



OMPM2001 Result

Copyright ©1999-2007, Standard Performance Evaluation Corporation

Sun Microsystems
Sun SPARC Enterprise T5220

SPECompMpeak2001 = 16208

SPECompMbase2001 = 14399

SPEC license #HPG0010 | Tested by: Sun Microsystems, Palo Alto | Test site: Hillsboro | Test date: Oct-2007 | Hardware Avail: Oct-2007 | Software Avail: Oct-2007

Benchmark	Reference Time	Base Runtime	Base Ratio	Peak Runtime	Peak Ratio	
310.wupwise_m	6000	300	19993	289	20772	
312.swim_m	6000	383	15682	370	16236	
314.mgrid_m	7300	610	11972	538	13581	
316.applu_m	4000	271	14755	256	15653	
318.galgel_m	5100	581	8773	414	12326	
320.earthquake_m	2600	240	10832	162	16016	
324.apsi_m	3400	295	11535	277	12279	
326.gafort_m	8700	420	20702	405	21471	
328.fma3d_m	4600	423	10871	380	12095	
330.art_m	6400	139	45984	136	46922	
332.ammp_m	7000	797	8782	731	9573	

Hardware

CPU: UltraSPARC T2
 CPU MHz: 1400
 FPU: Integrated
 CPU(s) enabled: 8 cores, 1 chip, 8 cores/chip, 8 threads/core
 CPU(s) orderable: 1
 Primary Cache: 16 KB I + 8 KB D on chip per core
 Secondary Cache: 4 MB I+D on chip per chip
 L3 Cache: None
 Other Cache: None
 Memory: 32 GB
 Disk Subsystem: 1 X 146GB (Seagate ST914602SSUN146G)
 Other Hardware: --

Software

OpenMP Threads: 64
 Parallel: OpenMP and Autoparallelism
 Operating System: Solaris 10 8/07
 Compiler: Sun Studio 12 (patch build 2007/08/30)
 File System: UFS
 System State: Multi User

Notes/Tuning Information

The following user environment was set prior to running:

```
ulimit -s 32768 (in /bin/sh)
export OMP_DYNAMIC=FALSE
export OMP_NUM_THREADS=63
export SUNW_MP_PROCBIND="1-63"
export SUNW_MP_THR_IDLE=SPIN
export STACKSIZE=16384
```

Base flags:

```
C flags: -fast -xopenmp -xalias_level=std -xipo=2
-xprefetch_level=2 -m64 -lmtmalloc -xprofile
f90 flags: -fast -autopar -openmp -xipo=2 -xprefetch_level=2
-m64 -xprefetch=latx:3 -xprofile
ONESTEP=yes for all benchmarks in base
```

Extra Base C flags: -Xc

```
318.galgel_m portability flags: -e -fixed
328.fma3d_m srcalt: ompm2001-fma3dsqrtinit-20070912, fix race condition
330.art_m extra flags: -DINTS_PER_CACHELINE=16 -DBLS_PER_CACHELINE=8
```

Peak flags:

ONESTEP=yes for all benchmarks in peak



OMPM2001 Result

Copyright ©1999-2007, Standard Performance Evaluation Corporation

Sun Microsystems
Sun SPARC Enterprise T5220

SPECompMpeak2001 = 16208

SPECompMbase2001 = 14399

SPEC license #HPG0010 | Tested by: Sun Microsystems, Palo Alto | Test site: Hillsboro | Test date: Oct-2007 | Hardware Avail: Oct-2007 | Software Avail: Oct-2007

