



SPEC® CINT2006 Result

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IBM Corporation

SPECint®2006 = 35.0

IBM System x3650 M2 (Intel Xeon X5570)

SPECint_base2006 = 31.4

CPU2006 license: 11

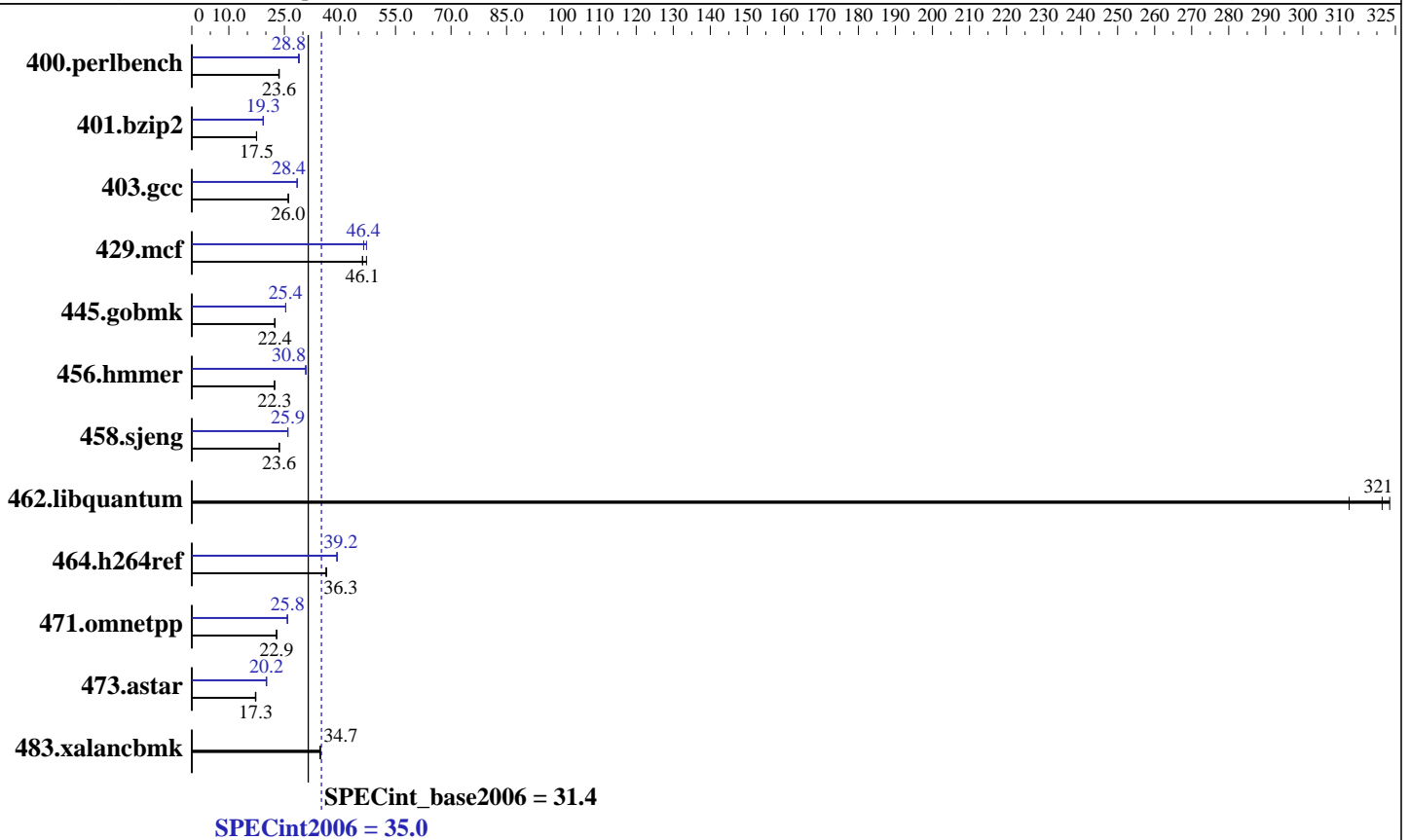
Test date: Mar-2009

Test sponsor: IBM Corporation

Hardware Availability: Apr-2009

Tested by: IBM Corporation

Software Availability: Feb-2009



Hardware

CPU Name: Intel Xeon X5570
 CPU Characteristics: Intel Turbo Boost Technology up to 3.33 GHz
 CPU MHz: 2933
 FPU: Integrated
 CPU(s) enabled: 8 cores, 2 chips, 4 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: 8 MB I+D on chip per chip
 Other Cache: None
 Memory: 12 GB (6 x 2 GB PC3-10600R)
 Disk Subsystem: 1 x 73 GB SAS, 15000 RPM
 Other Hardware: None

Software

Operating System: SuSE Linux Enterprise Server (x86_64) SP2, Kernel 2.6.16.60-0.21-smp
 Compiler: Intel C++ Compiler Professional 11.0 for Linux Build 20090131 Package ID: 1_cproc_p_11.0.080
 Auto Parallel: Yes
 File System: ReiserFS
 System State: Run level 3 (multi-user)
 Base Pointers: 32-bit
 Peak Pointers: 32/64-bit
 Other Software: Microquill SmartHeap V8.1 Binutils 2.18.50.0.7.20080502



