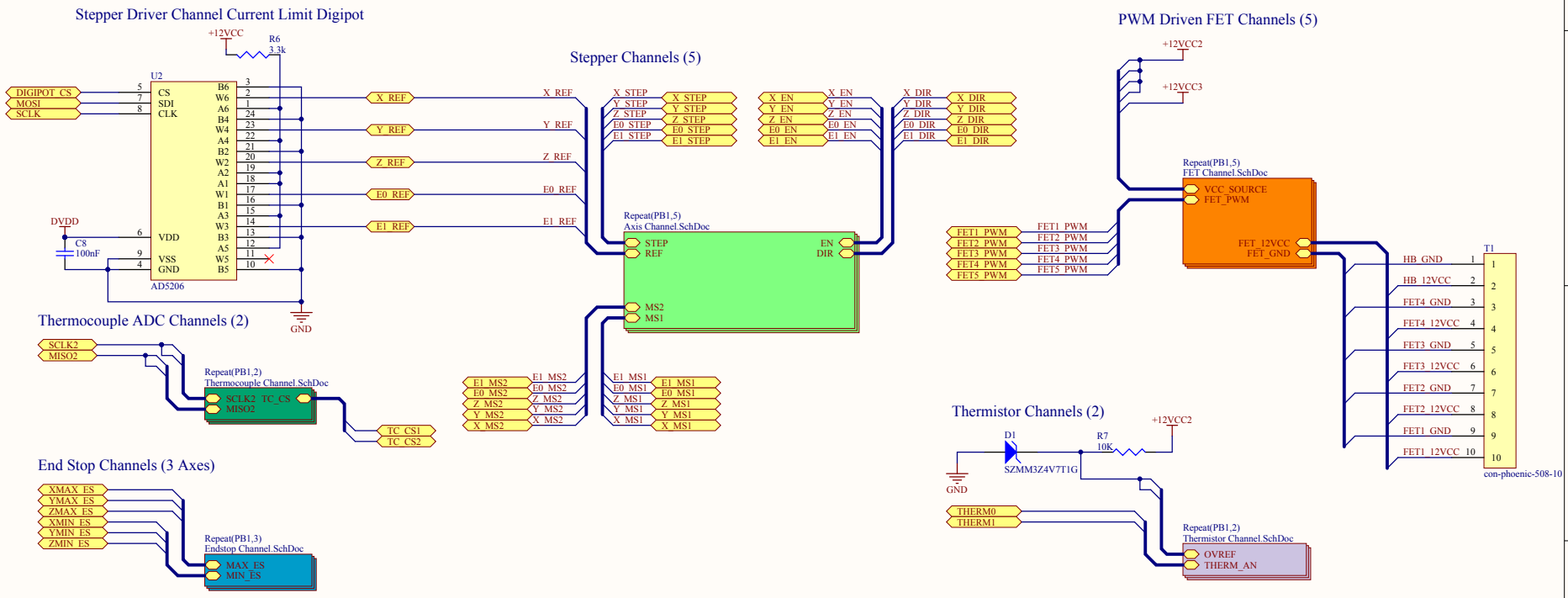
ZMBo System Overview



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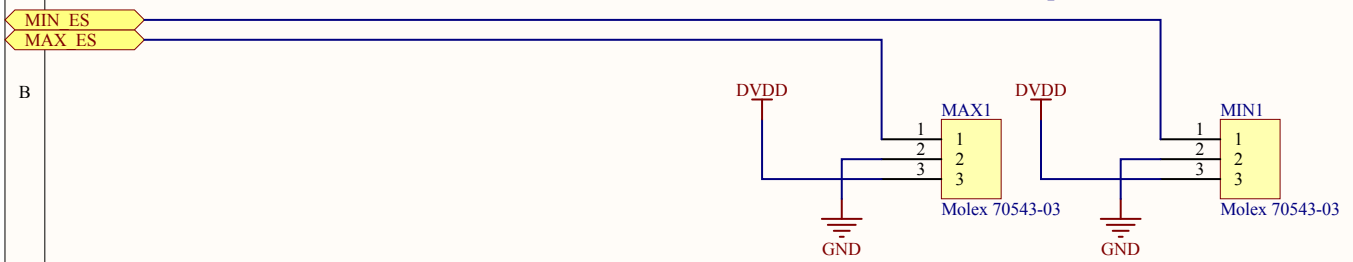
End Stop Channel

