



OMPL2001 Result

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Oracle Corporation
Sun Fire X4470

SPECompLpeak2001 = 642479
SPECompLbase2001 = 615790

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
311.wupwise_l	9200	207	712374	206	713090
313.swim_l	12500	538	371887	530	377136
315.mgrid_l	13500	321	672651	314	688513
317.applu_l	13500	525	411363	525	411363
321.quake_l	13000	536	388097	471	442080
325.apsi_l	10500	238	705754	234	717727
327.gafort_l	11000	312	564564	311	566032
329.fma3d_l	23500	715	526010	689	546035
331.art_l	25000	187	2135306	160	2497053

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
          -xpagesize=2M -xmodel=medium -xautopar -xvector=lib -m64
          -lmtmalloc +FDO
C : -fast -m64 -xmodel=medium -fns=no -xdepend=no -m64 -xopenmp
    -lmvec +FDO
ONESTEP=yes
```

Peak tuning:

ONESTEP=yes for all peak tests.

```
311.wupwise_l: -fast -xtarget=nehalem -xarch=generic -xipo=2 -xopenmp
              -xpagesize=2M -xmodel=medium -xautopar -xvector=lib -m64
              -lmtmalloc +FDO
```

```
313.swim_l : -fast -xpagesize=2M -xmodel=medium -xopenmp -xautopar
            -xipo=2 -xvector=lib -xprefetch -xprefetch_level=3 -m64
            -lmtmalloc +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

```
315.mgrid_1 : -fast -xtarget=nehalem -xarch=generic -xpagesize=2M
              -xmodel=medium -xopenmp -xautopar -xipo=2 -xvector=lib
              -xprefetch -xprefetch_level=3 -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
              OMP_NUM_THREADS=32
```

317.applu_1 : basepeak=yes

```
321.quake_1 : -fast -xmodel=medium -fns=no -xalias_level=layout -m64
              -xdepend=no -xopenmp -lmvec +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
```

```
325.apsi_1 : -fast -xpagesize=2M -xmodel=medium -xopenmp -xautopar
             -xipo=2 -xvector=lib -xprefetch -xprefetch_level=3 -m64
             -lmtmalloc +FDO
```

```
327.gafort_1 : -fast -xmodel=medium -fstore -xpagesize=2M -xipo=2 -m64
              -xvector=simd -xopenmp -lmvec +FDO
```

```
329.fma3d_1 : -fast -xpagesize=2M -xmodel=medium -xopenmp -xautopar
              -xipo=2 -xvector=lib -xprefetch -xprefetch_level=3 -m64
```

```
331.art_1 : -fast -xpagesize=2M -xmodel=medium -xopenmp -xautopar
            -xipo=2 -xvector=lib -xprefetch -xprefetch_level=3 -m64
            -lmtmalloc
            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
```

Extra art allowed flags:

```
331.art_1 : -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
```



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Notes/Tuning Information (Continued)

```
zfs:zfs_arc_max = 0x10000000  
lpg_alloc_prefer=1
```

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

Default BIOS settings used.

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