

### MIDIBox AY 3 8912 MIDI to Hz Chart

ft = Tone frequency [Frequency (Hz)]

fCLOCK = input clock frequency [2Mhz Crystal = 2.000.000 Hz]

TP = Decimal equivalent of the Tone Period bit 0 to 11 (Coarse Tune + Fine Tune)

MIDI Note 0: TP = (2.000.000Hz) / (16x(8,1757989156 Hz))

MIDI Note (DEC)	Note	Frequency (Hz) @2Mhz AY-3-8912	ABC Tone Period BIT0 to BIT11 (DEC)	AY 3 8912 ABC Tone Period :: BIT0 to BIT11 (BIN)	COARSE TUNE REG HEX	FINE TUNE REG HEX
INVALID 4 BIT COARSE TUNE (HEX FF-10)						
0	C	8.1757989156	15289	0011 1011 1011 1001	3B	B9
1	Db	8.6619572180	14431	0011 1000 0101 1111	38	5F
2	D	9.1770239974	13621	0011 0101 0011 0101	35	35
3	Eb	9.7227182413	12856	0011 0010 0011 1000	32	38
4	E	10.3008611535	12135	0010 1111 0110 0111	2F	67
5	F	10.9133822323	11454	0010 1100 1011 1110	2C	BE
6	Gb	11.5623257097	10811	0010 1010 0011 1011	2A	3B
7	G	12.2498573744	10204	0010 0111 1101 1100	27	DC
8	Ab	12.9782717994	9631	0010 0101 1001 1111	25	9F
9	A	13.7500000000	9091	0010 0011 1000 0011	23	83
10	Bb	14.5676175474	8581	0010 0001 1000 0101	21	85
11	B	15.4338531643	8099	0001 1111 1010 0011	1F	A3
12	C	16.3515978313	7645	0001 1101 1101 1101	1D	DD
13	Db	17.3239144361	7215	0001 1100 0010 1111	1C	2F
14	D	18.3540479948	6810	0001 1010 1001 1010	1A	9A
15	Eb	19.4454364826	6428	0001 1001 0001 1100	19	1C
16	E	20.6017223071	6067	0001 0111 1011 0011	17	B3
17	F	21.8267644646	5727	0001 0110 0101 1111	16	5F

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18	Gb	23.1246514195	5405	0001 0101 0001 1101	15	1D
19	G	24.4997147489	5102	0001 0011 1110 1110	13	EE
20	Ab	25.9565435987	4816	0001 0010 1101 0000	12	D0
21	A	27.5000000000	4545	0001 0001 1100 0001	11	C1
22	Bb	29.1352350949	4290	0001 0000 1100 0010	10	C2
VALID 4 BIT COARSE TUNE (HEX 0F-00)						
23	B	30.8677063285	4050	0000 1111 1101 0010	0F	D2
24	C1	32.7031956626	3822	0000 1110 1110 1110	0E	EE
25	Db	34.6478288721	3608	0000 1110 0001 1000	0E	18
26	D	36.7080959897	3405	0000 1101 0100 1101	0D	4D
27	Eb	38.8908729653	3214	0000 1100 1000 1110	0C	8E
28	E	41.2034446141	3034	0000 1011 1101 1010	0B	DA
29	F	43.6535289291	2863	0000 1011 0010 1111	0B	2F
30	Gb	46.2493028390	2703	0000 1010 1000 1111	0A	8F
31	G	48.9994294977	2551	0000 1001 1111 0111	09	F7
32	Ab	51.9130871975	2408	0000 1001 0110 1000	09	68
33	A	55.0000000000	2273	0000 1000 1110 0001	08	E1
34	Bb	58.2704701898	2145	0000 1000 0110 0001	08	61
35	B	61.7354126570	2025	0000 0111 1110 1001	07	E9
36	C	65.4063913251	1911	0000 0111 0111 0111	07	77
37	Db	69.2956577442	1804	0000 0111 0000 1100	07	0C
38	D	73.4161919794	1703	0000 0110 1010 0111	06	A7
39	Eb	77.7817459305	1607	0000 0110 0100 0111	06	47

<b>MIDI Note (DEC)</b>	<b>Note</b>	<b>Frequency (Hz) @2Mhz AY-3-8912</b>	<b>ABC Tone Period BIT0 to BIT11 (DEC)</b>	<b>AY 3 8912 ABC Tone Period :: BIT0 to BIT11 (BIN)</b>	<b>COARSE TUNE REG HEX</b>	<b>FINE TUNE REG HEX</b>
40	E	82.4068892282	1517	0000 0101 1110 1101	05	ED
41	F	87.3070578583	1432	0000 0101 1001 1000	05	98
42	Gb	92.4986056779	1351	0000 0101 0100 0111	05	47
43	G	97.9988589954	1276	0000 0100 1111 1100	04	FC
44	Ab	103.8261743950	1204	0000 0100 1011 0100	04	B4
45	A	110.0000000000	1136	0000 0100 0111 0000	04	70
46	Bb	116.5409403795	1073	0000 0100 0011 0001	04	31
47	B	123.4708253140	1012	0000 0011 1111 0100	03	F4
48	C	130.8127826503	956	0000 0011 1011 1100	03	BC
49	Db	138.5913154884	902	0000 0011 1000 0110	03	86
50	D	146.8323839587	851	0000 0011 0101 0011	03	53
E	Eb	155.5634918610	804	0000 0011 0010 0100	03	24
52	E	164.8137784564	758	0000 0010 1111 0110	02	F6
53	F	174.6141157165	716	0000 0010 1100 1100	02	CC
54	Gb	184.9972113558	676	0000 0010 1010 0100	02	A4
55	G	195.9977179909	638	0000 0010 0111 1110	02	7E
56	Ab	207.6523487900	602	0000 0010 0101 1010	02	5A
57	A	220.0000000000	568	0000 0010 0011 1000	02	38
58	Bb	233.0818807590	536	0000 0010 0001 1000	02	18
59	B	246.9416506281	506	0000 0001 1111 1010	01	FA
60	C1	261.6255653006	478	0000 0001 1101 1110	01	DE
61	Db	277.1826309769	451	0000 0001 1100 0011	01	C3
62	D	293.6647679174	426	0000 0001 1010 1010	01	AA

<b>MIDI Note (DEC)</b>	<b>Note</b>	<b>Frequency (Hz) @2Mhz AY-3-8912</b>	<b>ABC Tone Period BIT0 to BIT11 (DEC)</b>	<b>AY 3 8912 ABC Tone Period :: BIT0 to BIT11 (BIN)</b>	<b>COARSE TUNE REG HEX</b>	<b>FINE TUNE REG HEX</b>
63	Eb	311.1269837221	402	0000 0001 1001 0010	01	92
64	E	329.6275569129	379	0000 0001 0111 1011	01	7B
65	F	349.2282314330	358	0000 0001 0110 0110	01	66
66	Gb	369.9944227116	338	0000 0001 0101 0010	01	52
67	G	391.9954359817	319	0000 0001 0011 1111	01	3F
68	Ab	415.3046975799	301	0000 0001 0010 1101	01	2D
69	A	440.0000000000	284	0000 0001 0001 1100	01	1C
70	Bb	466.1637615181	268	0000 0001 0000 1100	01	0C
71	B	493.8833012561	253	0000 0000 1111 1101	00	FD
72	C2	523.2511306012	239	1110 1111	00	EF
73	Db	554.3652619537	225	1110 0001	00	E1
74	D	587.3295358348	213	1101 0101	00	D5
75	Eb	622.2539674442	201	1100 1001	00	C9
76	E	659.2551138257	190	1011 1110	00	BE
77	F	698.4564628660	179	1011 0011	00	B3
78	Gb	739.9888454233	169	1010 1001	00	A9
79	G	783.9908719635	159	1001 1111	00	9F
80	Ab	830.6093951599	150	1001 0110	00	96
81	A	880.0000000000	142	1000 1110	00	8E
82	Bb	932.3275230362	134	1000 0110	00	86
83	B	987.7666025122	127	0111 1111	00	7F
84	C3	1045.0226120240	120	0111 1000	00	78
85	Db	1108.7305239075	113	0111 0001	00	71
86	D	1174.6590716696	106	0110 1010	00	6A
87	Eb	1244.5079348883	100	0110 0100	00	64
88	E	1318.5102276515	95	0101 1111	00	5F
89	F	1396.9129257320	89	0101 1001	00	59
90	Gb	1479.9776908465	84	0101 0100	00	54
91	G	1567.9817439270	80	0101 0000	00	50
92	Ab	1661.2187903198	75	0100 1011	00	4B
93	A	1760.0000000000	71	0100 0111	00	47
94	Bb	1864.6550460724	67	0100 0011	00	43
95	B	1975.5332050245	63	0011 1111	00	3F

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96	C4	2093.0045224048	60	0011 1100	00	3C
97	Db	2217.4610478150	56	0011 1000	00	38
98	D	2349.3181433393	53	0011 0101	00	35
99	Eb	2489.0158697766	50	0011 0010	00	32
100	E	2637.0204553030	47	0010 1111	00	2F
101	F	2793.8258514640	45	0010 1101	00	2D
102	Gb	2959.9553816931	42	0010 1010	00	2A
103	G	3135.9634878540	40	0010 1000	00	28
104	Ab	3322.4375806396	38	0010 0110	00	26
105	A	3520.0000000000	36	0010 0100	00	24
106	Bb	3729.3100921447	34	0010 0010	00	22
107	B	3951.0664100490	32	0010 0000	00	20
108	C	4186.0090448096	30	0001 1110	00	1E
109	Db	4434.9220956300	28	0001 1100	00	1C
110	D	4698.6362866785	27	0001 1011	00	1B
111	Eb	4978.0317395533	25	0001 1001	00	19
112	E	5274.0409106059	24	0001 1000	00	18
113	F	5587.6517029281	22	0001 0110	00	16
114	Gb	5919.9107633862	21	0001 0101	00	15
115	G	6271.9269757080	20	0001 0100	00	14
116	Ab	6644.8751612791	19	0001 0011	00	13
117	A	7040.0000000000	18	0001 0010	00	12
118	Bb	7458.6201842894	17	0001 0001	00	11
119	B	7902.1328200980	16	0001 0000	00	10
120	C	8372.0180896192	15	1111	00	0F
121	Db	8869.8441912599	14	1110	00	0E
122	D	9397.2725733570	13	1101	00	0D
123	Eb	9956.0634791066	13	1101	00	0D
124	E	10548.0818212118	12	1100	00	0C
125	F	11175.3034058561	11	1011	00	0B
126	Gb	11839.8215267723	11	1011	00	0B
127	G	12543.8539514160	10	1010	00	0A

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