Comment	Description	Designator	LibRef	Manufacturer	Manufacturer Part Number	Quantity	Value	Footprint
CC0603JRNPO9BN101	Capacitor	C1, C4	Cap	Yageo	CC0603JRNPO9BN101	2	100pF	RES_0603
06031A470FAT2A	Capacitor	C2	Cap	AVX Corporation	06031A470FAT2A	1	47pF	RES_0603
GRT31CR61H106ME01L	Capacitor	C3, C12, C13, C30	Cap	Murata	GRT31CR61H106ME01L	4	10uF	RES_1206
06035G104ZAT2A	Capacitor	C5_U_Encoders_X, C5_U_Encoders_Y, C6_U_Encoders_X, C6_U_Encoders_Y, C7, C11, C19, C20, C21, C22, C23, C24, C25, C26, C31, C32, C33, C34, C35, C37, C38, C40, C42, C44, C54, C55	Cap	AVX Corporation	06035G104ZAT2A	26	100nF	RES_0603
EEE-FK1V470P	Polarized Capacitor (Surface Mount)	C8, C9	Cap Pol3	Panasonic	EEE-FK1V470P	2	47uF	CAPAE_UWJ_6.3mm
CL21A475KACLRNC	Capacitor	C10, C45	Cap	Samsung Electro-Mechanics	CL21A475KACLRNC	2	4.7uF	RES_0805
C0603C220J5GACTU	Capacitor	C14	GJM0335C0J220JB01D	KEMET	C0603C220J5GACTU	1	22pF	RES_0603
CL21A226KPCLRNC	Capacitor	C15, C16	C2012X5R1V226M125AC	Samsung Electro-Mechanics	CL21A226KPCLRNC	2	22uF	RES_0805
CL10A105KA8NNNC	Capacitor	C17, C36, C39, C41	Cap	Samsung Electro-Mechanics	CL10A105KA8NNNC	4	1uF	RES_0603
CL10B103KB8NCNC	Capacitor	C18, C27, C43	Cap	Samsung Electro-Mechanics	CL10B103KB8NCNC	3	10nF	RES_0603
C2012JB1E225M125AC	Capacitor	C28, C29	Cap	TDK	C2012JB1E225M125AC	2	2.2uF	RES_0805
1N5819HW-7-F	Default Diode	D1, D2	Diode	Diodes Incorporated	1N5819HW-7-F	2		SOD123
SSL-LX3059IGW	LED GRN/RED DIFF T-3MM TRI T/H	D3	LED GRN/RED	Lumex Opto/Components Inc.	SSL-LX3059IGW	1		LED GRN/RED
BAT54SLT1G	DIODE ARRAY SCHOTTKY	D4	SCHOTTKY DIODE ARRAY	ON Semiconductor	BAT54SLT1G	1		SOT23
USBLC6-2SC6	TVS DIODE 5.25V 17V SOT23-6	D5	USBLC6-2SC6	STMicroelectronics	USBLC6-2SC6	1		SOT23-6L
PJ301BM Jacks	Jack Socket, 1/4" [6.5mm], Thru-Hole, Vertical, 2-Conductor with Tip closed	J1, J2, J3, J4	Phonejack2TN	Thonkiconn	PJ301BM Jacks	4		WQP-PJ301M-12_JACK
10118193-0001LF	Single Port 5 Contact Shielded SMT MICRO USB B-Type Receptacle	J5	10118193-0001LF	Amphenol ICC	10118193-0001LF	1		10118193-0001LF
VLS6045EX-3R3N	Inductor	L1	CLF7045T-3R3N	TDK	VLS6045EX-3R3N	1	3.3uH	INDPM6060X450N
742792651	Inductor	L2	Inductor	Wurth Electronics Inc.	742792651	1	600 OHM	RES_0603
BLM18PG221SZ1D	Inductor	L3	Inductor	Murata Electronics	BLM18PG221SZ1D	1	220 OHM	RES_0603
MH	Mounting Hole	MH1, MH2, MH3, MH4	MH			4		M2_P
67997-410HLF	Header, 5-Pin, Dual row	P1	Header 5X2	Amphenol FCI	67997-410HLF	1		HDR2X5
PPTC081LFBN-RC	Header, 8-Pin	P2	MHDR1X8	Sullins Connector Solutions	PPTC081LFBN-RC	1		HDR1X8
Header 6	Header, 6-Pin	P3	Header 6			1		TC2030-MCP
RR0816P-104-D	Resistor	R1, R32, R35, R43	Res3	Susumu	RR0816P-104-D	4	100K	RES_0603
ERA-3AEB2492V	ERA-3AEB2492V	R2	Res3	Panasonic Electronic Components	ERA-3AEB2492V	1	24.9K	RES_0603
ERA-3AEB393V	ERA-3AEB393V	R3, R4, R33, R36	Res3	Panasonic Electronic Components	ERA-3AEB393V	4	39K	RES_0603
RR0816P-102-D	Resistor	R5, R16, R17, R44	Res3	Susumu	RR0816P-102-D	4	1K	RES_0603