Max & Min Axis Endstop Channel



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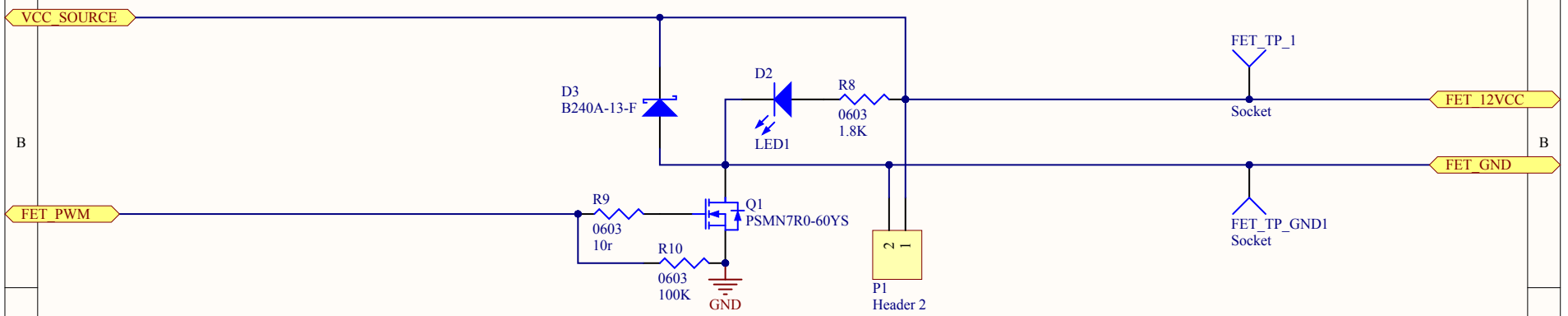
FET Channel 10A



