# SPEC® CINT2006 Result

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## IBM Corporation

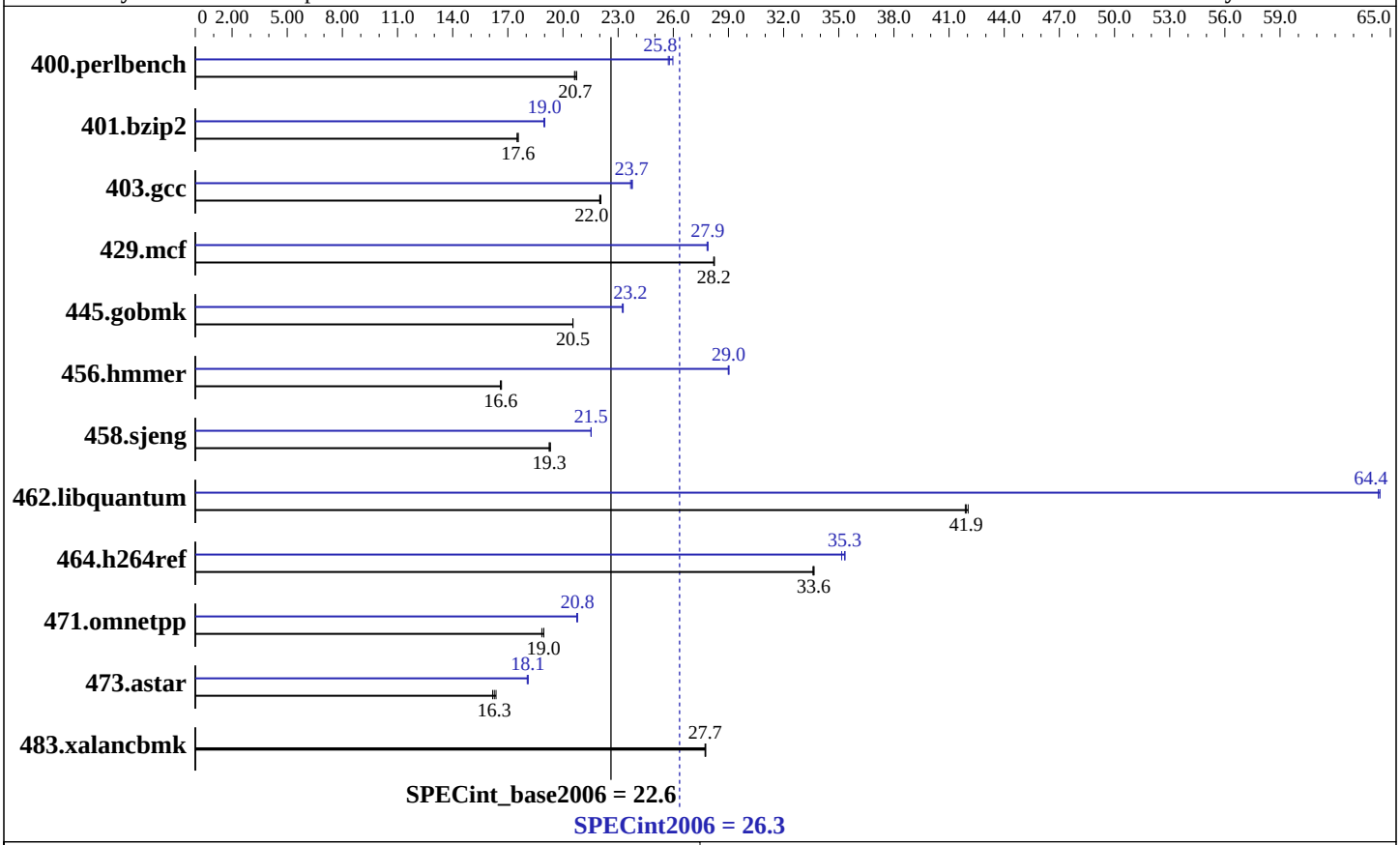
## IBM System x3350 (Intel Xeon E3120)

