Huawei

Huawei XH620, Intel Xeon X5670

SPECint®2006 = NC
SPECint_base2006 = NC

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

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<table>
<thead>
<tr>
<th>SPEC Test ID</th>
<th>Benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>400</td>
<td>perlbench</td>
</tr>
<tr>
<td>401</td>
<td>bzip2</td>
</tr>
<tr>
<td>403</td>
<td>gcc</td>
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<tr>
<td>429</td>
<td>mcf</td>
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<tr>
<td>445</td>
<td>gobmk</td>
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<tr>
<td>456</td>
<td>hammer</td>
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<td>458</td>
<td>sjeng</td>
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<tr>
<td>462</td>
<td>libquantum</td>
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<td>464</td>
<td>h264ref</td>
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<tr>
<td>471</td>
<td>omnetpp</td>
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<tr>
<td>473</td>
<td>astar</td>
</tr>
<tr>
<td>483</td>
<td>xalancbmk</td>
</tr>
</tbody>
</table>

### Hardware

- **CPU Name:** Intel Xeon X5670
- **CPU Characteristics:** Intel Turbo Boost Technology up to 3.33 GHz
- **CPU MHz:** 2933
- **FPU:** Integrated
- **CPU(s) enabled:** 12 cores, 2 chips, 6 cores/chip
- **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

### Software

- **Operating System:** SUSE Linux Enterprise Server 11 SP1 (x86_64), Kernel 2.6.32.12-0.7-default
- **Compiler:** Intel C++ Intel 64 Compiler XE for applications running on Intel 64 Version 12.0.1.116 Build 20101116
- **Auto Parallel:** Yes
- **File System:** ext3
- **System State:** Run level 3 (multi-user)
- **Base Pointers:** 32/64-bit
- **Peak Pointers:** 32/64-bit

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Continued on next page

Non-Compliant
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Memory: 48 GB (12 x 4 GB 2Rx4 PC3-10600R-9, ECC)
Disk Subsystem: 1 x 300 GB SAS, 15K RPM
Other Software: Microquill SmartHeap V9.01

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
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</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'

Platform Notes

Data Reuse Optimization disabled in BIOS Setup.
Intel HT technology Disabled in BIOS Setup.
SPEC CINT2006 Result

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General Notes
Binaries compiled on RHEL 5.5
OMP_NUM_THREADS set to number of cores

Base Compiler Invocation

C benchmarks:
icc -m64

C++ benchmarks:
icpc -m64

Base Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
403.gcc: -DSPEC_CPU_LP64
429.mcf: -DSPEC_CPU_LP64
445.gobmk: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
464.h264ref: -DSPEC_CPU_LP64
471.omnetpp: -DSPEC_CPU_LP64
473.astar: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

C++ benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs
-L/smarterheap -lsmarterheap64
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT
### SPEC CINT2006 Result

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### Base Other Flags

C benchmarks:

- 403.gcc: -Dalloca=_alloca

### Peak Compiler Invocation

C benchmarks (except as noted below):

- `icc -m64`
  - 400.perlbench: `icc -m32`
  - 429.mcf: `icc -m32`
  - 445.gobmk: `icc -m32`
  - 464.h264ref: `icc -m32`

C++ benchmarks (except as noted below):

- `icpc -m64`
  - 471.omnetpp: `icpc -m32`

### Peak Portability Flags

- 400.perlbench: `-DSPEC_CPU_LINUX_IA32`
- 401.bzip2: `-DSPEC_CPU_LP64`
- 403.gcc: `-DSPEC_CPU_LP64`
- 429.mcf: `-DSPEC_CPU_LP64`
- 445.gobmk: `-DSPEC_CPU_LP64`
- 464.h264ref: `-DSPEC_CPU_LP64`
- 462.libquantum: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX`
- 473.astar: `-DSPEC_CPU_LP64`
- 483.xalancbmk: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX`
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Peak Optimization Flags

C benchmarks:

400.perlbench: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
  -prof-use(pass 2) -prof-use(pass 2)
  -opt-prefetch -ansi-alias
  -B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

401.bzip2: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
  -prof-use(pass 2) -prof-use(pass 2)
  -opt-prefetch -ansi-alias

403.gcc: -xSSE4.2 -ipo -prof-gen -inline-calloc
  -opt-malloc-options -auto-ilp32
  -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

429.mcf: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
  -prof-use(pass 2) -prof-use(pass 2)
  -auto-ilp32 -ansi-alias
  -B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
  -auto-ilp32 -ansi-alias
  -B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

458.sjeng: -xSSE4.2 -ipo -prof-gen -prof-use(pass 2)
  -prof-prefetch -ansi-alias
  -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

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Peak Optimization Flags (Continued)

C++ benchmarks:

471.omnetpp: -xSSE4.2(pass 2) -prof-gen(pass 1) -opt-ra-region-strategy=block -ansi-alias -Wl,-z,muldefs -L/smartheap -lsmartheap -B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT
473.astar: basepeak = yes
483.xalancbmk: basepeak = yes

Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca

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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