# OMPM2001 Result

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## SGI

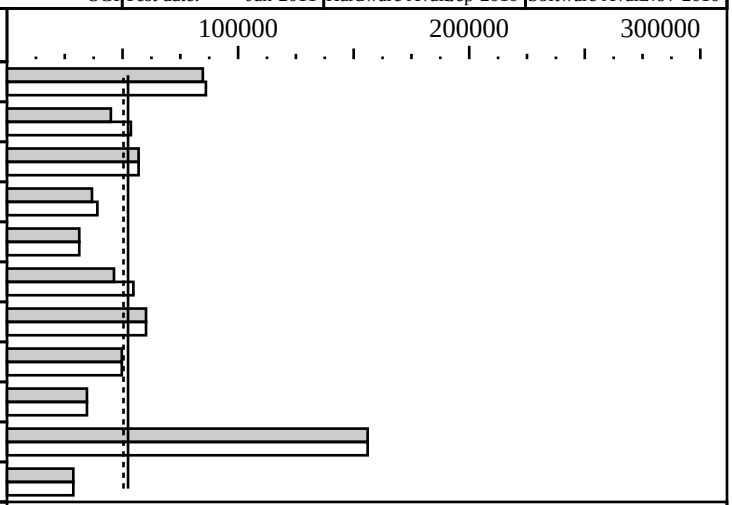
SGI Rackable C1001-G5 (AMD Opteron 6174, 2.20 GHz)

SPECompMpeak2001 = 52374

SPECompMbase2001 = 50410

SPEC license #HPG0014 | Tested by: SGI | Test site: SGI | Test date: Jan-2011 | Hardware Avail: Sep-2010 | Software Avail: Nov-2010

| Benchmark | Reference Time | Base Runtime | Base Ratio | Peak Runtime | Peak Ratio |
|---|---|---|---|---|---|
| 310.wupwise_m | 6000 | 70.8 | 84732 | 69.7 | 86068 |
| 312.swim_m | 6000 | 134 | 44940 | 112 | 53601 |
| 314.mgrid_m | 7300 | 128 | 56942 | 128 | 56942 |
| 316.applu_m | 4000 | 109 | 36763 | 102 | 39107 |
| 318.galgel_m | 5100 | 163 | 31271 | 163 | 31271 |
| 320.equake_m | 2600 | 56.2 | 46282 | 47.5 | 54690 |
| 324.apsi_m | 3400 | 56.5 | 60158 | 56.5 | 60158 |
| 326.gafort_m | 8700 | 175 | 49671 | 175 | 49671 |
| 328.fma3d_m | 4600 | 133 | 34594 | 133 | 34594 |
| 330.art_m | 6400 | 41.0 | 156049 | 41.0 | 156049 |
| 332.ammp_m | 7000 | 244 | 28701 | 244 | 28701 |




### Hardware

| | |
|---|---|
| CPU: | AMD Opteron(tm) Processor 6174 |
| CPU MHz: | 2200 |
| FPU: | Integrated |
| CPU(s) enabled: | 24 cores, 2 chips, 12 cores/chip |
| CPU(s) orderable: | 1-2 chips |
| Primary Cache: | 64 KB I + 64 KB D on chip per core |
| Secondary Cache: | 512 KB I+D on chip per core |
| L3 Cache: | 12 MB I+D on chip per chip, 6 MB shared / 6 cores |
| Other Cache: | None |
| Memory: | 64 GB (16 x 4 GB, 2Rx4 PC3-10600R-9, ECC) |
| Disk Subsystem: | 5.8 TB RAID 5<br>20 x 146 GB + 40 x 73 GB FC (Seagate Cheetah 15K.4) |
| Other Hardware: | None |

### Software

| | |
|---|---|
| OpenMP Threads: | 24 |
| Parallel: | OpenMP |
| Operating System: | SUSE Linux Enterprise Server 11 SP1 (x86_64), Kernel 2.6.32.13-0.4-default |
| Compiler: | Open64 Compiler Suite: Version 4.2.4 |
| File System: | NFSv3 IPoIB |
| System State: | Run Level 3 (Multi-User) |

## Notes/Tuning Information

```
Base and Peak User Environment (bash):
  export OMP_NUM_THREADS=24
  export OMP_DYNAMIC=FALSE
  export O64_OMP_SPIN_COUNT=1000000000
  export O64_OMP_SPIN_USER_LOCK=TRUE
  export O64_OMP_SET_AFFINITY=TRUE
 export O64_OMP_AFFINITY_MAP=" 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23"
  export OMP_SLAVE_STACK_SIZE=22M
  ulimit -s unlimited

For Compiler/OpenMP flags description please refer:
SGI-x86-open64-424-flags.html

Base tuning:
  C       : opencc -mp -Ofast -march=barcelona -mcmodel=medium
  Fortran : openf90 -mp -Ofast -march=barcelona -OPT:early_mp=on -mcmodel=medium
  ONESTEP=yes

Extra flags
  330.art_m: -DINTS_PER_CACHELINE=16 -DDBLS_PER_CACHELINE=8

Portability flags:
```

## Notes/Tuning Information (Continued)

```
    318.galgel_m: -fixedform -col80

Peak tuning:
  ONESTEP=yes for all benchmarks

  310.wupwise_m: FOPTIMIZE= -mp -Ofast -msse3 -OPT:early_mp=on
   -LNO:prefetch_ahead=5:prefetch=3  -march=barcelona -mcmodel=medium
   -OPT:unroll_times_max=8:unroll_size=128:IEEE_NaN_Inf=off:ro=3
   -IPA:linear=on:plimit=50000:callee_limit=5000 -INLINE:aggressive=on -CG:load_exe=0
  312.swim_m: FOPTIMIZE= -mp -O3 -OPT:Ofast -m3dnow -mcmodel=medium -LNO:simd=0
  314.mgrid_m: basepeak=yes
  316.applu_m: FOPTIMIZE= -mp -Ofast -march=barcelona -OPT:early_mp=on -mcmodel=medium
  318.galgel_m: basepeak=yes
  320.equake_m: COPTIMIZE= -Ofast -mp -OPT:alias=disjoint -march=barcelona -mcmodel=medium
  324.apsi_m: basepeak=yes
  326.gafort_m: basepeak=yes
  328.fma3d_m: basepeak=yes
  330.art_m: basepeak=yes
  332.ammp_m: basepeak=yes

Alternate Sources :
  314.mgrid_m (base,peak): intel
  312.swim_m (peak): ompl.32
  316.applu_m (peak): ompl
  320.equake_m (peak): ompl

Additional notes for disk subsystem:
   The disk subsystem is mounted through NFS over IPoIB via 4x DDR
   InfiniBand network. The local disk on the system is only for the OS.
```