

Relatório referente a Otimização do tamanho da FFT para Grade Reduzida

GRADE REDUZIDA

ProgInfo dos testes com a nova chamada da FFT

Conclusão: O ganho de memória foi de aproximadamente 6,5% para todas as resoluções testadas.

Com esse ganho foi possível executar o modelo T341L64 com 1 processador, a versão original não executava por falta de memória

Há reprodutibilidade binária com a variação do tamanho do bloco em todas as resoluções testadas.

O tamanho do bloco ideal para todas as resoluções é 512, devendo ser inserido e definido no MODELIN.

Houve um aumento no tempo de execução em função do *overhead* da nova chamada por blocos da FFT.

Obs: O tempo de execução é referente a 1 hora de previsão somente

run1Ampi_01h_T126L28	Original	256Block	512Block	768Block	Ganho Nova chamada I
Real Time (sec) :	62,860302	66,147519	63,371915	54,117951	
User Time (sec) :	45,398262	46,85628	42,31215	42,517781	
System Time (sec) :	4,653739	4,182256	4,578711	4,0557	
Vector Time (sec) :	39,963193	41,382293	37,130578	37,328686	
Instruction Count :	4017449913	4229800471	4064464417	4044200382	
Vector Instruction Count :	1336894128	1411480996	1337033262	1336971632	
Vector Element Count :	2,41962E+11	2,41987E+11	2,41972E+11	2,41967E+11	
FLOP Count :	1,06674E+11	1,06674E+11	1,06674E+11	1,06674E+11	
MOPS :	5388,799252	5224,60937	5783,186395	5754,637319	
MFLOPS :	2349,735303	2276,62006	2521,11792	2508,924686	
Average Vector Length :	180,987828	171,442223	180,976514	180,981537	
Vector Operation Ratio (%) :	98,904295	98,848753	98,885394	98,893538	
Memory size used (MB) :	1565,690872	1453,690872	1453,690872	1453,690872	7,15%
Global Memory size used (MB)	16	16	16	16	
MIPS :	88,493474	90,271794	96,059038	95,117861	
Instruction Cache miss (sec):	1,404555	1,400219	1,239626	1,241475	
Operand Cache miss (sec):	1,174357	1,173045	1,050405	1,050137	
Bank Conflict Time (sec):	0,5622	0,567954	0,564038	0,564233	

run1Ampi_01h_T170L42	Original	256Block	512Block	768Block	
Real Time (sec) :	137,367613	137,323026	138,038412	136,043039	
User Time (sec) :	110,30585	112,872043	114,350681	114,277931	
System Time (sec) :	7,254505	7,225893	7,399984	7,574591	
Vector Time (sec) :	101,190522	103,692174	105,064923	104,977907	
Instruction Count :	9689115344	10330586736	9820160286	9770066854	
Vector Instruction Count :	3730149592	3967294270	3730482928	3730357051	
Vector Element Count :	7,78469E+11	7,78591E+11	7,78494E+11	7,78485E+11	
FLOP Count :	3,57271E+11	3,57272E+11	3,57272E+11	3,57271E+11	
MOPS :	7111,394433	6954,373656	6861,210109	6865,057349	
MFLOPS :	3238,916737	3165,279631	3124,349662	3126,33848	
Average Vector Length :	208,696574	196,252412	208,684609	208,689096	
Vector Operation Ratio (%) :	99,240343	99,189342	99,223834	99,230144	
Memory size used (MB) :	3715,347122	3475,347122	3475,347122	3475,347122	6,46%
Global Memory size used (MB)	16	16	16	16	
MIPS :	87,838635	91,524761	85,877585	85,493907	
Instruction Cache miss (sec):	1,567561	1,561168	1,667533	1,678171	
Operand Cache miss (sec):	2,106812	2,128823	2,201752	2,217164	
Bank Conflict Time (sec):	0,921879	0,931231	0,953985	0,94717	

run1Empi_01h_T254L64	Original	256Block	512Block	768Block	
Real Time (sec) :	2555,97278	2558,996107	2560,472504	2561,954704	
User Time (sec) :	2498,578313	2509,959807	2499,321935	2498,628332	
System Time (sec) :	16,21124	15,860973	15,001818	14,623805	
Vector Time (sec) :	2402,659173	2413,851637	2403,414615	2402,791237	
Instruction Count :	1,71278E+11	1,74135E+11	1,71963E+11	1,71726E+11	
Vector Instruction Count :	85089113799	86125468359	85090392577	85089951083	
Vector Element Count :	1,97275E+13	1,9728E+13	1,97276E+13	1,97275E+13	
FLOP Count :	9,51183E+12	9,51183E+12	9,51183E+12	9,51183E+12	
MOPS :	7929,967445	7894,934826	7927,926313	7930,017112	
MFLOPS :	3806,895201	3789,632859	3805,762613	3806,819042	
Average Vector Length :	231,844649	229,060691	231,842481	231,843229	
Vector Operation Ratio (%) :	99,565002	99,555864	99,56157	99,562755	
Memory size used (MB) :	12334,519	11646,519	11646,519	11646,519	5,58%
Global Memory size used (MB)	16	16	16	16	
MIPS :	68,55022	69,377704	68,803789	68,728252	
Instruction Cache miss (sec):	3,292373	3,263955	3,197642	3,165527	
Operand Cache miss (sec):	6,645968	6,700096	6,605666	6,571311	
Bank Conflict Time (sec):	16,24301	16,284715	16,245394	16,24405	

run1Empi_01h_T341L64	Original	256Block	512Block	768Block	
Real Time (sec) :	0	4690,80681	4672,040832	4730,824813	
User Time (sec) :	0	4614,196171	4587,534046	4640,972707	
System Time (sec) :	0	21,049155	23,53058	23,035193	
Vector Time (sec) :	0	4437,661685	4411,535949	4464,549425	
Instruction Count :	0	3,19589E+11	3,14357E+11	3,13815E+11	
Vector Instruction Count :	0	1,60286E+11	1,57751E+11	1,5775E+11	
Vector Element Count :	0	3,64861E+13	3,64851E+13	3,6485E+13	
FLOP Count :	0	1,77164E+13	1,77164E+13	1,77164E+13	
MOPS :	0	7941,877678	7987,226347	7895,123487	
MFLOPS :	0	3839,547684	3861,862539	3817,394946	
Average Vector Length :	0	227,631705	231,282864	231,2836	
Vector Operation Ratio (%) :	0	99,565285	99,5726	99,574071	
Memory size used (MB) :	0	22033,8315	22033,8315	22033,8315	Ganhou muito
Global Memory size used (MB)	0	16	16	16	O original nao rodava
MIPS :	0	69,262053	68,524215	67,618321	
Instruction Cache miss (sec):	0	5,289004	5,513418	5,615708	
Operand Cache miss (sec):	0	17,267996	16,987108	17,398886	
Bank Conflict Time (sec):	0	23,582193	23,484603	23,77438	

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