# SPEC® CINT2006 Result

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## IBM Corporation

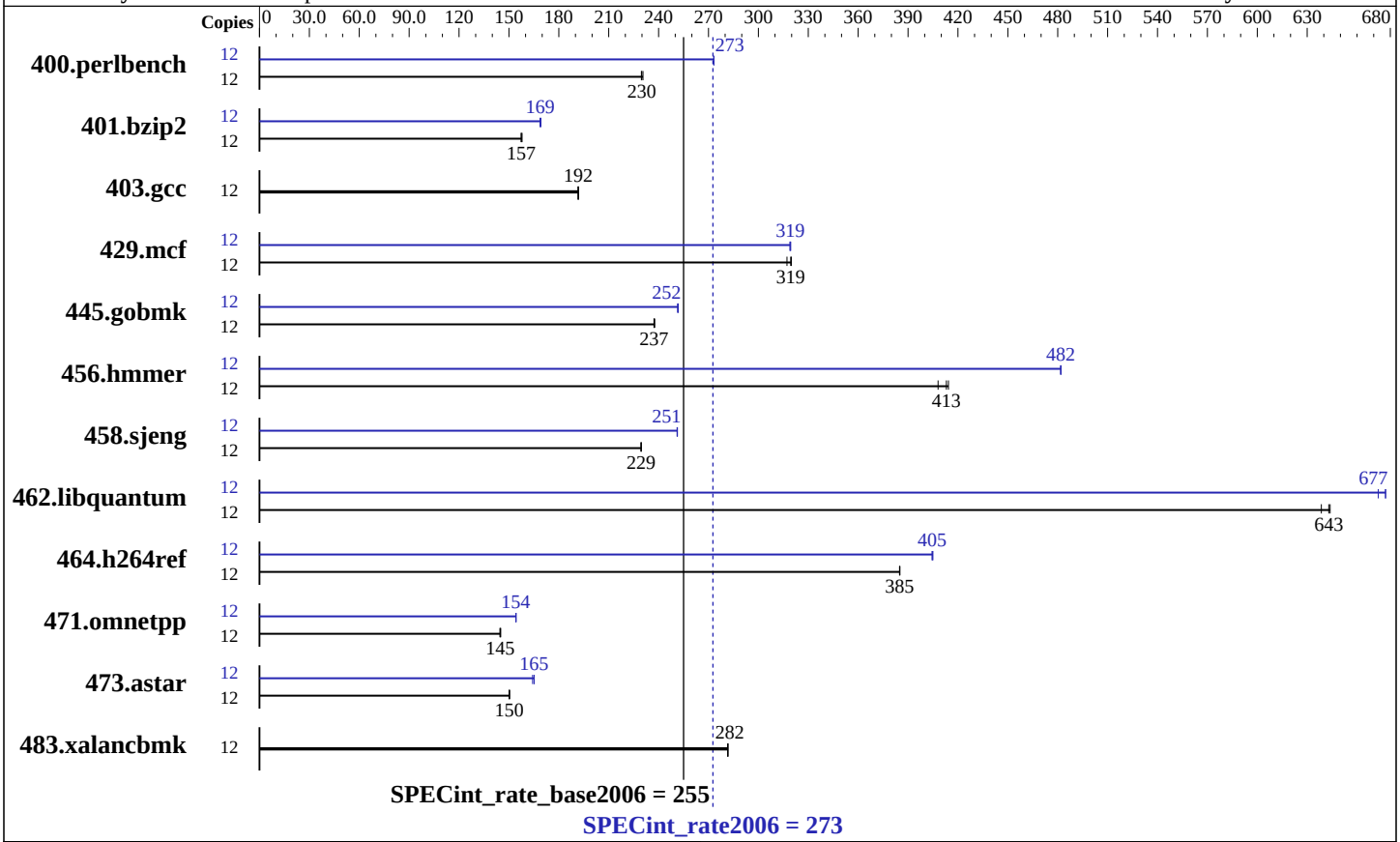
## IBM System x3690 X5 (Intel Xeon X7542)

