



# SPEC® CINT2006 Result

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IBM Corporation

IBM System x3690 X5 (Intel Xeon E7-2870, 2.40 GHz)

SPECint®2006 =

SPECint\_base2006

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

Test date: Feb-2012  
Hardware Availability: May-2011  
Software Availability: Feb-2012

**SPEC has determined that this result is not in compliance with the SPEC CPU2006 run and reporting rules. Specifically, the submitter reported that the result does not meet the 3 month availability requirement in the SPEC CPU2006 run rules, because the tested processor was not supported on this platform within three months of publication. Results using the processor can be found at <http://www.spec.org/cpu2006/results/res2012q3/cpu2006-2012>**

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

**Non-Compliant**

### Hardware

CPU Name: Intel Xeon E7-8870  
CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz  
CPU MHz: 2400  
FPU: Integrated  
CPU(s) enabled: 20 cores, 2 chips, 10 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: 30 MB I+D on chip per chip

Continued on next page

### 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

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Other Cache: None  
Memory: 256 GB (32 x 8 GB 4Rx8 PC3-8500R-7, ECC)  
Disk Subsystem: 1 x 300 GB SAS, 10000 RPM  
Other Hardware: None

Other Software: Microsoft SmartHeap V9.01

## Results Table

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

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

Turbo Boost Power Optimization set to Traditional in BIOS  
Sysinfo program /cpu2006.1.2/config/sysinfo.rev6800  
\$Rev: 6800 \$ \$Date:: 2011-10-11 #\$ 6f2ebdff5032aaa42e583f96b07f99d3  
running on megallon-pete Fri Feb 17 10:33:56 2012

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see:

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## Platform Notes (Continued)

<http://www.spec.org/cpu2006/Docs/config.html#sysinfo>

```
From /proc/cpuinfo
model name      : Intel(R) Xeon(R) CPU E7-2870 @ 2.40GHz
 2 "physical id"s (chips)
 40 "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    : 10
  siblings    : 20
  physical 0   : cores 0 1 2 3 4 5 6 7 8 9 16 17 18 24 25
  physical 1   : cores 0 1 2 3 4 5 6 7 8 9 16 17 18 24 25
cache size     : 30720 KB
```

```
From /proc/meminfo
MemTotal:      264509312 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 megallon-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 Feb 15 17:35

```
SPEC is set to: /cpu2006.1.2
Filesystem      Type      Size      Used Avail Use% Mounted on
/dev/mapper/vg_megallonpete-lv_root
                ext4      264G      81G  170G  33% /
```

Additional information from dmidecode:

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## Platform Notes (Continued)

Memory:  
32x Hynix HMT31GR7BFR8A-G7 8 GB 1067 MHz 4 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 = "20"

Binaries compiled on a system with Intel Xeon 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  
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

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## Base Portability Flags (Continued)

464.h264ref: -DSPEC\_CPU\_LP64  
471.omnetpp: -DSPEC\_CPU\_LP64  
473.astar: -DSPEC\_CPU\_LP64  
483.xalancbmk: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_

## 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):  
gcc -m64  
400.perlbench: gcc -m32  
445.gobmk: gcc -m32  
464.h264ref: gcc -m32  
C++ benchmarks (except as noted below):  
icpc -m32

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## Peak Compiler Invocation (Continued)

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-alloc -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

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## Peak Optimization Flags (Continued)

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

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-ia-reason-strategy=block -ansi-alias -Wl,-muldefs -L/smartheap -lsmartheap

473.astar: basepeak = yes

483.xalancbmt: -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias -Wl,-z,muldefs -L/smartheap -lsmartheap

## Peak Other Flags

C benchmarks:

07.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-WSM-A.20120328.html>





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

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64-20120228.xml>  
<http://www.spec.org/cpu2006/flags/IBM-Platform-Flags-V1.2-WSM-A-20120228.xml>

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

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