



# OMPM2001 Result

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Fujitsu Limited  
Fujitsu SPARC Enterprise T5220

SPECompMpeak2001 = 16208

SPECompMbase2001 = 14399

SPEC license #HPG0003 | 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



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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.amp: -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](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.