



# OMPL2001 Result

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**SGI**  
SGI Altix 3000 (1500MHz, Itanium 2)

SPECompLpeak2001 = --  
SPECompLbase2001 = 344099

SPEC license #HPG0014 | Tested by: SGI | Test site: SGI | Test date: Apr-2004 | Hardware AvailJun-2003 | Software AvailMay-2004

Benchmark	Reference Time	Base Runtime	Base Ratio	Peak Runtime	Peak Ratio
311.wupwise_1	9200	414	355297		
313.swim_1	12500	317	631136		
315.mgrid_1	13500	415	520618		
317.applu_1	13500	955	226129		
321.equake_1	13000	1214	171337		
325.apsi_1	10500	568	295640		
327.gafort_1	11000	837	210300		
329.fma3d_1	23500	1428	263276		
331.art_1	25000	438	913477		

Hardware		Software	
CPU:	Intel Itanium 2	OpenMP Threads:	64
CPU MHz:	1500	Parallel:	OpenMP
FPU:	Integrated	Operating System:	SGI ProPack(TM) 3
CPU(s) enabled:	64 cores, 64 chips, 1 core/chip	Compiler:	Intel(R) Fortran Compiler for Linux 8.0 (Build 20040416) Intel(R) C++ Compiler for Linux 8.0 (Build 20040416)
CPU(s) orderable:	4-256	File System:	xfs
Primary Cache:	16KBI + 16KBD (on chip) per core	System State:	Single-user
Secondary Cache:	256KB (on chip) per core		
L3 Cache:	6.0MB (on chip) per core		
Other Cache:	N/A		
Memory:	256 GB (16*1024 MB PC2100 DIMMs per 4 core module)		
Disk Subsystem:	1 x 36 GB SCSI (Seagate Cheetah 15k rpm)		
Other Hardware:	None		

## Notes/Tuning Information

Baseline optimization flags:

C programs: -openmp -O3 -ipo -ansi -ansi\_alias (ONESTEP)  
Fortran programs: -openmp -O3 -ipo (ONESTEP)  
OpenMP runtime library libguide.a statically linked.

Extra Flags:

331.art\_1: -DINTS\_PER\_CACHELINE=32 -DDBLS\_PER\_CACHELINE=16

Baseline user environment:

OMP\_NUM\_THREADS=64  
limit stacksize 256000  
KMP\_STACKSIZE 124M  
KMP\_LIBRARY TURNAROUND  
OMP\_DYNAMIC FALSE  
KMP\_SCHEDULE static,balanced

Alternate sources:

Add critical region around update of linked list in parallel loop.  
Approved src.alt available as ompl-purduel-20040324.tar.gz  
Used for 331.art\_1 base.

For all benchmarks threads were bound to CPUs using the following submit command:

dplace -x2 -cNTM1,0 \$command,  
where NTM1 is the number of threads minus 1.  
This binds threads in order of creation, beginning with the master  
thread on cpu NTM1, the first slave thread on cpu NTM1-1, and so on.



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## Notes/Tuning Information (Continued)

The -x2 flag instructs dplace to skip placement of the lightweight OpenMP monitor thread, which is created prior to the slave threads.