

## L0002 Engine Controller BOM

Project:	Liquids Engine										
Revision:	4.0										
Date:	11/30/2021										
Author:	Colton Acosta										
Qty	Component	Manufacturer	Part Number	Designator	Footprint	Footprint Type	Price per Unit	Data Sheet	Source	Alternate Parts	Other
1	ARM Cortex-M7 Microcontroller 100-LQFP	STMicroelectronics	STM32H750VBT6	U1	100-LQFP	SMD	\$17.06	<a href="#">STM32H750VBT6</a>	<a href="#">LCSC</a>		
4	Green LED 1206 SMD	Lumex Opto/Components Inc.	SML-LX1206GC-TR	D3, D6, D7, D9	1206	SMD	\$0.38	<a href="#">SML-LX1206GC-TR</a>	<a href="#">Digikey</a>		
2	240 Ohm Resistor 0603 SMD LED current limiting	Vishay	MCT06030C2400FP500	R5, R28	0603	SMD	\$0.13	<a href="#">MCT06030C2400FP500</a>	<a href="#">Digikey</a>		
2	3.3V Linear Regulator	Texas Instruments	LMS8117AMP-3.3/NOPB	U3, U10	SOT-223	SMD	\$1.39	<a href="#">LMS8117AMP-3.3/NOPB</a>	<a href="#">Digikey</a>		
1	5V Buck Converter	Texas Instruments	LM22672MRE-5.0/NOPB	U2	8-PowerSOIC	SMD	\$5.00	<a href="#">LM22672MRE-5.0/NOPB</a>	<a href="#">Digikey</a>		<a href="#">Simulator</a>
3	2.2 uF 0603 Ceramic Capacitor	Samsung Electro-Mechanics	CL10A225K08NNNC	C17, C23, C26	0603	SMD	\$0.10	<a href="#">CL10A225K08NNNC</a>	<a href="#">Digikey</a>		
2	68 uF Electrolytic Capacitor, SMD	Panasonic Electronic Components	EEE-FPV680XAP	C1, C29	Radial, Can	SMD	\$0.42	<a href="#">EEE-FPV680XAP</a>	<a href="#">Digikey</a>		
1	CAP ALUM 150UF 20% 25V SMD	Panasonic Electronic Components	EEE-FP1E151AL	C5	Radial, Can	SMD	\$0.96	<a href="#">EEE-FP1E151AL</a>	<a href="#">Digikey</a>		
1	33 uH 3.5 A Inductor SMD	Boruns Inc	SRP1038A-330M	L1	Nonstandard	SMD	\$1.64	<a href="#">SRP1038A-330M</a>	<a href="#">Digikey</a>		
1	10 nF 0603 Ceramic Capacitor	KEMET	C0603X103F5JAC7867	C4	0603	SMD	\$0.94	<a href="#">C0603X103F5JAC7867</a>	<a href="#">Digikey</a>		
8	1 uF 0603 Ceramic Capacitor	KEMET	C0603X105J4RACAUTO	C2, C3, C12, C17-19, C24, C30	0603	SMD	\$0.48	<a href="#">C0603X105J4RACAUTO</a>	<a href="#">Digikey</a>		
1	Schottky Diode 60V 1A	Rohm Semiconductor	RB160VAM-60TR	D2	2-SMD, Flat-Lead	SMD	\$0.52	<a href="#">RB160VAM-60TR</a>	<a href="#">Digikey</a>		
4	10 uF Tantalum Capacitor	KEMET	T491A106K010AT	C6-C7, C27-C28	1206	SMD	\$0.37	<a href="#">Datasheet</a>	<a href="#">Digikey</a>		
1	USB Type B connector	Stewart Connector	SS-52300-001	P5	USB-B	through-hole	\$1.07	<a href="#">SS-52300-001</a>	<a href="#">Digikey</a>		
1	Amber LED 1206 SMD	Würth Electronics	150120AS75000	D1	1206	SMD	\$0.21	<a href="#">150120AS75000</a>	<a href="#">Digikey</a>		
1	12 V Power Jack	MPD	EJ508A	P1	Through Hole, Right Angle	through-hole	\$1.28	<a href="#">EJ508A</a>	<a href="#">Digikey</a>		
3	RES 2K OHM 1% 1/8W 0603	Stackpole Electronics Inc	RNCP0603FTD2K00	R2, R31-R32	0603	SMD	\$0.10	<a href="#">RNCP0603FTD2K00</a>	<a href="#">Digikey</a>		
12	0.1 uF 0603 ceramic capacitor	KEMET	C0603C104J4RACTU	C8, C9, C11, C13, C14, C16, C20-C22, C31-C32	0603	SMD	\$0.14	<a href="#">C0603C104J4RACTU</a>	<a href="#">Digikey</a>		
