L0002 Engine Controller BOM

Project:	Liquids Engine	
Revision:	5.1	
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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	STM32H750VBT6	LCSC		
4	Green LED 1206 SMD	Lumex Opto/Components Inc.	SML-LX1206GC-TR	D3, D6, D7, D9	1206	SMD	$0.38	SML-LX1206GC-TR	Digikey		
2	240 Ohm Resistor 0603 SMD LED current limiting	Vishay	MCT06030C2400FP500	R5, R28	0603	SMD	$0.13	MCT06030C2400FP500	Digikey		
4	3.3V Linear Regulator	Texas Instruments	LMS8117AMP-3.3/NOPB	U3, U10	SOT-223	SMD	$1.39	LMS8117AMP-3.3/NOPB	Digikey	LD1117AS33TR	
1	5V Buck Converter	Texas Instruments	LM22672MRE-5.0/NOPB	U2	8-PowerSOIC	SMD	$5.00	LM22672MRE-5.0/NOPB	Digikey		Simulator
3	2.2 uF 0603 Ceramic Capacitor	Samsung Electro-Mechanics	CL10A225KO8NNNC	C17, C23, C26	0603	SMD	$0.10	CL10A225KO8NNNC	Digikey		
2	68 uF Electrolytic Capacitor, SMD	Panasonic Electronic Components	EEE-FPV680XAP	C1, C29	Radial, Can	SMD	$0.42	EEE-FPV680XAP	Digikey	EMZA350ADA101MF80G	
1	CAP ALUM 150UF 20% 25V SMD	Panasonic Electronic Components	EEE-FP1E151AL	C5	Radial, Can	SMD	$0.96	EEE-FP1E151AL	Digikey		
1	33 uH 3.5 A Inductor SMD	Boruns Inc	SRP1038A-330M	L1	Nonstandard	SMD	$1.64	SRP1038A-330M	Digikey		
1	10 nF 0603 Ceramic Capacitor	KEMET	C0603X103F5JAC7867	C4	0603	SMD	$0.94	C0603X103F5JAC7867	Digikey		
6	1 uF 0603 Ceramic Capacitor	KEMET	C0603X105J4RACAUTO	C2, C3, C12, C18-19, C30	0603	SMD	$0.48	C0603X105J4RACAUTO	Digikey		
1	Schottky Diode 60V 1A	Rohm Semiconductor	RB160VAM-60TR	D2	2-SMD, Flat-Lead	SMD	$0.52	RB160VAM-60TR	Digikey		
4	10 uF Tantalum Capacitor	KEMET	T491A106K010AT	C6-C7, C27-C28	1206	SMD	$0.37	Datasheet	Digikey		
1	USB Type B connector	Stewart Connector	SS-52300-001	P5	USB-B	through-hole	$1.07	SS-52300-001	Digikey		
1	12 V Power Jack	MPD	EJ508A	P1	Through Hole, Right Angle	through-hole	$1.28	EJ508A	Digikey		
3	RES 2K OHM 1% 1/8W 0603	Stackpole Electronics Inc	RNCP0603FTD2K00	R2, R31-R32	0603	SMD	$0.10	RNCP0603FTD2K00	Digikey		
13	0.1 uF 0603 ceramic capacitor	KEMET	C0603C104J4RACTU	C8-C9, C11, C13-C16, C20-C22, C24, C31-C32	0603	SMD	$0.14	C0603C104J4RACTU	Digikey		
10	10 kOhm 1/10W Resistor 0603 SMD	Yageo	RC0603FR-0710KL	R6, R8, R10-12, R14, R34-R37	0603	SMD	$0.10	RC0603FR-0710KL	Digikey		
1	Tactile Switch SMD	C&K	PTS 647 SM38 SMTR2 LFS	B1	4LEAD	SMD	$0.18	PTS 647 SM38 SMTR2 LFS	Digikey		
1	External Flash	Microchip	SST25VF040B-50-4I-S2AE-T	U4	8-SOIC	SMD	$0.92	SST25VF040B-50-4I-S2AE-T	Digikey		
1	Micro-SD Card Jack	GCT	MEM2075-00-140-01-A	P4	SDcard	SMD	$1.98	MEM2075-00-140-01-A	Digikey		Drawing
2	Schottky Diode 40V 1A	Micro Comercial Co	SM5819PL-TP	D4, D5	SOD-123F	SMD	$0.35	SM5819PL-TP	Digikey		
1	5V Autoswitching Power Mulitplexor	Texas Instruments	TPS2115APWR	U6	8-TSSOP	SMD	$2.72	TPS2115APWR	Digikey	TPS2110PW	
2	470 Ohm 0603 Resistor	Vishay Dale	RK73B1JTTD471J	R3, R9	0603	SMD	$0.10	RK73B1JTTD471J	Digikey		
1	IC USB-TO-UART BRIDGE 28VQFN	Silicon Labs	CP2102-GMR	U5	QFN-28	SMD	$3.24	CP2102-GMR	LCSC		
1	POWER MOSFET N-CH 30V 2A TSMT5	Rohm Semiconductor	QS5U17TR	Q1	TSOT-23-5	SMD	$0.63	QS5U17TR	Digikey		
1	CONN HEADER R/A 20POS 1.27MM	CNC Tech	3220-20-0200-00	P3	20POS, 2ROW	Through-hole	$1.43	3220-20-0200-00	Digikey		Programmer connector
1	St-Link V2 Programmer	STMicroelectronics	St-LINK V2				$25.31	St-LINK V2	ST		
1	TVS DIODE 5.5VWM 8.5VC SOT23-5	Littelfuse Inc.	SP0504BAHTG	D8	SOT23-5	SMD	$0.95	SP0504BAHTG	Digikey		
