

Symmetric multiprocessing (SMP) scaling

Komodo 10.4 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

Komodo 10.4: 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" - Contempt = 0

Program	Elo	+	-	Games	Score	Draws	Depth
1 Komodo 10.4 T2	: 3032	7	7	3000	59.2 %	66.3 %	18.84
2 Komodo 10.4 T1	: 2968	7	7	3000	40.8 %	66.3 %	17.78

Result : 1777.0/3000 (+782,=1990,-228)
 Perf. : 59.2 %
 Elo : 3065

default Contempt = 10

Program	Elo	+	-	Games	Score	Draws	Depth
1 Komodo 10.4 T2	: 3044	8	8	3000	62.3 %	59.1 %	18.48
2 Komodo 10.4 T1	: 2956	8	8	3000	37.7 %	59.1 %	17.44

Result : 1868.5/3000 (+982,=1773,-245)
 Perf. : 62.3 %
 Elo : 3087

+22 Elo

Linux - 1 thread vs 2 threads

TC = 10" + 0.1" - Contempt = 0

Program	Elo	+	-	Games	Score	Draws	Depth
1 Komodo 10.4 T2	: 3036	8	8	3000	60.3 %	62.0 %	17.28
2 Komodo 10.4 T1	: 2964	8	8	3000	39.7 %	62.0 %	16.32

Result : 1808.5/3000 (+879,=1859,-262)
 Perf. : 60.3 %
 Elo : 3072

default Contempt = 10

Program	Elo	+	-	Games	Score	Draws	Depth
1 Komodo 10.4 T2	: 3044	8	8	3000	62.3 %	55.2 %	17.02
2 Komodo 10.4 T1	: 2956	8	8	3000	37.7 %	55.2 %	16.06

Result : 1868.5/3000 (+1040,=1657,-303)
 Perf. : 62.3 %
 Elo : 3087

+15 Elo

Windows - 1 thread vs 4 threads

TC = 60" + 0.05" - Contempt = 0

Program	Elo	+	-	Games	Score	Draws	Depth
1 Komodo 10.4 T4	: 3062	8	7	3000	67.2 %	59.8 %	20.47
2 Komodo 10.4 T1	: 2938	7	8	3000	32.8 %	59.8 %	17.92

Result : 2017.5/3000 (+1120,=1795,-85)
 Perf. : 67.2 %
 Elo : 3125

default Contempt = 10

Program	Elo	+	-	Games	Score	Draws	Depth
1 Komodo 10.4 T4	: 3076	8	8	3000	70.6 %	51.5 %	20.04
2 Komodo 10.4 T1	: 2924	8	8	3000	29.4 %	51.5 %	17.71

Result : 2118.0/3000 (+1345,=1546,-109)
 Perf. : 70.6 %
 Elo : 3152

+27 Elo

Linux - 1 thread vs 4 threads

TC = 10" + 0.1" - Contempt = 0

Program	Elo	+	-	Games	Score	Draws	Depth
1 Komodo 10.4 T4	: 3069	8	8	3000	68.9 %	54.7 %	18.89
2 Komodo 10.4 T1	: 2931	8	8	3000	31.1 %	54.7 %	16.61

Result : 2067.0/3000 (+1246,=1642,-112)
 Perf. : 68.9 %
 Elo : 3138

default Contempt = 10

Program	Elo	+	-	Games	Score	Draws	Depth
1 Komodo 10.4 T4	: 3084	9	9	3000	72.4 %	47.4 %	18.51
2 Komodo 10.4 T1	: 2916	9	9	3000	27.6 %	47.4 %	16.29

Result : 2170.5/3000 (+1459,=1423,-118)
 Perf. : 72.4 %
 Elo : 3167

+29 Elo

Windows - 1 thread vs 8 threads

TC = 60" + 0.05" - Contempt = 0

Program	Elo	+	-	Games	Score	Draws	Depth
1 Komodo 10.4 T8	: 3091	9	8	3000	74.0 %	49.6 %	21.44
2 Komodo 10.4 T1	: 2909	8	9	3000	26.0 %	49.6 %	17.88

Result : 2219.0/3000 (+1475,=1488,-37)
 Perf. : 74.0 %
 Elo : 3181

default Contempt = 10

Program	Elo	+	-	Games	Score	Draws	Depth
1 Komodo 10.4 T8	: 3104	9	9	3000	76.8 %	42.7 %	21.19
2 Komodo 10.4 T1	: 2896	9	9	3000	23.2 %	42.7 %	17.82

