



# SPEC® CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## IBM Corporation

**SPECint®2006 = 22.0**

### IBM System x3690 X5 (Intel Xeon E7-2803)

**SPECint\_base2006 = 20.8**

CPU2006 license: 11

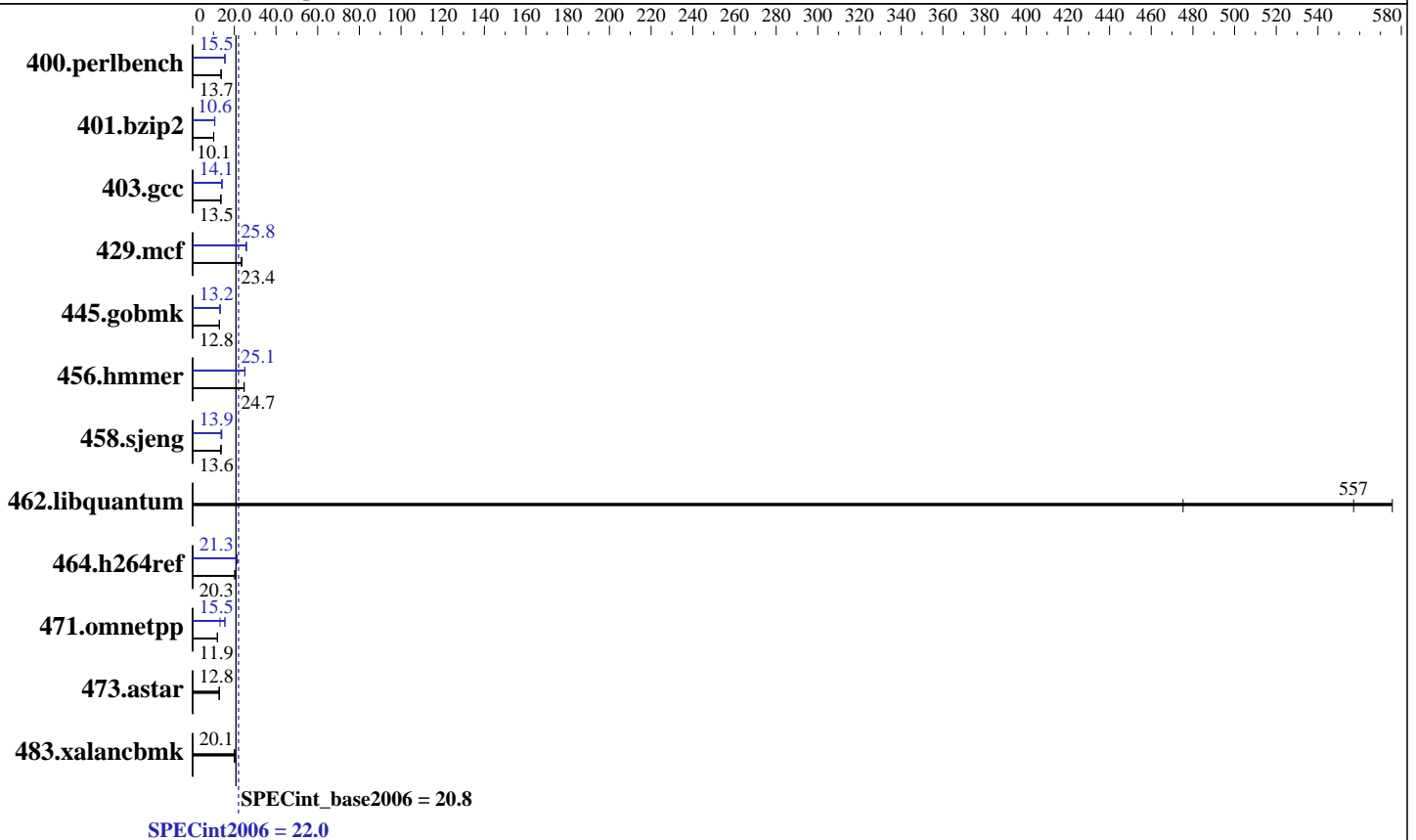
Test date: May-2011

Test sponsor: IBM Corporation

Hardware Availability: May-2011

Tested by: IBM Corporation

Software Availability: Jan-2011



### Hardware

CPU Name: Intel Xeon E7-2803  
 CPU Characteristics:  
 CPU MHz: 1733  
 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: 18 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 256 GB (32 x 8 GB 4Rx8 PC3-8500R-7, ECC, running at 800 MHz)  
 Disk Subsystem: 1 x 300 GB SAS, 10000 RPM  
 Other Hardware: None

### Software

Operating System: SUSE Linux Enterprise Server 11 SP1 (x86\_64), Kernel 2.6.32.12-0.7-default  
 Compiler: Intel C++ Intel 64 Compiler XE for applications running on Intel 64 Version 12.0.1.116 Build 20101116  
 Auto Parallel: Yes  
 File System: ext3  
 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 = 22.0

IBM System x3690 X5 (Intel Xeon E7-2803)

