OMPL2001 Result

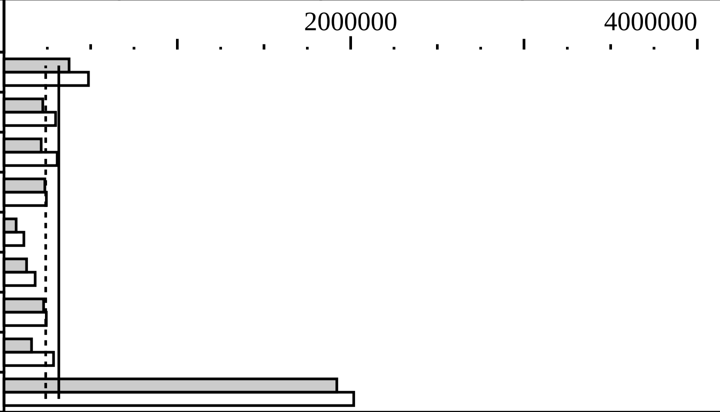
Sun Microsystems
Sun Fire E25K (72 processor)

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_l	9200	392	375539	302	487262
313.swim_l	12500	894	223826	672	297689
315.mgrid_l	13500	1007	214577	704	306847
317.applu_l	13500	917	235603	883	244551
321.equake_l	13000	2967	70107	1814	114639
325.apsi_l	10500	1290	130228	935	179767
327.gafort_l	11000	770	228430	721	244119
329.fma3d_l	23500	2366	158909	1315	285845
331.art_l	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_l:     -DINTS_PER_CACHELINE=16 -DDBLS_PER_CACHELINE=8

Peak Flags and Notes:
  ONESTEP=yes for all benchmarks

  311.wupwise_l: -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_l: -fast -openmp -xarch=v9a -xipo=2 -autopar
              -xprofile
      submit = ppgsz -o heap=512k,stack=512k $command
```

Notes/Tuning Information (Continued)

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    315.mgrid_l: -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_l: -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.equake_l: -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_l: -fast -openmp -xcode=abs44
                -xipo -autopar -xarch=v9a -xprofile
        submit = ppgsz -o heap=4m,stack=4m $command
        OMP_NUM_THREADS = 140
    327.gafort_l: -fast -openmp -autopar -xarch=v9a -xprofile
        submit = ppgsz -o heap=4m,stack=4m $command
    329.fma3d_l: -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_l: -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_l

  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
```

Notes/Tuning Information (Continued)

```
    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/
```