



## ZetaKo V2-MT Beta Benchmark

Zetako is a company specialized in lossless data compression, using solely in-house tools, and proprietary algorithms. Our systems do not use any libraries nor any of the LZ algorithm.

In this Benchmarks, we can observe the performances produced by ZSTD ( Facebook ) top of the art LZ Based Lossless Compression system. against our latest version of Z2 multi thread. We have used the Level 12 setup on ZSTD which as an equivalent ratio of speed and compression as V2 default. In this paper you will observe the performance of both system using the same amount of threads .

Hardware -

Processeur Intel xeon x5650 @2.67Ghz

Memory 45 GiB

SCSI Disk

1396GiB (1499GB)

Capabilities: 15000rpm partitioned

Test 1 - 1 thread =

File Format and Name	File Size	Number of thread
review-sports outdoor.json	1.9 Gb ( 1 943 630 146 )	1

<b>command line ZSTD</b>	zstd-1.4.5/zstd --single-thread -12
<b>command line Z-2 MT</b>	./_split_thread ./ 1

Algo	ZSTD	Z-2 MT Beta
<b>Compressed size</b>	507 209 363	484 160 034
<b>Rate Factor</b>	3.83	4.01
<b>Rate Percent</b>	-73,90	-75.09
<b>Compression</b>		
<b>Cpu Usage %</b>	99	99
<b>Memory Usage Kb</b>	30 412	7 200
<b>Time Sec</b>	208.56	93.90
<b>Speed Mb/S</b>	8.88	19.74
<b>Decompression</b>		
<b>Cpu Usage %</b>	99	99
<b>Memory Usage Kb</b>	5 368	7 200
<b>Time Sec</b>	5.89	115.57
<b>Speed Mb/S</b>	314.70	16.04
<b>Results</b>		
<b>Total Time Sec</b>	214.45	209.47

Test 2 - 2 threads =

File Format and Name	File Size	Number of thread
review-sports outdoor.json	1.9 Gb ( 1 943 630 146 )	2

<b>command line ZSTD</b>	zstd-1.4.5/zstd - -T2 -12
<b>command line Z-2 MT</b>	./_split_thread ./ 2

Algo	ZSTD	Z-2 MT Beta
<b>Compressed size</b>	507 884 332	484 365 877
<b>Rate Factor</b>	3.82	4.01
<b>Rate Percent</b>	-73.86	-75.08
<b>Compression</b>		
<b>Cpu Usage %</b>	200	195
<b>Memory Usage Kb</b>	148 876	12 536
<b>Time Sec</b>	116.29	58.97
<b>Speed Mb/S</b>	15.94	31.43
<b>Decompression</b>		
<b>Cpu Usage %</b>	99	195
<b>Memory Usage Kb</b>	5 364	12 560
<b>Time Sec</b>	5.43	58.39
<b>Speed Mb/S</b>	341.36	31.74
<b>Results</b>		
<b>Total Time Sec</b>	121.72	117.46

Test 3 - 4 threads =

File Format and Name	File Size	Number of thread
review-sports outdoor.json	1.9 Gb ( 1 943 630 146 )	4

<b>command line ZSTD</b>	zstd-1.4.5/zstd - -T4 -12
<b>command line Z-2 MT</b>	./_split_thread ./ 4

Algo	ZSTD	Z-2 MT Beta
<b>Compressed size</b>	507 884 332	484 742 195
<b>Rate Factor</b>	3.82	4.01
<b>Rate Percent</b>	-73.86	-75.06
<b>Compression</b>		
<b>Cpu Usage %</b>	396	383
<b>Memory Usage Kb</b>	248 008	23 224
<b>Time Sec</b>	73.51	34.13
<b>Speed Mb/S</b>	25.21	54.31
<b>Decompression</b>		
<b>Cpu Usage %</b>	99	349
<b>Memory Usage Kb</b>	5 368	23 224
<b>Time Sec</b>	5.79	33.97
<b>Speed Mb/S</b>	320.14	54.56
<b>Results</b>		
<b>Total Time Sec</b>	79.30	68.10

