BPM Reverb Calculator

STUDIO TIMING REFERENCE GUIDE • BPM TO MILLISECONDS

Official Studio Cheat Sheet
https://www.bpmreverbcalculator.com/
Precision: 0.01 ms (Half-Up)

`Quarter Note Duration (ms) = 60,000 ÷ Song BPM`
Base metric tempo equation derived from 60 seconds (60,000 milliseconds) per minute in 4/4 time.

Standard 1 Beat = 1 Quarter Note
All subdivisions derive from this base.

MATH NOTE SUBDIVISIONS & MULTIPLIERS

Subdivision	Musical Note	Relative Multiplier	Millisecond Equation
Quarter Note	1/4	1.0×	`60,000 ÷ BPM`
Eighth Note	1/8	0.5×	`30,000 ÷ BPM`
Dotted Eighth	1/8d	0.75× (1.5 × 1/8)	`45,000 ÷ BPM`
Sixteenth Note	1/16	0.25×	`15,000 ÷ BPM`
Dotted Quarter	1/4d	1.5× (1.5 × 1/4)	`90,000 ÷ BPM`
Eighth Triplet	1/8t	1/3× (0.3333×)	`20,000 ÷ BPM`
Quarter Triplet	1/4t	2/3× (0.6667×)	`40,000 ÷ BPM`

THEORY DOTTED VS. TRIPLET TIMING PHYSICS

- **Dotted Notes (+50% Duration):** A dot adds half the value of the preceding note. A dotted eighth (1/8d) equals `1/8 + 1/16 = 3/16 (0.75×)`. Dotted values create rhythmic counterpoint and "bouncing" delay echoes (e.g. U2 guitar style).
- **Triplet Notes (3 in Space of 2):** Standard notation compresses 3 triplet notes into the time normally occupied by 2 notes of the same denomination.
- **1/8 Triplet (1/8t):** 3 notes fit into 1 quarter note (1 beat). Each 1/8t lasts exactly `1/3 of a beat (20,000 ÷ BPM)`. Imparts swung, rolling groove.
- **1/4 Triplet (1/4t):** 3 notes fit into 1 half note (2 beats). Each 1/4t lasts exactly `2/3 of a beat (40,000 ÷ BPM)`. Creates dramatic syncopation.

BENCHMARKS FOUR STEP-BY-STEP WORKED STUDIO EXAMPLES (EXACT MATH & ROUNDED VALUES)

Tempo (BPM)	1/4 Note (60,000/BPM)	1/8 Note (30,000/BPM)	Dotted 1/8 (45,000/BPM)	1/16 Note (15,000/BPM)	Dotted 1/4 (90,000/BPM)	1/8 Triplet (20,000/BPM)	1/4 Triplet (40,000/BPM)
90 BPM (Hip-Hop/Boom-Bap)	666.67 ms	333.33 ms	500.00 ms	166.67 ms	1000.00 ms	222.22 ms	444.44 ms
120 BPM (Pop / Disco / Standard)	500.00 ms	250.00 ms	375.00 ms	125.00 ms	750.00 ms	166.67 ms	333.33 ms
128 BPM (EDM / Electro / House)	468.75 ms	234.38 ms	351.56 ms	117.19 ms	703.13 ms	156.25 ms	312.50 ms
140 BPM (Trap / Dubstep / Trance)	428.57 ms	214.29 ms	321.43 ms	107.14 ms	642.86 ms	142.86 ms	285.71 ms

MIXING MATHEMATICAL TIMING VS. SUBJECTIVE AESTHETICS

- **Calculated Times are Starting Points:** Math provides phase-aligned cohesion, but musical groove dictates the final setting. Dense arrangements frequently require slightly shorter decay times to leave breathing room.
- **Pre-Delay Calibration:** Pre-delay (10–50 ms) separates initial vocal consonants from wet reflections. A 1/64 note (~31 ms at 120 BPM) or 1/32 note (~62 ms) keeps leads upfront while preserving lush tail depth.
- **RT60 Acoustic Decay vs. Plugin Knobs:** In physical acoustics, RT60 measures time for reflections to drop by 60 dB based on room volume and surface absorption (Sabine formula). Digital plugins use decay multipliers; calibrate them so tails clear before the next phrase.

WORKFLOW STUDIO PRACTICAL APPLICATIONS

- **Compressor Attack & Release:** Set release to an 1/8 or 1/16 note duration so the gain reduction needle recovers rhythmically in time with the groove before the next snare or kick hit.
- **Vintage Analog & Tape Delays:** Vintage outboard hardware (Space Echo, Echoplex, memory pedals) lacks tempo sync. Enter exact 1/8d or 1/16 values manually.
- **LFO Modulation Sync (Hz):** Convert milliseconds to Hertz frequency using `Hz = 1,000 ÷ ms` for phase-locked chorus, flanger, and tremolo sweeps.
- **The Abbey Road Reverb Filter Trick:** Place high-pass (500–600 Hz) and low-pass (8–10 kHz) filters on your reverb auxiliary return to eliminate low-end mud and harsh splash.