Result : 2305.5/3000 (+1665,=1281,-54)
 Perf. : 76.8 %
 Elo : 3208

+27 Elo

Linux - 1 thread vs 8 threads

TC = 10" + 0.1" - Contempt = 0

Program	Elo	+	-	Games	Score	Draws	Depth
1 Komodo 10.4 T8	: 3100	9	9	3000	76.0 %	45.8 %	19.85
2 Komodo 10.4 T1	: 2900	9	9	3000	24.0 %	45.8 %	16.57

Result : 2279.5/3000 (+1593,=1373,-34)
 Perf. : 76.0 %
 Elo : 3200

default Contempt = 10

Program	Elo	+	-	Games	Score	Draws	Depth
1 Komodo 10.4 T8	: 3121	10	10	3000	80.1 %	35.8 %	19.47
2 Komodo 10.4 T1	: 2879	10	10	3000	19.9 %	35.8 %	16.25

Result : 2404.0/3000 (+1867,=1074,-59)
 Perf. : 80.1 %
 Elo : 3242

+42 Elo

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Windows - 1 thread vs 16 threads

TC = 60" + 0.05" - Contempt = 0

Program	Elo	+	-	Games	Score	Draws	Depth
1 Komodo 10.4 T16	: 3113	9	9	3000	78.5 %	41.6 %	21.94
2 Komodo 10.4 T1	: 2887	9	9	3000	21.5 %	41.6 %	17.80
Result	: 2355.5/3000 (+1732,=1247, -21)						
Perf.	: 78.5 %						
Elo	: 3225						

default Contempt = 10

Program	Elo	+	-	Games	Score	Draws	Depth
1 Komodo 10.4 T16	: 3140	11	11	3000	83.3 %	32.0 %	21.31
2 Komodo 10.4 T1	: 2860	11	11	3000	16.7 %	32.0 %	17.38
Result	: 2499.5/3000 (+2020,=959, -21)						
Perf.	: 83.3 %						
Elo	: 3279 +54 Elo						

Linux - 1 thread vs 16 threads

TC = 10" + 0.1" - Contempt = 0

Program	Elo	+	-	Games	Score	Draws	Depth
1 Komodo 10.4 T16	: 3125	10	10	3000	80.8 %	37.3 %	20.90
2 Komodo 10.4 T1	: 2875	10	10	3000	19.1 %	37.3 %	16.60
Result	: 2425.5/3000 (+1866,=1119, -15)						
Perf.	: 80.8 %						
Elo	: 3250						

default Contempt = 10

Program	Elo	+	-	Games	Score	Draws	Depth
1 Komodo 10.4 T16	: 3157	12	12	3000	86.0 %	26.8 %	20.43
2 Komodo 10.4 T1	: 2843	12	12	3000	14.0 %	26.8 %	16.14
Result	: 2578.5/3000 (+2176,=805, -19)						
Perf.	: 86.0 %						
Elo	: 3315 +65 Elo						

Linux - 1 thread vs 32 threads

TC = 10" + 0.1" - Contempt = 0

Program	Elo	+	-	Games	Score	Draws	Depth
1 Komodo 10.4 T32	: 3132	10	10	3000	82.1 %	35.1 %	19.88
2 Komodo 10.4 T1	: 2868	10	10	3000	17.9 %	35.1 %	16.60
Result	: 2462.0/3000 (+1935,=1054, -11)						
Perf.	: 82.1 %						
Elo	: 3264						

default Contempt = 10

Program	Elo	+	-	Games	Score	Draws	Depth
1 Komodo 10.4 T32	: 3167	13	12	3000	87.2 %	24.8 %	20.19
2 Komodo 10.4 T1	: 2833	12	13	3000	12.8 %	24.8 %	16.26
Result	: 2617.5/3000 (+2246,=743, -11)						
Perf.	: 87.2 %						
Elo	: 3334 +70 Elo						

Windows - 2 threads vs 4 threads

TC = 60" + 0.05" - Contempt = 0

Program	Elo	+	-	Games	Score	Draws	Depth
1 Komodo 10.4 T4	: 3037	7	7	3000	60.6 %	66.7 %	20.22
2 Komodo 10.4 T2	: 2963	7	7	3000	39.4 %	66.7 %	18.60
Result	: 1818.0/3000 (+817,=2002, -181)						
Perf.	: 60.6 %						
Elo	: 3075						

default Contempt = 10

Program	Elo	+	-	Games	Score	Draws	Depth
1 Komodo 10.4 T4	: 3043	8	8	3000	62.2 %	60.7 %	19.82
2 Komodo 10.4 T2	: 2957	8	8	3000	37.8 %	60.7 %	18.23
Result	: 1867.0/3000 (+956,=1822, -222)						
Perf.	: 62.2 %						
Elo	: 3087 +13 Elo						

