



# SPEC® CINT2006 Result

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## IBM Corporation

**SPECint®2006 = 44.9**

### IBM BladeCenter HS22V (Intel Xeon X5672)

**SPECint\_base2006 = 42.3**

CPU2006 license: 11

Test date: Jul-2011

Test sponsor: IBM Corporation

Hardware Availability: Feb-2011

Tested by: IBM Corporation

Software Availability: Jan-2011



### Hardware

CPU Name: Intel Xeon X5672  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz  
 CPU MHz: 3200  
 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: 12 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 48 GB (12 x 4 GB 2Rx8 PC3-10600R-9, ECC)  
 Disk Subsystem: 2 x 50 GB SATA, SSD, RAID 0  
 Other Hardware: None

### Software

Operating System: SUSE Linux Enterprise Server 11 SP1 (x86\_64), Kernel 2.6.32.12-0.7-default  
 Compiler: Intel C++ Intel 64 Compiler XE for applications running on Intel 64 Version 12.0.1.116 Build 20101116  
 Auto Parallel: Yes  
 File System: ext3  
 System State: Run level 3 (multi-user)  
 Base Pointers: 32/64-bit  
 Peak Pointers: 32/64-bit  
 Other Software: Microquill SmartHeap V9.01



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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>351</u></b>	<b><u>27.8</u></b>	347	28.2	356	27.5	302	32.3	<b><u>303</u></b>	<b><u>32.3</u></b>	303	32.2
401.bzip2	456	21.1	<b><u>456</u></b>	<b><u>21.1</u></b>	457	21.1	436	22.1	<b><u>436</u></b>	<b><u>22.2</u></b>	436	22.2
403.gcc	287	28.1	<b><u>287</u></b>	<b><u>28.1</u></b>	286	28.2	265	30.4	<b><u>265</u></b>	<b><u>30.4</u></b>	267	30.1
429.mcf	180	50.8	180	50.7	<b><u>180</u></b>	<b><u>50.7</u></b>	<b><u>166</u></b>	<b><u>54.9</u></b>	167	54.7	166	55.0
445.gobmk	<b><u>407</u></b>	<b><u>25.8</u></b>	403	26.0	407	25.8	384	27.3	384	27.4	<b><u>384</u></b>	<b><u>27.3</u></b>
456.hammer	181	51.4	<b><u>181</u></b>	<b><u>51.4</u></b>	181	51.5	<b><u>179</u></b>	<b><u>52.2</u></b>	179	52.2	178	52.3
458.sjeng	422	28.7	425	28.5	<b><u>422</u></b>	<b><u>28.7</u></b>	413	29.3	<b><u>413</u></b>	<b><u>29.3</u></b>	413	29.3
462.libquantum	21.7	956	22.9	906	<b><u>21.7</u></b>	<b><u>956</u></b>	21.7	956	22.9	906	<b><u>21.7</u></b>	<b><u>956</u></b>
464.h264ref	<b><u>541</u></b>	<b><u>40.9</u></b>	536	41.3	543	40.8	<b><u>484</u></b>	<b><u>45.7</u></b>	485	45.6	484	45.8
471.omnetpp	257	24.3	257	24.3	<b><u>257</u></b>	<b><u>24.3</u></b>	<b><u>223</u></b>	<b><u>28.0</u></b>	223	28.0	223	28.1
473.astar	267	26.2	<b><u>269</u></b>	<b><u>26.1</u></b>	270	26.0	267	26.2	<b><u>269</u></b>	<b><u>26.1</u></b>	270	26.0
483.xalancbmk	164	42.2	165	41.7	<b><u>165</u></b>	<b><u>41.9</u></b>	164	42.2	165	41.7	<b><u>165</u></b>	<b><u>41.9</u></b>

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

## Operating System Notes

```
'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
'nodev /mnt/hugepages hugetlbfs defaults 0 0' added to /etc/fstab
echo 900 > /proc/sys/vm/nr_hugepages
export HUGETLB_MORECORE=yes
export LD_PRELOAD=/usr/lib64/libhugetlbfs.so
```

## Platform Notes

Load Default BIOS Settings and then change the following  
Turbo Mode enabled  
Turbo Boost set to Traditional  
Power C-states enabled  
Demand Scrub disabled

## General Notes

Binaries compiled on RHEL5.5  
OMP\_NUM\_THREADS set to number of cores

## Base Compiler Invocation

C benchmarks:  
icc -m64

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## Base Compiler Invocation (Continued)

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 -parallel -opt-prefetch -auto-p32  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

C++ benchmarks:  
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs  
-L/smartheap -lsmartheap64  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

## Base Other Flags

C benchmarks:  
403.gcc: -Dalloca=\_alloca

## Peak Compiler Invocation

C benchmarks (except as noted below):  
icc -m64  
400.perlbench: icc -m32

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## Peak Compiler Invocation (Continued)

429.mcf: icc -m32

445.gobmk: icc -m32

464.h264ref: icc -m32

C++ benchmarks (except as noted below):

icpc -m64

471.omnetpp: icpc -m32

## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_IA32

401.bzip2: -DSPEC\_CPU\_LP64

403.gcc: -DSPEC\_CPU\_LP64

456.hammer: -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) -prof-use(pass 2)  
-opt-prefetch -ansi-alias  
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

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

403.gcc: -xSSE4.2 -ipo -O3 -no-prec-div -inline-calloc  
-opt-malloc-options=3 -auto-ilp32  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

429.mcf: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-auto-ilp32 -ansi-alias  
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)  
-auto-ilp32 -ansi-alias  
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

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## Peak Optimization Flags (Continued)

456.hmmcr: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32  
-ansi-alias  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

458.sjeng: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(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) -prof-use(pass 2)  
-unroll2 -ansi-alias  
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

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)  
-opt-ra-region-strategy=block -ansi-alias -Wl,-z,muldefs  
-L/smartheap -lsmartheap  
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

473.astar: basepeak = yes

483.xalancbmk: basepeak = yes

## Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.html>  
<http://www.spec.org/cpu2006/flags/IBM-platform-linux64-revA.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.xml>  
<http://www.spec.org/cpu2006/flags/IBM-platform-linux64-revA.xml>



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

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