# SPEC® CINT2006 Result

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## IBM Corporation

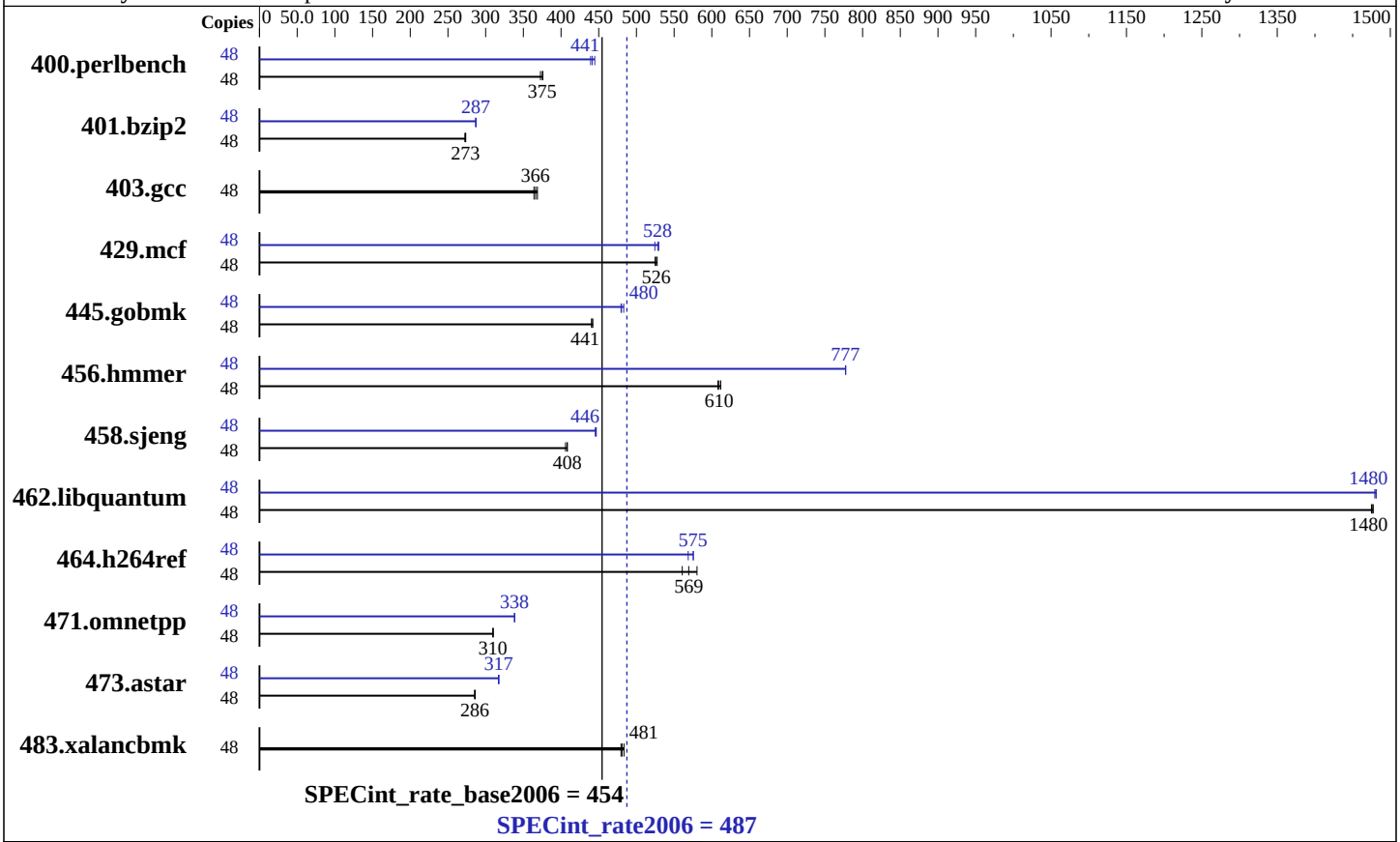
## IBM System x3850 X5 (Intel Xeon E7530)

SPECint®_rate2006 = 487

SPECint_rate_base2006 = 454

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

**Test date:** Apr-2010
**Hardware Availability:** Mar-2010
**Software Availability:** Jan-2010




## Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E7530 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 2.13 GHz |
| CPU MHz: | 1867 |
| FPU: | Integrated |
| CPU(s) enabled: | 24 cores, 4 chips, 6 cores/chip, 2 threads/core |
| CPU(s) orderable: | 2,4 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: | 12 MB I+D on chip per chip |
| Other Cache: | None |
| Memory: | 256 GB (64 x 4 GB PC3-8500R, Quad Rank) |
| Disk Subsystem: | 3 x 50 GB SATA, SSD |
| 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 Binutils 2.18.50.0.7.20080502 |

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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 | 48 | 1247 | 376 | **1250** | **375** | 1258 | 373 | 48 | 1054 | 445 | **1062** | **441** | 1068 | 439 |
| 401.bzip2 | 48 | **1695** | **273** | 1700 | 272 | 1693 | 274 | 48 | 1612 | 287 | 1615 | 287 | **1614** | **287** |
| 403.gcc | 48 | 1061 | 364 | **1055** | **366** | 1048 | 369 | 48 | 1061 | 364 | **1055** | **366** | 1048 | 369 |
| 429.mcf | 48 | 830 | 527 | 834 | 525 | **832** | **526** | 48 | **829** | **528** | 827 | 530 | 835 | 524 |
| 445.gobmk | 48 | 1139 | 442 | **1143** | **441** | 1143 | 441 | 48 | 1050 | 480 | 1042 | 483 | **1049** | **480** |
| 456.hmmer | 48 | **735** | **610** | 736 | 608 | 732 | 612 | 48 | **576** | **777** | 576 | 777 | 576 | 778 |
| 458.sjeng | 48 | 1431 | 406 | 1422 | 408 | **1423** | **408** | 48 | **1302** | **446** | 1304 | 446 | 1300 | 447 |
| 462.libquantum | 48 | **674** | **1480** | 674 | 1470 | 673 | 1480 | 48 | 672 | 1480 | 671 | 1480 | **672** | **1480** |
| 464.h264ref | 48 | **1866** | **569** | 1894 | 561 | 1830 | 580 | 48 | 1868 | 569 | 1846 | 576 | **1846** | **575** |
| 471.omnetpp | 48 | 969 | 310 | 968 | 310 | **968** | **310** | 48 | **887** | **338** | 886 | 339 | 887 | 338 |
| 473.astar | 48 | **1180** | **286** | 1181 | 285 | 1177 | 286 | 48 | **1062** | **317** | 1063 | 317 | 1061 | 318 |
| 483.xalancbmk | 48 | 691 | 480 | **689** | **481** | 685 | 484 | 48 | 691 | 480 | **689** | **481** | 685 | 484 |

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
 Demand Scrub disabled
```

## General Notes

```
 'ulimit -s unlimited' was used to set the stack size to unlimited prior to run
```

# 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.20100330.03.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.20100330.03.xml`


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