



# SPEC® CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## IBM Corporation

**SPECint®2006 = 38.9**

### IBM System x3500 M4 (Intel Xeon E5-2620)

**SPECint\_base2006 = 36.7**

CPU2006 license: 11

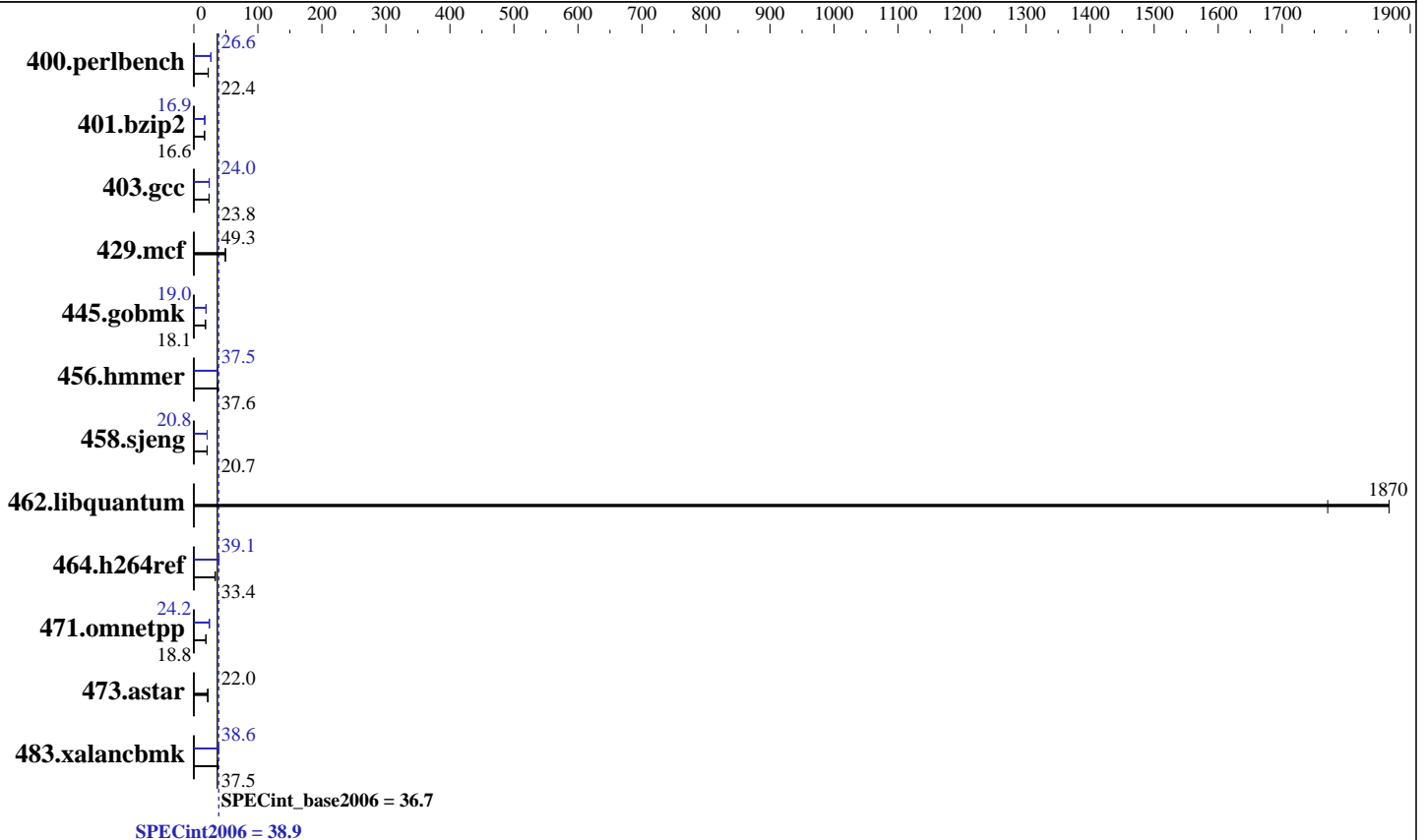
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Apr-2012

