OMPM2001 Result

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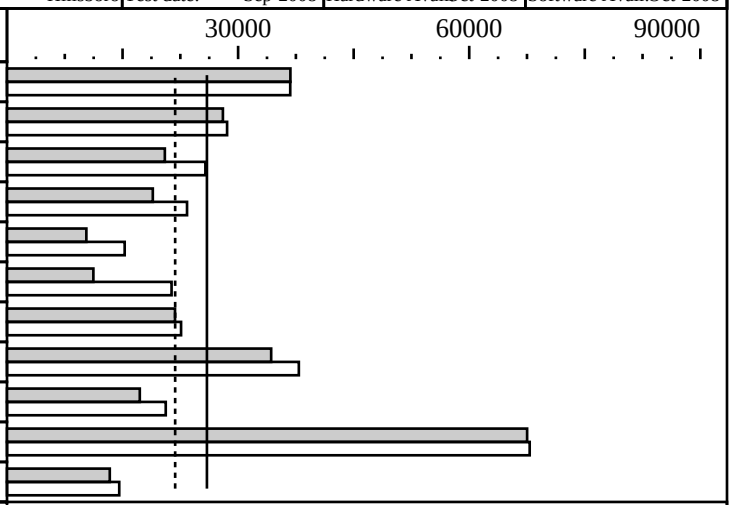
Sun Microsystems
Sun Blade T6340 Server Module

SPECompMpeak2001 = 25952

SPECompMbase2001 = 21829

SPEC license #: HPG0010	Tested by: Sun Microsystems	Test site: Hillsboro	Test date: Sep-2008	Hardware Avail: Oct-2008	Software Avail: Oct-2008

Benchmark	Reference Time	Base Runtime	Base Ratio	Peak Runtime	Peak Ratio
310.wupwise_m	6000	163	36787	163	36766
312.swim_m	6000	214	28026	210	28570
314.mgrid_m	7300	356	20489	283	25753
316.applu_m	4000	211	18927	171	23370
318.galgel_m	5100	495	10301	334	15276
320.equake_m	2600	232	11212	122	21361
324.apsi_m	3400	156	21809	150	22596
326.gafort_m	8700	254	34291	230	37883
328.fma3d_m	4600	267	17238	223	20606
330.art_m	6400	94.8	67515	94.3	67848
332.ammp_m	7000	525	13341	480	14569



Hardware

CPU:	UltraSPARC T2 Plus
CPU MHz:	1415
FPU:	Integrated
CPU(s) enabled:	16 cores, 2 chips, 8 cores/chip, 8 threads/core
CPU(s) orderable:	2
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:	128 GB (32 x 4 GB)
Disk Subsystem:	1 X 73 GB 15K RPM SAS disk
Other Hardware:	--

Software

OpenMP Threads:	127
Parallel:	OpenMP and Automatic Parallelization
Operating System:	Solaris 10 10/08
Compiler:	Sun Studio 12
File System:	UFS
System State:	Multi User

Notes/Tuning Information

```
Base notes:
  ONESTEP=yes for all benchmarks in base

  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

  Extra Base C flags: -Xc
  328.fma3d_m srcalt: ompm2001-fma3dsqrtinit-20070912, fix race condition
Peak notes:
  ONESTEP=yes for all benchmarks in peak

  310.wupwise: -fast -autopar -openmp -xipo=2 -m64
               -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
  314.mgrid:   -fast -openmp -xipo=2 -xprefetch_level=3 -m64
               -xpagesize=4m -xprefetch=latx:3 -xcode=abs32
               -xunroll=8 -xprofile
               OMP_NUM_THREADS=128
```