Notes/Tuning Information (Continued)

```

310.wupwise: -fast -openmp -xunroll=10 -xipo=2
              -xprefetch=latx:3 -xprofile
312.swim:    -fast -openmp -autopar -xunroll=7 -m64 -xipo=2
              -xpagesize=4m -xprefetch=latx:4 -xpad=common:1921
              -Qoption iropt -Atile:skewp
              OMP_NUM_THREADS = 56
              SUNW_MP_PROCBIND= 1 2 3 4 5 6 7
                                   9 10 11 12 13 14 15
                                   17 18 19 20 21 22 23
                                   25 26 27 28 29 30 31
                                   33 34 35 36 37 38 39
                                   41 42 43 44 45 46 47
                                   49 50 51 52 53 54 55
                                   57 58 59 60 61 62 63
314.mgrid:   -fast -openmp -xipo=2 -xprefetch_level=3 -m64
              -xpagesize=4m -xprefetch=latx:3 -xcode=abs32
              -xunroll=8 -xprofile
              OMP_NUM_THREADS=64
              SUNW_MP_PROCBIND=true
316.applu:   -fast -openmp -autopar -xipo=2 -xprefetch_level=3
              -m64 -xprefetch=latx:4 -xcode=abs32 -xunroll=2
              -xpagesize_heap=4m -xlinkopt=2
              OMP_NUM_THREADS = 56
              SUNW_MP_PROCBIND= 1 2 3 4 5 6 7
                                   9 10 11 12 13 14 15
                                   17 18 19 20 21 22 23
                                   25 26 27 28 29 30 31
                                   33 34 35 36 37 38 39
                                   41 42 43 44 45 46 47
                                   49 50 51 52 53 54 55
                                   57 58 59 60 61 62 63
318.galgel:  -fast -xipo=2 -openmp -autopar -xlic_lib=sunperf
              -xprefetch=latx:3.0 -xunroll=8 -dbl_align_all=yes
              -stackvar -xlinkopt=2 -xprofile
              OMP_NUM_THREADS = 32
              SUNW_MP_PROCBIND= 2 3 4 5
                                   10 11 12 13
                                   18 19 20 21
                                   26 27 28 29
                                   34 35 36 37
                                   42 43 44 45
                                   50 51 52 53
                                   58 59 60 61
320.quake:   -fast -xopenmp -xipo=2 -xprefetch=latx:2
              -xprefetch_level=3 -m64 -xunroll=4 -lmtmalloc
              -xpagesize=64K -xautopar -xprofile
324.apsi:    -fast -openmp -xipo=2 -m64 -xpagesize=4M
              -xprefetch=latx:5 -xunroll=5 -xprofile
              OMP_NUM_THREADS = 56
              SUNW_MP_PROCBIND= 1 2 3 4 5 6 7
                                   9 10 11 12 13 14 15
                                   17 18 19 20 21 22 23
                                   25 26 27 28 29 30 31
                                   33 34 35 36 37 38 39
                                   41 42 43 44 45 46 47

```



OMPM2001 Result

Copyright ©1999-2007, Standard Performance Evaluation Corporation

Sun Microsystems
Sun SPARC Enterprise T5220

SPECompMpeak2001 = 16208
SPECompMbase2001 = 14399

SPEC license #HPG0010 Tested by: Sun Microsystems, Palo Alto Test site: Hillsboro Test date: Oct-2007 Hardware Avail: Oct-2007 Software Avail: Oct-2007

Notes/Tuning Information (Continued)

49 50 51 52 53 54 55
57 58 59 60 61 62 63

```

326.gafort: -fast -autopar -openmp -xipo=2 -xprefetch_level=3
            -m64 -xpagesize=4m -xprefetch=latx:5 -xunroll=6
            -dbl_align_all=yes -stackvar -xprofile
328.fma3d:  -fast -autopar -openmp -xipo=2 -xprefetch_level=3
            -xprefetch=latx:4 -m64 -xcode=abs32 -xprofile
            srcalt=ompl.32.sqrt.init
            ompm2001-fma3dsqrtinit-20070912, fix race condition
330.art:    -fast -xopenmp -xautopar -xipo=2 -m64 -xprofile
332.ampp:  -fast -xipo=2 -xopenmp -xalias_level=strong -lm
            -xprefetch=latx:2 -xlinkopt=2 -xpagesize_stack=8K
            -xpagesize_heap=4M
            -xprefetch_auto_type=indirect_array_access

```

Feedback optimization (-xprofile) is done as follows, unless otherwise noted:

```

fdo_pre0:  rm -rf `pwd`/feedback.profile
PASS1:    -xprofile=collect:./feedback
PASS2:    -xprofile=use:./feedback

```

Use Sun System Firmware 7.0.1 or later.

Sun Studio patches are available at

http://developers.sun.com/sunstudio/downloads/patches/ss12_patches.jsp

This result was measured on the Sun SPARC Enterprise T5220 Server. In addition, Sun has submitted the same result for the Sun SPARC Enterprise T5120 Server, which is electronically equivalent to the Sun SPARC Enterprise T5220.

The Sun SPARC Enterprise T5220/T5120 servers and the Fujitsu SPARC Enterprise T5220/T5120 servers are electronically equivalent.

For a description of Sun Studio 12 Compiler flags, portability flags and system parameters used to generate this result, please refer to SUN-20071009-Studio-Solaris-sparc.txt file in the flags directory.