

Bill of Materials

Project: Ultra96 SBC V2
 Project Name: PRJ-US1SBC
 Revision: 1
 BOM: 01
 Variant: 00

Report Date: 2/28/2019 10:19:42 AM



#	Quantity	Designator	Description	Manufacturer 1	Manufacturer Part Number 1	Fitted	Notes
1	2	C1, C2	CAP CER 27PF 25V 5% NP0 0201	AVX Corporation	02013A270JAT2A	Fitted	
2	114	C3, C6, C7, C8, C9, C10, C11, C12, C13, C14, C15, C16, C17, C18, C19, C20, C21, C22, C23, C25, C27, C59, C62, C64, C65, C66, C67, C68, C69, C70, C75, C76, C77, C78, C79, C80, C81, C82, C83, C84, C85, C95, C97, C103, C105, C108, C109, C111, C114, C117, C120, C123, C128, C137, C139, C145, C146, C149, C151, C153, C158, C160, C173, C174, C175, C176, C178, C179, C181, C182, C183, C185, C187, C188, C189, C190, C192, C193, C194, C195, C199, C200, C201, C202, C203, C204, C206, C207, C208, C209, C210, C212, C213, C214, C215, C216, C217, C218, C224, C230, C236, C240, C244, C248, C249, C250, C251, C252, C253, C254, C255, C256, C257, C258	CAP CER 0.1UF 25V 10% X5R 0201	Taiyo Yuden	TMK063C104KP-F	Fitted	
3	12	C4, C86, C87, C88, C90, C124, C126, C130, C133, C219, C221, C227	CAP CER 1UF 16V 20% X5R 0201	Samsung Electro-Mechanics America, Inc	CL03A105M03NRNH	Fitted	
4	6	C5, C47, C94, C136, C161, C226	CAP CER 10UF 25V 20% X5R 0603	TDK Corporation	C1608X5R1E106M080AC	Fitted	
5	16	C24, C99, C100, C101, C102, C107, C113, C135, C141, C142, C143, C144, C148, C157, C180, C239	CAP CER 2.2UF 10V 10% X5R 0201	Samsung Electro-Mechanics America, Inc	CL03A225MP3CRNC	Fitted	
6	23	C28, C30, C32, C33, C34, C35, C36, C37, C38, C39, C40, C43, C44, C45, C46, C48, C58, C61, C63, C162, C168, C223, C229	CAP CER 0.47UF 6.3V 10% X5R 0201	Samsung Electro-Mechanics America, Inc	CL03A474KQ3NNNC	Fitted	
7	1	C29	CAP CER 33PF 25V 5% NP0 0201	AVX Corporation	02013A330JAT2A	Fitted	
8	8	C31, C42, C49, C57, C60, C163, C222, C228	CAP CER 4.7UF 10V 10% X5R 0402	TDK Corporation	C1005X5R1A475K050BC	Fitted	
9	14	C41, C51, C52, C53, C165, C166, C167, C170, C171, C172, C186, C191, C197, C198	CAP CER 1000PF 25V 10% X7R 0201	Samsung Electro-Mechanics America, Inc	CL03B102JA3NNNC	Fitted	
10	3	C50, C164, C169	CAP CER 0.047UF 10V 10% X5R 0201	Samsung Electro-Mechanics America, Inc	CL03A473KP3NNNC	Fitted	
11	7	C54, C55, C56, C118, C119, C155, C156	CAP CER 10000PF 6.3V 10% X5R 0201	AVX Corporation	02016D103JAT2A	Fitted	
