



# OMPL2001 Result

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## SGI

SGI Altix ICE 8400EX (AMD Opteron 6282 SE, 2.6GHz)

SPECompLpeak2001 = 369010

SPECompLbase2001 = 335615

SPEC license #HPG0014 Tested by: SGI Test site: SGI Test date: Jan-2012 Hardware Avail Nov-2011 Software Avail Dec-2011

Benchmark	Reference Time	Base Runtime	Base Ratio	Peak Runtime	Peak Ratio
311.wupwise_l	9200	295	499762	295	499762
313.swim_l	12500	1589	125864	801	249541
315.mgrid_l	13500	676	319512	577	374655
317.applu_l	13500	1267	170444	1263	171088
321.quake_l	13000	619	335929	619	335929
325.apsi_l	10500	414	406055	414	406055
327.gafort_l	11000	589	299057	585	300952
329.fma3d_l	23500	1223	307360	1223	307360
331.art_l	25000	318	1257788	318	1257788

### Hardware

CPU: AMD Opteron(tm) Processor 6282 SE  
 CPU MHz: 2600  
 FPU: Integrated  
 CPU(s) enabled: 32 cores, 2 chips, 16 cores/chip  
 CPU(s) orderable: 1-2 chips  
 Primary Cache: 512 KB I on chip per chip, 64 KB I shared / 2 cores; 16 KB D on chip per core  
 Secondary Cache: 16 MB I+D on chip per chip, 2 MB I+D on chip per core  
 L3 Cache: 16 MB I+D on chip per chip, 8 MB shared / 8 cores  
 Other Cache: None  
 Memory: 128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC)  
 Disk Subsystem: 16 TB RAID 5  
 32 x 500 GB SATA (Seagate Barracuda 7.2K)  
 Other Hardware: None

### Software

OpenMP Threads: 32  
 Parallel: OpenMP  
 Operating System: SUSE Linux Enterprise Server 11 SP1 (x86\_64)  
 Kernel 2.6.32.46-0.3-default #1 SMP  
 Compiler: Open64 4.5.1  
 File System: NFSv3 IPoIB  
 System State: Run Level 3 (Multi-User)

## Notes/Tuning Information

AMD Turbo CORE technology up to 3.30 GHz

Base and Peak User Environment (bash):

```
export OMP_NUM_THREADS=32
export OMP_DYNAMIC=FALSE
export O64_OMP_SPIN_COUNT=100000000
export O64_OMP_SPIN_USER_LOCK=TRUE
export OMP_SLAVE_STACK=22M
export O64_OMP_SET_AFFINITY=TRUE
export O64_OMP_AFFINITY_MAP=0,1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31
ulimit -s unlimited
```

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

Base tuning:

```
C : opencc -mp -march=bdver1 -Ofast -mcmmodel=medium
Fortran : openf90 -mp -march=bdver1 -Ofast -OPT:early_mp=on -mcmmodel=medium
ONESTEP=yes
```

Peak tuning:

ONESTEP=yes for all benchmarks.

311.wupwise\_l: basepeak=yes

313.swim\_l : FOPTIMIZE = -mp -O3 -OPT:Ofast -m3dnow -mcmmodel=medium -LNO:simd=0:prefetch\_ahead=5:prefetch=3



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## Notes/Tuning Information (Continued)

OMP\_NUM\_THREADS=16

O64\_OMP\_AFFINITY\_MAP=1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31

315.mgrid\_l : FOPTIMIZE = -mp -Ofast -march=barcelona -OPT:early\_mp=on -mcmodel=medium

317.applu\_l : FOPTIMIZE = -mp -Ofast -march=barcelona -OPT:early\_mp=on -mcmodel=medium

321.quake\_l : basepeak=yes

325.apsi\_l : basepeak=yes

327.gafort\_l : FOPTIMIZE = -mp -Ofast -march=barcelona -OPT:early\_mp=on -mcmodel=medium

329.fma3d\_l : basepeak=yes

331.art\_l : basepeak=yes

Additional notes for disk subsystem:

The disk subsystem is mounted through NFS over IPoIB via 4x DDR InfiniBand network. There is no local disk on the system.