



# SPEC® CINT2006 Result

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## IBM Corporation

**SPECint®2006 = 38.6**

## IBM System x3550 M3 (Intel Xeon X5570)

**SPECint\_base2006 = 35.4**

CPU2006 license: 11

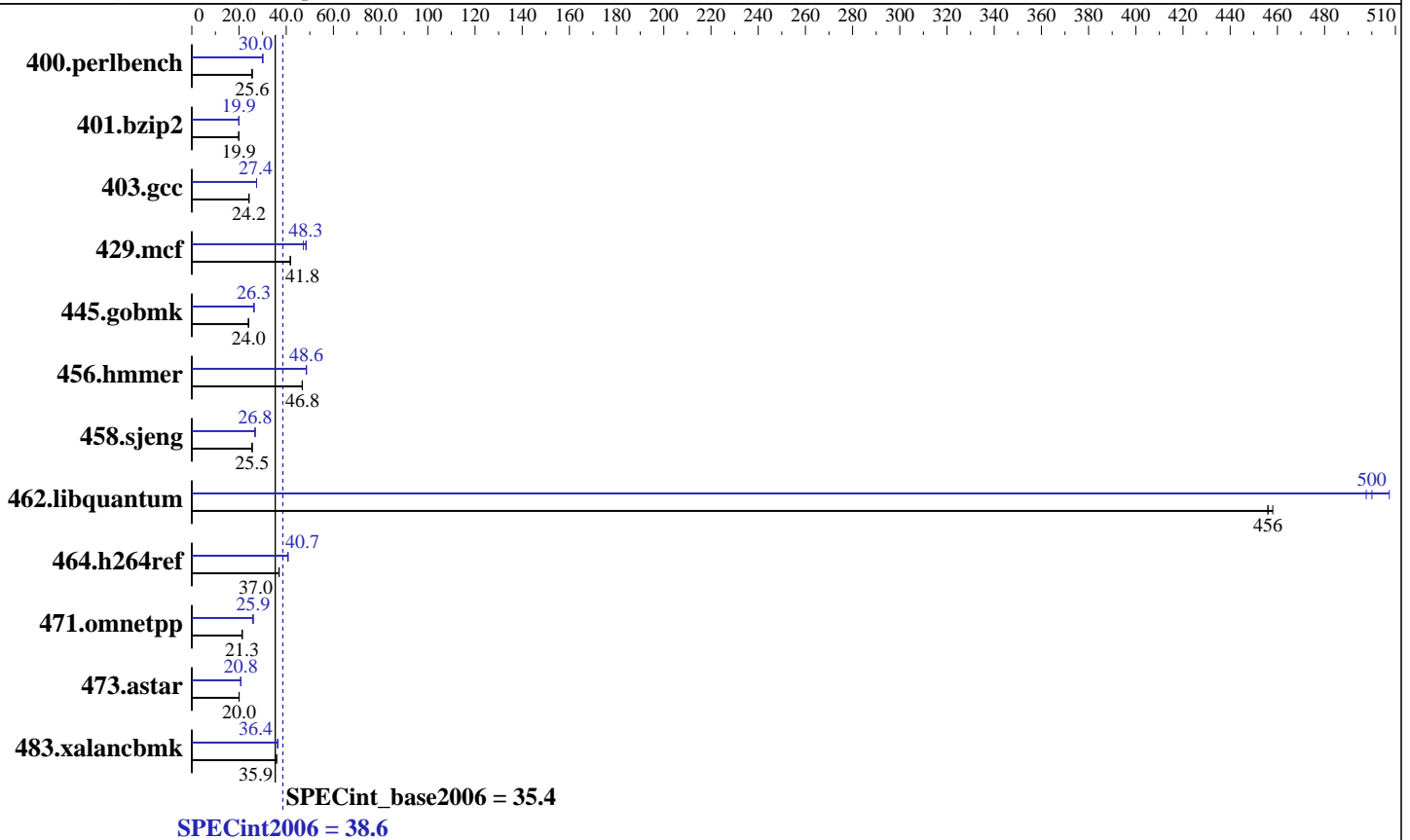
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Jul-2010

Hardware Availability: Jun-2010

Software Availability: Jan-2010



### 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: 24 GB (6 x 4 GB PC3-10600R CL9, 2 Rank)  
 Disk Subsystem: 1 x 73 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: 1\_cproc\_p\_11.1.064  
 Auto Parallel: Yes  
 File System: ext3  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-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	<b><u>382</u></b>	<b><u>25.6</u></b>	384	25.5	382	25.6	325	30.0	325	30.1	<b><u>325</u></b>	<b><u>30.0</u></b>
401.bzip2	485	19.9	484	19.9	<b><u>485</u></b>	<b><u>19.9</u></b>	484	19.9	484	19.9	<b><u>484</u></b>	<b><u>19.9</u></b>
403.gcc	333	24.2	332	24.2	<b><u>332</u></b>	<b><u>24.2</u></b>	<b><u>293</u></b>	<b><u>27.4</u></b>	293	27.5	294	27.4
429.mcf	<b><u>218</u></b>	<b><u>41.8</u></b>	218	41.8	218	41.7	188	48.5	<b><u>189</u></b>	<b><u>48.3</u></b>	193	47.3
445.gobmk	<b><u>437</u></b>	<b><u>24.0</u></b>	437	24.0	436	24.1	398	26.4	<b><u>398</u></b>	<b><u>26.3</u></b>	398	26.3
456.hammer	199	46.9	200	46.8	<b><u>199</u></b>	<b><u>46.8</u></b>	<b><u>192</u></b>	<b><u>48.6</u></b>	192	48.6	192	48.5
458.sjeng	474	25.5	473	25.6	<b><u>474</u></b>	<b><u>25.5</u></b>	451	26.9	<b><u>451</u></b>	<b><u>26.8</u></b>	452	26.8
462.libquantum	45.2	458	<b><u>45.4</u></b>	<b><u>456</u></b>	45.4	456	41.6	498	<b><u>41.4</u></b>	<b><u>500</u></b>	40.8	507
464.h264ref	598	37.0	600	36.9	<b><u>599</u></b>	<b><u>37.0</u></b>	544	40.7	<b><u>543</u></b>	<b><u>40.7</u></b>	543	40.8
471.omnetpp	293	21.4	293	21.3	<b><u>293</u></b>	<b><u>21.3</u></b>	240	26.0	<b><u>241</u></b>	<b><u>25.9</u></b>	241	25.9
473.astar	350	20.1	351	20.0	<b><u>351</u></b>	<b><u>20.0</u></b>	339	20.7	<b><u>338</u></b>	<b><u>20.8</u></b>	338	20.8
483.xalancbmk	<b><u>192</u></b>	<b><u>35.9</u></b>	196	35.3	192	36.0	189	36.5	<b><u>190</u></b>	<b><u>36.4</u></b>	190	36.4

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

## Platform Notes

Turbo Mode Enable  
Turbo Boost set to Traditional  
CPU C State Enable

## General Notes

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

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## Base Portability Flags (Continued)

```

401.bzip2: -DSPEC_CPU_LP64
403.gcc: -DSPEC_CPU_LP64
429.mcf: -DSPEC_CPU_LP64
445.gobmk: -DSPEC_CPU_LP64
456.hmmr: -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 -m32
```

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## Peak Compiler Invocation (Continued)

473.astar: icpc -m64

## 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\_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: -xSSE4.2 -ipo -O3 -no-prec-div -static -parallel  
 -opt-prefetch -par-schedule-static=32768 -ansi-alias

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

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## 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: -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

```

## 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.20100804.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.20100804.xml>

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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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