



OMPM2001 Result

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SGI
SGI Altix 3000 (1500MHz, Itanium 2)

SPECompMpeak2001 = 31210
SPECompMbase2001 = 28853

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

Benchmark	Reference Time	Base Runtime	Base Ratio	Peak Runtime	Peak Ratio	
310.wupwise_m	6000	148	40558	148	40558	
312.swim_m	6000	84.5	71024	84.5	71024	
314.mgrid_m	7300	146	49931	146	49931	
316.applu_m	4000	101	39780	101	39780	
318.galgel_m	5100	441	11559	417	12242	
320.earthquake_m	2600	119	21796	89.8	28947	
324.apsi_m	3400	142	23938	124	27393	
326.gafort_m	8700	472	18446	391	22223	
328.fma3d_m	4600	233	19769	190	24178	
330.art_m	6400	87.4	73243	87.4	73243	
332.ammp_m	7000	559	12520	559	12520	

Hardware

CPU: Intel Itanium 2
 CPU MHz: 1500
 FPU: Integrated
 CPU(s) enabled: 32 cores, 32 chips, 1 core/chip
 CPU(s) orderable: 4-256
 Primary Cache: 16KBI + 16KBD (on chip) per core
 Secondary Cache: 256KB (on chip) per core
 L3 Cache: 6.0MB (on chip) per core
 Other Cache: N/A
 Memory: 128 GB (32*512MB PC2700 DIMMS per 4 core module)
 Disk Subsystem: 1 x 36 GB SCSI (Seagate Cheetah 15k rpm)
 Other Hardware: None

Software

OpenMP Threads: 32
 Parallel: OpenMP
 Operating System: SGI ProPack(TM) 3
 Compiler: Intel(R) Fortran Compiler for Linux 8.0 (Build 20040519)
 Intel(R) C++ Compiler for Linux 8.0 (Build 20040519)
 File System: xfs
 System State: Multi-user

Notes/Tuning Information

Baseline optimization flags:

C programs: -openmp -O3 -ipo -ansi -ansi_alias -auto_ilp32 (ONESTEP)
 Fortran programs: -openmp -O3 -ipo (ONESTEP)
 OpenMP runtime library libguide.a statically linked

Portability Flags:

318.galgel_m: -FI -132

Extra Flags:

330.art_m: -DINTS_PER_CACHELINE=32 -DDBLS_PER_CACHELINE=16

Baseline user environment:

OMP_NUM_THREADS 32
 limit stacksize 64000
 KMP_STACKSIZE 31M
 KMP_LIBRARY TURNAROUND
 OMP_DYNAMIC FALSE
 KMP_SCHEDULE static,balanced

Peak optimization flags:

310.wupwise_m: basepeak=true
 312.swim_m: basepeak=true



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Notes/Tuning Information (Continued)

```
314.mgrid_m: basepeak=true
316.applu_m: basepeak=true
318.galgel_m: -openmp -O3 -ipo (ONESTEP)
              OMP_NUM_THREADS=16
320.equake_m: -openmp -O3 -ipo -ansi -ansi_alias -auto_ilp32 (ONESTEP)
324.apsi_m: -openmp -O3 -ipo (ONESTEP)
326.gafort_m: -openmp -O3 -ipo (ONESTEP)
328.fma3d_m: -openmp -O3 -ipo (ONESTEP)
330.art_m: basepeak=true
332.ammmp_m: basepeak=true
```

Alternate sources:

Add critical region around update of linked list in parallel loop.
Approved src.alt available as ompm-purdue1-20040324.tar.gz
Used for 330.art_m, base and peak.

Peak sources:

SPEC OMPL2001 source for 64bit systems modified for SPEC OMPM2001.
Available as ompl src.alt in SPEC OMP v3.0
Used for 320.equake_m, 324.apsi_m, 326.gafort_m, and 328.fma3d_m.

For all benchmarks threads were bound to cores 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 core NTM1, the first slave thread on core NTM1-1, and so on.
The -x2 flag instructs dplace to skip placement of the lightweight
OpenMP monitor thread, which is created prior to the slave threads.
```