OMPL2001 Result

SGI

SGI Altix 4700 Density System (1600MHz 24M L3, DC Itanium2 9050)

SPECompLpeak2001 = 1005076
SPECompLbase2001 = 987139

Benchmark | Reference Time | Base Runtime | Base Ratio | Peak Runtime | Peak Runtime | Peak Ratio |
---|---|---|---|---|---|---|
311.wupwise_l | 9200 | 85.7 | 1717280 | 85.7 | 1717280 |
313.swim_l | 12500 | 124 | 1606568 | 124 | 1606568 |
315.mgrid_l | 13500 | 283 | 764544 | 258 | 837444 |
317.applu_l | 13500 | 297 | 727215 | 297 | 727215 |
321.equake_l | 13000 | 472 | 440372 | 472 | 440372 |
325.apsi_l | 10500 | 187 | 900515 | 174 | 966762 |
327.gafort_l | 11000 | 300 | 587544 | 300 | 587544 |
329.fma3d_l | 23500 | 496 | 758395 | 496 | 758395 |
331.art_l | 25000 | 122 | 3283637 | 122 | 3283637 |

Hardware

CPU: Intel DC Itanium2 Processor 9050
CPU MHz: 1600
FPU: Integrated
CPU(s) enabled: 256 cores, 128 chips, 2 cores/chip (Hyper-Threading Technology disabled)
CPU(s) orderable: 2-1024 cores
Primary Cache: 16KBI + 16KBD (on chip) per core
Secondary Cache: 1MBI + 256KBD (on chip) per core
L3 Cache: 12.0MB (on chip) per core
Other Cache: N/A
Memory: 512 GB (8*1G PC3200 DIMMS per 4 core module)
Disk Subsystem: 1 x 147 GB SCSI (Seagate Cheetah 10k rpm)
Other Hardware: None

Software

OpenMP Threads: 256
Parallel: OpenMP
Operating System: SUSE Linux Enterprise Server 10 + SGI ProPack(TM) 5
Compiler: Intel(R) Fortran Compiler for Linux 9.1 (Build 20060707)
File System: xfs
System State: Multi-user

Notes/Tuning Information

Baseline optimization flags:
C programs: -openmp -O3 -IPF_fp_relaxed -ipo -ansi_alias (ONESTEP)
Fortran programs: -openmp -O3 -IPF_fp_relaxed -ipo (ONESTEP)
OpenMP runtime library libguide.a statically linked

Extra Flags:
331.art_l: -DINTS_PER_CACHELINE=32 -DDBLS_PER_CACHELINE=16

User environment:
OMP_NUM_THREADS 256
limit stacksize 128000
KMP_STACKSIZE 124M
KMP_LIBRARY TURNAROUND
OMP_DYNAMIC FALSE
KMP_SCHEDULE static,balanced

Peak optimization flags
311.wupwise_l: basepeak=true
313.swim_l: basepeak=true
315.mgrid_l: -openmp -O3 -IPF_fp_relaxed -ipo
OpenMP runtime library libguide.a statically linked
OMP_NUM_THREADS = 128
submit = dplace -x2 -e -c255-0:2 $command
317.applu_l: basepeak=true
321.equake_l: basepeak=true
325.apsi_l: -openmp -O3 -IPF_fp_relaxed -ipo
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SPECompLpeak2001 = 1005076
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Notes/Tuning Information (Continued)
OpenMP runtime library libguide.a statically linked
OMP_NUM_THREADS = 128

submit = dplace -x2 -e -c255-0:2 $command
327.gafort_l: basepeak=true
329.fma3d_l: basepeak=true
331.art_l: basepeak=true

Required alternate sources:
Add critical region around update of linked list in parallel loop.
Approved src.alt available as ompl-purdue1-20040324.tar.gz
Used for 331.art_l, base and peak.

For all benchmarks threads were bound to cores using the following submit command:
dplace -x2 -e -cNTM1,0 $command,
where NTM1 is the number of threads minus 1.
This binds threads in order of creation, beginning with the master thread on core NTM1, the first slave thread on core NTM1-1, and so on.
The -x2 flag instructs dplace to skip placement of the lightweight OpenMP monitor thread, which is created prior to the slave threads.

For a description of SGI's compiler flags, portability flags, and system parameters used to generate this result, please refer to the SGI-20060801-Linux-Intel9.1-IPF.txt file in the flags directory.