

Virtual Machine (CentOS, 1 core)

50 x 50 Matrix

No Parallelization

	Samples										
	1	2	3	4	5	6	7	8	9	10	Average
Runtime	0.000649	0.001138	0.00065	0.000651	0.000652	0.000659	0.000856	0.001206	0.001202	0.001243	0.0008906

Parallelization

Outer loop

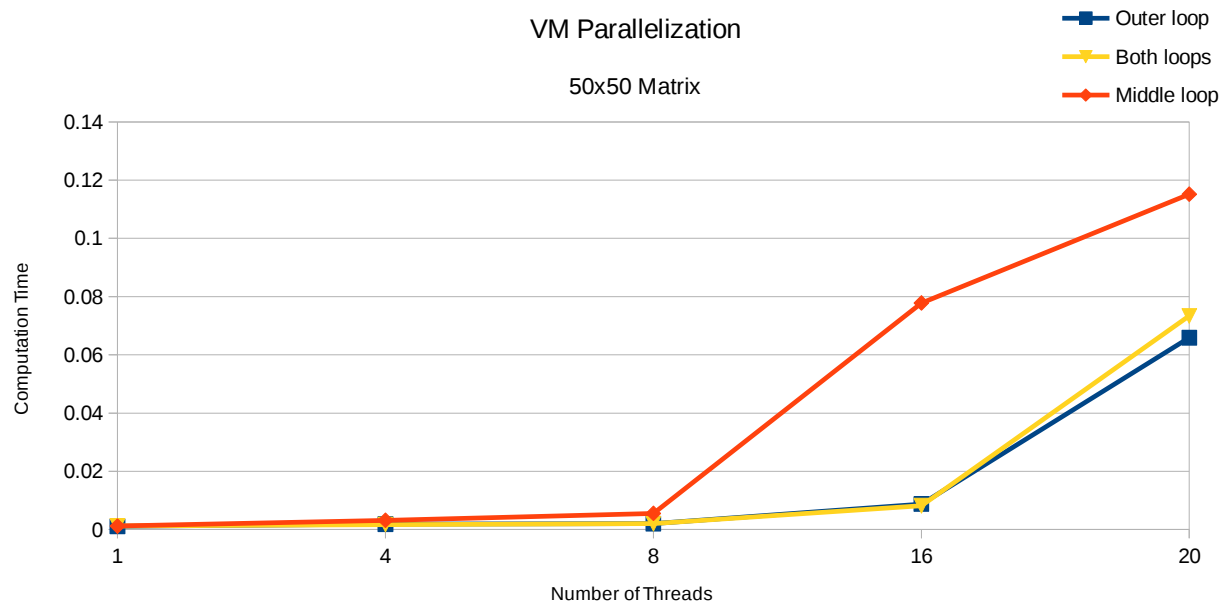
	Samples										
# Threads	1	2	3	4	5	6	7	8	9	10	Average
1	0.002095	0.000755	0.000753	0.000777	0.000952	0.000764	0.000753	0.001572	0.000758	0.001381	0.001056
4	0.001693	0.001788	0.001857	0.001719	0.002183	0.001147	0.002299	0.002359	0.001048	0.002193	0.0018286
8	0.00294	0.002624	0.001677	0.001586	0.001255	0.001242	0.002991	0.000963	0.001492	0.003006	0.0019776
16	0.068097	0.001538	0.002215	0.001163	0.004239	0.003174	0.001656	0.001647	0.002052	0.001636	0.0087417
20	0.181753	0.00219	0.00446	0.099873	0.019835	0.079158	0.001831	0.058277	0.068751	0.142589	0.0658717

Middle loop

	Samples										
# Threads	1	2	3	4	5	6	7	8	9	10	Average
1	0.000812	0.001574	0.001479	0.000833	0.001179	0.000818	0.000825	0.000954	0.001555	0.001661	0.001169
4	0.001753	0.001791	0.002853	0.001768	0.004686	0.004984	0.004995	0.002786	0.002978	0.002824	0.0031418
8	0.007005	0.006949	0.004714	0.009063	0.005145	0.003028	0.003424	0.007026	0.00426	0.004624	0.0055238
16	0.022316	0.099411	0.082928	0.099868	0.193665	0.013841	0.096168	0.017376	0.061501	0.091277	0.0778351
20	0.300727	0.227806	0.054996	0.032632	0.196214	0.045485	0.133708	0.087671	0.008664	0.064103	0.1152006

