



OMPM2001 Result

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SGI

SGI Rackable C2112-4RP4 (Intel Xeon E5-2670, 2.6GHz)

SPECompMpeak2001 = 93051

SPECompMbase2001 = 83875

SPEC license #HPG0014 Tested by: SGI Test site: SGI Test date: Aug-2012 Hardware Avail Apr-2012 Software Avail May-2012

Benchmark	Reference Time	Base Runtime	Base Ratio	Peak Runtime	Peak Ratio	
310.wupwise_m	6000	39.9	150463	39.7	151226	
312.swim_m	6000	81.9	73251	72.7	82525	
314.mgrid_m	7300	101	72515	87.7	83262	
316.applu_m	4000	45.7	87553	44.7	89514	
318.galgel_m	5100	76.4	66721	65.6	77699	
320.earthquake_m	2600	32.1	81083	24.8	104694	
324.apsi_m	3400	46.8	72608	46.8	72606	
326.gafort_m	8700	94.3	92234	82.9	104917	
328.fma3d_m	4600	95.5	48180	69.3	66407	
330.art_m	6400	30.3	211065	30.3	211028	
332.ammp_m	7000	125	56064	125	56064	

Hardware

CPU: Intel(R) E5-2670
 CPU MHz: 2600
 FPU: Integrated
 CPU(s) enabled: 16 cores, 2 chips, 8 cores/chip, 2 threads/core
 CPU(s) orderable: 1-2 chips
 Primary Cache: 32 KB I +32 KB D on chip per core
 Secondary Cache: 256 KB I+D on chip per core
 L3 Cache: 20 MB I+D on chip
 Other Cache: N/A
 Memory: 128 GB (12 x 8 GB, 2Rx4 PC3-12800R-11, ECC)
 Disk Subsystem: 10 TB RAID 6
 10 x 1 TB SAS (Seagate Constellation ES, 7200RPM)
 Other Hardware: None

Software

OpenMP Threads: 32
 Parallel: OpenMP
 Operating System: SUSE Linux Enterprise Server 11 SP2,
 Kernel 3.0.26-0.7-default #1 SMP
 Compiler: Intel(R) C++ Composer XE, version 13.0 Beta, Build 20120425
 Intel(R) Fortran Composer XE, version 13.0 Beta, Build 20120425
 Intel(R) Math Kernel Library Version 10.3.9, Build 20120131
 File System: NFSv3 iPoIB
 System State: Multi-user, run level 3

Notes/Tuning Information

BIOS settings notes:

Intel Hyper-Threading Technology (SMT): Enabled (default is Enabled)
 Intel Turbo Boost Technology (Turbo) : Enabled (Max 3.3GHz)

Portability Flags:

318.galgel_m: -FI -132

Extra Flags:

330.art_m: -DINTS_PER_CACHELINE=32 -DDBLS_PER_CACHELINE=16

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-Linux-Intel12.1-intel64.html

Base optimization flags and environment variables:

=====

Medium:



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Notes/Tuning Information (Continued)

```
OPTIMIZE = -O2 -xAVX -ipo -openmp
COPTIMIZE = -ansi-alias
export KMP_AFFINITY=compact,0
```

Peak optimization flags and environment variables:

Medium:

```
OPTIMIZE = -O3 -xAVX -ipo -openmp
export KMP_AFFINITY=compact, 0
```

Peak per-benchmark optimization flags and environment variables:

310.wupwise_m

```
OPTIMIZE=-O3 -xSSE4.2 -ipo -openmp
```

312.swim_m

```
OPTIMIZE=-O3 -xSSE4.2 -ipo -openmp -opt-streaming-stores always -align
srcalt = ompl.32
export OMP_NUM_THREADS=16
export KMP_AFFINITY=compact,1
```

314.mgrid_m

```
OPTIMIZE=-O3 -xSSE4.2 -ipo -openmp -fno-alias
export OMP_NUM_THREADS=16
export KMP_AFFINITY=compact,1
```

316.applu_m

```
export KMP_AFFINITY=compact,1
```

318.galgel_m

```
export OMP_NUM_THREADS=16
OPTIMIZE=-O2 -xAVX -ipo -openmp
FOPTIMIZE=-mkl
RM_SOURCES=lapak.f90
export KMP_AFFINITY=compact,1
```

320.equake_m

```
export OMP_NUM_THREADS=16
export KMP_AFFINITY=compact,1
```

324.appsi_m

```
OPTIMIZE=-O2 -xAVX -ipo -openmp
```

326.gafort_m

```
srcalt = ompl.32
OPTIMIZE=-O3 -xSSE4.2 -ipo -openmp
export KMP_AFFINITY=scatter,0
```



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Notes/Tuning Information (Continued)

```

=====
328.fma3d_m
FOPTIMIZE=-no-prec-sqrt -fp-model fast=2
export KMP_AFFINITY=compact,1
srcalt = ompl.32

```

```

=====
330.art_m
OPTIMIZE=-O2 -xSSE4.2 -ipo -openmp

```

```

=====
332.ammmp_m
OPTIMIZE=-O3 -xAVX -ipo -openmp

```

Additional notes for disk subsystem:

The disk subsystem is mounted through NFS over IPoIB via 4x QDR InfiniBand network. The local disk on the system is only for the OS.

Additional notes for OS:

Transparent Huge Page support is enabled on the system.