SPEC® CFP2006 Result

Huawei
Huawei RH2285, Intel Xeon E5649

SPECfp<sup>®</sup>_rate2006 = NC
SPECfp_rate_base2006 = NC

CPU2006 license: 3175
Test date: May-2011
Test sponsor: Huawei
Hardware Availability: May-2011
Tested by: Huawei
Software Availability: Jan-2011

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Copies

| 410.bwaves |
| 416.gamess |
| 433.milc |
| 434.zeusmp |
| 435.gromacs |
| 436.cactusADM |
| 437.leslie3d |
| 444.namd |
| 447.dealII |
| 450.soplex |
| 453.povray |
| 454.calculix |
| 459.GemsFDTD |
| 465.tonto |
| 470.lbm |
| 481.wrf |
| 482.sphinx3 |
**Huawei**

Huawei RH2285, Intel Xeon E5649

<table>
<thead>
<tr>
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### Hardware

<table>
<thead>
<tr>
<th>CPU Name:</th>
<th>Intel Xeon E5649</th>
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</thead>
<tbody>
<tr>
<td>CPU Characteristics:</td>
<td>Intel Turbo Boost Technology up to 2.93 GHz</td>
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<tr>
<td>CPU MHz:</td>
<td>2533</td>
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<tr>
<td>FPU:</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled:</td>
<td>12 cores, 2 chips, 6 cores/chip, 2 threads/core</td>
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<tr>
<td>CPU(s) orderable:</td>
<td>1,2 chip</td>
</tr>
<tr>
<td>Primary Cache:</td>
<td>32 KB I + 32 KB D on chip per core</td>
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<tr>
<td>Secondary Cache:</td>
<td>256 KB I+D on chip per core</td>
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<tr>
<td>L3 Cache:</td>
<td>12 MB I+D on chip per chip</td>
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<tr>
<td>Other Cache:</td>
<td>None</td>
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<tr>
<td>Memory:</td>
<td>48 GB (12 x 4 GB 2Rx4, C3-10600R-9, ECC)</td>
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<tr>
<td>Disk Subsystem:</td>
<td>1 x 300 GB SAS, 15K RPM</td>
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<tr>
<td>Other Hardware:</td>
<td>None</td>
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</table>

### 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
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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.

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

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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.games: -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
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

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`
- 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`
- 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`

### Peak Optimization Flags

**C benchmarks:**

- `milc: -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`
- `lbm: -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 -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 2) -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) -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) -03(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -static

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) -unroll4 -auto
-inline-callc -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) -03 (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:

http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.html
http://www.spec.org/cpu2006/flags/HUAWEI-platform-linux64-revB.html

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

http://www.spec.org/cpu2006/flags/Intel-ic12.0-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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