Both loops

	Samples										
# Threads	1	2	3	4	5	6	7	8	9	10	Average
1	0.001362	0.000838	0.000898	0.001663	0.000942	0.001572	0.000883	0.001602	0.001467	0.000832	0.0012059
4	0.001595	0.00131	0.001697	0.001996	0.001925	0.002317	0.001768	0.000969	0.001775	0.001599	0.0016951
8	0.002788	0.001596	0.001059	0.001938	0.002001	0.002502	0.001815	0.001408	0.001924	0.002872	0.0019903
16	0.05979	0.002132	0.002111	0.001314	0.002208	0.002226	0.002191	0.002141	0.003667	0.003703	0.0081483
20	0.081134	0.002198	0.003451	0.07876	0.167813	0.089502	0.004186	0.004119	0.197854	0.104718	0.0733735



Virtual Machine (CentOS, 1 core)

500 x 500 Matrix

No Parallelization

	Samples										
	1	2	3	4	5	6	7	8	9	10	Average
Runtime	1.719752	1.902226	1.022684	2.169936	2.00158	1.517462	1.755496	1.069307	1.342401	1.89301	1.6393854

Parallelization

Outer loop

	Samples										
# Threads	1	2	3	4	5	6	7	8	9	10	Average
1	2.039064	2.166412	2.192016	2.285502	1.087064	2.065827	1.243279	1.514817	1.105948	2.266282	1.7966211
4	1.898443	2.252455	1.473667	2.741891	1.555484	2.456329	2.408685	2.146422	2.418402	1.520421	2.0872199
8	1.346353	2.009933	1.467184	2.190855	2.123463	1.482747	1.27011	2.029013	1.247087	2.055751	1.7222496
16	1.319467	1.657396	1.450451	1.07783	1.409039	1.601032	1.268439	1.935351	1.836308	1.08922	1.4644533
20	1.793516	1.773469	1.396189	1.578094	1.299993	1.116556	1.413485	2.178029	1.186094	2.189598	1.5925023

Middle loop

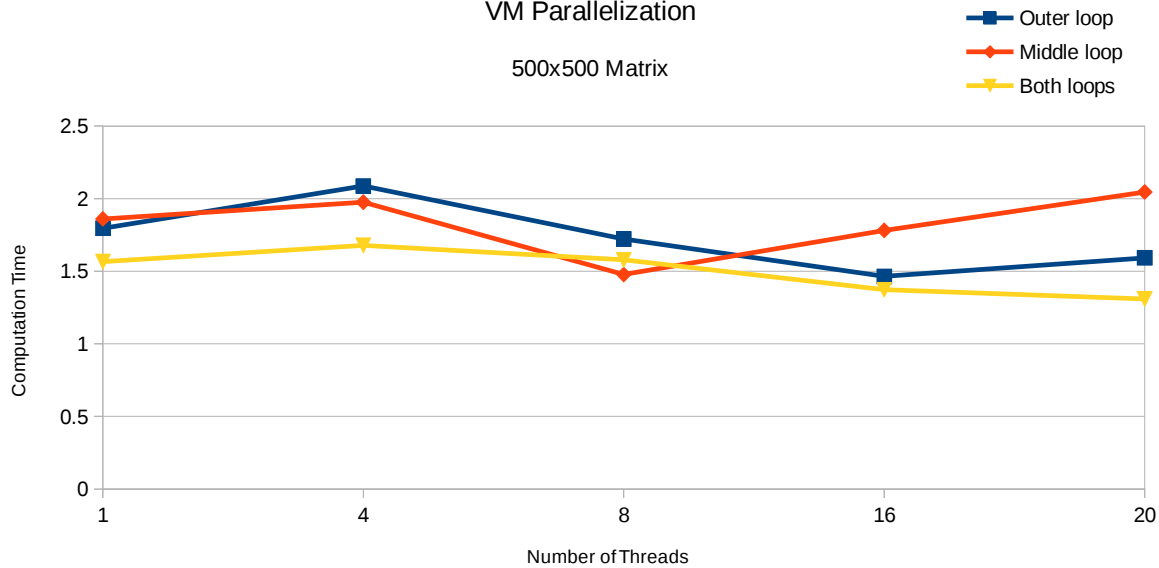
	Samples										
# Threads	1	2	3	4	5	6	7	8	9	10	Average
1	2.686634	1.226601	1.935247	1.420296	1.204919	2.588396	1.429633	2.076646	2.645608	1.390531	1.8604511
4	1.907663	1.70724	2.22648	2.169527	2.000011	2.124177	1.233417	2.117579	2.129046	2.143784	1.9758924
8	1.761337	1.708752	1.618048	1.259781	1.275621	1.255638	1.422957	1.984004	1.258511	1.227801	1.477245
16	1.648081	1.506406	1.541073	2.41589	1.682889	1.77646	2.537828	1.528338	1.496696	1.684786	1.7818447
20	1.862503	1.609592	2.101726	1.747998	1.907778	1.785638	2.133215	1.963407	2.61932	2.72926	2.0460437