Hardware Availability: Mar-2012

Software Availability: Oct-2011



### Hardware

CPU Name: Intel Xeon E5-2620  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.50 GHz  
 CPU MHz: 2000  
 FPU: Integrated  
 CPU(s) enabled: 12 cores, 2 chips, 6 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: 15 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 64 GB (16 x 4 GB 2Rx8 PC3-12800R-11, ECC, running at 1333 MHz)  
 Disk Subsystem: 1 x 300 GB SAS, 15000 RPM  
 Other Hardware: None

### Software

Operating System: Red Hat Enterprise Linux Server release 6.1 (Santiago)  
 2.6.32-131.0.15.el6.x86\_64  
 Compiler: C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux  
 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



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

SPECint2006 = 38.9

IBM System x3500 M4 (Intel Xeon E5-2620)

SPECint\_base2006 = 36.7

CPU2006 license: 11  
Test sponsor: IBM Corporation  
Tested by: IBM Corporation

Test date: Apr-2012  
Hardware Availability: Mar-2012  
Software Availability: Oct-2011

## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	436	22.4	<b>436</b>	<b>22.4</b>	436	22.4	366	26.7	<b>367</b>	<b>26.6</b>	368	26.6
401.bzip2	582	16.6	<b>582</b>	<b>16.6</b>	583	16.6	<b>570</b>	<b>16.9</b>	570	16.9	571	16.9
403.gcc	339	23.8	<b>339</b>	<b>23.8</b>	339	23.7	<b>336</b>	<b>24.0</b>	336	24.0	337	23.9
429.mcf	<b>185</b>	<b>49.3</b>	184	49.4	185	49.2	<b>185</b>	<b>49.3</b>	184	49.4	185	49.2
445.gobmk	581	18.1	580	18.1	<b>581</b>	<b>18.1</b>	552	19.0	<b>552</b>	<b>19.0</b>	552	19.0
456.hammer	<b>248</b>	<b>37.6</b>	248	37.6	248	37.6	249	37.5	<b>249</b>	<b>37.5</b>	249	37.5
458.sjeng	585	20.7	<b>585</b>	<b>20.7</b>	585	20.7	583	20.8	582	20.8	<b>583</b>	<b>20.8</b>
462.libquantum	11.7	1770	<b>11.1</b>	<b>1870</b>	11.1	1870	11.7	1770	<b>11.1</b>	<b>1870</b>	11.1	1870
464.h264ref	668	33.1	661	33.5	<b>663</b>	<b>33.4</b>	<b>565</b>	<b>39.1</b>	563	39.3	567	39.1
471.omnetpp	<b>332</b>	<b>18.8</b>	333	18.7	327	19.1	258	24.2	258	24.2	<b>258</b>	<b>24.2</b>
473.astar	328	21.4	319	22.0	<b>319</b>	<b>22.0</b>	328	21.4	319	22.0	<b>319</b>	<b>22.0</b>
483.xalancbmk	<b>184</b>	<b>37.5</b>	185	37.3	184	37.6	<b>179</b>	<b>38.6</b>	178	38.7	180	38.2

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

## Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"  
Zone reclaim mode enabled with:  
echo 1 > /proc/sys/vm/zone\_reclaim\_mode

## Platform Notes

BIOS Settings:  
Operating Mode set to Maximum Performance  
Sysinfo program /root/SPECcpu-v1.2/config/sysinfo.rev6800  
\$Rev: 6800 \$ \$Date:: 2011-10-11 #\$ 6f2ebdff5032aaa42e583f96b07f99d3  
running on x3500M4 Sun Apr 1 04:58:46 2012

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see:  
<http://www.spec.org/cpu2006/Docs/config.html#sysinfo>

