



# SPEC® CINT2006 Result

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## IBM Corporation

**SPECint®2006 = 43.3**

### IBM System x3100 M4 (Intel Core i3-2130)

**SPECint\_base2006 = 41.2**

CPU2006 license: 11

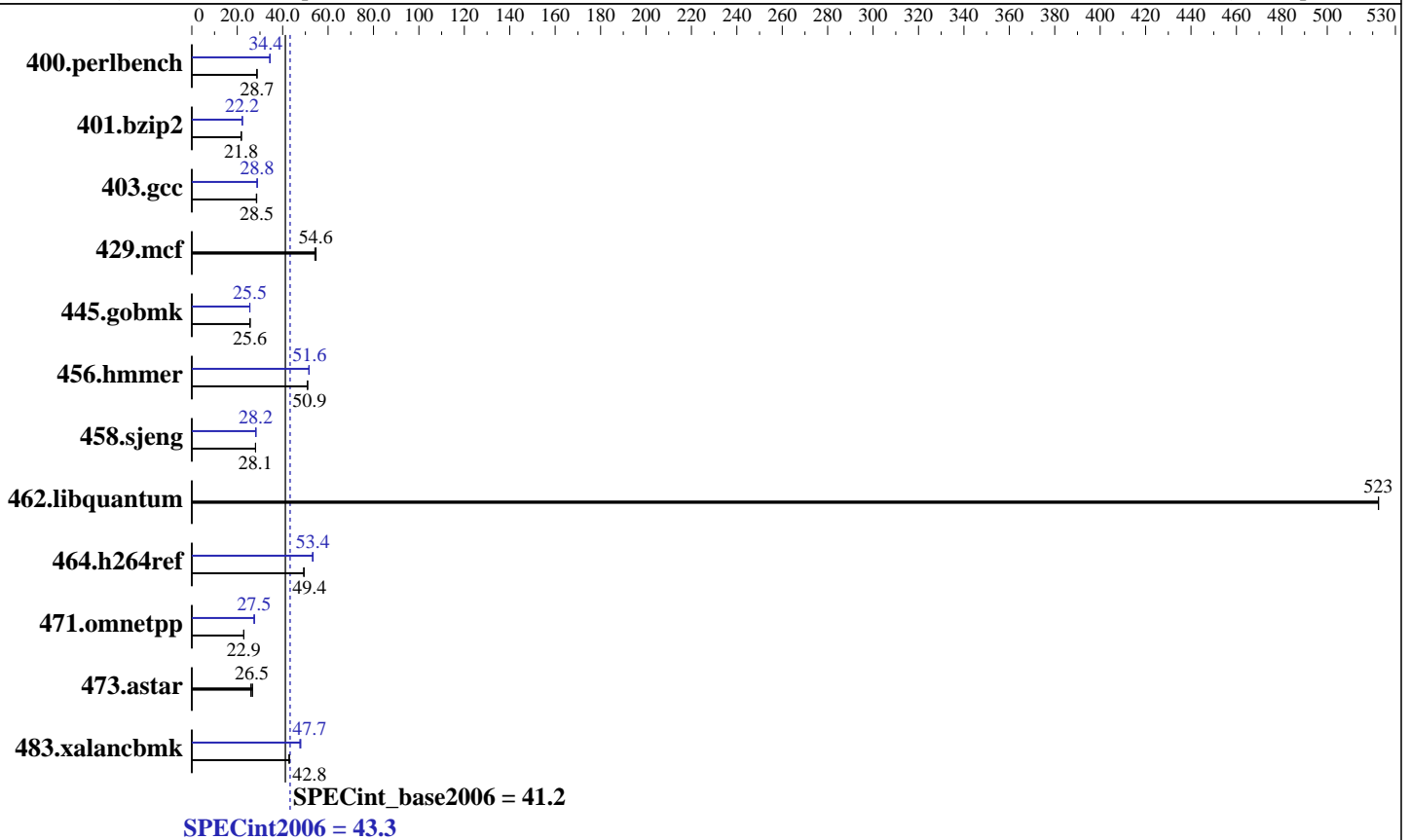
Test date: Nov-2011

Test sponsor: IBM Corporation

Hardware Availability: Oct-2011

Tested by: IBM Corporation

Software Availability: Sep-2011



### Hardware

CPU Name: Intel Core i3-2130  
 CPU Characteristics:  
 CPU MHz: 3400  
 FPU: Integrated  
 CPU(s) enabled: 2 cores, 1 chip, 2 cores/chip, 2 threads/core  
 CPU(s) orderable: 1 chip  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 256 KB I+D on chip per core  
 L3 Cache: 3 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 8 GB (2 x 4 GB 2Rx8 PC3-10600E-9, ECC)  
 Disk Subsystem: 1 x 250 GB SATA, 7200 RPM  
 Other Hardware: None

