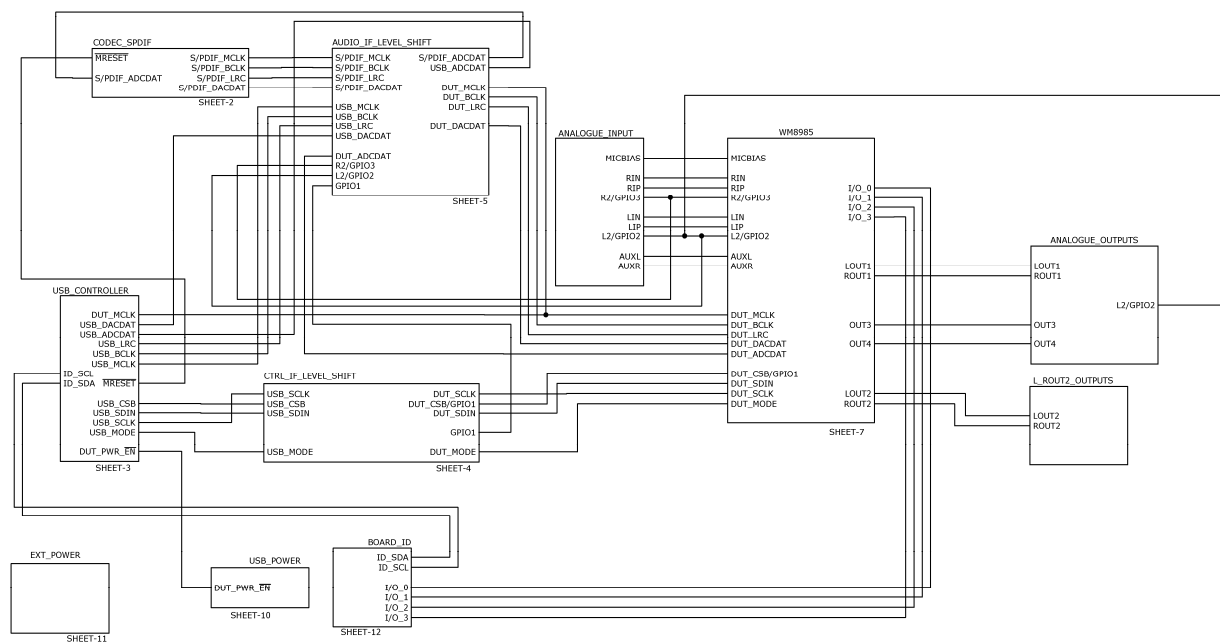


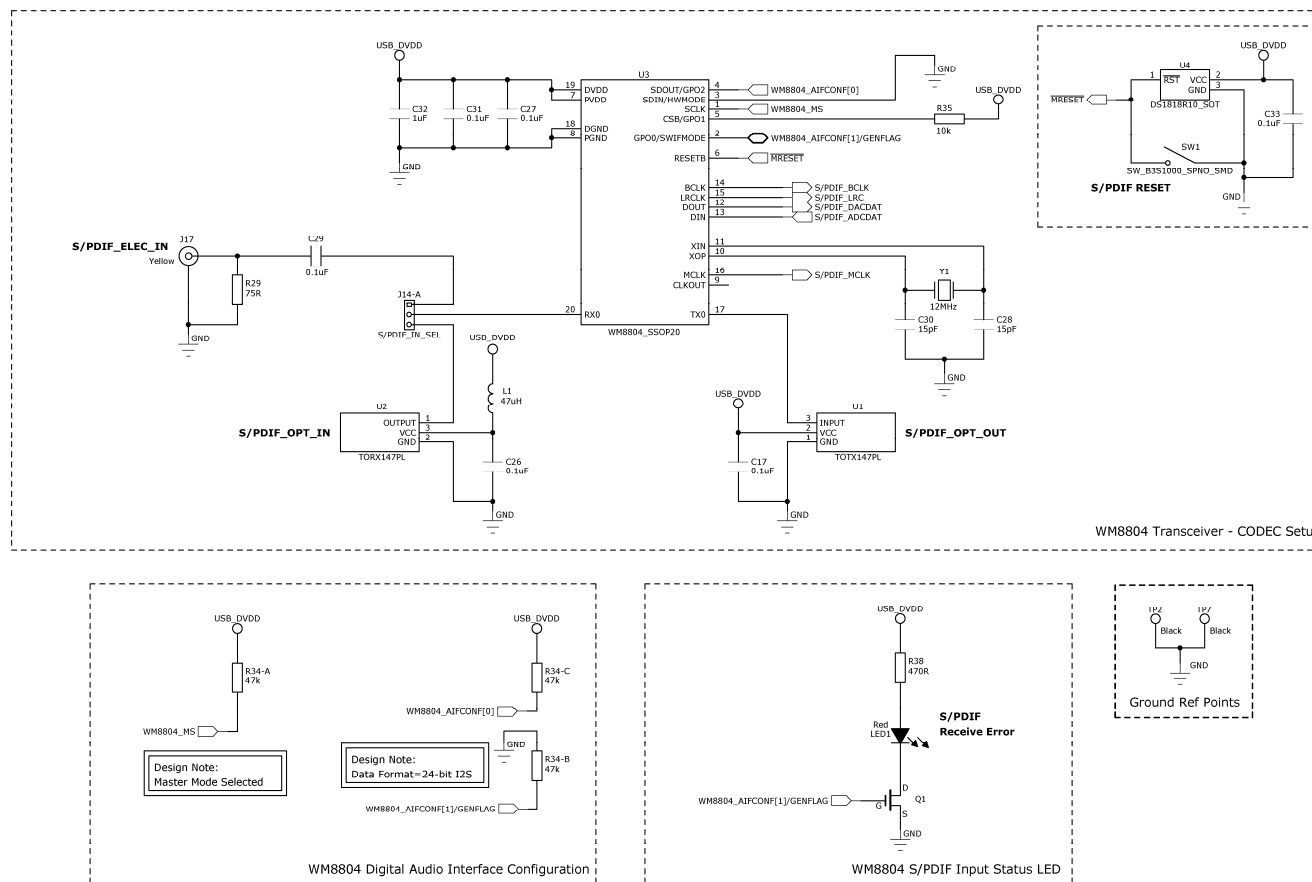
DOC TYPE:	SCHEMATIC AND LAYOUT
BOARD REFERENCE:	6160-EV1-REV2
BOARD TYPE:	Customer Main Board
WOLFSON DEVICE(S):	WM1808, WM8957, WM8983, WM8985, WM8986
DATE:	August 2008
DOC REVISION:	Rev 1.0

SCHEMATIC

Sheet 1: Functional Diagram



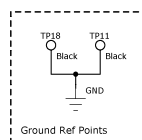
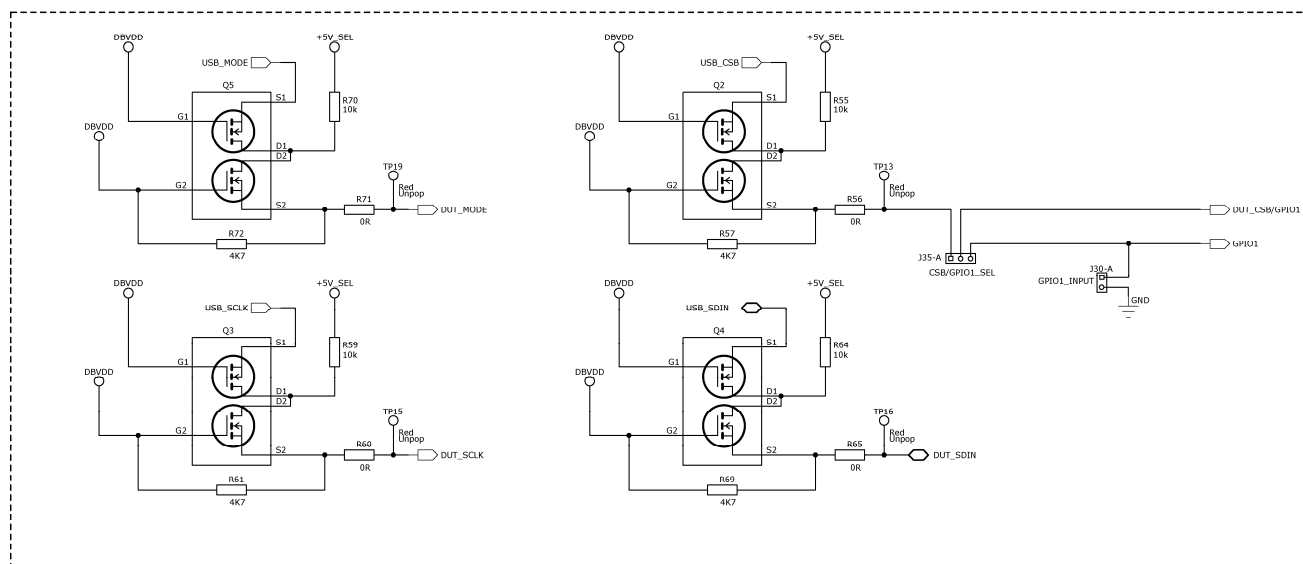
Sheet 2: S/PDIF Interface