Linux - 2 threads vs 4 threads

TC = 10" + 0.1" - Contempt = 0

Program	Elo	+	-	Games	Score	Draws	Depth
1 Komodo 10.4 T4	: 3033	7	7	3000	59.5 %	64.6 %	18.65
2 Komodo 10.4 T2	: 2967	7	7	3000	40.5 %	64.6 %	17.43
Result	: 1784.5/3000 (+816,=1937, -247)						
Perf.	: 59.5 %						
Elo	: 3067						

default Contempt = 10

Program	Elo	+	-	Games	Score	Draws	Depth
1 Komodo 10.4 T4	: 3036	8	8	3000	60.1 %	57.3 %	18.24
2 Komodo 10.4 T2	: 2964	8	8	3000	39.9 %	57.3 %	17.08
Result	: 1803.0/3000 (+944,=1718, -338)						
Perf.	: 60.1 %						
Elo	: 3071 +4 Elo						

Windows - 4 threads vs 8 threads

TC = 60" + 0.05" - Contempt = 0

Program	Elo	+	-	Games	Score	Draws	Depth
1 Komodo 10.4 T8	: 3031	7	6	3000	58.8 %	71.4 %	21.23
2 Komodo 10.4 T4	: 2969	6	7	3000	41.2 %	71.4 %	20.09
Result	: 1764.0/3000 (+693,=2142, -165)						
Perf.	: 58.8 %						
Elo	: 3062						

default Contempt = 10

Program	Elo	+	-	Games	Score	Draws	Depth
1 Komodo 10.4 T8	: 3037	7	7	3000	60.4 %	64.4 %	20.70
2 Komodo 10.4 T4	: 2963	7	7	3000	39.6 %	64.4 %	19.59
Result	: 1812.5/3000 (+847,=1931, -222)						
Perf.	: 60.4 %						
Elo	: 3073 +11 Elo						

Linux - 4 threads vs 8 threads

TC = 10" + 0.1" - Contempt = 0

Program	Elo	+	-	Games	Score	Draws	Depth
1 Komodo 10.4 T8	: 3028	7	7	3000	58.1 %	69.2 %	19.79
2 Komodo 10.4 T4	: 2972	7	7	3000	41.9 %	69.2 %	19.00
Result	: 1742.5/3000 (+705,=2075, -220)						
Perf.	: 58.1 %						
Elo	: 3057						

default Contempt = 10

Program	Elo	+	-	Games	Score	Draws	Depth
1 Komodo 10.4 T8	: 3033	8	8	3000	59.4 %	61.6 %	19.39
2 Komodo 10.4 T4	: 2967	8	8	3000	40.6 %	61.6 %	18.65
Result	: 1780.5/3000 (+857,=1847, -296)						
Perf.	: 59.4 %						
Elo	: 3066 +9 Elo						

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Linux - 8 threads vs 16 threads

TC = 10" + 0.1" - Contempt = 0

Program	Elo	+	-	Games	Score	Draws	Depth
1 Komodo 10.4 T16	: 3020	9	9	1550	55.8 %	74.6 %	21.08
2 Komodo 10.4 T8	: 2980	9	9	1550	44.2 %	74.6 %	20.48

Result : 865.0/1550 (+287,=1156,-107)
 Perf. : 55.8 %
 Elo : 3041

default Contempt = 10

Program	Elo	+	-	Games	Score	Draws	Depth
1 Komodo 10.4 T16	: 3022	10	10	1512	56.3 %	65.3 %	20.56
2 Komodo 10.4 T8	: 2978	10	10	1512	43.7 %	65.3 %	19.88

Result : 851.5/1512 (+358,=987,-167)
 Perf. : 56.3 %
 Elo : 3044

+3 Elo

Linux - 16 threads vs 32 threads

TC = 10" + 0.1" - Contempt = 0

Program	Elo	+	-	Games	Score	Draws	Depth
1 Komodo 10.4 T32	: 3000	8	8	1500	50.1 %	76.9 %	20.79
2 Komodo 10.4 T16	: 3000	8	8	1500	49.9 %	76.9 %	21.77

Result : 751.0/1500 (+174,=1154,-172)
 Perf. : 50.1 %
 Elo : 3000

default Contempt = 10

Program	Elo	+	-	Games	Score	Draws	Depth
1 Komodo 10.4 T32	: 3006	9	9	1606	51.7 %	69.2 %	20.82
2 Komodo 10.4 T16	: 2994	9	9	1606	48.3 %	69.2 %	21.34

Result : 830.0/1606 (+274,=1112,-220)
 Perf. : 51.7 %
 Elo : 3012

+12 Elo