Calculations

Audio File Size Calculations

MP3 Calculations

Formula:
Kbps = bits per second / 8 = Bytes per second x 60 seconds = Bytes per minute x 60 minutes = Bytes per hour

8 Kbps = 8,000 bits per second / 8 = 1,000 Bytes per second x 60 seconds = 60 KB per minute of audio x 60 minutes = 3.6 MB per hour
16 Kbps = 16,000 bits per second / 8 = 2,000 Bytes per second x 60 seconds = 120 KB per minute of audio x 60 minutes = 7.2 MB per hour
32 Kbps = 32,000 bits per second / 8 = 4,000 Bytes per second x 60 seconds = 240 KB per minute of audio x 60 minutes = 14.4 MB per hour
40 Kbps = 40,000 bits per second / 8 = 5,000 Bytes per second x 60 seconds = 300 KB per minute of audio x 60 minutes = 18 MB per hour
48 Kbps = 48,000 bits per second / 8 = 6,000 Bytes per second x 60 seconds = 360 KB per minute of audio x 60 minutes = 21.6 MB per hour
56 Kbps = 56,000 bits per second / 8 = 7,000 Bytes per second x 60 seconds = 420 KB per minute of audio x 60 minutes = 25.2 MB per hour
64 Kbps = 64,000 bits per second / 8 = 8,000 Bytes per second x 60 seconds = 480 KB per minute of audio x 60 minutes = 28.8 MB per hour
80 Kbps = 80,000 bits per second / 8 = 10,000 Bytes per second x 60 seconds = 600 KB per minute of audio x 60 minutes = 36 MB per hour
96 Kbps = 96,000 bits per second / 8 = 12,000 Bytes per second x 60 seconds = 720 KB per minute of audio x 60 minutes = 43.2 MB per hour
112 Kbps = 112,000 bits per second / 8 = 14,000 Bytes per second x 60 seconds = 840 KB per minute of audio x 60 minutes = 50.4 MB per hour
128 Kbps = 128,000 bits per second / 8 = 16,000 Bytes per second x 60 seconds = 960 KB per minute of audio x 60 minutes = 57.6 MB per hour
160 Kbps = 160,000 bits per second / 8 = 20,000 Bytes per second x 60 seconds = 1.20 MB per minute of audio x 60 minutes = 72 MB per hour
192 Kbps = 192,000 bits per second / 8 = 24,000 Bytes per second x 60 seconds = 1.44 MB per minute of audio x 60 minutes = 86.4 MB per hour
224 Kbps = 224,000 bits per second / 8 = 28,000 Bytes per second x 60 seconds = 1.68 MB per minute of audio x 60 minutes = 100.8 MB per hour
256 Kbps = 256,000 bits per second / 8 = 32,000 Bytes per second x 60 seconds = 1.92 MB per minute of audio x 60 minutes = 115.2 MB per hour
320 Kbps = 320,000 bits per second / 8 = 40,000 Bytes per second x 60 seconds = 2.40 MB per minute of audio x 60 minutes = 144 MB per hour

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PCM Mono Calculations

Formula:
Bits per sample x samples per second = bits per second / 8 = Bytes per second x 60 seconds = Bytes per minute x 60 minutes = Bytes per hour.

16 bit, 44.1 KHz, Mono: [88.2 KB per second; 5.292 MB per minute; 317.52 MB per hour]
16 bits per sample x 44,100 samples per second = 705,600 bits per second.
705,600 bits per second / 8 = 88,200 bytes per second x 60 seconds = 5,292,000 Bytes or 5.292 MB per minute.
5.292 MB per minute x 60 minutes = 317.52 MB per hour.

16 bit, 48 KHz, Mono: [96 KB per second; 5.750 MB per minute; 345.6 MB per hour]
16 bits per sample x 48,000 samples per second = 768,000 bits per second.

768,000 bits per second / 8 = 96,000 Bytes per second x 60 seconds = 5,750,000 Bytes or 5.750MB per minute.
5.750 MB per minute x 60 minutes = 345.6 MB per hour.

24 bit, 48KHz, Mono: [144 KB per second; 8.640 MB per minute; 518.4 MB per hour]
24 bits per sample x 48,000 samples per second = 1,152,000 bits per second
1,152,000 bits per second / 8 = 144,000 Bytes per second x 60 seconds = 8,640,000 Bytes or 8.64 MB per minute.
8.64 MB per minute x 60 minutes = 518.4 MB per hour.

24 bit, 96KHz, Mono: [288 KB per second; 17.280 MB per minute; 1.0368 GB per hour]
24 bits per sample x 96,000 samples per second = 2,304,000 bits per second.
2,304,000 bits per second / 8 = 288,000 Bytes per second x 60 seconds = 17,280,000 Bytes or 17.28 MB per minute.
17.28 MB per minute x 60 minutes = 1.0368 GB per hour.

PCM Stereo Calculations

Formula:
Bits per sample x samples per second = bits per second x 2 channels = bits per second of stereo / 8 = Bytes per second of stereo x 60 seconds = Bytes per minute of stereo x 60 minutes = Bytes per hour of stereo.

16 bit, 44.1 KHz, Stereo: [176.4 KB per second; 10.584 MB per minute; 635.04 MB per hour] (Note: This is the standard setting for CD audio files)
16 bits per sample x 44,100 samples per second = 705,600 bits per second x 2 channels = 1,411,200 bits per second of stereo.
1,411,200 bits per second / 8 = 176,400 Bytes per second x 60 seconds = 10,584,000 Bytes or 10.584 MB per minute of stereo.
10.584 MB per minute of stereo x 60 minutes = 635.04 MB per hour of stereo.

16 bit, 48 KHz, Stereo: [192 KB per second; 11.520 MB per minute; 691.2 MB per hour]
16 bits per sample x 48,000 samples per second = 768,000 bits per second x 2 channels = 1,536,000 bits per second of stereo.
1,536,000 bits per second / 8 = 192,000 Bytes per second x 60 seconds = 11,520,000 Bytes or 11.52 MB per minute of stereo.
11.52 MB per minute of stereo x 60 minutes = 691.2 MB per hour of stereo.

24 bit, 48KHz, Stereo: [288 KB per second; 17.28 MB per minute; 1.036 GB per hour]
24 bits per sample x 48,000 samples per second = 1,152,000 bits per second x 2 channels = 2,304,000 bits per second of stereo.
2,304,000 bits per second / 8 = 288,000 Bytes per second x 60 seconds = 17,280,000 Bytes or 17.28 MB per minute of stereo.
17.280 MB per minute of stereo x 60 minutes = 1.036 GB per hour of stereo.

24 bit, 96KHz, Stereo: [576 KB per second; 34.56 MB per minute; 2.0736 GB per hour]
24 bits per sample x 96,000 samples per second = 2,304,000 bits per second x 2 channels = 4,608,000 bits per second of stereo.
4,608,000 bits per second / 8 = 576,000 Bytes per second x 60 seconds = 34,560,000 Bytes or 34.56 MB per minute of stereo.
34.56 MB per minute of stereo x 60 minutes = 2.0736 GB per hour of stereo.

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