# SPEC® CINT2006 Result

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## IBM Corporation

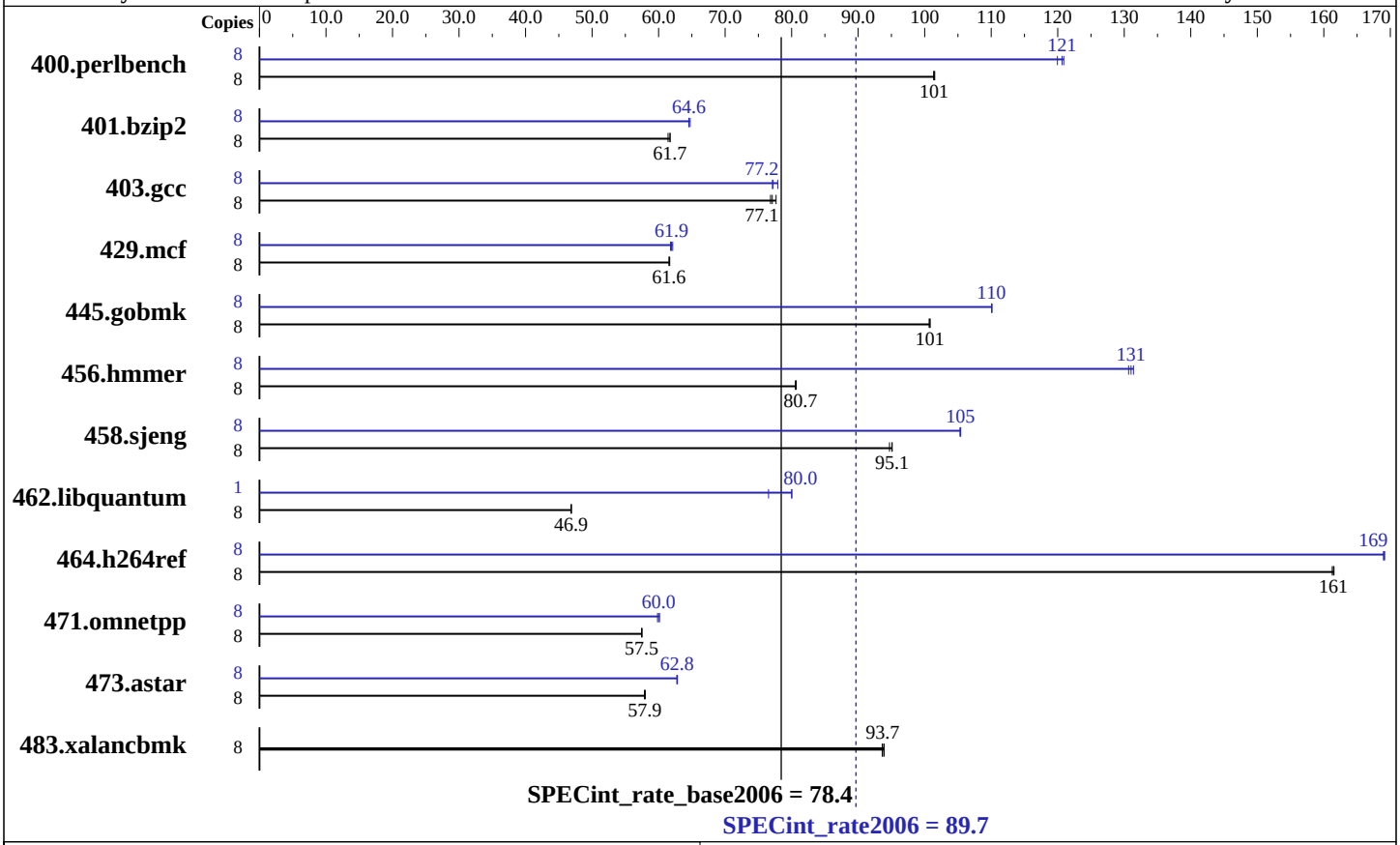
## IBM System x3550 (Intel Xeon E5335)

SPECint®_rate2006 = 89.7

SPECint_rate_base2006 = 78.4

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

**Test date:** Jan-2008
**Hardware Availability:** Feb-2007
**Software Availability:** Nov-2007




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E5335 |
| CPU Characteristics: | 1333MHz system bus |
| CPU MHz: | 2000 |
| FPU: | Integrated |
| CPU(s) enabled: | 8 cores, 2 chips, 4 cores/chip |
| CPU(s) orderable: | 1,2 chips |
| Primary Cache: | 32 KB I + 32 KB D on chip per core |
| Secondary Cache: | 8 MB I+D on chip per chip, 4 MB shared / 2 cores |
| L3 Cache: | None |
| Other Cache: | None |
| Memory: | 16 GB (8 x 2 GB DDR2-5300F ECC) |
| Disk Subsystem: | 1 x 36 GB SAS, 15000 RPM |
| Other Hardware: | None |

### Software

| | |
|---|---|
| Operating System: | SuSE Linux Enterprise Server 10 (x86_64), Kernel 2.6.16.21-0.8-smp |
| Compiler: | Intel C++ Compiler 10.1 for Linux<br>Build 20070913 Package ID: l_cc_p_10.1.008 |
| Auto Parallel: | Yes |
| File System: | ReiserFS |
| System State: | Multi-user, run level 3 |
| Base Pointers: | 32-bit |
| Peak Pointers: | 32/64-bit |
| Other Software: | MicroQuill SmartHeap 8.1<br>Binutils 2.17.50.0.15 |

