OMPM2001 Result

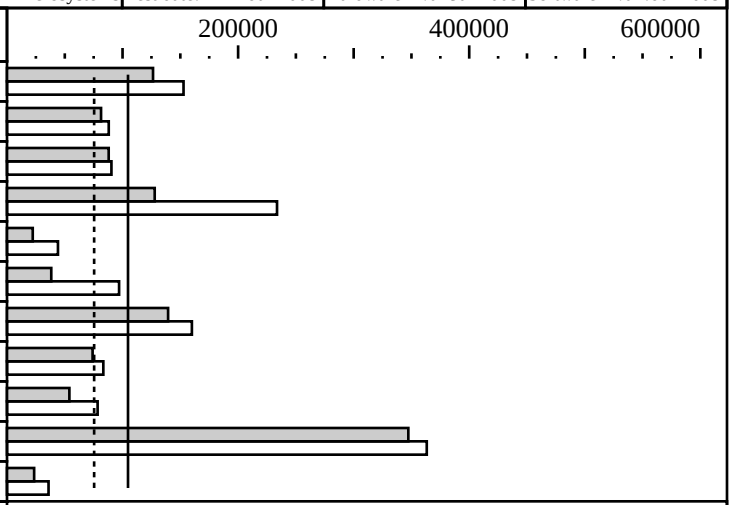
Sun Microsystems
Sun SPARC Enterprise M8000

SPECompMpeak2001 = 104714

SPECompMbase2001 = 75418

SPEC license #HPG0010 | Tested by: Sun Microsystems | Test site: Sun Microsystems | Test date: Jul-2008 | Hardware Avail:Jul-2008 | Software Avail: Jul-2008

Benchmark	Reference Time	Base Runtime	Base Ratio	Peak Runtime	Peak Ratio
310.wupwise_m	6000	47.5	126370	39.3	152770
312.swim_m	6000	73.7	81388	68.1	88043
314.mgrid_m	7300	83.0	88000	80.8	90372
316.applu_m	4000	31.3	127818	17.1	233687
318.galgel_m	5100	229	22278	116	44103
320.equake_m	2600	67.9	38306	26.8	96998
324.apsi_m	3400	24.4	139416	21.3	159998
326.gafort_m	8700	117	74071	104	83358
328.fma3d_m	4600	85.2	53985	58.7	78419
330.art_m	6400	18.4	347305	17.6	363255
332.ammp_m	7000	298	23489	195	35952



Hardware

CPU:	SPARC64 VII
CPU MHz:	2520
FPU:	Integrated
CPU(s) enabled:	64 cores, 16 chips, 4 cores/chip, 2 threads/core
CPU(s) orderable:	1 to 4 CMUs; each CMU contains 2 or 4 chips
Primary Cache:	64 KB I + 64 KB D on chip per core
Secondary Cache:	6 MB I+D on chip per chip
L3 Cache:	None
Other Cache:	None
Memory:	256 GB (128 x 2 GB)
Disk Subsystem:	Seagate 73 GB 10000 RPM SAS
Other Hardware:	--

Software

OpenMP Threads:	64
Parallel:	OpenMP and Automatic Parallelization
Operating System:	Solaris 10 5/08 with patch 137111-03
Compiler:	Sun Studio 12 with patches 124867-06, 124861-07, 124863-05, 127000-05
File System:	UFS
System State:	Multi-User

Notes/Tuning Information

```
Compiler Invocation:
  C:    cc
  F90:  f90
  F77:  f77

Base Tuning:
  C:   -fast -xopenmp -xalias_level=std -xipo=2
       -xprefetch_level=3 -m64 -lmtmalloc -g
       -xpagesize=4m -xprefetch=latx:4 -xprofile
  f90: -fast -openmp -m64 -xipo=2 -autopar -fma=fused
       -g -xpagesize=4m -xprefetch=latx:4 -xprofile
  ONESTEP=yes

  318.galgel_m portability flags: -e -fixed

Extra art allowed flags:
  330.art_m:     -DINTS_PER_CACHELINE=16 -DDBLS_PER_CACHELINE=8

Peak Notes:
  ONESTEP=yes

  310.wupwise_m: -fast -openmp -xunroll=4 -autopar -m32
                 -xipo=2 -fma=fused -xpagesize=512k
```