RR1220P-103-D	Resistor	R6_U_Encoders_X, R6_U_Encoders_Y, R7_U_Encoders_X, R7_U_Encoders_Y, R8_U_Encoders_X, R8_U_Encoders_Y, R9_U_Encoders_X, R9_U_Encoders_Y, R10, R27, R46	Res3	Susumu	RR1220P-103-D	11	10K	RES_0805
ERA-3AEB8452V	Resistor	R11	CRCW040284K5FKED	Panasonic Electronic Components	ERA-3AEB8452V	1	84.5k	RES_0603
ERA-3AEB2552V	Resistor	R12	CRCW040225K5FKED	Panasonic Electronic Components	ERA-3AEB2552V	1	25.5k	RES_0603
CRGP0603F56R	Resistor	R13, R14, R15, R18, R19, R22, R23, R24, R25	R_Dup1	TE Connectivity Passive Product	CRGP0603F56R	9	56 Ohm	RES_0603
RC0603JR-070RL	Resistor	R20, R21	Res3	Yageo	RC0603JR-070RL	2	0 Ohm	RES_0603
ERJ-3EKF54R9V	ERJ-3EKF54R9V	R26	Res3	Panasonic Electronic Components	ERJ-3EKF54R9V	1	54.9	RES_0603
RC1206FR-0764R9L	RC1206FR-0764R9L	R28	Res3	Yageo	RC1206FR-0764R9L	1	64.9	RES_1206
ERA-3AEB392V	Resistor	R29	Res3	Panasonic	ERA-3AEB392V	1	3.9K	RES_0603
ERA-3AEB512V	Resistor	R30	Res3	Panasonic	ERA-3AEB512V	1	5.1K	RES_0603
ERA-3AEB1652V	Resistor	R31, R34	Res3	Panasonic	ERA-3AEB1652V	2	16.5K	RES_0603
P0915N-FC15BR10K	Potentiometer	R37, R38	RPot	TT Electronics/BI	P0915N-FC15BR10K	2	10K	P0915NEC15BR100K
ERA-3AEB4992V	Resistor	R39, R40	Res3	Panasonic	ERA-3AEB4992V	2	49.9K	RES_0603
CRGCQ0603J22R	CRGCQ0603J22R	R41, R42	Res3	TE Connectivity Passive Product	CRGCQ0603J22R	2	22	RES_0603
A121524CT-ND	Resistor	R45	Res3	TE Connectivity Passive Product	A121524CT-ND	1	1.5K	RES_0603
TL1105SPF250Q	SWITCH TACTILE SPST	S1, S2	SPST E SWITCH	E-Switch	TL1105SPF250Q	2		E_SWITCH
JS102000SAQN	SWITCH SLIDE SPDT 1MA 5V	S3	SW-SPDT	C&K	JS102000SAQN	1		JS102000SAQN
loop test point	Test Point Loop Miniature Keysone	TP1, TP2, TP3, TP4, TP5, TP6, TP7, TP8, TP9, TP10, TP11, TP12, TP13, TP14, TP15, TP16, TP17, TP18, TP19, TP20	402046	Keystone Electronics	5003	20		Test Point Mt Hole
TL072CDT	IC OPAMP JFET 4MHZ 8SO	U1	TL072CD	STMicroelectronics	TL072CDT	1		TI-D8_N
PEC11L-4120F-S0020	Rotary Encoder with Switch	U2_U_Encoders_X, U2_U_Encoders_Y	PEC11-4215F-S24	Bourns Inc.	PEC11L-4120F-S0020	2		ENC5
LM4132CQ1MFT2.5	Precision Low Dropout 2.5V Reference	U3	LM4132	Texas Instruments	LM4132CQ1MFT2.5	1		LM4132CQ1MFT2.5
TPS54239EDDAR	4.5V to 23V Input, 2-A Synchronous Step-Down SWIFT™ Converter With Eco-mode	U4	TPS54239EDDA	Texas Instruments	TPS54239EDDAR	1		DDA
STM32F405RGT6	ARM Cortex-M4 32-bit MCU+FPU, 210 DMIPS, 1024 kB Flash, 192 kB Internal RAM, 51 I/Os, 64-pin LQFP, -40 to 85 degC, Tray	U5	STM32F405RGT6	STMicroelectronics	STM32F405RGT6	1		STM-LQFP64_N
DAC8571IDGKR	DAC8571IDGKR	U6	DAC8571IDGKR	Texas Instruments	DAC8571IDGKR	1		DGK8
ADS1118IDGSR	16-Bit ADC with Integrated Multiplexer, PGA, Temperature Sensor, Oscillator, and Reference, -40 to 125 degC, 10-pin SOP (DGS10), Green (RoHS & no Sb/Br)	U7	ADS1118IDGSR	Texas Instruments	ADS1118IDGSR	1		TI-DGS10_N
ASE-8.000MHZ-LC-T	XTAL OSC XO 8.0000MHZ CMOS SMD	U8	ASE-8.000MHZ-LC-T	Abracon LLC	ASE-8.000MHZ-LC-T	1		ASE-8.000MHZ-LC-T
OPA2337EA	Low Cost FE	U9, U10	OPA2137E/2	Texas Instru	OPA2337EA	2		SOT-23-8