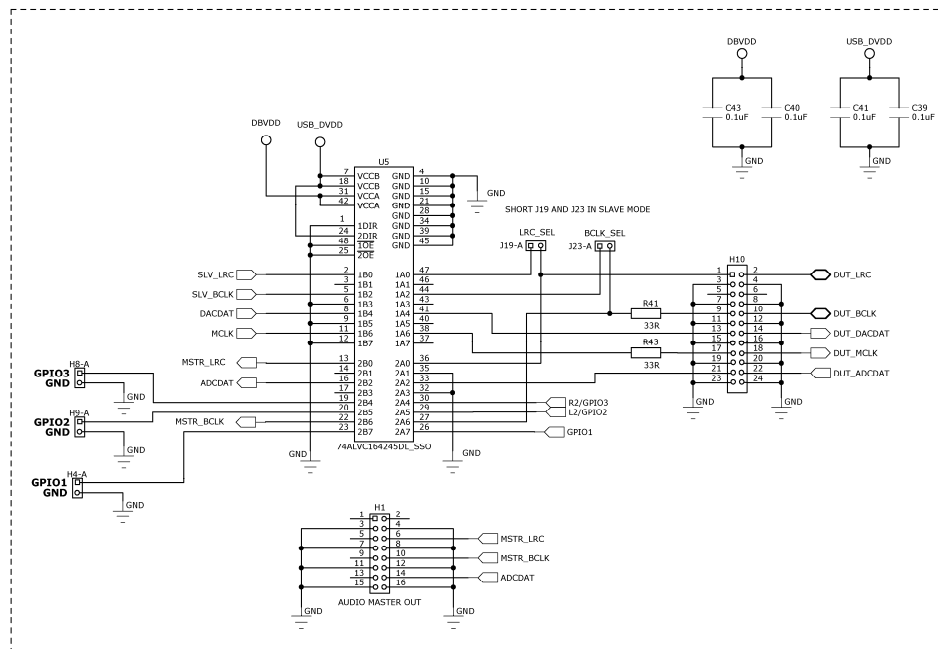
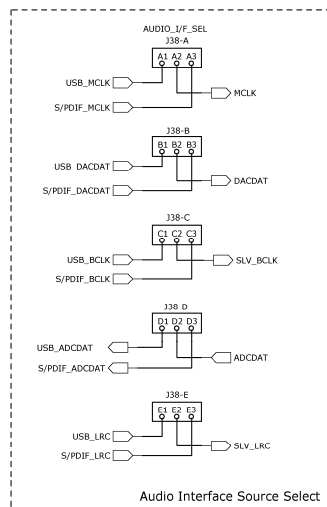
Fit DIP socket to PCB