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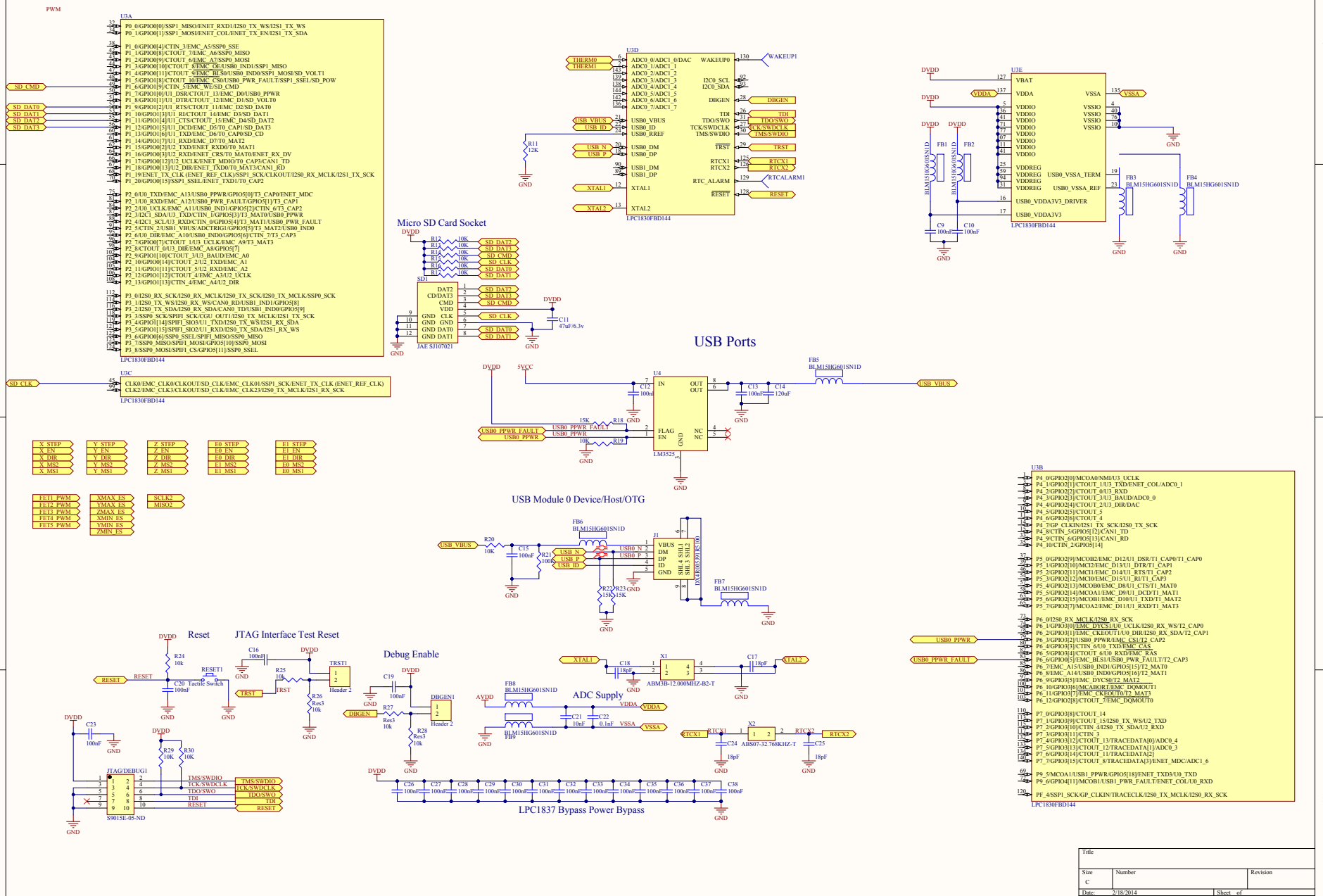
PWM
U3A
P0_0/GPIO0[0]/SSP1_MISO/ENET_RXD1/I2S0_TX_WS/I2S1_TX_WS
P0_1/GPIO0[1]/SSP1_MOSI/ENET_COL/ENET_TX_EN/I2S1_TX_SDA
P1_0/GPIO0[4]/CTIN_3/EMC_A5/SSP0_SSE
P1_1/GPIO0[8]/CTOUT_7/EMC_A6/SSP0_MISO
P1_2/GPIO0[9]/CTOUT_6/EMC_A7/SSP0_MOSI
P1_3/GPIO0[10]/CTOUT_5/EMC_OE/USB0_IND1/SSP1_MISO
P1_4/GPIO0[11]/CTOUT_9/EMC_BLS0/USB0_IND0/SSP1_MOSI/SD_VOLT1
P1_5/GPIO0[18]/CTOUT_10/EMC_CS0/USB0_PWR_FAULT/SSP1_SSEL/SD_POW
P1_6/GPIO0[19]/CTIN_5/EMC_WE/SD_CMD
P1_7/GPIO1[0]/U1_DSR/CTOUT_13/EMC_D0/USB0_PPWR
P1_8/GPIO1[1]/U1_DTR/CTOUT_12/EMC_D1/SD_VOLT0
P1_9/GPIO1[2]/U1_RTS/CTOUT_11/EMC_D2/SD_DAT0
P1_10/GPIO1[3]/U1_RI/CTOUT_14/EMC_D3/SD_DAT1
P1_11/GPIO1[4]/U1_CTS/CTOUT_15/EMC_D4/SD_DAT2
P1_12/GPIO1[5]/U1_DCD/EMC_D5/T0_CAP1/SD_DAT3
P1_13/GPIO1[6]/U1_TXD/EMC_D6/T0_CAP0/SD_CD
P1_14/GPIO1[7]/U1_RXD/EMC_D7/T0_MAT2
P1_15/GPIO0[2]/U2_TXD/ENET_RXD0/T0_MAT1
P1_16/GPIO0[3]/U2_RXD/ENET_CRS/T0_MAT0/ENET_RX_DV
P1_17/GPIO0[12]/U2_UCLK/ENET_MDIO/T0_CAP3/CAN1_TD
P1_18/GPIO0[13]/U2_DIR/ENET_TXD0/T0_MAT3/CAN1_RD
P1_19/ENET_TX_CLK (ENET_REF_CLK)/SSP1_SCK/CLKOUT/I2S0_RX_MCLK/I2S1_TX_SCK
P1_20/GPIO0[15]/SSP1_SSEL/ENET_TXD1/T0_CAP2
P2_0/U0_TXD/EMC_A13/USB0_PPWR/GPIO5[0]/T3_CAP0/ENET_MDC
P2_1/U0_RXD/EMC_A12/USB0_PWR_FAULT/GPIO5[1]/T3_CAP1
P2_2/U0_UCLK/EMC_A11/USB0_IND1/GPIO5[2]/CTIN_6/T3_CAP2
P2_3/I2C1_SDA/U3_TXD/CTIN_1/GPIO5[3]/T3_MAT0/USB0_PPWR
P2_4/I2C1_SCL/U3_RXD/CTIN_0/GPIO5[4]/T3_MAT1/USB0_PWR_FAULT
P2_5/CTIN_2/USB1_VBUS/ADCTRIG1/GPIO5[5]/T3_MAT2/USB0_IND0
P2_6/U0_DIR/EMC_A10/USB0_IND0/GPIO5[6]/CTIN_7/T3_CAP3
P2_7/GPIO0[7]/CTOUT_1/U3_UCLK/EMC_A9/T3_MAT3