BOB END

Designer: Ben Falk
001-001-v3.0
Serial#:

Design Rules Verification Report

Filename : C:\Users\benja_000\Documents\Altium\Projects\EtchaSound\PCB1.CSPcbDoc

Warnings 0
Rule Violations 0

Warnings	
Total	0

Rule Violations	
Unpoured Polygon (Allow unpoured: False)	0
Silk primitive without silk layer	0
Silk to Silk (Clearance=1mil) (All),(All)	0
Silk To Solder Mask (Clearance=1mil) (IsPad),(All)	0
Minimum Solder Mask Sliver (Gap=1mil) (All),(All)	0
Hole To Hole Clearance (Gap=10mil) (All),(All)	0
Hole Size Constraint (Min=1mil) (Max=150mil) (All)	0
Height Constraint (Min=0mil) (Max=1000mil) (Prefered=500mil) (All)	0
Width Constraint (Min=10mil) (Max=50mil) (Preferred=10mil) (All)	0
Power Plane Connect Rule(Direct Connect)(Expansion=20mil) (Conductor Width=10mil) (Air Gap=10mil) (Entries=4)	0
Clearance Constraint (Gap=8mil) (All),(All)	0
Un-Routed Net Constraint ((All))	0
Short-Circuit Constraint (Allowed=No) (All),(All)	0
Power Plane Connect Rule(Relief Connect)(Expansion=20mil) (Conductor Width=10mil) (Air Gap=10mil) (Entries=4)	0
Total	0