12	7	C89, C116, C125, C154, C241, C242, C243	CAP CER 47UF 10V 20% X5R 0805	TDK Corporation	C2012X5R1A476M125AC	Fitted	
13	13	C91, C92, C93, C98, C106, C112, C121, C129, C131, C132, C134, C140, C150	CAP CER 22UF 10V 20% X5R 0603	TDK Corporation	C1608X5R1A226M080AC	Fitted	
14	6	C96, C104, C110, C127, C138, C147	CAP CER 100UF 6.3V 20% X5R 1210	AVX Corporation	12106D107MAT2A	Fitted	
15	2	C115, C152	CAP CER 220UF 6.3V 20% X5R 1210	Samsung Electro-Mechanics America, Inc	CL32A227MQVNNNE	Fitted	
16	1	C177	CAP CER 5.6UF 10V 10% X7R 1206	KEMET	C1206C565K8RACTU	Fitted	
17	2	C196, C211	CAP TANT 150UF 10V 20% 1210	AVX Corporation	TLJB157M010R0500	Fitted	
18	1	C220	CAP CER 1UF 25V 10% X5R 0402	TDK Corporation	CGB2A1X5R1E105K033BC	Fitted	
19	1	C225	CAP CER 0.1UF 25V 10% X7R 0402	AVX Corporation	04023C104KAT2A	Fitted	
20	1	C231	CAP CER 2200PF 10V 10% X5R 0201	AVX Corporation	02012D222KAT2A	Fitted	
21	4	C232, C233, C234, C235	CAP CER 33UF 25V 20% X5R 1206	TDK Corporation	C3216X5R1E336M160AC	Fitted	
22	1	C237	CAP CER 4700PF 50V 5% X7R 0402	AVX Corporation	04025C472JAT2A	Fitted	
23	1	C238	CAP CER 56PF 25V 10% NP0 0402	AVX Corporation	04023A560KAT2A	Fitted	
24	2	D1, D10	LED CHIPLEDED BLUE 470NM 0603 SMD	OSRAM Opto Semiconductors Inc.	LB Q39G-L200-35-1	Fitted	
25	6	D2, D3, D4, D6, D7, D17	LED SMARTLED 570NM GREEN 0603	OSRAM Opto Semiconductors Inc.	LG Q39E-PS-35	Fitted	
26	1	D5	LED CHIPLEDED 633NM RED 0603 SMD	OSRAM Opto Semiconductors Inc.	LS Q976-NR-1	Fitted	
27	1	D8	DIODE GEN PURP 100V 200MA SOD123	ON Semiconductor	MMSD4148T3G	Fitted	
28	1	D9	LED YELLOW CHIP TOP EMIT	OSRAM Opto Semiconductors Inc.	LY Q971-H1K1-36	Fitted	
29	1	D13	TVS DIODE 5.5V 9.5V 10DFN2510	NEXPERIA	IP4283CZ10-TBR, 115	Fitted	
30	1	D14	TVS DIODE 5.5V 6TSOP	NEXPERIA	IP4220C26, 125	Fitted	
31	1	D15	DIODE SCHOTTKY 30V 2A MICROSM	Vishay	MSS2P3-M3/89A	Fitted	
32	1	D16	TVS DIODE 5.5V 4.6V 10DFN2510	NEXPERIA	PUSB3F96X	Fitted	
33	2	D18, D19	CSP SCHOTTKY BARRIER DIODE	Panasonic	DB2F43100L1	Fitted	
34	1	ESD1	ESD Bag	3M	TBD	Fitted	
35	5	FB1, FB2, FB3, FB4, FB5	FERRITE BEAD 220 OHM 2.5A 0603	Murata	BLM18SG221TN1D	Fitted	
36	2	FB6, FB7	FERRITE BEAD 220 OHM 0603 1LN	TDK Corporation	MPZ1608S221ATA00	Fitted	
37	1	FL1	FILTER LC(T) 2200PF SMD	Murata	NFE31PT222Z1E9L	Fitted	
38	1	J1	CONN HEADER 4POS 2MM RA SMD	SAMTEC	MMT-104-01-T-SH-LC	Fitted	