P2_8/CTOUT_0/U3_DIR/EMC_A8/GPIO5[7]
P2_9/GPIO1[10]/CTOUT_3/U3_BAUD/EMC_A0
P2_10/GPIO0[14]/CTOUT_2/U2_TXD/EMC_A1
P2_11/GPIO1[11]/CTOUT_5/U2_RXD/EMC_A2
P2_12/GPIO1[12]/CTOUT_4/EMC_A3/U2_UCLK
P2_13/GPIO1[13]/CTIN_4/EMC_A4/U2_DIR
P3_0/I2S0_RX_SCK/I2S0_RX_MCLK/I2S0_TX_SCK/I2S0_TX_MCLK/SSP0_SCK
P3_1/I2S0_TX_WS/I2S0_RX_WS/CAN0_RD/USB1_IND1/GPIO5[8]
P3_2/I2S0_TX_SDA/I2S0_RX_SDA/CAN0_TD/USB1_IND0/GPIO5[9]
P3_3/SSP0_SCK/SPIFI_SCK/CGU_OUT1/I2S0_TX_MCLK/I2S1_TX_SCK
P3_4/GPIO[14]/SPIFI_SIO3/U1_TXD/I2S0_TX_WS/I2S1_RX_SDA
P3_5/GPIO[15]/SPIFI_SIO2/U1_RXD/I2S0_TX_SDA/I2S1_RX_WS
P3_6/GPIO0[6]/SSP0_SSEL/SPIFI_MISO/SSP0_MISO
P3_7/SSP0_MISO/SPIFI_MOSI/GPIO5[10]/SSP0_MOSI
P3_8/SSP0_MOSI/SPIFI_CS/GPIO5[11]/SSP0_SSEL
LPC1830FBD144
SD_CMD
SD_DAT0
SD_DAT1
SD_DAT2
SD_DAT3
U3C
CLK0/EMC_CLK0/CLKOUT/SD_CLK/EMC_CLK01/SSP1_SCK/ENET_TX_CLK (ENET_REF_CLK)
CLK2/EMC_CLK3/CLKOUT/SD_CLK/EMC_CLK23/I2S0_TX_MCLK/I2S1_RX_SCK
LPC1830FBD144
SD_CLK
U3D
ADC0_0/ADC1_0/DAC
ADC0_1/ADC1_1
ADC0_2/ADC1_2
ADC0_3/ADC1_3
ADC0_4/ADC1_4
ADC0_5/ADC1_5
ADC0_6/ADC1_6
ADC0_7/ADC1_7
USB0_VBUS
USB0_ID
USB0_RREF
USB0_DM
USB0_DP
USB1_DM
USB1_DP
XTAL1
XTAL2
WAKEUP0
I2C0_SCL
I2C0_SDA
DBGEN
TDI
TDO/SWO
TCK/SWDCLK
TMS/SWDIO
TRST
RTCX1
RTCX2
RTC_ALARM
RESET
LPC1830FBD144
THERM0
THERM1
USB_VBUS
USB_ID
USB_N
USB_P
R11
12K
WAKEUP1
RTCALARM1
U3E
VBAT
VDDA
VSSA
VDDIO
VSSIO
VDDREG
USB0_VSSA_TERM
USB0_VSSA_REF
USB0_VDDA3V3_DRIVER
USB0_VDDA3V3
LPC1830FBD144
FB1
FB2
FB3
FB4
BLM15HG601SN1D
BLM15HG601SN1
C9
100nF
C10
100nF
Micro SD Card Socket
SD1
DAT2
CD/DAT3
CMD
VDD
CLK
GND
GND
GND DAT0
GND DAT1
JAE SJ7 07021
R12
R13
R14
R15
R16
R17
R18
10K
C11