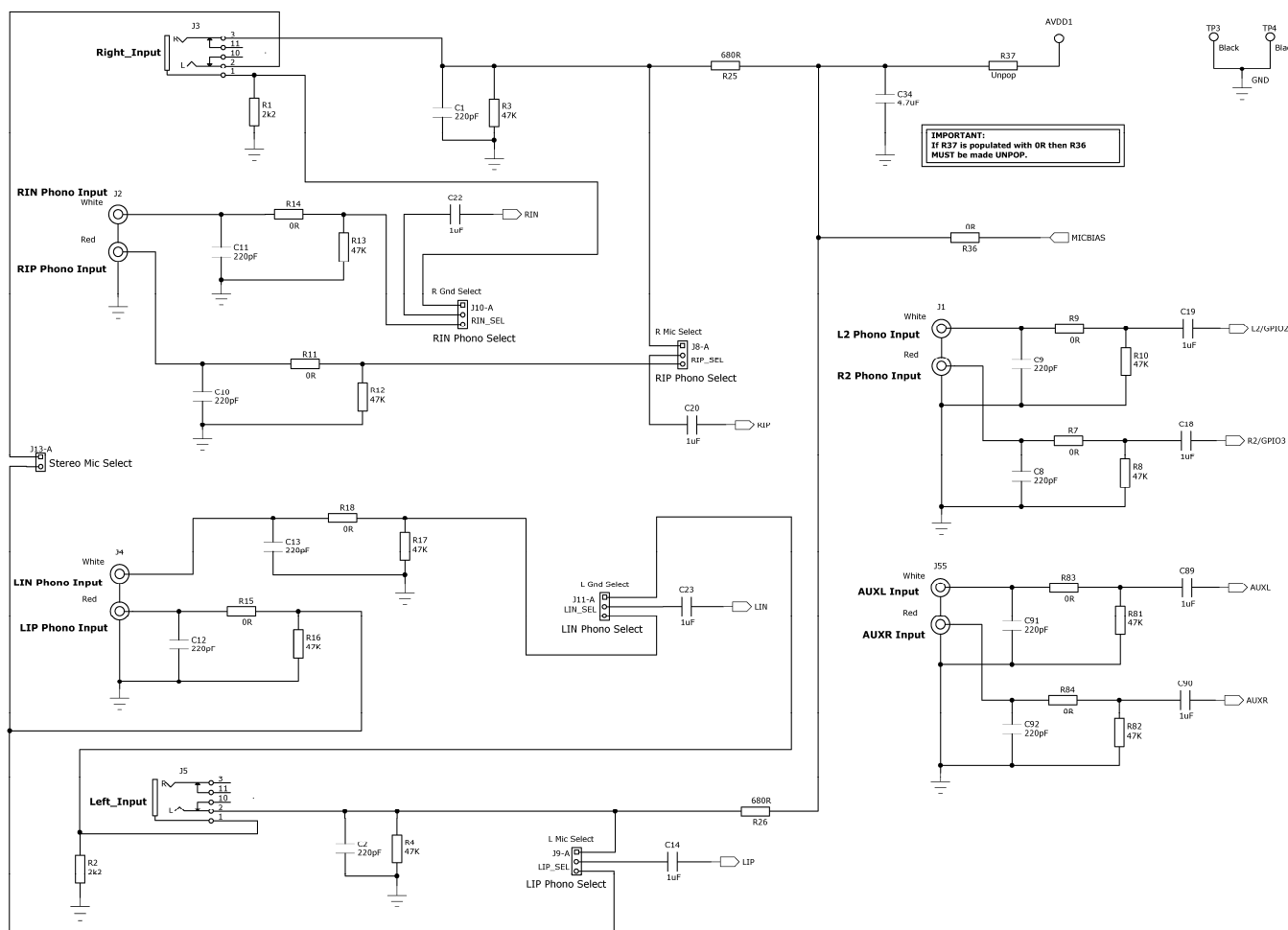
Sheet 4: Control Interface Level Shift



Sheet 5: Audio Interface Level Shift

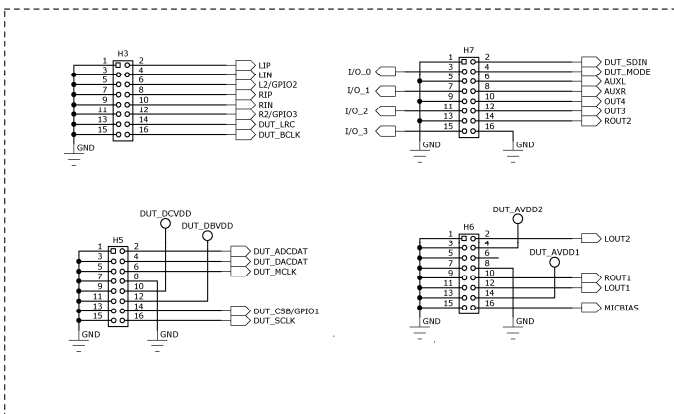


Sheet 6: Analogue Inputs

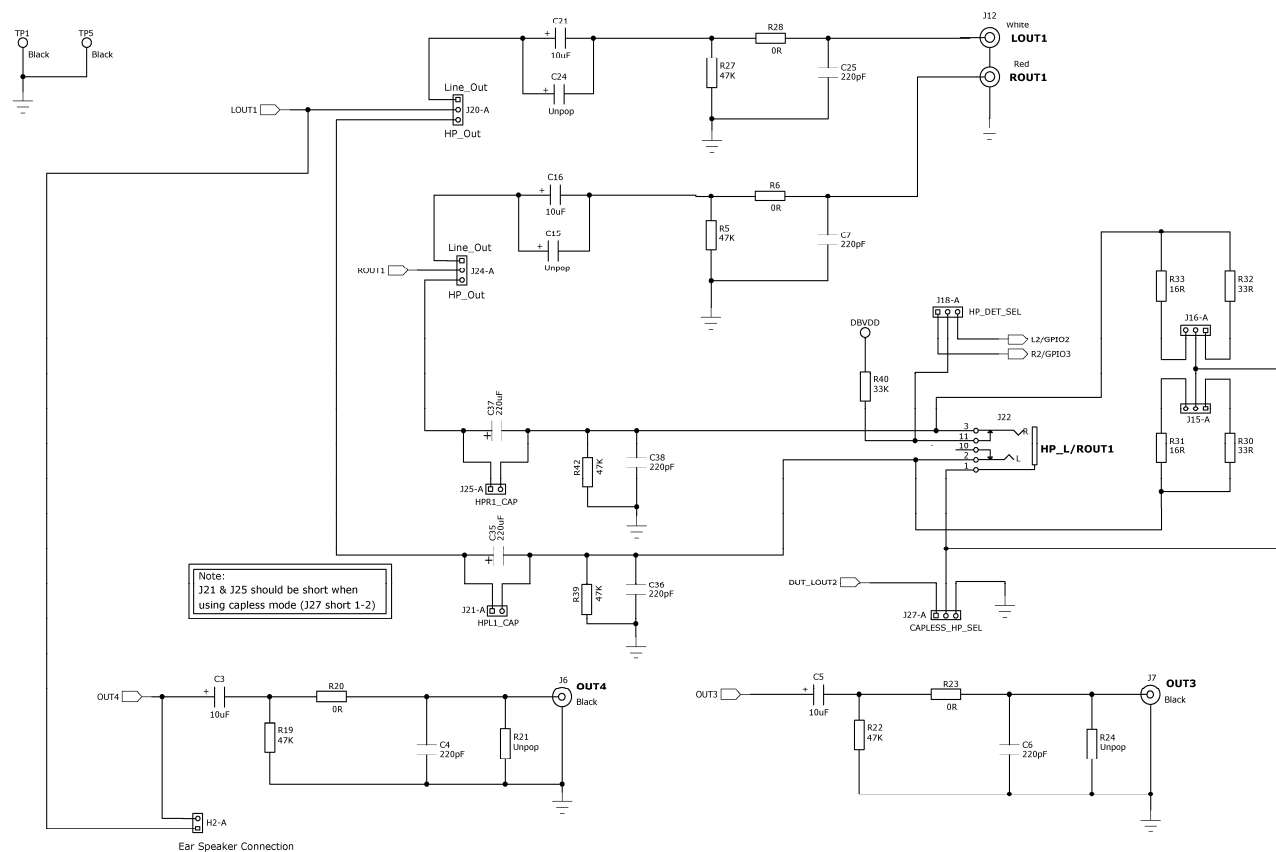




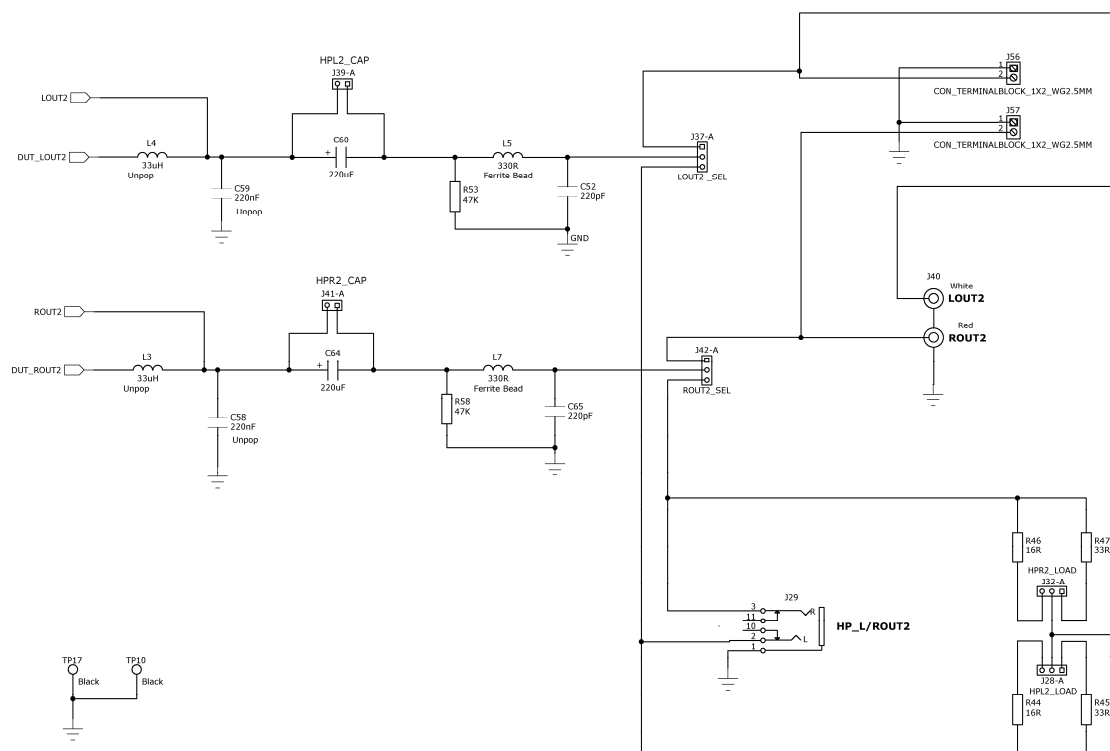
The schematic diagram illustrates the power supply network for the device. It consists of four decoupling stages, each represented by a voltage source and a capacitor connected to ground. The stages are labeled AVDD1, AVDD2, DBVDD, and DCVDD. AVDD1 is connected to a 7.5V source and a 4.7uF capacitor. AVDD2 is connected to a 1.1V source and a 4.7uF capacitor. DBVDD is connected to a 1.8V source and a 4.7uF capacitor. DCVDD is connected to a 1.1V source and a 4.7uF capacitor. The output signals for these stages are labeled DUT_AVDD2, DUT_DBVDD, and DUT_DCVDD.

