OMPM2001 Result

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SGI

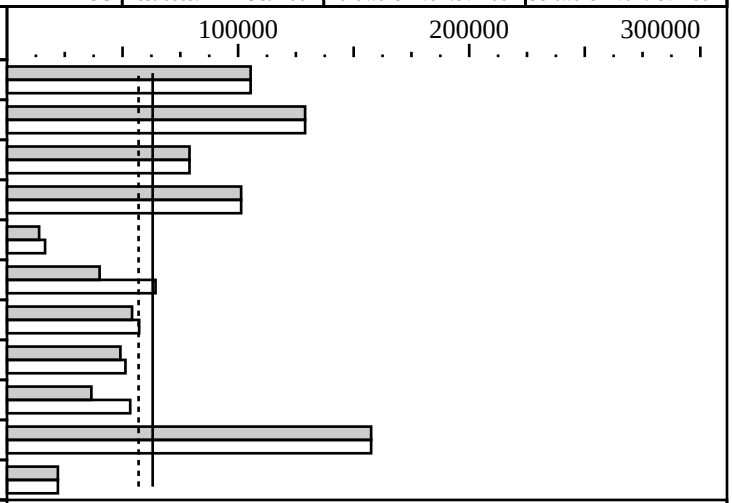
SGI Altix 3700 Bx2 (1600MHz 9M L3, Itanium 2)

SPECompMpeak2001 = 63037

SPECompMbase2001 = 56937

SPEC license #: HPG0014 | Tested by: SGI | Test site: SGI | Test date: Oct-2004 | Hardware Avail: Nov-2004 | Software Avail: Nov-2004

Benchmark	Reference Time	Base Runtime	Base Ratio	Peak Runtime	Peak Ratio
310.wupwise_m	6000	56.9	105415	56.9	105415
312.swim_m	6000	46.5	128988	46.5	128988
314.mgrid_m	7300	92.4	78969	92.4	78969
316.applu_m	4000	39.5	101314	39.5	101314
318.galgel_m	5100	367	13904	310	16476
320.equake_m	2600	64.9	40069	40.5	64260
324.apsi_m	3400	62.8	54117	59.4	57192
326.gafort_m	8700	177	49069	170	51253
328.fma3d_m	4600	126	36510	86.3	53315
330.art_m	6400	40.6	157562	40.6	157562
332.ammp_m	7000	318	22020	318	22020



Hardware

CPU:	Intel Itanium 2
CPU MHz:	1600
FPU:	Integrated
CPU(s) enabled:	64 cores, 64 chips, 1 core/chip
CPU(s) orderable:	8-512
Primary Cache:	16KBI + 16KBD (on chip) per core
Secondary Cache:	256KB (on chip) per core
L3 Cache:	9.0MB (on chip) per core
Other Cache:	N/A
Memory:	256 GB (32*1024MB PC2700 DIMMS per 8 core module)
Disk Subsystem:	16x73GB FC Seagate Cheetah 15K rpm (striped)
Other Hardware:	None

Software

OpenMP Threads:	64
Parallel:	OpenMP
Operating System:	SGI ProPack(TM) 3 Service Pack 1
Compiler:	Intel(R) Fortran Compiler for Linux 8.1 (Build 20041021) Intel(R) C++ Compiler for Linux 8.1 (Build 20041021)
File System:	xfs
System State:	Multi-user

Notes/Tuning Information

```
Baseline optimization flags:
  C programs:       -openmp -O3 -IPF_fp_relaxed -ipo -ansi -ansi_alias -auto_ilp32 (ONESTEP)
   Fortran programs: -openmp -O3 -IPF_fp_relaxed -ipo (ONESTEP)
   OpenMP runtime library libguide.a statically linked

Portability Flags:
   318.galgel_m: -FI -132

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

User environment:
   OMP_NUM_THREADS 64
   limit stacksize 64000
   KMP_STACKSIZE 31M
   KMP_LIBRARY TURNAROUND
   OMP_DYNAMIC FALSE
   KMP_SCHEDULE static,balanced


Peak optimization flags:
    310.wupwise_m: basepeak=true
    312.swim_m: basepeak=true
```

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Notes/Tuning Information (Continued)

```
    314.mgrid_m: basepeak=true
    316.applu_m: basepeak=true
    318.galgel_m: -openmp -O3 -IPF_fp_relaxed -ipo (ONESTEP)
                  OMP_NUM_THREADS=32
    320.equake_m: -openmp -O3 -IPF_fp_relaxed -ipo -ansi -ansi_alias -auto_ilp32 (ONESTEP)
    324.apsi_m: -openmp -O3 -IPF_fp_relaxed -ipo (ONESTEP)
    326.gafort_m: -openmp -O3 -IPF_fp_relaxed -ipo (ONESTEP)
    328.fma3d_m: -openmp -O3 -IPF_fp_relaxed -ipo (ONESTEP)
    330.art_m: basepeak=true
    332.ammp_m: basepeak=true

Required alternate sources:
Add critical region around update of linked list in parallel loop.
Approved src.alt available as ompm-purdue1-20040324.tar.gz
Used for 330.art_m, base and peak.

Peak sources:
SPEC OMPL2001 source for 64bit systems modified for SPEC OMPM2001.
Available as ompl src.alt in SPEC OMP v3.0
Used for 320.equake_m, 324.apsi_m, 326.gafort_m, and 328.fma3d_m.

For all benchmarks threads were bound to cores using the following submit command:
dplace -x2 -cNTM1,0 $command,
where NTM1 is the number of threads minus 1.
This binds threads in order of creation, beginning with the master
thread on core NTM1, the first slave thread on core NTM1-1, and so on.
The -x2 flag instructs dplace to skip placement of the lightweight
OpenMP monitor thread, which is created prior to the slave threads.

For a description of SGI's compiler flags, portability flags, and
system parameters used to generate this result, please refer to the
SGI-20041118-Linux-Intel8.1-IPF.txt file in the flags directory.
```