



# OMPM2001 Result

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## SGI

SGI Altix ICE 8400EX (Intel Xeon X5690, 3.46GHz)

SPECompMpeak2001 = 54972

SPECompMbase2001 = 52080

SPEC license #HPG0014 Tested by: SGI Test site: SGI Test date: May-2011 Hardware Avail Feb-2011 Software Avail Nov-2010

Benchmark	Reference Time	Base Runtime	Base Ratio	Peak Runtime	Peak Ratio	
310.wupwise_m	6000	72.5	82781	69.1	86858	
312.swim_m	6000	157	38134	140	42817	
314.mgrid_m	7300	209	35008	190	38358	
316.applu_m	4000	117	34154	118	33808	
318.galgel_m	5100	113	45190	112	45595	
320.earthquake_m	2600	57.2	45420	50.0	51956	
324.apsi_m	3400	59.0	57600	59.2	57402	
326.gafort_m	8700	136	64003	127	68650	
328.fma3d_m	4600	109	42016	97.5	47190	
330.art_m	6400	45.9	139474	44.9	142582	
332.ammp_m	7000	153	45673	153	45733	

### Hardware

CPU: Intel(R) Xeon(R) Processor X5690  
 CPU MHz: 3467  
 FPU: Integrated  
 CPU(s) enabled: 12 cores, 2 chips, 6 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: 12 MB I+D on chip  
 Other Cache: N/A  
 Memory: 24 GB (6x4 GB 2Rx4 PC3-10600R-9, ECC)  
 Disk Subsystem: 8.8 TB RAID 5  
 60 x 146 GB SAS (Seagate Cheetah 15K.5)  
 Other Hardware: None

### Software

OpenMP Threads: 24  
 Parallel: OpenMP  
 Operating System: SUSE Linux Enterprise Server 11 SP1, Kernel 2.6.32.13-0.4-default  
 Compiler: Intel C/C++ Compiler 11.1.059 for Linux  
 Intel Fortran Compiler 11.1.059 for Linux  
 Intel(R) C++ Composer XE 2011 for Linux, version 12.0.1.107, Build 20101116  
 Intel(R) Fortran Composer XE 2011 for Linux, version 12.0.1.107, Build 20101116  
 Other: Intel Math Kernel Library 10.2.6  
 File System: NFSv3 iPoB  
 System State: Multi-user, run level 3

## Notes/Tuning Information

### BIOS settings notes:

Intel Hyper-Threading Technology (SMT): Enabled  
 Intel Turbo Boost Technology (Turbo) : Enabled (Max 3.73GHz)

### Extra Flags:

318.galgel\_m: -FI -132  
 330.art\_m: -DINTS\_PER\_CACHELINE=16 -DDBLS\_PER\_CACHELINE=8

### General Notes and Environment variables

```
CC = /sw/sdev/intel/Compiler/11.1/059/bin/intel64/icc
FC = /sw/sdev/intel/Compiler/11.1/059/bin/intel64/fort
export LD_LIBRARY_PATH=/sw/sdev/intel/Compiler/11.1/059/lib/intel64
export KMP_LIBRARY=turnaround
export KMP_STACKSIZE=31M
export KMP_BLOCKTIME=infinite
export OMP_DYNAMIC=FALSE
ONESTEP=yes
ulimit -s unlimited
```



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## Notes/Tuning Information (Continued)

=====  
For compiler/openmp flags description please refer:

SGI-20100816-Linux-Intel11.1-intel64.html

SGI-Linux-Intel12.0-intel64.html

Base optimization flags and environment variables:

=====  
Medium:

OPTIMIZE = -O3 -xSSE4.2 -ipol -openmp

COPTIMIZE=-ansi-alias

export KMP\_AFFINITY=scatter,1

Peak optimization flags and environment variables:

=====  
Medium:

OPTIMIZE = -O3 -xSSE4.2 -ipol -openmp -rcd

export KMP\_AFFINITY=compact,1

Peak per-benchmark optimization flags and environment variables:

=====  
310.wupwise\_m

export KMP\_AFFINITY=scatter,1

CC=/sw/sdev/intel/composerxe-2011.1.107/composerxe-2011.1.107/bin/intel64/icc

FC=/sw/sdev/intel/composerxe-2011.1.107/composerxe-2011.1.107/bin/intel64/fort

export LD\_LIBRARY\_PATH=/sw/sdev/intel/composerxe-2011.1.107/composerxe-2011.1.107/compiler/lib/intel64

=====  
312.swim\_m

OPTIMIZE=-O3 -xSSE4.2 -ipol -openmp -opt-streaming-stores always -align -rcd

srcalt = omp1.32

export OMP\_NUM\_THREADS=12

=====  
314.mgrid\_m

OPTIMIZE=-O3 -xSSE4.2 -ipol -openmp -fno-alias -rcd

export OMP\_NUM\_THREADS=12

=====  
316.applu\_m

export KMP\_AFFINITY=scatter,1

=====  
318.galgel\_m

export OMP\_NUM\_THREADS=6

RM\_SOURCES=lapak.f90

EXTRA\_LIBS=-lmkl\_intel\_lp64 -lmkl\_intel\_thread -lmkl\_core

export KMP\_AFFINITY=scatter,0

=====  
320.quake\_m

export OMP\_NUM\_THREADS=12

=====  
324.appsi\_m

OPTIMIZE=-O3 -xSSE4.2 -ipol -openmp

Standard Performance Evaluation Corporation

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## Notes/Tuning Information (Continued)

```

=====
326.gafort_m
srcalt = ompl.32
export KMP_AFFINITY=scatter,0

```

```

=====
328.fma3d_m
FOPTIMIZE=-no-prec-sqrt -fp-model fast=2
srcalt = ompl.32

```

```

=====
330.art_m
COPTIMIZE=-ansi-alias
CC=/sw/sdev/intel/composerxe-2011.1.107/composerxe-2011.1.107/bin/intel64/icc
FC=/sw/sdev/intel/composerxe-2011.1.107/composerxe-2011.1.107/bin/intel64/fort
export LD_LIBRARY_PATH=/sw/sdev/intel/composerxe-2011.1.107/composerxe-2011.1.107/compiler/lib/intel64

```

```

=====
332.amp_m
OPTIMIZE=-O3 -xSSE4.2 -ipol -openmp
export KMP_AFFINITY=scatter,1

```

### Additional notes for disk subsystem:

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