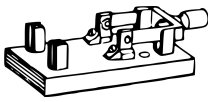
Byte Adder Subtractor
Bill of Materials



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Part	Value	Remarks	Qty	Reference	Provided
Standoffs	M3	nylon stands 8mm	**4**		
	M3	nylon nuts	**4**		
Pin header	1 x 3 pin	male vertical	**2**	J9, J10	
	2 x 2 pin	male horizontal *(backside)*	**1**	J1	
	2 x 5 pin	male horizontal *(backside)*	**1**	J3	
Jumper	1 x 2 pin	jumper with pull-tab	**2**	J9, J10	
Socket	2 x 2 pin	female horizontal bus *(backside)*	**1**	J2	
	2 x 5 pin	female horizontal bus *(backside)*	**1**	J4	
	16 pins	machined pin	**2**	U2, U3	
	20 pins	machined pin	**1**	U1	
Resistor [1]	1 kΩ	1/4 W - brown, black, black, brown, brown	**2**	R1, R2	
	4.7 kΩ	1/4 W - yellow, violet, black, brown, brown	**1**	R3	
Resistor Net	330 Ω	8x resistor, 9 legs	**2**	RN1, RN2	
	1 kΩ	4x resistor, 5 legs	**1**	RN3	
Capacitor	100 nF	marked with ‘104’	**3**	C1-C3	

Important:

- If a finished 8-bit Workbench™ is available; on a flat table, mount the standoffs and insert the unsoldered pin headers (J1, J3) into the female busses of the Workbench to have them perfectly aligned before soldering them. Do the same with the bottom edge headers (J2, J4) together with a Binary Keyboard (when available).

Notes:

1) Some provided resistor-values could differ slightly, as could their band colors, this has no effect on the working of the board.

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Part	Value	Remarks	Qty	Reference	Provided
IC	74LS273	Octal D-Type Flip-Flop with Clear	**1**	U1	
	74LS283	4-Bit Binary Full Adder with Carry	**2**	U2, U3	
Switch	ON	Push Button	**2**	SW2, SW3	
	DPDT	Small slide Switch ON-ON	**1**	SW1	
	SPST	2x DIP Switch ON-OFF for settings	**1**	SW4	
LED [2]	red	3 mm, round	**3**	D17-D19	
	red	5 mm, round	**16**	D1-D16	
		Parts	**54**		
		Types	**22**		

2) When preferred, other LED colors can be used. Make sure to check if the values of the resistor networks RN1-3 are correct for the LEDs used (*see* Schematics).

Important:

- Check the LED (D1-D19) polarity. The long leg is the anode (+) and the short leg the cathode (-). The short leg should go through the square pad and the long leg through the round pad.

- Before applying power, check J1-J4 for shorts between all side to side pins using a multimeter in continuity mode.