

Symmetric multiprocessing (SMP) scaling

Stockfish 8 with and without *Contempt Factor* under Windows & Linux

Windows: Windows 10 Professional 64-Bit, Dual AMD Opteron 6376 @ 2.3 GHz

Linux: Ubuntu Server 16.04 LTS (HVM) 64-Bit, Amazon EC2 Instance, m4.16xlarge, Intel Xeon E5-2686v4 @ 2.3 GHz

Stockfish: default settings, except *Contempt*, 128 MB Hash

Cutechess-Cli: no draw and resign rules, no ponder, no learning, no tablebases, 1500 diff. opening positions, changing colors

TC = time control, **T** = number of threads, **Depth** = Average search depth, **Elostat** Start Elo = 3000

Windows - 1 thread vs 2 threads

TC = 60" + 0.05" - default *Contempt* = 0

Program	Elo	+	-	Games	Score	Draws	Depth
1 Stockfish 8 T2	: 3031	6	6	3000	58.7 %	73.7 %	21.59
2 Stockfish 8 T1	: 2969	6	6	3000	41.3 %	73.7 %	20.33
Result	: 1761.0/3000 (+655,=2212,-133)						
Perf.	: 58.7 %						
Elo	: 3061						

Contempt = 10

Program	Elo	+	-	Games	Score	Draws	Depth
1 Stockfish 8 T2	: 3035	6	6	3000	60.0 %	71.3 %	21.90
2 Stockfish 8 T1	: 2965	6	6	3000	40.0 %	71.3 %	20.51
Result	: 1800.0/3000 (+731,=2138,-131)						
Perf.	: 60.0 %						
Elo	: 3070						

+9 Elo

Linux - 1 thread vs 2 threads

TC = 10" + 0.1" - default *Contempt* = 0

Program	Elo	+	-	Games	Score	Draws	Depth
1 Stockfish 8 T2	: 3039	7	7	3000	61.0 %	68.1 %	19.84
2 Stockfish 8 T1	: 2961	7	7	3000	39.0 %	68.1 %	18.73
Result	: 1830.0/3000 (+809,=2042,-149)						
Perf.	: 61.0 %						
Elo	: 3078						

Contempt = 10

Program	Elo	+	-	Games	Score	Draws	Depth
1 Stockfish 8 T2	: 3043	7	7	3000	62.0 %	63.0 %	20.56
2 Stockfish 8 T1	: 2957	7	7	3000	38.0 %	63.0 %	19.39
Result	: 1860.0/3000 (+915,=1890,-195)						
Perf.	: 62.0 %						
Elo	: 3085						

+7 Elo

Windows - 1 thread vs 4 threads

TC = 60" + 0.05" - default *Contempt* = 0

Program	Elo	+	-	Games	Score	Draws	Depth
1 Stockfish 8 T4	: 3056	7	7	3000	65.6 %	65.7 %	23.08
2 Stockfish 8 T1	: 2944	7	7	3000	34.4 %	65.7 %	20.66
Result	: 1968.0/3000 (+982,=1972,-46)						
Perf.	: 65.6 %						
Elo	: 3112						

Contempt = 10

Program	Elo	+	-	Games	Score	Draws	Depth
1 Stockfish 8 T4	: 3062	7	7	3000	67.2 %	62.1 %	23.21
2 Stockfish 8 T1	: 2938	7	7	3000	32.8 %	62.1 %	20.69
Result	: 2015.5/3000 (+1084,=1863,-53)						
Perf.	: 67.2 %						
Elo	: 3124						

+12 Elo

Linux - 1 thread vs 4 threads

TC = 10" + 0.1" - default *Contempt* = 0

Program	Elo	+	-	Games	Score	Draws	Depth
1 Stockfish 8 T4	: 3064	7	7	3000	67.6 %	61.2 %	21.41
2 Stockfish 8 T1	: 2936	7	7	3000	32.4 %	61.2 %	19.39
Result	: 2028.5/3000 (+1111,=1835,-54)						
Perf.	: 67.6 %						
Elo	: 3128						

