



OMPL2001 Result

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SGI

SGI Rackable C2005-TY3 (Intel Xeon X5687, 3.60GHz)

SPECompLpeak2001 = 259229

SPECompLbase2001 = 253751

SPEC license #HPG0014 Tested by: SGI Test site: SGI Test date: Aug-2011 Hardware AvailFeb-2011 Software AvailApr-2011

| Benchmark | Reference Time | Base Runtime | Base Ratio | Peak Runtime | Peak Ratio |
|---------------|----------------|--------------|------------|--------------|------------|
| 311.wupwise_l | 9200 | 425 | 346100 | 423 | 348236 |
| 313.swim_l | 12500 | 1276 | 156764 | 1127 | 177478 |
| 315.mgrid_l | 13500 | 1094 | 197487 | 1094 | 197524 |
| 317.applu_l | 13500 | 1761 | 122661 | 1760 | 122703 |
| 321.quake_l | 13000 | 854 | 243600 | 834 | 249468 |
| 325.apsi_l | 10500 | 626 | 268444 | 623 | 269827 |
| 327.gafort_l | 11000 | 600 | 293415 | 584 | 301248 |
| 329.fma3d_l | 23500 | 1713 | 219527 | 1699 | 221311 |
| 331.art_l | 25000 | 508 | 787909 | 509 | 786363 |

| Hardware | | Software | |
|-------------------|--|-------------------|---|
| CPU: | Intel(R) Xeon(R) Processor X5687 | OpenMP Threads: | 16 |
| CPU MHz: | 3600 | Parallel: | OpenMP |
| FPU: | Integrated | Operating System: | SUSE Linux Enterprise Server 11 SP1 (x86_64), Kernel 2.6.32.36-0.5-default |
| CPU(s) enabled: | 8 cores, 2 chips, 4 cores/chip, 2 threads/core | Compiler: | Intel C/C++ Compiler 11.1.059 for Linux Intel Fortran Compiler 11.1.059 for Linux Other: Intel Math Kernel Library 10.2.6 |
| CPU(s) orderable: | 1-2 chips | File System: | NFSv3 iPoIB |
| Primary Cache: | 32 KB I + 32 KB D on chip per core | System State: | Multi-user, run level 3 |
| Secondary Cache: | 256 KB I+D on chip per core | | |
| L3 Cache: | 12 MB I+D on chip | | |
| Other Cache: | N/A | | |
| Memory: | 48 GB (6 x 8 GB, 2Rx4 PC3-10600R-9, ECC) | | |
| Disk Subsystem: | 5.8 TB RAID 5 20 x 146 GB FC (Seagate Cheetah 15K.4) 40 x 73 GB FC (Seagate Cheetah 15K.4) | | |
| Other Hardware: | None | | |

Notes/Tuning Information

BIOS settings notes:

Intel Hyper-Threading Technology (SMT): Enabled
Intel Turbo Boost Technology (Turbo) : Enabled (Max 3.86GHz)

Extra Flags:

331.art_l: -DINTS_PER_CACHELINE=16 -DDBLS_PER_CACHELINE=8

General Notes and Environment variables

```
export KMP_LIBRARY=turnaround
export KMP_STACKSIZE=31M
export KMP_BLOCKTIME=infinite
export OMP_DYNAMIC=FALSE
ONESTEP=yes
ulimit -s unlimited
```

For compiler/openmp flags description please refer:
SGI-20100816-Linux-Intel11.1-intel64.html

Base optimization flags and environment variables:



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Notes/Tuning Information (Continued)

Large:

```
OPTIMIZE = -O3 -xSSE4.2 -ipol -openmp -mcmmodel=medium -shared-intel
COPTIMIZE = -ansi-alias
export KMP_AFFINITY=scatter,1
```

Peak optimization flags and environment variables:

Large:

```
OPTIMIZE = -O3 -xSSE4.2 -ipol -openmp
export KMP_AFFINITY=compact,1
```

Peak per-benchmark optimization flags and environment variables:

```
311.wupwise_1
export KMP_AFFINITY=scatter,1
```

```
313.swim_m
OPTIMIZE=-O3 -xSSE4.2 -ipol -openmp -opt-streaming-stores always -align -rcd -mcmmodel=medium -shared-intel
export OMP_NUM_THREADS=8
```

```
315.mgrid_1
export KMP_AFFINITY=scatter,1
```

```
317.applu_1
OPTIMIZE=-O3 -xSSE4.2 -ipol -openmp -rcd -mcmmodel=medium -shared-intel
export KMP_AFFINITY=scatter,1
```

```
321.equake_1
export OMP_NUM_THREADS=8
```

```
325.appsi_1
OPTIMIZE=-O3 -xSSE4.2 -ipol -openmp
```

```
327.gafort_1
OPTIMIZE=-O3 -xSSE4.2 -ipol -openmp -rcd -mcmmodel=medium -shared-intel
export KMP_AFFINITY=scatter,0
```

```
329.fma3d_1
FOPTIMIZE=-no-prec-sqrt -fp-model fast=2
```

```
331.art_1
COPTIMIZE=-ansi-alias
```

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.



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