

Item	Quantity	Reference	Part
1	21	C1,C4,C6,C7,C9,C11,C12, C15,C17,C18,C19,C20,C21, C22,C23,C24,C25,C26,C27, C28,C29	0.1uf/50v KEMET C315C104M5U5TA
2	3	C3,C5,C14	10uf/16V Nichicon UPW1C100MDD
3	2	C13,C16	100uf/35V Nichicon UKW1V101MED
4	1	DIN1	CONNECTOR DIN 5PINS FEMALE (external MIDI device)
4	1	DIN2	CONNECTOR DIN 5PINS MALE (inline cable connected to setup MIDI sound module)
5	1	H1	TE AMP 3-641215-6 HEADER_6_100_MALE
6	1	H2	TE AMP 3-644540-6 HEADER_6_100_FEMALE
7	2	H3,H20	TE AMP 3-641215-2 HEADER_2_100_MALE
8	2	H4,H27	TE AMP 3-644540-2 HEADER_2_100_FEMALE
9	2	H23,H26	TE AMP 640445-2 HEADER_2_156_MALE
10	2	H24,H25	TE AMP 3-643817-2 HEADER_2_156_FEMALE
11	4	H5,H11,H16,H28	TE AMP 3-644540-3 HEADER_3_100_FEMALE
12	4	H6,H15,H17,H20	TE AMP 3-641215-3 HEADER_3_100_MALE
13	3	H7,H10,H13	TE AMP 3-643817-4 HEADER_4_156_FEMALE
14	3	H8,H9,H12	TE AMP 640445-4 HEADER_4_156_MALE
15	1	H14	ICD 6 pins male header strip
16	1	H18	TE AMP 3-643817-4 HEADER_3_156_FEMALE
17	1	H19	TE AMP 640445-3 HEADER_3_156_MALE
18	1	LED1	MIDI_ACTIVE, 5mm Lumex RED SSL-LX5093ID (2V drop)
19	13	LED4,LED5,LED6,LED7,LED8, LED9,LED10,LED11,LED12, LED13,LED14,LED15,LED16	Bar graph green 3mm LEDS ABO BL-BGX3V1
20	48	LED17,LED18,LED19,LED20, LED21,LED22,LED23,LED24, LED25,LED26,LED27,LED28, LED29,LED30,LED31,LED32, LED33,LED34,LED35,LED36, LED37,LED38,LED39,LED40, LED41,LED42,LED43,LED44, LED45,LED46,LED47,LED48, LED49,LED50,LED51,LED52, LED53,LED54,LED55,LED56, LED57,LED58,LED59,LED60, LED61,LED62,LED63,LED64	IR LED 940nm EMITTER OSRAM Opto. SFH 4544
21	8	LED65,LED66,LED67,LED68, LED69,LED70,LED71,LED72	90deg angled White LED 3mm Harvatek Corp. HV-316045/260/UTC-U1930
22	91	PT1,PT2,PT3,PT4,PT5,PT6, PT7,PT8,PT9,PT10,PT11, PT12,PT13,PT14,PT15,PT16, PT17,PT18,PT19,PT20,PT21, PT22,PT23,PT24,PT25,PT26, PT27,PT28,PT29,PT30,PT31, PT32,PT33,PT34,PT35,PT36, PT37,PT38,PT39,PT40,PT41, PT42,PT43,PT44,PT45,PT46, PT47,PT48,PT49,PT50,PT51, PT52,PT53,PT54,PT55,PT56, PT57,PT58,PT59,PT60,PT61, PT62,PT63,PT64,PT65,PT66, PT67,PT68,PT69,PT70,PT71, PT72,PT73,PT74,PT75,PT76, PT77,PT78,PT79,PT80,PT81, PT82,PT83,PT84,PT85,PT86, PT87,PT88,PT89, PT90,PT91	PHOTO-TRANSISTOR Everlight Electronics Co PT204-6B
23	1	P1	10KB 10% potentiometer CTS 450S3993
24	1	ROTARY1	Rotary switch CIT relay & switch RD10RA16RTT
25	4	R1,R2,R7,R8	100k 1/4w Yageo CFR-25JB-52-100K
26	1	R3	100R 1/4w Yageo CFR-25JB-52-100R
27	7	R4,R6,R10,R11,R12,R13, R16	10k 1/4w Yageo CFR-25JB-52-10K
28	1	R5	680R 1/4w Yageo CFR-25JB-52-680R
29	2	R9,R37	1K0 1/4w Yageo CFR-25JB-52-1K
30	4	R14,R15,R38,R39	220R 1/4w Yageo CFR-25JB-52-220R
31	2	R17,R18	2K7 1/4w Yageo CFR-25JB-52-2K7
32	11	R19,R20,R21,R22,R23,R24, R25,R26,R27,R28,R29	100K 1/4w network Bourns 4609X-101-104LF
33	6	R30,R31,R32,R33,R34,R35	4R7 1/4w Yageo CFR-25JB-52-4R7
34	1	R36	39k 1/4w Yageo CFR-25JB-52-39K
35	2	STEPPER MOTOR1, MOTOR2	SANMOTION SF2424-10B41 24VDC
36	1	S1	PLAY-REWIND limit switch SPDT
37	1	S2	SPEED MOTOR ON toggle switch SPST
38	2	S3,S4	GO_LEFT, GO_RIGHT momentary push-button switch NO (optional)
39	1	U1	74HC14 Schmitt trigger inputs Hex inverters
40	1	U2	PIC16F1939 Microchip microprocessor
41	2	U3,U4	TMC2208 DIP STICK stepper motor driver module
42	1	U5	LM7805 5 volts 1A regulator
43	2	U6,U7	74HC595 Serial to Parallel shift register
44	11	U8,U9,U10,U11,U12,U13, U14,U15,U16,U17,U18	74HCS165 Schmitt trigger inputs Parallel to serial shift register
45	1	-	12VDC 50W SWITCHING SUPPLY 4.17A Cincon Elec. CFM50S120
46	1	-	24VDC 50W SWITCHING SUPPLY 2.08A Cincon Elec. CFM50S240

Hardware:

47	8	-	Rubber grommets for stepper motors
48	8	-	0.25" metal spacers for stepper motors
49	8	-	Flat washers for stepper motors
50	8	-	M3 philips head screws
51	8	-	1.5" metal spacers for main PCB
52	22	-	8 pins SIP socket (5 x ARIES 40-0518-10 40 pins SIP sockets broken in 8 pins sections)
53	4	-	8 pins SIP elevated receptacles TE AMP 535541-6 (for the TMC2208 modules)
54	1	-	8 pins machined IC socket Mill-Max 110-93-308-41-001000
55	1	-	40 pins machined IC socket Mill-Max 110-44-640-41-001000
56	1	-	Aluminium 1/16" thick front panel
57	-	-	Wiring control voltage Hookup wire AWG#22
58	1	-	MIDI PIANO sound module (Used in this project is a Yamaha P50m)
59	1	-	2 x 20 watts stereo Power amp
60	2	-	Radio Shack Minimus 7, pair of 8 ohms speakers