SPEC® CFP2006 Result

Huawei
Huawei BH620, Intel Xeon E5649

SPECfp®_rate2006 = NC
SPECfp_rate_base2006 = NC

<table>
<thead>
<tr>
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CPU2006 license: 3175
Test sponsor: Huawei
Tested by: Huawei

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 chip
Primary Cache: 32 KB I + 32 KB D on chip per core
Secondary Cache: 256 KB I+D on chip per core
L3 Cache: 12 MB I+D on chip per chip
Other Cache: None
Memory: 48 GB (12 x 4 GB 2Rx4 PC3-10600R-9, ECC)
Disk Subsystem: 1 x 300 GB SAS, 15K RPM
Other Hardware: None

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
Version 12.0.1.116 Build 20101116
Auto Parallel: No
File System: ext3
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: None

Non-Compliant

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Results Table

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

Submit Notes

The config file option 'submit' was used.
numactl was used to bind copies to the cores

Operating System Notes

'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
echo 1 > /proc/sys/vm/zone_reclaim_mode
'mount -t hugetlbfs nodev /mnt/hugepages' was used to enable large pages
echo 10800 > /proc/sys/vm/nr_hugepages

Non-Compliant
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Tested by: Huawei

Test date: May-2011
Hardware Availability: May-2010
Software Availability: Jan-2011

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Operating System Notes (Continued)

- `export HUGETLB_MORECORE=yes`
- `export LD_PRELOAD=/usr/lib64/libhugetlbfs`

Platform Notes
Data Reuse Optimization disabled in BIOS Setup.

General Notes
Binaries compiled on RHEL 5.5

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

- `416.bwaves: -DSPEC_CPU_LP64`
- `416.gccg: -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`

Continued on next page
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### Base Portability Flags (Continued)

- 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
- 482.sphinx3: -DSPEC_CPU_LP64

### Base Optimization Flags

- **C benchmarks:**
  -xSSE4.2 -ipo -O3 -no-prec-div -static -ansi-alias

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

- **Fortran benchmarks:**
  -xSSE4.2 -ipo -O3 -no-prec-div -static

- **Benchmarks using both Fortran and C:**
  -xSSE4.2 -ipo -O3 -no-prec-div -static -ansi-alias

### Peak Compiler Invocation

- **C benchmarks (except as noted below):**
  -icc  -m64
  - 482.sphinx3: icc  -m32

- **C++ benchmarks (except as noted below):**
  -icpc  -m64
  - 450.soplex: icpc  -m32

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Peak Compiler Invocation (Continued)

Fortran benchmarks:
ifort -m64

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

Peak Portability Flags

410.bwaves: -DSPEC_CPU_LP64
416.gamess: -DSPEC_CPU_LP64
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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

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

470.lbm: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
   -no-prec-div(pass 2) -prof-use(pass 2) -opt-malloc-options=3
   -ansi-alias -opt-prefetch -static -auto-ilp32

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Peak Optimization Flags (Continued)

482.sphinx3: -xSSE4.2 -ipo -03 -no-prec-div -unroll2

C++ benchmarks:

444.namd: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -03(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -fno-alias
-auto-ilp32

447.dealII: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -03(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -static -auto-ilp32

450.soplex: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -03(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -opt-malloc-options=3
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

453.povray: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -03(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -unroll14 -ansi-alias
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

Fortran benchmarks:

410.bwaves: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -03(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -static

416.gamess: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -03(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -unroll2
-inline-level=0 -scalar-rep- -static

434.xsumq: basepeak = yes

437.leslie3d: -xSSE4.2 -ipo -03 -no-prec-div
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

459.GemsFDTD: basepeak = yes

465.tonto: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -03(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -unroll14 -auto
-inline-calloc -opt-malloc-options=3
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

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**Peak Optimization Flags (Continued)**

Benchmarks using both Fortran and C:

- **435.gromacs**:
  - -xSSE4.2 (pass 2)
  - -prof-gen (pass 1)
  - -lp (pass 2)
  - -O3 (pass 2)
  - -no-prec-div (pass 2)
  - -prof-use (pass 2)
  - -z-prefetch
  - -static
  - -auto-ilp32

- **436.cactusADM**: basepeak = yes

- **454.calculix**: basepeak = yes

- **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:

- [http://www.spec.org/cpu2006/flags/HUAWEI-platform-linux64-revB.xml](http://www.spec.org/cpu2006/flags/HUAWEI-platform-linux64-revB.xml)

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For questions about this result, please contact the tester.

For other inquiries, please contact webmaster@spec.org.

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