Huawei

Huawei XH620, Intel Xeon X5670

<table>
<thead>
<tr>
<th>SPECfp®2006 =</th>
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</tr>
</thead>
<tbody>
<tr>
<td>SPECfp_base2006 =</td>
<td>NC</td>
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CPU2006 license: 3175
Test sponsor: Huawei
Test date: May-2011

Tested by: Huawei
Hardware Availability: May-2011
Software Availability: Jan-2011

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<table>
<thead>
<tr>
<th>Hardware</th>
<th>Software</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CPU Name:</strong></td>
<td><strong>Operating System:</strong></td>
</tr>
<tr>
<td>Intel Xeon X5670</td>
<td>SUSE Linux Enterprise Server 11 SP1 (x86_64), Kernel 2.6.32.12-0.7-default</td>
</tr>
<tr>
<td><strong>CPU Characteristics:</strong></td>
<td><strong>Compiler:</strong></td>
</tr>
<tr>
<td>Intel Turbo Boost Technology up to 3.33 GHz</td>
<td>Intel C++ and Fortran Intel 64 Compiler XE for applications running on Intel 64 Version 12 Alpha Build 20110105</td>
</tr>
<tr>
<td><strong>CPU MHz:</strong></td>
<td><strong>Auto Parallel:</strong></td>
</tr>
<tr>
<td>2933</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>FPU:</strong></td>
<td><strong>System:</strong></td>
</tr>
<tr>
<td>Integrated</td>
<td>ext3</td>
</tr>
<tr>
<td><strong>CPU(s) enabled:</strong></td>
<td><strong>System State:</strong></td>
</tr>
<tr>
<td>12 cores, 2 chips, 6 cores/chip</td>
<td>Run level 3 (multi-user)</td>
</tr>
<tr>
<td><strong>CPU(s) orderable:</strong></td>
<td><strong>Base Pointers:</strong></td>
</tr>
<tr>
<td>1.2 chip</td>
<td>64-bit</td>
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<tr>
<td><strong>Primary Cache:</strong></td>
<td><strong>Disk Pointers:</strong></td>
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<tr>
<td>32 KB I + 32 KB D on chip per core</td>
<td>32/64-bit</td>
</tr>
<tr>
<td><strong>Secondary Cache:</strong></td>
<td><strong>Other Software:</strong></td>
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<tr>
<td>256 KB I+D on chip per core</td>
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<td><strong>L3 Cache:</strong></td>
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<td><strong>Other Cache:</strong></td>
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<td><strong>Memory:</strong></td>
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</tr>
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<td>48 GB (12 x 4 GB 2Rx4 ECC-10600R-9, ECC)</td>
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<td><strong>Disk Subsystem:</strong></td>
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<td>1 x 300 GB SAS, 15K RPM</td>
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<td><strong>Other Hardware:</strong></td>
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### Results Table

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<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
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</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
'mount -t hugetlbfs nodev /mnt/hugepages' was used to enable large pages
'echo 900 > /proc/sys/vm/nr_hugepages'
'export HUGETLB_MORECORE=yes'
'export LD_PRELOAD=/usr/lib64/libhugetlbfs.so'

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Platform Notes
Data Reuse Optimization disabled in BIOS Setup.
Intel HT technology Disabled in BIOS Setup.

General Note:
Binaries compiled on RHEL5.5
OMP_NUM_THREADS set to number of CPU 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

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
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450.soplex: -DSPEC_CPU_LP64
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Base Portability Flags (Continued)

454.calcuiix: -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 -parallel -opt-prefetch
-ansi-alias

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

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
Huawei

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**SPEC CFP2006 Result**

<table>
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<tr>
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<th>3175</th>
</tr>
</thead>
<tbody>
<tr>
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**SPECfp_base2006 = NC**

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### 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
  -static

- 47.dealII: basepeak = yes

- 450.soatex: basepeak = yes

- 462.dune: -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.gameess: -xSSE4.2 (pass 2) -prof-gen (pass 1) -ipo (pass 2) -O3 (pass 2)
  -no-prec-div (pass 2) -prof-use (pass 2) -unroll12
  -inline-level=0 -scalar-repeat -static

Determined by: SPEC
Huawei

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#### Peak Optimization Flags (Continued)

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
- no-prec-div(pass 2) -prof-use(pass 3) -unroll2
- inline-level=0 -ipo -prefetch -parallel
- B /usr/share/libhugetlbfs/ -Wl,melf_x86_64 -Wl,hugetlbfs-link=BDT

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 -unroll14
- 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

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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