



# SPEC® CINT2006 Result

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IBM Corporation

IBM System x3850 X6  
(Intel Xeon E7-4850 v2, 2.30 GHz)

SPECint®\_rate2006 = **NC**

SPECint\_rate\_base2006 = **NC**

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

Test date: Apr-2014  
Hardware Availability: Mar-2014  
Software Availability: Nov-2013

**SPEC has determined that this result is not in compliance with the SPEC CPU2006 run and reporting rules. Specifically, the submitter has notified SPEC that the system was run with a BIOS which included a version of the Intel MRC (Memory Reference Code) that is not supported by IBM or Intel. See <http://www.spec.org/cpu2006/results/res2014q3/cpu2006-20140714-30415.h> for updated results.**

	Copies
400.perlbench	
401.bzip2	
403.gcc	
429.mcf	
445.gobmk	
456.hmmer	
458.sjeng	
462.libquantum	
464.h264ref	
471.omnetpp	
473.astar	
482.xalancbmk	

**Non-Compliant**

### Hardware

CPU Name: Intel Xeon E7-4850 v2  
CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz  
CPU MHz: 2300  
FPU: Integrated  
CPU(s) enabled: 48 cores, 4 chips, 12 cores/chip, 2 threads/core  
CPU(s) orderable: 2,4 chips  
Primary Cache: 32 KB I + 32 KB D on chip per core

Continued on next page

### Software

Operating System: Red Hat Enterprise Linux Server release 6.5 (Santiago)  
2.6.32-431.el6.x86\_64  
Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux  
Auto Parallel: No  
File System: ext4

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**for updated results.**

Secondary Cache:	256 KB I+D on chip per core	System State:	Run level 3 (multi-user)
L3 Cache:	24 MB I+D on chip per chip	Base Pointers:	32-bit
Other Cache:	None	Peak Pointers:	32/64-bit
Memory:	1 TB (64 x 16 GB 2Rx4 PC3L-12800R-11, ECC, running at 1333 MHz)	Other Software:	Microquill SmartHeap V10.0
Disk Subsystem:	1 x 400 GB SATA, SSD		
Other Hardware:	None		

## Results Table

Benchmark	Base								Peak							
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio		
400.perlbench	96	NC	NC	NC	NC	NC	NC	96	NC	NC	NC	NC	NC	NC		
401.bzip2	96	NC	NC	NC	NC	NC	NC	96	NC	NC	NC	NC	NC	NC		
403.gcc	96	NC	NC	NC	NC	NC	NC	96	NC	NC	NC	NC	NC	NC		
429.mcf	96	NC	NC	NC	NC	NC	NC	96	NC	NC	NC	NC	NC	NC		
445.gobmk	96	NC	NC	NC	NC	NC	NC	96	NC	NC	NC	NC	NC	NC		
456.hmmer	96	NC	NC	NC	NC	NC	NC	96	NC	NC	NC	NC	NC	NC		
458.sjeng	96	NC	NC	NC	NC	NC	NC	96	NC	NC	NC	NC	NC	NC		
462.libquantum	96	NC	NC	NC	NC	NC	NC	96	NC	NC	NC	NC	NC	NC		
464.h264ref	96	NC	NC	NC	NC	NC	NC	96	NC	NC	NC	NC	NC	NC		
471.omnetpp	96	NC	NC	NC	NC	NC	NC	96	NC	NC	NC	NC	NC	NC		
473.astar	96	NC	NC	NC	NC	NC	NC	96	NC	NC	NC	NC	NC	NC		
483.xalanbmk	96	NC	NC	NC	NC	NC	NC	96	NC	NC	NC	NC	NC	NC		

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

## Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.