SPECint®2006 = 26.3

SPECint_base2006 = 22.6

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

**Test date:** Jun-2008
**Hardware Availability:** Sep-2008
**Software Availability:** Nov-2007




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E3120 |
| CPU Characteristics: | 1333MHz system bus |
| CPU MHz: | 3166 |
| FPU: | Integrated |
| CPU(s) enabled: | 2 cores, 1 chip, 2 cores/chip |
| CPU(s) orderable: | 1 chip |
| Primary Cache: | 32 KB I + 32 KB D on chip per core |
| Secondary Cache: | 6 MB I+D on chip per chip |
| L3 Cache: | None |
| Other Cache: | None |
| Memory: | 8 GB (4 x 2 GB DDR2-6400E ECC) |
| Disk Subsystem: | 1 x 160 GB SATA, 7200RPM |
| Other Hardware: | None |

### Software

| | |
|---|---|
| Operating System: | SuSE Linux Enterprise Server 10 (x86_64) SP1, Kernel 2.6.16.46-0.12-smp |
| Compiler: | Intel C++ Compiler 10.1 for Linux Build 20070913 Package ID: l_cc_p_10.1.008 |
| Auto Parallel: | Yes |
| File System: | ReiserFS |
| System State: | Run level 3 (Full multiuser with network) |
| 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 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 400.perlbench | **473** | **20.7** | 471 | 20.7 | 474 | 20.6 | 376 | 26.0 | 380 | 25.7 | **379** | **25.8** |
| 401.bzip2 | 552 | 17.5 | 549 | 17.6 | **550** | **17.6** | **508** | **19.0** | 508 | 19.0 | 509 | 19.0 |
| 403.gcc | 365 | 22.1 | **366** | **22.0** | 366 | 22.0 | 339 | 23.8 | 340 | 23.7 | **339** | **23.7** |
| 429.mcf | 323 | 28.2 | **323** | **28.2** | 323 | 28.2 | **327** | **27.9** | 328 | 27.8 | 327 | 27.9 |
| 445.gobmk | 511 | 20.5 | 511 | 20.5 | **511** | **20.5** | 451 | 23.3 | **451** | **23.2** | 451 | 23.2 |
| 456.hmmer | 560 | 16.7 | 562 | 16.6 | **561** | **16.6** | **322** | **29.0** | 322 | 29.0 | 321 | 29.0 |
| 458.sjeng | 626 | 19.3 | **628** | **19.3** | 628 | 19.3 | 562 | 21.5 | 562 | 21.5 | **562** | **21.5** |
| 462.libquantum | **494** | **41.9** | 493 | 42.0 | 495 | 41.9 | 322 | 64.4 | 322 | 64.4 | **322** | **64.4** |
| 464.h264ref | **658** | **33.6** | 658 | 33.7 | 659 | 33.6 | 626 | 35.3 | **627** | **35.3** | 629 | 35.2 |
| 471.omnetpp | 330 | 19.0 | **330** | **19.0** | 332 | 18.8 | 301 | 20.8 | 301 | 20.7 | **301** | **20.8** |
| 473.astar | **432** | **16.3** | 429 | 16.4 | 434 | 16.2 | 388 | 18.1 | **388** | **18.1** | 389 | 18.1 |
| 483.xalancbmk | 248 | 27.8 | 249 | 27.7 | **249** | **27.7** | 248 | 27.8 | 249 | 27.7 | **249** | **27.7** |

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 Enabled and Adjacent Sector Prefetch Enabled
OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to physical,0
KMP_STACKSIZE set to null
```

## 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 -vec-guard-write -parallel -par-runtime-control
```

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 -auto-ilp32`

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 -auto-ilp32`

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-ic10.1-int-linux64-revC.20090714.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Intel-ic10.1-int-linux64-revC.20090714.xml


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