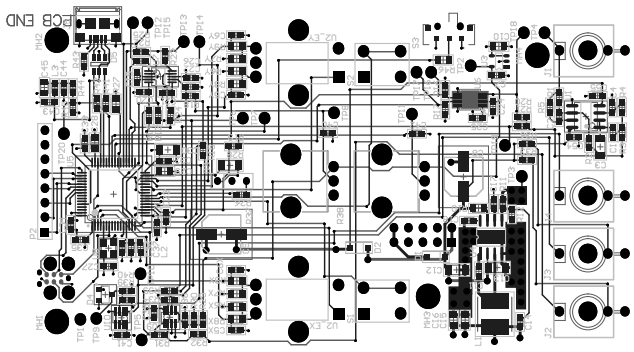
Electrical Rules Check Report

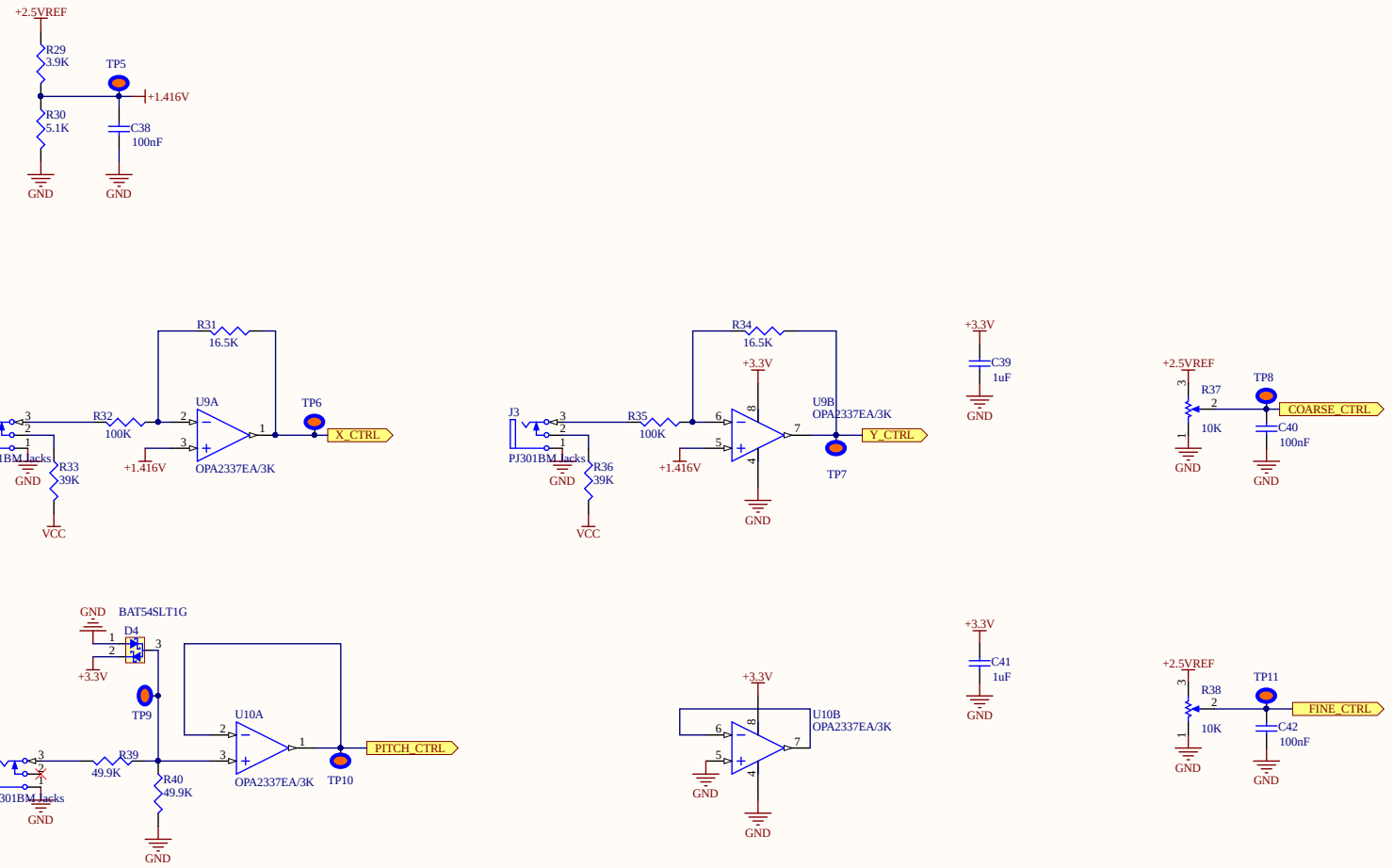
Class	Document	Message
Warning	Analog.SchDoc	Extra Pin R37-1 (Inferred) in Alternate 1 of part R37
Warning	Analog.SchDoc	Extra Pin R37-1 in Normal of part R37
Warning	Analog.SchDoc	Extra Pin R37-2 (Inferred) in Alternate 1 of part R37
Warning	Analog.SchDoc	Extra Pin R37-2 in Normal of part R37
Warning	Analog.SchDoc	Extra Pin R37-3 (Inferred) in Alternate 1 of part R37
Warning	Analog.SchDoc	Extra Pin R37-3 in Normal of part R37
Warning	Analog.SchDoc	Extra Pin R38-1 (Inferred) in Alternate 1 of part R38
Warning	Analog.SchDoc	Extra Pin R38-1 in Normal of part R38
Warning	Analog.SchDoc	Extra Pin R38-2 (Inferred) in Alternate 1 of part R38
Warning	Analog.SchDoc	Extra Pin R38-2 in Normal of part R38
Warning	Analog.SchDoc	Extra Pin R38-3 (Inferred) in Alternate 1 of part R38
Warning	Analog.SchDoc	Extra Pin R38-3 in Normal of part R38
Warning	Analog.SchDoc	Net +1.416V has no driving source (Pin C38-2,Pin R29-2,Pin R30-1,Pin TP5-1,Pin U9-3,Pin U9-5)
Warning	Audio.SchDoc	Net NetC2_2 has no driving source (Pin C2-2,Pin R1-2,Pin R2-1,Pin U1-6)
Warning	Audio.SchDoc	Net NetC4_2 has no driving source (Pin C4-2,Pin R4-1,Pin U1-3)
Warning	Analog.SchDoc	Net NetD4_3 has no driving source (Pin D4-3,Pin R39-1,Pin R40-1,Pin TP9-1,Pin U10-3)
Warning	Audio.SchDoc	Net NetJ1_3 has no driving source (Pin J1-3,Pin R1-1,Pin R5-1,Pin TP4-1)
Warning	Analog.SchDoc	Net NetJ2_3 has no driving source (Pin J2-3,Pin R32-2)
Warning	Analog.SchDoc	Net NetJ3_3 has no driving source (Pin J3-3,Pin R35-2)
Warning	Analog.SchDoc	Net NetJ4_3 has no driving source (Pin J4-3,Pin R39-2)
Warning	Processor.SchDoc	Net NetR22_1 has no driving source (Pin R22-1,Pin U7-1)
Warning	Processor.SchDoc	Net NetR23_1 has no driving source (Pin R23-1,Pin U7-10)
Warning	Processor.SchDoc	Net NetR25_1 has no driving source (Pin R25-1,Pin U7-2)
Warning	Analog.SchDoc	Net NetR31_2 has no driving source (Pin R31-2,Pin R32-1,Pin U9-2)
Warning	Analog.SchDoc	Net NetR34_2 has no driving source (Pin R34-2,Pin R35-1,Pin U9-6)
Warning	Communications.SchDoc	Net NetR46_1 has no driving source (Pin R46-1,Pin U5-60)
Warning	Top Level.SchDoc	Nets Wire ENCODER A has multiple names (Sheet Entry U_Encoders_X-ENCODER A(Output),Sheet Entry U_Processor-ENCODER_XA(Input))
Warning	Top Level.SchDoc	Nets Wire ENCODER A has multiple names (Sheet Entry U_Encoders_Y-ENCODER A(Output),Sheet Entry U_Processor-ENCODER_YA(Input))
Warning	Top Level.SchDoc	Nets Wire ENCODER B has multiple names (Sheet Entry U_Encoders_X-ENCODER B(Output),Sheet Entry U_Processor-ENCODER_XB(Input))
Warning	Top Level.SchDoc	Nets Wire ENCODER B has multiple names (Sheet Entry U_Encoders_Y-ENCODER B(Output),Sheet Entry U_Processor-ENCODER_YB(Input))
Warning	Top Level.SchDoc	Nets Wire GND has multiple names (Power Object GND,Power Object
ND,Power Object GND,Power		