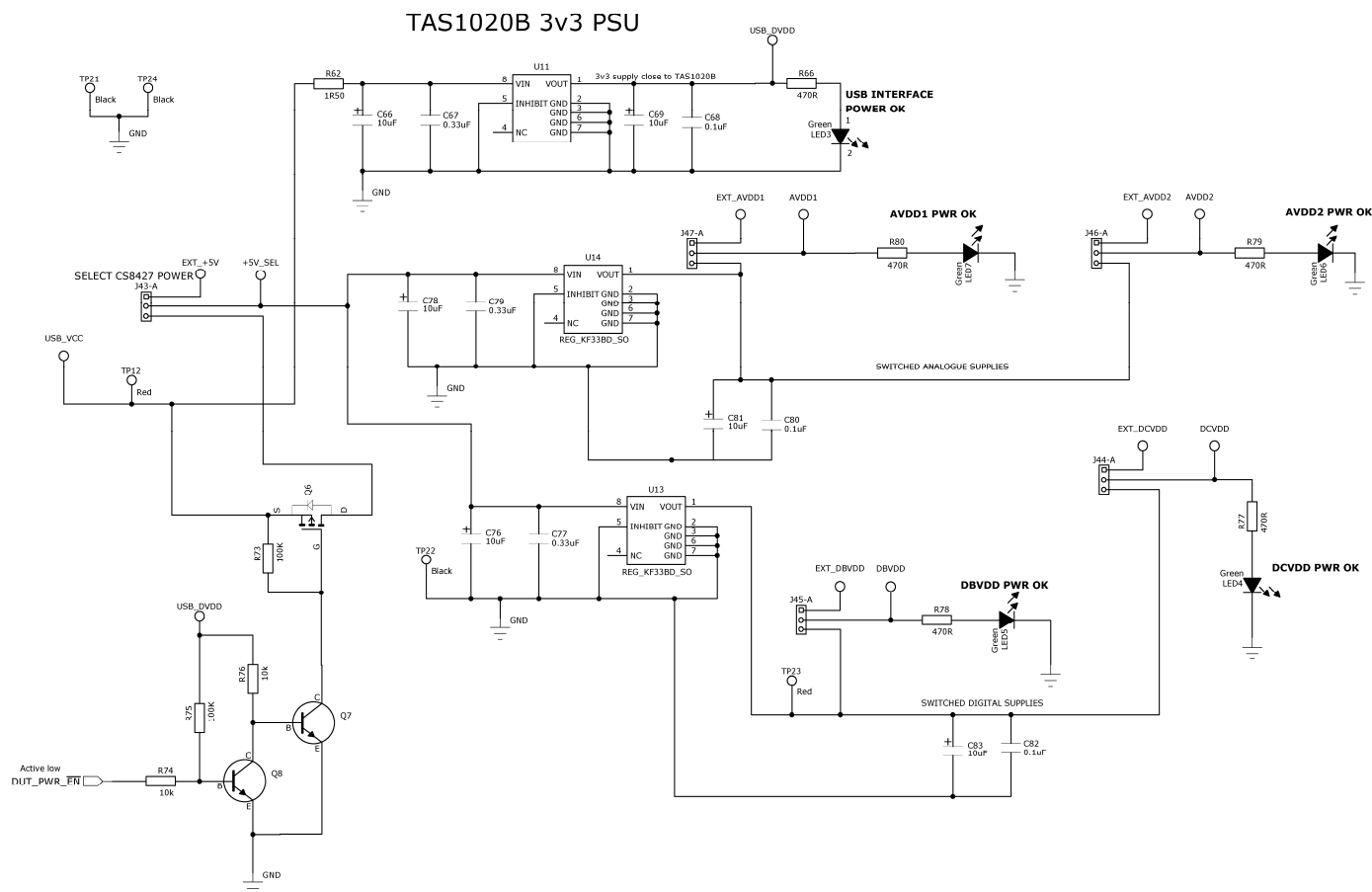


Sheet 8: Analogue Outputs

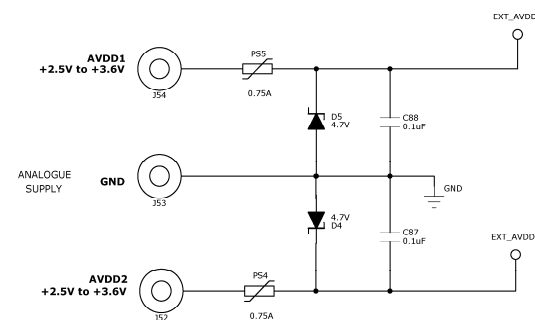
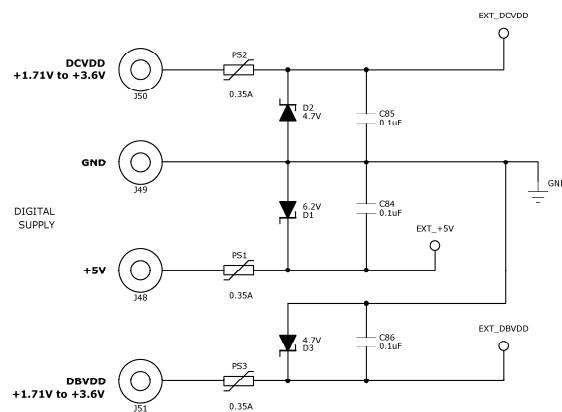


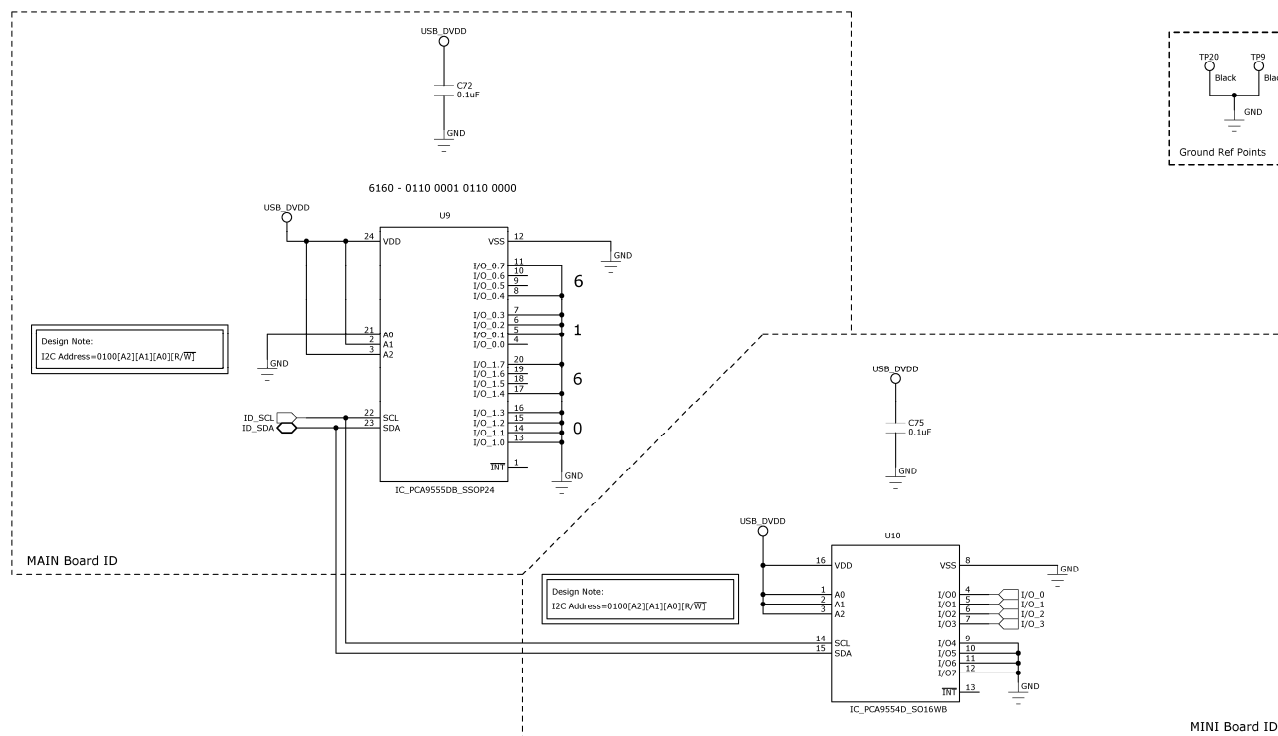
Sheet 9: L/ROUT2 Outputs





Sheet 11: External Power





Sheet 13: Reference Tables

REFERENCE TABLES

	Short 1-2	Short 2-3	PCB Ref:	
Row A:	USB_AUDIO_1/F	SPDIF_AUDIO_1/F	AUDIO_1/F_SEL	2-3
Row B:	USB_AUDIO_1/F	SPDIF_AUDIO_1/F	AUDIO_1/F_SEL	2-3
Row C:	USB_AUDIO_1/F	SPDIF_AUDIO_1/F	AUDIO_1/F_SEL	2-3
Row D:	USB_AUDIO_1/F	SPDIF_AUDIO_1/F	AUDIO_1/F_SEL	2-3
Row E:	USB_AUDIO_1/F	SPDIF_AUDIO_1/F	AUDIO_1/F_SEL	2-3



	Short 1-2	Short 2-3	
310-B	RIN_GND	RIN_PHONO	UNK 310 YELLOW
PCB Ref:	RIN_SEL		2-3

