OMPM2001 Result

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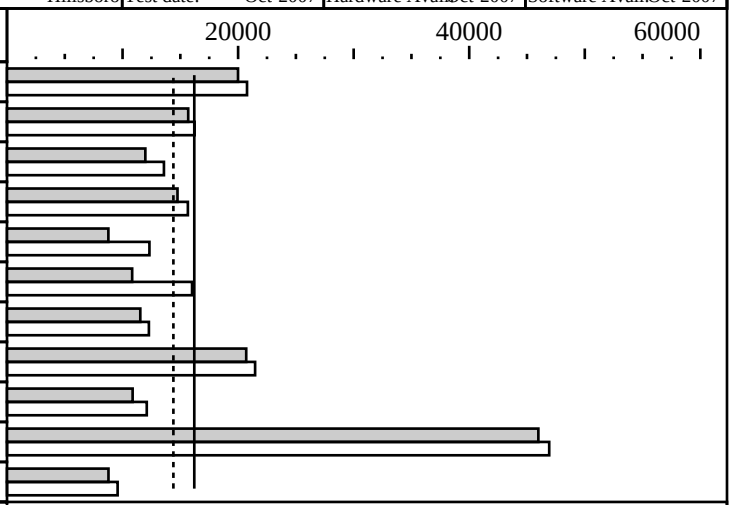
Sun Microsystems
Sun SPARC Enterprise T5220

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.equake_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 -DDBLS_PER_CACHELINE=8

Peak flags:
  ONESTEP=yes for all benchmarks in peak
```

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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.equake:  -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
```

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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.ammp:    -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.
```