Notes/Tuning Information (Continued)

```
                    -Qoption iropt -Athr,-Apf:l2subblock=256,-Apf:ipa=9
                    -xprefetch=latx:3 -Qoption iropt -Rloop_dist
                    -xprofile
    312.swim_m:     -fast -openmp -m64 -xipo=2 -autopar
                    -fma=fused -xpagesize=512k -xprefetch=latx:3
    314.mgrid_m:    -fast -openmp -xipo=2 -xprefetch_level=3
                    -m32 -xpagesize=512K -xprefetch:latx:4.8
                    -fma=fused -Qoption iropt -Apf:l2subblock=256
                    -xprofile
    316.applu_m:    -fast -xipo=2 -openmp -xautopar -m64
                    -fma=fused -xpagesize=4m -xprefetch=latx:2.8
                    -Qoption iropt -Rloop_dist -xunroll=3 -xprofile
    318.galgel_m:   -fast -openmp -xipo=2  -xprefetch=latx:1
                    -xlic_lib=sunperf -xprofile
                    RM_SOURCES=lapak.f90
    320.equake_m:   -fast -xopenmp -xprefetch_level=3
                    -xpagesize=64k -xprefetch=latx:2 -xipo=2
                    -lmtmalloc -W2,-Apf:l2subblock=256
                    -xprofile
    324.apsi_m:     -fast -openmp -m64 -xipo=2 -autopar
                    -fma=fused -xpagesize=4m -xprefetch=latx:3.4
                    -Qoption iropt -Rloop_dist -xprofile
    326.gafort_m:   -fast -openmp -xprefetch_level=3 -m64
                    -fma=fused -xprefetch=latx:0.5 -xprofile
    328.fma3d_m:    -fast -openmp -autopar -xipo=2 -fma=fused
                    -m32 -unroll=5 -xprefetch=latx:4 -lmtmalloc
    330.art_m:      -fast -xopenmp -xipo=2 -xprefetch_level=3
                    -m64 -xprefetch=latx:3 -xprofile
    332.ammp_m:     -fast -xipo=2 -xopenmp -xautopar
                    -xalias_level=strong -lm -xpagesize=512K -g

  Alternate Source for Base and Peak:
    328.fma3d_m: sqrt.init, avoid a potential race condition.
    Available as SPEC OMP alternate source:
      ompm2001-fma3dsqrtinit-20070912.tar.gz

  Alternate Source for Peak:
    312.swim_m: ompl.32 (available in benchmark)
    316.applu_m: ompl.32 (available in benchmark)
    320.equake_m: ompl.32 (available in benchmark)
    328.fma3d_m: ompl.sqrt.init, avoid a potential race condition and
    incorporates ompl srcalt.  Available as SPEC OMP alternate source:
      ompm2001-fma3dsqrtinit-20070912.tar.gz

  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

  Base and Peak User Environment Settings:
    unlimit stacksize   (in /bin/csh)
    setenv SUNW_MP_PROCBIND "  1  2  4  6  8 10 12 14
      16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46
      48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78
```

Notes/Tuning Information (Continued)

```
    80 82 84 86 88 90 92 94 96 98 100 102 104 106 108
    110 112 114 116 118 120 122 124 126 "
  setenv SUNW_MP_THR_IDLE SPIN
  setenv OMP_DYNAMIC FALSE

Additional Peak User Environment Settings:
  OMP_NUM_THREADS settings per benchmark
    310.wupwise_m     64
    312.swim_m        64
    314.mgrid_m       64
    316.applu_m       64
    318.galgel_m      64
    320.equake_m      64
    324.apsi_m       127
    326.gafort_m      64
    328.fma3d_m       64
    330.art_m         32
    332.ammp_m       127
  SUNW_MP_PROCBIND was set per benchmark to distribute the work to as
  many cpus and cores as possible.  See config file for details.

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.

This result was measured on Sun SPARC Enterprise M8000.
The Sun SPARC Enterprise M8000 and the Fujitsu SPARC Enterprise
M8000 are electrically equivalent.

"CMU" = CPU/Memory Unit; each holds 2 or 4 CPU chips.
```