	Short 1-2	Short 2-3	
310-B	RIP_MIC	RIP_PHONO	UNK 310 YELLOW
PCB Ref:	RIP_SEL		2-3

	Short 1-2	Short 2-3	
311-B	LIN_GND	LIN_PHONO	UNK 311 YELLOW
PCB Ref:	LIN_SEL		2-3

	Short 1-2	Short 2-3	
311-B	LIP_MIC	LIP_PHONO	UNK 311 YELLOW
PCB Ref:	LIP_SEL		2-3

	Short	Open	
313-B	Stereo MIC	Mono MIC	UNK 313 YELLOW
PCB Ref:	Stereo MIC_SEL		Open

	Short 1-2	Short 2-3	
315-B	33R_LOAD	16R_LOAD	UNK 315 YELLOW
PCB Ref:	RHP_LOAD		Open

	Short 1-2	Short 2-3	
316-B	33R_LOAD	16R_LOAD	UNK 316 YELLOW
PCB Ref:	LHP_LOAD		Open

	Short	Open	
321-B	DC Coupled	AC Coupled	UNK 321 YELLOW
PCB Ref:	HPL1_CAP		Open

	Short	Open	
325-B	DC Coupled	AC Coupled	UNK 325 YELLOW
PCB Ref:	HPR1_CAP		Open

	Short 1-2	Short 2-3	
314-B	Electrical Input	Optical Input	UNK 314 YELLOW
PCB Ref:	S/POIF_IN_SEL		1-2

	Short	Open	
319-B	Slave LRC	Master LRC	UNK 319 YELLOW
PCB Ref:	LRC_SEL		Short

	Short	Open	
323-B	Slave BCLK	Master BCLK	UNK 323 YELLOW
PCB Ref:	BCLK_SEL		Short

	Short 1-2	Short 2-3	
320-B	LOUT1_PHONO	LOUT1_HP	UNK 320 YELLOW
PCB Ref:	LOUT_SEL		1-2

	Short 1-2	Short 2-3	
324-B	ROUT1_PHONO	ROUT1_HP	UNK 324 YELLOW
PCB Ref:	ROUT_SEL		1-2

	Short 1-2	Short 2-3	
327-B	LOUT2_PHONO	LOUT2_HP	UNK 327 YELLOW
PCB Ref:	LOUT2_SEL		1-2

	Short 1-2	Short 2-3	
342-B	ROUT2_PHONO	ROUT2_HP	UNK 342 YELLOW
PCB Ref:	ROUT2_SEL		1-2

	Short 1-2	Short 2-3	
327-B	Capless Mode	GND HP	UNK 327 YELLOW
PCB Ref:	CAPLESS_HP_SEL		2-3

	Short 1-2	Short 2-3	
318-B	L2/GPIO2	R2.GPIO3	UNK 318 YELLOW
PCB Ref:	HP_DET_SEL		Open

	Short	No HP Detect	
339-B	UK_Coupled	AC_Coupled	UNK 339 YELLOW
PCB Ref:	HP2L_CAP		Open

	Short	Open	
341-B	DC Coupled	AC Coupled	UNK 341 YELLOW
PCB Ref:	HPR2_CAP		Open

	Short 1-2	Short 2-3	
328-B	33R_LOAD	16R_LOAD	UNK 328 YELLOW
PCB Ref:	HPL2_LOAD		Open

	Short 1-2	Short 2-3	
332-B	33R_LOAD	16R_LOAD	UNK 332 YELLOW
PCB Ref:	HPR2_LOAD		Open

	Short 1-2	Short 2-3	
335-B	CSB	GPIO1	UNK 335 YELLOW
PCB Ref:	CSB/GPIO1_SEL		1-2

	Short	Open	
330-B	GPIO1_LOW	GPIO1_HIGH	UNK 330 YELLOW
PCB Ref:	GPIO1_INPUT		Open

	Short	Open	
326-B	Normal	Current Measurement	UNK 326 RED
PCB Ref:	AVDD1		Short

	Short	Open	
333-B	Normal	Current Measurement	UNK 333 RED
PCB Ref:	AVDD2		Short

	Short	Open	
336-B	Normal	Current Measurement	UNK 336 RED
PCB Ref:	DBVDD		Short

	Short	Open	
331-B	Normal	Current Measurement	UNK 331 RED
PCB Ref:	DCVDD		Short

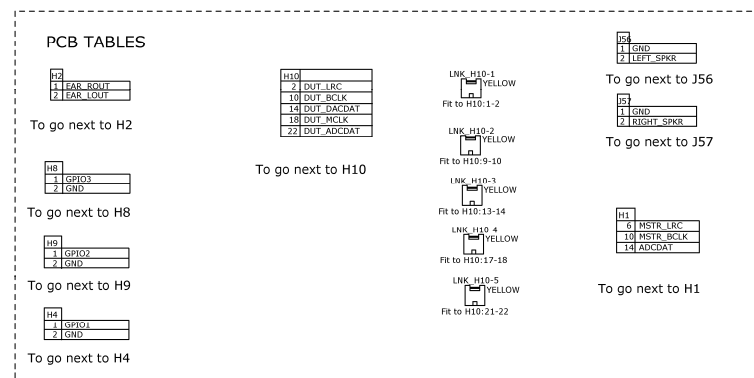
	Short 1-2	Short 2-3	
344-B	EXT DCVDD	USB DCVDD	UNK 344 RED
PCB Ref:	DCVDD_SEL		2-3

	Short 1-2	Short 2-3	
345-B	EXT DBVDD	USB DBVDD	UNK 345 RED
PCB Ref:	DBVDD_SEL		2-3

	Short 1-2	Short 2-3	
346-B	EXT AVDD2	USB AVDD2	UNK 346 RED
PCB Ref:	AVDD2_SEL		2-3

	Short 1-2	Short 2-3	
347-B	EXT AVDD1	USB AVDD1	UNK 347 RED
PCB Ref:	AVDD1_SEL		2-3

	Short 1-2	Short 2-3	
343-B	EXT +5V	USB +5V	UNK 343 RED
PCB Ref:	+5V_SEL		2-3



BILL OF MATERIALS (BOM)

<i>Item</i>	<i>RefDes</i>	<i>Description</i>	<i>Manufacturer</i>	<i>Manufacturer's Part Number</i>
1	MISC2	Grip Seal Bag, 90x115mm	CPC	PA123
2	J3 J5 J22 J29	3.5mm Jack Socket 6.5mm Centre Height	Technik Industrial	TSH-3565-PBT-TIC-T
3	U5	74ALVC164245 16 Bit Dual Supply Bus Transceiver SSO	Philips	74ALVC164245DL
4	U8	USB Streaming Controller	Texas Instruments	TAS1020BPFB
5	L5 L7	330R 0603 BLM18S Series Inductor Type Ferrite Bead	Murata	BLM18SG331TN1D
6	C84 C85 C86 C87 C88	0.1uF 0805 SMD Ceramic Capacitor 50V X7R	Panasonic	ECJ-2YB1H104K
7	C57 C62	27pF 0603 SMD Ceramic Capacitor 50V NPO	Panasonic	ECJ-1VC1H270J
8	J6 J7	Phono Socket PCB mount BLACK	Dragon City	RS109 - Black
9	J17	Phono Socket PCB mount YELLOW	Dragon City	RS109 - Yellow
10	MISC11	Lead-free label, 15mm round	Brady	805794
11	H1 H3 H5 H6 H7	2x8 2.54mm pitch PCB Pin Header VERTICAL	Harwin	M20-9980845
12	H2 H4 H8 H9 J13 J19 J21 J23 J25 J26 J30 J31 J33 J36 J39 J41	1x2 PCB Pin Header 0.1" VERTICAL	Harwin	M20-9990245
13	J8 J9 J10 J11 J14 J15 J16 J18 J20 J24 J27 J28 J32 J35 J37 J42 J43 J44 J45 J46 J47	1x3 2.54mm Header Vertical	Harwin	M20-9990345
14	J34	USB receptacle Type B	FCI	61729-0010BLF
15	MECH1	IC Socket DIL 8 WAY	Multicomp	2227MC-08-03-F1
16	PS1 PS2 PS3	0.35A Poly Switch 1210	Tyco	MICROSMD035F-2
17	J56 J57	PCB mount 1X2 terminal block for 2.5mm wire guage	LUMBERG	KRM 02
18	L2 L6	300R 0805 BMB2A Ferrite Bead	Meggitt	BMB2A0300AN1
19	L1	47uH 1210 Surface Mount Inductor 'PA series'	Panasonic	ELJPA470KF
20	U2	TORX147PL Digital Audio Fiber Optic Receiver	Toshiba	TORX147PL
21	U1	Fiber Optic Transmitting Module for Digital Audio Interface	Toshiba	TOTX147PL
22	PS4 PS5	0.75A Poly Switch 1210	Raychem	MICROSMD075F-2
23	SC1 SC2 SC3 SC4 SC5 SC6 SC7 SC8 SC9 SC10 SC11 SC12	Slotted Panhead Screw - M3 thread; 12mm long	TR FASTENERS	M312 PSSTMCZ100-