39	1	J2	MICRO SD PUSH PUSH LOW PROFILE T	TE CONNECTIVITY	2201778-1	Fitted	
40	1	J3	CONN HEADER 8POS 2MM RA SMD	SAMTEC	MMT-108-01-T-SH-LC	Fitted	
41	1	J4	CONN RCPT 60POS .8MM VERT DUAL SMD	TE CONNECTIVITY	5177983-2	Fitted	
42	1	J5	CONN RECEPT 40POS 2MM STR DL SMD	AMPHENOL ICC	55510-140LF	Fitted	
43	1	J6	MINI DISPLAYPORT REVERSE OFFSET	TE CONNECTIVITY	2129320-3	Fitted	
44	1	J7	CONN RCPT MICRO USB 3.0 AB R/A SMD 10 POS	Kycon	KMMX-AB10-SMT1SB30TR	Fitted	

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45	2	J8, J9	CONN RCPT USB 3.0 TYPE A R/A 9PS, HORIZONTAL	AMPHENOL ICC	GSB311131HR	Fitted	
46	1	J10	CONN PWR JACK 1.70X4.75MM SOLDER	CUI	PJ1-021-SMT-TR	Fitted	
47	2	JT1, JT5	RES 0.0 OHM 1/16W JUMP 0402 SMD-3 PAD JUMPER (1-2)	Panasonic	ERJ-2GE0R00X	Fitted	Position 1-2
48	7	JT2, JT3, JT4, JT6, JT7, JT8, JT9	RES 10K OHM 1/20W 1% 0201 SMD-3 PAD JUMPER (1-2)	Panasonic	ERJ-1GNF1002C	Fitted	Position 1-2
49	5	L1, L3, L5, L6, L7	FIXED IND 2.2uH 2.1A 102 mOHM	Bourns	SRP2512-2R2M	Fitted	
50	1	L2	FIXED IND 1uH 3.4A 49 mOHM SMD	Bourns	SRP2512-1R0M	Fitted	
51	2	L4, L8	FIXED IND 1uH 11A 11.7mOHM SMD	Bourns	SRP4020FA-1R0M	Fitted	
52	1	L9	FIXED IND 1.2uH 15A 9.7 mOHM SMD	Bourns	SRP5030CA-1R2M	Fitted	
53	1	Label1	Label, Product	AES	PBA-US1SBC V2-1-01-00	Fitted	
54	1	Label2	Label, Serial Number	AES	TBD	Fitted	
55	1	Label_ESD1	Label, ESD	AES	TBD	Fitted	
56	1	PCB1	BARE PCB Part Number	AES	PCB-US1SBC-1	Fitted	
57	5	Q1, Q2, Q12, Q13, Q14	MOSFET N-CH 50V 200MA SOT23-3	Infineon	BSS138NH6327XTSA2	Fitted	
58	4	Q3, Q4, Q5, Q6	MOSFET 2N-CH 20V 0.6A SC89	ON Semiconductor	FDY3000NZ	Fitted	
59	1	Q9	MOSFET N-CH 20V 2A SOT 23-3	ON Semiconductor	FDN327N	Fitted	
60	6	R1, R2, R3, R4, R5, R6	RES 30.1 OHM 0201 1% 1/20W	Panasonic	ERJ-1GNF30R1C	Fitted	
61	16	R7, R15, R16, R21, R43, R44, R46, R47, R48, R49, R50, R54, R57, R58, R147, R150	RES 4.75K OHM 0201 1% 1/20W	Panasonic	ERJ-1GNF4751C	Fitted	
62	21	R8, R9, R11, R12, R24, R30, R31, R55, R89, R94, R102, R121, R123, R124, R140, R141, R151, R165, R166, R168, R169	RES 10.0K OHM 0201 1% 1/20W	Panasonic	ERJ-1GNF1002C	Fitted	
63	1	R13	RES 4.7M OHM 0201 1% 1/20W	Vishay	CRCW02014M70FNED	Fitted	
64	3	R17, R104, R106	RES 1M OHM 0201 1% 1/20W	Vishay	CRCW02011M00FNED	Fitted	
65	7	R18, R19, R29, R69, R74, R149, R173	RES 0.0 OHM JUMP 0402 1/16W	Yageo	RC0402FR-070RL	Fitted	
66	5	R20, R23, R35, R146, R148	RES 240 OHM 0201 1% 1/20W	Panasonic	ERJ-1GNF2400C	Fitted	