Object GND,Power Object GND,Sheet EntryU_Encoders_X-SWITCH_2(Passive),Sheet EntryU_Encoders_Y-SWITCH_2(Passive))

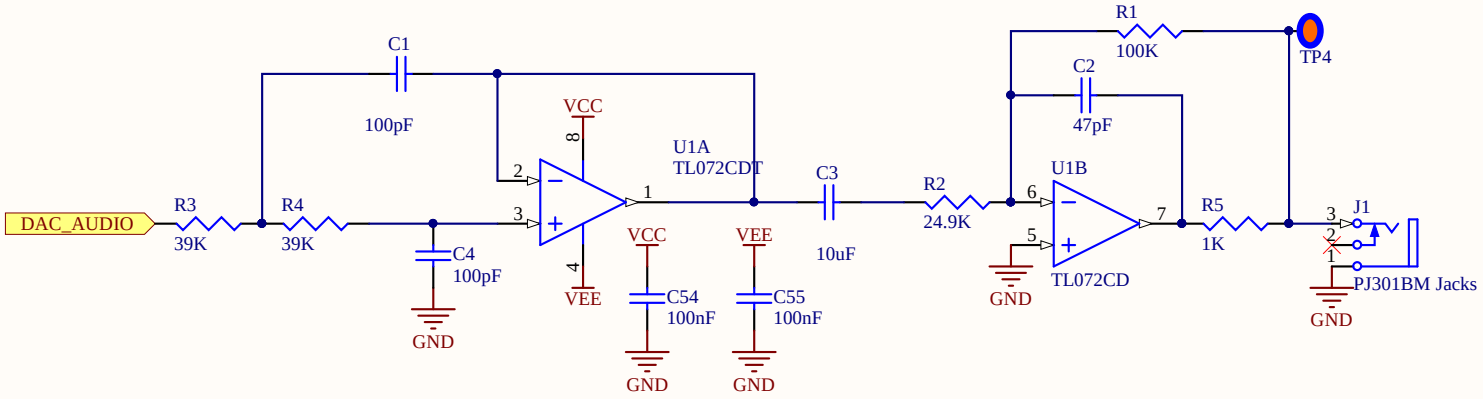
Class	Document	Message
Warning	Top Level.SchDoc	Nets Wire GND has multiple names (Sheet Entry U_Encoders_X-SWITCH_2(Passive),Sheet Entry U_Encoders_Y-SWITCH_2(Passive),Power Object GND,Power Object GND)
Warning	Top Level.SchDoc	Nets Wire NetC5_U_Encoders_X_2 has multiple names (Sheet Entry U_Encoders_X-ENCODER B(Output),Sheet Entry U_Processor-ENCODER_XB(Input))
Warning	Top Level.SchDoc	Nets Wire NetC5_U_Encoders_Y_2 has multiple names (Sheet Entry U_Encoders_Y-ENCODER B(Output),Sheet Entry U_Processor-ENCODER_YB(Input))
Warning	Top Level.SchDoc	Nets Wire NetC6_U_Encoders_X_2 has multiple names (Sheet Entry U_Encoders_X-ENCODER A(Output),Sheet Entry U_Processor-ENCODER_XA(Input))
Warning	Top Level.SchDoc	Nets Wire NetC6_U_Encoders_Y_2 has multiple names (Sheet Entry U_Encoders_Y-ENCODER A(Output),Sheet Entry U_Processor-ENCODER_YA(Input))
Warning	Top Level.SchDoc	Nets Wire NetR46_1 has multiple names (Sheet Entry U_Communications-USB_BOOT(Output),Sheet Entry U_Processor-BOOT0(Input))
Warning	Top Level.SchDoc	Nets Wire NetU2_U_Encoders_X_1 has multiple names (Sheet Entry U_Encoders_X-SWITCH_1(Passive),Sheet Entry U_Processor-X_SWITCH(Input))
Warning	Top Level.SchDoc	Nets Wire NetU2_U_Encoders_Y_1 has multiple names (Sheet Entry U_Encoders_Y-SWITCH_1(Passive),Sheet Entry U_Processor-Y_SWITCH(Input))