Notes/Tuning Information (Continued)

```
                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 = 80
                SUNW_MP_PROCBIND= 2 3 4 5 6 10 11 12 13 14 18 19 20 21 22
                  26 27 28 29 30 34 35 36 37 38 42 43 44 45 46 50 51 52
                  53 54 58 59 60 61 62 66 67 68 69 70 74 75 76 77 78 82
                  83 84 85 86 90 91 92 93 94 98 99 100 101 102 106 107
                  108 109 110 114 115 116 117 118 122 123 124 125 126
318.galgel:     -fast -xipo=2 -openmp -autopar -prefetch=latx:3.0
                -xunroll=8 -dbl_align_all=yes -stackvar -xlinkopt=2
                -xlic_lib=sunperf -m64 -xprofile
                RM_SOURCES=lapak.f90
                OMP_NUM_THREADS = 64
                SUNW_MP_PROCBIND= 3 4 5 6 11 12 13 14 19 20 21 22 27 28
                  29 30 35 36 37 38 43 44 45 46 51 52 53 54 59 60 61 62
                  67 68 69 70 75 76 77 78 83 84 85 86 91 92 93 94 99
                  100 101 102 107 108 109 110 115 116 117 118 123 124
                  125 126
320.equake:     -fast -xopenmp -xipo=2 -xprefetch=latx:2
                -xprefetch_level=3 -m64 -xunroll=4 -lmtmalloc
                -xpagesize=64K  -xautopar -xprofile
                srcalt = ompl.32
                OMP_NUM_THREADS = 96
                SUNW_MP_PROCBIND= 1 2 3 4 5 6 9 10 11 12 13 14 17 18 19 20
                  21 22 25 26 27 28 29 30 33 34 35 36 37 38 41 42 43 44 45
                  46 49 50 51 52 53 54 57 58 59 60 61 62 65 66 67 68 69 70
                  73 74 75 76 77 78 81 82 83 84 85 86 89 90 91 92 93 94 97
                  98 99 100 101 102 105 106 107 108 109 110 113 114 115
                  116 117 118 121 122 123 124 125 126
324.apsi:       -fast -openmp -xipo=2 -m64 -xpagesize=4M
                -xprefetch=latx:5 -xunroll=5 -xprofile
                OMP_NUM_THREADS = 128
                SUNW_MP_PROCBIND= 3 11 19 27 35 43 51 59 67 75 83 91 99
                  107 115 123 4 12 20 28 36 44 52 60 68 76 84 92 100 108
                  116 124 5 13 21 29 37 45 53 61 69 77 85 93 101 109 117
                  125 6 14 22 30 38 46 54 62 70 78 86 94 102 110 118 126
                  2 10 18 26 34 42 50 58 66 74 82 90 98 106 114 122 7 15
                  23 31 39 47 55 63 71 79 87 95 103 111 119 127 1 9 17
                  25 33 41 49 57 65 73 81 89 97 105 113 121 0 8 16 24 32
                  40 48 56 64 72 80 88 96 104 112 120
326.gafort:     -fast -autopar -openmp -xipo=2 -xprefetch_level=3
                -m64 -xpagesize=4m -xprefetch=latx:5 -xunroll=6
                -dbl_align_all=yes -stackvar -xprofile
                OMP_NUM_THREADS = 127
                SUNW_MP_PROCBIND= 3 11 19 27 35 43 51 59 67 75 83 91 99
                  107 115 123 4 12 20 28 36 44 52 60 68 76 84 92 100 108
                  116 124 5 13 21 29 37 45 53 61 69 77 85 93 101 109 117
                  125 6 14 22 30 38 46 54 62 70 78 86 94 102 110 118 126
                  2 10 18 26 34 42 50 58 66 74 82 90 98 106 114 122 7 15
                  23 31 39 47 55 63 71 79 87 95 103 111 119 127 1 9 17
                  25 33 41 49 57 65 73 81 89 97 105 113 121 0 8 16 24 32
                  40 48 56 64 72 80 88 96 104 112 120
328.fma3d:      -fast -autopar -openmp -xipo=2 -xprefetch_level=3
```

Notes/Tuning Information (Continued)

```
                -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
                OMP_NUM_THREADS = 127
                SUNW_MP_PROCBIND= 3 11 19 27 35 43 51 59 67 75 83 91 99
                  107 115 123 4 12 20 28 36 44 52 60 68 76 84 92 100 108
                  116 124 5 13 21 29 37 45 53 61 69 77 85 93 101 109 117
                  125 6 14 22 30 38 46 54 62 70 78 86 94 102 110 118 126
                  2 10 18 26 34 42 50 58 66 74 82 90 98 106 114 122 7 15
                  23 31 39 47 55 63 71 79 87 95 103 111 119 127 1 9 17
                  25 33 41 49 57 65 73 81 89 97 105 113 121 0 8 16 24 32
                  40 48 56 64 72 80 88 96 104 112 120
  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
Other notes:
  318.galgel_m portability flags: -e -fixed
  330.art_m extra flags: -DINTS_PER_CACHELINE=16 -DDBLS_PER_CACHELINE=8

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

The following user environment was used for base and peak runs
except as previously noted:
  ulimit -s 32768   (in /bin/sh)
  export OMP_DYNAMIC=FALSE
  export OMP_NUM_THREADS=127
  export SUNW_MP_PROCBIND="1-127"
  export SUNW_MP_THR_IDLE=SPIN
  export STACKSIZE=16384

/etc/system parameters:
  autoup=600
    Causes pages older than the listed number of seconds to
    be written by fsflush.
  bufhwm=3000
    Memory byte limit for caching I/O buffers
  segmap_percent=1
    Set maximum percent memory for file system cache
  tune_t_fsflushr=10
    Controls how many seconds elapse between runs of the
    page flush daemon, fsflush.
  tsb_rss_factor=128
    Suggests that the the size of the TSB (Translation Storage Buffer)
    may be increased if it is more than 25% (128/512) full.  Doing so
    may reduce TSB traps, at the cost of additional kernel memory.

The "webconsole" service was turned off using
  svcadm disable webconsole
```

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Notes/Tuning Information (Continued)

Sun Studio compiler patches are available at
The tested configuration included patch 124867-07,
124861-08, 124863-07, 127000-06

For a description of Sun Studio 12 Compiler flags, portability flags
and system parameters used to generate this result, please refer to
SUN-20080714-Studio-Solaris-sparc.txt file in the flags directory.