67	1	R22	RES 500 OHM 0402 0.1% 1/20W	Vishay	PNM0402E5000BST1	Fitted	
68	1	R26	RES 40.2 OHM 0201 1% 1/20W	Panasonic	ERJ-1GNF40R2C	Fitted	
69	2	R27, R28	RES 24.9 OHM 0201 1% 1/20W	Panasonic	ERJ-1GNF24R9C	Fitted	
70	2	R32, R153	RES 8.06K OHM 0201 1% 1/20W	Panasonic	ERJ-1GNF8061C	Fitted	
71	8	R36, R66, R127, R144, R156, R172, R178, R193	RES 1.00K OHM 0201 1% 1/20W	Panasonic	ERJ-1GNF1001C	Fitted	
72	2	R40, R41	RES 20.5K OHM 0201 1% 1/20W	Panasonic	ERJ-1GNF2052C	Fitted	
73	9	R42, R45, R52, R53, R56, R59, R60, R67, R68	RES 261 OHM 0201 1% 1/20W	Panasonic	ERJ-1GNF2610C	Fitted	
74	1	R51	RES 20 OHM 0201 1% 1/20W	Panasonic	ERJ-1GNF20R0C	Fitted	
75	5	R61, R62, R183, R187, R195	RES 499 OHM 0201 1% 1/20W	Panasonic	ERJ-1GNF4990C	Fitted	
76	18	R63, R71, R75, R110, R114, R115, R120, R128, R132, R135, R138, R145, R152, R174, R181, R185, R188, R191	RES 0.0 OHM JUMP 0201 1/20W	Vishay	CRCW02010000Z0ED	Fitted	
77	5	R70, R101, R108, R109, R180	RES 100K OHM 0201 1% 1/20W	Panasonic	ERJ-1GNF1003C	Fitted	
78	11	R72, R73, R84, R85, R86, R87, R90, R91, R92, R192, R194	RES 4.99K OHM 0201 1% 1/20W	Vishay	CRCW02014K99FNED	Fitted	
79	11	R76, R77, R78, R79, R80, R81, R82, R83, R88, R93, R196	RES 2.21K OHM 0201 1% 1/20W	Panasonic	ERJ-1GNF2211C	Fitted	
80	1	R99	RES 2.49K OHM 0201 1% 1/20W	Panasonic	ERJ-1GNF2491C	Fitted	
81	1	R100	RES 1.5K OHM 0201 1% 1/20W	Vishay	CRCW02011K50FNED	Fitted	
82	2	R103, R105	RES 49.9 OHM 0201 1% 1/20W	Yageo	RC0201FR-0749R9L	Fitted	
83	2	R107, R177	RES 10 OHM 0201 1% 1/20W	Vishay	CRCW020110R0FNED	Fitted	
84	2	R111, R129	RES 2 OHM 0201 1% 1/20W	Vishay	CRCW02012R00FXED	Fitted	
85	2	R116, R136	RES 49.9K OHM 0201 1% 1/20W	Vishay	CRCW020149K9FNED	Fitted	
86	3	R119, R137, R182	RES 22.1 OHM 0201 1% 1/20W	Panasonic	ERJ-1GNF22R1C	Fitted	
87	2	R122, R125	RES 2.32K OHM 0201 1% 1/20W	Stackpole Electronics Inc	RMCF0201FT2K32	Fitted	
88	1	R126	RES 5.62K OHM 0201 1% 1/20W	Panasonic	ERJ-1GNF5621C	Fitted	
89	2	R133, R134	RES 249 OHM 0201 1% 1/20W	Panasonic	ERJ-1GNF2490C	Fitted	
90	2	R139, R142	RES 2.87K OHM 0201 1% 1/20W	Vishay	CRCW02012K87FKED	Fitted	
91	1	R143	RES 1.4K OHM 0201 1% 1/20W	Panasonic	ERJ-1GNF1401C	Fitted	
92	1	R157	RES 12.0K OHM 0402 1% 1/16W	Panasonic	ERJ-2RKF1202X	Fitted	
93	2	R159, R162	RES 200K OHM 0201 1% 1/20W	Vishay	CRCW0201200KFNED	Fitted	
