



SCH DOC: BBAIAEB.SchDoc
ASSY DOC: BBAIAEB_ASSY.PCBDfw
FAB DOC: BBAIAEB_FAB.PCBDwf
PCB DOC: BBAIAEB.PcbDoc

Title: Beaglebone AI - Audio Expansion Board

Filename: BBAIAEB.SchDoc
Report Date: 23.05.2022

Design				JLPCB				LCSC				Mouser					
Component	Value	Designator	Qty	Version	Layer	SMT	Fee	S. part number	Manufacturer	M. part number	Unit price	Subtotal	S. part number	Manufacturer	M. part number	Unit price	Subtotal
Capacitor	470 nF	C1, C2, C3, C4	4	MEMSLESS	Top	✓	\$0	C1623	Samsung	CL10B474KA8NNNC	\$0,0079	\$0,79	187-CL10B474KA8NNNC	Samsung	CL10B474KA8NNNC	\$0,06	\$6,20
Capacitor	1 uF	C5	1	MEMSLESS	Top	✓	\$0	C15849	Samsung	CL10A105KB8NNNC	\$0,0059	\$0,15	187-CL10A105KB8NNNC	Samsung	CL10A105KB8NNNC	\$0,11	\$2,73
Capacitor Polarised	220 uF	C6, C8, C11	3	MEMSLESS	Top	X		C2163317	Nichicon	UWD1H010MCL1GS	\$0,2554	\$19,16	647-UWD1H010MCL1	Nichicon	UWD1H010MCL1GS	\$0,26	\$19,58
Capacitor	47 pF	C7	1	MEMSLESS	Top	✓	\$0	C1671	Samsung	CL10C470JB8NNNC	\$0,0067	\$0,17	187-CL10C470JB8NNNC	Samsung	CL10C470JB8NNNC	\$0,03	\$0,65
Capacitor Polarised	1 uF	C9, C10	2	MEMSLESS	Top	X		C2163317	Nichicon	UWD1H010MCL1GS	\$0,2554	\$12,77	647-UWD1H010MCL1	Nichicon	UWD1H010MCL1GS	\$0,26	\$13,05
Capacitor	10 uF	C12, C13, C14, C15, C16, C17, C18	7	MEMS	Top	✓	\$0	C19702	Samsung	CL10A106KP8NNNC	\$0,0059	\$1,03	187-CL10A105KB8NNNC	Samsung	CL10A105KB8NNNC	\$0,05	\$9,10
Capacitor	10 uF	C27, C28, C31, C33, C34	5	MEMSLESS	Top	✓	\$0	C19702	Samsung	CL10A106KP8NNNC	\$0,0059	\$0,74	187-CL10A105KB8NNNC	Samsung	CL10A105KB8NNNC	\$0,05	\$6,50
Capacitor	0.1 uF	C19, C20, C21, C22, C23, C24, C25	7	MEMS	Top	✓	\$0	C14663	Yaego	CC0603KRX7R9BB104	\$0,0028	\$0,49	603-CC603KRX7R9BB104	Yageo	CC0603KRX7R9BB104	\$0,03	\$4,73
Capacitor	0.1 uF	C26, C29, C30, C32, C35, C36	6	MEMSLESS	Top	✓	\$0	C14663	Yaego	CC0603KRX7R9BB104	\$0,0028	\$0,42	603-CC603KRX7R9BB104	Yageo	CC0603KRX7R9BB104	\$0,03	\$4,05
Ferrite Bead	BLM18EG2215N1D	FB1, FB2, FB3, FB4, FB6, FB7, FB8, FB9, FB10	9	MEMSLESS	Top	✓	\$3	C85827	Murata	BLM18EG2215N1D	\$0,0341	\$7,67	81-BLM18EG2215N1D	Murata	BLM18EG2215N1D	\$0,10	\$21,60
Ferrite Bead	GZ2012D601TF	FB5	1	MEMSLESS	Top	✓	\$0	C1017	Sunlord	GZ2012D601TF	\$0,0199	\$0,50	807-EMI0805R-600	API Delevan	EMI0805R-600	\$0,53	\$13,28
Integrated Circuit	TLV320AIC23BIPW	IC1	1	MEMSLESS	Top	✓	\$3	C9915	Texas Instruments	TLV320AIC23BPWR	\$2,7500	\$68,75	595-TLV320AIC23BPWR	Texas Instruments	TLV320AIC23BPWR	\$8,55	\$213,75
Integrated Circuit	M24C32-WMN6TP	IC2	1	MEMSLESS	Top	✓	\$3	C7998	STMicroelectronics	M24C32-WMN6TP	\$0,4545	\$11,36	511-M24C32-WMN6TP	STMicroelectronics	M24C32-WMN6TP	\$0,25	\$6,15
Connector	2 pin smd 90°	J7	1	MEMSLESS	Bottom	X	\$3	C668122	XFCN	MH254RS-11-02-1000	\$0,0724	\$1,81	640-BG30102A0540LB	GCT	BG301-02-A-0540-L-B	\$0,41	\$10,25
LED	Green	LED1, LED2, LED3, LED4, LED5	5	MEMSLESS	Top	✓	\$0	C2297	Hubei KENTO Elec	KT-0805G	\$0,0167	\$2,09	710-150080GS75000	Wurth Elektronik	150080GS75000	\$0,15	\$19,00
MOSFET (N-Channel)	ZXMN2B01FTA	Q1	1	MEMSLESS	Top	✓	\$3	C145093	Diodes Zetex	ZXMN2B01FTA	\$0,2753	\$6,88	522-ZXMN2B01FTA	Diodes Zetex	ZXMN2B01FTA	\$0,52	\$13,00
MOSFET (N-Channel)	UM6K31NTN	Q2, Q3	2	MEMSLESS	Top	✓	\$3	C184686	Rohm	UM6K31NTN	\$0,1134	\$5,67	755-UM6K31NTN	Rohm	UM6K31NTN	\$0,35	\$17,50
