# OMPM2001 Result

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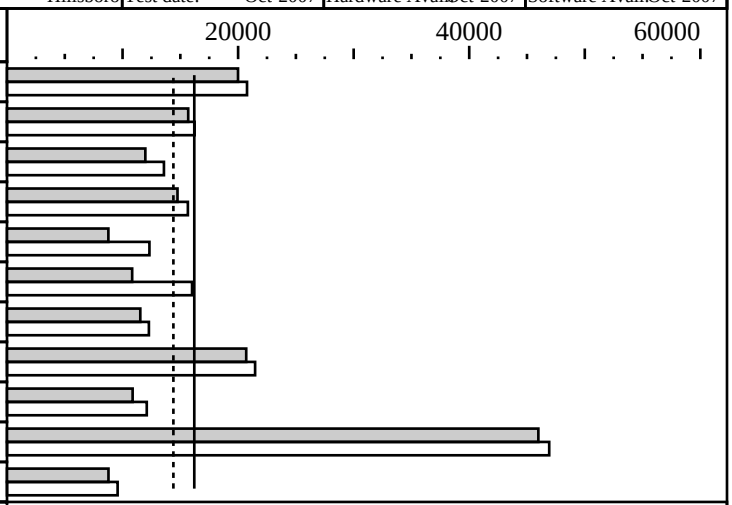
## Sun Microsystems
## Sun SPARC Enterprise T5120

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.
```