# OMPM2001 Result

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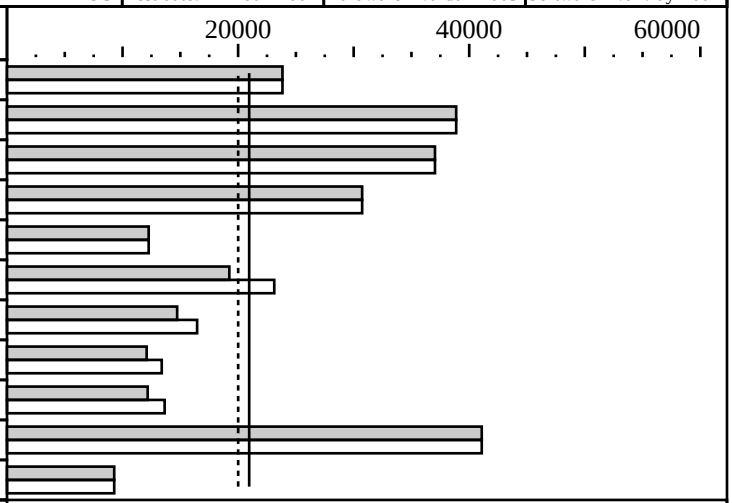
## SGI
## SGI Altix 3000 (1500MHz, Itanium 2)

SPECompMpeak2001 = 20958

SPECompMbase2001 = 20006

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

| Benchmark | Reference Time | Base Runtime | Base Ratio | Peak Runtime | Peak Ratio |
|---|---|---|---|---|---|
| 310.wupwise_m | 6000 | 252 | 23839 | 252 | 23839 |
| 312.swim_m | 6000 | 154 | 38873 | 154 | 38873 |
| 314.mgrid_m | 7300 | 197 | 37037 | 197 | 37037 |
| 316.applu_m | 4000 | 130 | 30733 | 130 | 30733 |
| 318.galgel_m | 5100 | 416 | 12260 | 416 | 12260 |
| 320.equake_m | 2600 | 135 | 19240 | 112 | 23128 |
| 324.apsi_m | 3400 | 231 | 14725 | 207 | 16452 |
| 326.gafort_m | 8700 | 720 | 12086 | 650 | 13391 |
| 328.fma3d_m | 4600 | 378 | 12175 | 337 | 13642 |
| 330.art_m | 6400 | 156 | 41083 | 156 | 41083 |
| 332.ammp_m | 7000 | 755 | 9277 | 755 | 9277 |




### Hardware

| | |
|---|---|
| CPU: | Intel Itanium 2 |
| CPU MHz: | 1500 |
| FPU: | Integrated |
| CPU(s) enabled: | 16 cores, 16 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: | 64 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: | 16 |
| Parallel: | OpenMP |
| Operating System: | SGI ProPack(TM) 3 |
| Compiler: | Intel(R) Fortran Compiler for Linux 8.0 (Build 20040519)<br>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 16
  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: basepeak=true
    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.ammp_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.
```