# SPEC® CINT2006 Result



## IBM Corporation

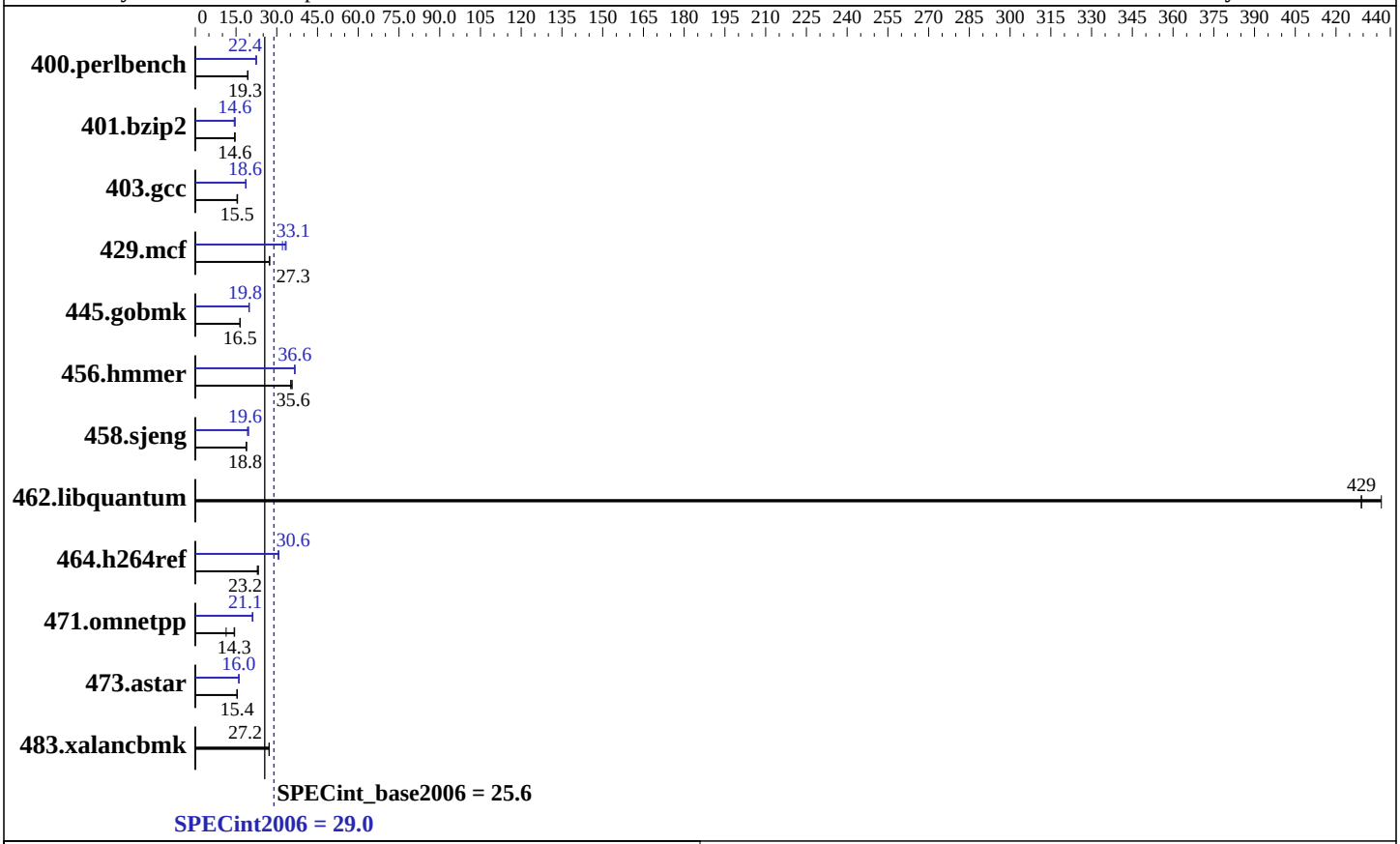
## IBM System x3690 X5 (Intel Xeon L7545)