**SPECint®_rate2006 = 273**

**SPECint_rate_base2006 = 255**

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

**Test date:** Jun-2010
**Hardware Availability:** Aug-2010
**Software Availability:** Jan-2010




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon X7542 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 2.80 GHz |
| CPU MHz: | 2667 |
| FPU: | Integrated |
| CPU(s) enabled: | 12 cores, 2 chips, 6 cores/chip |
| 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: | 18 MB I+D on chip per chip |
| Other Cache: | None |
| Memory: | 128 GB (32 x 4 GB PC3-8500R CL7, Quad Rank, running at 978 MHz) |
| Disk Subsystem: | 1 x 146 GB SAS, 15000 RPM |
| Other Hardware: | None |

### Software

| | |
|---|---|
| Operating System: | SuSE Linux Enterprise Server 11 (x86_64), Kernel 2.6.27.19-5-default |
| Compiler: | Intel C++ Professional Compiler for IA32 and Intel 64, Version 11.1 Build 20091130 Package ID: l_cproc_p_11.1.064 |
| 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 V8.1 |

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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 | 12 | 511 | 230 | 508 | 231 | **510** | **230** | 12 | 429 | 273 | **429** | **273** | 429 | 273 |
| 401.bzip2 | 12 | **735** | **157** | 733 | 158 | 736 | 157 | 12 | 684 | 169 | **686** | **169** | 686 | 169 |
| 403.gcc | 12 | 504 | 192 | 504 | 192 | **504** | **192** | 12 | 504 | 192 | 504 | 192 | **504** | **192** |
| 429.mcf | 12 | 345 | 317 | 342 | 320 | **343** | **319** | 12 | 343 | 319 | **343** | **319** | 343 | 319 |
| 445.gobmk | 12 | 531 | 237 | **531** | **237** | 530 | 238 | 12 | 500 | 252 | **500** | **252** | 501 | 251 |
| 456.hmmer | 12 | 270 | 414 | 274 | 408 | **271** | **413** | 12 | 232 | 482 | **232** | **482** | 232 | 482 |
| 458.sjeng | 12 | 632 | 230 | 633 | 229 | **633** | **229** | 12 | 578 | 251 | **578** | **251** | 578 | 251 |
| 462.libquantum | 12 | **387** | **643** | 386 | 644 | 389 | 639 | 12 | 370 | 673 | 367 | 677 | **367** | **677** |
| 464.h264ref | 12 | 690 | 385 | **690** | **385** | 690 | 385 | 12 | **656** | **405** | 657 | 404 | 656 | 405 |
| 471.omnetpp | 12 | 517 | 145 | 519 | 145 | **518** | **145** | 12 | 486 | 154 | **486** | **154** | 486 | 154 |
| 473.astar | 12 | **561** | **150** | 561 | 150 | 560 | 150 | 12 | 510 | 165 | **510** | **165** | 513 | 164 |
| 483.xalancbmk | 12 | 294 | 282 | **294** | **282** | 294 | 282 | 12 | 294 | 282 | **294** | **282** | 294 | 282 |

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
```

## Platform Notes

```
 Turbo Boost set to Traditional
```

## General Notes

```
 'ulimit -s unlimited' was used to set the stack size to unlimited prior to run
 Binaries were compiled on SLES 10 with Binutils 2.18.50.0.7.20080502
```

# 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 -static -opt-prefetch

C++ benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs
-L/home/cmplr/usr3/alrahate/cpu2006.1.1.ic11.1/libic11.1-32bit -lsmartheap

## Base Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca

## Peak Compiler Invocation

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

401.bzip2: icc -m64

456.hmmer: icc -m64

458.sjeng: icc -m64

462.libquantum: icc -m64

C++ benchmarks (except as noted below):
icpc -m32

473.astar: icpc -m64

## Peak Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_IA32
401.bzip2: -DSPEC_CPU_LP64

Continued on next page

## Peak Portability Flags (Continued)

456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
473.astar: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LINUX

## 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

401.bzip2: -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) -opt-prefetch -ansi-alias -auto-ilp32

403.gcc: basepeak = yes

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: -xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32 -opt-prefetch

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/home/cmplr/usr3/alrahate/cpu2006.1.1.ic11.1/libic11.1-32bit -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 -Wl,-z,muldefs

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## Peak Optimization Flags (Continued)

473.astar (continued):
`-L/home/cmplr/usr3/alrahate/cpu2006.1.1.ic11.1/libic11.1-64bit -lsmartheap64`

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-ic11.1-linux64-revE.20100603.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100603.xml`


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