



# SPEC® CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## IBM Corporation

IBM System x3650 M4  
(Intel Xeon E5-2630L v2, 2.40 GHz)

**SPECint®2006 = 46.0**

**SPECint\_base2006 = 43.3**

CPU2006 license: 11

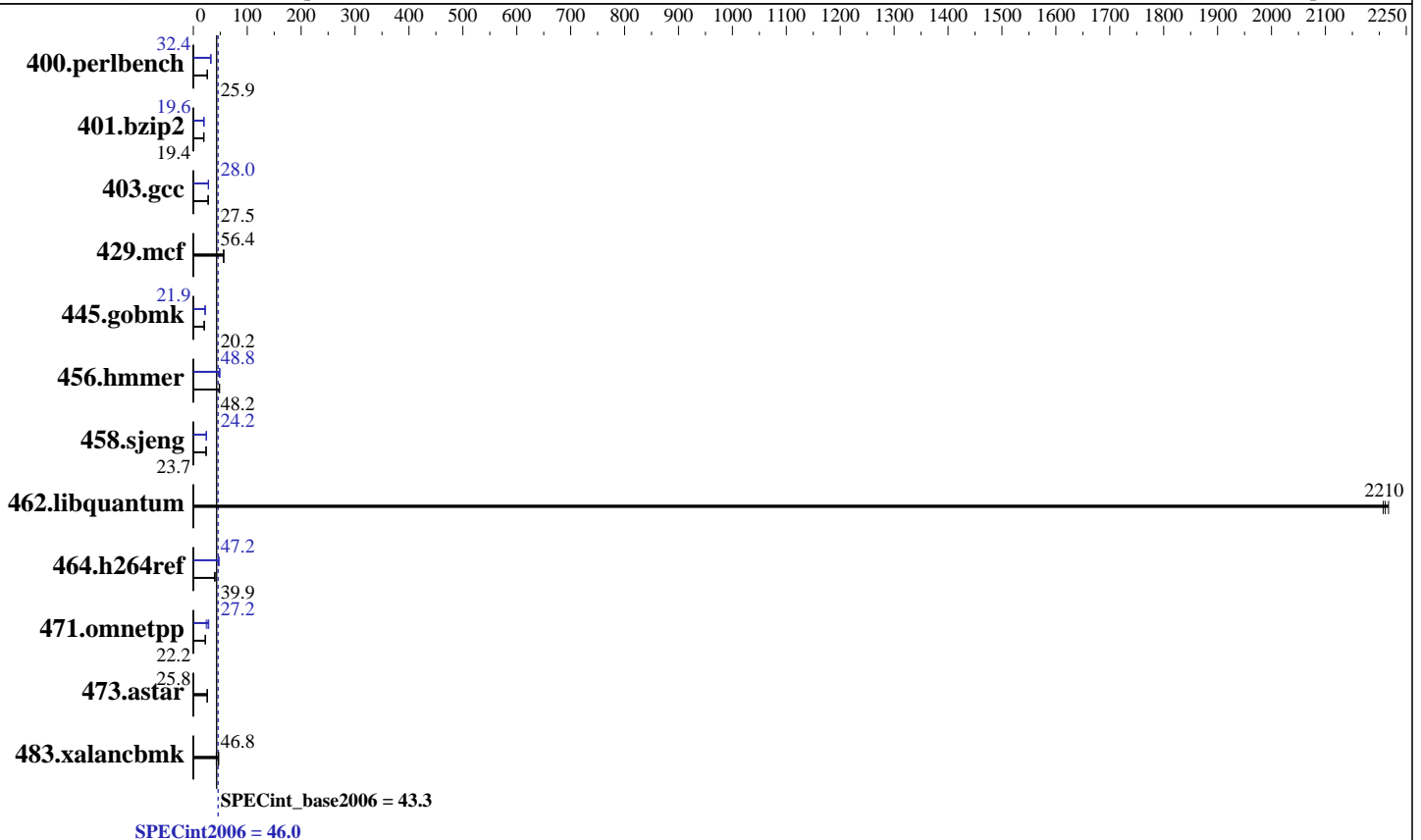
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Aug-2014

