



OMPM2001 Result

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Fujitsu Limited
Fujitsu SPARC Enterprise T5240

SPECompMpeak2001 = 25488
SPECompMbase2001 = 21145

SPEC license #HPG0003 | Tested by: Sun Microsystems | Test site: Hillsboro | Test date: Mar-2008 | Hardware Avail: Apr-2008 | Software Avail: Apr-2008

Benchmark	Reference Time	Base Runtime	Base Ratio	Peak Runtime	Peak Ratio	
310.wupwise_m	6000	167	35939	166	36166	
312.swim_m	6000	251	23893	247	24277	
314.mgrid_m	7300	364	20074	306	23894	
316.applu_m	4000	223	17968	190	21025	
318.galgel_m	5100	503	10146	253	20143	
320.earthquake_m	2600	228	11383	125	20832	
324.apsi_m	3400	157	21658	153	22200	
326.gafort_m	8700	268	32404	248	35060	
328.fma3d_m	4600	274	16764	223	20632	
330.art_m	6400	96.3	66449	96.7	66152	
332.ammp_m	7000	518	13510	467	14997	

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: 64 GB (16 x 4GB)
 Disk Subsystem: 2 X 146GB (Seagate ST914602SSUN146G)
 Other Hardware: None

Software

OpenMP Threads: 128
 Parallel: OpenMP and Automatic Parallelization
 Operating System: Solaris 10 8/07
 Compiler: Sun Studio 12
 File System: UFS
 System State: Multi User

Notes/Tuning Information

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

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

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Notes/Tuning Information (Continued)

```

OMP_NUM_THREADS=128
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 -xlic_lib=sunperf
            -xprefetch=latx:3.0 -xunroll=8 -dbl_align_all=yes
            -stackvar -xlinkopt=2 -m64 -xprofile
RM_SOURCES=lapk.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 -xprofile
            -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

```



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Notes/Tuning Information (Continued)

```
-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
-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
```

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 runs:

```
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
```

The following patches were applied to Solaris Operating system:
patch 127111-08

Sun Studio compiler patches are available at
http://developers.sun.com/sunstudio/downloads/patches/ss12_patches.jsp
The tested configuration included patch 124867-02, 124861-04,
124863-01, 127000-01

The user environment for peak runs was same as for base except
as noted for each benchmark.



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Notes/Tuning Information (Continued)

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.

This result was measured on a Sun SPARC Enterprise T5240

Note that these systems are electricly equivalent:

- Sun SPARC Enterprise T5240
- Fujitsu SPARC Enterprise T5240