



OMPL2001 Result

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Sun Microsystems Sun Fire E25K (72 processor)

SPECompLpeak2001 = 316182

SPECompLbase2001 = 240622

SPEC license #HPG0010 | Tested by: Sun Microsystems | Test site: Sun Microsystems | Test date: Feb-2004 | Hardware Avail: May-2004 | Software Avail: Jul-2004

Benchmark	Reference Time	Base Runtime	Base Ratio	Peak Runtime	Peak Ratio
311.wupwise_1	9200	392	375539	302	487262
313.swim_1	12500	894	223826	672	297689
315.mgrid_1	13500	1007	214577	704	306847
317.applu_1	13500	917	235603	883	244551
321.quake_1	13000	2967	70107	1814	114639
325.apsi_1	10500	1290	130228	935	179767
327.gafort_1	11000	770	228430	721	244119
329.fma3d_1	23500	2366	158909	1315	285845
331.art_1	25000	208	1920101	198	2017639

Hardware

CPU: Sun UltraSPARC s400
CPU MHz: 1050
FPU: Integrated
CPU(s) enabled: 144 cores, 72 chips, 2 cores/chip
CPU(s) orderable: 4-72 (multiples of 4 chips)
Primary Cache: 32KBI+64KBD per core on chip (64KBI+128KBD on chip)
Secondary Cache: 8MB(I+D) per core off chip (16MB(I+D) off chip)
L3 Cache: None
Other Cache: None
Memory: 288GB 16-way interleaved
Disk Subsystem: 1x72GB
Other Hardware: --

Software

OpenMP Threads: 143
Parallel: OpenMP + Auto Parallel
Operating System: Solaris 9 04/04
Compiler: Sun Studio 9 Early Access 1 (Beta)
File System: ufs
System State: Multi-User

Notes/Tuning Information

Base Flags and Notes:

ONESTEP=yes for all benchmarks

C: -fast -xopenmp -xalias_level=std -xipo=2 -Xc
-xprefetch_level=2 -xcode=abs44 -xarch=v9a -lmtmalloc
-xprofile

f90: -fast -openmp -xcode=abs44 -xarch=v9a -xipo=2 -autopar
-xprofile

submit = ppgsz -o heap=4m,stack=4m \$command

Extra art Base Flags:

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

Peak Flags and Notes:

ONESTEP=yes for all benchmarks

311.wupwise_1: -fast -openmp -autopar -xunroll=2
-Qoption iropt -Athr,-Ainline:inc=800:cp=1
-xipo=2 -xprefetch_level=3 -xarch=v9a
-xprofile

submit = ppgsz -o heap=512k,stack=512k \$command

313.swim_1: -fast -openmp -xarch=v9a -xipo=2 -autopar
-xprofile

submit = ppgsz -o heap=512k,stack=512k \$command



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Notes/Tuning Information (Continued)

```

315.mgrid_1: -fast -openmp -xipo=2 -xprefetch_level=3
              -xprefetch=latx:2 -xprofile
              -Qoption iropt -Apf:largedim -xarch=v9a
submit = ppgsz -o heap=512k,stack=512k $command
OMP_NUM_THREADS=128
317.applu_1: -fast -openmp -xipo=2
              -Qoption iropt -Aujam:inner=g -xunroll=1
              -xprefetch=latx:1.8 -xarch=v9a -xprofile
submit = ppgsz -o heap=4m,stack=4m $command
OMP_NUM_THREADS=133
321.earthquake_1: -fast -xopenmp -xipo=2 -xcode=abs44
                  -xrestrict -xalias_level=strong
                  -xprefetch_level=3 -xprefetch=latx:2.5
                  -W2,-Apf:pdl=1 -Wc,-Qlp-ip=1-ol=1
                  -xarch=v9a -lmtmalloc -xprofile
submit = ppgsz -o heap=64k,stack=64k $command
OMP_NUM_THREADS = 117
325.apsi_1: -fast -openmp -xcode=abs44
            -xipo -autopar -xarch=v9a -xprofile
submit = ppgsz -o heap=4m,stack=4m $command
OMP_NUM_THREADS = 140
327.gafort_1: -fast -openmp -autopar -xarch=v9a -xprofile
submit = ppgsz -o heap=4m,stack=4m $command
329.fma3d_1: -fast -openmp -xipo=2 -xprefetch_level=3
              -Qoption iropt -Athr,-Apf:pdl=1
              -Qoption cg -Qlp-ip=1
              -xarch=v9a -lmtmalloc -xprofile
submit = ppgsz -o heap=512k,stack=512k $command
331.art_1: -fast -xopenmp -xipo=2
            -xalias_level=strong -xprefetch_level=2
            -W2,-Apf:outer=0:pdl=1 -Wc,-Qlp-ip=1
            -xarch=v9a -lmopt -lm -lmtmalloc -xprofile
submit= ppgsz -o heap=512k,stack=512k $command

```

Alternate Source for Peak:

```

Change initial data distribution for WORK array
Submitted Source:  ompl2001-dd-20040128.tar.gz
325.apsi_1

```

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

```

Base and Peak User Environment:

```

unlimit stacksize (in /bin/csh)
setenv STACKSIZE 16384
setenv OMP_NUM_THREADS 143
setenv OMP_DYNAMIC FALSE
setenv MT_BIND_PROCESSOR "0 4 1 5 2 6 3 7
8 12 9 13 10 14 11 15 16 20 17 21 18 22 19 23
24 28 25 29 26 30 27 31 32 36 33 37 34 38 35 39
40 44 41 45 42 46 43 47 48 52 49 53 50 54 51 55
56 60 57 61 58 62 59 63 64 68 65 69 66 70 67 71
72 76 73 77 74 78 75 79 80 84 81 85 82 86 83 87"

```



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```
88 92 89 93 90 94 91 95 96 100 97 101 98 102 99 103
104 108 105 109 106 110 107 111
112 116 113 117 114 118 115 119
120 124 121 125 122 126 123 127
128 132 129 133 130 134 131 135
136 140 137 141 138 142 139 143"
```

Kernel Paramters (/etc/system):
set autoup=900
set tune_t_fsflushr=1

Sun Studio 9 will be generally available July 2004

System configuration details located at
<http://www.sun.com/servers/>