Test 4 - 8 threads =

File Format and Name	File Size	Number of thread
review-sports outdoor.json	1.9 Gb ( 1 943 630 146 )	8

<b>command line ZSTD</b>	zstd-1.4.5/zstd - -T8 -12
<b>command line Z-2 MT</b>	./_split_thread ./ 8

Algo	ZSTD	Z-2 MT Beta
<b>Compressed size</b>	507 884 332	485 406 702
<b>Rate Factor</b>	3.82	4.00
<b>Rate Percent</b>	-73.86	-75.02
<b>Compression</b>		
<b>Cpu Usage %</b>	772	727
<b>Memory Usage Kb</b>	433 884	46 616
<b>Time Sec</b>	54.75	27.67
<b>Speed Mb/S</b>	33.85	66.99
<b>Decompression</b>		
<b>Cpu Usage %</b>	99	649
<b>Memory Usage Kb</b>	5 368	46 628
<b>Time Sec</b>	5.72	18.97
<b>Speed Mb/S</b>	324.05	97.71
<b>Results</b>		
<b>Total Time Sec</b>	60.47	46.64

Test 5 - 16 threads

File Format and Name	File Size	Number of thread
review-sports outdoor.json	1.9 Gb ( 1 943 630 146 )	16

<b>command line ZSTD</b>	zstd-1.4.5/zstd - -T16 -12
<b>command line Z-2 MT</b>	./_split_thread ./ 16

Algo	ZSTD	Z-2 MT Beta
<b>Compressed size</b>	507 884 332	486 544 838
<b>Rate Factor</b>	3.82	3.99
<b>Rate Percent</b>	-73.86	-74.97
<b>Compression</b>		
<b>Cpu Usage %</b>	1419	1441
<b>Memory Usage Kb</b>	806 208	89 368
<b>Time Sec</b>	47.90	20.48
<b>Speed Mb/S</b>	38.70	90.50
<b>Decompression</b>		
<b>Cpu Usage %</b>	99	970
<b>Memory Usage Kb</b>	5 368	91 420
<b>Time Sec</b>	5.47	15.87
<b>Speed Mb/S</b>	338.86	116.80
<b>Results</b>		
<b>Total Time Sec</b>	53.37	36.35

Test 6 - 24 threads

File Format and Name	File Size	Number of thread
review-sports outdoor.json	1.9 Gb ( 1 943 630 146 )	24

<b>command line ZSTD</b>	zstd-1.4.5/zstd - -T24 -12
<b>command line Z-2 MT</b>	./_split_thread ./ 24

Algo	ZSTD	Z-2 MT Beta
Compressed size	507 884 332	487 509 534
Rate Factor	3.82	3.98
Rate Percent	-73.86	--74.92%
<b>Compression</b>		
Cpu Usage %	2085	1949
Memory Usage Kb	1 174 564	134 136
Time Sec	48.22	15,08
Speed Mb/S	38.44	122.92
<b>Decompression</b>		
Cpu Usage %	99	1661
Memory Usage Kb	5 368	134 136
Time Sec	5.72	11.28
Speed Mb/S	344.53	164.32
<b>Results</b>		
Total Time Sec	53.60	26.36

Test 7 - Default setting

File Format and Name	File Size	Number of thread
review-sports outdoor.json	1.9 Gb ( 1 943 630 146 )	Default

<b>command line ZSTD</b>	zstd-1.4.5/zstd - -default fast
<b>command line Z-2 MT</b>	./_split_thread ./ 24

Algo	ZSTD	Z-2 MT Beta
Compressed size	591 827 029	487 509 534
Rate Factor	3.28	3.98
Rate Percent	-69.55	--74.92
<b>Compression</b>		
Cpu Usage %	2085	1949
Memory Usage Kb	4 268	134 136
Time Sec	48.22	15,08
Speed Mb/S	92.22	122.92
<b>Decompression</b>		
Cpu Usage %	99	1661
Memory Usage Kb	3332	134 136
Time Sec	6.31	11.28
Speed Mb/S	293.75	164.32
<b>Results</b>		
Total Time Sec	26.41	26.36