47uF/6.3v
USB Ports
U4
IN
OUT
FLAG
EN
NC
LM3525
5VCC
USB0_PPWR_FAULT
USB0_PPWR
R18
15K
R19
10K
C12
100nF
C13
100nF
C14
120uF
FB5
BLM15HG601SN1D
USB Module 0 Device/Host/OTG
J1
VBUS
DM
DP
ID
GND
SHIELD1
SHIELD2
SHIELD3
SHIELD4
DX40B09J1SE1
USB0_N
USB0_P
USB_ID
R20
10K
C15
100nF
R21
100K
R22
15K
R23
15K
FB6
FB7
BLM15HG601SN1D
X_STEP
X_EN
X_DIR
X_MS2
X_MS1
Y_STEP
Y_EN
Y_DIR
Y_MS2
Y_MS1
Z_STEP
Z_EN
Z_DIR
Z_MS2
Z_MS1
E0_STEP
E0_EN
E0_DIR
E1_MS2
E1_MS1
E1_STEP
E1_EN
E1_DIR
E0_MS2
E0_MS1
FET1_PWM
FET2_PWM
FET3_PWM
FET4_PWM
FET5_PWM
XMAX_ES
YMAX_ES
ZMAX_ES
XMIN_ES
YMIN_ES
ZMIN_ES
SCLK2
MISO2
Reset
JTAG Interface Test Reset
Debug Enable
ADC Supply
LPC1837 Bypass Power Bypass
RESET
RESET1
C20 Tactile Switch
100nF
R24
10k
C16
100nF
R25
10k
TRST
TRST1
Header 2
R26
Res3
10k
C19
100nF
DBGEN
DBGEN1
Header 2
R27
Res3
10k
R28
Res3
10k
C23
100nF
R29
10k
R30
10K
JTAG/DEBUG1
S9015E-05-ND
TMS/SWDIO
TCK/SWDCLK
TDO/SWO
TDI
RESET
FB8
BLM15HG601SN1D
FB9
BLM15HG601SN1D
C21
10nF
C22
0.1nF
VDDA
VSSA
XTAL1
XTAL2
X1
ABM3B-12.000MHZ-B2-T
C17
18pF
C18
18pF
X2
ABS07-32.768KHZ-T
RTCX1
RTCX2
C24
18pF
C25
18pF
C26
C27
C28
C29
C30
C31
C32
C33
C34
C35
C36
C37
C38
100nF
U3B
P4_0/GPIO2[0]/MCOA0/NMI/U3_UCLK
P4_1/GPIO2[1]/CTOUT_1/U3_TXD/ENET_COL/ADC0_1
P4_2/GPIO2[2]/CTOUT_0/U3_RXD
P4_3/GPIO2[3]/CTOUT_3/U3_BAUD/ADC0_0
P4_4/GPIO2[4]/CTOUT_2/U3_DIR/DAC
P4_5/GPIO2[5]/CTOUT_5
P4_6/GPIO2[6]/CTOUT_4
P4_7/GP_CLKIN/I2S1_TX_SCK/I2S0_TX_SCK
P4_8/CTIN_5/GPIO5[12]/CAN1_TD
P4_9/CTIN_6/GPIO5[13]/CAN1_RD
P4_10/CTIN_2/GPIO5[14]
P5_0/GPIO2[9]/MCOB2/EMC_D12/U1_DSR/T1_CAP0/T1_CAP0
P5_1/GPIO2[10]/MCI2/EMC_D13/U1_DTR/T1_CAP1
P5_2/GPIO2[11]/MCI1/EMC_D14/U1_RTS/T1_CAP2