### Software

Operating System: Red Hat Enterprise Linux Server Release 6.1, Kernel 2.6.32-131.0.15.el6.x86\_64  
 Compiler: C/C++: Version 12.1.0.225 of Intel Compiler XE Build 20110803  
 Auto Parallel: Yes  
 File System: ext4  
 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>341</u></b>	<b><u>28.7</u></b>	340	28.7	341	28.7	284	34.4	284	34.4	<b><u>284</u></b>	<b><u>34.4</u></b>
401.bzip2	442	21.9	<b><u>443</u></b>	<b><u>21.8</u></b>	445	21.7	434	22.3	<b><u>434</u></b>	<b><u>22.2</u></b>	434	22.2
403.gcc	282	28.6	<b><u>282</u></b>	<b><u>28.5</u></b>	283	28.4	280	28.8	280	28.8	<b><u>280</u></b>	<b><u>28.8</u></b>
429.mcf	167	54.7	<b><u>167</u></b>	<b><u>54.6</u></b>	168	54.2	167	54.7	<b><u>167</u></b>	<b><u>54.6</u></b>	168	54.2
445.gobmk	409	25.6	409	25.6	<b><u>409</u></b>	<b><u>25.6</u></b>	411	25.5	411	25.5	<b><u>411</u></b>	<b><u>25.5</u></b>
456.hammer	<b><u>183</u></b>	<b><u>50.9</u></b>	183	51.0	183	50.9	181	51.6	<b><u>181</u></b>	<b><u>51.6</u></b>	181	51.6
458.sjeng	431	28.1	<b><u>431</u></b>	<b><u>28.1</u></b>	431	28.1	429	28.2	429	28.2	<b><u>429</u></b>	<b><u>28.2</u></b>
462.libquantum	39.7	523	39.7	523	<b><u>39.7</u></b>	<b><u>523</u></b>	39.7	523	39.7	523	<b><u>39.7</u></b>	<b><u>523</u></b>
464.h264ref	449	49.3	<b><u>448</u></b>	<b><u>49.4</u></b>	448	49.4	<b><u>415</u></b>	<b><u>53.4</u></b>	414	53.4	417	53.1
471.omnetpp	273	22.9	<b><u>273</u></b>	<b><u>22.9</u></b>	273	22.9	<b><u>227</u></b>	<b><u>27.5</u></b>	228	27.4	227	27.6
473.astar	270	26.0	<b><u>265</u></b>	<b><u>26.5</u></b>	262	26.7	270	26.0	<b><u>265</u></b>	<b><u>26.5</u></b>	262	26.7
483.xalancbmk	161	42.9	<b><u>161</u></b>	<b><u>42.8</u></b>	161	42.8	145	47.7	<b><u>145</u></b>	<b><u>47.7</u></b>	144	48.0

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

## Platform Notes

BIOS Settings:  
C-State enabled in BIOS

## General Notes

Environment variables set by runspec before the start of the run:

KMP\_AFFINITY = "granularity=fine,scatter"

LD\_LIBRARY\_PATH = "/root/SPECcpu12.1/smartheap:/root/SPECcpu12.1/ic12.1-libs/ia32:/root/SPECcpu12.1/ic12.1-libs/intel64"

OMP\_NUM\_THREADS = "2"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory  
using RHEL5.5 with binutils-2.17.50.0.6-14.el5

Stack size set to unlimited using "ulimit -s unlimited"

Transparent Huge Pages enabled with:

echo always > /sys/kernel/mm/redhat\_transparent\_hugepage/enabled

Filesystem page cache cleared with:

echo 1> /proc/sys/vm/drop\_caches

## Base Compiler Invocation

C benchmarks:

icc -m64

C++ benchmarks:

icpc -m64



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## 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:

-xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32

C++ benchmarks:

-xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -Wl,-z,muldefs  
-L/smartheap -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

445.gobmk: icc -m32

464.h264ref: icc -m32

C++ benchmarks (except as noted below):

icpc -m32

473.astar: icpc -m64



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## Peak Portability Flags

```

400.perlbench: -DSPEC_CPU_LINUX_IA32
401.bzip2: -DSPEC_CPU_LP64
403.gcc: -DSPEC_CPU_LP64
429.mcf: -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: -xAVX(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

401.bzip2: -xAVX(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: -xAVX -ipo -O3 -no-prec-div -inline-calloc
          -opt-malloc-options=3 -auto-ilp32

429.mcf: basepeak = yes

445.gobmk: -xAVX(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
           -ansi-alias

456.hmmer: -xAVX -ipo -O3 -no-prec-div -unroll2 -auto-ilp32
           -ansi-alias

458.sjeng: -xAVX(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: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
             -no-prec-div(pass 2) -prof-use(pass 2) -unroll2
             -ansi-alias

```

C++ benchmarks:

```

471.omnetpp: -xAVX(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

```

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## Peak Optimization Flags (Continued)

473.astar: basepeak = yes

483.xalancbmk: -xAVX -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias  
-Wl,-z,muldefs -L/smartheap -lsmartheap

## 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-ic12.1-linux64.html>

<http://www.spec.org/cpu2006/flags/IBM-platform-linux64-revB.20111220.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-linux64.xml>

<http://www.spec.org/cpu2006/flags/IBM-platform-linux64-revB.20111220.xml>

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

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