



# OMPM2001 Result

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Sun Microsystems  
Sun Blade X6275 (Intel Xeon X5570 2.93GHz)

SPECompMpeak2001 = 48097  
SPECompMbase2001 = 43777

SPEC license #HPG0010 | Tested by: Sun Microsystems | Test site: Menlo Park | Test date: Mar-2009 | Hardware Avail: Apr-2009 | Software Avail: Jun-2009

Benchmark	Reference Time	Base Runtime	Base Ratio	Peak Runtime	Peak Ratio
310.wupwise_m	6000	97.8	61335	95.3	62936
312.swim_m	6000	158	37889	151	39620
314.mgrid_m	7300	156	46940	154	47537
316.applu_m	4000	141	28387	141	28326
318.galgel_m	5100	142	35908	109	46950
320.earthquake_m	2600	52.5	49553	46.0	56502
324.apsi_m	3400	91.3	37254	81.6	41646
326.gafort_m	8700	192	45223	190	45818
328.fma3d_m	4600	137	33614	130	35459
330.art_m	6400	52.1	122878	37.0	173032
332.ammp_m	7000	237	29513	229	30558

### Hardware

CPU: Intel Xeon X5570  
 CPU MHz: 2926  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip, 2 threads/core  
 CPU(s) orderable: 1,2 chips  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 256 KB I+D on chip per core  
 L3 Cache: 8 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 24 GB (6 x 4 GB DDR3-1333)  
 Disk Subsystem: 1 x 24 GB, SAS, Sun FlashDisk  
 Other Hardware: None

### Software

OpenMP Threads: 16  
 Parallel: OpenMP and Automatic parallel  
 Operating System: OpenSolaris 2008.11  
 Compiler: Sun Studio 12 Update 1 (backend build 20090309)  
 File System: zfs  
 System State: Multi-User

## Notes/Tuning Information

### Compiler Invocation:

```
C : cc
F90 : f90
F77 : f90
```

### Base tuning:

```
Fortran : -fast -xtarget=nehalem -xarch=generic -xautopar -xopenmp
          -xipo=2 -xvector=lib -m64 -aligncommon=16 -fns=no -lmtmalloc
C       : -fast -xopenmp -xautopar -xipo=2 -xvector=lib
          -xprefetch -xprefetch_level=3 -m64 -lmtmalloc
ONESTEP=yes
```

### Peak tuning:

ONESTEP=yes for all peak tests.

```
310.wupwise_m : -fast -xtarget=nehalem -xarch=generic -xautopar
                -xopenmp -xipo=2 -xvector=lib -xprefetch
                -xprefetch_level=3 -m64 -lmtmalloc
                ENV_SUNW_MP_PROCBIND=8 10 12 14 9 11 13 15
                ENV_OMP_NUM_THREADS=8
312.swim_m    : -fast -xmodel=medium -Qoption ube -fsimple=3
                -xipo=2 -m64 -xvector=simd -xopenmp -lmvec
                srcalt = omp1.32
```



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## Notes/Tuning Information (Continued)

```

ENV_SUNW_MP_PROCBIND=8 10 12 14 9 11 13 15
ENV_OMP_NUM_THREADS=8
314.mgrid_m : -fast -xopenmp -xautopar -xipo=2 -xvector=lib
              -xprefetch -xprefetch_level=3 -m64 -lmtmalloc
ENV_SUNW_MP_PROCBIND=8 10 12 14 9 11 13 15
ENV_OMP_NUM_THREADS=8
316.applu_m  : -fast -xopenmp -xautopar -xipo=2 -xvector=lib
              -xprefetch -xprefetch_level=3 -m64 -xmodel=medium
              -lmtmalloc
              srcalt = ompl
ENV_SUNW_MP_PROCBIND=8 10 12 14 9 11 13 15
ENV_OMP_NUM_THREADS=8
318.galgel_m : -O3 -xpagesize=2M -xipo=2 -xvector=simd -m64 -xopenmp
              -xlic_lib=sunperf +FDO
              RM_SOURCES=lapak.f90
ENV_SUNW_MP_PROCBIND=8 10 12 14 9 11 13 15
ENV_OMP_NUM_THREADS=8
320.equake_m : -fast -fns=no -xalias_level=layout -xdepend=no
              -m64 -xopenmp -lmvec
              srcalt = ompl.32
ENV_SUNW_MP_PROCBIND=8 10 12 14 9 11 13 15
ENV_OMP_NUM_THREADS=8
324.apsi_m   : -fast -xipo=2 -m64 -xprefetch_level=3 -xvector
              -xopenmp -lmtmalloc
              srcalt = ompl.32
ENV_SUNW_MP_PROCBIND=8 10 12 14 9 11 13 15
ENV_OMP_NUM_THREADS=8
326.gafort_m : -fast -fstore -aligncommon=8 -xpagesize=2M -m64
              -xipo=2 -xvector=simd -xopenmp -lmvec
328.fma3d_m  : -fast -xipo=2 -m64 -xvector=simd -xopenmp
              srcalt = ompl.32
330.art_m    : -fast -xipo=2 -m64 -xopenmp
              ENV_SUNW_MP_PROCBIND=8 10 12 14 9 11 13 15
              ENV_OMP_NUM_THREADS=8
332.ammp_m   : -fast -xautopar -xipo=2 -xvector=simd -m64
              -Wu,-fsimple=3 -xopenmp -xpagesize=2M

```

Portability flags:  
 318.galgel\_m : -e -fixed

Extra art allowed flags:  
 330.art\_m : -DINTS\_PER\_CACHELINE=16 -DDBLS\_PER\_CACHELINE=8

Base and Peak User Environment:  
 export OMP\_NUM\_THREADS=16  
 export SUNW\_MP\_PROCBIND=TRUE  
 export SUNW\_MP\_THR\_IDLE=SPIN  
 export OMP\_NESTED=FALSE  
 export STACKSIZE=16384  
 export OMP\_DYNAMIC=TRUE  
 ulimit -s unlimited

For a description of Sun Studio 12 Update 1 flags, portability flags and system parameters used to generate this result, please refer to SUN-20090504-Studio-Solaris-X86\_64.txt file in the flags directory.



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## Notes/Tuning Information (Continued)

### Platform Notes:

Intel Turbo Boost Technology up to 3.33 GHz

Default BIOS settings used except:

Hyper-Threading Technology set to Enabled,

Intel VT-d: Disabled. VT-d, if enabled, supports remapping of I/O DMA transfers for virtualization.