P5_3/GPIO2[12]/MCI0/EMC_D15/U1_RI/T1_CAP3
P5_4/GPIO2[13]/MCOB0/EMC_D8/U1_CTS/T1_MAT0
P5_5/GPIO2[14]/MCOA1/EMC_D9/U1_DCD/T1_MAT1
P5_6/GPIO2[15]/MCOB1/EMC_D10/U1_TXD/T1_MAT2
P5_7/GPIO2[7]/MCOA2/EMC_D11/U1_RXD/T1_MAT3
P6_0/I2S0_RX_MCLK/I2S0_RX_SCK
P6_1/GPIO3[0]/EMC_DYCS1/U0_UCLK/I2S0_RX_WS/T2_CAP0
P6_2/GPIO3[1]/EMC_CKEOUT/T1/U0_DIR/I2S0_RX_SDA/T2_CAP1
P6_3/GPIO3[2]/USB0_PPWR/EMC_CS1/T2_CAP2
P6_4/GPIO3[3]/CTIN_6/U0_TXD/EMC_CAS
P6_5/GPIO3[4]/CTOUT_6/U0_RXD/EMC_RAS
P6_6/GPIO0[5]/EMC_BLS1/USB0_PWR_FAULT/T2_CAP3
P6_7/EMC_A15/USB0_IND1/GPIO5[15]/T2_MAT0
P6_8/EMC_A14/USB0_IND0/GPIO5[16]/T2_MAT1
P6_9/GPIO3[5]/EMC_DYCS0/T2_MAT2
P6_10/GPIO3[6]/MCABORT/EMC_DQMOUT1
P6_11/GPIO3[7]/EMC_CKEOUT0/T2_MAT3
P6_12/GPIO2[8]/CTOUT_7/EMC_DQMOUT0
P7_0/GPIO3[8]/CTOUT_14
P7_1/GPIO3[9]/CTOUT_15/I2S0_TX_WS/U2_TXD
P7_2/GPIO3[10]/CTIN_4/I2S0_TX_SDA/U2_RXD
P7_3/GPIO3[11]/CTIN_3
P7_4/GPIO3[12]/CTOUT_13/TRACEDATA[0]/ADC0_4
P7_5/GPIO3[13]/CTOUT_12/TRACEDATA[1]/ADC0_3
P7_6/GPIO3[14]/CTOUT_11/TRACEDATA[2]
P7_7/GPIO3[15]/CTOUT_8/TRACEDATA[3]/ENET_MDC/ADC1_6
P9_5/MCOA1/USB1_PPWR/GPIO5[18]/ENET_TXD3/U0_TXD
P9_6/GPIO4[11]/MCOB1/USB1_PWR_FAULT/ENET_COL/U0_RXD
PF_4/SSP1_SCK/GP_CLKIN/TRACECLK/I2S0_TX_MCLK/I2S0_RX_SCK
LPC1830FBD144
USB0_PPWR
USB0_PPWR_FAULT
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Size
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Number
Revision
Date:
2/18/2014
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of
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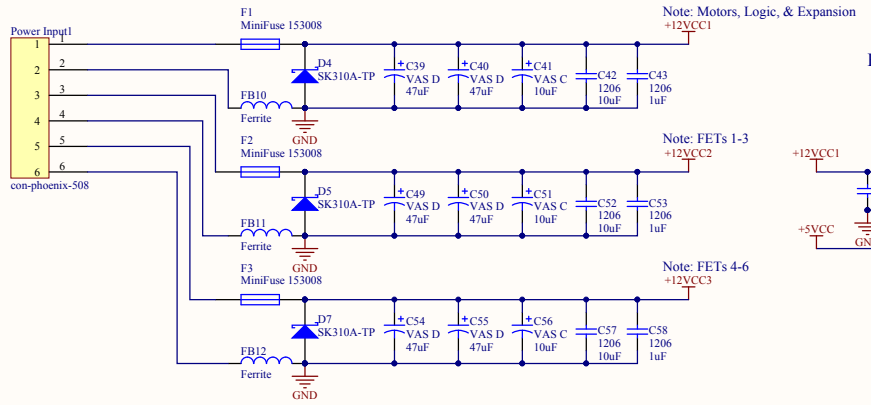
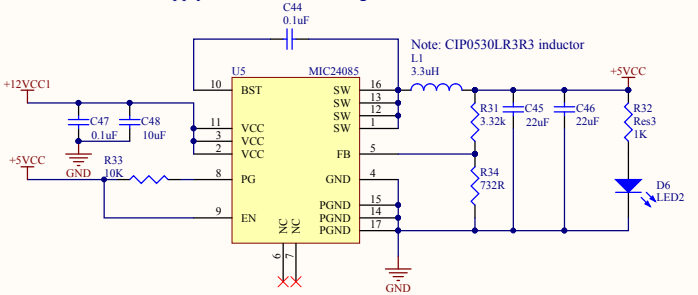
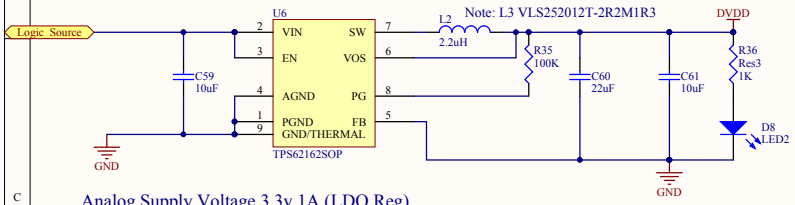