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Results Table

| Benchmark | Base | | | | | | Peak | | | | | |
|----------------|-------------------|--------------------|--------------------|--------------------|-------------------|--------------------|-------------------|--------------------|--------------------|--------------------|-------------------|--------------------|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 400.perlbench | 416 | 23.5 | <u>414</u> | <u>23.6</u> | 414 | 23.6 | <u>339</u> | <u>28.8</u> | 337 | 29.0 | 339 | 28.8 |
| 401.bzip2 | 553 | 17.4 | 551 | 17.5 | <u>552</u> | <u>17.5</u> | <u>501</u> | <u>19.3</u> | 501 | 19.3 | 500 | 19.3 |
| 403.gcc | <u>309</u> | <u>26.0</u> | 308 | 26.1 | 309 | 26.0 | 283 | 28.4 | <u>283</u> | <u>28.4</u> | 283 | 28.5 |
| 429.mcf | 193 | 47.2 | <u>198</u> | <u>46.1</u> | 198 | 46.1 | 193 | 47.2 | 197 | 46.4 | <u>197</u> | <u>46.4</u> |
| 445.gobmk | 468 | 22.4 | 468 | 22.4 | <u>468</u> | <u>22.4</u> | <u>414</u> | <u>25.4</u> | 414 | 25.3 | 413 | 25.4 |
| 456.hammer | 418 | 22.3 | <u>418</u> | <u>22.3</u> | 418 | 22.3 | <u>303</u> | <u>30.8</u> | 303 | 30.7 | 303 | 30.8 |
| 458.sjeng | 513 | 23.6 | 512 | 23.6 | <u>512</u> | <u>23.6</u> | <u>466</u> | <u>25.9</u> | 467 | 25.9 | 466 | 25.9 |
| 462.libquantum | 66.3 | 313 | <u>64.5</u> | <u>321</u> | 64.1 | 323 | 66.3 | 313 | <u>64.5</u> | <u>321</u> | 64.1 | 323 |
| 464.h264ref | 611 | 36.2 | 608 | 36.4 | <u>610</u> | <u>36.3</u> | <u>564</u> | <u>39.2</u> | 565 | 39.1 | 564 | 39.3 |
| 471.omnetpp | 273 | 22.9 | <u>273</u> | <u>22.9</u> | 273 | 22.9 | <u>242</u> | <u>25.8</u> | 242 | 25.8 | 242 | 25.8 |
| 473.astar | <u>407</u> | <u>17.3</u> | 406 | 17.3 | 409 | 17.2 | <u>348</u> | <u>20.2</u> | 349 | 20.1 | 347 | 20.2 |
| 483.xalancbmk | 199 | 34.7 | <u>199</u> | <u>34.7</u> | 199 | 34.7 | 199 | 34.7 | <u>199</u> | <u>34.7</u> | 199 | 34.7 |

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

General Notes

OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to granularity=fine,scatter
Processor CPU C-States Enabled
Memory set to Max Speed

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



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Base Optimization Flags

C benchmarks:

```
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel  
-par-runtime-control -opt-prefetch
```

C++ benchmarks:

```
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs  
-L/spec/cpu2006.1.1/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/Compiler/11.0/080/bin/intel64/icc
```

```
456.hmmer: /opt/intel/Compiler/11.0/080/bin/intel64/icc
```

```
458.sjeng: /opt/intel/Compiler/11.0/080/bin/intel64/icc
```

C++ benchmarks (except as noted below):

```
icpc
```

```
473.astar: /opt/intel/Compiler/11.0/080/bin/intel64/icpc
```

Peak Portability Flags

```
400.perlbench: -DSPEC_CPU_LINUX_IA32
```

```
401.bzip2: -DSPEC_CPU_LP64
```

```
456.hmmer: -DSPEC_CPU_LP64
```

```
458.sjeng: -DSPEC_CPU_LP64
```

```
462.libquantum: -DSPEC_CPU_LINUX
```

```
473.astar: -DSPEC_CPU_LP64
```

```
483.xalancbmk: -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)
-O3(pass 2) -no-prec-div(pass 2) -static(pass 2)
-prof-use(pass 2) -ansi-alias -opt-prefetch

401.bzp2: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -static(pass 2)
-prof-use(pass 2) -auto-ilp32 -opt-prefetch -ansi-alias

403.gcc: -xSSE4.2 -ipo -O3 -no-prec-div -static -inline-calloc
-opt-malloc-options=3

429.mcf: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2) -O2
-ipo -no-prec-div -ansi-alias

456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -static -unroll2
-ansi-alias -auto-ilp32

458.sjeng: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -static(pass 2)
-prof-use(pass 2) -unroll4 -auto-ilp32

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) -static(pass 2)
-prof-use(pass 2) -unroll2 -ansi-alias

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/spec/cpu2006.1.1/lib -lsmartheap

473.astar: -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=routine -auto-ilp32
-Wl,-z,muldefs -L/spec/cpu2006.1.1/lib -lsmartheap64

483.xalancbmk: basepeak = yes



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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-ic11.0-int-linux64-revA.20090710.02.html>

You can also download the XML flags source by saving the following link:

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-int-linux64-revA.20090710.02.xml>

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

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