9	10 kOhm 1/10W Resistor 0603 SMD	Yageo	RC0603FR-0710KL	R8, R10-12, R14, R34-R37	0603	SMD	\$0.10	<a href="#">RC0603FR-0710KL</a>	<a href="#">Digikey</a>		
1	Tactile Switch SMD	C&K	PTS 647 SM38 SMTR2 LFS	B1	4LEAD	SMD	\$0.18	<a href="#">PTS 647 SM38 SMTR2 LFS</a>	<a href="#">Digikey</a>		
1	External Flash	Microchip	SST25VF040B-50-4I-S2AE-T	U4	8-SOIC	SMD	\$0.92	<a href="#">SST25VF040B-50-4I-S2AE-T</a>	<a href="#">Digikey</a>		
1	Micro-SD Card Jack	GCT	MEM2075-00-140-01-A	P4	SDcard	SMD	\$1.98	<a href="#">MEM2075-00-140-01-A</a>	<a href="#">Digikey</a>		<a href="#">Drawing</a>
2	Schottky Diode 40V 1A	Micro Commercial Co	SM5819PL-TP	D4, D5	SOD-123F	SMD	\$0.35	<a href="#">SM5819PL-TP</a>	<a href="#">Digikey</a>		
1	5V Autoswitching Power Muiltplexor	Texas Instruments	TPS2115APWR	U6	8-TSSOP	SMD	\$2.72	<a href="#">TPS2115APWR</a>	<a href="#">Digikey</a>		
2	470 Ohm 0603 Resistor	Vishay Dale	RK73B1JTTD471J	R3, R9	0603	SMD	\$0.10	<a href="#">RK73B1JTTD471J</a>	<a href="#">Digikey</a>		
1	IC USB-TO-UART BRIDGE 28VQFN	Silicon Labs	CP2102-GMR	U5	QFN-28	SMD	\$3.24	<a href="#">CP2102-GMR</a>	<a href="#">LCSC</a>		
1	RES 1K OHM 1% 1/10W 0603	Yageo	RC0603FR-071KL	R6	0603	SMD	\$0.10	<a href="#">RC0603FR-071KL</a>	<a href="#">Digikey</a>		
1	POWER MOSFET N-CH 30V 2A TSMT5	Rohm Semiconductor	QS5U17TR	Q1	TSOT-23-5	SMD	\$0.63	<a href="#">QS5U17TR</a>	<a href="#">Digikey</a>		
1	CONN HEADER R/A 20POS 1.27MM	CNC Tech	3220-20-0200-00	P3	20POS, 2ROW	Through-hole	\$1.43	<a href="#">3220-20-0200-00</a>	<a href="#">Digikey</a>		
1	St-Link V2 Programmer	STMicroelectronics	St-LINK V2				\$25.31	<a href="#">St-LINK V2</a>	<a href="#">ST</a>		
1	TVS DIODE 5.5VWM 8.5VC SOT23-5	Littelfuse Inc.	SP0504BAHTG	D8	SOT23-5	SMD	\$0.95	<a href="#">SP0504BAHTG</a>	<a href="#">Digikey</a>		
1	IGNITION SCREW TERMINALS	TE Connectivity AMP Connectors	282837-6	P2	6POS	through-hole	\$3.59	<a href="#">282837-6</a>	<a href="#">Digikey</a>		
4	RES 100K OHM 1% 1/10W 0603	Stackpole Electronics Inc	RMCF0603FT100K	R4, R7, R15, R18	0603	SMD	\$0.10	<a href="#">RMCF0603FT100K</a>	<a href="#">Digikey</a>		
2	CAP CER 4.7UF 10V X5R 0603	Samsung Electro-Mechanics	CL10A475KP8NNNC	C10, C21	0603	SMD	\$0.10	<a href="#">CL10A475KP8NNNC</a>	<a href="#">Digikey</a>		
1	280 Ohm Resistor 0603 SMD RGB LED current limiting Red	Stackpole Electronics Inc	RMCF0603FT280R	R17	0603	SMD	\$0.10	<a href="#">RMCF0603FT280R</a>	<a href="#">Digikey</a>		
1	82 Ohm Resistor 0603 SMD RGB LED current limiting Green	Stackpole Electronics Inc	RMCF0603JT82R0	R16	0603	SMD	\$0.10	<a href="#">RMCF0603JT82R0</a>	<a href="#">Digikey</a>		
1	68 Ohm Resistor 0603 SMD RGB LED current limiting Blue	Stackpole Electronics Inc	RMCF0603FT68R0	R1	0603	SMD	\$0.10	<a href="#">RMCF0603FT280R</a>	<a href="#">Digikey</a>		
1	LED RGB CLEAR 4PLCC SMD	CreeLED, Inc.	CLMVC-FKA-CL1D1L71BB7C3C3	D1		SMD	\$0.19	<a href="#">CLMVC-FKA-CL1D1L71BB7C3C3</a>	<a href="#">Digikey</a>		
