Resultados CPD - Projeto 1

Multiplicação Simples

C/C++:

Dimensões da Matriz	Run 1	Run 2	Run 3	Run 4	Run 5	Average Time	Average Gflops
600x600	0,460	0,353	0,355	0,538	0,374	0,416	1,038
1000x1000	2,118	1,971	1,920	1,947	2,420	2,075	0,964
1400x1400	5,585	5,541	5,421	5,362	5,410	5,464	1,004
1800x1800	15,574	16,930	14,809	14,858	13,849	15,204	0,767
2200x2200	48,935	52,864	59,110	62,169	59,509	56,517	0,377
2600x2600	138,565	111,577	109,142	111,079	104,416	114,956	0,306
3000x3000	189,668	183,124	188,997	212,145	223,941	199,575	0,271

Dimensões da Matriz	Cache	Run 1	Run 2	Run 3	Run 4	Run 5	Average
600x600	L1	56111816	33395227	41115523	78886478	42528263	50407461,4
	L2	28201410	27527928	27996586	28261392	27692968	27936056,8
1000x1000	L1	1152639994	1157092441	1161172640	1157470396	1163122913	1158299676,8
	L2	137202479	136128875	136011170	137988309	136792226	136824611,8
1400x1400	L1	3191662632	3182752096	3179807315	3179903144	3180303238	3182885685,0
	L2	402565279	396299383	392892269	393077078	395938294	396154460,6
1800x1800	L1	7790338140	7769026781	7723375342	7728919934	7705978379	7743527715,2
	L2	925423272	912999135	880476780	893369489	864304695	895314674,2

2200x2200	L1	16326281609	16338148520	16027561521	16261732762	16281142165	16246973315,4
	L2	19933033303	2235882350	2257897533	2140152450	2165821517	2158611430,6
2600x2600	L1	29270420794	29549352427	29413303443	29408705152	29287224991	29385801361,4
	L2	6071431599	9686214637	13587524790	6566226603	6885473791	8559374284,0
3000x3000	L1	48597085069	48257053650	48514824045	48493826969	48727159147	48517989776,0
	L2	35290841126	29738012720	24292661019	28757776942	31821626678	29980183697,0

JAVA:

Dimensões da Matrix	Time 1 Gflops 1	Time 2 Gflops 2	Time 3 Gflops 3	Average time Average Gflops
600x600	0,336 1,286	0,579 0,747	0,507 0,852	0,911 0,962
1000x1000	1,746 1,146	2,475 0,808	2,014 0,993	2,078 0,982
1400x1400	5,699 0,963	6,564 0,836	8,946 0,613	7,070 0,804
1800x1800	19,982 0,584	17,150 0,680	21,980 0,531	19,704 0,598
2200x2200	56,786 0,375	53,858 0,395	53,291 0,400	54,645 0,39
2600x2600	122,330 0,287	139,036 0,253	115,312 0,305	125,560 0,28
3000x3000	219,990 0,245	222,106 0,243	211,493 0,255	217,863 0,248

Multiplicação Por Linha

C/C++:

Dimensões da Matriz	Run 1	Run 2	Run 3	Average time	Gflops
600x600	0,147	0,175	0,169	0,164	2,64
1000x1000	0,774	0,792	0,733	0,766	2,61
1400x1400	2,749	2,312	2,041	2,367	2,318
1800x1800	5,780	5,411	5,091	5,427	2,149
2200x2200	9,765	8,288	8,146	8,733	2,439
2600x2600	14,582	14,325	14,273	14,393	2,442
3000x3000	20,424	22,960	22,432	21,939	2,461

Dimensões da Matriz	Cache	Run 1	Run 2	Run 3	Average
600x600	L1	27300004	27397596	27219752	27305784
	L2	27316870	27350970	27097023	27254954
1000x1000	L1	126512626	126180079	126071793	126254833
	L2	119974834	119121027	118107037	119067633
1400x1400	L1	352580060	349564278	346839963	349661434
	L2	332318798	331810215	329936325	331355113.0
1800x1800	L1	768132339	761501759	751466747	760366948
	L2	710672901	707991651	706373787	708346113

2200x2200	L1	1465458316	1393440267	1377641033	1412179872
	L2	1298025994	1289437727	1288227114	1291896945
2600x2600	L1	2448975435	2466515396	2431865724	2449118852
	L2	2151726406	2147055791	2142230302	2147004166
3000x3000	L1	3845533881	4003710323	4046061685	3965101963
	L2	3324766860	3314738412	3311537576	3317014283