Hardware Availability: Dec-2013

Software Availability: Sep-2013



### Hardware

CPU Name: Intel Xeon E5-2630L v2  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz  
 CPU MHz: 2400  
 FPU: Integrated  
 CPU(s) enabled: 12 cores, 2 chips, 6 cores/chip  
 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: 256 GB (16 x 16 GB 2Rx4 PC3-14900R-13, ECC, running at 1600 MHz)  
 Disk Subsystem: 1 x 400 GB SAS SSD, RAID 0  
 Other Hardware: None

### Software

Operating System: Red Hat Enterprise Linux Server release 6.4 (Santiago)  
 2.6.32-358.el6.x86\_64  
 Compiler: C/C++: Version 14.0.0.080 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 V10.0



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## IBM Corporation

IBM System x3650 M4  
(Intel Xeon E5-2630L v2, 2.40 GHz)

SPECint2006 = 46.0

SPECint\_base2006 = 43.3

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

Test date: Aug-2014  
Hardware Availability: Dec-2013  
Software Availability: Sep-2013

## Results Table

| Benchmark      | Base       |             |             |             |            |             | Peak       |             |             |             |            |             |
|----------------|------------|-------------|-------------|-------------|------------|-------------|------------|-------------|-------------|-------------|------------|-------------|
|                | Seconds    | Ratio       | Seconds     | Ratio       | Seconds    | Ratio       | Seconds    | Ratio       | Seconds     | Ratio       | Seconds    | Ratio       |
| 400.perlbench  | 376        | 26.0        | 377         | 25.9        | <b>377</b> | <b>25.9</b> | 301        | 32.4        | <b>301</b>  | <b>32.4</b> | 301        | 32.4        |
| 401.bzip2      | 497        | 19.4        | <b>496</b>  | <b>19.4</b> | 496        | 19.4        | 491        | 19.6        | <b>491</b>  | <b>19.6</b> | 490        | 19.7        |
| 403.gcc        | <b>292</b> | <b>27.5</b> | 292         | 27.5        | 292        | 27.6        | 287        | 28.0        | 288         | 28.0        | <b>288</b> | <b>28.0</b> |
| 429.mcf        | <b>162</b> | <b>56.4</b> | 163         | 56.0        | 162        | 56.4        | <b>162</b> | <b>56.4</b> | 163         | 56.0        | 162        | 56.4        |
| 445.gobmk      | 518        | 20.3        | 520         | 20.2        | <b>520</b> | <b>20.2</b> | 478        | 21.9        | 478         | 21.9        | <b>478</b> | <b>21.9</b> |
| 456.hammer     | 191        | 48.8        | <b>193</b>  | <b>48.2</b> | 194        | 48.0        | <b>191</b> | <b>48.8</b> | 191         | 48.9        | 191        | 48.8        |
| 458.sjeng      | 510        | 23.7        | 510         | 23.7        | <b>510</b> | <b>23.7</b> | 501        | 24.1        | <b>500</b>  | <b>24.2</b> | 500        | 24.2        |
| 462.libquantum | 9.35       | 2220        | <b>9.37</b> | <b>2210</b> | 9.39       | 2210        | 9.35       | 2220        | <b>9.37</b> | <b>2210</b> | 9.39       | 2210        |
| 464.h264ref    | 554        | 39.9        | 556         | 39.8        | <b>554</b> | <b>39.9</b> | 469        | 47.2        | <b>469</b>  | <b>47.2</b> | 470        | 47.1        |
| 471.omnetpp    | <b>281</b> | <b>22.2</b> | 282         | 22.2        | 277        | 22.6        | 218        | 28.6        | <b>230</b>  | <b>27.2</b> | 260        | 24.0        |
| 473.astar      | 273        | 25.7        | 271         | 25.9        | <b>272</b> | <b>25.8</b> | 273        | 25.7        | 271         | 25.9        | <b>272</b> | <b>25.8</b> |
| 483.xalancbmk  | <b>147</b> | <b>46.8</b> | 147         | 46.9        | 162        | 42.6        | <b>147</b> | <b>46.8</b> | 147         | 46.9        | 162        | 42.6        |

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  
Intel Idle Driver disabled with the following Linux kernel parameter in /etc/grub.conf:  
intel\_idle.max\_cstate=0

