# SPEC® CINT2006 Result

**IBM Corporation**

IBM BladeCenter HS22 (Intel Xeon E5603)

<table>
<thead>
<tr>
<th><strong>SPECint®_rate2006</strong></th>
<th>126</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SPECint_rate_base2006</strong></td>
<td>118</td>
</tr>
</tbody>
</table>

**Test date:** Jun-2011  
**Hardware Availability:** Feb-2011  
**Software Availability:** Jan-2011

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

## Hardware

<table>
<thead>
<tr>
<th>Component</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name</td>
<td>Intel Xeon E5603</td>
</tr>
<tr>
<td>CPU Characteristics</td>
<td></td>
</tr>
<tr>
<td>CPU MHz</td>
<td>1600</td>
</tr>
<tr>
<td>FPU</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled</td>
<td>8 cores, 2 chips, 4 cores/chip</td>
</tr>
<tr>
<td>CPU(s) orderable</td>
<td>1.2 chips</td>
</tr>
<tr>
<td>Primary Cache</td>
<td>32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td>Secondary Cache</td>
<td>256 KB I+D on chip per core</td>
</tr>
<tr>
<td>L3 Cache:</td>
<td>4 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Other Cache:</td>
<td>None</td>
</tr>
<tr>
<td>Memory:</td>
<td>48 GB (12 x 4 GB 2Rx8 PC3-10600R-9, ECC, running at 1066 MHz)</td>
</tr>
<tr>
<td>Disk Subsystem:</td>
<td>1 x 73 GB SAS, 10000 RPM</td>
</tr>
<tr>
<td>Other Hardware:</td>
<td>None</td>
</tr>
</tbody>
</table>

## Software

<table>
<thead>
<tr>
<th>Component</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating System:</td>
<td>SUSE Linux Enterprise Server 11 SP1 (x86_64), Kernel 2.6.32.12-0.7-default</td>
</tr>
<tr>
<td>Compiler:</td>
<td>Intel C++ Compiler XE for applications running on IA-32 Version 12.0.1.116 Build 20101116</td>
</tr>
<tr>
<td>Auto Parallel:</td>
<td>No</td>
</tr>
<tr>
<td>File System:</td>
<td>ext3</td>
</tr>
<tr>
<td>System State:</td>
<td>Run level 3 (multi-user)</td>
</tr>
<tr>
<td>Base Pointers:</td>
<td>32-bit</td>
</tr>
<tr>
<td>Peak Pointers:</td>
<td>32/64-bit</td>
</tr>
<tr>
<td>Other Software:</td>
<td>Microquill SmartHeap V9.01</td>
</tr>
</tbody>
</table>

---

Copyright 2006-2014 Standard Performance Evaluation Corporation

info@spec.org  
http://www.spec.org/
IBM Corporation
IBM BladeCenter HS22 (Intel Xeon E5603)

SPECint_rate2006 = 126
SPECint_rate_base2006 = 118

CPU2006 license: 11
Test date: Jun-2011
Test sponsor: IBM Corporation
Hardware Availability: Feb-2011
Tested by: IBM Corporation
Software Availability: Jan-2011