94	2	R163, R167	RES 330 OHM 0402 1% 1/16W	Panasonic	ERJ-2RKF3300X	Fitted	
95	2	R170, R171	RES 191 OHM 0201 1% 1/20W	Yageo	RC0201FR-07191RL	Fitted	
96	1	R175	RES 4.02K OHM 0201 1% 1/20W	Panasonic	ERJ-1GNF4021C	Fitted	
97	1	R176	RES 127 OHM 0201 1% 1/20W	Panasonic	ERJ-1GNF1270C	Fitted	
98	1	R179	RES 3.74K OHM 0201 1% 1/20W	Panasonic	ERJ-1GNF3741C	Fitted	
99	2	R184, R186	RES 1.47K OHM 0201 1% 1/20W	Panasonic	ERJ-1GNF1471C	Fitted	
100	1	R189	RES 3.24K OHM 0201 1% 1/20W	Stackpole Electronics Inc	RMCF0201FT3K24	Fitted	
101	1	R197	RES 825 OHM 0201 1% 1/20W	Yageo	RC0201FR-07825RL	Fitted	
102	1	R198	RES 392 OHM 0201 1% 1/20W	Yageo	RC0201FR-07392RL	Fitted	
103	3	SW1, SW2, SW4	SWITCH TACTILE SPST-NO 0.05A 16V	C&K	PTS810 SJG 250 SMTR LFS	Fitted	
104	1	SW3	SWITCH SLIDE DIP SPST 25MA 24V	CTS	218-2LPSTRF	Fitted	
105	1	U1	IC MPSoC ZYNQ ULTRASCALE+ 3EG 6258GA, EXTENDED TEMP, -1 SPEED GRADE, SBVA484	XILINX	XCZU3EG-1SBVA484E	Fitted	
106	1	U2	RF TXRX MOD BLUETOOTH/WIFI CHIP	MICROCHIP	ATWILC3000-MR110CA	Fitted	
107	1	U3	IC SDIO PORT EXPANDER 24VQFN	TEXAS INSTRUMENTS	TXS02612RTWR	Fitted	
108	2	U4, U14	MULTI-FREQ USB 2.0 ULPI PHY	MICROCHIP	USB3320C-EZK	Fitted	
109	1	U5	VERSACLOCK 6E W/ INTEGRATED CRYST	IDT	5F49V6975A114LTGI	Fitted	
110	1	U6	On/Off Controller	DIALOG	SLG4G42480V	Fitted	
111	1	U7	IC I2C SW 8CH W/RESET 24VQFN	TEXAS INSTRUMENTS	TCA9548ARGER	Fitted	

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112	1	U9	IC DRV/R/CV/R3.3V LVDS HS 14TSSOP	ON Semiconductor	FIN1019MTCX	Fitted	
113	1	U10	IC TRNSLTR BIDIRECTIONAL 16UQFN	TEXAS INSTRUMENTS	SN74AVC4T245RSVR	Fitted	
114	2	U11, U12	IC REG BUCK SYNC, 5 OUTPUTS	Infineon	IRPSS401MTRPBF	Fitted	
115	1	U13	IC SDRAM LPDDR4 16GBIT 512MX32 F	MICRON	MT53D512M32D2DS-053 AIT-D	Fitted	
116	1	U15	IC GATE AND 1CH 2-INP SOT-23-5	TEXAS INSTRUMENTS	SN74LVC1G08DBVR	Fitted	
117	1	U16	IC HUB CTLR USB 56VQFN, INDUSTRIAL	MICROCHIP	USB5744-I/2G	Fitted	
118	2	U17, U18	IC SW DISTRIBUTION HI SIDE, ADJ 6-MLF	MICROCHIP	MIC2009YML-TR	Fitted	
119	1	U19	IC REG LINEAR 3.3V 80MA 6WDFN	ON Semiconductor	NCP716MT33TBG	Fitted	
120	1	U20	IC REG LINEAR 0.9V 500MA 4XDFN4 (1.2x1.2)	ON Semiconductor	NCP134AMX090TCG	Fitted	
121	1	U21	Buck Regulator, 6A, 1.5V-21V Vin	Infineon	IR38060MTRPBF	Fitted	
122	1	U22	IC REG LINEAR 1.8V 500MA 4XDFN	ON Semiconductor	NCP177AMX180TCG	Fitted	
123	1	U23	IC COMPARATOR SINGLE DFN6	STMicroelectronics	TS3311QT	Fitted	