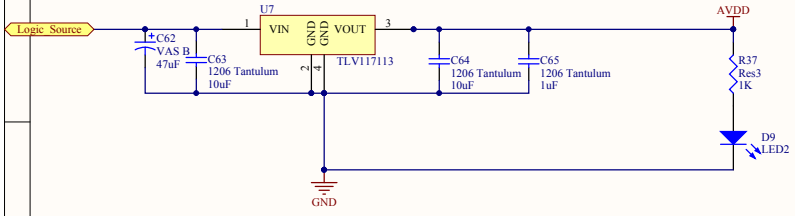
Five Volt Supply 3A DCDC Switching



Digital Supply Voltage 3.3v 1A (DCDC Switching)



Analog Supply Voltage 3.3v 1A (LDO Reg)



Logic Power Supply Select Jumper

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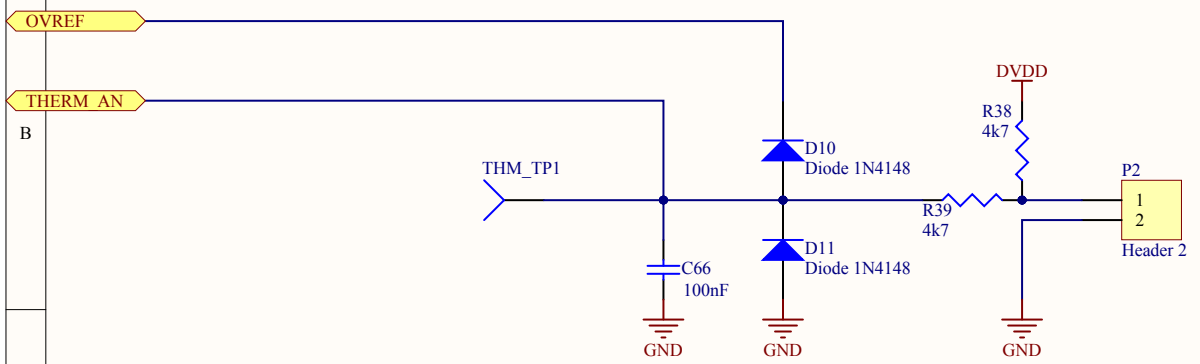
Thermistor Channel



