



# OMPM2001 Result

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Oracle Corporation  
Sun Fire X4470

SPECompMpeak2001 = 118264

SPECompMbase2001 = 95650

SPEC license #HPG0010 | Tested by: Oracle Corporation | Test site: Menlo Park | Test date: Mar-2010 | Hardware Avail: Aug-2010 | Software Avail: Oct-2009

Benchmark	Reference Time	Base Runtime	Base Ratio	Peak Runtime	Peak Ratio
310.wupwise_m	6000	39.1	153623	37.5	159792
312.swim_m	6000	67.5	88840	63.9	93939
314.mgrid_m	7300	62.4	116909	60.9	119832
316.applu_m	4000	21.8	183220	21.8	183093
318.galgel_m	5100	155	32988	57.4	88790
320.earthquake_m	2600	42.9	60563	25.4	102232
324.apsi_m	3400	42.2	80575	36.2	93944
326.gafort_m	8700	77.9	111656	77.7	111943
328.fma3d_m	4600	68.1	67561	56.3	81711
330.art_m	6400	25.3	252859	17.8	360042
332.ammp_m	7000	102	68298	102	68433

### Hardware

CPU: Intel Xeon X7560  
 CPU MHz: 2266  
 FPU: Integrated  
 CPU(s) enabled: 32 cores, 4 chips, 8 cores/chip, 2 threads/core  
 CPU(s) orderable: 2,4 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: 24 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 256 GB (64x4GB, DDR3-1066MHz, CL7, 2 Rank, ECC Reg)  
 Disk Subsystem: 1 x 500 GB, SATA, 7200 RPM  
 Other Hardware: None

### Software

OpenMP Threads: 64  
 Parallel: OpenMP and Automatic parallel  
 Operating System: Oracle Solaris 10 10/09  
 Compiler: Oracle Solaris Studio 12 Update 1  
 File System: zfs  
 System State: Multi-User

## Notes/Tuning Information

### Compiler Invocation:

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

```
FDO: PASS1= -xprofile=collect:./feedback PASS2= -xprofile=use:./feedback
fdo_pre0: rm -rf ./feedback.profile
```

### Base tuning:

```
Fortran : -fast -xtarget=nehalem -xarch=generic -xipo=2 -xopenmp
          -xautopar -xvector=lib -m64 -lmtmalloc +FDO
C : -fast -xtarget=nehalem -fns=no -xdepend=no -m64 -xopenmp
    -lmvec +FDO
ONESTEP=yes
```

### Peak tuning:

ONESTEP=yes for all peak tests.

```
310.wupwise_m : -fast -xtarget=nehalem -xarch=generic -xipo=2 -xopenmp
                -xautopar -xvector=lib -m64 -lmtmalloc +FDO
                SUNW_MP_PROCBIND= 0 1 2 3 4 5 6 7 8 9 10 11
                                   12 13 14 15 16 17 18 19 20 21 22 23
                                   24 25 26 27 28 29 30 31
```



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## Notes/Tuning Information (Continued)

OMP\_NUM\_THREADS=32

```

312.swim_m      : -fast -xtarget=nehalem -xmodel=medium
                 -Qoption ube -fsimple=3 -xipo=2 -m64 -xvector=simd
                 -xopenmp -lmvec +FDO
                 srcalt = omp1.32
                 SUNW_MP_PROCBIND= 0  1  2  3  4  5  6  7  8  9 10 11
                                   12 13 14 15 16 17 18 19 20 21 22 23
                                   24 25 26 27 28 29 30 31
                 OMP_NUM_THREADS=32

```

```

314.mgrid_m     : -fast -xtarget=nehalem -xopenmp -xautopar -xipo=2
                 -lmtmalloc +FDO
                 SUNW_MP_PROCBIND= 0  1  2  3  4  5  6  7  8  9 10 11
                                   12 13 14 15 16 17 18 19 20 21 22 23
                                   24 25 26 27 28 29 30 31
                 OMP_NUM_THREADS=32

```

```

316.applu_m     : -fast -xtarget=nehalem -xarch=generic -xipo=2
                 -xmodel=medium -xopenmp -xautopar -xvector=lib
                 -m64 -aligncommon=16 -fns=no -lmtmalloc +FDO

```

```

318.galgel_m    : -O3 -xtarget=nehalem -xpagesize=2M -xipo=2
                 -xvector=simd -m64 -xopenmp -xlic_lib=sunperf +FDO
                 RM_SOURCES=lapak.f90
                 SUNW_MP_PROCBIND= 0  1  2  3  4  5  6  7  8  9 10 11
                                   12 13 14 15 16 17 18 19 20 21 22 23
                                   24 25 26 27 28 29 30 31
                 OMP_NUM_THREADS=32

```

```

320.quake_m     : -fast -xtarget=nehalem -fns=no -xalias_level=layout
                 -xdepend=no -m64 -xopenmp -lmvec +FDO
                 srcalt = omp1.32
                 SUNW_MP_PROCBIND= 0  1  2  3  4  5  6  7  8  9 10 11
                                   12 13 14 15 16 17 18 19 20 21 22 23
                                   24 25 26 27 28 29 30 31
                 OMP_NUM_THREADS=32

```

```

324.apsi_m      : -fast -xtarget=nehalem -xipo=2 -m64 -xprefetch_level=3
                 -xvector -xopenmp -lmtmalloc +FDO
                 srcalt = omp1.32
                 SUNW_MP_PROCBIND= 0  1  2  3  4  5  6  7  8  9 10 11
                                   12 13 14 15 16 17 18 19 20 21 22 23
                                   24 25 26 27 28 29 30 31
                 OMP_NUM_THREADS=32

```

```

326.gafort_m    : -fast -xtarget=nehalem -xarch=generic -xipo=2 -xopenmp
                 -xautopar -xvector=lib -m64 -aligncommon=16 -fns=no
                 -lmtmalloc +FDO

```

```

328.fma3d_m     : -fast -xtarget=nehalem -xipo=2 -m64 -xvector=simd
                 -xopenmp +FDO
                 srcalt = omp1.32

```

```

330.art_m       : -fast -xtarget=nehalem -xipo=2 -m64 -xopenmp +FDO

```



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## Notes/Tuning Information (Continued)

```
SUNW_MP_PROCBIND= 0 1 2 3 4 5 6 7 8 9 10 11
                  12 13 14 15 16 17 18 19 20 21 22 23
                  24 25 26 27 28 29 30 31
OMP_NUM_THREADS=32
```

```
332.ammp_m      : -fast -xtarget=nehalem -fns=no -xdepend=no -m64
                  -xopenmp -lmvec +FDO
```

### 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=64
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
```

### /etc/system parameters:

```
tune_t_fsflushr=10
autoup=900
zfs:zfs_arc_max = 0x10000000
lpg_alloc_prefer=1
```

For a description of Oracle Solaris Studio 12 Update 1 flags, portability flags and system parameters used to generate this result, please refer to Oracle-20100708-Studio-Solaris-x86.txt file in the flags directory.

### Default BIOS settings used.

```
Intel Turbo Boost technology enabled, maximum 2.66 GHz (default)
Intel Hyper-Threading technology enabled (default)
```