1	IGNITION SCREW TERMINALS	TE Connectivity AMP Connectors	282837-6	P2	6POS	through-hole	$3.59	282837-6	Digikey		
4	RES 100K OHM 1% 1/10W 0603	Stackpole Electronics Inc	RMCF0603FT100K	R4, R7, R15, R18	0603	SMD	$0.10	RMCF0603FT100K	Digikey		
1	CAP CER 4.7UF 10V X5R 0603	Samsung Electro-Mechanics	CL10A475KP8NNNC	C10	0603	SMD	$0.10	CL10A475KP8NNNC	Digikey		
1	280 Ohm Resistor 0603 SMD RGB LED current limiting Red	Stackpole Electronics Inc	RMCF0603FT280R	R17	0603	SMD	$0.10	RMCF0603FT280R	Digikey		
2	82 Ohm Resistor 0603 SMD RGB LED current limiting Green	Stackpole Electronics Inc	RMCF0603JT82R0	R1, R16	0603	SMD	$0.10	RMCF0603JT82R0	Digikey	RMCF0603FT82R0	
1	LED RGB CLEAR 4PLCC SMD	CreeLED, Inc.	CLMVC-FKA-CL1D1L71BB7C3C3	D1		SMD	$0.19	CLMVC-FKA-CL1D1L71BB7C3C3	Digikey		
1	2.0MM PITCH CONNECTOR WITH 4 P.C	EDAC Inc.	140-504-415-000	P6	4POS, Right-Angle	Through-hole	$0.17	140-504-415-000	Digikey		Valve Controller Connector
1	4 Position Cable Assembly Rectangular Socket to Socket 0.167' (50.80mm, 2.00")	JST Sales America Inc.	A04KR04KR26E51B				$1.04	A04KR04KR26E51B	Digikey		
1	CONN HEADER R/A 2POS 3.96MM	TE Connectivity AMP Connectors	647676-2	P7	2POS, Right-Angle	Through-hole	$0.27	647676-2	Digikey		Main Power Connector
1	CONN HOUSING 2POS .156" SNGL	TE Connectivity AMP Connectors	2132813-2				$0.27	2132813-2	Digikey		
2	CONN SOCKET 18-22AWG CRIMP TIN	TE Connectivity AMP Connectors	1744144-1				$0.18	1744144-1	Digikey		
1	RES 4.7K OHM 1% 1/10W 0603	Stackpole Electronics Inc	RMCF0603FT4K70	R13	0603	SMD	$0.10	RMCF0603FT4K70	Digikey		
3	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	U7, U9	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		
2	RES 2M OHM 1% 1/10W 0603	YAGEO	RC0603FR-072ML	R30, R38	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		Load Cell Connector
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	Power Rail Access Pin Header
1	CONN HEADER VERT 26POS 1.27MM	Amphenol ICC (FCI)	20021511-00026T4LF	P8	26-POS	Through-hole	$2.76	20021511-00026T4LF	Digikey	Pressure Transducer Connector
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 C0G/NP0 0603	KEMET	CBR06C809BAGAC	C33-C34	0603	SMD	$0.68	CBR06C809BAGAC	Digikey	
2	TERM BLK 2P SIDE ENT 5.08MM PCB	TE Connectivity AMP Connectors	282837-2	P10, P11	2POS	Through-hole	$1.17	282837-2	Digikey	Ignition Arming Screw Terminal/ Thermocouple
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	
8	RTD Platinum (Pt) 3850ppm/°C Radial	Innovative Sensor Technology, USA Devision	P0K1.516.7W.B.010				$8.68	p0k1.516.7w.b.010	Digikey	
2	TERM BLK 8P SIDE ENT 3.81MM PCB	Phoenix Contact	1727078		8POS	Through-hole	$6.30	1727078	Digikey	RTD Screw Terminals
1	IC TRANSCEIVER FULL 1/1 8SOIC	Texas Instruments	SN65HVD71DR	U7	8-SOIC	SMD	$3.41	SN65HVD71DR	Digikey	
2	TVS DIODE 7V/12V 14V/26V SOT23-3	Bourns Inc.	CDSOT23-SM712	D10, D11	SOT-23-3	SMD	$1.53	CDSOT23-SM712	Digikey	
1	CONN MOD JACK 8P8C R/A UNSHLD	Amphenol ICC (FCI)	54602-908LF	P9	8POS	Through-hole	$0.71	54602-908LF	Digikey	Ethernet Cable Jack
1	CABLE MOD 8P8C PLUG TO PLUG 150'	Tripp Lite	N201-150-PU				$65.71	N201-150-PU	Digikey	Ethernet Cable
2	RES 100 OHM 5% 1/10W 0603	YAGEO	RC0603JR-07100RL	R26, R27	0603	SMD	$0.10	RC0603JR-07100RL	Digikey	
4	RES SMD 10 OHM 1% 1/4W 0603	Rohm Semiconductor	ESR03EZPF10R0	R22, R23, R24, R25	0603	SMD	$0.15	ESR03EZPF10R0	Digikey	