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## Operating System Notes

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

## Platform Notes

Operating Mode set to Maximum Performance in BIOS  
Sysinfo program /cpu2006.12\_14.0\_aug2013/config/sysinfo.rev6818  
\$Rev: 6818 \$ \$Date:: 2012-07-17 # \$ e861102572650a6e4d596a3cee98f191  
running on Larry-Andromeda Thu Apr 24 09:18:10 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 E7-4850 v2 @ 2.30GHz
 4 "physical id"s (chips)
 96 "processor"s
cores, siblings (notation: counting these is hw and system dependent. The
following excerpts from /proc/cpuinfo might not be reliable. Use with
caution.
cpu cores      : 1
siblings       : 2
physical id    : 0
physical id 0  : cores 0 1 2 3 4 5 8 9 10 11 12 13
physical id 1  : cores 0 1 2 3 4 5 8 9 10 11 12 13
physical id 2  : cores 0 1 2 3 4 5 8 9 10 11 12 13
physical id 3  : cores 0 1 2 3 4 5 8 9 10 11 12 13
cache size     : 24576 KB
```

```
From /proc/meminfo
MemTotal:      1058470592 kB
HugePages_Total: 0
Hugepagesize:  2048 kB
```

```
/usr/bin/lsb_release -d
Red Hat Enterprise Linux Server release 6.5 (Santiago)
```

```
From /etc/*release* /etc/*version*
```

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## Platform Notes (Continued)

```
redhat-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server
```

```
uname -a:
Linux Larry-Andromeda 2.6.32-431.el6.x86_64 #1 SMP Sun Nov 10 22:19:54 EST
2013 x86_64 x86_64 x86_64 GNU/Linux
```

```
run-level 3 Apr 24 09:08
```

```
SPEC is set to: /cpu2006.1.2_14.0_aug2013
Filesystem                Type      Size  Used Avail Use% Mounted on
/dev/mapper/vg_larryandromed-lv_root ext4      357G  122G  217G  37% /
```

```
Additional information from dmidecode:
BIOS IBM-[A8E103KUS-1.00]-11/21/2013
Memory:
32x NO DIMM Unknown
64x Samsung Unknown 4 GB 1333 MHz 2 rank
```

(End of data from s\_sinfo program)  
Memory speed from dmidecode lists the downclocked speed of the run.

## General Notes

Environment variables set by runspec before the start of the run:  
LD\_LIBRARY\_PATH = "/cpu2006.1.2\_14.0\_aug2013/libs/32:/cpu2006.1.2\_14.0\_aug2013/libs/64:/cpu2006.1.2\_14.0\_aug2013/sh"

```
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
Filesystem page cache cleared with:
echo 1 > /proc/sys/vm/drop_caches
runspec command invoked through numactl i.e.:
numactl --interleave=all runspec <etc>
```



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## Base Compiler Invocation

C benchmarks:  
icc -m32

C++ benchmarks:  
icpc -m32

## Base Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_  
462.libquantum: -DSPEC\_CPU\_LINUX\_  
483.xalancbmk: -DSPEC\_CPU\_LINUX\_

## Base Optimization Flags

C benchmarks:  
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3

C++ benchmarks:  
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3  
-Wl,-z,relro -L/sh -lsmarthheap

## Base Other Flags

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



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## Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m32

400.perlbench: icc -m64

401.bzip2: icc -m64

456.hmmr: icc -m64

458.sjeng: icc -m64

C++ benchmarks:

icpc -m32

## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX\_X64

401.bzip2: -DSPEC\_CPU\_LP64

456.hmmr: -DSPEC\_CPU\_LP64

458.sjeng: -DSPEC\_CPU\_LP64

462.libquantum: -DSPEC\_CPU\_LINUX

483.xalancbmk: -DSPEC\_CPU\_LINUX

## Peak Optimization Flags

C benchmark:

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)  
-auto-ilp32

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## Peak Optimization Flags (Continued)

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

403.gcc: -xSSE4.2 -ipo -O3 -no-prec-div

429.mcf: basepeak = yes

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)  
-ansi-alias -opt-mem-layout-trans=3

456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32

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)  
-unroll14 -auto-ilp32

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++ benchmark

471.onnetpp: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs  
-L/sh -lsmartheap

473.astar: basepeak = yes

483.xalancbmk: basepeak = yes





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## 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-A.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-A.xml>

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

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