BPM Reverb Calculator

MASTER STUDIO TABLE • 60 TO 180 BPM • STRAIGHT, DOTTED & TRIPLET DURATIONS (MS)

Complete Timing Grid
All values rounded to 0.01 ms
Standard 4/4 Time Signature

BPM	1/4	1/8	1/8d	1/16	1/4d	1/8t	1/4t
60	1000.00	500.00	750.00	250.00	1500.00	333.33	666.67
62	967.74	483.87	725.81	241.94	1451.61	322.58	645.16
64	937.50	468.75	703.13	234.38	1406.25	312.50	625.00
66	909.09	454.55	681.82	227.27	1363.64	303.03	606.06
68	882.35	441.18	661.76	220.59	1323.53	294.12	588.24
70	857.14	428.57	642.86	214.29	1285.71	285.71	571.43
72	833.33	416.67	625.00	208.33	1250.00	277.78	555.56
74	810.81	405.41	608.11	202.70	1216.22	270.27	540.54
75	800.00	400.00	600.00	200.00	1200.00	266.67	533.33
76	789.47	394.74	592.11	197.37	1184.21	263.16	526.32
78	769.23	384.62	576.92	192.31	1153.85	256.41	512.82
80	750.00	375.00	562.50	187.50	1125.00	250.00	500.00
82	731.71	365.85	548.78	182.93	1097.56	243.90	487.80
84	714.29	357.14	535.71	178.57	1071.43	238.10	476.19
85	705.88	352.94	529.41	176.47	1058.82	235.29	470.59
86	697.67	348.84	523.26	174.42	1046.51	232.56	465.12
88	681.82	340.91	511.36	170.45	1022.73	227.27	454.55
90	666.67	333.33	500.00	166.67	1000.00	222.22	444.44
92	652.17	326.09	489.13	163.04	978.26	217.39	434.78
94	638.30	319.15	478.72	159.57	957.45	212.77	425.53
95	631.58	315.79	473.68	157.89	947.37	210.53	421.05
96	625.00	312.50	468.75	156.25	937.50	208.33	416.67
98	612.24	306.12	459.18	153.06	918.37	204.08	408.16
100	600.00	300.00	450.00	150.00	900.00	200.00	400.00
102	588.24	294.12	441.18	147.06	882.35	196.08	392.16
104	576.92	288.46	432.69	144.23	865.38	192.31	384.62
105	571.43	285.71	428.57	142.86	857.14	190.48	380.95
106	566.04	283.02	424.53	141.51	849.06	188.68	377.36
108	555.56	277.78	416.67	138.89	833.33	185.19	370.37
110	545.45	272.73	409.09	136.36	818.18	181.82	363.64
112	535.71	267.86	401.79	133.93	803.57	178.57	357.14
114	526.32	263.16	394.74	131.58	789.47	175.44	350.88
115	521.74	260.87	391.30	130.43	782.61	173.91	347.83
116	517.24	258.62	387.93	129.31	775.86	172.41	344.83
118	508.47	254.24	381.36	127.12	762.71	169.49	338.98
120	500.00	250.00	375.00	125.00	750.00	166.67	333.33

BPM	1/4	1/8	1/8d	1/16	1/4d	1/8t	1/4t
122	491.80	245.90	368.85	122.95	737.70	163.93	327.87
124	483.87	241.94	362.90	120.97	725.81	161.29	322.58
125	480.00	240.00	360.00	120.00	720.00	160.00	320.00
126	476.19	238.10	357.14	119.05	714.29	158.73	317.46
128	468.75	234.38	351.56	117.19	703.13	156.25	312.50
130	461.54	230.77	346.15	115.38	692.31	153.85	307.69
132	454.55	227.27	340.91	113.64	681.82	151.52	303.03
134	447.76	223.88	335.82	111.94	671.64	149.25	298.51
135	444.44	222.22	333.33	111.11	666.67	148.15	296.30
136	441.18	220.59	330.88	110.29	661.76	147.06	294.12
138	434.78	217.39	326.09	108.70	652.17	144.93	289.86
140	428.57	214.29	321.43	107.14	642.86	142.86	285.71
142	422.54	211.27	316.90	105.63	633.80	140.85	281.69
144	416.67	208.33	312.50	104.17	625.00	138.89	277.78
145	413.79	206.90	310.34	103.45	620.69	137.93	275.86
146	410.96	205.48	308.22	102.74	616.44	136.99	273.97
148	405.41	202.70	304.05	101.35	608.11	135.14	270.27
150	400.00	200.00	300.00	100.00	600.00	133.33	266.67
152	394.74	197.37	296.05	98.68	592.11	131.58	263.16
154	389.61	194.81	292.21	97.40	584.42	129.87	259.74
155	387.10	193.55	290.32	96.77	580.65	129.03	258.06
156	384.62	192.31	288.46	96.15	576.92	128.21	256.41
158	379.75	189.87	284.81	94.94	569.62	126.58	253.16
160	375.00	187.50	281.25	93.75	562.50	125.00	250.00
162	370.37	185.19	277.78	92.59	555.56	123.46	246.91
164	365.85	182.93	274.39	91.46	548.78	121.95	243.90
165	363.64	181.82	272.73	90.91	545.45	121.21	242.42
166	361.45	180.72	271.08	90.36	542.17	120.48	240.96
168	357.14	178.57	267.86	89.29	535.71	119.05	238.10
170	352.94	176.47	264.71	88.24	529.41	117.65	235.29
172	348.84	174.42	261.63	87.21	523.26	116.28	232.56
174	344.83	172.41	258.62	86.21	517.24	114.94	229.89
175	342.86	171.43	257.14	85.71	514.29	114.29	228.57
176	340.91	170.45	255.68	85.23	511.36	113.64	227.27
178	337.08	168.54	252.81	84.27	505.62	112.36	224.72
180	333.33	166.67	250.00	83.33	500.00	111.11	222.22

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Subdivisions: 1/4 (Beat) | 1/8 (Half-beat) | 1/8d (Dotted 1/8) | 1/16 (Quarter-beat) | 1/4d (Dotted 1/4) | 1/8t (1/8 Triplet) | 1/4t (1/4 Triplet)