



# SPEC<sup>®</sup> CINT2006 Result

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## IBM Corporation

SPECint<sup>®</sup>\_rate2006 = 78.9

### IBM System x3650 M3 (Intel Xeon E5503)

SPECint\_rate\_base2006 = 72.9

CPU2006 license: 11

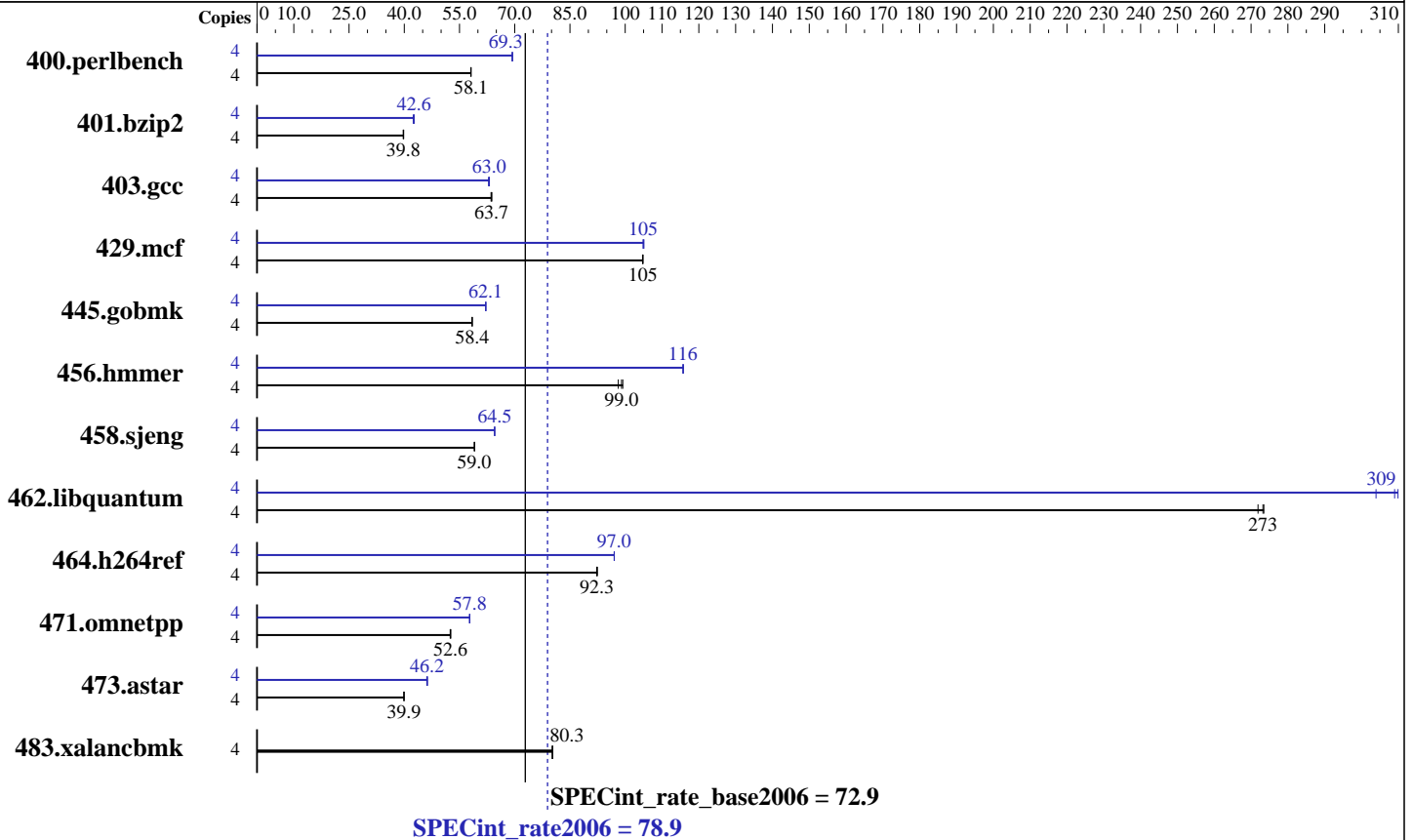
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Jun-2010

Hardware Availability: Jun-2010

Software Availability: Jan-2010



### Hardware

CPU Name: Intel Xeon E5503  
 CPU Characteristics:  
 CPU MHz: 2000  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 2 chips, 2 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: 4 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 48 GB (12 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: 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	4	673	58.1	672	58.1	<u>672</u>	<u>58.1</u>	4	564	69.3	563	69.4	<u>564</u>	<u>69.3</u>
401.bzip2	4	972	39.7	969	39.8	<u>970</u>	<u>39.8</u>	4	905	42.7	<u>905</u>	<u>42.6</u>	910	42.4
403.gcc	4	505	63.8	<u>505</u>	<u>63.7</u>	507	63.6	4	512	62.9	<u>511</u>	<u>63.0</u>	510	63.1
429.mcf	4	<u>348</u>	<u>105</u>	348	105	348	105	4	348	105	<u>348</u>	<u>105</u>	347	105
445.gobmk	4	718	58.4	<u>718</u>	<u>58.4</u>	718	58.4	4	675	62.1	675	62.2	<u>675</u>	<u>62.1</u>
456.hammer	4	376	99.4	<u>377</u>	<u>99.0</u>	380	98.1	4	323	116	<u>323</u>	<u>116</u>	322	116
458.sjeng	4	819	59.1	820	59.0	<u>820</u>	<u>59.0</u>	4	750	64.5	<u>750</u>	<u>64.5</u>	750	64.6
462.libquantum	4	305	272	303	273	<u>303</u>	<u>273</u>	4	273	304	<u>268</u>	<u>309</u>	267	310
464.h264ref	4	960	92.2	<u>959</u>	<u>92.3</u>	957	92.5	4	912	97.0	<u>912</u>	<u>97.0</u>	912	97.0
471.omnetpp	4	<u>475</u>	<u>52.6</u>	476	52.5	475	52.6	4	433	57.8	<u>433</u>	<u>57.8</u>	433	57.7
473.astar	4	704	39.9	703	40.0	<u>704</u>	<u>39.9</u>	4	<u>608</u>	<u>46.2</u>	609	46.1	606	46.3
483.xalancbmk	4	344	80.3	<u>344</u>	<u>80.3</u>	344	80.2	4	344	80.3	<u>344</u>	<u>80.3</u>	344	80.2

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 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

## Base Compiler Invocation

C benchmarks:  
icc -m32  
  
C++ benchmarks:  
icpc -m32



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## 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.icl1.1/libicl1.1-32bit -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

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## Peak Portability Flags (Continued)

456.hmmcr: -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: -xSSE4.2 -ipo -O3 -no-prec-div -static

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.hmmcr: -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.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 questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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