Both loops

	Samples										
# Threads	1	2	3	4	5	6	7	8	9	10	Average
1	1.491036	1.773662	2.030408	2.278923	1.15832	1.35186	1.640275	1.166412	1.262702	1.509832	1.566343
4	1.505838	1.961798	2.446182	1.340081	2.476721	1.381052	1.284426	1.251715	1.567275	1.567275	1.6782363
8	1.399656	1.707804	2.192051	1.541177	1.172637	1.503147	1.311624	1.361664	1.789332	1.803276	1.5782368
16	1.308886	1.319395	1.549243	1.158098	1.162392	1.434914	1.149898	1.15685	1.897666	1.588041	1.3725383
20	1.311002	1.23415	2.07215	1.165931	1.471796	1.132022	1.1409	1.147195	1.204457	1.206932	1.3086535

VM Parallelization

500x500 Matrix



Dingo

50 x 50 Matrix

No Parallelization

Samples

	1	2	3	4	5	6	7	8	9	10	Average
Runtime	0.001263	0.001226	0.001241	0.00121	0.00148	0.001262	0.001239	0.001211	0.001225	0.001228	0.0012585

Parallelization**Outer loop**

Samples

# Threads	1	2	3	4	5	6	7	8	9	10	Average
1	0.000832	0.001398	0.001412	0.001473	0.001683	0.001436	0.001389	0.001517	0.001479	0.001456	0.0014075
4	0.001972	0.003916	0.002456	0.002344	0.001833	0.001783	0.001989	0.001747	0.000926	0.002721	0.0021687
8	0.004318	0.003561	0.003021	0.004293	0.004625	0.004432	0.006035	0.003789	0.002978	0.00229	0.0039342
16	0.018752	0.012664	0.002871	0.006992	0.00703	0.006669	0.005747	0.011082	0.006229	0.035263	0.0113299
20	0.007755	0.025813	0.012796	0.028057	0.007008	0.033524	0.086206	0.007845	0.016748	0.05043	0.0276182

Middle loop

Samples

# Threads	1	2	3	4	5	6	7	8	9	10	Average
1	0.001521	0.001513	0.001185	0.00287	0.002872	0.001555	0.001514	0.001556	0.001648	0.001518	0.0017752
4	0.001741	0.002801	0.001239	0.00139	0.001659	0.002835	0.003029	0.003136	0.002662	0.003456	0.0023948
8	0.003991	0.00367	0.004249	0.011512	0.004685	0.003794	0.004075	0.011533	0.005754	0.0045	0.0057763
16	0.006014	0.028678	0.017723	0.014549	0.012562	0.027141	0.00737	0.0158	0.00825	0.072883	0.021097
20	0.126255	0.12979	0.062474	0.019405	0.070008	0.088001	0.022635	0.043957	0.059983	0.033654	0.0656162