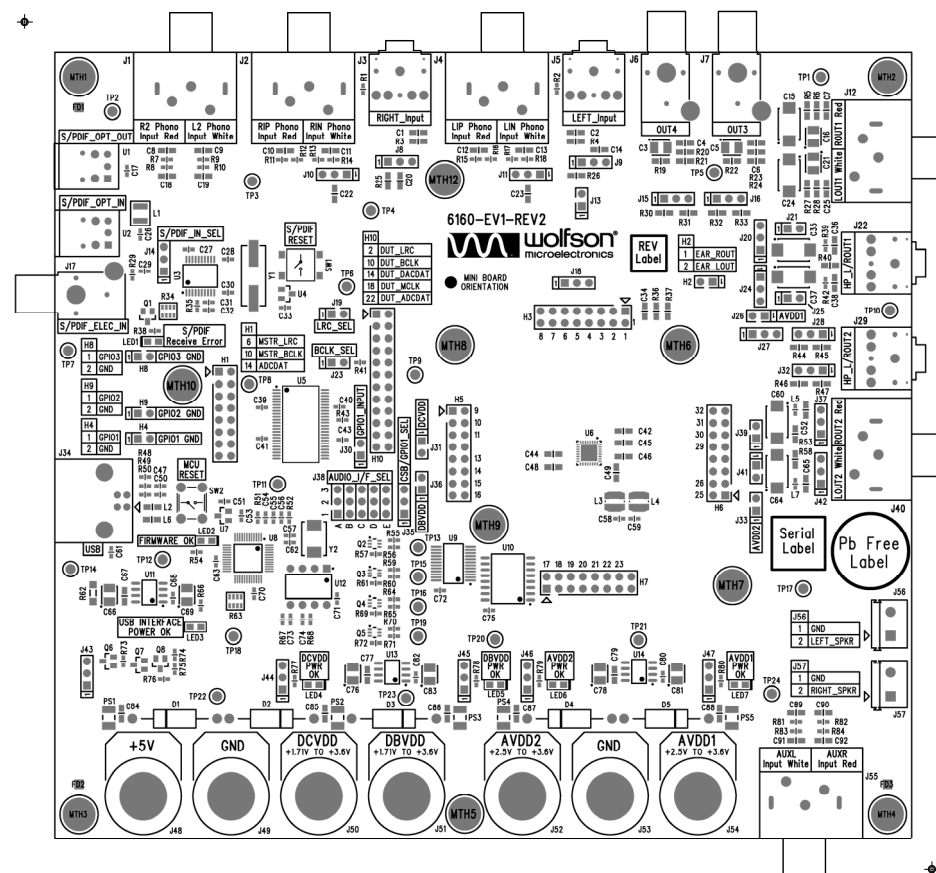
Item	RefDes	Description	Manufacturer	Manufacturer's Part Number
24	W1 W2 W3 W4 W5 W6 W7 W8 W9 W10 W11 W12	Plain M3 size washer	TR Fasteners	M3-FABRWAN100-
25	Q2 Q3 Q4 Q5	Si1902DL N- Channel Dual MOSFET SC-70	Vishay Siliconix	SI1902DL-T1-E3
26	SW2	B3F1000 SPNO PCB mount switch	Omron	B3F-1000
27	SW1	B3S1000 SPNO SMT PCB mount switch	Omron	B3S-1000
28	C35 C37 C60 C64	Tantalum Capacitor SMD-D 220uF - 10V - AVX	AVX	TAJD227K010R
29	C1 C2 C4 C6 C7 C8 C9 C10 C11 C12 C13 C25 C36 C38 C52 C65 C91 C92	220pF 0805 SMD Ceramic Capacitor 50V X7R	Phycomp	2238 580 15614
30	R62	1R50 1206 SMD chip resistor 5% 0.25W	Vishay BC	2312 1551 1508
31	C67 C77 C79	0.33uF 0805 SMD Ceramic Capacitor 16V X7R	Phycomp	2222 780 15656
32	C17 C26 C27 C29 C31 C33 C39 C40 C41 C43 C51 C53 C54 C63 C68 C70 C71 C72 C75 C80 C82	0.1uF 0603 SMD Ceramic Capacitor 16V X7R	Phycomp	2238 786 15649
33	C47 C50	47pF 0603 SMD Ceramic Capacitor 50V NPO	AVX	06035A470JAT2A
34	C73 C74	220pF 0603 SMD Ceramic Capacitor 50V NPO	AVX	06035A221JAT2A
35	C3 C5 C16 C21 C66 C69 C76 C78 C81 C83	Tantalum Capacitor SMD-B 10uF - 16V - AVX	AVX	TAJB106K016R
36	P1 P2 P3 P4 P5 P6 P7 P8 P9 P10 P11 P12	Hexagonal brass M3 size spacer 20mm length	Harwin	R6379-02
37	C28 C30	15pF 0603 SMD Ceramic Capacitor 50V X7R	Phycomp	2238 867 15159
38	C61	0.01uF 0603 SMD Ceramic Capacitor 50V X7R	Phycomp	2238 586 15636
39	TP1 TP2 TP3 TP4 TP5 TP6 TP7 TP8 TP9 TP10 TP11 TP14 TP17 TP18 TP20 TP21 TP22 TP24	1.32mm PCB Test Terminal BLACK	VERO	20-2136
40	TP12 TP23	1.32mm PCB Test Terminal RED	Vero	20-313141
41	C34 C44 C45 C48 C49	4.7uF 0805 SMD Ceramic Capacitor 16V X5R	Kemet	C0805C475K4PAC
42	R63	0R 1206 SMD chip 4 resistor array 5% 0.063W	Phycomp	2350 035 91001
43	R34	47k 1206 SMD chip 4 resistor array 5% 0.063W	Phycomp	2350 035 10473
44	R35 R55 R59 R64 R70 R74 R76	10k 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 10K
45	R73 R75	100K 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 100K
46	R48	1k5 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 1K5

<i>Item</i>	<i>RefDes</i>	<i>Description</i>	<i>Manufacturer</i>	<i>Manufacturer's Part Number</i>
47	R1 R2	2k2 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 2K2
48	R49 R50	27R 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 27R
49	R52	3K0 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 3K
50	R54	330R 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 330R
51	R41 R43	33R 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 33R
52	R57 R61 R67 R68 R69 R72	4K7 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 4K7
53	R8 R10 R12 R13 R16 R17 R39 R42 R51 R81 R82	47K 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 47K
54	R29	75R 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 75R
55	R7 R9 R11 R14 R15 R18 R56 R60 R65 R71 R83 R84	0R 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 0R
56	R40	33K 0805 SMD chip resistor 1% 0.1W	Multicomp	MC 0.1W 0805 1% 33K
57	R30 R32 R45 R47	33R 0805 SMD chip resistor 1% 0.1W	Multicomp	MC 0.1W 0805 1% 33R
58	R3 R4 R5 R19 R22 R27 R53 R58	47K 0805 SMD chip resistor 1% 0.1W	Multicomp	MC 0.1W 0805 1% 47K
59	R25 R26	680R 0805 SMD chip resistor 1% 0.1W	Multicomp	MC 0.1W 0805 1% 680R
60	R6 R20 R23 R28 R36	0R 0805 SMD chip resistor 1% 0.1W	Multicomp	MC 0.1W 0805 0R
61	C55	100pF 0603 SMD Ceramic Capacitor 50V NPO	Multicomp	U0603C101JCT
62	C56	1000pF 0603 SMD Ceramic Capacitor 50V NPO	Multicomp	U0603C102JCT
63	C14 C18 C19 C20 C22 C23 C89 C90	1uF 0805 SMD Ceramic Capacitor 10V X7R	Multicomp	N0805R105KCT
64	Q6	P-Channel MOSFET 60v, Rds(on) = 0.17R - SOT23	Vishay	SI2309DS
65	D2 D3 D4 D5	1N5337B 4.7V 5W Zener Diode PTH	ON Semiconductor	1N5337BG
66	D1	1N5341B 6.2V 5W Zener Diode PTH	ON Semiconductor	1N5341BG
67	Q7 Q8	BC849B NPN Bipolar Transistor SOT23	ON Semiconductor	BC849BLT1G
68	U4 U7	DS1818 3.3V active-low Power-On-Reset chip SOT	Dallas Semiconductor	DS1818R-10+
69	U13 U14	KF33BD Very Low Drop +3.3V Voltage Regulator SO	SGS Thomson Microelectronics	KF33BD
70	U11	LE33CD Very Low Drop +3.3V Voltage Regulator SO	SGS Thomson Microelectronics	LE33CD

