



# SPEC® CINT2006 Result

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## IBM Corporation

**SPECint®2006 = 22.8**

## IBM System x3500 (Intel Xeon E5420)

**SPECint\_base2006 = 19.8**

CPU2006 license: 11

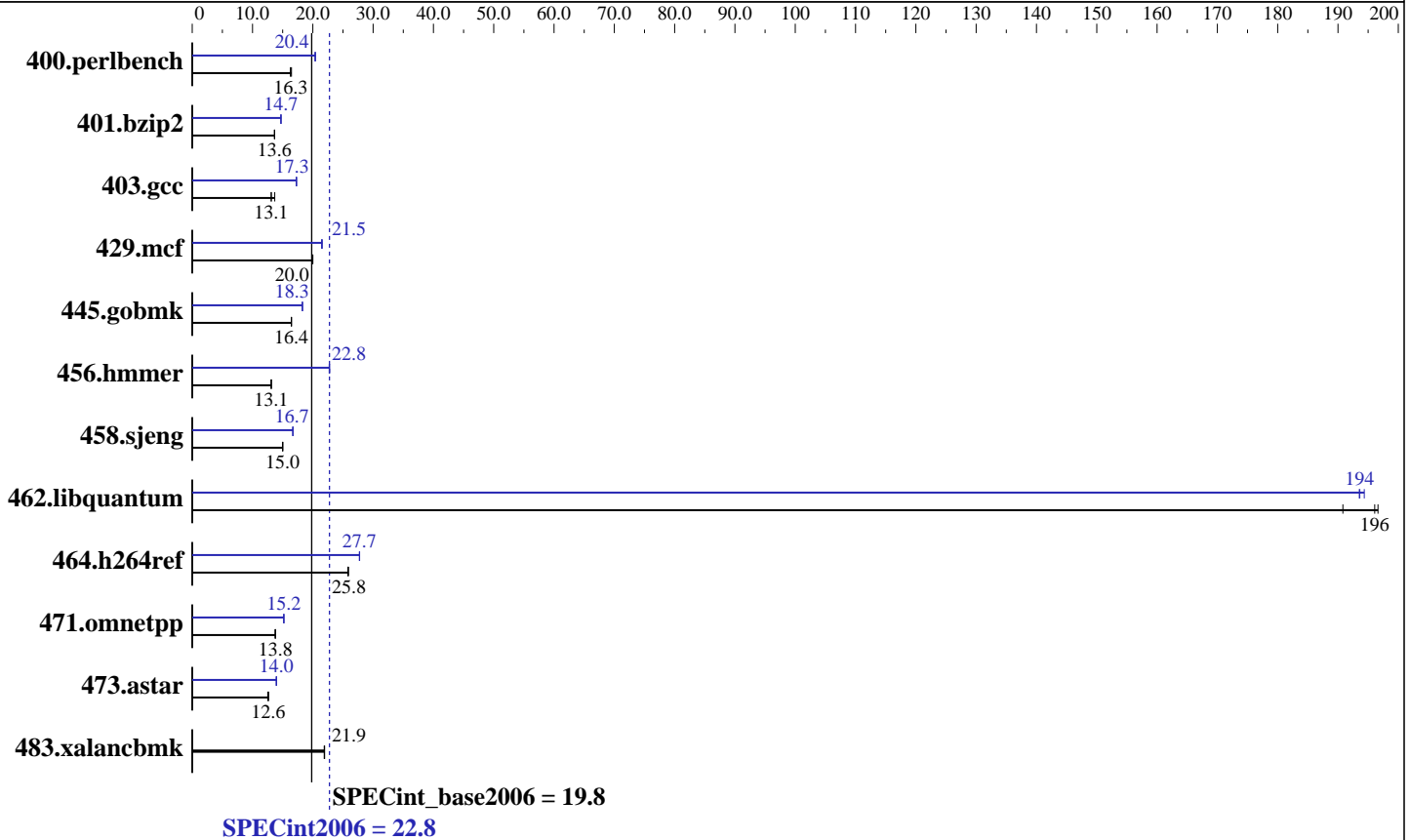
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Mar-2008

Hardware Availability: Jan-2008

Software Availability: Nov-2007



### Hardware

CPU Name: Intel Xeon E5420  
 CPU Characteristics: 1333MHz system bus  
 CPU MHz: 2500  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip  
 CPU(s) orderable: 1,2 chips  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 12 MB I+D on chip per chip, 6 MB shared / 2 cores  
 L3 Cache: None  
 Other Cache: None  
 Memory: 16 GB (8 x 2 GB DDR2-5300F ECC)  
 Disk Subsystem: 1 x 80 GB SATA, 7200 RPM  
 Other Hardware: None

### Software

Operating System: SuSE Linux Enterprise Server 10 (x86\_64), Kernel 2.6.16.21-0.8-smp  
 Compiler: Intel C++ Compiler 10.1 for Linux Build 20070913 Package ID: l\_cc\_p\_10.1.008  
 Auto Parallel: Yes  
 File System: ReiserFS  
 System State: Multi-user, run level 3  
 Base Pointers: 32-bit  
 Peak Pointers: 32/64-bit  
 Other Software: MicroQuill SmartHeap 8.1 Binutils 2.17.50.0.15