SPECint\_base2006 = 20.8

CPU2006 license: 11

Test date: May-2011

Test sponsor: IBM Corporation

Hardware Availability: May-2011

Tested by: IBM Corporation

Software Availability: Jan-2011

## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	714	13.7	716	13.6	<b>714</b>	<b>13.7</b>	630	15.5	<b>631</b>	<b>15.5</b>	631	15.5
401.bzip2	<b>954</b>	<b>10.1</b>	958	10.1	954	10.1	<b>910</b>	<b>10.6</b>	909	10.6	913	10.6
403.gcc	596	13.5	593	13.6	<b>596</b>	<b>13.5</b>	572	14.1	<b>572</b>	<b>14.1</b>	576	14.0
429.mcf	386	23.6	391	23.3	<b>390</b>	<b>23.4</b>	353	25.8	356	25.6	<b>354</b>	<b>25.8</b>
445.gobmk	818	12.8	<b>817</b>	<b>12.8</b>	815	12.9	799	13.1	794	13.2	<b>797</b>	<b>13.2</b>
456.hammer	378	24.7	378	24.7	<b>378</b>	<b>24.7</b>	372	25.1	<b>372</b>	<b>25.1</b>	373	25.0
458.sjeng	893	13.5	888	13.6	<b>893</b>	<b>13.6</b>	890	13.6	869	13.9	<b>869</b>	<b>13.9</b>
462.libquantum	43.6	475	<b>37.2</b>	<b>557</b>	36.0	576	43.6	475	<b>37.2</b>	<b>557</b>	36.0	576
464.h264ref	1097	20.2	1080	20.5	<b>1090</b>	<b>20.3</b>	<b>1039</b>	<b>21.3</b>	1038	21.3	1039	21.3
471.omnetpp	<b>524</b>	<b>11.9</b>	522	12.0	530	11.8	476	13.1	<b>404</b>	<b>15.5</b>	404	15.5
473.astar	<b>549</b>	<b>12.8</b>	551	12.7	548	12.8	<b>549</b>	<b>12.8</b>	551	12.7	548	12.8
483.xalancbmk	343	20.1	<b>343</b>	<b>20.1</b>	344	20.1	343	20.1	<b>343</b>	<b>20.1</b>	344	20.1

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

## Operating System Notes

```
'ulimit -s unlimited' was used to set the stacksize to unlimited
'nodenv /mnt/hugepages hugetlbfs defaults 0 0' added to /etc/fstab
echo 900 > /proc/sys/vm/nr_hugepages
export HUGETLB_MORECORE=yes
export LD_PRELOAD=/usr/lib64/libhugetlbfs.so
```

## General Notes

OMP\_NUM\_THREADS set to number of cores  
Binaries compiled on RHEL 5.5

## Base Compiler Invocation

C benchmarks:  
icc -m64

C++ benchmarks:  
icpc -m64

## Base Portability Flags

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

Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

SPECint2006 = 22.0

IBM System x3690 X5 (Intel Xeon E7-2803)

SPECint\_base2006 = 20.8

CPU2006 license: 11

Test date: May-2011

Test sponsor: IBM Corporation

Hardware Availability: May-2011

Tested by: IBM Corporation

Software Availability: Jan-2011

## Base Portability Flags (Continued)

```

401.bzip2: -DSPEC_CPU_LP64
403.gcc: -DSPEC_CPU_LP64
429.mcf: -DSPEC_CPU_LP64
445.gobmk: -DSPEC_CPU_LP64
456.hmmr: -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
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

```

C++ benchmarks:

```

-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs
-L/smartheap -lsmartheap64
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

```

## Base Other Flags

C benchmarks:

```

403.gcc: -Dalloca=_alloca

```

## Peak Compiler Invocation

C benchmarks (except as noted below):

```

icc -m64

```

```

400.perlbench: icc -m32

```

```

429.mcf: icc -m32

```

```

445.gobmk: icc -m32

```

```

464.h264ref: icc -m32

```

C++ benchmarks (except as noted below):

```

icpc -m64

```

Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

SPECint2006 = 22.0

IBM System x3690 X5 (Intel Xeon E7-2803)

SPECint\_base2006 = 20.8

CPU2006 license: 11

Test date: May-2011

Test sponsor: IBM Corporation

Hardware Availability: May-2011

Tested by: IBM Corporation

Software Availability: Jan-2011

## Peak Compiler Invocation (Continued)

471.omnetpp: icpc -m32

## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_IA32  
 401.bzip2: -DSPEC\_CPU\_LP64  
 403.gcc: -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  
 -B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

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  
 -B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

429.mcf: -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 -ansi-alias  
 -B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)  
 -auto-ilp32 -ansi-alias  
 -B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32  
 -ansi-alias  
 -B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

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 SPECint2006 = 22.0

IBM System x3690 X5 (Intel Xeon E7-2803) SPECint\_base2006 = 20.8

<b>CPU2006 license:</b> 11	<b>Test date:</b> May-2011
<b>Test sponsor:</b> IBM Corporation	<b>Hardware Availability:</b> May-2011
<b>Tested by:</b> IBM Corporation	<b>Software Availability:</b> Jan-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
             -B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT
```

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
             -B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT
```

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-ic12.0-linux64-revB.html>  
<http://www.spec.org/cpu2006/flags/IBM-platform-linux64-revA.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.xml>  
<http://www.spec.org/cpu2006/flags/IBM-platform-linux64-revA.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 v1.1.  
Report generated on Wed Jul 23 17:41:04 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 21 June 2011.