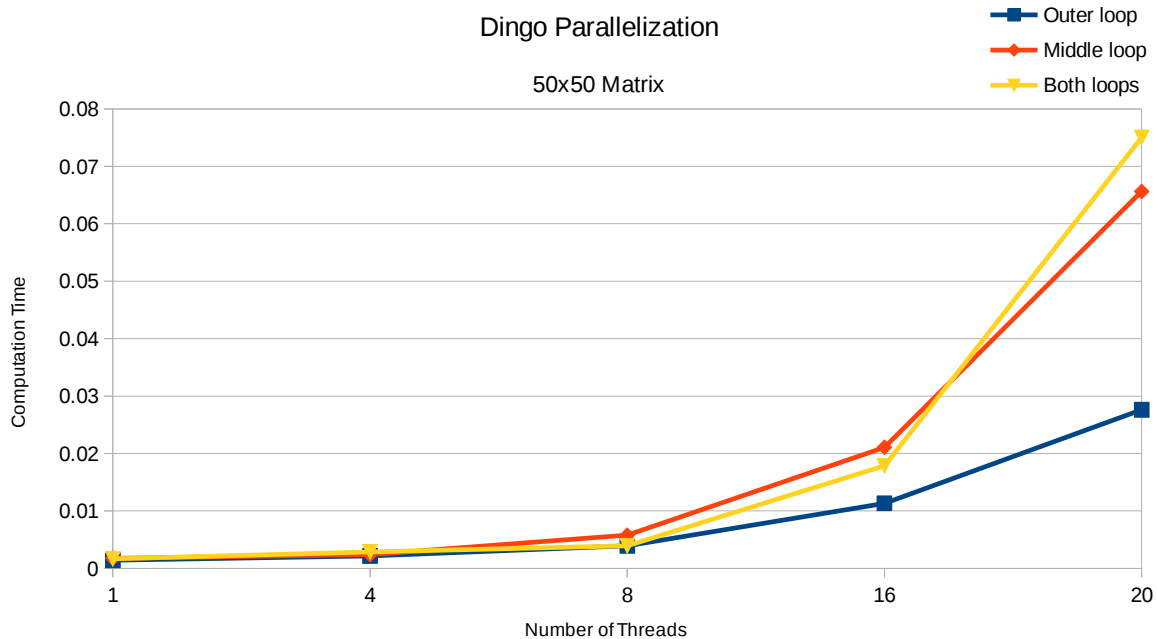
Both loops

Samples

# Threads	1	2	3	4	5	6	7	8	9	10	Average
1	0.001559	0.001494	0.001806	0.001591	0.001743	0.00168	0.001631	0.001599	0.001809	0.001569	0.0016481
4	0.001098	0.00303	0.002388	0.006965	0.002974	0.004576	0.00167	0.001909	0.0026	0.001424	0.0028634
8	0.004709	0.004568	0.003591	0.00236	0.003251	0.00735	0.001914	0.003791	0.004857	0.002847	0.0039238
16	0.004496	0.010563	0.016784	0.013175	0.010508	0.00958	0.035655	0.015615	0.006451	0.055638	0.0178465
20	0.080812	0.074172	0.092802	0.042536	0.055808	0.050603	0.086925	0.04374	0.119587	0.10334	0.0750325

Dingo Parallelization

50x50 Matrix



Virtual Machine (CentOS)

500 x 500 Matrix

No Parallelization

Samples

	1	2	3	4	5	6	7	8	9	10	Average
Runtime	1.552973	1.025274	1.093287	1.04648	1.845655	1.732365	1.371963	1.691943	1.241094	1.02046	1.3621494

Parallelization

Outer loop

Samples

# Threads	1	2	3	4	5	6	7	8	9	10	Average
1	1.802728	2.057354	1.189721	1.698005	1.480099	1.381206	1.502574	1.38328	1.684318	1.889035	1.606832
4	0.496401	0.509945	0.495355	0.516968	0.503853	0.503786	0.493151	0.499228	0.511279	0.504046	0.5034012
8	0.268577	0.252799	0.273745	0.267427	0.345119	0.261447	0.281183	0.324547	0.254879	0.307681	0.2837404
16	0.267393	0.306115	0.254822	0.25051	0.278477	0.251143	0.270169	0.295797	0.256832	0.270413	0.2701671
20	0.259988	0.28637	0.230103	0.201373	0.213274	0.280676	0.32612	0.28305	0.240492	0.208963	0.2530409

Middle loop

Samples

# Threads	1	2	3	4	5	6	7	8	9	10	Average
1	1.668689	1.671418	1.794219	1.144316	1.986988	1.618208	1.624551	1.540425	1.745703	1.497197	1.6291714
4	0.546107	0.568711	0.55414	0.539513	0.563773	0.563056	0.543822	0.56853	0.532081	0.57203	0.5551763
8	0.339994	0.349503	0.374097	0.445496	0.294371	0.314084	0.34302	0.384134	0.451446	0.319855	0.3616
16	0.310897	0.312617	0.277857	0.318937	0.313158	0.348214	0.332514	0.266025	0.345217	0.31424	0.3139676
20	0.37403	0.461327	0.399233	0.411212	0.372324	0.69833	0.340504	0.382576	0.543944	0.901706	0.4885186

Both loops

Samples

# Threads	1	2	3	4	5	6	7	8	9	10	Average
1	1.17075	1.426926	1.132625	1.908361	1.824163	1.850667	2.103169	1.597913	1.252746	1.779472	1.6046792
4	0.545929	0.54813	0.545634	0.530715	0.569964	0.529443	0.539832	0.55635	0.299387	0.55422	0.5219604
8	0.331341	0.311323	0.321793	0.449231	0.322757	0.325358	0.299832	0.399496	0.334254	0.319343	0.3414728
16	0.278171	0.208208	0.329281	0.300791	0.281169	0.273815	0.234532	0.286781	0.299417	0.263434	0.2755599
20	0.281716	0.278409	0.431523	0.290454	0.26336	0.349186	0.269281	0.411648	0.324644	0.312736	0.3212957

Dingo Parallelization

500x500 Matrix