Resistor	4,7 kΩ	R1, R3, R9, R10, R14	5	MEMSLESS	Top	✓	\$0	C23162	Uniroyal	0603WAF4701T5E	\$0,0012	\$0,15	652-CR0603-JW-472ELF	Bourns	CR0603-JW-472ELF	\$0,01	\$0,88
Resistor	100 Ω	R2, R4	2	MEMSLESS	Top	✓	\$0	C22775	Uniroyal	0603WAF1000T5E	\$0,0013	\$0,07	652-CR0603-JW-101ELF	Bourns	CR0603-JW-101ELF	\$0,02	\$0,75
Resistor	100 kΩ	R5, R6, R7, R8	4	MEMS	Top	✓	\$0	C25803	Uniroyal	0603WAF1003T5E	\$0,0013	\$0,13	652-CR0603-JW-104ELF	Bourns	CR0603-JW-104ELF	\$0,01	\$0,60
Resistor	100 kΩ	R36, R41, R42, R43, R44	5	MEMSLESS	Top	✓	\$0	C25803	Uniroyal	0603WAF1003T5E	\$0,0013	\$0,16	652-CR0603-JW-104ELF	Bourns	CR0603-JW-104ELF	\$0,01	\$0,75
Resistor	47 kΩ	R11, R12, R15, R16	4	MEMSLESS	Top	✓	\$0	C25819	Uniroyal	0603WAF4702T5E	\$0,0013	\$0,13	652-CR0603FX-4702ELF	Bourns	CR0603-FX-4702ELF	\$0,01	\$0,70
Resistor	2,2 kΩ	R13	1	MEMSLESS	Top	✓	\$0	C4190	Uniroyal	0603WAF2201T5E	\$0,0011	\$0,03	652-CR0603FX-2201ELF	Bourns	CR0603-FX-2201ELF	\$0,02	\$0,43
Resistor	0 Ω	R17, R22, R23, R24, R45	5	MEMSLESS	Top	✓	\$0	C21189	Uniroyal	0603WAF0000T5E	\$0,0013	\$0,16	652-CR0603AJ/-000ELF	Bourns	CR0603AJ/-000ELF	\$0,01	\$1,75
Resistor	0 Ω	R25	1	MEMS	Top	✓	\$0	C21189	Uniroyal	0603WAF0000T5E	\$0,0013	\$0,03	652-CR0603AJ/-000ELF	Bourns	CR0603AJ/-000ELF	\$0,01	\$0,35
Resistor	10 kΩ	R26, R27, R28, R29, R30, R31, R37, R38, R39, R40	10	MEMSLESS	Top	✓	\$0	C25804	Uniroyal	0603WAF1002T5E	\$0,0011	\$0,28	652-CR0603-JW-103ELF	Bourns	CR0603-JW-103ELF	\$0,01	\$1,50
Switch	Tactile	S1, S2, S3, S4	4	MEMSLESS	Top	✓	\$3	C2897501	BOOMELE	C2897501	\$0,0150	\$1,50	611-PTS647SK70SMTR2L	C&K	PTS647SK70SMTR2LFS	\$0,16	\$15,80
Fan	25*25*7 mm 5 VDC		1					C2149481	SHENG FENG	SFS2507SM5	\$1,4000	\$35,00	490-CFM2510B-070-140	CUI Devices	CFM-2510B-070-140	\$7,87	\$196,75
Connector	PJ-393	J1, J5	2	MEMSLESS	Bottom	X	\$3	C2837065	G-Switch	PJ-393	\$0,0896	\$4,48					\$0,00
Connector	PJ-393	J2, J6	2	MEMSLESS	Top	✓	\$3	C2837065	G-Switch	PJ-393	\$0,0896	\$4,48					\$0,00
Microphone	CMM-4030D-261-I2S-TR	MK1, MK2, MK3, MK4, MK5, MK6	6	MEMS	Top	X					\$0,0000	\$0,00	490-CMM4030D261I2STR	CUI Devices	CMM-4030D-261-I2S-TR	\$1,78	\$267,00
Microphone	CMM-4030D-261-I2S-TR	MK7	1	MEMS	Bottom	X					\$0,0000	\$0,00	490-CMM4030D261I2STR	CUI Devices	CMM-4030D-261-I2S-TR	\$1,78	\$44,50
Connector	46 pin	J3, J4	2	MEMSLESS	Top						\$0,00	\$0,00	437-8038704610001101	Preci-Dip	803-87-046-10-001101	\$3,63	\$181,50
Resistor	0 Ω	R18, R19, R20, R21	4	DNP	Top			C21189	Uniroyal	0603WAF0000T5E	\$0,0013	\$0,13	652-CR0603AJ/-000ELF	Bourns	CR0603AJ/-000ELF	\$0,01	\$1,40
SUM			116				\$27,00				\$7,1231	\$178,08				\$24,05	\$601,35
PCB manufacturing	\$14,00/10 pcs	\$1,40															
FINAL PRICE	25 modules						\$240,08				\$213,075					\$636,35	

* Cena za kus (Unit price) je cena jedné součástky při množstavní slevě za předpokladu výroby 25ks modulů
Mezisoučty (Subtotal) dané součástky odpovídají ceně potřebných součástek na výrobu 25 ks modulů
Modře vyznačené součástky nebyly nalezeny u konkurenčního prodejce, nejsou proto zahrnuty v kalkulaci
Červeně vyznačené součástky taktéž nejsou započítány, jelikož se neosazují
46 pinový konektor byl pořízen přímo od výrobce: <https://www.aliexpress.com/item/32406383172.html>