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>8</td>
<td>834</td>
<td>93.7</td>
<td>835</td>
<td>93.6</td>
<td>836</td>
<td>93.5</td>
<td>8</td>
<td>679</td>
<td>115</td>
<td>674</td>
<td>116</td>
<td>675</td>
<td>116</td>
<td></td>
<td></td>
</tr>
<tr>
<td>401.bzip2</td>
<td>8</td>
<td>1323</td>
<td>58.3</td>
<td>1323</td>
<td>58.4</td>
<td>1323</td>
<td>58.4</td>
<td>8</td>
<td>1174</td>
<td>65.8</td>
<td>1176</td>
<td>65.7</td>
<td>1176</td>
<td>65.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>403.gcc</td>
<td>8</td>
<td>683</td>
<td>94.3</td>
<td>685</td>
<td>94.1</td>
<td>684</td>
<td>94.2</td>
<td>8</td>
<td>683</td>
<td>94.3</td>
<td>685</td>
<td>94.1</td>
<td>684</td>
<td>94.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>429.mcf</td>
<td>8</td>
<td>471</td>
<td>155</td>
<td>466</td>
<td>157</td>
<td>465</td>
<td>157</td>
<td>8</td>
<td>438</td>
<td>167</td>
<td>432</td>
<td>169</td>
<td>419</td>
<td>174</td>
<td></td>
<td></td>
</tr>
<tr>
<td>445.gobmk</td>
<td>8</td>
<td>905</td>
<td>92.7</td>
<td>907</td>
<td>92.5</td>
<td>907</td>
<td>92.6</td>
<td>8</td>
<td>881</td>
<td>95.3</td>
<td>877</td>
<td>95.7</td>
<td>881</td>
<td>95.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>456.hmmer</td>
<td>8</td>
<td>483</td>
<td>154</td>
<td>486</td>
<td>154</td>
<td>484</td>
<td>154</td>
<td>8</td>
<td>410</td>
<td>182</td>
<td>409</td>
<td>183</td>
<td>409</td>
<td>183</td>
<td></td>
<td></td>
</tr>
<tr>
<td>458.sjeng</td>
<td>8</td>
<td>995</td>
<td>97.3</td>
<td>995</td>
<td>97.3</td>
<td>995</td>
<td>97.3</td>
<td>8</td>
<td>909</td>
<td>107</td>
<td>909</td>
<td>107</td>
<td>909</td>
<td>106</td>
<td></td>
<td></td>
</tr>
<tr>
<td>462.libquantum</td>
<td>8</td>
<td>283</td>
<td>585</td>
<td>284</td>
<td>584</td>
<td>283</td>
<td>586</td>
<td>8</td>
<td>283</td>
<td>585</td>
<td>284</td>
<td>584</td>
<td>283</td>
<td>586</td>
<td></td>
<td></td>
</tr>
<tr>
<td>464.h264ref</td>
<td>8</td>
<td>1138</td>
<td>156</td>
<td>1136</td>
<td>156</td>
<td>1136</td>
<td>156</td>
<td>8</td>
<td>1119</td>
<td>158</td>
<td>1118</td>
<td>158</td>
<td>1122</td>
<td>158</td>
<td></td>
<td></td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>8</td>
<td>606</td>
<td>82.5</td>
<td>605</td>
<td>82.6</td>
<td>606</td>
<td>82.5</td>
<td>8</td>
<td>552</td>
<td>90.6</td>
<td>552</td>
<td>90.6</td>
<td>552</td>
<td>90.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>473.astar</td>
<td>8</td>
<td>798</td>
<td>70.4</td>
<td>798</td>
<td>70.4</td>
<td>797</td>
<td>70.5</td>
<td>8</td>
<td>798</td>
<td>70.4</td>
<td>798</td>
<td>70.4</td>
<td>797</td>
<td>70.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>8</td>
<td>453</td>
<td>122</td>
<td>453</td>
<td>122</td>
<td>454</td>
<td>121</td>
<td>8</td>
<td>453</td>
<td>122</td>
<td>453</td>
<td>122</td>
<td>454</td>
<td>121</td>
<td></td>
<td></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
'noread write /mnt/hugepages hugetlbfs defaults 0 0' added to /etc/fstab
echo 7200 > /proc/sys/vm/nr_hugepages
export HUGETLB_MORECORE=yes
export LD_PRELOAD=/usr/lib64/libhugetlbfs.so

Platform Notes

Load Default BIOS Settings and then change the following
Power C-states enabled
Demand Scrub disabled

General Notes

Binaries compiled on RHEL5.5
IBM Corporation
IBM BladeCenter HS22 (Intel Xeon E5603)

SPECint_rate2006 = 126
SPECint_rate_base2006 = 118

CPU2006 license: 11
Test sponsor: IBM Corporation
Test date: Jun-2011
Hardware Availability: Feb-2011
Tested by: IBM Corporation
Software Availability: Jan-2011

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

Continued on next page
IBM Corporation
IBM BladeCenter HS22 (Intel Xeon E5603)  

**SPEC CINT2006 Result**

<table>
<thead>
<tr>
<th>SPECint_rate2006</th>
<th>SPECint_rate_base2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>126</td>
<td>118</td>
</tr>
</tbody>
</table>

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

**Test date:** Jun-2011  
**Hardware Availability:** Feb-2011  
**Software Availability:** Jan-2011

---

**Peak Compiler Invocation (Continued)**

C++ benchmarks:

```bash
icpc -m32
```

---

**Peak Portability Flags**

```bash
400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64  
401.bzip2: -DSPEC_CPU_LP64  
456.hmmer: -DSPEC_CPU_LP64  
458.sjeng: -DSPEC_CPU_LP64  
462.libquantum: -DSPEC_CPU_LINUX  
483.xalancbmk: -DSPEC_CPU_LINUX
```

---

**Peak Optimization Flags**

C benchmarks:

```bash
400.perlbench: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT
```

```bash
401.bzip2: -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 -auto-ilp32 -ansi-alias  
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT
```

```bash
403.gcc: basepeak = yes
```

```bash
429.mcf: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-ansi-alias -auto-ilp32
```

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

```bash
456.hmmer: -xSSE4.2 -ipo -03 -no-prec-div -unroll2 -auto-ilp32  
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT
```

```bash
458.sjeng: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-unroll14 -auto-ilp32  
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT
```

```bash
462.libquantum: basepeak = yes
```

```bash
464.h264ref: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-unroll12 -ansi-alias
```

Continued on next page
IBM Corporation
IBM BladeCenter HS22 (Intel Xeon E5603)

SPECint_rate2006 = 126
SPECint_rate_base2006 = 118

CPU2006 license: 11
Test sponsor: IBM Corporation
Test date: Jun-2011
Tested by: IBM Corporation
Hardware Availability: Feb-2011
Software Availability: Jan-2011

Peak Optimization Flags (Continued)

C++ benchmarks:

471.omnetpp: -xsse4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(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/Intel-ic12.0-linux64-revB.html
http://www.spec.org/cpu2006/flags/IBM-platform-linux64-revA.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/IBM-platform-linux64-revA.xml

SPEC and SPECint are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.1.
Report generated on Thu Jul 24 00:01:27 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 2 August 2011.