Class	Document	Message
Warning	Top Level.SchDoc	Nets Wire SWITCH_1 has multiple names (Sheet Entry U_Encoders_X-SWITCH_1(Passive),Sheet Entry U_Processor-X_SWITCH(Input))
Warning	Top Level.SchDoc	Nets Wire SWITCH_1 has multiple names (Sheet Entry U_Encoders_Y-SWITCH_1(Passive),Sheet Entry U_Processor-Y_SWITCH(Input))
Warning	Top Level.SchDoc	Nets Wire USB_BOOT has multiple names (Sheet Entry U_Communications-USB_BOOT(Output),Sheet Entry U_Processor-BOOT0(Input))
Warning	Processor.SchDoc	NetU5_2 contains IO Pin and Input Port objects (Port X_SWITCH)
Warning	Processor.SchDoc	NetU5_3 contains IO Pin and Input Port objects (Port ENCODER_XA)
Warning	Processor.SchDoc	NetU5_4 contains IO Pin and Input Port objects (Port ENCODER_XB)
Warning	Processor.SchDoc	NetU5_27 contains IO Pin and Input Port objects (Port Y_SWITCH)
Warning	Processor.SchDoc	NetU5_29 contains IO Pin and Input Port objects (Port ENCODER_YA)
Warning	Processor.SchDoc	NetU5_30 contains IO Pin and Input Port objects (Port ENCODER_YB)
Warning	Processor.SchDoc	NetU5_42 contains IO Pin and Input Port objects (Port VBUS)
Warning	Top Level.SchDoc	SWITCH_1 contains Input Sheet Entry and Unspecified Sheet Entry objects (Sheet Entry U_Processor-X_SWITCH(Input))
Warning	Top Level.SchDoc	SWITCH_1 contains Input Sheet Entry and Unspecified Sheet Entry objects (Sheet Entry U_Processor-Y_SWITCH(Input))

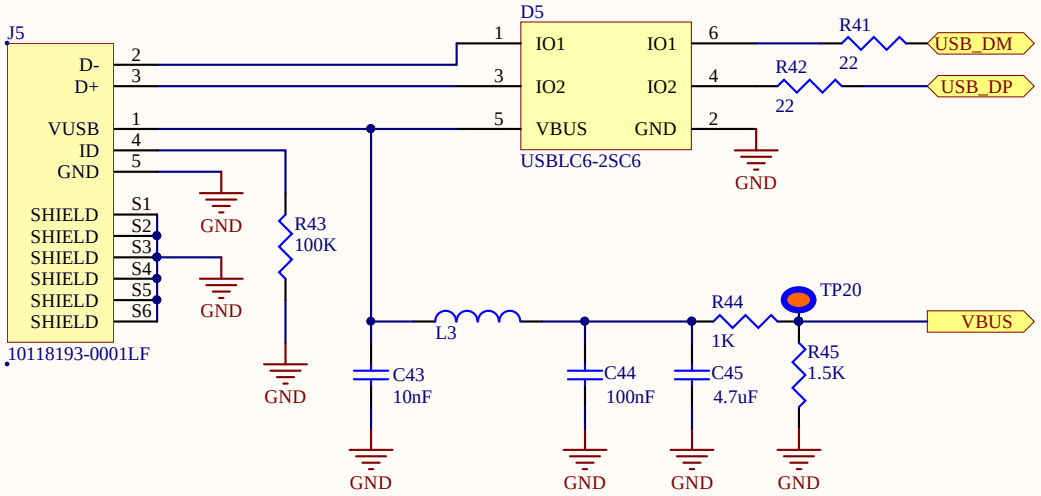

PCB END

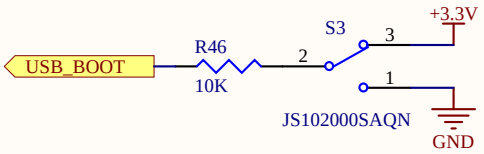


Title		
Size: B	Number:	Revision:
Date: 8/28/2019		Sheet of
File: C:\Users\..\Analog.SchDoc		Drawn By:

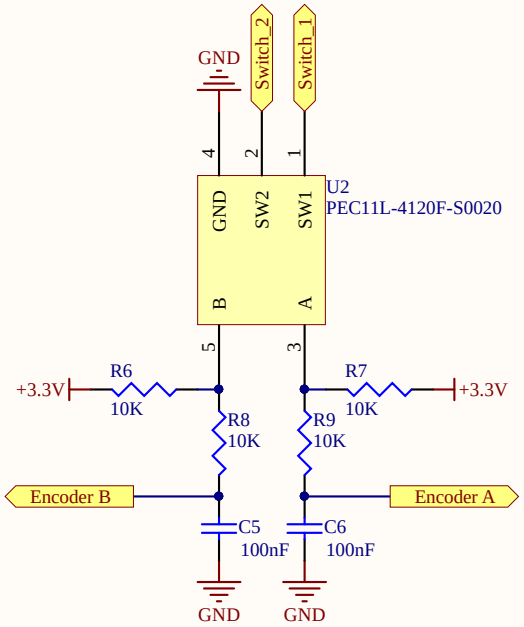


Title		
Size: A	Number	Revision
Date: 8/28/2019		Sheet of
File: C:\Users\..\Audio.SchDoc		Drawn By:

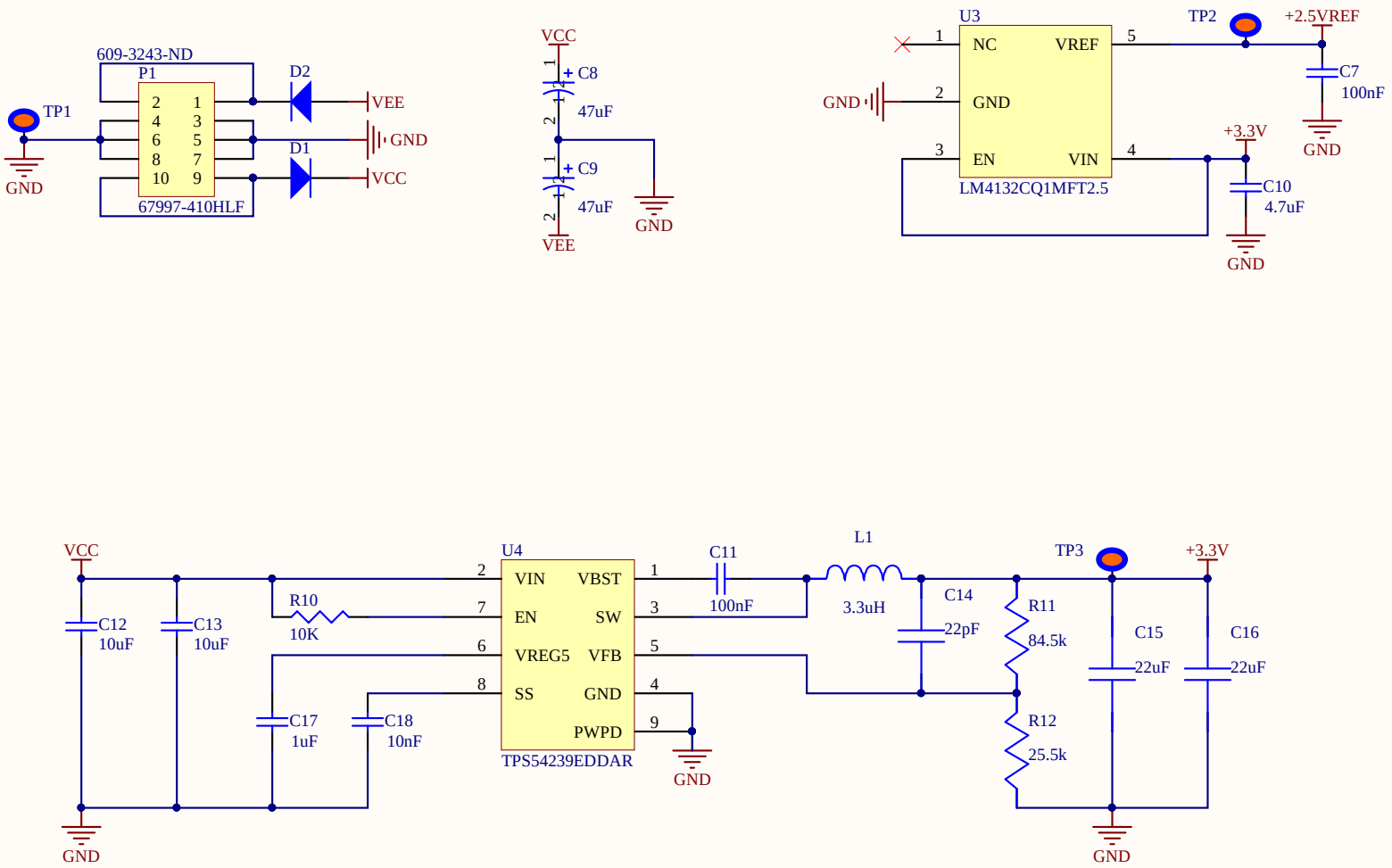




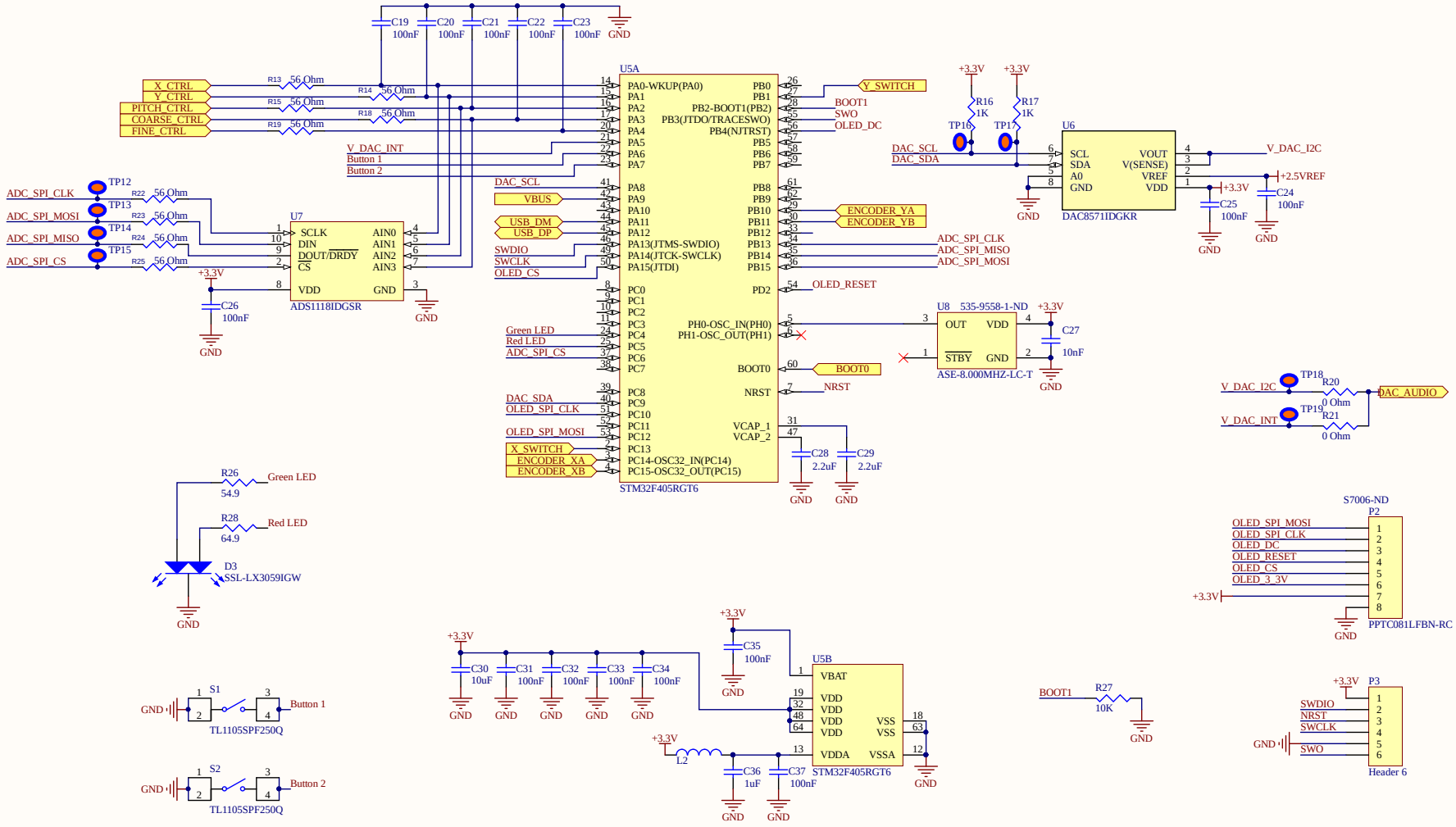
Title		
Size: A	Number	Revision
Date: 8/28/2019		Sheet of
File: C:\Users\..\Communications.SchDoc		Drawn By:

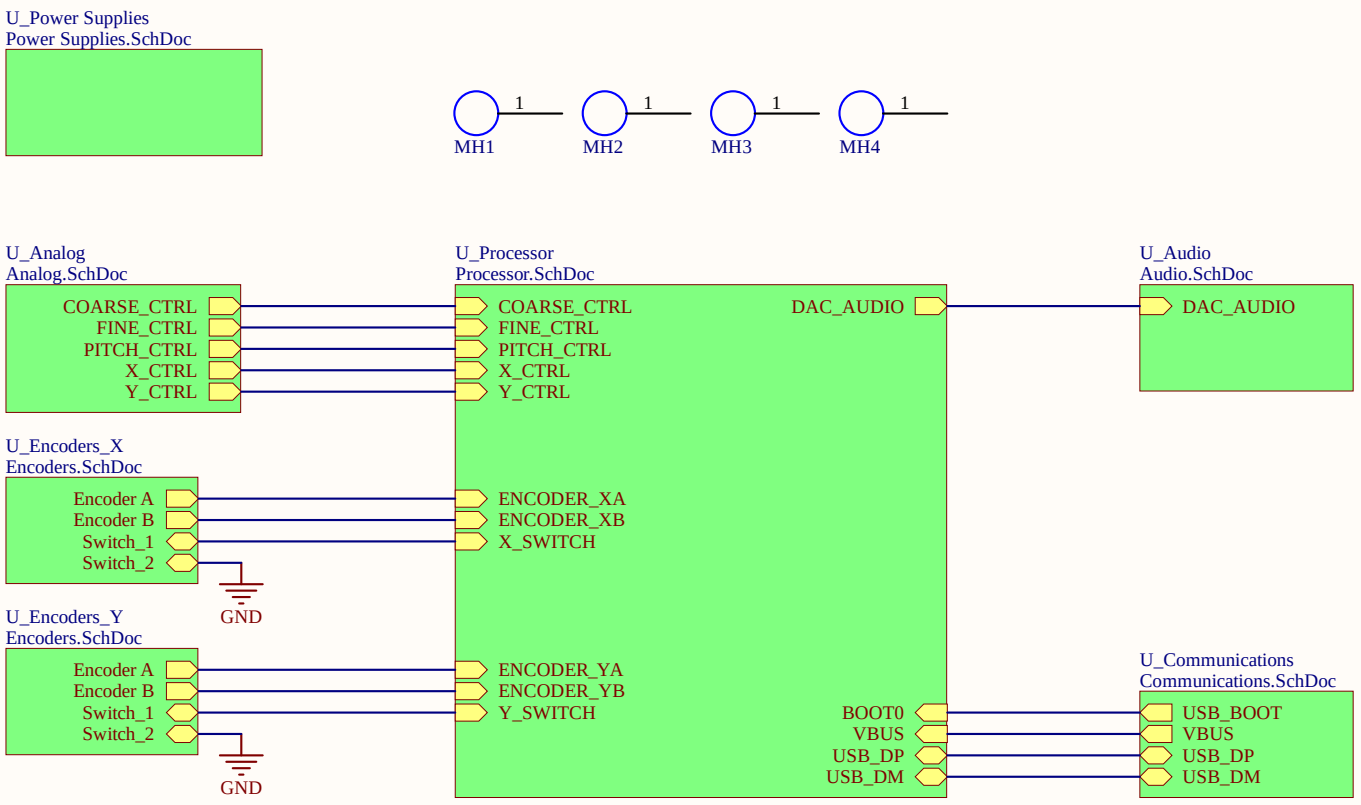


Title		
Size: A	Number	Revision
Date: 8/28/2019		Sheet of
File: C:\Users\..\Encoders.SchDoc		Drawn By:



Title		
Size: A	Number	Revision
Date: 8/28/2019		Sheet of
File: C:\Users\..\Power Supplies.SchDoc		Drawn By:


C19 100nF
C20 100nF
C21 100nF
C22 100nF
C23 100nF
GND
X_CTRL
Y_CTRL
PITCH_CTRL
COARSE_CTRL
FINE_CTRL
R13 56 Ohm
R14 56 Ohm
R15 56 Ohm
R18 56 Ohm
R19 56 Ohm
V_DAC_INT
Button 1
Button 2
U5A
PA0-WKUP(PA0)
PA1
PA2
PB2-BOOT1(PB2)
PA3
PB3(JTDO/TRACESWO)
PA4
PB4(NJTRST)
PA5
PA6
PA7
PA8
PA9
PA10
PA11
PA12
PA13(JTMS-SWDIO)
PA14(JTCK-SWCLK)
PA15(JTDI)
PC0
PC1
PC2
PC3
PC4
PC5
PC6
PC7
PC8
PC9
PC10
PC11
PC12
PC13
PC14-OSC32_IN(PC14)
PC15-OSC32_OUT(PC15)
PH0-OSC_IN(PH0)
PH1-OSC_OUT(PH1)
PB0
PB1
PB5
PB6
PB7
PB8
PB9
PB10
PB11
PB12
PB13
PB14
PB15
PD2
BOOT0
NRST
VCAP_1
VCAP_2
STM32F405RGT6
Y_SWITCH
BOOT1
SWO
OLED_DC
ENCODER_YA
ENCODER_YB
ADC_SPI_CLK
ADC_SPI_MISO
ADC_SPI_MOSI
OLED_RESET
BOOT0
NRST
DAC_SCL
VBUS
USB_DM
USB_DP
SWDIO
SWCLK
OLED_CS
Green LED
Red LED
ADC_SPI_CS
DAC_SDA
OLED_SPI_CLK
OLED_SPI_MOSI
X_SWITCH
ENCODER_XA
ENCODER_XB
C28 2.2uF
C29 2.2uF
U7
SCLK
DIN
DOUT/DRDY
CS
VDD
AIN0
AIN1
AIN2
AIN3
GND
ADS1118IDGSR
TP12
TP13
TP14
TP15
ADC_SPI_CLK
ADC_SPI_MOSI
ADC_SPI_MISO
ADC_SPI_CS
R22 56 Ohm
R23 56 Ohm
R24 56 Ohm
R25 56 Ohm
+3.3V
C26 100nF
U8 535-9558-1-ND
OUT
VDD
STBY
GND
ASE-8.000MHZ-LC-T
C27 10nF
+3.3V
GND
TP16
TP17
R16 1K
R17 1K
U6
SCL
SDA
A0
GND
VOUT
V(SENSE)
VREF
VDD
DAC8571IDGKR
V_DAC_I2C
+2.5VREF
C24 100nF
C25 100nF
TP18
TP19
R20 0 Ohm
R21 0 Ohm
DAC_AUDIO
R26 54.9
R28 64.9
Green LED
Red LED
D3
SSL-LX3059IGW
S1
S2
TL1105SPF250Q
Button 1
Button 2
C30 10uF
C31 100nF
C32 100nF
C33 100nF
C34 100nF
C35 100nF
C36 1uF
C37 100nF
L2
U5B
VBAT
VDD
VDD
VDD
VDD
VSS
VSS
VDDA
VSSA
STM32F405RGT6
BOOT1
R27 10K
S7006-ND
P2
OLED_SPI_MOSI
OLED_SPI_CLK
OLED_DC
OLED_RESET
OLED_CS
OLED_3_3V
PPTC081LFBN-RC
P3
SWDIO
NRST
SWCLK
SWO
Header 6
Title
Size
B
Number
Revision
Date: 8/28/2019
Sheet of
File: C:\Users\..\Processor.SchDoc
Drawn By:



Title		
Size: A	Number	Revision
Date: 8/28/2019		Sheet of
File: C:\Users\..\Top Level.SchDoc		Drawn By: