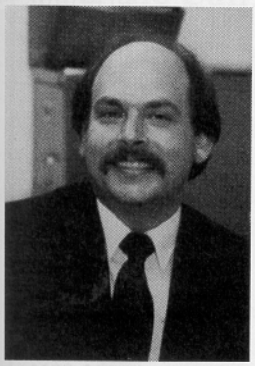
MIDI Charts to Help You Find Your Way

By Norman Weinberg

THE CHARTS ON the following pages can be a great aid for the electronic percussionist. The Tick Division chart can be used when transferring files from one drum machine to another, or transferring sequences from one computer-based sequencer to another. If you do any sound design with tunable oscillators, the Pitch-to-Frequency Conversion chart can help your sounds stay in perfect harmony. For those who like to dabble in system exclusive messages, the Decimal-MIDI-Hex-Binary chart could come in handy during those late-night programming sessions. Use the Pitch-to-MIDI Number chart to match the MIDI notes from your percussion controller to your synth or sound module. **PN**



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TICK DIVISION CHART

	DIVISION OF QUARTER NOTE						
NOTE VALUE	**12**	**24**	**48**	**96**	**192**	**384**	**480**
Whole Note	48	96	192	384	768	1536	1920
Dotted Half	36	72	144	288	576	1152	1440
Half Note	24	48	96	192	384	768	960
Dotted Quarter	18	36	72	144	288	576	720
Half Note Triplet	16	32	64	128	256	512	640
Quarter Note	12	24	48	96	192	384	480
Dotted 8th	9	18	36	72	144	288	360
Quarter Note Triplet	8	16	32	64	128	256	320
8th Note	6	12	24	48	96	192	240
Dotted 16th	4.5	9	18	36	72	144	180
8th-Note Triplet	4	8	16	32	64	128	160
16th Note	3	6	12	24	48	96	120
Dotted 32nd	2.25	4.5	9	18	36	72	90
16th-Note Triplet	2	4	8	16	32	64	80
32nd Note	1.5	3	6	12	24	48	60
32nd-Note Triplet	1	2	4	8	16	32	40
64th Note		1.5	3	6	12	24	30
64th-Note Triplet		1	2	4	8	16	20
128th Note			1.5	3	6	12	15
128th-Note Triplet			1	2	4	8	10

Use this chart to find the length of any particular note value. For example, if your sequencer or drum machine uses 96 ticks for the quarter note, the value of a dotted 8th note would be 72 ticks.

PITCH-TO-FREQUENCY CONVERSION CHART

PITCH	FREQUENCY	PITCH	FREQUENCY	PITCH	FREQUENCY	PITCH	FREQUENCY
C-1	16.35Hz	D#1	77.78Hz	F#3	369.99Hz	A5	1760.00Hz
C#-1	17.32Hz	E1	82.41Hz	G3	392.00Hz	A#5	1864.66Hz
D-1	18.35Hz	F1	87.31Hz	G#3	415.31Hz	B5	1975.53Hz
D#-1	19.45Hz	F#1	92.50Hz	A3	440.00Hz	C6	2093.01Hz
E-1	20.60Hz	G1	98.00Hz	A#3	466.16Hz	C#6	2217.46Hz
F-1	21.83Hz	G#1	103.83Hz	B3	493.88Hz	D6	2349.32Hz
F#-1	23.12Hz	A1	110.00Hz	C4	523.25Hz	D#6	2489.02Hz
G-1	24.50Hz	A#1	116.54Hz	C#4	554.37Hz	E6	2637.02Hz
G#-1	25.96Hz	B1	123.47Hz	D4	587.33Hz	F6	2793.83Hz
A-1	27.50Hz	C2	130.81Hz	D#4	622.25Hz	F#6	2959.96Hz
A#-1	29.14Hz	C#2	138.59Hz	E4	659.26Hz	G6	3153.96Hz
B-1	30.87Hz	D2	146.83Hz	F4	698.46Hz	G#6	3322.44Hz
C0	32.70Hz	D#2	155.56Hz	F#4	739.99Hz	A6	3520.00Hz
C#0	34.65Hz	E2	164.81Hz	G4	783.99Hz	A#6	3729.31Hz
D0	36.71Hz	F2	174.61Hz	G#4	830.61Hz	B6	3951.07Hz
D#0	38.91Hz	F#2	185.00Hz	A4	880.00Hz	C7	4186.01Hz
E0	41.20Hz	G2	196.00Hz	A#4	932.33Hz	C#7	4434.92Hz
F0	43.65Hz	G#2	207.65Hz	B4	987.77Hz	D7	4698.64Hz
F#0	46.25Hz	A2	220.00Hz	C5	1046.50Hz	D#7	4978.03Hz
G0	49.00Hz	A#2	233.08Hz	C#5	1108.73Hz	E7	5274.04Hz
G#0	51.91Hz	B2	246.94Hz	D5	1174.66Hz	F7	5587.65Hz
A0	55.00Hz	C3	261.63Hz	D#5	1244.51Hz	F#7	5919.91Hz
A#0	58.27Hz	C#3	277.18Hz	E5	1318.51Hz	G7	6271.93Hz
B0	61.74Hz	D3	293.67Hz	F5	1396.91Hz	G7	6644.88Hz
C1	65.41Hz	D#3	311.13Hz	F#5	1474.98Hz	A7	7040.00Hz
C#1	69.30Hz	E3	329.63Hz	G5	1567.98Hz	A#7	7858.62Hz
D1	73.42Hz	F3	349.23Hz	G#5	1661.22Hz	B7	7902.13Hz

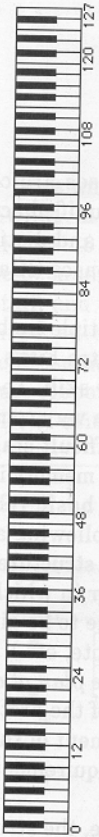
***Note: C3 = Middle C**

DECIMAL*MIDI*HEX*BINARY CONVERSION CHART

DEC. #	MIDI #	HEX #	BINARY #	DEC. #	MIDI #	HEX #	BINARY #
0	0	00	0000 0000	64	64	40	0100 0000
1	1	01	0000 0001	65	65	41	0100 0001
2	2	02	0000 0010	66	66	42	0100 0010
3	3	03	0000 0011	67	67	43	0100 0011
4	4	04	0000 0100	68	68	44	0100 0100
5	5	05	0000 0101	69	69	45	0100 0101
6	6	06	0000 0110	70	70	46	0100 0110
7	7	07	0000 0111	71	71	47	0100 0111
8	8	08	0000 1000	72	72	48	0100 1000
9	9	09	0000 1001	73	73	49	0100 1001
10	10	0A	0000 1010	74	74	4A	0100 1010
11	11	0B	0000 1011	75	75	4B	0100 1011
12	12	0C	0000 1100	76	76	4C	0100 1100
13	13	0D	0000 1101	77	77	4D	0100 1101
14	14	0E	0000 1110	78	78	4E	0100 1110
15	15	0F	0000 1111	79	79	4F	0100 1111
16	16	10	0001 0000	80	80	50	0101 0000
17	17	11	0001 0001	81	81	51	0101 0001
18	18	12	0001 0010	82	82	52	0101 0010
19	19	13	0001 0011	83	83	53	0101 0011
20	20	14	0001 0100	84	84	54	0101 0100
21	21	15	0001 0101	85	85	55	0101 0101
22	22	16	0001 0110	86	86	56	0101 0110
23	23	17	0001 0111	87	87	57	0101 0111
24	24	18	0001 1000	88	88	58	0101 1000
25	25	19	0001 1001	89	89	59	0101 1001
26	26	1A	0001 1010	90	90	5A	0101 1010
27	27	1B	0001 1011	91	91	5B	0101 1011
28	28	1C	0001 1100	92	92	5C	0101 1100
29	29	1D	0001 1101	93	93	5D	0101 1101
30	30	1E	0001 1110	94	94	5E	0101 1110
31	31	1F	0001 1111	95	95	5F	0101 1111
32	32	20	0010 0000	96	96	60	0110 0000
33	33	21	0010 0001	97	97	61	0110 0001
34	34	22	0010 0010	98	98	62	0110 0010
35	35	23	0010 0011	99	99	63	0110 0011
36	36	24	0010 0100	100	100	64	0110 0100
37	37	25	0010 0101	101	101	65	0110 0101
38	38	26	0010 0110	102	102	66	0110 0110
39	39	27	0010 0111	103	103	67	0110 0111
40	40	28	0010 1000	104	104	68	0110 1000
41	41	29	0010 1001	105	105	69	0110 1001
42	42	2A	0010 1010	106	106	6A	0110 1010
43	43	2B	0010 1011	107	107	6B	0110 1011
44	44	2C	0010 1100	108	108	6C	0110 1100
45	45	2D	0010 1101	109	109	6D	0110 1101
46	46	2E	0010 1110	110	110	6E	0110 1110
47	47	2F	0010 1111	111	111	6F	0110 1111
48	48	30	0011 0000	112	112	70	0111 0000
49	49	31	0011 0001	113	113	71	0111 0001
50	50	32	0011 0010	114	114	72	0111 0010
51	51	33	0011 0011	115	115	73	0111 0011
52	52	34	0011 0100	116	116	74	0111 0100
53	53	35	0011 0101	117	117	75	0111 0101
54	54	36	0011 0110	118	118	76	0111 0110
55	55	37	0011 0111	119	119	77	0111 0111
56	56	38	0011 1000	120	120	78	0111 1000
57	57	39	0011 1001	121	121	79	0111 1001
58	58	3A	0011 1010	122	122	7A	0111 1010
59	59	3B	0011 1011	123	123	7B	0111 1011
60	60	3C	0011 1100	124	124	7C	0111 1100
61	61	3D	0011 1101	125	125	7D	0111 1101
62	62	3E	0011 1110	126	126	7E	0111 1110
63	63	3F	0011 1111	127	127	7F	0111 1111

NOTE: Numbers written in hex format are usually preceded by the sign "$" or use "H" or "h" as a suffix. Examples are $3E or 48H.

PITCH-TO-MIDI NUMBER CHART



Pitch	Midi #	Pitch	Midi #	Pitch	Midi #	Pitch	Midi #	Pitch	Midi #
C-2	0	D0	26	E2	52	F#4	78	G6	103
C#-2	1	D#0	27	F2	53	G4	79	G#6	104
D-2	2	E0	28	F#2	54	G#4	80	A6	105
D#-2	3	F0	29	G2	55	A4	81	A#6	106
E-2	4	F#0	30	G#2	56	A#4	82	B6	107
F-2	5	G0	31	A2	57	B4	83	C7	108
F#-2	6	G#0	32	A2	58	C5	84	C#7	109
G-2	7	A0	33	B2	59	C#5	85	D7	110
G#-2	8	A#0	34	C3	60	D5	86	D#7	111
A-2	9	B0	35	C#3	61	D#5	87	E7	112
A#-2	10	C1	36	D3	62	E5	88	F7	113
B-2	11	C#1	37	D#3	63	F5	89	F#7	114
C-1	12	D1	38	E3	64	F#5	90	G7	115
C#-1	13	D#1	39	F3	65	G5	91	G#7	116
D-1	14	E1	40	F#3	66	G#5	92	A7	117
D#-1	15	F1	41	G3	67	A5	93	A#7	118
E-1	16	F#1	42	G#3	68	A#5	94	B	119
F-1	17	G1	43	A3	69	B5	95	C8	120
F#-1	18	G#1	44	A#3	70	C6	96	C#8	121
G-1	19	A1	45	B3	71	C#6	97	D8	122
G#-1	20	A#1	46	C4	72	D6	98	D#8	123
A-1	21	B1	47	C#4	73	D#6	99	E8	124
A#-1	22	C2	48	D4	74	E6	100	F8	125
B-1	23	C#2	49	D#4	75	F6	101	F#8	126
C0	24	D2	50	E4	76	F#6	102	G8	127
C#0	25	D#2	51	F4	77				

For this chart, MIDI note number 60 is "Middle C". It is also indicated as "C-3". The standard piano keyboard range is from the low A - MIDI note number 21 to the high C - MIDI note number 108. The standard 5 octave synthesizer keyboard ranges from MIDI note number 36 to MIDI note number 96.