124	1	U24	IC VREF SHUNT ADJ SOT23-3	STMicroelectronics	TLVH431BIL3T	Fitted	
125	1	X1	CRYSTAL 32.768KHz 12.5PF SMD	Abracon LLC	ABS07AIG-32.768KHZ-1-T	Fitted	
126	1	Y1	OSC MEMS 32.7680KHZ CMOS SMD	MICROCHIP	DSC6083C12A-032K768	Fitted	
127	1	SD1	16 GB microSD card, Utility family	Delkin	S416APG49-U3000-3	Fitted	
128	1	FAN1	DC Fan, 30x6mm, 5VDC, 4.9CFM, 0.56W, 23.6dBA, 9100RPM, 0.17inch H20, Vapo Bearing, MagLev Motor	Sunon	MF30060V1-1000U-A99	Fitted	
129	0	C26, C71, C74, C122, C159, C184, C205	CAP CER 0.1UF 25V 10% X5R 0201	Taiyo Yuden	TMK063C6104KP-F	Not Fitted	
130	0	C72, C73	CAP CER 10UF 25V 20% X5R 0603	TDK Corporation	C1608X5R1E106M080AC	Not Fitted	
131	0	C245, C246	CAP CER 0.1UF 25V 10% X7R 0402	AVX Corporation	04023C104KAT2A	Not Fitted	
132	0	C247	CAP CER 10000PF 16V 10% X7R 0402	AVX Corporation	0402YC103KAT2A	Not Fitted	
133	0	C259	CAP CER 1000PF 50V 10% X7R 0402	AVX Corporation	04025C102KAT2A	Not Fitted	
134	0	D11	DIODE SCHOTTKY 40V 2A SMB	ON Semiconductor	MBRS240LT3G	Not Fitted	
135	0	D12	LED SMARTLED 570NM GREEN 0603	OSRAM Opto Semiconductors Inc.	LG Q396-PS-35	Not Fitted	
136	0	D20	CSP SCHOTTKY BARRIER DIODE	Panasonic	DB2F43100L1	Not Fitted	
137	0	JP1	CONN HEADR BRKWAY .100 2POS STR, SINGLE ROW	TE CONNECTIVITY	5-146280-2	Not Fitted	
138	0	R10, R14, R25, R64, R65, R112, R130, R190	RES 0.0 OHM JUMP 0201 1/20W	Vishay	CRCW02010000Z0ED	Not Fitted	
139	0	R33, R154, R160, R161, R164	RES 0.0 OHM JUMP 0402 1/16W	Yageo	RC0402FR-070RL	Not Fitted	
140	0	R34, R117, R118, R155, R158	RES 4.75K OHM 0201 1% 1/20W	Panasonic	ERJ-1GNF4751C	Not Fitted	
141	0	R37	RES 100K OHM 0201 1% 1/20W	Panasonic	ERJ-1GNF1003C	Not Fitted	
142	0	R38, R39, R113, R131	RES 49.9K OHM 0201 1% 1/20W	Vishay	CRCW020149K9FNED	Not Fitted	
143	0	R95	RES 1.00K OHM 0201 1% 1/20W	Panasonic	ERJ-1GNF1001C	Not Fitted	
144	0	R96	RES 18.2K OHM 0201 1% 1/20W	Panasonic	ERJ-1GNF1822C	Not Fitted	
145	0	R97	RES 240 OHM 0201 1% 1/20W	Panasonic	ERJ-1GNF2400C	Not Fitted	
146	0	R98	RES 4.02K OHM 0201 1% 1/20W	Panasonic	ERJ-1GNF4021C	Not Fitted	
147	0	U8	IC REG LDO ADJ 0.5A 8TDFN	Maxim Integrated	MAX8902BATA+T	Not Fitted	
148	0	Y2, Y3	OSCILLATOR MEMS 24MHZ LVC MOS SMD	MICROCHIP	DSC6101MI2A-024.0000T	Not Fitted	
149	0	Y4	OSC MEMS 25.000MHZ CMOS SMD	MICROCHIP	DSC6101HI2A-025.0000T	Not Fitted	
Approved				Notes			