From /proc/cpuinfo  
model name : Intel(R) Xeon(R) CPU E5-2620 0 @ 2.00GHz  
2 "physical id"s (chips)  
24 "processors"  
cores, siblings (Caution: counting these is hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)  
cpu cores : 6  
siblings : 12  
physical 0: cores 0 1 2 3 4 5  
physical 1: cores 0 1 2 3 4 5

Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

SPECint2006 = 38.9

IBM System x3500 M4 (Intel Xeon E5-2620)

SPECint\_base2006 = 36.7

CPU2006 license: 11

Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Apr-2012

Hardware Availability: Mar-2012

Software Availability: Oct-2011

## Platform Notes (Continued)

cache size : 15360 KB

From /proc/meminfo

MemTotal: 66045764 kB

HugePages\_Total: 0

Hugepagesize: 2048 kB

/usr/bin/lsb\_release -d

Red Hat Enterprise Linux Server release 6.1 (Santiago)

From /etc/\*release\* /etc/\*version\*

redhat-release: Red Hat Enterprise Linux Server release 6.1 (Santiago)

system-release: Red Hat Enterprise Linux Server release 6.1 (Santiago)

system-release-cpe: cpe:/o:redhat:enterprise\_linux:6server:ga:server

uname -a:

Linux x3500M4 2.6.32-131.0.15.el6.x86\_64 #1 SMP Tue May 10 15:42:40 EDT 2011  
x86\_64 x86\_64 x86\_64 GNU/Linux

run-level 3 Mar 30 11:40

SPEC is set to: /root/SPECcpu-v1.2

Filesystem Type Size Used Avail Use% Mounted on

/dev/mapper/vg\_x3500m4-lv\_root  
ext4 210G 69G 130G 35% /

Additional information from dmidecode:

Memory:

16x Samsung M393B5273DH0-CK0 4 GB 1600 MHz 2 rank

(End of data from sysinfo program)

## General Notes

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

KMP\_AFFINITY = "granularity=fine,compact,1,0"

LD\_LIBRARY\_PATH = "/root/SPECcpu-v1.2/libs/32:/root/SPECcpu-v1.2/libs/64"

OMP\_NUM\_THREADS = "12"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB

memory using RHEL5.5

Transparent Huge Pages enabled with:

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

## Base Compiler Invocation

C benchmarks:

icc -m64

Continued on next page

Standard Performance Evaluation Corporation

info@spec.org

http://www.spec.org/

Page 3



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

SPECint2006 = 38.9

IBM System x3500 M4 (Intel Xeon E5-2620)

SPECint\_base2006 = 36.7

CPU2006 license: 11

Test date: Apr-2012

Test sponsor: IBM Corporation

Hardware Availability: Mar-2012

Tested by: IBM Corporation

Software Availability: Oct-2011

## 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:  
-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

Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

SPECint2006 = 38.9

IBM System x3500 M4 (Intel Xeon E5-2620)

SPECint\_base2006 = 36.7

CPU2006 license: 11

Test date: Apr-2012

Test sponsor: IBM Corporation

Hardware Availability: Mar-2012

Tested by: IBM Corporation

Software Availability: Oct-2011

## Peak Compiler Invocation (Continued)

464.h264ref: icc -m32

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  
 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

Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

SPECint2006 = 38.9

IBM System x3500 M4 (Intel Xeon E5-2620)

SPECint\_base2006 = 36.7

CPU2006 license: 11

Test date: Apr-2012

Test sponsor: IBM Corporation

Hardware Availability: Mar-2012

Tested by: IBM Corporation

Software Availability: Oct-2011

## Peak Optimization Flags (Continued)

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

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-official-linux64.20111122.html>

<http://www.spec.org/cpu2006/flags/IBM-Platform-Flags-V1.2-SNB-C.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml>

<http://www.spec.org/cpu2006/flags/IBM-Platform-Flags-V1.2-SNB-C.xml>

SPEC and SPECint are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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

Tested with SPEC CPU2006 v1.2.

Report generated on Thu Jul 24 04:06:45 2014 by SPEC CPU2006 PS/PDF formatter v6932.

Originally published on 24 April 2012.