



OMPL2001 Result

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Sun Microsystems
Sun Fire X4640

SPECompLpeak2001 = 381017
SPECompLbase2001 = 335907

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

Benchmark	Reference Time	Base Runtime	Base Ratio	Peak Runtime	Peak Ratio
311.wupwise_l	9200	267	550840	269	546345
313.swim_l	12500	830	240944	800	250120
315.mgrid_l	13500	598	361067	554	389913
317.applu_l	13500	1694	127484	1664	129829
321.quake_l	13000	936	222156	842	247017
325.apsi_l	10500	881	190765	422	398367
327.gafort_l	11000	585	300938	598	294335
329.fma3d_l	23500	835	450403	840	447667
331.art_l	25000	258	1551508	212	1886866

Hardware

CPU: AMD Opteron 8435
 CPU MHz: 2600
 FPU: Integrated
 CPU(s) enabled: 48 cores, 8 chips, 6 cores/chip
 CPU(s) orderable: 4,8 chips
 Primary Cache: 64 KB I + 64 KB D on chip per core
 Secondary Cache: 512 KB I+D on chip per core
 L3 Cache: 6 MB I+D on chip per chip
 Other Cache: None
 Memory: 256 GB (64x4GB, DDR2-667, CL5, Reg, Dual Rank)
 Disk Subsystem: 1 x SAS, 146 GB, 10K RPM
 Other Hardware: None

Software

OpenMP Threads: 48
 Parallel: OpenMP and Automatic parallel
 Operating System: Solaris 10 10/09
 Compiler: Sun Studio 12 Update 1
 File System: zfs
 System State: Multi-User

Notes/Tuning Information

Compiler Invocation:

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

Base tuning:

```
Fortran: -fast -xarch=generic -xpagesize=2M -xmodel=medium -xopenmp
-xautopar -xreduction -xipo=2 -xvector=lib -xprefetch
-xprefetch_level=3 -m64 -lmtmalloc
C: -fast -m64 -xmodel=medium -fns=no -xdepend=no
-xopenmp -lmvec
ONESTEP=yes
```

Peak tuning:

ONESTEP=yes for all peak tests.

```
311.wupwise_l: -fast -xarch=generic -xpagesize=2M -xmodel=medium -xopenmp -xautopar
-xipo=2 -xvector=lib -xprefetch -xprefetch_level=3 -m64 -lmtmalloc
313.swim_l: -fast -xarch=generic -xpagesize=2M -xmodel=medium -xopenmp -xautopar
-xipo=2 -xvector=lib -xreduction -xprefetch -xprefetch_level=3 -m64 -lmtmalloc
SUNW_MP_PROCBIND="0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46"
OMP_NUM_THREADS=24
315.mgrid_l: -fast -xarch=generic -xpagesize=2M -xmodel=medium -xopenmp -xautopar
-xipo=2 -xvector=lib -xprefetch -xprefetch_level=3 -m64 -lmtmalloc
SUNW_MP_PROCBIND="0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46"
OMP_NUM_THREADS=24
```



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Notes/Tuning Information (Continued)

```
317.applu_1: -fast -xarch=generic -xpagesize=2M -xmodel=medium -xopenmp -xautopar
             -xipo=2 -xvector=lib -xreduction -xprefetch -xprefetch_level=3 -m64 -lmtmalloc
             STACKSIZE=16384
321.equake_1: -fast -m64 -xmodel=medium -fns=no -xalias_level=layout -xdepend=no -xopenmp -lmvec
325.apsi_1:   -fast -xpagesize_stack=1G -xmodel=medium -xopenmp -xautopar -xipo=2 -xvector=lib
             -xprefetch -xprefetch_level=3 -m64 -lmtmalloc
327.gafort_1: -fast -xmodel=medium -fstore -aligncommon=8 -xipo=2 -m64 -xvector=simd
             -xopenmp -xreduction -lmvec
329.fma3d_1:  -fast -xreduction -xpagesize=2M -xmodel=medium -xopenmp -xautopar -xipo=2
             -xvector=lib -xprefetch -xprefetch_level=3 -m64 -lmtmalloc
331.art_1:    -fast -xpagesize=2M -xmodel=medium -xopenmp -xautopar -xipo=2 -xvector=lib
             -xprefetch -xprefetch_level=3 -m64 -lmtmalloc
SUNW_MP_PROCBIND="0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46"
OMP_NUM_THREADS=24
```

Extra art allowed flags:

```
331.art_1      : -DINTS_PER_CACHELINE=16 -DDBLS_PER_CACHELINE=8
```

Base and Peak User Environment:

```
export OMP_NUM_THREADS=48
export SUNW_MP_PROCBIND=TRUE
export SUNW_MP_THR_IDLE=SPIN
export OMP_NESTED=FALSE
export OMP_DYNAMIC=TRUE
ulimit -s unlimited
```

For a description of Sun Studio 12 Update 1 Compiler flags, portability flags and system parameters used to generate this result, please refer to SUN-20100105-Studio-Solaris-X86_64.txt file in the flags directory.

Default BIOS settings used.