

	A	B	C	D	E
1	Leningrad-1	Bill of Materials		Revision 0	24.02.2025
2					
3	<i>Green = Optional components I added on my build</i>	<i>Purple = Optional components I didn't need to add on my build</i>		<i>Yellow = Other optional components</i>	<i>Blue = Components that don't work as of Revision 0</i>
4					
5					
6					
7	System PCB				
8	Reference	Value	Qty	PCB Footprint	Comments
9	C1,C16,C17	10 µF, 16 V	3	Electrolytic Capacitor, Radial, Diameter 5mm, Pin Spacing 2mm	
10	C2	33 nF	1	Ceramic Capacitor, Pin Spacing 5mm	
11	C3,C7	22 nF	2	Ceramic Capacitor, Pin Spacing 5mm	
12	C4,C6,C8,C18-C32	0.1 µF	18	Ceramic Capacitor, Pin Spacing 5mm	
13	C5	6.8 nF	1	Ceramic Capacitor, Pin Spacing 5mm	
14	C9	220 pF	1	Ceramic Capacitor, Pin Spacing 5mm	
15	C10	1 nF	1	Ceramic Capacitor, Pin Spacing 5mm	
16	C11	360 pF	1	Ceramic Capacitor, Pin Spacing 5mm	
17	C12	100 pF	1	Ceramic Capacitor, Pin Spacing 5mm	
18	C13	220 pF	1	Ceramic Capacitor, Pin Spacing 5mm	
19	C14	27 pF	1	Ceramic Capacitor, Pin Spacing 5mm	
20	C15	220 pF	1	Ceramic Capacitor, Pin Spacing 5mm	
21	D1,D3-D17	1N4148	16	Diode, DO-35	
22	D2	1N4007	1	Diode, DO-41	
23	J1	9-12VDC Power Input	1	Barrel Jack, 5.5x2.1mm	<i>Input voltage is regulated down to 5V for</i>
24	J2	Monochrome Video Out	1	RCA/Phono Connector, Switchcraft PJRAN1	<i>logic ICs by U43. The higher unregulated</i>
25	J3,J4	Audio Out	2	RCA/Phono Connector, Switchcraft PJRAN1	<i>voltage is not used by any part of the</i>
26	J5	Audio/RGB Video Out	1	SCART Connector, Generic	<i>circuit other than the regulator.</i>
27	J6	Cassette Load (Ear)	1	3.5mm Stereo Jack, CUI/Same Sky SJ1-3525N	
28	J7	Cassette Save (Mic)	1	3.5mm Stereo Jack, CUI/Same Sky SJ1-3525N	
29	J8	Kempston Joystick	1	DE-9 Connector, Male, Horizontal (e.g. Amphenol LD09P13A)	
30	J9	Keyboard Interface	1	IDC Header, 2x08 (16 Pin), Pin Spacing 2.54mm, Vertical	
31	J10	Custom A/V Connector	1	DIN Connector, 8 Pin, CUI/Same Sky SDS-80J or SDF-80J	
32	JP1-JP3	Crystal Value Set	3	2.54mm Pin Header, 1x03, Vertical	
33	JP4	Load Stereo On/Off	1	2.54mm Pin Header, 1x02, Vertical	<i>Install jumpers on these two headers if using</i>
34	JP5	Save Stereo On/Off	1	2.54mm Pin Header, 1x02, Vertical	<i>stereo audio jacks, remove for mono jacks.</i>
35	JP6	Disable Black Level	1	2.54mm Pin Header, 1x02, Vertical	<i>DO NOT install JP6 if U44 is installed; doing</i>
36	Q1-Q4	2N3904	4	Transistor, TO-92	<i>so may damage U11 and U44! See</i>
37	R1,R16	470 Ω	2	Resistor, DIN0207, Length 6.3mm, Diameter 2.5mm	<i>schematic for details.</i>
38	R2	15 KΩ	1	8 Resistor Network, Bussed, SIP-9	
39	R3,R28	430 Ω	2	Resistor, DIN0207, Length 6.3mm, Diameter 2.5mm	
40	R4	1 KΩ	6	Resistor, DIN0207, Length 6.3mm, Diameter 2.5mm	<i>Pullup resistor for U44.</i>
41	R5,R14,R15,R17,R32	1 KΩ	6	Resistor, DIN0207, Length 6.3mm, Diameter 2.5mm	
42	R6	10 KΩ	1	Resistor, DIN0207, Length 6.3mm, Diameter 2.5mm	
43	R7-R9	680 Ω	3	Resistor, DIN0207, Length 6.3mm, Diameter 2.5mm	
44	R10-R12	510 Ω	3	Resistor, DIN0207, Length 6.3mm, Diameter 2.5mm	
45	R13	27 Ω	1	Resistor, DIN0207, Length 6.3mm, Diameter 2.5mm	

	A	B	C	D	E
46	R18	2 K Ω	1	Resistor, DIN0207, Length 6.3mm, Diameter 2.5mm	
47	R19-R22	200 Ω	5	Resistor, DIN0207, Length 6.3mm, Diameter 2.5mm	
48	R23	15 K Ω	1	11 Resistor Network, Bussed, SIP-12	<i>It's difficult to find 11-resistor packs with this exact resistance. Since this network is used as pullup resistors, it's probably fine to use a more common value like 10 KΩ here. However, I haven't tested this myself.</i>
49	R24	200 Ω	5	Resistor, DIN0207, Length 6.3mm, Diameter 2.5mm	
50	R25	470 K Ω	1	Resistor, DIN0207, Length 6.3mm, Diameter 2.5mm	
51	R26	30 K Ω	1	Resistor, DIN0207, Length 6.3mm, Diameter 2.5mm	
52	R27	43 K Ω	1	Resistor, DIN0207, Length 6.3mm, Diameter 2.5mm	
53	R29,R30	20 K Ω	2	Resistor, DIN0207, Length 6.3mm, Diameter 2.5mm	
54	R31	1.2 K Ω	1	Resistor, DIN0207, Length 6.3mm, Diameter 2.5mm	
55	R33-R35	3 K Ω	3	Resistor, DIN0207, Length 6.3mm, Diameter 2.5mm	
56	R36	680 Ω	1	Resistor, DIN0207, Length 6.3mm, Diameter 2.5mm	
57	R37	150 Ω	1	Resistor, DIN0207, Length 6.3mm, Diameter 2.5mm	
58	R38	470 Ω	1	Resistor, DIN0207, Length 6.3mm, Diameter 2.5mm	
59	SW1	Power Switch	1	DPDT Slide Switch, E-Switch EG2208	
60	SW2	Reset Switch	1	6mm Tactile Switch, Right Angle	
61	U1,U34	74LS04	2	IC, DIP-14, Width 7.62mm	
62	U2,U8,U9	74LS74	3	IC, DIP-14, Width 7.62mm	
63	U3-U6	74LS193	4	IC, DIP-16, Width 7.62mm	
64	U7	4520	1	IC, DIP-16, Width 7.62mm	
65	U10	74LS02	1	IC, DIP-14, Width 7.62mm	
66	U11	74LS86	1	IC, DIP-14, Width 7.62mm	
67	U12	74LS00	1	IC, DIP-14, Width 7.62mm	
68	U13	74LS08	1	IC, DIP-14, Width 7.62mm	
69	U14	74LS32	1	IC, DIP-14, Width 7.62mm	
70	U15-U19,U37,U38	74LS257	7	IC, DIP-16, Width 7.62mm	
71	U20	Z80A	1	IC, DIP-40, Width 15.24mm	<i>NMOS Z80A only. Avoid the Z80B and original Z80; these are designed to run at a different clockspeed.</i>
72	U21-U28	4164	8	IC, DIP-16, Width 7.62mm	
73	U29	27128 or 27C128	1	IC, DIP-28, Width 15.24mm	
74	U30,U31	74LS298	2	IC, DIP-16, Width 7.62mm	
75	U32	74LS373	1	IC, DIP-20, Width 7.62mm	
76	U33	74LS165	1	IC, DIP-16, Width 7.62mm	
77	U35	74LS295	1	IC, DIP-14, Width 7.62mm	
78	U36	74LS157	1	IC, DIP-16, Width 7.62mm	
79	U39	74LS174	1	IC, DIP-16, Width 7.62mm	
80	U40	74LS10	1	IC, DIP-14, Width 7.62mm	
81	U41	MC1456	1	IC, DIP-8, Width 7.62mm	
82	U42	LM211	1	IC, DIP-8, Width 7.62mm	
83	U43	TSR 1-2450	1	5V Voltage Regulator, TO-220	<i>7805-compatible switching regulator.</i>
84	U44	74LS74	1	IC, DIP-14, Width 7.62mm	DO NOT install JP6 if U44 is installed; doing so may damage U11 and U44! See schematic for details.
85	U45	74LS08	1	IC, DIP-14, Width 7.62mm	
86					
87	X1	14.00000MHz	1	Crystal Oscillator, HC49	<i>13.5-14.5MHz crystals can be used depending on JP1-JP3 setting, but this will affect clockspeed and screen position.</i>
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89					
90					<i>14.0MHz is the best value.</i>

	A	B	C	D	E
91					
92	Keyboard PCB				
93	Reference	Value	Qty	PCB Footprint	Comments
94	J1	Keyboard Interface	1	IDC Header, 2x08 (16 Pin), Pin Spacing 2.54mm, Vertical	
95	KB1-KB41	Keyswitches	41	Keyswitch, 5 Pin, Cherry MX Compatible	<i>5-pin keyswitches are easier to install. Note that 3 of the "pins" are plastic posts that are used to hold the switch in place.</i>
96	L1	Power LED	1	LED, Diameter 5.0mm	
97	R1	680Ω	1	Resistor, DIN0207, Length 6.3mm, Diameter 2.5mm	
98		Keycaps	40	Keycap, 1x Width, Cherry MX Compatible	
99		Spacebar	1	Keycap, 6.25x Width, Cherry MX Compatible	
100		Spacebar Stabilizer	1	Keycap Stabilizer, 6.25x Width, PCB Mount, Cherry MX Compatible	
101					
102	IC Sockets	Size	Qty	Purpose	Comments
103		DIP-8	2	Used for tape loading circuit.	<i>Round pin sockets are recommended.</i>
104		DIP-14	13	Used for assorted logic.	<i>They're more reliable than flat pin sockets, which is important for a circuit with this many ICs.</i>
105		DIP-14	1	Used for U44.	
106		DIP-16	25	8 sockets used for DRAM, other sockets used for assorted logic.	
107		DIP-20	1	Used for U32.	
108		DIP-28	1	Used for EEPROM.	
109		DIP-40	1	Used for CPU.	
110		Total	44		