Dimensões da Matrix		Time 1	Time 2	Time 3	Average
4096x4096	Execution time	57,389	59,112	61,437	59,313
	Gflops	2,39486	2,32504	2,23708	2,312
6144x6144	Execution time	196,001	181,054	183,674	186,910
	Gflops	2,3666	2,56198	2,52544	2,485
8192x8192	Execution time	451,187	481,819	524,569	485,858
	Gflops	2,43693	2,282	2,09603	2,272
10240x10240	Execution time	925,548	877,165	844,189	882,301
	Gflops	2,32023	2,44821	2,54384	2,437

Dimensões da Matrix		Time 1	Time 2	Time 3	Average
4096x4096	L1	12625238949	12438478241	12348758707	1247082525 99
	L2	8435709732	8395564742	8353004690	839475972 1,333
6144x6144	L1	57960894854	57961921192	57965643122	579628197 22,667
	L2	28256013997	28034137910	28072914989	281210222 98,667
8192x8192	L1	137725134035	137684727839	137730038185	1378476200 16
	L2	67116595492	66862321847	67337587072	6711659549 2
10240x1024 0	L1	269109278771	268971497689	269044456154	269041744 204,667
	L2	132573523048	131064093843	131830687343	131822768 078

JAVA:

Dimensões da Matrix	Time 1 Gflops 1	Time 2 Gflops 2	Time 3 Gflops 3	Average
600x600	0,174 2,483	0,112 3,854	0,099 4,353	0,128 3,366
1000x1000	0,525 3,809	0,560 3,573	0,635 3,149	0,573 3,488
1400x1400	1,617 3,394	2,855 1,922	2,614 2,100	2,362 2,323
1800x1800	2,894 4,030	2,716 4,295	3,121 3,737	2,91 4,008
2200x2200	5,598 3,805	5,704 3,733	5,620 3,789	5,641 3,775
2600x2600	9,052 3,883	8,738 4,023	9,614 3,656	9,135 3,848
3000x3000	15,321 3,525	14,867 3,632	16,401 3,293	15,53 3,477

Multiplicação Por Bloco

C/C++:

Dimens ões da Matrix	Tamanho do bloco	Time 1	Time 2	Average
4096x40 96	128	47,108	50,380	48,744
	256	46,094	43,744	44,919
	512	49,488	61,493	55,491
6144x61 44	128	137,911	140,027	138,969
	256	137,373	127,849	132,611
	512	155,767	154,270	155,019
8192x81 92	128	387,937	383,921	387,937
	256	323,754	425,155	323,754
	512	372,142	420,316	396,229
10240x1 0240	128	700,355	700,822	700,5885
	256	678,625	798,074	678,625
	512	778,994	776,268	778,994

Dimensões da Matrix	Tamanho do bloco	L1 L2	L1 L2	Average
4096x4096	128	10152464608 15709777488	10154282769 13976856890	10153373689 14843317189
	256	9395987770 12716152797	9397478684 12570151064	9396733227 12643151931
	512	9039482022 10087342799	9056149859 10156471005	9047815941 10121906902
6144x6144	128	34238113928 43395480954	34232219237 43067284593	34235166583 43231382774
	256	31691827797	31677526868	31684677333

		42665637189	41561311569	42113474379
	512	30470868126 34650060262	30468600357 34534192482	30469734242 34592126372
8192x8192	128	81208285600 134317890196	81212396054 133340965206	81210340827 133829427701
	256	75107606898 101361775426	75259697898 102679273883	75183652398 102020524655
	512	72303890569 79358025666	72327653815 80394565958	72315772192 79876295812
10240x10240	128	158624342501 190451218332	158624732702 176473047747	158624537602 183462133040
	256	146899549149 191904841989	147035365642 192049188769	146967457396 191977015379
	512	141094256373 161069409225	141126363479 160751551554	141110309926 160910480390

Multiplicação Por Linha Paralela OMP1

Dimensões da Matrix	Time 1	Time 2	Time 3	Average	Mflops
600x600	0,138	0,079	0,106	0,108	4012,384
1000x1000	0,501	0,392	0,321	0,405	4942,340
1400x1400	1,040	0,991	0,990	1,007	5449,851
1800x1800	2,368	2,305	2,777	2,483	4696,913
2200x2200	6,057	4,726	5,543	5,442	3913,267
2600x2600	6,862	6,864	7,562	7,096	4953,777
3000x3000	11,970	11,512	11,990	11,824	4566,982