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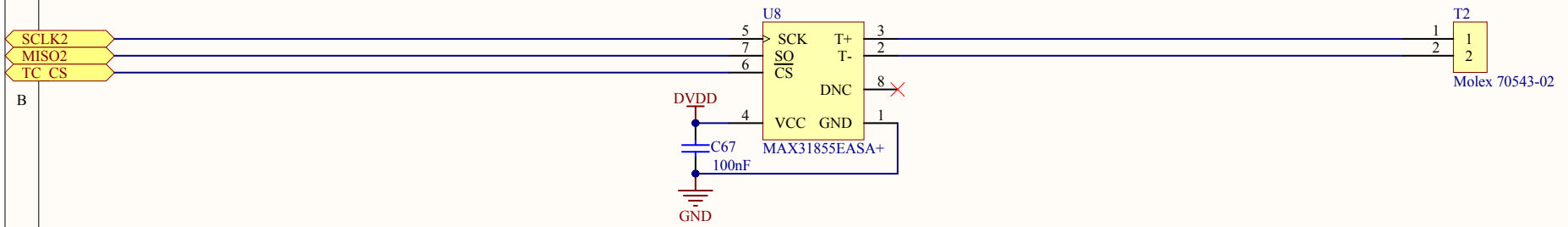
MAX31855 Thermocouple ADC Channel



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File: C:\Users\..\Thermocouple Channel.SchDoc	Drawn By:	

Bill of Materials

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Source Data From: ZMBo.PrjPcb
Project: ZMBo.PrjPcb
Variant: None

Creation Date: 2/18/2014 10:01:56 PM
Print Date: 41688 41688.91811

Footprint	Comment	LibRef	Designator	Description	Quantity
Panasonic VS B	VAS B	Cap Semi	C1	Capacitor (Semiconductor SIM Model)	1
1608[0603]	0603	Cap Semi	C2, C3, C4, C5, C6, C7	Capacitor (Semiconductor SIM Model)	6
1608[0603]	Cap Semi	Cap Semi	C8, C66, C67	Capacitor (Semiconductor SIM Model)	3
SZMM3Z4V7T1G	SZMM3Z4V7T1G	D Zener	D1	Zener Diode	1
SM 0805 polarized	LED1	LED1	D2	Typical RED GaAs LED	1
SMB	B240A-13-F	D Schottky	D3	Schottky Diode	1
1N4148WT	Diode 1N4148	Diode 1N4148	D10, D11	High Conductance Fast Diode	2
PIN1	TP4	Socket	DIR_TP1, EN_TP1, REF_TP1, STEP_TP1, THM_TP1	Socket	5
PIN1	Socket	Socket	FET_TP_1, FET_TP_GND1	Socket	2
Molex 0705430003	Molex 0705430003 4 Pin Connector_1	Molex 0705430003 4 Pin Connector_1	M1		1
MOLEX Endstop	Molex 70543-03	Molex Endstop	MAX1, MIN1		2
HDR1X2	Header 2	Header 2	P1, P2	Header, 2-Pin	2
PSMN7R0-60YS	PSMN7R0-60YS	PSMN7R0-60YS	Q1	N-Channel MOSFET	1
J1-0603	0603	Res3	R1, R4, R5, R8, R9, R10	Resistor	6
1206 SMD Resistor	1206	Res3	R2, R3	Resistor	2
J1-0603	Res3	Res3	R6, R7, R38, R39	Resistor	4
con-phoenix-508 - 10	con-phoenic-508-10	con-phoenic-508-10	T1	con-phoenic-508-10	1
Molex 70543-02	Molex 70543-02	Molex 70543-02	T2	Molex 70543-02	1
QFN50P508X508X100_HS-33N	A4982	A4982	U1	Alllegor A4982 Stepper Driver	1
AD5206 & AD5204	AD5206	AD5206	U2		1
MAXM-S8+4_N	MAX31855EASA+	MAX31855EASA+	U8	Cold Junction Compensated Thermocouple to Digital Converter, 14 Bits Temperature Resolution, -40 to 125 degC, 8-Pin SOIC (S8+4), Pb-Free	1
					45

Approved	Notes	