



# SPEC<sup>®</sup> CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## IBM Corporation

IBM System x3750 M4  
(Intel Xeon E5-4610, 2.40 GHz)

**SPECint<sup>®</sup>2006 = 46.1**

**SPECint\_base2006 = 43.2**

CPU2006 license: 11

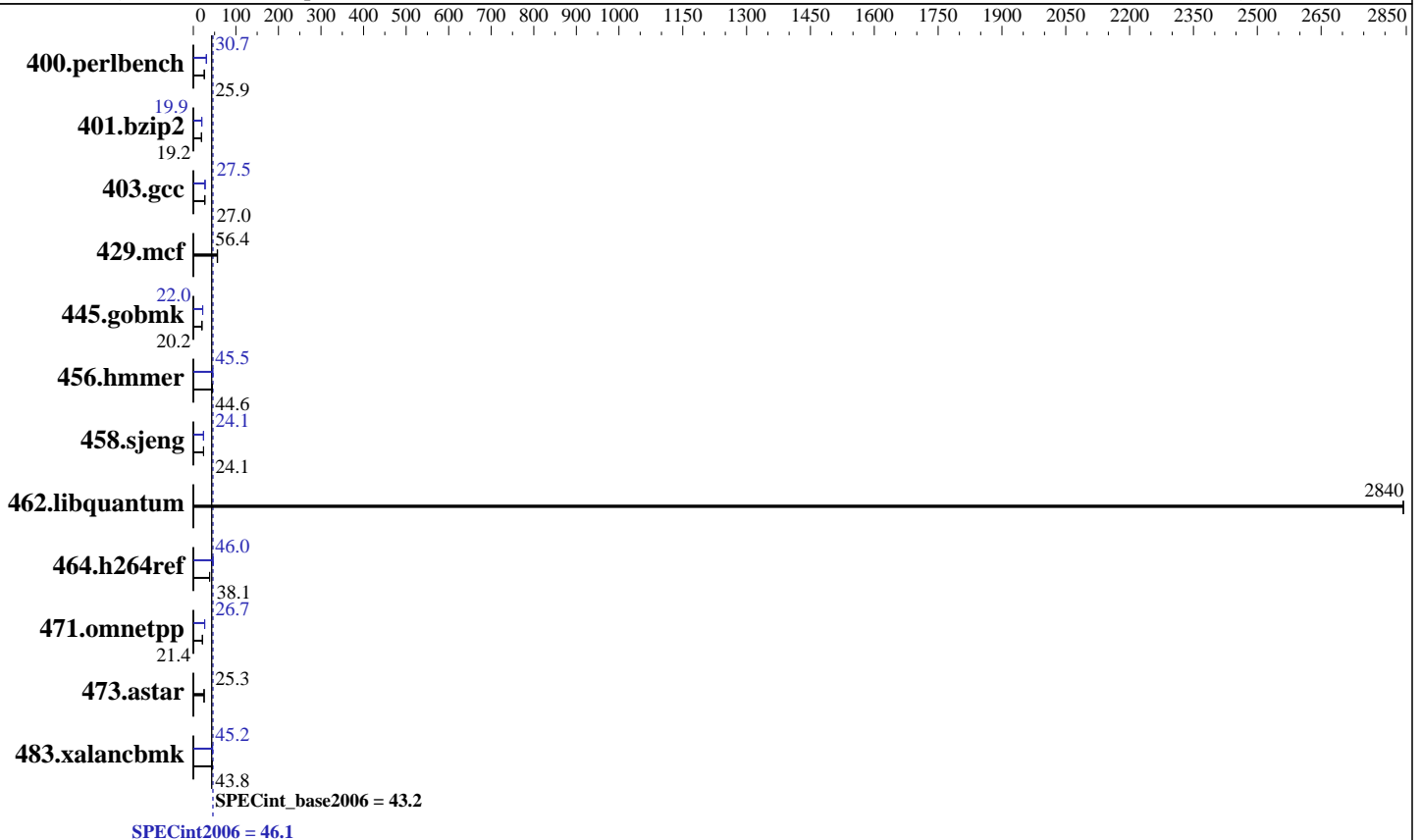
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Jun-2012

Hardware Availability: Jul-2012

Software Availability: Dec-2011



### Hardware

CPU Name: Intel Xeon E5-4610  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.90 GHz  
 CPU MHz: 2400  
 FPU: Integrated  
 CPU(s) enabled: 24 cores, 4 chips, 6 cores/chip, 2 threads/core  
 CPU(s) orderable: 1,2,3,4 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: 256 GB (32 x 8 GB 2Rx4 PC3-12800R-11, ECC, running at 1333 MHz)  
 Disk Subsystem: 1 x 300 GB SAS, 10000 RPM  
 Other Hardware: None

### Software

Operating System: Red Hat Enterprise Linux Server release 6.2 (Santiago)  
 2.6.32-220.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

IBM System x3750 M4  
(Intel Xeon E5-4610, 2.40 GHz)

SPECint2006 = 46.1

SPECint\_base2006 = 43.2

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

Test date: Jun-2012  
Hardware Availability: Jul-2012  
Software Availability: Dec-2011

## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	378	25.9	<b><u>378</u></b>	<b><u>25.9</u></b>	378	25.9	318	30.7	<b><u>318</u></b>	<b><u>30.7</u></b>	318	30.7
401.bzip2	<b><u>503</u></b>	<b><u>19.2</u></b>	503	19.2	502	19.2	485	19.9	<b><u>485</u></b>	<b><u>19.9</u></b>	486	19.8
403.gcc	299	27.0	298	27.0	<b><u>299</u></b>	<b><u>27.0</u></b>	293	27.5	293	27.5	<b><u>293</u></b>	<b><u>27.5</u></b>
429.mcf	162	56.2	<b><u>162</u></b>	<b><u>56.4</u></b>	160	57.1	162	56.2	<b><u>162</u></b>	<b><u>56.4</u></b>	160	57.1
445.gobmk	520	20.2	<b><u>519</u></b>	<b><u>20.2</u></b>	519	20.2	476	22.1	<b><u>476</u></b>	<b><u>22.0</u></b>	476	22.0
456.hammer	<b><u>209</u></b>	<b><u>44.6</u></b>	210	44.5	209	44.6	205	45.5	205	45.5	<b><u>205</u></b>	<b><u>45.5</u></b>
458.sjeng	<b><u>503</u></b>	<b><u>24.1</u></b>	503	24.1	504	24.0	511	23.7	<b><u>503</u></b>	<b><u>24.1</u></b>	502	24.1
462.libquantum	<b><u>7.29</u></b>	<b><u>2840</u></b>	7.29	2840	7.29	2840	<b><u>7.29</u></b>	<b><u>2840</u></b>	7.29	2840	7.29	2840
464.h264ref	575	38.5	582	38.0	<b><u>582</u></b>	<b><u>38.1</u></b>	<b><u>481</u></b>	<b><u>46.0</u></b>	480	46.1	481	46.0
471.omnetpp	292	21.4	291	21.5	<b><u>291</u></b>	<b><u>21.4</u></b>	234	26.7	234	26.7	<b><u>234</u></b>	<b><u>26.7</u></b>
473.astar	278	25.3	278	25.3	<b><u>278</u></b>	<b><u>25.3</u></b>	278	25.3	278	25.3	<b><u>278</u></b>	<b><u>25.3</u></b>
483.xalancbmk	158	43.8	<b><u>158</u></b>	<b><u>43.8</u></b>	157	43.8	<b><u>153</u></b>	<b><u>45.2</u></b>	153	45.2	153	45.1

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"

## Platform Notes

Operating Mode set to Maximum Performance in BIOS  
Sysinfo program /cpu2006.1.2/config/sysinfo.rev6800  
\$Rev: 6800 \$ \$Date:: 2011-10-11 #\$ 6f2ebdff5032aaa42e583f96b07f99d3  
running on kong-pete Mon Jun 4 07:19:50 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 E5-4610 0 @ 2.40GHz
4 "physical id"s (chips)
48 "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
physical 2: cores 0 1 2 3 4 5
physical 3: cores 0 1 2 3 4 5
cache size : 15360 KB
```

Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

**IBM Corporation**

**SPECint2006 = 46.1**

IBM System x3750 M4  
(Intel Xeon E5-4610, 2.40 GHz)

**SPECint\_base2006 = 43.2**

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

**Test date:** Jun-2012  
**Hardware Availability:** Jul-2012  
**Software Availability:** Dec-2011

## Platform Notes (Continued)

```

From /proc/meminfo
MemTotal:      264507224 kB
HugePages_Total:      0
Hugepagesize:    2048 kB

/usr/bin/lsb_release -d
Red Hat Enterprise Linux Server release 6.2 (Santiago)

From /etc/*release* /etc/*version*
redhat-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

uname -a:
Linux kong-pete 2.6.32-220.el6.x86_64 #1 SMP Wed Nov 9 08:03:13 EST 2011
x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Jun 2 20:16

SPEC is set to: /cpu2006.1.2
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/mapper/vg_kongpete-lv_root
                ext4      264G   6.0G  245G   3% /

Additional information from dmidecode:
Memory:
 11x Hynix HMT31GR7CFR4C-PB 8 GB 1600 MHz 2 rank
 15x Micron 36JSF1G72PZ-1G6M1 8 GB 1600 MHz 2 rank
 6x Samsung M393B1K70DH0-CK0 8 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,scatter"
LD_LIBRARY_PATH = "/cpu2006.1.2/libs/32:/cpu2006.1.2/libs/64"
OMP_NUM_THREADS = "24"

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



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

**IBM Corporation**

IBM System x3750 M4  
(Intel Xeon E5-4610, 2.40 GHz)

**SPECint2006 = 46.1**

**SPECint\_base2006 = 43.2**

**CPU2006 license:** 11

**Test sponsor:** IBM Corporation

**Tested by:** IBM Corporation

**Test date:** Jun-2012

**Hardware Availability:** Jul-2012

**Software Availability:** Dec-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:  
-xSSE4.2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32

C++ benchmarks:  
-xSSE4.2 -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**

IBM System x3750 M4  
(Intel Xeon E5-4610, 2.40 GHz)

**SPECint2006 = 46.1**

**SPECint\_base2006 = 43.2**

**CPU2006 license:** 11

**Test sponsor:** IBM Corporation

**Tested by:** IBM Corporation

**Test date:** Jun-2012

**Hardware Availability:** Jul-2012

**Software Availability:** Dec-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: -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  
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  
429.mcf: basepeak = yes  
445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)  
-ansi-alias  
456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32  
-ansi-alias  
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

Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

**IBM Corporation**

IBM System x3750 M4  
(Intel Xeon E5-4610, 2.40 GHz)

**SPECint2006 = 46.1**

**SPECint\_base2006 = 43.2**

**CPU2006 license:** 11

**Test sponsor:** IBM Corporation

**Tested by:** IBM Corporation

**Test date:** Jun-2012

**Hardware Availability:** Jul-2012

**Software Availability:** Dec-2011

## Peak Optimization Flags (Continued)

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

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

473.astar: basepeak = yes

483.xalancbmk: -xSSE4.2 -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 Mon Sep 15 15:43:05 2014 by SPEC CPU2006 PS/PDF formatter v6932.

Originally published on 31 July 2012.