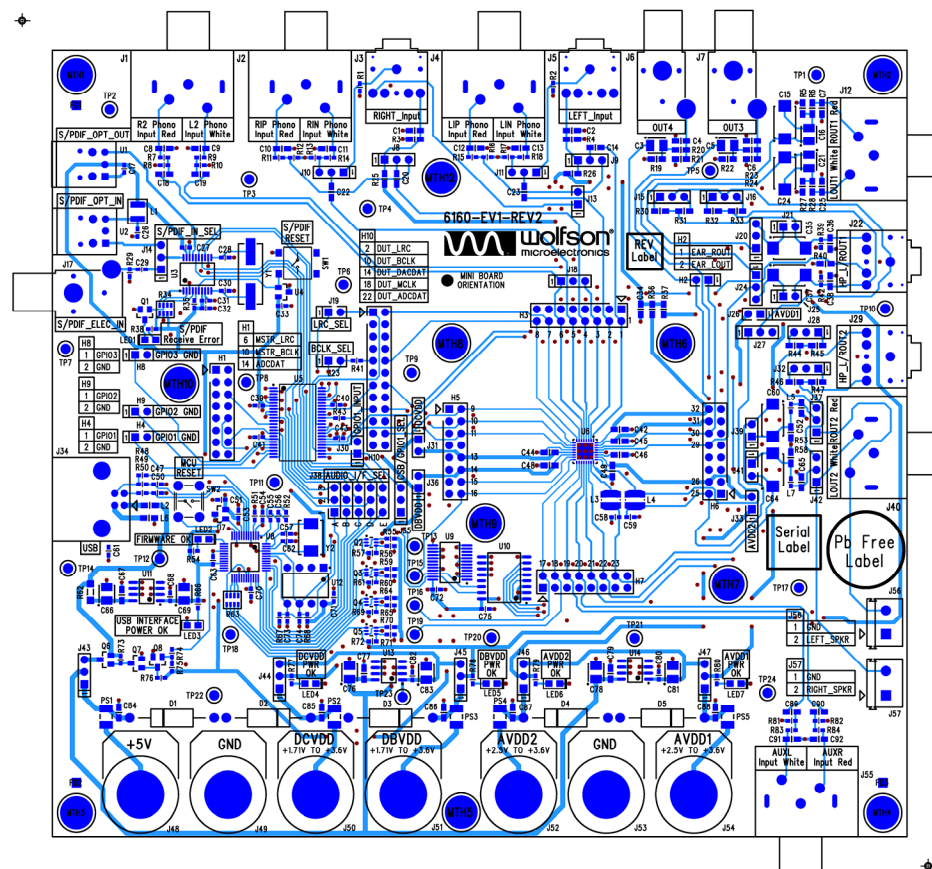
Item	RefDes	Description	Manufacturer	Manufacturer's Part Number
71	U12	EEPROM 8x8 i2c interface - with Wolfson "Standard" code	Microchip Technology	24LC64-I/P
72	Q1	BSS138 N-Channel enhancement Mode FET	Fairchild Semiconductor	BSS138
73	R31 R33 R44 R46	16R 0805 SMD chip resistor 1% 0.125W	Rohm	MCR10EZHEF160
74	Y2	6.0MHz GSX-752A/351JF SM Crystal 30pF	Golledge	GSX-752A/351JF 6.0MHz
75	Y1	12.0MHz GSX49-4/351BF SM Crystal 12pF	Golledge	GSX49-4/351BF 12.0MHz
76	J48 J49 J50 J51 J52 J53 J54	4mm Non-Insulated Panel Socket 16A	PJP	3110I
77	J1 J2 J4 J12 J40 J55	Phono Socket PCB mount Pair Red/White	Rapid	20-1290
78	LNK_J26 LNK_J31 LNK_J33 LNK_J36 LNK_J43 LNK_J44 LNK_J45 LNK_J46 LNK_J47	0.1" OPEN JUMPER LINK RED	Protech	22-3565
79	LNK1 LNK2 LNK3 LNK4 LNK5 LNK6 LNK7 LNK8 LNK9 LNK10 LNK11 LNK_H10-5 LNK_H10-4 LNK_H10-3 LNK_H10-2 LNK_H10-1 LNK_J8 LNK_J9 LNK_J10 LNK_J11 LNK_J14 LNK_J19 LNK_J20 LNK_J23 LNK_J24 LNK_J27 LNK_J35 LNK_J37 LNK_J42	0.1" OPEN JUMPER LINK YELLOW	Protech	22-3570
80	R38 R66 R77 R78 R79 R80	470R 0603 SMD chip resistor 1% 0.063W	Tyco	01622949-1
81	LED2 LED3 LED4 LED5 LED6 LED7	KP-2012MGC 0805 SMD Chip LED GREEN	Kingbright	KP-2012MGC
82	LED1	KP-2012SRC-PRV 0805 SMD Chip LED RED	Kingbright	KP-2012SRC-PRV
83	U10	PCA9554D I2C I/O Expander	Philips	PCA9554D
84	C32	1uF 0603 SMD Ceramic Capacitor 6.3V X5R	Murata	GRM188R60J105KA01D
85	U9	PCA9555DB I2C I/O Expander	Philips	PCA9555DB
86	LNK_J38	5way 2.54mm Pitch Jumper Link Block - Black	Toby	C33-GAG1-2x5-G
87	H10	2x12 2.54mm pitch PCB Pin Header VERTICAL	Toby	THD-12-R
88	J38	3x5 2.54mm Header Vertical	Toby	THT-5-R
89	PCB1	PCB	Kelan Circuits Ltd	6160-EV1-REV2
90	U3	WM8804 1:1 Digital Interface Transceiver with PLL	Wolfson Microelectronics	WM8804GEDS

<i>Item</i>	<i>RefDes</i>	<i>Description</i>	<i>Manufacturer</i>	<i>Manufacturer's Part Number</i>
Unpop				
91	L3 L4	33uH Shielded SM Inductor 0.7R	Coilcraft	LPS4012-333ML
92	C58 C59	220nF 0603 SMD Ceramic Capacitor 10V X7R	Murata	GRM188R71A224KA01D
93	C15 C24	Tantalum Capacitor SMD-D 220uF - 10V - AVX	AVX	TAJD227K010R
94	TP13 TP15 TP16 TP19	1.32mm PCB Test Terminal RED	Vero	20-313141
95	C42 C46	4.7uF 0805 SMD Ceramic Capacitor 16V X5R	Kemet	C0805C475K4PAC
96	R21 R24 R37	0R 0805 SMD chip resistor 1% 0.1W	Multicomp	MC 0.1W 0805 0R
97	U6	WM8985 Multimedia CODEC with Class D Headphone and Line Out	Wolfson Microelectronics	WM8985GEFL

