IBM Corporation

IBM BladeCenter HS22 (Intel Xeon E5649)

SPECfp®2006 = 52.1
SPECfp_base2006 = 48.7

CPU2006 license: 11
Test sponsor: IBM Corporation
Tested by: IBM Corporation

SPECfp2006 = 52.1
SPECfp_base2006 = 48.7

Hardware

CPU Name: Intel Xeon E5649
CPU Characteristics: Intel Turbo Boost Technology up to 2.93 GHz
CPU MHz: 2533
FPU: Integrated
CPU(s) enabled: 12 cores, 2 chips, 6 cores/chip, 2 threads/core
CPU(s) orderable: 1,2 chips
Primary Cache: 32 KB I + 32 KB D on chip per core
Secondary Cache: 256 KB I+D on chip per core

Software

Operating System: SUSE Linux Enterprise Server 11 SP1 (x86_64), Kernel 2.6.32.12-0.7-default
Compiler: Intel C++ and Fortran Intel 64 Compiler XE for applications running on Intel 64
Auto Parallel: Yes
File System: ext3
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
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L3 Cache: 12 MB I+D on chip per chip
Other Cache: None
Memory: 48 GB (12 x 4 GB 2Rx8 PC3-10600R-9, ECC)
Disk Subsystem: 1 x 73 GB SAS, 10000 RPM
Other Hardware: None
Peak Pointers: 32/64-bit
Other Software: None

Results Table

<table>
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<tr>
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<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
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<td>48.7</td>
</tr>
</tbody>
</table>

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Operating System Notes

'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
'nodedev /mnt/hugepages hugetlbfs defaults 0 0' added to /etc/fstab
'echo 900 > /proc/sys/vm/nr_hugepages
export HUGETLB_MORECORE=yes
export LD_PRELOAD=/usr/lib64/libhugetlbfs.so

Platform Notes

Load Default BIOS Settings and then change the following
Turbo Mode enabled
Turbo Boost set to Traditional
Power C-states enabled
Demand Scrub disabled
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Software Availability: Apr-2011

General Notes

Binaries compiled on RHEL5.5
OMP_NUM_THREADS set to number of cores

Base Compiler Invocation

C benchmarks:
icc  -m64

C++ benchmarks:
icpc  -m64

Fortran benchmarks:
ifort  -m64

Benchmarks using both Fortran and C:
icc  -m64 ifort  -m64

Base Portability Flags

410.hwaves:  -DSPEC_CPU_LP64
416.gamess:  -DSPEC_CPU_LP64
433.milc:  -DSPEC_CPU_LP64
434.zeusmp:  -DSPEC_CPU_LP64
435.gromacs:  -DSPEC_CPU_LP64 -nofor_main
436.cactusADM:  -DSPEC_CPU_LP64 -nofor_main
437.leslie3d:  -DSPEC_CPU_LP64
444.namd:  -DSPEC_CPU_LP64 -nofor_main
447.dealII:  -DSPEC_CPU_LP64
450.soplex:  -DSPEC_CPU_LP64
453.povray:  -DSPEC_CPU_LP64
454.calculix:  -DSPEC_CPU_LP64 -nofor_main
459.GemsFDTD:  -DSPEC_CPU_LP64
465.tonto:  -DSPEC_CPU_LP64
470.lbm:  -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
481.wrf:  -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
482.sphinx3:  -DSPEC_CPU_LP64

Base Optimization Flags

C benchmarks:
-xSSE4.2  -ipo  -O3  -no-prec-div  -static  -parallel  -opt-prefetch  -ansi-alias

C++ benchmarks:
-xSSE4.2  -ipo  -O3  -no-prec-div  -static  -opt-prefetch  -ansi-alias

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Base Optimization Flags (Continued)

Fortran benchmarks:
- xsSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Benchmarks using both Fortran and C:
- xsSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
- ansi-alias

Peak Compiler Invocation

C benchmarks:
icc -m64

C++ benchmarks:
icpc -m64

Fortran benchmarks:
ifort -m64

Benchmarks using both Fortran and C:
icc -m64 ifort -m64

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

433.milc: -xsSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
   -no-prec-div(pass 2) -prof-use(pass 2) -static -auto-ilp32
   -ansi-alias

470.lbm: basepeak = yes

482.sphinx3: -xsSE4.2 -ipo -O3 -no-prec-div -unroll2 -ansi-alias
   -parallel

C++ benchmarks:

444.namd: -xsSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
   -no-prec-div(pass 2) -prof-use(pass 2) -fno-alias
   -auto-ilp32

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### Peak Optimization Flags (Continued)

447.dealII: basepeak = yes

450.soplex: basepeak = yes

453.povray:
- `-xSSE4.2(pass 2)`
- `-prof-gen(pass 1)`
- `-ipo(pass 2)`
- `-O3(pass 2)`
- `-no-prec-div(pass 2)`
- `-prof-use(pass 2)`
- `-unroll4`
- `-ansi-alias`
- `-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT`

Fortran benchmarks:

410.bwaves:
- `-xSSE4.2`
- `-ipo`
- `-O3`
- `-no-prec-div`
- `-opt-prefetch`
- `-parallel`
- `-static`

416.gamess:
- `-xSSE4.2(pass 2)`
- `-prof-gen(pass 1)`
- `-ipo(pass 2)`
- `-O3(pass 2)`
- `-no-prec-div(pass 2)`
- `-prof-use(pass 2)`
- `-unroll2`
- `-inline-level=0`
- `-scalar-rep`
- `-static`

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: basepeak = yes

465.tonto:
- `-xSSE4.2(pass 2)`
- `-prof-gen(pass 1)`
- `-ipo(pass 2)`
- `-O3(pass 2)`
- `-no-prec-div(pass 2)`
- `-prof-use(pass 2)`
- `-inline-calloc`
- `-opt-malloc-options=3`
- `-auto`
- `-unroll4`
- `-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT`

Benchmarks using both Fortran and C:

435.gromacs:
- `-xSSE4.2(pass 2)`
- `-prof-gen(pass 1)`
- `-ipo(pass 2)`
- `-O3(pass 2)`
- `-no-prec-div(pass 2)`
- `-prof-use(pass 2)`
- `-static`
- `-auto-ilp32`
- `-ansi-alias`

436.cactusADM: basepeak = yes

454.calculix:
- `-xSSE4.2`
- `-ipo`
- `-O3`
- `-no-prec-div`
- `-auto-ilp32`
- `-ansi-alias`

481.wrf: basepeak = yes

The flags files that were used to format this result can be browsed at:


You can also download the XML flags sources by saving the following links:

## SPEC CFP2006 Result

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