## Platform Notes

BIOS setting:  
Operating Mode set to Maximum Performance  
Hyper-Threading set to Disable  
Sysinfo program /home/SPECcpu-20140116-ic14.0/config/sysinfo.rev6818  
\$Rev: 6818 \$ \$Date:: 2012-07-17 #\$ e86d102572650a6e4d596a3cee98f191  
running on x3650M4 Mon Aug 18 07:26:30 2014

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 E5-2630L v2 @ 2.40GHz  
2 "physical id"s (chips)  
12 "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

Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## IBM Corporation

IBM System x3650 M4  
(Intel Xeon E5-2630L v2, 2.40 GHz)

**SPECint2006 = 46.0**

**SPECint\_base2006 = 43.3**

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

**Test date:** Aug-2014  
**Hardware Availability:** Dec-2013  
**Software Availability:** Sep-2013

### Platform Notes (Continued)

```
siblings : 6
physical 0: cores 0 1 2 3 4 5
physical 1: cores 0 1 2 3 4 5
cache size : 15360 KB
```

```
From /proc/meminfo
MemTotal:      264343088 kB
HugePages_Total:      0
Hugepagesize:    2048 kB
```

```
/usr/bin/lsb_release -d
Red Hat Enterprise Linux Server release 6.4 (Santiago)
```

```
From /etc/*release* /etc/*version*
redhat-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server
```

```
uname -a:
Linux x3650M4 2.6.32-358.18.1.el6.x86_64 #1 SMP Fri Aug 2 17:04:38 EDT 2013
x86_64 x86_64 x86_64 GNU/Linux
```

```
run-level 3 Aug 17 18:16
```

```
SPEC is set to: /home/SPECcpu-20140116-ic14.0
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/mapper/vg_x3650m4-lv_home
                ext4      313G  115G  183G  39% /home
```

```
Additional information from dmidecode:
BIOS IBM  -[VVE135VUS-1.60]- 12/05/2013
Memory:
 8x Not Specified Not Specified
16x Samsung M393B2G70QH0-CMA 16 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 = "/home/SPECcpu-20140116-ic14.0/libs/32:/home/SPECcpu-20140116-ic14.0/libs/64:/home/SPECcpu-20140116-ic14.0/sh"
OMP_NUM_THREADS = "12"
```

```
Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
memory using RedHat EL 6.4
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
runspec command invoked through numactl i.e.:
numactl --interleave=all runspec <etc>
```



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

**IBM Corporation**

IBM System x3650 M4  
(Intel Xeon E5-2630L v2, 2.40 GHz)

**SPECint2006 = 46.0**

**SPECint\_base2006 = 43.3**

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

**Test date:** Aug-2014  
**Hardware Availability:** Dec-2013  
**Software Availability:** Sep-2013

## Base Compiler Invocation

C benchmarks:  
icc -m64

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/sh -lsmartheap64

## Base Other Flags

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

## Peak Compiler Invocation

C benchmarks (except as noted below):  
icc -m64

Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

**IBM Corporation**

IBM System x3650 M4  
(Intel Xeon E5-2630L v2, 2.40 GHz)

**SPECint2006 = 46.0**

**SPECint\_base2006 = 43.3**

**CPU2006 license:** 11

**Test sponsor:** IBM Corporation

**Tested by:** IBM Corporation

**Test date:** Aug-2014

**Hardware Availability:** Dec-2013

**Software Availability:** Sep-2013

## Peak Compiler Invocation (Continued)

400.perlbench: `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`

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_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`

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`

Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

**IBM Corporation**

IBM System x3650 M4  
(Intel Xeon E5-2630L v2, 2.40 GHz)

**SPECint2006 = 46.0**

**SPECint\_base2006 = 43.3**

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

**Test date:** Aug-2014  
**Hardware Availability:** Dec-2013  
**Software Availability:** Sep-2013

## Peak Optimization Flags (Continued)

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

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/sh -lsmartheap

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-ic14.0-official-linux64.20140128.html>  
<http://www.spec.org/cpu2006/flags/IBM-Platform-Flags-V1.2-IVB-B.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml>  
<http://www.spec.org/cpu2006/flags/IBM-Platform-Flags-V1.2-IVB-B.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 Wed Sep 10 16:12:42 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 9 September 2014.