Dimensões da Matriz	Cache	Run 1	Run 2	Run 3	Average
600x600	L1	6493840	6404095	6649133	6515689,333
	L2	5840779	5851280	6166536	5952865,0
1000x1000	L1	31480711	31166320	30096764	30914598,333
	L2	29414541	29134714	27935336	28828197,0
1400x1400	L1	93486362	92166229	92842729	92831773,333
	L2	81224413	79890014	80831374	80648600,333
1800x1800	L1	308223023	304861990	297065084	303383365,667
	L2	173510238	172648505	173657724	173272155,667
2200x2200	L1	558266421	589474355	568509033	572083269,667
	L2	319091805	317245477	318815929	318384403,667
2600x2600	L1	1038405110	1034614182	1026974171	1033331154,333
	L2	523789228	524954232	525108742	524617400,667
3000x3000	L1	1620056172	1630163314	1620230357	1623483281,0
	L2	804828326	806013008	804717967	805186433,667

Dimensões da Matrix	Time 1	Time 2	Average	Mflops
4096x4096	33,157	23,900	28,5285	4817,601818
6144x6144	127,873	102,274	115,0735	4030,958196
8192x8192	262,061	247,593	254,827	4314,737558
10240x10240	519,655	486,971	503,313	4266,696167

Dimensões da Matrix	L1 L2	L1 L2	Average
4096x4096	4211525947 2068060479	4271859200 2036801752	4241692573,5 2052431115,5
6144x6144	14487796671 7027534383	14509355690 7000329066	14498576180,5 7013931724,5
8192x8192	34407324707 16829350915	34413180957 16818264151	34410252832,0 16823807533,0
10240x10240	67230293454 33488538640	67225913603 33372992719	67228103528,5 33430765679,5

Multiplicação Por Linha Paralela OMP2

Dimensões da Matrix	Time 1	Time 2	Time 3	Average	Mflops
600x600	0,205	0,259	0.187	0.217	1990,783
1000x1000	0,702	0,704	0,707	0,704	2839,565
1400x1400	1,666	2,159	2,263	2,029	2704,336
1800x1800	3,704	3,585	4,916	4,068	2867,022
2200x2200	7,698	8,233	8,499	8,143	2615,145
2600x2600	8,517	11,867	12,015	10,800	3254,915
3000x3000	13,923	12,932	13,038	13,298	4060,863

Dimensões da Matrix	Time 1	Time 2	Average	Mflops
4096x4096	41,206	33,701	37,454	3669,590
6144x6144	154,362	118,652	136,507	3398,042
8192x8192	330,792	324,774	327,783	3354,389
10240x10240	751,034	790,147	770,591	2786,803

Dimensões da Matriz	Cache	Run 1	Run 2	Run 3	Average
600x600	L1	9123505	9163184	8953463	9080050,667
	L2	12603187	11462153	10421538	11495626,0
1000x1000	L1	37603349	37471289	37215141	37429926,333
	L2	43155567	43371745	42131248	42886186,667
1400x1400	L1	97930075	97172387	97805686	97636049,333
	L2	106314802	101344830	105611532	104423721,333
1800x1800	L1	202822975	203939866	203297384	203353408,333
	L2	210127267	214856570	212612487	212532108,0
2200x2200	L1	358079470	357672797	358223787	357992018,0
	L2	364542277	363234306	365845289	364540624,0
2600x2600	L1	593213848	594875855	593075716	593721806,333
	L2	604177844	608559548	602699125	605145505,667
3000x3000	L1	892543657	893948843	893236744	893243081,333
	L2	894676618	900096809	898992863	897922096,667

Dimensões da Matrix	L1 L2	L1 L2	Average
4096x4096	2275943870 2215728157	2273301231 2209764472	2274622550,5 2212746314,5
6144x6144	9093893859 7376495009	9053496939 7354306237	9073695399,0 7365400623,0
8192x8192	30578533540 17112177821	30639234874 17083837469	30608884207,0 17098007645,0
10240x10240	68216750628 33132360853	68213453297 33221150589	68215101962,5 33176755721,0