IBM Corporation

IBM BladeCenter HX5 (Intel Xeon E7-2870)

| SPECint\_rate2006 | 535 |
| SPECint\_rate_base2006 | 502 |

CPU2006 license: 11
Test sponsor: IBM Corporation
Tested by: IBM Corporation

Test date: Feb-2011
Hardware Availability: May-2011
Software Availability: Apr-2011

### Hardware

| CPU Name: | Intel Xeon E7-2870 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 2.80 GHz |
| CPU MHz: | 2400 |
| FPU: | Integrated |
| CPU(s) enabled: | 20 cores, 2 chips, 10 cores/chip, 2 threads/core |
| CPU(s) orderable: | 1.2 chips |
| Primary Cache: | 32 KB I + 32 KB D on chip per core |
| Secondary Cache: | 256 KB I+D on chip per core |
| L3 Cache: | 30 MB I+D on chip per chip |
| Other Cache: | None |
| Memory: | 128 GB (16 x 8 GB 4Rx8 FC3-8500R-7, ECC) |
| Disk Subsystem: | 2 x 50 GB SSD, RAID 0 |
| 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++ Compiler XE for applications running on IA-32 Version 12.0.1.116 Build 20101116 |
| Auto Parallel: | No |
| File System: | ext3 |
| System State: | Run level 3 (multi-user) |
| Base Pointers: | 32-bit |
| Peak Pointers: | 32/64-bit |
| Other Software: | Microquill SmartHeap V9.01 |
## SPEC CINT2006 Result

**IBM Corporation**

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<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
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<td>483.xalancbmk</td>
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<td>494</td>
<td>558</td>
<td>495</td>
<td>40</td>
</tr>
</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 26000 > /proc/sys/vm/nr_hugepages
```

export HUGETLB_MORECORE=yes

export LD_PRELOAD=/usr/lib64/libhugetlbfs.so

### Platform Notes

BIOS Settings:

Turbo Boost Power Optimization set to Traditional

### General Notes

Binaries were compiled on RHEL5.5
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Base Compiler Invocation

C benchmarks:
  icc  -m32

C++ benchmarks:
  icpc -m32

Base Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_IA32
462.libquantum: -DSPEC_CPU_LINUX
483.xalancbmk: -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:
  -xsSE4.2 -ipo -O3 -no-prec-div -opt-prefetch
  -B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

C++ benchmarks:
  -xsSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs
  -L/smartheap -lsmartheap
  -B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

Base Other Flags

C benchmarks:
  403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):
  icc  -m32

  400.perlbench: icc -m64
  401.bzip2: icc -m64
  456.hmmer: icc -m64
  458.sjeng: icc -m64

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Peak Compiler Invocation (Continued)

C++ benchmarks:
icpc -m32

Peak Portability Flags

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Flags</th>
</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64</td>
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<td>483.xalancbmk</td>
<td>-DSPEC_CPU_LINUX</td>
</tr>
</tbody>
</table>

Peak Optimization Flags

C benchmarks:

400.perlbench:
- xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
- O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
- B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

401.bzip2:
- xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
- O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
- opt-prefetch -auto-ilp32 -ansi-alias
- B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

403.gcc: basepeak = yes

429.mcf:
- xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
- O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
- ansi-alias -auto-ilp32

445.gobmk:
- xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
- ansi-alias -auto-ilp32

456.hmmer:
- xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32
- B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

458.sjeng:
- 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-ilp32
- B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

462.libquantum: basepeak = yes

464.h264ref:
- xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
- O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
- unroll2 -ansi-alias

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Peak Optimization Flags (Continued)

C++ benchmarks:

471.omnetpp: -xSSE4.2 (pass 2) -prof-gen (pass 1) -ipo (pass 2)
-o3 (pass 2) -no-prec-div (pass 2) -prof-use (pass 2)
-ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs
-L/smartheap -lsmartheap

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

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/IBM-platform-linux64-revA.xml
http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.xml

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

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