1	2.0MM PITCH CONNECTOR WITH 4 P.C	EDAC Inc.	140-504-415-000	P6	4POS, Right-Angle	Through-hole	\$0.17	<a href="#">140-504-415-000</a>	<a href="#">Digikey</a>		
1	4 Position Cable Assembly Rectangular Socket to Socket 0.167" (50.80mm, 2.00")	JST Sales America Inc.	A04KR04KR26E51B				\$1.04	<a href="#">A04KR04KR26E51B</a>	<a href="#">Digikey</a>		
1	CONN HEADER R/A 2POS 3.96MM	TE Connectivity AMP Connectors	647676-2	P7	2POS, Right-Angle	Through-hole	\$0.27	<a href="#">647676-2</a>	<a href="#">Digikey</a>		
1	CONN HOUSING 2POS .156" SNGL	TE Connectivity AMP Connectors	2132813-2				\$0.27	<a href="#">2132813-2</a>	<a href="#">Digikey</a>		
2	CONN SOCKET 18-22AWG CRIMP TIN	TE Connectivity AMP Connectors	1744144-1				\$0.18	<a href="#">1744144-1</a>	<a href="#">Digikey</a>		

1	RES 4.7K OHM 1% 1/10W 0603	Stackpole Electronics Inc	RMCF0603FT4K70	R13	0603	SMD	\$0.10	RMCF0603FT4K70	Digikey		
2	Rail to rail instrumentation amplifier	Analog Devices Inc.	AD623ARZ-R7	U8, U15	8-SOIC	SMD	\$5.53	AD623ARZ-R7	Digikey		
2	IC MUX/DEMUX QUAD 1X1 14SOIC	onsemi	MC74HC4066ADG	U10, U19	14-SOIC	SMD	\$0.61	MC74HC4066ADG	Digikey		
2	IC MULTIPLEXER 8X1 16TSSOP	Analog Devices Inc./Maxim Integrated	MAX4617EUE+T	U12, U13	16-TSSOP	SMD	\$5.19	MAX4617EUE+T	Digikey		
1	IC VOLT COMPARATOR SGL SOT-23-5	STMicroelectronics	TS391IYLT	U11	SOT-23-5	SMD	\$1.58	TS391IYLT	Digikey		
1	IC THERMOCOUPLE	Microchip Technology	MCP96L01T-E/MX	U14	20-VQFN	SMD	\$6.24	MCP96L01T-E/MX	Digikey		
1	RES 1M OHM 1% 1/10W 0603	YAGEO	RC0603FR-071ML	R29	0603	SMD	\$0.10	RC0603FR-071ML	Digikey		
1	RES 2M OHM 1% 1/10W 0603	YAGEO	RC0603FR-072ML	R30	0603	SMD	\$0.10	RC0603FR-072ML	Digikey		
1	PICOBLADE 4 CIRCUIT 300MM	Molex	151340403				\$3.97	151340403	Digikey		
1	CONN HEADER VERT 4POS 1.25MM	Molex	530470410	P17	4POS	Through-hole	\$0.35	530470410	Digikey		
1	RES 470 OHM 0.01% 1/8W 0805	Stackpole Electronics Inc	RNCF0805TKT470R	R33	0805	SMD	\$1.47	RNCF0805TKT470R	Digikey		
1	4 Pin connector female socket	Sullins Connector Solutions	PPTC041LFBN-RC	P18	4POS	through-hole	\$0.45	PPTC041LFBN-RC	Digikey		
1	CONN HEADER VERT 26POS 1.27MM	Amphenol ICC (FCI)	20021511-00026T4LF	P8	26-POS	Through-hole	\$2.76	20021511-00026T4LF	Digikey		
1	CRYSTAL 24.0000MHZ 18PF SMD	ECS Inc.	ECS-240-18-33-JGN-TR	Y1	4-SMD, No Lead	SMD	\$0.56	ECS-240-18-33-JGN-TR	Digikey		
2	CAP CER 8PF 250V COG/NP0 0603	KEMET	CBR06C809BAGAC	C33-C34	0603	SMD	\$0.68	CBR06C809BAGAC	Digikey		
1	PICO-CLASP 8 CIRCUIT 50MM	Molex	151330800				\$7.51	151330800	Digikey		
1	CONN HEADER SMD R/A 8POS 1MM	Molex	5015680807	P9	8POS	Through-hole	\$0.84	5015680807	Digikey		
1	TERM BLK 2P SIDE ENT 5.08MM PCB	TE Connectivity AMP Connectors	282837-2	P10	2POS	Through-hole	\$1.17	282837-2	Digikey		
1	CONN HEADER VERT 2POS 3.5MM	Molex	532580229	P11	2POS	Through-hole	\$0.73	532580229	Digikey		
1	CONN RCPT HSG 2POS 3.50MM	Molex	510670200				\$0.47	510670200	Digikey		
2	CONN SOCKET 18-24AWG CRIMP TIN	Molex	502179001				\$0.18	502179001	Digikey		