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## Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 400.perlbench | 8 | 770 | 102 | **771** | **101** | 771 | 101 | 8 | **648** | **121** | 646 | 121 | 652 | 120 |
| 401.bzip2 | 8 | 1251 | 61.7 | **1251** | **61.7** | 1257 | 61.4 | 8 | 1196 | 64.5 | **1196** | **64.6** | 1192 | 64.7 |
| 403.gcc | 8 | 838 | 76.8 | **835** | **77.1** | 829 | 77.7 | 8 | **834** | **77.2** | 827 | 77.9 | 835 | 77.1 |
| 429.mcf | 8 | 1183 | 61.7 | **1185** | **61.6** | 1185 | 61.6 | 8 | 1181 | 61.8 | 1174 | 62.1 | **1178** | **61.9** |
| 445.gobmk | 8 | **833** | **101** | 834 | 101 | 833 | 101 | 8 | **762** | **110** | 763 | 110 | 762 | 110 |
| 456.hmmer | 8 | 927 | 80.6 | **925** | **80.7** | 925 | 80.7 | 8 | **570** | **131** | 571 | 131 | 568 | 131 |
| 458.sjeng | 8 | 1022 | 94.7 | **1018** | **95.1** | 1018 | 95.1 | 8 | **919** | **105** | 919 | 105 | 918 | 105 |
| 462.libquantum | 8 | 3537 | 46.9 | 3536 | 46.9 | **3537** | **46.9** | 1 | 271 | 76.5 | 259 | 80.0 | **259** | **80.0** |
| 464.h264ref | 8 | **1097** | **161** | 1096 | 162 | 1098 | 161 | 8 | **1047** | **169** | 1048 | 169 | 1047 | 169 |
| 471.omnetpp | 8 | 870 | 57.5 | 870 | 57.5 | **870** | **57.5** | 8 | 831 | 60.1 | **833** | **60.0** | 836 | 59.8 |
| 473.astar | 8 | 968 | 58.0 | **970** | **57.9** | 970 | 57.9 | 8 | 895 | 62.8 | 894 | 62.8 | **895** | **62.8** |
| 483.xalancbmk | 8 | 590 | 93.6 | 588 | 93.9 | **589** | **93.7** | 8 | 590 | 93.6 | 588 | 93.9 | **589** | **93.7** |

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## General Notes

```
All benchmarks compiled in 32-bit mode except 401.bzip2 and 456.hmmer,
for peak, are compiled in 64-bit mode
Hardware Sector Prefetch Disabled and Adjacent Sector Prefetch Disabled
OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to physical,0
KMP_STACKSIZE set to 64M
Powersaved dameon was disabled in OS
taskset utility used to bind CPU(s) to processes
```

## Base Compiler Invocation

C benchmarks:
`icc`

C++ benchmarks:
`icpc`

## Base Portability Flags

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

## Base Optimization Flags

C benchmarks:
```
-fast -inline-calloc -opt-malloc-options=3
```

C++ benchmarks:
```
-xT -ipo -O3 -no-prec-div -Wl,-z,muldefs
-L/spec/users/rahul/cpu2006.1.0/lib -lsmartheap
```

## Base Other Flags

C benchmarks:

403.gcc: `-Dalloca=_alloca`

## Peak Compiler Invocation

C benchmarks (except as noted below):
```
icc
```

401.bzip2:
```
/opt/intel/cce/10.1.008/bin/icc
-L/opt/intel/cce/10.1.008/lib
-I/opt/intel/cce/10.1.008/include
```

456.hmmer:
```
/opt/intel/cce/10.1.008/bin/icc
-L/opt/intel/cce/10.1.008/lib
-I/opt/intel/cce/10.1.008/include
```

C++ benchmarks:
```
icpc
```

## Peak Portability Flags

400.perlbench: `-DSPEC_CPU_LINUX_IA32`
401.bzip2: `-DSPEC_CPU_LP64`
456.hmmer: `-DSPEC_CPU_LP64`
462.libquantum: `-DSPEC_CPU_LINUX`
483.xalancbmk: `-DSPEC_CPU_LINUX`

## Peak Optimization Flags

C benchmarks:

Continued on next page

# Peak Optimization Flags (Continued)

400.perlbench: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-fast -ansi-alias -prefetch`

401.bzip2: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-fast -prefetch`

403.gcc: `-fast -inline-calloc -opt-malloc-options=3`

429.mcf: `-fast -prefetch`

445.gobmk: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-xT -O2 -ipo -no-prec-div -ansi-alias`

456.hmmer: `-fast -unroll2 -ansi-alias -opt-multi-version-aggressive`

458.sjeng: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-fast -unroll4`

462.libquantum: `-fast -unroll4 -Ob0 -prefetch -opt-streaming-stores always -vec-guard-write -opt-malloc-options=3 -parallel -par-runtime-control`

464.h264ref: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-fast -unroll2 -ansi-alias`

C++ benchmarks:

471.omnetpp: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-xT -O3 -ipo -no-prec-div -ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs -L/spec/users/rahul/cpu2006.1.0/lib -lsmartheap`

473.astar: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-xT -O3 -ipo -no-prec-div -ansi-alias -opt-ra-region-strategy=routine -Wl,-z,muldefs -L/spec/users/rahul/cpu2006.1.0/lib -lsmartheap`

483.xalancbmk: `basepeak = yes`

# Peak Other Flags

C benchmarks:

403.gcc: `-Dalloca=_alloca`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/Intel-ic10-ia32-intel64-linux-flags.20090714.13.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/Intel-ic10-ia32-intel64-linux-flags.20090714.13.xml`


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