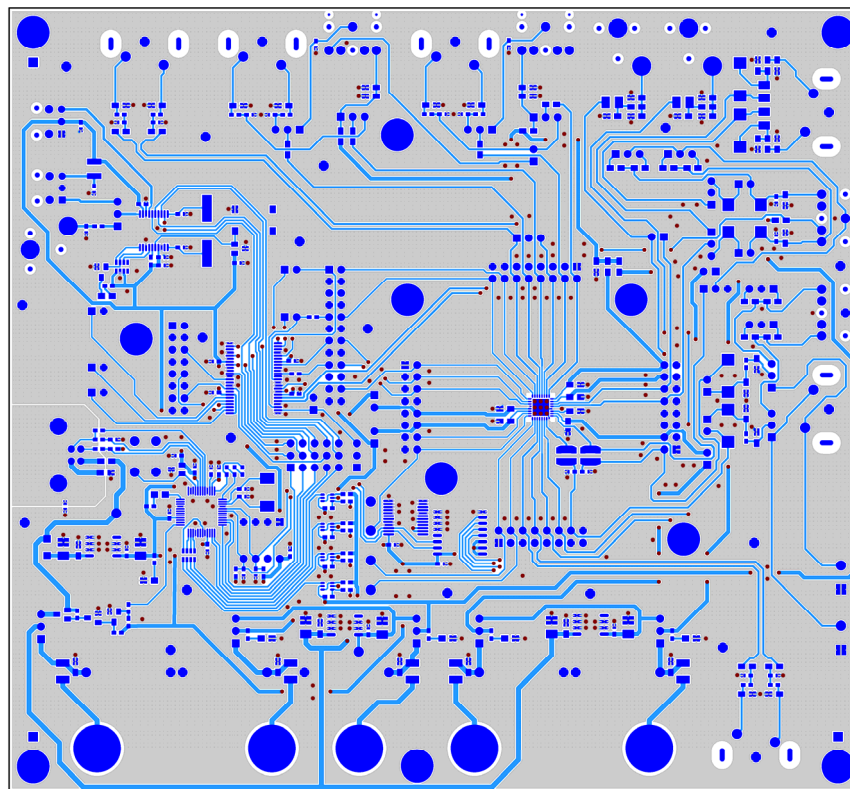
PCB LAYOUT



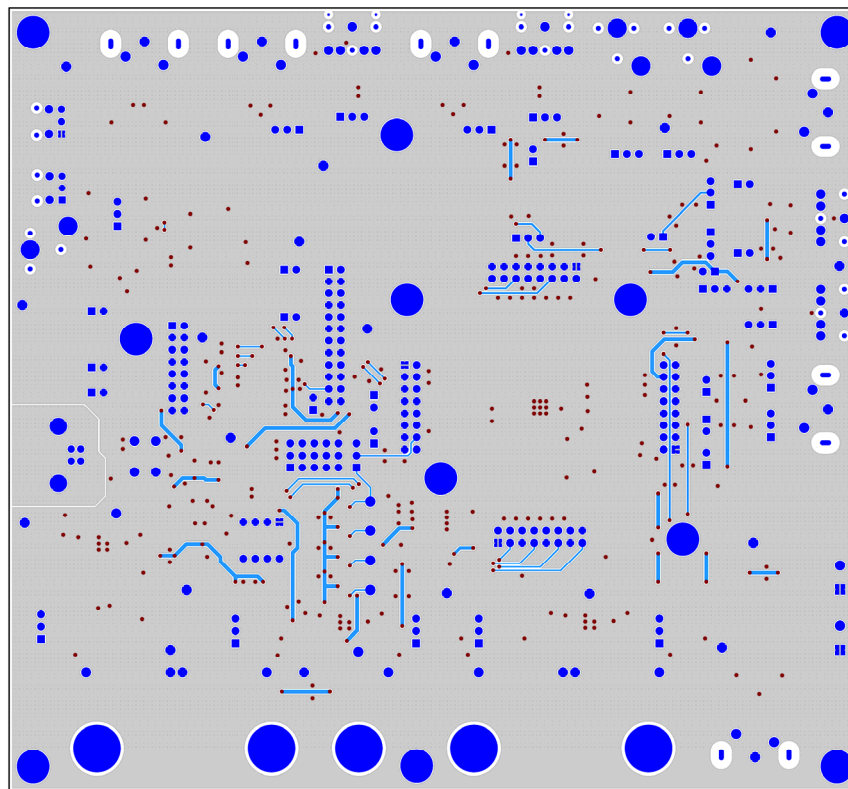
Top Layer: Overview



Top Layer: Silkscreen + Copper

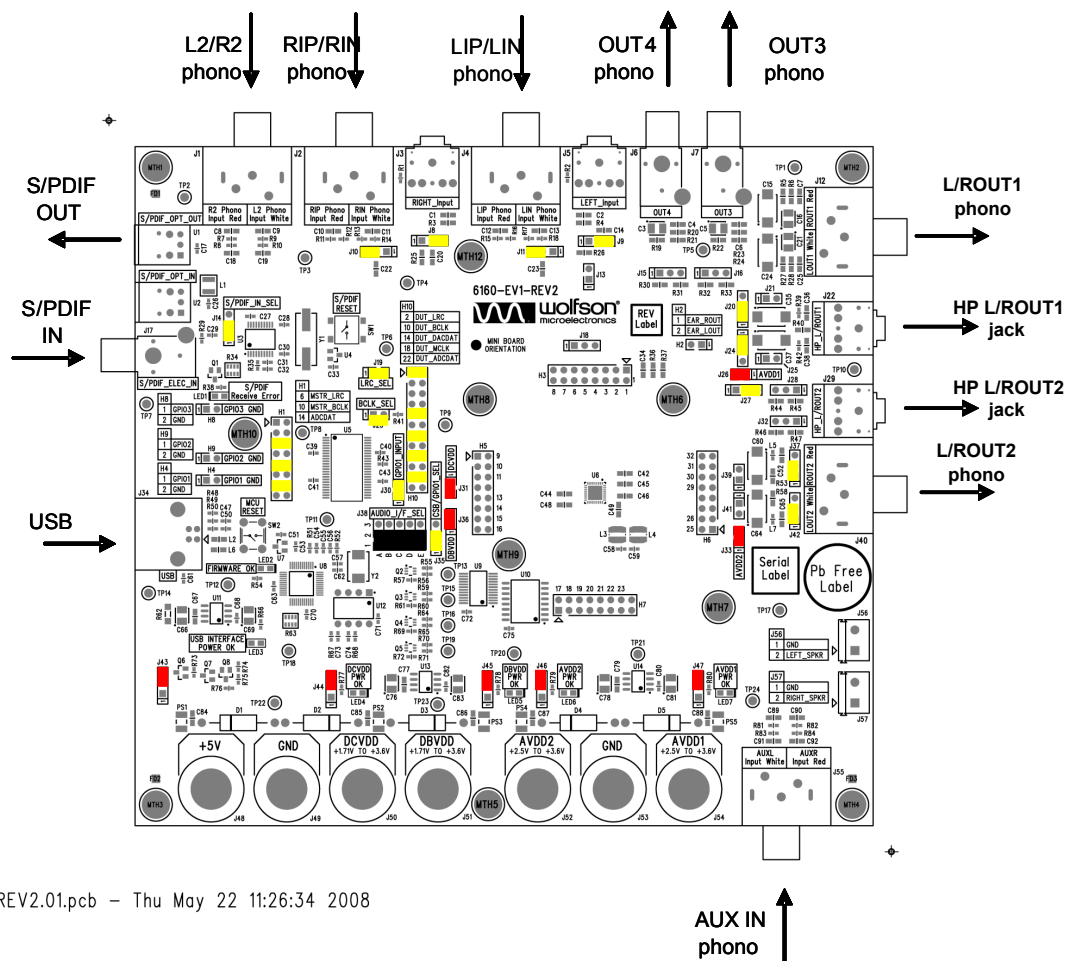


Top Layer: Copper



Bottom Layer: Copper

GENERIC BOARD CONFIGURATION



6160-EV1-REV2.01.pcb - Thu May 22 11:26:34 2008

APPLICATION SUPPORT

If you require more information or require technical support, please contact the Wolfson Microelectronics Applications group through the following channels:

Email: apps@wolfsonmicro.com
Telephone Apps: +44 (0) 131 272 7070
Fax: +44 (0) 131 272 7001
Mail: Applications Engineering at the address on the last page

or contact your local Wolfson representative.

Additional information may be made available on our web site at: <http://www.wolfsonmicro.com>

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