



OMPL2001 Result

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SGI

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

SPECompLpeak2001 = 293213

SPECompLbase2001 = 255209

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
311.wupwise_l	9200	369	398535	369	398535
313.swim_l	12500	3191	62671	915	218602
315.mgrid_l	13500	647	333652	647	333652
317.applu_l	13500	1722	125436	1722	125436
321.quake_l	13000	832	249985	832	249985
325.apsi_l	10500	677	248221	677	248221
327.gafort_l	11000	649	271179	649	271179
329.fma3d_l	23500	1619	232312	1619	232312
331.art_l	25000	356	1123918	356	1123918

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
 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 and Peak tuning:

```
C : opencc -mp -Ofast -march=barcelona -mcmmodel=medium
Fortran : openf90 -mp -Ofast -march=barcelona -OPT:early_mp=on -mcmmodel=medium
ONESTEP=yes
```

Peak tuning:

basepeak=yes for all benchmarks except 311.swim_l

```
313.swim_l : FOPTIMIZE = -mp -O3 -OPT:Ofast -m3dnow -mcmmodel=medium
-LNO:simd=0:prefetch Ahead=5:prefetch=3
```

Additional notes for disk subsystem:



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Notes/Tuning Information (Continued)

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.