SPECint®2006 = 29.0

SPECint_base2006 = 25.6

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

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




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon L7545 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 2.53 GHz |
| CPU MHz: | 1867 |
| FPU: | Integrated |
| CPU(s) enabled: | 12 cores, 2 chips, 6 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: | 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: | Yes |
| 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 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 400.perlbench | 507 | 19.3 | **506** | **19.3** | 503 | 19.4 | 436 | 22.4 | 434 | 22.5 | **435** | **22.4** |
| 401.bzip2 | **662** | **14.6** | 662 | 14.6 | 664 | 14.5 | 673 | 14.3 | 660 | 14.6 | **660** | **14.6** |
| 403.gcc | 517 | 15.6 | **521** | **15.5** | 524 | 15.4 | 433 | 18.6 | 433 | 18.6 | **433** | **18.6** |
| 429.mcf | 335 | 27.2 | **334** | **27.3** | 333 | 27.4 | 273 | 33.4 | 284 | 32.1 | **275** | **33.1** |
| 445.gobmk | **637** | **16.5** | 637 | 16.5 | 635 | 16.5 | **529** | **19.8** | 530 | 19.8 | 528 | 19.9 |
| 456.hmmer | 262 | 35.6 | **262** | **35.6** | 266 | 35.1 | 255 | 36.6 | 255 | 36.6 | **255** | **36.6** |
| 458.sjeng | 644 | 18.8 | **643** | **18.8** | 643 | 18.8 | **619** | **19.6** | 619 | 19.6 | 630 | 19.2 |
| 462.libquantum | 48.3 | 429 | 47.4 | 437 | **48.3** | **429** | 48.3 | 429 | 47.4 | 437 | **48.3** | **429** |
| 464.h264ref | **956** | **23.2** | 969 | 22.8 | 955 | 23.2 | **722** | **30.6** | 724 | 30.6 | 720 | 30.7 |
| 471.omnetpp | **437** | **14.3** | 432 | 14.5 | 551 | 11.4 | 298 | 21.0 | 295 | 21.2 | **296** | **21.1** |
| 473.astar | 455 | 15.4 | 457 | 15.4 | **456** | **15.4** | **438** | **16.0** | 438 | 16.0 | 437 | 16.1 |
| 483.xalancbmk | 253 | 27.2 | 254 | 27.2 | **254** | **27.2** | 253 | 27.2 | 254 | 27.2 | **254** | **27.2** |

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

## Operating System Notes

```
echo 1 > /proc/sys/vm/zone_reclaim_mode
```

## 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
OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to granularity=fine,scatter
```

# Base Compiler Invocation

C benchmarks:

```
icc  -m64
```

C++ benchmarks:

```
icpc -m64
```

## Base Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
403.gcc: -DSPEC_CPU_LP64
429.mcf: -DSPEC_CPU_LP64
445.gobmk: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
464.h264ref: -DSPEC_CPU_LP64
471.omnetpp: -DSPEC_CPU_LP64
473.astar: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX

## Base Optimization Flags

C benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -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/libic11.1-64bit -lsmartheap64

## Base Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca

## Peak Compiler Invocation

C benchmarks (except as noted below):
icc -m64

400.perlbench: icc -m32

429.mcf: icc -m32

445.gobmk: icc -m32

464.h264ref: icc -m32

C++ benchmarks (except as noted below):
icpc -m64

Continued on next page

## Peak Compiler Invocation (Continued)

471.omnetpp: icpc -m32

## Peak Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_IA32
401.bzip2: -DSPEC_CPU_LP64
403.gcc: -DSPEC_CPU_LP64
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_LP64 -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 -opt-prefetch

401.bzip2: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div -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 -auto-ilp32

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

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

Continued on next page

## Peak Optimization Flags (Continued)

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
-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



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

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