Contempt = 10

Program	Elo	+	-	Games	Score	Draws	Depth
1 Stockfish 8 T4	: 3074	8	8	3000	70.1 %	56.0 %	22.20
2 Stockfish 8 T1	: 2926	8	8	3000	29.9 %	56.0 %	19.97
Result	: 2104.0/3000 (+1264,=1680,-56)						
Perf.	: 70.1 %						
Elo	: 3148						

+20 Elo

Windows - 1 thread vs 8 threads

TC = 60" + 0.05" - default *Contempt* = 0

Program	Elo	+	-	Games	Score	Draws	Depth
1 Stockfish 8 T8	: 3079	8	8	3000	71.2 %	56.4 %	23.87
2 Stockfish 8 T1	: 2921	8	8	3000	28.8 %	56.4 %	20.40
Result	: 2135.5/3000 (+1289,=1693,-18)						
Perf.	: 71.2 %						
Elo	: 3157						

Contempt = 10

Program	Elo	+	-	Games	Score	Draws	Depth
1 Stockfish 8 T8	: 3090	8	8	3000	73.8 %	50.7 %	24.25
2 Stockfish 8 T1	: 2910	8	8	3000	26.2 %	50.7 %	20.42
Result	: 2215.0/3000 (+1454,=1522,-24)						
Perf.	: 73.8 %						
Elo	: 3180						

+23 Elo

Linux - 1 thread vs 8 threads

TC = 10" + 0.1" - default *Contempt* = 0

Program	Elo	+	-	Games	Score	Draws	Depth
1 Stockfish 8 T8	: 3093	8	8	3000	74.4 %	50.4 %	22.35
2 Stockfish 8 T1	: 2907	8	8	3000	25.6 %	50.4 %	19.38
Result	: 2232.5/3000 (+1477,=1511,-12)						
Perf.	: 74.4 %						
Elo	: 3185						

Contempt = 10

Program	Elo	+	-	Games	Score	Draws	Depth
1 Stockfish 8 T8	: 3101	9	9	3000	76.2 %	45.6 %	23.22
2 Stockfish 8 T1	: 2899	9	9	3000	23.8 %	45.6 %	20.09
Result	: 2285.5/3000 (+1601,=1369,-30)						
Perf.	: 76.2 %						
Elo	: 3202						

+17 Elo

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Linux - 1 thread vs 16 threads

TC = 10" + 0.1" - default Contempt = 0

Program	Elo	+	-	Games	Score	Draws	Depth
1 Stockfish 8 T16	: 3114	9	9	3000	78.9 %	41.7 %	23.25
2 Stockfish 8 T1	: 2886	9	9	3000	21.1 %	41.7 %	19.33

Result : 2366.0/3000 (+1741,=1250,-9)
 Perf. : 78.9 %
 Elo : 3229

Contempt = 10

Program	Elo	+	-	Games	Score	Draws	Depth
1 Stockfish 8 T16	: 3123	10	10	3000	80.4 %	38.5 %	23.96
2 Stockfish 8 T1	: 2877	10	10	3000	19.6 %	38.5 %	19.89

Result : 2411.5/3000 (+1834,=1155,-11)
 Perf. : 80.4 %
 Elo : 3245

+16 Elo

Linux - 1 thread vs 32 threads

TC = 10" + 0.1" - default Contempt = 0

Program	Elo	+	-	Games	Score	Draws	Depth
1 Stockfish 8 T32	: 3117	10	9	3000	79.4 %	40.7 %	23.01
2 Stockfish 8 T1	: 2883	9	10	3000	20.6 %	40.7 %	19.42

Result : 2382.0/3000 (+1772,=1220,-8)
 Perf. : 79.4 %
 Elo : 3234

Contempt = 10

Program	Elo	+	-	Games	Score	Draws	Depth
1 Stockfish 8 T32	: 3133	10	10	3000	82.3 %	35.1 %	23.78
2 Stockfish 8 T1	: 2867	10	10	3000	17.7 %	35.1 %	20.00

Result : 2468.0/3000 (+1942,=1052,-6)
 Perf. : 82.3 %
 Elo : 3267

+33 Elo