IBM Corporation

IBM BladeCenter HX5 (Intel Xeon E7-2850)

**SPECfp®_rate2006 =** 317

**SPECfp_rate_base2006 =** 305

**CPU2006 license:** 11

**Test sponsor:** IBM Corporation

**Tested by:** IBM Corporation

**Test date:** Jun-2011

**Hardware Availability:** May-2011

**Software Availability:** Jan-2011

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**Hardware**

- **CPU Name:** Intel Xeon E7-2850
- **CPU Characteristics:** Intel Turbo Boost Technology up to 2.4 GHz
- **CPU MHz:** 2000
- **FPU:** Integrated
- **CPU(s) enabled:** 20 cores, 2 chips, 10 cores/chip, 2 threads/core
- **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
  Version 12.0.1.116 Build 20101116
- **Auto Parallel:** No
- **File System:** ext3
- **System State:** Run level 3 (multi-user)
- **Base Pointers:** 64-bit
IBM Corporation

IBM BladeCenter HX5 (Intel Xeon E7-2850)

**SPEC CFP2006 Result**

<table>
<thead>
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</table>

**L3 Cache:** 24 MB I+D on chip per chip

**Other Cache:** None

**Memory:** 128 GB (16 x 8 GB 4Rx8 PC3-8500R-7, ECC)

**Disk Subsystem:** 2 x 50 GB SSD, RAID 0

**Other Hardware:** None

**Peak Pointers:** 32/64-bit

**Other Software:** None

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### Results Table

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</tbody>
</table>

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

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### 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 18000 > /proc/sys/vm/hr_hugepages

export HUGETLB_MORECORE=yes

export LD_PRELOAD=/usr/lib64/libhugetlbfs.so
SPEC CFP2006 Result

IBM Corporation

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SPECfp_rate2006 = 317
SPECfp_rate_base2006 = 305

CPU2006 license: 11
Test sponsor: IBM Corporation
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Hardware Availability: May-2011
Software Availability: Jan-2011

Platform Notes

BIOS Settings:
Turbo Boost Power Optimization set to Traditional

General Notes

Binaries were compiled on RHEL5.5

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

410.bwaves: -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
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
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 -ansi-alias

Continued on next page
SPEC CFP2006 Result

IBM Corporation
IBM BladeCenter HX5 (Intel Xeon E7-2850)

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### Base Optimization Flags (Continued)

**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
```

**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
433.milc: -DSPEC_CPU_LP64
434.zeusmp: -DSPEC_CPU_LP64
435.gromacs: -DSPEC_CPU_LP64 -nofor_main
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
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454.calculix: -DSPEC_CPU_LP64 -nofor_main
459.GemsFDTD: -DSPEC_CPU_LP64
465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
```
IBM Corporation
IBM BladeCenter HX5 (Intel Xeon E7-2850)

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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

482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2

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

447.dealII: basepeak = yes

450.soplex: -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
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

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(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -static

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

Benchmarks using both Fortran and C:

Continued on next page
**SPEC CFP2006 Result**

**IBM Corporation**

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**Peak Optimization Flags (Continued)**

- 435.gromacs: 
  -xSSE4.2(pass 2) 
  -prof-gen(pass 1) 
  -ipo(pass 2) 
  -03(pass 2) 
  -no-prec-div(pass 2) 
  -prof-use(pass 2) 
  -opt-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:


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

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