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## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	594	16.5	<u>599</u>	<u>16.3</u>	600	16.3	479	20.4	478	20.4	<u>479</u>	<u>20.4</u>
401.bzip2	707	13.7	<u>707</u>	<u>13.6</u>	707	13.6	657	14.7	655	14.7	<u>656</u>	<u>14.7</u>
403.gcc	588	13.7	615	13.1	<u>614</u>	<u>13.1</u>	465	17.3	467	17.3	<u>466</u>	<u>17.3</u>
429.mcf	456	20.0	<u>457</u>	<u>20.0</u>	457	19.9	425	21.5	423	21.6	<u>425</u>	<u>21.5</u>
445.gobmk	<u>638</u>	<u>16.4</u>	638	16.5	638	16.4	574	18.3	574	18.3	<u>574</u>	<u>18.3</u>
456.hmmer	713	13.1	<u>712</u>	<u>13.1</u>	711	13.1	410	22.8	411	22.7	<u>410</u>	<u>22.8</u>
458.sjeng	<u>806</u>	<u>15.0</u>	809	15.0	806	15.0	<u>724</u>	<u>16.7</u>	726	16.7	724	16.7
462.libquantum	<u>106</u>	<u>196</u>	109	191	105	197	<u>107</u>	<u>194</u>	107	194	107	194
464.h264ref	<u>857</u>	<u>25.8</u>	854	25.9	857	25.8	798	27.7	<u>798</u>	<u>27.7</u>	797	27.8
471.omnetpp	<u>453</u>	<u>13.8</u>	453	13.8	455	13.7	<u>411</u>	<u>15.2</u>	411	15.2	412	15.2
473.astar	555	12.7	561	12.5	<u>556</u>	<u>12.6</u>	<u>503</u>	<u>14.0</u>	502	14.0	504	13.9
483.xalancbmk	315	21.9	314	22.0	<u>315</u>	<u>21.9</u>	315	21.9	314	22.0	<u>315</u>	<u>21.9</u>

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

## General Notes

All benchmarks compiled in 32-bit mode except 401.bzip2 and 456.hmmer, for peak, are compiled in 64-bit mode  
Hardware Sector Prefetch Enabled and Adjacent Sector Prefetch Enabled  
OMP\_NUM\_THREADS set to number of cores  
KMP\_AFFINITY set to physical,0  
KMP\_STACKSIZE set to null  
This result is measured on an IBM System x3500 Server. Note that the IBM System x3500 and IBM System x3400 are electrically equivalent.

## Base Compiler Invocation

C benchmarks:  
icc

C++ benchmarks:  
icpc

## Base Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_IA32  
462.libquantum: -DSPEC\_CPU\_LINUX  
483.xalancbmk: -DSPEC\_CPU\_LINUX



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## Base Optimization Flags

C benchmarks:

-fast -vec-guard-write -parallel -par-runtime-control

C++ benchmarks:

-xT -ipo -O3 -no-prec-div -Wl,-z,muldefs  
-L/spec/users/rahul/cpu2006.1.0/lib -lsmartheap

## Base Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca

## Peak Compiler Invocation

C benchmarks (except as noted below):

icc

401.bzip2: /opt/intel/cce/10.1.008/bin/icc  
-L/opt/intel/cce/10.1.008/lib  
-I/opt/intel/cce/10.1.008/include

456.hmmer: /opt/intel/cce/10.1.008/bin/icc  
-L/opt/intel/cce/10.1.008/lib  
-I/opt/intel/cce/10.1.008/include

C++ benchmarks:

icpc

## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_IA32  
401.bzip2: -DSPEC\_CPU\_LP64  
456.hmmer: -DSPEC\_CPU\_LP64  
462.libquantum: -DSPEC\_CPU\_LINUX  
483.xalancbmk: -DSPEC\_CPU\_LINUX

## Peak Optimization Flags

C benchmarks:

Continued on next page



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## Peak Optimization Flags (Continued)

400.perlbench: -prof-gen(pass 1) -prof-use(pass 2) -fast -ansi-alias  
-prefetch

401.bzip2: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch  
-auto-ilp32

403.gcc: -fast -inline-calloc -opt-malloc-options=3

429.mcf: -fast -prefetch

445.gobmk: -prof-gen(pass 1) -prof-use(pass 2) -xT -O2 -ipo  
-no-prec-div -ansi-alias

456.hmmr: -fast -unroll2 -ansi-alias -opt-multi-version-aggressive  
-auto-ilp32

458.sjeng: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4

462.libquantum: -fast -unroll4 -Ob0 -prefetch  
-opt-streaming-stores always -vec-guard-write  
-opt-malloc-options=3 -parallel -par-runtime-control

464.h264ref: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2  
-ansi-alias

C++ benchmarks:

471.omnetpp: -prof-gen(pass 1) -prof-use(pass 2) -xT -O3 -ipo  
-no-prec-div -ansi-alias -opt-ra-region-strategy=block  
-Wl,-z,muldefs  
-L/spec/users/rahul/cpu2006.1.0/lib -lsmartheap

473.astar: -prof-gen(pass 1) -prof-use(pass 2) -xT -O3 -ipo  
-no-prec-div -ansi-alias -opt-ra-region-strategy=routine  
-Wl,-z,muldefs  
-L/spec/users/rahul/cpu2006.1.0/lib -lsmartheap

483.xalancbmk: basepeak = yes

## Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca



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The flags file that was used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic10.1-INT-ia32-linux-flags.20090713.html>

You can also download the XML flags source by saving the following link:

<http://www.spec.org/cpu2006/flags/Intel-ic10.1-INT-ia32-linux-flags.20090713.xml>

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

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